1736-3D-AWMT

PHASE I ENVIRONMENTAL SITE ASSESSMENT
OF

FORMER HARRIS-THOMAS DROP FORGE
1400 EAST FIRST STREET
DAYTON, OHIO 45403

ATC PROJECT NO. 72.35163.0001

JULY 16, 2007

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1.0 EXECUTIVE SUMMARY

ATC Associates Inc. completed a Phase I Environmental Site Assessment (ESA) of the Former Harris-Thomas Drop Forge property at 1400 East First Street, Dayton, Ohio (herein referred to as "the Site") during June-July 2007, on behalf of the RAS Management Advisors, Inc. RAS Management Advisors, Inc. has been appointed receiver of the property in a foreclosure action by PNC Bank. The study was performed relative to potential sale of the Site by PNC Bank. The study was performed in general accordance with ASTM Standard E 1527-05.

The Site (currently vacant) was vacated approximately one year ago by Harris-Thomas Drop Forge Company which utilized the Site to manufacture steel parts for the automotive and other industries. The Site is occupied by six separate mostly one-story buildings (one composed of approximately eight additions) of various construction. The buildings range in age from before 1898 to the 1990s. The buildings encompass approximately 45,000 square feet of area, and are located on two consolidated parcels totaling approximately 3.6 acres. Historic records indicate that the Site has been occupied by an oil distributor (1898), metal foundries (early 1900s), boiler makers (early 1900s), painting contractors (1960s), a metal treating company (1970s) and forging companies (1920s to 2006).

Five *recognized environmental conditions* (RECs) were identified in association with the Site: i) historic land use for commercial/industrial operations which likely involved the use and storage of hazardous materials, ii) the former presence of separate phase product in association with three closed-in-place heating oil USTs on-site, iii) soil staining and apparent surficial petroleum spills from on-site operations, iv) the former presence of a gasoline UST on the northern portion of the Site, and v) the presence of potentially hazardous fill and unknown fill at the Site.

The Site has been occupied by commercial/manufacturing businesses for over 100 years. An oil distributor was present on the northwestern corner as early as 1898. Subsequent businesses have been involved with foundry work, boiler making, steel forging, and metal treating. Waste generation, storage and disposal methods associated with older historic Site operations are unknown, and as such, are considered to represent a *recognized environmental condition*.

Previous subsurface investigations identified a plume of free petroleum product (reportedly up to 12" thick) and associated impacted groundwater in the northeastern corner of the Site (including a lot now split off from the Site). The plume apparently originated from three heating oil USTs that have been closed in-place at the site. The plume has migrated northeasterly from the source area. An enhanced bioremediation system was reportedly installed approximately 9 years ago. Limited groundwater investigation in 1998 did not identify the presence of separate phase product at the time. Subsequent information regarding the system or resulting groundwater conditions was not available. The free product plume is considered a *recognized environmental condition.*

Current site reconnaissance and previous environmental reports noted the presence of numerous petroleum stains and apparent oil saturated soils around the facility. Recent observations noted the current presence of abandoned oil drums and apparent hydraulic oil reservoirs. A previous report noted that a dry well that received surficial run-off was present in the craneway at the Site. The presence of staining, current abandoned petroleum product containers on-site and a former dry well receiving potentially impacted runoff are evidence of potential widespread petroleum impact to surficial soils at the Site, and as such, are considered to represent a *recognized environmental condition*.

A 450-gallon gasoline UST was reported located on the northern portion of the Site. The tank was reportedly taken out of operation and removed in the 1980s due to releases of gasoline to the sewer

system. Documentation indicates that a soil boring was installed in the area of the former UST in 1998 and groundwater sampled and analyzed for BTEX and PAHs. Soil information was not available. Given that soil conditions in the area of the former UST are not known, it is considered a *recognized environmental condition.*

Previous subsurface investigations at the Site noted the presence of up to 12 feet of fill including foundry sand and cinders. Historic maps note that a canal dissected the southern portion of the Site in the 1800s and early 1900s. The canal had been filled by 1938. The presence of unknown fill and known potentially hazardous fill (foundry sand) is considered a *recognized environmental condition.*

Further investigation is recommended in association with the above-referenced RECs to assess current environmental conditions at the Site.

2.0 INTRODUCTION

2.1 Purpose

The purpose of this Phase I ESA was to identify *recognized environmental conditions* within the scope of ASTM Standard Practice E 1527-05 in connection with the Site at the time of the site reconnaissance. This report documents the findings, opinions, and conclusions of the Phase I ESA.

2.2 Scope of Services

This Phase I ESA was conducted in general accordance with the ASTM Standard Practice E 1527-05, consistent with a level of care and skill ordinarily practiced by the environmental consulting profession currently providing similar services under similar circumstances. Significant additions, deletions, or exceptions to ASTM Standard Practice E 1527-05 are noted below or in the corresponding sections of this report. The scope of this assessment included an evaluation of the following:

- Physical setting characteristics of the Site through a review of referenced sources such as topographic maps and geologic, soils and hydrologic reports,

- Usage of the Site, adjoining properties and surrounding area through a review of referenced historical sources such as fire insurance maps, city directories, aerial photographs, prior reports, and interviews,

- Observations and interviews regarding current Site usage and conditions including: the use, treatment, storage, disposal, or generation of hazardous substances, petroleum products, hazardous wastes, nonhazardous solid wastes and wastewater,

- Usage of adjoining and surrounding area properties and the likely impact of known or suspected releases of hazardous substances or petroleum products from those properties on the Site, and

- Information in referenced environmental agency databases and local environmental records, within the specified approximate minimum search distance from the Site.

2.3 Significant Assumptions

This report assumes that surface topography and drainage patterns are reflective of groundwater flow in the uppermost water-bearing unit beneath the area of the Site. Groundwater flow beneath the area of the Site is assumed to flow generally to the northeast, for reasons discussed in Section 5.2.4 of this report. This assumption is utilized in assessing the potential for contaminants to migrate to or from the Site via groundwater. Assumptions made in this report are generally consistent with standard industry practice, in the absence of having site-specific data on groundwater flow direction.

2.4 Limitations and Exceptions

ATC has prepared this Phase I ESA report using reasonable efforts to identify *recognized environmental conditions* associated with hazardous substances or petroleum products at the Site. Findings contained within this report are based on information collected from observations made on the day of the site reconnaissance and from reasonably ascertainable information obtained from certain public agencies and other referenced sources.

The ASTM Standard Practice E 1527-05 recognizes inherent limitations for Phase I ESAs, including, but not limited to:

- *Uncertainty Not Eliminated* – A Phase I ESA cannot completely eliminate uncertainty regarding the potential for *recognized environmental conditions* in connection with the Site.

- *Not Exhaustive* – A Phase I ESA is not an exhaustive investigation of the Site and environmental conditions on such property.

- *Past Uses of the Site* – Phase I requirements only require review of standard historical sources at five year intervals. Therefore, past uses of Site at less than five year intervals may not be discovered.

Users of this report may refer to ASTM Standard Practice E 1527-05 for further information regarding these and other limitations. This report is not definitive and should not be assumed to be a complete and/or specific definition of all conditions above or below grade. Current subsurface conditions may differ from the conditions determined by surface observations, interviews, and reviews of historical sources. The most reliable method of evaluating subsurface conditions is through intrusive techniques, which are beyond the scope of this report. Information in this report is not intended to be used as a construction document and should not be used for demolition, renovation, or other Site construction purposes. Any use of this report by any party, beyond the scope and intent of the original parties, shall be at the sole risk and expense of such user.

ATC makes no representation or warranty that the past or current operations at the Site are, or have been, in compliance with all applicable federal, state, and local laws, regulations and codes. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated. Regardless of the findings stated in this report, ATC is not responsible for consequences or conditions arising from facts not fully disclosed to ATC during the assessment.

An independent data research company provided the government agency database referenced in this report. Information on surrounding area properties was requested for approximate minimum search distances and is assumed to be correct and complete unless obviously contradicted by ATC's observations or other credible referenced sources reviewed during the assessment. ATC shall not be liable for any such database firm's failure to make relevant files or documents properly available, to properly index files, or otherwise to fail to maintain or produce accurate or complete records.

ATC used reasonable efforts to identify evidence of aboveground and underground storage tanks and ancillary equipment on the Site during the assessment. "Reasonable efforts" were limited to observation of accessible areas, review of referenced public records and interviews. These reasonable efforts may not identify subsurface equipment or evidence hidden from view by things including, but not limited to, snow cover, paving, construction activities, stored materials and landscaping.

Any estimates of costs or quantities in this report are approximations for commercial real estate transaction due diligence purposes and are based on the findings, opinions, and conclusions of this assessment, which are limited by the scope of the assessment, schedule demands, cost constraints, accessibility limitations, and other factors associated with performing the Phase I ESA. Subsequent determinations of costs or quantities may vary from the estimates in this report. The estimated costs or quantities in this report are not intended to be used for financial disclosure related to the Financial Accounting Standards Board (FASB) Statement No. 143, FASB Interpretation No. 47, Sarbanes/Oxley

Act or any United States Securities and Exchange Commission reporting obligations, and may not be used for such purposes in any form without the express written permission of ATC.

ATC is not a professional title insurance or land surveyor firm and makes no guarantee, express or implied, that any land title records acquired or reviewed in this report, or any physical descriptions or depictions of the Site in this report, represent a comprehensive definition or precise delineation of Site ownership or boundaries.

The Environmental Professional Statement in Section 13.0 of this report does not "certify" the findings contained in this report and is not a legal opinion of such *Environmental Professional*. The *Environmental Professional* Statement is intended to document ATC's opinion that an individual meeting the qualifications of an Environmental Professional was involved in the performance of the assessment and that the activities performed by, or under the supervision of, the *Environmental Professional* were performed in conformance with the standards and practices set forth in 40 CFR Part 312 per the methodology in ASTM Standard Practice E 1527-05 and the scope of work for this assessment.

Per ASTM Standard Practice E 1527-05, Section 6, User Responsibilities, the User of this assessment has specific obligations for performing tasks during this assessment that will help identify the possibility of *recognized environmental conditions* in connection with the Site. Failure by the User to fully comply with the requirements may impact their ability to use this report to help qualify for *Landowner Liability Protections* (LLPs) under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). ATC makes no representations or warranties regarding a User's qualification for protection under any federal, state, or local laws, rules, or regulations.

