April 2008

Remedial Design Work Plan

Environmental Restoration Project
Clean Water/Clean Air Bond Act of 1996

Former Dix Avenue Drive-In Theater
1177 & 1189 Dix Avenue
Town of Kingsbury
Washington County, New York
ERP Site No. B00151

Prepared for:

THE TOWN OF KINGSBURY
210 Main Street
Hudson Falls, New York 12839-1814

Prepared by:

C.T. MALE ASSOCIATES, P.C.
50 Century Hill Drive
P.O. Box 727
Latham, New York 12110
518.786.7400
FAX 518.786.7299
C.T. Male Project No.: 07.7412

ENVIRONMENTAL RESTORATION PROJECT
REMEDIAL DESIGN WORK PLAN
FORMER DIX AVENUE DRIVE-IN THEATER
TOWN OF KINGSBURY, NEW YORK

TABLE OF CONTENTS

ENVIRONMENTAL RESTORATION PROJECT
REMEDIAL DESIGN WORK PLAN
FORMER DIX AVENUE DRIVE-IN THEATER
TOWN OF KINGSBURY, NEW YORK

TABLE OF CONTENTS (CONTINUED)

FIGURES

APPENDICES

1.0 INTRODUCTION

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the Former Dix Avenue Drive-In Theater site located 1177 and 1189 Dix Avenue in the Town of Kingsbury, Washington County, New York. The components of the remedy are detailed in the March 2003 Environmental Restoration Record of Decision (ROD), as prepared by NYSDEC and attached hereto as Appendix A.

For implementation of the NYSDEC selected remedy, a detailed design and construction of the remedy conceptualized in the ROD is required. This Remedial Design (RD) Work Plan is intended to identify the documents that will be prepared as part of the detailed design, and provides a schedule for their submittal.

The result of the Remedial Design is a set of plans, specifications and construction cost estimates which are suitable for bidding and construction.

1.1 Remedial Action Approach

The selected remedial action for the Former Dix Avenue Drive-In Theater site is generalized as "soil excavation". The specific elements of the selected remedy as summarized from the NYSDEC ROD are as follows:

- The collection of PCB surface soil samples during the design of the remedy to delineate the areas to be excavated.
- Excavate the contaminated soils to a depth of 6 inches. The excavated soil would be disposed of in accordance with NYSDEC regulations.
- Confirmation soil samples would be taken to verify that soil contaminated with PCB concentrations exceeding the referenced TAGM 4046 guidance values have been excavated. The TAGM 4046 guidance values referenced in the ROD were greater than 1 ppm for surface soils and greater than 10 ppm for subsurface soils. According to the DEC Project Manager for this Environmental Restoration Program project, the guidance values promulgated in TAGM 4046 will not be utilized for this project as they have been superseded by updated Soil Cleanup

Objectives (SCOs). These SCOs are promulgated in the New York State Department of Environmental Conservation Division of Environmental Remediation 6 NYCRR Part 375 Environmental Remediation Programs, Effective December 14, 2006 (Part 375). Based on the site's potential for commercial development on its southern portion nearest Dix Avenue and multi-family residential development on its remaining portions, the SCOs applicable to this future development scenario are Restricted Commercial and Restricted Residential. Both these potential uses are assigned SCOs for PCBs at 1 ppm. The Part 375 SCO tables are included in Appendix B for reference.

- Seed and mulch the excavated area to prevent erosion.

In addition to the above remedy and pursuant to observations made during a recent site visit and consultation with the Town, it is anticipated that the site's existing Ticket Booth structure and Projection Booth/Snack Bar structure will be demolished and transported off-site to a facility permitted to accept such wastes. Prior to the demolition of the Ticket Booth structure, a survey for the presence of asbestos containing materials (ACMs) will need to be conducted to aid in the development of bidding documents. The Projection Booth/Snack Bar structure has been razed by the Town in response to safety issues related to unauthorized access to the building by the public. The razed structure is currently located within its former footprint and a temporary fence has been erected around it. Subsequent to its razing, it was determined that ACMs were present within the building debris. These ACMs consisted of floor tile, roof flashing and transite wall board. The ACMs will need to be abated by a licensed contractor during remaining demolition activities for the structure.

The Town will be seeking reimbursement for the investigative task of completing the ACM survey which would be eligible for 90% reimbursement from NYSDEC under the ERP. The Town will also be seeking reimbursement for the demolition and asbestos abatement activities which would be eligible for a maximum of 50% reimbursement understanding that the remedial action scope of work described herein is not predominantly demolition of structures or indoor asbestos abatement.

1.2 Remedial Treatment Units

The remedial treatment units for the Former Dix Avenue Drive-In Theater site consist of PCB impacted surface soils making up the southern portion of the site and the Ticket Booth and Projection Booth/Snack Bar structures located on southern portions of the site. A Site Survey and Proposed Remedial Design Sampling Locations Map prepared by C.T. Male showing site features are presented as Figures 1 and 2, respectively.

Per the NYSDEC ROD (Appendix A), select areas within the southern portion of the site containing the access roads and parking areas for the former drive-in will require the remediation of surface soils containing PCBs at concentrations equal to, or exceeding 1 part per million (ppm). The surface soils will be remediated to a vertical depth of 6-inches below the ground surface (bgs). The results of the remedial design investigation will be used to determine if soils below 6 inches in depth will require removal and to establish the horizontal extent of the proposed soil excavation promulgated in Figure 5 of the ROD. The vertical depth of PCB impacted soils will be reconfirmed as a result of the regrading into the site's surface of former surface soil mounds that were historically utilized to allow drive-in customers an unobstructed view of the cinema screen. The horizontal extent of the soil excavation will be reconfirmed because the excavation boundaries presented in the ROD (Figure 5) are not to scale and could only be approximated on Figure 2.

1.2.1 PCB Impacted Surface Soils

The NYSDEC-delineated remedial boundaries (not to scale) for the site (Figure 5 of the ROD) were predicated on analytical results for PCBs from surface soil, subsurface soil and groundwater samples collected in 1997 and 2001. The historic soil sampling locations and analytical results are depicted in Figures 2, 3 and 4 and Tables 1 and 2 of the ROD. As noted in the Figures, the surface soil samples for the most part were collected from the site perimeter, from areas to the south of the Projection Booth/Snack Bar, north of the Ticket Booth, and to a lesser extent within the southern portion of wooded areas making up the northern portion of the site. Of the samples collected, nine (9) samples exceeded the SCO of 1 ppm, with none of the samples exceeding 10 ppm. The sampling locations where PCBs exceeded SCOs were generally located to the northern portion of the drive-in parking area (Samples S1S, S2S and 12S in Figure 3 of the ROD), south of the Projection Booth/Snack Bar, and north of the Ticket Booth

(Samples 17S, 22S and 43D in Figure 3 of the ROD and Samples 1, 2 and 7 in Figure 4 of the ROD).

As stated in the ROD, the soil remediation for the site "would involve excavating a maximum amount of approximately 3,184 tons of PCB contaminated surface soil from various areas of the approximately 7 acre site that was used as the drive-in movie theater."

There are no wetlands, streams or other habitats within the site's confines that will be impacted by the proposed remedial action for the site.

1.2.2 Ticket Booth and Projection Booth/Snack Bar Structures

The Ticket Booth structure is located on the southeastern portion of the site and the Projection Booth/Snack Bar structure is located on the south central portion of the site. Both structures are depicted on Figure 1.

The Projection Booth/Snack Bar structure was in part razed and left on-site in response to safety issues from unauthorized public access into the structure. Subsequent to its razing, the Town identified asbestos containing materials (ACMs) in the structure's demolished building materials. The ACMs were non-friable and consisted of floor tile, roof flashing and transite wall board. The ACMs will be abated by a licensed asbestos abatement contractor and portions of the building not containing ACMs will be disposed of off-site as construction and demolition (C&D) debris. The methods for the abatement and disposal of this structure will be in accordance with NYS Department of Labor (DOL) Code Rule 56 and will be detailed in the bidding plans and specifications. Prior to its razing, the Projection Booth/Snack Bar structure had an approximate footprint of 2,600 square feet. The building rubble from the demolition of the building may extend beyond the limits of its original footprint.

It is the intention of the Town to demolish the Ticket Booth and to dispose of this structure off-site as C&D debris. Prior to its demolition, an asbestos survey will be conducted for the presence of ACMs. Identified ACMs will be abated by a licensed asbestos abatement contractor prior to demolition of the building. The Ticket Booth has an approximate footprint of 50 square feet.

1.3 Analytical Summary Tables

Surface soil, subsurface soil and groundwater samples were collected as part of past investigations conducted on the site in 1997 and 2001. The investigations were conducted by NYSDEC and by others under the supervision of NYSDEC. The analytical results are summarized in Tables 1 and 2, and in Figures 2, 3 and 4 of the ROD (Appendix A).

1.4 Applicable NYS Standards, Criteria and Guidance (SCGs)

The site consists of an approximate 14.9 acre parcel of land whereas the southern portion of the site (± 7 acres) was utilized as the former drive-in and is the subject of this remedial action. The contemplated use of the parcel, as identified in the ROD, is for commercial-light industrial use. However, the site may also be used for residential purposes should portions of the site undergo future development into multi-family residences. As such, the applicable SCG for PCBs that is the goal of the remedial action is presented in the table below.

Media	Regulation	SCGs Reference	SCG
Surface Soil	6NYCRR Part 375 (December 14, 2006)	Table 375-6.8(b) Restricted Use (Residential and Commercial) Soil Cleanup Objectives	1 ppm for PCBs

A copy of the December 14, 2006 6NYCRR Part 375 Table 375-6.8(b) is included in Appendix B for reference.

1.5 Remedial Design Submittals

The submittals for the Remedial Design will be issued at 30%, 75% and 95% of final design. The 30% design will consist of the submission of this Remedial Design Work Plan. The 75% design will consist of the submission of the Remedial Design Report. The 95% design will consist of the design plans and specifications to be used for public bidding. Each of these design stages will require NYSDEC review and input.

Final design documents will be submitted to NYSDEC for approval prior to advertisement to bid. The final design submission of the plans and specifications will be all inclusive, and signed and stamped by a professional engineer licensed to practice in New York State. Submission of final plans and specifications is expected to be in Spring 2008.

The Quality Assurance Project Plan (QAPP) for the soil sampling aspect of this Remedial Design Work Plan is attached hereto as Appendix C. A separate QAPP for the remedial action will be prepared and submitted separately as a part of the Remedial Design Report. The QAPP for the remedial action will include, but is not limited to the following:

- The methods that will be utilized to verify the PCB impacted soils are excavated vertically and horizontally to those depths specified in the plans and specifications.
- The analytical requirements for the imported fill materials and for waste characterization.

1.6 Remedial Design Schedule

A proposed schedule outlining the remedial design and remedial action implementation major work tasks has been prepared and provided as Appendix D. The schedule also indicates project milestones and targeted submission dates for reports.

2.0 REMEDIAL DESIGN SAMPLING

2.1 General

For preparation of technical plans and specifications and construction cost estimates, additional soil sampling is necessary to define the boundaries for the remedial action. The sampling will also be used to establish the vertical extent of PCB impacted soils and end points for excavation, and to preclude having to collect confirmatory samples after soils have been removed. The soil sampling requirements are further described in Section 2.1.1.

An asbestos survey will be conducted of the Ticket Booth for the presence of ACMs prior to its demolition. The asbestos survey sampling is further described in Section 2.1.2.

2.1.1 Soil Sampling

The "Limits of Soil Excavation" depicted on Figure 2 was established from the "Maximum Area Proposed for Remediation" depicted on Figure 5 of the ROD for the site. Figure 5 of the ROD is not to scale, therefore, the "Limits of Soil Excavation" depicted on Figure 2 could only be approximated.

To further substantiate the areas requiring soil removal as presented in the ROD, a 40' by 40' sampling grid will be established over the estimated "Limits of Soil Excavation". Per the ROD, soil samples are required to be collected during the design of the remedy to further delineate the areas required to be excavated. The soil samples collected for PCB analysis as part of this Remedial Design Work Plan will also serve as the soil excavation confirmation end-point samples for the proposed site remediation. Soil samples will be collected at each sampling location at depth intervals of 0" to 6", 6" to 9" and 9" to 12" below the ground surface (bgs) to delineate the horizontal and vertical extent of soils impacted by PCBs at concentrations greater than 1 part per million (ppm) within the "Limits of Soil Excavation". Soil samples collected at the 0" to 6" bgs and 6" to 9" bgs depth intervals will be analyzed in the laboratory for PCBs by EPA Method 8082. Soil samples collected at 9" to 12" bgs will undergo laboratory extraction and will only be analyzed in the event that the 6" to 9" bgs soil sample collected at the same sampling location reveals PCB concentrations greater than 1 ppm. In the event that

analytical results from soil samples collected from the perimeter of the "Limits of Soil Excavation" indicate PCB concentrations greater than 1 ppm, additional soil samples will be collected beyond the perimeter of the "Limits of Soil Excavation" to further define the extent of PCB impacts to soils. Conversely, if the analytical results of soil samples from select sampling locations do not reveal PCBs above SCOs, the "Limits of Soil Excavation" will be adjusted accordingly with approval from the NYSDEC Project Manager.

During the soil sampling event, portions of the site lying outside of the "Limits of Soil Excavation" will be visually surveyed for noticeable depressions in surface grade which may be indicative of where stormwater runoff may accumulate. Per consultation with the NYSDEC Project Manager, soil samples may be collected from these depression areas and analyzed for PCBs. Additionally, sampling locations within the "Limits of Soil Excavation" may be skewed to areas of surface depression.

The number of sampling cells has been selected to generally correspond with the post remediation sampling requirements promulgated in NYSDEC Division of Environmental Remediation DRAFT DER-10 Technical Guidance for Site Investigation and Remediation, December 2002. Sections 5.4(1) and 5.4(2) of DER-10 states that: *"for surface spills, one sample from the top of each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 feet of bottom area." "For larger excavations, sampling frequency may be reduced if documentation acceptable to the DER is provided in the remedial action report, in accordance with section 5.8, specifying why the sample frequency was considered adequate."* Based on similar site use across the entire "Limits of Excavation" (approximately 146,200 square feet), the sampling frequency proposed is one sample from the excavation bottom for every 1,600 square feet (40′ by 40′ grid). Additional post excavation soil samples may be collected after the actual excavation is completed.

The samples will be collected via the manual advancement of shovel pits employing a hand spade. The laboratory samples will be collected from a newly exposed sidewall of the shovel pit at the proposed depth intervals. The soil stratum at each of the sampling locations will be recorded in the field on Test Pit Logs. Upon collection of laboratory samples, additional soils will be screened for organic vapors with a photoionization detector (PID) and the results recorded on Organic Vapor Headspace Logs.

The field sampling procedures will be performed in accordance with the Field Sampling Plan (FSP), which is included in Appendix E. In general, the following procedures will be followed during the soil sampling event.

Prior to the advancement of the shovel pit, vegetation at the ground surface will first be removed. The shovel pit will then be advanced a vertical depth of ±2 feet bgs and the sidewalls of the pit exposed. A sufficient volume of soil will be collected from each of the sampling depth intervals and placed directly into the laboratory provided containers. The soil samples will be collected at each sampling interval from each of the test pits employing either a decontaminated stainless steel sampling trowel/spoon or by hand wearing new, clean, nitrile gloves. Decontamination water generated from cleaning sampling equipment will be stored in DOT approved 55-gallon drums and handled and disposed of with other remedial wastes generated during the remedial action.

The soil samples will be forwarded to the laboratory under proper chain-of-custody procedures and analyzed for the Target Compound List (TCL) for PCBs by EPA Method 8082 by a NYSDOH ELAP approved laboratory. The samples will require ASP Category B data deliverable packages and subject to NYSDEC Data Usability Summary Report (DUSR) validation. Quality Assurance/Quality Control (QA/QC) samples will be collected at a ratio of 1 set QA/QC samples per 20 soil samples and will consist of a duplicate/replicate sample, matrix spike, matrix spike duplicate, and field (equipment) blank.

Field analytical methods, such as PCB analysis employing immuno-assay field kits, are not anticipated to be utilized during the sampling event. Review of technical literature for the RaPID Assay© immuno-assay field test kit showed the kit capable of detecting the PCB Aroclor 1254 only. Another field test kit employing field test reagents for PCBs (L2000DX Soil Reagents (LP-SRK)) had a method detection limit of 3 ppm, which is above the site's remedial SCO goal of less than 1 ppm. Additionally, without ELAP certification, screening tools such as these are not acceptable for the purpose of evaluating exposures related to dermal or ingestion exposures to PCB contaminated soil.

The analytical results of the sampling event will be described in the Remedial Design Report, and incorporated in the remedial design plans and specifications. The findings will also aid in the development of the construction cost estimate.

2.1.2 Asbestos Survey and Sampling

An asbestos survey of the Ticket Booth structure will be conducted for the presence of ACMs prior to its demolition. An asbestos survey of the Projection Booth/Snack Bar structure is not necessary as ACMs have already been identified within this structure and will be abated in tandem with the remaining demolition of this structure. The results of the asbestos survey will be described in the Remedial Design Report, and incorporated in the remedial design plans and specifications. The findings will also aid in the development of the construction cost estimate.

3.0 PLANS AND SPECIFICATIONS

3.1 Stormwater Management

Based on review of the stormwater regulations and FAQs About Permit Requirements (Question #18), Question #5 of the Notice of Intent (NOI), this ERP project would be exempt from coverage under the General Permit because it is a Department approved remediation project. However, the following activities will be performed to fulfill the substantial technical requirements of the permit for the planned remedial activities:

1) A Stormwater Pollution Prevention Plan (SWPPP) will be prepared in accordance with the New York Guidelines for Urban Erosion and Sediment Control and the New York State Stormwater Management Design Manual for erosion and sediment controls and water quantity and water quality controls. This will provide guidance to the contractor conducting the remedial work, and will be made part of Contract Documents.

2) Submit a NOI to NYSDEC upon completion of SWPPP to document the project exists although permit coverage will not be granted. The NOI will be completed up to question #5 and left blank for the remainder of the form.

3) Design and prepare applicable Erosion and Sediment Control (ESC) plans for implementing the remedy in accordance with the stormwater regulations. These plans will be made part of the Contract Documents.

3.2 Health and Safety Plan (HASP)

A Health and Safety Plan (HASP) describing the minimum acceptable goals for protection will be included in the bid specifications. The successful bidder(s) for the site remedy will be required to provide a site specific HASP that is certified by a Certified Industrial Hygienist or equivalent. The contractor's employees will be required to have read and understood their company's site specific HASP prior to completing the work.

Health and safety procedures to be followed by C.T. Male personnel during the soil sampling and remedial efforts will be developed and incorporated in a site specific

HASP. The HASP will be developed prior to the initiation of any field work and will be presented under separate cover.

A copy of the health and safety plans will be available at the site during the performance of soil sampling and remedial activities to which they are applicable.

3.3 Operations, Maintenance and Monitoring (OM&M) Plan & Manual

Because the remedy for the site will include the excavation and off-site disposal of identified PCB impacted soils and the demolition and off-site disposal of two on-site structures, an Operations, Maintenance and Monitoring (OM&M) Plan and Manual will not be required for this project.

3.4 Long-Term Groundwater Monitoring

Per the NYSDEC ROD for the site, a long-term groundwater monitoring plan will not be required for this project as the PCB impacts requiring remediation are restricted to surface soils only.

3.5 Dust Control

Dust suppression techniques will be required as necessary to control fugitive dust to the extent practical during remediation. Such techniques must be employed, at a minimum, if the community air monitoring results indicate that particulate levels are above action levels. All reasonable attempts will be made to inhibit visible and/or fugitive dusts. Techniques to be utilized by the contractor may include one or more of the following:

- Applying water to haul roads.
- Wetting equipment and excavation faces.
- Spraying water on buckets during excavation and dumping.
- Hauling materials in properly tarped containers or vehicles.
- Restricting vehicle speeds on-site.
- Covering excavated areas and materials after excavation immediately after activity ceases.

