FORMER CANINE KENNEL SITE
GABRESKI AIRPORT
WESTHAMPTON BEACH, NEW YORK
BCP SITE ID: C152079
IHWDS SITE ID: 152079

REMEDIAL ACTION WORK PLAN

SUBMITTED TO:

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau A, Section C
625 Broadway
Albany, New York 12233

PREPARED FOR:

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PWGC Project Number: SHD1303

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PWGC
Strategic Environmental Engineering Solutions

P.W. GROSSER CONSULTING INC.
PROJECT No. SHD1303

REMEDIAL ACTION WORK PLAN

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FRANCIS S. GABRESKI AIRPORT
WESTHAMPTON BEACH, NEW YORK
BCP Site # C152079
IHWDS Site # 152079

Submitted:
September 2014

Prepared for:
The New York State Department of Environmental Conservation
Division of Environmental Remediation

On behalf of:
Suffolk County Department of Health Services
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Paul K. Boyce, PE
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I Paul K. Boyce, PE certify that I am currently a NYS registered professional engineer as defined in 6 NYCRR Part 375 and that this Remedial Action Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

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1.0 INTRODUCTION

P.W. Grosser Consulting, Inc. (PWGC) was contracted by the Suffolk County Department of Health Services (SCDHS) to prepare a Remedial Action Work Plan (RAWP) for the Former Canine Kennel Site located within the Francis S. Gabreski Airport in Westhampton Beach, New York. The site is currently entered as a volunteer in the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program as Site No. C152079 and is registered as a New York State Class 2 Inactive Hazardous Waste Disposal Site (IHWDS) as Site No. 152079.

1.1 Purpose and Organization

The objective of the RAWP is to detail a remedial design for the approved remedial alternative as detailed in the Alternative Analysis (AA) Report dated November 2013 prepared by PWGC. The findings of the AA Report are summarized in this RAWP and the AA Report is included as **Appendix A**.

This report contains the following seven sections,

- Section 1.0, Introduction, provides purpose and organization of the RAWP, references the site background information, and summarizes previous investigations, including the site Remedial Investigation (RI).
- Section 2.0, Details the scope and results of the Interim Remedial Measure (IRM) and post IRM verification and characterization sampling, monitoring and testing conducted at the site. This section also discusses the conceptual model for the site, which outlines the fate and transport of on-site contamination.
- Section 3.0, Details the Remedial Action Objectives (RAOs), identifies the Standards, Criteria, and Guidelines (SCGs) that are applicable to the site and presents the remedial action plan.
- Section 4.0, Details the remedial action and provides specific design elements, engineering and institutional controls to be implemented and details the reporting requirements going forward.
- Section 5.0, Provides Health and Safety requirements to implement the RAWP.
- Section 6.0, Provides a remedial schedule for construction and implementation of the RAWP.
- Section 7.0, Provides a list of documents referenced in preparation of this RAWP.

1.2 Site Description

The Site is located in the County of Suffolk, and hamlet of Westhampton Beach, New York and is identified as a portion of District 0900, Section 312.00, Block 01.00 and Lot 004.002 on the Suffolk County Tax Map. A United

States Geological Survey (USGS) topographical quadrangle map **Figure 1** shows the Site location. The Site is situated on approximately one-acre area wooded parcel within the core preservation area of the central Pine Barrens. The subject site is bounded by wooded land (Pine Barrens) to the north, east and south, and a boat storage yard to the west (see **Figure 2**).

1.3 Description of Surrounding Property

The site is located on the eastern edge of the Francis S. Gabreski Airport. The site adjacent to and west of the site is occupied by a boat storage facility, further west are the runways and the support buildings for the airport. Immediately north and south of the site are undeveloped areas of the airport site. The Quogue Wildlife Refuge is located to the east of the site.

The nearest residential properties are located approximately 0.5 miles to the east and south of the site. These residential areas have municipal water service provided by the Suffolk County Water Authority.

1.4 Redevelopment Plan

The site is currently undeveloped and is located within the boundaries of Francis S. Gabreski airport. The property is currently zoned for light industrial use. The Canine Kennel site is within the core preservation area of the central Pine Barrens and the site will remain undeveloped with restricted access.

1.5 Site History

In 1943, the federal government built the airport for use as an Air Force base during World War II. After the war, it was given to Suffolk County. In 1951, the airport was reclaimed for the Korean War National Emergency. In 1960, the US Air Force leased the site for an Air Defense Command Base, which was deactivated in 1969, then released back to Suffolk County in 1970.

During deactivation activities (Spring 1970), the Suffolk County Air Force Base used the Canine Kennel Area to bury inert wastes, such as office furniture. The site was also used for the disposal of polychlorinated biphenyl (PCB) containing electrical distribution equipment such as transformers and capacitors.

1.6 Hydrogeologic Setting

1.6.1 Regional Geology/Hydrogeology

The geologic setting of Long Island is well documented and consists of crystalline bedrock composed of schist and gneiss overlain by layers of unconsolidated deposits. Immediately overlying the bedrock is the Raritan Formation, consisting of the Lloyd sand confined by the Raritan clay Member. The Lloyd sand is an aquifer and consists of discontinuous layers of gravel, sand, sandy and silty clay, and solid clay. The Raritan clay is a solid and

silty clay with that is gray, red or white in color with few lenses of sand and gravel and abundant lignite and pyrite.

Above the Raritan Clay lies the Magothy Formation. The Magothy aquifer consists of layers of fine to coarse sand of moderate to high permeability, with inter-bedded lenses of silt and clay of low permeability resulting in areas of preferential horizontal flow. Therefore, this aquifer generally becomes more confined with depth. The Magothy Formation is overlain by the Upper Glacial deposits which contains the Upper Glacial aquifer. The Upper Glacial aquifer is the water-table aquifer at this location and is comprised of medium to coarse sand and gravel with occasional thin lenses of fine sand and brown clay. This aquifer extends from the water table to the top of the Magothy and, therefore, is hydraulically connected to the Magothy aquifer.

The aquifer of concern at the former Canine Kennel site is the Upper Glacial aquifer which is an unconsolidated mixture of sand and gravel. The Upper Glacial aquifer is approximately 100 feet thick (saturated zone) at the site, and has an estimated average horizontal hydraulic conductivity (permeability) of 270 feet/day and a vertical hydraulic conductivity of 27 feet/day (Franke & Cohen, 1972).

Clay layers, such as the Gardiners clay and the "20-Foot-clay," where present, may act as local confining units, separating the Upper Glacial aquifer from the underlying Magothy aquifer which is the principal source of drinking water in Suffolk County. These clay layers extend throughout much of the south shore of Long Island and are present just south of the site.

1.6.2 Site Geology/Hydrogeology

Based on data collected during monitoring well installation, depth to groundwater ranged from approximately 9.5 to 14.5 feet bgs. No confining unit (clay) was present at the monitoring well locations to the depth investigated. Regional groundwater flow at the site is to the southeast. Based upon the groundwater measurements obtained from the site monitoring wells on April 25, 2008, local groundwater flow direction was determined to be to the east-southeast (**Figure 3**).

1.7 Previous Investigations

In March 1984, the NYSDEC investigated the site in response to a complaint from a local citizen's group. At that time, the NYSDEC observed several half-buried capacitors leaking PCB oil within a ten-foot deep pit. In May 1984, nine soil samples were collected for laboratory analysis. Eight contained the PCB Aroclor-1254 in concentrations up to 1,700 parts per million (ppm).

In January 1986, a NYSDEC contractor noted that the pit was only half as deep as previously stated, and that the capacitors were no longer visible. The area showed signs of recent earthwork activities and was devoid of vegetation.

In November 1996, Dvirka and Bartilucci Consulting Engineers (D & B) performed a preliminary site assessment. D & B determined regional groundwater flow direction to be towards the southeast, and installed and sampled one up-gradient (GP-1) and five down-gradient (GP-2 through GP-6) GeoprobeTM monitoring wells. Groundwater was encountered between 9 and 12 feet below grade. Two groundwater samples were obtained from each GeoprobeTM location, one at the water table interface and one at 15 feet below the water table. PCBs were below detection limits in each of the 12 samples analyzed. Traces of the pesticides 4,4'-DDD and 4,4'-DDT were detected in the up-gradient well only. Based upon the groundwater results, D & B prepared a Preliminary Site Assessment (PSA) report (1998) that stated that PCBs previously detected in surface soils were not impacting local groundwater quality. The NYSDEC has also concluded that PCBs have not impacted local groundwater.

In July 2000, the NYSDEC performed additional soil sampling. Thirteen soil samples were collected at six locations at two depths (surface (0-4") and subsurface (2'-4') below grade) and one soil sample was removed from the end of a capacitor located at the site. The highest soil concentration found was 280,000 ppm adjacent to a capacitor. There was a "hot spot" identified near soil samples #1, 2 and 5, where the levels ranged from 1,900 ppm to 150,000 ppm at the surface and 120 ppm to 20,000 ppm at 2.5' to 3.5' below grade. Soil #3 and #4 contained PCBs levels of 3.9 ppm and 17 ppm at the surface, and less than 10 ppm at a depth of 2.5'. Concentrations of PCBs at soil sample #6 were less than 1.0 ppm. These samples were obtained from the same area previously sampled in May 1984.

1.8 Remedial Investigation

In November 2008, PWGC performed a Remedial Investigation (RI) at the former Canine Kennel site. The investigation consisted of a geophysical survey, soil and groundwater sampling, test pit excavations and the removal of identified capacitors suspected to contain PCBs.

Geophysical and test pit investigations confirmed that the area of disposal was limited to the western/central portion of the site adjacent to the fence line and boatyard.

The PCB Aroclor-1254 was detected in soil samples ranging in depth from 0-2 inches below ground surface (bgs)

to approximately 8.5 feet bgs. Fifty-nine soil samples had concentrations of Aroclor-1254 above the Residential Use Soil Cleanup Objective (RUSCO) of 1.0 ppm ranging from 1.1 to 86,000 ppm (directly underneath one of the removed capacitors). Surface soil samples showed the largest area of impact (across the western and central areas of the site). PCBs were also detected at concentrations greater than the RUSCO in surface soils within the unpaved eastern portion of the adjacent boatyard. Spread of PCBs within surface soils at the site was determined to likely be a result of physical processes, including localized surface runoff of PCB-contaminated soils from the on-site disposal area westward following the surface topography.

PCBs in the 2.0-2.5 feet depth samples were limited to the western central area of the site and coincide with the main area of existing debris and the former capacitor locations. Three isolated areas of impact at depths of 4.0 feet bgs or greater were also identified, two of which coincided with the main area of debris and the former capacitor locations. A third area was identified northeast of the capacitor locations. No pesticides were detected at concentrations exceeding Residential Use SCOs in soil samples collected at the site.

Based on the findings of the RI completed in November 2008, PWGC recommended that an IRM be implemented at the site to remove PCB impacted soils from the unpaved portion of the boatyard and former capacitor areas.

RI Sample locations and analytical data are included in **Figure 4A**, **Figure 4B** and **Figure 4C**.

2.0 INTERIM REMEDIAL MEASURE

Based on the findings of the RI, PWGC recommended implementation of an IRM to remove PCB impacted soils from former capacitor locations and within the adjacent boatyard. PWGC prepared an IRM Work Plan (March 2012) and IRM Addendum (May 18, 2012) which were approved by the NYSDEC in a letter dated July 13, 2013. The approved IRM scope of work included:

- Additional soil sampling to further delineate the extent of PCB impact within the unpaved portion of the boatyard.
- Removal and disposal of PCB impacted soil from the unpaved portion of the boatyard. Removal and disposal of PCB impacted soils from former capacitor locations (i.e., the locations with the most elevated concentrations of PCBs).
- Collection of endpoint samples to confirm the effectiveness of remedial activities.
- Backfill of capacitor location excavations to prevent residual PCB impacted soils from being exposed to the environment.
- Installation of storm water control to prevent storm water runoff from entering the boatyard.

PWGC implemented the IRM at the site from August 2012 through April 2013. A summary of work performed as part of the IRM is detailed below:

- PWGC performed delineation soil sampling to determine the necessary excavation boundaries within the boatyard. Following delineation, soils were removed from the excavation area to a depth of six inches bgs. Based on endpoint sampling, additional soils were removed (to depths of 12 to 18 inches bgs) at several locations. Following additional soil removal, PCB concentrations in endpoint samples from the boatyard were below the NYSDEC RUSCO of 1.0 ppm.
- Soils were removed to a depth of one foot bgs in the vicinity of former capacitor locations CA-1, CA-2 and CA-3. Following soil removal, PCB concentrations in endpoint samples were below the site specific SCO of 1,000 ppm (established in the IRM Work Plan). Endpoint samples collected from capacitor locations CA-2 and CA-3 were below the NYSDEC RUSCO of 1.0 ppm for PCBs, while the endpoint sample from capacitor location CA-1 only slightly exceeded the NYSDEC RUSCO (1.2 ppm).
- IRM excavation activities within the boatyard and capacitor locations generated a total of 227.23 tons of PCB contaminated soils. Excavated soils were transported by a licensed waste hauler, and disposed of at CWM Chemical Services LLC in Model City, New York (USEPA ID: NYD049836679).

- Upon completion of soil removal activities, excavation areas were backfilled with NYSDEC approved backfill material and capped with RCA. Additionally, a one foot high earthen berm constructed of NYSDEC approved backfill material and capped with RCA was installed at the eastern boundary of the boatyard to minimize overland runoff of storm water from the former Canine Kennel site into the boatyard.

IRM delineation and endpoint sample data are included in **Figure 5A** and **Figure 5B**. A detailed description of the IRM, including the scope of work, figures, tables and analytical data is included in the IRM Completion Report dated June 2013.

2.1 Conceptual Model of Site Contamination

On-Site contamination has been identified to consist of PCB impacted soil resulting from the disposal of PCB-containing equipment. Impact appears limited to the soil as PCBs were not detected in the groundwater at the site.

Off-Site PCB soil contamination was detected on the adjacent boatyard which is leased Suffolk County land. Off-Site contamination was limited to the eastern portion of the boatyard adjacent to the disposal area. Off-site contamination was addressed by the August 2012 IRM for the site.

3.0 REMEDIAL ACTION OBJECTIVES

RAOs are developed for the protection of human health and the environment, based on contaminant characterization, contaminant transport, a qualitative human exposure assessment, and compliance with applicable SCGs.

3.1 Remedial Action Objectives (RAOs)

In accordance with Part 375-3.8, the chosen remedy shall be fully protective of public health and the environment including, but not limited to, groundwater, drinking water, surface water and air (including indoor air). The BCP program allows for various specific RAOs based upon the proposed clean-up Track.

The final remedial measure for the canine kennel site must satisfy the RAOs. Remedial Action Objectives are site specific statements that convey the goals for minimizing or eliminating risks to public health and the environment.

The following subsections summarize the contaminants of concern, general locations of contaminants, and the RAOs for each of the identified media. These RAOs are based on the findings of the RI and the anticipated future use of the project site, which is to remain undeveloped.

3.1.1 Surface Soil

Contaminants of concern detected in the surface soil consist of PCBs. The RAOs for this medium are to prevent exposure of human and environmental receptors to these contaminants via dermal contact, incidental ingestion, and inhalation of particulates, and to prevent the discharge of contaminated storm water runoff and eroded surface soil to off-site locations.

3.1.2 Subsurface Soil

Contaminants of concern detected in the subsurface soil consist of PCBs. The RAOs for this medium are to prevent the exposure of humans and environmental receptors to contaminated subsurface soil via dermal contact, and incidental ingestion or inhalation of particulates and to mitigate contaminant migration into groundwater.

3.2 Remedial Action Plan

Remedial alternatives are evaluated as part of a detailed Alternative Analysis Report developed for the site by PWGC in July 2014. A copy of the Alternative Analysis is included as **Appendix A**.

3.2.1 Selection of the Preferred Remedy

The Applicant's preferred remedy for the site, as detailed in the Alternative Analysis is Alternative 4 – Site Specific SCOs with Soil Cap (Track 4). This remedy includes the excavation of soils from the site in excess of a site specific SCO of 10 ppm for total PCBs, and installation of a cap of clean fill material over soils at the site with total PCB concentrations in excess of 1 ppm. Alternative 4 also meets the requirements for a presumptive remedy for PCB impacted soils as specified in Section I of NYSDEC Commissioner's Policy CP-51 (October 2010). The approximate excavation area and soil cap extent for Alternative 4 is illustrated in **Figure 6**.

Overall Protectiveness of Public Health and the Environment

Alternative 4 would achieve the RAOs to a site specific SCO of 10 ppm total PCBs for surface and subsurface soil. Additionally, a cap of clean fill material would be installed over residually impacted surface soils (in excess of 1.0 ppm total PCBs). Development of a SMP, filing of an Environmental Easement, and annual certification will be required.

Compliance with Remedial Goals, SCGs, and RAOs

Clean soil above residual impacted subsurface soil would act as a cover system to limit the potential for contact with impacted material. However, impacted subsurface soil above Unrestricted Use SCOs, but below the site specific SCO of 10 ppm total PCBs, would remain at the project site.

Short-Term Impacts and Effectiveness

The short-term adverse impacts and exposure to the public and the environment during the implementation of Alternative 4 is minimal. Short-term exposure to on-site workers during excavation and loading activities will be addressed with a HASP and mitigated through the use of personal protective equipment, monitoring and engineering controls. Potential short-term exposure to the surrounding community will be addressed through the use of odor and dust-suppression techniques and through the implementation of a CAMP which will require air monitoring activities during all excavation and soil disturbance activities.

Long-Term Effectiveness and Permanence

Alternative 4 achieves long term effectiveness and permanence by covering residual impacted soils with clean fill material and restricting use of the site through an Environmental Easement. Under this Alternative, risk from soil impact is eliminated for on-site workers and off-site residents. This alternative is capable of meeting RAOs for soil in the future.

Reduction of Toxicity, Mobility or Volume through Treatment

Alternative 4 will reduce the mobility, volume and toxicity of contaminants from on-site surface soil and sediment. However, subsurface soil contamination would remain below the site specific SCO of 10 ppm for total PCBs..

Implementability

Alternative 4 can be implemented using readily available and proven technologies. Both the technical and non-technical aspects of implementing this alternative are feasible.

Cost-Effectiveness

The costs associated with implementation of Alternative 3 are estimated at:

Capital Costs	$	545,000 (Includes a 20% contingency)
PRSC Costs	$	100,000
Total Costs	$	645,000

The capital costs for this estimate include the construction, equipment, materials, waste disposal, and indirect capital costs such as engineering and design expenses, development of a SMP, and legal and administrative costs. The PRSC costs for this estimate include implementation of the SMP, and annual certification for a minimum of 20 years.

Compatibility with Land Use

The proposed future land use is to remain undeveloped. Alternative 4 is compatible with respect to the proposed land use and to land uses in the vicinity of the site. The alternative is consistent with NYSDEC BCP and IHWDS goals for cleanup of contaminated land and brings the property into productive use. The alternative is protective of natural resources and cultural resources.

4.0 REMEDIAL ACTION ACTIVITIES

The remedial action for the site consists of soil removal in excess of the site specific SCO, installation of a cap of clean fill material over residual impact, and implementation of institutional controls to remain in place following the completion of remedial activities. The individual remedial activities are detailed in the following sections.

4.1 Governing Documents

4.1.1 Site Specific Health and Safety Plan

The Health and Safety Plan (HASP) takes into account the specific hazards inherent to the site and presents the minimum requirements which are to be met by the remediation contractor and its subcontractors, P.W. Grosser Consulting Inc. (PWGC) and its subcontractors, and other on-site personnel in order to avoid and, if necessary, protect against health and/or safety hazards. The site specific HASP is included as **Appendix B**.

Contractors and subcontractors will have the option of adopting this HASP or developing their own site-specific document. If a contractor or subcontractor chooses to prepare their own HASP, it must meet the minimum requirements as detailed in the site HASP prepared by PWGC and must be made available to PWGC and the NYSDEC.

Activities performed under the HASP will comply with applicable parts of OSHA Regulations, primarily 29 CFR Parts 1910 and 1926, and the PWGC Corporate Environmental Health and Safety policy. Modifications to the HASP may be made with the approval of the PWGC Health and Safety Manager (HSM) and/or Project Manager (PM).

4.1.2 Quality Assurance Project Plan

The quality assurance project plan (QAPP), included as **Appendix C**, presents the objectives, functional activities, methods, and quality assurance / quality control (QA/QC) requirements associated with sample collection and laboratory analysis for remedial activities. The QAPP follows requirements detailed in DER-10, Section 2.

The components of the QAPP include:

- Project Organization,
- Sampling requirements, including methodology, identification, quantity, volumes, locations, frequency, chain of custody procedures, and sample packaging,
- Field/Laboratory data control requirements,
- Equipment decontamination, and
- Field documentation.

4.1.3 Community Air Monitoring Plan

A site specific Community Air Monitoring Plan (CAMP) has been prepared and included as **Appendix D** to provide measures for protection for on-site workers and the downwind community (i.e., off-site receptors including residences, businesses, and on-site workers not directly involved in the remedial work) from potential airborne contaminants as a direct result of the remedial activities. The primary concerns for this Site are PCBs and dust particulates.

The CAMP will be implemented and executed in accordance with 29 CFR 1910.120(h), the NYSDOH Generic CAMP, and NYSDEC TAGM #4031.

4.1.4 Community Participation Plan

Prior to NYSDEC approval of this RAWP, there will be a 45 day public comment period. Notification of the start of the 45 day public comment period will be performed in accordance with the Community Participation Plan (CPP) prepared for the site.

A certification of mailing will be sent by the Participant to the NYSDEC project manager following the distribution of all Fact Sheets and notices that includes: (1) certification that the Fact Sheets were mailed, (2) the date they were mailed; (3) a copy of the Fact Sheet, (4) a list of recipients (contact list); and (5) a statement that the repository was inspected on (specific date) and that it contained all of applicable project documents.

No changes will be made to approved Fact Sheets authorized for release by NYSDEC without written consent of the NYSDEC. No other information, such as brochures and flyers, will be included with the Fact Sheet mailing.

A copy of the CPP for this project is included as **Appendix E**.

Document repositories have been established at the following locations and contain all applicable project documents:

Westhampton Free Library

7 Library Lane, Westhampton Beach, New York 11978

631-288-3335

Hours: Mon.-Fri. 9:30AM to 9:00PM; Sat. 9:30AM to 5:00PM; Sun. 12:00PM to 4:00PM

4.2 Soil Excavation and Removal

Based on previous investigations, PCB impact is present within near surface soils at the site. Soils impacted with PCBs above the site specific SCO for total PCBs of 10 ppm will be excavated and removed from the site. The area to be excavated for off-site disposal is estimated to be approximately 4,720 square feet, and up to 4.5 feet deep (total volume of approximately 7,470 cubic feet or 277 cubic yards).

Soil excavation and removal will be performed in accordance with the engineering specifications detailed in Section 5.0. Soils will be excavated from the proposed excavation area utilizing an excavator. If necessary, soils will be screened during excavation and stockpiled on the eastern portion of the site. Soils will be screened utilizing a photoionization detector (PID) capable of detecting the presence of VOCs. Soils exhibiting significantly elevated PID responses or odors may be segregated and stockpiled from other soils being excavated. Soil stockpiles will be constructed and maintained in accordance with Section 5.1.2. Impacted soils will be removed from around trees within the planned excavation areas; however, trees will be left in place. Shrubs and underbrush within the excavation area will be cleared and left onsite. Upon the completion of impacted soil removal, excavation areas will be backfilled to grade with clean fill material.

The final limit of the excavation will be determined in the field based upon confirmatory endpoint soil sample analytical results (see Section 4.3.2).

The proposed excavation area and depths are illustrated in **Figure 6**.

4.3 Installation of Soil Cap

Following completion of excavation activities, areas where residual PCB impact is present will be capped with a minimum of 12 inches of clean fill material. The area to be capped with clean fill material is estimated at approximately 7,330 square feet.

Installation of the soil cap will be performed in accordance with the engineering specifications detailed in Section 5.0. Clean fill will be imported from an NYSDEC approved facility and installed using an excavator and/or front end loader. The soil cap will be installed around trees within the planned cap area without removing the trees. Shrubs and underbrush within the soil cap areas will be cleared and left onsite.

4.4 Remedial Monitoring

This monitoring plan was developed to evaluate the performance and effectiveness of the remedial alternative achieving RAOs.

4.4.1 Construction Phase Monitoring

Monitoring during soil excavation will be performed to protect the health of site workers and the surrounding community. A Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) have been developed for this project. These plans specify the monitoring procedures, action levels, and contingency measures that are required to protect public health and site workers. Generally, air monitoring would include real-time measurement of volatile emissions and dust levels.

The project HASP is included as **Appendix B**; the CAMP is included as **Appendix D**.

4.4.2 Post-Excavation Monitoring and Verification

Following removal of impacted soils from the site confirmatory endpoint soil samples will be collected from the excavation area to confirm the effectiveness of remedial activities. Endpoint soil samples will be collected in accordance with NYSDEC DER-10. Results will be compared to the site specific SCO of 10 ppm for total PCBs.

As specified in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, verification sampling will consist of collecting endpoint soil samples from within each excavation area. DER-10 specifies a sampling frequency of one bottom sample from the excavation for every 900 square feet of bottom, and one sidewall sample for every 30 linear feet of sidewall. Based on the anticipated excavation area (see Figure 6), a minimum of six bottom samples and 28 sidewall samples would be required based on DER-10. However, the depth of the bulk of the excavation area is anticipated to be approximately one foot below grade. Within excavation areas of one foot or less depth, sidewall samples will not be collected and additional bottom samples will be collected. Based on the anticipated excavation area, a total of at least 34 endpoint samples will be collected with the breakdown between sidewall and bottom samples to be determined based upon final excavation dimensions and depths.

Soil sampling and equipment decontamination will be performed in accordance with the project QAPP included as **Appendix C**.

4.4.3 Waste Characterization

Waste characterization will be performed by collecting composite soil samples from excavated soil stockpiles during remedial activities. Sample analysis will be as specified by the requirements of the disposal facility's (to be determined) waste acceptance criteria. After the results of the analysis are complete, the remediation contractor will prepare the necessary forms for submittal to the waste disposal/treatment facility. Forms will then be submitted to the waste disposal facility for evaluation and final approval. Analysis for waste

characterization will be provided in a results-only format.

Soil sampling and equipment decontamination will be performed in accordance with the project QAPP included as **Appendix C**.

4.4.4 Laboratory Analysis

Collected soil samples will be placed in pre-cleaned laboratory supplied glassware and placed in a cooler packed with ice for transport to the laboratory. Sample analysis will be provided by a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certified environmental laboratory (specific laboratory to be determined) and consist of the following:

- PCBs by USEPA Method 8082

Analytical results will be reported in accordance with Analytical Services Protocol (ASP) Category B Deliverables, which will allow for data validation. The QA/QC program will include the preparation and analysis of field and laboratory QA/QC samples such as, trip blanks and matrix spike duplicates in accordance with the QAPP included as **Appendix C**.

Samples will be submitted to the laboratory for a standard turnaround time, which is estimated to be one to two weeks.

4.5 Engineering Controls

In addition to the implementation of the NYSDEC approved remedial alternative, Engineering Controls will be put in place to prevent exposure to potential residual impact at the site. Engineering controls for the site will include the following:

- Installation of a cap of clean fill material over residual impacted soils.
- Installation of a perimeter fence.

Upon completion of soil excavation activities, a cap of clean fill material will be installed over residual impacted soils as specified in Section 4.3.

Following completion of excavation and capping activities, a six-foot high, chain link fence will be installed around the perimeter of the site. After installation, the fence gate will be kept locked to prevent unauthorized access to the subject site. A perimeter fence detail is included a **Figure 7**.

4.6 Institutional Controls

In addition to the implementation of the NYSDEC approved remedial alternative, the use of Institutional Controls (ICs) will be put in place for the site to provide notice the residual impact is present, and restrict/limit exposures to potential exposure pathways. For this site, ICs would include a Site Management Plan (SMP) and an Environmental Easement (EE), which would detail the requirements for:

- Restrictions on the use of groundwater from the site,
- Restrictions on excavations without notification to NYSDEC,
- Future modifications to the EE in the event of changes to site usage/development
- EE compliance by the Grantor and the Grantor's successors.

Following approval of the RAWP, an Environmental Easement (EE) will be prepared and recorded with the Suffolk County Clerk's Office. The EE will incorporate:

- The approved SMP for the site,
- A description of site restrictions, including but not limited to;
    - The use of the property for commercial use only,
    - Restricting use of the groundwater underlying the site, and
    - Future soil disturbance activities, including construction and repair activities, will be subject to soil management protocols.
- An agreement by the property owner to establish and maintain the institutional controls.

4.7 Reporting

Following submission of the RAWP, the following reports will be submitted to NYSDEC;

- Monthly Status Letter Reports,
- Site Management Plan,
- Final Engineering Report, and
- Periodic Review Reports and Certifications.

Details of the components of the individual reports and submission frequencies are contained in the following sections.

4.7.1 Monthly Status Letter Reports

During the remedial activities, a progress letter report will be submitted on a monthly basis, by the fifteenth day of each month. These progress reports will summarize remedial actions taken during the previous month, and

describe work scheduled for the next month, and summarize any issues that may affect the implementation of the RAWP. Monthly status reports will be submitted via email correspondence to the NYSDEC.

4.7.2 Site Management Plan

Upon completion of remedial activities, a SMP will be submitted to the NYSDEC to specify future operation and maintenance requirements, certification and reporting requirements and site restrictions. The SMP will include;

- An EC/IC Plan,
- A Health and Safety Plan,
- An Operation and Maintenance Plan,
- A Site Inspection Plan, and
- A Contingency Plan.

4.7.3 Final Engineering Report

A FER will be prepared and submitted to the NYSDEC following completion of remedial activities. The FER will detail:

- Site description, redevelopment plans, and description of surrounding properties,
- Summary of previous investigations and findings,
- Summary of IRM and findings,
- RAOs for the site,
- Description of Approved Remedy,
- Description of Remedial Action Performed, and the
- SMP

4.7.4 Periodic Inspections and Certification

Following NYSDEC approval of the FER and SMP, inspection reports and certifications will be submitted to the NYSDEC, initially on an annual basis. The periodic inspection certification, to be signed by a professional engineer or other qualified environmental professional, will certify that the ICs have not been modified or altered, and no violations of the SMP have been observed. When modifications to the site or ICs have been observed, the certification will provide a description of the modifications observed and a proposed corrective action measure to address the deficiency.

5.0 ENGINEERING SPECIFICATIONS AND CONTROLS

5.1 Engineering Specifications

5.1.1 Mobilization, Site Security

Mobilization will include the delivery of construction equipment and materials to the site. Site workers will receive site orientation and training in accordance with the site specific HASP, CAMP and established policies and procedures to be followed during the implementation of remedial activities. The remediation contractor and all associated subcontractors will each receive a copy of the RAWP, HASP and CAMP and will be briefed on their contents.

Site preparation will include the set-up of site support facilities (as necessary), and construction of personnel and equipment decontamination stations.

Site security will be maintained by utilizing construction and/or safety fencing and the existing airport perimeter fence.

5.1.2 Soil Stockpile Area Construction and Maintenance

In the event that excavated soils will be stockpiled on site prior to disposal, stockpiles will be confined to a designated area (to be determined). The preferred method for storing soils on site will be in roll-off containers, covered with polyethylene sheeting. Should it be necessary to stockpile soils on the ground, the stockpile area will be lined with 20-mil polyethylene sheeting and surrounded by a silt fence. Stockpiled material will be covered with 20-mil polyethylene sheeting and secured until it is removed from the site.

5.1.3 Soil Disposal

Excavated soils will be sampled in accordance with the procedures described under Section 4.3.2 of this document to meet the waste acceptance criteria of the disposal facility. Impacted soil to be removed from the site will be loaded into roll-off containers and/or dump trucks provided by a licensed waste transport company. Loading will be performed with a back-hoe, excavator, or equivalent. Loaded containers will be covered with a tarp.

5.1.4 Backfill and Site Restoration

Following removal of impacted soils, excavated areas will be backfilled with clean fill. Clean fill, as defined by 6NYCRR Part 360, may be brought in from off-site to backfill the excavations and will be in compliance with section 5.4(e) of the Division of Environmental Remediation's *Draft DER-10 – Technical Guidance for Site*

Investigation and Remediation (December 2002). The NYSDEC will be consulted, and must approve in advance, the return of excavated soil and the use of off-site fill.

5.1.5 Soil Cap Installation

Following excavation of impacted soils and backfilling of excavation areas, a cap of clean fill material will be installed. The cap will consist of a minimum of 12 inches of clean fill material. Clean fill, as defined by 6NYCRR Part 360, may be brought in from off-site to backfill the excavations and will be in compliance with section 5.4(e) of the Division of Environmental Remediation's *Draft DER-10 – Technical Guidance for Site Investigation and Remediation* (December 2002).

5.1.6 Demobilization

Following the completion of remedial activities at the site, equipment and remedial structures will be dismantled and removed from the site. Solid wastes generated during remedial activities (i.e., polyethylene sheeting) will be properly disposed of.

5.2 **Engineering Controls**

5.2.1 Dust Suppression

Dust generation from excavation activities and stockpiled soils will be monitored as described under Section 7.0. If dust generation approaches action levels, suppression will be accomplished by:

- Covering/capping exposed soil area with mulch, rubber mats, etc.
- Wetting equipment and excavation faces;
- Water spray dust suppression;
- Hauling materials in properly covered containers; and,
- Restricting vehicle speeds to 10 mph.

When possible, impacted soils will be loaded directly into trucks for immediate off-site disposal.

5.2.2 Odor Control

Because the contaminants of concern at the site are primarily PCBs, it is not expected that generation of odors will be a concern during remedial activities. In the event that odor suppression becomes necessary, techniques to be implemented for control of odors from stockpiled soil or from the open excavation will include one or more of the following:

- Cover with plastic
- Cover with "clean soil"

- Application of hydro-mulch material*
- Limit working hours to favorable wind and temperature conditions

*This material is a seedless version of the hydro-seed product commonly used by commercial landscaping contractors to provide stabilization and rapid grow-in of grasses or wild flowers along highways, embankments and other large areas. Hydro-mulch can be sprayed over open excavation areas, temporary stockpile areas and loaded trucks, as necessary. This is a highly effective method for controlling odors, because the release of odors is sealed immediately at the source.

5.2.3 Sediment and Erosion Control

Erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff will be placed to protect the excavation work and adjacent areas during excavation activities. Storm water control measures, such as straw hay bales or silt fence, will be utilized during excavation activities to prevent storm water runoff from impacting excavation areas and soil stockpiles.

Straw bales and/or silt fence may be placed at locations up gradient of excavation areas to minimize water flow and soil from entering excavations, and down gradient of excavation areas, where possible, to prevent soil from the excavations from migrating to other areas of the site.

6.0 HEALTH AND SAFETY

The Health and Safety Plan (HASP) takes into account the specific hazards inherent to the site and presents the minimum requirements which are to be met by the remediation contractor and its subcontractors, P.W. Grosser Consulting Inc. (PWGC) and its subcontractors, and other on-site personnel in order to avoid and, if necessary, protect against health and/or safety hazards. The site specific HASP is included as **Appendix B**.

Contractors and subcontractors will have the option of adopting this HASP or developing their own site-specific document. If a contractor or subcontractor chooses to prepare their own HASP, it must meet the minimum requirements as detailed in the site HASP prepared by PWGC and must be made available to PWGC and the NYSDEC.

Activities performed under the HASP will comply with applicable parts of OSHA Regulations, primarily 29 CFR Parts 1910 and 1926, and the PWGC Corporate Environmental Health and Safety policy. Modifications to the HASP may be made with the approval of the PWGC Health and Safety Manager (HSM) and/or Project Manager (PM).

7.0 SCHEDULE

The estimated duration to complete the soil excavation, soil transport and disposal, and site restoration is six months. Following completion of remedial activities, the SMP will be developed and submitted to NYSDEC, and the Environmental Easement will be prepared.

A timeline has been prepared to illustrate the proposed schedule and is included in **Appendix F.**

8.0 REFERENCES

NYSDEC, Division of Environmental Remediation, Draft Brownfield Program Cleanup Guide, April 4, 2002

NYSDEC, Division of Environmental Remediation, 6 NYCRR Part 375, Environmental Remediation Programs, December 14, 2006.

