Revitalizing Auto Communities
Environmental Response Trust

June 4, 2014

Mr. Richard Mustico, P.E.
Bureau of Central Remedial Action
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, New York 12233

Re: RACER Trust – Former Syracuse IFG Facility and Deferred Media (Registry #7-34-057) Site – Revised Draft Off-Site (OU-2) Feasibility Study Addendum

Dear Mr. Mustico:

Attached please find the Revised Draft Off-Site (OU-2) Feasibility Study (FS) Addendum for the Former Syracuse IFG Facility and Deferred Media Site in Syracuse, New York. This FS Addendum presents the development and evaluation of two additional alternatives, as requested by NYSDEC. As discussed in this document, both alternatives presented in this Addendum are not considered to be implementable. Thus, had these alternatives been evaluated during preparation of the May 2013 FS Report, they would have been screened out prior to the evaluation of alternatives phase of the feasibility study. Please contact me at (201) 247 – 4890 should you have any questions or require further information.

Sincerely,

Brendan Mullen, P.E.
Cleanup Manager, NY

I:\Racer-Trust.15388\51418.Ifgfac-Ri-Fs-Om\Corres\Agencies RIFS\Off-Site FS Addendum_cover letter.doc

cc: Distribution List

Syracuse Main Plant Off-Site (OU-2) RI/FS Program Distribution List - Government Agencies

---

2 report paper copies and 1 copy on computer CD:

Richard Mustico, P.E.
NYSDEC Project Manager
Remedial Bureau D
NYS Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, New York 12233-7016
rxmustic@gw.dec.state.ny.us

---

1 copy of cover letter only:

Donald Hesler
NYS Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, New York 12233-7016
djhesler@gw.dec.state.ny.us

---

1 copy cover letter only:

Justin Deming
Bureau of Environmental Exposure Investigation
New York State Department of Health
Empire State Plaza
Corning Tower Rm 1787
Albany, NY 12237
jhd01@health.state.ny.us

---

1 report paper copy and 1 copy on computer CD:

Mark Sergott
Bureau of Environmental Exposure Investigation
New York State Department of Health
Flanigan Square
547 River Street, Room 300
Troy, New York 12180-2216
mss04@health.state.ny.us

---

2 copies on computer CD:

Harry Warner, Region 7
NYS Department of Environmental Conservation
615 Erie Blvd. West
Syracuse, New York 13204-2400
hdwarner@gw.dec.state.ny.us

---

1 copy of cover letter only:

Argie Cirillo, Esq.
Assistant Regional Counsel
U.S. Environmental Protection Agency, Region II
290 Broadway
New York, New York 10007-1866
Cirillo.Argie@epamail.epa.gov

---

1 copy of cover letter only:

Margaret A. Sheen, Esq.
NYS Department of Environmental Conservation
615 Erie Boulevard West
Syracuse, New York 13204
315-426-7405 315-426-7408
masheen@gw.dec.state.ny.us

---

1 report paper copy and 1 copy on computer CD:

Patricia Simmons Pierre, RPM
Central New York Remediation Section
NY Remedial Branch
U.S. Environmental Protection Agency, Region II
290 Broadway, 20th Floor
New York, New York 10007-1866
Pierre.Patricia@epamail.epa.gov

Syracuse Main Plant Off-Site (OU-2) RI/FS Program Distribution List - RACER Team

M. Brendan Mullen
Carl Garvey

1 copy on computer CD:
RACER Trust
2930 Ecorse Road
Ypsilanti, Michigan 48198
Phone: 313-486-2908
bmullen@racertrust.org
cgarvey@racertrust.org

Doug Crawford
Clare Leary

1 copy on computer CD:
O'Brien & Gere
333 W. Washington St
P.O. Box 4873
Syracuse, New York 13221-4873
Phone: 315-956-6100
Doug.Crawford@obg.com
Clare.Leary@obg.com

REVISED DRAFT ADDENDUM

Off-Site Feasibility Study
Former IFG Facility and Deferred Media Site
Addendum
Syracuse, New York

Revitalizing Auto Communities Environmental Response Trust

June 2014

O'BRIEN & GERE

15388 | 51418

Off-Site Feasibility Study Former IFG Facility and Deferred Media Site Addendum

Syracuse, New York

Prepared for:

Revitalizing Auto Communities Environmental Response Trust

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION

This document provides an Addendum to the May 2013 Feasibility Study (FS) Report for the off-site media (exclusive of groundwater) at the Revitalizing Auto Communities Environmental Response (RACER) Trust (property owner) Former Inland Fisher Guide (IFG) and Deferred Media Site located in the Towns of Salina and DeWitt, New York (O'Brien & Gere 2013a). Off-site media is referred to as Operable Unit 2 (OU-2). The New York State Department of Environmental Conservation (NYSDEC) and the former site owner (General Motors (GM)) entered into an Administrative Order on Consent (Index # D-7-0001-97-06; Order), which became effective September 25, 1997. The Order requires that a Remedial Investigation/Feasibility Study (RI/FS) be conducted. RACER submitted the Off-site RI Report to NYSDEC on March 12, 2013 (O'Brien & Gere 2013b). The Off-site RI Report was approved by NYSDEC in its letter of April 11, 2013 (NYSDEC 2013). RACER subsequently submitted the Off-site FS Report to NYSDEC on May 17, 2013. As a result of NYSDEC comments on the May 2013 FS Report, this document is being provided to supplement the FS Report.

This Addendum to the May 2013 FS Report documents the development and evaluation of two additional remedial alternatives as requested by NYSDEC in an August 9, 2013 email. The two additional remedial alternatives, Alternatives 4 and 5, reflect variations on volumes of soil to be addressed. Media addressed by the FS Addendum consist of Ley Creek Deferred Media (sediment, surface water and biota in Ley Creek between Townline Road and Route 11), soil directly off-site between the Former IFG Facility northern property boundary and Factory Avenue, soil along the shoulder of Factory Avenue between Route 11 and LeMoyne Avenue, the wetland located on the northern portion of the property directly west of the facility property, and portions of the Federal Emergency Management Agency (FEMA) 100-yr floodplain of Ley Creek. As documented in the May 2013 FS Report, off-site groundwater is being addressed with on-site groundwater in the RI/FS for OU-1. This Addendum was developed consistent with NYSDEC Division of Environmental Remediation's *Technical Guidance for Site Investigation and Remediation (DER-10)* (NYSDEC 2010a) and United States Environmental Protection Agency's (USEPA's) *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (USEPA 1988). As such, this document describes the selection of additional preliminary remedial goals (PRGs), as requested by the NYSDEC, for the wetland portion of the National Grid property and the Ley Creek Floodplain that take into account ecological risk-based calculated concentrations and background concentrations in areas considered to be ecologically viable habitat.

2. POTENTIAL PRELIMINARY REMEDIAL GOALS

The selection of potential PRGs for soil and sediment are described in Sections 4.3.1 and 4.3.2 of the May 2013 FS Report. Based on comments from NYSDEC, an additional set of PRGs is being presented for ecological habitat areas, including the wetland portion of the National Grid property and portions of the Ley Creek Floodplain. Specifically, the lowest of the following PRGs were applied to the top 1-ft depth of soil in habitat areas:

- New York State Rural Soil Background Concentrations for Habitat Areas (Table 9.2-1) (NYSDEC and NYSDOH 2006)
- Back-calculated PRGs based on the American robin and Short-tailed shrew, as documented in the O*ff-site BERA Report* (Appendix E of *Off-site FS Report*, O'Brien & Gere 2013)

New York State Soil Cleanup Objectives (SCOs) for the protection of ecological resources or the New York State SCOs for unrestricted use were applied to soil at depths greater than one foot below grade within habitat areas. For areas not considered habitat areas, the corresponding New York State SCOs for reasonably anticipated future property use were used.

As described in the BERA, many uncertainties exist in estimating exposure for ecological receptors and the subsequent development of ecological risk estimates. To account for these uncertainties, conservative assumptions were used in the BERA so that ecological risks were, most likely, overestimated. Likewise, these conservative assumptions were also used in the development of risk-based ecological PRGs. These assumptions included, among others, an Area Use Factor of 100%, the use of no adverse effects levels (NOAELs), and the use of conservative body weights and ingestion rates to in deriving these PRGs. For this reason, the risk-based

ecological PRGs are considered to be very conservative. It should be further noted, that these risk-based values are below both the NYS promulgated soil cleanup criteria and the allowable levels for imported fill or soil.

3. IDENTIFICATION OF AREAS AND VOLUMES OF MEDIA

Volumes of affected media were estimated based on the nature and extent of contamination identified in the March 2013 *Revised Off-site RI Report* (O'Brien & Gere 2013b), and on selected PRGs presented below.

3.1 PRGS USED FOR VOLUME ESTIMATION

The following tables present a summary of the PRGs used for volume estimation for Alternatives 4 and 5.

Table 1: Soil PRGs for Alternative 4

	NYSDEC Requested PRG for Soil (top 0-1 ft) in Ecological Habitat Areas*	**PRG for Soil deeper than 1 ft in Ecological Habitat Areas**	**PRG for commercial properties (soil along Factory Avenue)**	**PRG for industrial properties (soil along National Grid Access Road)**
Constituent	Risk-based/Background PRG* (mg/kg)	Ecological SCO[d] (mg/kg)	Commercial Property Use SCO [d] (mg/kg)	Industrial Property Use PRG [d] (mg/kg)
PCBs	0.2[c]	1	1	25
Arsenic	13[a]	13	16	NA
Chromium	19.1[a]	41	1,500	
Copper	33[a]	50	270	
Lead	63[a]	63	1,000	
Nickel	25[a]	30	310	
Zinc	109[a]	109	10,000	

Notes:

* - Selected PRGs for Soil (0-1 ft) in ecological habitat areas based on the lowest of the following values: Background [a] and back-calculated risk values based on the American Robin [b] and Short-tailed shrew [c], except where back-calculated risk values are lower than background concentrations. Ecological habitat areas are National Grid wetland and Ley Creek banks.

a – New York State Brownfield Cleanup Program, Development of SCOs, Technical Support Document, Rural Soil Background Concentrations for Habitat Areas (Table 9.2-1) (NYSDEC and NYSDOH 2006)

b – back-calculated risk value based on the America Robin

c – back-calculated risk value based on the Short-tailed shrew

d – 6 NYCRR Part 375 Soil Cleanup Objectives (SCOs) (NYSDEC 2006).

Table 2: Soil PRGs for Alternative 5

	NYSDEC Requested PRG for Soil (top 0-1 ft) in Ecological Habitat Areas*	PRG for Soil deeper than 1 ft in Ecological Habitat Areas	PRG for Soil in non-Ecological Habitat Areas
Constituent	Risk-based/Background PRG* (mg/kg)	Unrestricted Use SCOc (mg/kg)	
PCBs	0.2[b]	0.1	
Arsenic	13[a]	13	
Chromium	19.1[a]	30	
Copper	33[a]	50	
Lead	63[a]	63	
Nickel	25[a]	30	
Zinc	109[a]	109	

Notes:

* - Selected PRGs for Soil (0-1 ft) in ecological habitat areas based on the lowest of the following values: Background [a] and back-calculated risk values based on the American Robin and Short-tailed shrew [c], except where back-calculated risk values are lower than background concentrations. Ecological habitat areas are National Grid wetland and Ley Creek banks.

a – New York State Brownfield Cleanup Program, Development of SCOs, Technical Support Document, Rural Soil Background Concentrations for Habitat Areas (Table 9.2-1) (NYSDEC and NYSDOH 2006)

b – back-calculated risk values based on the Short-tailed shrew

c – 6 NYCRR Part 375 Soil Cleanup Objectives (SCOs) (NYSDEC 2006).

For both Alternatives 4 and 5, the PRG for volume estimation of sediment in Ley Creek between Townline Road and Route 11 was 1 mg/kg PCBs.

3.2 AREA AND VOLUME ESTIMATES

Areas and volumes of media to be addressed in Alternatives 4 and 5 were estimated and are summarized in Table 3. Figures 1 through 10 illustrate the areas of media to be addressed.

Consistent with the May 2013 FS Report, the areal extent of contamination was generally estimated to extend to halfway between a sample location exhibiting a concentration greater than the PRG and a sample exhibiting a concentration less than the PRG. In situations where the boundary concentration was above the PRG, it was assumed, for purposes of this FS, that the extent of environmental concentrations above the PRG extends an additional 20 ft beyond the boundary sample.

Alternative 4

Soil volume estimations for Alternative 4 are as follows:

- ***National Grid Property.*** Within the National Grid wetland, it is estimated that approximately 11,600 cubic yards of soil exceed the PRGs described above for this alternative. This volume of soil reflects depths of excavation ranging from 1-ft to an average of 2.5 ft. In addition, approximately 30 cubic yards of soil was identified along the National Grid access road based on soil concentrations exceeding the NYCRR Part 375 SCO for industrial use to depths ranging from 2 to 3 ft.

- ***Ley Creek Floodplain.*** Within the Ley Creek floodplain, it is estimated that approximately 3,600 cubic yards of soil exceed the PRGs described above for this alternative. This estimate reflects an average depth of 2 ft below grade along most of Ley Creek, with depths extending to 4 ft and 6 ft to address soils in the Ley Creek floodplain hot spot area.
- ***Factory Avenue.*** Approximately 1,100 cubic yards of soil was identified along Factory Avenue, between LeMoyne Avenue and Route 11, and approximately 2,500 cubic yards of soil was identified along Factory Avenue to the north of the former IFG facility, for a total of 3,600 cubic yards. Soil volumes are based on NYCRR Part 375 SCOs for commercial use to depths ranging from 1 to 4 ft below grade.
- The areal extents of the affected off-site soil for Alternative 4 are illustrated on Figures 1 through 4.

Sediment volume estimations are consistent with those presented in the May 2013, FS Section 5.2, for Alternative 2b, and are depicted on Figure 5. The volumes of affected media for Alternative 4 are summarized in Table 3.

Alternative 5

Soil volume estimations for Alternative 5 are as follows:

- ***National Grid Property.*** Within the National Grid wetland, it is estimated that approximately 16,200 cubic yards of soil exceed the PRGs described above for this alternative. This volume of soil reflects depths of excavation ranging from an average of 1.75-ft to an average of 2.5 ft. In addition, approximately 760 cubic yards of soil was identified along the National Grid access road based on soil concentrations exceeding the NYCRR Part 375 SCO for industrial use to depths averaging 2.5 ft.
- ***Ley Creek Floodplain.*** Within the Ley Creek floodplain, it is estimated that approximately 8,400 cubic yards of soil exceed the NYCRR Part 375 SCOs for the protection of ecological resources to an average depth of 2 ft below grade. Depths were extended to 4 ft and 6 ft to address soils in the Ley Creek floodplain hot spot area.
- ***Factory Avenue.*** Approximately 3,400 cubic yards of soil was identified along Factory Avenue, between LeMoyne Avenue and Route 11, and approximately 4,500 cubic yards of soil was identified along Factory Avenue to the north of the former IFG facility, for a total of 7,900 cubic yards. Soil volumes are based on NYCRR Part 375 SCOs for commercial use to depths ranging from 1 to 4 ft below grade and would be protective of incidental trespassers.
- The areal extents of the affected off-site soil for Alternative 5 are illustrated on Figures 6 through 9.

Sediment volume estimations are consistent with those presented in the May 2013 FS, Section 5.2, for Alternative 3, and are depicted on Figure 10. The volumes of affected media for Alternative 5 are summarized in Table 3.

4. ASSEMBLY OF REMEDIAL ALTERNATIVES

As documented in the May 2013 FS Report, remedial action objectives (RAOs) and general response actions (GRAs) were developed for the off-site media. In addition, technologies and representative process options were screened and evaluated to address the RAOs. The alternatives presented in this Addendum were developed by assembling technologies and representative process options into combinations that address the RAOs identified in Section 4.4 of the May 2013 FS Report. The two additional remedial alternatives that have been assembled are as follows:

- Alternative 4 includes soil and sediment removal and disposal, and containment. The extent of soil and sediment removal are based on reasonably anticipated future use of the off-site areas and ecological calculated/background concentrations within ecological habitats.
- Alternative 5 includes soil and sediment removal and disposal and containment. The extents of soil and sediment removal are based on unrestricted use and unlimited exposure in off-site areas and ecological calculated/background concentrations within ecological habitats.

A description of each alternative is included below.

4.1 COMMON ELEMENTS FOR ALTERNATIVES 4 AND 5

The following are common remedial elements included in Alternatives 4 and 5:

Vegetative/Asphalt/Gravel Cover for Factory Avenue Area

Excavated soil areas along Factory Avenue will be restored with a vegetative, asphalt, or gravel cover. The cover would comprise an indicator layer fabric and a minimum of 12-inches of clean soil and with a vegetated, gravel or sub-base and asphalt top restoration layer, as appropriate, for the area being restored. This results in a total cover area of approximately 0.86 acres for Alternative 4, and approximately 1.2 acres for Alternative 5 along Factory Avenue.

