FINAL | WORK PLAN

Remedial Action Work Plan

Ames Corporation
Union Fork & Hoe Site
Frankfort, New York
Site No. 622011

April 2019

OBG
Part of Ramboll

CERTIFICATION

I Stephen W. Anagnost certify that I am currently a NYS registered professional engineer and that this Remedial Work Plan was prepared in accordance with applicable statutes and regulations and in substantial conformance with DER Technical Guidance for Site Investigation and Remediation (DER-10).

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No. 068269	4/19/19	
NYS Professional Engineer #	Date	Signature

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LIST OF ACRONYMS

Ames	Ames Corporation
AMSL	Above Mean Sea Level
bgs	below ground surface
BMPs	best management practices
CAMP	Community Air Monitoring Plan
cm/sec	centimeters per second
COCs	Constituents of Concern
CQAP	Construction Quality Assurance Plan
cy	cubic yards
DQOs	Data Quality Objectives
ESCP	Erosion and Sediment Control Plan
FS	Feasibility Study
ft	feet
FER	Final Engineering Report
HASP	Health and Safety Plan
IRM	Interim Remedial Measure
NYCRR	New York State Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
µg/m^3	micrograms per cubic meter
OBG	O'Brien & Gere part of Ramboll
PCBs	Polychlorinated biphenyls
ppb	parts per billion
ppm	parts per million
PAHs	Polycyclic Aromatic Hydrocarbons
PCE	Perchloroethylene
RACP	Remedial Action Contingency Plan
RAOs	Remedial Action Objectives
RAWP	Remedial Action Work Plan
RI	Remedial Investigation

RFS	Revised Feasibility Study Report
RIR	Remedial Investigation Report
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SCOs	Soil Cleanup Objectives
SF	Square feet
SCGs	Standard Criteria or Guidance
SVOCs	Semi-volatile organic compounds
SMP	Site Management Plan
SWPPP	Stormwater Pollution Prevention Plan
PCE	tetrachloroethene
TAL	Target Analyte List
TCE	trichloroethylene
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds
XRF	X-ray Fluorescence

1. INTRODUCTION

1.1 GENERAL

This document presents the Remedial Action Work Plan (RAWP) for the Union Fork & Hoe Site in Frankfort, New York (Site No. 622011). This RAWP has been prepared in accordance with an Order on Consent (Index No. A6-0667-06-11) signed in August 2011 between the New York State Department of Environmental Conservation (NYSDEC), and the Respondent, Ames Corporation (Ames), formerly known as Ames. Ames has elected to perform the remedial construction using a design/build approach. Accordingly, Ames has retained O'Brien & Gere part of Ramboll (OBG) to prepare this RAWP.

1.2 RAWP ORGANIZATION

Section 2 of the RAWP summarizes Site background information, the nature and extent of contamination, previous remedial actions, and the final remedy selected for the Site. Section 3 presents the design details developed by OBG to implement the selected remedy. Section 4 describes how construction of the Remedial Action (RA) will be implemented. Section 5 describes the post-construction reporting, including preparation of a Final Engineering Report (FER) and Site Management Plan (SMP). Select project support plans have been provided as supplemental, stand-alone appendices to this RAWP. Additional project support plans will be prepared and submitted for NYSDEC review when a construction subcontractor is retained. To facilitate tracking of support plans and submittals a Submittal Register is also included as an appendix to this RAWP.

2. BACKGROUND AND SELECTED REMEDY

This section summarizes the Site background information relevant to the development of the RAWP including Site description, history, topography and drainage, geology, hydrogeology, extent of impacts, the Remedial Action Objectives (RAOs) and the remedy selected by the NYSDEC in the Record of Decision (ROD) to achieve the RAOs. The information provided below is summarized from the following documents:

- Remedial Investigation Report (RIR) – Former Union Fork & Hoe Facility, dated February 12, 2015, prepared by Brandborn, Briller and Johnson LLC.
- Revised Feasibility Study Report (RFS) – Former Union Fork & Hoe Facility, dated December 7, 2016, prepared by Tetra Tech Engineering Corporation, P.C.
- Interim Remedial Measure Construction (IRM) Completion Report – Former Union Fork & Hoe Facility, dated May 15, 2015, prepared by Brandborn, Briller and Johnson LLC.
- Record of Decision (ROD) Union Fork & Hoe State Superfund Project Frankfort, Herkimer County Site No. 622011, dated March 2018, prepared by NYSDEC
- Report of Drain Survey and Sampling Union Fork & Hoe Site, dated January 30, 2013, prepared by Branborn, Briller and Johnson LLC
- Brick and Block Beneficial Reuse Determination Request Union Fork & Hoe Site, dated August 2, 2013, prepared by Branborn, Briller and Johnson LLC
- Addendum to the Brick and Block Beneficial Reuse Determination Request Union Fork & Hoe Site, dated October 21, 2013, prepared by Branborn, Briller and Johnson LLC

2.1 SITE DESCRIPTION

The Union Fork & Hoe Site is a rectangular-shaped area approximately 29 acres in size bordering East Main Street in the Village and Town of Frankfort, Herkimer County. The location of the Site is shown in Figure 1. Of the approximately 29 acres, 3.1 acres is wooded land and 25.7 acres is open space bounded by East Orchard Street to the northwest, East Main Street to the southwest, residential and commercial properties to the northwest, a former railroad easement on the northeast side, and industrial/commercial properties on the southeast side. Three public water supply wells, located approximately 350 feet to the northeast, serve as the primary drinking water resource of the Town of Frankfort. The Site is zoned for commercial and industrial use and is currently vacant. All Site buildings were demolished in 2012 after a fire destroyed several buildings in the northern portion of the Site.

Site features include:

- Remnant foundations and footings from former structures
- A smoke stack located in the north central portion of the Site
- An inactive material silo in the northeast portion of the Site
- Overhead power lines traversing the southern portion of the Site
- Inactive sanitary and storm sewer lines throughout the Site.

2.1.1 Site History

The Union Fork & Hoe Site was operated as a manufacturing facility for hand tools by Union Tools for more than 100 years. Railroad operations took place on the Site prior to that. Prior to approximately 1868 when railroad operations began, the Site was a mix of vacant land with a few residences on the northeast portion of the Site. By 1886, the New York West Shore Railroad operated at the Site managing a turnaround, foundry, erecting shop, blacksmith shop, storage building and paint shop. By 1891, additional storage buildings, a “Dynamos” building (housing a dynamo electric generator), and a polishing area for the blacksmith shop were erected. By 1902, the

following companies/groups were operating at the Site: Continental Tool Company, Steam Gauge Company, Pratt Chuck Company, and Michigan Condensed Milk Company. Operations included: metals finishing, polishing, forging, machining, an underground storage tank (14,000-gallon fuel oil tank), oil and paint storage facilities, foundry, boiler, kerosene oil and gasoline storage, and milk processing. By 1907, the Acme Machine Company adjoined the Site to the south. Acme operations included wood working, a boiler, and storage. In 1907, the Acme Machine Company facility had been destroyed by fire and was in the process of rebuilding. Additionally, around 1907 Continental Tool Company merged with American Fork & Hoe to become Union Fork & Hoe. By 1914, operations at the Site expanded to include a dry kiln building, stock and finished goods storage building, and a transformer building. The railroad turntable was removed and replaced by several permanent rail spurs. During this time the railroad foundry expanded to include a coke pile, and a fuel oil tank. Industrial operations continued at the Site until December 2006. In 2012, a fire destroyed most buildings onsite, and the remaining buildings were demolished as part of an interim remedial measure (IRM).

2.1.2 Topography and Drainage

Topography at the Site is relatively flat with elevations varying between 400 and 415 feet above mean sea level (AMSL) generally sloping to the northeast toward the Mohawk River. The Mohawk River, a New York State Class B waterway, is located approximately 2,000 feet northeast of the Site.

2.1.3 Geology

The Site is located to the south-southwest of the Mohawk River in the Mohawk River Valley which is a bedrock valley filled with sediment of glacial origin. Previous investigations at the Site have found the underlying lithology primarily consists of sand and gravel that was deposited by glacial meltwater which acts as the regional aquifer. Discontinuous layers of finer grained silt and clay were also identified within the sand and gravel. Finer grained alluvium, varying in thickness from a few feet to 15 to 20 feet, also was observed over portions of the sand and gravel.

Subsurface investigations conducted at the Site between March and June 2013 encountered clayey sand and sand with gravel and cobbles in the upper 80 feet of soil, consistent with glacial till which covers much of the region. Gravel and cobble occurrence was noted to generally increase with depth. Discontinuous sandy clay and clay lenses were observed throughout the Site to the depth of 80 feet (depth of investigation termination). Several areas containing fill material (*e.g.* concrete, brick, glass, sand) were detected within 2 feet below ground surface (bgs) underneath the former concrete building pads (BBJ 2015).

The New York State bedrock map indicates the bedrock in the area and hydraulically upgradient of the Site is Utica Shale. The Utica Shale is Middle Ordovician age bedrock that underlies significant portions of Ohio, Pennsylvania, West Virginia, New York, and Quebec below the gas rich Marcellus Shale.

2.1.4 Hydrogeology

Groundwater beneath the Site has been monitored using 36 monitoring wells screened in three hydraulic zones: a shallow zone (approximately 18 to 22 feet bgs) an intermediate zone (approximately 46 to 50 feet bgs), and a deep zone (77 to 80 feet bgs). Shallow and intermediate groundwater in the region flow to the northeast toward the Mohawk River and three municipal wells. Only two wells are installed in the deep zone so the on-Site flow direction in the deep zone has not been determined.

Laboratory analysis performed on soil samples from different monitoring wills yielded hydraulic conductivities ranging from $2.1x10^{-4}$ centimeters per second (cm/sec) (silty sand) to $2.3x10^{-8}$ cm/sec (clayey sand).

2.2 NATURE AND EXTENT OF CONTAMINATION

Based on the investigations conducted at the Site, the primary contaminants of concern (COCs) include metals and semi-volatile organic compounds (SVOCs) in surface soils, volatile organic compounds (VOCs) in groundwater, and VOCs in soil vapor. The following subsections describe the results of previous investigations at the Site for the various media.

2.2.1 Soil

Shallow and subsurface soil samples were collected at the Site during the Remedial Investigation (RI) and additional surface soil samples were collected during preparation of the RFS. Shallow soil samples were collected from a depth of 0 to 1 foot bgs. Subsurface soil samples were collected from a depth of 1 to 35 feet bgs to assess potential soil contamination impacts to groundwater. The results indicate that shallow soils at the Site exceed unrestricted and commercial soil cleanup objectives (SCOs) for certain metals and SVOCs, and unrestricted SCOs, but not commercial SCOs, for polychlorinated biphenyls (PCBs) at one location. Unrestricted and commercial SCOs were not exceeded for volatile organic compounds (VOCs) or pesticides. The analytic results for shallow soil samples are summarized in Table 1. Locations of surface soil sampling, including exceedances of commercial SCOs are shown on Figures 2A through 2C.

Table 1 – Shallow Soil Sampling Summary

Detected Constituents	Concentration Range Detected (ppm)	Unrestricted SCO (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Use Commercial SCO (ppm)	Frequency Exceeding Restricted Use Commercial SCO
Inorganics					
Arsenic	ND – 150	13	82 of 139	16	55 of 139
Barium	8.9 – 1,400	350	2 of 80	400	1 of 80
Cadmium	ND – 6.8	2.5	3 of 80	9.3	0 of 80
Chromium	3.6 – 1200	30	7 of 80	1,500	0 of 80
Copper	ND – 36,000	50	78 of 137	270	31 of 137
Lead	4.9 – 220,000	63	102 of 139	1,000	45 of 139
Manganese	66 – 1,800	1,600	5 of 80	10,000	0 of 80
Mercury	ND – 2.8	0.18	19 of 80	2.8	0 of 80
Nickel	3.4 – 140	30	12 of 80	310	0 of 80
Selenium	ND – 26	3.9	23 of 80	1,500	0 of 80
Silver	ND – 9.8	2.0	3 of 80	1,500	0 of 80
Zinc	14 – 4,500	109	33 of 80	10,000	0 of 80
SVOCs					
Benzo(a)anthracene	ND- 98	1.0	38 of 165	5.6	12 of 165
Benzo(a)fluoranthene	ND – 100	1.0	43 of 165	5.6	17 of 165
Benzo(k)fluoranthene	ND – 44	0.8	25 of 165	56	0 of 165
Benzo(a)pyrene	ND – 84	1.0	39 of 165	1.0	39 of 165
Chrysene	ND – 92	1.0	39 of 165	56	1 of 165
Dibenz(a,h)anthracene	ND – 5.2	0.33	22 of 165	0.56	16 of 165
Fluoranthene	ND – 200	100	1 of 165	500	0 of 165
Indeno(1,2,3-cd)pyrene	ND – 29	0.5	39 of 165	5.6	9 of 165
Phenanthrene	ND – 150	100	1 of 165	500	0 of 165
Pyrene	ND – 160	100	1 of 165	500	0 of 165
PCBs					
Total PCBs	ND- 0.13	0.1	1 of 4	1.0	0 of 4

Table 1. Shallow Soil Sampling Summary. Adapted from Record of Decision, Former Union Fork & Hoe Site No. 622011, Frankfort, New York by NYSDEC, 2018

The analytic results for subsurface samples collected between 1 and 35 feet bgs are summarized in Table 2. Subsurface soil analytical sampling results indicate polycyclic aromatic hydrocarbons (PAHs) and metals exceed unrestricted and protection of groundwater SCOs. Unrestricted and commercial SCOs were not exceeded for VOCs, PCBs, and pesticides. Exceedances of protection of groundwater SCOs in subsurface soils for metals are not consistent with metals exceedances for groundwater.

Table 2 – Subsurface Soil Sampling Summary

Detected Constituents	Concentration Range Detected (ppm)	Unrestricted SCO (ppm)	Frequency Exceeding Unrestricted SCO	Restricted Use Protection of Groundwater SCO (ppm)	Frequency Exceeding Protection of Groundwater SCO
Inorganics					
Arsenic	1.4 - 61	13	80 of 245	16	43 of 245
Chromium (III/VI)	4.8 - 70	30/1	5 of 245; 245 of 245	NS/19	0 of 245; 28 of 245
Copper	6.8 - 670	50	29 of 245	1,720	0 of 245
Lead	2.3 - 23,000	63	46 of 245	450	14 of 245
Manganese	160 - 2,600	1,600	3 of 245	2,000	1 of 245
Mercury	ND - 1.1	0.18	3 of 245	0.73	1 of 245
Nickel	5.4 - 42	30	6 of 245	130	0 of 245
Selenium	ND - 98	3.9	5 of 245	4.0	5 of 245
Silver	ND - 13	2.0	1 of 240	8.3	1 of 240
Zinc	26 - 500	109	28 of 245	2,480	0 of 245
SVOCs					
Benzo(a)anthracene	ND - 9.4	1.0	5 of 222	1.0	5 of 222
Benzo(b)fluoranthene	ND - 11	1.0	4 of 222	1.7	4 of 222
Benzo(k)fluoranthene	ND - 4.0	0.8	4 of 222	1.7	2 of 222
Benzo(a)pyrene	ND - 7.7	1.0	4 of 222	22	0 of 222
Chrysene	ND - 8.1	1.0	5 of 222	1.0	5 of 222
Dibenz(a,h)anthracene	ND - 0.94	0.33	1 of 222	1,000	0 of 222
Indeno(1,2,3-cd)pyrene	ND - 2.4	0.5	4 of 222	8.2	0 of 222
Benzo(a)anthracene	ND - 9.4	1.0	5 of 222	1.0	5 of 222
Pesticides/PCBs					
No Pesticides/PCBs Exceeding SCOs					

Table 2. Subsurface Soil Sampling Summary. Adapted from Record of Decision, Former Union Fork & Hoe Site No. 622011, Frankfort, New York by NYSDEC, 2018

The primary soil contaminants are PAHs and metals (arsenic, barium, copper, and lead) associated with the historic industrial use of the Site. Based on the findings of the RI, the presence of SVOCs and metals has resulted in the contamination of soil. The Site contaminants identified in soil which are considered to be the primary COCs to be addressed by the remedy are PAHs, arsenic, barium, copper, and lead.

2.2.2 Groundwater

Groundwater samples were collected from overburden monitoring wells screened at various depths as part of the RI in June and July 2013. The samples were collected to assess groundwater conditions on and off-Site. The results of groundwater sampling are summarized in Table 3. The results indicate that contamination in groundwater exceeds Standards, Criteria or Guidance (SCGs) for tetrachloroethene (PCE) and certain inorganics. Groundwater SCGs were not exceeded for SVOCs, PCBs, or pesticides.

Table 3 – Groundwater Sampling Summary

Detected Constituents	Concentration Range Detected (ppb)	Unrestricted SCG[a] (ppb)	Frequency Exceeding Unrestricted SCG[a]
VOCs			
Tetrachloraethene	ND – 7.5	5	2 of 36
Inorganics			
Cobalt	ND – 14	5	1 of 36
Iron	ND – 14,000	300	14 of 36
Magnesium	ND – 1,400	300	5 of 36
Sodium	17,000 – 130,000	20,000	35 of 36
Zinc	ND – 110	66	1 of 36

Table 3. Groundwater Sampling Summary. Adapted from Record of Decision, Former Union Fork & Hoe Site No. 622011, Frankfort, New York by NYSDEC, 2018

[a]-SCG: Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1), 6 NYCRR Part 703, and Part 5 of the New York State Sanitary Code

The primary groundwater COC is the VOC PCE. Impacts to groundwater from PCE are associated with the historic use of chlorinated solvents during the industrial use of the Site. No soil samples collected during the RI exceeded the protection of groundwater SCOs for VOCs, including PCE, indicating there is no documented remaining source of VOCs to groundwater in soil. Soil containing VOCs were previously removed from the Site during the IRMs discussed in Section 2.3. The PCE concentrations observed in groundwater slightly exceed groundwater standards and appears to be residual in nature indicating the previously completed IRMs were successful in removing the source of groundwater contamination.

The metals observed above SCGs in groundwater were not found at significant levels in soils or wastes (no exceedances of unrestricted SCOs in soils for any identified groundwater contaminants), and are commonly associated with naturally occurring conditions. Therefore, the inorganics found in groundwater are not considered Site specific COCs.

2.2.3 Soil Vapor

Prior to building demolition, sub-slab vapor and indoor air samples were collected from the on-Site buildings. Soil vapor samples were collected around the perimeter of the Site; a total of 58 soil vapor samples were collected and analyzed for VOCs. The results indicate elevated levels of PCE and trichloroethylene (TCE) in soil vapor, mostly in the southern portion of the Site. Concentrations of PCE in soil vapor ranged from non-detect to 1,000 micrograms per cubic meter (µg/m^3) and concentrations of TCE ranged from non-detect to 80 µg/m^3. Analytical results from this sampling indicated mitigation would be needed, however the buildings were subsequently demolished. Indoor air and soil vapor samples collected from the adjacent off-Site property to the south of the Site did not indicate a need to implement abatement of monitoring actions to address exposures related to vapor intrusions.

2.3 PREVIOUS REMEDIAL ACTIONS

An IRM is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the ROD. The following IRMs have been completed at the Site based on conditions observed during the RI:

2.3.1 1985 – Perchloroethylene (PCE) Impacted Soil Removal

In April 1985, approximately 50 cubic yards (cy) of soil impacted by a waste paint and solvents spill was removed east of building 215. The dimensions of the excavation were approximately 65 feet by 15 feet and up to 2.5 feet deep

2.3.2 1992 – Groundwater Recovery Well System Installation

The groundwater well recovery system operated for approximately three years. Groundwater samples were collected and analyzed for VOCs and SVOCs periodically until concentrations fell below reporting limits. The recovery well system remained inactive until it was removed during IRM activities conducted in 2009 and 2010.

2.3.3 2002 – Lead and Polychlorinated Biphenyl (PCB) Impacted Soil Removal

An excavation to remove lead and PCB impacted soil was executed in August 2002. Records documenting the extent of the excavation are not available.

2.3.4 2009 – "Hot Spot" Removal and Groundwater Extraction IRM

To address the impacts identified during the comprehensive Site characterization, BBJ prepared an IRM Work Plan which proposed removal of hot spots containing PCE, xylenes, and petroleum hydrocarbons in three areas of the Site. The IRM was approved by NYSDEC on February 24, 2009, and in March 2009, BBJ oversaw the following remedial activities:

- removal of approximately 176 cy of PCE and xylene-impacted soil from a former lacquer dip tank area located in Building 213
- removal of approximately 144 cy of xylene-impacted soil from an area formerly occupied by an in-ground lacquer dip tank at Building 203
- removal of approximately 3,300 cy of petroleum impacted soil from the area of the former Fuel Oil Spill (former Building 16 Area).

Confirmation samples collected from the excavations' sidewalls and bottoms met protection of groundwater SCOs for VOCs. During excavation dewatering activities, a total of approximately 343,000 gallons of groundwater were removed.

2.4.5 2012 Building Demolition IRM

Between May 2012 and April 2013, Ames implemented an IRM at the Site that involved demolition of all existing structures. Prior to demolition, various solid material (metal and wood) were salvaged to the extent practicable. During the project, a fire destroyed several buildings on the north side of the Site that were scheduled for demolition, so the IRM scope of work was adjusted to investigate the potential for environmental impacts associated with the fire and to properly dispose of affected material. After conducting these investigations, the asbestos containing material and lead based paint abatement and demolition phases of the work were successfully completed. Brick and block from demolition activities remains on the Site, and were sampled for COCs as documented in the Brick and Block Beneficial Reuse Determination Request and the Addendum to that request. Uncontaminated brick, block and concreate was crushed into pieces approximately 3 inches in diameter and remains on Site. The IRM is documented in the May 15, 2015 *Construction Completion Report* (BBJ Group 2015) and November 10, 2015 *Construction Completion Report Addendum*.

2.4 SELECTED REMEDY

A FS was completed that evaluated several remedial alternatives for the Site. In March 2018, the NYSDEC issued a ROD describing the proposed remedy. The Remedial Action Objectives (RAOs) and selected remedy from the ROD are described below.

2.4.1 Remedial Action Objectives

The ROD identified the following RAOs:

Groundwater

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater
- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable

Soil

- Prevent ingestion/direct contact with contaminated soil
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil
- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

2.4.2 Selected Remedy

To accomplish the RAOs, the ROD selected the following remedy:

- All on-Site soils in the upper one foot which exceeded the commercial SCOs as defined by 6 NYCRR Part 375-6.8 will be excavated and transported off-Site for disposal or reused on-Site below a soil cover
- Off-Site soil in areas adjacent to four on-Site excavation locations will be excavated if confirmation samples from the on-Site excavation boundaries exceed the SCOs for residential use for Site-related contaminants
- *Ex situ* stabilization will be implemented to treat excavated soil which exceeds the hazardous waste threshold for metals
- Excavation and off-Site disposal of identified subsurface contaminant source areas including:
  - Soil exceeding the 6 NYCRR Part 371 hazardous criteria for metals
  - Soil which exceeds 500 ppm for the total PAHs as defined in Commissioner Policy CP 51
- On-Site soil which does not exceed the excavation criteria for off-Site disposal or the protection of groundwater SCOs for any constituent may be used anywhere beneath the Site cover, including below the water table, to backfill to existing grades. On-Site soil which does not exceed the excavation criteria for off-Site disposal but does exceed the protection of groundwater SCOs may be used below the cover system but must be placed above the water table. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to complete the backfilling and establish design grades. The Site will be re-graded to accommodate installation of the Site cover. Brick debris for the former Site buildings will also be utilized as backfill material. For off-Site excavation areas, backfill must meet the residential SCOs.
- A Site cover will be required to allow for commercial use of the Site in areas where the upper one foot of exposed surface soil will exceed the applicable SCOs. The Site cover may include paved surfaces, parking areas, sidewalks or a soil cover. Where a soil cover is used, it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative over.
- Groundwater contamination (remaining after IRMs) will be monitored for Site related contamination periodically which will provide an understanding of the breakdown of contamination
- Imposition of an institutional control in the form of an environmental easement for the controlled property
- Preparation of a Site Management Plan (SMP) for the Site

3. REMEDIAL ACTION DESIGN

This section presents the plan for soil excavation and handling, construction of a Site cover, and restoration of the Site. Construction Drawings are presented in Appendix A and include the following:

- Title Sheet
- G-1 General Notes and Legend
- G-2 Existing Site Plan
- G-2a Site Remediation Plan
- G-3 Site Preparation Plan
- G-4 Shallow Excavation Plan 1 of 3
- G-5 Shallow Excavation Plan 2 of 3
- G-6 Shallow Excavation Plan 3 of 3
- G-7 PAH Excavation Plan 1 of 2
- G-8 PAH Excavation Plan 2 of 2
- G-9 Shallow Lead Excavation Plan
- G-10 Subsurface Lead Excavation Plan
- G-11 Consolidation Area – Final Grading Plan
- G-12 Site Restoration Plan and Notes
- G-13 Miscellaneous Details
- G-14 Miscellaneous Details
- G-15 Specifications

The drawings represent a level of completion necessary to convey the intent of the design for approval by the NYSDEC and to the subcontractor selected to implement this RAWP. Conditions under which the work is to be constructed, the materials and equipment to be incorporated into the work, and the standards for acceptance for the components of construction are described on the Construction Drawings (Appendix A), this RAWP and the associated supporting plans.

3.1 SITE PREPARATION

Mobilization and Site preparation activities are further described in Section 4 and the Construction Drawings (Appendix A). Site preparation activities include:

- Establishment of support areas
- Installation of access roads
- Site security and traffic control
- Erosion and sediment control measures
- Clearing (as necessary)

3.2 EXCAVATION LIMITS AND WASTE MANAGEMENT PLAN

The Construction Drawings (G-4 through G-10) present the proposed excavation limits (horizontal and vertical) for impacted soils. The subsections below provide the basis for the proposed excavation limits and describe how the soil will be managed. The limits shown will be modified during construction if necessary based on the results

of confirmation sampling at the excavation limits. Section 3.4 describes the compliance sampling (confirmation and documentation) program to document achievement of the SCOs.

3.2.1 Source Material Excavation Design

As specified in the ROD, on-Site soils exceeding the 6 NYCRR Part 371 hazardous criteria for metals and soil which exceed 500 ppm total PAH will be excavated and transported off-Site for disposal.

To identify soil characteristically hazardous for metals, as defined by 6 NYCRR Part 371, soil that previous sampling indicates has lead concentrations greater 1,000 ppm will be sampled and analyzed for Toxicity Characteristic Leaching procedure (TCLP) metals at a frequency of one composite sample (consisting of a minimum of four discrete samples) per 200 cy of soil. Figure 3A and 3B show previous sampling locations where lead concentrations exceeded 1,000 ppm. The results of the TCLP metals analysis will then be compared to the regulatory levels defined by 6 NYCRR Part 371 to determine how the soil will be managed.

To limit on-Site stockpiling and double handling of material, a pre-excavation sampling plan is proposed to characterize soils as hazardous or non-hazardous for metals. Sheet G-9 presents the surface soil locations (up to a depth of 1-foot) that will be pre-characterized to determine the presence of hazardous levels of metals. The shallow lead excavations represent approximately 1,390 cy of impacted soil over a surface area of approximately 0.9 acres and therefore will require seven composite samples. Areas SL-5, SL-6, SL-9 and SL-14 each represent approximately 200 cy of material. Three discrete samples from SL-10 will be composited with one discrete sample from SL-11 to represent approximately 200 cy of material. Discrete samples from areas SL-1, SL-2, SL-3, SL-4, SL-8, SL-16, SL-17, SL-18 and SL-19 will be composited to represent approximately 200 cy. The discrete samples from the remaining areas will be composited to represent approximately 183 cy, these areas include SL-7, SL-12, SL-13, SL-15. A track-mounted excavator or backhoe will be used to advance a test trench in each shallow lead area identified to a depth of 0.5 feet (ft) bgs at the location shown where samples will be collected. After the samples have been collected the trench will be backfilled with the spoils and the equipment used to advance test trenches will be decontaminated prior to moving to the next trench location.

Sheet G-10 presents the areas where previous sampling shows lead in the subsurface soil (depth of 1 ft to 15 ft bgs) is above 1000 ppm. These areas will be pre-characterized to determine the presence of hazardous levels of metals. These areas represent approximately 3,544 cy of impacted soil. Samples will be collected from the location and depths shown on the Pre-Characterization Sampling table on Sheet G-10.

Soil that exceeds the hazardous waste threshold for metals will be excavated to the limits sown on Sheet G-9 and G-10, as adjusted by sampling results, and then stabilized *ex situ* as described in Section 3.3 prior to off-Site disposal in accordance with applicable Federal, State, and local regulations. Soil within the limits of the consolidation area shown on Sheet G-11 determined to be non-hazardous shall remain in place. Soil determined to be non-hazardous and outside the limits of the proposed consolidation area (SL-1, SL-2, SL-3, SL-4, SL-18, SL-19) shown on Sheet G-9 and G-6 will be excavated to a depth of 1 ft then used as backfill below the vegetative soil cover over the soil consolidation area as described in Section 3.6.

Based on previously collected analytical data from the Site, of the 222 samples analyzed for PAHs three sample locations (DEC-BR-12, DSB-14, B7-6) had results for total PAHs exceeding 500 ppm. Sample DEC-BR-12 had total PAH concertation of 1060 ppm at a depth of 0-1 ft bgs. Sample DSB-14 had results over 500 ppm total PAHs at two depths; 1417.6 ppm at 5 ft bgs and 593 ppm at 10 ft bgs. Sample B7-6 had a total PAH concentration of 1778.1 ppm at a depth of 8-12 ft bgs. Figure 4 shows the previous sample locations where concentrations of total PAHs exceeded 500 ppm. Sheets G-7 and G-8 show the limits of source material total PAH excavations in red (PAH-3, PAH-5, and PAH-6). Material excavated from these areas will be disposed of off-Site in accordance with applicable Federal State and local regulations. It is anticipated that off-Site disposal facilities will require one composite sample for every 500 tons of soil requiring off-Site disposal. The samples will be required to be analyzed for TCLP for volatile organic compounds, semi volatile organic compounds and metals. It is also anticipated the sample will be analyzed for ignitability. Any additional sampling requirements will be identified in the Waste Material Handling and Disposal Plan once a disposal facility(ies) is identified.

3.2.2 On-Site Shallow Soil Excavation Design

As specified in the ROD, all on-Site soils in the upper one foot which exceed the commercial SCOs as defined by 6 NYCRR Part 375-6.8 and are not located under a cover that precludes contact (*e.g.* concrete slab foundation) will be transported off-Site for disposal or reused on-Site below the cover. Reusing soil on-Site below the vegetative soil cover applies the green remediation principle of conserving and efficiently managing resources and materials. Figures 2A through 2C present previous sample locations that exceed commercial SCOs for surface soils and Drawings G-4 thru G-8 present proposed excavation limits of surface soils.

On-Site shallow excavation limits presented in Sheets G-4 through G-8 are based on previous sample locations collected during the RI and additional arsenic surface soil sampling conducted in January 2016. For single points of exceedance, a 20 ft by 20 ft 1-foot deep excavation will be made centered on the exceedance location. For locations where, previous exceedances are adjacent to each other the limits of excavation will be extended to connect the points then continue half way to the next identified clean sample or 10 feet, whichever is less. On-Site shallow soil excavations shall stop at the surveyed Site boundaries and shall continue off-Site only if sidewall confirmation samples as described in Section 3.4 show that residential SCOs have not been achieved. Section 3.2.3 describes off-Site soil excavations.

Based on previous sampling it is anticipated that 2,400 cy of impacted shallow soil, covering an area of approximately 1.7 acres, will be excavated as part of this remedial action. This quantity may change based on the results of confirmation sampling.

Subsequent to removing soil to the limits described in the Construction Drawings, compliance samples will be collected as described in Section 3.4. If the sample results indicate the presence of constituents above the commercial SCOs for the sidewall confirmation samples, the excavation will be extended 10 ft and the new sidewall will be re-sampled and evaluated as previously described.

Soil excavated from on-Site shallow excavations not defined as source material as described in Section 3.2.1 shall be consolidated and used as backfill for subsurface excavations below the vegetative soil cover but above the groundwater table as described in Section 3.5.

3.2.3 Off-Site Soil Excavation Design

Off-Site soil excavation will occur based on results of confirmation samples for on-Site excavations. Off-Site excavations will extend from the on-Site excavation boundaries until confirmation samples indicate protection of public health residential soil cleanup objectives set forth in 6 NYCRR Part 375-6.8(b): Restricted Use Soil Cleanup Objectives have been achieved for Site-related contaminants in the confirmation samples. Excavating these soils to full depth will preclude off-Site areas being subject to a SMP as contamination will not remain on the properties.

Soil excavated from off-Site will be placed within the consolidation area below the vegetative soil cover but above the groundwater table as described in Section 3.5.

3.2.4 Design Excavation Volumes

The following table provides the design excavation volumes. Actual volumes excavated during construction will vary based on results of pre-excavation characterization and confirmation samples.

Table 4 Design Excavation Volumes

Excavation Source	Excavation Volume (CY)	Material Disposition
Shallow Excavations	2,087	On-Site Consolidation
Concrete Gap Excavations	400	On-Site Consolidation
PAH Excavations >500 ppm[1]	436	Off-Site Disposal
PAH Excavations >500 ppm[2]	417	Off-Site Disposal

Excavation Source	Excavation Volume (CY)	Material Disposition
Lead Excavations[1]	88	Ex Situ Stabilization/Off-Site Disposal
Lead Excavations[2]	4,933	*Ex Situ* Stabilization/Off-Site Disposal
[1] Excavations outside consolidation limits		
[2] Excavations within consolidation limits		

From the above table, it can be seen that the estimated quantity of material from within the consolidation area to be excavated and disposed of off-site (5,350 cy) is approximately twice the volume of the material to be excavated from other areas on-site (2,487 cy) and placed within the consolidation area. The remaining volume in the excavation area will be backfilled with the on-site brick and block and, as necessary, clean imported common fill.

3.3 *EX SITU* SOIL STABILIZATION

The NYSDEC-selected remedy presented in the ROD requires soil exceeding 6 NYCRR Part 371 hazardous criteria for metals be disposed off-Site. Prior to being disposed of off-Site, soil characteristically hazardous for metals will be stabilized to decrease the leachability of contaminants, eliminating the hazardous characteristic of the contaminant and allowing the material to be disposed of as a non-hazardous solid waste. A pre-excavation characterization of excavation areas will be conducted as described in Section 3.2.1 to identify soil that exceeds hazardous criteria for metals that will require *ex situ* stabilization.

Prior to implementing on-Site treatment, OBG along with the construction subcontractor selected for the work will prepare a protocol describing the means and methods to be utilized to stabilize the waste and conduct a demonstration test to verify the process effectiveness in rendering the waste non-hazardous for off-Site disposal in compliance with 40 CFR 268 and 6 NYCRR Part 376.

Post-treatment sampling of soil stabilized *ex situ* will be conducted at a frequency of one grab sample per 100 tons of material treated. A grab sample is required rather than a composite sample, in accordance with 6 NYCRR Part 376.4(j)(1) to evaluate treatment effectiveness. Each grab sample representing a 100-ton increment of processed material will be analyzed for TCLP metals to demonstrate no leachable constituents remain above the regulated hazardous waste threshold.

3.4 COMPLIANCE SAMPLING AND ANALYSIS

To evaluate and document achievement of the soil cleanup objectives, samples of soil will be collected from the perimeter and floor of excavations and analyzed for comparison to the appropriate Restricted Use SCOs (Commercial for on-Site or Residential for off-Site). Analyses required for all compliance sampling will include target analyte list (TAL) metals and target compound list (TCL) SVOCs with 5 percent of the samples, up to a maximum of 25 samples, being analyzed for TCL VOCs, total PCBs, and the 17 pesticides identified in NYCRR Part 375 Table 375-6.8(b): Restricted Use Soil Cleanup Objectives. Compliance sampling will include documentation and confirmation samples based on the objective of the sample. Documentation samples will be collected from the floor of on-Site surface soil excavations to document the level of constituents remaining in place below the vegetative soil cover. Confirmation samples will be collected from all other excavations conducted as part of the remedy (source material excavations, off-Site excavations and sidewalls of surface excavations). Confirmation samples will demonstrate that the remedy has achieved the soil cleanup objectives identified by the ROD. Documentation and confirmation samples collected from the base of excavations will be collected on a grid having a 30-ft spacing, with a minimum of one sample being collected from the base of each discrete excavation made (if less than 900 square feet [SF]). If base confirmation samples for excavations PAH-5 and PAH-6 do not meet the excavation requirements of less than 500 ppm tPAH once the specified depth limits (12.5 and 12-feet respectively) have been reached, the NYSDEC will be contacted to determine the appropriate course of action. Confirmation samples will also be collected at the sidewall perimeter of excavations at 30 ft intervals with no fewer than four samples being collected from each discrete excavation (to characterize the north, south, east and west side walls). Sidewall confirmation samples for shallow excavations shown on Sheets G-4 though G-9 will be

collected from a depth of 0-2 inches bgs. Sidewall confirmation samples from subsurface excavations will be collected from the 6-inch depth interval of highest concentration of constituents based on previous sampling activities. OBG may elect to use portable X-ray fluorescence equipment to screen for metals concentrations prior to collection of compliance samples. If, during excavations nuisance odors are observed, compliance sampling will include additional analysis for TCL Volatile Organic Compounds and Organophosphorus pesticides that will count toward the maximum of 25 samples requiring these analyses.

In addition to the discrete compliance samples collected Quality Assurance/Quality Control (QA/QC) samples including matrix spike, matrix spike duplicate, field duplicate, and field/equipment duplicate samples will be collected on a frequency of one each for every increment of 20 post-excavation compliance samples collected.

3.5 EXCAVATION RESTORATION

Excavation restoration will occur in three different areas:

- Off-Site excavations
- On-Site subsurface excavations
- On-Site shallow excavations

General requirements of excavation restoration are described in this Section with the approach to restoration of each of these areas described in the following subsections.

Backfill material including soil excavated from elsewhere on Site, brick and block material and soil imported from off-Site will be free from frost, stumps, trees, roots, sod, muck, marl vegetable matter or other unsuitable materials and shall be suitable for compaction as described below. All stones, pieces of brick, block or pavement shall not exceed 6-inches in the greatest dimension and be distributed through the backfill and alternated with earth backfill in such a manner that all interstices between them shall be filled with earth. Where backfill is to be placed underwater only acceptable granular materials shall be used. Material shall be placed in loose lifts not greater than 8-inches of thickness and thoroughly compacted by compaction equipment suitable for the material prior to placement of succeeding lifts. Minimum compaction efforts are provided on Sheet G-12.

To determine if imported fill material is acceptable for use on Site, material from each off-Site source will be sampled and analyzed for TAL VOCs, TAL SVOCs, TAL metals, PCB, and pesticides in accordance with DER-10, Table 5.4(e)10, unless the material is gravel, rock or stone, and can meet the sieve requirements in DER-10. If the material to be imported is from a virgin mine/pit or similar location, it will be sampled for chemical analyses for only the initial 100 cubic yards of material in accordance with Section 5.45(e)3.ii.1 of DER-10. A Request to Import/Reuse Fill or Soil form will be submitted to the NYSDEC project manager a minimum of 5 business days for review and approval prior to importing any backfill material.

Excavated soil which does not exceed the 6 NYCRR Part 371 hazardous criteria for metals (as determined by pre-characterization sampling) or exceeds 500 ppm for total PAHs may be used as backfill above the groundwater table but no deeper than 8 ft bgs and below the vegetative soil cover. Based on previous sampling data and design excavation limits, approximately 2,487 CY of soil will be available for use as backfill below the vegetative cover.

Brick and block material generated during the 2012 Building Demolition IRM described in Section 2.3 of this report and previously sampled as described in Brick and Block Beneficial Reuse Determination Request (BBJ 2013) and Addendum to the Brick and Block Sampling Report (BBJ 2013) may be used as general fill on-Site. Beneficially using the brick and block material as general fill reduces waste and reuses materials which would otherwise be considered waste, which has been identified as one of the major green remediation components in the decision document for the Site. The brick and block sampling program consisted of 104 samples (73 discrete samples and 31 composite samples) with the analytical results compared to Groundwater Standard SCOs found in 6 NYCRR 375-6.8, brick and block found to exceed the protection of groundwater standards was disposed off-Site. Based on a Site survey there is approximately 5,400 CY of brick and block stockpiled on the site in various piles available for use as backfill. Since, as shown on Table 4, there will be an estimated net fill of 3,787 CY

required to bring the Site back to existing grade, it will be possible to use all of the on-Site brick and block as backfill and still place the required cover thickness described below over the excavations. Prior to use as backfill the brick and block will be crushed to a size of 3 inches or less. Prior to use as backfill on the Site, a Revised Beneficial Use Determination will be prepared and submitted to NYSDEC for approval.

3.5.1 Off-Site Excavations

Each off-Site excavation will be backfilled with imported soil compliant with the residential use standards listed in NYCRR Part 375-6.7(D) to within 6 inches below the original grade. Once the backfill is placed and compacted, a minimum of 6 inches of topsoil will be placed and graded. The area will then be seeded and mulched via hydroseeding for approved equivalent. Topsoil, seeding and mulching requirements are presented on Sheet G-15.

3.5.2 On-Site Subsurface Excavations

On-Site subsurface excavations will be backfilled with a combination of excavated on-Site soil that does not exceed the requirements of off-site disposal, brick and block material from the former Site buildings, and, as necessary to achieve the required subgrades, soil imported from off-Site to 1-ft below the final design grades to allow for the installation of a vegetative soil cover as described in Section 3.6

Once the backfill is placed, compacted and graded a vegetative soil cover will be installed to meet the final design grades. The vegetative soil cover is described in Section 3.6.

3.5.3 On-Site Surface Excavations

On-Site surface excavations will be restored with a vegetative soil cover as described in Section 3.6.

3.6 VEGETATIVE SOIL COVER DESIGN

Drawing G-11 presents the proposed limits and grading of the soil cover to be constructed over the consolidation area. A soil cover will also be constructed where on-Site shallow excavations were performed. The grading and limits shown on Drawing G-11 are based on the estimated 2,487 cy of excavated soil that meets the requirements for placement on-Site below the soil cover and soil shown on Sheet G-9 and G-10 being disposed of off-site after *ex situ* stabilization. The grades and limits shown will be adjusted based on variations in soil quantities encountered during construction. The soil cover will consist of the following components from the surface down:

- Topsoil with a minimum thickness of 6-inches
- Minimum of 6-inches of fill
- Demarcation layer

Once the vegetative soil cover is installed and graded to prevent surface water ponding, it will be seeded, fertilized and mulched to establish a vegetated cover. A typical cross-section of the soil cover is provided on Sheet G-13 and requirements for topsoil and seeding are presented on Sheet G-15.

3.7 DESIGN BACKFILL VOLUMES

Actual fill volumes used during construction will vary based on results of pre-excavation characterization and confirmation samples. Based on design excavation volumes, the consolidation area will have a capacity of 5,350 CY to bring it to original grade and facilitate the installation of a soil cover. If required, this capacity could be increased to manage additional soils requiring on-site consolidation by increasing the final elevation of the soil cover to greater than one foot above original grade. The capacity as designed is greater than the total of the anticipated volume of soil to be consolidated and the volume of brick and block material available for backfill. Clean off-site soil will be imported to provide the additional required backfill if required. If the capacity of the consolidation area is less than designed for based on results of the pre-characterization sampling consolidation material will have priority to be used as backfill below the vegetative cover over brick and block material. If during construction it is necessary to modify the consolidation area such that impacted consolidated soils will be

placed above the current site grade, a revised restoration and grading plan will be submitted to NYSDEC for review and approval.

The following table provides design volumes of the types of fill that will be used during site restoration:

Table 5 Design Backfill Volumes

Backfill Area	Total Backfill Required (CY)	Topsoil (CY)	Common Fill (CY)	Consolidation Material (CY)	Brick and Block (CY)
Shallow Excavations	2,575	1,287.5	586.5	N/A	701
PAH Excavations	853	24	N/A	N/A	829
Lead Excavations	4,933	N/A	N/A	2,487	2,446
Consolidation Area Cover	2,848	1,424	N/A	N/A	1,424
Total		**2,735.5**	**586.5**	**2,487**	**5,400**

3.7 SUPPORTING PLANS

The following supporting plans were developed to support construction implementation:

Construction Drawings (Appendix A)

Construction drawings have been developed to graphically show the elements of the design and provide specifications required for key project elements. Specifications include conditions under which the work is to be constructed, the material and equipment to be incorporated into the work, and the performance standards for acceptance of the components of construction. The Construction Drawings include:

- Title Sheet
- G-1 General Notes and Legend
- G-2 Existing Site Plan
- G-2a Site Remediation Plan
- G-3 Site Preparation Plan
- G-4 Shallow Excavation Plan 1 of 3
- G-5 Shallow Excavation Plan 2 of 3
- G-6 Shallow Excavation Plan 3 of 3
- G-7 PAH Excavation Plan 1 of 2
- G-8 PAH Excavation Plan 2 of 2
- G-9 Shallow Lead Excavation Plan
- G-10 Subsurface Lead Excavation Plan
- G-11 Consolidation Area – Final Grading Plan
- G-12 Site Restoration Plan and Notes
- G-13 Miscellaneous Details
- G-14 Miscellaneous Details
- G-15 Specifications

Health and Safety Plan (HASP) (Appendix B)

The HASP describes measures that will be taken to provide for the health and safety of Site personnel and the surrounding community during remedial construction. Including Community Air Monitoring Plan (CAMP) requirements.

Erosion and Sediment Control Plan (ESCP) (Appendix C)

The ESCP describes measures to be implemented to control erosion and sedimentation at the Site during construction. The ESCP will incorporate a Stormwater Pollution Prevention Plan (SWPP).

Sampling and Analysis Plan (SAP) (Appendix D)

The SAP describes the approach to sampling and analysis performed during construction to demonstrate that the data will meet the data quality objectives (DQOs).

Baseline Groundwater Sampling Plan (Appendix E)

The Baseline Groundwater Sampling Plan describes the approach to collection of baseline groundwater data at the Site. This data will be used as a basis for development of a groundwater monitoring plan for the Site Management Plan.

Submittal Register (Appendix F)

The Submittal Register describes various submittals associated with the remedial action. This register will be used to track submittals required for completion of the remedial action.

CAMP (Exhibit 1) and Fugitive Dust and Particulate Monitoring Plan (Exhibit 2)

The CAMP and Fugitive Dust and Particulate Monitoring Plan describes the measures that will be taken to monitor the potential airborne releases of project related dust in accordance with New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan.

Additional Supporting Plans

As agreed upon during a meeting with the NYSDEC on April 18, 2018 additional supporting plans will be prepared in conjunction with the construction subcontractor following the construction subcontractor being retained by OBG. It is anticipated that the additional plans will include:

- Construction Quality Assurance Plan (CQAP)
- Traffic Control Plan
- Decontamination Plan
- Waste Material handling and Disposal Plan
- Construction Water Management Plan
- Remedial Action Contingency Plan (RACP).
- Contractor's Health and Safety Plan (HASP)
- *Ex situ* Treatment Work Plan

These additional supporting plans are described in Section 4 and listed on the Submittal Register included in Appendix F.

4. IMPLEMENTATION OF REMEDIAL ACTION

This Section describes the steps that will be taken to implement the RA following NYSDEC approval of this RAWP.

