CONESTOGA-ROVERS
& ASSOCIATES

RECORDS SEARCH REPORT

FORMER GM-SAGINAW DIVISION BUFFALO PLANT
BUFFALO, NEW YORK

General Motors Corporation
Worldwide Facilities Group
Environmental Services Group - Remediation

Reference No. 12635-Misc- Records

RECORDS SEARCH REPORT

American Axle & Manufacturing, Inc. Facility
1001 East Delavan Avenue
Buffalo, New York (the "Facility")

Due to the detection of PCB-impacted oil beneath a portion of the floor slab of one of the manufacturing buildings at the Facility (the "Site"), the New York State Department of Environmental Conservation (NYSDEC) has designated the Site as an inactive hazardous waste disposal site, as that term is defined at ECL Section 27-1301.2 and placed it on its Registry of Inactive Hazardous Waste Disposal Sites in New York State as Site # 915196. The Facility was previously owned by General Motors Corporation (GM).

This Records Search Report was prepared by Conestoga Rovers & Associates (CRA) to satisfy GM's obligations under paragraph I of Order on Consent Index #B9-0681-04-12 with the NYSDEC, entitled *Initial Submittal.*

A. DEFINITIONS

The following key terms are used in this Report:

- "Property" refers to the parcels of land formerly owned by GM and now owned by American Axle & Manufacturing, Inc. (AAM) that are located at and in proximity to 1001 East Delavan Avenue in the City of Buffalo, Erie County, New York. The location of the Property is shown on Figure 1.1.

- "Facility" means the portion of the Property bounded by Delavan Avenue on the north, Cornwall Street on the west, Scajaquada Street on the south, and the CSX Corporation railroad right-of-way on the east. The boundary of the Facility is shown on Figure 1.2.

- "Site" means the boundaries of the source areas of PCB-impacted oil beneath the manufacturing floor slab of the Facility that have been identified to date. The boundaries of the Site are shown on Figure 1.3.

B. SITE BACKGROUND

1. Physical Location

The Property is a generally flat parcel of approximately 52 acres. The main manufacturing buildings, Plant Nos. 81 and 83, occupy approximately 19 of these 52 acres. The remaining area consists of a power plant, an auxiliary manufacturing building (Plant 5), an electrical substation, an area of underground storage tanks, parking lots, and other small buildings used mainly for storage. Additional properties to the north, east, and west are currently utilized primarily as parking areas.

The Site consists of areas underlying Plant No. 81 as shown on Figure 1.3. Due to its location within the fenced and guarded Facility, the Site is isolated from the general public.

2. Manufacturing History

GM owned and operated the Facility from its inception in the 1920s until February 1994 when it was sold to AAM. AAM retains ownership of the Property and continues to operate the Facility. The main manufacturing building of the Facility was constructed by GM during the mid 1920s with several additions constructed between approximately 1964 and the present.

The primary production activity at the Facility is the manufacture and assembly of automotive parts and vehicle components. Historically, the Facility was used as an automobile assembly and body plant. Activities associated with this use included among others, painting, welding, heat-treating, and machining operations. Historically, PCBs were a constituent in hydraulic oils, quench oils and heat transfer fluids used at the Facility.

Limited information exists about activities within the Site. The original southern limit of the structure now referred to as "Plant No. 81" was located at what is now Bay 24. At that time, the majority of the Site was out-of-doors. Prior to 1930, some or all of the Site was believed to have been an outdoor loading platform. Based on a review of a 1939 Sanborn Fire Insurance Map, the majority of the Site was used at that time for the warehousing of finished parts.

Beginning around 1941 and continuing until at least 1965, the area in Plant No. 81 from Bay D-25 to Bay G-36 was used by GM for heat treating operations and, for a period of time, as part of the war effort during World War II. Based on a review of a 1950 Sanborn Fire Insurance Map, the heat treating operations may have extended eastward to Bays A-25 through A-36. The boundary of the area used for these heat treating operations is shown on Figure 4.1.

A new Heat Treat Addition was constructed in 1966. This area, located approximately from Bays H-30 to O-37, houses the current heat treating operations. Oils and/or fluids containing PCBs may also have been utilized in this area to a limited extent. Historic sampling and analyses did not reveal the presence of PCBs in soils in this area. The area of the Site from Bays A-25 to G-36 was subsequently used for the machining of pinion and ring gears from raw forgings and was commonly known as the Gleason Machine Area.

3. Environmental Contamination of Concern

In 1991, GM reported a spill associated with leakage from a coolant pit into the subsurface beneath the manufacturing floor slab (B-26 coolant area). NYSDEC subsequently assigned a spill number of 9104671 to this incident.

