SUPERFUND FINAL CLOSEOUT REPORT
PETER COOPER CORPORATION (MARKHAMS) SUPERFUND SITE
TOWN OF DAYTON
CATTARAUGUS COUNTY, NEW YORK

JULY 2010

Prepared by

U.S. Environmental Protection Agency, Region II
Western New York Remediation Section
New York, New York 10007

SUPERFUND FINAL CLOSEOUT REPORT
PETER COOPER CORPORATION (MARKHAMS) SUPERFUND SITE
TOWN OF DAYTON
CATTARAUGUS COUNTY, NEW YORK

SUPERFUND FINAL CLOSE OUT REPORT
Peter Cooper Corporation (Markhams) Superfund Site
Cattaraugus County
Town of Dayton, New York

I. INTRODUCTION

The U.S. Environmental Protection Agency (EPA) has determined that all appropriate response actions at the Peter Cooper Corporation (Markhams) Superfund Site (Site) have been successfully implemented in accordance with *Close Out Procedures for National Priorities List Sites (OSWER Directive 9320.2-09A-P).*

.

In accordance with the *Comprehensive Environmental Response, Compensation, and Liability Act* (1980) (CERCLA) and the *Superfund Amendments and Reauthorization Act of 1986* (SARA), responsible parties and others have implemented all appropriate response actions selected in the December 01, 2006 Record of Decision (ROD).

II. SUMMARY OF SITE CONDITIONS

Background

The Peter Cooper Corporation (Markhams) Superfund Site (Site) is located off Bentley Road, approximately six miles south of the Village of Gowanda in the Town of Dayton, Cattaraugus County, New York (see Figure 1). The Site is approximately 103 acres in size and is bordered to the northwest by Bentley Road, to the northeast by a wooded property and farm field, to the southeast by a railroad right-of-way, and to the southwest by hardwood forest. Site access is restricted by a locked cable gate at the Bentley Road entrance. Surrounding property is rural, consisting of small farm fields, open meadow and forests.

The majority of the Site is characterized by mature hardwood tree cover, as well as open fields. An approximately 15 to 20-acre area within the central and southeast portion of the Site contained several covered/vegetated waste fill piles arranged in an elliptical pattern. The fill piles varied in size and elevation, with base dimensions ranging from approximately 1,100 - 160,000 square feet and elevations of 5 to 15 feet above surrounding grade. The total area covered by fill piles (base area) was approximately 7 acres.

No structures are present on the property, with the exception of a natural gas wellhead located east of the access drive.

The Site was used for the disposal of wastes remaining after the manufacturing process from the Peter Cooper Corporations (PCC), a former animal glue and adhesives plant located in Gowanda, New York. Materials disposed at the Site were reported to consist of “cookhouse sludge,” residue pile material and vacuum filter sludge. Cookhouse sludge was so named because of a cooking cycle that occurred just prior to extraction of the glue. It was derived primarily from chrome-tanned hides

obtained from tanneries and leather finishers. Residue pile material is described as air-dried cookhouse sludge, which was stabilized to a fairly dry, granular form. Vacuum filter sludge is produced during dewatering of cookhouse sludge. The waste material has been shown to contain elevated levels of chromium, arsenic, zinc, and several organic compounds.

PCC purchased the Site in 1955 and sold the Site, among other assets including its corporate name, in 1976 to a foreign company, Rousselot Gelatin Corporation, and its parent, Rousselot, S.A. of Paris, France. Rousselot Gelatin subsequently changed its name to the Peter Cooper Corporation. From approximately 1955 until September 1971, it was reported that approximately 9,600 tons of waste material from the Gowanda plant were placed at the Site over an approximately 15-acre area.

In addition, PCC transferred approximately 38,600 additional tons of waste materials from the Gowanda plant to the Site pursuant to a New York State Supreme Court Order (8th J.D. Cattaraugus County) dated June 1971. PCC arranged the material into several waste piles approximately 20 feet high and covering a total of approximately seven acres, mostly in the original disposal area. In 1972, the waste piles were graded and covered with six inches of soil or stabilized residue, followed by seeding to promote cover vegetation.

The NYSDEC completed preliminary site investigations in 1983 and 1985 and identified the presence of arsenic, chromium and zinc in soil samples. In 1986, pursuant to a Consent Order with NYSDEC, PCC commissioned the performance of a Remedial Investigation and Feasibility Study (RI/FS) at the Site. The RI, which was completed in 1989, indicated the presence of total chromium, hexavalent chromium and arsenic above background levels in waste materials and some adjacent soils. The FS for the Site was completed in March 1991. The FS recommended a remedial alternative involving consolidation, compaction, and covering of the waste materials.

At this time, the Site did not meet the New York State statutory definition for an inactive hazardous waste disposal site and NYSDEC could not use State funds to implement a remedial program. Consequently, the NYSDEC removed the Site from its Registry of Inactive Hazardous Waste Disposal Sites and transferred the Site to EPA for further evaluation.

In 1993, EPA conducted a Site Sampling Inspection, which included the collection and analysis of soil and surface water samples from the Site. Chromium and arsenic were detected in soils above background concentrations within the waste piles. In 1999, EPA determined a Hazard Ranking System score for the Site so that it could be evaluated for potential listing on the National Priorities List (NPL). The Site was added to the NPL on February 3, 2000.

Remedial Investigation/Feasibility Study

On September 29, 2000, EPA issued a Unilateral Administrative Order (UAO) to several potentially responsible parties (PRPs) to perform the RI/FS for the Site, subject to EPA oversight. The PRPs performed the RI/FS from 2001 to 2006 and the final RI report was submitted to EPA in February 2005. The list of constituents detected in Site media and considered to be contaminants of concern (COCs) at the Site included: arsenic, total chromium

and hexavalent chromium (metal COCs). The results of the RI suggest that low concentrations of metal COCs can leach from the waste fill and into the groundwater. However, the data from native soil samples (non-waste fill) collected below the waste fill indicate that metal COCs have not migrated substantially in native soil. Arsenic and chromium concentrations detected in the surface soil samples from the cover of the fill piles were above soil criteria. Soil testing beneath the fill piles identified decreasing metal COCs with depth. Metal COCs reported exceedance of the NYS Groundwater Quality Standards and Guidance Values GWQS/GVs in one groundwater monitoring well MW-2S for arsenic, chromium, zinc and benzene (with benzene only slightly above the GWQS/GVs. In the RI report, difficulties in obtaining representative samples from monitoring well MW-2S were identified. Suggested possible explanations for these difficulties were the age of the well and construction materials. The report concluded that the groundwater analytical results collected from well MW-2S during the first and second sampling events might not be representative of Site groundwater. To address the limitations of the sampling from monitoring well MW-2S, the ROD required that any groundwater monitoring program at the Site include replacing well MW-2S and conducting analytical sampling for metals. Monitoring well MW-2S was decommissioned by the PRPs contractor in September 2008. MW-2S was found to be constructed of steel casing and screen, and was found to be visibly rusted/rotted on removal. MW-2S was replaced with a new PVC replacement well (MW-2SR). Site data indicates that transport of trace metals and organic compounds is not considered significant at the Site. Groundwater quality has been affected by the presence of the fill piles.

