

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

RCRA Corrective Action Environmental Indicator (EI) RCRAInfo code (CA725) Current Human Exposures Under Control

Facility Name: Central Hudson Gas & Electric – Eltings Corners Facility
Facility Address: 24 South Street, Town of Lloyd, Ulster County, New York
Facility EPA ID #: NYD000705905

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EIs) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EIs developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of “Current Human Exposures Under Control” EI

A positive “Current Human Exposures Under Control” EI determination (“YE” status code) indicates that there are no “unacceptable” human exposures to “contamination” (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all “contamination” subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EIs are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The “Current Human Exposures Under Control” EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program’s overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRAInfo national database ONLY as long as they remain true (i.e., RCRAInfo status codes must be changed when the regulatory authorities become aware of contrary information).

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1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

 X If yes - check here and continue with #2 below.

 If no - re-evaluate existing data, or

 If data are not available skip to #6 and enter "IN" (more information needed) status code.

Background

The Site has operated as a vehicle and equipment storage and repair facility for an electric power transmission company since the 1950's. Both current and historic site activities included: storage of electrical equipment, transformer storage and repair, vehicle maintenance and storage, and administrative offices. These activities occur on the eastern portion (east side of South Street) of the facility (see Figures 1 and 2). Black Creek is located immediately adjacent to the eastern property boundary. The western portion of the facility on the west side of South Street is undeveloped and includes wetlands and a dirt parking area for Central Hudson Gas & Electric (CHG&E). The facility has operated a permitted hazardous waste storage area used primarily for PCB containing waste from electrical equipment.

A RCRA facility assessment (RFA) and Visual Site Inspection (VSI) were performed as part of the corrective action requirements of the hazardous waste management permit. Based on the work that was performed at that time, an RFI was not required. Subsequently, an environmental site assessment (Phase 1 and Phase 2) was conducted in 2007 to support a real estate transaction. Based on sampling results from the Phase 2 assessment, DEC requested an RFI work plan.

The Phase 2 assessment also identified an historic release in the vicinity of the vehicle fueling station (location near "Gas Pumps" shown on southwest edge of Figure 3). Investigation, remediation and monitoring of this release site (DEC Spill ID# 0707602) were handled by the DEC spills program under a stipulation agreement, and were conducted independently from the RFI. Response actions included excavation and removal of contaminated soils (1,250 tons), collection and treatment of groundwater (70,000 gallons), and follow-up monitoring. DEC has not yet terminated the stipulation agreement and closed out this spill, but that action is anticipated based on recent monitoring results.

RFI activities were completed in accordance with the New York State Department of Environmental Conservation (NYSDEC) approved RCRA Facility Investigation Work Plan prepared by The Chazen Companies (TCC), dated November 2008. The NYSDEC approved the work plan with minor modifications in its letter dated November 18, 2008. The investigation report was submitted to DEC on April 15, 2009. The RFI investigated AOC-1, AOC-2 and the storm sewer system (see Figures 3, 4 and 5). The areas of concern (AOCs) are described below:

- AOC 1 – Steel Garage Floor Drain Area;
- AOC 2 – Maintenance Garage Hydraulic Spill Area

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In response to the RFI report, DEC requested supplemental investigation of the wetland adjacent to west side of the developed portion of the site to further delineate the extent of sediment contamination (see Figure 6). On July 10, 2009, DEC approved CHG&E's supplemental work plan. Results for the supplemental work were submitted to DEC on December 29, 2009. Sampling locations for this supplemental effort are shown on Figure 7. The supplemental report better defined the nature and extent of contamination in the wetland, but additional sampling is still needed to fully delineate the affected area of the wetland. In a January 28, 2010, DEC called in a plan for this work. Additional sampling in the wetland is expected to be conducted during the spring of 2010.

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"**¹ above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	YES	NO	?	Rationale/Key Contaminants
Groundwater	X			Chloroethane and 1,1-Dichloroethane > 5 ug/l
Air (indoors) ²		X		
Surface Soil (e.g., <2 ft)		X		
Surface Water		X		
Sediment	X			PCBs >1 mg/kg and total PAHs >10 mg/kg
Subsurface Soil (e.g., >2 ft)	X			Visible staining observed
Air (outdoors)		X		

_____ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not known or reasonably expected to be exceeded.

X If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

¹"Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

²Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggests that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

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_____ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

Groundwater - Groundwater analytical results were compared to New York State Department of Environmental Conservation (NYSDEC) Technical Operational Guidance Series (TOGS) 1.1.1 groundwater quality criteria. The 2008 Supplemental Phase 2 Investigation, conducted prior to the more recent RFI, identified concentrations of chloroethane (170 ug/l) and 1,1-dichloroethane (21 ug/l) in a groundwater grab sample collected from soil boring CH-SB39 at AOC-1. However, during the subsequent RFI involving the installation and sampling of 5 wells around this location, there were no exceedances for VOCs, SVOCs, TPH-DRO, or PCBs, except for two isolated estimated (J) concentrations of PCB-1248 and PCB-1260 at well CH-MW7. The PCBs detected in well CH-MW7 were present at concentrations (0.11 ug/l) slightly above the TOGS 1.1.1 value (0.09 ug/l). A duplicate sample was collected at this location and that result was non-detect for PCBs. RCRA 8 metal concentrations were also below TOGS 1.1.1 values, except for iron and manganese. Iron and manganese concentrations exceeded the TOGS 1.1.1 value in each well sampled, suggesting these exceedances are related to the regional/background groundwater quality of the area. Groundwater elevation measurements indicated a northerly groundwater flow direction. Thus, CH-MW6 through CH-MW9 were located in cross-gradient positions from CH-SB39. Due to its close proximity to CH-SB39 (less than 10 ft.), the lack of VOCs in CH-MW6 suggests that the extent of previously found chloroethane and 1,1-dichloroethane contamination was very limited.