The contractor will be required to perform dust control measure in a manner consistent with the applicable portions of the "New York Guidelines for Urban Erosion and Sediment Control" and the "New York State Stormwater Management Design Manual".

3.6 Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) will be administered by C.T. Male during ground intrusive remedial activities (i.e., excavation and handling of site soils). The intent of CAMP is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The CAMP is not intended for use in establishing action levels for worker respiratory protection. The CAMP will monitor the air for dust (particulate air monitoring, see Section 3.6.1) and volatile organic compound vapors (VOC air monitoring, see Section 3.6.2) at the downwind perimeter of each designated work area. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown.

3.6.1 Particulate Air Monitoring

C.T. Male will utilize three (3) real-time particulate monitors capable of continuously measuring concentrations of particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less). The instruments will be placed at temporary monitoring stations based on the prevailing wind direction each day, one upwind and two downwind of the work area. The prevailing wind direction will be monitored employing a weather station. The wind direction will de documented at the commencement of the work day, at the middle of the work day and at the conclusion of the work day, and the dust monitor locations adjusted according to the prevailing wind direction. The particulate monitoring instruments will be capable of displaying the short term exposure limit (STEL) or 15 minute averaging period, which will be field checked and recorded for comparison to the NYSDOH Generic Community Air Monitoring Plan action levels for VOCs, as listed below. The particulate readings will be manually monitored, but the instruments are programmed to alarm at preset action levels. Instantaneous readings will be recorded periodically

throughout the work day. At the end of each day, the readings for each instrument will be downloaded to a PC and retained for future reference and reporting.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

In the event of poor weather such as heavy snow or rain, particulate monitoring will not be performed for protection of instrumentation. These weather conditions would limit the effectiveness of the sensitive monitoring equipment and likely suppress particulate generation. During poor weather, activities will be visually observed and halted if fugitive dust migration is sustained for a 15-minute period of time.

3.6.2 Volatile Organic Compound Air Monitoring

During the remedial action, volatile organic compounds (VOCs) at the downwind perimeter of the immediate work area will be monitored on a periodic basis with a MiniRAE 2000 handheld VOC monitor or equal. Upwind concentrations will also be measured at the start of the work day and periodically thereafter to evaluate the site's background conditions. This unit is capable of displaying the STEL (15 minute averaging period) which will be field checked and recorded for comparison to the NYSDOH Generic Community Air Monitoring Plan action levels for VOCs, as listed below. The VOC readings (STEL) will be manually recorded for future reference and reporting. Instantaneous readings will be recorded periodically during the work day.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per

instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background, but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown. Work activities will then be evaluated to determine the source and engineering controls required to reduce/eliminate organic vapors.

3.7 Post-remediation Verification Samples

Analytical results of soil samples collected as part of the Remedial Design Work Plan will serve as the post-remediation verification samples. A detailed discussion of the sampling locations and frequency is provided in Section 2.1.1.

3.8 Waste Characterization

Analytical sampling will be required for on-site soil planned for off-site disposal. The frequency and parameters of the sampling will be dictated by the disposal facility accepting the material. The disposal location must be permitted by NYSDEC to accept the materials requiring disposal. The contractor awarded the remediation work will be required to perform appropriate waste characterization for proper waste disposal as part of contract documents.

If remedial activities at the site reveal unforeseen or unexpected conditions such as drums or unusually discolored soil, supplemental analytical testing (i.e., TCLP testing) may be required. If these conditions are encountered, NYSDEC will be consulted as to the frequency and parameters of supplemental analytical requirements beyond what may be required for waste characterization and off-site disposal.

3.9 Backfill and Compaction

It is anticipated that the remedial soil excavation will extend to an approximate depth of 6-inches bgs. The excavation will need to be backfilled with imported fill. The type of backfill and method of compaction will be provided to return the site to original grades in a manner to stabilize site soils and prevent future erosion. This will be accomplished by compacting the backfill and restoring the surface area to original condition. A minimum of two inches of topsoil will be placed and the vegetation must be re-established in the disturbed areas.

Laboratory testing of the imported excavation backfill from an off-site source will be required to document adequate environmental quality. The imported material will be required to satisfy the following criteria:

- Off-site borrow soils that are documented as having originated from locations having no evidence of disposal or release of hazardous, toxic or radioactive substances, wastes products, chemical products or petroleum products.

- Off-site soil that does not meet the definition of solid waste in accordance with 6NYCRR Part 360-1.2(a).

- Virgin soil (i.e., derived from a natural pit) that is documented in writing to be native soil material from areas not having supported any known prior historical industrial, commercial development, or agricultural use. Virgin soil will be subject to collection of one representative composite sample per source. The sample should be analyzed for the Target Compound List (TCL) volatile organic compounds, semi-volatile organic compounds, pesticides, PCBs, and metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver and cyanide). The soil will be acceptable for use as backfill provided that all parameters are equal to or below site SCGs.

- Non-virgin soils (i.e., not derived from a natural pit) that will be analyzed at a frequency of one composite sample for every 500 cubic yards of material from each source area. If more than 1,000 cubic yards of soil are borrowed from a given off-site non-virgin soil source area and both samples for the first 1,000 cubic yards meet site SCGs, the sample collection frequency will be reduced to one composite sample for every 2,500 cubic yards of additional soils from the same source, up to 5,000 cubic

yards. For borrow sources greater than 5,000 cubic yards, sampling frequency may be reduced to one sample for every 5,000 cubic yards, provided previous samples met site SCGs.

3.10 Applicable Permits

The necessity for obtaining local, State or Federal permits was evaluated for implementation of the remedial action. There were no permits identified for implementing the remedial action.

FIGURE 1

SITE SURVEY

XREFS: NONE

PROJECT NUMBER:07.7412

CAD DWG. FILE NAME: FIGURE 1.DWG

Lands Now or Formerly of
KINGSWOOD VILLAGE, LLC.
Book 1980 Page 250
Tax Map I.D. No. 146.14-1-1.1

Lands Now or Formerly of
LAWRENCE N. STEVENS
Book 2224 Page 90
Tax Map I.D. No. 146.14-1-6

Lands Now or Formerly of
JOSEPH L. MORRILL & MARILYN S. MORRILL
Book 951 Page 49
Tax Map I.D. No. 146.14-1-5

Lands Now or Formerly of
TOWN OF KINGSBURY
Book 703 Page 246
Tax Map I.D. No. 146.14-1-3

AREA=850136.30± SQ. FT OR 14.93± ACRES

Lands Now or Formerly of
LAWRENCE J. MOAK & ILENE H. MOAK
Book 409 Page 806
Tax Map I.D. No. 146.14-1-4

Lands Now or Formerly of
BRIAN G. VADNAIS
Book 746 Page 237
Tax Map I.D. No. 146.14-1-43

RAZED PROJECTION
BOOTH/SNACK BAR STRUCTURE

Lands Now or Formerly of
RALPH G. KIBLING
Book 459 Page 403
Tax Map I.D. No. 146.14-1-61

TICKET BOOTH

Lands Now or Formerly of
PETER W. SUTHERLAND & NANCY L. SUTHERLAND
Book 727 Page 47
Tax Map I.D. No. 146.14-1-2

Lands Now or Formerly of
TOWN OF KINGSBURY
Book 922 Page 341
Tax Map I.D. No. 146.14-1-62

DIX AVENUE
3 ROD R.O.W. (49.5')

BENCHMARK: IST RAIL ROAD SPIKE IN 8" BIRCH
ELEVATION=100.17

BENCHMARK: IST RAIL ROAD SPIKE IN 16" MAPLE
ELEVATION=101.19

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

MAP NOTES:

1. Boundary and topographic information shown hereon was compiled from an actual field survey conducted by C.T. Male Associates, P.C. during the month of December, 2007.
2. North orientation and bearing base per map reference no. 4.
3. Vertical datum taken from storm sewer frames as shown on map reference no. 3. Datum unknown.
4. Prior to conducting this survey this geographic area accumulated approximately 8 inches of packed snow and ice. Therefore the undersigned cannot certify that some object or feature has been omitted or that there may be elevation error due to the depth of snow.
5. Underground facilities, structures, and utilities have been plotted from data obtained from previous maps and record drawings. Surface features such as catch basin rims, manhole covers, water valves, gas valves, etc. are the result of field survey unless noted otherwise. There may be other underground utilities, the existence of which is not known to the undersigned. Size and location of all underground utilities and structures must be verified by the appropriate authorities. Dig Safely New York must be notified prior to conducting test borings, excavation and construction.
6. This survey was prepared without the benefit of an up to date abstract of title or title report and is therefore subject to any easements, covenants, restrictions or any statement of fact that such documents may disclose.

MAP REFERENCES:

1. "Map of Lands of Lester K. Lapan, Jr., Edward E. Lapan & Wallace A. Lapan", prepared by Coulter & Mccormack dated May 18, 1989 revised June 30, 1995 and filed in the Washington County Clerk's Office as map 31b-172.
2. "Map of a Subdivision made for Angelo Catalfamo", prepared by Vandusen & Steves, dated April 3, 1992 revised May 21, 1992 and filed in the Washington County Clerk's Office as map 31b-125.
3. "Map of a Subdivision made for Kingswood Village, LLC", prepared by Van Dusen & Steves, dated November 1, 2004 revised July 26, 2005 and filed in the Washington County Clerk's Office as map 31c-91.
4. "Map of Lands To Be Conveyed By The Town of Kingsbury to Timothy M. Havens", prepared by Coulter & Mccormack, dated May 24, 1995.

Legend:

CBS □	Catch Basin Square
CIRF ⊙	Capped Iron Rod Found
FPOST •	Fence Post
GPOST •	Gate Post
-	Guy Wire
IPF ○	Iron Pipe Found
IPN ○	Iron Pin
MPOST •	Metal Fence Post
MRS ◇	Rail Road Spike
TPED □	Telephone Pedestal
TELEPOST •	Telephone Post
UP ⊘	Utility Pole
—G—	Uunderground Gas Line
YCIRF ⊙	Yellow Capped Iron Rod Found
MW ◑	Monitoring Well Installed By Others

"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".

CAD DWG. FILE NAME: FIGURE 1.DWG

JAMES F. COOK
PLS NO. 49260

DATE	REVISIONS RECORD/DESCRIPTION	DRAFTER	CHECK	APPR.
1				
2				
3				
4				
5				
6				
7				
8				

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

APPROVED:
DRAFTED : SMW
CHECKED : SHB
PROJ. NO: 07.7412
SCALE : 1"=40'
DATE : MAR. 14, 2008

FIGURE 1
SITE SURVEY
FORMER DIX AVENUE DRIVE-IN THEATER
1177 & 1189 DIX AVENUE

TOWN OF KINGSBURY — WASHINGTON 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

FIGURE 2

PROPOSED REMEDIAL DESIGN SAMPLING LOCATIONS MAP

XREFS: NONE

PROJECT NUMBER:07.7412

CAD DWG. FILE NAME: FIGURE 2.DWG

REMAINING WOODED PORTION OF THE SITE (5.94± ACRES)

BENCHMARK SET RAIL ROAD SPIKE IN 8" BIRCH ELEVATION=200.11

Lands Now or Formerly of
LAWRENCE N. STEVENS
Book 2224 Page 90
Tax Map I.D. No. 146.14-1-6

Lands Now or Formerly of
JOSEPH L. MORRILL & MARILYN S. MORRILL
Book 951 Page 49
Tax Map I.D. No. 146.14-1-5

Lands Now or Formerly of
TOWN OF KINGSBURY
Book 303 Page 246
Tax Map I.D. No. 146.14-1-3
AREA=650136.30± SQ. FT OR 14.93± ACRES

Lands Now or Formerly of
KINGSWOOD VILLAGE, LLC.
Book 1980 Page 250
Tax Map I.D. No. 146.14-1-1.1

Lands Now or Formerly of
LAWRENCE J. MOAK & ILENE H. MOAK
Book 409 Page 806
Tax Map I.D. No. 146.14-1-4

40'X40' SOIL SAMPLING GRID PATTERN

LIMITS OF SOIL EXCAVATION (SEE MAP NOTES)

Lands Now or Formerly of
BRIAN Q. VADNAIS
Book 746 Page 237
Tax Map I.D. No. 146.14-1-43

RAZED PROJECTION BOOTH/SNACK BAR STRUCTURE

Lands Now or Formerly of
RALPH G. KIBLING
Book 459 Page 493
Tax Map I.D. No. 146.14-1-61

TICKET BOOTH

LIMITS OF SOIL EXCAVATION (SEE MAP NOTES)

LIMITS OF SOIL EXCAVATION (SEE MAP NOTES)

Lands Now or Formerly of
PETER W. SUTHERLAND & NANCY L. SUTHERLAND
Book 757 Page 47
Tax Map I.D. No. 146.14-1-2

Lands Now or Formerly of
TOWN OF KINGSBURY
Book 922 Page 341
Tax Map I.D. No. 146.14-1-62

DIX AVENUE
3 ROD R.O.W. (49.5')

BENCHMARK SET RAIL ROAD SPIKE FOUND IN UP 66 ELEVATION=200.18

N83°30'00"W 50.00'

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

MAP NOTES:

1. The Limits of Soil Excavation depicted on this drawing was taken from Figure 5 of the NYSDEC Record of Decision (ROD) for the site. The Limits of Excavation and site boundaries presented in Figure 5 of the ROD are not to scale, therefore, the Limits of Excavation depicted on this drawing are approximate.
2. A 40' by 40' sampling grid has been placed over the approximated Limits of Soil Excavation to aid in locating the proposed soil sampling locations. Per the NYSDEC ROD, the soil samples will be collected during the design of the remedy to further delineate the areas to be excavated. The soil samples will be collected at each sampling location at depth intervals of 0'–6", 6"–9" and 9"–12" below the ground surface (bgs) to delineate the horizontal and vertical extent of soils impacted by PCB's at concentrations greater than 1 part per million (ppm) within the Limits of Soil Excavation. Soil samples collected at the 0–6" bgs and 6"–9" bgs depth intervals will be analyzed in the laboratory for PCBs by EPA Method 8082. Soil samples collected at 9"–12" bgs will undergo laboratory extraction and will only be analyzed in the event that the 6"–9" bgs soil sample collected at the same sampling location shows PCB concentrations greater than 1 ppm. In the event that analytical results from soil samples collected from the perimeter of the Limits of Soil Excavation depict PCB concentrations greater than 1ppm, then additional soil samples will be collected beyond the perimeter of the Limits of Soil Excavation to further define the horizontal extent of PCB impacts to soil. Conversely, if the analytical results of soil samples from select sampling locations do not reveal PCBs above SCGs, the Limits of Soil Excavation will be adjusted accordingly with approval from the NYSDEC Project Manager.
3. During the soil sampling event, portions of the site lying outside of the Limits of Soil Excavation will be visually surveyed for noticeable depressions in surface grade where stormwater runoff may accumulate. Per consultation with the NYSDEC project manager, soil samples may be collected from these depression areas and analyzed for PCBs. Additionally, sampling locations within the Limits of Soil Excavation may be skewed to areas of surface depression.

MAP REFERENCES:

1. "Boundary and Topographic Survey Lands Now or Formerly of Town of Kingsbury 1177 & 1189 Dix Avenue" Town of Kingsbury, Washington County, New York prepared by C.T. Male Associates, P.C. dated December 13, 2007. Dwg No. 08-141.

Legend:

- CBS □ Catch Basin Square
- CIRF ⊙ Capped Iron Rod Found
- FPOST • Fence Post
- GPOST • Gate Post
- Guy Wire
- IPF ○ Iron Pipe Found
- IPIN ○ Iron Pin
- MPOST • Metal Fence Post
- RRS ⊙ Rail Road Spike
- TPED □ Telephone Pedestal
- TELEPOST • Telephone Post
- UP ⌀ Utility Pole
- —— G —— Uunderground Gas Line
- YCIRF ⊙ Yellow Capped Iron Rod Found
- MW ◑ Monitoring Well Installed By Others
- SS ■ Proposed Soil Sampling Location, Soil Samples To Be Collected At Depth Intervals Of 0–6" bgs, 6"–9" bgs and 9"–12" bgs.

DATE		REVISIONS RECORD/DESCRIPTION	DRAFTER	CHECK	APPR.
	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				

APPROVED:

DRAFTED : SMW

CHECKED : SHB

PROJ. NO: 07.7412

SCALE : 1"=40'

DATE : MAR. 14, 2008

FIGURE 2
PROPOSED REMEDIAL DESIGN SAMPLING LOCATIONS MAP
FORMER DIX AVENUE DRIVE-IN THEATER
1177 & 1189 DIX AVENUE

TOWN OF KINGSBURY — WASHINGTON 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 2 OF 2

DWG. NO: 08-232

CAD DWG. FILE NAME: FIGURE 2.DWG

APPENDIX A

NYSDEC RECORD OF DECISION

Department of Environmental Conservation

Division of Environmental Remediation

Environmental Restoration
Record of Decision
Former Dix Ave. Drive-In Theater Site
Town of Kingsbury, Washington County
Site Number B-00151-5

March 2003

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* ERIN CROTTY, *Commissioner*

DECLARATION STATEMENT
ENVIRONMENTAL RESTORATION RECORD OF DECISION

"Former Dix Ave. Drive-In Theater" Environmental Restoration Site
Town of Kingsbury, Washington County, New York
Site No. B-00151-5

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the Former Dix Ave. Drive-In Theater environmental restoration site which was chosen in accordance with the New York State Environmental Conservation Law.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Former Dix Ave. Drive-In Theater environmental restoration site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of PCB contaminated petroleum products, from this site, if not addressed by implementing the remedy selected in this ROD, presents a current or potential threat to public health and the environment.

Description of Selected Remedy

Based on the results of the Site Investigation/Remedial Alternatives Report (SI/RAR) for the Former Dix Ave. Drive-In Theater site and the criteria identified for evaluation of alternatives, the NYSDEC has selected soil excavation. The components of the remedy are as follows:

- The collection of PCB surface soil samples during the design of the remedy to delineate the areas to be excavated.
- Excavate the contaminated soil to a depth of 6 inches. The excavated soil would be disposed of in accordance with NYSDEC regulations. This would involve excavating a maximum amount of approximately 3,184 tons of PCB contaminated surface soil from various areas of the approximately 7 acre site that was used as the drive-in movie theater.
- Confirmation soil samples would be taken to verify that all the soil contaminated with PCB concentrations exceeding TAGM 4046 guidance values (1 ppm surface or greater than 10 ppm subsurface) have been excavated.
- Seed and mulch the excavated area to prevent erosion.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective.

_____ _____

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

TABLE OF CONTENTS

Environmental Restoration
RECORD OF DECISION

Former Dix Ave. Drive-In Theater Site
Town of Kingsbury, Washington County
Site No. B00151-5
February 2003

SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) has selected this remedy to address the threat to human health and/or the environment created by the presence of hazardous substances at the Former Dix Ave. Drive-In Theater Brownfield Site.

The 1996 Clean Water/ Clean Air Bond Act provides funding to municipalities for the investigation and cleanup of brownfields. Under the Environmental Restoration (Brownfields) Program, the State may provide a grants to the Town of Kingsbury to reimburse up to 75 percent of the eligible costs for site remediation activities. Once remediated the property can then be reused.

The Former Dix Ave. Drive-In Theater Site is located on Dix Avenue (Route 32) in a moderately populated commercial/residential area. As more fully described in Sections 3 and 4 of this document, the Former Dix Ave. Drive-In Theater spread polychlorinated biphenyl (PCB) containing oils on the ground as dust control during the operation of the drive-in theater. This activity has resulted in the contamination of surface soil at the site. The use of PCB containing oil for dust control has the potential to result in the following threats to the public health and/or the environment:

- A threat to human health associated with the direct contact to PCB contamination in the surface soil.
- A threat to human health associated with the inhalation of PCB contaminated wind blown dust.
- A environmental threat associated with the possibility for PCB contamination to migrate into and contaminate the groundwater.