NYSDEC, Division of Environmental Remediation, Draft DER-10, Technical Guidance for Site Investigation and Remediation, December 2002

NYSDEC, Division of Environmental Remediation, Technical and Administrative Guidance Memorandum (TAGM) #4046 Determination of Soil Cleanup Objectives and Soil Cleanup Levels. January 24, 1994

NYSDEC, Division of Water, Technical and Operational Guidance Series (TOGS) 1:1:1, Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, June 1998, April 2000 Addendum

P.W. Grosser Consulting, Inc., Former Canine Kennel Site Remedial Investigation Work Plan, July 2007

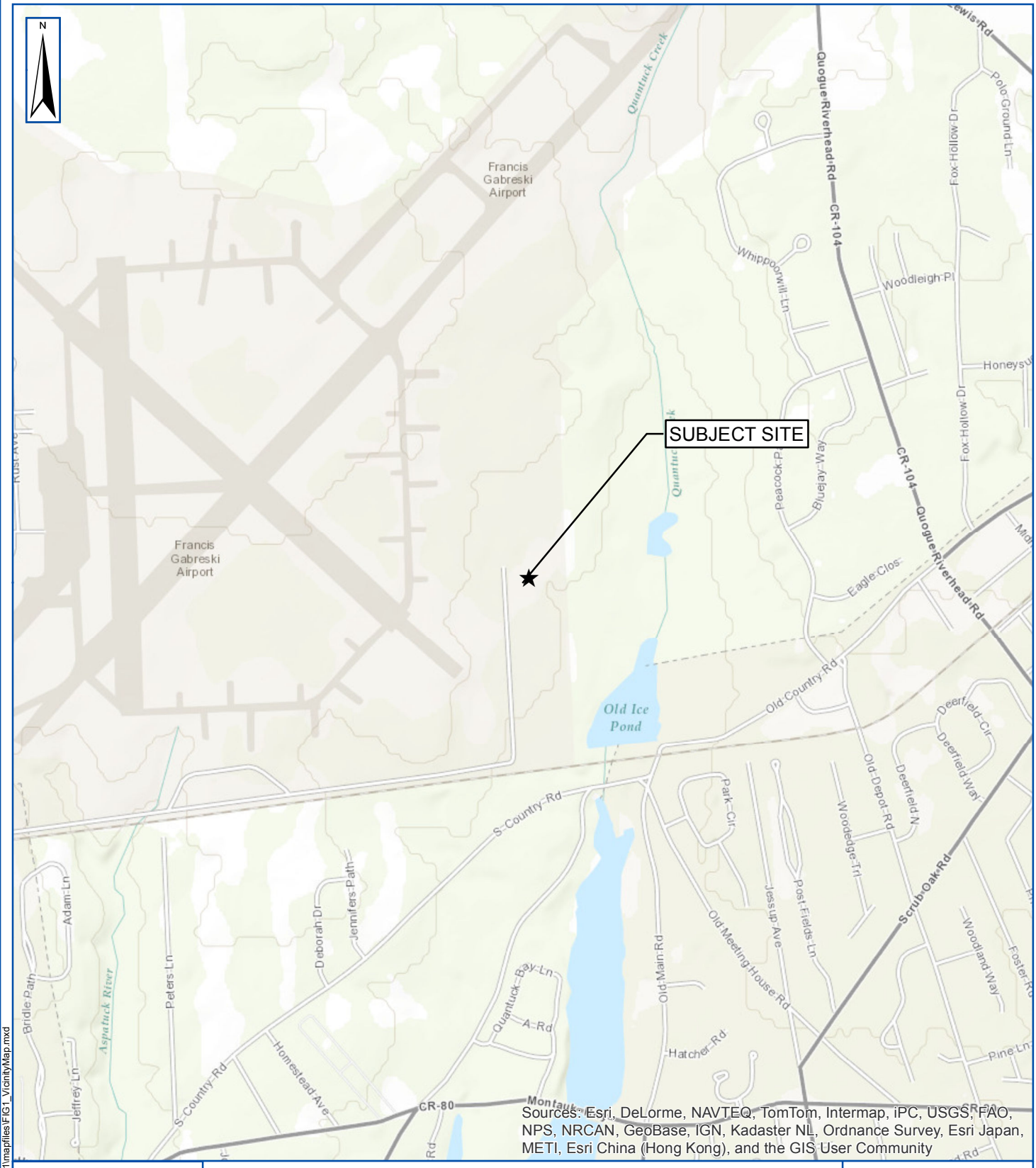
P.W. Grosser Consulting, Inc., Former Canine Kennel Site Remedial Report, November 2008

P.W. Grosser Consulting, Inc., Former Canine Kennel Site Interim Remedial Measure Work Plan, March 2012

P.W. Grosser Consulting, Inc., Former Canine Kennel Site Interim Remedial Measure Addendum, May, 18, 2012

P.W. Grosser Consulting, Inc., Former Canine Kennel Site Interim Remedial Measure Report, June 2012

FIGURES



SITE LOCATION MAP

FORMER CANINE KENNEL - GABRESKI AIRPORT
WEST HAMPTON BEACH, NEW YORK

Miles
0 ¼ ½ ¾ 1

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Project:	SHD1201
Date:	2/15/2013
Designed by:	BB
Drawn by:	BB
Approved by:	KR
Figure No:	1

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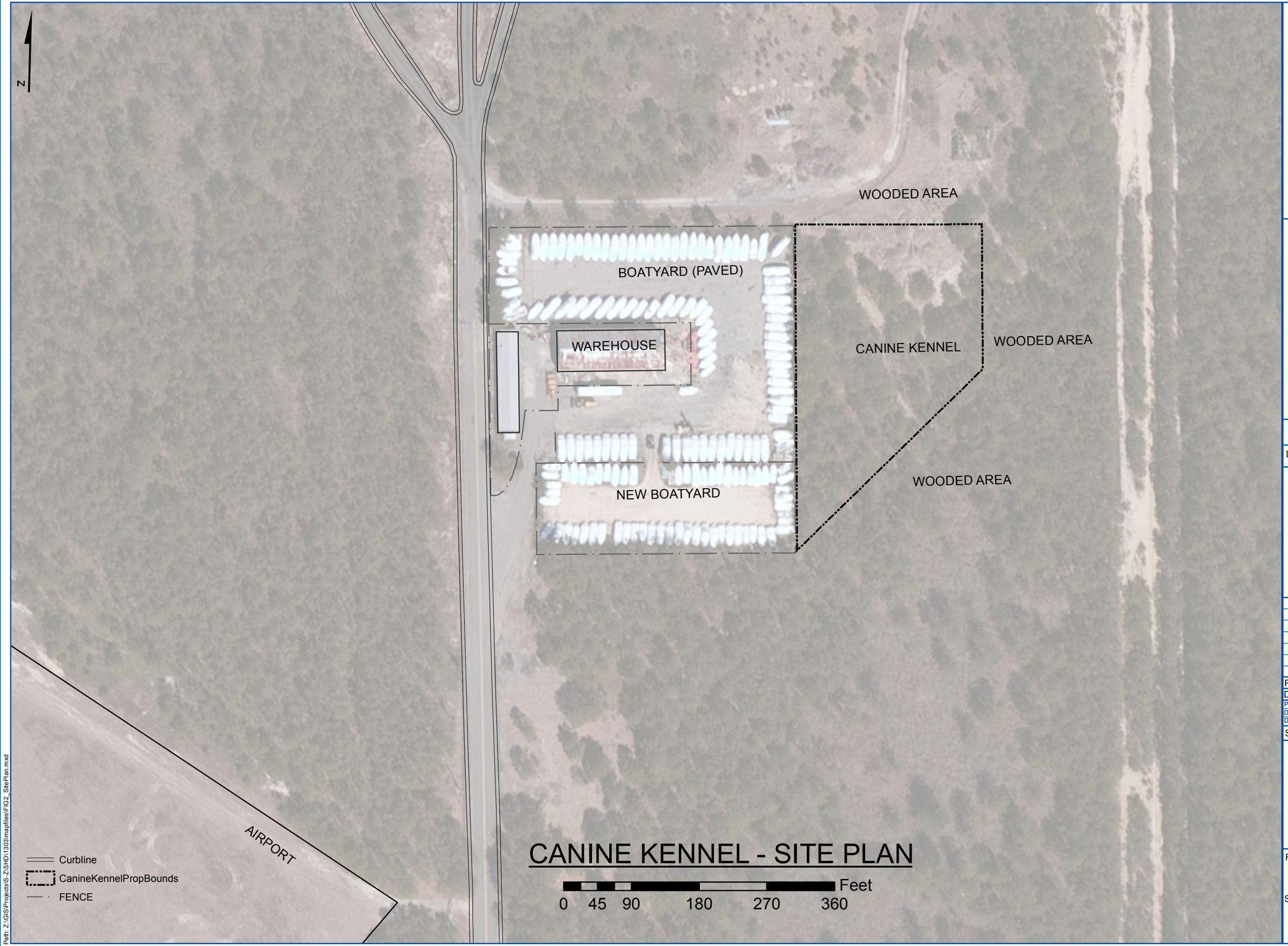

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DRAWINGS PREPARED FOR:

SUFFOLK COUNTY
DEPT. OF HEALTH SERVICES
OFFICE OF POLLUTION CONTROL
15 HORSEBLOCK PLACE
FARMINGVILLE, NEW YORK 11738

REVISION	DATE	INITIAL	COMMENTS

DRAWING INFORMATION:

PROJECT:	SHD1303	APPROVED BY:	AL
DESIGNED BY:	BB	DATE:	11/21/2012
DRAWN BY:	BB	SCALE:	AS SHOWN

SHEET TITLE:

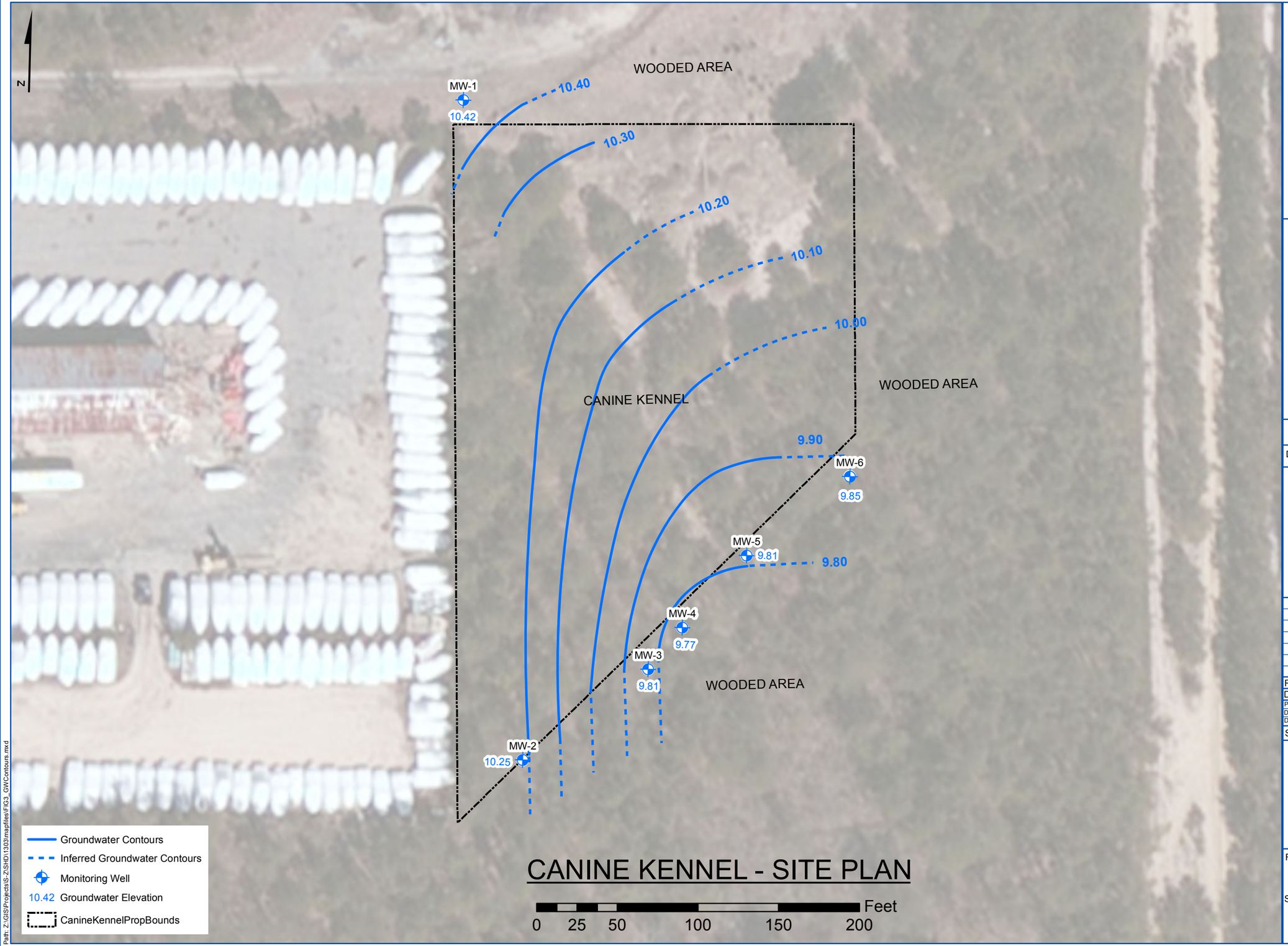
FORMER CANINE KENNEL
GABRESKI AIRPORT
WEST HAMPTON, NEW YORK

SITE PLAN

FIGURE NO:

2

SHEET:



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REVISION	DATE	INITIAL	COMMENTS

DRAWING INFORMATION:

PROJECT:	SHD1303	APPROVED BY:	AL
DESIGNED BY:	BB	DATE:	11/21/2012
DRAWN BY:	BB	SCALE:	AS SHOWN

SHEET TITLE:

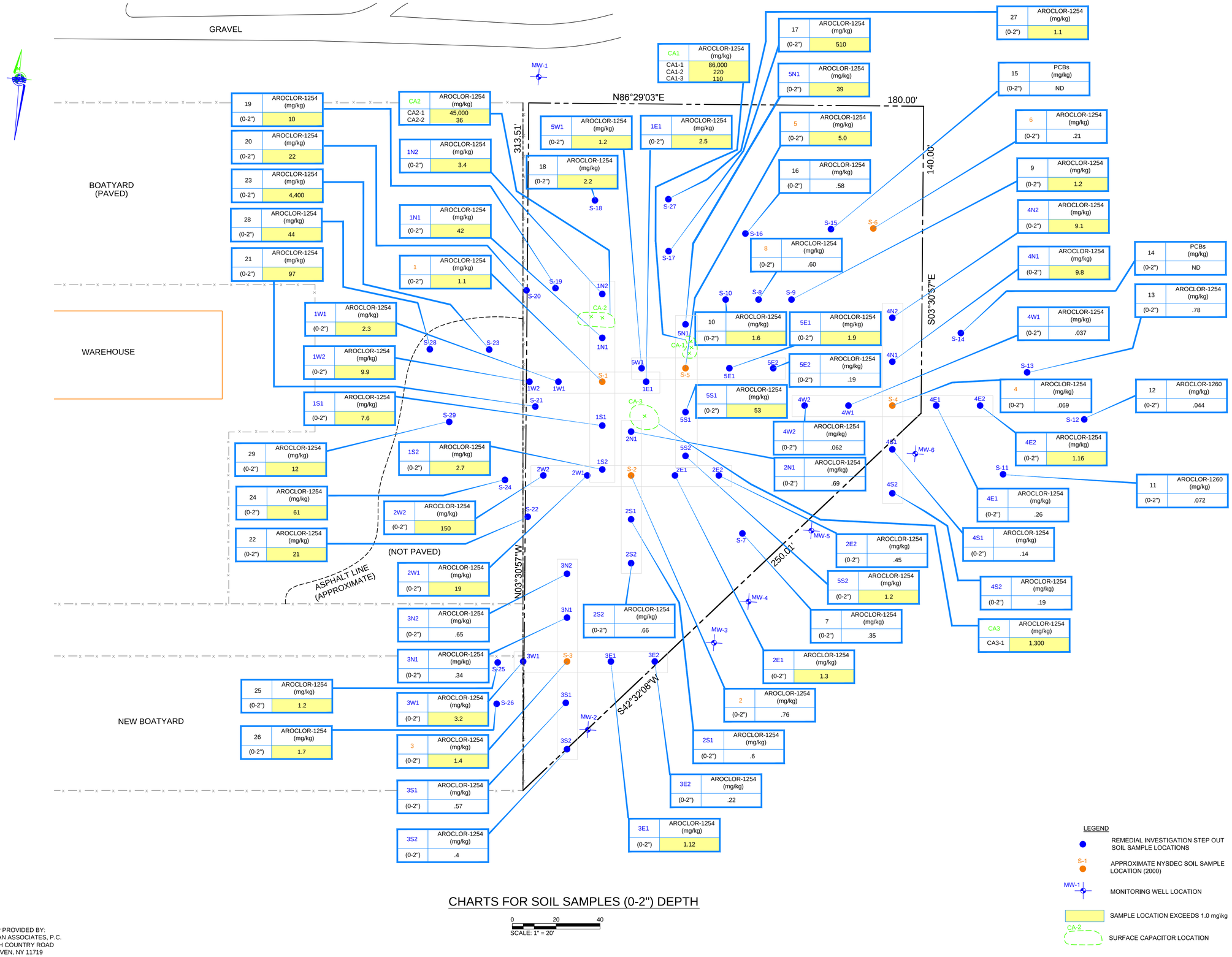
FORMER CANINE KENNEL
GABRESKI AIRPORT
WEST HAMPTON, NEW YORK

GROUNDWATER CONTOURS

FIGURE NO:

3

SHEET:



BASE MAP PROVIDED BY:
L.K. McLEAN ASSOCIATES, P.C.
437 SOUTH COUNTRY ROAD
BROOKHAVEN, NY 11719
DATED: JULY 18, 2008

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REVISIONS	DATE	INITIAL	COMMENTS

DRAWING INFORMATION

PROJECT: DPW0701	APPROVED BY: PWG
DESIGNED BY: AL	DATE: 8/5/08
DRAWN BY: LLG	SCALE: AS SHOWN

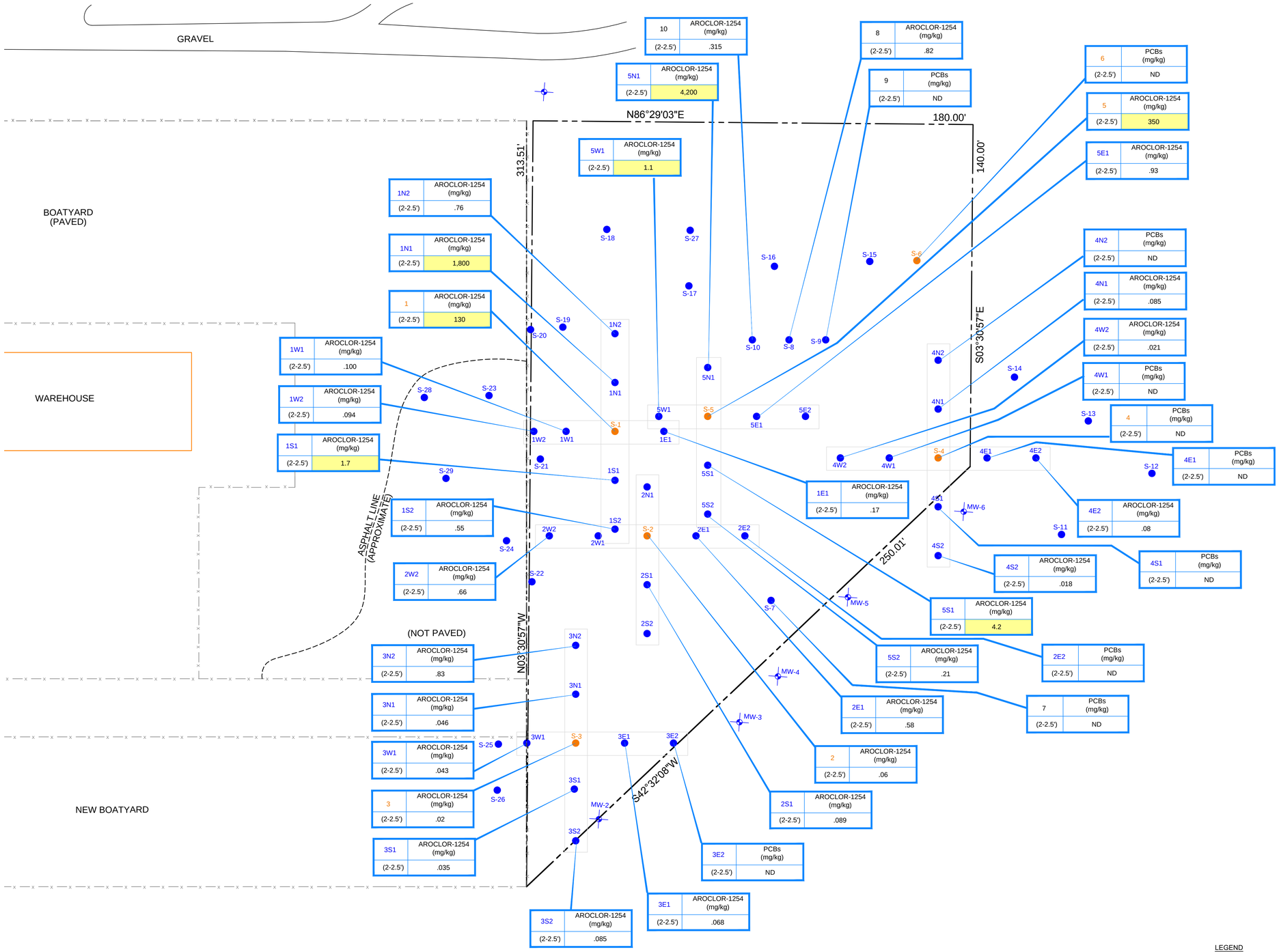
SHEET TITLE

SOIL SAMPLING RESULTS 0-2" DEPTH FORMER CANINE KENNEL SITE

GABRESKI AIRPORT
WESTHAMPTON, NY

FIGURE NO
4a

SHEET
OF



CHARTS FOR SOIL SAMPLES (2-2.5') DEPTH

0 20 40
SCALE: 1" = 20'

LEGEND

- REMEDIAL INVESTIGATION STEP OUT SOIL SAMPLE LOCATIONS
- S-1 APPROXIMATE NYSDEC SOIL SAMPLE LOCATION (2000)
- MW-1 MONITORING WELL LOCATION
- SAMPLE LOCATION EXCEEDS 1.0 mg\kg
- CA-2 SURFACE CAPACITOR LOCATION

BASE MAP PROVIDED BY:
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PROJECT: DPW0701	APPROVED BY: PWG
DESIGNED BY: AL	DATE: 8/7/08
DRAWN BY: LLG	SCALE: AS SHOWN

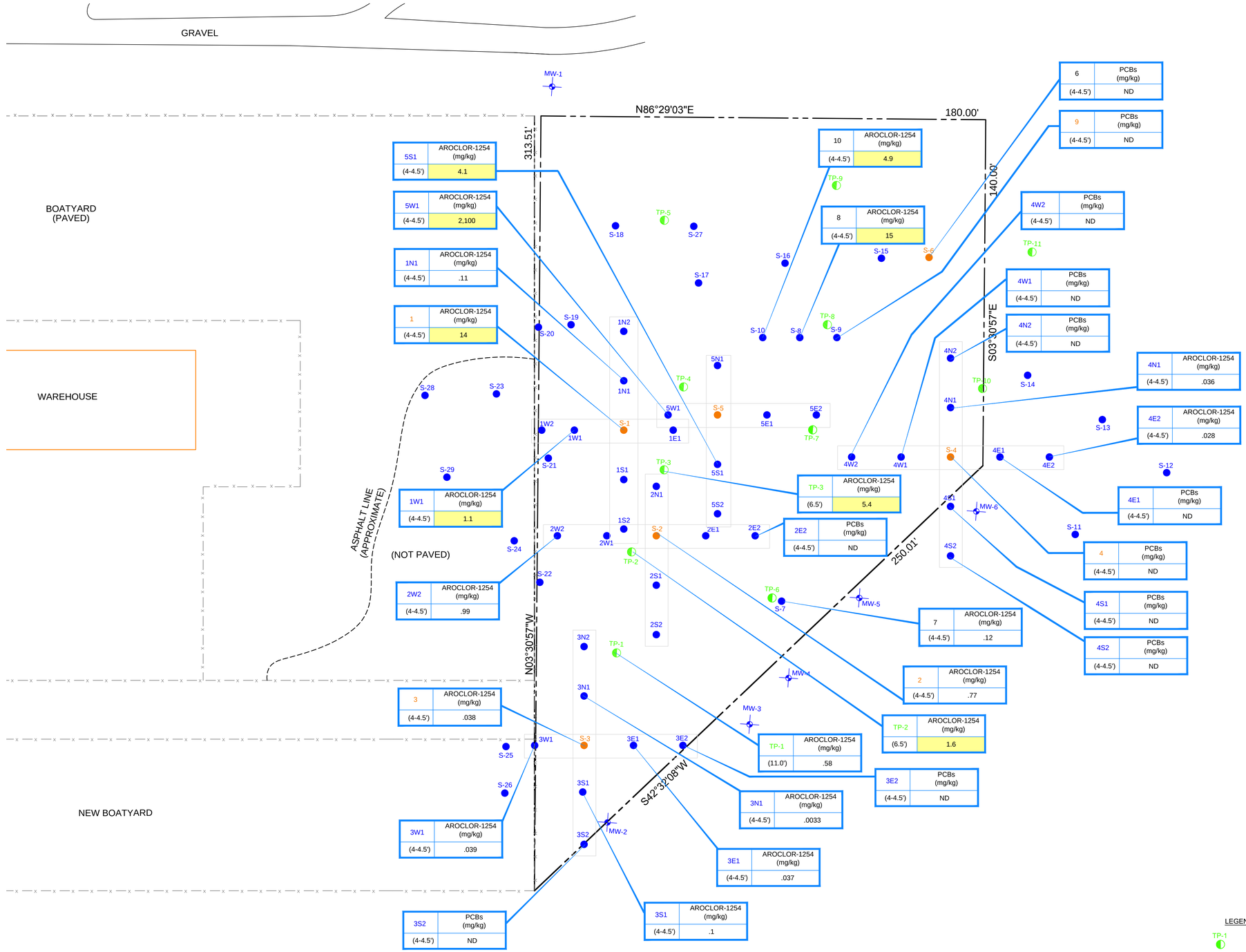
SHEET TITLE

SOIL SAMPLING RESULTS 2-2.5' DEPTH FORMER CANINE KENNEL SITE

GABRESKI AIRPORT
WESTHAMPTON, NY

FIGURE NO
4b

SHEET OF



CHARTS FOR SOIL SAMPLES (4' OR GREATER) DEPTH

0 20 40
SCALE: 1" = 20'

LEGEND

- TP-1 — TEST PIT LOCATION
- REMEDIAL INVESTIGATION STEP OUT SOIL SAMPLE LOCATIONS
- S-1 — APPROXIMATE NYSDEC SOIL SAMPLE LOCATION (2000)
- MW-1 — MONITORING WELL LOCATION
- SAMPLE LOCATION EXCEEDS 1.0 mg\kg
- CA-2 — SURFACE CAPACITOR LOCATION

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PROJECT: DPW0701	APPROVED BY: PWG
DESIGNED BY: AL	DATE: 8/7/08
DRAWN BY: LLG	SCALE: AS SHOWN

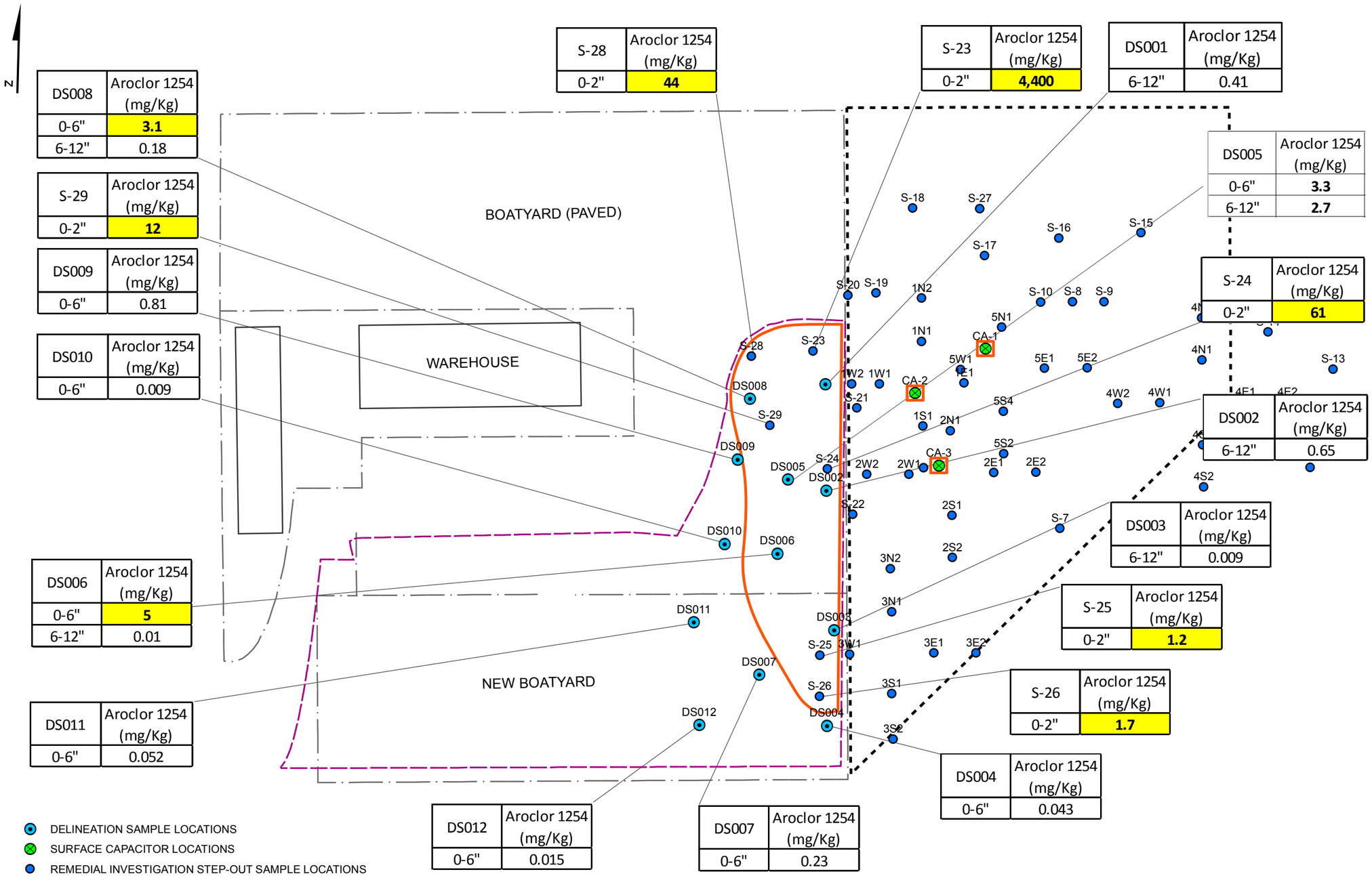
SHEET TITLE

SOIL SAMPLING RESULTS 4' OR GREATER DEPTH FORMER CANINE KENNEL SITE

GABRESKI AIRPORT
WEST HAMPTON, NY

FIGURE NO
4c

SHEET OF



CANINE KENNEL - DELINEATION SAMPLE RESULTS

NOTE - Approximate Proposed IRM Excavation Area: 14,632.5 square feet

Path: Z:\GIS\Projects\S-Z\SHD\1303\mapfiles\IRM\FIG6A_DelineationSampleResults.mxd

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REVISION	DATE	INITIAL	COMMENTS

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PROJECT:	SHD1303	APPROVED BY:	AL
DESIGNED BY:	BB	DATE:	9/5/2012
DRAWN BY:	BB	SCALE:	AS SHOWN

SHEET TITLE:

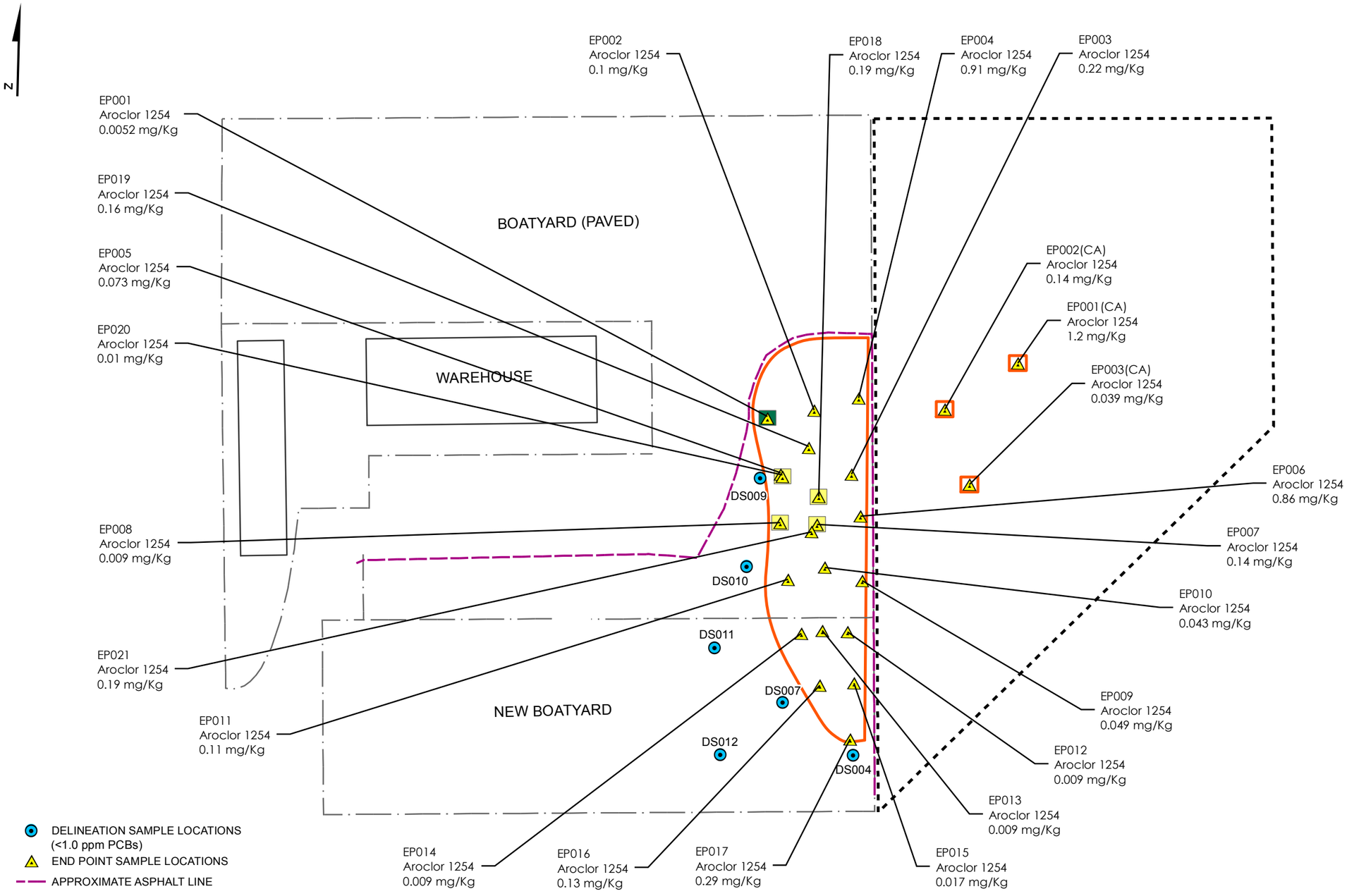
FORMER CANINE KENNEL
GABRESKI AIRPORT
WEST HAMPTON, NEW YORK

IRM DELINEATION SAMPLE RESULTS

FIGURE NO:

5A

SHEET:



CANINE KENNEL - END POINT SAMPLE RESULTS

0 25 50 100 150 200 Feet

NOTES: IRM Excavation Area: ~ 14,632.5 square feet
Delineation Sample Results Below 1 mg/Kg (Refer to Figure 3).
Endpoint samples collected from 0-6" below final excavation depth.

Path: Z:\GIS\Projects\S-Z\SHD\1303\mapfiles\IRM\FIG5B_EndPointSampleResults.mxd

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REVISION	DATE	INITIAL	COMMENTS

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DRAWN BY:	BB	SCALE:	AS SHOWN

SHEET TITLE:

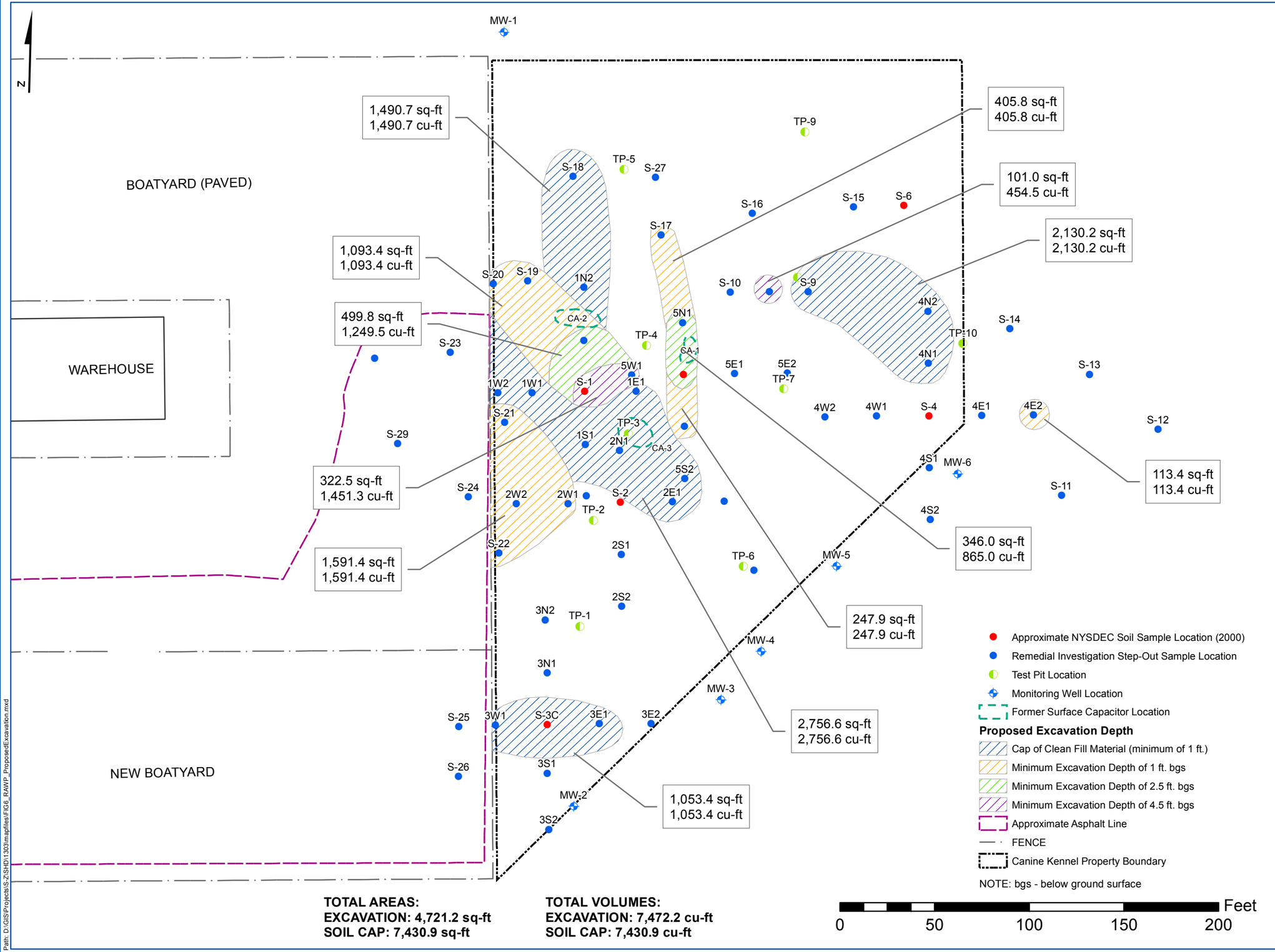
FORMER CANINE KENNEL
GABRESKI AIRPORT
WEST HAMPTON, NEW YORK

IRM ENDPOINT SAMPLE RESULTS

FIGURE NO:

5B

SHEET:



TOTAL AREAS:
EXCAVATION: 4,721.2 sq-ft
SOIL CAP: 7,430.9 sq-ft

TOTAL VOLUMES:
EXCAVATION: 7,472.2 cu-ft
SOIL CAP: 7,430.9 cu-ft

Path: D:\GIS\Projects\S-Z\SHD1303\mapfiles\FIG6_RAWP_ProposedExcavation.mxd

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REVISION	DATE	INITIAL	COMMENTS

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PROJECT:	SHD1303	APPROVED BY:	TM
DESIGNED BY:	TM	DATE:	6/11/2014
DRAWN BY:	BB	SCALE:	AS SHOWN

SHEET TITLE:

PROPOSED EXCAVATION AND SOIL CAP AREAS ALTERNATIVE 4 - TRACK 4 CLEANUP

FORMER CANINE KENNEL
GABRESKI AIRPORT
WEST HAMPTON, NEW YORK

FIGURE NO:

6

SHEET:

Path: Z:\GIS\Projects\S-Z\SHD1303\mapfiles\FIG7_PerimeterFenceDetail.mxd

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DRAWINGS PREPARED FOR:

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DEPT. OF HEALTH SERVICES
OFFICE OF POLLUTION CONTROL
15 HORSEBLOCK PLACE
FARMINGVILLE, NEW YORK 11738

REVISION	DATE	INITIAL	COMMENTS

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PROJECT:	SHD1303	APPROVED BY:	AL
DESIGNED BY:	BB	DATE:	11/21/2012
DRAWN BY:	BB	SCALE:	AS SHOWN

SHEET TITLE:

FORMER CANINE KENNEL
GABRESKI AIRPORT
WEST HAMPTON, NEW YORK

PERIMETER FENCE DETAIL

FIGURE NO:

7

SHEET:

APPENDIX A
ALTERNATIVE ANALYSIS

P.W. GROSSER CONSULTING INC.
PROJECT No. SHD 1303

ALTERNATIVE ANALYSIS REPORT

FORMER CANINE KENNEL SITE
FRANCIS S. GABRESKI AIRPORT
WESTHAMPTON BEACH, NEW YORK
BCP Site # C152079
IHWDS Site # 152079

Submitted:
September 2014

Prepared for:
The New York State Department of Environmental Conservation
Division of Environmental Remediation

On behalf of:
Suffolk County Department of Health Services
Office of Pollution Control
15 Horseblock Place
Farmingville, New York 11738

Prepared By:
P.W. Grosser Consulting, Inc.
Bohemia, New York

Paul K. Boyce, P.E.
Senior Vice President
P.W. Grosser Consulting, Inc.

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TABLE OF CONTENTS **PAGE**

FIGURES

TABLES

CERTIFICATION

I, _____, certify that I am currently a NYS registered professional engineer, as defined in 6 NYCRR Part 375, and that this Alternative Analysis Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

_____
PE Name

_____
PE Signature

_____
PE License #

_____
Date

1.0 INTRODUCTION

P.W. Grosser Consulting, Inc. (PWGC) has prepared the following Alternative Analysis Report on behalf of the Suffolk County Department of Health Services (SCDHS) for the Former Canine Kennel Site located within Francis S. Gabreski Airport in Westhampton Beach, New York (Suffolk County Tax Map number 900-312-1-1). This property is owned by Suffolk County and managed by the Department of Economic Development and Workforce Housing. The site is currently entered as a volunteer in the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program as Site No. C152079 and is registered as a New York State Class 2 Inactive Hazardous Waste Disposal Site (IHWDS) as Site No. 152079.

1.1 Purpose and Organization of Report

This Alternatives Analysis Report documents the basis and the procedures used in identifying, developing, screening, and evaluating remedial alternatives that could potentially address residual soil contamination at the site. The report, in conjunction with the Remedial Investigation Report (November 2008) and Interim Remedial Measure Report (June 2012), provides the NYSDEC with sufficient data to approve a feasible and cost-effective remedial alternative that will protect human health and the environment. The overall goal of the Alternatives Analysis is to develop and evaluate options for implementing a remedial action in accordance with the requirements NYSDEC 6 NYCRR Part 375 (Part 375) subpart 4 and selecting a remedy for NYSDEC approval.