Use Restrictions

It is anticipated that following excavation of soil for Alternative 4, soil would remain in some areas at concentrations above levels that allow for unrestricted land use and unlimited exposure. Similarly, it is possible that due to the presence of underground utilities, soil could remain following excavation of soil for Alternative 5 in some areas at concentrations above levels that allow for unrestricted land use and unlimited exposure. In these cases, an environmental easement would be recorded for the properties documenting land use restrictions precluding activities that would potentially expose contaminated materials or impair the integrity of covers in certain areas without prior review and approval by NYSDEC. Because these properties are not owned by RACER, coordination with property owners would be necessary.

Soil Management Plan

It is anticipated that following excavation of soil for Alternative 4, soil would remain in some areas at concentrations above levels that allow for unrestricted land use and unlimited exposure. Similarly, it is possible that due to the presence of underground utilities, soil could remain following excavation of soil for Alternative 5 in some areas at concentrations above levels that allow for unrestricted land use and unlimited exposure. As such, a soil management plan would be implemented to outline necessary engineering and institutional controls for the handling and management of soil. The soil management plan would detail the implementation of consolidation (temporary or permanent), off-site disposal, and soil characterization.

Periodic Reviews

Because Alternative 4 would result in soil with concentrations above levels that allow for unrestricted use and unlimited exposure, and because it is possible that such concentrations may also remain following the soil removal envisioned for Alternative 5, CERCLA requires that the site be reviewed at least once every five years. Five-year reviews would be conducted, if necessary, to evaluate and document the continued effectiveness of the remedy with regard to the protection of human health and the environment.

4.2 ALTERNATIVE 4

The following remedial elements for Alternative 4 are based on reasonably anticipated future use of the off-site areas and ecological calculated/background concentrations within ecological habitats:

Mechanical Excavation of Soil

Similar to the alternatives presented in the May 2013 FS Report, Alternative 4 includes mechanical excavation of surface and subsurface soil within the National Grid wetland, in proximity to the National Grid access road, along portions of the Ley Creek floodplain, along Factory Avenue north of the Former IFG Facility, and along Factory Avenue between Route 11 and LeMoyne Avenue to allow reasonably anticipated future land use. For areas considered ecological habitat, soil removals are based on risk-based values or background concentrations.

The estimated volume of soil to be excavated for Alternative 4 would be approximately 18,830 cubic yards. Most excavations are anticipated to be approximately 1 to 4 ft in depth; with some limited areas excavated to depths as deep as 6 ft within the Ley Creek floodplain hot spot. Volumes estimated for each area are summarized in Table 3. Areal extent and associated depths are illustrated on Figures 1 through 4. Volumes to be excavated

would be finalized during design. For purposes of cost estimation, a pre-characterization program is assumed to be implemented to refine the areal extent of floodplain soil to be excavated.

It is assumed that National Grid wetland soil will require *ex situ* dewatering prior to final disposition. It is assumed that approximately 196,000 gallons of water would be generated and require treatment based on an assumed 40% average final solids content for dewatered soil; the released water is based on an assumed 17% increase in % solids from an average 24% solids. Based on site data, half of excavated target soils is assumed to be at or above 40% solids and will therefore not contribute water for treatment.

With the exception of the National Grid wetland excavations, excavated areas would be restored with vegetation, asphalt, or gravel, as appropriate, to restore to existing conditions. Restoration of the National Grid wetland will consist of placement of backfill and approximately 1 ft of topsoil and establishment of wetland vegetation. It should be noted that the risk-based ecological PRGs developed for this alternative are lower than NYS Allowable Levels for Imported Fill or Soil (NYSDEC 2010), thus, obtaining backfill material that would meet PRGs is infeasible.

Fill needs at the Former IFG Facility could be evaluated in the event that beneficial reuse of excavated material could meet facility fill needs. Under such a scenario portions or all excavated material may be relocated on-site. For purposes of cost estimation, off-site disposal has been assumed for this alternative.

With the exception of soil from a portion of the National Grid wetland, excavated soil is assumed to be disposed as non-hazardous soil. For cost estimating purposes, approximately 5,800 cubic yards of the soil excavated from the National Grid wetland is assumed to exhibit PCB concentrations above 50 mg/kg.

Mechanical Excavation of Sediment

Similar to the alternatives presented in the FS Report, Alternative 4 includes mechanical excavation of sediment in Ley Creek, such that unrestricted use can be supported (including consideration of ecological resources). The estimated volume of target material would be approximately 9,600 cubic yards based on PCB concentrations in sediments exceeding the 1 mg/kg PRG. The locations and assumed excavation extents for sediment removal are illustrated on Figure 5. It is assumed that for reaches indicated for sediment removal, the sediment will be removed from bank to bank, to the extent practicable, until the unconsolidated bed material is reached. For volume estimation, an average excavation depth of 1.25 ft was assumed. It is assumed that excavated sediment will require *ex situ* dewatering prior to final disposition. It is assumed that approximately 162,000 gallons of water would require treatment based on an assumed 40% final solids content for dewatered sediment; the released water is based on an assumed 17% increase in % solids from an average 24% solids. Based on site data, half of the excavated target soils is assumed to be at or above 40% solids and will therefore not contribute water for treatment.. Restoration of Ley Creek would consist of placement of approximately 0.5 ft of clean sand.

Fill needs at the Former IFG Facility could be explored in the event that beneficial reuse of excavated material could meet facility fill needs. Under such a scenario portions or all excavated material may be relocated on-site, and an appropriate cover, if necessary, would be installed. For purposes of cost estimation, off-site disposal has been assumed for this alternative.

4.3 ALTERNATIVE 5

The following remedial elements for Alternative 5 are based on unrestricted use and unlimited exposure in off-site areas and ecological calculated/background concentrations within ecological habitats.

Mechanical Excavation of Soil

Alternative 5 includes mechanical excavation of soil at depths between 0 and 1 foot below grade exhibiting concentrations greater than ecological calculated/background concentrations within the National Grid wetland and portions of the Ley Creek Floodplain. Alternative 5 also includes mechanical excavation of subsurface soil at depths great than 1 ft exhibiting concentrations greater than SCOs for unrestricted use within the National Grid wetland, in proximity of the National Grid access road, along portions of the Ley Creek floodplain, and at two

locations along Factory Avenue. It should be noted that the presence of underground utilities may hinder full excavation along Factory Avenue and on the National Grid property near the access road.

The approximate volume of soil associated with Alternative 5 would be approximately 33,260 cubic yards with excavation depths ranging from 0 to 10 ft bgs. Volumes estimated for each area are summarized in Table 3. Areal extent and associated depths are illustrated on Figures 6 through 9. Volumes to be excavated would be finalized during design. For purposes of cost estimation, a pre-characterization program is assumed to be implemented to further refine the areal extent of floodplain soil to be excavated.

It is assumed that National Grid wetland soil will require *ex situ* dewatering prior to final disposition. It is assumed that approximately 274,000 of water would be generated and requires treatment based on an assumed 40% average final solids content for dewatered soil; the released water is based on an assumed 17% increase in % solids from an average 24% solids. Based on site data, half of excavated target soils is assumed to be at or above 40% solids and will therefore not contribute water for treatment.

With the exception of the National Grid wetland excavated areas would be restored with vegetation, asphalt, or gravel, as appropriate, to restore to current conditions. Restoration of the National Grid wetland will consist of backfilling, appropriate soil placement and establishment of wetland vegetation. It should be noted that the risk-based ecological PRGs developed for this alternative are lower than NYS Allowable Levels for Imported Fill or Soil (NYSDEC 2010), thus, obtaining backfill material that would meet PRGs is infeasible.

Fill needs at the Former IFG Facility could be explored in the event that beneficial reuse of excavated material could meet facility fill needs. Under such a scenario portions or all excavated material may be relocated on-site. For purposes of cost estimation, off-site disposal has been assumed for this alternative.

With the exception of soil from a portion of the National Grid wetland and some locations north of the Former IFG Facility, excavated soil is assumed to be disposed as non-hazardous soil. For cost purposes, approximately 5,860 cubic yards of the soil excavated from the National Grid wetland, and approximately 3,950 cubic yards of material excavated from the vicinity of Factory Avenue is assumed to exhibit PCB concentrations above 50 mg/kg.

Mechanical Excavation of Sediment

Consistent with Alternative 3 presented in the FS Report, Alternative 5 includes the mechanical excavation of sediment exhibiting concentrations greater than NYS Sediment Criteria within Ley Creek. The estimated volume of target material associated with sediment removal in Alternative 5 would be approximately 13,200 cubic yards. As illustrated on Figure 10, excavation limits for Alternative 5 assume removal of the full depth of sediments from bank to bank within Ley Creek between Townline Road and Route 11. For volume estimation, an average excavation depth of 1.25 ft is assumed. It is assumed that excavated sediment will require *ex situ* dewatering prior to final disposition. It is assumed that approximately 223,000 gallons of water would require treatment based on an assumed 40% average final solids content for dewatered sediment; the released water is based on an assumed 17% increase in % solids from an average 24% solids. Based on site data, half of the excavated target soils is assumed to be at or above 40% solids and will therefore not contribute water for treatment.. Restoration of Ley Creek will consist of placement of 0.5 ft of clean sand over disturbed areas.

Fill needs at the Former IFG Facility could be evaluated in the event that beneficial reuse of excavated material could meet facility fill needs. Under such a scenario portions or all excavated material may be relocated on-site. For purposes of cost estimation, off-site disposal has been assumed for this alternative.

5. DETAILED ANALYSIS OF REMEDIAL ALTERNATIVES

This section documents the detailed analysis of the two remedial alternatives that were developed and documented in this FS Addendum. The detailed analysis of the alternatives was conducted consistent with NYSDEC DER-10 Section 4.2 (NYSDEC 2010a) and USEPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies* under CERCLA (USEPA 1988). This section describes the individual and comparative analysis

of the remedial alternatives with respect to nine evaluation criteria that embody the specific statutory requirements that must be evaluated to satisfy the DER-10 and CERCLA remedy selection requirements.

5.1 INDIVIDUAL ANALYSIS OF ALTERNATIVES

The preambles to the NCP (Federal Register 1990) and NYSDEC DER-10 Section 4.2 indicate that, during remedy selection, nine criteria should be categorized into three groups: threshold criteria, primary balancing criteria, and modifying criteria. The two threshold criteria, overall protection of human health and the environment, and compliance with SCGs, must be satisfied in order for an alternative to be eligible for selection. Long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; short-term impact and effectiveness; implementability; and cost are primary balancing criteria that are used to balance the differences between alternatives. An additional primary balancing criterion under NYSDEC DER-10 includes an evaluation of land use. The modifying criterion of community acceptance is formally considered after public comment is received.

The objective of the detailed analysis of remedial alternatives was to analyze and present sufficient information to allow the alternatives to be compared and a remedy selected. The analysis consisted of an individual assessment of each alternative with respect to the seven above referenced evaluation criteria that encompass statutory requirements and overall feasibility and acceptability.

In the individual analysis of remedial alternatives, each of the remedial alternatives was evaluated with respect to the above-listed evaluation criteria and is documented in the attached Table 4. For ease of comparison the alternatives previously presented in the May 2013 FS Report are also included in Table 4.

5.2 COMPARATIVE ANALYSIS OF ALTERNATIVES

A comparative evaluation designed to consider the relative performance of the alternatives and identify major trade-offs among them was presented in the May FS Report. The comparative evaluation of alternatives including the two additional alternatives is presented below. In the comparative analysis of alternatives, the performance of each alternative relative to the others was evaluated for each criterion.

5.2.1 Overall Protection of Human Health and Environment

Alternative 1 relies on natural attenuation to address overall protection of human health and the environment. Alternatives 2 through 5 would each address overall protection of human health and the environment by removing or controlling exposures to off-site media. While Alternatives 3 and 5 would provide for unrestricted use of off-site areas, Alternative 2 (Scenarios A and B) and Alternative 4 would be protective of human health and the environment for current and reasonably anticipated future use of these areas. As it relates to Alternative 2A, the selected PRG for sediment in Ley Creek is based on risk calculations and reflects potential risk to the most sensitive ecological receptor evaluated in the BERA. Similarly, the selected PRG in Alternatives 4 and 5 for surficial soil in the National Grid wetland and Ley Creek Floodplain derived from risk-based calculations or based on background concentrations. As described in the BERA, many conservative assumptions were used in the risk calculations which likely resulted in an overestimation of risk. For this reason, the calculated risk-based PRG is considered to be conservative. Alternatives 2 Scenario B, 3, 4, and 5 would provide an added level of protectiveness for human receptors by allowing for consumption of fish in the remediated reach of Ley Creek, as compared to Alternative 2 Scenario A. The selected PRG for sediment in Alternative 2 Scenario B and Alternative 4 is based on risk-based calculations and is consistent with USEPA Region 2 sediment remediation goals for sites in New York State.

RAOs would be met through active remedial components in Alternatives 2 through 5. Alternative 1 relies on natural attenuation to meet RAOs. Natural attenuation of persistent site-related contaminants such as PCBs is not anticipated to achieve RAOs in the foreseeable future.

5.2.2 Compliance with Standards, Criteria and Guidelines

As summarized in Table 4-1 of the May 2013 FS Report, chemical-, location-, and action-specific SCGs were identified for the off-site areas. Alternative 1 relies on natural attenuation to address SCGs. Natural attenuation

of persistent site-related contaminants such as PCBs is not anticipated to achieve SCGs in the foreseeable future. Alternatives 2 through 5 would each address SCGs. While Alternatives 3 and 5 are expected to attain unrestricted use SCGs in off-site areas, Alternative 2 (Scenarios A and B) and Alternative 4 would achieve current and reasonably anticipated future use SCGs for these areas.

5.2.3 Long-Term Effectiveness and Permanence

Alternative 1 relies on natural attenuation to address potential risks. Natural attenuation of persistent site-related contaminants such as PCBs is not anticipated to address identified risks in the foreseeable future. Alternatives 2 through 5 would each address residual risks. While Alternatives 3 and 5 would result in lower residual risks, the controls included in Alternatives 2 (Scenarios A and B) and 4 adequately address residual risks for current and reasonably anticipated future use of these areas.

Alternative 1 does not include controls. For Alternatives 2 through 5, potential residual risks associated with soil not removed due to the presence of underground utilities would be mitigated by capping and institutional controls.

Of the active remedial alternatives, Alternative 2A is anticipated to result in the lowest environmental footprint.

5.2.4 Reduction of Toxicity, Mobility or Volume through Treatment

No active treatment processes are included under Alternative 1. Treatment through natural degradation processes would continue. Treatment residues associated with dewatering processes included under Alternatives 2 through 5 are anticipated. Treatment residuals are not expected to be hazardous. While not a treatment process, excavation of soil and sediment included in Alternatives 2 through 5 would result in an irreversible reduction in toxicity, mobility and volume of these materials. Alternative 5 would result in more volume addressed than Alternative 2, 3 and 4. Alternative 2 Scenario B would result in slightly more volume addressed than in Alternative 2 Scenario A, followed by Alternative 4, and followed by Alternative 3. The estimated volumes of media to be excavated for Alternatives 2 through 5 are summarized in Table 3.

5.2.5 Short-Term Impact and Effectiveness

No short-term impacts to community or workers are associated with implementation of Alternative 1. Alternatives 2 through 5 would be implemented such that dust, surface runoff, and sediment erosion would be controlled and proper health and safety measures would be established and implemented during remedial activities. RAOs would be addressed upon implementation of Alternatives 2 through 5. Alternative 1 is not anticipated to meet RAOs in the foreseeable future.

Green remediation techniques, as detailed in DER-31 *Green Remediation* (NYSDEC 2010b), would be considered for each alternative to reduce short-term environmental impacts. Green remediation best practices such as the following may be considered:

- Reduction in vehicle idling, including both on and off road vehicles and construction equipment during construction
- Beneficial reuse of material that would otherwise be considered a waste. Approaches such as these could be implemented if facility fill needs coincide with material excavation. In such an event a Beneficial Use Determination (BUD) and NYSDEC approval would be obtained to reuse excavation spoils to meet backfill or grading needs at the Former IFG Facility.
- Use of Ultra Low Sulfur Diesel (ULSD).

There are no environmental impacts associated with implementation of Alternative 1. When the environmental footprints for each alternative are considered, it is anticipated that Alternative 3, 4 and 5 would result in a greater environmental footprint due to direct emissions and fuel consumption, as these alternative includes greater use of heavy equipment and transportation of material to be disposed from, or imported to, the site when compared to Scenarios A and B of Alternative 2.

