OBG

REMEDIAL ACTION WORK PLAN

RACER Trust Former Inland Fisher Guide
Operable Unit 2
Residential Area Remediation

Revitalizing Auto Communities Environmental Response Trust

October 2016

OCTOBER 2016 | 15388|62651

Former General Motors – Inland Fisher Guide Site Operable Unit 2 Residential Area Remediation

Prepared for:

Revitalizing Auto Communities Environmental Response Trust

DOUGLAS M. CRAWFORD, PE, VP
O'Brien & Gere Engineers, Inc.

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LIST OF ACRONYMS

CAMP	Community Air Monitoring Plan
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CQAP	Construction Quality Assurance Plan
E&SC Plan	Erosion and Sediment Control Plan
GM	General Motors
HASP	Health and Safety Plan
IFG	Former Inland Fisher Guide
NYCRR	New York Codes, Rules, and Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDEC NHP	New York State Department of Environmental Conservation Natural Heritage Program
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
OBG	O'Brien & Gere Engineers, Inc.
OCDOT	Onondaga County Department of Transportation
OU-2	Operable Unit 2
PCB	Polychlorinated Biphenyl
ppm	part per million
RACER	Revitalizing Auto Communities Environmental Response
RAWP	Remedial Action Work Plan
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SWPPP	Stormwater Pollution Prevention Plan
TAGM	Technical Administration Guidance Memorandum
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VOCs	Volatile organic compounds

1. INTRODUCTION

1.1 GENERAL

This document is the Remedial Action Work Plan (RAWP) for the remediation of a residential area in Operable Unit 2 (OU-2) of the Former Inland Fisher Guide (IFG) and Deferred Media Site (Site) in the Towns of Salina and DeWitt, Onondaga County, New York. This RAWP has been prepared on behalf of the Revitalizing Auto Communities Environmental Response (RACER) Trust. Remediation of OU-2 is being performed in accordance with an Order on Consent between RACER and the New York State Department of Environmental Conservation (NYSDEC) (Order on Consent Index No. R7-0853-15-06 effective November 6, 2015).

In early 2016, RACER initiated design of the remedy for OU-2 in accordance with the OU-2 Remedial Design Work Plan (OBG 2016a) and performed additional pre-design investigation in accordance with the Pre-design Investigation Work Plan Addendum #1(OBG 2015). The pre-design investigation included collection and analysis of soil samples within backyard areas of residential properties adjacent to Ley Creek. The results of these analyses indicated the presence of polychlorinated biphenyls (PCBs) in soil samples from the residential backyards at concentrations greater than 1 mg/kg PCBs (*i.e.*, "impacted soil"). As described in the Draft and Revised Draft Pre-design Investigation Work Plan – Addendum #2 (OBG 2016b and 2016c), additional pre-design investigation was performed to refine the extent of impacted soil on the residential properties. The investigation indicated that impacted soil is present on 19 parcels, 18 of which contain an occupied residence and one of which is a vacant lot.

This RAWP presents the proposed design and construction approach associated with remediation of the residential area. RACER has retained O'Brien & Gere Engineers, Inc. (OBG) to develop the design and RAWP and has retained Sevenson Environmental Services, Inc. (Sevenson) to perform the remedial construction. This document has been prepared in sufficient detail to allow construction of the remediation to proceed.

1.2 RAWP ORGANIZATION

The RAWP provides the site background, design details, approach to implementing the remedy, and a description of post construction reporting. A description of each section's contents is as follows:

- Section 2 of the RAWP summarizes the site background and describes the remedy selected by NYSDEC.
- Section 3 presents design details associated with the selected remedy. The design has been developed in sufficient detail to allow construction of the selected remedy.
- Section 4 identifies supporting plans that are included as appendices to the RAWP.
- Section 5 describes regulatory compliance associated with the remedy.
- Section 6 presents the anticipated construction schedule.
- Section 7 describes required post-construction reporting, including preparation of a Construction Completion Report.

Sevenson's construction work plan that describes how the remediation will be implemented is included as Exhibit 1.

2. BACKGROUND AND SELECTED REMEDY

2.1 SITE DESCRIPTION

The Former Inland Fisher Guide (IFG) and Deferred Media Site (Site) is located in the Towns of Salina and DeWitt, Onondaga County, New York. The Site is classified by NYSDEC as a Class 2 Site in the New York State (NYS) Registry of Inactive Hazardous Waste Disposal Sites (Registry; Site No. 7-34-057). The Class 2 Site[1] encompasses the facility property and deferred media. Deferred media refers to media in Ley Creek and floodplain between Townline Road and New York State Route 11. The residential area that is the focus of this RAWP is located north of Ley Creek and is bounded by New York State Route 11, LeMoyne Avenue, Ley Creek, and Brookline Road. The residential area location is identified in Figure 1.

2.2 SITE HISTORY

The Former IFG Facility was constructed in 1952 by the Brown-Lipe Chapin Division of General Motors (GM) on undeveloped land as deeded to GM on April 5, 1951. Various paved parking lots and areas of mowed lawn are present on the facility property. These areas surround the main manufacturing building and related outbuildings. The facility property is bounded to the south by Conrail railroad tracks, a wood pallet recycling facility and an automobile dealership, to the east and northeast by Military Circle (formerly GM Circle) and Townline Road, to the west by a National Grid (formerly Niagara Mohawk Power Corporation) electrical transfer station and to the north by Factory Avenue and the Ley Creek PCB Dredgings site. The facility has been redeveloped for tenant use.

Historically, the Former IFG Facility was used by GM for the manufacture of metal automotive trim components such as bumpers, grills, wheel disks and hubcaps. More recently, the facility was used by GM for the manufacture of interior and exterior plastic trim components such as automotive bumpers, grills and door panels. The facility began operations in 1952 as the Brown-Lipe-Chapin Division of GM. Operations conducted at the facility included metal die casting; nickel, chromium and copper cyanide electroplating; stamping; polishing; buffing; painting and machining. During its operation, the facility transitioned to performing injection molding operations and underwent several organizational transitions within GM's corporate structure. The facility ceased manufacturing operations in December 1993. Additional details regarding historic facility operations are provided in the October 2010 Revised RI/FS Report for the facility (OBG 2010).

2.3 ENVIRONMENTAL IMPACTS

Constituents of concern identified for the Former IFG Facility were detected in media in Ley Creek between Townline Road and New York State Route 11 with the primary constituent being PCBs, a facility-related constituent of concern. In addition, PCBs were detected in portions of the FEMA 100-yr floodplain of Ley Creek between Townline Road and New York State Route 11, and in portions of the wetland located on the northern portion of the National Grid property directly adjacent to and west of the Former IFG Facility property. Specific details related to the OU-2 off-site impacts are described in the OU-2 Remedial Design Work Plan (OBG 2016a).

The presence of PCB impacted soil within the residential backyard areas was not known or anticipated during development of the OU-2 Remedial Design Work Plan. During pre-design investigation soil sampling and analysis in residential backyards, PCB impacted soil (*i.e.,* soil with PCB concentration greater than 1 part per million (ppm)) was detected at depths ranging from 2 inches to 5 feet. As described in the Record of Decision (; NYSDEC and USEPA 2015), a 2-ft depth of soil removal from the northern bank of Ley Creek is required to remove impacted soils. This portion of the Ley Creek bank forms the southern boundary of impacted soil within the residential area. The northern boundary was further delineated during the pre-design investigation and extends a varying distance to the north in each of the 19 properties within the residential area. Based on the results of the pre-design investigations, the extent of impact is contained within the back yard portion of each

[1] One of five classifications for hazardous waste sites as specified in the New York State Environmental Conservation Law. Class 2 Site: Significant threat to the public health or environment – action required.

property, and additional detail regarding the sampling and evaluation of the extent of impacted soils is provided in the Draft and Revised Draft Pre-design Investigation Work Plan – Addendum 2 (OBG 2016b and 2016c).

2.4 SELECTED REMEDY

The selected remedy consists of excavation of soil with concentrations of PCBs in excess of the residential soil cleanup objective (NYSDEC and USEPA 2015) of 1 ppm. Excavated soil will be transported to and disposed at an appropriate regulated landfill facility as described in Exhibit 3 and replaced with backfill meeting the analytical requirements of Appendix 5 of the NYSDEC's *DER-10/Technical Guidance for Site Investigation and Remediation* (NYSDEC 2010) for residential property use.

3. DESIGN DETAILS

As described in Section 2.3, the selected remedy involves excavation of impacted soil (*i.e.*, soil containing a concentration of PCBs greater than 1 ppm) and site restoration. This section describes the design components, and additional detail is provided in Appendix A (Design Drawings). Description of the construction approach is provided in Exhibit 1 (Construction Work Plan).

3.1 MOBILIZATION AND SITE PREPARATION

Mobilization and site preparation activities include:

- Establishment of site access infrastructure
- Installation of temporary fence and gates
- Establishment of support areas (*e.g.,* construction of soil staging areas)
- Clearing of vegetation
- Demolition and relocation of above grade property features (*e.g.,* chain link and wooden fence, storage sheds, clotheslines)
- Installation of erosion and sediment control measures
- Construction of a temporary access road.

After these activities are complete excavation of impacted soil is proposed to begin.

3.2 EXCAVATION

The limits of excavation are identified on the Design Drawings (Appendix A) and were selected based on the results of soil sampling and analysis performed in 2016. The proposed excavation depths vary between 6 inches and 5 feet.

The OU-2 remedy also includes excavation of a 2-ft depth of impacted soil from the northern bank of Ley Creek. Based on constructability considerations, excavation of this soil will be performed at a later date when other portions of the OU-2 remedy are constructed. The excavation limit is shown in the topographic sections shown in drawing G-8 of the Design Drawings (Appendix A).

3.3 RESTORATION

Excavated soil will be replaced with a run-of-bank material (Type E Select Fill), and 4 inches of topsoil will be placed on top of the run-of-bank material. Vegetation within lawn areas will be re-established by seeding or placement of sod. Vegetation in other areas such as the Route 11 and LeMoyne Avenue right-of-ways and incidental fringes between the flat backyards and the top portion of Ley Creek's northern bank will be restored by seeding. To provide scour protection for seeded areas excavated at the top portion of Ley Creek's northern bank (see drawing G-8 of the design drawings) an erosion control blanket will be installed.

Property features such as fences and decks which are removed or demolished during the site preparation phase to facilitate remediation will be replaced or reconstructed in-kind, to the extent practicable, in accordance with Town of Salina codes. A written agreement will be reached between RACER and each property owner that documents the anticipated extent of soil removal and details related to the restoration of each property.

It is anticipated that remediation of the Residential Area will occur prior to remediating OU-2 Ley Creek sediment and bank soil exhibiting PCB concentrations greater than 1 mg/kg. It is recognized that there is a potential risk that OU-2 Ley Creek sediment and bank soil could be mobilized during flood events and result in deposition of PCB containing sediment in the remediated Residential Area. A silt fence will be installed near the southern limit of the Residential Remediation Area to filter sediments that could be entrained in flood waters. The silt fence will include a fabric layer that is embedded with activated carbon to adsorb PCBs that may be in flood waters. The silt fence will be maintained until the upstream OU-2 impacts are remediated, at which time

the silt fence will be removed. Should flooding of the restored back yards occur prior to remediation of Ley Creek sediment between Townline Road and the Route 11 bridge, additional sampling would be performed in the residential yards. The scope of the sampling would be determined based on discussions between NYSDEC and RACER.

3.4 COMMUNITY HEALTH AND SAFETY

Construction fencing will be installed, and community air monitoring and traffic control will be implemented for community health and safety. Construction fencing is described in the Construction Work Plan (Exhibit 1). The Community Air Monitoring Plan (CAMP) that describes the air monitoring to be conducted during excavation and other earthmoving activities is included as Appendix B. A Traffic Control Plan is provided as Exhibit 2. An Emergency Contingency Plan is included as part of the Health and Safety Plan (Exhibit 4).

Following the NYSDEC's public availability session on July12, 2016, RACER commenced a weekly project update that is delivered each Friday to the affected residents via e-mail and/or overnight delivery. The weekly project update provides a summary of activities that have occurred during the past week, a list of activities expected to be conducted in the next week, and highlights applicable safety topics. The weekly project updates also will include contact information so that affected residents can notify RACER of project questions or concerns. The weekly project updates communication will continue throughout the duration of the remediation project. Communication received from affected residents will be recorded and RACER will follow up on questions and concerns.

4. REMEDIAL CONSTRUCTION

Details related to the performance of remedial construction are provided in Exhibit 1 (Construction Work Plan). These details address components of the proposed work beginning with mobilization, through excavation and restoration, and concluding with demobilization activities.

4.1 SUPPORTING PLANS

In addition to the **Construction Work Plan (Exhibit 1)** the following plans have been developed to support construction implementation:

Community Air Monitoring Plan (CAMP) (Appendix B) - Describes the measures that will be taken to monitor the potential airborne releases of project related dust, polychlorinated biphenyls (PCBs) and odors.

Stormwater Pollution Prevention Plan (SWPPP) (Appendix C) - Describes measures to be implemented to minimize erosion and sediment migration.

Sampling and Analysis Plan (SAP) (Appendix D) - Describes the approach to sampling and analysis.

Traffic Control Plan (Exhibit 2) – Describes transportation routes to and from the site and measures to be implemented to control traffic during construction.

Waste Management Handling and Disposal Plan (Exhibit 3) – Presents waste sampling requirements, methods for determining waste disposal requirements, name and location of waste disposal facilities and licensed waste haulers, and procedures for manifest management.

Health and Safety Plan (HASP) (Exhibit 4) - Describes measures that will be taken to provide for the health and safety of site personnel during remedial construction.

5. PERMITS

OBG is preparing the design in accordance with NYSDEC's *DER-10/Technical Guidance for Site Investigation and Remediation*, 6 New York Codes, Rules and Regulations (NYCRR) § 375-1.7 (Permitting Remedial Activities) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Design elements will be completed in substantive compliance with the federal, State, and local regulatory programs as summarized in Table 5-1.

Table 5-1 Applicable Regulatory Programs and Substantive Requirements

Regulatory Agency	Permit/Requirement	Regulated Activity	Substantive Requirements
FEDERAL			
USEPA	Endangered Species Act	▪ Potential impacts to rare, threatened, and endangered species	▪ Agency consultation (USFWS and NYSDEC NHP)
STATE			
NYSDEC NHP	6 NYCRR 182 - Endangered and Threatened Species of Fish and Wildlife; Species of Special Concern; Incidental Take Permits	▪ Potential impacts to endangered, threatened, and special concern species	▪ Agency consultation (NYSDEC NHP)
NYSDEC	GP-0-15-00212-001 - General Permit for Stormwater Discharges from Construction Activities	▪ Stormwater runoff from site disturbances 1-acre or greater.	▪ SWPPP and E&SC Plan
NYSDEC	6 NYCRR 373-2.2- Hazardous waste treatment, storage, disposal facilities within 100-year floodplain	▪ Construction of hazardous waste treatment, storage, or disposal facilities within the 100-year floodplain	▪ Facility must be designed, constructed, operated and maintained to prevent washout of hazardous waste during a 100-yr flood.
NYSDEC	6 NYCRR 257-3 - Air Quality Standards; NYS Technical Administration Guidance Memorandum (TAGM) 4031 - Dust Suppressing and Particle Monitoring at Inactive Hazardous Waste Disposal Sites	▪ Provides limitations on dust emissions.	▪ Minimize dust generation during excavation activities
NYSDEC	6 NYCRR 364 – Waste Transporter Permits	▪ Hazardous waste transport must be conducted by a hauler permitted under 6 NYCRR 364.	▪ Permit required
NYSDOT	Highway Work Permit (for non-utility work, PERM 33)	▪ Construction activity in close proximity to NYSDOT assets (NYS Route 11 Bridge)	▪ Permit application shall identify how site will be accessed from NYS Route 11, a waste handling

Table 5-1 Applicable Regulatory Programs and Substantive Requirements

Regulatory Agency	Permit/Requirement	Regulated Activity	Substantive Requirements
			plan, and latest design approval information from NYSDEC
COUNTY			
Onondaga County Department of Transportation	Highway Work Permit	▪ Construction activity within the OCDOT right-of-way	▪ Restoration in accordance with OCDOT requirements
LOCAL			
Town of Salina	Floodplain Development Permit	▪ Construction or development within special flood hazard areas	▪ No adverse effects on areas of special flood hazard

Source: OBG

RACER and the NYSDEC collaboratively consulted with the USFWS regarding the presence of the Indiana Bat and Northern Long Eared Bat within the area proposed for clearing (*i.e.,* the northern bank of Ley Creek contiguous to the Residential Remediation Area and select trees within the residential parcels). The USFWS indicated that risk to these species resultant from clearing is low and that the NYSDEC should select an appropriate course of action to minimize potential impacts. It is anticipated that NYSDEC will select and document the appropriate course of action in a separate document.

6. SCHEDULE

The anticipated construction schedule is included as Figure 2, and it reflects RACER's intent to complete this work in 2016. RACER's contractor, Sevenson, initiated site mobilization and preparation activities on August 15, 2016, with conditional approval of these activities from NYSDEC. The last half of August was utilized for site preparation work and other non-intrusive activity. Intrusive activity (*e.g.,* excavation) is scheduled to begin in September 2016. The work activities in August are described below.

- Topographic survey
- Installation of temporary perimeter fence and gates
- Demolition and relocation of above grade property features (*e.g.,* chain link and wooden fence, storage sheds, clotheslines).
- Mobilization of equipment and trailers
- Installation of erosion and sediment control measures.
- Construction of soil staging areas
- Tree clearing
- Construction of Personnel and Equipment Decontamination Facility
- Construction of Temporary Access Road
- Construction of Temporary Bridge over Ley Creek.

7. POST CONSTRUCTION REPORTING

7.1 POST REMEDIATION REPORTING

Post remediation reporting will consist of the preparation of a Construction Completion Report.

At the conclusion of construction, a Construction Completion Report will be prepared to document the remediation of the Residential Remediation Area. The Construction Completion Report will be prepared based on records kept by OBG's on-site representative and documentation developed by our team during the course of construction, including record drawings. The Construction Completion Report will present a summary of the remedy and a description of the remedial actions performed. Appendices will be prepared to present the results of monitoring and sampling conducted during the remedial action. Record drawings will also be included as an appendix. The Construction Completion Report will include a certification signed by an OBG New York State Licensed Professional Engineer and provide to NYSDEC, USEPA and the Onondaga Nation for NYSDEC approval. In addition, validated analytical data results of soil characterization samples that were collected from the affected residential areas prior to the remedial action will be provided in the Construction Completion Report.

REFERENCES

New York State Department of Environmental Conservation (NYSDEC). 2010. DER-10 Technical Guidance for Site Investigation and Remediation. May 3, 2010.

NYSDEC. 2015. Order on Consent Index No. R7-0853-15-06. November 6, 2015.

NYSDEC and United States Environmental Protection Agency (USEPA). Record of Decision – Operable Unite 2 of General Motors Inland Fisher Guide Site. March 2015.

O'Brien & Gere (OBG). 2010. Revised Remedial Investigation/Feasibility Study for Former IFG Facility. October 31, 2010.

OBG. 2015. RACER Former IFG Facility and Deferred Media Site Off-Site (OU-2) Pre-Design Investigation Addendum #1. November 5, 2015.

OBG. 2016a. Former General Motors Inland Fisher Guide Site OU-2 Remedial Design Work Plan. January 2016, Revised June 1, 2016.

OBG. 2016b. Draft RACER Former IFG Facility and Deferred Media Site Off-Site (OU-2) Pre-Design Investigation Addendum #2. March 23, 2016.

OBG. 2016c. Revised Draft RACER Former IFG Facility and Deferred Media Site Off-Site (OU-2) Pre-Design Investigation Addendum #2 – Additional Sampling. July 15, 2016.

Figures

FIGURE 1

PLOTDATE: 04/11/14 11:55:40 AM DomaszP

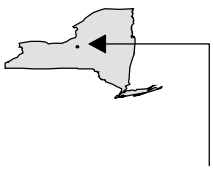
I:\Racer-Trust.15388\61007.Ifg-Fac-Ri-Fs-RVDocs\DWG\MXD\Off_Site_PDI_Add\FIG 1 - SITE LOCATION.mxd

ADAPTED FROM: SYRACUSE WEST, SYRACUSE EAST NEW YORK USGS QUADRANGLE

GENERAL MOTORS
IFG SITE
OPERABLE UNIT 2
SYRACUSE, NY

Legend

- RESIDENTIAL REMEDIATION AREA
- OFF-SITE AREAS
- FORMER IFG FACILITY



MAP LOCATION

SITE LOCATION

0 1,000 2,000 4,000
Feet

N

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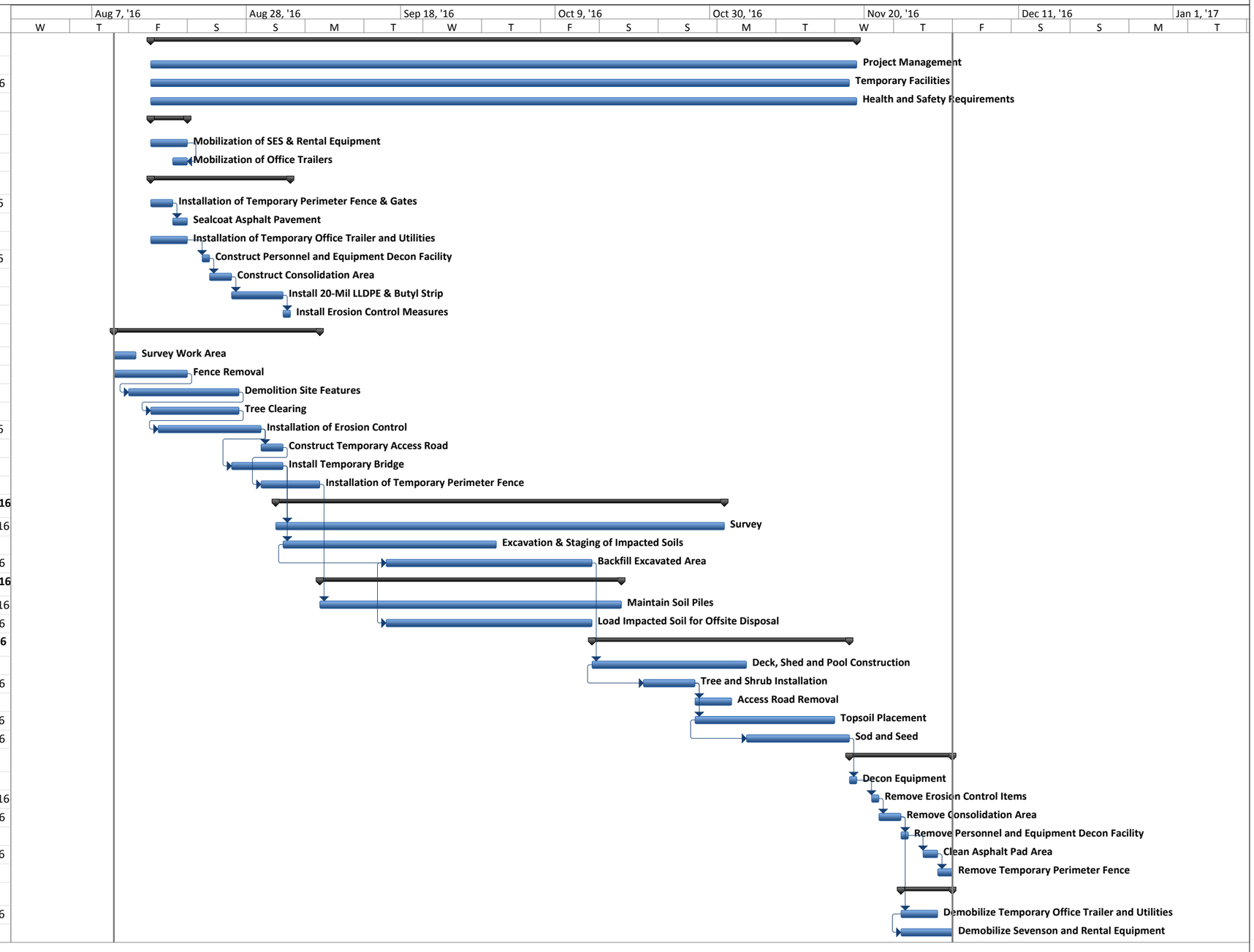
O'BRIEN & GERE ENGINEERS, INC.

Former General Motors - Inland Fisher Guide Operable Unit 2 Residential Area Remediation
Salina, New York

ID	Task Name	Duration	Start	Finish
1	**General Conditions**	**69 days**	**Mon 8/15/16**	**Fri 11/18/16**
2	Project Management	69 days	Mon 8/15/16	Fri 11/18/16
3	Temporary Facilities	68 days	Mon 8/15/16	Thu 11/17/16
4	Health and Safety Requirements	69 days	Mon 8/15/16	Fri 11/18/16
5	**General Mobilization**	**5 days**	**Mon 8/15/16**	**Fri 8/19/16**
6	Mobilization of SES & Rental Equipment	5 days	Mon 8/15/16	Fri 8/19/16
7	Mobilization of Office Trailers	2 days	Thu 8/18/16	Fri 8/19/16
8	**Site Preparation - Offsite Staging Area**	**15 days**	**Mon 8/15/16**	**Fri 9/2/16**
9	Installation of Temporary Perimeter Fence & Gates	3 days	Mon 8/15/16	Wed 8/17/16
10	Sealcoat Asphalt Pavement	2 days	Thu 8/18/16	Fri 8/19/16
11	Installation of Temporary Office Trailer and Utilities	5 days	Mon 8/15/16	Fri 8/19/16
12	Construct Personnel and Equipment Decon Facility	1 day	Mon 8/22/16	Mon 8/22/16
13	Construct Consolidation Area	3 days	Tue 8/23/16	Thu 8/25/16
14	Install 20-Mil LLDPE & Butyl Strip	5 days	Fri 8/26/16	Thu 9/1/16
15	Install Erosion Control Measures	1 day	Fri 9/2/16	Fri 9/2/16
16	**Site Preparation Work Area**	**19 days**	**Wed 8/10/16**	**Tue 9/6/16**
17	Survey Work Area	3 days	Wed 8/10/16	Fri 8/12/16
18	Fence Removal	8 days	Wed 8/10/16	Fri 8/19/16
19	Demolition Site Features	11 days	Fri 8/12/16	Fri 8/26/16
20	Tree Clearing	10 days	Mon 8/15/16	Fri 8/26/16
21	Installation of Erosion Control	10 days	Tue 8/16/16	Mon 8/29/16
22	Construct Temporary Access Road	3 days	Tue 8/30/16	Thu 9/1/16
23	Install Temporary Bridge	5 days	Fri 8/26/16	Thu 9/1/16
24	Installation of Temporary Perimeter Fence	5 days	Tue 8/30/16	Tue 9/6/16
25	**Site Remediation**	**42 days**	**Thu 9/1/16**	**Mon 10/31/16**
26	Survey	42 days	Thu 9/1/16	Mon 10/31/16
27	Excavation & Staging of Impacted Soils	20 days	Fri 9/2/16	Fri 9/30/16
28	Backfill Excavated Area	20 days	Fri 9/16/16	Thu 10/13/16
29	**Material Handling at Staging Area**	**29 days**	**Wed 9/7/16**	**Mon 10/17/16**
30	Maintain Soil Piles	29 days	Wed 9/7/16	Mon 10/17/16
31	Load Impacted Soil for Offsite Disposal	20 days	Fri 9/16/16	Thu 10/13/16
32	**Site Restoration**	**25 days**	**Fri 10/14/16**	**Thu 11/17/16**
33	Deck, Shed and Pool Construction	15 days	Fri 10/14/16	Thu 11/3/16
34	Tree and Shrub Installation	5 days	Fri 10/21/16	Thu 10/27/16
35	Access Road Removal	3 days	Fri 10/28/16	Tue 11/1/16
36	Topsoil Placement	13 days	Fri 10/28/16	Tue 11/15/16
37	Sod and Seed	10 days	Fri 11/4/16	Thu 11/17/16
38	**Site Restoration - Offsite Staging Area**	**10 days**	**Fri 11/18/16**	**Thu 12/1/16**
39	Decon Equipment	1 day	Fri 11/18/16	Fri 11/18/16
40	Remove Erosion Control Items	1 day	Mon 11/21/16	Mon 11/21/16
41	Remove Consolidation Area	3 days	Tue 11/22/16	Thu 11/24/16
42	Remove Personnel and Equipment Decon Facility	1 day	Fri 11/25/16	Fri 11/25/16
43	Clean Asphalt Pad Area	2 days	Mon 11/28/16	Tue 11/29/16
44	Remove Temporary Perimeter Fence	2 days	Wed 11/30/16	Thu 12/1/16
45	**Demobilization**	**5 days**	**Fri 11/25/16**	**Thu 12/1/16**
46	Demobilize Temporary Office Trailer and Utilities	3 days	Fri 11/25/16	Tue 11/29/16
47	Demobilize Sevenson and Rental Equipment	5 days	Fri 11/25/16	Thu 12/1/16



Project: Ley Creek Schedule7-26-1
Date: Tue 7/26/16

Task	Summary	External Milestone	Inactive Summary	Manual Summary Rollup	Finish-only		
Split	Project Summary	Inactive Task	Manual Task	Manual Summary	Deadline		
Milestone	External Tasks	Inactive Milestone	Duration-only	Start-only	Progress		

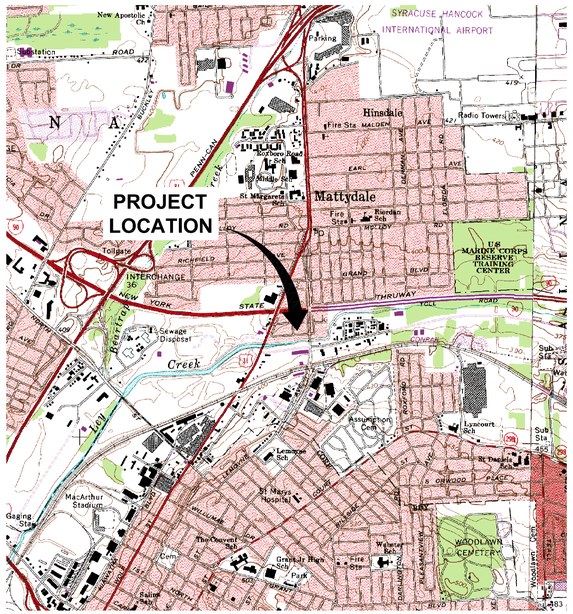
Sevenson Environmental Services, Inc.

FIGURE 2

Appendices

Appendix A

Design Drawings



ADAPTED FROM: SYRACUSE EAST NEW YORK USGS QUADRANGLE

PROJECT LOCATION PLAN

NOT TO SCALE

Issued for Construction

FORMER GENERAL MOTORS - INLAND FISHER GUIDE OPERABLE UNIT 2

RESIDENTIAL AREA REMEDIATION

SALINA, NEW YORK

SEPTEMBER 2016

O'BRIEN & GERE ENGINEERS, INC

STATE OF NEW YORK
DOUGLAS M CRAWFORD
086649
LICENSED PROFESSIONAL ENGINEER

IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT.

INDEX OF DRAWINGS

FILE NO. 15388.61007.300

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UTILITY NOTES:

1. DIMENSIONS AND LOCATIONS OF ALL STRUCTURES AND UTILITIES ARE CONSIDERED APPROXIMATE ONLY AND SHALL BE VERIFIED AS REQUIRED IN THE FIELD BY THE CONTRACTOR.
2. OTHER UNDER AND ABOVE GROUND UTILITIES MAY EXIST, THE LOCATIONS, DEPTHS AND EXTENT OF WHICH ARE UNKNOWN. THE CONTRACTOR SHALL DETERMINE THE LOCATION AND ELEVATION OF ALL UTILITIES IN THE FIELD AS IT MAY PERTAIN TO THE CONTRACTOR'S WORK PRIOR TO CONSTRUCTION.
3. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM DATA OBTAINED BY FIELD SURVEY, PREVIOUS MAPS AND RECORDS, (AND PAROL TESTIMONY). THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHER UNDERGROUND UTILITIES, THE EXISTENCE OF WHICH ARE NOT KNOWN. SIZE AND LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION.
4. DURING CONSTRUCTION THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION AND SUPPORT OF ALL UNDER AND ABOVE GROUND UTILITIES AFFECTED BY THE CONTRACTOR'S WORK.
5. THE CONTRACTOR SHALL CONTACT "DIG SAFELY NY" WITHIN 72 HOURS PRIOR TO THE COMMENCEMENT OF THE WORK. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND IF NECESSARY NOTIFY THE AFFECTED UTILITY COMPANIES ONE WEEK PRIOR TO DIGGING IN ANY PORTION OF THE SITE. DIG SAFELY NEW YORK PHONE NUMBER: 1-800-962-7962. WEBSITE: WWW.DIGSAFELYNEWYORK.COM
6. THE CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES FOR THE TEMPORARY DE-ENERGIZING, OR INTERRUPTION OF SERVICE, REMOVAL, RELOCATION, REPLACEMENT OF ANY UTILITY POLES, GUY WIRES, UNDERGROUND UTILITIES AND/OR OVERHEAD WIRES WITHIN THE LIMITS OF WORK, OR THAT COULD OTHERWISE INTERFERE WITH THE REMEDIAL ACTIONS.
7. THE CONTRACTOR SHALL BE AWARE THAT PORTIONS OF THE CONSTRUCTION WILL BE PERFORMED PROXIMATE TO OVERHEAD POWER LINES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN APPROPRIATE MINIMUM REQUIRED CLEARANCE FROM OVERHEAD ELECTRICAL LINES AND UTILITY POLES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH NATIONAL GRID TO HAVE OVERHEAD ELECTRICAL LINES SHIELDED/PROTECTED AND FLAGGED (AS APPROPRIATE) PRIOR TO THE WORK. THE CONTRACTOR IS ALSO REQUIRED TO GROUND EQUIPMENT (AS NECESSARY) AND PERFORM ALL WORK EFFORTS IN ACCORDANCE WITH NATIONAL GRID PROTOCOLS FOR WORK PERFORMED PROXIMATE TO OVERHEAD ELECTRICAL HAZARDS.

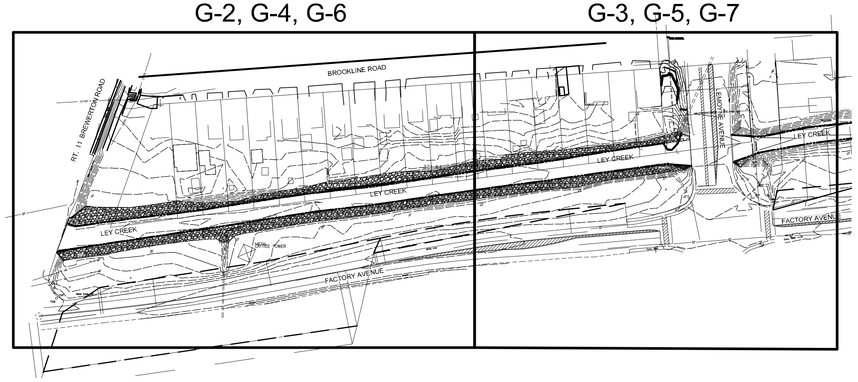
GENERAL NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NYSDEC APPROVED REMEDIAL ACTION WORK PLAN (OBG 2016).
2. THE CONTRACTOR SHALL FURNISH AND PLACE PROPER GUARDS FOR PREVENTION OF ACCIDENTS, PROVIDE ALL TRENCH SHORING, SCAFFOLDING, SHIELDING, DUST/FUME PROTECTION, MECHANICAL/ELECTRICAL PROTECTION, SPECIAL GROUNDING, SAFETY RAILINGS, BARRIERS, OR OTHER SAFETY FEATURES REQUIRED.
3. THE CONTRACTOR SHALL COORDINATE ANY NECESSARY TRAFFIC CONTROLS AND OBTAIN PERMIT 33 FROM THE NYSDOT AND A HIGHWAY WORK PERMIT FROM THE ONONDAGA COUNTY DEPARTMENT OF TRANSPORTATION.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING SURVEY CONTROL TO DELINEATE EXCAVATION BOUNDARIES AND DEPTHS DURING THE PERFORMANCE OF WORK AND TO VERIFY EXISTING GRADES. THE OWNER WILL PROVIDE THE CONTRACTOR WITH THE CONTRACT DRAWINGS IN ELECTRONIC FORMAT FOR THE CONTRACTOR'S USE.
5. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED AS REQUIRED IN ACCORDANCE WITH THE SPDES GP-0-15-002 AND THE APPROVED STORMWATER POLLUTION PREVENTION PLAN (OBG 2016).
6. THE CONTRACTOR SHALL RESTORE TO PRECONSTRUCTION CONDITIONS OR BETTER ALL SUPPORT AREAS THAT ARE IMPACTED BY REMEDIAL ACTIVITIES, INCLUDING BUT NOT LIMITED TO, EQUIPMENT AND MATERIAL STORAGE AREAS, MATERIAL LOADING AND STAGING AREAS, PARKING AREAS, AND LOCATIONS OF OFFICE TRAILERS, UNLESS OTHERWISE NOTED.
7. ALL SURFACES DAMAGED OR DESTROYED AS A RESULT OF WORK PERFORMED BY THE CONTRACTOR SHALL BE RESTORED TO PRECONSTRUCTION CONDITIONS OR BETTER IN A TIMELY MANNER AND PRIOR TO CONTRACTOR DEMOBILIZATION.
8. ALL EQUIPMENT OPERATED WITHIN THE LIMITS OF WORK SHALL BE DECONTAMINATED PRIOR TO COMING ON-SITE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION SHOWING EQUIPMENT WAS DECONTAMINATED. ALL EQUIPMENT OPERATED WITHIN THE LIMITS OF WORK SHALL BE DECONTAMINATED PRIOR TO TRANSPORT OFF-SITE AND/OR TRANSPORTING/HANDLING CLEAN BACKFILL MATERIALS. THE CONTRACTOR SHALL PROVIDE 60 MIL POLYETHYLENE SHEETING TO COVER THE GROUND IN ALL AREAS BEING USED TO LOAD EXCAVATED MATERIAL INTO TRUCKS WHETHER IN OR OUT OF THE LIMITS OF WORK.
9. ALL BACKFILL MATERIAL, ASSOCIATED WITH RESTORATION, SHALL SATISFY RESIDENTIAL SOIL CLEANUP OBJECTIVES, ESTABLISHED IN APPENDIX 5 OF THE NYSDEC'S DER-10 TECHNICAL GUIDANCE.
10. ALL BACKFILL MATERIAL SHALL BE ANALYZED PRIOR TO IMPORT TO THE SITE IN ACCORDANCE WITH NYSDEC'S DER-10.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR USING THE PROPER DUST AND ODOR CONTROL MEASURES IN ACCORDANCE WITH THE NYSDEC APPROVED COMMUNITY AIR MONITORING PLAN (OBG 2016).
12. ALL POOLS, DECKS, FENCES, SHEDS, GARAGES, AND SIMILAR STRUCTURES AND ELECTRICAL COMPONENTS SHALL BE INSTALLED IN ACCORDANCE WITH THE TOWN OF SALINA BUILDING AND ZONING CODES.
13. LOCATION OF RIP RAP ON BANKS WAS TAKEN FROM 1973 COUNTY OF ONONDAGA DEPARTMENT OF PUBLIC WORKS, BEAR TRAP - LEY CREEK DRAINAGE DISTRICT DRAWINGS. STAKE LIMITS ARE APPROXIMATE AND SHALL BE VERIFIED AS REQUIRED IN THE FIELD BY THE CONTRACTOR.
14. EXCAVATED MATERIAL SHALL BE STAGED AT THE FORMER IFG FACILITY IN ACCORDANCE WITH THE REMEDIAL ACTION WORK PLAN (OBG 2016).
15. EXISTING GRADE ELEVATIONS SHALL BE RE-ESTABLISHED DURING RESTORATION.

MAPPING NOTES:

1. NORTH ORIENTATION BASED ON NAD 1983.
2. ELEVATIONS SHOWN HEREON BASED ON NGVD 1988 DATUM.
3. THE SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN UP TO DATE ABSTRACT OF TITLE OR TITLE REPORT AND IS THEREFORE SUBJECT TO ANY EASEMENTS, COVENANTS, RESTRICTIONS OR ANY STATEMENT OF FACT THAT SUCH DOCUMENTS MAY DISCLOSE.
4. TOPOGRAPHIC SURVEY INFORMATION WAS COMPILED FROM AN ACTUAL FIELD SURVEY CONDUCTED BETWEEN SEPTEMBER 23-DECEMBER 3, 2013. FACTORY AVENUE AREA LOCATED ON DECEMBER 15, 2015. ADDITIONAL BROOKLINE ROAD AREA DATA LOCATED ON MAY 26, 2016 AND JUNE 9, 2016.

G-2, G-4, G-6 | G-3, G-5, G-7



TRUE NORTH

KEY PLAN

NOT TO SCALE

LEGEND

GUY WIRE	
SIGN	
SMH	SANITARY MANHOLE
GM	GAS MARKER
IPF	IRON PIPE FOUND
	UTILITY POLE
	EDGE OF WOODS
OE	OVERHEAD WIRES
G	GAS LINE
S	SANITARY SEWER LINE
W	WATER LINE
UE	BURIED ELECTRIC LINE
ST	STORM LINE
RCP	REINFORCED CONCRETE PIPE
CMP	CORRIGATED METAL PIPE
RO	REPUTED OWNER
MW#	MONITOR WELL
CB#	CATCH BASIN
	DECIDUOUS TREE
	HEDGE ROW
HYD	HYDRANT
	GRADE TIE-IN LIMIT
SB SB	SILT BARRIER
SF SF	SILT FENCE
	PROPERTY BOUNDARY
	EDGE OF CREEK
x x	CHAIN LINK FENCE
	WOODEN STOCKADE FENCE
	PROPOSED CHAIN LINK FENCE
	PROPOSED WOODEN STOCKADE FENCE
	LIMITS OF EXCAVATION (DEPTH AS NOTED)
	APPROXIMATE LIMITS OF TSCA MATERIAL
	RIP-RAP

STATE OF NEW YORK · DOUGLAS M CRAWFORD · 086849 · LICENSED PROFESSIONAL ENGINEER

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CHECKED BY	SWA
DRAWN BY	SED

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O'BRIEN & GERE ENGINEERS, INC

RACER TRUST-FORMER GENERAL MOTORS - IFG
OPERABLE UNIT 2 - RESIDENTIAL AREA REMEDIATION
REMEDIAL DESIGN
SALINA, NEW YORK

GENERAL

NOTES, LEGEND, ABBREVIATIONS AND KEY PLAN

FILE NO. 15388.61007 - 302

DATE SEPTEMBER 2016

G-1

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BROOKLINE ROAD

NYS Rt. 11 - BREWERTON ROAD

100 BROOKLINE ROAD | 102 BROOKLINE ROAD | 104 BROOKLINE ROAD | 106 BROOKLINE ROAD | 108 BROOKLINE ROAD | 110 BROOKLINE ROAD | 112 BROOKLINE ROAD | 114 BROOKLINE ROAD | 116 BROOKLINE ROAD | 118 BROOKLINE ROAD | 120

ORTLIEB D.B. 4022, PG. 86 TM 66-04-03

NGUYEN D.B. 3546, PG. 230 TM 66-04-04

SMITH D.B. 3435, PG. 171 TM 66-04-05

RAMOND D.B. 3665, PG. 104 TM 66-04-06

WICKS/AYERS D.B. 5106, PG. 40 TM 66-04-07

DANIELS D.B. 4937, PG. TM 66-04-08

PRIETTI D.B. 5166, PG. 617 TM 66-04-09

TICHKO/ZIMMER D.B. 5328, PG. 473 TM 66-04-10

J&E RENTALS, LLC D.B. 4874, PG. 764 TM 66-04-11

LAUBENGAYER D.B. 5271, PG. 356 TM 66-04-01.1

LEY CREEK

METAL LATTICE TOWER

MATCH LINE A

MATCH LINE A

TRUE NORTH

BROOKLINE ROAD WEST

1"=20' 20' 0 20'

STATE OF NEW YORK DOUGLAS M. CRAWFORD 086849 LICENSED PROFESSIONAL ENGINEER

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GENERAL

EXISTING SITE PLAN
BROOKLINE ROAD WEST

FILE NO. 15388.61007 - 303

DATE SEPTEMBER 2016

G-2

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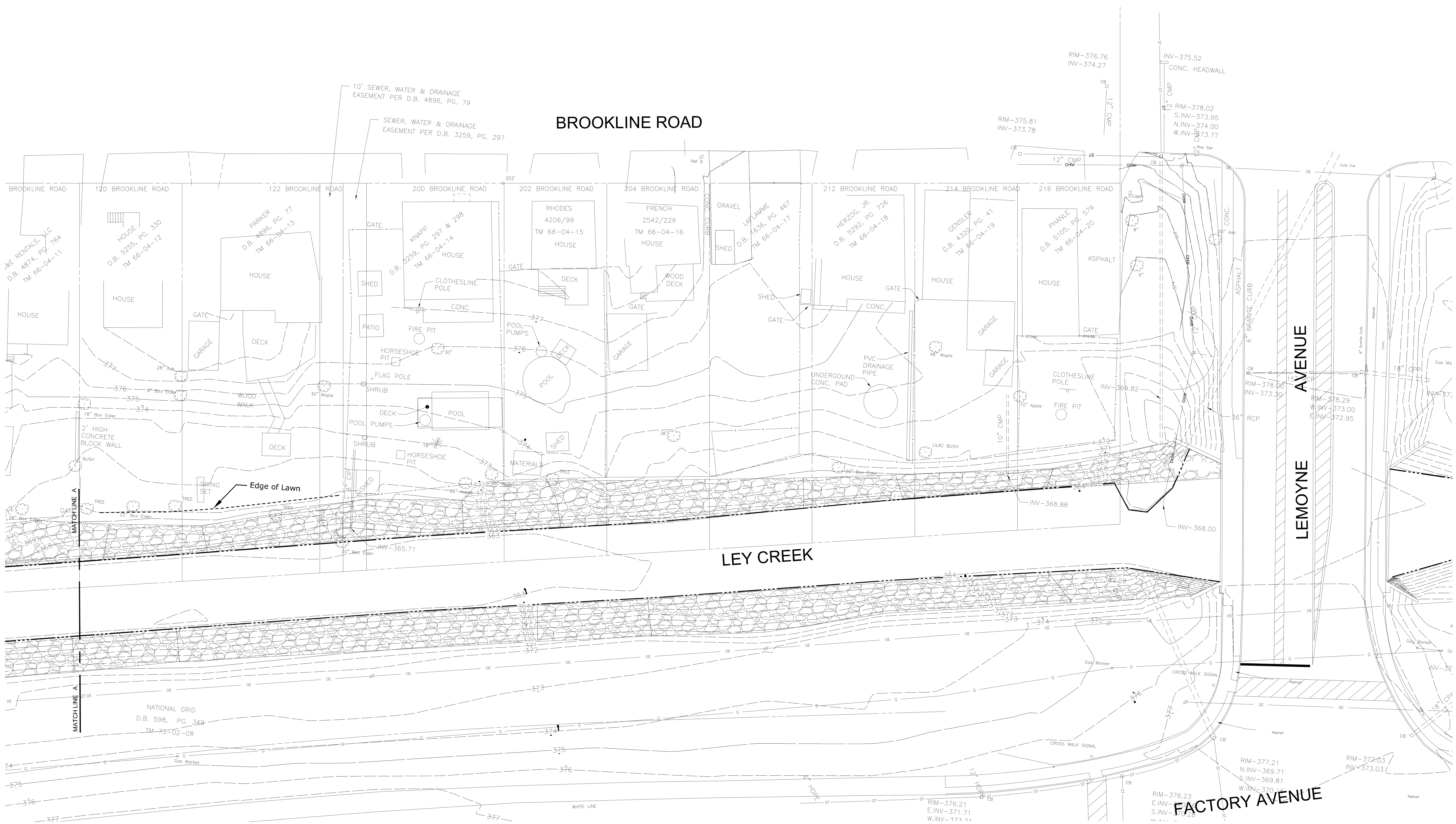

BROOKLINE ROAD EAST

1"=20' 20' 0 20'

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EXISTING SITE PLAN
BROOKLINE ROAD EAST

FILE NO. 15388.61007 - 304

DATE SEPTEMBER 2016

G-3

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BROOKLINE ROAD

NYS Rt. 11 - BREWERTON ROAD

100 BROOKLINE ROAD | 102 BROOKLINE ROAD | 104 BROOKLINE ROAD | 106 BROOKLINE ROAD | 108 BROOKLINE ROAD | 110 BROOKLINE ROAD | 112 BROOKLINE ROAD | 114 BROOKLINE ROAD | 116 BROOKLINE ROAD | 118 BROOKLINE ROAD | 120

E1 EXCAVATION DEPTH = 1FT
E2 EXCAVATION DEPTH = 2FT
E3 EXCAVATION DEPTH = 2FT
E4 EXCAVATION DEPTH = 1FT
E5 EXCAVATION DEPTH = 3FT
E6 EXCAVATION DEPTH = 5FT
E7 EXCAVATION DEPTH = 3FT
E8 EXCAVATION DEPTH = 2FT
E9 EXCAVATION DEPTH = 2FT
E10 EXCAVATION DEPTH = 1FT
E11 EXCAVATION DEPTH = 5FT
E12 EXCAVATION DEPTH = 6IN
E13 EXCAVATION DEPTH = 3FT
E14 EXCAVATION DEPTH = 1FT
E15 EXCAVATION DEPTH = 4FT
E16 EXCAVATION DEPTH = 3FT
E17 EXCAVATION DEPTH = 3FT
E18 EXCAVATION DEPTH = 2FT
E19 EXCAVATION DEPTH = 3FT
E20 EXCAVATION DEPTH = 3FT
E21 EXCAVATION DEPTH = 6IN
E22 EXCAVATION DEPTH = 1FT
E23 EXCAVATION DEPTH = 3FT

EXCAVATION SHALL NOT BE PERFORMED WITHIN 5 FEET OF NYS Rt. 11 BRIDGE ABUTMENT

GRADING TIE-IN LIMIT (SEE SHEET G-8)

LEY CREEK

METAL LATTICE TOWER

MATCH LINE A

TRUE NORTH

BROOKLINE ROAD WEST

1"=20' 20' 0 20'

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EXCAVATION PLAN
BROOKLINE ROAD WEST

FILE NO. 15388.61007 - 307

DATE SEPTEMBER 2016

G-4

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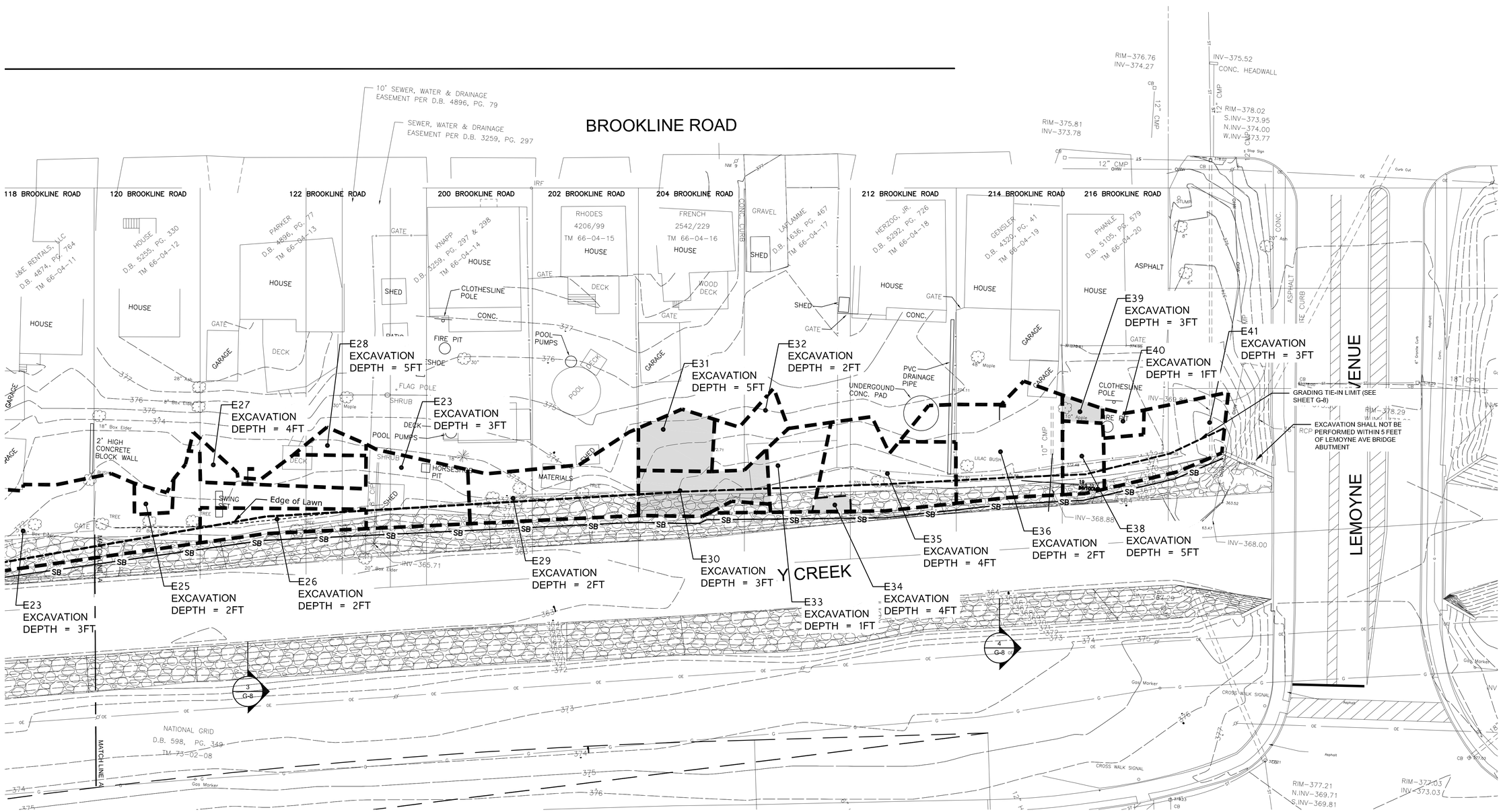

BROOKLINE ROAD EAST

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EXCAVATION PLAN
BROOKLINE ROAD EAST

FILE NO. 15388.61007 - 308

DATE SEPTEMBER 2016

G-5

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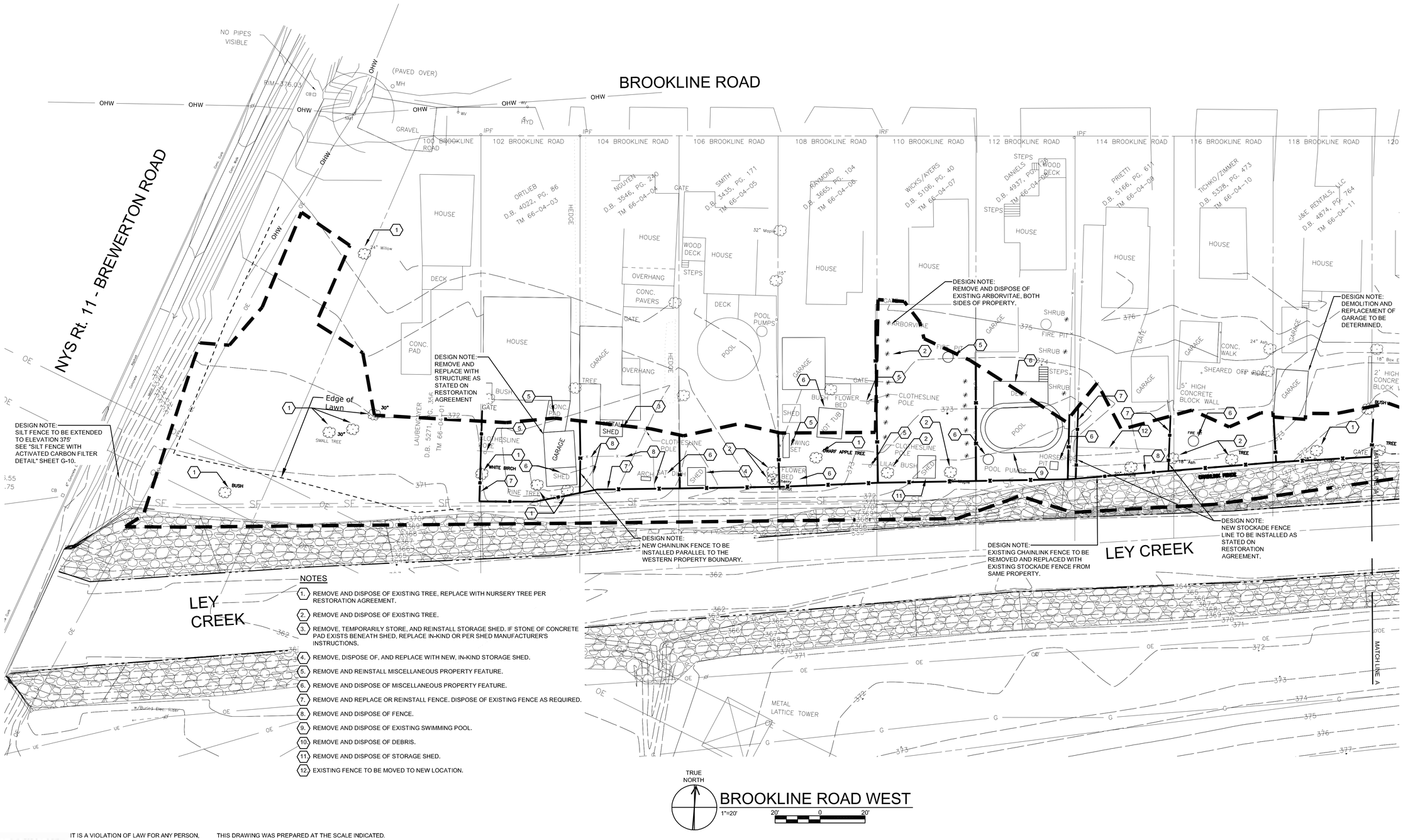

NOTES

1. REMOVE AND DISPOSE OF EXISTING TREE, REPLACE WITH NURSERY TREE PER RESTORATION AGREEMENT.
2. REMOVE AND DISPOSE OF EXISTING TREE.
3. REMOVE, TEMPORARILY STORE, AND REINSTALL STORAGE SHED. IF STONE OF CONCRETE PAD EXISTS BENEATH SHED, REPLACE IN-KIND OR PER SHED MANUFACTURER'S INSTRUCTIONS.
4. REMOVE, DISPOSE OF, AND REPLACE WITH NEW, IN-KIND STORAGE SHED.
5. REMOVE AND REINSTALL MISCELLANEOUS PROPERTY FEATURE.
6. REMOVE AND DISPOSE OF MISCELLANEOUS PROPERTY FEATURE.
7. REMOVE AND REPLACE OR REINSTALL FENCE. DISPOSE OF EXISTING FENCE AS REQUIRED.
8. REMOVE AND DISPOSE OF FENCE.
9. REMOVE AND DISPOSE OF EXISTING SWIMMING POOL.
10. REMOVE AND DISPOSE OF DEBRIS.
11. REMOVE AND DISPOSE OF STORAGE SHED.
12. EXISTING FENCE TO BE MOVED TO NEW LOCATION.

TRUE NORTH

BROOKLINE ROAD WEST

1"=20' 20' 0 20'

STATE OF NEW YORK DOUGLAS M CRAWFORD 086849 LICENSED PROFESSIONAL ENGINEER

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GENERAL

BROOKLINE ROAD WEST
RESTORATION PLAN

FILE NO. 15388.61007 -311

DATE SEPTEMBER 2016

G-6

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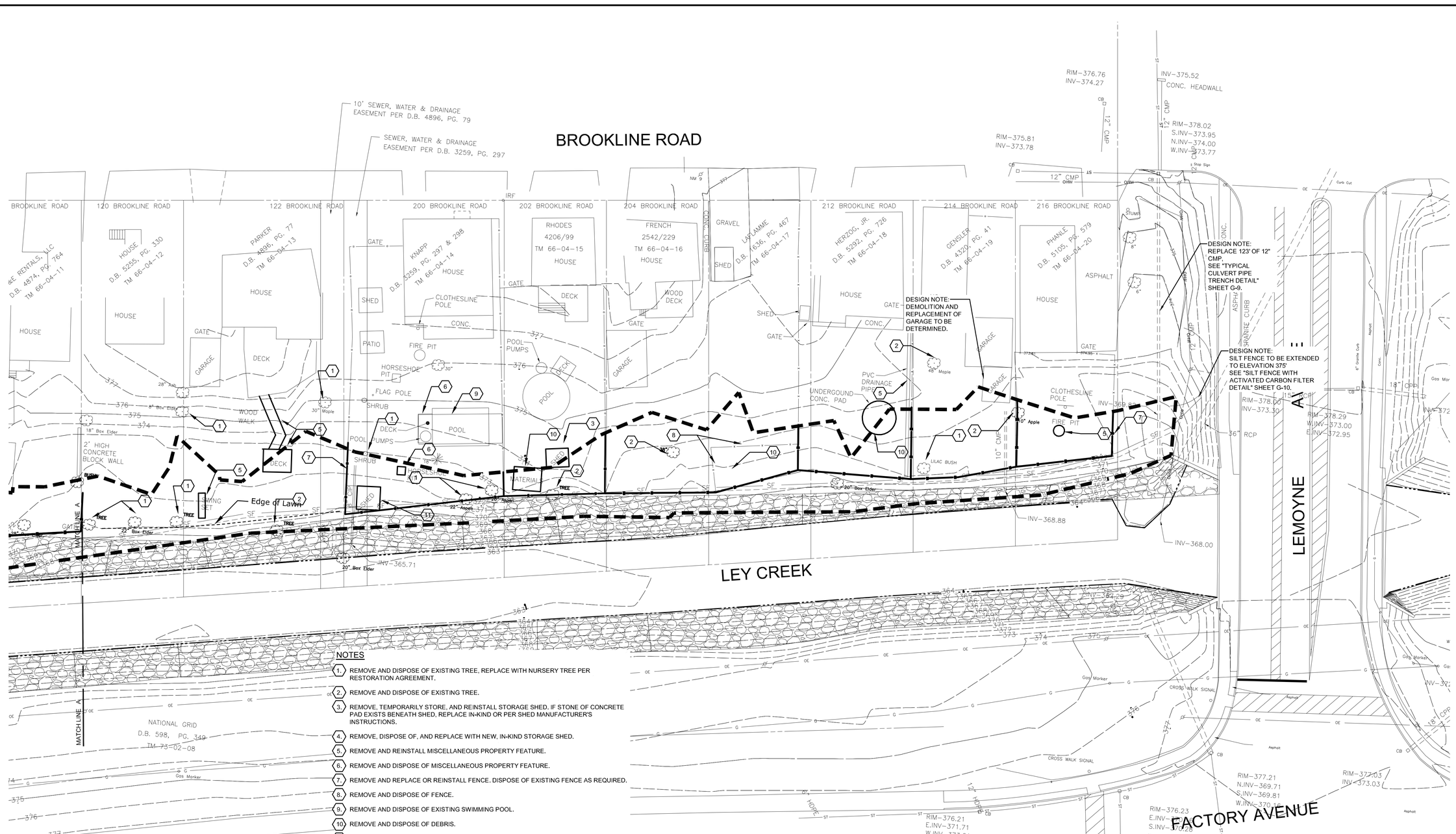

NOTES

1. REMOVE AND DISPOSE OF EXISTING TREE, REPLACE WITH NURSERY TREE PER RESTORATION AGREEMENT.
2. REMOVE AND DISPOSE OF EXISTING TREE.
3. REMOVE, TEMPORARILY STORE, AND REINSTALL STORAGE SHED. IF STONE OF CONCRETE PAD EXISTS BENEATH SHED, REPLACE IN-KIND OR PER SHED MANUFACTURER'S INSTRUCTIONS.
4. REMOVE, DISPOSE OF, AND REPLACE WITH NEW, IN-KIND STORAGE SHED.
5. REMOVE AND REINSTALL MISCELLANEOUS PROPERTY FEATURE.
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8. REMOVE AND DISPOSE OF FENCE.
9. REMOVE AND DISPOSE OF EXISTING SWIMMING POOL.
10. REMOVE AND DISPOSE OF DEBRIS.
11. REMOVE AND DISPOSE OF STORAGE SHED.
12. EXISTING FENCE TO BE MOVED TO NEW LOCATION.

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STATE OF NEW YORK DOUGLAS M. CRAWFORD 076849 LICENSED PROFESSIONAL ENGINEER

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BROOKLINE ROAD EAST RESTORATION PLAN

FILE NO. 15388.61007 - 312

DATE SEPTEMBER 2016

G-7

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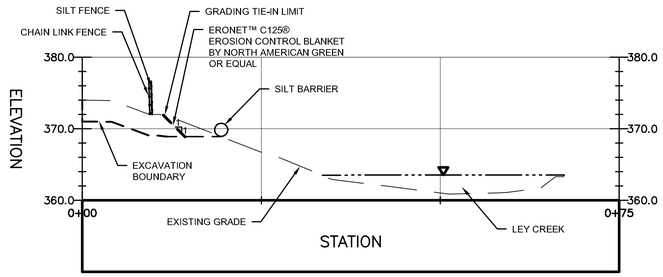


NOTE:

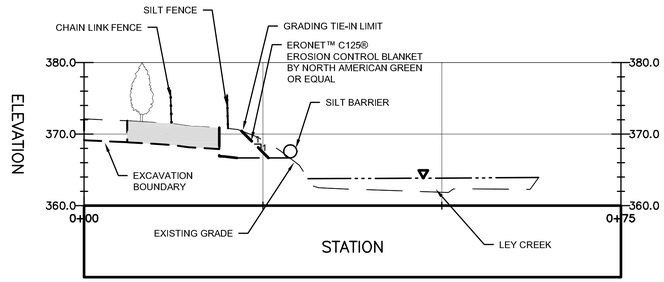
1. EROSION CONTROL BLANKET SHALL BE INSTALLED BETWEEN SOUTHER LIMIT OF EXCAVATION AND PROPOSED CHAIN LINK FENCE. ANCHOR IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

BROOKLINE ROAD WEST SECTION

1"=10' H
1"=10' V

10' 0 10'

1 G-4



NOTE:

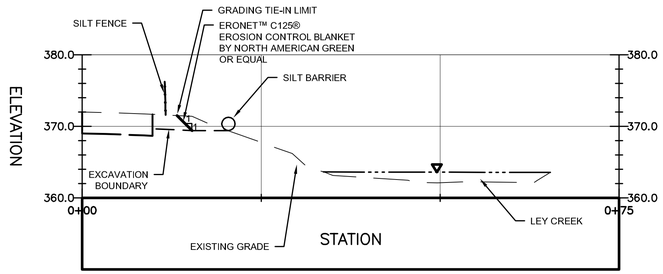
1. EROSION CONTROL BLANKET SHALL BE INSTALLED BETWEEN SOUTHER LIMIT OF EXCAVATION AND PROPOSED CHAIN LINK FENCE. ANCHOR IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

BROOKLINE ROAD WEST SECTION

1"=10' H
1"=10' V

10' 0 10'

2 G-4



NOTE:

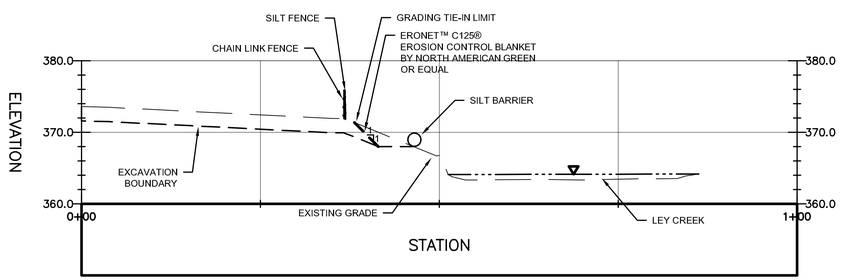
1. EROSION CONTROL BLANKET SHALL BE INSTALLED BETWEEN SOUTHER LIMIT OF EXCAVATION AND PROPOSED CHAIN LINK FENCE. ANCHOR IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

BROOKLINE ROAD EAST SECTION

1"=10' H
1"=10' V

10' 0 10'

3 G-5



NOTE:

1. EROSION CONTROL BLANKET SHALL BE INSTALLED BETWEEN SOUTHER LIMIT OF EXCAVATION AND PROPOSED CHAIN LINK FENCE. ANCHOR IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

BROOKLINE ROAD EAST SECTION

1"=10' H
1"=10' V

10' 0 10'

4 G-5

STATE OF NEW YORK — DORIAN M CRAWFORD — 088649 — LICENSED PROFESSIONAL ENGINEER

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RACER TRUST-FORMER GENERAL MOTORS - IFG
OPERABLE UNIT 2 - RESIDENTIAL AREA REMEDIATION
REMEDIAL DESIGN
SALINA, NEW YORK

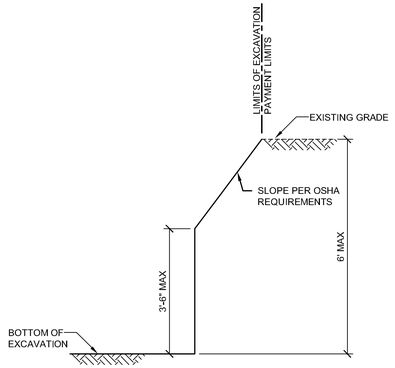
GENERAL

BROOKLINE ROAD EXCAVATION SECTIONS

FILE NO. 15388.61007 - 311

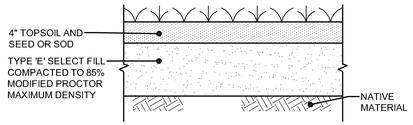
DATE SEPTEMBER 2016

G-8



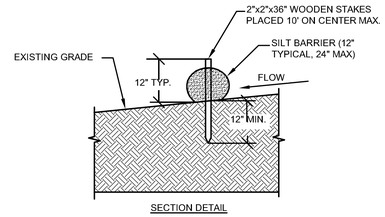
TYPICAL OPEN CUT EXCAVATION

NOT TO SCALE



TYPICAL EXCAVATION BACKFILL DETAIL

NOT TO SCALE



SECTION DETAIL

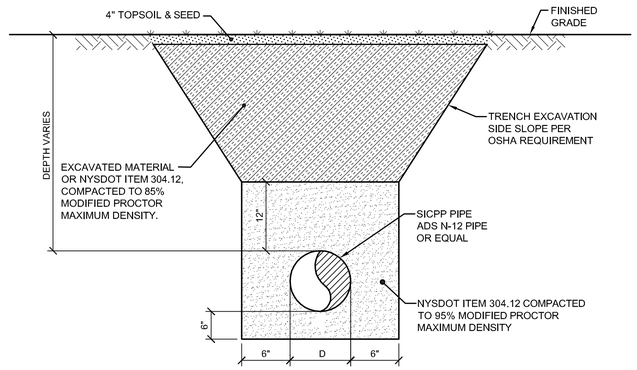
NOTES:

1. USE FILTREXX® SEDIMENT CONTROL SYSTEM BY FILTREXX® LAND IMPROVEMENT SYSTEMS OR APPROVED EQUAL.
2. STAKES SHALL BE INSTALLED THROUGH THE MIDDLE OF THE SILT BARRIER AT 10' INTERVALS MAXIMUM USING HARDWOOD STAKES.
3. SILT BARRIER TO BE ALIGNED ALONG CONTOUR AS CLOSELY AS POSSIBLE.
4. BOTH ENDS OF EACH BARRIER SECTION MUST EXTEND AT LEAST 10 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT.
5. SEDIMENT MUST BE REMOVED WHERE ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER.
6. ANY SILT BARRIER SECTION WHICH HAS BEEN UNDERMINED OR TOPPED MUST BE IMMEDIATELY REPAIRED OR REPLACED.
7. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED IN ACCORDANCE WITH THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (OBG 2016).

