Department of Environmental Conservation

Division of Environmental Remediation

Environmental Restoration
Record of Decision
Roblin Steel, North Tonawanda Site
North Tonawanda (C), Niagara County
Site Number B-00025-9

February 2002

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* ERIN M. CROTTY, *Commissioner*

DECLARATION STATEMENT
ENVIRONMENTAL RESTORATION RECORD OF DECISION

Roblin Steel, North Tonawanda Environmental Restoration Site
North Tonawanda, Niagara County, New York
Site No. B-00025-9

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the Roblin Steel, North Tonawanda environmental restoration site which was chosen in accordance with the New York State Environmental Conservation Law.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Roblin Steel, North Tonawanda environmental restoration site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of hazardous substances from this site, if not addressed by implementing the remedy selected in this ROD, presents a current or potential threat to public health and the environment.

Description of Selected Remedy

Based on the results of the Site Investigation/Remedial Alternatives Report (SI/RAR) for the Roblin Steel, North Tonawanda Site and the criteria identified for evaluation of alternatives, the NYSDEC has selected a multi-faceted remedy, which includes removal and off-site disposal of wastes, on-site reuse or recycle of select demolition materials, excavation and off-site disposal of contaminated soils, long-term groundwater monitoring and establishment of institutional controls. The components of the remedy are as follows:

- off-site disposal of miscellaneous waste drums, refuse and waste piles situated throughout the site,
- asbestos removal and demolition of existing site buildings and building ruins, recycle/reuse of demolition materials where feasible, and off-site disposal where recycle/reuse is not feasible,

- removal and off-site disposal of contaminated wood block floors and residues contained within the site buildings,

- excavation and off-site disposal of contaminated site soils, with a deed restriction for areas of residual contamination exceeding soil cleanup guidance values,

- removal and off-site disposal of underground storage tanks, tank contents and associated contaminated soils,

- long-term monitoring of contaminated groundwater with imposition of a deed restriction to preclude future groundwater use, and

- closure of the site cooling pond including sediment, refuse and waste removal and off-site disposal, and demolition and/or filling of the structure with clean backfill material.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective.

_____ _____

Date

Susan I. Taluto, Deputy Commissioner
Department of Environmental Conservation

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SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health has selected this remedy to address the threat to human health and/or the environment created by the presence of hazardous substances at the Roblin Steel, North Tonawanda brownfield site.

The 1996 Clean Water/ Clean Air Bond Act provides funding to municipalities for the investigation and cleanup of brownfields. Under the Environmental Restoration (Brownfields) Program, the State may provide a grant to the City of North Tonawanda to reimburse up to 75 percent of the eligible costs for site remediation activities. Once remediated the property can then be reused.

Located in the City of North Tonawanda, this former steel manufacturing facility consists of several empty factory buildings in various stages of disrepair situated on fallow overgrown property.

As more fully described in Sections 3 and 4 of this document, contaminant releases and on-site disposal activities associated with the various steelmaking operations, have resulted in the disposal of a number of hazardous substances onto the site soils and into the groundwater, including volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and metals.

These disposal activities have resulted in the following threats to the public health and/or the environment:

- a potential threat to human health associated with direct contact with contaminated soils, refuse and waste materials,
- a potential threat to human health associated with ingestion or inhalation of contaminated soils, refuse and waste materials, and
- a potential threat to human health through ingestion of contaminated groundwater at the site.

In order to eliminate or mitigate the threats to the public health and/or the environment caused by the hazardous substances disposed at the Roblin Steel North Tonawanda brownfield site, the following remedy is proposed to allow for commercial/industrial redevelopment of the site:

- off-site disposal of miscellaneous waste drums, refuse and waste piles situated throughout the site,
- asbestos removal and demolition of existing site buildings and building ruins, recycle/reuse of demolition materials where feasible, and off-site disposal where recycle/reuse is not feasible,
- removal and off-site disposal of contaminated wood block floors and residues contained within the site buildings,
- excavation and off-site disposal of contaminated site soils, with a deed restriction for areas of residual contamination exceeding soil cleanup guidance values,
- removal and off-site disposal of underground storage tanks, tank contents and associated contaminated soils,
- long-term monitoring of contaminated groundwater with imposition of a deed restriction to preclude future groundwater use, and
- closure of the site cooling pond including sediment, refuse and waste removal and off-site disposal, and demolition and/or filling of the structure with clean backfill material.

The selected remedy, discussed in detail in Section 8 of this document, is intended to attain the remediation goals selected for this site in Section 6 of this Record of Decision (ROD) in conformity with applicable standards, criteria, and guidance (SCGs).

SECTION 2: SITE LOCATION AND DESCRIPTION

The Roblin Steel North Tonawanda Site is located in the City of North Tonawanda, Niagara County. The 24 acre site is immediately west of Oliver Street, between Eighth and East Avenues, in the City of North Tonawanda, Niagara County. It is designated under the NYSDEC Brownfields Cleanup Program as Site No. B - 00025 - 9. Bounded on its western side by a set of mainline Conrail railroad tracks, the property is located in a mixed residential and industrial area of the city. The residential areas are located east and south of the site, and the industrial areas are north and west. Gillmore Public Elementary School and Payne City Park are located within 1,600 feet east of the site. The Niagara River is approximately 1,000 feet west of the property. Figure 1 shows the site location and its surrounding area, and Figure 2 provides a map of the site itself.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

Past uses of the site have resulted in the on-site release of hazardous substances. The following history of site use reflects contaminants presently found at the site:

- 1918 - 1961: The Buffalo Bolt Company operated a bolt manufacturing plant at the site, then consisting of an area of approximately 30 acres.

- 1961- 1987: Roblin-Seaway Industries, Inc. and subsequently the Roblin Steel Company manufactured steel wire, bars and rods at the facility.

- 1985: Approximately five acres of the original plant site was sold to Armstrong Pumps, Inc.. Armstrong continues to operate a manufacturing facility at this site.

- 1987: The Roblin Steel Company declared bankruptcy, and ceased all manufacturing operations at the site.

- 1988: A fire destroyed three of the idle factory buildings in the west and northwest portions of the site.

- 1989: The balance of the Roblin Property was partitioned into two parcels. Plum Tree Group Ltd. was deeded the northern portion, and Banac Enterprises, Inc. was deeded the southern portion. The northern parcel remained idle, with the southern portion used for automobile salvage.

- 1991: A fire destroyed the idle plant building immediately north of the cooling pond.

- 1992 & 1997: The City of North Tonawanda foreclosed on the Plum Tree Group and Banac properties for back taxes. These foreclosures constitute the present Roblin Steel North Tonawanda brownfield site.

3.2: Environmental Restoration History

The following environmental restoration actions have been conducted at this site:

- 1989: NYSDEC conducted a Phase I Investigation of the site. Areas of concern identified in this investigation included piles of oily mill scale, foundry slag, oil stained soils, sediments and a floating oil layer in a cooling pond, wooden floor blocks soaked with oil and creosote, electrical transformers, torn bags of lime and numerous drums.

1990: NYSDEC inventoried, sampled and overpacked drums of waste and refuse materials, and analyzed soils surrounding two transformers on the site. The soils near the transformers contained 37,700 and 4.15 parts per million (ppm) respectively of the PCB Aroclor 1260. Of the 162 drums inventoried, 82 were sampled and overpacked. The sampling determined that seven of the drums contained hazardous wastes; with the remainder containing solid waste or empty.

1992: NYSDEC removed the transformer where the higher levels of Aroclor 1260 were encountered, and excavated and disposed of 37 tons of PCB contaminated soils surrounding it. As part of this removal action, six of the seven drums that had been determined during the 1990 IRM to contain hazardous wastes were disposed at a licensed secure landfill. Follow up detailed analysis of the seventh drum determined that it could be defined as empty.

1995: NYSDEC completed a Preliminary Site Assessment (PSA) of this property. The results of this study included the following:

- Stained soils were noted throughout the site,
- PAHs were found in the surface soils throughout the site, and underneath the wooden block flooring inside the buildings,
- PCBs were detected in soils near electrical transformers,
- Lead was detected in soils that exceed the toxicity characteristic leaching procedure (TCLP) standard,
- Underground storage tanks were found or suspected in three areas of the site,
- Throughout the site, numerous waste piles, apparently nonhazardous, were noted, and
- Acetone and chlorinated volatile organic compounds (VOCs) were encountered in the groundwater at the site at levels exceeding NYSDEC standards.

1997: Based on the results of the PSA, the site was listed in the New York State Registry of Inactive Hazardous Waste Sites and assigned a classification of 3. A class 3 designation indicates that the site contains consequential amounts of hazardous wastes, but does not present a significant threat to public health or the environment.

1997: The City of North Tonawanda applied for and was approved to participate in the State Environmental Restoration Program.

SECTION 4: SITE CONTAMINATION

To determine the nature and extent of any contamination by hazardous substances of this environmental restoration site, the City of North Tonawanda has recently completed a Site Investigation (SI) and a Remedial Action Report (RAR).

4.1: Summary of the Site Investigation

The purpose of the SI was to define the nature and extent of any contamination resulting from previous activities at the site. The PSA report, completed previously by DEC, provided the basis for the SI conducted for this brownfield project.

The SI was conducted from November 1998 through May 1999. A report entitled "Site Investigation Report, Roblin Steel, City of North Tonawanda, NY, May 2000" has been prepared which describes the field activities and findings of the SI in detail.

The SI included the following activities:

- Installation of 12 new groundwater monitoring wells and utilization of an additional 6 existing site wells,
- Collection and chemical analysis of groundwater samples from 18 monitoring wells,
- In-field testing to determine hydrogeologic conditions at the site,
- Collection and chemical analysis of surface soil samples from 33 site locations,
- Collection and chemical analysis of subsurface soil/fill samples from 29 site locations,
- Collection and chemical analysis of building flooring and interior residue from 11 locations, and
- Removal and off-site disposal of 4 underground storage tanks (USTs) including associated impacted soil and groundwater, and collection and chemical analysis of confirmatory samples.