5.2.6 Implementability

Alternatives 1 through 3 are readily implementable. Excavation of soil and sediment are reliable means of controlling exposure to contaminated media. Therefore, Alternatives 2 through 5 are equally reliable remedies. Excavation of soil in the vicinity of the underground utilities under Alternatives 2 through 5 may present challenges and render full removal of intended volumes infeasible. Institutional controls included in Alternatives 2 through 5 would be reliable means for managing residual risks, if any. Off-site treatment, storage and disposal facilities, equipment, specialists, and materials necessary for Alternatives 2 and 3 would be readily available. Coordination with other agencies including USEPA, NYSDEC, Onondaga County, the Town of Salina, and property owners would be necessary for Alternatives 2 through 5. If necessary, additional remedial actions and monitoring would be readily implementable for Alternatives 2 through 5.

Because the PRGs for Alternatives 4 and 5 are lower than NYS Allowable Levels for Imported Fill or Soil (NYSDEC 2010), backfill material that would meet PRGs is not readily available. For this reason, Alternatives 4 and 5 are not considered implementable.

5.2.7 Cost

Cost estimates for Alternatives 1 through 3 are included as Tables 8-2 through 8-5 in the May 2013 FS Report.

Alternative 1, the no further action alternative, is the least cost alternative with no associated costs.

Alternative 2 Scenario A, which includes institutional controls, capping, soil and sediment excavation, dewatering of excavated sediments, and off-site disposal, has an estimated present worth of approximately $11,818,000.

Alternative 2 Scenario B, which includes institutional controls, capping, soil and sediment excavation, dewatering of excavated sediments, and off-site disposal, has an estimated present worth of approximately $14,088,000.

Alternative 3, which includes institutional controls, soil and sediment excavation, dewatering of excavated sediments, and off-site disposal, has an estimated present worth of approximately $22,260,000.

Alternative 4, which includes institutional controls, soil and sediment excavation, dewatering of excavated sediments, and off-site disposal, has an estimated present worth of approximately $15,278,000.

Alternative 5, which includes institutional controls, soil and sediment excavation, dewatering of excavated sediments, and off-site disposal, has an estimated present worth of approximately $22,840,000.

For cost purposes, the O&M for the Alternatives 2 through 5 was assumed to include wetland monitoring in years 1 through 7 and periodic reviews in years 5, 10, 15, 20, 25 and 30.

5.2.8 Land use

Implementation of Alternatives 2 through 5 would be consistent with current, intended and reasonably anticipated future use of the areas. Implementation of Alternative 1 would require additional property restrictions over those consistent with current, intended and reasonably anticipated future use for some off-site areas.

5.2.9 Community acceptance

Community acceptance would be addressed during the public comment period prior to the ROD.

6. FEASIBILITY STUDY CONCLUSIONS AND RECOMMENDATIONS

The FS and FS Addendum were conducted consistent with the requirements of NYSDEC DER-10 and the NCP. As such, RAOs were identified to address the elimination or mitigation of significant threats to human health and the environment presented by historical operations at the Former IFG Facility as required by 6 NYCRR Part 375-2.8(a) and the cost-effective protectiveness of human health and the environment and attainment of SCGs as

required by the NCP. The threats to human health and the environment were identified through completion of risk assessments and comparison of concentrations in affected off-site media to SCGs.

Five alternatives were developed in the FS and FS Addendum using specific criteria required by the pertinent regulations and guidance. Of these alternatives, Alternatives 4 and 5 are not considered implementable. Of the remaining implementable alternatives, RACER recommends Alternative 2A as the final remedy for the facility. Alternative 2A is recommended, because it provides an equivalent level of protectiveness to human health and the environment at a lower cost than Alternatives 2B and 3. In addition, implementation of Alternative 2A results in the smallest environmental footprint when compared to Alternatives 2B and 3. Alternative 2A includes the following remedial elements:

- Excavation of soil in areas exhibiting constituent concentrations greater than acceptable concentrations given the reasonably anticipated future property use and potential receptors
- Restoration of excavated areas, as appropriate given reasonably anticipated future property use and potential receptor needs
- Excavation of sediment in Ley Creek with concentrations greater than selected PRGs that take into account risks to receptors
- Institutional controls, environmental easement, periodic reviews, and a site management plan.

Alternative 2A addresses the RAOs as follows:

- ***Soil RAOs for Public Health Protection.*** Alternative 2A addresses potentially unacceptable human health risks associated with exposure to soils in portions of the Ley Creek floodplain area, National Grid wetland and access road areas, and Factory Avenue areas through excavation, restoration of excavated surfaces, institutional controls and a soil management plan. Removal of soil and restoration of surfaces prevent ingestion/direct contact with soil contamination. Volumes of soil to be removed in off-site areas have been based on concentrations above NYSDEC-promulgated soil cleanup objectives for the protection of human receptors taking into account reasonably anticipated future use of each area. The implementation of institutional controls and a soil management plan (that would describe requirements to be met in the event that impacted soil left in place is disturbed) provide for protection relative to human health associated with exposures to affected soil thereby providing added protection to human health.
- ***Soil RAOs for Environmental Protection.*** Alternative 2A addresses migration of soils in the Ley Creek floodplain area, National Grid wetland area, and Factory Avenue area that could potentially result in contamination of surface water and/or sediment through excavation, restoration of excavated surfaces, and a soil management plan. Removal of soil and restoration of surfaces prevent migration of contaminants and eliminate the pathway that could result in unacceptable ecological risk.

  In addition, Alternative 2A addresses potentially unacceptable ecological risks associated with exposure to soil in portions of the Ley Creek floodplain area and in the National Grid wetland area. Removal of soil and restoration of surfaces would prevent ingestion/direct contact with soil. Volumes of soil to be removed in the National Grid wetland and portions of the Ley Creek floodplain have been based on concentrations greater than the NYSDEC-promulgated soil cleanup objectives for the protection of ecological resources. The implementation of a soil management plan (that would describe requirements to be met in the event that impacted soil left in place is disturbed) provides for protection relative to ecological risks associated with disturbing affected soil.
- ***Sediment RAOs for Public Health Protection.*** Alternative 2A addresses potentially unacceptable human health risks associated with exposure to Ley Creek sediment through sediment removal. Removal of sediment precludes direct contact with this affected media and reduces the availability of constituents in sediment that might bioaccumulate in fish and result in fish advisories. Volumes of sediment to be removed from Ley Creek are based on risk-based concentrations reflective of a conservative estimate that are above levels acceptable for the protection of human receptors taking into account reasonably anticipated future use of Ley Creek.

- ***Sediment RAOs for Environmental Protection.*** Alternative 2A addresses migration of soils in the Ley Creek floodplain area, National Grid wetland area, and Factory Avenue area that could potentially result in contamination of surface water and/or sediment, through sediment removal. Removal of sediment and restoration of surfaces prevent migration of contaminants.

  In addition, Alternative 2A addresses potentially unacceptable ecological risks associated with exposure to Ley Creek sediment, through removal of sediment. Removal of sediment eliminates the pathway that could result in unacceptable ecological risk. Volumes of sediment to be removed from Ley Creek have been based on risk-based concentrations reflective of a conservative estimate.

Implementation of Alternative 2A would result in an inherent environmental footprint associated with the use of heavy construction equipment and energy consumption to transport excavated materials for disposal. The following green remediation techniques, as detailed in DER-31 *Green Remediation* (NYSDEC 2010b) will be considered during the design phase of Alternative 2A remedial components:

- Use of renewable energy and/or purchase of renewable energy credits
- Reduction in vehicle idling, including both on and off road vehicles and construction equipment
- Beneficially reuse material that would otherwise be considered a waste
- Use of ULSD.

Alternative 2A satisfies the two threshold criteria, overall protection of human health and the environment, and compliance with SCGs. When comparing Alternative 2A to Alternatives 2B and 3 using the primary balancing criteria, it is evident that protectiveness is provided using Alternative 2A at a lower cost. In addition, this level of protectiveness can be achieved with a smaller environmental footprint than that associated with implementation of Alternatives 2B and 3.

REFERENCES

New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH). 2006. *New York State Brownfield Cleanup Program, Development of Soil Cleanup Objectives, Technical Support Document*. September 2006

NYSDEC. 2010a. NYSDEC Division of Environmental Remediation *Technical Guidance for Site Investigation and Remediation (DER-10).* NYSDEC Program Policy. March 3, 2010.

NYSDEC. 2010b. NYSDEC Division of Environmental Remediation *Green Remediation (DER-31).* NYSDEC Program Policy. August 11, 2010.

NYSDEC. 2013. Letter from Richard Mustico (NYSDEC) to Brendan Mullen (RACER) regarding approval of the Off-site RI Report. April 11, 2013.

O'Brien & Gere. 2013a. *Off-site Feasibility Study – Former IFG Facility and Deferred Media Site.* May 17, 2013.

O'Brien & Gere. 2013b. *Final Off-Site Remedial Investigation Report*, Former IFG Facility and Deferred Media Site. March 12, 2013.

United States Environmental Protection Agency (USEPA). 1988. *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA.* Interim Final. Washington, D.C. October 1988.

RACER Trust
Former Inland Fisher Guide Facility and Ley Creek Deferred Media Site
Syracuse, New York
Off-Site Feasibility Study Addendum

TABLE 3: SUMMARY OF ESTIMATED VOLUMES OF MEDIA OF CONCERN

MEDIUM	LOCATION		Alternative 2A (Cubic Yards)	Alternative 2B (Cubic Yards)	Alternative 3 (Cubic Yards)	Alternative 4** (Cubic Yards)	Alternative 5** (Cubic Yards)
Soil	National Grid Property	Wetland*	7,800	8,600	14,400	11,600	16,200
		Access Road	30	30	760	30	760
		Total	***7,830***	***8,630***	***15,160***	***11,630***	***16,960***
	Ley Creek Floodplain	Portions of Ley Creek Floodplain proximate to Ley Creek	*2,900*	*2,900*	*8,400*	*3,600*	*8,400*
		Total	***2,900***	***2,900***	***8,400***	***3,600***	***8,400***
	Factory Avenue	Between Lemoyne Avenue and Route 11	450	1,100	3,400	1,100	3,400
		North of Former IFG Facility	740	2,500	4,500	2,500	4,500
		Total	***1,190***	***3,600***	***7,900***	***3,600***	***7,900***
TOTAL SOIL VOLUME (CY)			***11,920***	***15,130***	***31,460***	***18,830***	***33,260***
Sediment	Ley Creek	Ley Creek between Townline Road and Route 11	7,174	---	13,200	---	13,200
			---	9,663		9,663	
		Total	***7,200***	***9,600***	***13,200***	***9,600***	***13,200***

Notes:
* - Wetland volumes for Scenario 2A assume depth of excavation 1 ft, the ecologically active zone (exclusive of PBC concentrations > 50 mg/kg). For Scenario 2A depth of excavations > 50 mg/kg are based on concentrations > 50 mg/kg. Wetland volumes for Alternatives 2B and 4 assume average depth of removal based on concentrations > PRGs.
** - The Ecological PRGs used for the Reasonably Anticipated Future Use Alternative 4 and Unrestricted Use Alternative 5 volume estimates for soil between 0 and 1 ft were based on the lowest of the following: Background and the calculated risk-based values for the American Robin and the Short-tailed Shrew, except where back-calculated risk values are lower than background concentrations. Depths greater than 1 ft volumes based on NYCRR 375 SCOs for Protection of Ecological Resources or Unrestricted Use.

- The PRG (Upstream Background) used for the Unrestricted Use volume refers to the site-specific background (upstream) concentration for PCBs. Volumes assume removal of loose sediment from bank to bank in affected reaches.

- New York Codes, Rules and Regulations (NYCRR) Subpart 375 SCO (Protection of Ecological Resources, Commercial Use, and Industrial Use) from NYCRR Subpart 375-6 Remedial Program SCOs, Table 6.8(b) Restricted Use SCOs, promulgated regulation effective December 14, 2006.
- NYCRR Subpart 375 SCO (Unrestricted Use) from NYCRR Subpart 375-6 Remedial Program SCOs, Table 6.8(a) Unrestricted Use SCOs, promulgated regulation effective December 14, 2006.
- Soil and sediment excavation limits for Alternatives 2a and 2b are illustrated in the FS Report in Figures 5-1a through 5-5b, respectively.
- Soil and sediment excavation limits for Alternative 4 are illustrated in Figures 1 through 5 of this Addendum, respectively.

