



# The GLMRIS Report

Appendix G - Phase I HTRW Site Assessments



USACE  
1/6/2014





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## **G.1 INTRODUCTION**

The purpose of this report is to discuss the preliminary hazardous, toxic, and radioactive waste (HTRW) investigation for the Great Lakes & Mississippi River Interbasin Study (GLMRIS). This report identifies Recognized Environmental Conditions (RECs) associated with project alternatives identified in the GLMRIS report. The methods used in performing the investigation are described in detail. Preliminary conclusions and recommendations regarding potential impacts due to RECs associated with the project alternatives are provided. Site selection for GLMRIS project alternatives is not yet complete. Further investigation will be required once the locations of project and mitigation features are finalized.

## G.2 AUTHORITY

Engineer Regulation (ER) 1165-2-132, Hazardous, Toxic, and Radioactive Waste (HTRW) Guidance for Civil Works Projects, requires that a site investigation be conducted as early as possible to identify and evaluate potential HTRW problems. According to ER 1165-2-132, non-HTRW issues that do not comply with the federal, state, and local regulations should be discussed in the HTRW investigation along with HTRW issues. Therefore, HTRW and non-HTRW issues identified are discussed in this report.

The Phase I Environmental Site Assessment (ESA) presented in this report was conducted during the feasibility phase of the project. This report was performed at the level of detail required for a Reconnaissance Phase investigation and relies on existing information, observations made through database research, and historical aerial photograph and topographic map review. As stated in ER 1165-2-132, an initial assessment as appropriate for a Reconnaissance Study should be conducted as a first priority for projects with no prior HTRW consideration. If the initial assessment indicates the potential for HTRW, testing, as warranted, and analysis similar to a Feasibility Study should be conducted prior to proceeding with the project design. For this study, only tentative locations have been chosen, and the ESA was based on those potential project sites. Further study is needed to determine the actual property locations and boundaries needed. At that time, additional review and investigation of the actual project sites should be conducted.

No investigation can wholly eliminate uncertainty regarding the potential for RECs associated with a project area. Performance of the investigation is intended to reduce, but not eliminate, uncertainty regarding the potential for RECs in connection with a project area, and this practice recognizes time and cost constraints.

## **G.3 GUIDANCE**

Supplemental guidance was provided by the Standard Practice for Environmental Assessments: Phase I Environmental Site Assessment Process (Designation: E 1527-05) prepared by the American Society for Testing of Materials (ASTM). These standards include a records review, site visit, interviews, and report preparation. This report followed many of the ASTM E 1527-05 guidelines but not to the same level of detail described by the ASTM E 1527-05 guidance.

### **G.3.1 Hazardous, Toxic, and Radioactive Waste**

The objective of ER 1165-2-132 is to outline procedures to facilitate early identification and appropriate consideration of HTRW problems. This investigation, therefore, identifies potential HTRW problems and discusses resolutions and/or provides recommendations regarding the HTRW problems identified.

### **G.3.2 Non-Hazardous, Toxic, and Radioactive Waste**

According to ER 165-2-132, non-HTRW environmental issues that do not comply with federal, state, and local regulations should be discussed in the HTRW investigation along with HTRW issues. For example, solid waste is one non-HTRW issue considered. Petroleum releases from Leaking Underground Storage Tanks (LUSTs) are not considered HTRW, but are regulated under the Illinois Administrative Code (IAC), Title 35, Part 731 – Underground Storage Tanks, Part 732 – Petroleum Underground Storage Tanks, and Part 742 – Tiered Approach to Corrective Action Objectives (TACO), as well as under Indiana Administrative Code, Title 13, Article 23, Underground Storage Tanks. These sites have the potential to impose environmental hazards. RECs identified during the investigation are also discussed in this report, along with resolutions and/or recommendations for resolving the issue.

## G.4 Laws and Regulations

### G.4.1 Federal

The definition of HTRW according to ER 1165-2-132, page 1, paragraph 4(a) is as follows: “Except for dredged material and sediments beneath navigable waters proposed for dredging, for purposes of this guidance, HTRW includes any material listed as a ‘hazardous substance’ under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. 9601 et seq. Hazardous substances regulated under CERCLA include: ‘hazardous wastes’ identified under Sec. 3001 of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6921 et seq.; ‘hazardous substances’ identified under Section 311 of the Clean Air Act (CAA), 33 U.S.C. 1321, ‘toxic pollutants’ designated under Section 307 of the Clean Water Act (CWA), 33 U.S.C. 1317, ‘hazardous air pollutants’ designated under Section 112 of the Clean Air Act, 42 U.S.C. 7412; and ‘imminently hazardous chemical substances or mixtures’ on which EPA has taken action under Section 7 of the Toxic Substance Control Act (TSCA), 15 U.S.C. 2606.” The definition of a ‘hazardous’ substance does not include petroleum, including crude oil or any fraction thereof, which is not otherwise specifically listed or designated as a hazardous substance under the definition above. Underground Storage Tanks (USTs) are federally regulated under 40 CFR Part 280, which includes technical standards and corrective action requirements for owner and operators of USTs.

Dredge materials subject to the permitting requirements of 404 of the Federal Water Pollution Control Act of Section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972 are not considered hazardous wastes under RCRA. Sediments proposed for dredging qualify as HTRW only if they are within the boundaries of a site designated by the U.S. Environmental Protection Agency (EPA) or a state for a response action under CERCLA, or if they are a part of a National Priority List (NPL) site under CERCLA. Sediments proposed for dredging shall be tested and evaluated for their suitability for disposal in accordance with the appropriate guidelines and criteria adopted pursuant to Section 404 of the Clean Water Act and/or Section 103 of the Marine Protection Research and Sanctuaries Act (MPRSA) and supplemented by the Great Lakes Testing Manual and Inland Testing Manual (EPA and USACE 1998a; EPA and USACE 1998b).

GLMRIS project features may be selected for implementation at sites with significant environmental concerns and outstanding legal obligations. Under current law, non-federal sponsors are required to pay for 35% of environmental restoration projects implemented by the U.S. Army Corps of Engineers (USACE), and such projects may not be implemented until a non-federal sponsor enters into an agreement and assumes obligations various matters including cost sharing, real estate acquisition, and operation and maintenance activities (33 U.S.C. § 2213(c)(7), (j)). Thus implementation of a GLMRIS alternative could not proceed unless a non-federal sponsor is identified, or the statutory authorization for implementation of a GLMRIS alternative specifically changes these requirements. For cost-shared projects, the non-federal sponsor is responsible for ensuring that the development and execution of Federal, state, and/or locally required HTRW response actions are accomplished at 100 percent non-project cost. No cost sharing credit is provided for the cost of response actions (ER 1165-2-132).

It is the general policy of USACE that Civil Works projects may not be used to address existing environmental contamination. Civil Works project funds are not to be employed to address areas with CERCLA hazardous substances (often referred to as “Hazardous, toxic, and radioactive waste (HTRW)”). ER 1165-2-132, ER 1165-2-501, and ER 1105-2-100 provide guidance for addressing pollution caused by other parties where they have, or are likely to have, a legal responsibility for remediation or other

compliance responsibility and in accordance with required HTRW provisions for Project Partnership Agreements (PPAs) with regard to non-Federal sponsors.

#### **G.4.2 State**

The Illinois state regulations were examined to determine which regulations governed the state-specific hazardous waste disposal, release, and cleanup requirements. Illinois regulates USTs under Illinois Administrative Code, Title 35, Subtitle G, Chapter I, Subchapter D, Part 731, Underground Storage Tanks. The definition of a regulated substance under this regulation means any “hazardous substance” or “petroleum.” Hazardous substance UST is defined as an UST system that contains a “hazardous substance,” or any mixture of “hazardous substances” and “petroleum” that is not a petroleum UST system. Petroleum UST means any UST system that contains petroleum or a mixture of petroleum with minimal quantities of other regulated substances. Owners and operators of petroleum or hazardous substance UST systems must comply with the requirements of Part 731 except for USTs excluded under Section 731.110(b) and UST systems subject to RCRA corrective action requirements under 35 Ill. Adm. Code 724.200, 724.296, 725.296 or 725 Subpart G.

Indiana regulates USTs under Indiana Administrative Code, Title 13, Article 23, Underground Storage Tanks. In addition to this state regulation, the Indiana Department of Environmental Management (IDEM) publishes a LUST manual to provide an instructive guide to leaking tank owner’s/operator’s responsibilities. These guidelines are intended for use in conjunction with the state and federal regulations.

## G.5 PROJECT DESCRIPTION

### G.5.1 Great Lakes Mississippi River Interbasin Study (GLMRIS)

The USACE, in consultation with other federal agencies, Native American tribes, state agencies, local governments, and non-governmental organizations, is conducting GLMRIS pursuant to Section 3061(d) of the Water Resources Development Act of 2007. GLMRIS will explore options and technologies, collectively known as aquatic nuisance species (ANS) Controls, that could be applied to prevent or reduce the risk of ANS interbasin transfer to the maximum extent possible.

### G.5.2 GLMRIS Study Area

The GLMRIS study area includes portions of the Great Lakes and Mississippi River basins that fall within the United States. Potential aquatic pathways between the Great Lakes and Mississippi River basins exist along the basins' shared boundary. This shared boundary is the primary concentration of the study. The USACE is conducting GLMRIS along two concurrent tracks: Focus Area I, the Chicago Area Waterway System (CAWS) Study; and Focus Area II, the Other Aquatic Pathways Study (Figure G-1). Focus Area I encompasses the CAWS, which includes five (5) continuous aquatic pathways between the Great Lakes and Mississippi River basins. These connected waterways pose the greatest threat of potential ANS transfer between the basins. Focus Area II covers the remaining portion of the study area along the basin divide between the Great Lakes and Mississippi River basins, within the United States. This report focuses on potential project locations for Focus Area I, the CAWS and surrounding waterways and lands.

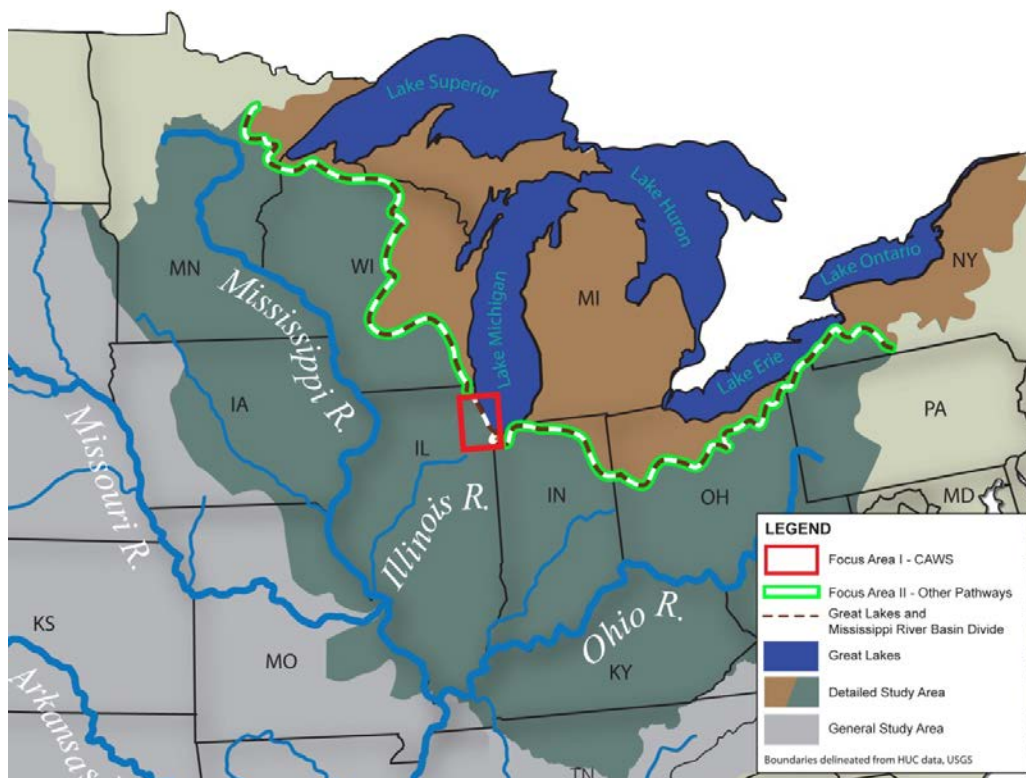


FIGURE G.1 GLMRIS Focus Areas

Eight project alternatives, each comprised of multiple measures, are identified in the GLMRIS Report. Twelve project locations (Table G.1) were investigated for HTRW and non-HTRW environmental concerns.

### G.5.2.1 GLMRIS Project Alternatives

1. No New Federal Action
2. Nonstructural Control Technologies
3. Mid-System Control Technologies without a Buffer Zone
4. Technology Alternative with a Buffer Zone
5. Lakefront Hydrologic Separation
6. Mid-System Hydrologic Separation
7. Mid-System Separation Cal-Sag Open Control Technologies with a Buffer Zone
8. Mid-System Separation CSSC Open Control Technologies with a Buffer Zone

**TABLE G.1 GLMRIS Project Locations**

<b>Location ID</b>	<b>River Reach/Vicinity</b>	<b>Alternatives</b>
Wilmette (IL)	North Shore Channel just west of the Wilmette Pumping Station	4, 5, 8
Chicago (IL)	Chicago River west of the Chicago River Controlling Works	4, 5, 8
Calumet City (IL)	Little Calumet River North, just west of the confluence with the Calumet River	5
Hammond (IN)	Little Calumet River South, just west of the confluence with Hart Ditch	4, 5, 7
Stickney (IL)	Chicago Sanitary and Ship Canal, east of the Stickney water reclamation plant outfall	3, 6, 7
Alsip (IL)	Calumet-Sag Channel, west of the confluence with Natalie Creek	3, 6, 8
T. J. O'Brien (IL)	Calumet River at T.J. O'Brien Lock and Dam	4, 7
Brandon Road (IL)	Chicago Sanitary and Ship Canal at Brandon Road Lock and Dam	4, 7, 8
State Line (IL/IN)	Grand Calumet River on the state line between Illinois and Indiana	4, 7
Oak Lawn (IL)	North of the Cal-Sag Channel on the Chicago-Oak Lawn border	3, 6, 8
McCook (IL)	Vulcan quarry near existing McCook reservoir	3, 5, 6, 7
Thornton (IL)	North lobe of existing Thornton reservoir	3, 4, 5, 6, 7, 8

## **G.6 GENERAL METHODS**

The HTRW assessment relies primarily on the identification of regulated sites within the immediate vicinity of the project area through a database search, followed by further investigation of selected sites. Information contained in this report was gathered in accordance with ER 1165-2-132. Information was obtained from the following sources:

- Review of site-related correspondences, reports, topographic maps, aerial photographs and other gathered data;
- Review of available environmental records in accordance with ASTM E 1527-00 Standard Practice for Environmental Site Assessments; and
- Observations made during site visits to the Stickney, Alsip, Hammond, and Calumet City sites.

Information collected from various sources is summarized for each site. Each site is discussed separately, including the site history, the current status, and any potential issues with the use of the site for sediment handling or disposal for the GLMRIS project. Discussion of water and sediment quality at and near the proposed project locations is also included in Appendix B of the GLMRIS report.



## G.7 DATABASE SEARCH

A search of available environmental records was conducted through Environmental Database Resources, Inc. (EDR). EDR searched federal and state databases using the minimum search distances issued in the ASTM E 1527-00 guidelines. Table G.2 notes the recommended ASTM search distance for federal and state databases.

**TABLE G.2 Minimum Search Distance for Federal and State Database Searches**

Standard Environmental Record Sources	Approximate Minimum Search Distance (mi)
Federal NPL site list	1.0
Federal Delisted NPL site list	0.5
Federal Comprehensive Environmental Response, Compensation, and Liability, Information System (CERCLIS) list	0.5
Federal CERCLIS No Further Remedial Action Planned (NFRAP) site list	0.5
Federal RCRA Corrective Action Report (CORRACTS) facilities list	1.0
Federal RCRA non-CORRACTS treatment, storage, and disposal facilities (TSDF) list	0.5
Federal RCRA generators list	Property and adjoining properties
Federal institutional control/engineering control registries	Property only
Federal ERNS list	Property only
State lists of hazardous waste sites identified for investigation or remediation	1.0
State equivalent NPL	0.5
State equivalent CERCLIS state landfill and/or solid waste disposal site lists	0.5
State leaking storage tank lists	0.5
State registered storage tank lists	Property and adjoining properties
State institutional control/engineering control registries	Property only
State voluntary cleanup sites	0.5
State brownfield sites	0.5

Databases searched include the following:

- **CERCLIS.** The Comprehensive Environmental Response, Compensation, and Liability, Information System (CERCLIS) is based on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and lists any site for which the EPA Office of Superfund has taken any action. The CERCLIS database indicates the stages of evaluation and remediation that have been completed for any given site. The CERCLIS database also includes the NPL and the CERCLIS-No Further Remedial Action Planned (NFRAP) List.
- **RCRIS.** The Resource Conservation and Recovery Information System (RCRIS) lists sites which generate, transport, store, and/or dispose of hazardous waste defined by the RCRA. The RCRIS database includes RCRA Corrective Action Report (CORRACTS), which identify hazardous waste handlers with RCRA corrective action activity; RCRA treatment, storage, and disposal facilities (TSDFs), and RCRA conditionally exempt small quantity generators

(CESQGs), RCRA small quantity generators (SQGs), and large quantity generators (LQGs) facilities. SQGs generate between 100 kg and 1,000 kg of hazardous waste per month. CESQGs generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

- **ERNS.** The Emergency Response Notification System (ERNS) database lists information on reported releases of oil and hazardous substances.
- **SHWS.** The State Hazardous Waste Sites (SHWS), or State Oversight List, are the state equivalent to CERCLIS and NPL, which may or may not have already been listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds are identified along with sites where cleanup will be paid for by potentially responsible parties.
- **SWF/LF.** The IEPA records the state's Solid Waste Facilities/Landfill sites (SWF/LF). These sites may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.
- **LUST/UST.** Lists of registered USTs are maintained by the Illinois State Fire Marshall and the Indiana Department of Environmental Management. The Illinois Environmental Protection Agency maintains a listing of LUST reports and the Indiana Department of Environmental Management maintains a list of LUSTs for Indiana.
- **Site Remediation Programs.** The Site Remediation Programs (SRP) database lists all voluntary remediation projects administered in Illinois through the pre-notice site clean-up program (1989 to 1995) and the SRP (1996 to present). Indiana's Volunteer Cleanup Program (VCP) database provides similar information for remediated properties in Indiana. The Illinois Brownfields database lists sites that have received grants under the Illinois Municipal Brownfields Redevelopment Grant Program for site investigation and cleanup activities. The IDEM also maintains inventories of brownfield sites where institutional controls have been implemented or where financial, legal or technical assistance has been offered or considered. The EPA also provides a listing of brownfields properties from the Cleanups in My Community program, which provides information on areas served by brownfields grant programs and brownfields properties for which information is reported back to the EPA.
- **FINDS.** The FINDS database (facility index system/facility registry system) contains facility information and pointers to other sources that contain more detail. The EDR report includes the following FINDS databases in the report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (Statement Environmental Laws and Statutes), and PADS (PCB Activity Data System).
- **Other Databases.** Various other databases are searched that include supplemental information to the above databases, including: CERCLA consent decrees, National Priority list deletions, Nuclear Regulatory Commission's database of sites possessing radioactive materials, Superfund Liens, PADS, Department of Defense sites, Toxic Chemical Release Inventory (TRIS), FIFRA/TSCA tracking system (FTTS), oil and gas pipelines, electric transmission lines, sensitive receptors, flood zone data, and the national wetlands inventory.

## G.7.1 Project Location: Wilmette (IL)

### G.7.1.1 Site Description

The Wilmette Pumping Station (WPS) is located beneath and is integral with the Sheridan Road Bridge in Wilmette, Illinois. The WPS was built in 1910 to control the flow between Lake Michigan and the North Shore Channel (NSC). Lake water is introduced into the CAWS at Wilmette during periods of low flow to augment water quality. When lake levels are higher than the NSC, water passes by gravity through a concrete channel and sluice gate. Pumping is necessary when the lake levels are low. During storm events, when the water in the NSC approaches 5.0 Chicago City Datum (CCD), the sluice gate can be opened to allow backflow to the lake. Three GLMRIS project alternatives include a new structure and/or changes to existing structures at/near Wilmette: (4) Technology Alternative with a Buffer Zone; (5) Lakefront Hydrologic Separation; and (8) Mid-System Separation CSSC Open Control Technologies with a Buffer Zone. Project features include a physical barrier, ANS treatment plant (ANSTP), and sluice gate construction. Further evaluation will be required to determine the exact locations of GLMRIS project and mitigation features.

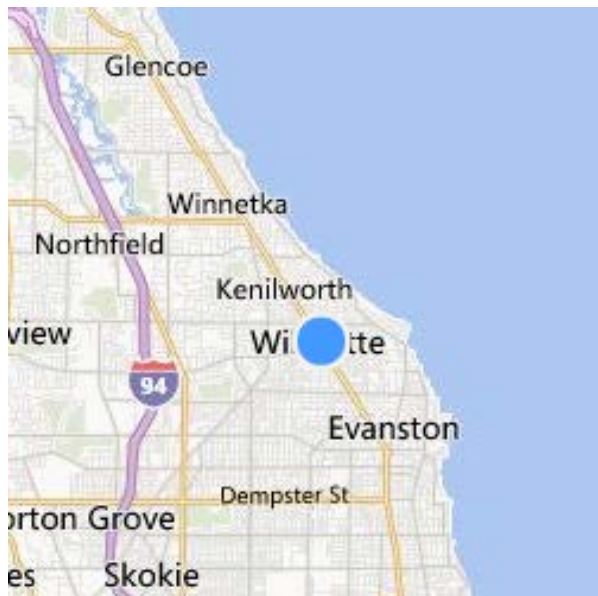


FIGURE G.2 Vicinity Map, Wilmette



FIGURE G.3 Location Map, Wilmette

### G.7.1.2 Historical Map and Photography Review

Historical aerial photographs, topographic maps, and Sanborn maps provide valuable information about the history of residential and commercial development at and near potential project sites. Changes in topography, vegetation, and land use over time may provide evidence of fill and dumping activities or potential recognized environmental conditions. In the 1899 topographic map it can be seen that the North Shore Channel did not yet exist; it was built from 1907 to 1911 and is shown in the 1914 Sanborn Map. Spoils from the canal may have been used to build the mouth of Wilmette Harbor further out into the lake, from which a jetty was built out further still. This area is now called Gillson Park. The Baha'i House of Worship was constructed throughout the 1920s and is shown on the 1928 topographic map and in later photos. A harbor light was added to the jetty before 1952 and a drinking water intake was added just north of the harbor before 1953. The 1962 aerial photo shows improvements to the Baha'i House of Worship as well as some sand accretion on the outside of the harbor breakwaters. More harbor protection

structures were built between 1963 and 1972. Throughout its history the Wilmette Pump Station has been surrounded mostly by residences and no significant changes in land use are evident from the available documentation.

### G.7.1.3 Database Search

The database search summarized in Table G.3, located five RCRA-SQGs, three RCRA-CESQGs, and two RCRA-NonGen facilities within the search distance. Many sites listed in these databases appear in the FINDS database as well. No RCRA Corrective Action or CERCLA sites were found in proximity to the project location. None of the RCRA regulated generator facilities had any violations or other causes for concern with regard to the proposed GLMRIS project.

The ERNS database lists information on reported releases of oil and hazardous substances. The database search yielded one ERNS report near the project site. There was an unknown sheen incident discovered at the Wilmette Harbor U.S. Coast Guard Station on October 11, 2011. No additional information about the incident is available. The SPILLS list of incidents reported to the Illinois EPA Office of Emergency Response indicates that there are 11 SPILLS sites within approximately 0.5 miles of the project site. It is likely that these are the source of small and transient spills because the Wilmette Harbor and North Shore Channel are used by recreational boaters.

The database search located two USTs and nine LUSTs facilities within the recommended search distances. The Illinois EPA Bureau of Land has issued a No Further Remediation (NFR) letter or No Further Action (NFA) status for all but one of these facilities, acknowledging compliance with all applicable laws, regulations, and remediation objectives associated with the tank. The leaking fuel oil tank owned by Cyrus Realtors, Inc., was reported in 1995 and its status is unknown. This tank and the possibility of groundwater contamination should be investigated further before this site is selected for a project.

The FIFRA/TSCA Tracking Systems (FTTS) is a regional system used by the EPA to track compliance, monitoring, and enforcement activities. Baker Demonstration School, located 0.4 miles southeast of the project location, was inspected in 1991 and found to have asbestos violations. Asbestos is an inhalation problem for workers in direct contact with the material, but is not a material that travels through the environment.

**TABLE G.3 Database Search Results, Wilmette**

Database	Map ID	Site Name	Proximity to Site	Status
RCRA-SQG	B3	MWRD Wilmette Pump Station	0.06 mi NNW	Handler; no violations.
RCRA-SQG, SPILLS	G31	Duxler Complete Auto Care	0.33 mi West	Handler; no violations. Unknown spill reported 2/6/1992.
RCRA-SQG	39	Chicago Transit Authority	0.39 mi WSW	Handler; no violations.
RCRA-SQG	48	Village of Wilmette Water Plant	0.45 mi NNW	Handler; no violations.
RCRA-CESQG, ERNS, LUST, UST	E17	USCG Station Wilmette Harbor	0.26 mi NNE	RCRA Handler; no violations. LUST NFR letter 01/04/1991. Unknown sheen reported on 10/11/2011.
RCRA-NonGen, LUST SPILLS	C6, C10	National Spiritual Assembly of the Baha'i	0.13 mi SE	Former LQG; no violations. LUST NFR letter 02/09/2009. Unknown spill reported 11/27/2002.

**TABLE G.3 (CONT.)**

<b>Database</b>	<b>Map ID</b>	<b>Site Name</b>	<b>Proximity to Site</b>	<b>Status</b>
LUST, SPILLS	E15	Wilmette Harbor Association	0.24 mi NE	Diesel LUST NFR letter 09/12/1996. Unknown spill reported 10/15/2004.
LUST, SPILLS	G32	Murray's 76, Inc.	0.33 mi West	Unknown spill reported 1/10/2008. Fuel oil LUST NFR letter 09/21/1992.
SPILLS	E14	Wilmette Harbor Assn.	0.24 mi NE	Unknown spill reported 9/11/1991.
SPILLS	F21	Shawnee Service Garage	0.26 mi WSW	Unknown spill reported 9/25/2006.
<b><i>LUST, SPILLS<sup>a</sup></i></b>	<b><i>F24, F27, F28</i></b>	<b><i>Cyrus, Inc.</i></b>	<b><i>0.26 mi WSW</i></b>	<b><i>Fuel oil spills reported 3/17/1995, 4/28/2003. LUST status unknown.</i></b>
SPILLS	45	Amoco Oil	0.43 mi NW	Unknown spill reported 3/22/1991.
LUST, SPILLS	J49, J51	Vasquez, Gary	0.45 mi NW	Unknown spill reported 5/1/1992. Fuel oil LUST NFR letter 11/18/1992.
UST	A2	Baha'i National Center	0.03 mi South	Three tanks exempt from registration, last used in 1973.
LUST	D11	Degiulio Kitchen & Bath Inc.	0.17 mi NW	Fuel oil: NFR letter 04/13/1992.
LUST	F23	Shawnee Service Garage	0.26 mi WSW	Gasoline: NFR letter 05/21/2008.
LUST	I46	Wilmette Park District	0.43 mi NW	Diesel; NFR letter 05/15/1995.

<sup>a</sup> Database search results requiring further investigation are shown in bold italic typeface.

#### **G.7.1.4 Water and Sediment Quality**

Water quality in the Upper North Shore Channel is impaired for three designated uses. Observed concentrations of dissolved oxygen, total phosphorus, nickel and zinc impair its use for support of aquatic life. Aqueous concentrations of mercury polychlorinated biphenyls (PCBs) impair use of the waterway for fish consumption, and fecal coliform concentrations impair use of the waterway for primary contact recreation.

Sediment data collected by the Metropolitan Water Reclamation District of Greater Chicago (MWRD) in the North Shore Channel, 0.75 miles south of the Wilmette project site, are shown below in Table G.4. No screening criteria or remediation objectives for sediment have been published by either federal or state environmental protection agencies. Sediment quality is typically evaluated on a site-specific basis. However, for discussion purposes, the Maximum Allowable Concentrations of chemical constituents allowed in “Uncontaminated Soil” and Clean Construction or Demolition Debris (CCDD) in Illinois are provided in Table G.4 as a point of comparison. The Illinois Tiered Approach to Corrective Action (TACO) objectives criteria are also provided. Note that Illinois TACO criteria are land-based remediation objectives and are not valid for sediment. One sample collected in 2005 exceeded reference criteria for benzo(a)anthracene and benzo(a)pyrene. Further sediment collection and analysis may be needed to determine potential impacts to the proposed GLMRIS project.

#### **G.7.1.5 Site Summary**

This investigation was performed to determine if the selected measures will have an impact on any REC occurrences that may exist in the surrounding areas, and if RECs will have an impact on the implementation of the project. There is one LUST with an unknown status that should be investigated further for potential impacts to soil and groundwater at or near the proposed project location. The LUST is not located on or adjacent to the proposed project site, therefore it is not considered to be a particularly high priority. Once the project locations are finalized, a site visit should be performed in accordance with ASTM E 1527-05 in order to visually observe the property and obtain information indicating the

likelihood of recognized environmental conditions in connection with the property. Further sediment collection and analysis may be needed to characterize sediment quality at the site and determine the extent of any potential impacts to the proposed GLMRIS project.

**TABLE G.4 Sediment Data, North Shore Channel (sampling date: 7/7/05)**

Sample	Units	NSC – Central Street		Illinois	Illinois
		Side	Center	CCDD	TACO
TSW %	%	38.7	31.7	--	--
VTSW%	%	6.7	8.9	--	--
NH <sub>3</sub> -N	mg/kg	21	21	--	--
TKN	mg/kg	2,044	2,523	--	--
NO <sub>2</sub> +NO <sub>3</sub>	mg/kg	4.44	6.33	--	--
Tot Phos	mg/kg	425	572	--	--
CN	mg/kg	0.145	0.117	--	--
Phenol	mg/kg	0.147	0.145	100	23,000
Hg	mg/kg	0.1174	0.4357	0.89	23
Ag	mg/kg	<0.3	1.0	4.4	390
As	mg/kg	1.5	2.8	13	750
Cd	mg/kg	0.9	1.0	5.2	78
Cr	mg/kg	23	23	21	230
Cu	mg/kg	71	84	2,900	2,900
Fe	mg/kg	13,613	13,828	15,900	--
Mn	mg/kg	367	364	636	1,600
Ni	mg/kg	16	16	100	1,600
Pb	mg/kg	62	66	107	400
Zn	mg/kg	188	189	5,100	23,000
Methylene chloride	mg/kg	ND	ND	0.02	85
Toluene	mg/kg	ND	ND	12	16,000
Acenaphthene	mg/kg	ND	ND	570	4,700
Acenaphthylene	mg/kg	ND	ND	--	--
Anthracene	mg/kg	ND	ND	12,000	23,000
Benzo(a)anthracene	mg/kg	<b>1.446<sup>a</sup></b>	0.677	1.1	0.90
Benzo(a)pyrene	mg/kg	<b>1.492</b>	0.817	1.3	0.09
3,4-Benzofluoranthene	mg/kg	1.923	1.115	--	--
Benzo(ghi)perylene	mg/kg	0.564	ND	--	--
Benzo(k)fluoranthene	mg/kg	1.713	1.03	9	9.00
Bis (2-ethylhexyl) phthalate	mg/kg	ND	ND	46	46
Butylbenzyl phthalate	mg/kg	ND	ND	930	16,000
Chrysene	mg/kg	1.873	1.016	88	88
Dibenzo(a,h)anthracene	mg/kg	ND	ND	0.2	0.09
Fluoranthene	mg/kg	4.269	2.026	3,100	3,100
Fluorene	mg/kg	ND	ND	560	3,100
Indeno(1,2,3-cd)pyrene	mg/kg	0.689	0.424	0.9	0.90
Naphthalene	mg/kg	ND	ND	1.8	1,600
Phenanthrene	mg/kg	2.057	0.777	--	--
Pyrene	mg/kg	3.425	1.637	2,300	2,300
4,4'-DDT	mg/kg	0.036	0.023	2.0	2.0
4,4'-DDE	mg/kg	0.094	0.086	2.0	2.0
4,4'-DDD	mg/kg	0.097	0.096	3.0	3.0
Endrin aldehyde	mg/kg	ND	ND	1.0	23

<sup>a</sup> Concentrations exceeding reference criteria are shown in bold typeface. ND = Analyte not detected. Source: MWRD (2008b).

## G.7.2 Project Location: Chicago (IL)

### G.7.2.1 Site Description

The Chicago River Controlling Works (CRCW) controls the flow of water between the lake and Chicago River. This facility was built by the Metropolitan Water Reclamation District in 1938 and was maintained and operated by them until 1984. In this year, the maintenance and operation responsibilities were transferred to USACE. The CRCW consists of walls separating the river and the lake, a navigation lock with two sets of sluice gates, and a pumping station. The lock is 80 feet wide by 600 feet long, with a normal lift of 2.0 feet in size. The two sets of underwater sluice gates allow water to flow by gravity from Lake Michigan to the Chicago River when the lake level is higher than the Chicago River. Three GLMRIS project alternatives include a new or altered structure at the Chicago location: (4) Technology Alternative with a Buffer Zone; (5) Lakefront Hydrologic Separation; and (7) Mid-System Separation Cal-Sag Open Control Technologies with a Buffer Zone. Project features include a physical barrier, GLMRIS Lock, electrical barrier, breakwaters, sluice gates, and an ANSTP. Further evaluation will be required to determine the exact locations of GLMRIS project and mitigation features.

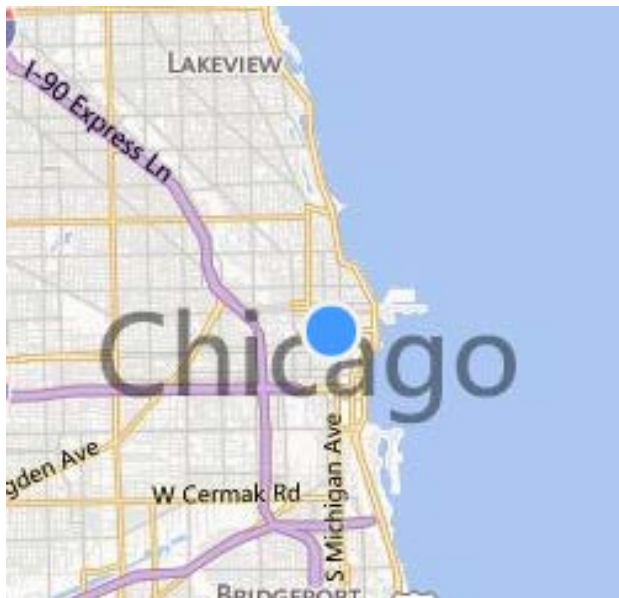


FIGURE G.4 Vicinity Map, Chicago

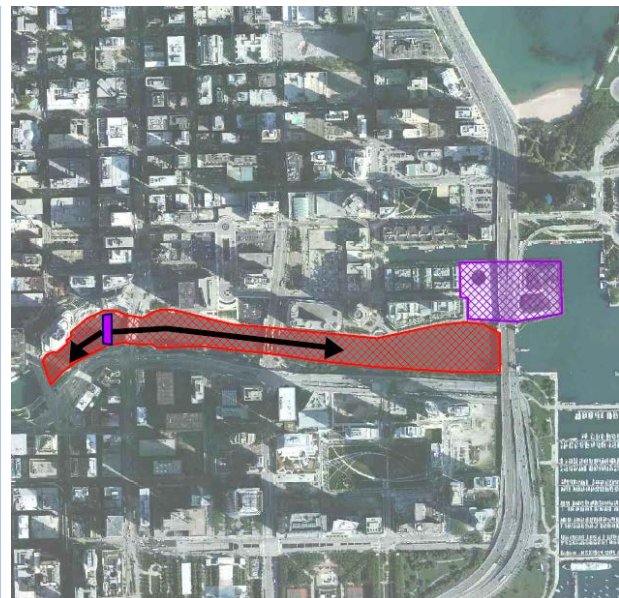


FIGURE G.5 Location Map, Chicago

### G.7.2.2 Historical Map and Aerial Photography Review

Historical aerial photographs, topographic maps, and Sanborn maps provide valuable information about the history of residential and commercial development at and near potential project sites. Changes in topography, vegetation, and land use over time may provide evidence of fill and dumping activities or potential recognized environmental conditions. By the time of the earliest available topographic map in 1901, the Chicago city center and lakefront was already well developed. Construction of Chicago Harbor was initiated in 1833, the inner breakwaters were constructed between 1874 and 1880, the outer breakwaters were constructed between 1889 and 1923, and the lock was built in 1938. Navy Pier was built in 1916 and is shown in the 1938 aerial photograph. The Jardine Water purification plant to the north was constructed in the 1950s and can be seen in the 1962 aerial photograph. All these lakefront structures (and everything east of Michigan Avenue) is built on landfill placed in the late 1800s, much of it debris from the historic Great Chicago Fire.

