



**REMEDIAL ACTION WORK PLAN  
FOR OPERABLE UNITS 1B, 1C, 2, AND 3**

**Concord Hotel and Resort  
Brownfield Cleanup Program Site #C353008  
Town of Thompson, Sullivan County, New York**

**Prepared For:**

**CONCORD ASSOCIATES, LP  
115 Stevens Avenue  
Valhalla, New York 10595**

**Prepared By:**

**SESI CONSULTING ENGINEERS, P.C.  
12A Maple Avenue  
Pine Brook, NJ 07058**

**Project No.: N-7180**

**December 5, 2008**

## CERTIFICATIONS

I, Michael St. Pierre, am currently a registered professional engineer licensed by the State of New York. I have primary direct responsibility for implementation of the remedial program for the Concord Hotel and Resort Site (NYSDEC BCA Index No. W3-1004-04-06 Site No. C353008).

I certify that the Site description presented in this RAWP is identical to the Site descriptions presented in the Brownfield Cleanup Agreement for Concord Hotel and Resort and related amendments.

I certify that this plan includes proposed use restrictions, Institutional Controls, Engineering Controls, and plans for all operation and maintenance requirements applicable to the Site and provision for development of an Environmental Easement to be created and recorded pursuant ECL 71-3605. This RAWP requires that all affected local governments, as defined in ECL 71-3603, will be notified that such Easement has been recorded. This RAWP requires that a Site Management Plan must be submitted by the Applicant for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site, including the proper maintenance of all remaining monitoring wells, for approval by the Department.

I certify that this RAWP has a plan for transport and disposal of all soil, fill, fluids and other material removed from the property under this Plan, and that all transport and disposal will be performed in accordance with all local, State and Federal laws and requirements. All exported material will be taken to facilities licensed to accept this material in full compliance with all Federal, State and local laws.

I certify that this RAWP has a plan for import of all soils and other material from off-Site and that all activities of this type will be in accordance with all local, State and Federal laws and requirements.

I certify that that this RAWP has a plan for nuisance control during the remediation and all invasive development work, including a dust, odor and vector suppression plan and that such plan is sufficient to control dust, odors and vectors and will prevent nuisances from occurring.

I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

<u>080271</u>	_____	_____
NYS Professional Engineer #	Date	Signature

It is a violation of Article 130 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 130, New York State Education Law.

# REMEDIAL ACTION WORK PLAN

## TABLE OF CONTENTS

<b>CERTIFICATIONS</b> .....	<b>I</b>
<b>LIST OF ACRONYMS AND ABBREVIATIONS</b> .....	<b>VIII</b>
<b>EXECUTIVE SUMMARY</b> .....	<b>1</b>
<b>1.0 INTRODUCTION</b> .....	<b>4</b>
1.1 SITE LOCATION AND DESCRIPTION .....	5
1.2 SITE HISTORY .....	5
1.2.1 Past Uses and Ownership .....	5
1.2.2 Phase I and Phase II Reports.....	5
1.3 CONTEMPLATED REDEVELOPMENT PLAN .....	6
1.4 DESCRIPTION OF SURROUNDING PROPERTY .....	6
<b>2.0 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS</b> .....	<b>7</b>
2.1 GEOLOGICAL CONDITIONS .....	7
2.2 DESCRIPTION OF THE AREAS OF CONCERN .....	8
2.2.1 Gas Station (OU-1B).....	8
2.2.2 International Golf Clubhouse (OU-1C).....	9
2.2.3 Golf Maintenance Building (OU-2).....	10
2.2.4 International Golf Course Disposal Area (OU-3).....	14
2.3 CONCEPTUAL MODEL OF SITE CONTAMINATION .....	15
2.4 ENVIRONMENTAL AND PUBLIC HEALTH ASSESSMENTS.....	18
2.4.1 Qualitative Human Health Exposure Assessment.....	18
2.4.2 Fish & Wildlife Remedial Impact Analysis.....	18
2.5 SIGNIFICANT THREAT .....	19
2.6 REMEDIAL ACTION OBJECTIVES.....	19
2.6.1 Groundwater.....	19
2.6.2 Soil .....	19
2.6.3 Surface Water and Sediment.....	20
<b>3.0 DESCRIPTION OF REMEDIAL ACTION PLAN</b> .....	<b>20</b>
3.1 IDENTIFICATION OF STANDARDS, CRITERIA AND GUIDANCE .....	20
3.2 EVALUATION OF REMEDIAL ALTERNATIVES.....	20
3.3 SELECTION OF THE PREFERRED REMEDY .....	23
3.4 SUMMARY OF SELECTED REMEDIAL ACTIONS .....	25
3.4.1 Operable Unit 1B – Gas Station and Disposal Area .....	25
3.4.2 Operable Unit 1C – International Golf Clubhouse and Maintenance Building Area.....	25
3.4.3 Operable Unit 2 – Golf Maintenance Building & Adjacent Disposal Area .....	25
3.4.4 Operable Unit 3 – International Golf Course Disposal Area.....	26
<b>4.0 REMEDIAL ACTION PROGRAM</b> .....	<b>27</b>
4.1 GOVERNING DOCUMENTS .....	27
4.1.1 Site Specific Health & Safety Plan (HASP).....	27

4.1.2	Quality Assurance Project Plan (QAPP).....	27
4.1.3	Construction Quality Assurance Plan (CQAP) .....	28
4.1.4	Soil/Materials Management Plan (SoMP) .....	28
4.1.5	Storm-Water Pollution Prevention Plan (SWPPP).....	28
4.1.6	Community Air Monitoring Plan (CAMP).....	28
4.1.7	Contractors Site Operations Plan (SOP);.....	28
4.1.8	Community Participation Plan .....	29
4.2	GENERAL REMEDIAL CONSTRUCTION INFORMATION .....	29
4.2.1	Project Organization.....	29
4.2.2	Remedial Engineer .....	29
4.2.3	Remedial Action Construction Schedule .....	30
4.2.4	Work Hours .....	30
4.2.5	Site Security .....	30
4.2.6	Traffic Control .....	31
4.2.7	Contingency Plan .....	31
4.2.8	Worker Training and Monitoring.....	31
4.2.9	Agency Approvals .....	31
4.2.10	NYSDEC BCP Signage .....	31
4.2.11	Pre-Construction Meeting with NYSDEC.....	31
4.2.12	Emergency Contact Information.....	32
4.2.13	Remedial Action Costs .....	32
4.3	SITE PREPARATION .....	32
4.3.1	Mobilization .....	32
4.3.2	Erosion and Sedimentation Controls.....	32
4.3.3	Stabilized Construction Entrance(s) .....	32
4.3.4	Utility Marker and Easements Layout .....	32
4.3.5	Sheeting and Shoring.....	33
4.3.6	Equipment and Material Staging.....	33
4.3.7	Decontamination Area.....	33
4.3.8	Site Fencing.....	33
4.3.9	Demobilization.....	34
4.4	REPORTING.....	34
4.4.1	Daily Reports.....	34
4.4.2	Monthly Reports .....	35
4.4.3	Photo Documentation.....	35
4.4.4	Complaint Management Plan.....	35
4.4.5	Deviations from the Remedial Action Work Plan.....	36
<b>5.0</b>	<b>PROPOSED REMEDIAL ACTION.....</b>	<b>36</b>
5.1	UST CLOSURE/REMOVAL.....	36
5.2	CONTAMINATED SOIL EXCAVATION .....	36
5.3	REMEDIAL PERFORMANCE EVALUATION (POST EXCAVATION END-POINT SAMPLING).....	37
5.3.1	End-Point Sampling Frequency .....	37
5.3.2	Methodology .....	37
5.3.3	Reporting of Results.....	37
5.3.4	QA/QC.....	38

5.3.5 DUSR .....	38
5.3.6 Reporting of End-Point Data in FER .....	38
<b>6.0 ENGINEERING CONTROLS .....</b>	<b>38</b>
6.1 COMPOSITE COVER SYSTEM .....	38
6.2 GROUNDWATER MONITORING SYSTEM .....	38
6.3 CRITERIA FOR COMPLETION OF REMEDIATION/TERMINATION OF REMEDIAL SYSTEMS .....	39
<b>7.0 WETLANDS/WETLANDS BUFFER RESTORATION.....</b>	<b>39</b>
<b>8.0 RESIDUAL CONTAMINATION TO REMAIN ON-SITE.....</b>	<b>39</b>
<b>9.0 INSTITUTIONAL CONTROLS .....</b>	<b>40</b>
9.1 ENVIRONMENTAL EASEMENT .....	40
9.2 SITE MANAGEMENT PLAN .....	42
<b>10.0 FINAL ENGINEERING REPORT .....</b>	<b>43</b>
10.1 CERTIFICATIONS.....	45
<b>11.0 SCHEDULE.....</b>	<b>46</b>
<b>12.0 REFERENCES .....</b>	<b>46</b>

## LIST OF FIGURES

Figure 1 – USGS Topographic Map

Figure 2 – Site Map/Boundary Map

Figure 3 – Redevelopment Plan

Figure 4A-D – Geological Sections

Figure 5A-C – Groundwater Flow Contours

Figure 6A-C – Location of Exceedances of Proposed Remedial SCOs

Figure 7A-C – Exceedances of Groundwater GA Standards

Figure 8A-C – Locations of Contaminated Soil Excavation

Figure 9A-B – Long-Term Monitoring Well Network Plan

## LIST OF TABLES

- Table 1 – Sampling Summary Table
- Table 2A-D – Exceedances of Soil/Fill SCOs
- Table 3A-D – Exceedances of Groundwater GA Standards
- Table 4 – Soil Vapor Data
- Table 5 - Applicable Remedial Reference/Guidance Documents
- Table 6 –Soil Cleanup Objectives
- Table 7 – Project personnel
- Table 8– Remedial Action Schedule
- Table 9 – Emergency Contact Numbers
- Table 10 – Estimated Costs for Remedial Activity
- Table 11 – Volume, Location, Depth, and Concentration of Contamination
- Table 12 – Backfill Chemical Analysis for Imported Soil

## LIST OF APPENDICES

Appendix 1 – Metes and Bounds

Appendix 2 – Boring and Groundwater Monitoring Well Construction Logs

Appendix 3 – Health and Safety Plan

Appendix 4 – Quality Assurance Project Plan

Appendix 5 – Construction Quality Assurance Plan

Appendix 6 - Soil/Materials Management Plan

Appendix 7 – Storm-Water Pollution Prevention Plan – OU-1B and OU-1C (OU-2 and OU-3 SWPPP to be submitted as an addendum prior to the start of work)

Appendix 8 – Community Air Monitoring Plan

Appendix 9 – Site Operations Plan (to be provided by Site contractor prior to start of work)

Appendix 10 – Community Participation Plan



## LIST OF ACRONYMS AND ABBREVIATIONS

Acronym	Definition
AOC	Area of Concern
AST	Aboveground Storage Tank
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
bgs	below ground surface
CAMP	Community Air Monitoring Plan
C&D	Construction & Demolition Materials
COC	Contaminant of Concern
COPEC	Constituents of Potential Ecological Concern
cy	cubic yard
DER	Division of Environmental Remediation
DER-10	NYSDEC Technical Guidance for Site Investigation & Remediation
DUSR	Data Usability Summary Report
ECs	Engineering Controls
ECL	Environmental Conservation Law
ESA	Environmental Site Assessment
FER	Final Engineering Report
FWRIA	Fish and Wildlife Resources Impact Analysis
gpm	gallons per minute
HHEA	Human Health Exposure Assessment
ICs	Institutional Controls
MW	Monitoring Well
NYSDEC	New York State Department of Environmental Conservation
PCB	Polychlorinated Biphenyls
PID	Photoionization Detector
ppm	parts per million
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RASR	Remedial Action Selection Report
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act

<b>Acronym</b>	<b>Definition</b>
RDD	Remedial Design Document
RI	Remedial Investigation
RIR	Remedial Investigation Report
RIWP	Remedial Investigation Work Plan
SCG	Standards, Criteria, and Guidance
SCO	Soil Cleanup Objectives
SESI	SESI Consulting Engineers, PC
SMP	Site Management Plan
SSDS	Sub-Slab Depressurization System
SVOCs	Semi-Volatile Organic Compounds
S&W	S&W Redevelopment of North America, LLC.
TAGM	Technical and Administrative Guidance Memorandum
TAL	Target Analyte List
TOGS	Technical and Operations Guidance Series
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds

## EXECUTIVE SUMMARY

### Site Description/Physical Setting/Site History

Concord Associates, LP entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) on May 19, 2005, to investigate and remediate approximately 14.5-acres of the 1,700 acre Concord Hotel Site located in the Town of Thompson, Sullivan County New York. Concord Associates, LP is a Volunteer in the Brownfield Cleanup Program (NYSDEC BCA Index No. W3-1004-04-06 and Site No. C353008). The 14.5 acres associated with BCA have been divided into five operable units (OU-1A, OU-1B, OU-1C, OU-2 and OU-3, collectively referred to herein as “the Site”) and are part of a larger redevelopment effort that encompasses approximately 1,700 acres surrounding the Site. The redevelopment activities include demolition of old structures and construction of new buildings and facilities that are associated with the planned Concord Hotel and Resort project. A Remedial Action Work Plan (RAWP) for OU-1A was submitted to the NYSDEC on October 3, 2008. This RAWP is solely related to the remaining Operable Units, OU-1B through OU-3. This RAWP summarizes the nature and extent of contamination as determined from data gathered in each of these remaining four OUs during the Remedial Investigation (RI), performed between August and October 2008.

The Site is situated between Kiamesha Lake to the west, Kiamesha Lake Road to the north, the Town of Thompsonville to the east, and Thompsonville Road to the south. Operable Units 1B and 1C are located in the vicinity of the existing golf courses (see Figure 1). OUs-1B and 1C are located on a local topographical peak along Concord Road, and OUs-2 and 3 are located at a lower elevation along Kiamesha Creek. The Site has been impacted by historical operations associated with the former Hotel and Resort primarily consisting of discharges associated with USTs, unregulated landfilling operations, and suspected improper waste handling practices.

### Summary of the Remedial Investigation

The remedial investigation identified sources of contamination and delineated soil contaminants in each of the OUs to the extent required to achieve a Track 1 cleanup. With the exception of localized “hot-spots” of contamination that are attributable to contaminated fill soil, the majority of the site soil and groundwater contamination is associated with USTs and unregulated landfill source areas. Exceedances of the New York Technical and Operational Guidance Series 1.1.1 (NY TOGS) criteria for select metals (e.g., iron, manganese, sodium) in

groundwater were observed in all of the operable units. The levels of these metals are likely attributable to naturally occurring background concentrations.

Several metals were detected at concentrations marginally above the Lowest Effects Level criteria in OU-2 and OU-3 sediment sample locations. Manganese also exceeded the Severe Effects Level in several sediment sampling locations in OU-3; however, this contamination is likely attributable to the site-wide elevated manganese concentrations in groundwater. All surface water samples met the NY TOGS criteria for protection of wildlife (type W) in a Class C stream (i.e. waters supporting fisheries and non-contact activities). Collectively, the RI results indicate that the contamination identified in the soil and groundwater in the four remaining OU AOCs is isolated and not migrating into the surrounding environment in a manner to cause a detrimental impact.

The Qualitative Human Health Exposure Assessment concluded that the likelihood of adverse human health effects as a result of exposure to the site's environmental media is remote. A Fish and Wildlife Resource Impact Analysis indicated that there are no potential adverse effects or ecological risks to fish and wildlife resources from migration of constituents of potential ecological concern in OU-1B or OU-1C because the existing developed areas completely surround these OUs. Although potential ecological exposure pathways are present in OU-2 and OU-3, the RI results provide analytic evidence that the nearby environmental receptors have not been negatively impacted or degraded. The proposed remedy will eliminate the potential risk these receptors will be impacted in the future.

### Summary of the Remedy

The following table provides a summary of the proposed cleanup tracks for the four remaining OUs.

