PROPOSED REMEDIAL ACTION PLAN
Former Diamond Cleaners
City of Elmira, Chemung County, New York
Site No. 8-08-030

March 2008

Prepared by:

Division of Environmental Remediation
New York State Department of Environmental Conservation

PROPOSED REMEDIAL ACTION PLAN

Former Diamond Cleaners
Operable Unit # 1 - Source Area
City of Elmira, Chemung County, New York
Site No. 8-08-030
March 2008

SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), is proposing a remedy for the former Diamond Cleaners site, Operable Unit # 1 (OU-1) - Source Area. The presence of hazardous waste has created significant threats to human health and/or the environment that are addressed by this proposed remedy. As more fully described in Sections 3 and 5 of this document, improper disposal of dry cleaning solvents has resulted in the disposal of hazardous wastes, including volatile organic compounds (VOCs). These wastes have contaminated the soils and groundwater at the site, and have resulted in:

- a significant environmental threat associated with the current and potential impacts of contaminants to soil and groundwater at the site.
- a significant threat to human health associated with current and potential exposure to PCE vapors impacting indoor air quality.

To eliminate or mitigate these threats, the Department proposes:

- Demolition of the existing on-site building,
- Excavation of contaminated soils exceeding remediation goals and transportation and off-site disposal of contaminated soil and building debris.

The proposed remedy, discussed in detail in Section 8, is intended to attain the remediation goals identified for this site in Section 6. The remedy must conform with officially promulgated standards and criteria that are directly applicable, or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, criteria and guidance are hereafter called SCGs.

This Proposed Remedial Action Plan (PRAP) identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for this preference. The Department will select a final remedy for the site only after careful consideration of all comments received during the public comment period.

The Department has issued this PRAP as a component of the Citizen Participation Plan developed pursuant to the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375. This document is a summary of the information that can be found in greater detail in the June 2007 "Remedial Investigation" (RI) Report and "Feasibility Study" (FS), and other relevant documents. The public is encouraged to review the project documents, which are available at the following repositories:

Elmira Steele Memorial Library
101 East Church Street
Elmira, NY 14901
(607) 733-9173

Matthew Dunham, P.E.
NYSDEC - Central Office
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, NY 12233-7017
1-888-459-8667 (toll free)
By Appointment Only

Lisa Silvestri
Citizen Participation Specialist
NYSDEC - Region 8
6274 E Avon-Lima Rd.
Avon, NY 14414 - 9519
(585) 226-5326
By Appointment Only

The Department seeks input from the community on all PRAPs. A public comment period has been set from March 1, 2008 through March 31, 2008 to provide an opportunity for public participation in the remedy selection process. A public meeting is scheduled for March 10, 2008 at the Elmira Steele Memorial Library beginning at 6:30 P.M..

At the meeting, the results of the RI/FS will be presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period will be held, during which verbal or written comments may be submitted on the PRAP. Written comments may also be sent to Mr. Dunham at the above address through March 31, 2008.

The Department may modify the proposed remedy or select another of the alternatives presented in this PRAP, based on new information or public comments. Therefore, the public is encouraged to review and comment on all of the alternatives identified here.

Comments will be summarized and addressed in the responsiveness summary section of the Record of Decision (ROD). The ROD is the Department's final selection of the remedy for this site.

SECTION 2: SITE LOCATION AND DESCRIPTION

The site is located at 717 Lake Street, in the City of Elmira, Chemung County, New York. (Figure 1 and 2) The site is situated on a one acre lot in a commercial and residential area and consists of a paved/gravel parking lot, a one story building constructed in the 1950's and a grassy area at the rear of the property. The building is currently unoccupied and is in a state of disrepair. The site is situated in a relatively flat flood plain, formed by the confluence of the Chemung River to the south and the Newtown Creek to the east, at approximately 859 feet above mean sea level (msl). The topography is relatively flat for approximately one mile to the east of the site, before rising sharply up a ridge to an elevation more than 1600 feet above msl. The topography is also relatively flat to the west of the site before similarly rising up a ridge to more than 1600 feet above msl. It is presumed, based on regional groundwater flow (Figures 6 and 7) and topography, that the Chemung River and, to a lesser extent Newtown Creek, are local groundwater discharge areas. Groundwater was encountered at 12 to 14 feet beneath ground surface (bgs) at the site. Groundwater flow direction at the site is estimated to be to the north. The site is located within a primary aquifer which supplies drinking water to the local population. The closest operational public water supply wells are located along the shore of the Chemung River, approximately 1.2 miles southwest of the site.

Operable Unit (OU) No.1, which is the subject of this document, consists of the on-site source area at the former Diamond Cleaners property. An operable unit represents a portion of the site remedy that for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination. The remaining operable unit for this site is OU-2, on-site/off-site contaminated groundwater. The remedy for the OU-2, groundwater contamination, will be addressed in a decision document to be issued in the future.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

This site was used as a laundry and dry-cleaning operation by multiple operators between 1950 and 2001. It was reported that Stoddard Solvent was used as a dry-cleaning agent in the early years. Tetrachloroethene (PCE) was used for the dry-cleaning operations at the site from 1974 until 2001.

3.2: Remedial History

In 2001, the Department contracted Teeter Environmental Services to perform a limited sub surface investigation of the property at 717 Lake St. and an adjacent property at 706-710 Benjamin St., owned by the same party (Figure 3). Potential contaminants of concern included chlorinated and non chlorinated solvents (Stoddard Solvent) used in the dry cleaning industry as well as petroleum contaminants potentially related to a decommissioned gasoline UST formerly located at the site. Results indicate that the soil and groundwater have been impacted by both chlorinated solvents and petroleum compounds. Chlorinated solvents were detected at concentrations in excess of the NYS Class GA groundwater standards in all 6 boring locations where groundwater was sampled. Fifteen soil borings to depth ranging from 14 to 20 feet bgs were performed using a direct-push soil probing rig. Five soil samples from separate borings and six groundwater samples from selected borings were submitted to the laboratory for VOCs and aliphatic hydrocarbon analysis. No permanent groundwater monitoring wells were installed. The results indicated soil and groundwater contamination with chlorinated solvents and petroleum compounds exceeding NYS standards and/or guidance values. Petroleum compounds were mainly detected near the former UST location. Similar chlorinated solvents exceeding NYS standards were also detected in groundwater samples collected from the soil borings performed at the adjacent property at 706-710 Benjamin St. This contaminated adjacent property is also owned by the site owner, however, no dry-cleaning operations were conducted there.

In 2004, the Department listed the site as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites in New York. A Class 2 site is a site where hazardous waste presents a significant threat to the public health or the environment and action is required.

SECTION 4: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers. Existing records indicate that the property was owned by Daniel S. Hoffman until 1995 when it was sold to Earl D. Coleman. Subsequently, it was seized by Chemung County and purchased back from the county by Mr. Coleman in 1998. According to the Chemung County Real Property Office, the property has again been seized by the county and remains in the possession of Chemung County.

The PRPs for the site, documented to date, include: Daniel S. Hoffman and Earl D. Coleman. The PRPs declined to implement the RI/FS at the site when requested by the Department. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the Department will evaluate the site for further action under the State Superfund. The PRPs are subject to legal actions by the state for recovery of all response costs the state has incurred.

