

# Remedial Closure Report Roblin Steel Site Remediation

City of North Tonawanda,  
Niagara County, New York

December 2005

**REMEDIAL CLOSURE REPORT  
ROBLIN STEEL SITE REMEDIATION**

**CITY OF NORTH TONAWANDA  
NIAGARA COUNTY, NEW YORK**

Prepared for  
City of North Tonawanda

Prepared by  
STEARNS & WHEELER, LLC  
Environmental Engineers and Scientists  
University Center Suite 100  
415 North French Road  
Amherst, NY 14228

December 2005

Project No. 20143

# ROBLIN STEEL SITE REMEDIATION COMPLETION REPORT

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Q Impacted Soil Delivery Disposal Receipts  
R Sludge Delivery Disposal Receipts  
S Post Site Remediation Monitoring and Maintenance Field Checklists  
T As-Built Plans

## CERTIFICATION OF PROJECT COMPLETION

### 1996 NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION CLEAN WATER CLEAN AIR BOND ACT

Project Number: 98-5

Municipality: City of North Tonawanda

County: Niagara

Name of Project: Roblin Steel Remediation

Location: Oliver Street and East Avenue, North Tonawanda, New York

Project Description: A 23-acre site remediation funded under the NYSDEC Brownfields Redevelopment Program was completed in 2 Phases. Demolition and removal of existing building structures, concrete foundations and environmental remediation were completed. Site remediation included the crushing of concrete foundations for reuse and the excavation and removal of impacted soils, sludge, and surface water.

Construction of the above project must be under the supervision of a person or firm licensed to practice professional engineering in the State of New York, as required under the Education Law.

Date Construction Started: April 24, 2003

Date of Completion: June 29, 2005

I certify that the construction of the above project including environmental mitigating measures, if any, was completed in accordance with the NYSDEC approved plans and specifications or approved amendments thereto and was under the supervision of a professional engineer licensed in New York State.



(Signature and Seal of Supervising Engineer)

11/21/05  
(Date)

Engineering Firm: Stearns & Wheeler, LLC

Address: 415 No French Road, Amherst, NY 14228

## **CHAPTER 1 INTRODUCTION**

### **1.1 LOCATION**

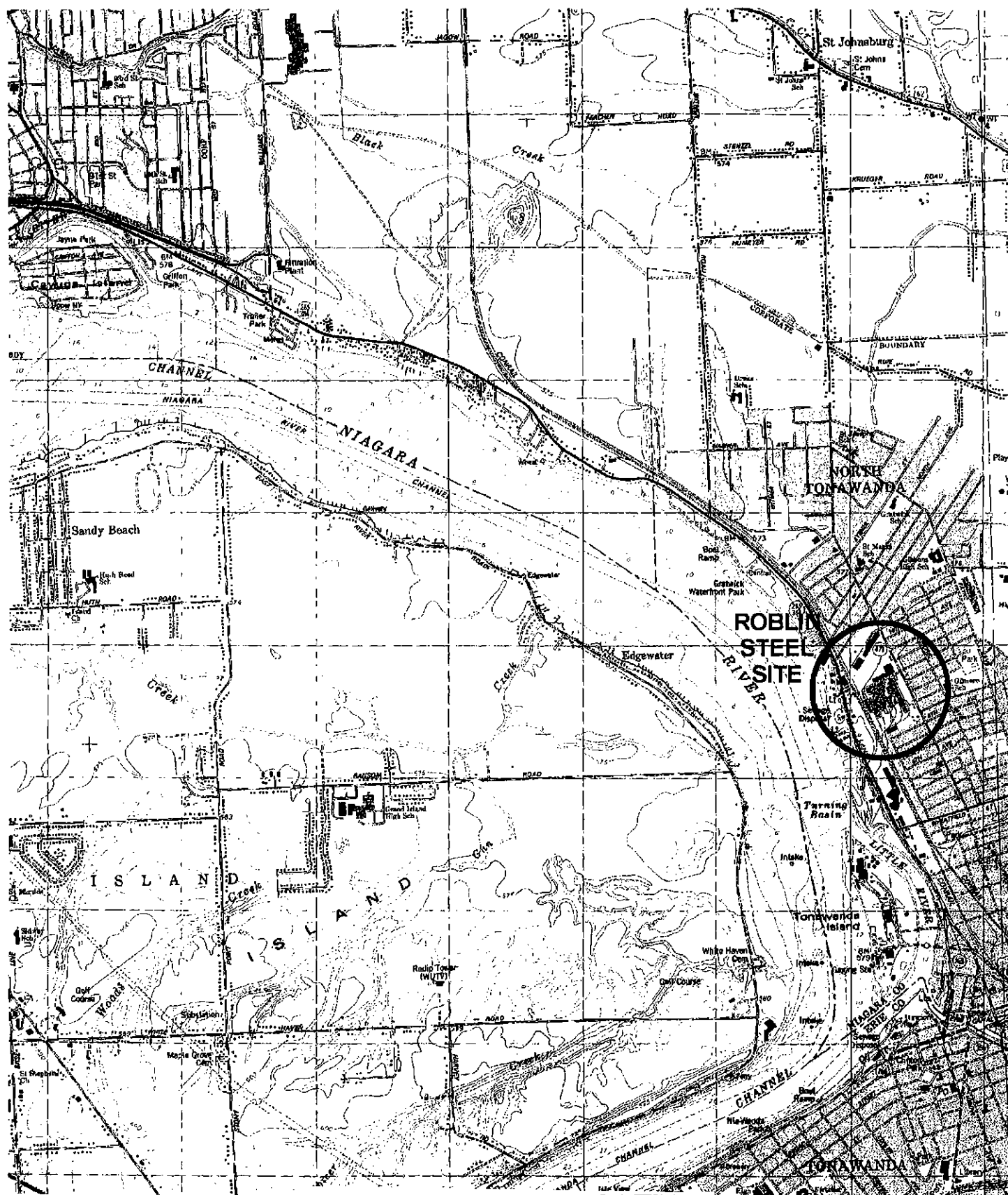
The Roblin Steel site was an inactive steel processing manufacturing facility in the City of North Tonawanda, Niagara County, NY. The site is bounded by East Avenue on the north, Oliver Street on the east, and Eighth Avenue on the south, and the Conrail-Erie Lackawanna railroad tracks on the west. One building, located on a 4.9-acre parcel adjacent to the northwest part of the site, represents an active facility occupied by Armstrong Pumps since 1985. In 1997, through tax delinquency, the City of North Tonawanda obtained the former Roblin Steel facility. A site location map is presented on Figure 1.

### **1.2 SITE HISTORY**

Manufacturing operations were reported to have begun at the site in 1918, when the Buffalo Bolt Company owned the property. Roblin Seaway Industries, Inc. (a precursor to Roblin Industries, Inc.) purchased the manufacturing plant and property in 1961. From 1977 to 1987, Confer Plastics leased two long, narrow buildings on the west side of the site. In 1985, Roblin Industries sold a 4.9-acre portion of the site and the building on that portion of the site to Armstrong Pumps, Inc. In 1987, Roblin Industries declared bankruptcy, and all activities ceased at the site. In 1989, the property owned by Roblin Industries was divided. As a result of foreclosure for back taxes, the City of North Tonawanda assumed ownership of 11.5 acres of the former Roblin Steel site in 1992. At that time, Banac Enterprises owned the remaining 11.8 acres of the Roblin site. In 1995, this portion of the site was being used as an automobile salvage operation. The City of North Tonawanda currently owns the 11.8-acre parcel previously owned by Banac Enterprises, also acquired through foreclosure actions.

During the time that Roblin Industries owned the site from 1961 to 1987, operations taking place in the buildings included hot rolling of steel rods and bars, sulfuric acid pickling of steel coils, lime and oil coating of steel coils, annealing of steel coils, wire drawing and melting, and casting of nickel. Wastes were regularly staged near the center of the southern portion of the site prior to being sent off site for disposal. Wastes generated at the site included sludge from the phosphate tank, iron oxide scale, lime, spent pickle liquor, and waste oil.

**2**



5/31/01

### **1.3 SITE CONDITIONS**

Most of the site consisted of empty buildings in various states of disrepair and overgrown undeveloped property. Confer Plastics previously occupied two buildings on the western portion of the site, both of which had been burned prior to remediation efforts. The location of one of these buildings was identified only by the presence of piles of bricks, while the other building still had sections of walls standing.

The western portion of the rolling mill building that remained from the demolition project completed in 2000, contained flooring which consisted of stained, contaminated wood blocks. The block flooring had lifted off from the sub floor due to moisture. Trenches in the building appeared to be full of sediment/sludge. A soil floor comprised the eastern side of the building. Concrete-lined trenches were present in this portion of the building. Concrete-lined pickling tanks were also present in the northwest portion of the mill building.

Waste piles, some from the previous operations at the site (identified as slag and scale during previous site investigations), and some containing building rubble/materials, were present on the western and southern sides of the site. Drums of various materials were present outside, near the southeast corner of the former mill building, and inside the large brick building, located in the center of the site. Transformer cases were adjacent to the southeast side of the former mill building. Most of the area not covered by buildings or heavy vegetative cover contained areas of black, stained soil. A concrete reservoir from a former quenching pond was located in the approximate center of the site, south of another burned brick building. Pre-construction conditions and features are presented on Figure 2.