This report contains the following four sections,

- Section 1.0, Introduction, provides site purpose and organization of the alternative analysis, references the site background information, and summarizes previous investigations. This section also discusses the conceptual model for the site which describes transport of contamination through the past.
- Section 2.0, Details the Remedial Action Objectives, General Response Actions, and Development of Alternatives.
- Section 3.0, Detailed Analysis of the Alternative, specifically evaluates each Alternative against eight remedial objective criteria and compares each Alternative to one another against the criteria.
- Section 4.0, States the applicant's preferred Alternative with supporting rational.

1.2 Background Information

1.2.1 *Site Description*

Francis S. Gabreski airport is located on County Road 31 in the Town of Southampton, New York and is owned by

Suffolk County. The airport is located within the Long Island Pine Barrens which are characterized by open, sunlit woodlands dominated by pitch pine interspersed with white and scarlet oak. The nearby Quogue wildlife refuge is characterized by dwarf pitch pines ranging from 3 to 6 feet tall. The airport itself is characterized by surrounding wooded areas consisting of 25 foot pitch pines and scattered scrub oak. The airport has no commercially scheduled service, but does support private planes and presently is the home of the 106th Rescue Wing of the New York Air National Guard (NYANG).

The area of concern is a section of disturbed ground, approximately 1.0 acre in size and irregular in shape. The site is located in a remote portion of the airport, south of a former canine kennel and just east of a boat storage yard near the eastern property line of the airport. A Vicinity Map is included as **Figure 1**, and a site plan is included as **Figure 2**.

The property is currently zoned for light industrial use and is a portion of the Francis S. Gabreski Airport. The airport is located within the core preservation area of the central Pine Barrens. Since the Canine Kennel site is within the core Pine Barrens area, development is prohibited and the site will remain undeveloped.

1.2.2 *Site History*

In 1943 the federal government built the airport for use as an Air Force base during World War II. After the war, it was given to Suffolk County. In 1951, the airport was reclaimed for the Korean War National Emergency. In 1960, the US Air Force leased the site for an Air Defense Command Base, which was deactivated in 1969, then released back to Suffolk County in 1970.

During deactivation activities (Spring 1970), the Suffolk County Air Base used the canine kennel area to bury inert wastes, such as office furniture. The site was also used for the disposal of polychlorinated biphenyl (PCB) containing electrical distribution equipment such as transformers and capacitors.

In March 1984, the NYSDEC discovered the site in response to a complaint from a local citizen's group. At that time, the NYSDEC observed several half-buried capacitors leaking PCB oil within a ten-foot deep pit. In May 1984, nine soil samples were collected for laboratory analysis. Eight contained the PCB Arcolor-1254 in concentrations up to 1,700 parts per million (ppm).

In January 1986, a NYSDEC contractor noted that the pit was only half as deep as previously stated, and that the

capacitors were no longer visible. The area showed signs of recent earthwork activities and was devoid of vegetation.

1.2.3 *Physical settings*

The topography of the site and surrounding area was reviewed from the USGS 7.5-minute series topographic map for the Ronkonkoma, New York quadrangle. The property has an elevation of approximately 103 feet above the National Geodetic Vertical Datum (NGVD). In general, the property and surrounding area is generally flat.

1.2.4 *Hydrogeologic Setting*

The geologic setting of Long Island is well documented and consists of crystalline bedrock composed of schist and gneiss overlain by layers of unconsolidated deposits. Immediately overlying the bedrock is the Raritan Formation, consisting of the Lloyd sand confined by the Raritan clay Member. The Lloyd sand is an aquifer and consists of discontinuous layers of gravel, sand, sandy and silty clay, and solid clay. The Raritan clay is a solid and silty clay that is gray, red or white in color with few lenses of sand and gravel and abundant lignite and pyrite.

Above the Raritan Clay lies the Magothy Formation. The Magothy aquifer consists of layers of fine to coarse sand of moderate to high permeability, with inter-bedded lenses of silt and clay of low permeability resulting in areas of preferential horizontal flow. Therefore, this aquifer generally becomes more confined with depth. The Magothy Formation is overlain by the Upper Glacial deposits which contains the Upper Glacial aquifer. The Upper Glacial aquifer is the water-table aquifer at this location and is comprised of medium to coarse sand and gravel with occasional thin lenses of fine sand and brown clay. This aquifer extends from the water table to the top of the Magothy and, therefore, is hydraulically connected to the Magothy aquifer.

The aquifer of concern at the former Canine Kennel site is the Upper Glacial aquifer which is an unconsolidated mixture of sand and gravel. The Upper Glacial aquifer is approximately 100 feet thick (saturated zone) at the site, and has an estimated average horizontal hydraulic conductivity (permeability) of 270 feet/day and a vertical hydraulic conductivity of 27 feet/day (Franke & Cohen, 1972).

Clay layers, such as the Gardiners clay and the “20-Foot-clay,” where present, may act as local confining units, separating the Upper Glacial aquifer from the underlying Magothy aquifer which is the principal source of drinking water in Suffolk County. These clay layers extend throughout much of the south shore of Long Island and are present just south of the site.

Based on data collected during monitoring well installation, depth to groundwater ranged from 9.5 to 14.5 feet bgs. No confining unit (clay) was present at the monitoring well locations. Regional groundwater flow at the site is to the southeast. Based upon the groundwater measurements obtained from the site monitoring wells on April 25, 2008, local groundwater flow direction was determined to be to the east-southeast .

1.2.5 *Previous Investigations*

Previous environmental investigations have occurred at the site and are summarized in the Remedial Investigation Report prepared by PWGC (November 2008). A summary of the significant findings of the previous investigation is included below:

- In March 1984, the New York State Department of Environmental Conservation (NYSDEC) discovered the site in response to a complaint from a local citizen's group. At that time, the NYSDEC observed several half-buried capacitors leaking PCB oil within a ten-foot deep pit. In May 1984, nine soil samples were collected for laboratory analysis. Eight contained the PCB Aroclor-1254 in concentrations up to 1,700 ppm.
- In January 1986, a NYSDEC contractor noted that the pit was only half as deep as previously stated, and that the capacitors were no longer visible. The area showed signs of recent earthwork activities and was devoid of vegetation.
- In November 1996, Dvirka and Bartilucci Consulting Engineers (D & B) performed a preliminary site assessment. D & B determined regional groundwater flow direction to be towards the southeast, and installed and sampled one up-gradient (GP-1) and five downg-radient (GP-2 through GP-6) GeoprobeTM monitoring wells. Groundwater was encountered between 9 and 12 feet below grade. Two groundwater samples were obtained from each GeoprobeTM location, one at the water table interface and one at 15 feet below the water table. PCBs were below detection limits in each of the 12 samples analyzed. Traces of the pesticides 4,4'-DDD and 4,4'-DDT were detected in the up-gradient well only. Based upon the groundwater results, D & B prepared a Preliminary Site Assessment (PSA) report (1998) that stated that PCBs previously detected in surface soils were not impacting local groundwater quality. The NYSDEC has also concluded that PCBs have not impacted local groundwater.
- In July 2000, the NYSDEC performed additional soil sampling. Thirteen soil samples were collected at six locations at two depths (surface (0-4") and subsurface (2'-4') below grade) and one soil sample was removed from the end of a capacitor located at the site. The highest soil concentration found was 280,000 ppm adjacent to a capacitor. There was a "hot spot" identified near soil samples #1, 2 and 5,

where the levels ranged from 1,900 ppm to 150,000 ppm at the surface and 120 ppm to 20,000 ppm at 2.5' to 3.5' below grade. Soil #3 and #4 contained PCBs levels of 3.9 ppm and 17 ppm at the surface, and less than 10 ppm at a depth of 2.5'. Concentrations of PCBs at soil sample #6 were less than 1.0 ppm. These samples were obtained from the same area previously sampled in May 1984.

- The SCDHS Farmingville Office of Pollution Control in Farmingville, New York, performed an inspection of the site on May 15, 2003. This inspection noted the following:
    - The area contained partially buried and unburied metal debris, such as rusted drums, car parts, and scrap metal. It was noted that this may interfere with any non-invasive exploratory instruments such as ground penetrating radar (GPR) and magnetometers.
    - Pine tree re-growth was greater than expected. The area is thickly wooded in spots with trees about 10 to 12 feet high and an occasional sandy clearing.

1.2.6 *Remedial Investigation*

From March 2008 through July 2008, PWGC performed a Remedial Investigation at the former Canine Kennel site. The investigation consisted of a geophysical survey, soil and groundwater sampling, test pit excavations and the removal of identified capacitors suspected to contain PCBs. Findings of the RI included:

- The geophysical and test pit investigations confirmed that the area of disposal is limited to the western/central portion of the site adjacent to the fence line and boatyard.
- Pesticides were not detected in the site soil samples. The PCB Aroclor-1254 was detected in soil samples ranging in depth from 0-2 inches bgs to approximately 8.5 feet bgs. Fifty-nine soil samples had concentrations of Aroclor-1254 above the Residential Use Soil Cleanup Objective (RUSCO) of 1.0 ppm ranging from 1.1 to 86,000 ppm (directly underneath one of the removed capacitors). The surface soil samples show the largest area of impact (across the western and central areas of the site). PCBs were also detected at concentrations greater than the RUSCO in surface soils within the unpaved eastern portion of the adjacent boatyard. Spread of PCBs within surface soils at the site is likely a result of physical processes, including localized surface runoff of PCB-contaminated soils from the on-site disposal area westward following the surface topography.
- PCBs in the 2.0-2.5 feet depth samples were limited to the western central area of the site and coincide with the main area of existing debris and the former capacitor locations. Three isolated areas of impact at depths of 4.0 feet bgs or greater were also identified, two of which coincided with the main area of debris and the former capacitor locations. A third area was identified northeast of the capacitor locations. No pesticides were detected in soil samples collected at the site.

- Pesticides and PCBs were not detected in the groundwater samples collected from up-gradient and down-gradient monitoring wells. These results indicate that PCBs identified in the sites soil samples (Aroclor-1254 and Aroclor-1260) have not impacted groundwater.
- Approximately 613 pounds (two 55-gallon drums) of PCB-contaminated solids, consisting primarily of capacitors with some incidental soil were removed from the site and transported to a treatment facility for incineration.

Based on the findings of the RI completed in November 2008, PWGC recommended that an IRM be implemented at the site to remove PCB impacted soils from the unpaved portion of the boatyard and former capacitor areas.

1.2.7 *Interim Remedial Measure*

From August 2012 through April 2013, PWGC implemented an Interim Remedial Measure (IRM) at the site. The scope of work for the IRM consisted of:

- Additional soil sampling to further delineate the extent of PCB impact within the unpaved portion of the boatyard.
- Removal and disposal of PCB impacted soil from the unpaved portion of the boatyard. Removal and disposal of PCB impacted soils from former capacitor locations (i.e., the locations with the most elevated concentrations of PCBs).
- Collection of endpoint samples to confirm the effectiveness of remedial activities.
- Backfill of capacitor location excavations to prevent residual PCB impacted soils from being exposed to the environment.
- Installation of storm water controls to prevent storm water runoff from entering the boatyard.

PWGC performed delineation soil sampling to determine the necessary excavation boundaries within the boatyard. Following delineation, soils were removed from the excavation area to a depth of six inches bgs. Based on endpoint sampling, additional soils were removed (to depths of 12 to 18 inches bgs) at several locations. Following additional soil removal, PCB concentrations in endpoint samples were below the NYSDEC RUSCO of 1.0 ppm within the boatyard area.

Soils were removed to a depth of one foot bgs in the vicinity of former capacitor locations CA-1, CA-2 and CA-3. Following soil removal, PCB concentrations in endpoint samples were below the site specific SCO of 1,000 ppm.

Endpoint samples collected from capacitor locations CA-2 and CA-3 were below the NYSDEC RUSCO of 1.0 ppm for PCBs, while the endpoint sample from capacitor location CA-1 only slightly exceeded the NYSDEC RUSCO (1.2 ppm).

IRM excavation activities within the boatyard and capacitor locations generated a total of 227.23 tons of PCB impacted soils. Excavated soils were transported by a licensed waste hauler, and disposed of at CWM Chemical Services LLC in Model City, New York (USEPA ID: NYD049836679).

Upon completion of soil removal activities, excavation areas were backfilled with NYSDEC approved backfill material and capped with RCA. Additionally, a one foot high earthen berm constructed of NYSDEC approved backfill material and capped with RCA was installed at the eastern boundary of the boatyard to minimize overland runoff of storm water from the former Canine Kennel site into the boatyard.

2.0 Identification and Development of Alternatives

2.1 Introduction

This section discusses developing objectives for the remediation of PCB contamination and identifies potential alternatives to be considered for the final remediation.

The remedial action objectives (RAOs) are developed for the protection of human health and the environment, based on contaminant characterization, contaminant transport, a qualitative human exposure assessment, and compliance with applicable Standards, Criteria, and Guidance Values (SCGs). Then potential remedial alternatives are identified and evaluated to determine if they can meet the RAOs and SCGs for the site.

Alternatives that are listed in the initial identification are further evaluated as alternatives for site remediation in the following sections.

2.1.1 *Cleanup Tracks*

The BCP allows for a multi-track approach to remediation of soil impact. Potential cleanup tracks for the site may include:

Track 1 - Unrestricted Use: Generic Soil Cleanup Table

- Cleanup meets Part 375 Unrestricted Use SCOs
- No restrictions on site usage
- Land/groundwater use restrictions or institutional/engineering controls cannot be employed to meet the RAOs for the site.

Track 2 - Restricted Use: Generic Soil Cleanup Tables

- Cleanup meets the appropriate Part 375 Restricted Use SCOs
- Land use and groundwater use restrictions are allowed
- Cannot rely upon institutional/engineering controls to prevent exposures to soil contamination at levels exceeding those specified in the corresponding soil cleanup table
- Uses generic soil cleanup table for the applicable land use scenario
- Allows for the development of site-specific SCOs for subsurface soils

Track 3 - Restricted Use: Modified Soil Cleanup Objectives

- Cleanup meets the appropriate Part 375 Restricted Use SCOs; however, NYSDEC may approve the modification of one or more contaminant specific SCOs
- Land use and groundwater use restrictions are allowed

- Cannot rely upon institutional/engineering controls to prevent exposures to soil contamination at levels exceeding those specified in the corresponding soil cleanup table
- Uses site-specific data to generate soil cleanup objectives

Track 4 - Restricted Use: Site-Specific Objectives

- Land use and groundwater use restrictions are allowed
- Can rely upon IC/ECs to prevent exposures to soil contamination
- If soil contamination presents exposure risks above specified levels, the NYSDEC and NYSDOH must find that the cleanup would be protective of human health and the environment
- Contaminated soil must be covered by material that meets the requirements of the generic soil cleanup table for the applicable site use

2.1.2 *Future Land Use*

The property is owned by Suffolk County and managed by the Department of Economic Development and Workforce Housing. In developing and screening remedial alternatives, NYSDEC Part 375 regulations require that the anticipated future land use be factored into the evaluation. The site is currently undeveloped and is located within the boundaries of Francis S. Gabreski airport. The property is currently zoned for light industrial use. The airport is located within the core preservation area of the central Pine Barrens. Since the Canine Kennel site is within the Core Pine Barrens area, development is prohibited and the site will remain undeveloped with restricted access.

Several alternatives to clean up the site to less restrictive standards have been identified and evaluated. In accordance with NYSDEC regulations alternatives which meet the Part 375 Unrestricted Use Soil Cleanup Objectives and no further action are also included in the evaluation.

2.2 Remedial Action Objectives (RAOs)

The final remedial measure for the Canine Kennel site must satisfy the RAOs. Remedial Action Objectives are site specific statements that convey the goals for minimizing or eliminating risks to public health and the environment.

The following subsections summarize the contaminants of concern, general locations of contaminants, and the RAOs for each of the identified media. These RAOs are based on the findings of the RI and the anticipated future use of the project site, which is to remain undeveloped.

2.2.1 *Surface Soil*

Contaminants of concern detected in the surface soil consist of PCBs. The RAOs for this medium are to prevent exposure of human and environmental receptors to these contaminants via dermal contact, incidental ingestion, and inhalation of particulates, and to prevent the discharge of contaminated storm water runoff and eroded surface soil to off-site locations.

2.2.2 *Subsurface Soil*

The contaminant of concern detected in the subsurface soil consists of PCBs. The RAOs for this medium are to prevent the exposure of humans and environmental receptors to contaminated subsurface soil via dermal contact, and incidental ingestion or inhalation of particulates and to mitigate contaminant migration into groundwater.

2.3 General Response Actions

General response actions for each of the affected media at the project site have been identified and are described in the following sections. Although these general response actions include no action as a remedial option, the "No Action" response action does not address the RAOs identified in the preceding section and is included for comparison purposes only.

2.3.1 *Surface Soil*

General response actions available to satisfy the RAOs identified for surface soil include:

- No Action
- Institutional Controls
- Excavation and off-site disposal

2.3.2 *Subsurface Soil*

General response actions available to satisfy the RAOs identified for subsurface soil include:

- No Action
- Institutional Controls
- Excavation and off-site disposal

2.4 Development of Alternatives

The general response actions identified in Section 2.3 have been assembled into a series of site-wide remedial action alternatives. The alternatives range from least comprehensive to most comprehensive as outlined in the following subsections.

2.4.1 *Alternative 1 – No Action*

Under this alternative, the project site would remain in its current state.

This alternative does not satisfy the human health or environmental RAOs for the current scenario, nor is it supportive of the redevelopment of the project site for commercial or residential use. This alternative has been included to provide a point of comparison for the other alternatives.

2.4.2 *Alternative 2 – Unrestricted Use Cleanup (Track 1)*

This alternative is the most comprehensive and would include excavation of all soils and debris from the site in excess of the Unrestricted Use SCO for PCBs (0.1 ppm). This alternative will also include the removal of the debris field identified at the central portion of the site during the RI to a minimum depth of approximately 12 feet below grade. The approximate excavation area for Alternative 2 is illustrated in **Figure 3**.

The details of this alternative include:

- Clearing and grubbing
- Removal and off-site disposal of soils and debris in excess of Unrestricted Use SCOs
- Backfilling excavations with clean, suitable material from an off-site source

2.4.3 *Alternative 3 – Residential Use Cleanup (Track 2)*

This alternative would include excavation of all soils and debris from the site in excess of the Residential Use SCO for PCBs (1.0 ppm). The approximate excavation area for Alternative 3 is illustrated in **Figure 4**.

The details of this alternative include:

- Clearing and grubbing
- Removal and off-site disposal of soils and debris in excess of Protection of Groundwater Use SCOs
- Backfilling excavations with clean, suitable material from an off-site source
- Filing of an Environmental Easement / Deed Restriction on the property that includes:
    - Development of a Site Management Plan
    - Limitation on future development of the site
    - Requirements for annual certification of institutional and engineering controls

2.4.4 *Alternative 4 – Site Specific Cleanup Objectives with Soil Cap (Track 4)*

This alternative would include excavation of soils at the site with PCB concentrations in excess of 10 ppm, and installation of a cap of clean fill material over soils at the site with PCB concentrations in excess of 1 ppm. Alternative 4 also meets the requirements for a presumptive remedy for PCB impacted soils as specified in Section I of NYSDEC Commissioner's Policy CP-51 (October 2010). The approximate excavation area and soil cap extent for Alternative 4 is illustrated in **Figure 5**.

The details of this alternative include:

- Clearing and grubbing
- Removal and off-site disposal of soils and debris in excess of a site specific SCO of 10 ppm for PCBs
- Backfilling excavations with clean, suitable material from an off-site source
- Installation of a cap of clean fill material over residual impacted soils with total PCB concentrations in excess of 1 ppm
- Filing of an Environmental Easement / Deed Restriction on the property that includes:
    - Development of a Site Management Plan
    - Limitation on future development of the site
    - Requirements for annual certification of institutional and engineering controls

3.0 DETAILED ANALYSIS OF ALTERNATIVES

This section details the Alternatives proposed in Section 2 and provides for remedy evaluation in accordance with DER-10 *Technical Guidance for Site Investigation and Remediation* which requires evaluation of each alternative with respect to the following nine criteria:

1. Overall Protection of Public Health and the Environment
2. Compliance with Standards, Criteria and Guidance
3. Short-Term Impacts and Effectiveness
4. Long-Term Effectiveness and Permanence
5. Reduction of Toxicity, Mobility, and Volume
6. Technical Feasibility and Reliability (Implementability)
7. Cost Effectiveness
8. Compatibility with Land Use

A brief description of each criterion is presented at the beginning of each subsection below. A ninth criterion, community acceptance, will be evaluated by the NYSDEC at the conclusion of the public comment period.

3.1.1 *Overall Protectiveness of Public Health and the Environment*

Overall protectiveness of public health and the environment assesses how well each alternative protects public health and the environment from exposure by reducing, controlling or eliminating risks. This would include protection for site employees or residents, the surrounding community, general construction and utility workers, and remedial workers during implementation of the alternative.

3.1.2 *Compliance with Remedial Goals*

Compliance with Remedial Goals, SCGs, and RAOs assess how effective each alternative is in achieving Remedial Goals, SCGs, and RAOs for the site.

3.1.3 *Short Term Impacts or Effectiveness*

Short-term impacts and effectiveness is an evaluation of the potential short-term adverse impacts and exposures to the public health and the environment during the construction and implementation phase of a remedy, with respect to the following factors: protection of the community and site workers, controlling adverse impacts to the public, and the time needed to achieve the remedial action objectives.

3.1.4 *Long Term Effectiveness and Permanence*

Long-term effectiveness and permanence assesses the extent and effectiveness of the remedy and the controls

that may be required to manage the risk posed by residual contamination at the site. This includes an evaluation of the magnitude of risk which will remain at the conclusion of remedial activities and the adequacy and reliability of post remedial site controls, if required, to ensure continuing effectiveness.

3.1.5 *Reduction of Toxicity, Mobility, or Volume*

Reduction of toxicity, mobility, or volume through treatment evaluates the ability of the treatment technology to reduce the principal threats posed by the release.

3.1.6 *Implementability*

Implementability addresses the technical and non-technical feasibility of implementing an alternative, including the availability of necessary personnel and materials required and potential difficulties in obtaining specific operating approvals, access for construction, etc.

3.1.7 *Cost-effectiveness*

This criterion is an evaluation of whether the estimated costs for a remedy are proportional to the remedy's overall effectiveness, e.g., short- and long-term effectiveness, permanence, and ability to reduce the toxicity, mobility or volume of site-related contamination. Capital costs are considered the initial costs associated with the design and construction of the system. Direct capital costs include construction, equipment and materials, land acquisition, buildings and services, transport and disposal and analytical services. Indirect capital costs include engineering and design expenses, legal and administrative costs associated with placing institutional controls (ICs) on a property, and start-up and shake-down costs. Post-remedial site control (PRSC) costs are associated with the implementation of the remedy and include site management, operation and maintenance (O&M), monitoring, auxiliary materials and energy usage, and disposal of generated wastes. Total cost is the sum of both the capital and PRSC costs. The net present worth of all remedial action costs over time is provided by discounting all future costs to the current calendar year.

3.1.8 *Compatibility with Land Use*

This criterion is an evaluation of the current, intended and reasonably anticipated future use of the site and its surroundings, as it relates to an alternative or remedy, when unrestricted levels would not be achieved.

3.2 **Individual Analysis of Alternatives**

The evaluations of the criteria discussed above for each of the remedial alternatives are presented in the following sections and summarized in **Table 1**.

3.2.1 *Alternative 1 – No Action*

3.2.1.1 Overall Protectiveness of Public Health and the Environment;

Alternative 1 does not satisfy the RAOs or provide protection of public health and the environment because it does not eliminate the potential for exposure of the public, future construction workers and site residents to on-site contaminants.

3.2.1.2 Compliance with Remedial Goals, SCGs, and RAOs,

Alternative 1 does not comply with remedial goals, SCGs and RAOs for the site.

3.2.1.3 Short-Term Impacts and Effectiveness;

The short-term adverse impacts and exposure to the public and the environment during the implementation of Alternative 1 would be minimal. The only plausible exposure pathways are by ingestion or dermal exposure by a trespasser, an SCDHS employee, or worker at the site.

3.2.1.4 Long-Term Effectiveness and Permanence;

Alternative 1 would not achieve long term effectiveness and permanence. Surface and subsurface soil with concentrations exceeding SCOs would remain at the site.

3.2.1.5 Reduction of Toxicity, Mobility or Volume through Treatment;

Alternative 1 does not actively reduce toxicity, mobility or volume.

3.2.1.6 Implementability

Alternative 1 does not present significant technical difficulties, however access to the site will continue to be restricted.

3.2.1.7 Cost-Effectiveness

There are no costs associated with Alternative 1.

3.2.1.8 Compatibility with Land Use

The proposed future land use is to remain undeveloped. Alternative 1 restricts the use of the land. The alternative does not comply with the NYSDEC BCP goal for cleanup of contaminated land.

3.2.2 *Alternative 2 – Unrestricted Use Cleanup (Track 1)*

3.2.2.1 Overall Protectiveness of Public Health and the Environment

Alternative 2 would achieve the RAOs for surface soil, subsurface soil and sediment.

3.2.2.2 Compliance with Remedial Goals, SCGs, and RAOs

Alternative 2 could meet compliance with remedial goals, SCGs and RAOs for the site by meeting Unrestricted

Use SCOs.

3.2.2.3 Short-Term Impacts and Effectiveness

The short-term adverse impacts and exposure to the public and the environment during the implementation of Alternative 2 is minimal. Short-term exposure to on-site workers during excavation and loading activities will be addressed with a HASP and mitigated through the use of personal protective equipment, monitoring and engineering controls. Potential short-term exposure to the surrounding community will be addressed through the use of odor and dust-suppression techniques and through the implementation of a CAMP which will require air monitoring activities during excavation and soil disturbance activities.

3.2.2.4 Long-Term Effectiveness and Permanence

Alternative 2 achieves long term effectiveness and permanence by removing soils affected by site contaminants above Unrestricted Use SCOs. Under this Alternative, risk from soil impact is eliminated for future on-site residents and off-site residents. This alternative will continue to meet RAOs for soil in the future, providing a permanent long-term solution for the site.

3.2.2.5 Reduction of Toxicity, Mobility or Volume through Treatment

Alternative 2 will permanently eliminate the toxicity, mobility, and volume of contaminants from on-site surface soil, subsurface soil and sediment by meeting unrestricted use objectives.

3.2.2.6 Implementability

Alternative 4 can be implemented using readily available and proven technologies. Both the technical and non-technical aspects of implementing this alternative are feasible.

3.2.2.7 Cost-Effectiveness,

The cost estimate to implement Alternative 2 is estimated to cost the following:

Capital Costs	$	6,100,000 (Includes a 20% contingency)
PRSC Costs	$	0
Total Costs	$	6,100,000

The capital costs for this estimate include the construction, equipment, materials, waste disposal, and indirect capital costs such as engineering and design expenses, and legal and administrative costs. There should be no PRSC costs as this alternative will result in no further waste generation or monitoring.

3.2.2.8 Compatibility with Land Use,

The proposed future land use is to remain undeveloped. Alternative 2 is compatible with respect to the

proposed land use and to land uses in the vicinity of the site. The alternative is consistent NYSDEC BCP and IHWDS goals for cleanup of contaminated land and brings the property into productive use. The alternative is protective of natural resources and cultural resources.

3.2.3 *Alternative 3 – Residential Use Cleanup (Track 2)*

3.2.3.1 Overall Protectiveness of Public Health and the Environment

Alternative 3 would achieve the RAOs to Residential Use SCOs for surface and subsurface soil. Development of a SMP, filing of an Environmental Easement, and annual certification will be required.

3.2.3.2 Compliance with Remedial Goals, SCGs, and RAOs

Clean soil above residual impacted subsurface soil would act as a cover system to limit the potential for contact with impacted material. However, impacted surface and subsurface soil above Unrestricted Use SCOs, but below Residential Use SCOs, would remain at the project site.

3.2.3.3 Short-Term Impacts and Effectiveness

The short-term adverse impacts and exposure to the public and the environment during the implementation of Alternatives 3 is minimal. Short-term exposure to on-site workers during excavation and loading activities will be addressed with a HASP and mitigated through the use of personal protective equipment, monitoring and engineering controls. Potential short-term exposure to the surrounding community will be addressed through the use of odor and dust-suppression techniques and through the implementation of a CAMP which will require air monitoring activities during all excavation and soil disturbance activities.

3.2.3.4 Long-Term Effectiveness and Permanence

Alternative 3 achieves long term effectiveness and permanence by covering residual impacted soils with clean fill material and restricting use of the site through an Environmental Easement. Under this Alternative, risk from soil impact is eliminated for on-site residents and off-site residents. This alternative is capable of meeting RAOs for soil in the future.

3.2.3.5 Reduction of Toxicity, Mobility or Volume through Treatment

Alternative 3 will reduce the mobility, volume and toxicity of contaminants from on-site surface soil and sediment. However, subsurface soil contamination would remain.

3.2.3.6 Implementability

Alternative 3 can be implemented using readily available and proven technologies. Both the technical and non-technical aspects of implementing this alternative are feasible.

3.2.3.7 Cost-Effectiveness,

The cost estimate to implement Alternative 3 is estimated to cost the following:

Capital Costs	$	960,000 (Includes a 20% contingency)
PRSC Costs	$	100,000
Total Costs	$	1,060,000

The capital costs for this estimate include the construction, equipment, materials, waste disposal, and indirect capital costs such as engineering and design expenses, development of a SMP, and legal and administrative costs. The PRSC costs for this estimate include implementation of the SMP, and annual certification for a minimum of 20 years.

3.2.3.8 Compatibility with Land Use,

The proposed future land use is to remain undeveloped. Alternative 3 is compatible with respect to the proposed land use and to land uses in the vicinity of the site. The alternative is consistent with NYSDEC BCP and IHWDS goals for cleanup of contaminated land and brings the property into productive use. The alternative is protective of natural resources and cultural resources.

3.2.4 *Alternative 4 – Site Specific SCOs with Soil Cap (Track 4)*

3.2.4.1 Overall Protectiveness of Public Health and the Environment

Alternative 4 would achieve the RAOs to a site specific SCO of 10 ppm total PCBs for surface and subsurface soil. Additionally, a cap of clean fill material would be installed over residually impacted surface soils (in excess of 1 ppm total PCBs). Development of a SMP, filing of an Environmental Easement, and annual certification will be required.

3.2.4.2 Compliance with Remedial Goals, SCGs, and RAOs

Clean soil above residual impacted subsurface soil would act as a cover system to limit the potential for contact with impacted material. However, impacted subsurface soil above Unrestricted Use SCOs, but below the site specific SCO of 10 ppm total PCBs, would remain at the project site.

3.2.4.3 Short-Term Impacts and Effectiveness

The short-term adverse impacts and exposure to the public and the environment during the implementation of

Alternative 4 is minimal. Short-term exposure to on-site workers during excavation and loading activities will be addressed with a HASP and mitigated through the use of personal protective equipment, monitoring and engineering controls. Potential short-term exposure to the surrounding community will be addressed through the use of odor and dust-suppression techniques and through the implementation of a CAMP which will require air monitoring activities during all excavation and soil disturbance activities.

3.2.4.4 Long-Term Effectiveness and Permanence

Alternative 4 achieves long term effectiveness and permanence by covering residual impacted soils with clean fill material and restricting use of the site through an Environmental Easement. Under this Alternative, risk from soil impact is eliminated for on-site residents and off-site residents. This alternative is capable of meeting RAOs for soil in the future.

3.2.4.5 Reduction of Toxicity, Mobility or Volume through Treatment

Alternative 4 will reduce the mobility, volume and toxicity of contaminants from on-site surface soil and sediment. However, subsurface soil contamination would remain.

3.2.4.6 Implementability

Alternative 4 can be implemented using readily available and proven technologies. Both the technical and non-technical aspects of implementing this alternative are feasible.

3.2.4.7 Cost-Effectiveness,

The cost estimate to implement Alternative 4 is estimated to cost the following:

Capital Costs	$	545,000 (Includes a 20% contingency)
PRSC Costs	$	100,000
Total Costs	$	645,000

The capital costs for this estimate include the construction, equipment, materials, waste disposal, and indirect capital costs such as engineering and design expenses, development of a SMP, and legal and administrative costs. The PRSC costs for this estimate include implementation of the SMP, and annual certification for a minimum of 20 years.

3.2.4.8 Compatibility with Land Use,

The proposed future land use is to remain undeveloped. Alternative 4 is compatible with respect to the proposed land use and to land uses in the vicinity of the site. The alternative is consistent with NYSDEC BCP and IHWDS goals for cleanup of contaminated land and brings the property into productive use. The alternative is

protective of natural resources and cultural resources.

3.3 Comparative Analysis

In this section, the alternatives undergo a comparative analysis to identify the advantages and disadvantages of each alternative in relation to one another and the evaluation criteria. Alternatives which do not achieve protectiveness of public health and the environment, and compliance with remedial goals, SCGs and RAOs are not considered. As such, Alternative 1 is not included in the comparative analysis.

3.3.1 *Overall Protectiveness of Public Health and the Environment*

Alternative 2 would achieve RAOs for soil and sediment at the site. Alternatives 3 and 4 do not eliminate all of the contaminated media at the site or potential future exposures. A SMP and filing of an Environmental Easement, and annual certification will be required for Alternatives 3 and 4.

3.3.2 *Compliance with Remedial Goals, SCGs, and RAOs*

Alternative 2 meets compliance with the remedial goals, SCGs and RAOs. Alternatives 3 and 4 comply with some of the remedial goals, SCGs and RAOs. However, Alternatives 3 and 4 require the implementation of ICs to meet these goals.

3.3.3 *Short-Term Impacts and Effectiveness*

The short-term adverse impacts and exposure to the public and the environment during the implementation of each alternative is minimal and can be addressed with site specific HASP and CAMP. Alternative 2 would require the most time to implement and require the most ECs during remediation.

3.3.4 *Long-Term Effectiveness and Permanence*

Alternatives 2, 3 and 4 would achieve long-term effectiveness and permanence by permanently removing soils to meet RAOs respectively. However, subsurface soils above Unrestricted Use SCOs would remain under Alternatives 3 and 4.

3.3.5 *Reduction of Toxicity, Mobility or Volume through Treatment*

Alternative 2 will permanently eliminate the toxicity, mobility, and volume of contaminants from on-site soil by excavation and off-site disposal. Alternatives 3 and 4 will reduce the mobility and volume of contaminants in the soils at the site.

3.3.6 *Implementability*

Alternative 2, 3 and 4 can be implemented relatively easily with readily available equipment and technologies.

3.3.7 *Cost-Effectiveness*

Based upon a comparison of the estimated total costs for the four alternatives, (Alternative 2 @ $6.1 million, Alternative 3 @ $1,060,000 and Alternative 4 @ $645,000), Alternative 4 is the most cost effective alternative. Alternative 3 is the second most cost effective alternative. However, subsurface contamination will remain and ICs and an Environmental Easement will be required for Alternatives 3 and 4. Alternative 2 is the most costly alternative but does not require ICs and/or an Environmental Easement.

3.3.8 *Compatibility with Land Use*

The proposed future land use is to remain undeveloped. Alternatives 2, 3 and 4 are compatible with the proposed land use.

3.4 Alternative Ratings

Table 1 summarizes the comparative evaluation of the remedial alternatives, which includes ratings for each of the criteria mandated by 6 NYCRR Part 375. The comparison of the alternatives is based upon a qualitative system that utilizes relative ratings of high, medium, and low to define each alternative's performance with respect to 6 NYCRR Part 375 criteria and the proposed future land use. These ratings are equated to a numerical scale to produce a numerical score.

RATING	DESCRIPTION	NUMERICAL RATING
HIGH	SATISFIES CRITERIA TO A HIGH DEGREE	3
MEDIUM	SATISFIES CRITERIA TO A MODERATE DEGREE	2
LOW	MINIMALLY SATISFIES CRITERIA	1

As reflected by **Table 1**, Alternative 2 has been identified as the most effective alternative. Alternative 2 is also the most costly of the evaluated alternatives. Alternatives 3 and 4 has been identified to be moderately effective alternatives. Alternatives 3 and 4 are both more cost effective than Alternative 2, with Alternative 4 more cost effective than Alternative 3. Each of these alternatives would result in a site that is suitable for the proposed future use.

4.0 APPLICANT PREFERRED ALTERNATIVE

Based upon the findings of the RI, the location and depth of the contaminants, and the future use of the site, the applicant prefers Alternative 4 as the proposed remedy.

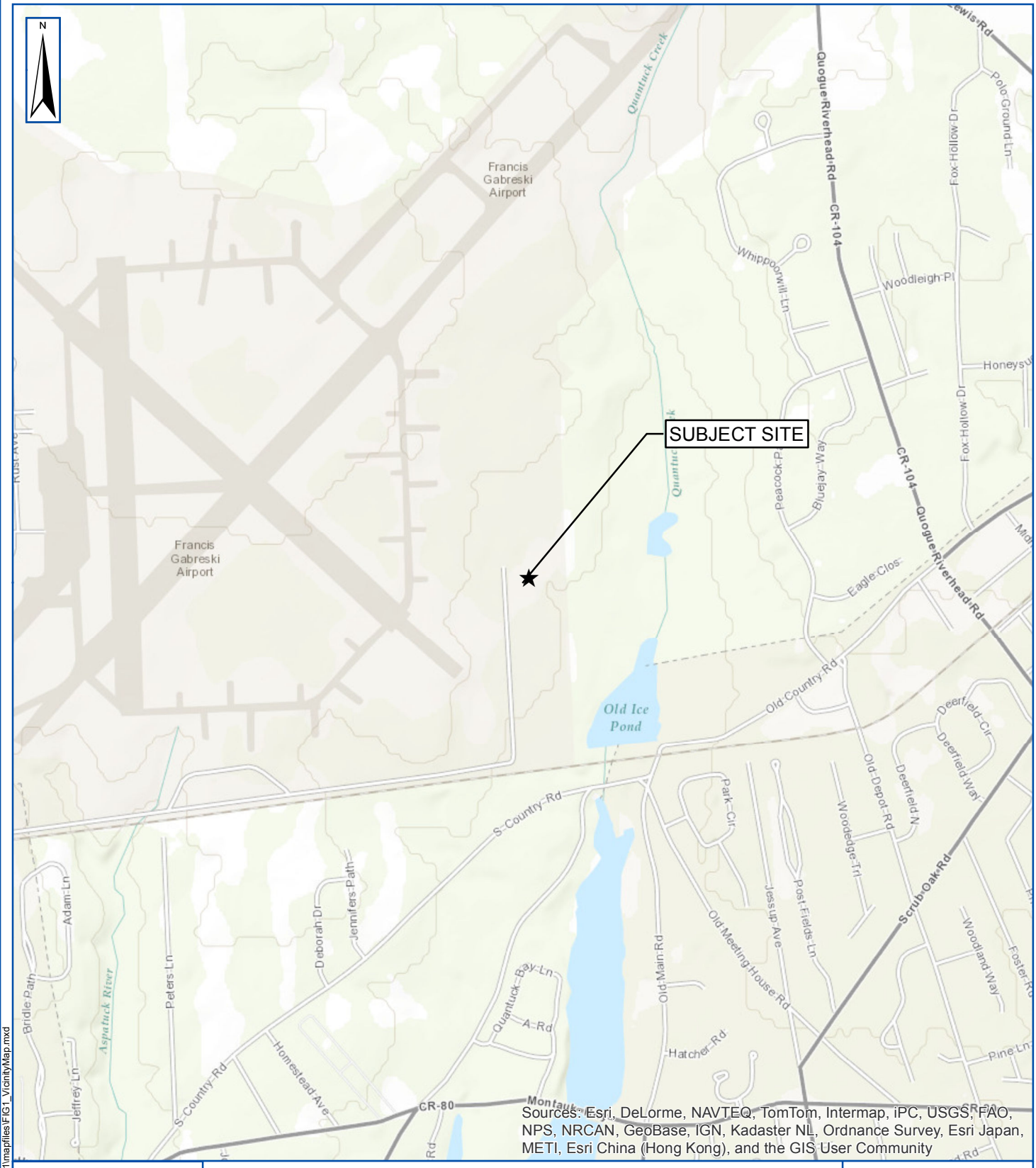
Alternative 4 is protective of the public health and environment, compliant with Remedial Goals, SCGs and RAOs for the site to site specific standards, has proven technology to ensure long-term effectiveness and permanence, reduces the toxicity, mobility and volume of the contamination, has minimal short-term impacts, is readily implementable, and is cost effective compared to the other alternatives. Based upon the strengths of the alternative, the protection of public health based upon the proposed future use and environment aspects, and the minimal visual impact created by the alternative, community acceptance of this alternative should be strong.