STANDARD SYMBOL —— SB —— SB

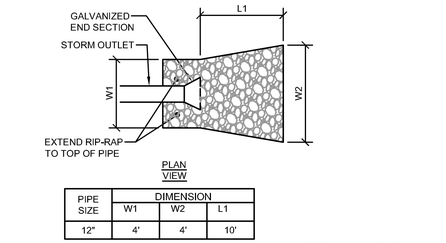
SILT BARRIER

NOT TO SCALE



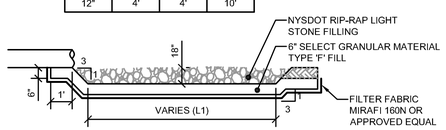
TYPICAL CULVERT PIPE TRENCH DETAIL

NOT TO SCALE



PLAN VIEW

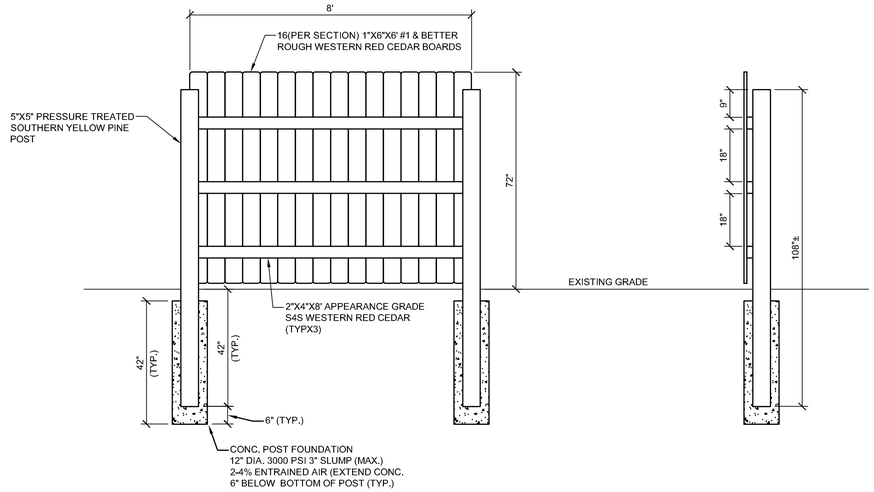
PIPE SIZE	DIMENSION		
	W1	W2	L1
12"	4'	4'	10'



SECTION

RIP-RAP APRON DETAIL

NOT TO SCALE



ELEVATION SECTION

WOOD STOCKADE FENCE DETAIL

NOT TO SCALE

STATE OF NEW YORK · DOUGLAS M. CRAWFORD · 086849 · LICENSED PROFESSIONAL ENGINEER

IN CHARGE OF CFL
DESIGNED BY LNC/BJP
CHECKED BY SWA
DRAWN BY SED

NO.	DATE	REVISION	INT.
0	09/26/2016	ISSUED FOR CONSTRUCTION	DMC

O'BRIEN & GERE ENGINEERS, INC

RACER TRUST-FORMER GENERAL MOTORS - IFG
OPERABLE UNIT 2 - RESIDENTIAL AREA REMEDIATION
REMEDIAL DESIGN
SALINA, NEW YORK

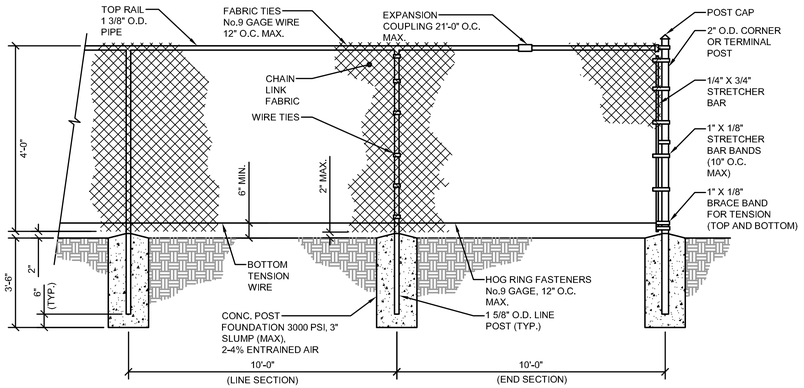
GENERAL

MISCELLANEOUS DETAILS

FILE NO. 15388.61007 - 305

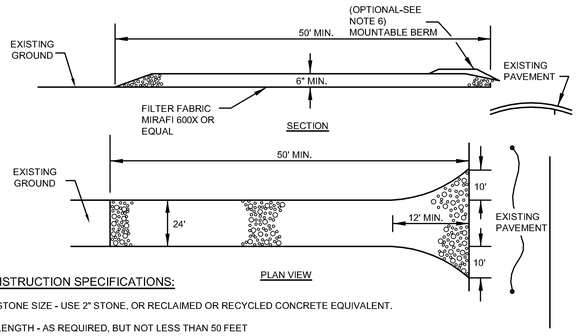
DATE SEPTEMBER 2016

G-9



CHAIN LINK FENCE DETAIL

NOT TO SCALE

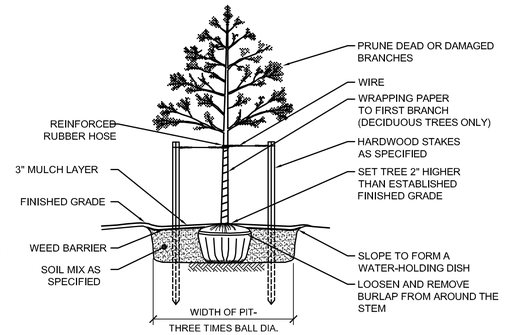


CONSTRUCTION SPECIFICATIONS:

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FEET
3. THICKNESS - NOT LESS THAN SIX (6) INCHES
4. WIDTH-(24) TWENTY-FOUR FEET MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE EGRESS OCCURS.
5. FILTER FABRIC (MIRAFI 600X OR EQUAL) - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARDS CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS NOT POSSIBLE, A MOUNTABLE BERM 3' WIDE (MIN.) WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO ADJACENT SEDIMENT BASINS.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED IN ACCORDANCE WITH THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (OBG 2016).
10. ENTRANCE SHALL BE CONSTRUCTED ON NATIONAL GRID PROPERTY OFF OF FACTORY AVENUE BETWEEN NYS RT. 11 - BREWERTON ROAD AND LEMOYNE AVENUE.

STABILIZED CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE

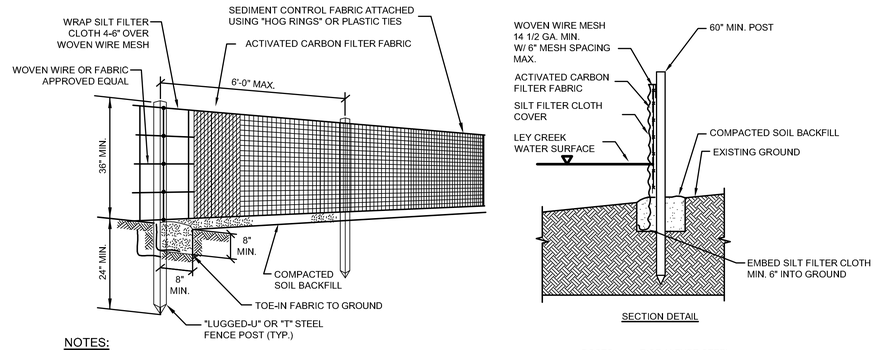


NOTE:

1. BURLAP AND WIRE BASKETS LOOSENED FROM THE MAIN ROOTS TO THE EXTENT POSSIBLE PRIOR TO PLANTING.

DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE



SECTION DETAIL

NOTES:

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES.
2. ACTIVATED CARBON FILTER FABRIC TO BE PLACED BETWEEN THE WOVEN WIRE FENCE AND THE SILT FILTER CLOTH COVER. ACTIVATED CARBON FILTER FABRIC SHALL BE TEKTOSEAL® AC800 ACTIVATED CARBON CLOTH OR EQUAL.
3. CARBON FABRIC TO BE SEWED TO THE SILT FILTER FABRIC AT TOP AND MID SECTION.
4. FILTER CLOTH TO BE WRAPPED OVER THE TOP OF THE WOVEN WIRE FENCE AND FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES OR "HOG RINGS" SPACED EVERY 24" AT TOP AND MID SECTION.
6. BOTTOM 6" OF SILT FILTER CLOTH TO BE BURIED IN SOIL AND DISTURBED SOIL MUST BE COMPACTED ALONG THE FENCE POST INSTALLATION.
7. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED.
8. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
9. FENCE TO BE ALIGNED ALONG CONTOUR AS CLOSELY AS POSSIBLE.
10. SILT FENCE MUST BE INSTALLED AT LEVEL GRADE. BOTH ENDS OF EACH FENCE SECTION MUST EXTEND AT LEAST 10 FEET UP SLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.
11. SEDIMENT MUST BE REMOVED WHERE ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.
12. ANY FENCE SECTION WHICH HAS BEEN UNDERMINED OR TOPPED MUST BE IMMEDIATELY REPLACED.
13. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED IN ACCORDANCE WITH THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (OBG 2016).

POSTS : T OR U TYPE STEEL

FENCE : WOVEN WIRE 14.5 GAUGE
6" MAX MESH OPENING

FILTER CLOTH :
MINIMUM TENSILE STRENGTH OF 120 LBS.
(ASTM D-16826)

STANDARD SYMBOL —— SF —— SF

SILT FENCE WITH ACTIVATED CARBON FILTER DETAIL

NOT TO SCALE

RESTORATION NOTES:

1. TOPSOIL AND SEED

1.1. THE TOPSOIL SHALL BE UNFROZEN, NATURAL, FERTILE, FRIABLE, CLAYEY LOAM SOIL CHARACTERISTIC OF PRODUCTIVE SOILS IN THE VICINITY AND SHALL COMPLY WITH ASTM D5268. NO ADMIXTURES OF SUBSOIL SHALL BE ALLOWED. TOPSOIL MUST BE UNIFORM IN COMPOSITION AND TEXTURE, CLEAN AND FREE FROM CLAY LUMPS, STONES, WEEDS, STICKS, BRUSH, STUMPS, ROOTS, TOXIC SUBSTANCES, AND DEBRIS OR SIMILAR SUBSTANCES 2-INCHES OR MORE IN GREATEST DIMENSION. TOPSOIL SHALL MEET REQUIREMENTS OF DER-10 APPENDIX 5 FOR RESIDENTIAL USE.

1.2. ALL TOPSOIL INCORPORATED INTO THE COMPLETED CONTRACT, WHETHER ORIGINATING ON-SITE OR OFF-SITE, SHALL BE SCREENED.

1.3. PRIOR TO AND DURING INSTALLATION OF THE TOPSOIL LAYER, MATERIAL FROM THE BORROW SOURCE SHALL BE TESTED IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND FREQUENCIES:

PARAMETER	STANDARD	MINIMUM FREQUENCY	CRITERIA
TOPSOIL PARTICLE SIZE	ASTM D422	ONCE PER 500 CY	MONITORING CONSISTENCY OF BORROW SOURCE
TOPSOIL PH	ASTM 4972	ONCE PER 500 CY	PH IN THE RANGE OF 5.5 AND 7.6
TOPSOIL ORGANIC CONTENT	ASTM 2974	ONCE PER 500 CY	NOT LESS THAN 5% NOR MORE THAN 20%

2. FERTILIZER

2.1. FERTILIZER SHALL BE A STANDARD QUALITY COMMERCIAL CARRIER OF AVAILABLE PLANT FOOD ELEMENTS. A COMPLETE PREPARED AND PACKAGED MATERIAL CONTAINING A MINIMUM OF 10 PERCENT NITROGEN, 10 PERCENT PHOSPHORIC ACID AND 10 PERCENT POTASH.

2.2. EACH BAG OF FERTILIZER SHALL BEAR THE MANUFACTURER'S GUARANTEED STATEMENT OF ANALYSIS.

3. SEED MIXTURES

3.1. SEED MIXTURES SHALL BE OF COMMERCIAL STOCK OF THE CURRENT SEASON'S CROP AND SHALL BE DELIVERED IN UNOPENED CONTAINERS BEARING THE GUARANTEED ANALYSIS OF THE MIX.

3.2. ALL SEED SHALL MEET THE STATE STANDARDS OF GERMINATION AND PURITY.

3.3. THE SEED MIXTURE IS SPECIFIED IN TABLE 1-1.

TABLE 1-1 SEED MIXTURES

SPECIES	LAWN AREA*	UNMAINTAINED AREAS*
KENTUCKY BLUEGRASS	50	20
CREEPING RED FESCUE	30	20
MANHATTAN PENNFINE RYEGRASS	20	60
*% BY WEIGHT		

3.4. SEEDING SHALL BE PERFORMED DURING TWO SEASONAL WINDOWS: MID-APRIL TO EARLY JUNE OR THE MONTH OF NOVEMBER, UNLESS OTHERWISE APPROVED BY THE OWNER'S REPRESENTATIVE. IF SITE SOILS REQUIRE SEEDING AND STABILIZATION AT TIMES OUTSIDE OF THESE DATES, THEY SHALL BE TEMPORARILY SEEDED AND MULCHED USING 30 POUNDS PER ACRE OF OATS (AVENA SATIVA).

4. MULCH

4.1. MULCH SHALL BE UN-ROTTED STALKS OF OATS, WHEAT, RYE OR OTHER APPROVED CROPS WHICH ARE FREE FROM NOXIOUS WEEDS, SALT, MOLD, OR OTHER OBJECTIONABLE MATERIAL.

5. TYPE B SELECT FILL

5.1. CRUSHED STONE

5.1.1. THOROUGHLY WASHED CLEAN, SOUND, TOUGH, HARD CRUSHED LIMESTONE OR APPROVED EQUAL FREE FROM COATINGS. CRUSHED STONE SHALL HAVE THE FOLLOWING GRADATION BY WEIGHT:

% PASSING	SIEVE
100	1-½-INCH
0-25	¾-INCH
0-5	⅜-INCH

6. TYPE E SELECT FILL

6.1. RUN-OF-BANK GRAVEL

6.1.1. RUN-OF-BANK GRAVEL OR OTHER ACCEPTABLE GRANULAR MATERIAL FREE FROM ORGANIC MATTER, HAVING THE FOLLOWING GRADATION BY WEIGHT, AS DETERMINED BY WASHING THROUGH THE SIEVE IN ACCORDANCE WITH ASTM D422.

% PASSING	SIEVE
100	1-½-INCH
30-65	¾-INCH
0-10	NO. 200

7. SUBMITTALS

7.1. THE FOLLOWING ITEMS SHALL BE SUBMITTED:

7.1.1. THE NAME AND LOCATION OF THE SOURCE OF EACH MATERIAL.

7.1.2. SAMPLES AND TEST REPORTS OF EACH MATERIAL, INCLUDING GRADATION, SIEVE ANALYSES, AND TYPE OF MATERIAL.

8. SOD PROFILE:

8.1. TALL FESCUE BLEND SOD AS MANUFACTURED BY BATAVIA TURF, OR APPROVED EQUAL, AND CONTAINING THE FOLLOWING TURF GRASS SPECIES GROWN ON MINERAL SOIL.

27% TONTO TALL FESCUE
27% DAKOTA TALL FESCUE
26% DORADO TALL FESCUE
20% MADISON KENTUCKY BLUEGRASS

STATE OF NEW YORK · DOUGLAS M. CRAWFORD · 086640 · LICENSED PROFESSIONAL ENGINEER

IN CHARGE OF	CFL		
DESIGNED BY	LNC/BJP		
CHECKED BY	SWA		
DRAWN BY	SED		

NO.	DATE	REVISION	INT.
0	09/26/2016	ISSUED FOR CONSTRUCTION	DMC

O'BRIEN & GERE ENGINEERS, INC

RACER TRUST-FORMER GENERAL MOTORS - IFG
OPERABLE UNIT 2 - RESIDENTIAL AREA REMEDIATION
REMEDIAL DESIGN
SALINA, NEW YORK

GENERAL

MISCELLANEOUS DETAILS

FILE NO. 15388.61007 - 306

DATE SEPTEMBER 2016

G-10

Appendix B

Community Air Monitoring Plan (CAMP)

OBG

COMMUNITY AIR MONITORING PLAN

RACER Trust Former Inland Fisher Guide Operable Unit 2

Revitalizing Auto Communities Environmental Response Trust

September 2016

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF ACRONYMS

CAMP	Community Air Monitoring Plan
ELAP	Environmental Laboratory Approval Program
gCAMP	Generic Community Air Monitoring Plan
IFG	Former Inland Fisher Guide
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OBG	O'Brien & Gere Engineers, Inc.
OU-2	Operable Unit 2
PCBs	Polychlorinated Biphenyls
RACER	Revitalizing Auto Communities Environmental Response
SVOCs	Semi-volatile Organic Compounds
TAGM	Technical Administration Guidance Memorandum
USEPA	United States Environmental Protection Agency
VOCs	Volatile organic compounds

1. INTRODUCTION AND OBJECTIVES

The New York State Department of Environmental Conservation (NYSDEC) and United States Environmental Protection Agency (USEPA) issued a Record of Decision, which selected the cleanup remedy for the Operable Unit 2 (OU-2) of the Former Inland Fisher Guide (IFG) and Deferred Media Site March 31, 2015. The remedy will be implemented by the Revitalizing Auto Communities Environmental Response (RACER) Trust. A portion of the remedy will take place along the north bank of Ley Creek on residential properties on the south side of Brookline Road in the Town of Salina, NY.

The objective of this Community Air Monitoring Plan (CAMP) is to describe perimeter air monitoring during remedial construction activities associated with a residential area in OU-2 of the Site, which is located in Salina and DeWitt, New York.

Primary constituents in the impacted soils are polychlorinated biphenyls (PCBs), which are semi-volatile organic compounds (SVOCs). During ground intrusive remedial construction activities, PCB-impacted soil may become airborne as dust. Therefore, air monitoring during ground intrusive activities will be conducted to assess potential air quality impacts to the surrounding community from PCBs and airborne dust.

The air monitoring program described herein has been designed based on air quality limits specified in the New York State Department of Health (NYSDOH) *Generic Community Air Monitoring Plan* (gCAMP)[1] guidance, New York State Department of Environmental Conservation Technical and Administrative Guidance Memorandum (TAGM) -4031, *Fugitive Dust Suppression and Particulate Monitoring Program*[2], and previous PCB air monitoring programs recently implemented in New York State.

This CAMP identifies the following aspects of the program:

- Site description and remediation activities
- Community receptors, monitoring locations and equipment
- Action criteria and responses
- Air emission controls/countermeasures
- Instrument calibration, data management and reporting.

[1] Revision 1, June 2000.

[2] October 27, 1989.

2. SITE DESCRIPTION AND REMEDIAL ACTIVITIES

Soil sampling performed in 2016 at residential properties adjacent to Ley Creek identified the presence of PCBs at concentrations that exceed the residential soil cleanup objective. Soil with PCB concentrations in excess of the residential soil cleanup objective will be excavated and disposed of properly.

Soil excavations are expected to be 6 inches to 5 feet deep. Excavated areas will generally be restored with clean soil and vegetation. Above-ground features, such as fencing, sheds and swimming pools, disturbed by remedial activities will be returned to their previous condition.

Figure A1 identifies the residential properties where work will be performed. Remedial activities will occur in the rear yard of each residence. NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation indicates that community air monitoring is required during intrusive remedial activities with the potential to generate localized impacts on the community. Activities with the potential for community impacts from air emissions of PCBs and/or dust are as follows:

- Site preparation activities including site access installation for construction equipment, and the removal of existing vegetation and personal property (dust only)
- Excavation and removal of impacted soil including material handling
- Backfilling excavations with clean soil (dust only).

3. COMMUNITY RECEPTORS

The locations of the excavation areas, shown on **Figure A1**, are bordered by residential and commercial/industrial properties and a waterway as follows:

- **North** – Residential properties and homes along the south side of Brookline Road. In general, the homes will be 60 feet or less from the nearest point of the excavation and two homes will be immediately adjacent to the nearest excavations.
- **East** – A residential property and home at 2026 Lemoyne Avenue 285 feet to the northeast of the eastern-most excavation, and two occupied commercial/industrial properties, adjacent to and east of LeMoyne Avenue.
- **South** – A residential property and home at 1400 Brewerton Road 550 feet to the south of the southeastern-most excavation, and commercial/industrial properties 200 to 500 feet to the southeast, south and south-southwest of the site along Factory Avenue, Lemoyne Avenue and Brewerton Road.
- **West** – Two commercial/industrial properties 150 to 250 feet to the northwest of the western-most excavation, consisting of JE Miller Incorporated and Paratore Signs adjacent to and west of Brewerton Road.

Community air monitoring will assess potential air quality impacts at the site from PCBs and dust (measured as particulate matter less than 10 micrometers [PM_{10}]) from remedial activities in order to maintain air quality within levels protective of the surrounding community. The air monitoring program described herein has been designed using the NYSDOH gCAMP guidance and PCB air quality limits used at previous PCB site remediations recently conducted in New York State. If nuisance odors are encountered, mitigation steps (including those described in Section 7.3) may also need to be taken.

4. MONITORING LOCATIONS

Air monitoring will be conducted at or within the air monitoring work perimeter boundary line (work perimeter) shown on **Figure A1**. Specifically, the north work perimeter is adjacent to the south wall of the residential homes to assess air quality at the residential properties. On the south side of the site, the perimeter boundary follows the north side of Factory Avenue and will assess air quality for the properties to the south of the site. When work takes place on the west and east ends of the site, monitoring will also be conducted on the west side of Brewerton Road and east side of Lemoyne Avenue, respectively.

4.1 PCBS AND DUST

Air monitor station locations will be selected at the beginning of each work day based on the work area for the day and proximity of the nearest receptors. Air monitoring location will consist of the following:

1. Dust – Up to eight air monitoring stations: three stations on the north work perimeter near the excavation area, two stations at north work perimeter near the 204 Brookline Road stockpile, two stations on the south work perimeter, and one station at the predicted downwind property line of the IFG stockpile on 1 General Motors Drive.

2. PCBs – Up to five air samplings stations on the north work perimeter

Air sampling locations will be based on daily field activities and be located in areas closest to the remedial activities on residential yards and to designated soil staging areas. Depending on the number of excavations on yards occurring at the same time, additional air sampling/monitoring locations may be warranted. For instance, if two excavation areas are separated such that the north work perimeter stations are not representative of downwind air quality levels for both areas, a second set of three north work perimeter stations will be used (i.e., one set of north work perimeters stations per excavation area). Dust and PCB stations on the north work perimeter will be placed at the south side of each of the three residential structures nearest to the work activities (northwest, north and northeast). The two dust and PCB stations for the 204 Brookline Road stockpile will be placed in the direction of the two closest residences to the stockpile (except when already represented by stations used for the excavation area). When excavation areas are within 20 feet of potentially exposed populations or occupied structures, the location for each of the three north perimeter dust and PCB monitoring stations will be located to reflect both the nearest potentially exposed individuals (outside the work zone) and the location of ventilation system intakes (if any) for the nearest structures (one station for each of the three nearest residential structures). The locations of structures and intakes relative to the north work perimeter monitoring locations will be recorded on the field sampling forms.

On the south work perimeter, one dust monitoring station will be located in the direction of the nearest structure along Factory Avenue, and one in the direction of structures along Lemoyne Avenue or Brewerton Road. Stations will remain at the selected locations for the entire daily air monitoring period, which is the construction workday for the real-time dust monitors and 24-hour period for the PCB samplers.

4.2 METEOROLOGY

Meteorological monitoring will be conducted using an on-site weather station to monitor wind speed, wind direction, temperature and relative humidity. Sensors will be mounted on a tripod or mast approximately 8 to 10 feet high, and located in an open area away from obstructions using siting guidance, as feasible, established in the USEPA's *Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV – Meteorological Measurements*, as revised August 1989. Wind direction will be used to determine how much a station location was upwind or downwind during the measurement period. Stations upwind of the excavation area will be used to evaluate background levels.

5. MONITORING METHODS

5.1 PCBS

PCB sampling will consist of collecting 24-hour (±1 hour) integrated samples. The 24-hour sample events will be conducted daily throughout the construction period of excavation and handling of potentially contaminated soil (excludes backfilling operations with clean fill).

Each PCB sample event will begin at the start of the construction day and end approximately 24 hours later. Samples will be collected in accordance with USEPA Method TO-10A, which involves pulling air through polyurethane foam (PUF) cartridges using a low volume sample pump with a target sample rate of approximately 5 liters per minute.

PCB samples will be sent overnight under chain-of-custody to a laboratory for analysis via USEPA Method TO-10A. The method is expected to provide reporting limits for each PCB Aroclor at 0.01 micrograms per cubic meter (µg/m^3), which is below the work perimeter limit described in Section 6. The samples will be analyzed via a rapid turnaround (within 72 hours of sample receipt by the laboratory) and preliminary results reported to NYSDEC within a day of receipt.

5.2 DUST

Dust measurements will be accomplished using real-time aerosol monitors (ThermoFisher ADR-1500 or TSI DustTrak 8533 or similar) configured to measure dust concentrations from 1 to 100,000 µg/m^3. The monitors will be equipped with a size-selection so only particles with an aerodynamic diameter of 10 microns or smaller (defined as PM_{10}) are measured. The dust monitor will be housed in a water-tight environment enclosure affixed to a tripod base, and will have a sample inlet height approximately 5 feet above grade.

Daily dust monitoring periods will begin at the start of each construction day and end at the end of the construction day (expected to be 8 to 9 hours in duration). Dust monitor results will be recorded in 15-minute average concentrations using a digital data logger, and the monitor/data logger will be configured with user-set high level alarm functions, set to alarm at both 1-minute and 15-minute TWA concentrations.

Note that dust monitoring will not be conducted during periods of rain, since water drawn into the monitor's sample inlet may damage the instrument.

5.3 METEOROLOGY

Meteorological monitoring will be conducted using an on-site weather station to monitor wind direction, wind speed, temperature and relative humidity. Daily precipitation will be measured using a manual on-site rain gage. Sensors will be located on a tripod approximately 8 to 10 feet high, centrally located in an open area within the air monitoring work perimeter. Station data will be saved as 15-minute averages using a digital data logger, which will be automatically or manually downloaded each day to a computer.

6. ACTION CRITERIA AND RESPONSE

Air monitoring action criteria are work perimeter limits that define the maximum concentration allowed to occur at the work perimeter as well as, for dust, a control level that defines a concentration below the work perimeter limit at which emission controls need to be applied to avoid reaching the work perimeter limit. The work perimeter limits are defined by NYSDEC and NYSDOH to be protective of human health. The dust limit is based on NYSDOH gCAMP guidelines and the PCB air quality limits are based on limits previously set for other New York State PCB remediation programs.

6.1 PCBS

The PCB work perimeter limits at any monitoring station(s), downwind during one or more hours during the 24-hour monitoring period, are 0.11 µg/m^3 in the direction of residential homes and 0.26 µg/m^3 in the direction of commercial/industrial receptors, measured as a 24-hour average. These limits have been used recently and/or are in current use at other PCB remediation sites in New York State[3]. The sum of all detected Aroclors (treating non-detected Aroclors as zero) in each sample will be compared to the limits.

Because PCB samples need to be analyzed by a lab, monitoring results will not be received in real time such that immediate emission controls can be applied to the construction activities. Therefore, a rapid turnaround of results, 72 hours after sample receipt by the lab, will be required. If PCB sample results exceed the work perimeter limit, the Engineer, RACER site representative and NYSDEC representative will be notified and modifications will be made to further control emissions.

6.2 DUST (AS PM_{10})

Control Level – If the downwind 15-minute average PM_{10} level is 100 µg/m^3 above background, or if visible airborne dust is observed leaving the work perimeter, then dust suppression techniques must be employed by the excavation contractor. Work may continue with dust suppression techniques provided that the downwind 15-minute average PM_{10} level does not exceed 150 µg/m^3 above background, and provided no visible dust is migrating across the work perimeter.

Work Perimeter Limit – If, after implementation of dust suppression techniques, the downwind 15-minute average PM_{10} level is greater than 150 µg/m^3 above background, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and/or other controls are successful in reducing the downwind 15-minute PM_{10} level to less than 150 µg/m^3 above background, and in preventing migration of visible dust off-site.

[3] *Hudson River PCBs Site Phase 1 Remedial Action Monitoring Program Quality Assurance Project Plan*, prepared by Anchor QEA for General Electric Company, May 2009. *GM Foundry Superfund Site EDA and EDA Infield, and Temporary Stockpiles Community Air Monitoring Plan*, prepared by Hatch Mott MacDonald on behalf of the RACER Trust, February 2014.

7. CONTROLS/COUNTERMEASURES

7.1 RESPONSE TO DUST ALARMS

Each downwind dust monitor will be programmed to alarm and alert the on-site air monitoring technician (via radio or wireless text message to smartphone and laptop computer) when 1-minute levels of dust reach the control level concentration. When alerted to an alarm, the air monitoring technician will conduct the following steps:

1. Mobilize to the alarming station and evaluate if levels are site-related, or are either not site-related or instrument-related (*e.g.*, instrument malfunction). If the response is instrument-related, corrective action such as repairs or sensor adjustments will be made and no further action is necessary. Non site-related instrument responses (due to off-site or non-project sources) will be noted in the site log.

2. If levels are site-related, the station's subsequent instantaneous levels will be evaluated for either upward or downward trends, current background levels will be assessed, and a determination will be made whether sufficient levels are sustained such that a 15-minute average criteria exceedance (control level or work perimeter limit) may be reached.

3. If a likely potential for criteria exceedance is identified, the air monitoring technician will alert the project engineer and contractor so corrective action can be proactively considered.

If an action criteria exceedance occurs (control level or work perimeter limit), the air monitoring technician will conduct the following:

1. Verbally notify the project engineer and contractor to implement the appropriate corrective response and to notify appropriate project oversight personnel and the NYSDEC.

2. Document the exceedance level and time, individuals notified and the time of notification, action response(s) and resulting effect on air quality levels in the air monitoring logbook and in the air quality monitoring weekly summary report.

7.2 DUST CONTROLS/COUNTERMEASURES

If the air monitoring results indicate that dust measures are required, controls and countermeasures will be implemented by the contractor to reduce the site-related emissions. In addition, water spray will be applied proactively as needed to minimize site dust; not only if the air monitoring results indicate dust control measures are required. Controls and countermeasures may vary depending upon the specific conditions of the site-related emission and source, but in general, the anticipated principal approach and methods to control dust will be as follows:

1. Excavate carefully and methodically using small excavation equipment, and adjust the speed of the excavation as needed.

2. Cover dust emitting stockpiles with polyethylene tarps on windy days

3. Apply water spray to control and reduce airborne dust using the following as water sources:

    a. Primary: 1-inch outdoor spigots from nearby residences

    b. Secondary: On-site pickup truck-mounted 500 gallon water tank.

7.3 COMMUNITY COMPLAINTS

Weekly project updates will be provided to the affected community. The weekly communications will provide project contact information. Community feedback will be recorded and necessary follow-up will be performed as

described in the RAWP. If community complaints are received, the source or cause of the complaint will be investigated. If determined to be site-related, construction technique modifications or methods to abate emissions will be implemented. If complaints are odor-related and due to site operations, potential control strategies may include the following:

1. Limit stockpiling of excavated materials on site. Begin tarping of trucks earlier.
2. Limit the lineal feet of "open face" of the excavation, and cover the remaining face with polyethylene tarps.
3. Mobilize a Rusmar foaming machine (requires 2 to 3 days), then foam while excavating and at the end of day as necessary. Until the mobilized Rusmar machine arrives on-site, the odor source will be covered with polyurethane tarps and/or soil to control emissions.

8. QUALITY ASSURANCE/QUALITY CONTROL

8.1 MONITOR CALIBRATIONS

Flow rate measurements of the PCB sampler pump will be conducted before and after each 24-hour sample event using a DryCal gas flow calibrator that has been certified within 12 months of use.

Calibration checks (zero check) and routine maintenance of the dust monitors will be conducted at the beginning of each day following applicable manufacturer's calibration guidelines. Each dust monitor will have been calibrated by the manufacturer within 12 months of use.

Calibration of the meteorological station will be conducted upon installation, every 3 months thereafter, and at the end of air monitoring.

Records of daily field activities and instrument field checks will be documented in the project site log. Daily calibrations will be documented on pre-printed field forms.

8.2 SAMPLE ANALYSES

PCB samples will be analyzed by USEPA Method TO-10A. One field blank and field duplicate per 20 field samples will also be submitted to and analyzed by the laboratory. The laboratory will be a NYSDOH Environmental Laboratory Approval Program (ELAP) certified laboratory, will follow QA/QC requirements in the method, and will provide an `analytical report that includes a complete summary of laboratory QA/QC. At least 10 % of the analytical data results will be validated by an independent expert, who will prepare and submit a data usability summary report (DUSR) at the end of the monitoring program.

9. DATA MANAGEMENT AND REPORTING

PCB samples for each event will be analyzed and reported by the laboratory using an expedited laboratory turn-around (72 hours after receipt). Results will be reported to the project team within one business day of receipt from the laboratory, along with hourly average winds during the sampling event and comparison to work perimeter limits.

Data from the dust monitors will be manually or automatically saved to a computer each day. Data will consist of 15-minute averages for each air monitoring station and the on-site weather station.

Data management will include preparation of daily air monitoring data summaries, which will document the area of intrusive site activities, monitoring station locations, weather conditions, and range of dust concentrations, exceedances of any CAMP action levels, and description of any controls applied.

A weekly summary report of the daily air monitoring results will be prepared and submitted to the project engineer each week. Each weekly report will contain the following:

- Reporting period
- CAMP action criteria (control levels and work perimeter limits for the project)
- Daily real-time air monitoring periods, and maximum downwind 15-minute average concentrations for dust
- Figure for each day showing the monitoring station locations.
- Daily summary of weather conditions
- Summary of PCB analytical results received since the last weekly report
- Action criteria exceedances and controls and/or countermeasures taken (if any).

FIGURE A1

LEGEND

- AIR MONITORING BOUNDARY
- APPROXIMATE EXCAVATION LIMITS
- PROPERTY BOUNDARY (2016 SURVEY)

RACER TRUST FORMER IFG FACILITY
AND DEFERRED MEDIA SITE
OFF-SITE
REMEDIATION
SYRACUSE, NEW YORK

0 50 100 200 300 400
Feet

N

AIR MONITORING WORK PERIMETER BOUNDARY

15388.61007
SEPTEMBER 2016

O'BRIEN & GERE ENGINEERS, INC.

PLOTDATE: 09/13/16 2:25:41 PM calandin

I:\Racer-Trust.15388\61007.Ifg-Fac-Ri-Fs-R\Docs\DWG\MXD\Off_Site_PDI_AddAir_Monitoring_Boundary.mxd

Appendix C

Stormwater Pollution Prevention Plan (SWPPP)

OBG

STORMWATER POLLUTION PREVENTION PLAN

RACER Trust Former Inland Fisher Guide Operable Unit 2

Revitalizing Auto Communities Environmental Response Trust

July 2016

JULY 29, 2016 | 15388 | 62651

Former General Motors – Inland Fisher Guide Site
Operable Unit 2
Town of Salina, New York

Prepared for:

Revitalizing Auto Communities Environmental Response Trust

DOUGLAS M. CRAWFORD, PE, VP
O'Brien & Gere Engineers, Inc.

July 29, 2016

Mr. Richard Mustico, P.E.
Project Manager
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, New York 12233-7016

RE: Former IFG Facility (Registry # 7-34-057) NYSDEC Order on Consent Index # R7-0853-15-06
OU-2 Residential Area Remedial Design

FILE: 15388/62651

Dear Mr. Mustico:

Enclosed for the New York State Department of Environmental Conservation's (NYSDEC) review is the Stormwater Pollution Prevention Plan (SWPPP) associated with the Remedial Design and Remedial Action for Operable Unit 2 (OU-2) of the Former General Motors – Inland Fisher Guide (IFG) Site. This SWPPP has been prepared on behalf of the Revitalizing Auto Communities Environmental Response (RACER) Trust in accordance with an Order on Consent between RACER and the NYSDEC (Index No. R7-0853-15-06 effective November 6, 2015). Primary components of the NYSDEC selected remedy include:

1. Excavation of Ley Creek sediments
2. Excavation of upland soil
3. Dewatering of creek sediment and upland soil
4. Transport of soil and sediment to and disposal at appropriate facilities based on the concentration of polychlorinated biphenyls (PCBs) in the material
5. Placement of clean fill and restoration within Ley Creek and upland areas

The project design and construction schedule has been developed in a manner to allow completion of certain construction activities in 2016 and the remaining construction activities tentatively scheduled for 2017 through 2019. The design will be organized into the following design packages:

- Residential Area Remedial Design – remedy components 2, 4 and 5 – the subject of this SWPPP, scheduled to be completed in 2016
- Design Package 1 - National Grid Wetland and Factory Ave. – remedy components 2, 3 and 5 which was submitted to the NYSDEC on February 1, 2016 and is scheduled to be completed in 2017
- Design Package 2 - Ley Creek Remediation – remedy components 1, 2, 3, 4, and 5 which is scheduled to be completed in 2017/18.

Details of work associated with the Residential Area Remedial Design are included within the Contract Documents for this project phase; details of work associated with Design Packages 1 (National Grid Wetland and Factory Ave. – remedy components 2, 3 and 5) and 2 (Ley Creek Remediation – remedy components 1, 2, 3, 4,

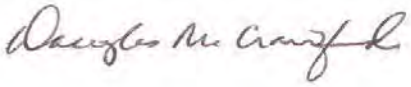
and 5) will be presented in a separate submittal when design is completed. This SWPPP addresses elements contained in the Residential Area portion of OU-2 and will be updated as needed to address Design Packages 1 and 2.

Elements of the Remedial Action will be performed in substantive compliance with the NYSDEC State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges Associated with Construction Activities GP-0-15-002 (Permit No. GP-0-15-002). Since the Remedial Action represents an ecological enhancement project with no proposed impervious surface area (*i.e.,* buildings, pavement), this "basic" SWPPP has been prepared by OBG on behalf of RACER and is enclosed for your review.

Construction activities will be conducted in accordance with a remedial action work plan prepared by RACER and the information included within this SWPPP. The Contract Documents include information on the proposed location, details, and descriptions of erosion and sediment control facilities to be installed to control erosion and minimize sedimentation. Erosion and sediment control facilities will be installed and maintained at the Site for the duration of the Project until these areas are stabilized in substantive compliance with Permit No. GP-0-15-002.

Should you have any questions or require additional information, please contact Kyle Buelow, CPESC/CPSWQ or me at your earliest convenience.

Very truly yours,
O'BRIEN & GERE ENGINEERS, INC.



Douglas M. Crawford, P.E.
Vice President

Attachments:	Appendix A	NYSDEC Notice of Intent (NOI)
	Appendix B	Location Map
	Appendix C	Erosion and Sediment Control Specification
	Appendix D	Pre-Construction Requirements
	Appendix E	Inspection Forms
	Appendix F	NYSDEC Notice of Termination (NOT)
	Appendix G	Contract Documents (bound separately)

cc:	M. Brendan Mullen, P.E.	RACER
	Jerry Castiglione	Sevenson
	Kyle Buelow, CPESC, CPSWQ, ENV SP	OBG
	Clare Leary, P.E.	OBG
	Brian Platt, P.E.	OBG

NYSDEC Notice of Intent

0644089821

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR _____
(for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-15-002

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

-IMPORTANT-
RETURN THIS FORM TO THE ADDRESS ABOVE
OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)
RACER

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
MULLEN

Owner/Operator Contact Person First Name
BRENDAN

Owner/Operator Mailing Address
500 WOODWARD AVENUE, SUITE 2650

City
DETROIT

State
MI

Zip
48226-

Phone (Owner/Operator)
201-247-4890

Fax (Owner/Operator)

Email (Owner/Operator)
BMULLEN@RACERTRUST.ORG

FED TAX ID
27-5320738 (not required for individuals)

Project Site Information

Project/Site Name
FORMER IFG FACILITY REGISTRY #7-34-057

Street Address (NOT P.O. BOX)
FACTORY AVENUE

Side of Street
○ **North** ● **South** ○ **East** ○ **West**

City/Town/Village (THAT ISSUES BUILDING PERMIT)
SALINA

State NY

Zip 13088-

County ONONDAGA

DEC Region 7

Name of Nearest Cross Street
TOWNLINE ROAD

Distance to Nearest Cross Street (Feet)
1000

Project In Relation to Cross Street
○ **North** ○ **South** ○ **East** ● **West**

Tax Map Numbers
Section-Block-Parcel

Tax Map Numbers

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you **must** go to the NYSDEC Stormwater Interactive Map on the DEC website at:

www.dec.ny.gov/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site, go to the tool boxes on the top and choose "i"(identify). Then click on the center of your site and a new window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting) 408607

Y Coordinates (Northing) 4771494

2. What is the nature of this construction project?

○ **New Construction**

○ **Redevelopment with increase in impervious area**

● **Redevelopment with no increase in impervious area**

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use

- ○ FOREST
- ○ PASTURE/OPEN LAND
- ○ CULTIVATED LAND
- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY
- ○ PARKING LOT
- ● OTHER

VACANT LAND

Post-Development Future Land Use

- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION — Number of Lots
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ MUNICIPAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY (water, sewer, gas, etc.)
- ○ PARKING LOT
- ○ CLEARING/GRADING ONLY
- ○ DEMOLITION, NO REDEVELOPMENT
- ○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
- ● OTHER

VACANT LAND

***Note**: for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area
17.8	2.6	0.	0.

5. Do you plan to disturb more than 5 acres of soil at any one time? ○ **Yes** ● **No**

6. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	B	C	D
%	10%	20%	70%

7. Is this a phased project? ● **Yes** ○ **No**

8. Enter the planned start and end dates of the disturbance activities.

Start Date 06/01/2016 - **End Date** 12/31/2018

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Name

LEY CREEK

9a. Type of waterbody identified in Question 9?

- ○ Wetland / State Jurisdiction On Site (Answer 9b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 9b)
- ○ Wetland / Federal Jurisdiction Off Site
- ● Stream / Creek On Site
- ○ Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

9b. How was the wetland identified?

- ○ Regulatory Map
- ○ Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-15-002? ● **Yes** ○ **No**

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-15-002? ● **Yes** ○ **No**

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? ○ **Yes** ● **No**
If no, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ **Yes** ○ **No**
If Yes, what is the acreage to be disturbed?

.

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ● **Yes** ○ **No**

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ◉ Yes ○ No ○ Unknown

16. What is the name of the municipality/entity that owns the separate storm sewer system?

ONONDAGA COUNTY DEPARTMENT OF TRANSPORTATION

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ Yes ◉ No ○ Unknown

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law? ○ Yes ◉ No

19. Is this property owned by a state authority, state agency, federal government or local government? ○ Yes ◉ No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) ◉ Yes ○ No

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)? ◉ Yes ○ No

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? ○ Yes ◉ No
If No, skip questions 23 and 27-39.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual? ○ Yes ○ No

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ● **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer
O'BRIEN & GERE ENGINEERS, INC

Contact Name (Last, Space, First)
CRAWFORD DOUGLAS

Mailing Address
333 WEST WASHINGTON STREET

City
SYRACUSE

State NY Zip 13221-

Phone 315-956-6100

Fax 315-463-7554

Email
DOUG.CRAWFORD@OBG.COM

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-15-002. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name DOUGLAS **MI** M

Last Name CRAWFORD

Signature

Date / /

25. Has a construction sequence schedule for the planned management practices been prepared? ● Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ● Check Dams
- ○ Construction Road Stabilization
- ● Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ● Silt Fence
- ● Stabilized Construction Entrance
- ○ Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ● Mulching
- ● Protecting Vegetation
- ○ Recreation Area Improvement
- ● Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ● Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ○ Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

WOOD CHIP BERMS

Post-construction Stormwater Management Practice (SMP) Requirements

Important: Completion of Questions 27-39 is not required if response to Question 22 is No.

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- ○ **Preservation of Undisturbed Areas**
- ○ **Preservation of Buffers**
- ○ **Reduction of Clearing and Grading**
- ○ **Locating Development in Less Sensitive Areas**
- ○ **Roadway Reduction**
- ○ **Sidewalk Reduction**
- ○ **Driveway Reduction**
- ○ **Cul-de-sac Reduction**
- ○ **Building Footprint Reduction**
- ○ **Parking Reduction**

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- ○ All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
- ○ Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

Total WQv Required

			.				**acre-feet**

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

	Total Contributing Area (acres)		Total Contributing Impervious Area(acres)
RR Techniques (Area Reduction)			
○ Conservation of Natural Areas (RR-1)	___.___	and/or	___.___
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)	___.___	and/or	___.___
○ Tree Planting/Tree Pit (RR-3)	___.___	and/or	___.___
○ Disconnection of Rooftop Runoff (RR-4)	___.___	and/or	___.___
RR Techniques (Volume Reduction)			
○ Vegetated Swale (RR-5)			___.___
○ Rain Garden (RR-6)			___.___
○ Stormwater Planter (RR-7)			___.___
○ Rain Barrel/Cistern (RR-8)			___.___
○ Porous Pavement (RR-9)			___.___
○ Green Roof (RR-10)			___.___
Standard SMPs with RRv Capacity			
○ Infiltration Trench (I-1)			___.___
○ Infiltration Basin (I-2)			___.___
○ Dry Well (I-3)			___.___
○ Underground Infiltration System (I-4)			___.___
○ Bioretention (F-5)			___.___
○ Dry Swale (O-1)			___.___
Standard SMPs			
○ Micropool Extended Detention (P-1)			___.___
○ Wet Pond (P-2)			___.___
○ Wet Extended Detention (P-3)			___.___
○ Multiple Pond System (P-4)			___.___
○ Pocket Pond (P-5)			___.___
○ Surface Sand Filter (F-1)			___.___
○ Underground Sand Filter (F-2)			___.___
○ Perimeter Sand Filter (F-3)			___.___
○ Organic Filter (F-4)			___.___
○ Shallow Wetland (W-1)			___.___
○ Extended Detention Wetland (W-2)			___.___
○ Pond/Wetland System (W-3)			___.___
○ Pocket Wetland (W-4)			___.___
○ Wet Swale (O-2)			___.___

Table 2 - Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area(acres)
○ **Hydrodynamic**	
○ **Wet Vault**	
○ **Media Filter**	
○ **Other**	

Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Name

Manufacturer

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29.

Total RRv provided

. **acre-feet**

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28).

○ **Yes** ○ **No**

If Yes, go to question 36.
If No, go to question 32.

32. Provide the Minimum RRv required based on HSG.
[Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)]

Minimum RRv Required

. **acre-feet**

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

○ **Yes** ○ **No**

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

Note: Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

WQv Provided

			.			
			.			**acre-feet**

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).

			.			
			.			

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? ○ **Yes** ○ **No**

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

CPv Required

			.			
			.			**acre-feet**

CPv Provided

			.			
			.			**acre-feet**

36a. The need to provide channel protection has been waived because:

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

Total Overbank Flood Control Criteria (Qp)

Pre-Development

			.			
			.			**CFS**

Post-development

			.			
			.			**CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development

			.			
			.			**CFS**

Post-development

			.			
			.			**CFS**

37a. The need to meet the Qp and Qf criteria has been waived because:

- ○ Site discharges directly to tidal waters or a fifth order or larger stream.
- ○ Downstream analysis reveals that the Qp and Qf controls are not required

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ○ **Yes** ○ **No**

If Yes, Identify the entity responsible for the long term Operation and Maintenance

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a) This space can also be used for other pertinent project information.

The Remedial Design Work Plan for OU-2 of the Former IFG Site will be completed pursuant to the Order on Consent between RACER and the NYSDEC (Index #R7-0853-15-06) effective November 6, 2015. Design Package 1 will be completed in 2016; Design Package 2 will be completed in 2017 and 2018.

40. Identify other DEC permits, existing and new, that are required for this project/facility.

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Solid Waste
- ○ Navigable Waters Protection / Article 15
- ○ Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ○ Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15
- ○ Endangered or Threatened Species(Incidental Take Permit)
- ○ Individual SPDES
- ○ SPDES Multi-Sector GP NYR
- ● Other CONSENT ORDER R7085315062
- ○ None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ○ **Yes** ● **No**
If Yes, Indicate Size of Impact. 2.6

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? ● **Yes** ○ **No**
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ○ **Yes** ● **No**

44. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. NYR

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name

BRENDAN

MI

Print Last Name

MULLEN

Owner/Operator Signature

Date

/ /

Location Map

FIGURE 1

PLOTDATE: 04/11/14 11:55:40 AM DomaszP

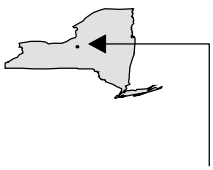
I:\Racer-Trust.15388\61007.Ifg-Fac-Ri-Fs-RVDocs\DWG\MXD\Off_Site_PDI_Add\FIG 1 - SITE LOCATION.mxd

ADAPTED FROM: SYRACUSE WEST, SYRACUSE EAST NEW YORK USGS QUADRANGLE

GENERAL MOTORS
IFG SITE
OPERABLE UNIT 2
SYRACUSE, NY

Legend

- RESIDENTIAL REMEDIATION AREA
- OFF-SITE AREAS
- FORMER IFG FACILITY



MAP LOCATION

SITE LOCATION

0 1,000 2,000 4,000
Feet

N

15388.62651
JUNE 2016

1:20,000

O'BRIEN & GERE ENGINEERS, INC.

Erosion and Sediment Control Specification

SECTION 02570
EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

This Section includes temporary erosion and sediment control measures intended to minimize erosion of soils and sedimentation of lands and waters adjacent to or affected by the proposed Remedial Design and Remedial Action (RD/RA) for the Residential Area portion of Operable Unit 2 (OU-2) of the Former General Motors – Inland Fisher Guide (IFG) Site.

1.1 REFERENCES

All work shall be performed in substantive compliance with the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities (Permit No. GP-0-15-002). Materials and installation shall be in accordance with the latest revisions of the following codes, standards, and specifications:

1. NYSDEC Standards and Specifications for Erosion and Sediment Control. (NYSDEC 2005).
2. New York State Stormwater Management Design Manual (the design Manual) prepared by the Center for Watershed Protection for the NYSDEC (2015).

Approval from the NYSDEC shall be received prior to disturbance of more than 5 acres at one time.

1.2 SUBMITTALS

Submit shop drawings of silt barrier, vegetative seed mixes for approval.

PART 2 - MATERIALS

2.1 GENERAL

Provide all necessary supervision, labor, equipment and materials needed to perform the specified work. Materials may include vegetation, silt barrier, stone, erosion control fabric, and other manufactured products to reduce erosion and control sedimentation.

2.2 SILT BARRIER

Silt Barrier shall be Filtrexx Sediment Control System by Filtrexx Land Improvement Systems or approved equal.

2.3 SILT FENCE WITH ACTIVATED CARBON FILTER

Posts shall be steel (either T or U type) or 2-inch square hardwood with 10-foot spacing. Wire fence backing shall be woven wire, 14.5 gauge, with 6-inch maximum mesh opening.

Geotextile filter cloth sizing will be as recommended by the manufacturer. The material will have a minimum tensile strength of 120 pounds (test procedure ASTM D1682).

Activated carbon filter fabric shall be Zorflex ® Activated Carbon Cloth or equal and shall be placed between the wire fence and the filter cloth.

2.4 STABILIZED CONSTRUCTION ENTRANCE

Stone used for stabilized construction entrances shall be a minimum of 2-inch stone. Equivalent material (i.e., reclaimed concrete) may be used with approval.

Geotextile bedding shall consist of Mirafi 600X or equal.

Overall dimensions and installation notes are as shown on the Contract Drawings.

2.5 TEMPORARY VEGETATION

See Section 3.2.

2.6 DUST CONTROL

Dust control shall be performed as specified in the Community Air Monitoring Plan (CAMP).

PART 3 - CONSTRUCTION DETAILS

3.1 SEQUENCE

Site ingress and egress locations shall be agreed to by the Engineer. If needed, vehicles/equipment shall be washed in a stabilized area designated by the Engineer prior to leaving the site to prevent tracking of material onto adjacent roadways.

Silt barrier shall be installed along toes of embankments, on downstream portions of the site perimeter, and around spoil piles and stockpiles.

Silt fence with activated carbon filter shall be installed near the southern limit of excavation to manage PCB impacted sediment that may wash downstream during a flood event.

Additional erosion and sediment control (ESC) facilities shall be installed as directed by the Engineer. These facilities shall remain in place until construction activities are completed and the site is stabilized.

Staging areas for construction vehicles, equipment, and supplies shall be established by the Contractor in areas approved by the Engineer.

The site shall be cleared and grubbed within the limits of work only. Cleared vegetation, soil, and other debris shall be stockpiled in approved areas for disposal at an approved location.

Stockpiled soil shall be stabilized by covering with plastic or geotextile fabric. Exposed topsoil in remediated areas shall be seeded and mulched in accordance with the Contract Documents.

Upon stabilization of the site and approval of final site inspection, temporary ESC measures shall be removed.

3.2 TEMPORARY STABILIZATION

The project approach includes planting the project area with permanent vegetation as soon as practicable. In the event of unforeseen project delays (*i.e.*, longer than the time frames in Permit No. GP-0-15-002), areas shall be temporarily stabilized with the following measures:

1. Spread additives into soil by approved methods.
2. The seed shall not be more than two years old. Germination tests of the seed proposed to be used shall be made not more than six months prior to seeding operations. The seed mixture may be varied to suit special conditions of soil peculiar to the areas to be seeded. Seed that has become wet, moldy, or otherwise damaged in transit or storage shall not be acceptable.

3. Temporary seed shall be applied as follows: oats at a rate of 45 pounds per acre and white clover at a rate of 5 pounds per acre. If performed between October 1 and March 31, winter wheat shall also be applied at a rate of 10 pounds per acre. Spread seed by hand or approved sowing equipment.
4. After sowing has been completed, apply mulch evenly over the entire seeded area at a rate of 2 tons per acre.

3.3 PERMANENT STABILIZATION

Permanent stabilization measures shall be initiated pursuant to the New York State Standards and Specifications for Erosion and Sediment Control (NYSDEC 2005) as soon as practicable. For portions of the site where soil disturbance activities have permanently ceased, stabilization measures must be implemented within 7 days of the conclusion of activities. This requirement does not apply if the installation of stabilization measures is precluded by snow cover or frozen ground conditions; however, measures shall be implemented as soon as practicable.

3.4 WATER MANAGEMENT PLAN

Means and methods of construction phase water management are provided in the Remedial Action Work Plan.

3.5 ADDITIONAL STORMWATER CONTROLS

Listed below is a description of additional controls and measures that shall be implemented at the site to minimize sediment transport via stormwater:

1. Proper precautions shall be taken so soil does not spill or is tracked onto adjacent roadways during earthwork. Soil shall be removed as soon as practicable so that it does not enter surface and subsurface drainage systems.
2. Dust control measures shall be provided before dust migrates off-site. Measures may include water application or mulching but shall not include use of chemical additives.
3. Planting materials shall be properly stored and/or contained.
4. Chemicals (e.g., hydraulic fluid) with spill potential shall have secondary containment (*e.g.*, spill pallets) or be stored indoors in sealed, non-leaking containers shall have appropriate secondary containment.

3.6 MAINTENANCE

Construction period operation and maintenance:

1. Clean, repair and/or replace silt barriers, silt fence, and construction entrances and access pathways as necessary.
2. Remove sediment from silt barriers and silt fence when it has accumulated to one half the design capacity.
3. Clean and/or sweep affected roadways daily, or more frequently if otherwise required based on periodic inspections.
4. Observe equipment and vehicles within the work area, particularly for identification of vehicles leaking petroleum products that could enter stormwater drainage facilities.
5. Stabilized construction entrances and construction access pathways shall be resurfaced as necessary.
6. Remove debris and litter on a weekly basis or more frequently if necessary.

Post-construction operation and maintenance:

1. Vegetation within the project area shall be monitored and maintained. Dead vegetation shall be replaced as necessary to maintain a minimum ground coverage of 80%.
2. Areas shall be maintained and/or reseeded or stabilized to protect against erosion.
3. Sloughing or erosion of embankments shall be repaired.

3.7 INSPECTION DURING CONSTRUCTION

General

A qualified inspector[1] shall inspect the proposed erosion and sediment control measures and disturbed areas of the construction site for compliance with the SWPPP until the site is stabilized. The qualified inspector shall conduct at least one site inspection every seven calendar days. For sites where RACER has received authorization from the NYSDEC to disturb greater than 5-acres of soil at one time, a minimum of two site inspections shall be completed every seven calendar days. There shall be a minimum of two full calendar days between inspections. A typical inspection report form for conducting the inspections is included in Appendix E of the SWPPP.

The qualified inspector shall complete the inspection report form following each inspection. The inspection report form shall include the inspector's name, date, findings of the inspections, notes, and actions taken to repair/replace defective control measures. A site map indicating locations of areas of concern and drainage pathways shall be included. Within one business day of the completion of an inspection, the qualified inspector shall notify site personnel of any corrective actions that need to be taken. Corrective actions shall be initiated within one business day of this notification and shall be completed within seven calendar days following the date of the inspection. Further mitigation measures shall be taken if warranted. Each inspection report is to remain on file at the site as part of the SWPPP until the site is stabilized and the SPDES Notice of Termination (NOT) is submitted to the NYSDEC.

Prior to construction, at least one "trained contractor[2]" shall be identified who shall be responsible for implementation of the SWPPP and inspection of the erosion and sediment controls in accordance with the New York State Standards and Specifications for Erosion and Sediment Control (NYSDEC 2005). At

[1] Qualified inspector means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or other NYSDEC endorsed individual(s). It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four hours of NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four hours of training every three years.

[2] Trained contractor means an employee from the contracting (construction) company that has received four hours of NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity. After receiving the initial training, the trained contractor shall receive four hours of training every three years. It can also mean an employee from the contracting (construction) company that meets the qualified inspector qualifications (*e.g.* licensed Professional Engineer, CPESC, Registered Landscape Architect, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four hours of NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity). The trained contractor shall be responsible for the day to day implementation of the SWPPP.

least one trained contractor shall be on site on a daily basis while soil disturbance activities are being performed.

Temporary Construction Shutdown (Winter Conditions)

When soil-disturbing activities have been temporarily suspended (e.g., winter shutdown) and temporary stabilization measures have been applied to disturbed areas, periodic inspections by the trained contractor may be halted. However, the qualified inspector must perform a site inspection at least once every 30 calendar days. The NYSDEC shall be notified in writing prior to reducing the inspection frequencies. Inspections by the trained contractor and qualified inspector shall resume in accordance with this Section as soon as soil disturbance activities resume.

3.8 NON-STORMWATER DISCHARGES

The trained contractor shall identify site areas that will be dedicated for construction vehicle transit or equipment staging. These areas shall be where located where runoff can be controlled and shall be monitored throughout the project. Cleaning of construction vehicles and equipment shall occur in designated staging/laydown areas. Chemicals and detergents shall not be used unless within a designated decontamination area. Water used for dust control measures shall be applied using proper quantities and equipment to avoid runoff to the extent practicable. No chemical additives shall be used.

3.9 SPILL PREVENTION

The following spill prevention measures shall be performed:

- Products shall be kept in their original containers with the original manufacturer's label to the extent practicable.
- Materials with potential for spillage that are stored on-site shall be stored in a neat, orderly manner in their appropriate containers and in secondary containment.
- Substances shall not be mixed with one another unless recommended by the substance manufacturer.
- Whenever possible, product shall be used up or packages resealed before proper management of contents and containers off site.
- Manufacturers' recommendations for proper use and disposal shall be followed.
- Inspection shall be made for proper use of materials.
- On-site vehicles shall be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage of petroleum products. Petroleum products shall be stored in closed containers which are clearly labeled. Used oils shall be disposed of properly.
- Materials shall be brought on-site in the minimum quantities required to limit on-site storage.
- Refueling of vehicles and equipment shall occur a minimum of 50-feet from streams, lakes and wetlands.

3.10 SPILL CONTROL PRACTICES

Spills of petroleum, toxins, or hazardous material shall be reported to the appropriate State or local government agencies. Spills shall be cleaned upon discovery.

Manufacturers' recommended methods for spill cleanup shall be clearly posted and site personnel shall be made aware of the procedures and the location of the recommended methods and cleanup supplies.

Materials and equipment necessary for spill cleanup shall be kept in an on-site material storage area. Equipment and materials shall include but not be limited to shovels, rags, gloves, goggles, spill control materials, sand, sawdust, and trash containers specifically for this purpose.

The spill area shall be kept well ventilated and personnel shall wear appropriate protective clothing to prevent injury from contact with a hazardous substance.

A spill report shall be completed and shall include a description of the spill, what caused it, and the corrective measures taken. Spills shall be reported the NYS Spill Hotline (1-800-457-7362) within 2 hours of discovery unless the quantity is known to be less than 5 gallons and is contained.

3.11 CERTIFICATIONS

Contractor/Subcontractor Certification - Each Contractor and Subcontractor involved in soil disturbance shall understand and sign a form (see Appendix D-3) containing the following certification statement:

> "I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that RACER or the operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations."

Prior to construction, at least one qualified inspector shall be identified who shall understand and sign a form (see Appendix D-1) containing the following certification statement:

> "I hereby certify that I meet the criteria set forth in the General Permit to conduct site inspections for this project and that the appropriate erosion and sediment controls described in the SWPPP and as described in the Pre-construction Site Assessment Checklist have been adequately installed or implemented, ensuring the overall preparedness of this site for the commencement of construction."

3.12 NOTICE OF INTENT/TERMINATION

The completed and signed SPDES Notice of Intent (NOI) shall be submitted to the NYSDEC prior to initiation of construction activities. The SPDES NOT shall be completed and submitted to the NYSDEC upon completion of construction and stabilization of the project area.

END OF SECTION

Pre-Construction Requirements

PRE-CONSTRUCTION REQUIREMENTS: PRE-CONSTRUCTION MEETING DOCUMENTS AND INSPECTION REPORTS

Project Name: Former General Motors Inland Fisher Guide Site OU-2

Site Location: Town of Salina **County:** Onondaga

PREAMBLE TO SITE ASSESSMENT AND INSPECTIONS

The following information is to be read by all person's involved in the construction of stormwater related activities for this project:

- A "qualified inspector[1]" shall conduct an assessment of the site prior to the "commencement of construction[2]" and certify that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed and implemented to ensure overall preparedness of the site for the "commencement of construction".
- When construction starts, site inspections shall be conducted by the "qualified inspector" at least once every seven calendar days. For sites where RACER has received authorization from the New York State Department of Environmental Conservation (NYSDEC) to disturb greater than five acres of soil at one time, the "qualified inspector" shall conduct at least two site inspections every seven calendar days. There shall be a minimum of two full calendar days between inspections. A record of all inspection reports shall be maintained on site and be made available to the permitting authorities upon request.
- Prior to filing the Notice of Termination (NOT) or the end of permit term, a "qualified inspector" shall perform a final site inspection. The "qualified inspector" shall certify that the site has undergone "final stabilization" using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing, etc.) not needed for long-term erosion control have been removed. In addition, the qualified inspector must identify and certify that all permanent structures described in the SWPPP have been constructed and the operation and maintenance plan has been received and will be implemented such that the structure(s) continuously functions as designed.
- This document needs to be kept on file at the work site (*e.g.,* in the work trailer) at all times.
- The Contractors/Subcontractors shall read the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activities GP-0-15-002. This SWPPP has been prepared for this project to assist the Contractors/Subcontractors with compliance with GP-0-15-002. The Contractors/Subcontractors must follow the SWPPP and understand that this document constitutes the minimum standards for compliance.
- In the event of a transfer of ownership or responsibility for stormwater runoff, RACER (permittee) must notify the new Owner in writing of the requirement to obtain permit coverage by submitting a new Notice of Intent. Once the new Owner obtains permit coverage, RACER shall submit a completed NOT with the name

[1] "Qualified Inspector" means a person knowledgeable in the principles and practices of erosion and sediment controls, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), licensed Landscape Architect, or other Department endorsed individual. It also means someone working under the direction/supervision of a licensed Professional Engineer or licensed Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control.

[2] "Commencement of construction" means the initial disturbance of soils associated with clearing, grading, or excavation activities, or other construction activities that disturb or expose soils such as demolition or stockpiling of fill material.

PRE-CONSTRUCTION REQUIREMENTS: PRE-CONSTRUCTION MEETING DOCUMENTS AND INSPECTION REPORTS

Project Name: Former General Motors Inland Fisher Guide Site OU-2

Site Location: Town of Salina **County:** Onondaga

and permit identification number of the new Owner. If RACER maintains ownership of a portion of the construction activity and will disturb soil, they must obtain their coverage under the general permit.

- Prior to commencing soil disturbance, RACER and the Contractors/Subcontractors must complete the forms and certifications in this Appendix. This information shall be kept up to date.
- All enclosed certifications shall be completed and each subcontractor shall complete their portion of the certification. Each certification is to be completed and signed by a president, treasurer or vice president, or any person who performs similar policy or decision-making functions, and by the on-site individual having responsibility for the firm and each one of the Subcontractors implementing erosion control measures.
- The Contractors/Subcontractors need to start corrective measures within one day after notified of inspection.

PRE-CONSTRUCTION REQUIREMENTS: PRE-CONSTRUCTION MEETING DOCUMENTS AND INSPECTION REPORTS

Project Name: Former General Motors Inland Fisher Guide Site OU-2

Site Location: Town of Salina **County:** Onondaga

PRE-CONSTRUCTION SITE ASSESSMENT CHECKLIST

Construction (soil disturbance) shall not commence until all Erosion and Sediment Control Facilities have been installed, inspected, and found acceptable. Add comments below as necessary.

1. NOTICE OF INTENT, SWPPP, AND CONTRACTOR'S CERTIFICATION

Yes	No	NA	
[ ]	[ ]	[ ]	Has a Notice of Intent been filed with acknowledgement letter received from the NYSDEC?
[ ]	[ ]	[ ]	Has MS4 Approval Letter (if needed) been received?
[ ]	[ ]	[ ]	Is the SWPPP on site? If yes, where? _____
[ ]	[ ]	[ ]	Is the SWPPP current? What is the latest revision date? _____/_____/_____
[ ]	[ ]	[ ]	Is a copy of the NOI on site? If yes, where? _____
[ ]	[ ]	[ ]	Have all the Contractors/Subcontractors involved with the stormwater-related activities signed a Contractor's Certification Statement (Appendix D-3)?
[ ]	[ ]	[ ]	Have the Contractors/Subcontractors' Construction Stabilization Schedule (Appendix D-2) been received?

2. RESOURCE PROTECTION

YES	No	NA	
[ ]	[ ]	[ ]	Are construction limits clearly flagged or fenced?
[ ]	[ ]	[ ]	Have the important trees and associated rooting zones, existing vegetated areas suitable for filter strips (especially in perimeter areas) been flagged for protection?
[ ]	[ ]	[ ]	Were creek crossings installed prior to land-disturbing activity?
[ ]	[ ]	[ ]	Have wetlands been identified, flagged, and protected?

3. SURFACE WATER PROTECTION

YES	No	NA	
[ ]	[ ]	[ ]	Has clean stormwater runoff been diverted from areas to be disturbed?
[ ]	[ ]	[ ]	Have bodies of water either on-site or in the vicinity been identified and protected?
[ ]	[ ]	[ ]	Have appropriate practices to protect on-site or downstream surface water been installed?
[ ]	[ ]	[ ]	Are clearing and grading operations divided into areas <5 acres?
[ ]	[ ]	[ ]	Has any grading operation occurred prior to this inspection, except for erosion & sediment control practice installation?

PRE-CONSTRUCTION REQUIREMENTS: PRE-CONSTRUCTION MEETING DOCUMENTS AND INSPECTION REPORTS

Project Name: Former General Motors Inland Fisher Guide Site OU-2

Site Location: Town of Salina **County:** Onondaga

4. STABILIZED CONSTRUCTION ENTRANCE

YES	No	NA	
[ ]	[ ]	[ ]	Has a temporary construction entrance been installed to capture mud and debris from construction vehicles before they enter the public roadway?
[ ]	[ ]	[ ]	Have other access areas (entrances, construction routes, and equipment parking areas) been stabilized immediately as work takes place with gravel or other cover?
[ ]	[ ]	[ ]	Is there a plan to remove or clean sediment tracked onto public streets on a regular basis?

5. PERIMETER SEDIMENT CONTROLS

Yes	No	NA	
[ ]	[ ]	[ ]	Does the silt barrier and silt fence material and installation comply with the contract drawing, SWPPP and specifications?
[ ]	[ ]	[ ]	Are silt barriers and silt fences installed at appropriate spacing intervals?
[ ]	[ ]	[ ]	Were sediment trapping devices installed as the first land disturbing activity.

6. POLLUTION PREVENTION FOR WASTE AND HAZARDOUS MATERIALS

Yes	No	NA	
[ ]	[ ]	[ ]	Has RACER and/or Operator or designated representative been assigned to implement the spill prevention avoidance and response approach?
[ ]	[ ]	[ ]	Are there appropriate materials to control spills on site? If yes, where? _____

Items that need to be addressed prior to Qualified Inspector's Certification	
1	
2	
3	
4	

PRE-CONSTRUCTION REQUIREMENTS: PRE-CONSTRUCTION MEETING DOCUMENTS AND INSPECTION REPORTS

Project Name: Former General Motors Inland Fisher Guide Site OU-2

Site Location: Town of Salina **County:** Onondaga

QUALIFIED INSPECTOR'S CREDENTIALS AND CERTIFICATION

I hereby certify that I meet the criteria set forth in the General Permit to conduct site inspections for this project and that the appropriate erosion and sediment controls described in the SWPPP and as described in the following Pre-construction Site Assessment Checklist have been adequately installed or implemented, ensuring the overall preparedness of this site for the commencement of construction.

Signature: _____

Name (please print): _____

Title: _____ **Date:** _____

Company Name: _____

Address: _____

Phone: _____ **E-Mail:** _____

PRE-CONSTRUCTION REQUIREMENTS: CONSTRUCTION STABILIZATION SCHEDULE

Project Name: Former General Motors Inland Fisher Guide Site OU-2

Site Location: Town of Salina **County:** Onondaga

Contractors and subcontractors shall initiate stabilization measures as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased:

- If greater than 5-acre disturbance limit is approved, 7 days from the date the soil disturbance activity ceased
- In no case more than 14 days from the date the soil disturbance activity ceased.

When construction activity is precluded by snow cover, stabilization measures shall be initiated as soon as practicable.

Contractors and subcontractors are responsible to provide a construction schedule for review and approval by the Owner/ Operator:

Project Activity	Portion of the Site	Date to Commence	Date To Be Stabilized (Permanently or Temporarily)
1. Erosion and Sediment Control Practices Installation			
2. Access road/facility installation			
3. Clearing and Grubbing and Construction Staging			
4. Excavation			
5. Soil Placement			
6. Topsoil Seeding, Planting, and Mulching			
7. Final Stabilization and Construction Cleanup			

PRE-CONSTRUCTION REQUIREMENTS:
CONTRACTOR/SUBCONTRACTOR CERTIFICATION STATEMENT

Project Name: Former General Motors Inland Fisher Guide Site OU-2

Site Location: Town of Salina **County:** Onondaga

(Each Contractor/Subcontractor is required to sign this certification statement prior to working on-site.)

CONTRACTOR INFORMATION

Contractor/Subcontractor: _____

Contractor/Subcontractor Address: _____

_____

Telephone Numbers(s): (Office) _____ **(Trailer)** _____

Contacts: **1)** _____ **(Mobile #)** _____
2) _____ **(Mobile #)** _____
3) _____ **(Mobile #)** _____

Name(s) of Trained Individual(s) from Contractor's/Subcontractor's company that will be responsible for implementing the SWPPP:

Name: _____ **Title**: _____

Name: _____ **Title**: _____

A "Trained Individual" is an employee that has received four (4) hours of training approved by the NYSDEC from a Soil and Water Conservation District, CPESC, Inc. or other NYSDEC-endorsed entity in proper erosion and sediment control principles prior to the date this project commences (project mobilization). After receiving the initial training, the individual shall receive four (4) hours of NYSDEC-approved training every three (3) years. It can also mean an employee from the contracting (construction) company that meets the qualified inspector qualifications (e.g. licensed Professional Engineer, CPESC, Registered Landscape Architect, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four hours of NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity).

PRE-CONSTRUCTION REQUIREMENTS:
CONTRACTOR/SUBCONTRACTOR CERTIFICATION STATEMENT

Project Name: Former General Motors Inland Fisher Guide Site OU-2

Site Location: Town of Salina **County:** Onondaga

STORMWATER MEASURES

Contractor/Subcontractor is responsible for implementing/maintaining the following stormwater and erosion control measures:

1. **Contractor's/Subcontractor's Name:** _____
   Measures Responsible for:
   a. _____
   b. _____
   c. _____
   d. _____
2. **Contractor's/Subcontractor's Name:** _____
   Measures Responsible for:
   a. _____
   b. _____
   c. _____
   d. _____
3. **Contractor's/Subcontractor's Name:** _____
   Measures Responsible for:
   a. _____
   b. _____
   c. _____
   d. _____

III. CONTRACTOR'S/SUBCONTRACTOR'S CERTIFICATION

I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that RACER or the operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations.

IV. SIGNATURE

_____ _____

Signature **Date**

_____ _____

Name (print) **Title**

Inspection Forms

FIELD RECORD COPY

WEEKLY INSPECTION FORM

Project Name: Former General Motors Inland Fisher Guide Site OU-2

Site Location: Town of Salina **County:** Onondaga

Inspection Location: _____ **Inspection #:** _____
(portion of the site)

Name of the Inspector: _____ **Date/Time of Inspection:** _____

Weather Conditions: Dry Wet Sunny Rain Cloudy Snow (circle whatever applies)

Soil Condition: Wet Dry Saturated Snow covered

Project Checklist	Yes	No	N/A
Erosion and Sediment Controls:			
1. Are silt barriers in place as shown on the plan and functioning as designed?			
2. Are protected areas still identified and protected?			
3. Are construction entrances and access pathways stabilized and functioning as designed?			
4. Are temporary sediment traps installed and cleaned out as needed?			
5. Is there any evidence of migration of sediment off site?			
6. Is washdown water being directed to an approved sediment practice?			
7. Are materials being staged outside of the Creek and surrounded with ESC protection?			
Stabilization Practices:			
8. Have all disturbed portions of the site where earth disturbing activities have ceased and will not resume within 14 days (if 5 acre disturbance waiver is granted, 7 days) been temporarily stabilized by covering with plastic and mulching, or by mulching and seeding?			
9. Have all disturbed portions of the site where earth disturbing activities have permanently ceased been stabilized with topsoil, permanent seed, and mulch?			
Additional Storm Water Controls:			
10. Are material storage / handling areas properly stabilized?			
11. Are dust control measures (water application, mulching) in place?			