To determine the media (e.g. soil or groundwater) that are contaminated at levels of concern, the SI analytical data was compared to environmental Standards, Criteria, and Guidance values (SCGs). Groundwater SCGs identified for the Roblin Steel, North Tonawanda Site are based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part 5 of New York State Sanitary Code. For soils, NYSDEC Technical and Administrative Guidance Memorandum (TAGM) No. 4046 provides soil cleanup guidelines for the protection of groundwater, background conditions and health-based

exposure scenarios. In addition, for soils, background concentration levels can be considered for certain categories of contaminants.

Based on comparison of the Site Investigation results to the SCGs and on the potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized below. More complete information can be found in the SI Report.

Chemical concentrations are reported in parts per million (ppm) for soil and waste samples, and in parts per billion (ppb) for groundwater samples. For comparison purposes, where applicable, SCGs are provided for each medium.

4.1.1: Site Geology and Hydrogeology

Commencing at the ground surface and proceeding downward, the geological strata of this site consists of the following:

- a 1 to 4 foot layer of fill materials consisting of cinders, ash, slag, wood brick and other such rubble,
- a 6 to 10 feet layer of silty soils containing varying amounts of sand (in some areas of the site this layer is absent, presumably due to past construction activities),
- a 5 to 25 feet thick clay layer,
- a 5 to 10 feet layer of till consisting of silt and sand intermixed with gravel-sized materials, and
- Camillus Shale bedrock immediately below the till layer.

The investigations have determined that there are two groundwater aquifers at this site. A shallow aquifer exists in the lower portion silty layer located immediately below the site's fill layer. The underlying deep aquifer is located in the till layer and shale bedrock. The 5 to 25 feet of clay separating the upper silt layer from the lower till layer acts as a confining layer to the deep aquifer.
Across the western portion of the site, the shallow aquifer flows westward toward the Niagara River. On the eastern side, the flow is southeasterly toward the Oliver Street combined sewer situated approximately 20 feet below ground. Similarly, the deep aquifer flows towards the river on the western portion of the site and flows toward Oliver Street on the eastern portion of the site. Given these flow directions, a groundwater divide trending northeast to southwest exists at the site.

4.1.2: Nature of Contamination

As described in the SI report, soil, groundwater and building floors and residue samples were collected at the site to characterize the nature and extent of contamination. In each of these media, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and/or metals were encountered at various levels.

VOCs found at the site included dichloroethene, trichloroethene and tetrachloroethene. These materials are solvents, used for metals degreasing as well as other purposes.

SVOCs at the site consist primarily polynuclear aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs). PAHs are common in coal, coke and related ash materials, as well as asphalt, tar and petroleum derived products. PCBs were utilized in heat exchange and dielectric fluids. Prior to regulation, they were commonly found in electrical transformers and similar equipment.

Several metals, some naturally occurring and others likely resulting from steel and steel product manufacturing, were found throughout the site.

4.1.3: Extent of Contamination

Table 1 summarizes the extent of contamination for the contaminants of concern in the soils, groundwater and building floors and residue, and compares the data with the SCGs for the site. The following sections discuss the media which were investigated and present a summary of the findings of the investigation.

Soil

Seven SVOCs, consisting of six PAHs and the PCB Aroclor 1260 were found above the SCGs cited in Section 4.1 above.

PAHs appear fairly widespread throughout the site, predominantly in the upper one foot of site soils. As depicted in Table 1, benzo(a)pyrene was detected above SCGs most frequently (26 of 28 soil samples analyzed), with a maximum concentration of 180 ppm. Soil cleanup guidance value for this compound is 0.061 ppm. The other 5 SVOCs detected above SCGs are similar in both frequency of exceedance and maximum concentration.

Generally, subsurface soil samples collected two to three feet below the ground surface indicate significantly lower PAH concentrations, with many below SCG values. For example, benzo(a)pyrene concentrations in sub-surface soil samples exceeded soil cleanup guidance values in one-half (4 of 8) of the soil samples analyzed. The maximum concentration of this compound in subsurface soils was 1.1 ppm. The frequency of SCG exceedance and maximum concentrations found in the other five SVOCs in the subsurface soils was similar to or less prominent than that of benzo(a)pyrene.

These findings are consistent with the presence of coal, ash, cinders and other material found in the upper one to two feet fill layer throughout a large portion of the site.

PCBs were found in two of three former transformer locations at the site. A surface soil sample collected in the southeast corner of the former wire building met SCGs. PCB soil concentrations were significantly above SCGs in former transformer sites located within the central portion of the site. In this area, PCB concentrations above the cleanup guidance of 1 ppm for surface soils generally ranged from 1.6 ppm to 19.0 ppm, with one sample indicating a maximum concentration of 400 ppm. Sampling conducted in 1992 revealed PCB concentrations in soil as high as 37,700 ppm. Though this soil was removed, the previous data suggests that PCB concentrations in some subsurface soils remain above SCGs. This area will require further investigation during the engineering design phase of the site remedial action.

Several metals as listed in Table 1 were encountered in the soil samples at levels exceeding their respective SCGs. As with PAHs, metals appear fairly widespread throughout the site, with highest concentrations generally existing in the shallow one-half feet deep surface soil samples. Deeper samples of soil and fill collected between one and three feet depths generally indicate metals concentrations decreasing to near or below SCG concentrations. For example, chromium concentrations exceeded soil cleanup guidance criteria (10 ppm) in 42 of 44 surface soil samples, with concentrations ranging from approximately 8 ppm to 551 ppm. In subsurface soil samples, cleanup criteria for chromium was exceed 6 of 11 samples, with concentrations ranging from 7.5 ppm to 19.7 ppm. For this investigation, background levels were determined from a sample collected at the City of North Tonawanda's Belbas Memorial Softball Park, located near the intersection of Humphrey and Carr Streets.

One exception to this trend was found in a central area located amid the past steel mill structures. In this area the decrease of metals concentration with depth, while still observed, was not as pronounced and distinct as in other areas of the site.

Toxicity Characteristic Leaching Procedure (TCLP) testing of select soil samples was conducted to provide information regarding the characteristics of the contaminated soils and it's ability to release contaminants through leaching. The TCLP test results, summarized in Table 1, indicate that the contaminated site soils tested are not characteristic hazardous waste as defined by regulation based on leaching potential. As importantly, the test results suggest that little leaching of contaminants from site soils is occurring.

The concentrations and distribution of metals in soil is consistent with the site's past use.

Groundwater

Groundwater impacted by VOC contamination is limited to the shallow aquifer in the southeast corner of the site. Three VOCs were found in shallow groundwater sampled from Well #3S in this

area. For the three VOCs detected concentrations were approximately 10 times the State groundwater standard. For comparison, the standard for trichloroethene is 5 ppb while that measured in the site groundwater was 56 ppb. The deep aquifer monitoring well (#3) adjacent to Well #3S does not indicate VOC contamination. The lateral extent of VOC contamination in the southeast corner of the site is very limited. A monitoring well approximately 100 feet down gradient from Well #3S contains a total VOC concentration of 13 ppb, significantly less than the total VOC concentration of 158 ppb found in Well #3S. Two other shallow groundwater monitoring wells approximately 150 feet from Well #3S do not contain detectable levels of VOCs. The site investigation suggests that a current source of these VOCs does not exist and that the VOC contamination observed is residual from earlier site releases.

In both the shallow and deep site aquifers, several metals were identified. While manganese, magnesium, iron, and sodium were found at levels exceeding SCGs, these elements are naturally occurring and their presence may not totally be due to past site operations. Typically, iron, magnesium and manganese are of aesthetic concern when an aquifer is used for water supply purposes. Other metals found at the site were generally below SCGs for both the shallow and deep aquifers.

Waste Materials

Samples of wooden block flooring materials and floor residues were obtained from the former wire mill building and from the large central building west of it. Several SVOCs, primarily PAHs, were encountered in these materials at significant levels. As noted in Table 1, concentrations of the six SVOCs identified in these waste materials have maximum concentrations ranging from 200 ppm to 1,700 ppm.

A concrete lined cooling (quench) pond approximately 90 feet square is immediately west of the rolling mill building. The pond is partially filled with water, oily wastes, debris and sediment. Although the SI revealed that the pond imposes no adverse environmental impacts, it does represent a long term safety hazard.

About the site are numerous refuse piles including, lime, tires, building rubble, mill scale and slag. Numerous drums either empty or containing non-hazardous materials are found at the site.

Based on site history and in-field observation, the materials contained in the pond, drums and various waste piles are generally known. As necessary, sampling and chemical analysis of these wastes will be conducted during site remediation to facilitate disposal.

Asbestos containing material (ACM) is present in many of the site buildings.

4.2: 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 completion of the SI/RAR.

An IRM to remove underground storage tanks (USTs) at the site was conducted as part of the SI. Four USTs, their contents and associated contaminated soil and groundwater were removed from three site locations. Approximately 6000 gallons of petroleum were removed from the tanks and disposed off-site. Groundwater removed from the excavations was treated on-site with activated carbon and discharged to the City of North Tonawanda wastewater treatment facility. After tank and contaminated soil removal, the excavations were filled to grade with clean fill material. Approximately 200 cubic yards of soil excavated as part of the IRM are staged under cover at the site and will be disposed as part of the waste and soil components of this PRAP. This IRM was completed in December 2000. Details of the UST removal IRM are provided in the report entitled "Tank Closure Report, Former Roblin Steel Facility, North Tonawanda, New York, May 2001". The locations of these three areas are shown in Figure 3, and are defined as Area of Concern No. 5 in the RAR.

4.3: Summary of Human Exposure Pathways

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the health risks can be found in Chapter 6 of the SI report.

An exposure pathway is the manner by which an individual may come in contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

The four pathways which are known to or may exist at the site include:

- Direct contact with contaminated soils and wastes,
- Ingestion of contaminated soils and wastes,
- Inhalation of dusts from contaminated soils and wastes,
- Ingestion of contaminated groundwater.

Exposure to contaminated soils and wastes would require persons entering the site , then contacting, ingesting and/or inhaling contaminated soils and site wastes. Those most likely exposed would include site trespassers and future workers at the site during redevelopment. Evidence of trespassers gives rise to the possibility of a current exposure in this regard. Potential future exposures to site workers can be addressed through proper use of health and safety procedures.

Exposure to site groundwater requires a means by which it is made available to the receptor. There are no drinking water wells on the site, and the surrounding neighborhoods are served by the City of North Tonawanda water supply system. As such a current exposure is not known to exist in this regard. Future exposures on-site can be prevented through prohibiting use of site groundwater.