In accordance with the ASTM Standard Practice E 1527-05, this report is presumed to be valid for a six month period. If the report is older than six months, the following information must be updated in order for the report to be valid: (1) regulatory review, (2) site visit, (3) interviews, (4) specialized knowledge and (5) environmental liens search. Reports older than one year may not meet the ASTM Standard Practice 1527-05 and therefore, the entire report must be updated to reflect current conditions and Site-specific information.

Other limitations and exceptions that are specific to the scope of this report may be found in corresponding sections.

2.5 Special Terms and Conditions / User Reliance

This report is for the use and benefit of, and may be relied upon by the RAS Management Advisors, Inc., PNC Bank, and any of its affiliates, and third parties authorized in writing by RAS Management Advisors, Inc., PNC Bank, and ATC, including the lender(s) in connection with a secured financing of the Site, and their respective successors and assigns. Any third party agrees by accepting this report that any use or reliance on this report shall be limited by the exceptions and limitations in this report, and with the acknowledgment that actual site conditions may change with time, and that hidden conditions may exist at the Site that were not discovered within the authorized scope of the assessment. Any use by or distribution of this report to third parties, without the express written consent of ATC, is at the sole risk and expense of such third party.

ATC makes no other representation to any third party except that it has used the degree of care and skill ordinarily exercised by environmental consultants in the preparation of the report and in the assembling of data and information related thereto. No other warranties are made to any third party, either expressed or implied. Unless otherwise agreed upon in writing by ATC and a third party, ATC's liability to any third

party authorized to use or rely on this report with respect to any acts or omissions shall be limited to a total maximum amount of $100,000.

3.0 SITE DESCRIPTION

3.1 Location and Legal Description

The Site address is 1400 East First Street, Dayton, Montgomery County, Ohio 45403. The property is situated in Section 34, Town 2, Range 7, Miami River Survey. Based on information provided by the client and information from the Montgomery County Auditor's website, the Site consists of two consolidated parcels (R72 01108 0001 and R72 01108 0013) which include lots 1, 5, 8, 9, 10, 13-24, 26, and 28 of Plat Book 11, Page 8. The entire property encompasses approximately 3.6 acres.

3.2 Site and Vicinity General Characteristics

The Site is situated in an industrial area of Dayton, Ohio. The property is generally rectangular with a triangular extension to the southeast. The Site is bordered to the north by East First Street, beyond which is a vacant lot, to the east by Schumacher Crane Rental and BBC Converters, to the south by East Second Street, beyond which are Service Master Clean/Angler Construction and Patented Printing, and to the west by Harshman Street, beyond which is First Street Recycling. A Site Vicinity Map is located in Appendix A.

3.3 Current Use of the Site

The Site is currently vacant. The Site was formerly occupied by Harris-Thomas Drop Forge which operated at the Site from 1924 until 2006. A Site Plan is provided in Appendix B

3.4 Description of Site Improvements

Six separate buildings of various construction and ages are located on Site. The main building consists of approximately eight additions. Total square footage of all the buildings is approximately 45,000-square feet. The corporate office building located at the southwest corner of the Site is a two-story brick residential structure converted to offices. The main building has a small basement area in the central area serviced by a cable freight elevator and two small second story area located on the west side (office/attic space) and in the central area (locker room space). Buildings occupy approximately 30 percent of the Site. Historical data indicate that the corporate office building was constructed prior to 1898. The newest building is the southern warehouse built in the 1990s.

Paved parking areas are located at the north end and near the southwest corner of the Site and are accessed from Harshman and /or East First Street. A gravel lot is located at the southeast corner of the Site and is accessed from East Second Street.

Property topography consists of a relatively flat southern portion and a gently to moderately sloping northern portion. The northern portion slopes to the north towards the Mad River. There was no observed surface water (ponds, streams, etc.) at the Site during the reconnaissance. The Mad River flows to the west several hundred feet north of the Site. No evidence of a septic system, drinking water wells, waste pits, ponds or lagoons was noted during the Site reconnaissance. Evidence of former/abandoned monitoring wells were noted along the north, southeast and southwest portions of the Site. Concrete lined pits used to hold large equipment were noted inside three of the buildings.

The following table provides general descriptions of the property improvements.

PROPERTY IMPROVEMENTS	
Size of Property (approximate)	3.6 Acres
General Topography of Property	Relatively flat to moderately sloping
Adjoining and/or Access/Egress Roads	East First Street/Harshman Street/East Second Street
Paved or Concrete Areas (including parking)	Asphalt/concrete parking areas located at north and southwest portions of the Site
Unimproved Areas	Extreme southeast corner is undeveloped grass patch
Landscaped Areas	None
Surface Water	None
Potable Water Source	City of Dayton
Sanitary Sewer Utility	Montgomery County
Storm Sewer Utility	Montgomery County
Electrical Utility	Dayton Power and Light
Natural Gas Utility	Vectren
Current Occupancy Status	100% vacant
Unoccupied Buildings/Spaces/Structures	All
Number of Occupied Buildings	N/A
General Building Description	Buildings range from excellent (corporate offices and new warehouse) to poor (forge buildings)
Number of Floors	Mostly single-story ranging from 8-foot to 35-foot high ceilings
Total Square Feet of Space (approximate)	45,000 square feet
Construction Completion Date (year)	pre-1898 to 1990s
Construction Type	Varied: poured concrete floors, concrete block walls, brick, metal framed with sheet metal siding/roofing.
Interior Finishes Description	Offices with ceiling tiles, carpeting, floor tiles, sheet rock, wood paneling, etc. Industrial areas unfinished.
HVAC System Type	Various: gas-fired forces air, circulating hot water pumps, electric wall units, gas space heaters.
Emergency Power	No

Site photographs are provided in Appendix C.

3.5 Current Uses of Adjoining Properties

Current uses of the adjoining sites were observed to be as follows:

Direction from Property	Address	Occupant(s) Name	Current Use	Potential Environmental Conditions
North	N/A	N/A	vacant	No observed present day concerns.
East	1518 East First Street, 109 Webb Street	Schumacher Crane Rental, BBC Converters	crane rental, unknown	No observed present day concerns.
South	1524 East Second Street, 1630 East Second Street	Service Master Clean, Patented Printing	construction contractor, printing	No observed present day concerns.
West	1321 East First Street	First Street Recycling	recycling center	No observed present day concerns.

4.0 USER PROVIDED INFORMATION

The following section summarizes information (if any) provided by RAS Management Advisors (User) with regard to the Phase I ESA. Documentation may be found in Appendix D or where referenced in this report.

4.1 Title Records

User provided current title information and legal descriptions of the property. Title information is provided in Appendix D.

4.2 Environmental Liens or Activity and Use Limitations (AULs)

User did not provide researched information regarding recorded environmental liens and/or AULs. User indicated in a questionnaire that they were not aware of any environmental liens or AULs. Such information was requested by ATC from Ameristar Information Network but has not yet been received.

4.3 Specialized Knowledge

User provided no specialized knowledge regarding *recognized environmental conditions* associated with the Site.

4.4 Commonly Known or Reasonably Ascertainable Information

User provided no information regarding commonly known or reasonably ascertainable information about the Site.

4.5 Significant Valuation Reduction for Environmental Issues

User provided no information regarding a significant valuation reduction for environmental issues associated with the Site.

4.6 Owner, Site Manager and Occupant Information

User provided the name of the security company, Grey's Security of Dayton, Ohio, which is currently in charge of access to the Site. No contacts regarding site use and operations were provided.

4.7 Reason for Performing Phase I ESA

The User indicated that they are the appointed receiver of the Site during foreclosure of the property by PNC Bank. The User is performing due diligence at the Site prior to the potential acquisition/seizure and sale of the property.

4.8 Other User Provided Documents

User provided ATC with previous reports of environmental and geotechnical investigations at the Site as summarized in Section 5.3.9.

5.0 RECORDS REVIEW

5.1 Standard Environmental Records

The regulatory agency database report discussed in this section, provided by Environmental Data Resources of Milford, Connecticut, was reviewed for information regarding reported releases of hazardous substances and petroleum products on or near the Site. ATC also reviewed the "unmappable" (also referred to as "orphan") listings within the database report, cross-referencing available address information and facility names. Unmappable sites are listings that could not be plotted with confidence, but are potentially in the general area of the Site based on the partial street address, city, or zip code. Any unmappable site that was identified by ATC as a being within the approximate minimum search distance from the Site based on the site reconnaissance and/or cross-referencing to mapped listings, is included in the discussion within this section. The complete regulatory agency database report may be found in Appendix E.

The following is a summary of the findings of the database review.

SUMMARY OF FEDERAL, STATE AND TRIBAL DATABASE FINDINGS			
Regulatory Database	**Approx. Minimum Search Distance**	**Property Listed?**	**# Sites Listed**
Federal National Priority (NPL)	1 mile	No	0
Federal Delisted NPL	½ mile	No	0
Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) list	½ mile	No	0
Federal CERCLIS No Further Remedial Action Planned (NFRAP)	½ mile	No	0
Federal Resource Conservation and Recovery Act (RCRA), Corrective Action facilities (CORRACTS)	1 mile	No	4
Federal RCRIS non- CORRACTS Treatment, Storage, and Disposal Facilities (TSD)	½ mile	No	1
Federal RCRA Generators	¼ mile	Yes	13
Federal Institutional Control/Engineering Control Registry	Property	No	0
Federal Emergency Response Notification System (ERNS) list	Property	No	0
Ohio EPA Division of Emergency and Remedial Response (DERR)	1 mile	No	6
Ohio Master Sites List (MSL)	1 mile	No	3
State Landfill Sites	½ mile	No	0
State and Tribal Leaking Underground Storage Tanks (LUST)	½ mile	No	33
State and Tribal Registered Underground Storage Tanks (UST)	¼ mile	No	11
Unregulated Tanks	½ mile	No	0
Ohio Spills	Target Property Only	Yes	0
State and Tribal Institutional Control/Engineering Control Registry	Property	No	0
State and Tribal Voluntary Cleanup Site	½ mile	No	0
State and Tribal Brownfield Sites	½ mile	No	0

The Site was not listed in the regulatory databases reviewed as part of this assessment.

