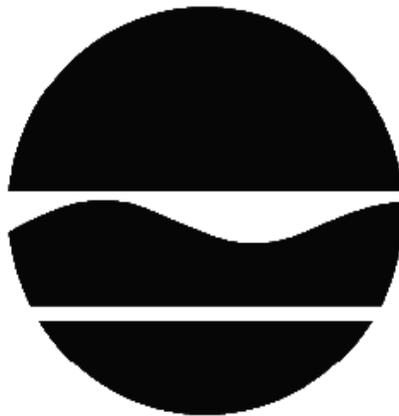


# DECISION DOCUMENT

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Covanta Niagara Rail-to-Truck Intermodal Facility  
Brownfield Cleanup Program  
Niagara Falls, Niagara County  
Site No. C932160  
April 2013



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

# **DECLARATION STATEMENT - DECISION DOCUMENT**

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Covanta Niagara Rail-to-Truck Intermodal Facility  
Brownfield Cleanup Program  
Niagara Falls, Niagara County  
Site No. C932160  
April 2013

## **Statement of Purpose and Basis**

This document presents the remedy for the Covanta Niagara Rail-to-Truck Intermodal Facility site, a brownfield cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Covanta Niagara Rail-to-Truck Intermodal Facility site and the public's input to the proposed remedy presented by the Department.

## **Description of Selected Remedy**

The elements of the selected remedy are as follows:

1. Green remediation principals and techniques will be implemented to the extent feasible in the site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gas and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste.

2. Excavation and off-site disposal of contaminant source areas, including

- grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u), which includes the petroleum contaminated soils in the former UST area;
- soil containing SVOCs exceeding 500 ppm;
- removal and disposal of other general fill material excavated to facilitate site redevelopment;
- remove contaminated water and material from sumps and pits and closure in place; and
- removal of Technically Enhanced Naturally Occurring Radioactive Material (TENORM) radioactive site fill above the site action level.

Approximately 11,110 cubic yards of contaminated soil will be removed from the site including approximately 2,000 tons of TENORM radioactive fill. Some TENORM material will be left undisturbed on site and covered with the site cover system.

In addition, regulated building material and debris from site structures will be removed and properly disposed.

On-site soil which does not exceed SCOs for the use of the site and/or the protection of groundwater may be used to backfill the excavation to the extent that a sufficient volume of on-site soil is available and establish the designed grades at the site below the cover system described in remedy element paragraph 2, no TENORM excavated material will be reused as site backfill.

Clean fill meeting the requirements for the identified site use as set forth in 6NYCRR Part 365-6.7 will be brought in to replace the excavated soil or complete the backfilling of the excavation and establish the designed grades at the site.

The site will be re-graded to accommodate installation of a cover system as described in the draft Remedial Action Work Plan Section 7.1.2. Soil derived from the re-grading may be used to backfill the excavation as described above.

2. A site cover will be required to allow for industrial use of the site. The cover will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where the soil cover is required it will be a minimum of one foot of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for industrial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

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

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3);
- allows the use and development of the controlled property for industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- requires compliance with the Department approved Site Management Plan.

4. A Site Management Plan (SMP) is required, which includes the following:

a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: the Environmental Easement, as discussed in Paragraph 3 above.  
Engineering Controls: the soil cover, as discussed in Paragraph 2.

This SMP includes, but may not be limited to:

- an Excavation Plan which details the provisions for soil/fill management of future excavations in areas of remaining contamination including provisions for the proper handling of TENORM material;
  - descriptions of the provisions of the environmental easement including any land use, and/or groundwater and/or surface water use restrictions;
  - provisions for the management and inspection of the identified engineering controls;
  - maintaining site access controls and Department notification; and
  - the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.
- b. a Monitoring Plan to assess the performance and effectiveness of the remedy.

**Declaration**

The remedy conforms with promulgated standards and criteria that are directly applicable, or that are relevant and appropriate and takes into consideration Department guidance, as appropriate. The remedy is protective of public health and the environment.

5/1/2013



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Date

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Michael Cruden, Director  
Remedial Bureau E

# DECISION DOCUMENT

Covanta Niagara Rail-to-Truck Intermodal Facility  
Niagara Falls, Niagara County  
Site No. C932160  
April 2013

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## **SECTION 1: SUMMARY AND PURPOSE**

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of contaminants at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

The New York State Brownfield Cleanup Program (BCP) is a voluntary program. The goal of the BCP is to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields." A brownfield site is real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

## **SECTION 2: CITIZEN PARTICIPATION**

The Department seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repository:

Niagara Falls Public Library - LaSalle Branch  
8728 Buffalo Avenue  
Niagara Falls, NY 14304  
Phone: 716-283-8309

### **Receive Site Citizen Participation Information By Email**

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email

listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at <http://www.dec.ny.gov/chemical/61092.html>

### **SECTION 3: SITE DESCRIPTION AND HISTORY**

**Location:** The project site encompasses approximately 15-acres along the railroad tracks on the eastern edge of a larger, former industrial complex that is located at 137 47th Street in the City of Niagara Falls.