### G.7.2.3 Database Search

The database search summarized in Table G-5 located one CERCLA site, one RCRA Corrective Action site, three SRP sites and eleven LUSTs within the recommended search distance. Lindsay Light II, located at 316 East Illinois Street, was formerly a manufacturing site for Lindsay Light Chemical Company, which refined thorium-containing ores and made incandescent gas mantles for home and street lighting in the early 1900s. The ore refining process created a radioactive sandy material that was used as fill in the Streeterville and Lakeshore East neighborhoods in downtown Chicago, which includes the landward area east of the Chicago Harbor. Elevated gamma levels have been found on the property, verifying the presence of radionuclides. The EPA discovered thorium contamination at this site in 1993 and at nearly a dozen other nearby sites since. According to EPA, “Thorium contaminated soil is not considered to be an immediate threat to human health and the environment if it is covered by an intact hard surface of sufficient thickness such as concrete or asphalt” (EPA 2013a). Cleanups have been conducted at several properties and more than 55,000 cubic yards of soil has been removed. The EPA and the City of Chicago require anyone planning to disturb the ground in the Streeterville neighborhood to monitor for radioactivity. This could be a consideration for any future construction landside of the Chicago Harbor.

DuSable Park, a 3.5-acre peninsula just east of Lake Shore Drive between the Chicago River and the Ogden Slip, was also contaminated with thorium originating from Lindsay Light. The Chicago Park District completed remediation of the site in September of 2012 with funding support from the EPA. Remediation is also underway at two additional thorium impacted sites nearby, including 455 North Park Drive and 515 North Peshtigo Court.

The General Parking Corporation property, located 0.5 miles west of the project site, formerly belonged to the Velsicol Chemical Corporation and earlier, Sandoz Crop Protection. EPA documentation indicates that the presence of lead has been confirmed on site. The site was deferred from CERCLA to RCRA and is archived on the CERCLA “No Further Remedial Action Planned” list. Under RCRA, the site was assigned a low corrective action priority. Since the site was delisted from CERCLA, assigned a low priority under RCRA and is more than half a mile away from the proposed project, it may not be of great concern to the GLMRIS project. However if a GLMRIS project is pursued at this location it is recommended that this issue be investigated further.

The database search returned three Illinois EPA SRP sites within the recommended search distance. Navy Pier was enrolled in the SRP in 1992 but has not been issued a NFR letter and no project manager or project status is provided by Illinois EPA. The 500 Lake Shore Drive Tower was enrolled in the SRP in 2011 and is listed as an active project. Both of these projects ought to be investigated further if a GLMRIS project is pursued at this location. At the Lakeshore East Development, where thorium contaminated fill may be present, institutional controls were applied at and a NFR letter was issued on August 10, 2009. This site is not expected to impact the project unless construction is to be proposed on those areas.

The database search returned 11 LUST sites within the recommended search distance. Eight of the 11 LUSTs have an unknown status and will need to be investigated further, should a project be pursued near the Chicago Lock. The database search, summarized in Table G.5, located five RCRA-SQGs, three RCRA-CESQGs, and two RCRA-NonGen facilities within the search distance. Many sites listed in these databases appear in the FINDS database as well.



**TABLE G.5 Database Search Results, Chicago**

Database	Map ID	Site Name	Proximity to Site	Status
<i>CERCLIS, FINDS, PRP, UST<sup>a</sup></i>	<i>W118</i>	<i>Lindsay Light II</i>	<i>0.5 mi WNW</i>	<i>55,000 cy of soil removed. Radioactivity monitoring required for any land disturbance.</i>
<i>CERC-NFRAP, CORRACTS, RCRA-NonGen, FINDS</i>	<i>Z129</i>	<i>General Parking Corporation</i>	<i>0.53 mi WNW</i>	<i>Not on the NPL, deferred from CERCLA to RCRA.</i>
<i>RCRA-CESQG, FINDS, FTTS, SRP, TIER 2, IL NIPC</i>	<i>C11, C12, D16, E26</i>	<i>Navy Pier/Metro Pier and Expo Authority</i>	<i>0.18 mi NNE</i>	<i>SRP status not reported. Processor of TSCA-regulated substances. Section 6 PCB State Inspection conducted.</i>
RCRA-SQG	F29	ComEd	0.25 mi NW	No violations found.
RCRA-SQG, FINDS, MANIFEST, UST, SPILLS, MLTS, ICIS	D19, D21, D23, D24	Jardine Water Purification Plant	0.19 mi North	CERCLA 109A AO For Class I Penalties 05-1999. Unknown spill on 7/10/2002.
<i>LUST</i>	<i>3</i>	<i>U.S. Coast Guard</i>	<i>0.05 mi NNW</i>	<i>Fuel oil spill, status not reported.</i>
<i>LUST</i>	<i>B4</i>	<i>City of Chicago</i>	<i>0.09 mi North</i>	<i>Not reported.</i>
<i>LUST, SPILLS, ICIS</i>	<i>H32, H35, 36</i>	<i>City of Chicago</i>	<i>0.3 mi WNW</i>	<i>Not reported.</i>
LUST, MLTS	S80	Neomedica, Inc.	0.43 mi WNW	LUST NFA/NFR Letter: 04/07/1994.
LUST	115	Chicago Dock & Canal	0.5 mi West	Fuel oil, NFA/NFR Letter: 05/13/1991.
<i>LUST</i>	<i>W119</i>	<i>Chicago Dock &amp; Canal</i>	<i>0.5 mi WNW</i>	<i>Other petro, NFA/NFR Letter: Not reported.</i>
<i>LUST</i>	<i>W124</i>	<i>MCL, Inc.</i>	<i>0.51 mi WNW</i>	<i>Diesel, NFA/NFR Letter: Not reported.</i>
LUST	AB135	Northwestern University	0.56 mi NW	Other petro, NFA/NFR Letter: 12/04/2000.
<i>LUST</i>	<i>AC148</i>	<i>Fairbanks &amp; Ohio Auto Park</i>	<i>0.59 mi WNW</i>	<i>Other petro, NFA/NFR Letter: Not reported.</i>
<i>LUST, LUST TRUST, UST</i>	<i>X122</i>	<i>CBS Inc./Demolition Site</i>	<i>0.5 mi NW</i>	<i>Other petro, NFA/NFR Letter: Not reported.</i>
<i>LUST, UST, SPILLS</i>	<i>R75</i>	<i>Days Inn of America</i>	<i>0.43 mi NW</i>	<i>Gasoline, NFA/NFR Letter: Not reported..</i>
UST	B6	Paquettes Marina & Seaplane Base	0.09 mi North	Three tanks, all removed.
<i>SRP</i>	<i>J54</i>	<i>500 Lake Shore Dr. Tower</i>	<i>0.36 mi NW</i>	<i>NFR letter not reported. Status unknown.</i>
ENG CONTROLS, INST CONTROL, SRP	AE146	Lakeshore East Development	0.59 mi WSW	Groundwater use restriction, asphalt barrier/concrete barrier/clean soil barrier. NFR Letter: 08/10/2009.

<sup>a</sup> Database search results requiring further investigation are shown in bold italic typeface.

### G.7.2.4 Water and Sediment Quality

Water quality in the Chicago River is impaired for three designated uses. Observed concentrations of total phosphorus and silver impair its use for support of aquatic life. Aqueous concentrations of mercury and PCBs impair use of the waterway for fish consumption, and fecal coliform concentrations impair use of the waterway for primary contact recreation. Available sediment data, described in Appendix B, suggest that RECs associated with sediment may be present at the project site as well.

Sediment data collected by the MWRD in the Chicago River just east and west of the Chicago project site are shown below. No screening criteria or remediation objectives for sediment have been published for sediment by either federal or state environmental protection agencies. Sediment quality is typically evaluated on a site-specific basis. However for discussion purposes, the Maximum Allowable Concentrations of chemical constituents allowed in “Uncontaminated Soil” and CCDD in Illinois are provided in Table G.6 as a point of comparison. The Illinois TACO criteria are also provided. Illinois TACO criteria are land-based remediation objectives and are not valid for sediment. Sediment samples collected by the MWRD in 2006 appear to exceed CCDD criteria, but not TACO criteria, for several parameters. Further sediment collection and analysis may be needed to determine potential impacts to the proposed GLMRIS project. Any sediment removed during construction would likely require off-site disposal.

**TABLE G.6 Sediment Data, Chicago River (sampling date: 7/27/06)**

Sample	Units	Chicago River – Wells St.		Chicago River – LSD		Illinois	Illinois
		Side	Center	Side	Center	CCDD	TACO
TSW %	%	43.6	39.2	45.0	30.8	--	--
VTSW%	%	7.9	8.5	6.9	12.8	--	--
NH <sub>3</sub> -N	mg/kg	29.8	56.4	31.6	161.2	--	--
TKN	mg/kg	1,328	2,818	1,520	4,200	--	--
NO <sub>2</sub> +NO <sub>3</sub>	mg/kg	7.23	10.61	9.11	19.26	--	--
Tot Phos	mg/kg	760	2172	2011	4069	--	--
CN	mg/kg	0.135	0.452	0.204	1.186	--	--
Phenol	mg/kg	0.229	0.276	0.227	0.390	100	23,000
Ag	mg/kg	< 0.2	1.2	< 0.2	6.0	4.4	390
As	mg/kg	< 5	< 5	< 5	< 5	13	750
Cd	mg/kg	1.2	3.8	1.9	8.2	5.2	78
Cr	mg/kg	34	65	61	102	21	230
Cu	mg/kg	51	137	103	237	2,900	2,900
Fe	mg/kg	<b>21,520<sup>a</sup></b>	<b>19,489</b>	<b>26,776</b>	<b>23,916</b>	15,900	--
Hg	mg/kg	0.673	3.738	0.512	2.034	0.89	23
Mn	mg/kg	330	344	357	348	636	1,600
Ni	mg/kg	23	27	16	35	100	1,600
Pb	mg/kg	67	<b>210</b>	<b>1255</b>	<b>272</b>	107	400
Zn	mg/kg	184	408	417	691	5,100	23,000
Benzene	mg/kg	ND	ND	ND	ND	0.03	12
Toluene	mg/kg	ND	ND	ND	ND	12	16,000
Acenaphthene	mg/kg	ND	1.89	1.06	ND	570	4,700
Acenaphthylene	mg/kg	ND	ND	ND	ND	--	--
Anthracene	mg/kg	0.479	4.98	1.61	ND	12,000	23,000
Benzo(a)anthracene	mg/kg	0.973	<b>8.93</b>	<b>1.69</b>	ND	1.1	0.90
Benzo(a)pyrene	mg/kg	0.898	<b>8.26</b>	<b>1.58</b>	<b>4.10</b>	1.3	0.09
3,4-Benzofluoranthene	mg/kg	0.782	8.50	2.01	4.65	--	--
Benzo(ghi)perylene	mg/kg	ND	2.63	0.644	ND	--	--

**TABLE G.6 (CONT.)**

Sample	Units	Chicago River – Wells St.		Chicago River – LSD		Illinois	Illinois
		Side	Center	Side	Center	CCDD	TACO
Benzo(k)fluoranthene	mg/kg	0.881	8.50	1.88	4.67	9	9.00
Bis(2-ethylhexyl)phthalate	mg/kg	ND	13.30	5.11	ND	46	46
Butylbenzyl phthalate	mg/kg	ND	ND	ND	ND	930	16,000
Chrysene	mg/kg	1.08	9.36	3.05	4.64	88	88
Dibenzo(a,h)anthracene	mg/kg	ND	<b>0.739</b>	ND	ND	0.2	0.09
Di-n-butyl phthalate	mg/kg	ND	ND	ND	ND	2,300	7,800
Di-n-octyl phthalate	mg/kg	ND	ND	ND	ND	1,600	1,600
Fluoranthene	mg/kg	2.44	22.10	9.81	9.39	3,100	3,100
Fluorene	mg/kg	ND	2.23	1.73	ND	560	3,100
Indeno(1,2,3-cd)pyrene	mg/kg	0.35	<b>3.07</b>	0.757	ND	0.9	0.90
Naphthalene	mg/kg	ND	ND	ND	ND	1.8	1,600
Phenanthrene	mg/kg	1.98	16.20	8.33	3.98	--	--
Pyrene	mg/kg	2.55	19.00	6.89	8.66	2,300	2,300
Alpha-BHC	mg/kg	ND	ND	ND	ND	0.1	0.1
4,4'-DDT	mg/kg	ND	ND	ND	ND	2.0	2.0
4,4'-DDE	mg/kg	ND	0.0757	ND	0.0351	2.0	2.0
4,4'-DDD	mg/kg	0.0156	0.094	0.0087	0.0503	3.0	3.0
PCB-1254	mg/kg	2.20	ND	ND	ND	1.0 (total)	1.0 (total)
PCB-1248	mg/kg	ND	ND	ND	ND		
PCB-1260	mg/kg	ND	<b>0.745</b>	ND	0.245		
PCB-1016	mg/kg	ND	<b>0.974</b>	ND	0.499		

<sup>a</sup> Concentrations exceeding reference criteria are shown in bold typeface.  
 ND=Analyte not detected. Source: MWRD (2006).

### G.7.2.5 Site Summary

This HTRW investigation was performed to determine if the selected measures will have an impact on any REC occurrences that may exist in the surrounding areas, and if RECs problems will have an impact on the implementation of the project. If a GLMRIS project is pursued at this location, eight LUST sites and two SRP sites, at Navy Pier and 500 Lake Shore Drive Tower, should be investigated further for potential impacts to soil and groundwater at or near the proposed project location. Project features proposed for DuSable Park and other sites in the Streeterville area will require radiation testing surveys performed under the direction of a radiation health physicist, and with an EPA approved health and safety plan. Once the project locations are finalized, a site visit should be performed in accordance with ASTM E 1527-05 in order to visually observe the property and obtain information indicating the likelihood of recognized environmental conditions in connection with the property. Further sediment collection and analysis is needed to characterize sediment quality at the site and determine the extent of any potential impacts to the proposed GLMRIS project.

## G.7.3 Project Location: Calumet City (IL)

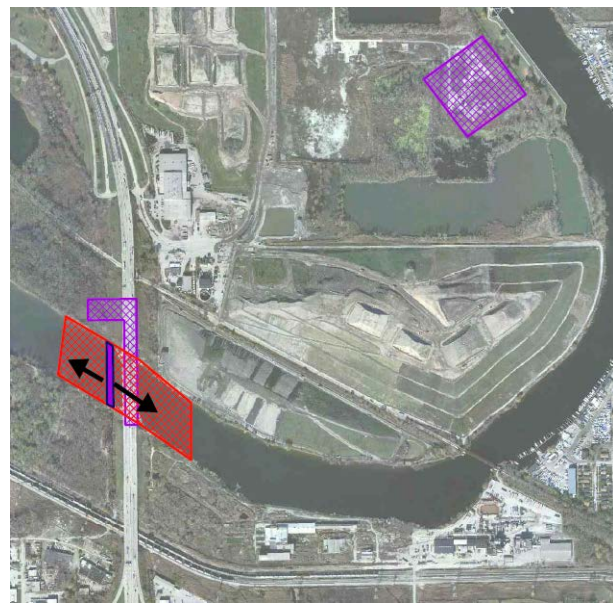
### G.7.3.1 Site Description

The Calumet City project location is located on the Little Calumet River North, approximately 1.5 miles west of the T.J. O'Brien Lock and Dam, directly underneath the Bishop Ford Freeway bridge. The project site is located on the boundary between three municipalities: Riverdale, Dolton, and Calumet City.

The Beaubien Woods Forest Preserve, located in Riverdale, is on the north side of the river, west of the freeway. There is vacant land south of the river, west of the freeway, in the town of Dolton. East of the freeway, in Calumet City, the CID Landfill occupies the north side of the river and there is vacant land on the south side of the river. Access to the site is constrained by the Baltimore and Ohio Chicago Terminal Railroad, which runs parallel to the river on its south bank, and the Conrail Railroad which runs parallel to the river on its north bank. Several 138-kV power transmission lines are located overhead at the project site. The Lakefront Hydrologic Separation GLMRIS project alternative (Alternative 5) includes a physical barrier and an ANSTP at this location. Further evaluation will be required to determine the exact locations of GLMRIS project and mitigation features.



**FIGURE G.6 Vicinity Map, Calumet City**



**FIGURE G.7 Location Map, Calumet City**

### G.7.3.2 Historical Map and Aerial Photography Review

Historical aerial photographs, topographic maps, and Sanborn maps provide valuable information about the history of residential and commercial development at and near potential project sites. Changes in topography, vegetation, and land use over time may provide evidence of fill and dumping activities or potential recognized environmental conditions. Topographic maps from 1901 to 1991 and aerial photographs from 1939 to 2007 were reviewed. The 1939 aerial photo shows the Little Calumet River surrounded overwhelmingly by farm, although some land disturbance is present. Clearings are evident at all four corners of the proposed project location, particularly at the site of the current landfill and forest preserve. The 1938 topographic map shows that a brickyard with a large detention basin was built just west of the proposed project site. The berm between the detention basin and the Little Calumet River was removed between 1953 and 1960. By 1973, boat slips had been added in this pond-turned-inlet. In the time between the 1939 and 1952 aerial photographs, the Bishop Ford freeway bridge traversing the river was constructed. Steep highway embankments are visible in the 1952 photo. Residential construction begins on the south side of the Little Calumet River between 1952 and 1962. Industrial development east of the Bishop Ford freeway bridge is shown beginning with the 1974 aerial. In the 1973 topographic map and 1974 aerial photo, three large storage tanks are visible east of the bridge on the south side of the river. The aboveground storage tanks held ethylbenzene and styrene for the Fina petrochemical company. The 1991 topographic map shows that approximately 100 feet of elevation has been added to the landfill sites just east of the Bishop Ford freeway since 1977.

### G.7.3.3 Database Search

The database search located two CERCLIS-NFRAP sites within the recommended search distance, as summarized in Table G.7. CID Recycling and Disposal Facility and Ashland Chemical Company are also regulated under RCRA and are described in greater detail below. There are several other RCRA-regulated generators in the larger surrounding area, but none within the ASTM recommended search distance.

**TABLE G.7 Database Search Results, Calumet City**

Database	Map ID	Site Name	Proximity to Site	Status
CERC-NFRAP, RCRA-LQG, RCRA-TSDF, CORRACTS, PADS	A6	CID Recycling and Disposal Facility	0.16 mi NNE	NFRAP completed 03/28/1990. Landfill closed with waste in place. Active and closed surface impoundments, tank storage.
CERC-NFRAP	8	CID#2 and Pug Mill	0.22 mi NNE	NFRAP completed 02/04/1986.
<b>RCRA-TSDF, CORRACTS, RCRA-LQG, TRIS, 2020 CORRACTS<sup>a</sup></b>	<b>K49</b>	<b>Ashland Chemical Company</b>	<b>0.85 mi SE</b>	<b>Corrective action ongoing.</b>
<b>CERCLIS, CORRACTS, RCRA-NonGen</b>	<b>K50</b>	<b>Cosden Oil &amp; Chemical</b>	<b>0.85 mi SE</b>	<b>Recommended for HRS Scoring, RCRA status unreported.</b>
<b>SWF/LF, IL NIPC</b>	<b>B9</b>	<b>CWM CID 1</b>	<b>0.26 mi ESE</b>	<b>Operational, permitted. Both solid and hazardous waste units.</b>
SWF/LF	B11	CID Recycling and Disposal Facility	0.26 mi ESE	Closed 10/10/08. Nonhazardous contaminated soils for bioremediation.
SWF/LF	F24	CID Transfer Station	0.43 mi NE	Operational, permitted. Municipal waste.
<b>IL NIPC</b>	<b>19</b>	<b>Calumet Inlet</b>	<b>0.41 mi West</b>	<b>Former solid waste disposal site. Status unknown.</b>
LUST	A3	CID Corp.	0.16 mi NNE	Non petro; NFR letter 02/05/2010.
<b>UST</b>	<b>A4</b>	<b>GSF Energy, Inc.</b>	<b>0.16 mi NNE</b>	<b>Tank 1: 5,000 gal "hazardous substance." Tank 2: 100 gal used oil.</b>
LUST	A7	Waste Management of Illinois	0.16 mi NNE	Non petro; NFR letter 02/05/2010.
LUST	C12	Air Prod. Chemical	0.33 mi NE	Gasoline; NFR letter 07/01/2009.
LUST, AIRS DRYCLEANERS	G26	Norco Cleaners, Inc.	0.45 mi SW	Gasoline; NFR letter 03/01/1999 Other petro; NFR letter 03/01/2009.
LUST	H32	Interstate Brands Co.	0.49 mi SW	Diesel; NFR letter 11/09/2010.
<b>LUST</b>	<b>39</b>	<b>City of Calumet City</b>	<b>0.51 mi SSE</b>	<b>Gasoline spill reported 10/15/1997. Status unresolved.</b>
LUST	I41	Calumet Coach Co.	0.57 mi SSE	NFR letter 02/04/1997.
FINDS, AIRS	A2	CID Transfer Station	0.16 mi NNE	Air emissions databases.
RCRA-NonGen, FINDS	C13	Ace Disposal Systems	0.33 mi NE	Handler, no violations.
FINDS	D14	GTS Towing, Inc.	0.35 mi SW	RCRA CESQG, no violations.
FINDS	E16	Taffe Truck Repair	0.36 mi SSW	RCRA SQG, no violations.
RCRA-NonGen, FINDS	G27	Norco Cleaners Inc.	0.45 mi SW	Handler, no violations.

**TABLE G.7 (CONT.)**

<b>Database</b>	<b>Map ID</b>	<b>Site Name</b>	<b>Proximity to Site</b>	<b>Status</b>
FINDS	G28	EPA Site B	0.45 mi SW	Air emissions databases.
FINDS	29	Chicago Land Contract	0.46 mi SSW	Air emissions databases.
RCRA-NonGen, FINDS	H35	Continental Baking	0.49 mi SW	Handler, no violations.

<sup>a</sup> Database search results requiring further investigation are shown in bold italic typeface.

### **G.7.3.3.1 CID Recycling and Disposal Facility**

The CID Landfill, operated by Waste Management of Illinois, is located in Calumet City, Illinois, just east of the Bishop Ford freeway and just north of the Little Calumet River. The facility opened in 1968 and one landfill, holding 27 million cubic yards of waste, was closed in 2010. Biological liquid treatment, soil biotreatment of petroleum-contaminated soil, and landfill gas recovery are currently conducted on site. The CID Landfill is regulated under RCRA as a treatment, storage, and disposal facility (TSDF) for municipal solid waste and hazardous waste. Among the hazardous wastes handled onsite are batteries, lamps, pesticides, and thermostats, various industrial process waste waters and sludges, and many other toxic, flammable, corrosive, and reactive chemicals. The facility has also been listed as one of the top 50 hazardous waste generators in the United States, at an annual average 150,000 tons. Hazardous substances and petroleum products are present at the CID Landfill, which indicates a recognized environmental condition (REC) as defined by ASTM E1527-05.

The CID Landfill is listed for ongoing corrective action in the CORRACTS and 2020 COR ACTION databases. The facility was issued several violation notices under RCRA from 1985 to 1988, in addition to several other written informal violations. The violations were in the following areas: TSD groundwater monitoring, TSD Financial Requirements, TSD Manifest/Records/Reporting, and permits. Corrective action for RCRA violations has been ongoing at the site since 1987. Stabilization was completed in 1997 and it was verified that current human exposures were under control. In 2001 it was verified that migration of contaminated groundwater was under control. CID Landfill has also been listed as a RCRA LQG since 1990.

The CID Landfill site was enrolled in the Superfund program in 1979 and was assessed in 1983. The site was assessed again and delisted in 1990. Just to the north, CID #2 was investigated in 1985 and was delisted the following year. Both sites are considered resolved under CERCLA but remain archived on the CERCLIS-NFRAP list. CID Landfill is also listed under the EPA's PCB Activity Database (PADS), which identifies generators, transporters, and storers of PCBs. In the last 3 years, the facility has been in noncompliance with its Clean Water Act NPDES discharge permit for 6 out of 12 quarters.

### **G.7.3.3.2 Ashland Chemical**

Ashland Specialty Chemical Company is located in Calumet City, Illinois, 0.85 miles southeast of the proposed project site. The facility was established in 1965 and manufactures adhesives, plastics materials, synthetic resins, and nonvulcanizable elastomers. The facility is listed as a RCRA-TSDF and RCRA-LQG and is regulated for production and storage of various volatile solvents and other ignitable, corrosive substances. Hazardous substances and petroleum products are present at Ashland Chemical, which indicates a recognized environmental condition (REC) as defined by ASTM E1527-05. Ashland Chemical has been in noncompliance with its CAA permit for 7 out of the last 12 quarters.

The Ashland Chemical site is listed for ongoing corrective action in the CORRACTS and 2020 COR ACTION databases. In 1994 a RCRA Facility Assessment (RFA) was conducted and the site was assigned a high corrective action priority. A RCRA Facility Investigation was conducted in 1998. In 2003 it was reported that Migration of Contaminated Groundwater is under control and in 2004 it was reported that Current Human Exposures were under control. A 2012 Statement of Basis by the EPA explains proposed remedies for cleaning up contaminated soil and groundwater at the site. Sampling has indicated high concentrations of chromium, lead, styrene, ethylbenzene, and total petroleum hydrocarbons in both the soil and groundwater. The contaminated areas are adjacent to the GLMRIS project location on the south side of the Little Calumet River, just east of the Bishop Ford freeway bridge.

The Ashland Chemical site is also listed in the IMPDMENT database, which is a statewide inventory of industrial, municipal, mining, oil and gas, and agricultural impoundments that were assessed by Illinois EPA for potential contamination to shallow aquifers. From 1970 to 1980, a former site owner operated a 25,000 ft<sup>2</sup> earthen-lined “blow-down” dump pit to accept the waste from its polystyrene suspension process. Near the Ashland Chemical site is the Cosden Oil and Chemical Company. Cosden was listed as a CERCLA site in 1995 and was recommended for scoring under the Hazard Ranking System (HRS), but no regulatory status is reported.

The Illinois EPA records the state’s Solid Waste Facilities/Landfill sites (SWF/LF). The Northeastern Illinois Planning Commission (NIPC) also maintains a Solid Waste Landfill Inventory that lists active and inactive solid waste disposal sites, based on state, local government, and historical archive data. Included are numerous sites that previously had never been identified largely because, prior to 1971, there was no obligation to register such sites. The results from a search of both databases are summarized in Table G.7. The first three facilities are located in the cluster of CID Landfill sites described in detail above. The fourth site, Calumet Inlet, is listed in the NIPC database but no additional information is available. The street address given in the database also points to the cluster of CID Landfill properties.

The Illinois EPA maintains a listing of LUSTs, and The Illinois State Fire Marshall maintains a listing of registered USTs, as required by RCRA Subtitle I. Eight UST/LUST sites were found within the recommended search distance and are shown in Table G.7. NFR letters have been issued for all but one of the leaking tanks, indicating that cleanup has been completed. In 1997 a gasoline spill was reported a half mile south of the project site on property owned by the City of Calumet City. No information is available about this incident, either from the EDR database search or from the Illinois EPA LUST Incident Tracking (LIT) database. Impacts to the soil or groundwater resulting from this incident ought to be investigated further in the event that a project is pursued at this location. No documentation or other evidence suggests any problems with the two tanks at GSF Energy; however, they are located just 0.16 miles away from the proposed project site and hold a large quantity of a hazardous substance. At this time the proposed project footprint is unknown and may or may not be in close proximity to the tank, but as a precaution the tank should be identified on all design drawings going forward.

The FINDS database (Facility INDEX System) contains facility information and pointers to other sources that contain more detail. The EDR report includes the following FINDS databases in the report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (Statement Environmental Laws and Statutes), and PADS (PCB Activity Data System). Ten FINDS sites were reported within a half mile of the project site. Five of these sites came up in FINDS because they are listed under RCRA, three as handlers generating no waste and two others as SQGs. No violations were found for any RCRA sites in the FINDS database search results, so they are not of concern to the project. The other five sites appeared in the FINDS database because they are

enrolled in air emissions compliance programs. These sites are unlikely to affect a project at the proposed location.

### G.7.3.4 Water and Sediment Quality

Water quality in the Little Calumet River is impaired for two designated uses. Observed concentrations of mercury and PCBs impair use of the waterway for fish consumption, and concentrations of aldrin, dissolved oxygen, iron, total phosphorus, and silver impair use of the waterway for indigenous aquatic life. Available sediment data, described in Appendix B, indicates that RECs associated with sediment may be present at the project site as well.

Sediment data collected by MWRD in the Little Calumet and Calumet rivers, 2 miles to the east and west of the Calumet City project site, are shown in Table G.8. No screening criteria or remediation objectives for sediment have been published for sediment by either federal or state environmental protection agencies. Sediment quality is typically evaluated on a site-specific basis. However, for discussion purposes, the Maximum Allowable Concentrations of chemical constituents allowed in “Uncontaminated Soil” and CCDD in Illinois are provided in Table G.8 as a point of comparison. The Illinois TACO criteria are also provided. Illinois TACO criteria are land-based remediation objectives and are not valid for sediment. Sediment samples collected by MWRD in 2007 appear to exceed reference criteria for several parameters. Further sediment collection and analysis may be needed to determine potential impacts to the proposed GLMRIS project. Any sediment removed during construction would likely require off-site disposal.

### G.7.3.5 Site Summary

If a GLMRIS project is pursued at this location, the east side of the Bishop Ford expressway should be avoided. The CID Landfill site located immediately northeast of the proposed project location constitutes a recognized environmental condition. The Ashland Chemical site, located on the southeast side of the Bishop Ford, is a RCRA hazardous waste Transfer, Storage and Disposal Facility (TSDF) with ongoing corrective action liability and cleanup. Nearby, Cosden Oil and Chemical Company is listed as a fund-financed CERCLA site, though its status is undetermined. The CID Landfill, Ashland Chemical, and Cosden Oil & Chemical are high priorities for followup and further investigation, should a GLMRIS project be pursued at this location, to determine whether the sites could impact the project. Additional investigation is also needed at the following sites: the former solid waste disposal site at Calumet Inlet; the unresolved LUST owned by the City Calumet City; and the large UST filled with an unknown hazardous substance. Once the GLMRIS project locations are finalized, a site visit should be performed in accordance with ASTM E 1527-05 in order to visually observe the property and obtain information indicating the likelihood of recognized environmental conditions in connection with the property. Sediment collection and analysis is needed to characterize sediment quality at the site and determine the extent of any potential impacts to the proposed GLMRIS project.

**TABLE G.8 Sediment Data, Little Calumet River North (sampling dates: 7/27/07 and 7/30/07)**

		56 LCRN – Indiana Ave.		55 Calumet River – 130 <sup>th</sup> St.		Illinois CC DD	Illinois TACO
		Side	Center	Side	Center		
Sample	Units						
TSW %	%	41.5	42.0	68.5	56.3	--	--
VTSW%	%	6.2	6.1	1.6	4.2	--	--



TABLE G.8 (CONT.)

Sample	Units	56 LCRN – Indiana Ave.		55 Calumet River – 130 <sup>th</sup> St.		Illinois CC DD	Illinois TACO
		Side	Center	Side	Center		
NH <sub>3</sub> -N	mg/kg	52.7	52.2	4.4	21.5	--	--
TKN	mg/kg	1876	2026	333	891	--	--
NO <sub>2</sub> +NO <sub>3</sub>	mg/kg	7.9	10.2	2.2	5.5	--	--
Tot Phos	mg/kg	1722	1750	108	426	--	--
CN	mg/kg	0.441	0.616	0.149	0.546	--	--
Phenol	mg/kg	0.395	0.369	0.203	0.076	100	23,000
Ag	mg/kg	<0.2	<0.2	<0.2	<0.2	4.4	390
As	mg/kg	<5	<5	<5	<5	13	750
Cd	mg/kg	1.6	2.1	0.4	1.3	5.2	78
Cr	mg/kg	<b>42<sup>a</sup></b>	<b>52.3</b>	<b>12.8</b>	<b>39.9</b>	21	230
Cu	mg/kg	84	99	9	37	2,900	2,900
Fe	mg/kg	<b>24,522</b>	<b>27,990</b>	9,802	<b>28,442</b>	15,900	--
Hg	mg/kg	0.450	0.475	0.023	0.092	0.89	23
Mn	mg/kg	632	628	477	<b>835</b>	636	1,600
Ni	mg/kg	24	29	7	25	100	1,600
Pb	mg/kg	<b>334</b>	<b>107</b>	66	<b>113</b>	107	400
Zn	mg/kg	311	382	115	378	5,100	23,000
Chlorobenzene	mg/kg	--	ND <sup>a</sup>	ND	ND	1	1,600
Methylene chloride	mg/kg	--	ND	ND	ND	0.02	85
Toluene	mg/kg	--	ND	ND	ND	12	16,000
Acenaphthene	mg/kg	--	ND	ND	ND	570	4,700
Acenaphthylene	mg/kg	--	ND	ND	ND	--	--
Anthracene	mg/kg	--	ND	ND	ND	12,000	23,000
Benzo(a)anthracene	mg/kg	--	<b>0.813</b>	ND	<b>1.26</b>	1.1	0.90
Benzo(a)pyrene	mg/kg	--	<b>0.901</b>	ND	<b>1.38</b>	1.3	0.09
3,4-Benzofluoranthene	mg/kg	--	1.730	0.38	2.26	--	--
Benzo(ghi)perylene	mg/kg	--	0.565	ND	0.661	--	--
Benzo(k)fluoranthene	mg/kg	--	0.775	ND	0.773	9	9.00
Bis(2-ethylhexyl)phthalate	mg/kg	--	ND	ND	ND	46	46
Chrysene	mg/kg	--	1.34	ND	1.62	88	88
Dibenzo(a,h)anthracene	mg/kg	--	ND	ND	ND	0.2	0.09
1,4-Dichlorobenzene	mg/kg	--	ND	ND	ND	--	11,000
Di-n-butyl phthalate	mg/kg	--	ND	ND	ND	2,300	7,800
Fluoranthene	mg/kg	--	1.79	0.482	3.71	3,100	3,100
Fluorene	mg/kg	--	ND	ND	ND	560	3,100
Indeno(1,2,3-cd)pyrene	mg/kg	--	0.446	ND	0.677	0.9	0.90
Phenanthrene	mg/kg	--	0.949	ND	<b>3.50</b>	1.8	--
Pyrene	mg/kg	--	2.02	0.405	3.32	2,300	2,300
4,4'-DDT	mg/kg	--	ND	ND	ND	2.0	2.0
4,4'-DDE	mg/kg	--	ND	ND	ND	2.0	2.0
4,4'-DDD	mg/kg	--	ND	ND	ND	3.0	3.0
PCB-1242	mg/kg	--	ND	ND	<b>1.16</b>	1.0	1.0
PCB-1248	mg/kg	--	ND	ND	ND	(total)	(total)

<sup>a</sup> Concentrations exceeding reference criteria are shown in bold typeface. ND=Analyte not detected. Source: MWRD (2011).

## G.7.4 Project Location: Hammond (IN)

### G.7.4.1 Site Description

The Hammond project location is located on the Little Calumet River approximately 1000 feet west of the confluence with Hart Ditch, on the border between Munster and Hammond, Indiana. The project site is located near the Hart Ditch Control Structure, which was constructed in 2011 by the USACE as part of the Little Calumet River Flood Control and Recreation Project. The control structure, now owned by the Little Calumet River Basin Development Commission, functions to restrict flows in the Little Calumet River to the west of Hart Ditch. Hart Ditch is the primary source of floodwaters to this segment of the Little Calumet River. During storm events the Hart Ditch Control Structure retains the increased flows and stages within the setback levees to the east.

At the project location, the Little Calumet River has vegetated, earthen banks. There is a concrete-faced sheetpile floodwall at the top of the south bank. Beyond the floodwall is the Baring Avenue Pumping Station and a residential neighborhood. On the north bank, there is a bike path that follows the river alignment and a triangular detention basin that was constructed to attenuate stormwater flow for the Cabela's retail development to the north. Three GLMRIS project alternatives include a new physical barrier structure at Hammond: (4) Technology Alternative with a Buffer Zone; (5) Lakefront Hydrologic Separation; and (7) Mid-System Separation Cal-Sag Open Control Technologies with a Buffer Zone. Further evaluation will be required to determine the exact locations of GLMRIS project and mitigation features.