SECTION 5: SITE CONTAMINATION

A remedial investigation/feasibility study (RI/FS) has been conducted to evaluate the alternatives for addressing the significant threats to human health and the environment.

5.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The RI was conducted between June 2005 and January 2006. The field activities and findings of the investigation are described in the RI report.

Phase one of the field program included a detailed evaluation of the area surrounding and within the site building, as well as the area immediately downgradient from the site. It included:

- Direct-push soil sampling at 11 locations based on field screening and groundwater sampling at 18 locations to evaluate potential and known source areas and characterize the vertical distribution of contaminants in soil and ground water.
- Surface soil sampling at 5 background locations to evaluate background conditions related to potential health risk at the site.
- Installation of 4 micro wells to evaluate site groundwater flow.
- Direct push soil gas sampling at 6 locations selected based on field screening of soils collected during Phase 1 field activities to evaluate the potential vapor migration at the site.

Upon completion of phase one, phase two was initiated. Phase two included:

- Installation of five monitoring wells to provide additional groundwater analytical data and permanent groundwater monitoring points.
- Groundwater sampling of new wells to evaluate groundwater conditions and provide data for evaluating the potential for natural attenuation.
- Sub-slab vapor and indoor air sampling at the subject property and three additional neighboring properties, to evaluate the potential for vapor migration.
- Additional direct push soil sampling to delineate the extent of potential chlorinated solvent contaminants in soils.

5.1.1: Standards, Criteria, and Guidance (SCGs)

To determine whether the soil and indoor air contain contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Soil SCGs are based on 6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives.
- Concentrations of VOCs in air were evaluated using the air guidelines provided in the NYSDOH guidance document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," dated October 2006.

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized in Section 5.1.2. More complete information can be found in the RI report.

5.1.2: Nature and Extent of Contamination

As described in the RI report, many soil, groundwater and air samples were collected to characterize the nature and extent of contamination. As summarized in Table 1, the main category of contaminant that exceed their SCGs are VOCs. For comparison purposes, where applicable, SCGs are provided for each medium.

Chemical concentrations are reported in parts per million (ppm) for soil. Air samples are reported in micrograms per cubic meter ($\mu g/m^3$).

Table 1 summarizes the degree of contamination for the contaminants of concern in soils and air, and compares the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Surface Soil

Ten on-site surface soil samples and five off-site surface soil samples were collected during the Phase I field work in June 2005 (Figure 4). The five off-site surface soil locations were chosen to represent background concentrations and were all collected in the vicinity of the Diamond Cleaners site. Three of the ten on-site samples had detected concentrations of PCE above the SCOs. Also, three of the on-site samples had detected concentrations of copper and one on-site sample had lead concentrations above the SCOs. Surface soil contamination identified during the RI/FS will be addressed in the remedy selection process.

Subsurface Soil

Four VOCs exceeded the SCOs in the sample collected at a depth of 13 to 15 ft. bgs from GS-004. Cis-1,2-DCE was detected in GS-005 at a depth of 15 to 17 ft. bgs at a concentration exceeding the SCOs. Detected concentrations of PCE, total xylenes and methylene chloride exceeded SCOs in boring MW-005 at a depth of 10 to 12 ft. bgs. PCE was the only VOC detected at a concentration exceeding SCOs in samples from borings GS-006 at 5-7 ft. bgs, GS-019 at 9-11 ft. bgs and GS-043 at 10-12 ft. bgs. PCE and acetone were was the only VOCs detected at a concentration exceeding the SCOs in samples from borings GS-008 and GS-016. PCE and methylene chloride were detected at concentrations exceeding SCOs in a sample collected from GS-017. Subsurface soil contamination identified during the RI/FS will be addressed in the remedy selection process.

Soil Vapor/Sub-Slab Vapor/Air

Six soil gas samples (GV-001 to GV-006) were collected on and around the Diamond Cleaners site in June 2005. See Figure 5 for soil gas locations. PCE detected in the soil gas at GV-001 resulted in the sub-slab and indoor air sampling of neighboring properties. Detected VOCs are reported in Table 1. Indoor air, sub-slab air and ambient air sample results were all compared to the background concentration for indoor air and the air guideline values presented in the Guidance for Evaluating Soil Vapor Intrusion in the State of New York. PCE values were compared to Matrix 2 of the Guidance for Evaluating Soil Vapor Intrusion in the State of New York.

Four air samples were collected from Location 1; two sub slab vapor samples and two indoor air samples. Neither sub slab vapor sample location had exceedances of the State's Guidance on Evaluating Soil Vapor. PCE exceeded the Air Guideline Value of 100 ug/m^3 at LOC-1B. Two samples were collected at Location 2; one soil vapor sample and one indoor air sample. There were no exceedances of the State's Guidance on Evaluating Soil Vapor in the soil vapor sample and the indoor air sample had exceedances of background concentrations for 1,3,5-Trimethylbenzene, PCE, toluene and xylenes. No parameters exceeded the Air Guideline Values criteria for Location 2. Three samples were collected at Location 3; one soil vapor sample, one basement air sample, and one first floor air sample. There were no exceedances of the State's Guidance on Evaluating Soil Vapor in the soil vapor sample nor were there

exceedances of the Background Concentrations or Air Guideline Values for the basement air sample or the first floor air sample. Location 4 was the Diamond Cleaners main site building. Three samples were collected inside the building; two sub slab samples and one indoor air sample. Both sub slab samples exceeded the State's Guidance on Evaluating Soil Vapor for PCE. PCE was also detected in the indoor air sample at a concentration exceeding the Indoor Air Guideline Value. One ambient air sample was collected outside of the Diamond Cleaners main site building. This sample had exceedances of the background concentrations for 1,3,5-trimethylbenzene, ethyl benzene, o-xylene, PCE and xylene.

Soil vapor and indoor air contamination identified during the RI/FS was addressed during the IRM described in Section 5.2.

5.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS. As a result of soil vapor intrusion sampling a vapor mitigation system was offered to the owner of an adjacent property. The owner declined the Department's offer to install the vapor mitigation system.

5.3: Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the human exposure pathways can be found in Section 5 of the RI report. An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: [1] a contaminant source, [2] contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.

The source of contamination is the location where contaminants were released to the environment. Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway exist. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

Under the current and future use scenarios, there exists the potential for exposure to volatile organic compounds via inhalation of vapor or incidental ingestion or dermal contact with on-site contaminated surface and subsurface soil. There could also be exposure via soil vapor intrusion into the former Diamond Cleaners building and a nearby business. Groundwater in the vicinity of the project site is not utilized as a source of drinking water. Therefore, exposure via ingestion of contaminated groundwater is not expected.

5.4: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands. The site is located in a residential/commercial area of the City of Elmira. There are no fish or wildlife receptors present.