**Site Features:** The project site is occupied by one approximately 13,700 sq ft building formerly utilized for the maintenance and repair of locomotives; an inactive rail yard; and concrete floor slabs representing remnants of the former industrial complex. The on-site structure is not currently utilized and is in a deteriorated state. The remaining portions of the project site generally consist of aged asphalt, concrete and gravel surfaces with some successional vegetation occurring along the eastern site boundary.

**Current Zoning/Use(s):** The site is currently vacant and is zoned for industrial use.

**Historic Use(s):** The project site was owned and operated by the Union Carbide Corporation Metals Division, which first developed the complex in the early 1900's. The plant produced special alloys, tungsten, ferroalloys, calcium carbide and ferrovandium ferrotungsten. Union Carbide's Linde Division also operated a welding flux manufacturing facility on the plant property. Praxair, Inc., the current owner of the property containing the project site, is a corporate successor to Union Carbide's Linde Division. Other industrial operators on the Praxair property have included ESAB, L-Tech, Stratcor, Inc., US Vanadium and UMETCO. From the time of the initial development of the Union Carbide plant, the 15-acre project site was primarily utilized for rail facilities that serviced the plant and other adjacent industries including the former Electromet facility which is the suspected source of the TENORM material.

**Site Geology and Hydrogeology:** The project site geology can be divided into five significant units, which are described in descending order as follows: fill material, alluvial deposits, glaciolacustrine deposits, glacial till, and Dolostone bedrock. The fill material was encountered across the project site and was observed from the ground surface to a maximum depth of 8 feet below ground surface (bgs), with an average thickness of approximately 4 ft. Low permeability glacial deposits underlie the fill and extend to the apparent top of bedrock, which was encountered at depths ranging from 15.2 to 21.7 ft bgs. Precipitation that falls on the project site appears to infiltrate the ground surface. No surface water drainage was observed on the project site. The on-site drainage and wastewater systems are reportedly abandoned and capped, and no surface water bodies exist on or adjacent to the project site. Localized perched groundwater was encountered in the permeable fill and alluvial deposits, however saturated conditions were not consistently observed in these units. Groundwater on site was generally encountered at depths of 8-12 feet below ground surface. The groundwater water contours on site were generally flat with slight higher levels detected in the southern area of the site.

A site location map is attached as Figure 1.

#### **SECTION 4: LAND USE AND PHYSICAL SETTING**

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

A comparison of the results of the Remedial Investigation (RI) to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is available in the RI Report.

#### **SECTION 5: ENFORCEMENT STATUS**

The Applicant(s) under the Brownfield Cleanup Agreement is a/are Volunteer(s). The Applicant(s) does/do not have an obligation to address off-site contamination. However, the Department has determined that this site does not pose a significant threat to public health or the environment; accordingly, no enforcement actions are necessary.

The BCP application for the Covanta Niagara Rail-to-Truck Intermodal Facility was accepted as complete in January 2013 and a public comment period on the application and Remedial Action Work Plan ran from January 16, 2013 thru March 4 2013. No comments were received by the NYSDEC on the BCP application or the Remedial Action Work Plan.

#### **SECTION 6: SITE CONTAMINATION**

##### **6.1: Summary of the Remedial Investigation**

A remedial investigation (RI) serves as the mechanism for collecting data to:

- characterize site conditions;
- determine the nature of the contamination; and
- assess risk to human health and the environment.

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site, or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water or sediments may have been contaminated. Monitoring wells are installed to assess groundwater and soil borings or test pits are installed to sample soil and/or waste(s) identified. If other natural resources are present, such as surface water bodies or wetlands, the water and sediment may be sampled as well. Based on the presence of contaminants in soil and groundwater, soil vapor will also be sampled for the presence of contamination. Data collected

in the RI influence the development of remedial alternatives. The RI report is available for review in the site document repository and the results are summarized in section 6.3.

The analytical data collected on this site includes data for:

- groundwater
- soil
- sediment

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

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

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

### **6.1.2: RI Results**

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

BENZ(A)ANTHRACENE	ARSENIC
Chrysene	BARIUM
BENZO(B)FLUORANTHENE	CADMIUM
BENZO[K]FLUORANTHENE	CHROMIUM
BENZO(A)PYRENE	COBALT
indeno(1,2,3-cd)pyrene	COPPER
DIBENZ[A,H]ANTHRACENE	LEAD
ALPHA-BHC	MANGANESE
BETA-BHC	MERCURY
HEPTACHLOR EPOXIDE	NICKEL
ENDOSULFAN	SELENIUM
DIELDRIN	SILVER
DDD	ZINC
DDT	ACETONE

The contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil

## **6.2: Interim Remedial Measures**

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

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

## **6.3: Summary of Environmental Assessment**

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water. The RI report presents a detailed discussion of any existing and potential impacts from the site to fish and wildlife receptors.