In 1994, during the course of post-closing investigation at the Facility, GM again detected the presence of oil beneath the manufacturing floor slab and reported this information to the NYSDEC. NYSDEC assigned a second spill number of 9400483.

In the course of GM's investigation of the extent of oil contamination, PCBs were detected in the oil below the slab of certain of the Facility's manufacturing bays and in the main sanitary sewer line beneath the Facility. As the investigation attempted to establish the limits of the source of oil associated with the spill area, a source area of more highly concentrated PCB oil was identified. This finding was reported to NYSDEC through the course of the investigation.

The boundaries of the source areas of PCB-impacted oil beneath the manufacturing floor slab of the Facility that have been identified to date are shown on the portion of the Facility defined as the Site in Figure 1.3.

C. RECORDS REVIEW

CRA has reviewed a significant number of documents including historical reports, various correspondence, confidential files, and drawings in the course of its investigations at the Site. The following lists those reports and drawings relied upon by CRA in the design and execution of its Site investigations and its preparation of the Remedial Investigation (RI) Report that is required under paragraph II.B.1 of the referenced Order on Consent. It is not intended as an exhaustive listing of all available documents, but only those that CRA found relevant in determining the nature and extent of the PCB-impacted oil that is the subject of the RI Report. Field investigations performed by CRA since 2001 and the results of those investigations represent the most significant component of the RI.

1. Reports[1]

- Haley and Aldrich of New York, Inc., Phase I Environmental Site Assessment, Former Saginaw Division Buffalo Plant, Buffalo, New York, File No. 70451-40, December 1993 [Privileged and Confidential, Prepared at Request of GM Counsel]

- Haley and Aldrich of New York, Inc., Phase II Environmental Site Assessment, Former Saginaw Division Buffalo Plant, Buffalo, New York, File No. 70451-42, July 1994 [Privileged and Confidential, Prepared at Request of GM Counsel]

- Haley and Aldrich of New York, Inc., Supplemental Phase II Environmental Site Investigation and Phase III Extent of Contamination Study Work Plan, American Axle & Manufacturing, Inc. (Formerly General Motors Saginaw Division), Buffalo, New York, File No. 70464-051, November 1995 [Privileged and Confidential, Prepared at Request of GM Counsel]

- Blasland, Bouck and Lee, Inc. (BBL), Final Phase II Environmental Site Investigation and Phase III Extent of Contamination Study, Buffalo Plant, Buffalo, New York, August 2000 [Privileged and Confidential, Prepared at Request of GM Counsel]

[1] The CRA Historical Summary Report (November 2005) appended to this document presents redacted versions of the first four documents in this list (Confidential Documents). Factual information considered to be confidential or not relevant to the Site contamination is not included in the redacted versions of these Confidential Documents.

- Blasland, Bouck and Lee, Inc., Letter Report to S. Calandra of NYSDEC Region 9, March 29, 2001

- Conestoga-Rovers and Associates, Inc., Additional Field Investigation Report, Buffalo Plant, Buffalo, New York, File No. 12635-02, May 2003

- American Axle & Manufacturing, Inc., Letter: C.E. Bernd (American Axle & Manufacturing, Inc.) to K. Malinowski (Conestoga-Rovers and Associates, Inc.), July 28, 2003 – summarizes limited drawing/file review completed by AAM

- Conestoga-Rovers and Associates, Inc., Letter: K. Galanti (Conestoga-Rovers and Associates, Inc.) to S. Calandra (New York State Department of Environmental Conservation), August 13, 2003 – proposed additional investigative activities

- Conestoga-Rovers and Associates, Inc., Project Status Update letter: J. Hartnett (General Motors Corporation) to S. Calandra (New York State Department of Environmental Conservation), March 24, 2004

- Conestoga-Rovers and Associates, Inc., Correspondence: K. Galanti (Conestoga-Rovers and Associates, Inc.) to C.E. Bernd and A. Glieco (American Axle and Manufacturing, Inc.), October 19, 2004 – AAM Buhr Pit Sampling Results

- Michigan Testing Engineers, Inc., Soils Investigation for Chevrolet-Buffalo Plant, June 1974 – this contains geological information in the area of the Facility

- Wehran-NY Inc., Proposed Groundwater Monitoring Program for Saginaw Division, General Motors, Buffalo, New York, October 1986 – this report recommended drilling locations for monitoring wells around the Facility related to its Major Oil Storage Facility License. It is referenced for geological information on the Facility.

- R. Klosko & J. Daigler (Wehran-NY, Inc.) letter report to A. Glieco (GM), June 25, 1992 – This relates to the installation of monitoring wells B-1 and B-2 adjacent to the B-26 Coolant Pit.