4.4: Summary of Environmental Exposure Pathways

The Fish and Wildlife Impact Assessment included in Chapter 5 of the SI presents a detailed discussion of the potential impacts from the site to fish and wildlife resources. The nearest non-urban terrestrial wildlife habitat is in the undeveloped areas of Grand Island, across the Niagara River more than a mile from the site.
Neither the Niagara River nor Grand Island are likely to be impacted by any of the contaminants on this site. In this investigation, it was determined that the contaminants on this site would present no potential environmental exposures or ecological risks.

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past owners and operators, waste generators, and haulers.

Since no viable PRPs have been identified for this site, there are currently no ongoing enforcement actions. However, legal action may be initiated at a future date by the State to recover State response costs should PRPs be identified. The City of North Tonawanda will assist the State in its efforts by providing all information to the State which identifies PRPs. The City will also not enter into any agreement regarding response costs without the approval of the NYSDEC.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS AND THE PROPOSED USE OF THE SITE

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to meet all Standards, Criteria, and Guidance (SCGs) and be protective of human health and the environment. At a minimum, the remedy selected must eliminate or mitigate all significant threats to the public health and to the environment caused by the disposal of hazardous substances at the site, through the proper application of scientific and engineering principles.

The presently planned future use for the Roblin Steel, North Tonawanda Site would be for commercial or industrial development. The goals selected for this site are:

- Reduce, control, or eliminate to the extent practicable the contamination present within the soils, wastes and refuse on the site.

- Provide for attainment of SCGs for soil and groundwater quality, to the extent practicable.
- Eliminate the potential for direct human contact with and ingestion of the contaminated soils, wastes and refuse on the site.
- Eliminate the potential for human ingestion of contaminated groundwater at the site.
- Eliminate the physical hazards posed by site buildings and ruins.
- Facilitate site redevelopment.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost effective and comply with other statutory requirements. Potential remedial alternatives for the Roblin Steel, North Tonawanda Site were identified, screened and evaluated in the October 2000 Remedial Alternatives Report. For this evaluation, the following Areas of Concern (AOC), as depicted in Figure 3, were identified at the site:

No. 1: Drums and Waste Piles
No. 2: Building Ruins
No. 3: Wood Block Flooring & Residue
No. 4: Impacted Soil
No. 5: Underground Storage Tanks
No. 6: Impacted Groundwater
No. 7: Cooling (Quench) Pond

A summary of the detailed analysis of these alternatives, classified by AOC, is given in the section that follows. As presented there, the time to implement reflects only the time required to implement the remedy, and does not include the time required to design the remedy or to procure contracts for their design and construction.

7.1: Description of Remedial Alternatives

The potential remedies summarized in this section by individual AOCs are intended to address contaminated soils, wastes/refuse, abandoned buildings and contaminated groundwater at the site. In addition to a brief description of the potential alternatives, their costs are also given here. The components of these costs consist of the initial capital, annual operation and maintenance (O&M), and total present worth costs. Total present worth is the capital cost added to the total future O&M costs, modified to reflect their present value.

No Action

The No Action Alternatives are typically evaluated as a procedural requirement and as a basis for comparison. For six of the seven AOCs the No Action Alternatives require continued monitoring only, allowing the site to remain in an unremediated state. The No Action Alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

No Further Action

For AOC No. 5, Underground Storage Tanks, only the No Further Action alternative is considered. This alternative recognizes complete remediation of this AOC through the IRM discussed in Section 4.2. No other remedial alternatives therefore require evaluation. The estimated cost of this IRM is included in Tables 2 and 3 and are reflected in discussions of total project costs.

AOC No. 1 - Drums & Waste Piles:

Alternative 1, No Action

Present Worth:	*$ 30,000*
Capital Cost:	*$ 0*
Annual O&M:	*$ 4,000*
Time to Implement:	Immediate

This alternative leaves the drums and waste piles on-site in their present condition, with long-term monitoring provided through periodic site inspection.

Alternative 2, Off-Site Disposal

Present Worth:	*$ 1,150,000*
Capital Cost:	*$ 1,150,000*
Annual O&M:	*$ 0*
Time to Implement:	2 Months

This alternative calls for characterization of drum contents and wastes, followed by off-site disposal at permitted/approved facilities.

Alternative 3, Off-Site Disposal/On-Site Reuse

Present Worth:	*$ 850,000*
Capital Cost:	*$ 850,000*
Annual O&M:	*$ 0*

Time to Implement	6 months

For this alternative, the wastes that can be reused for site redevelopment would be separated, and the remainder characterized and disposed off-site. For example, slag piles which met applicable construction standards could be used on-site in paving material or other such aggregate. For this estimate, it is assumed that approximately one-third of slag and brick piles at the site can be recycled.

AOC No. 2 - Building Ruins

Alternative 1, No Action

Present Worth:	*$ 50,000*
Capital Cost:	*$ 0*
Annual O&M:	*$ 4,000*
Time to Implement:	Immediate

This alternative would leave the buildings and ruins on-site in their present condition, with long-term monitoring provided through periodic site inspection.

Alternative 2, Stabilization of Buildings

Present Worth:	*$ 1,000,000*
Capital Cost:	*$ 1,000,000*
Annual O&M:	*$ 0*
Time to Implement:	8 Months

This alternative calls for elimination of physical hazards posed by the deteriorating buildings and would include razing the unsupported walls of the existing buildings and off-site disposal of demolition waste.

Alternative 3, Demolition of Buildings, Removal and Disposal of Rubble

Present Worth:	*$ 1,500,000*
Capital Cost:	*$ 1,500,000*
Annual O&M:	*$ 0*
Time to Implement:	6 Months

This alternative would provide for razing all site buildings, and disposing or recycling all materials, as appropriate. This alternative would also require removal and proper off-site disposal of ACM. No long-term monitoring would be required.

AOC No. 3 - Wood Block Floors/Residues

Alternative 1, No Action

Present Worth:	*$ 25,000*
Capital Cost:	*$ 0*
Annual O&M:	*$ 2,000*
Time to Implement:	Immediate

This alternative would leave the wood block flooring and associated residues on-site in their present condition, with long-term monitoring provided through periodic site inspection.

Alternative 2, Encapsulation of Flooring

Present Worth:	*$ 890,000*
Capital Cost:	*$ 880,000*
Annual O&M:	*$ 1,200*
Time to Implement:	1 Month

With this alternative, the existing wooden block floor and residues would be encapsulated by placing a six inch concrete slab over the flooring. Long-term monitoring of the encapsulation would be provided through periodic inspection. Deed restrictions to preclude disturbing the encapsulation would be provided.

Alternative 3, Off-Site Disposal of Flooring

Present Worth:	*$ 14,000*
Capital Cost:	*$ 14,000*
Annual O&M:	*$ 0*
Time to Implement:	1 Month

This alternative would remove the wood block flooring and residue, with off-site disposal at a permitted landfill. No long-term monitoring would be required.

Area of Concern No. 4 - Impacted Soil

Alternative 1, No Action

Present Worth:	*$ 20,000*
Capital Cost:	*$ 0*
Annual O&M:	*$ 2,000*
Time to Implement:	Immediate

This alternative would leave contaminated soil on-site in its present condition, with long-term monitoring provided through periodic site inspection.

Alternative 2, Soil Cap

Present Worth:	*$ 370,000*
Capital Cost:	*$ 360,000*
Annual O&M:	*$ 1,200*
Time to Implement:	2 Months

With this alternative, the contaminated soils would be capped with a one foot layer of clean soil. In some portions of the site consolidation of soils into berms and subsequent clean soil capping would be provided. Long-term monitoring through inspection and cap maintenance/repair would be required. A deed restriction to preclude disturbance of the cap would be provided.

Alternative 3, Asphalt or Concrete Cap

Present Worth:	*$ 1,330,000*
Capital Cost:	*$ 1,320,000*
Annual O&M:	*$ 1,200*
Time to Implement:	2 Months

This alternative would consist of capping of contaminated soils with asphalt or concrete paving. Long-term monitoring through inspection and cap maintenance/repair would be required. A deed restriction to preclude disturbance of the cap would be provided.

Alternative 4, Off-Site Disposal of Soils

Present Worth:	*$ 690,000*
Capital Cost:	*$ 690,000*
Annual O&M:	*$ 0*
Time to Implement:	2 Months

With this alternative, the upper one foot layer of contaminated soils would be excavated and properly disposed off-site. The excavations would be backfilled and graded with one foot of clean soil.

AOC No. 6 - Impacted Groundwater

Alternative 1, No Action

Present Worth:	*$ 40,000*
Capital Cost:	*$ 0*
Annual O&M:	*$ 3,000*
Time to Implement:	Immediate

This alternative would provide for long-term monitoring of site groundwater impacted by VOCs.

Alternative 2, Institutional Controls

Present Worth:	*$ 48,000*
Capital Cost:	*$ 8,000*
Annual O&M:	*$ 3,000*
Time to Implement:	1 Month

With this alternative, deed restrictions that prohibit installation of potable water wells in the area of the impacted groundwater would be enacted. This alternative would also call for long-term monitoring of VOC impacted groundwater.

Alternative 3, Extraction and Treatment at City Owned Plant

Present Worth:	*$ 66,000*
Capital Cost:	*$ 39,000*
Annual O&M:	*$ 6,600*
Time to Implement:	6 Months

This alternative would include installation and operation of recovery wells to extract the groundwater contaminated by VOCs. An on-site system to collect extracted waters would be provided, with periodic transportation of these waters to the City of North Tonawanda wastewater treatment plant for treatment and disposal.

AOC No. 7 - Cooling (Quench) Pond

Alternative 1, No Action

Present Worth:	*$ 30,000*
Capital Cost:	*$ 0*
Annual O&M:	*$ 2,000*
Time to Implement:	Immediate

For this alternative, only periodic long-term inspection of the pond would be provided. The waters, waste and refuse currently in the pond would remain.

Alternative 2, Removal and Decommissioning

Present Worth:	*$ 72,000*
Capital Cost:	*$ 72,000*
Annual O&M:	*$ 0*
Time to Implement:	1 Month

The waters, waste and refuse in the pond would be removed and transported off-site for appropriate treatment and disposal. The pond and associated appurtenances, such as pipelines, would be decommissioned or dismantled and removed for off-site disposed.