<b>Operable Unit</b>	<b>Proposed Cleanup Track</b>
OU-1B	Track 1 – Unrestricted Use
OU-1C	Track 1 – Unrestricted Use
OU-2 (AOCs 16, 17, and 22)	Track 2 – Restricted Use, Commercial
OU-2 (AOCs 18 and 21)	Track 2 – Restricted Use, Commercial
OU-3	Track 2 – Restricted Use, Commercial

To address the known soil/groundwater impacts and potential indoor air quality impacts associated with the Site, the following remedies have been proposed in this RAWP for the four remaining OUs:

1. The proposed remedial actions for OU-1B have been submitted to the NYSDEC in an Interim Remedial Measure Work Plan (IRMWP), dated October 31, 2008 and approved by the NYSDEC on December 3, 2008. No additional remedial measures are proposed in this plan. These remedial actions will achieve a Track 1, Unrestricted Use cleanup for OU-1B. The October 31, 2008 OU-1B IRMWP is incorporated into this RAWP by reference.
2. Similar to OU-1B, the nature of the redevelopment activities favors a Track 1, Unrestricted Use cleanup for OU-1C. The proposed remedial action involves excavation of source soil in the vicinity of AOC 10, which was a former disposal area, and collection and analysis of end-point samples to confirm the successful performance of the remedy with respect to attainment of the Track 1 Unrestricted Use SCOs.
3. The remedial approach for OU-2 will achieve a combination of Track 1 or Track 2 cleanup levels for the various AOCs. The remedial approach involves source and “hot-spot” removal, coupled with constructing a soil cover on the landfilled materials. Key remedial measures proposed for OU-2 will include:
  - a. Removal of the existing USTs in accordance with the procedures outlined in Section 5.5, *Underground Storage Tank Closure*, of 6 NYCRR Part 375-1.8(b).
  - b. Source removal excavation of soils in the vicinity of AOCs 16 and 17 (USTs), AOC 22 (Septic Field), and AOC 21 (Disposal Area) that is impacted at levels that exceed the Restricted Use-Commercial SCOs.
  - c. Establishment of institutional controls to prevent future exposure to any residual soil and/or groundwater contamination remaining in the vicinity of this OU. The institutional controls will include an Environmental Easement and Site Management Plan for this OU.
4. The remedial approach for OU-3 will achieve a Track 2 cleanup involving “hot-spot” removal. Key remedial measures proposed for OU-3 will include:
  - a. Excavation of soils in the vicinity of OU2-TP11 that exceed the Restricted Use-Commercial SCOs.
  - b. Establishment of institutional controls to prevent future exposure to any residual soil and/or groundwater contamination remaining in the vicinity of this OU. The institutional controls will include an Environmental Easement and Site Management Plan for this OU as well.

# REMEDIAL ACTION WORK PLAN

## 1.0 INTRODUCTION

Concord Associates, LP entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) on May 19, 2005, to investigate and remediate about 14.5-acres of property located in Town of Thompson, Sullivan County New York. Concord Associates, LP is a Volunteer in the Brownfield Cleanup Program. Site usage type, i.e. Commercial use is proposed for the property. When completed, the Site will contain a Hotel and Resort. Refer to the Brownfield Cleanup Program (BCP) application for additional details.

This Remedial Action Work Plan (RAWP), which is limited to OU-1B, OU-1C, OU-2, and OU-3 (“the four remaining OUs”; see Figures 1 and 2), summarizes the nature and extent of contamination as determined from data gathered during the Remedial Investigation (RI), performed between August and October 2008. The results of the RI were compiled in a Remedial Investigation Report (RIR) dated November 14, 2008. This RAWP provides an evaluation of a Track 1 cleanup for the four remaining OUs, and other applicable Remedial Action alternatives, associated costs, and the recommended and preferred remedy. The remedy described in this document is consistent with the procedures defined in DER-10 and complies with all applicable standards, criteria and guidance. The remedy described in this document also complies with all applicable Federal, State and local laws, regulations and requirements. Since this RAWP is being submitted for public comment simultaneous with the RIR for these OUs, the NYSDEC and New York State Department of Health (NYSDOH) have not yet determined that this Site does not pose a significant threat to human health and the environment. However, significant threat determination is anticipated in the near future, and is expected to be a non-significant threat determination based on the results of the RI. Moreover, the RI for this Site indicated that there are no potential adverse effects or ecological risks to fish and wildlife resources from migration of constituents of potential ecological concern in OU-1B or OU-1C. Although potential ecological exposure pathways are present in OU-2 and OU-3, the RI results provide analytic evidence that the nearby environmental receptors have not been negatively impacted or degraded. The proposed remedy will eliminate the potential risk these receptors will be impacted in the future.

A formal Remedial Design Document (RDD) will not be prepared as the remedy consists principally of source removal (i.e. UST removal and “hot-spot” excavation). The USTs will be properly closed in accordance with 6 NYCRR Part 375-1.8(b), and “hot-spot” excavation and confirmatory sampling will be performed in compliance with DER-10. A work plan will be prepared and submitted to NYSDEC-Division of Solid and Hazardous Materials, Region 3, detailing the activities associated with closure of the unregulated landfills within the Site.

Likewise, a work plan detailing the restoration of any disturbed wetlands in OU-2 will be submitted in a U.S. Army Corps of Engineers (USACE) Nationwide Wetlands Disturbance Permit application.

## **1.1 SITE LOCATION AND DESCRIPTION**

The Site is located in the County of Sullivan, Town of Thompson, New York. A United States Geological Survey (USGS) topographical quadrangle (Figure 1) shows the Site location. The Site is situated between Kiamesha Lake to the west, Kiamesha Lake Road to the north, the Town of Thompsonville to the east, and Thompsonville Road to the south. Operable Units 1B and 1C are located in the vicinity of the existing golf courses (see Figure 1). OUs-1B and 1C are located on a local topographical peak along Concord Road, and OUs-2 and 3 are located at a lower elevation along Kiamesha Creek. The Site is fully described in Appendix 1 – Metes and Bounds. A global positioning system coordinate for each starting point is included.

## **1.2 SITE HISTORY**

### **1.2.1 Past Uses and Ownership**

The five OUs that collectively make up the BCP Site and the pending Brownfield Site Expansion Area (BSEA) (see Figure 1) are part of an expansive Concord Resort Complex that was built in stages over the past 80 years. Previously, the area was either farmland or forest. The Complex was abandoned in the early 1990's with the exception of OU-2, which still actively serves as a maintenance facility for the existing golf courses. The OUs associated with the complex were serviced by underground storage tanks (USTs), PCB-containing transformers, utilized pesticides and other chemicals, which discharged contaminants to the environment after the facilities were abandoned. Illegal dumping and associated contamination also occurred after the 1990's, and has also contributed to the documented areas of contamination throughout the Concord Site. Specific Areas of Concern associated with these historical operations and areas of dumping are described in greater detail in Section 2.2 below, with the exception of the contamination in the BSEA, which is described in the Concord Hotel and Resort Expansion Site Application, dated July 16, 2008 and Site Characterization Report dated June 3, 2008.

### **1.2.2 Phase I and Phase II Reports**

Phase I and II Environmental Site Assessments were performed for the entire 1,700 acre Concord Resort Complex in September 1998 and July 2004 by Environmental Compliance Services, Inc. (ECSI) and IVI International, Inc. (IVI), respectively. The results of these assessments are included in their entirety as Appendix A to the RIWP dated October 11, 2007, last revised July 24, 2008. Additional information on the presence of known or suspected

contamination has been provided to the NYSDEC from Concord Associates, LP and its environmental contractors involved with the project, and is attached to the BCP Application available for public review at the repositories. Based on the results of these historical investigations, 24 Areas of Concern (AOCs) requiring remedial investigation and/or remedial action were identified. Fifteen (15) of these AOCs, AOC 10 through AOC 24 are associated with the operable units that are the subject of this RAWP.

### **1.3 CONTEMPLATED REDEVELOPMENT PLAN**

Site-wide redevelopment activities will include construction of a casino resort and entertainment complex with ancillary access roads, parking areas, and landscaping. As part of redevelopment, a horse racing track with supporting structures will be relocated from another site and constructed on this site in the vicinity of OUs-1B and 1C. The proposed redevelopment activities in OU-1B will involve an overall reduction in elevation of approximately 25 feet throughout the OU, resulting in approximately 81,000 cubic yards of existing site soil to be excavated (refer to Figure 3). The existing golf course will be redesigned, but is expected to remain in the area near OUs-1C, 2, and 3. OU-2 will remain a maintenance facility, and OU-3 will not be redeveloped at this time. The Remedial Action to be performed under the RAWP is intended to make these OUs protective of human health and the environment consistent with this contemplated, commercial end-use.

### **1.4 DESCRIPTION OF SURROUNDING PROPERTY**

The surrounding properties consist of single family residential uses, vacant parcels, and undeveloped tracts of land.

- Schools and/or day care facilities – There are no schools or day care centers on or adjacent to the Site.
- Hospitals – The nearest hospital is the Catskill Regional Medical Center located in Harris, NY, approximately five miles northwest of the Site.
- Residential areas – A few single family residential uses are located in the vicinity of the Site; however, the majority of the area immediately surrounding the Site is undeveloped land.
- Rivers, streams, and surface water bodies – Kiamesha Lake is approximately 1,500 ft. west of OUs-1B and 1C. Kiamesha Creek (Class C) forms the western and eastern boundaries of OU-2 and OU-3, respectively.
- Wetlands – Approximately 1.5± acres of United States Army Corps of Engineers (USACE)-regulated wetlands exist in OU-2. These wetlands are primarily located along



the western boundary of the OU, but a portion of the wetlands extends approximately 300 feet upland in the southwest portion of the OU. Because of the USACE jurisdiction, there is no buffer associated with these wetlands. Approximately 0.8± acres of NYSDEC-regulated wetlands exist in OU-3. These wetlands are primarily located along the eastern boundary of the OU, but a portion of the wetlands extends approximately 340 feet upland in the northeastern portion of the OU. Because of the NYSDEC jurisdiction, there is a 100-foot buffer associated with these wetlands.

- Human/Ecological Receptors – Human exposure to the contaminated soil is unlikely with the current, limited use of the property; however, the proposed redevelopment is expected to increase the site occupancy rate, and thus increase the risk of human exposure. Ecological receptors exist in the vicinity of the Site; however, unlike human receptors, the proposed, commercial redevelopment is expected to reduce the likelihood of exposure to ecological receptors.

## **2.0 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS**

The four remaining OUs were investigated in accordance with the scope of work presented in the NYSDEC-approved Remedial Investigation (RI) Work Plan dated July 24, 2008. The investigation was conducted between August and October 2008. The RI report is being submitted concurrently with this RAWP, and the results are summarized below.

### **2.1 GEOLOGICAL CONDITIONS**

Sullivan County lies within the Appalachian Plateau physiographic province of New York State. Regional bedrock is primarily middle to late Devonian shale, however, SESI encountered primarily sandstone bedrock during the remedial investigation activities and related geotechnical engineering investigation conducted.

Bedrock is generally deep throughout OU-1B and OU-1C, and was encountered at depths ranging from approximately 15 to 50± feet below ground surface (ft-bgs). In OU-2 and OU-3, bedrock was encountered at relatively shallower depths ranging from 5 to 20± ft-bgs. The soil types encountered in each of the OUs are primarily very dense sands with silt and gravel intermixed. Occasional cobbles and boulders were also encountered throughout each of the OUs. OU-2 and OU-3 also contained strata of waste from historical, unregulated landfilling operations. The depth of waste ranged from 5.5 to 9.5 ft in OU-2 and 1 to 4 ft in OU-3. Geologic cross sections are included as Figures 4A-D.

## 2.2 DESCRIPTION OF THE AREAS OF CONCERN

Fifteen (15) Areas of Concern (AOCs) were identified in the four remaining OUs where environmental impacts associated with the historical operations may have occurred. Exceedances of soil/fill SCOs, groundwater GA standards, and USEPA soil vapor screening guidance criteria are included in Tables 2 through 4, respectively. These exceedances are also depicted in Figures 6 and 7.

### 2.2.1 Gas Station (OU-1B)

AOC 12 – Leaking Service Station USTs – Fuel dispensing activities at the service station began in the late 1940s or early 1950s and continued through the early 1990s. A total of three pump islands and four USTs were present at this OU, three of which (6,000 gallons each) are still present.

Soil at two (2) boring locations, OU1B-5 and OU1B-6, are impacted with VOCs at concentrations that exceeded the Track 1 Unrestricted SCOs. Specific exceedances are listed below with the Track 1 Unrestricted SCO identified in parenthesis.

- Benzene – 4.9 to 24 mg/kg (0.06 mg/kg)
- Toluene – 73 to 320 mg/kg (0.7 mg/kg)
- Ethylbenzene – 36 to 130 mg/kg (1.0 mg/kg)
- Xylenes – 0.49 to 760 mg/kg (0.26 mg/kg)

TPH concentrations ranged from not-detected to 230 mg/kg.

AOC 13 – UST – A 550-gallon heating oil UST is located southwest of the gas station building. During the Phase II ESA, the tank failed integrity testing. Borings were drilled around the tank, and analysis of the soil samples indicated no evidence of a release associated with this UST. The tank was reportedly emptied and the fill pipe was covered to prevent future filling (ECSI, 1998). RI sampling results confirmed that no release occurred at this AOC.

AOC 14 – Leaking Service Station USTs - Other petroleum impacts were noted in previous reports, which are possibly associated with the USTs farthest southeast of the building. These USTs constitute AOC 14, and include two 10,000-gallon USTs located southeast of the building.

RI sampling results in the vicinity of this AOC did not exceed the Track 1 Unrestricted Use SCOs. However, further investigation/delineation of contamination associated with this AOC will be completed during removal of the tanks as described below.

AOC 15 – Service Station Interior – Phase I and II ESA investigations discovered the presence of two hydraulic lifts and an oil-water separator. Two 275 gallon ASTs were installed inside the service station when service to the exterior USTs ceased. Additionally, the empty service station was used to store/dispose of miscellaneous waste.

Review of analytical results associated with the four (4) boring locations, OU1B–10 through OU1B–13, indicates that one (1) sample, OU1B–12A, is impacted with metals at concentrations that exceeded the Track 1 Unrestricted Use SCOs. Specifically, selenium was detected at a concentration of 436 mg/kg, which exceeded the criteria of 3.9 mg/kg, and silver was detected at a concentration of 17.3 mg/kg, which exceeded the criteria of 2.0 mg/kg.

#### OU-1B Groundwater

Review of analytical results indicates that groundwater samples associated with monitoring well locations, OU1B–MW1, OU1B–MW2 and OU1B–MW3 are impacted with VOCs, SVOCs and metals at concentrations that exceeded the NY TOGS criteria. Specific exceedances are listed below with the NY TOGS criteria identified in parenthesis.

- Benzene – 23.6 ug/L – 173 ug/L (1.0 ug/L)
- Toluene – 9.7 ug/L – 238 ug/L (5.0 ug/L)
- Ethylbenzene – 73.1 ug/L – 111 ug/L (5.0 ug/L)
- Xylenes – 277 ug/L – 302 ug/L (5.0 ug/L)
- Chloroform – 19.5 ug/L (7.0 ug/L)
- 2,4-dimethylphenol – 3.7 ug/L – 6.3 ug/L (1.0 ug/L)
- Phenol – 2.4 ug/L – 2.9 ug/L (1.0 ug/L)
- Naphthalene – 19.8 ug/L (10 ug/L)
- Manganese – 985 ug/L – 1,880 ug/L (300 ug/L)
- Sodium - 23,500 ug/L – 59,100 ug/L (20,000 ug/L)

### **2.2.2 International Golf Clubhouse (OU-1C)**

AOC 10 – Disposal Area – A former disposal area is located on the northern side of the site. Review of analytical results associated with three (3) test pit locations, OU1C-TP2, OU1C-TP-3 and OU1C-TP-4, indicates that dieldrin, detected at a concentration of 0.0059 mg/kg in OU1C-

TP-3, was the only targeted analyte that exceeded its Track 1 Unrestricted Use SCO of 0.005 mg/kg.

AOC 11 – AST - A former 550 gallon AST was located adjacent to the western side of the clubhouse. The AST was reportedly removed by the onsite maintenance personnel several years ago. No documentation on this removal was available; however, staining was visible on the adjacent building wall. RI results indicate no release occurred at this AOC.

#### OU-1C Groundwater

Review of analytical results indicates that groundwater samples, associated with monitoring well locations, OU1C–MW5, OU1C–MW7 and OU1C–MW8, are impacted with naturally occurring metals at concentrations that exceeded the NY TOGS. Specifically, manganese was detected at concentrations ranging from 510 ug/L – 1,120 ug/L, and sodium was detected at concentrations ranging from 134,000 ug/L – 175,000 ug/L, which exceeded their applicable NY TOGS criteria of 300 ug/L and 20,000 ug/L, respectively.