Soil - Soil analytical results were compared to Title 6 New York Code of Rules and Regulations (NYCRR) Part 375-6, Remedial Program Soil Cleanup Objectives for Unrestricted Use. At AOC 1, the soil sample collected from CH-SB52/MW6 yielded no detectable concentrations. No impacts were observed in the field during the installation of CH-SB53. A soil sample was also collected from CH-SB51 at AOC 2. Analytical results indicated a residual concentration of 21 parts per million (ppm) TPH-DRO. Although there is no NYSDEC cleanup objective for TPH-DRO, the concentration was relatively low. Staining and an oily odor were observed at CH-SB36 during the previous investigation, however, no SVOC or PCB results were above comparison values. No impacts were observed at boring CH-SB51. Visibly contaminated soils were encountered at a release site near the fueling station, prompting a removal action. Post-excavation sampling showed no soil exceedances at the release site.

Surface Water - Water results for a storm water sample from the Catch Basin indicate that there were no detections of VOCs, SVOCs, and PCBs. Metal concentrations were below TOGS 1.1.1 criteria for human and wildlife protection. The storm water discharges to a wetland to the west of the developed area of the facility that in turn is a tributary to Swarte Kill Creek.

Sediment - The Storm Sewer Catch Basin sediment sample contained PCBs, calcium, and magnesium above NYSDEC sediment screening criteria. The Outfall sediment samples collected in the adjacent wetland contained SVOCs, PCBs, calcium, magnesium, and zinc above the NYSDEC sediment screening criteria. Calcium and magnesium concentrations may be attributed to de-icing materials used at the subject site or elsewhere on adjacent roads, etc. The SVOCs present were polyaromatic hydrocarbons (PAHs). Due to their presence in the subsurface combined with the commercial nature and the restrictive access to the property, there is no potential for human health or environmental risk from this limited subsurface contamination.

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In response to a request by NYSDEC, the facility has conducted sediment sampling of a wetland that receives storm water runoff from the site. Results have shown detectable levels of PCBs and PAHs in the sediments. Concentrations have ranged from below detection limit to approximately 34.5 mg/kg for total PCBs. In New York State, many clean-ups have utilized an action level of 1 mg/kg total for PCBs, so there are results above this reference value at this site. Reference values for PCBs for ecological protection can be below 1 mg/kg, so again there are results above this reference value. For PAHs, there are constituent-specific reference values for certain compounds, but there are also reference values that are based on totaled PAH concentrations that are gaining more widespread use for ecological assessments. The total PAH result reported in the wetland during the latest sampling event ranged up to a maximum of 202 mg/kg. These values are above the total PAH benchmarks of 4 mg/kg, which is generally considered non-toxic and 10 mg/kg which is a level where there may be adverse effects to ecological receptors (these total PAH benchmarks have not yet been formally adopted by the NYSDEC DFWMR, but are being used to help interpret results).

3. Are there **complete pathways** between “contamination” and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

<u>“Contaminated” Media</u>	Potential Human Receptors (Under Current Conditions)						
	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater	NO	NO	NO	YES	NO	NO	---
Air (indoors)	---	---	---	---	---	---	---
Surface Soil (e.g., <2 ft)	---	---	---	---	---	---	---
Surface Water	---	---	---	---	---	---	---
Sediment	NO	YES	NO	NO	YES	YES	NO
Subsurface Soil (e.g., >2 ft)	NO	NO	NO	YES	NO	NO	NO
Air (outdoors)	---	---	---	---	---	---	---

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not “contaminated” as identified in #2 above.
2. enter “yes” or “no” for potential “completeness” under each “Contaminated” Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential “Contaminated” Media - Human Receptor combinations (Pathways) do not have check spaces (“_---_”). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

³ Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

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- _____ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).
- X** If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.
- _____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale and Reference(s):

Groundwater – As noted earlier there were some exceedances of groundwater quality reference values at an investigative monitoring (temporary well) located at AOC-1. Subsequent testing of wells surrounding this location showed no exceedances for VOCs, SVOCs, TPH-DRO, or PCBs, except for two isolated estimated (J) concentrations of PCB-1248 and PCB-1260 at well CH-MW7. The PCBs detected in well CH-MW7 were present at concentrations (0.11 ug/l) slightly above the TOGS 1.1.1 value (0.09 ug/l). A duplicate sample was collected at this location and that result was non-detect for PCBs. The reference values being used were derived to be protective for a drinking water exposure pathway. The site does have a non-transient, non-community water supply well that is used as a drinking water source at the site. This well is registered with the NYSDOH (Public Water Supply ID# NY5521946), and has been tested to ensure compliance with drinking water standards. Therefore, potential adverse exposure to contaminated groundwater would be limited to intrusive construction work involving dewatering or excavation below the water table.

Sediment – Recreational and trespasser exposure to contaminated sediment is a possibility in the wetland area, adjacent to the developed part of the site. However, the contamination is located in a wetland (swamp) area that is physically difficult to access, and not attractive to trespassers or for recreation. Workers could potentially be exposed to contaminated sediment if maintenance activities are needed for the storm sewer system.

Subsurface Soil – Potential exposure to this medium would be limited to intrusive construction work involving subsurface excavation.