7.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of environmental restoration project sites in New York State (6 NYCCR Part 375). For each of the criteria, a brief description is provided followed by an evaluation of the alternatives against that criterion. Table 2 provides a tabulation of each of the alternatives and their total present worth costs. A detailed discussion of the evaluation criteria and comparative analysis is included in the Remedial Alternatives Report.

The first two evaluation criteria are termed threshold criteria and must be satisfied in order for an alternative to be considered for selection. For these evaluation criteria, each of the seven AOCs are discussed individually.

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance. Given the nature and extent of contaminants found through the SI, the most significant SCGs applicable to the the Roblin Steel North Tonawanda site, include NYSDEC TAGM 4046 Soil Cleanup guidance to evaluate actions to address contaminated site soils and NYSDEC Ambient Water Quality Standards to evaluate actions relating to contaminated groundwater.

AOC No. 1 - Drums & Waste Piles

Alternative 1 (No Action) would not meet SCGs regarding the handling, containment and disposal of non-hazardous or industrial waste. Alternatives 2 and 3 (Off-Site Disposal, Off-Site Disposal/On-Site Reuse) would meet SCGs as the waste would be properly disposed or recycled.

AOC No. 2 - Building Ruins

SCGs applicable to the physical hazards posed by the site buildings are typically established and administered at the local municipal level. State SCGs applicable to the building ruins would apply for ruins involving asbestos containing material (ACM). In this regard Alternative 1 (No Action) and Alternative 2 (Stabilization) would not comply with SCGs relating to the control, removal and proper disposal of ACM. Alternative 3 (Demolition and Disposal/Reuse) meets applicable SCGs in that ACM would be removed and properly disposed.

AOC No. 3 - Wood Floors & Residues

Alternative 1 (No Action) would not meet SCGs in that contaminants found in the flooring and residues would be left uncontrolled and untreated. Alternative 2

(Encapsulation), if successfully constructed and maintained, would meet applicable SCGs. Alternative 3 (Disposal) would meet applicable SCGs in that the contaminated flooring and residues would be removed from the site and properly disposed.

AOC No. 4 - Impacted Soil

Alternative 1 (No Action) would not meet SCGs. Contaminated soils exceeding cleanup guidance criteria would remain on-site, uncontained and uncontrolled. Alternatives 2 and 3 (Capping) would partially meet SCGs in that capping of contaminated soil would provide improved, though not total, containment. All contaminated soils would however remain on the site. Alternative 4 (Disposal) would meet or nearly meet all SCGs applicable. In general, removal and off-site disposal of the upper one foot of contaminated soil would eliminate those soil layers most contaminated. Residual contaminants in areas of the site below proposed excavation depths would remain on-site. While these residuals are generally lower in contaminant concentrations than the upper soils to be removed, isolated areas of residuals exceeding soil cleanup guidance concentrations would remain.

AOC No. 6 - Impacted Groundwater

None of the alternatives evaluated would result in all site groundwater meeting applicable quality standards. As discussed in Section 4.1.3 the nature of site-wide groundwater quality is primarily of aesthetic concern should the aquifer(s) be used for water supply purposes. Such use is not likely in that the area has been and will continue to be served by a public water supply system. Given this, the alternatives evaluated to address impacted groundwater focus on that portion of the shallow aquifer, located in the southeast portion of the site, that is contaminated with VOCs.

In the near term, Alternatives 1 and 2 (No Action, Institutional Controls) would not meet SCGs governing water quality. Over an extended period of time, however it is expected that VOC contamination would naturally dilute/degrade to levels meeting or approaching SCGs. Should contaminated groundwater migrate to the site boundary, it is expected that the Oliver Street sewer would capture the contaminant plume, preventing further migration. Similarly Alternative 3 (Extraction) would meet or approach SCGs levels, but would provide a more aggressive contaminant removal scheme.

AOC No. 7 - Cooling (Quench) Pond

Alternative No. 1 (No Action) would not meet SCGs relating to waste and wastewater treatment and disposal. Contaminants would be left uncontained and uncontrolled. Alternative 2 (Removal) would meet SCGs in that waste contained in the pond would be removed and properly disposed off-site.

2. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

AOC No. 1 - Drums & Waste Piles

Alternative 1 (No Action) would not be protective in that wastes in drums and/or piles at the site are not properly contained or controlled. As such, contaminant migration into the environment or exposure to humans is possible. Both Alternatives 2 and 3 (Off-Site Disposal, Off-Site Disposal/On-Site Reuse) would be protective to human health and the environment in that wastes would be properly disposed.

AOC No. 2 - Building Ruins

While the building ruins do not present a significant threat to the environment, they do pose a threat to human health through the physical hazards they contain and potential exposure associated with ACM. Alternative 1 (No Action) would not be protective of human health in that both present and future physical hazards and ACM exposures are not eliminated nor prevented. Alternative 2 (Stabilization) would provide partial protection through removal of the physical hazards, but would not fully address ACM exposure potentials. Alternative 3 (Demolition and Disposal/Reuse) would be fully protective as it would remove physical hazards and ACM existing at the site.

AOC No. 3 - Wood Floors & Residues

Alternative 1 (No Action) would not be protective of human health nor the environment. Pathways for direct exposure to contaminants contained in the flooring and residues pose a threat to human health. Left unaddressed, these contaminants could migrate into adjacent soils and/or groundwater. Both Alternatives 2 and 3 (Encapsulation, Disposal) would be adequately protective in that exposure pathways would be removed and waste contained and/or properly disposed.

AOC No. 4 - Impacted Soils

As with the wastes discussed previously in this section, Alternative 1 (No Action) would not protect human health in that direct exposure pathways to contaminated soils would continue to exist. Environmental protection would not be afforded as no containment nor control of contaminants in site soils would be provided. Alternatives 2 and 3 (Capping) would prevent exposure and therefore be protective provided that the site cap is properly maintained. Given this, Alternative 4 provides the greatest level of protection by minimizing exposure potential. With this alternative the majority of contaminated soil would be removed and properly disposed off-site, with the remaining contaminant residuals being under clean soil fill, similar to the other capping alternatives evaluated.

AOC No. 6 - Impacted Groundwater

As discussed in Section 4.1.3 the nature of site-wide groundwater quality is primarily of aesthetic concern should the aquifer(s) be used for water supply purposes. Such use is not likely in that the area has been and will continue to be served by a public water supply system. Given this, the alternatives evaluated to address impacted groundwater focus on that portion of the shallow aquifer, located in the southeast portion of the site, that is contaminated with VOCs. The SI indicates that the VOC contaminant plume is very limited in size and extent of contamination. Site hydrogeology suggests that should the plume migrate to site boundaries, capture via the Oliver Street sewer is likely. The environmental impact associated with this groundwater contamination is minor if nonexistent.

Alternative 1 (No Action) would provide for partial protection of human health in that it is highly unlikely that these groundwaters would ever be utilized as a potable source. Alternative 2 (Institutional Controls) would provide somewhat increased protection in that it would specifically preclude use of these groundwaters and therefore prevent human exposure. Over time, natural degradation and dispersion would likely eliminate threats to public health under either Alternatives 1 or 2. Alternative 3 (Extraction and Treatment) would meet SCGs through contaminated groundwater removal and treatment.

AOC No. 7 - Cooling (Quench) Pond

Alternative 1 (No Action) would not be protective in that exposure pathways to contaminated pond waters and wastes within the pond would continue to exist. In addition, this alternative would not eliminate the threat of contaminant releases to environmental media. Alternative 2 (Removal) is protective in that wastes are removed and properly disposed off-site.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies. As these are balancing criteria, Areas of Concern are grouped where appropriate.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

AOC No. 1 - Drums & Waste Piles
AOC No. 2 - Building Ruins
AOC No. 3 - Wood Floors & Residues
AOC No. 4 - Impacted Soils
AOC No. 7 - Cooling (Quench) Pond

The No Action alternative evaluated for each of these Areas of Concern would present no short-term adverse impacts as no remedial actions would be undertaken, and only site monitoring would be provided.

The other alternatives evaluated for each of these AOCs would involve demolition, waste removal, disposal and/or containment. These alternatives would require the use of heavy construction equipment. Given the neighborhoods about the site, the potentially largest impact would be the increased truck traffic necessary to undertake site remediation. While time frames to implement these actions vary to some degree, all would utilize approximately one construction season (6-8 months) or less to complete. Short-term impacts from these actions generally would be greatest for those alternatives involving complete demolition and waste removal/off-site disposal as they would require a greater level of site activity and require the longer time frames to complete. For all of these alternatives, worker health and safety plans and community air monitoring programs would be developed and implemented to insure no adverse impacts would occur in this regard. Environmental resource protection would be provided in all of these alternatives though proper handling, treatment, storage and disposal of wastes generated.

AOC No. 6 - Impacted Groundwater

Alternative 1 (No Action) and Alternative 2 (Institutional Controls) would not require remedial construction activities and could be readily implemented through implementation of a monitoring program. Imposition of a deed restriction would be an administrative action which is readily implementable. Alternative 3

(Extraction) would require construction of an groundwater extraction and treatment system utilizing conventional construction techniques.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

AOC No. 1 - Drums & Waste Piles
AOC No. 2 - Building Ruins
AOC No. 3 - Wood Floors & Residues
AOC No. 4 - Impacted Soils
AOC No. 7 - Cooling (Quench) Pond

The No Action alternatives for these Areas of Concern would not provide long-term and permanent remedies. Waste materials, contaminated soils and decaying structures would remain in their current condition, providing potential exposure pathways to persons entering the site.

The other remedial alternatives evaluated for these AOCs include on-site reuse of materials, on-site disposal with encapsulation, and/or off-site disposal. Each of these alternatives would effectively provide permanent remedial action. However the off-site disposal alternative would provide the greatest permanence as wastes and contaminants would be removed from the site completely. Off-site disposal would also increase effectiveness of the remedial actions in that no portions of the site would be used for on-site disposal and therefore be available for future redevelopment.