5.1.1 Federal Agency Database Findings

The Site was identified in the EDR report as a RCRA small quantity hazardous waste generator facility, as discussed below:

Harris-Thomas Drop Forge
1400 East First Street
Databases: RCRA generator
Regulatory Data Summary: No violations found.
Discussion: Previous reports indicate that hazardous waste was formerly generated from solvent parts washers located in concrete floored buildings on-site. The amount of waste material generated each month was small and no violations were recorded.

The Site was not identified in any of the other federal agency databases reviewed.

The Site is located in an old industrialized area of Dayton. Consequently, the database lists numerous facilities in the vicinity of the Site. Groundwater at the Site is known to flow towards the northeast. Accordingly, facilities located to the north, east, and northwest are considered to be down- or crossgradient and are unlikely to environmentally impact the Site. Also, those upgradient facilities greater than approximately 0.25 mile from the Site are not likely to have significant impact on the Site.

Upgradient federal facilities identified less than 0.25 mile from the Site are summarized below. A complete list of facilities is included in Appendix E.

SUMMARY OF FEDERAL DATABASE FINDINGS OF POTENTIAL CONCERN					
Facility Name	Database	Address	Distance/Direction	Gradient Direction	Comments
Production Screw Machine	RCRA sm. gen.	1414 E 2nd St	Southwest adjacent	upgradient	No violations
Patented Printing	RCRA sm. gen.	1630 E 2nd St	South adjacent	upgradient	No violations
Dayton Trailer Mfg UHaul	RCRA sm. gen.	31 S Beckel St	1200 feet southwest	upgradient	No violations
Dial Machine Co	RCRA sm. gen.	38 S Beckel St	1200 feet southwest	upgradient	No violations
Dayton RERS	RCRA sm. gen.	1340 E 3rd St	1200 feet southwest	upgradient	No violations

Based on distance, topography, assumed groundwater gradient, current regulatory status, and/or the absence of reported releases, none of the off-site facilities listed in the federal agency databases are considered to represent a likely past, present or material threat of release on the Site.

5.1.2 State and Tribal Database Findings

The Site was identified in the EDR report as having two Ohio spills incidents, as discussed below:

Harris-Thomas Drop Forge
1400 East First Street
Databases: Ohio Spills
Regulatory Data Summary: Spill years 1989 and 2007.
Discussion: The first incident was reported as "smoke." Smoke may be an indicator of other conditions (e.g., a fire); however, documentation of such is was not provided in the records

reviewed. The second incident reported in February 2007 was reported as oil. ATC contacted the Ohio EPA for further information. Records provided by the EPA (see Appendix I) indicate an anonymous report of oil spilled all over inside of a closed factory. No additional information regarding the actual spill (size, location, etc.) was provided. The matter was referred by EPA to the City of Dayton. Site reconnaissance indicated that oil staining indicative of a release of at least a small amount of petroleum is present at various locations around the Site.

The Site was not identified in any of the other site/tribal agency databases reviewed.

The Site is located in an old industrialized area of Dayton. Consequently, the database lists numerous facilities in the vicinity of the Site. Groundwater at the Site is known to flow towards the northeast. Accordingly, facilities located to the north, east, and northwest are considered to be down- or crossgradient and unlikely to environmentally impact the Site. Also, those upgradient facilities greater than approximately 0.25 mile from the Site are not likely to have significant impact on the Site.

Upgradient state facilities identified less than 0.25 mile from the Site are summarized below. A complete list of facilities is included in Appendix E.

SUMMARY OF STATE DATABASE FINDINGS OF POTENTIAL CONCERN					
Facility Name	Database	Address	Distance/Direction	Gradient Direction	Comments
Patterson Iron & Metal	UST/LUST	233 Crane St	West adjacent	up to crossgradient	No Further Action status
Big Daddy's Mini-Mart	UST/LUST	1627 E 3rd St	500 feet south	upgradient	2 USTs in use, No Further Action status
Multi Service Inc	UST	58 Ringgold	900 feet south	upgradient	UST removed
Old Dayton Mfg Plant	UST/LUST	31 S Beckel St	1200 feet southwest	upgradient	UST removed, No Further Action status

Based on distance, topography, assumed groundwater gradient, current regulatory status, and/or the absence of reported releases, none of the off-site facilities listed in the state/tribal agency databases are considered to represent a likely past, present or material threat of release on the Site.

5.1.3 Local Environmental Records Sources

Local Health Department

Dayton Health Department Records were not reviewed as they would be unlikely to reveal information relative to recognized environmental conditions, and/or were unlikely to reveal historical information beyond that revealed by the other sources reviewed.

Fire Department

ATC contacted the Dayton Fire Department for historical information regarding fires, storage tanks, chemical spills, or other incidents of potential environmental concern at the site. Records were on file for a fire inspection, construction records, a tank permit, and a fire run. Records for fire runs extended back to 1991. An inspection record on file for September 20, 1988 indicated that the Dayton Fire Department along with representatives of the Ohio EPA, investigated a spill of oil into the Miami River and

determined that the release came from a storm sewer outlet at the Harris-Thomas Drop Forge facility. An accumulation of oil was also observed at a railroad siding between Harris-Thomas and the east adjacent B.G. Danis Company. The records indicate that in 1988 Harris-Davis had three USTs and three aboveground storage tanks. The file record notes that the aboveground tanks (one diesel tank and two gasoline tanks) were to be removed. This incident appears to be the same incident referenced in previous Site environmental reports as discussed in Section 5.3.9. According to the fire department, construction records on file make no mention of tanks or spills at the Site. A tank permit from April 6, 1979 indicates that one 10,000-gallon UST (contents not mentioned) had its interior coated but failed its final inspection. No further information was provided. One fire run record was on file. The run occurred on May 25, 1994 but no further information was available. Copies of Dayton Fire Department records are provided in Appendix I.

Department of Planning and Zoning

Dayton Department of Planning and Zoning Records were not reviewed as they would be unlikely to reveal information relative to recognized environmental conditions, and/or were unlikely to reveal historical information beyond that revealed by the other sources reviewed.

Building Department

ATC did not review Dayton Building Department Records.

Other Local Environmental Records Sources

No additional local environmental records sources were reviewed.

Interviews referenced above are further addressed in Section 7.0 of this report, where appropriate.

5.2 Physical Setting Sources

5.2.1 Topography

ATC reviewed the 7.5-minute USGS Dayton North, Ohio Topographic quadrangle, which indicated that the Site was located approximately 750 feet above mean sea level in an are that slopes gently to moderately to the north towards the Mad River. Individual buildings are not shown on or in the area of the Site. The area is designated as a highly developed area. A copy of the topographic map is included in Appendix A.

5.2.2 Geology

Southwest Ohio is characterized by pre-glacial valleys carved into underlying bedrock. The valleys have been partially filled with unconsolidated clay, sand and gravel deposits during Pleistocene glaciation. The Site is located in the Great Miami River valley on a glacial outwash terrace southeast of the confluence of the Great Miami River and the Mad River. Bedrock at depth in the area consists of Ordovician and Silurian-age interbedded plastic shales and limestones. Outwash sand and gravel deposits overlie bedrock (James J. Schmidt, 1986; Bownocker, 1920, reprinted 1992).

A review of water well logs for the area surrounding the Site available from the Ohio Department of Natural Resources (ODNR) indicate that the area surrounding the Site is underlain primarily by an upper layer of silt, sand and gravel of alluvium and outwash deposits to depths of 40 to 60 feet and a lower layer of sand and

gravel that may be over one hundred feet thick that serves as the primary aquifer in the Dayton vicinity. The two layers are separated by a sheet of clay-rich glacial till from 10 to 30 feet thick (see Bowser Morner, 1989). Depth to bedrock is approximately 200 feet.

5.2.3 Soils

According to the information provided in the United States Department of Agriculture *Soil Survey of Montgomery County* (1976), soils at the site are identified as Fox-Urban Land complex, gently sloping (FuB). These soils consist of urban land and well-drained Fox soil formed in loamy glacial outwash material found on terraces.

5.2.4 Hydrology

Geologic materials in the property vicinity provide an excellent source of groundwater (Schmidt, 1986). Wells installed into the permeable sand and gravel outwash deposits of the Great Miami/Mad River valley are recharged by nearby rivers/streams and typically yield more than 500 gallons per minute (gpm). Yields as much as 1,000 gpm have been reported. ODNR well logs from the area indicate that static ground water levels may range from as little as five to as much as 50 feet below ground surface.

Previous on-site hydrogeologic studies indicate groundwater beneath the site flows to the northeast at depths of approximately 15 to 30 feet (see Section 5.3.9).

Potable water for the majority of the Dayton area (including the site vicinity) is provided by the City of Dayton from groundwater wells located adjacent to the Great Miami River approximately two miles west of the site. The buried valley aquifer in the site vicinity is used as the primary drinking water source for the City of Dayton.

5.2.5 Other Physical Setting Sources

Flood Plain Map

ATC reviewed the Federal Emergency Management Agency's Flood Rate Insurance Map for the Site. The Site was not included in the shaded flood zone areas.

Wetlands Map

ATC reviewed the United States Geologic Survey's National Map (http//.nationalmap.gov) relative to wetland environments on the property and adjacent sites. The closest wetland environment was the Mad River located several hundred feet north of the Site.

5.3 Historical Use Information

5.3.1 Aerial Photographs

ATC reviewed available aerial photographs of the Site and surrounding available for the Montgomery County Engineer's Office. Available aerial photographs ranged from 1938 to 2005. The following are descriptions and interpretations from the aerial photograph review.