A Remedial Investigation (RI) was conducted at the proposed Covanta Niagara Rail-to-Truck Intermodal Facility site in 2012 prior to application to the BCP program. The RI was performed to fully delineate the nature and extent of site contamination including that in the surface and subsurface soil/fill, groundwater and building materials. No sediments were identified on site. As described in the RI Report and summarized in the attached Tables 1 thru 3, the primary contaminants of concern that exceed the Departments soil cleanup objectives for industrial use include Semi-Volatile Organic Compounds (SVOCs) (benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene and dibenzo(a,h)anthracene), Inorganics (arsenic, and manganese) and Pesticides (alpha-BHC, Dieldrin, 4,4'DDD, and Endosulfan Sulfate). Groundwater contaminants that exceeded the groundwater standard include Volatile Organic Compounds (VOCs) (acetone and n-Propylbenzene) and Inorganics (aluminum, arsenic, barium, chromium, iron, magnesium, manganese, sodium and vanadium)

The RI, along with previous site assessments, identified the following environmental concerns:

- a. contaminated surface and subsurface soil/fill in exceedence of the Departments soil cleanup objectives for industrial use,
- b. groundwater contamination that exceeds groundwater standards,
- c. former underground storage tanks in the vicinity of the former locomotive house,
- d. presence of radioactive slag from former site operations,
- e. waste water and/or contaminated material present in pits and sumps within the locomotive house, and
- f. the presence of regulated building materials (e.g. asbestos).

#### **6.4: Summary of Human Exposure Pathways**

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

The site is completely fenced, which restricts public access. However, persons who enter the site could contact contaminants in the soil by walking on the site, digging or otherwise disturbing the soil. People are not expected to come into direct contact with contaminated groundwater unless they dig below the ground surface. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not contaminated by the site.

#### **6.5: Summary of the Remediation Objectives**

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

The remedial action objectives for this site are:

##### **Groundwater**

###### **RAOs for Public Health Protection**

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.

###### **RAOs for Environmental Protection**

- Prevent the discharge of contaminants to surface water.

##### **Soil**

###### **RAOs for Public Health Protection**

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

###### **RAOs for Environmental Protection**

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

## **SECTION 7: ELEMENTS OF THE SELECTED REMEDY**

The alternatives developed for the site and the evaluation of the remedial criteria are presented in the Alternative Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation and 6 NYCRR Part 375.

The selected remedy is a Track 4: Restricted use with site-specific soil cleanup objectives remedy.

The elements of the selected remedy, as shown in Figure 2, are as follows:

1. Green remediation principals and techniques will be implemented to the extent feasible in the site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gas and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste.

2. Excavation and off-site disposal of contaminant source areas, including

- grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u), which includes the petroleum contaminated soils in the former UST area;
- soil containing SVOCs exceeding 500 ppm;
- removal and disposal of other general fill material excavated to facilitate site redevelopment;
- remove contaminated water and material from sumps and pits and closure in place; and
- removal of Technically Enhanced Naturally Occurring Radioactive Material (TENORM) radioactive site fill above the site action level.

Approximately 11,110 cubic yards of contaminated soil will be removed from the site including approximately 2,000 tons of TENORM radioactive fill. Some TENORM material will be left undisturbed on site and covered with the site cover system.

In addition, regulated building material and debris from site structures will be removed and properly disposed.

On-site soil which does not exceed SCOs for the use of the site and/or the protection of groundwater may be used to backfill the excavation to the extent that a sufficient volume of on-site soil is available and establish the designed grades at the site below the cover system described in remedy element paragraph 2, no TENORM excavated material will be reused as site backfill.

Clean fill meeting the requirements for the identified site use as set forth in 6NYCRR Part 365-6.7 will be brought in to replace the excavated soil or complete the backfilling of the excavation and establish the designed grades at the site.

The site will be re-graded to accommodate installation of a cover system as described in the draft Remedial Action Work Plan Section 7.1.2. Soil derived from the re-grading may be used to backfill the excavation as described above.

2. A site cover will be required to allow for industrial use of the site. The cover will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where the soil cover is required it will be a minimum of one foot of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for industrial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

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

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3);
- allows the use and development of the controlled property for industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- requires compliance with the Department approved Site Management Plan.

4. A Site Management Plan (SMP) is required, which includes the following:

a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: the Environmental Easement, as discussed in Paragraph 3 above.

Engineering Controls: the soil cover, as discussed in Paragraph 2.

This SMP includes, but may not be limited to:

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

- b. a Monitoring Plan to assess the performance and effectiveness of the remedy.

**Table 1 Surface Soil**

Detected Concentrations Exceeding Unrestricted SCOs	Concentration Range Detected (ppm) <sup>a</sup>	Unrestricted SCO (ppm)	Frequency Exceeding Unrestricted SCO	Industrial Use SCO (ppm)	Frequency Exceeding Industrial SCO
<b>VOCs</b>					
<b>SVOCs</b>					
Benzo(a)anthracene	ND-15.6	1	1/6	11	1/6
Chrysene	0.21-18.9	1	2/6	110	0/6
Benzo(b)fluoranthene	0.29-26.3	1	2/6	11	1/6
Benzo(k)fluoranthene	0.19-12.7	0.8	2/6	110	0/6
Benzo(a)pyrene	0.22-21.6	1	2/6	1.1	1/6
Indeno(1,2,3-cd)pyrene	0.24-23.1	0.5	4/6	11	1/6
Dibenzo(a,h)anthracene	ND-3.93	0.33	1/6	1.1	1/6
<b>Inorganics</b>					
Arsenic	ND-39.2	13	2/6	16	2/6
Barium	156-2140	350	4/6	10000	0/6
Cadmium	1.49-3.1	2.5	2/6	60	0/6
Chromium (trivalent)	63.7-426	30	5/5	6800	0/5
Copper	28.8-92.3	50	5/6	10000	0/5
Lead	95-253	63	6/6	3900	0/6
Manganese	4390-107000	1600	6/6	10000	4/6
Mercury	0.03-0.702	0.18	3/6	5.7	0/6
Nickel	19.8-231	30	5/6	10000	0/6
Selenium	ND-26	3.9	4/6	6800	0/6
Silver	2.23-21	2	6/6	6800	0/6
Zinc	153-326	109	6/6	10000	0/6
<b>Pesticides/PCBs</b>					
alpha-BHC	ND-14.1	0.02	1/6	6.8	1/6
beta-BHC	ND-8.04	0.036	1/6	14	0/6
gamma-BHC (Lindane)	ND-5.52	0.1	2/6	23	0/6
Heptachlor	ND-14	0.042	1/6	29	0/6
Endosulfan I	ND-74.4	2.4	2/6	920	0/6
Dieldrin	ND-3.08	0.005	1/6	2.8	1/6
Endosulfan II	ND-9.65	2.4	2/6	920	0/6
4,4'DDD	ND-11.3	0.0033	1/6	180	1/6
Endosulfan Sulfate	ND-4.04	2.4	1/6	920	1/6
4,4'DDT	ND-13	0.0033	3/5	94	0/5
PCBs	ND-0.4930	0.1	1/6	25	0/6