Site contamination has impacted the site's soils and groundwater resource in the Elmira Valley.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The remediation goals for this site are to eliminate or reduce to the extent practicable:

- the release of contaminates from the soil into groundwater that may create exceedances of groundwater standards;
- soil vapor intrusion and exposures to building occupants;

Further, the remediation goals for the site include attaining to the extent practicable:

- implementation of the soil clean up objectives based on 6 NYCRR Subpart 375-6, Remedial Program Soil Cleanup Objectives, Table 375-6.8(b), Protection of Public Health, Protection of Groundwater for VOC contamination.
- implementation of the soil clean up objectives based on the current zoning of the property per 6 NYCRR Subpart 375-6, Remedial Program Soil Cleanup Objectives, Table 375-6.8(b), Protection of Public Health, Commercial for compounds other that VOCs.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Former Diamond Cleaners site were identified, screened and evaluated in the FS report which is available at the document repositories established for this site.

A summary of the remedial alternatives that were considered for this site is discussed below. The present worth represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved.

7.1: Description of Remedial Alternatives

The following potential remedies were considered to address the contaminated soils at the site.

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the site to remain in an unremediated state. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Alternative 2: Limited Action

Present Worth: *$1,082,000*
Capital Cost: *$132,000*
Annual Costs:
(Years 1-5): *$85,000*
(Years 6-10): *$50,000*
(Years 11-30): *$35,000*

In this alternative, institutional controls would be implemented to restrict future use of the site as part of an environmental easement. Implementation of the environmental easement would include the development of a Site Management Plan which would set forth the institutional controls necessary to manage exposure to contamination remaining at the site. Institutional controls would likely include implementation of land-use restrictions prohibiting subsurface activity in the area of contamination, and would prohibit changes in zoning of the site (e.g., change from commercial to residential use). Land-use restrictions would be implemented through legal instruments such as environmental easements and/or permitting processes. Long-term maintenance of fencing and warning signs are included in this alternative.

Alternative 3: Soil Vapor Extraction

Present Worth: *$1,334,000*
Capital Cost: *$247,000*
Annual Costs:
(Years 1-5): *$155,000*
(Years 5-10): *$108,000*

Alternative 3 would protect human health and the environment by limiting access to site contaminants through institutional controls while removing the contaminant mass. This alternative includes long-term environmental monitoring and soil-vapor extraction. A pre-design investigation would be conducted to refine the extent of contaminated soil to be addressed by this alternative prior to implementation. Institutional controls would be implemented as described for Alternative 2. Soil vapor extraction (SVE) would be implemented to address soil contamination. SVE would also address soil vapor contamination contributing to on-site soil vapor and indoor air contamination. System monitoring would be conducted to establish baseline concentrations of VOC vapors extracted by the SVE system, and to allow for monitoring of system performance over time. The effectiveness and performance of the SVE system would be evaluated over time, including preparation of periodic reports presenting concentration trends and discussion of system performance.

Alternative 4: Excavation/Off-site Disposal

Present Worth: *$1,315,000*
Capital Cost: *$1,315,000*

This alternative is a more aggressive approach to remediating the site aimed at eliminating the contaminated soils at the site. A pre-design investigation would be conducted to refine the extent of contaminated soil to be addressed by this alternative prior to implementation. This alternative includes demolition of the Diamond Cleaners building, excavation of approximately 2,000 cubic yards of contaminated soils at the site, backfilling of the excavation, and transportation of debris and contaminated soils to an off-site treatment and/or disposal facility. A demolition survey would be conducted prior to the demolition of the building to identify possible hazardous materials (i.e., asbestos, lead paint) in the building. Utility lines would be capped prior to the demolition. All building debris would be transported off site for disposal. Confirmation sampling for VOCs and PAHs would be conducted during excavation activities, with analytical results verifying attainment of remediation goals.

Following contaminated soil removal, excavated areas would be backfilled with clean fill and vegetated or paved as appropriate. Excavated soil would be sampled for characterization prior to transportation for off-site treatment and/or disposal.

7.2 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs the remediation of inactive hazardous waste disposal sites in New York A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

(1.) Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

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

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

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

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

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

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

(7.) Cost-Effectivness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision. The costs for each alternative are presented in Table 2.

This final criterion is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

(8.) Community Acceptance - Concerns of the community regarding the RI/FS reports and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

SECTION 8: SUMMARY OF THE PROPOSED REMEDY

The Department is proposing Alternative 4 as the remedy for this site. The elements of this remedy are described at the end of this section. The proposed remedy is based on the results of the RI and the evaluation of alternatives presented in the FS.

Alternative 4 is being proposed because, as described below, it satisfies the threshold criteria and provides the best balance of the primary balancing criteria described in Section 7.2. It would achieve the remediation goals for the site by removing the soils that create the most significant threat to public health and the environment, it would greatly reduce the source of contamination to groundwater, and it would create the conditions needed to restore groundwater quality to the extent practicable.

Alternative 2 does not include any remedial actions to remove contamination or to prevent the leaching of contamination to the groundwater, therefore Alternative 2 will not be in compliance with New York State Standards, Criteria, and Guidance (SCGs). Because Alternative 2 does not satisfy the threshold criteria it will not be selected as a final remedy for this site.

Alternative 3 does satisfy the threshold criteria, therefore the five balancing criteria are particularly important in selecting a final remedy for the site.

Alternatives 3 (Soil Vapor Extraction) and 4 (Excavation/Off-site Disposal) both have short-term impacts which can easily be controlled. The time needed to achieve the remediation goals would be longest for Alternative 3 and would require deed restrictions and long term monitoring.

Achieving long-term effectiveness is best accomplished by excavation and removal of the contaminated soils (Alternative 4). Alternative 4 is favorable because it would result in the removal of all of the contaminated soil at the site. Since most of the contamination is located under and adjacent to the on-site building, Alternative 4 would result in removal of almost all of the chemical contamination at the site and attains cleanup concentrations consistent with current zoning.

Alternative 4 would remove the volume of waste on-site and thereby greatly reduce the mobility and toxicity of contaminants. Approximately 2000 cubic yards of material would be removed with Alternative 4.

Alternative 3 would help to reduce the mobility of contaminants but this reduction is dependent upon the long-term operation, maintenance and monitoring of the treatment system. Only Alternative 3 would reduce the toxicity of contaminants by chemical/physical treatment.

Alternative 4 is favorable in that it is readily implementable. Additional sampling and testing will be required to gauge the implementability of Alternative 3.

The cost of Alternatives 3 and 4 are similar. The Department is proposing Alternative 4 because it is less expensive than Alternative 3. Alternative 4 is a more aggressive approach to remediation of the site aimed at eliminating the contaminated soils at the site. Alternative 4 is a permanent remedy that will eliminate most of a continuing source of groundwater contamination at the site. Because this alternative includes removal of source wastes at the site, it is expected to result in a shorter time frame to achieve remedial action objectives and provide long-term protection of human health and the environment.

The estimated present worth cost to implement the remedy is $1,315,000. The cost to construct the remedy is estimated to be $1,315,000 and the estimated average annual costs for 30 years is $0.

The elements of the proposed remedy are as follows:

(1.) A remedial design program would be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.

(2.) Demolition of the Diamond Cleaners building, excavation of tetrachloroethene contaminated soils at concentrations greater than 1.3 ppm, backfilling of the excavation, and transportation of debris and contaminated soils to an off-site treatment and/or disposal facility.