FIGURE G.8 Vicinity Map, Hammond

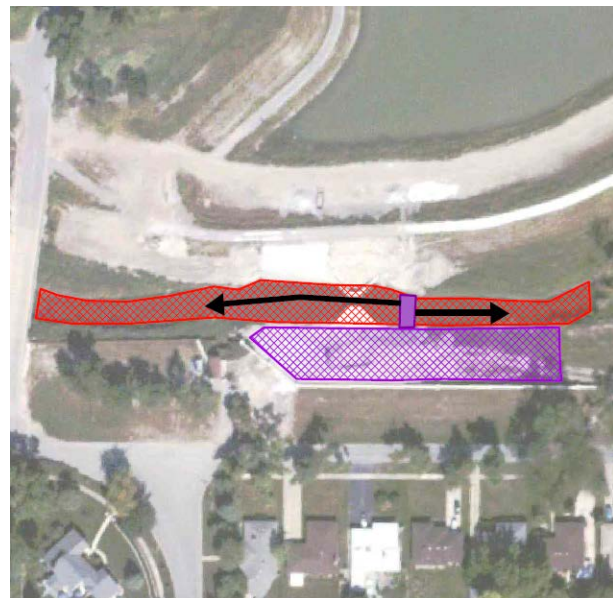


FIGURE G.9 Location Map, Hammond

### G.7.4.2 Historical Map and Aerial Photography Review

Historical aerial photographs, topographic maps, and Sanborn maps provide valuable information about the history of residential and commercial development at and near potential project sites. Changes in topography, vegetation, and land use over time may provide evidence of fill and dumping activities or potential recognized environmental conditions. Topographic maps from 1900 to 1998 and aerial photographs from 1952 and 2008 were reviewed. There is a 52-year gap between the available maps and

photos. Only river and railroads appear in the 1900 topographic map of this area. By 1952, residential communities had been built on either side of the Little Calumet River, Wicker Park had been established just east of Hart Ditch, and the Woodmar Country Club golf course was built just north of Hart Ditch. Many more residential streets were added to the area throughout the 1960s, 1970s, and 1980s, but there were no major changes at or adjacent to the project site until 2008. Between the 2005 and 2008 aerial photographs, the Cabela's retail development was constructed north of the project site, on top of the golf course. The triangle-shaped detention basin for the development is located just north of the proposed project site. No topographical changes suggestive of fill or dumping activities and no RECs are observed in the maps and photographs.

### **G.7.4.3 Database Search**

The database search, summarized below in Table G.9, returned no CERCLA or RCRA Corrective Action properties within the recommended search distance of the project site. Likewise, no State Hazardous Waste Sites (SHWS), SWF/LF sites, ERNS records or SRPs were found in the vicinity of the proposed project site. RCRA generators, Voluntary Remediation Program (VRP), State Cleanup Program (SCP) and LUST/UST sites were among the records found.

The VRP Project Site List provided by the IDEM lists all voluntary remediation projects for which IDEM and the applicant have signed a Voluntary Remediation Agreement (VRA) contract. There is one Voluntary Remediation site located within a half-mile of the proposed project site. The former Burger King #6185 restaurant, located at 7843 Indianapolis Boulevard in Hammond, Indiana, approximately 0.5 miles east-northeast of the project site, entered into the VRP in 2005. The site is a former Texaco gasoline station that closed in 1983, prior to tank closure regulation. When the gas station closed, the four USTs and surrounding contaminated soil were removed. Additional contaminated soil was removed in 1988 when the Burger King opened. When the Burger King closed in 2004, a Phase II Environmental Site Assessment was conducted and the soil and groundwater were found to be contaminated with petroleum containing benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tertiary butyl ether (MTBE). An additional 981 cubic yards of soils were excavated, and the property owner entered into an Environmental Restrictive Covenant with Lake County, Indiana, in 2009. Activity and Use Limitations (AULs) enforced by the county restrict the use of groundwater at the site and restrict the site from residential use. A Certificate of Completion was issued by IDEM on June 1, 2009, and a Covenant Not to Sue was issued by the Indiana governor on September 22, 2009. The site is now vacant.

On November 24, 2003, the IDEM filed an emergency response report due to spilled heating oil from a 1,000-gallon UST at the Woodmar Country Club, located just north of the proposed project site. Following the spill, the site was not enrolled in the LUST program, but rather treated as a petroleum facility. Eight to 10 cubic yards of soil were excavated and confirmatory soil samples were evaluated, but not to IDEM's satisfaction. An additional 22 cubic yards were excavated in February of 2005 based on IDEM's concerns. As of June 7, 2005, IDEM still refused to issue a NFA letter and recommended that additional investigation be conducted. On October 19, 2005, Enviro Solutions, Inc., informed IDEM that Cabela's had acquired the property and assumed liability for the cleanup. The letter also said that Cabela's intended to tear down all the structures onsite, facilitating remediation. No further documentation is readily available on the property. Additional investigation of this incident is recommended before any future action at this proposed project site, as this State Cleanup Site directly borders the proposed project site and its status may still be unresolved. The status of reported spills and LUSTs at K-mart Auto Center and Pilot Travel Centers are unknown and should also be investigated further if a GLMRIS project is pursued at this location.

**TABLE G.9 Database Search Results, Hammond**

<b>Database</b>	<b>Map ID</b>	<b>Site Name</b>	<b>Proximity to Site</b>	<b>Status</b>
RCRA-SQG, FINDS, MANIFEST	B9	Alverno Clinical Laboratories	0.6 mi ENE	Written informal RCRA violation resolved, 06/09/2010.
RCRA-CESQG, FINDS, MANIFEST	A5	Penske Auto Center	0.51 mi ENE	No RCRA violations found.
RCRA-CESQG, FINDS, MANIFEST	7	Emro Marketing 8304	0.6 mi East	No RCRA violations found.
<b><i>RCRA-NonGen, FINDS, MANIFEST, UST, SPILLS<sup>a</sup></i></b>	<b><i>A3</i></b>	<b><i>K-mart Auto Center</i></b>	<b><i>0.51 mi ENE</i></b>	<b><i>Heating oil spill 1/25/1999 with possible groundwater impacts. Cleanup status unknown. RCRA violation achieved compliance in 03/07/2003.</i></b>
RCRA-NonGen, MANIFEST	6	Clean Streams Inc.	0.59 mi SSW	No RCRA violations found.
<b><i>AUL, VRP</i></b>	<b><i>1</i></b>	<b><i>Burger King</i></b>	<b><i>0.49 mi ENE</i></b>	<b><i>Activity and Use Limitations (AULs) for groundwater and residential use.</i></b>
<b><i>SCP</i></b>	<b><i>2</i></b>	<b><i>Woodmar Country Club</i></b>	<b><i>0.51 mi North</i></b>	<b><i>2003 oil spill, status unknown.</i></b>
<b><i>LUST, UST, TIER 2</i></b>	<b><i>11</i></b>	<b><i>Pilot Travel Centers #031</i></b>	<b><i>0.66 mi East</i></b>	<b><i>Four LUSTs (2 active, 2 NFA/NFR). Six USTs currently in use.</i></b>

<sup>a</sup> Database search results requiring further investigation are shown in bold italic typeface.

#### **G.7.4.4 Water and Sediment Quality**

Water quality in the Grand Calumet River is impaired for two designated uses. Observed concentrations of mercury and PCBs impair use of the waterway for fish consumption. The following constituents impair the waterway for indigenous aquatic life: ammonia, aquatic algae, arsenic, barium, cadmium, total chromium, copper, DDT, dissolved oxygen, iron, lead, nickel, sedimentation/ siltation, silver, total phosphorus, and zinc. Available sediment data, described in Appendix B, indicates that RECs associated with sediment may be present at the project site as well.

Table G.10 shows sediment analysis data collected by Indiana STORET in the Grand Calumet River, 1 mile west of the Hammond project site. The Illinois TACO criteria are provided as a point of comparison. Note that Illinois TACO criteria and Indiana Risk Integrated System of Closure (RISC) criteria are land-based remediation objectives and neither applies to sediment. No screening criteria or remediation objectives for sediment have been published by federal or state agencies. Sediment quality is typically evaluated on a site-specific basis. While the Illinois TACO criteria are not applicable for sediment at this or any other location, for the purpose of discussion, some parameters exceed the TACO remediation objectives. Further sediment collection and analysis will be needed to determine potential impacts to the proposed GLMRIS project. Any sediment removed during construction would likely require off-site disposal.

**TABLE G.10 Sediment Data, Indiana STORET Station ID UMC030-0015**

Parameter	Units	6/23/1992	CCDD	TACO
Acenaphthene	mg/kg	ND	570	4,700
Acenaphthylene	mg/kg	ND	--	--
Anthracene	mg/kg	4.600	12,000	23,000
Arsenic	mg/kg	0.747	13	750
Benz[a]anthracene	mg/kg	<b>1.106<sup>a</sup></b>	1.1	0.90
Benzo[a]pyrene	mg/kg	0.002	1.3	0.09
Carbon, Total Organic (Toc)	mg/kg	0.459	--	--
Dibenzo[a,h]anthracene	mg/kg	<b>0.582</b>	0.2	0.09
Benzo[k]fluoranthene	mg/kg	1.082	9	9.00
Benzo(b)fluoranthene	mg/kg	0.210	1.5	0.9
Mercury	mg/kg	ND	0.89	23
Naphthalene	mg/kg	0.110	1.80	1,600
Ammonia as NH3	mg/kg	1.391	--	--
Benzo[ghi]perylene	mg/kg	2.386	--	--
Pyrene	mg/kg	1.993	2,300	2,300
Indeno[1,2,3-cd]pyrene	mg/kg	ND	0.9	0.90
Selenium	mg/kg	0.061	--	--
Solids, Total	mg/kg	ND	--	--
Fluorene	mg/kg	1.217	560	3,100
Phenanthrene	mg/kg	<b>2.680</b>	1.8	--
Fluoranthene	mg/kg	1.199	3,100	3,100
Chrysene	mg/kg	ND	88	88

<sup>a</sup> Concentrations exceeding reference criteria are shown in bold typeface.

#### G.7.4.5 Site Summary

This investigation was performed to determine whether the selected measures will have an impact on any REC occurrences that may exist in the surrounding areas, and whether RECs will have an impact on the implementation of the project. The former Burger King/gas station VRP site is not likely to impact the proposed project, since most of the source materials appear to have been removed from the site and the State of Indiana considers the requirements of the remediation program to be fulfilled. However, if a GLMRIS project is pursued at this location the site should be investigated further since there are lasting soil and groundwater impacts and use restrictions. The Woodmar Country Club State Cleanup Site is of potential concern to the project because the former country club site directly borders the proposed project location. It is possible that the environmental conditions were resolved during construction of the Cabela's retail development as suggested in the last available documentation of this cleanup project, but additional investigation and verification is needed. Furthermore, soil impacts resulting from LUSTs and spills at the K-mart Auto Center and Pilot Travel Centers should be investigated further to rule out any potential impacts to the proposed project. Once the GLMRIS project locations are finalized, a site visit should be performed in accordance with ASTM E 1527-05 in order to visually observe the property and obtain information indicating the likelihood of recognized environmental conditions in connection with the property. Further sediment collection and analysis is needed to characterize sediment quality at the site and determine the extent of any potential impacts to the proposed GLMRIS project.

## G.7.5 Project Location: Stickney (IL)

### G.7.5.1 Site Description

The Stickney project location is located in Berwyn, Illinois, on the Chicago Sanitary and Ship Canal (CSSC) just west of the Central Road bridge. The project site is located directly south of the MWRD's Stickney water reclamation plant, and just east of the plant's main outfall. The canal is 250 to 300 feet wide at this location. A haul road located on the north side of the canal provides access to the project site. Vegetation on the steep bank is well maintained. The real estate on the south bank is owned by the Illinois Department of Transportation. The site consists mostly of concrete in poor condition; the canal wall has failed and has partly collapsed into the water. Several railroads and the Interstate 55 Stevenson Expressway run parallel to the canal on its south bank. Three GLMRIS project alternatives include a new structure at Stickney: (3) Mid-System Control Technologies without a Buffer Zone; (6) Mid-System Hydrologic Separation; and (7) Mid-System Separation Cal-Sag Open Control Technologies with a Buffer Zone. Project features include a physical barrier, an electric barrier, a GLMRIS Lock, and an ANSTP. Further evaluation will be required to determine the exact locations of GLMRIS project and mitigation features.

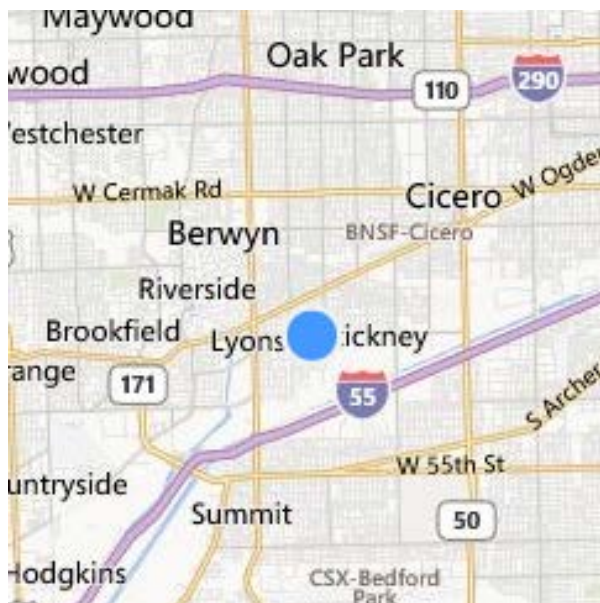


FIGURE G.10 Vicinity Map, Stickney

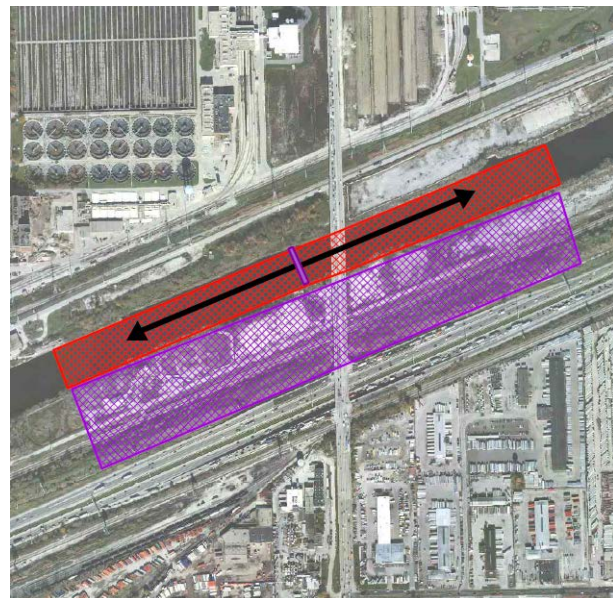


FIGURE G.11 Location Map, Stickney

### G.7.5.2 Historical Map and Aerial Photography Review

Historical aerial photographs, topographic maps, and Sanborn maps provide valuable information about the history of residential and commercial development at and near potential project sites. Changes in topography, vegetation, and land use over time may provide evidence of fill and dumping activities or potential recognized environmental conditions. Topographic maps from 1901 to 1997 and aerial photographs from 1951 to 2006 were reviewed. In 1901, two railroad lines ran parallel to the CSSC, but not much other development had yet taken place. The 1953 topographic map shows long, continuous berms that line run parallel to the canal on either side, and are likely to be dredging spoils from construction of the channel. The 1953 topographic map also shows aboveground tanks of some sort dotting the banks of the canal, and a clay pit located just upland of the project site to the north. In the 1963 topographic map it looks like the berms have been severed into separate distinct hills along the canal

edge. The 1963 topographic map also shows three structures adjacent to the project site on the south side of the canal, and that the Stevenson Expressway was under construction at that time. By 1972 the expressway and the Central Avenue bridge had been constructed by and a number of additional aboveground storage tanks had been constructed along the southern edge of the canal. The area has remained basically unchanged since that time.

### **G.7.5.3 Database Search**

The database search, summarized in Table G.11, located two CERCLIS-NFRAP sites within the recommended search distance. Koppers, Inc., and the Mobil Oil Corporation Cicero Lube Plant are also RCRA LQGs and Corrective Action sites, and are discussed in greater detail below. Thirteen UST/LUST sites were found within the recommended search distance. NFA letters have been issued for all but two of the tanks, indicating that the cleanup has been completed. Should a project be pursued at this location, impacts to the soil or groundwater resulting from the tanks owned by Churchill Truck Lines and Sweeney Oil Company ought to be investigated further.

#### **G.7.5.3.1 Koppers, Inc.**

The Koppers-Stickney Plant converts various crude tars into liquid pitch and other liquid products such as creosote, refined tars, chemical oils, and various grades of coal tar pitch. In 1920–1921, the Koppers, Inc., Stickney Plant was constructed by the American Tar Products Company on 36 acres in Stickney, Illinois. Koppers constructed a phthalic anhydride fixed bed reactor plant on the Stickney site in 1968. Koppers was listed as a Superfund site in 1979 and delisted in 1993. The site is now considered remediated under CERCLA but remains archived on the CERCLIS-NFRAP list.

On September 8, 1995, Koppers Inc., spilled approximately 17,000 gallons of coal tar into the Chicago Sanitary and Ship Canal. During the cleanup, 7.8 million pounds of coal tar and sediment were excavated from the channel and 83.5 million gallons of water were treated and discharged back into the CSSC. In 1998, the EPA assessed a fine of \$335,593 for violations of the CWA, CAA, and RCRA. Violations involved permit exceedances, discharging without a permit, and various other regulatory violations. Today the site is regulated under RCRA as a LQG and a TSDFs Potentially Subject to Corrective Action under Discretionary Authority.

#### **G.7.5.3.2 Mobil Oil Lube Plant**

The Mobil Oil Lube Plant site appeared in the EDR Manufactured Gas Plants database. Because no other information was found regarding any MGP history at the Mobil site, it is believed this listing may actually refer to the Peoples Gas Crawford Station Former MGP, located just east of the Mobil site. The Crawford site is under a cleanup agreement between Peoples Gas and the EPA (EPA 2013b). The site operated as a large coking and gas production plant between 1921 and 1965. Site investigations have shown volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), metals, and cyanide in groundwater and soil samples. Sediments contain high levels of PAHs, PCBs, oil and grease, and metals. Although this facility is located approximately 1 mile from the project site, it likely has impaired local sediments and possibly groundwater.

**TABLE G.11 Database Search Results, Stickney**

Database	Map ID	Site Name	Proximity to Site	Status
<i>CERC-NFRAP, CORRACTS, RCRA-LQG, SRP, LUST<sup>a</sup></i>	<i>H30-31, 34</i>	<i>Koppers, Inc.</i>	<i>0.78 mi NNE upstream on the CSSC</i>	<i>Enrolled SRP 2008, Active; Open dumping, water pollution violations 2008; Non-Petro Non-LUST Determination 11/22/1995; Unleaded Gas LUST.</i>
<i>CERC-NFRAP, CORRACTS, RCRA-LQG, MGP</i>	<i>K45-46</i>	<i>Mobil Oil Corporation Cicero Lube Plant</i>	<i>1.27 mi NE upstream on the CSSC</i>	<i>Multiple RCRA violations; MGP, see discussion below.</i>
LUST	E23-24	Chicago International Trucks/Navistar	0.31 mi South	Diesel, NFA 7/28/2009.
LUST	J40-41	Amoco Oil Co.	0.41 mi South	Other Petro, NFA 8/15/2001; Gasoline, Diesel, Reported 2001.
LUST	J43	Daubert Chemical Co.	0.41 mi South	Non-Petro; Non-LUST Determination 9/19/2005.
LUST	I36	Chicago Suburban Express	0.43 mi SE	Diesel, Other Petro, NFA 9/16/2008, 3/25/2009.
LUST	I37	JKC Trucking	0.45 mi SSE	Gasoline, Diesel, NFA 1/9/2007.
UST, LUST	A1-3	Chemical Petroleum Exchange, Inc.	0.48 mi NE	Facility now closed, USTs removed; Fuel Oil LUST NFA 1/8/2008.
LUST	F25	Leaseway Transportation	0.49 mi SE	Diesel, NFA 8/18/1992.
LUST	F26	Trust of John J. Soper	0.49 mi SE	Gasoline, Diesel, NFA 3/29/1994.
<b><i>LUST</i></b>	<b><i>F27</i></b>	<b><i>Churchill Truck Lines</i></b>	<b><i>0.49 mi SE</i></b>	<b><i>Diesel, Reported 1993, 1994.</i></b>
LUST, UST, RCRA-SQG, IL NIPC	A4, B5, D12-15, 21	MWRD (Vehicle Service, J&D Motor Freight, Second Chance Auto, Stickney Disposal Station)	0.57 mi NE	Other Petro LUST NFA 2/25/2009.
<b><i>LUST, EDR Auto Stations</i></b>	<b><i>B6-8, B11</i></b>	<b><i>Sweeney Oil Co.</i></b>	<b><i>0.57 mi NE</i></b>	<b><i>Bulk Plant now closed, USTs removed; Fuel Oil, Gasoline, Diesel LUSTs Reported 1999.</i></b>
LUST	G28-29	ABF Freight Systems, Carolina Freight Carriers Corp.	0.57 mi SE	Gasoline, Diesel, Other Petro, NFA 12/8/1997.
<b><i>RCRA-LQG, LUST, UST, SHWS, SRP</i></b>	<b><i>D17-20</i></b>	<b><i>Old World Industries DBA Olympic Oil</i></b>	<b><i>0.61 mi NE</i></b>	<b><i>Fuel Oil, Used Oil LUST Reported 1993.</i></b>

<sup>a</sup> Database search results requiring further investigation are shown in bold italic typeface.

#### G.7.5.4 Water and Sediment Quality

Water quality in the CSSC is impaired for two designated uses. Observed concentrations of mercury and PCBs impair use of the waterway for fish consumption, and ammonia, total phosphorus, and dissolved oxygen concentrations impair use of the waterway for indigenous aquatic life. Available sediment data, described in Appendix B, indicate that RECs associated with sediment may be present at the project site as well.

Table G.12 shows sediment analysis data collected by MWRD in the CSSC, 1 mile upstream and 2.5 miles downstream of the Stickney project location. No screening criteria or remediation objectives



**TABLE G.12 Sediment Data, Chicago Sanitary and Ship Canal (CSSC)**

Sample	Units	CSSC – Cicero Ave (Upstream)				CSSC – Harlem Ave (Downstream)				Illinois	Illinois
		10/31/2002		8/4/2006		10/31/2002		8/4/2006		TACO	CCDD
		Side	Center	Side	Center	Side	Center	Side	Center		
TSW %	%	78.42	54.39	55.5	47.1	75.83	69.52	65.2	53.9	--	--
VTSW%	%	6.55	13.72	7.3	11.7	3.91	5.52	5.2	9.5	--	--
NH <sub>3</sub> -N	mg/kg	39.39	13.18	76.1	64.7	5.74	15.29	52.2	92.1	--	--
TKN	mg/kg	590.16	2109.03	1203	1788	629.49	637.89	797	1438	--	--
NO <sub>2</sub> +NO <sub>3</sub>	mg/kg	ND	ND	0.10	0.06	ND	ND	<0.02	<0.02	--	--
Tot Phos	mg/kg	504.86	2595.33	1292	2047	686.64	675.01	803	1811	--	--
Phenol	mg/kg	0.007	0.013	0.483	0.545	0.004	0.007	3.968	0.477	23,000	100
CN	mg/kg	0.191	3.337	0.200	0.193	0.492	0.906	0.167	0.141	--	--
TOC	mg/kg	43,100	86,100	--	--	33,700	36,000	--	--	--	--
Ag	mg/kg	<0.01	<0.01	0.6	1.7	<0.01	<0.01	0.2	<0.2	390	4.4
As	mg/kg	<0.01	<0.01	<5	<5	<0.01	<0.01	<5	<5	750	13
Cd	mg/kg	2	<b>10<sup>a</sup></b>	<b>7.9</b>	<b>9.7</b>	2	<b>6</b>	<b>9.8</b>	<b>6.2</b>	78	5.2
Cr	mg/kg	<b>75</b>	<b>293</b>	<b>131</b>	<b>162</b>	<b>46</b>	<b>92</b>	<b>104</b>	<b>70</b>	230	21
Cu	mg/kg	100	399	189	190	54	123	125	223	2,900	2,900
Fe	mg/kg	<b>49,047</b>	<b>28,648</b>	<b>20,999</b>	<b>22,339</b>	<b>18,314</b>	<b>20,467</b>	<b>19,196</b>	<b>19,538</b>	--	15,900
Hg	mg/kg	0.27	0.75	0.876	<b>1.212</b>	0.14	0.39	<b>0.929</b>	0.749	23	0.89
Mn	mg/kg	354	408	310	286	301	261	220	218	1,600	636
Ni	mg/kg	55	88	56	80	77	99	83	71	1,600	100
Pb	mg/kg	<b>123</b>	<b>270</b>	<b>231</b>	<b>219</b>	49	<b>110</b>	<b>265</b>	<b>138</b>	400	107
Zn	mg/kg	215	926	513	566	254	440	510	530	23,000	5,100
PCB-1254	mg/kg	ND	<b>3.057</b>	<b>1.780</b>	<b>2.470</b>	<b>0.333</b>	<b>0.767</b>	<b>1.090</b>	<b>1.100</b>	1.0 (total)	1.0 (total)
PCB-1232	mg/kg	ND	ND	--	--	ND	ND	--	--		
PCB-1248	mg/kg	0.392	<b>7.945</b>	<b>4.140</b>	<b>7.730</b>	<b>0.864</b>	<b>1.756</b>	<b>3.390</b>	<b>3.110</b>		
PCB-1260	mg/kg	0.064	<b>2.720</b>	<b>0.915</b>	<b>1.040</b>	<b>0.127</b>	<b>0.354</b>	<b>0.287</b>	<b>0.312</b>		
PCB-1016	mg/kg	ND	ND	--	--	ND	ND	--	--		

<sup>a</sup> Concentrations exceeding reference criteria are shown in bold typeface. ND=Analyte not detected. Sources: MWRD (2006, 2008).

for sediment have been published by either federal or state environmental protection agencies. Sediment quality is typically evaluated on a site-specific basis. However for discussion purposes, the Maximum Allowable Concentrations of chemical constituents allowed in “Uncontaminated Soil” and CCDD in Illinois are provided in Table G.12 as a point of comparison. The Illinois TACO criteria are also provided. Illinois TACO criteria are land-based remediation objectives and are not valid for sediment. Sediment samples collected by MWRD in 2006 showed elevated metals, nutrients, and PCBs. In general, the material was cleaner at the downstream location than the upstream. Further sediment collection and analysis is needed to determine potential impacts to the proposed GLMRIS project.

### G.7.5.5 Site Summary

The database search returned many sites on the north side of the CSSC within half a mile of the project site. These sites included LUSTs, USTs, RCRA large, small, and conditionally exempt generators, CERC-NFRAP, CORRACTS, and historic auto stations (provided from a proprietary EDR database). Several sites along 41st Street were returned under the name MWRD, or were listed as owned by MWRD. It is assumed these sites are associated with the MWRD Stickney Water Reclamation Plant, and properties under other names were likely acquired by MWRD to build or expand the facility. Of these sites, most, but not all, LUSTs have received NFA letters; most, but not all, USTs have been removed.

Deep digging should be avoided during construction to prevent the risk of encountering potentially contaminated groundwater. A large number of LUSTs are located approximately half a mile south of the project site, along 47th Street or Central Avenue. Most, but not all, have received NFA letters. Further investigation is recommended to understand impacts to groundwater resulting from many LUSTs in the vicinity of the proposed project, particularly at the Churchill Truck Lines and Sweeney Oil Company properties where NFA letters have not been issued. Once the project locations are finalized, a site visit should be performed in accordance with ASTM E 1527-05 in order to visually observe the property and obtain information indicating the likelihood of recognized environmental conditions in connection with the property. Further sediment collection and analysis is needed to characterize sediment quality at the site and determine the extent of any potential impacts to the proposed GLMRIS project.

## G.7.6 Project Location: Alsip (IL)

### G.7.6.1 Site Description

The Alsip project location is located on the Calumet-Sag Channel in the city of Alsip, Illinois. This project location is just 150 feet west of South Pulaski Road and a quarter mile east of the Tri-State Tollway (Interstate 294). On either side of the Pulaski Bridge, discharge from the Natalie Creek cascades down the bridge abutment on the south side of the channel. On the north side of the channel, east of Pulaski Road, there are two gravity stormwater outfalls and a MWRD discharge from the Calumet Water Reclamation Plant. Two pipelines cross the river under the Pulaski bridge. Three GLMRIS project alternatives include a new structure at Alsip: (3) Mid-System Control Technologies without a Buffer Zone; (6) Mid-System Hydrologic Separation; and (8) Mid-System Separation CSSC Open Control Technologies with a Buffer Zone. Project features include a physical barrier, an electric barrier, a GLMRIS Lock, and an ANSTP. Further evaluation will be required to determine the exact locations of GLMRIS project and mitigation features.

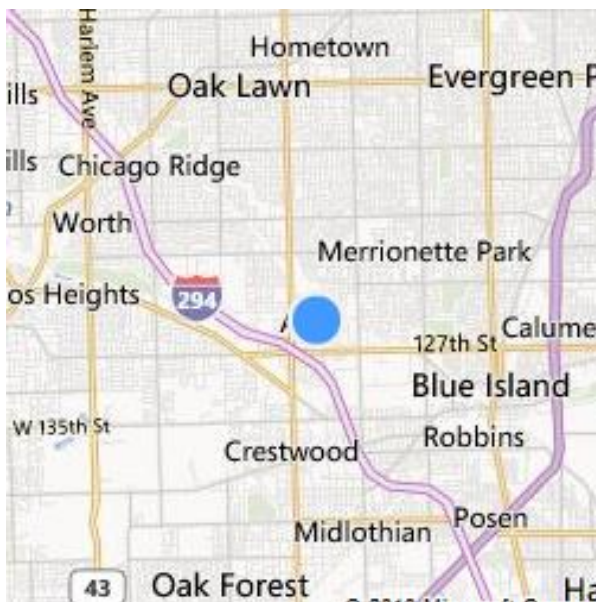


FIGURE G.12 Vicinity Map, Alsip



FIGURE G.13 Location Map, Alsip

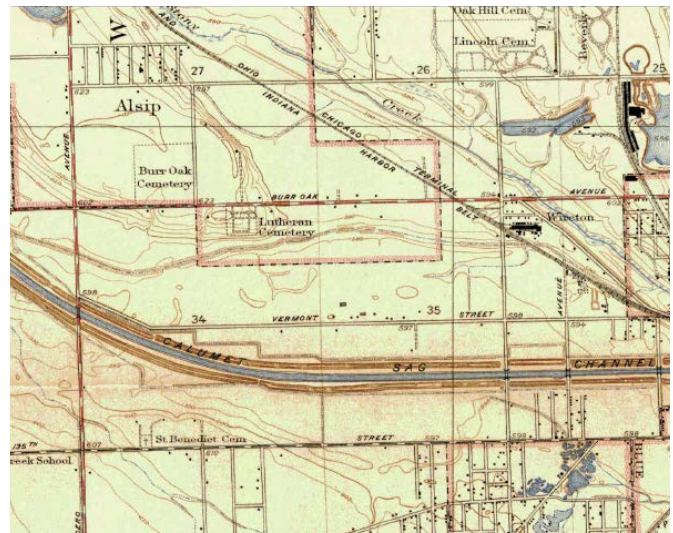
### G.7.6.2 Historical Map and Aerial Photography Review

Historical aerial photographs, topographic maps, and Sanborn maps provide valuable information about the history of residential and commercial development at and near potential project sites. Changes in topography, vegetation, and land use over time may provide evidence of fill and dumping activities or potential recognized environmental conditions. Topographic maps from 1901 to 1997 and aerial photographs from 1938 to 2007 were reviewed. The Calumet-Sag Channel is a manmade channel constructed between 1911 and 1922 to connect the CSSC with the Little Calumet River for navigation purposes. Figure G.14 and Figure G.15 show the project area before and after channel construction. As navigation channels were dug, the dredging spoils appear to have been piled along the banks of the dredged rivers (Kay et al. 1997).

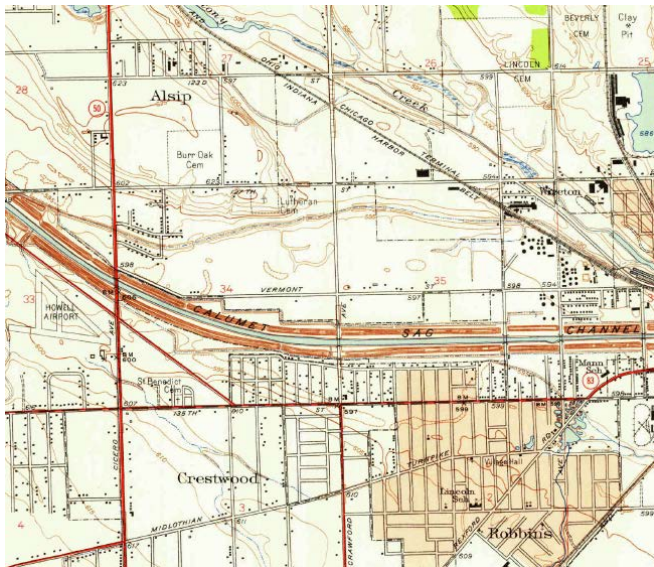
Topographic maps show that the project area remained undeveloped throughout the 1940s, with the exception of three cemeteries. The 1953 map shows a new airport and residential developments built south of the Cal-Sag Channel. Between 1953 and 1963, the Tri-State tollway (now Interstate 294) was built, the Cal-Sag Channel was widened west of Kedzie Avenue, and a 50-foot pile had been built along the channel's south bank. It would be reasonable to surmise that this pile consists of dredging spoil and/or construction debris; however, specific information about the contents of this pile is not readily available. Several sources have documented extensive fill deposition in the Calumet region during this time period, including steel-industry wastes, municipal solid wastes, dredging spoil, construction debris, ash and cinders, and natural material (Kay et al. 1997; Colten 1985). Should a GLMRIS project be recommended at or adjacent to this property, further investigation up to and including soil sampling is recommended.



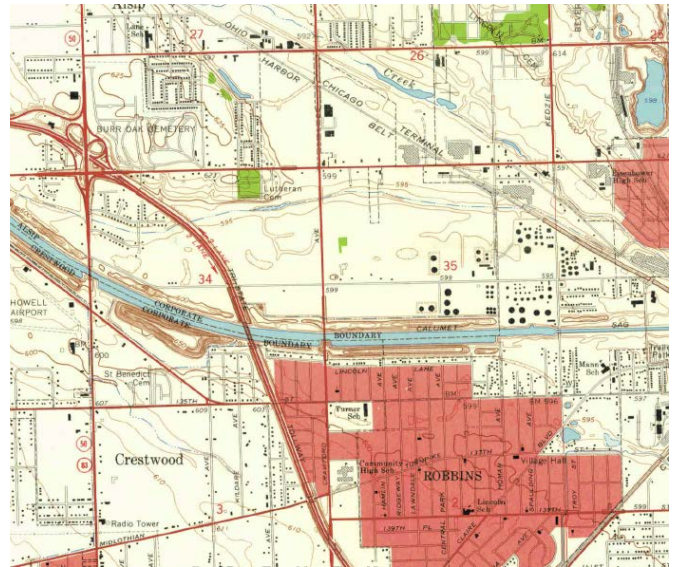
**FIGURE G.14** Alsip Site, 1901



**FIGURE G.15** Alsip Site, 1929



**FIGURE G.16 Alsip Site, 1953**



**FIGURE G.17 Alsip Site, 1963**

### G.7.6.3 Database Search

The database search produced one CERCLIS-listed property within the recommended search distance. Blue Island Phenol, also known as BTL Specialty Resins and JLM Chemicals, is an active CERCLA site located at 3350 West 131st Street, 0.81 miles east-northeast of the proposed project site. This facility consists of a Cumene Process, Phenol Process, and several chemical storage tanks. The facility was assessed in 1990, given a non-NPL status, and assigned a low priority for further assessment. The State of Illinois has primary responsibility for the site, but further detail about the nature of the contamination or remediation actions taken is not readily available. The facility is also regulated under RCRA as a LQG of hazardous waste. The compliance history shows violations at the facility for 12 of the last 12 quarters. An administrative order was issued in 2009, for the following reasons: “Offering hazardous waste for transport without a manifest on 141 occasions; failing to maintain containers storing hazardous waste in good condition; failing to maintain and operate its facility to minimize the possibility of release of hazardous waste or hazardous waste constituents to air, soil, or surface water; holding hazardous waste in open containers; and failing to properly mark containers holding hazardous waste.” The Complaint sought a civil penalty of \$1,086,900. Administrative orders have also been issued for violations of the CAA in 2010 and the CWA in 2013. These conditions constitute a recognized environmental condition (REC) as defined by ASTM E1527-05.

The database search located four RCRA corrective action sites within the recommended search distance, as summarized below in Table G.13. There are several other RCRA-regulated generators in the larger surrounding area, but none within the ASTM recommended search distance. Century Resources, Inc., formerly known as Advanced Environmental Technical Services and Torco Holdings, Inc., is a RCRA Subtitle C hazardous waste landfill. This facility is regulated under RCRA as a TSDF and a LQG. The site was listed as a Superfund site in 1989 but was deferred to the RCRA program in 1990. While it has been a corrective action site since 1993, current human exposures were only determined to be under control in 2009, and the migration of contaminated groundwater was determined to be under control in 2010. The facility has been out of compliance with RCRA for the last 12 out of 12 quarters. In 2010, the EPA filed a Combined Administrative Complaint and Consent Agreement and Final Order (CAFO) in resolution of alleged RCRA violations observed during a 2008 inspection. The violations included improper stacking of hazardous waste containers and failure to maintain proper RCRA documentation at

the facility. Depending on the future proposed project activities, this site should be re-evaluated for potential impacts to the project.

G&W Electric Specialty Co. manufactures specialty transformers and other electrical instruments and equipment. The facility is regulated as a SQG under RCRA and is a corrective action site. G&W Electric was assigned a low corrective action priority in 1998 and in 2010 a RFA determined that a Facility Investigation was not necessary.