TABLE 4: DETAILED ANALYSIS OF REMEDIAL ALTERNATIVES

Criterion	Alternative 1 - No further action	Alternative 2A - Reasonably Anticipated Future Use Removal of soil and sediment	Alternative 2B - Reasonably Anticipated Future Use Removal of soil and sediment	Alternative 3 - Unrestricted Use Removal of soil and sediment	Alternative 4 - Risk-based/Reasonably Anticipated Future Use	Alternative 5- Risk-based/Unrestricted Use
	● No further action	● Institutional Controls - Soil management plan, deed restrictions, periodic reviews. ● Capping - Vegetative, gravel, and asphalt cover in the Factory Avenue Area ● Excavation - Mechanical excavation to Commercial SCOs of Factory Ave area soil down to average 1 ft depth. - Mechanical excavation to Ecological Resources SCOs of Floodplain area soil to average 1 to 6 ft depth. - Mechanical excavation to Ecological Resource SCOs of Wetland area soil to average depth of 2.5 ft for total PCBs greater than 50 mg/kg with additional excavations to average depth of 1 ft. - Mechanical excavation of sediment greater than 2.2 mg/kg total PCBs in Ley Creek to an average depth of 1.25 ft. ● *Ex situ* treatment - Dewatering of excavated sediments. ● Disposal - Off-site disposal of excavated soil and sediment.	● Institutional Controls - Soil management plan, deed restrictions, periodic reviews. ● Capping - Vegetative, gravel, and asphalt cover in the Factory Avenue Area ● Excavation - Mechanical excavation to Commercial SCOs of Factory Ave area soil down to average depth of 1 to 4 ft. - Mechanical excavation to Ecological Resources SCOs of Floodplain area soil to average depth of 1 to 6 ft. - Mechanical excavation of Wetland area soil to Ecological SCOs to average depth of 2.5 ft. for total PCBs greater than 50 mg/kg with additional excavations to average depth of 1 ft (expanded volume). - Mechanical excavation of sediment greater than 1 mg/kg total PCBs in Ley Creek to an average depth of 1.25 ft. ● *Ex situ* treatment - Dewatering of excavated sediments. ● Disposal - Off-site disposal of excavated soil and sediment.	● Institutional Controls - Soil management plan, deed restrictions, periodic review, if necessary. ● Excavation - Mechanical excavation of soil greater than SCOs for unrestricted use. - Mechanical excavation of sediment greater than 0.28 mg/kg in Ley Creek. ● *Ex situ* treatment - Dewatering of excavated sediments. ● Disposal - Off-site disposal of excavated soil and sediment.	● Institutional Controls - Soil management plan, deed restrictions, periodic reviews. ● Capping - Vegetative, gravel, and asphalt cover in the Factory Avenue Area ● Excavation - Mechanical excavation to Commercial SCOs of Factory Ave area soil down to average depth of 1 to 4 ft. - Mechanical excavation to Risk/Background/Ecological Resources SCOs of Floodplain area soil to depth of 1 to 6 ft. - Mechanical excavation of Wetland area soil to Risk/Background/Ecological Resources/Industrial SCOs to average depths of 1 and 2.5 ft. - Mechanical excavation of sediment greater than 1 mg/kg total PCBs in Ley Creek to an average depth of 1.25 ft. ● *Ex situ* treatment - Dewatering of excavated sediments. ● Disposal - Off-site disposal of excavated soil and sediment.	● Institutional Controls - Soil management plan, deed restrictions, periodic review, if necessary. ● Excavation - Mechanical excavation to Risk/Background for soil 0 - 1 ft in ecological habitat areas - Mechanical excavation of soil deeper than 1 ft and greater than SCOs for unrestricted use. - Mechanical excavation of sediment greater than 0.28 mg/kg in Ley Creek. ● *Ex situ* treatment - Dewatering of excavated sediments. ● Disposal - Off-site disposal of excavated soil and sediment.
Overall Protection of Human Health and the Environment						
Overall protection of human health	Relies on natural attenuation to address overall protection of human health.	Protection of human health is provided through institutional controls and remedial elements. Specifically, protection of human health is afforded by removal of soil and sediment. Alternative 2A actively addresses each RAO. Protectiveness afforded by Alternative 2A remedial elements addresses exposures associated with the reasonably anticipated future use for each remediated area.	Protection of human health is provided through institutional controls and remedial elements. Specifically, protection of human health is afforded by removal of soil and sediment. Alternative 2B actively addresses each RAO. Protectiveness afforded by Alternative 2B remedial elements addresses exposures associated with the reasonably anticipated future use for each remediated area.	Protection of human health is provided through Alternative 3 remedial elements. Specifically, protection of human health is afforded by removal of soil and sediment. Alternative 3 actively addresses each RAO. Protectiveness afforded by Alternative 3 remedial elements addresses exposures associated with unrestricted future use for each remediated area.	Protection of human health is provided through institutional controls and remedial elements. Specifically, protection of human health is afforded by removal of soil and sediment. Alternative 4 actively addresses each RAO. Protectiveness afforded by Alternative 4 remedial elements addresses exposures associated with the reasonably anticipated future use for each remediated area.	Protection of human health is provided through Alternative 5 remedial elements. Specifically, protection of human health is afforded by removal of soil and sediment. Alternative 5 actively addresses each RAO. Protectiveness afforded by Alternative 5 remedial elements addresses exposures associated with unrestricted future use for each remediated area.
Overall protection of the environment	Relies on natural attenuation to address overall protection of the environment.	Protection of the environment is provided through Alternative 2A remedial elements. Specifically, protection of ecological receptors is afforded by removal of soil and sediment. Alternative 2A actively addresses each RAO. The selected PRG for sediment has been based on risk calculations and reflects potential risk to the most sensitive ecological receptor evaluated in the BERA. The calculated risk-based PRG for sediment is considered to be conservative.	Protection of the environment is provided through Alternative 2B remedial elements. Specifically, protection of ecological receptors is afforded by removal of soil and sediment. Alternative 2B actively addresses each RAO.	Protection of the environment is provided through institutional controls and Alternative 3 remedial elements. Specifically, protection of ecological receptors is afforded by removal of soil and sediment. Alternative 3 actively addresses each RAO.	Protection of the environment is provided through Alternative 4 remedial elements. Specifically, protection of ecological receptors is afforded by removal of soil and sediment. Alternative 4 actively addresses each RAO.	Protection of the environment is provided through institutional controls and Alternative 5 remedial elements. Specifically, protection of ecological receptors is afforded by removal of soil and sediment. Alternative 5 actively addresses each RAO.
Compliance with Standards, Criteria, and Guidance (SCGs)						
Compliance with chemical-specific SCGs	Relies on natural attenuation to address soil SCGs.	Alternative 2A addresses chemical-specific SCGs identified for soil and sediment in off-site areas.	Alternative 2B addresses chemical-specific SCGs identified for soil and sediment in off-site areas.	Alternative 3 addresses chemical-specific SCGs identified for soil and sediment in off-site areas.	Alternative 4 addresses chemical-specific SCGs identified for soil and sediment in off-site areas.	Alternative 5 addresses chemical-specific SCGs identified for soil and sediment in off-site areas.
Compliance with location-specific SCGs	Meets location-specific SCGs.	Meets location-specific SCGs.	Meets location-specific SCGs.	Meets location-specific SCGs.	Meets location-specific SCGs.	Meets location-specific SCGs.
Compliance with action-specific SCGs	No actions proposed for this alternative.	Treatment residuals would be managed in accordance with state and federal solid and hazardous waste management requirements. Discharge of treated water to Ley Creek would be managed in accordance with state discharge to surface water requirements. Site construction activities would be conducted in accordance with OSHA safety requirements. Transportation and disposal would be conducted in accordance with regulatory requirements.	Treatment residuals would be managed in accordance with state and federal solid and hazardous waste management requirements. Discharge of treated water to Ley Creek would be managed in accordance with state discharge to surface water requirements. Site construction activities would be conducted in accordance with OSHA safety requirements. Transportation and disposal would be conducted in accordance with regulatory requirements.	Treatment residuals would be managed in accordance with state and federal solid and hazardous waste management requirements. Discharge of treated water to Ley Creek would be managed in accordance with state discharge to surface water requirements. Site construction activities would be conducted in accordance with OSHA safety requirements. Transportation and disposal would be conducted in accordance with regulatory requirements.	Treatment residuals would be managed in accordance with state and federal solid and hazardous waste management requirements. Discharge of treated water to Ley Creek would be managed in accordance with state discharge to surface water requirements. Site construction activities would be conducted in accordance with OSHA safety requirements. Transportation and disposal would be conducted in accordance with regulatory requirements.	Treatment residuals would be managed in accordance with state and federal solid and hazardous waste management requirements. Discharge of treated water to Ley Creek would be managed in accordance with state discharge to surface water requirements. Site construction activities would be conducted in accordance with OSHA safety requirements. Transportation and disposal would be conducted in accordance with regulatory requirements.
Long-Term Effectiveness and Permanence						
Magnitude of residual risk	Risks to human health and the environment have been identified due to soil and sediment in off-site areas. This alternatives relies on natural attenuation to mitigate these risks.	Risk to human health and the environment associated with soil and sediment are mitigated in this alternative through soil and sediment removal. Residual risks associated with soil not removed due to the presence of underground utilities would be mitigated by capping and institutional controls. Otherwise, remaining risks would be minimal and commensurate with reasonably anticipated future use of the properties.	Risk to human health and the environment associated with soil and sediment are mitigated in this alternative through soil and sediment removal. Residual risks associated with soil not removed due to the presence of underground utilities would be mitigated by capping and institutional controls. Otherwise, remaining risks would be minimal and commensurate with reasonably anticipated future use of the properties.	Risk to human health and the environment associated with soil and sediment are mitigated in this alternative through soil and sediment removal. Residual risks associated with soil not removed due to the presence of underground utilities, if any, would be mitigated by institutional controls.	Risk to human health and the environment associated with soil and sediment are mitigated in this alternative through soil and sediment removal. Residual risks associated with soil not removed due to the presence of underground utilities, if any, would be mitigated by capping and institutional controls. Otherwise, remaining risks would be minimal and commensurate with reasonably anticipated future use of the properties.	Risk to human health and the environment associated with soil and sediment are mitigated in this alternative through soil and sediment removal. Residual risks associated with soil not removed due to the presence of underground utilities, if any, would be mitigated by institutional controls.
Adequacy and reliability of controls	No controls are included in this alternative.	Institutional controls are reliable means of managing risks due to soil exposures. Capping is a reliable means of controlling exposures to contaminated soil. A soil management plan is a reliable means of controlling exposure to soil.	Institutional controls are reliable means of managing risks due to soil exposures. Capping is a reliable means of controlling exposures to contaminated soil. A soil management plan is a reliable means of controlling exposure to soil.	Institutional controls are reliable means of managing risks due to soil exposures. If deemed necessary, a soil management plan is a reliable means of controlling exposures to contaminated soil.	Institutional controls are reliable means of managing risks due to soil exposures. Capping is a reliable means of controlling exposures to contaminated soil. A soil management plan is a reliable means of controlling exposure to soil.	Institutional controls are reliable means of managing risks due to soil exposures. If deemed necessary, a soil management plan is a reliable means of controlling exposures to contaminated soil.
Long-term sustainability	No active remedial components, therefore, no environmental or sustainability impacts are associated with implementation of the remedy.	No long-term environmental or sustainability impacts are anticipated as a result of implementation of this remedy.	No long-term environmental or sustainability impacts are anticipated as a result of implementation of this remedy.	No long-term environmental or sustainability impacts are anticipated as a result of implementation of this remedy.	No long-term environmental or sustainability impacts are anticipated as a result of implementation of this remedy.	No long-term environmental or sustainability impacts are anticipated as a result of implementation of this remedy.
Reduction of Toxicity, Mobility, or Volume through Treatment						
Treatment process used and materials treated	No treatment processes included in this alternative.	*Ex situ* treatment related to sediment dewatering is anticipated with this alternative. It is anticipated that residual water may be treated for PCBs and removal of solids.	*Ex situ* treatment related to sediment dewatering is anticipated with this alternative. It is anticipated that residual water may be treated for PCBs and removal solids.	*Ex situ* treatment related to sediment dewatering is anticipated with this alternative. It is anticipated that residual water may be treated for PCBs and removal of solids.	*Ex situ* treatment related to sediment dewatering is anticipated with this alternative. It is anticipated that residual water may be treated for PCBs and removal of solids.	*Ex situ* treatment related to sediment dewatering is anticipated with this alternative. It is anticipated that residual water may be treated for PCBs and removal of solids.
Amount of hazardous material destroyed or treated	No treatment processes included in this alternative.	An estimated 254,000 gal of sediment dewatering fluids are anticipated to be treated under this alternative. Dewatering fluids are not anticipated to be hazardous material or to exhibit PCB concentrations in excess of 50 ppm. Approximately 5,800 CY of soil removal from the National Grid Wetland has the potential to exhibit PCB concentrations greater than 50 ppm. This volume would be removed and disposed off-site.	An estimated 308,000 gal of sediment dewatering fluids are anticipated to be treated under this alternative. Dewatering fluids are not anticipated to be hazardous material or to exhibit PCB concentrations in excess of 50 ppm. Approximately 5,800 CY of soil removal from the National Grid Wetland has the potential to exhibit PCB concentrations greater than 50 ppm. This volume would be removed and disposed off-site.	An estimated 479,000 gal of sediment dewatering fluids are anticipated to be treated under this alternative. Dewatering fluids are not anticipated to be hazardous material or to exhibit PCB concentrations in excess of 50 ppm. Approximately 6,330 CY of soil removal from the National Grid Wetland and 3,950 (one half the volume) of material excavated from the vicinity of Factory Avenue has the potential to exhibit PCB concentrations greater than 50 ppm. This volume would be removed and disposed off-site.	An estimated 308,000 gal of sediment dewatering fluids are anticipated to be treated under this alternative. Dewatering fluids are not anticipated to be hazardous material or to exhibit PCB concentrations in excess of 50 ppm. Approximately 5,800 CY of soil removal from the National Grid Wetland has the potential to exhibit PCB concentrations greater than 50 ppm. This volume would be removed and disposed off-site.	An estimated 479,000 gal of sediment dewatering fluids are anticipated to be treated under this alternative. Dewatering fluids are not anticipated to be hazardous material or to exhibit PCB concentrations in excess of 50 ppm. Approximately 6,330 CY of soil removal from the National Grid Wetland and 3,950 (one half the volume) of material excavated from the vicinity of Factory Avenue has the potential to exhibit PCB concentrations greater than 50 ppm. This volume would be removed and disposed off-site.
Degree of expected reduction in toxicity, mobility, or volume	No treatment processes included in this alternative.	Treatment is expected to reduce the toxicity of sediment dewatering fluids. While not a treatment process, removal of an estimated 11,920 CY of soil would result in a reduction of the toxicity of soil in off-site areas. Similarly, removal of an estimated 7,200 CY of sediment from Ley Creek would result in a reduction in toxicity and mobility of contaminated sediments in Ley Creek.	Treatment is expected to reduce the toxicity of sediment dewatering fluids. While not a treatment process, removal of an estimated 15,130 CY of soil would result in a reduction of the toxicity of soil in off-site areas. Similarly, removal of an estimated 9,600 CY of sediment from Ley Creek would result in a reduction in toxicity and mobility of contaminated sediments in Ley Creek.	Treatment is expected to reduce the toxicity of sediment dewatering fluids. While not a treatment process, removal of an estimated 31,460 CY of soil would result in a reduction of the toxicity of soil in off-site areas. Similarly, removal of an estimated 13,200 CY of sediment from Ley Creek would result in a reduction in toxicity and mobility of contaminated sediments in Ley Creek.	Treatment is expected to reduce the toxicity of sediment dewatering fluids. While not a treatment process, removal of an estimated 18,630 CY of soil would result in a reduction of the toxicity of soil in off-site areas. Similarly, removal of an estimated 9,600 CY of sediment from Ley Creek would result in a reduction in toxicity and mobility of contaminated sediments in Ley Creek.	Treatment is expected to reduce the toxicity of sediment dewatering fluids. While not a treatment process, removal of an estimated 33,260 CY of soil would result in a reduction of the toxicity of soil in off-site areas. Similarly, removal of an estimated 13,200 CY of sediment from Ley Creek would result in a reduction in toxicity and mobility of contaminated sediments in Ley Creek.