TABLE 1
Nature and Extent of Contamination
June 2005 - January 2006

SURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic	Tetrachloroethene	0.008 - 17	1.3	3/10
Semivolatile Organic	Benzo(a)pyrene	0.15 - 1.4	1	2/10
PCB/Pesticides	4-4'-DDD	0.005 - 0.270	62	0/10
	4-4'-DDE	0.006 - 2.3	47	0/10
	4-4'DDT	0.016 - 2.5	92	0/10
Inorganic Compounds	Copper	33.6 - 3870	270	3/10
	Lead	73.2 - 2020	1000	1/10

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Cis-1,2-Dichloroethene	0.001 - 6.3	0.25	2/60
	Tetrachloroethene	0.002 - 540	1.3	6/60
	Vinyl chloride	0.34 - 0.34	0.02	1/60
	Xylenes, Total	0.001 - 28	1.6	4/60
	Methylene chloride	0.03-0.269	0.05	3/60
PCB/Pesticides	4-4'-DDD	0.005 - 4.1	62	0/3
	4-4'-DDE	0.006- 0.610	47	0/3
	4-4'DDT	0.021 - 14	92	0/3
Inorganic Compounds	Copper	35.5 - 67.1	270	0/3
	Lead	16.2 - 61.3	1000	0/3

SOIL VAPOR	Contaminants of Concern	Concentration Range Detected (µg/m^3)[a]	SCG[b] (µg/m^3)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Tetrachloroethene	14 - 6800	NA	NA
	Trichloroethene	48 - 48	NA	NA

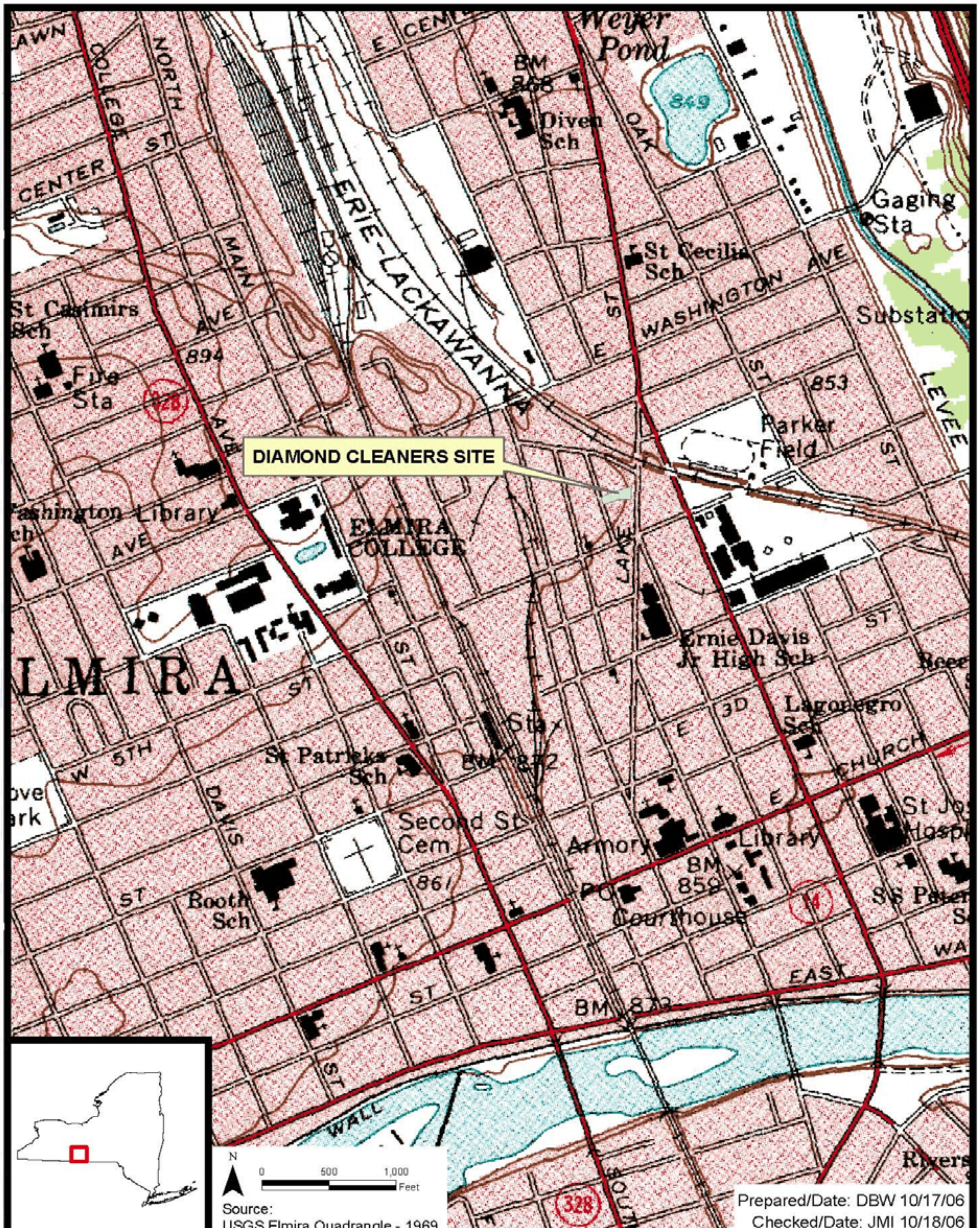
SOIL VAPOR SUB-SLAB	Contaminants of Concern	Concentration Range Detected (µg/m^3)[a]	SCG[b] (µg/m^3)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Tetrachloroethene	6-2,000,000	NA	-

AIR	Contaminants of Concern	Concentration Range Detected (µg/m^3)[a]	SCG[b] (µg/m^3)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	1,1,1-Trichloroethane	0.1 - 0.49	NA	0
	Tetrachloroethene	0.5 - 390	100	2/6
	Trichloroethene	0.17 - 0.64	5	0

[a] ppb = parts per billion, which is equivalent to micrograms per liter, ug/L, in water;
ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
ug/m^3 = micrograms per cubic meter;
[b] SCG = standards, criteria, and guidance values;
soil clean up objectives based on 6 NYCRR Subpart 375-6, Remedial Program Soil Cleanup Objectives, Table 375-6.8(b), Protection of Public Health, Protection of Groundwater for VOC's contamination and;
soil clean up objectives based on the current zoning of the property per 6 NYCRR Subpart 375-6, Remedial Program Soil Cleanup Objectives, Table 375-6.8(b), Protection of Public Health, Commercial for compounds other that VOCs.