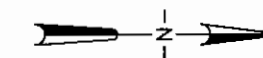
### **1.4 REGULATORY HISTORY**

In 1998, Stearns & Wheler, LLC was contracted by the City of North Tonawanda, New York to provide engineering services and perform a Site Investigation/Remedial Alternatives Report (SI/RAR). The SI report and the preliminary RAR report were completed in 1999. In 2002, Stearns & Wheler developed a phased project approach for the site remediation based on the 1999 SI/RAR findings and earlier investigation completed in 1995 by the New York State Department of Environmental Conservation (NYSDEC). Based on the conclusions of the Site Investigation Report, the following seven Areas of Concern (AOC) were identified. The Remedial Alternatives

# MAP REFERENCES:

- Map entitled "Part of Lots 74 & 75, Mile Reserve, City of North Tonawanda" Dated November 20, 1985 R.L. Sonnenberger, L.S. and filed with deed of Liber 1978 at page 126.
- Map entitled "Tronion, addition to the Village of North Tonawanda" dated 1891 by D. C. Gillette, C.E. and filed 27 April 1891 in map book 16 at page 1578.

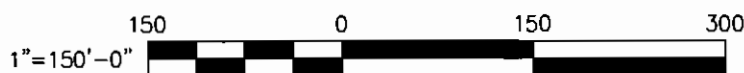
## LEGEND



- = PROPERTY LINE
- = SITE BOUNDARY AND CONTRACT LIMITS
- [Pattern: Dotted] = EXISTING CONCRETE FOUNDATIONS
- [Pattern: Diagonal lines] = EXISTING BUILDING
- [Pattern: Horizontal lines] = BUILDING TO BE REMOVED AS ACM
- [Pattern: Stippled] = CONCRETE FLOORING
- [Pattern: Brickwork] = WOOD FLOORING TO BE REMOVED AS ACM
- [Pattern: Dotted with cross-hatch] = DEBRIS PILES TO BE REMOVED
- [Pattern: Grid] = COLLAPSED BUILDING TO BE REMOVED
- [Pattern: Cross-hatch] = IMPACTED SOIL AREA
- ACM = ASBESTOS CONTAINING MATERIAL
- [Pattern: Stippled with dots] = 4" RUN-OF-CRUSHER
- [Pattern: Vertical lines] = IMPACTED GROUNDWATER
- [Pattern: Stippled with dots] = WASTE PILES

AREAS OF CONCERN	
AREA DESIGNATION	CONCERN
AOC-1	MISCELLANEOUS DRUMS AND WASTE PILES
AOC-2	BUILDING RUINS
AOC-3	WOOD BLOCK FLOOR W/ IMPACTED SOIL/RESIDUE
AOC-4	IMPACTED SOIL
AOC-5	UNDERGROUND STORAGE TANKS
AOC-6	IMPACTED GROUNDWATER
AOC-7	COOLING (QUENCH) POND

## SITE PLAN SCALE: 1"=150'-0"



**Stearns & Wheeler, LLC**  
Environmental Engineers and Scientists

AMHERST, NEW YORK

DATE: 11/05 JOB No.: 20143

CITY OF NORTH TONAWANDA  
ROBLIN STEEL SITE

FIGURE 2  
SITE PLAN



Report addresses, defines and selects the most feasible remedial alternatives for the areas of concern:

AOC-1	Miscellaneous Drums and Waste Piles
AOC-2	Building Ruins
AOC-3	Wood Block Floor with Impacted Soil/Residue
AOC-4	Impacted Soil
AOC-5	Underground Storage Tanks
AOC-6	Impacted Groundwater
AOC-7	Cooling (Quench) Pond

## **1.5 SEQUENCE OF WORK**

The project was divided into two separate contracts due to the condition of the building ruins. Expedited demolition activities under emergency circumstances was required at the site responding to building conditions in close proximity to the adjacent, occupied business, Armstrong Pumps. The unsafe building conditions were the result of a fire in September 2002, which caused concern to the insurance carrier for Armstrong Pumps. Therefore, demolition of the site buildings and removal of asbestos containing materials was completed under the Phase I Contract. Remediation of site contamination and concrete foundation demolition was completed as Phase II.

## **1.6 REMEDIATION ACTIVITIES**

Several waste removal operations have taken place since operations ceased at the site. In 1990, 82 drums identified at the site were overpacked and characterized. Six (6) of these drums were disposed off site in 1992.

In 1992, a transformer was cleaned out and PCB-impacted soil from the area surrounding the transformer pad was excavated and disposed off site. The former wire mill building was demolished in 2000 so that the steel in the structure could be salvaged. An asbestos survey was completed prior to demolition.

In 2001, one (1) 2,000-gallon and two (2) 5,000-gallon steel storage tanks (USTs) were removed from the site. In addition, one (1) 10,000-gallon fiberglass storage tank was excavated and demolished on-site. Approximately, 30CY of contaminated soil related to the UST removal remained on site for later removal and disposal off-site during the Site remediation activities scheduled for 2003 to 2004. Underground storage tank removal and disposal activities can be referenced in the Tank Closure Report dated May 2001.

The City received a “brownfields” redevelopment grant through the 1996 New York State Clean Water/Clean Air Bond Act to facilitate the rehabilitation of the site. Site buildings were condemned by the City of North Tonawanda due to the deteriorated condition of building structure which posed a safety concern to the public. Immediate demolition of site buildings was required due to structural damage and the close proximity of the existing adjacent business known as Armstrong Pumps. This work was performed under Phase I construction and completed in 2003. Phase I construction also involved remediation of Areas of Concern, AOC 1, AOC 2 and AOC 3.

Phase II was undertaken in 2004. Final completion occurred during June 2005. Phase II work included the remediation of the site as recommended in the Remedial Alternatives Report (RAR), Proposed Remedial Action Plan (PRAP) and Record of Decision (ROD). Phase II construction involved remediation of the impacted soil, groundwater, and remediation of the former quench pond. Once the site was remediated, the site can be returned to beneficial use without posing an unacceptable risk to new occupants, neighbors, or the environment in the vicinity of the site.

## **CHAPTER 2**

### **PHASE I**

### **REMEDIAL ACTIVITIES**

#### **2.1 GENERAL**

Phase I remedial activities included the following Areas of Concern:

- Area of Concern No. 1, Miscellaneous Drums and Waste Piles.
- Area of Concern No. 2, Building Ruins.
- Area of Concern No. 3, Wood Block Floor with Impacted Soil/Residue.

The goal of Phase I work was to demolish the site buildings to surface grade. Phase II work followed Phase I, and addressed the remaining areas of concerns to achieve the site cleanup goals as required by the ROD.

#### **2.2 DEPARTMENT OF LABOR SUBMITTAL**

Building demolition conformed to applicable codes for demolition of structures and Industrial Code Rule (ICR) 56. Plans and specifications for asbestos demolition were prepared in accordance with ICR 56. Relief from ICR 56 was sought through Applicable Variance 106 (AV 106) titled "Asbestos Demolition of Condemned Buildings or Structures". New York State Department of Labor (NYSDOL) requires Asbestos Project Notifications to be submitted prior to commencement of any construction activities. The Roblin Steel Project was submitted to the NYSDOL as several small projects which were identified as Areas A through G.

#### **2.3 SITE CLEARING AND GRUBBING**

Site clearing was necessary to uncover debris, wastes and building ruins since trees, heavy brush, and grasses had grown which limited visibility. Shrubs and grasses were bush hogged. Trees and stumps of three inches and larger were cut and removed from the site. There was miscellaneous surface debris scattered through out the site which was collected and staged for disposal.

Site clearing operations resulted in debris which included: abandoned vehicles, abandoned heavy equipment, chain link fencing, utility poles, railroad ties, scrape metal, tires, and miscellaneous

debris. Collected debris contained no asbestos containing materials (Non-ACM) and was staged separately from asbestos containing materials (ACM). Wastes identified as C&D were transported for disposal to Shultz Landfill located in Cheektowaga, New York.

Recyclable steel materials were segregated from other surface debris and disposed offsite as recyclable steel materials. Tires were segregated and staged from other debris for off-site disposal.

Drums found during clearing operations were moved to the designated staging area. Empty drums were crushed and disposed off site as non-ACM materials. Several concrete filled drums were encountered and disposed offsite with other surface debris.

## **2.4 HEALTH AND SAFETY**

Medical examinations were completed for contractor employees working within exclusion zone areas as specified under OSHA in 29 CFR 1910.120 and 29 CFR 1926.65, the Hazardous Waste Operations regulations and in 1910.134, the Respiratory Protection regulations.

Contractor employees working within exclusion zone received the OSHA initial 40-hour health and safety training prior to on-site activities, in accordance with 29 CFR 1910.120 (e) and 29 CFR 1926.65(e) as well as applicable employees who received yearly 8-hour refresher courses.

Workers assigned to complete asbestos-related duties, including the Project Monitor, were properly trained in accordance with ICR 56. Applicable employees received an annual refresher course and maintain current NYSDOL asbestos certifications for their job assignment.

### **2.4.1 AIR MONITORING AND SAMPLING**

Throughout the duration of the demolition phase, a NYSDOL Certified Asbestos Project Monitor conducted area asbestos air sampling in accordance with the standards referenced in AV 106, ICR 56 and applicable local, State and Federal protocols. Prior to any asbestos abatement activities, background air monitoring was performed to obtain baseline airborne asbestos fiber concentrations under ambient conditions. Results of the baseline sampling were an indicator of ambient air quality at the site.

During asbestos abatement, area sampling was performed to determine if satisfactory (asbestos) airborne fiber concentrations are maintained as required by the removal specifications and applicable regulations. To measure fiber concentrations, the collection of air samples began during the project preparation and continued during demolition on a daily basis until the work was completed in specific area. Air samples were collected inside the work area as regulated personal samples. Area samples also included perimeter air samples in accordance with AV 106 to determine how well asbestos fibers are being contained within the work area. Final clearance air sampling was performed with a visual inspection at the conclusion of the project to ensure complete removal and confirm regulated airborne asbestos fiber concentrations have been reduced to an acceptable level.