### **2.2.3 Golf Maintenance Building (OU-2)**

AOCs 16 – USTs – Five (5) USTs are located on the northern and eastern sides of the maintenance building including a 550 gallon waste oil tank, a 2,000 gallon gasoline tank, a 1,000 gallon diesel tank, a 1,000 gallon No. 2 fuel oil tank, and a 300 gallon tank whose contents are unknown.

Review of analytical results indicates that samples associated with three (3) boring locations, OU2–3, OU2–4, and OU2–5, are impacted with VOCs at concentrations that exceeded the Track 1 Unrestricted Use SCOs. Specific exceedances are listed below with the Track 1 Unrestricted Use SCO identified in parenthesis.

- Acetone – 0.073 mg/kg – 2.90 mg/kg (0.05 mg/kg)
- Methylene chloride – 0.14 mg/kg – 1.1 mg/kg (0.05 mg/kg)
- Xylenes – 2.6 mg/kg – 3.0 mg/kg (0.26 mg/kg)

However, it should be noted that acetone and methylene chloride were also detected in each of the laboratory method blank samples. Therefore, the pending DUSR analysis may qualify these exceedances as invalid. The results of acetone and methylene chloride, if valid, both exceed their Restricted Use-Protection of Groundwater SCO of 0.05 mg/kg, but both are below their Restricted Use-Commercial SCO of 500 mg/kg. Similarly, xylenes exceed the

Restricted Use-Protection of Groundwater SCO of 1.6 mg/kg but is below the Restricted Use-Commercial SCO of 500 mg/kg.

AOCs 17 – USTs – A 750 gallon and a 275 gallon AST are currently located adjacent to the eastern side of the maintenance building. These tanks have not displayed signs of leaking or spillage, however, due to their close proximity to the leaking 1,000 gallon UST, they are included in AOC 17.

Review of analytical results indicates that samples associated with three (3) boring locations, OU2-6, OU2-7, and OU2-8, are impacted with VOCs at concentrations that exceeded the Track 1 Unrestricted Use SCOs. Specifically, acetone was detected in three samples at concentrations ranging from 0.064 mg/kg to 0.11 mg/kg, which exceeded the Track 1 SCO of 0.05 mg/kg. However, it should be noted that acetone was also detected in each of the laboratory method blank samples. Therefore, the pending DUSR analysis may qualify these exceedances as invalid. The acetone results, if valid, exceed its Restricted Use-Protection of Groundwater SCO of 0.05 mg/kg, but are below the Restricted Use-Commercial SCO of 500 mg/kg.

AOC 18 – Pesticides/Herbicides Storage Area – A barn used to store pesticides, herbicides, and fertilizers is located east of the golf maintenance shop. These chemicals were used historically by the golf course maintenance staff to maintain the resort grounds and golf courses and currently are still under the supervision of a NYS Certified pesticide applicator. During the 1998 Phase II ESA, ECSI observed various quantities of eight (8) pesticides previously banned from use on-site under a Quarantine Order issued by the NYSDEC on September 19, 1997 (ECSI, 1998).

Review of analytical results indicates that samples associated with five (5) boring locations, OU2-9 thru OU2-13 are impacted with pesticides at concentrations that exceeded the Track 1 Unrestricted Use SCOs. Specific exceedances are listed below with the Track 1 SCO identified in parenthesis.

- 4,4'-DDD – 0.00366 mg/kg – 0.088 mg/kg (0.0033 mg/kg)
- 4,4'-DDE – 0.0184 mg/kg (0.0033 mg/kg)
- 4,4'-DDT – 0.033 mg/kg (0.0033 mg/kg)

AOC 19 – Transformer – An electrical transformer was observed lying on the ground on in the northeastern portion of this operable unit (adjacent to pesticides/herbicides storage area) during a site visit on July 25, 2007. Based on the age of the site's infrastructure, the dielectric fluid

within this transformer may have contained Polychlorinated Biphenyls (PCBs). However, RI sampling results indicate no release occurred at this AOC.

AOC 20 – 550 Gallon AST – A 550 gallon AST is present on the eastern side of the pesticide/herbicide storage barn. The AST is used to store heating oil for heating the barn.

Review of analytical results indicate that samples associated with boring location, OU2–14, is impacted with VOCs at concentrations that exceeded the Track 1 Unrestricted Use SCOs. Specifically, acetone was detected in three samples at a concentration of 0.07 mg/kg, which exceeds the Track 1 SCO of 0.05 mg/kg. However, it should be noted that acetone was also detected in the laboratory method blank sample. Therefore, the pending DUSR analysis may qualify these exceedances as invalid. The acetone result, if valid, exceeds its Restricted Use-Protection of Groundwater SCO of 0.05 mg/kg, but is below its Restricted Use-Commercial SCO of 500 mg/kg.

AOC 21 – Disposal Area – A disposal area is located near the golf maintenance building on the southern portion of the Operable Unit. The disposal area demonstrates signs of both surface and subsurface disposal of refuse and Construction & Demolition (C&D) material. Previous investigation activities identified old dishes, glass and plastic bottles, wood, small quantities of carpeting, refuse, and scrap metal within the waste in the disposal area. In addition, ash was found, which may have been generated by the practice of burning the refuse prior to burial. In 2001 and 2002, a partial cleanup of the dump was completed under NYSDEC oversight. This cleanup included the removal of tires, metal, and debris from the ground surface for proper off-site disposal.

Review of analytical results indicates that samples associated with eleven (11) test pits, OU2–TP21 thru OU2–TP31, are impacted with VOCs, pesticides, PCBs and metals at concentrations that exceeded the Track 1 Unrestricted Use SCOs. Of these Track 1 exceedances, the following analytes also were detected at concentrations above their respective Restricted Use-Protection of Groundwater SCOs (identified in parenthesis below).

- Acetone – 0.068 mg/kg – 0.24 mg/kg (0.05 mg/kg)
- Arsenic – 22 mg/kg – 36 mg/kg (16 mg/kg)
- Cadmium – 5.3 mg/kg – 34 mg/kg (7.5 mg/kg)
- Lead – 220 mg/kg – 11,000 mg/kg (450 mg/kg)
- Manganese – 2,100 mg/kg (2,000 mg/kg)
- Selenium – 96 mg/kg (4.0 mg/kg)

- Nickel – 98 mg/kg – 180 mg/kg (130 mg/kg)

Similarly, the following Track 1 SCO exceedances also were detected at concentrations above their respective Restricted Use-Commercial SCOs (identified in parenthesis below).

- Aroclor-1254 – 0.12 mg/kg – 1.4 mg/kg (1.0 mg/kg)
- Arsenic – 22 mg/kg – 36 mg/kg (16 mg/kg)
- Barium – 570 mg/kg (400 mg/kg)
- Copper – 75 mg/kg – 740 mg/kg (270 mg/kg)
- Lead – 220 mg/kg – 11,000 mg/kg (1,000 mg/kg)

AOC 22 – Septic Field – Historical documents indicated that a septic field is located on the southwestern side of the maintenance building, between the building and Kiamesha Creek. Past disposal practices may have resulted in discharges/impacts to the environment in the vicinity of the leach field.

Analytical results indicate that samples associated with five (5) boring locations, OU2–17 thru OU2–21, are impacted with metals at concentrations that exceeded the Track 1 Unrestricted Use SCO. Specifically, lead was detected at a concentration of 80.8 mg/kg, which exceeds its Track 1 SCO of 63 mg/kg, and zinc was detected at concentrations ranging from 124 to 233 mg/kg, which exceeds its Track 1 SCO of 109 mg/kg. At these concentrations, neither lead nor zinc exceed the Restricted Use-Protection of Groundwater or Restricted Use-Commercial SCOs.

AOC 23 – Kiamesha Creek – Because of its proximity to AOCs identified above, and other discharges (reported diesel fuel release to the stream in January 1998), Kiamesha Creek has been identified as an AOC that required further investigation. Results of impacts to this AOC are discussed in the OU-2 sediment and surface water section below.

#### OU-2 Groundwater

Review of analytical results indicates that groundwater samples, associated with monitoring well locations, OU2–MW1, OU2–MW15, OU2–MW32 and OU2–MW38 are impacted with naturally occurring metals at concentrations that exceeded the NY TOGS criteria. Specific exceedances are listed below with the NY TOGS criteria identified in parenthesis.

- Iron – 735 ug/L - 2,640 ug/L (300 ug/L)
- Manganese – 6,580 ug/L – 15,600 ug/L (300 ug/L)

- Sodium – 25,700 ug/L – 46,200 ug/L (20,000 ug/L)

#### OU-2 Soil Vapor

Review of analytical results indicates that several compounds were detected above the laboratory reporting limits; however, only benzene was detected at a concentration of 16 ug/cu.m which exceeded the applicable USEPA soil gas screening level of 3.1 ug/cu.m (for a risk level of 1E-06).

#### OU-2 Sediment and Surface Water

Analytical results indicate that all the targeted compounds associated with the sediment samples collected from Kiamesha Creek (AOC 23) that were detected at concentrations above their reporting limits did not exceed the applicable human/benthic/wildlife bioaccumulation/toxicity sediment criteria. Antimony and manganese were detected in sediment sample SED36 at concentrations of 2.62 and 694 mg/kg, which marginally exceeded the Lowest Effects Level of 2.0 and 460 mg/kg respectively. No analytes exceeded the Severe Effects Level criteria.

Analytical results associated with the surface water samples indicated that none of the targeted compounds were detected at concentrations that exceeded the applicable criteria for protection of wildlife in a Class C stream (type W). These analytical results indicate that the AOCs associated with OU-2 are not impacting the surface water of Kiamesha Creek.

### **2.2.4 International Golf Course Disposal Area (OU-3)**

AOC 24 – Golf Course Disposal Area – Based on the investigations completed to dated, this AOC is characterized by waste that typically includes solid waste and/or construction and demolition debris and kitchen waste (e.g. glass, plastic, paper, wall board, etc.). Disposal activities reportedly began during the 1970s or 1980s. Investigations completed to date within this AOC included test pit excavations, installation and sampling of groundwater monitoring wells, and sampling of Kiamesha Creek.

Review of analytical results indicates that samples associated with eleven (11) test pits, OU3–TP1, OU3–TP3 and OU3–TP5 thru OU3–TP13, are impacted with pesticides, PCBs and metals at concentrations that exceeded the Track 1 Unrestricted Use SCOs. Specific exceedances are listed below with the Track 1 SCO identified in parenthesis.

- Dieldrin – 0.013 mg/kg (0.005 mg/kg)
- Aroclor-1254 – 0.12 mg/kg – 0.25 mg/kg (0.1 mg/kg)



- Lead – 73 mg/kg – 76 mg/kg (63 mg/kg)
- Mercury – 3 mg/kg (0.18 mg/kg)
- Zinc – 110 mg/kg – 510 mg/kg (109 mg/kg)

Of these exceedances, only mercury exceeded its Restricted Use-Protection of Groundwater and Restricted Use-Commercial SCOs of 0.73 and 2.8 mg/kg respectively.

### OU-3 Groundwater

Review of analytical results indicates that groundwater samples, associated with monitoring well locations, OU3–MW2, OU3–MW4, OU3–MW14 and OU3–MW18, are impacted with naturally occurring metals at concentrations that exceeded the NY TOGS criteria. Specifically, manganese was detected at a concentration ranging from 941 ug/L to 2,770 ug/L, which exceeded its NY TOGS criteria of 300 ug/L.

### OU-3 Sediment and Surface Water

Analytical results indicate that no targeted compounds associated with the sediment samples exceeded the applicable human/benthic/wildlife bioaccumulation/toxicity sediment criteria. Lead was detected in sample SED16 at a concentration of 33.5 mg/kg, which slightly exceeded the applicable Lowest Effect Level of 31 mg/kg. Manganese was detected in all three samples at concentrations ranging from 829 to 1,870 mg/kg, which marginally exceeded the applicable Severe Effects Level of 1,100 mg/kg.

Analytical results associated with the surface water samples indicated that none of the targeted compounds were detected at concentrations that exceeded the applicable criteria for protection of wildlife in a Class C stream (type W). These analytical results indicate that the AOCs associated with OU-3 are not impacting the surface water of Kiamesha Creek.

## **2.3 CONCEPTUAL MODEL OF SITE CONTAMINATION**

### **Gas Station (OU-1B)**

Soil and groundwater in the vicinity of the northernmost USTs (AOC 12) are impacted with petroleum compounds, primarily consisting of a combination of benzene, toluene, ethylbenzene, and xylenes that exceed the applicable SCGs. Due to the dense Site soil, this contamination is limited to the area immediately surrounding the USTs. An area associated with AOC 15 was also identified as a source of metals contamination in soil. This “hot-spot” is only

impacted at the ground surface, and was likely attributable to the storage of waste in and around the former service station.

Groundwater in OU-1B is impacted with fuel-related compounds, similar to the contaminants identified in soil in AOC 12, indicating the leaking USTs are a source of the groundwater contamination. Concentrations of total metals exceeded the NY TOGS criteria for several analytes, however, these results were obtained from turbid samples. Results of the laboratory filtered samples contained exceedances of only dissolved manganese and sodium, which were consistently detected at similar background concentrations in other OUs, and are presumed to be naturally occurring metals in groundwater throughout the Site.

### **International Golf Clubhouse (OU-1C)**

A portion of the former trash disposal area (AOC 10) is impacted with pesticides, specifically dieldrin, above the Track 1 Unrestricted Use SCOs but below Restricted Use-Commercial and Restricted Use-Protection of Groundwater SCOs. This contamination is likely attributable to surficial fill soil associated with historical grading operations and use at the adjacent golf course.

Groundwater is impacted with total metals at concentrations exceeding the NY TOGS criteria for several analytes, however, these results were obtained from turbid samples. Results of the laboratory filtered samples contained exceedances of only dissolved manganese and sodium, which were consistently detected at similar background concentrations in other OUs, and are presumed to be naturally occurring metals in groundwater throughout the Site.

### **Golf Maintenance Building (OU-2)**

Soil in the northernmost 2± acres of OU-2 is generally impacted with VOCs, pesticides, PCBs, and metals at concentrations above the Track 1 Unrestricted Use, but below the Restricted Use-Commercial SCOs. The sources of this contamination consist of suspected discharges from the USTs (AOCs 16 and 17), pesticide storage area (AOC 18), and septic field (AOC 22), as well as backfilling/re-grading operations with contaminated fill soil. With the exception of AOCs 16 and 17, the depth of contamination generally ranges from 1.5± to 8± ft-bgs and is covered by at least one foot of soil that meets Track 1 Unrestricted Use SCOs. This fill cover is currently serving as an engineering control that meets the DER-10 criteria.

Benzene is present in the soil vapor at concentrations above the USEPA recommended risk levels in the vicinity of the USTs (specifically AOC 16). Although benzene was not detected at concentrations above the Track 1 SCO in soil samples in this area, it is consistent with

discharges from the tanks as demonstrated by similar fuel-related contaminants observed in other soil samples.

An unregulated landfill is also located in OU-2, which occupies approximately 0.3± acres of the southeast portion of the OU. Samples of the landfill material contained concentrations of VOCs, metals, pesticides, and PCBs that exceeded both Track 1 Unrestricted and Restricted Use-Commercial SCOs. The depth of landfilled material ranges from approximately 1.5 to 9 feet. The majority of the landfill contains a soil cover, however, loose, exposed debris is located along the landfill perimeter. This landfill encroaches on the boundaries of the adjacent USACE-regulated wetlands, and portions of the landfill are located beneath the groundwater table.

Groundwater throughout the OU is impacted with total metals at concentrations exceeding the NY TOGS criteria for several analytes, however, these results were obtained from turbid samples. Results of the laboratory filtered samples contained exceedances of only dissolved iron, manganese, and sodium, which were consistently detected at similar background concentrations in other OUs. These results indicate that the contaminated soil and landfilled waste are not impacting groundwater.

Results of the sediment and surface water sampling indicate that the contamination identified in the OU is not impacting Kiamesha Creek. With the exception of manganese, none of the analytes detected above applicable SCGs in the sediment and surface water were Track 1 SCO or NY TOGS exceedances in the soil or groundwater samples.

### **International Disposal Area (OU-3)**

The extent of the unregulated landfill in OU-3 is approximately 1± acres. Soil samples collected from the landfill resulted in Track 1 Unrestricted Use SCO exceedances for metals, pesticides, and PCBs; however, only one sample location exceeded the Restricted Use-Protection of Groundwater and Restricted Use-Commercial SCOs for mercury. The landfill in OU-3 is generally located outside the NYSDEC-regulated wetland boundaries, but is located within the associated 100-foot wetlands buffer zone. Approximately 0.5 to 1 foot of topsoil cover was previously placed atop the landfilled material. The Track 1 SCO exceedances detected in OU-3 were all located outside of the wetlands and wetlands buffer area.