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be "**significant**"⁴ (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

⁴ If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

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- X If no (exposures can not be reasonably expected to be significant (i.e., potentially “unacceptable”) for any complete exposure pathway) - skip to #6 and enter “YE” status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”
- _____ If yes (exposures could be reasonably expected to be “significant” (i.e., potentially “unacceptable”) for any complete exposure pathway) - continue after providing a description (of each potentially “unacceptable” exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”
- _____ If unknown (for any complete pathway) - skip to #6 and enter “IN” status code

Rationale and Reference(s):

Groundwater – As noted earlier there were some exceedances of groundwater quality reference values during the Phase 2 assessment. These reference values were derived to be protective for a drinking water exposure pathway. The site does have a non-transient, non-community water supply well that is used as a drinking water source at the site. This well is registered with the NYSDOH (Public Water Supply ID# NY5521946), and has been tested to ensure compliance with drinking water standards. Therefore, under current conditions, potential exposure to contaminated groundwater would be limited to intrusive construction work involving dewatering or excavation below the water table. In addition, such exposures would be expected to occur very infrequently. The primary exposure pathway would be expected to be direct contact (splashing/skin contact) rather than ingestion. Due to the relatively low concentrations of contaminants (recent results have not shown any conclusive exceedances), potential exposure at a far lower frequency and duration than assumed in the derivation of the acceptable “levels”, and potential exposure through a less effective pathway, exposures posed by this medium are not expected to be significant.

Sediment – Recreational and trespasser exposure to contaminated sediment is a possibility. However, the contamination is located in a wetland (swamp) area that is physically difficult to access, and not attractive to trespassers or for recreation. Although the maximum observed PCB concentration exceeds the action level typically used for residential protection, potential exposures would be expected to occur at a far lower frequency and duration than assumed in the residential scenario that was used to derive the acceptable “levels”. On-site workers involved with storm sewer maintenance could potentially be exposed to contaminated sediment; however observed concentrations are only slightly above comparison values. Potential worker exposures would be expected to occur at a far lower frequency and duration than assumed in the residential scenario criteria. Because of these factors, recreational, trespasser and maintenance worker exposures posed by this medium are not expected to be significant.

Subsurface Soil – Potential exposure to this medium would be limited to intrusive construction work involving subsurface excavation. RFI testing has not identified soil with significantly elevated contaminant concentrations, but stained and odorous soil has been observed in some subsurface soil at AOC-2. Impacted soils at the fueling station release site were removed and shipped off-site for disposal. Post-removal soil sampling was conducted at the release site, and

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there were no VOC or SVOC results above the reference values. As a precautionary measure, PermeOX Plus powdered reagent was also applied at the excavation. As a result of these actions, potential exposures associated with subsurface soils would not be considered significant.

5. Can the “significant” **exposures** (identified in #4) be shown to be within **acceptable** limits?

N/A If yes (all “significant” exposures have been shown to be within acceptable limits) - continue and enter “YE” after summarizing and referencing documentation justifying why all “significant” exposures to “contamination” are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

N/A If no (there are current exposures that can be reasonably expected to be “unacceptable”)- continue and enter “NO” status code after providing a description of each potentially “unacceptable” exposure.

N/A If unknown (for any potentially “unacceptable” exposure) - continue and enter “IN” status code

Rationale and Reference(s):

N/A – No significant exposures were identified.

6. Check the appropriate RCRA Info status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

 X YE - Yes, “Current Human Exposures Under Control” has been verified. Based on a review of the information contained in this EI Determination, “Current Human Exposures” are expected to be “Under Control” at the Central Hudson Gas & Electric Eltings Corners facility, EPA ID #: NYD000705905, located at 24 South Street, Town of Lloyd, Ulster County, New York under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

 NO - “Current Human Exposures” are NOT “Under Control.”

 IN - More information is needed to make a determination.

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Section Chief, Hazardous Waste Engineering Eastern Section

Director: Robert J. Phaneuf Date: 3/26/10
Robert J. Phaneuf, P.E. - Acting Director
Bureau of Hazardous Waste and Radiation Management
Division of Solid and Hazardous Materials

Locations where References may be found:

New York State Department of Environmental Conservation, Central Office
Division of Solid and Hazardous Materials
625 Broadway 9th Floor
Albany, New York 12233-7258

Contact telephone and e-mail numbers:

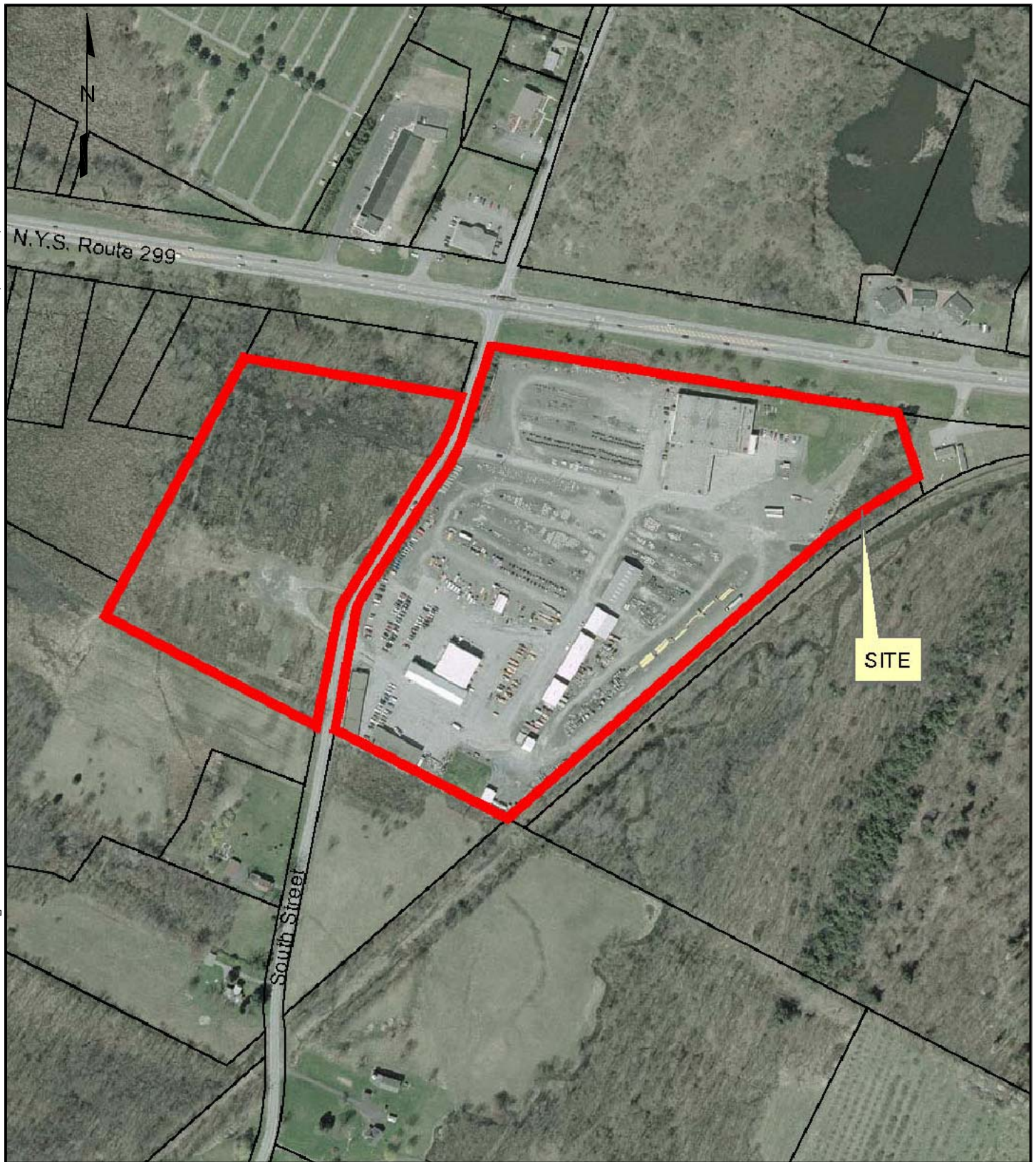
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FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

PLOTTED: 25 Mar 2009, 9:35am, J.Lubbers

CAD FILE: G:\CAD\Central Hudson\EltingsCorners\ LAYOUT: LOCATION

NEWBURGH, NY



SITE

The information included on this graphic representation has been compiled from a variety of sources and is subject to change without notice. KleinFelder makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or origin of the use of such information. This document is not intended for use as a land survey product, nor is it designed or intended as a construction design document. The use or misuse of the information contained on this graphic representation is at the sole risk of the party using or relying on the information.