- Malcolm-Pirnie, Inc., System-Wide Long Term Control Plan for CSO Abatement, prepared for Buffalo Sewer Authority, Buffalo, New York, File No. 1777-095, 2004

The reports that have been previously submitted to the NYSDEC are presented on Table 1.

2. Drawings

(a) AAM Engineering Department

i) Factory Building, Buffalo, NY, Chevrolet Motor Co., 1923, Sheets 12 & 14

ii) Pit Layout for Carburizer & Propeller Shaft Furnace, 1946, Drawing No. PE-J-3, Sheets 1 & 2

iii) Foundation Plan, Drawing No. PE-B-1, Undated

iv) Site and Plot Plan, Alteration & Addition – Plant #2, Drawing No. PE-B-28, Sheet 1, 1964

v) Site Plan, New Boiler House, Drawing Number illegible, 1967

vi) Marshalling Building, Drawing No. PE-B-64, Sheets 1 and 2, 1967

vii) Heat Treat Modernization Addition, Sheets 1 and 2, 1968

viii) Demolition Plan, Plant No. 3 Addition, Drawing No. PE-B-29, Sheet D-1, Date illegible

ix) Rehabilitation of Track No. One, Drawing No. PE-B-300, Sheet 3, No Date

(b) Buffalo Sewer Authority

i) Profile of the 5 x 9 Sewer, Drawing No. 5619, 1894

ii) Site Plan and Detail IC-8, Scajaquada Tunnel Interceptor, Drawing No. S4710, Sheets 25 and 26, 1978

3. Environmental Data

Relevant environmental data regarding the environmental conditions at or emanating from the Site that are associated with the presence of PCB-impacted oil (Site Environmental Data) can be found in the following documents, which have been previously provided to NYSDEC Region 9:

- Blasland, Bouck and Lee, Inc., Letter Report to S. Calandra of NYSDEC Region 9, March 29, 2001;

- Conestoga-Rovers and Associates, Inc., Additional Field Investigation Report, Buffalo Plant, Buffalo, New York, File No. 12635-02, May 2003;

- Conestoga-Rovers and Associates, Inc., Project Status Update letter: J. Hartnett (General Motors Corporation) to S. Calandra (New York State Department of Environmental Conservation), March 24, 2004.

The remaining Site Environmental Data will be presented in the RI Report that is being prepared by CRA for submission to the NYSDEC within 60 days after the effective date of the Order on Consent.

D. SITE INVESTIGATIONS

Based on its review of the information set forth in Section C of this Report and Site investigations performed by CRA since 2001, CRA has prepared the following historical summary of investigations. These investigations serve as the basis for the remedial efforts that will be taken at the Site to address the PCB-impacted oil that has been detected and previously addressed under two (2) NYSDEC spill files that were closed in August of 2004. This information will be reflected in the RI Report and the following briefly summarizes this historical information.

1. 1991-2001 Site Investigations (Pre-CRA Investigations)

Numerous environmental and geotechnical investigations have been conducted at the Facility. These investigations were associated with the design of structural additions, property sale, and/or petroleum spills. A list of investigations conducted at the Facility, including the approximate dates conducted, the purposes of the investigations, and summaries of the work completed is presented in Table 2.

In 1991, during the course of decommissioning activities within the Facility, free oil was observed seeping into a large sump located in Bay B-26. This sump is referred to as the "Coolant Pit." The presence of oil in the Coolant Pit was reported to NYSDEC in 1991, and as noted, NYSDEC assigned spill # 9104671. Rather than being closed as initially planned, the Coolant Pit was retrofitted as a groundwater collection sump and is currently operated to provide hydraulic control in this area.

Investigations conducted under attorney-client privilege as part of the sale of the Property to AAM identified the presence of oil and oily soils beneath the Facility. The presence of oil was reported to the NYSDEC in 1994, and NYSDEC assigned spill # 9400483. Eight historical operations and/or processes were suspected as potential sources of the oil. These were described as follows:

a) Former Knuckle Job Area;

b) Maintenance Garage Area;

c) Fire Loop Repair Area (West);

d) Former Underground Storage Tanks (USTs) Fill Station;

e) Former Tank No. 11;

f) Former Tank No. 5;

g) Gleason Machine Area; and

h) B-26 Coolant Pit.

The following additional potential source areas were added as a result of construction activities completed by AAM:

- Truck Scale Excavation Pit;
- Railroad Gondola Car Scale Area; and
- Fire Loop Repair Area (East).