As detailed in the sections above, this alternative would achieve RAOs by implementing the following tasks:

- Removal and off-site disposal of soils and debris in excess of a site specific SCO of 10 ppm for total PCBs.
- Installation of a cap of clean fill material over residual impacted soils with total PCB concentrations in excess of 1 ppm.

The specific design and specifications of the remedial alternative will be more fully detailed in the Remedial Action Work Plan for the site.

FIGURES



SITE LOCATION MAP

FORMER CANINE KENNEL - GABRESKI AIRPORT
WEST HAMPTON BEACH, NEW YORK

Miles
0 ¼ ½ ¾ 1

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Project:	SHD1201
Date:	2/15/2013
Designed by:	BB
Drawn by:	BB
Approved by:	KR
Figure No:	1

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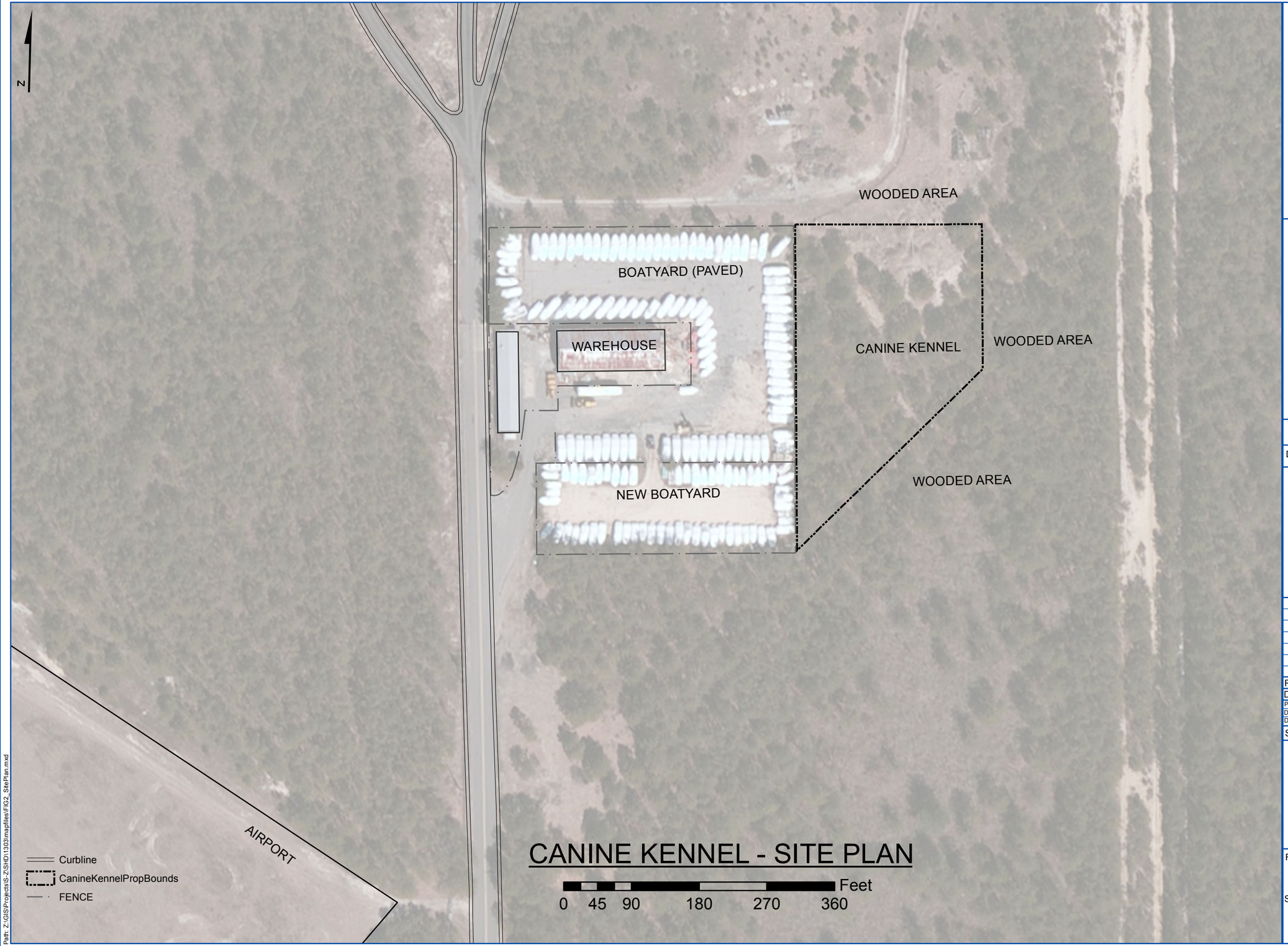

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DRAWINGS PREPARED FOR:

SUFFOLK COUNTY
DEPT. OF HEALTH SERVICES
OFFICE OF POLLUTION CONTROL
15 HORSEBLOCK PLACE
FARMINGVILLE, NEW YORK 11738

REVISION	DATE	INITIAL	COMMENTS

DRAWING INFORMATION:

PROJECT:	SHD1303	APPROVED BY:	AL
DESIGNED BY:	BB	DATE:	11/21/2012
DRAWN BY:	BB	SCALE:	AS SHOWN

SHEET TITLE:

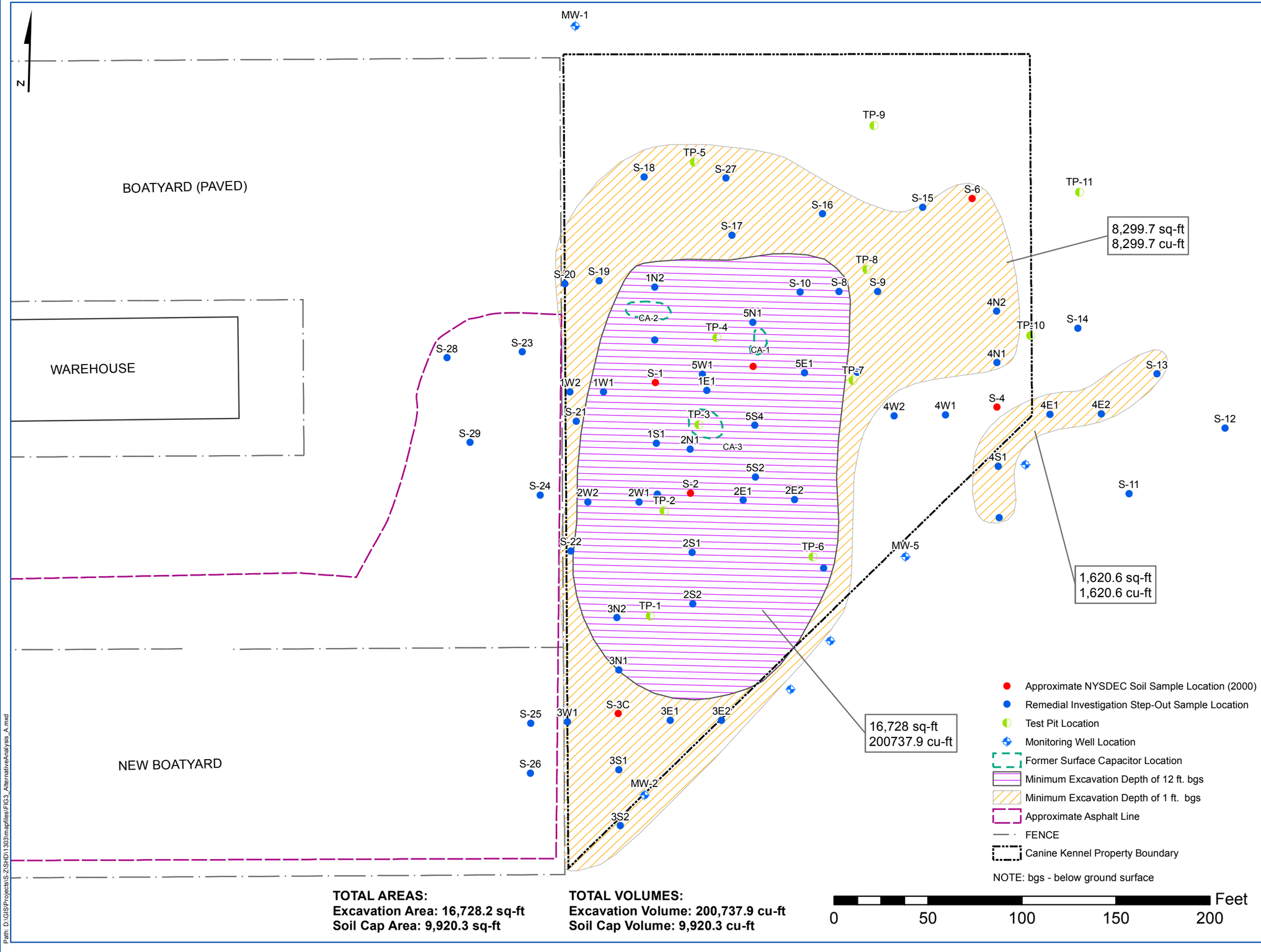
FORMER CANINE KENNEL
GABRESKI AIRPORT
WEST HAMPTON, NEW YORK

SITE PLAN

FIGURE NO:

2

SHEET:



TOTAL AREAS:
Excavation Area: 16,728.2 sq-ft
Soil Cap Area: 9,920.3 sq-ft

TOTAL VOLUMES:
Excavation Volume: 200,737.9 cu-ft
Soil Cap Volume: 9,920.3 cu-ft

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SUFFOLK COUNTY
DEPT. OF HEALTH SERVICES
OFFICE OF POLLUTION CONTROL
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FARMINGVILLE, NEW YORK 11738

REVISION	DATE	INITIAL	COMMENTS

DRAWING INFORMATION:

PROJECT:	SHD1303	APPROVED BY:	TM
DESIGNED BY:	TM	DATE:	6/11/2014
DRAWN BY:	BB	SCALE:	AS SHOWN

SHEET TITLE:

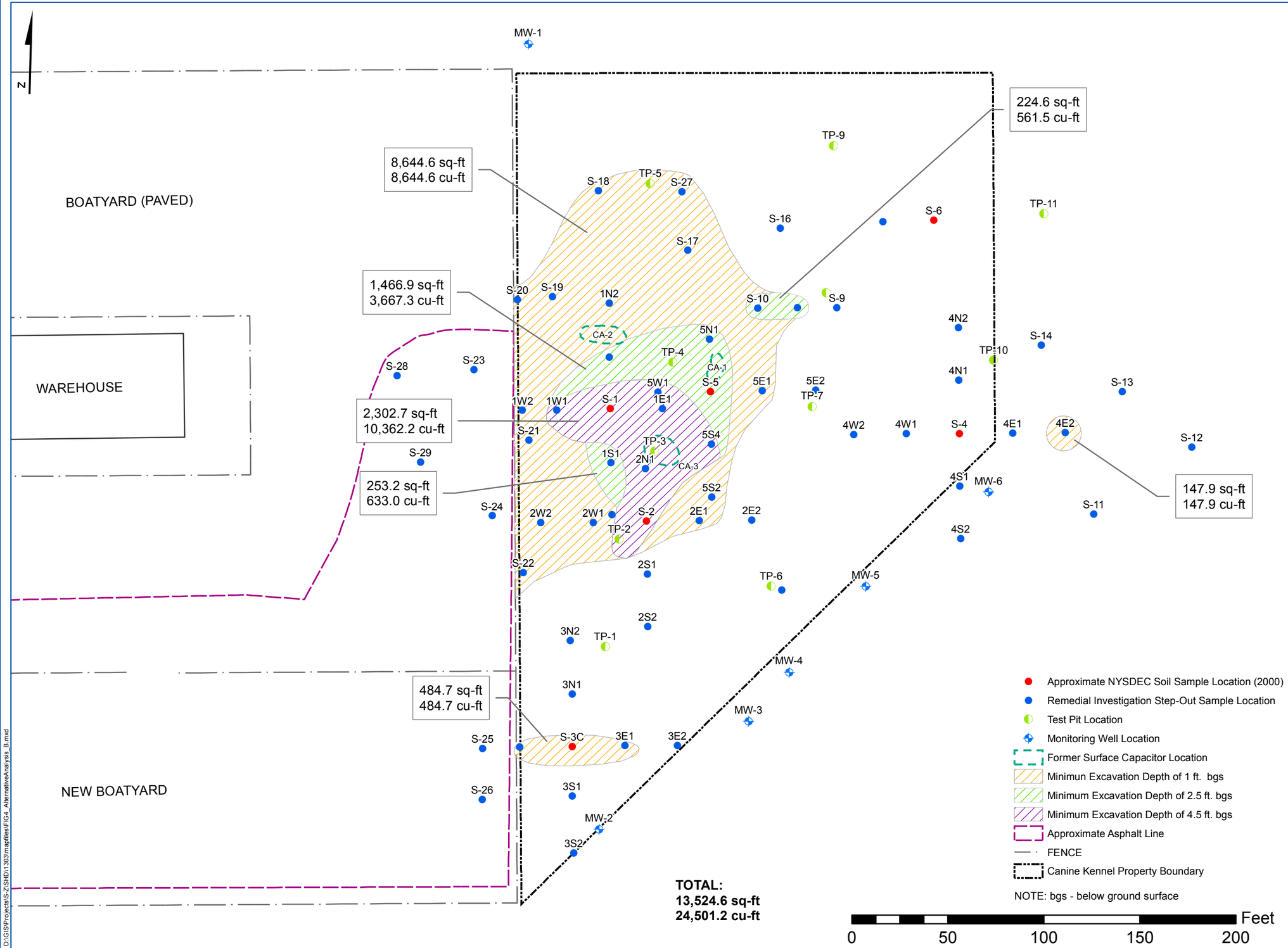
PROPOSED EXCAVATION AREAS ALTERNATIVE 2 - TRACK 1 CLEANUP

FORMER CANINE KENNEL
GABRESKI AIRPORT
WEST HAMPTON, NEW YORK

FIGURE NO:

3

SHEET:



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DRAWINGS PREPARED FOR:

SUFFOLK COUNTY
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OFFICE OF POLLUTION CONTROL
15 HORSEBLOCK PLACE
FARMINGVILLE, NEW YORK 11738

REVISION	DATE	INITIAL	COMMENTS

DRAWING INFORMATION:

PROJECT:	SHD1303	APPROVED BY:	TM
DESIGNED BY:	TM	DATE:	6/11/2014
DRAWN BY:	BB	SCALE:	AS SHOWN

SHEET TITLE:

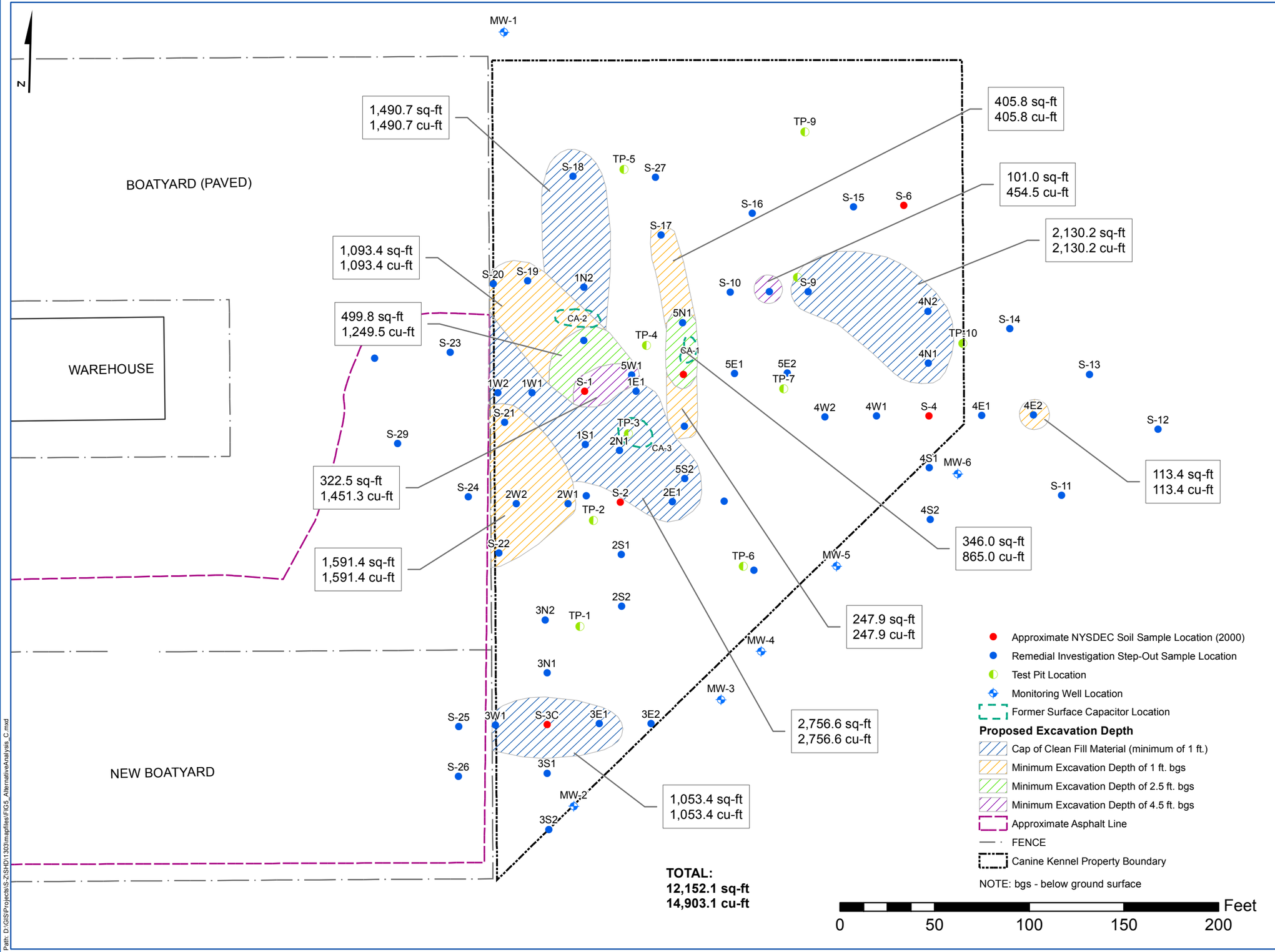
PROPOSED EXCAVATION AREAS ALTERNATIVE 3 - TRACK 2 CLEANUP

FORMER CANINE KENNEL
GABRESKI AIRPORT
WEST HAMPTON, NEW YORK

FIGURE NO:

4

SHEET:



Path: D:\GIS\Projects\S-Z\SHD1303\mapfiles\FIG5_AlternativeAnalysis_C.mxd

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DRAWINGS PREPARED FOR:

SUFFOLK COUNTY
DEPT. OF HEALTH SERVICES
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15 HORSEBLOCK PLACE
FARMINGVILLE, NEW YORK 11738

REVISION	DATE	INITIAL	COMMENTS

DRAWING INFORMATION:

PROJECT:	SHD1303	APPROVED BY:	TM
DESIGNED BY:	TM	DATE:	6/11/2014
DRAWN BY:	BB	SCALE:	AS SHOWN

SHEET TITLE:

PROPOSED EXCAVATION AND SOIL CAP AREAS ALTERNATIVE 4 - TRACK 4 CLEANUP

FORMER CANINE KENNEL
GABRESKI AIRPORT
WEST HAMPTON, NEW YORK

FIGURE NO:

5

SHEET:

TABLES

Table 1

Alternative Analysis Table
Former Canine Kennel Site
Westhampton Beach, New York
NYSDEC BCP ID C152079

	EFFECTIVENESS					RELIABILITY/IMPLEMENTABILITY	Land Use	Rating	COST
ALTERNATIVE	**Overall Protection of Public Health and the Environment**	**Compliance with Standards, Criteria & Guidance (SCG)**	**Long Term Effectiveness and Permanence**	**Reduction of Toxicity, Mobility, or Volume Through Treatment**	**Short Term Effectiveness**	**Technical Feasibility and Reliability**	**Compatibility with Land Use**	**Average**	**Present Worth**
Rating **Alternative 1:** No Action	1 Does not provide protection	1 Does not comply	1 Not effective	1 Does not actively reduce toxicity, mobility or volume.	1 Minimal human exposure risk identified	1 Limits access and development of site	1 Restricts the use of land.	**1**	$0.00
Rating **Alternative 2:** Unrestricted Use Cleanup (Track 1)	3 Provides protection	3 Complies with Unrestricted Use SCOs	3 Effective due to removal of contaminants	3 Will reduce toxicity, mobility and volume.	3 Eliminates human and environmental exposure risk	3 Department may require demonstration of clean soils to bedrock	3 Compatible with proposed land use	**3.0**	$ 6,100,000
Rating **Alternative 3:** Residential Use Cleanup (Track 2)	2 Provides protection	2 Complies with Residential Use SCOs	2 Effective due to removal of contaminants	2 Reduces mobility, toxicity and volume of soil.	2 Reduces human exposure risk	2 Will require Environmental Easement and SMP	3 Compatible with proposed land use. However, a SMP, ICs and an EE will be required.	**2.1**	$ 960,000
Rating **Alternative 4:** Site Specific SCOs with Soil Cap (Track 4)	2 Provides protection	2 Complies with site specific SCOs	2 Effective due to removal of contaminants and capping of residual impact	2 Reduces mobility, toxicity and volume of soil.	2 Reduces human exposure risk	2 Will require Environmental Easement and SMP	3 Compatible with proposed land use. However, a SMP, ICs and an EE will be required.	**2.1**	$ 545,000

Note:

Rating	Description	Numerical Rating
High	Satisfies Criteria to a high degree	3
Medium	Satisfies Criteria to a moderate degree	2
Low	Minimally satisfies criteria	1

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APPENDIX B
HEALTH AND SAFETY PLAN

P.W. GROSSER CONSULTING INC.
PROJECT No. SHD1303

HEALTH AND SAFETY PLAN

FORMER CANINE KENNEL SITE
FRANCIS S. GABRESKI AIRPORT
WESTHAMPTON BEACH, NEW YORK
BCP Site # C152079
IHWDS Site # 152079

Submitted:
September 2014

Prepared for:
The New York State Department of Environmental Conservation
Division of Environmental Remediation

On behalf of:
Suffolk County Department of Health Services
15 Horseblock Place
Farmingville, New York 11738

Prepared By:
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631-589-6353

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1.0 STATEMENT OF COMMITMENT

This Health and Safety Plan (HASP) has been prepared to ensure that workers are not exposed to chemical, biological and physical hazards during the planned Interim Remedial Measure (IRM) to be performed at the Former Canine Kennel site, Gabreski Airport, Westhampton Beach, New York. P.W. Grosser Consulting Inc.'s (PWGC's) policy is to minimize the possibility of work-related exposure through awareness and qualified supervision, health and safety training, medical monitoring, use of appropriate personal protective equipment, and the following activity specific safety protocols contained in this HASP. PWGC has established a guidance program to implement this policy in a manner that protects personnel to the maximum reasonable extent.

This HASP, which applies to persons present at the site actually or potentially exposed to safety or health hazards, describes emergency response procedures for actual and potential physical, biological and chemical hazards. This HASP is also intended to inform and guide personnel entering the work area or exclusion zone. Persons are to acknowledge that they understand the potential hazards and the contents of this Health and Safety policy.

2.0 INTRODUCTION

2.1 Purpose

This HASP addresses the minimum health and safety practices that will be employed by site workers participating in IRM activities at the project site located at Former Canine Kennel, Gabreski Airport, Westhampton Beach, New York.

The HASP takes into account the specific hazards inherent to the site and presents the minimum requirements which are to be met by P.W. Grosser Consulting, Inc. (PWGC), its' subcontractors, and other on-site personnel in order to avoid and, if necessary, protect against health and/or safety hazards. PWGC sub-contractors will have the option of adopting this HASP or developing their own site-specific document. If a subcontractor chooses to prepare their own HASP, it must meet the minimum requirements as detailed in this HASP and must be made available to PWGC.

Activities performed under this HASP will comply with applicable parts of Occupational Safety and Health Administration (OSHA) Regulations, primarily 29 CFR Parts 1910 and 1926 and all other applicable federal, state, and local regulations. Modifications to the HASP may be made with the approval of the PWGC Health and Safety Manager (HSM) and/or Project Manager (PM). A copy of this HASP will be maintained on-site during all work activities.

Refusal to comply with the HASP or violation of any safety procedures by field personnel may result in their immediate removal from the site following consultation with the HSM and the Field Team Leader (FTL).

2.2 Scope

This HASP addresses the potential hazards related to the RI activities. The primary RI activities include the following:

- Site Mobilization/Demobilization;
- Geophysical Survey;
- Excavation;
- Drilling, and;
- Soil and Groundwater Sampling

The potential hazards associated with this scope are listed below and are discussed in more detail in this HASP after the project organization and responsibilities section.

- Chemical Hazards
- Biological Hazards
- Physical Hazards

2.3 Application

The HASP applies to all personnel involved in the above tasks who wish to gain access to active work areas, including but not limited to:

- PWGC employees and subcontractors;
- Client representatives; and
- Federal, state or local representatives.

3.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

This section specifies the project organization and responsibilities.

3.1 Project Manager

- Participates in major incident investigations;
- Ensures that the HASP has all of the required approvals before site work is conducted; and
- Has the overall project responsibility for project health and safety.

3.2 Field Team Leader (FTL)/ Site Health and Safety Officer (SHSO)

- Ensures that the HASP is implemented in conjunction with the Health and Safety Manager (HSM);
- Ensures that field work is scheduled with adequate equipment to complete the job safely;
- Enforces site health and safety rules;
- Ensures that proper personal protective equipment is utilized;
- Ensures that the HSM is informed of project changes that require modifications to the HASP;
- Ensures that the procedure modifications are implemented;
- Investigates incidents;
- Conducts the site safety briefing;
- Reports to HSM to provide summaries of field operations and progress; and
- Acts as Emergency Coordinator.

3.3 Health and Safety Manager

- Provides for the development of the HASP;
- Serves as the primary contact to review health and safety matters that may arise;
- Approves individuals who are assigned SHSO responsibilities;
- Coordinates revisions of this HASP with field personnel; and
- Assists in the investigation of major accidents.

3.4 Site Personnel

- Report any unsafe or potentially hazardous conditions to the FTL/SHSO;
- Maintain knowledge of the information, instructions and emergency response actions contained in this HASP; and
- Comply with rules, regulations and procedures as set forth in this HASP and any revisions.

4.0 SITE HISTORY AND PROJECT DESCRIPTION

4.1 Project Background

This Health and Safety Plan (HASP) has been prepared by PWGC, on behalf of Suffolk County. Polychlorinated biphenyls (PCBs) and pesticides have been identified above guidance levels and/or standards in soil at the site.

4.2 Site Location and Description

The area of concern is a section of disturbed ground, irregular in shape; approximately 0.5 acres. The site is located in a remote portion of the airport, south of the canine kennel and just east of a boat storage yard near the eastern property line, coordinates 40° 50' 20.8'' and 72° 37' 13.6''. Currently, the former dog kennel is abandoned and in a state of disrepair.

The Suffolk County Airport has no commercially scheduled service, but does support private planes and presently is the home of the 106th Rescue Wing of the New York Air National Guard (NYANG).

The western portion of the airport consists of a largely developed space with support buildings and hangers. The central portion of the site consists of the airport runways and maintained open space. The eastern area of the site is largely undeveloped.

The airport is located within the Long Island Pine Barrens. The Pine Barrens are characterized by open, sunlit woodlands dominated by pitch pine interspersed with white and scarlet oak. The nearby Quogue Wildlife Refuge is characterized by dwarf pitch pines ranging from 3 to 6 ft tall. The airport itself is characterized by surrounding wooded areas consisting of 25 ft pitch pines and scattered scrub oak.

5.0 POTENTIAL HAZARDS OF THE SITE

This section presents an assessment of the chemical, biological, and physical hazards that may be encountered during the tasks specified under Section 1.0. Additional information can be found in **Appendix A** - Material Safety Data Sheets or in **Appendix B** - Activity Hazard Analyses.

5.1 Chemical Hazards

Review of historical information from the site indicates that the soil at the site is contaminated with pesticides (4,4 DDE and Dieldrin) and PCBs (Aroclor 1254, 1260), which are present at ppm levels in soil. These compounds may present an occupational exposure hazard during site operations.

The chemicals identified above may have an effect on the central nervous system, respiratory system and may cause chronic liver and kidney damage. Acute exposure symptoms may include headache, dizziness, nausea, diarrhea and skin and eye irritation. Specific information on the chemicals identified at the Site can be found in Table 5-1 as well as on the Material Safety Data Sheets found in **Appendix A**.

Table 5-1

Chemical Hazards

COMPOUND	CAS#	OSHA PEL	ROUTES OF EXPOSURE	SYMPTOMS OF EXPOSURE	TARGET ORGANS	PHYSICAL DATA
Aroclor 1254	11097-69-1	TWA 0.5 mg/m^3	Inhalation Ingestion Skin/Eye	Irritation eyes, chloracne, liver damage, reproductive effects	Skin, liver, reproductive system	VP= 0.00006 mmHg Colorless to yellow liquid w/ distinct odor
Aroclor 1260	11096-82-5	TWA 0.5 mg/m^3	Inhalation Ingestion Skin/Eye	Irritation eyes, chloracne, liver damage, reproductive effects	Skin, liver, reproductive system	VP= 0.00006 mmHg Yellow solid; odor not available
Dieldrin	60-57-1	TWA 0.25 mg/m^3	Inhalation Ingestion Skin/Eye	Convulsions, dizziness, headache, nausea, vomiting, muscle twitching may result from ingestion.	CNS, liver, kidneys, skin	VP= 0.0004 mm Hg Colorless to tan crystal; mild odor
4,4'-DDE	72-55-9	None	Inhalation Ingestion Skin/Eye	Menstrual irregularities, nausea, vomiting, diarrhea, stomach pains, confusion, apprehension, irritability, excitability, dizziness, headache, disorientation, weakness, parenthesis, muscle twitching, tremor, stupor, coma and convulsions	Liver, kidneys	VP= unavailable White crystal, no odor

Abbreviations

C = Ceiling limit, not to be exceeded

CNS = Central Nervous System

PEL=Permissible Exposure Limit

OSHA = Occupational Safety and Health Administration

ppm = parts per million

VP = vapor pressure at approximately 68□ F in mm Hg (mercury)

TWA = Time-weighted average (8 hours)

5.2 Biological Hazards

Work will be performed in an undeveloped area of the Long Island Pine Barrens, during the course of the project, there is potential for workers to come into contact with biological hazards such as animals, insects and plants. The Activity Hazard Analyses found in **Appendix B** includes specific hazards and control measures for each task, if applicable.

5.2.1 *Animals*

The Site is located in a predominantly undeveloped area. It is possible that white tailed deer, raccoon, foxes, possum, dogs, cats, rats and mice may be present. Workers shall use discretion and avoid all contact with animals.

5.2.2 *Insects*

Insects, such as mosquitoes, ticks, bees and wasps may be present during certain times of the year. Workers will be encouraged to wear repellents and PPE, if deemed necessary, when working in areas where insects are expected to be present.

During the months of April through October, particular caution must be exercised to minimize exposure to deer ticks and the potential for contracting Lyme disease. Specific precautionary work practices that are recommended include the following:

- Cover your body as much as possible. Wear long pants and long sleeved shirts. Light color clothing makes spotting of ticks easier.
- Try to eliminate possible paths by which the Deer Tick may reach unprotected skin. For example, tuck bottoms of pants into socks or boots and sleeves into gloves. (Duct tape may be utilized to help seal cuffs and ankles). If heavy concentrations of ticks or insects are anticipated or encountered, Tyvek coveralls may be utilized for added protection when the potential for heat stress is not a concern.
- Conduct periodic and frequent, (e.g., hourly), surveys of your clothing for the presence of ticks. Remove any tick, save it and report to the clinic with the tick.
- Use insect /tick repellents that contain the chemical DEET (n,n-Diethyltoluamide). Apply repellents in accordance with manufacturers' recommendations. These repellents are readily available and include such brands as Deep Woods OFF and Maximum Strength OFF.

5.2.3 *Plants*

Poison ivy, sumac and oak may be present on site. The FTL/SHSO should identify the susceptible individuals. Worker shall avoid all contact with these plants.

5.3 Physical Hazards

Most safety hazards are discussed in the Activity Hazard Analyses (AHA) in **Appendix B** for the different phases of the project. In addition to the AHAs, general work rules and other safety procedures are described in Section 10 of this HASP.

5.3.1 *Temperature Extremes*

Heat Stress

Heat stress is a significant potential hazard, which is greatly exacerbated with the use of PPE in hot environments. The potential hazards of working in hot environments include dehydration, cramps, heat rash, heat exhaustion, and heat stroke.

Cold Stress

At certain times of the year, workers may be exposed to the hazards of working in cold environments. Potential hazards in cold environments include frostbite, trench foot or immersion foot, hypothermia as well as slippery surfaces, brittle equipment, and poor judgment.

PWGC's Heat/Cold Stress Protocols are specified in **Appendix C**.

5.3.2 *Steam, Heat and Splashing*

Exposure to steam/heat/splashing hazards can occur during steam cleaning activities. Splashing can also occur during well development and sampling activities. Exposure to steam/heat/splashing can result in scalding/burns, eye injury, and puncture wounds.

5.3.3 *Noise*

Noise is a potential hazard associated with the operation of heavy equipment, drill rigs, pumps and engines. Workers will wear hearing protection while in the work zone when these types of machinery are operating.

5.3.4 *Fire and Explosion*

When conducting excavation or drilling activities, the opportunity of encountering fire and explosion hazards may exist from encountering underground utilities, from the use of diesel engine equipment, and other

potential ignition sources. During dry periods there is an increased chance of forest and

brush fires starting at the job site. If these conditions occur no smoking will be permitted at the site and all operations involving potential ignition sources will be monitored continuously (fire watch).

5.3.5 *Manual Lifting/Material Handling*

Manual lifting of heavy objects may be required. Failure to follow proper lifting technique can result in back injuries and strains. Back injuries are a serious concern as they are the most common work place injury, often resulting in lost or restricted work time, and long treatment and recovery periods.

5.3.6 *Slips, Trips and Falls*

Working in and around the site will pose slip, trip and fall hazards due to slippery surfaces that may be oil covered, or from rough terrain, surfaces that are steep inclines, surfaced debris, or surfaces which are wet from rain or ice. Falls may result in twisted ankles, broken bones, head trauma or back injuries.

5.3.7 *Heavy Equipment Operation*

An excavator/backhoe will be used to excavate where required. Working with or near heavy equipment poses many potential hazards, including electrocution, fire/explosion, being struck by or against, or pinched/caught/crushed by, and can result in serious physical harm.

5.3.8 *Electrocution*

Encountering underground utilities may pose electrical hazards to workers. Additionally, overhead electrical lines can be a concern during drilling operations. Potential adverse effects of electrical hazards include burns and electrocution, which could result in death.

6.0 ACTIVITY HAZARD ANALYSES

The Activity Hazard Analysis (AHA) is a systematic way of identifying the potential health and safety hazards associated with major phases of work on the project and the methods to avoid, control and mitigate those hazards. The AHAs will be used to train work crews in proper safety procedures during phase preparatory meetings.

AHAs have been developed by PWGC for the following phases of work:

1. Site Mobilization/Demobilization;
2. Excavation
3. Soil and Groundwater sampling; and
4. Decontamination

Copies of these AHAs are included in **Appendix B** of this HASP.

7.0 PERSONAL PROTECTIVE EQUIPMENT

The personal protective equipment (PPE) specified in **Table 7-1** represents the hazard analysis and PPE selection required by 29 CFR 1910.132. Specific information on known potential hazards can be found under Section 4.0 and **Appendix B** - Activity Hazard Analyses. For the purposes of PPE selection, the HSM and FTL/SHSO are considered competent persons. The signatures on the approval page of the HASP constitute certification of the hazard assessment. For activities not covered by **Table 7-1**, the FTL/SHSO will conduct the hazard assessment, select the PPE, and document changes in the appropriate field logs. PPE selection will be made in consultation with the HSM.

Modifications for initial PPE selection may also be made by the FTL/SHSO in consultation with the HSM and changes documented accordingly. If major modifications occur, the HSM will notify the PM.

7.1 PPE Abbreviations

HEAD PROTECTION

HH = Hard Hat

HEARING PROTECTION

EP = ear plugs

EM = ear muffs

HAND PROTECTION

Cot = cotton

But = Butyl

LWG = Leather Work Gloves

Neo = Neoprene

Nit = Nitrile

Sur = Surgical

EYE/FACE PROTECTION

APR = Full Face Air Purifying Respirator

MFS = Mesh Face shield

PFS =Plastic Face shield

SG = ANSI approved safety glasses with side shields

BODY PROTECTION

WC = work clothes

Cot Cov = Cotton Coveralls

Poly = Polyethylene coated Tyvek® coveralls

Saran = Saranex coated coveralls

Tyvek® = Uncoated Tyvek® coveralls

FOOT PROTECTION

Neo = Neoprene

OB = Overboot

Poly = polyethylene coated boot

Rub = rubber slush boots

STB = Leather work boots with steel toe

RESPIRATORY PROTECTION

APR = Full-face air purifying respirator with organic vapor cartridges

ASR = Full face air supplied respirator with escape bottle

SCBA = Self-contained breathing apparatus

7.2 Hazard Assessment for Selection of Personal Protective Equipment

The initial selection of personal protective equipment for each task was done by performing a hazard assessment taking into consideration the following:

- Potential chemical and physical present;
- Work operations to be performed;
- Potential routes of exposure;
- Concentrations of contaminants present; and
- Characteristics, capabilities and limitations of PPE and any hazard that the PPE presents or magnifies.

A review of the analytical data from previous sampling events indicates that pesticides and PCBs identified in **Table 5-1** are the primary contaminants of concern. The maximum concentration detected for contaminates of concern in soil are as follows:

- Aroclor-1254 280,000 ppm
- Aroclor-1260 3,800 ppm
- Dieldrin 1,900 ppm
- 4,4'-DDE 2,000 ppm

The exposure routes for these chemicals are inhalation, skin absorption, skin/eye contact and ingestion. Chemical protective gloves will be required for all activities that involve sample handling and the likelihood for skin contact. The proper use of PPE and strict adherence to decontamination and personal hygiene procedures will effectively minimize skin contact and ingestion as potential routes of exposure.

Table 7-1

Personal Protective Equipment Selection

TASK	HEAD	EYE/FACE	FEET	HANDS	BODY	HEARING	RESPIRATOR
Mobilization/ Demobilization	HH	SG	STB	WG	WC	None	None
Excavation, loading and backfilling	HH	SG	STB	WG	WC	EM or EP	None initially APR if action levels exceeded
Drilling Activities	HH	SG	STB	WG	WC	EM or EP	None initially APR if action levels exceeded
Soil/GW sampling	HH	SG	STB	WG, Nit & Sur as needed	WC, Tyvek® as needed	None	None initially APR if action levels exceeded
Decontamination	HH	SG	STB	Nit + Sur	WC, Tyvek® as needed	None	None initially APR if action levels exceeded

7.3 Respirator Cartridge Change-Out Schedule

A respirator cartridge change-out schedule has been developed in order to comply with 29 CFR 1910.134. If the use of respirators is necessary, the respirator cartridge change-out schedule for this project will be as follows:

1. Cartridges shall be removed and disposed of at the end of each shift, when cartridges become wet or wearer experiences breakthrough, whichever occurs first; and
2. If the humidity exceeds 85%, then cartridges shall be removed and disposed of after 4 hours of use.

Respirators shall not be stored at the end of the shift with contaminated cartridges left on. Cartridges shall not be worn on the second day, no matter how short of time period they were used the day before.

The schedule was developed based on the following scientific information and assumptions:

- Analytical data that is available regarding site contaminants;
- Using the Rule of Thumb provided by the AIHA;
- All of the chemicals have boiling points greater than 70□C;
- Total airborne concentration of contaminants is anticipated to be less than 200 ppm;
- The humidity is expected to be less than 85%; and
- Desorption of the contaminants (including those with poor warning properties) after partial use of the chemical cartridge can occur after a short period (hours) without use (eg, overnight) and result in a non-use exposure.