In order to eliminate or mitigate the potential threats to the public health and/or the environment that the hazardous substances disposed at the Former Dix Ave. Drive-In Theater brownfield site have caused, the following remedy was selected to allow for commercial/industrial use of the site:

- The PCB contaminated surface soil would be remediated by excavation and removed from the site.

- Confirmation surface soil samples would be taken to verify that all the soil with PCB concentrations greater than 1 ppm have been excavated and disposed off site at a regulated landfill.

The selected remedy, discussed in detail in Section 8 of this document, is intended to attain the remediation goals selected for this site in Section 6 of this Record of Decision (ROD) in conformity with applicable standards, criteria, and guidance (SCGs).

SECTION 2: SITE LOCATION AND DESCRIPTION

The Former Dix Avenue Drive-In Site is located on Dix Avenue (Route 32), in the Town of Kingsbury, Washington County, New York *(Figure 1)*. The site is located in a moderately populated commercial/residential area, is generally topographically flat, and does not show any indication of regrading in the past.

The parcel is 14.9-acres in size, approximately 400 feet wide by 1,850 feet deep, and near rectangular in shape. According to the "Zoning Map of the Town of Kingsbury" dated July 13, 1988, the property is partially within commercial (COM-1A) and partially within low density residential (LDR-25). The commercial portion along the Dix Avenue frontage is 240 feet, which is split by the residential property. A residential parcel of 180 feet by 180 feet is cut out of the road frontage along Dix Avenue *(Figure 2)*.

An RV business, located on the west boundary, sells and services RVs. Occupancy to the east of Former Dix Ave. Drive-In site is residential and to the north is wooded. Directly across Dix Avenue is the Dix Avenue Elementary School property of the Hudson Falls School District. The Washington County Head Start facility is located approximately 500 feet east of subject site along Dix Avenue.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The property was operated as a drive-in theater for approximately 35 years until acquisition by the current owner, the Town of Kingsbury, in 1987. Prior to this, the property was farmland. During the operation of the drive-in theater the site was contaminated with PCB containing oils spread at the site for dust control. In the past, the owner of the adjacent RV USA business has used the Former Dix Ave. Drive-In for storage of recreational vehicles (RVs) and business associated items.

3.2: Environmental Restoration History

A Phase I Investigation was completed in December, 1993. On December 20, 1993 a site walk through inspection was performed. At that time, the property was being used for winter storage of recreational vehicles. The vehicles were in good condition and did not appear to be contaminating the site. The Phase 1 investigation had concluded that there was no evidence of any mismanagement of hazardous materials at the site from the stored vehicles.

In February and June 1997 the Town of Kingsbury's consultant collected ten surface soil samples for PCB analysis *(Figure 3)*. These results indicate that PCBs were present on the roadway behind the entrance ticket booth. Two of the four results were below the 2 ppm detection limit for the samples collected in June. Three of the six results were above 1 ppm for samples collected in February, of which one of the samples is above the 50 ppm level and was recorded at 2120 ppm. The NYSDEC soil cleanup objective for PCBs in surface soils is 1 ppm. Any contamination over 50 ppm is considered a hazardous waste. Thus, additional sampling by the NYSDEC was deemed necessary to further characterize the site.

In August 1997 the NYSDEC collected samples to determine the extent of the PCB contamination on site *(Figure 4)*. The results of the sampling performed by the NYSDEC are shown on the attached table *(Table 1)* and on Figure 4 entitled "Sample Results, August 1997". The figure shows the location of those samples which contained PCBs detected at greater that 0.4 ppm. The black dots with no sample results shown are locations where the PCBs were below the detection limit of 0.4 ppm.

SECTION 4: SITE CONTAMINATION

To determine the nature and extent of any contamination by hazardous substances that may exist on this environmental restoration site, the NYSDEC has recently completed a site investigation and produced a Site Investigation/Remedial Action Report (SI/RAR).

4.1: Summary of the Site Investigation

The purpose of the SI was to define the nature and extent of any contamination resulting from previous activities at the site. The SI was conducted in one phase during December 2001. A report entitled "Site Investigation Report, Former Dix Avenue Drive-In Theater, August 2002" has been prepared which describes the field activities and findings of the SI in detail.

The SI included the following activities:

- Test pits
- Soil borings
- Installation of one monitoring well
- Groundwater sampling
- Surface soil samples
- Subsurface soil samples.

To determine which media (soil, groundwater, etc.) are contaminated at levels of concern, the SI analytical data was compared to environmental standards, criteria, and guidance values (SCGs). Groundwater, drinking water and surface water SCGs identified for the Former Dix Ave. Drive-In Theater site are based on NYSDEC Ambient Water Quality Standards and Guidance Values and

Part 5 of New York State Sanitary Code. For soils, NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 provides soil cleanup guidelines for the protection of groundwater, background conditions and health-based exposure scenarios. In addition, for soils, background concentration levels can be considered for certain categories of contaminants.

Based on the Site Investigation results in comparison to the SCGs and potential public health and environmental exposure routes, surface soil located at the part of the site used for the operation of the drive-in theater is recommended to be remediated. These are summarized below. More complete information can be found in the SI Report.

Chemical concentrations are reported in parts per billion (ppb) and parts per million (ppm). For comparison purposes, where applicable, SCGs are provided for each medium.

4.1.1: Site Geology and Hydrogeology

The site is located on the Hudson-Champlain Lowlands geologic terrain of New York State. Historically, the overburden had been mapped as very fine to pebbly lake sands of glacial Lakes Albany, Quaker Springs, or Coveville. The bedrock had been mapped as the Ordovician Isle la Motte Limestone. At the time of sample collection, the groundwater elevation was 284.77-feet mean sea level (mls) which is approximately 10 ft. below the ground surface. Only one monitoring well was installed as part of this site investigation. This well was installed to verify that groundwater was not contaminated with PCBs as expected. Therefore, the groundwater flow direction could not be determined.

4.1.2: Nature of Contamination

As described in the SI report, several soil samples and a groundwater sample were collected at the site to characterize the nature and extent of contamination.

The significant contaminant of concern is PCBs. Previous data from the February, June, and August 1997 and December 2001 sampling events show that the PCB contamination is located throughout the surface soils confined to the area used as the drive-in theater. Exposure routes of direct contact and ingestion exist for both human and wildlife receptors.

4.1.3: Extent of Contamination

Table 1 summarizes the extent of contamination for the contaminant of concern in surface soil, subsurface soil, and groundwater and compares the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Subsurface Soil

The only analytes that exceeded TAGM 4046 Recommended Soil Cleanup Objectives (RSCOs) in subsurface soils, greater than 1 foot below the ground surface, were the following metals; beryllium, iron, and zinc. These metals exceeded TAGM 4046 recommended soil cleanup guidance values in each of the soil boring samples that were analyzed for metals. The concentrations of these metals, however, were within the Eastern United States background levels as presented in TAGM 4046.

Testpits were dug to locate and determine the extent of PCB contaminated soil. Testpits visually showed that the stained PCB contaminated soil resided in the top 6 inches of soil. PCBs were not

detected above TAGM 4046 guidance values in any of the subsurface soil samples collected during the December 2001 site investigation.

Surface Soil

During the site investigation in December 2001, five surface soil samples were collected at a depth of 2 inches. Concentrations of beryllium, calcium, iron, magnesium, and zinc exceed RSCOs contained in TAGM 4046. However, the concentrations of these metals are within Eastern United States Background concentrations (TAGM 4046).

The Town of Kingsbury's consultant collected PCB surface soil samples during February and June 1997. Three (3) of the ten (10) samples taken during both events were above 1 ppm PCBs. A sample collected in June 1997 showed a single hit of PCBs at 2120 ppm. Both sampling events concluded that surface soils at the Former Dix Ave. Drive-In site contained PCB concentration exceeding TAGM 4046 clean-up guidance values.

In August 1997 the NYSDEC, Region 5 office collected sixty (60) surface soil grab samples. These grab samples were collected at discrete 1 inch intervals ranging from 1 to 12 inches, to determine the extent of the PCB contamination in the surface soil at the site. These results illustrate that in twenty-seven (27) of the sixty (60) samples taken, PCB concentration exceeds 0.4 ppm. Of those twenty-seven (27) samples, eight (8) exceed the cleanup objective guidance value of 1 ppm. The eight (8) samples that exceeded the 1 ppm guidance value were located in the surface soil to a depth of 6 inches below ground surface. None of these samples from the August 1997 sampling had a concentration greater than 50 ppm PCBs and the maximum concentration detected was 9.5 ppm in sample 12 S. Sample 10 D was collected in the same area where the high concentration of 2120 ppm was collected during June 1997. The concentration at sample 10 D was 0.49 ppm PCBs which suggests that the 2120 ppm sample may be a laboratory error.

During the December 2001 site investigation the surface soils at the boundaries of the site were sampled. PCB analysis for the surface soil samples collected at the site boundaries on site did not exceed TAGM 4046 Soil Clean-up Objectives.

The SVOC dibenzo(a,h)anthracene was detected in sample SS-03 in excess of TAGM 4046 RSCO value of 0.014 ppm. This SVOC is a polynuclear aromatic hydrocarbon (PAH). Low levels of other PAHs were observed in the other surface soil sampling location. PAHs are formed through incomplete combustion of fuels and are present in vehicular emissions. It is likely that the relatively uniform low concentrations of PAHs observed in only the surface soil samples result from atmospheric deposition of incomplete combustion products.

Groundwater

The groundwater sample was collected and analyzed for VOCs, SVOCs, pesticides, PCBs, and metals.

No PCBs were detected in the groundwater sample.

Bis(2-ethylhexyl)phthalate (BEHP) was the only SVOC detected at 15 ppb that exceeded NYS water quality standard of 5 ppb. BEHP is a plasticiser found in many products and is frequently detected

as a laboratory artifact. However, BEHP was not detected in the QA/AC sample associated with the groundwater sample and it therefore cannot be unequivocally identified as a laboratory artifact.

Iron was the only metal that exceeded the groundwater standards. However, iron was within the concentration range typically observed in Eastern United States soil as reported in TAGM 4046. Glacial soil typically contains elevated concentrations of iron. This information suggests that the background concentrations for iron in this area occur naturally at an elevated concentration. The turbidity of the groundwater was 226 NTU after purging prior to sample collection. The elevated concentrations of metals are likely related to the presence of metals adsorbed onto suspended particulates in the groundwater collected from the well.

4.2: Summary of Human Exposure Pathways

This section describes the types of human exposures that may present added health risks to persons at or around the site.

An exposure pathway is the manner by which an individual may come in contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

Pathways which are known to or may exist at the site include:

- Direct contact - dermal contact with PCB in surface soil
- Ingestion - the ingestion of PCB contaminated soil
- Inhalation - the inhalation of PCBs in airborne dust

4.3: Summary of Environmental Exposure Pathways

This section summarizes the types of environmental exposures and ecological risks which may be presented by the site. Since this site is in a commercial/industrial area with residential areas in the vicinity, the likelihood of wildlife being impacted is low. The closest water body is the Feeder Canal, approximately 800 feet southwest of the site. PCB contamination has not impacted the groundwater, and therefore no significant impacts to fish or wildlife resources are considered to exist.

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past owners and operators, waste generators, and haulers.

Since no viable PRPs have been identified, there are currently no ongoing enforcement actions. However, legal action may be initiated at a future date by the State to recover State response costs should PRPs be identified. The Town of Kingsbury will assist the State in its efforts by providing

all information to the State which identifies PRPs. The Town will also not enter into any agreement regarding response costs without the approval of the NYSDEC.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS AND THE PROPOSED USE OF THE SITE

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to meet all SCGs and be protective of human health and the environment. At a minimum, the remedy selected must eliminate or mitigate all significant threats to the public health and to the environment presented by the hazardous substance disposed at the site through the proper application of scientific and engineering principles.

The proposed future use for the Former Dix Ave. Drive-In Theater Site would be commercial or light industrial. The goals selected for this site are:

- Eliminate the potential for direct human or animal contact with the PCB contaminated surface soils on site.
- Prevent the possible migration of PCB contamination in the surface soils to subsurface soil and groundwater.
- Provide for attainment of SCGs for surface soils in the area of concern (AOC), to the extent practicable.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost effective and comply with other statutory requirements. Potential remedial alternatives for the Former Dix Ave. Drive-In Theater site were identified, screened and evaluated in a Remedial Alternatives Report. This evaluation is presented in the report entitled "Remedial Alternatives Report for the Former Dix Ave. Drive-In Theater Brownfields Site".
A summary of the detailed analysis follows. As presented below, the time to implement reflects only the time required to implement the remedy, and does not include the time required to design the remedy or procure contracts for design and construction.

7.1: Description of Remedial Alternatives

The potential remedies are intended to address the contaminated surface soils at the site.

Alternative 1: No Action

Present Worth:	*$ 0*
Capital Cost:	*$ 0*
Annual O&M:	*$ 0*

The No Action alternative is typically evaluated as a procedural requirement and as a basis for comparison. It would allow the site to remain in an unremediated state. This alternative would

leave the site in its present condition and would not provide any additional protection to human health or the environment.

Alternative 2: Excavation & Offsite Disposal

Present Worth:	*$ 131,661 to $ 293,984*
Capital Cost:	*$ 131,661 to $ 293,984*
Annual O&M:	*$ 0*
Time to Implement	*2 - 3 months*

This alternative would remediate the contamination source, PCB affected surface soils extending to a depth of approximately 6 inches, by excavation *(Figure 5)*. PCB surface soil samples would be taken during the design of the remedy to delineate the area to be excavated. A maximum amount of approximately 3,184 cubic yards of contaminated surface soil would be excavated to meet TAGM 4046 soil cleanup objective of 1 ppm for PCBs. The PCB contaminated soil would be properly disposed according to NYSDEC regulations and end point verification samples from the excavated area would be taken.

Alternative 3: Consolidation with Soil Cover and Institutional Controls

Present Worth:	*$ 97,770 to $153,705*
Capital Cost:	*$ 83,935 to $ 139,940*
Annual O&M:	*$ 1,000*
Time to Implement	*1 - 2 months*

This alternative would remediate the contamination source, PCB affected surface soils extending to a depth of approximately 6 inches, by using consolidation with soil cover. Soils with levels of contamination exceeding 10ppm PCB would be disposed offsite in accordance with NYSDEC regulations. PCB surface soil samples would be taken during the design of the remedy to delineate the area to be excavated and consolidated. A maximum of approximately 3 acres of the site would be covered with a 1 foot thick protective soil cover layer with top soil and grass. A maximum of approximately 2000 cubic yards of contaminated surface soil from the southern portion of the site will be consolidated to the north end of the site. The 1 foot of cover material would be blended to the existing grade. Top soil and grass would be placed on top of the soil cover. The grassed soil cover would require periodic maintenance (O&M). Since this alternative would leave the PCB contaminated surface soil on site, institutional controls in the form of deed restrictions would be required to notify future owners and/or developers of the restricted use of the property.

Optional protective cover possibilities for Alternative 3 would be: concrete sidewalks, asphalt/concrete parking lots, building footprints, or other acceptable strategies that provide a barrier to contact with the surface soils. Any excavated contaminated soil needed to implement an acceptable alternative protective cover would be properly disposed of according to NYSDEC regulations.

7.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of environmental restoration project sites in New York State (6 NYCCR Part 375). For each of the criteria, a brief description is provided followed by an evaluation of the alternatives against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is included in the Remedial Alternatives Report.

The first two evaluation criteria are termed threshold criteria and must be satisfied in order for an alternative to be considered for selection.

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance.

The no action alternative would not meet SCGs. The no action alternative would leave PCB contaminated surface soils on site above acceptable SCG levels. Excavation would meet all SCGs for PCB contaminated surface soils. This alternative would eliminate the PCB contaminated surface soil at the site. Alternative 3 would meet SCGs. PCB contaminated surface soil would remain on site consolidated and covered with 1 foot of soil cover and would not be as effective as Alternative 2.

2. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

Alternative 1 does not offer any protection to human health or the environment. Alternatives 2 and 3 would be protective to human health and the environment by eliminating the direct exposure pathway to PCB contamination in the surface soils. Alternative 2 would remove the contaminated soil via excavation while Alternative 3 would leave the contaminated soils in place and rely on one foot of soil cover and deed restrictions for protection.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

The No Action Alternative would not be effective in the short term since exposure to contaminated surface soil would still exist and pose a threat to the public health and the environment. Alternatives 2 and 3 involve some degree of construction related impacts from the excavation, moving and managing of soil, thereby creating the possibility of short term exposures to noise, dust, and contaminants. Alternative 2 and 3 would both be effective remedies on the short term basis.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

Alternative 1 would leave soils with elevated PCB concentrations on site for the long term. There would be a continued risk from exposure to PCB contaminated surface soils. Alternative 2 would remove all the PCB contamination by excavation and would eliminate all of the long term risks associated with the contamination. Alternative 3 would be effective in the long term by providing

a protective barrier that would inhibit direct contact with PCB contaminated soils. The associated deed restrictions would ensure safety to workers and the surrounding community and would also be a long term solution to threats from future intrusive excavations. Long term maintenance of the protective cover is an important element of this alternative.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the substances at the site.

Alternative 1 would not change the toxicity, mobility, or volume of contaminants. Alternative 2, excavation, would eliminate the toxicity, mobility, and volume of the PCB contamination since all of the contamination would be removed from the site by excavation. Alternative 3 would reduce the mobility of the PCB contaminated soil that would remain on site by installing one foot of protective soil cover.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc..

Alternative 1, No Action, would be the easiest to implement as no construction work is required. No time is involved for the alternative.

Alternative 2, Excavation, would be easy to implement as experienced contractors are readily available to excavate the contaminated soil. It is estimated that 1-2 months would be needed to complete this work.
Alternative 3, consolidation with soil cover, would be easily implemented as clean fill is readily available and considerably less excavation would be necessary. Maintenance of the cover is a vital part of this alternative and if not maintained, the remedy becomes ineffective. It is estimated that 2 to 3 months would be needed to complete this work.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision. The costs for each alternative are presented in Table 2.

Alternative 1 does not have any cost associated with it. The capital cost of Alternative 2 ranges from $131,661 to $293,984 (dependent on the amount of soil excavated), and the capital cost for Alternative 3 ranges from $83,935 to $139,940 (dependent on the amount of soil consolidated and covered).

This final criterion is considered a modifying criterion and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

8. Community Acceptance - Concerns of the community regarding the SI/RAR reports and the Proposed Remedial Action Plan have been evaluated. The "Responsiveness Summary" included as

Appendix A presents the public comments received and the Department's response to the concerns raised. In general the public comments received were supportive of the selected remedy.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the results of the SI/RAR, and the evaluation presented in Section 7, the NYSDEC is selecting Alternative 2 (Excavation & Off Site Disposal) as the remedy for this site.

This selection is based upon the evaluation presented in Section 7 of the three alternatives developed for the site. Alternatives 2 & 3 will comply with the threshold criteria and will meet the remedial goals for the site.

Alternative 2 (soil excavation) is preferred over Alternative 3 (soil cover) because excavation and off-site disposal will eliminate the toxicity and mobility concerns of the PCB contaminated soil on site. This remedy will be permanent, and the most protective of human health and the environment, and is easily implementable. Alternative 2 will eliminate all present and potential future exposure pathways and will not require a deed restriction with annual certification. Alternative 3 would impact future redevelopment plans for areas of the property that would be covered by the cap.

The estimated cost to implement the remedy ranges from $131,661 to $293,984. There are no annual operation and maintenance costs for this remedy. The costs range is based on excavating 50 % to 100 % of the area proposed for remediation shown in Figure 5.