FIELD RECORD COPY

WEEKLY INSPECTION FORM

Project Name: Former General Motors Inland Fisher Guide Site OU-2

Site Location: Town of Salina **County:** Onondaga

List Disturbed Areas	Currently Disturbed		Temp. Stabilized		Perm. Stabilized	
	Yes	No	Yes	No	Yes	No
1.						
2.						
3.						

Condition of Runoff leaving the Site	
1. **Location – 1 2 3 4 5 6**	
2. **Location – 1 2 3 4 5 6**	
3. **Location – 1 2 3 4 5 6**	
4. **Location – 1 2 3 4 5 6**	

Legend:

1. *Eroded areas need to be fixed.*
2. *Silt needs to be removed.*
3. *Operational – no current issues*
4. *Stabilized and functioning as designed.*
5. *Turbid water present.*
6. *Additional erosion control needed.*

Additional Requirements
1.
2.
3.
4.

FIELD RECORD COPY

WEEKLY INSPECTION FORM

Project Name: Former General Motors Inland Fisher Guide Site OU-2

Site Location: Town of Salina **County:** Onondaga

Work performed since last inspection and effectiveness of corrective actions: _____

Comments on general site conditions: _____

Remarks/Recommendations of corrective measures needed (attach map and photographs [with date stamping] – show corrective actions needed and areas where corrective actions have been completed since the last inspection): _____

PLEASE SEE ATTACHED MAP FOR LOCATIONS AND PHOTOGRAPHS

WEEKLY INSPECTION REPORTS SHALL BE PROVIDED TO SWPPP CONTRACTOR WITHIN ONE BUSINESS DAY AFTER INSPECTION COMPLETION.

☐ **Site in compliance with SWPPP**
☐ **Site not in compliance with SWPPP and corrective measures are required by Contractor**

Inspector: _____ **Date:** _____
(Signature of Qualified Inspector)

Responsible Professional (if applicable): _____

NYSDEC Notice of Termination

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name: RACER Trust

2. Street Address: 500 Woodward Avenue, Suite 2650

3. City/State/Zip: Detroit, MI 48226

4. Contact Person: Brendan Mullen | 4a.Telephone: 201-247-4890

4b. Contact Person E-Mail: bmullen@racertrust.org

II. Project Site Information

5. Project/Site Name: Former IFG Facility Registry #7-34-057

6. Street Address: Factory Avenue

7. City/Zip: Salina 13088

8. County: Onondaga

III. Reason for Termination

9a. □ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. ***Date final stabilization completed** (month/year): _____

9b. □ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. □ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? □ yes □ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? □ yes □ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? □ yes □ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

□ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

□ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

□ For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.

□ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? □ yes □ no

(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:

(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:	
Title/Position:	
Signature:	Date:

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

VII. Qualified Inspector Certification - Final Stabilization:

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

IX. Owner or Operator Certification

I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2015)

Contract Documents (see RAWP Appendix A)

Appendix D

Sampling and Analysis Plan (SAP)

OBG

SAMPLING AND ANALYSIS PLAN

RACER Trust Former Inland Fisher Guide Operable Unit 2 Residential Area Remediation

Revitalizing Auto Communities Environmental Response Trust

October 2016

TABLE OF CONTENTS

LIST OF FIGURES

1. INTRODUCTION

This Sampling and Analysis Plan (SAP) has been developed to support the Revitalizing Auto Communities Environmental Response (RACER) Trust Former Inland Fisher Guide (IFG) Facility OU-2 Residential Area Remediation Program. The objective of the OU-2 Remediation program is to remove soil with concentrations of polychlorinated biphenyls (PCBs) above 1 mg/kg (or 1 ppm) as outlined in the OU-2 Record of Decision (ROD) (NYSDEC 2015). The purpose of this SAP is to detail the sampling and analysis program that will be used for the confirmation and documentation samples collected to identify the endpoint of the excavation.

This SAP provides information pertaining to sampling strategy, sample collection, and analysis of samples from the sidewalls and bottom of excavations following removal of the impacted soil.

2. CONFIRMATION SAMPLING APPROACH

Figures 1 and 2 illustrate the areas that will be excavated during the OU-2 Residential Area remedial program. As discussed in the Remedial Action Work Plan (RAWP), the excavation areas and depths vary, and were established based on the results of the Pre-Design Investigation soil sampling conducted in 2016 (OBG, 2016a). Soil to be removed from the excavation areas falls into two categories based on USEPA and NYSDEC regulations. Soil containing PCBs at concentrations less than 50 mg/kg will be managed as a solid waste and soil containing PCBs at concentrations of 50 mg/kg or greater will be managed as a Toxic Substances Control Act (TSCA) waste. In New York State, soil containing PCB concentrations of 50 mg/kg or greater is also required to be managed as hazardous waste. The confirmation sampling program approach considers each of these categories separately as discussed below.

2.1 SOIL CONTAINING PCB CONCENTRATIONS GREATER THAN 50 MG/KG

Soil containing PCB concentrations greater than 50 mg/kg (TSCA soil) has been identified in six locations as shown in Figures 1 and 2. Excavation depths for these locations range from 2 to 4 ft as shown on these figures. Where present, the TSCA soil will be removed prior to excavation of other soil in a given area. Confirmation samples will then be collected and analyzed to confirm that soils containing PCBs at concentrations greater than 50 mg/kg have been removed.

The following table identifies the anticipated area and depth of excavation of each of the TSCA soil areas. Locations with ID numbers are shown on Figures 1 and 2.

Area ID	Area of Bottom (Ft^2)	Excavation Depth (Ft)
1 (E9)	92.7	2
2 (E16)	370	3
3(E30)	956	3
4 (E31)	699	5
5 (E34)	169	4
6 (E39)	140	3

Subsequent to removal of the targeted soil with PCB concentrations greater than 50 mg/kg, samples will be collected from each sidewall and the base of the excavation for analysis of PCBs. Confirmation samples will be collected from each sidewall at a horizontal frequency of approximately one sample location per sidewall or one per 30 ft, whichever is greater. Confirmation samples will be collected from excavation bottoms at a frequency of approximately one per 900 sq ft or one per excavation area, whichever is greater. The approximate locations of the samples are shown on Figure 3. The number of samples collected vertically at each sidewall location will depend on the depth as discussed in Section 2.3.

2.2 SOIL CONTAINING PCB CONCENTRATIONS LESS THAN 50 MG/KG AND GREATER THAN 1 MG/KG

The individual excavation areas based on removal depth as established based on the results of the 2016 Pre-Design Investigation soil sampling efforts are presented on Figures 1 and 2. As shown, material will be removed from each area to depths ranging from 6 inches to 5 ft below existing grade. Where excavations of different depths adjoin, the remaining sidewall depth will vary from the total depth of the excavation. Confirmation samples will be collected from the remaining sidewalls at a horizontal frequency of approximately one sample location per 30 ft of sidewall or at least one sample location per property. The number of samples collected vertically at each sidewall location will depend on the sidewall depth as discussed in Section 2.3. Confirmation samples will be collected from the bottom of excavations at a frequency of approximately of one per property or 900 sq ft whichever is greater.

The following table identifies the anticipated size and individual excavation depth for each excavation area identified on Figures 1 and 2.

Excavation ID	Area (Ft^2)	Excavation Depth (Ft)
E1	3595	1
E2	4359	2
E3	1168	2
E4	950	1
E5	1224	3
E6	579.3	5
E7	1506	3
E8	534	2
E10	3065	1
E11	561	5
E12	773	0.5
E13	1006	3
E14	1486	1
E15	434.9	4
E17	1007.1	3
E18	3945.3	2
E19	92	3

Excavation ID	Area (Ft^2)	Excavation Depth (Ft)
E20	165	3
E21	603	0.5
E22	628	1
E23	4545	3
E25	170	2
E26	728	2
E27	735	4
E28	217	5
E29	1705	2
E32	593	2
E33	734	1
E35	1668	4
E36	1973	2
E38	504	5
E40	172	1
E41	1334	3

The proposed sample locations and anticipated remaining sidewall depths based on the excavation design are shown on Figures 4 and 5.

2.3 SIDEWALL SAMPLE COLLECTION STRATEGY

Post excavation sidewalls are expected to range from 0.5 ft to 5 feet in depth. Confirmation samples will be collected along each vertical sidewall. The sampling strategy is based on whether the sidewall begins at the ground surface or below the ground surface and depth of the sidewall at the time the sample is collected. The following tables outline the number of samples to be collected and the sample intervals for the individual sidewall depths:

Sidewalls with surface at grade

Sidewall Depth	Number of Samples	Sample Depth
1 Foot	2	0 – 2 inches 2in -1 ft
2 Feet	3	0 – 2 inches 2 in - 1 ft 1 ft – 2 ft
3 Feet	3	0 – 2 inches 2 in - 1 ft 2 ft – 3 ft

Sidewall Depth	Number of Samples	Sample Depth
4 Feet	4	0 – 2 inches 2 in - 1 ft 1.5 ft - 2.5 ft 3 ft – 4 ft
5 Feet	4	0 – 2 inches 2 in -1 ft 2 ft – 3 ft 4 ft – 5 ft

Sidewalls with surface below grade

Remaining Sidewall Depth	Number of Samples	Sample Depth
1 Foot	1	0 – 1 ft
2 Feet	1	0.5 ft – 1.5 ft
3 Feet	2	0 - 1 ft 2 ft – 3 ft
4 Feet	3	0 - 1 ft 1.5 ft - 2.5 ft 3 ft – 4 ft
5 Feet	3	0 - 1 ft 2 ft – 3 ft 4 ft – 5 ft

2.4 SAMPLE IDENTIFICATION

Confirmation samples collected will be identified as follows:

TSCA Soil Areas	Sidewall	Bottom
Excavation Areas for PCB Soils > 50 mg/kg	RTS-#-DEPTH (in ft)-DATE	RTB-#-Excavation#-DATE
Excavation Areas for PCB Soils < 50 mg/kg and > 1mg/kg	RES-#-DEPTH (in ft)-DATE	REB-# Excavation#-DATE

The samples in each category will be sequentially numbered beginning with 1.

3. SOIL SAMPLING AND ANALYSIS

Soil samples will be collected from the outer 2 inches of the excavation bottom or sidewall over the interval identified above. Samples will be collected using a disposable scope, clean trowel, or stainless steel spoon. Samples will be transferred to a disposable aluminum pan and homogenized by mixing with the sampling implement. Subsequent to homogenization, soils will be transferred to the laboratory container appropriate for the analyses and placed in a cooler containing ice for transport to the laboratory.

Non-disposable soil sampling equipment will be decontaminated between samples (washed with a non-phosphate detergent solution and rinsed with deionized water). Water generated during this process will be placed in a container with other water generated during construction.

Following sample collection, a stake will be placed at the top of the sidewall or the base of the excavation to identify the sample location. A handheld GPS will also be used to record the stake location.

Soil samples will be delivered to an Environmental Laboratory Approval Program- (ELAP-) certified laboratory for analysis. QA/QC samples consisting of field duplicate, MS/MSD, and equipment blank samples (if sampling equipment is reused) will also be collected and submitted for analysis with the samples at a frequency of 1 per 20 samples or a minimum of 1 per sample delivery group.

The collected soil samples will be analyzed for PCBs using USEPA Method 8082. The target detection limit for each PCB Aroclor will allow for comparison to the 1 mg/kg soil clean up objective (SCO) for PCBs. At least 10 % of the analytical data results will be validated by an independent expert, who will prepare and submit a data usability summary report (DUSR) at the end of the construction program.

4. STRATEGY FOR ADDITIONAL EXCAVATION

4.1 SOIL EXHIBITING PCB CONCENTRATION GREATER THAN 50 MG/KG

Should the PCB concentration of a sidewall or bottom confirmation samples exceed 50 mg/kg the excavation will be advanced at the location as follows:

- Sidewall: The sidewall where the PCB exceedance occurred will be advanced outward by approximately 5 ft or close to the edge of a surface structure if less than 5 ft, , and to the depth that includes the sample interval that exceeds 50 mg/kg. A confirmation sample will then be collected from the interval that exceeded 50 mg/kg. If a delineation soil boring previously determined to be less than 50 mg/kg is located within 5 ft of the sidewall, the excavation will be extended to, and terminated at that soil boring location without a confirmation sample.
- Bottom: The excavation will be advanced 1 ft below the current base and a new bottom sample will be collected.
- In those instances where the base exceeds 50 mg/kg, the excavation will continue at 1 ft increments as described above until the base meets the 50 mg/kg. If the extra excavation depth is 2 ft or more, sidewall samples will be collected from the extended interval at each of the sidewall sampling locations for that area using the sidewall sampling strategy described in Section 2.3.

4.2 SOIL EXHIBITING PCB CONCENTRATIONS LESS THAN 50 MG/KG AND GREATER THAN 1 MG/KG

Should PCB concentrations in the sidewall or bottom sample collected from other areas exceed 1 mg/kg, the excavation will be advanced as follows:

- Sidewall: The sidewall where the PCB exceedance occurred will be advanced outward by 5 ft or close to the edge of a surface structure if less than 5 ft, and a sidewall sample(s) will then be collected from the depth interval that exceeded 1 mg/kg. If a delineation soil boring previously determined to be clean is located within 5 ft of the sidewall, the excavation will be extended to, and terminated at that soil boring location without a confirmation sample.
- Bottom: The excavation will be advanced to 1 ft below the current base and a new bottom sample will be collected.

In those instances where the base exceeds 1 mg/kg, the excavation will continue at 1 ft increments as described above until the base meets the 1 mg/kg soil cleanup objective. If the extra excavation depth is 2 ft or more, sidewall samples will be collected from the extended interval at each of the sidewall sampling locations for that area using the sidewall sampling strategy described in Section 2.3.

REFERENCES

NYSDEC and USEPA. 2015. *Record of Decision – Operable Unit 2 of the General Motors Inland Fisher Guide Subsite to the Onondaga Lake Superfund Site, Town of Salina, Onondaga County, New York.* March 31, 2015.

OBG. 2015. RACER Former IFG Facility and Deferred Media Site Off-Site (OU-2) Pre-Design Investigation Addendum #1. November 5, 2015.

OBG. 2016a. *Former General Motors Inland Fisher Guide Site OU-2 Remedial Design Work Plan*. January 2016, Revised June 1, 2016.

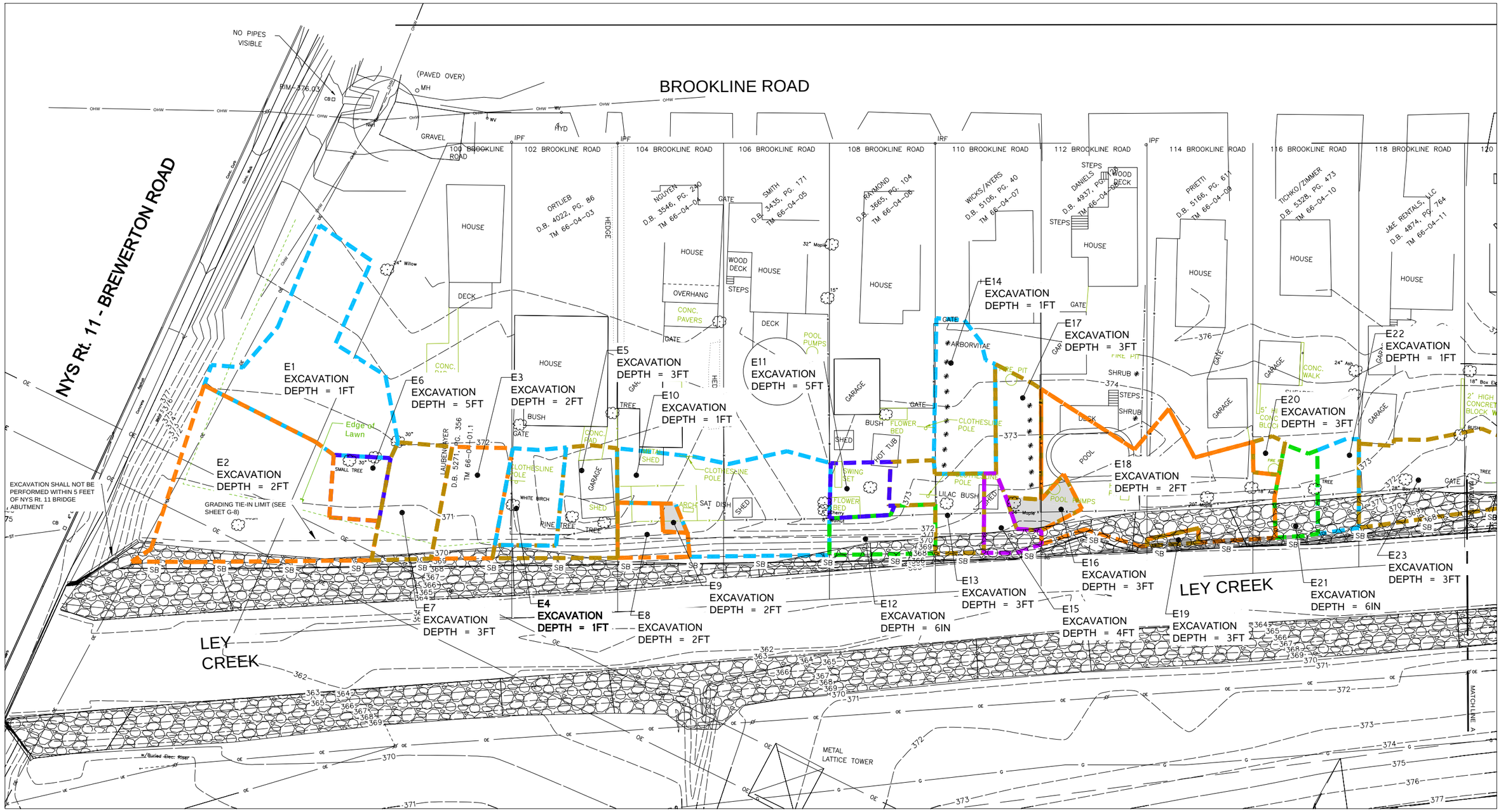
OBG. 2016b. *Draft RACER Former IFG Facility and Deferred Media Site Off-Site (OU-2) Pre-Design Investigation Addendum #2*. March 23, 2016.

OBG. 2016c. *Revised Draft RACER Former IFG Facility and Deferred Media Site Off-Site (OU-2) Pre-Design Investigation Addendum #2 – Additional Sampling*. July 15, 2016.

Figures

Sep 09, 2016 – 11:41am

FIGURE 1 - EXCAVATION PLAN BROOKLINE WEST (G-4)



LEGEND

- PARCEL BOUNDARIES
- SURVEYED STRUCTURES
- EXISTING TREES
- PROPERTY FENCE
- TSCA AREA

EXCAVATION AREA DEPTH

- 6 INCH
- 1-FT
- 2-FT
- 3-FT
- 4-FT
- 5-FT

RACER TRUST - FORMER GM - IFG
OPERABLE UNIT 2 - BROOKLINE ROAD
REMEDIAL DESIGN
SALINA, NY

1"=20' (20 0 20 40)

N

BROOKLINE ROAD WEST

15388.61007
SEPTEMBER 2016

O'BRIEN & GERE ENGINEERS, INC.

I:\Racer-Trust.15388\61007.ifg-Fac-Ri-Fs-R\Docs\DWG\Sheets\Brookline Road\61007-307-G4-GIS.dwg

Sep 09, 2016 - 11:39am

FIGURE 2 - EXCAVATION PLAN BROOKLINE EAST (G-5)

BROOKLINE ROAD

10' SEWER, WATER & DRAINAGE EASEMENT PER D.B. 4896, PG. 79

SEWER, WATER & DRAINAGE EASEMENT PER D.B. 3259, PG. 297

118 BROOKLINE ROAD | 120 BROOKLINE ROAD | 122 BROOKLINE ROAD | 200 BROOKLINE ROAD | 202 BROOKLINE ROAD | 204 BROOKLINE ROAD | 212 BROOKLINE ROAD | 214 BROOKLINE ROAD | 216 BROOKLINE ROAD

J&E RENTALS, LLC D.B. 4874, PG. 764 TM 66-04-11

HOUSE D.B. 5255, PG. 330 TM 66-04-12

PARKER D.B. 4896, PG. 77 TM 66-04-13

KNAPP D.B. 3259, PG. 297 & 298 TM 66-04-14

RHODES 4206/99 TM 66-04-15

FRENCH 2542/229 TM 66-04-16

LAFLAMME D.B. 1636, PG. 467 TM 66-04-17

HERZOG, JR. D.B. 5232, PG. 726 TM 66-04-18

GENSLER D.B. 4320, PG. 41 TM 66-04-19

PHANLE D.B. 5105, PG. 579 TM 66-04-20

E23 EXCAVATION DEPTH = 3FT

E27 EXCAVATION DEPTH = 4FT

E28 EXCAVATION DEPTH = 5FT

E23 EXCAVATION DEPTH = 3FT

E25 EXCAVATION DEPTH = 2FT

E26 EXCAVATION DEPTH = 2FT

E29 EXCAVATION DEPTH = 2FT

E30 EXCAVATION DEPTH = 3FT

E31 EXCAVATION DEPTH = 5FT

E32 EXCAVATION DEPTH = 2FT

E33 EXCAVATION DEPTH = 1FT

E34 EXCAVATION DEPTH = 4FT

E35 EXCAVATION DEPTH = 4FT

E36 EXCAVATION DEPTH = 2FT

E38 EXCAVATION DEPTH = 5FT

E39 EXCAVATION DEPTH = 3FT

E40 EXCAVATION DEPTH = 1FT

E41 EXCAVATION DEPTH = 3FT

RIM-376.76 INV-374.27

INV-375.52 CONC. HEADWALL

RIM-375.81 INV-373.78

RIM-378.02 S.INV-373.95 N.INV-374.00 W.INV-373.77

INV-365.71

INV-368.88

INV-368.00

INV-367.29

RIM-378.29

GRADING TIE-IN LIMIT (SEE SHEET G-8)

EXCAVATION SHALL NOT BE PERFORMED WITHIN 5 FEET OF LEMOYNE AVE BRIDGE ABUTMENT

RIM-377.21 N.INV-369.71 S.INV-369.81

RIM-377.03 INV-373.03

LEMOYNE AVENUE

NATIONAL GRID D.B. 598, PG. 349 TM 73-02-08

MATCH LINE A

LEGEND

- PARCEL BOUNDARIES
- SURVEYED STRUCTURES
- EXISTING TREES
- PROPERTY FENCE
- TSCA AREA

EXCAVATION AREA DEPTH

- 6-INCH
- 1-FT
- 2-FT
- 3-FT
- 4-FT
- 5-FT

RACER TRUST - FORMER GM - IFG
OPERABLE UNIT 2 - BROOKLINE ROAD
REMEDIAL DESIGN
SALINA, NY

1"=20' 20 0 20 40

N

BROOKLINE ROAD EAST

15388.61007
SEPTEMBER 2016

O'BRIEN & GERE ENGINEERS, INC.

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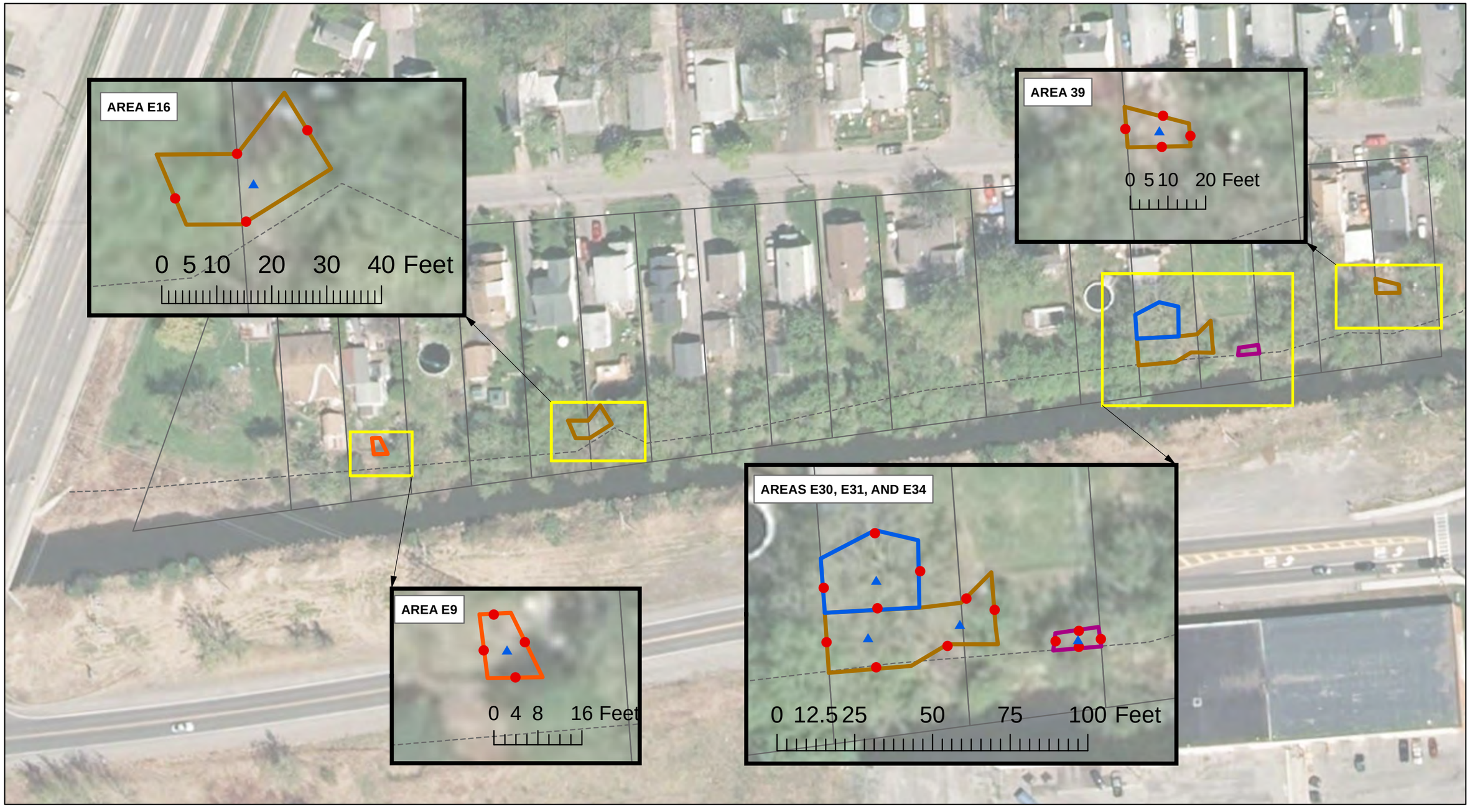
FIGURE 3 - SOIL CONTAINING PCBS > 50 mg/kg CONFIRMATION SAMPLE LOCATIONS

PLOTDATE: 08/30/16 3:05:06 PM DomaszP

I:\Racer-Trust.15388\61007.I\fg-Fac-RI-Fs-RI\Docs\DWG\MXD\Off_Site_PDI_Add\Brookline_Residential_TSCA_WASTE.mxd



LEGEND

- PARCEL BOUNDARIES
- EXCAVATION LIMIT
- SIDEWALL SAMPLE
- BOTTOM SAMPLE

SIDEWALL DEPTH

- 2-FT
- 3-FT
- 4-FT
- 5-FT

RACER TRUST - FORMER GM - IFG
OPERABLE UNIT 2 - BROOKLINE ROAD
REMEDIAL DESIGN
SALINA, NY

0 25 50 100 150 200
Feet

N

BROOKLINE ROAD

15388.61007
AUGUST 2016

O'BRIEN & GERE ENGINEERS, INC.

FIGURE 4 - SOIL CONTAINING PCBS <50 mg/kg AND > 1 mg/kg CONFIRMATION SAMPLE LOCATIONS - WEST

PLOTDATE: 09/08/16 11:36:38 AM stantosa

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BROOKLINE RD

RT. 11 - BREWERTON RD

100 BROOKLINE ROAD
102 BROOKLINE ROAD
104 BROOKLINE ROAD
106 BROOKLINE ROAD
108 BROOKLINE ROAD
110 BROOKLINE ROAD
112 BROOKLINE ROAD
114 BROOKLINE ROAD
116 BROOKLINE ROAD
118 BROOKLINE ROAD

E1 E2 E3 E4 E5 E6 E7 E8 E9 TSCA WASTE E10 E11 E12 E13 E14 E15 E16 TSCA WASTE E17 E18 E19 E20 E21 E22 E23

SEE FIGURE 3 FOR TSCA SAMPLE LOCATIONS

SEE FIGURE 3 FOR TSCA SAMPLE LOCATIONS

LEY CREEK

LEGEND

- BOTTOM SAMPLE
- SIDEWALL SAMPLE
- EXCAVATION LIMIT
- SURVEYED STRUCTURES
- PROPERTY FENCE
- PROPERTY BOUNDARY

REMAINING SIDEWALL DEPTH

- 6-INCH
- 1-FT
- 2-FT
- 3-FT
- 4-FT
- 5-FT
- TSCA

RACER TRUST - FORMER GM - IFG
OPERABLE UNIT 2 - BROOKLINE ROAD
REMEDIAL DESIGN
SALINA, NY

0 17.5 35 70 105 140
Feet

N

BROOKLINE ROAD WEST

15388.61007
SEPTEMBER 2016

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FIGURE 5 - SOIL CONTAINING PCBS <50 mg/kg AND >1 mg/kg CONFIRMATION SAMPLE LOCATIONS - EAST

PLOTDATE: 09/08/16 11:37:41 AM stantosa

BROOKLINE RD

120 BROOKLINE ROAD
122 BROOKLINE ROAD
200 BROOKLINE ROAD
202 BROOKLINE ROAD
204 BROOKLINE ROAD
212 BROOKLINE ROAD
214 BROOKLINE ROAD
216 BROOKLINE ROAD

LEMOYNE AVE

LEY CREEK

SEE FIGURE 3 FOR TSCA SAMPLE LOCATIONS

SEE FIGURE 3 FOR TSCA SAMPLE LOCATIONS

SEE FIGURE 3 FOR TSCA SAMPLE LOCATIONS

SEE FIGURE 3 FOR TSCA SAMPLE LOCATIONS

E23 E25 E26 E27 E28 E29 E31 E32 E33 E34 E35 E36 E38 E39 E40 E41

RES-72 RES-74 RES-75 RES-76 RES-77 RES-79 RES-80 RES-81 RES-82 RES-83 RES-84 RES-85 RES-86 RES-87 RES-88 RES-89 RES-90 RES-91 RES-92 RES-93 RES-95 RES-96 RES-97 RES-98 RES-99 RES-100 RES-101 RES-102 RES-104 RES-105 RES-106 RES-107 RES-108 RES-109 RES-111 RES-112 RES-113 RES-114 RES-116 RES-118

REB-44 REB-45 REB-46 REB-47 REB-48 REB-49 REB-50 REB-51 REB-52 REB-53 REB-54 REB-56 REB-57 REB-58 REB-59 REB-60 REB-61 REB-62 REB-63 REB-64

RTS-09 RTS-10 RTS-11 RTS-12 RTS-13 RTS-15 RTS-16 RTS-17 RTS-18 RTS-19 RTS-20 RTS-22 RTS-23 RTS-24 RTS-25

RTB-03 RTB-04 RTB-05 RTB-06 RTB-07

LEGEND

- BOTTOM SAMPLE
- SIDEWALL
- EXCAVATION LIMIT
- SURVEYED STRUCTURES
- PROPERTY FENCE
- PROPERTY BOUNDARY

REMAINING SIDEWALL DEPTH

- 6-INCH
- 1-FT
- 2-FT
- 3-FT
- 4-FT
- 5-FT
- TSCA

RACER TRUST - FORMER GM - IFG
OPERABLE UNIT 2 - BROOKLINE ROAD
REMEDIAL DESIGN
SALINA, NY

0 17.5 35 70 105 140
Feet

N

BROOKLINE ROAD EAST

15388.61007
SEPTEMBER 2016

O'BRIEN & GERE ENGINEERS, INC.

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Exhibits

Exhibit 1

Construction Work Plan

Construction Work Plan

Former General Motors Inland Fisher Guide Site
Operable Unit 2 - Residential Area Remediation

Prepared for:

RACER – Revitalizing Auto Communities Environmental Response Trust

500 Woodward Avenue, Suite 2650

Detroit, MI 48226

Prepared by:

Sevenson Environmental Services, Inc.

2749 Lockport Road

Niagara Falls, New York 14305

Date: September, 2016

INTRODUCTION

Revitalizing Auto Communities Environmental Response (RACER) Trust has solicited Sevenson Environmental Services, Inc. (Sevenson) to provide a Construction Work Plan (CWP) to perform remedial activities within 19 residential properties and remove targeted excavations from backyards heading towards Ley Creek located in the Town of Salina in Onondaga County, NY. The scope of the work will primarily consist of the removal of polychlorinated biphenyl (PCB) impacted soils from the backyards along Brookline Road and the associated restoration.

Sevenson's CWP identifies the methods and procedures which will be followed during the project to ensure the scope of work is completed in accordance with the design. This CWP includes the following:

1.1 Mobilization and Site Preparation
1.2 Selective Demolition
1.3 Excavation
1.4 Subsurface Utility Handling and Excavation
1.5 Backfill
1.6 Restoration
1.7 Demobilization

Sevenson has prepared this CWP for remedial construction at the residential area of the Former General Motors Inland Fisher's Guide Site- OU-2 based on the following principles:

- Safety: Perform all work with a "Safety First" attitude;
- Teaming: Attend all required meetings and work intimately with the RACER and OBG to assist with finalizing the design and partake in any community meetings with regulators as requested;
- Planning: Design and pre-plan all work to achieve the final design requirements;
- Construction Quality Control: Execute all work per the NYSDEC-approved remedial design plans and specifications.

1.1 MOBILIZATION AND SITE PREPARATION

Prior to any site work, OBG will procure the services of a third party land surveyor licensed in the State of New York to perform a preconstruction survey of each of the 19 residential properties. In addition to OBG providing the third party land surveyor, OBG will test and analyze for the presence of asbestos material in some of the existing structures on the properties such as; sheds/garage which are targeted for removal. Sevenson will provide a subcontractor licensed to remove ACM material. These structures will be properly dismantled and removed from the Site by Sevenson.

OBG will also conduct a condition survey of existing structures not slated to be razed during the remediation. These surveys will provide a baseline condition of each property prior to any remediation activities and provide additional insight to the risks associated with remedial activities around the particular properties. The building condition surveys in particular will provide additional feedback if additional monitoring (*e.g.* vibration monitoring, crack gauges, tilt plates, etc.) are warranted during construction activities.

Once the pre-construction and baseline condition surveys have been completed and any necessary building monitoring instrumentation has been installed, Sevenson will layout the potential access points for equipment to enter and egress the remedial areas. Sevenson will also

notify the local call before you dig utility mark out service to identify all utility locations within the work area.

At this time, Sevenson has not definitively determined how best to transport excavated material from behind the 19 residential properties. There are two options that Sevenson is considering.

Option 1 would be to transport the material across Ley Creek using one temporary steel bridge and utilizing the property off of Factory Avenue (owned by National Grid); assuming Sevenson can come to terms with National Grid and is able to work safely around the existing utility lines. This property is located directly adjacent to Factory Avenue between Lemoyne Avenue and US Route 11. Contingent on National Grid's approval, Sevenson also intends to utilize this property for a staging area including temporary office trailers. This option is presented in Figure 1.

Option 2, as shown on SES Drawing Figure 2, would use 100 Brookline Road and 216 Brookline Road as the primary access and egress points. The anticipated access points to the backyards would all originate from Brookline Road.

FIGURE 1


NYS ROUTE 11
LEMOYNE AVE
BROOKLINE RD
SOIL STAGING AREA
POTENTIAL INITIAL CLEARING ACTIVITY ACCESS
Storage
Lunch
13.5' WIDE TEMPORARY BRIDGE
2' THICK RUN-OF-CRUSHER ROAD
SEE NOTES 1, 2 & 3
AIR CROSSING
Frac Tank
Parking/Staging Area
NATIONAL GRID PROPERTY
073-02-08
GATE ACROSS BRIDGE
STABILIZED CONSTRUCTION ENTRANCE
FACTORY AVE
N
LEGEND
NATIONAL GRID ELECTRICAL DISTRIBUTION POLES
NATIONAL GRID GAS TRANSMISSION PIPING
NATIONAL GRID ELECTRICAL TRANSMISSION STRUCTURES
APPROXIMATE PARCEL BOUNDARY
AIR BRIDGE
PROPOSED BRIDGE
PROPERTY LINES
STAGING AREA
PROPOSED TEMPORARY ACCESS
TWO WAY TANDEM DUMP TRUCK ACCESS ROUTE
NOTES:
1. THE ELEVATION OF THE BRIDGE DECK IS ANTICIPATED TO BE 375.6' AND THE BOTTOM ELEVATION OF THE BRIDGE DECK IS ANTICIPATED TO BE ELEVATION 373.4' (EQUAL TO THE BOTTOM ELEVATION OF NYS ROUTE 11 BRIDGE)
2. APPROXIMATELY 30' OF CLEAR SPACE IS ANTICIPATED BETWEEN THE TEMPORARY ROAD AND THE LOWEST EXISTING ELECTRIC DISTRIBUTION LINE
3. THE MAXIMUM TRUCK HEIGHT IS ANTICIPATED TO BE 13.5'
RACER TRUST
FORMER IFG FACILITY
AND DEFERRED MEDIA SITE
SYRACUSE, NEW YORK
OPTION 1-
ACCESS AND
STAGING PLAN
LEY CREEK
RESIDENTIAL AREA
REMEDIATION
0 50 100 200
Feet
AUGUST 2016
15388.61007
O'BRIEN & GERE ENGINEERS, INC.


US ROUTE 11 (SYRACUSE-BREWERTON RD.)
EDGEMERE TERRACE
BROOKLINE ROAD
LEMOYNE AVENUE
Contractor's Trailers/Staging Area
FACTORY AVENUE
Legend
Temporary Access Road
Traffic Direction
100 0 100
SCALE IN FEET
Proposed Access
Racer
Brookline Rd. Residential Remediation
Salina, New York
SEVENSON ENVIRONMENTAL SERVICES, INC.
Figure 2
DATE: 5/16/16
DRAWN BY: C. Bigelow
CHECKED BY: M. Welch
CAD FILE: Access
SCALE: As Shown

Simultaneous Early Construction Work

Prior to any Sevenson equipment working on the 19 properties, Sevenson will install a temporary 6' high chain link fence immediately north of the excavation areas. The approximate location of the temporary fencing is depicted below in Figures 3 and 4. This temporary fence will prevent residents from accessing the excavation areas. Likewise, the fencing will prevent Sevenson workers from walking into the property owners' backyards not requiring remediation.

Due to the limited access between the properties and presence of existing structures, the clearing activities (removal of trees and bushes), installation of a stone road, and the erosion control (silt fence) installation will occur concurrently.

Tree clearing activities are as follows:

- All trees will be cut to within approximately 1' of existing grade
- Branches will be chipped, and the chips will be removed from the site and disposed of properly at the Onondaga County Resource Recovery Agency (OCRRA) Amboy facility in Camillus, NY.
- All trunks/limbs will also be sent off-site at the OCRRA facility for proper disposal.

With either Option 1 or Option 2, after the access areas have been laid out, Sevenson will begin the necessary clearing to remove existing vegetation while simultaneously installing the road and erosion controls.

Figure 3

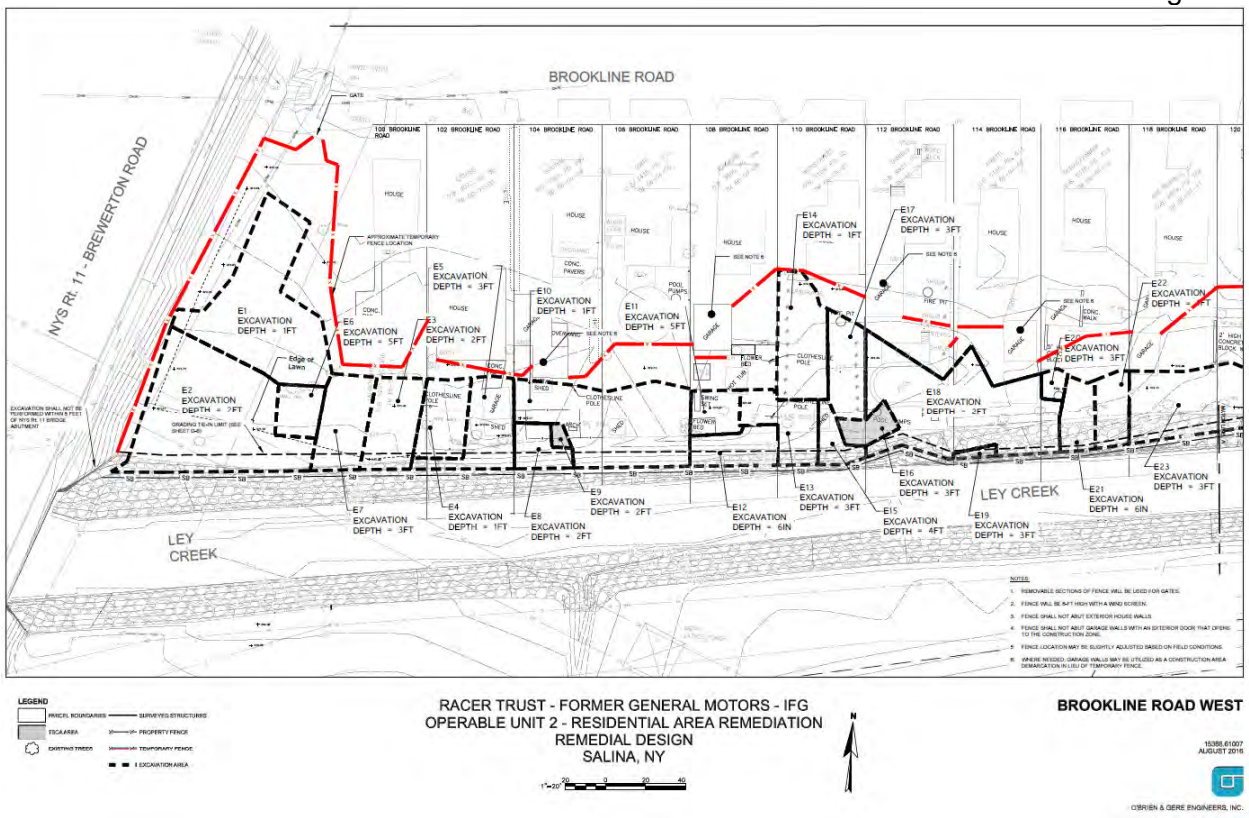
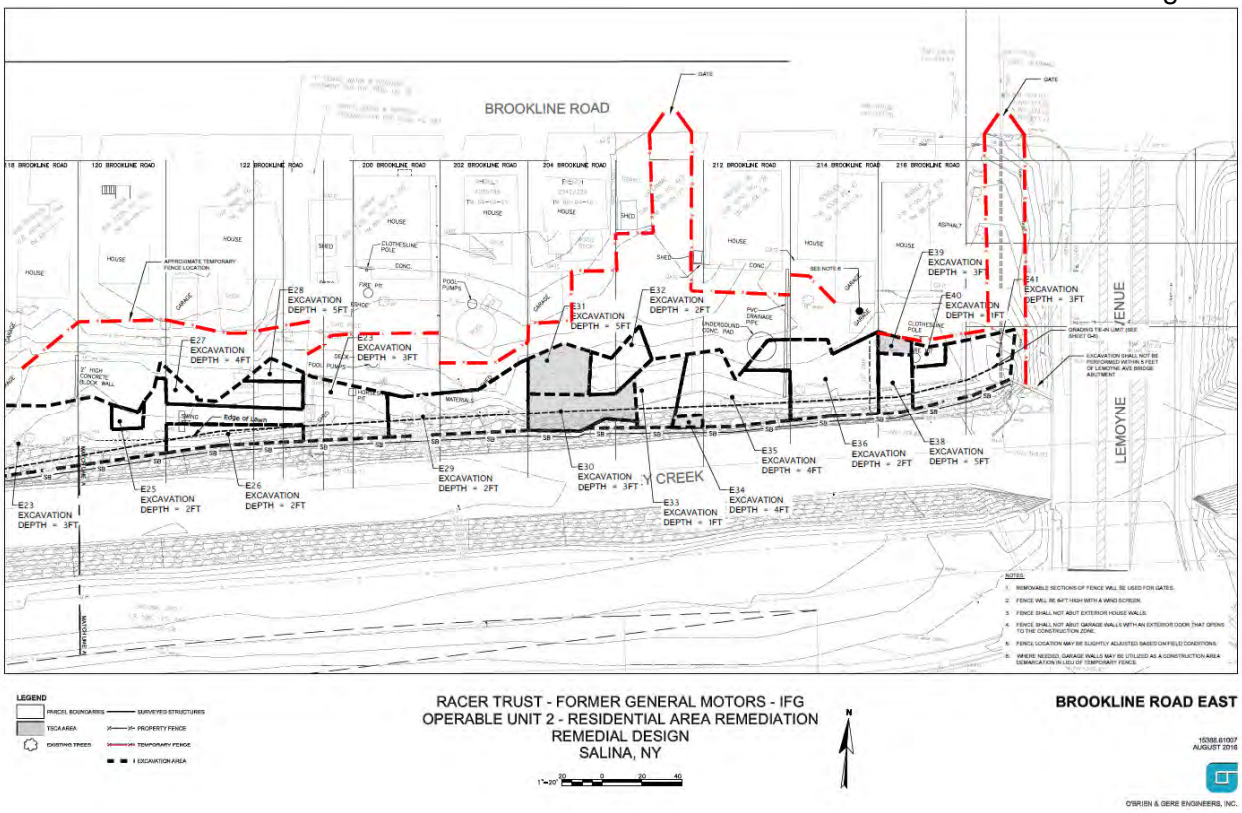


Figure 4



Construction of Staging Areas

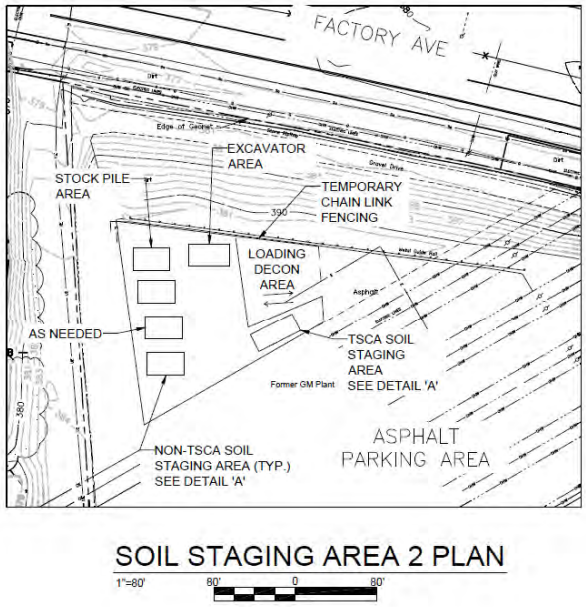
Two soil staging areas will be constructed. One will be located in an existing unpaved area at 204 Brookline Road (Staging Area 1) and the other will be located on a paved parking area at the Former IFG facility at 1 General Motors Drive (Staging Area 2). Sevenson will install 6' temporary chain link fence around the perimeter of the staging area at 1 General Motors Drive. The staging area at 204 Brookline Road will be located within the project temporary construction fencing. Details of each staging area are provided in Figure 3. As depicted on Figure 5, construction details for the soil staging areas at 1 General Motors Drive and 204 Brookline Road are presented in Details A and B, respectively. The details for a temporary decontamination pad at 1 General Motors Drive are provided in the Waste Management Handling and Disposal Plan.

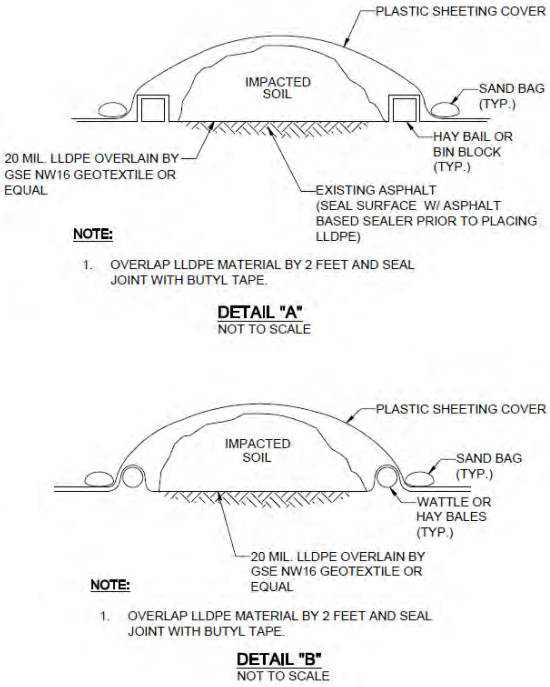
As described in the Traffic Control Plan, all trucks loaded with non-TSCA material at 204 Brookline will follow these procedures:

Trucks will back in off Factory Ave over the temporary bridge. Clean poly sheeting will be placed over the newly installed clean stone road ramp. Trucks will back over clean poly. Sevenson will place clean poly sheeting attached to shepherds hooks over the sides of the truck to prevent soil from coming in contact with the body of the truck or the tires of the truck. Once the trucks are loaded, the poly would be removed from the trucks. For this reason, Sevenson feels that a decontamination pad is not necessary at 204 Brookline. Should the use of poly sheeting be observed to be insufficient to prevent soil from coming in contact with the body or tires of the truck,

alternate methods will be considered and implemented (*e.g.*, a temporary decontamination pad such as that provided for Staging Area 2).

Figure 5





1.2 SELECTIVE DEMOLITION

Upon completion of the necessary surveys, obtaining photo documentation, the installation of any instrumentation and establishing where the access and egress points are, Sevenson will proceed with taking a detailed inventory of all personal property from each parcel that is within the area to be remediated. Personal property that will be inventoried will consist of, but not be limited to, sheds, possibly one garage, swimming pools, decks, etc. The inventory will indicate the quantity, size, type/model, any other definable features, which may be helpful when replacing items.

Once the inventory is completed, Sevenson will begin the relocation of any personal items that can be salvaged to the greatest extent practical. Certain pieces will not be able to be salvaged due to their permanent nature or existing condition and certain items may get damaged during the salvage process, all of which will require replacement. The large trees and brush will be sized and hauled offsite for further recycling. All chippings and wood from trees (including ash trees) will be taken to an Onondaga County Recycling Facility.

1.3 EXCAVATION

Sevenson will remove PCB impacted areas that have been previously defined by OBG, with excavation depths varying from 6 inches to 5 feet, from the backyards of the 19 residential properties. Sevenson will utilize size efficient excavation equipment that each property will be able accommodate. Sevenson will utilize the approved disposal facilities in the Waste Management Handling and Disposal Plan (provided in Exhibit 3 of the Remedial Action Work Plan).

The proposed access points and access roads are depicted in Figure 1 and Figure 2.

Once these parcels have been cleared and selective demolition is complete, installation of a stone access road will consist of placing geotextile filter fabric (Mirafi 600X or equal) and 6”-12” of Type E Select Fill (Run-of-Bank gravel). Sevenson will excavate the soil within the limits of excavation and load the soil directly into a Hydrema truck. The Hydrema trucks will travel from the excavation sites to the backyard of 204 Brookline Road, where Sevenson will manage and place the excavated soil on 20 mil LLDPE liner in the Staging Area 1. At the end of each work day, Sevenson will encapsulate the remaining pile at 204 Brookline Road with poly material in order to comply with the dust control requirements.

Non-TSCA Excavated Soils

Sevenson has coordinated disposal of non-TSCA soil disposal with Seneca Meadow Landfill (SML), located in Waterloo, New York. This included collection of three soil samples from the excavation area and submittal to Eurofins Spectrum Analytical, Inc. (ESA) in North Kingstown, Rhode Island for analysis. The three samples were used to characterize approximately 4,400 CY of the non-TSCA soils to be excavated and each sample represented five separate excavation grids. Results of these samples were used to complete a waste profile for the non-TSCA soils. Non-TSCA material will be loaded from Staging Area 1 into subcontractor Riccelli Trucking’s approved transportation vehicles for disposal at the SML facility.

While Sevenson’s chief objective is to send all non-TSCA material directly from Soil Staging Area 1 at 204 Brookline Road to SML, as described above, it is possible that a limited quantity

of non-TSCA excavated soil will be sent to Soil Staging Area 2 at 1 General Motors Drive, where it will be unloaded and properly maintained/stockpiled until future off-site disposal.

TSCA Excavated Soils
Any material excavated from the predefined TSCA waste areas will be consolidated separately at Soil Staging Area 2 at 1 General Motors Drive. Sevenson will sample TSCA excavated soils while staged at Soil Staging Area 2. The soils will be tested for full TCLP, PCB, and RCRA characteristics at ESA. Upon US Ecology's acceptance, trucks will transport TSCA material to US Ecology in Belleville, Michigan, for proper disposal in the landfill. Trucks transporting TSCA soils will be adequately lined and will have sealed tailgates. As defined in OBG's Contract Drawings, Sevenson anticipates a TSCA quantity of approximately 325 CY.

Sequencing of Excavation

With Option 1, Sevenson will start the first leg of the excavation at the far west end of Brookline (100 Brookline Road). Sevenson will place the excavated material in a Hydrema truck and transport it to Staging Area 1 at 204 Brookline Road. From there the material will be double-handled using a Sevenson PC 300 excavator to load the material into a Riccelli-approved vehicle to transport the soils to the SML facility (non-TSCA excavated soils) or, TSCA soils will be loaded into a Riccelli truck which will then transport the soils to Staging Area 2 at 1 General Motors Drive for subsequent transport to US Ecology in Belleville, Michigan.

TSCA soil will be excavated separately from non-TSCA material. After 100 Brookline Road is excavated, the next property to be excavated will be 102 Brookline Road, followed by 104, 106, etc. until 204 Brookline is reached. A second excavator will start at the far east end of Brookline (216 Brookline Road). After 216 Brookline is excavated, the next property to be excavated will be 214 Brookline Road, followed by 212 Brookline Road. The haul road will be removed as part of the excavations.

Management of Equipment in contact with TSCA Soil

TSCA soil will be excavated using a different excavator bucket from non-TSCA soil. When not in use, the excavator bucket used for TSCA soil excavation will be wrapped in plastic sheeting. The excavator bucket used for TSCA soil excavation will be decontaminated using a surfactant followed by PCB wipe sampling prior to other use at the Site or being demobilized from the Site. Trucks used for relocation of TSCA soil at the Site will be lined with plastic sheeting.

Water Treatment

Residential Properties Any water generated/collected at the residential properties for deconning purposes will be containerized and sent down to the frac tank located within Staging Area 1. During excavation activities, any rainwater that collects inside the excavation areas will be left there/managed to drain. If standing water from high-precipitation events remains in the excavation areas, Sevenson will pump water into the on-site frac tank before proceeding to perform additional excavation or backfilling operations. Immediately after the tree clearing activities on each property, Sevenson will install Filtrexx sediment control above the water surface. This will help

filter any rainwater coming down the slope towards the creek. This water will not be collected and transported.

Water at the Staging Area As part of the water management, Sevenson will maintain a frac tank (18,000 gallons), which will be used to store rainwater that has come in contact with the excavated soils from the 19 residential properties.

After the water is stored in the frac tank, it will be treated using one of the following options:

- Transporting the water to RACER's existing on-site water treatment plan at the Former IFG Facility
- Transporting the water to an appropriate nearby wastewater treatment facility in Syracuse, NY
- Treat water using a temporary water treatment plant provided by Sevenson

1.4 SUBSURFACE UTILITY HANDLING AND EXCAVATION

Sevenson anticipates the presence of subsurface utility lines in the backyards of some of the 19 properties to sheds, garages, and/or pools. The electrical lines will either be protected or removed prior to the excavation activities by Sevenson. If removed, the electrical lines will be replaced at the conclusion of the backfilling of the properties.

1.5 BACKFILL

Sevenson will submit to OBG the names and locations of off-site borrow sources for common fill materials and topsoil proposed for the project. Once Sevenson finds an off-site borrow source that meets the geotechnical properties required for the project, Sevenson will coordinate with OBG and go to the borrow source to obtain samples and have them analyzed in accordance with the Construction Quality Control Plan (Exhibit 5 of the RAWP).

Backfill will be placed and graded in 12" lifts and compacted to 85% Standard Proctor compaction. Sevenson will procure the services of a geotechnical firm capable of performing compaction testing with a nuclear density gauge to monitor proper compaction.

Backfilling of the excavation area will follow upon OBG's verification of confirmation sampling and analysis documenting achieving the cleanup goal of a PCB level of 1 ppm.

Backfill materials will not have excessive moisture such that proper handling, grading, and compaction of materials cannot be achieved, or that will result in unacceptable settlement of the materials after placement. The excavated areas will be backfilled to the subgrade, and then will be brought to the approximate original grades by using 4 inches of clean topsoil.

Backfill materials will be delivered to the site, placed, and graded utilizing track dozers and/or skid steers, in loose lifts not to exceed 12-inches to backfill areas to the proposed subgrade elevations. Compaction will be performed using tracking of the soil with the dozers/skid steer, as site conditions require.

Sevenson will subcontract a local geotechnical firm to perform the grain size and modified Proctor compaction tests and in-place compaction tests required for this project.

Sevenson will demonstrate, using a 10-foot by 10-foot test pad, that on-site compaction equipment can achieve a maximum dry density of 85% of Standard Proctor compaction. Once achieved, Sevenson will use the same compaction method for the remainder of the project. The local geotechnical firm will be on-site providing compaction tests during the initial equipment compaction on backfill material. Additional compaction testing will also be performed beneath swimming pools and permanent structures that may require demolition. Soils beneath these features shall be compacted to 90% Standard Proctor maximum dry density. Additional testing will be performed as directed by OBG.

Soil erosion, sediment control, and dust control measures will continue to be maintained and implemented during backfilling operations until permanent measures are established.

Dust Control for Cleanup Properties: Due to the proximity of neighboring homes, Sevenson is sensitive to controlling levels of fugitive dust. The goal aims to generate no dust during the excavation/backfill process. Dust control requirements during cleanup activities will be primarily controlled by spraying water at the excavation areas. Water application will be used as necessary to reduce fugitive dust. Application rates will be regulated to control dust, but will not result in generating mud that could be transported from work areas on haul trucks or other mobile equipment. Sevenson will ask the homeowners for permission to use their outside 1 inch water spigot during the remediation activities. Sevenson will compensate the homeowners for the use of their water. Sevenson will use a standard garden hose in order to apply water to the excavated soil. In addition, if more water is needed, dust suppression equipment may also consist of standard garden hoses and spray nozzles connected to a 500 gallon water tank filled with potable water. All equipment and water shall be provided by Sevenson. Sevenson Superintendent will be present at each excavation/backfill activity. Before the soil is dry, the Sevenson Superintendent will dispatch the water tank to lightly mist the area with water to control dust on an as-needed basis.

Topsoil Placement

Sevenson will import approved topsoil material after the backfill activities have been completed. Sevenson will install topsoil layers approximately 4” deep over all areas that have been backfilled. All backfill and topsoil will have to meet DER-10 requirements. Sevenson will utilize appropriate construction equipment (i.e. small dozers/skid steers) to uniformly place the 4” of topsoil. All imported topsoil will meet the required specification for pH, organic content, and grain size. Sevenson will rough grade the topsoil within +/- 1” of finished grade.

Sevenson’s local landscaper will finish grading the topsoil and rake the material prior to installing seeding/sod.

1.6 RESTORATION

Placement of Sod/Seeding and Maintenance Watering

Sevenson will hire a local landscape subcontractor who is a successful and experienced contractor in the planting of lawns with specific expertise and success in the installation of materials required for this project.

The local landscaper will place sod in lawn areas on an approved subgrade within 48 hours of approval by OBG. The local landscaper will place seeding in areas such as the LeMoyne Avenue right-of-way and incidental fringes between the flat backyards and the top portion of Ley Creek's northern bank. Sod will be placed immediately upon delivery to the Site, and as soon as practical after harvesting, to prevent deterioration. The sod will be placed tight with no open joints visible. The landscaper will be required to water the properties for not less than 30 days.

Placement of Trees

Sevenson will hire a local landscape subcontractor to replace trees and shrubs which have been agreed to be replanted. The local landscape subcontractor will replace existing trees with nursery trees per each residential property restoration agreement. The local landscape subcontractor will plant the trees in accordance with drawing G-10 (Deciduous Tree Planting Detail).

1.7 DEMOBILIZATION

Upon completion of backfill, topsoil, sod, and seeding operations, Sevenson will re-establish landscape features and reinstall personal property that was removed during the remedial process. All fences that were removed prior to the excavation activities will be replaced in kind with new materials after the sod has been installed. The personal property inventory will be reviewed and the properties will be restored to their pre-construction activities condition.

During restoration activities along the bank, Sevenson will install silt fence with activated carbon filters. Sevenson will install the silt fence at locations shown on design drawings G-6 and G-7. This silt fence will remain in working order until OBG and RACER request removal.

Once all site work has been substantially completed and only minor "punch list" work items remain, Sevenson will commence demobilization activities.

Residential

Once the excavation and backfill has been completed at all 19 properties, Sevenson will begin the equipment demobilization. All equipment will be transferred to Staging Area 1, properly decontaminated, and then arrangements will be made to move the equipment off-site. Sevenson will discuss removing the silt fence and chain link fence with OBG. Following OBG's direction, Sevenson will leave any silt fence, orange fence, or chain link fence as OBG deems appropriate.

Staging Area

Once restoration activities have concluded at the residential properties, Sevenson will remove all supporting components of the two staging areas. Once all the impacted soil has been loaded out to an approved disposal facility from the staging areas, Sevenson will remove and decontaminate materials used to construct each staging area. Sevenson will take samples from the staging areas in order to verify that no PCB material remains on the restored staging area surfaces. Following the removal and off-site transportation of materials used to construct each staging area. Sevenson

will decontaminate and transport the equipment from each staging area off-site. The temporary chain link fence around the perimeter of Staging Area 2 will be removed and transported off-site to the local vendor.

Exhibit 2

Traffic Control Plan

Traffic Control Plan

Former General Motors Inland Fisher Guide Site
Operable Unit 2
Residential Area Remediation

Prepared for:

RACER – Revitalizing Auto Communities Environmental Response Trust

500 Woodward Avenue, Suite 2650

Detroit, MI 48226

Prepared by:

Sevenson Environmental Services, Inc.

2749 Lockport Road

Niagara Falls, New York 14305

Date: September, 2016

Traffic Control Plan

The purpose of this Traffic Control and Transportation Plan is to detail the strategy Sevenson Environmental Services, Inc. (Sevenson) will employ to minimize congestion on public streets caused by site vehicles. Management and control of the material hauling on and in the vicinity of the site is of primary focus.

Transportation Routes

Trucking Route from Properties to Staging Area 2 at 1 General Motors Drive

Sevenson will reach out to the NYSDOT in regards to proper signage for truck entrance to and exit from the National Grid Property.

Sevenson will coordinate the transportation of excavated materials to from Staging Area 1 at 204 Brookline Road to Staging Area 2 located at 1 General Motors Drive Syracuse, NY, 13206 or to Seneca Meadows Inc., 1786 Salcman Road, Waterloo, NY 13165, in either Sevenson-rented trucks or local subcontractor-owned trucks. Sevenson will communicate frequently with truck drivers to provide maximum efficiency during this procedure. Upon being loaded, trucks will be covered with a tarp to prevent the inadvertent migration of dust and soil during transportation. As described in the Waste Management Handling and Disposal Plan (Exhibit 3 of the RAWP), Sevenson will ensure that any trucks/tires leaving Staging Area 1 will be inspected and free of residual soil debris.

There are two access route options to transport excavated materials from the properties on Brookline Road to Staging Area 2 located at 1 General Motors Drive, approximately 1.2 miles east on Factory Avenue.

Option 1 for bringing the excavated materials from the properties to Staging Area 2 is to exit the properties from the backyards by crossing Ley Creek on a temporary bridge (please see Potential Traffic Routes figure in the Construction Work Plan and *Figure 1* for transport route details, pg. 5 of this plan). Once the creek has been crossed, the trucks will turn left onto Factory Avenue and continue on to Staging Area 2. This option reduces the traffic in front of the residents' homes and driveways. RACER has negotiated an access agreement with National Grid (the owner of the property on the south side of Ley Creek) for this purpose.

Option 2 for bringing the excavated materials from the properties to the Staging Area is to exit the properties from the backyards (please see Potential Traffic Routes figure in the Construction Work Plan). There are two alternatives under Option 2 to reach the Staging Area, as follows:

- Excavated material from the backyards of the properties will come out of the east end of Brookline Road and be transported out via a right on LeMoyne Avenue, and then a left onto Factory Avenue. The Staging Area is reached after driving about 1.2 miles, and is on the right side of Factory Avenue.

- Excavated material from the backyards of the properties will come out of the west end of Brookline Road and be transported via a right on Edgemere Road, and then a right onto US Route 11 (Brewerton Road), a right onto Boulevard Street, a right onto LeMoyne Avenue, and then a left onto Factory Avenue. The Staging Area is reached after driving about 1.2 mile, and is on the right side of Factory Avenue.

Trucking Route from Staging Area 2 at 1 General Motors Drive to Disposal Facilities

From Staging Area 2 (1 General Motors Drive Syracuse, NY 13206), following characterization and manifesting, the excavated materials will be transported to the appropriate off-site disposal facilities. The non-hazardous (i.e., PCB concentration <50 ppm) materials will be transported to Seneca Meadows Inc., 1786 Salcman Road, Waterloo, NY 13165. The hazardous TSCA (i.e. PCB concentration ≥ 50 ppm) materials will be transported to US Ecology Belleville, MI. As described in the Waste Management Handling and Disposal Plan (Exhibit 3 of the RAWP), Sevenson will ensure that any trucks/tires leaving Staging Area 2 will be inspected and free of residual soil debris.

Staging Area 2 will be exited via turning left onto Factory Avenue and then right onto LeMoyne Avenue. There will be a slight right from LeMoyne onto US Route 11 North/Brewerton Road. Next will be a left turn onto NYS Route 208/S Bay Rd before continuing straight onto US Route 11 South. From there, the trucks can take the Interstate 81 South ramp to Interstate 90 West. Once the trucks are on Interstate 90 West they will contact the disposal facility to take the most direct approved route to the facilities (please reference *Figure 2* for transport route details).

Trucking Route from Staging Area 1 at 204 Brookline Road to Disposal Facilities

To the maximum extent possible, non-TSCA material will be loaded from Staging Area 1 (204 Brookline Road), and transported to Seneca Meadows Inc., 1786 Salcman Road, Waterloo, NY 13165. As described in the Waste Management Handling and Disposal Plan (Exhibit 3 of the RAWP), Sevenson will ensure that any trucks/tires leaving Staging Area 1 and returning to the Site will be inspected and free of residual soil debris.

Staging Area 1 will be exited across the temporary bridge and trucks will turn right onto Factory Avenue and then left onto US Route 11. Next will be a right turn onto 7th North Street. From there, the trucks can take the Interstate 81 North ramp to Interstate 90 West. Once the trucks are on Interstate 90 West they will contact the disposal facility to take the most direct approved route to the facilities (please reference *Figure 2* for transport route details).

Backfill Material Deliveries for Restoration

All materials including common borrow, topsoil, sod, trees, plants, fence, material deliveries, etc. will be delivered to the Site via the same routes as describe above for the excavated materials leaving the Site. Material deliveries will be scheduled, when possible, to prevent vehicles from queuing on public streets. Deliveries will be unloaded promptly, and in the unlikely event that two or more unscheduled deliveries occur concurrently, Sevenson will unload the vehicles as

expeditiously as possible. Traffic will be monitored and controlled to avoid any lane blockages, traffic jams, public inconvenience, etc.

Figure 1 – TSCA soils transport route; from bridge at Factory Ave. to 1 General Motors Drive (Staging Area).

Figure 2 – Non-hazardous soils transport route; from bridge at Factory Ave. to Seneca Meadows, Waterloo, New York (Route shown is from Factory Ave. to I-90 West)

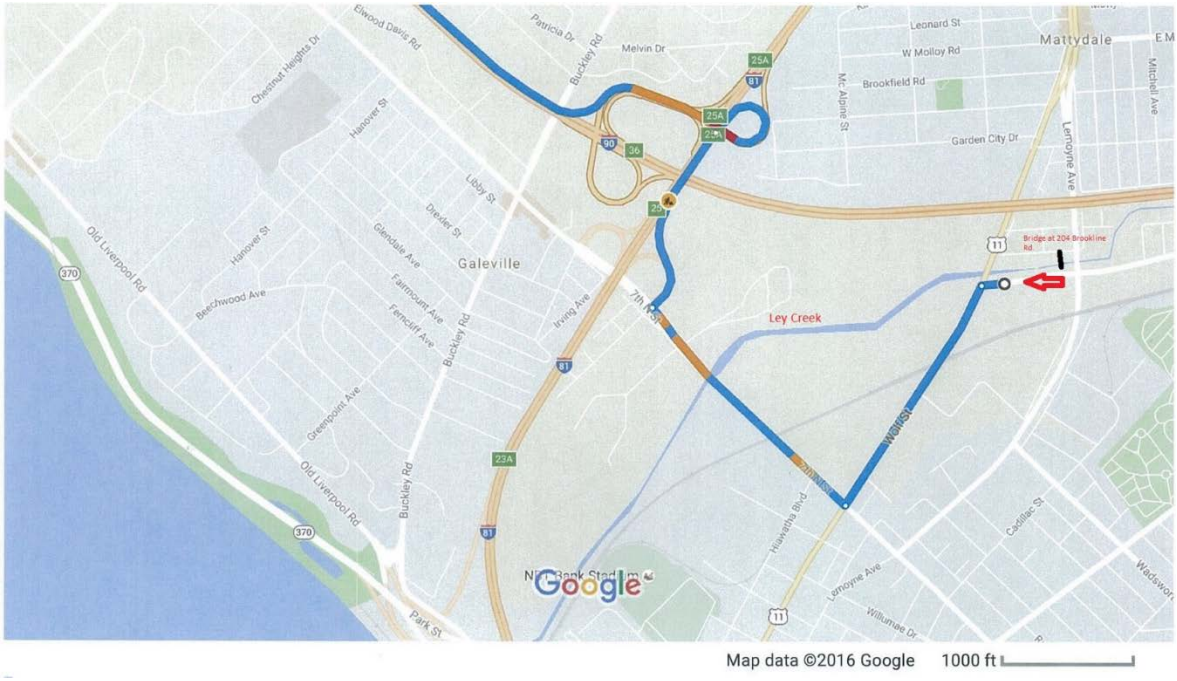


Exhibit 3

Waste Management Handling and Disposal Plan

Waste Management Handling and Disposal Plan

Former General Motors - Inland Fisher Guide Site

Operation Unit 2

Residential Area Remediation

Prepared for:

RACER – Revitalizing Auto Communities Environmental Response Trust
500 Woodward Avenue, Suite 2650
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2749 Lockport Road

Niagara Falls, New York 14305

Date: September, 2016

Waste Management Handling and Disposal Plan

This Waste Management Handling and Disposal Plan (WMHDP) describes the classifications of materials and wastes that are anticipated to result from remedial activities; the regulatory requirements for management of such materials and wastes; the procedures to be followed during the remedial action activities for material and waste management, transportation, and offsite disposal; and the applicable notification, documentation, and reporting requirements associated with the material and waste management activities.

Sources of Materials and Wastes

Implementation of the remedial action activities at the Site will result in the generation of materials and wastes which will require appropriate on-site and off-site management. These materials and wastes will be generated during the removal of contaminated soils and bank sediments from the upland areas of 19 designated properties at the Site. The anticipated materials and wastes to be generated from the implementation of these remedial action activities include, but are not limited to:

Source	Potential Materials and Wastes
Upland Area Soils and Debris of 19 Properties along Ley Creek	Potentially polychlorinated biphenyl (PCB) (both < 50 and > 50 ppm) contaminated soils and wastes from the north slope of Ley Creek extending north into the backyards Water from excavation areas and surface runoff Clearing and Grubbing Debris (i.e. vegetation) Spent Personal Protective Equipment (PPE), Debris and Disposable Equipment
Other	Common trash and garbage (non-contaminated) Sanitary Wastewater Waste Oil (from filters, equipment maintenance)

Material and Waste Classifications

PCB Wastes - Implementation of the remedial action activities at the Site will involve handling waste materials that are subject to the Toxic Substances Control Act (TSCA) (PCB) Regulations. A solid waste may be a TSCA waste if it exceeds 50 parts per million (ppm) PCB in samples collected.

