# PROPOSED REMEDIAL ACTION PLAN

Tee-Bird Country Club
State Superfund Project
Moreau, Saratoga County
Site No. 546028
February 2013

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

# PROPOSED REMEDIAL ACTION PLAN

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## SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), is proposing a remedy for the above referenced site. The disposal of hazardous wastes at the site has resulted in threats to public health and the environment that would be addressed by the remedy proposed by this Proposed Remedial Action Plan (PRAP). The disposal of hazardous wastes at this site, as more fully described in Section 6 of this document, has contaminated various environmental media. The proposed remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This PRAP identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for the preferred remedy.

The New York State Inactive Hazardous Waste Disposal Site Remedial Program (also known as the State Superfund Program) is an enforcement program, the mission of which is to identify and characterize suspected inactive hazardous waste disposal sites and to investigate and remediate those sites found to pose a significant threat to public health and environment.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York; (6 NYCRR) Part 375. This document is a summary of the information that can be found in the site-related reports and documents in the document repositories identified below.

## SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all PRAPs. This is an opportunity for public participation in the remedy selection process. The public is encouraged to review the reports and documents, which are available at the following repositories:

Crandall Public Library
251 Glen Street
Glens Falls, NY 12801
Phone: (518) 792-6508

Town of Moreau Office
61 Hudson Street
South Glens Falls, NY 12803
Phone: (518)792-1030

**A public comment period has been set from:**

**2/27/2013 to 3/28/2013**

**A public meeting is scheduled for the following date:**

**3/13/2013 at 6:00 PM**

**Public meeting location:**

**Town of Moreau, 61 Hudson St., South Glens Falls, NY 12803**

At the meeting, the findings of the remedial investigation (RI) and the feasibility study (FS) will be presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period will be held, during which verbal or written comments may be submitted on the PRAP.

Written comments may also be sent through 3/28/2013 to:

Alicia Thorne, P.E.
NYS Department of Environmental Conservation
232 Golf Course Rd
Warrensburg, NY 12885
ajthorne@gw.dec.state.ny.us

The Department may modify the proposed remedy or select another of the alternatives presented in this PRAP based on new information or public comments. Therefore, the public is encouraged to review and comment on the proposed remedy identified herein. Comments will be summarized and addressed in the responsiveness summary section of the Record of Decision (ROD). The ROD is the Department's final selection of the remedy for this site.

**Receive Site Citizen Participation Information By Email**

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

## SECTION 3: SITE DESCRIPTION AND HISTORY

Location: Tee-Bird Country Club is an active golf-course facility located at 8342 Reservoir Rd in a residential area of the Town of Moreau, Saratoga County.

Site Features: The site is the approximately 0.75-acre partially paved parking lot and adjacent areas of the parking lot of the Tee-Bird Country Club property.

Current Zoning/Use: Tee-Bird Country club is an active golf-course facility and is currently zoned commercial use.

Past Uses of the Site: In the late 1970s, polychlorinated biphenyl (PCB) contaminated waste oils were sprayed onto the surface of the driveway and parking lot for dust control. The detection of PCBs and pesticides in the soil and execution of the referenced agreement led to this site being classified as a Class 3 Inactive Hazardous Waste Disposal Site (No. 546028) by the NYSDEC in 1984. Subsequent to this, numerous inspections and soil sampling events were performed by the NYSDEC. The inspection and sampling results indicated that the sitewide PCB concentrations under and beyond the paved areas of the parking lot revealed that a comprehensive investigation of the unpaved areas and the adjacent pond and stream was necessary to determine the nature and extent of site contamination. In response, on March 22, 2005 NYSDEC reclassified the site from Class 3 to Class 2, indicating the site presents a significant threat to public health or the environment, and action is required.

Site Geology and Hydrogeology: Site soils consist of approximately two feet of top soil or fill, overlying glaciolacustrine deposits, which primarily consist of silt and clay, with some areas of surficial layers of sand. Ordovician-aged Canajoharie shale bedrock is approximately at depths of 50 feet or more. Depth to groundwater is approximately 7.5 to 10 ft and groundwater flow on-site is generally towards the southeast. A small man-made pond is located on-site, and groundwater appears to be locally recharged by the pond.

A site location map is attached as Figure 1.

## SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to commercial use (which allows for industrial use) as described in Part 375-1.8(g) are/is being evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the investigation to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is included in the Tables for the media being evaluated in Exhibit A.

## SECTION 5: ENFORCEMENT STATUS

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

The PRPs for the site, documented to date, include:

Tee Bird Country Club, Inc.