AOC No. 6 - Impacted Groundwater

It is anticipated that over time, the area of VOC impacted groundwater will decrease to background levels. No known waste source continues to supply contaminants to the groundwater and no new sources are anticipated in the future. As such all three alternatives evaluated would provide effective and permanent remedial solutions. The time period necessary to reach acceptable groundwater quality levels in Alternative 1 (No Action) and Alternative 2 (Institutional Controls) would likely be greater than that of Alternative 3 (Extraction and Treatment).

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the substances at the site.

AOC No. 1 - Drums & Waste Piles
AOC No. 2 - Building Ruins
AOC No. 3 - Wood Floors & Residues
AOC No. 4 - Impacted Soils
AOC No. 7 - Cooling (Quench) Pond

The No Action alternatives for these Areas of Concern would not provide any reduction in toxicity, mobility or volume of waste. Waste materials, contaminated soils and decaying structures currently found at the site would remain.

The other remedial alternatives evaluated for these AOCs include on-site reuse of materials, on-site disposal with encapsulation, and/or off-site disposal. Most notably, these alternatives would reduce the mobility of substances found at the site, and to some degree the volume of wastes as well. While both on-site and off-site disposal alternatives would effectively provide these reductions, off-site disposal at approved, regulated facilities would provide an increased assurance of long-term reduction in waste mobility and volume.

AOC No. 6 - Impacted Groundwater

None of the three alternatives evaluated for this Area of Concern will reduce toxicity of groundwater contaminants. Mobility of VOC impacted groundwater, would likely be controlled by the Oliver Street sewer interception, should the shallow aquifer contaminant plume ever migrate off-site. As such, Alternative 1 (No Action) and Alternative 2 (Institutional Controls) would not affect the current control of impacted groundwater mobility. Alternative 3 (Extraction and Treatment) would increase control of mobility through additional interception and on-site extraction of impacted groundwater. All three alternatives would reduce the volume of impacted groundwater at the site. Alternative 3 (Extraction and Treatment) would reduce this volume in a shorter time period through the addition of extraction wells.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.

AOC No. 1 - Drums & Waste Piles
AOC No. 2 - Building Ruins
AOC No. 3 - Wood Floors & Residues
AOC No. 4 - Impacted Soils

AOC No. 7 - Cooling (Quench) Pond

Implementation of all of the remedial alternatives evaluated for these Areas of Concern would be possible. While the No Action alternatives would be the easiest to implement, they would not allow for the redevelopment and reuse of the site. The other remedial alternatives would require remedial design and construction, utilizing technologies readily available and common to the industry. Long-term operation, maintenance and monitoring (OM&M) would be necessary for those alternatives that provide for on-site disposal of wastes. In these instances, implementation would increase in light of the time period required to provide long-term OM&M.

AOC No. 6 - Impacted Groundwater

All three of the alternatives evaluated would be easily, effectively and readily implemented.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision. The costs for each alternative are presented in Table 2. As shown there, the annual O&M costs range from $0 to $6,600, and the capital costs range from $0 for the no action alternatives to $1,500,000. The total present worth costs range from $13,000 to $1,500,000. Table 3 presents total present worth costs for combinations of alternatives that address all seven Areas of Concern. As shown there, these total costs range from $197,000 for the combination consisting of the seven lowest cost alternatives to $5,021,000 for the highest cost combination.

8. Community Acceptance - Concerns of the community regarding the SI/RAR reports and the Proposed Remedial Action Plan have been evaluated. The "Responsiveness Summary" included as Appendix A presents the public comments received and the Department's response to the concerns raised. Although questions on details of the investigation and the remediation, such as the levels of contamination encountered, the deposition of the wastes, funding sources, effects of the remediation on site development, and construction oversight and monitoring were raised, no objections to the remedial plan were received.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the results of the SI/RAR, and the evaluation presented in Section 7, the NYSDEC is selecting the following respective alternatives as the remedy for this site:

AOC No. 1 - Drums & Waste Piles: Alternative 3 - disposal/recycle

AOC No. 2 - Building Ruins: Alternative 3 - disposal/recycle

AOC No. 3 - Wood Floors & Residues: Alternative 3 - disposal

AOC No. 4 - Impacted Soils: Alternative 4 - disposal

AOC No. 5 - Underground Storage Tanks: No further action is necessary.

AOC No. 6 - Impacted Groundwater: Alternative 2 - monitoring

AOC No. 7 - Cooling (Quench) Pond: Alternative 2 - disposal/decommission

This selection is based on the evaluation of the 21 alternatives developed for this site. With exception of the No Action alternative, each of the alternatives evaluated for each of the Areas of Concern will comply with the threshold criteria. In addition these alternatives will comply with all or most of the balancing criteria.

As noted earlier, the City of North Tonawanda has undertaken this Environmental Restoration (Brownfield) project with the ultimate goal to redevelop the Roblin Steel site to commercial or industrial use. Off-site disposal and recycle alternatives for each Area of Concern, will facilitate reuse and maximize the amount of land available for redevelopment. The selected alternatives for Area of Concern Nos. 1 through 4 and No. 7 reflect this preference. Area of Concern No. 5 has already been addressed through completion of the UST removal IRM. For Area of Concern No. 6, the preferred alternative will provide for monitoring of the ongoing reduction of the impacted plume without interfering with future redevelopment.

The estimated present worth cost to implement the selected remedy is $3,187,000. The cost to construct the remedy is estimated to be $3,147,000 and the estimated total average annual operation, maintenance and monitoring cost for twenty years is $3,000. These costs include the $13,000 capital cost for the removal of the underground storage tanks (Area of Concern No. 5).

For comparison, with the exception of No Action, the selection of the least costly remedial action alternative for each Area of Concern would result in a present worth cost of $2,367,000. Selection of the most costly alternative for each Area of Concern would generate a present worth cost of $5,021,000.

The elements of the selected remedy are the following:

1. A remedial design program to verify the components of the conceptual design and to provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Any uncertainties identified during the SI and the RAR will be resolved during the design process.

2. Implementation of the following remediation measures (estimated quantities are provided in parentheses):

- Off-site disposal of drums (80 drums) and non-recyclable wastes (11,700 cubic yards); On-site reuse of wastes where feasible (5,300 cubic yards),

- Demolition of Buildings; Off-site disposal (25,875 cubic yards) or On-site reuse of rubble (8,625 cubic yards),

- Off-site disposal of building flooring and residues (2,400 cubic yards),

- Excavation and off-site disposal of contaminated soils to a depth of one foot and replacement with clean fill (15,370 cubic yards),

- Long-term monitoring of VOC contaminated groundwater,

- Removal and off-site disposal of cooling (quench) pond waste (734,026 gallons) and decommissioning or demolition of cleaned structure (450 cubic yards),

- Development of an approvable long-term soils management plan to address remaining soils excavated at the site during future redevelopment. The plan will include but not be limited to soils management, characterization and disposal in accordance with applicable NYSDEC regulations, and

- Imposition of a deed restriction that will require compliance with the approved soils management plan. Further, the future use of groundwater from the site will be prohibited. Annually, the future property owners will be required to certify to the NYSDEC that the implemented remedy has been maintained in accordance with the soils management plan.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the Roblin Steel, North Tonawanda environmental restoration process, a number of Citizen Participation activities were undertaken in an effort to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- # A repository for documents pertaining to the site was established at the North Tonawanda Public Library, 505 Meadow Drive;
- # A site mailing list was established which included nearby property owners, local political officials, local media and other interested parties;
- # A Fact Sheet dated September 21, 2001 was distributed;
- # A public meeting was held on October 4, 2001, which included a presentation of the Site Investigation (SI) and Remedial Alternatives Report (RAR); and
- # In February 2002 a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public comment period for the PRAP.