Sample analysis was conducted at an off-site laboratory accredited by the National Institute for Occupational Safety and Health (NIOSH) and the New York State Environmental Laboratory Approval program (ELAP). Samples were analyzed using primarily Phase Contrast Microscopy (PCM) and the National Institute for Occupational Safety and Health (NIOSH) 7400 Method. Daily air monitoring results were posted.

Asbestos monitoring and sampling was conducted by AAction Environmental Services, Inc. and Foit-Albert Associates, Inc. Daily reports, air monitoring reports and analytical test results are presented in Appendix N. The following duties and responsibilities were completed through out the duration of the project.

1. Review the contractor's method of abatement and work area preparation.
2. Review the documentation of the contractor.
3. Verified all time and material charges were accurate.
4. Verified contractor adherence to contract specifications.
5. Verified contractor adherence to Federal, State and local regulations.
6. Performed daily inspections of the work area.
7. Performed a final inspection to assure no demolition debris remained.

As required by the Phase I Contract, the contractor implemented monitored an air monitoring program for fugitive particulate dust during construction activities following guidelines in the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4031. Perimeter air monitoring for particulates was performed by utilizing a MIE DataRAM Aerosol Monitor.

Continuous monitoring was setup on the perimeter of the site directly downwind from construction activities. The required action level of 150 ug/m<sup>3</sup> over the integrated period not to exceed 15 minutes was enforced. If the working site particulate measurement was greater than 100 ug/m<sup>3</sup> above the background level, additional dust suppression techniques were to be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. No exceedences of the action level were observed during construction and monitoring periods. Particulate monitoring reports are presented in Appendix O.

#### **2.4.2 DECONTAMINATION FACILITIES**

Decontamination facilities included an equipment pad and personnel decontamination trailer and wash station. The decontamination equipment pad was utilized to clean the truck body and tire treads of disposal trucks prior to leaving the site. The decontamination pad was equipped with pressure washing equipment and a water supply sufficient to spray clean materials and equipment. Wash water resulting from the spray cleaning operations was collected on an impervious liner and into a sump area. From this sump, wash water was containerized in a 3,000 gallon tank. Wash water generated from the decontamination pad was sampled and analytically tested for disposal requirements.

The decontamination trailer was utilized for personnel clothing changing into site dedicated personnel protective equipment. The trailer was equipped with showers and wash facilities.

#### **2.5 AREA OF CONCERN NO. 1 – MISCELLANEOUS DRUMS AND WASTE PILES**

Miscellaneous drums were located throughout the site within or adjacent to building ruins. Drums were visually inspected to determine the condition and quantity of material inside the drum. Drum contents were inspected by removing the drum lid or accessing the drum contents through the drum bung hole. Drum wastes were inventoried, labeled and categorized by waste type. Drums that contained wastes were moved to a designated staging area away from the proposed demolition operations. An existing concrete slab was utilized as the Site's designated drum staging area. Staged drums that had contents were sampled for disposal purposes.

Approximately 20 drums of waste oil, antifreeze and other materials were collected and staged for sampling during demolition work. The drums were staged in an abandoned automobile repair garage located in the southeastern corner of the site near the 9<sup>th</sup> Street access gate. The drum contents were sampled and tested. Analytical results are presented in Appendix C. After the contents of the drum wastes were characterized, drum contents were transferred into 10 new 55-gallon drum containers for off-site shipment. Drum wastes were transported by Radiac Environmental Services for disposal at Perma-Fix of Michigan located in Brownstown, Michigan. The waste disposal manifest is presented in Appendix M.

There was a total of six (6) waste piles present on site which included two (2) waste piles that resulted from the removal of underground storage tanks. The four (4) other waste piles remained from past industrial work which included mill scale and/or slag and miscellaneous building and household materials. One composite sample was collected from the waste piles and tested. Analytical results are presented in Appendix I. Waste pile locations are presented on Figure 2. Wastes were transported for disposal to Modern landfill located in Model City, New York.

## **2.6 AREA OF CONCERN NO. 2 – BUILDING RUINS**

There were several vacant buildings in various deteriorated condition on the Roblin site. Some of the buildings were burned prior to remedial activities and consisted of brick piles or portions of walls left standing. The City of North Tonawanda was required to condemn all site buildings prior to building demolition, removal and disposal. All site buildings were demolished to grade. Demolition included building structures that contained asbestos materials. Steel materials were removed and decontaminated for later salvage and recycling. In addition, a 100 foot brick chimney was demolished during the last stages of the building demolition.

Surface and below grade concrete was left in place. Concrete demolition was performed in Phase II, and included all site concrete foundations, piers, ramps, docks, and slabs.

### **2.6.1 DEMOLITION AND DISPOSAL OF ASBESTOS CONTAINING MATERIALS (ACM)**

Building demolition conformed to applicable codes for demolition of structures and under Industrial Code Rule (ICR) 56. Plans and specifications for asbestos demolition were prepared in accordance with ICR 56. Relief from ICR 56 was granted through Applicable Variance 106 (AV

106) titled "Asbestos Demolition of Condemned Buildings or Structures". Pursuant to the conditions stated in AV 106, a condemned, structurally unsound asbestos containing building may be felled without performing an asbestos survey or the remediation of Asbestos Containing Materials (ACM) prior to proceeding with building demolition. Non-Asbestos containing demolition debris was disposed off-site in a permitted solid waste landfill.

As part of the provisions of AV 106 state, the entire demolition area including demolition debris, structural members, barrier components, earth surfaces, and similar items were considered asbestos containing material (ACM). All ACM was considered friable and was kept completely saturated at all times during demolition operations. Wood block flooring and associated impacted soils that existed within the site buildings were also considered ACM waste.

In conformance to the conditions stated in AV 106 and the various state of disrepair/deterioration of the property, there was no additional sampling of suspect ACM at the site. The development of plans and specifications for asbestos demolition at the Roblin Steel Site was based on the original Stearns & Wheler Asbestos-Containing Materials Survey dated March 1993.

ACM was loaded directly from the demolition sites where segregation of materials occurred. Trucks were loaded and decontaminated prior to entering public roadways. ACM was hauled for disposal to Minerva Enterprises, 900 Minerva Road located in Waynesburg, Ohio.

## **2.6.2 MATERIAL RECYCLING**

Steel materials were recovered as recyclable material. Steel materials that possessed value as a recyclable material were segregated to the designated staging area away from demolition operation and stockpiled prior to removal to an approved material recycler. Salvageable steel materials were washed and decontaminated in accordance with ICR 56 and AV 106. Once the steel was cleaned and decontaminated, the material was shipped to Angas Scrap Iron & Metal Inc. located in Niagara Falls, New York.

## **2.6.3 MATERIAL REUSE**

Brick material from the building structures was salvaged when possible for later use during the Phase II construction activities. Outside brick walls were spray washed prior to demolition and removed with methods to maintain separation of decontaminated brick materials from ACM



materials inside of the building structures. This brick material was again spray washed and decontaminated prior to being staged near the decontamination area. The brick material remained onsite for reuse as backfill during the Phase II construction activities.

## **2.7 AREA OF CONCERN NO. 3 – WOOD BLOCK FLOOR WITH IMPACTED SOIL/RESIDUE**

Wood block floors existed in the rolling mill building and the large brick main building to the south of the Armstrong Pump's existing building. The majority of the blocks were approximately 3 to 4-inches thick. Impacted soils/residue appears to be black discolored sand between the existing concrete floor and the wood blocks. The wood block flooring and impacted soil/residue was removed as part of demolition operations. Wood block flooring locations are presented in Figure 2. In accordance with the Asbestos Variance 106, all materials including the wood block flooring and associated residue were considered as ACM.

The wood block flooring rested on concrete slabs. Flooring and impacted soil was scraped, cleared, staged and disposed off-site as ACM. The existing concrete pad acted as an ACM containment barrier to subsurface soils. The concrete surface was decontaminated after demolition by spray washing. This decontamination prepared and cleaned the concrete surfaces for removal and crushing operations associated with Phase II demolition construction. In some instances, wood flooring was present directly on soil where concrete flooring did not exist. After wood flooring was removed, underlying soils were scraped and removed to a depth of 6-inches.

## **2.8 ABOVE GROUND STORAGE TANKS**

Two (2) above ground steel tanks of approximate volumes of 10,000-gallon and 15,000-gallon rested on concrete saddles. These above ground tanks required decommissioning prior to removal. During inspection the tanks were empty and dry with a minor amount of material in the tank bottom. The inside of the tank was cleaned and wash water containerized in a nearby concrete pit. The tank was then cut into salvageable pieces for removal to a recycling facility. The containerized wash water was held in the existing concrete pit area and removed during Phase II as referenced in Section 4.2.2, Above Ground Tank Decommissioning. Analytical results are presented in Appendix D.

Sediments, sludge and liquids that existed within the site buildings to be demolished were removed as part of Phase II construction activities. These potentially contaminated materials were addressed after the associated buildings were removed to provide safe access for sampling personnel.

## **2.9 TRANSFORMERS**

Three (3) transformers were present at the Oliver Street electrical service access mounted on a concrete pad. The transformers were intact with no visible oil leakage. In addition, two (2) transformers were attached to abandoned poles proposed to be removed. Work was required to lower the transformers from the proposed pole. The transformer oil was sampled and tested for PCBs. No PCBs were detected based on analytical test results. Transformer locations are presented in Figure 2. One (1) composite sample was collected from the five (5) transformers and tested for PCBs and flash point. Analytical results are presented in Appendix H. Transformer oil totaling 650-gallons was disposed off-site at Environmental & Industrial Contracting Services, Inc. located in Niagara Falls, New York. The transformer oil waste disposal manifest is presented in Appendix M.