The elements of the remedy are as follows:

- The collection of PCB surface soil samples during the design of the remedy to delineate the areas to be excavated.
- Excavate the contaminated soil to a depth of 6 inches. The excavated soil will be disposed of in accordance with NYSDEC regulations. This will involve excavating a maximum amount of approximately 3,184 tons of PCB contaminated surface soil from various areas of the approximately 7 acre site that was used as the drive-in movie theater.
- Confirmation soil samples will be taken to verify that all the soil contaminated with PCB concentrations exceeding TAGM 4046 guidance values (1 ppm surface or greater than 10 ppm subsurface) have been excavated.
- Seed and mulch the excavated area to prevent erosion.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the Former Dix Ave. Drive-In environmental restoration process, a number of Citizen Participation activities were undertaken in an effort to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- Repositories for documents pertaining to the site were established.
- A site mailing list was established which included nearby property owners, local political officials, local media and other interested parties.
- Fact Sheets were mailed to inform the public of site investigation activities, the availability of documents at the repositories, and the public meeting.
- A public meeting was held on January 8, 2003 at the Crandal Public Library.
- In March 2003 a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public comment period for the PRAP.

Table 1
Nature and Extent of Contamination

MEDIUM	CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of Exceeding SCGs or Background	SCG/ Bkgd. (ppb)
Groundwater	Semivolatile Organic Compounds (SVOCs)	bis(2-ethylhexyl)phthalate	15	1 of 1	5
	Inorganic Compounds (Metals)	iron	7,830	1 of 1	300
MEDIUM	**CATEGORY**	**CONTAMINANT OF CONCERN**	**CONCENTRATION RANGE (ppm)**	**FREQUENCY of Exceeding SCGs or Background**	**SCG/ Bkgd. (ppm)**
Subsurface Soils	Inorganic Compounds (Metals)	beryllium	0.4 to 0.51	4 of 4	0.16
		iron	8,480 to 10,500	4 of 4	2,000
		zinc	18.7 to 22.2	3 of 4	20
	PCBs	PCBs	ND to 0.029	0 of 12	10
Surface Soil	Semivolatile Organic Compounds (SVOCs)	dibenzo(a,h)anthracene	0.02 to 0.027	6 of 6	0.014
	Inorganic Compounds (Metals)	beryllium	0.039 to 0.7	6 of 6	0.16
		calcium	1,370 to 17,100	2 of 6	35,000*
		iron	4,990 to 12,800	6 of 6	2,000
		magnesium	1,180 to 23,600	2 of 6	5,000*
		zinc	25.5 to 50.4	6 of 6	20
	PCBs	PCBs	0.2 to 2120	13 of 69	1

*Eastern USA background levels

Table 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual O&M	Total Present Worth
Alternative 1: No Action	$0	$0	$0
Alternative 2: Excavation	$131,661 to $293,984	$0	$131,661 to $293,984
Alternative 3: Consolidation with Soil Cover and Institutional Controls	$83,935 to $139,940	$1,000	$ 97,770 to $153,705

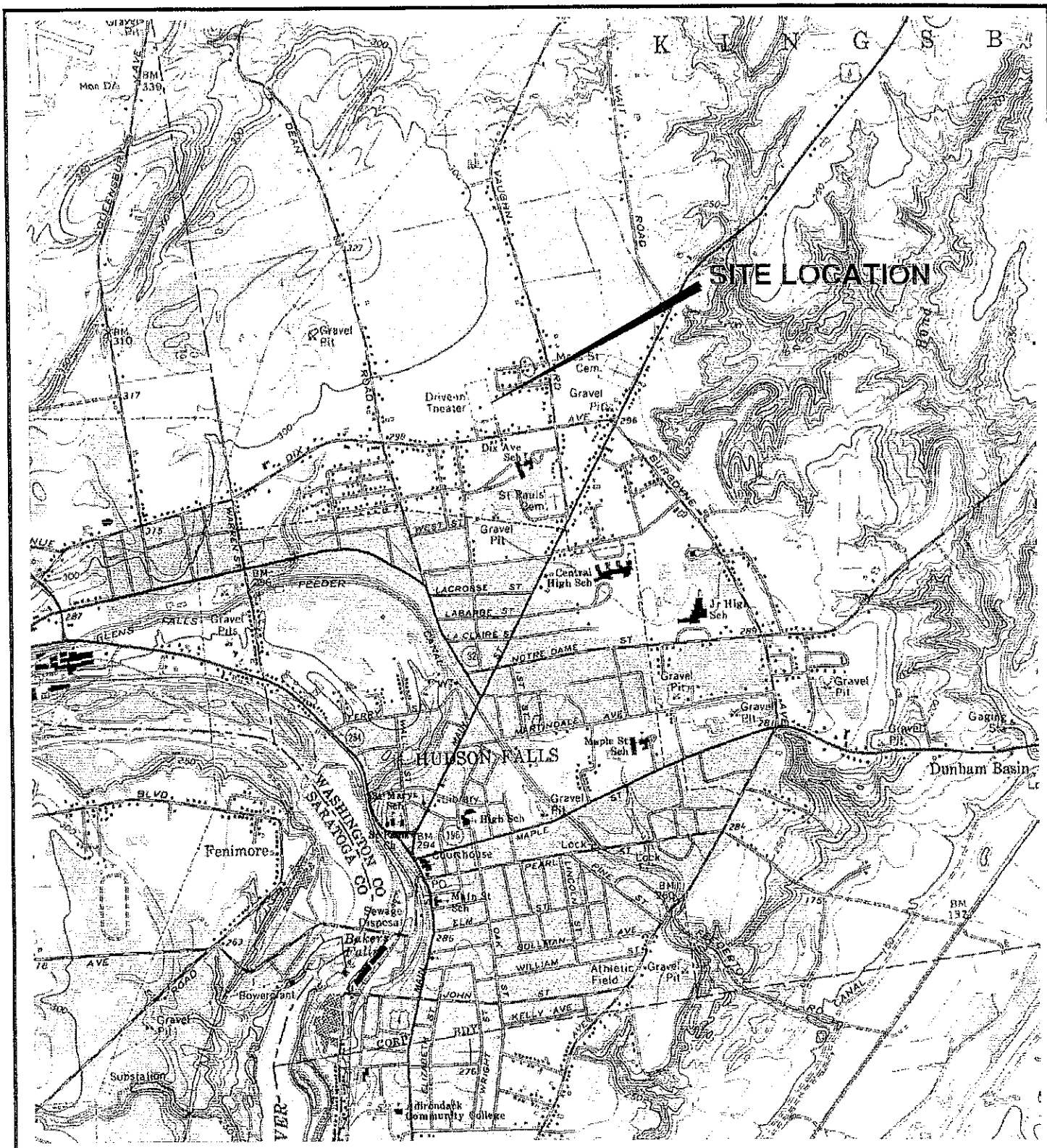
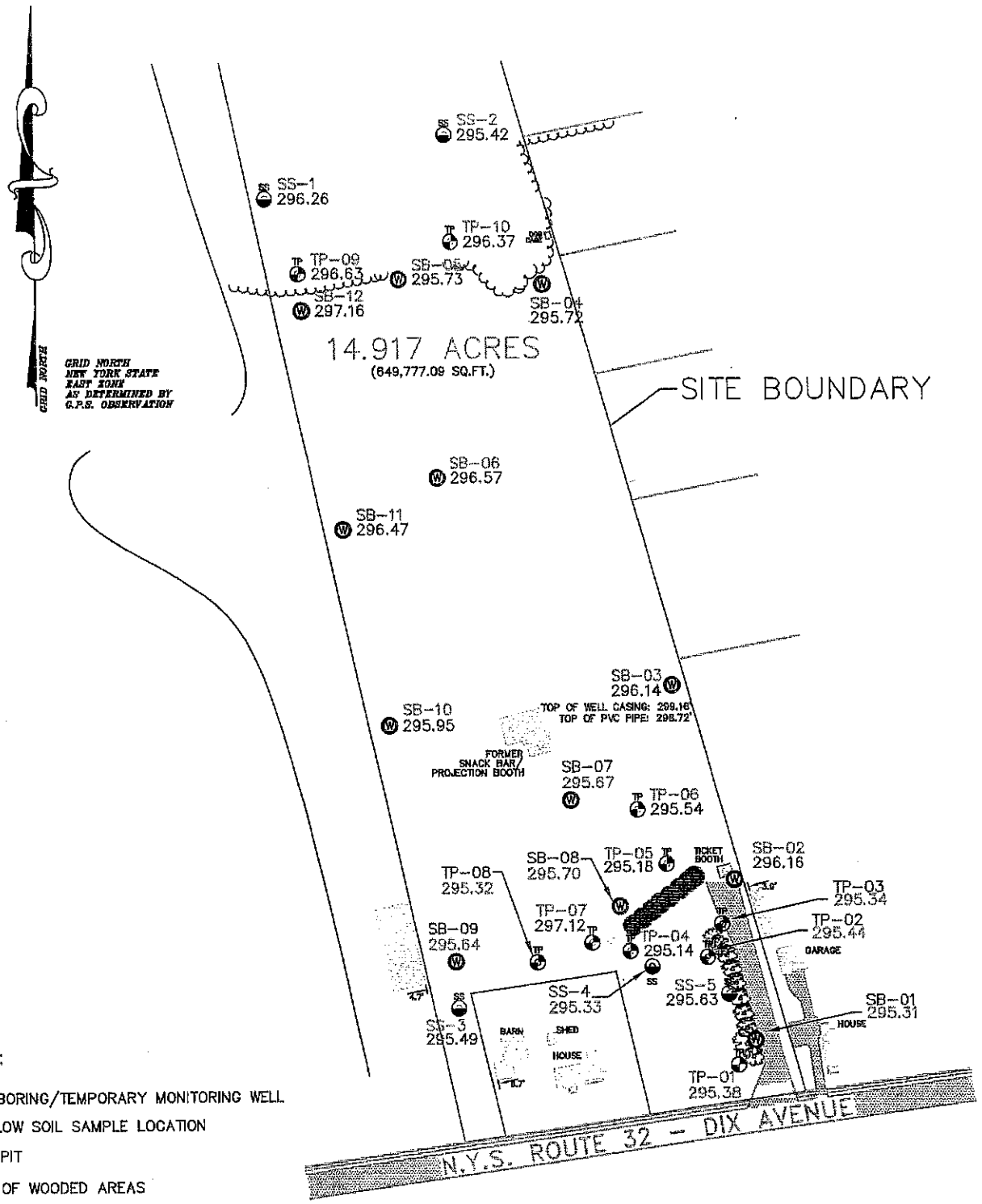

SITE LOCATION
HUDSON FALLS
Fenimore
Dunham Basin
WASHINGTON CO
SARATOGA CO
Central High Sch
Jr High Sch
Maple St Sch
High Sch
Gravel Pit
Drive-in Theater
St Pauls Cem
Maple St Cem
Athletic Field
Adirondack Community College
Substation
Bowers Tant
Sewage Disposal
Bakers Falls
Gaging Sta
N
0
500'
1,000'
GRAPHIC SCALE

FIGURE 1



LEGEND:

- SOIL BORING/TEMPORARY MONITORING WELL
- SHALLOW SOIL SAMPLE LOCATION
- TEST PIT
- EDGE OF WOODED AREAS

ALL PCB SAMPLES TAKEN WERE BELOW TAGM 4046 GUIDANCE VALUES

0 250' 500'

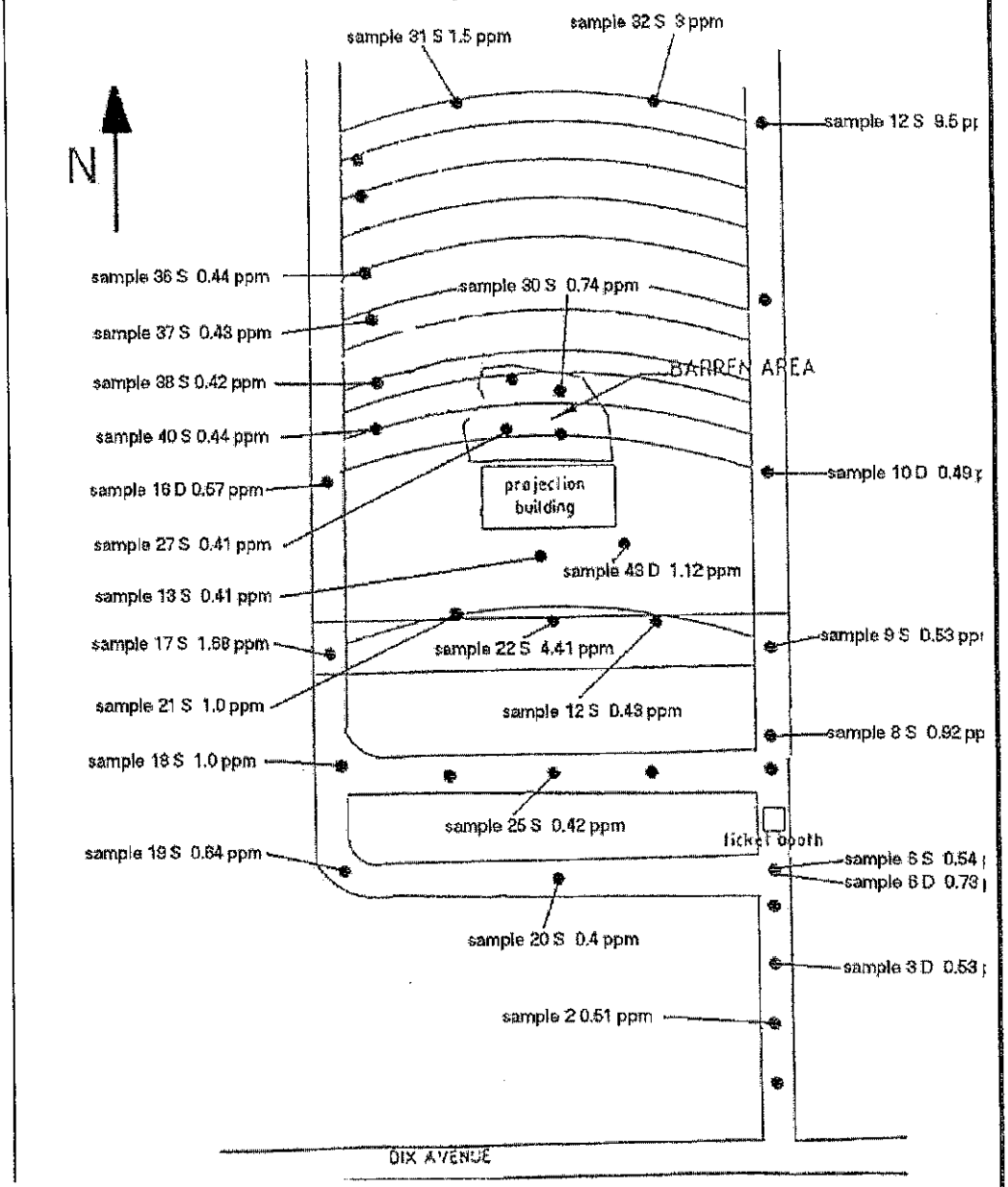
GRAPHIC SCALE

SOURCE: SURVEY MAP PREPARED BY SANTO ASSOCIATES, P.C.

DECEMBER 2001
DETAILED SITE CONFIGURATION &
SAMPLING LOCATION MAP
FORMER DIX AVE. DRIVE-IN THEATER

FIGURE 2

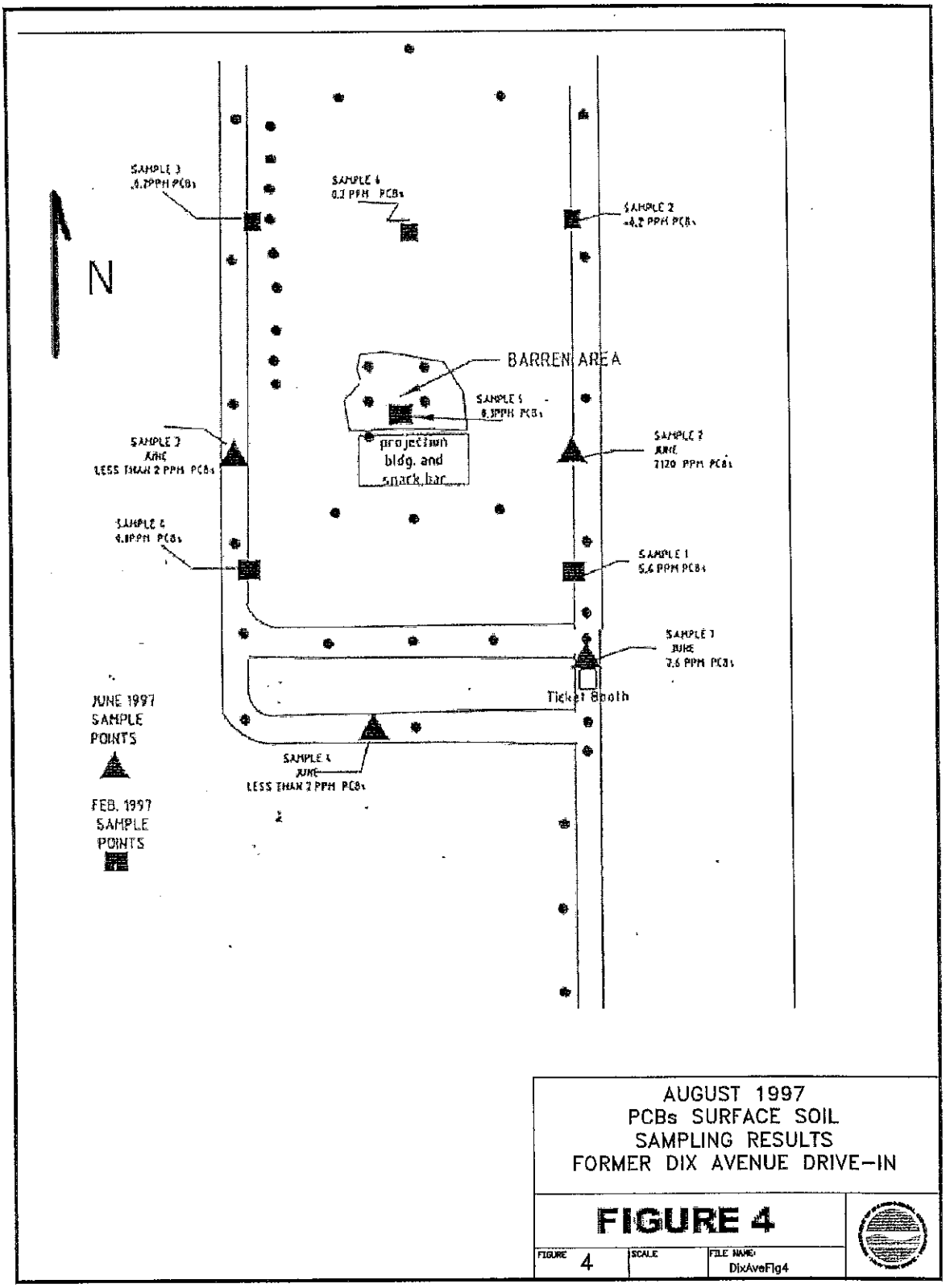
FIGURE	SCALE	FILE NAME
2	GRAPHIC	DixAveFig2