Based on the information gathered during subsequent evaluations conducted by BBL between 1996 and 2000, seven (7) of the eleven (11) potential source areas (Former Knuckle Job Area, Maintenance Garage Area, Fire Loop Repair Areas (East and West), Former UST Fill Station, Truck Scale Pit, and Railroad Gondola Car Scale Area) were eliminated from further investigation due to the absence of free product in monitoring wells installed in the suspected source areas. These findings were reported to Mr. S. Calandra (NYSDEC) in the letter report of March 2001 from BBL.

In its March 2001 letter report, BBL also recommended further investigation of the 5x9 Sewer due to the detection of oil along and within the structure.

In summary, the investigations and evaluations completed between 1991 and 2001 identified four (4) potential historical sources of oil beneath the Site that warranted further investigation and remedial action: Former Tank No. 11, Former Tank No. 5, B-26 Coolant Pit, and Gleason Machine Area.
The 5x9 Sewer was identified as a potential receptor.

CRA identified a fifth potential historical source, the Former Heat Treating Operations, as a result of the investigations that it conducted between 2001 and 2005. Although as depicted on Figure 4.1, machining and heat treat operations historically took place in some of the same bays within the area identified as the "Site", the operations were distinctly different and utilized oils containing significantly different PCB concentrations. Because of these differences, CRA has identified the former heat treat operations as a distinct historical source for the elevated PCB concentrations quantified during their investigations. Previous investigations performed by H&A and BBL focused on the release of oils from machining operations performed in what they termed the "Gleason Machine Area" and did not identify heat treat operations in this area.

2. 2001-2005 Site Investigations (CRA Investigations)

Investigation of the referenced historical sources was conducted by CRA between 2001 and 2005. The results of these investigations will be presented in the RI Report to be submitted to the NYSDEC. A Feasibility Study will be submitted to the NYSDEC concurrently with the RI Report to address the subsurface contamination associated with the PCB-impacted oil at the Site. An IRM Work Plan will also be submitted.

Respectfully submitted,

CONESTOGA ROVERS & ASSOCIATES

By: Kenneth C. Malinowski

Name: Kenneth C. Malinowski, Ph.D.

Title: Senior Project Manager,
Vice President

Date: September 19, 2006

TABLE 1[(1)]

REPORTS PREVIOUSLY SUBMITTED TO NYSDEC
FORMER GM SAGINAW DIVISION - BUFFALO FACILITY
BUFFALO, NEW YORK

Date	*Report Title*	*Prepared By*
March 2001	Letter Report, Sullivan (BBL) to Calandra (NYSDEC), discussing oily soils and LNAPL in the subsurface	BBL for GM
May 2003	Additional Field Investigations, Buffalo Plant, Buffalo, New York (File No. 12635-2)	CRA for GM
August 2003	Correspondence, Galanti (CRA) to Calandra (NYSDEC), proposed additional investigation activities	CRA for GM
March 2004	Letter Report, Hartnett (GM) to Calandra (NYSDEC), Project Status Update.	GM

Notes:

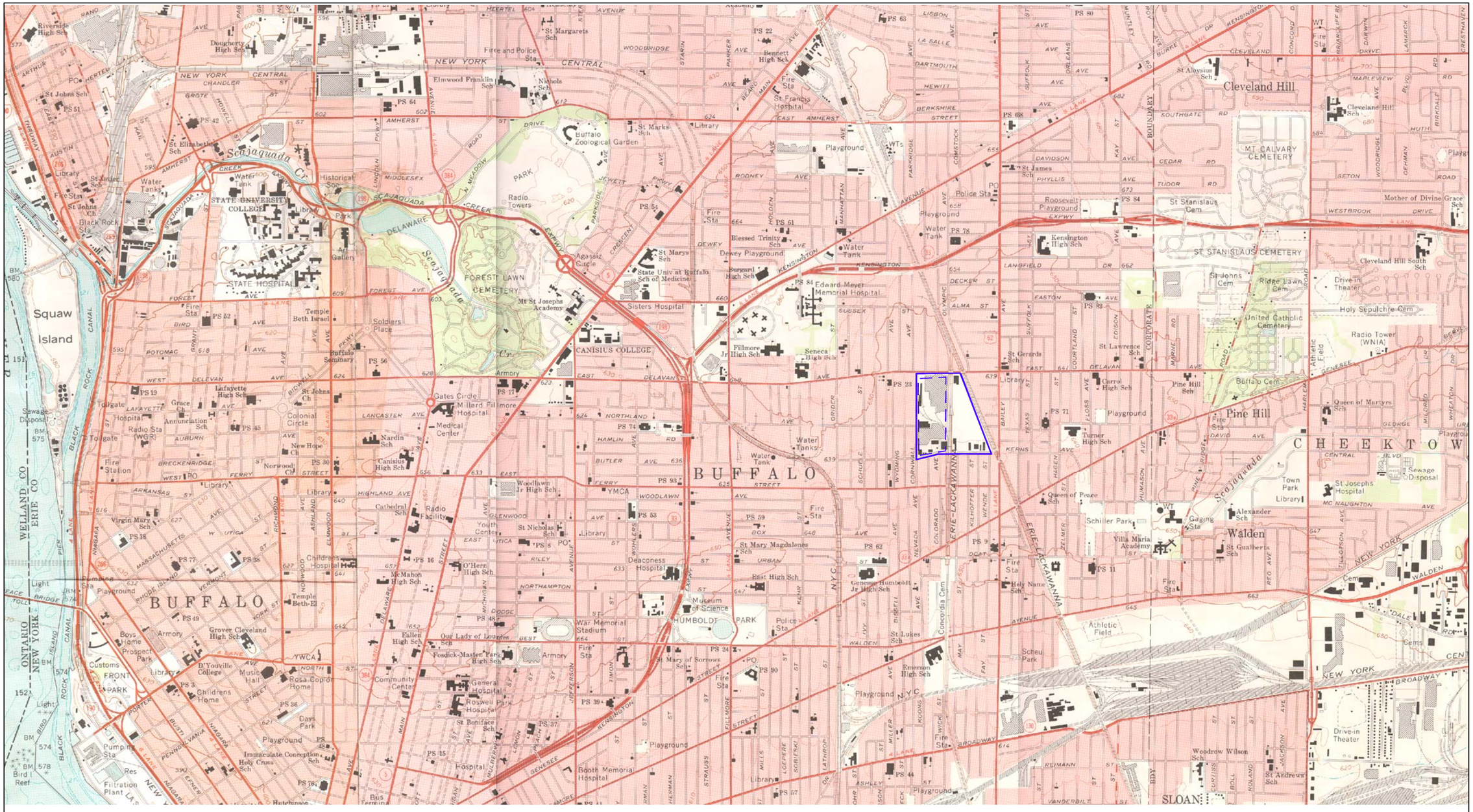
BBL	Blasland, Bouck & Lee, Inc.
CRA	Conestoga-Rovers & Associates
GM	General Motors
LNAPL	Light Non-Aqueous Phase Liquid
NYSDEC	New York State Department of Environmental Conservation

[(1)] PDFs of these reports, as well as the Summary of Historical Confidential Documents are contained on the CD included with this submission.

TABLE 2

SUMMARY OF GEOTECHNICAL AND ENVIRONMENTAL INVESTIGATIONS
FORMER GM SAGINAW DIVISION - BUFFALO FACILITY
BUFFALO, NEW YORK

Company	*Year*	*Work Description*	*Purpose*	*Summary of Work*
Conestoga-Rovers and Associates, Inc.	2001 - 2005	Environmental investigation	Intrusive and other investigations conducted to determine the horizontal and vertical extent and volume of oil present beneath the facility, chemical presence, potential path(s) of migration from the Site, and possible remedial measures	Installation of 63 monitoring wells, 6 piezometers and 22 soil borings, investigation and sampling of 5 X 9 sewer and laterals, evaluation of remedial alternatives and pilot testing
Blasland, Bouck & Lee, Inc.	1996 - 1998	Environmental investigation	An intrusive investigation conducted to determine the horizontal and vertical extent of the identified contaminant	Installation of 26 monitoring wells
Haley and Aldrich	1994	Environmental investigation	An intrusive investigation to confirm or deny presence of contaminants in soils or groundwater at levels of concern to the public health or the environment	Installation of 7 monitoring wells and 18 soil borings
Haley and Aldrich	1993	Environmental investigation	Record and background research concerning Buffalo Plant	
Wehran Engineering, P.C.	1992	Environmental investigation	An intrusive investigation in connection with contaminant presence within Plant No. 81	Installation of 2 monitoring wells and 8 soil borings
Empire Soil Investigations	1979	Railroad Track Repair	An intrusive investigation in connection with the railroad repair in the east side of Plant No. 81	Installation of 29 soil borings
Michigan Drilling Co.	1974	Plants No. 2 and 3 building additions	An intrusive investigation in connection with proposed additions to Plants No. 2 and 3	Installation of 11 soil borings
Harley Ellington-Pierce Yee Assoc.	1974	Plant No. 2 and 3 Building Additions	An intrusive investigation in connection with the proposed construction of additions to Plants No. 2 and 3	Installation of 9 test pits
Harley Ellington-Pierce Yee Assoc.	1973	Plant No. 2 and 3 Building Additions	An intrusive investigation in connection with the proposed construction of additions to Plants No. 2 and 3	Installation of 6 soil borings
Benjamin, Woodhouse, and Guenther, Inc.	1966	Heat Treat Building Addition	An intrusive investigation in connection with the proposed installation of the Heat Treat area	Installation of 3 soil borings
Benjamin, Woodhouse, and Guenther, Inc.	1965	Power House Construction	An intrusive investigation in connection with the construction of the Power House	Installation of 7 soil borings
Burns and McDonnel Engineering Co.	1965	Plant No. 5 Construction	An intrusive investigation in connection with the construction of Plant No. 5	Installation of 6 soil borings
Harley, Ellington, Covin & Stirtch	1964	Proposed Plant No. 3 Addition	An intrusive investigation in connection with the proposed construction of Plant No. 3	Installation of 8 soil borings
Diehl and Diehl	1964	Proposed Plant No. 2 Addition	An intrusive investigation in connection with the proposed western addition of Plant No. 2	Installation of 9 soil borings