Site Materials and Debris – Sampling and analysis has been performed by O'Brien & Gere (OBG) on the approximate 5,000 CY volume of soil to be excavated and disposed of to evaluate if the waste must be managed as solid waste or as TSCA-regulated waste. The majority of the material sampled to date has been determined to be non-TSCA material (i.e., PCB concentrations < 50 ppm). Approximately 5% of the material has been determined to be TSCA (i.e., PCB concentrations ≥ 50 ppm). It is anticipated that all removed soils and solids will be excavated in the dry and that they will be transferred to the Staging Area 2 at 1 General Motors Drive Syracuse, NY 13206 for additional management.

Managing excavated soils at the Staging Area 2 (at 1 General Motors Drive)

It is anticipated that non-TSCA material would be loaded from Staging Area 1 at 204 Brookline Road for transport to Seneca Meadows Landfill for disposal. In the event that it is necessary to stage non-TSCA material prior to transport, Sevenson will transport and unload the excavated material from the 19 residential properties to Staging Area 2 at 1 General Motors Drive. Sevenson will ensure that any trucks/tires leaving the containment area at 1 General Motors Drive and returning to the Site will be inspected and free of residual soil debris. If necessary, trucks will be directed to a Temporary Decon Pad (please reference *Drawing 1, Temporary Decon Pad*, pg. 10 of this plan) for decontamination prior to leaving Staging Area 2. At the end of each work day, Sevenson will cover all the exposed material inside the containment area with poly-cover and will sand-bag the cover for the night.

It is anticipated that TSCA material would be staged at Staging Area 2 at 1 General Motors Drive and loaded for transport to US Ecology in Belleview Michigan for disposal. Sevenson excavators will reach over the precast concrete barriers into the staged piles of excavated soil and load the approved trucks for off-site disposal. When the approved trucks pull up to get loaded, they will drive onto poly in order to keep the road clean. Poly tarps with shepherd's hooks will be placed along the side of the truck bed to ensure that no excavated soil will hit the side of the truck. Prior to the truck leaving for the disposal facility, Sevenson will check all tires to ensure that they are free of soil debris. If necessary, trucks will be directed to a Temporary Decon Pad prior to leaving Staging Area 2 (please reference *Drawing 1, Temporary Decon Pad*, pg. 10 of this plan).

All waste removed from the 19 properties will be disposed of as either TSCA waste (PCB concentrations > 50 ppm) or non-TSCA waste (PCB concentrations < 50 ppm).

Wastewater – Wastewater generated during project activities may contain contaminants that must be treated or removed prior to water discharge/disposal.

Residential Properties Any water generated/collected at the residential properties for decontamination purposes will be containerized and transferred to the frac tank located within the Staging Area 2 (1 General Motors Drive Syracuse, NY 13206). During excavation activities, rainwater that collects inside the excavation areas will be left there/managed to drain. Immediately after the tree clearing activities on each property, Sevenson will install Filtrexx sediment control above the water surface. This will help filter any rainwater coming down the slope towards the creek. If standing water from high-precipitation events remains in the excavation areas, Sevenson will pump water into the on-site frac tank before proceeding to perform additional excavation or backfilling operations.

Water at Staging Area 2, Sevenson will maintain a frac tank (18,000 gallons), which will be used to store rainwater that has come in contact with the excavated soils from the 19 residential properties. This water will be disposed of in one or more of the following manners:

1. Transport off-site to an appropriate disposal facility. Appropriate sampling would be performed prior to transport to the designated disposal facility.
2. Discharge to the existing on-site water treatment plant for management and ultimate discharge to RACER's existing SPDES permitted Outfall 003. Sampling will not be required if this option is selected.

Anticipated Transporter

Truck Transport: US Bulk Transport Inc. (TSCA material)
US EPA ID Number: PAD987347515
Facility Location: 205 Pennbriar Drive, Erie, Pa 16509
Name of Responsible Contact: Craig Goodelle
Telephone Number: 800 609-6611

Truck Transport: Riccelli Enterprises (non-TSCA material)
US EPA ID Number: N/A
Facility Location: 6800 West Henrietta Road, Rush, NY 14543
Name of Responsible Contact: Tony Alu
Telephone Number: 585 334-8410

The anticipated offsite disposal facilities are:

TSCA Soils Treatment and Landfill: US Ecology Michigan
Location: 49350 North I-94 Service Drive, Belleville, Mi 48111
Name of Responsible Contact: Mark Baron
Telephone Number: 800 592-5489
Unit of Measure for Costing Purposes: Ton

Non-TSCA Soils and Debris Landfill: Seneca Meadows Landfill
Location: 1786 Salcman Road, Waterloo, NY 13165
Name of Responsible Contact: Robert LaRoca
Telephone Number: 315 539-5624
Unit of Measure for Costing Purposes: Ton

Off-Site Processing and Disposal Requirements

Site waste materials must be disposed of at a facility licensed/permitted to accept the specific materials. For the Site, it is anticipated that soil with PCB concentrations < 50 ppm will be disposed of at Seneca Meadows Landfill, the designated disposal facility approved by the Generator. Soils contaminated with PCB > 50 ppm identified onsite will be disposed of at the designated TSCA disposal facility approved by the Generator.

Other Materials and Wastes

Wastes that are non-hazardous and non-TSCA, such as general site trash, sanitary wastes and used oils, will be handled and stored on-site in a manner that prevents its release to the surrounding environment and that will not interfere with on-site activities. These materials will be shipped offsite to a licensed disposal or recycling facility. Site solid waste (e.g., trash) will be transported by a licensed hauler to a permitted municipal waste landfill.

Material and Waste Transport and Disposal

When wastes are shipped for offsite disposal, Sevenson will maintain a daily summary of loads managed on-site and delivery offsite. Sevenson will coordinate with all transporters of material designated for offsite disposal to assure that adequate transport vehicles are available to meet the project schedule. It is anticipated that all materials for off-site disposal will leave the site via truck. Sevenson will coordinate loads such that a minimal impact to the Town and surrounding properties is realized.

Sevenson will manage all aspects of transportation for disposal of all waste at the Site. This will include the scheduling, staging, directing from various Site locations, manifesting and final inspection prior to exit from the Site.

A daily log of all loads will be maintained on site. This log, at a minimum, will contain the date shipped, transporter operator information, estimated weight, manifest number, and any other pertinent information pertaining to a particular shipment. The disposal facility weight tickets obtained for each load will be utilized as the weight of record for each load

for Site records and billing purposes. Sevenson estimates that approximately 20 to 30 truckloads of excavated material may be shipped each day, as required.

TSCA Materials

Any TSCA materials excavated during the remedial activities will be transported to an appropriately licensed and permitted facility. Sevenson will coordinate all facility approvals and transport manifests and notifications. Previous onsite sampling has indicated areas representing approximately 200 cubic yards where PCB levels exceed 50 ppm. Sevenson will excavate and collect those materials and store them in one location on the containment area at Staging Area 2.

Non-TSCA Materials

All non-TSCA materials removed during the remedial activities will be transported to an appropriate, licensed and permitted facility. At this time, it is anticipated that non-TSCA wastes will be disposed of at the designated permitted landfill listed above. Sevenson will prepare all bills-of-lading for loads. Previous onsite sampling has indicated the areas where PCB levels do not exceed 50 ppm. These areas are shown in the design drawings G-4 and G-5. Similarly, Sevenson will store these materials on the containment area, but separate from the TSCA materials.

Documentation Procedures

Various types of documentation will be required for material management activities associated with the remedial activities to be performed at the Site. Field activities that generate material and waste will be documented to ensure that material and waste are managed appropriately. Waste is anticipated to be analyzed for:

- RCRA Ignitability/Corrosivity/Reactivity
- RCRA TCLP (VOCs/SVOC/Metals/Herbicides/Pesticides)
- Total PCBs

Material and waste management activities will be closely documented to ensure that all materials and wastes are properly handled for shipment and disposal.

Documentation of Field Activities

Field activities that generate material and waste will be properly documented to establish the origins of such material and waste for proper disposal. Sevenson is responsible for the initial documentation associated with generation of material or waste. At a minimum, the following information will be recorded when material or waste is generated and containerized:

- The date of generation.
- The location from which the waste is generated.
- A description of the material or waste.
- Any pertinent observations about the material or waste.
- The approximate quantity of material or waste.
- The type of storage container used for the material or waste.
- Where the material or waste shall be staged while awaiting characterization and disposal.

The stockpiles used for on-site storage of waste at either Staging Area 1 at 204 Brookline Road or Staging Area 2 at 1 General Motors Drive will be appropriately dated and labeled to assist in proper tracking of material or waste.

Documentation During Transportation and Disposal

Transportation and disposal activities will be documented using the Material and Waste Disposal Tracking Log. The information recorded on this log, when applicable, may include:

- The truck identification number for the material/waste.
- The material/waste disposal approval number.
- The quantity of the material/waste.
- The facility to which the material/waste was sent.
- The manifest number (PCB > 50 ppm) or bill-of-lading number (PCB < 50 ppm) for shipment off-site.
- The date the material/waste was shipped.
- The date on which it was received at the facility.
- The date a certificate of acceptance or destruction was received from the facility (if applicable).

Acceptance certifications and/or certificates of disposal will be obtained from disposal management facilities when wastes are sent to such facilities for disposal. These certificates will document that materials shipped off-site were sent to properly permitted facilities. In addition, such certificates will document that the subject material or wastes were properly managed and handled at the facility in accordance with applicable local, State, and Federal hazardous waste management regulations.

Specific Requirements for Waste Shipments

All truck shipments must include either a Hazardous Manifest or Bill of Lading signed by the generator. Sevenson will prepare and provide all shipping documents for Owner review and site use. For tracking purposes, unique transport identification numbers will

be assigned to all nonhazardous loads; a specific EPA hazardous waste manifest identification number will be used to truck TSCA material.

TSCA material shipments must include Emergency Response Information meeting the requirements of 49 CFR 172 Subpart G. Emergency Response information may be added to paperwork for non-PCB hazardous loads as necessary or needed.

Sevenson will manage all aspects of transportation for disposal of all waste at the Site. This will include the scheduling, staging, directing from various Site locations, issuance of required paperwork, and final inspection prior to exit from the Site.

A daily log of all loads will be maintained on site. This log, at a minimum, will contain the date shipped, transporter operator information, estimated weight, manifest number, and any other pertinent information pertaining to a particular shipment. The disposal facility weight tickets obtained for each load will be utilized as the weight of record for each load for Site records and billing purposes.

Drawing 1 – Temporary Decon Pad

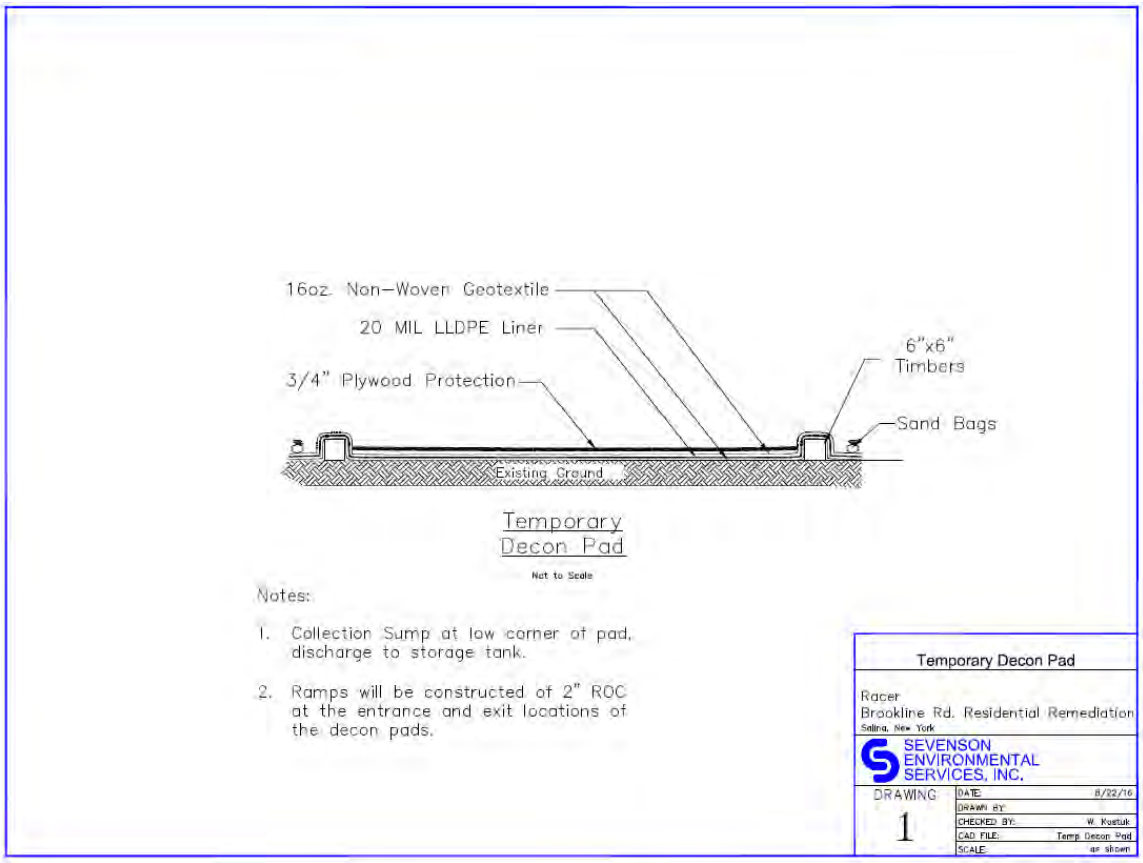

Exhibit 4

Health and Safety Plan (HASP)

Site Safety and Health Plan

Former General Motors - Inland Fisher Guide Site Operation Unit 2

Residential Area Remediation

Prepared for:

RACER – Revitalizing Auto Communities Environmental Response Trust
500 Woodward Avenue, Suite 2650
Detroit, MI 48226

Prepared by:

Sevenson Environmental Services, Inc.

2749 Lockport Road

Niagara Falls, New York 14305

Date: July, 2016

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Table of Contents

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TABLES

APPENDICIES

Acronyms

ACGIH	American Conference of Governmental Industrial Hygienists'
AHA	Activity Hazard Analysis
CFR	Code of Federal Regulation
CIH	Certified Industrial Hygienist
CO	Carbon Monoxide
CPR	Cardiopulmonary resuscitation
dB(A)	Decibels A level
DEET	N-Diethyl-m-toluamide EMS
	Emergency Medical Service
GFCI	Ground Fault Circuit Interrupter
HEPA	High Efficiency Particulate Air
HIV	Human Immunodeficiency Virus
HPS	Hanta Virus Pulmonary Syndrome
IDLH	Immediately Dangerous to Life and Health
JSEP	Job Safety Enhancement Program
lb	Pound
LEL	Lower Explosive Limit
m	Meter
ml	Milliliter
mph	Miles per hour
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
O_2	Oxygen gas
PAHs	Poly Aromatic Hydrocarbons
PEL	Permissible Exposure Limit
PID	Photo Ionization Detector
PPE	Personal Protective Equipment
ROPS	Roll Over Protective Structure
SDS	Safety Data Sheet
SHM	Safety and Health Manager
SOPs	Standard Operating Procedures
SPA	Safe Plan of Action
SSHO	Site Safety and Health Officer
TBD	To Be Determined
TLV	Threshold Limit Value
USEPA or EPA	United States Environmental Protection Agency

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1.0 Introduction

Sevenson Environmental Services, Inc. is under contract to perform the remedial activities at the Ley Creek Residential Site Remediation project located in Syracuse, New York. The work consists of mobilization/demobilization, installation of storm water and erosion controls, demolition of small structures (sheds, decks, pools, fire pits, planters, etc.), excavation of polychlorinated biphenyls (PCB) contaminated soils, backfilling, and site restoration.

1.1 Plan Objective

The objective of this Site Safety and Health Plan (SSHP) is to define the requirements and designate protocols to be followed during work at the Site. Applicability extends to Sevenson personnel, Sevenson's subcontractors, and visitors inclusive of engineers and subcontractors. Work performed under this contract will comply with applicable Federal, State, and Local Safety and Occupational Health laws and regulations. Through careful planning and implementation of corporate and site-specific safety protocols, Sevenson will strive for project free of accidents and incidents by promoting zero at risk behavior approach.

1.2 Safety and Health Policy Statement

Sevenson's management is committed to the safety of each and every employee. It should not be assumed just because no injury, accident, or illness occurred during a task that at risk behaviors will be acceptable. There is no place at Sevenson for an employee who will not work safely or who will endanger the safety of his fellow workers. It is essential that all Managers and Supervisors insist on the maximum safety performance and awareness of all employees under their direction by consistently administering all safety rules and regulations as well as at risk behaviors. It is Sevenson's policy to take the necessary actions in engineering, planning, designing, assigning and supervising work operations, to create a safe work-site. Sevenson will:

- Maintain safe and healthful working conditions.
- Provide and assure the use of all necessary personnel protection equipment to ensure the safety and health of site employees and the public at large.
- Require that site work be planned to provide a range of protection based on the degree of hazards encountered under actual working conditions.
- Provide site workers with the information and training required to make them fully aware of known and suspected hazards that may be encountered, and of the appropriate methods for protecting themselves, their co-workers, and the public at large.

1.3 Drug and Alcohol Policy

Sevenson is committed to providing a safe, efficient, and productive work environment for all employees. Using or being under the influence of drugs or alcohol on the job may pose serious safety and health risks. To help ensure a safe and healthful working environment, employees may be asked to provide body substance samples (such as urine and/or blood) to determine the illicit or illegal use of drugs and alcohol. Refusal to submit to drug testing may result in disciplinary action, up to and including termination of employment.

Subcontractors shall be made aware of the Substance Abuse Program requirements when working at the Site. Subcontractor personnel believed to be under the influence of a control substance or alcohol will

be subjected to For Cause testing. If a subcontractor refuses to submit to For Cause testing, they will be denied access to the Site.

1.4 Project Safety and Health Expectations

The safety and health of workers, clients, the public, and the protection of the environment are fundamental responsibility assumed by Sevenson under this contract. Sevenson will:

- Promote project safety with an objective no accidents, illnesses, or injuries by promoting and enforcing the zero at risk behavior policy.
- Manage activities in a proactive way that effectively increases the protection of site workers, the public, and the environment.
- Reduce safety and health risk by identifying and eliminating hazards from site activities.
- Carry out site activities in a manner that complies with all applicable safety, health, and environmental laws and regulations.

1.5 Project Safety and Health Compliance Program

Compliance with the requirements of applicable Federal, State, and local laws will be accomplished through a combination of written programs, employee training, workplace monitoring, and system enforcement. Continued and regular inspections by supervisors and safety personnel, as well as upper management with total involvement in the safety program will produce an atmosphere of voluntary compliance. However, disciplinary action for violations of project requirements will be taken, when necessary.

All site personnel and visitors entering a Contamination-Reduction Zone or Exclusion Zone at the site will be required to read and verify compliance with the provisions of this SSHP and specific appendices. In addition, visitors will be expected to comply with relevant Occupational Safety and Health Administration (OSHA) requirements such as medical surveillance, training, and personal protective equipment. In the event that a person does not adhere to the provisions of the SSHP, he/she will be requested to leave the work area. All nonconformance incidents will be recorded in the Daily Safety and Inspection Log.

The Site Safety and Health Officer (SSHO) will conduct impromptu surveillance on a daily basis of all work areas and subcontractor's activities to ensure that safety and health is properly implemented. In addition, any reports from employees concerning unsafe work practices, acts, or conditions will be investigated promptly. Unsafe acts, practices, or conditions will be reported to the responsible supervisor at the time of inspection.

The safe and efficient work practices of this company require a spirit of teamwork and cooperation from all employees. Also required are uniform standards of expected behavior. Employees who refuse or fail to follow the standard set forth by this plan, the Sevenson Corporate Health and Safety Plan and/or regulatory standards, will subject themselves to disciplinary action up to, and including discharge. In cases not specifically mentioned, employees are expected to use good judgment and refer any questions to their supervisors.

1.6 Site Safety and Health Plan Revisions

The development and preparation of this SSHP has been based on site-specific information provided to Sevenson. Should any unforeseen hazard become evident during the performance of the work, the SSHO will bring such hazard to the attention of the Client's Representative both verbally and in writing for resolution as soon as possible. In the interim, Sevenson will take necessary actions to maintain safe working conditions in order to safeguard on-site personnel, visitors, the public, and the environment. Modifications of any portion or provision of the SSHP will be requested in writing from the Client's by the SSHO, and authorized in writing. No changes to the SSHP will be allowed until the item has been reviewed and an addendum prepared and approved by Safety and Health Manager.

1.7 Site Information

The Ley Creek Residential Site is an approximately one-acre parcel owned by National Grid and several private landowners and located in the City of Syracuse, New York. The site is bounded to the north by residential homes along Brookline Road, to the east by Lemoyne Avenue and commercial/industrial properties, to the south by Ley Creek, Factory Avenue and commercial/industrial properties, and to the west by Brewerton Road and commercial/industrial properties.

Soil sampling performed in 2016 in the residential yards adjacent to Ley Creek has detected the presence of PCBs at concentrations that exceed the regulatory limit for PCBs, which in residential areas is 1 mg/kg, or one part per million (ppm). Multiple phases of sampling have been performed to delineate the extent of the contamination. The impacted soil will be excavated and removed from the site.

Most soil excavations, including those in the residential area, are expected to be 1 to 4 feet deep though some excavations will be up to 6 feet deep. Excavated areas will generally be restored with clean soil and vegetation. In other areas, gravel or asphalt will be placed on other portions of the excavated areas, as appropriate. Above-ground features, such as fencing, sheds and swimming pools, disturbed by remedial activities will be returned to their previous condition.

Figure A1 identifies the residential properties at which work will be performed. Remedial activities will occur in the backyard of each residence, bounded by Ley Creek and residential structures. Activities with the potential for air emissions of PCBs and/or dust are as follows:

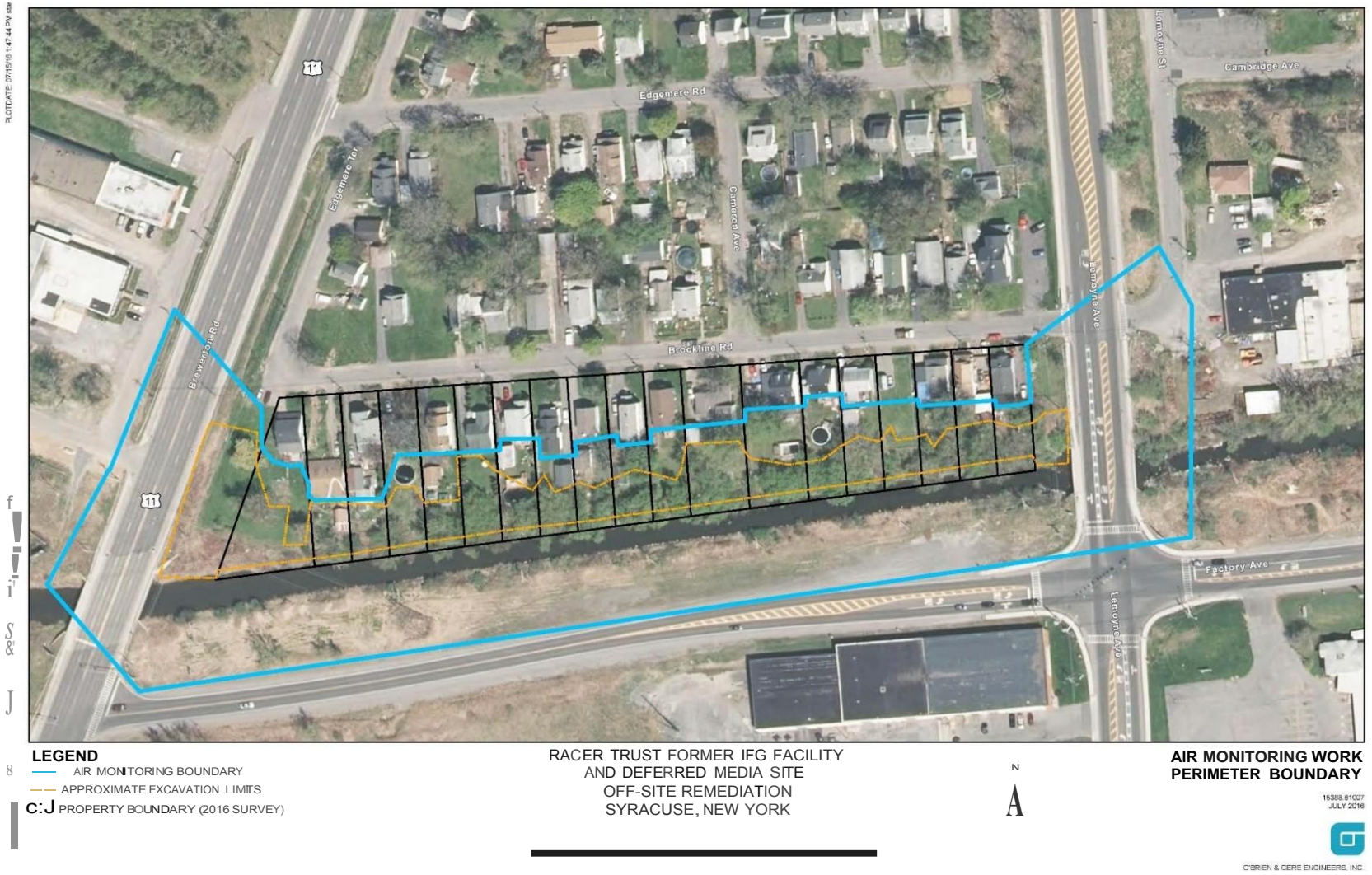
- Site preparation including construction equipment site access installation, and the removal of existing vegetation and personal property
- Excavation and removal of impacted soil
- Backfilling excavations with clean soil
- Site Restoration - Replace personal property and plant vegetation

The locations of the excavation, shown on Figure A1, are bordered by residential and commercial/industrial properties and a waterway as follows:

- North – Residential properties and homes along the south side of Brookline Road. The homes will be within approximately 60 feet or less from the nearest point of the excavation and two homes will be immediately adjacent to the nearest excavations.
- East – A residential property and home at 2026 Lemoyne Avenue 285 feet to the northeast of the eastern-most excavation, and two occupied commercial/industrial properties, adjacent to and east of LeMoyne Avenue.

- South – A residential property and home at 1400 Brewerton Road 550 feet to the south of the southeastern-most excavation, and commercial/industrial properties 200 to 500 feet to the southeast, south and south-southwest of the site along Factory Avenue, Lemoyne Avenue and Brewerton Road.
- West – Two commercial/industrial properties 150 to 250 feet to the northwest of the western-most excavation, consisting of JE Miller incorporated and Paratore Signs adjacent to and west of Brewerton Road.

Figure A1 – Site Overview



2.0 Organization and Responsibilities

While the Sevenson Safety and Health Department directs and supervises the overall Safety, Health and Environmental Program, the responsibility for Safety and Health extends throughout our organization from top management to every employee. For this reason, it is each person's duty to notify the management personnel if a hazardous condition is identified and to make a "stop work" call if the condition represents an immediate danger to life or health, until the SSHO can make a further determination. The following are the Sevenson project personnel positions and responsibilities for this project.

- Officer In Charge: Alan Elia, Jr.
- Project Manager: Jerry Castiglione
- Project Superintendent: Dan Kraatz
- Safety and Health Manager**:** Paul Jung, CIH, CSP
- Site Safety and Health Officer: Josh Domanski
- Subcontractors**:** TBD

2.1 Officer In Charge

The Officer In Charge directs and manages all aspects of the project in compliance with all contract and technical requirements. The Officer In Charge will monitor and control all aspects of the project to achieve optimal performance and ensure safe, high quality performance that complies with all contract requirements.

2.2 Project Manager

The Project Manager reports to the Officer In Charge. His responsibilities include coordinating project activities with the Project Superintendent and serving as the primary liaison with the Client Representative. The Project Manager prepares all correspondence, submittals, and other documentation required for the project; coordinates schedules; and administers the contract. The Project Manager prepares reports and documentation, supervises inspection personnel, and reviews and approves procurement and subcontract activities.

2.3 Project Superintendent

The Project Superintendent supervises and coordinates all construction crew activities relating to site preparation, excavation, shipping, and restoration. The Project Superintendent has the operational responsibility for the implementation of the SSHP on this project. This includes establishing an attitude of concern for safety matters by initiating prompt corrective action of hazards brought to his attention, and ensuring that the project safety and health requirements are initiated and observed by all project personnel.

The Superintendent plans and requires that all work be performed in compliance with this SSHP, the Sevenson Corporate Health and Safety Plan, and/ all applicable local, state, and federal regulations. He will impress upon all subcontractors' supervisory personnel a sense of responsibility and accountability of each individual to maintain a safe workplace and to work in a safe manner.

The Superintendent is the primary Emergency Coordinator for all emergencies (fire, utility, equipment) other than medical

2.4 Safety and Health Manager (SHM)

The Safety and Health Manager formulates, administers and coordinates programs for the company to reduce the risk of loss due to employee injury, regulatory non-compliance, general liability, fire, theft, or damage and reports directly to the Officer In Charge. The Safety and Health Manager will develop written detailed policies. The Safety and Health Manager will:

- Be responsible for the development, implementation, and oversight, of the SSHP.
- Visit the site as needed to audit the effectiveness of the SSHP.
- Provide consultation as needed to ensure that the SSHP is fully implemented.
- Coordinate any modifications to the SSHP with the SSHO and the Client Representative.
- Provide continued support for upgrading/downgrading the level of personal protection for project tasks.

2.5 Site Safety and Health Officer (SSHO)

Under the direction of the Safety and Health Manager, the SSHO will be responsible for the implementation of this SSHP and for the daily coordination of safety activities with the Project Superintendent and the Client Representative to ensure that the planned work objectives reflect adequate safety and health considerations. The SSHO will maintain a complete copy of this plan (and its supplements and addenda) at the site during all field activities and assure that all workers and visitors are familiar with it. He will perform site-specific training and briefing sessions for employee(s) prior to the start of field activities at the site and a briefing session each day before starting work. He will ensure the availability, proper use and maintenance of specified personal protective equipment, decontamination equipment, and other safety and health equipment. He will maintain a high level of safety awareness among team members and communicate pertinent matters to them promptly. The SSHO will:

- Shall be the Emergency Coordinator for all medical (first aid, heart attack, man down, etc.) events.
- Assist and represent the Safety and Health Manager in on-site training and the day-to-day on-site implementation and enforcement of the accepted SSHP.
- Be assigned to the site on a full time basis for the duration of field activities.
- Have the authority to ensure site compliance with specified safety and health requirements, Federal, state and OSHA regulations; and all aspects of the SSHP. This includes, but is not limited to, activity hazard analyses, air monitoring, use of PPE, decontamination site control, standard operating procedures used to minimize hazards, safe use of engineering controls; the emergency response plan, confined space entry procedures, spill containment program, and preparation of records. This will be accomplished by performing a daily safety and health inspection and documenting results on the Daily Safety Inspection Log.
- Stop work activities if unacceptable health or safety conditions exist, and take necessary action to re-establish and maintain safe working conditions.
- Consult and coordinate any modifications to the SSHP with the Safety and Health Manager, the Site Superintendent and the Client Representative.

- Conduct accident investigations and prepare accident reports.
- Review results of daily quality control inspections and document safety and health findings in the Daily Safety Inspection Log.
- Coordinate with Site Management and the Safety and Health Manager, recommend corrective actions for identified deficiencies, and oversee the corrective actions.

2.6 Employees

Personnel working on the site are required to read and acknowledge their understanding of the HASP and its appendices. Personnel are expected to abide by the requirements of the HASP and cooperate with supervisory personnel to ensure a safe and helpful work site.

It is each employee's responsibility to be familiar and in compliance with all health and safety practices and to use PPE, air monitoring equipment, and other safety devices, as required. In addition, employees shall:

- Participate in the Job Safety Enhancement Program (JSEP) by completing a JSEP Form for unsafe conditions and acts.
- Report all injuries, illnesses, accidents, and near misses immediately to their supervisor and SSO.
- Perform work in a safe and efficient manner.
- Perform work without using at risk behaviors.

2.6.1 Employee Responsibility

It is each employee's responsibility to be familiar and comply with all health and safety practices and to use the required PPE, air monitoring equipment, and other safety devices to perform their work. Responsibilities of employees associated with this project include, but are not limited to:

- Complying with the provisions of and following the procedures, policies, rules and programs defined in the HASP.
- Providing feedback to health and safety management relating to omissions and modifications in the health and safety program at the site.
- Understanding the policies and procedures specified in the HASP and health and safety program and clarifying those areas where understanding is incomplete.

2.6.2 Employee Authority

The health and safety authority of each employee assigned to the Site consists of the following:

- Stop work authority if that employee feels is unsafe, or where specified safety precautions are not adequate or understood.
- Stop work or refuse to perform work on any operation where the safety procedures specified in this HASP are not being followed or implemented.
- The authority to contact the SHM at any time to discuss potential safety concerns.

2.7 Subcontractors

Subcontractors utilized during activities at the project are covered by this HASP and will be provided a copy of the plan prior to commencing work. The SSHO will verify that subcontractor employee training; medical clearance, and respirator fit test records are current. As with all site personnel, subcontractors will be briefed on the provisions of this plan and attend all daily toolbox and weekly safety meetings.

The subcontractor's superintendent or foreman shall be responsible for the safety of their personnel. Sevenson will monitor a subcontractor's safety performance and bring any safety concern to the attention of the subcontractor's superintendent or foreman. The subcontractor will determine and implement necessary controls and corrective actions. The SSHO will note subcontractor work practices on the daily Safety and Health report. If repeat non-compliance/unsafe conditions are not corrected, the subcontractor will be required to stop affected work until adequate corrective measures are implemented.

3.0 Hazard/Risk Analysis

Below is a general summary of the risks that this SSHP addresses during work at this site. This is a summary of the major anticipated risks and is not intended to be a complete listing of all potential risks that may be encountered during the project.

1. Working around heavy equipment (struck by, caught in equipment)
2. Working in residential neighborhoods
3. Working in close proximity to structures
4. Materials handling and transfer (ergonomic issues)
5. Heavy lifting (strains, sprains)
6. Biological hazards (plants, animals, insects)
7. High noise levels
8. Cuts/lacerations (saws, wire rope, etc.)
9. Exposure to temperature extremes (heat stress, cold stress)
10. Severe weather conditions (high winds, precipitation, lightning)
11. Exposure to chemical contaminants and chemicals brought on site
12. Overhead hazards
13. Community and public roadway motor vehicle traffic

3.1 Site Tasks and Operations

Sevenson has developed an Activity Hazard Analysis (AHA) for the major phases of the work. A major phase of work is defined as an operation involving a type of activity presenting hazards not experienced in previous operations, or where a new subcontractor or work crew is to perform the specified phase. The analysis defines the activity being performed and identifies the sequence of work, the specific hazards anticipated, and the control measures to be implemented to eliminate or reduce each hazard. An AHA will also be prepared when new tasks are added; job situations change, or when it becomes necessary to alter safety requirements; refer to ***Appendix A - "Activity Hazard Analysis".*** Work will not proceed on a particular task/work area until the AHA has been reviewed and site personnel understand the hazards and controls of the activity to be performed.

Additionally, Sevenson has a real-time hazard identification program known as the Safe Plan of Action (SPA). While the AHA is used as a training/auditing tool, the SPA is a planning tool for the work crew to address the details of a work process or activity and any potential changing conditions. The superintendent or foreman as well as the work crew participate in developing the SPA, and this is done before the start of each day's work. A copy of the SPA Form is located in ***Appendix B – "Health and Safety Forms".***

3.2 Hazards

The following potential hazards may be encountered during the work activities at the Site.

3.2.1 Safety/Physical Hazards

Potential safety hazards include: excavation of contaminated soil, sheet pile operations, exposure to public traffic, electrical, heavy equipment/vehicle traffic, material handling, hand and power tools, noise exposure, slip/trips/falls, heat and cold stress, and falls from elevation. Safety/Physical hazards associated with the project are presented below.

3.2.1.1 Electrical

Overhead power lines, downed electrical wires, and buried cables all pose a danger of shock or electrocution if contacted or severed during site operations. A minimum distance of 10 feet will be present between overhead wires and equipment. This distance will vary according to voltage, the greater the voltage, the greater the clearance between any part of the equipment and the power line; refer to ***Table 1 - Minimum Clearance from Energized Overhead Electrical Lines***. During periods of limited visibility or working in tight areas, a spotter will be utilized to maintain a safe distance between equipment and overhead wires. The basic rule is, "Don't locate equipment in a position where it can come in contact with overhead power lines." Maintain the required distance from the lines. Overhead electrical power lines will be considered energized unless the person owning such line, or operating officials of the electrical utility supplying the line assures that it is not energized and it has been visibly grounded.

Table 1 – Minimum Clearance From Energized Overhead Electrical Lines	
Nominal System Voltage	**Minimum Rated Clearance**
0 to 50 kV	10 Feet (3 m)
51 to 200 kV	15 Feet (4.5 m)
201 to 350 kV	20 Feet (6 m)
351 to 500 kV	25 Feet (7.5 m)
501 to 650 kV	30 Feet (9.1 m)
651 to 800 kV	35 Feet (10.7 m)
801 to 950 kV	40 Feet (12.2 m)
951 to 1100 kV	45 Feet (13.7 m)
Clearance values calculated using: (Initial kV-50kV) x (4 inches/10kV)x(1 foot/12 inches) = increased distance (feet) over 10 feet. Add this value to 10 feet to yield minimum rated clearance	

Table 11-1 USACE EM-385-1-1 (Sept 2008)

There are various means of insulating the wires, as well as barriers and alarms that may be available to reduce the risk of injury to workers, but the use of such devices does not change the requirements of any other applicable standards or laws. In addition, these and other measures (such as grounding the equipment itself) may not be fully effective and may create a false sense of security. Only the utility company is authorized to de-energize, insulate, or handle the lines. No one else may attempt these operations.

Electrical equipment used on-site may also pose a hazard to workers. Whenever possible, Sevenson will use low-voltage equipment with ground-fault interrupters and watertight, corrosion-resistant connecting cables to help minimize this hazard. No employee will be permitted to work in the proximity of any part of an electrical power circuit unless the person is protected against electric shock by de-energizing the circuit and grounding it, or it has been locked and tagged out. Sevenson's Control of Hazardous Energy Program will be implemented when work has to be performed on energized equipment. Sevenson's Control of Hazardous Energy Program is located in *Appendix G* of this Plan.

All electrical wiring and equipment will be intrinsically safe for use in potentially explosive environments and atmospheres. Ground-fault circuit interrupters are standard for use at the site.

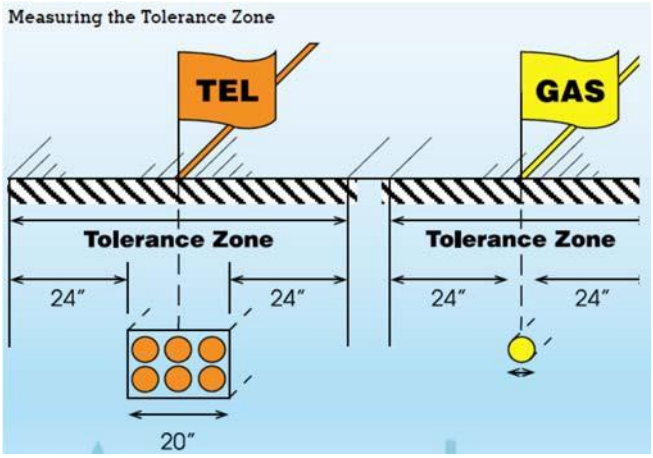
3.2.1.2 Underground Utilities

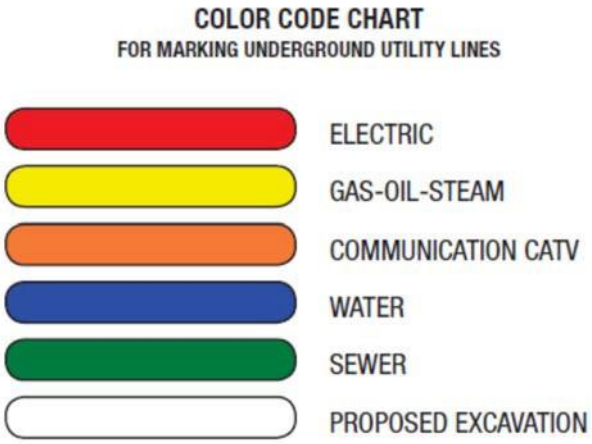
There are numerous underground utilities located at the Site. Some of these will be disconnected from service, removed to support remediation, and re-installed during restoration while others will be

protected and maintained. Prior to the start of excavation activities Dig Safely New York 811 or 800-962-7962 will be contacted to mark out underground utilities coming into Site area. There are no other suspected underground utilities at the site.

The Project Superintendent is Sevenson's excavation and trenching competent person. Contact Dig Safely New York 811 or 800-962-7962 for utility mark out at least three working days prior to the start of excavation activities. Handwork is required within 24-inches of a known utility line or service.

Utilities are marked out with various colors or marking paint or flagging. The following chart identifies the color code describing which utility is identified based on the color of the mark out.





3.2.1.3 Heavy Equipment/Vehicle Traffic

Considerations for controlling the movement of personnel and equipment in a construction area are vitally important to any project as injuries may occur while working with or adjacent to such equipment. This category includes all operations that utilize moving heavy equipment: excavators, loaders, dozers, cranes, and trucks. Sevenson will take every precaution necessary to ensure the safety of the residents and the on-site personnel during traffic movement operations.

All workers will adhere to all applicable standards and regulations while operating heavy equipment at the site. Operators will be trained and experienced in the use and maintenance of the equipment they are operating. Equipment will be inspected on a daily basis to identify any worn parts, and/or unsafe conditions. Inspections will be documented using the Equipment Checklist. Any unsafe equipment will be removed from service until safety defects can be corrected. Equipment operators will not leave their machine unattended while it is running. All equipment will have electronic backup alarms. Each piece of equipment will be equipped with a 1A:10B:C fire extinguisher. No vehicles or equipment will be operated in a careless or unsafe manner. Personnel will wear high visibility reflective vests when working around equipment/vehicles. All personnel will stay a minimum of four feet clear of the operational area of the equipment. All personnel will abide by the "25 foot" rule. Which is all personnel will ensure the heavy equipment operator acknowledges their presence and intention within 25 feet of heavy equipment.

During construction activities, it is often necessary to have a worker direct the operator. In these cases, close communication between the operator and the laborer is of critical importance. One designated person will give signals to the operator of both equipment and vehicles in the work area. Workers should not take any action unless they have made eye contact with the operator and clearly communicated their

intentions. In addition, all machines are equipped with back-up alarms, which are checked daily and repaired immediately. Truck traffic will be controlled by a flagger/spotter, as required.

Maintenance and inspection of vehicles and heavy equipment is a vital part of the overall safety program. Sevenson has a fully staffed equipment maintenance shop that handles all preventative and overhaul work for our entire vehicle and equipment fleet. As part of the preventative maintenance, all equipment is checked for properly functioning safety devices (e.g., backup alarms, brakes, lights, fire extinguishers, etc.). Before each piece of equipment leaves the shop it must pass a safety checklist. All rental equipment is subjected to a similar inspection when delivered to the job site. Any piece of rental equipment that fails the inspection must be repaired by the vendor before it is accepted for use. In addition, all equipment is inspected in the field prior to the start of each day's activities. Equipment inspections shall be documented by the user performing the inspection and shall be returned to the SSHO once completed. If a superintendent, operator, or safety officer detects a defect, the equipment is taken out of service and a properly qualified mechanic is dispatched from the shop to make the repairs on-site. All heavy equipment used at the site will be equipped with rollover protective structures (ROPS).

Heavy equipment and vehicles may not be left on residential properties overnight. All equipment will be mobilized to the property site at the beginning of the work shift and shall be demobilized at the end of the work shift.

Heavy equipment tracks and truck tires shall be kept a minimum of 36-inches away from any building foundation.

3.2.1.4 Material Handling

Various materials and equipment may be handled manually during project operations. Care should be taken when lifting and handling heavy or bulky items to avoid back injuries. The following fundamentals address the proper lifting techniques that are essential in preventing back injuries:

- The size, shape, and weight of the object to be lifted must first be considered. Multiple employees or the use of mechanical lifting devices are required for heavy objects.
- The anticipated path to be taken by the lifter should be considered for the presence of slip, trip, and fall hazards.
- The feet will be placed far enough apart for good balance and stability (typically shoulder width).
- The worker will get as close to the load as possible. The legs will be bent at the knees.
- The back will be kept as straight as possible and abdominal muscles should be tightened.
- Twisting motions should be avoided when performing manual lifts.
- To lift the object, the legs are straightened from their bending position.
- A worker will never carry a load that cannot be seen over or around.

When placing an object down, the stance and position are identical to that for lifting. The legs are bent at the knees and the object lowered. When two or more workers are required to handle the same object, workers will coordinate the effort so that the load is lifted uniformly and that the weight is equally divided between the individuals carrying the load. When carrying the object, each worker, if possible, will face the direction in which the object is being carried. In handling bulky or heavy items, the following guidelines will be followed to avoid injury to the hands and fingers:

- A firm grip on the object is essential; leather gloves will be used if necessary.
- The hands and object will be free of oil, grease, and water which might prevent a firm grip, and the fingers will be kept away from any points that could cause them to be pinched or crushed, especially when setting the object down.
- The item will be inspected for metal slivers, jagged edges, burrs, and rough or slippery surfaces prior to being lifted.

3.2.1.5 Hand and Power Tools

Hand and power tools are used for various site activities. Procedures for using hand and power tools are as follows:

- Persons using power tools will be trained in their use.
- Ground Fault interrupters will be used on all electrical tools.
- Only tools in good condition will be used.
- Tools will be kept clean.
- Guards and shields will be kept on all tools.
- Air couplings will be secured.
- Non-sparking tools will be used in hazardous areas.
- Proper eye protection is critical when using power tools. At a minimum, safety glasses will be required during site operations. Where appropriate, full-face shields will be utilized in addition to the glasses.

3.2.1.6 Noise Exposure

Noise is generated during construction activities in such operations as transportation of materials and operation of heavy construction equipment. Noise has been defined as unwanted sounds. The human ear can tolerate a certain amount of sound without any harmful effects. Personnel will be provided protection against the effects of hazardous noise exposure whenever sound-pressure levels exceed 85 dB(A) steady-state expressed as a time-weighted average (TWA) or 140 dB(A) impulse.

It is usually safe to assume that if you need to shout to be heard at arms-length, the noise level is at 90 dB (A) or above. Personnel operating or working around construction equipment will utilize hearing protection. Sevenson personnel participate in a Hearing Conservation Program that meets the requirements of OSHA regulation 29 CFR 1910.95.

3.2.1.7 Excavation/Trenching Hazards

The main hazard encountered during soil excavation is the cave in of excavation sides with possible burial or crushing of workers. Causes of cave in may include (a) absence of shoring, (b) misjudgment of stability, (c) defective shoring, and (d) undercut sides. Other potential hazards include falling during access/egress, while monitoring or dismounting equipment, or stumbling into excavation. An overhead hazard can result from material, tools, rock, and/or soil falling into the excavation. Flammable atmospheres may also be encountered in excavation. Trenches and excavations greater than four feet in depth shall be designated as confined spaces. Excavations and trenches shall be evaluated to determine

if they are to be classified as a Permit Required Confined Space by the SSHO prior to any person being allowed to enter an excavation or trench.

Sevenson will provide adequate shoring or sloping of sides of the excavation. Excavation/trenches will be inspected daily for changing conditions and recorded on daily excavation checklists. Excavation/trenches, regardless of the depth or width, will be barricaded. The use of raised berms, caution signs, and caution tape will be instituted to protect personnel on the site. The excavation area will be delineated with caution tape during operations and barricaded/secured with safety fence at the end of each workday. Adequate means of exit, such as ladders, steps, ramps, or other safe means of egress, will be provided and be within 25 feet of lateral travel. At least two means of exit will be provided for personnel working in excavations. Where the width of the excavation exceeds 100 feet, two or more means of exit will be provided on each side of the excavation.

3.2.1.8 Slip/Trip/Fall

Slip/trip/hit/fall injuries are the most frequent of all injuries to workers. They occur for a wide variety of reasons, but all injuries can be prevented by the following prudent practices:

- Spot-check the work area to identify hazards.
- Establish and utilize a pathway, which is most free of slip and trip hazards.
- Beware of trip hazards such as wet floors, slippery floors, and uneven surfaces or terrain.
- Carry only loads that you can see over.
- Keep work areas clean and free of clutter, especially in storage rooms and walkways.
- Communicate hazards to on-site personnel.
- Secure all loose clothing, ties, and remove jewelry while around machinery.
- Report and/or remove hazards.
- Keep a safe buffer zone between workers using equipment and tools.

3.2.1.9 Heat Stress

Heat stress may be a hazard for workers wearing protective clothing even if the temperature is moderate. The same protective materials that shield the body from chemical exposure prevent heat and moisture from dissipating. Personal protective clothing can therefore create a hazardous condition. Depending on the ambient temperature and the work being performed, heat stress can occur very rapidly - within as little as 15 minutes.

In its early stages, heat stress can cause discomfort and inattention, resulting in impaired functional abilities that can threaten the safety of both the individual and his co-workers. Personnel will be instructed to recognize the symptoms of the onset of heat stress. Frequency of heat stress monitoring and checks for symptoms of heat stress will increase with rises in air temperature, humidity, and the degree of exposure to high temperature areas.

The guidance for workers is specified in the current version of the ACGIH Threshold Limit Values for Heat Stress. If actual clothing differs from the ACGIH standard ensemble in insulation value and/or wind and vapor permeability, changes should be made to the monitoring requirements and work rest

period to account for these differences. ***Table 2 – "Frequency of Physiological Monitoring***" provides the suggested frequency of physiological monitoring for fit and acclimatized workers.

Table 2 –
Frequency of Physiological Monitoring

Adjusted Temperature Calculation	Normal Work Clothing	Impermeable Clothing
90°F (32.2°C) or above	After each 45 minutes of work	After each 15 minutes of work
87.5 - 90.0°F (30.8 – 32.2°C)	After each 60 minutes of work	After each 30 minutes of work
82.5 - 87.5°F (28.1 – 30.8°C)	After each 90 minutes of work	After each 60 minutes of work
77.5 - 82.5°F (25.3 - 28.1°C)	After each 120 minutes of work	After each 90 minutes of work
72.5 - 77.5°F (22.5 - 25.3°C)	After each 150 minutes of work	After each 120 minutes of work

The following parameters will be used when monitoring workers:

Heart rate - Count the radial pulse as early as possible in the rest period to ensure a more accurate reading. If the heart rate exceeds 110 beats per minute at the beginning of the rest period, shorten the next work cycle by one-third and keep the rest period at the same length. If, at the end of the following work period, the heart rate still exceeds 110 beats per minute, shorten the work period again by one-third.

Oral Temperature - The utilization of oral temperature applies to the time immediately after the worker leaves the contamination reduction zone. Using a clinical thermometer, take the temperature for three minutes. If the oral temperature exceeds 99.6°F (37.6°C), shorten the next work cycle by one-third, without a change to the rest period. If the oral temperature still exceeds 99.6°F (37.6°C) at the end of the following work period, shorten the next work cycle by one-third. Do not permit a worker to perform duties requiring a semi permeable or impermeable garment if the oral temperature exceeds 100.6°F (38.1°C). Ear canal readings are a valid method to monitor the temperature of workers.

The oral temperature shall not exceed 100.4° F. If an employee's pulse rate exceeds the maximum age-adjusted heart rate (0.7(220-AGE)), and/or the oral temperature exceeds 100.4° F, the employee shall be required to stop work and rest at the work site or move to an air-conditioned room after proper decontamination. The affected employee may be allowed to return to work after his/her pulse rate has dropped below 100 beats per minute. The SSHO in consultation with the affected employee, and medical personnel if necessary, shall determine whether an employee is ready to return to work. Fluids shall be provided and rest breaks will be taken. The frequency of breaks will increase with the temperature. Such things as cooling vests, portable fans, and breaks in air-conditioned areas shall be used if necessary.

When practicable, the most labor-intensive tasks should be carried out during the coolest part of the day. If necessary, a work/rest regimen will be instituted. The work/rest regimen consists of alternating periods of work and rest. The duration of these alternating periods will depend on the environmental

conditions at the job site, such as, the Wet Bulb Globe Temperature, duration, and type of activities performed.

A worker who becomes irrational or confused, or collapses on the job should be considered a heat stroke victim and medical help should be called immediately. Early recognition of symptoms and prompt emergency treatment is the key to aiding someone with heat stroke. While awaiting the ambulance, begin efforts to cool the victim down by performing the following:

- Move the victim to a cooler environment and remove outer clothing.
- Wet the skin with water, and fan vigorously or repeatedly apply cold packs or immerse the victim in a tub of cool (not ice) water.
- If no water is available, fanning will help promote cooling.

Any individual showing susceptibility to heat stress will be referred to a physician for evaluation. In addition, the use of prescription drugs can also contribute to the effects of heat stress and will be considered during the assignment of work. Cool (50°-60°F) water or a sport drink, such as Gatorade, will be made available to workers and encourage them to drink small amounts frequently, (e.g., one cup every 20 minutes). Ample supplies of liquids will be placed close to the work area.

3.2.1.10 Cold Stress

Cold injury (frostbite and hypothermia) and impaired ability to work are hazards to persons working outdoors in low temperatures at or below freezing. Extreme cold for a short time may cause severe injury to exposed body surfaces (frost nip or frostbite), or result in profound generalized cooling (hypothermia). Areas of the body which have high surface area-to-volume ratio such as fingers, toes, and ears, are the most susceptible to frost nip or frostbite.

Two factors influence the development of a cold weather injury: ambient temperature and the velocity of the wind. Wind chill is used to describe the chilling effect of moving air in combination with low temperature. As a general rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increases to 10 mph. Additionally, water conducts heat 240 times faster than air. Thus, the body cools suddenly when chemical-protective equipment is removed if the clothing underneath is perspiration soaked. The wind chill factor is the cooling effect of any combination of temperature and wind velocity or air movement. ***Table 3 – Wind Chill Index*** should be consulted when planning for exposure to low temperatures and wind. The wind chill index does not take into account the specific part of the body exposed to cold; the level of activity, which affects body heat production; or the amount of clothing being worn.

When practicable, the most sedentary tasks should be carried out during the warmest part of the day. If necessary, a light-work rotation schedule should be instituted or the work area heated. Heavy work that will cause heavy sweating resulting in wet clothing must also be monitored. The work/rest regimen consists of alternating periods of work and rest. The duration of these alternating periods will depend on the environmental conditions at the job site, (i.e., the Wind Chill Temperature, duration, and type of activities performed).

Table 3 – Wind Chill Index													
Wind (mph)	Actual Temperature (°F)												
	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25
	Equivalent Temperature (°F)												
5	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40
10	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47
15	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51
20	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55
25	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58
30	22	16	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60
35	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62
40	20	13	6	-1	-8	-15	-22	-29	-36	-42	-50	-57	-64
Wind Chill (°F) = 35.74 + 0.6215T - 35.75(V0.16) + 0.4275T(V0.16) T = Air Temperature (°F) V = Wind Speed (mph)							Frostbite occurs in 15 minutes or less						

Table 4 - Maximum Daily Time Limits for Exposure at Low Temperatures gives the recommended time limits for working in various low temperature ranges.

Table 4 – Maximum Daily Time Limits for Exposure at Low Temperatures	
Temperature Range (°F)	Maximum Daily Exposure
30 to 0	No limit, providing that the person is properly clothed.
0 to -30	Total work time: 4 hours. Alternate 1 hour in and 1 hour out of the low-temperature area.
-30 to -70	Two periods of 30 minutes each at least 4 hours apart. Total low temperature work time allowed is 1 hour.
-70 to -100	Maximum permissible work time is 5 minutes during an 8-hour working day. At these extreme temperatures, completely enclosed headgear, equipped with a breathing tube running under the clothing and down the leg to preheat the air, is recommended.

Table 5 - Work/Warm-up Schedule applies to any 4-hour work period with moderate to heavy work activity, warm-up periods of ten (10) minutes in a warm location and an extended break (e.g., lunch) at the end of the 4-hour period in a warm location. For light-to-moderate work (limited physical movement) apply schedule one step lower. For example, at -35°C (-30°F) with no noticeable wind, a worker at a job with little physical movement should have a maximum work period of 40 minutes with 4 breaks in a 4-hour period.

Table 5 – Work/Warm-up Schedule

Air Temperature - Sunny Sky		No Noticeable Wind		5 mph Wind		10 mph wind		15 mph wind		20 mph wind	
°C (approx.)	°F (approx.)	Max Work Period	No. of Breaks	Max Work Period	No. of Breaks	Max Work Period	No. of Breaks	Max Work Period	No. of Breaks	Max Work Period	No. of Breaks
-26° to -28°	-15° to -19°	(Norm. Breaks) 1		(Norm. Breaks) 1		75 min	2	55 min	3	40 min	4
-29° to -31°	-20° to -24°	(Norm. Breaks) 1		75 min	2	55 min	3	40 min	4	30 min	5
-32° to -34°	-25° to -29°	75 min	2	55 min	3	40 min	4	30 min	5	Non-Emergency Work Should Cease	
-35° to -37°	-30° to -34°	55 min	3	40 min	4	30 min	5	Non-Emergency Work Should Cease			
-38° to -39°	-35° to -39°	40 min	4	30 min	5	Non-Emergency Work Should Cease					
-40° to -42°	-40° to -44°	30 min	5	Non-Emergency Work Should Cease							
-43° & below	-45° & below	Non-Emergency Work Should Cease									

To guard against cold injuries, workers should wear appropriate clothing and use warm shelters for removing personal protective equipment. The personnel decontamination trailer will be used as a warm shelter when required. The SSHO may periodically monitor workers' physical conditions, specifically checking for symptoms of frostbite.

3.2.1.11 Falls from Elevation

To prevent falls and injuries when employees work in areas where fall hazards cannot be eliminated by reasonable means, personnel will be required to use a full body harness and shock-absorbing lanyard. Personnel will make maximum use of primary fall protection systems, such as scaffolding or scissors lifts instead of utilizing personal fall arrest systems. These systems will be equipped with standard guardrails and safe means of access/egress.

Before any employee attempts to work in an area where a risk of falls exists, suitable fall prevention or fall protection shall be implemented. Construction fencing or other sufficient barrier system shall be

utilized to prevent personnel from falling into excavations. Restraining devices shall be utilized for personnel that are required to work near the edge of the excavation inside the construction fencing. The restraining device shall be capable of preventing the worker from falling into the excavation instead of arresting their fall if they do fall into the excavation. Personnel riding on or working from a scissors lift or aerial lift must secure their safety lanyards to the basket at all times.

The fall protection equipment will be properly fitted and will not restrict the movements of the worker. Full-body harnesses are required for any work performed over six (6) feet in elevation unless work is being performed from a ladder or a fall prevention system is in place. Work from portable ladders or fixed ladders less than 24 feet in height that are set up and properly used do not require fall protection. However, if fall protection can be properly utilized, it will be.

The use of self-retractable lifelines (SRL) shall be utilized when possible. If SRLs cannot be utilized, lanyards of the shortest workable length must be attached to a secure point in the vicinity of the work area. The line will be long enough not to restrict the worker's movements, but short enough to prevent tripping over the line and falls beyond the worker's extended reach for self-rescue; in any case, not over six (6) feet.

3.2.2 Chemical Hazards

Operational chemicals may be brought to the project-site for use in activities supporting the construction activities. These chemicals are used for fuels in operating heavy equipment, glues for welding pipes, etc. The use of operational chemicals is regulated by OSHA under the Hazard Communication Standard (29 CFR 1910.1200). Safety Data Sheets (SDSs) for operational chemicals are kept on file in the project office trailer. An inventory list of the anticipated operational chemicals (Hazardous Chemical Inventory List) for use at the site will be maintained at the site and updated as new material is received.

After reviewing the environmental sampling results, it has been determined that the primary contaminants of concern is PCBs. A worker protection program and air monitoring program for the chemicals of concern can be found in other sections of this plan. The following list identifies the major contaminates of concern at the Site. Chemical Information Sheets for the listed contaminants of concern can be found in Appendix C.

- PCBs

3.2.3 Biological Hazards

There is a potential for encountering biological hazards such as bites from ticks, spiders, rodents, and snakes and exposure to poison ivy and oak. Biological hazards and controls are presented below

3.2.3.1 Needlestick Injuries

A needle stick injury occurs when a carelessly discarded hypodermic needle penetrates your skin, for example, through stepping on a syringe and/or needle that has been discarded at the site. Needle stick injuries transmit infectious diseases, especially blood-borne viruses. Accidental punctures by contaminated needles can inject hazardous fluids into the body through the skin. There is potential for injection of drugs, but injection of infectious fluids, especially blood, is by far the greatest concern. Accidental injection of blood-borne viruses is the major hazard of needle stick injuries, especially the viruses that cause AIDS (the HIV virus), hepatitis B, and hepatitis C.

General Universal Precautions (no unnecessary handling, proper PPE [nitrile or latex gloves]) will be observed to prevent contact with hypodermic needles. Work practice controls will be used to eliminate or minimize employee exposure (i.e. inspect area prior to work). If you are stuck by a discarded needle, immediately report it to the SSHO. Following a report of an exposure incident, the employer will immediately make available to the exposed employee medical evaluation counseling, treatment, and post-exposure prophylaxis, when medically indicated.

Based on past work experience in this area the chance of encountering a discarded used hypodermic needle is better than average. Only the SSHO will be permitted to collect used hypodermic needles. Collected hypodermic needles shall be placed in a clearly marked biohazard sharps container. Collected sharps shall be properly disposed of as regulated medical waste.

3.2.3.2 Ticks

Working in tall grass, especially in or at the edge of wooded areas, increases the potential for ticks to affect workers. Ticks are vectors of many different diseases including Lyme disease. They attach to their host's skin and intravenously feed on its blood creating an opportunity for disease transmission. All personnel working in overgrown areas must wear Tyvek or similar light weight coveralls as well as apply commercially prepared tick repellent, such as N, N-Diethyl-m-toluamide (DEET), help prevent tick bites. Please note that there are some concerns with the use of DEET on skin and associated potential adverse health effects. Periodically during the workday, employees working in tall grass will inspect themselves for the presence of ticks and notify the SSHO of any tick bites as soon as possible.

3.2.3.3 Rodents and Wildlife

During site operations, animals such as mice, larger rodents, and stray animals may be encountered. Workers will use discretion and avoid all contact with animals. If these animals are interfering with site operations, or if dead animals are observed, the SSHO should be contacted immediately for assistance and advice.

Hanta virus Pulmonary Syndrome (HPS) is a disease that may be contracted when a person comes into contact with Hanta virus-infected rodents, their nesting materials, droppings, urine, or saliva. HPS may develop when virus particles are inhaled, absorbed through broken skin or the eyes, or when bitten by an infected animal. The majority of HPS cases have been reported in the southwest; however, there is the potential for Hanta virus transmission in most regions with rodent populations. Risk to workers at the site is considered to be low; however, the severity of disease is high. Therefore, field personnel should be aware of the potential for exposure and should avoid coming into contact with rodents or their burrows or dens.

Rabies is an acute, infectious, often fatal viral disease transmitted to humans by the bite of warm-blooded, infected animals. This disease affects the central nervous system of humans. A rabid animal may be recognized by signs of raging, uncontrollable movement and possible foaming near or at the mouth. The best control method is avoidance of animals that could be rabid. If bitten by a potentially rabid animal, contact the SSHO immediately. The animal in question must be captured or trapped so that it can be tested for rabies. The bitten individual will seek medical attention immediately.

Any wild life shall be reported to the SSHO or Superintendent immediately. The SSHO or Superintendent shall evaluate the situation and if need be notify an animal control specialist for guidance.

3.2.3.4 Poisonous Plants

Poison ivy, poison oak, and poison sumac are identified by three or five leaves radiating from a single stem. Poison ivy is in the form of a vine while oak and sumac are bush-like. All of these plants can produce a delayed allergic reaction. The plant tissues have an oleoresin, which is active in live, dead, and dried parts. The oleoresin may be carried through smoke, dust, contaminated articles, and the hair of animals. Symptoms usually occur 24 to 48 hours after exposure resulting in rashes that itch and blister. Should exposure to any of these plants occur, wash the affected area with a mild soap and water within one-half hour, but do not scrub the area. The best preventative measure for poisonous plants is recognition and avoidance.

3.2.3.5 Snakes

The degree of toxicity resulting from snakebites depends on the potency of the venom, the amount of venom injected, and the size of the person bitten. Poisoning may occur from injection or absorption of venom through cuts or scratches. The most effective way to prevent snakebites is to avoid snakes in the first place. Personnel should avoid walking at night or in high grass and underbrush. Visual inspection of work areas should be performed prior to activities taking place. The use of leather boots and long pants will be required, since more than half of all bites are on the lower part of the leg. No attempts at killing snakes should be made; many people are bitten in such an attempt. Personnel will not put their hands in areas where they cannot be seen.

3.2.3.6 Flying Insects

Flying insects such as mosquitoes, wasps, hornets, and bees may be encountered while project activities occur. Mosquito bites can be effectively prevented by the use of insect repellants containing DEET. Please note that there are some concerns with the use of DEET on skin and associated potential adverse health effects. Treatment for insect bites and bee stings can be effected by the use of commercially prepared ointments. Personnel who are allergic to bee stings will notify the SSHO prior to working on the project.

3.2.3.7 Spiders

Personnel will be alert to the potential for spider bites. Spiders sometimes establish residence in stored clothing and PPE. It is advisable for personnel to inspect clothing and PPE for spiders prior to donning. Immediate reporting and medical evaluation is necessary if personnel suspect being bitten by the Brown Recluse or Black Widow spider. If a spider bite is sustained, personnel will report it to the SSHO.

3.3 Engineering Controls

The use of engineering controls for the protection of personnel is the first means of mitigation. This involves the elimination of hazards and the isolation of the workers from the hazards. Implementation of engineering controls can reduce the need for personal protective equipment by separating the worker from the contaminated material. During excavation and stockpiling dust may be generated. The SSHO will be constantly alert to the possibility of unacceptable dust levels by both visual and real time instrument monitoring techniques.

3.3.1 Dust Control

Control measures will be implemented for all operations where dust is likely to be generated. Careful planning and implementation of controls will reduce potential dust concentrations. There are a number of specific construction practices, which will reduce levels of airborne particulates. These include:

- Providing for a misting spray during material handling activities.
- Applying water on access roads.
- Cover stockpiles with tarps or natural cover such as straw or seed.

See Table 7 for Operational Action Levels for Dust at the Site

3.3.2 Noise Control

Noise levels will be controlled to meet the applicable OSHA standards for workers as well as for the off-site community. Construction noise will be kept to a minimum during work hours to minimize the impact on the community. Noise complaints will be evaluated and if possible and practical, additional noise controls will be implemented.

4.0 Safety and Health Training

4.1 Site-Specific Training

All personnel working at the site during construction activities will review this SSHP with the SSHO. Personnel will sign an acknowledgment form to document their review and agreement to comply with the provisions of the SSHP. All visitors must sign the visitor's log and wait in the Sevenson field office for a briefing before entering the Site.

The SSHO will be responsible for ensuring site visitors are trained in the hazard associated with the site, to explain emergency procedures, and instruct them in the use of protective gear required during the visit.

As a minimum the site-specific training will include:

- Explanation of the overall SSHP.
- Project management and roles.
- Health effects of chemicals present at the site.
- Physical hazards associated with the project.
- Selection, use, and limitations of available safety equipment and proper procedures for its use.
- Personal hygiene and decontamination for chemicals used at the site.
- Site rules and regulations.
- Site communication and the “Buddy System”.
- Emergency preparedness procedures.
- Fall Protection Equipment.
- Disciplinary action

- PCB awareness.
- Site Specific Hazard Communication.
- Safe Plans of Action and Job Safety Enhancement Programs.

4.2 General HAZWOPER Training

Sevenson will be responsible for certifying that the employees meet the requirements of pre-assignment training, consistent with OSHA 29 CFR 1926.65 paragraph (e)(3). Sevenson will provide documentation certifying that each general Site worker entering an exclusion zone or has the potential to be exposed to site contaminates at or above the permissible exposure limit has received a minimum of 40 hours of instruction off site, and a minimum of three days actual field experience under the direct supervision of a trained, experienced supervisor. Personnel that are not assigned to the Site full time and are only entering an exclusion zone to perform inspections, maintenance or repair must have a minimum of 24 hours of instruction off site and at least one day of actual field experience under the direct supervision of a trained, experienced supervisor. All HAZWOPER personnel must also receive 8 hours of refresher training annually. Consistent with OSHA 29 CFR 1926.65 paragraph (e)(4), individuals designated as Site Supervisors require an additional 8 hours of training. A certificate of Worker/Visitor Acknowledgement will be completed and submitted for each site worker and visitor who will enter the contamination reduction zone, and/or exclusion zone**.**

4.3 Periodic Sessions

Periodic training will be provided at least weekly and prior to each change of operation. The training will address safety and health procedures, work practices, any changes to SSHP, review activity hazard analysis, work task or schedule, and review of safety discrepancies and accidents. These sessions shall be documented and attached to the Daily Health and Safety Report.

4.4 Safety Meetings

A well-ordered flow of information is essential to a good safety program. Sevenson, through a program of safety meetings at all levels, intends to accomplish the goals of safety awareness, education, and participation.

The SSHO will conduct daily safety meetings with ALL on-site personnel. An opportunity will be provided for employees to voice safety-related concerns. A synopsis of each meeting including topics covered, safety-related concerns, action items to be addressed, status of previous items, and a signed attendance list shall be attached to the Daily Health and Safety Report.

4.5 Hazard Communication Training

OSHA's standard for hazard communication requires that all workers be informed of potentially hazardous materials used in their work area. Sevenson provides employees with information and training on hazardous chemicals at their work site at the time of their initial assignment, annually, and whenever a new chemical is introduced into their work site that could present a potential hazard. Personnel are briefed on the general requirements of the OSHA hazard communication standard and duty-specific hazards by their immediate supervisor before they begin any duties on the work site. Personnel transferred from another site are also briefed on the duty-specific hazards by their immediate supervisor before they begin any duties on the work site.

4.6 First Aid/CPR Training

At least one person onsite will be required to complete first aid and cardiopulmonary resuscitation (CPR) training and receive the appropriate certification. First aid/CPR training will be American Red Cross, American Heart Association, or National Safety Council endorsed. Additionally, First Aid/CPR qualified personnel will have received blood borne pathogen training as required by 29 CFR 1910.1030. An up dated list of qualified individuals shall be maintained at the site on the employee bulletin boards area and trailers with first aid kits.

5.0 Personal Protective Equipment (PPE)

This section provides an outline of the PPE and guidelines that will be implemented to minimize chemical, physical, and biological exposures and accidents during construction activities. Where engineering controls and job hazard analyses do not eliminate all job hazards, employees will (where appropriate) wear PPE.

These include items such as, hard hats, face shields, safety goggles, glasses, hearing protection, foot guards, gloves, etc. The SSHO will ensure that equipment selected will meet the following requirements:

- It will be appropriate for the particular hazard.
- It will be maintained in good condition.
- It will be properly stored when not in use to prevent damage or loss.
- It will be kept clean, fully functional, and sanitary.
- Must meet all applicable ANSI standards.

Personal clothing and jewelry can present additional safety hazards. Supervisors will ensure that workers wear appropriate clothing, which will not interfere with the PPE. All PPE will be selected in accordance with 29 CFR 1910.132. Sevenson will provide proper PPE to all employees (except prescription safety glasses and primary safety shoes). All protective clothing will be properly used, stored, selected, and maintained.

5.1 PPE Hazard Assessment

Selection of the appropriate PPE is a complex process, which should take into consideration a variety of factors. Key factors involved in this process are identification of the hazards, or suspected hazards, routes of potential exposure to employees (inhalation, skin absorption, ingestion, and eye or skin contact), and the performance of the PPE materials (and clothing seams) in providing a barrier to these hazards. The amount of protection provided by PPE is material-hazard specific. That is, protective equipment materials will protect well against some hazardous substances and poorly, or not at all, against others. In many instances, protective equipment materials cannot be found that will provide continuous protection from the particular hazardous substance. In these cases, the breakthrough time of the protective material should exceed the work duration.

Other factors in this selection process to be considered are matching the PPE to the employee's work requirements and task-specific conditions. The durability of PPE materials, such as tear strength and seam strength, should be considered in relation to the employee's tasks. The effects of PPE in relation to heat stress and task duration are a factor in selecting and using PPE. In some cases, layers of PPE

may be necessary to provide sufficient protection, or to protect expensive PPE inner garments, suits, or equipment.

Personal Protective Equipment alone should not be relied on to provide protection against hazards, but should be used in conjunction with guards, engineering controls, and sound work practices.

5.1.1 Head Protection

All personnel will wear a hard hat that meets the requirements and specifications in ANSI Safety Requirements for Industrial Head Protection Z89.1. Exceptions to this requirement are personnel in the site office, rest and eating areas, or in equipment or vehicles equipped with a falling object protection system.