FEBRUARY & JUNE 1997
PCBs SURFACE SOIL
SAMPLING RESULTS
FORMER DIX AVENUE DRIVE-IN

FIGURE 3

FIGURE	SCALE	FILE NAME
3		DixAveFig3



AUGUST 1997
PCBs SURFACE SOIL
SAMPLING RESULTS
FORMER DIX AVENUE DRIVE-IN

FIGURE 4

FIGURE	SCALE	FILE NAME
4		DixAveFig4

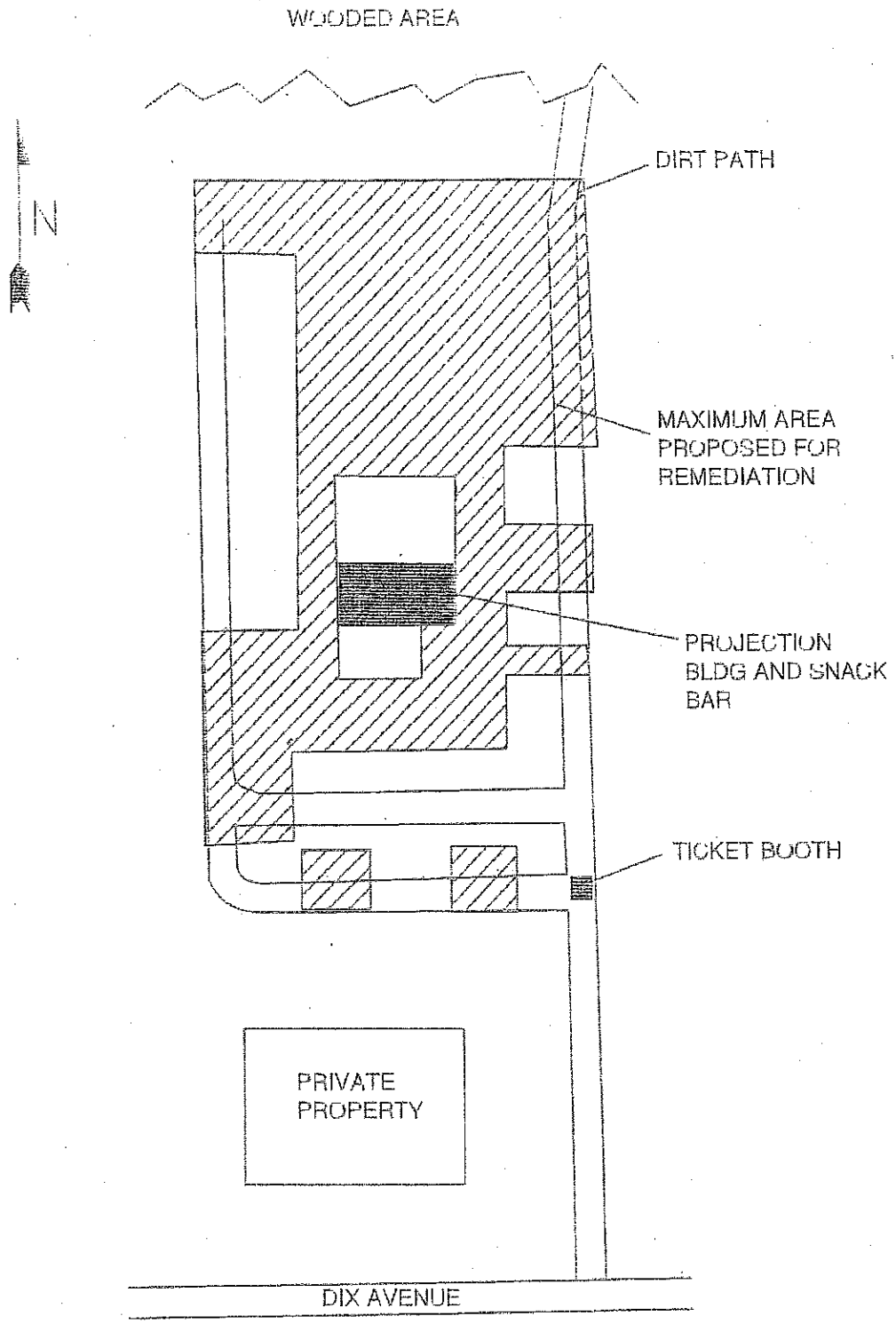

WOODED AREA
N
DIRT PATH
MAXIMUM AREA
PROPOSED FOR
REMEDIATION
PROJECTION
BLDG AND SNACK
BAR
TICKET BOOTH
PRIVATE
PROPERTY
DIX AVENUE

FIGURE 5

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Former Dix Avenue Drive-In Theater Site
Environmental Restoration Proposed Remedial Action Plan
Town of Kingsbury, Washington County
Site No. B-00151-5

The Proposed Remedial Action Plan (PRAP) for the Former Dix Avenue Drive-In Theater Site, was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repository on December10, 2002. This Plan outlined the preferred remedial measure proposed for the remediation of the contaminated soil and sediment at the Former Dix Avenue Drive-In Theater Site. The preferred remedy is excavation and off-site disposal of PCB contaminated surface soil.

The release of the PRAP was announced via a notice to the mailing list, informing the public of the PRAP's availability.

A public meeting was held on January 8, 2003 which included a presentation of the Site Investigation (SI) and Remedial Alternatives Report (RAR) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site.

The public comment period for the PRAP ended on January 31, 2003.

This Responsiveness Summary responds to all questions and comments raised at the January 8, 2003 public meeting.

The following are the comments received at the public meeting, with the NYSDEC's and NYSDOH's responses:

COMMENT 1: If the No Action Alternative was implemented, could groundwater be contaminated in the future?

RESPONSE 1: The PCB contamination at the site is located in the surface soil at low concentrations and has been there for several decades. The groundwater analysis performed for the area where the highest concentration of PCBs were found did not contain PCBs. PCBs adhere to soil and do not readily migrate with groundwater. Considering this information, it is not likely that the PCB contamination at this site would migrate and contaminate the groundwater.

COMMENT 2: If Alternative3 was implemented would it be possible to clear the back of the lot and use the clean fill to cover the contaminated soil in the front of the lot or use buildings and asphalt to act as the cover?

RESPONSE 2: Yes, the fill from the back of the lot would be adequate to cover the contaminated areas in the front of the lot. Buildings and asphalt could be used to cover the contaminated areas of the site.

However, since the contamination is in the top 6 inches of soil, soil excavated for a building foundation would have to be properly disposed off site.

COMMENT 3: The County would like to implement a remedy protective of human health and the environment for the least amount of money as possible. The County was in favor consolidating and covering the PCB contaminated soil at the Dix Avenue site. What remedy does NYDEC prefer?

RESPONSE 3: NYSDEC prefers to implement Alternative 2 "Soil Excavation". Alternative 2 is preferred over Alternative 3 (soil cover) because excavation and off-site disposal would eliminate the toxicity and mobility concerns of the PCB contaminated soil on site. This remedy would be permanent, and the most protective of human health and the environment, and is to easy implement. Alternative 2 would eliminate all present and potential future exposure pathways and would not require a deed restriction with annual certification. Alternative 3 would impact future redevelopment plans for areas of the property that would be covered by the cap.

COMMENT 4: If the site were unremediated and left in its original state could soil used by the highway department be stockpiled on the site?

RESPONSE 4: No. The PCB contamination is within the top 6 inches of soil on site. When the stockpiled soil is moved with a front end loader it is possible that PCB contaminated soil could be scraped off the surface and taken off site with the clean soil. Leaving the site unremediated poses a potential health hazard to the highway department workers and anyone else who may come in contact with the PCB contaminated soil.

COMMENT 5: What percent of money does the county have to contribute to the project through the Brownfield program?

RESPONSE 5: Under the Brownfields Program the county would be responsible for 25 percent of the design and cleanup cost.

COMMENT 6: If the County did not participate in the Brownfields Program and implemented a remedial cleanup plan on their own, what would be the benefits and/or consequences of pursuing this route and how would the county workers be educated or trained to use personal protective equipment?

RESPONSE 6: If the County participates in the Brownfields Program to implement the selected remedy, they would be reimbursed as much as 75 percent of the project cost by the State. If the County remediates the site on their own there would be no state funding, and the County would need to apply to the NYSDEC Voluntary Cleanup Program. A work plan would have to be submitted to the NYSDEC to review and approve the remedial work and the same health and safety procedures that would be followed for the Brownfields Program would apply to the Voluntary Cleanup Program. Upon completion of the work, the County would receive written notification from the NYSDEC that the site has been properly remediated and is no longer a threat to public health and the environment.

If the County entered the Voluntary Cleanup Program they would have to hire a consultant to draft the remedial work plan and the accompanying Health & Safety Plan. The Health and Safety Plan would describe the personal protective equipment required by the workers to wear during construction of the remedy. There are health and safety training courses available for learning how to use the various types of personal protective equipment as required by the Health & Safety Plan.

COMMENT 7: Where would the excavated soil go and how much would it cost?

RESPONSE 7: The excavated soil would go to a NYSDEC approved landfill. All the soil samples indicate that the PCB contaminated soil at the Dix Ave Site is non-hazardous. The cost to dispose non-hazardous soil at an approved landfill is approximately 60 to 85 dollars per ton plus transportation costs. The price to dispose hazardous soil at an approved landfill is approximately 125 dollars per ton plus transportation costs.

COMMENT 8: If the excavated soil goes to the landfill is the Town of Kingsbury still liable?

RESPONSE 8: The Town of Kingsbury would not be liable provided the excavation and disposal is done under an approved Brownfields project. The Bond Act provides that the State will hold municipalities harmless in the future.

COMMENT 9: How deep will the soil be excavated and do the higher PCB concentrations relate to a greater depth of contamination?

RESPONSE 9: All areas where PCBs are present will be excavated to a depth of 6 inches. The investigation determined that the depth of PCB contamination did not vary with concentration. All PCB contamination, irrespective of the concentration, is present within the top 6 inches of soil.

COMMENT 10: How does the ESMI facility treat waste soils and can this technology be used for the Dix Ave Site?

RESPONSE 10: The ESMI facility uses low temperature thermal desorption to treat petroleum contaminated soil. This process works by heating up the soil to volatilize the contaminants. After the contaminants are volatilized they are destroyed in an afterburner and the soil can be replaced into the excavated area. This facility is not permitted to treat PCB contaminated soil. Small trailer mounted systems could be brought to the site and used. This technology was not recommended as an alternative to remediate the Dix Ave. Site, since it would be more expensive considering the small volume of soil to be remediated.

COMMENT 11: Can the PCB contaminated soil be treated in place by using chemicals or micro-organisms?

RESPONSE 11: No, PCBs are a very stable chemical that cannot be effectively treated by using chemicals or micro-organisms.

COMMENT 12: If the County performed the work themselves without participating in the Brownfields Program would the NYSDEC be able to help with disposal costs and would the County be responsible for reimbursing the NYSDEC the cost of the investigation?

RESPONSE 12: If the County does the work themselves and chooses not to participate in the Brownfields Program, the County would be solely responsible for financing all aspects of the design and construction of the remedial phase of the project. NYSDEC would not seek reimbursement for the investigation phase of the project.

COMMENT 13: If Alternative 2 was implemented would there be restrictions as to what the County could use the property for?

RESPONSE 13: No, If Alternative 2 was implemented there would not be any restrictions on the use of the property.

COMMENT 14: Will anything be done to the site outside the area proposed for excavation?

RESPONSE 14: No, the remaining property outside of the area proposed for excavation is not contaminated and does not require remediation.

COMMENT 15: If Alternative 2 is implemented can the County perform the excavation work themselves under the Brownfields Program and how much is this item in the cost analysis?

RESPONSE 15: Yes, the County could, under a force account arrangement, perform the excavation work themselves under the Brownfields Program if the workers are properly trained and comply with the site specific Health & Safety Plan. The excavation aspect of the project ranges from a minimum of approximately $77,000 to $191,000.

COMMENT 16: What are the next steps to carry the project forward?

RESPONSE 16: The next step would be to compile a responsiveness summary of all public comments from the public meeting and received by mail, make any appropriate changes to the proposed remedy and then issue a Record of Decision (ROD). Following the ROD, the County could then apply for a remediation Brownfields Grant to implement the remedy.

APPENDIX B

Administrative Record

Administrative Record
Former Dix Avenue Drive-In Theater Site
Site No. B-00151-5

1. Record of Decision - March 2003
2. Factsheet #4 - March 2003
3. Factsheet #3 -December 2002
4. Proposed Remedial Action Plan - November 2002
5. Remedial Alternatives Report (RAR) - September, 2002
6. Factsheet #2 - September 2002
7. Site Investigation (SI) Report - August 2002
8. Factsheet #1 - December 2001
9. Work Plan - December 2001
10. IIWA Standby Work Assignment
11. Determination of Market Value for Contaminated Property - January 2000
12. Supplemental Sampling Project - September 1997
13. Environmental Risk Assessment Phase I - December 1993

APPENDIX B

PART 375 REFERENCE TABLE

(b) Restricted use soil cleanup objectives.

Table 375-6.8(b): Restricted Use Soil Cleanup Objectives

Contaminant	CAS Number	Protection of Public Health				Protection of Ecological Resources	Protection of Ground-water
		Residential	Restricted-Residential	Commercial	Industrial		
Metals							
Arsenic	7440-38-2	16[f]	16[f]	16[f]	16[f]	13[f]	16[f]
Barium	7440-39-3	350[f]	400	400	10,000 [d]	433	820
Beryllium	7440-41-7	14	72	590	2,700	10	47
Cadmium	7440-43-9	2.5[f]	4.3	9.3	60	4	7.5
Chromium, hexavalent [h]	18540-29-9	22	110	400	800	1[e]	19
Chromium, trivalent [h]	16065-83-1	36	180	1,500	6,800	41	NS
Copper	7440-50-8	270	270	270	10,000 [d]	50	1,720
Total Cyanide [h]		27	27	27	10,000 [d]	NS	40
Lead	7439-92-1	400	400	1,000	3,900	63[f]	450
Manganese	7439-96-5	2,000[f]	2,000[f]	10,000 [d]	10,000 [d]	1600[f]	2,000[f]
Total Mercury		0.81[j]	0.81[j]	2.8[j]	5.7[j]	0.18[f]	0.73
Nickel	7440-02-0	140	310	310	10,000 [d]	30	130
Selenium	7782-49-2	36	180	1,500	6,800	3.9[f]	4[f]
Silver	7440-22-4	36	180	1,500	6,800	2	8.3
Zinc	7440-66-6	2200	10,000 [d]	10,000 [d]	10,000 [d]	109[f]	2,480
PCBs/Pesticides							
2,4,5-TP Acid (Silvex)	93-72-1	58	100[a]	500[b]	1,000[c]	NS	3.8
4,4'-DDE	72-55-9	1.8	8.9	62	120	0.0033 [e]	17
4,4'-DDT	50-29-3	1.7	7.9	47	94	0.0033 [e]	136
4,4'- DDD	72-54-8	2.6	13	92	180	0.0033 [e]	14
Aldrin	309-00-2	0.019	0.097	0.68	1.4	0.14	0.19
alpha-BHC	319-84-6	0.097	0.48	3.4	6.8	0.04[g]	0.02
beta-BHC	319-85-7	0.072	0.36	3	14	0.6	0.09
Chlordane (alpha)	5103-71-9	0.91	4.2	24	47	1.3	2.9

Table 375-6.8(b): Restricted Use Soil Cleanup Objectives

Contaminant	CAS Number	Protection of Public Health				Protection of Ecological Resources	Protection of Ground-water
		Residential	Restricted-Residential	Commercial	Industrial		
delta-BHC	319-86-8	100[a]	100[a]	500[b]	1,000[c]	0.04[g]	0.25
Dibenzofuran	132-64-9	14	59	350	1,000[c]	NS	210
Dieldrin	60-57-1	0.039	0.2	1.4	2.8	0.006	0.1
Endosulfan I	959-98-8	4.8[i]	24[i]	200[i]	920[i]	NS	102
Endosulfan II	33213-65-9	4.8[i]	24[i]	200[i]	920[i]	NS	102
Endosulfan sulfate	1031-07-8	4.8[i]	24[i]	200[i]	920[i]	NS	1,000[c]
Endrin	72-20-8	2.2	11	89	410	0.014	0.06
Heptachlor	76-44-8	0.42	2.1	15	29	0.14	0.38
Lindane	58-89-9	0.28	1.3	9.2	23	6	0.1
Polychlorinated biphenyls	1336-36-3	1	1	1	25	1	3.2
Semivolatiles							
Acenaphthene	83-32-9	100[a]	100[a]	500[b]	1,000[c]	20	98
Acenapthylene	208-96-8	100[a]	100[a]	500[b]	1,000[c]	NS	107
Anthracene	120-12-7	100[a]	100[a]	500[b]	1,000[c]	NS	1,000[c]
Benz(a)anthracene	56-55-3	1[f]	1[f]	5.6	11	NS	1[f]
Benzo(a)pyrene	50-32-8	1[f]	1[f]	1[f]	1.1	2.6	22
Benzo(b)fluoranthene	205-99-2	1[f]	1[f]	5.6	11	NS	1.7
Benzo(g,h,i)perylene	191-24-2	100[a]	100[a]	500[b]	1,000[c]	NS	1,000[c]
Benzo(k)fluoranthene	207-08-9	1	3.9	56	110	NS	1.7
Chrysene	218-01-9	1[f]	3.9	56	110	NS	1[f]
Dibenz(a,h)anthracene	53-70-3	0.33[e]	0.33[e]	0.56	1.1	NS	1,000[c]
Fluoranthene	206-44-0	100[a]	100[a]	500[b]	1,000[c]	NS	1,000[c]
Fluorene	86-73-7	100[a]	100[a]	500[b]	1,000[c]	30	386
Indeno(1,2,3-cd)pyrene	193-39-5	0.5[f]	0.5[f]	5.6	11	NS	8.2
m-Cresol	108-39-4	100[a]	100[a]	500[b]	1,000[c]	NS	0.33[e]
Naphthalene	91-20-3	100[a]	100[a]	500[b]	1,000[c]	NS	12

Table 375-6.8(b): Restricted Use Soil Cleanup Objectives

Contaminant	CAS Number	Protection of Public Health				Protection of Ecological Resources	Protection of Ground-water
		Residential	Restricted-Residential	Commercial	Industrial		
o-Cresol	95-48-7	100[a]	100[a]	500[b]	1,000[c]	NS	0.33[e]
p-Cresol	106-44-5	34	100[a]	500[b]	1,000[c]	NS	0.33[e]
Pentachlorophenol	87-86-5	2.4	6.7	6.7	55	0.8[e]	0.8[e]
Phenanthrene	85-01-8	100[a]	100[a]	500[b]	1,000[c]	NS	1,000[c]
Phenol	108-95-2	100[a]	100[a]	500[b]	1,000[c]	30	0.33[e]
Pyrene	129-00-0	100[a]	100[a]	500[b]	1,000[c]	NS	1,000[c]
Volatiles							
1,1,1-Trichloroethane	71-55-6	100[a]	100[a]	500[b]	1,000[c]	NS	0.68
1,1-Dichloroethane	75-34-3	19	26	240	480	NS	0.27
1,1-Dichloroethene	75-35-4	100[a]	100[a]	500[b]	1,000[c]	NS	0.33
1,2-Dichlorobenzene	95-50-1	100[a]	100[a]	500[b]	1,000[c]	NS	1.1
1,2-Dichloroethane	107-06-2	2.3	3.1	30	60	10	0.02[f]
cis-1,2-Dichloroethene	156-59-2	59	100[a]	500[b]	1,000[c]	NS	0.25
trans-1,2-Dichloroethene	156-60-5	100[a]	100[a]	500[b]	1,000[c]	NS	0.19
1,3-Dichlorobenzene	541-73-1	17	49	280	560	NS	2.4
1,4-Dichlorobenzene	106-46-7	9.8	13	130	250	20	1.8
1,4-Dioxane	123-91-1	9.8	13	130	250	0.1[e]	0.1[e]
Acetone	67-64-1	100[a]	100[b]	500[b]	1,000[c]	2.2	0.05
Benzene	71-43-2	2.9	4.8	44	89	70	0.06
Butylbenzene	104-51-8	100[a]	100[a]	500[b]	1,000[c]	NS	12
Carbon tetrachloride	56-23-5	1.4	2.4	22	44	NS	0.76
Chlorobenzene	108-90-7	100[a]	100[a]	500[b]	1,000[c]	40	1.1
Chloroform	67-66-3	10	49	350	700	12	0.37
Ethylbenzene	100-41-4	30	41	390	780	NS	1
Hexachlorobenzene	118-74-1	0.33[e]	1.2	6	12	NS	3.2
Methyl ethyl ketone	78-93-3	100[a]	100[a]	500[b]	1,000[c]	100[a]	0.12

Table 375-6.8(b): Restricted Use Soil Cleanup Objectives

Contaminant	CAS Number	Protection of Public Health				Protection of Ecological Resources	Protection of Ground-water
		Residential	Restricted-Residential	Commercial	Industrial		
Methyl tert-butyl ether	1634-04-4	62	100[a]	500[b]	1,000[c]	NS	0.93
Methylene chloride	75-09-2	51	100[a]	500[b]	1,000[c]	12	0.05
n-Propylbenzene	103-65-1	100[a]	100[a]	500[b]	1,000[c]	NS	3.9
sec-Butylbenzene	135-98-8	100[a]	100[a]	500[b]	1,000[c]	NS	11
tert-Butylbenzene	98-06-6	100[a]	100[a]	500[b]	1,000[c]	NS	5.9
Tetrachloroethene	127-18-4	5.5	19	150	300	2	1.3
Toluene	108-88-3	100[a]	100[a]	500[b]	1,000[c]	36	0.7
Trichloroethene	79-01-6	10	21	200	400	2	0.47
1,2,4-Trimethylbenzene	95-63-6	47	52	190	380	NS	3.6
1,3,5- Trimethylbenzene	108-67-8	47	52	190	380	NS	8.4
Vinyl chloride	75-01-4	0.21	0.9	13	27	NS	0.02
Xylene (mixed)	1330-20-7	100[a]	100[a]	500[b]	1,000[c]	0.26	1.6

All soil cleanup objectives (SCOs) are in parts per million (ppm).
NS=Not specified. See Technical Support Document (TSD).