## **2.10 GALBESTOS DISPOSAL**

Galbestos building material was encountered during site clearing and staging of existing brick piles. Galbestos material was segregated from brick piles. The staged brick remained on site to await use as backfill material of the quench pond during Phase II construction. The galbestos material was sampled and tested for PCBs. No PCBs were detected in analytical test results. Analytical results are presented in Appendix K. The non-friable galbestos material was removed and included in the transportation and disposal of ACM to Minerva Enterprises located in Waynesburg, Ohio.

## **2.11 TIRE DISPOSAL**

Approximately 100 tires were collected and staged during site clearing and demolition operations. Tires were staged and disposed off-site to Modern Landfill located in Model City, New York.

## **CHAPTER 3 PHASE II REMEDIAL ACTIVITIES**

### **3.1 GENERAL**

Phase II remedial activities included the following Areas of Concern:

- Area of Concern No. 2 - Building Ruins.
- Area of Concern No. 4 - Impacted Soil.
- Area of Concern No. 5 - Underground Storage Tanks.
- Area of Concern No. 7 - Cooling (Quench) Pond.

Phase II work followed Phase I, and addressed the remaining areas of concerns to achieve the site cleanup goals as required by the New York State Department of Environmental Conservation Record of Decision. Phase II construction began June, 2004 and was substantially completed in October, 2004 by Cambria Contracting, Inc. Additional work was added to the Phase II contract which extended the Phase II contract completion date to June 2005.

### **3.2 AREA OF CONCERN NO. 2 – BUILDING RUINS**

Phase I construction completed building demolition and ACM removal. Phase II construction prepared the site for industrial redevelopment. Concrete slab, piers, ramps, docks and building foundations were excavated and crushed for reuse as on-site backfill. Concrete was removed and staged on-site for crushing. Concrete was crushed to meet the NYSDOT 304-2.02 Sub Base Coarse, Type 4 Stone specification. Concrete reinforcing steel was removed, segregated and salvaged. Building slabs, foundations and structure locations are presented in Figure 2.

The excavations left from the removal of foundations and pit areas were filled with the crushed concrete material. Interior roads were improved with the crushed concrete material to access and ready the site for future redevelopment.

Brick staged from Phase I work was used as on-site fill to backfill the quench pond area after concrete foundations were removed. Site roadways were improved with the staged brick

materials and used as a road foundation prior to topping the roads with the concrete crushed fill material.

### **3.3 AREA OF CONCERN NO. 4 – REMEDIATION OF IMPACTED SOIL**

Six (6) impacted soil areas were identified for removal and off-site disposal during Phase II work. Locations of the impacted soil areas are presented in Figure 2. Each impacted soil area was sampled and analyzed for TCLP testing. Each TCLP sample consisted of a composite of five (5) grab samples. The following TCLP samples were collected from each impacted soil area. TCLP analytical testing was completed and results are presented in Appendix E.

- Area 1: (3) TCLP samples
- Area 2: (1) TCLP sample
- Area 3: (1) TCLP sample
- Area 4: (1) TCLP sample
- Area 5: (1) TCLP sample
- Area 6: (1) TCLP sample

Additional sampling and testing was completed to further delineate the bounds of impacted area of Areas 2 and 3. Area 2 was a large area that was located south of the quench pond and north of the constructed decontamination pad. Analytical testing included BTX, PAHs, Total Lead and Total PCBs. Ten (10) samples were collected on a 100-foot x 100-foot grid to a depth of 12 inches. No changes in area perimeter boundaries were made. All proposed impacted soil was removed and disposed off-site. Analytical results are presented in Appendix E.

Area 3, identified as the PCB impacted area, was located north of the quench pond. Ten (10) samples were collected to properly identify the PCB waste on a 35 feet x 35 feet grid to a depth of 12-inches and analyzed for Total PCBs. Soils were excavated to a depth ranging from 12 to 18-inches. The soil was excavated from the Area 3 into a lined transportation truck to Modern Landfill located in Model City, New York. After excavation of the PCB impacted soils, confirmatory soil samples were collected to confirm no further PCB impacted soils were present. The excavation was left open until test results were received. Analytical results are presented in Appendix E. PCB impacted soil delivery disposal receipts are presented in Appendix P.

After sampling analyses were reviewed, each impacted area was cordoned off to identify the impacted soil area limits. The impacted soils were excavated to a minimum of 12-inches. The excavated materials were transported for disposal to Modern landfill located in Model City, New York. Impacted soil disposal receipts are presented in Appendix Q.

### **3.4 AREA OF CONCERN NO. 5 – UNDERGROUND STORAGE TANKS**

Underground storage tanks (USTs) were located and removed from the site under a separate interim remedial action prior to Phase I construction. In 2001, three (3) USTs were removed from the site. Previous UST locations are presented on Figure 3. Approximately 30 cubic yards of contaminated soil remained on site as a result of tank removal excavations. Impacted soil was removed as two waste piles under Phase I construction and Area of Concern No. 1.

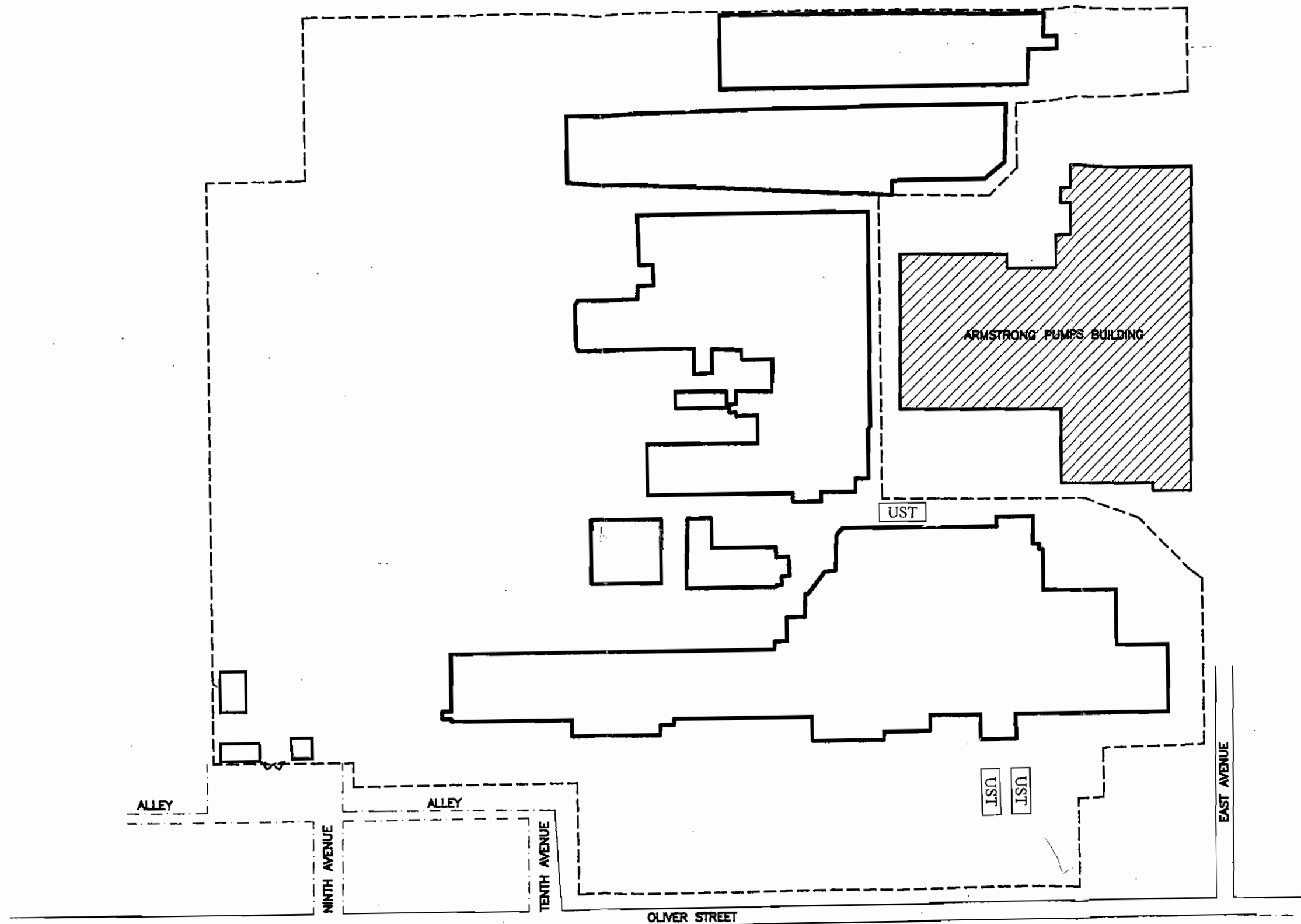
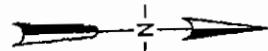
### **3.5 AREA OF CONCERN NO. 6 – IMPACTED GROUNDWATER**

Area of Concern No. 6 was not included in Phase II construction since no remedial plans were required. For reporting purposes and to present a clear understanding of the entire site remediation, Area of Concern No. 6 has been included in this report. Groundwater in the southeast corner of the site has been impacted with low concentrations of chlorinated volatile organic compounds (VOCs). The location of the impacted groundwater is presented on Figure 2. Groundwater in this portion of the site presumably flows toward the combined sewer line that runs down the west side of Oliver Street at approximately the same elevation as the groundwater.