4.1 SUBCONTRACTOR PROCUREMENT

OBG will prepare a Request for Proposal to solicit bids for the Remedial Action construction subcontract.

4.2 CONTRACTOR SUBMITTALS

Following entering into a contract to construct the remedial action, OBG in conjunction with the selected subcontractor will prepare and submit various plans for review by the NYSDEC as appropriate. Submittals are anticipated to include the following:

- Construction Quality Assurance Project Plan
- Traffic Control Plan
- Decontamination Plan
- Waste Material Handling and Disposal Plan
- Construction Water Management Plan
- Remedial Action Contingency Plan
- Contractors Health and Safety Plan
- *Ex situ* Treatment Work Plan.

4.2.1 Construction Quality Assurance Plan

A Construction Quality Control Plan for the work that outlines quality control procedures and protocols to be implemented during construction, incorporating the detailed procedures and requirements in this RAWP and Construction Drawings. The CQAP will include:

- *Responsibility and Authority:* The responsibility and authority of organizations and key personnel involved in regulating, design, and construction of the remedial system will be presented. Appropriate lines of communication between involved parties will be delineated.
- *Construction Quality Control (CQC) Personnel Qualifications:* The qualifications of the CQC personnel, including required training and experience, will be presented in the CQAP.
- *On-Site Observation:* The observations and tests that will be used to document that the construction meets the design criteria and plans will be detailed.
- *Sampling and Testing Methods:* Sampling and testing methods, frequencies, acceptance and rejection criteria, and corrective measures detailed in the Construction Drawings will be addressed in the CQAP.
- *Documentation:* Reporting requirements for construction quality control activities will be described. These will include daily summary reports, data sheets, meeting minutes, photographs, record drawings, problem identification and corrective measure reports, and final documentation.

4.2.2 Traffic Control Plan

A Traffic Control Plan (on-Site and off-Site) developed in consultation with the Village and Town of Frankfort will be prepared and will include the designation of haul roads to and from the Site. On-Site and off-Site traffic controls as necessary according to Federal, State and local requirements will be provided. Main public roads to the Site will be kept open at all times unless prior arrangements for temporary closing are made with the appropriate authorities. Prior to the start of construction activities, OBG will perform a condition survey of the road at the entrance(s) to the Site to be utilized during the RA. The condition survey will be performed using a video camera. During the video survey, the location of any existing damage to the roadways will be documented.

4.2.3 Decontamination Plan

A Decontamination Plan will be prepared to address decontamination of personnel and equipment appropriate for Site-specific locations and activities. The plan shall include, but not necessarily be limited to: the necessary equipment, personnel and the steps to achieve decontamination of equipment prior to leaving the site; provisions for any personnel protection; and a diagram outlining the steps or stations in the procedures. The plan will include containment and removal of decontamination solutions and spent disposable protective apparel.

4.2.4 Waste Material Handling and Disposal Plan

A Waste Material Handling and Disposal Plan will be prepared to address wastes generated for off-Site disposal or on-Site consolidation. The Waste Management Plan will outline the proposed sequence and methods for waste excavation, on-Site placement, or off-Site disposal. The Waste Management Plan will include:

- Waste sampling requirements
- Methods for determining waste disposal requirements
- The name and location of the off-Site disposal facility(ies) to which the waste is to be shipped
- The anticipated type and quantity of waste to be shipped to each facility
- The expected schedule for the shipment of the waste material
- The method of transportation
- The names of licensed waste haulers
- Procedures for manifest management

4.2.5 Remedial Action Contingency Plan

A Remedial Action Contingency Plan (RACP) will be prepared to describe provisions for responding to Site-related emergencies that could potentially occur during remedy implementation. The RACP will include the following components:

- A Spill Response Plan (SRP) for addressing spills that might occur on-Site during remedial construction activities. The SRP will describe the methods, means, and facilities required to prevent soil, water, structure, equipment, and material impacts caused by spills; provide information regarding spill containment and cleanup; and provide information related to decontamination measures.
- Procedures that Site personnel will take in response to an emergency.
- Designation of an emergency coordinator.
- A list of emergency equipment and evacuation plans.
- Procedures and routes for emergency vehicular access/egress.
- Procedures for evacuation of personnel from the Site.
- A listing of contact personnel with phone numbers and procedures for notifying each party.

Contact personnel will include, at a minimum, the following:

- Ames or designated representative
- OBG Project Manager
- On-Site Construction Manager
- Fire officials
- Local hospitals
- NYSDEC 24-hour Spill hotline

Prior to the start of Site operations, representatives of OBG and the construction subcontractor will attend necessary meetings with local officials and/or those responsible for local emergency management and public safety to include fire, police, hazardous material response teams, hospital and local health officials for purposes of coordinating the RACP with emergency response efforts that would be performed by such agencies.

4.2.6 Construction Water Management Plan

A Construction Water Management Plan will be prepared identifying:

- Methods for minimizing the generation of construction water and associated treatment residuals
- Methods for handling, sampling, and analysis of construction water
- Methods for storage (if necessary), treatment (if necessary), and disposal of water generated during construction.

Acceptable methods of handling construction water include, but are not limited to:

- Collection, on-Site treatment (if necessary), and discharge in accordance with all applicable laws, rules, regulations, orders and requirements including, a State Pollutant Discharge Elimination System permit or permit to discharge to sanitary sewers, as applicable.
- Collection, transport, off-Site treatment, and disposal at a Publicly Owned Treatment Works (POTW) or licensed waste disposal facility in accordance with all applicable local, state, and federal laws, rules, regulations, and orders.

4.2.7 *Ex Situ* Treatment Work Plan

An *Ex Situ* Treatment Work Plan will be prepared describing treatment means and methods including:

- Written protocol for performing field demonstration test
- Proposed additive(s) and anticipated "target" ratio mix (percent by weight).
- Range of additives to be utilized
- Additive application method
- Equipment to be utilized, including specialty equipment (if any)
- Methods/approach for management of fugitive dust and particulate matter
- Quality assurance and quality control monitoring provisions.

4.3 CONSTRUCTION

It is anticipated that the construction of the Remedial Action will be completed in the following general sequence:

1. Mobilization and Site preparation
2. Pre-excavation characterization of soil
3. Field-scale pilot testing to demonstrate that soil exceeding hazardous waste characteristics for metals can be stabilized to render it non-hazardous.
4. Excavation, *ex situ* stabilization, off-Site disposal of source material soils.
5. Excavation, consolidation of shallow soil and off-Site excavations
6. Restoration of off-Site excavations (as required)
7. Construction of cover system
8. Demobilization (removal of decontamination and staging area)

Upon completing the work described above and otherwise required under the contract, the construction subcontractor will demobilize their equipment and facilities from the Site. Areas outside of the work area will be restored to a condition equivalent to or better than which existed prior to the initiation of the work.

The construction subcontractor will be responsible for scheduling and coordinating the completion of the Work in an effective and efficient manner in accordance with the Contract Documents. The actual sequence utilized by the construction subcontractor may differ from the general sequence described above.

4.3.1 Mobilization and Site Preparation

Tasks associated with mobilization and Site preparation include, but are not limited to installation of support areas and access roads, clearing, erosion and sediment controls, establishing traffic controls, and CAMP activities.

Establish Support Areas

Support areas will be constructed and established including:

- Field offices (field trailers or equivalent) will be provided for use by OBG, construction subcontractor, Ames, and the NYSDEC during implementation of the remedial activities. NYSDEC will be provided a minimum of one-half of a trailer with a door that can be closed separate from OBG, construction subcontractor and Ames. Field office(s) will be provided with telephone and internet services in addition to necessary heat, water, and electricity services. Portable on-Site sanitary services (porta-johns and hand wash stations or equivalent) and temporary potable water supply for use by all on-Site personnel will also be provided.
- Decontamination area(s) for trucks, equipment, and personnel will be constructed within the support zones. Proposed locations of the decontamination area(s) are shown on Sheet G-3 of the Construction Drawings and details are shown on Sheet G-14 of the Construction Drawings.
- Lined Soil Staging area(s) will be constructed to facilitate temporary storage and/or stabilization of excavated material, including: impacted soils and debris designated for off-Site disposal, impacted soils requiring *ex situ* stabilization for metals prior to off-Site disposal, materials to be reused as fill below the Site cover. Proposed locations of the lined soil staging area(s) are shown on Sheet G-3 of the Construction Drawings and details are shown on Sheet G-14 of the Construction Drawings.

Install Access Roads

Temporary access roads will be constructed to facilitate Site Access. Access roads will be constructed in accordance with the Temporary Access Road Detail on Sheet G-13 of the Construction Drawings. Construction entrance/exit pad(s) will be constructed in accordance with the Stabilized Contraction Entrance Detail on Sheet G-13 of the Construction Drawings at all access points to public roads to facilitate removal of loose dirt and stone from transportation vehicles.

Site Security

Access to the Site will be restricted by the perimeter fencing that surrounds the Site. Additional measures shall be taken to further limit Site access and augment security during remedial activities. The level of security will be dependent on activities being performed and location of activities. Minimum security measures to be implemented include: perimeter fencing; temporary fencing and/or barriers; warning tape and signs; maintenance of sign-in/sign-out sheets; and implementation of safe work practices. Descriptions of the security measures are provided below:

- Perimeter Fencing – the work areas shall be enclosed with a perimeter security fence (minimum 6-foot high chain-link fence) to control access for unauthorized personnel. The existing Site fence will be used to the extent practicable, supplemented by temporary fence where necessary. Ingress and egress to the Site will be provided by access gates.

- Temporary fencing and/or barriers will be used to delineate and secure areas of ongoing remedial activities including all open excavations and other potentially dangerous areas.
- A sign-in/sign-out sheet shall be maintained at the Site for the duration of remediation activities at the field construction trailer. All Site construction workers, other Site personnel, and visitors shall be required to sign in upon entering the Site and sign out upon leaving.
- Implementation of safe work practices will provide for additional Site security during remediation. Safe work practices that contribute to overall Site security include but are not limited to: parking heavy equipment in designated areas and removing keys; maintaining organized work areas; participating in daily security and health and safety meetings. Additional details on safe work practices can be found in the Health and Safety Plan (Appendix B)

Erosion and Sedimentation Controls

Prior to construction, erosion and sediment control measures will be installed in accordance with the New York State Standards and Specifications for Erosion (NYSDEC 2016)and the SWPP included as Appendix C. Control measures shall be provided to: minimize potential erosion of existing soil within and adjacent to active work areas; minimize the potential for conveyance of sediment-laden stormwater or surface water beyond active work areas; minimize stormwater run-on from off-Site; minimize accumulation of water within active work areas; and minimize off-Site tracking of materials. Control measures will include the combined use of silt fences, hay bales, geotextiles, and stabilized construction entrances. Erosion and sedimentation control devices will be subject to a minimum of weekly inspection and maintenance. Results of the weekly inspections and maintenance will be provided to NYSDEC.

CAMP – Dust Monitoring and Control

Community air monitoring will be implemented in accordance with the New York State Department of Health Generic Community Air Monitoring Plan (Exhibit 1), Fugitive Dust and Particulate Monitoring Plan (Exhibit 2), and Section 5 of the EHASP (Appendix B). The monitoring program will include sampling and analyses for particulates (PM-10) and VOCs using sample equipment staged upwind and downwind of the work area while intrusive construction tasks are being conducted. A total of four community air monitoring stations, each containing monitors for PM-10 and VOCs, will be established around the perimeter of the Site as needed. The samplers will run continuously during ground intrusive activities. A summary of CAMP monitoring will be provided to NYSDEC and NYSDOH on a weekly basis.

When work areas are within 20 ft of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates will reflect the nearest potentially exposed individuals and the locations of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices may be considered to prevent exposures related to the work activities and to control dust odors.

Actions to control the generation or release of Site contaminants will be required if the difference between the downwind and upwind/background concentrations exceed the follow action levels:

- 5 ppm for VOCs
- 100 µg/m3 for PM-10 for a 15-minute average

Further, if total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring will occur within the occupied structure(s), provided access is granted by the Owner to the representatives of OBG for such purpose. Depending upon the nature of the contamination, chemical specific colorimetric tubes of sufficient sensitivity may be used to compare the exposure point concentrations with appropriate pre-determined response levels. Background readings in the occupied spaces will be taken prior to commencement of planned work, provided that access is granted by the Owner to representatives of OBG for such purpose. Any unusual background readings will be discussed with the NYSDOH prior to commencement of the work.

Also, if total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150µg/m3, work activities shall be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150µg/m3 or less at the monitoring point.

Construction Water Management

Prior to intrusive activities at the Site the equipment required to implement the Construction Water Management Plan for the Site, as described in Section 4.2.5, will be readily available allowing for the management of potentially construction water.

4.3.2 Green Remediation Principles During Construction

During construction green remediation best management practices (BMPs) will be used to control generation of greenhouse gasses.

BMPs that can help reduce generation of greenhouse gasses during remediation include:

- Reuse of existing monitoring wells on-Site to eliminate generation of greenhouse gasses generated during installation of new wells;
- Purchase of materials such as fill and topsoil from local suppliers to reduce the amount of greenhouse gasses generated during transport of materials to the Site;
- Selecting suitably sized and types of equipment for tasks to increase efficiency and reduce fuel consumption;
- Instructing equipment operators and truck drivers to not allow equipment to idle longer than 5 minutes;
- Performing routine maintenance such as oil changes to improve fuel efficiency.

5. POST CONSTRUCTION

5.1 GENERAL

This Section describes activities to be implemented following completion of construction which will include development of the Site Management Plan, preparation of a Final Engineering Report and issuance of a certificate of completion by NYSDEC.

5.2 SITE MANAGEMENT PLAN

At the conclusion of construction consistent with the requirements of DER-10 (NYSDEC 2010), a Site Management Plan (SMP) will be prepared in conformance with the NYSDEC Generic Site Management Plan Template that will describe the institutional controls for the Site (see Section 5.3) and detail the post-construction activities to be conducted at the Site (see Section 5.5). The Site Management Plan will include:

- An introduction and description of the remedial program
- An Engineering and Institutional Control Plan
- A Monitoring Plan

Appendices will, as appropriate, include:

- Excavation Plan
- Environmental Easement
- Sample Health and Safety Plan
- Generic Community Air Monitoring Plan
- Site-wide inspection Form

The SMP will be submitted to the NYSDEC for review and approval following completion of the RA.

5.3 INSTITUTIONAL CONTROLS

As required by the ROD, institutional controls will be established for the Site in the form of an environmental easement for the Site. Ames will establish an environmental easement in support of the following

- Requiring the property owner to complete and submit periodic certifications to NYSDEC that the institutional and engineering controls are still in place and remain effective in accordance with Part 375-1.8(h)(3)
- Requiring management of the Site in accordance with the provisions of the NYSDEC-approved Site Management Plan (as described in Section 5.2)
- Restricting the use of groundwater at the Site
- Restricting excavation of the 3.1 acre wooded area
- Restrict the use and development of the Site for commercial or industrial use as defined by Part 375-1.89(g).

5.4 FINAL ENGINEERING REPORT

At the completion of construction, a Final Engineering Report (FER) will be prepared documenting the remedial action. The FER will include:

- A description of the RA as constructed pursuant to the approved Remedial Design, including variations, if any, from the approved RAWP
- Information and documentation regarding the final quantities and disposition of materials disposed/treated off-Site during implantation of the remedial activities including executed manifests and bills of lading
- A description of the required institutional controls

- The SMP by reference
- Record drawings stamped and signed by a New York State licensed Professional Engineer
- Final engineering certification of the RA signed by a New York State licensed Professional Engineer

The FER will be prepared in a format based on available templates on the NYSDEC website.

5.5 CERTIFICATE OF COMPLETION

At the end of the remediation and when the SMP and FER have been approved, NYSDEC will issue a certificate of completion indicating the Site is remediated to the satisfaction of NYSDEC for the contamination known at the time of issuance.

5.6 POST CONSTRUCTION OPERATION AND MAINTENANCE REQUIREMENTS

The remedy will remove a portion of the impacted material from the Site. The proposed remedy does not include any active systems. Site maintenance requirements will be detailed in the SMP. The SMP will include provisions for an annual inspection of the cover system.

In the event that it becomes necessary to excavate below the demarcation layer or within the limits of the 3.1-acre wooded area of the Site, the Owner (if not Ames) will be required to contact Ames so that procedures for health and safety, soil handling, characterization and disposal can be implemented.

A periodic review of the Site will be conducted within 18 months of the issuance of an Assignable Release and Covenant Not to Sue by the NYSDEC. The schedule for subsequent periodic reviews will be established by the NYSDEC following completion of the initial periodic review.

REFERENCES

BBJ Group, 2013, Addendum to the Brick and Block Beneficial Reuse Determination Request, Former Union Fork & Hoe Site No. 6-22-011, Frankfort, New York

BBJ Group, 2013, Brick and Block Beneficial Reuse Determination Request, Former Union Fork & Hoe Site No. 6-22-011, Frankfort, New York

BBJ Group, 2013. Report of Drain Survey and Sampling, Former Union Fork & Hoe Site No. 6-22-011, Frankfort, New York

BBJ Group, 2013. Report of Drum and Container Survey, Union Fork & Hoe Site No. 6-22-011, Frankfort, New York

BBJ Group, 2015, Addendum to Interim Remedial Measure Construction Completion Report, Former Union Fork & Hoe Site No. 6-22-011, Frankfort, New York

BBJ Group, 2015, Final Interim Remedial Measure Construction Completion Report, Former Union Fork & Hoe Site No. 6-22-011, Frankfort, New York

BBJ Group, 2015. Remedial Investigation Report Former Union Fork & Hoe Site, Site No. 6-22-011, Frankfort, New York

BBJ Group, 2017, Soil Vapor Intrusion Report, Former Union Fork & Hoe Site No. 6-22-011, Frankfort, New York

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

NYSDEC, 2016. New York Standards and Specifications for Erosion and Sediment Control. November 2016.

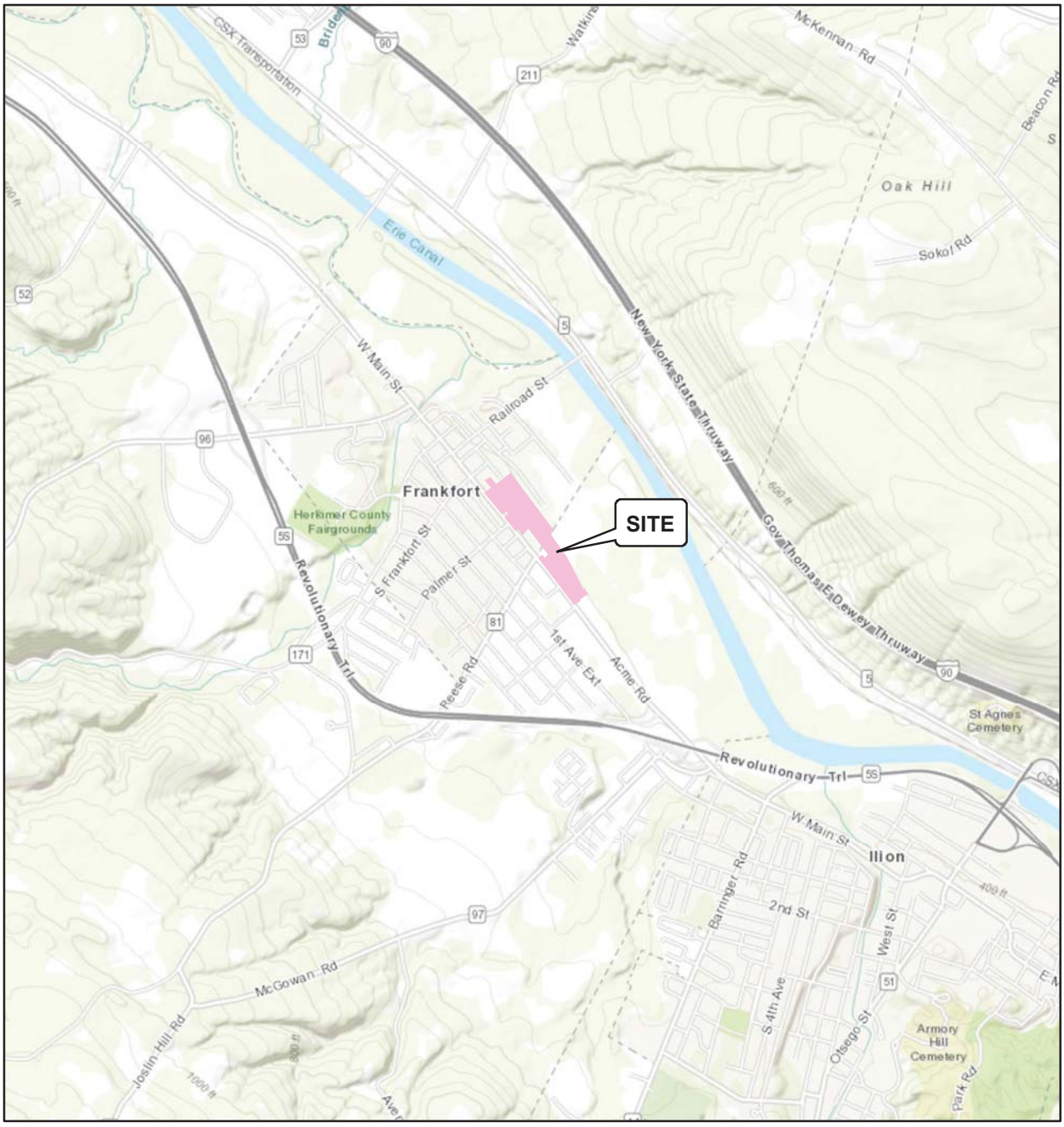
NYSDEC, 2018. Proposed Remedial Action Plan, Former Union Fork & Hoe Site No. 6-22-011, Frankfort, New York

NYSDEC, 2018, Record of Decision, Former Union Fork & Hoe Site No. 622011, Frankfort, New York

Tetra Tech, 2016, Revised Feasibility Study and Conceptual Design, Former Union Fork and Hoe Facility, 253 East Main Street, Frankfort, New York, NYSDEC Site No. 6-22-011

Figures

FIGURE 1



ADAPTED FROM: ILION USGS QUADRANGLE

UNION FORK & HOE SITE
253 EAST MAIN STREET
FRANKFORT, NEW YORK

MAP LOCATION

N

SITE LOCATION

0 1,000 2,000 4,000
Feet

1:50,000

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APRIL 2019

O'BRIEN & GERE ENGINEERS, INC.

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N

LEGEND:

- SURFACE METAL/PAH EXCEEDANCE LOCATION
- SURFACE METAL/PAH SAMPLE LOCATION
- CONCRETE STRUCTURE
- 1 FOOT TOPOGRAPHIC LINES
- BUILDING
- TREES/WOODS
- FENCELINE

AMES CORPORATION
UNION FORK & HOE SITE
SITE NO. 622011
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY
NEW YORK

SURFACE METALS AND PAH EXCEEDANCES (1 OF 3)

0 100 200 Feet

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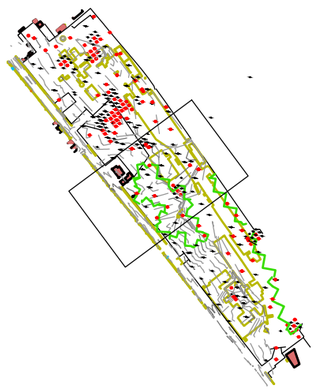
JANUARY 2019

O'BRIEN & GERE ENGINEERS, INC.



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LEGEND:

- SURFACE METAL/PAH EXCEEDANCE LOCATION
- SURFACE METAL/PAH SAMPLE LOCATION
- CONCRETE STRUCTURE
- 1 FOOT TOPOGRAPHIC LINES
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- TREES/WOODS
- FENCELINE

AMES CORPORATION
UNION FORK & HOE SITE
SITE NO. 622011
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY
NEW YORK

SURFACE METALS AND PAH EXCEEDANCES (2 OF 3)

0 100 200 Feet

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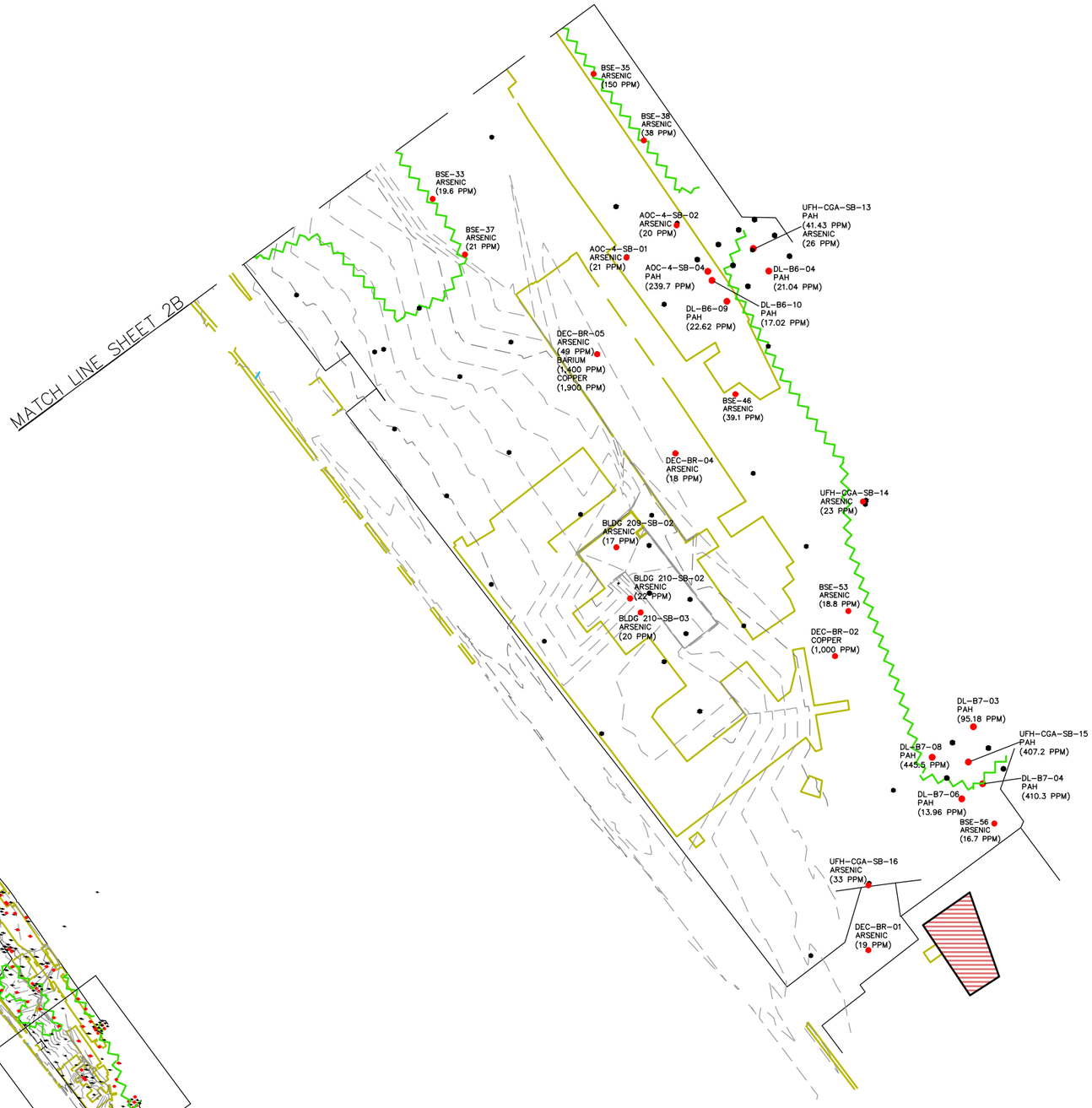
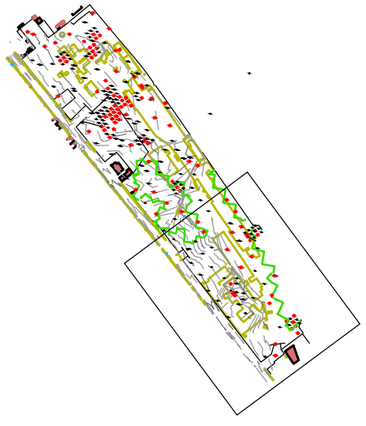
JANUARY 2019

O'BRIEN & GERE ENGINEERS, INC.





N

LEGEND:

- SURFACE METAL/PAH EXCEEDANCE LOCATION
- SURFACE METAL/PAH SAMPLE LOCATION
- CONCRETE STRUCTURE
- 1 FOOT TOPOGRAPHIC LINES
- BUILDING
- TREES/WOODS
- FENCELINE

AMES CORPORATION
UNION FORK & HOE SITE
SITE NO. 622011
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY
NEW YORK

SURFACE METALS AND PAH EXCEEDANCES (3 OF 3)

0 100 200 Feet

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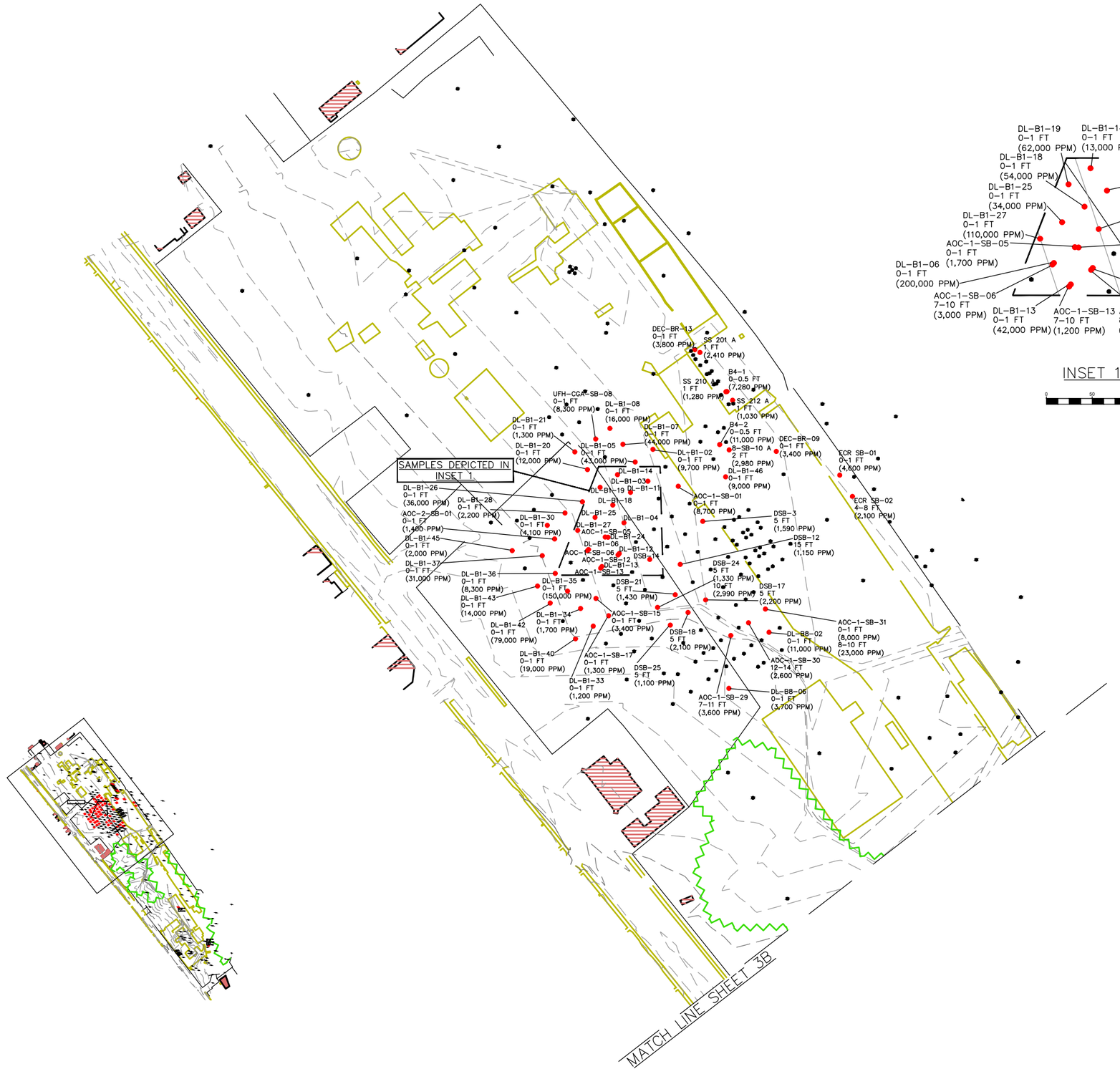
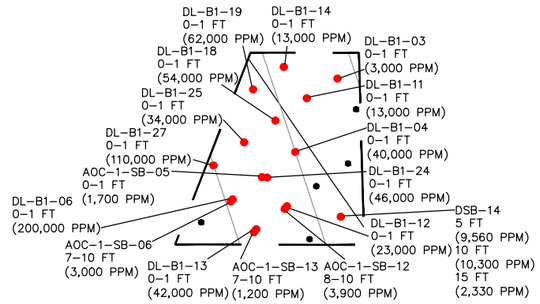
JANUARY 2019

O'BRIEN & GERE ENGINEERS, INC.





INSET 1

0 50 100 Feet

N

LEGEND:

- LEAD EXCEEDANCE OF 1000 PPM LOCATION
- LEAD CONCENTRATION BELOW 1000 PPM LOCATION
- CONCRETE STRUCTURE
- 1 FOOT TOPOGRAPHIC LINES
- BUILDING
- TREES/WOODS
- FENCELINE

AMES CORPORATION
UNION FORK & HOE SITE
SITE NO. 622011
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY
NEW YORK

SITE WIDE LEAD EXCEEDANCES ABOVE 1000 PPM (1 OF 2)

0 100 200 Feet

33683.69547
JANUARY 2019

O'BRIEN & GERE ENGINEERS, INC.

N

LEGEND:

- LEAD EXCEEDANCE OF 1000 PPM LOCATION
- LEAD CONCENTRATION BELOW 1000 PPM LOCATION
- CONCRETE STRUCTURE
- 1 FOOT TOPOGRAPHIC LINES
- BUILDING
- TREES/WOODS
- FENCELINE

AMES CORPORATION
UNION FORK & HOE SITE
SITE NO. 622011
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY
NEW YORK

SITE WIDE LEAD EXCEEDANCES ABOVE 1000 PPM (2 OF 2)

0 100 200 Feet

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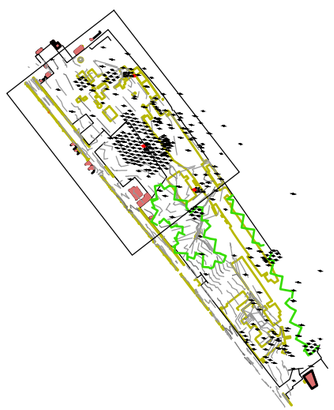
JANUARY 2019

O'BRIEN & GERE ENGINEERS, INC.



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LEGEND:

- PAH EXCEEDANCE OF 500 PPM LOCATION
- PAH SAMPLE LOCATION
- CONCRETE STRUCTURE
- 1 FOOT TOPOGRAPHIC LINES
- BUILDING
- TREES/WOODS
- FENCELINE

AMES CORPORATION
UNION FORK & HOE SITE
SITE NO. 622011
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY
NEW YORK

PAH EXCEEDANCES ABOVE 500 PPM

0 100 200 Feet

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JANUARY 2019

O'BRIEN & GERE ENGINEERS, INC.

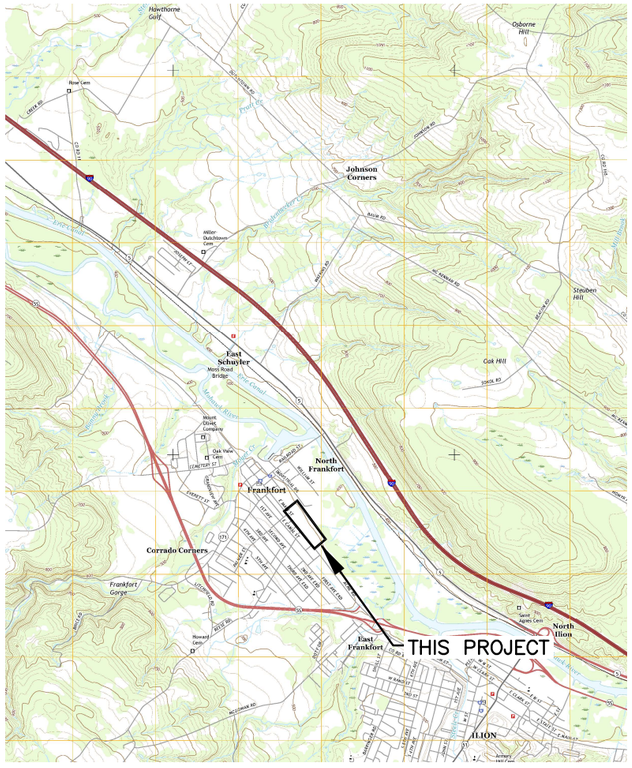
Appendices

Construction Drawings

Construction Drawings

UNION FORK & HOE

REMEDIAL ACTION



SITE LOCATION MAP

NOT TO SCALE

NORTH

AMES CORPORATION
FRANKFORT, HERKIMER COUNTY, NY

APRIL 2019

O'BRIEN & GERE ENGINEERS, INC.

I STEPHEN W. ANAGNOST, P.E. CERTIFY THAT I AM CURRENTLY A NYS REGISTERED PROFESSIONAL ENGINEER OR QUALIFIED ENVIRONMENTAL PROFESSIONAL AS DEFINED IN 6 NYCRR PART 375 AND THAT THIS REMEDIAL DESIGN WAS PREPARED IN ACCORDANCE WITH ALL APPLICABLE STATUES AND REGULATIONS AND IN SUBSTANTIAL CONFORMANCE WITH THE DER TECHNICAL GUIDANCE FOR SITE INVESTIGATION AND REMEDIATION (DER-10).

STATE OF NEW YORK
STEPHEN W. ANAGNOST
No. 068269
LICENSED PROFESSIONAL ENGINEER

INDEX TO DRAWINGS

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GENERAL NOTES - ALL DRAWINGS:

1. EXISTING SITE AND SUBSURFACE INFORMATION PRESENTED SHOULD BE CONSIDERED APPROXIMATE ONLY.
2. EXACT DIMENSIONS AND LOCATIONS OF ALL STRUCTURES AND UTILITIES ARE CONSIDERED APPROXIMATE ONLY AND SHALL BE VERIFIED AS REQUIRED IN THE FIELD BY THE SUBCONTRACTOR.
3. OTHER UNDERGROUND UTILITIES MAY EXIST, THE LOCATIONS, DEPTHS AND EXTENT OF WHICH ARE UNKNOWN. THE SUBCONTRACTOR SHALL DETERMINE THE LOCATION AND ELEVATION OF ALL UTILITIES IN THE FIELD AS IT MAY PERTAIN TO THE SUBCONTRACTORS WORK PRIOR TO CONSTRUCTION.
4. DURING CONSTRUCTION THE SUBCONTRACTOR IS RESPONSIBLE FOR THE PROTECTION AND SUPPORT OF ALL UNDER AND ABOVE GROUND UTILITIES AFFECTED BY THE SUBCONTRACTOR'S WORK.
5. THE SUBCONTRACTOR SHALL CONTACT "DIG SAFELY NY" WITHIN 72 HOURS PRIOR TO THE COMMENCEMENT OF THE WORK. THE SUBCONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND IF NECESSARY NOTIFY THE AFFECTED UTILITY DEPARTMENTS 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. ALL INTRUSIVE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS .
7. THE SUBCONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES FOR THE TEMPORARY DE-ENERGIZING, OR INTERRUPTION OF SERVICE, REMOVAL, RELOCATION, REPLACEMENT OF ANY UTILITIES POLES, GUY WIRES, UNDERGROUND UTILITIES AND/OR OVERHEAD WIRES WITHIN THE LIMITS OF WORK, OR THAT COULD OTHERWISE INTERFERE WITH THE REMEDIAL ACTIONS.
8. THE SUBCONTRACTOR IN CONSULTATION WITH THE APPROPRIATE UTILITY COMPANY SHALL DETERMINE THE STATE OF ALL UTILITIES. ALL UTILITIES DETERMINED TO BE ABANDONED SHALL BE REMOVED BY THE SUBCONTRACTOR WITHIN THE LIMITS OF WORK. ALL UTILITIES DETERMINED TO BE LIVE SHALL BE HANDLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AS REQUIRED TO PERFORM THE WORK.
9. THE SUBCONTRACTOR SHALL BE AWARE THAT PORTIONS OF THE INSTALLATION WILL BE PERFORMED PROXIMATE TO OVERHEAD POWER LINES. IT IS THE SUBCONTRACTOR'S RESPONSIBILITY TO MAINTAIN APPROPRIATE MINIMUM REQUIRED CLEARANCE FROM OVERHEAD ELECTRICAL LINES AND UTILITY POLES. IT IS THE SUBCONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH APPROPRIATE UTILITY COMPANY TO HAVE OVERHEAD ELECTRICAL LINES SHIELDED/PROTECTED AND FLAGGED (AS APPROPRIATE) PRIOR TO THE INITIATION OF THE WORK EFFORTS. THE SUBCONTRACTOR IS ALSO REQUIRED TO GROUND EQUIPMENT (AS NECESSARY) AND PERFORM ALL WORK EFFORTS IN ACCORDANCE WITH THE UTILITIES PROTOCOLS FOR WORK PERFORMED PROXIMATE TO OVERHEAD ELECTRICAL HAZARDS.
10. THE SUBCONTRACTOR 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.
11. THE SUBCONTRACTOR SHALL COORDINATE ANY NECESSARY TRAFFIC CONTROLS AND OBTAIN ANY NECESSARY PERMITS THAT MAY BE REQUIRED TO PERFORM THE WORK.
12. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING SURVEY CONTROL DURING THE PERFORMANCE OF WORK AND TO VERIFY EXISTING GRADES. THE CONTRACT DRAWINGS WILL BE PROVIDED TO THE SUBCONTRACTOR IN ELECTRONIC FORMAT FOR THE SUBCONTRACTOR'S USE.
13. PROPER EROSION CONTROL TECHNIQUES SHALL BE IMPLEMENTED AS REQUIRED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
14. THE SUBCONTRACTOR 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.
15. ALL SURFACES DAMAGED OR DESTROYED AS A RESULT OF WORK PERFORMED BY THE SUBCONTRACTOR SHALL BE RESTORED TO PRECONSTRUCTION CONDITIONS OR BETTER IN A TIMELY MANNER AND PRIOR TO SUBCONTRACTOR DEMOBILIZATION.
16. ALL EQUIPMENT OPERATED WITHIN THE LIMITS OF WORK SHALL BE DECONTAMINATED PRIOR TO TRANSPORT OFF-SITE AND/OR TRANSPORTING/HANDLING CLEAN BACKFILL MATERIALS IN ACCORDANCE WITH THE SUBCONTRACTOR'S APPROVED WASTE MATERIAL HANDLING AND DISPOSAL PLAN. THE SUBCONTRACTOR SHALL PROVIDE 6 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.
17. WATER GENERATED DURING EXCAVATION ACTIVITIES, INCLUDING, BUT NOT LIMITED TO, THE DEWATERING OF EXCAVATIONS AND DECONTAMINATION FLUIDS, SHALL BE COLLECTED AND TREATED IN ACCORDANCE WITH THE SUBCONTRACTOR'S APPROVED CONSTRUCTION WATER MANAGEMENT PLAN.

REMEDIAL DESIGN NOTES - ALL DRAWINGS:

1. ALL ON-SITE SOILS IN THE UPPER ONE FOOT WHICH EXCEED THE COMMERCIAL SOIL CLEANUP OBJECTIVES (SCOS) AS DEFINED BY 6 NYCRR PART 375-6.8 WILL BE EXCAVATED AND TRANSPORTED OFF-SITE FOR DISPOSAL OR REUSED ON-SITE BELOW A SOIL COVER
2. OFF-SITE SOIL, OUTSIDE THE PROPERTY LIMITS, IN AREAS ADJACENT TO ON-SITE EXCAVATION LOCATIONS WILL BE EXCAVATED IF CONFIRMATION SAMPLES FROM THE ON-SITE EXCAVATION BOUNDARIES EXCEED THE SCOS FOR RESIDENTIAL USE FOR SITE-RELATED CONTAMINANTS AS DEFINED BY 6 NYCRR PART 375-6.8(b).
3. EX-SITU STABILIZATION WILL BE IMPLEMENTED TO TREAT EXCAVATED SOIL WHICH EXCEEDS THE HAZARDOUS WASTE THRESHOLD FOR METALS
4. SOIL EXCEEDING THE 6 NYCRR PART 371 HAZARDOUS CRITERIA FOR METALS AND SOIL WHICH EXCEEDS 500 PPM FOR THE TOTAL PAHS AS DEFINED IN COMMISSIONER POLICY CP 51 SHALL BE EXCAVATED AND DISPOSED OF OFF-SITE.
5. ON-SITE SOIL WHICH DOES NOT EXCEED THE EXCAVATION CRITERIA FOR OFF-SITE DISPOSAL OR THE PROTECTION OF GROUNDWATER SCOS FOR ANY CONSTITUENT MAY BE USED ANYWHERE BENEATH THE SITE COVER, INCLUDING BELOW THE WATER TABLE, TO BACKFILL TO EXISTING GRADES. ON-SITE SOIL WHICH DOES NOT EXCEED THE EXCAVATION CRITERIA FOR OFF-SITE DISPOSAL, BUT DOES EXCEED THE PROTECTION OF GROUNDWATER SCOS MAY BE USED BELOW THE COVER SYSTEM BUT MUST BE PLACED ABOVE THE WATER TABLE. CLEAN FILL MEETING THE REQUIREMENTS OF 6 NYCRR PART 375-6.7(D) WILL BE BROUGHT IN TO COMPLETE THE BACKFILLING AND ESTABLISH DESIGN GRADES. THE SITE WILL BE RE-GRADED TO ACCOMMODATE INSTALLATION OF THE SITE COVER. BRICK AND BLOCK DEBRIS FROM THE FORMER SITE BUILDINGS WILL ALSO BE UTILIZED AS BACKFILL MATERIAL FOR OFF-SITE EXCAVATION AREAS, BACKFILL MUST MEET THE RESIDENTIAL SCOS.
6. A SITE COVER WILL BE REQUIRED TO ALLOW FOR COMMERCIAL USE OF THE SITE IN AREAS WHERE THE UPPER ONE FOOT OF EXPOSED SURFACE SOIL WILL EXCEED THE APPLICABLE SCOS. THE SITE COVER MAY INCLUDE PAVED SURFACES, PARKING AREAS, SIDEWALKS OR A SOIL COVER. WHERE A SOIL COVER IS USED, IT WILL BE A MINIMUM OF ONE FOOT OF SOIL PLACED OVER A DEMARCATION LAYER, WITH THE UPPER SIX INCHES OF SOIL OF SUFFICIENT QUALITY TO MAINTAIN A VEGETATIVE COVER.
7. SHALLOW EXCAVATIONS ARE CONSIDERED TO BE 0 TO 1 FT IN DEPTH. SUBSURFACE EXCAVATIONS ARE CONSIDERED TO BE DEEPER THAN 1 FT IN DEPTH.