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.

[f] 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.

[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 met 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 salts). See TSD Table 5.6-1.

375-6.9 Development or modification of soil cleanup objectives.

(a) Applicability. This section identifies when and the procedures under which a contaminant-specific soil cleanup objective may be developed or modified.

(1) Soil cleanup objectives for contaminants not included in Tables 375-6.8(a) and (b) may be developed by the remedial party or required by the Department.

(2) Soil cleanup objectives for contaminants included in Tables 375-6.8(a) and (b), may be modified based on site-specific data if desired by the remedial party; as set forth in:

(i) subpart 375-3 for Tracks 3 or 4, as set forth in paragraphs 375-3.8(e)(3) or (4), respectively; or

(ii) subparts 375-2 and 375-4, as set forth in subparagraph 375-2.8(b)(1)(iii) and subparagraph 375-4.8(c)(1)(iii).

(3) Protection of ecological resources soil cleanup objectives were not developed for certain contaminants, which are identified in Table 375-6.8(b) as "NS". Where such contaminants:

(i) appear in Table 375-6.8(a), the applicant may be required by the Department to calculate a protection of ecological resources soil cleanup objective for the contaminant for use in Track 1 and apply such soil cleanup objective where it is lower than the soil cleanup objective set forth in Table 375-6.8(a); or

(ii) are identified as impacting or threatening an ecological resource for a restricted use remedial program the Department may require a protection of ecological resources soil cleanup objective be developed.

(b) New soil cleanup objectives must:

(1) Be developed utilizing the same methodologies that were used by the Department to develop the respective soil cleanup objective, as provided in the Technical Support Document.

(2) Apply the following caps, as set forth in section 9.3 of the Technical Support Document, on any soil cleanup objective included in Tables 375-6.8(a) and (b), with the exception of metals, as set forth in paragraph (3) below, developed for:

(i) unrestricted use, residential use, restricted-residential use and the protection of ecological resources, a maximum value of 100 ppm;

(ii) commercial use, a maximum value of 500 ppm; and

(iii) industrial use and the protection of groundwater a maximum value of 1000 ppm, and

(3) Apply a cap for metals at a maximum value of 10,000 ppm.

(c) Development of unrestricted use soil cleanup objectives. The unrestricted use soil cleanup objective for a compound will be the lowest of the soil cleanup values, calculated as set forth in appendix E of the Technical Support Document, for the protection of groundwater, protection of ecological resources and protection of public health.

(d) Development of restricted use soil cleanup objectives. The protection of:

(1) Groundwater soil cleanup objective will be the values calculated for the protection of groundwater as set forth in appendix E of the Technical Support Document;

(2) Ecological resources soil cleanup objectives will be the values calculated for the protection of ecological resources as set forth in appendix E of the Technical Support Document; and

(3) Public health cleanup objective will be the values calculated for the protection of public health for the identified use of the site, as set forth in appendix E of the Technical Support Document.

(e) Modification of soil cleanup objectives. The contaminant-specific soil cleanup objectives set forth at Tables 675-6.8(a) and (b)[1] may be modified by site specific data as set forth in this subdivision.

---

[1] Original should read "Tables 375-6.8(a) and (b)"

(1) Contaminant-specific soil cleanup objectives modified in accordance with this subdivision may be utilized by the remedial party for a site remedial program undertaken pursuant to:

(i) subpart 375-3 in Tracks 3 or 4, as set forth in paragraphs 375-3.8(e)(3) or (4), respectively; or

(ii) subparts 375-2 and 375-4, as set forth in subparagraph 375-2.8(b)(1)(ii) and subparagraph 375-4.8(c)(1)(ii).

(2) For the calculation of a protection of groundwater or ecological resources contaminant -specific soil cleanup objective, the site-specific percentage of total organic carbon in the soil at the site may be substituted in the algorithms provided in appendix E of the Technical Support Document.

(3) For the calculation of a protection of public health contaminant-specific soil cleanup objective, site-specific data may be used to modify two of the five exposure pathways, as follows:

(i) for the particulate inhalation pathway six parameters rely on site-specific data; and

(ii) for the volatile inhalation pathway, four parameters rely on site-specific data.

(4) The algorithms to be used for each protection of public health pathway and details on the parameters which can be substituted are included in appendix E of the Technical Support Document.

(f) Use of soil cleanup objectives developed or modified. Once approved by the Department, contaminant-specific soil cleanup objectives developed or modified as set forth in this section may be utilized by the Department at other sites consistent with paragraphs (1) and (2) below.

(1) Contaminant-specific soil cleanup objectives developed for contaminants not included in Tables 375-6.8(a) and (b), as set forth in subdivision 375-6.9(b) above, will be used as guidance and shall be considered by the Department for inclusion in the Tables in this subpart during any subsequent reevaluation of the soil cleanup objectives, as set forth by ECL 27-1415.

(2) Contaminant-specific soil cleanup objectives modified for site specific parameters, as set forth in subdivision 375-6.9(e) above, may be utilized at sites manifesting similar parameters, if approved by the Department.

APPENDIX C

QUALITY ASSURANCE PROJECT PLAN
FORMER DIX AVENUE DRIVE-IN THEATER
TOWN OF KINGSBURY
WASHINGTON COUNTY, NEW YORK

ENVIRONMENTAL RESTORATION PROGRAM
QUALITY ASSURANCE PROJECT PLAN
FORMER DIX AVENUE DRIVE-IN THEATER
TOWN OF KINGSBURY
WASHINGTON COUNTY, NEW YORK

KEY PERSONNEL AND SIGNATURES

Approved: _____ Date: 4/24/08
Project Principal
David Roecker, P.E.
Vice President, Environmental Services Division
C.T. Male Associates, P.C.

Approved: _____ Date: 4/24/08
Project Manager
Kirk Moline
Hydrogeologist
C.T. Male Associates, P.C.

Approved: _____ Date: 4/24/08
Project Scientist & Health and Safety Coordinator
Stephen Bieber
Environmental Scientist
C.T. Male Associates, P.C.

Approved: _____ for: Date: 4/24/08
Quality Assurance Officer
Elizabeth Rovers, P.E.
Managing Engineer
C.T. Male Associates, P.C.

Approved: _____ Date: 4/24/08
Project Engineer
Jeffrey Marx
Project Engineer
C.T. Male Associates, P.C.

ENVIRONMENTAL RESTORATION PROGRAM
QUALITY ASSURANCE PROJECT PLAN
FORMER DIX AVENUE DRIVE-IN THEATER
TOWN OF KINGSBURY
WASHINGTON COUNTY, NEW YORK

TABLE OF CONTENTS

FIGURES

TABLES

ENVIRONMENTAL RESTORATION PROGRAM
QUALITY ASSURANCE PROJECT PLAN
FORMER DIX AVENUE DRIVE-IN THEATER
TOWN OF KINGSBURY
WASHINGTON COUNTY, NEW YORK

TABLE OF CONTENTS

APPENDICES

1.0 PROJECT DESCRIPTION

1.1 Introduction

This Quality Assurance Project Plan (QAPP) has been prepared for the implementation of the soil sampling as part of the Remedial Design Work Plan (RDWP). The RDWP is a precursor for the development of biddable plans and specifications the remediation at the Former Dix Avenue Drive-In Theater Site ("the site") located at 1177 and 1189 Dix Avenue in the Town of Kingsbury, Washington County, New York. This QAPP has been developed in conjunction with the RDWP as prepared by C.T. Male Associates, P.C. (C.T. Male). A description of the site and available background information is contained in the March 2003 New York State Department of Environmental Conservation (NYSDEC) Environmental Restoration Record of Decision (ROD) for the site, which is appended to the RDWP. The objectives and the scope of the remedial design soil sampling are detailed in the RDWP.

This QAPP presents the organizational structure and data quality objectives (DQOs) for the RDWP soil sampling, and the quality assurance (management system) and quality control methods of checks and audits to be implemented to ensure that the quantity and quality of the data required for its intended use is obtained and documented (i.e., that DQOs are met). The measurement parameters used to determine the quality of the data are precision, accuracy, completeness, representativeness and comparability, and are discussed further in this QAPP.

A Field Sampling Plan (FSP) has been prepared by C.T. Male as an exhibit to the RDWP and forms an integral part of this QAPP. The field sampling and data gathering procedures are presented in the FSP and incorporated into the QAPP by reference. The QAPP and FSP document the laboratory quality assurance/quality control (QA/QC) procedures and field sampling and data gathering procedures that will be followed during implementation of the RDWP soil sampling scope of work so that valid data of a known quality is generated.

The project specific field QA/QC procedures and the project specific laboratory QA/QC procedures are presented in the text of this QAPP. The general internal laboratory QA/QC procedures are presented in the subcontractor laboratory's

Quality Manual which is retained at C.T. Male's office. The subcontract laboratory for this project is Chemtech of Mountainside, New Jersey. The laboratory certifications will be included in Appendix A upon their receipt from the laboratory.

The QAPP has been prepared in a manner consistent with the following guidance documents:

- Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, EPA/540/G-89/004, USEPA, October 1988.
- Data Quality Objectives for Remedial Response Activities: Development Process, EPA/540/G-87/003, USEPA, March 1987.
- Draft DER-10 Technical Guidance For Site Investigation and Remediation, NYSDEC, December 2002.
- 6 NYCRR Part 375, Environmental Remediation Programs, Subparts 375-1 to 375-4 and 375-6, Effective December 14, 2006.

1.2 Objectives and Scope of Work

It is the objective of the RDWP and this QAPP to obtain and present representative data of a known quality and sufficient quantity. The primary goal is to perform soil sampling to evaluate the quality of the site's soils. The soil sampling data will be utilized for the development of the RAWP and bidding documents and specifications for the remediation of impacted soils.

To achieve these objectives, the scope of work will include the following items as presented in the RDWP, in this QAPP and in the FSP: the collection and laboratory analysis of surface and subsurface soil samples for PCB content.

2.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

C.T. Male Associates, P.C. (C.T. Male) is responsible for the overall administration and the overall quality control/quality assurance of the RDWP soil sampling. These will include project management and coordination and scheduling of activities in-house and with qualified subcontractors. The work task that will be performed by a subcontractor under C.T. Male's supervision is analytical laboratory testing.

A project organizational chart listing key individuals of the project and their associated title is presented as Figure 1 at the end of this document. Personnel from C.T. Male, the analytical laboratory and data validator can be reached at the following addresses:

- C.T. Male Associates, P.C.
  Contact: Stephen Bieber and Kirk Moline
  50 Century Hill Drive, P.O. Box 727, Latham, New York 12110
  Phone: (518) 786-7400
  Fax No.: (518) 786-7299
  Email: s.bieber@ctmale.com and k.moline@ctmale.com

- Laboratory: Chemtech
  Contact: Joe Dockery
  284 Sheffield Street
  Mountainside, NJ 07092
  Phone: (908) 789-8900
  Fax: (908) 789-8922

- C.T. Male Associates, P.C.
  Contact: Megan Drosky (Data Validator)
  50 Century Hill Drive, P.O. Box 727, Latham, New York 12110
  Phone: (518) 786-7400
  Fax No.: (518) 786-7299
  Email: m.drosky@ctmale.com

A description of the responsibilities by title of the key individuals is presented as follows:

Project Principal is responsible for the review of the RDWP soil sampling activities and reports for their technical adequacy and conformance to the scope of work.

Quality Assurance Officer is responsible for the independent review of the RDWP documents and reports to check that the appropriate project documentation, of the quality control activities performed, exist and are maintained; and for conducting field and sampling audits. Analytical data will also be reviewed by this individual for accuracy and completeness.

Project Manager is responsible for the overall coordination and implementation of the project, the management of staff and resources, the implementation of schedules, the conformance by the technical staff and subcontractors to the scope of work, assessing the adequacy of the work being performed, implementing corrective action as necessary, interaction with the client and regulatory agencies, maintaining complete project documentation, and report preparation.

Health and Safety Coordinator is responsible for implementation of the project specific Health and Safety Plan, and resolution of safety issues which arise during the completion of the work. The Health and Safety Coordinator or designee will be present during the completion of the field work.

Laboratory Quality Assurance Officer is responsible for review of the laboratory data quality control procedures and documentation to determine if the QA objectives are being met; and to report non-conforming events to the laboratory technical staff and Project Manager and implement corrective action as necessary.

Laboratory Director is responsible for all activities within the laboratory, and for the performance of the laboratory work tasks in accordance with the project work plans, interactions with the Project Manager, and the adherence to project schedule.

Project Geologist/Engineer/Scientist is responsible for coordinating and conducting the field hydrogeologic activities and subcontractors, the adherence of activities to the QAPP and the FSP, evaluation of the collected data, soil classifications, report preparation and interaction with Project Manager and Project Team.

Project Team is responsible for adequately performing the work tasks in accordance with the project work plans so that the objectives of investigations and the project

are achieved, notifying the Project Manager of any non-conformance to the work plan so that corrective actions can be taken as necessary, and notifying the Project Manager of unforeseen conditions so that modifications to the work plan, if necessary, can be approved and implemented.

Data Validator is responsible for review of all analytical data generated for this project. The data validator will review analytical data in accordance with New York State Department of Environmental Conservation Guidance for the Development of Data Usability Summary Reports and preparation of a report documenting if the analytical data is valid and usable. The report will also present data rejection and qualification, where necessary, based on laboratory performance.

3.0 QUALITY ASSURANCE OBJECTIVES FOR DATA MEASUREMENT

3.1 General

The Quality Assurance (QA) objective for this project is to produce data which is technically valid and of a known quality that meets the needs of its intended use. In this section the data quality objectives (DQOs) are defined by describing the intended use of the data; defining the type of data needed (i.e., physical or analytical); specifying the analytical levels, as established by EPA, appropriate to the data uses; specifying the quality control checks on field and laboratory procedures and frequency of checks; and presenting the quality control acceptance criteria.

Laboratory quality assurance objectives for data measurement are established for each measurement parameter in terms of precision, accuracy, completeness, representativeness and comparability. These terms form an integral part of the laboratory's quality assurance programs in that DQOs are set for each parameter.

3.2 Data Uses and Types

The data to be generated during the proposed work will be completion of RDWP soil sampling, and health and safety during implementation of the field activities. Both physical data including air monitoring and analytical data from soil sampling will be needed to provide the necessary information to complete the RDWP soil sampling. The specific physical and analytical data proposed and its purposes are presented in the RDWP.

3.3 Data Quality Needs

To support data collection activities in obtaining quality data, EPA has established a series of analytical levels that are appropriate to site investigation/remediation data uses. The analytical levels are defined as follows:

Level I	Field screening or analysis using portable instruments. Qualitative data.
Level II	Field analyses using more sophisticated portable analytical instruments. Qualitative and quantitative data can be obtained.
Level III	Laboratory analyses using standard EPA approved procedures/methods.

Level IV	Laboratory analyses by NYSDEC ASP (Analytical Services Protocol) - Category B Data Deliverable with QA/QC protocols and documentation.
Level V	Analyses by non-standard methods.

The data collection activities, the environmental media, the intended use of the data and the corresponding analytical levels that will be used to produce the project data are summarized in Table 1.

Table 1
Summary of Work Tasks and Corresponding Analytical Levels

Data Collection Activities	Sample Media & Description	Data Use[a]	Analytical Level
PID Monitoring	Soil Vapors	1	I
Air Monitoring	Air/Ambient Air	2	I
Surface and Subsurface Soil Sampling	Surface and Subsurface Soil for Laboratory Analyses and Field Instrumentation.	1, 3 & 4	I (Field Instrumentation) and IV (Laboratory Analyses)

Note:
(a) Data Uses Key:
1 - Site Characterization.
2 - Health and Safety and Community Air Monitoring During Implementation of Field Activities.
3 - Risk Assessment.
4 - Evaluation of Remediation Alternatives.

Another consideration besides defining the Data Quality Needs is what level of cleanup will be required for the site. The applicable or relevant and appropriate requirements (ARARs) are related to defining satisfactory cleanup efforts. In order to be able to evaluate the data generated with respect to potential ARARs, the samples will need to be analyzed by analytical methods that can achieve detection limits below or at existing ARAR values. The analytical methods selected for this project are designed to achieve ARAR values.

3.4 Quality Control Checks and Acceptance Criteria

To monitor and document the integrity of such factors as sample variability, sampling equipment cleanliness, sampling technique, analytical reproducibility and sample handling which can affect data quality, several field quality control checks will be implemented. These will include taking equipment/field blanks after the sampling equipment has been decontaminated to check for cross contamination and equipment cleanliness and taking replicate samples to monitor analytical precision/ reproducibility and sampling technique. For this project the field Quality Control (QC) checks will consist of one equipment/field blank, and one replicate sample during sampling activities for every twenty (20) analytical samples per media type (i.e., soil). Due to the non-volatile nature of the analyte (PCBs), transport blanks will not need to be prepared.

Laboratory quality control checks will be those specified in EPA Methods or in the NYSDEC ASP (Revised 2000) for the analytical method performed and could consist of some of the following:

- Blanks (method, preparation),
- initial and continuing calibrations,
- surrogate spikes,
- matrix spikes/matrix spike duplicates,
- ambient samples,
- duplicate samples, and
- control samples/matrix spike blanks.

The laboratory will be responsible for performing what is necessary for complying with appropriate standards and certifications of the selected EPA method and ASP requirements. The laboratory quality control acceptance criteria are method specific and will be the laboratory's responsibility to meet ASP (Revised 2000) criteria.

4.0 SAMPLING PROCEDURES

Procedures for sampling are presented in the Field Sampling Plan (FSP) and include the following:

- Selection of sampling sites and media to be sampled,
- specific sampling procedures for the environmental media to be sampled, and for QC samples to be taken,
- field soil screening procedures,
- a description of the containers, procedures and equipment used for sample collection, preservation, transport and storage,
- procedures for preparing the sample containers and sampling equipment prior to sampling and decontamination of sampling equipment during sampling,
- chain of custody procedures and forms, and
- description of the procedures, forms and notebooks to be used to document sampling activities, sample conditions and field conditions.

5.0 SAMPLE CUSTODY

Proper chain of custody will be established and maintained through a series of steps, beginning in the field and ending with final disposition of the analyzed sample. At the time of the field sampling, an external chain of custody form will be utilized to track sample collection until delivery to the analytical laboratory. An internal or "intra-laboratory" chain of custody will be used by laboratory personnel to track the sample(s) from the point it is received/logged and passed through the laboratory process. Chain of custody procedures are discussed in detail in Section 7.0 of the FSP.