Deed restrictions prohibiting the installation of potable wells on the property will be enacted by the City of North Tonawanda. Groundwater monitoring is part of the NYSDEC Site's Operation, Monitoring and Maintenance Plan (OM&M). A contingency plan is included in the OM&M plan that provides emergency response and alternative remediation should future groundwater sampling indicate the degree of impact to groundwater or the extent of impacted groundwater significantly increases.

### **3.6 AREA OF CONCERN NO. 7 – COOLING (QUENCH) POND**

The quenching pond was drained of approximately six to eight-feet of water prior to removal of the sludge material. The location of the quenching pond is presented on Figure 2. The water from the cooling pond was pumped to the sanitary sewer after approval by the City of North



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ROBLIN STEEL SITE

**FIGURE 3**  
**UST TANK LOCATIONS**

Tonawanda Wastewater Treatment Plant. The City of North Tonawanda required analytical testing prior to acceptance of water. Surface water was sampled and analytical test results were accepted prior to discharge to the sewer. Analytical results are presented in Appendix F.

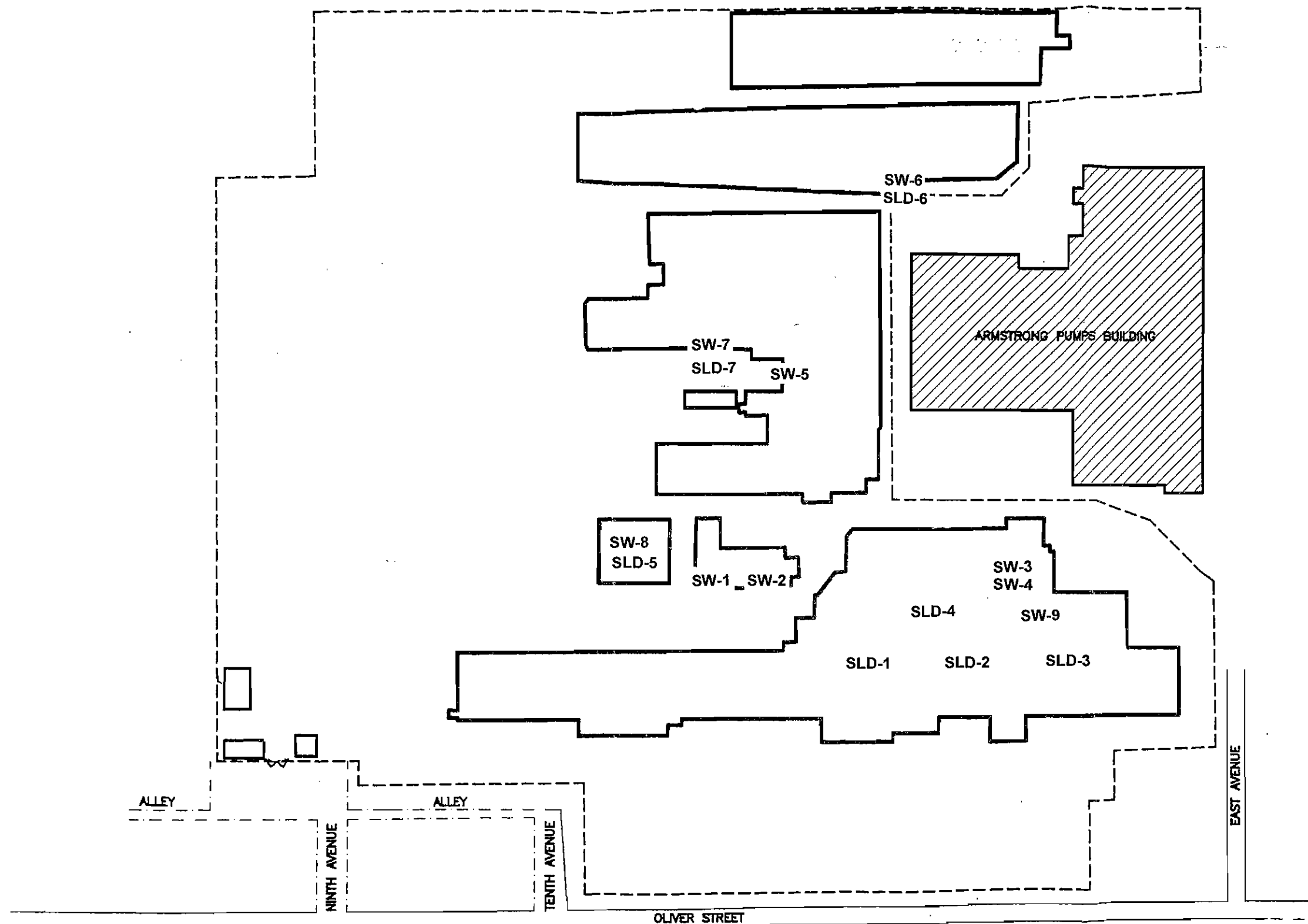
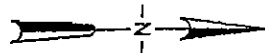
Further dewatering was accomplished by forming a sump area to drain the bottom sludge material. Sludge was dried to a consistency where removal was possible by excavator. Sludge was removed and placed on a curbed 40-mil HDPE liner to form a drying bed. After the sludge reached a 20 percent solids concentration, the sludge was hauled for disposal to Modern Landfill located in Model City, New York. Sludge disposal receipts are presented in Appendix R.

Sludge was composite sampled and analytically tested for Full TCLP prior to disposal for acceptance by the disposal facility. Sludge sample, SLD-5, represents five (5) grab samples composited into one (1) sample. Analytical results defined the sludge waste as non-hazardous. Analytical results are presented in Appendix G. After bottom sludge was removed from the pit area, pit concrete walls and floor were scraped and pressure washed.

Concrete pit walls were excavated and staged with other concrete for crushing. The concrete floor was broken into approximately 12-inches pieces and left in place. The pit area was then backfilled with staged bricks left from Phase I and topped with crushed concrete. A cross section of the backfilled materials is presented in Appendix T on the Site Record Drawing.

### **3.7 SURFACE WATER REMOVAL**

Surface waters that existed within the site buildings were sampled and tested after the removal of Phase I building structures. Sampling and testing was in accordance with requirements from North Tonawanda Wastewater Treatment Plant. All surface waters from site pits as identified as SW-1 through SW-9 were pumped to sewer after approval by North Tonawanda Wastewater Treatment Plant. Surface waters from SW-3 and SW-4 were cleared of the floating oil prior to discharge. Surface waters from SW-6 and SW-7 were approved for disposal to North Tonawanda Wastewater Treatment Plant after removal of oil substances from top of each pit and re-sampling and testing pit waters. Floating oil was removed with absorbent pads. Surface water sample locations are presented on Figure 4.



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**FIGURE 4**  
SLUDGE/SURFACE WATER SAMPLE LOCATIONS



The majority of surface water removal and discharge to sewer was generated from the quench pond (SW-8). Approximately, 580,000 gallons of surface water was removed from the quench pond. Analytical results are presented in Appendix F.

### **3.8 SLUDGE REMOVAL**

Sludge was removed site pits that existed within the site buildings were sampled and tested after the removal of Phase I building structures. Analytical testing was required for acceptance into the disposal facility. TCLP analytical testing was completed and test results are presented in Appendix G. Sludge from site pits were identified as SLD-1 through SLD-7. Quench pond sludge was identified as SLD-5 and can be referenced in Section 3.5, Area of Concern No. 7 - Cooling (Quench) Pond. Sludge materials were dewatered and transferred to the sludge drying area as described in Section 3.5 and hauled for disposal to Modern Landfill located in Model City, New York. Sludge disposal receipts are presented in Appendix R.

The north building foundations identified as SLD-1 contained minor amounts of sludge with trace concentrations of PCBs. The sludge was excavated from the building foundations directly into a lined transportation truck for hauling PCB impacted soil to Modern Landfill located in Model City, New York. Materials from SLD-1 were hauled for disposal with PCB impacted soils from Area No. 3. The building foundation walls and floor were scraped clean of sludge material and pressure washed to remove materials. The wash water was solidified with absorbent materials. Absorbent materials were excavated from the building foundations and loaded into the same transportation truck for disposal. The building walls and floor were scraped again to remove any traces of sludge material until accepted by the on-site representative. Any concrete that was stained after cleaning was completed was chipped off and disposed with the other PCB impacted wastes. Sludge sample locations are presented on Figure 4.

### **3.9 FENCE AND PIER RESTORATION**

As part of Phase II construction, the existing wrought iron fence and gates located on Oliver Street were restored. Brick piers were rebuilt, sandblasted and repaired. The main fence gate was repaired. The wrought iron fencing was tagged for location and removed in sections for repair. Repair included straightening bent fencing, sandblasting, priming and painting. Fence sections were re-installed in locations from where removed. Analytical test results from a paint chip sample detected lead in the fence paint. Analytical results are presented in Appendix L. The

disposal manifest is presented in Appendix M. Fence paint debris was collected and disposed off-site to Chemtron Corporation located in Avon, Ohio.

In addition, all site chain link fencing was removed as part of site clearing operations. A 6-foot wood stockade fence was installed on the southern perimeter of the site to separate the residential area residing on 8th Street from the site which is planned for commercial redevelopment.

### **3.10 SITE RESTORATION**

After construction activities were completed, the site was leveled and restored to prepare the site for future development. Restoration included topsoil and seeding approximately 40 percent of the site along the eastern portion of the site that bounds Oliver Street. The rest of the site was left with crushed concrete surface. The access road on 9th Street and other interior site roadways were improved and graded. The decontamination pad was removed. Three waterlines were capped to disable water service to the site.