**Table 2 Sub-Surface Soil**

Detected Concentrations Exceeding Unrestricted SCOs	Concentration Range Detected (ppm)	Unrestricted SCO (ppm)	Frequency Exceeding Unrestricted SCO	Industrial Use SCO (ppm)	Frequency Exceeding Industrial SCO
<b>VOCs</b>					
Acetone	ND-0.4	0.05	9/35	1000	0/35
<b>SVOCs</b>					
Benzo(a)anthracene	ND-4.45	1	1/35	11	0/35
Chrysene	ND-4.05	1	1/35	110	0/35
Benzo(b)fluoranthene	ND-3.54	1	1/35	11	0/35
Benzo(k)fluoranthene	ND-2.43	0.8	1/35	110	0/35
Benzo(a)pyrene	ND-2.74	1	1/35	1.1	1/35
Indeno(1,2,3-cd)pyrene	ND-2.26	0.5	2/35	11	0/35
<b>Inorganics</b>					
Arsenic	1.7-74.6	13	3/20	16	3/20
Barium	22.2-2210	350	4/20	10000	0/20
Chromium (trivalent)	9.0-2230	30	13/20	6800	0/20
Copper	2.5-1400	50	3/20	10000	0/20
Lead	2.9-722	63	6/20	3900	0/20
Manganese	51.7-343000	1600	6/20	10000	3/20
Nickel	5.8-136	30	7/20	10000	0/20
Selenium	ND-127	3.9	3/20	6800	0/20
Silver	ND-57.5	2	2/20	6800	0/20
Zinc	27.2-170	109	3/20	10000	0/20
<b>Pesticides/PCBs</b>					
4,4'DDT	ND-0.01	0.0033	1/6	94	0/6