TABLE 4: DETAILED ANALYSIS OF REMEDIAL ALTERNATIVES

Criterion	Alternative 1 - No further action	Alternative 2A - Reasonably Anticipated Future Use Removal of soil and sediment	Alternative 2B - Reasonably Anticipated Future Use Removal of soil and sediment	Alternative 3 - Unrestricted Use Removal of soil and sediment	Alternative 4 - Risk-based/Reasonably Anticipated Future Use	Alternative 5- Risk-based/Unrestricted Use
	● No further action	● Institutional Controls - Soil management plan, deed restrictions, periodic reviews. ● Capping - Vegetative, gravel, and asphalt cover in the Factory Avenue Area ● Excavation - Mechanical excavation to Commercial SCOs of Factory Ave area soil down to average 1 ft depth. - Mechanical excavation to Ecological Resources SCOs of Floodplain area soil to average 1 to 6 ft depth. - Mechanical excavation to Ecological Resource SCOs of Wetland area soil to average depth of 2.5 ft for total PCBs greater than 50 mg/kg with additional excavations to average depth of 1 ft. - Mechanical excavation of sediment greater than 2.2 mg/kg total PCBs in Ley Creek to an average depth of 1.25 ft. ● *Ex situ* treatment - Dewatering of excavated sediments. ● Disposal - Off-site disposal of excavated soil and sediment.	● Institutional Controls - Soil management plan, deed restrictions, periodic reviews. ● Capping - Vegetative, gravel, and asphalt cover in the Factory Avenue Area ● Excavation - Mechanical excavation to Commercial SCOs of Factory Ave area soil down to average depth of 1 to 4 ft. - Mechanical excavation to Ecological Resources SCOs of Floodplain area soil to average depth of 1 to 6 ft. - Mechanical excavation of Wetland area soil to Ecological SCOs to average depth of 2.5 ft. for total PCBs greater than 50 mg/kg with additional excavations to average depth of 1 ft (expanded volume). - Mechanical excavation of sediment greater than 1 mg/kg total PCBs in Ley Creek to an average depth of 1.25 ft. ● *Ex situ* treatment - Dewatering of excavated sediments. ● Disposal - Off-site disposal of excavated soil and sediment.	● Institutional Controls - Soil management plan, deed restrictions, periodic review, if necessary. ● Excavation - Mechanical excavation of soil greater than SCOs for unrestricted use. - Mechanical excavation of sediment greater than 0.28 mg/kg in Ley Creek. ● *Ex situ* treatment - Dewatering of excavated sediments. ● Disposal - Off-site disposal of excavated soil and sediment.	● Institutional Controls - Soil management plan, deed restrictions, periodic reviews. ● Capping - Vegetative, gravel, and asphalt cover in the Factory Avenue Area ● Excavation - Mechanical excavation to Commercial SCOs of Factory Ave area soil down to average depth of 1 to 4 ft. - Mechanical excavation to Risk/Background/Ecological Resources SCOs of Floodplain area soil to depth of 1 to 6 ft. - Mechanical excavation of Wetland area soil to Risk/Background/Ecological Resources/Industrial SCOs to average depths of 1 and 2.5 ft. - Mechanical excavation of sediment greater than 1 mg/kg total PCBs in Ley Creek to an average depth of 1.25 ft. ● *Ex situ* treatment - Dewatering of excavated sediments. ● Disposal - Off-site disposal of excavated soil and sediment.	● Institutional Controls - Soil management plan, deed restrictions, periodic review, if necessary. ● Excavation - Mechanical excavation to Risk/Background for soil 0 - 1 ft in ecological habitat areas - Mechanical excavation of soil deeper than 1 ft and greater than SCOs for unrestricted use. - Mechanical excavation of sediment greater than 0.28 mg/kg in Ley Creek. ● *Ex situ* treatment - Dewatering of excavated sediments. ● Disposal - Off-site disposal of excavated soil and sediment.
Degree to which treatment is irreversible	No treatment processes included in this alternative.	Soil and sediment excavation and disposal are irreversible. Treatment of the sediment dewatering fluids is considered irreversible.	Soil and sediment excavation and disposal are irreversible. Treatment of the sediment dewatering fluids is considered irreversible.	Soil and sediment excavation and disposal are irreversible. Treatment of the sediment dewatering fluids is considered irreversible.	Soil and sediment excavation and disposal are irreversible. Treatment of the sediment dewatering fluids is considered irreversible.	Soil and sediment excavation and disposal are irreversible. Treatment of the sediment dewatering fluids is considered irreversible.
Type and quantity of residuals remaining after treatment	No treatment processes included in this alternative.	Treatment residuals from sediment dewatering are anticipated to consist of solids. Full removal of intended soil excavation volumes may not be feasible due to the presence of subsurface utilities. The quantity of residual material is unknown.	Treatment residuals from sediment dewatering are anticipated to consist of solids. Full removal of intended soil excavation volumes may not be feasible due to the presence of subsurface utilities. The quantity of residual material is unknown.	Treatment residuals from sediment dewatering are anticipated to consist of solids. Full removal of intended soil excavation volumes may not be feasible due to the presence of subsurface utilities. The quantity of residual material is unknown.	Treatment residuals from sediment dewatering are anticipated to consist of solids. Full removal of intended soil excavation volumes may not be feasible due to the presence of subsurface utilities. The quantity of residual material is unknown.	Treatment residuals from sediment dewatering are anticipated to consist of solids. Full removal of intended soil excavation volumes may not be feasible due to the presence of subsurface utilities. The quantity of residual material is unknown.
Short-Term Impact and Effectiveness						
Protection of community during remedial actions	No active remedial actions included in this alternative.	Dust, surface runoff, and sediment erosion, would be controlled during construction/excavation activities. Proper health and safety measures will be established and implemented during remedial activities.	Dust, surface runoff, and sediment erosion, would be controlled during construction/excavation activities. Proper health and safety measures will be established and implemented during remedial activities.	Dust, surface runoff, and sediment erosion, would be controlled during construction/excavation activities. Proper health and safety measures will be established and implemented during remedial activities.	Dust, surface runoff, and sediment erosion, would be controlled during construction/excavation activities. Proper health and safety measures will be established and implemented during remedial activities.	Dust, surface runoff, and sediment erosion, would be controlled during construction/excavation activities. Proper health and safety measures will be established and implemented during remedial activities.
Protection of workers during remedial actions	No active remedial actions included in this alternative.	Proper health and safety measures would be established and implemented during remedial activities, and would be effective in protecting workers from exposure to contaminants.	Proper health and safety measures would be established and implemented during remedial activities, and would be effective in protecting workers from exposure to contaminants.	Proper health and safety measures would be established and implemented during remedial activities, and would be effective in protecting workers from exposure to contaminants.	Proper health and safety measures would be established and implemented during remedial activities, and would be effective in protecting workers from exposure to contaminants.	Proper health and safety measures would be established and implemented during remedial activities, and would be effective in protecting workers from exposure to contaminants.
Short-Term Impact and Effectiveness (continued)						
Short-term sustainability	No active remedial actions included in this alternative.	Dust, surface runoff controls, and sediment control measures would be instituted to minimize impacts to the environment during implementation of this alternative. Green remediation techniques, as detailed in NYSDEC DER-31, will be considered for each alternative to reduce short-term environmental impacts of the selected remedy. Alternative 2A is anticipated to be more energy intensive than Alternative 1.	Dust, surface runoff controls, and sediment control measures would be instituted to minimize impacts to the environment during implementation of this alternative. Green remediation techniques, as detailed in NYSDEC DER-31, will be considered for each alternative to reduce short-term environmental impacts of the selected remedy. Alternative 2B is anticipated to be more energy intensive than Alternative 1 and 2A.	Dust, surface runoff controls, and sediment control measures would be instituted to minimize impacts to the environment during implementation of this alternative. Green remediation techniques, as detailed in NYSDEC DER-31, will be considered for each alternative to reduce short-term environmental impacts of the selected remedy. Alternative 3 is anticipated to be more energy intensive than Alternatives 1, 2A and 2B.	Dust, surface runoff controls, and sediment control measures would be instituted to minimize impacts to the environment during implementation of this alternative. Green remediation techniques, as detailed in NYSDEC DER-31, will be considered for each alternative to reduce short-term environmental impacts of the selected remedy. Alternative 4 is anticipated to be more energy intensive than Alternatives 1, 2A, and 2B	Dust, surface runoff controls, and sediment control measures would be instituted to minimize impacts to the environment during implementation of this alternative. Green remediation techniques, as detailed in NYSDEC DER-31, will be considered for each alternative to reduce short-term environmental impacts of the selected remedy. Alternative 5 is anticipated to be the most energy intensive of the alternatives.
Time until RAOs are achieved	RAOs are not anticipated to be met by this alternative within the foreseeable future.	RAOs related to exposure to soil and sediment would be addressed upon implementation of this alternative.	RAOs related to exposure to soil and sediment would be addressed upon implementation of this alternative.	RAOs related to exposure to soil and sediment would be addressed upon implementation of this alternative.	RAOs related to exposure to soil and sediment would be addressed upon implementation of this alternative.	RAOs related to exposure to soil and sediment would be addressed upon implementation of this alternative.
Implementability						
Ability to construct and operate the technology	There are no technologies to be constructed in this alternative.	Excavation and capping are readily implementable. Periodic maintenance and inspection of Alternative 2A components would be anticipated to maintain integrity and operation.	Excavation and capping are readily implementable. Periodic maintenance and inspection of Alternative 2B components would be anticipated to maintain integrity and operation.	Excavation is readily implementable. Periodic maintenance and inspection of Alternative 3 components, if necessary, would be anticipated to maintain integrity and operation.	Excavation and capping are readily implementable. PRGs for this alternative are lower than NYS Allowable Levels for Imported Fill or Soil, thus, obtaining backfill material that would meet PRGs is not feasible. Periodic maintenance and inspection of Alternative 4 components would be anticipated to maintain integrity and operation.	Excavation is readily implementable. PRGs for this alternative are lower than NYS Allowable Levels for Imported Fill or Soil, thus, obtaining backfill material that would meet PRGs is not feasible. Periodic maintenance and inspection of Alternative 5 components, if necessary, would be anticipated to maintain integrity and operation.
Reliability of technology	There are no technologies to be constructed in this alternative.	Institutional controls are reliable means of managing residual risks due to exposure to soil and sediments. Excavation and capping are reliable means of controlling exposures to contaminated soil. Excavation is a reliable means of controlling exposures to contaminated sediment.	Institutional controls are reliable means of managing residual risks due to exposure to soil and sediments. Excavation and capping are reliable means of controlling exposures to contaminated soil. Excavation is a reliable means of controlling exposures to contaminated sediment.	Institutional controls are reliable means of managing residual risks due to exposure to soil and sediments. Excavation and capping are reliable means of controlling exposures to contaminated soil. Excavation is a reliable means of controlling exposures to contaminated sediment.	Institutional controls are reliable means of managing residual risks due to exposure to soil and sediments. Excavation and capping are reliable means of controlling exposures to contaminated soil. Excavation is a reliable means of controlling exposures to contaminated sediment.	Institutional controls are reliable means of managing residual risks due to exposure to soil and sediments. Excavation and capping are reliable means of controlling exposures to contaminated soil. Excavation is a reliable means of controlling exposures to contaminated sediment.
Ease of undertaking additional remedial actions, if necessary	Additional remedial actions, if necessary, would be readily implementable.	Additional remedial actions, if necessary, are readily implementable.	Additional remedial actions, if necessary, are readily implementable.	Additional remedial actions, if necessary, would be readily implementable.	Additional remedial actions, if necessary, are readily implementable.	Additional remedial actions, if necessary, would be readily implementable.
Ability to monitor effectiveness of remedy	Effectiveness of the remedy could be readily monitored.	Effectiveness of the remedy could be readily monitored. Periodic review would be included in this alternative.	Effectiveness of the remedy could be readily monitored. Periodic review would be included in this alternative.	Effectiveness of the remedy could be readily monitored. Periodic review may be included in this alternative.	Effectiveness of the remedy could be readily monitored. Periodic review would be included in this alternative.	Effectiveness of the remedy could be readily monitored. Periodic review may be included in this alternative.
Coordination with other agencies and property owners	No coordination necessary to implement this alternative.	Coordination with other agencies including USEPA, NYSDEC, Onondaga County, the Town of Salina, and property owners would be necessary.	Coordination with other agencies including USEPA, NYSDEC, Onondaga County, the Town of Salina, and property owners would be necessary.	Coordination with other agencies including USEPA, NYSDEC, Onondaga County, the Town of Salina, and property owners would be necessary.	Coordination with other agencies including USEPA, NYSDEC, Onondaga County, the Town of Salina, and property owners would be necessary.	Coordination with other agencies including USEPA, NYSDEC, Onondaga County, the Town of Salina, and property owners would be necessary.
Availability of off-site treatment storage and disposal services and capacities	No off-site treatment, storage and disposal services identified for this alternative.	Off-site treatment, storage and disposal facilities are readily available.	Off-site treatment, storage and disposal facilities are readily available.	Off-site treatment, storage and disposal facilities are readily available.	Off-site treatment, storage and disposal facilities are readily available.	Off-site treatment, storage and disposal facilities are readily available.
Availability of necessary equipment, specialists, and materials	No equipment, specialists and materials are identified for this alternative.	Equipment, specialists and materials are readily available.	Equipment, specialists and materials are readily available.	Equipment, specialists and materials are readily available.	With the exception of backfill material, equipment, specialists and materials are readily available. PRGs for this alternative are lower than NYS Allowable Levels for Imported Fill or Soil, thus, obtaining backfill material that would meet PRGs is not feasible, rendering this alternative not implementable.	With the exception of backfill material, equipment, specialists and materials are readily available. PRGs for this alternative are lower than NYS Allowable Levels for Imported Fill or Soil, thus, obtaining backfill material that would meet PRGs is not feasible, rendering this alternative not implementable.
Costs						
Capital cost	$0	$11,462,000	$13,732,000	$21,904,000	$14,922,000	$22,484,000
Present worth of operation and maintenance cost	$0	$356,300	$356,300	$356,300	$341,200	$341,200
Approximate total net present worth cost	$0	$11,818,000	$14,088,000	$22,260,000	$15,278,000	$22,840,000

TABLE 4: DETAILED ANALYSIS OF REMEDIAL ALTERNATIVES

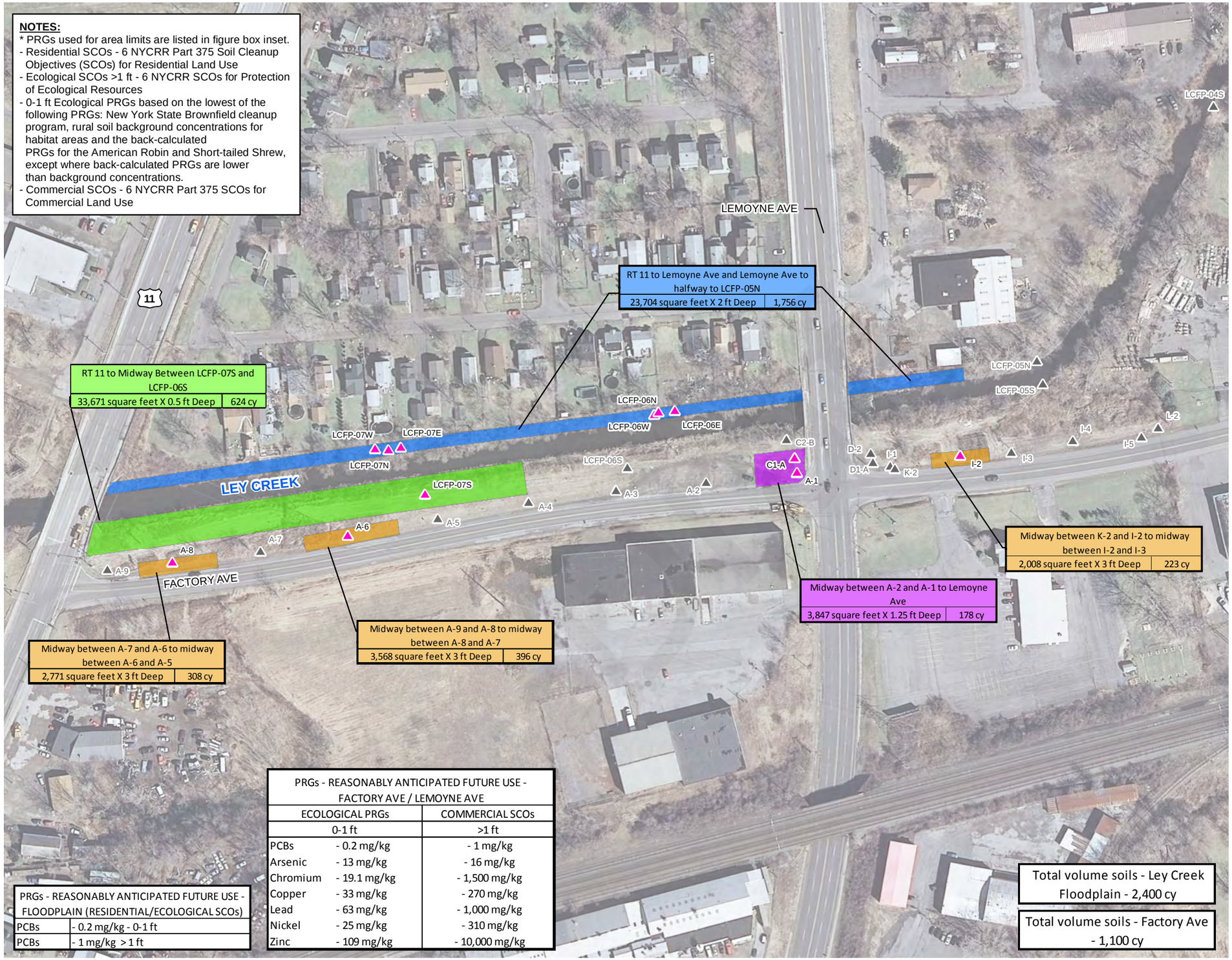
Criterion	Alternative 1 - No further action	Alternative 2A - Reasonably Anticipated Future Use Removal of soil and sediment	Alternative 2B - Reasonably Anticipated Future Use Removal of soil and sediment	Alternative 3 - Unrestricted Use Removal of soil and sediment	Alternative 4 - Risk-based/Reasonably Anticipated Future Use	Alternative 5- Risk-based/Unrestricted Use
	● No further action	● Institutional Controls - Soil management plan, deed restrictions, periodic reviews. ● Capping - Vegetative, gravel, and asphalt cover in the Factory Avenue Area ● Excavation - Mechanical excavation to Commercial SCOs of Factory Ave area soil down to average 1 ft depth. - Mechanical excavation to Ecological Resources SCOs of Floodplain area soil to average 1 to 6 ft depth. - Mechanical excavation to Ecological Resource SCOs of Wetland area soil to average depth of 2.5 ft for total PCBs greater than 50 mg/kg with additional excavations to average depth of 1 ft. - Mechanical excavation of sediment greater than 2.2 mg/kg total PCBs in Ley Creek to an average depth of 1.25 ft. ● *Ex situ* treatment - Dewatering of excavated sediments. ● Disposal - Off-site disposal of excavated soil and sediment.	● Institutional Controls - Soil management plan, deed restrictions, periodic reviews. ● Capping - Vegetative, gravel, and asphalt cover in the Factory Avenue Area ● Excavation - Mechanical excavation to Commercial SCOs of Factory Ave area soil down to average depth of 1 to 4 ft. - Mechanical excavation to Ecological Resources SCOs of Floodplain area soil to average depth of 1 to 6 ft. - Mechanical excavation of Wetland area soil to Ecological SCOs to average depth of 2.5 ft. for total PCBs greater than 50 mg/kg with additional excavations to average depth of 1 ft (expanded volume). - Mechanical excavation of sediment greater than 1 mg/kg total PCBs in Ley Creek to an average depth of 1.25 ft. ● *Ex situ* treatment - Dewatering of excavated sediments. ● Disposal - Off-site disposal of excavated soil and sediment.	● Institutional Controls - Soil management plan, deed restrictions, periodic review, if necessary. ● Excavation - Mechanical excavation of soil greater than SCOs for unrestricted use. - Mechanical excavation of sediment greater than 0.28 mg/kg in Ley Creek. ● *Ex situ* treatment - Dewatering of excavated sediments. ● Disposal - Off-site disposal of excavated soil and sediment.	● Institutional Controls - Soil management plan, deed restrictions, periodic reviews. ● Capping - Vegetative, gravel, and asphalt cover in the Factory Avenue Area ● Excavation - Mechanical excavation to Commercial SCOs of Factory Ave area soil down to average depth of 1 to 4 ft. - Mechanical excavation to Risk/Background/Ecological Resources SCOs of Floodplain area soil to depth of 1 to 6 ft. - Mechanical excavation of Wetland area soil to Risk/Background/Ecological Resources/Industrial SCOs to average depths of 1 and 2.5 ft. - Mechanical excavation of sediment greater than 1 mg/kg total PCBs in Ley Creek to an average depth of 1.25 ft. ● *Ex situ* treatment - Dewatering of excavated sediments. ● Disposal - Off-site disposal of excavated soil and sediment.	● Institutional Controls - Soil management plan, deed restrictions, periodic review, if necessary. ● Excavation - Mechanical excavation to Risk/Background for soil 0 - 1 ft in ecological habitat areas - Mechanical excavation of soil deeper than 1 ft and greater than SCOs for unrestricted use. - Mechanical excavation of sediment greater than 0.28 mg/kg in Ley Creek. ● *Ex situ* treatment - Dewatering of excavated sediments. ● Disposal - Off-site disposal of excavated soil and sediment.
Land Use						
Evaluation of land use factors	No actions are included in Alternative 1. Alternative 1 would require additional property restrictions over those consistent with current, intended and reasonably anticipated future use of the off-site areas to be protective of human receptors.	Alternative 2A results in the ability to use each property consistent with current, intended and reasonably anticipated future use of the off-site areas.	Alternative 2B results in the ability to use each property consistent with current, intended and reasonably anticipated future use of the off-site areas. In addition, this remedial alternative will allow for the future consumption of fish caught in the Site reach of Ley Creek.	Alternative 3 results in the ability to use each property with no restrictions in use. In addition, this remedial alternative will allow for the future consumption of fish caught in the Site reach of Ley Creek.	Alternative 4 results in the ability to use each property consistent with current, intended and reasonably anticipated future use of the off-site areas. In addition, this remedial alternative will allow for the future consumption of fish caught in the Site reach of Ley Creek.	Alternative 5 results in the ability to use each property with no restrictions in use. In addition, this remedial alternative will allow for the future consumption of fish caught in the Site reach of Ley Creek.