Premcor Refining Group Inc. is a bulk petroleum storage and distribution terminal and is regulated under RCRA as a LQG and a corrective action site. The facility was assigned a low corrective action priority in 1992 and in 2010 a RFA determined that a Facility Investigation was not necessary. An EPA enforcement action in 1997 for generator recordkeeping and manifest violations resulted in a final monetary penalty of \$190,000.

Gilbert & Bennett Manufacturing Company, formerly known as Vision Properties Blue Island, is a metals manufacturer located just over a mile northeast of the proposed project site. The facility is regulated under RCRA as an active TSD and is a corrective action site. The facility was first assessed in 1986 and was assigned a high corrective action priority in 1991. A Facility Investigation work plan was approved in 1997. Human exposures were determined to be under control in 2003 and contaminated groundwater migration was determined to be under control in 2004. The facility has been in violation of RCRA for the last 12 out of 12 quarters and has been issued five violation notices/informal enforcement actions in the last 5 years. The EPA RCRA Info database indicates that an 800,000 gallon surface impoundment was closed with waste in place on site in 1987. The distance from the potential project area suggests that this site is unlikely to impact the project; however, the status of all of the RCRA sites should be re-evaluated during later project phases once additional design details are known.

The ERNS database lists information on reported releases of oil and hazardous substances. The database search yielded one ERNS report near the subject property. Wisconsin Tissue Mills, Inc., also known as Future Mark Paper, Madison Paper, Chicago Tissue, and Alsip Paper, is located at 13101 South Pulaski Street, 0.28 miles north-northeast of the proposed project site. The spill took place on May 20, 2010, but no information concerning the event is readily available. Future investigation is recommended for this site in the event a GLMRIS project is pursued at or near this location.

Eleven UST/LUST sites were found within the recommended search distance and are shown in Table G.13. NFA letters have been issued for all but one of the LUSTs, indicating that the cleanup has been completed. The Commonwealth Edison property requires further investigation should a GLMRIS project be pursued at this location.

The SRP database lists all voluntary remediation projects administered through the pre-notice site clean-up program (1989 to 1995) and the SRP (1996 to present). NFA letters have been issued for all but two of the sites, indicating that the cleanup has been completed. The Commonwealth Edison and Robbins Resource Recovery sites properties require further investigation should a GLMRIS project be pursued at this site.

**TABLE G.13 Database Search Results, Alsip**

Database	Map ID	Site Name	Proximity to Site	Status
<i>CERCLIS, RCRA-LQG, TRIS, FINDS, MANIFEST<sup>a</sup></i>	<i>Q129</i>	<i>Blue Island Phenol</i>	<i>0.81 mi ENE</i>	<i>Active CERCLA site, remediation status unknown. Persistent RCRA-LQG violations, civil penalties, CAA and CWA violations.</i>
<i>RCRA-TSDF, CERC-NFRAP, RCRA-LQG CORRACTS</i>	<i>G73</i>	<i>Century Resources, Inc.</i>	<i>0.41 mi NE</i>	<i>Corrective action cleanup implemented in 2009, but not yet complete. RCRA violations and formal enforcement actions.</i>
CORRACTS, RCRA-SQG, TRIS, MANIFEST	144	G&W Electric Specialty Co.	0.96 mi NE	Assigned a low corrective action priority in 1998. A Facility Assessment determined that a Facility Investigation was not necessary in 2010.
<i>CORRACTS, RCRA-SQG, MANIFEST</i>	<i>145</i>	<i>Premcor Refining Group, Inc.</i>	<i>1.05 mi ENE</i>	<i>Assigned a low corrective action priority in 1992. A Facility Assessment determined that a Facility Investigation was not necessary in 2010. Formal enforcement action with civil penalties in 1997.</i>
<i>RCRA-TSDF, CORRACTS, UST, FINDS, RAATS</i>	<i>146</i>	<i>Gilbert &amp; Bennett Manufacturing Company</i>	<i>1.09 mi NE</i>	<i>RCRA violations and informal enforcement actions.</i>
<i>ERNS</i>	<i>B11, D50</i>	<i>Wisconsin Tissue Mills, Inc.</i>	<i>0.23 mi N</i>	<i>5/20/2010 spill, status unknown.</i>
LUST, UST	A4	First Brands Corp.	0.16 mi NW	LUST NFA/NFR Letter: 01/22/2008. Kerosene, gasoline, diesel USTs all removed.
LUST, INST CONTROL, SRP, FINDS	E61	FSC Paper Company	0.34 mi N	2010 Diesel spill, NFA/NFR letter: 03/10/2011. 1994 Diesel spill, NFA/NFR letter: 04/13/1998. Groundwater use restriction. SRP NFR Letter: 05/19/2003.
LUST	F67	Vans, Inc.	0.38 mi NE	NFA/NFR letter: 08/19/1992.
LUST, TIER 2	I87	Arkema Emulsion System	0.55 mi N	NFA/NFR letter: 01/16/2008.
UST	B24	Chicago Tissue Company	0.23 mi N	Heating oil, gasoline, and diesel tanks all removed.
UST	49	Citgo	0.27 mi S	Not installed.
UST	E60	CJF2/MIRVAC Industrial Trust	0.34 mi N	Diesel, heating oil tanks exempt from registration.
UST	F68	Vans Floral Products	0.38 mi NE	Gasoline tank removed.
UST, ENG CONTROLS, INST CONTROL, SRP	59, 70	Van Leer Containers	0.38 mi NNW	Five tanks removed. Groundwater use restriction and engineered concrete barrier. NFR Letter: 10/17/2000.
<i>RCRA-NonGen, FINDS, LUST, SRP</i>	<i>J92</i>	<i>Commonwealth Edison</i>	<i>0.56 mi WSW</i>	<i>LUST status not reported.</i>
ENG CONTROLS, INST CONTROL, SRP	N106	American Licorice	0.67 mi NE	Groundwater use restriction and engineered concrete/asphalt barrier. NFR letter: 08/12/2009.
SRP, TIER 2	128	Daubert Cromwell Inc.	0.81 mi NNE	NFR Letter: 05/27/1999.

**TABLE G.13 (CONT.)**

<b>Database</b>	<b>Map ID</b>	<b>Site Name</b>	<b>Proximity to Site</b>	<b>Status</b>
SRP	R138	Robbins Resource Recovery	0.92 mi East	Not reported.
INST CONTROL, SRP	141	Accurate Manufacturing Company	0.94 mi N	Groundwater use restriction. NFR letter: 04/06/2011.

<sup>a</sup> Database search results requiring further investigation are shown in bold italic typeface.

#### **G.7.6.4 Water and Sediment Quality**

Water quality in the Calumet-Sag Channel is impaired for two designated uses. Observed concentrations of mercury and PCBs impair use of the waterway for fish consumption, and concentrations of dissolved oxygen, iron, total phosphorus, and total suspended solids impair use of the waterway for indigenous aquatic life. Available sediment data, described in Appendix B, indicates that RECs associated with sediment may be present at the project site as well.

Table G.14 shows sediment analysis data collected by MWRD in the Cal-Sag Channel, just west of the Alsip project site. No screening criteria or remediation objectives for sediment have been published by either federal or state environmental protection agencies. Sediment quality is typically evaluated on a site-specific basis. However, for discussion purposes, the Maximum Allowable Concentrations of chemical constituents allowed in “Uncontaminated Soil” and CCDD in Illinois are provided in Table G.14 as a point of comparison. The Illinois TACO criteria are also provided. Illinois TACO criteria are land-based remediation objectives and are not valid for sediment. Sediment samples collected by MWRD in 2006 appear to exceed reference criteria for several parameters. Further sediment collection and analysis may be needed to determine potential impacts to the proposed GLMRIS project. Any sediment removed during construction would likely require off-site disposal.

**TABLE G.14 Sediment Data, Cal-Sag Channel (sampling date: 7/31/03)**

Sample	Units	Cal-Sag – Cicero Ave.		Illinois	Illinois
		Side	Center	CCDD	TACO
TSW %	%	57.5	48.9	--	--
VTSW%	%	6.7	15.0	--	--
NH <sub>3</sub> -N	mg/kg	30.1	57.3	--	--
TKN	mg/kg	1599	2371	--	--
NO <sub>2</sub> +NO <sub>3</sub>	mg/kg	1.6	2.7	--	--
Tot Phos	mg/kg	5393	3760	--	--
CN	mg/kg	0.282	0.198	--	--
Phenol	mg/kg	2.168	1.627	100	23,000
Ag	mg/kg	1.79	1.07	4.4	390
As	mg/kg	<0.01	<0.01	13	750
Cd	mg/kg	3.97	2.03	5.2	78
Cr	mg/kg	76	54	21	230
Cu	mg/kg	79	71	2,900	2,900
Fe	mg/kg	31,211	23,923	15,900	--
Hg	mg/kg	0.33	0.21	0.89	23
Mn	mg/kg	529	474	636	1,600
Ni	mg/kg	28	23	100	1,600
Pb	mg/kg	278	184	107	400
Zn	mg/kg	1,322	628	5,100	23,000
Acenaphthene	mg/kg	ND	2.586	570	4,700
Anthracene	mg/kg	ND	1.97	12,000	23,000
Benzo(a)anthracene	mg/kg	<b>2.676</b>	<b>3.371</b>	1.1	0.90
Benzo(a)pyrene	mg/kg	<b>3.117</b>	ND	1.3	0.09
3,4-Benzofluoranthene	mg/kg	3.529	ND	--	--
Benzo(ghi)perylene	mg/kg	1.487	ND	--	--
Benzo(k)fluoranthene	mg/kg	3.398	ND	9	9.00
Bis(2)ethylhexyl)phthalate	mg/kg	38.962	<b>83.059</b>	46	46
Butylbenzyl phthalate	mg/kg	2.847	ND	930	16,000
Chrysene	mg/kg	3.722	4.944	88	88
Dibenzo(a,h)anthracene	mg/kg	ND	ND	0.2	0.09
Di-n-butyl phthalate	mg/kg	ND	ND	2,300	7,800
Di-n-octyl phthalate	mg/kg	ND	ND	1,600	1,600
Fluoranthene	mg/kg	5.925	7.144	3,100	3,100
Fluorene	mg/kg	ND	ND	560	3,100
Indeno(1,2,3-cd)pyrene	mg/kg	<b>1.504</b>	ND	0.9	0.90
Naphthalene	mg/kg	ND	ND	1.8	1,600
Phenanthrene	mg/kg	2.684	10.655	--	--
Pyrene	mg/kg	5.565	8.472	2,300	2,300
Aldrin	mg/kg	ND	<b>0.318</b>	0.94	0.04
4,4'-DDT	mg/kg	0.025	ND	2.0	2.0
4,4'-DDE	mg/kg	0.027	0.131	2.0	2.0
4,4'-DDD	mg/kg	0.031	0.059	3.0	3.0
Dieldrin	mg/kg	0.012	ND	0.603	0.04
Endosulfan sulfate	mg/kg	ND	ND	18	470
PCB-1254	mg/kg	<b>0.676</b>	<b>3.791</b>	1.0 (total)	1.0 (total)
PCB-1232	mg/kg	ND	ND		
PCB-1248	mg/kg	ND	<b>3.748</b>		
PCB-1260	mg/kg	<b>0.237</b>	<b>1.162</b>		
PCB-1016	mg/kg	<b>0.557</b>	<b>2.718</b>		

ND=Analyte not detected. Source: MWRD (2008a).



### **G.7.6.5 Site Summary**

The database search located one active CERCLA site and four RCRA corrective action sites within 1 mile of the proposed project site. G&W Electric and Gilbert & Bennett manufacturing are sufficiently far from the proposed GLMRIS project features to reduce the concern associated with the environmental conditions at these sites. In the event a GLMRIS project is pursued at or near the Alsip, Illinois, location, the RCRA Corrective Action sites at Blue Island Phenol, Century Resources, Inc., and Premcor Refining ought to be examined further to determine any potential impacts to the GLMRIS project footprint or associated staging locations. Past spills at Wisconsin Tissue Mills, Inc., and the Commonwealth Edison sites should also be investigated further to determine potential impacts to groundwater and soil at the project site. Additional information about the status of the Site Remediation Project at Commonwealth Edison site should also be sought, because it is very close to some of the proposed GLMRIS project features. Once the project locations are finalized, a site visit should be performed in accordance with ASTM E 1527-05 in order to visually observe the property and obtain information indicating the likelihood of recognized environmental conditions in connection with the property. Further sediment collection and analysis is needed to characterize sediment quality at the site and determine the extent of any potential impacts to the proposed GLMRIS project.

### **G.7.7 Project Location: T.J. O'Brien (IL)**

#### **G.7.7.1 Site Description**

The T.J. O'Brien Lock and Dam is located on the Calumet River about half a mile upstream of the confluence with the Grand Calumet River. Built in 1960, the O'Brien Lock and Dam controls flow between the CAWS and Lake Michigan. Like the CRCW and Wilmette Pumping Stations, the O'Brien Lock and Dam serves as a controlling point to maintain desired water levels in the CAWS, facilitate navigation, and prevent flooding. The lock is 110 feet wide and 1,000 feet long with a normal lift of 2.0 feet. Flow regulation from Lake Michigan to the Calumet River is accomplished with four submerged sluice gates, each 10 feet square. Two GLMRIS project alternatives include a structure at this location: (4) Technology Alternative with a Buffer Zone and (7) Mid-System Separation Cal-Sag Open Control Technologies with a Buffer Zone. Project features include physical barrier; ANSTP; GLMRIS Lock; electric barrier; and screened sluice gates. Further evaluation will be required to determine the exact locations of GLMRIS project and mitigation features.

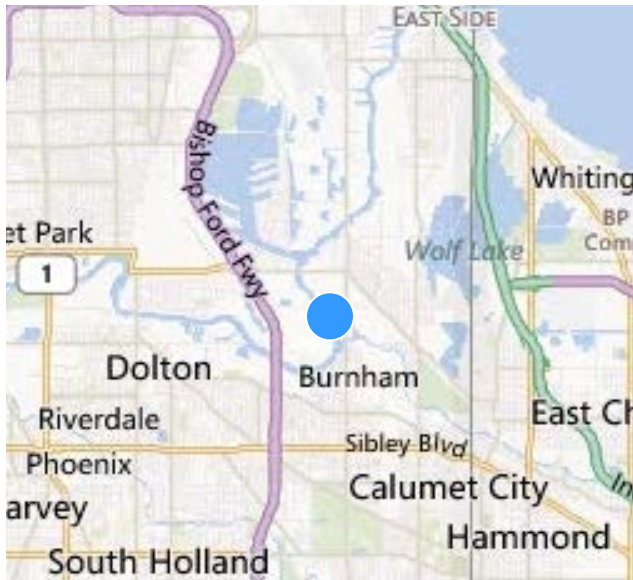


FIGURE G.18 Vicinity Map, T.J. O'Brien

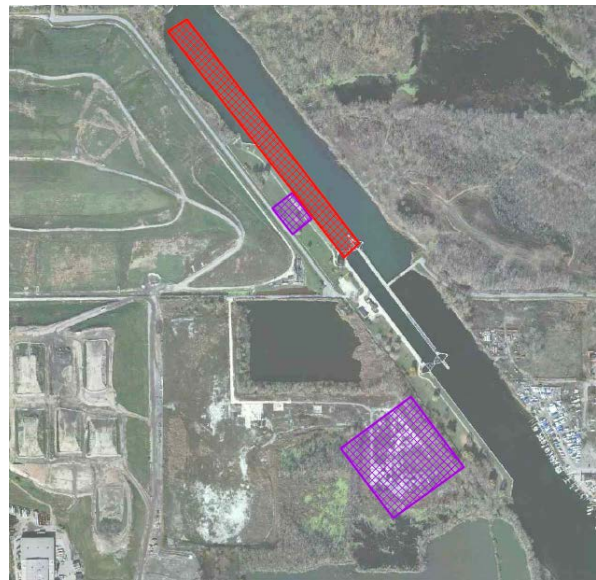
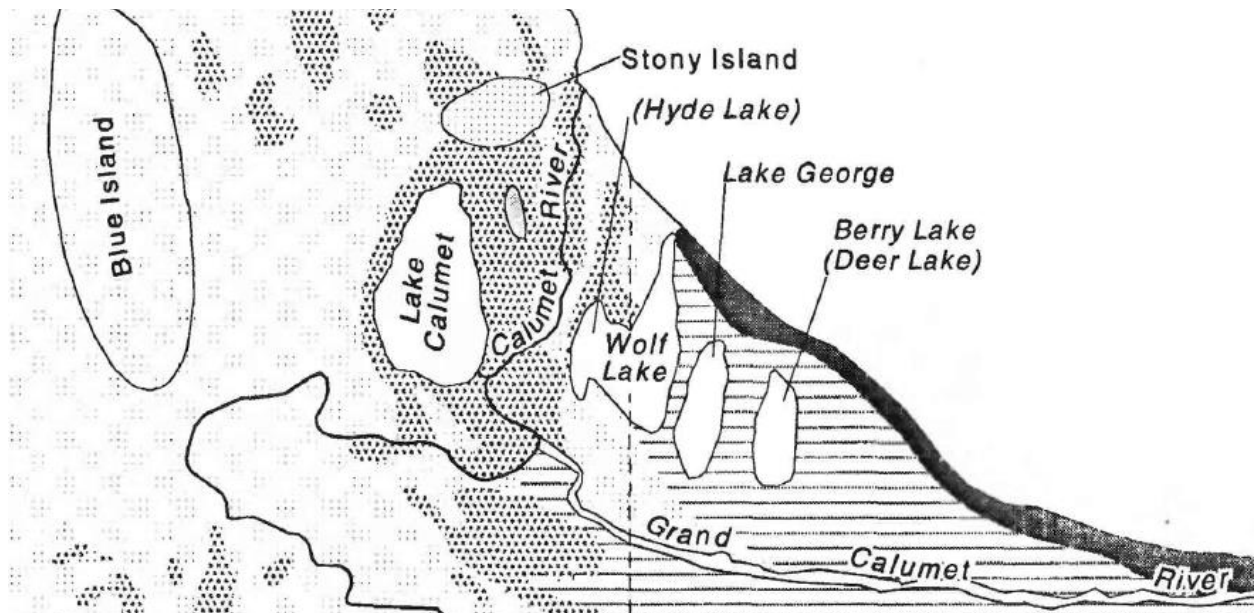


FIGURE G.19 Location Map, T.J. O'Brien

### G.7.7.2 Historical Map and Aerial Photography Review

Historical topographic maps and aerial photographs were obtained from the University of Illinois and the Illinois Natural Resources Geospatial Data Clearinghouse and reviewed. The Calumet region has a generally flat land surface that was originally covered by shallow rivers, lakes, and wetlands. The industrialization and urbanization of the region destroyed many of the natural dunes, lakes, and marshes in order to accommodate industrial and residential expansion. A variety of materials, including natural materials, industrial wastes, construction debris, ash and cinder, and municipal solid waste, were used as fill to elevate the land surface above the level of the lakes and marshes, in a process that was essentially unregulated and undocumented (Kay et al. 1997). This unregulated infilling operation is a cause for some environmental concern for all land-disturbing activity, because it has resulted in high concentrations of several chemical constituents in the soil and groundwater throughout the region.

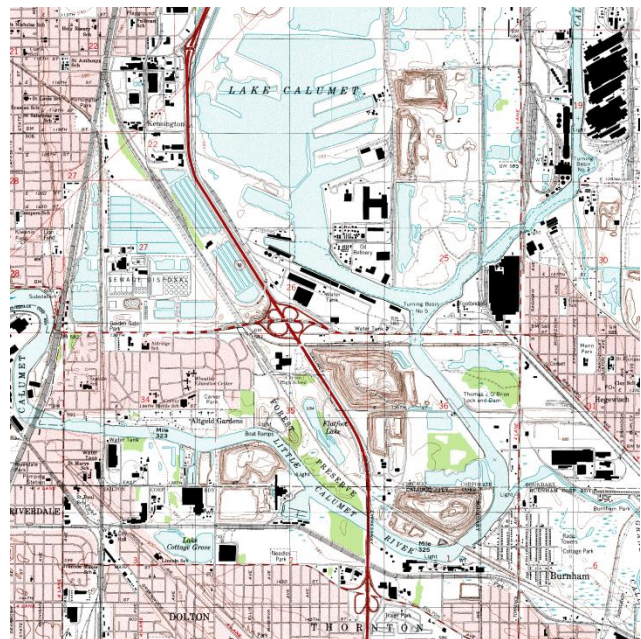
Figures G.20, G.21, and G.22 illustrate how the rivers have been straightened and deepened to improve navigability and how the shoreline of Lake Calumet has been substantially modified to facilitate industrial development and waste disposal. Figure G.22 also shows several dramatic changes in elevation, primarily due to the development of landfills throughout the area surrounding the O'Brien Lock and Dam. A number of smaller surface impoundments have also become part of the landscape, both to the immediate east and west of the project area.



**FIGURE G.20 Calumet Region, pre-1840**



**FIGURE G.21 T.J. O'Brien Site, 1901**



**FIGURE G.22 T.J. O'Brien Site, 1991**

### G.7.7.3 Database Search

The database search conducted for the T.J. O'Brien project location (Table G.15) was conducted by Environmental Data Resources, Inc. (EDR), in 2010 in connection with an earlier USACE project. The database search identified two CERCLIS-listed properties within the recommended search distance. U.S. Drum is an active CERCLA site located just one quarter mile east of the project location. The property is not listed on the National Priorities List (NPL), but after a 1995 site inspection, U.S. Drum was assigned a "higher priority for further assessment." No additional assessment appears to have been conducted since then. The reported status of the case is "Expanded Site Investigation (ESI) Start Needed." Should a

GLMRIS project go forward at the O'Brien Lock and Dam, the U.S. Drum property warrants further investigation given its unresolved CERCLA status. The other CERCLIS listed property is the Calumet Harbor Industrial Complex, which was archived in 1991. This site was never determined to be a high priority, and based on a 1989 site assessment, no further remediation is planned at this site. While no remedial action is planned, this site ought to be investigated further if this location is chosen for a GLMRIS project.

The database search results returned two landfill sites owned by Waste Management between 0.25 and 0.5 miles of the project site. CID Transfer Station and CID Recycling & Disposal Facility are also in close proximity to the Calumet City project site and are described in detail above. Hazardous substances and petroleum products are present at the CID facilities; this indicates a REC as defined by ASTM E1527-05. Corrective action for RCRA violations has been ongoing at the CID Recycling and Disposal Facility since 1987. Stabilization was completed in 1997 and it was verified that current human exposures were under control. In 2001 it was verified that migration of contaminated groundwater was under control.

The database search also indicated that LUSTs are present at two nearby properties, Nu-Car Carriers, Inc., and Steel Supply of U.S. Three incidents have been reported for Nu-Car Carriers, Inc., but no closure status is reported. Similarly, no closure status is reported for the LUSTs identified at the Steel Supply of U.S. site in 1989. Therefore these properties warrant further investigation given their unresolved statuses. There are two active underground storage tanks at the T.J. O'Brien Lock and Dam. Future design work should identify these tanks on drawings to insure they are not disturbed or damaged during construction.

Last, there is one SRP property located 0.35 miles east of the project site. The Chicago Enterprise center was enrolled in Illinois's SRP in 1996 by its consultant, Carlson Environmental, Inc. This property was issued a NFR letter on May 26, 2010, and therefore is not likely to be of concern to a potential GLMRIS project.

**TABLE G.15 Database Search Results, T.J. O'Brien Site**

Database	Map ID	Site Name	Proximity to Site	Status
<i>CERCLIS, FINDS<sup>a</sup></i>	2	<i>U.S. Drum</i>	<i>0.27 mi East</i>	<i>Not on the NPL. Assigned a "high priority for further assessment" in 1995. Expanded Site Investigation (ESI) start needed.</i>
<i>CERC-NFRAP</i>	7	<i>Calumet Harbor Industrial Complex</i>	<i>0.38 mi ENE</i>	<i>Site archived in 1991.</i>
CORRACTS	9	CID Recycling and Disposal Facility	0.74 mi SW	Landfill closed with waste in place. Active and closed surface impoundments, tank storage.
<i>SWF/LF</i>	8	<i>CID Transfer Station</i>	<i>0.49 mi WSW</i>	<i>Active.</i>
<i>LUST, NPDES</i>	6	<i>Nu-Car Carriers Inc.</i>	<i>0.351 mi ENE</i>	<i>Diesel, three incidents.</i>
<i>LUST</i>	<i>A4</i>	<i>Steel Supply of U.S. Metal Source</i>	<i>0.336 mi East</i>	<i>Status not reported.</i>
UST	1	T.J. O'Brien Lock & Dam	0.12 mi NNW	Three tanks removed; two in use (gasoline and diesel).
SRP	A5	Chicago Enterprise Center	0.34 mi East	NFR Letter: 5/26/2010. Groundwater use restriction and asphalt/clean soil barrier.

<sup>a</sup> Database search results requiring further investigation are shown in bold italic typeface.

#### **G.7.7.4 Water and Sediment Quality**

Water quality in the Calumet River is impaired for three designated uses. Observed concentrations of mercury and PCBs impair use of the waterway for fish consumption; concentrations of total phosphorus, pH and silver impair use of the waterway for aquatic life; and fecal coliform concentrations impair use of the waterway for primary contact recreation. Available sediment data, described in Appendix B, indicates that RECs associated with sediment may be present at the project site as well.

Table G.16 shows sediment analysis data collected by MWRD in the Calumet River, just north of the T.J. O'Brien project site. No screening criteria or remediation objectives for sediment have been published for by either federal or state environmental protection agencies. Sediment quality is typically evaluated on a site-specific basis. However, for discussion purposes, the Maximum Allowable Concentrations of chemical constituents allowed in "Uncontaminated Soil" and CCDD in Illinois are provided in Table G.16 as a point of comparison. The Illinois TACO criteria are also provided. Illinois TACO criteria are land-based remediation objectives and are not valid for sediment. Sediment samples collected by MWRD in 2007 appear to exceed reference criteria for several parameters. Further sediment collection and analysis may be needed to determine potential impacts to the proposed GLMRIS project. Any sediment removed during construction would likely require off-site disposal.

**TABLE G-16 Sediment Data, Calumet River (sampling date: 7/27/07)**

Sample		Calumet River – 130 <sup>th</sup> St.		Illinois	Illinois
		Side	Center	CCDD	TACO
TSW %	%	68.5	56.3	--	--
VTSW%	%	1.6	4.2	--	--
NH <sub>3</sub> -N	mg/kg	4.4	21.5	--	--
TKN	mg/kg	333	891	--	--
NO <sub>2</sub> +NO <sub>3</sub>	mg/kg	2.2	5.5	--	--
Tot Phos	mg/kg	108	426	--	--
CN	mg/kg	0.149	0.546	--	--
Phenol	mg/kg	0.203	0.076	100	23,000
Ag	mg/kg	<0.2	<0.2	4.4	390
As	mg/kg	<5	<5	13	750
Cd	mg/kg	0.4	1.3	5.2	78
Cr	mg/kg	12.8	39.9	21	230
Cu	mg/kg	9	37	2,900	2,900
Fe	mg/kg	9,802	<b>28,442</b>	15,900	--
Hg	mg/kg	0.023	0.092	0.89	23
Mn	mg/kg	477	<b>835</b>	636	1,600
Ni	mg/kg	7	25	100	1,600
Pb	mg/kg	66	<b>113</b>	107	400
Zn	mg/kg	115	378	5,100	23,000
Chlorobenzene	mg/kg	ND	ND	1	1,600
Methylene chloride	mg/kg	ND	ND	0.02	85
Toluene	mg/kg	ND	ND	12	16,000
Acenaphthene	mg/kg	ND	ND	570	4,700
Acenaphthylene	mg/kg	ND	ND	--	--
Anthracene	mg/kg	ND	ND	12,000	23,000
Benzo(a)anthracene	mg/kg	ND	<b>1.26</b>	1.1	0.90
Benzo(a)pyrene	mg/kg	ND	<b>1.38</b>	1.3	0.09
3,4-Benzofluoranthene	mg/kg	0.38	2.26	--	--
Benzo(ghi)perylene	mg/kg	ND	0.661	--	--
Benzo(k)fluoranthene	mg/kg	ND	0.773	9	9.00
Bis(2-ethylhexyl)phthalate	mg/kg	ND	ND	46	46
Chrysene	mg/kg	ND	1.62	88	88
Dibenzo(a,h)anthracene	mg/kg	ND	ND	0.2	0.09
1,4-Dichlorobenzene	mg/kg	ND	ND		11,000
Di-n-butyl phthalate	mg/kg	ND	ND	2,300	7,800
Fluoranthene	mg/kg	0.482	3.71	3,100	3,100
Fluorene	mg/kg	ND	ND	560	3,100
Indeno(1,2,3-cd)pyrene	mg/kg	ND	0.677	0.9	0.90
Phenanthrene	mg/kg	ND	<b>3.50</b>	1.8	--
Pyrene	mg/kg	0.405	3.32	2,300	2,300
4,4'-DDT	mg/kg	ND	ND	2.0	2.0
4,4'-DDE	mg/kg	ND	ND	2.0	2.0
4,4'-DDD	mg/kg	ND	ND	3.0	3.0
PCB-1242	mg/kg	ND	<b>1.16</b>	1.0 (total)	1.0 (total)
PCB-1248	mg/kg	ND	ND		

Source: MWRD (2011).

#### **G.7.7.5 Site Summary**

Several properties ought to be investigated further if a GLMRIS project is selected at this location. U.S. Drum, located approximately 0.25 miles east of the project location has an apparently unresolved CERCLA liability. The nearby CID Recycling and Disposal Facility and other nearby related properties also constitute a recognized environmental condition. While human exposures and groundwater migration are documented to be under control, corrective action is still underway at the site and careful consideration must be expended in order to avoid interaction with any associated environmental contamination. Two LUSTs are identified near the project location and should be investigated further to determine their status and impact to the soil and groundwater at the GLMRIS project site. Once the project locations are finalized, a site visit should be performed in accordance with ASTM E 1527-05 in order to visually observe the property and obtain information indicating the likelihood of recognized environmental conditions in connection with the property. Further sediment collection and analysis is needed to characterize sediment quality at the site and determine the extent of any potential impacts to the proposed GLMRIS project.

## G.7.8 Project Location: Brandon Road (IL)

### G.7.8.1 Site Description

The Brandon Road Lock and Dam is located in Grafton, Illinois, 27 miles southwest of Chicago. The structure contains one lock chamber and a dam. The lock is 600 feet long and 110 feet wide, with a nominal lift of 34 feet. The dam is 2,391 feet long and contains eight operational headgates and 21 tainter gates. The lock opened in 1933 as part of a 9-foot-deep Channel Navigation project that extended down the Upper Mississippi River from Minneapolis–St. Paul to its confluence with the Ohio River and up the Illinois Waterway to the Thomas J. O'Brien Lock in Chicago. Three GLMRIS project alternatives include a structure at this location: (4) Technology Alternative with a Buffer Zone; (7) Mid-System Separation Cal-Sag Open Control Technologies with a Buffer Zone; and (8) Mid-System Separation CSSC Open Control Technologies with a Buffer Zone. Project features include: ANSTP; GLMRIS Lock; and an electric barrier within a 2300-foot approach channel. Further evaluation will be required to determine the exact locations of GLMRIS project and mitigation features.



FIGURE G.23 Vicinity Map, Brandon Road

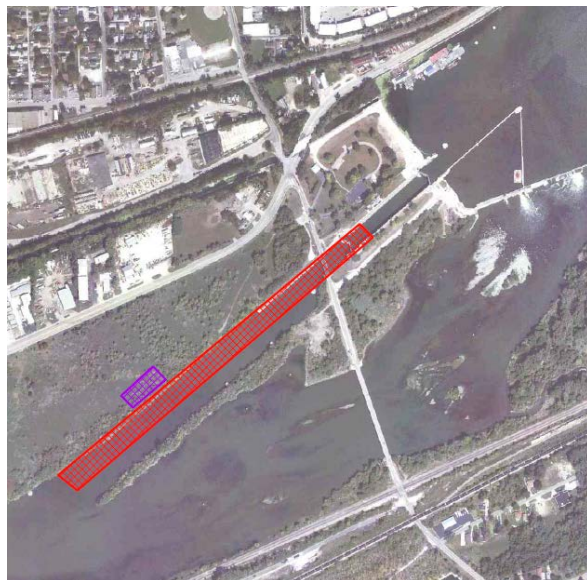


FIGURE G.24 Location Map, Brandon Road

### G.7.8.2 Historical Map and Aerial Photography Review

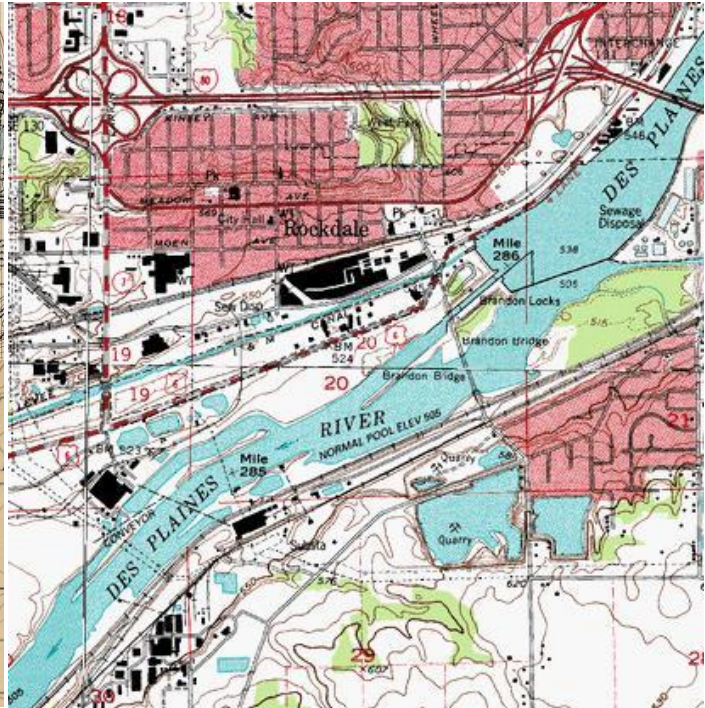
Historical aerial photographs, topographic maps, and Sanborn maps provide valuable information about the history of residential and commercial development at and near potential project sites. Changes in topography, vegetation, and land use over time may provide evidence of fill and dumping activities or potential recognized environmental conditions. Historical topographic maps and aerial photographs were obtained from the University of Illinois and the Illinois Natural Resources Geospatial Data Clearinghouse and reviewed. The natural geography of the area around the Brandon Lock has been altered substantially.

The Joliet Generating Station, now owned by Midwest Generation, predates the lock and dam. Unit 6 was built on the south side of the river in 1917. The lock was constructed just upstream from Joliet Generating station from 1927 to 1933; the dam and ice protection wall were completed a year earlier. The permanent control station was completed in 1935. The current units began operations on the north side of the river between 1959 and 1963.





**FIGURE G.25 1890 Topographic Map, Brandon Road**



**FIGURE G.26 1998 Topographic Map, Brandon Road**

### G.7.8.3 Database Search

The database search conducted for the Brandon Road project location (Table G.17) was conducted by EDR in 2010 in connection with an earlier USACE project. Three CERCLIS sites were identified within 1 mile of the barrier site: Carlstrom Landfill; C&S Chemicals; and Purex Corp Turco Products. The Carlstrom Landfill site is located approximately 1 mile northeast of the proposed GLMRIS project location. It was entered in CERCLIS in 1979, and was recommended for HRS (Hazard Ranking System) scoring in 2004. Detailed information on the status of the site was not available, but the site appears unlikely to pose a concern to the barrier project, due to its distance from the site. The C&S Chemicals, Inc., site was identified about 1 mile east of the lock and dam. This site was entered in CERCLIS in 1980, reassessed in 2001, and given low priority for further assessment.

Four landfill sites were identified in proximity to the GLMRIS project site using the Illinois EPA's Solid Waste Landfills Subject to State Surcharge list. M&W Landfill #3 and Persico Landfill are located a half mile north of the Des Plaines River, just north of the railroad tracks, and both are now closed. Foschi Brothers, Inc., is also closed and is located a half mile northwest of the lock and dam. In 1988 the Northeast Illinois Planning Commission printed a Statewide Inventory of Land-Based Disposal Sites that listed the USACE at the Brandon Road Lock and Dam facility. No additional information is available about the disposal sites.