SURVEY NOTES - ALL DRAWINGS

1. THIS SURVEY IS REFERENCED HORIZONTALLY TO THE NORTH AMERICAN DATUM OF 1983 (NAD83), PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE).
2. NORTH ARROW AS SHOWN INDICATES GRID NORTH REFERENCED TO NAD83 AND PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE).
3. THE REFERENCE HORIZONTAL AND VERTICAL CONTROL STATION IS A COOPERATIVE BASE NETWORK CONTROL STATION DESIGNATED AS "UTICA". UTICA IS A HORIZONTAL AND VERTICAL CONTROL STATION ESTABLISHED BY THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION IN 1994. ELEVATION 434.90 FEET.
4. LOCATION OF SPOT ELEVATION IS INDICATED BY THE TICK "+" MARK LOCATED ADJACENT TO THE ELEVATION.
5. THE SUBSURFACE UTILITIES SHOWN HEREON ARE OF QUALITY LEVEL "C" AS DEFINED BY THE AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) IN THE "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA". THE SUBSURFACE UTILITIES SHOWN HEREON ARE BASED ON PHYSICAL EVIDENCE LOCATED DURING THE FIELD SURVEY AND EXISTING UTILITY DRAWINGS. THE SURVEYOR FURTHER DOES NOT WARRANT OR CERTIFY THAT THE SUBSURFACE UTILITIES ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE DEPICTED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE. THIS SURVEYOR HAS NOT PHYSICALLY LOCATED THE SUBSURFACE UTILITIES.
6. CONTOURS SHOWN HEREON WERE GENERATED BY A DIGITAL TERRAIN MODEL (DTM) UTILIZING AUTOCAD CIVIL 3D SURVEYING AND ENGINEERING SOFTWARE.
7. THE VILLAGE OF FRANKFORT IS UNAWARE OF THE CURRENT VILLAGE STREET WIDTHS. THE WIDTHS SHOWN HEREON ARE BASED ON HERKIMER COUNTY TAX MAPPING.
8. THE INFORMATION SHOWN HEREON IS BASED ON A FIELD SURVEY COMPLETED ON JULY 6, 2018 PROVIDED BY THEW ASSOCIATES 9478 RIVER ROAD MARCY, NY 13403 TEL. (315) 733-7278 FAX. (315) 797-1957.

SURVEY REFERENCE DRAWING NOTES:

1. "MAP SHOWING PROPOSED PROPERTY TRANSFERS BETWEEN N.Y.C.R.R. CO; FRANKFORT TRANSIT WAREHOUSE CO. INC., A WHOLLY OWNED SUBSIDIARY OF THE UNION FORK & HOE CO. INC. AND THE TOWN OF FRANKFORT", PREPARED BY W.S. TIEL P.E. & L.S. #31749, DATED SEPTEMBER 7, 1963, LAST REVISED JANUARY 4, 1964, AND FILED IN THE HERKIMER COUNTY CLERK'S OFFICE ON JANUARY 24, 1964 AS MAP NO. MM2C21.
2. "LANDS OF THE UNION FORK AND HOE CO.", PREPARED BY SNYDER MYERS ASSOCIATES, P.C., DATED AUGUST 18, 1987, AND DISTINGUISHED AS FILE NO. 86-413.
3. "FERDULA TOP SOIL PRODUCTS, INC. AS CONVEYED BY: CONSOLIDATED RAIL CORPORATION", PREPARED BY JOHN H. FIMMANO, P.L.S., AND DATED FEBRUARY 18, 1991.
4. "PROPERTY MAP SHOWING LANDS TO BE CONVEYED TO R.M. MURDOCK COMPANY, INC.", PREPARED BY D.L. MOWERS LAND SURVEYORS & ASSOCIATES, DATED DECEMBER 31, 2002, AND FILED IN THE HERKIMER COUNTY CLERK'S OFFICE ON JULY 9, 2003 AS MAP NO. JJ28C27.
5. "PROPERTY MAP SHOWING LANDS OF DENISE A. ROMEO (LUTHER)", PREPARED BY ROBERT G. HARVEY PLS, DATED OCTOBER 4, 2004, AND FILED IN THE HERKIMER COUNTY CLERK'S OFFICE ON NOVEMBER 29, 2004 AS MAP NO. JJ30B16.
6. "PROPERTY MAP SHOWING LANDS TO BE CONVEYED TO ROCCO BRANCK AND DAVID BRANCK", PREPARED BY D.L. MOWERS LAND SURVEYORS & ASSOCIATES, DATED NOVEMBER 3, 2012, AND FILED IN THE HERKIMER COUNTY CLERK'S OFFICE ON AUGUST 1, 2013 AS MAP NO. 1357.

LEGEND:

	PROPERTY LINE	☼	LIGHT POLE
	ADJOINER DEED LINE		UTILITY POLE WITH LIGHT
	INTERIOR DEED LINE	⊠	ELECTRIC METER
	EASEMENT LINE		FIRE HYDRANT
405	CONTOUR MAJOR	WV	WATER VALVE
404	CONTOUR MINOR	PIV	POST INDICATOR VALVE
GAS	NATURAL GAS LINE	GV	GAS VALVE
COMM	OVERHEAD COMMUNICATIONS LINE	S	SANITARY MANHOLE
OHE	OVERHEAD ELECTRIC LINE		STORM DRAIN MANHOLE
CATV	OVERHEAD CABLE TV		CATCH BASIN
OHU	OVERHEAD UTILITIES (ELECTRIC, COMMUNICATIONS AND CABLE TV)		SIGN
W	WATERLINE		MONITOR WELL
	SANITARY LINE		SURVEY CONTROL POINT
	STORM LINE		FOUND IRON (PIPE, REBAR, ET CETERA)
	EDGE OF GRAVEL		SET 5/8-INCH REBAR WITH 1 1/4-INCH RED PLASTIC CAP MARKED "THEW ASSOCIATES UTICA NY"
	CHAIN LINK FENCE	(M)	MEASURED DISTANCE
	WOOD FENCE	(D)	DEEDED DISTANCE
+ 605.0	SPOT ELEVATION		TREELINE
+ 605.0 TC	SPOT ELEVATION TOP OF CURB		BRICK AND BLOCK DEBRIS PILE
+ 604.5 BC	SPOT ELEVATION BOTTOM OF CURB		CONCRETE PAD
LW=607.1	LOW WIRE ELEVATION		DAMAGED OR MISSING CONCRETE
*	BOLLARD		
	UTILITY POLE		

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NO.	DATE	REVISION	INIT.
0	4/19/19	ISSUED FOR CONSTRUCTION	SWA

SCALED AS NOTED

O'BRIEN & GERE ENGINEERS, INC

AMES CORPORATION
UNION FORK & HOE
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY, NEW YORK

GENERAL

GENERAL NOTES AND LEGEND

IN CHARGE OF STEPHEN W. ANAGNOST
DESIGNED BY RN CHECKED BY SWA
DRAWN BY MWH

FILE NO. 33683.69547.001
DATE APRIL 2019

G-1

C:\DV71\UNION FORK AND HOE\DESIGN DRAWINGS\69547-000-TSG1.DWG

EXISTING SITE PLAN

SCALE: 1"=120' 120' 0 120'

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED IN THE TITLE BLOCK. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR IN THE TITLE BLOCK TO DETERMINE THE ACTUAL SCALE OF THIS DRAWING.

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STATE OF NEW YORK · STEPHEN W. ANAGNOST · No. 068269 · LICENSED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	INIT.
0	4/19/19	ISSUED FOR CONSTRUCTION	SWA

SCALED AS NOTED

O'BRIEN & GERE ENGINEERS, INC

AMES CORPORATION
UNION FORK & HOE
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY, NEW YORK

GENERAL

EXISTING SITE PLAN

IN CHARGE OF STEPHEN W. ANAGNOST
DESIGNED BY RN CHECKED BY SWA
DRAWN BY MWH

FILE NO. 33683.69547.002
DATE APRIL 2019

G–2

C:\DIV71\UNION FORK AND HOE\DESIGN DRAWINGS\69547-002-G2G3G4G5G6G7G8G9G10.DWG

NORTH

SITE REMEDIATION PLAN

SCALE: 1"=120' 120' 0 120'

DRAWING NOTES:

1. ADDITIONAL EXCAVATION ACTIVITIES WITHIN THE PROPOSED CONSOLIDATION AREA ARE NOT SHOWN HERE FOR CLARITY. REFER TO DRAWINGS G-7 AND G-9 FOR ADDITIONAL INFORMATION.

LEGEND

- SHALLOW EXCAVATION 1 FT DEEP ON-SITE CONSOLIDATION
- FORMER EXCAVATION AREA
- CONCRETE PAD REQUIRING REPAIR
- PAH EXCAVATION 1 FT DEEP ON-SITE CONSOLIDATION
- PAH EXCAVATION EXCEEDING 500 PPM PAH OFF-SITE DISPOSAL
- LEAD EXCAVATION 1 FT DEEP OFF-SITE DISPOSAL
- LEAD EXCAVATION 5 FT DEEP OFF-SITE DISPOSAL
- LEAD EXCAVATION 5 - 15 FT DEEP (PREVIOUSLY REMOVED PAH OFF-SITE DISPOSAL)
- LEAD EXCAVATION 10 FT DEEP OFF-SITE DISPOSAL
- LEAD EXCAVATION 11 FT DEEP OFF-SITE DISPOSAL
- LEAD EXCAVATION 14 FT DEEP OFF-SITE DISPOSAL
- LEAD EXCAVATION 10 - 15 FT DEEP OFF-SITE DISPOSAL

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STATE OF NEW YORK
STEPHEN W. ANAGNOST
No. 068269
LICENSED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	INIT.
0	4/19/19	ISSUED FOR CONSTRUCTION	SWA

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O'BRIEN & GERE ENGINEERS, INC

AMES CORPORATION
UNION FORK & HOE
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY, NEW YORK

GENERAL

SITE REMEDIATION PLAN

IN CHARGE OF STEPHEN W. ANAGNOST
DESIGNED BY RN CHECKED BY SWA
DRAWN BY MWH

FILE NO. 33683.69547.016
DATE APRIL 2019

G-2A

C:\DM71\UNION FORK AND HOE\DESIGN DRAWINGS\69547-002-G2G3G4G5G6G7G8G9G10.DWG

SITE PREPARATION PLAN

SCALE: 1"=120' 120' 0 120'

GENERAL NOTES:

1. STAGING AREAS FOR EQUIPMENT, TRAILERS, MATERIAL HANDLING, ETC. ARE SHOWN FOR REFERENCE PURPOSES ONLY. PRIOR TO COMMENCEMENT OF WORK, THE SUBCONTRACTOR SHALL SUBMIT A STAGING PLAN WHICH WILL INCLUDE LOCATIONS, METHODS AND SEQUENCING OF ALL INTENDED OPERATIONS.
2. THE SUBCONTRACTOR SHALL SET UP TEMPORARY OFFICE FACILITIES, SOIL STOCKPILE AND EQUIPMENT STAGING AREAS, EROSION AND SEDIMENT CONTROLS, CONSTRUCTION WATER HANDLING SYSTEM, DECONTAMINATION PAD, INSTALL CONSTRUCTION FENCING WITH SIGNAGE IDENTIFYING LIMITS OF WORK AND ANY OTHER APPARATUS REQUIRED FOR THE EXECUTION OF THE WORK.
3. THE SUBCONTRACTOR SHALL PROVIDE ALL ELEMENTS OF WORK AREA SECURITY NECESSARY TO PREVENT THE UNAUTHORIZED ENTRY OF PERSONS ONTO THE SITE, INCLUDING BUT NOT LIMITED TO PROVIDING TEMPORARY CONSTRUCTION FENCING AROUND ACTIVE WORK AREAS AND THE SUBCONTRACTOR'S STAGING AREA.
4. GATES IN TEMPORARY FENCING SHALL BE KEPT LOCKED AT ALL TIMES. THE SUBCONTRACTOR SHALL ONLY UNLOCK THE ACCESS GATE FOR DELIVERY OF EQUIPMENT, MATERIALS AND/OR PERSONNEL.

DRAWING NOTES:

1. THE SUBCONTRACTOR WILL NOT PERFORM GRUBBING OPERATIONS IN WASTE AREAS, OR OTHERWISE DISTURB THE EXISTING SOIL COVER, UNTIL EROSION CONTROL AND DUST CONTROL MEASURES ARE IN PLACE.
2. NO CLEARING AND GRUBBING OPERATIONS SHALL OCCUR UNTIL THE SUBCONTRACTOR'S EROSION AND SEDIMENT CONTROL MEASURES ARE IN PLACE.
3. MONITORING WELLS DEC-SU-01 AND DEC-IW-05 WILL BE ABANDONED IN ACCORDANCE WITH NYSDEC POLICY CP-43. OTHER EXISTING MONITORING WELLS SHALL BE PROTECTED. ALL MONITORING WELLS DISTURBED OR DAMAGED AS A RESULT OF THE SUBCONTRACTOR'S WORK SHALL BE RESTORED IN ACCORDANCE WITH THE "MONITORING WELL RESTORATION DETAIL" SHT. G-13.
4. EXISTING FENCE WITHIN THE LIMITS OF THE PROPOSED CONSOLIDATION AREA SHALL BE REMOVED AND DISPOSED OF OFF-SITE.
5. OVERHEAD ELECTRIC AND UTILITY POLES WITHIN THE LIMITS OF THE PROPOSED CONSOLIDATION AREA WILL BE REMOVED AND DISPOSED OF OFF-SITE AFTER BEING VERIFIED AS INACTIVE.
6. BRICK AND BLOCK MATERIAL, WITHIN THE LIMITS OF THE SITE, SHALL BE USED AS BACKFILL WITHIN THE CONSOLIDATION AREA.

EROSION AND SEDIMENT CONTROL NOTES:

1. PRIOR TO CONSTRUCTION EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED BY THE SUBCONTRACTOR, PRIOR TO DISTURBING EXISTING SITE SOILS AND VEGETATION, IN ACCORDANCE WITH THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND THE STORMWATER POLLUTION PREVENTION PLAN (SWPP)
2. EROSION AND SEDIMENT CONTROL LOCATIONS ARE NOT SHOWN HERE FOR CLARITY.
3. THE SUBCONTRACTOR SHALL MAINTAIN OR PROVIDE BYPASS OF FLOW FROM EXISTING DRAINAGE CHANNELS AT ALL TIMES.
4. REFER TO SHT. G-13 FOR EROSION AND SEDIMENT CONTROL DETAILS.

CLEARING AND GRUBBING NOTES:

1. CLEARING AND GRUBBING SHALL BE PERFORMED ONLY TO THE EXTENT REQUIRED TO PERFORM THE WORK.

CONCRETE PAD REMEDIATION NOTES:

1. OPENINGS WITHIN THE EXISTING CONCRETE PADS, GREATER THAN OR EQUAL TO 2 FT IN WIDTH, SHALL BE EXCAVATED TO A DEPTH OF 1 FT. EXCAVATED MATERIAL SHALL BE TEMPORARILY STOCKPILED, FOR FUTURE USE AS BACKFILL WITHIN THE SUBSURFACE EXCAVATIONS, ABOVE THE GROUNDWATER TABLE, BUT NOT DEEPER THAN 8 FT BELOW EXISTING GRADE. REFER TO DRAWING G-12 FOR RESTORATION OF EXCAVATIONS.
2. OPENINGS WITHIN THE EXISTING CONCRETE PADS, LESS THAN 2 FT IN WIDTH, SHALL BE EXCAVATED ARE REQUIRED TO INSTALL A MINIMUM OF 6" OF CONCRETE TO THE LIMITS OF THE OPENING.

LEGEND

CONCRETE PAD REQUIRING REMEDIATION SEE "CONCRETE PAD REMEDIATION NOTES 1 & 2"

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STATE OF NEW YORK
STEPHEN W. ANAGNOST
No. 068269
LICENSED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	INIT.
0	4/19/19	ISSUED FOR CONSTRUCTION	SWA

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O'BRIEN & GERE ENGINEERS, INC

AMES CORPORATION
UNION FORK & HOE
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY, NEW YORK

GENERAL

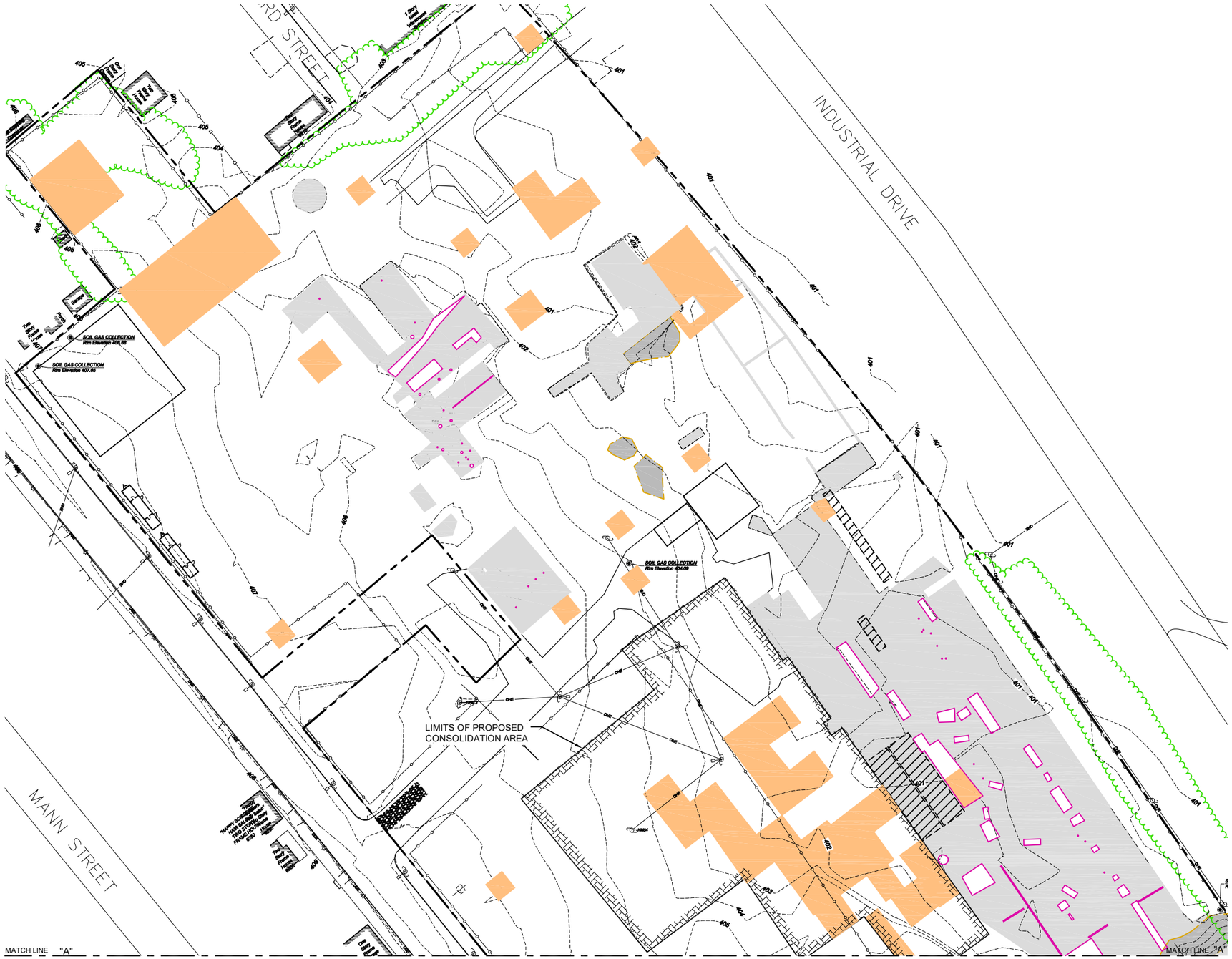
SITE PREPARATION PLAN

IN CHARGE OF STEPHEN W. ANAGNOST
DESIGNED BY RN CHECKED BY SWA
DRAWN BY MWH

FILE NO. 33683.69547.003
DATE APRIL 2019

G-3

C:\DM71\UNION FORK AND HOE\DESIGN DRAWINGS\69547-002-G2G3G4G5G6G7G8G9G10.DWG



SHALLOW EXCAVATIONS PLAN

SCALE: 1"=50' 50' 0 50'

NORTH

DRAWING NOTES:

1. ALL SHALLOW EXCAVATIONS SHOWN HERE, SHALL BE EXCAVATED AND TEMPORARILY STOCKPILED, FOR FUTURE USE AS BACKFILL WITHIN THE SUBSURFACE EXCAVATIONS, ABOVE THE GROUNDWATER TABLE BUT NOT DEEPER THAN 8 FT BELOW EXISTING GRADE.
2. OFF-SITE SOIL IN AREAS ADJACENT TO ON-SITE EXCAVATION LOCATIONS WILL BE EXCAVATED IF CONFIRMATION SAMPLES FROM THE ON-SITE EXCAVATION BOUNDARIES EXCEED THE SCO'S FOR RESIDENTIAL USE FOR SITE-RELATED CONTAMINANTS.
3. SHALLOW EXCAVATIONS SHALL EXTEND HORIZONTALLY UNTIL CONFORMATION SAMPLES DEMONSTRATE COMPLIANCE WITH THE APPROPRIATE SCO'S.
4. REFER TO DRAWING G-12 FOR RESTORATION OF EXCAVATIONS.

LEGEND

SHALLOW EXCAVATION 1 FT DEEP

FORMER EXCAVATION AREA

SHALLOW EXCAVATIONS TABLE		
AREA OF EXCAVATIONS (SF)	EXCAVATIONS DEPTH (FT)	ESTIMATED VOLUME (CY)
48139	1	1783

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STATE OF NEW YORK
STEPHEN W. ANAGNOST
No. 068263
LICENSED PROFESSIONAL ENGINEER

O'BRIEN & GERE ENGINEERS, INC

AMES CORPORATION
UNION FORK & HOE
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY, NEW YORK

GENERAL

SHALLOW EXCAVATIONS PLAN 1 OF 3

IN CHARGE OF STEPHEN W. ANAGNOST
DESIGNED BY RN CHECKED BY SWA
DRAWN BY MWH

FILE NO. 33683.69547.004
DATE APRIL 2019

G-4

C:\DV71\UNION FORK AND HOE\DESIGN DRAWINGS\69547-002-G2G3G4G5G6G7G8G9G10.DWG

NORTH

SHALLOW EXCAVATIONS PLAN

SCALE: 1"=50'-0" 50' 0 50'

DRAWING NOTES:

1. ALL SHALLOW EXCAVATIONS SHOWN HERE, SHALL BE EXCAVATED AND TEMPORARILY STOCKPILED, FOR FUTURE USE AS BACKFILL WITHIN THE SUBSURFACE EXCAVATIONS, ABOVE THE GROUNDWATER TABLE BUT NOT DEEPER THAN 8 FT BELOW EXISTING GRADE.
2. OFF-SITE SOIL IN AREAS ADJACENT TO ON-SITE EXCAVATION LOCATIONS WILL BE EXCAVATED IF CONFIRMATION SAMPLES FROM THE ON-SITE EXCAVATION BOUNDARIES EXCEED THE SCO'S FOR RESIDENTIAL USE FOR SITE-RELATED CONTAMINANTS.
3. SHALLOW EXCAVATIONS SHALL EXTEND HORIZONTALLY UNTIL CONFORMATION SAMPLES DEMONSTRATE COMPLIANCE WITH THE APPROPRIATE SCO'S.
4. REFER TO DRAWING G-12 FOR RESTORATION OF EXCAVATIONS.

LEGEND

SHALLOW EXCAVATION 1 FT DEEP

SHALLOW EXCAVATIONS TABLE		
AREA OF EXCAVATIONS (SF)	EXCAVATIONS DEPTH (FT)	ESTIMATED VOLUME (CY)
3047	1	113

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SCALED AS NOTED

STATE OF NEW YORK STEPHEN W. ANAGNOST LICENSED PROFESSIONAL ENGINEER NO. 068269

O'BRIEN & GERE ENGINEERS, INC

AMES CORPORATION
UNION FORK & HOE
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY, NEW YORK

GENERAL

SHALLOW EXCAVATIONS PLAN 2 OF 3

IN CHARGE OF STEPHEN W. ANAGNOST
DESIGNED BY RN CHECKED BY SWA
DRAWN BY MWH

FILE NO. 33683.69547.005
DATE APRIL 2019

G-5

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SHALLOW EXCAVATIONS PLAN

SCALE: 1"=50' 50' 0 50'

DRAWING NOTES:

1. ALL SHALLOW EXCAVATIONS SHOWN HERE, SHALL BE EXCAVATED AND TEMPORARILY STOCKPILED, FOR FUTURE USE AS BACKFILL WITHIN THE SUBSURFACE EXCAVATIONS, ABOVE THE GROUNDWATER TABLE, BUT NOT DEEPER THAN 8 FT BELOW EXISTING GRADE, EXCEPT FOR SL-19 WHICH WILL BE HANDLED IN ACCORDANCE WITH SHEET G-9.
2. OFF-SITE SOIL IN AREAS ADJACENT TO ON-SITE EXCAVATION LOCATIONS WILL BE EXCAVATED IF CONFIRMATION SAMPLES FROM THE ON-SITE EXCAVATION BOUNDARIES EXCEED THE SCO'S FOR RESIDENTIAL USE FOR SITE-RELATED CONTAMINANTS.
3. SHALLOW EXCAVATIONS SHALL EXTEND HORIZONTALLY UNTIL CONFORMATION SAMPLES DEMONSTRATE COMPLIANCE WITH THE APPROPRIATE SCO'S.
4. REFER TO DRAWING G-12 FOR RESTORATION OF EXCAVATIONS.

LEGEND

- SHALLOW EXCAVATION 1 FT DEEP
- LEAD EXCAVATION 1 FT DEEP (TO BE HANDLED IN ACCORDANCE WITH SHEET G-9)
- FORMER EXCAVATION AREA

SHALLOW EXCAVATIONS TABLE		
AREA OF EXCAVATIONS (SF)	EXCAVATIONS DEPTH (FT)	ESTIMATED VOLUME (CY)
9655	1	358

NO.	DATE	REVISION	
0	4/19/19	ISSUED FOR CONSTRUCTION	SWA

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STATE OF NEW YORK STEPHEN W. ANAGNOST No. 068269 LICENSED PROFESSIONAL ENGINEER

O'BRIEN & GERE ENGINEERS, INC

AMES CORPORATION
UNION FORK & HOE
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY, NEW YORK

GENERAL

SHALLOW EXCAVATIONS PLAN 3 OF 3

IN CHARGE OF STEPHEN W. ANAGNOST
DESIGNED BY RN CHECKED BY SWA
DRAWN BY MWH

FILE NO. 33683.69547.006
DATE APRIL 2019

G-6

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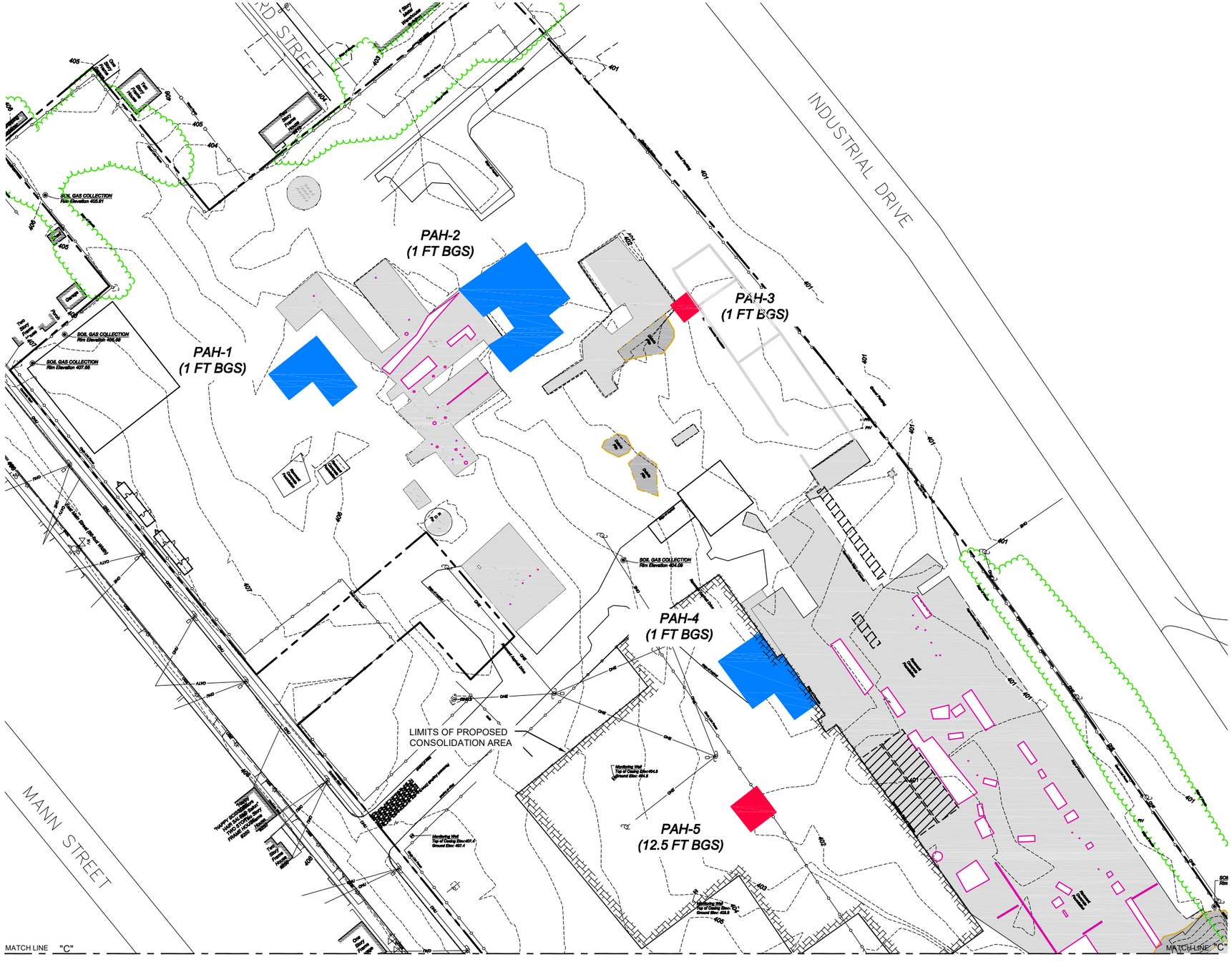

NORTH

PAH EXCAVATIONS PLAN

SCALE: 1"=50' 50' 0 50'

DRAWING NOTES:

1. SOILS WITHIN THE LIMITS OF PAH-1, PAH-2 AND PAH-4, NOT EXCEEDING THE 500 PPM FOR TOTAL PAHs WILL BE EXCAVATED AND TEMPORARILY STOCKPILED, FOR FUTURE USE AS BACKFILL WITHIN THE SUBSURFACE EXCAVATIONS, ABOVE THE GROUNDWATER TABLE, BUT NOT DEEPER THAN 8 FT BELOW EXISTING GRADE.
2. PAH-3, PAH-5 AND PAH-6 EXCAVATIONS SHALL EXTEND HORIZONTALLY UNTIL CONFIRMATION SAMPLES DEMONSTRATE THE PAHs ARE <500 PPM.
3. PAH-3, PAH-5 AND PAH-6 EXCAVATIONS SHALL EXTEND VERTICALLY TO SPECIFIED DEPTHS, IF CONFORMATION SAMPLES EXCEED 500 PPM FOR PAH, NYSDEC WILL BE CONSULTED.
4. REFER TO DRAWING G-12 FOR RESTORATION OF EXCAVATIONS.

LEGEND

- PAH EXCAVATION 1 FT DEEP ON-SITE CONSOLIDATION
- PAH EXCAVATION OFF-SITE DISPOSAL EXCEEDING 500 PPM PAH
- FORMER EXCAVATION AREA

PAH EXCAVATIONS TABLE

EXCAVATION ID	EXCAVATION AREA (SF)	EXCAVATION DEPTH (FT)	ESTIMATED VOLUME (CY)
PAH-1	2541	1	94.1
PAH-2	5894	1	218.3
PAH-3	400	1	14.8
PAH-4	3373	1	125.0
PAH-5	900	12.5	417.0

NO.	DATE	REVISION	INIT.
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STATE OF NEW YORK
STEPHEN W. ANAGNOST
No. 068269
LICENSED PROFESSIONAL ENGINEER

O'BRIEN & GERE ENGINEERS, INC

AMES CORPORATION
UNION FORK & HOE
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY, NEW YORK

GENERAL

PAH EXCAVATIONS PLAN 1 OF 2

IN CHARGE OF STEPHEN W. ANAGNOST
DESIGNED BY RN CHECKED BY SWA
DRAWN BY MWH

FILE NO. 33683.69547.007
DATE APRIL 2019

G-7

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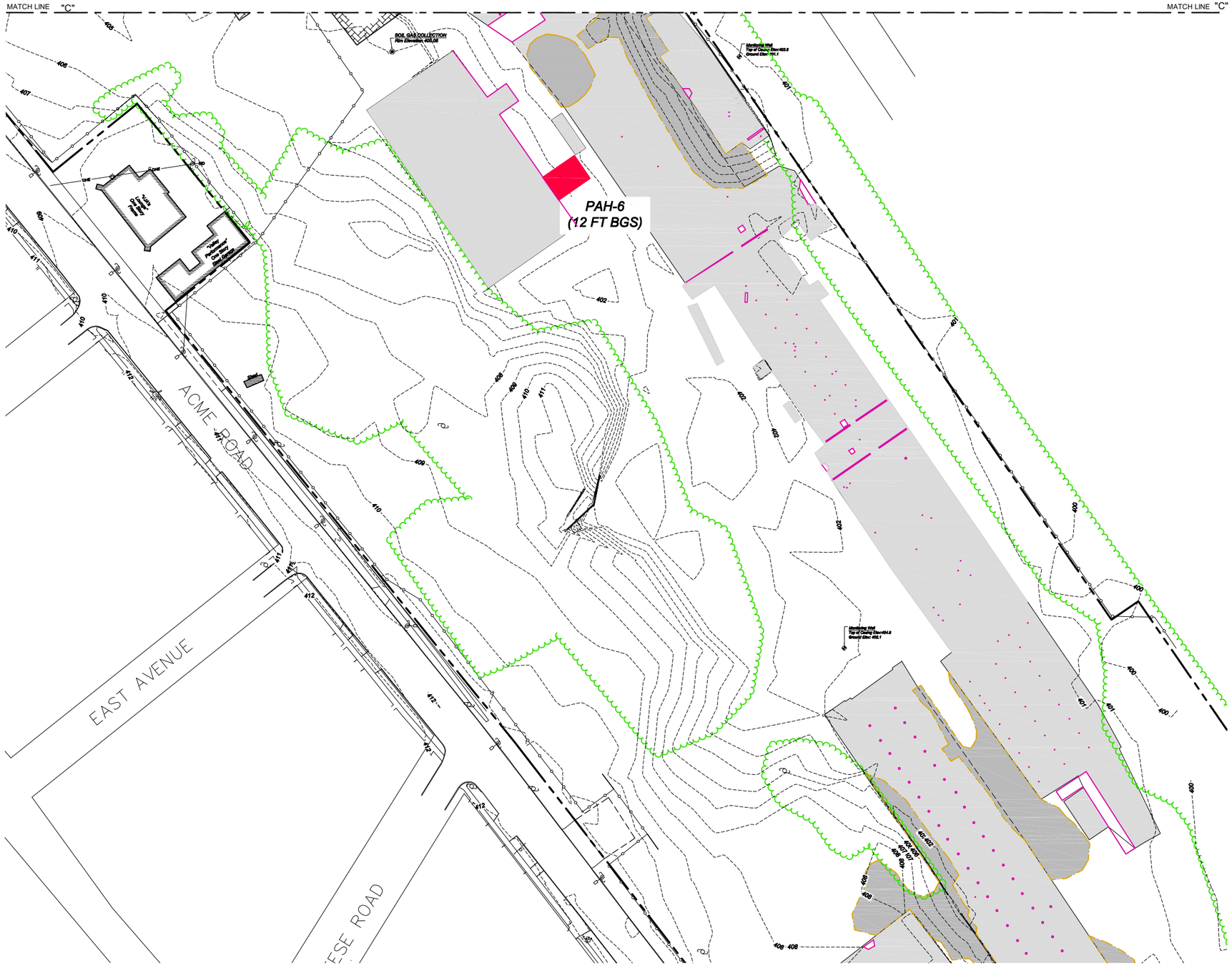

NORTH

PAH EXCAVATIONS PLAN

SCALE: 1"=50' 50' 0 50'

DRAWING NOTES:

1. SOILS WITHIN THE LIMITS OF PAH-1, PAH-2 AND PAH-4, NOT EXCEEDING THE 500 PPM FOR TOTAL PAHs WILL BE EXCAVATED AND TEMPORARILY STOCKPILED, FOR FUTURE USE AS BACKFILL WITHIN THE SUBSURFACE EXCAVATIONS, ABOVE THE GROUNDWATER TABLE, BUT NOT DEEPER THAN 8 FT BELOW EXISTING GRADE.
2. PAH-3, PAH-5 AND PAH-6 EXCAVATIONS SHALL EXTEND HORIZONTALLY UNTIL CONFIRMATION SAMPLES DEMONSTRATE THE PAHs ARE <500 PPM.
3. PAH-3, PAH-5 AND PAH-6 EXCAVATIONS SHALL EXTEND VERTICALLY TO SPECIFIED DEPTHS, IF CONFORMATION SAMPLES EXCEED 500 PPM FOR PAH, NYSDEC WILL BE CONSULTED.
4. REFER TO DRAWING G-12 FOR RESTORATION OF EXCAVATIONS.

LEGEND

- PAH EXCAVATION 1 FT DEEP
- PAH EXCAVATION OFF-SITE DISPOSAL EXCEEDING 500 PPM TOTAL PAH

PAH EXCAVATIONS TABLE			
EXCAVATION ID	EXCAVATION AREA (SF)	EXCAVATION DEPTH (FT)	ESTIMATED VOLUME (CY)
PAH-6	909	12.5	421.0

STATE OF NEW YORK
STEPHEN W. ANAGNOST
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SCALED AS NOTED

O'BRIEN & GERE ENGINEERS, INC

AMES CORPORATION
UNION FORK & HOE
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY, NEW YORK

GENERAL

PAH EXCAVATIONS PLAN 2 OF 2

IN CHARGE OF STEPHEN W. ANAGNOST
DESIGNED BY RN CHECKED BY SWA
DRAWN BY MWH

FILE NO. 33683.69547.008
DATE APRIL 2019

G-8

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SHALLOW LEAD EXCAVATION PLAN

SCALE: 1"=30' 30' 0 30'

NORTH

DRAWING NOTES:

1. PRIOR TO EXCAVATION OBG SHALL PERFORM PRE-EXCAVATION SAMPLING AND CHARACTERIZATION OF SOURCE SOILS/MATERIAL TO DETERMINE HOW THE SOIL WILL BE HANDLED.
2. ONE COMPOSITE SAMPLE SHALL BE TAKEN FOR EVERY 200 CUBIC YARDS OF MATERIAL.
3. SOIL WITHIN THE CONSOLIDATION AREA,WHICH DOES NOT EXCEED THE HAZARDOUS WASTE THRESHOLD FOR METALS, SHALL REMAIN IN PLACE, BELOW THE VEGETATIVE SOIL COVER.
4. REFER TO DRAWING NOTES 3-5 ON SHEET G-10 FOR EXCAVATED SOIL WHICH EXCEEDS THE HAZARDOUS WASTE THRESHOLD FOR METALS.
5. EXCAVATED SOIL WHICH DOES NOT EXCEED THE HAZARDOUS WASTE THRESHOLD FOR METALS SHALL BE USED AS BACKFILL, BELOW THE VEGETATIVE SOIL COVER, WITHIN THE CONSOLIDATION AREA.
6. SL-19 EXCAVATION LIMITS IS SHOWN ON SHEET G-6.
7. REFER TO DRAWING G-12 FOR RESTORATION OF EXCAVATIONS.

LEGEND

- LEAD EXCAVATION 1 FT DEEP
- PRE-CHARACTERIZATION SAMPLE LOCATION

SHALLOW LEAD EXCAVATIONS TABLE

EXCAVATION ID	EXCAVATION AREA (SF)	EXCAVATION DEPTH (FT)	ESTIMATED VOLUME (CY)
SL-1	222	1	8.2
SL-2	354	1	13.1
SL-3	1179	1	43.7
SL-4	207	1	7.7
SL-5	5351	1	198.2
SL-6	5546	1	205.4
SL-7	815	1	30.2
SL-8	977	1	36.2
SL-9	5406	1	200.2
SL-10	4642	1	171.9
SL-11	942	1	34.9
SL-12	897	1	33.2
SL-13	870	1	32.2
SL-14	5208	1	192.9
SL-15	2357	1	87.3
SL-16	1972	1	73.0
SL-17	340	1	12.6
SL-18	225	1	8.3
SL-19	400	1	14.8

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STATE OF NEW YORK
STEPHEN W. ANAGNOST
No. 068269
LICENSED PROFESSIONAL ENGINEER

O'BRIEN & GERE ENGINEERS, INC

AMES CORPORATION
UNION FORK & HOE
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY, NEW YORK

GENERAL

SHALLOW LEAD EXCAVATION PLAN

IN CHARGE OF STEPHEN W. ANAGNOST
DESIGNED BY RN CHECKED BY SWA
DRAWN BY MWH

FILE NO. 33683.69547.009
DATE APRIL 2019

G-9

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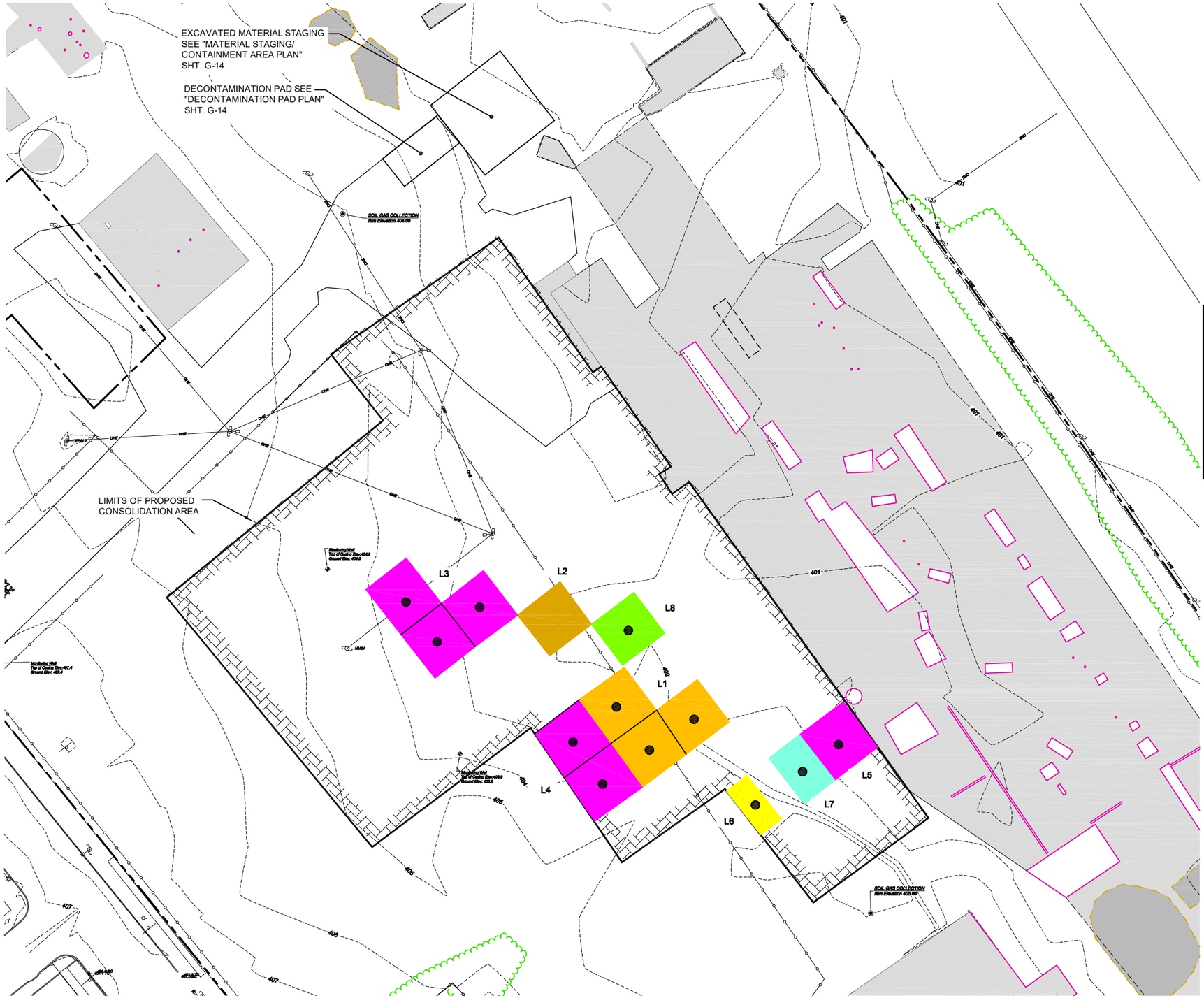

SUBSURFACE LEAD EXCAVATION PLAN

SCALE: 1"=30' 30' 0 30'

NORTH

DRAWING NOTES:

1. PRIOR TO EXCAVATION OBG SHALL PERFORM PRE-EXCAVATION SAMPLING AND CHARACTERIZATION OF SOURCE SOILS/MATERIAL TO DETERMINE HOW THE SOIL WILL BE HANDLED.
2. ONE SAMPLE SHALL BE TAKEN FOR EVERY 200 CUBIC YARDS OF MATERIAL.
3. EX-SITU STABILIZATION WILL BE IMPLEMENTED TO TREAT EXCAVATED SOIL WHICH EXCEEDS THE HAZARDOUS WASTE THRESHOLD FOR METALS PRIOR TO OFF-SITE DISPOSAL. THE SOIL MANAGEMENT PROGRAM FOR THIS PROJECT PROPOSES THE EX-SITU APPLICATION OF A CHEMICALLY STABILIZING AGENT SUCH AS TRIPLE SUPERPHOSPHATE FERTILIZER (TSP), MONOCALCIUM PHOSPHATE, PORTLAND CEMENT, OR PROPRIETARY PRODUCTS.
4. THE APPROPRIATE APPLICATION RATE WILL BE EVALUATED FOR THE SITE-SPECIFIC SOIL CONDITIONS BASED ON A FIELD SCALE TREATABILITY TEST. A REPETITIVE SEQUENCE OF STABILIZING AGENT APPLICATION, MIXING AND CONFIRMATORY TESTING WILL BE IMPLEMENTED UNTIL THE LEAD-AFFECTED SOIL MEETS THE DISPOSAL REQUIREMENTS. THE MAJOR SOIL MANAGEMENT TASKS ARE:
   - A. EXCAVATION OF SOIL;
   - B. FIELD SCALE TREATABILITY TEST;
   - C. EX-SITU AMENDMENT AND EVALUATION OF APPLICATION METHOD;
   - D. SPREADING AND MIXING,
   - E. SAMPLING FOR DISPOSAL;
   - F. TRANSPORTATION AND DISPOSAL; AND,
   - G. CONFIRMATORY SAMPLING.
5. ONCE THE SOIL HAS BEEN SUCCESSFULLY TREATED TO MEET THE TOXICITY CHARACTERISTIC LEACHING POTENTIAL (TCLP) CRITERIA, THE SOIL WILL BE DISPOSED OF AS SOLID WASTE AT A PERMITTED LANDFILL.
6. EXCAVATED SOIL WHICH DOES NOT EXCEED THE HAZARDOUS WASTE THRESHOLD FOR METALS SHALL BE USED AS BACKFILL, BELOW THE VEGETATIVE SOIL COVER, WITHIN THE CONSOLIDATION AREA.
7. REFER TO DRAWING G-12 FOR RESTORATION OF EXCAVATIONS.