AERIAL PHOTOGRAPH SUMMARY

Year	Scale	Comments
1938 1949 1968	1”=700’ 1”=700’ 1”=400’	**Property**: The scale and resolution of these photographs did not allow detailed observations of the property. The southern portion of the Site appears occupied by a row of small buildings similar to residential buildings. North of the row of buildings is a vacant strip corresponding to a canal seen on historical maps. The canal appears filled in in the earliest photograph. The northern and central portions of the Site appear developed with industrial buildings. **Surrounding Area**: The poor quality of the photos made detailed observations difficult. The surrounding area to the south and west appeared residential. Industrial properties were located to the east and northwest. The north adjacent property is vacant beyond which is a rail yard.
1980 1987	1”=400’ 1”=400’	**Property**: A single building is located on the southwest corner (i.e., corporate building). The remainder of the southern portion is a parking lot. The central and northern portions are occupied by industrial buildings similar to the current structures with the exception that an extra building is located on the north end of the property where a parking lot currently exists. **Surrounding Area**: The surrounding area to the east, south and west appeared commercial/industrial. The north adjacent property is vacant beyond which is a rail yard.
1995 2000 2005	1”=400’ 1”=400’ 1”=400’	**Property**: A single building is located on the southwest corner (i.e., corporate building). The south-central portion remainder is occupied warehouse. The southeast corner is vacant. The central and northern portions are occupied by industrial buildings similar to the current structures. The northern end is a parking lot. **Surrounding Area**: The surrounding area to the east, south and west appeared commercial/industrial. The north adjacent property is vacant beyond which is a rail yard.

The review of aerial photographs did not reveal any specific environmental conditions relative to the property except that the property and surrounding sites have been developed for apparent industrial use since at least the 1930s. Copies of representative aerial photographs are included in Appendix F.

5.3.2 Fire Insurance Maps

A search for fire insurance maps for the Site and surrounding area was conducted by EDR, Inc. The following are descriptions and interpretations from the fire insurance map review. Documentation is included in Appendix G.

Fire Insurance Maps for the Site were available for 1898, 1918, 1950, 1955, 1962, 1966, 1981, and 1985. In the 1898 and 1918 maps, the site is divided by an east-west canal located between East Second Street and Crane Street. South of the canal are residences. North of the canal in 1898 are an ice house and the Mutual Oil Company. In 1918 the north part of the Site is occupied by the Advance Foundry Company (southern portion adjacent to canal), the American Foundry and Casting Company (northern portion), and the Enterprise Boiler Works and Automatic Furnace Co. (east-central portion). By 1950 and later the canal has been filled. Houses are located on the southern portion of the Site from 1950 to 1966. In the 1981 and 1986 maps the southern portion is occupied by only the southwestern most residence used for offices. The remainder of the southern portion is used for parking. In 1950 and later maps, the central portion of the Site is occupied by the Harris-Thomas Drop Forge Company. The building depicted in 1950 appears much like the main building currently located on-site. The northern portion of the Site is

occupied by two private garage buildings in 1950. The northern-most of these buildings is occupied by a painting contractor in 1962 and 1966, and unlabeled in 1981 and 1985. The Die Forging building is present in the 1981 and 1985 maps.

In 1898 surrounding areas were residential to the south and west and vacant to the east. The northwest property to the west of Harshman Street was occupied by a varnish works. The north adjacent area was not depicted. In the 1918 and later maps the north adjacent property is occupied by a rail yard. Adjacent areas to the south and west were residential until after 1966. The residential areas were replaced by parking in 1981 and 1985. The northwest property to the west of Harshman Street was occupied by the Buckeye Bedding Company in 1918 and by unlabeled buildings in 1950 and later maps. To the east of the Site in 1918 were from north to south a construction company, a varnish works, and a machine shop. The construction contractor and varnish works remained through the 1986 map. The machine shop was replaced by a brass foundry/pattern shop and plaster foundry which persisted through to the 1985 map. A grocery warehouse was also located on the east adjacent property in 1950, 1955 and 1960.

5.3.3 Property Tax Files

ATC did not review property tax files as they were unlikely to reveal historical information beyond that revealed by the other sources reviewed.

5.3.4 Recorded Land Title Records

Land title records were requested from Ameristar Information Network but have not yet been received.

5.3.5 Historical USGS Topographic Quadrangles

A search for historic topographic maps for the Site and surrounding area was conducted by EDR, Inc. EDR provided topographic maps dated 1906, 1955, 1955, 1965, 1974, 1981, 1984, 1992 and 1996. The following are descriptions and interpretations from the topographic map reviews. Documentation is included in Appendix G.

The scale of the 1906 topographic map (1:62,500) did not allow accurate observation of the Site. The later topographic maps (scale 1:24,000) showed the Site and surrounding areas shaded pink, indicating a developed urban area. A rail spur is shown entering the northeast side of the Site.

5.3.6 City Directories

Research regarding the availability of historical city directories was conducted by Mr. Kemp Jaycox and Mr. Mark Allex at the Dayton Public Library. Listings were researched along East First, East Second, Webb and Harshman Streets in the vicinity of the Site. Listings for the Site were not available prior to 1905-06, and for the Site vicinity before 1916. The following are descriptions and interpretations from the historical city directory review.

CITY DIRECTORY SUMMARY	
Year	**Comments**
1905-06 1911-12	**Property**: Advance Iron Foundry
1916	**Property**: Residences, American Foundry and Casting, Enterprise Boiler Works **Surrounding Area**: North-Cincinnati, Hamilton & Dayton Railroad; East - A and Sons Co.; South – residential; West - residential
1921	**Property**: Residences, American Foundry and Casting, Automatic Furnace Co., National Drop Forging Co **Surrounding Area**: North – not listed; East – Danis-Hunt Construction Co.; South – residential; West - residential
1926	**Property**: Residences, Rosencrans Foundry, Automatic Furnace Co., Harris-Thomas Drop Forge **Surrounding Area**: North – B&O Railroad; East - Danis-Hunt Construction Co., CM Walter Co. oils; South – residential; West - residential
1931	**Property**: Residences, Kroger Grocery, Reliable Foundry, Dayton Stoker Co., Harris-Thomas Drop Forge **Surrounding Area**: North – B&O Railroad; East – Danis-Hunt Construction Co. CM Walter Co. oils; Sulivan Coal; South – residential; West - residential
1936	**Property**: Residences, Harris-Thomas Drop Forge **Surrounding Area**: North – B&O Railroad; East – Danis-Hunt Construction Co., CM Walter varnish, Gutherie Coal, Molded Alloys die casting; South – residential; West - residential
1941	**Property**: Residences, Harris-Thomas Drop Forge **Surrounding Area:** North – not listed; East – BG Danis Co., CM Walter varnish, Cash Coal, Di Mold Corp.; South – residential; West - residential
1946	**Property**: Residences, Harris-Thomas Drop Forge **Surrounding Area:** North – not listed; East – BG Danis Co., CM Walter varnish, McCarthy Coal, Di Mold Corp.; South – residential; West - residential
1948	**Property**: Residences, Harris-Thomas Drop Forge **Surrounding Area:** North – not listed; East – BG Danis Co., CM Walter varnish, McCarthy Coal, Ohio Precision Casting; South – residential; West – Miami Valley Brewing
1954-55	**Property**: Residences, Harris-Thomas Drop Forge **Surrounding Area:** North – not listed; East – BG Danis Co., Bode Finn, CM Walter varnish, Scrap Inc., Ohio Precision Casting, supermarket; South – residential
1959	**Property**: Residences, Harris-Thomas Drop Forge **Surrounding Area:** North – not listed; East – BG Danis Co., Bode Finn, CM Walter varnish, Ohio Precision Casting, supermarket; South – residential; West – Patterson Iron and Metal
1964	**Property**: Residences, Harris-Thomas Drop Forge, Ohio Valley Painting **Surrounding Area:** North – not listed; East – BG Danis Co., Bode Finn, CM Walter varnish, Ohio Precision Casting; South – residential; West – Jadal Inc.
1970	**Property**: Residences, Harris-Thomas Drop Forge **Surrounding Area:** North – not listed; East – Ohio Precision Casting; South – residential; West – Patterson
1975	**Property**: Harris-Thomas Drop Forge, Certified Heat Treating **Surrounding Area:** North – not listed; East – Ohio Precision Casting; South – residential; West – Patterson Iron & Metal

CITY DIRECTORY SUMMARY	
Year	**Comments**
1980 1985	**Property**: Harris-Thomas Drop Forge **Surrounding Area:** North – not listed; East – BG Danis Co., Ohio Precision Casting; South – not listed; West – Patterson Iron & Metal
1990	**Property**: Harris-Thomas Drop Forge **Surrounding Area:** North – not listed; East – BG Danis Co., Globe Safety Equipment Co.; South – Gypsum Interiors, Suburban Door and Hardware, Patented Printing; West – First Street Recycling
1995	**Property**: Harris-Thomas Drop Forge **Surrounding Area:** North – not listed; East – Danis Industries, Schumacher Crane, Mainline Road, Southpaw Industries; South – Gypsum Interiors, Suburban Door and Hardware, Patented Printing; West – First Street Recycling
2000	**Property**: Harris-Thomas Drop Forge **Surrounding Area:** North – not listed; East – Danis Industries, Schumacher Crane, Team; South – Gypsum Interiors, Suburban Door and Hardware, Patented Printing; West – First Street Recycling
2005	**Property**: Harris-Thomas Drop Forge **Surrounding Area:** North – not listed; East –Schumacher Crane; South – Gypsum Interiors, Angler Construction, Patented Printing; West – First Street Recycling

Based on ATC's review of city directories, it appears that the Site was developed as a manufacturing facility prior to 1940. Surrounding properties in general have been used for manufacturing or commercial uses. A detailed listing of directory records is provided in Appendix G.

Environmental concerns identified during the city directory review include the following:

- Property use as an oil storage and distribution facility in 1898,
- Property use as foundries in 1918,
- Property use as a metal fabricating and forging from 1921 to 2006,
- East adjacent site use for varnish manufacture (1926-1964), and
- East adjacent site use for metal alloying and casting (1936-1985).

5.3.7 Building Department Records

ATC did not review historic building department records.

5.3.8 Zoning/Land Use Records

ATC did not review historic zoning or land use records as they were unlikely to reveal historical information beyond that revealed by the other sources reviewed.

5.3.9 Prior Reports

Ten previous reports were provided to ATC by the User. Each report is cited below, with a brief synopsis of the findings.

Bowser Morner, "Soil Study for a Proposed Die Forge Machine Foundation, Harris-Thomas Drop Forge Company, First Street, Dayton, Ohio," prepared for Craig Martin Construction Company, Inc., Report No. 29897-488-285, dated April 22, 1988.