Three LUST sites were identified within the recommended search distance. The Gary Richter and G&M Auto Service sites have been issued NFR letters. The third site, Meade Electric Company, Inc., is a gasoline LUST located approximately half a mile north of the project location. It was discovered in 1997, and is currently listed as high priority for cleanup. A corrective action plan for cleanup has been recently submitted to the Illinois EPA, but has not yet been approved. No further information was available regarding the extent of contamination caused by this LUST. It cannot be ruled out that products

**TABLE G.17 Database Search Results, Brandon Road Lock**

Database	Map ID	Site Name	Proximity to Site	Status
<i>CERCLIS-NFRAP, RCRA-NonGen<sup>a</sup></i>	<i>B7</i>	<i>Purex Corp. Turco Products</i>	<i>0.46 mi NNE</i>	<i>Site archived 08/26/1993.</i>
<i>SWF/LF</i>	<i>B8</i>	<i>M&amp;W Landfill #3</i>	<i>0.46 mi NNE</i>	<i>Closed final cover. Permitted.</i>
<i>SWF/LF</i>	<i>B9</i>	<i>Persico Landfill</i>	<i>0.46 mi NNE</i>	<i>Closed final cover. Unpermitted Unauthorized.</i>
<i>SWF/LF</i>	<i>12</i>	<i>Foschi Brothers, Inc.</i>	<i>0.5 mi WNW</i>	<i>Closed final cover. Unpermitted Unauthorized.</i>
IL NIPC	11	US Army Corps of Engineers	0.47 mi NE	Seven diesel and other fuel tanks, all removed.
LUST	A1	Richter, Gary	0.15 mi NW	NFA/NFR letter: 7/27/1999
LUST	10	G&M Auto Service	0.47 mi NNW	NFA/NFR letter: 4/15/2008
<i>LUST</i>		<i>Meade Electric Company, Inc.</i>	<i>0.5 mi North</i>	<i>Gasoline LUST identified as a high priority for cleanup. Status unknown.</i>
UST	A2	Amoco Chemical Corp	0.15 mi NW	Three fuel tanks, all removed.

<sup>a</sup> Database search results requiring further investigation are shown in bold italic typeface.

leaked from this LUST may be present on the project site. The USTs listed for the adjacent Amoco Chemical Corp site have all been removed. No Voluntary Remediation or FUDS sites were identified within a mile of the site.

#### **G.7.8.4 Water and Sediment Quality**

Water quality in the Lower Des Plaines River is impaired for two designated uses. Observed concentrations of mercury and PCBs impair use of the waterway for fish consumption, and concentrations of total phosphorus, pH, aldrin, arsenic, chloride, dissolved oxygen, and methoxychlor impair use of the waterway for aquatic life. Available sediment data, described in Appendix B, indicates that RECs associated with sediment may be present at the project site as well.

Table G.18 shows sediment analysis data collected by MWRD in the Calumet River, 5 miles north of the Brandon Road project site. No screening criteria or remediation objectives for sediment have been published for by either federal or state environmental protection agencies. Sediment quality is typically evaluated on a site-specific basis. However, for discussion purposes, the Maximum Allowable Concentrations of chemical constituents allowed in “Uncontaminated Soil” and CCDD in Illinois are provided in Table G.18 as a point of comparison. The Illinois TACO criteria are also provided. Illinois TACO criteria are land-based remediation objectives and are not valid for sediment. Sediment samples collected by MWRD in 2006 appear to exceed reference criteria for several parameters. Further sediment collection and analysis may be needed to determine potential impacts to the proposed GLMRIS project. Any sediment removed during construction would likely require off-site disposal.

**TABLE G.18 Sediment Data, Lower Des Plaines River (sampling date: 7/25/06)**

Sample	Units	LDPR – Lockport		Illinois	Illinois
		Side	Center	CCDD	TACO
TSW %	%	56.2	26.4	--	--
VTSW%	%	12.6	16.1	--	--
NH <sub>3</sub> -N	mg/kg	19.4	210.2	--	--
TKN	mg/kg	851	4146	--	--
NO <sub>2</sub> +NO <sub>3</sub>	mg/kg	2.30	9.97	--	--
Tot Phos	mg/kg	1435	4760	--	--
Phenol	mg/kg	0.580	8.442	--	--
CN	mg/kg	0.311	1.069	100	23,000
Ag	mg/kg	< 0.2	0.8	4.4	390
As	mg/kg	< 5	< 5	13	750
Cd	mg/kg	1.9	9.5	5.2	78
Cr	mg/kg	27	129	21	230
Cu	mg/kg	35	144	2,900	2,900
Fe	mg/kg	12714	21000	15,900	--
Hg	mg/kg	0.750	3.963	0.89	23
Mn	mg/kg	307	343	636	1,600
Ni	mg/kg	23	45	100	1,600
Pb	mg/kg	76	174	107	400
Zn	mg/kg	216	615	5,100	23,000
Benzene	mg/kg	ND	ND	0.03	12
Toluene	mg/kg	ND	ND	12	16,000
Acenaphthene	mg/kg	ND	ND	570	4,700
Acenaphthylene	mg/kg	ND	ND	--	--
Anthracene	mg/kg	1.530	ND	12,000	23,000
Benzo(a)anthracene	mg/kg	<b>0.940<sup>a</sup></b>	ND	1.1	0.90
Benzo(a)pyrene	mg/kg	<b>1.090</b>	<b>2.980</b>	1.3	0.09
3,4-Benzofluoranthene	mg/kg	1.030	2.980	--	--
Benzo(ghi)perylene	mg/kg	0.359	ND	--	--
Benzo(k)fluoranthene	mg/kg	1.110	3.140	9	9.00
Bis(2-ethylhexyl)phthalate	mg/kg	ND	ND	46	46
Butylbenzyl phthalate	mg/kg	ND	ND	930	16,000
Chrysene	mg/kg	1.410	2.960	88	88
Dibenzo(a,h)anthracene	mg/kg	ND	ND	0.2	0.09
Di-n-butyl phthalate	mg/kg	ND	ND	2,300	7,800
Di-n-octyl phthalate	mg/kg	ND	ND	1,600	1,600
Fluoranthene	mg/kg	1.780	4.860	3,100	3,100
Fluorene	mg/kg	ND	ND	560	3,100
Indeno(1,2,3-cd)pyrene	mg/kg	0.387	ND	0.9	0.90
Naphthalene	mg/kg	ND	ND	1.8	1,600
Phenanthrene	mg/kg	0.982	ND	--	--
Pyrene	mg/kg	2.170	5.930	2,300	2,300
Alpha-BHC	mg/kg	ND	ND	0.1	0.1
4,4'-DDT	mg/kg	ND	ND	2.0	2.0
4,4'-DDE	mg/kg	0.009	0.037	2.0	2.0
4,4'-DDD	mg/kg	0.010	0.022	3.0	3.0
PCB-1254	mg/kg	ND	ND	1.0 (total)	1.0 (total)
PCB-1248	mg/kg	ND	ND		
PCB-1260	mg/kg	ND	0.335		
PCB-1016	mg/kg	0.184	ND		

<sup>a</sup> Concentrations exceeding reference criteria shown bold. ND=Analyte not detected. Source: MWRD (2006).

### G.7.8.5 Site Summary

This investigation was performed to determine if the selected measures will have an impact on any REC occurrences that may exist in the surrounding areas, and if RECs will have an impact on the implementation of the project. All the nearby landfill and chemical sites should be investigated further for potential impacts to any future GLMRIS project location, including: Purex Corp. Turco Products, M&W Landfill #3, Persico Landfill, and Foschi Brothers, Inc. The LUST owned by Meade Electric Company was identified as a high priority for cleanup and should also be investigated further. Once the project locations are finalized, a site visit should be performed in accordance with ASTM E 1527-05 in order to visually observe the property and obtain information indicating the likelihood of recognized environmental conditions in connection with the property. Further sediment collection and analysis is needed to characterize sediment quality at the site and determine the extent of any potential impacts to the proposed GLMRIS project.

### G.7.9 Project Location: State Line (IL/IN)

#### G.7.9.1 Site Description

The State Line project location is located on the Grand Calumet River east of its confluence with the Calumet and Little Calumet rivers. Two GLMRIS project alternatives include a structure at this location: (4) Technology Alternative with a Buffer Zone and (7) Mid-System Separation Cal-Sag Open Control Technologies with a Buffer Zone. Project features include an in-stream physical barrier and a reservoir. The reservoir site is located in Chicago, Illinois, just west of the Illinois–Indiana border. The site is located on the north side of the Grand Calumet River, which is now occupied by the Burnham Woods Golf Course. A listed wetland occupies the southwest corner of the site. Powder Horn Lake lies to the north of the project site, on the other side of two railroad lines. Burnham Avenue and a residential neighborhood border the site to the west, and an unoccupied former industrial property borders the site to the south. The physical barrier site, shown in red below, is located in Hammond, Indiana, just east of the Illinois–Indiana state line. The property on the south bank of the river is owned by the Great Lakes Warehouse Corporation and Northlake Auto Recyclers. The property on the north bank is owned by Calumet Flexicore Corporation, a supplier of precast concrete slabs and other concrete products. Further evaluation will be required to determine the exact locations of GLMRIS project and mitigation features.



FIGURE G.27 Vicinity Map, State Line



FIGURE G.28 Location Map, State Line

### **G.7.9.2 Historical Map and Aerial Photography Review**

Historical aerial photographs, topographic maps, and Sanborn maps provide valuable information about the history of residential and commercial development at and near potential project sites. Changes in topography, vegetation, and land use over time may provide evidence of fill and dumping activities or potential recognized environmental conditions. Topographic maps from 1901 to 1991 and aerial photographs from 1939 to 2007 were reviewed. By 1901, the Erie and Western railroads had been built north of the reservoir project site, but Powder Horn Lake did not exist. The city of Hammond was already well developed in 1901. By the 1938 topographic map, Burnham Avenue on the site's west side had been built, as well as a couple of residential streets. Powder Horn Lake and the Burnham Golf Course first appear in the 1958 aerial photo. A pond appears on the reservoir project site in the 1983 aerial photo.

### **G.7.9.3 Database Search**

The database search summarized in Table G.19 located three CERCLA sites in vicinity of the proposed GLMRIS projects. The GM Wrecking Company property, located just southeast of the reservoir site and just north of the physical barrier site. The site is an abandoned property which most recently was used as an open dump for auto fluff, foundry sand, and unknown wastes (1989–1993). The site was formerly operated as Estech General Chemical Co., which manufactured agricultural chemicals and sulfuric acid from 1952 to 1982. The GM Wrecking Company site is not listed on the NPL; however, the site was recommended for HRS scoring, which indicates that there was a high priority for further assessment and cleanup. An engineering evaluation and cost analysis began in 2000 and consent decree was established in 2002. A Potentially Responsible Parties (PRP) was identified for the site, but it appears that the site assessment effort has been EPA-fund financed thus far. The GM Wrecking Company/Estech property is a high-priority RCRA Corrective Action site and has a long history of enforcement actions for violations of RCRA. Many of these violations were determined in the 1992–1996 timeframe, for non-compliance with general TSD facility standards, landfill standards, preparedness and prevention requirements, financial requirements, and monitoring requirements. The GM Wrecking/Estech site is of concern to the project because of the ongoing assessment and remediation activity and its proximity to proposed GLMRIS project sites.

The Calumet Refining Company site, located two blocks west of the proposed GLMRIS reservoir site, was enrolled in CERCLA in 1980. It was determined that the site did not qualify for the NPL and was assigned a low priority for further assessment. The site was archived in 1991 and no further remediation action is planned. The Manta Industrial site is located northeast of the proposed reservoir site, east of Powder Horn Lake. The site was formerly operated by LTV Steel, and a waste acid impoundment was located on site. The site was never on the NPL and was delisted from CERCLA in 1987. The Manta Industrial site is of less concern to potential GLMRIS projects at this location because of its distance. However, all three CERCLA sites should be investigated further if a GLMRIS project is pursued at this location, to determine any soil and groundwater impacts at the GLMRIS project location.

The Bureau of Land (BOL) inventory database includes information from the Illinois EPA's Bureau of Land Cleanup Programs, including Brownfields, Leaking Underground Storage Tanks, and Site Remediation. Rostoker, Inc., is a metal electroplating operation located just west of the proposed reservoir site. Purdy Company, also known as Scrap Metal Services, LLC, is listed in the BOL database and is also listed in the FTTS database. FTTS tracks compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). The Rostoker and Purdy properties both stored and/or manufactured hazardous materials. While not much additional information is readily available for these sites, this knowledge alone makes them a REC according to ASTM E-1527. Both sites should be investigated further if a GLMRIS project is pursued at this location.

The Burnham Steel and Wire site, located two blocks west of the proposed reservoir site, is also listed in the BOL database. A wire mill previously operated at this site and there is concern that metals from the manufacturing process were released into the environment. An abandoned building remains on the southern section of the site. A Phase I Environmental Assessment has been completed and the South Suburban Mayors and Managers Association has entered into a Brownfields Assessment Cooperative Agreement with the EPA. The wire mill was a RCRA LQG of hazardous wastes, including spent pickle liquor generated by the steel finishing operation. The mill was cited for several RCRA violations in 1990–1991. This site also constitutes a REC as and should be investigated further if a GLMRIS project is pursued at this location.

Calumet Lubricants, Heritage Environmental Services, Brainard, Midwest Auto Recycling, GD Searle & Co., and Midwest Auto Recycling are all also listed in the BOL database. The Calumet Lubricants and Midwest Auto Recycling sites probably appear in the BOL database because of LUSTs reported at their properties. Neither site has been issued a NFR letter from the Illinois EPA. The Midwest Auto Recycling site is of particular concern to the GLMRIS project because it is located directly upland of the proposed GLMRIS physical barrier and is a former gas station/filling station/service station, which typically presents a high risk for environmental concerns. “Brainard” was enrolled in the SRP in 2005. The site is located at the northeast corner of Burnham and Brainard Avenues in Burnham, Illinois. While the remediation project is listed as “active,” no information is provided about the nature of the contamination or cleanup. Very little information is provided in the State online database about the other BOL sites. GD Searle & Co. is located at the same address as the Great Lakes Warehouse Corporation and Honeywell International. GD Searle & Co. appears in the BOL database exclusively, and despite the limited amount of information readily available on the site it remains of great interest since it is directly upland from the proposed physical barrier.

On the south side of the Grand Calumet River and east of the proposed physical barrier is the former NIPSCO Hammond Manufactured Gas Plant. Gas for industrial, commercial, and residential use was produced from coal at the site from approximately 1901 to 1924. Between 1924 and 1955, the site was used to store and distribute gas produced at offsite locations. The site is vacant at the present time, with only the foundations of some of the gas operations structures remaining. Site investigations were performed from 1997 to 2004. Coal tar, a typical gas manufacturing byproduct, was observed in sediments and surface water near the site. Elevated VOC and PAH levels were identified in soil and groundwater at the site and downgradient of the site. A Remediation Work Plan for Upland Remedial Action at the Former NIPSCO Manufactured Gas Plant (MGP) was published in November 2007 (Sevee & Maher Engineers 2007), but its current status is unknown. This is a serious potential issue for the current location of the State Line physical barrier, given its proximity to this former MGP.

**TABLE G.19 Database Search Results, State Line**

Database	Map ID	Site Name	Proximity to Site	Status
<i>CERCLIS, CORRACTS, RCRA-SQG, FINDS, PRP<sup>a</sup></i>	<i>I32</i>	<i>GM Wrecking Co. Inc. (Estech Chemical)</i>	<i>0.58 mi SE</i>	<i>Site assessment and corrective action ongoing.</i>
CERC-NFRAP	18	Calumet Refining Company	0.48 mi NW	NFRAP 10/31/91.
CERC-NFRAP, RCRA NonGen / NLR, IL BOL	R73	Manta Industrial, Heritage Environmental Services	0.74 mi ENE	NFRAP 01/10/87.
<i>RCRA-SQG, FINDS, IL BOL</i>	<i>C6, C7</i>	<i>Rostoker, Inc.</i>	<i>0.38 mi West</i>	<i>Status unknown.</i>

**TABLE G.19 (CONT.)**

<i>Database</i>	<i>Map ID</i>	<i>Site Name</i>	<i>Proximity to Site</i>	<i>Status</i>
<b>HIST FTTS, FTTS, IL NPDES, IL AIRS, IL TIER 2, IL BOL, RCRA-CESQG, FINDS</b>	<b>D10, D13</b>	<b>Purdy Company, Scrap Metal Services</b>	<b>0.4 mi North</b>	<b>Status unknown.</b>
<b>IL AIRS, IL BOL, RCRA NonGen / NLR, FINDS, US BROWNFIELDS</b>	<b>E15, E17</b>	<b>Burnham Steel and Wire</b>	<b>0.44 mi WNW</b>	<b>Phase I ESA completed. EPA funded Brownfield Cleanup.</b>
<b>IL LUST, IL UST, IL TIER 2, IL BOL, IL AIRS, RCRA-SQG, FINDS, US AIRS</b>	<b>H28-31</b>	<b>Calumet Lubricants Co.</b>	<b>0.57 mi NW</b>	<b>Non-petro LUST reported 09/27/1991. Status unknown.</b>
<b>IL SRP, IL BOL</b>	<b>41</b>	<b>Brainard</b>	<b>0.62 mi NNW</b>	<b>No NFR letter. Active SRP site.</b>
<b>IL BOL, RCRA NonGen / NLR, FINDS, IN MANIFEST, Hist Auto Stations</b>	<b>M48-50</b>	<b>Midwest Auto Recycling</b>	<b>0.65 mi SE</b>	<b>Non-petro LUST 09/27/1991, status unknown. No RCRA violations reported.</b>
<b>IL BOL</b>	<b>96</b>	<b>GD Searle &amp; Co.</b>	<b>0.96 mi SSE</b>	<b>Status unknown.</b>
<b>EDR MGP</b>	<b>104</b>	<b>NIPSCO Hammond Manufactured Gas Plant</b>	<b>1.12 mi SE</b>	<b>Indiana Voluntary Remediation (IVR) Program #6980801.</b>
<b>IN AIRS, RCRA-CESQG, FTTS, HIST FTTS, FINDS, IN MANIFEST,...</b>	<b>F19, F20, F21</b>	<b>Vermette Machine Company</b>	<b>0.49 mi East</b>	<b>No RCRA violations reported. FTTS violations: 09/06/1990, 10/01/1992 \$1500 penalty.</b>
<b>IN NPDES, IN LUST, IN UST, IN AIRS, RCRA NonGen / NLR</b>	<b>M51-52</b>	<b>Calumet Flexicore Company</b>	<b>0.65 mi SE</b>	<b>Two "active" LUSTs, one closed.</b>
<b>IL UST</b>	<b>1</b>	<b>CSX Burnham Yard</b>	<b>0.19 mi ENE</b>	<b>One heating oil UST, exempt from registration.</b>
<b>IL LUST</b>	<b>A2</b>	<b>CSX Transportation</b>	<b>0.23 mi WNW</b>	<b>Other petro LUST reported 05/03/1994. Status unknown.</b>
<b>EDR US Hist Auto Stat</b>	<b>A3</b>	<b>Cundiff's Body Shop</b>	<b>0.26 mi West</b>	
<b>EDR US Hist Auto Stat</b>	<b>B5</b>	<b>Thornton Collision Center</b>	<b>0.3 mi WNW</b>	
<b>IL UST</b>	<b>B4</b>	<b>Burnham Woods Golf Course</b>	<b>0.3 mi WNW</b>	<b>Three USTs, all removed.</b>
<b>IL UST</b>	<b>8</b>	<b>Commonwealth Edison</b>	<b>0.39 mi SW</b>	<b>550 gal gasoline tank removed.</b>
<b>IL UST</b>	<b>D9</b>	<b>Indiana Harbor Belt Railroad</b>	<b>0.4 mi North</b>	<b>1,000 gal fuel tank, exempt from registration.</b>
<b>IN UST</b>	<b>G23</b>	<b>Ridgeway Petroleum</b>	<b>0.52 mi ESE</b>	<b>Three gasoline USTs currently in use, 12,000 gal each.</b>
<b>IL UST</b>	<b>N54</b>	<b>Public Works Facility</b>	<b>0.66 mi NW</b>	<b>Two USTs, both removed.</b>
<b>IL LUST, IL BOL</b>	<b>N55</b>	<b>Village of Burnham</b>	<b>0.66 mi NW</b>	<b>NFA/NFR Letter: 11/06/2000.</b>

<sup>a</sup> Database search results requiring further investigation are shown in bold italic typeface.

#### G.7.9.4 Water and Sediment Quality

Water quality in the Grand Calumet River is impaired for two designated uses. Observed concentrations of mercury and PCBs impair use of the waterway for fish consumption. The following constituents impair the waterway for indigenous aquatic life: ammonia, aquatic algae, arsenic, barium, cadmium, total chromium, copper, DDT, dissolved oxygen, iron, lead, nickel, sedimentation/ siltation, silver, total phosphorus, and zinc. Available sediment data, described in Appendix B, suggests that RECs associated with sediment may be present at the project site as well.

Table G.20 shows sediment analysis data collected by Indiana STORET in the Grand Calumet River, 0.85 miles east of the State Line project site. The Illinois TACO criteria are provided as a point of comparison. Note that Illinois TACO criteria and Indiana Risk Integrated System of Closure (RISC) criteria are land-based remediation objectives and neither applies to sediment. No screening criteria or remediation objectives for sediment have been published by federal or state agencies. Sediment quality is typically evaluated on a site-specific basis. While the Illinois TACO criteria are not applicable for sediment at this or any other location, for the purpose of discussion, several parameters exceed the TACO remediation objectives. Concentrations exceeding reference criteria are shown in bold typeface. This is not surprising, because the Grand Calumet River is a well-documented area of concern in the Great Lakes basin and has been the locus of extensive remediation efforts on the Indiana side, as described in Appendix B – Affected Environment. Further sediment collection and analysis will be needed to determine potential impacts to the proposed GLMRIS project. Any sediment removed during construction would likely require off-site disposal.



**TABLE G.20 Sediment Data, Indiana STORET Stations UMC050-0010, UMC050-0006**

Parameter	Units	8/26/1996	6/20/2000	CCDD	TACO
1-Methylnaphthalene	mg/kg	ND	--	--	--
2-Methylnaphthalene	mg/kg	1.1	--	--	--
Acenaphthene	mg/kg	ND	--	570	4,700
Acenaphthylene	mg/kg	ND	--	--	--
Ammonia as NH <sub>3</sub>	mg/kg	0.356	0.091	--	--
Anthracene	mg/kg	0.42	0.6	12,000	23,000
Arsenic	mg/kg	12.9	--	13	750
Benz[a]anthracene	mg/kg	<b>3.3<sup>a</sup></b>	<b>2.8</b>	1.1	0.90
Benzo(b)fluoranthene	mg/kg	<b>5.8</b>	<b>3.7</b>	1.5	0.9
Benzo[a]pyrene	mg/kg	<b>5.8</b>	<b>2.3</b>	1.3	0.09
Benzo[ghi]perylene	mg/kg	7.5	2.8	--	--
Benzo[k]fluoranthene	mg/kg	3.0	1.7	9	9.00
Cadmium	mg/kg	<b>8.31</b>	0.855	5.2	78
Carbon, Total Organic (Toc)	mg/kg	0.021	0.001	--	--
Chrysene	mg/kg	4.7	3.1	88	88
Copper	mg/kg	647	12.3	2,900	2,900
Dibenzo[a,h]anthracene	mg/kg	<b>0.5</b>	--	0.2	0.09
Fluoranthene	mg/kg	10.0	7.7	3,100	3,100
Fluorene	mg/kg	0.35	--	560	3,100
Indeno[1,2,3-cd]pyrene	mg/kg	<b>7.3</b>	<b>3.1</b>	0.9	0.9
Lead	mg/kg	<b>10,200</b>	71.3	107	400
Mercury	mg/kg	<b>1.603</b>	--	0.89	23
Mercury	mg/kg	0.058	--	--	--
Naphthalene	mg/kg	1.2	--	1.80	1,600
Nickel	mg/kg	34.7	--	100	1,600
Phenanthrene	mg/kg	4.4	3.6	--	--
Pyrene	mg/kg	9.0	5.2	2,300	2,300
Selenium	mg/kg	3.58	--	--	--
Simultaneously Extracted Metals (SEM)	mg/kg	--	265	--	--
Simultaneously Extracted Metals/Acid Volatile Sulfides ratio	None	--	0	--	--
Solids, Total	%	28	64	--	--
Zinc	mg/kg	1,710	176	5,100	23,000

<sup>a</sup> Concentrations exceeding reference criteria are shown in bold typeface. ND=Analyte not detected. Source: EPA (2013c).

### G.7.9.5 Site Summary

The State Line site is located in a historical industrial corridor at the state line between Illinois and Indiana. The site proposed for the GLMRIS reservoir is on a golf course and has no environmental concerns of its own. However, the site is surrounded by properties with significant environmental issues that have likely impacted the soil and groundwater. Several sites, italicized in Table G.19, should be investigated if a GLMRIS project is pursued at this location. There is also an industrial corridor along West State Street in Calumet City, Illinois, south of the Grand Calumet River and proposed GLMRIS project sites. Several properties in this area appear in the SRP, LUST, and Historical Auto Station databases and should also be investigated further for potential impacts to the GLMRIS project sites.

Once the GLMRIS project locations are finalized, a site visit should be performed in accordance with ASTM E 1527-05 in order to visually observe the property and obtain information indicating the likelihood of recognized environmental conditions in connection with the property. Further sediment collection and analysis is needed to characterize sediment quality at the site and determine the extent of any potential impacts to the proposed GLMRIS project.

## G.7.10 Project Location: Oak Lawn (IL)

### G.7.10.1 Site Description

The Oak Lawn project location is in the City of Chicago on the border with the Village of Oak Lawn, Illinois. The property is a planned expansion site for the St. Casimir Lithuanian Cemetery located directly to the east. The site is also bounded by 114th Street to the north, 115th Street to the south, and Cicero Avenue to the west. The surrounding area is largely residential, though there are some commercial/industrial sites located along Cicero Avenue. The site is located 2.2 miles north of the physical barrier proposed in Alsip, Illinois. Two ponds, intermittently connected to Stony Creek, occupy the middle of the site. Three GLMRIS project alternatives include construction of a reservoir at this location: (3) Mid-System Control Technologies without a Buffer Zone; (6) Mid-System Hydrologic Separation; and (8) Mid-System Separation CSSC Open Control Technologies with a Buffer Zone. Further evaluation will be required to determine the exact locations of GLMRIS project and mitigation features.

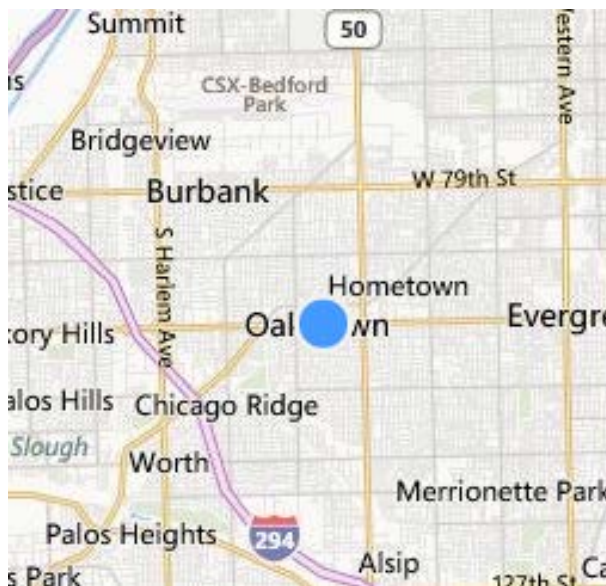


FIGURE G.29 Vicinity Map, Oak Lawn



FIGURE G.30 Location Map, Oak Lawn

### G.7.10.2 Historical Map and Aerial Photography Review

Historical aerial photographs, topographic maps, and Sanborn maps provide valuable information about the history of residential and commercial development at and near potential project sites. Changes in topography, vegetation, and land use over time may provide evidence of fill and dumping activities or potential recognized environmental conditions. Topographic maps from 1901 to 1991 and aerial photographs from 1939 to 2007 were reviewed. Stony Creek once forked at the northwest corner of the site. The main channel ran north to south, just west of and parallel to Cicero Avenue, while an intermittent section flowed southeast across the site. Casimir's Cemetery was established prior to 1929.

The area was largely farmland until the 1950s, when residential streets start to encroach from both the east and west. A large expansion in residential construction took place throughout the 1950s and 1960s, but the topography of the site itself has remained largely unchanged from its initial state.

### **G.7.10.3 Database Search**

Searches of the CERCLIS, RCRA CORRACTS, and ERNS databases returned no listed properties within the recommended search distance of the project site. Likewise, no State Hazardous Waste Sites (SHWS) or SWFs/LFs were found in the vicinity of the proposed project site. Several RCRA SQGs and CESQGs adjoin the project site, but none have any history of violations.

Two SRP sites were located in close proximity to the project. The Aldi grocery store located just across Cicero Avenue from the proposed reservoir site was enrolled in the SRP in September of 2002. Asphalt and concrete placed at the site now serves as a barrier between the surface and the contaminated soils beneath. Institutional controls now limit use of groundwater at the site. A NFR letter was issued for the site in 2002. However, because of the close proximity to the proposed reservoir, the soil and groundwater impacts should be investigated further if a GLMRIS project is pursued at this location. The other SRP site is Giovanni's Cleaners, located two blocks north of the proposed reservoir. A focused site remediation was conducted at this site and asphalt and concrete now serve as engineered barriers to contain the contaminated soils. A NFR letter was issued in 2010 and groundwater use is restricted at the site.

The Illinois EPA maintains a listing of LUSTs and The Illinois State Fire Marshall maintains a listing of registered USTs, as required by RCRA Subtitle I. Five UST and nine LUST sites were found within the recommended search distance and are shown in Table G.21. The Illinois EPA BOL has issued a NFR letter for all but two of these facilities, acknowledging compliance with all applicable laws, regulations, and remediation objectives associated with the tank in question. There was a spill incident in 1993 at Worth Bank & Trust, located just across the street to the west from the proposed reservoir site. A Non-LUST determination was made in 1994, but the status of the spill cleanup is unknown.

**TABLE G.21 Database Search Results, Oak Lawn**

Database	Map ID	Site Name	Proximity to Site	Status
<b>ENG CONTROLS, INST CONTROL, SRP, AIRS, BOL, FINDS, RCRA NonGen / NLR, FINDS<sup>a</sup></b>	<b>A1-4</b>	<b>Aldi, Inc. Store 17, Stoney Creek Funeral Home</b>	<b>0.25 mi West</b>	<b>Comprehensive site remediation. Groundwater use restriction, asphalt/concrete barrier. NFR letter: 06/12/2002.</b>
RCRA NonGen/NLR, FINDS	B6	North Bank and Trust	0.25 mi West	Handler; no violations.
UST	B7	Super Lube, Inc.	0.25 mi West	UST removed.
<b>LUST</b>	<b>B8,9</b>	<b>Worth Bank &amp; Trust</b>	<b>0.25 mi West</b>	<b>Spill incident 09/16/1993. Non-LUST Determination Letter: 08/04/1994. No NFR letter.</b>
LUST, UST, RCRA-SQG, EDR US Hist Auto Stat	C10-12	Samera Ramahi, former Amoco 8747	0.3 mi WSW	Unleaded gas LUST. NFA/NFR letter: 07/18/2012. Three USTs removed. No RCRA violations found.
RCRA-SQG, FINDS, SPILLS, BOL, LUST, UST	D14-17	St. Casimir Cemetery	0.34 mi NE	Spill incident, unleaded gasoline LUST 04/24/1996. NFA/NFR letter: 10/08/1997. Two USTs removed. No RCRA violations found.
UST	E18	Indy Auto Mart	0.35 mi NW	Two heating oil USTs, exempt from registration.
<b>LUST</b>	<b>E20-21</b>	<b>Mobil Oil Corporation</b>	<b>0.36 mi NW</b>	<b>Used fuel LUST spill recorded 11/12/1993. 20-day and 45-day certifications were completed. Site classification Work Plan was mailed on 8/29/1994.</b>
RCRA-SQG, FINDS	E22	Shop Automotive Repair	0.36 mi NW	Handler; no violations.
EDR US Hist Auto Stat, BOL	E23, 24	Interstate Muffler & Brake, Automotive Car Care	0.37 mi NW	
RCRA-SQG, FINDS, BOL	F26, 27	Construction Fasteners Inc.	0.4 mi SW	SQG; no violations.
LUST, HWAR, BOL, UST, RCRA NonGen/NLR, FINDS	H36	Kmart 3515	0.46 mi NW	Diesel LUST, NFA/NFR letter: 03/29/2007. UST removed.
UST	H37	Oasis Station 1056	0.46 mi NW	Three USTs removed.
<b>ENG CONTROLS, INST CONTROL, SRP, DRYCLEANERS, BOL</b>	<b>J42</b>	<b>Giovanni's Cleaners</b>	<b>0.53 mi NNW</b>	<b>Focused site remediation. Groundwater use restriction, asphalt barrier. NFR letter: 06/03/2010.</b>
SPILLS, BOL, LUST	K44	Metz Baking Co.	0.55 mi WNW	Unleaded gas, used oil LUST. NFA/NFR letter: 06/15/2001.
LUST	L53	Med Properties	0.64 mi NNW	Fuel oil, NFA/NFR letter: 08/08/2007.
LUST	M54	Builders Heating, Inc.	0.71 mi SSW	Unleaded gas, NFA/NFR letter: 01/16/1998.
LUST, BOL	N57	JDL Management Co.	0.72 mi WNW	Gasoline, NFA/NFR letter: 02/05/2013.

<sup>a</sup> Database search results requiring further investigation are shown in bold italic typeface.

### **G.7.10.5 Site Summary**

This investigation was performed to determine whether the selected measures will have an impact on any REC occurrences that may exist in the surrounding areas, and whether RECs will have an impact on the implementation of the project. The Oak Lawn site is located in the City of Chicago on an empty parcel owned by the St. Casimir Lithuanian Cemetery. Two ponds intermittently connected to Stony Creek can be found on site. There is no history of prior development at the proposed GLMRIS reservoir site and consequently there are no environmental records that prompt concerns about the reservoir site itself. Furthermore, the site is located in a predominantly residential community, so impacts from industry to neighboring properties are substantially fewer here, compared to other sites. A few sites, italicized in Table G.21, are recommended for further investigation if a GLMRIS project is pursued at this location. LUST records for the Worth Bank and Trust and Mobil Oil Corporation properties indicate that the cleanup status is either unknown or incomplete. SRP sites owned by Aldi Store 17 and Giovanni's Cleaners should also be investigated for any impacts to soil or groundwater at the GLMRIS project location. Once the GLMRIS project locations are finalized, a site visit should be performed in accordance with ASTM E 1527-05 in order to visually observe the property and obtain information indicating the likelihood of recognized environmental conditions in connection with the property.

### **G.7.11 Project Location: McCook (IL)**

#### **G.7.11.1 Site Description**

GLMRIS proposes reservoirs to mitigate flood control and water quality impacts of several of the project alternatives. One of the few locations on the CAWS capable of accommodating such a reservoir is the existing McCook Quarry in McCook and Hodgkins, Illinois. In 1986, the McCook Quarry was selected for a 10.5 billion gallon reservoir as part of the Chicagoland Underflow Plan (CUP), also known as the Tunnel and Reservoir Plan (TARP). However, due to difficulties acquiring the needed real estate, USACE reevaluated project sites and in 1996 recommended that the McCook reservoir instead be built on the MWRD solids processing lagoons just east of the quarry, between the Des Plaines River and the CSSC. The GLMRIS reservoir at McCook, Illinois, is proposed in addition to the existing CUP/TARP McCook Reservoir. The McCook Quarry, owned by Vulcan Materials, is bounded to the east by the Chicago and Western Indiana (C&WI) and the Atchison, Topeka and Santa Fe (AT&SF) railroads. To the north the quarry site is bounded by Joliet Road, and to the west the site is bordered by East Avenue. Four GLMRIS project alternatives include construction of a reservoir at this location: (3) Mid-System Control Technologies without a Buffer Zone; (5) Lakefront Hydrologic Separation; (6) Mid-System Hydrologic Separation; and (8) Mid-System Separation CSSC Open Control Technologies with a Buffer Zone. Further evaluation will be required to determine the exact locations of GLMRIS project and mitigation features.



**FIGURE G.31 Vicinity Map, McCook**



**FIGURE G.32 Location Map, McCook**

### **G.7.11.2 Historical Map and Aerial Photography Review**

Historical aerial photographs, topographic maps, and Sanborn maps provide valuable information about the history of residential and commercial development at and near potential project sites. Changes in topography, vegetation, and land use over time may provide evidence of fill and dumping activities or potential recognized environmental conditions. Topographic maps from 1901 to 1991 and aerial photographs from 1939 to 2007 were reviewed. Topographic maps show that in 1901 the area was undisturbed and that quarry excavation had begun by 1928. In 1928, two separate quarries were already 100 feet deep. By 1953, the rock separating the two holes had been removed to form one large quarry, and sewage disposal had begun east of the Des Plaines River. By 1963, the north end of the quarry had been excavated deeper still, and had expanded to the north side of Joliet Road. By 1972 the Interstate 55 highway had been built just east of the Des Plaines River.