REFERENCE:

UNITED STATES GEOLOGIC SURVEY
BUFFALO NE QUADRANGLE, NY
TOPOGRAPHIC, 7.5 MINUTES SERIES 1965

0 1250 2500ft

LEGEND:

PROPERTY BOUNDARY

FACILITY BOUNDARY

figure 1.1
LOCATION MAP
FORMER GM SAGINAW DIVISION
BUFFALO FACILITY
Buffalo, New York

12635-03(010)GN-NF001 JUL 15/2005

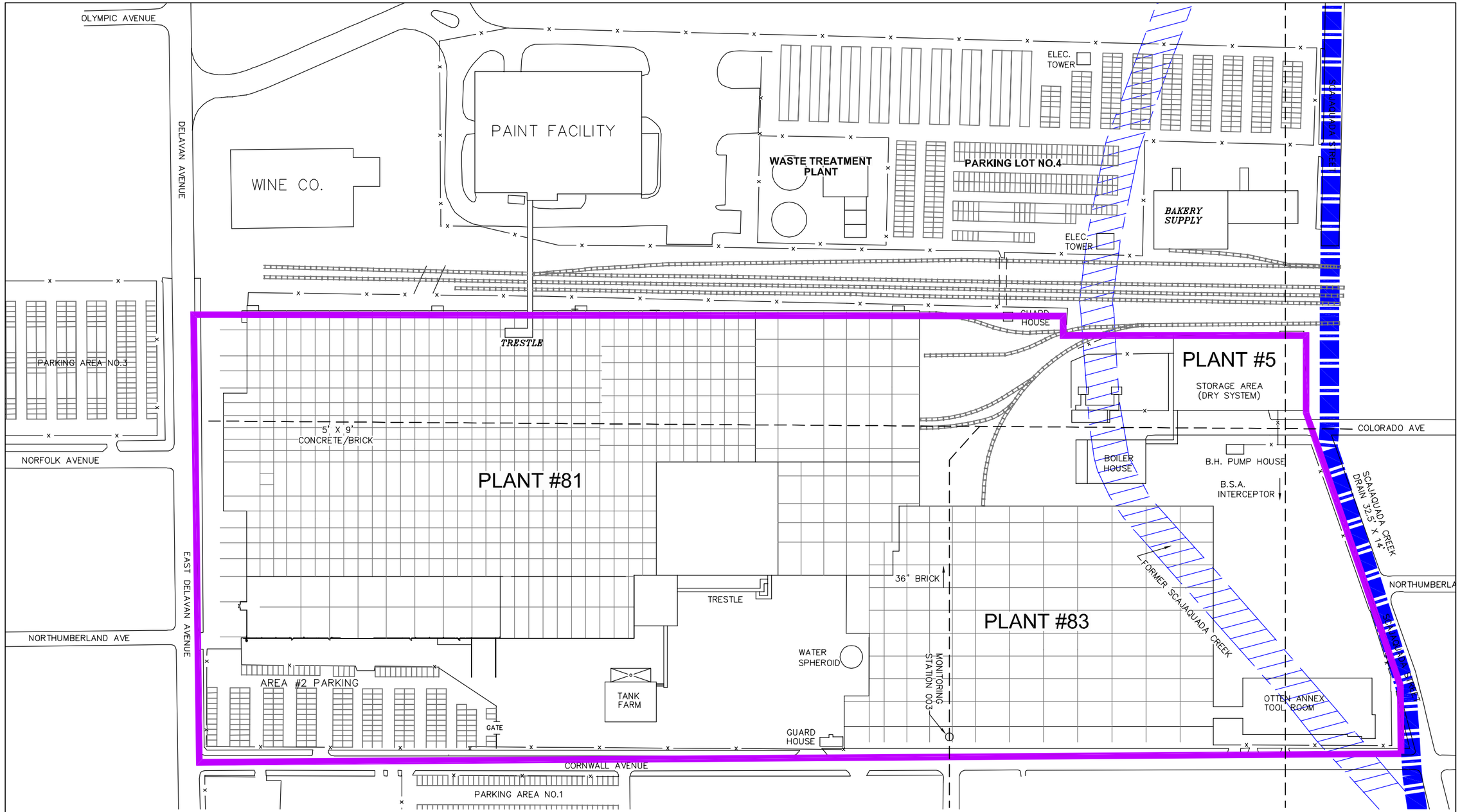


figure 1.2

FACILITY PLAN
FORMER GM SAGINAW DIVISION
BUFFALO FACILITY
Buffalo, New York

12635-03(010)GN-NF002 JUL 15/2005

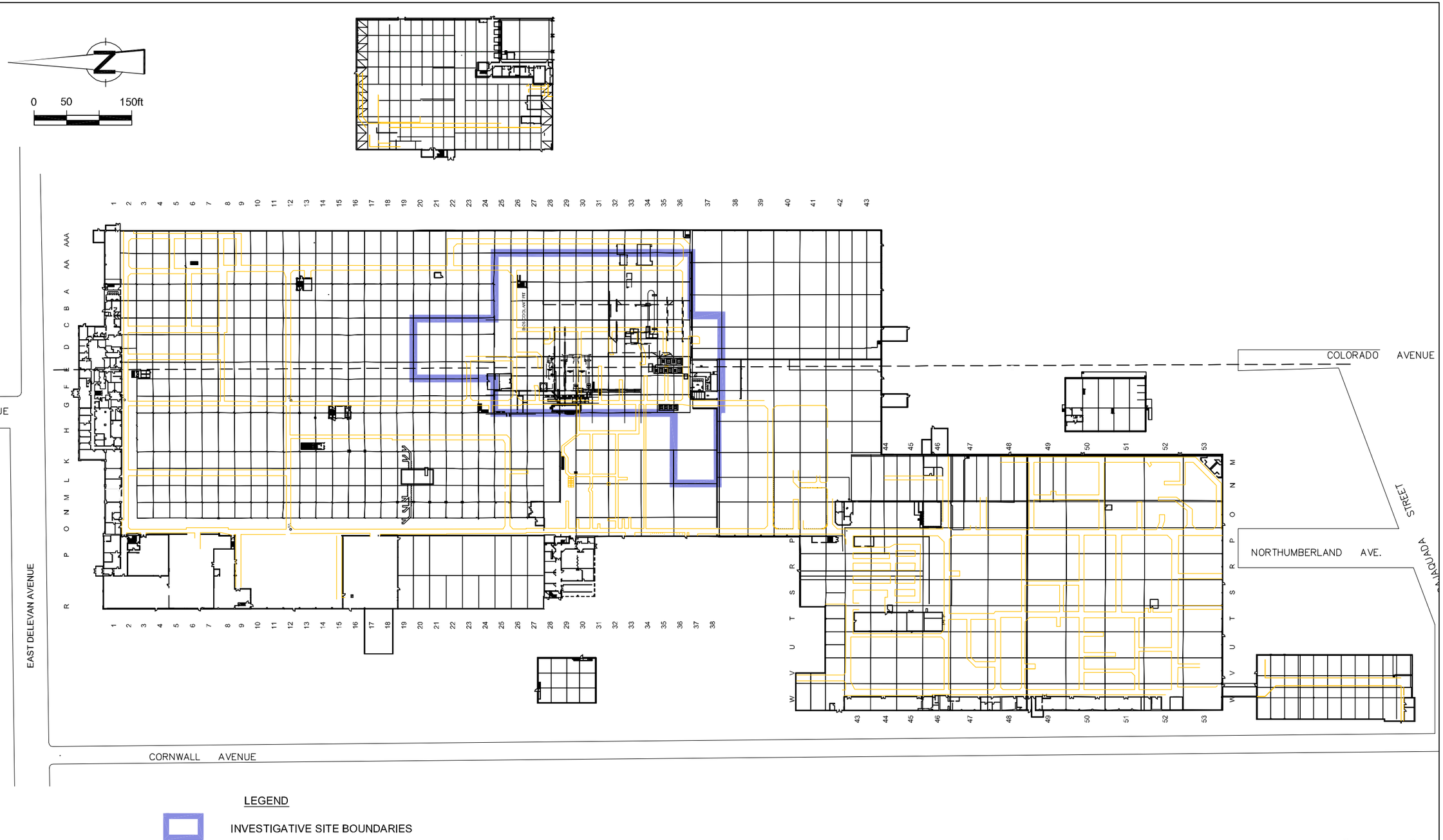
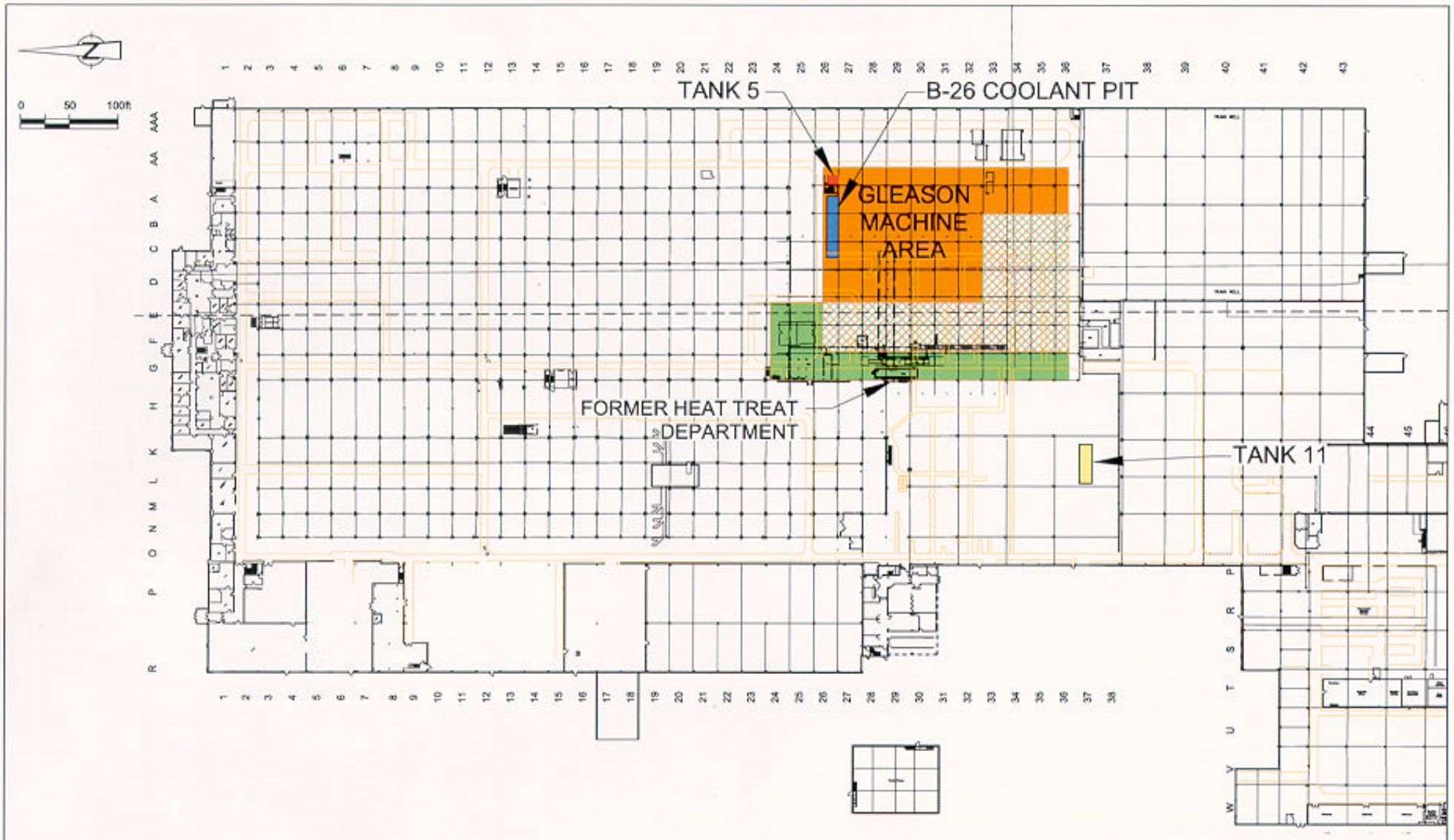


figure 1.3
SITE BOUNDARY
FORMER GM SAGINAW DIVISION
BUFFALO FACILITY
Buffalo, New York

12635-03(010)GN-NF003 JUN 10/2005



NOTE:
FORMER HEAT TREATMENT DEPARTMENT 1940-1968
GLEASON MACHINE AREA 1966-1993+

figure 4.1

REMAINING AREAS OF CONCERN
FORMER GM SAGINAW DIVISION, BUFFALO FACILITY
Buffalo, New York

12635-03(009)GN-NF026 JUL 06/2005