Table 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alternative 1 - No Action	$0	$0	$0
Alternative 2 - Limited Action	$132,000	Years 1-5 - $85,000 Years 6-10 - $50,000 Years 11-30 - $35,000	$1,082,000
Alternative 3 - Soil Vapor Extraction	$247,000	Years 1-5 - $155,000 Years 5-10 - $108,000	$1,334,000
Alternative 4 - Excavation/ Off-site Disposal	$1,315,000	$0	$1,315,000



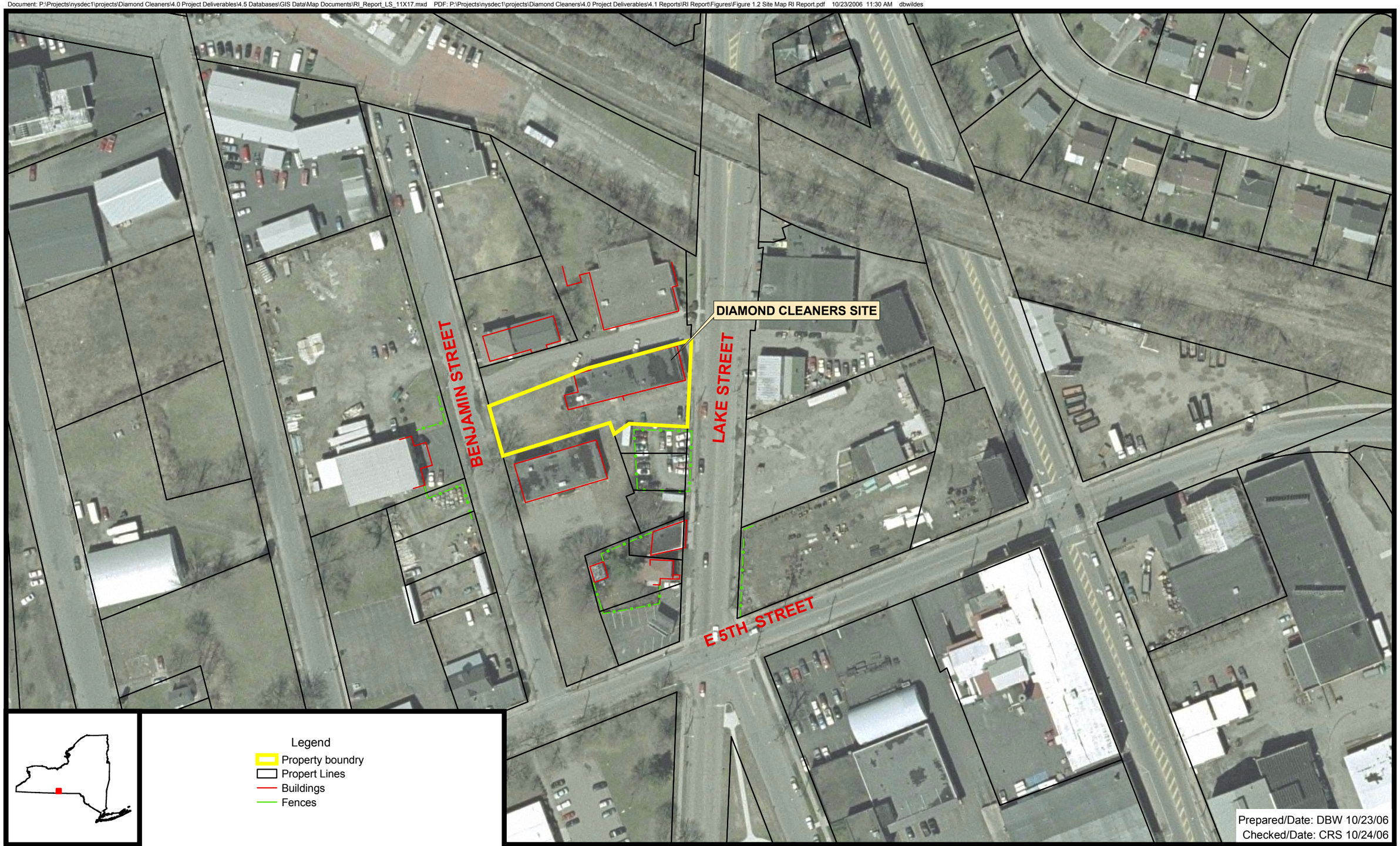
NYSDEC
DIAMOND CLEANERS
Elmira, New York

MACTEC

Site Location

Figure 1

Document: P:\Projects\nysdec1\projects\Diamond Cleaners\4.0 Project Deliverables\4.5 Databases\GIS Data\Map Documents\RI_Report_LS_11X17.mxd PDF: P:\Projects\nysdec1\projects\Diamond Cleaners\4.0 Project Deliverables\4.1 Reports\RI Report\Figures\Figure 1.2 Site Map RI Report.pdf 10/23/2006 11:30 AM dbwildes



Legend
- Property boundry
- Propert Lines
- Buildings
- Fences

N
0 50 100 Feet

Notes: 2002 Aerial photo from NYS GIS Clearinghouse.

Prepared/Date: DBW 10/23/06
Checked/Date: CRS 10/24/06

NYSDEC
DIAMOND CLEANERS
Elmira, New York

MACTEC

Site Map, 717 Lake Street

Project 3612-05-2028 Figure 2

Document: P:\Projects\nysdec1\projects\Diamond Cleaners\4.0 Project Deliverables\4.5 Databases\GIS Data\Map Documents\RI_Report_LS_11X17.mxd PDF: P:\Projects\nysdec1\projects\Diamond Cleaners\4.0 Project Deliverables\4.1 Reports\RI Report\Figures\Figure 1.3 Previous boring Locations.pdf 10/23/2006 11:25 AM dbwildes

DIAMOND CLEANERS SITE

SB-1
SB-15
SB-2
SB-3
SB-14
SB-4
SB-5
SB-6
SB-7
SB-8
SB-13
SB-9
SB-12
SB-11
SB-10

BENJAMIN STREET

LAKE STREET

706 - 710 Benjamin Street

Legend

- Property boundry
- Propert Lines
- Buildings
- Fences
- Soil Only
- Chlorinated VOCs in GW = 50 < 100 (µg/L)
- Chlorinated VOC in GWs = 150 < 450 (µg/L)
- Chlorinated VOCs in GW = >1000 (µg/L)

Note: 2002 Aerial photo from NYS GIS Clearinghouse.
Samples collected on October 9th and 10th, 2001 by
Teeter Environmental Servises (TES, 2001)
Sample locations are approximate.