## **CHAPTER 4 CHANGE ORDERS**

### **4.1 GENERAL**

Change Orders were issued as part of this remedial construction work and relates to unforeseen conditions or changed conditions in the contract and specifications. In total, four change orders were issued by the Engineer. Change order costs were negotiated with the contractor by the Engineer to acceptable terms and approved by the Owner.

### **4.2 PHASE I - CHANGE ORDERS**

During Phase I construction, two change orders were issued and are summarized below:

#### **Change Order No.1:**

- Galbestos Segregation
- Above Ground Tank Decommissioning
- Chimney Demolition
- Drum Disposal
- Transformer Oil Disposal
- Waste Pile Disposal
- Tire Disposal
- Concrete Slab Demonstration Test

#### **Change Order No.2:**

- Test Pitting
- Gabestos/Brick Debris Disposal
- Water Usage

#### **4.2.1 GALBESTOS SEGREGATION**

Galbestos siding material was encountered during site clearing operations when relocating existing piles of brick left from past demolition operations. Galbestos siding material was mixed within the brick materials and required segregation from brick materials. The galbestos siding

material, a non-friable asbestos material, was removed by hand and drummed in two 55-gallon drums. The drummed material was disposed with other asbestos containing materials (ACM) as part of demolition disposal operations.

Additional galbestos siding material was encountered during test pitting operations. Brick and building debris from demolition of the former rolling mill dating back 10 years ago required off-site disposal since the quantity of building debris was excessive and difficult to segregate. Efforts were made to manually segregate; however, the galbestos siding material was too extensive. ACM materials were required to be disposed of during Phase I since work was completed under Applicable Variance 106.

Galbestos materials were hauled for disposal as ACM to Minerva Enterprises, 900 Minerva Road located in Waynesburg, Ohio as described in Section 2, Phase I Remedial Activities.

#### **4.2.2 ABOVE GROUND STORAGE TANK DECOMMISSIONING**

Phase I construction included the demolition and removal of two (2) above ground tanks. A minor amount of dry residual material (less than 3") was encountered inside one tank. The other tank was empty. The residual material was sampled and field screened to appear to be the remnants of an acidic cleaning or pickling solution. Sample test results indicated a pH of less than 2. Analytical test results are presented in Appendix D.

The tank was washed with high pressure steam and a sodium hydroxide wash solution to neutralize the acidic tank contents. Tank contents were transferred to an adjacent existing on-site concrete tank for holding purposes. The pH of the tank wash water was raised to a pH of greater than 4 and allowed to remain on site to await surface water disposal that would occur during Phase II construction. Once the internal tank atmosphere was deemed safe by health and safety measures, the tank was cut and removed in sections and disposed off-site as salvageable steel.

#### **4.2.3 CHIMNEY DEMOLITION**

The main chimney was not included in the original contract due to its potential historic value. During Phase I, the decision was made to demolish the chimney and dispose off-site the brick debris. The chimney lining was sampled and tested detecting the present of friable asbestos, which required removal and off-site disposal under NYSDOL Applicable Variance 106. The

chimney was demolished with an approximate total volume of 650 tons and was disposed off-site with other ACM materials.

#### **4.2.4 DRUM DISPOSAL**

Approximately 20 drums of waste oil, antifreeze and other materials were collected and staged for sampling during demolition work. Drummed materials originated from an abandoned automotive repair business located in the southwest corner of the site. Three one story buildings/garages were utilized for the automotive repair business. Drum contents were sampled and tested detecting the presence of hazardous materials. Drums were repacked into new 55-gallon drums which was required for transportation. Drum wastes were hauled and disposed to Perma-Fix of Michigan located in Brownstown, Michigan. Analytical test results are presented in Appendix C. Drum waste disposal manifests are presented in Appendix M.

#### **4.2.5 TRANSFORMER OIL DISPOSAL**

Two (2) transformers on poles and three (3) transformers located at the site's electrical service entry point on Oliver Street were encountered during Phase I construction and staged for sampling during demolition work. Since Phase I construction included pole removals, transformers required removal prior to pole removal, which prompted an environmental concern of the possible presence of PCBs. Transformer oil was sampled and tested for PCBs. One (1) grab sample from each transformer was composited into one sample and analyzed for Total PCBs. Analytical test results detected no PCBs present. Transformers were drained of oil and disposed as salvage steel. Analytical test results are presented in Appendix H.

#### **4.2.6 WASTE PILE DISPOSAL**

Six (6) waste piles existed on site, two (2) from UST removals and four (4) waste piles from past manufacturing operations. Sampling and analytical testing was completed. Test results detected no hazardous substances. Disposal of waste piles was to Modern Landfill located in Model City, New York. The quantity of material was 1,228.74 tons. Analytical test results are presented in Appendix I.

#### **4.2.7 TIRE DISPOSAL**

Approximately 75 tires were collected and staged during site clearing and demolition operations. Tires were removed from the site during Phase I construction due to the adjacent residential community and health risks associated with stagnant water and mosquito habitats.

#### **4.2.8 CONCRETE SLAB AND FOOTER DEMOLITION TEST**

A two day concrete slab and foundation footer demolition test was completed to measure the difficulty of concrete removal as proposed in Phase II construction. The test generated average slab thickness and footer depths, which were used to generate Phase II plans and specifications.

#### **4.2.9 QUANTITY OVER RUN FOR BID ITEM NO. 4, DEMOLITION AND DISPOSAL OF NON-ACM**

A quantity over run occurred with Bid Item No. #4, Demolition and Disposal of Non-ACM. Contract estimated quantity for this bid item was 1,000 tons at a unit price bid of \$36.95 per ton. A total of 2,700 tons of additional quantity was established as the overage amount under Change Order No.1. A unit price of \$35.95 per ton was accepted for the overage tonnage.

Additional quantity over run occurred and was submitted under Change Order No. 2. The additional quantity over the contract quantity and the quantity submitted under Change Order No. 1 of 2,908 tons. A unit price of \$34.70 per ton was accepted for this work. The total actual quantity of 6,608 tons was completed. For project closeout purposes, a new unit price was calculated at \$35.55 per ton.

#### **4.2.10 TEST PITTING**

Test pitting was required to investigate underground vaults, pits and sumps to define the quantities of surface water and sludge that was proposed to be removed during Phase II work. Concrete slabs were removed to access sump areas. Volume measurements were collected for Phase II Design and Construction cost estimation purposes.

#### **4.2.11 WATER USAGE**

Water was utilized from a City hydrant to wash down and clean out pit areas after surface water and sludge was removed. A majority of the water used was for cleanout purposes of the quench pond. Water usage was metered and deducted from the Phase I Contract. The volume of water totaled 1.69 million gallons. The cost of water supplied by the City of North Tonawanda is \$2.20 per 1,000 gallons, which totals a cost of \$3,718 for the use of water at the site.

#### **4.2.12 PHASE I PROJECT CLOSEOUT**

Phase I project closeout included an increase in the original Contract total price. The total Contract price as bid was \$547,370. With the changes as listed, the total Contract price was increased by \$497,352.66. The Phase I Contract cost was \$1,044,722.66. Final contract quantities, changes orders and total costs are presented in Table No. 5.1.

### **4.3 PHASE II - CHANGE ORDERS**

During Phase II construction, two change orders were issued and are summarized below:

#### **Change Order No.1:**

- Under Slab Concrete Demolition and Crushing
- Fence Restoration Fence Decorative Post Capping
- East Avenue Drainage Control
- Project Closeout

#### **Change Order No.2:**

- Analytical Testing Fence Removal
- Wood Stockade Fence Replacement

#### **4.3.1 UNDER SLAB CONCRETE DEMOLITION AND CRUSHING**

Concrete encountered below surface concrete slabs was characterized as isolated equipment foundations of various dimensions. Thickness varied between 3-feet to 8-feet of mass concrete. The under slab concrete could not be foreseen since it was concealed under the concrete slabs and represented a changed condition. Total quantities for under slab concrete were 2,409 cubic yards.

Concrete was excavated and crushed as specified. Due to the massiveness of the under slab concrete, excavation, handling, and crushing was labor intensive.

#### **4.3.2 WROUGHT IRON FENCE RESTORATION**

The wrought iron fence paint was sampled and tested detecting lead base paint. Fencing was required to be removed from the site, restored off-site in a properly contained fabrication shop, painted and re-installed on-site. Fencing was tagged for location and removed in sections. Re-installation of the restored fencing placed fence sections back into original locations. This change order item included the disposal of two drums of lead contaminated paint chips. In addition, the wrought iron fence was missing 19 fence post caps. The cast iron post caps were custom made to restore the fencing to original conditions.

#### **4.3.3 EAST AVENUE DRAINAGE CONTROL**

During the winter of 2004 and prior to Phase II project closeout, the residence located at the corner of Oliver Street and East Avenue experienced water draining from the Site onto private property. Water was found in the residence's basement. With further investigation, surface runoff was draining from the site and required surface drainage control. The remedy included: 180-feet of 12-inch perforated HDPE pipe that ties into the existing 56-inch brick interceptor sewer located on East Avenue. Work also includes three 12" x 6" tees for surface drains and one Kistner CB316B Catch Basin. Restoration of disturbed area was completed.

#### **4.3.4 PHASE II PROJECT CLOSEOUT**

The total Phase II Contract price as bid was \$1,186,725. With the changes as listed the total Contract price was increased by \$42,368.13. The Phase II Contract cost was \$1,229,093.13. Final contract quantities, changes orders and total costs are presented in Table No. 5.1.