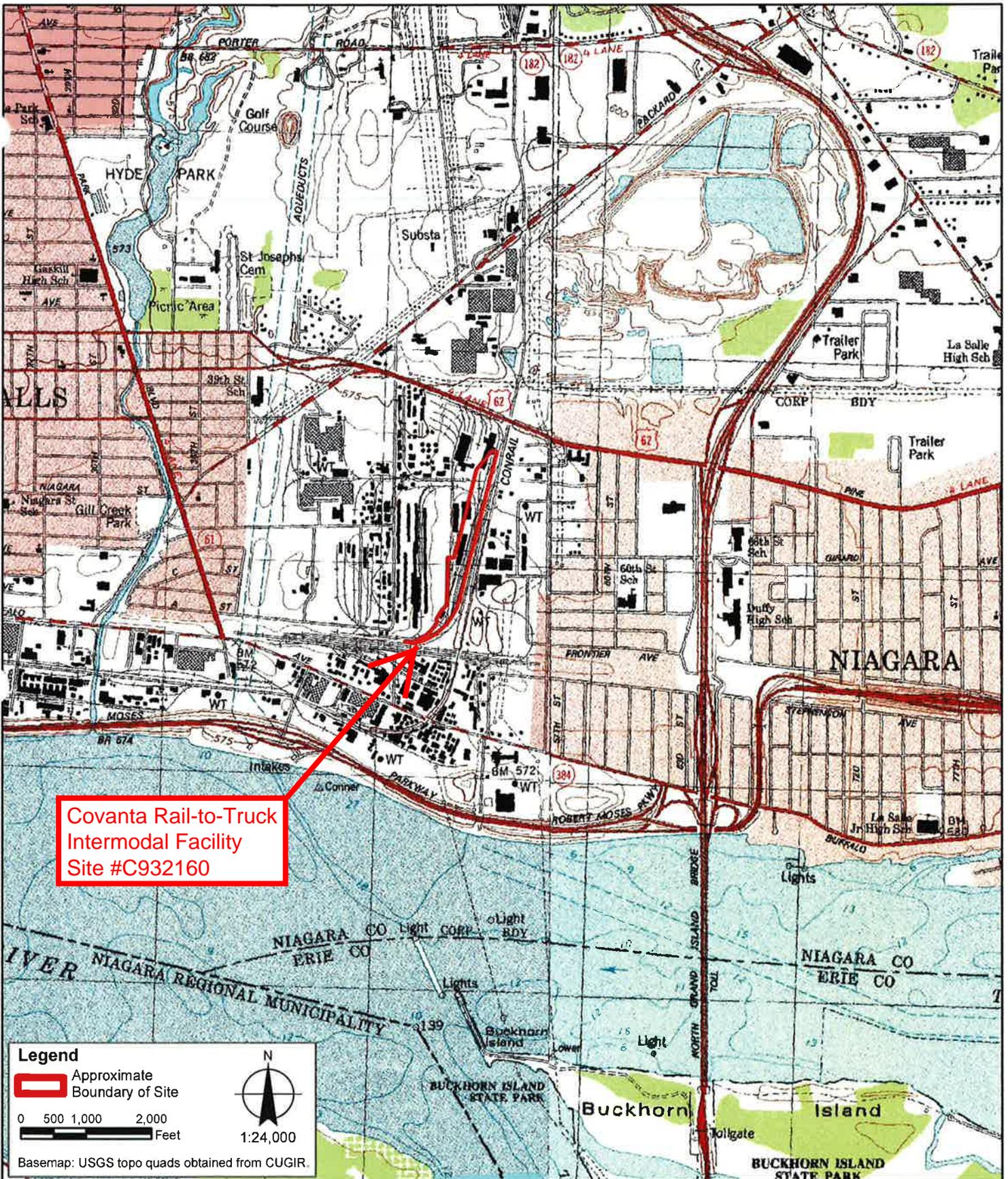
**Table 3 Groundwater**

Detected Concentrations Exceeding Groundwater Standard	Concentration Range Detected (mg/l)	Groundwater Standard (mg/l)	Frequency Exceeding Groundwater Standard
<b>VOCs</b>			
Acetone	ND-0.16	0.005	1/10
n-Propylbenzene	ND-0.007	0.005	1/10
<b>SVOCs</b>			
<b>Inorganics</b>			
Aluminum	ND-10.3	0.1	6/7
Arsenic	ND-0.05	0.025	1/7
Barium	ND-1.37	1.0	1/7
Chromium	ND-0.12	0.05	1/7
Iron	ND-53.5	0.30	5/7
Magnesium	ND-124	35	5/7
Manganese	0.11-30.7	0.30	1/7
Sodium	34-305	20	7/7
Vanadium	ND-0.22	0.014	2/7
<b>Pesticides/PCBs</b>			

**Table 4 Remedial Action Objectives**

<b>Remedial Action Objectives (RAOs) for Protection of Public Health and the Environment</b>	<b>Selected Remedial Actions for Protection of Public Health and the Environment</b>
<b>Groundwater RAOs for Protection of Public Health and Environment</b>	
Prevent contact and ingestion of groundwater with contaminant levels exceeding drinking water standards	Prevent groundwater use as an institutional control. Environmental easement that restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYS DOH or Niagara County Health Department.
<b>Groundwater RAOs for Environmental Protection</b>	
Prevent the discharge of contaminants to surface water	Contaminants of concern that remain at the site will be covered with one foot of clean fill and graded to promote water runoff
<b>Fill RAOs for Protection of Public Health</b>	
<ul style="list-style-type: none"> <li>• Prevent Ingestion/direct contact with contaminated fill</li> <li>• Prevent Exposure to elevated radiation levels within slag fill</li> </ul>	<p>These objectives will be achieved by grading the site and placing a foot clean fill cover system including demarcation layer over the entire site. Excavated contaminated soil will be disposed off-site at an approved facility. Radioactive material found in the north section of the site will be excavated and disposed at an acceptable out of state disposal facility. Minor radiological hot spots identified throughout the remainder of the site will be covered with the cover system.</p> <p>Environmental easement that restricts the future site use to industrial will be filed with the Niagara County Clerk.</p> <p>A Site Management Plan that includes requirements for periodic inspections, maintenance, and certifications and a soil management plan that identifies proper handling and disposal requirements of the remaining contaminated soil including the residual radioactive material will be required.</p>
<b>Fill RAOs for Environmental Protection</b>	
<ul style="list-style-type: none"> <li>• Prevent migration of contaminants that would result in groundwater or surface water contamination,</li> <li>• Prevent impacts to biota from ingestion/direct contact with fill causing toxicity or impacts</li> </ul>	<p>These objectives will be achieved by grading the site and placing a foot clean fill cover system including demarcation layer over the entire site</p> <p>Environmental easement that restricts the future site use to industrial will be filed with the Niagara County Clerk.</p> <p>A Site Management Plan that includes requirements for periodic inspections, maintenance, and certifications and a soil management plan that identifies proper handling and disposal requirements of the remaining contaminated soil including the residual radioactive material will be required</p>
<b>Pits and Sumps Sediment RAOs for Protection of Public Health</b>	
<ul style="list-style-type: none"> <li>• Prevent contact and ingestion of sediments and water impacted by sediments,</li> <li>• Prevent surface water contamination</li> </ul>	<p>These objectives will be accomplished by the removal and off-site disposal of contaminated water and sediments found in the pits and sumps. The remaining pit and sump structures will be closed in place.</p> <p>Environmental easement that restricts the future site use to industrial will be filed with the Niagara County Clerk.</p>