Notes:
CY - cubic yards
DER-31 - Division of Environmental Remediation Program Policy for Green Remediation
gal - gallon
NYSDEC - New York State Department of Environmental Conservation
OSHA - Occupational Safety and Health Administration
PCB - Polychlorinated biphenyl
PRG - Preliminary Remedial Goal
RAO - Remedial Action Objective
SCG - Standard, Criteria, and Guidance
SCO - Soil Cleanup Objective
USEPA - United States Environmental Protection Agency

- Alternative 2A Preliminary Remedial Goals (PRGs): Factory Avenue Areas - Commercial SCOs; Portions of Ley Creek Floodplain and National Grid Wetland - Ecological Resource SCOs; National Grid Access Road Area - Industrial SCOs; Ley Creek Sediment - ecological receptor risk-based (2.2 mg/kg PCBs).
- Alternative 2B PRGs: Factory Avenue Areas - Commercial SCOs; Portions of Ley Creek Floodplain and National Grid Wetland - Ecological Resource SCOs; National Grid Access Road Area - Industrial SCOs; Ley Creek Sediment - human health risk-based (1 mg/kg PCBs).
- Alternative 3 PRGs: Factory Avenue Areas, Portions of Ley Creek Floodplain, National Grid Wetland, National Grid Access Road Area - Unrestricted SCOs; Ley Creek Sediment - upstream average PCB concentration (0.28 mg/kg PCBs).
- Soil and sediment excavation limits are depicted on Figures 5-1 through 5-10.
- Soil and sediment excavation volumes are summarized in Table 5-5.
- Red text denotes new text. Other text was previously p provided in the May 2013 FS Report.

FIGURE 1

NOTES:
* PRGs used for area limits are listed in figure box inset.
- Residential SCOs - 6 NYCRR Part 375 Soil Cleanup Objectives (SCOs) for Residential Land Use
- Ecological SCOs >1 ft - 6 NYCRR SCOs for Protection of Ecological Resources
- 0-1 ft Ecological PRGs based on the lowest of the following PRGs: New York State Brownfield cleanup program, rural soil background concentrations for habitat areas and the back-calculated PRGs for the American Robin and Short-tailed Shrew, except where back-calculated PRGs are lower than background concentrations.
- Commercial SCOs - 6 NYCRR Part 375 SCOs for Commercial Land Use



PRGs - REASONABLY ANTICIPATED FUTURE USE - FLOODPLAIN (RESIDENTIAL/ECOLOGICAL SCOs)	
PCBs	- 0.2 mg/kg - 0-1 ft
PCBs	- 1 mg/kg >1 ft

PRGs - REASONABLY ANTICIPATED FUTURE USE - FACTORY AVE / LEMOYNE AVE		
	ECOLOGICAL PRGs	COMMERCIAL SCOs
	0-1 ft	>1 ft
PCBs	- 0.2 mg/kg	- 1 mg/kg
Arsenic	- 13 mg/kg	- 16 mg/kg
Chromium	- 19.1 mg/kg	- 1,500 mg/kg
Copper	- 33 mg/kg	- 270 mg/kg
Lead	- 63 mg/kg	- 1,000 mg/kg
Nickel	- 25 mg/kg	- 310 mg/kg
Zinc	- 109 mg/kg	- 10,000 mg/kg

Total volume soils - Ley Creek Floodplain - 2,400 cy

Total volume soils - Factory Ave - 1,100 cy

This document was developed in color. Reproduction in B/W may not represent the data as intended.

N

LEGEND

- SOIL SAMPLE > PRGs*
- SOIL SAMPLE

PROPOSED EXCAVATION EXTENT

- 0.5 FOOT DEPTH
- 1.25 FOOT DEPTH
- 2 FOOT DEPTH
- 3 FOOT DEPTH

EXCAVATION LIMITS

RT 11 to Lemoyne Ave and Lemoyne Ave to halfway to LCFP-05N
23,704 square feet X 2 ft Deep | 1,756 cy

AREA AND DEPTH | VOLUME

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

OFF-SITE
FEASIBILITY STUDY
ADDENDUM

LEY CREEK FLOODPLAIN
AND FACTORY AVE
/LEMOYNE AVE
SOILS AREAS AND VOLUMES
(ALTERNATIVE 4)

0 75 150 300
Feet

OCTOBER 2013
15388.50292

O'BRIEN & GERE

NOTES:
* PRGs used for area limits are listed in figure box inset.
- Boring locations acquired from a Trimble Pro XRS GPS Unit
- Residential SCOs - 6 NYCRR Part 375 Soil Cleanup Objectives (SCOs) for Residential Land Use
- Ecological SCOs >1 ft - 6 NYCRR SCOs for Protection of Ecological Resources
- 0-1 ft Ecological PRGs based on the lowest of the following PRGs: New York State Brownfield cleanup program, rural soil background concentrations for habitat areas and the back-calculated PRGs for the American Robin and Short-tailed Shrew, except where back-calculated PRGs are lower than background concentrations.

Total volume soils - Ley Creek Floodplain - 1,244 cy

LCFP-01S	
400 square feet X 1 ft Deep	15 cy

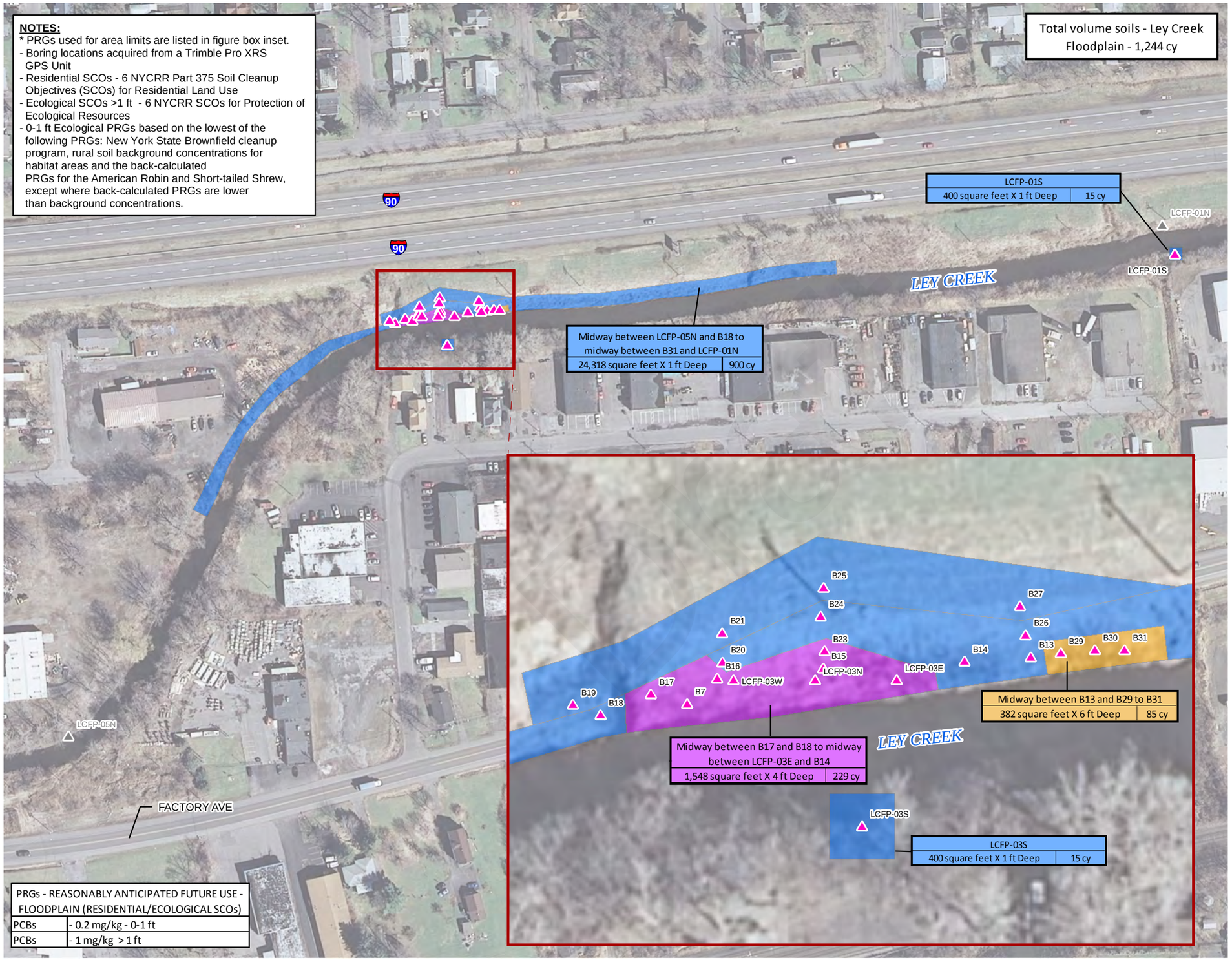
Midway between LCFP-05N and B18 to midway between B31 and LCFP-01N	
24,318 square feet X 1 ft Deep	900 cy

Midway between B17 and B18 to midway between LCFP-03E and B14	
1,548 square feet X 4 ft Deep	229 cy

Midway between B13 and B29 to B31	
382 square feet X 6 ft Deep	85 cy

LCFP-03S	
400 square feet X 1 ft Deep	15 cy

PRGs - REASONABLY ANTICIPATED FUTURE USE - FLOODPLAIN (RESIDENTIAL/ECOLOGICAL SCOs)	
PCBs	- 0.2 mg/kg - 0-1 ft
PCBs	- 1 mg/kg > 1 ft



This document was developed in color. Reproduction in B/W may not represent the data as intended.

FIGURE 2

N

LEGEND

- SOIL SAMPLE > PRG*
- SOIL SAMPLE < PRG*

PROPOSED EXCAVATION EXTENT

- 1 FOOT DEPTH
- 4 FOOT DEPTH
- 6 FOOT DEPTH

EXCAVATION LIMITS

Midway between B17 and B18 to midway between LCFP-03E and B14	
1,548 square feet X 4 ft Deep	229 cy

AREA AND DEPTH — VOLUME

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

OFF-SITE
FEASIBILITY STUDY
ADDENDUM

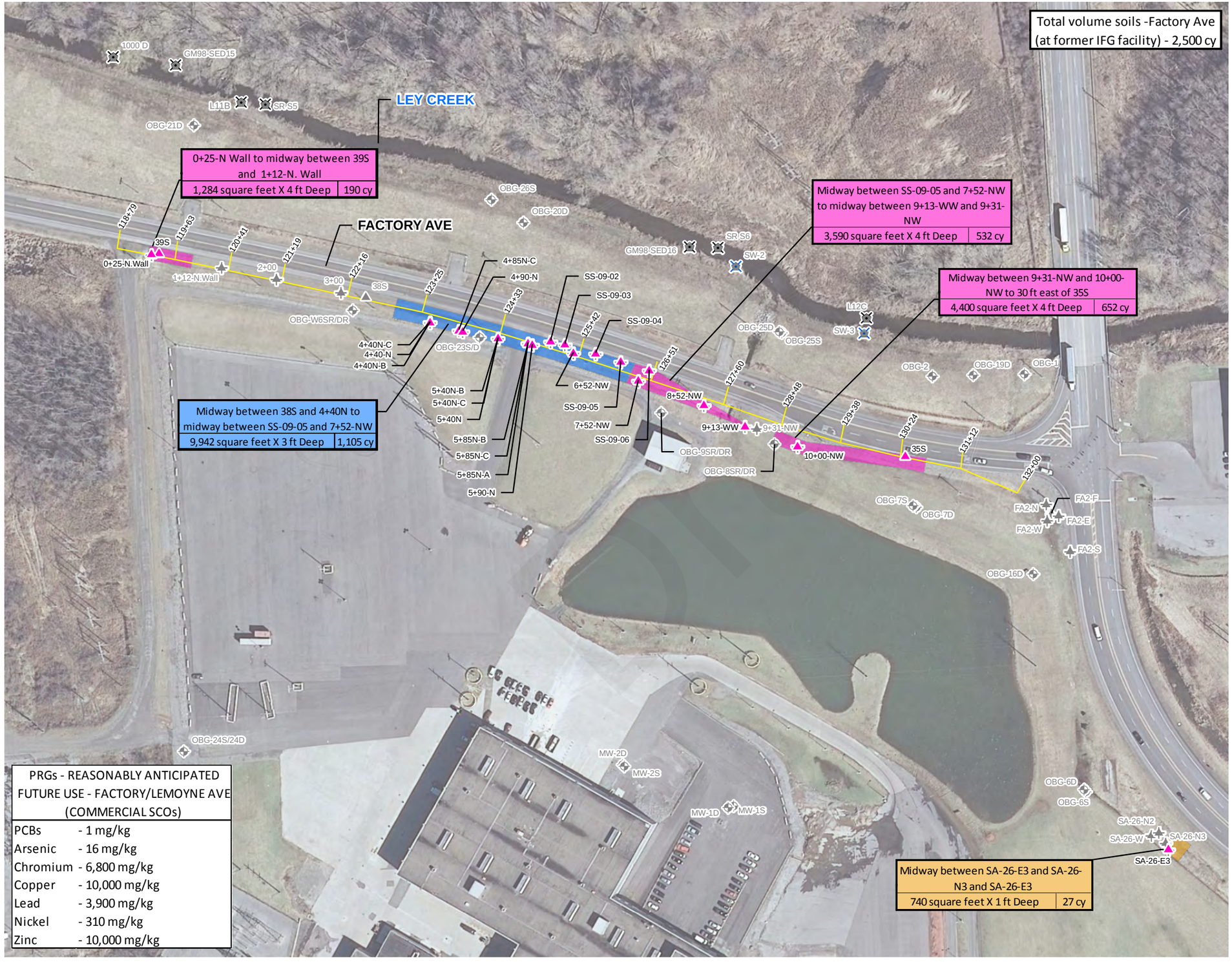
FLOODPLAIN HOT SPOT
AND FLOODPLAIN
SOILS AREAS AND VOLUMES
(ALTERNATIVE 4)

0 75 150 300
Feet

OCTOBER 2013
15388.50292

O'BRIEN & GERE

FIGURE 3



PRGs - REASONABLY ANTICIPATED FUTURE USE - FACTORY/LEMOYNE AVE (COMMERCIAL SCOs)	
PCBs	- 1 mg/kg
Arsenic	- 16 mg/kg
Chromium	- 6,800 mg/kg
Copper	- 10,000 mg/kg
Lead	- 3,900 mg/kg
Nickel	- 310 mg/kg
Zinc	- 10,000 mg/kg

This document was developed in color. Reproduction in B/W may not represent the data as intended.

N

LEGEND

- SOIL SAMPLE > PRGs*
- MONITORING WELL
- SOIL BORING
- SURFACE SOIL
- SEDIMENT SAMPLE
- SURFACE WATER SAMPLE
- FORMER IFG FACILITY PROPERTY BOUNDARY

PROPOSED EXCAVATION EXTENT

- 1 FOOT DEPTH
- 3 FOOT DEPTH
- 4 FOOT DEPTH

NOTES:

* PRGs used for area limits are listed in figure box inset.
- Commercial SCOs - 6 NYCRR Part 375 Soil Cleanup Objectives (SCOs) for Commercial Land Use

EXCAVATION EXTENT

Midway between SA-26-E3 and SA-26-N3 and SA-26-E3	
740 square feet X 1 ft Deep	27 cy
AREA AND DEPTH	VOLUME

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

OFF-SITE
FEASIBILITY STUDY
ADDENDUM

FACTORY AVENUE
(AT FORMER IFG FACILITY)
SOILS
AREAS AND VOLUMES
(ALTERNATIVE 4)

0 70 140 280
Feet

OCTOBER 2013
15388.50292

O'BRIEN & GERE

I:\Racer-Trust.15388\50292.For-Ifg-Fac-Rifl\Docs\DWG\MXD\FS_Append\Fig 3 FACTORY AVENUE SOILS AREAS AND VOLUMES RAFU.mxd

PLOTDATE: 10/07/13 4:58:37 PM StantoSA

FIGURE 4

Total volume soils -National Grid Wetland with PCBs > 50 mg/kg - 5,800 cy

Total volume soils -National Grid wetland area - 11,600 cy

Total volume soils -National Grid access road - 30 cy

PRGs - REASONABLY ANTICIPATED FUTURE USE ACCESS ROAD (INDUSTRIAL SCOs)	
PCBs - 25 mg/kg	
PRGs - REASONABLY ANTICIPATED FUTURE USE	
ECOLOGICAL PRGs	COMMERCIAL SCOs
0-1 ft	>1 ft
PCBs - 0.2 mg/kg	- 1 mg/kg
Arsenic - 13 mg/kg	- 13 mg/kg
Chromium - 19.1 mg/kg	- 41 mg/kg
Copper - 33 mg/kg	- 50 mg/kg
Lead - 63 mg/kg	- 63 mg/kg
Nickel - 25 mg/kg	- 30 mg/kg
Zinc - 109 mg/kg	- 109 mg/kg

NOTE:
* PRGs used for area limits are listed in figure box inset.
- Industrial SCOs - NYCRR part 375 Soil Cleanup Objectives (SCOs) for Industrial Land Use
- Ecological SCOs >1 ft - NYCRR Part 375 SCOs for Protection of Ecological Resources
- 0-1 ft Ecological PRGs based on the lowest of the following PRGs: New York State Brownfield cleanup program, rural soil background concentrations for habitat areas and the back-calculated PRGs for the American Robin and Short-tailed Shrew, except where back-calculated PRGs are lower than background concentrations.