Groundwater is impacted with total metals at concentrations exceeding the NY TOGS criteria for several analytes, however, these results were obtained from turbid samples. Results of the laboratory filtered samples contained exceedances of only dissolved, naturally occurring iron, manganese, and sodium, which were consistently detected at similar background concentrations in other OUs. These results indicate that the contaminated soil/landfilled waste are not impacting groundwater.

Surface water in the vicinity of OU-3 meets the quality requirements of a Class C stream. Similar to OU-2, sediment is impacted with manganese which, coupled with the Site-wide NY TOGS exceedances of manganese in groundwater, suggests that this is attributable to background conditions and not AOC 24. The sediment is impacted at concentrations that slightly exceeded the Lowest Effect Level criteria for lead, which was also one of the metals that exceeded NY TOGS criteria in the turbid groundwater samples.

## **2.4 ENVIRONMENTAL AND PUBLIC HEALTH ASSESSMENTS**

### **2.4.1 Qualitative Human Health Exposure Assessment**

A Qualitative Human Health Exposure Assessment completed by Atlantic Environmental, Inc. of Dover, New Jersey is included as Appendix 5 of the RIR, dated November 14, 2008. The Qualitative Human Health Exposure Assessment concluded that the likelihood of adverse human health effects as a result of exposure to the site's environmental media is remote. Some targeted analytes exceeded either the concentrations below which the lifetime risk of cancer is negligible, or, the threshold level below which non-cancer adverse health effects are unlikely. However, the risk associated with these contaminants following redevelopment is negligible because: no one is expected to be exposed to these contaminants over a standard lifetime of 70 years once remediation occurs, which is expected to eliminate sources and potential exposure pathways. Moreover, potable water will be piped in from remote sources for on-Site consumption instead of utilizing groundwater associated with the Site (Atlantic Environmental, Inc., 2008).

### **2.4.2 Fish & Wildlife Remedial Impact Analysis**

A copy of the Fish and Wildlife Impact Analysis (FWIA), completed in accordance with DER-10 is included as Appendix 6 of the RIR, dated November 14, 2008. The analysis concluded that there are no potential adverse effects or ecological risks to fish and wildlife resources from migration of constituents of potential ecological concern in OU-1B or OU-1C because newly developed areas will completely surround these OUs. Although potential ecological exposure pathways are present in OU-2 and OU-3, the RI results provide analytic evidence that the nearby environmental receptors have not been negatively impacted or degraded (PK Environmental, 2008).

## 2.5 SIGNIFICANT THREAT

The NYSDEC and NYSDOH are currently evaluating the RIR to discern if this Site does or does not pose a significant threat to human health and the environment. Notice of that determination will be provided for public review.

## 2.6 REMEDIAL ACTION OBJECTIVES

Based on the results of the Remedial Investigation, the following Remedial Action Objectives (RAOs) for protection of public health and the environment have been identified for this Site.

### 2.6.1 Groundwater

- Remove the USTs, which serve as a source of groundwater contamination in OU-1B.
- Prevent ingestion of site-wide groundwater containing background contaminant levels (primarily iron, manganese, and sodium) that exceed drinking water standards.

### 2.6.2 Soil

- Remove the sources (i.e. USTs) of soil and/or groundwater contamination, as well as the identified “hot-spots” of soil exceeding Track 1 Unrestricted Use SCOs in OU-1B, OU-1C, and portions of OU-2.
- Remove the sources of soil contamination, as well as the identified “hot-spots” of soil exceeding Restricted Use-Commercial SCOs in OU-2, and OU-3.
- Prevent ingestion/direct contact with any contaminated soil remaining on-site following remediation/redevelopment in OU-2, and OU-3.
- Prevent migration of residual contaminants that may potentially result in groundwater or surface water contamination in OU-2 and OU-3.
- Prevent impacts to biota due to ingestion/direct contact with residual contaminated soil in OU-2, and OU-3 that would cause toxicity or bioaccumulation through the terrestrial food chain.

### **2.6.3 Surface Water and Sediment**

- Prevent the discharge of contaminants to surface water/sediment via storm water runoff and/or groundwater infiltration during remedial/redevelopment activities in each of the OUs.
- Ensure any wetlands disturbed during the required remedial activities are restored to their original quality/function.

## **3.0 DESCRIPTION OF REMEDIAL ACTION PLAN**

### **3.1 IDENTIFICATION OF STANDARDS, CRITERIA AND GUIDANCE**

The standards and criteria typically applicable to the Site Characterization, Remedial Investigation, remedy selection, UST closure, remedial action, and site management activities summarized in this RAWP are included for reference as Table 5.

### **3.2 EVALUATION OF REMEDIAL ALTERNATIVES**

#### **Track 1**

The Track 1 cleanup alternative would allow the four remaining OUs to be redeveloped for unrestricted future use. This alternative would involve the complete removal and/or remediation of all contaminated soils above bedrock (or water table which ever is encountered first). A remedial action would be implemented to address contamination in groundwater or soil vapor, if applicable. A feasible remedial technology that may be used to implement this alternative involves the excavation of the contaminated soil and transportation to an off-site facility for disposal. Since active groundwater remediation is not feasible to remove naturally occurring metals exceedances, a Track 1 cleanup is not feasible for the four remaining OUs.

#### **Track 2**

Track 2 cleanup alternatives involve remediation of the site to regulatory commercial SCOs in 6 NYCRR 375.6.8(b) based on the planned commercial end use of the site rather than the unrestricted Track 1 SCOs in 6 NYCRR 375.6.8(a). The Track 2 alternative would meet the commercial Soil Cleanup Objectives as opposed to the Track 1 unrestricted SCOs. Track 2 requires remediation of impacted soil to bedrock or a depth of 15 feet below proposed finished grades, whichever is encountered first, until the applicable commercial SCOs are achieved. Long-term institutional and engineering controls can be implemented to address contamination

in groundwater or soil vapor, if applicable. A feasible remedial technology that may be used to implement a Track 2 alternative is also excavation and off-Site disposal of contaminated soil to the applicable commercial Track 2 SCO.

### **Track 3**

Alternatively, the Department may approve a site-specific modification to the Track 2 objectives for a Track 3 cleanup. This involves development of Site-specific SCOs that are different from the regulatory SCOs in 6 NYCRR 375.6.8(a) and (b).

### **Track 4**

The Track 4 cleanup alternative would involve hot spot/source removal and construction of a capping system over the remaining contaminated soils. The cap would consist of concrete slabs, asphalt pavement, or soil meeting the commercial soil cleanup criteria. Below the capping system, contaminated soil could remain; however, locations that are source areas (grossly impacted soil and soil impacts significantly exceeding the commercial or protection of groundwater SCOs), will be addressed either by removal, containment, or treatment. Long-term institutional controls would be implemented to address residual impacted soils and groundwater impacts, as applicable.

Site capping typically involves constructing a separation layer (e.g. a one-foot soil capping layer with an underlying demarcation geotextile) to prevent direct contact with the contaminants, and restrict storm water from entering the subsurface. This alternative may be combined with another treatment method to reduce the volume/concentration of contamination remaining on site under the cap. Methods to address migration of volatilized contaminants through the cap may be integrated into the design (e.g. sub-slab vapor extraction system).

A discussion of these approaches and whether or not they satisfy the remedial action selection criteria is included below.

**Protection of human health and the environment:** Although all tracks will provide adequate protection of human health and the environment, Track 1 would be the most favorable because it involves the complete removal of all soil contamination and the removal of the bulk of groundwater contamination, ultimately leaving the least amount of contamination on-site. However, it would be cost prohibitive to implement a Track 1 clean-up in areas where substantial volumes of excavation are required, wetlands may be detrimentally impacted, or naturally occurring metals are present that can not be remediated.

Compliance with standards, criteria, and guidelines (SCGs): Similar to the reasons discussed above, Track 1 would achieve cleanup to the most stringent applicable SCGs outlined in Table 5.

Short-term effectiveness and impacts: Tracks 1 through 3 are the least favorable in terms of short-term effectiveness primarily because they involve extensive excavation activities that cause short-term exposure to construction workers, and removal and/or treatment of the soil to depths beneath the proposed construction grades. These tracks may also be less favorable than the Track 4 approach because of a prolonged remediation schedule, and result in a greater potential for migration of impacts from the open excavation (e.g. wind erosion, storm water intrusion, etc.), particularly in wetland areas.

Long-term effectiveness and permanence: Because Track 1 would involve removal of the greatest amount of contaminated soil, it would provide the most permanent long-term effectiveness. The hot spot removal and site capping system associated with the Track 4 cleanup involves the highest level of long-term maintenance among the four tracks.

Reduction of toxicity, mobility, or volume of contaminated material: Tracks 1 through 4 all involve an ultimate reduction of volume of contaminated material. While Track 4 provides a relatively smaller reduction in volume than the other tracks, hot spots are removed, which decreases contaminant mobility to serve as an effective remedial alternative.

Implementability: A Track 1 cleanup is implementable where excavation is required; however, this Track may not be implementable in wetlands and wetland buffer areas without significantly impacting the wetlands or buffer areas. A Track 1 is also less implementable when deep excavation depths require support systems to be constructed along the excavation perimeter. A Track 4 cleanup is most implementable when redevelopment includes a substantial area of paving, concrete, backfilling to raise the site grade, and/or building foundations, which can dually serve as a site cap.

Cost effectiveness: The preferred alternative should provide optimal suitability of the eight accompanying evaluation factors with reasonable remedial cost. Track 1 through 3 cleanups serve as more cost-effective remedies for sites where contamination is localized to areas surrounding individual AOCs. For sites with a large extent of contamination, Tracks 1 through 3 involve the excavation of a large volume of contaminated soil, and typically results in a longer remedial construction schedule at significant cost. Track 1 is the least effective in the short term but most cost-effective in the long-term because no long term monitoring is required. Tracks 2 through 4 all require long-term monitoring at varying costs. Track 4 minimizes the remedial schedule, while satisfying the other eight evaluation criteria; therefore, it provides the most short-term, cost effective remedial alternative for sites with a large volume of impacted media, but long-term monitoring associated with operation and maintenance of engineering controls may impact the cost effectiveness of this remedial



alternative. Therefore, short and long-term cost has to take into consideration the long-term operation, maintenance, and monitoring (OM&M) costs in order to properly evaluate each alternative.

Community Acceptance: Community review of all the remedial alternatives is required per NYSDEC Brownfield Program law and regulations. A Track 4 cleanup may result in the widest level of acceptance throughout the community because it would allow for the RA and the redevelopment of the Site to proceed in the most expedited time frame with minimal truck traffic of contaminated soil through the community. While Track 1 would generate significant truck traffic to move contaminated soils off-site and may prohibit remediation/redevelopment in the short term, it would provide the greatest level of community acceptance in terms of legacy contamination at the Site. All of these considerations have been evaluated below in relation to each of the four remaining OUs.

Land use: All cleanup tracks would achieve a commercial remediation goal with little to no impact to the current surrounding land. The proposed redevelopment land use of the area is only a fraction of the 1,700-acre overall Concord Site Complex, and not in close proximity to any other adjacent redevelopment site.

### **3.3 SELECTION OF THE PREFERRED REMEDY**

Zoning: Although a Track 1 cleanup can be achieved in two out of the four OUs, overall implementation of a Track 2 cleanup will facilitate the proposed commercial development, which is consistent with applicable zoning laws and anticipated future use of the site without significant disturbance to existing wetland areas while still preventing migration of contaminants into the wetlands.

Applicable comprehensive community master plans or land use plans: Implementation of an overall Track 2 cleanup will facilitate the proposed commercial development, which is consistent with current land use plan, which underwent an extensive SEQRA EIS process and was approved by the impacted municipalities, and reviewed by the community.

Surrounding property uses: The overall Track 2 cleanup approach is not expected to impact land use of the surrounding properties as it involves minimal truck traffic compared to a Track 1 remedy.

Citizen Participation: Citizen Participation during implementation of the overall Track 2 remedial program will proceed in accordance with the Citizen Participation Plan included as Appendix 6 of this RAWP and as noted above will have minimal community impact.

Environmental justice concerns: There are no known environmental justice concerns associated with this project. Monticello is in an economically distressed area, but this project will help this area by creating numerous jobs.

Land use designations: An overall Track 2 remedy supports current land use designations.

Population growth patterns: A Track 2 remedy will not impact reasonably anticipated population growth patterns in the area. The project itself may increase population growth in the area, which has decreased due to lack of employment.

Accessibility to existing infrastructure: Existing infrastructure at the site will be demolished and new infrastructure installed as part of remediation/redevelopment.

Proximity to natural resources: Portions of the proposed limits of disturbance in OU-2 and OU-3 are in close proximity to Kiamesha Creek. Measures to protect these natural resources during remediation/redevelopment will be addressed through preparation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP will be submitted to NYSDEC, and approval will be obtained prior to the start of work in OU-2 or OU-3.

Off-Site groundwater impacts: With the exception of site-wide background concentrations of certain dissolved metals present at the property boundaries of the OUs, no groundwater impacts beyond the four remaining OU boundaries were identified during the RI activities. A well search completed in accordance with DER-10 identified four (4) well completion records within a mile from the Site. One of these wells is located in the vicinity of the Golf Maintenance Building (OU-2), and the other well is located approximately 250 feet northwest of OU-2 along Chalet Road. These wells were sampled during the RI, and analytical results indicated that groundwater in the vicinity of the wells is not impacted by the migration of contaminants from any of the four remaining OUs. This proposed plan includes measures to prevent any groundwater impacts beyond the OU boundaries during remedial construction/redevelopment activities.

Geography and geology of the Site: See Sections 1.1 and 2.1 above.

Current Institutional Controls: New institutional controls, such as prohibiting the use of groundwater for drinking water without treatment and prior approval, will be required in the environmental easement.

## **3.4 SUMMARY OF SELECTED REMEDIAL ACTIONS**

### **3.4.1 Operable Unit 1B – Gas Station and Disposal Area**

The proposed remedial actions for OU-1B have been submitted to the NYSDEC in an Interim Remedial Measure Work Plan (IRMWP), dated October 31, 2008. No additional remedial tasks are proposed for OU-1B in this RAWP. Approved by the NYSDEC on December 2, 2008, these remedial actions will achieve a Track 1, Unrestricted Use cleanup for OU-1B.

### **3.4.2 Operable Unit 1C – International Golf Clubhouse and Maintenance Building Area**

Similar to OU-1B, the nature of the redevelopment activities favors a Track 1, Unrestricted Use cleanup for OU-1C. The proposed remedial action involves:

1. Excavation of source soil in the vicinity of AOC 10 that is impacted at levels that exceed the Track 1 Unrestricted Use SCOs.
2. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during any intrusive Site work.
3. Collection and analysis of end-point samples to evaluate the performance of the remedy with respect to attainment of the Track 1 Unrestricted Use SCOs.
4. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal.

### **3.4.3 Operable Unit 2 – Golf Maintenance Building & Adjacent Disposal Area**

A summary of the remedial actions, to address the impacts identified within OU-2 to achieve a Track 2 cleanup, are discussed below:

1. Source removal excavation in the vicinity of AOCs 16 and 17 (USTs), AOC 22 (Septic Field), and AOC 21 (Disposal Area). Source removal will include:
  - a. Removal of the existing USTs in accordance with the procedures outlined in Section 5.5, *Underground Storage Tank Closure*, of NYSDEC Draft DER-10.
  - b. Soil that is grossly contaminated (i.e., soil that may act as a source of groundwater impacts or soil vapor with a potential to impact indoor air quality in structures up to 100 feet away);

- c. Soil in AOCs 16, 17, 21, and 22 that is impacted at levels that exceed the Restricted Use-Commercial SCOs.
2. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during any intrusive Site work.
3. Collection and analysis of end-point samples to evaluate the performance of the remedy with respect to attainment of the Restricted Use-Commercial SCOs in an attempt to achieve a Track 2 cleanup.
4. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal.

#### Institutional Controls

5. Recording of an Environmental Easement, including Institutional Controls, to prevent future exposure to any residual soil and/or groundwater contamination remaining at the Site.
6. Publication of a Site Management Plan for long term management of residual contamination as required by the Environmental Easement, including plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance and (4) reporting.