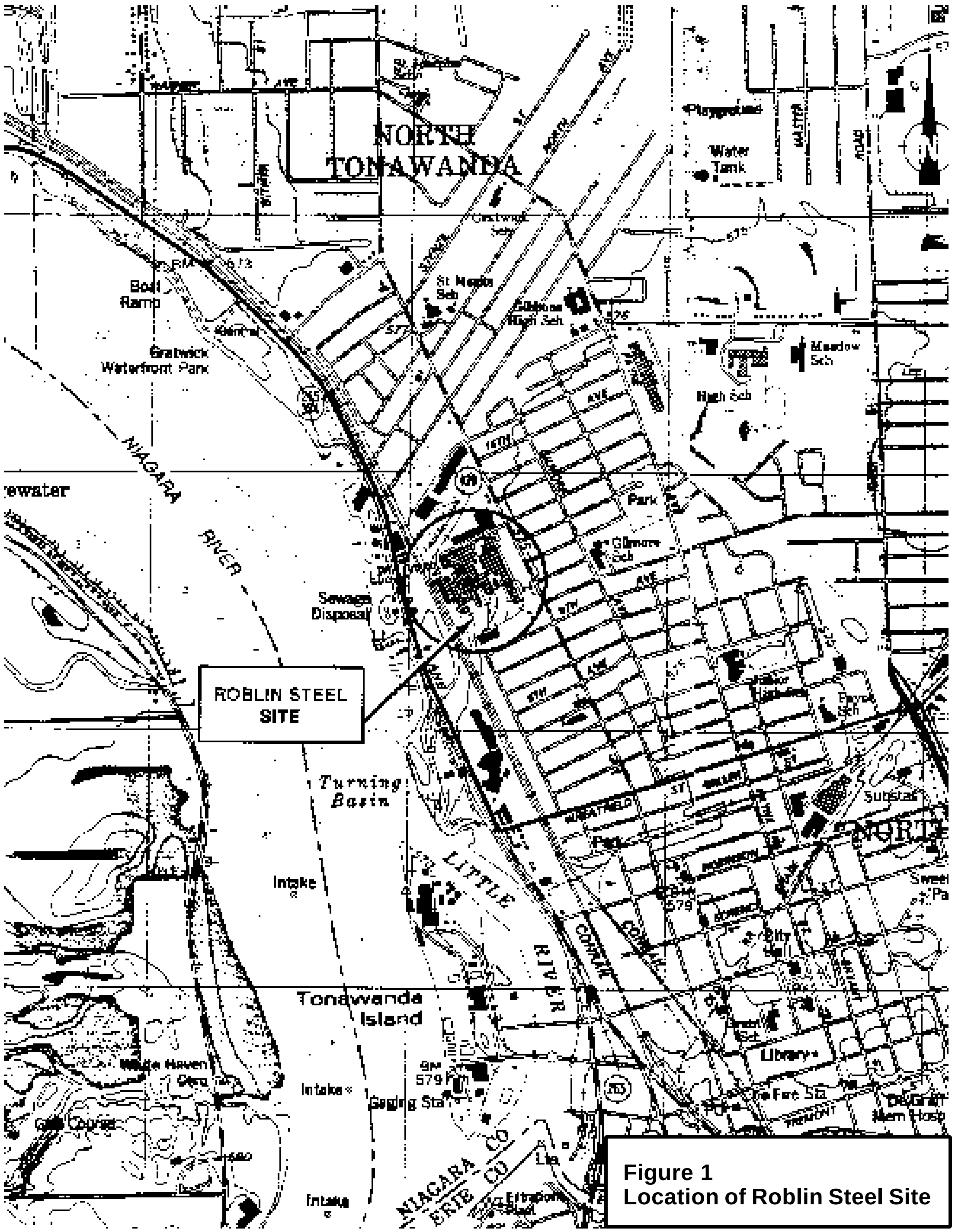


Figure 1
Location of Roblin Steel Site

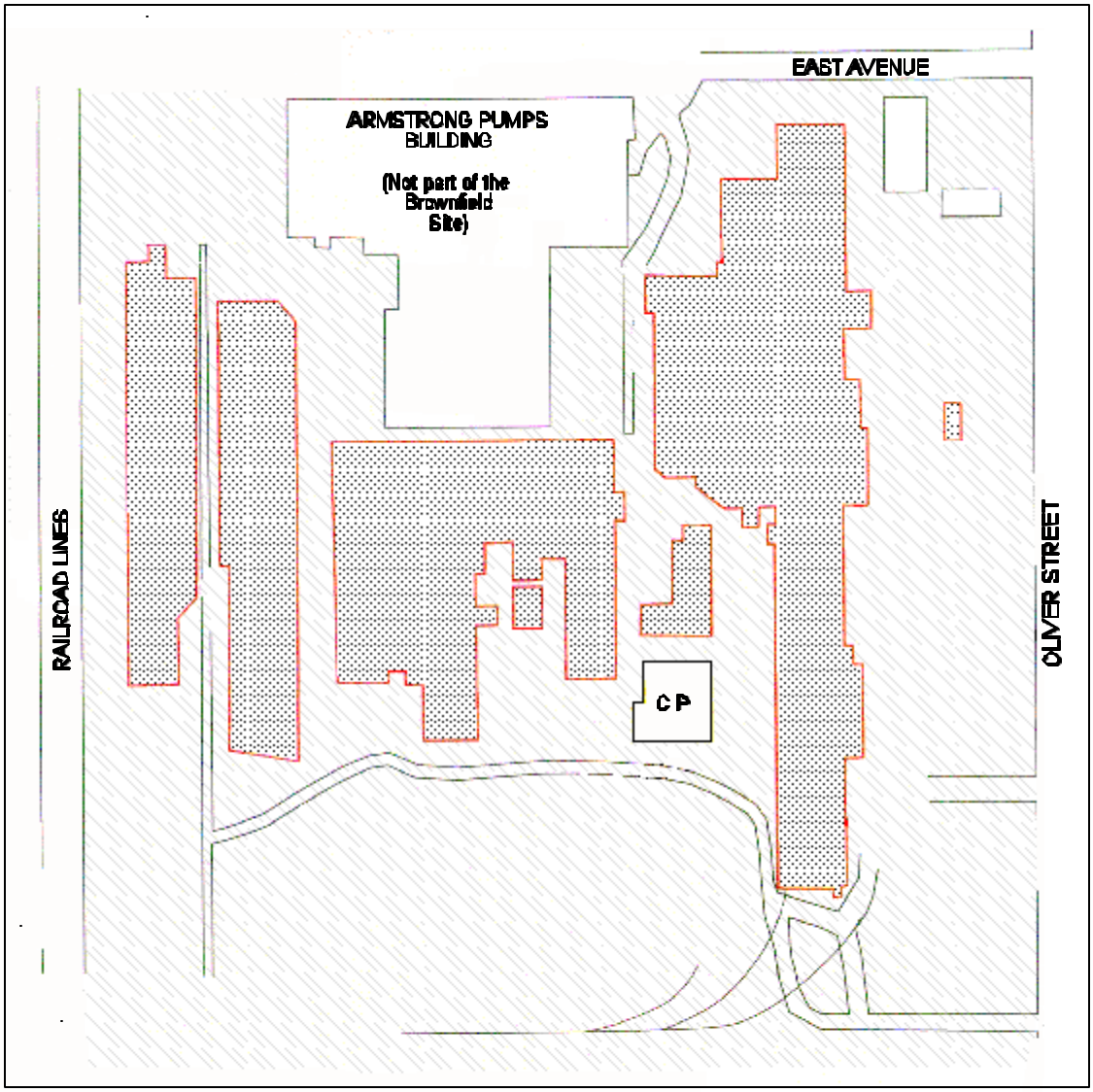
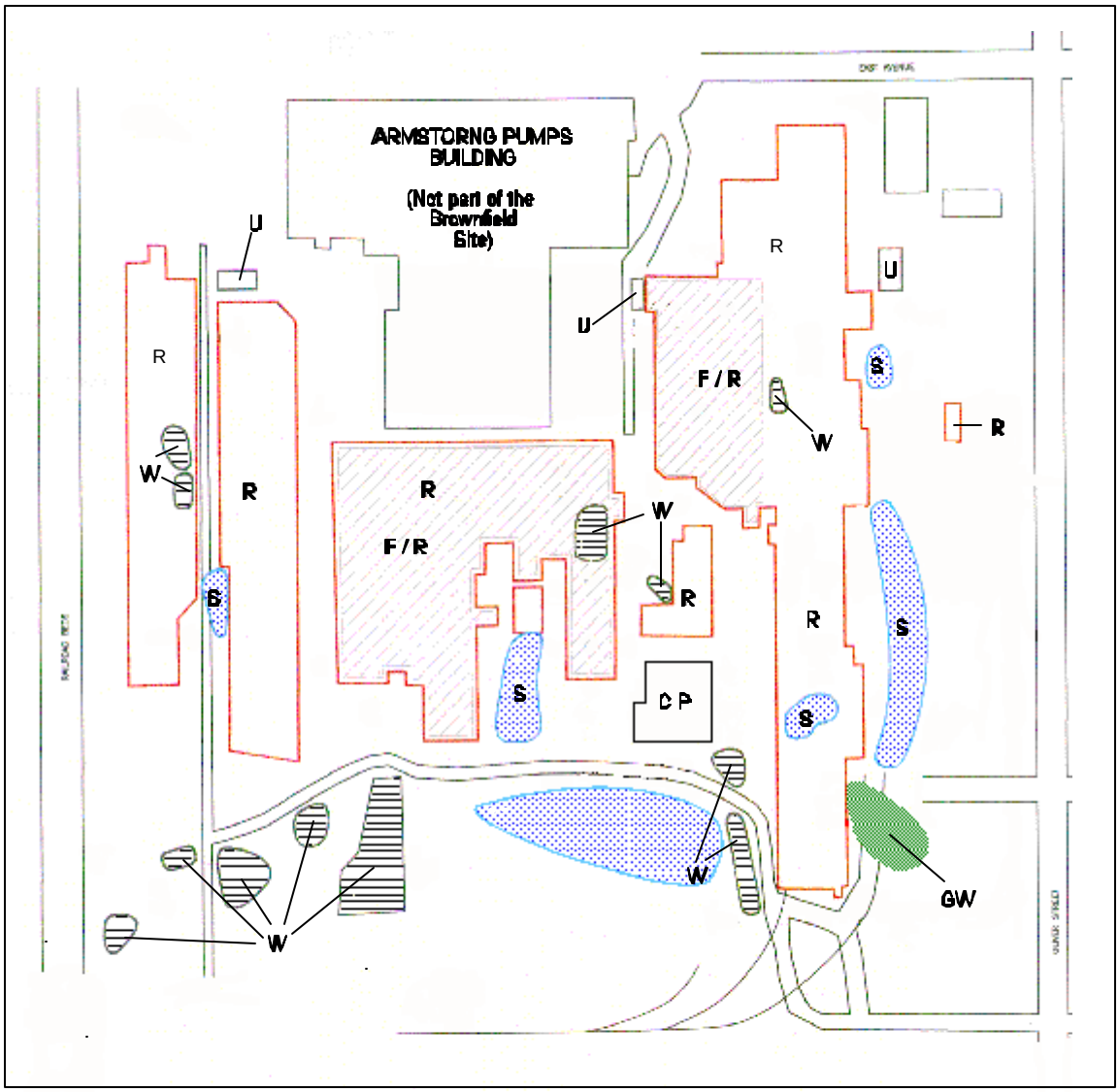


Figure 2
Site Map



LEGEND

W	AOC-1	MISCELLANEOUS DRUMS & WASTE PILES
R	AOC-2	BUILDING RUINS
F / R	AOC-3	WOOD BLOCK FLOORS & IMPACTED RESIDUE
S	AOC-4	IMPACTED SOIL - for general location information only
U	AOC-5	USTs
GW	AOC-6	IMPACTED GROUNDWATER
C P	AOC-7	COOLING POND

North

Figure 3
Area of Concern Locations

Table 1
Nature and Extent of Contaminants of Concern

MEDIUM	CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)	FREQUENCY of Exceeding SCGs or Background	SCG/ Background (ppm)
Soils	Surface Samples (0' - 1/2') Metals	Antimony	2.1 to 116	14 of 14	ND*
		Arsenic	5 to 44	36 of 44	7.5
		Cadmium	0.4 to 1470	35 of 44	1.0
		Chromium	7.9 to 551	42 of 44	10.0
		Copper	69.4 to 698	14 of 14	25.0
		Lead	103 to 3710	3 of 44	500
		Mercury	0.04 to 1.1	11 of 14	0.1
		Nickel	38.6 to 502	14 of 14	13.0
		Selenium	4.4 to 20	14 of 14	2.0
		Silver	0.21 to 1.6	13 of 14	0.21
		Thallium	ND to 6.4	10 of 14	1.1
		Zinc	156 to 3540	14 of 14	20.0
	Surface Samples TCLP (0' - 1/2') Metals	Arsenic	ND to 0.008	0 of 9	5.0
		Cadmium	0.006 to 0.322	0 of 9	1.0
		Chromium	ND to 0.008	0 of 9	5.0
		Lead	ND to 0.127	0 of 9	5.0
	Subsurface Samples / Native (1' - 4') Metals	Arsenic	1.2 to 13.2	1 of 11	7.5
		Cadmium	ND to 1.1	1 of 11	1.0
		Chromium	7.5 to 19.7	6 of 11	10.0
		Lead	7.0 to 81.1	0 of 11	500
	Subsurface Samples / Fill (1' - 4') Metals	Arsenic	2.3 to 35.5	5 of 10	7.5
		Cadmium	ND to 57.4	3 of 10	1.0
		Chromium	5.2 to 206	4 of 10	10.0
		Lead	6.2 to 1100	1 of 10	500