Two geotechnical borings were installed to 31.5 feet in an existing building (die forging bldg) in the area of a proposed die forge machine foundation. Soil consists of 7-12 feet of fill including black foundry sand, sand and gravel, brick fragments and slag. Underlying material consists of silt with clay, sand and gravel interbedded with sand and gravel. Groundwater was encountered at depths of 16-17 feet.

Bowser Morner, "Preliminary Hydrogeological Investigation," prepared for Harris-Thomas Drop Forge Co., Report No. 50573-189-767, dated January 3, 1989.

The purpose of the investigation was to characterize hydrogeologic conditions including identification of geologic materials, determine the stratigraphic sequence and groundwater flow direction and estimate the rate of flow. The characterization was based on three sets of previous borings including those from the above-referenced April 22, 1988 report. Geologic material consists of surficial fill including cinders, foundry sand, silt, sand, gravel, and clay. Given that no wells were installed, groundwater conditions were inferred not measured directly. Silt layers are apparently confined to the east side of property.

Bowser Morner, "Status of Environmental Investigations, Harris-Thomas Drop Forge Company, Dayton, Ohio," prepared for Harris-Thomas Drop Forge Co., Report No. 50573-990-704-R, dated September 4, 1990.

Two borings were installed from 16 to 23.5 feet in possible source areas of petroleum impact on-site, i.e., between the heating oil USTs and a retaining wall located east of the steel stock building. An on-site rail spur was located at the bottom of the retaining wall. Two samples from each boring were analyzed for total petroleum hydrocarbons (TPH). Two samples from the bottom of one boring (SB-3) were also analyzed for benzene, toluene, ethylbenzene, and xylene (BTEX). The highest TPH concentration was 1,300 mg/kg. Detected BTEX concentrations were 0.037 mg/kg, 0.043 mg/kg, 0.22 mg/kg, and 1.2 mg/kg, respectively. The report states that hydrocarbons have been observed seeping from the retaining wall.

The Payne Firm, "ASTM Phase I Environmental Site Assessment, The Harris-Thomas Drop Forge Property, 1400 East First Street, Dayton, Ohio," Project No. 0659.01, dated August 5, 1997.

The Phase I ESA was based on a site visit, interviews with site personnel, review of historical sources, and regulatory agency databases. The Site was in operation as a drop forge facility by Harris-Thomas at the time of the investigation. Operations at the site included die production, bar stock shearing, stock heating, forging, coining and cleaning of parts. Equipment included die forgers, hydraulic and reciprocating presses, and electric induction furnaces.

Historic information indicated that current operations were initiated in 1924. The south side of the site was residential until about 1981. A canal existed between the residential area and the remainder of the site until filled between 1918 and 1950. Before 1924, the Site was occupied by the American Casting Foundry and the Advance Foundry Company. The Mutual Oil Company occupied the Site in 1898. The Payne Firm did not identify uses prior to 1898. The Payne Firm noted that a building occupied by Certified Heat Treating until about 1980 was formerly located north of the die forger building and a storage building demolished in 1974 was located east of the die forger building.

The Payne Firm identified 52 facilities during regulatory database review. The Site was listed as a RCRA small quantity hazardous waste generator without recorded violations. The Payne Firm did not believe that any of the listed facilities were likely to impact the Site.

The following hazardous materials were used at the Site in 1997: parts washing solvents used at four stations around the facility, cooling tower treatment fluids, lubricants/hydraulic oils stored in drums (die forger, die shop, press shop, forge shop), kerosene for heaters stored in aboveground storage tanks (ASTs), and dielectric fluids stored in drums in the die shop. Interviews with on-site personnel indicated that 3 USTs located in the vicinity of the forge shop formerly stored heating oil for fueling slot furnaces and a boiler. The heating oil USTs were filled with concrete and abandoned in place in 1989. A former gasoline UST (450-gallons) was located west of the former Certified Heat Treating building in the 1960s/1970s and was taken out of service in 1980 and removed in 1986. The gasoline UST had been found to be leaking into a storm sewer. Five ASTs were present at the Site in 1997. Two ASTs located in the steel yard/craneway area contained kerosene for fueling space heaters. Two ASTs were used to store water for the cooling towers. One AST in the die shop was used to store dielectric fluid. The Payne Firm reported that five pad-mounted transformers and 31 capacitors were present at the facility. On-site personnel reported to The Payne Firm that the fluids of the transformers and capacitors were tested in 1993 and found to be "non-PCB." Hydraulic oil and dielectric fluids used on site were also reported to be "non-PCB." Solid waste generated in 1997 were listed as domestic wastes and scrap metal. An oil-water separator associated with on-site air compressors was observed by The Payne Firm in the die forger building. The water was discharged to the public sewer and the oil removed off-site for disposal. Two dry wells used to drain surface storm water were reported on-site in 1997: one located at the west end of the craneway and one located north of the USTs located adjacent to the forge shop. The later was also identified as a possible catch basin. Payne Firm personnel noted soil staining throughout the facility.

Subsurface investigation of the Site was reportedly initiated in 1988 when an oil spill along the Mad River was traced to the facility by the Ohio EPA. According to The Payne Firm, a 1989 report prepared by Bowser Morner concluded that soil and groundwater TPH impact was generally restricted to an area around MW-3 (east of the die forger) and east towards a former rail spur. The source of impact was given as surface spills or perhaps leaking heating oil USTs. On-site personnel reported to The Payne Firm that in March 1991 an 8' by 4' by 2' deep area of soil (the "sump") was excavated along the former rail spur to intercept hydrocarbon seepage. Excavated soil was reportedly disposed off-site in 1991 by Rumpke. The sump was backfilled in 1996 during construction of an access drive on top of the rail spur. Original plans to pump resulting sump water to an oil-water separator apparently were not implemented. No additional information regarding the sump or additional environmental activity at the site between 1991 and 1997 was provided.

The Payne Firm identified the following recognized environmental conditions: i) oil staining at various locations of the facility, ii) soil and groundwater petroleum impact associated with former heating oil USTs on the east-central part of the Site, iii) former sump at the rail spur, iv) catch basin/dry well located adjacent to heating oil USTs, v) dry well located in craneway, and vi) a former gasoline UST. The Payne Firm recommended further environmental investigation.

Site conditions and overall layout as described by The Payne Firm in 1997 were approximately the same as those seen during ATC's reconnaissance. Most differences noted are due to the fact that the facility has been closed and vacated and the majority of equipment and materials removed. In addition, the two dry wells and the oil-water separator were not observed by ATC.

The Payne Firm, "Summary of Phase II Activities, The Harris-Thomas Drop Forge Company, Dayton, Ohio," prepared for Coolidge, Wall, Womsley and Lombard, Project No. 0279.54.02, January 9, 1998.

The Payne Firm sampled groundwater from four pre-existing monitoring wells (MW-1, -3, -4, and -5). At the time of sampling, groundwater flow was to the northeast. A thin layer of free phase petroleum product (1/8th inch) was noted in MW-3. Groundwater samples were analyzed for BTEX and TPH (except MW-1 which had insufficient volume for TPH analysis). No BTEX was detected in MW-1, -4, or -5. No TPH was detected in MW-4 or -5. Relatively low concentrations of BTEX (0.004 mg/kg, 0.006 mg/kg, 0.013 mg/kg, and 0.032 mg/kg, respectively) and TPH (6.2 mg/kg) were detected in MW-3. The Payne Firm also investigated the catch basin/dry well located adjacent to the former USTs. The structure turned out to be a catch basin that drain s northward to the Dayton public storm system. Between October 22, 1997, and January 5, 1998, bailed free product out of MW-3 on a near daily basis. Bailing appeared to at least temporarily reduce the thickness of free product in the well to a thin residual film. It has been noted that in the 1997 Phase I report, The Payne firm reported a former gasoline UST located west of a former on-site building. In the 1998 report, the UST is shown to be east of the same building. The Payne Firm recommended further product recovery from MW-3 and a reevaluation of groundwater conditions after a period of approximately 60 to 120 days.

The Payne Firm, "Environmental Compliance Audit, The Harris-Thomas Drop Forge Company, Dayton, Ohio, (Draft)" prepared for Coolidge, Wall, Womsley and Lombard, Project No. 0279.53, January 20, 1998.

The compliance audit indicated that while Harris-Thomas seemed to be general compliance with most environmental regulations, several areas of non-compliance were identified. Areas of concern to the present study involve the release of petroleum oils to surface pavement due to poor or improper storage of new and used oil drums in areas such as the press room, maintenance, tool crib, die forger, shear room, forge room and storage barn. The Payne Firm also noted that collection drums for blowdown from the die forger machines were located outside the building and frequently overfilled leading to oil saturated soil surrounding these drums. Payne recommended cleaning up soils and pavement stains associated with the drum storage areas.

Quantum Environmental, Inc., letter to Stonebridge Industries, Inc., "Preliminary Results Summary - Supplemental Phase II Subsurface Investigation, Harris-Thomas Drop Forge, Inc. Site in Dayton, Ohio," dated February 24, 1998.

Ten borings (P1-P10) and two borings converted to permanent monitoring wells (MW-2 and MW-6) were installed on-site in February 1998 by Quantum Environmental, Inc. (Quantum). Seven of the borings were converted into temporary wells. Boring depths were not reported. Quantum encountered surficial fill material overlying interbedded silt, silt with clay, sand and gravel, and poorly sorted silt, sand and gravel layers. Quantum concluded that no perched groundwater zones were present in the area of study.

Free product was encountered in wells located north and northeast (i.e., downgradient) of the former fuel oil USTs. Groundwater flow at the time of the study was toward the northeast at a gradient of approximately 0.0106 ft/ft. Soil and groundwater samples were analyzed for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). VOCs detected in soils were restricted to low concentrations ethylbenzene and xylenes in four borings. Several SVOCs were detected in various borings across the site. Quantum noted that the concentrations of SVOCs appeared to decrease with depth. Only benzene was detected in groundwater above the MCL (maximum contaminant level). SVOCs were detected in four wells, all downgradient of the apparent UST source area. Quantum also noted that sample results confirmed at least one area of surficial spillage of oil along the former rail spur. Impact from the spill did not, however, appear to contribute to deeper groundwater contamination. Quantum was waiting on new action levels for SVOCs from the Ohio EPA before commenting on the seriousness of impact to soil and groundwater for these compounds.