### **3.4.4 Operable Unit 3 – International Golf Course Disposal Area**

A summary of the remedial actions, to address the impacts identified within OU-3 to achieve a Track 2 cleanup, are discussed below:

1. Excavation of source soil in the vicinity of OU3-TP11 that is impacted at levels that significantly exceed the Restricted Use-Commercial SCOs.
2. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during any intrusive Site work.
3. Collection and analysis of end-point samples to evaluate the performance of the remedy with respect to attainment of the Restricted Use-Commercial SCOs in an attempt to achieve a Track 2 cleanup.
4. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal.

#### Institutional Controls

5. Recording of an Environmental Easement, including Institutional Controls, to prevent future exposure to any residual soil and/or groundwater contamination remaining at the Site.
6. Publication of a Site Management Plan for long term management of residual contamination as required by the Environmental Easement, including plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance and (4) reporting.

All responsibilities associated with the Remedial Action, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable Federal, State and local rules and regulations. Remedial activities will be performed at the Site in accordance with this NYSDEC-approved RAWP. All deviations from the RAWP will be promptly reported to NYSDEC for approval and fully explained in the FER.

## **4.0 REMEDIAL ACTION PROGRAM**

### **4.1 GOVERNING DOCUMENTS**

#### **4.1.1 Site Specific Health & Safety Plan (HASP)**

A copy of the SESI Health and Safety Plan (HASP) is included as Appendix 3. All remedial work performed by SESI employees will be in full compliance with this HASP and governmental requirements, including Site and worker safety requirements mandated by Federal OSHA.

The Volunteer, its subcontractors, and associated parties performing the construction work are completely responsible for the preparation of their own appropriate Health and Safety Plans, and for ensuring the performance of their work conforms to the provisions of their HASP and all applicable laws.

Confined space entry, if required during UST removal, will comply with all OSHA requirements to address the potential risk posed by combustible and toxic gasses.

#### **4.1.2 Quality Assurance Project Plan (QAPP)**

A copy of the SESI QAPP is included as Appendix 4. All field sampling procedures and analytical methods will be implemented in accordance with this QAPP.

### **4.1.3 Construction Quality Assurance Plan (CQAP)**

The Construction Quality Assurance Plan (CQAP) describes how the successful performance of the Remedial Action tasks will be assured through designed and documented QA/QC methodologies applied in the field and in the lab. The CQAP provides a detailed description of the observation and testing activities that will be used to monitor remedial construction quality and confirm that remedy construction is in conformance with the remediation objectives and specifications. The CQAP is included as Appendix 5.

### **4.1.4 Soil/Materials Management Plan (SoMP)**

The Soil/Materials Management Plan (SoMP) includes detailed plans for managing all soils/materials that are disturbed at the Site, including excavation, handling, storage, transport and disposal. The SoMP is included as Appendix 6 to this RAWP. Any applicable revisions to this plan will be submitted to the NYSDEC as part of the Contractors Site Operations Plan (see Section 4.1.7).

### **4.1.5 Storm-Water Pollution Prevention Plan (SWPPP)**

A SWPPP addressing work performed in OU-1B and OU-1C (NYR No. 10Q326) has been approved and is currently being executed on-site. An additional SWPPP to address remedial construction activities in OU-2 and OU-3 will be submitted to NYSDEC, and approval of the SWPPP will be obtained prior to the start of work.

### **4.1.6 Community Air Monitoring Plan (CAMP)**

A copy of the CAMP for the site is included as Appendix 8.

### **4.1.7 Contractors Site Operations Plan (SOP);**

The Remediation Contractor will prepare a Contractors Site Operations Plan (SOP) prior to the start of construction. The Environmental/Remedial Engineer, SESI, will review this SOP for completeness and ensure it includes the following items, at a minimum:

- Anticipated hours of work;
- Site security procedures;
- Traffic control measures; and
- Planned contingency actions.

SESI will also review all plans and submittals for the remedial construction (including those listed above and contractor and sub-contractor document submittals) and confirm that they are

in compliance with this RAWP. All remedial documents will be submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work.

#### **4.1.8 Community Participation Plan**

A certification of mailing will be sent by the Volunteer 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 \_ 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.

The updated Community Participation Plan for this project is attached in Appendix 10.

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

Crawford Public Library  
Reference Desk  
187 Broadway #189  
Monticello, NY 12701  
Hours  
Mon., Tues., Thurs., Fri. 10:00 am – 6:00 pm  
Wednesday - 10:00 am – 7:30 pm  
Saturday - 11:00 am – 3:00 pm  
Sunday - Closed

NYSDEC Region 3  
New Paltz Office  
21 South Putt Corners Rd.  
New Paltz, New York 12561  
(845) 256-3154

## **4.2 GENERAL REMEDIAL CONSTRUCTION INFORMATION**

### **4.2.1 Project Organization**

Concord Associates, LP is the BCP Volunteer and redeveloper of the Site. SESI is the environmental consultant for Concord Associates, and will provide the Remedial Engineer. A table summarizing the various personnel associated with the project is included as Table 7.

### **4.2.2 Remedial Engineer**

The Remedial Engineer for this project will be Michael St. Pierre. The Remedial Engineer is a registered Professional Engineer licensed by the State of New York, NY PE License No. 080271. The Remedial Engineer will have primary direct responsibility for implementation of the remedial program for the Concord Hotel and Resort Site (NYSDEC BCA

Index No. W3-1004-04-06 Site No. C353008). The Remedial Engineer will certify in the Final Engineering Report that the remedial activities were observed by qualified environmental professionals under his supervision and that the remediation requirements set forth in the Remedial Action Work Plan and any other relevant provisions of ECL 27-1419 have been achieved in full conformance with that Plan. Other Remedial Engineer certification requirements are listed later in this RAWP.

The Remedial Engineer will coordinate the work of other contractors and subcontractors involved in all aspects of remedial construction, including soil excavation, stockpiling, characterization, removal and disposal, air monitoring, emergency spill response services, import of back fill material, and management of waste transport and disposal. The Remedial Engineer will be responsible for all appropriate communication with NYSDEC and NYSDOH.

The Remedial Engineer will review all pre-remedial plans submitted by contractors for compliance with this Remedial Action Work Plan and will certify compliance in the Final Remediation Report.

The Remedial Engineer will provide the certifications listed in the Final Engineering Report.

#### **4.2.3 Remedial Action Construction Schedule**

A remedial action construction schedule is included as Table 8. The schedule includes estimates of time required to complete the activities associated with the remedial action. It is based on elapsed time from receipt of NYSDEC approval. Once NYSDEC approves this RAWP, an updated schedule showing actual dates will be provided to the NYSDEC as an addendum to this plan.

#### **4.2.4 Work Hours**

The hours for operation of remedial construction will conform to the Town of Thompson Department of Buildings construction code requirements or according to specific variances issued by that agency. The NYSDEC will be notified by the Applicant of any variances issued by the Department of Buildings.

#### **4.2.5 Site Security**

A detailed description of the proposed site security measures will be included in the Site Operations Plan (see Section 4.1.7). Portions of the Site are currently secured with fences and locked gates. Access to Site is controlled by a security guard and local police patrolling the area.



#### **4.2.6 Traffic Control**

Currently, all non-project related through-traffic is diverted from Concord Road and only project-related vehicles are allowed to enter the site. A description of the proposed traffic control measures addressing the site-wide management of construction/haul equipment will be included in the Site Operations Plan (see Section 4.1.7).

#### **4.2.7 Contingency Plan**

A description of the proposed contingency measures will be included in the Site Operations Plan (see Section 4.1.7).

#### **4.2.8 Worker Training and Monitoring**

Worker training and monitoring requirements are outlined in the CQAP (see Section 4.1.3).

#### **4.2.9 Agency Approvals**

Concord Associates, LP has addressed all SEQRA requirements for this Site. All permits or government approvals required for remedial construction have been, or will be, obtained prior to the start of remedial construction. Key permits/approvals that will be required to complete the remedial action include:

- United States Army Corps of Engineers (USACE) Nationwide Wetlands Disturbance Permit
- SWPPP applicable to remediation/redevelopment activities in OU-2 and OU-3.

The planned end use for the Site is in conformance with the current zoning for the property as determined by the Town of Thompson Department of Planning

#### **4.2.10 NYSDEC BCP Signage**

A project sign has been erected at the main entrance to the Site. The sign indicates that the project is being performed under the New York State Brownfield Cleanup Program.

#### **4.2.11 Pre-Construction Meeting with NYSDEC**

Upon request of the NYSDEC, a pre-construction meeting may be held with NYSDEC prior to the start of major remedial construction activities.

#### **4.2.12 Emergency Contact Information**

An emergency contact sheet with names and phone numbers is included in Table 9. That document will define the specific project contacts for use by NYSDEC and NYSDOH in the case of a day or night emergency.

#### **4.2.13 Remedial Action Costs**

The estimated costs of the Remedial Action for both the Track 1 and Track 4 alternatives are included in Table 10. An itemized and detailed summary of the actual costs incurred during the remedial activity will be included in the FER.

### **4.3 SITE PREPARATION**

#### **4.3.1 Mobilization**

Some mobilization tasks have been completed as part of the on-going project work. Additional tasks that may be completed, as needed, will include:

- Construction of additional fencing and barriers;
- Construction of erosion control measures; and
- Construction of decontamination and materials staging areas.

#### **4.3.2 Erosion and Sedimentation Controls**

Current erosion and sediment control measures are outlined in the NYSDEC-approved SWPPP for OU-1B and 1C (see Section 4.1.5). Additional controls required for the OU-specific remediation/redevelopment activities in OU-2 and OU-3 will be included in the new SWPPP to be submitted to and approved by the NYSDEC prior to the start of work.

#### **4.3.3 Stabilized Construction Entrance(s)**

Traffic control, decontamination, and measures to prevent cross-contamination of construction equipment are currently in place as part of the demolition work. Specific details of these measures will be formally addressed in the Site Operations Plan (see Section 4.1.7).

#### **4.3.4 Utility Marker and Easements Layout**

Concord Associates, LP and its contractors are solely responsible for the identification of utilities that might be affected by work under the RAWP and implementation of all required,

appropriate, or necessary health and safety measures during performance of work under this RAWP. Concord Associates, LP and its contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP. Concord Associates, LP and its contractors will obtain any local, State or Federal permits or approvals pertinent to such work that may be required to perform work under this RAWP.

#### **4.3.5 Sheeting and Shoring**

Appropriate management of structural stability of on-Site structures during remedial activities, primarily excavation, is the sole responsibility of Concord Associates, LP and its contractors. Concord Associates, LP and its contractors will be solely responsible for safe execution of all invasive and other work performed under this Plan. Concord Associates, LP and its contractors will obtain any local, State or Federal permits or approvals that may be required to perform work under this Plan.

#### **4.3.6 Equipment and Material Staging**

Equipment and material staging areas are expected to be relocated throughout the site during remedial construction. To the extent possible, the staging areas will be consolidated and co-located with the OUs. A detailed description of these areas will be included in the Site Operations Plan (see Section 4.1.7).

#### **4.3.7 Decontamination Area**

Guidance for the establishment and operational requirements of appropriate exclusion, contaminant reduction, and support zones is provided in the SESI HASP. Details on the decontamination area construction and operating procedures will be outlined in the Contractors Site Operations Plan (see Section 4.1.7).

#### **4.3.8 Site Fencing**

Portions of the Site are currently secured with fences and locked gates to restrict access to non-project personnel. Within OUs 2 and 3, construction safety fencing will be installed as needed around the areas of work (e.g. demarcation of exclusion zone, contaminant reduction zone, support zone, etc.) in accordance with the provisions of the HASP (see Section 4.1.1). The existing contaminated material stockpile area is currently fenced, and access to this area is currently being restricted only to authorized project-personnel. Any additional stockpiles of contaminated material generated during remedial construction will be treated in the same manner.

### **4.3.9 Demobilization**

Demobilization will include the following activities:

- Restoration of areas that may have been disturbed to accommodate support areas (e.g., staging areas, decontamination areas, storage areas, temporary water management area[s], and access area);
- Removal of temporary access areas (whether on-Site or off-Site) and restoration of disturbed access areas to pre-remediation conditions;
- Removal of sediment and erosion control measures and disposal of materials in accordance with acceptable rules and regulations;
- Equipment decontamination;
- General refuse disposal.

## **4.4 REPORTING**

All daily and monthly Reports will be included in the Final Engineering Report.

### **4.4.1 Daily Reports**

Daily reports will be prepared by SESI field personnel documenting the remedial action. These reports will include:

- An update of progress made during the reporting day;
- Locations of work and quantities of material imported and exported from the Site;
- A summary of any and all complaints with relevant details (names, phone numbers);
- A summary of CAMP finding, including excursions;
- An explanation of notable Site conditions.

Each week the daily reports will be summarized and submitted to NYSDEC and NYSDOH Project Managers on the first business day following the reporting period. Daily reports are not intended to be the mode of communication for notification to the NYSDEC of emergencies (accident, spill), requests for changes to the RAWP or other sensitive or time critical information. However, such conditions will also be included in the daily reports. Emergency conditions and changes to the RAWP will be addressed directly to NYSDEC Project Manager via personal communication.

The NYSDEC assigned project number will appear on all reports.

#### **4.4.2 Monthly Reports**

Monthly reports will be submitted to NYSDEC and NYSDOH Project Managers within one week following the end of the month of the reporting period and will include:

- Activities relative to the Site during the previous reporting period and those anticipated for the next reporting period, including a quantitative presentation of work performed (i.e. tons of material exported and imported, etc.);
- Description of approved activity modifications, including changes of work scope and/or schedule;
- Sampling results received following internal data review and validation, as applicable; and,
- An update of the remedial schedule including the percentage of project completion, unresolved delays encountered or anticipated that may affect the future schedule, and efforts made to mitigate such delays.

#### **4.4.3 Photo Documentation**

Photographs will be taken of all remedial activities and submitted to NYSDEC in digital (JPEG) format. Photos will illustrate all remedial program elements and will be of acceptable quality. Representative photos of the Site prior to any Remedial Actions will be provided. Representative photos will be provided of each contaminant source, source area and Site structures before, during and after remediation. Photos will be submitted to NYSDEC on CD or other acceptable electronic media as part of the FER. CD's will have a label and a general file inventory structure that separates photos into directories and sub-directories according to logical Remedial Action components. A photo log keyed to photo file ID numbers will be prepared to provide explanation for all representative photos.

Job-site record keeping for all remedial work will be appropriately documented. These records will be maintained on-Site at all times during the project and be available for inspection by NYSDEC and NYSDOH staff.

#### **4.4.4 Complaint Management Plan**

A public information board will be constructed at the perimeter of the Site. This information board will contain the phone number of the Applicant where complaints may be directed. General information notices to the public will also be posted on this board for their benefit.

#### **4.4.5 Deviations from the Remedial Action Work Plan**

If there are any deviations from the RAWP, the following steps will be taken:

- Reasons for deviating from the approved RAWP will be identified and communicated directly to the NYSDEC Project Manager;
- All deviations will be communicated verbally and in writing (by letter or email) to the NYSDEC Project Manager;
- The deviations will be implemented based on verbal or written approval of the NYSDEC Project Manger. All verbal approvals will be followed-up in writing.
- The effect of the deviations on the overall remedy will be described/addressed in the Final Engineering Report.

### **5.0 PROPOSED REMEDIAL ACTION**

#### **5.1 UST CLOSURE/REMOVAL**

The following list identifies the existing, inoperable USTs that will be removed from AOCs 16 and 17 in OU-2:

- UST1 – 300 gal. (AOC 16)
- UST2 – 2,000 gal. (AOC 16)
- UST3 – 1,000 gal. (AOC 16)
- UST4 – 1,000 gal. (AOC 16)
- UST5 – 550 gal. (AOC 17)

UST closures will, at a minimum, conform to criteria defined in 6 NYCRR 375-1.8(b).

#### **5.2 CONTAMINATED SOIL EXCAVATION**

The extent of proposed soil excavation for each of the OUs are included in Figures 8A through 8C. Removal of all contaminated media performed during the Remedial Action will be implemented in accordance with the site-specific CQAP and the QAPP. A summary of the volume, location, depths, and concentration of all contaminants in excess of the applicable remediation standards are included in Table 11.

The Soil Cleanup Objectives (SCOs) for OU-1B, OU-1C, are the NYSDEC Track 1 Unrestricted Use criteria. The SCOs for OU-2 and OU-3 are the Restricted Use-Commercial criteria. SCO concentrations for the applicable analytes in these two categories are listed in Table 6.