***** ND - not detected ; below laboratory detection levels

Table 1 (Cont.)
Nature and Extent of Contaminants of Concern

MEDIUM	CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)	FREQUENCY of Exceeding SCGs or Background	SCG/ Background (ppm)
Soils (Cont.)	Surface Samples (0' - 1/2') Semi-Volatile Organic Compounds (SVOCs)	Benzo(a)anthracene	ND to 220	25 of 28	0.224
		Chrysene	ND to 210	25 of 28	0.4
		Benzo(b)fluoranthene	ND to 200	19 of 28	1.1
		Benzo(k)fluoranthene	ND to 130	19 of 28	1.1
		Benzo(a)pyrene	ND to 180	26 of 28	0.061
		Dibenzo(a,h)anthracene	ND to 54	25 of 28	0.014
	Subsurface Samples (2' - 3') Semi-Volatile Organic Compounds (SVOCs)	Benzo(a)anthracene	ND to 1.4	3 of 8	0.224
		Chrysene	ND to 1.6	3 of 8	0.4
		Benzo(b)fluoranthene	ND to 1.6	1 of 8	1.1
		Benzo(k)fluoranthene	ND to 1.4	1 of 8	1.1
		Benzo(a)pyrene	ND to 1.1	4 of 8	0.061
		Dibenzo(a,h)anthracene	ND to 1.3	0 of 8	0.014
	Surface Samples (0' - 1/2') PCB's	Aroclor 1260	ND to 400	7 of 16	1.0
Materials from Building Ruins / Wood Flooring & Residue	Semi-Volatile Organic Compounds (SVOCs)	Benzo(a)anthracene	14 to 1,400	10 of 11	0.224
		Chrysene	37 to 1,600	9 of 11	0.4
		Benzo(b)fluoranthene	ND to 1,200	7 of 11	1.1
		Benzo(k)fluoranthene	ND to 1,700	6 of 11	1.1
		Benzo(a)pyrene	ND to 1,400	9 of 11	0.061
		Dibenzo(a,h)anthracene	ND to 200	9 of 11	0.014

Table 1 (Cont.)
Nature and Extent of Contaminants of Concern

MEDIUM	CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of Exceeding SCGs or Background	SCG/ Background (ppb)
Groundwater	Volatile Organic Compounds (VOCs)	cis-1,2- Dichloroethene	62	1 of 20	5
		Trichloroethene	56	1 of 20	5
		Tetrachloroethene	40	1 of 20	5

Table 2
Remedial Alternative Costs; Individual Areas of Concern

Area of Concern No. / Description	Remedial Alternative No. / Description		Capital Cost	Annual O&M	Total Present Worth
No. 1/ Drums & Waste Piles	1	No Action	$0	$4,000	$30,000[2]
	2	Dispose Off Site	$1,150,000	$0	$1,150,000[2]
	3*	Recycle/Dispose	$850,000	$0	$850,000[2]
No. 2 / Building Ruins	1	No Action	$0	$4,000	$50,000[4]
	2	Stabilize	$1,000,000	$0	$1,000,000
	3*	Recycle and Dispose	$1,500,000	$0	$1,500,000[2]
No. 3 / Block Flooring	1	No Action	$0	$2,000	$25,000[4]
	2	Encapsulate	$880,000	$1,200	$890,000[3]
	3*	Dispose Off Site	$14,000	$0	$14,000[2]
No. 4 / Impacted Soil	1	No Action	$0	$2,000	$20,000[4]
	2	Soil Cap	$360,000	$1,200	$370,000[3]
	3	Asphalt Cap	$1,320,000	$1,200	$ 1,330,000
	4*	Dispose Off Site	$690,000	$0	$690,000
No. 5 / Underground Tanks	IRM	USTs Removal	$13,000	$0	$13,000[4]
No. 6 / Impacted Groundwater	1	No Action	$0	$3,000	$40,000[4]
	2*	Institutional Controls	$8,000	$3,000	$48,000[4]
	3	Collection/Treatment	$39,000	$6,600	$66,000[1]
No. 7 / Cooling Pond	1	No Action	$0	$2,000[4]	$30,000[4]
	2*	Decommission	$72,000	$0	$72,000[4]

Notes:

* Selected Alternative
1 Interest @ 7%; Project Life @ 5 Years
2 Interest @ 7%; Project Life @ 10 Years
3 Interest @ 7%; Project Life @ 20 Years
4 Interest @ 7%; Project Life @ 30 Years

Table 3
Remedial Alternative Costs
Combined Areas of Concern

Area of Concern No. / Description	Minimum Cost Alternatives Including No Action			Minimum Cost Alternatives Excluding No Action			Maximum Cost Alternatives			Cost of Selected Alternatives		
	Alternative		Total Cost	Alternative		Total Cost	Alternative		Total Cost	Alternative		Total Cost
	No.	Description		No.	Description		No.	Description		No.	Description	
No. 1 / Drums& Waste Piles	1	No Action	$30,000	3	Recycle/ Dispose	$ 850,000	2	Dispose Off-Site	$1,150,000	3	Recycle/ Dispose	$ 850,000
No. 2 / Building Ruins	1	No Action	$50,000	2	Stabilize	$1,000,000	3	Recycle/ Dispose	$1,500,000	3	Recycle/ Dispose	$1,500,000
No. 3 / Block Flooring	3	Dispose Off Site	$14,000	3	Dispose Off Site	$14,000	2	Encapsulate	$890,000	3	Dispose Off Site	$14,000
No. 4 / Impacted Soils	1	No Action	$20,000	2	Soil Cap	$370,000	3	Asphalt Cap	$1,330,000	4	Dispose Off Site	$690,000
No. 5 / Underground Tanks		IRM - USTs Removal	$13,000		IRM - USTs Removal	$13,000		IRM - USTs Removal	$13,000		IRM - USTs Removal	$13,000
No. 6 / Impacted Groundwater	2	No Action	$40,000	2	Institutional Controls	$48,000	3	Collection/ Treatment	$66,000	2	Institutional Controls	$48,000
No. 7 / Cooling Pond	1	No Action	$30,000	2	Decommission	$72,000	2	Decommission	$72,000	2	Decommission	$72,000
Total Costs			**$ 197,000**			**$ 2,367,000**			**$ 5,021,000**			**$ 3,187,000**

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Roblin Steel, North Tonawanda
Environmental Restoration Proposed Remedial Action Plan
North Tonawanda (C), Niagara County
Site No. B-00025-9

The Proposed Remedial Action Plan (PRAP) for the Roblin Steel, North Tonawanda Site was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repository on September 17, 2001. This Plan outlined the preferred remedial measures proposed for the remediation of the Roblin Steel, North Tonawanda Site. The preferred remedy consists of the following measures:

- asbestos removal and demolition of existing site buildings and building ruins, recycle/reuse of demolition materials where feasible, and off-site disposal where recycle/reuse is not feasible,

- removal and off-site disposal of contaminated wood block floors and residues contained within the site buildings,

- excavation and off-site disposal of contaminated site soils and imposition of a deed restriction and implementation of a soils management plan for areas of residual contamination exceeding soil cleanup guidance values, and annual certification that the implemented remedy has been maintained in accordance with the soils management plan,

- removal and off-site disposal of underground storage tanks, tank contents and associated contaminated soils,

- long-term monitoring of contaminated groundwater with imposition of a deed restriction to preclude future groundwater use, and

- closure of the site cooling pond including sediment, refuse and waste removal and off-site disposal, and demolition and/or filling of the structure with clean backfill material.

The release of the PRAP was announced via a notice to the mailing list, informing the public of the PRAP's availability.

A public meeting was held on October 4, 2001, which included a presentation of the Site Investigation (SI) and Remedial Alternatives Report (RAR), as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. No written comments were received.

The public comment period for the PRAP ended on November 5, 2001. This Responsiveness Summary responds to all questions and comments raised at the October 4 public meeting.
The comments received at the public meeting, with the NYSDEC's responses follow. Comments relating to a common topic are grouped.

Comment 1- Groundwater Contamination:

- The groundwater, has it migrated off site?
- How far did the contamination migrate toward the river?
- Could Buffalo Pumps be contaminating the site?

Response 1: As noted in the Site Investigation Report, there is a deep and a shallow groundwater table at this site. Both of these aquifers are at their highest elevations at a point near the center of the site, immediately west of the former wire mill building. Both aquifers flow radially from this point, primarily westward toward the Niagara River and southeasterly toward the intersection of Oliver Street and Eighth Avenue. The aquifers are separated by a relatively impermeable clay layer.

Groundwater impacted by volatile organic compounds (VOCs) is limited to the shallow aquifer in the southeast corner of the site. Three VOCs were found in shallow groundwater sampled in this area. For the three VOCs detected concentrations were approximately 10 times the State groundwater standard. The site investigation suggests that a current source of these VOCs does not exist and that the contamination observed is residual from earlier site releases. The lateral extent of VOC contamination in the southeast corner of the site is very limited, being less than 150 feet in length. On average, groundwater flow in the shallow aquifer is estimated to be less than 10 feet per year. The site investigation indicates that off-site migration of VOC contamination is not occurring. Given the characteristics of the shallow aquifer, the absence of a current VOC contaminant source and the relatively low concentrations of VOCs currently in groundwater, future off-site migration of the VOC contamination is not anticipated. Monitoring of the deep aquifer did not indicate VOC contamination. No threat of contaminated groundwater migrating from the site to the Niagara River has been identified.