The Department and Tee-Bird Country Club Inc. entered into a Remedial Investigation/Feasibility Study (RI/FS) Only Consent Order with NYSDEC on December 11, 2007. The Order obligates the responsible parties to implement an RI/FS only. After the remedy is selected, the Department will approach the PRPs to implement the selected remedy. If an agreement cannot be reached with the PRPs, the Department will evaluate the site for further action under the State Superfund. The PRPs are subject to legal actions by the state for recovery of all response costs the state has incurred.

## SECTION 6: SITE CONTAMINATION

### 6.1: Summary of the Remedial Investigation

A Remedial Investigation (RI) has been conducted. The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The field activities and findings of the investigation are described in the RI Report.

The following general activities are conducted during an RI:

- Research of historical information,
- Geophysical survey to determine the lateral extent of wastes,
- Test pits, soil borings, and monitoring well installations,
- Sampling of waste, surface and subsurface soils, groundwater, and soil vapor,
- Sampling of surface water and sediment,
- Ecological and Human Health Exposure Assessments.

The analytical data collected on this site includes data for:

- groundwater
- drinking water
- soil
- sediment

### 6.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. The tables found in Exhibit A list the applicable SCGs in the footnotes. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

### 6.1.2: RI Results

The data have identified contaminants of concern. A "contaminant of concern" is a hazardous waste that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized in Exhibit A. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

POLYCHLORINATED
BIPHENYLS (PCB)

As illustrated in Exhibit A, the contaminant(s) of concern exceed the applicable SCGs for:

- soil

## 6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Record of Decision.

There were no IRMs performed at this site during the RI.

## 6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water.

Based upon the resources and pathways identified and the toxicity of the contaminants of ecological concern at this site, a Fish and Wildlife Resources Impact Analysis (FWRIA) was deemed not necessary.

The RI documented that the contaminant of concern on-site is polychlorinated biphenyls (PCBs), which were detected significantly above the soil cleanup objective (SCO) for commercial use (1.0 ppm) in the surface soil and subsurface soil beneath and immediately adjacent to the partially paved parking lot. Concentrations of PCBs found on-site ranged from 0.1 ppm to 553 ppm. The depth of contamination is limited to approximately 2-3 feet deep. The distribution pattern and decreasing concentration of contamination with depth is consistent with the historical practices of surface application of waste oils for dust control.

The site presents a significant environmental threat due to the uncontrolled releases of contaminants from source areas (surface and subsurface soils adjacent and beneath the partially paved parking lot).

### 6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure.*

In the areas where contaminated soil exists, persons could contact contaminants by walking on exposed soil, digging or otherwise disturbing the soil.

### 6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

**Soil**

**RAOs for Public Health Protection**

- Prevent ingestion/direct contact with contaminated soil.

**RAOs for Environmental Protection**

- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

## SECTION 7: SUMMARY OF THE PROPOSED REMEDY

To be selected, the remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. The remedy must also attain the remedial action objectives identified for the site, which are presented in

Section 6.5. Potential remedial alternatives for the Site were identified, screened and evaluated in the FS report.

A summary of the remedial alternatives that were considered for this site is presented in Exhibit B. Cost information is presented in the form of present worth, which represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved. A summary of the Remedial Alternatives Costs is included as Exhibit C.

The basis for the Department's proposed remedy is set forth at Exhibit D.

The proposed remedy is referred to as the Excavation to CP-51, Institutional Controls and Site Management Plan remedy.

The estimated present worth cost to implement the remedy is $340,000. The cost to construct the remedy is estimated to be $340,000 and the estimated average annual cost is $2,000.

The elements of the proposed remedy are as follows:

1. Remedial Design
A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:
•Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
•Reducing direct and indirect greenhouse gas and other emissions;
•Increasing energy efficiency and minimizing use of non-renewable energy;
•Conserving and efficiently managing resources and materials;
•Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
•Maximizing habitat value and creating habitat when possible;
•Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
•Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation
Site specific soil cleanup levels based upon Commissioner Policy CP-51 Presumptive Remedy for PCB contaminated soils relevant to the planned use of the site will be used to guide excavation of contaminated soils. On-site soils which exceed the site specific cleanup levels will be excavated and transported off-site for disposal at a permitted facility.

Approximately 1000 cubic yards of soil will be removed. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site. For any area where site redevelopment does not consist of structures such as buildings, pavement, sidewalks, then the one foot of soil backfill will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer.

3. Institutional Controls

Imposition of an institutional control in the form of an environmental easement for the controlled property that:

•requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);

•allows the use and development of the controlled property for commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws; and

•requires compliance with the Department approved Site Management Plan.