The RI concluded that all groundwater from the Site ultimately discharges to Wetland F before reaching the southwestern property boundary located more that 500 feet across the wetland. Site related chemicals in the overburden groundwater are transported beneath the Site to the southwest in the direction of Wetland F. Water quality data indicate subsurface conditions are not conducive to transport of metal COCs. Although chromium was widely detected in soils across the Site, chromium concentrations were not elevated in groundwater (except in monitoring well MW-2S). Hexavalent chromium was detected at a low concentration in one of 18 samples analyzed: the detection was not confirmed in the second sampling event. The lack of hexavalent chromium in groundwater suggests conditions are not suitable for the oxidation of chromium (Cr^{+3}) to hexavalent chromium (Cr^{+6}). The slightly alkaline subsurface soil conditions and relatively low concentrations of manganese inhibit reactions that can produce hexavalent chromium. These results are indicative that the area of groundwater contamination is limited to a relatively small area, under the waste piles.

Based on the results of the RI report a risk assessment was performed for the Site. The risk assessment determined that if infiltration of rainwater through the waste/fill material is not curtailed, then the quality of Site ground water would continue to degrade, resulting in a potential future risk from groundwater ingestion.

A Feasibility Study (FS) was then completed and was submitted to EPA in August 2006. The FS Report was developed based on the “Guidance for conducting Remedial Investigation and Feasibility Studies under CERCLA”. The FS Report identified and evaluated remedial alternatives that were effective and implementable based on Site conditions. Remedial

Alternatives were developed to satisfy the following Remedial Action Objectives for the Site:

- minimize or eliminate contaminant migration from contaminated soils to the groundwater
- Prevent direct contact with waste fill materials.
- Mitigate erosion and migration of waste material from the exposed surface.

ROD Findings

Based upon the results of the RI/FS, a Proposed Plan, and a Public Meeting; a Record of Decision (ROD) was signed in December 2006. The remedy selected was consolidation of various waste/fill piles into a single waste/fill area, followed by capping with a low permeability soil cover. Specifically, the ROD called for:

- Consolidating the waste/fill piles into seven acres or less, followed by capping the consolidated wastes with a low permeability soil cover, consistent with the requirements of 6 NYCRR Part 360, including seeding with a seed mixture to foster natural habitat. Waste piles moved during consolidation will be replaced by native soil. Removal of waste/fill piles will insure that any remaining soil contaminants will be within background concentrations.

- Imposing institutional controls in the form of an environmental easement/restrictive covenant filed in the property records of Cattaraugus County that will at a minimum require: (a) restricting activities on the Site that could compromise the integrity of the cap; and (b) restricting the use of groundwater as a source of potable or process water unless groundwater quality standards are met.

- Developing a site management plan that provides for the proper management of all remedy components post-construction, such as institutional controls, and also includes: (a) monitoring of groundwater to ensure that, following the soil consolidation and capping, the contamination is attenuating and groundwater quality continues to improve; (b) an inventory of any site use restrictions; (c) necessary provisions for ensuring the easement/covenant remains in place and is effective; (d) provision for any operation and maintenance required of the components of the remedy; and (e) the owner/operator or entity responsible for maintenance of the Site to complete and submit periodic certifications concerning the status of the institutional and engineering controls for the Site.

- Evaluating site conditions at least once every five years to ensure that the remedy continues to protect public health and the environment.

In 2008, EPA concluded Consent Decree negotiations with the PRPs related to the performance of the design and implementation of the remedy called for in the ROD. On February 19, 2008, the Consent Decree was entered in United States District Court (approved by the Judge). On

March 12, 2008 Benchmark Environmental Engineering and Science PLLC (Benchmark) was approved as the supervising contractor to conduct the remedial design and construction work at the Site.

Performance Standard

Based on evaluations, it was determined that specific soil cleanup goals for the Site would not be required, as the remedy (excavation and consolidation of waste/fill material and placement of a cover system) would be sufficiently protective of human health and the environment. Groundwater cleanup will be monitored through post-remedial groundwater and surface water sampling. The primary objectives of the remedy are to reduce or eliminate any direct contact threat associated with the contaminated soils/fill and minimize or eliminate contaminant migration from contaminated soils to the groundwater.

Remedial Construction Activities

In accordance with the requirements of the Consent Decree and the Statement of Work, the PRPs prepared a Remedial Design (RD) Report which was approved by EPA on July 3, 2008. The RD report outlined the following remedial construction measures: mobilization, site preparation, waste/fill consolidation and grading, and cover system (barrier layer material placement and compaction, topsoil and seeding, and passive gas venting).

Zoladz Construction Company, Inc. was approved as the subcontractor for the Remedial Action (RA) and mobilized to the site on July 30, 2008. A field trailer with temporary power and lighting was installed at the site as per the project specifications. A project sign was erected with the name of the site and pertinent contact information.

Site preparation work included clearing, grubbing and access improvements required for consolidation and covering work. To facilitate heavy equipment access to the site, the access drive extending from Bentley Road to the northwestern limit of the waste fill was reestablished and shored up with NYSDEC–approved aggregate material. In addition to the access drive, clearing was performed in and around the area of the waste consolidation to allow equipment access. Trees, shrubs, brush and stumps within the clearing limits were removed, mulched and hauled offsite to facilitate construction work. Vegetation was stripped from the surface of the waste fill where cover soils were placed. The vegetative layer as well as the excess soil generated from the clearing work was disposed beneath the cover soils.