5.1.2 Hand Protection

Outer gloves used on the Site for construction activities will be either chemical resistant or general purpose. The appropriate glove will be determined by the SSHO for a specific work task. Chemical resistant gloves will be selected using appropriate chemical degradation guides. Cut resistant work gloves will be worn when work activities require the handling of sharp and rough-surfaced objects.

5.1.3 Eye/Face Protection

Eye protection will be worn by all personnel. A face shield will be required when power-washing equipment or any other operation that can cause flying debris or material e.g., grinding, chainsaw operations, etc. All eye protection worn or provided will be ANSI Z87 compliant.

5.1.4 Footwear

Footwear will be steel/composite-toed safety boots/shoes and willbewornforallfieldactivities. All safety boots/shoes will be ASTM F2413 compliant.

5.1.5 Respiratory Protection

To control and or minimize the threat of occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective of this program will be to prevent atmospheric contamination. This will be accomplished as far as feasible by accepted engineering control measures (for example, dust suppression). When effective engineering controls are not feasible, or while they are being instituted, appropriate respiratory protection will be used. A respiratory protection program will be implemented that is compliant to the requirements of 29 CFR 1910.134, "Respiratory Protection." Respiratory protection equipment will be NIOSH-approved, and respirator use will conform to ANSI Z88.2.

Respirators will be provided when such equipment is necessary to protect the health of the employee. Sevenson will:

- Provide the respirators and cartridges, which are applicable and suitable for the purpose intended.
- Be responsible for maintaining a written Respiratory Protective Program in accordance with 29 CFR 1910.134. The employee will use the provided respiratory protection in accordance with instructions and training received.
- Respirators will be selected on the basis of hazards to which the worker is exposed.
- The user will be instructed and trained in the proper use of respirators and their limitations.

- Respirators will be regularly cleaned and disinfected.
- Respirators will be stored in a convenient, clean, and sanitary location.
- Respirators used routinely will be inspected during cleaning. Worn or deteriorated parts will be replaced. Respirators for emergency use, such as self-contained devices, will be thoroughly inspected at least once a month and after each use.
- Appropriate surveillance of work area conditions and degree of employee exposure or stress will be maintained.
- There will be regular inspections and evaluations to determine the continued effectiveness of the program.
- Employees will not be assigned to tasks requiring use of respirators unless it has been determined that they are physically able to perform the work and use the equipment. A physician will determine whether an individual is physically fit to wear a respirator. The physician's clearance allows the worker to don a respirator and work in conditions of high ambient temperatures. Heat stress will be closely monitored.

Each respirator will be individually assigned and not interchanged between workers without cleaning and sanitizing. The cartridges/filters will be changed at the first sign of breakthrough based on contaminant warning properties or if the user experiences excessive breathing resistance. Respirators will be cleaned and stored in an uncontaminated atmosphere after each use. Used cartridges will be disposed in the trash.

All employees working at the Site during construction activities who have the potential of wearing a respirator will be fit-tested to ensure they utilize the proper size respirator. Sevenson will arrange for fit testing. The fit test is conducted according to the manufacturer's suggestions. The test will consist of an odorous vapor qualitative test. In accordance with OSHA regulations, personnel that are unable to pass a fit test will not enter a work area when respiratory protection is required. In addition, facial hair is prohibited from the respirator seal area. Any person with facial hair will not be permitted to enter a work area where respiratory protection is required, regardless of the fit test results. Documentation of the fit testing will be maintained on-site.

Sevenson Respiratory Protection Program is included as Appendix D.

5.2 Levels of Protection

The level of protection must correspond to the level of hazards known or suspected for the specific work activity. The anticipated level of protection for work in which there will be no contact with contaminated soil or water is Level D. Where there is potential for contact with sediment, Modified D level of protection will be used. Where there is the potential for inhalation of contaminated material above the action limit, Level C PPE will be used.

5.2.1 Level D

Level D equipment, used as appropriate, is as follows:

- Work uniform (Long pants and Shirt)
- Hard hat
- Steel-toed safety boots/shoes (with disposable overboots, as required)

- Safety glasses
- Leather or heavy cloth gloves (as needed)
- High visibility shirt or vest (ANSI Class II apparel is required if workers are exposed to vehicle traffic greater than 35 mph, during periods or limited visibility, or inclement weather)

5.2.2 Modified D

Level D equipment with a protective coverall (i.e., Tyvek) and/or chemical resistant glove (SDS specific); face shield required for pressure washing activities

5.2.3 Level C

Level C equipment, used as appropriate, is as follows:

- Same as Level D plus
- Air purifying respirator with HEPA/OV/AG (purple and yellow) cartridge.

5.3 Initial Levels of Protection

Table 6 outlines the initial level of protection for the various tasks.

**Table 6 –
Initial Levels of Protection**

Task	Level
Mobilization	D
Site Preparation	D
Construction fence and erosion control installation	D
Structure demolition (above grade)	D
Soil Excavation	Modified D
Stockpile Management	Modified D
Waste Loading	Modified D
Decontamination	Modified D
Restoration	D
Demobilization	D

6.0 Medical Surveillance Program

The Medical Surveillance Program is designed to track the physical condition of employees on a regular basis as well as survey pre-employment or baseline conditions prior to potential exposures. The Medical Surveillance Program is a part of the overall Sevenson Safety and Health program.

6.1 Baseline Medical Monitoring

Each employee must receive a baseline physical, which can be part of an annual medical monitoring program, prior to being permitted to enter the Exclusion Zone or Contamination Reduction Zone. The content of the physical has been determined by Sevenson's Occupational Physician as suggested by NIOSH/OSHA/USCG/EPA's Occupational Safety & Health Guidance Manual for Hazardous Waste Site Activities. The minimum medical monitoring requirements for work at the Site are as follows:

- Complete medical and work histories
- Physical examination
- Pulmonary function tests (FVC and FEV1)
- Blood chemistry (CBC & SMAC 24)

- Urinalysis with microscopic examination
- Audiometric Testing
- Eye examination and visual acuity
- Chest X-Ray (as directed by the Occupational Physician)
- Electrocardiogram (as directed by the Occupational Physician)
- Blood lead and ZPP
- Drug Screen

The medical surveillance provided to the employee includes a judgment by the medical examiner of the ability of the employee to use either positive- or negative-pressure respiratory protection equipment. Any individual found to have a medical condition, which could directly or indirectly be aggravated by exposure to these site contaminants, will not be employed for the project. Individuals not capable of satisfying the project requirements for wearing respiratory protection equipment will be evaluated on a case-by-case basis. A copy of the medical examination is provided at the employee's request.

The employees will be informed of any medical conditions that would result in work restriction or that would prevent them from working at hazardous waste sites. A certificate of Worker/Visitor Acknowledgement will be completed and submitted for each site worker and visitor who will enter the contamination reduction zone and/or exclusion zone.

6.2 Periodic Monitoring

In addition to a baseline physical, all employees require a physical every 12 months unless the advising physician believes a shorter interval is appropriate. The Occupational Physician has prescribed an adequate medical evaluation, which fulfills OSHA 29 CFR 1910.120 requirements. The pre-assignment medical outlined above is applicable.

All personnel working on the Site that enter an active Exclusion or Contamination Reduction Zone will verify currency (within 12 months) with respect to medical monitoring. Sevenson will obtain a copy of the physician's written opinion detailing the employee's ability to perform hazardous waste site work. All personnel who work in the Exclusion zone will participate in a biological monitoring program for arsenic. These employees will be tested pre-employment and post-employment at the site for mercury in the urine. Additional testing for urine level mercury may be necessary based on air monitoring data. The Safety and Health Manager or Occupational Physician will make the determination on additional sampling.

6.3 Exposure/Injury/ Medical Support

As a follow-up to an injury all employees are entitled to and encouraged to seek medical attention and physical testing. Any employee, who develops a time loss illness exceeding one working day, or injury during the period of the contract, must be evaluated by the occupational health physician. A written statement indicating the employee's fitness, signed by the occupational physician must be submitted prior to the employee entering the work site.

For injuries and illnesses that are not immediately life threatening or require the services of local emergency medical services, WorkCare Injury Intervention (888-449-7787) will be utilized by the SSO to help assess the injury or illness. WorkCare Injury Intervention is staffed by registered nurses and

doctors that specialize in occupational injury and illness. WorkCare Injury Intervention will interview the affected employee over the phone and will recommend the next course of action for the employee.

6.4 Medical Records

The results of medical testing and full medical records will be maintained in accordance with 29 CFR Part 1910.1020. A copy of the medical certification will be kept on the Site for each person entering the Contamination Reduction Zone and Exclusion Zone.

7.0 Air Monitoring

The primary contaminants of concern are PCBs. Worker exposure to these contaminants of concern primary contaminates will be monitored with the use of real time instrumentation and integrated air monitoring equipment and methodologies.

7.1 Real Time Air Monitoring

7.1.1 PCBs and Dust

There is no direct reading instrument for the determination of airborne PCBs. However, through the use of a real-time air monitor for dust we can develop a dust action level that will prevent workers from being exposed to PCBs over the permissible exposure limit. Real time dust monitoring will be performed in the breathing zone of workers during activities that can cause dust emissions. Air monitoring will be performed at the work area using a Dust Trak Particulate Monitor. Real-time air monitoring equipment calibration will be performed in accordance with the manufacturer's recommendation prior to field use. Calibration information will be recorded on the Daily Air Monitoring Report. Maintenance and calibration procedures for all air monitoring devices will be maintained on site.

A conservative real time dust action level for PCB exposure is illustrated by the following worksheet.

DUST EXPOSURE CALCULATION WORKSHEET				
DustLevel			Safety Factor for this site = 1000	
Chemical	Exposure Limit (mg/m3)	Maximum Soil Concentration (mg/kg)	Exposure Limit Based on Single Compound (EL Mix, mg/m3)	Dust Quotient for Each Compound (level/limit)
PCBs	0.5	160	3.13	3.20E+02
			Sum	3.20E+02
		Dust Exposure Level at Mixture PEL =	3.125	

The Dust Exposure Calculation Worksheet utilizes the maximum soil concentrations for PCBs at the Site with a safety factor of 1,000 applied. That means the actual soil concentration can be up to one thousand times greater and workers will still be less than the OSHA permissible exposure limit to PCBs. The real time dust action level (DAL) for the Site workers will be 3.0 mg/m^3. In the event the real time DAL is exceeded, engineering and administrative controls shall be implemented prior to the use of PPE to control worker exposure.

Visible dust generation will not be permitted during remediation activities at the project site. Visible dust generation shall be controlled through engineering and administrative controls at all times.

7.1.2 Decision Making for Real Time Data

A decision-making protocol for an upgrade in levels of protection and/or withdrawal of personnel from an area based on atmospheric hazards determined by real time data is outlined in ***Table 7 – "Operational Action Levels".***

Table 7 – Operational Action Levels Active Work Area				
Air Monitoring Instrument	**Monitoring Location**	**Action Level**	**Site Action**	**Reason**
Dust Meter (PCBs)	Breathing Zone	< 3.0 mg/m^3 >3.0 mg/m^3 > 3.0 mg/m^3 sustained for greater than 15 minutes	Continue work Implement dust controls Cease activity, until dust controls can maintain dust generation to less than 1.0 mg/m^3.	No respiratory protection required. Water, tarps, foam
Oxygen Monitor	Breathing Zone	<19.5% >23.0%	Stop work Stop work	Below standards Above standards
Combustible Gas Indicator	Breathing Zone	>10%	Stop work	Above standards

7.2 Exposure Monitoring

To determine worker exposure to the various contaminates and as a means to determine the accuracy of the real time air monitoring, worker exposure monitoring for PCBs using NIOSH 5503 protocols will be conducted. This monitoring will take place during the first three days of remediation and loading trucks for offsite disposal. Additional samples may be taken based on the direction of the Safety and Health Manager after the initial sampling has been conducted. Also if the particulate real time action limit is exceeded, exposure monitoring will then occur at the discretion of the SSHO or Safety and Health Manager. Two of the potentially highest exposed workers per shift will be sampled during each event.

Table 8 – "Occupational Air Sampling" provides information on occupational air samples that will be collected to assess worker exposure to the Site contaminates of concern.

Table 8 – Occupational Air Sampling				
Contaminant	**Task/Activity**	**Type of Sample**	**Sampling Method**	**Analysis Method**
PCBs	Excavation and Soil Handling	Breathing Zone	Personal – sample pump	NIOSH 5503
Frequency for Occupational Sampling				
Contaminant	**Initial**		**Periodic**	
PCBs	First three days of handling PCB contaminated soil		At the discretion of the SSHO or Safety and Health Manager	

8.0 Accident Prevention Procedures/Practices

8.1 Medical and First Aid Requirements

Applicable Standards:

OSHA 29 CFR 1926.23, & 1926.50

First-aid kits/stations and required contents are maintained in a serviceable condition. Unit-type kits have all items in the first-aid kit individually wrapped, sealed, and packaged in comparable sized packages. First-aid stations will be located as close as practicable to the highest concentration of personnel. First-aid stations will be well-marked and available to personnel during all working hours. First-aid stations will meet the ANSI Z308.1-2015 requirements and will be equipped with a first-aid kit, the size of which will be dependent upon the number of personnel normally employed at the work site.

Emergency telephone numbers and Route to the Area Hospital will be clearly posted and easily visible at all times. OSHA posters will be prominently displayed and warning signs posted for any known or potential hazard(s) present. SDSs must be available on the job site at all times.

8.2 Hazardous Substances

Applicable Standards:

OSHA 29 CFR 1926.53 & 1910.1200

When hazardous substances are used in the workplace, the hazard communication program dealing with SDSs, labeling, and employee training will be in operation. SDS materials will be readily available for each hazardous substance used. A training program, plus regular question and answer sessions on dealing with hazardous materials will be given to keep employees informed. The program will include an explanation of what an SDS is and how to use and obtain one; SDS contents for each hazardous substance or class of substances; explanation of the "Right to Know"; identification of where employees can see the employer's written hazard communication program and where hazardous substances are present in their work area; the health hazards of substances in the work area, how to detect their presence, and specific protective measures to be used; as well as informing them of hazards of non-routine tasks and unlabeled pipes.

Special precautions must be taken to ensure the use of acids, strong oxidizers, and halogens are not brought onto the jobsite without putting controls in place to prevent the production of arsine gas.

Sevenson's Hazardous Communication Program is located in Appendix E.

8.3 Fall Protection

Applicable Standards:

OSHA 29 CFR 1926.500, 501, 502, 503; 1926.106

To access high and low places on jobsites a variety of equipment may be used such as ladders, scaffolding, suspended platforms, aerial lifts, stairways, and climbing lines. The use of these access systems often presents fall hazards. In addition, employees may be exposed to falls while working on elevated structures, climbing onto and off of equipment, and even while walking by falling through holes or by slipping or tripping.

To protect employees when they are exposed to fall hazards, some form of fall protection must be used. The most common forms of fall protection are guardrails, personal fall arrest systems, hole covers, and safety nets. Any one, or all of these forms of fall protection may be used on construction worksites. The current OSHA standards also require that employees receive training regarding fall protection issues, and that the training is documented. An alternate fall arrest program may be implemented in cases where none of the traditional methods of fall protection are feasible. Components of our fall protection plans are listed below:

Personal Fall Arrest System - The three main parts of a personal fall arrest system are the body belt or harness, the lanyard/lifeline, and a suitable anchorage. Particular attention must be paid to the anchorage point(s) to ensure that they are capable of supporting 5,000 lb. (22.2 kN) or two times the maximum load on an engineered system.

Guardrail Systems - Guardrail systems consist of a toprail, midrail, and if necessary a toeboard. Guardrail systems can be made of various materials.

Training - All employees must receive training on the nature of the fall hazards at the site and on how to avoid falls. Employees should be familiar with the use of all personal fall arrest systems and must wear the equipment when necessary.

The requirements of all applicable OSHA regulations notwithstanding, the minimum fall protection requirements on our projects may include the following:

- All fall protection systems must meet the requirements of Part 1926, Subpart M.
- For situations where lifelines are interrupted, double lanyards are necessary to ensure that the worker is continuously protected from falling by attaching one lanyard ahead of the discontinuity prior to unhooking the trailing lanyard.
- Climbing on forms, false work, or the structure to gain access to work areas is expressly prohibited. However, it is not intended to prohibit the use of ladders for access to work areas, provided the operation is in compliance with OSHA Part 1926 Subpart X and other relevant requirements.
- Where scaffolds are necessary to provide temporary access to work areas, they must be in compliance with §1926.451. Scaffolds must include a toprail, midrail, and toeboard in compliance with 1926.451, on all open sides and ends. Personal fall arrest systems meeting the criteria of Part 1926 Subpart M are required to protect workers during installation and

removal of the railings, and in situations where physical restrictions preclude installation of a standard railing.

- All workers in approved personnel aerial lifts must use a personal fall arrest system meeting the criteria of Part 1926 Subpart M, with the lanyard attached to the boom or basket, as required by OSHA 1926.556.

There are no specific plans for fall protection at this time. A Fall Protection Program has been developed to capture specific events with a quick and easy Fall Protection Plan with a fall risk analysis and Rescue Plan needs to be prepared to support miscellaneous site work. The SSHO shall complete a Fall Protection Plan when work at heights are required.

Sevenson's Fall Protection Program in located in Appendix F.

8.4 Electrical

Applicable Standards:

OSHA 29 CFR 1926.400 through 449, 1910.301 through 399, 1926.550(a)(15)

Electricity is a serious workplace hazard that must be respected at all times. It is important to remember that exposure to even a little electric current can kill! The best protection around electricity is distance -- ample distance between the worker and the conductive materials. The following safe work practices and procedures will help prevent electrical accidents on the jobsite.

Workers should observe and strictly obey all warning and danger signs around electrical apparatus. They should never close a switch that has a danger tag on it signed by or placed there by someone else. Untrained people must not open any electrical enclosures. The one exception is that the door on a circuit breaker panel board may be opened to operate the switches, but other types of electrical enclosures should not be opened.

Extension cords or any power tools or equipment must not be used when the cords are frayed, worn out, or the wires are bare. Defective equipment should be reported to the supervisor and turned in for repair. Report all unguarded or broken light bulbs. Do not hang lights by their cords unless the light was designed to be suspended in that manner.

Installation Safety Requirements: Live parts of electrical equipment operating at 50 volts or more must be guarded against accidental contact. Entrance to rooms and other guarded locations containing exposed live parts must be marked with conspicuous warning signs forbidding unqualified persons from entering. All pull boxes and breaker boxes must be labeled to indicate the equipment they switch. Electric installations that exceed 600 volts and that are open to unqualified persons must be made with metal-enclosed equipment or enclosed in a vault or area controlled by a lock. In addition, equipment must be marked with appropriate caution signs.

Conductors and equipment must be protected from overcurrent in accordance with their ability to safely conduct current, and the conductors must have sufficient current carrying capacity to carry the load. Fuses and circuit breakers must also be located or shielded so that employees will not be burned or otherwise injured by their operation.

All wiring components and utilization equipment in hazardous locations must be maintained in an explosion-proof condition without loose or missing screws, gaskets, threaded connections, seals, or other

impairments to a tight condition. Unless identified for use in the operating environment, no conductors or equipment can be located:

- In damp or wet locations.
- Where exposed to gases, fumes, vapors, liquids, or other agents having a deteriorating effect on the conductors or equipment.
- Where exposed to excessive temperatures.

Ground Fault Circuit Interrupters To ensure electrical safety from shocks on all construction sites, all 120-volt, single-phase, 15- and 20-amp receptacle outlets must be protected by ground fault circuit interrupters (GFCIs).

Each 120-volt extension cord, tool, piece of equipment, and receptacle needs to be inspected and tested before first use, before equipment is returned to service following repairs, and before equipment is used after any incident that can be reasonably suspected to have caused damage.

Each extension cord, tool, or piece of equipment should be visually inspected by the user before each day's use to determine signs of damage. Equipment found to be damaged or defective (frayed or damaged insulation, crushed cable, loose or missing covers or screws, and missing ground prong on plugs, etc.) must not be used until repaired by a qualified electrician. Equipment suspected to be damaged or defective should be inspected and tested prior to use.

Overhead Transmission and Distribution Lines - A significant hazard on construction jobsites is the accidental contact of moving equipment with live overhead power distribution and service lines. Where work must be done near live lines, the movement of all equipment such as cranes, excavators and other equipment must be guided by an observer who can observe the clearance of the equipment from energized lines and give timely warning to equipment operators. The minimum clearance between live lines and any jobsite equipment is 10 feet (3.0 m), and the clearance increases with increasing line voltages.

See Table 1 for clearance distances for voltages greater than 50 kV.

8.5 Lockout and Tagout

Applicable Standards:

OSHA 29 CFR 1926.417 & 1910.147

Whenever maintenance, servicing, or repairs are done to equipment, tools and machinery, there is a potential for injury from the accidental energization or movement of the equipment. Prior to beginning any work on equipment, steps must be taken to identify the energy sources present in the equipment, and to ensure that the energy sources are neutralized.

Hazardous energy sources fall into categories such as electrical, pneumatic, hydraulic, and potential (gravity, springs, etc.). One simple control in the construction industry has been to unplug cord-connected equipment. Vehicles and other motorized equipment can be protected from accidental starting by disconnecting the battery. Other controls include the use of identifiable padlocks on disconnects, breaker switches, and valves. Stored energy has the potential for release with great kinetic force and potential for injury.

All machinery or equipment capable of movement must be de-energized or disengaged and blocked or locked out during cleaning, servicing, adjusting or setting up operations, whenever required. The lockout procedure requires that stored energy (i.e. mechanical, hydraulic, air) be released or blocked before equipment is locked out for repairs. Appropriate employees are provided with individually keyed personal safety locks. Employees are required to keep personal control of their key(s) while they have safety locks in use. Employees must check the safety of the lockout by attempting a start up after making sure no one is exposed. Where the power disconnector does not also disconnect the electrical control circuit, the appropriate electrical enclosures must be identified. The control circuit can also be disconnected and locked out.

Temporary electrical service installation will be performed by a qualified electrician. Work may only be performed on de-energized equipment. Lockout/Tagout procedures will be implemented to assure the safety of personnel during electrical work activities.

Underground electric lines will be located and clearly marked. These utilities will be protected, removed, or relocated as needed to do the work safely. The excavation work will not be allowed to endanger the underground utility or the people doing the work. Barricades, shoring, or other supports as needed, will protect utilities left in place that are exposed by the excavation.

Lockout Control Tags shall

Sevenson's Control of Hazardous Energy Program is located in Appendix G.

8.6 Motor Vehicles and Mechanized Equipment

Applicable Standards:

OSHA 29 CFR 1926.600 through 606, 1926.1000 through 1003

Many potential hazards are associated with the use of motor vehicles and mechanized equipment on construction projects. Motor vehicles may be involved in accidents due to mechanical failures or operator errors, resulting in injuries to operators themselves or to bystanders. To minimize accidents resulting from the use of motor vehicles, the following safety procedures need to be implemented and enforced on all company projects:

- All equipment left unattended at night, adjacent to highways or construction areas should have lights, reflectors, and/or barricades to identify location of the equipment.
- Supervisory personnel will ensure that all machinery and equipment is inspected prior to each use to verify that it is in safe operating condition.
- Rated load capacities and recommended rules of operation must be conspicuously posted on all equipment at the operator's station.
- Wire rope must be taken out of service when one of the following conditions exist:
- In running ropes, six random distributed broken wires in one lay or three broken wires in one strand or one lay.
- Wear of one-third the original diameter or outside individual wires.
- Kinking, crushing, hoist caging, heat damage, or any other damage resulting in distortion of the rope structure.

- In standing ropes, more than two broken wires in one lay in sections beyond connections, or more than one broken wire at an end connection.
- A fire extinguisher of 1A:20B:C rating or higher should be available at all operator stations. Where ordinary combustible materials (wood, paper, plastics) are present, an extinguisher suitable for Class A fires will be available for use.
- When vehicles or mobile equipment are stopped or parked, the parking brake must be set. Equipment on inclines must have the wheels chocked as well as the parking brake set.
- All vehicles or combinations of vehicles must have in operable condition at least:
- Two headlights.
- Two taillights.
- Brake lights.
- Audible warning device at operator's station.
- Seat belts properly installed.
- Appropriate number of seats for occupants.
- Service, parking, and emergency brake system.
- Operators should not travel in reverse with motor equipment having an obstructed rear view unless:
- The vehicle is equipped with an audible, functioning reverse signal alarm.
- The vehicle is backed up only under the guidance of an observer who says that it is safe to do so.
- Only those trained in the use of a specific type of machinery should be allowed to operate the machinery. Operators of heavy equipment and trucks greater than 26,000 lbs (11,794 kg) gross vehicle weight used in traffic must have a commercial driver's license.
- Materials handling equipment such as scrapers, front-end loaders, dozers, and similar equipment must be provided with Rollover Protective Structures (ROPS).
- Accessible areas within the swing radius of cranes, backhoes, and other rotating machinery need to be barricaded to prevent employees from being struck or crushed by the rotating parts of the machinery or their loads.
- Employees should not ride on or in motor vehicles unless seats with seat belts are provided.

8.7 Hand and Power Tools

Applicable Standards:

OSHA 29 CFR 1926.300 through 307

Tools are such a common part of construction work that it is difficult to remember that they may pose hazards. Workers must learn to recognize the hazards associated with the different types of tools and the safety precautions necessary to prevent injuries from those hazards. To prevent accidents resulting from

the use of hand- and power-operated hand tools, management personnel need to implement and enforce the following safe work procedures on all construction jobsites.

Broken, defective, burned, or mushroomed tools should not be used. They should be reported and turned in for replacement. The proper tool and equipment should be selected and used for each task. For example, a wrench should not be used as a hammer or a screwdriver as a chisel. Leaving tools on scaffolds, ladders, or any overhead working surfaces is hazardous because they may fall. Racks, bins, hooks, or other suitable storage space must be provided to permit convenient arrangement of tools. Striking two hardened steel surfaces together is hazardous because pieces of metal may break off (i.e., two hammers, or a hammer and hardened steel shafts should not be struck together). The practice of throwing tools from one location to another, from one employee to another, or dropping them to lower levels will be prohibited. When it is necessary to pass tools or material under the above conditions, suitable containers and/or ropes must be used.

Wooden tool handles must be sound, smooth, in good condition and securely fastened to the tool. Sharp-edged or pointed tools should never be carried in employee's pockets. Only non-sparking tools will be used in locations where sources of ignition may cause a fire or explosion. Tools requiring heat-treating should be tempered, formed, dressed, and sharpened by workmen experienced in these operations. Tools designed to accommodate guards must be equipped with such guards when in use.

All rotating, reciprocating or moving parts of equipment (belts, gears, shafts, flywheels, etc.) must be guarded to prevent contact by employees using such equipment. Guarding must meet requirements set forth in ANSI B15.1-1953. All hand-held power tools (e.g., circular saws, chain saws, and percussion tools) without a positive accessory holding means must be equipped with a constant pressure switch that will shut off the power when pressure is released. A positive "on-off" control must be provided on platen sanders, grinders with wheels 2-inches in diameter or less, routers, planers, laminate trimmers, nibblers, shears, scroll saws, and jigsaws with blade shanks ¼-inch wide or less.

A momentary contact "on-off" control must be provided on all hand-held powered drills, tapers, fasteners drivers, horizontal, vertical and angle grinders with wheels greater than 2-inches in diameter. Besides safety hazards, the use of power tools sometimes creates potential health hazards as well. The use of jackhammer and chiseling equipment often results in silica and nuisance dust exposures that can sometimes be controlled by wetting the work surfaces. Many times, however, the use of dust/mist respirators is required to prevent overexposures.

In addition to dust hazards, the hand vibration inherent in the use of some power tools may result in a restriction of blood flow to the hands and fingers, causing numbness or tingling. If workers consistently experience these symptoms after the use of power tools, they should contact their supervisor so that steps may be taken to prevent further harm to the nerves and blood vessels in their hands. The use of a different tool, changes to the offending tool to reduce vibrations, and/or the use of special gloves may be recommended to deal with the vibration problems.

Electric Tools - Electric tools present several dangers to the user; the most serious is the possibility of electrocution. The following safe work procedures for electric tools must be implemented and enforced at all company construction projects. Tools must (1) have a three-wire cord with ground and be grounded, or (2) be double insulated. A Ground Fault Circuit Interrupter (GFCI) must be used on all construction sites, outdoor locations, and wet locations. Never remove the third prong from the plug. Electric tools should be operated within their design limitations.

In general, gloves and safety footwear are recommended during use of electric tools. However, gloves should not be worn when they are a potential entanglement hazard with reciprocating or rotating tools.

When not in use, tools should be stored in a dry place. Electric tools should not be used in damp or wet locations.

Powered Abrasive Wheel Tools - Power abrasive wheel tools present a special safety problem because they may throw off flying fragments. The following safe work procedures for powered abrasive wheel tools need to be implemented and enforced at all company construction projects. Portable grinding tools must be equipped with safety guards to protect workers from flying fragments as well as the moving wheel surface. Inspecting and sound- or ring-testing abrasive wheels prior to mounting is required to ensure that they are free from cracks or defects. Checking to ensure that the abrasive wheel RPM rating is appropriate for the tool will also help prevent wheel failures. The following work rules are appropriate for using a powered grinder:

- Always use eye protection and a face shield.
- Turn off the power when not in use.
- Never clamp a hand-held grinder in a vise.
- To prevent the wheel from cracking, the user should ensure that it fits freely on the spindle.
- Grinding wheel users should never stand directly in front of the wheel during start-up because there is always a possibility that the wheel may disintegrate (explode) when accelerating to full speed.

Pneumatic Tools - Pneumatic tools are powered by compressed air and include chippers, drills, hammers, and sanders. The following safe work procedures for pneumatic tools must be implemented and enforced at all company construction projects. Pneumatic tools that shoot nails, rivets, or staples and operate at pressures more than 100 psi must be equipped with a special device to keep fasteners from being ejected unless the muzzle is pressed against the work surface. Eye protection is required and face protection recommended for employees working with pneumatic tools.

Hearing protection is required when working with noisy tools such as jackhammers. When using pneumatic tools, users should check to see that the tools are fastened securely to the hose to prevent the hose from becoming disconnected. All hoses exceeding ½-inch inside diameter must have a safety device at the supply source or branch line to reduce pressure in the event of hose failure.

Airless spray guns that atomize paints and fluids at high pressures (1,000+ psi) must be equipped with automatic or visual manual safety devices that will prevent pulling the trigger until the safety device is manually released. Workers operating a jackhammer are required to wear safety glasses, safety footwear, and hearing protection. Compressed air guns should never be pointed toward anyone. A safety clip or retainer must be installed to prevent attachments from being unintentionally shot from the barrel of the tool.

Liquid-Fueled Tools - Liquid-fueled tools are usually powered by gasoline. Vapors that can burn or explode and give off dangerous exhaust gases are the most serious hazards associated with liquid-fuel tools. The following safe work procedures for liquid-fueled tools need to be implemented and enforced at all company construction projects.

Gas or fuel should be handled, transported, and stored in approved flammable liquid containers. These containers, also known as safety cans, are no more than 5 gallons in capacity and have a spring-closing lid and spout cover that will safely relieve internal pressure when subjected to fire exposure. Before refilling the tank for a fuel-powered tool, the user must shut down the engine and allow it to cool to prevent accidental ignition of hazardous vapors. Effective ventilation and/or personal protective equipment is necessary when using a fuel-powered tool inside a closed area. Fire extinguishers must be readily available in the work area.

8.8 Fire Protection and Prevention

Applicable Standards:

OSHA 29 CFR 1926.150 through 159

Fire on construction projects is a constant hazard that can cause loss of life, equipment and material. To assist in preventing fires on construction projects, all personnel must comply with the following safe work practices and procedures:

Fire Protection - Access to all available firefighting equipment must be maintained at all times. Firefighting equipment must be inspected monthly and maintained in operating condition. Defective or exhausted equipment must be replaced immediately. All firefighting equipment should be conspicuously located at each jobsite. Extinguisher exposed to freezing conditions will be protected from freezing. Employees should not remove or tamper with fire extinguishers installed on equipment or vehicles or in other locations unless authorized to do so or in case of fire. After using a fire extinguisher, it must be recharged or replaced with another fully charged extinguisher. Extinguishers must be selected based on the anticipated fire hazards. To aid in the proper selection of fire extinguishers, the classes of fires are as follows:

- Class A (wood, paper, trash) - use water, dry chemical, or foam extinguisher.
- Class B (flammable liquids, gas, oil, paints, grease) - use foam, carbon dioxide, or dry chemical extinguisher.
- Class C (electrical) - use carbon dioxide or dry chemical extinguisher.
- Class D (combustible metals) - use dry powder extinguisher only.

Fire Prevention - Internal combustion engine-powered equipment should be located so that exhausts are away from combustible materials. Smoking is prohibited at all projects. Project will be conspicuously posted, "No Smoking or Open Flame." Portable battery-powered lighting equipment must be approved for the type of hazardous locations encountered. Combustible materials must be piled no higher than 20 feet (6.1 m). Depending on the stability of the material being piled, this height may be reduced.

Portable fire extinguishing equipment, suitable for anticipated fire hazards on the jobsite, must be provided at convenient, conspicuously accessible locations. Firefighting equipment must be kept free from obstacles, equipment, materials, and debris that could delay emergency use of such equipment. Employees should familiarize themselves with the location and use of the project's firefighting equipment. All oily rags, wastes, and similar combustible materials must be placed in metal containers. The containers must be emptied on a daily basis. Storage of flammable substances on equipment or vehicles should be prohibited unless such unit has adequate storage area designed for such use.

Flammable and Combustible Liquids - Explosive liquids, such as gasoline, will not be used as cleaning agents. Gasoline and similar combustible liquids must be stored, transported, and handled in approved and labeled containers in well-ventilated areas free from heat sources. Approved wooden or metal storage cabinets must be labeled in conspicuous lettering, "Flammable-Keep Fire Away." Storage in an approved storage cabinet should not exceed 60 gallons of flammable, or 120 gallons of combustible liquids. Storage of containers will not exceed 1,100 gallons in any one area. Separate piles or groups of containers by a 5-feet clearance. Never place a pile or group within 20 feet of a building. A 12-feet wide access way must be provided within 200-feet of each container pile to permit approach of fire control apparatus.

The use of flammable liquids and spray finishing needs to conform to the requirements of 1926.66 and 1926.152. Paints and reducers should be stored away from heat sources and out of the sun. Airless spray-painting apparatus should be of a type approved for hazardous locations. Any electrically or fuel-powered equipment used to mix, convey, and spray flammable and combustible liquids must carry an approval from a nationally recognized testing laboratory. Pneumatically operated equipment is usually suitable for use with flammable and combustible finishes.

Fire Extinguishers - Portable fire extinguishers(4A:80B:C) shall be provided in each office trailer, exclusion zone work area, each contamination reduction zone, each flammable materials storage area, and areas throughout the site as determined by the SSHO. Fire extinguishers shall be located in readily accessible locations free from obstructions. Fire extinguishers shall be inspected at least monthly and the date of last inspection noted on their tags. All extinguishers must be fully charged and in their designated places unless in use. All employees are periodically instructed in the use of extinguishers and fire protection procedures.

8.9 Sanitation

Applicable Standard:

OSHA 29 CFR 1926.51

Employees should not be required to perform work under unsanitary conditions. Adequate supplies of potable water will be provided at the jobsite. Containers used for drinking water will be clearly marked and not used for any other purpose. Cups must not be shared by employees. Outlets for non-potable water (i.e., firefighting purposes) are not to be used by employees for drinking, washing, or cooking purposes. There shall be one chemical toilet on the jobsite for every 10 workers. Hand washing facilities need to be provided in near proximity to the jobsite. Hand washing facilities should also be present when employees are applying paints, coatings, herbicides, and insecticides or in other operations where contaminants may be harmful to the employees.

8.10 Confined Space Entry

Applicable Standards:

OSHA 29 CFR 1910.146, 1926.21(b)(6)

A confined space is a space that is large enough and so configured that an employee can physically enter and perform assigned work, has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits) and is not designed for continuous employee occupancy. Simply working in a confined space is not necessarily a hazard. However, if certain hazardous conditions exist prior to, or are created during entry, then the confined space must be treated with utmost care.

Conditions that make a confined space especially dangerous (i.e., make it a permit-required space) are:

- Contains or has the potential to contain a hazardous atmosphere.
- Contains a material that has the potential for engulfing an entrant.
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section.
- Contains any other recognized serious safety or health hazard.

A hazardous atmosphere includes spaces that may expose employees to flammable gases, vapors, mists, or dusts; to an oxygen deficiency (<19.5 percent) or oxygen enriched environment (>23.0 percent); to air contaminants in excess of the PEL, or to any other atmospheric condition that is an immediate danger to life and health (IDLH).

When a permit-required space is present, the following hierarchy of controls should be used on the space:

- Avoid entry.
- Eliminate the hazards that make the confined space a permit-required space. Ventilation, lockout/tagout, block and bleed, and other procedures can be used to eliminate hazards. Hazard elimination must be verified by air monitoring and other test procedures.
- Eliminate the hazards to the point that only atmospheric hazards remain. Use the "atmospheric hazard only" procedures entry system discussed in 1910.146(c)(5).
- Minimize and control hazards to the fullest extent possible, and enter only after the requirements of a full permit entry have been satisfied.

Employees must receive training on confined spaces so that they will acquire the understanding, knowledge, and skills necessary for a safe entry into the confined space. Confined space training shall be documented.

The only anticipated confined spaces at the site will be excavations and trenches greater than four feet in depth and various tanks located in the wastewater treatment plant areas. All confined spaces at the site shall be captured on the Confined Space Inventory Sheet located in Sevenson's Confined Space Program. The completed inventory sheet shall be posted on the employee bulletin board area with the other Department of Labor and State of New York posters and postings.

Sevenson's Confined Space Program is located in Appendix H.

8.11 Welding and Cutting

Applicable Standards:

OSHA 29 CFR 1926.350 through 354

Welding and cutting operations present various safety and health hazards. Welding and cutting operations on lead-painted surfaces often create lead fumes by "boiling off" the lead. These lead fumes may cause lead poisoning if inhaled or ingested in excessive amounts. Other metal fumes such as iron oxide, chromium, zinc, manganese, and cadmium may also be present during welding and cutting operations. Safety hazards such as fire may result in fatalities, serious injuries, and/or property damage. Therefore, in an effort to eliminate or reduce the hazards associated with welding and cutting operations, the following rules and procedures should be included and enforced in any welding safety program.

Welding and Cutting - Only qualified welders should be authorized to do welding, heating, or cutting. Inspect work areas for fire hazards and proper ventilation before welding or cutting. Avoid welding or cutting sparks and hot slag. Be alert to hot surfaces and avoid touching metal surfaces until they have cooled. Place compressed gas cylinders in an upright position and secure in place to prevent dropping or falling. Handle with extreme care and do not store near any sources of heat. Remove any combustibles when welding or cutting must be done. If removal is not feasible, cover combustibles with a noncombustible material. When welding near any combustible material, another employee must be posted to serve as a fire watch. Make sure this person has a fire extinguisher available and keep him/her in the area at least 30 minutes after the completion of the hot work or until they are released by their employer after a site inspection.

When working in the vicinity of welding operations, wear approved eyewear and avoid looking directly at the flash as serious flash burns could result. When opening valves on tanks that have regulators installed, be sure the pressure adjustment screw is all the way out and do not stand in front of the regulator. An internal failure could rupture the regulator and cause the adjustment screw to become a missile.

Primers, paints, and other coatings should be removed, where feasible, from the area to be heated and for at least 4-inches on all sides.

Gas Welding and Cutting - When transporting, moving, and storing compressed gas cylinders, always ensure that the valve protection caps are in place and secured. Secure cylinders on a cradle, slingboard, or pallet when hoisting. Never hoist or transport the cylinders by means of magnet or choker slings. Move cylinders by tilting and rolling them on their bottom edges. Do not allow cylinders to be dropped, struck, or come into contact with other cylinders violently. Secure cylinders in an upright (vertical) position when transporting by powered vehicles. Do not hoist cylinders by lifting on the valve protection caps. Do not use bars under valves or valve protection caps to pry cylinders loose when frozen. Use warm, notboiling, water to thaw cylinders loose.

Remove regulators and secure valve protection caps prior to moving cylinders, unless cylinders are firmly secured on a special carrier intended for transport. Close the cylinder valve when work is finished, when cylinders are empty, or when cylinders are moved at any time. Secure compressed gas cylinders in an upright position (vertical) except when cylinders are actually being hoisted or carried. Oxygen cylinders should be stored at least 20-feet from other combustible materials such as acetylene. Alternatively, oxygen and fuel gas cylinders may be separated by a 5 feet-high non-combustible barrier with at least a 30-minute fire resistance rating.

Arc Welding and Cutting - Use only manual electrode holders that are specifically designed for arc welding and cutting. All current-carrying parts passing through the portion of the holder must be fully insulated against the maximum voltage encountered to ground. All arc welding and cutting cables must be completely insulated, flexible type, and capable of handling the maximum current requirements of the work in progress. Employees should report any defective equipment to their supervisor immediately and refrain from using such equipment. Shield all arc welding and cutting operations, whenever feasible, by noncombustible or flameproof screens to protect employees and other persons working in the vicinity from the direct rays of the arc.

Fire Prevention - Welders should locate the nearest fire extinguisher in their work area in case of a fire emergency. Fire extinguishing equipment must be immediately available in the work area. Never use matches or cigarette lighters to light torches. Use only friction lighters to light torches. Never strike an arc on gas cylinders. Move objects to be welded, cut, or heated to a designated safe location. If the objects cannot be readily moved, then all movable fire hazards in the vicinity must be taken to a safe place or otherwise protected. Fuel lines should have flashback arrestors. Do not weld, cut, or heat where the application of flammable paints or the presence of other flammable compounds, or heavy dust concentrations creates a hazard. Additional employees must be assigned to guard against fire while the actual welding, cutting, or heating is being performed when the operation is such that normal fire prevention precautions are not sufficient. Prior to applying heat to a drum, container, or hollow structure, provide a vent or opening to release any built-up pressure during the application of heat. Never cut, weld, or heat on drums, tanks, process lines, or containers that have contained flammable liquids until they have been purged and cleaned.

All hot work will be accomplished under a hot work permit.

8.12 Stairways and Ladders

Applicable Standards:

OSHA 29 CFR 1926.1050 through 1060

Stairways and ladders are a major source of injuries and fatalities among construction workers. Because of the potential hazards involved in using stairways and ladders, the following safety practices and procedures need to be implemented and enforced at all construction projects. Ladders that project into passageways or doorways where they could be struck by personnel, moving equipment, or materials being handled must be secured to prevent accidental displacement or be protected by barricades. Workers should always face the ladder and use both hands when going up and down ladders. Materials and tools should be lowered or raised by a rope or other mechanical means. Hold on to the railing on stairways. The areas around the top and base of ladders must be free of tripping hazards such as loose materials, trash, and electrical cords. The same holds true for the bottom of stairways and on stairway platforms.

Ladders - Ladders must be capable of supporting four times the maximum intended load. Ladder rungs, cleats, and steps must be parallel, level, and uniformly spaced (not less than 10-inches nor more than 14-inches). Do not tie or fasten ladders together to provide longer sections unless they are specifically designed for such use. All stepladders must be equipped with a metal spreader or locking device. Do not paint wooden ladders, except to stencil for identification. Maintain ladders free from oil, grease, and other slipping hazards. Ladders must extend at least 3-feet above the upper landing surface and be secured. The horizontal distance for the base of the ladder should extend 1-foot for every 4-feet in

vertical distance. Wood job-made ladders must be used at an angle so that the horizontal distance is one-eighth the working length of the ladder. Do not use ladders on slippery surfaces unless they have been properly secured or provided with slip-resistant feet. Do not move, shift, or extend ladder while occupied. Never stand on the top step of a stepladder.

A competent person on a periodic basis and after any occurrence that could affect their performance must inspect ladders. Ladders with structural defects must be tagged with "Do Not Use" or similar language and withdrawn from service until repaired. Never use a metal ladder when working on electrical equipment or near electrical equipment where contact is possible. Any employee who uses a ladder or stairway must receive training by a **competent person** in the following areas:

- Types of fall hazards.
- Correct procedures for erecting, securing, maintaining, and disassembling fall protection systems.
- Proper construction (man-made), use, placement, and handling.
- Maximum intended load-carrying capacities.
- Requirements contained within 29 CFR 1926 Subpart X.
- Pre-use inspection process for each ladder type anticipated to be used at the Site.

Stairways - Stairways that are not permanent parts of the structure must have landings of not less than 30 inches in the direction of travel. A platform must be provided where doors or gates open directly on a stairway. Metal pan landings and metal pan treads must be filled in with wood or other materials if they are to be used prior to being finished. Maintain all parts of stairways free from hazardous projections, such as protruding nails. Eliminate slippery conditions on stairways before the stairways are used to reach other levels.

8.13 Materials Handling, Storage, Use, and Disposal

Applicable Standards:

OSHA 29 CFR 1926.250 through 252

In the handling of materials, employees must know the following: There must be safe clearance for equipment through aisles and doorways. Vehicles must be shut off and brakes must be set prior to loading or unloading. Containers of combustibles or flammables, when stacked while being moved, must be separated by dunnage sufficient to provide stability. Trucks and trailers will be secured from movement during loading and unloading operations. Hand trucks must be maintained in safe operating condition. Chutes must be equipped with sideboards of sufficient height to prevent the handled materials from falling off. At the delivery end of rollers or chutes, provisions must be made to brake the movement of the handled materials. Hooks with safety latches or other arrangements will be used when hoisting materials, so that slings or load attachments won't accidentally slip off the hoist hooks. Securing chains, ropes, chokers, or slings must be adequate for the job to be performed. When hoisting material or equipment, provisions must be made to assure no one will be passing under the suspended loads.

Stack, rack, block, interlock, or otherwise secure all materials and supplies to prevent sliding, falling, or collapse. Post the maximum safe load limits for floors within buildings and structures in a conspicuous location. Never exceed the maximum safe load limit. Keep aisles and passageways clear to provide for

the free and safe movement of material handling equipment and employees. Use ramps, blocking, or grading when a difference in road or working levels exists to ensure the safe movement of vehicles between the two levels. Do not place material within 6-feet of any hoist way or floor opening inside buildings under construction, nor within 10-feet of an exterior wall that does not extend above the material being stored. Stack bagged materials by stepping back the layers and cross-keying the bags at least every 10 bags high. Do not store materials on scaffolds or runways in excess of supplies needed for immediate operations. Remove all nails from used lumber prior to stacking. Stack lumber on level and solidly supported sills. Do not stack lumber higher than 20-feet (16-feet if handled manually).

Stack and block structural steel, poles, pipe, bar stock, and other cylindrical materials, unless racked, so as to prevent spreading or tilting. Attach handles or holders to the load to reduce the possibility of pinching or smashing fingers. Unload materials close to the point of final use to avoid unnecessary lifting. Do not stack non-compatible materials in the same pile.

Manual Materials Handling - Employees working alone should not attempt to lift or move a load that is too heavy for one person - get help! When working with materials stored in silos, hoppers, tanks, or similar storage areas, be aware that confined spaces may exist. Attach handles or holders to the load to reduce the possibility of pinching or smashing fingers. Wear protective gloves and clothing (i.e., aprons), if necessary, when handling loads with sharp or rough edges. When pulling or prying objects, workers should be properly positioned. Riding loads, slings, the ball, crane hook, or other material hoisting equipment is prohibited.

Engineering Controls - Engineering controls should be used, if feasible, to redesign the job so that the lifting task becomes less hazardous. This includes reducing the size or weight of the object lifted, changing the height of a pallet or shelf, or installing a mechanical lifting aid

OSHA standard 1926.251 provides guidance about the limitations and uses of slings used in conjunction with other material handling equipment for the movement of material by hoisting. Slings covered by this standard include those made of alloy steel chain, wire rope, metal mesh, natural or synthetic fiber rope, and synthetic web (nylon, polyester, and polypropylene). Some general work practices related to rigging include:

- Rigging operations shall only be performed by a qualified rigger.
- Rigging equipment must be inspected prior to use on each shift and during its use to ensure that it is safe. Defective rigging equipment will be removed from service.
- Rigging equipment must not be loaded in excess of its recommended safe working load. Rigging must be equipped with a manufacturer's label that is permanently attached to the rigging and is legible.
- Rigging equipment, when not in use, must be removed from the immediate work area.
- Custom rigging must be marked to indicate the safe working loads and will be proof-tested prior to use to 125 percent of their rated load.

In addition to these general guidelines, the standard has specific requirements related to alloy steel chains, wire rope, natural and synthetic rope, and synthetic webbing. Employees performing rigging work should be adequately trained in the safety and functional aspects of rigging for materials handling operations.

8.14 Signs, Signals, and Barricades

Applicable Standards:

OSHA 29 CFR 1026.200 – 203

The use of signs, signals, and barricades is essential to make employees aware that an immediate or potential hazard exists. Both traffic and health hazards such as airborne lead are examples of hazards on bridge renovation/demolition sites that require signs and other devices. The following sections discuss the primary ways that employees are made aware of hazards in their work areas.

Accident Prevention Signs/Tags - Signs, signals, regulated areas, and barricades must be used on each construction project as appropriate.

Danger Signs are used wherever an immediate hazard (i.e., exposed electrical conductor) exists. The danger signs must have red as the predominant color in the upper panel and a white lower panel for additional sign wording.

Caution Signs are used to warn against potential hazards or to caution against unsafe practices. The caution signs must have yellow as the predominant color with a black upper panel (yellow lettering of "caution" on the upper panel) and a yellow lower panel for additional sign wording.

Exit Signs, when required, should be in legible red ¾-inch (1.9 cm) stroke letters, not less than 6-inches (15.2 cm) high, on a white field.

Safety Instruction Signs, when used, must be white with a green upper panel and white lettering to convey the principal message. Any additional wording must be in black lettering on the white background.

Directional Signals must be white with a black panel and a white directional symbol. Any additional wording must be in black lettering on the white background.

The Traffic Control Plan has identified the required traffic signs/controls and their placement around the project site. All traffic control signs or devices must conform to the DOT MUTCD and ANSI D6.1, *Manual on Uniform Traffic Control Devices for Streets and Highways.*

Signaling - Flagmen or other appropriate traffic controls must be provided for operations where signs, signals, and barricades do not provide the necessary protection on or adjacent to a highway or street. Signaling directions must conform to DOT *Manual on Uniform Traffic Control Devices* (MUTCD) and ANSI D6.1, *Manual on Uniform Traffic Control Devices for Streets and Highways*. Stop/Slow sign paddles must be used by flagmen when hand signaling. Red flags, at least 18 in^2, may be temporarily used in traffic control. Flagmen are required to wear a vest that meets the requirements of an ANSI Class 2 reflective apparel and a hard hat while flagging. Required signs and symbols must be visible at all times when work is being done, and removed or covered promptly when the hazard no longer exists.

Accident Prevention Tags are used as a temporary means of warning employees of an existing hazard, such as defective tools, equipment, etc.

Out of Order Tags are used to designate equipment that requires repair or maintenance. Equipment with such a tag may not be used until the tag is removed.

8.17 Housekeeping

Applicable Standard:

29 CFR 1910.25

A policy of trash removal and the maintenance of good housekeeping practices should be implemented on all jobsites. The accumulation of construction debris may pose a significant fire hazard in addition to tripping and falling hazards.

Good housekeeping practices are the result of planning and organization. All personnel on the site must work together to maintain a clean worksite. The prompt removal of waste materials will permit a free flow of traffic through the work areas. Daily, or more frequent, inspections will be conducted by the general contractor to verify that the housekeeping controls are in place and being enforced.

Housekeeping activities in themselves may pose health hazards such as exposures to dusts, biological agents, and discarded chemicals. Liquid and solid waste chemicals must be placed in leak-proof containers for proper disposal.

8.18 Small/Light Structure Demolition/Removal

There are several small/light structures that will be required to be demolished or removed to support remediation efforts. These may include small storage sheds, decks, above ground swimming pools, flower beds, etc. The structure shall be inspected by the Superintendent or other qualified person prior to demolition to identify any electrical or plumbing connections. If decks are removed from the property, any doors or access points in and out of the house shall be properly secured to prevent residents from falling or a proper means of access shall be established.

Hand tools and other equipment shall be used as specified by the manufacturer. Areas to be cut with saws shall be inspected for nail, screws, or other hazards that could cause damage to the tool. Demolition debris shall be cleaned up and removed from the work area at the end of the day or task whichever is sooner.

9.0 Site Control Measures

This section outlines site control measures to be implemented to minimize potential exposure to and accidental spread of hazardous substances during construction activities. Listed below are the work zones that will be established. The zone boundaries may be modified as necessary as new information becomes available.

9.1 Work Zones

The Site will be divided into Exclusion, Contamination Reduction, and Support Zones. It should be recognized that the Site control zones will be modified continually. A map showing the work zones will be updated daily and posted in the Site office. The SSHO will review the location of work zones at the daily safety briefing.

The SSHO and at least one person who has completed Supervisor's Training will be present at the Site whenever work is performed in the Exclusion Zone or Contamination Reduction Zone. Similarly, at least two First aid/CPR-trained individuals will be present at the Site when work is performed in those zones.

9.1.1 Exclusion Zone

This zone, commonly known as the Hot Zone, is where there will be direct contact with the potentially contaminated material. PPE will be required in this zone. The SSHO will enforce these requirements. The level of PPE required will be based on hazard, site condition and air monitoring performed. Modification to the size and boundary of the Exclusion Zone will be made in the field by the SSHO based on operations and wind direction. The Exclusion Zone may be subdivided into different areas of contamination and different levels of PPE may be assigned based upon the expected type and degree of hazard.

All activities in exclusion zone will be conducted using the "buddy system". This involves a buddy who is able to provide his or her partner with assistance, observe for signs of chemical or heat exposure, check integrity of PPE and go for help when needed.

9.1.2 Contamination Reduction Zone

This zone, commonly known as the Warm Zone, is where workers and equipment will be decontaminated. This will minimize the spread of contaminants from the Exclusion Zone into clean areas. The Contamination Reduction Zone will consist of the area located in front of or next to the exclusion zone so that personnel or equipment exiting the Exclusion Zone can be decontaminated and doff the PPE. Emergency equipment to be located in this area will include eye wash stations, fire extinguishers, first aid kits and other appropriate equipment. The Contamination Reduction Zones or personal decontamination stations will be established adjacent to the Exclusion Zones. These stations will provide a means for prompt removal of potentially contaminated outer PPE at a location convenient to operations.

9.1.3 Support Zone

This zone, commonly known as the Clean Zone, is considered to be uncontaminated. This area will be used as a storage area for operations equipment and where break and toilet facilities will be located.

9.2 Site Entry and Control Log

All site personnel on this project will undergo safety orientation by the SSHO prior to starting work at the site. This training will include general site safety rules, hazardous locations, personal protective equipment guidelines, and onsite emergency procedures. All site personnel will satisfy the following requirements before initiating work onsite within the Exclusion or Contamination Reduction Zones:

- Receive and pass a physical examination, including certification of ability to wear respiratory protection.
- Receive adequate hazardous waste training according to 29 CFR 1910.120 or 29 CFR 1926.65.
- Receive a briefing on all aspects of the SSHP.
- Are properly dressed, equipped, and trained in accordance with all personal protective guidelines.
- Are thoroughly trained regarding decontamination procedures.
- All personnel performing tasks when respiratory protection is needed will comply with the requirements of this plan

All personnel entering and exiting the Exclusion and Contamination Reduction Zones will sign in and out through the Support Zone. The log will indicate the date and time entering and exiting, the location entered, personal protective equipment utilized and decontamination procedures.

10.0 Personal Hygiene and Decontamination

Decontamination (Decon) is the process of removing or neutralizing potentially harmful contaminants that have accumulated on personnel and equipment in order to reduce the spread of contamination outside the work area. Decontamination is critical to the safety and health of Site workers and it protects the community by minimizing the off-site migration of contaminants. One of the most important aspects of controlling contaminated material migration is the prevention of the spread of contamination. Good contamination prevention will minimize employee and public exposure.

All personnel and equipment leaving the Exclusion Zone must be decontaminated in the Contamination Reduction Zone prior to entering the Support Zone. The decontamination process is composed of a series of steps performed in a specific sequence. The basic concept is that more heavily contaminated items will be decontaminated and removed first, followed by decontamination and removal of inner, less contaminated items.

During construction activities at the Site, all items taken into the Exclusion Zone must be considered contaminated and must be carefully inspected and/or decontaminated before leaving the Site. All contaminated vehicles; equipment and material will be cleaned and decontaminated to the satisfaction of the SSHO prior to leaving the Site.

10.1 Personal Decontamination

Personnel exiting the Exclusion Zone during construction activities at the Site will follow the procedure below.

Decontamination of personnel and equipment will be performed using mild soap and water, brushes, and pressures washers as applicable.

As the worker leaves the Exclusion Zone, he places his equipment and tools in the Exclusion Zone or Contamination Reduction Zone. After the worker places his equipment and tools down, gross contamination will be removed from outer clothing and boots. Workers will then remove their outer boots and outer gloves and place them in plastic garbage bag-lined containers.

Once outer gloves are removed, workers will remove all outer garments and place them in plastic garbage bag lined containers. Once workers are fully decontaminated and all garments are removed, workers will remove their respirators (applicable to level C) followed by removal of inner gloves. Used cartridges and inner gloves will be placed into plastic garbage bags.

The change trailer will be used by the on-site staff for short breaks during the workday. The trailer will have an area for changing, washbasins, and counters. This trailer is considered part of the Support Zone and cannot be entered from the Contamination Reduction Zone unless the individual has completed the outlined decontamination procedures. All equipment/hand tools will be decontaminated before being brought into the trailer.

10.2 Respirator Decontamination

If utilized, respirators are to be decontaminated, cleaned and sanitized before reuse. Cartridges and/or filters must be replaced as needed and, as a minimum, changed daily. The respirators are then cleaned

with cleaning and sanitizing solutions, wiped dry and placed into sanitary containers or bags and sealed closed. Before departing the change locker facility, respirators are placed into storage compartments for next day use.

10.3 Equipment Decontamination

Nearly all contractor hardware (not consumable) is considered to be recoverable. As such, they will be decontaminated using the proper equipment, (i.e. brushes, sprayers, detergent and, if necessary, other appropriate solvents). Large heavy equipment will be decontaminated with pressure steam wash as required.

The decontamination area for vehicles and equipment leaving the Exclusion Zone will be located within the Contamination Reduction Zone. Scrapers and brushes will be used to remove gross contamination prior to final decontamination. A pressure washer will be used for the final cleaning and decontamination of the equipment. The combination of dry removal with the brushes and use of the steam cleaner will minimize the generation of contaminated liquid. All solids and liquids will be collected for disposal. Efforts will be made to minimize soil (even non-contaminated soil) from being tracked off-site. Dirt and mud will be removed from trucks and vehicles leaving the Site to the extent practicable.

10.4 Decontamination Log

A decontamination log for heavy equipment leaving the exclusion zone will be maintained and will list the equipment name and model number, the equipment I.D. number, the activities the equipment was used for, the method of decontamination, amount of decontamination, date and time of decontamination and names of personnel doing the decontamination. This log will be maintained by the SSHO and included in the Safety and Health Report. Hand tools and other miscellaneous equipment or supplies do not have to be captured on the decontamination log.

10.5 Decontamination Residue

Decontamination residue consists of disposable PPE (such as Tyvek, gloves, tape and cartridges) and settled solids. Decontamination residue will be drummed and stored in the Exclusion Zone until subsequent disposal or for treatment.

10.6 Personal Hygiene and Sanitation

Hands and face will be thoroughly washed before eating, smoking, drinking, chewing gum or tobacco.

When possible, avoid contact with contaminated materials.

Temporary support facilities such as wash facilities, eating areas, changing areas, and portable toilets will be located in the Support Zone. This area will remain “clean” and free of contamination.

An adequate supply of potable water will be provided to the employees working at the Site. Clearly labeled potable containers will be used to dispense drinking water. Containers will be cleaned at the beginning of each day. The containers will be equipped with taps to access the water. Clean disposable cups will be provided daily.

Eating, drinking, smoking, chewing gum or tobacco, or any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited during construction activities except in designated eating or smoking areas outside the Exclusion and Contaminant Reduction Zones. Sevenson

employees, subcontractor employees, and service personnel are required to thoroughly decontaminate themselves prior to entering the Support Zone

11.0 Emergency Contingency Plan

This section describes the emergency response plan that will be implemented by Sevenson employees to handle emergencies. The nature of the project, the contaminants present and the activities planned for the site are such that there is little potential for an emergency, which would result in a significant release of hazardous substances, and in any way threaten the adjoining community. However, there is always the potential at any construction site for emergency situations to occur which threaten the on-site workers. Possible examples of emergency situations during construction activities include equipment fires or contact of equipment with overhead power lines. In all of these cases, procedures will be implemented to minimize the possibility of an emergency situation. The procedures outlined below are designed to ensure that the workforce reacts quickly and appropriately to emergency situations, thereby protecting the health and well-being of the individual workers. It is expected that modifications may be necessary upon actual site set-up and conditions.

NOTE: In the event of a serious or life threatening emergency the primary consideration is the immediate health of the individual rather than routine contamination controls. Standard contamination control protocols shall not interfere with the prompt medical attention required of a seriously injured worker.

11.1 Pre-Emergency Planning

During the site safety briefings held daily, all employees will be informed of the location of this plan, the procedures outlined in this plan, and the communication systems and evacuation routes to be used during an emergency.

On a continual basis, individual personnel should be constantly alert for indicators of potentially hazardous situations and for signs and symptoms in themselves and others that warn of hazardous conditions and exposures. Rapid recognition of dangerous situations can avert an emergency.

A coordination meeting with local emergency response agencies (fire, police, rescue and medical facility) will be conducted prior to work starting at the site. The site activities and potential hazards that may be encountered by responders will be reviewed during this meeting.

11.2 Personnel Responsibilities

All on-site employees have a role in mitigating an emergency incident. The Project Superintendent has primary responsibility for responding to and directing emergency response operations to correct emergency situations. This includes taking appropriate measures to ensure the safety of site personnel and the public. He is additionally responsible for ensuring that corrective measures have been implemented, appropriate authorities notified, and follow-up reports completed. The SSHO will assist and advise the Project Superintendent, and will direct any emergency medical responses.

The following is an outline of job titles and corresponding responsibilities during an emergency.

- The Site Superintendent directs emergency response activities and serves as liaison with appropriate Client and Client representative's personnel and subcontractors. In the event of an emergency the Project Superintendent will be the Incident Commander.
- The SSHO recommends that work be stopped if any operation threatens worker or public health or safety and advises Site Manager of emergency procedures if necessary. Provides emergency medical

care on site. Notifies emergency services. The SSHO will assume the responsibility of Incident Commander if the Project superintendent is off-site.

11.3 Evacuation Routes and Procedures

The Superintendent and SSHO shall determine at least two muster/rally points for Site personnel in the event of an emergency. The rally point(s) for work near the residents may change as remediation advances to different properties. The SSHO shall cover muster/rally point locations in the morning safety meeting and provide updated muster/rally point maps in the same locations as the route to the hospital and emergency contact list.

In the event of an emergency that necessitates an evacuation of the Site, on-site personnel will be notified by hand-held or mobile two-way radios to leave the area by immediate emergency exit. An alternate method of communication will be the use of a portable air horn sounded in regularly spaced, repeated blasts.

During an evacuation, all non-emergency radio transmissions will cease. The SSHO, in conjunction with the Project Superintendent, will control the scene until the appropriate municipal and state agencies arrive. Since site conditions, (i.e., wind direction, precipitation, and work location), change often, the SSHO will determine the appropriate evacuation procedures.

All personnel will assemble/muster at the Contamination Reduction Zone or Support Zone. Access to the site will be restricted.

11.4 Emergency Decontamination Procedures

Decontamination of an injured or exposed worker will be performed if decontamination does not interfere with essential treatment. The objective is to successfully administer first aid without exposing rescue workers and the victim to contaminants. Project personnel will meet with the local hospital to discuss the possibility of having to treat injured personnel from the site.

If the hazards are low and decontamination can be performed, then a wash, rinse and removal of protective clothing will be performed.

If the hazards are high and decontamination cannot be done, then the following procedures will be performed:

- Wrap the victim in blankets or plastic sheeting to reduce contamination of rescue workers or other personnel.
- Alert emergency and medical personnel to potential contamination. Emergency entry into the exclusion zone will be controlled by the SSHO. The SSHO will determine if the victim can be moved from the exclusion zone. If entrance into the exclusion zone is required, the SSHO will ensure that the emergency workers don the proper PPE.
- If required, arrange to have the SSHO accompany the victim to the hospital if required.

11.5 Medical Treatment/First Aid

The SSHO will be trained in CPR and First Aid as well as one other person at the site and will have first aid kits for use in a medical emergency. First Aid Kits will be located in the main support area, Contamination Reduction Zone and at the work activity locations. Portable eyewash stations will be available at the Contamination Reduction Zone. Eyewash stations will be of the pressurized, 15-minute

discharge type. On-site employees have a basic knowledge of first aid and will assist the Site Superintendent and SSHO. Community emergency services (EMS, Fire, and Police) will be notified immediately if their resources are needed on site.

For injuries and illnesses that are not immediately life threatening or require the services of local emergency medical services WorkCare Injury Intervention (888-449-7787) will be utilized by the SSHO to help assess the injury or illness. WorkCare Injury Intervention is staffed by registered nurses and doctors that specialize in occupational injury and illness. WorkCare Injury Intervention will interview the affected employee over the phone and will recommend the next course of action for the employee.

If necessary, the injured or sick party will be taken to Upstate Medical University Hospital Emergency Room or Occupational Health Center – Please refer to ***Figure 2*** –for directions to this facility from the office location on Factory Avenue. Routes to the medical center will be posted in job site trailers and Sevenson vehicles and will be easily visible at all times.

11.6 Emergency Alarms/Notifications and Procedures

When any emergency occurs on-site the SSHO and Project Superintendent will be notified immediately. The Project Superintendent or the SSHO will notify the client and his representatives. Please refer to the ***Table 9 – "Emergency Telephone Numbers"*** for emergency contact information. Emergency contact information will be posted in all site trailers, bulletin boards, or any vehicle that may be used to transport an injured worker to a medical facility.

To notify any site workers of an emergency, workers can be signaled by way of hand held or mobile two-way radios or as a backup, the use of an emergency alarm (portable air horn). All emergency communications will flow through the radio network. Outside emergency services will be notified, as necessary. The site evacuation alarm consists of one long blast on a horn, every 10 seconds. Any time the alarm system is activated; on site personnel will be notified immediately. Personnel will extinguish any nearby ignition source and prepare for emergency response activities. This alarm will also be used to alert personnel of a sudden release of hazardous materials.

The observer of the emergency condition will brief the responding personnel as to the nature and location of the incident. When they have assessed the situation, a decision whether or not to implement these procedures will be made. If these Emergency Contingency Procedures are not implemented, supervisory personnel will give the "All Clear" verbally. The "All Clear" will be used to indicate a return to normal (non-emergency) conditions following emergency response activities. The alarm signals will be prominently posted at the site. The audible alarm system will be discussed with each resident/business entity within hearing range of the alarm system.

11.7 Implementation of the Plan

There is a logical sequence of steps to follow in responding to emergencies, which should be followed by site personnel. This sequence involves identifying the emergency, investigating the extent of the emergency, deciding on the proper initial course of action, taking corrective action to rectify the situation, and following up with a post-emergency investigation.

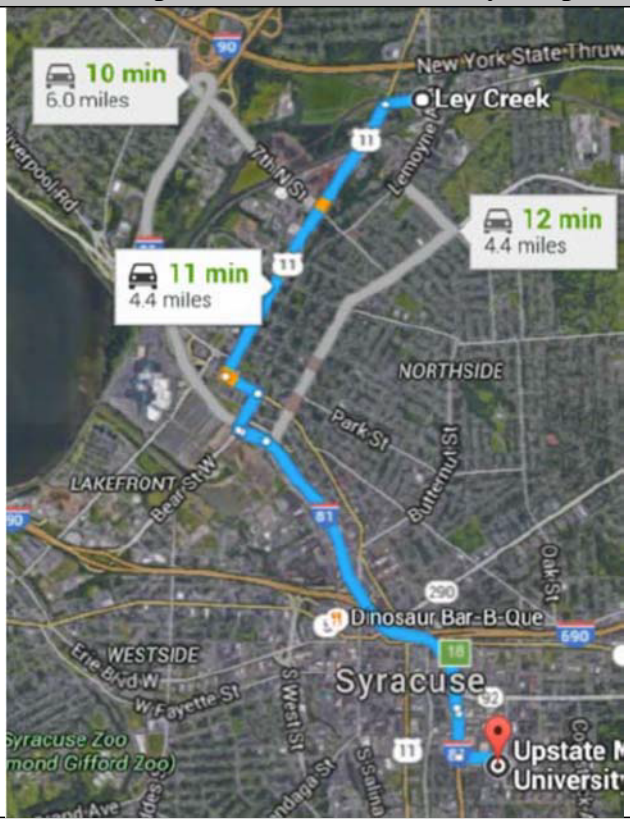
Equipment breakdowns, power failures, injuries, and natural disasters are usually rather dramatic and will capture the individual's attention immediately upon occurrence. In other cases, the individual may have prior warning of impending emergencies through weather reports in the case of natural disasters and trends in equipment performance in the case of some breakdowns.

Some emergency situations exist long before the operator is aware that an emergency exists. These cases may produce situations, which then become immediate and obvious. For example, unattended equipment may have minor breakdowns which go unnoticed; further operation thus leading to complete breakdown of the equipment resulting in possible injury to a bystander or passerby.

In the event of a fire, explosion, accidental material release, or any other emergency, response activities will be initiated following the evaluation of the event. An assessment of the situation will be performed by the SSHO immediately upon notification. The Superintendent/SSHO is authorized to commit resources to the extent detailed in this plan. If it is determined that an emergency situation exists, he will then implement the appropriate emergency response activities.

In the event that a medical emergency or accident occurs in the Exclusion Zone, all local EMS personnel responding to the emergency should be outfitted in the PPE appropriate for the situation. As a general rule, personnel should not enter the Exclusion Zone without donning the minimal level of PPE required. In the event that a worker is overcome or disabled for an unknown reason, the Superintendent/SSHO must make a determination as to the level of respiratory protection, which is appropriate.

Figure 2 –
Route to Upstate Medical University Hospital



Directions

1. Head WEST (right out of office trailer area) on Factory Ave
2. Continue on US-11 S to Syracuse
3. Get on I-81 South
4. Follow I-81 South to Almond Street, Exit 18
5. Continue on Almond Street Drive to East Adams Street
6. Upstate Medical University Hospital located at 750 East Adams Street, Syracuse, NY 13210
   315-464-5540

Table 9 – Emergency Telephone List	
Police	911
Fire	911
Ambulance	911
Hospital – Upstate Medical University Hospital 750 East Adams Street, Syracuse, NY 13210	315-464-5540
Dr. Greaney – Occupational Physician (Work Care)	714-456-2154
WorkCare Injury Intervention	888-449-7787
Sevenson Environmental Services, Inc.	
Paul Jung - Safety and Health Manager	716-284-0431 716-609-1767 (cell)
Jerry Castiglione – Project Manager	716-998-4523 (cell)
Dan Kraatz – Site Superintendent	716-242-9249
- Site Health and Safety Officer	
Project Coordinator	
OTHERS	
811 Dig Safe	811 or 800-962-7962
NYDEC Hotline	800-457-7362
National Response Center	800-424-8802
Poison Control Center	800-222-1222
CHEMTREC	800-424-9300

11.7.1 Conditions for Implementation

The contingency plan will be activated by the Superintendent/SSHO immediately in the event of a fire or explosion, or emissions of toxic chemicals in excess of limits set forth by Federal, State, and local agencies. In the event of a spill or material release, it will be up to the Superintendent/SSHO to make a determination as to when emergency conditions exist, as opposed to routine maintenance of the site. His determination will depend upon the location of the spill, the size of the spill, weather conditions and the proximity of the release to workers, the community and environmental receptors.

Once it becomes apparent that an emergency situation exists or that a disaster is impending, the Project Superintendent or his designee should immediately be notified and an immediate investigation conducted. Assessment of the emergency should include assessing the severity of the situation and collecting enough information to make an initial action decision.

Assessing the emergency should include identifying injured persons (if any), damage to buildings and equipment, noting potential impending damage if corrective action is not taken immediately, and itemizing resources required to correct the situation.

11.7.1.1 Fire or Explosion

Although the potential for fire or explosion is minimal, sources of risk do exist. These sources include welding gases, gasoline for portable equipment, diesel fuel for the heavy equipment and combustible debris. In the event of an explosion, possible emergency conditions would exist. Unless extinguished immediately, a fire or explosion will trigger implementation of these procedures.