REFERENCES:
1. "2004 ORTHOPHOTO" NYS GIS CLEARINGHOUSE
ORTHOIMAGERY PROGRAM



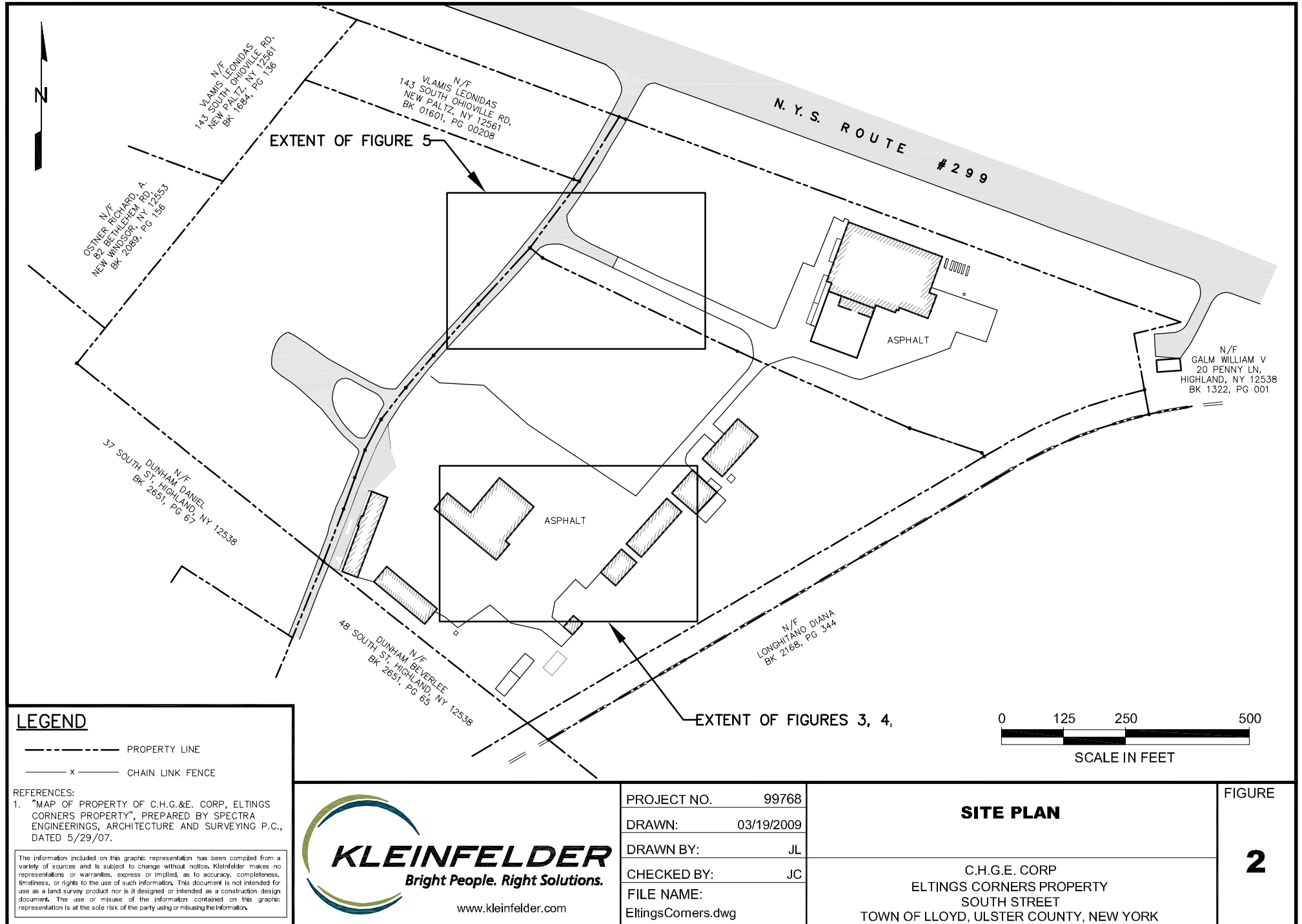
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DRAWN BY:	JL
CHECKED BY:	JC
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