The following is a partial list of factors that may affect the usable cartridge service life and/or the degree of respiratory protection attainable under actual workplace conditions. These factors have been considered when developing the cartridge change-out schedule.

Type of contaminant(s);

- Contaminant concentration;
- Relative humidity;
- Breathing rate; Temperature; Changes in contaminant concentration, humidity, breathing rate and temperature;

- Mixtures of contaminants;
- Accuracy in the determination of the conditions;
- The contaminant concentration in the workplace can vary greatly. Consideration must be given to the quality of the estimate of the workplace concentration;
- Storage conditions between multiple uses of the same respirator cartridges. It is recommended that the chemical cartridges be replaced after each work shift. Contaminants adsorbed on a cartridge can migrate through the carbon bed without airflow;
- Age of the cartridge;
- Condition of the cartridge and respirator;
- Respirator and cartridge selection respirator fit;
- Respirator assembly, operation, and maintenance;
- User training, experience and medical fitness;
- Warning properties of the contaminant; and
- The quality of the warning properties should be considered when establishing the chemical cartridge change schedule. Good warning properties may provide a secondary or back-up indication for cartridge change-out.

8.0 AIR MONITORING

Air monitoring will be performed for protection for on-site workers and the downwind community (i.e., off-site receptors including residences, businesses, and on-site workers not directly involved in the remedial work) from potential airborne contaminant releases resulting from remedial activities at the site. Air monitoring will be used to help to confirm that the remedial work will not spread contamination off-site through the air. The primary concerns for this site are dust particulates and PCBs. Although no VOCs have been reported during previous sampling events at the site monitoring with a photo-ionization detector (PID) will be performed during any invasive activities

Since direct-reading instrumentation for PCBs has not been developed, respirable particulate action levels have been established that will ensure compliance with the respirable particulate OSHA permissible exposure level (PEL) (5.0 mg/m^3 particulates and 0.5 mg/m^3 for PCBs).

Real-time monitoring for dust and VOCs will be conducted both within the work area, and along the site perimeter, during intrusive activities such as excavation and drilling activities.

Airborne concentrations of respirable particulates, that are protective of exposures to PCBs, can be calculated if 1) the concentration of PCBs in site media is known, and 2) the concentration of PCBs in air is also known. For the purposes of determining the respirable particulate action levels, the following assumptions are made:

- The PCB concentration in site media is assumed to be equal to the maximum concentration of PCBs identified in the media at the site; and
- The chemical concentration of PCBs in air is set equal to the maximum allowable exposure of 0.25 mg/m^3 (one-half the OSHA PEL).

The following formula results from these assumptions:

$$\frac{\text{Allowable PCBs concentration in air}}{\text{Maximum PCBs concentration in media}} = \text{Maximum allowable particulate concentration in air}$$

The following illustrates how the action level for PCB exposure for the investigation was established, using half the OSHA PEL as the maximum allowable exposure:

$$\frac{(0.25 \text{ mg PCBs/m}^3 \text{ of air})}{(283{,}800 \text{ mg PCBs/1,000,000 mg soil})} = 0.88 \text{ mg respirable particulates/m}^3 \text{ of air}$$

Level D level of protection will be utilized unless dust monitoring exceeds 0.88 mg/ m^3.

Detailed information on the types, frequency and location of real-time monitoring and community air monitoring requirements are provided in the Community Air Monitoring Plan prepared for this project.

9.0 ZONES, PROTECTION AND COMMUNICATION

9.1 Site Control

Site zones are intended to control the potential spread of contamination throughout the site and to assure that only authorized individuals are permitted into potentially hazardous areas. A three-zone approach will be utilized. It shall include an Exclusion Zone (EZ), Contamination Reduction Zone (CRZ) and a Support Zone (SZ). Specific zones shall be established on the work site when operations begin.

This project is a hazardous waste remediation project, and any person working in an area where the potential for exposure to site contaminants exists, will only be allowed access after providing the FTL/SHSO with proper training and medical documentation.

The zones are based upon current knowledge of proposed site activities. It is possible that the zone configurations may be altered due to work plan revisions. Should this occur, the work zone will be adjusted accordingly, and documented through use of a field-change request form.

The following shall be used for guidance in revising these preliminary zone designations, if necessary.

Support Zone **-** The SZ is an uncontaminated area that will be the field support area for most operations. The SZ provides for field team communications and staging for emergency response. Appropriate safety equipment will be located in this zone. Potentially contaminated personnel/materials are not allowed in this zone. The only exception will be appropriately packaged/decontaminated and labeled samples.

Contamination Reduction Zone **-** The CRZ is established between the EZ and the SZ. The CRZ contains the contamination reduction corridor and provides for an area for decontamination of personnel and portable hand-held equipment, tools and heavy equipment. A personnel decontamination area will be prepared at each exclusion zone. The CRZ will be used for EZ entry and egress in addition to access for heavy equipment and emergency support services.

Exclusion Zone **-** All activities, which may involve exposure to site contaminants, hazardous materials and/or conditions, should be considered an EZ. The FTL/SHSO may establish more than one EZ where different levels of protection may be employed or different hazards exist. The size of the EZ shall be determined by the site HSO allowing adequate space for the activity to be completed, field members and emergency equipment.

9.2 Contamination Control

Decontamination areas will be established for the following activities.

- Drilling/Sampling Activities
- Excavation

9.2.1 *Personnel Decontamination Station*

All personnel and portable equipment used in the EZ shall be subject to a thorough decontamination process, as deemed necessary by the FTL/SHSO. Sampling equipment shall be decontaminated. As necessary, all boots and gloves will be decontaminated using soap and water solution and scrub brushes or simple removal and disposal. All used respiratory protective equipment will be decontaminated daily and sanitized with appropriate sanitizer solution.

All drums generated as a result of sampling and decontamination activities will be marked and stored at a designated area at the site until the materials can be property disposed of off-site.
All non-expendable sampling equipment will be decontaminated. This usually entails the use of Alconox, solvent and distilled/deionized water rinses to eliminate contaminants.

9.3 Communication

- Each team member will have a Nextel cell phone/radio for communication with the PM, HSO and other team members during field activities.
- Hand Signals - Hand signals shall be used by field teams, along with the buddy system. The entire field team shall know them before operations commence and their use covered during site-specific training. Typical hand signals are the following:

SIGNAL	MEANING
Hand gripping throat	Out of air, can't breathe
Grip on a partner's wrist or placement of both hands around a partner's waist.	Leave the area immediately, no debate.
Hands on top of head	Need assistance
Thumbs up	Okay, I'm all right, I understand.
Thumbs down	No, negative.

10.0 MEDICAL SURVEILLANCE PROCEDURES

All contractor and subcontractor personnel performing field work where potential exposure to contaminants exists at the site are required to have passed a complete medical surveillance examination in accordance with 29 CFR 1910.120(f).

10.1 Medical Surveillance Requirements

A physician's medical release for work will be confirmed by the HSM before an employee can work in the exclusion zone. The examination will be taken annually at a minimum and upon termination of hazardous waste site work if the last examination was not taken within the previous six months. Additional medical testing may be required by the HSM in consultation with the Corporate Medical Consultant and the FTL/SHSO if an over-exposure or accident occurs, if an employee exhibits symptoms of exposure, or if other site conditions warrant further medical surveillance.

10.2 Medical Data Sheet

A medical data sheet is provided in **Appendix D**. This medical data sheet is voluntary and should be completed by all on-site personnel and will be maintained at the site. Where possible, this medical data sheet will accompany the personnel needing medical assistance. The medical data sheet will be maintained in a secure location, treated as confidential, and used only on a need-to-know basis.

11.0 SAFETY CONSIDERATIONS

11.1 General Health and Safety Work Practices

A list of general health and safety work practices is included as an included in **Appendix E**. The work rules will be posted in a conspicuous location at the site.

11.2 The Buddy System

At a minimum, employees shall work in groups of two in such a manner that they can observe each other and maintain line-of-sight for each employee within the work group. The purpose of the buddy system is to provide rapid assistance to employees in the event of an emergency.

11.3 Sample Handling

Personnel responsible for the handling of samples should wear the prescribed level of protection. Samples should be identified as to their hazard and packaged as to prevent spillage or breakage. Sample containers shall be decontaminated in the CRZ or EZ before entering a clean Support Zone area. Any unusual sample conditions, odors, or real-time readings should be noted. Laboratory personnel should be advised of sample hazard level and the potential contaminants present. This can be accomplished by a phone call to the lab coordinator and/or including a written statement with the samples reviewing lab safety procedures in handling, in order to assure that the practices are appropriate for the suspected contaminants in the sample.

11.4 Drill Rigs

When conducting drilling activities, the opportunity of encountering fire and explosion hazards exists from underground utilities and gases. The locations of underground utilities will be verified prior to performing any intrusive activities. Additionally, because of the inherently hazardous nature of drilling operations, safety and accident prevention are crucial when drilling operations are performed. Most drilling accidents occur as a direct result of lack of training and supervision, improper handling of equipment, and unsafe work practices. Hazards include: assembling and disassembling rigs, rotary and auger drilling, and grouting. The drilling contractor shall perform drilling in accordance with its own Health & Safety Program for Drill Rig Safety.

11.4.1 *Safety During Drilling Operations*

- Safety requires the attention and cooperation of every worker and site visitor.
- Do not drive the drill rig from hole to hole with the mast (derrick) in the raised position.
- Before raising the mast (derrick), look up to check for overhead obstructions.
- Maintain a minimum of 15 feet clearance from all overhead electric lines.

- Before raising the mast (derrick), all drill rig personnel (with the exception of the operator) and visitors shall be cleared from the areas immediately to the rear and the sides of the mast. All drill rig personnel and visitors shall be informed that the mast is being raised prior to raising it.
- Before the mast (derrick) of a drill rig is raised and drilling is commenced, the drill rig must first be leveled and stabilized with leveling jacks and/or solid cribbing. Lower the mast (derrick) only when the leveling jacks are down and do not raise the leveling jack pads until the mast (derrick) is lowered completely.
- The operator of a drill rig shall only operate a drill rig from the position of the controls.
- Throwing or dropping tools shall not be permitted. All tools shall be carefully passed by hand between personnel or a hoist line shall be used.
- Do not consume alcoholic beverages or other depressants or chemical stimulants prior to starting work on a drill rig or while on the job.
- All unattended boreholes must be adequately covered or otherwise protected to prevent drill rig personnel, site visitors, or animals form stepping or falling into the hole.
- Terminate drilling operations during an electrical storm and move the entire crew away from the drill rig.

11.5 Excavation

Although extensive excavation is not anticipated for the scope of this project, excavations will be conducted in accordance with the requirements contained in 29 CFR 1926, Subpart P-Excavations. It provides for the designation of a "Competent Person" and general requirements for safe excavating practices. The program also incorporates company standards for the monitoring of potentially hazardous atmospheres; protection from water hazards; analyzing and maintaining the stability of adjacent structures; daily competent person inspections; soil classification; sloping and benching; protective systems; and training.

The Competent Person will be the FTL or other designee with appropriate training and experience. The Competent Person will be assisted in his/her duties by other technical personnel such as the HSM, geologists, structural engineers and soils engineers.

No entry into excavations will be allowed for this phase of the project.

12.0 DISPOSAL PROCEDURES

All discarded materials, waste materials or other objects shall be handled in such a way as to preclude the potential for spreading contamination, creating a sanitary hazard or causing litter to be left on site.

All potentially contaminated materials, e.g., clothing, gloves, etc., will be bagged or drummed as necessary, labeled and segregated for disposal. All non-contaminated materials will be collected and bagged for appropriate disposal as non-hazardous solid waste. Additional waste disposal procedures may be developed as applicable.

13.0 EMERGENCY RESPONSE PLAN

This section establishes procedures and provides information for use during a project emergency. Emergencies happen unexpectedly and quickly, and require an immediate response; therefore, contingency planning and advanced training of staff is essential. Specific elements of emergency support procedures which are addressed in the following subsections include communications, local emergency support units, preparation for medical emergencies, first aid for injuries incurred on site, record keeping, and emergency site evacuation procedures.

13.1 Responsibilities

13.1.1 *Health and Safety Manager (HSM)*

The HSM oversees and approves the Emergency Response/Contingency Plan and performs audits to determine that the plan is in effect and that all pre-emergency requirements are met. The HSM acts as a liaison to applicable regulatory agencies and notifies OSHA of reportable accidents.

13.1.2 *Field Team Leader/Site Health and Safety Officer (FOL/HSO)*

The FTL/SHSO is responsible for ensuring that all personnel are evacuated safely and that machinery and processes are shut down or stabilized in the event of a stop work order or evacuation. The FTL/SHSO is required to immediately notify the HSM of any fatalities or catastrophes (three or more workers injured and hospitalized) so that the HSM can ensure that OSHA is notified within the required time frame. The HSM will be notified of all OSHA recordable injuries, fires, spills, releases or equipment damage in excess of $500 within 24 hours.

13.1.3 *Emergency Coordinator*

The Emergency Coordinator for the project is the FTL/SHSO.

The Emergency Coordinator shall make contact with Local Emergency Response personnel prior to beginning work on site. In these contacts the emergency coordinator will inform interested parties about the nature and duration of work expected on the site and the type of contaminants and possible health or safety effects of emergencies involving these contaminants. The emergency coordinator will locate emergency phone numbers and identify hospital routes prior to beginning work on site. The emergency coordinator shall make necessary arrangements to be prepared for any emergencies that could occur.

The Emergency Coordinator will implement the Emergency Response/Contingency Plan whenever conditions

at the site warrant such action.

13.1.4 *Site Personnel*

Site personnel are responsible for knowing the Emergency Response/Contingency Plan and the procedures contained herein. Personnel are expected to notify the Emergency Coordinator of situations that could constitute a site emergency.

13.2 Communication

A variety of communication systems may be utilized during emergency situations. These are discussed in the following sections.

13.2.1 *Hand Signals*

Downrange field teams will employ hand signals where necessary for communication during emergency situations. Hand signals are found in Section 8.3.

13.2.2 *Field Radios and Cell Phones*

PWGC field personnel are provided cellular phones with telephone and two-way radio capabilities for site communication and emergency use.

13.3 Local Emergency Support Units

A route map from the site to the nearest hospital can be found in **Appendix F**. This map will be placed with the above emergency telephone numbers in all on-site vehicles.

13.4 Pre-Emergency Planning

PWGC will communicate directly with administrative personnel from the emergency room at the hospital to determine whether the hospital has the facilities and personnel needed to treat cases of trauma resulting from exposure to any of the contaminants expected to be found on the site. Instructions for finding the hospital will be posted conspicuously in the site office and in each site vehicle.

Before the field activities begin, the local emergency response personnel will be notified of the schedule for field activities and about the materials that are thought to exist on the site so that they will be able to respond quickly and effectively in the event of a fire, explosion, or other emergency. Before fieldwork on the site commences, each person who will be working there or observing the operations will complete a medical data sheet (**Appendix D**). These data sheets will be filled out during site-specific training and will be kept on the

site.

In the event of an incident where a team member becomes exposed or suffers from an acute symptom of exposure to site materials and has to be taken to a hospital, a copy of his/her medical data sheet will be presented to the attending physician.

Table 13-1

Emergency Telephone Numbers

Contact	Firm or Agency	Telephone Number
Police		911
Fire		911
Hospital	Central Suffolk	(631) 548-6000
Ambulance		911
Project Manager/Health and Safety Manager	Andrew Lockwood PWGC	(631) 589-6353
Health & Safety Officer	Rocky Wenskus PWGC	(631) 589-6353
NYSDEC Site Contact	Heather Bishop	(518) 402-9625
Poison Control Center		(800) 962-1253
Chemtrec		(800) 424-9300
SCDHS Site Contact	Jim Meyers	(631) 854-2529

13.5 Emergency Medical Treatment

The procedures and rules in this HASP are designed to prevent employee injury. However, should an injury occur, no matter how slight, it will be reported to the FTL/SHSO immediately. First aid equipment will be available on site at the following locations:

- First Aid Kit: Support Zone (or designated by FTL/SHSO upon arrival)
- Emergency Eye Wash: Support Zone (or designated by FTL/SHSO upon arrival)

During site-specific training, project personnel will be informed of the location of the first aid station(s) that has been set up. Unless they are in immediate danger, severely injured persons will not be moved until paramedics can attend to them. Some injuries, such as severe cuts and lacerations or burns, may require immediate treatment. Any first aid instructions that can be obtained from doctors or paramedics, before an

emergency-response squad arrives at the site or before the injured person can be transported to the hospital, will be followed closely.

There will be at least two people with current First Aid and CPR certification on each active work shift. When personnel are transported to the hospital, the FTL/SHSO will provide a copy of the Medical Data Sheet to the paramedics and treating physician.

Only in non-emergency situations will an injured person be transported to the hospital by means other than an ambulance. **A map and directions to the hospital can be found in Appendix F.**

13.6 Emergency Site Evacuation Routes and Procedures

In order to mobilize the manpower resources and equipment necessary to cope with a fire or other emergency, a clear chain of authority will be established. The EC will take charge of all emergency response activities and dictate the procedures that will be followed for the duration of the emergency. The EC will report immediately to the scene of the emergency, assess the seriousness of the situation, and direct whatever efforts are necessary until the emergency response units arrive. At his/her discretion, the EC also may order the closure of the site for an indefinite period.

All project personnel will be instructed on proper emergency response procedures and locations of emergency telephone numbers during the initial site safety meeting. If an emergency occurs, including but not limited to fire, explosion or significant release of toxic gas into the atmosphere, an air horn will be sounded on the site. The horn will sound continuously for one blast, signaling that immediate evacuation of all personnel is necessary due to an immediate or impending danger. All heavy equipment will be shut down and all personnel will evacuate the work areas and assemble at the evacuation meeting point, which will be determined upon arrival at the site by the FTL/SHSO, prior to work beginning. This will then be conveyed to all crew members during the site-specific briefing.

The EC will give directions for implementing whatever actions are necessary. Any project team member may be assigned to be in charge of emergency communications during an emergency. He/she will attend the site telephone specified by the EC from the time the alarm sounds until the emergency has ended.

After sounding the alarm and initiating emergency response procedures, the EC will check and verify that

access roads are not obstructed. If traffic control is necessary, as in the event of a fire or explosion, a project team member, who has been trained in these procedures and designated at the site safety meeting, will take over these duties until local police and fire fighters arrive.

The EC will remain at the site to provide any assistance requested by emergency-response squads as they arrive to deal with the situation. A map showing evacuation routes, meeting places and the location of emergency equipment will be posted in all trailers and used during site-specific training.

13.7 Fire Prevention and Protection

In the event of a fire or explosion, procedures will include immediately evacuating the site (air horn will sound for a single continuous blast), and notification of local fire and police departments. No personnel will fight a fire beyond the stage where it can be put out with a portable extinguisher (incipient stage).

13.7.1 *Fire Prevention*

Adhering to the following precautions will prevent fires:

- Good housekeeping and storage of materials;
- Storage of flammable liquids and gases away from oxidizers;
- No smoking in the exclusion zone or any work area;
- No hot work without a properly executed hot work permit;
- Shutting off engines to refuel;
- Grounding and bonding metal containers during transfer of flammable liquids;
- Use of UL approved flammable storage cans;
- Fire extinguishers rated at least 10 pounds ABC located on all heavy equipment, in all trailers and near all hot work activities; and
- Monthly inspections of all fire extinguishers.

13.8 Overt Chemical Exposure

The following are standard procedures to treat chemical exposures. Other, specific procedures detailed on the Material Safety Data Sheet or recommended by the Corporate Medical Consultant will be followed, when necessary.

SKIN AND EYE CONTACT: Use copious amounts of soap and water. Wash/rinse affected areas thoroughly, and

then provide appropriate medical attention. Eyes should be rinsed for 15 minutes upon chemical contamination. Skin should also be rinsed for 15 minutes if contact with caustics, acids or hydrogen peroxide occurs.

INHALATION: Move to fresh air. Decontaminate and transport to hospital or local medical provider.

INGESTION: Decontaminate and transport to emergency medical facility.

PUNCTURE WOUND OR LACERATION: Decontaminate and transport to emergency medical facility.

13.9 Decontamination during Medical Emergencies

If emergency life-saving first aid and/or medical treatment is required, normal decontamination procedures may need to be abbreviated or postponed. The FTL/SHSO or designee will accompany contaminated victims to the medical facility to advise on matters involving decontamination, when necessary. The outer garments can be removed if they do not cause delays, interfere with treatment or aggravate the problem. Respiratory equipment must always be removed. Protective clothing can be cut away. If the outer contaminated garments cannot be safely removed on-site, a plastic barrier placed between the injured individual and clean surfaces should be used to help prevent contamination of the inside of ambulances and/or medical personnel. Outer garments may then be removed at the medical facility. No attempt will be made to wash or rinse the victim if his/her injuries are life threatening, unless it is known that the individual has been contaminated with an extremely toxic or corrosive material which could also cause severe injury or loss of life to emergency response personnel. For minor medical problems or injuries, the normal decontamination procedures will be followed.

13.10 Accident/Incident Reporting

As soon as first aid and/or emergency response needs have been met, the following parties are to be contacted by telephone:

- Health and Safety Manager;
- Project Manager; and
- The employer of any injured worker who is not a PWGC employee.

Written confirmation of verbal reports are to be completed by the FTL/SHSO using the Incident Report Form and submitted within 24 hours. The incident report and investigation form is found in **Appendix G**. If the

employee involved is not a PWGC employee, his employer will receive a copy of the report.

13.11 Adverse Weather Conditions

In the event of adverse weather conditions, the FTL/SHSO will determine if work can continue without potentially risking the safety of all field workers. Some of the items to be considered prior to determining if work should continue are:

- Potential for heat stress and heat-related injuries;
- Potential for cold stress and cold-related injuries;
- Treacherous weather-related working conditions (hail, rain, snow, ice, high winds);
- Limited visibility (fog);
- Potential for electrical storms;
- Earthquakes; and
- Other major incidents.

Site activities will be limited to daylight hours, or when suitable artificial light is provided, and acceptable weather conditions prevail. The FTL/SHSO will determine the need to cease field operations or observe daily weather reports and evacuate, if necessary, in case of severe inclement weather conditions.

13.12 Spill Control and Response

All small hazardous spills/environmental releases shall be contained as close to the source as possible. Whenever possible, the MSDS will be consulted to assist in determining the best means of containment and cleanup. For small spills, sorbent materials such as sand, sawdust or commercial sorbents should be placed directly on the substance to contain the spill and aid recovery. Any acid spills should be diluted or neutralized carefully prior to attempting recovery. Berms of earthen or sorbent materials can be used to contain the leading edge of the spills. Drains or drainage areas should be blocked. All spill containment materials will be properly disposed. An exclusion zone of 50 to 100 feet around the spill area should be established depending on the size of the spill. The following seven steps should be taken by the Emergency Coordinator:

- Determine the nature, identity and amounts of major spill components;
- Make sure all unnecessary persons are removed from the spill area;
- Notify appropriate response teams and authorities;
- Use proper PPE in consultation with the FTL/SHSO;

- If a flammable liquid, gas or vapor is involved, remove all ignition sources and use non-sparking and/or explosive proof equipment to contain or clean up the spill (diesel only vehicles, air operated pumps, etc.);
- If possible, try to stop the leak with appropriate material; and,
- Remove all surrounding materials that can react or compound with the spill.

13.13 Emergency Equipment

The following minimum emergency equipment shall be kept and maintained on-site:

- Industrial first aid kit;
- Burn kit and portable eye washes (one per field team);
- Fire extinguishers (one per work area); and
- Absorbent material /spill kit.

14.0 TRAINING

14.1 General Health and Safety Training

In accordance with PWGC corporate policy, and pursuant to 29 CFR 1910.120, hazardous waste site workers shall, at the time of job assignment, have received a minimum of 40 hours of initial health and safety training for hazardous waste site operations unless otherwise noted in the above reference. At a minimum, the training shall have consisted of instruction in the topics outlined in the standard. Personnel who have not met the requirements for initial training shall not be allowed to work in any site activities in which they may be exposed to hazards (chemical or physical).

14.1.1 *Three Day Supervised On the Job Training*

In addition to the required initial hazardous waste operations training, each employee shall have received three days of directly supervised on-the-job training. This training will address the duties the employees are expected to perform.

14.2 Annual Eight-Hour Refresher Training

Annual eight-hour refresher training will be required of all hazardous waste site field personnel in order to maintain their qualifications for fieldwork. The training will cover a review of 1910.120 requirements and related company programs and procedures.

14.3 Site-Specific Training

Prior to commencement of field activities, all field personnel assigned to the project will have completed training that will specifically address the activities, procedures, monitoring, and equipment used in the site operations. It will include site and facility layout, hazards and emergency services at the site, and will highlight all provisions contained within this HASP. This training will also allow field workers to clarify anything they do not understand and to reinforce their responsibilities regarding safety and operations for their particular activity.

14.4 On-Site Safety Briefings

Project personnel and visitors will be given on-site health and safety briefings daily by the FTL/SHSO to assist site personnel in safely conducting their work activities. A copy of the Daily Briefing Sign-In Sheet is contained in **Appendix H**. The briefings will include information on new operations to be conducted, changes in work practices or changes in the site's environmental conditions, as well as periodic reinforcement of previously discussed topics. The briefings will also provide a forum to facilitate conformance with safety requirements

and to identify performance deficiencies related to safety during daily activities or as a result of safety inspections. The meetings will also be an opportunity to periodically update the crews on monitoring results. Prior to starting any new activity, a training session using the Activity Hazard Analysis will be held for crew members involved in the activity.

14.5 First Aid and CPR

The HSM will identify those individuals requiring first aid and CPR training to ensure that emergency medical treatment is available during field activities. It is anticipated that a minimum of one field person on-site at any one time will have first aid and CPR training. The training will be consistent with the requirements of the American Red Cross Association or American Heart Association. If none are available on-site, then the HSM shall be notified.

14.6 Supervisory Training

Supervisors and health and safety personnel shall have completed an additional eight hours of specialized training in accordance with 29 CFR 1910.120.

15.0 LOGS, REPORTS AND RECORDKEEPING

Changes to the HASP will be documented in the Health and Safety log book and as appropriate, the HSM and/or PM will be notified. Daily tailgate meetings will be documented in the H&S log book as well as personnel on-site.

15.1 Medical and Training Records

Copies or verification of training (40-hour, 8-hour, supervisor, site-specific training and documentation of three day OJT) and medical clearance for hazardous waste site work and respirator use will be maintained on-site. Records for all subcontractor employees will also be kept on-site.

15.2 Incident Report and Investigation Form

The incident report and investigation form is to be completed for all accidents and incidents, including near misses. The form can be found in **Appendix G**.

15.3 Health and Safety Logbooks

The FTL/SHSO will maintain a logbook during site work. The daily site conditions, personnel, monitoring results and significant events will be recorded. The original logbooks will become part of the exposure records file.

16.0 FIELD PERSONNEL REVIEW

This form serves as documentation that field personnel have read, or have been informed of, and understand the provisions of the HASP. It is maintained on site by the FTL/SHSO as a project record. Each field team member shall sign this section after site-specific training is completed and before being permitted to work on site.

I have read, or have been informed of, the Health and Safety Plan and understand the information presented. I will comply with the provisions contained therein.

Name (Print and Sign)	***Date***

Appendix A
Material Safety Data Sheets

MATERIAL SAFETY DATA SHEET

SRM Supplier: **National Institute of Standards and Technology**
Standard Reference Materials Program
100 Bureau Drive, Mail Stop 2321
Gaithersburg, Maryland 20899

SRM Number: 3079
MSDS Number: 3079
SRM Name: Aroclor 1254 in Transformer Oil
Date of Issue: 23 May 2003

MSDS Coordinator: Carmen S. Davis
Phone: (301) 975-6776
ChemTrec: 1-800-424-9300

FAX: (301) 926-4751
E-mail: SRMMSDS@nist.gov

SECTION I. MATERIAL IDENTIFICATION

Material Name: Aroclor 1254 in Transformer Oil

Description: SRM 3079 consists of five 2-mL ampoules, each containing approximately 1.2 mL of a solution of aroclor 1254 in transformer oil.

Other Designations: **Aroclor 1254** (PCB 1254; polychlornated biphenyl (aroclor 1254); chlorodiphenyl (54 %) Cl) in **Transformer Oil** (hydrotreated light napthenic distilltate; hydraulic petroleum oil)

Name	Chemical Formula	CAS Registry Number
Transformer Oil	complex mixture	64742-53-6
Aroclor 1254	complex molecule	11097-69-1

DOT Classification: Not Hazardous under DOT regulations.

Manufacturer/Supplier: Available from a number of suppliers

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Components	Nominal Concentration (%)	Exposure Limits and Toxicity Data
Transformer Oil	99	ACGIH TLV-TWA: 5 mg/m^3 (mineral oil mist)
		Rat, Oral: LD_{50}: greater than 5 g/kg body weight
		Rabbit, Acute Dermal: LD_{50}: greater than 5 g/kg body weight
Aroclor 1254	1	ACGIH TWA: 0.5 mg/m^3 (skin)
		OSHA TWA: 0.5 mg/m^3 (skin)
		Rat, Oral: LD_{50}: 1 010 mg/kg
		Rat, Intravenous: LD_{50}: 358 mg/kg

SECTION III. PHYSICAL/CHEMICAL CHARACTERISTICS

Transformer Oil	Aroclor 1254
Appearance and Odor: a clear liquid with a mild, bland petroleum odor	**Appearance and Odor:** a colorless to yellow liquid with a distinct odor
Relative Molecular Mass: ~ 255	**Relative Molecular Mass:** complex molecule
Specific Gravity: 0.88 g/mL	**Density (water = 1):** 1.50
Boiling Point: ~ 238 °C	**Boiling Point:** 365 °C to 390 °C
Freezing Point: not available	**Freezing Point:** 10 °C
Vapor Pressure (@ 20 °C): < 0.01 mm Hg	**Vapor Pressure:** negligible
Evaporation Rate: not available	**Evaporation Rate (butyl acetate = 1):** not available
Viscosity (@ 40 °C): 12.0 cSt	**Viscosity (@ 20 °C):** 140 to 2500
Water Solubility: insoluble	**Water Solubility:** very slightly soluble
Solvent Solubility: not available	**Solvent Solubility:** soluble in oils, organic solvents

NOTE: The physical and chemical data provided are for the pure components. Physical and chemical data for this transformer oil/aroclor 1254 solution **DO NOT** exist. The actual behavior of the solution may differ from the individual components.

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

Transformer Oil
Flash Point: 146 °C **Method Used:** COC **Autoignition Temperature:** > 204 °C

Flammability Limits in Air (Volume %): **UPPER:** 7
LOWER: 0.9

Aroclor 1254
Flash Point: 222 °C **Method Used:** Closed Cup **Autoignition Temperature:** Not Available

Flammability Limits in Air (Volume %): **UPPER:** Not Available
LOWER: Not Available

Unusual Fire and Explosion Hazards: Transformer oil is a slight fire hazard. Heating this material greatly increases the fire hazard. Thermal oxidative degradation may also yield hazardous gases.

Aroclor 1254 is a slight fire hazard.

Extinguishing Media: Use a dry chemical powder, carbon dioxide, or foam. Use a water spray to cool fire exposed containers only. **DO NOT** use a forced water stream directly into an oil fire as this will only scatter the fire; use a smothering technique for extinguishing the fire of this combustible material.

Special Fire Procedures: Fire fighters should wear a self-contained breathing apparatus (SCBA) with a full face piece in the pressure demand or positive mode and other protective clothing.

SECTION V. REACTIVITY DATA

Stability: **X** **Stable** _____ **Unstable**

Conditions to Avoid: Avoid contact with heat, sparks, flames, or other sources of ignition. Avoid inhalation of vapors or combustion by-products. Avoid contact with the skin. **DO NOT** allow the material to contaminate water sources.

Incompatibility (Materials to Avoid): Transformer oil is a fire and explosion hazard when exposed to strong oxidizing agents.

Aroclor 1254 is incompatible with acid halides, chlorine, oxides of carbon, and halogenated compounds.

See Section IV: *Unusual Fire and Explosion Hazards*

Hazardous Decomposition or Byproducts: Transformer oil will produce fumes, smoke, carbon monoxide, sulfur oxides, and aldehydes along with other decomposition products can be produced with incomplete combustion.

Thermal decomposition products of aroclor 1254 may include acid halides, chlorine, oxides of carbon, and halogenated compounds.

Hazardous Polymerization _____ **Will Occur** **X** **Will Not Occur**

SECTION VI. HEALTH HAZARD DATA

Route of Entry: **X** **Inhalation** **X** **Skin** **X** **Ingestion**

Transformer Oil: The vapor pressure of this material is very low therefore, vapor inhalation under ambient conditions is normally not a problem. However, health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists, or fumes should be minimized.

Prolonged or repeated skin contact with this product may remove skin oils possibly leading to irritation and dermatitis; contact with the eyes may cause eye irritation. Repeated application of mildly hydrotreated oils to the skin of mice induced a moderate incidence of skin tumors. This product has a low order of oral toxicity, but minute amounts aspirated into the lungs during ingestion or vomiting may cause mild to severe pulmonary injury and possibly death.

PCB 1254 (Aroclor): PCBs show high levels of bio-accumulation in the fatty tissues with very slow metabolism, especially for pentachloride $(Cl)_{5\ 1q}$ compounds and above. The skin lesions consist of small pimples and, in the initial stages, dark pigmentation of the exposed pores. In the later stages, blackheads and pustules develop. The PCBs are potent liver toxins that can be absorbed through the skin in hazardous amounts without immediately discernible pain or discomfort. This liver toxicity of chlorinated biphenyls appears to be increased if there is exposure to carbon tetrachloride at the same time. Where liver damage is extensive, the patient may become comatose and die. The higher the chlorine content of the diphenyl compound, the more probable it is toxic. Acute and chronic ingestion studies of aroclor 1254, involving rats, produced decreased motor activity, severe body weight loss, and deaths.

Medical Conditions Generally Aggravated by Exposure: Methanol may affect eye disorders, kidney disorders, skin disorders, and allergies. Aroclor 1242 may affect liver disorders, skin disorders, and allergies.

Listed as a Carcinogen/Potential Carcinogen (Transformer Oil):

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens		X
In the International Agency for Research on Cancer (IARC) Monographs	X	
By the Occupational Safety and Health Administration (OSHA)		X

Listed as a Carcinogen/Potential Carcinogen (Aroclor 1254):

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens	X	
In the International Agency for Research on Cancer (IARC) Monographs	X	
By the Occupational Safety and Health Administration (OSHA)		X

EMERGENCY AND FIRST AID PROCEDURES:

Skin Contact: Remove contaminated shoes and clothing. Rinse affected area with large amounts of water followed by washing the area with soap and water. Watch for chemical irritations and treat them accordingly. Obtain medical assistance if necessary.

Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Obtain medical assistance.

Inhalation: If inhaled, move the victim to fresh air. If breathing is difficult, give oxygen; if the victim is not breathing, give artificial respiration. Obtain medical assistance if necessary.

Ingestion: If ingested, wash out mouth with water. Obtain medical assistance immediately.

TARGET ORGAN(S) OF ATTACK: **Transformer Oil:** skin and upper respiratory tract (URT)
Aroclor 1254: liver

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material Is Released or Spilled: Notify safety personnel of major spills and/or leaks. Evacuate nonessential personnel. Absorb small spills with sand or other absorbent material and place into containers for disposal. **DO NOT** flush into a sewer. Keep out of watersheds and waterways.

Waste Disposal: Follow all federal, state, and local laws governing disposal.

Handling and Storage: Persons handling this material must wear protective eyewear, clothing, and gloves to prevent contact with this material.

> **NOTE:** Contact lenses pose a special problem; soft lenses may absorb irritants and all lenses concentrate them. **DO NOT** wear contact lenses in the laboratory.

Protect containers from physical damage. Sealed ampoules, as received, should be stored in the dark at temperatures lower than 30 °C. Keep material in a well-ventilated area away from incompatible materials.

SECTION VIII. SOURCE DATA/OTHER COMMENTS

Sources: MDL Information Systems, Inc., MSDS *Transformer Oil*, 16 December 2002.
MDL Information Systems, Inc., MSDS *Aroclor 1254*, 22 March 2001.
Merck Index, 11th Ed., 1989.
The Sigma Aldrich Library of Chemical Safety Data, Ed. II, 1988.

MATERIAL SAFETY DATA SHEET

SRM Supplier: **National Institute of Standards and Technology**
Standard Reference Materials Program
100 Bureau Drive, Mail Stop 2321
Gaithersburg, Maryland 20899

SRM Number: 3080
MSDS Number: 3080
SRM Name: Aroclor 1260 in Transformer Oil
Date of Issue: 23 May 2003

MSDS Coordinator: Carmen S. Davis
Phone: (301) 975-6776
ChemTrec: 1-800-424-9300

FAX: (301) 926-4751
E-mail: SRMMSDS@nist.gov

SECTION I. MATERIAL IDENTIFICATION

Material Name: Aroclor 1260 in Transformer Oil

Description: SRM 3080 consists of five 2-mL ampoules, each containing approximately 1.2 mL of a solution of aroclor 1260 in transformer oil.

Other Designations: **Aroclor 1260** (PCB 1260; polychlornated biphenyl (aroclor 1260); chlorodiphenyl (60 % Cl) in **Transformer Oil** (hydrotreated light napthenic distilltate; hydraulic petroleum oil)

Name	Chemical Formula	CAS Registry Number
Transformer Oil	complex mixture	64742-53-6
Aroclor 1260	complex molecule	11096-82-5

DOT Classification: Not Hazardous under DOT regulations.

Manufacturer/Supplier: Available from a number of suppliers

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Components	Nominal Concentration (%)	Exposure Limits and Toxicity Data
Transformer Oil	99	ACGIH TLV-TWA: 5 mg/m^3 (mineral oil mist)
		Rat, Oral: LD_{50}: greater than 5 g/kg body weight
		Rabbit, Acute Dermal: LD_{50}: greater than 5 g/kg body weight
Aroclor 1260	1	NIOSH TWA: 1 μg/m^3 (10 hours)
		Rat, Oral: LD_{50}: 1315 mg/kg
		Rabbit, Skin: LD_{LO}: 2 g/kg

SECTION III. PHYSICAL/CHEMICAL CHARACTERISTICS

Transformer Oil	Aroclor 1260
Appearance and Odor: a clear liquid with a mild, bland petroleum odor	**Appearance and Odor:** a yellow solid; odor not available
Relative Molecular Mass: ~ 255	**Relative Molecular Mass:** complex molecule
Specific Gravity: 0.88 g/mL	**Density (water = 1):** 1.58
Boiling Point: ~ 238 °C	**Boiling Point:** 385 °C to 420 °C
Freezing Point: not available	**Freezing Point:** not available
Vapor Pressure (@ 20 °C): < 0.01 mm Hg	**Vapor Pressure (@ 20 °C):** negligible
Evaporation Rate: not available	**Evaporation Rate:** not available
Viscosity (@ 40 °C): 12.0 cSt	**Viscosity:** not applicable
Water Solubility: insoluble	**Water Solubility:** very slightly soluble
Solvent Solubility: not available	**Solvent Solubility:** soluble in oils and organic solvents

NOTE: The physical and chemical data provided are for the pure components. Physical and chemical data for this transformer oil/aroclor 1260 solution **DO NOT** exist. The actual behavior of the solution may differ from the individual components.

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

Transformer Oil
Flash Point: 146 °C **Method Used:** COC **Autoignition Temperature:** > 204 °C

Flammability Limits in Air (Volume %): **UPPER:** 7
LOWER: 0.9

Aroclor 1260
Flash Point: >385 °C **Method Used:** Not Available **Autoignition Temperature:** Not Available

Flammability Limits in Air (Volume %): **UPPER:** Not Available
LOWER: Not Available

Unusual Fire and Explosion Hazards: Transformer oil is a slight fire hazard. Heating this material greatly increases the fire hazard. Thermal oxidative degradation may also yield hazardous gases.

Aroclor 1260 is a slight fire hazard.

Extinguishing Media: Use a dry chemical powder, carbon dioxide, or foam. Use a water spray to cool fire exposed containers only. **DO NOT** use a forced water stream directly into an oil fire as this will only scatter the fire; use a smothering technique for extinguishing the fire of this combustible material.

Special Fire Procedures: Fire fighters should wear a self-contained breathing apparatus (SCBA) with a full face piece in the pressure demand or positive mode and other protective clothing.