Waste/fill consolidation involved relocation of the various waste/fill piles located at various areas across the center of the site into a single area. Waste/fill that was located within the consolidation footprint was graded and compacted to conform to the selected subgrade contouring. Waste/fill located outside of the selected consolidated footprint were excavated, hauled and compacted within the consolidated area. Consolidated waste/fill was placed in maximum 12-inch lifts and compacted with roller to 90% modified density.

A total of approximately 40,000 cubic yards of waste/fill was consolidated and compacted. The waste fill consolidated area has a footprint of approximately four acres, with an average peak elevation (including cover soil) of 14 feet above surrounding grade. See Figure 2.

Landfill Cap Construction

The final cap includes all the construction components in the approved Remedial Design Report. The final landfill cap meets the grading requirements of 6 NYCCR Part 360-2.13(q)2(ii) that requires that the barrier component of the cap have a slope of no less than 4 percent to promote positive drainage and no more than 33 percent to minimize erosion.

Cover System

The final cover system was constructed to function with minimum maintenance, minimize infiltration, promote drainage, and minimize erosion. The cover system was designed with an 18-inch thick recompacted low permeability (less than 1×10^{-6} cm/sec) soil barrier layer and 6 inches of topsoil. The cover system was installed from September 24 –October 14, 2008.

Barrier layer

Material evaluation of the barrier layer off-site borrow source was performed in accordance with the Construction Specifications and Construction Quality Assurance Project Plan (CQAPP). Samples of the barrier layer soils were collected from a virgin borrow source located in the Town of Ellington, NY. Results indicated that the borrow source material met appropriate standards and was acceptable for use at the site.

Barrier soil was placed and compacted to provide a thickness of 18 inches across the final waste surface. Barrier layer soil was compacted with rollers. Smooth drum rollers were used for temporary sealing of the lifts and for the stockpiled soils.

Topsoil, Seeding and Tree Planting

The topsoil layer is the uppermost component of the cover system. Its functions are to protect the underlying layer from mechanical damage and (in conjunction with a vegetative cover) to protect against erosion. Following the final grading and compaction of the barrier layer, topsoil was placed to a depth of six inches (after placement and rolling). Topsoil was placed and graded to a smooth, even surface and was rolled and raked to remove ridges and fill in depressions, ruts and low spots. Grade stakes were used to verify the thickness of the topsoil layer.

A conservation seed mixture was used to foster a natural habitat and minimize maintenance requirements. All seed was place by the hydro seeding process. The process entailed blending together seed, water, fertilizer, fiber mulch, and lime in a tank and applying through a spraying hose.

Fifty trees, including 25 hardwood trees, 13 poplars and 12 birch trees were replanted at various locations across the Site to provide shelter for the wildlife and stimulate repopulation of the wooded areas outside of the consolidated area.

Passive Gas Venting

Passive gas venting involved the installation of passive gas venting through the waste/fill to relieve gas buildup beneath the cover system. Passive gas venting wells were installed in accordance with guidelines at a density of approximately one well per acre (5 wells). The gas venting wells were constructed of 40-inch diameter Schedule 40 PVC with 180 degree (gooseneck) risers and bird screens. The gas venting wells were installed at 5 feet into the waste and were screened in a 3-foot diameter annular space.

Institutional Controls

The ROD requires the implementation of institutional controls (ICs). The ICs involve filing of an Environmental Easement to restrict the use of on-site groundwater as a source of potable or process water (unless groundwater quality standards are met) and to restrict activities on the Site that could compromise the integrity of the cap.

The owner of record of the Site, Peter Cooper Corporation (PCC) is an inactive Delaware Corporation. A search for potential corporate successors was conducted and none were found. The PRPs consistent with the obligation to use reasonable best efforts to implement the ICs: commenced an action in Supreme Court, Cattaraugus County, against the Peter Cooper Corporation to secure an Order from the court to provide the PRPs with access to the Site and to give permission to implement the ICs by filing the Easement in the Office of the Clerk of Cattaraugus County. The Court granted legal access to the Site on July 1, 2008 and was recorded in the Office of the Clerk of Cattaraugus County on July 13, 2008.

Reuse/Redevelopment

The cover seeding mixture for the cover system specified in the ROD was intended to foster a natural wildlife habitat. With this in mind, a sustainable forest/ecosystem and wildlife diversity plan was prepared for the Site by one of the PRP. The plan will be implemented by the same PRP. Part of the program includes the creation of about 10 acres of food plots consisting of primarily late blooming tubers such as turnips, over a blend of winter wheat and oats, to provide more winter forage on the Site. An additional 100 American Crab-apple trees will be planted in three select areas as they are a very late blossoming and fruit bearing tree that will hold its fruit, and consequently provide forage, for all forms of wildlife into late December.

In addition, a forest thinning plan will be instituted to open up the canopy and promote the growth of Honey Maple trees. The plan also includes ridding the Site of low quality trees that do not provide mast, habitat or other beneficial uses. Once the cutting and thinning has been done, it is predicted by a Biologist that there will be a 30% or more increase in the carrying capacity of

an already high wildlife diversity area.

Community Involvement Activities

Public participation activities for this Site have been satisfied as required in CERCLA § 113(k) and Section 117. As part of the remedy selection process, the public was invited to comment on EPA's proposed remedy. All other documents and information which EPA relied on or considered in recommending this deletion are available for the public to review at the information repositories located at the EPA Region 2 offices at 290 Broadway in Manhattan, and at the information repository at the Town of Dayton, Town Building, located at 9100 Route 62 in South Dayton, New York.

The Region's community involvement staff conducted an active campaign to ensure that the residents were well informed about the activities at the Site. Community involvement activities included routine publication of progress fact sheet.

III. DEMONSTRATION OF CLEANUP ACTIVITY QUALITY ASSURANCE AND QUALITY CONTROL

Cleanup activities at the Site were undertaken in accordance with the UAO, the ROD, the CD and the RD plans and specifications, as modified by the as-built documentation. All applicable EPA and NYSDEC quality assurance and quality control (QA/QC) procedures and protocols were incorporated into the RD. EPA analytical methods and certified laboratories were used for all monitoring during remedial activities, and data validation was performed in accordance with EPA protocols. Oversight of construction activities, sampling procedures, and post-remediation monitoring was provided by EPA's on scene coordinator and NYSDEC Project Manager for the Site. In addition, the EPA RPM routinely visited the Site during construction activities to review construction progress and evaluate and review the results of QA/QC activities. All procedures and protocols followed during the RA are documented in the RD reports and the sample analyses were performed at state-certified laboratories.