### **G.7.11.3 Database Search**

The database search summarized in Table G.22 located two CERCLA-NFRAP sites in vicinity of the proposed GLMRIS reservoir. Beaver Oil Co., Inc., was archived from the inventory of active sites in 1996 and was deferred to the RCRA corrective action program. The available RCRA documentation about this site is contradictory, however. The EDR report indicates that the migration of contaminated groundwater was under control on 2/5/1999. The online RCRIS database says that, “there is currently insufficient information to determine whether migration of contaminated groundwater is under control.” The RCRA CORRACTS database indicates that the site was assessed in 1990, a cleanup solution was selected and implemented in 2009, and the cleanup was complete in 1994. This may indicate multiple cleanup actions at the site, and suggests the need for further investigation. Beaver Oil Co. is regulated under RCRA as a Transfer, Storage, and Disposal Facility. The facility receives and processes more than 100,000 gallons daily of used oil and other hazardous and non-hazardous wastes. The Beaver Oil Co. site has been out of compliance with RCRA-TSDF requirements for the last 12 out of 12 quarters. Beaver Oil has been subject to enforcement activity for violations under the NPDES, RCRA, and CAA programs. This site constitutes a REC and should be investigated further if a GLMRIS project is pursued at this location. The Parkview Mobile Home Park was enrolled in CERCLA in 1986 and delisted in 1990. Electromotive Diesel, Inc., is a RCRA Corrective Action site and hazardous waste Transfer, Storage and

Disposal Facility located north of the project site. The TSDF has been cited for numerous violations of federal or state statutes, financial records, reporting, and other RCRA compliance requirements. Additional information about the nature of the contamination at these three sites was not readily available. Potential impacts to GLMRIS from environmental conditions at these sites should be investigated if a GLMRIS project is pursued at this location.

RCRA SQGs generate between 100 kilograms and 1,000 kilograms of hazardous waste per month. CESQGs generate less than 100 kilograms of hazardous waste, or less than 1 kilograms of acutely hazardous waste per month. The database search located six SQGs and one CESQG adjacent to the project site. The database search did not reveal any RCRA violations for these properties; therefore they do not present environmental concerns to the GLMRIS project at this time.

The database search also revealed that there are 18 LUST sites within approximately 0.75 miles of the target property. The Illinois EPA BOL has issued a NFR letter for all of these facilities, acknowledging compliance with all applicable laws, regulations, and remediation objectives associated with the tanks in question. The database search also located two former solid waste disposal sites at the project at and near the project site.

**TABLE G.22 Database Search Results, McCook**

<b>Database</b>	<b>Map ID</b>	<b>Site Name</b>	<b>Proximity to Site</b>	<b>Status</b>
<i>RCRA-TSDF, CERC-NFRAP, CORRACTS, RCRA NonGen, IL LUST, IL HWAR, IL AIRS, IL BOL<sup>a</sup></i>	<i>D12, 13</i>	<i>Beaver Oil Co., Inc.</i>	<i>0.42 mi NW</i>	<i>Delisted from CERCLA in 1996. RCRA Corrective action status unclear. Many RCRA-TSDF violations. LUST NFA/NFR letter: 06/05/1992.</i>
<i>CERC-NFRAP, IL BOL</i>	<i>29, 2</i>	<i>Parkview Mobile Home Park</i>	<i>0.45 mi South</i>	<i>Delisted from CERCLA in 1990.</i>
<i>RCRA-TSDF, CORRACTS, RCRA-LQG, TRIS,</i>	<i>64</i>	<i>Electromotive Diesel, Inc.</i>	<i>0.87 mi North</i>	<i>Many RCRA-TSDF violations.</i>
RCRA-SQG, IL UST	A4,7	Fore Way Express, Inc.	0.41 mi West	No RCRA-SQG violations found.
RCRA-SQG, FINDS, IL LUST, IL UST, IL BOL, EDR Hist Auto Stat	D19-22	James Fiala	0.43 mi NW	No RCRA-SQG violations found. LUST NFA/NFR letter: 02/17/1999. Two USTs removed.
RCRA-SQG, FINDS, IL LUST, IL UST	E23-26	Valley Transit, Inc.	0.43 mi WNW	aka Vancom Transportation, Laidlaw Transit. LUST NFA/NFR letter: 02/21/2007. No RCRA-SQG violations found.
RCRA-SQG, FINDS	F33	Central Cartage	0.49 mi NNW	No RCRA-SQG violations found.
RCRA-SQG, FINDS, IL BOL	H39, 40	TRP Trailer Repair & Painting	0.49 mi NW	No RCRA-SQG violations found.
RCRA-SQG, FINDS, IL BOL	G36	Prairie Material	0.49 mi SW	No RCRA-SQG violations found.
RCRA-CESQG, FINDS, IL BOL	E17	Daniels Auto Body	0.43 mi WNW	No RCRA-SQG violations found.
RCRA NonGen / NLR, FINDS	A6	Liquid Air Corp of North America	0.41 mi West	Handler, no violations found.

**TABLE G.22 (CONT.)**

<b>Database</b>	<b>Map ID</b>	<b>Site Name</b>	<b>Proximity to Site</b>	<b>Status</b>
RCRA NonGen / NLR, FINDS	C15	Browning Ferris Industries of Illinois	0.42 mi West	Handler, no violations found.
RCRA NonGen / NLR, FINDS	G37	Quarry Asphalt Co	0.49 mi SW	Handler, no violations found.
IL NPDES, IL LUST, IL AIRS, IL BOL, IL UST, IL TIER 2	B8, 9	Silbrico Corporation	0.42 mi ESE	NFA/NFR letter: 04/02/2001.
IL LUST	A5	ABC Treadco	0.41 mi West	NFA/NFR letter: 03/08/1996.
IL LUST	C11	Homart Comm. Ctr.	0.42 mi West	NFA/NFR letter: 04/01/1992.
IL LUST	C14	Roadway Express	0.42 mi West	NFA/NFR letter: 04/25/1991.
IL LUST, IL BOL	F34	Village of Hodgkins	0.49 mi NNW	NFA/NFR letter: 08/24/1993.
IL LUST	G42	Vulcan Materials	0.49 mi SW	NFA/NFR letter: 10/13/1993.
IL LUST	H44	Homart Comm. Ctr.	0.5 mi NW	NFA/NFR letter: 04/01/1992.
IL LUST	H46	Village of Hodgkins	0.5 mi NW	NFA/NFR letter: 07/07/1993.
RCRA NonGen / NLR, FINDS, IL UST, IL BOL, IL NPDES, IL LUST, IL SPILLS	I47, 48	Village of Hodgkins	0.51 mi SSW	LUST NFA/NFR letter: 07/22/2009.
IL LUST, IL BOL	52	Electro-motive; Division of GMC	0.53 mi SSE	NFA/NFR letter: 11/04/1993.
IL LUST	55	Homart Comm. Ctr.	0.56 mi WNW	NFA/NFR letter: 08/25/1993.
IL LUST, IL UST, IL TIER 2	58	First Student, Inc.	0.67 mi South	NFA/NFR letter: 08/20/1996.
IL LUST	59	Charles Carlson	0.68 mi SSW	NFA/NFR letter: 02/06/2003.
IL LUST, IL AIRS, IL SPILLS, IL TIER 2, IL BOL	K60, 6 1	Village of Hodgkins	0.68 mi WNW	NFA/NFR letter: 10/30/1992.
<b><i>IL NIPC<sup>a</sup></i></b>	<b><i>1</i></b>	<b><i>Joliet Road/55th St.</i></b>	<b><i>0.23 mi West</i></b>	<b><i>Former solid waste disposal site.</i></b>
<b><i>IL NIPC</i></b>	<b><i>50</i></b>	<b><i>Joliet Road/East Ave.</i></b>	<b><i>0.53 mi NW</i></b>	<b><i>Former solid waste disposal site.</i></b>
<b><i>IL SRP, IL BOL</i></b>	<b><i>28</i></b>	<b><i>ComEd Hodgkins Vacant Lot</i></b>	<b><i>0.44 mi ESE</i></b>	<b><i>SRP status unknown.</i></b>

<sup>a</sup> Database search results requiring further investigation are shown in bold italic typeface.

#### G.7.11.4 Site Summary

This investigation was performed to determine if the selected measures will have an impact on any REC occurrences that may exist in the surrounding areas, and if RECs will have an impact on the implementation of the project. The proposed GLMRIS McCook reservoir is located north of the existing TARP-McCook reservoir, in the existing McCook Quarry owned by Vulcan Materials. A few sites, italicized in Table G-22, are recommended for further investigation if a GLMRIS project is pursued at this location. Beaver Oil Co. and Electromotive Diesel, Inc. are RCRA Transfer, Storage, and Disposal Facilities with multiple recorded violations and are also RCRA Corrective Action sites. Parkview Mobile Home Park has been delisted from CERCLA but is located very close to the proposed project and further research would be worthwhile. Additionally there are two former solid waste disposal sites and a Site Remediation Project site with an unknown status that should also be investigated further for potential impacts to the project. Once the GLMRIS project locations are finalized, a site visit should be performed



in accordance with ASTM E 1527-05 in order to visually observe the property and obtain information indicating the likelihood of recognized environmental conditions in connection with the property.

## G.7.12 Project Location: Thornton (IL)

### G.7.12.1 Site Description

GLMRIS proposes new reservoirs to mitigate flood control and water quality impacts of several of the project alternatives. The existing Thornton Quarry in Thornton, Illinois, could feasibly accommodate a reservoir to capture combined sewer overflow (CSO) and storm flows from the Calumet River system. The GLMRIS reservoir at Thornton, Illinois, is proposed in addition to the existing Thornton Reservoir constructed by MWRD as a part of the TARP project. The TARP reservoir at Thornton is being constructed in two stages. The first stage, a temporary 3.1-billion-gallon reservoir called the Thornton Transitional Reservoir, was completed in March 2003 in the West Lobe of the Thornton Quarry. The second stage is a permanent 7.9-billion-gallon Thornton Composite Reservoir, located in the North Lobe of the Thornton Quarry. The Thornton Composite Reservoir is scheduled to be complete by 2015. The Thornton, Illinois, GLMRIS project site is bordered by the Tri-State Tollway to the north, Halsted Street to the west, North Williams Street to the east, and Derby Road/West Margaret Street to the south. Six GLMRIS project alternatives include construction of a reservoir at this location: (3) Mid-System Control Technologies without a Buffer Zone; (4) Technology Alternative with a Buffer Zone; (5) Lakefront Hydrologic Separation; (6) Mid-System Hydrologic Separation; (7) Mid-System Separation Cal-Sag Open Control Technologies with a Buffer Zone; and (8) Mid-System Separation CSSC Open Control Technologies with a Buffer Zone. Further evaluation will be required to determine the exact locations of GLMRIS project and mitigation features.

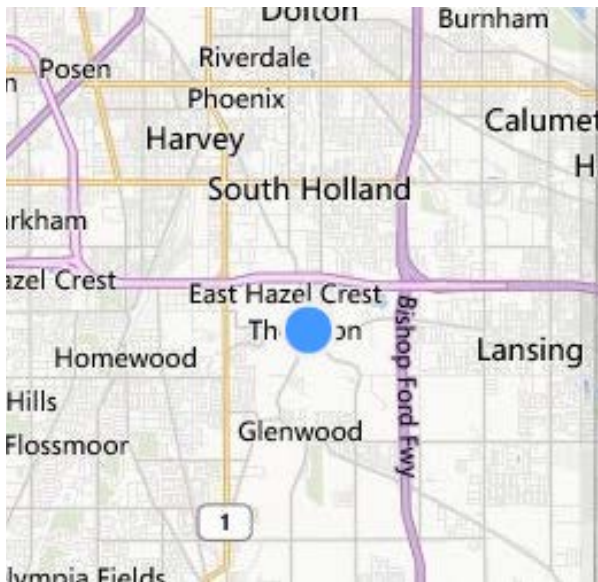


FIGURE G.33 Vicinity Map, Thornton



FIGURE G.34 Location Map, Thornton

### G.7.12.2 Historical Map and Aerial Photography Review

Historical aerial photographs, topographic maps, and Sanborn maps provide valuable information about the history of residential and commercial development at and near potential project sites. Changes in topography, vegetation, and land use over time may provide evidence of fill and dumping activities or potential recognized environmental conditions. Topographic maps from 1901 to 1998 and aerial

photographs from 1939 to 2007 were reviewed. Topographic maps show that in 1901 the area was undeveloped. Work at the quarry began in 1924, which can be seen in the 1929 topographic map. The original 650-foot elevation had been excavated to 625 feet, 607 feet, 576 feet, and 564 feet just west of the Thornton, Illinois, city center. The Baltimore and Ohio Railroad was also built in this timeframe, which appears to have bounded quarry expansion to the west.

### G.7.12.3 Database Search

Searches of the CERCLIS, RCRA CORRACTS, and ERNS databases (Table G.23) returned no listed properties within the recommended search distance of the project site. Likewise, no SHWSs or SWFs/LFs were found in the vicinity of the proposed project site. Several RCRA SQGs and CESQGs adjoin the project site, but none had any history of violations.

Four SRP sites were located in close proximity to the project. NFR letters have been issued for three of the sites, indicating that environmental conditions at the site do not constitute a threat to human health and the environment. Remediation is not yet complete at the Parnell East site to the west of the reservoir.

The database search also revealed that there are 19 LUST sites within approximately 0.75 miles of the target property. The Illinois EPA BOL has issued a NFR letter for all but three of these facilities, acknowledging compliance with all applicable laws, regulations, and remediation objectives associated with the tanks in question. The status of the LUSTs at Illinois Bulk Carrier, Inc.; Ryder Truck Rental; and Gallagher Asphalt Corp. is not reported. Each of these LUSTs ought to be investigated further if a GLMRIS project is pursued at this location. Likewise, the reported spill at GM Wrecking ought to be investigated to identify any potential impacts to the proposed GLMRIS project.

**TABLE G.23 Database Search Results, Thornton**

Database	Map ID	Site Name	Proximity to Site	Status
RCRA-SQG, FINDS	9	Park Place Cleaners	0.61 mi WSW	No RCRA-SQG violations found.
RCRA-SQG, BOL	E16-18	Contractors Power & Light Co.	0.63 mi ENE	No RCRA-SQG violations found.
RCRA-SQG, HWAR, BOL	K49	Target Store T1460	0.69 mi WSW	No RCRA-SQG violations found.
<i>RCRA-SQG, FINDS, LUST, INST CONTROL, SRP, BOL<sup>a</sup></i>	<i>F26</i>	<i>Donahue's Truck Plaza</i>	<i>0.64 mi NNW</i>	<i>No RCRA-SQG violations found. Six USTs removed. LUST NFA/NFR letter: 07/18/1994. SRP NFR Letter: 03/21/2000. Groundwater use restriction at the site.</i>
<i>RCRA-SQG, FINDS, UST, TIER 2, BOL, HWAR, SPILLS,</i>	<i>J44-45</i>	<i>UPS Freight</i>	<i>0.68 mi NNW</i>	<i>No RCRA-SQG violations found. Two diesel USTs currently in use. Two spill incidents reported: 12/03/2005, 04/29/2009. Status of cleanup unknown.</i>
RCRA-SQG, FINDS, LUST, UST	U95	Amoco 15770	0.88 mi NW	LUST NFA/NFR letter: 07/01/1998.
RCRA-CESQG, FINDS, BOL	A2, 3	Flow Technics, Inc.	0.56 mi East	No RCRA-CESQG violations found.

**TABLE G.23 (CONT.)**

<b>Database</b>	<b>Map ID</b>	<b>Site Name</b>	<b>Proximity to Site</b>	<b>Status</b>
RCRA-CESQG, FINDS, EDR US Hist Auto Stat, BOL	D12	Koolma	0.62 mi SE	No RCRA-CESQG violations found.
RCRA-CESQG, FINDS, BOL, EDR US Hist Auto Stat	G31-34	Kmart 7416, Penske Auto Center	0.66 mi WSW	No RCRA-CESQG violations found.
RCRA-CESQG, UST, FINDS	F47-48	Federal Express Corp.	0.68 mi NNW	No RCRA-SQG violations found. Five USTs currently in use, six removed and one out of service.
RCRA-CESQG, SPILLS, BOL	N59	Eagle Express Lines	0.74 mi NW	No RCRA-CESQG violations found.
INST CONTROL, SRP, BOL, BROWNFIELDS	74	Parnell West	0.81 mi SSW	SRP NFR letter: 11/17/2005. 1.15 acres, groundwater use restriction
SRP	75	Washington Park	0.82 mi SW	SRP NFR letter: 6/12/0997, 15.5 ac
<b>SRP, BOL, BROWNFIELDS</b>	<b>87</b>	<b>Parnell East</b>	<b>0.86 mi SSW</b>	<b>Active project, 0.22 ac.</b>
LUST, UST, SPILLS, BOL	B5-7	Thornton Equipment Service	0.58 mi ESE	LUST NFA/NFR letter: 08/06/2003.
<b>SPILLS, BOL</b>	<b>D21</b>	<b>GM Wrecking</b>	<b>0.63 mi SE</b>	<b>Unknown spill, 06/02/1987.</b>
LUST, UST, BOL	C11, 42	Amoco Oil Company	0.62 mi West	LUST NFA/NFR letter: 05/02/2005.
RCRA-SQG, FINDS, LUST, SRP, BOL, INST CONTROL	F26	Donahue's Truck Plaza	0.64 mi NNW	Six USTs removed. LUST NFA/NFR letter: 07/18/1994. SRP NFR Letter: 06/29/2000.
LUST, TIER 2, BOL	N56, 65	Penske Truck Leasing	0.73 mi NNW	LUST NFA/NFR letter: 12/28/2009.
LUST, UST	N61	Quick Fuel	0.74 mi NW	LUST NFA/NFR letter: 06/05/2006. Active Petroleum Distributor, two USTs currently in use.
LUST	70	Meridian Point Realty Trust	0.79 mi NNW	LUST NFA/NFR letter: 03/22/1999.
UST, BOL, RCRA NonGen / NLR, FINDS, LUST	P72-73	Village of Thornton	0.8 mi ESE	LUST NFA/NFR letter: 12/12/2007.
<b>LUST, BOL</b>	<b>Q81, 84</b>	<b>Illinois Bulk Carrier, Inc.</b>	<b>0.84 mi ESE</b>	<b>No LUST NFA/NFR letter.</b>
LUST	85	Marblehead Lime Co.	0.85 mi SE	NFA/NFR letters: 03/30/1999, 11/08/1999.
LUST	91	Village of Homewood	0.87 mi West	NFA/NFR Letter: 08/23/1996.
LUST, TIER 2, BOL	T96-97	First Student Inc.	0.89 mi NNE	LUST NFA/NFR letters: 04/06/2005, 01/08/2001.
LUST	U99	New Harvey Chrysler	0.89 mi NW	LUST NFA/NFR Letter: 04/06/2005.
LUST, BOL	Y107	Bridgestone Firestone Inc.	0.92 mi SW	LUST NFA/NFR Letter: 07/19/2001.
LUST, SPILLS, BOL	W108	Midwest Fastener Corp.	0.93 mi NNW	LUST NFA/NFR Letter: 05/18/1992.
LUST, UST, BOL	Y111-113	Shell Oil Co.	0.93 mi SW	LUST NFA/NFR Letter: 10/10/2006; LUST NFA/NFR Letter: 06/11/1997.

**TABLE G.23 (CONT.)**

<b>Database</b>	<b>Map ID</b>	<b>Site Name</b>	<b>Proximity to Site</b>	<b>Status</b>
<i>LUST, SPILLS, TIER 2</i>	<i>Z115</i>	<i>Ryder Truck Rental</i>	<i>0.98 mi WNW</i>	<i>Five reported LUST incidents: (1) Diesel, 10/01/1991 (2) Fuel oil, NFA/NFR: 06/20/2006 (3) Diesel, 05/09/2007 (4) Diesel 02/18/1989 (5) Non-petro, 09/15/1989.</i>
<i>LUST</i>	<i>116</i>	<i>Gallagher Asphalt Corp.</i>	<i>0.98 mi SSE</i>	<i>No LUST NFA/NFR letter.</i>

<sup>a</sup> Database search results requiring further investigation are shown in bold italic typeface.

#### **G.7.12.4 Site Summary**

This investigation was performed to determine if the selected measures will have an impact on any REC occurrences that may exist in the surrounding areas, and if RECs will have an impact on the implementation of the project. The proposed GLMRIS Thornton reservoir is located in the Main Lobe and/or West Lobe of the existing Thornton Quarry. A few sites, italicized in Table G.23, are recommended for further investigation if a GLMRIS project is pursued at this location. Impacts to soil and/or groundwater at SRP sites owned by Donahue's Truck Plaza and Parnell East should be investigated further for potential interactions with the GLMRIS project. Likewise, reported spills at UPS Freight and GM Wrecking and unresolved LUSTs owned by Illinois Bulk Carrier, Inc.; Ryder Truck Rental; and Gallagher Asphalt Corp. also ought to be investigated further. Available documentation about these sites did not indicate that the releases had been controlled or the impacts remediated. Once the GLMRIS project locations are finalized, a site visit should be performed in accordance with ASTM E 1527-05 in order to visually observe the property and obtain information indicating the likelihood of recognized environmental conditions in connection with the property.

## G.8 FINDINGS AND CONCLUSIONS

This site investigation was performed to determine whether the measures proposed in the GLMRIS report will have an impact on any REC occurrences that may exist in the surrounding areas, and if environmental problems will have an impact on the implementation of the projects. According to ER 1165-2-132, non-HTRW environmental issues that do not comply with federal, state, and local regulations should be discussed in the site assessment along with HTRW issues. Environmental concerns at and near the proposed GLMRIS project sites are summarized in Table G.24.

Existing information available for review suggests that the water quality in the GLMRIS study area is generally poor. The CAWS and its tributaries have a variety of use designations, as shown in Appendix B, Table G.7. The Chicago River, Upper North Shore Channel, and Calumet River from Lake Michigan to the O'Brien Lock and Dam are classified as general use water bodies in Illinois. The general use water quality standards apply to almost all waters of the state and are intended to protect aquatic life, wildlife, agricultural, primary contact, secondary contact, and most industrial uses. All three are listed as impaired streams in the Illinois and Indiana 303(d) lists (IDEM 2012; IEPA 2012) due to inability to achieve and reach the applicable general use water quality standards. The rest of the waterways in the CAWS have lower-quality use designations, and nearly all fail to support fish consumption, indigenous aquatic life, and other designated uses. While a comprehensive evaluation of sediment quality has not been performed for the CAWS, existing data indicates that the sediments in several reaches exceed "normal" background concentrations found in the Chicago Area for metals, semi-volatiles, PCBs, and other contaminants of concern. Future sediment sampling and analysis is recommended to confirm the sediment quality in the proposed work areas.

Review of information provided in the EDR database search suggests that there are several CERCLA, RCRA Corrective Action, RCRA-TSDF, RCRA hazardous waste generator, LUST, landfill, SRP, and manufactured gas plant sites within the recommended search distance of proposed GLMRIS project features. In many cases it is unclear if these sites have the potential to impact project implementation. This report was performed at the level of detail required for a Reconnaissance Phase investigation and additional review and investigation of the actual project sites should be conducted once the project locations and work limits are finalized. Table G.24 summarizes the environmental records of concern that require further investigation. Phase II investigations may be required at some project sites to determine scope and scale of site impacts from adjacent regulated activities. No investigation can wholly eliminate uncertainty regarding the potential for RECs associated with a project area. Performance of a site investigation is intended to reduce, but not eliminate, uncertainty regarding the potential for RECs in connection with a project area.

**TABLE G.24 Summary HTRW Results**

Database	Site Name	Status
<b>Wilmette (IL)</b>		
LUST, SPILLS	Cyrus, Inc.	Fuel oil spills reported 3/17/1995, 4/28/2003. LUST status unknown.
<b>Chicago (IL)</b>		
CERCLIS, FINDS, PRP, UST	Lindsay Light II	55,000 cy of soil removed. Radioactivity monitoring required for any land disturbance.
CERC-NFRAP, CORRACTS, RCRA-NonGen, FINDS	General Parking Corporation	Not on the NPL, deferred from CERCLA to RCRA.
RCRA-CESQG, FINDS, FTTS, SRP, TIER 2, IL NIPC	Navy Pier/Metro Pier and Expo Authority	SRP status not reported. Processor of TSCA-regulated substances. Section 6 PCB State Inspection conducted.
LUST	U.S. Coast Guard	Fuel oil spill, status not reported.
LUST	City of Chicago	Not reported.
LUST, SPILLS, ICIS	City of Chicago	Not reported.
LUST	Chicago Dock & Canal	Other petro, NFA/NFR letter: Not reported.
LUST	MCL, INC.	Diesel, NFA/NFR letter: Not reported.
LUST	Fairbanks & Ohio Auto Park	Other petro, NFA/NFR letter: Not reported.
LUST, UST	CBS Inc./Demolition Site	Other petro, NFA/NFR letter: Not reported.
LUST, UST, SPILLS	Days Inn of America	Gasoline, NFA/NFR letter: Not reported.
SRP	500 Lake Shore Dr. Tower	NFR letter not reported. Status unknown.
<b>Calumet City (IL)</b>		
RCRA-TSDF, CORRACTS, RCRA-LQG, TRIS, 2020 CORRACTS	Ashland Chemical Company	Corrective action ongoing.
CERCLIS, CORRACTS, RCRA-NonGen	Cosden Oil & Chemical	Recommended for HRS Scoring, RCRA status unreported.
SWF/LF, IL NIPC	CWM CID 1	Operational, permitted. Both solid and hazardous waste units.
IL NIPC	Calumet Inlet	Former solid waste disposal site. Status unknown.
UST	GSF Energy, Inc.	Tank 1: 5,000 gal "hazardous substance." Tank 2: 100 gal used oil.
LUST	City of Calumet City	Gasoline spill reported 10/15/1997. Status unresolved.
<b>Hammond (IN)</b>		
RCRA-NonGen, FINDS, MANIFEST, UST, SPILLS	K-mart Auto Center	Heating oil spill 1/25/1999 with possible groundwater impacts. Cleanup status unknown. RCRA violation achieved compliance in 03/07/2003.
AUL, VCP	Burger King	Activity and Use Limitations (AULs) for groundwater and residential use.
SCP	Woodmar Country Club	2003 oil spill, status unknown.
LUST, UST, TIER 2	Pilot Travel Centers #031	Four LUSTs (2 active, 2 NFA/NFR). Six USTs currently in use.

**TABLE G.24 (CONT.)**

Database	Site Name	Status
<b>Stickney (IL)</b>		
CERC-NFRAP, CORRACTS, RCRA-LQG, SRP, LUST	Koppers, Inc.	Enrolled SRP 2008, Active; Open dumping, water pollution violations 2008; Non-Petro Non-LUST Determination 11/22/1995; Unleaded Gas LUST.
CERC-NFRAP, MGP CORRACTS, RCRA-LQG, LUST	Mobil Oil Corporation Cicero Lube Plant	Multiple RCRA violations; MGP, see discussion below.
LUST	Churchill Truck Lines	Diesel, Reported 1993, 1994.
LUST	Sweeney Oil Co.	Bulk Plant now closed, USTs removed; Fuel Oil, Gasoline, Diesel LUSTs Reported 1999.
RCRA-LQG, LUST, UST, SHWS, SRP	Old World Industries DBA Olympic Oil	Fuel Oil, Used Oil LUST Reported 1993.
<b>Alsip (IL)</b>		
CERCLIS, RCRA-LQG, TRIS, FINDS, MANIFEST	Blue Island Phenol	Active CERCLA site, remediation status unknown. Persistent RCRA-LQG violations, civil penalties, CAA and CWA violations.
RCRA-TSDF, CERC-NFRAP, RCRA-LQG CORRACTS	Century Resources, Inc.	Corrective action cleanup implemented in 2009, but not yet complete. RCRA violations and formal enforcement actions.
CORRACTS, RCRA-SQG, MANIFEST	Premcor Refining Group, Inc.	Assigned a low corrective action priority in 1992. A Facility Assessment determined that a Facility Investigation was not necessary in 2010. Formal enforcement action with civil penalties in 1997.
RCRA-TSDF, CORRACTS, UST, FINDS, RAATS	Gilbert & Bennett Manufacturing Company	RCRA violations and informal enforcement actions.
ERNS	Wisconsin Tissue Mills, Inc.	5/20/2010 spill, status unknown.
RCRA-NonGen, FINDS, LUST, SRP	Commonwealth Edison	LUST status not reported.
<b>T.J. O'Brien (IL)</b>		
CERCLIS, FINDS	U.S. Drum	Not on the NPL. Assigned a "high priority for further assessment" in 1995. Expanded Site Investigation (ESI) start needed.
CERC-NFRAP	Calumet Harbor Industrial Complex	Site archived in 1991.
SWF/LF	CID Transfer Station	Active.
LUST, NPDES	Nu-Car Carriers, Inc.	Diesel, three incidents.
LUST	Steel Supply of U.S. Metal Source	Status not reported.
<b>State Line (IL/IN)</b>		
CERCLIS, CORRACTS, RCRA-SQG, FINDS, PRP	GM Wrecking Co., Inc. (Estech Chemical)	Site assessment and corrective action ongoing.
RCRA-SQG, FINDS, IL BOL	Rostoker, Inc.	Status unknown.
FTTS, IL NPDES, IL AIRS, IL TIER 2, IL BOL, RCRA-CESQG, FINDS	Purdy Company, Scrap Metal Services	Status unknown.
IL AIRS, IL BOL, RCRA NonGen / NLR, FINDS, US BROWNFIELDS	Burnham Steel and Wire	Phase I ESA completed. EPA funded Brownfield Cleanup.
IL LUST, IL UST, IL TIER 2, IL BOL, IL AIRS, RCRA-SQG, FINDS, US AIRS	Calumet Lubricants Co.	Non-petro LUST reported 09/27/1991. Status unknown.
IL SRP, IL BOL	Brainard	No NFR letter. Active SRP site.

**TABLE G.24 (CONT.)**

Database	Site Name	Status
<b>State Line (IL/IN) Cont.</b>		
IL BOL, RCRA NonGen / NLR, FINDS, IN MANIFEST	Midwest Auto Recycling	Non-petro LUST 09/27/1991, status unknown. No RCRA violations reported.
IL BOL	GD Searle & Co.	Status unknown.
EDR MGP	NIPSCO Hammond Manufactured Gas Plant	Indiana Voluntary Remediation (IVR) Program #6980801.
IN NPDES, IN LUST, IN UST, IN AIRS, RCRA NonGen / NLR	Calumet Flexicore Company	Two "active" LUSTs, one closed.
IL LUST	CSX Transportation	Other petro LUST reported 05/03/1994. Status unknown.
<b>Brandon Road (IL)</b>		
CERCLIS-NFRAP, RCRA-NonGen	Purex Corp. Turco Products	Site archived 08/26/1993.
SWF/LF	M&W Landfill #3	Closed final cover. Permitted.
SWF/LF	Persico Landfill	Closed final cover. Unpermitted Unauthorized.
SWF/LF	Foschi Brothers, Inc.	Closed final cover. Unpermitted Unauthorized.
LUST	Meade Electric Company, Inc.	Gasoline LUST identified as a high priority for cleanup. Status unknown.
<b>Oak Lawn (IL)</b>		
ENG CONTROLS, INST CONTROL, SRP, AIRS, BOL, FINDS, RCRA NonGen / NLR, FINDS	Aldi, Inc. Store 17, Stoney Creek Funeral Home	Comprehensive site remediation. Groundwater use restriction, asphalt/concrete barrier. NFR letter: 06/12/2002.
LUST	Worth Bank & Trust	Spill incident 09/16/1993. Non-LUST Determination Letter: 08/04/1994. No NFR letter.
LUST	Mobil Oil Corporation	Used fuel LUST spill recorded 11/12/1993. 20-day and 45-day certifications were completed. Site classification Work Plan was mailed on 8/29/1994.
ENG CONTROLS, INST CONTROL, SRP, DRYCLEANERS, BOL	Giovanni's Cleaners	Focused site remediation. Groundwater use restriction, asphalt barrier. NFR Letter: 06/03/2010.
<b>McCook (IL)</b>		
RCRA-TSDF, CERC-NFRAP, CORRACTS, RCRA NonGen, IL LUST, IL HWAR, IL AIRS, IL BOL	Beaver Oil Co., Inc.	Delisted from CERCLA in 1996. RCRA Corrective action status unclear. Many RCRA-TSDF violations. LUST NFA/NFR Letter: 06/05/1992.
CERC-NFRAP, IL BOL	Parkview Mobile Home Park	Delisted from CERCLA in 1990.
RCRA-TSDF, CORRACTS, RCRA-LQG, TRIS,	Electromotive Diesel, Inc.	Many RCRA-TSDF violations.
IL NIPC	Joliet Road/55th St.	Former solid waste disposal site.
IL NIPC	Joliet Road/East Ave.	Former solid waste disposal site.
IL SRP, IL BOL	ComEd Hodgkins Vacant Lot	SRP status unknown.



**TABLE G.24 (CONT.)**

<b>Thornton (IL)</b>		
RCRA-SQG, FINDS, LUST, INST CONTROL, SRP, BOL	Donahue's Truck Plaza	No RCRA-SQG violations found. Six USTs removed. LUST NFA/NFR Letter: 07/18/1994. SRP NFR letter: 03/21/2000. Groundwater use restriction at the site.
RCRA-SQG, FINDS, UST, TIER 2, BOL, HWAR, SPILLS,	UPS Freight	No RCRA-SQG violations found. Two diesel USTs currently in use. Two spill incidents reported: 12/03/2005, 04/29/2009. Status of cleanup unknown.
SRP, BOL, BROWNFIELDS	Parnell East	Active project, 0.22 ac.
SPILLS, BOL	GM Wrecking	Unknown spill, 06/02/1987.
LUST, BOL	Illinois Bulk Carrier, Inc.	No LUST NFA/NFR letter.
LUST, SPILLS, TIER 2	Ryder Truck Rental	Five reported LUST incidents: (1) Diesel, 10/01/1991 (2) Fuel oil, NFA/NFR: 06/20/2006 (3) Diesel, 05/09/2007 (4) Diesel 02/18/1989 (5) Non-petro, 09/15/1989.
LUST	Gallagher Asphalt Corp.	No LUST NFA/NFR letter.