6.0 CALIBRATION PROCEDURES

Calibration procedures for field equipment including the photo-ionization detector (PID) meter and dust monitors are presented in Section 6.0 of the FSP. Calibration procedures for laboratory equipment/instrumentation consist of the production and use of current certifiable standards and the measurement/adjustment of the instrument response. The laboratory is responsible for maintaining records documenting use of current standards and acceptable instrument responses. The laboratory is required to flag analytical data that has had potential contamination or poor instrument calibration that may have occurred during the analytical process.

7.0 SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

The analytical parameters, sample preparation and analysis methods, acceptable holding times and required method detection limits are presented in Table 2. The analytical methods specified reflect the requirements of the NYSDEC ASP, Revised June 2000.

Table 2
Analytical Methods and Requirements

Analytical Parameters	EPA Method	Holding Times[2]	Contract Required Quantitative Limits (as noted)[1]
TCL PCBs	8082	5 Days to Extraction, 40 Days to Analyze	33 to 67 ug/kg (Soil) 0.5-1 ug/l (Water)

Note:
1) The listed method detection limits are practical quantitation limits (PQLs). The method detection limit (MDL) is the best possible detection. Laboratories report PQLs which are typically 4 times the MDL for liquids and varies for solids depending on the quantity of contamination present. Efforts will be made to obtain the lowest possible detection limit. When the guidance value or standard value is below the detection limit, achieving the detection limit will be considered acceptable for meeting that guidance or standard value.
2) Holding times are relative to the verifiable time of receipt at the laboratory.

Where matrix interference is noted, analytical clean-ups will be required to be performed by the laboratory following the procedures specified in SW-846 or the NYSDEC ASP, as applicable. In general, samples shall not be diluted more than 1 to 5.

8.0 DATA REDUCTION, VALIDATION AND REPORTING

The field measurement data and the laboratory analyses results of detected parameters will be compiled and tabulated to facilitate comparison and evaluation, and will be included in the RAWP. The tabulated data will include at a minimum:

- Surface and subsurface soil analysis results, and
- quality control results (equipment/field blanks and replicates/duplicates).

Field logs will also be compiled and included, in part, in the text and appendices of the RAWP, plans and specifications, and documents and will consist of:

- test boring logs,
- organic vapor headspace analysis logs, and
- environmental services field logs (RAWP only).

Any observations or problems encountered during field activities which could affect the quality of the data or its validity will be noted on the appropriate field log.

The laboratory will generate ASP Category B Data Deliverable Package(s) that may be submitted as a separate volume to the RAWP. It will include analytical results and quality control data deliverables as required by NYSDEC ASP (Revised 2000).

Internal data validation will be performed by the laboratory QA officer to ensure that the data package is complete and meets the criteria of the RDWP and this QAPP. Any problems encountered in performing the analyses by the laboratory such as out of limits surrogate recoveries, and comments on the quality and limitations of specific data and the validity of the data will be described in the case narrative of the laboratory report.

Data validation will be performed by C.T. Male's data validator who will utilize the USEPA National and Regional Validation Guidelines/Procedures and the NYSDEC Guidance in the Development of Data Usability Summary Reports to determine the applicable qualifications of the data. The validator will then prepare a NYSDEC Data Usability Summary Report (DUSR) in accordance with NYSDEC guidelines. Please note that the data validator will not be involved in any other portions of the project. The proposed data validator's qualifications and work experience is

presented in Appendix B. The NYSDEC DUSR guidance is presented in Appendix C.

9.0 INTERNAL QUALITY CONTROL

Field QC will consist of taking equipment/field blanks and replicate samples. Field instrumentation will also be calibrated prior to use and the calibration maintained as discussed in the FSP (Section 6.0).

Internal laboratory QC will generally consist of:

- Method (instrument) blanks,
- initial and continuing calibrations,
- surrogate spikes,
- matrix spikes/matrix spike duplicates,
- duplicate samples, and
- laboratory control samples/matrix spike blanks.

The QC samples will be run in accordance with the protocols and frequencies specified in the NYSDEC ASP, SW-846 and EPA Methods as applicable for the analyses being performed.

10.0 PERFORMANCE AND SYSTEMS AUDITS

10.1 Field Audits

Field performance audits will consist of taking replicate samples and equipment/field blanks and analyzing them for the same parameters as other samples.

Field system audits will be conducted during field operation to ensure that the field activities are being conducted correctly and in accordance with the RDWP. The project field supervisor will check that the field instrumentation is calibrated prior to use, that field measurements are taken correctly, that equipment is properly decontaminated, and that the field activities are properly documented. Any deficiencies will be reported to the project manager and discussed with the field staff immediately and corrective action taken. The person conducting the field audits will document the field system audits by use of a field report and submit the report to the project manager for review on a bi-weekly basis at a minimum. The project quality assurance officer, geologist/scientist/engineer or project manager will conduct system audits as appropriate or warranted.

The project manager will review the field system audit reports and the field documentation for completeness and correctness, and check that the work is proceeding on schedule and in accordance with the work plans.

10.2 Laboratory Audits

Laboratory system audits are not required, however, if the laboratory is required to maintain New York State Department of Health (NYSDOH) ELAP certification. A copy of the laboratory NYSDOH ELAP certification documentation will be provided. Part of this certification process typically includes periodic performance evaluations and on-site systems audits.

11.0 PREVENTATIVE MAINTENANCE

C.T. Male Associates, P.C. keeps an inventory of all field equipment and it is kept locked in a designated area. The field equipment is signed out when in use and its condition checked upon its return. The equipment is kept in good working order and frequently checked and calibrated by qualified employees. Additionally, select equipment (i.e., PID) is routinely serviced for cleaning and calibration by an independent repair facility.

The project geologist/engineer/scientist and field sampler are responsible for assuring that the field equipment is tested, cleaned, charged and calibrated in accordance with the manufacturer's instructions prior to taking the equipment out into the field.

12.0 DATA ASSESSMENT PROCEDURES

The field and laboratory generated data will be assessed for precision, accuracy, representativeness, completeness, and comparability (PARCC parameters). Both quantitative and qualitative procedures will be used for these assessments.

The criteria for assessment of field measurements will be that the measurements were taken in accordance with the procedures specified in the FSP using calibrated instruments. Assessment of the sampling data with respect to field performance will be based on the criteria that the samples were properly collected and handled. Field replicate and equipment/field blank sample results will be used in assessing the sampling technique and representativeness of the samples collected.

The laboratory will calculate and report the precision, accuracy, and completeness of the analytical data. Precision will be expressed as the relative percent difference (RPD) between values of duplicate samples. Accuracy will be expressed as percent difference (PD) for surrogate standards and matrix spike compounds. Completeness is a measure of the amount of valid data derived from a set of samples based on the total amount expected to be derived under normal conditions. The precision and accuracy results will be compared to the QC acceptance criteria specified for each test method in the NYSDEC ASP (Revised June 2000).

The representativeness of the analysis is dictated primarily by the field sampling technique and sample location, as opposed to laboratory operations. The laboratory will take steps to ensure that the analysis is representative of the sample being submitted. The criteria for ensuring representativeness of the analysis are careful aliquot selection and proper compositing techniques. Laboratory performance will be based on the criteria that the samples were properly handled prior to submission to the laboratory, that the laboratory aliquots taken for analysis are representative (i.e., oversized particles discarded, sample thoroughly mixed except when dealing with volatile organics), that the samples were analyzed within holding times, and that no cross-contamination has occurred based on the method blank results. Data comparability will be assessed based on analyses being performed within required holding times, on consistent units of measure, and that analyses were performed in strict adherence with NYSDEC and EPA analytical methods/protocols.

13.0 CORRECTIVE ACTIONS

The soil sampling will be performed in accordance with the approved RDWP, the contents of the approved FSP and the approved QAPP. Any persons identifying unacceptable conditions or deficiencies in the work being performed such as deviation from or omission of health and safety procedures, sampling procedures or other field procedures, will immediately notify the project field supervisor, where applicable, and the project manager. The unacceptable conditions or deficiencies will be documented and submitted to the project manager. The project manager, with assistance from the technical quality review staff, if necessary, will be responsible for developing and initiating appropriate corrective action, documenting the corrective action and verifying that the corrective action has been effective.

Depending on the significance and potential impact of the problem or deficiency requiring corrective action, the NYSDEC and the Town of Kingsbury will be notified, as warranted, as soon as practical after becoming aware of the situation.

14.0 QUALITY ASSURANCE REPORTS TO MANAGEMENT

Field system audit/field reports from the project team, where applicable, will be submitted to the project manager on a bi-weekly basis at a minimum. The field report will include the project name, location, time, date, weather, temperature range, work in progress, conformance with schedule, persons present at the site (arrival and departure times), observations, work start-up and stoppage, items to verify, information or action required, any attachments identified, and the reporting persons signature. The field report notifies the management as to the progress, conformance with the work plan, and any problems that may affect quality control. Field personnel will also keep log books and field notebooks that will discuss day to day procedures followed, any problems encountered, etc. A copy of the field notes will be given to the project manager at least bi-weekly to keep the project manager informed of the project status and as a quality control check. The project manager will review the reports and field notes to assess the quality of the investigate data gathering efforts to make sure the objectives of the work are being met, to make sure the work is progressing on schedule, that the work is being conducted in accordance with the work plan, and that any problems encountered are addressed. These reports will be utilized in assessing the data quality with respect to field activities and the findings will be discussed in the RAWP where applicable.

Documentation of each phase of the project and all work tasks performed are kept in the file on the project. The documentation is available at all times for review by the Quality Assurance Officer, who will randomly check files for their completeness.

If any occurrences or conditions are encountered during the course of work that may require a change in the scope of work or departure from the approved work plan, the NYSDEC will be notified and the situation reported as soon as possible.

FIGURE 1

Project Organizational Chart

C.T. Male Project Organizational Chart

TOWN OF KINGSBURY

Client

David W. Roecker, P.E.
Project Principal

Kirk Moline, CEI, CES
Project Manager/ Hydrogeologist

Elizabeth W. Rovers, P.E.
Quality Assurance Officer

Jeffrey A. Marx, P.E.
Project Environmental Engineer

Stephen Bieber
Project Scientist and Health & Safety Officer

Jon Dippert
Tim O'Neill
Dan Achtyl
Field Technicians

Megan Drosky
Data Validator

Subconsultants & Contractors
- Laboratory Services

APPENDIX A
Laboratory Certifications (Pending)

APPENDIX B

Data Validator Qualifications and Experience

Megan A. Drosky

Environmental Scientist/ Data Validator

Ms. Drosky joined C.T. Male in 2005. Her duties include the data validation and preparation of Data Usability Summary Reports (DUSR) for New York State Department of Environmental Conservation (NYSDEC) Brownfield Sites and NYS Superfund Sites, and validation of data for Inactive Hazardous Waste Sites, Landfill Closure and Post Closure Monitoring, and other groundwater monitoring sites, as well as the preparation of Environmental Site Assessments, groundwater investigations/remediation, tank closures, subsurface investigations and Brownfield projects.

Project Experience

Village of Saranac Lake – 400 Broadway Site, Saranac Lake, New York. Performed data validation on Environmental Restoration Program Remedial Investigation soil and groundwater samples following USEPA Region 2 Data Validation Guidelines and NYSDEC Appendix 2B of Draft DER-10 Guidelines, and prepared a DUSR for each data package.

Schuyler Heights Fire District, Watervliet, New York. Performed data validation on Environmental Restoration Program Remedial Investigation soil and groundwater samples following USEPA Region 2 Data Validation Guidelines and NYSDEC Appendix 2B of Draft DER-10 Guidelines, and prepared a DUSR for each data package.

Schenectady Metroplex Development Authority and the City of Schenectady – 314 Clinton Street Site and 312 Broadway Site, Schenectady, New York. Performed data validation on Environmental Restoration Program Remedial Investigation soil and groundwater samples following USEPA Region 2 Data Validation Guidelines and NYSDEC Appendix 2B of Draft DER-10 Guidelines, and prepared a DUSR for each data package for two sites.

National Semiconductor Corporation, Colonie, New York. Prepared a soil vapor intrusion evaluation and sampling plan and conducted soil vapor sampling.

Independent Leather Off-Site, Gloversville, New York. Performed data validation on Brownfield Cleanup Program Remedial Investigation soil samples following USEPA Region 2 Data Validation Guidelines and NYSDEC Appendix 2B of Draft DER-10 Guidelines, and prepared a DUSR for each data package.

Independent Leather, Gloversville, New York. Prepared sub-surface soil samples for laboratory analysis. Performed data validation on Brownfield Cleanup Program Remedial Investigation soil samples following USEPA Region 2 Data Validation Guidelines and NYSDEC Appendix 2B of Draft DER-10 Guidelines, and prepared a DUSR for each data package.

Town of Rotterdam C&D Debris Landfill, Rotterdam, New York. Assisted in the preparation of the Monitoring Reduction Request.

Site Assessments, Schenectady, New York. Conducted Phase I & Phase II Environmental Site Assessment within the City of Schenectady. The Phase II Environmental Site Assessments have included test borings, monitoring wells, and project reporting.

DPW, Bethlehem, New York. Prepared sub-surface soil and groundwater samples for laboratory analysis.

Megan A. Drosky

Environmental Scientist / Data Validator

Arthur Kill Correctional Facility Firing Range, Staten Island, New York. Performed data validation on Remedial Investigation lead soils samples following USEPA Region 2 Data Validation Guidelines and NYSDEC Appendix 2B of Draft DER-10 Guidelines, and prepared a DUSR for each data package.

Durkee Street – Parking Lot Site, Operable Units #1 and #2 Sites, Plattsburgh, New York. Performed data validation on Environmental Restoration Program Remedial Investigation soil vapor and soil samples following USEPA Region 2 Data Validation Guidelines and NYSDEC Appendix 2B of Draft DER-10 Guidelines, and prepared a DUSR for each data package.

Former CP Rail Yard, Plattsburgh, New York. Performed data validation on Brownfield Cleanup Program Remedial Investigation soil samples following USEPA Region 2 Data Validation Guidelines and NYSDEC Appendix 2B of Draft DER-10 Guidelines, and prepared a DUSR for each data package.

South Troy Industrial Park, Troy, New York. Performed data validation on Environmental Restoration Program Remedial Investigation soil samples following USEPA Region 2 Data Validation Guidelines and NYSDEC Appendix 2B of Draft DER-10 Guidelines, and prepared a DUSR for each data package.

Professional Background

- Environmental Scientist, URS Corporation, Morrisville, North Carolina, November 2003 – September 2005.
- Laboratory Technician, Wearcheck USA, Cary, North Carolina, October 2002 – November 2003.
- B.S. in Environmental Science, Long Island University at Southampton College, Southampton, New York, 2002.

Certifications

- OSHA 40-Hour Health and Safety Training Course, 2004
- 8-Hour Health and Safety Refresher Training, 2006
- 4 years prior work experience

APPENDIX C

Guidance for the Development of Data Usability Summary Reports (DUSR)

APPENDIX 2B

Guidance for the Development of Data Usability Summary Reports

Background:

The Data Usability Summary Report (DUSR) provides a thorough evaluation of analytical data without the costly and time consuming process of third party data validation. The primary objective of a DUSR is to determine whether or not the data, as presented, meets the site/project specific criteria for data quality and data use.

The DUSR and the data deliverables package will be reviewed by the DER Quality Assurance Unit. If data validation is found to be necessary (e.g. pending litigation) this can be carried out at a later date on the same data package used for the development of the DUSR.

Personnel Requirements:

The Environmental Scientist preparing the DUSR must hold a Bachelors Degree in a relevant natural or physical science or field of engineering and must submit a resume to the Division's Quality Assurance Unit documenting experience in environmental sampling, analysis and data review.

Preparation of a DUSR:

The DUSR is developed by reviewing and evaluating the analytical data package. During the course of this review the following questions must be asked and answered:

1. Is the data package complete as defined under the requirements forthe NYSDEC ASP Category B or USEPA CLP deliverables?

2. Have all holding times been met?

3. Do all the QC data: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?

4. Have all of the data been generated using established and agreed upon analytical protocols?

5. Does an evaluation of the raw data confirm the results provided in the data summary sheets and quality control verification forms?

6. Have the correct data qualifiers been used?

Evaluation of NYSDEC ASP Matrix Spike Blank (MSB) data - If the MSB recovery is less that the ASP criteria, the positive results should be qualified as J, estimated biased low. If the MSB recovery is less than the ASP criteria, but greater than 10%, the nondetects should be qualified J, biased low. If the MSB recovery is less than 10%, the nondetect data must be rejected.

Any Quality Control exceedances must be numerically specified in the DUSR and the corresponding QC summary sheet from the data package should be attached to the DUSR. All data that would be rejected by the EPA Region 2 Data Validation Guidelines must also be rejected in the DUSR.

Once the data package has been reviewed and the above questions asked and answered the DUSR proceeds to describe the samples and the analytical parameters. Data deficiencies, analytical protocol deviations and quality control problems are identified and their effect on the data is discussed. The DUSR shall also include recommendations on resampling/reanalysis. All data qualifications must be documented following the NYSDEC ASP '95 Rev. guidelines.

APPENDIX D

PROPOSED SCHEDULE

Tentative Schedule

FORMER DIX AVENUE DRIVE-IN THEATER

TOWN OF KINGSBURY, NEW YORK

TASK	MARCH 2008					APRIL 2008					MAY 2008				JUNE 2008					JULY 2008				AUGUST 2008				SEPTEMBER 2008					OCTOBER 2008				NOVEMBER 2008				DECEMBER 2008					JANUARY 2009			
	3	10	17	24	31	7	14	21	28	5	12	19	26	2	9	16	23	30	7	14	21	28	4	11	18	25	1	8	15	22	29	6	13	20	27	3	10	17	24	1	8	15	22	29	5	12	19	26
REMEDIAL DESIGN AND SPECIFICATIONS																																															
Submission of Remedial Design Work Plan (RDWP)																																															
DEC RDWP Review and Approval																																															
Address NYSDEC Comments and Issue Final Remedial Design Work Plan																																															
Completion of RD Investigation (Field Work)																																															
Laboratory Analysis of Soil Samples																																															
Data Validation																																															
Preparation and Submission of Remedial Design Report (75% Submission)																																															
NYSDEC Review and Approval																																															
Development of RD Plans, Specifications and Bid Documents																																															
RD-Public Bid, Subcontractor Bid Evaluation, Selection & Award																																															
Conduct Remediation of Soils Impacted by PCBs above SCGs																																															
Preparation and Submission of Draft Remedial Action Report																																															
DEC Remedial Action Report Review and Approval																																															

Notes: ▲ = Milestone

APPENDIX E

FIELD SAMPLING PLAN
FORMER DIX AVENUE DRIVE-IN THEATER SITE
TOWN OF KINGSBURY
WASHINGTON COUNTY, NEW YORK

ENVIRONMENTAL RESTORATION PROGRAM
FIELD SAMPLING PLAN
FORMER DIX AVENUE DRIVE-IN THEATER SITE
TOWN OF KINGSBURY
WASHINGTON COUNTY, NEW YORK

TABLE OF CONTENTS

1.0 INTRODUCTION

This document is the Field Sampling Plan (FSP) for the soil sampling to be conducted as part of the Remedial Design Work Plan (RDWP) at the Former Dix Avenue Drive-In Theater site ("the site") located at 1177 and 1189 Dix Avenue in the Town of Kingsbury, Washington County, New York. It has been developed in accordance with the RDWP dated January 2008 as prepared by C.T. Male Associates, P.C. A description of the property and available background information are provided in the March 2003 New York State Department of Environmental Conservation Environmental Restoration Record of Decision (ROD) which is appended to the RDWP. The objectives and the proposed scope of work for the soil sampling event are presented in the referenced RDWP.