4. Site Management Plan

A Site Management Plan is required, which includes the following:

a. An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls discussed above remain in place and effective. This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use restrictions;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. Monitoring Plan to ensure that the cover system is in place.

**Exhibit A**

## Nature and Extent of Contamination

This section describes the findings of the Remedial Investigation for all environmental media that were evaluated. As described in Section 6.1, samples were collected from various environmental media to characterize the nature and extent of contamination.

For each medium for which contamination was identified, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants are arranged into one category; pesticides/ polychlorinated biphenyls (PCBs). For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use. For soil, if applicable, the Restricted Use SCGs identified in Section 4 and Section 6.1.1 are also presented.

### Groundwater/Drinking Water

No site-related groundwater or drinking water contamination of concern was identified during the RI. Therefore, no remedial alternatives need to be evaluated for groundwater or drinking water.

### Soil

Surface and subsurface soil samples were collected at the site during the RI. Three surface soil samples were collected from a depth of 0-2 inches to assess direct human exposure. Of the three surface soil samples collected, two were non-detect and the third had a detection of PCBs at 0.364 ppm, which is above the unrestricted use SCG but well below the commercial use SCO. Ninety five (95) subsurface soil samples were collected from a depth of 0 - 6 feet to assess soil contamination impacts to groundwater. RI findings indicate that the primary soil contaminant are PCBs, which were detected significantly above the unrestricted and commercial SCG in the surface soil and subsurface soil beneath and immediately adjacent to the partially paved parking lot. As indicated in Table 1, concentrations of PCBs detected on-site ranged from 0.1 ppm to 553 ppm, with 31 of the 98 soil samples exceeding the unrestricted SCG while 19 of the 98 soil samples exceeded the commercial use SCG. The depth of contamination is limited to approximately 2 to 3 feet deep. The distribution pattern and decreasing concentration of contamination with depth is consistent with the historical practices of surface application of PCB contaminated waste oils for dust control. Figure 3 presents the nature and extent of PCB soil contamination.

**Table 1 - Soil**

| Detected Constituents | Concentration Range Detected (ppm)[a] | Unrestricted SCG[b] (ppm) | Frequency Exceeding Unrestricted SCG | Commercial Use SCG[c] (ppm) | Frequency Exceeding Commercial Use SCG |
|---|---|---|---|---|---|
| **Pesticides/PCBs** | | | | | |
| PCBs | 0.04 to 553 | 0.1 | 31 of 98 | 1.0 | 19 of 98 |

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.
c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Commercial Use, unless otherwise noted.

Based on the findings of the Remedial Investigation the past disposal of hazardous waste has resulted in the contamination of soil. The site contaminants identified in soil which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process are PCBs.

## Sediments

Ten (10) sediment samples were collected during the RI from the on-site pond and at locations upstream and downstream of the small unnamed stream that inflows and discharges from the pond. The small unnamed stream is classified as C(T), meaning that it is a classified as a waterway that's best use is supportive of fisheries and may support a trout population. The samples were collected to assess the potential for impacts to the stream and pond from the site. The stream sediment samples were collected to a depth of 0.5 ft, while the pond samples were collected from three depths: 0 to 0.5 feet, 0.5 to 1.0 ft, and 1.0 to 1.5 ft depth.

**Table 2 - Sediment**

| Detected Constituents | Concentration Range Detected (ppm)[a] | SCG[b] (ppm) | Frequency Exceeding SCG | Site Derived Value[c] (ppm) | Frequency Exceeding Site Derived Value |
|---|---|---|---|---|---|
| **Pesticides/PCBs** | | | | | |
| PCBs | 0 – 0.0448 | 0.050 | 0 of 10 | 0.035 | 1 of 10 |

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in sediment;
b - SCG: Technical Guidance for Screening Contaminated Sediments, screening value from Long and Morgan."
c – Site Derived Value: A bioaccumulation value based on the partition co-efficient and organic carbon content of the sediment.

The primary sediment contaminant is PCBs, associated with the past practices of parking lot surface application of PCB contaminated waste oils for dust control. As noted on Figure 4, the only PCB sediment contamination sampled was detected in the most downgradient sample of the pond. Because PCBs were not detected in any of the other sediment samples indicates that the lateral and vertical extent of PCB contamination is limited in the 0.4 acre pond.

PCBs were not found in any of the samples at levels above the screening criteria of 0.050 ppm. The level of PCBs detected in the sediment did not exceed guidance levels for benthic aquatic chronic or acute exposure. A site specific criterion was calculated for bioaccumulation based on the total organic content of the sediments and the partition co-efficient for PCB. Only one sample, at 0.045 ppm, exceeded the site derived value of 0.035 ppm. Given the number of samples, the size of the area, and the small margin of exceedence for the site derived value, PCBs in sediment is not considered a site specific contaminant of concern. Therefore, no remedial alternatives need to be evaluated for sediment.