Soil and materials management on-Site and off-Site will be conducted in accordance with the Soil/Materials Management Plan included as Appendix 6.

Table 2 summarizes all soil samples that exceed the SCOs proposed for this Remedial Action. A spider map that shows all soil samples that exceed the SCOs proposed for this Remedial Action is shown in Figures 6A-C.

### **5.3 REMEDIAL PERFORMANCE EVALUATION (POST EXCAVATION END-POINT SAMPLING)**

#### **5.3.1 End-Point Sampling Frequency**

For all excavations, post-excavation soil samples will be collected in accordance with Section 5.4 of DER-10. End point sampling will include excavation bottom and side-wall sampling. Side-wall samples will be collected a minimum of every 30 linear feet. Bottom samples will be collected at a rate of one for every 900 square feet.

Impacted groundwater encountered during excavation (primarily perched groundwater in the vicinity of the USTs in OU-2) will be sampled, removed with a vacuum truck, and disposed of off-site.

#### **5.3.2 Methodology**

Soil samples will be collected in accordance with the QAPP using disposable gloves/trowels or dedicated, decontaminated stainless steel spoons. Groundwater samples, if applicable, will be collected from open excavations either using disposable bailers or, where appropriate, directly into the sampling jars.

#### **5.3.3 Reporting of Results**

The samples will be submitted to a NYSDOH certified laboratory. The results will be reported in accordance with NYSDEC requirements for Category B data deliverables (as outlined in DER-10).

### **5.3.4 QA/QC**

Collection of QA/QC samples to evaluate potential cross-contamination from sampling equipment and during shipment of samples and repeatability of laboratory analytical practices will be in accordance with the QAPP included as Appendix 3. Field blanks, trip blanks and duplicate samples associated with daily sampling activities will be collected as a part of the QA/QC practices.

### **5.3.5 DUSR**

To ensure that the field sampling and laboratory analytical practices are acceptable, the data associated with all the samples will be validated by a third party (in accordance with requirements of DER-10). The validation approach and results will be presented in a Data Usability Summary Report (DUSR) to be included in the FER.

### **5.3.6 Reporting of End-Point Data in FER**

The FER will include a table of end point data with highlights or a summary of exceedances of SCOs. A spider map showing all SCO exceedances remaining on-site will also be presented in the FER.

## **6.0 ENGINEERING CONTROLS**

### **6.1 COMPOSITE COVER SYSTEM**

Exposure to residual landfill material will be prevented by an engineered, composite cover system that will be built on a portion of OU-2. A work plan will be prepared and submitted to NYSDEC-Division of Solid and Hazardous Materials, Region 3, detailing the activities associated with closure of the unregulated landfills within the Site.

Applicable long-term maintenance/monitoring of the landfill cover system and underlying materials will be incorporated into the Site Management Plan, which will be submitted as part of the FER.

### **6.2 GROUNDWATER MONITORING SYSTEM**

The groundwater monitoring well, OU2-MW38, (see Figure 10A) will be utilized to monitor the groundwater quality down-gradient of the landfill area in OU-2. Similarly, OU3-MW18 and the two additionally proposed wells shown in Figure 10B will be used to monitor groundwater quality in OU-3. Groundwater samples will be collected annually, in accordance with requirement outlined in DER-10. The groundwater samples will be analyzed for pesticides,



PCBs, total, and dissolved metals. This monitoring protocol will be described in the Site Management Plan in the FER.

### **6.3 CRITERIA FOR COMPLETION OF REMEDIATION/TERMINATION OF REMEDIAL SYSTEMS**

#### Groundwater Monitoring

Groundwater monitoring activities to assess groundwater quality will continue, as determined by NYSDOH and NYSDEC, until residual groundwater concentrations are found to be below NYSDEC standards or have become asymptotic over an extended period. Monitoring will continue until permission to discontinue is granted in writing by NYSDEC and NYSDOH. These monitoring activities will be outlined in the Monitoring Plan of the SMP.

### **7.0 WETLANDS/WETLANDS BUFFER RESTORATION**

As required, wetlands and/or wetlands buffer area disturbed during the remedial action will be restored to their existing condition. Restoration activities will be governed by a wetlands mitigation plan, which will be submitted to the USACE in a Nationwide Wetlands Permit application prior to the start of work. The wetlands mitigation plan will include the following:

- A description of the site to be restored;
- A description of the steps to be used in area preparation;
- The plant materials to be used;
- A detailed grading plan;
- A description of the soil to be used;
- A schedule/construction timetable;
- A maintenance plan; and
- Monitoring/assessment procedures.

### **8.0 RESIDUAL CONTAMINATION TO REMAIN ON-SITE**

Since residual contaminated soil and groundwater, and potentially soil vapor will exist beneath the Site after the remedy is complete, Engineering and Institutional Controls (ECs and

ICs) are required to protect human health and the environment. Long-term management of EC/ICs and of residual contamination will be described in a Site specific Site Management Plan (SMP) that will be developed and included in the FER, and will run with the land in an environmental easement that must be implemented by all future owners of the site until such time as unrestricted Track 1 cleanup levels are achieved. ECs will be implemented to protect public health and the environment by appropriately managing residual contamination. The FER will report residual contamination on the Site in tabular and map form. This will include presentation of exceedances of both Unrestricted and Restricted Use-Commercial SCOs.

## **9.0 INSTITUTIONAL CONTROLS**

After the remedy is complete, OU-2 and OU-3 will have residual contamination remaining in place. Engineering Controls (ECs) for the residual contamination have been incorporated into the remedy to render the overall Site remedy protective of public health and the environment. Two elements have been designed to ensure continual and proper management of residual contamination in perpetuity and/or until Track 1 cleanup objectives have been achieved: an Environmental Easement and a Site Management Plan. These elements are described in this Section. A Site -specific Environmental Easement will be recorded with Sullivan County to provide an enforceable means of ensuring the continual and proper management of residual contamination and protection of public health and the environment in perpetuity or until released in writing by NYSDEC through achievement of the Track 1 objectives. It requires that the grantor of the Environmental Easement and the grantor's successors and assigns adhere to all Engineering and Institutional Controls (ECs/ICs) placed on this Site by this NYSDEC-approved remedy. ICs provide restrictions on Site usage and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. The Site Management Plan (SMP) will describe appropriate methods and procedures to ensure compliance with all ECs and ICs that are required by the Environmental Easement. Once the SMP has been approved by the NYSDEC, compliance with the SMP is required by the grantor of the Environmental Easement and grantor's successors and assigns.

### **9.1 ENVIRONMENTAL EASEMENT**

An Environmental Easement, as defined in Article 71 Title 36 of the Environmental Conservation Law, is required when residual contamination is left on-Site after the Remedial Action is complete. If the Site will have residual contamination above the Track 1 SCOs after completion of all Remedial Actions then an Environmental Easement is required. As part of this remedy, an Environmental Easement approved by NYSDEC will be filed and recorded with the

Sullivan County Clerk. The Environmental Easement will be submitted as part of the Final Engineering Report.

The Environmental Easement renders the Site a Controlled Property. The Environmental Easement will be recorded with the Sullivan County Clerk before the Certificate of Completion is issued by NYSDEC. A series of Institutional Controls are required under this remedy to implement, maintain and monitor these Engineering Control systems, prevent future exposure to residual contamination by controlling disturbances of the subsurface soil and restricting the use of the Site to commercial use only. These Institutional Controls are requirements or restrictions placed on the Site that are listed in, and required by, the Environmental Easement. Institutional Controls can, generally, be subdivided between controls that support Engineering Controls, and those that place general restrictions on Site usage or other requirements. Institutional Controls in both of these groups are closely integrated with the Site Management Plan, which provides all of the methods and procedures to be followed to comply with this remedy.

The Institutional Controls that support Engineering Controls are:

- Compliance with the Environmental Easement by the Grantee and the Grantee's successors and adherence of all elements of the SMP is required;
- All Engineering Controls must be operated and maintained as specified in this SMP;
- A composite cover system consisting of concrete building slabs and clean soil cover must be inspected, certified and maintained as required in the SMP;
- All Engineering Controls on the Controlled Property will be inspected and certified at a frequency and in a manner defined in the SMP;
- Groundwater, soil vapor (if applicable) and other environmental or public health monitoring will be performed as defined in the SMP;
- Data and information pertinent to Site Management for the Controlled Property will be reported at the frequency and in a manner to be defined in the SMP;
- On-Site environmental monitoring devices, including but not limited to groundwater monitor wells, will be protected and replaced as necessary to ensure proper functioning in the manner specified in the SMP;
- Engineering Controls may not be discontinued without an amendment or extinguishment of the Environmental Easement.

Adherence to these Institutional Controls for the Site is mandated by the Environmental Easement and will be implemented under the Site Management Plan (discussed in the next section). The Controlled Property (Site) will also have a series of Institutional Controls in the

form of Site restrictions and requirements. The Site restrictions that apply to the Controlled Property are:

- Vegetable gardens and farming on the Controlled Property are prohibited;
- Use of groundwater underlying the Controlled Property is prohibited without treatment rendering it safe for intended purpose;
- All future activities on the Controlled Property that will disturb residual contaminated material are prohibited unless they are conducted in accordance with the soil management provisions in the Site Management Plan;
- The Controlled Property may be used for restricted residential or commercial use only, provided the long-term Engineering and Institutional Controls included in the Site Management Plan are employed;
- The Controlled Property may not be used for a higher level of use, such as restricted residential use without an amendment or extinguishment of this Environmental Easement;
- Grantor agrees to submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow. This annual statement must be certified by an expert that the NYSDEC finds acceptable.

## **9.2 SITE MANAGEMENT PLAN**

Site Management is the last phase of remediation and begins with the approval of the Final Engineering Report and issuance of the Certificate of Completion (COC) for the Remedial Action. The Site Management Plan is submitted as part of the FER, but will be written in a manner that allows its removal and use as a complete and independent document. Site Management continues in perpetuity or until released in writing by NYSDEC. The property owner is responsible to ensure that all Site Management responsibilities defined in the Environmental Easement and the Site Management Plan are performed.

The SMP is intended to provide a detailed description of the procedures required to manage residual contamination left in place at the Site following completion of the Remedial

Action in accordance with the BCA with the NYSDEC. This includes: (1) development, implementation, and management of all Engineering and Institutional Controls; (2) development and implementation of monitoring systems and a Monitoring Plan; (3) development of a plan to operate and maintain any treatment, collection, containment, or recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual); (4) submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of Site information to NYSDEC; and (5) defining criteria for termination of treatment system operation.

To address these needs, this SMP will include four plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems; and (4) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to NYSDEC. The SMP will be prepared in accordance with the requirements in NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation, dated December 2002, and the guidelines provided by NYSDEC.

Site management activities, reporting, and EC/IC certification will be scheduled on a certification period basis. The certification period will be annually. The Site Management Plan will be based on a calendar year and will be due for submission to NYSDEC by March 1 of the year following the reporting period.

The Site Management Plan in the Final Remediation Report will include a monitoring plan for groundwater at the down-gradient Site perimeter to evaluate Site -wide performance of the remedy. Appropriately placed groundwater monitor wells will also be installed immediately down-gradient of all volatile organic carbon remediation areas for the purpose of evaluation of the effectiveness of the remedy that is implemented.

No exclusions for handling of residual contaminated soils will be provided in the Site Management Plan (SMP). All handling of residual contaminated material will be subject to provisions contained in the SMP.

## **10.0 FINAL ENGINEERING REPORT**

A Final Engineering Report (FER) and draft Certificate of Completion (COC) will be submitted to NYSDEC following implementation of the Remedial Action defined in this RAWP. The FER provides the documentation that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The FER will provide a comprehensive account of the locations and characteristics of all material removed from the Site

including the surveyed map(s) of all sources. The Final Engineering Report will include as-built drawings for all constructed elements, certifications, manifests, bills of lading as well as the complete Site Management Plan (formerly the Operation and Maintenance Plan). The FER will provide a description of the changes in the Remedial Action from the elements provided in the RAWP and associated design documents. The FER will provide a tabular summary of all performance evaluation sampling results and all material characterization results and other sampling and chemical analysis performed as part of the Remedial Action. The FER will provide test results demonstrating that all mitigation and remedial systems are functioning properly. The FER will be prepared in conformance with DER-10.

Where determined to be necessary by NYSDEC, a Financial Assurance Plan will be required to ensure the sufficiency of revenue to perform long-term operations, maintenance and monitoring tasks defined in the Site Management Plan and Environmental Easement. This determination will be made by NYSDEC in the context of the Final Engineering Report review.

The Final Remediation Report will include written and photographic documentation of all remedial work performed under this remedy.

The FER will include an itemized tabular description of actual costs incurred during all aspects of the Remedial Action.

The FER will provide a thorough summary of all residual contamination left on the Site after the remedy is complete. Residual contamination includes all contamination that exceeds the Track 1 Unrestricted Use SCO in 6NYCRR Part 375-6. A table that shows exceedances from Track 1 Unrestricted SCOs for all soil/fill remaining at the Site after the Remedial Action and a map that shows the location and summarizes exceedances from Track 1 Unrestricted SCOs for all soil/fill remaining at the Site after the Remedial Action will be included in the FER.

The FER will provide a thorough summary of all residual contamination that exceeds the SCOs defined for the Site in the RAWP and must provide an explanation for why the material was not removed as part of the Remedial Action. A table that shows residual contamination in excess of Site SCOs and a map that shows residual contamination in excess of Site SCOs will be included in the FER.

The Final Engineering Report will include an accounting of the destination of all material removed from the Site, including excavated contaminated soil, historic fill, solid waste, hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. It will provide an accounting of the origin and chemical quality of all material imported onto the Site.

Before approval of a FER and issuance of a Certificate of Completion, all project reports must be submitted in digital form on electronic media (PDF).

## 10.1 CERTIFICATIONS

The following certification will appear in front of the Executive Summary of the Final Engineering Report. The certification will be signed by the Remedial Engineer Michael St. Pierre who is a Professional Engineer registered in New York State. This certification will be appropriately signed and stamped. The certification will include the following statements:

I, Michael St. Pierre, am currently a registered professional engineer licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program for the Concord Hotel and Resort Site (NYSDEC BCA Index No. W3-1004-04-06 Site No. C353008).

I certify that the Site description presented in this FER is identical to the Site descriptions presented in the Environmental Easement, the Site Management Plan, and the Brownfield Cleanup Agreement for Concord Hotel and Resort and related amendments.

I certify that the Remedial Action Work Plan dated September 2008 Stipulations approved by the NYSDEC were implemented and that all requirements in those documents have been substantively complied with.

I certify that the remedial activities were observed by qualified environmental professionals under my supervision and that the remediation requirements set forth in the Remedial Action Work Plan and any other relevant provisions of ECL 27-1419 have been achieved.

I certify that all use restrictions, Institutional Controls, Engineering Controls, and all operation and maintenance requirements applicable to the Site are contained in an Environmental Easement created and recorded pursuant ECL 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded. A Site Management Plan has been submitted by the Applicant for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by the NYSDEC.

I certify that the export of all contaminated soil, fill, water or other material from the property was performed in accordance with the Remedial Action Work Plan, and were taken to facilities licensed to accept this material in full compliance with all Federal, State and local laws.

I certify that all import of soils from off-Site, including source approval and sampling, has been performed in a manner that is consistent with the methodology defined in the Remedial Action Work Plan.

I certify that all invasive work during the remediation and all invasive development work were conducted in accordance with dust and odor suppression methodology and soil screening methodology defined in the Remedial Action Work Plan.

I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

It is a violation of Article 130 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 130, New York State Education Law.

## 11.0 SCHEDULE

The anticipated duration of the Remedial Action is five months. A preliminary schedule is included as Table 8. The schedule is broken down into work elements and includes estimated durations for performance of work and preparation of deliverables.

## 12.0 REFERENCES

- Atlantic Environmental Inc., *Qualitative Human Health Exposure Assessment At Concord Hotel and Resort Complex*, October 30, 2008.
- Environmental Compliance Services, Inc. *Phase II Environmental Site Assessment Report*, September 1998.
- Federal Remediation Technologies Roundtable. *Remediation Technologies Screening Matrix and Reference Guide, Version 4.0*. April, 2002.
- International Centre for Soil and Contaminated Sites (ICSCS). *Manual for Biological Remediation Technologies*. 2006.
- LaGrega, Buckingham, Evans., *Hazardous Waste Management*, McGraw-Hill, Inc., 1994.
- Merck and Co., Inc.. *The Merck Index, 10<sup>th</sup> Edition*, 1983.
- PK Environmental, *Fish and Wildlife Impact Analysis (FWIA), Brownfield Cleanup Program (Site #C353008), Operable Units 1B, 1C, 2, and 3, Concord Hotel and Resort Property*, November 2008.
- SESI Consulting Engineers. *Remedial Investigation Report, Operable Units 1B, 1C, 2, and 3*. November 14, 2008.
- United States Environmental Protection Agency, *OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance)*, EPA530-D-02-004, November 2002.