The QA/QC program used throughout the RA was rigorous and in conformance with EPA and NYSDEC standards; therefore, EPA and NYSDEC have determined that all analytical results are accurate to the degree needed to assure satisfactory execution of the RA, in accordance the ROD, CD and the RD plans and specifications, as modified by the as-built documentation.

IV. SUMMARY OF OPERATION AND MAINTENANCE

The Operation Maintenance & Monitoring (OM&M) activities are being performed by Benchmark, for the PRPs. The OM&M Plan was prepared to identify required monitoring and maintenance tasks for the constructed remedial measures at the Site. Specifically, this report provides for the long term monitoring of the final cover system, the gas monitoring systems, as well as groundwater and surface water system as described below.

Cover System

The final cover system was constructed so that it functions with minimum maintenance, promotes drainage, and minimizes erosion. Inspection of the cap is performed semiannually and following major rainfall events (a 2-year, 6-hour storm with a rainfall accumulation of approximately 1.6 inches). A Post-Closure Field Inspection Report is required showing area that may be cracked, eroded, have insufficient vegetative cover growth, and indicate surface settlement.

Gas Monitoring System

Long-term monitoring will comply with the NYSDEC Part 360 landfill closure regulations for methane migration and controls. During the semiannual Site inspections, gas vents will be inspected for overall integrity, plugging, and damage. Plugged gas vents will be assessed to determine the source of the blockage and mitigated during the inspection as necessary. Damaged gas vents will be repaired or rebuilt to restore them to original design configuration. Any sign of stressed vegetation (i.e., yellowed, browned, or absent) either immediately around the gas vents or across the Site will be noted on the Post-Closure Inspection Report.

Groundwater Monitoring System

Monitoring of select upgradient and downgradient shallow overburden wells and surface water from Wetland F were designed to provide representative data to evaluate changes in site conditions. The planned groundwater and surface water monitoring network is described below.

Groundwater monitoring was performed semi annually at the following network locations, where the S identifier indicates a shallow overburden monitoring well:

- Upgradient monitoring well MW-9S.
- Cross-gradient monitoring well MW-2SR (between Wetland B and waste/fill consolidation area). Well MW-2SR was installed, as per the ROD, during remedial construction measures as a replacement for MW-2S, and was sampled during the first semiannual event. The need

for continued monitoring at MW-2SR was evaluated following the review of the initial sample data. Similarly, monitoring MW-6S was sampled during the first semi-annual monitoring event. Based on the analytical results from this initial sampling event, the need for continued monitoring at this well was assessed.

- Perimeter downgradient monitoring wells MW-5S, MW-7S, and MW-8S.
- Downgradient Wetland F (surface water).

In addition, all of the above-referenced well locations will be monitored for water elevation information to facilitate preparation of overburden isopotential maps.

V. MONITORING RESULTS

June 2009 sampling

On June 19, 2009, the first round of static water level measurements was collected from the seven monitoring wells shown on Figure 3. A surface water sample was collected from Wetland F and groundwater samples were collected from on-site monitoring wells MW-2SR, MW-5S, MW-6S, MW-7S, MW-8S, and MW-9S.

The total metals concentrations reported for the June 2009 sampling event for arsenic, total chromium, and hexavalent chromium were non-detect or below GWQS/GV at all monitoring locations. The non-toxic metal (i.e., total iron and manganese) were compared to GWQS/GV secondary standards. The concentrations were above but within an order of magnitude of the GWQS/GV at all monitoring locations with the exception of MW-7S and MW-9S. Due to high turbidity in the sample collected from MW-7S, a filtered soluble metal sample was collected; iron was not detected. Monitoring well MW-9S is located upgradient of the site; elevated concentrations of iron and manganese may be naturally occurring in the area. The NY GWQS for iron and manganese are secondary standards.

Water quality concentrations were well within groundwater quality standards, with the exception of nitrate at MW-6S and total sulfide at Wetland F; these concentrations were within an order of magnitude of the groundwater quality standards.

Due to the low concentrations detected and absence of arsenic and hexavalent chromium in MW-2SR, and MW-6S further monitoring of these locations were eliminated. Monitoring at these locations were then limited to groundwater elevation measurement during subsequent sampling events as specified in the post-construction OM&M Plan.

December 2009 sampling result

On December 30, 2009, the second round of static water level measurements were collected from the seven monitoring wells shown on Figure 3. Surface water sample was collected from Wetland F and groundwater samples were collected from on-site monitoring wells MW-5S, MW-7S, MW-8S, and MW-9S.

The total metals concentrations reported for the December 2009 sampling event for arsenic, total chromium, and hexavalent chromium were non-detect or below GWQS/GVat all monitoring locations. Iron concentrations were above GWQS/GV at monitoring locations MW-7S and Wetland F. Manganese concentrations were above GWQS/GV at all locations except MW-9S. Due to high turbidity in the sample collected from MW-7S and Wetland F, a soluble metals sample was collected and filtered in the laboratory. Soluble metal concentrations were all reported as non-detect except chromium and manganese in well MW-7S; and manganese and iron in Wetland F sample. However, all concentrations were reported at well below their respective GWQSs. Water quality parameter concentration (i.e., ammonia, nitrate, alkaline, & sulfide) were well within ground water quality standards at all monitoring wells.

Table 1 presents a summary groundwater monitoring results from past monitoring events (i.e. April 2002; June 2009, December 2009 and May 2010). The current data indicates an overall decrease in total concentration for the water quality parameters at each of the monitoring locations.

In addition, water level measurement taken during both rounds confirms that the groundwater is migrating to the west toward Wetland F, which is consistent with observations recorded during the RI.

As per the OM&M plan semiannual inspection of the landfill was conducted concurrently with the sampling described above. Inspection reports submitted on February 5, 2010, indicated that the final cover system appears in good condition, with the gas vents system intact and operational.