2.5-ft Depth	
68,378-sf from 0.0-bgs to 2.5-bgs	6,331 cy

2.5-ft Depth	
4,875-sf from 0.0-bgs to 2.5-bgs	451 cy

1-ft Depth	
128,688-sf from 0.0-bgs to 1.0-bgs	4,766 cy

SS-02-05-S2	
100-sf from 0.0-bgs to 2.0-bgs	7 cy

4+85-N, 4+85-S	
100-sf from 0.0-bgs to 2.0-bgs each	7 cy

5+70	
100-sf from 0.0-bgs to 3.0-bgs	11 cy

FACTORY AVE

LEGEND

- SOIL SAMPLE > PRGs*
- SOIL SAMPLE
- PCBs > 50 mg/kg
- FACTORY AVENUE DITCH

PROPOSED EXCAVATION EXTENT

- 1 FOOT DEPTH
- 2.5 FOOT DEPTH

EXCAVATION LIMITS

WLSED03-3	
100-sf from 0.0-bgs to 1.0-bgs	4 cy

AREA AND DEPTH — VOLUME

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

OFF-SITE
FEASIBILITY STUDY
ADDENDUM

NATIONAL GRID
WETLAND AREA SOILS
AREAS AND VOLUMES
(ALTERNATIVE 4)

0 50 100 200
Feet

OCTOBER 2013
15388.50292

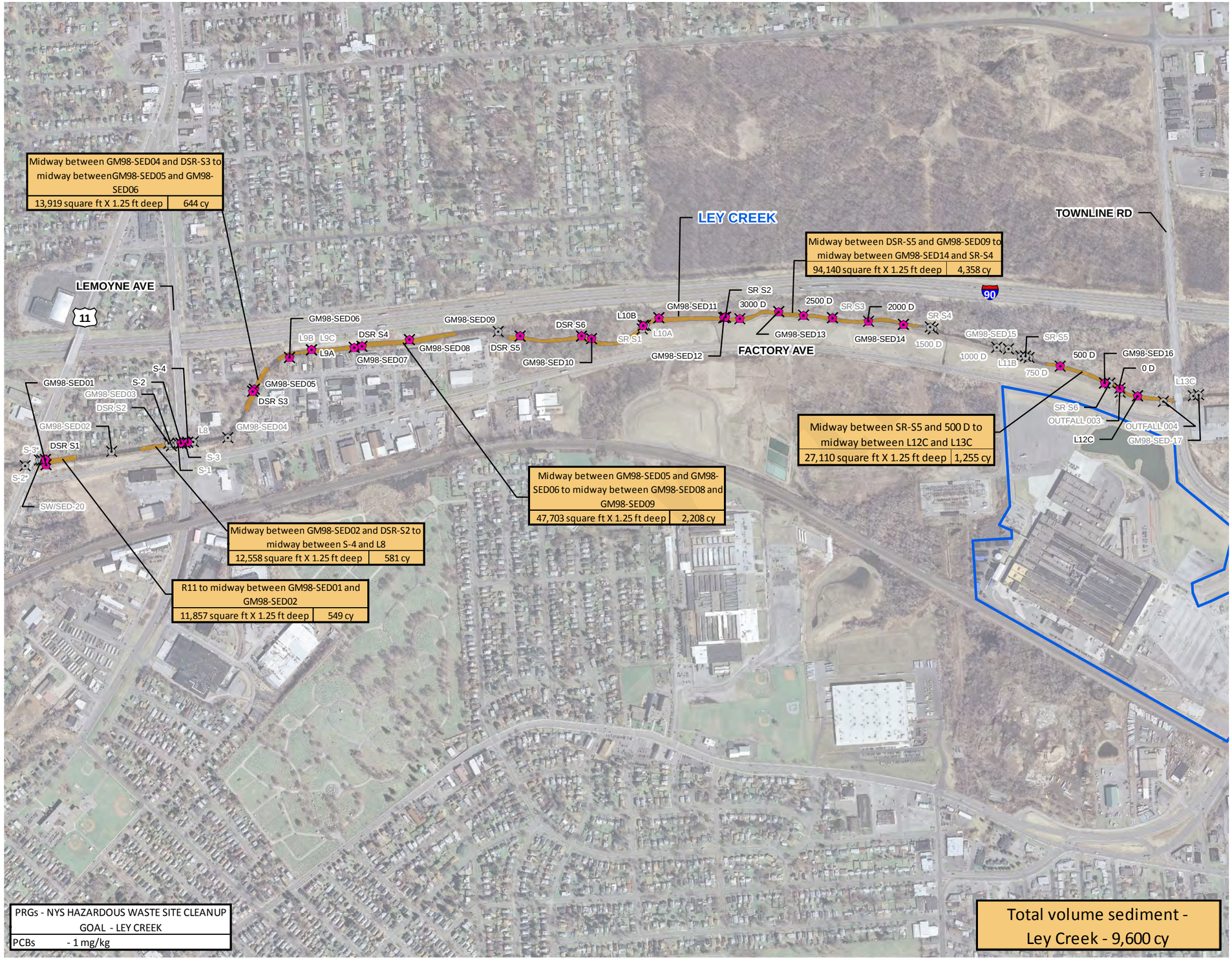
O'BRIEN & GERE

This document was developed in color. Reproduction in B/W may not represent the data as intended.

I:\Racer-Trust.15388\50292.For-Ifg-Fac-Rl\Docs\DWG\MXD\FS_Append\Fig 4 NATIONAL GRID WETLAND SOILS AREAS AND VOLUMES RAFU.mxd

PLOTDATE: 10/15/13 11:11:49 AM StantoSA

FIGURE 5



This document was developed in color. Reproduction in B/W may not represent the data as intended.

N

LEGEND

- SEDIMENT SAMPLE > PRG*
- SED
- FORMER IFG FACILITY PROPERTY BOUNDARY
- PROPOSED EXCAVATION EXTENT

NOTES:
- Ley Creek length between Townline Rd and Route 11: 9,242 linear ft.
- Proposed excavation extent square footage was estimated using the aerial image of each relevant reach of Ley Creek.

* PRGs used in area limits are listed in figure box inset.
- PRG of 1 mg/kg for total PCBs based on previously selected cleanup goals for NYS Hazardous Waste Sites.

EXCAVATION LIMITS

R11 to midway between GM98-SED01 and GM98-SED02	
11,857 square ft X 1.25 ft deep	549 cy

AREA AND DEPTH — VOLUME

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

OFF-SITE
FEASIBILITY STUDY
ADDENDUM

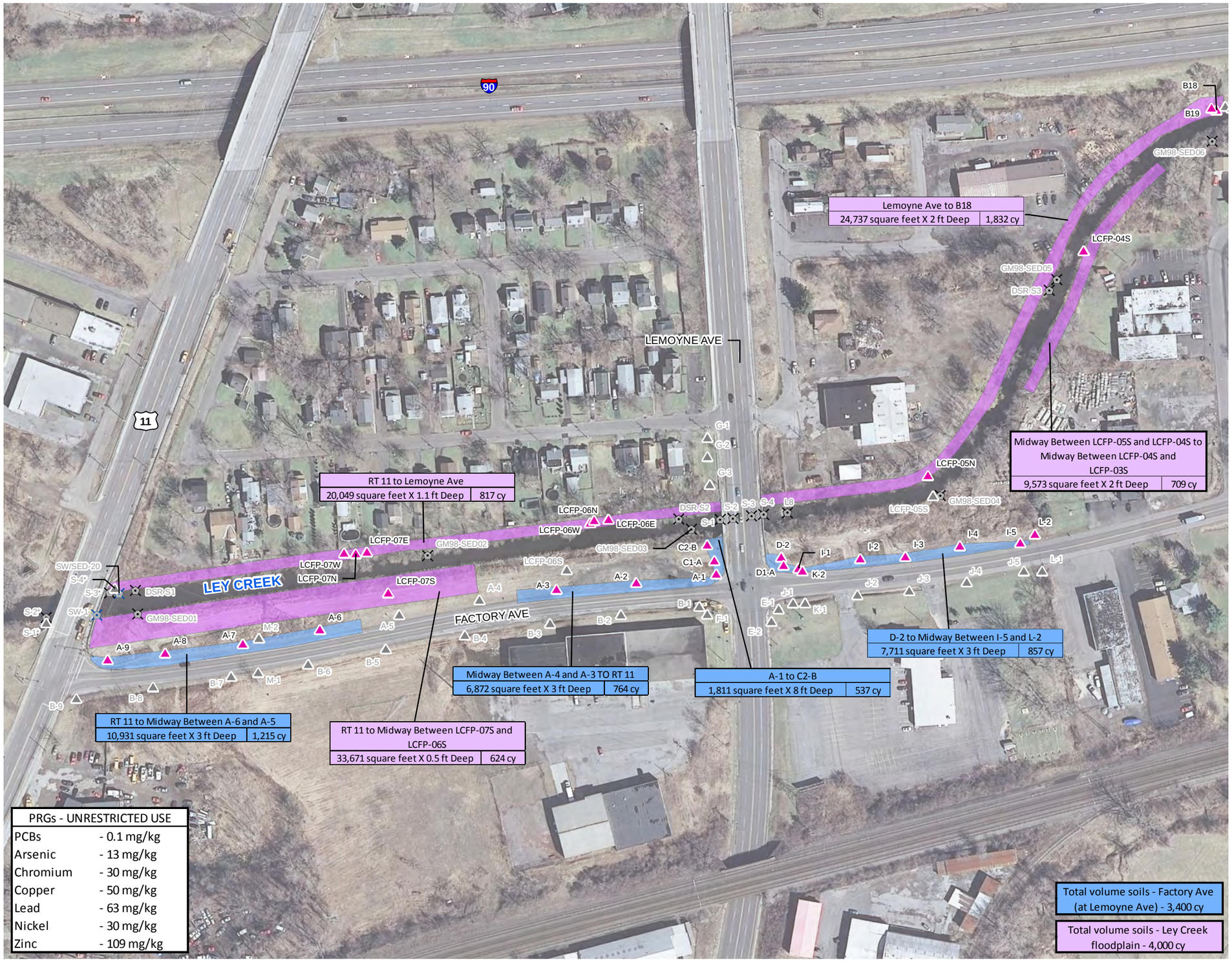
LEY CREEK
SEDIMENT
AREAS AND VOLUMES
(ALTERNATIVE 4)

0 375 750 1,500
Feet

OCTOBER 2013
15388.50292

O'BRIEN & GERE

FIGURE 6



This document was developed in color. Reproduction in B/W may not represent the data as intended.

N

LEGEND

- SOIL SAMPLE > PRGs*
- SOIL SAMPLE
- SEDIMENT SAMPLE
- SURFACE WATER SAMPLE

PROPOSED EXCAVATION EXTENT

- FACTORY AVE AT LEMOYNE AVE AREA
- FLOODPLAIN AREA

NOTE:

* PRGs used for area limits are listed in figure box inset.
- Unrestricted use - 6 NYCRR Part 375 Soil Cleanup Objectives for unrestricted use.

EXCVATION LIMITS

D-2 to Midway Between I-5 and L-2
7,711 square feet X 3 ft Deep | 857 cy

AREA AND DEPTH | VOLUME

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

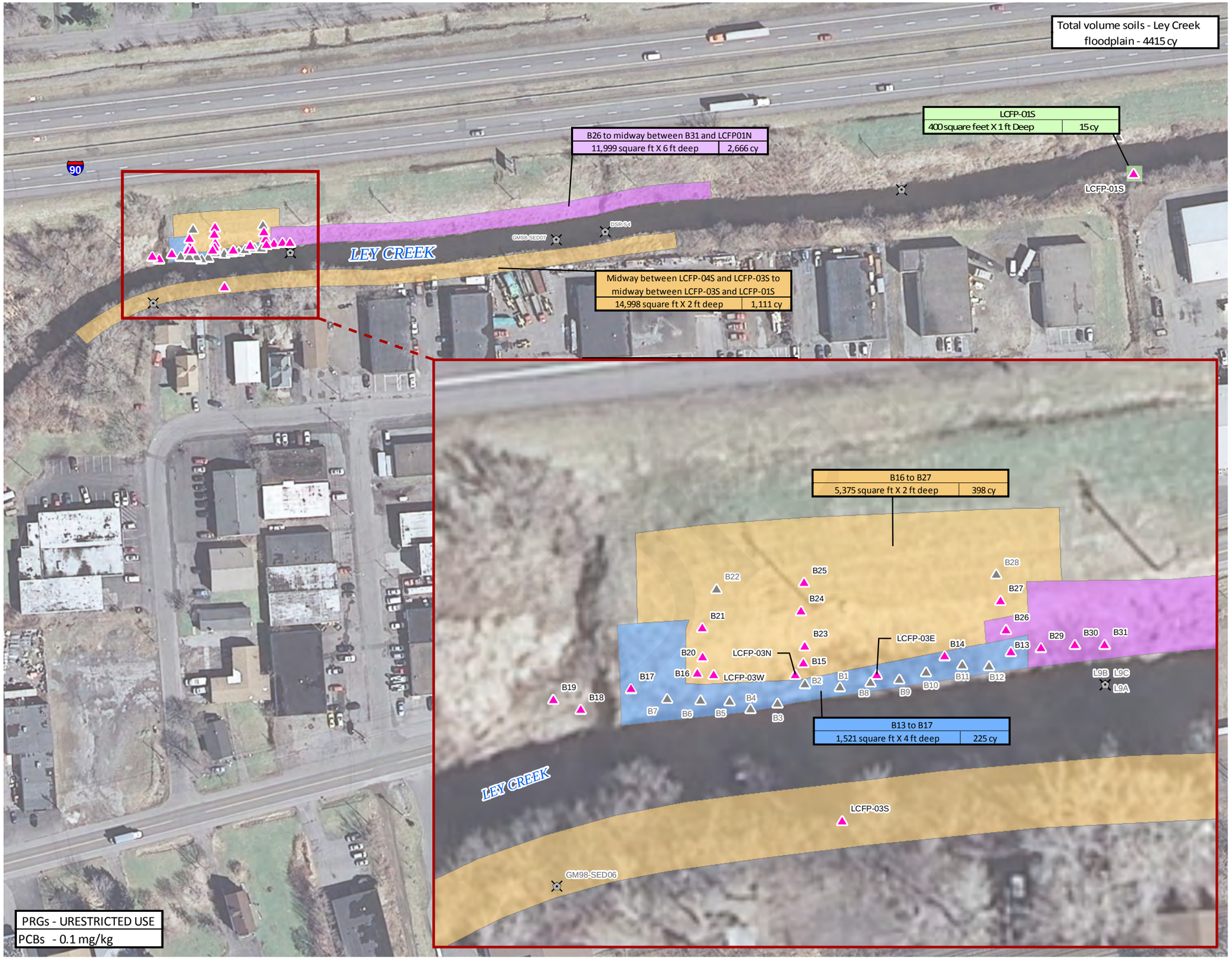
OFF-SITE FEASIBILITY STUDY ADDENDUM

LEY CREEK FLOODPLAIN AND FACTORY AVE AT LEMOYNE AVE AREA SOILS AREAS AND VOLUMES (ALTERNATIVE 5)

0 85 170 340
Feet

OCTOBER 2013
15388.50292

O'BRIEN & GERE



This document was developed in color. Reproduction in B/W may not represent the data as intended.