**Exhibit B**

**Description of Remedial Alternatives**

The following alternatives were considered based on the remedial action objectives (see Section 6.5) to address the contaminated media identified at the site as described in Exhibit A.

**Alternative 1: No Action**

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative leaves the site in its present condition and does not provide any additional protection to public health and the environment.

**Alternative 2: Excavation to CP-51 Section I, Institutional Controls, Site Management Plan**

This alternative includes excavation and off-site disposal of all soil contamination above the site specific soil clean up levels for PCBs, as defined by Commissioner Policy CP-51, implementation of institutional controls, and a site management plan preventing exposures to contamination on site above the commercial use SCG. The Commissioner Policy CP-51 Section I definition of the cleanup level for PCBs is 1 ppm in surface soils (to one foot depth) and 10 ppm in subsurface soils (below one foot depth). Approximately 1000 cubic yards of soil will be removed from the site. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site. For any area where site redevelopment does not consist of structures such as buildings, pavement, sidewalks, then the one foot of soil backfill will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. The estimated present worth cost to implement the remedy is $340,000. The cost to construct the remedy is estimated to be $340,000 and the estimated average annual cost is $2000. This remedy also includes imposition of an institutional control in the form of an environmental easement for the controlled property and development of a site management plan.

*Present Worth:* ..... *$340,000*
*Capital Cost:* ..... *$340,000*
*Annual Costs:* ..... *$2000*

**Alternative 3: Restoration to Pre-Disposal or Unrestricted Conditions**

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and soil meets the unrestricted soil clean objectives listed in Part 375-6.8 (a). This alternative includes excavation and off-site disposal of all waste and soil contamination above the unrestricted SCO for PCBs which is 0.1 ppm. The time to implement the remedy is estimated to be approximately two weeks. The cost to construct the remedy is estimated to be approximately $650,000. The estimated average annual cost is $0, therefore the present worth cost to implement the remedy is $650,000.

*Capital Cost:* ..... *$650,000*

**Exhibit C**

## Remedial Alternative Costs

| Remedial Alternative | Capital Cost ($) | Annual Costs ($) | Total Present Worth ($) |
|---|---|---|---|
| No Action | 0 | 0 | 0 |
| Alternative 2: Excavation to CP-51 Section I, Institutional Controls, Site Management Plan | $340,000 | 0 | $340,000 |
| Alternative 3: Restoration to Pre-Disposal or Unrestricted Conditions | $650,000 | 0 | $650,000 |

**Exhibit D**

## SUMMARY OF THE PROPOSED REMEDY

The Department is proposing Alternative 2, Excavation to CP-51 Section I, Institutional Controls, Site Management Plan as the remedy for this site. Alternative 2 achieves the remediation goals for the site by eliminating any exposure of soil contamination on site above the site specific commercial use SCGs. The elements of this remedy are described in Section 7. The proposed remedy is depicted in Figure 5.

### Basis for Selection

Alternative 2, Excavation to CP-51 Section I, Institutional Controls, Site Management Plan is the preferred remedy in that it best fits the all of the remedy selection criteria. The Department believes that this remedy is protective of human health and the environment, and satisfies the remediation objectives listed in Section 6.5. Alternative 2 also meets the Department's goal of green remediation by minimizing the environmental footprint of remediation, providing less disruption to the environment, and generating less soil waste. Alternative 3 requires significantly more natural resources (backfill) and non-renewable energy (equipment operation) to implement.

Alternative 3 (Restoration to Predisposal Conditions), by removing all soil contaminated above the unrestricted use soil cleanup objectives for the contaminants of concern above SCGs, meets the threshold criteria, but is not as easily implementable as Alternative 2.

Alternative 2 is being proposed because, as described below, it satisfies the threshold criteria and provides the best balance of the balancing criterion described in Section 7.2. It would achieve the remediation goals for the site by removing potential exposure routes to public users.

Because Alternatives 2 and 3 satisfy the threshold criteria, the remaining criteria are particularly important in selecting a final remedy for the site. Both Alternatives 2 and 3 have short-term impacts which could easily be controlled. However, Alternative 3 has a more significant short-term impact due to the greater amount of earthwork required for soil excavation, disposal and backfill. However, the time needed to achieve the remediation goals is slightly longer for Alternative 3 compared to Alternative 2, since Alternative 3 requires more significant construction activity (e.g., additional excavation) to achieve pre-disposal conditions. The long-term effectiveness and permanence is similar for Alternatives 2 and 3. Alternative 3 returns the site to unrestricted use, while Alternatives 2 results in returning the site to commercial use, the proposed future use of the site. Alternative 2 requires an environmental easement to limit the land use to commercial.