11.7.1.2 Material Spills

Material Spills could occur during truck loading and from vehicle accidents. Additionally, equipment fueling operations could produce spills. Ultimately, a spill could contaminate receiving surface water or cause a release of vapors to the air. A spill of fuel could also ignite. A small spill should be cleaned up immediately, but should not trigger activation of these procedures. Should an onsite spill occur, the immediate response will include closing off the source of the spill, if possible, application of the sorbent material or sand bagging, and street sweeping, as appropriate. All spills will be investigated, and a written report will be provided to the regulatory agencies in accordance with applicable regulations and permits.

11.7.1.3 Severe Weather

In the event of severe weather, the Site Superintendent and/or the SSHO have the authority to stop operations and direct evacuation procedures, if conditions warrant. All equipment will be secured and grounded. After the storm, a visual inspection will be performed by the Superintendent and/or the SSHO to check for damage and hazards. These will be performed before any work is resumed. If damage or hazards are noted, the designated or other Sevenson personnel will evaluate the conditions and implement corrective actions to repair the damage or eliminate the hazard. These actions will begin as soon as possible and will take precedence over other site activities.

11.7.2 Initial Action

Once the extent of the emergency is known, the Superintendent and the SSHO will make an immediate decision as to what initial steps should be taken to remedy the emergency situation. This first action, in

the case of large-scale emergencies, usually consists of notifying responsible authorities and/or calling for the necessary assistance in order of priority.

The individual(s) should not unduly endanger him or herself or others by attempting tasks for which the proper equipment is not available or with which he or she is unfamiliar. In all cases, if in doubt, wait until qualified help arrives before taking action.

11.7.3 Corrective Action

When help arrives, the site superintendent/SSHO should immediately inform those called of the pertinent details of the situation. Corrective action should be continued until the situation is either under control or completely rectified. If corrective actions will take considerable time, a long-term effort to complete the task should be developed.

11.7.4 Follow-Through

After the situation is corrected, the cause of the emergency event is to be determined and review of the corrective actions taken, etc. In the case of equipment failure, if negligence was not a factor, then revising maintenance procedures would be the most likely first preventive step. For natural disasters that cannot be prevented from recurring, the procedures followed in dealing with them can be reviewed to develop more effective action plans. The entire event, along with all of the responses, will be thoroughly documented for review by management and project supervisory personnel.

11.8 Spill Response and Control Plan

The purpose of this section is to define practices and procedures for the prevention, containment, and cleanup of accidental discharges of hazardous substances during the project. These substances include both the contaminated material encountered as a result of the construction project, such as contaminated soils and decontamination liquids, and construction materials typically found on any construction site, such as lubricating fluids, diesel fuel, gasoline, etc.

Spill prevention applies to all types of spills and can be described as the first and simplest approach to spill control. Human error is a major contributing factor to spills and releases. An awareness of spill consequences, preventive measures, and countermeasures will greatly reduce spill occurrences. A sound prevention program includes careful work practices, constant inspection, and immediate notification and correction of deficiencies. In the event that a spill does occur, proper containment and cleanup procedures must then be followed in order to reduce the effect of the spill.

11.8.1 Prevention

Prevention of unnecessary spills is of first priority. Prevention measures include:

- Operators and drivers will exercise extreme caution when transporting material around the site.
- When removing hoses from machines an appropriate and adequate supply of absorbents will be on hand. A supply of the following absorbents will be kept on-site, oil sorbent booms, rolls and pillows, universal towels and sheets, and vermiculite.
- Hoses will be capped when not connected to their appropriate fitting.
- All containers will be inspected daily for decay. No open container will be exposed to rainfall, snowfall, etc. without being emptied and cleaned of residue.

- All equipment will be inspected for leaks before and after service.
- Storage of material such as fuels, oils, and solvents on-site will be limited to the minimum required. All fluids will be stored in individual fluid containers appropriate and approved for the material. Most of the individual fluids containers will be further secured by storage in large, locked tool and equipment storage containers. Drums or other containers too large to be stored in containers will be stored raised off the ground on a liner and covered by plastic.

11.8.2 Reporting

All spills will be reported immediately to appropriate field and office management personnel. The sequence of reporting will be as follows:

- Notification by workers to the Project Superintendent and/or SSHO.
- The Project Superintendent or SSHO will immediately notify the Client Representative regardless of the size of the spill.
- Sevenson and the Client Representative will jointly determine the nature of the spill, its size, direction of travel, if anyone has been injured as a result of the spill and whether it requires immediate notification to regulatory agencies.
- Sevenson will have primary responsibility for notifying the regulatory agencies (National Response Center or NYDEC Spill Hotline) unless Sevenson is directed otherwise. Sevenson will have follow-up responsibility to verify that the notification is made in a timely manner. A full list of emergency contacts and telephone numbers is included this plan. This list includes Sevenson personnel, as well as federal, state and local authorities. This list will be posted in all trailers on-site.

Upon notification of a spill, all project activity will be immediately suspended and all necessary equipment and personnel will be diverted to spill control and containment. In the event of a spill, and regardless of the size, a Spill Incident Report will be submitted to the Client Representative with a copy within 48 hours of the incident.

11.8.3 Spill Response Equipment

Given the nature of this project, all the necessary equipment and personnel necessary to deal with a release of hazardous substances will be available on site. In addition to the heavy equipment and personal protective equipment, which is critical to spill control, Sevenson will have on hand an ample amount of sorbent materials, UN1A2 open top drums and overpacks.

11.8.4 Confinement and Containment

Prior to entering a spill area, all workers must be protected from any adverse effects of the spilled material. No one will enter any spill area alone. The SSHO will determine the level of protection required for response activities. To the extent practicable, the area will immediately be cordoned off and, if appropriate, exclusion, contamination reduction, and support zones will be established.

The decision to use confinement techniques such as diversion, diking and retention, are generally based on time, personnel, equipment, and supplies. As mentioned above, all necessary resources will be available on-site at all times. To the extent the nature of the material is known, the decision should be made based upon a review of the harmful effects of the material. In the event of a large migrating spill,

an unlikely circumstance, diversion techniques, such as placing a soil wall or absorbent boom ahead of the spill, will be implemented first. Subsequently, diking techniques, such as using material such as sand covered with liner material (PVC, hypalon) should be implemented.

11.8.5 Cleanup

Once a spill has been contained and the source of the spill corrected and controlled, cleanup can begin. Spill cleanup can proceed at the same time as containment if feasible. Supervisory personnel will determine the appropriate cleanup methods. The SSHO will determine the appropriate level of protection depending upon the nature of the material.

- The first action will be to absorb free liquids with absorbent pads, booms, pillows, or clay. The absorbent material will be placed in drums and moved to an appropriate storage location. Subsequent to the removal of free liquids, soil believed to be contaminated will be excavated and containerized in drums or stockpiled on poly sheeting and covered for further testing.
- Dry spills, while posing less of a risk of migration, will still require appropriate and immediate action. The nature of the spilled material will be ascertained. The spilled material will be recovered for reuse if appropriate. Material which cannot be recovered, and residual contaminated soil will be shoveled into 55-gallon drums, placed in the drum storage area, and sampled and analyzed for waste characterization and disposal.
- Once containerized, Sevenson will provide for the appropriate sampling and analysis for waste characterization and disposal facility acceptance. Results of waste characterization analysis, waste profiles, and manifests will be provided to the Client Representative for review.
- All spilled material and visually contaminated soil will be excavated and containerized in the initial spill response. If there appears to be a possibility that contaminants have migrated into the surrounding soil, post-construction sampling will be initiated. Soil samples will be taken from the areas of suspected contamination and analyzed for the compounds, which were released.

Personnel Decontamination - Spill response operations will be performed in accordance with the provisions of this SSHP.

11.9 Report/Review

A written report will be made within 24 hours of incident resolution. The Client Representative will be provided with a copy. In addition, all key personnel will have a meeting within 48 hours of the incident to discuss and critique all of the aspects of the Emergency Contingency Plan according to new site conditions and lessons learned.

12.0 Inspection and Reporting

12.1 Safety and Health Inspections

Safety and Health inspections will be conducted to discover, through specific, methodical auditing, checking, or inspection procedures, conditions and work practice that lead to job accidents and illnesses.

The Health and Safety Manager shall be responsible for ensuring that inspections are conducted at the frequency stated, reviewing the Daily Safety and Inspection Logs for completeness, thoroughness, and

trends; performing monthly project inspections; and training site personnel on proper inspection techniques. The SSHO shall be responsible for ensuring that daily inspections are conducted, reviewing the inspections findings and corrective actions for applicability and thoroughness, and providing the site management personnel with a summary of inspection findings each month.

12.2 Weekly Safety Reports

A weekly safety report will be submitted to the Client Representative**.** The weekly report will include:

- The names of all Sevenson and subcontractor personnel employed at the site at any time during the week, and the names and duties of key personnel including the Project Manager, Project Superintendent, SSHO, excavation competent person, and crane operation-competent person (if applicable).
- A summary of all health and safety incidents describing any medical treatment that was provided during the week, the current work status of any individuals affected, the names of the individuals that observed the incident, and actions taken to address the unsafe act or unsafe condition.
- A summary of all health and safety near misses or observations providing an opportunity for shared learning and future hazard avoidance. For any health or safety incident or near miss, list the date, the nature of the incident or near miss, and the names of the individuals involved.
- The total number of labor hours worked at the site during the week and project.
- Internal health and safety audits performed as part of the SSHP.
- Results of behavior based observations and feedback evaluations.
- Summary of daily safety meetings.

12.3 Certification of Worker/Visitor Acknowledgment

A Certification of Worker/Visitor Acknowledgment will be submitted to the Client's Representative prior to initial entry onto the Site. The certification/acknowledgment will include both formal, field and site-specific training received, personal protective equipment supplied and trained in use, and medical certification. Certificates and Medical certification will be kept on file at the site.

12.4 Incident Reports

Incident reporting will ensure an immediate report on all incident/accidents and provide an effective follow-up for corrective action in order to eliminate unsafe practices and unsafe conditions. An **Incident/Accident Form** must be completed within 24 hours of the Incident/Accident. This report is utilized in the event of injuries, off-site releases, utility breaks, or accidents. Immediately following the incident/accident, the Site Superintendent and the SSHO will initiate an Incident/Accident Investigation. An Accident Report will be completed and submitted to the Client's Representative within 24 hours (based on the complexity or severity of the incident a final version may not be available within 24 hours, a report marked preliminary will be submitted within 24 hours with an estimated completion date for the final. "Near misses" will be documented by the SSHO and discussed at the morning safety briefings to educate the work force to potentially hazardous operations or practices.

12.5 Daily Air Monitoring Report

The Daily Air Monitoring Report will be prepared by the SSHO. The Report will include all air monitoring data collected including real-time monitoring, personal monitoring within the Exclusion Zone, and perimeter monitoring.

12.6 Daily Tool Box Talks

A daily site briefing will be held to discuss current work activities and hazards for the day along with the air monitoring results from the previous day. The SSHO/Superintendent will conduct Daily Tool Box Talks and Weekly Safety Meetings with ALL on-site personnel**.**

12.7 Safe Plan of Action

Prior to the start of the job, an activity hazard analysis will be performed by the Health and Safety Department or SSHO. The health and safety hazards for each operation will be noted, then the appropriate control(s) for each hazard will be recommended. Prior to the start of any operation, the tasks, possible hazards, and their associated control techniques will be discussed with the affected employees through the Safe Plan of Action (SPA).

As part of Project's Activity Hazard Analysis Program a daily SPA is to be completed for job tasks assigned during the day. This program is to supplement, not replace the Activity Hazard Analysis already prepared prior to work assignments. The SPA is to be completed by the supervisor assigning the work and the personnel who are to perform the work. The Activity Hazard Analysis may be used as a generic temple to complete the SPA but should not be the SPA. The expectation of the SPA is for the worker and supervisor to identify each specific hazard present, determine how to minimize the hazard, resources required to minimize the hazard, and where to find those resources.

Example, the Activity Hazard Analysis identifies pinch points as a hazard associated with the job task. The supervisor and worker(s) will evaluate the work area and identify the pinch point such as drill being used near an object where the torque on the drill could cause pressure to place on the fingers or hand between the drill and the object.

Once all specific hazards have been identified and written on the SPA form a pre job briefing can occur to ensure all affected personnel understand the hazards present. The SPA may be modified at any time during the day as new hazards develop.

12.8 Job Safety Enhancement Program (JSEP)

The Job Safety Enhancement Program (JSEP) is a tool used at Sevenson projects to identify behaviors and unsafe work place conditions. These reports are reviewed and discussed by the Project Manager, Site Superintendent, Quality Control Manager, and the SSHO to determine if corrective actions are required. Each completed form is recorded on a tracking matrix to ensure the report has been reviewed, responsible person for corrections properly closed out and discussed with the affected site personnel. Sevenson encourages all personnel involved in a project to complete a JSEP Form.

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Appendix A
Activity Hazard Analysis

Job Safety Analysis (JSA)

Activity/Work Task: Site Mobilization	Overall Risk Assessment Code (RAC) (Use highest code)	**H**
Project: Ley Creek Residential Site Remediation	**Risk Assessment Code (RAC) Matrix**	
Project Location: Syracuse, New York		
Date Prepared: July 15, 2016		
Prepared by (Name/Title): Paul Jung SHM		
Notes: (Field Notes, Review Comments, etc.)		

Severity	**Probability**				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	**E**	**E**	**H**	**H**	**M**
Critical	**E**	**H**	**H**	**M**	**L**
Marginal	**H**	**M**	**M**	**L**	**L**
Negligible	**M**	**L**	**L**	**L**	**L**

Step 1: Review each **"Hazard"** with identified safety **"Controls"** and determine RAC (See above)

"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on JSA. Annotate the overall highest RAC at the top of JSA.

RAC Chart

- **E=ExtremelyHighRisk**
- **H = High Risk**
- **M= ModerateRisk**
- **L=LowRisk**

Job Steps	Hazards	Controls	RAC
1. Pre-job set up	1. Emergency Response	**1.** Rallying points. Notification of proper authorities in event of an emergency	**1. L**
	2. Heavy equipment inspection	**2.** Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment daily.	**2. L**
	3. Hand tool inspection	**3.** Ensure personnel are trained on specific tools. Inspect tools before each use. Use correct tool for the job. Make use of all safety devices and ensure they are functioning.	**3. L**

2. Mobilize equipment	1. Biological (i.e., Plants, Insects, Snake, and Infectious Material)	**1.** Avoid insect nest, spiders and spider webs, or likely habitats of snakes and use tick insect repellant. Check skin and clothing for tick periodically throughout the day. Use Wasp/Bee spray for nests. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash of any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils.). Use loud sounds to scare animals. Do NOT approach animals. Survey the area for biological hazards before commencing work. Avoid insect nests or likely habitats of snakes. Use appropriate insect repellants i.e., DEET for the insects. Check skin and clothing for ticks periodically throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils).	**1. M**
	2. Struck by/against heavy equipment	**2.** Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius.	**2. M**
	3. Chemical spill	**3.** Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply SDSs for chemicals to be used.	**3. M**
	4. Contact with sharp objects/material	**4.** Ensure personnel are trained on specific tools. Use correct tool for the job. Make use of all safety devices and ensure they are functioning. Use care with utility knives, replace dull blades, store properly. Wear appropriate PPE (i.e., gloves, long-sleeved shirts and long pants) to avoid scratches. Be aware of body positioning, and ensure that tools are handled correctly. Take care to cut in a direction away from the body. Avoid placing hands in tight places while moving materials. Inspect tools before each use. If tool is not fit for use, report	**4. L**

		the condition to SSHO, so that it will be taken out of service. If unsure about use of any tool ask SSHO before attempting to utilize tool or equipment.	
	5. Exposed to vehicle traffic	**5.** Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and on site equipment. Drivers are to follow the direction of flaggers/spotters. Drivers are required to wear safety reflective vests whenever they are outside their vehicle. Drivers shall obey all safe-driving regulations, including wearing seat belts.. Site vehicles and trucks will be equipped with backup alarms. Signal personnel to use standard traffic control signals. NOTE: When driver is concerned about a location or condition that may cause an incident, injury, or property damage based on their knowledge as a driver and their equipment, the driver is to stop and review the situation with the superintendent and safety officer.	**5. M**
	6. Exposure to high noise	**6.** Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection. Employees on hearing conservation program.	**6. L**
	7. Exposure to high/low ambient temperatures	**7.** Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and review the signs and symptoms of heat related illness. Rest as needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers periodically throughout the workday.	**7. M**
	8. Flying Debris	**8.** Ensure guards are installed and working on tools/equipment. Initiate dust control measures. Wear appropriate PPE (i.e., Safety glasses/goggles/faceshield).	**8. M**
	9. Hand/Power tools	**9.** Ensure personnel are trained on specific tools. Inspect tools before each use. Use correct tool for the job. Make use	**9. M**

		of all safety devices and ensure they are functioning.	
	10. Walking/Working surface	**10.** Good housekeeping practices. Keep walkways and work areas clear of hoses, cords, and clutter. Restrict site to essential personnel. Wear steal toe/composite boots.	**10. L**
	11. Hand injuries from pinch points	**11.** Ensure site personnel utilize appropriate hand protection. Avoid placing hands in tight spaces while moving materials.	**11. M**
	12. Falls from elevation	**12.** Personnel/workers shall not ride on moving equipment unless a seat with seatbelt is provided. Maintain three points of contact when climbing on or off equipment. Fall protection required when working from heights greater than 6 feet. Workers shall use the proper sized ladders or stairs to climb to a different height.	**12. M**
	13. Fire/Explosion	**13.** Fire extinguisher inspected and in place. It may be necessary to wet down work area when combustible materiel cannot be moved. Fire watch during and 30 minutes after hot work procedures. Obtain Hot Work Permit from SSHO for any activity that involves welding radiation, flashes, sparks, molten metal, and slag. Follow hot work permit procedures. No such activity will be permitted in the presence of explosive atmospheres. Use good housekeeping practices. All ignition sources shall be eliminated or protected.	**13. M**
	14. Severe Weather	**14.** Monitor weather for severe conditions. Discuss severe conditions with client rep and Superintendents when it poses a hazard to workers (i.e. Tornado warnings/watches, Thunderstorm, Blizzard conditions, etc.)	**14. L**
	15. Fueling operation	**15.** All equipment will be shut down prior to fueling. Do not stage equipment in areas of high vegetation. Observe site smoking policies. Do not smoke during fueling operations. NOTE: Smoking is never permitted while in the Exclusion Zone! Fueling will be accomplished in well-ventilated areas away from ignition sources. Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in contact with the metal of the equipment's fuel tank. Practice good housekeeping habits. Maintain spill response equipment, and ensure that the spill cleanup materials are compatible with materials to be cleaned up. Practice spill prevention at all times. Keep only enough materials on hand for use (to minimize potential amount to spill/leak). Perform proper chemical use and storage. Refer to SDS for proper handling procedures, disposal, cleanup and PPE requirements. Keep a Spill Control and Countermeasures Plan in place, and review/update it periodically. Report all spills/leaks to the SSHO. If any spills/leaks occur, they will be contained, identified, and disposed of in accordance with Federal, State, and Local regulations.	**15. M**

3. Construction of support facility	1. Biological (i.e., Plants, Insects, Snake, and Infectious Material)	**1.** Avoid insect nest, spiders and spider webs, or likely habitats of snakes and use tick insect repellant. Check skin and clothing for tick periodically throughout the day. Use Wasp/Bee spray for nests. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash of any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils.). Use loud sounds to scare animals. Do NOT approach animals. Survey the area for biological hazards before commencing work. Avoid insect nests or likely habitats of snakes. Use appropriate insect repellants i.e., DEET for the insects. Check skin and clothing for ticks periodically throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils).	**1. M**
	2. Struck by/against heavy equipment	**2.** Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius.	**2. M**
	3. Chemical spill	**3.** Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply MSDSs for chemicals to be used.	**3. M**
	4. Contact with sharp objects/material	**4.** Ensure personnel are trained on specific tools. Use correct tool for the job. Make use of all safety devices and ensure they are functioning. Use care with utility knives, replace dull blades, store properly. Wear appropriate PPE (i.e., gloves, long-sleeved shirts and long pants) to avoid scratches. Be aware of body positioning, and ensure that tools are handled correctly. Take care to cut in a direction away from the body. Avoid placing hands in tight places while moving materials. Inspect tools before each use. If tool is not fit for use, report	**4. M**

		the condition to SSHO, so that it will be taken out of service. If unsure about use of any tool ask SSHO before attempting to utilize tool or equipment.	
	5. Excavation	**5.** Barricade open excavations. Be aware of cave in potential. Competent person on site during activity. Contact local mark out. Authority to identify and mark underground utilities. Keep vehicles/equipment at sufficient distance from edge of excavation. Maintain proper slope for soil classification. Maintain spoils two feet from edge of excavation. Perform daily excavation/trench inspection. Provide access/egress to excavation. When an unknown hazard has been encountered, work will stop until hazards and controls are identified and in place.	**5. M**
	6. Exposed to vehicle traffic	**6.** Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and on site equipment. Drivers are to follow the direction of flaggers/spotters. Drivers are required to wear safety reflective vests whenever they are outside their vehicle. Drivers shall obey all safe-driving regulations, including wearing seat belts. Observe speed limit of 15 miles per hour onsite or other posted speeds limits. Site vehicles and trucks will be equipped with backup alarms. Signal personnel to use standard traffic control signals. NOTE: When driver is concerned about a location or condition that may cause an incident, injury, or property damage based on their knowledge as a driver and their equipment, the driver is to stop and review the situation with the superintendent and safety officer.	**6. M**
	7. Exposure to high noise	**7.** Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection. Employees on hearing conservation program.	**7. M**
	8. Exposure to high/low ambient temperatures	**8.** Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early	**8. M**

		in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and review the signs and symptoms of heat related illness. Rest as needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers periodically throughout the workday.	
	9. Flying Debris	**9.** Ensure guards are installed and working on tools/equipment. Initiate dust control measures. Wear appropriate PPE (i.e., Safety glasses/goggles/faceshield).	**9. M**
	10. Hand/Power tools	**10.** Ensure personnel are trained on specific tools. Inspect tools before each use. Use correct tool for the job. Make use of all safety devices and ensure they are functioning.	**10. M**
	11. Walking/Working surface	**11.** Good housekeeping practices. Keep walkways and work areas clear of hoses, cords, and clutter. Restrict site to essential personnel. Wear steal toe/composite boots.	**11. M**
	12. Hand injuries from pinch points	**12.** Ensure site personnel utilize appropriate hand protection. Avoid placing hands in tight spaces while moving materials.	**12. M**
	13. Falls from elevation	**13.** Personnel/workers shall not ride on moving equipment unless a seat with seatbelt is provided. Maintain three points of contact when climbing on or off equipment. Fall protection required when working from heights greater than 6 feet. Workers shall use the proper sized ladders or stairs to climb to a different height.	**13. M**
	14. Fire/Explosion	**14.** Fire extinguisher inspected and in place. It may be necessary to wet down work area when combustible materiel cannot be moved. Fire watch during and 30 minutes after hot work procedures. Obtain Hot Work Permit from SSHO for any activity that involves welding radiation, flashes, sparks, molten metal, and slag. Follow hot work permit procedures. No such activity will be permitted in the presence of explosive atmospheres. Use good housekeeping practices. All ignition sources shall be eliminated or protected.	**14. M**
	15. Severe Weather	**15.** Monitor weather for severe conditions. Discuss severe conditions with client rep and Superintendents when it poses a hazard to workers (i.e. Tornado watch/warning, Thunderstorm, Blizzard conditions, etc.)	**15. L**
	16. Fueling operation	**16.** All equipment will be shut down prior to fueling. Do not stage equipment in areas of high vegetation. Observe site smoking policies. Do not smoke during fueling operations. NOTE: Smoking is never permitted while in the Exclusion Zone! Fueling will be accomplished in well-ventilated areas away from ignition sources. Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in contact with the metal of the equipment's fuel tank. Practice good housekeeping habits. Maintain spill response equipment,	**16. M**

		and ensure that the spill cleanup materials are compatible with materials to be cleaned up. Practice spill prevention at all times. Keep only enough materials on hand for use (to minimize potential amount to spill/leak). Perform proper chemical use and storage. Refer to MSDS for proper handling procedures, disposal, cleanup and PPE requirements. Keep a Spill Control and Countermeasures Plan in place, and review/update it periodically. Report all spills/leaks to the SSHO. If any spills/leaks occur, they will be contained, identified, and disposed of in accordance with Federal, State, and Local regulations.	
	17. Lockout/Tag-out	**17.** Equipment or circuits that are de-energized shall be rendered inoperative and have tags attached at all points where such equipment or circuits can be energized.	**17. H**
	18. Electrical work	**18.** Work done by licensed electricians. Work done in compliance with National Electric Code and the contract specifications	**18. H**

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements

Level D PPE (Gloves, Safety Glasses, Work boots, Hardhat, Hi visibility clothing (Class II reflective apparel required when exposed to public vehicle traffic) Walkie Talkie Radios Tracked excavator Dump Trucks Misc. Hand tools (shovels, rakes, etc.)	The SSHO shall be the Competent person for the following: Fall Protection Program Hazardous Communication Program Confined Space Program The Superintendent shall be the competent or qualified person for the following: Excavations General Operations Site Specific: 1. OSHA HAZWOPER 2. HTRW activity training 3. Site specific 4. Daily tailgate safety meetings at which the affected employees can voice their concerns and/or recommendations of the site-specific training requirements. 5. Hazard communication Supervisory Personnel: 1. OSHA supervisor's training	Site Inspection: 1. Daily inspection by Health and Safety Officer Motor Vehicles: 1. Before initial use vehicles will be inspected by a mechanic and found to be in a safe operating condition. Equipment: 1. Before equipment is placed in use it will be inspected and tested by a competent person. 2. Inspections and tests will be done in accordance with manufacturer's instructions. 3. All equipment will be inspected daily when in use by the operator. 4. Inspections and tests will be documented and records will be maintained at the site. Personal Protective Equipment (PPE): 1. Disposal PPE shall be inspected before each use. 2. Reusable PPE shall be inspected before use. Any

	Motor Vehicle: 1. Operators shall hold a valid license for the type and class of vehicle they are operating. Heavy Equipment: 1. Trained and qualified operators. Equipment General: 1. Employees will be qualified and trained to operate or service mechanical equipment.	defective PPE shall be repaired or replaced before use. All reusable PPE shall be decontaminated and stored properly before reuse.

Job Safety Analysis (JSA)

Activity/Work Task: Demolition	Overall Risk Assessment Code (RAC) (Use highest code) **M**
Project: Ley Creek Residential Site Remediation	
Project Location: Syracuse, New York	
Date Prepared: July 15, 2016	
Prepared by (Name/Title): Paul Jung SHM	
Notes: (Field Notes, Review Comments, etc.)	

Risk Assessment Code (RAC) Matrix

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

Step 1: Review each **"Hazard"** with identified safety **"Controls"** and determine RAC (See above)

"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on JSA. Annotate the overall highest RAC at the top of JSA.

RAC Chart

- E=ExtremelyHighRisk
- H = High Risk
- M= ModerateRisk
- L=LowRisk

Job Steps	Hazards	Controls	RAC
1. Pre-job set up	1. Emergency Response	**1.** Rallying points. Notification of proper authorities in event of an emergency	**1. L**
	2. Heavy equipment inspection	**2.** Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment daily.	**2. L**
	3. Hand tool inspection	**3.** Ensure personnel are trained on specific tools. Inspect tools before each use. Use correct tool for the job. Make use of all safety devices and ensure they are functioning.	**3. L**

2. Removal of decks, pools and other small structures	1. Biological (i.e., Plants, Insects, Snake, and Infectious Material)	**1.** Avoid insect nest, spiders and spider webs, or likely habitats of snakes and use tick insect repellant. Check skin and clothing for tick periodically throughout the day. Use Wasp/Bee spray for nests. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash of any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils.). Use loud sounds to scare animals. Do NOT approach animals. Survey the area for biological hazards before commencing work. Avoid insect nests or likely habitats of snakes. Use appropriate insect repellants i.e., DEET to protect skin from insects and Repel Permanone (permethrins) or equivalent for clothing in tick infested areas. Check skin and clothing for ticks periodically	**1. M**

		throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils).	
	2. Struck by/against heavy equipment	**2.** Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius.	**2. M**
	3. Exposure to high noise	**3.** Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection. Employees on hearing conservation program.	**3. L**
	4. Exposure to high/low ambient temperatures	**4.** Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and review the signs and symptoms of heat related illness. Rest as needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers periodically throughout the workday.	**4. M**
	5. Flying Debris	**5.** Ensure guards are installed and working on tools/equipment. Initiate dust control measures. Wear appropriate PPE (i.e., Safety glasses/goggles/faceshield).	**5. M**
	6. Walking/Working surface	**6.** Good housekeeping practices. Keep walkways and work areas clear of hoses, cords, and clutter. Restrict site to essential personnel. Wear steal toe/composite boots. During winter, maintain work areas clear of accumulating snow or ice. Ensure residential doors leading onto the deck or stairs has been properly barricaded or secured to prevent people from falling in the event the open the door.	**6. L**

	7. Hand injuries from pinch points	**7.** Ensure site personnel utilize appropriate hand protection. Avoid placing hands in tight spaces while moving materials.	**7. M**
	8. Puncture hazards	**8.** Ensure all nails/screws are either removed from exposed wood or construction debris or bent over to remove the puncher hazards. All personnel performing demolition shall wear cut and puncture resistant gloves while handling demolition debris.	**8. M**
	9. Falls from elevation	**9.** Personnel/workers shall not ride on moving equipment unless a seat with seatbelt is provided. Maintain three points of contact when climbing on or off equipment. Fall protection required when working from heights greater than 6 feet. Workers shall use the proper sized ladders or stairs to climb to a different height.	**9.M**
	10. Severe Weather	**10.** Monitor weather for severe conditions. Discuss severe conditions with Superintendents when it poses a hazard to workers (i.e. Thunderstorm, Blizzard conditions, etc.).	**10.M**
	11. Electrical	**11.** The Superintendent shall inspect all structures that will be demolished for electrical service (outlets) prior to demolition activities. Electrical services shall be disconnected by a licensed electrician and shall be terminated in accordance with local and/or national building codes.	**11.M**

Equipment to be Used	**Training Requirements/Competent or Qualified Personnel name(s)**	**Inspection Requirements**

Level D PPE (cut and puncture resistant gloves, Safety Glasses, Work boots, Hardhat, Hi visibility clothing (Class II reflective apparel required when exposed to public vehicle traffic) Walkie Talkie Radios Misc. Hand tools (saws, hammers, bars, etc.) Dump Trucks	The SSHO shall be the Competent person for the following: Hazardous Communication Program The Superintendent shall be the competent or qualified person for the following: Demolition General Operations Site Specific: 1. Site specific 2. Daily tailgate safety meetings at which the affected employees can voice their concerns and/or recommendations of the site-specific training requirements. 3. Hazard communication Supervisory Personnel: 1. OSHA supervisor's training Motor Vehicle: 1. Operators shall hold a valid license for the	Site Inspection: 1. Daily inspection by Health and Safety Officer 2. Electrical service inspection by Superintendent Motor Vehicles: 1. Before initial use vehicles will be inspected by a mechanic and found to be in a safe operating condition. Equipment: 1. Before equipment is placed in use it will be inspected and tested by a competent person. 2. Inspections and tests will be done in accordance with manufacturer's instructions. 3. All equipment will be inspected daily when in use by the operator. 4. Inspections and tests will be documented and records

	type and class of vehicle they are operating. Heavy Equipment: 1. Trained and qualified operators. Equipment General: 1. Employees will be qualified and trained to operate or service mechanical equipment.	will be maintained at the site. Personal Protective Equipment (PPE): 1. Disposal PPE shall be inspected before each use. 2. Reusable PPE shall be inspected before use. Any defective PPE shall be repaired or replaced before use. All reusable PPE shall be stored properly before reuse.

Job Safety Analysis (JSA)

Activity/Work Task: Excavation	Overall Risk Assessment Code (RAC) (Use highest code)	**M**
Project: Ley Creek Residential Site Remediation		
Project Location: Syracuse, New York		
Date Prepared: July 15, 2016		
Prepared by (Name/Title): Paul Jung SHM		
Notes: (Field Notes, Review Comments, etc.)		

Risk Assessment Code (RAC) Matrix

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

Step 1: Review each **"Hazard"** with identified safety **"Controls"** and determine RAC (See above)

"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on JSA. Annotate the overall highest RAC at the top of JSA.

RAC Chart

- **E=ExtremelyHighRisk**
- **H = High Risk**
- **M= ModerateRisk**
- **L=LowRisk**

Job Steps	Hazards	Controls	RAC
1. Pre-job set up	1. Emergency Response	**1.** Rallying points. Notification of proper authorities in event of an emergency	**1. L**
	2. Heavy equipment inspection	**2.** Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment daily.	**2. L**
	3. Hand tool inspection	**3.** Ensure personnel are trained on specific tools. Inspect tools before each use. Use correct tool for the job. Make use of all safety devices and ensure they are functioning.	**3. L**

2. Excavation of material	1. Biological (i.e., Plants, Insects, Snake, and Infectious Material)	**1.** Avoid insect nest, spiders and spider webs, or likely habitats of snakes and use tick insect repellant. Check skin and clothing for tick periodically throughout the day. Use Wasp/Bee spray for nests. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash of any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils.). Use loud sounds to scare animals. Do NOT approach animals. Survey the area for biological hazards before commencing work. Avoid insect nests or likely habitats of snakes. Use appropriate insect repellants i.e., DEET to protect skin from insects and Repel Permanone (permethrins) or equivalent for clothing in tick infested areas. Check skin and clothing for ticks periodically	**1. M**

		throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils).	
	2. Struck by/against heavy equipment	**2.** Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius.	**2. M**
	3. Chemical spill	**3.** Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply SDSs for chemicals to be used.	**3.M**
	4. Contact with sharp objects/material	**4.** Ensure personnel are trained on specific tools. Use correct tool for the job. Make use of all safety devices and ensure they are functioning. Use care with utility knives, replace dull blades, store properly. Wear appropriate PPE (i.e., gloves, long-sleeved shirts and long pants) to avoid scratches. Be aware of body positioning, and ensure that tools are handled correctly. Take care to cut in a direction away from the body. Avoid placing hands in tight places while moving materials. Inspect tools before each use. If tool is not fit for use, report the condition to SSHO, so that it will be taken out of service. If unsure about use of any tool ask SSHO before attempting to utilize tool or equipment.	**4. L**
	5. Exposed to vehicle traffic	**5.** Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and	**5. M**

		on site equipment. Drivers are to follow the direction of flaggers/spotters. Drivers are required to wear safety reflective vests whenever they are outside their vehicle. Drivers shall obey all safe-driving regulations, including wearing seat belts. Site vehicles and trucks will be equipped with backup alarms. Signal personnel to use standard traffic control signals. NOTE: When driver is concerned about a location or condition that may cause an incident, injury, or property damage based on their knowledge as a driver and their equipment, the driver is to stop and review the situation with the superintendent and safety officer.	
	6. Exposure to high noise	**6.** Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection. Employees on hearing conservation program.	**6. M**
	7. Exposure to high/low ambient temperatures	**7.** Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and review the signs and symptoms of heat related illness. Rest as needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers periodically throughout the workday.	**7. L**
	8. Flying Debris	**8.** Ensure guards are installed and working on tools/equipment. Initiate dust control measures. Wear appropriate PPE (i.e., Safety glasses/goggles/faceshield).	**8. M**
	9. Hand/Power tools	**9.** Ensure personnel are trained on specific tools. Inspect tools before each use. Use correct tool for the job. Make use of all safety devices and ensure they are functioning.	**9. M**
	10. Walking/Working surface	**10.** Good housekeeping practices. Keep walkways and work areas clear of hoses, cords, and clutter. Restrict site to essential personnel. Wear steal toe/composite boots. During winter, maintain work areas clear of accumulating snow or ice.	**10.M**
	11. Hand injuries from pinch points	**11.** Ensure site personnel utilize appropriate hand protection. Avoid placing hands in tight spaces while moving materials.	**11. M**
	12. Falls from elevation	**12.** Personnel/workers shall not ride on moving equipment unless a seat with seatbelt is provided. Maintain three points of contact when climbing on or off equipment. Fall protection required when working from heights greater than 6 feet. Workers shall use the proper sized ladders or stairs to climb to	**12. M**

		a different height.	
	13. Fire/Explosion	**13.** Fire extinguisher inspected and in place. It may be necessary to wet down work area when combustible materiel cannot be moved. Fire watch during and 30 minutes after hot work procedures. Obtain Hot Work Permit (Open Flame Permit) from SSHO for any activity that involves welding radiation, flashes, sparks, molten metal, and slag. Follow hot work permit procedures. No such activity will be permitted in the presence of explosive atmospheres. Use good housekeeping practices. All ignition sources shall be eliminated or protected.	**13.M**
	14. Severe Weather	**14.** Monitor weather for severe conditions. Discuss severe conditions with Superintendents when it poses a hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard conditions, etc.)	**14. L**
	15. Excavation cave-in	**15.** Barricade open excavations. Be aware of cave in potential. Competent person on site during activity. Contact local mark out. Authority to identify and mark underground utilities. Keep vehicles/equipment at sufficient distance from edge of excavation. Maintain proper slope for soil classification. Maintain spoils two feet from edge of excavation. Perform daily excavation/trench inspection. Provide access/egress to excavation. When an unknown hazard has been encountered, work will stop until hazards and controls are identified and in place. The Superintendent is the competent person for excavations. When persons will be in or around an excavation, a Competent Person shall inspect the excavation, the adjacent area and protective systems daily: before each work shift; throughout the work shifts as dictated by the work being done; after every rain storm; after events that could increase hazards, e.g., snowstorm, windstorm, thaw, earthquake, etc.; when fissures, tension cracks, sloughing, undercutting, water seepage, bulging at the bottom or similar conditions occur; when there is a change in size, location or placement of the spoil pile; and where there is any indication or change in adjacent structures.	**15. M**
	16. Fueling operation	**16.** All equipment will be shut down prior to fueling. Do not stage equipment in areas of high vegetation. Observe site smoking policies. Do not smoke during fueling operations. NOTE: Smoking is never permitted while in the Exclusion Zone! Fueling will be accomplished in well-ventilated areas away from ignition sources. Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in contact with the metal of the equipment's fuel tank. Practice good housekeeping habits. Maintain spill response equipment,	**16. M**

	17. Inhalation/contact with hazardous material	and ensure that the spill cleanup materials are compatible with materials to be cleaned up. Practice spill prevention at all times. Keep only enough materials on hand for use (to minimize potential amount to spill/leak). Perform proper chemical use and storage. Refer to SDS for proper handling procedures, disposal, cleanup and PPE requirements. Keep a Spill Control and Countermeasures Plan in place, and review/update it periodically. Report all spills/leaks to the SSHO. If any spills/leaks occur, they will be contained, identified, and disposed of in accordance with Federal, State, and Local regulations. **17.** Ensure site personnel have the appropriate HAZWOPER, medical clearance and Site Specific training. Follow decontamination procedures. Follow emergency contingency procedures. Implement site control areas. Perform real time air monitoring. Wear appropriate PPE for task/activity performed	**17. M**

3. Loading of truck	1. Biological (i.e., Plants, Insects, Snake, and Infectious Material)	**1.** Avoid insect nest, spiders and spider webs, or likely habitats of snakes and use tick insect repellant. Check skin and clothing for tick periodically throughout the day. Use Wasp/Bee spray for nests. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash of any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils.). Use loud sounds to scare animals. Do NOT approach animals. Survey the area for biological hazards before commencing work. Avoid insect nests or likely habitats of snakes. Use appropriate insect repellants i.e., DEET for the insects. Check skin and clothing for ticks periodically throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils).	**1. M**
	2. Struck by/against heavy equipment	**2.** Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow Table 1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being	**2. M**

		loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius.	
	3. Chemical spill	**3.** Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply SDSs for chemicals to be used.	**3. M**
	4. Contact with sharp objects/material	**4.** Ensure personnel are trained on specific tools. Use correct tool for the job. Make use of all safety devices and ensure they are functioning. Use care with utility knives, replace dull blades, store properly. Wear appropriate PPE (i.e., gloves, long-sleeved shirts and long pants) to avoid scratches. Be aware of body positioning, and ensure that tools are handled correctly. Take care to cut in a direction away from the body. Avoid placing hands in tight places while moving materials. Inspect tools before each use. If tool is not fit for use, report the condition to SSHO, so that it will be taken out of service. If unsure about use of any tool ask SSHO before attempting to utilize tool or equipment.	**4. L**
	5. Truck loading	**5.** Truck to be turned off before entering the bed to place liner. A ladder is to be used to access the truck bed. A spotter shall be used in lieu of a tie off to hold the ladder while in use. Do not stretch away from the ladder to undo hold down straps. Tyvek is to be worn while lining the truck bed to reduce personal contamination. Once truck bed is loaded, signal excavator operator that truck bed is clear and to commence loading.	**5. H**
	6. Exposed to vehicle traffic	**6.** Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and on site equipment. Drivers are to follow the direction of flaggers/spotters. Drivers are required to wear safety reflective vests whenever they are outside their vehicle. Drivers shall obey all safe-driving regulations, including wearing seat belts. Observe posted speeds limits. Site vehicles and trucks will be equipped with backup alarms. Signal personnel to use standard traffic control signals. NOTE: When driver is concerned about a location or condition that may cause an	**6. M**

		incident, injury, or property damage based on their knowledge as a driver and their equipment, the driver is to stop and review the situation with the superintendent and safety officer.	
	7. Exposure to high noise	**7.** Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection. Employees on hearing conservation program.	**7. L**
	8. Exposure to high/low ambient temperatures	**8.** Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and review the signs and symptoms of heat related illness. Rest as needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers periodically throughout the workday.	**8. M**
	9. Flying Debris	**9.** Ensure guards are installed and working on tools/equipment. Initiate dust control measures. Wear appropriate PPE (i.e., Safety glasses/goggles/faceshield).	**9. M**
	10. Walking/Working surface	**10.** Good housekeeping practices. Keep walkways and work areas clear of hoses, cords, and clutter. Restrict site to essential personnel. Wear steal toe/composite boots. During winter, maintain work areas clear of accumulating snow or ice.	**10. L**
	11. Hand injuries from pinch points	**11.** Ensure site personnel utilize appropriate hand protection. Avoid placing hands in tight spaces while moving materials.	**11. M**
	12. Falls from elevation	**12.** Personnel/workers shall not ride on moving equipment unless a seat with seatbelt is provided. Maintain three points of contact when climbing on or off equipment. Fall protection required when working from heights greater than 6 feet. Workers shall use the proper sized ladders or stairs to climb to a different height.	**12. M**
	13. Fire/Explosion	**13.** Fire extinguisher inspected and in place. It may be necessary to wet down work area when combustible materiel cannot be moved. Fire watch during and 30 minutes after hot work procedures. Obtain Hot Work Permit (Open Flame Permit) from SSHO for any activity that involves welding radiation, flashes, sparks, molten metal, and slag. Follow hot work permit procedures. No such activity will be permitted in the presence of explosive atmospheres. Use good housekeeping practices. All ignition sources shall be eliminated or protected.	**13. L**

	14. Severe Weather	**14.** Monitor weather for severe conditions. Discuss severe conditions with Superintendents when it poses a hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard conditions, etc.)	**14. M**
	15. Fueling operation	**15.** All equipment will be shut down prior to fueling. Do not stage equipment in areas of high vegetation. Observe site smoking policies. Do not smoke during fueling operations. NOTE: Smoking is never permitted while in the Exclusion Zone! Fueling will be accomplished in well-ventilated areas away from ignition sources. Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in contact with the metal of the equipment's fuel tank. Practice good housekeeping habits. Maintain spill response equipment, and ensure that the spill cleanup materials are compatible with materials to be cleaned up. Practice spill prevention at all times. Keep only enough materials on hand for use (to minimize potential amount to spill/leak). Perform proper chemical use and storage. Refer to SDS for proper handling procedures, disposal, cleanup and PPE requirements. Keep a Spill Control and Countermeasures Plan in place, and review/update it periodically. Report all spills/leaks to the SSHO. If any spills/leaks occur, they will be contained, identified, and disposed of in accordance with Federal, State, and Local regulations.	**15. L**
	16. Inhalation/contact with hazardous material	**16.** Ensure site personnel have the appropriate HAZWOPER, medical clearance and Site Specific training. Follow decontamination procedures. Follow emergency contingency procedures. Implement site control areas. Perform real time air monitoring. Wear appropriate PPE for task/activity performed.	**16. M**

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Level D PPE (Gloves, Safety Glasses, Work boots, Hardhat, Hi visibility clothing (Class II reflective apparel required when exposed to public vehicle traffic) Modified Level D PPE to include: Hardhat, face shield, safety glasses (not store brand sunglasses), Hi visibility clothing (Class II reflective apparel required when exposed to public vehicle traffic, steel toe-work boots, (NO shorts, Tank Tops), Tyvek coveralls, and inner and outer nitrile gloves. Walkie Talkie Radios Tracked excavator Misc. Hand tools (shovels, rakes, etc.) Monitoring Instruments (dust monitor) Dump Trucks	The SSHO shall be the Competent person for the following: Fall Protection Program Hazardous Communication Program Confined Space Program The Superintendent shall be the competent or qualified person for the following: Excavations General Operations Site Specific: 1. OSHA HAZWOPER 2. Site specific 3. Daily tailgate safety meetings at which the affected employees can voice their concerns and/or recommendations of the site-specific training requirements. 4. Hazard communication Supervisory Personnel: 1. OSHA supervisor's training Motor Vehicle: 1. Operators shall hold a valid license for the type and class of vehicle they are operating. Heavy Equipment: 1. Trained and qualified operators. Equipment General: 1. Employees will be qualified and trained to operate or service mechanical equipment.	Site Inspection: 1. Daily inspection by Health and Safety Officer 2. Excavation inspection by the Competent Person as described in Excavation Cave In. Motor Vehicles: 1. Before initial use vehicles will be inspected by a mechanic and found to be in a safe operating condition. Equipment: 1. Before equipment is placed in use it will be inspected and tested by a competent person. 2. Inspections and tests will be done in accordance with manufacturer's instructions. 3. All equipment will be inspected daily when in use by the operator. 4. Inspections and tests will be documented and records will be maintained at the site. Personal Protective Equipment (PPE): 1. Disposal PPE shall be inspected before each use. 2. Reusable PPE shall be inspected before use. Any defective PPE shall be repaired or replaced before use. All reusable PPE shall be decontaminated and stored properly before reuse.

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Job Safety Analysis (JSA)

Activity/Work Task: Backfill	Overall Risk Assessment Code (RAC) (Use highest code)	**M**
Project: Ley Creek Residential Site Remediation		
Project Location: Syracuse, New York		
Date Prepared: July 15, 2016		
Prepared by (Name/Title): Paul Jung SHM		
Notes: (Field Notes, Review Comments, etc.)		

Risk Assessment Code (RAC) Matrix

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

Step 1: Review each **"Hazard"** with identified safety **"Controls"** and determine RAC (See above)

"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on JSA. Annotate the overall highest RAC at the top of JSA.

RAC Chart

- E=ExtremelyHighRisk
- H = High Risk
- M= ModerateRisk
- L=LowRisk

Job Steps	Hazards	Controls	RAC
1. Pre-job set up	1. Emergency Response	**1.** Rallying points. Notification of proper authorities in event of an emergency	**1. L**
	2. Heavy equipment inspection	**2.** Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment daily.	**2. L**
	3. Hand tool inspection	**3.** Ensure personnel are trained on specific tools. Inspect tools before each use. Use correct tool for the job. Make use of all safety devices and ensure they are functioning.	**3. L**

2. Delivery of Backfill	1. Biological (i.e., Plants, Insects, Snake, and Infectious Material)	**1.** Avoid insect nest, spiders and spider webs, or likely habitats of snakes and use tick insect repellant. Check skin and clothing for tick periodically throughout the day. Use Wasp/Bee spray for nests. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash of any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils.). Use loud sounds to scare animals. Do NOT approach animals. Survey the area for biological hazards before commencing work. Avoid insect nests or likely habitats of snakes. Use appropriate insect repellants i.e., DEET to protect skin from insects and Repel Permanone (permethrins) or equivalent for clothing in tick infested areas. Check skin and clothing for ticks periodically	**1. M**

		throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils).	
	2. Struck by/against heavy equipment	**2.** Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius.	**2. M**
	3. Exposed to vehicle traffic	**3.** Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and on site equipment. Drivers are to follow the direction of flaggers/spotters. Drivers are required to wear safety reflective vests whenever they are outside their vehicle. Drivers shall obey all safe-driving regulations, including wearing seat belts. Site vehicles and trucks will be equipped with backup alarms. Signal personnel to use standard traffic control signals. NOTE: When driver is concerned about a location or condition that may cause an incident, injury, or property damage based on their knowledge as a driver and their equipment, the driver is to stop and review the situation with the superintendent and safety officer.	**3.M**
	4. Exposure to high noise	**4.** Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection. Employees on hearing conservation program.	**4. L**
	5. Exposure to high/low ambient temperatures	**5.** Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have	**5. M**

		extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and review the signs and symptoms of heat related illness. Rest as needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers periodically throughout the workday.	
	6. Flying Debris	**6.** Ensure guards are installed and working on tools/equipment. Initiate dust control measures. Wear appropriate PPE (i.e., Safety glasses/goggles/faceshield).	**6. M**
	7. Walking/Working surface	**7.** Good housekeeping practices. Keep walkways and work areas clear of hoses, cords, and clutter. Restrict site to essential personnel. Wear steal toe/composite boots. During winter, maintain work areas clear of accumulating snow or ice.	**7. L**
	8. Hand injuries from pinch points	**8.** Ensure site personnel utilize appropriate hand protection. Avoid placing hands in tight spaces while moving materials.	**8. M**
	9. Falls from elevation	**9.** Personnel/workers shall not ride on moving equipment unless a seat with seatbelt is provided. Maintain three points of contact when climbing on or off equipment. Fall protection required when working from heights greater than 6 feet. Workers shall use the proper sized ladders or stairs to climb to a different height.	**9. M**
	10. Severe Weather	**10.** Monitor weather for severe conditions. Discuss severe conditions with Superintendents when it poses a hazard to workers (i.e. Thunderstorm, Blizzard conditions, etc.)	**10.M**
	11. Fueling operation	**11.** All equipment will be shut down prior to fueling. Do not stage equipment in areas of high vegetation. Observe site smoking policies. Do not smoke during fueling operations. NOTE: Smoking is never permitted while in the Exclusion Zone! Fueling will be accomplished in well-ventilated areas away from ignition sources. Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in contact with the metal of the equipment's fuel tank. Practice good housekeeping habits. Maintain spill response equipment, and ensure that the spill cleanup materials are compatible with materials to be cleaned up. Practice spill prevention at all times. Keep only enough materials on hand for use (to minimize potential amount to spill/leak). Perform proper chemical use and storage. Refer to SDS for proper handling procedures, disposal, cleanup and PPE requirements. Keep a Spill Control and Countermeasures Plan in place, and review/update it periodically. Report all spills/leaks to the	**11. M**

		SSHO. If any spills/leaks occur, they will be contained, identified, and disposed of in accordance with Federal, State, and Local regulations.	

3. Grading and Compacting	1. Struck by/against heavy equipment	**1.** Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius.	**1. M**
	2. Exposure to high noise	**2.** Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection. Employees on hearing conservation program.	**2. M**
	3. Exposure to high/low ambient temperatures	**3.** Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and review the signs and symptoms of heat related illness. Rest as needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers periodically throughout the workday.	**3.M**
	4. Flying Debris	**4.** Initiate dust control measures. Wear appropriate PPE (i.e., Safety glasses/goggles/faceshield).	**4. L**
	5. Walking/Working surface	**5.** Good housekeeping practices. Keep walkways and work areas clear of hoses, cords, and clutter. Restrict site to essential personnel. Wear steal toe/composite boots. During winter, maintain work areas clear of accumulating snow or ice.	**5. M**
	6. Hand injuries from pinch points	**6.** Ensure site personnel utilize appropriate hand protection. Avoid placing hands in tight spaces while moving materials.	**6. M**
	7. Severe Weather	**7.** Monitor weather for severe conditions. Discuss severe conditions with Superintendents when it poses a hazard to workers (i.e. Thunderstorm, Blizzard conditions, etc.)	**7. L**

	8. Fueling operation	**8.** All equipment will be shut down prior to fueling. Do not stage equipment in areas of high vegetation. Observe site smoking policies. Do not smoke during fueling operations. NOTE: Smoking is never permitted while in the Exclusion Zone! Fueling will be accomplished in well-ventilated areas away from ignition sources. Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in contact with the metal of the equipment's fuel tank. Practice good housekeeping habits. Maintain spill response equipment, and ensure that the spill cleanup materials are compatible with materials to be cleaned up. Practice spill prevention at all times. Keep only enough materials on hand for use (to minimize potential amount to spill/leak). Perform proper chemical use and storage. Refer to SDS for proper handling procedures, disposal, cleanup and PPE requirements. Keep a Spill Control and Countermeasures Plan in place, and review/update it periodically. Report all spills/leaks to the SSHO. If any spills/leaks occur, they will be contained, identified, and disposed of in accordance with Federal, State, and Local regulations.	**8. M**
Equipment to be Used	**Training Requirements/Competent or Qualified Personnel name(s)**	**Inspection Requirements**	

Level D PPE (Gloves, Safety Glasses, Work boots, Hardhat, Hi visibility clothing (Class II reflective apparel required when exposed to public vehicle traffic) Walkie Talkie Radios Dozer Roller Misc. Hand tools (shovels, rakes, etc.) Dump Trucks	The SSHO shall be the Competent person for the following: Hazardous Communication Program The Superintendent shall be the competent or qualified person for the following: Backfilling General Operations Site Specific: 1. OSHA HAZWOPER 2. Site specific 3. Daily tailgate safety meetings at which the affected employees can voice their concerns and/or recommendations of the site-specific training requirements. 4. Hazard communication Supervisory Personnel: 1. OSHA supervisor's training Motor Vehicle: 1. Operators shall hold a valid license for the	Site Inspection: 1. Daily inspection by Health and Safety Officer 2. Excavation inspection by the Competent Person as described in Excavation Cave In. Motor Vehicles: 1. Before initial use vehicles will be inspected by a mechanic and found to be in a safe operating condition. Equipment: 1. Before equipment is placed in use it will be inspected and tested by a competent person. 2. Inspections and tests will be done in accordance with manufacturer's instructions. 3. All equipment will be inspected daily when in use by the operator. 4. Inspections and tests will be documented and records

	type and class of vehicle they are operating. Heavy Equipment: 1. Trained and qualified operators. Equipment General: 1. Employees will be qualified and trained to operate or service mechanical equipment.	will be maintained at the site. Personal Protective Equipment (PPE): 1. Disposal PPE shall be inspected before each use. 2. Reusable PPE shall be inspected before use. Any defective PPE shall be repaired or replaced before use. All reusable PPE shall be stored properly before reuse.

Appendix B
Health and Safety Forms

This page is blank for duplex printing.

Job No. _____

Job Address _____

Sevenson Environmental Services, Inc.

Report of Accident, Injury, or Illness

Instructions: Please print. Fill in all blanks. When completed, return this form to Sharon Lee at the main office.

Name _____ Sex:___Age: ___ Social Security Number _____ Birth Date: _____

Address _____ Phone Number _____

Marital Status: ☐ Single; ☐ Married; ☐ Separated; ☐ Divorced; ☐ Widowed

# of Dependents _____ Date of Accident _____ Time _____AM/PM

Date Employee notified employer: _____Who was notified: _____

Employment Start Date:	Wage Rate:
Occupation:	Average Hours Worked:
Date Last Worked:	Average Days Per Week:
Time Shift Began:	Was worker paid for day of injury?
Name of Witness:	Did salary continue?
Describe how the accident happened:	
What was employee doing when injured?	
Describe the injury in detail and indicate part of body affected:	
Name of object or substance that directly injured the employee:	

Date & Time medical attention was sought:

Name, address and phone number of hospital or doctor:
Was employee involved in any other incidents/accidents? If yes, describe:
Any history of work accidents, absenteeism, and/or disciplinary problems:
Substance abuse test administered:____ Yes, ____ No – if no, why not?
Medical release obtained:
Corrective Action Taken:

Supervisor _____ Date _____

Safety Officer _____ Date _____

Comments:_____

_____

_____

_____

Report of Accident, Injury, or Illness

Sevenson Environmental Services, Inc.

Acknowledgment of Site Safety and Health Plan

I certify that I have received a Site orientation and have been given the opportunity to read and ask questions on the contents of the Site Safety and Health Plan to include emergency response actions and the contaminates of concern for the project.

DATE	NAME (please print)	SIGNATURE

Safe Plan Of Action

Project No. _____
Job/Task _____ **Work Area** _____ **Date** _____

Steps of Task	Hazard/Reaction to Change	Safe Plan	Resources

Team Members' Signatures

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

The signature of the supervisor confirms the completion of the hazard assessment and Safe Plan of Action by the crew.

Supervisors Signature: _____ Date_____

Instructions: 1. Write name of job or task in space provided. 2. Conduct walk-through survey of work area. 3. Write the steps of the task in a safe sequence. 4. List all possible hazards involved in each step and reaction to change. 5. In the Safe Plan column, state actions that will be taken to prevent the hazards or injury from reaction to change. 6. In Resources column, list equipment, tools, etc. needed to do the job. 8. Ask each team member, who helped develop and will use this SPA, to sign in spaces provided. 9. Review the SPA at the end of the task for improvements.

Work shall stop when conditions change, the job changes, or a deficiency in the plan is discovered, and the current SPA will be modified or a new SPA created.

Project No. _____

Job/Task _____ **Work Area** _____ **Date:** _____

Team Member Signature Sheet Continuation

~~Review checklist while completing front page of SPA. Check all that apply.~~

A new SPA is required if the job scope or work conditions change.

Required Permits

- ☐ Confined Space
- ☐ Critical Lift
- ☐ Work
- ☐ Lock Out/Tag Out
- ☐ Soil Disturbance (Over 12")
- ☐ Utility Clearance

Required PPE

- ☐ Hard Hat, Class C
- ☐ Hard Hat, Class E *(Elect. Protect)*
- ☐ Ear Plugs/Ear Muffs

Eye Protection:

- ☐ Safety Glasses
- ☐ Face Shield
- ☐ Chemical Goggles
- ☐ Welding Hood

Hand Protection:

- ☐ Cut Resistant Gloves
- ☐ Welders Gloves
- ☐ Nitrile Gloves
- ☐ Surgical Gloves
- ☐ Rubber Gloves
- ☐ Elect. Insulated Gloves
- ☐ Arm Sleeves

Foot Protection:

- ☐ Sturdy Work Boots
- ☐ Safety Toe Boots
- ☐ Rubber Boots
- ☐ Rubber Boot Covers
- ☐ Dielectric Footwear

Respiratory. Protection:

- ☐ Dust Mask
- ☐ Air Purifying Respirator
- ☐ Supplied Air Respirator
- ☐ SCBA
- ☐ Emergency Escape Respirator

Special Clothing:

- ☐ Tyvek ®
- ☐ Poly Coated Tyvek ®
- ☐ Fire Resistant Coveralls
- ☐ Rain Suit
- ☐ Safety Vest

Fall Protection:

- ☐ Harness
- ☐ Double Lanyard Required
- ☐ Anchorage Point Available
- ☐ Additional Anchorage Connector Needed e.g. Cross Arm Strap, etc.
- ☐ Retractable Device Needed
- ☐ Horizontal Life Line System Req'd.
- ☐ Fall Clearance Distance Adequate
- ☐ Fall Rescue/Retrieval Plan Set Up

Hazards

- ☐ Overhead Utilities
- ☐ Crane or other Lifting Equipment
- ☐ Underground Utilities
- ☐ Electrical
- ☐ Excavations
- ☐ Fire Hazard
- ☐ Vehicular Traffic or Heavy Equipment
- ☐ Noise >85 dB
- ☐ Hand & Power Tools:
- ☐ Hand Hazards
- ☐ Manual Lifting
- ☐ Ladders
- ☐ Scaffolds
- ☐ Slips, Trips Falls
- ☐ Pinch Points
- ☐ Working w/ Chemicals
- ☐ Asbestos or Lead Paint Potential
- ☐ Heat Stress Potential
- ☐ Cold Stress Potential
- ☐ Environmental
- ☐ Natural or Site Hazards
- ☐ Adjacent Work/Processes
- ☐ Barricades/covers

Safe Plan

- ☐ Power de-energization required ☐ Insulation blankets required ☐ Wire watcher required
- ☐ Required clearance distance = __Ft. ☐ Safe work zone marked Hot
- ☐ Signalman assigned ☐ Tag lines in use ☐ Area around crane barricaded
- ☐ Lifting equipment inspected ☐ Personnel protected from overhead load
- ☐ Reviewed as-builts ☐ Subsurface surveys ☐ Received dig permit
- ☐ Required clearance distance = _____Ft. ☐ Safe work zone Marked
- ☐ Lock Out/Tag Out/Try Out ☐ Permit required? ☐ Confirm that equipment is de-energized
- ☐ Reviewed electrical safety procedures
- ☐ Permits ☐ Inspected prior to entering ☐ Proper sloping/shoring
- ☐ Barricades provided ☐ Access/egress provided ☐ Protection from accumulated water
- ☐ Hot Work Permit ☐ Fire Extinguishers ☐ Fire watch
- ☐ Adjacent area protected ☐ Unnecessary flammable material removed
- ☐ Traffic Barricades ☐ Cones ☐ Signs ☐ Flagmen ☐ Lane closure
- ☐ Communication with equipment operator ☐ ☐
- ☐ Hearing protection is required: ☐ Ear plugs ☐ Ear Muffs ☐ Both
- ☐ Inspect general cond. ☐ GFCI in use ☐ Identified PPE required for each tool
- ☐ Reviewed safety requirements in operators manual(s) ☐ Guarding OK
- ☐ List sharp tools, material, equipment: _____
- ☐ PPE gloves, etc. ☐ Protected sharp edges as necessary
- ☐ Reviewed proper lifting tech ☐ Identified material requiring lifting equipment
- ☐ Hand protection required ☐ Back support belts
- ☐ Inspect general cond. before use ☐ Ladder inspected with in last quarter
- ☐ Ladder tied off or held ☐ Proper angle and placement ☐ Reviewed ladder safety
- ☐ < Inspect general condition before use ☐ Tags in place ☐ Properly secured
- ☐ Toe boards used ☐ Footings adequate © Materials properly stored on scaffold
- ☐ Inspect for trip hazards ☐ Hazards marked ☐ Tools & material properly stored
- ☐ Extension cords properly secured ☐ Work zone free of debris
- ☐ List potential pinch points: _____
- ☐ Working near operating equipment © Hand/Body positioning
- ☐ List specific chemicals involved and list hazards and precaution on front side.
- ☐ Reviewed MSDS ☐ Exposure Monitoring required ☐ Have proper containers and labels.
- ☐ Identified proper PPE (respirators, clothing, gloves, etc.)
- ☐ Areas to be worked may contain asbestos or lead paint ☐ Asbestos controls incorporated
- ☐ Lead based point controls in place ☐ Exposure monitoring conducted.
- ☐ Heat stress monitoring (>85°) ☐ Liquids available ☐ Cool down periods
- ☐ Sun Screen ☐ Reviewed Heat Stress symptoms
- ☐ Proper clothing (i.e.. gloves, coat, coveralls) ☐ Wind chill <32°
- ☐ Reviewed Cold Stress symptoms ☐ Warm up periods
- ☐ Air emissions ☐ Water discharge ☐ Hazardous wastes ☐ Other wastes
- ☐ Pollution prevention ☐ Waste minimization
- ☐ Weather ☐ Terrain ☐ Adjacent operations or processes ☐ Biological hazards
- ☐ Animals/reptiles/insects hazards
- ☐ Notified them of our presents ☐ Other workers adjacent, above, or below.
- ☐ Coordinated with adjacent supervisor/customer/operator ☐ Need barriers between.
- ☐ Caution barricade tape required ☐ Danger barricade tape required ☐ Rigid railing required
- ☐ Covers over opening ☐ Warning signs required

Additional Information:

Sevenson Environmental Services, Inc.

CONFINED SPACE PERMIT

Date_____ Time of Issue_____ Length of Permit_____
Location _____ Equipment ID_____
~~Purpose of Entry & Description of Work~~ _____
_____

☐ ☐
Authorized Entrant(s)_____
~~Will "HOT" Work be authorized for this Entry?~~ ~~No,~~ ~~Yes (describe)~~_____

HAZARDOUS IDENTIFICATION

Indicate ALL potential Hazards of this Permit Space: ~~YES~~ ~~N/A~~
a. Contains or may contain a hazardous atmosphere ☐ ☐
b. Contains a material for potential engulfment ☐ ☐
c. Has an internal configuration for potential entrapment
~~If "Yes", describe~~ _____

d. Contains the following serious safety or health Hazards:_____

PRE-ENTRY PREPARATION

		YES	N/A	Done			Removed		
				Date	Time	By	Date	Time	By
1. Lines broken and/or blanked:									
Line Contents	Location								
a.									
b.									
c.									
2. Drain or at a workable level									
3. Purge - flush and vent									
4. Force air to bottom & vent									
5. Lock out power feeds:									
Equip/Location of Lock out									
a.									
b.									
6. Shut-off heating systems									
7. Other:									

TEST TO BE TAKEN

	P.E.L.	Time Tester Yes	Time Tester N/A	Time Tester Results	Time Tester Results	Time Tester Results
% of Oxygen	19.5% to 23%					
% of LEL	Any % over 10					
Carbon Monoxide	25 ppm					
Hydrogen Sulfide	10 ppm					
VOC						
Temperature	< 110ºF/43ºC					

PREVENTION OF UNAUTHORIZED ENTRY

~~YES~~

1. Have Worker(s) to enter been trained for this specific entry? ☐
2. Have Attendants been trained for this specific space? ☐
3. Post "WORKER IN CONFINED SPACE" Sign
4. ~~Set-up the following additional barriers:~~ _____

MANDATORY SAFETY EQUIPMENT REQUIRED

	~~YES~~	~~N/A~~
1. Fire Extinguisher	☐	☐
2. Retrieval Lines	☐	☐
3. Respirator	☐	☐
4. Goggles	☐	☐
5. Hearing Protection	☐	☐
6. Protective Clothing	☐	☐
7. Special Boots or Shoes	☐	☐
8. Gloves	☐	☐

~~9. Other Safety Equipment Required~~ _____ _____
_____ _____
_____ _____
_____ _____

COMMUNICATION PROCEDURES AND EQUIPMENT TO BE USED FOR THIS ENTRY

(Verify that chosen equipment is in place and operation.)

Verified by: _____

1._____ _____

2._____

RESCUE EQUIPMENT TO BE PROVIDED ON-SITE

		YES	N/A
a.	Two chest harnesses or two wristlets	☐	☐
b.	Two five minute supplied air escape respirators	☐	☐
c.	One 30 minute S.C.B.A.	☐	☐
d.	One emergency siren	☐	☐
e.	Man basket	☐	☐
f.	Retrieval wench	☐	☐
g.	Other necessary Rescue Equipment	☐	☐

_____

_____

_____

IN CASE OF EMERGENCY

Rescue Service	Phone Number or Ext.
1._____	_____
2._____	_____
3._____	_____

Confined Space Entry Supervisor or designee must sign below AFTER all the above actions are fully understood and conditions necessary for SAFE entry have been met.

Authorization of Entry

Signature (if not CSE Supervisor, add title)	Date	Time

Termination of Entry

Signature	Date	Time

Sevenson Environmental Services, Inc.
Daily Safety Meeting

DATE: **DAY:**	**JOB NAME:** **& NUMBER:**
TOPIC:	

PRINT	SIGNATURE:

Sevenson Environmental Services, Inc.
DAILY SAFETY REPORT

DATE:
WORK PERIOD COVERED:
WEATHER CONDITIONS:
SUMMARY OF DAY'S WORK ACTIVITY:
EQUIPMENT UTILIZED BY SAFETY MONITORS:
PROTECTIVE CLOTHING AND EQUIPMENT BEING USED BY TASK:
PHYSICAL CONDITION OF WORKERS (any heat or cold stress or other medical problems):
ACCIDENTS OR BREACH OF PROCEDURES:
DESCRIPTION OF MONITORING AND AIR SAMPLES TAKEN:
TYPE AND NUMBER OF PERMITS ISSUED: SUMMARY OF TRAINING AND SAFETY MEETING:

NAME:	TITLE: Site Health and Safety Officer
SIGNATURE:	

Sevenson Environmental Services, Inc.

Incoming Trailer Inspection and Off Loading Plan

Truck and Trailer Id# _____ Date:_____

Cargo:_____

Is load properly secured? ☐ YES ☐ NO

If load is not properly secured, is it stable? ☐ YES ☐ NO ☐ N/A

If load is not properly secured, can it be unloaded safely? ☐ YES ☐ NO ☐ N/A

If the load can not be unloaded safely at the site, the load must be rejected.

Methods for removing the load

Equipment	Personnel
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Steps to remove load

1. _____
2. _____
3. _____
4. _____
5. _____

List responsibilities of personnel by name

1. _____
2. _____
3. _____
4. _____
5. _____

Critical Lift Plan required? ☐ YES ☐ NO

Pre Job Briefing Held? YES NO

Signature of attendance

1. _____
2. _____
3. _____
4. _____
5. _____

Sevenson Environmental Services, Inc.

EMPLOYEE & VISITOR LOG

DATE:

PRINT NAME	SIGNATURE	COMPANY	Time In	Time Out

Sevenson Environmental Services, Inc.
Equipment Decontamination Log

Project Number:	Project Name:	Project Supervisor:

Equipment Description	Equipment Number	Date Decontaminated	Date Demobilized

Comments:

Site Safety and Health Officer	Signature

Sevenson Environmental Services, Inc.

Equip Type_____ Equip. ID#_____ Week ending _____ Hours/Miles_____ **ITEM(S) INSPECTED**	MON	TUE	WED	THU	F R I	SAT	SUN
Falling Object Protective Structure (FOP)							
Roll-Over Protective Structure (ROP)							
Seat Belts							
Operator Seat Bar(s)							
Side Shields, Screens, or Cab							
Grab Handles							
Back-Up Alarm - Working							
Lights							
Guards							
Horn							
Anti-Skid Tread Steps Clear of Mud							
Safety Signs/Warning Labels							
Fire Extinguisher							
Oil Level (Full/ No Leaks)							
Operator's Area Clear of Extra Materials							
Controls Function Properly							
Hydraulic System Level (Full/ No Leaks)							
Parking Brake							
Lift Arm and Bucket							
Tires/Tracks							
Steering							
Other:							
Other:							
Operators Initials							

Instructions: Inspect all applicable items at beginning of each shift. If item is found to be unsatisfactory report to Safety Officer or Superintendent immediately.

Sevenson Environmental Services, Inc.

HOT WORK PERMIT

Job Description: ☐ Welding; Torch/oxy/acetylene; Grinding/Cut saw; Maintenance; ☐ Heating Operation; Other: _____

Permit Duration: 4 hrs; 8 hrs; 10 hrs; 12 hrs

Person(s) Performing Hot Work: _____

Fire Watch Required? Yes; No

If yes, Fire Watch Attendant: _____

Air Monitoring Required? Yes; No **Respiratory Protection Required?** Yes; No

MONITORING
(Acceptable Levels)

DATE	TIME	O_2 (19.5-22.0%)	LEL (0-10%)	ORGANIC VAPOR* (0-25ppm)

FIRE PROTECTION

Fire extinguisher present: YES ; Area cleared of combustibles: YES ; Are operations in compliance with OSHA Regulations: YES ;

Activity Hazard Analysis attached and reviewed by affected personnel: YES

Requirements for Performing Hot Work

- **Flame retardant gloves, coat, and proper eye protection (glasses or shield with welding/cutting rated glass lens)**
- **Respirators will be required when welding/cutting/heating areas that cannot be decontaminated or when welding on stainless steel (Cr-VI) or galvanized metal (metal fume fever).**
- **Use fire blankets when necessary to protect material or areas where removing combustibles is not practical.**
- **Inspect welder, lead lines, and ensure unit is properly grounded.**
- **Maintain a 50 ft diameter clearance for flammables (i.e., fuel cans, vapors) an/or 25 ft diameter clearance for combustibles (i.e., wood, rags, debris)**
- **Oxygen & Acetylene bottles are secure with regulators removed and caps installed prior to moving or unattended during breaks**
- **Inspect all hoses, torch, tips and regulators for defects and ensure flash suppressors are installed**
- **Properly store all empty and full cylinders from vicinity and protect from hot work activities**
- **Barricade walkway under any overhead work**
- **If welding shields are not available, barricade and delineate all work areas when using a torch or welder with a minimum distance of 75 feet.**
- **When normal fire prevention precautions are not sufficient, a qualified fire watch is required. The fire watch shall be instructed in anticipated fire hazards and shall perform assigned duties to 30 minutes after hot work was stopped.**
- **At completion of work activity, disassemble all hoses and regulators and properly store**
- **Toxic surface coatings must be removed prior to welding, cutting or heating. A minimum of 4-inches must be cleared from each side of the weld, cut, or heated area.**
- ***If working with fuel oil the PID for organic vapors will be used to determine the LEL due to the poor LEL sensor response to heavy hydrocarbons. Acceptable PID readings for ensuring vapors are less than 10% LEL will be less than 250 ppm VOCs.**

Health and Safety Officer: **DATE:**

Job Safety Enhancement Program

JSEP Form

"You can force compliance, you have to earn commitment"

☐ Safety Observation ☐ Task Improvement ☐ Hazard Identification

Description:_____

_____

_____

_____

Recommendations:_____

_____

_____

_____

Submitted By:_____ Date:_____

_____

JESP Number:_____

Follow up or Corrective Action (if required):_____

_____

_____

_____

Person Responsible for Follow up or Corrective Action:_____

Estimated Completion Date:_____ Actual Completion Date:_____

Person responsible for verification:_____ Date:_____

Figure 1: Lift Plan - Load and Capacity Calculations

Lift Load and Capacity Calculations
(Page 1 of 3)

Lift Description:				
A. Weight of Load (Equipment) – Live Load				
1. Load/Equipment Condition New	( )	Used	( )	
2. Weight of Load/Equipment Empty				Lbs.
3. Weight of Attachments				Lbs.
a. Platforms and Ladders				Lbs.
b. Piping and Accessories				Lbs.
c. Liquids Inside				Lbs.
d. Dirt and Debris				Lbs.
e. Internal Trays or Liners				Lbs.
f. Other				Lbs.
				Lbs.
4. Total Amount of Load/Equipment Weight (A2 through A3f)				Lbs.