PRE-CHARACTERIZATION SAMPLING TABLE

EXCAVATION ID	EXCAVATION AREA (SF)	EXCAVATION DEPTH (FT)	ESTIMATED VOLUME (CY)	NUMBER OF SAMPLES REQUIRED	SAMPLE DEPTH (FT)
L1	2792	5	517	3	3
L2	900	5-15	N/A	N/A	N/A
L3	2787	10	929	6	3.25 AND 7.75
L4	1990	10	663	4	3.25 AND 7.75
L5	1940	10	718	2	3.25 AND 7.75
L6	460	11	187	1	6
L7	712	14	369	2	3.5 AND 8.5
L8	870	10-15	161	1	12.5

LEGEND

- LEAD EXCAVATION 5 FT DEEP
- LEAD EXCAVATION 5 - 15 FT DEEP (PREVIOUSLY REMOVED PAH OFF-SITE DISPOSAL)
- LEAD EXCAVATION 10 FT DEEP
- LEAD EXCAVATION 11 FT DEEP
- LEAD EXCAVATION 14 FT DEEP
- LEAD EXCAVATION 10 - 15 FT DEEP
- PRE-CHARACTERIZATION SAMPLE LOCATION

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AMES CORPORATION
UNION FORK & HOE
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY, NEW YORK

GENERAL

SUBSURFACE LEAD EXCAVATION PLAN

IN CHARGE OF STEPHEN W. ANAGNOST
DESIGNED BY RN CHECKED BY SWA
DRAWN BY MWH

FILE NO. 33683.69547.010
DATE APRIL 2019

G-10

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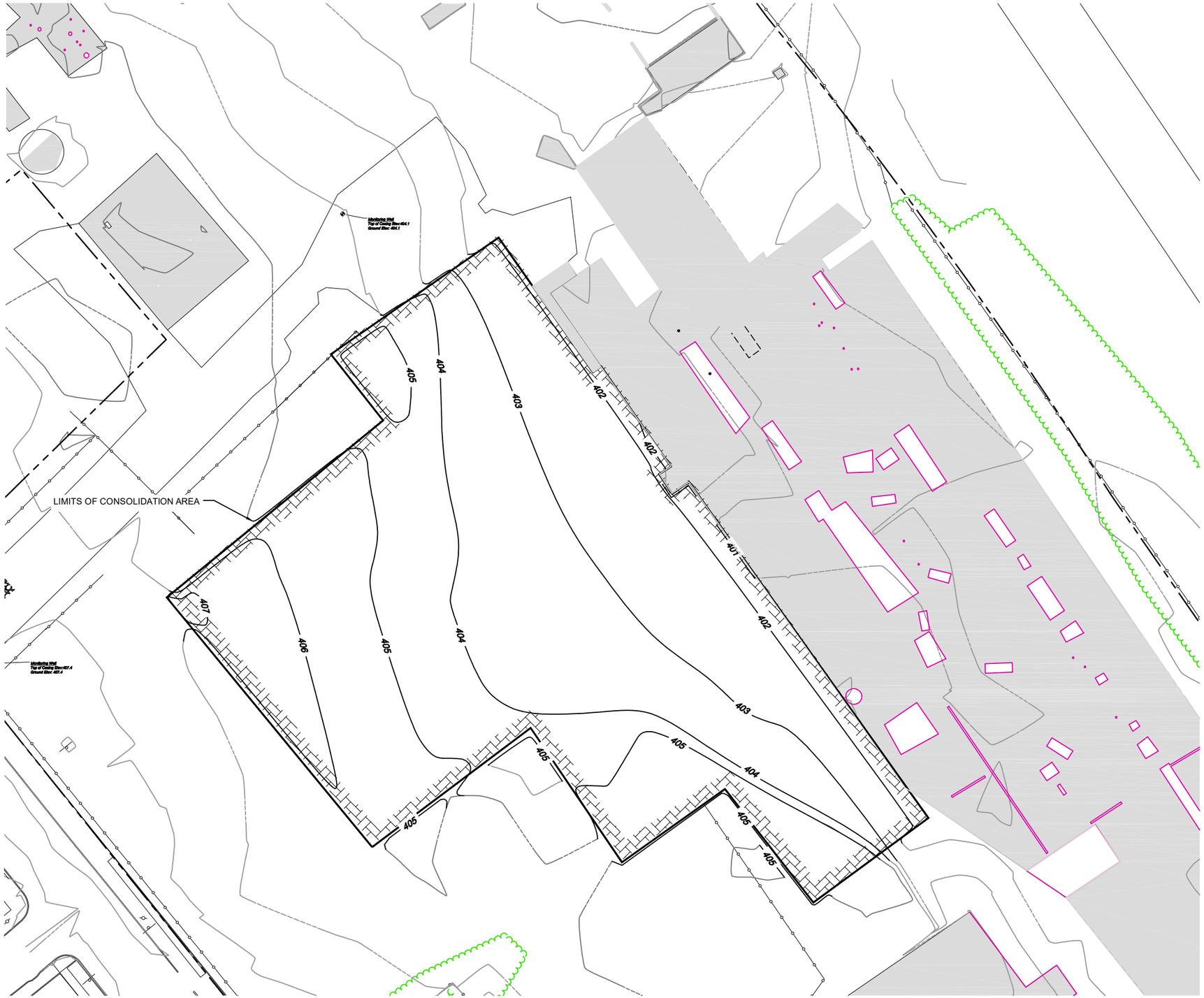

CONSOLIDATION AREA - FINAL GRADING PLAN

SCALE: 1"=30' 30' 0 30'

NORTH

DRAWING NOTES:

1. REFER TO SITE RESTORATION NOTES SHEET G-12 FOR CONSOLIDATED AREA COVER INFORMATION.
2. REFER TO SHEET G-13 FOR "CONSOLIDATION AREA - SOIL COVER DETAIL".
3. LIMITS OF THE CONSOLIDATION AREA AND FINAL GRADING WILL BE ADJUSTED BASED UPON VARIATIONS IN SOIL QUANTITIES AND EXCAVATION LIMITS.
4. FINAL GRADES WILL PROMOTE POSITIVE DRAINAGE AND MINIMIZE PONDING.

LEGEND

EXISTING GRADE CONTOUR

407 PROPOSED FINAL GRADE CONTOUR

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O'BRIEN & GERE ENGINEERS, INC

AMES CORPORATION
UNION FORK & HOE
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY, NEW YORK

GENERAL

CONSOLIDTATION AREA FINAL GRADING PLAN

IN CHARGE OF STEPHEN W. ANAGNOST
DESIGNED BY MWH CHECKED BY SWA
DRAWN BY MWH

FILE NO. 33683.69547.011
DATE APRIL 2019

G-11

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SITE RESTORATION PLAN

SCALE: 1"=120' 120' 0 120'

SITE RESTORATION NOTES:

RESTORATION WILL OCCUR IN THREE DIFFERENT AREAS:

- OFF-SITE EXCAVATIONS
- ON-SITE SUBSURFACE EXCAVATIONS
- ON-SITE SHALLOW EXCAVATIONS

BACKFILL MATERIAL INCLUDING SOIL EXCAVATED FROM ELSEWHERE ON SITE, BRICK AND BLOCK MATERIAL AND SOIL IMPORTED FROM OFF-SITE WILL BE FREE FROM FROST, STUMPS, TREES, ROOTS SODS, MUCK, MARL VEGETABLE MATTER OR OTHER UNSUITABLE MATERIALS AND SHALL BE SUITABLE FOR COMPACTION AS DESCRIBED BELOW. ALL STONES, PIECES OF BRICK, BLOCK OR PAVEMENT SHALL NOT EXCEED 6-INCHES IN THE GREATEST DIMENSION AND BE DISTRIBUTED THROUGH THE BACKFILL AND ALTERNATED WITH EARTH BACKFILL IN SUCH A MANNER THAT ALL INTERSTICES BETWEEN THEM SHALL BE FILLED WITH EARTH. WHERE BACKFILL IS TO BE PLACED UNDERWATER ONLY ACCEPTABLE GRANULAR MATERIALS SHALL BE USED. MATERIAL SHALL BE PLACED IN LOOSE LIFTS NOT GREATER THAN 8-INCHES OF THICKNESS AND THOROUGHLY COMPACTED BY COMPACTION EQUIPMENT SUITABLE FOR THE MATERIAL PRIOR TO PLACEMENT OF SUCCEEDING LIFTS. IF A VIBRATORY DRUM COMPACTOR IS USED IT SHALL HAVE A MINIMUM EFFECTIVE COMPACTION FORCE PER LINEAR INCH OF DRUM OF 740 WITH A MINIMUM OF 6 PASSES AT 4.5 FEET PER SECOND. IF A SHEEPSFOOT ROLLER IS USED THE MINIMUM EFFORT WILL BE 6 PASSES AT A MAXIMUM OF 15 FEET PER SECOND, AND COMPACTION SHALL CONTINUE UNTIL THE SHEEPSFOOT ROLLER CAN "WALK OUT" OF THE COMPACTED MATERIAL. OTHER TYPES OF COMPACTORS MAY BE EMPLOYED, SUBJECT TO ACCEPTANCE BY OBG OF THE PROPOSED MINIMUM APPLIED EFFORT (MINIMUM NUMBER OF PASSES AND TRAVEL SPEED). ACCEPTANCE WILL BE BASED UPON THE RESULTS OF ON-SITE DEMONSTRATIONS.

TO DETERMINE IF IMPORTED FILL MATERIAL IS ACCEPTABLE FOR USE ON SITE, MATERIAL FROM EACH OFF-SITE SOURCE WILL BE SAMPLED AND ANALYZED FOR TAL VOCS, TAL SVOCS, TAL METALS, PCB, AND PESTICIDES IN ACCORDANCE WITH DER-10, TABLE 5.4(E)10, UNLESS THE MATERIAL IS GRAVEL, ROCK OR STONE, AND CAN MEET THE SIEVE REQUIREMENTS IN DER-10. IF THE MATERIAL TO BE IMPORTED IS FROM A VIRGIN MINE/PIT OR SIMILAR LOCATION, IT WILL BE SAMPLED FOR CHEMICAL ANALYSES FOR ONLY THE INITIAL 100 CUBIC YARDS OF MATERIAL IN ACCORDANCE WITH SECTION 5.45(E)3.II.1 OF DER-10. A REQUEST TO IMPORT/REUSE FILL OR SOIL FORM WILL BE SUBMITTED TO THE NYSDEC PROJECT MANAGER A MINIMUM OF 5 BUSINESS DAYS FOR REVIEW AND APPROVAL PRIOR TO IMPORTING ANY BACKFILL MATERIAL.

EXCAVATED SOIL WHICH DOES NOT EXCEED THE 6 NYCRR PART 371 HAZARDOUS CRITERIA FOR METALS (AS DETERMINED BY PRE-CHARACTERIZATION SAMPLING) OR EXCEED 500 PPM FOR TOTAL PAHS MAY BE USED AS BACKFILL ABOVE THE GROUNDWATER TABLE, BUT NO DEEPER THAN 8 FEET BGS AND BELOW THE VEGETATIVE SOIL COVER.

BRICK AND BLOCK MATERIAL GENERATED DURING THE 2012 BUILDING DEMOLITION IRM WILL BE USED AS GENERAL FILL ON-SITE. PRIOR TO USE AS BACKFILL THE BRICK AND BLOCK WILL BE CRUSHED TO A SIZE OF 3 INCHES OR LESS.

OFF-SITE EXCAVATIONS

EACH OFF-SITE EXCAVATION WILL BE BACKFILLED WITH IMPORTED SOIL COMPLIANT WITH THE RESIDENTIAL USE STANDARDS LISTED IN NYCRR PART 375-6.7(D) TO WITHIN 6 INCHES BELOW THE ORIGINAL GRADE. ONCE THE BACKFILL IS PLACED AND COMPACTED, A MINIMUM OF 6 INCHES OF TOPSOIL WILL BE PLACED AND GRADED. THE AREA WILL THEN BE SEEDED AND MULCHED VIA HYDROSEEDING FOR APPROVED EQUIVALENT. TOPSOIL, SEEDING AND MULCHING REQUIREMENTS ARE PRESENTED ON SHEET G-15.

ON-SITE SUBSURFACE EXCAVATIONS

ON-SITE SUBSURFACE EXCAVATIONS WILL BE BACKFILLED WITH A COMBINATION OF EXCAVATED ON-SITE SOIL THAT DOES NOT EXCEED THE REQUIREMENTS FOR OFF-SITE DISPOSAL, BRICK AND BLOCK MATERIAL FROM THE FORMER SITE BUILDINGS, AND, AS NECESSARY TO ACHIEVE THE REQUIRED SUBGRADES, SOIL IMPORTED FROM OFF-SITE TO 1 FT BELOW THE FINAL DESIGN GRADES TO ALLOW FOR THE INSTALLATION OF A VEGETATIVE SOIL COVER AS DESCRIBED IN SECTION 3.6

ONCE THE BACKFILL IS PLACED, COMPACTED AND GRADED A VEGETATIVE SOIL COVER WILL BE INSTALLED TO MEET THE FINAL DESIGN GRADES. THE VEGETATIVE SOIL COVER IS DESCRIBED IN SECTION 3.6.

ON-SITE SURFACE EXCAVATIONS

ON-SITE SURFACE EXCAVATIONS WILL BE RESTORED WITH A VEGETATIVE SOIL COVER AS DESCRIBED BELOW.

VEGETATIVE SOIL COVER DESIGN

DRAWING G-11 PRESENTS THE PROPOSED LIMITS AND GRADING OF THE SOIL COVER TO BE CONSTRUCTED. A SOIL COVER WILL ALSO BE CONSTRUCTED WHERE ON-SITE SHALLOW EXCAVATIONS WERE PERFORMED. THE GRADING AND LIMITS SHOWN ON DRAWING G-11 ARE BASED ON THE ESTIMATED 2,487 CY OF EXCAVATED SOIL THAT MEETS THE REQUIREMENTS FOR DISPOSAL ON-SITE BELOW THE SOIL COVER AND ALL SOIL SHOWN ON SHEET G-9 AND G-10 BEING DISPOSED OF OFF-SITE AFTER *EX-SITU* STABILIZATION. THE GRADES AND LIMITS SHOWN WILL BE ADJUSTED BASED ON VARIATIONS OF SOIL QUANTITIES., THE SOIL COVER WILL CONSIST OF THE FOLLOWING COMPONENTS FROM THE SURFACE DOWN:

- MINIMUM OF 6-INCHES OF TOPSOIL
- MINIMUM OF 6-INCHES OF FILL
- DEMARCATION LAYER

ONCE THE VEGETATIVE SOIL COVER IS INSTALLED AND GRADED TO MINIMIZE SURFACE WATER PONDING, IT WILL BE SEEDED, FERTILIZED AND MULCHED TO ESTABLISH A VEGETATED COVER. A TYPICAL CROSS-SECTION OF THE SOIL COVER IS PROVIDED ON SHEET G-13 AND REQUIREMENTS FOR TOPSOIL AND SEEDING ARE PRESENTED ON SHEET G-15.

CONCRETE PAD REMEDIATION

SEE "CONCRETE PAD RESTORATION NOTES" SHT. G-3 FOR DETAILS.

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No. 068293
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O'BRIEN & GERE ENGINEERS, INC

AMES CORPORATION
UNION FORK & HOE
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY, NEW YORK

GENERAL

SITE RESTORATION PLAN AND NOTES

IN CHARGE OF STEPHEN W. ANAGNOST
DESIGNED BY RN CHECKED BY SWA
DRAWN BY MWH

FILE NO. 33683.69547.012
DATE APRIL 2019

G-12

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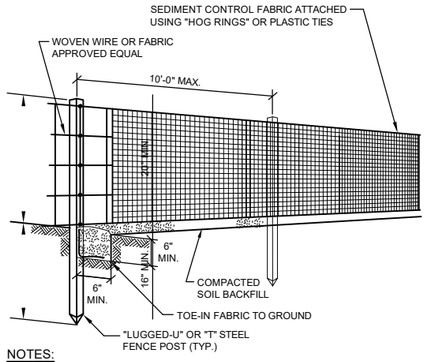

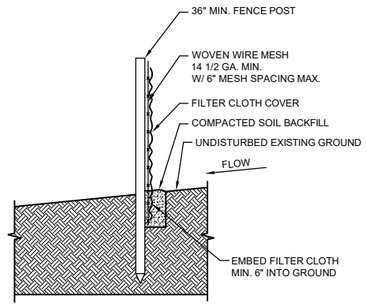

SECTION DETAIL

NOTES:

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
5. FENCE TO BE ALIGNED ALONG CONTOUR AS CLOSELY AS POSSIBLE.
6. 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.
7. SEDIMENT MUST BE REMOVED WHERE ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.
8. ANY FENCE SECTION WHICH HAS BEEN UNDERMINED OR TOPPED MUST BE IMMEDIATELY REPLACED.

POSTS : STEEL EITHER T OR U TYPE OR 2" HARDWOOD

FENCE : WOVEN WIRE 14.5 GAUGE 6" MAX MESH OPENING

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

PREFABRICATED UNIT : PREFABRICATED FENCE IS ACCEPTABLE OR APPROVED EQUAL.

STANDARD SYMBOL —— SF —— SF

SILT FENCE DETAIL

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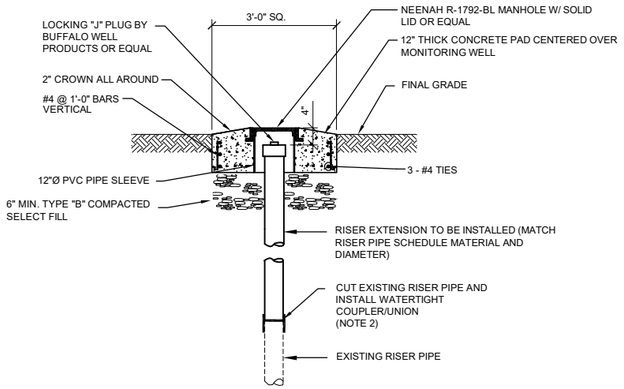
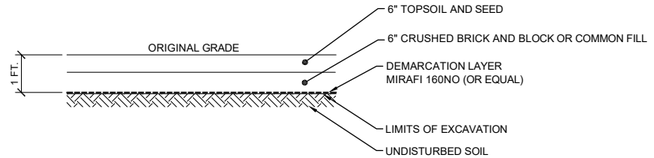


DETAIL NOTES:

1. DETAIL SHOWN HERE DEPICTS MONITORING WELL RESTORATION.
2. THE CONTRACTOR SHALL CUT THE EXISTING RISER PIPE AT A DEPTH REQUIRED TO PERFORM THE WORK SHOWN HERE OR AS DIRECTED BY THE ENGINEER.

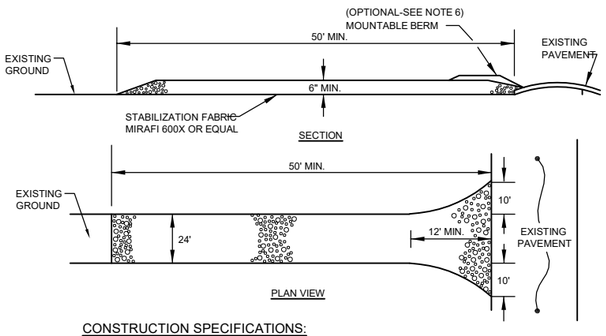
MONITORING WELL RESTORATION DETAIL

NOT TO SCALE



VEGETATIVE SOIL COVER DETAIL

NOT TO SCALE

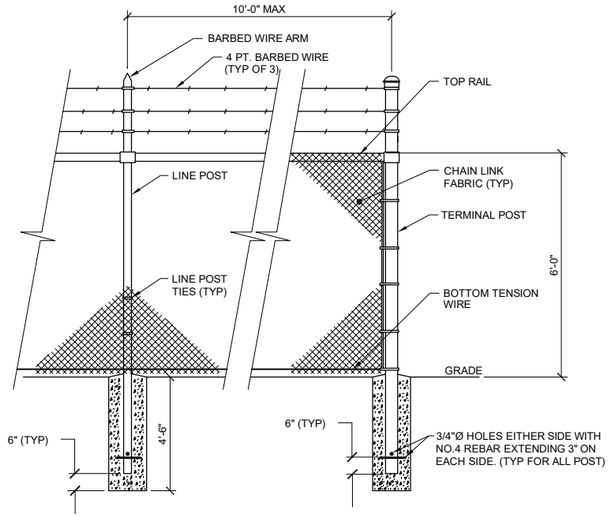


CONSTRUCTION SPECIFICATIONS:

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. STABILIZATION 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 THAT 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 POLUTION PREVENTION PLAN.

STABILIZED CONSTRUCTION ENTRANCE DETAIL

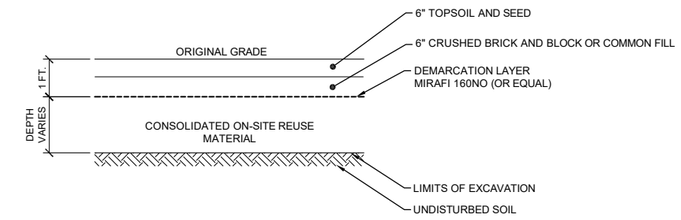
NOT TO SCALE



1. PROVIDE TERMINAL POST AT EACH TERMINATION AND CHANGE IN HORIZONTAL OR VERTICAL DIRECTION 30° OR MORE. TERMINAL POST SHALL BE PLUMB WITH TOPS PROPERLY ALIGNED.
2. ALL CHAIN LINK FENCING AND GATES TO BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.

TYPICAL FENCE DETAIL

NOT TO SCALE



CONSOLIDATION AREA - SOIL COVER DETAIL

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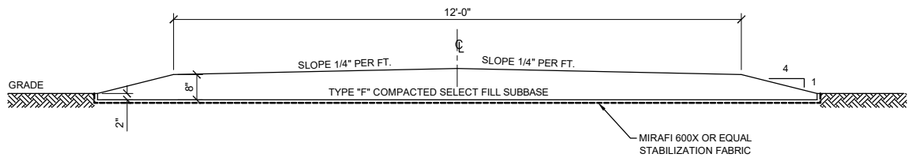

TEMPORARY ACCESS ROAD DETAIL

NOT TO SCALE

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STATE OF NEW YORK — STEPHEN W. ANAGNOST — No. 068269 — LICENSED PROFESSIONAL ENGINEER

O'BRIEN & GERE ENGINEERS, INC

AMES CORPORATION
UNION FORK & HOE
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY, NEW YORK

GENERAL

MISCELLANEOUS DETAILS

IN CHARGE OF STEPHEN W. ANAGNOST
DESIGNED BY RN CHECKED BY SWA
DRAWN BY MWH

FILE NO. 33683.69547.013

DATE APRIL 2019

G-13

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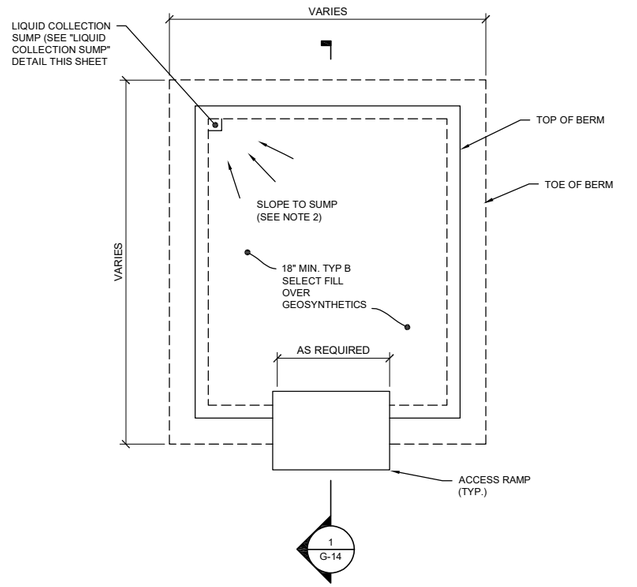
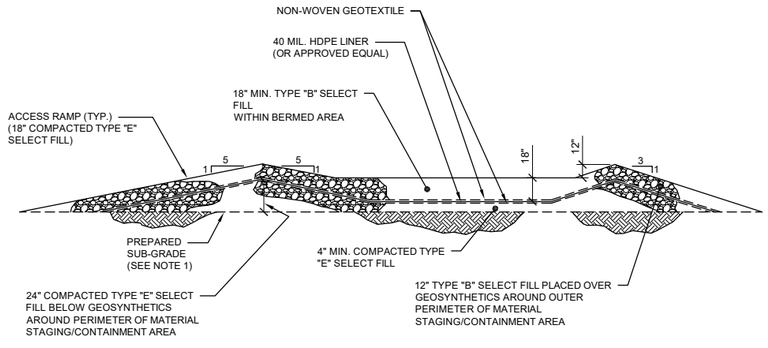


DETAIL NOTES:

1. THE SUB-GRADE SURFACE SHALL BE UNIFORM AND FREE OF DELETERIOUS MATERIALS (E.G., SHARP STONES, WOODY DEBRIS, ETC.) THAT COULD DAMAGE THE HDPE LINER.
2. MATERIAL STAGING AND CONTAINMENT AREAS (INCLUDING HDPE LINER) SHALL BE SLOPED TOWARD A COLLECTION SUMP TO FACILITATE THE REMOVAL OF LIQUIDS. LIQUIDS SHALL BE COLLECTED AND HANDLED IN ACCORDANCE WITH THE CONTRACTOR'S APPROVED "CONSTRUCTION WATER MANAGEMENT PLAN".
3. COMPACTION OF TYPE "E" SELECT FILL MATERIAL SHALL BE OF SUFFICIENT DENSITY TO PROVIDE A FIRM AND UNIFORM SURFACE. PLACEMENT AND COMPACTION OF FILL MATERIAL ABOVE GEOSYNTHETICS SHALL BE PERFORMED IN A MANNER AND USING APPROPRIATE EQUIPMENT THAT AVOIDS DAMAGING THE GEOSYNTHETICS.
4. UPON COMPLETION OF CONSTRUCTION ACTIVITIES, MATERIAL STAGING/CONTAINMENT AREAS (INCLUDING GEOSYNTHETICS AND FILL MATERIALS) SHALL BE REMOVED BY THE CONTRACTOR AND TRANSPORTED OFFSITE FOR DISPOSAL.

MATERIAL STAGING / CONTAINMENT AREA PLAN

NOT TO SCALE



SECTION

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1
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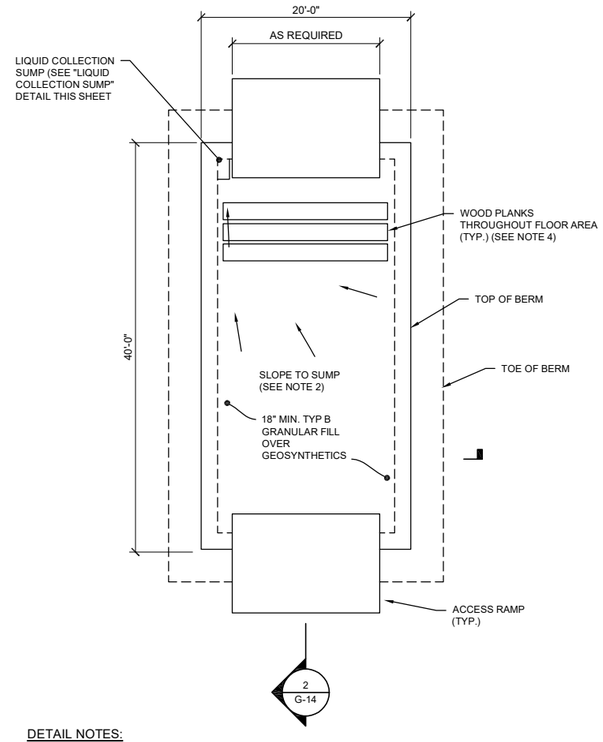
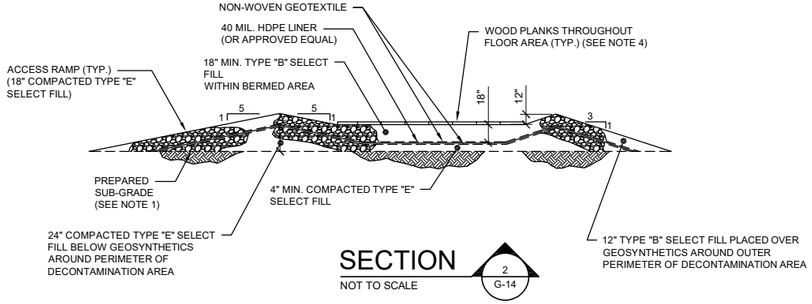


DETAIL NOTES:

1. THE SUB-GRADE SURFACE SHALL BE UNIFORM AND FREE OF DELETERIOUS MATERIALS (E.G., SHARP STONES, WOODY DEBRIS, ETC.) THAT COULD DAMAGE THE HDPE LINER.
2. THE DECONTAMINATION PAD (INCLUDING HDPE LINER) SHALL BE SLOPED TOWARD A COLLECTION SUMP TO FACILITATE THE REMOVAL OF LIQUIDS. LIQUIDS SHALL BE COLLECTED AND HANDLED IN ACCORDANCE WITH THE CONTRACTOR'S APPROVED "CONSTRUCTION WATER MANAGEMENT PLAN".
3. COMPACTION OF TYPE "E" SELECT FILL MATERIAL SHALL BE SUFFICIENT DENSITY TO PROVIDE A FIRM AND UNIFORM SURFACE. PLACEMENT AND COMPACTION OF FILL MATERIAL ABOVE GEOSYNTHETICS SHALL BE PERFORMED IN A MANNER AND USING APPROPRIATE EQUIPMENT THAT AVOIDS DAMAGING THE GEOSYNTHETICS.
4. WOOD PLANKS SHALL BE PLACED ABOVE THE TYPE "B" SELECT FILL LAYER THROUGHOUT THE WORKING SURFACE OF THE DECONTAMINATION PAD TO PROVIDE A STABLE SURFACE FOR VEHICLES AND EQUIPMENT TO BE DECONTAMINATED. WOOD PLANKS DAMAGED DURING USE SHALL BE REPLACED TO MAINTAIN A STABLE WORKING SURFACE.
5. PERSONNEL DECONTAMINATION AREAS SHALL BE OF SIMILAR DETAIL (DIMENSIONED AS NECESSARY) AND WITHOUT WOODEN PLANKS. PERSONNEL DECONTAMINATION PAD SHALL BE CONSTRUCTED WITHIN THE CONTAMINATION REDUCTION ZONE, AS ESTABLISHED BY THE CONTRACTOR. PERSONNEL SHALL BE DECONTAMINATED IN ACCORDANCE WITH SPECIFICATION 02006 "HEALTH AND SAFETY".
6. UPON COMPLETION OF CONSTRUCTION ACTIVITIES, THE DECONTAMINATION PAD (INCLUDING GEOSYNTHETICS AND FILL MATERIALS) SHALL BE REMOVED BY THE CONTRACTOR AND TRANSPORTED OFFSITE FOR DISPOSAL.

DECONTAMINATION PAD PLAN

NOT TO SCALE



SECTION

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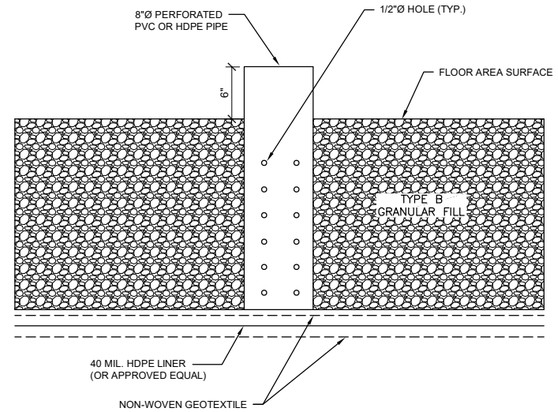

LIQUID COLLECTION SUMP DETAIL

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THIS DRAWING WAS PREPARED AT THE SCALE INDICATED IN THE TITLE BLOCK. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR IN THE TITLE BLOCK TO DETERMINE THE ACTUAL SCALE OF THIS DRAWING.

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

STATE OF NEW YORK
STEPHEN W. ANAGNOST
No. 068263
LICENSED PROFESSIONAL ENGINEER

O'BRIEN & GERE ENGINEERS, INC

AMES CORPORATION
UNION FORK & HOE
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY, NEW YORK

GENERAL

MISCELLANEOUS DETAILS

IN CHARGE OF STEPHEN W. ANAGNOST
DESIGNED BY RN CHECKED BY SWA
DRAWN BY MWH

FILE NO. 33683.69547.014
DATE APRIL 2019

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SELECT FILL:

1. TYPE B SELECT FILL (OR ALTERNATE: NYSDOT ITEM NO. 203.07)

   A. CRUSHED STONE

      1. THOROUGHLY WASHED CLEAN, SOUND, TOUGH, HARD CRUSHED LIMESTONE OR APPROVED EQUAL FREE FROM COATINGS. GRADATION FOR CRUSHED STONE SHALL BE THE SAME AS SPECIFIED FOR TYPE A MATERIAL.

         CRUSHED STONE SHALL HAVE THE FOLLOWING GRADATION BY WEIGHT:

% PASSING	SIEVE
100%	1½-INCH
0-25%	¾-INCH
0-5%	½-INCH

   B. NYSDOT MATERIAL DESIGNATION 703-0201, MEETING NO. 2 SCREEN-SIZE DESIGNATION.

2. TYPE E SELECT FILL (OR ALTERNATE NYSDOT ITEM NO. 203.07 WITH GRADATIONS IDENTIFIED IN ITEM B. BELOW)

   A. RUN-OF-BANK GRAVEL

      1. RUN-OF-BANK GRAVEL OR OTHER ACCEPTABLE GRANULAR MATERIAL FREE FROM ORGANIC MATTER WITH THE FOLLOWING GRADATIONS BY WEIGHT:

% PASSING	SIEVE
100%	1½-INCH
30-65%	¼-INCH
0-10%	NO. 200

   B. NYSDOT MATERIAL DESIGNATION 703-0203, MEETING THE ABOVE GRADATION DESIGNATIONS.

3. TYPE F SELECT FILL (OR ALTERNATE NYSDOT MATERIAL MEETING THE REQUIREMENTS OF ITEM B. BELOW.)

   A. RUN-OF-CRUSHER STONE

      1. RUN-OF-CRUSHER HARD DURABLE LIMESTONE, OR APPROVED EQUAL, HAVING THE FOLLOWING GRADATION BY WEIGHT:

% PASSING	SIEVE
100	1 ½ INCH
25-60	½ INCH
10-35	¼ INCH
2-7	NO. 200

      2. DURABILITY

         MATERIAL HAVING A MAGNESIUM SULFATE SOUNDNESS LOSS IN EXCESS OF 20 PERCENT AFTER 4 CYCLES WILL BE REJECTED AND NOT PLACED IN THE WORK.

      3. PLASTICITY INDEX

         MATERIAL HAVING A PLASTICITY INDEX IN EXCESS OF 5 WILL BE REJECTED AND NOT BE PLACED IN THE WORK.

      4. ELONGATED PARTICLES

         MATERIAL HAVING FLAT OR ELONGATED PARTICLES IN EXCESS OF 30 PERCENT BY WEIGHT OF THE PARTICLES RETAINED ON A 12.5 MM SIEVE WILL BE REJECTED AND NOT PLACED IN THE WORK. A FLAT OR ELONGATED PARTICLE IS ONE THAT HAS ITS GREATER DIMENSION MORE THAN THREE TIMES ITS LEAST DIMENSION. DETERMINATION WILL BE BASED ON A VISUAL INSPECTION BY THE OWNER'S REPRESENTATIVE.

   B. MATERIAL MEETING THE REQUIREMENTS OF NYSDOT STANDARD SPECIFICATIONS, SECTION 304 - SUBBASE COURSE; ITEM NO. 304.12, TYPE 2

COMMON FILL, TOP SOIL AND SEEDING:

1. COMMON FILL

   A. COMMON FILL SHALL BE SOIL FREE FROM FROST, STUMPS, TREES, ROOTS, SOD, MUCK, MARL, VEGETABLE MATTER OR OTHER UNSUITABLE MATERIAL.

   B. COMMON FILL SHALL BE SOIL OBTAINED FROM AN ACCEPTABLE OFF-SITE SOURCE, APPROVED BY THE OWNER BASED ON DEMONSTRATION BY THE CONTRACTOR THAT THE MATERIAL SATISFIES THE REQUIREMENTS FOR IMPORT TO THE SITE.

2. TOPSOIL

   A. TOPSOIL SHALL BE UNFROZEN, FRIABLE CLAYEY LOAM FREE FROM CLAY LUMPS, STONES, ROOTS, STICKS, STUMPS, BRUSH OR FOREIGN OBJECTS.

   B. ALL TOPSOIL SHALL BE SCREENED.

   C. ALL STONES AND ROCKS LARGER THAN 1/4-INCH DIAMETER SHALL BE REMOVED FROM TOPSOIL PRIOR TO PLACEMENT.

   D. 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	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%

3. FERTILIZER

   A. 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.

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

4. SEED MIXTURES

   A. 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.

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

Species	Lawn Area*	Unmaintained* Areas
Kentucky Bluegrass	50	20
Creeping Red Fescue	30	20
Manhattan Pennfine Ryegrass	20	60
***% by weight**		

   C. SEEDING SHALL BE PERFORMED DURING TWO SEASONAL WINDOWS: MID-APRIL TO EARLY JUNE OR THE MONTH OF NOVEMBER, UNLESS OTHERWISE APPROVED BY OBG. 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*).

5. MULCH

   A. 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.

   B. OTHER SOURCES OF MULCH MAY BE UTILIZED IF THEY ARE BIODEGRADABLE AND ARE APPROVED BY THE ENGINEER.

EXECUTION:

1. INSTALLATION

   A. ALL DISTURBED AREAS TO BE TOP-SOILED SHALL RECEIVE A MINIMUM OF 6-INCHES OF TOPSOIL. THE AREAS TO RECEIVE TOPSOIL SHALL BE GRADED TO A DEPTH OF NOT LESS THAN 6 INCHES OR AS SPECIFIED BELOW THE PROPOSED FINISHED SURFACE.

   B. THE TOPSOIL SHALL NOT BE PLACED UNTIL THE SUBGRADE IS IN SUITABLE CONDITION AND SHALL BE FREE OF FROST AND EXCESSIVE MOISTURE. ALL DEBRIS AND INORGANIC MATERIAL SHALL BE REMOVED AND THE SURFACE LOOSENED FOR A DEPTH OF 2 INCHES PRIOR TO THE PLACING OF TOPSOIL.

   C. TOP-SOILED SURFACES SHALL BE SEEDED IN ACCORDANCE WITH THIS SECTION. ALL SURFACES SHALL THEN BE FERTILIZED AND MULCHED IN ACCORDANCE WITH THIS SECTION.

2. APPLICATION PROCEDURES

   A. THE FINISHED SURFACE SHALL CONFORM TO THE LINES AND GRADES OF THE AREA BEFORE DISTURBED OR AS SHOWN ON THE CONTRACT DRAWINGS. ANY IRREGULARITIES SHALL BE CORRECTED BEFORE THE PLACEMENT OF FERTILIZER AND SEED.

   B. THE CONTRACTOR SHALL PROCEED WITH THE COMPLETE LANDSCAPE WORK AS RAPIDLY AS PORTIONS OF THE SITE BECOME AVAILABLE, WORKING WITHIN SEASONAL LIMITATIONS OF EACH TYPE OF WORK REQUIRED.

   C. THE FERTILIZER SHALL BE APPLIED UNIFORMLY AT THE RATE OF 20 POUNDS PER 1000 SQUARE FEET.

      1. FOLLOWING THE APPLICATION OF THE FERTILIZER AND PRIOR TO APPLICATION OF THE SEED, THE TOPSOIL SHALL BE SCARIFIED TO A DEPTH OF AT LEAST 2 INCHES WITH A DISC OR OTHER SUITABLE METHOD TRAVELING ACROSS THE SLOPE IF POSSIBLE.

   D. WHEN THE TOPSOIL SURFACE HAS BEEN FINE GRADED, THE SEED MIXTURE SHALL BE UNIFORMLY APPLIED UPON THE PREPARED SURFACE WITH A MECHANICAL SPREADER AT A RATE OF NOT LESS THAN 8 POUNDS PER 1000 SQUARE FEET.

      1. THE SEED SHALL BE RAKED LIGHTLY INTO THE SURFACE AND ROLLED.

      2. SEEDING SHALL BE SUSPENDED WHEN WIND VELOCITIES EXCEED 5 MILES PER HOUR OR AS DIRECTED BY THE ENGINEER.

   E. MULCH SHALL BE HAND OR MACHINE SPREAD TO FORM A CONTINUOUS BLANKET OVER THE SEED BED, APPROXIMATELY 2 INCHES UNIFORM THICKNESS AT LOOSE MEASUREMENT. EXCESSIVE AMOUNTS OF BUNCHING OF MULCH WILL NOT BE PERMITTED.

      1. MULCH SHALL BE ANCHORED BY AN ACCEPTABLE METHOD.

      2. UNLESS OTHERWISE SPECIFIED, MULCH SHALL BE LEFT IN PLACE AND ALLOWED TO DISINTEGRATE.

      3. ANY ANCHORAGE OR MULCH THAT HAS NOT DISINTEGRATED AT TIME OF FIRST MOWING, SHALL BE REMOVED. ANCHORS MAY BE REMOVED OR DRIVEN FLUSH WITH GROUND SURFACE.

   F. SEED BED SHALL BE MOISTENED FOLLOWING APPLICATION OF MULCH. A MUDDY SOIL CONDITION WILL NOT BE ACCEPTABLE.

   G. HYDRO-SEEDING MAY BE ACCEPTED AS AN ALTERNATIVE METHOD OF APPLYING FERTILIZER, SEED AND MULCH. THE SUBCONTRACTOR MUST SUBMIT ALL DATA REGARDING MATERIALS AND APPLICATION RATES TO OBG FOR REVIEW.

   H. IF HYDROSEEDING IS USED, HYDROMULCH SHALL BE PROFILE PRODUCTS HYDRO-BLANKET BONDED FIBER MATRIX, OR APPROVED EQUIVALENT, APPLIED AS PER THE MANUFACTURERS RECOMMENDATIONS.

SLOPE GRADIENT	APPLICATION RATE
< 4H TO 1V	2500 LB/AC
> 4H TO 1V AND < 3H TO 1V	3000 LB/AC
> 3H TO 1V AND < 2H TO 1V	3500 LB/AC
> 2H TO 1V AND < 1H TO 1V	4000 LB/AC
> 1H TO 1V	4500 LB/AC

   HYDROMULCH AND SEED SHALL BE APPLIED IN TWO PASSES. THE FIRST PASS SHALL INCLUDE ALL OF THE SEED AND THE MINIMUM HYDROMULCH FOR VISUAL METERING. THE SECOND PASS SHALL INCLUDE THE REMAINING HYDROMLUCH.

   I. SEEDED AREAS SHALL BE WATERED AS OFTEN AS REQUIRED TO OBTAIN GERMINATION AND TO OBTAIN AND MAINTAIN A SATISFACTORY SOD GROWTH. WATERING SHALL BE IN SUCH A MANNER AS TO PREVENT WASHING OUT OF SEED.

   J. THE STAND OF GRASS RESULTING FROM THE SEEDING SHALL NOT BE CONSIDERED SATISFACTORY UNTIL ACCEPTED BY OBG. AN ACCEPTABLE LAWN SHALL HAVE A MINIMUM OF 90% OF THE AREA COVERED WITH PLANTS OF THE SPECIFIED SEED MIX AND NO AREAS GREATER THAN ONE FOOT SQUARE OF BARE SURFACE. IF AREAS ARE DETERMINED TO BE UNACCEPTABLE, THE REMAINING MULCH WILL BE REMOVED AND ALL AREAS SHALL BE RESEEDED, RE-FERTILIZED AND RE-MULCHED AS PER THE ABOVE APPLICATION PROCEDURES AT THE CONTRACTOR'S EXPENSE.

3. MAINTENANCE

   A. THE MAINTENANCE PERIOD SHALL BEGIN IMMEDIATELY AFTER PLANTING OF LANDSCAPE MATERIALS.

   B. GRASS AREAS SHALL BE MAINTAINED FOR THE PERIODS REQUIRED TO ESTABLISH AN ACCEPTABLE GROWTH, BUT NOT LESS THAN 60 DAYS AFTER DATE OF SUBSTANTIAL COMPLETION. IF SEEDED IN THE FALL AND NOT GIVEN A FULL 60 DAYS OF MAINTENANCE, OR IF NOT CONSIDERED ACCEPTABLE BY OBG AT THAT TIME, CONTINUE MAINTENANCE DURING FOLLOWING SPRING UNTIL ACCEPTABLE, GRASS STAND IS ESTABLISHED.

   C. SEEDED AREAS SHALL BE WATERED AS OFTEN AS REQUIRED TO OBTAIN GERMINATION AND TO OBTAIN AND MAINTAIN A SATISFACTORY SOD GROWTH. WATERING SHALL BE IN SUCH A MANNER AS TO PREVENT WASHING OUT OF SEED.

NO.	DATE	REVISION	INIT.
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SCALED AS NOTED

O'BRIEN & GERE ENGINEERS, INC

AMES CORPORATION
UNION FORK & HOE
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY, NEW YORK

GENERAL

SPECIFICATIONS

IN CHARGE OF STEPHEN W. ANAGNOST
DESIGNED BY RN CHECKED BY SWA
DRAWN BY MWH

FILE NO. 33683.69547.015
DATE APRIL 2019

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Health and Safety Plan

Union Fork & Hoe Site
Environmental, Health & Safety Plan

Ames Corporation
Union Fork & Hoe Site
Frankfort, New York
Site No. 622011

April 2019

OBG
Part of Ramboll

REVISION SUMMARY

Revision Date	Description of Changes	Reason for Change
	(Section title or number – description)	(individual name or title, company / agency name, document reference and date)

PREFACE

This document describes the minimum anticipated protective measures necessary for worker health and safety during the activities associated with this project. OBG employees and direct OBG subcontractors must read and understand the contents of this document. We do not intend the contents of this document to cover all situations that may arise nor to waive any provisions specified in Federal, State, and local regulations or site owner / contractor health and safety requirements. During this project, if any task occurs that is not covered in this Environmental, Health & Safety Plan, the individual responsible for that task will inform OBG's Corporate Health & Safety Department. Site personnel affected by the new activity and its associated hazards must ensure that they follow necessary safety procedures and use appropriate protective equipment.

Subcontractors are accountable for the health and safety of their own employees. No requirements or provisions within this plan shall be construed by subcontractors as an assumption by OBG, or Ames Corporation (Ames) of the subcontractor's legal responsibilities as an employer.