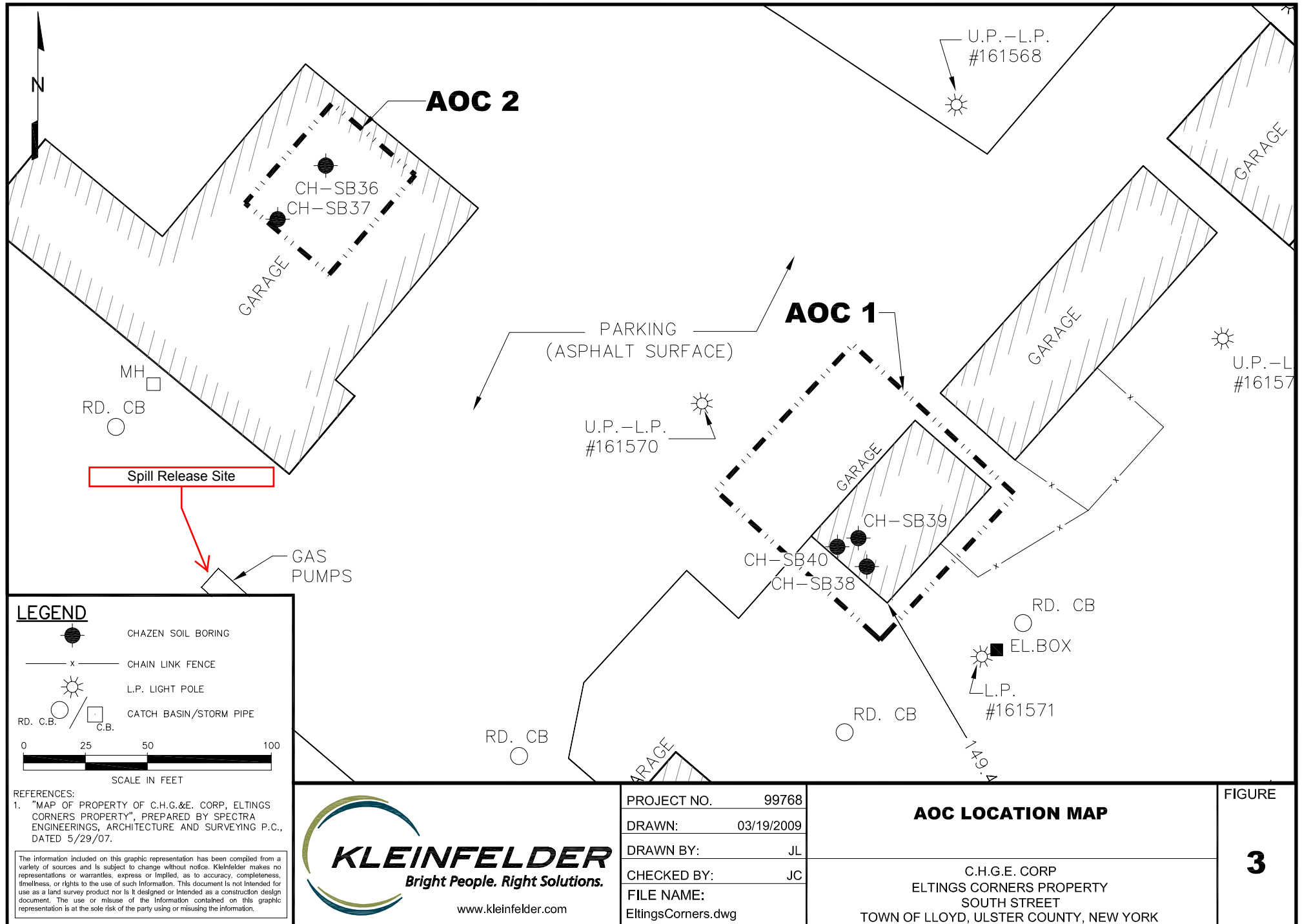
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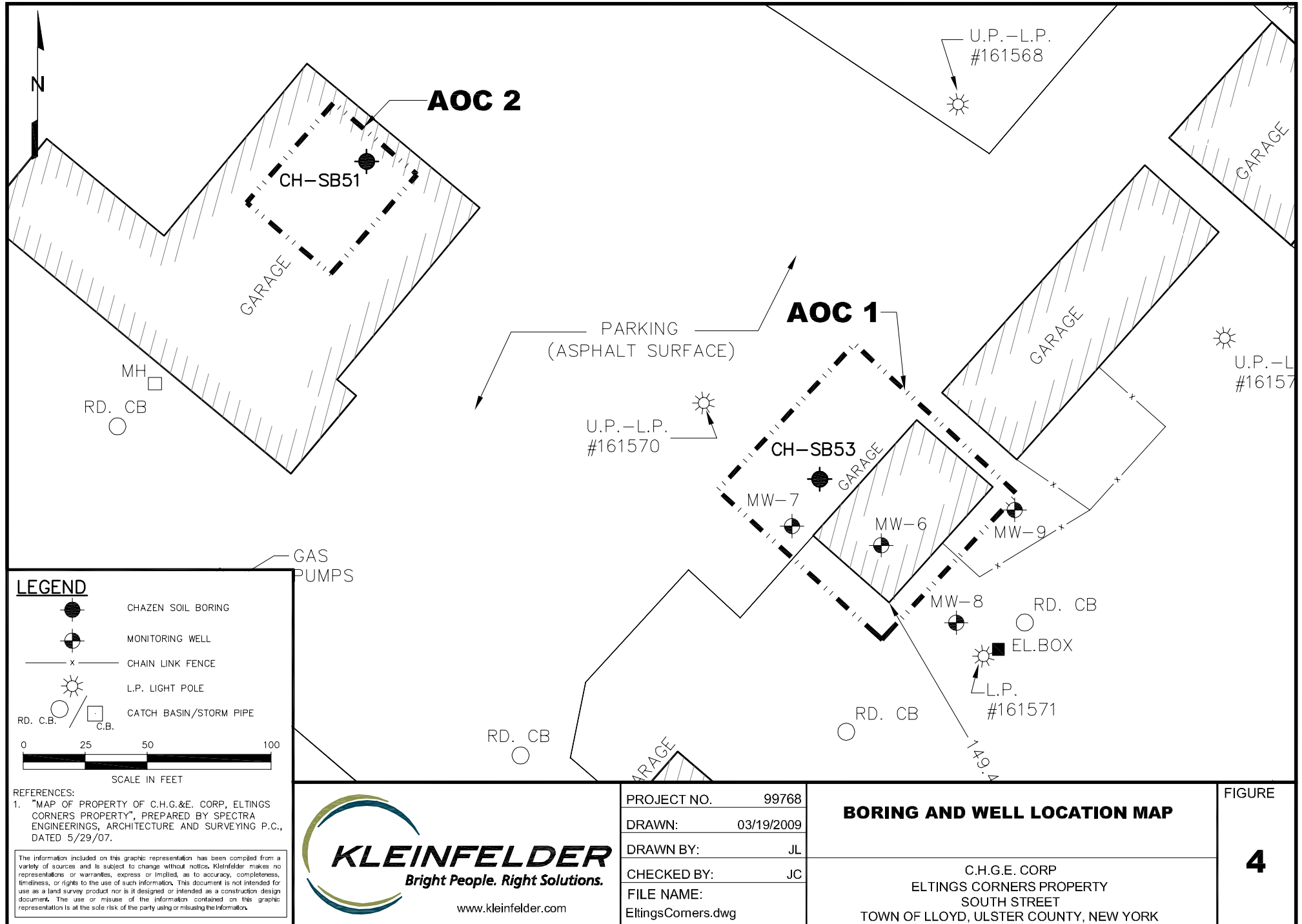
C.H.G.E. CORP
ELTINGS CORNERS PROPERTY
SOUTH STREET
TOWN OF LLOYD, ULSTER COUNTY, NEW YORK