Quantum Environmental, Inc., letter to The Payne Firm, Inc., "Preliminary Results Summary - Supplemental Phase II Subsurface Investigation, Harris-Thomas Drop Forge, Inc. Site in Dayton, Ohio," dated March 5, 1998.

In response to written questions posed by the Payne Firm regarding the Preliminary Results Summary of February 24, 1998, Quantum indicated that the free product thickness in MW-6 (located in the parking lot of the current Schumacher Crane Rental facility) was approximately 6 to 12 inches based on recovery from a bailer.

The Payne Firm, Inc., draft letter to Coolidge, Wall, Womsley and Lombard, "Supplemental Phase II Investigation, The Harris-Thomas Drop Forge Company, Project No. 0279.54.03," dated March 24, 1998.

The Payne Firm conducted three tasks to supplement information obtained by Quantum in February 1998: i) measure product thickness in MW-6 and conduct free product recovery, ii) install a deep boring to 32 feet to determine if groundwater at the site is perched, and iii) install a permanent monitoring well at the location furthest from the source area where free product was reportedly detected by Quantum. Each of these locations are on property that was sold by Harris-Thomas and currently used as parking by Schumacher Crane Rental. Using an oil-water interface probe, no free product was detected in MW-6. Bailing of the well produced a few globules of apparent product, a sheen and a strong petroleum odor. Other on-site wells, including MW-3 which had had free product in the past, were not found to have measurable free product. Based on the results of the 32-foot boring, The Payne Firm concluded that no perched groundwater zone was present at the Site. A 20-foot well (MW-7) with ten feet of screen was installed downgradient of the 32-foot boring. No free product was detected in the well. BTEX and polynuclear aromatic hydrocarbon (PAH) analysis detected xylenes (0.014 mg/L) but no benzene, ethylbenzene, toluene, or PAHs. The xylene concentration was below the action level. The Payne Firm offered three options to address site conditions: i) no action/monitoring, ii) pump and treat, and iii) enhanced biodegradation.

The Payne Firm, Inc., letter to BHR-Ohio Corporation, "Ground Water Sampling Results, Enhanced Bioremediation, Harris-Thomas Industries, Inc. Site, Project No. 0709.01," dated December 21, 1998.

The Payne Firm indicated that an enhanced bioremediation system consisting of four passive soil aeration points and ten low-flow groundwater aeration points was installed at the Site. Three wells downgradient of source area (MW-3, -6 and -7) were sampled and analyzed for BTEX during December 1998. Wells MW-6 and MW-7 showed lower concentrations of xylenes over previous sampling events. Sample results from MW-3 (nearest the source area) showed little improvement.

More recent reports were not available. Copies of selected material from the above reports are included in Appendix D.

5.3.10 Other Historical Sources

No other historical sources were reviewed.

5.3.11 Summary of Historical Land Use of the Site

The following table summarizes the findings of the research presented below pertaining to historical Site and surrounding area uses.

HISTORICAL USE SUMMARY				
Period	**Identified Historical Uses**		**Source(s)**	**Intervals/Comments**
	Property	**Surrounding Area**		
Prior to 1900	Residential Oil distribution Ice house	Residential Commercial Industrial	Historic Maps	Data failure: first recorded development is not documented
1900-1920	Foundries Boiler making	Residential Commercial Industrial	Historic Maps City Directories	Data failure: the southern portion of the Site is not documented by city directories
1920-1940	Metal forging	Residential Commercial Industrial	Historic Maps City Directories Aerial Photographs	
1940-1960	Metal forging	Residential Commercial Industrial	Historic Maps City Directories Aerial Photographs	
1961-1980	Metal forging	Commercial Industrial Public Utility	Historic Maps City Directories Aerial Photographs	
1981 to present	Metal forging vacant	Commercial Industrial Public Utility	Historic Maps City Directories Aerial Photographs	

Data failures occurred during the historical record review: the first developed prior to 1898 was not documented and the southern portion of the Site is not documented by city directories for more than 5 years between 1898 and 1916. Historic maps indicate that southern portion was residential between 1898 and 1918. Land use was unlikely to have changed during the 20 year gap. Given that the Site is well documented for over 100 years, the lack of records prior to 1898 is not considered a *significant data gap.*

The Site has been occupied by commercial/manufacturing businesses for over 100 years. An oil distributor was present on the northwestern corner as early as 1898. Subsequent businesses have been involved with foundry work and boiler making (early 1900s), painting contractors (1960s), a metal treating company (1970s) and forging companies (1920s to 2006). Waste generation, storage and disposal methods associated with older historic Site operations are unknown.

6.0 SITE RECONNAISSANCE

The following is a summary of visual and/or physical observations of the Site on the day of the Site visit. Photographs can be found in Appendix C.

6.1 Methodology and Limiting Conditions

The site reconnaissance consisted of visual and/or physical observations of: the Site and improvements; adjoining sites as viewed from the Site; and, the surrounding area based on visual observations made during the trip to and from the Site. Unimproved portions of the Site were observed along the perimeter and in a general grid pattern in safely accessible areas. Building exteriors were observed along the perimeter from the ground, unless described otherwise. Building interiors were observed as they were made safely accessible, unless described otherwise.

Dense vegetation, the presence of miscellaneous abandoned debris, and poor to non-existent lighting in some building interiors limited visual observation of some areas.

The Site reconnaissance was performed on July 3, 2007 with a subsequent visit on July 10, 2007. Weather at the time of Site reconnaissance was warm, sunny, and clear.

6.2 General Site Setting

The Site is located in an industrial and commercial area east of downtown Dayton, Ohio. Local surface topography is relatively flat on the south side of the Site and gently to moderately sloping on the north side.

6.3 Hazardous Substance Use, Storage, and Disposal

ATC observed the following containers of abandoned materials (including petroleum products) at the Site:

Material	Location	Quantity	Condition
Compressor oil	East of Die Forger building	2 x 5-gal.	good
HTFP 30	Storage Shed	1 x 55-gal.	good
Compressor oil	South of Scrap Dock	2 x 5 gal.	good
Gear oil	Forge Shop	1 x 55-gal.	good
Lubricating oils/Zepp	Press Shop	4 x 55-gal.	good
Unisorb	Craneway	3 x 5-gal.	good
Compressor oil	South Warehouse	1 x 55-gal.	good
Paints and maintenance supplies	Die Forger building	various small containers (<5 gal. each)	in steel cabinet

Empty drums observed at various locations indicates that additional materials were likely used and stored at the Site in the past.

Evidence of past disposal of materials was not evident. Numerous dark stains in and around various buildings (e.g., north side of the Die Forger building, floors and pits of the Forge Shop and Press Shop, etc.) indicate that use of these materials resulted in an unquantified amount of leakage/spillage over years of operation.

6.4 Underground Storage Tanks (USTs)

ATC did not observe evidence of current and/or historic USTs on the Site. Previous reports (see Section 5.3.9) indicate that three heating oil USTs (two 10,000-gallon and one 5,000-gallon) were located north of the forge shop but had been abandoned in place in 1989. One 450-gallon gasoline UST was also formerly located in the northeastern corner of the north parking lot and reportedly removed in 1986. No evidence of any of the four USTs was observed during reconnaissance.

6.5 Aboveground Storage Tanks (ASTs)

ATC did not observe evidence of current and/or historic ASTs on the Site. Previous reports indicated that kerosene ASTs were formerly located adjacent to the craneway and that three ASTs associated with on-site equipment were located in various buildings (see Section 5.3.9)

6.6 Other Petroleum Products

See Section 6.3.

6.7 Polychlorinated Biphenyls (PCBs)

ATC inspected the property for the presence of equipment that is suspect for PCB-content (e.g., pre-1979 fluorescent light ballasts, electric transformers, pre-1979 hydraulic hoists, lifts, elevators, etc.).

Two pad-mounted transformers were observed north of the Die Forger building. One pad-mounted transformer was located north of the steel stock building. A bank of at least three transformers was noted on the roof of the main building above the Die Shop. Only one transformer located north of the Die Forger building was labeled as belonging to the Dayton Power Light Company. Ownership labels for other transformers were either not present or not observable. None were observed to have "non-PCB' labels. Previous reports indicate that current electrical equipment does not contain PCBs. Dark soil staining adjacent to the western Die Forger building transformer may indicate potential leakage although other sources of soil staining in the area are also possible

ATC observed fluorescent lights throughout the property buildings. Fluorescent lights installed prior to 1979 may contain PCBs. Since it is unknown if the lighting has been updated since 1979, it is possible that the light ballasts contain PCBs. ATC recommends that the light ballasts in use be inspected for "non-PCB" labels during routine maintenance. If such labels are not observed, ATC recommends that the manufacturer be contacted regarding the PCB classification of the ballasts. If the ballasts are found to contain PCBs, ATC recommends that any dysfunctional light ballasts or light ballasts, which are no longer in use, be disposed of in accordance with applicable regulations. At the time of the survey, no evidence of leaking ballasts was observed.

No hydraulic elevators were observed on-site. Evidence of past hydraulic equipment, including an apparent hydraulic oil reservoir left in a floor pit in the Press Shop, was evident. Previous reports indicate that recent hydraulic equipment did not contain PCBs.

6.8 Unidentified Substance Containers

ATC did not observe the presence of unidentified substance containers on the Site.

6.9 Nonhazardous Solid Waste

Scrap metal previously generated at the site apparently was dumped into dumpsters located below a scrap metal dock near the northwestern corner of the Site. No dumpsters or other evidence of past solid waste disposal were observed.

6.10 Wastewater

Wastewater generated, treated or discharged from the Site appeared to be limited to sanitary sewage and stormwater. No evidence of "process waste" discharge or treatment was noted. Previous reports indicate that blowdown fluid from on-site equipment/compressors was treated in an oil-water separator located in the Die Forger building. The treated water was reportedly discharged to the public sewer. The oil-water separator was not observed during reconnaissance, although it should be noted that the area of the building was dark and not well lit by flashlight.

6.11 Waste Pits, Ponds and Lagoons

ATC did not observe evidence of waste pits, ponds, or lagoons on the Site.

6.12 Sumps

ATC did not observe evidence of sumps on the Site exterior. A sump was noted in the basement portion of the main building.

6.13 Septic Systems

ATC did not observe evidence of a septic system on the Site.