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LIST OF ATTACHMENTS

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LIST OF ACRONYMS

AIHA	American Industrial Hygiene Association
Ames Corporation	Ames
CCO	Certified Crane Operator
DOT	Department of Transportation
EHASP	Environmental, Health & Safety Plan
HSE Manual	Health, Safety, and Environment Manual
JHA	Job Hazard Analyses
JSA	Job Safety Analyses
MSHA	Mine Safety and Health Administration
NIOSH	National Institute for Occupational Safety and Health
NYSDOH	New York State Department of Health
OSHA	Occupational Safety and Health Administration
PPE	personal protective equipment
PTP	Daily Pre-Task Planner
SDS	safety data sheets
SSL	Site Safety Leader
SWP	OBG Site Work Permits

1. INTRODUCTION

This Environmental, Health & Safety Plan (EHASP) has been developed to outline the requirements to be met by OBG employees, direct subcontractors of OBG (if any), and OBG visitors while performing activities outlined herein for the Remedial Action activities at the Frankfort New York Union Fork and Hoe Site. This EHASP describes the responsibilities, training requirements, protective equipment and safety procedures necessary to minimize the risk of injury, fires, explosion, chemical spills and material damage incidents related to construction activities. This EHASP incorporates by reference the Occupational Safety and Health Administration (OSHA) regulations contained in 29CFR1910 and 29CFR1926, Also, incorporated by reference are the EPA Standard Operating Safety Guides, Publication 9285.1-03.

The requirements and guidelines in this EHASP are based on a review of available information and data, and an evaluation of identified on-Site hazards. This EHASP will be reviewed with Site personnel and will be available on-Site. OBG employees, direct subcontractors, and visitors will report to the on-Site OBG Site Safety Leader (SSL) in matters of health and safety. While the SSL is responsible for overseeing compliance with this EHASP and stopping work when necessary, the Project Manager is responsible for implementation of this EHASP into daily Site activities.

OBG employees and subcontractors must review this safety plan prior to beginning work and sign the Pre-Work Briefing Form (*Attachment 1*) or equivalent.

> ***All project personnel have the right to stop work if they believe safety controls are not adequate for job Site hazards or if new job Site hazards are identified for which safety controls have not been clearly established.***

1.1 COVERED PERSONNEL

This EHASP is specifically intended for OBG employees, direct subcontractors, and visitors who will be conducting activities within the defined scope of work in specified areas of the Site. OBG will inform Site personnel of identified safety and health hazards as outlined in this EHASP. OBG employees, subcontractors, and visitors are responsible for complying with government regulations, Site owner policies and this EHASP as it relates to their scope of work. This EHASP may be provided to interested third parties for informational purposes. Subcontractors and other contractors that are working directly for the client shall have their own EHASP or JSA for the specific work they will be performing.

1.2 EHASP REVIEW AND MODIFICATION

Future actions that may be conducted at this Site and unexpected conditions that may be encountered may require the modification of this EHASP. The SSL will recommend modifications to this EHASP and the assigned OBG Corporate Health and Safety Project Manager will have the responsibility of approving them. Modifications to this EHASP shall be outlined on the **Revision Summary** page.

This EHASP may be modified for new or additional scopes of work by directly revising this EHASP and saving a revised copy OR by developing supplemental Job Safety Analyses (JSAs) or equivalent safety planning documents as outlined in "**Pre-Work Safety Planning**" section of this EHASP. JSAs may modify air sampling, personal protective equipment and other safety precautions in this EHASP as necessary to safely perform new work activities. Direct Subcontractors will be required to do the same for their project EHASP's and JSA activity.

1.3 SITE DESCRIPTION

The Union Fork & Hoe Site is located in a suburban area in the Town of Frankfort, Herkimer County. The site consists of a rectangular-shaped area of approximately 29 acres along East Main Street. The site is approximately one-half mile southwest of the Mohawk River.

The site is currently vacant with no structures. All site buildings were demolished in 2012 after a fire destroyed several buildings in the northern portion of the site. The majority of the site is currently covered by building slabs and open areas with some more densely vegetated areas along the site boundaries.

The site has been used for industrial purposes for over 100 years. In the late 19th and early 20th centuries, railroad operations took place in the central portion of the site. For most of the 20th century, the site was used for the manufacture of hand tools such as hoes, shovels, and forks. Manufacturing processes included forging, stamping, painting, varnishing, and milling. In 2006, the site was acquired by Ames, and manufacturing operations were discontinued.

1.4 SCOPE OF WORK

- Site preparation activities;
  - Install erosion and sedimentation controls
  - Install temporary fencing and gates
  - Install access roads
  - Establish Site and road signage
  - Mobilize temporary support facilities (*e.g.* power, portable toilets, office, etc.)
  - Mobilize and set up heavy equipment, grout plant and materials;
- Clearing Site of trees and brush;
- Monitoring well abandonment;
- Pre-excavation characterization of soil
- Field-scale pilot testing to demonstrate that soil exceeding hazardous waste characteristics for metals can be stabilized to render it non-hazardous.
- Excavation, *ex-situ* stabilization, off-Site disposal of source material soils.
- Excavation, consolidation of shallow soil and off-Site excavations
- Restoration of off-Site excavations (as required)
- Construction of cover system
- Decontamination; and
- Demobilization.

1.5 PROJECT PERSONNEL AND ORGANIZATION

The following are key project personnel with respect to OBG's scope of work. Project personnel will be updated as necessary for changes to project staffing. Refer to the **section called "Safety Training & Competent Persons"** for a description of competent persons that may be required depending on the scope of work and work methods. The responsibilities of general "Safety Competent Persons" for OBG subcontractors are outlined in the "**Subcontractor Safety Competent Person**" section of this EHASP.

Key Project Personnel	
OBG	
Steve Anagnost	Project Manager
TBD	Construction Manager/Site Safety Leader
TBD	Site Safety Leader

Key Project Personnel	
Steven Thompson	Corporate Health and Safety Project Manager
Jeffrey Parsons	OBG Manager of Corporate Health & Safety
Construction Subcontractor	
TBD	Project Manager
TBD	Site Supervisor/Safety Competent Person
TBD	Project Safety Manager

1.6 RESPONSIBILITIES

As directed in this EHASP, general compliance and EHASP implementation will generally be addressed first by the OBG SSL with support from Project Management. Direct Subcontractors must identify qualified Safety Competent Persons who must be on Site for all field activities. **All project personnel have the authority to stop work if a life-threatening condition or behavior is observed.**

1.6.1 OBG Project Manager

The Project Manager is responsible for providing management support for health and safety. He or she will provide sufficient authority and resources to the field crew and the SSL to fully implement health and safety requirements as outlined in this EHASP, contract documents, and regulatory requirements. The Project Manager will provide this support to entire project activities.

1.6.2 OBG Construction Manager

The Site Coordinator is responsible for coordinating project requirements in the field. The Site Coordinator oversees daily activities and is, therefore, responsible for implementing health and safety requirements daily in the field. The Site Coordinator is also responsible for conducting daily safety inspections and coordinating timely correction of observed deficiencies with any contractor or subcontractor. The Site Coordinator shall be qualified to also serve as the OBG SSL with respect to OBG's scope of work.

1.6.3 OBG Corporate Health and Safety Project Manager

The Corporate Health and Safety Project Manager advises project personnel on matters of health and safety on the Site. The OBG Corporate Health and Safety Project Manager will assist the OBG Manager of Corporate Health & Safety in the implementation of the Corporate Health & Safety program. General support tasks related to the implementation of the OBG Corporate Health & Safety Program include safety audits, air monitoring, training, accident investigations, etc. The Health and Safety Project Manager makes regular Site visits to assess compliance with requirements in this EHASP and evaluate overall safety performance. Inspections will periodically be conducted to monitor worker health and safety and will address issues such as subcontractor pre-qualification, Site safety orientation programs and documentation, implementation of permit programs (confined space, hot work, etc.) safety planning, accident investigations, adequacy of personal protective equipment (PPE), air monitoring needs, and general construction safety issues.

1.6.4 OBG SSL

The SSL provides Site-level leadership and oversight for project safety. The SSL has the authority to stop work if any operation threatens Site workers, the public, or environment. The SSL is accountable to the Health and Safety Project Manager and the Project Manager regarding issues of safety. In general, responsibilities of the SSL include, but are not limited to, the following:

- Conducting and documenting safety inspections on a weekly basis and conducting daily safety walkthroughs
- Conducting daily safety pre-work safety meetings and documenting meetings on a daily Pre-Task Planner (or equivalent)
- Selection and inspection of personal protective equipment (PPE)
- Conducting periodic surveillance to evaluate effectiveness of the EHASP
- Monitoring on-Site hazards and conditions and recommending modifications to the EHASP when new hazards are observed
- Informing the Project Manager of observed safety deficiencies requiring corrective action
- Having knowledge of emergency procedures, evacuation routes, and telephone numbers for emergency services
- Posting directions to the hospital and telephone numbers for emergency services
- Coordinating emergency medical care as necessary
- Immediately notify (via phone call) of an incident followed by submittal of written accident/incident reports to a Ames Project Representative and the OBG Corporate Health and Safety Project Manager within 24 hours.
- Review JSAs for all high-risk construction activities
- Reviewing and maintaining safety documentation and reports

1.6.5 OBG Manager of Corporate Health & Safety

The OBG Manager of Corporate Health & Safety will make safety-related recommendations regarding the work area to the SSL and engage ongoing support from OBG Corporate Safety Department as necessary. General support tasks related to the implementation of the OBG Corporate Health & Safety Program include safety audits, air monitoring, training, accident investigations, etc. Inspections will periodically be conducted to monitor worker health and safety and will address issues such as subcontractor pre-qualification, Site safety orientation programs and documentation.

1.6.6 Subcontractor Safety Competent Person

All direct subcontractors under contract to OBG are covered by this EHASP and will be required to designate a Subcontractor Safety Competent Person. The Safety Competent Person must be the Superintendent/Foreman unless the project is sufficiently large to require a full-time Safety Competent Person. A Safety Competent Person must be on Site always when the subcontractor has employees performing work for OBG and will have the same responsibilities as the OBG SSL within the subcontractor's scope of work. This individual must possess a sound working knowledge of pertinent OSHA regulations, this EHASP, and other applicable safety requirements related to their scope of work. The Safety Competent Person will ensure timely correction of safety deficiencies identified by OBG. Subcontractors may request assistance from the OBG Corporate Health & Safety Department. An Alternate Safety Competent Person may also be designated as a backup. General Safety Competent Persons (and alternates) must be designated on the "Key Project Personnel" table in Section 1.5 of this EHASP.

> ***NOTE: A Direct Subcontractor must provide a full-time Safety Competent Person when 15 or more field workers are on-Site. Subcontractor's Safety Competent Person must be acceptable to OBG.***

Regulatory agencies, facility owner, and OBG may also require specialized competent persons to provide oversight of specific activities. These persons are designated in Section 2.1.5-Safety Training & Competent Persons of this EHASP. General Safety Competent Persons as described above may also be designated as the competent person any number of these specific activities if qualified.

2. SITE SAFETY AND CONTROL PROCEDURES

This EHASP incorporates by reference the OSHA requirements in 29 CFR Part 1910, 29 CFR Part 1926, and the OBG Health, Safety, and Environment (HSE Manual). A copy of the OBG HSE Manual will be available on Site (electronic or hard copy are acceptable) for reference. Direct Subcontractors must review the OBG Site EHASP to ensure they meet or exceed OBG corporate requirements as well as all regulations applicable to their scope of work. Key Site safety procedures applicable to OBG employees and OBG Direct Subcontractors are described in more detail in this section.

2.1 SITE SECURITY AND CONTROL

The elements of Site control include restricting access to the Site to persons until they have the proper safety training and have received a Site safety orientation from OBG, and have reviewed the information in this EHASP at a minimum. All direct contractors and subcontractors to OBG shall have an approved EHASP or JSA for the work they will be doing prior to commencing the actual work.

2.1.1 Subcontractor Prequalification

Subcontractors must be prequalified annually using OBG's Pre-Qualification Process (or Client Equivalent). Subcontractors must achieve a Pass (A, B, or C) rating or a "Conditional" rating. Subcontractors with a conditional rating must implement additional safety requirements outlined by the conditions specified by OBG Corporate Health & Safety Department and the Project Manager.

2.1.2 Citizenship

All project personnel must be U.S. citizens or legally be authorized to work in the U.S. with the proper work visas.

2.1.3 Language

All project personnel must understand and speak English at a "conversational" level. Subcontractors are responsible for all costs or delays incurred if non-English speaking employees are banned from the Site. OBG will make the final determination if a person is sufficiently fluent in English. Interpreters may be used if authorized by OBG. When authorized, a minimum of one interpreter will be required for every 10 non-English speaking personnel always while work is on Site.

2.1.4 Drug and Alcohol Testing

Refusal to take a drug or alcohol test when directed in accordance with OBG policies will be treated as a "positive" test and will result in immediate removal from Site.

Additional drug and alcohol testing may be conducted during this project as listed below:

- **Reasonable Cause** – A Supervisor must make the decision that a person exhibits symptoms and behavior that "more probably than not" is the result of a controlled substance.
- **Post-Accident** – Similar to Reasonable Cause, testing may be performed following an accident if the accident may have been avoided by a "reasonably alert" action and substance abuse cannot be discounted as a contributing factor.
- **Return to Work** – This is additional "periodic" testing that is required for up to one year following return to work.

2.1.5 Safety Training and Competent Persons

Project personnel must be properly trained for the type of work being performed and in accordance with OSHA 29CFR1926 and 1910.

Specialized safety training is required for working with asbestos, lead, and hazardous waste. Other training is required for tasks that include, but not limited to, confined space entry, fire prevention and control, lockout/tagout, hazard communication, fall protection, forklift/lull license, NFPA 70E (energized electrical), crane operator license or Certified Crane Operator (CCO). Subcontractors will designate in writing to OBG their employees who are trained and authorized to operate heavy equipment including manlifts, excavators, front loaders, dozers, demolition hammers, shears, grapples, dump trucks, pulverizes, and skid steer. A company letter is sufficient or copies of current licenses/certificates.

As outlined in **Section 1.6.4 – Subcontractor Safety Competent Person**, subcontractors are also required to designate one person as a general Safety Competent Person who must be on Site during all Site activities. The Safety Competent Person must have a thorough understanding of OSHA regulations. An Alternate Safety Competent Person may also be designated. These individuals are designated in the **Key Project Personnel table**. The EHASP will be updated as competent person designations change.

Other task-specific competent persons must be designated in subcontractor safety plans or JSAs for the following activities and be on Site as necessary to support activities performed under their oversight. The following table lists various types of Competent Persons that may be applicable. The list is not all-inclusive and will be revised as necessary by on changes to project requirements for support by Competent Persons. In addition to written designation, the subcontractor must submit evidence of competency when requested by OBG.

Competent Person Designations		
Type	**Comment**	**Designated Person***
Excavation Competent Persons	Required during all excavation activities. The Competent Person must have formal classroom training documented on a training certificate acceptable to OBG as well as excavation experience.	TBD by Contractor prior to start of excavation activities
Demolition Competent Persons	Perform pre-demolition "engineering survey" in support of a demolition plan. During demolition, the competent person must perform regular inspections to detect hazards resulting from weakened or deteriorated floors, or walls, or loosened material.	NA
Scaffolding Competent Persons	Supervise the erection and dismantling of scaffolds and perform daily inspections while scaffolds are in use.	NA
Fall Protection Competent Persons	Oversee implementation of fall protection systems including anchoring personal arrest equipment.	NA
Confined Space Competent Persons	Oversees implementation of confined space entry procedures. Determines if a confined space is permit or non-permit.	TBD by Contractor prior to ANY confined space activities on-Site
Welding & Cutting Competent Persons	Must determine if coated surfaces are flammable and must also assess combustibility of underlying surfaces and residual dust	TBD by Contractor prior to ANY hot work being performed on-Site
Crane & Hoist Competent Persons	Must inspect cranes and hoists prior to use. Will usually be the operator.	TBD by Contractor prior to any individual crane lift operations
Rigging Equipment Competent Persons	Inspect rigging equipment prior to use. Training must be current and meet the Nov. 2010 updated OSHA requirements for Rigging Persons.	TBD by Contractor prior to the use of ANY rigging on-Site
Crane Signaling Competent Persons	Training must be current and meet the Nov. 2010 updated OSHA requirements for mobile crane Signaling Persons.	TBD by Contractor Prior to any individual crane lift operation

Competent Person Designations		
Type	**Comment**	**Designated Person***
Ladder Competent Persons	Periodically inspect ladders	TBD by Contractor prior to the use of ANY ladders on-Site
Qualified Electrical Worker	Must have training required by NFPA 70E for "Qualified Persons" and is a person on Site who will prepare Energized Electrical Work Permits.	TBD by Contractor Prior to any Energized Electrical Work
Powder Actuated Tool Operator	Training certification to safely use Hilti Guns, Ramset Guns, and similar powder actuated tools	NA
*** TBD = To Be Determined / NA = Not Applicable or Not Anticipated**		

2.1.6 OBG Project Safety Orientation

All project personnel must complete a Project Safety Orientation to ensure understanding of OBG's safety requirements and how those requirements have been adapted or modified to comply with the facility owner requirements. Upon completing a Project Safety Orientation, project personnel will sign a Pre-Work Briefing Form (Attachment 1 or equivalent). The Project Safety Orientation will focus on hazards and the required hazard controls as outline in the EHASP and/or Pre-Work JSA and will at a minimum include:

- Applicable Sections of the EHASP
- Pre-Work JSAs
- Associated Exhibits, Permits, and Attachments identified on (and attached to) the Pre-Work JSA

2.1.9 Entry/Exit Log

OBG shall require all employees, direct subcontractors, and visitors to sign in and out on an Entry / Exit Log ***(Attachment 2 or equivalent)*** located in the OBG project office.

2.1.10 Authorized Project Personnel

At a minimum, authorized personnel who will be granted unescorted access to the project include employees from OBG and appropriately pre-qualified subcontractors that have successfully completed the following:

- OBG Project Safety Orientation
- Hazard Communication training in accordance with 29 CFR 1910.1200(h) and 29 CFR 1926.59 (incorporates requires of 29 CFR 1910.1200 by reference); and,
- Copies of certificates of completion of the training identified above shall be maintained at the Site for all personnel engaged in activities with the potential exposure to hazardous waste. At Sites that do not have a permanent or semi-permanent installation, such as a field trailer, it acceptable to maintain the training certificates off-Site if the records can be accessible via electronic means within 24 hours.

2.1.11 Pre-Work Safety Planning (JSAs, Daily Pre-Task Planners, and Site Work Permits)

Safety planning is a critical component of OBG's approach to mitigating safety-related risk. Safety planning conducted on this project may require different forms than normally used by OBG project teams but the process is still consistent as outlined in the table below.

When Completed	"Typical" OBG Document	Subcontractor	Purpose of Document
Pre-Mobilization	EHASP	EHASP (no change)	Overall project safety requirements. Integrate Subcontractor and OBG requirements

When Completed	"Typical" OBG Document	Subcontractor	Purpose of Document
Prior to Starting Work on Major Tasks	OBG JSA templates	Subcontractors JSA	Identify hazards and safety controls for major tasks. Identify training, competent person, and permit requirements. Reviewed and updated periodically during project status and coordination meetings.
Daily for Each Crew Working on Each Major Task	OBG Daily Pre-Task Planner	Subcontractors Daily Pre-Task Planner	Focus on specific hazards and controls for the day's scope of work.
[Permits] Prior to High Hazard Work Tasks	Confined Space Entry Energized Electrical Work Hot Work	Subcontractor Designated forms	Establish safety requirements and oversight of highly hazardous activities. These are issued daily unless otherwise outlined below.

Safety planning occurs at different stages of the project and begins with the development of an EHASP which provides overall structure to a specific project's safety. Additional requirements for Job Hazard Analyses (JHAs), Daily Pre-task Planning, and Hazardous Work Permits are outlined below.

Job Safety Analysis (JSA)

JSAs are prepared prior to starting work on major tasks and will use the OBG-required JSA template in ***Attachment 7 or approved equivalent***. Electronic copies of the JSA template are available from OBG. Although OBG may assist in preparing initial drafts of JSA templates, it is the responsibility of the subcontractor performing the work to complete the JSA and update the JSA at a frequency requested by the OBG Project Manager or SSL. Subcontractors should be prepared to discuss changes or updates to JSAs on a weekly basis based unless otherwise directed. Changes to the JSA should be based on any changes to equipment, tools, work methods, Site conditions, or other changes which could affect risk and require modifications to safety controls. The minimum JSAs anticipated for this project are listed in the ***"Hazard Evaluation"*** section of this EHASP along with guidance on specific tasks and hazards which must be identified in JSAs.

Daily Pre-Task Planner (PTP)

Daily Pre-Task Planners are prepared (or reviewed) by subcontractor Safety Competent Persons using the OBG-required Daily Pre-Task Planner template in ***Attachment 3 or approved equivalent***. Daily Pre-Task Planners will focus on the hazards and controls for specific work tasks being conducted that day and the specific area in which personnel will work during that day. Most importantly, Daily Pre-Task Planners will describe "how" safety controls outlined in this EHASP and applicable JSAs will be implemented for that day's tasks. For example, Daily Pre-Task Planners will specifically instruct the work crew where to tie-off if personal fall arrest equipment is required during the day.

Subcontractor Superintendents or Safety Competent Person will prepare and review Daily Pre-Task Planners with each work crew each day. Crew members will sign the Pre-Task Planner after attending the review. Daily Pre-Task Planners may not be placed on a table with the expectation that Site personnel will thoroughly read and sign them prior to work.

> ***NOTE – High Hazard Power Tools must only be used if safer alternatives are not feasible and must be clearly identified on JSAs/Pre-Task Planners with applicable safety controls listed. Refer to the "High Hazard Power Tools" section of this EHASP.***

Daily Pre-Task Planners will also be reviewed by the OBG SSL or Site Superintendent prior to work.

OBG Site Work Permits (SWPs)

OBG requires that Site Work Permits (SWPs) be issued for the tasks listed below.

> ***NOTE – All persons must be trained and authorized by OBG prior to completing SWPs. All permits are to be filled out correctly before any work is to be performed. Follow proper procedures for each permit, and notify every party involved or affected by the work to be performed prior to the commencement of work.***

- *Hot Work Permit – Required for any type of hot work. Following the conclusion of hot work, 30 minutes of fire watch. All required air monitoring results, must be recorded on the hot work permit. Permits only issued at the time of work no permits may be completed in anticipation of Hot Work. All responsible parties must be trained in their roles and responsibilities.*
- *Confined Space Permit – Must be used with all permit required confined spaces, and the air monitoring log in the back must be filled out throughout the duration of the confined space work. Contact must be made and maintained with Site security via two-way radio. Follow all protocols before entering a confined space, crew must poses documented PRCS training.*

> ***Note: In order to re-classify or classify a confined space, you must have the required Confined Space Entrant, Attendant, and Supervisor Training.***

- *Energized Electrical Work Permit [DAILY] Used when working on energized electrical systems when de-energizing is not possible. Approval must be made prior.*

2.1.12 Site Layout & Work Zones

The visible delineation of the Construction Area is required to prevent unauthorized persons from entering. Physical markings of the perimeter of the Construction Areas can be accomplished through the use of fencing, wood barricades, rope, barricade tape, etc. Existing structures or land features may also be utilized where appropriate.

The use of barricade tape for outdoor work zones that will be setup for greater than 24 hours is not permitted.

Warning signs will be posted on at the perimeter of Site to alert Site personnel and the public. Signs shall be approximately 10 inches by 14 inches in size and of aluminum or steel construction for outdoor use. The Site perimeter must be posted but with a sign that states "***DANGER – CONSTRUCTION AREA – UNAUTHORIZED PERSONNEL KEEP OUT"*** (Emedco # 42525) or acceptable alternate. Work Areas will be established within the plant and designated with signage appropriate to the work being performed within the area. This is intended to prevent the accidental entry of plant personnel into potentially hazardous work areas.

2.2 DAILY SAFETY MEETINGS

Daily safety meetings are documented using the Daily Pre-Task Planner when only OBG personnel are on-Site, otherwise OBG SSL will attend the morning safety meeting of the work team which was previously outlined in the ***Pre-Work Safety Planning*** section of this EHASP.

2.3 SAFETY AUDITS AND INSPECTIONS

OBG requires daily review of construction work areas by Supervisors/Foremen which they should document in their daily logs or journals. The on-Site OBG SSL will conduct weekly inspections that will be documented on OBG's Safety Short Form Audit Checklist (***Attachment 5***) or an electronic equivalent.

Direct Subcontractor Safety Competent Persons designated by OBG subcontractors will also conduct daily inspections of their work areas which are documented on a checklist or form deemed by OBG to be suitable for the size and complexity of their work.

The OBG Corporate Health and Safety Project Manager will conduct Safety Inspections on a regular basis throughout the duration of the project or more often as needed.

The OBG Corporate Health and Safety Project Manager will provide additional support on-Site for High Risk Activities.

NOTE – In addition to weekly work area inspections by OBG and subcontractors, OBG Corporate EHS may conduct periodic safety inspections or Audits.

2.4 PERSONAL PROTECTIVE EQUIPMENT (PPE)

Specific PPE requirements are outlined below but a general dress code for any work areas includes long pants that must cover top of ANSI-approved protective toe leather work shoe or boot, hard hat, safety glasses with rigid side shields, and Class II Safety Vests Hi-Vis Yellow in color. Shirts must have at least 4 inches of sleeve. Long-sleeve shirts may be required at specific locations or for certain tasks. L***eather or Mechanics Gloves –are required for all tasks unless glove use is exempted on an approved OBG JSA or PTP, Cut Resistant Gloves (Class 3 or greater) are required when handing sharp objects or cutting tools.*** Direct Subcontractors must specify additional PPE as appropriate for specific work methods, tools, and equipment covered by their safety plans. Additional PPE that may be necessary is summarized in the following paragraphs.

2.4.1 Head Protection

All OBG project personnel are required to wear approved hard hats that meet ANSI Z89.1-2003. Hard hats must be in good condition and may be worn with brim to the rear when the harness is oriented properly, this however is not the preferred method of wearing a hardhat as it leaves the area above the eyes unprotected.

2.4.2 Eye and Face Protection

Project personnel are required to wear approved ANSI Z87.1-2003 safety glasses with rigid side shields. Chemical goggles are required during other activities with a potential for chemical splashes to the face. Face shields will be required when performing certain tasks (*e.g.* chipping, sawing, and handling chemicals or corrosive liquids) Face shield must be worn over safety glasses or chemical goggles.

2.4.3 Hearing Protection

Approved hearing protection must be worn as specified in all posted areas and while working with or around high noise level producing tools, machines or equipment.

OSHA Guidance: "If you have to raise your voice to be heard 3-5' away you need hearing protection"

2.4.4 Fingers, Hand, Wrist and Arm

Gloves suitable for the job being performed shall be worn shall be worn always. Tool holders should be used when driving stakes and wedges or when holding star drills, bull pins or similar tools. ***Fixed blade knives (pocket knives, razor knives, and box cutters) are prohibited and safety knives or scissors must be substituted in their place.***

Exceptions to this policy must be approved by the OBG Corporate Health and Safety Project Manager via a JSA which clearly defines why a safer tool cannot be substituted and what safety measures will be implemented to prevent injury.

2.4.5 Foot Protection

All project personnel are required to wear ***Steel Toe safety footwear (or composite)*** that is in accordance with current ASTM standards. Rubber boots with safety toe protection are required on jobs subject to chemically hazardous conditions or wet conditions.

2.4.6 High Visibility Clothing

All project personnel are required to wear high visibility clothing including a vest, shirt, or jacket. ***High visibility clothing must be predominantly safety yellow in color and must be ANSI Class II.***

2.4.7 Respiratory Protection

Respirators (including SCBAs and airlines), if used by project personnel, must meet National Institute for Occupational Safety and Health (NIOSH)/Mine Safety and Health Administration (MSHA) standards. Respirators must be inspected regularly and stored in a dust-free container. Employees required to wear a respirator must have a physician's approval and be fit tested within the last year. Employees must be clean shaven in the facial area to obtain an acceptable seal. Subcontractors must keep respirator training, fit testing, and medical clearance documentation on Site for the duration of the project and available for OBG inspection. The following table summarizes common respiratory hazards.

Respiratory Protection		
Contaminant Chemical	**Minimum Respirator Type**	**Source of Exposure**
Silica	Respirator with N100 or P100 filter	During cutting or pulverizing concrete
Carbon monoxide	Supplied Air (SCBA or Airline)	Engine combustion byproduct in enclosed or confined spaces
Metal dust	Respirator with N95 or P95 filters	Settled dusts getting airborne, grinding metals or painted surfaces, welding, or torch cutting
Metal fumes	Respirator with N100 or P100 filters	Welding or torch cutting

2.4.8 Skin

If the possibility of skin contact with chemicals, lead, asbestos or other hazardous material exists, then protective clothing will be worn.

- ***Tyvek®*** (or equivalent) – asbestos, lead, or other dust exposures
- ***Tychem QC®*** (poly-coated Tyvek®) or **Tychem SL®** (Saranex®) or equivalent – for liquid chemical exposures including liquids contaminated with PCBs
- ***Tychem SL®*** (Saranex®) ***with hood and boots*** (or equivalent) – for use with SCBAs during emergency response involving chemical releases

2.4.9 PPE Summary

In general, PPE is divided into four broad categories as outlined below.

- ***Level D PPE*** – Minimum PPE for Level D includes hard hat, safety glasses with side shield, safety shoes/boots, cut-resistant gloves, and high visibility vest. Additional PPE that may be required includes hearing protection, face shield, fall protection harness and lanyard, and Kevlar chaps and jacket (if using a chainsaw).

- » ***Modified Level D PPE*** – Level D PPE plus protective clothing to prevent skin contact or contamination of support zone areas. Additional information on chemical protective clothing, chemical resistant gloves, and face shields is described in previous paragraphs of the PPE section of this EHASP.
- » ***Full Modified Level D PPE*** consists of Level D PPE plus coveralls, nitrile gloves (or equivalent), and boots or shoe covers. Full Modified Level D PPE is necessary when extensive contact with contaminated materials is anticipated, such as the manual-excavation of contaminated soils. Full Modified Level D PPE is also required when handling corrosive chemicals.
- » ***Lightweight Modified Level D PPE*** consists of nitrile gloves (or equivalent) and boots or boot covers. Lightweight Modified Level D is necessary when minimal contact with contaminated materials in anticipated and contamination control must be maintained. Appropriate tasks for Lightweight Modified Level D PPE include equipment operators with minimal direct contact, surveyors, sampling technicians, inspectors, etc. The SSL shall determine which is appropriate based on-Site conditions.

- ***Level C PPE*** – Modified Level D PPE plus air purifying respiratory protection. Additional information on respiratory protection is described in previous paragraphs of the PPE section of this EHASP.
- ***Level B PPE*** – Modified Level D PPE plus supplied air respiratory protection. Level B PPE is not anticipated for this project.

The following table provides more specific initial PPE requirements for different tasks. ***When work assignments involved mixed tasks, choose the most conservative PPE or change PPE as required between different tasks.***

PPE by Task									
PPE level	**Level D**						**Mod Level D**		**C**
TASK	**High Vis[1]**	**Head**	**Eye and Face**	**Foot**	**Hearing**	**Hand[2]**	**Hand**	**Skin[3]**	**Resp.**
General Site Work (to be worn unless more specific PPE requirements are not outlined below)	X	X	Safety Glasses	X	X (when in posted areas or using loud tools)	CR (when working)			
Clearing and Grubbing	X	X	Safety Glasses and Face Shield	X	X	CR			
Intrusive excavation where contact with contaminated soils or groundwater is anticipated	X	X	Safety Glasses	X With overboots	X (when in posted areas or using loud tools)	CR			½ face or full face with OV cartridges when action levels are reached
Haul Truck Drivers (when outside vehicle)	X	X	Safety Glasses	X		CR			
Haul Truck Drivers (when inside vehicle)			Safety Glasses	X	X (when in posted areas or using loud tools)				
Heavy Equipment Operation	X	X (May be removed if within enclosed covered cab)	Safety Glasses (May be removed if in fully enclosed cab	X	X				
Welding, Cutting, Grinding	X (fire resistant)	X	Safety Glasses with Welding Visor or Face Shield	X	X	CR (leather or fire resistant)			½ face with N or P100 filter (optional)
Energized[4] Electrical Disconnects		X	Safety Glasses with arc flash face shield	X		Leather over Electric			

PPE by Task									
PPE level	**Level D**						**Mod Level D**		**C**
TASK	**High Vis[1]**	**Head**	**Eye and Face**	**Foot**	**Hearing**	**Hand[2]**	**Hand**	**Skin[3]**	**Resp.**
Chop/Demo/Chain Saw Cutting	X	X	Safety Glasses with face shield	X (Kevlar chaps also required)	X	CR			
Decontamination	X	X	Safety Goggles and Face Shield	X	X	nDex or Latex		Tychem QC	
NOTES	**1.** High visibility vests will not be required where persons are wearing Tyvek or Poly-Coated Tyvek **2.** **CR** = cut resistant gloves, **HR** = heat resistant, **nitrile** = 3-5 mil nitrile gloves, **nDex®** = surgical nitrile **3.** Tyvek and Poly Coat Tyvek include the use of boot covers or a boot wash to prevent the spread of contaminated materials to support zone areas and includes the use of nitrile surgical gloves (usually underneath cut-resistant gloves) **4.** Energized electrical work required all PPE as required by NFPA 70E								

2.5 TEMPORARY CORDS

Proper management of temporary cords and hoses is required to minimize the potential for slips and trips. The following guidelines should be implemented to the extent feasible:

- Cords and hoses must be run out of aisles and sidewalks (e.g., within six inches of a wall or toe board)
- Cords and small diameter hoses that cannot be run overhead or buried must be marked with cones, protected by hose ramps, or equivalent whenever the cross aisles or sidewalks
- Cords and hoses that cross roads must be protected from damage
- All temporary cords and hoses must be removed to equipment laydown areas when not in use

Cords also pose an electrical hazard if they are not protected from damage and inspected before each use. Cords may not be run through doors or windows without being protected. Cords must not be run across walkways and stairs. Cords may not be run through standing water. Ground Fault Circuit Interrupters are required on all 120v hand tools and equipment.

2.6 EXCAVATIONS

OBG employees will not assume the role of "Excavation Competent Person" for subcontractor excavations unless authorized by the Project Manager and qualified as an Excavation Competent Person in accordance with the OBG HSE Manual Excavation procedure.

All excavations greater than 5 feet deep require sloping or shoring whenever persons enter excavations OR adjacent structures may be affected by a cave-in. Subcontractors will identify in their safety plans or JSAs specific shoring systems or sloping/benching that will be used in specific areas. Excavations greater than four (4) feet in depth are classified as a non-permit confined space unless contamination is encountered. Refer to the *"Confined Space"* section of this EHASP for more guidance on how excavations will be handled with respect to confined space entry requirements.

- Assume soil is Type C unless soil testing indicates otherwise and such testing is documented. Standard sloping and benching (per OSHA) will follow a 1:1.5 (V:H) cut-back associated with Type C soil.

- Shore excavations >5' where personnel must enter and sloping is not feasible. Equipment used to shore excavations MUST follow OSHA shoring tables, or the subcontractor must have ***tabulated data from the manufacturer on Site.***
- If sections of trench are less than 5' AND no cave-in hazard exists, then shoring is not required.
- ***No workers may enter excavations until the designated Excavation Competent Person has inspected the excavations.*** All excavation inspections must be documented on a ***Daily Excavation Checklist*** or an approved alternate with documentation remaining on Site for the full project duration and made available for OBG review.
- Qualified engineers will evaluate excavations that could affect the stability of adjacent structures.
- A ladder or egress ramp will be provided within 25 feet of workers who must enter excavations.
- Water will not be allowed to accumulate in trenches in a manner that will affect the integrity of excavation walls and shoring systems.
- All spoils will be kept a minimum of 2 feet from the edge of the excavations.
- Fall Protection will be provided around excavations left open during off-hours. Fall protection will consist of solid barricades (saw horses or portable chain link) or soft barricades (safety fence) off-set 6 feet from the edge.
- Pedestrian Barricades – Portable chain link fence (48 inches high) or equivalent will be used to protect pedestrians. If pedestrian traffic is re-routed to avoid excavations, pedestrian detours must be accessible to bicyclists, handicapped persons, and other pedestrian in the area who may have special needs.
- Traffic Barricades – Any excavation activities that affect public or plant roads must be equipped with traffic safety devices as required by the Manual on Uniform Traffic Control Devices. If flaggers are used on public roads, they must have received Department of Transportation (DOT) Flagger Training. All flaggers that are utilized on the plant Site must have flagger training as well.

2.7 HEAVY EQUIPMENT

Project personnel may be exposed to "struck-by" injuries by walking in close proximity to heavy equipment or vehicles and "crush" injuries if caught between heavy equipment or vehicles (or counterweights) and a fixed object. Subcontractors must comply with requirements in this section...

Operators will use seatbelts if so equipped. Heavy equipment/vehicles will be equipped with overhead and rollover protection whenever feasible. Operators will inspect equipment daily for leaks, damage, and other necessary repairs.

Heavy equipment/vehicles must be equipped with backup alarms, horns, and other safety devices installed by the manufacturer. Vehicles operated at night must have headlights, tail lamps, and reflectors. Safety devices must not be disabled.

Heavy equipment/vehicles must undergo an ***"Acceptance Inspection"*** conducted by management when first mobilized to the Site. Inspections must be documented using a checklist that is acceptable to OBG. OBG may perform the "Acceptance Inspection" or may delegate the inspection to the subcontractor superintendent/foreman who will submit documentation to OBG when complete. Defective equipment must be "rejected" and removed from Site or repaired before being placed in service.

Heavy equipment/vehicle must also be ***inspected daily***. Similar to "Acceptance Inspections," inspections must be documented using a checklist that is acceptable to OBG. Documentation must be maintained on Site and available for inspection by OBG.

Any heavy equipment/vehicle on Site for more than 30 days must be on a ***written preventative maintenance schedule*** that is in accordance with the manufacturer's requirements. The preventative maintenance schedule and documentation of completed preventative maintenance must be retained on Site and available for inspection by OBG.

2.8 FIRE PROTECTION AND PREVENTION

Hot Work Permits, subcontractor safety plans, and JSAs may supplement basic fire safety requirements outlined below by establishing specific requirements throughout the course of the project as needed to ensure that personnel and property are adequately protected from potential fires. Emergency response associated with fires is covered in the Emergency Response section of this EHASP. Basic fire protection requirements include:

- Construction heaters or other forms of heat generating equipment may only be used by subcontractors with prior approval from OBG and a Hot Work Permit is obtained from the issuing authority on-Site.
- Fire hydrants and standpipes may only be used for firefighting purposes unless other use is authorized and permitted by Village of Frankfort.
- Fire hydrants and valves must not be obstructed or blocked. At least a ***6-foot*** clearance must be maintained on all sides for emergency access.
- SSL ***must inspect extinguishers monthly*** in addition to annual service provided by an extinguisher service company. Inspections and testing must be documented on ***weather-resistant tags or labels*** attached to each fire extinguisher.
- Only ***fire-resistant tarpaulins*** are allowed.
- Fire extinguishers shall be provided so that the travel distance from any work area to the nearest extinguisher is less than 100 feet. When 5 gallons or more of a flammable or combustible liquid is being used, an extinguisher must be within 50 feet.

2.9 FALL PROTECTION

OSHA-approved methods of fall protection are required under the following conditions:

- An employee is working 6 feet or more above the ground
- An employee is working on scaffolding without a 42-inch railing protection
- An employee is working in an aerial lift or scissors lift
- An employee is involved in assembly/disassembly of scaffolds, work platforms or temporary surfaces working 6 feet or more above the ground
- An employee is working over dangerous equipment/conditions (at any height)
- An employee is working on a walking/working surface or roof and is within 15 feet unprotected edge or floor opening/hole that will expose the employee to a fall greater than six feet

Full body harnesses (Class III) and retractable lanyards must be secured to an anchor point that can withstand ***5,000 lbs.*** of force when used for fall arrest. Retractable lanyards are required for all elevated work requiring fall protection.

Other methods to prevent falls include ***temporary guardrails***, installation of ***hole covers, warning lines*** (15' from the edge), ***fall restraint lines***, safe use of ladders, and safe use of ***aerial lifts***.

2.10 HIGH HAZARD POWER TOOLS

Some relatively common power tools can cause serious injury and are classified by OBG as highly hazardous as outlined in OBG's HSE Manual in a procedure called, ***"Power Tools-High Hazard"***. Highly hazardous power tools include powder-actuated tools (Hilti), chainsaws, chop (or demo) saws, weed trimmers with blade cutter,

die/end grinders, powered abrasive wheel tools, hand-held hydraulic rebar benders, portable HDPE fusion welder, portable circular saw, and band saws (portable & stationary).

Safer tools should be used when feasible. When the use of highly hazardous power tools is necessary, then they must be used in accordance with requirements in this EHASP and OBG's "***Power Tools-High Hazard"*** procedure with safety controls identified in JSAs which include the use of a highly hazardous power tool. At a minimum, tools must be operated in accordance with the manufacturer's safe operating guidelines. Prior to work when reviewing JSA requirements, users of highly hazardous power tools should review the OBG Safety Meeting Topic for applicable high hazard power tool listed above (or equivalent safety information). The applicable Safety Meeting Topic identifies key hazards and safety controls for each high hazard power tool.

> ***NOTE – Operators of powder-actuated tools must have a training certification as outlined in the Safety Training & Competent Persons section of this EHASP. Any JHA that includes demo/chop saw use requires special review and approval as outlined in the Pre-Work Safety Planning section of this JHA. OBG requires that chop/demo saw operators wear Kevlar (or equivalent) chaps. A Kevlar (or equivalent) jacket is also required if the chop/demo saw is operated above the waist.***

2.11 HOUSEKEEPING AND MATERIAL STORAGE

The Site shall be maintained in a clean and orderly condition always. Construction areas shall be free of waste materials, debris, and rubbish that will be ***removed daily.*** Waste materials shall be placed in appropriate waste receptacles for off-Site disposal or recycling. All recycling bins must be covered with a tarp covering or roofing to prevent anything from getting to pavement and into storm drains. Items with any kind of chemical or contaminant must be removed from the property ***immediately*** following job completion. Materials and equipment shall not obstruct traffic or emergency response activities at any time. Each subcontractor will have a designated lay-down area for the storage of their project materials. It is the responsibility of the subcontractor to maintain cleanliness of their area. ***Unused tools and materials shall be returned to lay-down areas daily.***

2.12 HAZARD COMMUNICATION AND SDS

OBG is responsible for having and administering a Hazard Communication Program (Global Harmonization Program) that requires all employees to be informed about the hazards associated with chemicals used on the job and the location of the safety data sheets (SDSs) for all materials brought on-Site.

SDSs shall be requested from vendors for materials procured for the current project from all suppliers of paints, coatings, adhesives, grout, caulk, lubricants, welding products, solvents, insulation, and similar products prior to being brought on-Site. Subcontractors will submit SDSs to OBG for review and upon request.

- OBG shall complete an inventory of chemicals brought on Site;
- OBG shall confirm locations of safety data sheets (SDSs);
- Before or as the chemicals arrive on Site, obtain an SDS for each hazardous chemical and include the chemical inventory sheet (attached to the project safety plan) and add the SDS to the SDS on-Site notebook;
- Label chemical containers with the identity of the chemical and with hazard warnings, and store properly;
- Give employees required chemical-specific HAZCOM training using the chemical-specific training form included as an attachment to the project safety plan; and
- Store all materials properly, giving consideration to compatibility, quantity limits, secondary containment, fire prevention, and environmental conditions.

2.13 GENERAL WORKER SAFETY RULES

Workers follow the established safety practices for their respective tasks. The need to exercise caution in the performance of work is made more acute due to weather conditions and restrictions in mobility, peripheral vision, and communication caused by the personal protective equipment.

To enhance Site safety, the following General Worker Safety procedures have been established:

- ***Smoking or the use of any tobacco products is not permitted in work areas, smoking is allowed in designated areas only.***
- ***No firearms may be brought on Site.***
- Employ the buddy system when appropriate. Be alert.
- Minimize contact with contaminated materials.
- Avoid breathing chemical odors.
- Do not expose skin to water, chemicals, or soil. If one becomes dirty or wet with contaminated fluids, clean up immediately using plenty of water.
- Hands must be washed before eating or drinking and after using toilets.
- Consumption of alcohol or intoxication (under the influence or impaired) during work hours or while on Site is prohibited.
- Working when ill is prohibited.

3. CHEMICAL PARAMETERS OF CONCERN

The OSHA Hazard Communication Standard require that Site personnel, subcontractors, and visitors must be informed of hazards associated with their work area. Health and safety information in this EHASP is intended to supplement Hazard Communication training previously provided to Site workers by his or her employers.

3.1 EXPOSURE PATHWAYS

Chemical exposures and their exposure pathways anticipated during this project include:

- Contaminated soil and/or water
- Inhalation of contaminated dusts
- Accidental ingestion of contaminants
- Skin contact/absorption with contaminated soils and/or water
- Injection through punctures and lacerations

Based upon anticipated Site activities and prudent safety and hygiene practices during Site work, ingestion of Site contaminants is unlikely. Hazardous skin contact or absorption by the various contaminants is also unlikely because of the low concentrations that are anticipated and/or the use of PPE. The primary route of exposure is inhalation of airborne contaminants and contaminated dusts generated during intrusive activities. However, inhalation of airborne contaminants approaching the OSHA PELs is unlikely because of natural ventilation of the work area, safe work practices, PPE, and/or air monitoring.

3.2 CONTAMINANTS OF CONCERN

The following paragraphs summarize the health effects of Site contaminants that are frequently of concern and other Site chemicals (if any). Site chemicals are usually those chemicals petroleum products associated with heating, vehicles, and equipment maintenance. This EHASP focuses on those which are believed to have the potential to pose a significant health hazard to Site personnel based on their potential to become airborne, concentrations in soil and groundwater, and their toxicity and other hazardous characteristics. Table 3.1 – "Summary of Potential Health Effects" also includes information on exposure limits and key physical characteristics such as flammability.

- **Silica** – Crystalline silica has been classified as a human lung carcinogen. Additionally, breathing crystalline silica dust can cause silicosis, which in severe cases can be disabling, or even fatal. The respirable silica dust enters the lungs and causes the formation of scar tissue, thus reducing the lungs' ability to take in oxygen. There is no cure for silicosis. Since silicosis affects lung function, it makes one more susceptible to lung infections like tuberculosis. In addition, smoking causes lung damage and adds to the damage caused by breathing silica dust. Exposure occurs during many different construction activities. The most severe exposures generally occur during abrasive blasting with sand to remove paint and rust from bridges, tanks, concrete structures, and other surfaces. Other construction activities that may result in severe exposure include: jack hammering, rock/well drilling, concrete mixing, concrete drilling, brick and concrete block cutting and sawing, tuck pointing, and tunneling operations.
- **Nuisance Dust** – Nuisance Dust can be a problem at any construction or remediation Site. Although not especially hazardous, dust should be controlled to the extent feasible to prevent the public from being unnecessarily concerned and to further reduce the nuisance dust hazard to Site personnel. Nuisance dust can be controlled by utilizing dust suppression techniques discussed in this HASP. The primary effect of nuisance dust is irritation of the eyes, nose, and throat when concentrations approach OSHA exposure limits of 5 mg/m3 (respirable). Visible dust leaving the Site is not acceptable.
- **Polycyclic Aromatic Hydrocarbons (PAHs)** – PAHs were detected during previous studies and are present on-Site within the soil matrix. PAHs are semi-volatile organic compounds that do not readily evaporate. As a result of their low volatility, exposure to these compounds will result from airborne dusts contaminated with

PAHs. Short-term effects of exposure to these compounds are the same as those associated with exposure to dusts in general and may include eye and upper respiratory tract irritation at high dust levels. High dust levels are characterized by dust levels where visible dust emissions are observed that typically obscure vision. The primary health effect associated with PAHs is cancer as a result of long-term exposure.