The cost difference between Alternative 2 and 3 is significant. Excavation and disposal of all on-site contamination is approximately twice as expensive as excavating to CP-51 site specific soil cleanup levels for the site. Therefore, Alternative 2 is the most cost effective remedy for the site.

The proposed remedy is based on the results of the RI and the evaluation of alternatives. The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375. A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

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

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

The proposed remedy (Alternative 2) satisfies this criterion by eliminating the potential exposure to contaminated soils on-site. Alternative 1 (No Action) does not provide any protection to public health and the environment and will not be evaluated further. Alternative 3, by removing all soil contaminated above the "unrestricted" soil cleanup objective, meets the threshold criteria.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

Both Alternatives 2 and 3 comply with SCGs to the extent practicable. Alternative 2 complies with the restricted use soil cleanup objectives by removing all soil contaminated above the site specific soil cleanup levels, while Alternative 3, by removing all soil contaminated above the "Unrestricted" soil cleanup objective, complies with the SCGs also.

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

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

Long-term effectiveness is best accomplished by Alternative 3, through excavation and off-site disposal of all contaminated soils. Alternative 2, through excavation and off-site disposal of contaminated soils above the site specific soil cleanup levels, site management plan and an environmental easement limits the potential for exposure to contaminated soils on-site.

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

Alternative 2, through excavation of contaminated soils above site specific commercial use SCOs, reduces the toxicity, mobility and volume of contaminants, and requires institutional controls in the form of an environmental easement to controls potential exposures. Alternative 3, which achieves pre-disposal conditions, will provide some additional reduction in the toxicity, mobility and volume of on-site waste by transferring the material to an approved off-site location but with only a marginal increase in the protectiveness of the remedy with a greater commitment of resources.

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

Both Alternatives 2 and 3 have short-term impacts which could easily be controlled through dust control measures and community air monitoring plans. Alternative 2 results in the least impact as it requires a lesser amount of soil disturbance. The time needed to achieve the remediation goals is the shortest for Alternative 2 and slightly longer for Alternative 3.

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

Both Alternative 2 and 3 are readily implementable. Alternative 3 requires a larger volume of soil excavated, thereby necessitating slightly increased truck traffic on local roads and slightly longer project duration.

7. Cost-Effectiveness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision.

The costs of the alternatives vary significantly. Alternative 2 has a lower cost to implement of the alternatives evaluated. With its larger volume of soil to be handled, Alternative 3 (excavation and off-site disposal) has a significantly higher present worth cost, at approximately twice the cost, with little additional limitation on exposure.