VI. SUMMARY OF REMEDIATION COSTS

The estimated capital cost to implement the selected remedy in the 2006 ROD was $1.04 million and annual OM&M costs were identified at $15,000. With regard to the costs related to the site remediation, the PRPs were not required by the terms of the Consent Decree to make cost information available. However, the PRPs have estimated the capital cost was $1.1 million to complete the RA at the Site.

VII. PROTECTIVENESS

The Site meets all the site-completion requirements as specified in OSWER Directive 9320.2-09, *CloseOut Procedures for National Priorities List Sites*. Specifically, all cleanup actions specified in the ROD have been implemented. The contaminated waste/file piles have been consolidated and capped, removing direct contact (*i.e.*, ingestion or dermal contact with soil) exposures to the public. The potential impacts to groundwater are being addressed through the engineered cap. The cap reduces or prevents migration from the contaminated soils to the groundwater. Institutional controls are in place to further prevent potential exposures to the public, including trespassers. The Site Management Plan that provides for the proper management of all remedy components have been submitted and approved.

The only continuing effort at the site is the ongoing O&M activities. A bibliography of all documents relevant to the completion of the work at the site under the Superfund program is attached.

VIII. FIVE-YEAR REVIEW

Hazardous substances remain at this Site above levels which would allow for unlimited use and unrestricted exposure. Pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, Section 121(c), EPA must conduct five-year reviews. The first Five-year Review Report will be completed prior to July 2013, which is five years from the initiation of construction for the remedy.

Approved:

Walter E. Mugdan, Director — Date
Emergency and Remedial Response Division

BIBLIOGRAPHY

SUPERFUND FINAL CLOSE OUT REPORT
PETER COOPER CORPORATION (MARKHAMS) SUPERFUND SITE

Geometrix Consultants, Inc. and Benchmark Environmental Engineering and Science, PPLC, *Remedial Investigation Report, Peter Cooper Markhams Site, Dayton, New York, Volumes I and II, February 2005.*

Benchmark Environmental Engineering and Science, PPLC, *Feasibility Study Report- Peter Cooper Markhams Site, Dayton, New York,* August 2006.

Environmental Protection Agency, *Record of Decision, Peter Cooper Markhams Superfund Site, December 2006.*

Consent Decree, Docket #: 07-CV-765 between the Cooperating Potentially Responsible Parties (CPRPs) Group and US EPA, U.S. District Court, Western District of New York, March 2008.

Benchmark Environmental Engineering and Science, PPLC, *Construction Quality Assurance Project Plan (CQAPP) for the Peter Cooper Markhams NPL Site, Dayton, New York,* June 2008.

.

Benchmark Environmental Engineering and Science, PPLC, *Remedial Design Report- Peter Cooper Markhams Site, Dayton, New York,* June 2008.

Environmental Protection Agency, *Superfund Preliminary Site Close Out Report, Peter Cooper Corporation (Markhams) Superfund Site, Dayton, New York,* November 2008.

Benchmark Environmental Engineering and Science, PPLC, Site *Management Plan (SMP) for Peter Cooper Markhams NPL Site, Dayton, New York,* February 2009.

Benchmark Environmental Engineering and Science, PPLC, *Remedial Action Report Peter Cooper Markhams NPL Site, Dayton, New York,* June 2009.

Benchmark Environmental Engineering and Science, PPLC, *June 2009 Post-Remedial Groundwater Monitoring for Peter Cooper Markhams Site, Dayton, New York,* August 2009.

Benchmark Environmental Engineering and Science, PPLC, *December 2009 Post-Remedial Groundwater Monitoring and Annual Monitoring and Maintenance Summary Report 2009,* February 2010.

BENCHMARK Environmental Engineering & Science, PLLC

TABLE 1

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS [1,2]