	<p>A Site Management Plan that includes requirements for periodic inspections, maintenance, and certifications and a soil management plan that identifies proper handling and disposal requirements of the remaining contaminated soil including the residual radioactive material will be required</p>
<p><b>Pits and Sumps Sediment RAOs for Environmental Protection</b></p>	
<p>Prevent impacts to biota from ingestion/direct contact with water and sediments</p>	<p>This objective will be accomplished by the removal and off-site disposal of contaminated water and sediments found in the pits and sumps. The remaining pit and sump structures will be closed in place.</p> <p>Environmental easement that restricts the future site use to industrial will be filed with the Niagara County Clerk.</p> <p>A Site Management Plan that includes requirements for periodic inspections, maintenance, and certifications and a soil management plan that identifies proper handling and disposal requirements of the remaining contaminated soil including the residual radioactive material will be required</p>
<p><b>Regulated Building Materials RAOs for Protection of Public Health</b></p>	
<ul style="list-style-type: none"> <li>• Prevent contact with or inhalation of contaminants in building materials,</li> <li>• Prevent the release of contaminants via wind erosion of deteriorated asbestos containing materials</li> </ul>	<p>This objective will be accomplished by the removal and off-site disposal of regulated building materials at an approved disposal facility. Work place safety and Community Air Monitoring Plans will be in place to monitor and control air borne contaminants resulting from regulated building materials removal.</p>



Path: J:\Covanta 4R  
 ny\_LP1212399\Drawings\MAP 2012.05.07.Fig1\_USGS\_Small.mxd