N
0 20 40
Feet

Prepared/Date: DBW 10/23/06
Checked/Date: CRS 10/24/06

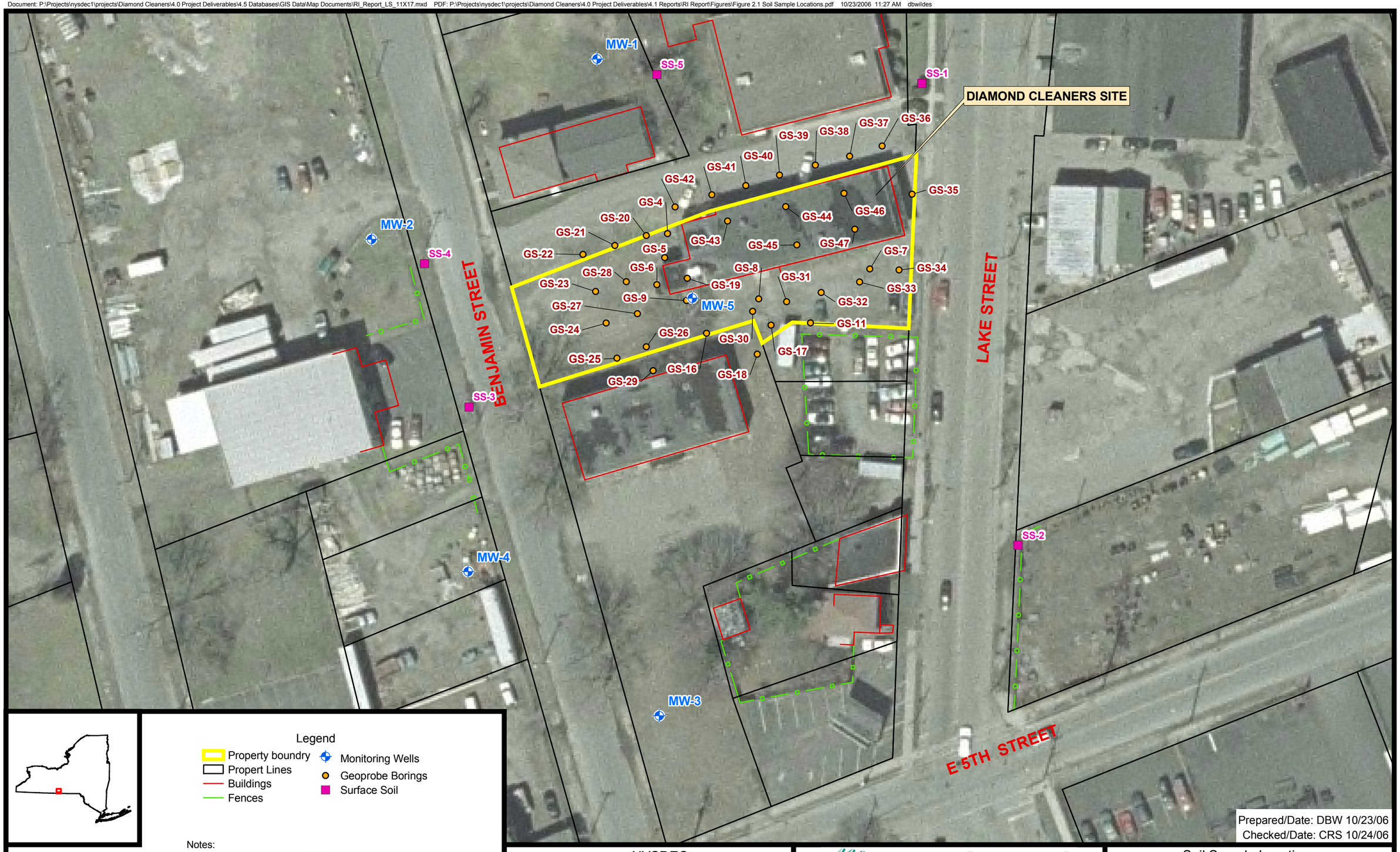
NYSDEC
DIAMOND CLEANERS
Elmira, New York

MACTEC

Previous Boring Locations

Project 3612-05-2028 Figure 3

Document: P:\Projects\nysdec1\projects\Diamond Cleaners\4.0 Project Deliverables\4.5 Databases\GIS Data\Map Documents\RI_Report_LS_11X17.mxd PDF: P:\Projects\nysdec1\projects\Diamond Cleaners\4.0 Project Deliverables\4.1 Reports\RI Report\Figures\Figure 2.1 Soil Sample Locations.pdf 10/23/2006 11:27 AM dbwildes



Legend

- Property boundry
- Propert Lines
- Buildings
- Fences
- Monitoring Wells
- Geoprobe Borings
- Surface Soil

Notes:
2002 Aerial photo from NYS GIS Clearinghouse.
Wells & buildings surveyed by
Joseph C. Lu Engineering and Land Surveying, P.C. - July 2005

N

0 25 50 Feet

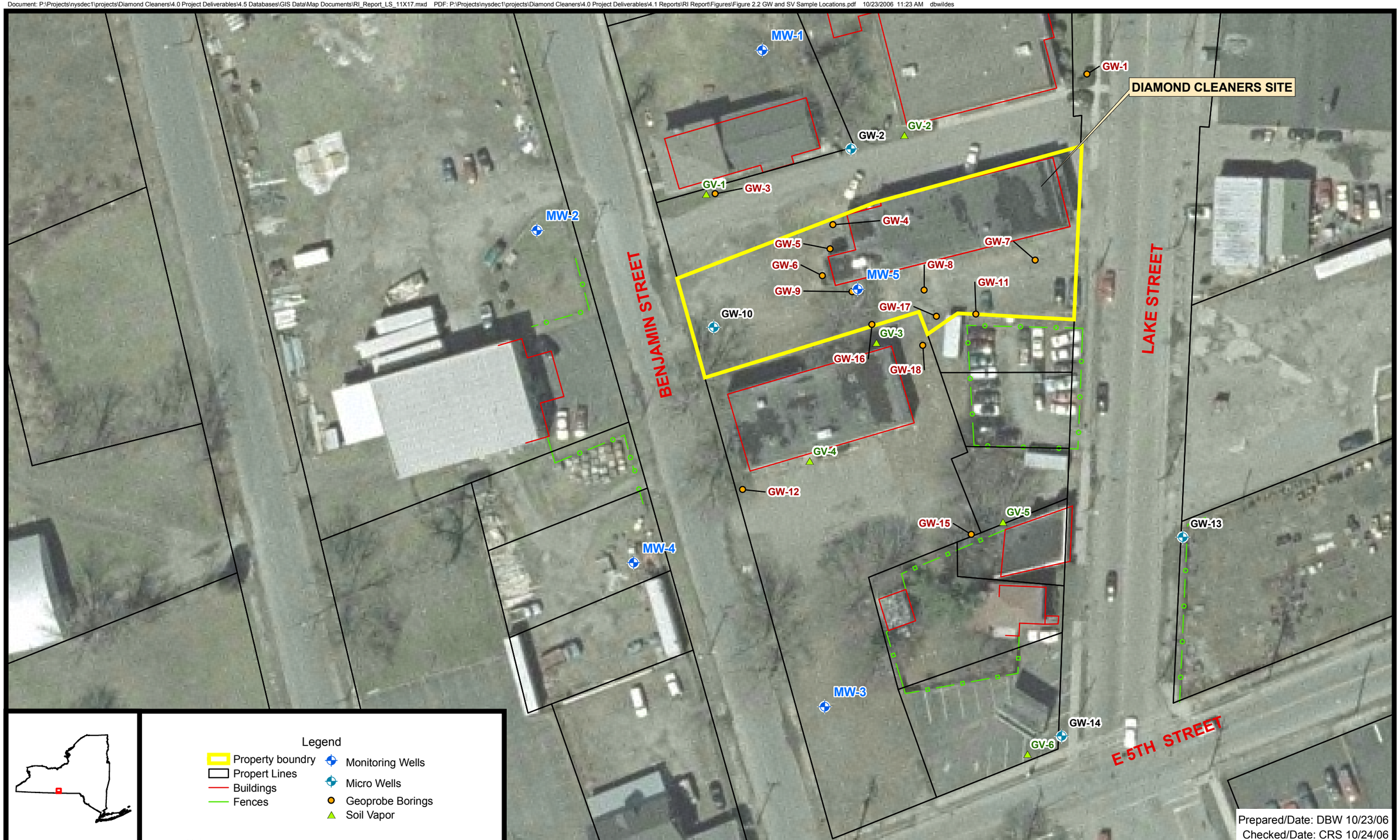
Prepared/Date: DBW 10/23/06
Checked/Date: CRS 10/24/06