Peter Cooper Markhams Site
Dayton, New York

Parameter	Monitoring Location and Sample Collection Date																														GWQS [4]
	MW-5S [5]				MW-7S								MW-8S								MW-9S								Wetland-F			
	04/25/02	06/19/09		12/30/09		05/28/10		04/24/02	06/19/09		12/30/09		05/28/10		04/23/02	06/19/09		12/30/09		05/28/10		04/23/02	06/19/09		12/30/09		05/28/10		06/19/09	12/30/09	05/28/10	
Field Measurements [3]:																															
Sample No.	*Initial*	*Final*	*Initial*	*Final*	*Initial*	*Final*	*Initial*	*Final*	*Initial*	*Final*	*Initial*	*Final*	*Initial*	*Final*	*Initial*	*Final*	*Initial*	*Final*	*Initial*	*Final*	*Initial*	*Final*	*Initial*	*Final*	*Initial*	*Final*	*Initial*	*Final*	*Initial*	*Initial*	*Initial*	--
pH (units)	--	6.81	6.75	6.78	6.58	6.68	6.80	6.86	--	6.80	6.74	6.79	6.77	6.82	6.79	6.78	--	6.90	6.90	6.92	6.65	6.70	7.04	**6.25**	--	7.36	**6.48**	6.52	6.84	6.79	7.71	6.78	7.24	7.24	**6.04**	7.45	**6.5 - 8.5**
Temperature (°C)	--	7.14	11.4	11.7	6.3	6.2	14.3	14.9	--	8.77	9.6	10.1	5.4	7.7	15.0	15.1	--	7.6	11.5	12.2	6.9	6.9	16.1	12.7	--	6.02	12.2	12.6	6.5	5.4	12.2	12.4	16.7	16.9	2.00	22.00	**NA**
Sp. Conductance (mS)	--	822	1004	993	1099	1090	985	966	--	1959	1753	1754	1804	1799	1687	1785	--	755	754	764	767	767	653	635	--	540	337	337	369	369	402	299	416	426	571.8	469.0	**NA**
Turbidity (NTU)	--	2	4.6	2.4	2.9	2.9	37	5.47	--	12.4	>1000	180	405	537	190	27	--	17	32	22	30	19	63	5.38	--	11.2	6.2	4	2.43	2.02	18.6	2.98	1.2	250	588	6.79	**NA**
Eh (mV)	--	67.3	69	70	-29	-20	-38	21	--	170	-56	-62	-62	-64	-83	-114	--	4.6	80	81	7	15	21	41	--	1.8	93	90	52	56	4	50	3	-42	-39	530	**NA**
Wet Chemistry (mg/L):																															
Alkalinity, Total	NA	538 D		470 D		471 D		NA	519 D		586 D		446 D		NA	291 D		285 D		300 D	NA	98.4 D		98.8 D		73.5 C		228 D	274 D	243 D	**NA**
Ammonia	ND	ND		0.047		ND		ND	0.063		0.119		0.039 C		0.34	0.038		0.04		0.042	ND < 10	ND		0.029		ND		0.065	0.167	0.088	**2**
Nitrate (as Nitrogen)	2.8	0.271		0.347		0.443 C		ND	ND		ND		ND		**14.6**	9.48 D		0.543		1.98	9.3	7.19 D		**11.1 D**		**12.1 D**		7.9 D	ND	ND	**10**
Sulfide, Total	NA	ND		ND		ND		NA	ND		ND		ND		NA	ND		ND		ND	NA	ND		ND		ND		**0.173**	ND	ND	**0.05**
Total Inorganic Compounds (mg/L):																															
Arsenic	ND	ND		ND		ND		ND	ND		ND		ND		ND	ND		ND		ND	ND	ND		ND		ND		ND	ND	ND	**0.025**
Chromium	ND	0.0056		ND		ND		ND	0.0055		0.0050		0.0046		ND	ND		ND		ND	ND	0.0051		ND		ND		ND	0.006	ND	**0.05**
Hexavalent Chromium	ND	ND		ND		ND		ND	ND		ND		ND		ND	ND		ND		Nd	ND	ND		ND		ND		ND	ND	ND	**0.05**
Manganese	NA	**1.61**		**1.45**		**1.50**		NA	0.264		**0.428**		0.213		NA	**19.6**		**1.54**		**2.34**	NA	**1.54**		0.005		0.004		**0.676**	**0.305**	**0.392**	**0.3**
Iron	NA	**0.408**		0.128		**0.508**		NA	**104**		**83.3**		**17.8**		NA	**1.93**		ND		0.088	NA	**0.322**		ND		0.076		**0.647**	**6.14**	**0.715**	**0.3**
Soluble Inorganic Compounds (mg/L):																															
Arsenic	NA	NA		NA		NA		NA	ND		ND		ND		NA	NA		NA		NA	NA	NA		NA		NA		ND	ND	NA	**0.025**
Chromium	NA	NA		NA		NA		NA	0.005 P		0.005 P		0.0043		NA	NA		NA		NA	NA	NA		NA		NA		ND	ND	NA	**0.05**
Manganese	NA	NA		NA		NA		NA	0.206 P		0.186 P		0.193		NA	NA		NA		NA	NA	NA		NA		NA		0.0116 P	0.0272 P	NA	**0.3**
Iron	NA	NA		NA		NA		NA	ND		ND		**10.8 C**		NA	NA		NA		NA	NA	NA		NA		NA		0.104 P	0.089 P	NA	**0.5**

Notes:

1. Only those compounds detected above the method detection limit at a minimum of one sample location are reported in this table.
2. Shaded and bolded values represent an exceedance of the GWQS/GV.
3. Field measurements were collected immediately before and after groundwater sample collection.
4. NYSDEC Class "GA" Groundwater Quality Standards (GWQS) per 6 NYCRR Part 703.
5. Site-specific QA/QC collected from MW-5S (MS/MSD) (May 2010) & MW-9S (MS/MSD) (May 2010).

Definitions:

J = Estimated value
NA = Not analyzed
ND = Parameter was not detected above laboratory reporting limit.
D = Dilution required due to high concentration of target analyte(s).
P = Sample filtered in the laboratory
C = Results confirmed by reanalysis.