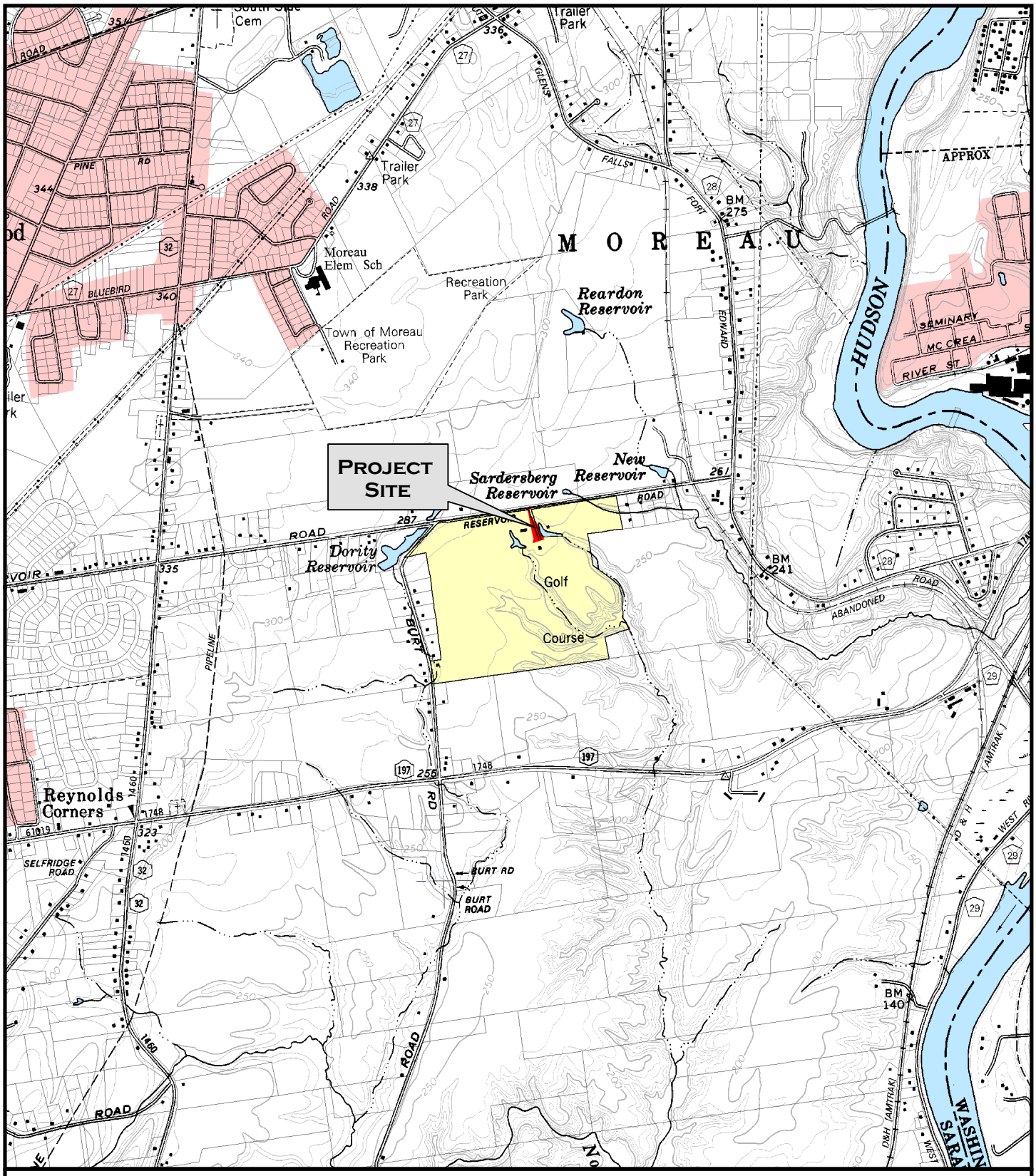
8. Land Use. When cleanup to pre-disposal conditions is determined to be infeasible, the Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

Alternative 2 complies with the anticipated use of the site as commercial, but requires an environmental easement. Alternative 3 removes or treats all of the contaminated soil permanently therefore it does not require an environmental easement to restrict the land use.

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

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes

Alternative 2 is being proposed because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion.




# Figure 1
## Site Location Map
# Tee Bird Country Club

Town of Moreau
Saratoga County, New York

Prepared by: Delaware Engineering, P.C., December 2011
Source: NYS DOT 7.5' Digital Ortho Quads:
Glens Falls (N49), Hudson Falls (N50), Gansevoort (O49) and Fort Miller (O50)
Saratoga County Digital Tax Parcels, 2011


ALPHA GEOSCIENCE
Proj. No. 05132

FIGURE 2
Site Map

Tee Bird Country Club, Inc.
Town of Moreau, New York

Saratoga County, New York

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# TEE BIRD COUNTRY CLUB
TOWN OF MOREAU, NEW YORK

## FIGURE 3
Extent of PCB Soil Contamination

### TOTAL PCBs (MG/KG)

| ID | SAMPLE DEPTH | | | | | |
|---|---|---|---|---|---|---|
| | 0-1 | | 1-2 | | 2-3 | |
| | 0-0.5' | 0.5-1' | 1-1.5' | 1.5-2' | 2-2.5' | 2.5-3' |
| SS-01 | 544 | | 0.71 | | 0 | |
| SS-02 | 39.4 | | 1.18 | | 0.04 | 0.1 |
| SS-03 | 553 | | 0.41 | | 0.04 | |
| SS-04 | 0.15 | | 0 | | 0 | |
| SS-05 | 74.4 | | 3.07 | | 0.25 | |
| SS-06 | 5.28 | | 0 | | 0 | |
| SS-07 | 8.38 | | 0.17 | | 0 | |
| SS-08 | 38 | | 0.04 | | 0 | |
| SS-09 | 44.6 | | 0 | | 0 | |
| SS-10 | 7.47 | | 0 | 0 | | |
| SS-11 | 0 | | 0 | | 0 | |
| SS-12 | 0.05 | | 0 | | 0 | |
| SS-13 | 0 | | 0 | | 0 | |
| SS-14 | 0 | | 0 | | 0 | |
| SS-15 | 0 | | 0 | 0 | | |
| SS-16 | 0 | | 0 | 0 | | |
| SS-17 | 0 | | 0 | | 0 | |
| SS-18 | 0 | 0 | 0 | | | |
| SS-19 | 0 | | 0 | | 0 | |
| SS-20 | 0 | | 0 | 0 | | |
| SS-21 | 13.1 | | 36.4 | | 30.4 | |
| SS-22 | 0 | | 0 | | 0 | |
| SS-23 | 0.12 | | 0 | | 0 | |
| SS-24 | 0.43 | | 0 | | | |
| SS-25 | 10.2 | | 1.63 | | 0.2 | |
| SS-26 | 0.16 | | 0 | | 0 | |
| SS-27 | 0 | | 0 | | 0 | |
| SS-28 | 0 | | 0.05 | | 0 | |
| SS-29 | 0 | | 0 | | 0 | |
| SS-30 | 0 | | 0 | | 0 | |