## **FIGURES**

Figure 1 – USGS Topographic Map

Figure 2 – Site Map/Boundary Map

Figure 3 – Redevelopment Plan

Figure 4A-D – Geological Sections

Figure 5A-C – Groundwater Flow Contours

Figure 6A-C – Location of Exceedances of Proposed Remedial SCOs

Figure 7A-C – Exceedances of Groundwater GA Standards

Figure 8A-C – Locations of Contaminated Soil Excavation

Figure 9A-B – Long-Term Monitoring Well Network Plan

## **TABLES**

Table 1 – Sampling Summary Table

Table 2A-D – Exceedances of Soil/Fill SCOs

Table 3A-D – Exceedances of Groundwater GA Standards

Table 4 – Soil Vapor Data

Table 5 - Applicable Remedial Reference/Guidance Documents

Table 6 –Soil Cleanup Objectives

Table 7 – Project personnel

Table 8– Remedial Action Schedule

Table 9 – Emergency Contact Numbers

Table 10 – Estimated Costs for Remedial Activity

Table 11 – Volume, Location, Depth, and Concentration of Contamination

Table 12 – Backfill Chemical Analysis for Imported Soil

## **APPENDIX 1**

Metes and Bounds

## **APPENDIX 2**

Boring and Groundwater Monitoring Well Construction Logs

## **APPENDIX 3**

Health and Safety Plan

## **APPENDIX 4**

Quality Assurance Project Plan

## **APPENDIX 5**

### Construction Quality Assurance Plan

## **APPENDIX 6**

Soil/Materials Management Plan



## **APPENDIX 7**

Storm-Water Pollution Prevention Plan – OU-1B and OU-1C

(OU-2 and OU-3 SWPPP to be submitted as an addendum prior to the start of work)

**APPENDIX 8**

Community Air Monitoring Plan

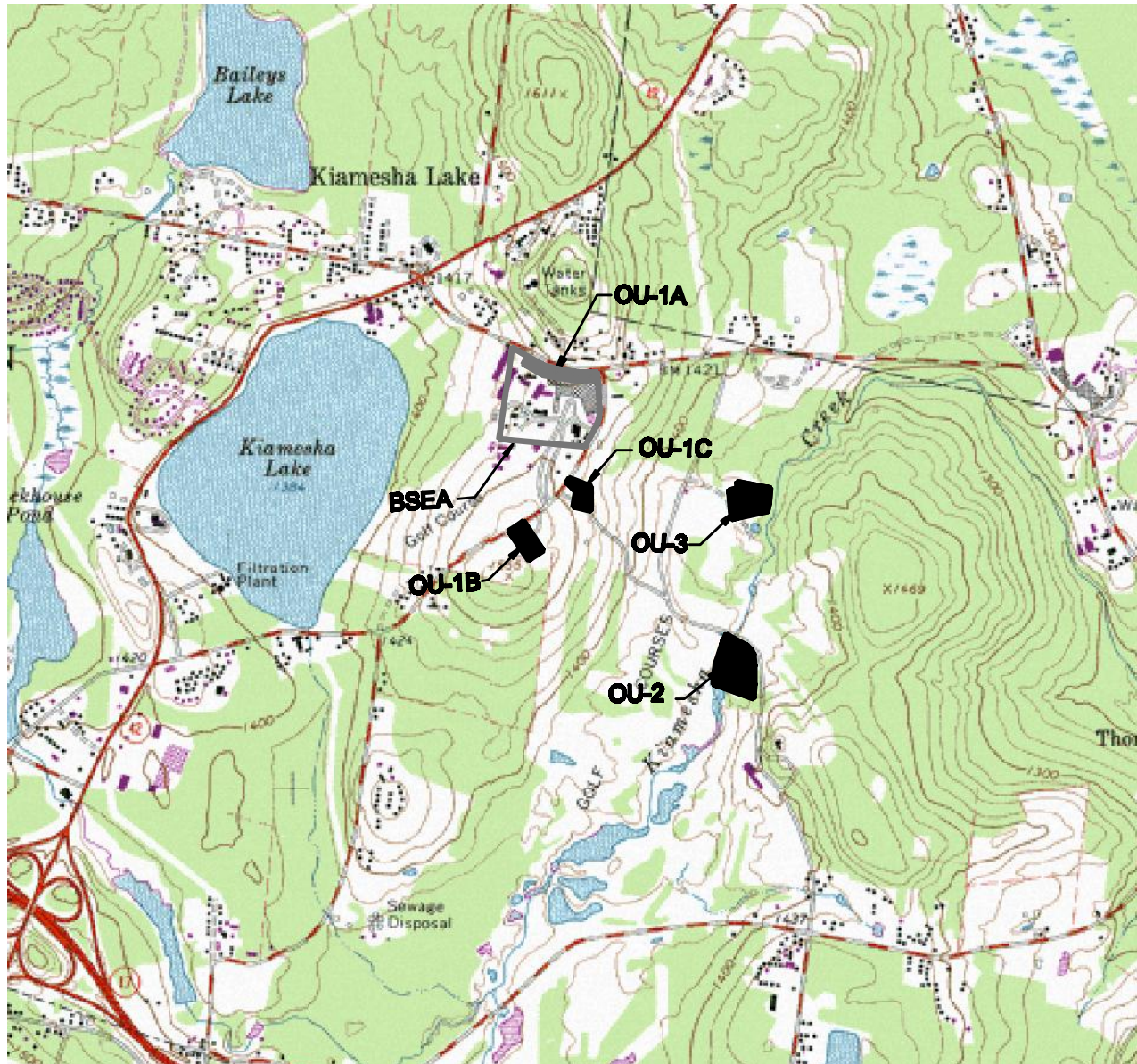
## **APPENDIX 9**

Site Operations Plan (to be provided by Site contractor prior to start of work)

**APPENDIX 10**


Community Participation Plan

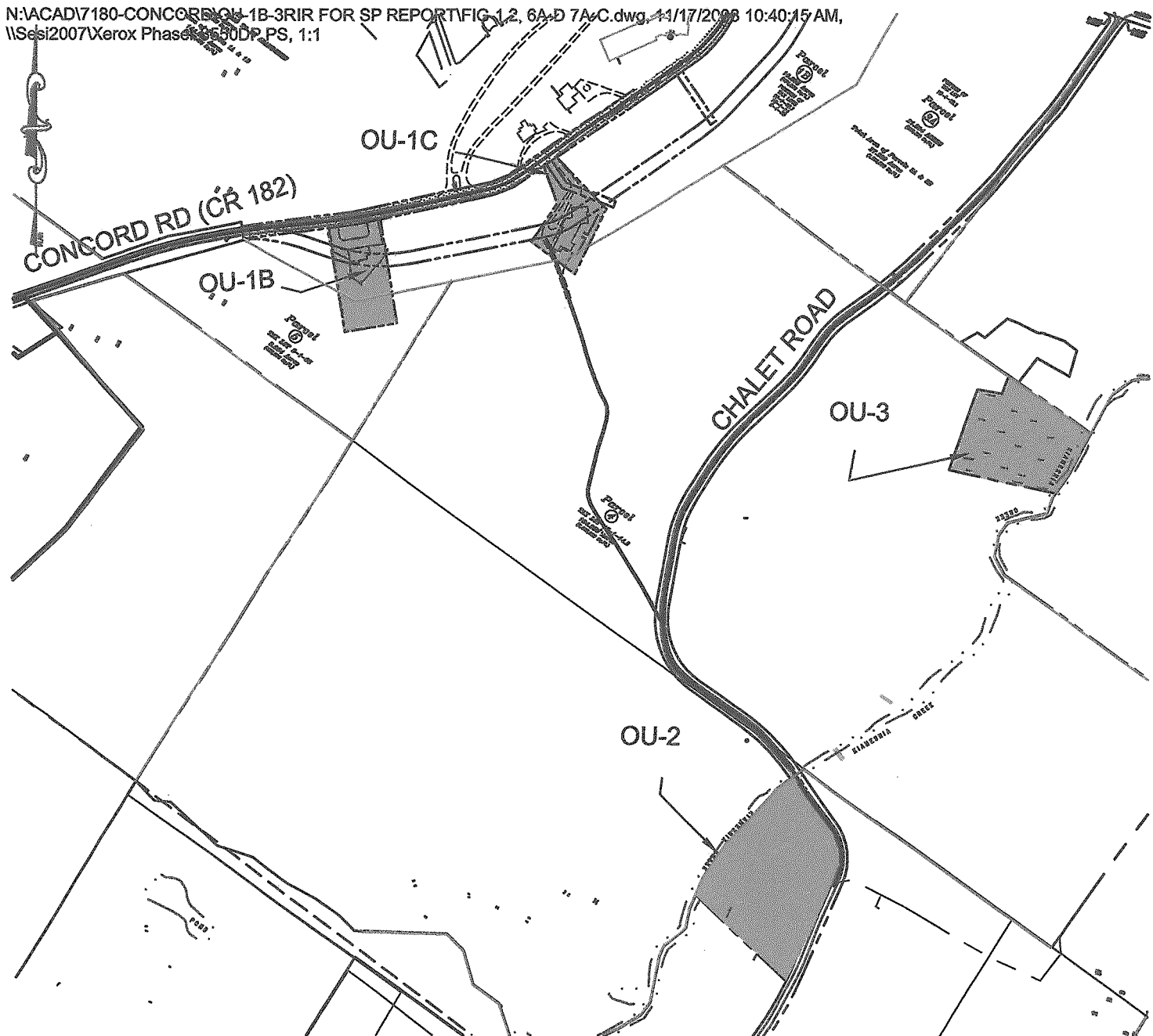
NAACAD7180-CONCORD-OU-1B-3RIR FOR SP REPORT FIG-1, 2, 6A-D 7A-C.dwg, FIG-1, 12/26/2008 9:10:11 PM, 1:1



**REFERENCE:**  
 MAP TAKEN FROM USGS 7.5 MINUTE SERIES  
 TOPOGRAPHIC QUADRANGLES MONTICELLO &  
 WOODRIDGE (1966, PHOTOREVISED 1982)

**NOTES:**  
 BROWNFIELD OPERABLE UNIT LOCATIONS TAKEN  
 FROM A PLAN PREPARED BY S & W  
 REDEVELOPMENT OF NORTH AMERICA, LLC.

DATE		BY		REVISION	
<b>SITE LOCATION MAP</b>					
<b>CONCORD HOTEL AND RESORT</b>					
	DESIGNED BY	DG	DATE PREPARED	11-6-08	
	DRAWN BY	YY	SCALE	NTS	
	CHECKED BY	DG	PROJECT NO.	7180	
			FIGURE:	<b>FIG-1</b>	



**NOTES:**  
 OPERABLE UNIT DESIGNATION PER BROWNFIELD CLEANUP SITE  
 NO. C353008 AND BROWNFIELD CLEANUP AGREEMENT INDEX NO. W3-1004-04-06.

- NOTES:**
1. ALL LOCATIONS ARE APPROXIMATE & SHOULD BE VERIFIED IN THE FIELD.
  2. BOUNDARY INFORMATION IS TAKEN FROM DRAWINGS ENTITLED "BROWNFIELD CLEANUP AREA" PREPARED BY CONTRACTORS, LINE & GRADE SOUTH, LLC. DATED 10-1-07.
  3. BUILDING & MISC. INFORMATION IS TAKEN FROM DRAWINGS ENTITLED "SURVEY OF PROPERTY" PREPARED BY CONTRACTORS, LINE & GRADE SOUTH, LLC. DATED 8-1-2001.
  4. INFORMATION IS TAKEN FROM: SKETCHES PREPARED BY SIDNEY M. MARKS, P.E. REVISED 8-14-70, A SKETCH FROM NYSEG, & FROM INFORMATION PROVIDED BY OWNER.

© SESI CONSULTING ENGINEERS, PC 2008  
 This drawing and all information contained hereon is proprietary information of SESI CONSULTING ENGINEERS, PC and may not be copied or reproduced, either in whole or in part, by any method, without written permission of SESI CONSULTING ENGINEERS, PC.

**CONCORD AOC IDENTIFIERS**

- OU-1B** Gas Station and Disposal Area (Approx. 2 acres)
- OU-1C** International Golf Clubhouse & Maintenance Building Area (Approx. 2.0 acres)
- OU-2** Golf Maintenance Building and Adjacent Disposal Area (Approx 5.5 acres)
- OU-3** International Golf Course Disposal Area (Approx 3.0 acres)

**FIGURE 2**

project:  
**CONCORD RESORT & CASINO  
 KIAMESHA LAKE  
 THOMPSON, N.Y.**

drawing title:

**SITE PLAN**

**SESI** SOILS / FOUNDATIONS  
 CONSULTING ENGINEERS, PC SITE DESIGN ENVIRONMENTAL

12A MAPLE AVE. PINE BROOK, N.J. 07058 PH: 973-808-9050

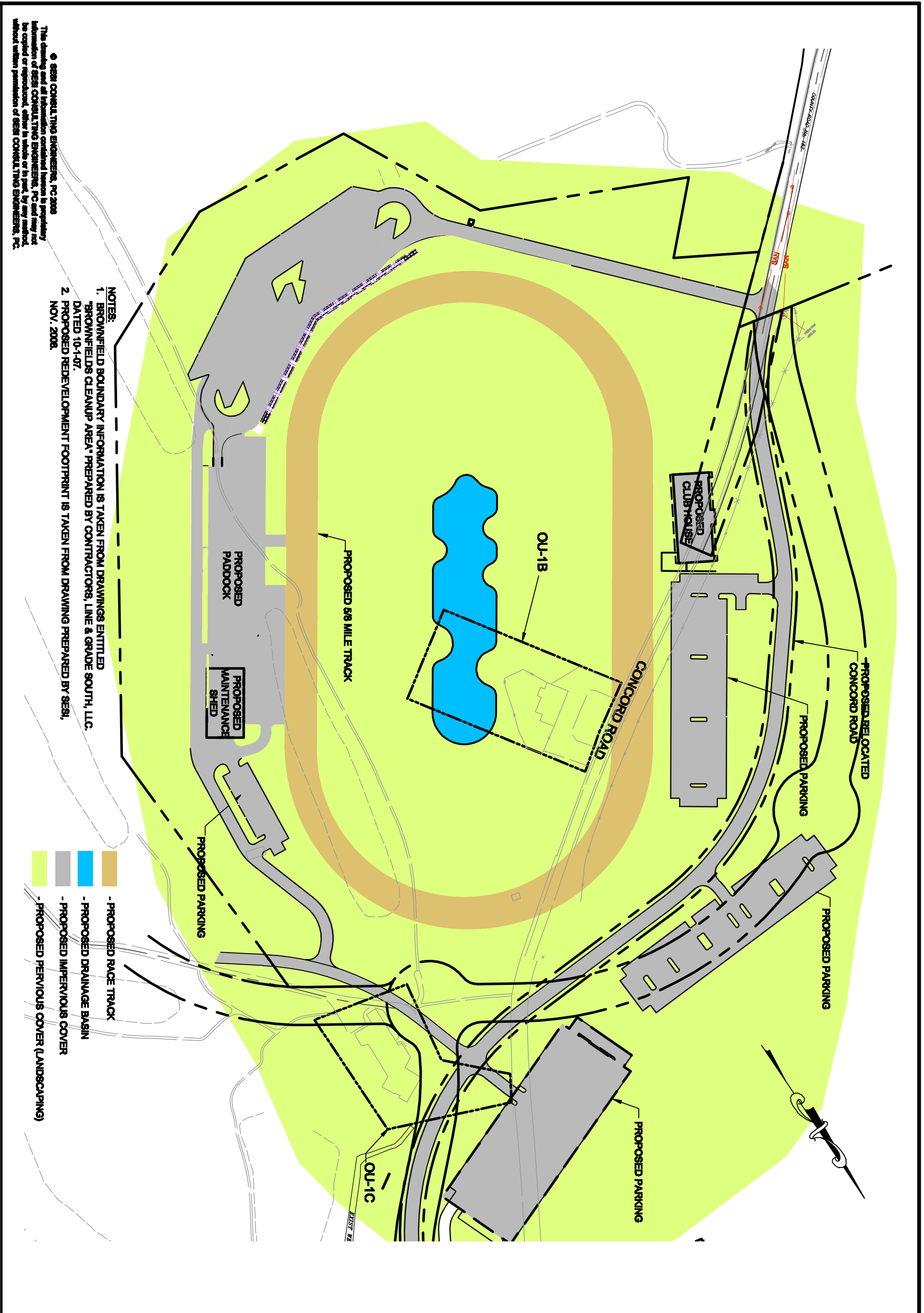
DRAWN BY: YY


CHECKED BY: SP

SCALE: N.T.S.