- **Lead** –Lead is a hazardous metal that was once common in paint, gasoline, and a variety of other uses. Lead is a solid material and may be inhaled as airborne dust or ingested if personal hygiene is poor. Lead can gradually accumulate in the body with frequent small exposures adding to a growing body burden. Lead is especially hazardous to young children and infants and every effort must be made to prevent Site personnel from carrying lead home on contaminated clothing, tools, and equipment. Additional information lead is presented in Table 3.1 including signs and symptoms of exposure.

Table 3.1 – Summary of Potential Health Effects

Chemical	Location	PEL	IDLH	Characteristics	Routes of Exposure	Symptoms of Exposure & Health Effects
SEMI-VOLATILES						
PAHs (naphthalene, benzo(a)pyrene, benzo(b)fluoranthene, benzo (a) anthracene, benzo (g,h,i) perylene, benzo (k) flouranthene)	Soil	0.2 mg/m^3 for benzo[a]pyrene, anthracene, pyrene, chysene 10 mg/m^3 for napthalene	NA	PAHs do not readily evaporate. Exposures from contaminate soil/dust created during remediation activities.	Inhalation Contact	High exposures may cause irritation of the respiratory system The skin and eyes are especially prone to irritation from contact with PAHs Long-term exposure may cause skin, lung, and kidney cancer
METALS & MINERALS						
Lead	Soil	0.05 mg/m3 TWA 0.035 mg/m^3 Action Level	100 mg/m3	Pure material is a heavy, ductile, soft, gray, solid. Lead is present on Site as a component of soil.	Inhalation Ingestion	Lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypotension
Arsenic	Soil	0.010 mg/m^3	5 mg/m3 Ca	Metal: Silver-gray or tin-white, brittle, odorless solid Arsenic is present on Site as a component of soil.	Inhalation Skin Absorption Ingestion Skin and/or eye contact	Target Organs Liver, kidneys, skin, lungs, lymphatic system Symptoms Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, resp irritation, hyperpigmentation of skin, [potential occupational carcinogen]

Table 3.1 – Summary of Potential Health Effects

Chemical	Location	PEL	IDLH	Characteristics	Routes of Exposure	Symptoms of Exposure & Health Effects
Silica	Cutting or Pulverizing concrete	0.05 mg/m^3 (NIOSH)	50 mg/m^3 (quartz)	Colorless, odorless solid. A component of sand, concrete, and other masonry materials.	Inhalation	Cough, dyspnea (breathing difficulty), wheezing; decreased pulmonary function, progressive resp symptoms (silicosis); irritation eyes; [potential occupational carcinogen]

Footnotes

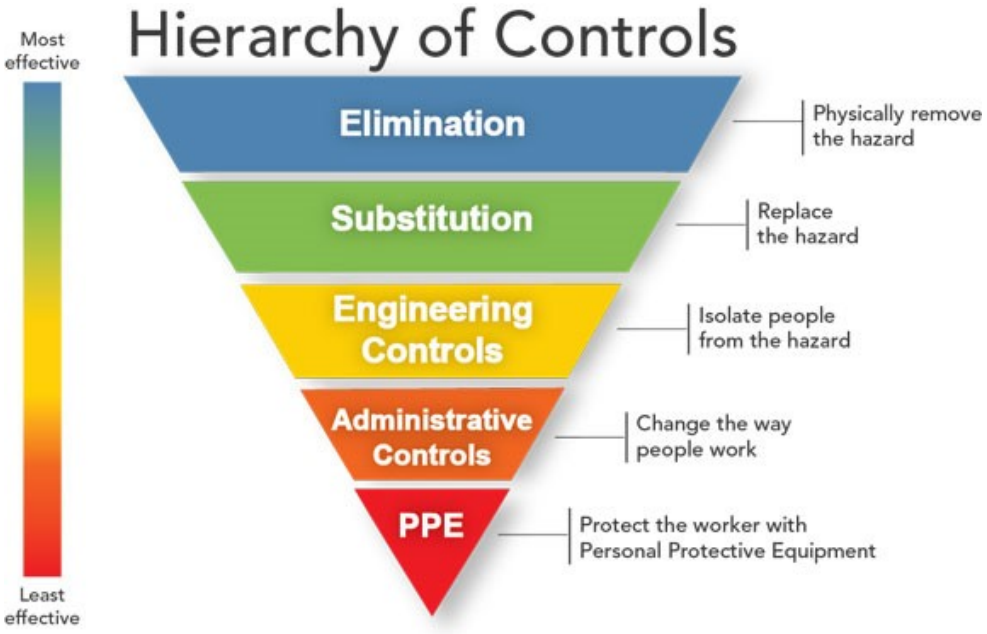
- **All values are 8-hour time-weighted averages (TWAs) unless otherwise indicated.**
- **PEL: Permissible Exposure Limit, the concentration an employee may be exposed to for an 8-hour work day for a 40-hour work week for which nearly all employees may be repeatedly exposed without adverse health effects;**
- **REL: NIOSH recommended exposure limit for full-shift exposures.**
- **STEL: Short-Term Exposure Limit as a 15-minute average;**
- **Ceiling - maximum concentration;**
- **IDLH: IMMEDIATELY Dangerous to Life and Health, contaminant concentration which present the possibility for severe health consequences if exposed to the IDLH concentration without the appropriate personal protective equipment (PPE),**
- **LEL: Lower Explosive Limit**
- **Units: mg / m^3 = milligrams per cubic meter of air; f / cc = fibers per cubic centimeter of air;**

4. HAZARD EVALUATION

The OSHA safety regulations (29CFR1910 and 29CFR1926) require that Site personnel, subcontractors, and visitors must be informed of the hazards associated with their work activities. Hazard Identification and control begins during safety planning which is described in the ***Pre-Work Safety Planning*** section of this EHASP.

Safety planning is required for work on this project and occurs at different times during the project. Each "level" of safety planning typically has differing degrees of detail and focus. However, the ultimate objective is that Site management and crafts methodically evaluate hazards and implement safety controls to prevent the occurrence of an injury, fire, explosion, spill, or property damage incident and can manage changes as they occur. The following chart provides an overview of safety planning requirements and tools outlined in previous sections of this EHASP.

JHAs will outline effective safety controls that mitigate hazards in accordance with a general hierarchy of controls that favors elimination and substitution over the use of PPE when feasible. See the figure below for additional guidance (courtesy of the National Institute for Occupational Safety and Health).



JSA	Prepared By
Field Engineering	OBG
Mobilization/Demobilization	Subcontractor
Removal and Relocation of Utilities	Subcontractor
Site Inspection/Monitoring	OBG
Installation of access Roads	Subcontractor
Installation of Temporary Fencing	Subcontractor
Installation of Erosion and Sedimentation Controls	Subcontractor
Clearing/grubbing	Subcontractor or third tier sub
Well abandonment	OBG
Heavy Equipment Operation	Subcontractor
Placement of Sediment Cap	Subcontractor
Site Restoration	Subcontractor

JSA must be developed in accordance with guidelines in the ***Pre-Work Safety Planning*** section of this EHASP and using either the JSA template in **Appendix A** and should focus on high hazard work and the anticipated safety controls that will mitigate risk. High hazard work includes (but is not necessarily limited to) the activities or tasks listed below:

- Any tasks for which a "specialized" competent person is required as outlined in the ***Safety Training & Competent Persons*** section of the EHASP. If not already designated in the EHASP, the JHA must identify the individual who is qualified to act as the competent person and will be performing competent person responsibilities.
- Any specialized training certifications as outlined in the Safety Training & Competent Persons section of the EHASP. Subcontractors must provide evidence of training for affected individuals.
- Any task that could result in severe heat stress (exhaustion or stroke).
- Any task(s) that involve the use of highly hazardous power tools as outlined in the ***"High Hazard Power Tools"*** section of this EHASP.

The JSA must re-enforce requirements in this EHASP and further demonstrate how requirements in the EHASP will be applied to specific tools, equipment work methods, and environmental conditions. JHAs should reference, but not necessarily repeat, information already provided in this EHASP. OBG must review JSAs prior to starting work on a major task. ***Submitting standard company policies or programs is not acceptable***.

In addition to JSA, ***Daily Pre-Task Planners*** may be completed by OBG crew if not attending a combined meeting on-Site for their crews working under one of the above JSA. The Daily Pre-Task Planner template in **Appendix B** must be used. ***Daily Pre-Task Planners*** must re-enforce EHASP and JHA requirements and may include more information specific to that day's activities including less severe hazards and controls not included in the JSA. OBG must review JSAs prior to work.

5. EMPLOYEE AND COMMUNITY AIR MONITORING

Community air monitoring shall be performed in accordance with the New York State Department of Health Generic Community Air Monitoring Plan. The monitoring program will include sampling and analyses for particulates (PM-10) and VOCs using sample equipment staged upwind and downwind of the work area while intrusive construction tasks are being conducted. A total of four community air monitoring stations, each containing monitors for PM-10 and VOCs, will be established around the perimeter of the Site as needed. The samplers will run continuously during ground intrusive activities.

When work areas are within 20 ft of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates will reflect the nearest potentially exposed individuals and the locations of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices may be considered to prevent exposures related to the work activities and to control dust odors.

Actions to control the generation or release of Site contaminants will be required fi the difference between the downwind and upwind/background concentrations exceed the follow action levels:

- 5 ppm for VOCs
- 100 µg/m3 for PM-10 for a 15-minute average

Further, if total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring will occur within the occupied structure(s), provided access ins granted by the Owner to the representatives of OBG for such purpose. Depending upon the nature of the contamination, chemical specific colorimetric tubes of sufficient sensitivity may be used to compare the exposure point concentrations with appropriate pre-determined response levels. Background readings in the occupied spaces will be taken prior to commencement of planned work, provided that access is granted by the Owner to representatives of OBG for such purpose. Any unusual background readings will be discussed with the New York State Department of Health (NYSDOH) prior to commencement of the work.

Also, if total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150µg/m3, work activities shall be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150µg/m3 or less at the monitoring point.

OBG may conduct (or request) personal exposure sampling for any task (or in any area) where project personnel may be exposed to contaminants above their respect occupational exposure limits. Personal samples will be collected in the breathing zone and in accordance with NIOSH or OSHA sampling methods and analyzed by American Industrial Hygiene Association (AIHA)-accredited laboratories.

6. MEDICAL MONITORING

Medical surveillance requirements are required by OSHA for persons who are exposed to lead, perform asbestos abatement, wear respirators, perform hazardous waste work, and other activities. Employees are required to have medical surveillance that complies with OSHA regulations.

6.1 FITNESS FOR RESPIRATOR USE

Persons who may wear respiratory protection must be provided respirators as regulated by 29 CFR 1926.103 and 29 CFR 1910.134. This Standard requires that an individual's ability to wear respiratory protection be medically certified before he / she perform designated duties. Where medical requirements of 29 CFR 1926.65 overlap those of 29 CFR 1910.134, the more stringent of the two will be enforced. *Documentation of respirator suitability must be maintained on-Site for all project personnel who may be required to wear a respirator.*

6.2 MEDICAL SURVEILLANCE

Medical surveillance examinations for persons conducting hazardous waste work, asbestos abatement, and lead work are administered on a pre-employment and periodically thereafter and as required by applicable regulations. Medical exams must be administered by a board-certified (or one who is eligible for board certification) physician in Occupational Medicine. The examining physician is required to make a report to the employer of any medical condition which would place employees at risk when wearing a respirator, wearing other personnel protective equipment, or working with hazardous materials. Subcontractors must maintain medical records in accordance with OSHA regulations. *Documentation of medical clearance to perform regulated work activities (such as hazardous waste operations, asbestos abatement, lead abatement, etc.) must be maintained on Site for all project personnel who may perform regulated work.*

6.3 HEAT STRESS MONITORING

Heat stress monitoring of personnel wearing protective clothing should commence when the ambient temperature is 70°F or above. To monitor heat stress risk, the OBG SSL (or designated alternate) will use one of the following methods:

- Monitoring Heat Stress Index

  Implement heat stress precautions in accordance with the Heat Stress Index of the work area.

Heat Index Chart
Temperature (°F) vs. Relative Humidity

(F)	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
115	111	115	120	127	135	143	151												
110	105	108	112	117	123	130	137	143	151										
105	100	102	105	109	113	118	123	129	135	142	149								
100	95	97	99	101	104	107	110	115	120	126	132	136	144						
95	90	91	93	94	96	98	101	104	107	110	114	119	124	128	134	140	147	154	161
90	85	86	87	88	90	91	93	95	96	98	100	102	106	109	113	117	122	127	132
85	80	81	82	83	84	85	86	87	88	89	90	91	93	95	97	99	102	105	108
80	75	76	77	77	78	79	79	80	81	81	82	83	85	86	86	85	86	88	89
75	70	71	72	72	73	73	74	74	75	75	76	76	77	77	78	76	76	77	77

Heat Index	Heat Stress Risk and Preventative Measures
VERY HIGH (EXTREME) 115 or higher	Heatstroke/sunstroke highly likely with continued exposure. • **Moderate and strenuous outdoor activity prohibited**
HIGH 104-115	Sunstroke, heat cramps or heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity. • **Strenuous outdoor activity while wearing Tyvek is prohibited without the use of personal cooling devices.** • **Workers must drink every 15 minutes or more frequently at their discretion** • **Air conditioned break areas must be available.**
MODERATE 91-103	Sunstroke, heat cramps and heat exhaustion possible with prolonged exposure and/or physical activity. • **Strenuous outdoor activity while wearing Tyvek is prohibited above a HSI of 99 without the use of personal cooling devices and is recommended for lower HSI.** • **SSHC to monitor employees for symptoms of heat stress.** • **Workers must drink every 30 minutes or more frequently at their discretion.** • **Air conditioned break areas must be made available for morning, lunch, and afternoon breaks.**
CONCERN (CAUTION) 75-90	Fatigue possible with prolonged exposure and/or physical activity. • **SSHC to monitor employees for symptoms of heat stress.** • **Workers must drink every 60 minutes or more frequently at their discretion.** • **Shaded break areas must be made available for morning, lunch, and afternoon breaks. Air conditioning is recommended.**

Source: National Weather Service heat index table modified by OSHA (https://www.osha.gov/SLTC/heatillness/heat_index/pdfs/all_in_one.pdf) for use at work sites.

- Monitoring Heart Rate

Heart rate should be measured by the radial pulse for a 30 second period as early as possible in the rest period. If the heart rate exceeds 110 beats per minute, shorten the next work cycle by one-third and keep the rest period the same. If the heart rate still exceeds 110 beats per minute at the next rest period, shorten the following cycle by one-third.

- Monitoring Oral Temperature

Oral temperature should be measured at the end of the work period (before drinking). If oral temperature exceeds 99.6°F, shorten the next work cycle by one-third without changing the rest period. If the oral temperature still exceeds 99.6°F at the beginning of the next rest period, shorten the next work cycle by one third. Do not permit a worker to wear a semi-permeable or impermeable garment when his / her oral temperature exceeds 100.6°F.

- Preventing Heat Stress
  - **Know the Symptoms** - Some symptoms associated with heat stress are: Employees should be aware of these symptoms with themselves and with their co-workers:
    - an elevated heart rate, lack of concentration, difficulty focusing on a task, fatigue
    - irritability and/or sickness
    - cramps, rash, headache
    - loss of desire to drink water
    - fainting
    - skin clammy, moist and pale (severe heat exhaustion)
    - skin extremely dry and red (heat stroke);
  - ***Acclimatize*** - When high heat stress conditions arise, employees should be exposed to the heat for short work periods followed by longer periods of work. Acclimatization usually takes five (5) days and should be provided for all new employees and employees returning from an absence of two (2) weeks or more. Contact Corporate Health and Safety for proper procedures.
  - ***Hydration & Pace of Work*** - Make sure all employees intake plenty of water throughout the work day (sometimes as much as a quart per worker per hour) and let employees know where the drinking water is located. Adjust your work pace and expectations on how much work can be done during periods of high heat stress. Workers cannot do as much during periods of high heat stress compared with similar periods of low heat stress. After acclimatization, workers may be able to resume a more "normal" work pace as long as fluid intake is adequate.
  - ***Work/Rest Periods*** - If possible, heavy work should be scheduled during the cooler parts of the day (i.e., early morning) and rest periods should be taken in cool areas for longer periods.
  - ***Personal Protective Equipment (PPE)*** - Employees using PPE (i.e. Tyvek® suits or other equipment which may retain heat) can be more susceptible to heat stress due to the fact that heat/sweat often cannot escape the suits and/or the equipment. Persons wearing PPE that contributes to heat stress require more hydration, longer rest periods, or a reduced pace of work. Also, more careful monitoring of each person's health status is required by co-workers and management.
- General First Aid for Heat Stress

Mild heat stress: Immediately bring employee to a cool place and have them rest and drink liquids. Provide off-Site medical attention for employees who do not fully recover within one (1) hour.

Severe Heat Stress/Heat Stroke: If an employee faints, experiences coordination problems or appears confused or disoriented, then immediately contact emergency services. If employee is suspected of heat stroke, soak employee in their clothes in cool water and contact emergency services. A person afflicted with heat stroke WILL DIE if not promptly treated.

6.4 COLD STRESS MONITORING

The timing and location of this project may be such that heat / cold stress could pose a threat to the health and safety of Site personnel. Work / rest regimens will be employed as deemed necessary. However, subcontractor Safety Competent Persons may initiate heat/cold stress monitoring at any time as necessary to protect their employees. Special clothing and an appropriate diet and fluid intake will be recommended to all on-Site personnel to further reduce these temperature-related hazards.

Work / rest schedules must be altered to minimize the potential for cold stress. Cold stress is defined as a decrease in core body temperature to 96.8 deg. F and / or cold injury to body extremities. Decreases in core body temperature are associated with reduced mental alertness, reduction in rational decision making, or loss of consciousness in severe cases. Symptoms of cold stress include pain in extremities (i.e. hands and feet) and severe shivering. If workers experience these symptoms, then stop work and implement the following controls.

- Workers must don adequate dry insulating clothing; and
- Adjust the work / rest schedule to increase the amount of rest / rewarming time.
- Toolbox safety meetings discussing symptoms of cold stress, clothing requirements, and work breaks must be held when the wind chill temperature (see Appendix A) drops below 0 deg. F and each day the wind chill temperature is below 25 deg. F.

The wind chill index provided below shows the effective cooling on exposed skin. When the wind blows across the skin, it removes the insulating layer of warm air adjacent to the skin. When all factors are the same, the faster the wind blows, the greater the heat loss, which results in a colder feeling. Wind chill temperatures that are **25 deg. F** below zero or are extremely dangerous. Workers must protect any exposed skin, especially the face, ears, and fingers.

Wind Chill Chart (Temperature vs Wind Speed)							
Wind Speed-mph							
Calm	**5**	**10**	**15**	**20**	**25**	**30**	**35**
Temperature (Degrees F)	**Wind Chill**						
45	43	34	29	26	23	21	20
40	37	28	23	19	16	13	12
35	32	22	16	12	8	6	4
30	27	16	9	4	1	-2	-4
25	22	10	2	-3	-7	-10	-12
20	16	3	-5	-10	-15	-18	-20
15	11	-3	-11	-17	-22	-25	-27
10	6	-9	-18	-24	-29	-33	-35
5	0	-15	-25	-31	-36	-41	-43
0	-5	-22	-31	-39	-44	-49	-52
-5	-10	-27	-38	-46	-51	-59	-64
-10	-15	-34	-45	-51	-59	-64	-67
-15	-21	-40	-51	-60	-66	-71	-74
-20	-26	-46	-58	-67	-74	-79	-82
-25	-31	-52	-65	-74	-81	-86	-89

If you would like to calculate the wind chill index for combinations of temperature and wind other than those given in the table above, you can use the formula:

WC = 91.4 - (0.474677 - 0.020425 * V + 0.303107 * SQRT(V)) * (91.4 - T)

where: WC = wind chill index; V = wind speed (mph); T = temperature (° F)

7. EMERGENCY RESPONSE PLAN

This emergency response section details actions to be taken in the event of Site emergencies. The SSL is responsible for implementation of emergency response procedures and will ensure that a **First Aid/CPR trained person is on Site always when work activities are in progress.**

7.1 EMERGENCY PHONE NUMBERS AND NOTIFICATIONS

To be posted or provided on Site. Emergencies encountered on this Site will be responded to by a combination of off-Site emergency services and Site personnel.

EMERGENCY NUMBER Fire, Explosion, Emergency Medical, and Spills that may reach surface waters	
Site Address	**Phone Number**
256 E Main St, Frankfort, NY 13340	TBD

EMERGENCY NOTIFICATIONS Fire, Explosion, Emergency Medical, OSHA-Recordable Injuries, Spills		
Ames Corporation		
INSERT CLIENT MANAGER TITLE	INSERT NAME	**Phone:** **Cell:**
OBG - All emergencies immediately (and first aid injuries within 24 hrs.)		
Project Manager	Steve Anagnost	**Cell:** 315-956-6259
Construction Manager/SSL	TBD	**Cell:**
Health and Safety Project Manager	Steven Thompson, CHST	**Cell:** 315-560-5018
Manager of Corporate Health & Safety	Jeffrey R. Parsons, CIH	**Cell:** 315-391-0638
REGULATORY AGENCIES		
OSHA – Syracuse, NY Office	OBG to notify OSHA… ▪ Within 8 hrs for any fatality ▪ Within 24 hrs for any in-patient hospitalization, amputation, or loss of an eye	**Phone:** 315-451-0808
SPILL NOTIFICATION – NYSDEC Spill Response	All petroleum spills must be reported to the NYS Spill Hotline within 2 hours of discovery, except spills which meet **all** of the following criteria: 1. The quantity is known to be less than 5 gallons; and 2. The spill is contained and under the control of the spiller; and	**Phone:** 800-457-7362

EMERGENCY NOTIFICATIONS		
	3. The spill has not and will not reach the State's water or any land; and 4. The spill is cleaned up within 2 hours of discovery. A spill is considered to have not impacted land if it occurs on a paved surface such as asphalt or concrete. A spill in a dirt or gravel parking lot is considered to have impacted land and is reportable.	

CONTACT NUMBERS FOR OFFSITE MEDICAL RESOURCES		
Local Hospital	Little Falls Hospital 140 Burwell St, Little Falls, NY	**Phone:** 315-823-1000
Minor medical injuries for OBG employees or subcontractors who have been required to setup a WorkCare account	WorkCare	**Phone:** 888-II-XPRTS or 888-449-7787

7.2 EMERGENCY ROUTE

Refer to attached **Figure 1** for Hospital Route Map.

7.3 EMERGENCY INVENTORY

In addition to those items specified elsewhere, OBG will maintain the following equipment:

- First aid / Bloodborne pathogens kit – The minimum recommended size is a 25-person first aid kit.
- Fire extinguishers – located within 25 feet of hot work
- Spill Control Kit(s) – Provide all applicable spill control supplies to contain spills.

7.4 GENERAL EMERGENCY RESPONSE PLAN

7.4.1 Evacuation Signal

In addition to the Site-specific alarms, verbal/radio communications directing project personnel to evacuate or a building fire alarm will also be used. Do NOT leave Site vehicles or equipment on access roads and emergency exits such that emergency response vehicles or personnel may be obstructed. The project notification to evacuate to the muster point is *one long blast of the air horn.*

7.4.2 Muster Point

The muster points in event of an emergency that requires evacuation of the work area are the primary muster point at the Main entrance at the intersection of East Main Street and Arlington Pl. The muster point will be reviewed with all personnel during their initial Project Health and Safety Orientation. The SSL or designee will account for all project personnel at the Muster Point following an evacuation.

7.5 CALL FOR EMERGENCY SUPPORT

In the event of a Site emergency, the OBG SSL or designee will call 911.

The SSL or designee will briefly explain the nature of the emergency and Site conditions as follows:

- Indicate his/her name
- Location of emergency (Site address)
- Description of emergency conditions that may require special rescue equipment, such as confined spaces; excavations, and elevated work platforms
- Potential chemical hazards and recommended PPE
- Emergency decontamination procedures

7.6 FIRE AND EXPLOSION RESPONSE PLAN

NOTE – Site personnel will respond to incipient stage fires using 20 lb Type ABC dry chemical fire extinguishers.

All fires or explosions must be reported to the OBG Health and Safety Project Manager and the OBG Project Manager. Refer to contact information in the "**Emergency Phone Numbers & Notifications**" section of this EHASP.

A fire that cannot be readily extinguished with a fire extinguisher will be considered major and will require evacuation of the work area personnel to **Muster Point** areas per this EHASP. However, the SSL or designee may only approach fires/explosions to the extent that fire safety considerations allow. If personal injuries result from any fire or explosion, the procedures outlined in the ***Personal Injury Response Plan*** will also be followed.

7.7 PERSONAL INJURY RESPONSE PLAN

NOTE – Please ensure that Hospital Route Map and WorkCare poster are posted in the OBG project office or otherwise readily available to project personnel. The WorkCare poster may be downloaded from the OBG Intranet or requested from Corporate H&S.

Minor (non-emergency) injuries must be reported to the OBG Project Manager, Health and Safety Project Manager, and Ames Representative. Refer to contact information in the "Emergency Phone Numbers & Notifications" section of this EHASP.

Treatment for minor injuries will be provided on Site using available first aid supplies and personnel trained in first aid. For *minor injuries* that are not life-threatening but require further medical attention, all OBG subcontractors must agree to have their employees treated by occupational physicians at occupational clinics whenever possible. *Treatment of minor injuries by emergency room or personal physicians should be AVOIDED. When injured workers are released back to work with restrictions, all subcontractors are expected to accommodate those restrictions.*

*OBG employees and subcontractors who have been required to setup a **WorkCar**e account will contact WorkCare for all minor injuries* that are not an emergency or otherwise life-threatening.

Emergency or life-threatening injuries must be reported immediately to the OBG Health and Safety Project Manager and the OBG Project Manager. Refer to contact information in the "Emergency Phone Numbers & Notifications" section of this EHASP. Emergency medical incidents include puncture wounds to the head, chest, and abdomen, serious head and spinal cord injuries, and loss of consciousness must be treated at the hospital emergency room listed in **Emergency Phone Numbers & Notifications** section of this EHASP.

Route maps to the hospital (Figure 1) will be posted in the work area.

7.8 SPILL RESPONSE

All spills must be reported immediately to the OBG Project Manager and the OBG Health and Safety Project Manager. Refer to contact information in the "**Emergency Phone Numbers & Notifications**" section of this EHASP.

Site personnel should expect and be properly trained and equipped to handle small spills. If a spill of any type should occur, the SSL or designee should report the spill immediately to a Site owner representative and implement procedures in this Spill Response Plan. Site personnel will generally respond to spills as follows:

- *Stop the leak immediately* if it can be done without directly contacting the leaking material. Generally, this will consist of turning heavy equipment off to remove pressure on various fluid systems.
- Remove or stop all *ignition sources* (hot work, generators, etc.) that are within 25 feet of any part of the spill.
- On-Site personnel should immediately secure the area to *prevent unauthorized entry* into the spill area.
- Although not likely given the anticipated types of spills, the SSL or designee should initiate the *General Emergency Response Plan* in this EHASP if a spill may cause an explosion, death, or serious injury.
- Site personnel may only respond to *incipient stage fires* regardless if such fires are associated with a spill.
- *PPE for Spills* to open areas generally requires Modified Level D PPE (poly-coat Tyvek, nitrile gloves, and boot covers or boot decontamination). Over-boots or boot covers may also be used if persons cleaning the spill would have to walk on spilled materials.

7.9 EMERGENCY REPORTING

Any emergency or accident must be reported to the Ames and OBG Project Manager and Health and Safety Project Manager. Refer to contact information in the "Emergency Phone Numbers & Notifications" section of this EHASP.

The OBG Health and Safety Project Manager will review all emergency or accident reports and may further investigate any such report if necessary. The OBG Manager of Corporate H&S will see that the area officer of OSHA is notified within 8 hours should the emergency cause three (3) or more personnel to be injured and transported to the hospital, or if there is a fatality. If the Corporate Safety Manager cannot be located, then the Health and Safety Project Manager will make such notification.

An **Incident Investigation Form** (**Attachment 6**) must be completed for all injuries, illnesses, spills, fire, explosion, or property damage. The absence of an injury does not preclude the need to complete an Accident Investigation Form as such incidents will be classified as "near miss" or "other." The form must be completed or reviewed by the SSL or designee. It will include, but is not limited to, the nature of the problem, time, location, and corrective actions taken to prevent recurrence. This report **must be completed and sent to the OBG Health and Safety Project Manager within 24 hours**. If all the "facts" cannot be determined in that period, then draft report will be submitted and a final report will be submitted immediately upon completing the investigation.

Figures

LITTLE FALLS HOSPITAL
140 BURWELL ST., LITTLE FALLS, NY 13365

Google Maps **293 E Main St, Frankfort, NY 13340 to Little Falls Hospital** Drive 13.3 miles, 20 min

Union Fork and Hoe Superfund Site to Little Falls Hospital

Map data ©2018 Google 1 mi

293 E Main St
Frankfort, NY 13340

Take NY-5S E and NY-167 N to E Main St in Little Falls

19 min (13.1 mi)

1. Head southeast on E Main St toward Palmer St — 0.2 mi
2. Continue onto Acme Rd — 1.0 mi
3. Continue onto W Main St — 0.3 mi
4. Turn left to merge onto NY-5S E — 2.9 mi
5. Continue straight to stay on NY-5S E — 6.1 mi
6. Turn left onto NY-167 N — 2.1 mi
7. Continue straight onto Albany St — 302 ft

8. Turn right onto S Ann St

262 ft

9. Turn left onto NY-167 N/NY-169 S/NY-5 E

0.5 mi

Take Ward St to Burwell St

1 min (0.3 mi)

10. Sharp left onto E Main St

220 ft

11. Turn right onto Ward St

0.1 mi

12. Turn right at the 2nd cross street onto Burwell St

Destination will be on the left

0.1 mi

Little Falls Hospital

140 Burwell St, Little Falls, NY 13365

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Attachments

Pre-Work Briefing Sign-In /Safety Compliance

PRE-WORK BRIEFING

Client:		
Project Name:		**Project No.**
Project Location:		
SSHC:		
Main Points of Briefing:	☐ O'Brien & Gere Safety Requirements ☐ Site-Specific Safety Pan or JSA ☐ Site Owner Safety Requirements	**Other:**

The purpose of the Pre-Work Briefing is to provide ***site-specific safety orientation*** to employees and subcontractors. This certifies that undersigned individuals have read, understand, and agree to comply with applicable ***site-specific safety requirements*** that can be obtained from site safety plans, site Job Safety Analyses (JSAs), site owner requirements, and/or other site safety documents furnished to them by O'Brien & Gere. The undersigned individuals acknowledge that these safety requirements are not "all-inclusive" and that they will be expected to follow any additional safe work practices applicable to their specific scope of work.

Print Name	Signature	Company	Date

-- All Site Personnel Must Acknowledge Their Review and Understanding of Safety Requirements --

Entry/Exit Log

ENTRY/EXIT LOG

Project Name		**Date**	
Project Location		**Job #**	

Name	Company	Time In	Time Out	Reason

Daily Pre-Task Planner Form

DAILY PRETASK PLANNER (MANAGING CHANGE)

Project Name:		**Date:**	
Company Name:		**Project No.:**	
Authorized Tasks Scope of Work for the day (be specific):			

Shaded (YES) Boxes Indicate Change and Must Be Addressed.

YES	NO	Daily Supervisor Safety Planning (focus on changes from previous work shift)
		A site worker is missing their ***Project Safety Orientation***. This is usually workers who are new to the site. ***IF YES***, then provide an orientation prior to performing site work and indicate under "Key Safety Instructions" who was sent for an orientation.
		A site worker is missing their ***Pre-Work Documentation*** as required by the safety plan and/or JSA. ***IF YES***, indicate who is missing their documentation under "Key Safety Instructions" and collect documentation prior to performing affected site work."
		Recent ***changes to the work scope, work methods, tools, and equipment*** may have introduced new hazards which are not fully addressed in the ***Health & Safety Plan (HASP) or Job Safety Analysis (JSA).*** ***IF YES***, then (choose one): ☐ Identify new hazards and controls in the following sections and communicate new hazards and controls in this planner OR ☐ Revise the safety plan or JSA and review with site personnel.
		ANY ***unusual or changed site conditions*** that may affect safety hazards. ***IF YES***, explain in "***Key Safety Instructions***" and review appropriate changes to safety equipment or procedures. ☐ Heavy Rain ☐ Possible Lightening ☐ High Winds ☐ Heat ☐ Cold or Ice ☐ New Work Area ☐ Other:
		ANY ***new tools or equipment or changes to work methods*** that may affect safety hazards. ***IF YES***, explain in "***Key Safety Instructions***" and review appropriate changes to safety equipment or procedures.
		Do ANY of the following ***coordination or notification conditions*** apply to today's authorized tasks? ***IF YES***, take necessary measures (or verify that such measures have already been taken) to coordinate with, or notify, affected organizations including: ☐ Process owners or operators when working near active process equipment including electrical substations, chemical/bulk storage areas, water/wastewater treatment equipment, active production areas, etc. ☐ Contractors performing work in adjacent work areas or other areas potentially impacted by project activities. ☐ Public officials or regulatory agencies for work that may impact public roads, navigable waterways, sewer discharges, etc. ☐ Railroad and Utility Companies for work in rights-of-way OR crossing rights-of-way including "Dig Safe" notifications. ☐ Rescue services for permit-required confined space entry. ☐ Other:
		Permits & Inspections needed for authorized tasks? (**IF YES**, then check all that apply) ☐ Permit-Required Confined Space Entry ☐ Hot Work ☐ Daily Excavation Checklist ☐ Non-Permit Confined Space Downgrade ☐ Energized Electrical Work ☐ Daily Scaffolding Inspection ☐ Alternate Entry (Confined Space) ☐ Lifting & Rigging Plan ☐ Equipment Inspections (specify below) ☐ Other:

Key Safety Instructions or Message For The Day (to be reviewed with field personnel)

Check all that apply:

☐ PERMIT REVIEW - Work permits and inspections are applicable to today's work tasks (Review identified permits & inspections.)
☐ NO CHANGE - The safety plan or JSA is applicable to today's work tasks and PPE and safety procedures are the same as the previous work shift
☐ CHANGE - The safety plan or JSA is applicable to today's work tasks ***but PPE or safety procedures are different.*** (Explain below.)
☐ CHANGE - The safety plan or JSA is ***NOT*** applicable to today's work tasks. ***New hazards and safety controls are identified.*** (Explain below.)

O'Brien & Gere Representative (review):		
Subcontractor Foreman/Supervisor Signature (authorize):		
Crew Signatures (acknowledge):		

Safety Toolbox Topic Meeting Form

SAFETY/TOOLBOX MEETING ATTENDANCE

Client:		**Project No.:**	
Project Name:		**Today's Date:**	
Project Location:			
Conducted By:			
Meeting Topic:			

Name	Signature	Company Name

Safety Meeting Topics (be specific)

KEEP COPIES OF ALL TOOLBOX MEETING MINUTES WITH PROJECT RECORDS

Safety Inspection Checklist

SAFETY INSPECTION CHECKLIST

Project Name:		**Project Number:**	
Project Location:		**Auditor:**	
Site Supervisor:		**Date of Audit:**	
cc List:	Project Manager, Manager of Corp H&S		

ADMINISTRATIVE (place an X in one of the three categories for each item - specify deficiencies below)

N/A	Y	N	Description
			First aid supplies available. The site relies on
			Emergency numbers posted. (**WorkCare** number posted for **employees** – WorkCare poster is available on the H&S Intranet site)
			OSHA and Department Of Labor **Posters** conspicuously posted.
			Corporate Health and Safety Manual Available.
			A project **safety plan or JSA** was developed and reviewed with site workers.
			Subcontractors have current **Safety Prequalification** form on file.
			Toolbox safety meetings documented.
			Daily excavation inspections documented on a *Daily Excavation Checklist*.
			Hot work/confined space entry permits documented and issued daily.
			Energized Electrical Work Permits issued for ALL work (including inspections) within energized electrical equip.
			Written "Notice to Proceed" sent to the steel erection subcontractor?
			O&M projects have **equipment-specific Lockout/Tagout** (LOTO) procedures

NOTES: (Identify Major Subcontractors. Explain corrective actions for all observed deficiencies and indicate when corrective actions are completed and by whom. Use reverse side as necessary.)

FIELDWORK (place an X in one of the three categories for each item - specify deficiencies below)

N/A	Y	N	Description
			Hard hats and safety glasses used in ALL construction areas.
			Ear protection used where noise requires you to raise your voice to be heard <5 feet away.
			Tick Prevention – DEET & Permethrin repellants used for work in ALL overgrown areas on projects in NY, NJ, PA, CT, and MA? (Use as necessary in other states.) Tick prevention is addressed in safety plan or JSA?
			Fall protection used by employees working above 6 feet and in manlifts; (see JSA for exceptions)
			Ladders used properly: stepladder fully open, extension ladder 3' past upper surface & tied off
			Good **housekeeping**, job-site looks neat. (aisles clear, designated lay-down areas, etc.)
			Manual Lifting risks are minimized - ☐ Toolbox Training ☐ Dolly ☐ Forklift ☐ Other:
			All chemicals and **chemical containers** properly labeled.
			Cylinders properly secured (upright and bound from tipping) and not set directly on ground.
			Oxygen & flam. gas cylinders separated by 20 feet and away from heat producing devices.
			Barricades setup around the Exclusion Zone, unattended excavation/holes, edges, scaffolds
			GFIs used on all extension cords and temporary 110/120 volt wiring.
			Excavations >5' are sloped/shored and inspected by competent person prior to entry.
			Rescue services notified of **confined space entry**. Specify Service:
			Retrieval equipment (harness, lifeline, and hoisting apparatus) setup during **confined space** entry
			Scaffolds erected over 10' have guardrails at 21" and 42" and a 4" toeboard around all sides
			Heavy Equipment & Off-Road Vehicles are in good condition, inspected daily, & operated safely.
			Cranes have documented monthly and annual maintenance inspections.
			Crane operators are qualified: ☐ license ☐ ____yrs exp. ☐ training cert ☐ other (specify)
			Lockout/Tagout is used - each employee has own lock – a tag is attached to all locks
			Personnel performing **inspections within energized equipment >50V** have NFPA 70E training, Arc Flash PPE, and other safety precautions outlined on an Energized Electrical Work Permit
			High Hazard Power Tools – documented review of safety requirements, Kevlar PPE required for chop saw, chain saw, weed trimmers w/ blade, Refer to "*Power Tool-High Hazard*" procedure in HSE Manual.
			Air monitoring being performed and documented as required by the site safety plan or JSA.

NOTES: (Explain corrective actions for ALL observed deficiencies and indicate when corrective actions are completed and by whom. Use reverse side as necessary.)

Accident/Incident Investigation Form

Corporate H&S to complete:	☐ Restricted Workday	(__ days)	☐ Spill
☐ First Aid / Notification	☐ Lost Workday	(__ days)	☐ Property Damage >$1,000
☐ Med. Treatment Only	☐ Fatality	☐ Near Miss	☐ Other:

PROJECT INFORMATION

Project/Office Name:		**Project Number:**	
Project/Office Address:		**State:**	**Zip:**
Project/Office Phone #:		**Today's Date:**	
Project/Regional Officer:		**Site Supervisor:**	
Project/Resource Manager:		**Foreman:**	
Project/Resource Supervisor:		**SSHC:**	
Business Unit for Project:	(☐ NA for Office) ☐ AMO ☐ CORP ☐ ESR ☐ EUI ☐ FFO ☐ ISO ☐ MWO		
Comments or Notes:			

INCIDENT INFORMATION

DATE and TIME (hrs) of Incident:	
Specific Location of Incident On-site:	
Supervisor at Time of Incident:	
Environmental Conditions:	
General Description of Work Being Performed:	

INJURY INFORMATION

☐ NA (☒ if no injury)

(Complete the Witness Interview section. – See page 3.)

Name:		**O'Brien & Gere Employment** (☒ appropriate status, company, & BU):	
Gender:	☐M ☐F **DOB:**	**Status:**	☐ OBG Reg Status Full-Time ☐ OBG Temp Full-Time
Home Address:			☐ OBG Reg Status Part-Time ☐ OBG Temp Part-Time
		OBG Company:	☐ ENG ☐OPS ☐OGINA ☐ Limited
		OBG BU:	☐AMO ☐CORP ☐ESR ☐EUI ☐FFO ☐ISO ☐MWO
Home Phone:		**Subcontractor or Agency Employment** (☒ appropriate below):	
Alternate Phone:		☐ ***Subcontractor** ☐ ***Labor Company/Agency** ☐ ***Other**	
Total Experience:	years months	***Name of Company:**	
OBG Experience:	Years months	**Union Status:** (☒ appropriate)	☐ NO ☐ YES-specify:
Nature of Injury, and Part of Body:			
WorkCare Called (888-449-7787)?	☐ NO ☐ YES (Minor injuries to O'Brien & Gere employees OR subs with WorkCare svc)		
Treatment at Hospital or Clinic?	☐ NO ☐ YES – specify:		
Hospital/Clinic Street Address:			
Employee was Working:	☐ Alone ☐ With Crew or Fellow Worker (get witness names)		
Specific Task at Time of Incident:			
Occupation/Craft at Time of Incident:			

WITNESS LIST

☐ NA (☒ if no witness)

(Complete the Witness Interview section. – See page 3.)

Witness #1 Name:		**Contact Phone #**	
Witness #2 Name:		**Contact Phone #**	

FULLY COMPLETE THIS FORM AND SEND TO THE MANAGER OF CORPORATE H&S (Jeff Parsons) AND THE LEGAL/INSURANCE DEPARTMENT (Meg Hermann) WITHIN 24 HOURS

Email: Jeffrey.parsons@obg.com and meg.hermann@obg.com

Attach All Applicable Medical Reports & Other Support Documentation

DESCRIBE HOW THE INCIDENT OCCURRED

Describe in detail, and in chronological order, the events that lead to the accident, how the incident occurred, and any other facts you feel may be relevant to the investigation based on site observations and witness statements. Please avoid opinions or hearsay.

CAUSAL FACTORS

Check all those that apply and identify corrective actions for each factor. Beginning with the most apparent or most direct cause of the incident, ask "WHY" five times to identify the sequence of events or conditions that contributed to the incident.

PROCEDURES	COMMUNICATION	MANAGEMENT/ORGANIZATION	HUMAN FACTORS
☐ Not available	☐ Misunderstood verbal directions	☐ Inadequate work planning	☐ Lack of experience or skill
☐ Difficult to use / understand	☐ No communication or untimely	☐ No pre-work safety review	☐ Infrequent performance
☐ Use of procedure was not required but should be	☐ Standard terminology or signals not used or are misunderstood	☐ Unclear assignment of responsibility or authority	☐ Operating equipment without authority
			☐ Operating equipment unsafely
☐ Followed Incorrectly	☐ Interference from noisy environment	☐ Unclear reporting relationship	☐ Taking unsafe position/posture
☐ Not followed	☐ Notifications late or not provided	☐ Improper delegation	☐ Poor judgment or Inappropriate risk taking
☐ Inadequate details	☐ Job/task safety analysis not reviewed with personnel	☐ Inadequate audits/inspections	☐ Physical impairment (explain)
☐ Situation not covered		☐ Inadequate incident reporting	☐ Drugs/alcohol (explain)
☐	☐ Poor coordination between affected groups or organizations	☐ Inadequate incident investigation	☐
WORK ENVIRONMENT		☐ Corrective actions not complete	**TRAINING**
☐ Housekeeping poor	☐	☐ Corrective actions inadequate	☐ Training not provided
☐ Temperature: Hot or Cold	**EQUIPMENT & TOOLS**	☐ Inadequate purchasing	☐ Training inadequate
☐ Poor lighting	☐ Wrong equipment/tool for the task	☐ Wrong person assigned to job	☐ Did not attend training
☐ High Noise	☐ Defective equipment/tools	☐ Lack of supervisor knowledge	☐ Training not appropriate for the job or task
☐ High Radiation Contamination	☐ PM not done or inadequate	☐ Inadequate/lack of safety mtgs	☐
☐ High Contamination	☐ Inadequate / removed guards	☐ Inadequate control of change	**ENGINEERING/DESIGN**
☐ Poor Visibility	☐ Inadequate isolation (LOTO)	☐ Mgmt resources inadequate	☐ Inadequate technical design
☐ Cramped quarters	☐ No inspection of tools / equipment	☐ Excessive work hours (fatigue)	☐ Inadequate specifications
☐	☐	☐ No or Inadequate enforcement	☐ Inadequate change mgmt
☐	☐	☐	☐

CORRECTIVE ACTIONS

List the corrective actions taken to minimize the possibility of a similar incident from occurring in the future. Assign specific individuals and completion dates for each corrective action. Use the table below track and document completion of corrective actions.

#	Description	Responsible Person	Target Completion	Actual Completion

REVIEWS

Prepared by: (print)		**Sign:**		**Date:**	
H&S Review: (print)		**Sign:**		**Date:**	

☐ NA
(☒ if no injury or injury does not involve an O'Brien & Gere employee)

O'BRIEN & GERE EMPLOYEE INFORMATION RELEASE

I hereby authorize O'Brien & Gere or any of its representatives to be furnished any information and facts regarding this injury, including reports and records, results and diagnosis, treatment and prognosis, estimates of disability, and recommendations for further treatment. This information is to be used for the purpose of evaluating and handling my claim for injury as a result of an incident occurring on or about the above-noted date of injury and for no other purpose, now or in the future.

Employee Name:		**Date of Injury:**	
O'Brien & Gere Employee Signature:		**Date Signed:**	

WITNESS INTERVIEW

(To be completed when interviewing witnesses and injured personnel. Use as many copies of this page as necessary or obtain a copy of the separate Witness Interview Sheet.)

Please base all statements on personal observations and avoid hearsay. Describe what happened to the best of your recollection. The purpose of the investigation is to identify corrective actions that will prevent similar occurrences. Confidentiality of statements cannot be guaranteed. Please be advised that providing false information or intentionally omitting key information will be considered falsification of company documents.

Incident Location:

Full Name:

Occupation or Craft:

Employer Name:

Employer Address:

Employer Phone Number or Other Contact Phone Number:

How are you connected with others involved in the incident?

When did you see or hear the incident happen?

What attracted your attention to the incident?

When you first saw the incident, where were people and equipment positioned? (Attached sketches if necessary)

What did the area look like or what was happening in the area? List events in order of their occurrence.

Do you have any observations or information that may be related to the incident?