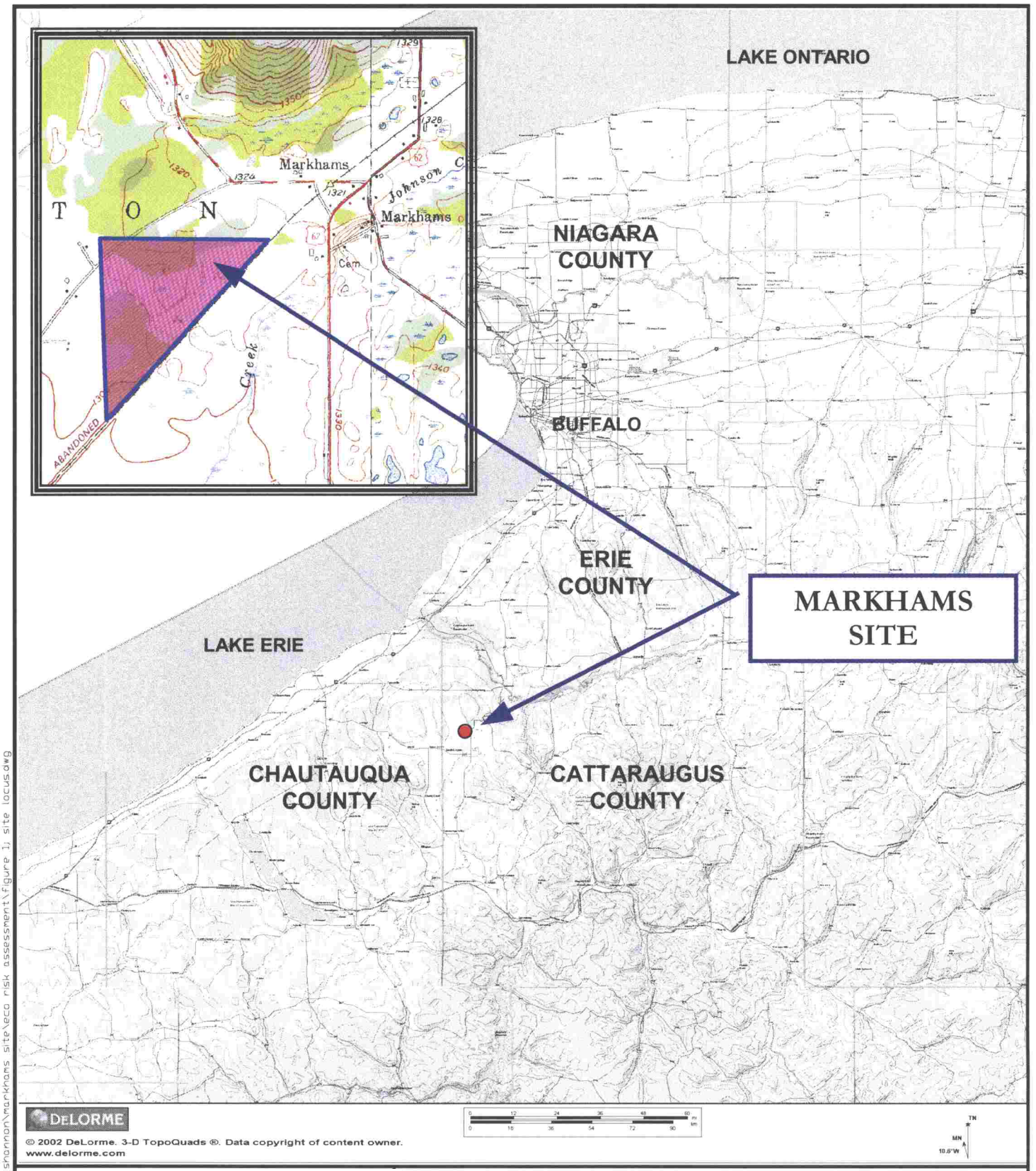


FIGURE 1
SITE LOCATION MAP

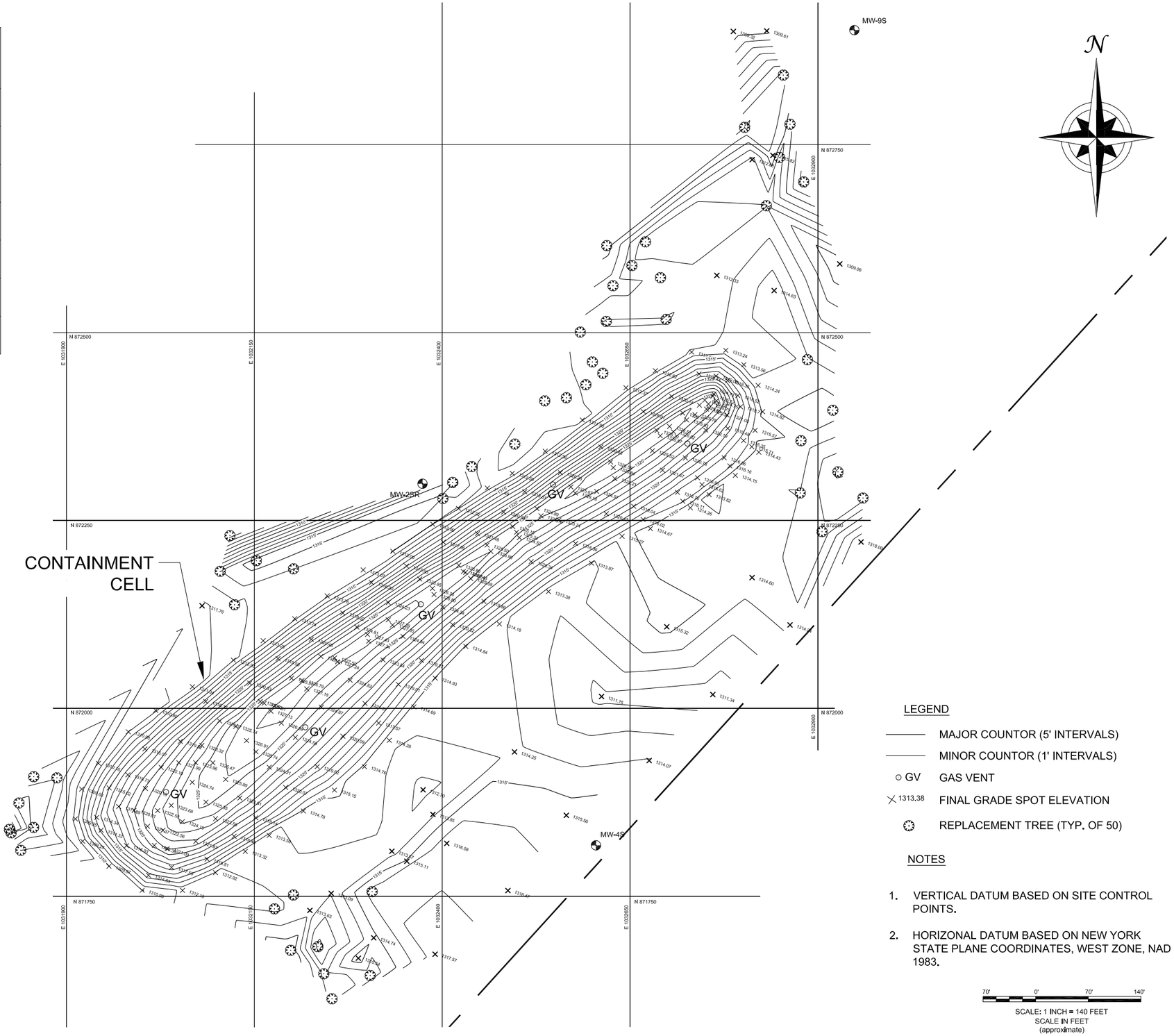
PETER COOPER MARKHAMS SITE
MARKHAMS, NEW YORK

FILEPATH=\\ead\benchmark\collier shannon\markhams site\eco risk assessment\figure 1, site locus.dwg

TREE PLANTING SCHEDULE	
TREE TYPE	#
Ash	8
Maples	9
Oak	8
Hybrid Poplars	13
River Birch	6
White Spire	6

CONTAINMENT CELL COVER SEED MIX	
SEED TYPE	% OF MIX
KY-31 TALL FESCUE	35.76%
TONGA PERENNIAL RYE GRASS	24.61%
ENSYLVA CREEPING RED FESCUE	19.71%
CROWN ROYALE OF CHARDGRASS	13.52%
NORDIC BIRDSFOOT TREFOIL	3.93%
OTHER CROP	0.17%
WEED SEEDS	0.03%
INERT MATTER	2.27%

NON-CONTAINMENT CELL SEED MIX	
SEED TYPE	% OF MIX
LITTLE BLUESTEM	29.64%
VIRGINIA WILD RYE	24.91%
INDIANGRASS	17.93%
BIG BLUESTEM	12.86%
SWITCHGRASS	6.00%
OTHER CROP	0.02%
WEED SEEDS	0.01%
INERT MATTER	8.63%



LEGEND

- MAJOR COUNTOR (5' INTERVALS)
- MINOR COUNTOR (1' INTERVALS)
- ○ GV GAS VENT
- × 1313.38 FINAL GRADE SPOT ELEVATION
- REPLACEMENT TREE (TYP. OF 50)

NOTES

1. VERTICAL DATUM BASED ON SITE CONTROL POINTS.
2. HORIZONAL DATUM BASED ON NEW YORK STATE PLANE COORDINATES, WEST ZONE, NAD 1983.