6.14 Stormwater Management System

Stormwater from the Site would be expected to infiltrate the ground surface or flow to stormwater catch basins located at various locations of the Site.

6.15 Wells

ATC did not observe evidence of supply wells on the Site. Concrete pads from former (i.e., abandoned and filled-in) groundwater monitoring wells were seen along the north edge of the property (four pads), north of the corporate office building (1 pad), and east of the south warehouse (1 pad). Previous reports state that a dry well was formerly located in the craneway. A dry well was not observed during reconnaissance. A sewer cover was noted in the approximate location of the dry well.

7.0 INTERVIEWS

The User provided no contact information for previous occupants/owners. No persons were interviewed to obtain information regarding *recognized environmental conditions* in connection with the Site:

Based on the quality and frequency of historical data and previous environmental reports obtained during the course of this Phase I ESA, the lack of availability of previous property owners or occupants is not considered to represent a *significant data gap.*

8.0 FINDINGS

ATC Associates Inc. (ATC) has performed this Phase I Environmental Site Assessment (ESA) in conformance with the scope and limitations of ASTM Standard Practice E 1527-05. This assessment has revealed the following findings in connection with the Site.

- A review of historical documentation dating back to 1898 indicates that the property was developed for more than 100 years. The earliest occupant of record in 18908 was an oil distributor. Subsequent businesses have been involved with foundry work and boiler making (early 1900s), painting contractors (1960s), a metal treating company (1970s) and forging companies (1920s to 2006). Waste generation, storage and disposal methods associated with older historic.

- Heating oil USTs were previously used to supply fuel to on-site furnaces. The USTs were abandoned in-place in the 1980s. Subsurface soil and groundwater investigation in the 1990s indicated that a plume of free product (reportedly up to 12" thick) and impacted groundwater extended from the area of the USTs northeastward (i.e., parallel to groundwater flow) approximately 250 feet. A treatment system was reportedly installed in 1998 to remediate the plume. Limited groundwater sampling at that time did not indicate the presence of separate phase product. No additional information regarding subsurface conditions since 1998 was available.

- Previous reports noted that a 450-gallon gasoline UST was formerly located in the northeast corner of the Site. The UST reportedly was removed from service due to leakage into a storm sewer. Records of soil/groundwater conditions in the area of the former UST were not identified during this study..

- Current site reconnaissance, previous environmental reports, and Ohio spill incident reports noted the presence of numerous petroleum stains and apparent oil saturated soils around the facility. Recent observations noted the current presence of abandoned oil drums and apparent hydraulic oil reservoirs. A previous report noted that a dry well that received surficial run-off was present in the craneway at the Site.

- Previous subsurface investigations at the Site noted the presence of up to 12 feet of fill including foundry sand and cinders. Historic maps note that a canal dissected the southern portion of the Site in the 1800s and early 1900s. The canal had been filled by 1938.

- Review of federal, state, and tribal regulatory database records listed the Site as a RCRA generator and on the Ohio spills list (see above). Thirteen RCRA generators, one TSD facility, four CORRACTS facilities, eleven regulated UST sites, thirty-three LUST sites, six DERR facilities, and three MSL facilities were identified in the database in the site vicinity.

9.0 OPINIONS

An opinion of the potential environmental impact to the property is provided for each finding presented in Section 8.0 in outline form below. Such opinion is based on an evaluation of record reviews, site reconnaissance and prior environmental sampling data as discussed in this report.

- Waste generation, storage and disposal methods associated with older historic on-site operations are unknown, and as such, are considered to represent a *recognized environmental condition*.

- The (former) presence of petroleum free phase product from the three heating oil USTs is considered a *recognized environmental condition.*

- The former gasoline UST is considered a *recognized environmental condition.*

- The presence of staining, current abandoned petroleum product containers on-site and a former dry well receiving potentially impacted runoff are evidence of potential widespread petroleum impact to surficial soils at the Site, and as such, are considered to represent a *recognized environmental condition*.

- The presence of unknown fill and known potentially hazardous fill (foundry sand) is considered a *recognized environmental condition.*

- Based on distance, topography, assumed groundwater gradient, current regulatory status, and/or the absence of reported releases, none of the off-site database-listed facilities are considered likely to environmentally impact the Site. Accordingly, these off-site facilities do not represent recognized environmental conditions.

9.1 Additional Investigation

Further investigation is recommended to quantify soil and/or groundwater conditions in association with the five *recognized environmental conditions* identified in association with the Site.

10.0 CONCLUSIONS

ATC has performed this Phase I Environmental Site Assessment (ESA) in conformance with the scope and limitations of ASTM Standard Practice E 1527-05. Any exceptions to, or deletions from, this practice are described in Section 2.0 of this report. This assessment has revealed no evidence of *recognized environmental conditions* in connection with the Site, except for the following:

- historic land use for industrial operations,
- the former presence of separate phase product in association with three closed-in-place heating oil USTs on-site,
- the former presence of a leaking gasoline UST on-site which does not have adequate closure/sampling documentation,
- evidence of surficial leakage/spillage of petroleum products at various locations throughout the Site, and
- the presence of unknown and potentially hazardous fill materials at several locations across the Site.

11.0 DEVIATIONS

Deletions to or deviations from ASTM Practice E 1527 – 05 were not imposed by the client, nor were such deletions or deviations implemented during the course of study.

12.0 REFERENCES

ASTM, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM Designation E 1527-05, Published November 2005.

Bowser Morner, "Soil Study for a Proposed Die Forge Machine Foundation, Harris-Thomas Drop Forge Company, First Street, Dayton, Ohio," prepared for Craig Martin Construction Company, Inc., Report No. 29897-488-285, dated April 22, 1988.

Bowser Morner, "Preliminary Hydrogeological Investigation," prepared for Harris-Thomas Drop Forge Co., Report No. 50573-189-767, dated January 3, 1989.

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Federal Emergency Management Agency, Flood Insurance Rate Map, Community Panel No. 39061C0306D, dated May 17, 2004.

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The Payne Firm, "ASTM Phase I Environmental Site Assessment, The Harris-Thomas Drop Forge Property, 1400 East First Street, Dayton, Ohio," Project No. 0659.01, dated August 5, 1997.

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The Payne Firm, Inc., draft letter to Coolidge, Wall, Womsley and Lombard, "Supplemental Phase II Investigation, The Harris-Thomas Drop Forge Company, Project No. 0279.54.03," dated March 24, 1998.

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1985, 1990, 1995, 2000, and 2005.

Quantum Environmental, Inc., letter to Stonebridge Industries, Inc., "Preliminary Results Summary - Supplemental Phase II Subsurface Investigation, Harris-Thomas Drop Forge, Inc. Site in Dayton, Ohio," dated February 24, 1998.

Quantum Environmental, Inc., letter to The Payne Firm, Inc., "Preliminary Results Summary - Supplemental Phase II Subsurface Investigation, Harris-Thomas Drop Forge, Inc. Site in Dayton, Ohio," dated March 5, 1998.

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Schmidt, James J., Ground-Water Resources of Montgomery County, Ohio Department of Natural Resources, Division of Water, 1986.

United States Department of Agriculture, Soil Survey of Montgomery County, Ohio, 1976.

United States Geological Survey, 7.5-Minute Topographic Map, Covington, Kentucky - Ohio Quadrangle, 1981, Photorevised 1987.

Williams City Directories, Dayton Public Library, 1916, 1921, 1926, 1931, 1936, 1941, 1946, and 1954-55.

13.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONALS

Environmental Professional Statement:
I declare that, to the best of my professional knowledge and belief, I meet the definition of *Environmental Professional* as defined in § 312.10 part of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

_____
William A. Norris, Staff Geologist
Environmental Professional

_____
Michael J. Luessen, P.G./C.P., Principal Consultant
Senior Reviewer

14.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL(S)

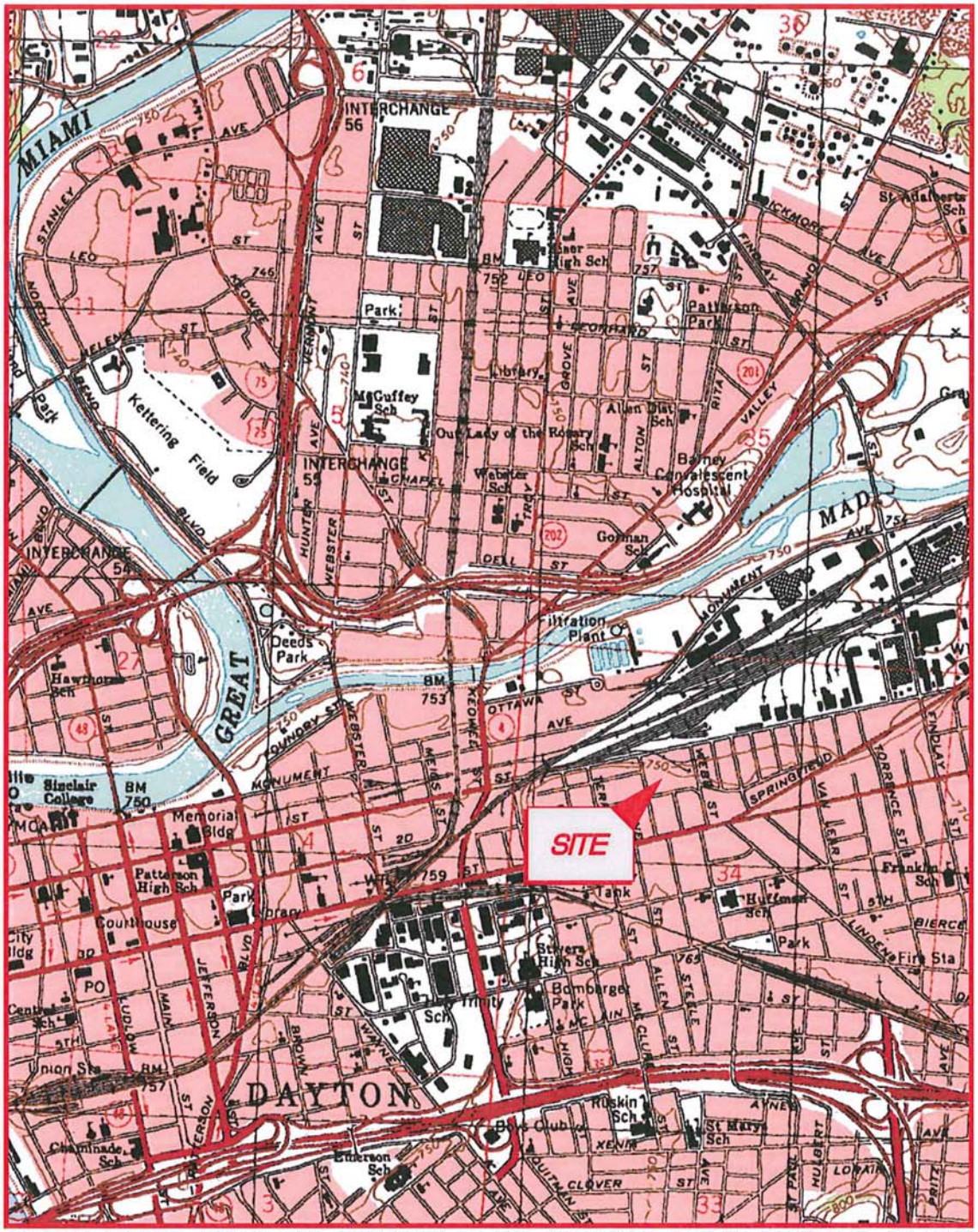
Resumes for key personnel are included in Appendix H.