#### **4.3.5 ANALYTICAL TESTING**

An allowance of \$20,000 was included for Bid Item No. 11. Analytical testing costs were submitted to the Engineer for approval and payment. Submitted costs represented actual testing costs with no profit and/or overhead costs included. Total costs that were received totaled \$9,181. After project closeout, additional invoicing from the analytical laboratory was received by the



Contractor and submitted under Change Order No. 2. The total cost for this analytical testing is \$244.80.

#### **4.3.6 FENCE REPLACEMENT**

During final inspection, the chain-link fencing located on the southern perimeter of the site required replacement. Trees and shrubs intertwined with fencing did not produce the aesthetic appearance necessary for redevelopment of the property. Clearing and grubbing was completed along removed fence lines, including large trees that conflict with the installation of proposed fencing. Chain-link fencing was removed along the southern boundary of the site consisting of 550-feet of fencing. An additional removal of 400-feet of chain-link fence, bollards, gate posts and operator located along East Avenue was completed.

Fence replacement included the installation of a wood stockade fence, 6-feet in height; pressure treated yellow pine supported by 6 x 6 pressure treated posts with 8-foot centers set 36-inches into the ground with concrete wet pour around posts.

## **CHAPTER 5**

### **FINAL CONTRACT QUANTITIES**

#### **5.1 CHANGED CONDITIONS**

Change orders were issued as part of this project and relates to unforeseen or changed conditions in the contract and specifications. In total, four change orders were issued. Change order costs were negotiated with the contractor by the Engineer to acceptable terms and approved by the Owner.

During Phase I construction, two major changed conditions included: chimney demolition and environmental remediation. The chimney was planned to remain in place as an historic monument. However, the chimney was demolished since it was found to be in an unsafe structural condition. Environmental remediation included: drums, waste piles, aboveground storage tanks, and transformers which were remediated under change order to eliminate the safety concern to the surrounding community.

During Phase II construction, two major changed conditions included: under slab concrete demolition and fence installation. Unforeseen concealed massive concrete equipment foundations were required to be removed. In addition, restoration of the existing wrought iron fence intended for historical preservation was found to contain lead based paint which changed contractual conditions and required a more extensive restoration project. In addition, a wood stockade fence was added to the southern perimeter of the site.

#### **5.2 QUANTITY OVER RUNS**

Quantity over runs experienced in Phase I included:

- Bid Item No. 3, Demolition and Disposal ACM.
- Bid Item No. 4, Demolition and Disposal Non-ACM.
- Bid Item No. 8, Disposal of Decontamination Water.

Even though an extensive inspection and estimation was completed by measurement and tabulation of building materials, steel supports and columns, it was difficult to accurately

determine total actual weight after demolition. A requirement under AV 106 included that building materials prior to and after demolition must be continually wetted with water. The quantity over run was 18 percent over estimated quantities.

An extensive amount of Non-ACM materials were encountered during site clearing operations. Elevation rises that were thought to be native conditions were refuse fill areas that required excavation and disposal. Change orders were issued to decrease the unit price for this bid item. The original unit price for this Bid Item was \$36.95 per ton which was decreased to \$35.55 per ton as a result of the over run.

Quantity over runs experienced in Phase II included:

- Bid Item No. 2, Demolition, Crushing & Staging Concrete Slabs.
- Bid Item No. 3, Demolition, Crushing & Staging Concrete Foundations.
- Bid Item No. 12, Disposal of Surface Water.

Quantity over run of concrete slabs and foundations occurred due to many concealed foundations found under concrete slabs. The quantity over run of concrete slabs was approximately 2 percent over estimated quantities. No change order was issued for this overage since the quantity overrun was minimal. The quantity over run of Bid Item No. 3, Demolition, Crushing & Staging Concrete Foundations was approximately 19 percent. No change order was issued for this overage.

Once the concrete slab was removed, additional quantity of concrete foundations that were not visible from the surface were revealed. Additional foundations were massive in size, which was used to support industrial equipment. This work item is referred to as Under Slab Concrete Demolition, which had a quantity of 2,409 Cubic Yards.

The remediation of the quench pond was delayed due to rain and groundwater infiltration, which contributed to the quantity over run of surface water disposal. Pumping was a continuous operation that discharged water to the City's sanitary sewer. The quantity over run was 29 percent over estimated quantities. No change order was issued for this overage.

Bid unit price reduction through change order requested was not administered for the quantity overruns of Bid Item No. 3, Demolition, Crushing & Staging Concrete Foundations and Bid Item

No. 12, Disposal of Surface Water. The Under Slab Concrete Demolition which was paid under Change Order No. 1 included overhead cost savings from Bid Item No. 3 and 12.

### **5.3 FINAL CONTRACT QUANTITIES**

Final contract quantities approximated the contract estimated quantities except for the bid items as discussed in previous sections. The Final Phase I Contract total cost was \$1,044,722.66. The unit price for Bid Item No. 4, Demolition and Disposal of Non-Asbestos Containing Materials was reduced from \$36.95/ton to \$35.55/ton for overhead cost savings incurred by the contractor. This credit was administered into Bid Item No. 4 and reflected in the unit price cost.

The Final Phase II Contract total cost was \$1,229,093.13. Final contract quantities, changes orders and total costs are presented in Table No. 5.1.

### Phase I Construction Costs

Bid Item Number	Bid Item	Units	Estimated Quantity	Actual Quantity	Unit Price	Total Cost
1	Mobilization/Demobilization	LS	LS	1	LS	\$42,800.00
2	Site Clearing	LS	LS	1	LS	\$8,500.00
3	Demolition & Disposal ACM	Tons	6,000	7,080.4	\$68.82	\$487,273.12
4	Demolition & Disposal Non-ACM	Tons	1,000	6,608	\$35.55	\$234,921.01
5	Demolition & Recycle Steel	Tons	1,000	573.4	\$3.95	\$2,264.90
6	Demolition & Stage On-Site Materials	LS	LS	1	LS	\$17,250.00
7	Analytical Testing	Allowance	20,000	\$10,607	Allowance	\$10,607.00
8	Disposal of Decontamination Water	Gallons	5,000	6,000	\$1.00	\$6,000.00
CO1	Galbestos Segregation	Days	--	1	\$1,950.00	\$1,950.00
CO1	Above Ground Tank Decommissioning	LS	--	LS	LS	\$14,306.25
CO1	Chimney Demolition	LS	--	LS	LS	\$26,050.00
CO1	Drum Disposal	LS	--	LS	LS	\$27,825.00
CO1	Transformer Oil Disposal	LS	--	LS	LS	\$4,500.00
CO1	Waste Pile Disposal	Tons	--	1,229	\$54.85	\$67,396.39
CO1	Tire Disposal	LS	--	1400	LS	\$1,400.00
CO1	Concrete Slab Demonstration Test	Days	--	2	\$2,485.00	\$4,970.00
CO2	Test Pitting	Days	--	2	\$1,930.00	\$3,860.00
CO2	Gabestos/Brick Debris Disposal	Tons	--	1,448.82	\$59.75	\$86,566.99
Deduct	Water Usage	1000 Gallon	--	1,690,000	\$2.20	(\$3,718.00)
	<div> <div>MBE/WBE Participation</div> <div>4753 Tons</div> <div>\$163,980</div> <div>International Waste Removal (WBE)</div> </div>					
	<b>Total Phase I Contract Costs</b>					<b>\$1,044,722.66</b>

## Phase II Construction Costs

Bid Item Number	Bid Item	Units	Estimated Quantity	Actual Quantity	Unit Price	Total Cost
1	Mobilization/Demobilization	LS	LS	1	LS	\$102,800.00
2	Demolition, Crushing & Staging Concrete Slabs	SF	325,000	331,646	\$0.60	\$198,987.60
3	Demolition, Crushing & Staging Concrete Foundations	LF	25,000	29,775.50	\$5.70	\$169,720.35
4	Demolition, Crushing & Staging Concrete Piers	LS	LS	1	LS	\$110,000.00
5	Demolition, Crushing & Staging Concrete Surface Debris	LS	LS	1	LS	\$16,500.00
6	Excavate and Disposal of Impacted Soil	CY	3,000	1,549.9	\$36.10	\$55,951.39
7	Excavate and Disposal of PCB Impacted Soil	Tons	150	137.1	\$200.00	\$27,414.00
8	Excavate and Disposal of Impacted Sludge	Tons	2,500	1,071.7	\$43.45	\$46,565.36
9	Disposal of Construction/Demolition Debris Materials	Tons	3,000	342.9	\$39.00	\$13,373.88
10	Brick Crushing and Backfill Materials	LS	LS	1	LS	\$25,000.00
11	Analytical Testing	Allowance	\$20,000	\$9,181	Allowance	\$9,181.00
12	Disposal of Surface Water	Gallons	450,000	582,250	\$0.18	\$104,805.00
13	Topsoil	SY	40,000	38,183	\$1.25	\$47,728.75
14	Seeding	SY	60,000	40,000	\$0.70	\$28,000.00
15	Water Main Capping	Each	5	3	\$2,000	\$6,000.00
16	Fence/Gate Restoration	LS	LS	1	\$28,000	\$28,000.00
CO1	Under Slab Concrete Demolition	CY	--	2,409	\$65.89	\$181,296.00
CO1	Fence Restoration	LS	--	1	\$18,875.00	\$18,875.00
CO2	Wood Stockade Fencing	LS	--	1	\$38,650.00	\$38,650.00
CO2	Analytical Testing	LS	--	1	\$244.80	\$244.80
	<i>MBE/WBE Participation</i>		<i>\$100,929 CEM</i> <i>\$6,140 Doreen Trucking</i> <i>\$18,900 B. Pariso Transport</i>			
	<b>Total Phase II Contract Costs</b>					<b>\$1,229,093.13</b>