In both the shallow and deep site aquifers, several metals were identified. While manganese, magnesium, iron, and sodium were found at levels exceeding SCGs, these elements are naturally occurring and their presence may not totally be due to past site operations. Typically, iron, magnesium and manganese are of aesthetic concern when an aquifer is used for water supply purposes. Other metals found at the site were generally below SCGs for both the shallow and deep aquifers.

Buffalo Pumps is not a suspected source of chemical contamination found at the Roblin Steel site. Given the flow patterns described above, groundwater would flow from the brownfield site toward the Buffalo Pumps property.

Comment 2 - Soil Contamination:

- The transformer areas should be concentrated on and cleaned up, will they be?
- Where will the contaminated soil go?
- Where will the waste materials go if the developer runs into contamination during redevelopment construction?

Response 2: Soils in the areas where transformers were located at this site were analyzed for polychlorinated biphenyls (PCBs), a compound formerly used in cooling oils in electrical transformers. Two of ten soil samples contain PCBs at levels that exceed soil cleanup goals. Both of these samples are from the general location of former Transformer A, located in the central portion of the site. During design of the selected remedy for the site, this area will be investigated further to delineate the extent of PCB contamination. Removal and off-site disposal of those contaminated soils found to exceed cleanup criteria will be included as part of the remedial actions planned.

Contaminated soils excavated from the site will be tested and properly disposed off-site. Based on analytical results, contaminated soils deemed to be non-hazardous waste will be disposed at an approved sanitary landfill. Contaminated soils deemed hazardous waste will be disposed at an approved secure landfill designed and operated for receipt of such waste.

Contamination left at the site after completion of remediation will exist in the form of residuals in site subsoils (i.e. below one foot depth) in some portions of the site. Part of the remedial program for the site will include the development of a Soils Management Plan to be utilized during redevelopment of the site. The plan will include but not be limited to designation of areas where residual contamination is expected and guidelines for testing, handling and disposal of soils excavated during redevelopment. Depending on the extent of contamination, impacted soils generated during redevelopment will be reused on-site or properly disposed off-site.

Comment 3 - Project Funding and Costs:

- Where did the money come from?
- Where are the monies to do the cleanup coming from?
- Can the foreclosed parties be held responsible for the costs?
- If the PRP pays, will it lower the City's cost?
- If you find more contamination, is the City liable for the additional costs?
- What is the City's share of the remedial costs going to do to our taxes?
- Were the engineering costs included in the remedial cost estimates?

Response 3: The work undertaken by the City of North Tonawanda to investigate the site and evaluate remedial alternatives was conducted through the New York State Environmental Restoration (Brownfields) Program. Under provisions of the State Assistance Contract executed pursuant to this program, the project is funded by the City of North Tonawanda, with New York State reimbursing the City for up to 75 percent of eligible costs. The source of funds for the State's share is the 1996 Clean Water/Clean Air Bond Act. With issuance of this Record of Decision, the

City has the option to apply for participation in the State Brownfield Program for the actual remediation of the site. Another State Assistance Contract would be executed between the City and State, with eligible remedial costs again being reimbursable at a rate of up to 75 percent. Potentially Responsible Parties (PRPs) could be held liable for all or some of the site contamination, which could presumably lower site investigation and remediation costs to both the City and State. However, recognizing that the Roblin Steel Company declared bankruptcy in 1987, no viable PRP for the Roblin Site has been identified.

Actual remedial costs could be higher or lower than estimated, depending to some degree on the levels of contaminants that ultimately need to be addressed. The costs will also be adjusted to reflect any payments for the project costs by the parties responsible for the contamination. It is the City's responsibility to obtain the funding for their share of the project costs, and review of the sources of these funds is not within the scope of the State's responsibility for this project.

Cost estimates for all the remediation alternatives are given in the Remedial Alternatives Report. These estimates include applicable engineering costs.

Comment 4 - Demolition of Buildings:

- Will the existing buildings be torn down?
- What about the asbestos, won't it fly around when the buildings are torn down?
- Why did you remove the rolling mill before removing these current buildings?

Response 4: Remediation will include demolition of all site buildings, proper disposal of asbestos containing material (ACM) off-site, and on-site reuse of the building rubble where possible and proper disposal of the remainder. Asbestos control and removal, which will be done in compliance with applicable laws and regulations, will be required either as part of or preliminary to building demolition, to prevent its release into the environment.

The former rolling mill building was razed by a contractor for the City, independent of the State Brownfield program. The salvage value of the steel used in the construction of the building provided an opportunity to demolish it for a substantially lower net cost to the City than its share would have been under the Brownfields Program.

Comment 5 - Effect of the Project on Site Redevelopment:

- Are you going to leave things on site? How will that affect future use?
- What institutional controls will be put in place?
- Won't the deed restrictions discourage redevelopment?
- Will there be any health risks after remediation?
- The best cleanup will draw the best developer, why not completely clean up to the highest level, wouldn't we get that money back with a higher sale price?

Response 5: Upon completion of site remediation all buildings, non-recyclable waste materials and the majority of contaminated soils will be removed from the site. What remains will be recyclable

materials which can be utilized during future redevelopment, residual subsoil contamination and localized groundwater contamination. It is also possible that some concrete building foundations will remain. The City has determined that the site is to be used for commercial and/or industrial purposes. The remedial action selected will render the site suitable for such development and be protective of public health and the environment.

The institutional controls that will be implemented as part of the remedial action will be in the form of a deed restriction that:

C prohibits the production and use of site groundwater, and

C requires implementation of a soils management plan.

The soils management plan will be prepared as part of the remedial action phase of the project, and is intended to provide clear guidance and direction for any future development that would involve residual soil contamination at the site.

For the industrial/commercial uses intended, the deed restrictions will not inhibit site development. To the contrary, it is expected that the remedial actions planned along with the liability protections provided through the State Brownfield Program, will enhance development; a primary goal of the Brownfield Program.

The remedial action planned for this site is a comprehensive means by which site development will be realized and protection of public health and the environment will be achieved. Contaminant residuals that will remain on-site after remedial actions are complete will include a small contaminated groundwater plume located in the southeast corner of the site, and contaminants in the site subsoils. All other waste will be properly handled and disposed. While subsoil residuals will remain on-site, it is expected that the groundwater plume will naturally degrade and ultimately disappear. Given that the planned remedial action adequately satisfies remedial goals and evaluative criteria, removal of every bit of site contamination will not provide for significant improvement in protection of public health and the environment nor enhance industrial/commercial development. It is anticipated that the sale or lease of the site after remediation will reflect market rates and values, and will not be significantly effected by residuals left on-site. As such, it is unlikely that the higher remedial costs incurred by a complete removal action would be offset by an increased property sale price or lease rate. It is reasonable to expect that the selected alternatives should attract excellent site development programs.

<u>Comment 6 - Remediation Construction Monitoring and Inspection:</u>

C Will there be any health risks during remediation?
- Is testing done continuously?
- Will the monitoring be done daily?
- Will a DEC person be there during construction?

Response 6: Prior to actual remedial construction at the site, a remedial action work plan and engineering design must be approved by the NYSDEC and New York State Department of Health (NYSDOH). A health and safety plan will be required as part of the work plan. The health and safety plan will address both on-site worker safety and community safety. This plan will include a Community Air Monitoring Program (CAMP) which will require air monitoring of contaminants potentially released from the site during remediation. The CAMP will require air monitoring, include contaminant action levels, and require preventative measures as necessary to prevent off-site contaminant releases during construction. Air monitoring provided in the CAMP will be continuous during times that there is a potential for contaminant releases (for example during contaminated soil excavations). A program for particulate and dust suppression and control will be developed under provisions of NYSDEC Technical and Administrative Guidance Memorandum (TAGM) No. 4031. A NYSDEC construction inspector will be present at the site during various phases of the project. Depending on the nature and extent of work being performed during these phases, inspection will be periodic or continuous. In addition, inspections by the NYSDEC project manager and NYSDOH representatives will be conducted. During the project, continuous inspector oversight by the City and/or it's consultant will be provided. Close communication and coordination between NYSDEC and the City of North Tonawanda will also be maintained for the duration of the project.

Comment 7- Effects of the Remediation Construction:

- When will the remedial work start and when will it be finished?
- Will there be any local traffic disruption?

Response 7: It is anticipated that the City of North Tonawanda will participate in the State Brownfields Program for remediation of the Roblin Steel site. The process for participating in the remedial phase of this program is generally similar to that undertaken for the Site Investigation. A definitive time table will not be established until the Brownfield application is approved, a remedial action work plan is accepted and a State Assistance Contract is executed. However, it is the Department's understanding that the City is anxious to move forward into the remedial phase of the project. Given this, remedial construction could commence in 2002 and be completed in 2003. During construction, local traffic activity is expected to increase to the extent typical for a project of this magnitude, but the impact should be minimal. The remediation construction specifications typically provide for appropriate traffic control measures.

Comment 8 - Underground Storage Tanks:

- How many and where were the underground storage tanks?

Response 8: Four underground storage tanks were removed from three locations on the site. The three locations are in the northern half of the site and are depicted in Figure 3 of the Record of Decision. The tanks were removed as an interim remedial measure during the Site Investigation phase, and are discussed in the May 2001 Tank Closure Report.

APPENDIX B

Administrative Record

ADMINISTRATIVE RECORD

Roblin Steel, North Tonawanda
Environmental Restoration Proposed Remedial Action Plan
North Tonawanda (C), Niagara County
Site No. B-00025-9

The documents listed below are the references used for the preparation of this Record of Decision:

Ecology and Environment Engineering, P.C., June 1989: Phase I Investigation; Prepared for the NY State Dept. of Environmental Conservation

Ecology and Environment Engineering, P.C., February 1995: Preliminary Site Assessment; Prepared for the NY State Dept. of Environmental Conservation

Stearns & Wheler, LLC, May 2000: Site Investigation Report; Prepared for the City of North Tonawanda, NY

Stearns & Wheler, LLC, May 2001: Tank Closure Report; Prepared for the City of North Tonawanda, NY

Stearns & Wheler, LLC, May 2001: Remedial Alternatives Report; Prepared for the City of North Tonawanda, NY