15.0 APPENDICES

Appendix A - Site Vicinity Map
Appendix B - Site Plan
Appendix C - Site Photographs
Appendix D - User Provided Documentation
Appendix E - Regulatory Database Report
Appendix F - Aerial Photographs
Appendix G - Historical Research Documentation
Appendix H - Resumes
Appendix I - Records of Communication
Appendix J - Terminology

APPENDIX A

SITE VICINITY MAP



SOURCE: MAPPED, EDITED, AND PUBLISHED BY THE GEOLOGICAL SURVEY CONTROLED BY USGS AND NOS/NOAA. DAYTON NORTH, OH. QUADRANGLE 7.5 SERIES (TOPOGRAPHIC)

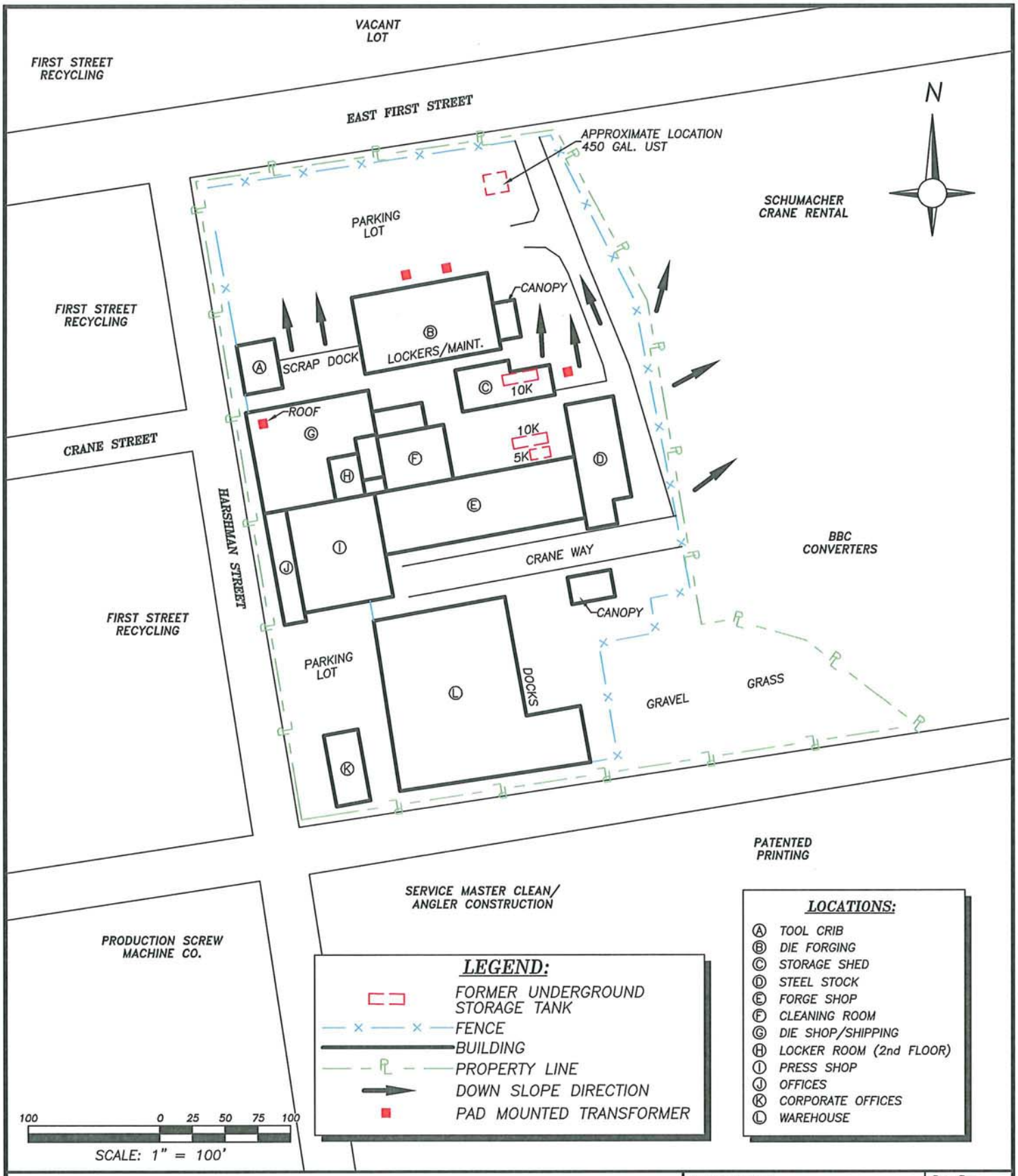
SITE VICINITY MAP

PHASE I ENVIRONMENTAL SITE ASSESSMENT
FORMER HARRIS–THOMAS DROP FORGE
1400 EAST FIRST STREET
DAYTON, OHIO

Project Number: 72.35163.0001		Drn. By: PJS
Drawing File: 72.35163.0001		Ckd. By: BN
Date: 6/2007	Scale: 1" = 2000'	App'd By: ML
ATC ASSOCIATES INC.		Figure: 1

APPENDIX B

SITE PLAN



SITE PLAN

PHASE I ENVIRONMENTAL SITE ASSESSMENT
FORMER HARRIS–THOMAS DROP FORGE
1400 EAST FIRST STREET
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Project Number: 72.35163.0001		Drn. By: PJS
Drawing File: 72.35163.0001		Ckd. By: BN
Date: 6/2007	Scale: AS SHOWN	App'd By: ML
ATC ASSOCIATES INC.		Figure: 2

APPENDIX C

SITE PHOTOGRAPHS

Photograph 1: Looking northwest at brick office building and new warehouse at Harshman and East Second Streets.

Photograph 2: Looking north along west side of Site (Harshman Street).

SITE PHOTOGRAPHS
Appendix C
Photographs Taken By: W. Norris

ATC ASSOCIATES INC

Phase I Environmental Site Assessment
Former Harris-Thomas Drop Forge
1400 East First Street
Dayton, Ohio
ATC Project No. 72.35163.0001

Photograph 3: Looking south at bi-level scrap metal dock, northwest corner of Site.

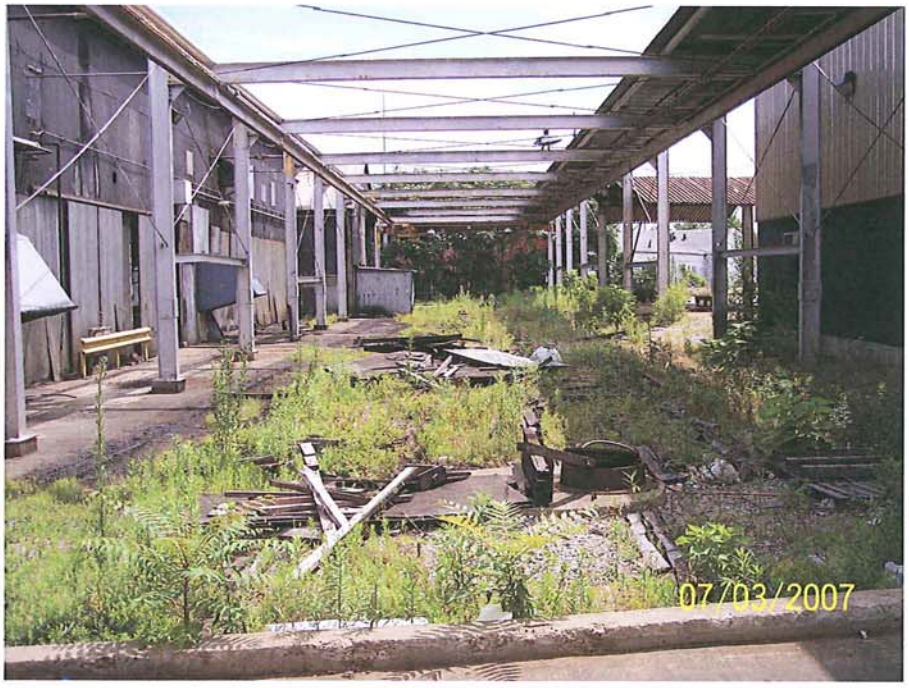
Photograph 4: Looking southwest at Die Forging building, northeast corner of Site.

Photograph 5: Stained area near northwest corner of Die Forging building.

Photograph 6: Looking south along east side of Site, former location of rail spur and retaining wall.

SITE PHOTOGRAPHS **Appendix C** Photographs Taken By: W. Norris	ATC ASSOCIATES INC.	Phase I Environmental Site Assessment **Former Harris-Thomas Drop Forge** 1400 East First Street Dayton, Ohio ATC Project No. 72.35163.0001

Photograph 7: View of south side of Forge Shop (left), former location of fuel oil USTs.



Photograph 8: Looking east along craneway on north side of Forge Shop (left).

Photograph 9: Pit located in Press Shop showing apparent hydraulic reservoir (arrow).

Photograph 10: View of oil drums left in Press Shop.