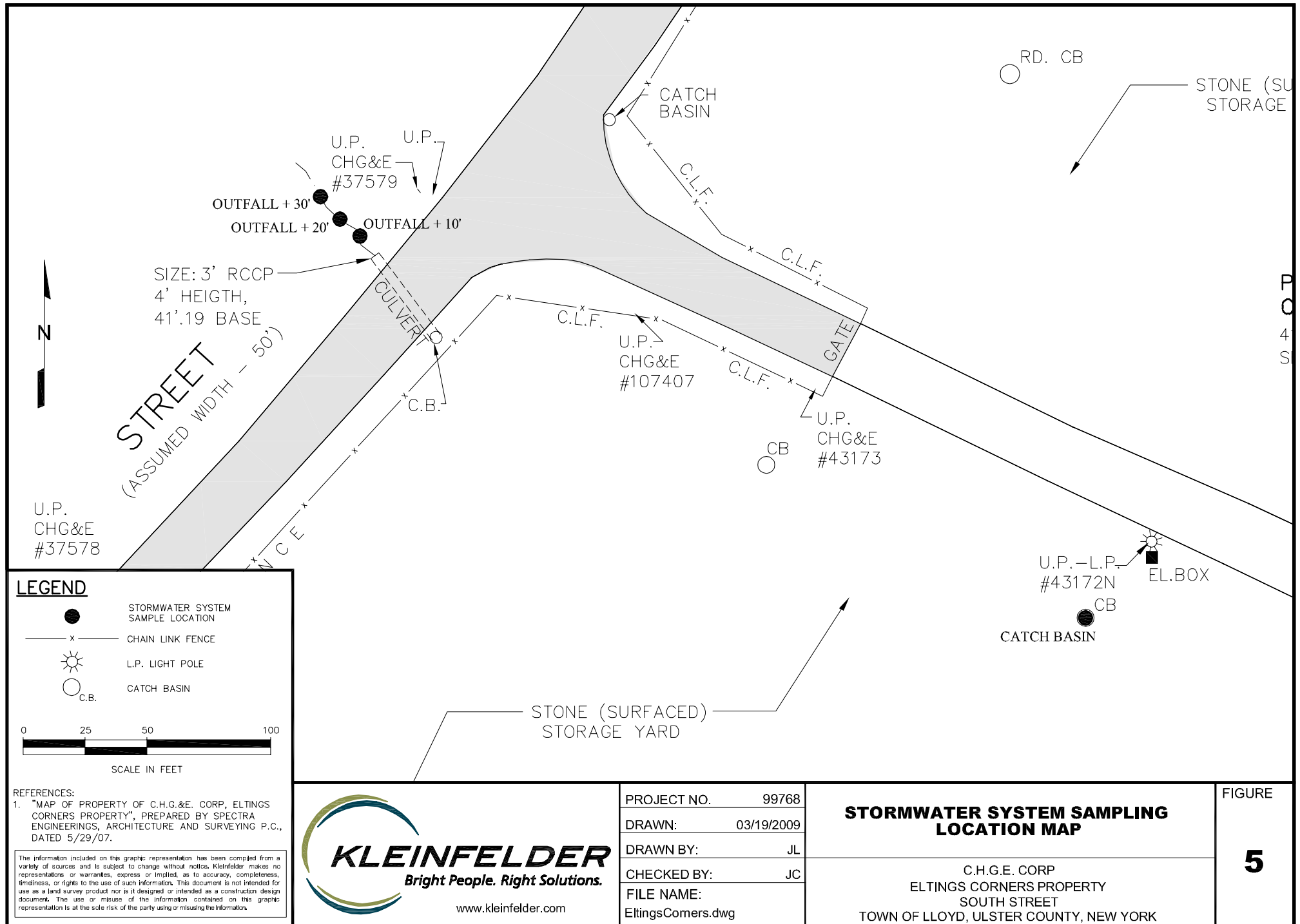
FIGURE

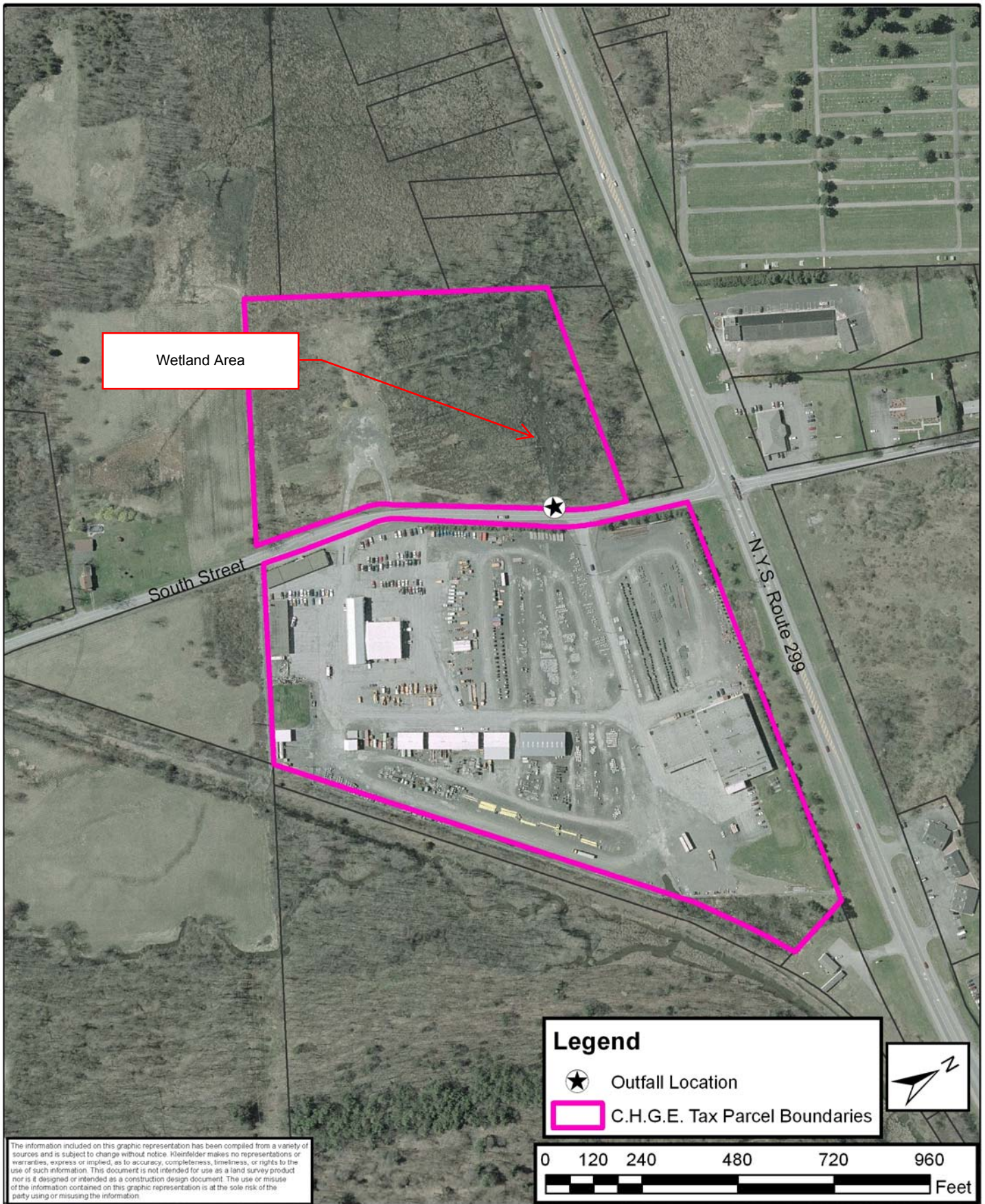
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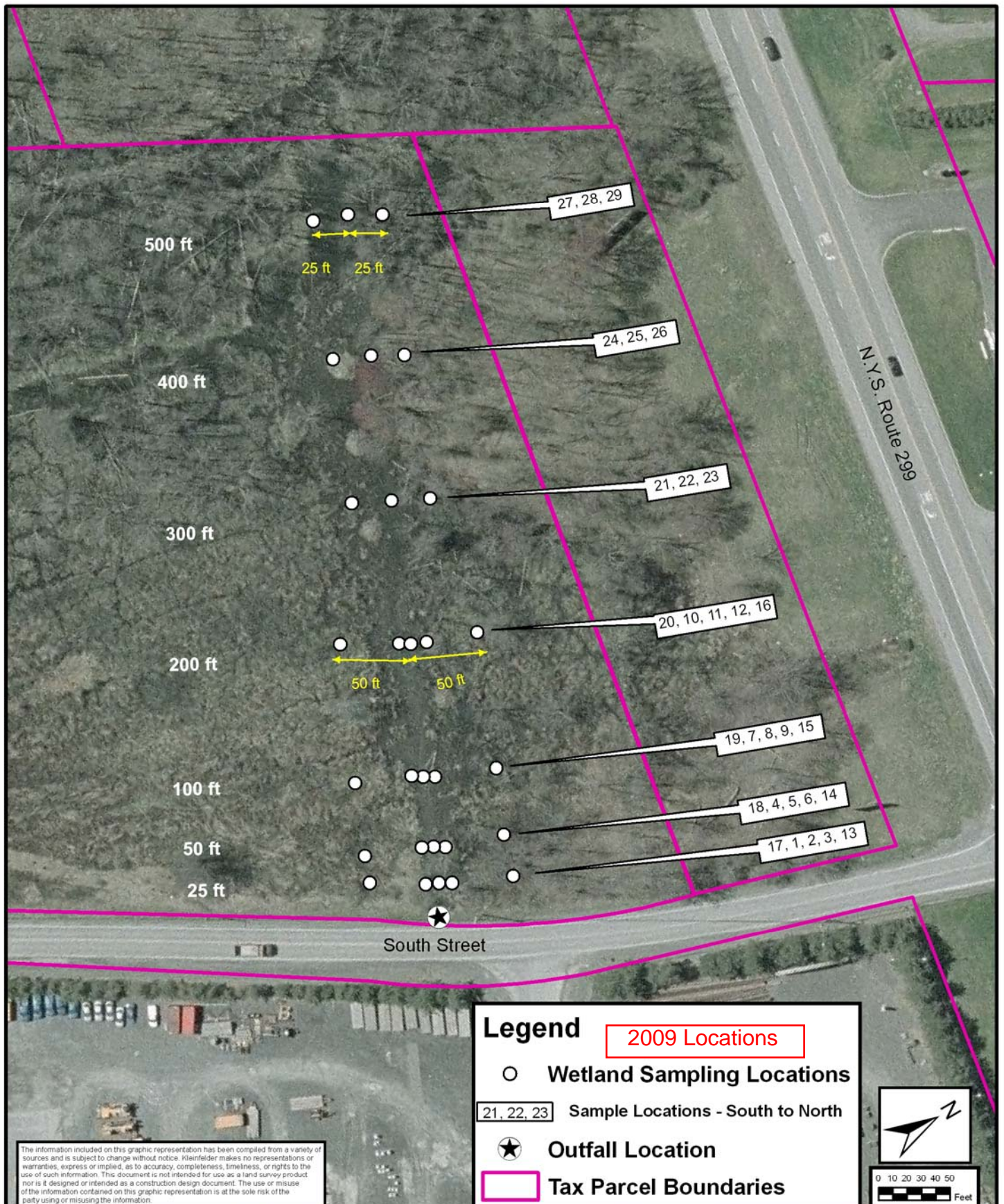









 <p>KLEINFELDER Bright People. Right Solutions. www.kleinfelder.com</p>	PROJECT NO. 99768	Location Map	<p>FIGURE</p> <div style="border: 1px solid red; padding: 5px; text-align: center; width: 30px; margin: 0 auto;">6</div>
	DRAWN: 12/21/09		
	DRAWN BY: JMM	Source: NYS GIS Clearinghouse 2004 ORTHOPHOTO	
	CHECKED BY: JC	C.H.G.E. CORP ELTINGS CORNERS PROPERTY SOUTH STREET TOWN OF LLOYD, ULSTER COUNTY, NEW YORK	
	FILE NAME: EC SampleLocationMap.mxd		



 <p>KLEINFELDER Bright People. Right Solutions. www.kleinfelder.com</p>	PROJECT NO. 99768	<p>WETLAND SEDIMENT SAMPLING LOCATIONS</p> <p>Source: NYS GIS Clearinghouse 2004 ORTHOPHOTO</p> <p>C.H.G.E. CORP ELTINGS CORNERS PROPERTY SOUTH STREET TOWN OF LLOYD, ULSTER COUNTY, NEW YORK</p>	<p>FIGURE</p> <div style="border: 1px solid red; width: 40px; height: 40px; text-align: center; line-height: 40px; margin: 0 auto;">7</div>
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