DATE: 11/6/08

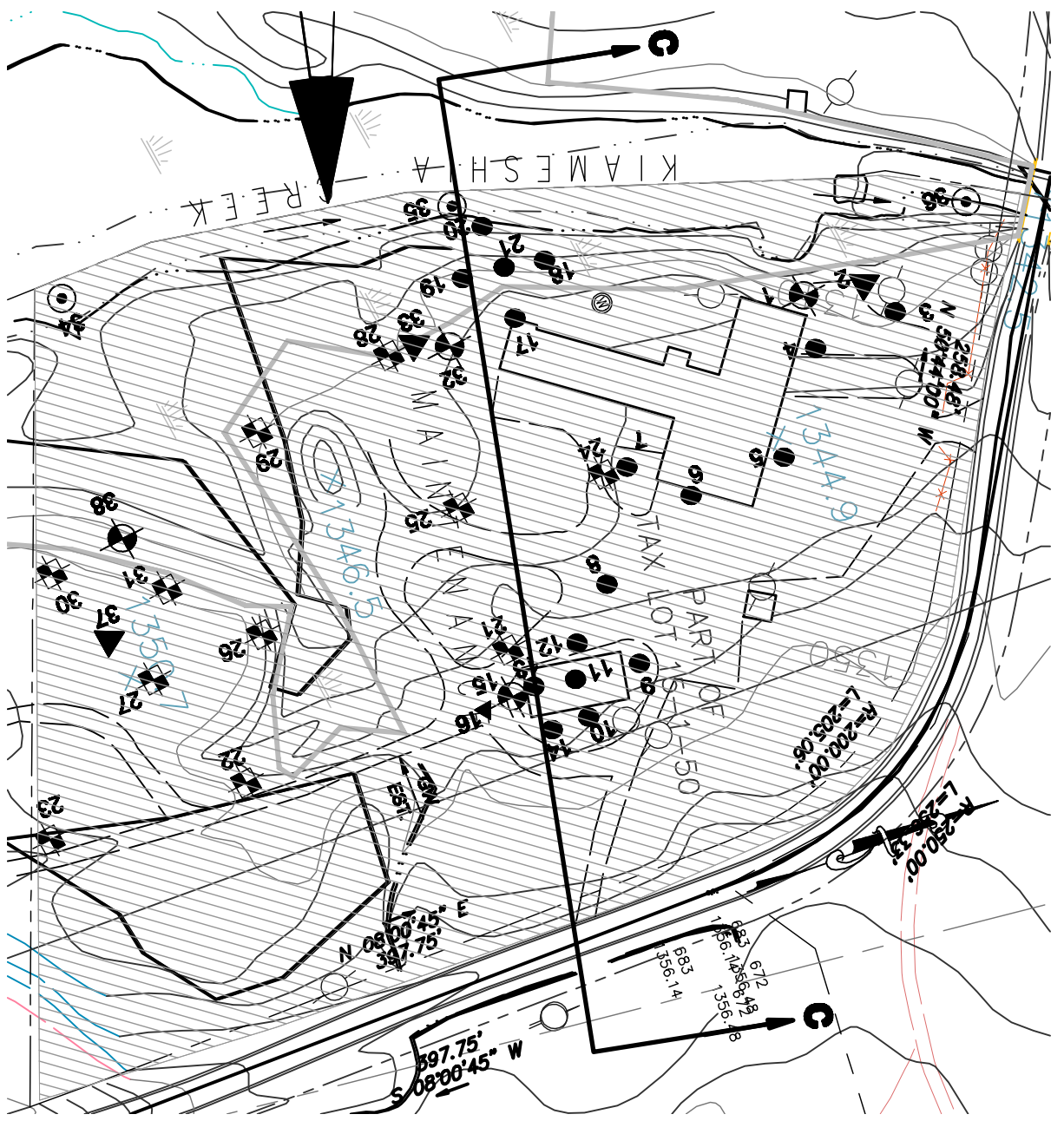
JOB NO.: 7180



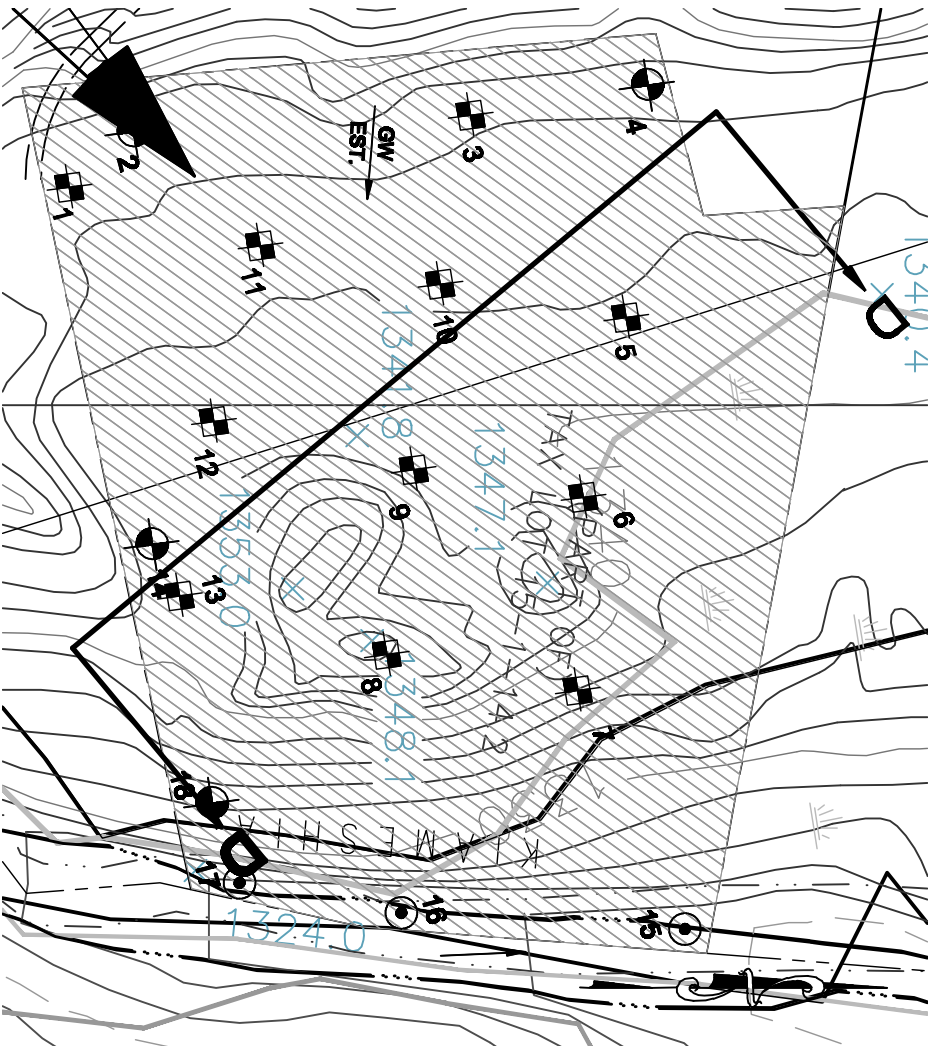
<b>FIG 3</b>	<b>job no:</b> 7180 <b>drawing no:</b>	<b>project:</b> CONCORD RESORT & CASINO KIAMESHA LAKE THOMPSON, N.Y.	 <b>SESI</b> SOILS / FOUNDATIONS CONSULTING ENGINEERS, PC SITE DESIGN ENVIRONMENTAL 12A MAPLE AVE. PINE BROOK, N.J. 07058 PH: 973-806-8050	<b>dwg by:</b> YY <b>chk by:</b> SP <b>scale:</b> 1"=200' <b>date:</b> 11/6/08
	<b>drawing title:</b>			<b>SITE REDEVELOPMENT PLAN</b>

© SESI CONSULTING ENGINEERS, PC 2008  
 This drawing and all information contained herein is proprietary information of SESI CONSULTING ENGINEERS, PC and may not be copied or reproduced, either in whole or in part, by any method, without written permission of SESI CONSULTING ENGINEERS, PC.

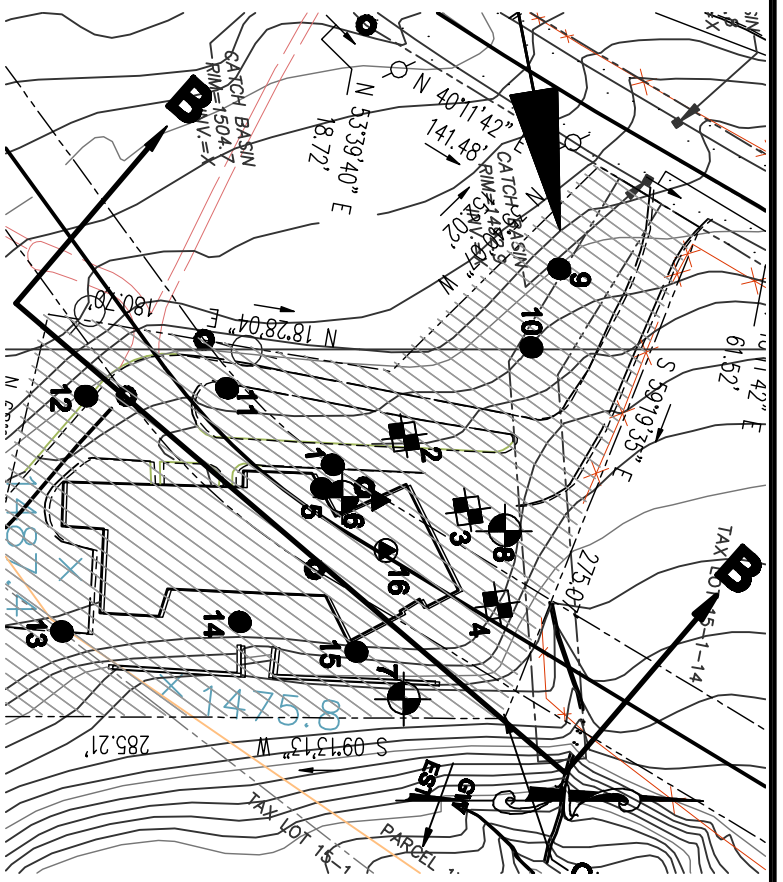
OU-2 PLAN



OU-3 PLAN



OU-1C PLAN



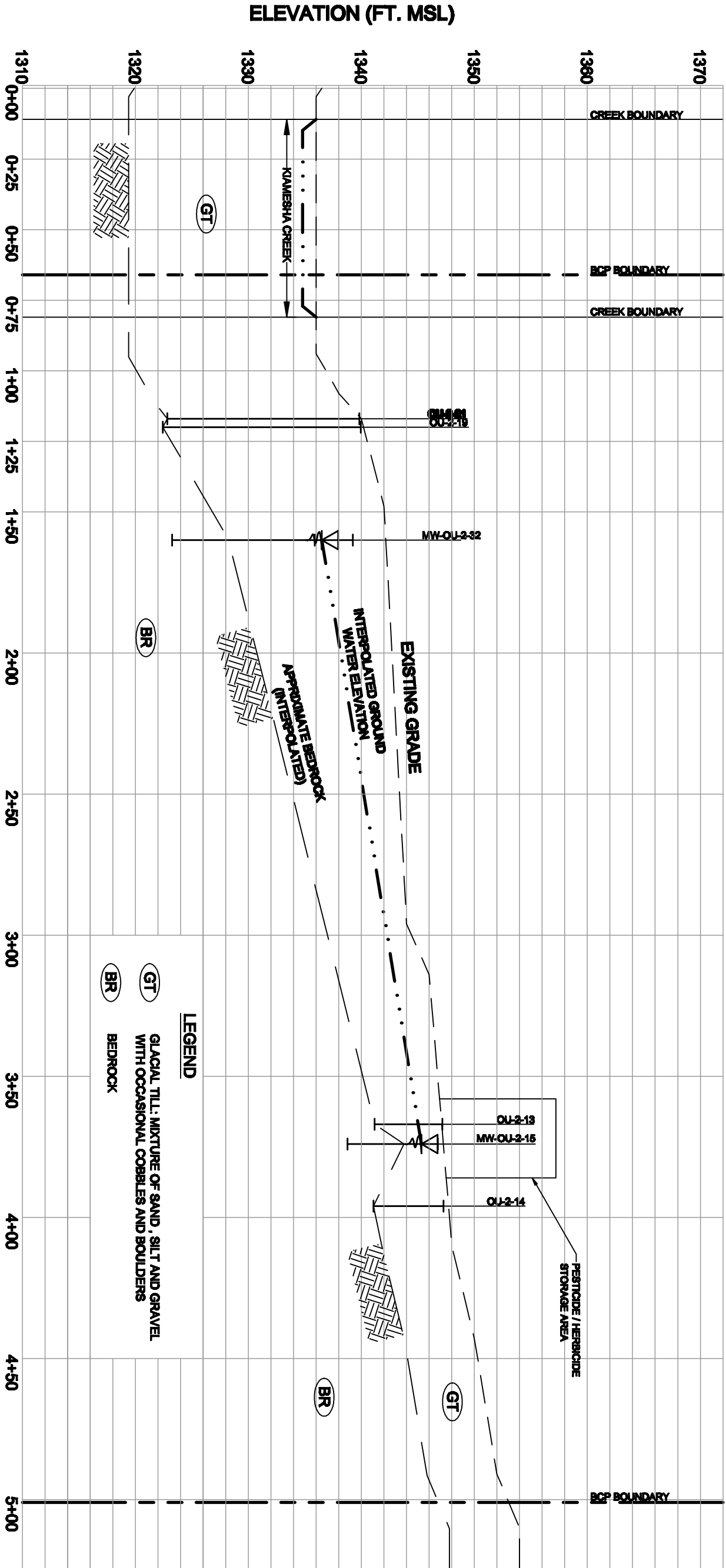
**FIG 4A**  
 job no: 7180  
 drawing no:

project: **CONCORD RESORT & CASINO  
 KIAMESHA LAKE  
 THOMPSON, N.Y.**  
 drawing title: **GEOLOGICAL CROSS SECTIONS  
 OU-1C THROUGH OU-3**

**SESI** SOILS / FOUNDATIONS  
 CONSULTING ENGINEERS, PC SITE DESIGN ENVIRONMENTAL  
 12A MAPLE AVE. PINE BROOK, N.J. 07058 PH: 973-806-9050

dwg by: JK  
 chk by: CDM  
 scale: 1"=100'  
 date: 11/07/08





**SECTION C-C**

SCALE: VERT.: 1"=40'; HOR.: 1"=10'

**LEGEND**

- (GT) GLACIAL TILL: MIXTURE OF SAND, SILT AND GRAVEL WITH OCCASIONAL COBBLES AND BOULDERS
- (BR) BEDROCK

**NOTES**

1. SURVEY DATA OBTAINED FROM GEOD CORPORATION, DATED 10/6/06
2. SOIL STRATIGRAPHY BETWEEN TEST LOCATIONS IS INFERRED

**FIG 4C**

job no: 7180  
drawing no:

project: CONCORD RESORT & CASINO  
KIAMESHA LAKE  
THOMPSON, N.Y.  
drawing title: **GEOLOGICAL CROSS SECTION C-C FOR OU-2**

**SESI** SOILS / FOUNDATIONS  
CONSULTING ENGINEERS, PC SITE DESIGN ENVIRONMENTAL  
12A MAPLE AVE. PINE BROOK, N.J. 07058 PH: 973-806-9050

dwg by: JK  
chk by: CDM  
scale: AS NOTED  
date: 11/14/08

© SESI CONSULTING ENGINEERS, PC 2006  
This drawing and all information contained hereon is proprietary information of SESI CONSULTING ENGINEERS, PC and may not be copied or reproduced, either in whole or in part, by any method, without written permission of SESI CONSULTING ENGINEERS, PC.