**TABLE 5.2  
PHASE II  
MBE/WBE UTILIZATION**



**MBE/WBE Utilization Plan**

Contractor	Status	Description of Work	Projected SubContract Amount	Percentage of Contract	Actual SubContract Amount	Percentage of Contract	Notes
Doran Trucking Company 2520 Cayuga Street Niagara Falls, New York 14304	WBE	Disposal of Impacted Soils	\$30,000.00	2.5%	\$3,400.00	0.3%	Unit Price Item - Actual quantity was below original estimate
Doran Trucking Company 2520 Cayuga Street Niagara Falls, New York 14304	WBE	Disposal of Impacted PCB Soils	\$3,000.00	0.3%	\$2,740.00	0.2%	Unit Price Item - Actual quantity was below original estimate
Doran Trucking Company 2520 Cayuga Street Niagara Falls, New York 14304	WBE	Disposal of Impacted Sludge	\$12,500.00	1.1%	\$0.00	0.0%	Waterlight trucks were required
B. Pariso Transport 3036 Whitehaven Road Grand Island NY 14072	WBE	Hauling			\$18,900.00	1.6%	
C.E.M. P.O. Box 709 Buffalo, New York 14213	MBE	Topsoil	\$50,000.00	4.2%	\$47,728.75	3.9%	Unit Price Item - Actual quantity was below original estimate
C.E.M. P.O. Box 709 Buffalo, New York 14213	MBE	Seeding	\$42,000.00	3.5%	\$25,200.00	2.1%	Unit Price Item - Actual quantity was below original estimate
C.E.M. P.O. Box 709 Buffalo, New York 14213	MBE	Fence and Gate Pier restoration	\$28,000.00	2.4%	\$28,000.00	2.3%	
<b>Total Contract Amount</b>			<b>\$1,186,725.00</b>	<b>100.0%</b>	<b>\$1,210,218.13</b>	<b>100.0%</b>	
<b>WBE SubContract Amount</b>			<b>\$45,500.00</b>	<b>3.8%</b>	<b>\$25,040.00</b>	<b>2.1%</b>	
<b>MBE SubContract Amount</b>			<b>\$120,000.00</b>	<b>10.1%</b>	<b>\$100,928.75</b>	<b>8.3%</b>	

## **CHAPTER 6 POST SITE REMEDIATION MONITORING AND MAINTENANCE**

### **6.1 GENERAL**

As stated in the NYSDEC approved Work Plan, QAPP, and OM&M plan for the Site, annual groundwater monitoring will be performed on groundwater samples for a minimum period of 30 years or at reduced frequency and period as approved by NYSDEC. The OM&M will be implemented once both remediation phases identified as Phases I and II are complete.

Groundwater monitoring will initially be conducted after the remediation has been completed and thereafter on an annual basis. Methods used will be consistent with NYSDEC requirements. The extent and frequency of the sampling and analysis will be evaluated with the NYSDEC after the first year and then every five years to determine if sampling points or analytes can be dropped from the monitoring program. The NYSDEC will be notified in advance of each sampling event and summary reports of the data will be submitted to NYSDEC for review. Annual summary reports will be submitted to the NYSDEC.

### **6.2 GROUNDWATER MONITORING AND SAMPLING**

The following are the proposed monitoring locations from which groundwater samples will be taken, unless otherwise revised by the NYSDEC based on the analytical results: groundwater monitoring wells are designated GW-3S, GW-3, GW-11S, GW-12S, and GW-18S. Monitoring locations are presented on Figure 2. The groundwater monitoring system will be maintained and sampled during the post-remediation period. The extent and frequency of the sampling and analysis will be evaluated by NYSDEC periodically on an annual basis to determine if the sampling points or analytes should be changed. The NYSDEC will detail changes as appropriate after reviewing the annual summary reports. Groundwater levels will be measured at all monitoring wells at the site.

The specific sampling protocol to be used, including sample preservation techniques, QA/QC objectives, a description of chain-of-custody documentation, and analytical parameters are included in the Field Sampling Plan. Sampling and analysis will follow the parameters listed on Table 6.1.

**TABLE 6.1**  
**GROUNDWATER SAMPLING AND ANALYSIS**

Designation	Well Depth (Ft)	Well Screen Length	Sample Type	Analysis
<b>Groundwater</b> <sup>(1) (2) (3)</sup>				
GW-3S	40	10	Grab	TCL VOCs EPA Method 8260
GW-3	10	5	Grab	TCL VOCs EPA Method 8260
GW-11S	15	10	Grab	TCL VOCs EPA Method 8260
GW-12S	15	10	Grab	TCL VOCs EPA Method 8260
GW-18S	15	10	Grab	TCL VOCs EPA Method 8260

- (1) Groundwater sampling frequency will be on an annual basis as part of the site Operation and Maintenance. Sampling of groundwater will not take place until the site has been remediated.
- (2) Field parameters will be collected to include temperature, Dissolved Oxygen (DO), pH, and conductivity/Eh.
- (3) Groundwater analytical testing requires Laboratory Approval Program (NYSDOH-ELAP) certified laboratory in accordance with NYSDEC Analytical Services Protocol (ASP-Category B)

**ANALYTICAL QA/QC REQUIREMENTS**

Matrix	No. of Sampling Points	Field QC No. of Samples	Lab QC No. of Samples	Analysis
Groundwater	5	1 Field Duplicate	1 Trip Blank	ASP Category B TCL VOCs EPA Method 8260



## **6.3 MAINTENANCE REQUIREMENTS**

Once the site has been remediated, the City of North Tonawanda will be responsible for proper maintenance. The brownfield site will then be identified industrial zoned space readied for industrial development. Maintenance of the site is projected to continue for 30 years, but in time may be reduced with NYSDEC approval. Routine maintenance and inspection checks will be conducted on an annual basis. The post-remediation field inspection report as presented in the Field Sampling Plan should be completed each time the site inspection is performed. A record of the inspection should be maintained by the City. Once the site is developed, the City will be responsible to maintain these requirements. An annual report will be filed with the NYSDEC that includes groundwater analytical test results, groundwater field sampling logs, and maintenance field inspection logs. The following items will be inspected. The post site remediation monitoring and maintenance field checklist forms are presented in Appendix S.

### **6.3.1 DRAINAGE**

The drainage ditches will be checked for failure or obstructions. They will be maintained free of obstructions, damaged or failed sections will be repaired, and sediment build-up removed. Areas on site, which are consistently eroded by drainage, will be repaired, and riprap or erosion control blankets will be placed on them.

### **6.3.2 COVER AND VEGETATION**

Maintenance will include, but will not be limited to:

- Mowing the vegetation as required to maintain a healthy cover crop. In general, it is anticipated that mowing will be performed once in early fall (September) in order to discourage the growth of woody plants, but at the same time encourage wild bird activity in the spring and summer months.
- Re-vegetating areas as needed; clearing of trees and brush at the boundary to limit infringement.
- Repairing eroded or settled areas by adding soil and topsoil and then reseeding.

### **6.3.3 ACCESS CONTROL**

Access control is to be maintained such that unauthorized entrance to the facility is prevented. This control will include repair or replacement of fences, gates and locks as needed. Access roads will be maintained and eroded areas will be repaired. Public access to the site will be limited to the area designated for future recreational usage.

## **6.4 GROUNDWATER CONTAMINATION CONTINGENCY PLAN**

The remediation of the site should significantly reduce the possible contamination of the surface and groundwater in the immediate area. Continued monitoring of wells will facilitate determining whether any contaminants are migrating off site.

Annual volatile organic compounds (VOCs) monitoring will be continued on groundwater for a minimum of five years following site remediation. Yearly summary reports will be submitted to NYSDEC. Requirements for further analysis and reports will be determined by the Department at the end of each five-year period. Requirements may be reduced or revised. If this sampling program determines that significant off-site migration of surface or groundwater contamination is occurring, then the potential threat to human health or the environment will be reassessed. Factors contributing to this reassessment include, but are not limited to:

1. Proximity of downgradient groundwater users.
2. Distance to environmentally sensitive surface waters or wetlands.
3. Evidence of environmental damage, including stressed vegetation, abnormal algal growth, and abnormally high number of fish deaths.
4. Deterioration of surface or groundwater quality.

If a potential threat is identified, then the following contingency plans can be implemented.

According to the City of North Tonawanda, all downgradient water users are connected to the City water system. Subsequently, groundwater contamination issues associated with downgradient groundwater users are not a concern. However, if nearby groundwater monitoring

wells are suspected to have been impacted, samples should be taken from the wells and analyzed for the same baseline parameters as the site monitoring wells. The recommended sampling and analytical methods will be followed. A written report should be submitted to the NYSDEC outlining the date, time, area sampled, type of sample, methods of sampling and analysis, the person who originated the concern for contamination, and any actions to be taken. If standards are not exceeded, the analysis should be repeated on a periodic basis. If contaminant levels exceed the standards, the following procedures should be followed:

1. Verify the results in question by additional sampling and analysis within eight weeks of the receipt of the original data and prepare a Field Investigation Program (FIP). Submit all information to NYSDEC.
2. If the above items indicate the need for further investigation (i.e., Part 703 groundwater standards are exceeded, or elevations of parameters significantly above ambient groundwater quality, whichever is higher), then additional remedial action should commence.