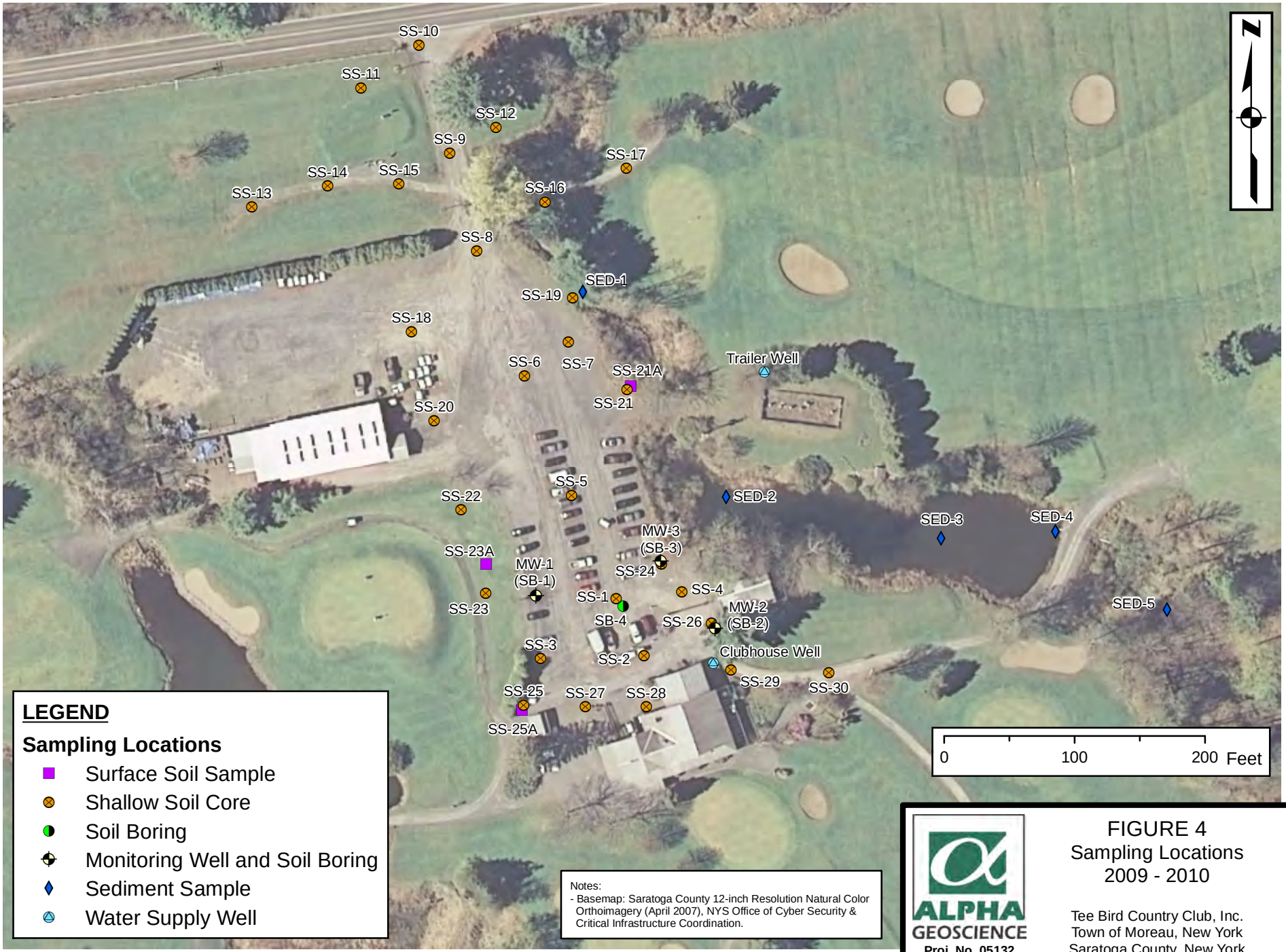
### LEGEND

- Monitoring Well and Soil Boring
- Water Supply Well
- Shallow Soil Core
- Extent of Pavement
- 1 Ft Depth of PCB Contamination
- 2 Ft Depth of PCB Contamination
- 3 Ft Depth of PCB Contamination