FIGURE 7

N

LEGEND

- SOIL SAMPLE > PRGs*
- SOIL SAMPLE
- SEDIMENT SAMPLE
- SURFACE WATER SAMPLE

PROPOSED EXCAVATION EXTENT

- 1 FOOT DEPTH
- 2 FOOT DEPTH
- 4 FOOT DEPTH
- 6 FOOT DEPTH

NOTE:

* PRGs used for area limits are listed in figure box inset.
- Unrestricted use - 6 NYCRR Part 375 Soil Cleanup Objectives for unrestricted use.

EXCAVATION LIMITS

B26 to midway between B31 and LCFP01N	
11,999 square ft X 6 ft deep	2,666 cy

AREA AND DEPTH — VOLUME

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

OFF-SITE
FEASIBILITY STUDY
ADDENDUM

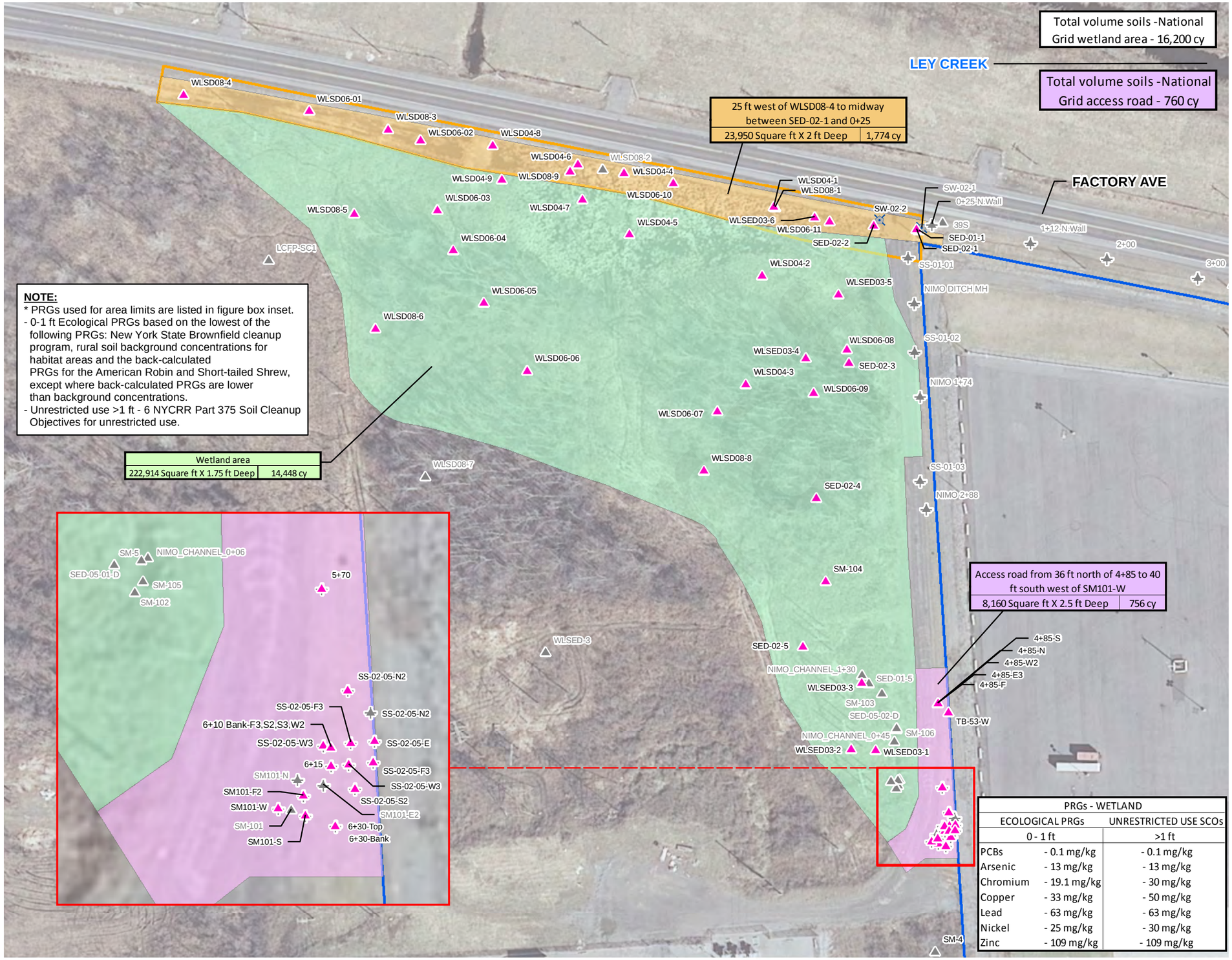
FLOODPLAIN HOT SPOT
AND FLOODPLAIN
SOILS
AREAS AND VOLUMES
(ALTERNATIVE 5)

0 60 120 240
Feet

OCTOBER 2013
15388.50292

O'BRIEN & GERE

FIGURE 8



PRGs - WETLAND		
ECOLOGICAL PRGs	0 - 1 ft	UNRESTRICTED USE SCOs >1 ft
PCBs	- 0.1 mg/kg	- 0.1 mg/kg
Arsenic	- 13 mg/kg	- 13 mg/kg
Chromium	- 19.1 mg/kg	- 30 mg/kg
Copper	- 33 mg/kg	- 50 mg/kg
Lead	- 63 mg/kg	- 63 mg/kg
Nickel	- 25 mg/kg	- 30 mg/kg
Zinc	- 109 mg/kg	- 109 mg/kg

This document was developed in color. Reproduction in B/W may not represent the data as intended.

LEGEND

- SOIL SAMPLE > PRGs*
- SURFACE SOIL SAMPLE > PRGs*
- SOIL SAMPLE
- SURFACE SOIL SAMPLE
- SURFACE WATER SAMPLE
- FACTORY AVENUE DITCH
- FORMER IFG FACILITY PROPERTY BOUNDARY

PROPOSED EXCAVATION EXTENT

- 1.75 FOOT DEPTH
- 2 FOOT DEPTH
- 2.5 FOOT DEPTH

EXCAVATION EXTENT
25 ft west of WLSD08-4 to midway between SED-02-1 and 0+25
23,950 Square ft X 2 ft Deep | 1,774 cy
AREA AND DEPTH | VOLUME

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

OFF-SITE
FEASIBILITY STUDY
ADDENDUM

NATIONAL GRID WETLAND SOILS
AREAS AND VOLUMES
(ALTERNATIVE 5)

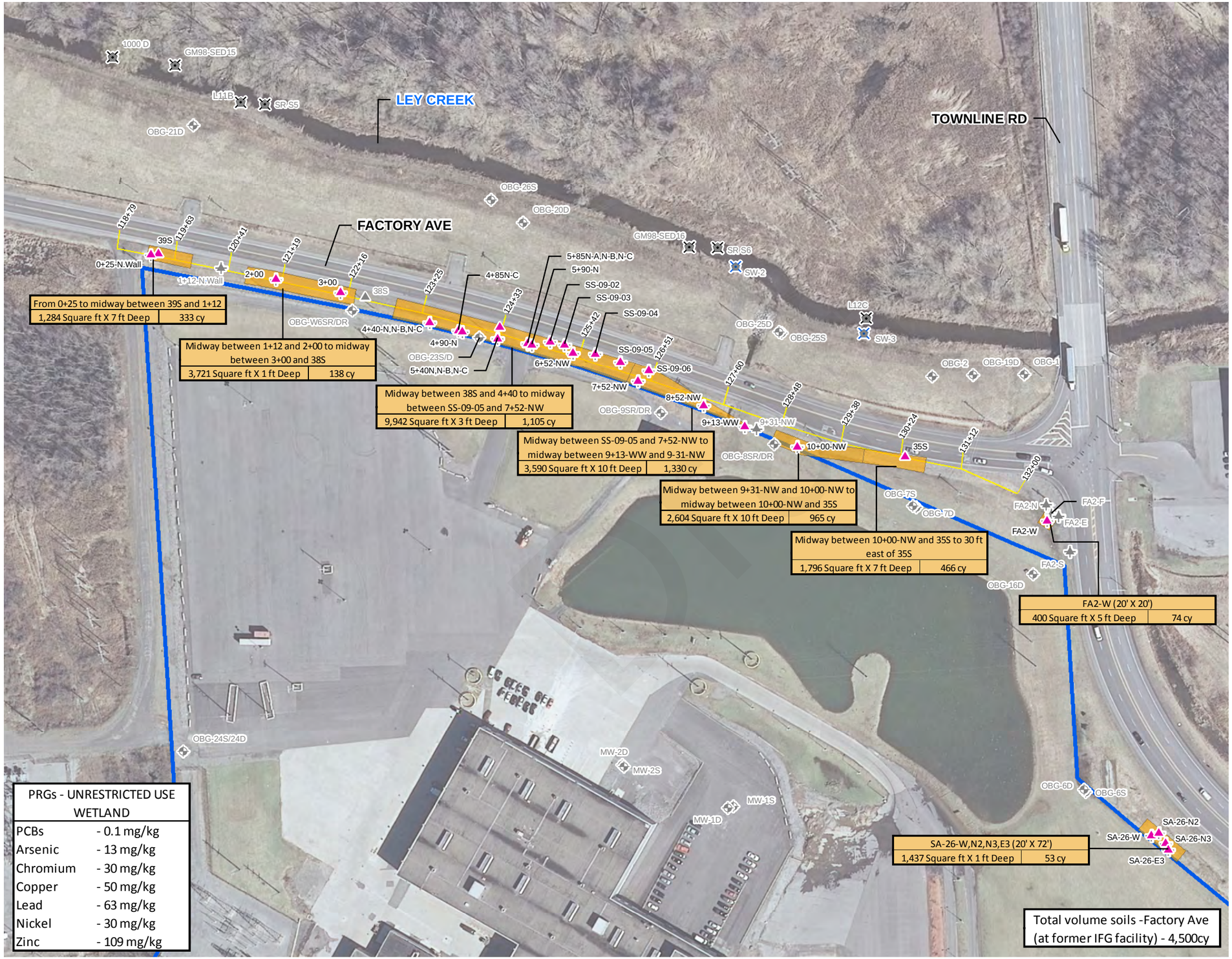
0 50 100 200
Feet

OCTOBER 2013
15388.50292

O'BRIEN & GERE

I:\Racer-Trust.15388\50292.For-Ifg-Fac-Rifl\Docs\DWG\MXD\FS_Append\Fig 8 NATIONAL GRID WETLAND SOILS AREAS AND VOLUMES UNRESTRICTED USE.mxd
PLOTDATE: 10/07/13 5:21:02 PM StantoSA

FIGURE 9



LEGEND

- SOIL SAMPLE > PRGs*
- MONITORING WELL
- SOILBORING
- SURFACE SOIL
- SEDIMENT SAMPLE
- SURFACE WATER SAMPLE
- PROPOSED EXCAVATION EXTENT

NOTE:
* PRGs used for area limits are listed in figure box inset.
- Unrestricted use - 6 NYCRR Part 375 Soil Cleanup Objectives for unrestricted use.

EXCAVATION LIMITS

Midway between 1+12 and 2+00 to midway between 3+00 and 38S	
3,721 Square ft X 1 ft Deep	138 cy

AREA AND DEPTH — VOLUME

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

OFF-SITE
FEASIBILITY STUDY
ADDENDUM

FACTORY AVENUE
(AT FORMER IFG FACILITY)
SOILS
AREAS AND VOLUMES
(ALTERNATIVE 5)

0 70 140 280
Feet

OCTOBER 2013
15388.50292

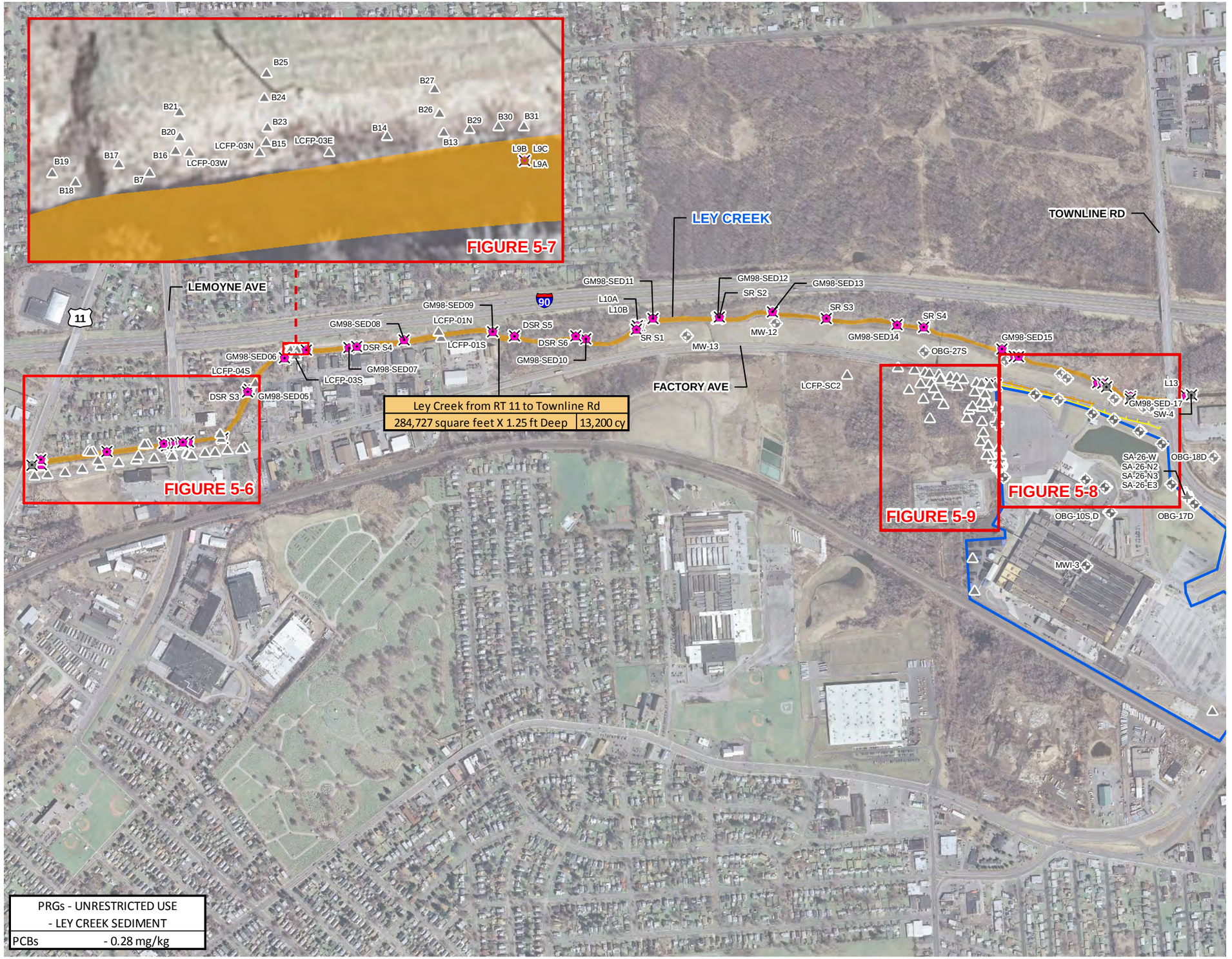
O'BRIEN & GERE

This document was developed in color. Reproduction in B/W may not represent the data as intended.

I:\Racer-Trust.15388\50292.For-Ifg-Fac-Rifl\Docs\DWG\MXD\FS_Append\Fig 9 FACTORY AVENUE SOILS AREAS AND VOLUMES UNRESTRICTED USE.mxd

PLOTDATE: 11/27/12 2:18:43 PM StantoSA

FIGURE 10



This document was developed in color. Reproduction in B/W may not represent the data as intended.

N

LEGEND

- SEDIMENT SAMPLE > PRG*
- MONITORING WELL
- SOIL BORING
- SURFACE SOIL
- SURFACE WATER SAMPLE
- FORMER IFG FACILITY PROPERTY BOUNDARY
- PROPOSED EXCAVATION EXTENT

NOTE:
* PRGs used for area limits are listed in figure box inset.
- Unrestricted use - 6 NYCRR Part 375 Soil Cleanup Objectives for unrestricted use.

EXCAVATION LIMITS

Ley Creek from RT 11 to Townline Rd	
284,727 square feet X 1.25 ft Deep	13,200 cy

AREA AND DEPTH — VOLUME

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

OFF-SITE
FEASIBILITY STUDY
ADDENDUM

LEY CREEK
SEDIMENT
AREAS AND VOLUMES
(ALTERNATIVE 5)

0 375 750 1,500
Feet

OCTOBER 2013
15388.50292

O'BRIEN & GERE

I:\Racer-Trust.15388\50292.For-Ifg-Fac-Rifl\Docs\DWG\MXD\FS_Append\Fig 10 LEY CREEK SEDIMENT AREAS AND VOLUMES UNRESTRICTED USE.mxd

PLOTDATE: 12/14/12 12:15:39 PM StantoSA