PROJECT/DRAWING NUMBER

**212399**

**FIGURE 1**

DRAWING TITLE

**SITE LOCATION MAP**

ISSUED FOR	DESIGNED BY	RCN
REVIEW	DRAWN BY	KMN
DATE: MAY 2012	REVIEWED BY	XXX

PROJECT/CLIENT

**REMEDIAL INVESTIGATION OF 15-ACRE SITE at**

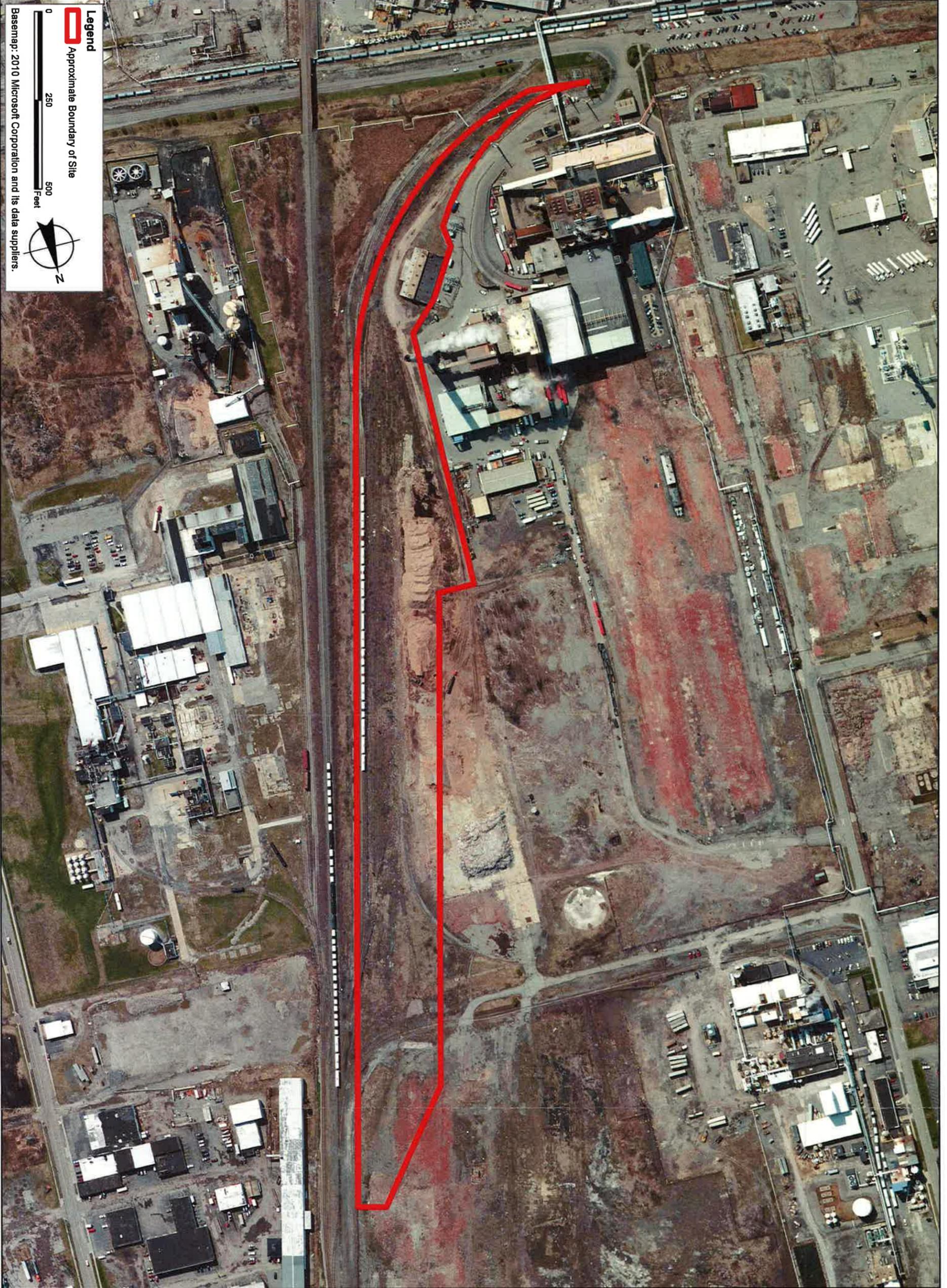
**137 47TH ST, NIAGARA FALLS, NY**

**COVANTA 4RECOVERY, L.P.**

**LABELLA**  
 Associates, P.C.

300 PEARL STREET  
 BUFFALO, NY 14202  
 P: (716) 551-6281  
 F: (716) 551-6282

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**FIGURE 2**

DRAWING TITLE  
**EXISTING CONDITIONS MAP**

ISSUED FOR  
 REVIEW

DESIGNED BY RCN  
 DRAWN BY KMN  
 REVIEWED BY XXX

DATE: MAY 2012

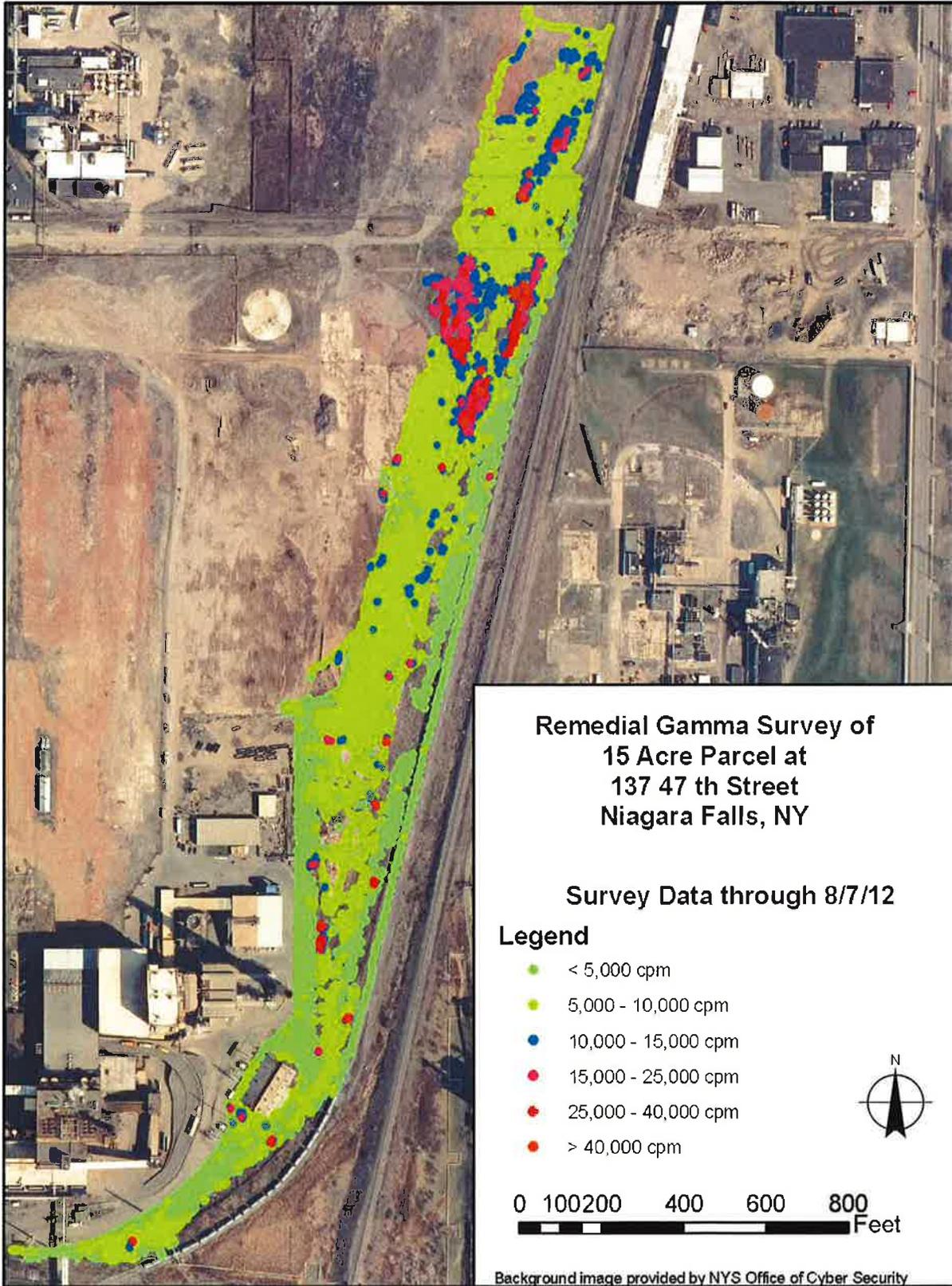
PROJECT CLIENT  
**REMEDIAL INVESTIGATION OF  
 15-ACRE SITE at  
 137 47TH ST,  
 NIAGARA FALLS, NY**