SECTION V. REACTIVITY DATA

Stability: **X** **Stable** _____ **Unstable**

Conditions to Avoid: Avoid contact with heat, sparks, flames, or other sources of ignition. Avoid inhalation of vapors or combustion by-products. Avoid contact with the skin. **DO NOT** allow the material to contaminate water sources.

Incompatibility (Materials to Avoid): Transformer oil is a fire and explosion hazard when exposed to strong oxidizing agents.

Aroclor 1260 is incompatible with oxidizing materials and combustible materials.

See Section IV**:** *Unusual Fire and Explosion Hazards*

Hazardous Decomposition or Byproducts: Transformer oil will produce fumes, smoke, carbon monoxide, sulfur oxides, and aldehydes along with other decomposition products can be produced with incomplete combustion.

Thermal decomposition products of aroclor 1260 may include acid halides, chlorine, oxides of carbon, and halogenated compounds.

Hazardous Polymerization _____ **Will Occur** **X** **Will Not Occur**

SECTION VI. HEALTH HAZARD DATA

Route of Entry: **X** **Inhalation** **X** **Skin** **X** **Ingestion**

Transformer Oil: The vapor pressure of this material is very low therefore, vapor inhalation under ambient conditions is normally not a problem. However, health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists, or fumes should be minimized.

Prolonged or repeated skin contact with this product may remove skin oils possibly leading to irritation and dermatitis; contact with the eyes may cause eye irritation. Repeated application of mildly hydrotreated oils to the skin of mice induced a moderate incidence of skin tumors. This product has a low order of oral toxicity, but minute amounts aspirated into the lungs during ingestion or vomiting may cause mild to severe pulmonary injury and possibly death.

PCB 1260 (Aroclor): PCBs show high levels of bio-accumulation in the fatty tissues with very slow metabolism, especially for pentachloride $(Cl)_5$ compounds and above. The skin lesions consist of small pimples and, in the initial stages, dark pigmentation of the exposed pores. In the later stages, blackheads and pustules develop. The PCBs are potent liver toxins that can be absorbed through the skin in hazardous amounts without immediately discernible pain or discomfort. This liver toxicity of chlorinated biphenyls appears to be increased if there is exposure to carbon tetrachloride at the same time. Where liver damage is extensive, the patient may become comatose and die. The higher the chlorine content of the diphenyl compound, the more probable it is toxic.

Medical Conditions Generally Aggravated by Exposure: Methanol may affect eye disorders, kidney disorders, skin disorders, and allergies. Aroclor 1260 may affect liver disorders, skin disorders, and allergies.

Listed as a Carcinogen/Potential Carcinogen (Transformer Oil):

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens		X
In the International Agency for Research on Cancer (IARC) Monographs	X	
By the Occupational Safety and Health Administration (OSHA)		X

Listed as a Carcinogen/Potential Carcinogen (Aroclor 1260):

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens	X	
In the International Agency for Research on Cancer (IARC) Monographs	X	
By the Occupational Safety and Health Administration (OSHA)		X

EMERGENCY AND FIRST AID PROCEDURES:

Skin Contact: Remove contaminated shoes and clothing. Rinse affected area with large amounts of water followed by washing the area with soap and water. Watch for chemical irritations and treat them accordingly. Obtain medical assistance if necessary.

Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Obtain medical assistance.

Inhalation: If inhaled, move the victim to fresh air. If breathing is difficult, give oxygen; if the victim is not breathing, give artificial respiration. Obtain medical assistance if necessary.

Ingestion: If ingested, wash out mouth with water. Obtain medical assistance immediately.

TARGET ORGAN(S) OF ATTACK: **Transformer Oil:** skin and upper respiratory tract (URT)
Aroclor 1260: liver

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material Is Released or Spilled: Notify safety personnel of major spills and/or leaks. Evacuate nonessential personnel. Absorb small spills with sand or other absorbent material and place into containers for disposal. **DO NOT** flush into a sewer. Keep out of watersheds and waterways.

Waste Disposal: Follow all federal, state, and local laws governing disposal.

Handling and Storage: Persons handling this material must wear protective eyewear, clothing, and gloves to prevent contact with this material.

> **NOTE:** Contact lenses pose a special problem; soft lenses may absorb irritants and all lenses concentrate them. **DO NOT** wear contact lenses in the laboratory.

Protect containers from physical damage. Sealed ampoules, as received, should be stored in the dark at temperatures lower than 30 °C. Keep material in a well-ventilated area away from incompatible materials.

SECTION VIII. SOURCE DATA/OTHER COMMENTS

Sources: MDL Information Systems, Inc., MSDS *Transformer Oil*, 16 December 2002.
MDL Information Systems, Inc., MSDS *Aroclor 1260*, 16 December 2002.
Merck Index, 11th Ed., 1989.
The Sigma Aldrich Library of Chemical Safety Data, Ed. II, 1988.

DIELDRIN

0787
March 1998

CAS No: 60-57-1
RTECS No: IO1750000
UN No: 2761
EC No: 602-049-00-9

1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-endo-1,4-exo-5,8-dimethanonaphthalene
3,4,5,6,9,9-Hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2ß,2aalpha,3ß,6ß,6aalpha,7ß,7aalpha)-2,7:3,6-dimethanonaphth(2,3-b)oxirene
HEOD
$C_{12}H_8Cl_6O$
Molecular mass: 380.9

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/SYMPTOMS	PREVENTION	FIRST AID/FIRE FIGHTING
FIRE	Not combustible. Liquid formulations containing organic solvents may be flammable. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: all extinguishing agents allowed.
EXPLOSION			
EXPOSURE		**PREVENT DISPERSION OF DUST! STRICT HYGIENE! AVOID EXPOSURE OF ADOLESCENTS AND CHILDREN!**	
Inhalation	(see Ingestion).	Ventilation (not if powder).	Fresh air, rest. Refer for medical attention.
Skin	MAY BE ABSORBED! See Ingestion.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.
Eyes		Safety goggles, or face shield.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
Ingestion	Convulsions. Dizziness. Headache. Nausea. Vomiting. Muscle twitching.	Do not eat, drink, or smoke during work. Wash hands before eating.	Give a slurry of activated charcoal in water to drink. Do NOT induce vomiting. Rest. Refer for medical attention.

SPILLAGE DISPOSAL	PACKAGING & LABELLING	
Do NOT wash away into sewer. Sweep spilled substance into sealable containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place (extra personal protection: chemical protection suit including self-contained breathing apparatus).	T+ Symbol N Symbol R: 25-27-40-48/25-50/53 S: (1/2-)22-36/37-45-60-61 UN Hazard Class: 6.1 UN Pack Group: II	Do not transport with food and feedstuffs. Severe marine pollutant.

EMERGENCY RESPONSE	STORAGE
Transport Emergency Card: TEC (R)-61G41b.	Provision to contain effluent from fire extinguishing. Separated from food and feedstuffs and incompatible materials: See Chemical Dangers. Well closed. Keep in a well-ventilated room.

IPCS
International Programme on Chemical Safety

Prepared in the context of cooperation between the International Programme on Chemical Safety and the European Commission

SEE IMPORTANT INFORMATION ON THE BACK.

IMPORTANT DATA

Physical State; Appearance
COLOURLESS CRYSTALS

Chemical Dangers
The substance decomposes on heating producing toxic fumes including hydrogen chloride. Reacts with oxidants and acids. Attacks metal due to the slow formation of hydrogen chloride in storage.

Occupational Exposure Limits
TLV (as TWA): 0.25 mg/m^3, A4 (skin) (ACGIH 1997).

Routes of Exposure
The substance can be absorbed into the body through the skin and by ingestion.

Inhalation Risk
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly on spraying.

Effects of Short-term Exposure
The substance may cause effects on the central nervous system, resulting in convulsions. Medical observation is indicated.

Effects of Long-term or Repeated Exposure
The substance accumulates in the human body. Cumulative effects are possible: see acute hazards/symptoms.

PHYSICAL PROPERTIES

Melting point: 175-176°C
Density: 1.7 g/cm^3
Solubility in water: none

Vapour pressure, Pa at 20°C: 0.0004
Octanol/water partition coefficient as log Pow: 6.2

ENVIRONMENTAL DATA

The substance is very toxic to aquatic organisms. This substance may be hazardous to the environment; special attention should be given to honey bees, birds. In the food chain important to humans, bioaccumulation takes place, specifically in aquatic organisms. It is strongly advised not to let the chemical enter into the environment because it persists in the environment. The substance may cause long-term effects in the aquatic environment. Avoid release to the environment in circumstances different to normal use.

NOTES

Depending on the degree of exposure, periodic medical examination is indicated. If the substance is formulated with solvent(s) also consult the card(s) (ICSC) of the solvent(s). Carrier solvents used in commercial formulations may change physical and toxicological properties. Do NOT take working clothes home. Alvit, Dieldrex, Dieldrite, Illoxol, Octalox, Panoram, and Quintox are trade names. Also consult ICSC #0774, Aldrin.

ADDITIONAL INFORMATION

February 22, 2007

RM Number: 8467 (Renewals)
MSDS Number: 8467
RM Name: 4,4'-DDE
Issued: May, 1992

MATERIAL SAFETY DATA SHEET

National Institute of Standards and Technology
Standard Reference Materials Program
Gaithersburg, Maryland 20899
(301) 975-2019

SECTION I. MATERIAL IDENTIFICATION

Material Name: 4,4'-DDE

Description: This material is a degradation product of DDT found as an impurity in DDT residues. A unit of RM 8467 consists of one vial containing approximately 100 mg of 4,4'-DDE.

Other Designations: *p,p'*-DDE, 1,1'-(dichloroethenyldiene)bis[4-chlorobenzene]; 2,2-bis-(4-chlorophenyl)-1,1-dichloroethene; ethylene, 1,1-dichloro-2,2-bis(*p*-chlorophenyl); 1,1'-(dichloroethenylidene)bis(4-chloro-benzene); dichlorodiphenyldichloroethylene

Chemical Formula: Cl-C_6-H.-C-(C-Cl_2)-C_6-H.-Cl

CAS Reg. No.: 72-55-9

DOT Classification: Class 6.1 Poison

Manufacturer/ Supplier: Available from a number of suppliers.

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Components	Nominal Concentration	Limits and Toxicity Data
4,4'-DDE	~ 100%	*No TLV established. Rat, Oral: LD_{50}: 880 mg/kg

Mouse, Oral:

LD_{50}: 700 mg/kg

*The suggested ACGIH-TWA for particulates not otherwise regulated is 10 mg/m³ for total dust.

SECTION III. PHYSICAL/ CHEMICAL CHARACTERISTICS

4,4'-DDE

Appearance and Odor: A white crystalline solid.
Molecular Weight: 318.03
Melting Point (Range): 88 - 90 °C
Solubility in Water: 0.12 ppm
Solubility in Other Compounds: Soluble in ethanol, acetone, dichloromethane, fat and most organic solvents.

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point: N/A

(Method Used): N/A

Autoignition Temperature: N/A

Flammability Limits in Air (Volume %): UPPER: N/A
LOWER: N/A

Extinguishing Media: Use dry chemical, water spray of regular foam.

Special Fire Procedures: Fire-fighters should wear self-contained breathing apparatus operated in a pressure-demand or other positive-pressure mode and other protective clothing when fighting fires involving this material.

Unusual Fire and Explosion Hazards: This material is a negligible fire hazard when exposed to heat or flame. This material may burn but does not ignite readily. Containers may explode in the heat of a fire.

This pesticide material with strong oxidizers can present a fire and explosion hazard.

SECTION V. REACTIVITY DATA

Stability: __X__ **Stable** ____ **Unstable**

Conditions to Avoid: Avoid incompatible materials.

Incompatibility (Materials to Avoid): Keep this material from strong oxidizing materials.

See Section IV: Fire and Explosion Hazard Data.

Hazardous Decomposition or Byproducts: Thermal decomposition may include toxic and corrosive fumes of chlorides and toxic oxides of carbon.

Hazardous Polymerization: ____ **Will Occur** __X__ **Will Not Occur**

SECTION VI. HEALTH HAZARD DATA

Route of Entry: __X__ **Inhalation** __X__ **Skin** __X__ **Ingestion**

Health Hazards (Acute and Chronic): Effects for **organochlorine pesticides** (i.e. DDT) may occur for exposures of 4,4'-DDE. Ingestion can occur through oral administration or may occur if sufficient amounts are absorbed from the lungs. A study of occupational exposure to DDT reported a higher frequency of white blood cells with chromosomal abnormalities among workers with high DDT blood levels. Menstrual irregularities are the most frequent complaint among migrant farm workers were observed in another study. Signs of liver and kidney damage can develop. Liver *necrosis* (localized death of living tissue) has been reported in experimental animals. Death may be due to respiratory failure or ventricular fibrillation. Symptoms of poisoning may not occur until several hours after ingestion.

This material may cross the placenta and be excreted in breast milk. It may also impair fertility. Stimulants such as epinephrine or ephedrine may induce *ventricular fibrillation* (a muscular twitching involving individual muscle fibers, acting without coordination, of the chamber of the heart which receives blood from a corresponding atrium and from which blood is forced into the arteries).

Signs and Symptoms of Exposure: Ingestion of organochlorine pesticides may cause gastrointestinal effects of nausea, vomiting, diarrhea, and stomach pains. Confusion, apprehension, irritability, excitability, dizziness, headache, disorientation, weakness, paresthesias, muscle twitching, tremor, stupor, coma and convulsions may also be experienced.

Medical Conditions Generally Aggravated by Exposure: N/A

Listed as a Carcinogen/Potential Carcinogen:

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens	____	_X_
In the International Agency for Research (IARC) Monographs	____	_X_
By the Occupational Safety and Health Administration (OSHA)	____	_X_

Note: A high incidence of liver-cell tumors was observed in mice administered DDE orally (IARC).

The carcinogenicity of this material is still undetermined.

EMERGENCY AND FIRST AID PROCEDURES:

Skin Contact: Remove contaminated shoes and clothing. Rinse affected area with large amounts of water followed by washing the area with soap and water. Contact medical assistance if necessary.

Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15

minutes. Contact medical assistance if necessary.

Inhalation: If inhaled, remove the victim to fresh air. If breathing is difficult, give oxygen; if victim is not breathing, give artificial respiration. Contact medical assistance if necessary.

Ingestion: If ingested, wash out mouth with water. If the person is conscious and not convulsing, induce vomiting by administering syrup of ipecac (when vomiting occurs, keep the head above below the hips to prevent aspiration). Medical personal can administer activated charcoal followed by gastric lavage. Follow with a saline cathartic. **DO NOT** give fats or oils. Intestinal lavage with 20% mannitol (200 mL) by stomach tube is also useful. Give artificial respiration with oxygen if respiration is depressed. Treat symptomatically and supportively.

TARGET ORGAN(S) OF ATTACK: The blood, liver and kidneys.

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken in Case Material is Released or Spilled: Notify safety personnel of major spills and/or leaks. Evacuate all nonessential personnel. Ventilate closed area before entering. Stop the leak if you can do so without risk. Use water spray to reduce vapors. Small spills can be absorbed with sand or other absorbent material and place in containers for later disposal. Small dry spills can be recovered with a clean shovel and placed in covered containers. For larger spills, dike far ahead of the spill for later disposal.

Note: Reportable Quantity (RQ): 1 Pound (4.536 Grams)

The Superfund Amendments and Reauthorization Act (SARA) section 304 requires that a release equal to or greater than the reportable quantity for this substance be immediately reported to the local Emergency Planning Committee and the State Emergency Response Commission (40 CFR 355.40). If the release of this substance is reportable under Cercla Section 103, The National Response Center must be notified immediately.

Waste Disposal: Disposal must be in accordance with 40 CFR 165 recommended procedures for the disposal and storage of pesticides and pesticide containers. Follow all Federal, state and local regulations.

Handling and Storage: Employees handling this material must wear protective clothing and gloves to prevent skin contact and splash-proof or dust-resistant safety goggles to prevent eye contact with this substance. Any chemical cartridge respirator with an organic vapor cartridge in combination with a dust and mist filter must be worn to prevent inhalation. The specific respirator selected must be based on contamination levels found in the work place, must be based on the specific operation, must not exceed the working limits of the respirator and must be jointly approved by the National Institute for Occupational Safety and Health (NIOSH) and the Mine Safety and Health Administration (MSHA).

Note: Contact lenses pose a special problem; soft lenses may absorb irritants and all lenses concentrate them. **DO NOT** wear contact lenses in the lab.

Provide local exhaust ventilation. Ventilation equipment must be explosion proof. Store material in accordance with 40 CFR 165 recommended procedures for the disposal and storage of pesticides and pesticide containers. Vials, as received, should be kept tightly sealed, protected from light, and stored in a refrigerator or freezer. Emergency eye wash station must be available.

SECTION VIII. SOURCE DATA/ OTHER COMMENTS

Sources: Occupational Health Services, MSDS *2,2-Bis-(4-Chlorophenyl)-1,1-Dichloroethene*, February 21, 1991.
Hawley's Condensed Chemical Dictionary, 11th ed., 1987.
Webster's Ninth New Colligiate Dictionary, 1990.

Carmelita S. Davis (301) 975-6439
National Institute of Standards and Technology
Standard Reference Materials Program
Gaithersburg, Maryland 20899

Note: Physical and chemical data contained in this MSDS are provided for use in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references, however NIST does not certify the data on the MSDS. The certified values for this material are given only on the NIST Certificate of Analysis.

Appendix B
Activity Hazard Analyses

Project Identification Canine Kennel IRM	**Location** Various	**Estimated Dates** TBD
Phase of Work Mobilization/ Demobilization	**Page 1 of 1**	**Analysis Approved by** Paul Boyce, PE, PM/HSM
TASKS	**HAZARDS**	**CONTROL MEASURES**
1. Mobilization and demobilization of equipment site tools, personnel	Slips/trips/falls	• Maintain alertness to slip/trip/fall hazards; • Maintain good housekeeping; • Walk, do not run; • Wear footwear with soles that grip; • Unloading areas should be on even terrain; and • Mark and repair if possible tripping hazards.
	Manual lifting and material handling	• Instruct personnel on proper lifting techniques; • Use proper lifting techniques; and • Team lifting will be used for heavy loads or use mechanical lifting devices.
	Temperature extremes	• Drink plenty of fluids: • Train personnel of signs/symptoms of heat/cold stress; • Monitor air temperatures when extreme weather conditions are present; and • Stay in visual and verbal contact with your buddy.
	Vehicular traffic	• Spotters will be used when backing up trucks and heavy equipment and when moving equipment.
	Overhead hazards	• Personnel will be required to wear hard hats that meet ANSI Standard Z89.1; • Ground personnel will stay clear of suspended loads; • Equipment will be provided with guards, canopies or grills to protect the operator from falling or flying objects; and • Overhead hazards will be identified prior to commencing work operations.
	Noise	• Ear plugs or ear muffs shall be worn for operations that exceed 85 decibels.
	Electrocution	• Equipment will be equipped with GFCI; • A licensed electrician will conduct electrical work; • Equipment will stay a minimum of 15 feet from overhead-energized electrical lines and the electrified third rail (up to 50 kV). This distance will increase 0.4 inches for each 1 kV above 50 kV.
	Biological hazards	• Be alert to the presence of biological hazards; • Wear insect repellent; • Follow procedures in Section 4.2.2 for tick bites; • FTL/SHSO should be aware of on-site personnel with allergic reactions in insect bites and stings.

Project Identification Canine Kennel IRM	**Location** Various	**Estimated Dates** TBD
Phase of Work Excavation	**Page 1 of 2**	**Analysis Approved by** Paul Boyce, PE, PM/HSM
TASKS	**HAZARDS**	**CONTROL MEASURES**
1. Excavate to required depths; soil handing and transport	Chemical hazards	• Wear appropriate PPE per Table 6-1; • Perform air monitoring per Community Air Monitoring Plan; • Practice contamination avoidance; • Follow proper decontamination procedures; and • Wash hands/face before eating, drinking or smoking.
	Hand and power tool usage	• Equip electrical equipment with GFCI's; • Inspect electrical equipment and tools prior to use; • Daily inspections will be performed; • Remove broken or damaged tools from service; • Use the tool for its intended purpose; • Use in accordance with manufacturer instructions; and Tag and remove defective equipment.
	Temperature extremes	• Drink plenty of fluids: • Train personnel of signs/symptoms of heat/cold stress; • Monitor air temperatures when extreme weather conditions are present; and, • Stay in visual and verbal contact with your buddy.
	Manual lifting and material handling	• Instruct personnel on proper lifting techniques; • Use proper lifting techniques; and • Team lifting will be used for heavy loads or use mechanical lifting devices.
	Fire/Explosion	• ABC type fire extinguishers shall be readily available; • No smoking in work area.
	Biological hazards	• Be alert to the presence of biological hazards; • Wear insect repellent; • Follow procedures in Section 4.2.2 for tick bites; • FTL/SHSO should be aware of on-site personnel with allergic reactions in insect bites and stings.
	Heavy equipment	• Ground personnel will stay clear of suspended loads; • Ground personnel will stay out of the swing radius; • Eye contact with operators will be made before approaching equipment; • Equipment will not be approached on blind sides; • Equipment will be equipped with backup alarms or spotters shall be used.
	Slips/Trips/Falls	• Maintain alertness to slip/trip/fall hazards; • Maintain good housekeeping; • Walk, do not run; • Wear footwear with soles that grip; • Unloading areas should be on even terrain; and mark and repair if possible tripping hazards are present.
	Electrocution	• Equipment will be equipped with GFCI; • A licensed electrician will conduct electrical work; • Equipment will stay a minimum of 15 feet from overhead-energized electrical lines and the electrified third rail (up to 50 kV). This distance will increase 0.4 inches for each 1 kV above 50 kV.

Project Identification Canine Kennel IRM	**Location** Various	**Estimated Dates** TBD
Phase of Work Drilling	**Page 2 of 2**	**Analysis Approved by** Paul Boyce, PE, PM/HSM
TASKS	**HAZARDS**	**CONTROL MEASURES**
	Noise	• Hearing protection mandatory at or above 85 dBA. • Instruct personnel how to properly wear heating protective devices. •Disposable ear plugs or other hearing protection required when working near noisy equipment..
	Steam/Heat/Splashing	• Use face shield and safety glasses or goggles; • Stay out of the splash/steam radius; • Do not direct steam at anyone; • Do not hold objects with your foot and steam area near it; • Direct spray to minimize spread of constituents of concern; and • Use shielding as necessary.
	Excavation hazards	• Follow 29 CFR 1926 Subpart P.
	Overhead hazards	• Personnel will be required to wear hard hats that meet ANSI Standard Z89.1; • Ground personnel will stay clear of suspended loads; • Equipment will be provided with guards, canopies or grills to protect the operator from falling or flying objects; and • Overhead hazards will be identified prior to commencing work operations.
	Electrocution	• Equipment will be equipped with GFCI; • A licensed electrician will conduct electrical work; • Equipment will stay a minimum of 15 feet from overhead-energized electrical lines and the electrified third rail (up to 50 kV). This distance will increase 0.4 inches for each 1 kV above 50 kV.
	Track Hazards	• Caution will be used when working in close proximity to the electrified third rail (see “Electrocution” above). • Workers are required to have completed NYCT Track Safety Training • Flag men will be used when necessary (e.g., working in limited access track areas).

Project Identification Canine Kennel IRM	**Location** Various	**Estimated Dates** TBD
Phase of Work Soil/Groundwater Sampling	**Page 1 of 1**	**Analysis Approved by** Paul Boyce, PE, PM/HSM
TASKS	**HAZARDS**	**CONTROL MEASURES**
1.Collect soil/groundwater samples.	Chemical hazards	• Wear appropriate PPE per Table 6-1; • Practice contamination avoidance; • Follow proper decontamination procedures; and • Wash hands/face before eating, drinking or smoking.
	Temperature extremes	• Drink plenty of fluids: • Train personnel of signs/symptoms of heat/cold stress; • Monitor air temperatures when extreme weather conditions are present; and • Stay in visual and verbal contact with your buddy.
	Manual lifting and material handling	• Site personnel will be instructed on proper lifting techniques; mechanical devices should be used to reduce manual handling of materials; team lifting should be utilized if mechanical devices are not available.
	Slips/Trips/Falls	• Maintain alertness to slip/trip/fall hazards; • Maintain good housekeeping; • Walk, do not run; • Wear footwear with soles that grip; • Unloading areas should be on even terrain; and • Mark and repair if possible tripping hazards.
	Electrocution	• Equipment will be equipped with GFCI; • A licensed electrician will conduct electrical work; • Equipment will stay a minimum of 15 feet from overhead-energized electrical lines and the electrified third rail (up to 50 kV). This distance will increase 0.4 inches for each 1 kV above 50 kV.
	Track Hazards	• Caution will be used when working in close proximity to the electrified third rail (see “Electrocution” above). • Workers are required to have completed NYCT Track Safety Training • Flag men will be used when necessary (e.g., working in limited access track areas).

Project Identification Canine Kennel IRM	**Location** Various	**Estimated Dates** TBD
Phase of Work Decontamination	**Page 1 of 1**	**Analysis Approved by** Paul Boyce, PE, PM/HSM
TASKS	**HAZARDS**	**CONTROL MEASURES**
1.Decontaminate equipment	Chemical hazards	• Wear appropriate PPE per Table 6-1; • Practice contamination avoidance; • Follow proper decontamination procedures; and • Wash hands/face before eating, drinking or smoking.
	Temperature extremes	• Drink plenty of fluids: • Train personnel of signs/symptoms of heat/cold stress; • Monitor air temperatures when extreme weather conditions are present; and • Stay in visual and verbal contact with your buddy.
	Manual lifting and material handling	• Site personnel will be instructed on proper lifting techniques; mechanical devices should be used to reduce manual handling of materials; team lifting should be utilized if mechanical devices are not available.
	Slips/Trips/Falls	• Maintain alertness to slip/trip/fall hazards; • Maintain good housekeeping; • Walk, do not run; • Wear footwear with soles that grip; • Unloading areas should be on even terrain; and • Mark and repair if possible tripping hazards.
	Electrocution	• Equipment will be equipped with GFCI; • A licensed electrician will conduct electrical work; • Equipment will stay a minimum of 15 feet from overhead-energized electrical lines and the electrified third rail (up to 50 kV). This distance will increase 0.4 inches for each 1 kV above 50 kV.
	Track Hazards	• Caution will be used when working in close proximity to the electrified third rail (see “Electrocution” above). • Workers are required to have completed NYCT Track Safety Training • Flag men will be used when necessary (e.g., working in limited access track areas).

Appendix C
Heat/Cold Stress Protocols

HEAT STRESS

Heat Stress (Hyperthermia)

Heat stress is the body's inability to regulate the core temperature. A worker's susceptibility to heat stress can vary according to his/her physical fitness, degree of acclimation to heat, humidity, age and diet.

1. Prior to site activity, the field team leader may make arrangements for heat stress monitoring (i.e., monitoring heart rate, body temperature, and body water loss) during actual site work if conditions warrant. In addition, the FTL is to ensure that each team member has been acclimatized to the prevailing environmental conditions, that personnel are aware of the signs and symptoms of heat sickness, that they have been adequately trained in first aid procedures, and that there are enough personnel on-site to rotate work assignments and schedule work during hours of reduced temperatures. Personnel should not consume alcoholic or caffeinated beverages but rather drink moderate levels of an electrolyte solution and eat well prior to commencing site work.

2. Although there is no specific test given during a baseline physical that would identify a person's intolerance to heat, some indicators are tobacco or medication use, dietary habits, body weight, and chronic conditions such as high blood pressure or diabetes.

3. *Heat cramps*, caused by profuse perspiration with inadequate fluid intake and salt replacement, most often afflict people in good physical condition who work in high temperature and humidity. Heat cramps usually come on suddenly during vigorous activity. Untreated, heat cramps may progress rapidly to heat exhaustion or heat stroke. First aid treatment: remove victim to a cool place and replace lost fluids with water.

4. Thirst is not an adequate indicator of heat exposure. Drinking fluid by itself does not indicate sufficient water replacement during heat exposure. A general rule, the amount of water administered should replace the amount of water lost, and it should be administered at regular intervals throughout the day. For every half pound of water lost, 8 ounces of water should be ingested. Water should be replaced by drinking 2 – 4 ounce servings during every rest period. A recommended alternative to water is an electrolyte drink split 50/50 with water.

5. *Heat exhaustion* results from salt and water loss along with peripheral pooling of blood. Like heat cramps, heat exhaustion tends to occur in persons in good physical health who are working in high temperatures and humidity. Heat exhaustion may come on suddenly as dizziness and collapse. Untreated, heat exhaustion may progress to heat stroke.

6. *Treatment for heat exhaustion*: Move the victim to a cool environment (e.g. air-conditioned room/car), lay victim down and fan him/her. If the air-conditioning is not available, remove the victim to a shaded area, remove shirt, and fan. If symptoms do not subside within an hour, notify 911 to transport to hospital.

7. *Heat stroke* results from the body's inability to dissipate excess heat. A true medical emergency that requires immediate care, it usually occurs when one ignores the signs of heat exhaustion and continues strenuous activities. Working when the relative humidity exceeds 60% is a particular problem. Workers in the early phase of heat stress may not be coherent of they will be confused, delirious or comatose. Changes in behavior, irritability and combativeness are useful early signs of heat stroke.

8. *Treatment of heat stroke*: Move the victim to a cool, air-conditioned environment. Place victim in a semi-reclined position with head elevated and strip to underclothing. Cool victim as rapidly as possible, applying ice packs to the arms and legs and massaging the neck and torso. Spray victim with tepid water and constantly fan to promote evaporation. Notify 911 to transport to hospital as soon as possible.

TABLE 1

SYMPTOMS OF HEAT STRESS

Heat cramps are caused by heavy sweating with inadequate fluid intake. Symptoms include;

- Muscle cramps
- Cramps in the hands, legs, feet and abdomen

Heat exhaustion occurs when body organs attempt to keep the body cool. Symptoms include;

- Pale, cool moist skin
- Core temperature elevated 1-2°
- Thirst
- Anxiety
- Rapid heart rate
- Heavy sweating
- Dizziness
- Nausea

Heat stroke is the most serious form of heat stress. Immediate action must be taken to cool the body before serious injury and death occur. Symptoms are;

- Red, hot, dry skin
- Lack of perspiration
- Seizures
- Dizziness and confusion
- Strong, rapid pulse
- Core temperature of 104° or above
- Coma

TABLE 2

HEAT STRESS INDICATORS

Heat stress indicator	When to measure	If Exceeds...	Action
Heart rate (pulse)	Beginning of rest period	110 beats per minute	Shorten next work period by 33%
Oral temperature	Beginning of rest period	99°F (after thermometer is under tongue for 3 minutes) 100.6°F	Shorten next work period by 33% Prohibit work in impermeable clothing
Body weight	1. Before workday begins (a.m.) 2. After workday ends (p.m.)		Increase fluid intake

COLD STRESS

Cold stress (Hypothermia)

In hypothermia the core body temperature drops below 95°F. Hypothermia can be attributed to a decrease in heat production, increased heat loss or both.

Prevention

Institute the following steps to prevent overexposure of workers to cold:

1. Maintain body core temperature at 98.6°F or above by encouraging workers to drink warm liquids during breaks (preferably not coffee) and wear several layers of clothing that can keep the body warm even when the clothing is wet.
2. Avoid frostbite by adequately covering hands, feet and other extremities. Clothing such as insulated gloves or mittens, earmuffs and hat liners should be worn. To prevent contact frostbite (from touching metal and cold surfaces below 20°F), workers should wear gloves. Tool handles should be covered with insulating material.
3. Adjust work schedules to provide adequate rest periods. When feasible, rotate personnel and perform work during the warmer hours of the day.
4. Provide heated shelter. Workers should remove their outer layer(s) of clothing while in the shelter to allow sweat to evaporate.
5. In the event that wind barriers are constructed around an intrusive operation (such as drilling), the enclosure must be properly vented to prevent the buildup of toxic or explosive gases or vapors. Care must be taken to keep a heat source away from flammable substances.
6. Using a wind chill chart such as the one in Table 3, obtain the equivalent chill temperature (ECT) based on actual wind speed and temperature. Refer to the ECT when setting up work warm-up schedules, planning appropriate clothing, etc. Workers should use warming shelters at regular intervals at or below an ECT of 20°F. For exposed skin, continuous exposure should not be permitted at or below an ECT of -25°F.

Frostbite

Personnel should be aware of symptoms of frostbite/hypothermia. If the following symptoms are noticed in any worker, he/she should immediately go to a warm shelter.

Condition	Skin Surface	Tissue Under Skin	Skin Color
Frostnip	Soft	Soft	Initially red, then white
Frostbite	Hard	Soft	White and waxy
Freezing	Hard	Hard	Blotchy, white to yellow-gray to gray

1. *Frostnip* is the incipient stage of frostbite, brought about by direct contact with a cold object or exposure of a body part to cool/cold air. Wind chill or cold water also can be major factors. This condition is not serious. Tissue damage is minor and the response to care is good. The tip of the nose, tips of ears, upper cheeks and fingers (all areas generally exposed) are most susceptible to frostnip.

2. *Treatment of frostnip*: Care for frostnip by warming affected areas. Usually the worker can apply warmth from his/her bare hands, blow warm air on the site, or, if the fingers are involved, hold them in the armpits. During recovery, the worker may complain of tingling or burning sensation, which is normal. If the condition does not respond to this simple care, begin treatment for frostbite.

3. *Frostbite*: The skin and subcutaneous layers become involved. If frostnip goes untreated, it becomes superficial frostbite. This condition is serious. Tissue damage may be serious. The worker must be transported to a medical facility for evaluation. The tip of the nose, tips of ears, upper cheeks and fingers (all areas generally exposed) are most susceptible to frostbite. The affected area will feel frozen, but only on the surface. The tissue below the surface must still be soft and have normal response to touch. *DO NOT* squeeze or poke the tissue. The condition of the deeper tissues can be determined by gently palpating the affected area. The skin will turn mottled or blotchy. It may also be white and then turn grayish-yellow.

4. *Treatment of frostbite*: When practical, transport victim as soon as possible. Get the worker inside and keep him/her warm. Do not allow any smoking or alcohol consumption. Thaw frozen parts by immersion, re-warming in a 100°F to 106°F water bath. Water temperature will drop rapidly, requiring additional warm water throughout the process. Cover the thawed part with a dry sterile dressing. Do not puncture or drain any blisters.

   NOTE: Never listen to myths and folk tales about the care of frostbite. *Never* rub a frostbitten or frozen area. *Never* rub snow on a frostbitten or frozen area. Rubbing the area may cause

serious damage to already injured tissues. Do not attempt to thaw a frozen area if there is any chance it will be re-frozen.

5. *General cooling/Hypothermia*: General cooling of the body is known as systemic hypothermia. This condition is not a common problem unless workers are exposed to cold for prolonged periods of time without any shelter.

Body Temperature	°C	Symptoms
99-96	37-35.5	Intense, uncontrollable shivering
95-91	35.5-32.7	Violent shivering persists. If victim is conscious, he has difficulty speaking.
90-86	32-30	Shivering decreases and is replaced by strong muscular rigidity. Muscle coordination is affected. Erratic or jerkey movements are produced. Thinking is less clear. General comprehension is dulled. There may be total amnesia. The worker is generally still able to maintain the appearance of psychological contact with his surroundings.
85-81	29.4-27.2	Victim becomes irrational, loses contact with his environment, and drifts into a stuporous state. Muscular rigidity continues. Pulse and respirations are slow and the worker may develop cardiac arrhythmias.
80-78	26.6-18.5	Victim becomes unconscious. He does not respond to the spoken word. Most reflexes cease to function. Heartbeat becomes erratic
Below 78	25.5	Cardiac and respiratory centers of the brain fail. Ventricular fibrillation occurs; probably edema and hemorrhage in the lungs; death.

6. *Treatment of hypothermia*: Keep worker dry. Remove any wet clothing and replace with dry clothes, or wrap person in dry blankets. Keep person at rest. Do not allow him/her to move around. Transport the victim to a medical facility as soon as possible.

TABLE 3[1]
COOLING POWER OF WIND ON EXPOSED FLESH EXPRESSED AS AN EQUIVALENT TEMPERATURE (UNDER CALM CONDITIONS)

Estimated wind Speed (in mph)	Actual Temperature Reading (°F)P											
	50	40	30	20	10	0	10	20	30	40	50	60
	Equivalent Chill Temperature (°F)											
Calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	15	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-146
(Wind speeds greater than 40 mph have little additional effect.)	LITTLE DANGER in < hr with dry skin. Maximum danger of false sense of security.				INCREASING DANGER Danger from freezing of exposed flesh within one minute			GREAT DANGER may freeze within 30 seconds.				Flesh
	Trench foot and imersion foot may occur at any point on this chart											

Developed by U.S. Army Research Institute of Environmental Medicine, Natick, MA.

(1) Reproduced from American Conference of Governmental Industrial Hygienists, Threshold Limit Values and Biological Exposure Indices for 1985-1986, p.01.

Appendix D
Medical Data Sheet

MEDICAL DATA SHEET

The brief medical data sheet shall be completed by on-site personnel and will be kept in the Support Zone by the HSO as a project record during the conduct of site operations. It accompanies any personnel when medical assistance is needed or if transport to a hospital is required.

Project:
Name: Home Telephone: _____
Address: _____
Age: _____ Height: _____ Weight: _____ Blood Type: _____

Name and Telephone Number of Emergency Contact: _____

Drug or Other Allergies: _____

Particular Sensitivities: _____

Do You Wear Contacts? _____

Provide A Check List Of Previous Illnesses: _____

What Medications Are You Presently Using?_____

Do You Have Any Medical Restrictions? _____

Name, Address, And Phone Number Of Personal Physician:

Appendix E
General Health and Safety Work Practices

GENERAL HEALTH AND SAFETY WORK PRACTICES

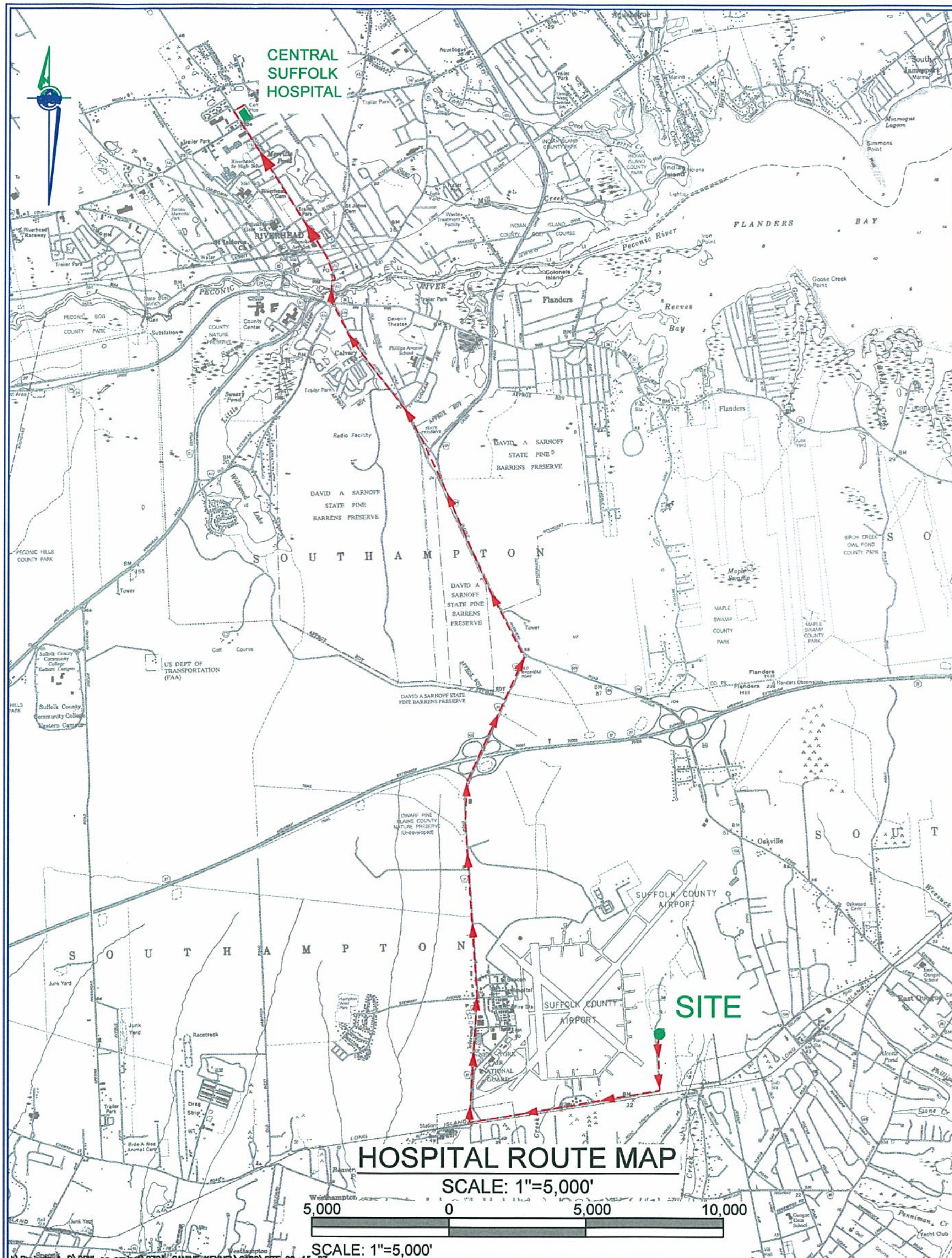
1. Site personnel must attend each day's Daily Briefing and sign the attendance sheet.
2. Any individual taking prescribed drugs shall inform the FTL/HSO of the type of medication. The FTL/HSO will review the matter with the HSM and the Corporate Medical Consultant (CMC), who will decide if the employee can safely work on-site while taking the medication.
3. The personal protective equipment specified by the FTL/HSO and/or associated procedures shall be worn by site personnel. This includes hard hats and safety glasses which must be worn in active work areas.
4. Facial hair (beards, long sideburns or mustaches) which may interfere with a satisfactory fit of a respirator mask is not allowed on any person who may be required to wear a respirator.
5. Personnel must follow proper decontamination procedures and shower as soon as possible upon completion of work shift.
6. Eating, drinking, chewing tobacco or gum, smoking and any other practice that may increase the possibility of hand-to-mouth contact is prohibited in the exclusion zone or the contamination reduction zone. (Exceptions may be permitted by the HSM to allow fluid intake during heat stress conditions).
7. Lighters, matches, cigarettes and other forms of tobacco are prohibited in the Exclusion Zone.
8. Signs and demarcations shall be followed. Such signs and demarcation shall not be removed, except as authorized by the FTL/HSO.
9. No one shall enter a permit-required confined space without a permit and appropriate training. Confined space entry permits shall be implemented as issued.
10. Personnel must follow Hot Work Permits as issued.
11. Personnel must use the Buddy System in the Exclusion Zone.
12. Personnel must follow the work-rest regimens and other practices required by the heat stress program.
13. Personnel must follow lockout/tagout procedures when working on equipment involving moving parts or hazardous energy sources.
14. No person shall operate equipment unless trained and authorized.
15. No one may enter an excavation greater than four feet deep unless authorized by the Competent Person. Excavations must be sloped or shored properly. Safe means of access and egress from excavations must be maintained.
16. Ladders and scaffolds shall be solidly constructed, in good working condition, and inspected prior to use. No one may use defective ladders or scaffolds.
17. Fall protection or fall arrest systems must be in place when working at elevations greater than six feet for

temporary working surfaces and four feet for fixed platforms.