70' 0' 70' 140'
SCALE: 1 INCH = 140 FEET
SCALE IN FEET
(approximate)

DATE: JUNE 2009
DRAFTED BY: AJZ

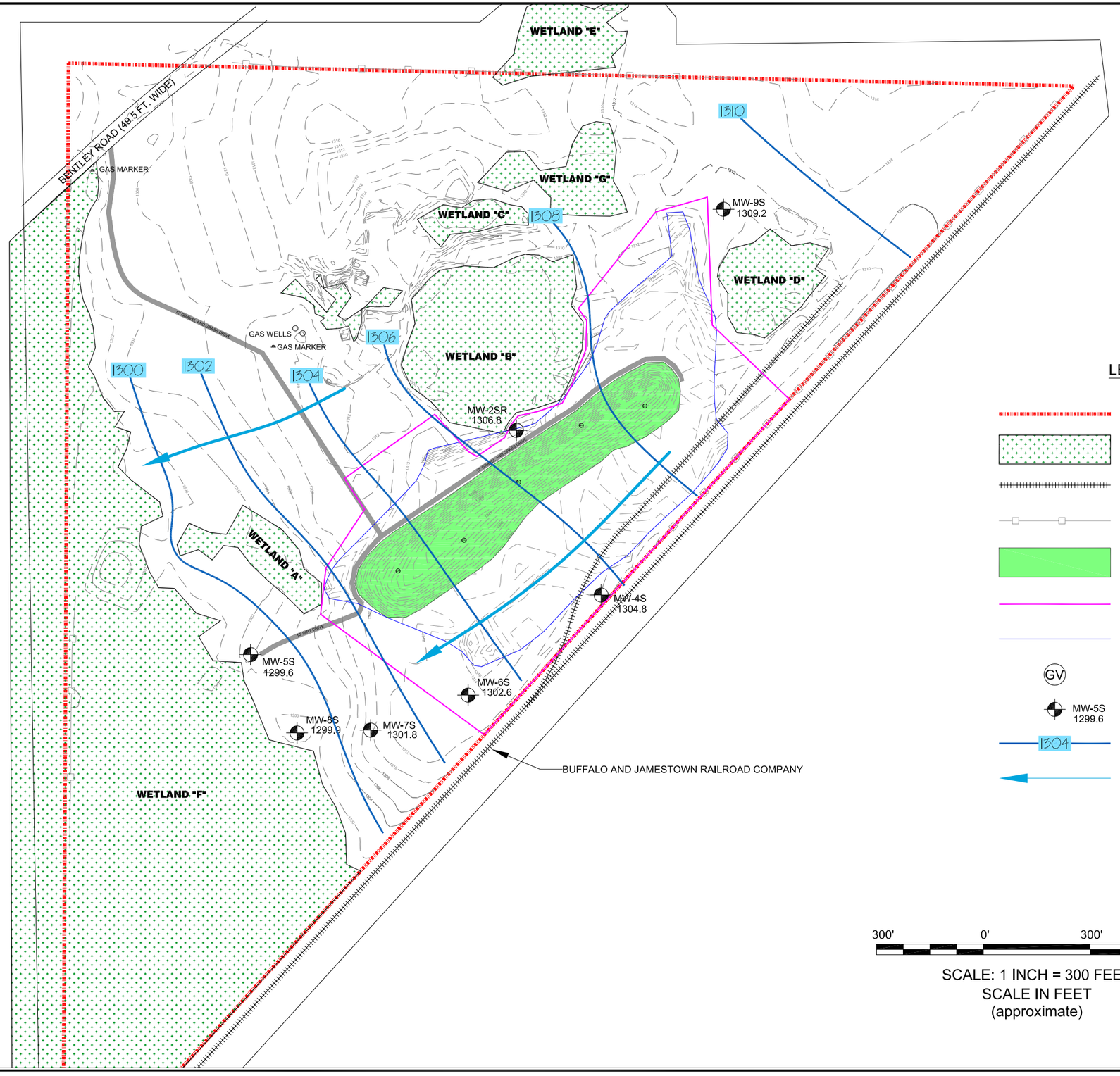
BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NEW YORK 14218
(716) 856-0599

JOB NO.: 0021-003-400

TOP OF FINAL GRADE WASTE/FILL CONSOLIDATION AREA

REMEDIAL ACTION REPORT
PETER COOPER MARKHAMS NPL SITE
BENTLEY ROAD, DAYTON, NEW YORK
PREPARED FOR
CPRPs FOR PETER COOPER MARKHAMS

FIGURE 2



N

LEGEND:

- PROPERTY BOUNDARY
- WETLAND AREA
- RAILROAD TRACKS
- FENCE LINE
- CONTAINMENT CELL
- REMEDIAL WORK LIMIT
- SURVEY LIMITS
- GV — CONTAINMENT CELL GAS VENT
- MW-5S 1299.6 — MONITORING WELL WITH GROUNDWATER ELEVATION (12/30/09)
- 1304 — ISOPOTENTIAL CONTOUR
- GROUNDWATER FLOW DIRECTION

300' 0' 300' 600'

SCALE: 1 INCH = 300 FEET
SCALE IN FEET
(approximate)

DATE: JANUARY 2010
DRAFTED BY: BCH

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NEW YORK 14218
(716) 856-0599

JOB NO.: 0021-003-500

SITE PLAN & ISOPOTENTIAL MAP FOR DECEMBER 30, 2009

POST-REMEDIAL MONITORING
PETER COOPER MARKHAMS SUPERFUND SITE
DAYTON, NEW YORK
PREPARED FOR
CPRPs FOR PETER COOPER MARKHAMS

FIGURE 3