B. Total Lifted Weight (load and/or equipment + rigging + main crane deductions)					
1. Load and/or equipment weight plus contingency*		%	7. Wt. Jib Erected		Lb
2. Amount of Equipment Weight		Lb	7a. Wt. Of Jib Stowed		Lb
3. Weight of Headache Ball		Lb	8. Wt. Of Jib Headache Ball		Lb
4. Weight of Main Block		Lb	9. Wt. Of Cable (Load Fall)		Lb
5. Weight of Spreader Bar		Lb	10. Auxiliary Boom Head		Lb
6. Weight of Slings and Shackles		Lb	11. Other:		Lb

*Use 100% plus some percentage (example +10%) to multiply times number in A 4 to allow for contingency to compute B2.

TOTAL LIFTED WEIGHT (Sum B2 thru B11)	Lbs.

Source of Load Weight (A2):
(Name Plate, Drawings, Calculated, Weighed, etc.)

Weights and Calculations By:		Date:	
Weights and Calculations Verified By:		Date:	

(See page 2)

Load and Capacity Calculations (Page 2 of 3)				
C. Capacities of the (Main) Crane				
Make & Model of Crane				
2. Counter Weight Size:		Type of Boom:		
3. Lifting Arrangement				
a. Max. Radius During Lift		Ft.		
b. Length of Boom		Ft.		
c. Angle of Boom at Pick		Deg.		
d. Angle of Boom at Set		Deg.		
Rated Capacity Under Most Severe Conditions				
1. Over Rear		Lbs.		
2. Over Front		Lbs.		
3. Over Side		Lbs.		
f. Rated Capacity for Lift Radius, Crane Configuration, and Orientation (over front, side or….)		Lbs.		
4. Jib				
a. Is the Jib to be used	Yes	No		
b. Length of Jib		Ft.		
c. Jib Angle		Deg.		
d. Rated Jib Capacity for Lift Radius, Crane Configuration, and Orientation (over front, side, or…)		Lbs.		
5. Load Line/Fall Cable				
a. Is Main Block to be used?	Yes	No		
b. Number of Parts of Cable				
c. Size of Cable		Ø inches		
d. Maximum Capacity for Lift Radius, Crane Configuration, and Orientation (over front, side, or ….)		Lbs.		
D. Percent of Cranes Capacity (>85% requires High Hazard Lift Approvals)				
	Total Lifted Weight X 100 = Rated Capacity	%		
E. Size of Slings				
1. Sling Selection				
a. Type of Arrangement		(Spreader, Vertical Slings, etc.		
b. Number of Slings to Hook	Ø	Capacity	Lbs.	
c. Sling Size		Ø		
d. Sling Length		Ft.		
e. Sling Capacity (At angle used)		Lbs.		
f. Number of Slings to Load		#		
g. Total Rigging capacity (e x f)		Lbs.		
Comments:				
Sketch of rigging arrangement available	Yes	No	See Page ( )	
End of Standard Lift Plan Paperwork (				

Comments and Signatures (Page 3 of 3)			
Comments:			
Sketch of rigging arrangement available	**Yes**	**No**	**See Page ( )**
Reviewed by (*additional reviews required for high hazard lifts*):			
Safety Officer:			
Lift Supervisor:			
Rigging Supervisor:			
Crane Operator:			

Figure 2: Pre-Lift Checklist

		Yes	No
1.	Crane operator meets company qualification requirements?	☐	☐
2.	Lift calculations and rigging plan completed?	☐	☐
3.	Are lift equipment swing & travel requirements & clearances known?	☐	☐
4.	Are all required approvals/permits signed?	☐	☐
5.	Crane inspections up to date (Annual/Monthly/Daily)?	☐	☐
6.	Weather conditions and wind speed acceptable?	☐	☐
7.	Has the stability of the ground been assured by soil bearing analysis?	☐	☐
8.	Location and size of underground facilities are known?	☐	☐
9.	Matting and/or outrigger pads inspected and approved?	☐	☐
10.	Electrical equipment and power lines at required distance?	☐	☐
11.	Rigging Inspected for defects?	☐	☐
12.	Engineered lifting lugs fabricated and installed correctly?	☐	☐
13.	Connecting/disconnecting means been developed?	☐	☐
14.	Have the safety precautions been reviewed?	☐	☐
15.	Is survey equipment required?	☐	☐
16.	Lift Hold Point of ≥_____ lbs communicated to crew?	☐	☐
17.	Signal person(s) assigned?	☐	☐
18.	Safe Plan of Action (SPA) Completed?	☐	☐
19.	Pre-Lift Meeting/Task Safety Awareness Meeting (TSA) held?	☐	☐
20.	Hoist area & load path cleared of non-essential personnel?	☐	☐
21.	Crane set up per the lift plan (radius, configuration, etc)?	☐	☐
22.	Rigging equipment and tag line(s) installed per plan?	☐	☐

Completed By Signature: Name Printed: Date:

Sevenson Environmental Services, Inc.

Sevenson Environmental Services, Inc.

Job Safety Enhancement Program

NEAR MISS REPORT

A near miss is a potential hazard or incident that has not resulted in any personal injury . Unsafe working conditions, unsafe employee work habits, improper use of equipment or use of malfunctioning equipment have the potential to cause work related injuries. It is everyone's responsibility to report and /or correct these potential accidents/incidents immediately. Please complete this form as a means to report these near-miss situations.

Location _____ Date: _____

Time _____ ☐ am ☐ pm

Please check all appropriate conditions:

☐ Unsafe Act ☐ Equipment: Defective, broken, damaged

☐ Unsafe Condition ☐ Improper use of equipment ☐ Complacency

Description of incident or potential hazard : _____

_____

_____

Employee Signature _____ Date _____

(optional)

NEAR MISS INVESTIGATION

Description of the near-miss condition: _____

_____

Causes (primary & contributing) _____

_____

Corrective action taken (Remove the hazard, replace, repair, or retrain in the proper procedures for the task)

_____

_____

_____

Signed: _____ Date Completed _____

Not completed for the following reason: _____

Management _____ Date _____

Near Miss Report Number:_____

Sevenson Environmental Services, Inc.

TRAINING ACKNOWLEDGMENT FORM

NAME:

ADDRESS:

SOCIAL SECURITY NO.: XXX-XX-

EMPLOYER:

I have completed and understand the training program for work to be carried out during work at the Site, including the following topics:

a. Work Rules and Safety Requirements
b. Personal Protection Equipment
c. Potentially Hazardous Chemicals
d. Emergency Equipment and Plan
e. Reporting Injuries and Illnesses
f. Emergency Procedures
g. Job Assignment
h. Personal Hygiene
i. Medical Tests
j. Standard Operating Procedures
k. Applicable Rules and Regulations
l. Respiratory Protection
m. Site Safety and Health Plan was reviewed

Site Personnel Signature: _____	Date:_____

I certify that the above has received adequate safety training and instruction and that this person is proficient in the use of protective clothing and equipment and knowledgeable in all aspects of the Health and Safety Plan.

Safety Officer Signature: _____	Date: _____

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Appendix C
Chemical Information Sheets

Polychlorinated Biphenyls (PCBs)

CAS Number: 1336-36-3

What are PCBs?

Polychlorinated biphenyls (PCBs) were developed in the 1940's and were used extensively in the manufacture of transformers, capacitors, and other heat transfer devices through the late 1970's. PCBs are a group of chemicals that have extremely high boiling points and are practically nonflammable. Because of this, they were used extensively as heat transfer fluids in transformers and capacitors. In 1979 their manufacture and importation was banned in the United States, based on mounting evidence that they were toxic to humans and wildlife. Today they are classified as probable human carcinogens and are listed in the top 10% of EPA's most toxic chemicals. At older federal facilities today, there are still many PCB-containing transformers and capacitors. Many of these transformers are at or close to the end of their useful life and proper disposal of them is required to prevent the unnecessary (and unlawful) release of PCBs into the environment.

How might I be exposed to PCBs?

Fish consumption appears to be the major pathway of exposure. PCBs do not easily break down, and can bioaccumulate in the fatty tissues of fish and mammals. A significant trend of increasing body burden is associated with increased fish consumption. People who eat sport-caught fish consumed 2-3 times more fish than the overall U.S. population.

Concentrations of PCBs in subsurface soil at a Superfund site have been as high as 750 ppm. People who live near hazardous waste sites may be exposed to PCBs by consuming PCB-contaminated sportfish and game animals, by breathing PCBs in air, or by drinking PCB-contaminated well water.

Although PCBs are no longer made in the United States, people can still be exposed to them. Many older transformers and capacitors may still contain PCBs, and this equipment can be used for 30 years or more. Old fluorescent lighting fixtures and old electrical devices and appliances, such as television sets and refrigerators, may contain PCBs if they were made before PCB use was stopped. When these electric devices get hot during operation, small amounts of PCBs may get into the air and raise the level of PCBs in indoor air. Because devices that contain PCBs can leak with age, they could also be a source of skin exposure to PCBs.

Workplace exposure to PCBs can occur during the repair and maintenance of PCB transformers, accidents, fires, or spills involving PCB transformers and older computers and instruments, and disposal of PCB materials. In addition to older electrical instruments and fluorescent lights that contain

PCB-filled capacitors, caulking materials, elastic sealants, and heat insulation have also been known to contain PCBs. Contact with PCBs at hazardous waste sites can happen when workers breathe air and touch soil containing PCBs. Exposure in the contaminated workplace occurs mostly by breathing air containing PCBs and by touching substances that contain PCBs.

How can PCBs enter and leave my body?

If you breathe air that contains PCBs, they can enter your body through your lungs and pass into the bloodstream. We do not know how fast or how much of the PCBs that are breathed will pass into the blood. A common way for PCBs to enter your body is by eating meat or fish products or other foods that contain PCBs. Exposure from drinking water is less than from food. It is also possible that PCBs can enter your body by breathing indoor air or by skin contact in buildings that have the kinds of old electrical devices that contain and can leak PCBs. For people living near waste sites or processing or storage facilities, and for people who work with or around PCBs, the most likely ways that PCBs will enter their bodies are from skin contact with contaminated soil and from breathing PCB vapors. Once PCBs are in your body, some may be changed by your body into other related chemicals called metabolites. Some metabolites of PCBs may have the potential to be as harmful as some unchanged PCBs. Some of the metabolites may leave your body in the feces in a few days, but others may remain in your body fat for months. Unchanged PCBs may also remain in your body and be stored for years mainly in the fat and liver, but smaller amounts can be found in other organs as well. PCBs collect in milk fat and can enter the bodies of infants through breast-feeding.

How can PCBs affect my health?

Many studies have looked at how PCBs can affect human health. Some of these studies investigated people exposed in the workplace, and others have examined members of the general population. Skin conditions, such as acne and rashes, may occur in people exposed to high levels of PCBs. These effects on the skin are well documented, but are not likely to result from exposures in the general population. Most of the human studies have many shortcomings, which make it difficult for scientists to establish a clear association between PCB exposure levels and health effects. Some studies in workers suggest that exposure to PCBs may also cause irritation of the nose and lungs, gastrointestinal discomfort, changes in the blood and liver, and depression and fatigue. Workplace concentrations of PCBs, such as those in areas where PCB transformers are repaired and maintained, are higher than levels in other places, such as air in buildings that have electrical devices containing PCBs or in outdoor air, including air at hazardous waste sites. Most of the studies of health effects of PCBs in the general population examined children of mothers who were exposed to PCBs.

Is there a medical test to determine if I have been exposed to PCBs?

Levels of PCBs in the environment were zero before PCBs were manufactured. Now, all people in industrial countries have some PCBs in their bodies. There are tests to determine whether PCBs are in the blood, body fat, and breast milk. These are not regular or routine clinical tests, such as the one for cholesterol, but could be ordered by a doctor to detect PCBs in people exposed to them in the environment and at work. If your PCB levels are higher than the background levels, this will show that you have been exposed to high

levels of PCBs. However, these measurements cannot determine the exact amount or type of PCBs that you have been exposed to, or how long you have been exposed. Although these tests can indicate whether you have been exposed to PCBs to a greater extent than the general population, they do not predict whether you will develop harmful health effects. Blood tests are the easiest, safest, and probably the best method for detecting recent exposures to large amounts of PCBs. Results of such tests should be reviewed and carefully interpreted by physicians with a background in environmental and occupational medicine. Nearly everyone has been exposed to PCBs because they are found throughout the environment, and people are likely to have detectable amounts of PCBs in their blood, fat, and breast milk. Recent studies have shown that PCB levels in tissues from United States population are now declining.

What levels of exposure have resulted in harmful health effects?

Human health studies indicate that: 1) reproductive function may be disrupted by high levels of exposure to PCBs; 2) neurobehavioral and developmental deficits occur in newborns and continue through school-aged children who had in-utero exposure to PCBs; 3) other systemic effects (e.g., self-reported liver disease and diabetes, and effects on the thyroid and immune systems) are associated with elevated serum levels of PCBs; and 4) increased cancer risks, e.g., non-Hodgkin's lymphoma, are associated with PCB exposures.

What recommendations has the federal government made to protect human health?

The federal government has developed regulations, guidelines, and standards to protect people from the possible health effects of exposure to PCBs.

The federal government develops regulations and recommendations to protect public health. Regulations can be enforced by law. Federal agencies that develop regulations for toxic substances include the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), and the Food and Drug Administration (FDA). Recommendations provide valuable guidelines to protect public health but cannot be enforced by law. Federal organizations that develop recommendations for toxic substances include the Agency for Toxic Substances and Disease Registry (ATSDR) and the National Institute for Occupational Safety and Health (NIOSH).

Regulations and recommendations can be expressed in not-to-exceed levels in air, water, soil, or food that are usually based on levels that affect animals; then they are adjusted to help protect people. Sometimes these not-to-exceed levels differ among federal organizations because of different exposure times (an 8-hour workday or a 24-hour day), the use of different animal studies, or other factors.

Recommendations and regulations are periodically updated as more information becomes available. For the most current information, check with the federal agency or organization that provides it. Some regulations and recommendations for PCBs include the following:

The EPA standard for PCBs in drinking water is 0.5 parts of PCBs per billion parts (ppb) of water. For the protection of human health from the possible effects of drinking the water or eating the fish or shellfish from lakes and streams that are contaminated with PCBs, the EPA regulates that the level of PCBs in these waters be no greater than 0.17 parts of PCBs per trillion parts (ppt) of water.

The FDA has set residue limits for PCBs in

various foods to protect from harmful health effects. FDA required limits include 0.2 parts of PCBs per million parts (ppm) in infant and junior foods, 0.3 ppm in eggs, 1.5 ppm in milk and other dairy products (fat basis), 2 ppm in fish and shellfish (edible portions), and 3 ppm in poultry and red meat (fat basis).

OSHA regulates that workers not be exposed by inhalation over a period of 8 hours for 5 days per week to more than 1 milligram per cubic meter of air (mg/m^3) for 42% chlorine PCBs, or to 0.5 mg/m^3 for 54% chlorine PCBs.

NIOSH recommends that workers not breathe air containing 42 or 54% chlorine PCB levels higher than 1 microgram per cubic meter of air ($\mu g/m^3$) for a 10-hour workday, 40-hour workweek.

EPA requires that companies that transport, store, or dispose of PCBs follow the rules and regulations of the federal hazardous waste management program. EPA also limits the amount of PCBs put into publicly owned waste water treatment plants. To minimize exposure of people to PCBs, EPA requires that industry tell the National Response Center each time one pound or more of PCBs has been released to the environment.

Where can I get more information?

If you have more questions or concerns, please contact your state health or environmental department or:

Agency for Toxic Substances and Disease Registry
Division of Toxicology
1600 Clifton Road, E-29
Atlanta, Georgia 30333

References

1. Agency for Toxic Substances and Disease Registry (ATSDR). Public Health Statement for PCBs.
Atlanta, GA: U.S. Department of Health and Human Services, 1990.
2. Birmingham et al. 1989
3. Newhook 1988
4. Fitzgerald et al. 1996
5. Courval et al. 1996

Appendix D
Respiratory Protection Program

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Respiratory Protection Program

Sevenson Environmental Services, Inc.
2749 Lockport Road
Niagara Falls, NY 14305

This respiratory protection program has been written to comply with the applicable OSHA regulations and contract specifications, to provide the basis for the administration of the respirator program, and to serve as a training tool for the affected workers. Specifics of the program such as brands of respirators used, cartridges or filters, and type of monitoring equipment will be provided upon mobilization.

Since respiratory protection, in many instances, will be the primary method for protecting a worker's health, it is Sevenson's policy that all portions of this program be followed and that any deficiencies in the administration and enforcement of this program will be immediately corrected.

The overall responsibility for documenting and administering the respirator program rests with the Project Manager. This responsibility will be delegated to the Senior Site Safety Officer. The Site Safety Officer will be responsible for the purchasing, maintenance, and cleaning of respiratory protective equipment as well as providing "refresher" training for affected personnel. The Certified Industrial Hygienist (CIH) will be responsible for the preparation and evaluation of this program.

The type of respirators that will be used will be selected on the basis of either legally mandated requirements or on the professional judgment of the CIH. OSHA standard 1910.134 and the contract specifications are explicit in the types of respirators that are permitted to be worn when contaminants are handled. Those requirements are based on the airborne concentration of the various types of contaminants. Since monitoring is a requirement of the OSHA standard and contract specifications, sufficient data will be generated to determine the proper type of respiratory protection. The type of respirators to be worn will be chosen from the following types:

1. Half mask air purifying equipped with high efficiency particulate, organic vapor, and acid gas cartridges.
    a. Limited to use in non-IDLH atmospheres where contaminants are effectively removed by purifying cartridges and have good indicator properties.
    b. This style of respirator has an assigned protection factor of 10.
2. Full face air purifying equipped with high efficiency particulate, organic vapor, and acid gas cartridges.
    a. Limited to use in non-IDLH atmospheres where contaminants are effectively removed by purifying cartridges and have good indicator properties.
    b. This style of respirator has an assigned protection factor of 10 or 50. The assigned protection factor of 50 may only be assigned if a quantitative fit test was performed and the wearer achieves a fit factor greater than 500 for the fit test.
3. Powered air purifying air helmet equipped with high efficiency particulate, organic vapor, and acid gas cartridges.
    a. Limited to use in non-IDLH atmospheres where contaminants are effectively removed by purifying cartridges and have good indicator properties.

b. This style of respirator has an assigned protection factor of 25.

4. Powered air purifying respirator equipped with high efficiency particulate, organic vapor, and acid gas cartridges.
    a. Limited to use in non-IDLH atmospheres where contaminants are effectively removed by purifying cartridges and have good indicator properties.
    b. This style of respirator has an assigned protection factor of 1,000.
5. Full face piece supplied-air respirator operated in the pressure demand mode.
    a. Limited to use in atmospheres from which the wearer can escape unharmed without the aid of the respirator. The wearer is restricted in movement by the hose and must return to a respirable atmosphere by retracing his route or entry. The hose is subject to being severed or pinched off.
    b. This style of respirator has an assigned protection factor of 1,000.

It is important that a worker understands the proper use and limitations of the various respirators. Therefore, all workers who are required to wear respirators will undergo a training program that consists of:

1. Nature of the hazards
2. Explanation of why other control methods are not feasible
3. Explanation of the selection criteria for the respirators that are to be used
4. Limitations
5. Inspection
6. Proper donning and wearing
7. Positive and negative pressure fit tests
8. Maintenance
9. Emergency situations

In addition, all respirator users will be given a qualitative fit test.

All respirators will be cleaned and disinfected at the end of each day's use. The following procedure will be used:

1. Cartridges, filters, and canisters will be removed and discarded.
2. Wash respirator in warm water (approx. 120°F) and cleaner/disinfectant solution.
3. Rinse in clean, warm water and then in a 50% isopropyl alcohol solution.
4. Air dry or use a hair dryer.
5. Inspect all parts of respirator and replace any that are missing or defective.
6. Place face piece in plastic bag.

All respirators will be stored in a separate plastic bag and stored in the decontamination trailer.

It will be the responsibility of the site safety officer to assure that all respirators have been

properly inspected and maintained.

The inspection will consist of:

1. Tightness of connections.
2. Condition of face piece, straps, connecting tubes, and canisters.
3. Condition of exhalation and inhalation valves.
4. Pliability and flexibility of rubber parts.
5. Condition of lenses of full face piece respirators.
6. Charge of compressed air cylinder of self contained breathing apparatus.
7. Proper functioning of regulators and warning devices.

As outlined in the air monitoring section of the health and safety plan, personal air samples will be taken to determine the extent of worker exposure. The results of this sampling will be reviewed and evaluated and the proper type of respiratory protection will then be determined by the CIH.

As the work progresses, the type and extent of the health hazards will become more fully documented. Also there is the potential for the development of new hazards. Therefore, this respiratory protection program will be continually evaluated by the on-site safety and health personnel in consultation with the CIH.

All personnel who will be required to wear respirators must participate in the medical surveillance program outlined in the health and safety plan. A certificate stating that the employee is physically able to wear a respirator will be obtained and made available to the owner's representative.

All respiratory protective equipment used on this project will be approved by the National Institute for Occupational Safety and Health.

Air Supplied Breathing Apparatus Standards contains specific requirements for supplied air systems.

Respirator Fit

An employee wearing a respirator can be protected against airborne contaminants only if there is successful sealing of the respirator on his or her face. All employees may not obtain a successful fit for a specific respirator, since facial dimensions vary considerably from person to person. A half face piece must contact a rather complex facial surface and the possibility of leakage is greater than in the case of the full face piece. Studies have shown that temples on glasses, absence of dentures, full beards, handlebar mustaches or wide sideburns can reduce respirator performance by as much as 25 percent.

The respirator face piece-to-face seal will be tested each time the employee enters a contaminated atmosphere. Most respirator manufacturers provide instructions for wearing and leak testing and these instructions will be followed. The training program will cover these procedures. Face piece-to-face fit tests include the following:

A. Positive Pressure Test - close or "block off" the exhalation valve and exhale gently into the face piece. If a slight positive pressure is built up with no apparent outward leakage

around the seal, then the facepiece-to-face seal is satisfactory. Note that this test only applies to those respirators that have an exhalation valve that can be blocked (the exhalation valve cover may have to be removed for the test).

B. Negative Pressure Test - Close the inlet opening or hose of the respirator facepiece with the hand(s), tape or other means, inhale gently so that the facepiece collapses slightly and hold the breath for ten seconds. If the facepiece remains slightly collapsed and no inward leakage occurs, then the facepiece-to-t\face seal is probably satisfactory.

C. The respirator fit test will be performed according to the Qualitative Fit Test (QLFT) protocols as outlined in Appendix D of OSHA Standard 1910.1025, which are detailed below. Positive and negative pressure tests will be performed by the employee before each wearing of his respirator.

The isoamyl acetate protocol is as follows:

a. **Odor Threshold Screening**

1. Three 1-liter glass jars with metal lids (e.g. Mason or Bell jars) are required.
2. Odor-free water (e.g. distilled or spring water) at approximately 25°C will be used for the solutions.
3. The isoamyl acetate (IAA) (also known as isopentyl acetate) stock solution is prepared by adding 1 cc of pure IAA to 800 cc of odor-free water in a 1-liter jar and shaking for 30 seconds. This solution will be prepared new at least weekly.
4. The screening test will be conducted in a room separate from the room used for actual fit testing. The two rooms will be well ventilated but may not be connected to the same recirculating ventilation system.
5. The odor test solution is prepared in a second jar by placing 0.4 cc of the stock solution into 500 cc of odor-free water using a clean dropper or pipette. Shake for 30 seconds and allow to stand for two to three minutes so that the IAA concentration above the liquid may reach equilibrium. This solution may be used for only one day.
6. A test blank is prepared in a third jar by adding 500 cc of odor-free water.
7. The odor test and test blank jars will be labeled 1 and 2 for jar identification. If the labels are put on the lids they can be periodically dried off and switched to avoid people thinking the same jar always has the IAA.
8. The following instructions will be typed on a card and placed on the table in front of the two test jars (i.e. 1 and 2);

"The purpose of this test is to determine if you can smell banana oil at a low concentration. The two bottles in front of you contain water. One of these bottles also contains a small amount of banana oil. Be sure the covers are on tight, then shake each bottle for two seconds. Unscrew the lid of each bottle, one at a time, and sniff at the mouth of

the bottle. Indicate to the test conductor which bottle contains banana oil."

9. The mixtures used in the IAA odor detection test will be prepared in an area separate from where the test is performed, in order to prevent olfactory fatigue in the subject.
10. If the test subject is unable to correctly identify the jar containing the odor test solution, the IAA QLFT may not be used.
11. If the test subject correctly identifies the jar containing the odor test solution, he may proceed to respirator selection and fit testing.

b. **Respirator Selection**

1. The test subject will be allowed to select the most comfortable respirator from a large array of various sizes and manufacturers that include at least three sizes of elastomeric half face pieces and units of at least two manufacturers.
2. The selection process will be conducted in a room separate from where the fit test will take place.
3. The test subject should understand that he is being asked to select the respirator which provides the most comfortable fit for him. Each respirator represents a different size and shape and, if fit properly, will provide adequate protection.
4. The test subject holds each facepiece up to his face and eliminates those which are obviously not giving a comfortable fit. Normally, selection will begin with a half-facepiece and if a fit cannot be found here, the subject will be asked to go to the full face piece respirators. (A small percentage of users will no be able to wear any half-facepiece respirator).
5. The more comfortable face pieces are recorded; the most comfortable mask is donned and worn at least five minutes to assess comfort. Assistance in assessing comfort can be given by discussing the points in #6 below. If the test subject is not familiar with using a particular respirator, he will be directed to don the mask several times and to adjust the straps each time, so that he becomes adept at setting proper tension on the straps.
6. Assessment of comfort will include reviewing the following points with the test subject:
   - Chin properly placed
   - Positioning of mask on nose
   - Strap tension
   - Fit across nose bridge
   - Room for safety glasses

- Distance from nose to chin
- Room to talk
- Tendency to slip
- Cheeks filled out
- Self-observation in mirror
- Adequate time for assessment

7. The test subject will conduct the conventional negative and positive pressure fit checks (e.g. see ANSI Z88.2-1980). Before conducting the negative or positive-pressure checks, the subject will be told to "seat" his mask by rapidly moving the head side-to-side and up and down, taking a few deep breaths.
8. The test subject is now ready for fit testing.
9. After passing the fit test, the test subject will be questioned again regarding the comfort of the respirator. If it has become uncomfortable, another model of respirator will be tried.
10. The employee will be given the opportunity to select a different facepiece and be retested if during the first two weeks of on-the-job wear the chosen facepiece becomes unacceptably uncomfortable.

c. **Fit Test**

1. The fit test chamber will be substantially similar to a clear 55 gallon drum liner suspended inverted over a two foot diameter frame, so that the top of chamber is about six inches above the test subject's head. The inside top center of the chamber will have a small hook attached.
2. Each respirator used for the fitting and fit testing will be equipped with organic vapor cartridges to offer protection against organic vapors. The cartridges or masks will be changed at least weekly.
3. After selecting, donning, and properly adjusting a respirator himself, the test subject will wear it to the fit testing room. This room will be separate from the room used for odor threshold screening and respirator selection, and will be well ventilated, as by an exhaust fan or lab hook, to prevent general room contamination.
4. A copy of the following test exercises and rainbow (or equally effective) passage will be taped to the inside of the test chamber:

Test Exercises

i. Normal breathing.

ii. Deep breathing. Be certain breaths are deep and regular.

iii. Turning head from side-to-side. Be certain movement is complete. Alert the test subject not to bump the respirator on the shoulders.

Have the test subject inhale when his head is at either side.

iv. Nodding head up and down. Be certain motions are complete and made about every second. Alert the test subject not to bump the respirator on the chest. Have the test subject inhale when his head is in the fully up position.

v. Talking. Talk aloud and slowly for several minutes. The following paragraph is called the Rainbow Passage. Reading it will result in a wide range of facial movements, and thus be useful to satisfy this requirement.

Rainbow Passage

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.

vi. Normal breathing.

5. Each test subject will wear his respirator for at least ten minutes before starting the fit test.

6. Upon entering the test chamber, the test subject will be given a six inch by five inch piece of paper towel or other porous absorbent single ply material, folded in half and wetted with three-quarters of one cc of pure IAA. The test subject will hang the wet towel on the hook at the top of the chamber.

7. Allow two minutes for the IAA test concentration to be reached before starting the fit-test exercises. This would be an appropriate time to talk with the test subject, to explain the fit test, the importance of his cooperation, the purpose for the head exercises, or to demonstrate some of the exercises.

8. Each exercise described in No. 4 above will be performed for at least one minute.

9. If at any time during the test, the subject detects the banana-like odor of IAA, he will quickly exit from the test chamber and leave the test area to avoid olfactory fatigue.

10. Upon returning to the selection room, the subject will remove the respirator, repeat the odor sensitivity test, select and put on another respirator, return to the test chamber, etc. The process continues until a respirator that fits well has been found. Should the odor sensitivity test be failed, the subject will wait about five minutes before retesting. Odor sensitivity will usually have returned by this time.

11. If a person cannot be fitted with the selection of half-facepiece respirators, include full facepiece models in the selection process.

12. When the test subject leaves the chamber he will remove the saturated towel, returning it to the conductor. To keep the area from becoming contaminated, the used towels will be kept in a self-sealing bag. There should be no significant IAA concentration buildup in the test chamber from subsequent tests.

13. Persons who have successfully passed this fit test may be assigned the use of the tested respirator in atmospheres with up to ten times the PEL of airborne lead. In other works this IAA protocol may be used to assign a protection factor no higher than ten.

Appendix E
Hazardous Communications Program

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Hazard Communication Program

June 2015

Sevenson Environmental Services, Inc.
2749 Lockport Road
Niagara Falls, NY 14305

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Table of Contents

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Hazard Communication Program

1. PURPOSE

The Hazard Communication Standard, OSHA 1910.1200, recently amended to meet the international Global Harmonization Standard (GHS), is the primary regulation to communicate information about chemical hazards. The regulation requires that each employer develop and implement its own program to assure employees know and understand how to protect themselves from the hazards of using chemicals at Sevenson.

2. SCOPE

This program and the procedures described herein apply and shall be practiced by all Sevenson employees using or potentially exposed to the hazards of chemical in the workplace. This program applies to permanent facilities and construction sites equally.

3. REQUIREMENTS

All employees who may be exposed to hazardous materials will be trained according to the requirements of this Hazard Communication Program BEFORE using or being potentially exposed to hazardous chemical. . The training requirements are in Section 6.

Retraining will occur as needed when new hazards become recognized, when employees become exposed to new hazards as a result of transfer, process changes, or new chemical introductions, or when they demonstrate a lack of understanding and/or adherence to the program requirements. In the event non-English speaking or reading employees are utilized at the site, accommodations will be made to obtain a SDS in their native langue and have someone who can communicate effectively with the individual(s) participate in the training. Employees shall demonstrate comprehension of the chemical hazards they may be exposed to, how to protect themselves from such hazards, how to use an SDS to recognize and avoid those hazards.

4. ROLES & RESPONSIBILITIES

Job site personnel shall be under the general direction of the Sevenson Project Manager. Each project shall also have personnel with the primary responsibility of site safety and who are under the direction of the Sevenson Director of Health and Safety. Facility-based personnel shall be directly responsible to the Director of Health and Safety. Following is a description of the different program roles.

Site Safety/Health Officer (SSHO) reports directly to the Sevenson Director of Health and Safety. The on-site SSHOs are responsible for implementing the Sevenson Hazard Communication Program. Depending upon the size of the project, the SSHOs may have safety technicians reporting to them. The SSHO's are responsible for;

1. Assuring all personnel on the job site have received training described by this program.

2. Obtaining and managing all SDSs of chemicals used on the site.

3. Conveying site-specific hazard communication information.

4. Conducting site observations to assure that this program is properly implemented.

Project Superintendents/field supervisors assigned to field management roles are required to;

1. Enforce the requirements of the Sevenson Hazard Communication Program.

2. Apprise other contractors regarding the hazardous chemicals which their employees may be exposed to. Contractors, whose employees may be exposed to hazardous substances used by Sevenson employees, will be given access to this Hazard Communication Program.

3. Ensure that all Subcontracts working at the site shall submit all SDSs for the materials they are using at the site to the Site Safety and Health Officer. The Site Safety and Health Officer will review the SDSs to ensure the product is not restricted by the site owner.

Craft and Facility Personnel are responsible for carrying out the requirements of this program and notifying their immediate supervisor of any deficiencies or concerns.

5. HAZARD COMMUNICATION PROGRAM

I. INVENTORY

A written inventory of all the hazardous chemicals used or stored by Sevenson is maintained by the Site Safety Officer and is available in the Site Safety Office. Likewise, a written inventory will be maintained at each facility location and will include all chemicals used at that facility.

II. WARNING LABELS

Sevenson will ensure that each container of hazardous chemical in the workplace will be labeled with the following information, provided on the manufacturer's SDS:

a. Identity of the hazard.

b. Appropriate hazard pictogram (see next page).

c. Signal word (danger or warning).

d. Hazard statement with degree of hazard.

e. Precautionary statements.

Employees are required to label secondary containers into which hazardous chemicals are

transferred from labeled containers even if only for immediate use and under constant control. Manufacturer's and/or shipping labels will be left on the containers and that all containers will be labeled.

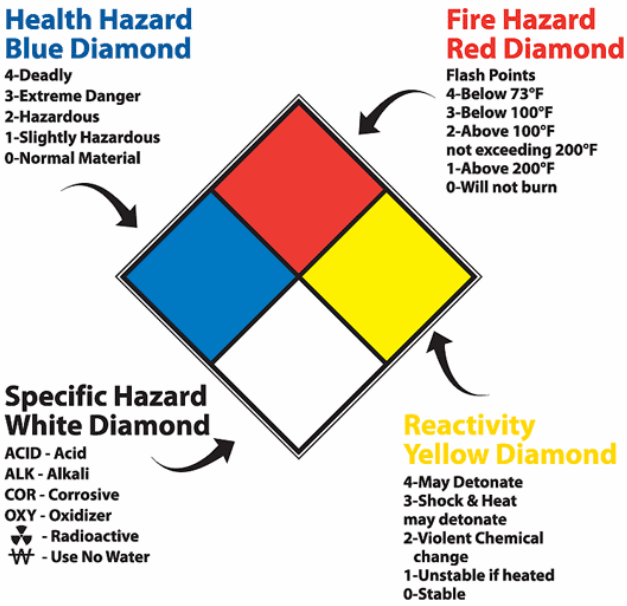
Labeling Chemicals in the Workplace:

HCS Pictograms and Hazards - Mandatory

Health Hazard  ▪ Carcinogen ▪ Mutagenicity ▪ Reproductive Toxicity ▪ Respiratory Sensitizer ▪ Target Organ Toxicity ▪ Aspiration Toxicity	**Flame**  ▪ Flammables ▪ Pyrophorics ▪ Self-Heating ▪ Emits Flammable Gas ▪ Self-Reactives ▪ Organic Peroxides	**Exclamation Mark**  ▪ Irritant (skin and eye) ▪ Skin Sensitizer ▪ Acute Toxicity ▪ Narcotic Effects ▪ Respiratory Tract Irritant ▪ Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder  ▪ Gases Under Pressure	**Corrosion**  ▪ Skin Corrosion/Burns ▪ Eye Damage ▪ Corrosive to Metals	**Exploding Bomb**  ▪ Explosives ▪ Self-Reactives ▪ Organic Peroxides
Flame Over Circle  ▪ Oxidizers	**Environment (non-Mandatory)**  ▪ Aquatic Toxicity	**Skull and Crossbones**  ▪ Acute Toxicity (fatal or toxic)

The following labels may continue to be used in addition to the mandatory requirements above.

NFPA Method – optional



HMIS Method - optional

Refer to the National Paint & Coatings Association for further explanation of the HMIS system.

Informing Vendors and Sub-Contractors

It is the responsibility of the Site Safety Officer to provide contractors the following information:

- Hazardous chemicals to which they may be exposed while on the jobsite; and
- Precautions the employees may take to lessen the possibility of exposure by usage of appropriate protective measures

III. SAFETY DATA SHEET (SDS)

Sevenson shall obtain or develop a SDS for all hazardous chemicals used in the workplace. The SDS is a form that provides more detailed information about a chemical than the label. It is accessible upon request. The SDS file exists both on a computerized data system and in hard copies. The SDS file is maintained by the Site Safety and Health Officer and is available for review at any time from the Safety Office. All material received on-site must have a SDS prior to the use of this material.

Sevenson's procedures - If a SDS is not received with the material, then the procedures for obtaining a SDS are as follows:

Step 1 - A letter will be sent at any time an item is received and a SDS does not accompany it.

Step 2 - If after 30 days, a SDS has not been received, a follow up request will be sent.

Step 3 - If after an additional 30 days from the follow up letter a SDS has not been received, the company will report to OSHA in an attempt to receive the proper information.

Below is a sample letter requesting a SDS:

Sevenson Environmental Services, Inc.
2749 Lockport Road
Niagara Falls, New York 14305

Date

Dear Sir:

The Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200) requires that employers be provided Safety Data Sheets (SDS) for all hazardous substances used in their facility, and to make these forms available to employees potentially exposed to these hazardous substances.

In an effort to comply with these regulations, we ask your cooperation in providing us with a current Safety Data Sheet on (product name) no later than (date). Delays in receiving the SDS information may prevent use of your product.

Please consider this letter as a standing request to your company for any information concerning the safety and health aspects of using this product that may become known in the future.

Your cooperation is greatly appreciated. Thank you for your timely response to this request. If you have any questions concerning this matter, please contact myself at the above address.

Sincerely,

SEVENSON ENVIRONMENTAL SERVICES, INC.

Your name

Title

The Site Safety and Health Officer will review all incoming SDS for completeness and accuracy and make the information directly available to employees. Employees will be advised of precautionary measures in using the product.

The following is an outline of the guidelines used to check for SDS completeness:

A. Is a SDS available for the hazardous chemicals used?

B. Is the SDS in English?

C. Are all mandatory sections of the SDS included?

1. Identification
2. Hazard(s) identification
3. Composition
4. First Aid
5. Fire-fighting
6. Accidental release
7. Handling and storage
8. Exposure limits & controls
9. Properties
10. Stability and reactivity
11. Toxicology
12. Ecological information
13. Disposal
14. Transportation
15. Regulations
16. Other information

D. SDS information and key sections follows;

Section 1. Product Name & Identification

Chemical Manufacturer's Name - this may list one or more alternate manufacturers or importers, the address and emergency telephone number.

Name of Product - generally the trade name, which is an adopted name that is given by a manufacturer to distinguish it as produced by him and that it may be protected as a trademark.

Chemical Name - lists the name of the chemical. (In some cases this may be listed as a "Trade Secret" but the remainder of the SDS should be filled out).

A manufacturer, importer, or employer may withhold the chemical identity if it is a trade secret. However, it must be stated clearly that the chemical is a trade secret and the hazardous nature of the chemical **MUST** still be listed, both on the label and the SDS.

Section 2. Hazard identification

This includes all the information required on the label for that chemical including the hazard pictogram(s), signal word, hazard statement, and precautionary statement(s).

Section 3. Composition/Information on Ingredients

Here you will find information on the chemical identity, common names or synonyms, CAS numbers or other unique identifiers as well as any impurities and stabilizing additives which are themselves classified and which contribute to the classification of a substance and any concentrations of the mixture if applicable.

Section 4. First Aid

Here you will find the immediate treatment and response to an emergency exposure.

Section 5. Firefighting measures

This section provides firefighting measures, e.g., suitable and unsuitable extinguishing media, specific hazards arising from the chemical (nature of any hazardous combustion or decay products), and special PPE for firefighters.

Section 6. Accident Release Measures

Here you will find personal precautions, PPE and emergency procedures, environmental precautions, and methods/materials for containing and cleaning up the release.

Section 7. Handling and storage

This section details how the chemical must be handled to prevent fire, explosion, or spill which could result in exposure to employees or the environment.

Section 8. Exposure controls/personal protection

Here you will find the regulatory allowable exposures, engineering controls, and personal protective equipment necessary to minimize exposure.

Section 9. Physical and Chemical Properties

This section provides information on appearance, odor, odor threshold, pH, melting/freezing point, boiling point and range, flash point, evaporation rate, flammability, upper and lower explosive limits, vapor pressure, relative density, solubility, partition coefficient, auto ignition temperature, decomposition temperature, and viscosity.

Section 10. Stability and Reactivity

This section provides information on reactivity, chemical stability, possibility of hazardous reactions, conditions to avoid (static discharge, shock, vibration) incompatible materials,

hazardous decomposition products.

Section 11. Toxicology Information

This section provides concise but compete and comprehensible description of the various toxicological (health) effects and the available data used to identify those effects.

Section 12. Ecological Information

This section provides information on eco-toxicity, persistence and degradability, bio-accumulative potential, mobility in soil, and other adverse effects.

Section 13. Disposal Information

This provides a description of waste residues and information on their safety handling and methods of disposal, including the disposal of any contaminated package.

Section 14. Transportation Information

This section provides the UN number, UN proper shipping name, transport hazard class(es), packing group, environmental hazards (marine pollutant), transporting in bulk, and special precautions which a user needs to be aware of, or needs to comply with, in connection with the transport or conveyance within or outside their premises.

Section 15. Regulatory Information

This provides safety, health and environmental regulations specific for the product in question.

Section 16. Other Information

This section allows the manufacturer or distributer to add additional information they feel should be conveyed to the user.

6. TRAINING

Prior to handling or being exposed to chemical hazards and as required, each employee shall receive instruction as described below.

A. TRAINING COURSE OUTLINE

I. Course Introduction

A. Chemical Hazard Recognition
B. Sources of Information on Chemical Hazards
C. Control of Chemical Hazards

II. Chemical Hazard Recognition

Employees shall be instructed of the health hazards of each hazardous chemical in

their workplace.

A. Types of Hazards

1. Physical Hazards - employees shall be instructed on the fire hazard of hazardous chemicals in their workplace.

   a. Combustible liquid
   b. Compressed Gas
   c. Explosive
   d. Flammable
   e. Oxidizer
   f. Pyrophoric
   g. Unstable or Reactive

2. Health Hazards

   a. Acute Hazards

      i. corrosive
      ii. highly toxic
      iii. toxic
      iv. irritant
      v. sensitizer

   b. Chronic Hazards

      i. carcinogens
      ii. mutagens
      iii. teratogens and reproductive toxins
      iv. hepatotoxins
      v. nephrotoxins
      vi. neurotoxins
      vii. other toxic effects

Employees shall be instructed on how to protect themselves when exposed to hazardous chemicals. They will also be instructed on the type and use of personal protective equipment required when using a particular hazardous chemical.

B. Routes of Entry

1. Ingestion
2. Inhalation
3. Skin absorption

C. Symptoms of Exposure to Hazardous substances

1. Acute exposure

   a. Short term exposure period

b. Usually high concentrations
c. Immediate health effect

2. Chronic exposure

a. Long term exposure period
b. Usually low concentrations
c. Long term health effects

3. Types of reaction to acute and chronic exposures

a. Chronic lung disease-silica, cotton dust
b. Anesthetics-solvent vapors
c. Irritants-formaldehyde, acids
d. Chronic liver damage-carbon tetrachloride
e. Sensitizers-reactive dyes
f. Cutaneous Hazards-ketones, chlorinated compound
g. Eye hazards-methanol, acids

D. Relationship of Dose to Risk

1. Toxicity of chemical
2. Concentration of chemical
3. Mode of exposure and exposure time
4. The greatest risk is posed by toxic substances that are:
   a. highly toxic
   b. present in high concentrations and
   c. to which employees are exposed to several hours per day/day after day

E. Exposure standard

1. OSHA Permissible exposure limits

a. 8-hour time weighted averages
b. 15 minute ceiling
c. legally binding

2. ACGIH Threshold Limit Values

a. 8-hour time weighted averages
b. instantaneous ceiling
c. not legally binding

3. Other Relevant Standards or Criteria

a. NIOSH Criteria Documents
b. ANSI Standards
c. EPA Health Assessment Documents

4. Common Features of Exposure Limits

a. units-very small amounts

i. ppm, ppb, ppt
ii. mg/m3, ug/m3

b. Not "safe" limits but exposure to concentration below levels is generally low risk

III. Sources of Information on Chemical Hazards

A. Summary of HCS

1. Hazard determination-performed by manufacturer
2. SDS
3. Labeling
4. Training Requirements
5. Written Hazard Communication Program
6. List of Hazardous substances in workplace

B. Contents of a SDS

1. Manufacturer's address and phone number
2. Hazardous ingredients/identity
3. OSHA, PEL, ACGIH, TLV, other recommended limits
4. Physical/Chemical characteristics
   a. boiling point
   b. vapor pressure
   c. vapor density
   d. solubility in water
   e. specific gravity
   f. melting point
   g. evaporation rate
   h. appearance and odor
5. Fire and explosion hazard data
   a. flash point
   b. flammable limits
   c. explosive levels
   d. extinguishing media
   e. special firefighting procedures
   f. unusual fire and explosion hazards
6. Reactivity Data
   a. stability
   b. conditions to avoid
7. Health Hazard Data
   a. routes of entry
   b. acute and chronic hazards, including carcinogen
   c. signs and symptoms of exposure

d. medical conditions aggravated by exposure
e. emergency first aid procedures

8. Precautions for Safe Handling and Use

a. steps to be taken in handling and storage
b. waste disposal method
c. precautions to be taken in handling and storing
d. other precautions

9. Control measures

a. ventilation

i. local exhaust, special
ii. mechanical other

b. sealed systems
c. other engineering controls
d. respiratory protection
e. protective gloves
f. other protective clothing or equipment
g. eye protection
h. workplace practices, industrial hygiene procedures

C. Labeling

1. Labels tell you

a. what the principal hazards are
b. what precautions you should take
c. emergency first aid procedures

2. Labels provide this information by

a. words
b. symbols
c. numbers
d. colors
e. combinations

D. Recognizing Hazardous Chemicals are present

1. Appearance or odor of hazardous chemicals
2. Physical or health effects
3. Monitoring
4. Inventory Control

IV. Control of Chemical Hazards

A. Chemical Hazards are Controlled by Various Methods

1. Engineering control, e.g. ventilation

2. Workplace practices e.g., grounding containers of flammable substances
3. Personal protective devices
    a. gloves, shoes
    b. safety glasses
    c. protective clothing
    d. dust masks
    e. respirators
4. Isolation of chemical

B. Safe Handling of Hazardous Chemicals

1. Storage practices
2. Reactivity considerations
3. Proper containers
4. Spill prevention
5. Spill cleanup procedures
6. Personal protective equipment

Appendix F
Fall Protection Program

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Fall Protection Program

Sevenson Environmental Services, Inc.
2749 Lockport Road
Niagara Falls, NY 14305

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Table of Contents

Attachments

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1.0 Introduction

The objective of this Fall Protection Program is to identify and evaluate fall hazards to which employees will be exposed and to provide specific training as required by the Occupational Safety and Health Administration (OSHA) Fall Protection Standard, 29 CFR 1926, Subpart M and the USACE Health and Safety Manual EM 385-1-1, Section 21.

2.0 Policy

It is the policy of Sevenson Environmental Services, Inc. (Sevenson) to protect its employees and sub contractors from occupational injuries by implementing and enforcing safe work practices and appointing a competent person(s) to manage the Fall Protection Program. This Fall Protection Program shall comply with OSHA and USACE requirements. A copy of the EM 385-1-1 and OSHA Fall Protection Standards shall be made available to all employees, and may be obtained from the Site Safety and Health Officer(s) (SSHO).

This Fall Protection Program covers the use of Personal Fall Arrest Systems at a number of areas at the Site. These areas are:

1. Working at heights greater than 6 feet or leading edge work
2. Working in aerial/man lifts
3. Securing of ladders

3.0 Definitions

Anchorage – means a secure point of attachment for lifelines, lanyards or deceleration devices.

Basic rescue – means providing rescue services for a fallen employee(s) who does not require immediate emergency medical services and can be performed with a ladder or aerial lift man basket.

Body harness – means straps which may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist, chest and shoulders with means for attaching it to other components of a personal fall arrest system.

Deceleration device – means any mechanism, such as a rope grab, rip-stitch lanyard, specially-woven lanyard, tearing or deforming lanyards, automatic self-retracting lifelines/lanyards, etc., which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.

Deceleration distance – means the additional vertical distance a falling employee travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which the deceleration device begins to operate. It is measured as the distance between the location of an employee's body harness attachment point at the moment of activation (at the onset of fall arrest forces)

of the deceleration device during a fall, and the location of the attachment point after the employee comes to a full stop.

Guardrail system – means a barrier erected to prevent employees from falling to lower levels.

Infeasible – means that it is impossible to perform the construction work using conventional fall protection systems (i.e., guardrail system, safety net system, or personal fall arrest system) or that it is technologically impossible to use any one of the these systems to provide fall protection.

Lanyard – means a flexible line of rope, wire rope, or strap which generally has a connector at each end for connecting the body harness to a deceleration device, lifeline, or anchorage.

Personal Fall Arrest System – means a system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these.

Positioning device system – means a body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning.

Self-retracting lifeline/lanyard – means a deceleration device contained in a drum-wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which, after onset of a fall, automatically locks the drum and arrests the fall.

Unprotected sides and edges – means any side or edge (except entrances to point of access) of a walking/working surface, e.g., floor, roof, ramp, or runway where there is no wall or guardrail system at least 39 inches high.

4.0 Duties and Responsibilities

1. Sevenson

   It is the responsibility of Sevenson to provide fall protection to affected employees, and to ensure that all employees understand and adhere to the procedures of this plan and follow the instructions of Site Safety and Health Officer (SSHO) or Competent Person.

2. Program Manager – Mr. Eric Tschudi

   It is the responsibility of SSHO as the Fall Protection Program Manager to implement this program by:

   1. Performing routine safety checks of work operations;
   2. Enforcing Site safety policy and procedures;
   3. Correcting any unsafe practices or conditions immediately;
   4. Training employees and supervisors in recognizing fall hazards and the use of fall protection systems;

5. Maintaining records of employee training, equipment issue, and fall protection systems used at the Site; and
6. Investigating and documenting all incidents that result in employee injury.

3. Competent Person

   Is it the responsibility of the Competent Person to:

   1. Understand the hazards posed by falls.
   2. Calculate fall forces.
   3. Understand the methods of fall protection.
   4. Assist in the implementation of the Fall Protection Program.
   5. Select, inspect and maintain the fall arrest equipment.
   6. Ensure Site personnel are properly trained in the use and limitation of fall protection.

4. Employees

   It is the responsibility of all employees to:

   1. Understand and adhere to the procedures outlined in this Fall Protection Program;
   2. Follow the instructions of the SSHO or Competent Person;
   3. Bring to management's attention any unsafe or hazardous conditions or practices that may cause injury to either themselves or any other employees; and
   4. Report any incident that causes injury to an employee, regardless of the nature of the injury.

5.0 Description of Tasks

(Examples – Specific tasks to be entered once idenditified)

1. Working at heights greater than 6 feet for construction activities or leading edge work

   Workers may be exposed to falling greater than six feet from either working at heights or working near the edge of a drop off.

2. Working in aerial/man lifts

   Workers may utilize aerial lifts at the Site to perform maintenance on equipment or systems. Any time a person is in the basket of an aerial lift they will utilize a restraining system.

3. Securing ladders

   Workers may have to utilize ladders at the Site to perform assigned job tasks. Any time a person utilizes a straight ladder that must be secured a Fall

Protection Plan will be completed to ensure a safe plan has been developed to protect workers.

6.0 Training Requirements

All employees who may be exposed to fall hazards are required to receive training on how to recognize such hazards, and how to minimize their exposure to them. Employees shall receive training as soon after employment as possible, and before they are required to work in areas where fall hazards exist.

A record of employees who have received training and training dates shall be maintained by the SSHO. Training of employees shall include:

1. Nature of the fall hazards employees may be exposed to.
2. Correct procedures for erecting, maintaining, disassembling, and inspecting fall protection systems.
3. Use and operation of controlled access zones, guardrails, personal fall arrest systems, safety nets, warning lines, and safety monitoring systems.
4. Limitations of the use of mechanical equipment during roofing work on low-slope roofs (if applicable).
5. Correct procedures for equipment and materials handling, and storage and erection of overhead protection.
6. Requirements of the OSHA Fall Protection Standard, 29 CFR 1926, Subpart M and the USACE EM 385-1-1 Section 21, “Fall Protection”.
7. Sevenson and USACE requirements for reporting incidents that cause injury to an employee.
8. Documented training for personnel utilizing an aerial lift.

Additional training shall be provided on an annual basis, or as needed when changes are made to this Fall Protection Program, the EM 385-1-1 (pertaining to fall protection), or the OSHA Fall Protection Standard.

7.0 Anticipated Hazards

Prior to the use of a personal fall arrest system a Fall Protection Plan, a Fall Hazard Analysis (FHA), and an Activity Hazard Analysis (AHA) will be completed for the associated task. The Fall Protection Plan (Attachment 1) will be completed by the SSHO or his designee. The Fall Protection Plan, FHA, and AHA will identify the anticipated hazards and the controls to be implemented to reduce or eliminate these hazards.

Some of the anticipated hazards at the Site include leading edge work at the Reservoir, the use or aerial lifts, erection of the sediment treatment equipment, and work from ladders.

8.0 Fall Hazard Prevention and Control

<u>Engineering Controls</u>

This should always be the first option for selection whenever possible (i.e., light bulb changing, telescoping arm, changing valve, relocate at ground level).

Guardrails

For all work areas, only guardrails made from steel, wood, and wire rope will be acceptable. All guardrail systems will comply with the current OSHA and EM 385-1-1 standards (i.e., withstand 200 pounds of force, 42-inch high hand rail, midrail, and toeboard). These guardrails will be placed in the following areas if necessary or feasible based on job location or requirements:

1. On all open sided floors.
2. Around all open excavations or pits.
3. On leading edges of roofs or decking.

Personal Fall Protection Systems

All employees that will be required to wear a personal fall arrest or restraint system will follow these guidelines:

1. A full body harness will be used at **all** times.
2. **All personal fall arrest systems will be inspected before each use by the employee.** Any deteriorated, bent, damaged, impacted and/or harness showing excessive wear will be removed from service.
3. Connectors will be inspected to ensure they are drop forged, pressed, or formed steel or are made of equivalent materials **and** that they have a corrosion resistant finish as well as that all surfaces and edges are smooth to prevent damage to interfacing parts of the system.
4. Verify that D rings and snap hooks have a minimum tensile strength of 5,000 lbs and that the D rings and snap hooks are proof tested to a minimum tensile load of 3,600 lbs without cracking, breaking, or taking permanent deformation.
5. Only shock absorbing lanyards or retractable lanyards are to be used so as to keep impact forces at a minimum on the body (fall arrest systems).
6. Only nylon rope or nylon straps with locking snaphooks are to be used for restraints.
7. All lanyards will have self-locking snaphooks.
8. Snap hooks are not engaged in the following manners:
    a. To a tie off adapter D ring to which another snap hook or other connector is attached;
    b. In a manner that would result in a load on the gate;
    c. In a false engagement, where features that protrude from the snap hook or carabiner catch on the anchor and without visual confirmation seems to be fully engaged to the anchor point;
    d. To each other;

e. Directly to webbing or rope lanyard or tie-back unless the manufacturer's instructions for both the lanyard and the connector specifically allow such a connection;

f. To any object which is shaped or dimensioned such that the snap hook or carabiner will not close and lock, or that rollout could occur.

9. The maximum free fall distance is not to exceed **6 feet**. Consideration must be given to the total fall distance. The following factors can affect total fall distance:

   a. Length of connecting means (i.e., lanyard length, use of carabiners, snaphooks, etc.).

   b. Position and height of anchorage relative to work platform/area (always keep above head whenever possible).

   c. Position of attachment and D-ring slide on the full body harness.

   d. Deployment of shock absorber (max 42-inches).

   e. Movement in lifeline.

   f. Initial position of worker before free fall occurs (i.e., sitting, standing, etc.).

Calculating Total Fall Distance

Knowing how to calculate Total Fall Distance is as important as picking the proper harness, lanyard, and anchorage system. Total Fall Distance (TFD) is defined as the sum of the Free Fall Distance (FFD), Deceleration Distance (DD), Harness Effect (HEFF), Vertical Elongation (VEL), and Safety Factor (SF) of at least one foot. The TFD can be calculated by:

TFD = FFD+DD+HEFF+VEL+SF

Where:

- TFD Total Fall Distance or the vertical distance a worker travels between the onset of a fall till the fall event is completed.
- FFD Free Fall Distance or the vertical distance a worker travels between the onset of a fall until just prior to the point where the Fall Arrest System begins to arrest the fall.
- DD Deceleration Distance or the vertical distance a worker travels between the activation of the Fall Arrest System and the final fall arrest. (Federal OSHA limits this distance to 3.5-feet or less. This distance is determined by the manufacturer and can be found on the product label.)
- HEFF Harness Effect Distance or the stretch of a harness during a fall arrest. (This is typically one foot or less for a properly fitted harness. However, some harnesses use elastic-type webbing that

can increase the harness effect to two feet or more. Check manufacturer's information to determine this distance.)

- VEL Vertical Elongation Distance or the stretch in the lifeline of the Personal Fall Arrest System. Vertical Elongation is measured on the part of the lifeline that is under tension during deceleration and final fall arrest. This variable will change drastically depending upon the type of Fall Arrest System. For example, most shock- absorbing lanyards are designed to have a maximum deceleration distance of 3.5 feet, which includes the vertical elongation of the lanyard. However, if you are using a rope grab system or a horizontal lifeline, vertical elongation must be calculated based on the stretch of the vertical or horizontal lifelines in those systems. You will need to check the specific manufacturers' product information for exact stretch percentages.
- SF Safety Factor Distance is an additional factor of safety to ensure that you have the required clearance below your working surface. This should be at least one foot but can reflect any number with which you feel comfortable.

Example:

- Full body harness
- 6-foot shock absorbing lanyard
- Fixed, ridged anchor point (such as a D-plate bolted to a structural I-beam)
- Figure , provides visual for example

Figure 1- Example for Calculating Fall Distance

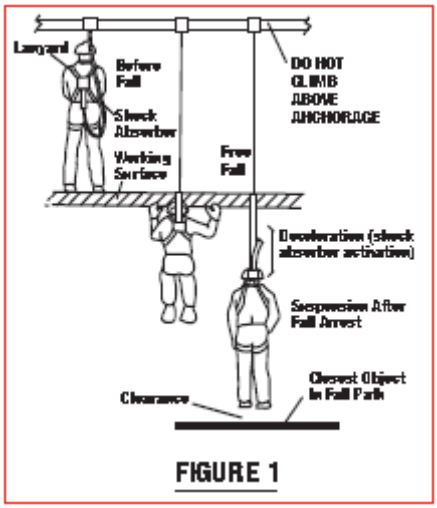

FIGURE 1

In Figure 1 we see a worker with a 6-foot shock absorbing lanyard on an elevated platform. In this example, let's assume the anchor point is 2-feet about the back D-ring of the harness. For every 1-foot the lanyard attachment point is above the harness back D-ring, 1-foot is deducted from the FFD. For every 1-foot the

lanyard attachment point is below the harness back D-ring, 1-foot is added to the FFD. In this example, if the worker falls, the FFD will equal 4-feet since the lanyard attachment point is 2-feet above the back D-ring of the harness. So the formula looks like this:

- TFD = 4 feet + DD + HEFF + VEL + SF

The next value to consider is Deceleration Distance or the DD. Federal OSHA requires that this distance not exceed 3.5-feet. Since all manufacturers' products are slightly different, you will have to read the label or product specification sheet to determine the maximum DD that a product will permit and use that value for your calculation. In this example, the maximum deceleration distance will be 3.5- feet.

- TFD = 4 feet + 3.5 feet + HEFF + VEL + SF

The Harness Effect or HEFF variable is relatively constant at less than 1-foot. This will vary slightly due to the adjustment of the harness, so we generally use 1-foot to account for these slight differences. However, elastic type harnesses can have more than 1-foot of stretch, possibly 2-feet or more, and that additional distance must be accounted for in your calculation. In this example, we are using a non-elastic harness.

- TFD = 4 feet + 3.5 feet + 1 foot + VEL + SF

Most manufacturers design their shock absorbing lanyards so that the vertical elongation of the lanyard is included in the OSHA mandated 3.5-feet maximum DD. However, if we were using a rope grab or vertical life line, or if you were attaching to a non-ridged anchorage connector, the VEL would need to be based on the specifications of those components in the Fall Arrest System. Since this example uses a ridged anchor point and a 6-foot shock absorbing lanyard and the VEL is already considered in the lanyard design the VEL for our equation will be zero (0).

- TFD = 4 feet + 3.5 feet + 1 foot + 0 feet + SF

The final variable of the formula is the safety factor or SF. It is always a good idea to include at least 1-foot, however, that safety factor could reflect any number that makes you comfortable with your calculation. If you are using a non-ridged system it would not be uncommon to see a SF of 3-feet or more.

- TFD = 4 feet + 3.5 feet + 1 foot + 0 feet + 1-foot

We can now solve for Total Fall Distance or TFD. The TFD for this example would be 9.5-feet. So, you will need a minimum of 9.5-feet clearance from the workers feet to the next level or object below.

NOTE: Some people calculate the TFD from the anchor point, to modify this equation to reflect the distance from the anchor point you would add the distance from the working surface to the workers D-ring and add it to the equation.

Example: Let's use the same example from above. The distance from the working level (the level the worker is standing on) to the distance the harness D-ring is from

that surface is 5-feet. You would add 5-feet to 9.5 feet for a total distance of 14.5-feet from the anchor point to the lower level or object.

Engineered Lifeline

Lifeline systems must be designed and approved by an engineer or qualified person. Lifeline systems must be engineered to have appropriate anchorages, strength of line designed to hold X number of individuals connected to it, line strength to aid in the arrest of a fall, and durability to hold a fallen employee(s) suspended until rescue can occur.

Warning Line System

All flat roofs greater than 50 feet wide (i.e., roof with less than 4/12 slope) where work is performed 6 feet or further back from the edge of the roof can be completed by installing a Warning Line and using a safety monitor. Warning Lines will consist of the following:

1. Will be erected 6 feet from the edge of the roof.
2. Be constructed of stationary stanchions capable of resisting without tipping over a force of at least 16 pounds applied horizontally against the stanchion.
3. Wire, chain, or rope shall be rigged and supported in such a way that at its lowest point (including sag) is no less than 34 inches from the walking/working surface and its highest point is no more than 39 inches for the walking/working surface.
4. Wire, chain, or rope will be flagged at no more than 6-foot intervals with high visibility material. The rope, wire or chain shall have a minimal tensile strength of 500 pounds.
5. The warning line will guard the entire perimeter of the roof where work is being performed.

If an employee must access an area within 6 feet of the roof edge for reasons *other than* exiting the roof via a ladder or fixed industrial ladder, another employee must monitor that individual and warn him/her of any dangers. If another employee is not available to act as a safety monitor, then the employee must don a full body harness and attach a fall restraint lanyard to an anchor point to prevent reaching the edge of the roof.

9.0 Rescue Plan and Procedure

The height of the work to be performed at the Site requiring the use of personal fall arrest systems is less than 20 feet.

An employee who falls must be rescued within 15 minutes to avoid permanent physical harm. Site personnel will be responsible for performing basic rescue for persons involved in a fall arrest situation when no life threatening injuries are present. If a situation occurs where the fallen person receives injuries that require immediate emergency medical attention, local emergency services will be summons via 911.

The following basic rescue equipment will be made available at the Site where personal fall arrest systems are employed:

- A straight or folding ladder tall and strong enough to reach the maximum height an individual may be suspended from.
- In the absence of a suitable ladder, an aerial lift with a man basket may be used.

Basic rescue equipment shall be located and inspected prior to work being performed. During the rescue, ladders will be properly positioned and either held in place or secured in place to prevent the ladder from sliding or falling. If a fallen worker cannot access the ladder under their own power, 911 will be immediately called for rescue assistance. At no time will the ladder weight restriction be compromised to perform a basic rescue.

If injuries are involved where the worker cannot be moved or should not be moved, 911 will be immediately called for rescue assistance.

A medical professional must evaluate and clear any worker involved in a fall arrest stop for suspension trauma before being allowed to resume work duties.

10.0 Designs of Personal Fall Arrest Systems

Personal fall arrest systems will be designed by a professional engineer and installed as directed by the manufacturer. All equipment used in a personal fall arrest system shall meet the requirements set forth in ANSI/ASSE Z359.1-2007. Full body harnesses labeled to meet the requirements of ANSI A10.14 shall not be used. The SSHO shall ensure all personal fall arrest system equipment meets these standards by showing proof from the manufacturer. The proof can be presented by the manufacturer in either as built drawings/specifications or affixed tags to the system parts.

11.0 Inspection, Maintenance, and Storage of Fall Protection Equipment

The following criteria will be utilized to maintain all equipment in good working condition.

Full Body Harnesses

1. Inspect before each use.
    - Closely examine all of the nylon webbing to ensure there are no burn marks, which could weaken the material.
    - Verify there are no torn, frayed, broken fibers, pulled stitches, or frayed edges anywhere on the harness.
    - Examine D-ring for excessive wear, pits, deterioration, or cracks.
    - Verify that buckles are not deformed, cracked, and will operate correctly.
    - Check to see that all grommets (if present) are secure and not deformed from abuse or a fall.
    - Harness should never have additional punched holes
    - All rivets should be tight, not deformed.
    - Check tongue/straps for excessive wear from repeated buckling.

2. Semi-annual inspection of all harnesses will be completed by the SSHO; documentation will be maintained on file.
3. Storage will consist of hanging in an enclosed cabinet, to protect from damage.
4. All harnesses that are involved in a fall will be destroyed.

Lanyards/Shock Absorbing Lanyards

1. Inspect before each use.
    - Check lanyard material for cuts, burns, abrasions, kinks, knots, broken stitches and excessive wear.
    - Inspect the snaphooks for hook, locks, and eye distortion.
    - Check carabiner for excessive wear, distortion, and lock operation.
    - Ensure that all locking mechanisms seat and lock properly.
    - Once locked, locking mechanism should prevent hook from opening.
    - Visually inspect shock absorber for any signs of damage, paying close attention to where the shock absorber attaches to the lanyard.
    - Verify that points where the lanyard attaches to the snaphooks are free of defects.
2. Semi-annual inspection of all harnesses will be completed by the SSHO; documentation will be maintained on file.
3. Storage will consist of hanging in an enclosed cabinet, to protect from damage.
4. All lanyards that are involved in a fall will be destroyed.

Snaphooks

1. Inspect before each use.
    - Inspect snaphooks for any hook and eye distortions.
    - Verify there are no cracks, pitted surfaces, and eye distortions.
    - The keeper latch should not be bent, distorted, or obstructed.
    - Verify that the keeper latch seats into the nose without binding.
    - Verify that the keeper spring securely closes the keeper latch.
    - Test the locking mechanism to verify that the keeper latch locks properly.
2. Semi-annual inspection of all harnesses will be completed by the SSHO; documentation will be maintained on file.
3. All snaphooks involved in a fall will be destroyed.

Self-Retracting Lanyards

1. Inspect before each use.
    - Visually inspect the body to ensure there is no physical damage to the body.
    - Make sure all back nuts or rivets are tight.
    - Make sure the entire length of the nylon strap is free of any cuts, burns, abrasions, kinks, knots, broken stitches, and excessive wear and retracts freely.
    - Test the unit by pulling sharply on the lanyard to verify that the locking mechanism is operating correctly.
    - If manufacturer requires, make certain the retractable lanyard is returned to the manufacturer for scheduled annual inspections.
2. Semi-annual inspection of all harnesses will be completed by the SSHO; documentation will be maintained on file.
3. Service per manufacturer specifications.
4. Inspect for proper function after every fall.

Tie-off Adaptors/Anchorages

1. Inspect for integrity and attachment to solid surface.
2. Semi-annual inspection of all harnesses will be completed by the SSHO; documentation will be maintained on file.
3. All tie-offs adapters will be destroyed and replaced after a fall.

Articulating Man Lift

1. Inspect before each use.
2. Inspect/service per manufacturer guidelines. Forklift, scissors lifts, and safety nets will be inspected at the beginning of each shift in use. Structural integrity or forklift basket will be checked per same schedule.
3. Semi-annual inspection of all harnesses will be completed by the SSHO; documentation will be maintained on file.

Maintenance will be performed as specified by the manufacturer.

Personal fall arrest equipment will be stored as follows:

1. Never store the personal fall arrest equipment in the bottom of a tool box, on the ground, or outside exposed to the elements (i.e., sun, rain, snow, etc.).
2. Hang equipment in a cool dry location in a manner that retains its shape.
3. Always follow manufacturer recommendations for inspection.
4. Clean with a mild, nonabrasive soap, and hang to dry.
5. Never force dry or use strong detergents in cleaning.
6. Never store equipment near excessive heat, chemicals, moisture, or sunlight.

7. Never store in an area with exposures to fumes or corrosives elements.
8. Avoid dirt and build-up on equipment.
9. Never use this equipment for any purpose other than personal fall arrest.
10. Once exposed to a fall, remove equipment from service immediately.

A designated storage area will be established for personal fall arrest equipment. An inspection sheet will be posted at the storage area to allow site personal to document their inspection prior to use. The inspection sheet will also provide direction and requirements for ensuring the equipment is in satisfactory condition.

12.0 Incident Investigation Procedures

All incidents that result in injury to workers, as well as near misses, regardless of their nature, shall be reported and investigated. The SSHO and Site Superintendent shall conduct investigations as soon after an incident as possible to identify the cause and means of prevention to eliminate the risk of reoccurrence.

In the event of such an incident, the Fall Protection Program shall be reevaluated by the SSHO and Safety and Health Manager to determine if additional practices, procedures, or training are necessary to prevent similar future incidents.

13.0 Evaluation of Program Effectiveness

This fall protection program will be evaluated periodically to determine effectiveness. The following criteria will be used to evaluate its performance:

1. Accident reports, number of accidents.
2. Management/staff compliance with program components.
3. Periodic on-site audits.
4. Safety Observation Reports
5. Staff feedback, interviews.

14.0 Inspection and Oversight Methods Employed

The SSHO, Site Superintendent, and the Construction Quality Control Systems Manager will be responsible for performing Safety Observation Reports for personnel performing tasks that involve the use of personal fall arrest systems. These observations will be done on a random basis and will be used in to aid in the evaluation of the Fall Protection Programs effectiveness. The Fall Protection Program will also be audited on a quarterly basis by the Safety and Health Manager or a member Sevenson's corporate health and safety staff.

Fall Protection Plan

Project Information

Project Location:		Plan Effective Dates
Specific Equipment Involved		Start:
Project Description		End:
Fall Protection Plan Author (Print)		Office or Cell Phone Number
Fall Protection Plan Author (Sign)		
Competent Person (Print)		Office or Cell Phone Number
Competent Person (Sign)		
Site Superintendent (Print)		Office or Cell Phone Number
Site Superintendent (Sign)		

Fall Protection Plan

Elevated Surface Work Plan

Questions to Consider	Answers or Solutions
Has an Activity Hazard Analysis (AHA) and a Fall Hazard Analysis (FHA) been performed to identify the hazards and controls to be used to eliminate hazards for work at unprotected elevations?	
What is the job to be performed?	
What is the location and the height of the work?	
What is the working or walking surface like (flat steel, textured steel, wood planking, dirt, etc.)?	
Are there any environmental factors to consider (i.e., heat, cold, slippery, wet, wind, glare, etc.)?	
Are there any hazards nearby or underneath that are exposed or could become exposed in an impact (i.e., plumping lines, electrical exposures, protruding or impalement hazards, etc.)?	
Will the work require special PPE (besides fall protection)?	
Will workers be utilizing the buddy system or will someone be monitoring the worker?	
How will the tools and equipment get to the work location (bucket with rope, tool belt, manlift, etc.)?	