18. Safety belts, harnesses and lanyards must be selected by the Supervisor. The user must inspect the equipment prior to use. No defective personal fall protection equipment shall be used. Personal fall protection that has been shock loaded must be discarded.
19. Hand and portable power tools must be inspected prior to use. Defective tools and equipment shall not be used.
20. Ground fault interrupters shall be used for cord and plug equipment used outdoors or in damp locations. Electrical cords shall be kept out walkways and puddles unless protected and rated for the service.
21. Improper use, mishandling, or tampering with health and safety equipment and samples is prohibited.
22. Horseplay of any kind is prohibited.
23. Possession or use of alcoholic beverages, controlled substances, or firearms on any site is forbidden.
24. Incidents, no matter how minor, must be reported immediately to the Supervisor.
25. Personnel shall be familiar with the Site Emergency Action Plan, which is contained in Section 12 of the HASP/EAP.

The above Health and Safety Rules are not all inclusive and it is your responsibility to comply with regulations set forth by OSHA, the client, PWGC Supervisors, and the FTL/HSO.

Appendix F
Hospital Route Map and Directions



PWGC
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CANINE KENNEL SITE
GABRESKI AIRPORT
WEST HAMPTON, NY

Project: DPW0701	Figure No. 7
Designed by: JR	
Approved by: PWG	
Drawn by: TC	Date: 2/15/07

Appendix G
Incident Report Form / Investigation Form

INCIDENT / NEAR MISS REPORT AND INVESTIGATION - PAGE 1 OF 2
TYPE OF INCIDENT - CHECK ALL THAT APPLY
☐ INJURY/ILLNESS ☐ VEHICLE DAMAGE ☐ PROPERTY DAMAGE ☐ FIRE ☐ SPILL/RELEASE ☐ PERMIT EXCEEDENCE ☐ NEAR MISS ☐ OTHER
GENERAL INFORMATION
PROJECT NAME: DATE OF REPORT: REPORT NO.:
DATE OF INCIDENT: TIME: DAY OF WEEK:
LOCATION OF INCIDENT:
WEATHER CONDITIONS: ADEQUATE LIGHTING AT SCENE? ☐ YES ☐ NO ☐ N/A
DESCRIBE WHAT HAPPENED (STEP BY STEP - USE ADDITIONAL PAGES IF NECESSARY)
AFFECTED EMPLOYEE INFORMATION
NAME: EMPLOYEE: ☐ YES ☐ NO
HOME ADDRESS:
SOCIAL SECURITY NO.: HOME PHONE NO.:
JOB CLASSIFICATION: YEARS IN JOB CLASSIFICATION:
HOURS WORKED ON SHIFT PRIOR TO INCIDENT: AGE:
DID INCIDENT RELATE TO ROUTINE TASK FOR JOB CLASSIFICATION? ☐ YES ☐ NO
INJURY/ILLNESS INFORMATION
NATURE OF INJURY OR ILLNESS:
OBJECT/EQUIPMENT/SUBSTANCE CAUSING HARM:
FIRST AID PROVIDED? ☐ YES ☐ NO
IF YES, WHERE WAS IT GIVEN: ☐ ON-SITE ☐ OFF-SITE
IF YES, WHO PROVIDED FIRST AID:
WILL THE INJURY/ILLNESS RESULT IN: ☐ RESTRICTED DUTY ☐ LOST TIME ☐ UNKNOWN

INCIDENT / NEAR MISS REPORT AND INVESTIGATION - PAGE 2 OF 2 REPORT NO.
MEDICAL TREATMENT INFORMATION
WAS MEDICAL TREATMENT PROVIDED? ☐ YES ☐ NO
IF YES, WAS MEDICAL TREATMENT PROVIDED: ☐ ON-SITE ☐ DR.'S OFFICE ☐ HOSPITAL
NAME OF PERSON(S) PROVIDING TREATMENT:
ADDRESS WHERE TREATMENT WAS PROVIDED:
TYPE OF TREATMENT:
VEHICLE AND PROPERTY DAMAGE INFORMATION
VEHICLE/PROPERTY DAMAGED:
DESCRIPTION OF DAMAGE:
SPILL AND AIR EMISSIONS INFORMATION:
SUBSTANCE SPILLED OR RELEASED: FROM WHERE: TO WHERE:
ESTIMATED QUANTITY/DURATION:
CERCLA HAZARDOUS SUBSTANCE? ☐ YES ☐ NO
REPORTABLE TO AGENCY? ☐ YES ☐ NO SPECIFY:
WRITTEN REPORT: ☐ YES ☐ NO TIME FRAME:
RESPONSE ACTION TAKEN:
PERMIT EXCEEDENCE
TYPE OF PERMIT: PERMIT #:
DATE OF EXCEEDENCE: DATE FIRST KNOWLEDGE OF EXCEEDENCE:
PERMITTED LEVEL OR CRITERIA:
EXCEEDENCE LEVEL OR CRITERIA:
REPORTABLE TO AGENCY? ☐ YES ☐ NO SPECIFY:
WRITTEN REPORT: ☐ YES ☐ NO TIME FRAME:
RESPONSE ACTION TAKEN:
NOTIFICATIONS
NAMES OF PERSONNEL NOTIFIED: DATE/TIME:
CLIENT NOTIFIED: DATE/TIME:
AGENCY NOTIFIED: DATE/TIME:
CONTACT NAME:
PERSONS PREPARING REPORT
EMPLOYEE'S NAME:(PRINT) SIGN:
SUPERVISOR'S NAME:(PRINT) SIGN:

INVESTIGATIVE REPORT			
DATE OF INCIDENT:	DATE OF REPORT:	REPORT NUMBER:	
INCIDENT COST: ESTIMATED: $_____	ACTUAL: $_____		
OSHA RECORDABLE(S): ☐ YES ☐ NO # RESTRICTED DAYS ____ # DAYS AWAY FROM WORK ____			
CAUSE ANALYSIS			
IMMEDIATE CAUSES - WHAT ACTIONS AND CONDITIONS CONTRIBUTED TO THIS EVENT?			
BASIC CAUSES - WHAT SPECIFIC PERSONAL OR JOB FACTORS CONTRIBUTED TO THIS EVENT?			
ACTION PLAN			
REMEDIAL ACTIONS - WHAT HAS AND OR SHOULD BE DONE TO CONTROL EACH OF THE CAUSES LISTED?			
ACTION	PERSON RESPONSIBLE	TARGET DATE	COMPLETION DATE
PERSONS PERFORMING INVESTIGATION			
INVESTIGATOR'S NAME: (PRINT)	SIGN:	DATE:	
INVESTIGATOR'S NAME: (PRINT)	SIGN:	DATE:	
INVESTIGATOR'S NAME: (PRINT)	SIGN:	DATE:	
MANAGEMENT REVIEW			
PROJECT MANAGER: (PRINT)	SIGN:	DATE:	
COMMENTS:			
H&S MANAGER: (PRINT)	SIGN:	DATE:	
COMMENTS:			

EXAMPLES OF IMMEDIATE CAUSES

Substandard Actions

1. Operating equipment without authority
2. Failure to warn
3. Failure to secure
4. Operating at improper speed
5. Making safety devices inoperable
6. Removing safety devices
7. Using defective equipment
8. Failure to use PPE properly
9. Improper loading
10. Improper placement
11. Improper lifting
12. Improper position for task
13. Servicing equipment in operation
14. Under influence of alcohol/drugs
15. Horseplay

Substandard Conditions

1. Guards or barriers
2. Protective equipment
3. Tools, equipment, or materials
4. Congestion
5. Warning system
6. Fire and explosion hazards
7. Poor housekeeping
8. Noise exposure
9. Exposure to hazardous materials
10. Extreme temperature exposure
11. Illumination
12. Ventilation
13. Visibility

EXAMPLES OF BASIC CAUSES

Personal Factors

1. Capability
2. Knowledge
3. Skill
4. Stress
5. Motivation
6. Work Standards
7. Wear and tear
8. Abuse or misuse

Job Factors

1. Supervision
2. Engineering
3. Purchasing
4. Maintenance
5. Tools/equipment

MANAGEMENT PROGRAMS FOR CONTROL OF INCIDENTS

1. Leadership and administration
2. Management training
3. Planned inspections
4. Task analysis and procedures
5. Task observation
6. Emergency preparedness
7. Organizational rules
8. Accident/incident analysis
9. Personal protective equipment
10. Health control
11. Program audits
12. Engineering controls
13. Personal communications
14. Group meetings
15. General promotion
16. Hiring and placement
17. Purchasing controls

Appendix H
Daily Briefing Sign-In Sheet

DAILY BRIEFING SIGN-IN SHEET

Date: _____ Project Name/Location: _____

Person Conducting Briefing: _____

1. AWARENESS (topics discussed, special safety concerns, recent incidents, etc.)

_____

_____

_____

2. OTHER ISSUES (HASP/EAP changes, attendee comments, etc.)

_____

_____

_____

3. ATTENDEES (Print Name):

1.	21.
2.	22.
3.	23.
4.	24.
5.	25.
6.	26.
7.	27.
8.	28.
9.	29.
10.	30.
11.	31.
12.	32.
13.	33.
14.	34.
15.	35.
16.	36.
17.	37.
18.	38.
19.	39.
20.	40.

PWGC
Strategic Environmental Engineering Solutions

APPENDIX C
QUALITY ASSURANCE PROJECT PLAN

P.W. GROSSER CONSULTING INC.
PROJECT No. SHD1303

QUALITY ASSURANCE PROJECT PLAN

FORMER CANINE KENNEL SITE
FRANCIS S. GABRESKI AIRPORT
WESTHAMPTON BEACH, NEW YORK
BCP Site # C152079
IHWDS Site # 152079

Submitted:
September 2014

Prepared for:
The New York State Department of Environmental Conservation
Division of Environmental Remediation

On behalf of:
Suffolk County Department of Health Services
15 Horseblock Place
Farmingville, New York 11738

Prepared By:
P.W. Grosser Consulting, Inc.
630 Johnson Avenue, Suite 7
Bohemia, New York 11716
631-589-6353

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TABLES **Page**

1.0 INTRODUCTION

P.W. Grosser Consulting, Inc. (PWGC) has prepared this Quality Assurance Project Plan (QAPP) for Remedial Action (RA) activities to be undertaken at the Former Canine Kennel Site located within the Francis S. Gabreski Airport in Westhampton Beach, New York (BCP ID: C152079/IHWDS ID: 152079). This QAPP has been prepared to define the quality assurance (QA) and quality control (QC) measures to be implemented, to verify the integrity of the work to be performed at the site, and that the data collected will be of the appropriate type and quality needed for the intended use. Specifically, this QAPP addresses the following:

- Description of Project
- Organization and Responsibilities of Project Personnel
- Project Objectives, including Quality Assurance Objectives for Data
- Overview of Field Sampling Program and Procedures
- Sample Packaging and Shipping
- Sample Documentation
- Sample Analytical Program
- Quality Assurance/Quality Control Procedures

RA activities, as specified in the Remedial Action Work Plan (RAWP) for the site, will be performed in accordance with the selected remedy for the site, as determined in the Alternatives Analysis (AA). The selected remedy includes:

- Excavation and offsite disposal of PCB impacted soils.
- Implementation of IC/ECs.

1.1 Site Location and Description

The Site is located in the County of Suffolk, and hamlet of Westhampton Beach, New York and is identified as a portion of District 0900, Section 312.00, Block 01.00 and Lot 004.002 on the Suffolk County Tax Map. The Site is situated on approximately one-acre area wooded parcel within the core preservation area of the central Pine Barrens. The subject site is bounded by wooded land (Pine Barrens) to the north, east and south, and a boat storage yard to the west.

1.2 Site History

In 1943, the federal government built the airport for use as an Air Force base during World War II. After the war, it was given to Suffolk County. In 1951, the airport was reclaimed for the Korean War National Emergency. In 1960, the US Air Force leased the site for an Air Defense Command Base, which was deactivated in 1969, then

released back to Suffolk County in 1970.

During deactivation activities (Spring 1970), the Suffolk County Air Force Base used the Canine Kennel Area to bury inert wastes, such as office furniture. The site was also used for the disposal of polychlorinated biphenyl (PCB) containing electrical distribution equipment such as transformers and capacitors.

Additional information regarding the history of the site, including previous environmental investigations is included in the RAWP.

2.0 PROJECT ORGANIZATION AND PERSONNEL RESPONSIBILITIES

The investigative efforts defined in the RAWP plan will be coordinated by PWGC on behalf of Suffolk County Department of Health Services (SCDHS). The New York State Department of Environmental Conservation (NYSDEC) is the lead regulatory agency overseeing remedial action at the site. An organization structure has been developed to identify the roles and responsibilities of the various parties involved with the project, as discussed below.

The **NYSDEC Project Manager** will be responsible for reviewing and approving this work plan, coordinating approval of requested modifications, and providing guidance on regulatory requirements.

The **PWGC Project Director** will provide technical expertise for review of the project plans, reports and ongoing field activities. The program manager will be responsible for the coordination of the overall Voluntary Cleanup Program with the NYSDEC. The Project Director will act as the project's Quality Assurance Manager.

The **PWGC Project Manager** will be responsible for the day to day project management, task leadership, and project engineering support and for the planning and implementation of RI activities. The Project Manager is responsible for ensuring that the requirements of the RAWP are implemented. The project manager will also act as the site Health and Safety Manager (HSM).

The **PWGC Field Team Leader** will be responsible for sample collection, oversight of subcontractor personnel, and coordination of daily field activities. The Field Team Leader will act as the Site Health and Safety Officer ensuring implementation of the Site Health and Safety Plan.

A NYSDOH Environmental Laboratory Accreditation Program (ELAP) certified laboratory (to be determined) will be contracted to perform required analyses and reporting, including Analytical Services Protocol (ASP) Category B Deliverables, which will allow for data validation.

Subcontractors will perform remedial construction, surveying, drilling, and/or sampling at the direction of the Field Team Leader in accordance with this work plan.

3.0 QUALITY ASSURANCE PROJECT OBJECTIVES

The objective of RA monitoring activities for the site is to obtain sufficient data at a known quality level to assess the effectiveness of the selected remedy in eliminating, reducing, or controlling risks to human health and the environment.

3.1 Data Quality Objective Process

Data quality objectives (DQOs) are qualitative and quantitative statements that specify the quality of the data required to support decisions during remedial activities. DQOs can be defined as what the end user expects to obtain from the analysis results, and are developed through a seven-step process:

- Step 1 State the problem
- Step 2 Identify the decision
- Step 3 Identify inputs to the decision
- Step 4 Define the study boundaries
- Step 5 Develop a decision rule
- Step 6 Specify limits on decision errors
- Step 7 Optimize the decision for obtaining data

For the site, screening data generated by rapid, less precise methods of analysis (PID screening, collection of groundwater field parameters, etc.) will achieve a data use level for site characterization and monitoring. Definitive laboratory analytical data generated during endpoint soil sampling will achieve a data use level to support an assessment of the overall effectiveness of the site remedy. Specifically, these data will be used to:

- Monitor the extent of residual soil impact at the site and confirm that soils with PCB concentrations in excess of the Protection of Groundwater SCO of 3.2 ppm for PCBs have been removed.

Known contaminants present in samples collected from the site include PCBs. The principal contaminants of concern at the site are PCBs. Site contaminants and their respective site cleanup objectives are discussed in greater detail in the RAWP

3.2 Data Quality Categories

DQOs are composed of written expectations for precision, accuracy, representativeness, completeness and comparability of a data set (see Section 3.3). The DQO process provides a logical basis for linking the QA/QC procedures to the intended use of the data, primarily through the decision maker's acceptable limits on decision error. Two descriptive data categories - screening data and definitive data - will be used for the site.

Screening data are generated by rapid, less precise methods of analysis and are deemed non-critical to project objectives. Portable instruments to be used during remedial action to collect screening data include:

- Photoionization detector (PID) or Flame ionization detector (FID)
- Aerosol/dust monitor

Definitive data are generated using specific analytical methods and guidelines and have satisfied known QA/QC requirements. Analytical data provided by an off-site laboratory shall be definitive data, and are deemed critical to project objectives. QA/QC elements of definitive data include determination and documentation of calibrations, detection limits, method blanks, and matrix spike recoveries.

3.3 QA/QC Characteristics

The overall QA/QC objective for RA monitoring activities is to develop and implement procedures that will provide data of known and documented quality. QA/QC characteristics for data include precision, accuracy, representativeness, completeness, and comparability (PARCC). Data quality objectives for each of these parameters are determined based on the level of data required. Descriptions of these characteristics are provided below, and specific QA objectives for both screening and definitive data are presented in Table 3-1. Analytical matrices and methods are provided on the table.

Table 3-1
QA Objectives for Field and Laboratory Data

Parameter	Measurement	Matrix	Method	Units	Precision	Accuracy	CRQL/MDL	Completeness
VOCs	Screening	Air	Field Measurement	ppm	±1%	N/A	N/A	90%
PCBs	Definitive	Soil	EPA Method 8082A	ppm	±25% RPD	172%R	1-5 ppb	90%

Notes:
Abbreviations include:

%R = Percent Recovery
GC = Gas Chromatography
N/A = Not Applicable
NTU = Nephelometric Turbidity Units
TAL = Target Analyte List
TCL = Target Compound List
CRQL = Contract Required Quantitation Limit
MDL = Method Detection Limit
VOCs = Volatile Organic Compounds
RPD = Relative Percent Difference

* Precision dependent on meter and scale.

Precision is the measurement of agreement in repeated tests of the same or identical samples, under prescribed conditions. Analytical precision can be expressed in terms of Standard Deviation (SD), Relative Standard Deviation (RSD) and/or Relative Percent Difference (RPD). The precision of analytical environmental samples has two components - laboratory precision and sampling precision. Laboratory precision is determined by replicate measurements of laboratory duplicates and by analysis of reference materials. The objectives for laboratory precision are specified in the analytical methodologies and are presented on Table 3-1. The precision of the field sampling effort is determined by the analysis of field duplicate samples. Field duplicate analysis will be performed at a rate of five percent (i.e., one duplicate collected for every 20 samples). Acceptance criteria for duplicates analyzed by an off-site laboratory shall be an RPD of 25 percent. The precision limits provided in Table 3-1 for the screening measurements are acceptance criteria for duplicate and calibration analyses of field measurement parameters.

Accuracy is the degree of agreement of a measured sample result or average of results with an accepted reference or true value. It is the quantitative measurement of the bias of a system, and is expressed in terms of percent recovery (%R). Measurements of accuracy for the laboratory include surrogate spike, laboratory control spike, matrix spike and matrix spike duplicate samples. The laboratory must meet or exceed control limit objectives, as stated in Table 3-1 and the applicable methodologies.

Representativeness is the degree to which the results of the analyses accurately and precisely represent a characteristic of a population, a process condition, or an environmental condition. In this case, representativeness is the degree to which the data reflect the contaminants present and their concentration magnitudes in the sampled site areas. Representativeness of data will be ensured through the selection of sampling locations and implementation of approved sampling procedures. Results from environmental field duplicate sample analyses can be used to assess representativeness, in addition to precision.

Completeness is defined as the percentage of samples that meet or exceed all the criteria objective levels for accuracy, precision and detection limits within a defined time period or event. It is the measure of the number of data "points" which are judged to be valid, usable results. The objective for completeness for this project is 90 percent, and will be calculated by dividing the number of usable data results (i.e., all results not considered to be "rejected" and all samples able to be analyzed) by the number of possible data results (i.e., the total number of field samples collected), and then multiplying by 100 percent.

Comparability is the degree of confidence with which results from two or more data sets, or two or more laboratories, may be compared. To achieve comparability, standard environmental methodologies will be employed in the field and in the laboratory. See Table 3-1 and Section 6.0 for analysis methods and detection limits for this field investigation.

3.4 Impact of Failure to Meet Data Quality Objectives

The QA objectives presented in Table 3-1 represent the data quality necessary to meet the project's technical goals. The QA/QC efforts discussed in this QAPP focus on controlling measurement error, and ultimately providing a database for estimating the uncertainty in the measurement data for the project. QA objectives will be evaluated throughout the RA monitoring effort to see if the results for the project meet the stated objectives. If these objectives are not being met, the precision and/or accuracy of the sampling data will be decreased, and corrective actions shall be taken, as documented in Section 13.0.

4.0 REMEDIAL ACTION MONITORING ACTIVITIES

This section provides an overview of the planned RA monitoring operations by matrix and type of procedures. It also includes activities that may be necessary in the future to supplement the existing groundwater monitoring well network (i.e., site survey; monitoring well installation, etc.). Field monitoring and sampling activities include the following:

- Mobilization and demobilization
- Soil excavation and removal
- Confirmatory endpoint sampling

4.1 Remedial Action Monitoring Procedures

RA monitoring activities to be performed at the site will be conducted in accordance with established technical guidelines, methods, policies and Standard Operating Procedures (SOPs). The subsections below present an overview of the sampling program procedures; a more detailed discussion of the monitoring activities is presented in the RAWP.

4.1.1 Mobilization and Demobilization

The mobilization effort will consist of logistical planning, identification of sampling locations, equipment mobilization to the site, and field personnel orientation. The orientation meeting will familiarize the sampling team with a brief history of the site, health and safety requirements, and RA monitoring procedures. Mobilization and demobilization will take place before and after completion of routine periodic RA monitoring events. Demobilization will consist of site area clean-up, staging and inventory of monitoring-derived wastes, decontamination and demobilization of field equipment, and organization of monitoring records.

4.1.2 Soil Excavation and Removal

Soils will be excavated from the proposed excavation area utilizing an excavator. Soils will be screened during excavation and stockpiled on the eastern portion of the site. Soils will be screened utilizing a photoionization detector (PID) capable of detecting the presence of VOCs. Soils exhibiting significantly elevated PID responses or odors may be segregated and stockpiled from other soils being excavated. Trees, shrubs and underbrush within the excavation area will be cleared and disposed of as necessary.

4.1.3 Confirmatory Endpoint Sampling

Following removal of impacted soils from the site confirmatory endpoint soil samples will be collected from the excavation area to confirm the effectiveness of remedial activities. Endpoint sampling frequency will be as specified in the RAWP.

5.0 SAMPLE CUSTODY AND DOCUMENTATION

Each day that samples are collected, a chain-of-custody/request for analysis form will be completed and submitted to the laboratory with samples to be analyzed. A copy of the chain-of-custody will be retained by the Project Manager. The chain-of-custody will include the project name, sampler's signature, sample IDs, date and time of sample collection, and analysis requested.

Samples will be packaged and shipped in a manner that maintains sample preservation requirements during transport (i.e., ice to keep samples cool until receipt at the laboratory), ensures that sample holding times can be achieved by the laboratory, and prevents samples from being tampered with.

If a commercial carrier ships samples, a bill of lading (waybill) will be used as documentation of sample custody. Receipts for bills of lading and other documentation of shipment shall be maintained as part of the permanent custody documentation. Commercial carriers are not required to sign the chain-of-custody as long as it is enclosed in the shipping container and evidence tape (custody seal) remains in place on the shipping container.

Identification and documentation of samples are important in maintaining data quality. Strict custody procedures are necessary to ensure the integrity of the environmental samples. Sections below address sample identification, packaging, shipping, and documentation.

5.1 Sample Identification System

The method of identification of a sample depends on the type of measurement or analysis performed. When field screening measurements (e.g., pH, conductivity) are made, data are recorded directly in logbooks. Identifying information such as project name, sample location and depth, date and time, name of sampler, field observations, remarks, etc. shall be recorded.

Each sample collected for off-site laboratory analysis during the field investigation will be specifically designated by PWGC for unique identification. Samples will be identified using a letter code to indicate sample collection methodology. A letter code (see below) will follow, along with the name and/or number that identifies the specific location where the sample was collected. Field equipment blanks will be denoted by the letter code "FB" and trip blanks with "TB". Sample collection date and time will be recorded in the field logbook, chain of custody as well as the sample label.

Letter code prefixes for RA monitoring activities are as follows:

- EP Endpoint Soil Sample
- FB Field Blank Sample
- TB Trip Blank Sample

At a minimum, all location and identification information for the samples shall be recorded in the field sampling logbook, and on the appropriate chain of custody record form for shipment.

5.2 Sample Custody, Packaging and Shipping

Sample custody shall be strictly maintained and carefully documented each time sample material is collected, transported, received, prepared, and analyzed. Custody procedures are necessary to ensure the integrity of the samples, and samples collected during RA monitoring activities must be traceable from the time the samples are collected until they are disposed of and/or stored, and their derived data are used in the subsequent monitoring report. Sample custody is defined as (1) being in the sampler's possession; (2) being in the sampler's view, after being in the sampler's possession; (3) being locked in a secured container, after being in the sampler's possession; and (4) being placed in a designated secure area.

5.2.1 Field Custody, Packaging and Shipping Procedures

Field custody procedures shall be implemented for each sample collected. The field sampler shall be responsible for the care and custody of the samples until they are properly transferred or dispatched. To maintain the integrity of the samples, the samples are to be stored in a designated, secure area and/or be custody sealed in the appropriate containers prior to shipment.

Each environmental sample will be properly identified and individually labeled. Labels will be filled out in indelible ink with at least the following information: sample identification (see Section 5.1), type and matrix of sample, date and time of sample acquisition, name of sampler, analysis required, and preservation (as necessary). The sample label will be securely attached to the sample container.

Environmental samples being analyzed by off-site laboratories will be properly packaged and shipped for analysis. Samples are to be packed with sufficient wet ice to cool the samples to 4^{o}C. Additionally, each cooler will be packed with a cooler temperature blank. Lastly, the cooler should be filled with adequate cushioning material to minimize the possibility of container breakage.

A laboratory supplied completed chain of custody form will be included with all sample shipments.

When the samples are being shipped by an overnight delivery service to the laboratory, the chain of custody form and any other paperwork shall be checked against the sample labels and field documentation, and then placed in a waterproof sealable plastic bag and taped securely to the inside lid of the cooler. The cooler must then be secured, with custody seals affixed over the lid opening in at least two locations, and the cooler wrapped with strapping tape (without obscuring the custody seals). Orientation "this end up" arrows shall be drawn or attached on two sides of the cooler, and a completed overnight delivery service shipping label shall be attached to the top of the cooler.

Samples to be shipped by an overnight delivery service shall be shipped within 24 hours of sample collection and arrive at the laboratory within 24 hours of sample shipment. A member of the field team will notify the laboratory of a sample shipment.

5.2.2 Laboratory Custody Procedures

The following generally summarizes laboratory custody procedures; more detailed operations are presented in the laboratory's SOPs.

- A designated sample custodian will accept custody of the shipped samples and will verify that the information on the sample labels matches that on the chain of custody record(s),
- The laboratory custodian will use the sample label number or assign a unique laboratory number to each sample label and will assure that all samples are transferred to the proper analyst or stored in the appropriate secure area; and,
- Laboratory personnel are responsible for the care and custody of samples from the time they are received until the sample is exhausted or returned to the custodian or sample storage area. Internal chain of custody records shall be maintained by the laboratory.

The laboratory shall communicate with PWGC personnel by telephone, email or facsimile, as necessary, throughout the process of sample scheduling, shipment, analysis and data reporting, to ensure that samples are properly processed. If a problem occurs during sample shipment or receipt (e.g., a sample container arrives broken or with insufficient sample volume, a sample was not preserved correctly, a sample was not listed on the chain of custody, etc.), the laboratory shall immediately notify the appropriate person for resolution.

Samples received by the laboratory will be retained until analyses and QA checks are completed. When sample analyses and necessary QA checks have been completed, the unused portion of the sample and the sample

container must be disposed of properly by the laboratory. All identifying tags, data sheets, and laboratory records shall be retained as part of the permanent documentation.

6.0 ANALYTICAL REQUIREMENTS

Analytical services will be provided by a NYSDOH ELAP approved laboratory. The laboratory will follow NYSDEC Analytical Sampling Protocol (ASP) and provide data in results only format, with the exception of the final round of sampling in which data will be reported with Category B deliverables (ASP-B). Analyses not available using ASP-B will be provided in results only format.

Samples will be analyzes as follows:

6.1.1 Endpoint Soil Samples

Endpoint soil samples will be collected as described in the RAWP. Each endpoint soil sample will be analyzed for PCBs by USEPA Method 8082. Soil samples will be collected in one 4 ounce amber glass jar. Glassware will be supplied pre-cleaned by the analytical laboratory. Sample preservation will consist of: storage in a cooler on ice to a temperature of 4ºC. The hold time for PCB analysis is 14 days.

7.0 DECONTAMINATION PROCEDURES

In order to minimize the potential for cross-contamination, non-dedicated drilling and sampling equipment shall be properly decontaminated prior to and between sampling/drilling locations.

7.1.1 General Procedures

Drilling equipment will be decontaminated in a designated area. Sampling equipment and probes will be decontaminated in an area covered with plastic sheeting near the sampling location. Waste material generated during decontamination activities will be containerized, stored and disposed of in accordance with the procedures detailed in Section 5.9. Decontamination of sampling equipment shall be kept to a minimum, and wherever possible, dedicated sampling equipment shall be used. Personnel directly involved in equipment decontamination shall wear appropriate protective equipment.

7.1.2 Drilling Equipment

Drilling equipment shall be decontaminated by steam cleaning prior to performance of the first boring/excavation and between all subsequent borings/excavations. This shall include hand tools, casing, augers, drill rods, temporary well material and other related tools and equipment. Water used during drilling and/or steam cleaning operations shall be from a potable source.

7.1.3 Sampling Equipment

Sampling equipment (i.e., trowels, knives, split-spoons, bowls, hand augers, etc...) will be decontaminated prior to each use as follows:

- Laboratory-grade glassware detergent and tap water scrub to remove visual contamination
- Generous tap water rinse
- Distilled water rinse

7.1.4 Meters and Probes

All meters and probes that are used in the field (other than those used solely for air monitoring purposes, e.g., PID meters) will be decontaminated between uses as follows:

- Laboratory-grade detergent and tap water solution wash
- Tap water rinse
- Distilled water rinse (triple rinse)

Decontamination of sampling equipment will be kept to a minimum in the field, and wherever possible, dedicated disposable sampling equipment will be used. Decontamination fluids will be stored in US Department of Transportation (DOT)-approved 55-gallon drums or in an on-site storage tank (liquids only) until proper

disposal. Personnel directly involved in equipment decontamination will wear protective clothing in accordance with the project Health and Safety Plan (HASP).

8.0 QUALITY ASSURANCE/QUALITY CONTROL SAMPLE REQUIREMENTS

This section will discuss the type and quantities of QA/QC samples to be utilized during implementation of the field program.

8.1 Field Quality Control Samples

The subsections below present general information and guidance on field QC samples, including definition and frequency of QC blanks. Field QC samples will be labeled and shipped according to the procedures outlined in Section 5.0.

8.1.1 Field Blanks

A field blank will be collected to evaluate the potential for contamination of environmental samples from inadequate decontamination of field equipment. Field blanks shall be collected by pouring laboratory supplied distilled/deionized (DI) water over and/or through decontaminated non-disposable equipment or disposable equipment, and collecting the rinsate. Field blanks will be collected at a frequency of one per decontamination event per type of sampling equipment, not to exceed one per day per sample matrix. Preservation and analysis of field blanks will be identical to that of the associated environmental samples.

8.1.2 Trip Blanks

A trip blank serves to detect possible cross-contamination of samples resulting from handling, storage and shipment procedures. In the event that VOC analysis is necessary, trip blanks will accompany VOC glassware in transit through sample collection and shipment to the laboratory. In addition, trip blanks are stored by the laboratory under the same conditions as the environmental samples. A trip blank will accompany each cooler containing samples submitted for VOC analysis (if any), and will be preserved as per the groundwater samples and analyzed identically to the associated environmental samples. VOC samples will be consolidated in one cooler for daily shipment, if possible, to minimize the number of trip blanks required in the field program. Due to the lack of VOC impact identified at the site, it is not anticipated that trip blanks will be necessary during remedial action.

8.1.3 Temperature Blanks

A temperature blank will be sent with each cooler of samples to verify that the cooler temperature has been maintained at 4ºC. One non-preserved VOA vial shall be filled with either potable or DI water, and labeled with "USEPA cooler temperature indicator" and the date. If supplied, the laboratory's temperature blank will be used in place of the VOA vial. The laboratory shall record the temperature of the blank water on the chain of custody immediately upon cooler arrival.

8.1.4 Field Environmental Duplicate Samples

Duplicate environmental samples will be analyzed by the off-site laboratories to evaluate the reproducibility of the sampling procedures. Duplicate samples will be collected at a rate of five percent of the total samples for each specific matrix for each type of analysis (i.e., one duplicate for up to every 20 samples). The duplicate samples will be collected from the same location and at the same time as the original environmental sample; however, the duplicated samples will be "coded" in such a manner that the laboratory will not be able to determine of which original field sample they are duplicated (i.e., "blind" duplicates). For example, the duplicate sample of location EP001 may be "coded" as location EP051, as long as there are not more than fifty endpoint samples being collected (i.e., the coded sample name should not be assigned a legitimate sample location identification). An explanation of the duplicate "coding" must be written in the field logbook. Preservation and analysis of duplicate samples will be identical to those for the environmental samples. Precision of field data will be evaluated based on the calculation of Relative Percent Difference (RPD), with acceptance criteria of 25 percent for the off-site laboratory samples. Blind duplicate samples will be collected in the same manner as the environmental samples.

8.2 Laboratory Quality Control Samples

General information and guidance on laboratory QC samples are presented in the subsections below. A summary of QC procedures, frequencies, criteria, and corrective actions for the samples, as determined by the applicable method guidelines.

8.2.1 Method Blanks/Preparation Blanks

A method blank (for organics) or a preparation blank (for inorganics) will be analyzed with every batch of samples to ensure that contamination has not occurred during the analytical process. Method blanks consist of a portion of analyte-free water or solid that is processed through the entire sample procedure the same as an environmental sample.

8.2.2 Matrix Spikes/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate samples (also known as spike/duplicate samples) will be used to assess precision and accuracy of the analytical methods. In this procedure, three aliquots of an actual field sample are collected at a specific location, and two aliquots are “spiked” by the addition of known amounts of an analyte or analytes and these samples are then analyzed identically to the field samples. A comparison of the resulting concentration to the original sample concentration and among the two “spiked” sample concentrations provides information on the ability of the analytical procedure to generate a correct result from the sample. Matrix spike/matrix spike duplicate samples will be collected in the field at a rate of five percent, and will be analyzed on a per batch basis, with up to 20 samples per week constituting a batch. The validity of matrix spike/matrix

spike duplicate recovery and relative percent difference values will be determined using the acceptance criteria

8.2.3 Laboratory Control Samples

A laboratory control sample (LCS) consists of an analyte-free water or solid phase sample that is spiked with target analytes at a known concentration. The LCS shall be analyzed for every batch of samples (i.e., 1 per 20) to assess the ability of the analytical procedure to generate a correct result without matrix effects/interferences affecting the analysis. The percent recoveries for the LCS compounds will be compared to QC limits stated in the appropriate methods.

8.2.4 Surrogate Compounds

Surrogates (also known as System Monitoring Compounds) are compounds of known concentrations added to every organic analysis sample for analytical chromatography methods at the beginning of the sample preparation to monitor their recovery. Surrogate recoveries will be used to assess potential matrix interferences and to monitor any potential effects of sample preparation and analysis on final analyte concentrations. The recovery values will be compared to values established in the applicable methodologies to determine the validity of the data.

8.2.5 Internal Standards

Internal standards are used to provide instrument correction for variation in instrument performance and injection volumes. Internal standards also establish relative response factors for the analytes.

8.2.6 Interference Check Samples

An interference check sample (ICS), which contains target analytes at known concentrations, verifies the laboratory's interelement and background correction factors. Analysis of ICS samples is unique to metals analysis using the inductively coupled plasma (ICP) method.

9.0 INSTRUMENT CALIBRATION AND PREVENTIVE MAINTENANCE

9.1 Calibration

Equipment will be inspected and approved by the Field Team Leader before being used. Equipment will be calibrated to factory specifications, if required. Monitoring equipment will be calibrated following manufacturers recommended schedules. Daily field response checks and calibrations will be performed as necessary (i.e. PID calibrations) following manufacturers standard operating procedures. Equipment calibrations will be documented in a designated field logbook.

The Field Team Leader or his designee will be responsible for ensuring that instrumentation are of the proper range, type and accuracy for the measurement/test being performed, and that all of the equipment are calibrated at their required frequencies, according to their specific calibration protocols/procedures.

All field measurement instruments must be calibrated according to the manufacturer's instructions prior to the commencement of the day's activities. Exceptions to this requirement shall be permitted only for instruments that have fixed calibrations pre-set by the equipment manufacturer. Calibration information shall be documented on in a designated field logbook. Information to be recorded includes the date, the operator, and the calibration standards (concentration, manufacturer, lot number, expiration date, etc.). All project personnel using measuring equipment or instruments in the field shall be trained in the calibration and usage of the equipment and are personally responsible for ensuring that the equipment has been properly calibrated prior to its use.

In addition, all field instruments must undergo response verification checks at the end of the day's activities and at any other time that the user suspects or detects anomalies in the data being generated. The checks consist of exposing the instrument to a known source of analyte (e.g., the calibration solution), and verifying a response. If an unacceptable instrument response is obtained during the check the data shall be labeled suspect, the problem documented in the site logbook, and appropriate corrective action taken.

Any equipment found to be out of calibration shall be recalibrated. When instrumentation is found to be out of calibration or damaged, an evaluation shall be made to ascertain the validity of previous test results since the last calibration check. If it is necessary to ensure the acceptability of suspect items, the originally required tests shall be repeated (if possible), using properly calibrated equipment. Any instrument consistently found to be out of calibration shall be repaired or replaced.