Witness Signature:		**Date:**	
Witness Print Name:			

Appendices

OBG Job Safety Analysis (JSA) Template

Safety to Zero (S_20) – Safety Planning Is Critical To Our Ultimate Goal of Zero Injuries

Project Name:		**OBG Project Officer:**	
Project Number:		**OBG Project Manager (PM):**	
JSA Title:		**OBG Site Supervisor:**	
JSA Revision Date:		**OBG Foreman or Superintendent:**	
JSA Prepared By:		**OBG Site Safety Coordinator:**	
Client Name:		**Subcontractor Company Name:**	(☐ NA)
Project Location:		**Subcontractor Project Manager:**	
Project Phone No.:		**Subcontractor Superintendent:**	
Project Fax No.:		**Sub Safety Competent Person:**	
Scope of Work covered by this JSA (identify subcontractors covered by this JSA)			
References (existing safety plans, manuals, spec's, etc.)	**[REMINDER – Update PAF to reflect a completed JSA. Place copy in PM/H&S folder.]**		
Key Hazards (focus on highly hazardous tasks)			

Safety Equipment Summary

(additional safety equipment may be required for specific hazards identified in the following sections)

☐ Hard Hat ☐ Safety Glasses ☐ Safety Shoes ☐ Cut-Resistant Gloves

Other (specify):

☐ High Visibility Vests (required for work on roads and in many construction & remediation sites)

☐ Ear Protection (heavy equipment, loud power tools, etc.)

☐ Fall Protection Harness & Lanyard (falls >6')

☐ Respiratory Protection (☐ N95 dust mask, ☐ half face, ☐ full-face) Specify cartridge in JSA.

☐ Tyvek or other chemical protective coverall: _____

☐ Face Shield and chemical goggles for chemical handling, line breaks, pressure washing

☐ Nitrile Gloves (☐ Surgical Type and/or ☐ "Dishwashing" Type)

☐

Pre-Work Documentation & Certifications ***(Refer to JSA content for additional certifications and documentation that may be required.)***

Documentation and Certifications	**To Be Submitted or Provided By…….**
☐ Drug Testing (☐ alcohol testing is also required)	
☐ Project Safety Plan or Job Safety Analysis (JSA)	
☐ Client/Facility Contractor Safety Orientation	
☐ Project Safety Orientation (JSA Review)	
☐ Daily Safety Meetings (Daily Pre-Task Planner)	
☐ OSHA 10 hr Construction Safety	
☐ OSHA 30 hr Construction Safety	
☐ OSHA 40 hr Hazwoper w/ current 8 hr Refresher	
☐ OSHA Hazwoper Medical Clearance	

	☐ Confined Space Entry Certification (necessary for permit-required entry or non-permit designations)	
	☐ Respirator Training, Fit Test, and Resp. Medical	
	☐ Excavation Competent Person designation	
	☐ Scaffold Competent Person Training	
	☐ Lifting & Rigging Plan	
	☐ Erosion Control Certification	
	☐ Heavy Equipment "Acceptance Inspections"	
	☐	
Permits & Inspections applicable to scope of work	☐ Confined Space Entry Permit ☐ Hot Work Permit ☐ Energized Electrical Work Permit (from sub) ☐	☐ Daily Excavation Inspection Checklist ☐ Daily Scaffold Inspection Tags ☐ Daily Heavy Equipment Inspection Checklist ☐

Individuals must sign the "Pre-Work Briefing" form on the last page after reviewing this JSA.

HAZARD		HAZARD CONTROLS (check all that apply and comment as required)
ELEVATED WORK		
☐ NA	FALLS > **6'** or within **15'** of a ROOF OR MEZZANINE EDGE where the fall is >6' OR at **any height** when working above dangerous machinery, a drowning hazard, exposed rebar (impalement) or similar hazard.	☐ Existing Guardrails ☐ Hole Covers Marked "HOLE" ☐ Fall Restraint ☐ Temporary Guardrails ☐ Manlifts used for elevated work ☐ _____ ☐ Warning Line 15' from Edge ☐ Fall Arrest w/ harness/lanyard (identify tie-off points) ☐ Areas below elevated work will be protected to prevent entry by unauthorized personnel (describe how this will be accomplished in "Comments") ☐ Process machinery or equipment onto which persons may fall are locked out. Refer to the Lockout-Tagout/Electrical section. **Fall Protection Comments (describe equipment used):**
☐ NA	LADDERS / STAIRS ☐ Extension Ladders ☐ Step Ladders ☐ Fixed Ladders ☐ Stairs	☐ Employees training in safe ladder use at toolbox safety meeting ☐ Extension ladders are properly footed, secured at top, and setup at proper angle ☐ Stepladders are set on level ground or properly shimmed with spreaders locked. ☐ Stairs have proper rise over run and stairs >4 steps or 4' have guardrails. **LADDERS/STAIRS COMMENTS:**
☐ NA	SCAFFOLD Type: _____	☐ Scaffolds **erected** under supervision of, and **inspected daily** (when in use) by: **Competent Person:** _____ **Company:** _____ ☐ Toprail and midrail provided on scaffolds >10' (otherwise specify other fall protection) ☐ Work platforms are at least 18" wide & made of scaffold lumber or cleated aluminum planks. ☐ Scaffolds placed on mud sills, pavement, concrete or other solid surface ☐ Scaffolds are tagged daily by competent persons in accordance with the Green / Yellow / Red tagging system. [MANDATORY – Tags are commercially available.]

	HAZARD	HAZARD CONTROLS (check all that apply and comment as required)
		☐ Areas below scaffolds will be protected to prevent entry by unauthorized personnel (describe how this will be accomplished in "Comments") **SCAFFOLD COMMENTS:**
☐ NA	AERIAL LIFT used to reach work ☐ Scissor Lift ☐ Extensible Boom ☐ Articulated Boom ☐ vertical Lift ("Genie")	☐ Operators are sufficiently trained, experienced and qualified. ☐ Equipment is inspected after mobilization and is in good condition. ☐ Harness & Lanyard worn whenever operating the lift (scissor lifts may be excepted) ☐ Overhead and surface obstructions are reviewed with operators prior to use. ☐ Aerial Lift counterweight swing radius is marked to prevent "struck by" and "crush" injuries. ☐ Areas below aerial lifts will be protected to prevent entry by unauthorized personnel (describe how this will be accomplished in "Comments") **MANLIFT COMMENTS:**
EXCAVATIONS / TRENCHING		
☐ NA	☐ Max Depth ≥ 20' ☐ Max Depth ≥ 5' ☐ Max Depth <5' with potential cave-in hazard ☐ Potential permit-required confined space at depth ≥ 4' ☐ Underground utilities ☐ Structures/foundations ☐ Falls into excavations ☐ Other:	☐ Sloping & shoring for excavations ≥20' are approved by a professional engineer ☐ Sloping & shoring for excavations ≥5' when persons are exposed to cave-in. (specify below) ☐ Sloping & shoring for shallow (<5') excavations with cave-in hazard (specify below) ☐ Excavations ≥ 4' are classified as a non-permit confined space ☐ Excavations ≥ 4' are classified as Alternate Entry or Permit-Required (see confined space) ☐ Underground utilities have been identified and marked. ☐ Local "dig safe" organization has been notified for utility locations in public areas or rights of way. Number: _____ Date: _____ ☐ Hand digging within 3' of utility locations. ☐ Excavations are protected by perimeter fencing (not barricade tape): (☐ rigid fence - chain link or wood ☐ safety fence 6' from edge.) **EXCAVATION COMMENTS:**
CONFINED SPACES		
☐ NA	☐ No Serious Hazards ☐ Toxic Atmosphere ☐ carbon monoxide ☐ hydrogen sulfide ☐ ☐ Flammable Atmosphere ☐ Low Oxygen ☐ Combustible dust ☐ Other Serious Hazard:	**Specify confined space entry approach(es) to be used: [Multiple may apply based on spaces]** ☐ Confined space is altered so that it is no longer a confined space. (describe below) ☐ Confined space is downgraded to a non-permit confined space. (identify which spaces below) ☐ Alternate Entry is used. (Identify which space qualify for confined space entry below) ☐ Full permit-required confined space entry is used due to presence of serious hazards. **Verify Rescue Team Support [MANDATORY for permit-required entry]:** ☐ Rescue team has been notified (☐ Paid FD ☐ Volunteer FD ☐ Plant Rescue) Rescue Team:_____ Phone Number: _____ **Verify Other Applicable Requirements:** ☐ All entrants and attendants for Alternate Entry and Permit-Required Entry have confined space entry training. [MANDATORY for permit-required and alternate entry] ☐ Mechanical ventilation and continuous air monitoring [MANDATORY for alternate entry]

	HAZARD	HAZARD CONTROLS (check all that apply and comment as required)
		☐ LOTO is required to make conditions safe for entry (Describe in Lockout-Tagout/Electrical) ☐ Refer to "Manual Lifting" section of this JSA for manhole cover removal safety. **CONFINED SPACE COMMENTS:**
LOCKOUT-TAGOUT / ELECTRICAL		
☐ NA	Maintenance, construction, or modification of processes and equipment with POTENTIAL UNEXPECTED RELEASE OF ENERGY. Identify energy types: ☐ Electrical ☐ Pressurized liquid piping ☐ Compressed gas / steam ☐ Moving Parts (conveyors, chains, belts, fans, shafts) ☐ Hydraulic systems ☐ Chemical release ☐ Describe Equipment requiring lockout:_____	**Designate Persons Responsible for Overseeing O'Brien & Gere's LOTO activities:** ☐ Qualified LOTO Coordinator (MANDATORY):_____ ☐ Test Supervisor (LOTO Equipment-Under-Test): _____ ☐ Qualified Electrical Worker (Electrical-Arc Flash): _____ **Identify or Develop Written Equipment-Specific LOTO Procedure (☒ at least one):** ☐ Equipment owner to lockout equipment using their procedures. ☐ OBG operators will de-energize equipment following LOTO procedures integrated into O&M procedures. (Reference procedure in "Comments.") ☐ OBG to develop and implement lockout procedures for equipment under OBG control using the "Equipment-Specific LOTO Form". (Attach completed LOTO form to JSA.) ☐ LOTO procedures are specified below in "Comments" and are equivalent to LOTO form. **Identify How Locks Will Be Applied (☒ at least one):** ☐ Group lock box will be used with all persons working on equipment attaching their own lock(s) and tag(s). Location of lock box: _____ ☐ Equipment or process components will be individually locked with all persons working on equipment attaching their locks and tags directly on equipment. **Specify Other Lock Requirements (☒ at least one)::** ☐ OBG to apply a "***Company Lock***" to prevent premature startup by owners or subcontractors. Company Locks are NOT intended to replace personal locks for anyone. Specify who is responsible for Company Locks: _____ ☐ Workers will **not** be allowed to work under a supervisor's or another's lock [MANDATORY] **Specify Tags (☒ at least one)::** ☐ "Danger" tags with diagonal red & white stripes (required unless client's specify different) ☐ Client-required tags specific to the site. Describe below in "Comments." ☐ "Company Locks" identified with an "Out of Service" tag and **not** a LOTO tag. [MANDATORY for multi-shift or multi-subcontractor lockouts] **Other LOTO or Electrical Safety Requirements:** ☐ All project team personnel are informed that they may not **remove electrical panels** or otherwise expose energized electrical equipment (unless they are **NFPA 70E** trained and have implemented the required precautions). [MANDATORY] **LOCKOUT COMMENTS:**
☐ NA	OVERHEAD POWER LINES _____ KV _____ ft above ground _____ KV _____ ft above ground	☐ Request to de-energize lines will be submitted for work within 20' of power lines. Request sent to: _____ Date: _____ ☐ No one will be permitted to work <10' to power lines without lines being de-energized. ☐ Project persons are informed of 20' safety zone around energized power lines. ☐ Project persons are informed of additional restrictions when working ≤20' but >10': ☐ Dedicated spotter for all elevated work or operation of equipment that can contact lines ☐ Barricades setup at 20' from base of power lines to establish a "restricted work area." ☐ "Power Line Safety Permit' required to work within 20' of power lines.

HAZARD		HAZARD CONTROLS (check all that apply and comment as required)
		☐ Power lines are shielded and/or marked with high visibility material **POWER LINE COMMENTS:**
☐ NA	ARC FLASH Location: _____ Voltage: _____	☐ Electrical equipment evaluated for arc flash potential by a NFPA 70E qualified person. ☐ Persons with potential arc flash exposure are properly trained and equipped with electrically rated gloves, face shield, coveralls, etc. ☐ Non-essential personnel will be kept clear of all areas affected by arc flash ☐ Client/Owner notifications will be made in advance. (Specify below in "Comments.") **ARC FLASH COMMENTS:**
HEAVY EQUIPMENT (other than cranes)		
☐ NA	Struck By, Run-Over, Caught In Between (pinch points), Roll Over, Fluid Leaks ☐ Bulldozer ☐ Excavator ☐ Front Loader ☐ mini Skid Steer (bobcat) ☐ mini Excavator ☐ Dump Truck ☐ Drill/Boring Rig ☐ Lull / Material Handler ☐ Forklift ☐ ☐ ☐ Aerial Lift - specify type(s):	☐ **Qualified persons** operate all heavy equipment. Qualifications were determined by: ☐ License or certificate (required for forklift and lull operators). ☐ "Good-Guy Letter" on company letterhead or email with company email address. ☐ **"Acceptance Inspection"** for heavy equipment upon mobilization documented on an inspection checklist by: _____(Mgmt representative). ☐ **Daily Heavy Equipment Inspections** by Operators documented on an inspection checklist☐ **Preventative Maintenance** performed on all heavy equipment on site >30 days (required) ☐ Operators will be reminded of seatbelt use by: _____ ☐ High visibility vests are required for: _____ ☐ Operators will review manufacturer's safety guidelines for all equipment operated on slopes. Max. safe slope for each vehicle: _____ ☐ Counterweight swing radius will be barricaded. ☐ Spotters are required when trucks or other heavy equipment are backing up. Clarify procedure in "Comments" below. ☐ Operators and helpers will maintain a safe distance to moving parts. All those working near moving or rotating parts will secure loose hair, clothing, and equipment. ☐ Fall protection will be worn by all those in manlifts (scissor lifts are excepted: ☐ Yes ☐ NO) ☐ Drill rigs will only be moved with masts lowered. Masts will be erected with outriggers fully extended when equipped with outriggers. ☐ Rigging directly to the forks of a lull, forklift, or front loader equipped forks is prohibited. Crane hook attachments will be used (specify):_____ ☐ Spill equipment is available for fuel and hydraulic fluid leaks. Location: _____ **HEAVY EQUIPMENT COMMENTS:**
HOT WORK / WELDING / CUTTING		
☐ NA	Fire, explosion, burns, UV flash, fume, gases ☐ Welding - Specify: base metal:_____	☐ O'Brien & Gere will issue hot work permit. Name:_____ ☐ The site owner will issue hot work permits. Name: _____

	HAZARD	HAZARD CONTROLS (check all that apply and comment as required)
	electrode:_____ Shield gas:_____ ☐ Oxy/Acetylene Cutting base metal:_____ ☐ Soldering/Brazing ☐ Grinding ☐	☐ Hot work permits are visibly posted. Location(s):_____ ☐ Fire watches are identified by name and remain _____ minutes after hot work (min of 30). ☐ A 20 lb ABC fire extinguisher will be placed within 25' of hot work or as directed on permit. ☐ Painted surfaces have been evaluated for lead content by: ☐NA _____ ☐ Insulation has been evaluated for asbestos content by: ☐NA _____ ☐ Pedestrians and adjacent workers will be protected from UV Flash by _____ ☐ Sparks and slag will be prevented from falling through floor and wall openings. ☐ Air monitoring will be conducted in hazardous areas. Haz Material:_____ Areas to be Tested:_____ ☐ Oxygen and acetylene cylinders will be separated by 20' when not used within 24 hours. ☐ All compressed gas cylinders in storage will be secured upright and capped. ☐ Face shields will be used for all grinding, cutting, and welding work. **HOT WORK COMMENTS: (Identify areas or tasks requiring hot work permits.)**
POWER TOOLS, HAND TOOLS, and EXTENSION CORDS		
☐ NA	eye injury, hand/arm cuts, electrical shock, strains, foot injuries, dust ☐ Grinders ☐ Jackhammer/Chip hammer ☐ Needle Gun ☐ Explosive Actuated (Hilti) ☐ Chop saw ☐ Chain saw ☐ concrete/asphalt saw ☐ ☐ ☐	☐ All tools and electrical cords will be inspected upon mobilization by:_____ ☐ All tools and electrical cords in-use will be inspected daily by:_____ _____ ☐ **GFCIs** will be used on all extension cords and 120v power tools. ☐ **High Hazard Power Tools** must be used because the use of safer tools is not feasible. High hazard power tools include powder-actuated tools, chainsaws, chop/demo saws, weed trimmers with blade cutter, die/end grinders, abrasive wheel tools, hand-held rebar bender, portable HDPE fusion welder, circular saw, portable band saw: ▪ Implement HSE Manual Requirements in the "Power Tools-High Hazard" procedure. ▪ Refer to the high hazard power tools safety meeting topics in the Safety Meeting Topics manual to support field safety training prior to use of high hazard power tools. ☐ **Grinder** speeds will not exceed grinding wheel ratings. ☐ **Jackhammers** will not be used in a horizontal position without mechanical support. ☐ Only properly certified users will operate **explosive-actuated tools**. Identify user names and training dates: _____ ☐ **Water or wet cutting** performed to control dust ☐ **Respirators** used to prevent exposure to dust (respirator type:_____) ☐ **Face shield and chemical goggles** used required for chemical splash hazards ☐ **Face shield and safety glasses** required for all chain saws, weed trimmers, and similar tool ☐ **Kevlar chaps and jacket** are required for all chainsaw work. ☐ **Kevlar chaps** are required for chop saws, weed trimmers with blades, and similar tools ☐ **Hearing protection** required for which tools or areas: _____ ☐ All **extension cords** are in good condition with no cuts through outer insulation, ground plugs are present, and no "vinyl tape" repairs. **TOOL & CORD COMMENTS:**

HAZARD	HAZARD CONTROLS (check all that apply and comment as required)
MANUAL MATERIAL HANDLING & STORAGE / HOUSEKEEPING / WALKING SURFACES (includes manhole covers, heavy lifting, slippery surfaces, and steep slopes)	
☐ NA back or shoulder strain, struck by falling objects, trips and falls, incompatible materials (fire or explosion) ☐ hvy manual lifting (>50 lbs) ☐ chemical storage ☐ compressed gas storage ☐ Tall storage greater than 2 pallets stacked. ☐ Material & equipment laydown areas ☐ Trash & debris removal ☐ Temporary cords & hoses placed across walkways ☐ Manhole Cover Removal ☐ Tripping Hazard (cords, hoses, uneven surfaces) ☐ Slipping Hazard (icy, muddy, oily, etc.) ☐ Steep sloped surfaces ☐	MATERIAL HANDLING & HEAVY LIFTING ☐ Mechanical lifting equipment used to reduce manual material handling (NOTE - Refer to *Cranes, Hoists, & Rigging* section of JSA if cranes or hoists are used.): (☐ Forklift/Lull ☐ Heavy Equipment ☐ Dolly ☐ _____) ☐ Manual lifting more than **75 lbs** will require a 2-person lift or mechanical lifting device ☐ Good manual lifting techniques will be reviewed with the following trades/persons prior to site work. Refer to the "*Lifting-Manual*" topic in the Safety Meeting Topics manual: _____ MATERIALS STORAGE & HOUSEKEEPING ☐ Incompatible chemicals will be separated by 20' or a concrete block wall. ☐ Secondary containment will be provided for the following chemicals: _____ ☐ Safety equipment will be located near chemical storage. ☐ Spill Kit ☐ Emergency Shower ☐ Eyewash ☐ Drench Hose ☐ Splash PPE ☐ Flammable gases and oxygen will be separated by 20'. ☐ All compressed gas cylinders will be transported vertically and secured upright. ☐ Equipment and materials will be stacked in laydown areas with aisles as necessary for safe access. All un-used equipment & materials will be returned to laydown areas daily. Designated laydown areas:_____ ☐ Materials will not be stacked greater than 2 pallets high without being secured. ☐ Trash and debris will be removed daily and placed in designated containers. Specify debris segregation and location of disposal containers below. ☐ MANHOLE COVERS ☐ **Manhole covers** will ONLY be removed with tools specifically designed to remove them including J-hooks that are at least **30"** long. No pry bars, shovels, or screw drivers. ☐ **"Stuck" manhole** removal equipment and procedures are described in "comments." ☐ **"Paved-over"** manhole removal equipment and procedures are described in "comments." WALKING SURFACES ☐ **Slippery surface** – work area inspected for icy surfaces which will be salted/sanded. ☐ **Slippery surface** –YakTrax® or similar slip-on traction devices will be used for icy areas. ☐ **Hoses & Cords** will be run out of walkways (e.g., within 6" of walls or 7.5' overhead) whenever possible or will be clearly marked by cones or barricades. ☐ Inspect Work Area for **trip hazards**. Hazards will be corrected if possible. If hazards cannot be corrected, then slip & trip hazards will be clearly marked. ☐ **Steep slopes** will be avoided and alternative walkways established to the extent feasible (describe below) **MATERIAL HANDLING & HOUSEKEEPING COMMENTS:**
TRAFFIC & SIDEWALK OBSTRUCTION	
☐ NA	☐ Vehicle accidents ☐ Utility Vehicle Rollovers	☐ DOT signal devices will be used to re-route vehicles around excavations or busy site entrances/exits that affect road traffic. ☐ Flaggers will be used and have DOT Flagger Training

HAZARD		HAZARD CONTROLS (check all that apply and comment as required)
	☐ Pedestrians struck by vehicles or heavy equipment ☐ Pedestrians falls ☐ Pedestrian struck-by falling objects	☐ Procedures for work vehicles to enter/exit traffic work zones are required when work zones are setup in high speed roadways or when potential blind-spots exist. Explain in "Comments." ☐ Pedestrian traffic will be safely routed around or over excavations. ☐ Pedestrian traffic will be safely routed around or under overhead work. ☐ Recreational Style ATVs are prohibited. ☐ ATUVs allowed with rollover protection, seat belts, horn, and lights. ☐ Golf Carts allowed if speed ≤20 mph and operated only on site roads (no off-road use). **TRAFFIC & SIDEWALK COMMENTS:**
CRANES, HOISTS, & RIGGING		
☐ NA	tip-over, struck-by dropped loads, Crane Make:_____ Crane Model:_____ Hoist Make: _____ Hoist Model: _____	☐ Crane Operator is qualified: ☐ CCO ☐ State License ☐ Company Letterhead ☐ Crane signal person is qualified and has documented OSHA signal person training ☐ Rigging personnel are designated as qualified by their employer. ☐ Lifting & Rigging Plan will be prepared by: Company Name:_____ ☐ No Lifting & Rigging Plan is required - crane work is not critical lift. ☐ Annual crane maintenance certification within last 12 months. Date:_____ ☐ Periodic crane inspection within 30 days. Date:_____ ☐ Site owner notified by: Name:_____ Date: _____ ☐ Hoists are clearly marked with a load rating. ☐ Hoists have a current "frequent" (visual) inspection by qualified operators conducted in the last 30 days and is documented on a tag, checklist, or equivalent. ☐ Hoists have a current "periodic" inspection by a person qualified to perform hoist maintenance conducted in the last 12 months and is documented. ☐ All rigging hardware, slings, wire ropes, etc. are inspected prior to use by qualified riggers. Defective rigging equipment will be immediately removed from service. ☐ Loads will not be hoisted over people. Areas below suspended loads will be barricaded as necessary to prevent entry. **CRANES, HOISTS, & RIGGING COMMENTS:**
STEEL ERECTION		
☐ NA	structural collapse (falls, hot work, cranes, and rigging are covered elsewhere in this JSA)	☐ Written "notice to proceed" will be sent to the steel erection sub. Date:_____ ☐ Written notice of any bolting or rod modifications made by after drawings were "issued for bid" to the steel erection sub. Date(s):_____ **STEEL ERECTION COMMENTS:**
CONCRETE / MASONRY		
☐ NA	struck by injury, trips & falls, cuts from rebar, skin burns from contact with concrete (concrete saw, jackhammers, fall protection, heavy equipment are covered elsewhere in this JSA)	☐ All rebar ends <6' must be protected by rebar caps ☐ Only authorized persons will be allowed to walk on rebar pads to minimize the number of persons at risk of tripping or falling. ☐ Concrete truck operator will be instructed to take direction only from the concrete worker who is handling the discharge chute/hose when related to moving the discharge chute/hose. ☐ Finishers, masonry workers, & others who must kneel extensively will be provided kneepads. ☐ Temporary steps will be provided for all elevation changes ≥18".

HAZARD		HAZARD CONTROLS (check all that apply and comment as required)
		CONCRETE MASONRY COMMENTS:
BIOLOGICAL HAZARDS (Site Surveys & Inspections, Clearing & Grubbing, Caretaking Services)		
☐ NA	Infection, Lyme Disease, West Nile Virus, Eastern Equine Encephalitis (EEE), Severe Rash, Allergic Reaction, Venom effects ☐ Ticks ☐ Mosquitoes (EEE, WNV, etc) ☐ Venomous Snakes ☐ Venomous Spiders ☐ Poison Ivy, Oak, or Sumac ☐ Bees & Wasps ☐ Fire Ants ☐ Other (identify below):	☐ Use **DEET** (25%-98%) repellent on skin for protection against mosquitoes, ticks, and similar insects. Use higher concentrations for heavily infested areas. ☐ Use **Permethrin** repellent on clothing in areas heavily infested with ticks, chiggers, etc. ☐ Persons working in tick-infested overgrown areas instructed to wear **spun-poly or Tyvek coveralls** [required for all persons in ESR and working in the NE region plus NJ, & PA.] ☐ Persons returning from work in tick-infested areas instructed to perform **periodic field checks** for ticks and a thorough **tick inspection** as soon as they get home. ☐ Employees (only) instructed to **call WorkCare** for embedded ticks from fieldwork. ☐ All site personnel will be instructed on how to **identify poison ivy, sumac, and oak**. (O'Brien & Gere Field Identification Guide or equiv. has been posted? ☐ YES ☐ NO) ☐ Poison ivy **barrier creams** (e.g., Ivy Block) will be used on exposed skin prior to the workday. ☐ Poison ivy **neutralizing wipes or rubbing alcohol** will be used on hands and exposed skin following work activities or incidents where contact with poison ivy/oak/sumac is suspected. ☐ **Protective coveralls** (such as Tyvek™) will be used to prevent contact with ticks or poison ivy. ☐ All site personnel will be instructed on how to **identify venomous snakes** indigenous to the area. List venomous snakes of concern in the "Comments" section below. (O'Brien & Gere Field Identification Guide or equiv. has been posted? ☐ YES ☐ NO) ☐ All field personnel with a potential to **encounter venomous snakes** will wear: ☐ Snake Chaps AND/OR ☐ High Leather Safety Boots (NOT ankle-high boots/shoes) ☐ All site personnel will be instructed on how to identify **venomous spiders** indigenous to the area. List venomous spiders of concern in the "Comments" section below. (O'Brien & Gere Field Identification Guide or equiv. has been posted? ☐ YES ☐ NO) ☐ Site personnel with known **allergies** to bee/wasp stings, fire ant bites, or other insect bites carry an "EpiPen" or equivalent medication prescribed for treating allergic reaction. **BIOLOGICAL HAZARDS COMMENTS:**
ENVIRONMENTAL & CHEMICAL HAZARDS / HAZARDOUS WASTE SITE WORK		
☐ NA	Exposure to hazardous vapors or dust, contact with contaminated materials, fire, explosion. Contaminants of Concern and hazardous chemicals include: ☐ volatile organic compounds (describe:_____ _____) ☐ semivolatile organic cmpds (describe:_____ _____) ☐ metal dusts	☐ Site workers with a potential for contact with contaminated materials and work in Level C PPE will have OSHA 40-hour training, current 8-hour refresher, and medical exam. ☐ Site workers with minimal contact with contaminated materials and no work in Level C PPE will have OSHA 40-hour or 24-hour training, current 8-hour refresher, and medical exam. ☐ Foremen or Supervisors overseeing field crews will have 8-hour OSHA Supervisor training. ☐ No intrusive work activities or areas are anticipated with current scope of work. ☐ Intrusive work activities include: _____ _____ ☐ The perimeter of intrusive work areas are identified by:_____ ☐ Decontamination of personnel or equipment is not anticipated with the current scope of work.

HAZARD	HAZARD CONTROLS (check all that apply and comment as required)
(describe:_____ _____) ☐ PCBs ☐ Caustic (NaOH) ☐ Acid (H2SO4, HCL) ☐ ☐ (many other hazardous waste site hazards are covered elsewhere in this JSA)	☐ Decontamination of personnel and small tools will be conducted as follows: _____ _____ _ _____ _ ☐ Decontamination of heavy equipment will be conducted as follows: _____ _____ _ ☐ Heavy equipment leaving the site will be inspected by: _____ ☐ **Work area monitoring** is not anticipated with the current scope of work. ☐ **Work area air monitoring** will be conducted per attached air monitoring plan & action levels. ☐ **Work Area Air Monitoring** as follows for: ☐ Dust, ☐VOCs, ☐Other:_____ Description: _____

Action Levels[1]	Description & Response Actions
<X	1. Level D PPE (General PPE as required in this JSA)
X	1. Half or Full Face Level C PPE - Tyvek, boot covers, nitrile gloves, half or full face w/ respirator with _____ cartridges changed (☐ daily, ☐ _____) OR 2. Implement additional engineering or administrative controls to reduce contaminant concentrations below action level(s).
10X	1. Full Face Level C PPE w/ Quantitative Fit Testing (no half-face) 2. Or Reduce contaminant(s) below Level B action level(s).
50X	1. Level B PPE – PPE same as above with a supplied air respirator 2. Or STOP work until contaminant levels can be reduced. 3. Notify the Project Manager and Client Representative.
????	1. STOP work
1. Sustained 1 minute	

☐ **Community Air Monitoring** is not anticipated with the current scope of work.
☐ **Community Air Monitoring** is required per the attached air monitoring plan.
☐ **Community Air Monitoring** as follows for: ☐ Dust, ☐ VOCs, ☐ Other:_____
Description:
_____

Action Levels[1]	Description & Response Actions
<0.1 mg/m³	1. Normal Operation
0.1 mg/m³	1. Increase demolition dust controls until dust levels at the site perimeter (fence line) are <0.1 mg/m³

HAZARD		HAZARD CONTROLS (check all that apply and comment as required)
		0.15 mg/m³ — 1. STOP work and evaluate alternate work methods or dust controls; 2. Implement revised work methods and dust controls to maintain dust levels at the site perimeter <0.1 mg/m³; 3. Resume work. 1. 15 minutes time-weighted average **ENVIRONMENTAL & CHEMICAL HAZARD COMMENTS:**
OTHER HAZARDS & CONTROLS not addressed in other sections of this JSA		
☐ NA	☐ ☐ ☐	

EMERGENCY RESPONSE

(911 Service is Available ☐ Yes ☐ No **Cell Phone Required** ☐ Yes ☐ No)

Alternate Emergency Number (if not "911"):

Site Address:

Muster Point in case of site evacuation:

Emergency Medical Treatment - Hospital Name: Hospital Address:		**Number:**	
Non-Emergency Med. Treatment - Clinic Name: Occupational Clinic Address:		**Number:**	
Minor Injury Support for OBG Employees:	**WorkCare Incident Intervention**	**Number:**	888-449-7787
Fire Department Name		**Number:**	
Spill Response:		**Number:**	
Client Representative Name::		**Office Number:** **Cell Number:**	
O'Brien & Gere **Project Manager** Name:		**Office Number:** **Cell Number:**	
O'Brien & Gere **Corporate H&S** Name:		**Office Number:** **Cell Number:**	
Contact Name:		**Office Number:** **Cell Number:**	
Contact Name:		**Office Number:** **Cell Number:**	

EMERGENCY RESPONSE COMMENTS:

1. NOTIFICATIONS - Upon occurrence of any injury, fire, explosion, major spill (beyond incidental), property damage >$1,000, or near-miss that could have resulted in a fatality or disabling injury, **IMMEDIATELY NOTIFY** the O'Brien & Gere Project Manager, O'Brien & Gere Manager of Corporate H&S, and the Client Representative.
2. WRITTEN REPORT - Complete an *Incident Report* within **24 hours** and submit to the O'Brien & Gere Manager of Corporate H&S for review. Report may be submitted as a "draft" or "preliminary" and updated as additional information is identified.
3. INJURY RESPONSE
   - First aid injuries will be handled on site with FA-trained personnel. First aid and CPR supplies are located: _____.
   - If a person (OBG employee or subcontractor employee) may be **working alone** at times when the job site is unoccupied, then regular "check-ins" will be conducted between the lone site person and their supervisor or other designated person. The method of communication (radio, cell phone), the frequency of check-ins, and the names of individual(s) with whom the lone worker will be checking in must be outlined below under "*Other Emergency Information*." Employees should not be assigned to "High Hazard Work" when working alone.
   - **All O'Brien & Gere employees will call WorkCare for minor injuries** that include any strains, cuts for which an employee is not confident that a band aid is sufficient, tick/insect bites for which the employee is concerned about infection or Lyme, any other work-related injury for which the employee would like to talk to a WorkCare medical professional regarding proper treatment or follow-up.
   - **WorkCare posters must be posted at each job site with a field office or trailer.**
   - Minor (not life threatening) injuries that require medical attention will be treated at the "Non-Emergency Med Treatment" clinic identified above **unless an alternate clinic is recommended by WorkCare**. If no clinic is available or identified, then default to the "Emergency Medical Treatment" facility.
   - Life Threatening injuries are an emergency and require implementing emergency response (911 or alternate).
4. FIRE or EXPLOSION
   - Incipient stage (trash can size) fires may be handled by site personnel using fire extinguishers or hoses.

EMERGENCY RESPONSE

- Larger fires will require that affected personnel are evacuation to the identified muster point and implementing emergency response (911 or alternate).

5. SPILL RESPONSE
   - Major spills that exceed the available supplies and resources to safely control and cleanup will require contacting an off-site spill responder indicated above for "Spill Response" and in accordance with existing site spill response plans. If a specific spill responder is not identified, a large spill will require implementing emergency response (911 or alternate).
   - Review available spill control and prevention plans that may be applicable to the work area. Ensure project personnel are familiar with plan requirements.
   - Minor or incident spills will be cleaned up by site personnel using supplies that are located: _____.
   - The site owner will make notifications for reportable spills unless O'Brien & Gere is authorized to make those notifications.
6. POSTING - Emergency numbers and Hospital Route Map are posted: _____.
7. OTHER EMERGENCY INFORMATION:

HOSPITAL ROUTE MAP

< Insert a hospital route map and directions >

OCCUPATIONAL CLINIC ROUTE MAP

<If Available, Insert an Occupational Clinic Map and Directions>

Pre-Work Briefing Acknowledgement: Individuals who are performing work covered by this JSA have received a project-specific safety orientation that includes a review of the safety requirements outlined in this JSA. The undersigned individuals acknowledge that have read this JSA and/or reviewed this JSA with a designated project representative and agree to comply with safety requirements outlined herein. The undersigned individuals understand that these safety requirements are not "all-inclusive" and that they are expected to follow any additional safe work practices applicable or customary to their specific scope of work or trade.

Print Name	Signature	Company	Date

OBG
Part of Ramboll

Stormwater Pollution Prevention Plan

Union Fork & Hoe Site
Stormwater Pollution Prevention Plan

Ames Corporation
Union Fork & Hoe Site
Frankfort, New York
Site No. 622011

April 2019

OBG
Part of Ramboll

APRIL 2019

Union Fork & Hoe Site
Frankfort, New York
Site No. 622011

Prepared for:
Ames Corporation

STEPHEN W. ANAGNOST, P.E.
O'Brien & Gere Engineers, Inc.

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)
AMES

Owner/Operator Contact Person Last Name (NOT CONSULTANT)

Owner/Operator Contact Person First Name

Owner/Operator Mailing Address

City
CAMP HILL

State
PA

Zip
_____ - _____

Phone (Owner/Operator)
___ - ___ - ____

Fax (Owner/Operator)
___ - ___ - ____

Email (Owner/Operator)

FED TAX ID
__ - _____ (not required for individuals)

Project Site Information

Project/Site Name
UNION FORK & HOE SITE NUMBER 622011

Street Address (NOT P.O. BOX)
253 East Main Street

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

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

State: NY
Zip: 13340 -
County: HERKIMER
DEC Region: 6

Name of Nearest Cross Street
NORTH FRANKFORT STREET

Distance to Nearest Cross Street (Feet)
0

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

Tax Map Numbers
Section-Block-Parcel
122.74.1-56

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): 494135

Y Coordinates (Northing): 4764926

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

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

***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
29.5	2.5	0.0	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
100 %	%	%	%

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

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

Start Date	End Date
	-

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

Name

MOWHAWK RIVER

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?

TOWN OF FRANKFORT

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

Contact Name (Last, Space, First)
ANAGNOST, STEVE

Mailing Address
333 WEST WASHINGTON STREET

City
SYRACUSE

State NY Zip 13221-4873

Phone 315-956-6100

Fax 315-463-7554

Email
STEVE.ANAGNOST@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 STEVE **MI** W

Last Name ANAGNOST

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

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.

A RAWP has been prepared in accordance with a 2011 Order on Consent (Index No. A6-0667-06-11) between the NYSDEC and the respondent, Ames True Temper. The remedial construction will be performed in substantive compliance with GP-0-15-002.

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 CONS. ORD. #A6-0667-06-11
- ○ None

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

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

MI

Print Last Name

Owner/Operator Signature

Date

__ __ / __ __ / __ __ __ __

Erosion and Sediment Control Plan

TABLE OF CONTENTS

ACRONYNS AND ABBREVIATIONS

ESC Standards	New York Standards and Specifications for Erosion and Sediment Control
ESCP	Erosion and Sedimentation Control Plan
NYSDEC	New York State Department of Environmental Conservation
OBG	O'Brien & Gere
RAWP	Remedial Action Work Plan

1. INTRODUCTION

This *Erosion and Sedimentation Control Plan* (ESCP) has been prepared to support the implementation of the New York State Department of Environmental Conservation (NYSDEC) selected remedy for the Union Fork & Hoe Site located in Frankfort, New York (Site No. 622011) (referred herein as "the Site"). The selected remedy to address environmental impacts identified at the site is presented in the March 2018 Record of Decision Document (NYSDEC 2018). Information on the Site operational history and existing site conditions are detailed in the Remedial Action Work Plan (RAWP).

1.1 PURPOSE

This ESCP presents the erosion and sedimentation control measures to be implemented during the remedial action. The objectives of the erosion and sedimentation control program are to:

- minimize the potential for erosion of exposed and/or disturbed soils
- minimize the potential for transport of suspended soil/sediment within surface water runoff

This ESCP has been prepared in accordance with the guidelines presented in the 2016 NYSDEC document titled New York Standards and Specifications for Erosion and Sediment Control (ESC Standards).

1.2 PROJECT DESCRIPTION

The remedial construction activities are anticipated to include, at a minimum, the following:

- Mobilization
- Site preparation, including installation of temporary erosion and sediment control facilities
- Excavation of on-site and off-site soil to address impacted soil
- *Ex-situ* stabilization of soil characteristically hazardous for metals
- Consolidation of soils that do not exceed off-site disposal criteria
- Transportation of soils treated *ex-situ* off-Site for disposal as a non-hazardous waste
- Treatment/handling of water generated during remediation
- Construction of a vegetative soil cover
- Restoration of areas with clean imported fill, brick and block material located on-Site, and soil that does not exceed off-site disposal criteria
- Removal of temporary erosion and sediment control facilities
- Demobilization

Additional details regarding the remedial construction activities for the site are provided in the RAWP.

2. EROSION AND SEDIMENTATION CONTROL MEASURES

This section presents the performance details on erosion and sedimentation control measures to be utilized as part of remedial construction activities.

2.1 SITE PLANNING & PREVENTION MEASURES

This project will implement the following site planning and prevention measures for t~~empora~~ry erosion ~~and sedim~~ent control during construction:

- The weather forecast will be monitored daily by O'Brien & Gere (OBG)/subcontractors in an effort to anticipate significant rain events (*e.g.*, a rain event of greater than 0.5-inches of rain in a 24 hour period). Subcontractors will plan to avoid performing ground disturbing activities during significant rain events to the extent practical.
- The area of ground disturbing operations will be minimized such that erosion and sedimentation control can be implemented quickly and effectively.
- OBG/subcontractors will plan and sequence construction events in an effort to minimize the time that stockpiled materials are exposed.
- Temporary stockpiles of material will typically be located in upland areas out of the extents of significant runoff. Additional stormwater perimeter controls may be required at down gradient locations.
- Stockpiles of fill material left in place overnight or prior to a rain event will be placed on and covered with plastic sheeting or a suitable binding agent to avoid becoming dislodged and entrained in stormwater runoff. Perimeter controls (*e.g*., reinforced silt fence, etc.) will be installed around stockpiles on a case-by-case basis to be determined by the OBG.
- Restore the surface as soon as possible.

2.2 INSTALLATION OF CONTROL MEASURES

Erosion and sedimentation controls (including silt fencing, hay/straw bales, and the stabilized construction entrances) will be installed during site preparation activities and will be completed prior to any land disturbance or clearing activities. Initial measures will be set up on the perimeter of the project areas. Before material staging areas or temporary access roads are constructed, appropriate erosion and sedimentation control measures will be implemented around these areas in accordance with the requirements herein and in the ESC Standards (NYSDEC 2016).

Throughout performance of the remedial action, existing erosion and sedimentation controls will be maintained, and new or supplemental temporary erosion and sedimentation control measures will be added as needed.

Potential erosion and sedimentation control measures are discussed in more detail below.

2.2.1 Silt Fencing and Straw Bale Dikes

Silt fencing and/or straw bale dikes will be used to reduce or otherwise control the potential off-site migration of suspended sediments in stormwater runoff, and will be installed before any existing soils or vegetation are disturbed at the site. Silt fencing and straw bale dikes (where used) will be installed and maintained by the subcontractor in accordance with Section 5A of the ESC Standards (NYSDEC 2016).

Typical details of erosion control measures are shown on Sheet G-13 and G-14 of the Construction Drawings, included as Appendix A of the RAWP.

2.2.2 Construction Road Stabilization and Stabilized Construction Entrances (Temporary Access Roads)

Stabilized construction entrance(s) will be installed at all points of construction vehicle ingress and egress to the site to minimize the potential for off-site tracking of material. Vehicles and equipment leaving the site will be inspected to confirm soil materials are not tracked onto off-site areas. Construction entrance(s) will be maintained to manage/replace soil-laden stone with new clean stone.

Temporary access roads will be used to stabilize on-site vehicle transportation routes and equipment lay-down and parking areas. Temporary access roads will be installed during site preparation activities and before excavation work begins. Temporary access roads will be constructed and maintained in accordance with Section 5A of the ESC Standards (NYSDEC 2016).

Typical details of the stabilized construction entrance and access road are shown on Sheet G-13 of the Construction Drawings included as Appendix A of the RAWP.

2.3 PERIODIC INSPECTIONS

Erosion and sediment controls will be inspected once every seven calendar days (at a minimum) and after storm events to verify their continued effectiveness and integrity. For temporary work stoppages greater than two weeks in duration (*e.g.*, winter shut-downs), the inspection frequency may be reduced to once every 30 calendar days if temporary stabilization measures have been applied to all disturbed surfaces, and if approved by NYSDEC. The results of each inspection, including any corrective actions to be taken, will be documented on an inspection form (Attachment D).

Deficiencies observed during the inspection, and any maintenance activities or corrective actions required to address those deficiencies, will be communicated to OBG within one working day of the inspection. Maintenance activities and corrective actions will be initiated within two working days of the inspection and will be completed before the next scheduled inspection. If site conditions prevent the maintenance activities or corrective actions from being completed before the next scheduled inspection, such conditions will be documented in the inspection report, and the maintenance activities/corrective actions will be completed as soon as Site conditions permit.

Erosion and sediment controls will be inspected and maintained for the duration of the remedial construction activities, and until such time as all disturbed or open-soil areas at the site have been permanently stabilized and temporary erosion and sedimentation controls are no longer needed.

2.4 REMOVAL OF CONTROL MEASURES

After completion of all remedial activities, support areas (*e.g.*, access roads, staging areas) will be removed and restored to pre-construction condition (*e.g.,* vegetated cover, stone cover). A final site inspection will be performed and documented to verify that all restoration areas are suitably stabilized. If the restoration areas are not sufficiently stabilized, corrective actions will be taken and a second final site inspection will be performed. For seeded areas (if applicable), the growth success will be compared to a nearby plot of undisturbed land and then reported as a density percentage compared to the natural plot. The ground will be considered stabilized when the growth density has reached 80%. Upon acceptance of the final site stabilization, temporary erosion and sediment controls (*e.g.,* silt fencing, etc.) that are no longer needed will be removed.

2.5 POST-CONSTRUCTION STORMWATER MANAGEMENT CONTROLS

Due to the nature of the work being performed (*e.g.*, removal of impacted material under a NYSDEC-approved document), post-construction water quality and quantity controls have not been provided.

3. REFERENCES

NYSDEC. 2016. New York Standards and Specifications for Erosion and Sediment Control. November 2016.

NYSDEC, 2018, Record of Decision, Former Union Fork & Hoe Site No. 622011, Frankfort, New York

Pre-Construction Requirements

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

Project Name: Union Fork & Hoe Site NYSDEC Site No. 622011

Site Location: Frankfort **County:** Herkimer

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 the Owner 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 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 with compliance with GP-0-15-002. The Contractors 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, the Owner (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, the Owner shall submit a completed NOT with the name and permit identification number of the new Owner. If the Owner maintains ownership of a portion of the construction activity and will disturb soil, they must obtain their coverage under the general permit.

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[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.

- Prior to commencing soil disturbance, the Owner and the Contractors 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 need to start corrective measures within one day after notified of inspection.

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 involved with the stormwater-related activities signed a Contractor's Certification Statement (Appendix C-3)?
[ ]	[ ]	[ ]	Have the Contractors' Construction Stabilization Schedule (Appendix C-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?

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 fence and wood chip berm material and installation comply with the contract drawing, SWPPP and specifications?
[ ]	[ ]	[ ]	Are silt fences and wood chip berms 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 the Owner 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	

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: Union Fork & Hoe Site NYSDEC Site No. 622011

Site Location: Frankfort **County:** Herkimer

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

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

PRE-CONSTRUCTION REQUIREMENTS: CONTRACTOR/SUBCONTRACTOR CERTIFICATION STATEMENT

Project Name: Union Fork & Hoe Site NYSDEC Site No. 622011

Site Location: Frankfort **County:** Herkimer

(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 from the contracting (construction) company 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 (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

PRE-CONSTRUCTION REQUIREMENTS: CONTRACTOR/SUBCONTRACTOR CERTIFICATION STATEMENT

Project Name: Union Fork & Hoe Site NYSDEC Site No. 622011

Site Location: Frankfort **County:** Herkimer

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 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 the Owner and/or Operator must comply with the terms and conditions 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 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. I also certify that I have received a copy of the SWPPP and will retain a copy of such SWPPP on-site during construction.

IV. SIGNATURE

_____ _____

Signature **Date**

_____ _____

Name (print) **Title**

Inspection Forms

FIELD RECORD COPY

Union Fork and Hoe Site

SWPPP MAINTENANCE INSPECTION FORM

Permit No: _____ Inspection #: _____

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

Soil Conditions: **WET /DRY /SATURATED** (Circle One) Weather Conditions:_____

Type of Inspection	Yes	No
1. Initial Inspection		
2. Weekly/Biweekly Inspection		
3. Construction Shutdown Inspection		
4. Final Inspection:		
a. Has the site undergone final stabilization?		
b. Have all temporary erosion controls been removed?		