This FSP is a supplement to the RDWP in that it presents the specific field sampling and data gathering procedures to be followed during implementation of the soil sampling field activity portion of the RDWP. This plan addresses sampling locations and frequencies, decontamination procedures, sampling procedures, field screening and testing procedures, field instrumentation operating procedures, field measurements, and sample handling and chain of custody procedures. The applicable portions of the RDWP that coincide with the FSP will be provided to, and followed by, the field team. This FSP is intended to be applicable to field sampling activities conducted by C.T. Male.

The FSP forms an integral part of the Quality Assurance Project Plan (QAPP). The field sampling and data gathering procedures presented in the FSP are incorporated into the QAPP by reference. The FSP and the QAPP document the laboratory quality assurance/quality control procedures to be followed during analysis of samples collected in the field so that valid data of a known quality is generated.

The FSP has been prepared, in part, in general accordance with the following USEPA and NYSDEC guidance documents:

- Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, EPA/540/G-89/004, USEPA, October 1988.

- A Compendium of Superfund Field Operations Methods, EPA/540/P-87/001, USEPA, December 1987.
- Draft DER-10, Technical Guidance for Site Investigation and Remediation, NYSDEC, December 2002.
- 6 NYCRR Part 375 Environmental Remediation Programs Subparts 375-1 to 375-4 & 375-6, Effective December 14, 2006.

2.0 SAMPLING LOCATIONS AND FREQUENCY

Sampling will be performed for volatile organic vapor screening, subjective media assessment, laboratory analyses, and for geologic characterization of the project site. The environmental media to be sampled includes:

- Surface Soil

The soil sampling will be conducted within sampling cells created by the establishment of a sampling grid pattern over southern portions of the site used in conjunction with the former drive-in. The sampling locations and proposed frequencies are discussed in the appropriate work task section of the RDWP.

Surface and subsurface soil samples are anticipated to be collected within southern portions of the site used in conjunction with the historic drive-in. The sampling locations are depicted on Figure 2 (Proposed Remedial Design Sampling Locations Map) in the RDWP. The samples will be collected from soil sampling cells across southern portions of the site through the establishment of a 40′ by 40′ sampling grid pattern over this portion of the site. Three discrete grab soil samples will be collected from each sampling location and will be collected at the 0″ to 6″ bgs, 6″ to 9″ bgs and 9″ to 12″ bgs depth intervals (i.e., SS-1 (0-6″0, SS-1 (6-9″), etc.). The 0″ to 6″ bgs and 6″ to 9″ bgs samples will be analyzed in the laboratory for the TCL for PCBs by EPA Method 8082. The 9″ to 12″ bgs samples will undergo laboratory extraction and will only be analyzed in the event that the corresponding 6″ to 9″ bgs sample collected at the same sampling location depicts PCB impacts equal to, or exceeding 1 ppm. A total of 342 soil samples will be collected from the 114 sampling locations identified in Figure 1 of the RDWP. The soil samples collected from 0″ to 6″ bgs and 6″ to 9″ bgs depth intervals will be subjected to laboratory analysis for PCBs. The samples collected from the 9″ to 12″ bgs depth interval will undergo laboratory extraction for potential laboratory analysis and will be dependent upon the analytical results of the 6″ to 9″ bgs samples.

Quality Assurance/Quality Control (QA/QC) samples will be collected at a ratio of one set of QA/QC samples per each 20 soil samples collected, and will consist of a duplicate (replicate) sample, matrix spike, matrix spike duplicate, and an equipment (field) blank. QA/QC samples collected in accordance with soil samples that will undergo laboratory extraction will also undergo laboratory extraction and will be analyzed at a ratio of 1 set

of QA/QC samples per 20 laboratory extracted soil samples which undergo laboratory analysis.

3.0 SHOVEL PITTING

3.1 Shovel Pitting Procedures

Shovel Pits will be manually advanced employing a hand spade throughout southern portions of the site to aid in the collection of surface and subsurface soil samples for subjective and laboratory analysis. A total of 114 shovel pits are anticipated for the investigation and their locations established by dividing the southern portion of the site into sampling cells by creation of a sampling grid pattern.

3.2 Surface and Subsurface Soil Sampling

At each sampling location, three (3) grab soil samples will be collected at discrete depth intervals of 0" to 6" bgs (surface soil sample), 6" to 9" bgs (subsurface soil sample), and 9" to 12" bgs (subsurface soil sample). At locations where vegetation exists, the vegetation will be removed to a point below the root zone and the surficial soil sample will be collected to a depth of six (6) inches below the root zone. In areas where there is a layer of leaf litter, the leaf litter will be removed.

The soil samples will be collected from the sidewall of the test pit at the designated depth intervals. The samples will be collected employing a decontaminated stainless steel sampling trowel/spoon or will be collected by hand, donned with new, clean nitrile gloves.

3.3 Shovel Pitting Operations and Surface and Subsurface Soil Sampling Locations

The shovel pits will be performed by C.T. Male Associates, P.C. representatives, who will also be responsible for the collection of soil samples and field screening of soil samples.

Field system audits will be conducted and field reports will be prepared that document the daily activities and their conformance to the work plan (described further in Sections 10.1 and 13.0 of the QAPP). A copy of the forms to be utilized by the applicable field team personnel as part of the field quality assurance/quality control (QA/QC) procedures are presented in Appendix A of this FSP.

The project manager will be kept informed of the progress of work and any problems encountered during the field investigations so that the appropriate corrective action can be implemented and the Town of Kingsbury and NYSDEC can be notified.

3.4 Shovel Pitting and Soil Sampling

The test pits will be manually advanced employing a hand spade to an approximate vertical depth of 1′ to 2′ bgs. Upon completion of the test pit, three discrete soil samples will be collected from the 0″ to 6″ bgs, 6″ to 9″ bgs and 9″ to 12″ bgs depth intervals. The samples will be collected employing either a decontaminated stainless steel sampling trowel/spoon or by hand, donning new, clean nitrile gloves. The hand shovel will be decontaminated prior to commencing the test pitting and between each of the test pits with a non-phosphate detergent (Alconox) and water mixture and rinsed with copious amounts of tap water.

All soils will be visually classified in the field in general conformance with the Unified Soil Classification System in general accordance with ASTM D-2488, Standard Practice for Description and Identification of Soils. The soil description may include matrix and clast descriptions, moisture content, color, appearance, odor, behavior of the material and any other pertinent observations. This information will be recorded on a shovel pit log form along with the test pit identification, date started and completed, and sampling intervals. During the test pitting a photoionization detector (PID) meter will be used to monitor the volatile organic vapors exiting the test pit and of all recovered soil samples. All of these visual observations and field measurements will be recorded on the Shovel Pit Log and Organic Vapor Headspace Analysis Log. Blank copies of these logs are enclosed in Appendix A.

3.5 Soil Sampling and Soil Field Screening Procedures

The specific soil sampling procedures that will be followed for the surface and subsurface soil samples include the following:

1. A cleaned (per Section 3.6) hand spade will be used by the C.T. Male representative advancing the test pit. Clean disposable gloves will be worn when handling the shovel at each soil sample location.

2. Soil samples will be collected at three discrete depth intervals by advancing the shovel to the desired one to two foot sampling depth.

3. For samples to be collected for laboratory analysis, the sample container label will be completed with the sample location (test pit nomenclature), sample interval, sampler's initials, date, and time. The client, project name, site location, matrix, sample type (grab/composite) and laboratory analyses to be performed will also be recorded on the sample label.

4. Upon completion of the test pit, the desired soil interval (i.e., 0 to 6" bgs) will be collected from the test pit sidewall employing a clean (per Section 3.6) stainless steel trowel, spoon, or a new pair of disposable gloves. The sample will then be transferred into pre-cleaned laboratory provided glass jars and the jars will be sealed. Sampling personnel will wear a new pair of disposable gloves for each sample interval retrieved from the test pit sidewall. A portion of the remaining soil within each sampling interval will be placed in a new plastic zip lock bag, not more than one-half full, and sealed. This sample will be for head space analysis screening in the field for volatile organic compounds (VOCs) using a PID meter.

5. The soil samples will be classified and the test pit log completed as described in Sections 3.3 and 3.4.

6. The sampling equipment will be decontaminated per Section 3.6.

All of the shovel pit soil samples, where sufficient sample is recovered to generate a headspace sample, will be screened in the field with a PID meter on a daily basis. The sample will be allowed to equilibrate to ambient temperature; the plastic bag will be shaken for 30 seconds and allowed to equilibrate for 1 minute; the bag will be pierced with the tip of the PID meter; and the reading taken. The readings will be recorded on a C.T. Male Associates, P.C. Organic Vapor Headspace Analysis Log form. A blank copy is enclosed in Appendix A. The PID meter calibration procedures are discussed in Section 6.0.

3.6 Decontamination of Sampling Equipment

The hand spade used for the advancement of the shovel pits and stainless steel trowels, spoons, etc., used for sample collection will be cleaned prior to use, in between each

sampling location (shovel) and sampling interval (trowels, spoons, etc.) and at completion of the work using the following procedure:

1. Remove any excess soil remaining on the spade and stainless steel trowel/spoon.

2. Prepare a solution of tap water and non-phosphate detergent in a wash bucket, and scrub the equipment with a brush to remove any adhering particles.

3. Rinse the equipment with copious amounts of tap water.

4. Place clean equipment on clean polyethylene sheeting.

5. New disposable gloves will be worn when cleaning and handling the equipment to avoid contamination.

6. The water in the wash and rinse buckets will be changed frequently to avoid cross contamination.

The decontamination rinse water will be collected and placed in 55-gallon drums and stored at the project site for disposal during performance of the remedial action. Disposable protective clothing such as tyvek suits, gloves, etc. will be placed in a garbage bag and disposed of as a solid waste. The personnel decontamination procedures will be detailed in the Site Specific Health and Safety Plan, which will be submitted under separate cover.

4.0 SOIL SAMPLING PROCEDURES

4.1 Headspace Analysis

The soil samples collected from the test pits will be screened for the presence of petroleum/chemical related hydrocarbons by headspace analysis utilizing a photoionization detector (PID), to subjectively assess the recovered soil samples for evidence of petroleum/chemical contamination. The sample is transferred from the shovel pit sidewall into a zip lock bag, sealed, shaken and then allowed to sit for several minutes. Once the sample has had a chance to sit or "volatilize," the vapor space inside the bag will be analyzed by inserting the tip of the PID through the bag, as described in Section 3.5.

4.2 Analytical Soil Sampling

Select soil samples will be subjected to laboratory analysis to assist in defining the horizontal and vertical extent of the contamination at the project site. The soil samples will be analyzed for the Target Compound List for PCBs by EPA Method 8082. Only new pre-cleaned laboratory provided sample containers and caps will be used for sample collection/analyses. All sample containers will be prepared by the laboratory before each sampling event. The container type, cap type and preservative requirements for the analytical parameters (soil) to be analyzed are summarized in Table 2.

TABLE 2
Analytical Requirements for Containers and Preservatives for Soil Sampling

PARAMETER	CONTAINER	TOP	PRESERVATION	COMMENTS
TCL PCBs (Soil)	4 oz Glass	Teflon	Cool	NA

5.0 QUALITY CONTROL DURING SAMPLING IN THE FIELD

Quality control samples will be taken during the field sampling to monitor sampling technique, sampling equipment cleanliness, sample variability, sample handling and laboratory performance (analytical reproducibility). The quality control samples will include replicate samples and equipment/field blanks.

Replicate samples are samples taken from the same location with the same sampling device. Replicate samples are used to check on laboratory reproducibility, sampling technique and sample variability. The replicate samples will be coded so that the laboratory is not biased in performing the analyses. The code that is used will be identified in the field notes and on the sampling logs, but not on laboratory correspondence.

One replicate soil sample will be taken for every twenty (20) investigative samples submitted to the laboratory for analysis. The replicate soil samples will be collected after the desired sampling interval is thoroughly mixed in a stainless steel bowl to achieve a homogeneous sample and then equally spilt into the various analytical containers.

Equipment/field blanks are samples taken to monitor sampling equipment cleanliness and decontamination procedures during field sampling. One equipment/field blank will be taken during soil sampling for every twenty (20) investigative samples submitted to the laboratory for analysis for the parameters of concern. The equipment/field blanks will be taken as follows:

Soil Sampling - After the stainless steel sampling trowel/spoon, and/or stainless steel bowl has been decontaminated and are ready for sampling, pour deionized water through and/or over the sampling equipment and collect it in the sample container(s).

The equipment field blanks will be identified as such and by the location to be sampled (i.e., equipment blank before SS-8 (0 to 6") and after SS-7 (9" to 12").

The analyses to be performed on the replicate and equipment/field blanks are presented in Table 2 of the QAPP. Additional QC/QA procedures are discussed in the QAPP.

6.0 FIELD INSTRUMENTATION OPERATING PROCEDURES

6.1 General

The field instruments that will be utilized during implementation of the RDWP soil sampling is a photoionization detector (PID) meter for air monitoring of the total VOCs during test pitting and for headspace analysis of soil samples. The PID will be calibrated and operated in accordance with the manufacturer's instructions and the procedures identified in the following sections.

6.2 Photoionization Detector Meter

A MiniRae PID meter and data logger with a 10.6 eV lamp will be utilized to measure total VOCs. The instrument is calibrated at the factory upon purchase and annually thereafter using certified service shops who utilize standards of benzene and isobutylene. Prior to use in the field, the instrument will be calibrated in accordance with the manufacturer's instructions using a disposable cylinder containing isobutylene obtained from Pine Environmental Services, Inc. of Hightstown, New Jersey. The calibration value varies by the manufacturer, however, 100 parts per million is commonly utilized by C.T. Male. During use the PID meter will be calibrated at least once every 8 hours. The calibration procedure is contained in the Photovac Microtip User's Manual.

Care will be taken when handling and using the PID meter to prevent any debris from entering the sample line which will effect the instrument's operation. If this occurs the field personnel will clean the unit or replace it with a functional PID meter.

7.0 SAMPLE HANDLING AND CHAIN OF CUSTODY PROCEDURES

Just prior to sampling and filling the sample containers, the label on the container will be completed with the required information. After filling the sample containers they will be wiped with a paper towel, and placed in a protective bubble or foam wrap to protect it during transport. The container(s) will be placed in a cooler with double bagged ice packs, to maintain a temperature of 4°C.

A Chain of Custody Record will be completed by the sampler in the field after securing analytical samples. The sampler will be responsible for retaining possession of the samples until they are delivered to the laboratory or until they are delivered to a courier or common carrier for shipment to the laboratory. When the samples are released from the custody of the sampling personnel, the Chain of Custody Record will be signed by both relinquishing and receiving parties with the date and time indicated. A copy of the form will be retained by the sampler for inclusion in the project files and the original form will accompany the shipment. The Chain of Custody Record will then be signed by the relinquishing party and receiving laboratory personnel when the samples are ultimately received at the laboratory.

If samples are shipped, a bill of lading or an air bill will be used and retained in the project files as documentation of sample transportation. Prior to shipment, the cooler will be securely wrapped with clear tape to protect it from tampering. A separate additional Chain of Custody Record will be completed for each cooler of samples. This form will be placed in a plastic bag and taped to the underside of the cooler lid. This form will be used by the laboratory personnel as a check to verify that the containers listed on the form are present in the cooler when they are received at the laboratory. A copy of the signed Chain of Custody Record will accompany the laboratory analysis reports. A blank Chain of Custody Record form is enclosed in Appendix A.

APPENDIX A

QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) FORMS

and

FIELD REPORT FORMS

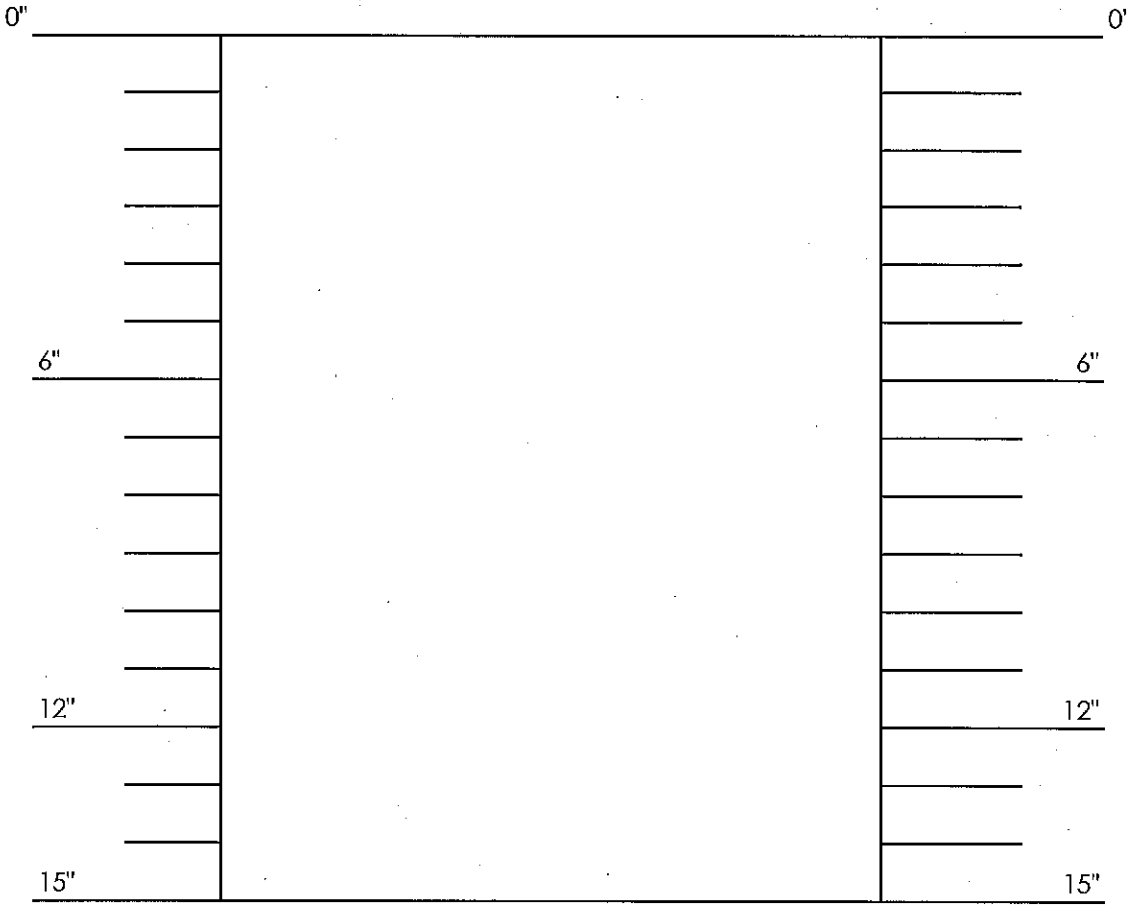
SHOVEL PIT LOG

C.T. MALE ASSOCIATES, P.C.
50 Century Hill Drive, P.O. Box 727
Latham, NY 12110-0727
(518) 786-7400 • FAX (518) 786-7299
Building Systems • Engineering • Environmental Services • Land Information Services

PROJECT NAME: Former Dix Avenue Drive-In Theater
PROJECT NUMBER: 07.7412
LOGGED BY: _____

EXCAVATOR: _____
EQUIPMENT: Hand-Held Spade
DATE: _____

SHOVEL PIT NO.



TOTAL DEPTH: _____
WATER AT: _____
SIZE OF SHOVEL PIT: _____

NOTES: _____

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT:	PROJECT #:	PAGE 1 OF
CLIENT:		DATE
LOCATION:		COLLECTED:
INSTRUMENT USED:	LAMP eV	DATE
DATE INSTRUMENT CALIBRATED:	BY:	ANALYZED:
TEMPERATURE OF SOIL:		ANALYST:

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: _____ Time On-Site: _____ Time Off-Site: _____

Project Name: _____ Project No.: _____

Purpose: _____ Field Report No: _____

Weather Conditions: _____

Present at Site: _____

Observations: _____

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

Environmental Services Field Log
(continued)

Project Name: _____ Project No.: _____

Observations: _____