N

0 30 60 120 180 Feet

Prepared by: Delaware Engineering, P.C., November 2011
Sources: NYS Digital Ortho Imagery, Spring 2007
Remedial Investigation Report, Tee Bird Country Club, prepared by Alpha GeoScience, 2011

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# FIGURE 4
## Sampling Locations
## 2009 - 2010

Tee Bird Country Club, Inc.
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Saratoga County, New York

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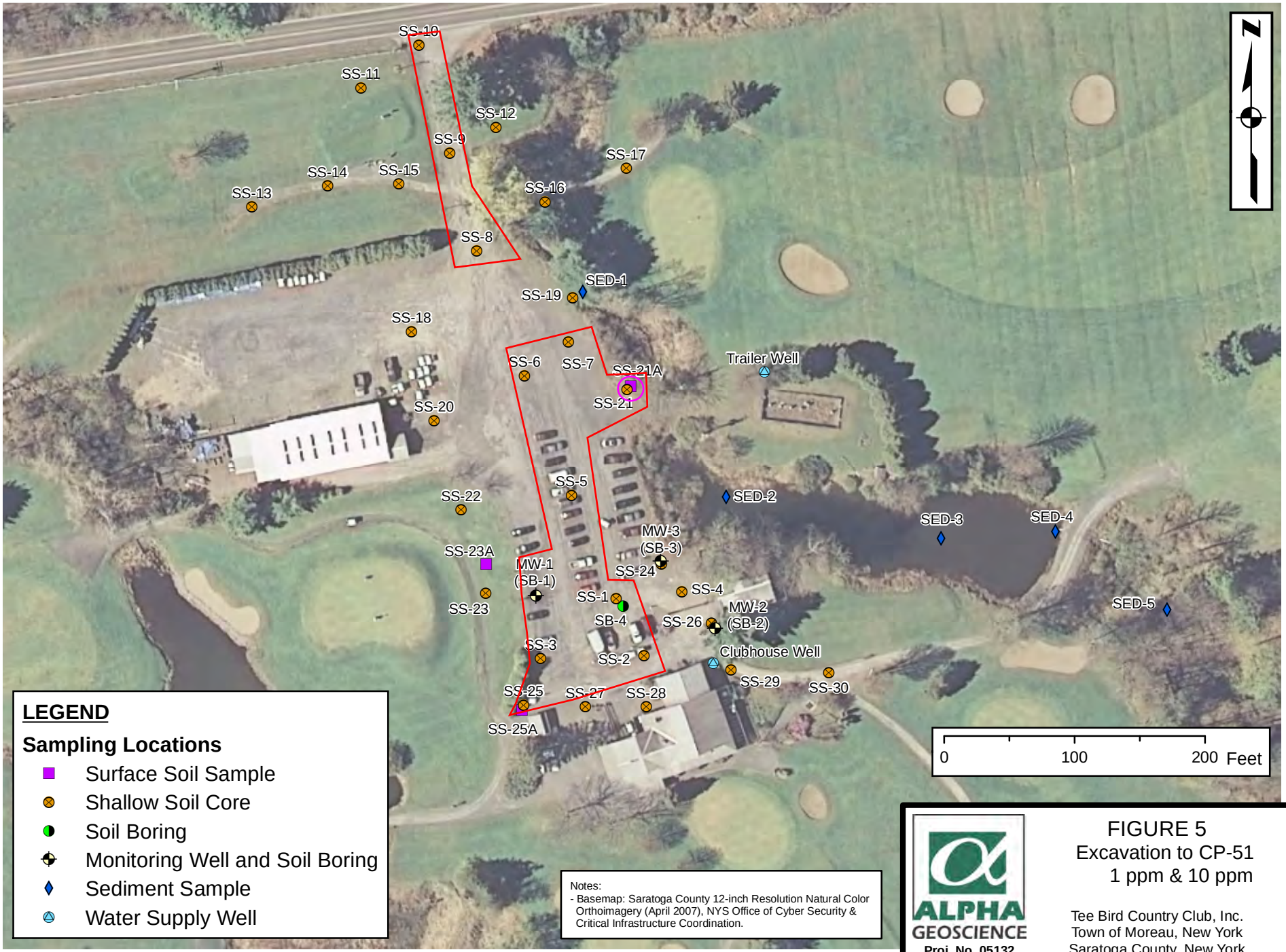


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FIGURE 5
Excavation to CP-51
1 ppm & 10 ppm

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Saratoga County, New York

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