(Edit Checklist below for Project Specifics)

Project Checklist (indicate Areas of concern on the attached map)	Yes	No	N/A
Erosion and Sediment Controls:			
1. Is there any evidence of sediment laden runoff leaving the site?			
2. Are silt fences in good condition and free from visible signs of erosion (___% sediment buildup)?			
4. Are construction access/egress points stabilized?			
5. Are vehicles and equipment being washed down in a stabilized area?			
6. Is wash-down water being managed to prevent sedimentation?			
7. Are dust control measures being applied as needed?			
8. Are swales clear of debris and functioning properly?			
Stabilization Practices:			
9. Have all disturbed portions of the site where earth disturbing activities have ceased and will not resume within 14 days been temporarily stabilized by covering with plastic, mulching, or by mulching and seeding?			
10. Have all disturbed portions of the site where earth disturbing activities have permanently ceased been stabilized with topsoil and permanent seed?			
Additional Stormwater Controls:			
11. Are material storage / handling/stockpile areas properly stabilized?			
12. Are concrete disposal areas being properly utilized?			
13. Is there any evidence of spills or leaks from vehicles/equipment?			

List Disturbed Areas	Stabilized Yes	Stabilized No
1.		
2.		
3.		
4.		
5.		

FIELD RECORD COPY

FIELD RECORD COPY

Union Fork and Hoe Site

SWPPP MAINTENANCE INSPECTION FORM

Work Performed Since Last Inspection & Effectiveness of Corrective Actions: _____

Comments on General Site Conditions: _____

Remarks/Recommendations*: _____

* Please make a distinction between deficiencies to the SWPPP and normal maintenance items.

Condition of Runoff at Discharge Points (Photos Attached):_____

PLEASE SEE ATTACHED MAP FOR LOCATIONS

Inspector: _____ **Training #:** _____ **Date:** _____
Signature of Inspector

Reviewed: _____ **Training #:** _____ **Date:** _____
Qualified Professional

FIELD RECORD COPY

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:

2. Street Address:

3. City/State/Zip:

4. Contact Person: | 4a.Telephone:

4b. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

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)

Sampling and Analysis Plan

Union Fork & Hoe Site
Sampling and Analysis Plan

Ames Corporation
Union Fork & Hoe Site
Frankfort, New York
Site No. 622011

February 2019

OBG
Part of Ramboll

TABLE OF CONTENTS

LIST OF ACRONYMS

ASP	Analytical Services Protocol
CQA	Construction Quality Assurance
CQAP	Construction Quality Assurance Plan
DQO	data quality objective
ELAP	Environmental Laboratory Approval Program
Ft	feet
HASP	Health and Safety Plan
MS/MSD	matrix spike/matrix spike duplicate
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
PCBs	polychlorinated biphenyls
POTW	Publicly Owned Treatment Works
QA/QC	quality assurance/quality control
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SCOs	Soil Cleanup Objectives
SF	square feet
SPDES	State Pollutant Discharge Elimination System
SVOC	semi-volatile organic compound
TAL	target analyte list
TCL	target compound list
TCLP	Toxicity Characteristic Leaching Procedure
TSS	total suspended solids
USEPA	United States Environmental Protection Agency
VOCs	volatile organic compounds

1. INTRODUCTION

This *Sampling and Analysis Plan* (SAP) has been prepared to support the implementation of the New York State Department of Environmental Conservation (NYSDEC) selected remedy for the Former Union Fork and Hoe Site located in Frankfort, New York (Site No. 622011) (referred herein as "the Site"). The selected remedy to address environmental impacts identified at the Site is presented in the March 2018 Record of Decision (ROD) (NYSDEC 2018). Information on the Site operational history, existing Site conditions, and remedial construction project are detailed in the Remedial Action Work Plan (RAWP) to which this document is appended.

The purpose of this SAP is to provide performance based guidance on the anticipated sampling and analytical requirements for the remedial construction activities.

2. FIELD SAMPLING PROCEDURES

This section provides typical procedures for implementing sample collection and analysis activities anticipated during remedial construction, including, but not limited to:

- All post-excavation compliance sampling following excavation of the impacted soil.
- The collection and analyses of quality assurance/quality control (QA/QC) samples, as specified herein, in connection with the post-excavation compliance sampling of soils.
- The production and distribution of a New York State Department of Environmental Services Analytical Services Protocol (NYSDEC ASP) Category B data package for the results of confirmation sampling and analyses performed.
- Soil sampling for waste characterization
- Post-treatment confirmation testing required to document that the waste no longer exhibits the characteristic of hazardous waste prior to disposal, and to document compliance with 40 CFR Part 268 and 6 NYCRR Part 376.4.
- Sampling of construction water for monitoring associated with a State Pollutant Discharge Elimination System (SPDES) equivalent or publicly owned treatment works (POTW) permit if required
- Sampling water for compliance with effluent discharge limits if on-Site water treatment is conducted
- Backfill materials sampling

Analytical laboratories used for project sample analysis will be New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certified. Geotechnical testing will be performed by a geotechnical testing laboratory capable of performing the testing required in this SAP and in accordance with the relevant ASTM International (formerly the American Society for Testing and Materials; ASTM) standards, including applicable requirements of ASTM E329. Sampling documentation, testing results, and analysis performed during the project will be reviewed by O'Brien & Gere (OBG) for conformance with this SAP and the RAWP and subsequently provided to the NYSDEC. Field data calculations, transfers, and interpretations of data collected will be conducted by the appropriate personnel and reviewed for accuracy by the Construction Quality Assurance (CQA) Engineer or designee.

2.1 SOIL SAMPLING FOR WASTE CHARACTERIZATION

OBG will collect samples of soil for waste disposal characterization, to coordinate for acceptance by off-Site facility(ies) (*e.g.*, Resource Conservation and Recovery Act [RCRA] Subtitle D landfill), and identify soil that exceeds the hazardous waste threshold for metals, as defined by 6 NYCRR Part 371. As will be described in the Waste Material Handling and Disposal Plan that will be prepared after selection of construction subcontractor and the RAWP, sampling of soil will be performed by OBG as required by the treatment/disposal facility(ies) and as required to determine the hazardous nature of the materials.

To identify soil characteristically hazardous for metals, as defined by 6 NYCRR Part 371, soil that previous sampling indicates has lead concentrations greater 1,000 ppm will be sampled and analyzed for Toxicity Characteristic Leaching procedure (TCLP) metals at a frequency of one composite sample (consisting of a minimum of four discrete samples) per 200 cy of soil.

Specific analytical parameters for waste characterization and number of samples will be based on the requirements of the selected treatment/disposal facility(ies). The acceptance protocols and sampling requirements for will be provided when off-Site disposal facility(ies) are identified. It is anticipated that for solid waste, one composite sample for each 500 tons of waste will be collected and analyzed using the RCRA TCLP for volatile organic compounds (VOCs), semi volatile organic compounds (SVOCs) and metals. It is also anticipated the sample will be analyzed for total PCBs, ignitability, corrosivity and reactivity. Additional sampling requirements will be identified in the Waste Material Handling and Disposal Plan once a construction subcontractor and treatment/disposal facility(ies) are identified. Analytical methods are shown in Table 1.

Table 1 Waste Characterization Analytical Parameters and Methods

Constituent	Analytical Method
TCLP VOCs	USEPA SW846 Method 1311 Analysis 8260
TCLP RCRA Metals	USEPA SW846 Method 1311 Analysis 6010/7470
TCLP SVOCs	USEPA SW846 Method 1311 Analysis 8270
TCLP Pesticides/Herbicides	USEPA SW846 Method 1311 Analysis 8081/8151
Polychlorinated biphenyls	USEPA SW846 Method 8082
Ignitability	USEPA SW846 Method 1030
Reactivity	USEPA SW846 Method 9012/9034
Corrosivity	USEPA SW846 Method 9045D

OBG may conduct paint filter testing (USEPA SW846 Method 9095) to evaluate the presence of free liquids in a representative sample of soil prior to transport. All waste characterization analyses will be conducted by a NYSDOH ELAP-certified laboratory. All results will be reviewed for conformance with the RWP and disposal facility acceptance protocols/sampling requirements.

2.2 POST-TREATMENT SOIL SAMPLING

Post-treatment sampling of soil stabilized *ex-situ* will be conducted at a frequency of one grab sample per 100 tons of material treated (soil density assumed to be 1.5 tons per cubic yard). Each grab sample representing a 100-ton increment of processed waste will be analyzed for TCLP metals to demonstrate no leachable metals remain above the regulated hazardous waste threshold. A grab sample is required rather than a composite sample, in accordance with 6 NYCRR Part 376.4(j)(1) to evaluate treatment effectiveness. Results for TCLP metals will be compared with the hazardous waste threshold for metals presented in 6 NYCRR Part 371.

2.3 POST EXCAVATION COMPLIANCE SAMPLING

To evaluate and document achievement of the soil cleanup objectives, samples of soil will be collected from the perimeter and floor of excavations and analyzed for comparison to the appropriate Restricted Use SCO (Commercial for on-Site or Residential for off-Site). Analyses required for all compliance sampling will include target analyte list (TAL) metals and target compound list (TCL) SVOCs with 5 percent of the samples, up to a maximum of 25 samples, being analyzed for TCL VOCs, total PCBs and the 17 pesticides identified in NYCRR Part 375 Table 375-6.8(b): Restricted Use Soil Cleanup Objectives.

Compliance sampling will include documentation and confirmation samples based on the objective of the sample. Documentation samples will be collected from the floor of on-Site surface soil excavations to document the level of constituents remaining in place below the vegetative soil cover. Confirmation samples will be collected from all other excavations conducted as part of the remedy (source material excavations, off-Site excavations and sidewalls of surface excavations). Confirmation samples will demonstrate that the remedy has achieved the soil cleanup objectives identified by the ROD. Documentation and confirmation samples collected from the base of excavations will be collected on a grid having a 30-ft spacing, with a minimum of one sample being collected from the base of each discrete excavation made (if less than 900 square feet [SF]). If base confirmation samples for excavations PAH-5 and PAH-6 do not meet the excavation requirements of achieving less than 500 tPAH once the depth limits (12.5 and 12-feet respectively) have been reached, NYSDEC will be contacted to determine the appropriate course of action. Confirmation samples will also be collected from the sidewall perimeter of excavations at 30 ft intervals with no fewer than four samples being collected from each discrete excavation (to characterize the north, south, east and west side walls). Sidewall confirmation samples for shallow excavations shown on Sheets G-4 though G-9 will be collected from a depth of 0-2 inches bgs. Sidewall confirmation samples from subsurface excavations will be collected from the 6-inch depth interval of highest concentration of constituents based on previous sampling activities. OBG may elect to use portable X-ray fluorescence equipment to screen for metals concentrations prior to collection of compliance samples. If, during excavations, nuisance odors are encountered, compliance sampling will include additional analytical

methods of TCL VOCs and organophosphorus pesticides that will count toward the maximum of 25 samples requiring these analyses.

In addition to the discrete compliance samples collected, QA/QC samples including matrix spike, matrix spike duplicate (MS/MSD), field duplicate, and field/equipment duplicate samples will be collected on a frequency of one each for every increment of 20 post-excavation compliance samples collected. Field duplicate samples (if non-disposable equipment is used) will be collected to evaluate field sample collection procedures. Field duplicate samples are duplicate samples collected from one location and sent to the laboratory blind (with two different sample identities). Field duplicates are co-located and will be packaged separately from each other. With the exception of VOC soil samples, duplicates shall be homogenized. Separate aliquots of the homogenized soil shall be shipped as the sample and the blind field duplicate sample. Matrix spike and matrix spike duplicates shall be collected per group of similar concentration and matrix. MS/MSD samples are duplicate samples that have spiking solutions added at the laboratory. MS/MSD samples are considered identical to the original sample. The sampled material shall be homogenized in the field and laboratory prior to analyses. The percent recovery of the spiked amount indicates the accuracy of the extraction as well as the interferences caused by the matrix.

Table 2 Compliance Sampling Analytical Parameters and Methods

Constituent	Analytical Method
TCL Semi-volatile organic compounds	USEPA SW846 Method 8270
TAL metals	USEPA SW846 Series 6000/7000 Methods

2.4 WATER TREATMENT SYSTEM SAMPLING

If an on-Site water pretreatment or treatment system is utilized, sampling will be performed during start-up and operation) in accordance with a SPDES permit equivalent or the Temporary POTW Discharge Permit (to be obtained by RA Contractor).

If a SPDES permit equivalent is utilized, the sampling frequency and parameters to be monitored will be determined by the SPDES permit equivalent and may include: pH, total suspended solids (TSS), oil and grease, benzene, toluene, ethylbenzene, xylenes, and polycyclic aromatic hydrocarbons. Laboratory analyses will be conducted by a NYSDOH ELAP-certified laboratory using the most recent NYSDEC Analytical Services Protocol (ASP; NYSDEC 2005). The sampling results will be submitted to the permitting agency. Any exceedance of the discharge limits will be reported and the system evaluated as to the potential cause of the failed test. Once the potential cause(s) of the exceedance is determined, modifications will be made immediately to the on-Site water treatment system (with subsequent testing) to prevent future occurrences.

2.5 BACKFILL MATERIAL SAMPLING

RA Contractor will collect a representative sample of each proposed source and type of backfill material to be used at the work area. Analytical results will be compared to the following

- Imported Backfill: commercial use (on-Site) or residential use (off-Site) soil clean up levels presented in Appendix 5 of DER-10

If the sample results show an exceedance of the applicable criterion, either new source for the backfill material will be identified and analytical data provided, or written approval from NYSDEC to use the originally proposed backfill material will be obtained.

One representative sample for each backfill type and source will be submitted for sieve analysis and analytical testing. Laboratory analysis will include PCBs, pesticides, TCL VOCs, TCL SVOCs, and TAL metals. Gravel, rock or stone backfill, consisting of virgin material from a New York State Department of Transportation (NYSDOT) permitted mine or quarry, will be exempt from pre-characterization analytical sampling requirements provided that it contains less than 10% (by weight) material that would pass through a size 80 sieve. All other backfill (soil) brought on-Site must meet the commercial use soil clean up levels presented in Appendix 5 of DER-10 for use on-Site or residential use soil clean up levels presented in Appendix 5 of DER-10 for use off-Site. Alternate

sources of backfill will be identified by RA Contractor if unacceptable sample results are obtained for the RA Contractor proposed fill:

- For material being imported for a virgin mine/pit, one characterization sample will be required for each backfill type to be obtained from mine/pit.
- For material sources other than a virgin mine/pit, the number of characterization samples required for each backfill type to be obtained from the source(s) will be in accordance with Table 5.4(e)10 of DER-10.

Table 3 Backfill Sampling Analytical Parameters and Methods

Constituent	Analytical Method
TCL Volatile organic compounds	USEPA SW846 Method 8260
TCL Semi-volatile organic compounds	USEPA SW846 Method 8270
Polychlorinated biphenyls	USEPA SW846 Method 8082
Organophosphorus pesticides	USEPA SW846 Method 8141A
Chlorinated herbicides	USEPA SW846 Method 8151
TAL metals	USEPA SW846 Series 6000/7000 Methods
Total organic carbon	USEPA SW846 Method 9060

The samples for VOC analysis will be discrete grab samples, and the samples for PCB, pesticide, SVOCs, and inorganic constituent analysis shall be composite samples from five locations within the material.

In addition to the above chemical testing, one representative sample each of the various backfill materials will be collected for grain-size testing in accordance with ASTM D422. Alternatively, the material supplier may provide a certification statement and a previous sieve analysis for the material grain size profile.

2.6 BASELINE GROUNDWATER SAMPLING

OBG will collect groundwater samples from 16 monitoring wells for analysis to establish baseline conditions of the groundwater at the Site. This data will be used as a basis for development of a groundwater monitoring plan for the Site that will be incorporated into the SMP. Each sample will be analyzed by a NELAP certified laboratory with the methods presented in Table 4.

Table 4 Groundwater Sampling Analytical Parameters and Methods

Constituent	Analytical Method
TCL Volatile organic compounds	USEPA Method 8260B
TAL Metals	USEPA Method 6020, 6010B, 7470A
TCL SVOCs	USEPA Method 8270C

In addition to the discrete groundwater samples collected QA/QC samples consisting of field duplicates, matrix spike and matrix spike duplicates will be collected and analyzed at a frequency of 1 per 20 samples. Trip blanks will accompany each shipment of samples containing VOC samples. Trip blanks will only be analyzed for VOCs.

The laboratory will provide a deliverable package that conforms to the requirements of New York State ASP Category B as well as an electronic data deliverable (EDD). The data will be reviewed by a data validator and a Data Usability Summary Report will be prepared. Once validated, the EDD will be updated and data will be uploaded to the NYSDEC EQuIS database.

3. QUALITY ASSURANCE/QUALITY CONTROL

This section summarizes typical QA/QC elements and procedures for the remedial action sampling activities, including:

- Discussion of project data quality objectives (DQOs)
- Sample handling, packaging, and documentation procedures
- Field QA/QC procedures
- Laboratory QA/QC procedures
- Data reduction, review, validation, and reporting procedures

3.1 DQOS

The overall objective is to develop and implement procedures for sampling, laboratory analysis, and data review and reporting to generate valid and useable data meeting project requirements. Project DQOs are identified in this section for the remedial action sampling activities so that the data generated during the sampling activities will be of adequate quality and sufficient quantity to form a sound basis for remedial action decision-making.

3.1.1 DQO Process

The DQO process, as described in the USEPA's QA/G-4 SAP instruction document, is intended to provide a "logical framework" for planning environmental data collection activities. The following section addresses, in turn, each of the seven sequential steps in the USEPA QA/G-4 DQO process.

Step 1: State the Problem

- Soil for waste characterization
- Post-excavation compliance samples
- Water associated with temporary water treatment system for compliance with effluent discharge limits
- Imported backfill materials sampling to demonstrate that imported materials brought to the Site are suitable for their intended use and do not contain contaminants at unacceptable concentrations

The remedial action sampling and analysis activities are intended to generate data to support remedial action decision-making activities at the Site.

Step 2: Identify the Goal of the Study

The initial use of the data is descriptive (distribution and concentration) and there is no decision point for this descriptive application. Subsequent to review of the descriptive information, an evaluation will be performed based on the data.

Step 3: Identify Information Inputs

Information inputs incorporate both the concentration and distribution of constituents in Site media. A fundamental basis for decision-making is that a sufficient number of data points of acceptable quality are available to support the remedial action decisions. The data will be evaluated for completeness and general conformance with requirements of this SAP and the RAWP.

Step 4: Define the Boundaries of the study

The boundaries for the study area are described in the RAWP. The spatial boundaries are shown on the Design Drawings included as Appendix A of the RAWP.

Step 5: Develop the Analytical Approach

The decision on whether data can be used will be based on the review of field collected data, laboratory results (as applicable), and results of data review and evaluation.

Step 6: Specify Performance or Acceptance Criteria

Specifications for this step call for: 1) giving forethought to corrective actions to improve data usability; and 2) understanding the representative nature of the sampling design. Anticipated sampling and analysis activities and potential corrective measures have been developed based on known Site conditions and the proposed remedial actions.

Step 7: Develop Plan for Obtaining Data

The overall objective is to develop and implement procedures for field sampling, chain-of-custody, laboratory analysis, and reporting. Typical procedures for sampling, chain-of-custody, laboratory instrument calibration, laboratory analysis, data reporting, internal QC, preventive maintenance of field equipment, and corrective action are described in Section 3.2 through 3.5.

3.1.2 Project DQOs

DQOs are qualitative and quantitative statements that specify the quality of the data required to support decisions made during Site-related activities and are based on the end uses of the data to be collected. As such, different data uses may require different levels of data quality. The three analytical categories listed below address various data uses and the QA/QC effort and methods required to achieve the desired level of quality:

- Screening Data - Screening data affords a quick assessment of work area characteristics or conditions. Screening data is applicable for data collection activities that involve rapid, non-rigorous methods of analysis and QA. Screening data is generally applied to physical and/or chemical properties of samples, relative concentration differences, and preliminary health and safety assessment.
- Screening Data with Definitive Confirmation - Screening data provides rapid identification and quantitation; however, the quantitation may be relatively imprecise. Screening data with definitive confirmation is available for data collection activities that require qualitative and/or quantitative verification of a select portion of sample findings (10% or more). The data can also be used to verify less rigorous laboratory-based methods.
- Definitive Data - Definitive data are generated using rigorous analytical methods, such as approved USEPA reference methods, which produce tangible raw data (e.g., chromatograms, spectra, digital values) in the form of paper printouts or computer-generated electronic files. Data are analyte-specific, with confirmation of analyte identity and concentration.

It is anticipated that both screening and definitive data categories will be used during the remedial construction. For sampling activities, three levels of data reporting are available:

- Level 1 - Minimal Reporting - Minimal or "results only" reporting is used for analyses that, either due to their nature (e.g., field monitoring) or the intended data use (e.g., preliminary screening), do not generate or require extensive supporting documentation.
- Level 2 - Modified Reporting - Modified reporting is used for analyses performed following standard USEPA/NYSDEC-approved methods and QA/QC protocols and that, based on the intended data use, require some QC supporting documentation (but not, however, full ASP Category B reporting).
- Level 3 - Full Reporting - Full ASP Category B reporting is used for analyses that, based on the intended data use, require full documentation including back up, for review.

The table below summarizes stated DQOs for each sampling activity, relative to data uses, data reporting level, and data quantity:

Table 5. Summary of Sampling Data Quality Objectives

Sampling Activity	Data Use	Analytical Data Reporting Level	Data Quality
Soil sampling for waste characterization	Characterize wastes for acceptance at treatment facilitates	Level 2	Per selected treatment/disposal facility acceptance criteria
Water treatment system sampling	Confirm the effectiveness of the water treatment system in meeting established discharge limits	Level 2	Described in Section 2.4
Post Excavation Compliance sampling	Evaluate achievement of soil cleanup objectives	Level 3	Described in Section 2.3
Imported backfill sampling	Confirm that backfill materials meet applicable criteria	Level 2	Described in Section 2.5
Baseline Groundwater Sampling	Basis for development of long term monitoring plan	Level 3	Described in Section 2.6

3.2 SAMPLE HANDLING, PACKAGING, AND SHIPPING

This section describes typical handling, packaging, and shipping procedures for soil/sediment, and water samples subject to laboratory analyses.

3.2.1 Sample Containers and Preservation

Appropriate sample containers and preservation methods for soil and water samples will be in accordance with the most recent NYSDEC ASP requirements, unless otherwise noted. The testing laboratory will supply appropriate sample containers in sealed cartons, as well as sample labels and preservatives.

3.2.2 Sample Labeling, Packaging and Shipping

Field personnel will be responsible for properly labeling sample containers. Sample custody seals and packing materials for filled sample containers will be provided by the testing laboratory. The filled, labeled, and sealed containers will be placed in a cooler, on ice, and carefully packed to minimize the possibility of container breakage. The packaged samples will be shipped via either express overnight carrier or courier (or hand-delivered by sampling personnel) to the laboratory and analyzed within holding times.

3.2.3 Sample Documentation

Field Personnel will provide comprehensive documentation covering all aspects of field sampling and chain-of-custody. This documentation will constitute a record that will allow for the reconstruction of sampling events described in this SAP to aid in the data review and interpretation process. All documents, records, and information relating to performance of the sampling events described in this SAP will be retained in the project file on-Site until project completion.

Daily documentation of sampling activities (when conducted) will be recorded in a field notebook (*e.g.*, a waterproof, bound notebook), sampling log forms, electronic data collection or documentation devices that will contain a record of sampling activities performed at the work area. Applicable notes will be made in the field notebook as to the location of sample collection, physical observations, sample depths, and weather conditions. Field personnel performing sampling activities will also document the activities and conditions using photos taken with a digital camera. A videotape recorder may also be used as necessary.

Chain-of-custody forms will provide the record of responsibility for sample collection, transport, and submittal to the laboratory. Chain-of-custody forms will be filled out at each sampling location, at a group of sampling locations, or at the end of each day of sampling by one of the field personnel designated to be responsible for

sample custody. In the event that the samples are relinquished by the designated sampling person to other sampling or field personnel, the chain-of-custody form will be signed and dated by the appropriate personnel to document the sample transfer. The original chain-of-custody form will accompany the samples to the laboratory and copies will be forwarded to the project files. Persons will have custody of samples when the samples are in their physical possession, in their view after being in their possession, or in their physical possession and secured so they cannot be tampered with. In addition, when samples are secured in a restricted area accessible only to authorized personnel, they will be deemed to be in the custody of such authorized personnel.

3.3 FIELD QA/QC

This section summarizes typical QA/QC requirements for field sampling activities associated with the remedial action. For this project the highest level of Analytical Data Reporting is Level 3. Level 3 reporting requires field duplicates, field/equipment duplicate, trip blanks or matrix spike/matrix spike duplicate (MS/MSD) samples. Level 2 reporting does not require field duplicates, rinse blanks, trip blanks or MS/MSD samples.

3.3.1 Sample Containers

New, certified-clean sample containers for soil and water samples to be analyzed during the field sampling activities will be supplied by the analytical laboratory as described above.

3.3.2 Field Equipment Decontamination

If dedicated sampling equipment is not used for each sample location the following field equipment decontamination procedures will be followed.

1. Using a laboratory grade detergent and potable water, remove visible particles and residuals.
2. Thoroughly rinse the equipment with potable water.
3. Wrap the sampling equipment with a clean inert material such as aluminum foil for transport to the sample collection area.

3.4 LABORATORY QA/QC

This section summarizes typical QA/QC requirements for laboratory analytical activities associated with remedial action sampling activities. Laboratory QC procedures will be conducted in a manner consistent with relevant regulatory guidance. The laboratory will have current NYSDOH ELAP certification.

3.4.1 Laboratory Analytical Procedures

Laboratory analytical procedures specified in the most current ASP (NYSDEC 2016) will be used, where applicable. Specific procedures (*e.g.*, sample size, sample preservation, holding times) are method dependent and will be determined and implemented by the selected analytic laboratory. Reporting limits will be selected such that the reporting limit is less than the criteria results will be compared to (e.g., analytical results for on-Site soil backfill samples will have reporting limits less than the commercial use soil clean up levels presented in Appendix 5 of DER-10). Analytical results will be reported in the units consistent with the screening levels. Results from the analysis of soil/sediment samples will be reported as dry weight.

3.4.2 Laboratory QC

Instrument calibration procedures will follow the specifications provided by the instrument manufacturer or specific analytical method used. Instrument calibration procedures for all parameters will be as specified in the most recent ASP (NYSDEC 2005) or in the analytical method. Laboratory control charts will be used to determine long-term instrument trends.

The laboratory will prepare and submit full ASP Category B reporting deliverables, as required. The deliverable will contain the following supporting documentation:

- A Sample Delivery Group Narrative;
- Contract Lab Sample Information sheets;

- DEC Data Package Summary Forms;
- Chain-of-custody forms; and,
- Test analyses results (including tentatively identified compounds for analysis of volatile and semi-volatile organic compounds)

3.5 DATA REDUCTION, REPORTING, AND REVIEW

After field and laboratory data are obtained, the data will be subject to the following activities:

- Reduction or manipulation mathematically or otherwise into meaningful and useful forms
- Review
- Organization, interpretation, and reporting

3.5.1 Field Data Reduction, Review, and Reporting

Information collected in the field through visual observation, manual measurement, and/or field instrumentation will be recorded in field notebooks, data sheets, and/or on forms. Such data will be reviewed for adherence to the SAP and for consistency. Concerns identified as a result of this review will be discussed with field personnel, corrected if possible, and as necessary incorporated into the data evaluation process.

Field data calculations, transfers, and interpretations for data collected by OBG will be conducted by the appropriate personnel and reviewed for accuracy by the CQA Engineer or designee. All logs and documents will be checked for:

- General completeness
- Readability
- Use of appropriate procedures
- Appropriate instrument calibration and maintenance
- Reasonableness in comparison to present and past data collected
- Correct sample locations
- Correct calculations and interpretations

Where appropriate, field data forms will be processed and included in appropriate reports. The original field logs, documents, and data reductions will be kept in the project file.

3.5.2 Laboratory Data Reduction, Review, and Reporting

The laboratory reduction, review, and reporting of analytical data are discussed below.

3.5.2.1 Laboratory Data Reduction/Review

The calculations used for data reduction are specific to the analytical methods selected. Whenever possible, analytical data are transferred directly from the instrument to a computerized data system. Raw data are entered into permanently bound laboratory notebooks. The data entered are sufficient to document all factors used to arrive at the reported value.

Concentration calculations for chromatographic analyses are based on response factors. Quantitation is performed using ether internal or external standards.

Inorganic analyses are based on regression analysis. Regression analysis is used to fit a curve through the calibration standard data. The sample concentrations are then calculated using the resulting regression equation.

3.5.2.2 Laboratory Data Reporting

Where appropriate, laboratory data forms will be processed and included in appropriate reports. The original logs, documents, and data reductions will be maintained and archived by the laboratory for a period of 10 years.

The laboratory will provide a data package that meets the requirements of a NYSDEC ASP Category B package. Analytical results for all samples will be delivered in electronic data deliverable format (EQuIS 4 file format) and will also be provided in a full data package in an indexed and searchable PDF (Adobe® Acrobat® .pdf).

3.5.2.3 Data Usability Summary Report

Data usability summary reports provide a thorough evaluation of analytical data with the primary objective to determine whether or not the data, as presented, meets the site/project specific criteria for data quality and data use. Data usability summary reports will be generated for samples requiring analytical data reporting level 3 in accordance with DER-10 Appendix 2B.

REFERENCES

NYSDEC. 2010. DER-10: Technical Guidance for Site Investigation and Remediation. May. Available online at http://www.dec.ny.gov/regulations/67386.html.

USEPA. 1992. Specification and Guidance for Obtaining Contaminant-Free Sample Containers (USEPA 540/R-93/051) and OSWER Directive 9240.0-05A.

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Baseline Groundwater Sampling Plan

Union Fork & Hoe Site
Baseline Groundwater Sampling Plan

Ames Corporation
Union Fork & Hoe Site
Frankfort, New York
Site No. 622011

April 2019

OBG
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DO	dissolved oxygen
EDD	electronic data deliverable
FER	Final Engineering Report
IDM	investigation derived materials
ml/min	milliliters per minute
mV	millivolts
NTU	nephelometric turbidity units
NYSDEC	New York State Department of Environmental Conservation
ORP	oxidation-reduction potential
PPE	personal protective equipment
QA/QC	Quality Assurance/Quality Control
RAWP	Remedial Action Work Plan
ROD	Record of Decision
SMP	Site Management Plan
SU	Standard Units
SVOCs	semi-volatile organic compounds
USEPA	United States Environmental Protection Agency
VOCs	volatile organic compounds

1. INTRODUCTION

This Baseline Groundwater Sampling Plan has been prepared to support the implementation of the New York State Department of Environmental Conservation (NYSDEC) selected remedy for the Former Union Fork and Hoe Site located in Frankfort, New York (Site No. 622011) (Site). The selected remedy to address environmental impacts identified at the Site is presented in the March 2018 Record of Decision (ROD) (NYSDEC 2018). Information on the Site operational history, existing Site conditions, and remedial construction project are detailed in the Remedial Action Work Plan (RAWP) to which this document is appended.

The purpose of this Baseline Groundwater Sampling Plan is to present a scope of work for the collection of baseline groundwater data at the Site. This data will then be used as a basis for development of a groundwater monitoring plan for the Site that will be incorporated into the Site Management Plan (SMP).

2. SCOPE OF WORK

To accomplish the baseline groundwater sampling, groundwater samples will be collected from 16 monitoring wells. These wells are located as shown on Figure 1 with construction information provided in Table 1. 11 of the wells were installed in 2013 within the shallow, intermediate and deep aquifers of the site. As these are the most recently installed wells they likely are in the best condition of wells located at the site. Well OW-1 was also selected to be included in baseline sampling as PCE has historically been detected above water quality standards.

2.1 WELL INTEGRITY SURVEY

Prior to sampling a well integrity survey will be conducted on the wells to be sampled. The well integrity survey will assess the conditions of the wells to include, verification of intact surface seals, integrity of protective covers or surface casings, depth to groundwater, and measured depth of the well.

The thickness of silt will be estimated based on the difference between the well depth identified on the well construction table and the well depth measured during the well integrity inspection. Thicker deposits of silt likely indicate that the formation contains more fine-grained materials that could also be entrained within the sand-pack surrounding the well screen. Therefore, wells containing more than 1 ft of accumulated silt will be redeveloped to remove the materials. The wells will be redeveloped prior to sampling using a surging and bailing or pumping process. If during sampling, silt in the wells presents turbidity concerns, additional water will be purged during sample collection to remove excess silt and reduce the turbidity.

2.2 GROUNDWATER SAMPLING

Each well will be purged and sampled using low-flow methods at flow rates not less than 100 milliliters per minute (ml/min) and not greater than 500 ml/min. During purging depth to water will be measured every 3 to 5 minutes. The flow rate will be adjusted such that purging does not induce drawdown greater than 0.3 feet. Water quality parameters will be measured using an in-line flow cell equipped with temperature, conductivity, pH, oxidation-reduction potential (ORP), and, dissolved oxygen (DO) proves. Turbidity readings will also be obtained from groundwater prior to the flow cell via an in-line bypass valve. The water quality measurements will be recorded at the same frequency as the depth to water measurements. Prior to sample collection, the water quality parameters will be allowed to stabilize for at least three consecutive measurements in accordance with the following stabilization criteria:

- pH within ±0.1 Standard Units (SU)
- Specific conductivity within ±3%
- ORP within ±10 millivolts (mV)
- DO within ±10%
- Turbidity within ±10% (ideally less than 50 nephelometric turbidity units [NTUs])

Visual and olfactory observations will also be noted at the start and end of purging. The field observations and measurements will be recorded on a low-flow groundwater sampling form.

2.2.1 Sample Collection and Handling

Subsequent to stabilization, the flow cell will be detached from the discharge tubing and samples will be collected directly from the tubing into pre-labeled, polypropylene or high-density polyethylene (HDPE), Teflon®-free laboratory-provided bottleware. The samples will be collected while wearing appropriate personal protective equipment (PPE).

2.2.2 Quality Control Samples

Quality Assurance/Quality Control (QA/QC) samples consisting of field duplicates, matrix spike and matrix spike duplicates will be analyzed at a frequency of 1 per 20 samples. In addition, trip blanks will accompany each shipment of samples containing VOC samples. Trip blanks will only be analyzed for VOCs.

2.3 LABORATORY ANALYSES AND DATA VALIDATION

The collected groundwater samples and associated QC samples will be analyzed by a NELAP certified laboratory with the following methods:

- TCL Volatile organic compounds (VOCs) – USEPA Method 8260B
- TAL Metals – USEPA Method 6020, 6010B, 7470A
- TCL Semi volatile organic compounds (SVOCs) – USEPA Method 8270C

The laboratory will provide a deliverable package that conforms to the requirements of New York State ASP Category B as well as an electronic data deliverable (EDD). The data will be reviewed by a data validator and a Data Usability Summary Report will be prepared. Once validated, the EDD will be updated and data will be uploaded to the NYSDEC EQuIS database.

2.4 MANAGEMENT OF INVESTIGATION DERIVED MATERIALS (IDM)

Groundwater generated during monitoring well redevelopment and well purging will be contained in 55-gallon drums which will be properly disposed of off-site. Personal protective equipment (*i.e.,* nitrile gloves) and sampling equipment will be disposed of off-Site as general refuse.

2.5 REPORTING

The results of the baseline groundwater sampling effort will be summarized in a table and figures showing groundwater elevation contours and distribution of VOCs, SVOCs and metals in the shallow, intermediate and deep aquifers for comparison to the 2015 data. The well locations will be reviewed with respect to constituent distribution to identify locations where there are more wells than are needed to monitor the effectiveness of the remedy. This information will be incorporated into the SMP as appropriate. The summary of the baseline groundwater data will be provided with the Final Engineering Report (FER).

2.6 IMPLEMENTATION SCHEDULE

The samples for baseline groundwater monitoring will be collected following approval of the RAWP and this Baseline Monitoring Sampling Plan by the NYSDEC, but prior to the planned Site remediation. A standard turnaround time of 20 business days will be requested, and the data will be validated. The summary of the baseline groundwater data will be provided with the FER after completion remedial construction.

Well Construction Information

Location ID - -	Ground Surface Elevation	Top of Casing Elevation	Total Depth (Ft bgs)	Diameter (in)	Screened Interval (Ft bgs)		Date Installed	Well Coordinates	
					Top	Bottom		Y	X
DEC SW 03	401.02	400.42	19.87	2	9.91	19.41	5/16/2013	1531492.5358	341209.2709
DEC SW 06	401.13	400.88	19.85	2	9.89	19.39	3/21/2013	1531138.4081	341446.2537
DEC SW 07	401.22	401.00	19.07	2	9.11	18.61	3/28/2013	1531012.4148	341517.7229
DEC SW 08	401.18	400.26	20.09	2	10.13	19.63	5/15/2013	1530644.1479	341718.6365
DEC SW 10	401.9	404.51	19.1	2	9.14	18.64	3/29/2013	1529973.2793	342080.5427
DEC-SW-11	399.56	401.76	18.69	2	8.8	18.3	3/29/2013	1530528.4269	341995.3700
DEC SW 12	408.02	407.63	22.13	2	12.17	21.67	4/19/2013	1530292.6185	341678.9544
OW 01	405.7	408.02	24.19	2	18.7	23.7	12/5/1985	1529993.9137	341840.5517
212-SB-02	405.42	405.17	29.19	1	9	29	8/6/2007	1530187.0682	341726.4813
FW-1	400.3	403.20	47.8	2	44.9	47.4	12/4/1984	1531626.9921	341479.6997
DEC-IW 02	402.02	404.64	48.11	2	38.15	47.65	3/27/2013	1530703.8911	341575.4897
DEC-IW-03	398.63	400.53	49.27	2	39.4	48.9	5/13/2013	1530602.8344	342143.6806
DEC-IW-04	398.74	401.22	49.37	6	39.5	49	4/25/2013	1531421.0024	341643.0405
DEC-IW 06	402.76	405.56	46.87	2	36.91	46.41	3/25/2013	1531811.8367	340722.3756
DEC-DW 01	401.53	401.29	77.04	2	67.08	76.58	4/18/2013	1531087.0358	341417.1114
DEC-DW 02	404.35	406.97	80.18	2	70.22	79.72	3/28/2013	1530285.0786	341746.7479

Well Locations

N

LEGEND:

- MONITORING WELL LOCATION
- CONCRETE STRUCTURE
- 1 FOOT TOPOGRAPHIC LINES
- BUILDING
- TREES/WOODS
- FENCELINE

AMES CORPORATION
UNION FORK & HOE SITE
SITE NO. 622011
REMEDIAL ACTION
FRANKFORT, HERKIMER COUNTY
NEW YORK

BASELINE GROUNDWATER MONITORING WELL LOCATIONS

0 200 400 Feet

33683.69547
FEBRUARY 2019

O'BRIEN & GERE ENGINEERS, INC.

OBG
Part of Ramboll

Submittal Register

SUBMITTAL REGISTER

CONTRACT NO. 33683/69547

PROJECT TITLE AND LOCATION:
Union Fork & Hoe
RAWP
Frankfort, New York

CONTRACTOR:
ENGINEER: O'BRIEN & GERE
OWNER: Ames

ACTION CODE KEY
1 - APPROVED
2 - APPROVED AS NOTED
3 - NOT SUBJECT TO REVIEW 4 - REVISE AND RESUBMIT

				TYPE OF SUBMITTAL		APPROVAL CLASSIFICATION			CONTRACTOR SCHEDULE		DATES	CONTRACTOR ACTION		
SUBMITTAL RESPONSIBILITY	SUBMITTAL ITEM NUMBER	LOCATION (CONSTRUCTION DRAWING OR RAWP)	DESCRIPTION OF ITEM SUBMITTED	PREMOBILIZATION SUBMITTAL	PROGRESS SUBMITTAL	INFO ONLY	BY OBG	BY NYSDEC	SUBMITTED ON	RESPONSE NEEDED BY	RESPONSE PROVIDED BY	ACTION CODE (see key above)	DATE	REMARKS
a.	c.	d.	e.	f.	g.	o.	p.	q.	r.	s.	t.	u.	v.	w.
OBG	1	Appendix A	**Construction Drawings**	X				X						Appendix A of RAWP
OBG	2	Drawing G-12	Minimum Compaction Efforts		X		X							
Contractor	3	3.5	**Request to Import/Reuse Fill or Soil Form**		X		X	X						Min of 5 business days to review, Required for all inported fill material
Contractor	4	3.5	Imported Material Sampling Results		X		X	X						Min of 5 business days to review
Contractor	5	MISC	Topsoil Test Results of Particle Size, Acidity, Fertility, and Texture		X		X							
Contractor	6	MISC	Location and Source of Off-Site Topsoil		X		X	X						
Contractor	7	MISC	Source of Backfill Material	X			X	X						
OBG	8	3.7	**CAMP- Dust Monitoring and Control**	X				X						Exhibit 1 of RAWP
OBG	9	3.7	Fugitive Dust and Particulate Monitoring Plan	X			X	X						Exhibit 2 of RAWP
OBG	10	3.7	Weekly CAMP Summary		X		X	X						Weekly CAMP Summary, Also provided to NYSDOH
Contractor/OBG	11	4.2.1	**Construction Quality Assurance Plan**	X			X	X						
Contractor	12	4.2.1	Responsibility and Authority	X			X							Lines of Communication
Contractor	13	4.2.1	On-site Observations		X		X							
	14	4.2.1	Sampling and Testing Methods	X			X	X						
OBG	15	4.2.1	Daily Summary Reports		X	X								
Contractor	16	4.2.1	Documentation		X		X	X						Data sheets, photographs, record drawings, problem id and corrective measure reports, final documentation
Contractor	17	4.2.1	Construction Quality Control Personnel Qualifications	X			X							
Contractor/OBG	18	4.2.2	**Traffic Control Plan**	X			X	X						
Contractor/OBG	19	4.2.2	Road Condition Survey	X			X							Video evidence of the roadway entering the site, location of existing damage will be documented
Contractor/OBG	20	4.2.4	**Remedial Action Contingency Plan**	X			X	X						
Contractor	21	3.7	Decontamination Plan	X			X	X						
Contractor	22	4.2.4	Spill Response Plan	X			X	X						
Contractor/OBG	23	4.2.5	**Construction Water Management Plan**	X			X	X						
Contractor/OBG	24	4.2.5	Methods for Handling, Sampling, and Analysis of Construction water	X			X	X						
Contractor/OBG	25	4.2.5	Methods for Storage, Treatment, and Disposal of Const Water	X			X	X						
Contractor/OBG	26	4.2.3	**Waste Material Handling and Disposal Plan**	X			X	X						
Contractor	27	4.2.3	Name and Location of off-Site disposal Facility	X			X	X						
Contractor	28	4.2.3	Names of licensed Waste Haulers	X			X	X						
OBG	29	3.3	Waste Stabilization Protocol	X			X	X						
OBG	30	Appendix B	**Health and Safety Plan**	X			X	X						Appendix B of RAWP
Contractor/OBG	31	Appendix B	Copies of Certificates of Health and Safety Training	X			X							
OBG/Contractor	32	Appendix B	Job Safety Analysis	X	X		X							
Contractor	33	Appendix B	OBG Site Work Permits		X		X							OBG requirement
Contractor	34	Appendix B	Safety Audit and Inspection Logs		X		X							
Contractor	35	Appendix B	Personal Protective Equipment Requirements	X			X							
Contractor	36	Appendix B	Heavy Equipment Inspections (Initial)		X		X							
Contractor	37	Appendix B	Heavy Equipment Inspections (Daily)		X		X							
Contractor	38	Appendix B	Written Preventative Maintenance Schedule	X			X							
Contractor	39	Appendix B	Safety Data Sheets		X		X							As materials are being brought on-site
Contractor	40	Appendix B	Air Monitoring Sampling Results		X		X							
Contractor/OBG	41	Appendix B	Contractors Health and Safety Plan	X			X	X						
OBG	42	Appendix B	Emergency Response Plan	X			X	X						
OBG/Contractor	43	Attach C-1	**Stormwater Pollution Prevention Plan**	X			X	X						Appendic C of RAWP
OBG/Contractor	44	Attach C-1	Stormwater Pollution Prevention Inspections		X		X	X						Twice every 7 days if more than 5 acres of soil are being disturbed at one time
OBG/Contractor	45	Attach C-1	Notice of Termination		X		X	X						
OBG/Contractor	46	Attach C-1	Stormwater Pollution forms and certifications		X		X	X						Forms provided in Appendix
OBG	47	Appendix C	**Erosion and Sediment Control Plan**	X				X						
Contractor	48	Appendix C	Erosion and Sediment Control Inspections		X		X	X						
OBG	49	Appendix D	**Sampling and Analysis Plan**	X			X	X						
OBG	50	2	Soil Sampling for Waste Characterization Results		X		X	X						Sampling and Analysis Plan
Contractor	51	2	Backfill Material Sampling		X		X	X						Sampling and Analysis Plan
OBG	52	3.2.3	Documentation of Sampling Activities		X		X	X						Recorded Daily
OBG	53	3.2.3	Chain of Custody Forms		X		X	X						
LabSubcontractor	54	3.4.2	Laboratory QC Reports		X		X	X						Submitted by Lab

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a.	c.	d.	e.	f.	g.	o.	p.	q.	r.	s.	t.	u.	v.	w.
OBG	55	3.5.1	Field Documentation		X		X	X						
Contractor	56	2	Sampling of Construction Water Results		X		X	X						
OBG/Contractor	57	3.2.1	Pre-excavation Sampling Plan	X			X	X						Proposed
OBG	58	3.2.1	TCLP metal analysis results		X		X	X						To determine how the soil will be managed
OBG	59	3.2.1	Hazardous levels of metals pre-characterization results		X		X	X						Sheet G-9, G-10
OBG	60	3.4	Compliance Sampling Results		X		X	X						Documentation and confirmation samples
OBG	61	5.2	**Site Management Plan**		X			X						
OBG	62	5.4	**Final Engineering Report**		X			X						
OBG	63	4.1	**Request for Proposal**	X			X							
Contractor	64	MISC	Proposed Layout of Trailers	X			X							
Contractor	65	MISC	Proposed Method of Furnishing Facilities	X			X							
Contractor	66	MISC	Excavation Sequence and Methods	X			X							
OBG	67	MISC	Proposed Testing Laboratory and Qualifications	X			X	X						
LabSubcontractor	68	MISC	NYSDEC ASP Category B Data Package		X		X	X						
LabSubcontractor	69	MISC	Certification of Grass Seed Mixture		X		X							
Contractor	70	MISC	Data Concerning Hydroseeding Equipment		X	X								
Contractor	71	MISC	Manufacturer's Statement of Analysis for Fertilizer		X		X							
Contractor	72	MISC	Source and Content Data for all Seed Mixes		X		X							
Contractor	73	MISC	Material and Application Rates for Hydroseeder		X	X								
OBG	74	3.5	Revised Benficial Use Determination	X				X						
Contractor	75	3.7	*Ex Situ* Treatment Work Plan	X			X	X						

Exhibits

NYSDOH Generic Community Air Monitoring Plan

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

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

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

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

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

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

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

Fugitive Dust and Particulate Monitoring Plan

Appendix 1B
Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50^{o} C (14 to 122^{o} F);
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see Paragraph 7). Should the action level of 150 ug/m3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and
(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

OBG

THERE'S A WAY