**COVANTA 4RECOVERY, L.P.**

**ABELLA**  
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Figure 3

DRAWING TITLE

**RADIOLOGICAL  
SURVEY RESULTS**

ISSUED FOR

REVIEW

DESIGNED BY RCN

DRAWN BY KMN

DATE: SEPT 2012

REVIEWED BY RN

PROJECT/CLIENT

**REMEDIAL INVESTIGATION  
OF 15-ACRE SITE at**

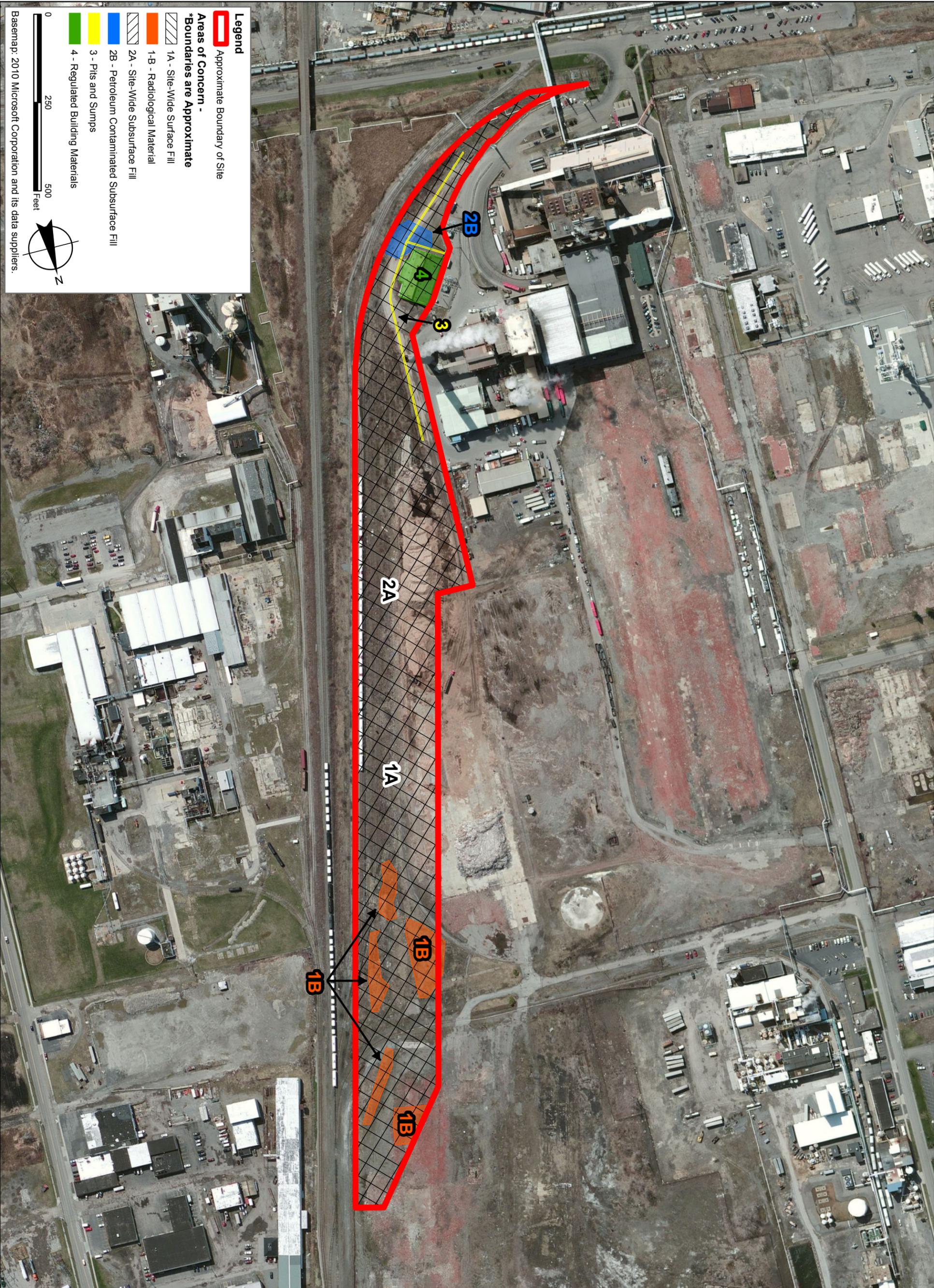
**137 47TH ST,  
NIAGARA FALLS, NY**

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Associates, P.C.

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**Figure 4**

DRAWING TITLE  
**AREAS OF CONCERN**

ISSUED FOR  
 REVIEW

DESIGNED BY  
 RCN

DRAWN BY  
 KMN

REVIEWED BY  
 DR

DATE: NOV 2012

PROJECT CLIENT  
**ALTERNATIVES ANALYSIS /  
 REMEDIAL ACTION WORK  
 PLAN FOR 15-ACRE SITE at**

**137 47TH ST,  
 NIAGARA FALLS, NY**

**COVANTA 4RECOVERY, L.P.**

**ABELLA**  
 Associates, P.C.

300 PEARL STREET  
 BUFFALO, NY 14202  
 P: (716) 551-6281  
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