NYSDEC
DIAMOND CLEANERS
Elmira, New York

MACTEC

Soil Sample Locations

Project 3612-05-2028 Figure 4



Legend

- Property boundry
- Propert Lines
- Buildings
- Fences
- Monitoring Wells
- Micro Wells
- Geoprobe Borings
- Soil Vapor

N

0 25 50 Feet

Notes:
2002 Aerial photo from NYS GIS Clearinghouse.
Wells & buildings surveyed by
Joseph C. Lu Engineering and Land Surveying, P.C. - July 2005

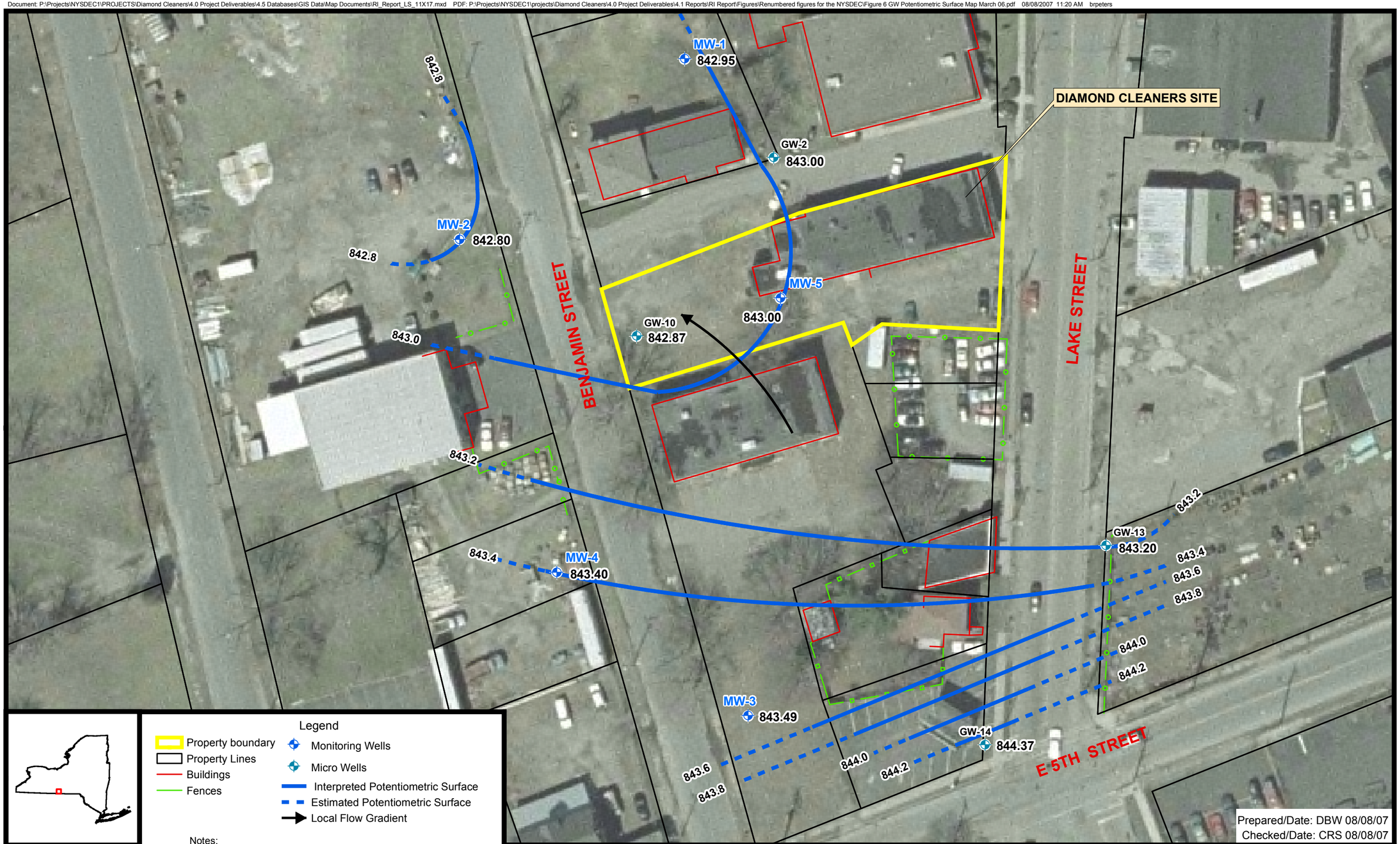
Prepared/Date: DBW 10/23/06
Checked/Date: CRS 10/24/06

NYSDEC
DIAMOND CLEANERS
Elmira, New York

MACTEC

Groundwater And Geoprobe Soil Vavor Sample Locations

Project 3612-05-2028 Figure 5



Legend

- Property boundary
- Property Lines
- Buildings
- Fences
- Monitoring Wells
- Micro Wells
- Interpreted Potentiometric Surface
- Estimated Potentiometric Surface
- Local Flow Gradient

Notes:
2002 Aerial photo from NYS GIS Clearinghouse.
Wells & buildings surveyed by
Joseph C. Lu Engineering and Land Surveying, P.C. - July 2005
Water levels measured by Mactec on March 23, 2006.