Fall Protection Plan

Questions to Consider	Answers or Solutions
Does the lower level work area need to be barricaded to keep non-essential personnel away from the work area?	
Can the work be performed from the ground with extendable tools?	
Can the work be performed from a secured ladder?	
Can an aerial lift or scissor lift be used? Is the operator qualified to use this equipment?	
If not, can portable guardrails be installed?	
If not, can a fall arrest system be used?	
If yes, has a Fall Hazard Analysis and Rescue Plan been developed?	
Other?	

Fall Protection Plan

Fall Hazard Analysis for Fall Arrest

Are there any existing approved anchorage points that can be used? Where?	
Is the anchorage point labeled or obviously capable of holding 5000 pounds or more as determined by a qualified person?	
If not, can approved pre-engineered or manufactured anchorages be installed?	
Is the right equipment (full body harness, minimum length lanyard, shock absorber, connecting hardware, I-beam strap, self-retracting life line, etc.) available to affected employees?	
What is the distance a person may fall?	
Is there at least 6 feet of clear space from anchorage point before the next level down? (Calculate fall distance.)	
Will the worker hit anything on the way down during a fall?	
Has a Fall Rescue Plan been developed to determine how a fallen person will be rescued if suspended in the harness?	

Fall Protection Plan

Rescue Plan

A rescue plan must be developed whenever fall arrest systems are in use and when personnel may not be able to self-rescue if a fall occurs.

What is the emergency rescue service contact information (Emergency phone number and name of agency)?	
Are there any special instructions to give to the emergency rescue service when requesting assistance?	
Is basic (non-emergency) rescue equipment (i.e., ladders, aerial lifts, additional harnesses) immediately available at the work area for this task?	
Are there any obstructions in the way of reaching the suspended worker? If so, what.	
How will the rescue be assured within 15 minutes of the occurrence of the fall to minimize the risk of further injury or death due to suspension trauma?	
How will the safety of the rescuers be assured as well as that of the suspended worker?	
What communication systems will be used between the suspended worker and the rescue team?	

Appendix G
Control of Hazardous Energy Program

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Control of Hazardous Energy (Lockout/Tagout) Program

Sevenson Environmental Services, Inc.
2749 Lockport Road
Niagara Falls, NY 14305

Table of Contents

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1.0 Purpose

It is this company's policy that before any work or maintenance is performed on any machine, equipment, tool, or electrical system, that they are made totally safe before work starts by removing any source of energy or power to them. The Lockout/Tagout Program provides for a safe method of working on, near, or in machinery or equipment that can cause serious injury.

This procedure establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It will be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before employees perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could cause injury.

NOTE: This program will be available to all employees for review and a copy will be located in the following area(s):

1. Health and Safety Office

4. Main Office Trailer

2.0 Authority and Reference

Occupational Safety and Health Administration (OSHA) 29 CFR 1910.147.

This standard covers the servicing and maintenance of machines and equipment in which the unexpected energizing or start up of the machines or equipment, or release of stored energy could cause injury to employees.

3.0 Application

This program applies to the control of energy during servicing and/or normal maintenance of machines and equipment if:

1. An employee is required to remove or bypass a guard or other safety device.
2. An employee is required to place any part of his or her body into an area on a machine or piece of equipment where work is being performed at or upon the point of operation, or when an associated danger zone exists during a machine operating cycle.

EXCEPTION: Minor tool changes and adjustments which take place during normal production operations are not covered by the OSHA Standard if they are routine, repetitive, and integral to the use of the equipment for production, provided that the work is performed using alternative measures which provide effective protection.

NOTE: The OSHA Lockout/Tagout Standard (See 29 CFR 1910.147) does not apply to work on cord-and-plug-connected electrical equipment when the employee performing the service or maintenance controls energizing by unplugging the equipment from the energy source. The standard also does not apply to hot tap operations involving transmission systems from substances such as gas, steam, water, or petroleum, when they are performed on pressurized pipelines. However, it must be demonstrated that the continuity of service is essential, shut off of the system is impractical, and special equipment is used which provides effective protection.

3.1 Affected Employees

Job Classification(s) required following Lockout/Tagout procedures include:

1. Mechanics

2. Service Technicians
3. Equipment Operators
4. Laborers
5. Electricians

3.2 Authorized Employees

Job classifications that have the authority and responsibility to perform lockout operations:

1. Mechanics
2. Service Technicians
3. Equipment Operators
4. Electricians
5. Laborers

3.3 Other Employees

Job classifications whose work operations are or may be in an area where energy control procedures may be utilized:

1. Health and Safety personnel
2. Site Superintendent
3. Project Manager

3.4 Sources of Energy and Stored Energy Requiring Lockout

1. Electrical: service panels, outlets, transformers, motors, and capacitors
2. Mechanical: spring-loaded equipment, tensioning devices
3. Hydraulic: rams, oil-powered equipment
4. Pneumatic: compressed-air equipment
5. Kinetic/Gravity: counterweights, flywheels
6. Fluids/Steam: heating pipes, steam lines

4.0 Compliance with this Program

4.1 All Employees

All employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout procedures. The authorized employees are required to perform the lockout in accordance with this procedure. All employees, upon observing a machine or piece of equipment, which is locked out to perform servicing, or maintenance will not attempt to start, energize, or use that machine or equipment. Any employee who does not follow this lockout/tagout program will be subject to disciplinary action including written warning, suspension, or dismissal from the company. In the event that a particular assignment makes it impractical to follow all the provisions of this program, the supervisor directing the work activities will be notified immediately and before work starts.

4.2 Health and Safety Officer

The Site Safety and Health Officer or approved alternate will be responsible for the following:

1. Development of a facility-specific energy control policy.
2. Definition and procurement of authorized lockout and tagout devices.
3. Training of supervisors and employees on facility policy and procedures for hazardous energy control.
4. Implementation of the Energy Control Policy and review of supervisory/employee performance.
5. Assurance that newly acquired equipment or overload equipment can accommodate locks.
6. Master file maintenance of specific policies, lockout procedures review and training records.

The Site Safety and Health Officer or approved alternate shall:

1. Identify specific hazards and develop hazard isolation procedures within the facility.
2. Assure that the facility's hazardous energy control policy and procedures are communicated to employees in the work unit.
3. Monitor hazard isolation procedures for effectiveness.
4. Enforce hazard isolation procedures within his/her work unit and between work units or employers in the case of outside contractors.
5. Maintain work unit files documenting employee training.
6. Specify controls capable of being locked out when replacing or updating equipment controls.

5.0 Transfer of Lock/Tagout Responsibility

No employee shall remove a lockout or tagout device affixed by another employee unless authorized. Responsibility for lockout or tagout remains that of the authorized employee who affixes the lockout or tagout device subject to the following exception.

When an incoming authorized employee is to assume lock/tagout responsibilities on a piece of equipment from a departing employee due to shift or personnel changes, the incoming employee shall affix his/her properly labeled locks and/or tag devices to the equipment. If it is intended that the equipment remain securely locked out until the departing employee returns, responsibility does not need to be passed on to the incoming employee.

6.0 Definitions

Affected Employee:

An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which servicing or maintenance is being performed.

Authorized Person:

A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this section.

Energy Isolating Device:

A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: a manually operated electrical circuit breaker, a disconnect switch, a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

Energy Source:

Any electrical, mechanical, hydraulic, pneumatic, chemical, nuclear, thermal or other potential energy source that could have potential to endanger personnel.

Entry Point of Power:

The point at which energy enters the system, machine or unit, such as the main electrical disconnect. Changes in power routing at the entry point should be shown on the circuit diagrams for the machines.

Lockout:

The placement of a lockout device on an energy-isolating device, in accordance with an established procedure, ensuring that the energy-isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Other Employees:

All other employees whose work operations are or may be in an area where control procedures may be utilized.

Power:

Any type of energy that can operate equipment, cause movement, or cause injury directly from the energy source. Common types of power are electricity, air or gas under pressure, gravity, springs, oil or water under pressure and steam.

Residual Electrical Power:

Electrical energy, which is retained in a system, machine or unit when the supply line disconnect, is placed on the "OFF" position. Power capacitors and electric or magnetic fields are examples that may have residual power if not properly dissipated.

Residual Pressure:

The differential pressure remaining within a component after the pressure source is closed off.

Tagout:

The placement of a tagout device on an energy-isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

6.0 Energy Control Procedures

Procedures will be developed and documented when employees are engaged in activities that potentially could be hazardous, due to exposure from an energy source. The following exceptions to required documentation include:

1. The machine or equipment has no potential for stored or residual energy or re-accumulation of stored energy after shut down which could endanger employees.

2. The machine or equipment has a single energy source, which can be readily identified and isolated.
3. The isolation and locking out of that energy source will completely de-energize and deactivate the machine or equipment.
4. The machine or equipment is isolated from that energy source and locked during servicing or maintenance.
5. A single lockout device will achieve a locked-out condition
6. The lockout device is under the exclusive control of the authorized employee performing the servicing or maintenance.
7. The servicing or maintenance does not create hazards for other employees.
8. The employer, in utilizing this exception, has had no accidents involving the unexpected activation or re-energization of the machine or equipment during servicing or maintenance.

Energy control procedures shall clearly and specifically outline the purpose, rules and techniques to be utilized for the control of hazardous energy. (See Form #1) These procedures must include the following:

1. A specific statement of the intended use of the procedures.
2. Specific procedural steps for shutting down, isolating, blocking and securing machines or equipment to control hazardous energy.
3. Specific procedural steps for the placement, removal and transfer of lockout or tagout devices and the responsibility for them.
4. Specific requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices, tagout devices, and other energy control measures.

7.0 Equipment for Lockout/Tagout

For the purpose of achieving lockout/tagout, employees will be provided with appropriate lockout equipment. Equipment shall include, but not be limited to:

7.1 Padlocks

One or more padlocks will be issued to each authorized employee. Each employee will have an individual key. Only one key per lock shall be issued. These locks may be used only for lockout purposes. Locks will be identified by a number assigned to each employee and/or by the use of a nametag. Only the authorized person may apply and remove the lock, and the key may never be given to another person.

Note: A second or master key for each lock will be issued to designated supervisors to enable them to open and remove a padlock after taking the required precautions.

7.2 Lockout Tags

Authorized employees will be issued warning tags, which must be used whenever a padlock cannot be applied. The tag must be affixed as closely as possible to the energy disconnect with a single purpose 50-pound strength plastic tie. Extra caution must be exercised since there is no physical restraint when only a tag is used and energy can be restored without removing a padlock. In addition, where possible, energy source components should be altered, removed, or obstructions should be placed to restrict access to energy disconnects. Electricians may remove

fuses but must attach a tag to the panel involved and remove it when the machine is ready for service and the fuse is replaced.

Tag legends may include, but are not limited to:

DANGER Do Not Start DANGER Do Not Energize

DANGER Do Not Open DANGER Do Not Operate

DANGER Do Not Close

Warning tags shall bear the name of the authorized person and the date of application. Tags must be durable, weather proof and not easily damaged

7.3 Lockout hasps

These devices are designed to accommodate more than one lockout padlock when more than one person is working on de-activated equipment. Each person, to assure his or her safety, will apply a lock and warning tag and remove it when the task is completed

7.4 Circuit Breaker Lockout Devices

These devices are designed to attach to circuit breakers inside a panel box. Once attached a lock and tag may be applied to the device to prevent the breaker from being energized.

8.0 Sequence of Lockout

1. The authorized employee shall notify all affected employees that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance. It is the responsibility of the equipment operator to notify all affected supervision and employees when a piece of equipment is to be repaired.
2. The authorized employee will refer to the company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, will understand the hazards of the energy, and will know the methods to control the energy.
3. If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open switch, close valve, etc.).
4. De-activate the energy isolating device(s) so that the machine or equipment is isolated from the energy source. (Examples: main switch, circuit breaker, flow/control valve, etc).
5. Lock out the energy isolating device(s) with assigned individual lock(s). If more than one person is exposed to the hazard or is working on the machine or equipment, each person must attach his or her individual lock. Only the person who attaches the lock is authorized to remove their lock.
6. Dissipate or restrain any stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam or water pressure, etc.) by such actions as grounding, repositioning, blocking, bleeding down, etc.
7. Ensure that the machine or equipment is disconnected from the energy source(s) by first checking that no persons are exposed, then verify the machine or equipment is isolated by operating the push/on button or other normal operating control(s) or by testing to make certain the machine or equipment will not operate. Cautions: Return operating control(s) to neutral or “off” position after verifying the isolation of the machine or equipment. For

any electrical work, voltage checks will be made of any circuit elements and electrical parts on which work is to be performed and any exposed adjacent parts.

8. The machine or equipment is now locked out, and servicing or maintenance may proceed.

9.0 Procedures Involving More Than One Person (Group Lockout)

In the preceding steps, if more than one individual is required to lock the energy-isolating device(s), they shall utilize a procedure which affords the employees a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device. When an energy-isolating device cannot accept multiple locks, a multiple lockout or tagout device (hasp) may be used.

10.0 Restoring Equipment to Service

When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps will be taken.

1. Check the machine or equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact, and all guards are installed.
2. Check the work area to ensure that all employees have been safely positioned or removed from the area. Notify all affected employees that the lockout/tagout is going to be removed.
3. Verify that the controls are in the neutral position.
4. Remove the lockout/tagout device and reenergize the equipment. Except in emergencies, only the person who attached the lockout device may remove it!

Note: The removal of some forms of blocking may require reenergization of the machine before safe removal.

5. Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

11.0 Abandoned Lock Removal Procedures

If an employee who has departed the building has left a safety lock in place, it shall be removed only by adherence to the following procedure:

Before the lock is removed:

1. A thorough inspection of the equipment is to be made by the supervisor responsible for the area.
2. The supervisor must confirm that the authorized employee who applied the lockout device is not at the facility.
3. The supervisor shall make all reasonable efforts to contact the authorized employee to inform him/her that his/her lockout or tagout device has been removed.
4. The supervisor shall remove the lock providing he/she has determined starting up the equipment will not endanger other personnel.
5. Each time it is necessary to remove/cut a safety lock, the person authorized to remove the lock shall prepare a written report and a copy will be sent to the H&S Officer (Position designated).

6. The supervisor shall ensure that the authorized employee has knowledge of this release before he/she resumes work at the facility.

12.0 Training

Lockout/Tagout training will be conducted for all employees who are required to perform work on any equipment as referenced in this program. The training will address all components and procedures of this program. It will include methods to ensure employees understand the purpose and function of the program, that they can recognize applicable lockout/tagout situations, and that they have acquired the knowledge and skills required for applying, using, and removing the locks and tags.

1. Each authorized employee will receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control. The training will be documented on Form #2.
2. Each affected employee will be instructed in the purpose and use of the energy control procedure. The training/instruction will be documented on Form #3.
3. All other employees whose work operations are or may be in an area where energy control procedures may be utilized, will be instructed about the procedure and about the prohibition relating to attempts to restart or re-energize machines or equipment which are locked out. The instruction will be documented on Form #4.
4. When employees are assigned to work in or on equipment that could potentially endanger personnel should it be activated, the supervisor assigning employees to this work is responsible for ensuring that these workers are provided with specific equipment and instructions to comply with this power lockout procedure.
5. Authorized and affected employees will be retrained whenever there is a change in their job assignments that could affect their lockout responsibilities, a change in the machines that presents a hazard or when there is a change in energy control procedures.
6. Additional retraining will be conducted whenever the periodic inspection reveals that there are deviations from or inadequacies in the employee's knowledge or use of energy control procedures.
7. The employer shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

13.0 Periodic Inspection/ Assessment

The SSHO or approved alternate will be conduct a comprehensive inspection/audit of the energy control procedures at least annually to ensure that the facility is in compliance with the OSHA Power Lockout/Tagout Standard 29 CFR 1910.147 and the procedures outlined in this policy. The results of the annual inspection will be recorded on the Annual Power Lockout/Tagout Certified Inspection Worksheet. (See Form #5) Each machine/equipment-specific lockout procedure must be assessed at least annually to ensure that the procedure remains valid or if any changes are warranted. This assessment must be machine-procedure specific and be documented.

14.0 Outside Personnel (Contractors, etc.)

Whenever outside servicing personnel are to be engaged in activities covered by the scope and application of this standard, the on-site employer and the outside employer shall inform each other of their respective lockout or tagout procedures. The on-site employer shall ensure that

his/her employees understand and comply with the restrictions and prohibitions of the outside employer's energy control program. The exchange of this information shill be documented on Form #6.

LIST OF SAMPLE FORMS

Form 1: Specific Energy Control Procedures

Form 2: Authorized Employee Training Certification

Form 3: Affected Employee Training Certification

Form 4: Other Employee Training Certification

Form 5: Annual Power Lockout/Tagout Certified Inspection Worksheet

Form 6: Documentation of Information Given to Contractors Pertaining to Lockout/Tagout Procedures

Form 7: Lockout/Tagout Inventory Form

Form 8: Lockout/Tagout Inspection Form

Lockout/Tagout Form #1

SPECIFIC ENERGY CONTROL PROCEDURES FOR EACH PIECE OR TYPE OF MACHINE OR EQUIPMENT

Procedure Number/ Name: _____ Date: _____

Completed By: _____

Machine(s) or Equipment utilizing this procedure: _____

_____

Number of Locks required: _____

Other Lockout Devices required: _____

PROCEDURES FOR CONTROLLING HAZARDOUS ENERGY

1. Sources of Hazardous Energy (examples)
   - Electrical Natural Gas Springs
   - Hydraulic Gravity Steam
   - Chemical Pneumatic Thermal
   - Other: _____

2. Notify affected employees that the machine is about to be shut down and locked out. Specific Instructions

_____

_____

_____

_____

_____

3. Shut down the machine using normal stopping procedures.
Specific Instructions:

_____

_____

_____

4. Isolate all energy sources listed above.
Specific Instructions:

5. A) Apply locks to all isolate devices operated in Step Four.
Specific Instructions:

B) If a tag is used in lieu of a lock when the energy-isolating device is incapable of lockout, the following additional safety precaution will be taken:
Specific Instructions:

6. Block or dissipate all stored energy in rams, flywheels, springs, pneumatic or hydraulic systems, etc.
Specific Instructions:

7. Verify that the machine is locked out by testing the machine operating controls.
RETURN ALL CONTROLS TO THE "NEUTRAL" OR "OFF" POSITION AFTER TESTING.
Specific Instructions:

PROCEDURE FOR REMOVING LOCKS/TAGS

1. Check the machine to be sure it is operationally intact, tools have been removed, and guards have been replaced.
Specific Instructions:

2. Check to be sure all employees are safely positioned.
Specific Instructions:

3. Notify all affected employees that locks/tags are going to be removed and the machine is ready for operation.
Specific Instructions:

4. Remove all locks, blocks, or other energy restraints.
Specific Instructions:

5. Restore all energy to the machine/equipment.
Specific Instructions:

Other Comments/Special Precautions:

Lockout/Tagout Form #2

"AUTHORIZED" EMPLOYEE TRAINING CERTIFICATION

Date of Training: _____

Instructor's Name: _____

Instructor's Signature: _____

The following employees have received "AUTHORIZED" employee training on lockout/tagout procedures:

_____

_____

_____

_____

_____

_____

_____

_____

_____

Employee Name (Please Print):_____

Employee Signature:_____

Lockout/Tagout Form #3

"AFFECTED" EMPLOYEE TRAINING CERTIFICATION

Date of Training:_____

Instructor's Name: _____

Instructor's Signature: _____

The following employee have received "AFFECTED" employee training on lockout/tagout procedures:

Employee Name (Please Print):_____

Employee Signature: _____

Lockout/Tagout Form #4

"OTHER" EMPLOYEE TRAINING CERTIFICATION

Date of Training:_____

Instructor's Name: _____

Instructor's Signature: _____

The following employees have received "OTHER" employee training on lockout/tagout procedures:

Employee Name (Please Print):_____

Employee Signature: _____

Lockout/Tagout Form #5

ANNUAL POWER LOCKOUT/TAGOUT CERTIFIED INSPECTION WORKSHEET

DATE: _____ DEPT.: _____

MACHINE/EQUIPMENT NAME: _____

REVIEW WITH EMPLOYEE (S) PERFORMING SERVICE OR MAINTENANCE ON THE FOLLOWING:

• HAVE YOU HAD LOCKOUT TRAINING? ☐ YES, ☐ NO

• DO YOU HAVE A SAFETY LOCK? ☐ YES, ☐ NO

• ARE LOCKOUT PROCEDURES FOR ABOVE MACHINE/ EQUIPMENT AVAILABLE AND/OR POSTED? ☐ YES, ☐ NO

• DOES EMPLOYEE (S) UNDERSTAND HIS/HER LOCKOUT RESPONSIBILITIES? ☐ YES, ☐ NO

OBSERVATION:
WERE LOCKOUT PROCEDURES FOLLOWED? ☐ YES, ☐ NO

NONE REQUIRED:
LIST DEVIATION (S) OR INADEQUACIES OBSERVED: _____

_____

_____

CORRECTIONS/CHANGES/COMMENTS:
EMPLOYEE (S) INSPECTED:

NAME: _____ DEPT.: _____

NAME: _____ DEPT.: _____

NAME: _____ DEPT.: _____

NAME: _____ DEPT.: _____

INSPECTED BY:

NAME: _____ POSITION: _____

Lockout/Tagout Form #6

DOCUMENTATION OF INFORMATION GIVEN TO CONTRACTORS PERTAINING TO LOCKOUT/TAGOUT PROCEDURES

Date	Contractor	Information Given

Contractor's Signature: _____ Date: _____

Authorized Employee Signature: _____ Date: _____

Authorized Supervisor's Signature: _____ Date: _____

Lockout/Tagout Form #7

LOCKOUT - TAGOUT INVENTORY FORM

Location: _____

1. Machine/Equipment: _____

2. Maintenance or service performed on this machine/equipment in this work area?

☐ YES, ☐ NO

3. Type of Power/Energy Source(s)
Electrical_____Hydraulic

Gas_____Pneumatic

Water_____ Gravity

Other _____

4. Energy Source Type
Main Source/Location_____

Source on Machine/Equipment_____

5. What type of lockout processes can be used on this equipment?
(Check all available)
Keyed locks with tags _____Blocks _____
Tags only _____Wedges _____
Chains _____
Other (list) _____
_____
_____
_____

6. What steps should be taken to secure this machine/equipment from accidental start-up?

_____

_____

_____

Lockout/Tagout Form #8

LOCKOUT - TAGOUT INSPECTION FORM

Agency/Institution: _____

Department: _____

Type of Machine Locked Out: _____

Employee: _____ Job Title:_____

Employee Observed by: _____ Job Title:_____

Date and Time of Inspection: _____

Employee obeying safe procedures for locking and tagging:

_____

_____

Unsafe procedures or practices observed:

_____

_____

Recommendations:

_____

_____

Corrective actions taken:

_____

_____

Inspection reviewed with employee observed: _____

Date/Time: _____

Observed Employee's signature: _____ Date: _____

Inspection Performed by: _____ Date: _____

Appendix H
Confined Space Program

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Confined Space Program

Sevenson Environmental Services, Inc.

Sevenson Environmental Services, Inc.
2749 Lockport Road
Niagara Falls, NY 14305

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TABLE OF CONTENTS

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1.0 Purpose

The purpose of Confined Space Entry Program is to protect the health and safety of employees who enter confined spaces and/or are assigned to serve as attendants or rescue personnel. This program is also intended to ensure compliance with 29 CFR 1910.146 and EM 385-1-1 Section 34.

2.0 Application

This program applies to:

2.1. All employees, who are authorized to enter a confined space

2.2. All employees assigned to serve as attendants

2.3. Provide assistance during a confined space emergency rescue

2.4. Employees who serve as Confined Space Entry Supervisors or Confined Space Entry Program Administrators.

3.0 Definitions

3.1. ACCEPTABLE ENTRY CONDITIONS - conditions that must exist in a permit space to allow entry and to ensure that employees involved with a permit-required confined space can safely enter and perform work.

3.2. ATTENDANT - an individual stationed outside the permit-required confined space who had specific training and monitors the authorized entrants inside the space.

3.3. AUTHORIZED ENTRANT - employee who is authorized to enter a permit-required space.

3.4. BLANKING OR BLINDING - absolute closure of a pipe, line, or duct by fastening across its bore a solid plate that completely covers the bore and can withstand the maximum upstream pressure.

3.5. CONFINED SPACE - a space that meets <u>all</u> the following criteria:

1) is large enough and so configured that an employee can bodily enter and perform assigned work;

2) has limited means of entry and egress; and

3) is not designed for continuous employee occupancy.

Examples may include tanks, silos, boilers, pits, bins, manholes electrical vaults, degreasers, and hoppers.

3.6. ENGULFMENT - surrounding and effective capture of a person by a liquid or finely divided solid substance (i.e sand, corn. grain, sawdust etc).

3.7. ENTRY - a person's intentional passing through an opening into a permit-required confined space.

3.8. ENTRY PERMITS - a written or printed document that allows and controls entry into a permit space.

3.9. ENTRY SUPERVISOR - person responsible for:

1) determining if acceptable conditions are present before entering a permit space;

2) for authorizing entry;

3) coordinating and supervising all entry operations; and

4) terminating entry.

3.10. HAZARDOUS ATMOSPHERE - an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue, injury, or acute illness from one or more of the following causes

1) Flammable gas, vapor or mist in excess of 10% of its Lower Explosive Limit (LEL).

2) Airborne combustible dust at a concentration that meets or exceeds its LEL.

3) Atmospheric oxygen concentration below 19.5 percent or above 23.0 percent (22% for USACE sites)

4) Atmosphere concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G, Occupational Health and Environment Control, or in Subpart Z, Toxic and Hazardous Substances, of 29 CFR 1910 and which could result in employee exposure in excess of its dose or PEL

5) Any other atmospheric condition that is immediately dangerous to life or health.

3.11. HOT WORK PERMIT – employer's written authorization to perform operations (for riveting, welding, cutting, burning, and heating) capable of providing a source of ignition.

3.12. IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH) - any condition that poses an immediate threat to life, or a delayed threat to life, or that would cause irreversible adverse health effects, or interfere with an individual's ability to escape unaided from a permit space.

3.13. ISOLATION - process by which a permit space is removed from service and completely protects against the release of hazardous energy or material into the space.

3.14. LOWER EXPLOSIVE LIMIT (LEL) - the lowest concentration of gas or vapor, expressed in percent by volume in air, that burns or explodes if an ignition source is present at room temperature.

3.15. LINE BREAKING - intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas or any fluid at a volume, pressure, or temperature capable of causing death or serious physical harm.

3.16. NON PERMIT CONFINED SPACE- A confined space that does not contain or have the potential to contain an atmospheric hazard or any other serious safety or health hazard.

3.17. OXYGEN DEFICIENT ATMOSPHERE - an atmosphere containing less than 19.5% oxygen.

3.18. OXYGEN ENRICHED ATMOSPHERE - an atmosphere containing more than 23.0% oxygen (22% for USACE sites).

3.19. PERMISSIBLE EXPOSURE LIMIT (PEL) - the airborne concentration of a hazardous material that must not be exceeded over a specified time. This value is established by the Occupational Safety and Health Administration (OSHA).

3.20. PERMIT-REQUIRED CONFINED SPACE - a confined space that has one or more of the following characteristics:

1) Contains or has a reasonable potential for hazardous atmospheres.
2) Contains a material that has the potential for engulfment.
3) Is internally configured so an employee could become trapped or asphyxiated by inwardly converging walls or a floor that slopes downward into a smaller cross-section.
4) Contains any other recognized serious safety or health hazard.

3.21. PROHIBITED CONDITION - any condition in a permit space that is not allowed by the permit during the period when entry is authorized.

3.22. RESCUE SERVICE - personnel designated to rescue employees from permit spaces.

3.23. RETRIEVAL SYSTEM - equipment used for a non-entry rescue of persons from permit spaces (i.e., tripod).

3.24. TESTING - process by which hazards that may affect entrants of a permit space are identified and evaluated.

3.25. THRESHOLD LIMIT VALUE (TLV) - the airborne concentration of a hazardous material that should not be exceeded over a specified time. This value is established by the American Conference of Governmental Industrial Hygienists (ACGIH).

3.26. WELDING/CUTTING PERMIT - written authorization to perform operations that can provide a source of ignition (e.g., welding, cutting, burning, or heating) or a hazardous atmosphere.

4.0 Responsible for Compliance

4.1. The Confined Space Entry Program Administrator is the SSHO, or Superintendent if a SSHO is not assigned to the project.

The responsibilities of this individual shall include:

1) Conducting/coordinating hazard assessments.
2) Determining the classification (permit required/non permit space and location of each confined space.
3) Coordinating the posting of appropriate danger/caution signs by each confined space.
4) Supervising the selection and use of respirators in conjunction with the Respiratory Protection Program Administrator.
5) Coordinating the medical screening of respirator users.
6) Conducting/coordinating supervisory and employee training (including attendants) and maintaining all training records.
7) Conducting an annual evaluation of the overall program to determine its continued effectiveness.
8) Consulting employees and their authorized union representatives on the development and implementation of the Confined Space Entry Program.

4.2. Managers and Supervisors

The responsibilities for these people shall include:

1) Actively supporting the Confined Space Entry Program and providing funding to purchase equipment when needed.
2) Ensuring all assigned personnel are knowledgeable of all aspects of the Confined Space Entry Program.
3) Ensuring their employees comply with all elements of Confined Space Entry Program.
4) Ensuring appropriate PPE and equipment is properly utilized and maintained.

4.3. Confined Space Entry Supervisor is the Superintendent.

The responsibilities of this individual shall include:

1) Providing confined space entry personnel with a copy of the most current Confined Space Entry Program and any future changes.
2) Knowing the hazards that may be encountered during entry and informing the entrants about the hazards, including information on the mode, signs, or symptoms and consequences of exposure.
3) Verifying that the proper atmospheric tests have been conducted and that all procedures and equipment, mentioned in the permit, are in place before signing the Confined Space Entry Permit.
4) Assuring that the Confined Space Entry Permit is completed prior to each entry.
5) Terminating the entry and canceling the permit when needed.
6) Verifying that rescue or other emergency personnel are available and that the means for summoning them are operable in the event that an emergency occurs.
7) Removing unauthorized individuals who have entered or who attempt to enter the confined space.
8) Determining whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space, and that entry operations remain consistent with terms of the entry permit.
9) Maintaining completed entry permits and equipment calibration records.
10) Providing employees and their authorized union representative(s) an opportunity to observe the atmospheric testing of the confined space.

NOTE: The Confined Space Entry Supervisor may also serve as an attendant or as an authorized entrant providing that person is properly trained and equipped. The duties of the Confined Space Entry Supervisor may also be passed from one individual to another during the course of an entry operation as long as the alternate is qualified.

4.4. Authorized Entrants

All authorized entrants shall be responsible for:

1) Knowing and recognizing the hazards that may be faced during entry including

information on the mode, signs, or symptoms and consequences of exposure.

2) Using and maintaining the proper PPE and other equipment.

3) Communicating with the attendant as necessary.

4) Alerting the attendant when hazardous conditions are detected, identified, or suspected.

5) Exiting the confined space immediately whenever:

   a. Ordered to do so by other entrants, the attendant or the Confined Space Entry Supervisor.

   b. Warning signs/symptoms are identified,

   c. Prohibited conditions are identified,

   d. An evacuation alarm is activated.

6) Complying with all other aspects of the Confined Space Entry Program

4.5. Attendants (Standby persons)

All authorized attendants shall be responsible for:

1) Knowing the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

2) Knowing the possible behavioral effects of the hazard exposure in the authorized entrants.

3) Maintaining an accurate count of authorized entrants in the confined space and ensures that the means used to identify the authorized entrants accurately identifies who is in the space.

4) Remaining outside the confined space during entry operations until relieved by another attendant.

Note: Attendants may enter a confined space to attempt a rescue if they have been trained and equipped for rescue operations and if they have been properly relieved.

5) Communicating with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the confined space.

6) Monitoring activities inside and outside the confined space to determine if it is safe for authorized entrants to remain in the space and order the authorized entrants to evacuate the space immediately under any of the following conditions:

   a. If the attendant detects a prohibited condition.

   b. If the attendant detects a behavioral effect of the hazard exposure in an authorized entrant.

   c. If the attendant detects a situation outside the confined space that could endanger the authorized entrants; or

   d. If the attendant cannot effectively and safely perform all the duties required.

7) Summoning rescue and other emergency services as soon as the attendant determines that entrants need assistance to escape from the confined space hazards.

8) Taking the following actions when an unauthorized person(s) approach or enter a confined space while entry is underway:

   a. Warn the unauthorized person(s) that they must stay away from the confined space.

   b. Advise the unauthorized person(s) that they must exit immediately if they have entered the confined space.

   c. Inform the authorized entrants and the entry supervisor if an unauthorized person(s) have entered the confined space.

   d. Performing non-entry rescues as specified in Section 6.8.2.

9) Performing no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

5.0 Permit System

5.1. Permit

Before entry is authorized, an entry permit shall be prepared in order to document the completion of safety measures required (as discussed in section 6.0 of this Program). The completed permit shall be made available to all authorized entrants or their authorized representatives, at the time of entry, by posting it at the entry portal or by any other equally effective means.

1) The Confined Space Entry Supervisor shall sign a completed Confined Space Entry Permit or in his absence another member of the health and safety staff (if properly trained) to authorize entry into a permit-required confined space.

2) The Confined Space Entry Supervisor shall ensure that the permit specifies the location, type of work, personal protective measures, authorized entrants, monitoring equipment, hazards of the permit space, hazard control measures and any required rescue equipment. The procedure for contacting rescue services will also be included on the permit.

3) The permit shall be dated and carry an expiration time limiting the work to one shift.

4) The duration of the permit may not exceed the time required to complete the assigned task or job.

5) The Confined Space Entry Supervisor shall terminate the permit if a potential hazardous situation occurs which exceeds the conditions authorized on the permit or the entry operations, documented on the permit have been completed.

6) Cancelled entry permits shall be retained for at least 1 year.

7) The permit must be available at the work area outside the confined space entry point.

8) All confined space entry permits must be given to the Confined Space Entry Supervisor after the work is completed.

9) Hot work (potential ignition sources) must be authorized on a separate hot work permit that is attached and noted on the confined space entry permit.

10) Individuals authorizing entry into a permit required confined space may serve as entrants or attendants if they have received the proper training.

5.2. Entry Procedure

Supervisors, attendants and authorized employees must complete the general requirements, discussed in the next section. Entry procedure to permit required confined space are as follows:

1) The Confined Space Entry Supervisor shall be notified prior to the time that an entrant enters a permit-required confined space.

2) A Confined Space Entry Permit shall be properly completed and signed by the Confined Space Entry Supervisor or in their absence another member of the health and safety staff (if properly trained) prior to entry into the permit-required confined space.

3) Only properly trained and authorized individuals will be allowed to enter a permit required confined space. Authorized entrants will maintain contact with the attendant either visually or verbally.

4) Each individual entering a permit-required confined space will, whenever practical, have a safety or retrieval line attached to a body harness or wristlets. The other end of the line must be secured to a secure anchor point or lifting device (i.e., tripod) outside the entry portal. **Note: The anchor point shall not be secured to a motor vehicle in a manner that would pull the line out of the space if the vehicle moved unless proper Lockout/Tagout controls are in place.** A retrieval line is not required if:

   a. A permit space has obstructions or turns that would prevent pull on the retrieval line from being transmitted to the entrant, or

   b. A permit space from which an employee being rescued with the retrieval system has projections which would injure the employee if forcefully removed,

   c. A permit space when entered by an entrant using an air supplied respirator and retrieval lines could pose an entanglement hazard, or

   d. A permit required excavation other than a trench.

5) A properly trained individual shall test the atmosphere for oxygen content, flammable gases, and potential toxic air contaminants prior and during entry. Each entrant shall be required to wear an air-monitoring instrument if the confined space is large enough and/or has a potentially hazardous atmosphere, excavations are exempt from this requirement unless working with unknown drums or containers.

6) During any confined space entry, all safety rules and procedures shall be followed.

7) At least one attendant should be provided outside the permit space into which entry is authorized for the duration of entry operations.

8) Personal protective equipment, including respirators, shall be provided to entrants as necessary for safe entry into the confined space and used properly.

   a. All PPE must be approved by the Confined Space Entry Supervisor.

   b. An atmosphere supplied breathing apparatus shall be used for entry into an unknown atmosphere. The Rescue Team, with self-contained breathing apparatus (SCBA) must be present on-site and immediately available if entry is into an atmosphere that is actually or potentially immediately dangerous to life or health.

9) Electrical equipment used in the confined space shall be appropriate for the hazard and meet the requirements of the National Electric Code if a hazardous atmosphere is present.

10) Any condition making removal of an entrance cover unsafe (i.e. pressured differential, physical obstacles, etc.) shall be eliminated before the cover is removed.

   a. When the cover has been removed, the opening(s) shall be promptly guarded to prevent accidental fall into the opening and prevent objects from falling into the opening.

   b. Appropriate vehicle and pedestrian barriers shall be used to protect workers.

11) Metal ladders shall not be used when working around electrical equipment.

12) Any use of chemicals or welding, soldering, or cutting operations must be approved by the Confined Space Entry Supervisor.

6.0 General Requirements

6.1. Workplace Evaluation

The Confined Space Program Administrator will coordinate/conduct an evaluation of the workplace to determine if confined spaces are present. A detailed assessment will be made of each space in order to determine type and location of each space, its dimensions and number of exits, the reason(s) for entry, actual or potential health and safety hazards, and its classification (permit or non-permit). The assessment will also specify the equipment and personal protective equipment (PPE) required for entry and any special precautions that must be followed for safe entry and work in the confined space. The results of the assessment will be recorded on a Confined Space Hazard Assessment Form (See Form I - Part 1 and 2). It is required that all affected employees be trained for their respective duties, prior to their entry

6.2. Identification of Confined Spaces

Effective means of identifying confined spaces (i.e. training, etc.) may be used to prevent unauthorized entry.

1) Warning Signs and Posting

   a. When using warning signs or placards for the identification of Confined Spaces, all types shall be printed both in English and (if applicable) in the predominant language of any non-English reading employees.

b. Where confined space entry symbols are established, they shall also be used in conjunction with a warning sign.

c. Signs shall include, but not necessarily be limited to, the following information:

i. **DANGER: PERMIT REQUIRED CONFINED SPACE - DO NOT ENTER UNLESS AUTHORIZED**

d. The following statements shall be added in large letters to the warning sign when a specific work practice must be performed or when specific safety equipment is necessary:

i. Respirator Required For Entry

ii. Lifeline Required For Entry

iii. Hot Work Permit-Required

e. Signs are not required at manholes, or any other entry, located in public traffic areas.

6.3. Atmospheric Requirements Prior to Entry:

The atmosphere in the confined space within the entrant's immediate area may be continuously monitored for oxygen and combustible gas and any other hazardous substance which the employer has reason to believe may be present in the confined space. Excluding excavations greater the 4 feet in depth which will be checked initially and then periodically thereafter unless determined otherwise by the Confined Space Entry Supervisor.

Before entering a confined space, the following atmospheric conditions must be met:

1) The oxygen level is between 19.5% and 23.0% (22% for USACE sites).

2) The concentrations of flammable gas, vapors, or mists are below 10% of their Lower Explosive Limits (LEL).

3) The level of airborne hydrogen sulfide (H_2S) is below 10 parts per million (ppm).

4) Toxic air contaminates are less than the OSHA Permissible Exposure Limit (PEL). **Note:** If the substance does not have a PEL, use the Threshold Limit Value (TLV) established by the American Conference of Governmental Industrial Hygienists (ACGIH).

5) Atmospheric concentrations of toxic substances are below what is considered as the IDLH.

6) The level of carbon monoxide (CO) is less than 35 ppm.

Entry into a confined space is **not** allowed if monitoring indicates deficiency in any of these categories. Respirators or a self-contained breathing apparatus (SCBA) shall not to be used to allow entry into deficient atmospheres unless specifically approved in writing by Sevenson's Safety and Health Manager (and the USACE Contracting Officer's Representative on USACE sites).

In order to achieve and maintain a safe atmosphere, one or more actions may have to be

taken to render the space safe for human occupancy. This could include:

1) Isolation - precautions taken to prevent release of material and/or energy into the space. This can be achieved through blinding, blanking, disconnecting, lockout/tagout, or removal of incoming pipes or related energy sources.
2) Ventilation - purging, inserting, flushing, or otherwise ventilating the space with fresh air. The replacement air will displace the contaminated air allowing for safe entry. This can be accomplished by removing ports and openings or by mechanically ventilating the vessel.
3) Separation - where there is a possibility of external hazards, the space may require barricades to protect the entrants from falling objects or from unauthorized entry.

6.4. Ventilation

If a confined space being entered is found to contain a hazardous atmosphere, forced ventilation may be provided for a period of time in order to bring the air quality within the acceptable limits. Once the determined ventilation period expires, employees shall monitor the confined space according to subsection entitled "Air Monitoring". If the sampling shows that a hazard still exists, then additional ventilation and sampling may be required.

Note: Control of atmospheric hazards through forced ventilation does not constitute elimination of hazards.

If the hazard still exists after repeated ventilation steps, the confined space shall then be considered a permit-required confined space and the Confined Space Entry Team (entrant, attendant, and Confined Space Entry Supervisor) must follow the proper procedures for permit-required confined space entry.

Note: Forced ventilation may not be used in lieu of monitoring. Consideration must also be given to the possibility of static discharge that could be a source of ignition.

Forced air ventilation should be so directed as to ventilate the immediate areas where an employee is or will be present within the space and shall continue until all employees leave.

Whenever ventilation is used, employees shall:

1) Keep the blower controls at least 10 feet from the confined space, and out of the wind or downwind from the entrance to the confined space.
2) Use a ventilation blower that is designed to be intrinsically safe if the possibility of an explosive atmosphere could exists.
3) Ensure that the exhaust systems are designed and placed so that they protect employees in the surrounding area from being contaminated.
4) Ensure that the ventilation system is fully operational and air is supplied from a clean source.
5) Ensure that contaminated air is not recirculated into the confined space.
6) Purge the ventilation hose outlet for at least one-minute (at street or blower level if possible) before inserting the hose into the confined space.

7) Maintain continuous local ventilation when toxic atmospheres are being produced as part of a work procedure (i.e., welding, painting or cleaning operations).

6.5. Lockout/Isolation

Each confined space (if applicable) shall have its own specific written lockout/isolation procedures. These procedures will be posted above and/or next to the entrance of the confined space, where feasible.

1) Electrical Isolation: In order to prevent employees from being exposed to activation of moving parts, or from being exposed to energized objects, authorized entrants shall lockout circuit breakers and/or the disconnect in the open (off) position with a key-type lock. If more than one authorized entrant is to be inside the confined space, each employee must place his/her own lock on the circuit breaker or disconnect.

2) Mechanical Isolation: All equipment with moving mechanical parts that could unexpectedly rotate or move will be blocked in such a way that there can be no accidental rotation or movement. Isolation of mechanical parts can be performed by disconnecting linkages or removing drive belts and/or chains.

3) Blanking: A solid plate or cup capable of withstanding the maximum pressure of the gas or liquid inside the pipe may be placed across a pipe or duct to prevent unexpected release of the contents.

4) Line Isolation: Lines can be isolated by 1) double blocking and bleeding the line or 2) by blocking two closed in-line valves or 3) blocking or bleeding open to the outside atmosphere the drawn or the bleed-in line between the two closed valves.

6.6. Air Monitoring

Before any permit required confined space may be entered by any employee, the entry supervisor (or designee if qualified) must monitor the atmosphere of the confined space to determine that the characteristics of the air for all levels and all areas within the confined space are safe. The atmosphere within the authorized entrant's immediate area should be continuously monitored for oxygen, combustible gases and any other hazardous substance.

When testing for atmospheric hazards, test first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors.

Note: Authorized entrants and/or their authorized representatives shall be provided an opportunity to observe the atmospheric testing of the confined space that is conducted prior to entry and subsequent testing. Reevaluation of the permit space shall be done in presence of the authorized entrant or employee's authorized representative who requests the reevaluation.

Sampling Devices

1) A direct readout sampling device which can simultaneously test for oxygen, hydrogen sulfide and/or carbon monoxide and combustible gas without manual switching shall be used to sample the atmosphere of the confined space.

2) The sampling device shall be equipped with an audible and visible warning device that warns the entrant and/or attendant of the hazardous atmosphere in the permit space.

3) Sampling devices shall be calibrated relative to the oxygen content of the ambient air at the time of sampling. Calibration of the sampling device relative to the oxygen content shall be performed where the 20.9% natural content of oxygen in the air is most likely to occur.

Note: Oxygen calibration should not be performed near a confined space opening.

4) A sampling device, which has a zero set, shall be zeroed in a clean atmosphere before each sampling. Calibration of a sampling device shall be conducted daily before each use.

5) Non-sparking Equipment: When sampling the atmosphere of a confined space, the sampling device shall have an attached non-sparking probe.

6) Manhole Sampling: When a confined space entry is by means of a manhole, a probe shall be inserted through the pick hole of the manhole cover, or the manhole cover shall be preyed open on the downwind side to allow just enough room for insertion of the probe or other sampling device.

7) Intrinsically Safe: When the confined space to be entered is expected to have combustible vapors present, employees shall be required to use an approved explosion-proof or intrinsically safe sampling device.

6.7. Assessment of Additional Hazards

Before entering a confined space, the Confined Space Entry Supervisor or in his absence another member of the health and safety staff, shall conduct an assessment of any additional hazards which the entrant may encounter during the confined space entry. This assessment shall include, but is not limited to, a review of the following additional hazards:

1) Thermal hazards due to extremes in hot and cold temperatures.

2) Engulfment Hazards due to loose, granular materials, such as sand, coal, or ash, stored in bins or hoppers.

3) Noise hazards, which can affect hearing and emergency communications.

4) Slick/wet surfaces, which can increase the risk to slips and falls. Wet surfaces also increase the risk and effects of shocks from electrical tools, machinery, and circuitry.

5) Falling Objects from work being performed above an employee or by objects falling through open confined space entrances.

6) Mechanical equipment that is required to be operating during the entry.

7) Electrical Hazards from exposed wires, power lines, etc.

8) Fall Hazards.

9) Biological Hazards.

6.8. Emergency Rescue

Note: The OSHA Confined Space Standard allows two options for rescue operations. The Confined Space Administrator and Confined Space Entry Supervisor must select one of the following types of rescue for each permit required confined space identified at the Site.

6.8.1. Emergency Service Confined Space Rescue

Prior to utilizing a rescue service/contractor, the Confined Space Program Administrator shall:

1) Evaluate the prospective rescuer's ability to respond to a rescue summons in a timely manner, considering the hazard(s) identified.

   Note: What is considered "timely" will vary according to the specific hazards involved in each entry;

2) Evaluate the prospective rescue service's ability, in terms of proficiency with rescue-related tasks and equipment, to function appropriately while rescuing entrants from the particular permit space or types of permit spaces identified;

3) Select a rescue team or service that has the capability to reach the victim(s) within a time frame that is appropriate for the permit space hazard(s) identified, and is equipped for and proficient in performing the needed rescue services;

4) Inform each rescue team or service of the hazards they may confront when called on to perform rescue at the site; and

5) Provide the rescue team or service selected with access to all permit spaces from which rescue may be necessary so that the rescue service can develop appropriate rescue plans and practice rescue operations.

   Note: OSHA 29 CFR 1910.146 Appendix F contains examples of criteria that employers can use in evaluating prospective rescuers.

6.8.2. On-site Confined Space Rescue

In the event that a confined space related emergency is expected, all employees involved in the rescue shall be provided with the proper emergency rescue training, PPE, and rescue equipment needed in order to make a safe rescue attempt, at no cost to the employees.

1) Before a confined space rescue attempt is made, the following equipment must be available near the entrance of the confined space:

   a. Personal Protective Equipment

      1. Fully charged SCBA with at least a 30-minute air supply or a Type C airline respirator with an emergency escape air tank.
      2. Protective clothing/gloves, if needed
      3. Head protection, if needed
      4. Hearing protection, if needed

5. Eye protection
6. Communication devices

b. Retrieval equipment

1. Full body harness and lifeline

Note: Wristlets may be used in lieu of the full body harness if the employer can demonstrate that the use of a full body harness is infeasible or creates a greater hazard and that the use of wristlets is the safest way and most effective alternative.

2. Winch/hoist fully capable of retrieving personnel from a vertical type confined space more than five feet deep.

Retrieval line shall be attached at the center of the entrants back near shoulder level, above the entrants head, or at another point which presents a profile small enough for the successful removal of the entrant. The other end of the retrieval line shall be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary.

3. Ladders.

c. Emergency equipment:

1. First aid kit
2. Fire extinguisher(s) appropriate for the situation

2) Duties of Rescuing Attendants - (Non-Fire Emergency)

In the event that either a non-permit or permit-required confined space non-fire related emergency rescue occurs, rescuing attendants shall follow the following procedures:

a. Alert the employees in the confined space to immediately vacate the space and verify that the employees understood these instructions.

b. Notify the following personnel via a two-way radio or telephone with detailed information about the emergency.

1. Rescue Service
2. Confined Space Entry Supervisor and SSHO

Note: The Confined Space Entry Supervisor or area supervisor will then request assistance from the Local Fire Department if medical attention is needed.

c. Begin emergency extraction from outside of the confined space:

1. Verify that all employees are exiting the confined space. If not, then perform the following:
2. Notify the Confined Space Entry Supervisor that the employee(s) are disabled.

3. Begin winching/hoisting employee(s) from the confined space.
4. Do **not** enter the confined space until help arrives**.**

3) Duties of Rescuing Attendants - Fire Emergency

a. **No attempt should be made to enter a burning confined space.**

b. Standby personnel shall immediately call 911 and will indicate that a fire emergency is involved and the location of the confined space.

c. The attendant(s) shall attempt to remove the employee or employees via the hoist/winch from outside the confined space.

4) Rescue Attempt. Upon arriving at the confined space, the rescue service shall;

a. Sample the air in the confined space.

Note: Entry is **not** permitted if the air quality in the confined space is outside the acceptable limit for combustible gas. If the combustible gas content is more than 10% of the LEL, the confined space must be ventilated and/or the source of the combustible gas shut off or removed before entry is permitted.

b. Assess the potential hazards that rescue personnel could encounter by entering the space.

c. If entry conditions are determined safe, enter the confined space with the proper retrieval equipment, personal protective equipment, and a fully charged SCBA or a supplied airline respirator equipped with an emergency air tank.

d. Search for the disabled employee(s).

e. Assess the type of accident/injuries.

f. Administer proper first aid/CPR, if needed.

g. Begin extraction procedures, taking care not to cause further injury.

5) Substance Information. If an injured entrant is exposed to a substance for which a Material Safety Data Sheet (MSDS) or other written information is required to be kept at the work site, that MSDS or written information shall be made available to the medical facility treating the exposed entrant.

7.0 Employee Training

All employees who are required to enter a Permit Required Confined Space or serve as an attendant shall be trained and properly equipped to recognize, understand, and control hazards that may be encountered in the confined space. Training records (certification) shall be available for inspection by employees and their authorized representative.

7.1. Training shall be provided to each affected employee:

1) Before the employee is first assigned duties under this section.

2) Before there is a change in assigned duties.

3) When there is a change in the permit space operations that present a hazard

about which an affected employee has not previously been trained.

4) Whenever the employer has reason to believe either that there are deviations from the permit space entry procedures or that there are inadequacies in the employee's knowledge or use of these procedures.

7.2. Confined Space Entry

All employees who are required to either enter a confined space or serve, as attendants shall receive training in the following areas:

1) Associated safety and health hazards of the confined space entry
2) Duties of entrants and attendants
3) Air monitoring and attendants
4) Respiratory protection
5) Emergency rescue procedures
6) Lockout isolation procedures

Training shall be provided to each affected employee:

1) Before the employee is first assigned confined space entry duties.
2) Before there is a change in assigned duties.
3) Whenever there is change in confined space operations that presents a hazard about which the employee has been previously trained.

7.3. Personal Protective Equipment (PPE)

All employees who are required to either enter a confined space and/or serve as attendants, shall receive training on the proper use of any PPE needed to perform the job safely, such as, protective clothing and suits, gloves, respiratory protection; confined space rescue equipment, body harnesses, hearing protection, and eye/face, hand, foot and head protection.

7.4. Emergency Rescue Training

An emergency rescue employee(s) who is designated to provide permit space rescue and emergency services shall be trained in the following measures with an adequate level of proficiency shown in:

1) The use of personal protective equipment (PPE) needed to conduct permit space rescues safely.
2) The assigned rescue duties (same as entrants).
3) Basic first aid and CPR - At least one member of the rescue team or emergency service shall hold a current certification in first aid and CPR.

Emergency rescue personnel shall perform a permit space rescue at least once every 12 months by means of simulated rescue operations in which dummies, manikins, or actual persons are removed from the actual permit spaces or from representative permit spaces.

Representative permit spaces shall, with respect to opening size, configuration, and

accessibility, simulate the types of permit spaces from which rescue is to be performed.

8.0 Work Involving Subcontractors

8.1. When the Site Superintendent arranges to have employees of a subcontractor perform work that involves confined space entry, the Confined Space Entry Program Administrator or the Confined Space Entry Supervisor shall:

1) Inform the contractor that the workplace contains permit spaces and the permitted space entry is allowed only through compliance with a permit space program that complies with CFR 1910.146.

2) Inform the contractor of the hazards identified and Sevenson's experience with the confined space that made the space in question a confined space.

3) Coordinate entry operations with the subcontractor when personnel from both employers will be working in or near the confined space.

4) Verify that the subcontractor has an appropriate Confined Space Entry program.

8.2. Debrief the contractor at the conclusion of the confined space entry operation(s) regarding the permit space entry procedures that were followed (if applicable) and the hazards that were confronted or created during entry operations.

9.0 Non- Permit Required Confined Space Entry

9.1. No employee shall enter or work in a non-permit confined space unless the following steps have been performed:

1) Obtains permission to enter the confined space from the Confined Space Entry Supervisor, or in their absence another member of the health and safety staff.

2) Obtains and uses the proper PPE, tools and other equipment.

3) Complies with all other applicable confined space entry procedures

Note: Atmospheric testing of a non-permit confined space is not required by the OSHA Confined Space standard. However, testing the atmosphere for toxic gases and oxygen deficiency prior to entering the confined space is recommended if a suitable, and properly calibrated, sampling devise is available. The OSHA Standard also does not require an attendant for entry into a non-permit required confined space, however having an attendant present (if practical) is again strongly recommended. Other OSHA standards (i.e. Personal Protective Equipment, Respiratory Protection, etc.) still apply to entry into all confined spaces.

10.0 Reclassification of a Permit Required Confined Space to Non-Permit Confined Space

10.1. A permit required confined space may be entered as a non-permit confined space if the permit space contains no actual or potential atmospheric hazard, and all other hazards within the space can be eliminated without entry into the space. Hazards may be eliminated, for example, by:

1) Following all designated lockout/tagout procedures for the space in question;

2) Emptying a vessel to remove an engulfment or other content hazard;

3) Draining chemical tanks of their contents, purging any residual chemicals with

water, and ventilating the space after purging is complete;

4) Shutting boilers down, opening all access ports to allow for temperature reduction and natural ventilation, and by taking all appropriate safety measures (i.e. locking out machines, etc.) to render the space safe for entry.

If the hazards arise within a permit space that has been declassified to a non-permit space, each employee in the space shall exit the space as soon as possible. The employer shall then reevaluate the space and determine whether it must be reclassified as a permit space, in accordance with other applicable provisions.

11.0 Reclassification of a Non-Permit confined Space to a Permit Required Confined Space

11.1. When there are changes in the use of a non-permit confined space that may increase the hazards, the space shall be reevaluated and classified as a permit-required space if necessary. Reclassification would be required, for situations such as:

1) During application of solvents, paints chemicals or other materials that could potentially create a hazardous atmosphere in a confined space.

2) During welding, cutting, brazing, or soldering in some confined spaces with limited ventilation.

11.2. The Confined Space Entry Supervisor shall reevaluate and reclassify confined spaces as necessary depending upon the work activities to be performed in these spaces.

12.0 Other Safety Rules and Work Practices

12.1. In order to protect the safety and health of all employees associated with the confined space entry, employees (and supervisors) shall comply with the following safety rules and work practices:

1) General Safety Rules

a. All employees within the confined space and those employees assigned to serve, as attendants shall be in constant two-way communication.

b. All employees required to wear respiratory protection must properly use and maintain properly the respirator in accordance with 29 CFR 1910.134 and the specific instructions provided to them by their supervisor and during training.

c. Smoking is not permitted within the confined space or within a 10 feet radius of the entrance of a confined space.

d. All employees shall comply with the requirements and limitations on the confined space entry permit, including the maximum number of employees permitted to work in the confined space.

2) Underground and Aboveground Storage Tanks

Before any employee enters a boiler or any other vessel type confined space, the following safety precautions shall be implemented:

a. Ensure there is only residual material left in the bottom of the underground storage tank (UST) before an entry.

b. Ensure that all lines leading into and away from the tank(s) are blanked, blinded, and/or double blocked and bled before an entry is allowed.

c. Ensure that all employees entering a tank are secured by a lifeline to a winch or other retrieval device outside the confined space.

d. Treat all boilers and other vessel-type confined space in a manner consistent with that of other confined spaces.

Note: If a confined space entry is required for fuel oil (diesel fuel) tank the LEL must be determined with a Photoionization Detector (PID). This is due to LEL sensor[1] technology and its response to heavy hydrocarbon fuels is unreliable. The PID reading must be less then 250 ppm for entry into the tank in Level C PPE with OVA cartridges.

3) Traffic Safety

a. Entrances to confined spaces that are located in streets shall be guarded in accordance with the following requirements:

1. Employees shall activate the following warning lights

a. Vehicle's beacon light

b. Four-way hazard flashers

b. Employees shall park the vehicle used to transport their confined space equipment in such a way that the vehicle does not obstruct the normal traffic flow and shall, when possible, use the vehicle to provide protection for the employees.

c. Employees shall park the vehicle in such a manner that the vehicles exhaust fumes cannot accumulate in the confined space. If this is not possible, the vehicle's exhaust pipe shall be extended away from the confined space.

d. Employees shall properly place traffic safety cones around the manhole and any vehicle in accordance with state and federal traffic ordinances to adequately warn oncoming traffic.

e. Traffic safety cones shall be visible to traffic in all directions and in such a manner as to protect the employees from the traffic flow. Traffic cones should also be placed far enough form the confined space to give drives adequate notice.

When working on the street or an easement surface, all standby and flag person employees shall at all times wear a traffic safety vest or the equivalent. A flag person(s) shall be added to the Confined Space Entry Team when the need arises. The flag person(s) shall not be considered as the required attendant for a permit required confined space.

4) Cleaning purposes

When a confined space entry is required for cleaning purposes, the Confined Space Entry Supervisor or in their absence another member of the health and

[1] Application Note AP-219, "*Using PID for 10% of LEL Decisions*" Revision 1, RAE Systems, Inc., San Jose, CA,

safety staff, shall review and authorize the procedures and processes to be used while cleaning the confined space before entry can take place.

The following specific cleaning methods shall be used depending upon the product or products in the space:

a. Flammable/Combustible Atmosphere: The atmosphere within the confined space shall be purged with an inert gas if the atmosphere is above the upper flammable limit to remove the flammable and/or combustible substance before forced ventilation of the space. Initial cleaning shall be done, if possible, from outside the tank.

b. Cleaning Process Hazards: When additional hazards are created by the cleaning process, the Confined Space Entry Supervisor shall develop additional safety procedures to address the newly created hazards. These special procedures shall be developed before a confined space cleaning process takes place.

5) Use of equipment and tools inside the confined space

When the confined space entry requires the use of equipment and tools inside the space, this equipment shall be inspected and must meet the following requirements:

a. Hand tools must be in good repair and be kept clean.

b. Portable electrical tools, equipment, and lighting shall be listed Class I, Division I, Group D. All grounds must be checked before electrical equipment is used in a confined space. **Note:** Ground Fault Protectors should be used whenever possible to protect employees from electrical shock when working in damp or wet locations.

c. All electrical cords, tools, and equipment must be constructed of a heavy-duty, double-insulated cord and equipped with a 3-prong plug. Note: double insulated tools with a 2-prong pug may be appropriate in some cases.

d. All electrical cords, tools, and equipment must be visually inspected for defects before being used in a confined space. If found defective, they will be replaced, repaired, or destroyed before any employee enters the confined space.

e. Cylinders of compressed gases must never be taken into a confined space and will be turned off at the cylinder valve when not in use. Exempt from this rule are cylinders that are part of SCBA or resuscitation equipment.

f. Ladders must be adequately secured or of a permanent type which provides the same degree of safety. Note: Permanent ladders must be inspected for rust or corrosion and repaired or replaced if necessary.

All equipment that may be used in a flammable atmosphere shall be approved as either explosion proof or intrinsically safe for the atmosphere and shall be approved by a recognized testing laboratory (i.e., UL, FM).

13.0 Recordkeeping

13.1. The following records will be maintained on file for at least one year:

1) Employee Training Records - including dates and the names of attendees.
2) Confined Space Entry Equipment Inspections - including dates, results, and corrective action.
3) Monitoring Equipment Calibration/Servicing Reports - indicating calibration dates and any service conducted by the manufacturer.
4) Confined Space Permits - for all Permit Required confined space entries.

14.0 Annual Review

14.1. The Confined Space Entry Program Administrator shall review the Confined Space Program at least annually using cancelled Confined Space Permits and other available information and records in order to determine if:

1) Changes should be made to improve the program's overall effectiveness;
2) Additional hazards have been identified within a given space;
3) Additional measures should be taken to protect the entrants;
4) Additional confined spaces should be included within the program; and
5) Some locations can be removed from the program.

CONFINED SPACE HAZARD ASSESSMENT FORM

PART I

Hazard Codes:

1. Atmosphere is within acceptable limits.
2. Contains or has a potential to contain a hazardous atmosphere.
3. Contains a material that has the potential for engulfing an entrant (i.e. soil, sand)
4. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section.
5. Contains moving parts or machinery.
6 Contains any other recognized health or safety hazard.

Confined Space (Tank, Manhole, etc)	Location	Reason(s) for Entry	Classification (Permit Required/Non Permit)
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

CONFINED SPACE HAZARD ASSESSMENT FORM

PART II

Confined Space (Part I)	Tools/Equipment Required for Entry	PPE Required for Entry	Special Precautions Required for Entry
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Assessment Performed By _____ Title _____ Date _____

Sevenson Environmental Services, Inc.

CONFINED SPACE PERMIT

Date_____ Time of Issue_____ Length of Permit_____
Location _____ Equipment ID_____
Purpose of Entry & Description of Work _____
_____
_____
Authorized Entrant(s)_____
Will "HOT" Work be authorized for this Entry? ☐No; ☐Yes (describe)_____
_____

HAZARDOUS IDENTIFICATION

Indicate ALL potential Hazards of this Permit Space:	YES	N/A
a. Contains or may contain a hazardous atmosphere	☐	☐
b. Contains a material for potential engulfment	☐	☐
c. Has an internal configuration for potential entrapment	☐	☐

If "Yes", describe _____
_____

d. Contains the following serious safety or health Hazards:_____

PRE-ENTRY PREPARATION

		YES	N/A	Done			Removed		
				Date	Time	By	Date	Time	By
1. Lines broken and/or blanked:									
Line Contents	Location								
a.									
b.									
c.									
2. Drain or at a workable level									
3. Purge - flush and vent									
4. Force air to bottom & vent									
5. Lock out power feeds:									
Equip/Location of Lock out									
a.									
b.									

c.								
6. Shut-off heating systems								
7. Other:								

TEST TO BE TAKEN

	P.E.L.	Time Tester Yes	Time Tester N/A	Time Tester Results	Time Tester Results	Time Tester Results
% of Oxygen	19.5% to 23%					
% of LEL	Any % over 10					
Carbon Monoxide	25 ppm					
Hydrogen Sulfide	10 ppm					
VOC						
Temperature	< 110ºF/43ºC					

PREVENTION OF UNAUTHORIZED ENTRY

	YES
1. Have Worker(s) to enter been trained for this specific entry?	☐
2. Have Attendants been trained for this specific space?	☐
3. Post "WORKER IN CONFINED SPACE" Sign	☐
4. Set-up the following additional barriers:	

_____

_____

MANDATORY SAFETY EQUIPMENT REQUIRED

	YES	N/A
1. Fire Extinguisher	☐	☐
2. Retrieval Lines	☐	☐
3. Respirator	☐	☐
4. Goggles	☐	☐
5. Hearing Protection	☐	☐
6. Protective Clothing	☐	☐
7. Special Boots or Shoes	☐	☐
8. Gloves	☐	☐
9. Other Safety Equipment Required	☐	☐

_____ _____

_____ _____

_____ _____

_____ _____

COMMUNICATION PROCEDURES AND EQUIPMENT TO BE USED FOR THIS ENTRY

(Verify that chosen equipment is in place and operation.)

Verified by:

1._____ _____

2._____ _____

RESCUE EQUIPMENT TO BE PROVIDED ON-SITE

		YES	N/A
a.	Two chest harnesses or two wristlets	☐	☐
b.	Two five minute supplied air escape respirators	☐	☐
c.	One 30 minute S.C.B.A.	☐	☐
d.	One emergency siren	☐	☐
e.	Man basket	☐	☐
f.	Retrieval wench	☐	☐
g.	Other necessary Rescue Equipment	☐	☐

_____

_____

_____

IN CASE OF EMERGENCY

Rescue Service	Phone Number or Ext.
1._____	_____
2._____	_____
3._____	_____

Confined Space Entry Supervisor or designee must sign below AFTER all the above actions are fully understood and conditions necessary for SAFE entry have been met.

Authorization of Entry

Signature (if not CSE Supervisor, add title)	Date	Time

Termination of Entry

Signature	Date	Time

Exhibit 5
Construction Quality Control Plan

Construction Quality Control Plan

Former General Motors Inland Fisher Guide Site
Operable Unit 2
Residential Area Remediation

Prepared for:

RACER – Revitalizing Auto Communities Environmental Response Trust

500 Woodward Avenue, Suite 2650

Detroit, MI 48226

Prepared by:

Sevenson Environmental Services, Inc.

2749 Lockport Road

Niagara Falls, New York 14305

Date: September, 2016

Introduction

Sevenson's Contractor Quality Control Plan (QCP) will be implemented to monitor that remedial and construction procedures are performed in compliance with the plans and specifications under this contract. The quality control measures as presented herein will include construction procedures; staffing; types of material and equipment to be used; and methods of performing, documenting, and enforcing quality control operations of both the prime contractor and subcontractors (including inspection and testing).

Maintenance of the QCP will be the responsibility of Sevenson's Project Manager. Sevenson will be responsible for ensuring that all materials and work comply with the contract specifications. All inspection and testing firms will be at the disposal of Sevenson to ensure that all aspects of work are compliant with the contract.

Temporary Construction Road

Sevenson will construct temporary roads during early construction activities to facilitate the movement of Sevenson and subcontractor trucks on-site. Geotextile woven-fabric will be installed on the temporary roads to minimize the chance of PCB soils from migrating between properties, and off-site. Sevenson will ensure that temporary roads are constructed with an appropriate road base material or wood chips.

Dust Control Activities

Due to the proximity of neighboring homes, Sevenson is sensitive to controlling levels of fugitive dust. The goal of Sevenson's operations is to generate no dust during the excavation/backfill process. Dust during cleanup activities will be primarily controlled by spraying water at the excavation areas. Water spray will be applied proactively (as needed) throughout the project to minimize site dust; as well as when air monitoring results indicate dust control measures are required. Application rates will be regulated to control dust, but will not result in generating mud that could be transported from work areas on haul trucks or other mobile equipment. Dust suppression equipment may consist of standard garden hoses and spray nozzles connected to a water tank/trailer filled with potable water. All equipment and water shall be provided by Sevenson. Sevenson will have a designated water tank/trailer for the cleanup properties. Sevenson's Superintendent will be present at each excavation/backfill activity. Before the soil is dry, the Sevenson Superintendent will dispatch the water tank/trailer to lightly mist the area with water to control dust on an as-needed basis and in accordance with the Community Air Monitoring Plan.

Sevenson will also control dust, as needed, during the construction of the Staging Area (1 General Motors Drive) and during the transportation and dumping of excavated soils at the Staging Area. Water application will be used as necessary to reduce fugitive dust.

Erosion and Sediment Control (Silt Barrier)

Sevenson will install erosion and sediment controls, including silt fences and barriers to help minimize all erosion of sediments into Ley Creek. The silt fence will be installed simultaneously with the tree clearing activities. Sevenson will verify that materials utilized are approved and on-site prior to any excavation taking place. As a part of the initial planning inspection activities, Sevenson will verify that the materials are being placed per the specifications and that the installation is correct and effective. Throughout the duration of the project, Sevenson's construction inspectors will check the site for compliance with erosion control measures at a frequency in accordance with the approved Stormwater Pollution Prevention Plan written by O'Brien & Gere Engineers, Inc. (OBG). Sevenon's "trained contractor" shall inspect erosion and sediment controls daily during soil disturbance activities. At the conclusion of the construction, Sevenson will perform a final inspection to ensure that the work was completed satisfactorily.

Importing Soil Materials (i.e. general fill and topsoil)

Quality control measures will extend to field sampling procedures; staffing; types of material and equipment to be used; and methods of performing, documenting, and enforcing quality control operations of both Sevenson and subcontractors (including inspection and testing).Sevenson will conduct field-testing to verify that control measures are adequate to provide a product that conforms to contract requirements. Sevenson will assist OBG with the sampling. Sevenson will be responsible for ensuring that all materials for general fill and topsoil are approved by OBG prior to receiving the materials on-site.

Sevenson will conduct all geotechnical testing and submit results to OBG for approval. OBG will obtain an affidavit from the material supplier stating that the material is from a virgin source. As discussed with NYSDEC, for every designated quantity at a virgin source RACER will obtain one composite sample for SVOCs, metals, PCBs/pesticides and two discrete samples for VOCs. Three to five discrete samples will make up each composite sample.

Compaction

After the excavations are completed and post-excavation monitoring confirms that they may be backfilled, Sevenson will import the approved backfill material and then place the soil with a D39 dozer in maximum 12-inch lifts. Sevenson will hire a local geotechnical testing company, Atlantic Testing Laboratories (ATL), to test and confirm that Sevenson achieves a maximum dry density of 85% using Standard Proctor compaction methods. At the commencement of backfill importation, ATL will send a technician to the jobsite to conduct nuclear density testing. Sevenson will use the D39 dozer to track the backfill material two to three times to achieve the 85% maximum dry density requirement. Once the compaction method is proven to be successful, Sevenson will use the same compaction method for the remainder of the project.

Additional compaction testing will also be performed on the footprint of permanent structures (i.e. garages) that may need to be installed. Sevenson will promptly notify OBG of any observed irregularities or non-conformance of the work.

Restoration of Property Items, North of the Fence

Restoration of property items will be in accordance with the contract drawings, specifications, and restoration agreements. Below is a list of some of the restoration items.

Fence – After the backfilling of the backyard to the referenced specifications has been completed, new fencing will be installed where original fencing had been removed at the start of construction.

Sod, Topsoil and Seed – Sod, topsoil and seed will be installed over the newly backfilled backyards. In general, sod will be installed in the backyards in lawn areas all the way to the south fence, while topsoil and seed will be installed on the slope south of the fences and on the two properties owned by the DOT (i.e. NYSDOT and OCDOT).

Trees – To replace the trees removed during the clearing activities prior to the soil excavations, new trees will be planted in the backyards. The tree size will be an inch and a half in diameter, measured six inches above the base of tree.

Other structures – As necessary, pools, sheds, decks, and garages will be installed in accordance with the Town of Salina local codes. Building permits will be required for the construction of decks, garages, and pools. Sevenson will only install such structures in accordance with the restoration agreements executed by RACER Trust and the respective property owners.

Installation of Silt Fence and Erosion Control Blanket

Silt Fence with Activated Carbon Filter - Sevenson will utilize this silt fence to help minimize soil erosion:

1. The silt fence will minimize erosion of soils from the Site (backyards of properties) into Ley Creek.
2. The silt fence will minimize the possibility of sediments moving from Ley Creek onto the Site in the event of Ley Creek floodwaters cresting the creek bank.

Eronet C125 Erosion Control Blanket - The Eronet C125 Erosion Control Blanket will be installed in accordance with the contract plans to keep the soil in place and minimize soil erosion.

Decontamination

Sevenson will ensure that vehicles transporting excavated materials from the Site to the Staging Area or directly to an approved permitted landfill have been properly decontaminated to prevent tracking impacted material throughout the residential area. Sevenson will also decontaminate the bin blocks at the Staging Area at the conclusion of the restoration activities. After all the excavated soil has been delivered to the approved disposal facilities, the Staging Area will be properly decontaminated and Sevenson will remove and dispose of the non-woven geotextile fabric, haybales, and the 20 mil LLDPE liner that had been placed at the Staging Area.