9.2 Preventive Maintenance

Field equipment shall be maintained at its proper functional status in accordance to manufacturer manual specifications. A check of the equipment shall be performed before field activities begin, and any potential spare parts (e.g., batteries, connectors, etc.) and maintenance tools will be brought on site, to minimize equipment downtime during the field activities. Visual checks of the equipment will be conducted on a daily basis. Routine preventive maintenance shall be performed to assure proper operation of the equipment. Any maintenance performed on field equipment will be documented in the designated field logbook, and shall be undertaken by personnel who have the appropriate skills and/or training in the type of maintenance required.

10.0 QUALITY ASSURANCE/QUALITY CONTROL SAMPLE REQUIREMENTS

Quality Control (QC) procedures will be followed in the field and at the laboratory to ensure that reliable data are obtained. When performing field sampling, care shall be taken to prevent the cross-contamination of sampling equipment, sample bottles, and other equipment that could compromise sample integrity. QC samples, including blind duplicates, equipment blanks, trip blanks, method blanks, matrix spike and matrix spike duplicates, and their frequency to be collected in the field are detailed below. Field QC samples will be labeled and shipped according to the procedures outlined in Section 8.0.

10.1 Field Blanks

A field blank will be collected to evaluate the potential for contamination of environmental samples from inadequate decontamination of field equipment. Field blanks shall be collected by pouring laboratory supplied distilled/deionized (DI) water over and/or through decontaminated non-disposable equipment or disposable equipment, and collecting the rinsate. Field blanks will be collected at a frequency of one per day per sample matrix. Preservation and analysis of field blanks will be identical to that of the associated environmental samples.

10.2 Trip Blanks

A trip blank serves to detect possible cross-contamination of samples resulting from handling, storage and shipment procedures. Trip blanks will accompany VOC glassware in transit through sample collection and shipment to the laboratory. In addition, trip blanks are stored by the laboratory under the same conditions as the environmental samples. A trip blank will accompany each cooler containing samples submitted for VOC analysis, and will be preserved as per the groundwater samples and analyzed identically to the associated environmental samples. VOC samples will be consolidated in one cooler for daily shipment, if possible, to minimize the number of trip blanks required in the field program. Due to the lack of VOC impact identified at the site, it is not anticipated that trip blanks will be necessary during remedial action.

10.3 Temperature Blanks

A temperature blank will be sent with each cooler of samples to verify that the cooler temperature has been maintained at 4ºC. One non-preserved VOA vial shall be filled with either potable or DI water, and labeled with "cooler temperature indicator" and the date. If supplied, the laboratory's temperature blank will be used in place of the VOA vial. The laboratory shall record the temperature of the blank water on the chain of custody immediately upon cooler arrival.

10.4 Field Environmental Blind Duplicate Samples

Blind duplicate environmental samples will be analyzed by the off-site laboratories to evaluate the

reproducibility of the sampling procedures. Duplicate samples will be collected at a rate of five percent of the total samples for each specific matrix for each type of analysis (i.e., one duplicate for up to every 20 samples). The duplicate samples will be collected from the same location and at the same time as the original environmental sample; however, the duplicated samples will be "coded" in such a manner that the laboratory will not be able to determine of which original field sample they are duplicated. For example, the duplicate sample of location MW01 may be "coded" as location MW21, as long as there are not more than twenty groundwater monitoring wells being sampled (i.e., the coded sample name should not be assigned a legitimate sample location identification). An explanation of the duplicate "coding" must be written in the field logbook. Preservation and analysis of duplicate samples will be identical to those for the environmental samples. Blind duplicate samples will be collected in the same manner as the environmental samples.

11.0 DATA REDUCTION, VALIDATION AND REPORTING

Standard methods and references will be used as guidelines for data handling, reduction, validation, and reporting. All data for the project will be compiled and summarized with an independent verification at each step in the process to prevent transcription/typographical errors. Any computerized entry of data will also undergo verification review.

11.1 Data Reduction

11.1.1 Field Data Reduction

Field instrumentation data will be reported by site personnel in field logbooks associated with the monitoring event. At the end of each monitoring event, the field screening data results shall be summarized in tabulated form, as warranted.

11.1.2 Laboratory Data Reduction

All data generated by the off-site laboratory will be reported in a specified format containing all required elements to perform data validation. Analytical results shall be presented on standard NYSDEC ASP-B forms (when necessary) or equivalents, and include the dates the samples were received and analyzed, and the actual methodology used. Laboratory QA/QC information required by the method protocols will be compiled, including the application of data QA/QC qualifiers as appropriate. In addition, laboratory worksheets, laboratory notebooks, chains-of-custody, instrument logs, standards records, calibration records, and maintenance records, as applicable, will be provided in the laboratory data packages to determine the validity of data.

11.1.3 Project Data Reduction

Following receipt of the laboratory analytical results by PWGC, the data results will be compiled and presented in an appropriate tabular form. Where appropriate, the impacts of QA/QC qualifiers resulting from laboratory or external validation reviews will be assessed in terms of data usability.

11.1.4 Non-Direct Measurements

If information necessary for the project has not been measured directly in the field, non-direct measurement data may be obtained from literature files, texts, computer databases, etc. References utilized will be acknowledged sources within the specific discipline. An explanation of the rationale behind using the reference and a description of any concern regarding the use of the referenced data (e.g., uncertainty, conflicting literature, etc.) shall be made within the report. Non-direct measurement data, after usage, will be filed within the project files for the length of the project.

11.2 Data Usability and Validation

The main purpose of the data is for use in defining the extent of contamination at the site, to aid in evaluation of potential human health and ecological exposure assessments, and to support remedial action decisions. Based upon this, data use usability and validation will be performed as described below. Complete data packages will be archived in the project files, and if deemed necessary additional validation can be performed using procedures in the following sections. It is anticipated that data validation will be performed on data collected during the final round of sampling, only.

11.2.1 Data Usability and Validation Requirements

Data usability and validation are performed on analytical data sets, primarily to confirm that sampling and chain-of-custody documentation are complete, sample IDs can be tied to specific sampling locations, samples were analyzed within the required holding times, and analyses are reported in conformance to NYSDEC ASP, Category 2 data deliverable requirements as applicable to the method utilized.

11.2.2 Data Usability and Validation Methods

If deemed necessary by NYSDEC, a data usability evaluation for the data collected during the RA and a data usability summary report (DUSR) will be prepared. The DUSR will be prepared in accordance with NYSDEC DER-10, Appendix 2B.

Independent third party data validation will be performed on 5% of the sample data, or on one sample from each sample delivery group (SDG), whichever is greater. Data validation will be performed by a qualified subcontractor independent of the project.

12.0 CORRECTIVE ACTION

Review and implementation of systems and procedures may result in recommendations for corrective action. Any deviations from the specified procedures within approved project plans due to unexpected site-specific conditions shall warrant corrective action. All errors, deficiencies, or other problems shall be brought to the immediate attention of the PWGC PM, who in turn shall contact the Quality Assurance/Data Quality Manager or his designee (if applicable).

Procedures have been established to ensure that conditions adverse to data quality are promptly investigated, evaluated and corrected. These procedures for review and implementation of a change are as follows:

- Define the problem.
- Investigate the cause of the problem.
- Develop a corrective action to eliminate the problem, in consultation with the personnel who defined the problem and who will implement the change.
- Complete the required form describing the change and its rationale (see below for form requirements).
- Obtain all required written approvals.
- Implement the corrective action.
- Verify that the change has eliminated the problem.

During the project, all changes to the RA monitoring program or GWET system operation will be documented in field logs/sheets and the PWGC PM will be advised.

If any problems occur with the laboratory or analyses, the laboratory must immediately notify PWGC PM, who will consult with other PWGC project staff. All approved corrective actions shall be controlled and documented.

All corrective action documentation shall include an explanation of the problem and a proposed solution which will be maintained in the project file or associated logs. Each report must be approved by the necessary personnel (e.g., the PM) before implementation of the change occurs. The PWGC PM shall be responsible for controlling, tracking, implementing and distributing identified changes.

PWGC
Strategic Environmental Engineering Solutions

APPENDIX D
COMMUNITY AIR MONITORING PLAN

P.W. GROSSER CONSULTING INC.
PROJECT No. SHD1303

COMMUNITY AIR MONITORING PLAN

FORMER CANINE KENNEL SITE
FRANCIS S. GABRESKI AIRPORT
WESTHAMPTON BEACH, NEW YORK
BCP Site # C152079
IHWDS Site # 152079

Submitted:
September 2014

Prepared for:
The New York State Department of Environmental Conservation
Division of Environmental Remediation

On behalf of:
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1.0 INTRODUCTION

This Community Air Monitoring Plan (CAMP) provides measures for protection for on-site workers and the downwind community (i.e., off-site receptors including residences, businesses, and on-site workers not directly involved) from potential airborne contaminant releases resulting from remedial action at the Former Canine Kennel site, Westhampton Beach, New York.

The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that the remedial work did not spread contamination off-site through the air.

The primary concerns for this site are PCBs (represented by particulate dust), VOCs and dust particulates.

1.1 Regulatory Requirements

This CAMP was established in accordance with the following requirements:

- 29 CFR 1910.120(h): This regulation specifies that air shall be monitored to identify and quantify levels of airborne hazardous substances and health hazards, and to determine the appropriate level of protection for workers.
- New York State Department of Health's (NYSDOH) Generic Community Air Monitoring Plan: This guidance specifies that a community air-monitoring program shall be implemented to protect the surrounding community and to confirm that the work does not spread contamination off-site through the air.
- New York State Department of Environmental Conservation (NYSDEC) Technical and Guidance Memorandum (TAGM) #4031 - Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites: This guidance provides a basis for developing and implementing a fugitive dust suppression and particulate monitoring program as an element of a hazardous waste site's health and safety program.

2.0 AIR MONITORING

The following sections contain information describing the types, frequency and location of real-time monitoring.

2.1 Real-Time Monitoring

This section addresses the real-time monitoring that will be conducted within the work area, and along the site perimeter, during intrusive activities such as excavation, product recovery, manipulation of soil piles, extraction of sheet piling, etc.

2.1.1 *Work Area*

The following instruments will be used for work area monitoring:

- PhotoionizationDetector (PID)
- Dust Monitor

Table 1-1 presents a breakdown of each main activity and provides the instrumentation, frequency and location of the real-time monitoring for the site. Table 1-2 lists the Real-Time Air Monitoring Action Levels to be used in all work areas.

2.1.2 *Community Air Monitoring Requirements*

To establish ambient air background concentrations, air will be monitored at several locations around the site perimeter before investigation activities begin. These points will be monitored periodically in series during the site work.

Fugitive respirable dust will be monitored using a Thermo Electron Corporation Model pDR-1000AN/1200 aerosol monitor or equivalent. Air will be monitored for VOCs with a portable Photovac MicroTip photoionization detector (PID), or equivalent. Table 1-1 presents a breakdown of each main activity and provides the instrumentation, frequency and location of the real-time monitoring for the site. Table 1-2 lists the Real-Time Air Monitoring Action Levels to be used in all work areas. All air monitoring data is documented in a site log book by the designated site safety officer. PWGC's site safety officer or delegate must ensure that air monitoring instruments are calibrated and maintained in accordance with manufacturer's specifications. All instruments will be zeroed daily and checked for accuracy. A daily log will be kept. If additional monitoring is required, the protocols will be developed and appended to this plan.

Table 1-1
Frequency and Location of Air Monitoring

ACTIVITY	AIR MONITORING INSTRUMENT	FREQUENCY AND LOCATION
Drilling, Sampling, Excavation	PID, Dust Monitor	Continuous in Breathing Zone (BZ) during intrusive activities or if odors become apparent, screening in the BZ every 30 minutes during non-intrusive activities

Table 1-2
Real-Time Air Monitoring Action Levels

AIR MONITORING INSTRUMENT	MONITORING LOCATION	ACTION LEVEL	SITE ACTION	REASON
PID	Breathing Zone	0-25 ppm, non-transient	None	Exposure below established exposure limits
PID	Breathing Zone	25-100 ppm, non-transient	Don APR	Based on potential exposure to VOCs
PID	Breathing Zone	>100 ppm, non-transient	Don ASR or SCBA, Institute vapor/odor suppression measures, Notify HSM.	Increased exposure to site contaminants, potential for vapor release to public areas.
PID	Work Area Perimeter	< 5 ppm	None	Exposure below established exposure limits.
PID	Work Area Perimeter	> 5 ppm	Stop work and implement vapor release response plan until readings return to acceptable levels, Notify HSM.	Increased exposure to site contaminants, potential for vapor release to public areas
Aerosol Monitor	Work Area Perimeter	>100 but < 150 $\mu g/m^3$ for 15 minutes	Institute dust suppression measures, Notify HSM.	Work to continue if particulate concentrations remain below 150 $\mu g/m^3$
Aerosol Monitor	Work Area Perimeter	>150 $\mu g/m^3$	Don ASR or SCBA, Institute dust suppression measures, Notify HSM.	Stop work and implement dust suppression techniques until readings return to acceptable levels, Notify HSM.

3.0 VAPOR EMISSION RESPONSE PLAN

This section is excerpted from the NYSDOH guidance for Community Air Monitoring Plan - Ground Intrusive Activities.

If the ambient air concentration of organic vapors exceeds 5 ppm above background at the perimeter of the work area, activities will be halted and monitoring continued. Vapor suppression measures can also be taken at this time. If the organic vapor level decreases below 5 ppm above background, work activities can resume. If the organic vapor levels are greater than 5 ppm over background but less than 25 ppm over background at the perimeter of the work area, activities can resume provided:

- the organic vapor level 200 feet downwind of the work area or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background.

If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shut down. When work shutdown occurs, downwind air monitoring as directed by the Site Health & Safety Officer (SHSO) will be implemented to ensure that vapor emission does not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission Response Plan Section.

4.0 MAJOR VAPOR EMISSION RESPONSE PLAN

If any organic levels greater than 5 ppm over background are identified 200 feet downwind from the work area or half the distance to the nearest residential or commercial property, whichever is less, all work activities must be halted.

If, following the cessation of the work activities, or as the result of an emergency, organic levels persist above 5 ppm above background 200 feet downwind or half the distance to the nearest residential or commercial property from the work area, then the air quality must be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (20 Foot Zone).

If efforts to abate the emission source (see Section 5.0) are unsuccessful and if organic vapor levels are approaching 5 ppm above background for more than 30 minutes in the 20 Foot Zone, then the Major Vapor Emission Response Plan shall automatically be placed into effect.

However, the Major Vapor Emission Response Plan shall be immediately placed in effect if organic vapor levels are greater than 10 ppm above background.

Upon activation, the following activities will be undertaken:

1. All emergency Response Contacts as listed in the Health & Safety Plan will go into effect.
2. The local police authorities will immediately be contacted by the Health & Safety Officer and advised of the situation.
3. Frequent air monitoring will be conducted at 30-minute intervals within the 20 Foot Zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the Health & Safety Officer.

5.0 VAPOR SUPPRESSION TECHNIQUES

Vapor suppression techniques must be employed when action levels warrant the use of these techniques.

The techniques to be implemented for control of VOCs from stockpiled soil or from the open excavation will include one or more of the following:

- cover with plastic
- cover with “clean soil”
- application of hydro-mulch material*
- limit working hours to favorable wind and temperature conditions

*This material is a seedless version of the hydro-seed product commonly used by commercial landscaping contractors to provide stabilization and rapid grow-in of grasses or wild flowers along highways, embankments and other large areas. Hydro-mulch can be sprayed over open excavation areas, temporary stockpile areas and loaded trucks, as necessary. This is a highly effective method for controlling odors, because the release of odors is sealed immediately at the source.

6.0 DUST SUPPRESSION TECHNIQUES

Reasonable dust-suppression techniques must be employed during all work that may generate dust, such as excavation, grading, and placement of clean fill. The following techniques were shown to be effective for controlling the generation and migration of dust during remedial activities:

- Wetting equipment and excavation faces;
- Spraying water on buckets during excavation and dumping;
- Hauling materials in properly covered containers; and,
- Restricting vehicle speeds to 10 mph.

Using atomizing sprays will prevent overly wet conditions, conserve water, and offer an effective means of suppressing fugitive dust. It is imperative that utilizing water for suppressing dust will not create surface runoff.

7.0 DATA QUALITY ASSURANCE

7.1 Calibration

Instrument calibration shall be documented in the designated field logbook. All instruments shall be calibrated before each shift. Calibration checks may be used during the day to confirm instrument accuracy. Duplicate readings may be taken to confirm individual instrument response.

7.2 Operations

All instruments shall be operated in accordance with the manufacturer's specifications. Manufacturers' literature, including an operations manual for each piece of monitoring equipment will be maintained on-site by the FOL/HSO for reference.

7.3 Data Review

The Field Team Leader FOL/SHSO will interpret all monitoring data based on Table 1-2 and his/her professional judgment. The FOL/HSO shall review the data with the HSM to evaluate the potential for worker exposure, upgrades/downgrades in level of protection, comparison to direct reading instrumentation and changes in the integrated monitoring strategy.

Monitoring and sampling data, along with all sample documentation will be periodically reviewed by the HSM.

8.0 RECORDS AND REPORTING

All readings must be recorded and available for review by personnel from NYSDEC and NYSDOH. Should any of the action levels be exceeded, the NYSDEC Division of Air Resources must be notified in writing within five (5) working days.

The notification shall include a description of the control measures implemented to prevent further exceedances.

APPENDIX E
CITIZEN PARTICIPATION PLAN

P.W. GROSSER CONSULTING INC.
PROJECT No. SHD 1303

CITIZEN PARTICIPATION PLAN

FORMER CANINE KENNEL SITE
FRANCIS S. GABRESKI AIRPORT
WESTHAMPTON BEACH, NEW YORK
BCP Site # C152079
IHWDS Site # 152079

Submitted:
September 2014

Prepared for:
The New York State Department of Environmental Conservation
Division of Environmental Remediation

On behalf of:
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1.0 INTRODUCTION

Citizen participation is an integral component of remedial programs in New York State. Input from affected or interested individuals and organizations on the remedial program helps ensure outcomes that account for both technical and human concerns for protecting public health and the environment. A project-specific plan is needed to inform and involve community residents, public and private leaders, and other stakeholders. This Citizen Participation Plan (CPP) documents the planned project-specific public outreach activities and resources organized for the remedial program associated with the Former Canine Kennel Site at Francis S. Gabreski Airport in West Hampton Beach New York.

The primary purpose of this CPP plan is to outline a variety of communication methods that, based on applicable New York State law and New York State Department of Environmental Conservation (NYSDEC) regulations and guidance, provide for constructive communication of program activities between the stakeholders and other interested parties. This CPP includes methods intended to inform interested parties of program developments, elicit responses and public involvement, and provide a central point of contact for inquiries regarding the remedial program for the Former Canine Kennel Site. Given this context, this CPP presents the planned communication and outreach activities, describes how interested individuals and groups can participate in the remedial program, and provides a variety of reference materials to facilitate gaining access to project-specific information and management personnel.

Both the NYSDEC and Suffolk County Department of Health Services (SCDHS) are committed to the implementation of this CPP as required by Title 6 of the New York Code of Rules and Regulations (NYCRR) Part 375, applicable NYSDEC guidance (e.g., DER-23/Citizen Participation Handbook for Remedial Programs (January 2010), and the statewide Inactive Hazardous Waste Site Citizen Participation Plan (NYSDEC, 1988). As required by 6 NYCRR Part 375-1.10, NYSDEC and SCDHS will review and update this CPP to account for significant changes in the Former Canine Kennel site's remedial program.

2.0 SITE INFORMATION

2.1 Site Description

Francis S. Gabreski airport is located on County Road 31 in the Town of Southampton, New York and is owned by Suffolk County. The airport is located within the Long Island Pine Barrens which are characterized by open, sunlit woodlands dominated by pitch pine interspersed with white and scarlet oak. The nearby Quogue wildlife refuge is characterized by dwarf pitch pines ranging from 3 to 6 feet tall. The airport itself is characterized by surrounding wooded areas consisting of 25 foot pitch pines and scattered scrub oak. The airport has no commercially scheduled service, but does support private planes and presently is the home of the 106th Rescue Wing of the New York Air National Guard (NYANG).

The area of concern is a section of disturbed ground, approximately 1.0 acre in size and irregular in shape. The site is located in a remote portion of the airport, south of a former canine kennel and just east of a boat storage yard near the eastern property line of the airport. A Vicinity Map is included as **Figure 1**, and a site plan is included as **Figure 2**.

The property is currently zoned for light industrial use and is a portion of the Francis S. Gabreski Airport. The airport is located within the core preservation area of the central Pine Barrens. Since the Canine Kennel site is within the core Pine Barrens area, development is prohibited and the site will remain undeveloped.

2.2 Site History

In 1943 the federal government built the airport for use as an Air Force base during World War II. After the war, it was given to Suffolk County. In 1951, the airport was reclaimed for the Korean War National Emergency. In 1960, the US Air Force leased the site for an Air Defense Command Base, which was deactivated in 1969, then released back to Suffolk County in 1970.

During deactivation activities (Spring 1970), the Suffolk County Air Base used the canine kennel area to bury inert wastes, such as office furniture. The site was also used for the disposal of polychlorinated biphenyl (PCB) containing electrical distribution equipment such as transformers and capacitors.

In March 1984, the NYSDEC discovered the site in response to a complaint from a local citizen's group. At that time, the NYSDEC observed several half-buried capacitors leaking PCB oil within a ten-foot deep pit. In May 1984, nine soil samples were collected for laboratory analysis. Eight contained the PCB Arcolor-1254 in concentrations up to 1,700 parts per million (ppm).

In January 1986, a NYSDEC contractor noted that the pit was only half as deep as previously stated, and that the capacitors were no longer visible. The area showed signs of recent earthwork activities and was devoid of vegetation.

3.0 REMEDIAL PROGRAM OVERVIEW

3.1 Historical Investigations

Previous environmental investigations have occurred at the site and are summarized in the Remedial Investigation Report prepared by PWGC (November 2008). A summary of the significant findings of the previous investigation is included below:

- In March 1984, the New York State Department of Environmental Conservation (NYSDEC) discovered the site in response to a complaint from a local citizen's group. At that time, the NYSDEC observed several half-buried capacitors leaking PCB oil within a ten-foot deep pit. In May 1984, nine soil samples were collected for laboratory analysis. Eight contained the PCB Aroclor-1254 in concentrations up to 1,700 ppm.
- In January 1986, a NYSDEC contractor noted that the pit was only half as deep as previously stated, and that the capacitors were no longer visible. The area showed signs of recent earthwork activities and was devoid of vegetation.
- In November 1996, Dvirka and Bartilucci Consulting Engineers (D & B) performed a preliminary site assessment. D & B determined regional groundwater flow direction to be towards the southeast, and installed and sampled one up-gradient (GP-1) and five downg-radient (GP-2 through GP-6) GeoprobeTM monitoring wells. Groundwater was encountered between 9 and 12 feet below grade. Two groundwater samples were obtained from each GeoprobeTM location, one at the water table interface and one at 15 feet below the water table. PCBs were below detection limits in each of the 12 samples analyzed. Traces of the pesticides 4,4'-DDD and 4,4'-DDT were detected in the up-gradient well only. Based upon the groundwater results, D & B prepared a Preliminary Site Assessment (PSA) report (1998) that stated that PCBs previously detected in surface soils were not impacting local groundwater quality. The NYSDEC has also concluded that PCBs have not impacted local groundwater.
- In July 2000, the NYSDEC performed additional soil sampling. Thirteen soil samples were collected at six locations at two depths (surface (0-4") and subsurface (2'-4') below grade) and one soil sample was removed from the end of a capacitor located at the site. The highest soil concentration found was 280,000 ppm adjacent to a capacitor. There was a "hot spot" identified near soil samples #1, 2 and 5, where the levels ranged from 1,900 ppm to 150,000 ppm at the surface and 120 ppm to 20,000 ppm at 2.5' to 3.5' below grade. Soil #3 and #4 contained PCBs levels of 3.9 ppm and 17 ppm at the surface, and less than 10 ppm at a depth of 2.5'. Concentrations of PCBs at soil sample #6 were less than 1.0 ppm. These samples were obtained from the same area previously sampled in May 1984.
- The SCDHS Farmingville Office of Pollution Control in Farmingville, New York, performed an inspection of

the site on May 15, 2003. This inspection noted the following:

- The area contained partially buried and unburied metal debris, such as rusted drums, car parts, and scrap metal. It was noted that this may interfere with any non-invasive exploratory instruments such as ground penetrating radar (GPR) and magnetometers.
- Pine tree re-growth was greater than expected. The area is thickly wooded in spots with trees about 10 to 12 feet high and an occasional sandy clearing.

3.2 Remedial Investigation

From March 2008 through July 2008, PWGC performed a Remedial Investigation at the former Canine Kennel site. The investigation consisted of a geophysical survey, soil and groundwater sampling, test pit excavations and the removal of identified capacitors suspected to contain PCBs. Findings of the RI included:

- The geophysical and test pit investigations confirmed that the area of disposal is limited to the western/central portion of the site adjacent to the fence line and boatyard.
- Pesticides were not detected in the site soil samples. The PCB Aroclor-1254 was detected in soil samples ranging in depth from 0-2 inches bgs to approximately 8.5 feet bgs. Fifty-nine soil samples had concentrations of Aroclor-1254 above the Residential Use Soil Cleanup Objective (RUSCO) of 1.0 ppm ranging from 1.1 to 86,000 ppm (directly underneath one of the removed capacitors). The surface soil samples show the largest area of impact (across the western and central areas of the site). PCBs were also detected at concentrations greater than the RUSCO in surface soils within the unpaved eastern portion of the adjacent boatyard. Spread of PCBs within surface soils at the site is likely a result of physical processes, including localized surface runoff of PCB-contaminated soils from the on-site disposal area westward following the surface topography.
- PCBs in the 2.0-2.5 feet depth samples were limited to the western central area of the site and coincide with the main area of existing debris and the former capacitor locations. Three isolated areas of impact at depths of 4.0 feet bgs or greater were also identified, two of which coincided with the main area of debris and the former capacitor locations. A third area was identified northeast of the capacitor locations. No pesticides were detected in soil samples collected at the site.
- Pesticides and PCBs were not detected in the groundwater samples collected from up-gradient and down-gradient monitoring wells. These results indicate that PCBs identified in the sites soil samples (Aroclor-1254 and Aroclor-1260) have not impacted groundwater.
- Approximately 613 pounds (two 55-gallon drums) of PCB-contaminated solids, consisting primarily of capacitors with some incidental soil were removed from the site and transported to a treatment facility for incineration.

Based on the findings of the RI completed in November 2008, PWGC recommended that an IRM be implemented at the site to remove PCB impacted soils from the unpaved portion of the boatyard and former capacitor areas.

3.3 Interim Remedial Measure

From August 2012 through April 2013, PWGC implemented an Interim Remedial Measure (IRM) at the site. The scope of work for the IRM consisted of:

- Additional soil sampling to further delineate the extent of PCB impact within the unpaved portion of the boatyard.
- Removal and disposal of PCB impacted soil from the unpaved portion of the boatyard. Removal and disposal of PCB impacted soils from former capacitor locations (i.e., the locations with the most elevated concentrations of PCBs).
- Collection of endpoint samples to confirm the effectiveness of remedial activities.
- Backfill of capacitor location excavations to prevent residual PCB impacted soils from being exposed to the environment.
- Installation of storm water controls to prevent storm water runoff from entering the boatyard.

PWGC performed delineation soil sampling to determine the necessary excavation boundaries within the boatyard. Following delineation, soils were removed from the excavation area to a depth of six inches bgs. Based on endpoint sampling, additional soils were removed (to depths of 12 to 18 inches bgs) at several locations. Following additional soil removal, PCB concentrations in endpoint samples were below the NYSDEC RUSCO of 1.0 ppm within the boatyard area.

Soils were removed to a depth of one foot bgs in the vicinity of former capacitor locations CA-1, CA-2 and CA-3. Following soil removal, PCB concentrations in endpoint samples were below the site specific SCO of 1,000 ppm. Endpoint samples collected from capacitor locations CA-2 and CA-3 were below the NYSDEC RUSCO of 1.0 ppm for PCBs, while the endpoint sample from capacitor location CA-1 only slightly exceeded the NYSDEC RUSCO (1.2 ppm).

IRM excavation activities within the boatyard and capacitor locations generated a total of 227.23 tons of PCB impacted soils. Excavated soils were transported by a licensed waste hauler, and disposed of at CWM Chemical Services LLC in Model City, New York (USEPA ID: NYD049836679).

Upon completion of soil removal activities, excavation areas were backfilled with NYSDEC approved backfill material and capped with RCA. Additionally, a one foot high earthen berm constructed of NYSDEC approved backfill material and capped with RCA was installed at the eastern boundary of the boatyard to minimize overland runoff of storm water from the former Canine Kennel site into the boatyard.

4.0 CITIZEN PARTICIPATION ACTIVITIES

This section presents the specific citizen participation and outreach activities planned for implementation during the remedial program and to be implemented in accordance with 6 NYCRR Part 375. Operating under project-specific citizen participation goals, clearly defined objectives will be achieved by implementing a range of communication tools and methods. The planned activities are geared toward making project-specific information (e.g., work plans, technical reports, information sheet summaries) available to the public; facilitating communication among stakeholders including the creation of contact lists; scheduling and conducting public meetings; establishing comment periods; and notifying the public of document availability, public meetings, comment periods and major program milestones.

4.1 Goals and Objectives

The central goal of this CPP is to achieve effective, open communication among stakeholders and interested parties, SCDHS and the NYSDEC. Common goals include:

- Communicate program goals and major milestones, actions and outcomes.
- Inform citizens and others of ongoing project activities, status and progress.
- Provide citizens (and all stakeholders) a forum for input and comment.
- Engender a public understanding of constituents of interest, their potential effects on human health and the environment, and appropriate responses to mitigate those effects.

In order to accomplish these goals, the following specific objectives will be pursued through the implementation of this CPP:

- Consistently communicate goals, accomplishments and status of the project to the contact list (including community leaders, public officials and the wider community, as necessary) through appropriate means.
- Establish, maintain, update and utilize the contact lists.
- Educate the community, in lay terms, about the nature and magnitude of potential site risks, including instructions for mitigating risk (if appropriate) and assurances that the environment and worker/public health and safety are protected.
- Provide interested parties the opportunity to review and comment on technical reports generated through the remedial program (e.g., public comment periods and document repository as required by 6 NYCRR Part 375).
- Provide interested parties the opportunity to present opinions and ideas during the remedial program (e.g., conduct public meeting/comment period and availability session as required by 6 NYCRR Part 375).
- Provide responses to public review and comment (e.g., prepare a responsiveness summary as required

by 6 NYCRR Part 375).

- Provide the news media with interviews or press releases of National Grid authorized spokespersons, as available, to ensure accurate coverage of remedial program activities.
- Provide a designated project spokesperson as point of contact through which community inquiries regarding the project can be addressed consistently and effectively.
- Periodically review the effectiveness of the citizen participation and outreach activities during the remedial program and make adjustments in this CPP's methods and/or activities, if necessary.

The community contact list is provided in **Appendix A** and the former Canine Kennel Site management contacts (NYSDEC, NYSDOH and SCDHS representatives) are provided in **Appendix B**.

4.2 Tools and Methods

There are many ways to reach and communicate with the community and other interested parties as this CPP is implemented over the course of the remedial program. A variety of outreach tools and methods will be used to ensure proper communication with the interested parties that include various organizations, public and business leaders, and a diverse assemblage of individuals of all ages, education backgrounds and cultures.

Interested parties will be informed and invited to participate in the planned citizen participation activities through appropriate means such as mailings to the contact list, legal notice in newspapers, press releases, information sheets and other documents made available in the document repository.

The following specific public participation activities will be implemented as required by 6 NYCRR Part 375 and

4.2.1 *Document Repository*

A document Repositories has been established at the local public library which has agreed to maintain in one file all of the relevant documents related to the Site. The Document Repository is located at the Westhampton Free Library in Westhampton Beach, New York. Repository details are included in **Appendix C**.

The following documents, as available, will be placed in the Repository:

- Administrative Order on Consent
- Citizen Participation Plan
- Fact Sheet Announcing the Start of the Remedial Investigation
- Remedial Investigation Work Plan

- Remedial Investigation Report
- Reports of any Interim Remedial Measures
- Feasibility Study Report;
- Proposed Remedial Action Plan;
- Record of Decision (ROD);
- Remedial Design;
- Post-Remedial O&M Plan; and
- Other Materials (e.g., Information Sheets, Notices, etc.).

4.2.2 *Meetings, Meeting Fact Sheets and Comment Period*

After completion of the RI Report a Public Meeting was held to discuss its findings. After the Remedial Action Work Plan and Alternative Analysis (RAWP and AA) are completed, the preferred remedy for the site will be presented in a Proposed Remedial Action Program (PRAP) and will be subject to a 45-day public review and comment period followed by a public meeting. Legal notice of the Meetings will be published in the local newspaper, and Fact Sheets announcing the meetings and summarizing the documents will be prepared and disseminated to interested parties and the community. At the PRAP Public Meeting, remedial alternatives presented in the Alternative Analysis, the preferred remedy presented in the Proposed Remedial Action Program, costs, implementation schedules and criteria used in evaluating the preferred remedy will be discussed. After the PRAP comment period ends, NYSDEC and NYSDOH will review all public comments from the Public Meeting and submitted during the comment period and, where applicable, incorporate the comments into the Remedial Action Work Plan.

4.2.3 *Responsiveness Summary*

Public questions, comments and concerns voiced during the public meeting and collected during the comment period after the PRAP meeting will be addressed by the NYSDEC and published in the Remedial Action Program's Responsiveness Summary. Agency responses are to address both the broad general concerns and the significant questions communicated by the interested parties.

4.3 Roles and Responsibilities

The specific roles and associated responsibilities for implementing this CPP are:

- NYSDEC Remedial Project Manager - The NYSDEC Project Manager is responsible for enforcement, oversight and management of the overall remedial program. Typical citizen participation-related activities include making presentations at public meetings, reviewing project documents such as

information sheets and providing technical assistance in preparing the responsiveness summary or answering public inquiries.

- NYSDEC Citizen Participation Specialist - The Citizen Participation Specialist assists the project managers in implementing the CPP. Typical activities include preparation and/or review of information sheets and the responsiveness summary and coordination of public meetings and availability sessions.
- SCDHS Project Manager - The SCDHS Project Manager, in cooperation with the NYSDEC Project Manager, is responsible for implementing the overall remedial program at the site. Typical citizen participation-related activities include management of CPP implementation, presentations at public meetings and technical assistance to the NYSDEC Project Manager and Citizen Participation Specialist.

4.4 Schedule for Implementing Elements of the CPP

Implementing elements of this CPP will depend upon completion by SCDHS and final approval by the NYSDEC of various plans and reports, such as the RI Work Plan, RI Report, AA Report, Remedial Design, etc. Documents will be placed in the Document Repository upon completion for public review. Public comments and hearings will be scheduled on NYSDEC acceptance of the Remedial Investigation Report and NYSDEC completion of the Proposed Remedial Action Program. The Responsiveness Summary will be completed shortly after close of the public comment period. Distribution of Fact Sheets or information sheets will also occur after completion of significant remedial or IRM construction activities at the site.

5.0 SUMMARY

Guided by the goals and objectives of this CPP, implementation of the planned public outreach and citizen participation activities will ensure the timely communication of important program information of interest to the local community. Citizen involvement and interaction in the remedial program will be facilitated through specific opportunities such as public meetings, public comment periods, availability sessions and use of the Document Repository. Throughout the remedial program, this CPP and its specific outreach tools and methods will be monitored and, as required and agreed by the NYSDEC and SCDHS will be adjusted to improve its effectiveness in responding to community needs.

FIGURES

APPENDIX A
COMMUNITY CONTACT LIST

APPENDIX A – Community Contact List
Updated July 14, 2014

Government Officials

Suffolk County

County Executive
Steven Bellone
H. Lee Dennison Building
100 Veterans Highway
PO Box 6100
Hauppauge, New York 11788

Francis S. Gabreski Airport Manager
Anthony Ceglio
Francis S. Gabreski Airport
Administration Building # 1
Westhampton Beach, New York, 11978
631-852-8095

Southampton Town

Town Supervisor
Anna Throne-Holst
116 Hampton Road
Southampton, New York 11968
631-283-6000

Zoning Board of Appeals Chairperson
Herbert Phillips
116 Hampton Road
Southampton, New York 11968
631-287-5700 Ext. 271

Incorporated Village of Westhampton Beach

Village Mayor
Maria Z. Moore
165 Mill Road
Westhampton Beach, New York 11978
631-288-1654

Zoning Board of Appeals Chairman
Gerard Piering
165 Mill Road
Westhampton Beach, New York 11978

New York State Senator

Sen. Kenneth P. LaValle
28 North Country Rd Suite 203
Mount Sinai, New York 11766
631-473-1461

New York State Assemblyman

Fred W. Thiele, Jr.
Assembly District 1
2302 Main Street Box 3062
Bridgehampton, NY 11932
631-537-2583

United States Congress

Rep. Timothy Bishop
New York District 1
137 Hampton Road
Southampton, New York 11968
631-259-8450

Suffolk County Legislature

Leg. Jay Schneiderman
75 Washington Street, PO Box 1827
Sag Harbor, New York 11963
631-852-8400

Local Media

The Southampton Press
12 Mitchell Road
Westhampton Beach, New York 11978

Suffolk Life Newspapers
1461 Old Country Road
Riverhead, New York 11901

East End Independent
74 Montauk Highway, Suite 16
East Hampton, New York 11937

Dan's Papers
158 County Road 39
Southampton, New York 11968

Newsday
235 Pinelawn Road
Melville, New York 11747

News 12 Long Island
1 Media Crossways
Woodbury, New York 11797

Government Cable
Channel 22(Cablevision)
254 Old Country Road
Riverhead, New York 11901

Hamptons TV (WVVH)
Channel 78 (Cablevision)
Channel 14 (FiOS)
PO Box 769
Wainscott, New York 11975

Public Water Supplier
Suffolk County Water Authority
4060 Sunrise Highway, Suite 1000
Oakdale, New York 11769

Environmental Groups and other Interested Parties
Jonathan Hark
Eastern Suffolk BOCES
201 Sunrise Highway
Patchogue, New York 11772

Adjacent Residents, Tenants, or Property Owners

This segment of the Site's contact list is maintained in confidence in the NYSDEC official site file.

APPENDIX B
PROJECT MANAGEMENT CONTACT LIST

APPENDIX B – Project Management Contact List
Updated July 14, 2014

NYSDEC

Project Manager
Heather Bishop
Division of Environmental Remediation
Remedial Bureau A, 12th Floor
625 Broadway
Albany, New York 12233-7015
518-402-9625

Citizen Participation Specialist
William Fonda
NYSDEC Region 1
50 Circle Road
Stony Brook, New York
631-444-0350

NYSDOH

Steven Karpinski
NYSDOH
Flanagan Square
547 River Street
Troy, New York 12180-2216
1-800-458-1158 (ext. 27880)

SCDHS

James Meyers, PE
SCDHS
Office of Pollution Control
15 Horseblock Place
Farmingville, New York 11738

APPENDIX C
DOCUMENT REPOSITORY INFORMATION

APPENDIX C – Document Repository Information
Updated July 14, 2014

Westhampton Free Library
7 Library Avenue
Westhampton Beach, NY 11978
Attn: David Jones
631-288-3335
Hours:
Monday through Friday: 9:30AM to 9:00PM
Saturday: 9:30AM to 5:00PM
Sunday: 12:00PM to 4:00PM

NYSDEC Region One
50 Circle Road
Stony Brook, NY 11790-2356
Attn: William Fonda
631-444-0350
Hours:
Monday through Friday: 9:00AM to 5:00PM

APPENDIX F
PROJECT SCHEDULE

Appendix F
Estimated Project Schedule
Remedial Action Work Plan Implementation
Former Canine Kennel Site, Westhampton Beach New York
NYSDEC BCP ID: C152079
NYSDEC IHWDS ID: 152079

	Weeks																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Task	Mobilization																							
					Soil Excavation and Removal																			
													Endpoint Soil Sampling										
															Soil Excavation and Removal*/Cap Installaton									
																			Endpoint Soil Sampling*					
																					Demobilization			

*The need for additional soil excavtion/removal and endpoint sampling will be determined based upon the results of the initial endpoint sampling event