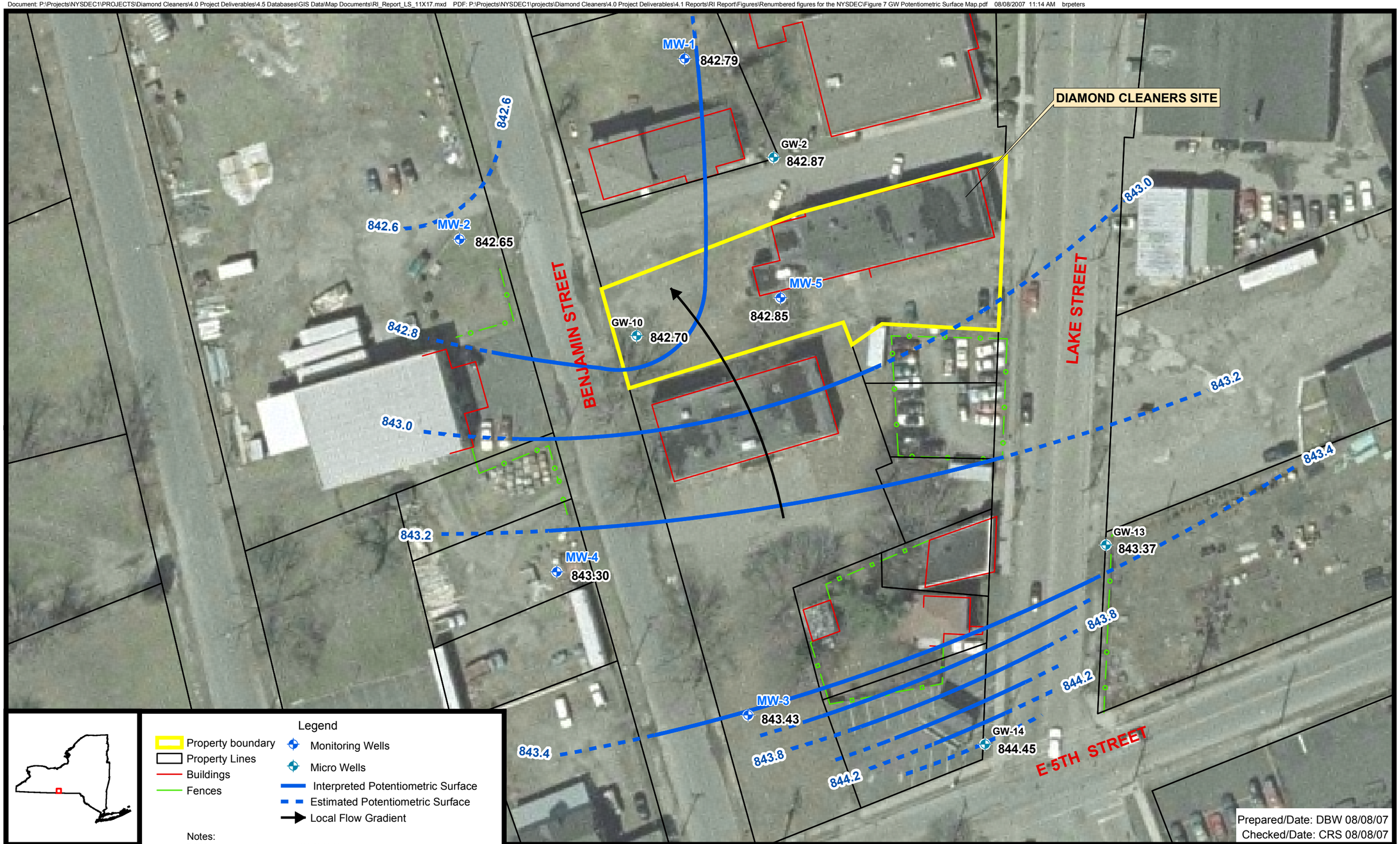
N
0 25 50 Feet

NYSDEC
DIAMOND CLEANERS
Elmira, New York

MACTEC

Groundwater Potentiometric Surface Map
March 2006
Project 3612-05-2028 Figure 6

Prepared/Date: DBW 08/08/07
Checked/Date: CRS 08/08/07



Legend

- Property boundary
- Property Lines
- Buildings
- Fences
- Monitoring Wells
- Micro Wells
- Interpreted Potentiometric Surface
- Estimated Potentiometric Surface
- Local Flow Gradient

Notes:
2002 Aerial photo from NYS GIS Clearinghouse.
Wells & buildings surveyed by
Joseph C. Lu Engineering and Land Surveying, P.C. - July 2005
Water levels measured by Mactec on May 3, 2006.

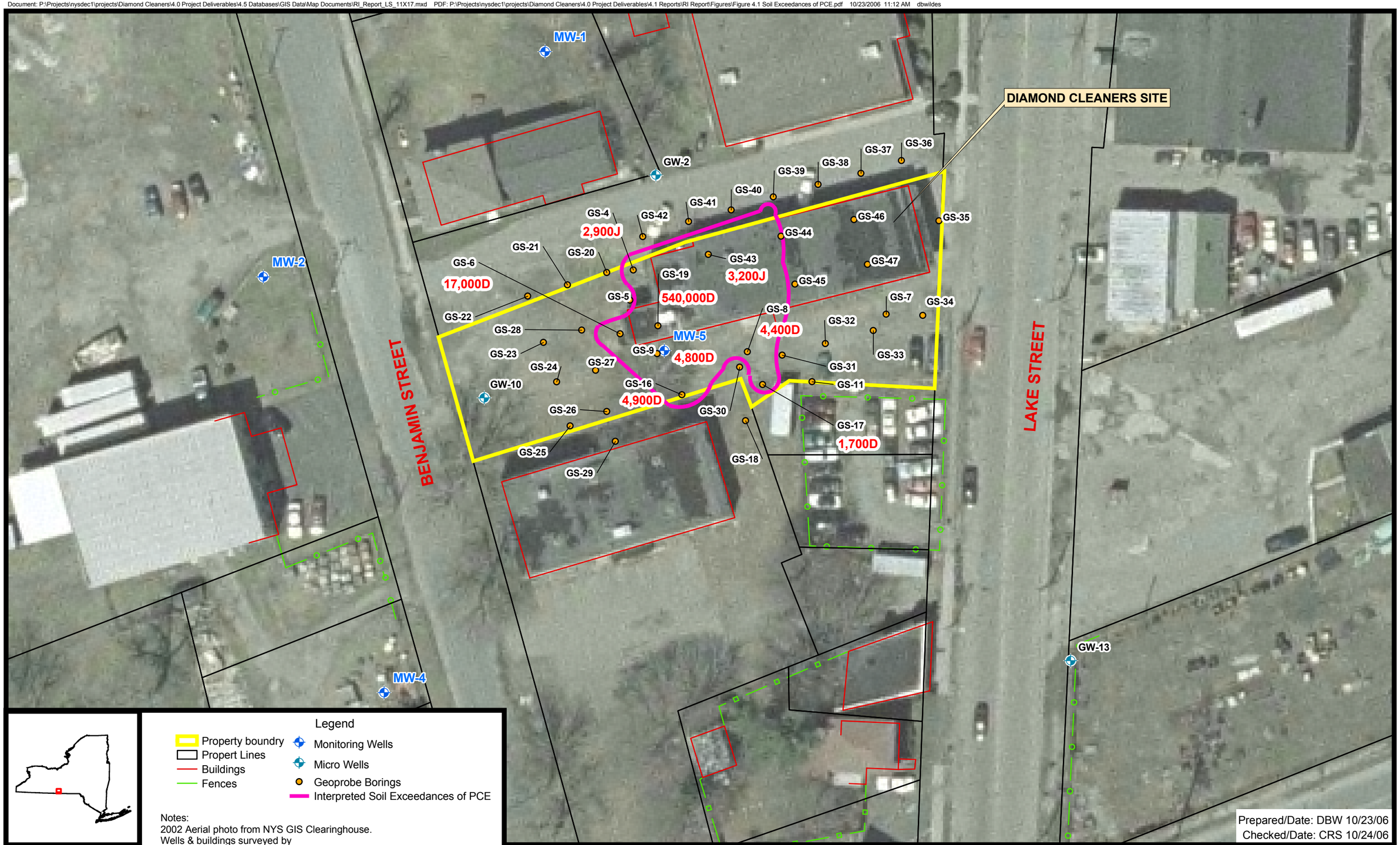
N
0 25 50 Feet

Prepared/Date: DBW 08/08/07
Checked/Date: CRS 08/08/07

NYSDEC
DIAMOND CLEANERS
Elmira, New York

MACTEC

Groundwater Potentiometric Surface Map
May 2006
Project 3612-05-2028 Figure 7



Notes:
2002 Aerial photo from NYS GIS Clearinghouse.
Wells & buildings surveyed by
Joseph C. Lu Engineering and Land Surveying, P.C. - July 2005
Results shown in bold exceed soil cleanup objectives.
All results shown in µg/Kg. (Only PCE Shown)
Soil samples collected by Mactec in June, October and December - 2005.

Prepared/Date: DBW 10/23/06
Checked/Date: CRS 10/24/06

NYSDEC
DIAMOND CLEANERS
Elmira, New York

MACTEC

Soil Exceedances of PCE

Project 3612-05-2028 Figure 8