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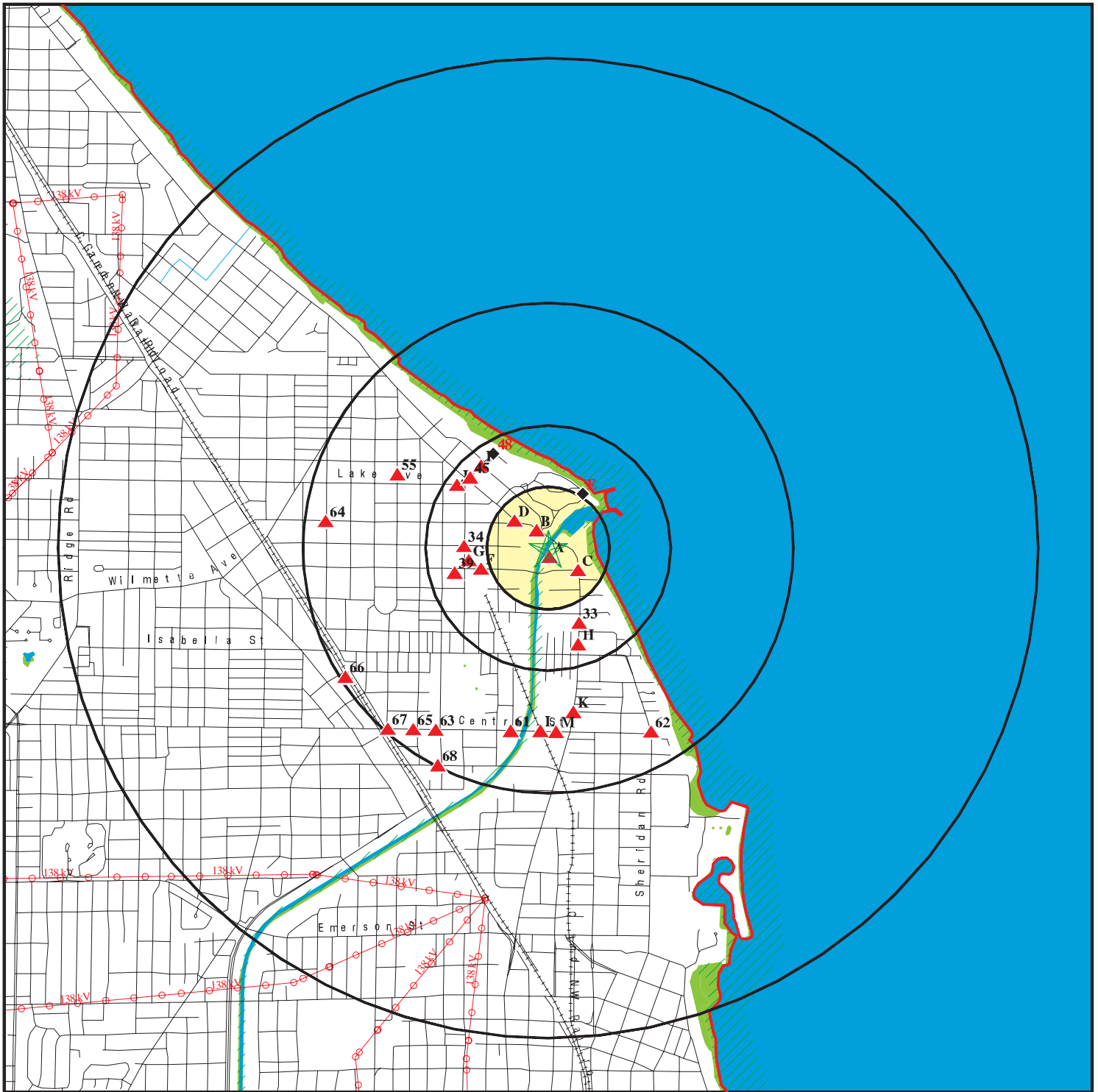
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**ATTACHMENT**  
**OVERVIEW AND DETAIL MAPS**



# OVERVIEW MAP - 3415745.9s



★ Target Property

▲ Sites at elevations higher than or equal to the target property

◆ Sites at elevations lower than the target property

▲ Manufactured Gas Plants

■ National Priority List Sites

■ Dept. Defense Sites

■ Indian Reservations BIA

▬ County Boundary

▬ Power transmission lines

▬ Oil & Gas pipelines from USGS

▨ 100-year flood zone

▨ 500-year flood zone

■ National Wetland Inventory

0 1/2 1 2 Miles

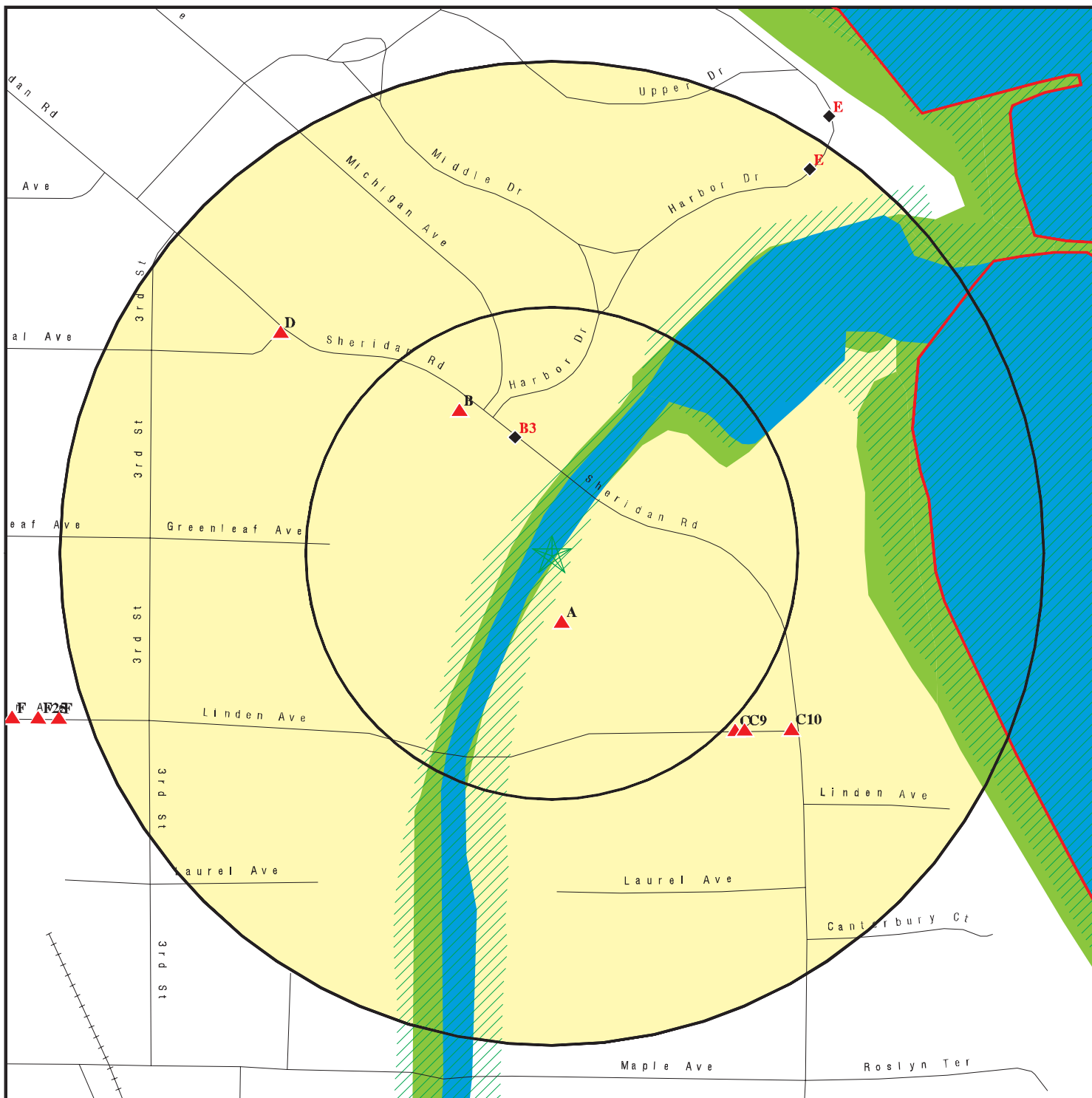
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 Wilmette IL 60091  
 LAT/LONG: 42.075 / 87.6853






CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Lauren Fleer  
 INQUIRY #: 3415745.9s  
 DATE: September 21, 2012 4:55 pm

G-79

# DETAIL MAP - 3415745.9s



-  Target Property
-  Sites at elevations higher than or equal to the target property
-  Sites at elevations lower than the target property
-  Manufactured Gas Plants
-  Sensitive Receptors
-  National Priority List Sites
-  Dept. Defense Sites

-  Indian Reservations BIA
-  County Boundary
-  Oil & Gas pipelines from USGS
-  100-year flood zone
-  500-year flood zone
-  National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

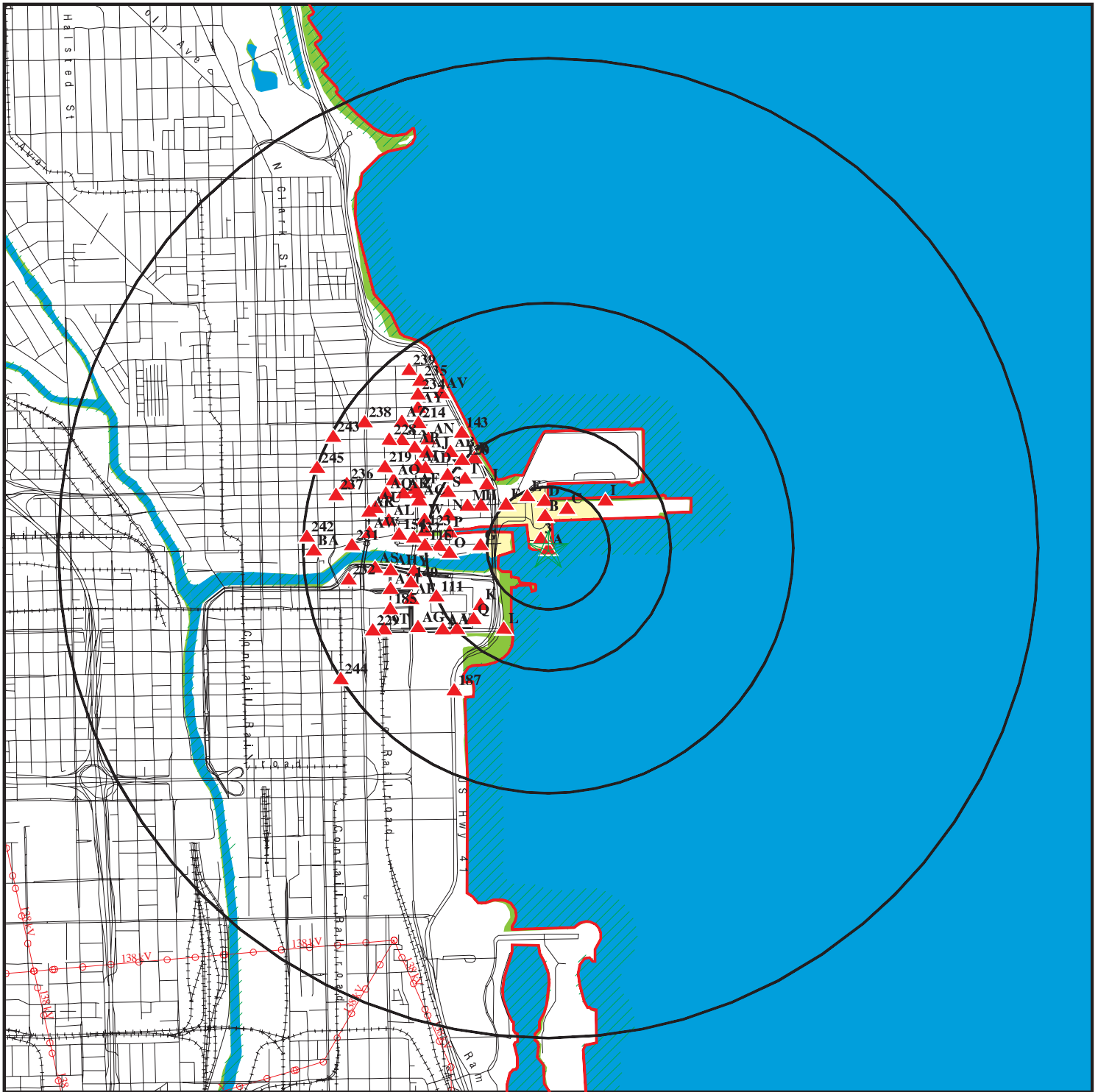
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 ADDRESS: 130 Linden Ave.  
 Wilmette IL 60091  
 LAT/LONG: 42.075 / 87.6853

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Lauren Fleer  
 INQUIRY #: 3415745.9s  
 DATE: September 21, 2012 4:57 pm

G-80



# OVERVIEW MAP - 3415745.16s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Power transmission lines
- Oil & Gas pipelines from USGS
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory



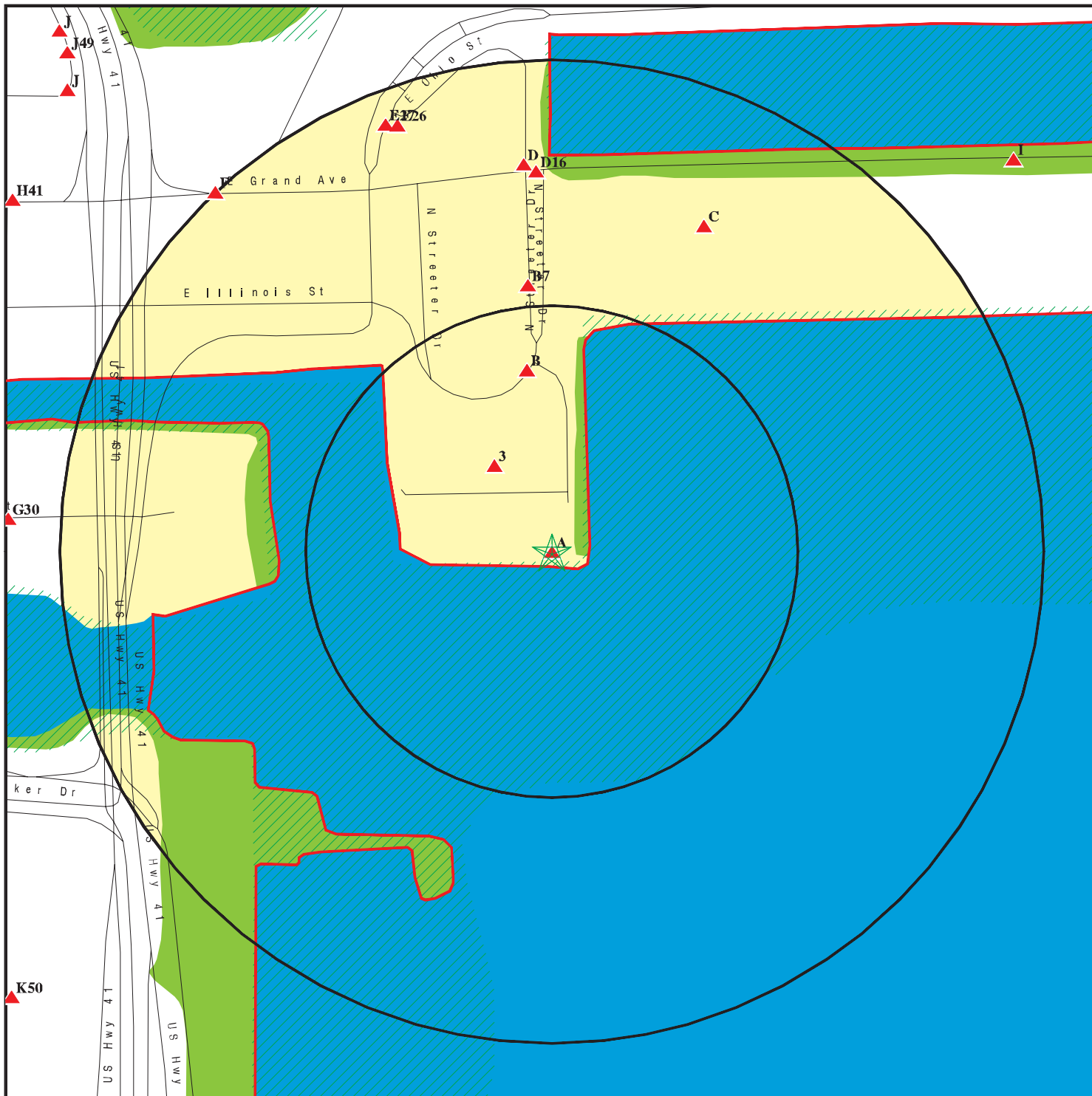
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 ADDRESS: 250 N. Breakwater Access  
 Chicago IL 60611  
 LAT/LONG: 41.8893 / 87.6098

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Lauren Fleer  
 INQUIRY #: 3415745.16s  
 DATE: September 21, 2012 4:59 pm

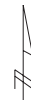
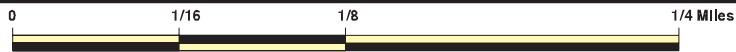
G-81

# DETAIL MAP - 3415745.16s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

- Indian Reservations BIA
- County Boundary
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory



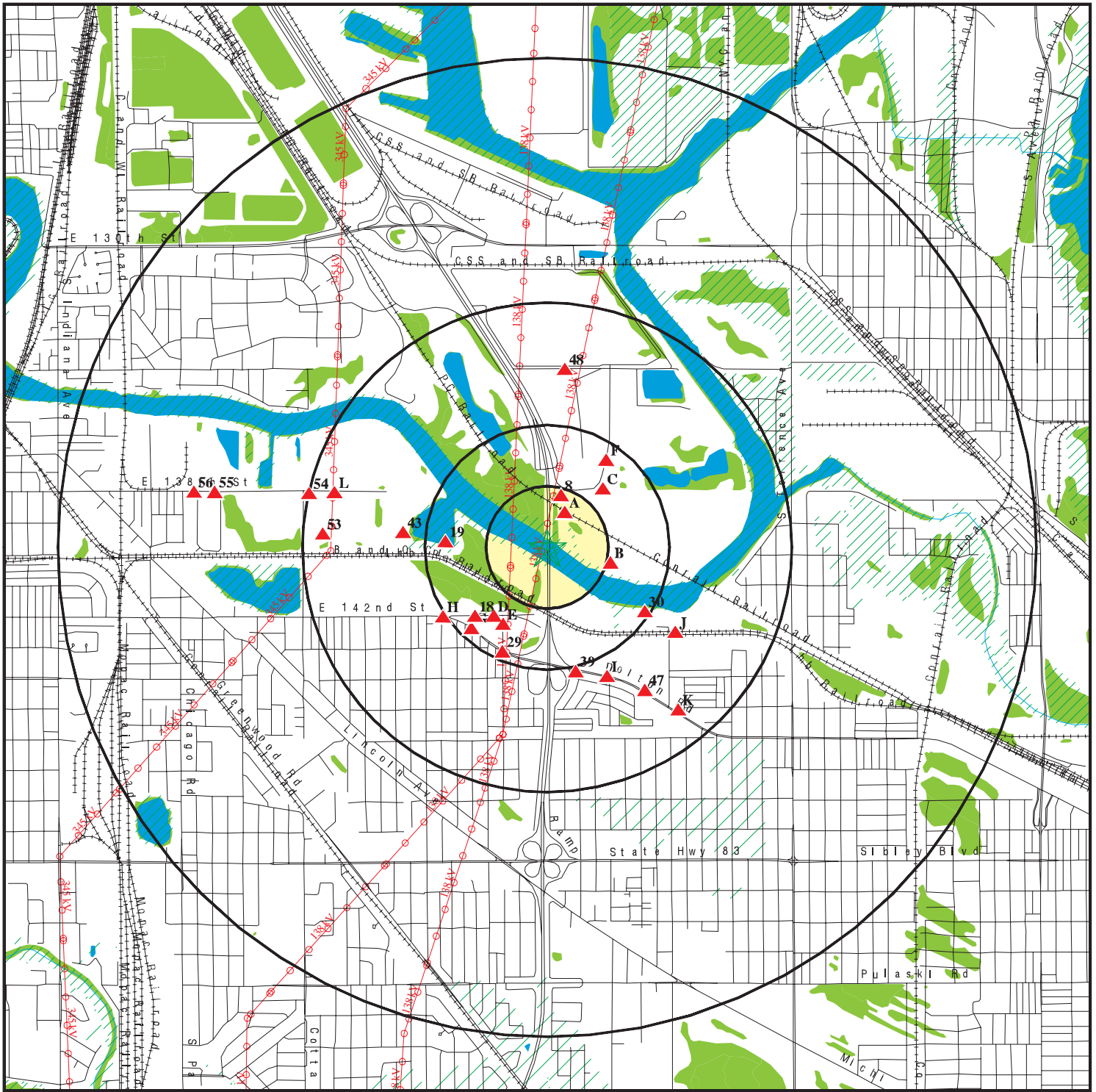
This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Chicago River at RM 327.12  
 ADDRESS: 250 N. Breakwater Access  
 Chicago IL 60611  
 LAT/LONG: 41.8893 / 87.6098

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Lauren Fleer  
 INQUIRY #: 3415745.16s  
 DATE: September 21, 2012 5:02 pm

G-82

# OVERVIEW MAP - 3415745.23s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- ⚡ Power transmission lines
- ⚡ Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory



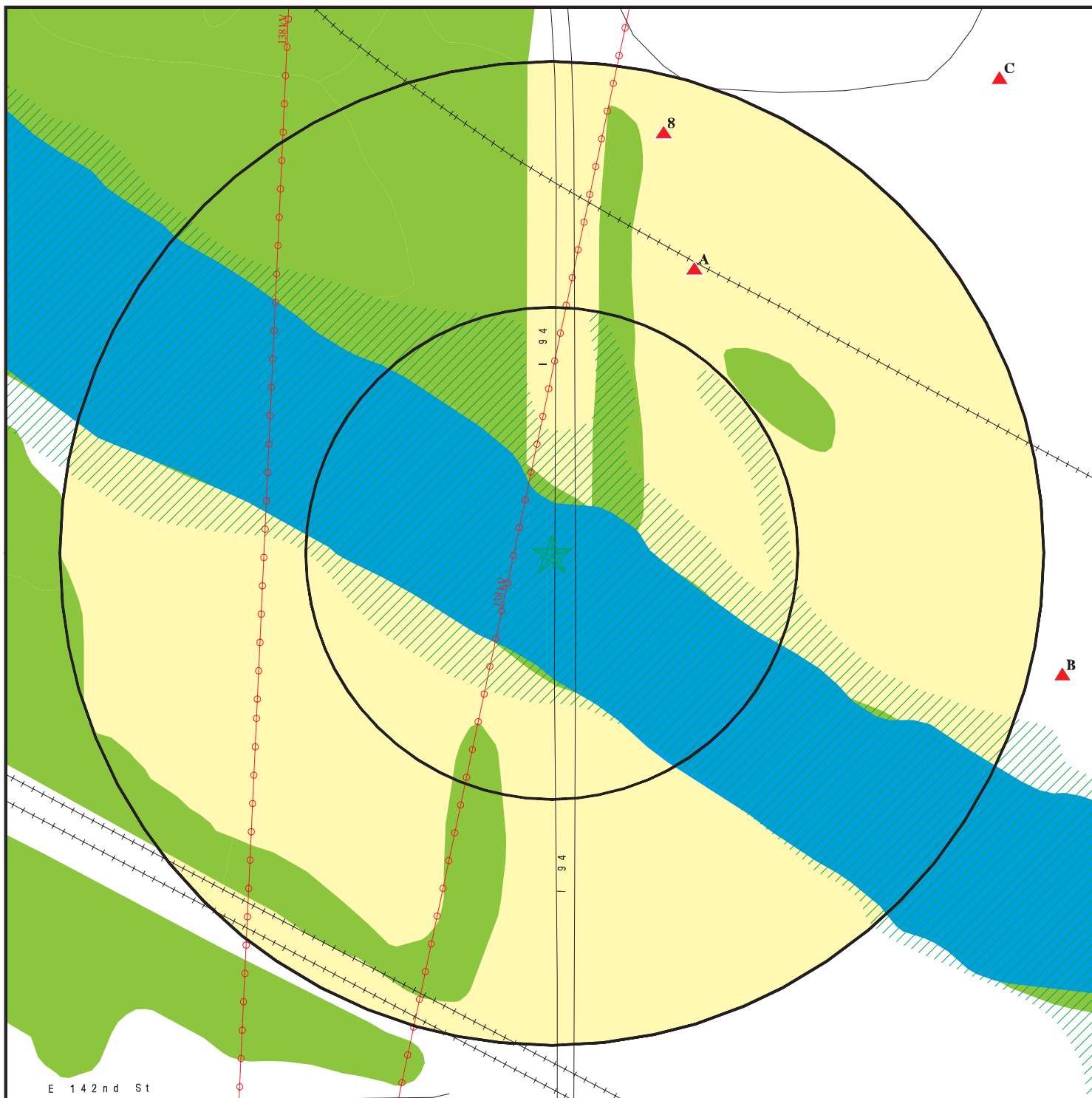
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 ADDRESS: 1200 E. 138th St.  
 Riverdale IL 60827  
 LAT/LONG: 41.6413 / 87.5786

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Lauren Fleer  
 INQUIRY #: 3415745.23s  
 DATE: September 21, 2012 4:59 pm

G-83

# DETAIL MAP - 3415745.23s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- ☒ National Priority List Sites
- ☒ Dept. Defense Sites

- ☒ Indian Reservations BIA
- ⚡ Power transmission lines
- ⚡ Oil & Gas pipelines from USGS
- ☒ 100-year flood zone
- ☒ 500-year flood zone
- ☒ National Wetland Inventory

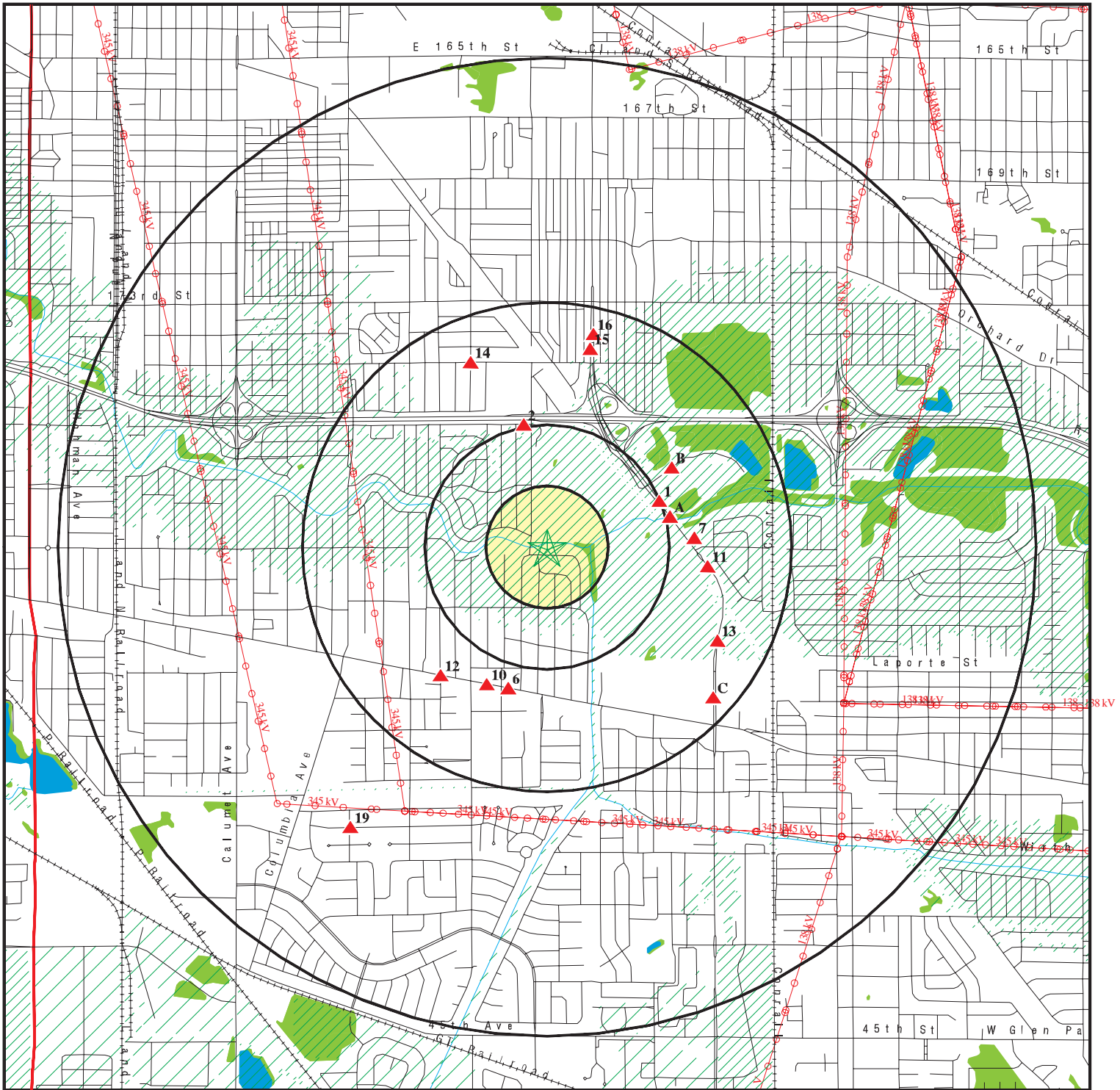
This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Calumet - LCRN Lower at RM 324.50  
 ADDRESS: 1200 E. 138th St.  
 Riverdale IL 60827  
 LAT/LONG: 41.6413 / 87.5786

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Lauren Fleer  
 INQUIRY #: 3415745.23s  
 DATE: September 21, 2012 5:00 pm

G-84

# OVERVIEW MAP - 3415745.30s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- ⚡ County Boundary
- ⚡ Power transmission lines
- ⚡ Oil & Gas pipelines from USGS
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory

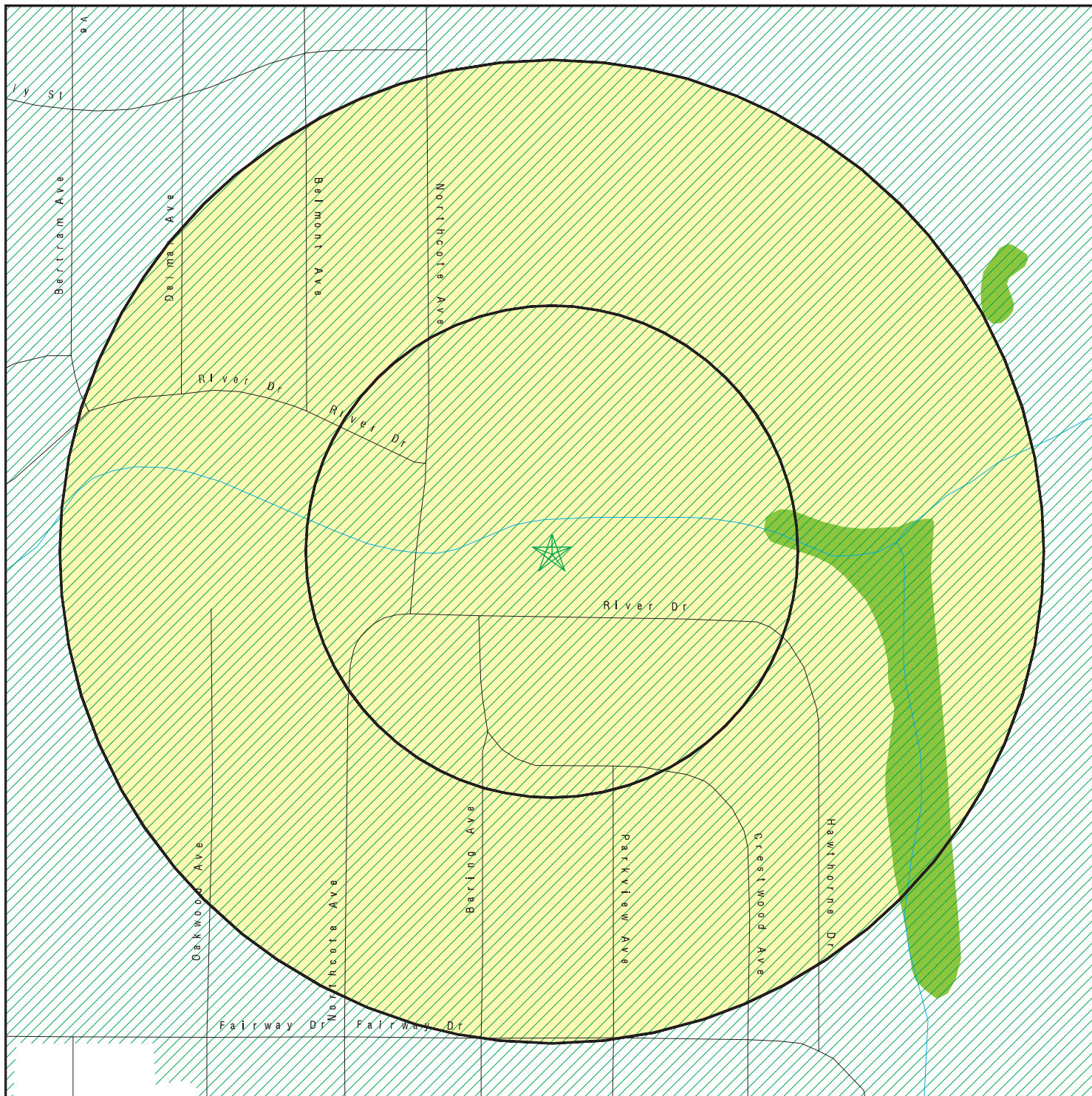
This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Little Cal at RM 86884  
 ADDRESS: 1822 S. River Drive  
 Munster IN 46321  
 LAT/LONG: 41.5666 / 87.4845

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Lauren Fleer  
 INQUIRY #: 3415745.30s  
 DATE: September 21, 2012 4:59 pm

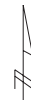
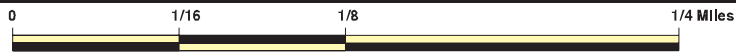
G-85

# DETAIL MAP - 3415745.30s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚙ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- 🚧 National Priority List Sites
- 🏠 Dept. Defense Sites

- 🏠 Indian Reservations BIA
- 🛢 Oil & Gas pipelines from USGS
- 🌊 100-year flood zone
- 🌊 500-year flood zone
- 🌿 National Wetland Inventory



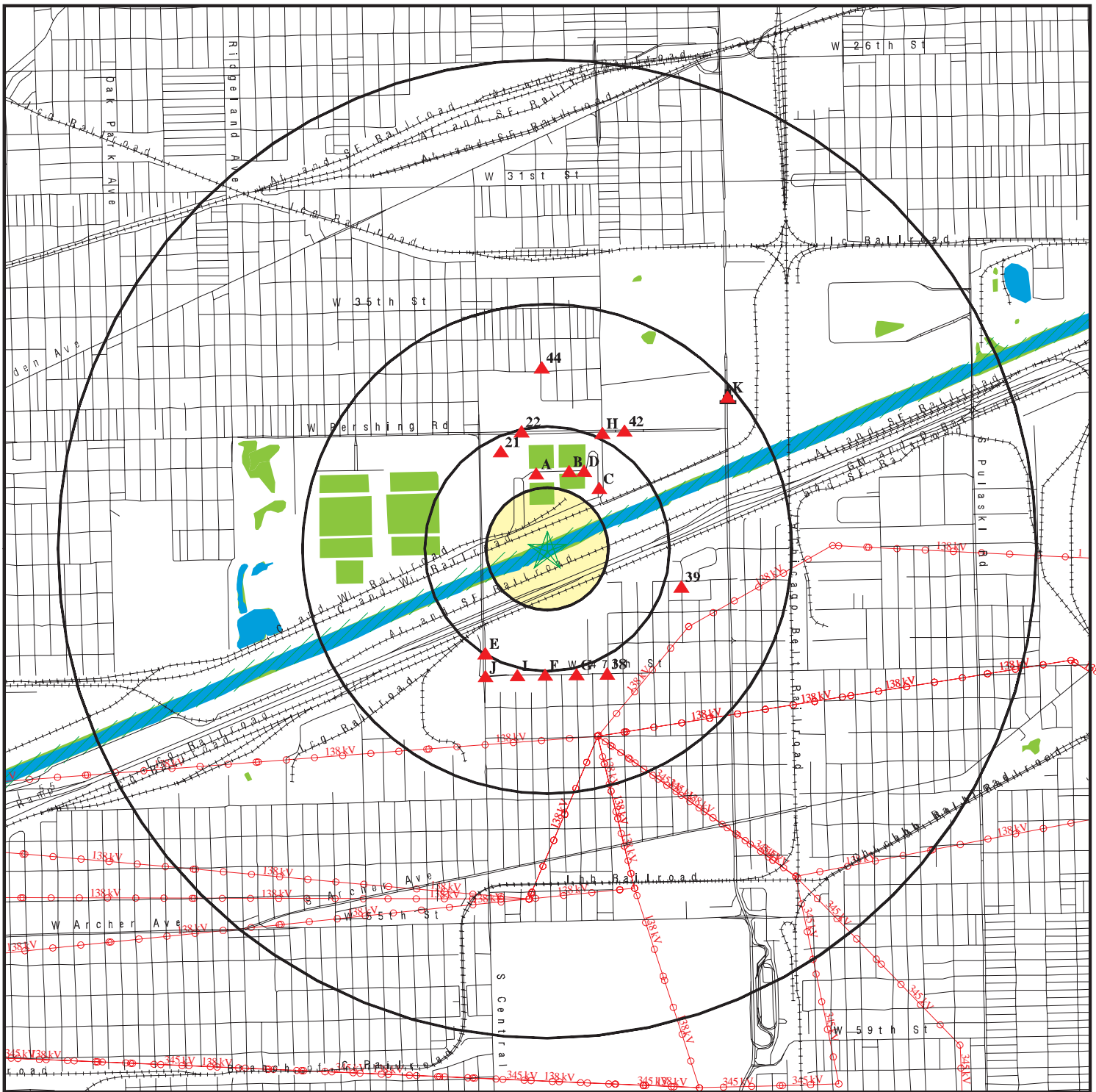
This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Little Cal at RM 86884  
 ADDRESS: 1822 S. River Drive  
 Munster IN 46321  
 LAT/LONG: 41.5666 / 87.4845

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Lauren Fleer  
 INQUIRY #: 3415745.30s  
 DATE: September 21, 2012 5:01 pm

G-86

# OVERVIEW MAP - 2901990.5s



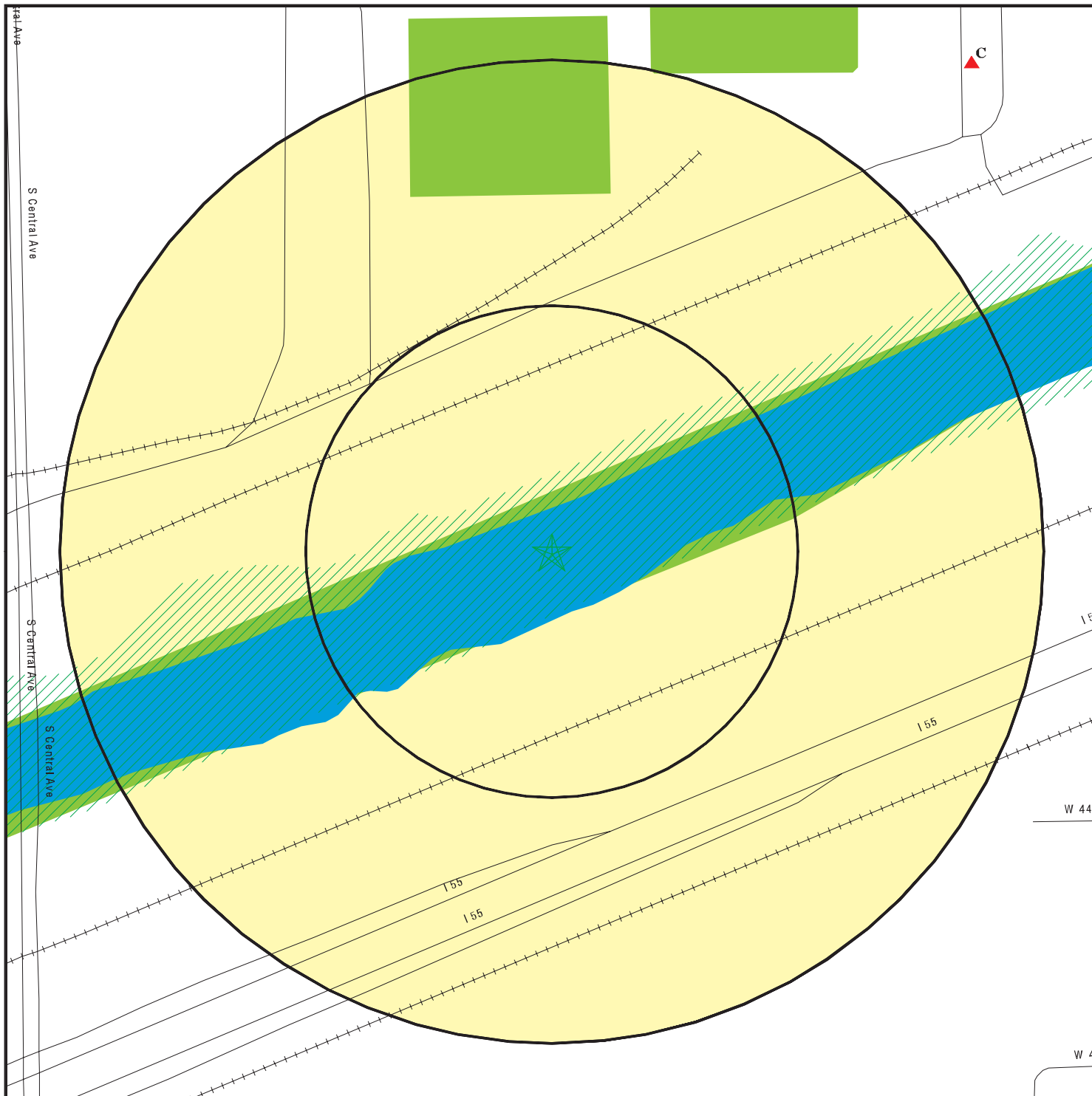
- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- ⚡ Power transmission lines
- ⚡ Oil & Gas pipelines
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory

SITE NAME: Cicero  
 ADDRESS: S Central Ave and S Laramie Ave  
 Chicago IL 60638  
 LAT/LONG: 41.8149 / 87.7577

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Jennifer Raber  
 INQUIRY #: 2901990.5s  
 DATE: October 22, 2010 12:52 pm

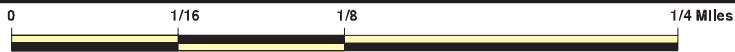
G-87

# DETAIL MAP - 2901990.5s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚙ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- 🚧 National Priority List Sites
- 🏠 Dept. Defense Sites

- 🏠 Indian Reservations BIA
- 🛢 Oil & Gas pipelines
- 🌊 100-year flood zone
- 🌊 500-year flood zone
- 🌿 National Wetland Inventory



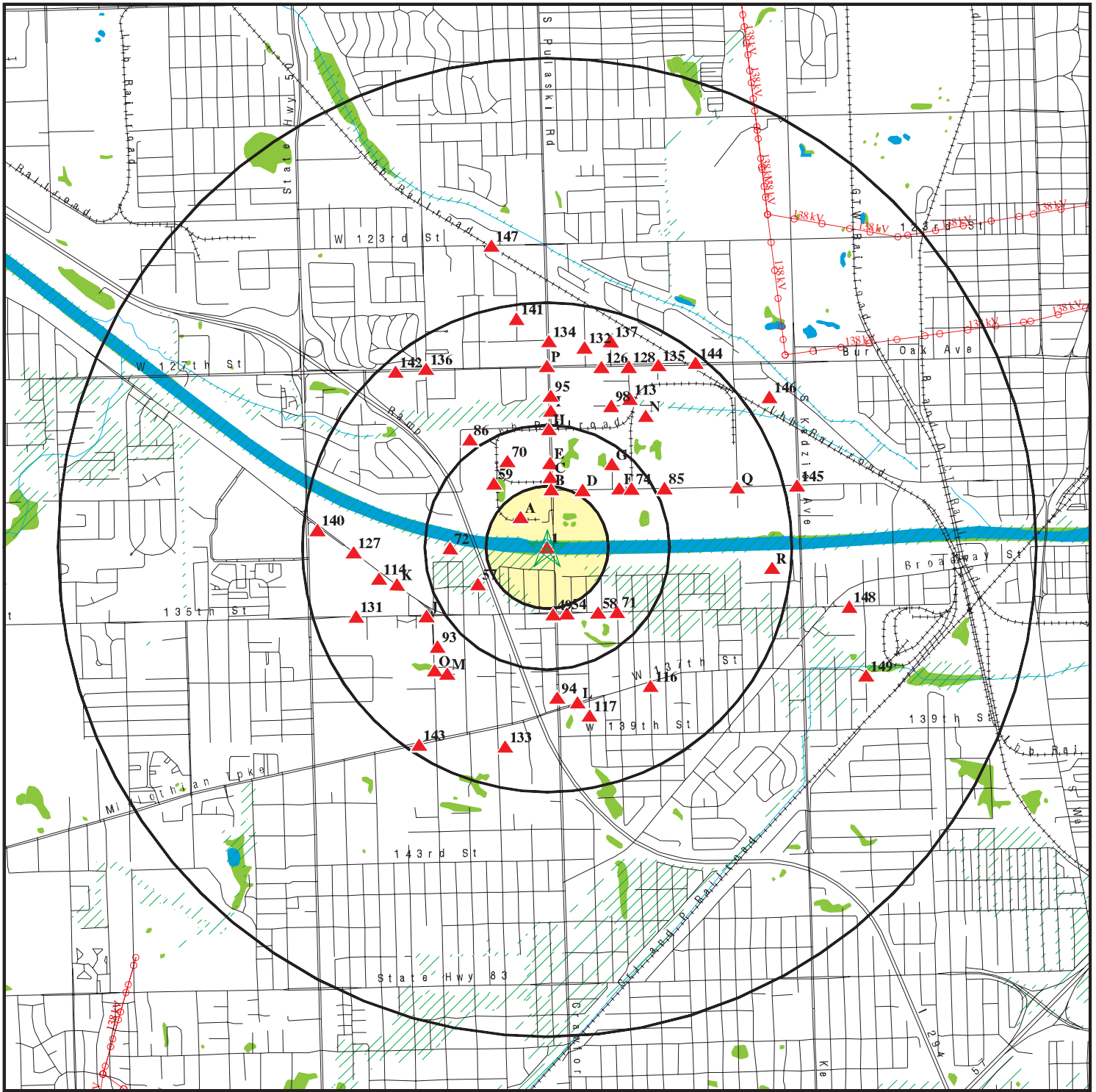
SITE NAME: Cicero  
 ADDRESS: S Central Ave and S Laramie Ave  
 Chicago IL 60638  
 LAT/LONG: 41.8149 / 87.7577

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Jennifer Raber  
 INQUIRY #: 2901990.5s  
 DATE: October 22, 2010 12:52 pm

G-88



# OVERVIEW MAP - 3415745.2s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines from USGS
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory

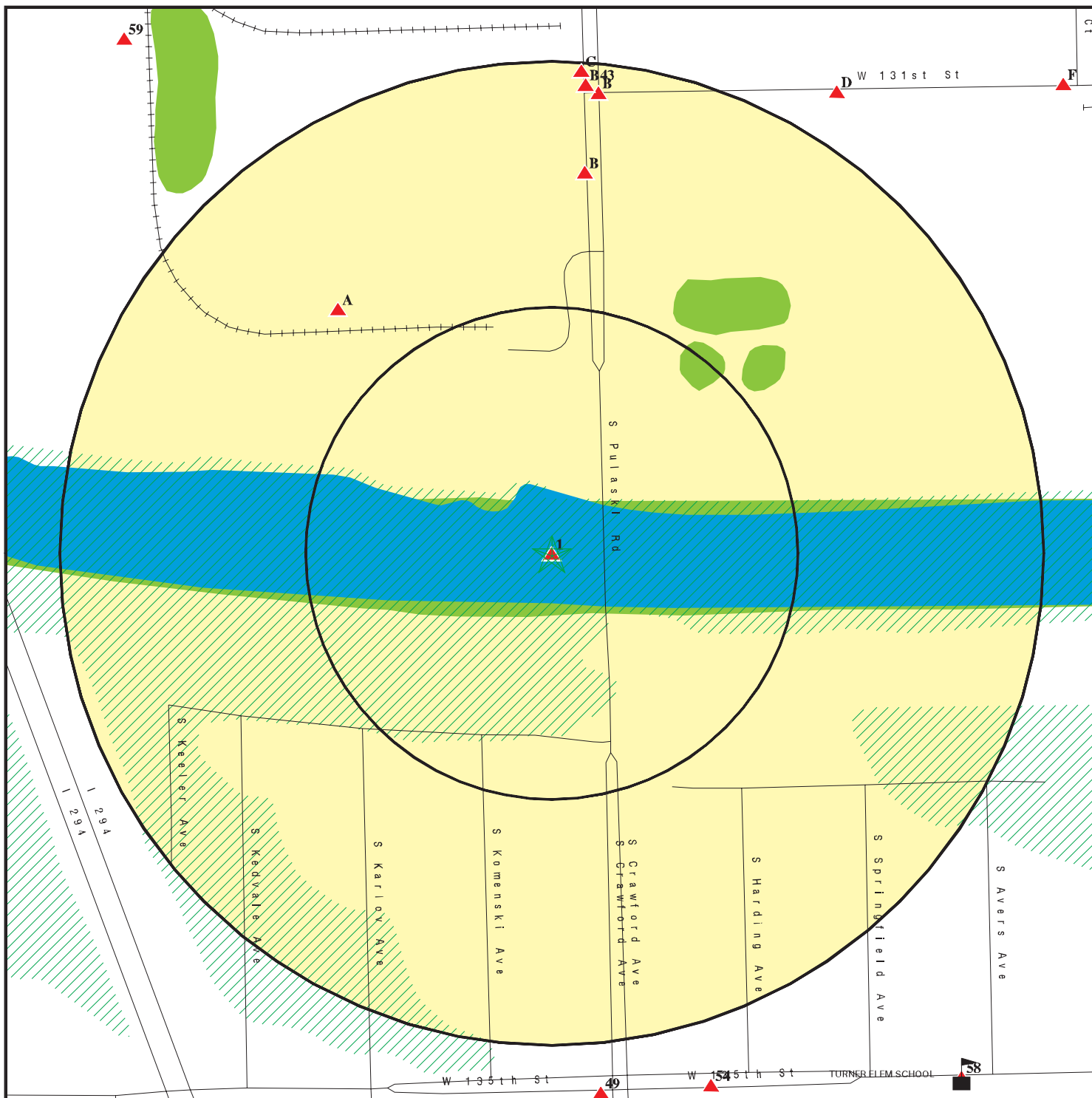
This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Cal-Sag at RM 315.89  
 ADDRESS: 13160 South Crawford Ave.  
 Alsip IL 60803  
 LAT/LONG: 41.6514 / 87.7193

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Lauren Fleer  
 INQUIRY #: 3415745.2s  
 DATE: September 21, 2012 4:57 pm

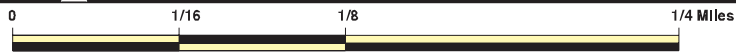
G-89

# DETAIL MAP - 3415745.2s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚙ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- 🚧 National Priority List Sites
- 🏠 Dept. Defense Sites

- 🏞 Indian Reservations BIA
- 🛢 Oil & Gas pipelines from USGS
- 🌊 100-year flood zone
- 🌊 500-year flood zone
- 🌿 National Wetland Inventory



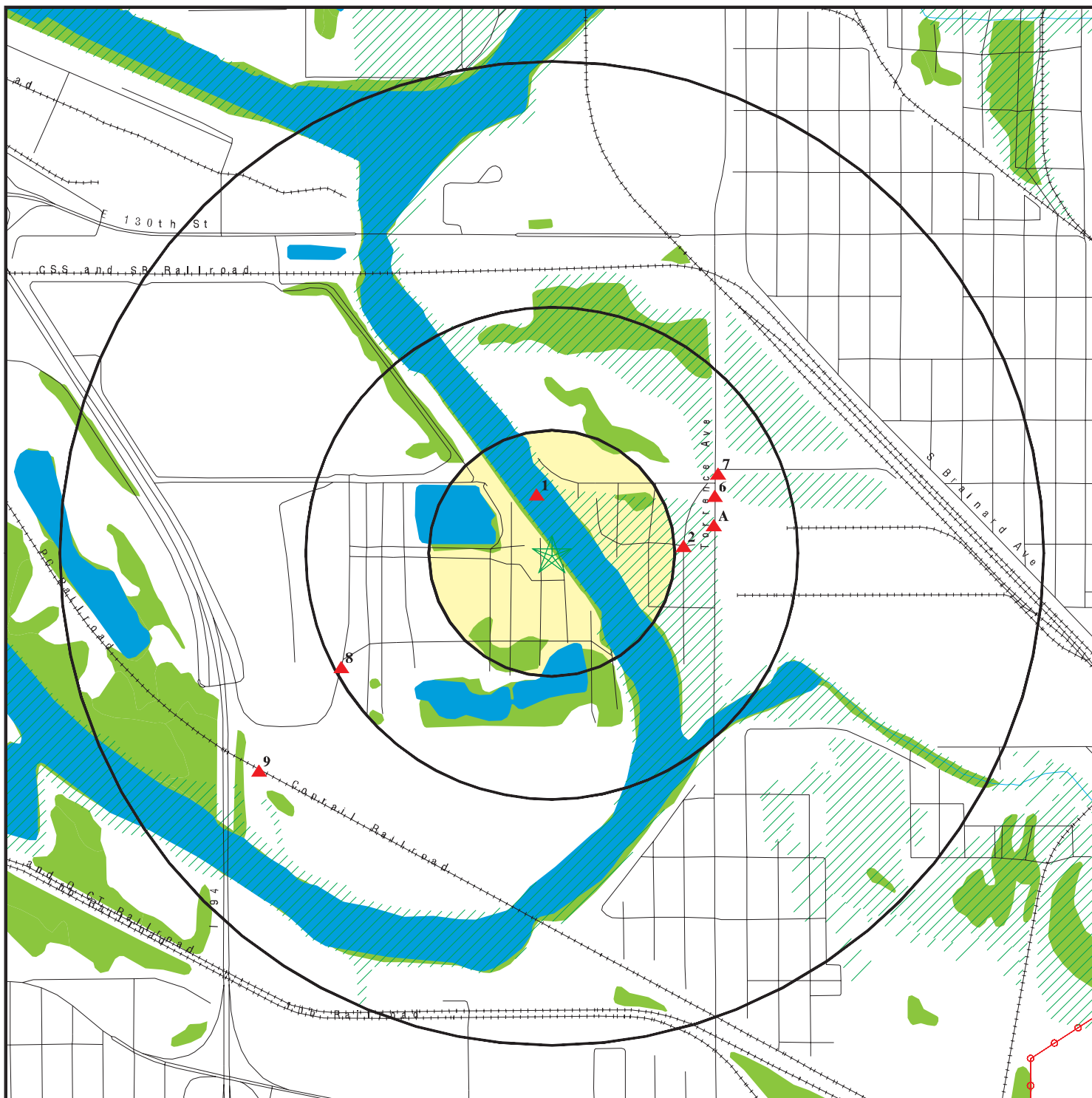
This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Cal-Sag at RM 315.89  
 ADDRESS: 13160 South Crawford Ave.  
 Alsip IL 60803  
 LAT/LONG: 41.6514 / 87.7193

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Lauren Fleer  
 INQUIRY #: 3415745.2s  
 DATE: September 21, 2012 4:59 pm

G-90

# OVERVIEW MAP - 2723940.2s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- ⚡ Power transmission lines
- ⚡ Oil & Gas pipelines
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory

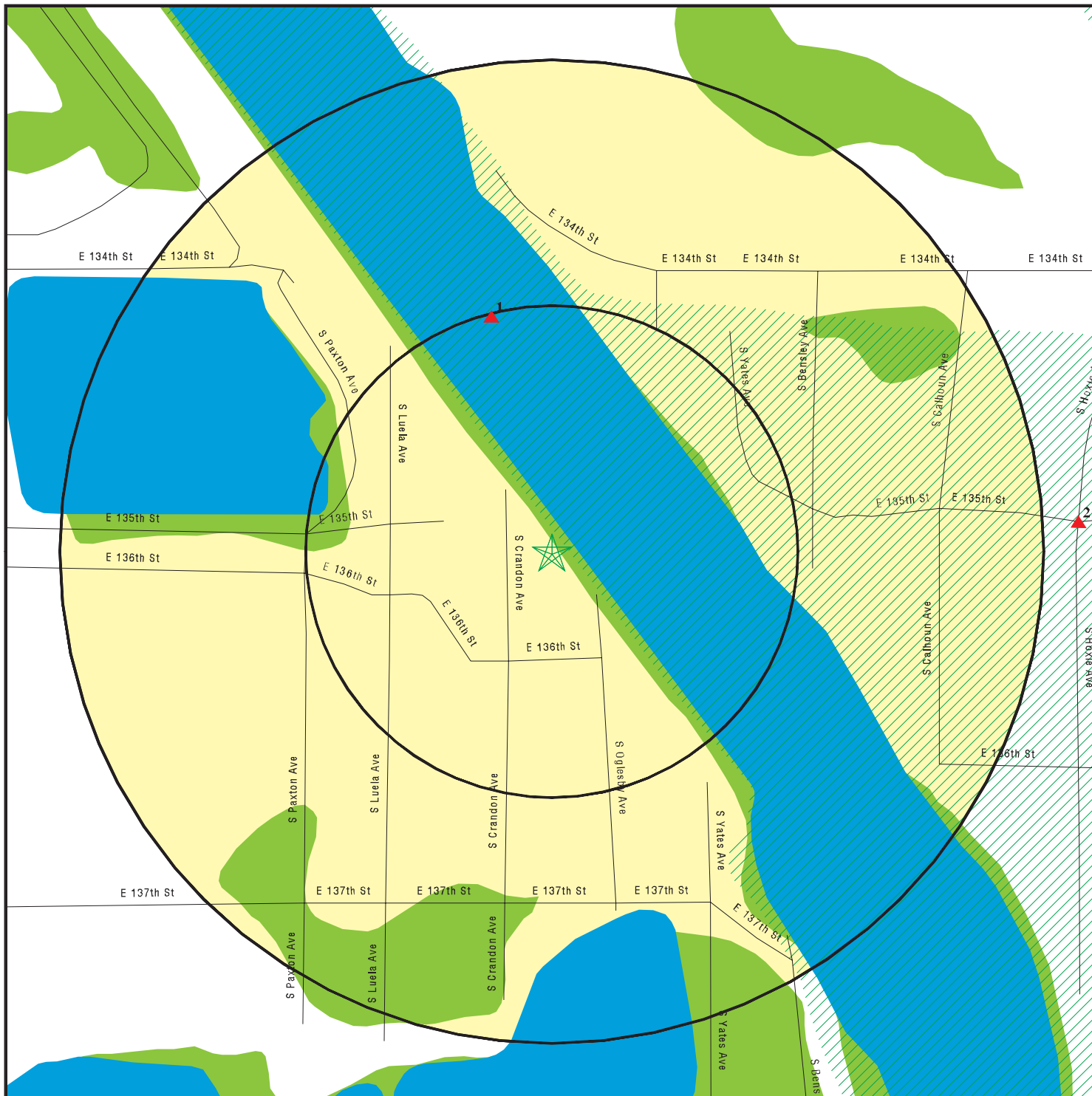


SITE NAME: O'Brien Lock  
 ADDRESS: E 134th St  
 Chicago IL 60633  
 LAT/LONG: 41.6498 / 87.5657

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Jennifer Raber  
 INQUIRY #: 2723940.2s  
 DATE: March 18, 2010 9:55 am

G-91

# DETAIL MAP - 2723940.2s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚙ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- 🚧 National Priority List Sites
- 🏠 Dept. Defense Sites

- 🏠 Indian Reservations BIA
- 🛢 Oil & Gas pipelines
- 🌊 100-year flood zone
- 🌊 500-year flood zone
- 🌿 National Wetland Inventory

SITE NAME: O'Brien Lock  
 ADDRESS: E 134th St  
 Chicago IL 60633  
 LAT/LONG: 41.6498 / 87.5657

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Jennifer Raber  
 INQUIRY #: 2723940.2s  
 DATE: March 18, 2010 9:55 am

G-92

# OVERVIEW MAP - 2721409.2s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory

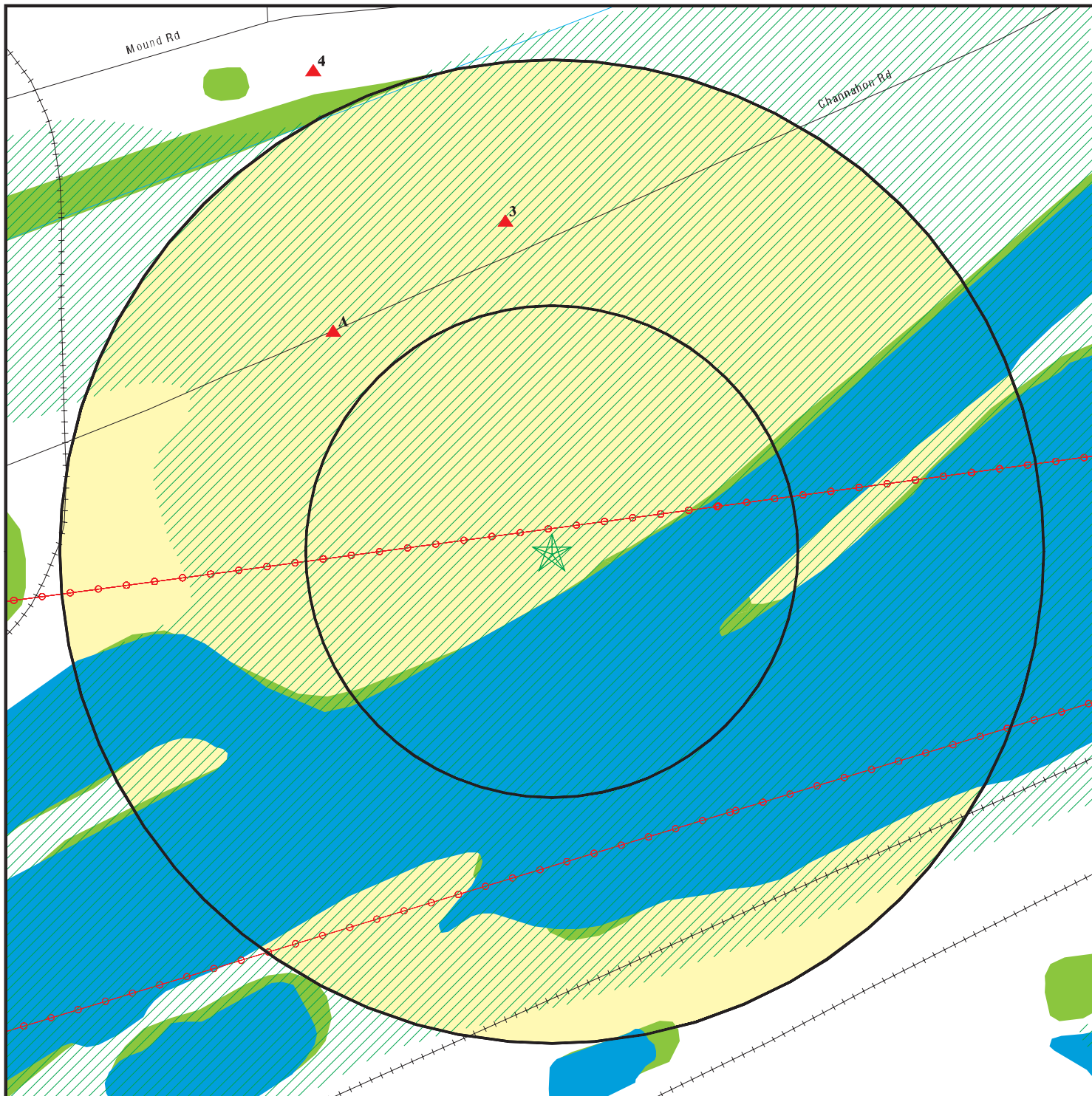


SITE NAME: Brandon Lock  
 ADDRESS: Channahon Rd  
 Joliet IL 60436  
 LAT/LONG: 41.4987 / 88.1116

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Jennifer Raber  
 INQUIRY #: 2721409.2s  
 DATE: March 16, 2010 9:54 am

G-93

# DETAIL MAP - 2721409.2s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- ☒ National Priority List Sites
- ☒ Dept. Defense Sites

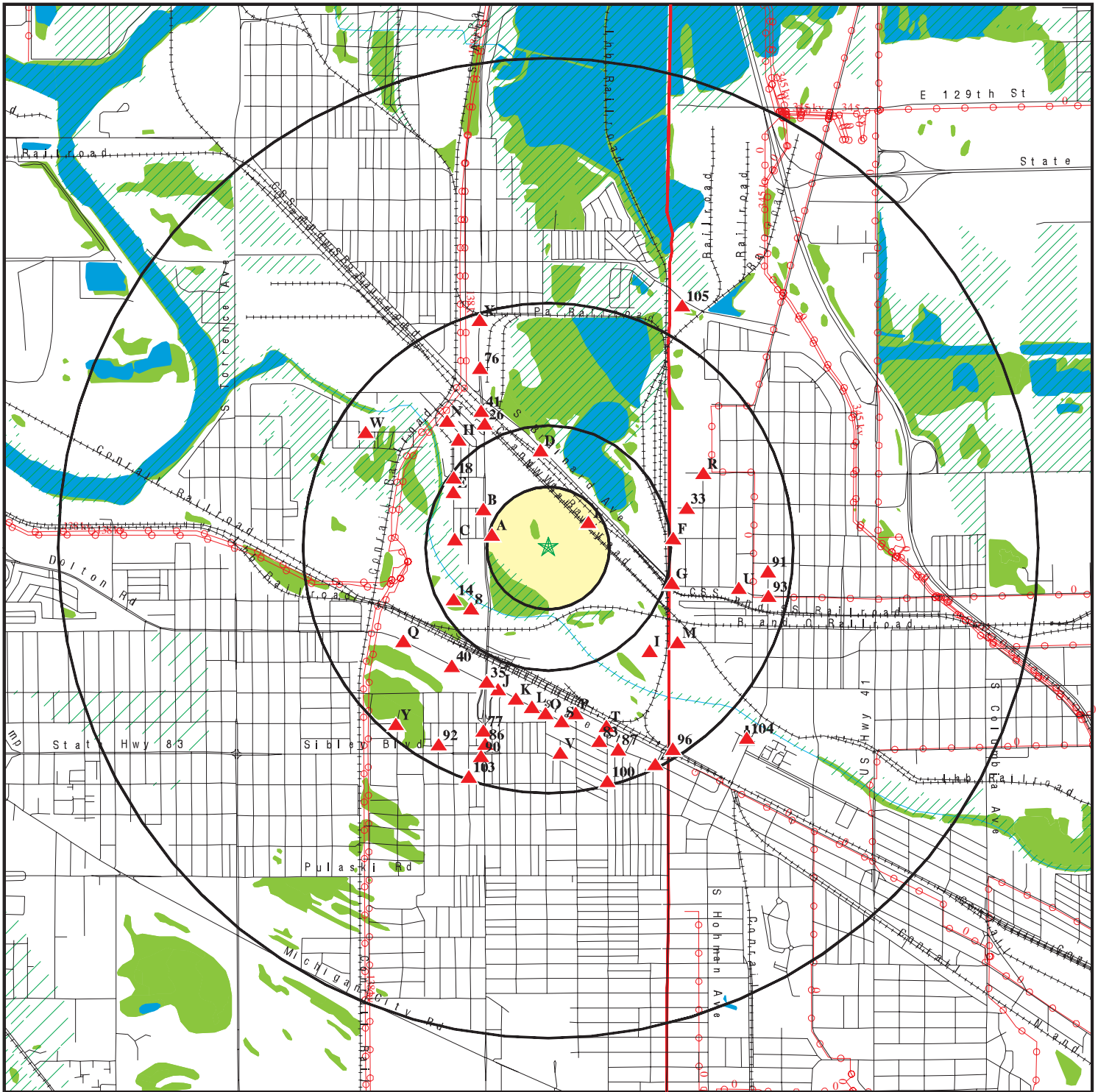
- 0 1/16 1/8 1/4 Miles
- ☒ Indian Reservations BIA
- ⚡ Power transmission lines
- ⚡ Oil & Gas pipelines
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory

SITE NAME: Brandon Lock  
 ADDRESS: Channahon Rd  
 Joliet IL 60436  
 LAT/LONG: 41.4987 / 88.1116

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Jennifer Raber  
 INQUIRY #: 2721409.2s  
 DATE: March 16, 2010 9:55 am

G-94

# OVERVIEW MAP - 3646652.2s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Power transmission lines
- Oil & Gas pipelines from USGS
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory

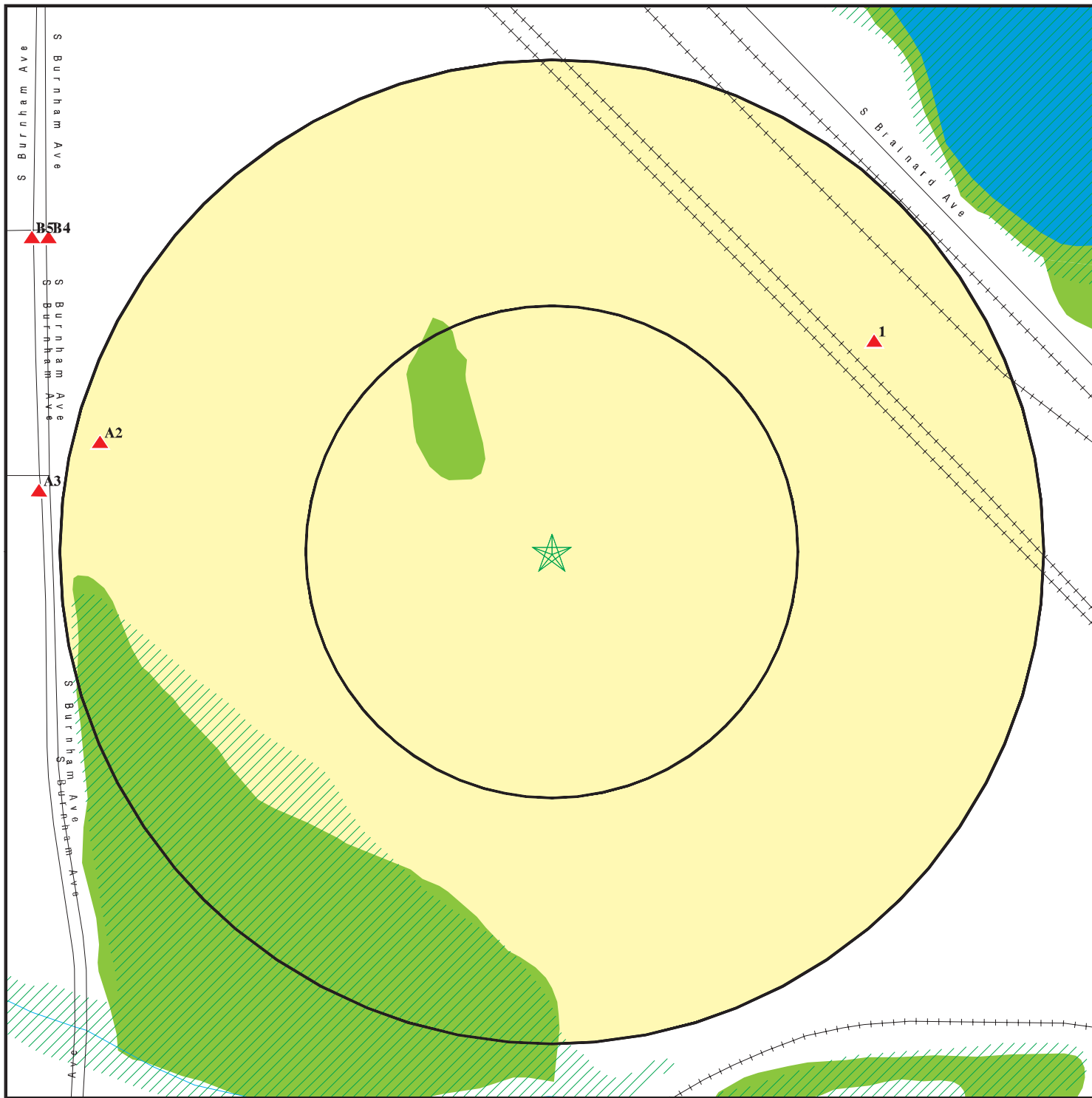
This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: State Line Reservoir  
 ADDRESS: 14301 Burnham Ave  
 Chicago IL 60633  
 LAT/LONG: 41.6349 / 87.5346

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Lauren Fleer  
 INQUIRY #: 3646652.2s  
 DATE: June 25, 2013 11:40 am

G-95

# DETAIL MAP - 3646652.2s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

- 0 1/16 1/8 1/4 Miles
- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

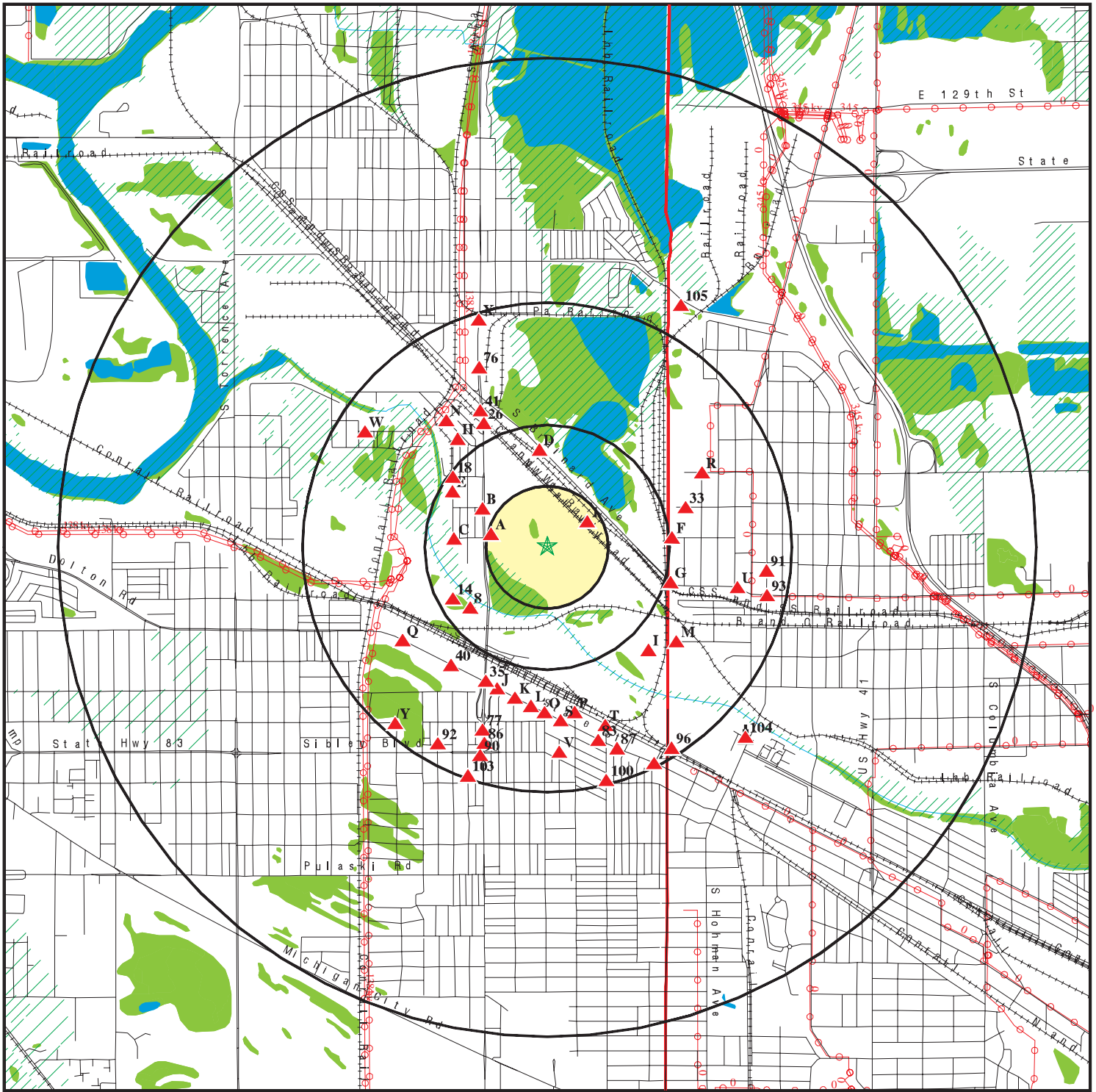
SITE NAME: State Line Reservoir  
 ADDRESS: 14301 Burnham Ave  
 Chicago IL 60633  
 LAT/LONG: 41.6349 / 87.5346

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Lauren Fleer  
 INQUIRY #: 3646652.2s  
 DATE: June 25, 2013 11:41 am

G-96



# OVERVIEW MAP - 3646652.2s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Power transmission lines
- Oil & Gas pipelines from USGS
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: State Line Reservoir  
 ADDRESS: 14301 Burnham Ave  
 Chicago IL 60633  
 LAT/LONG: 41.6349 / 87.5346

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Lauren Fleer  
 INQUIRY #: 3646652.2s  
 DATE: June 25, 2013 11:40 am

G-97

# DETAIL MAP - 3646652.2s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

- 0 1/16 1/8 1/4 Miles
- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

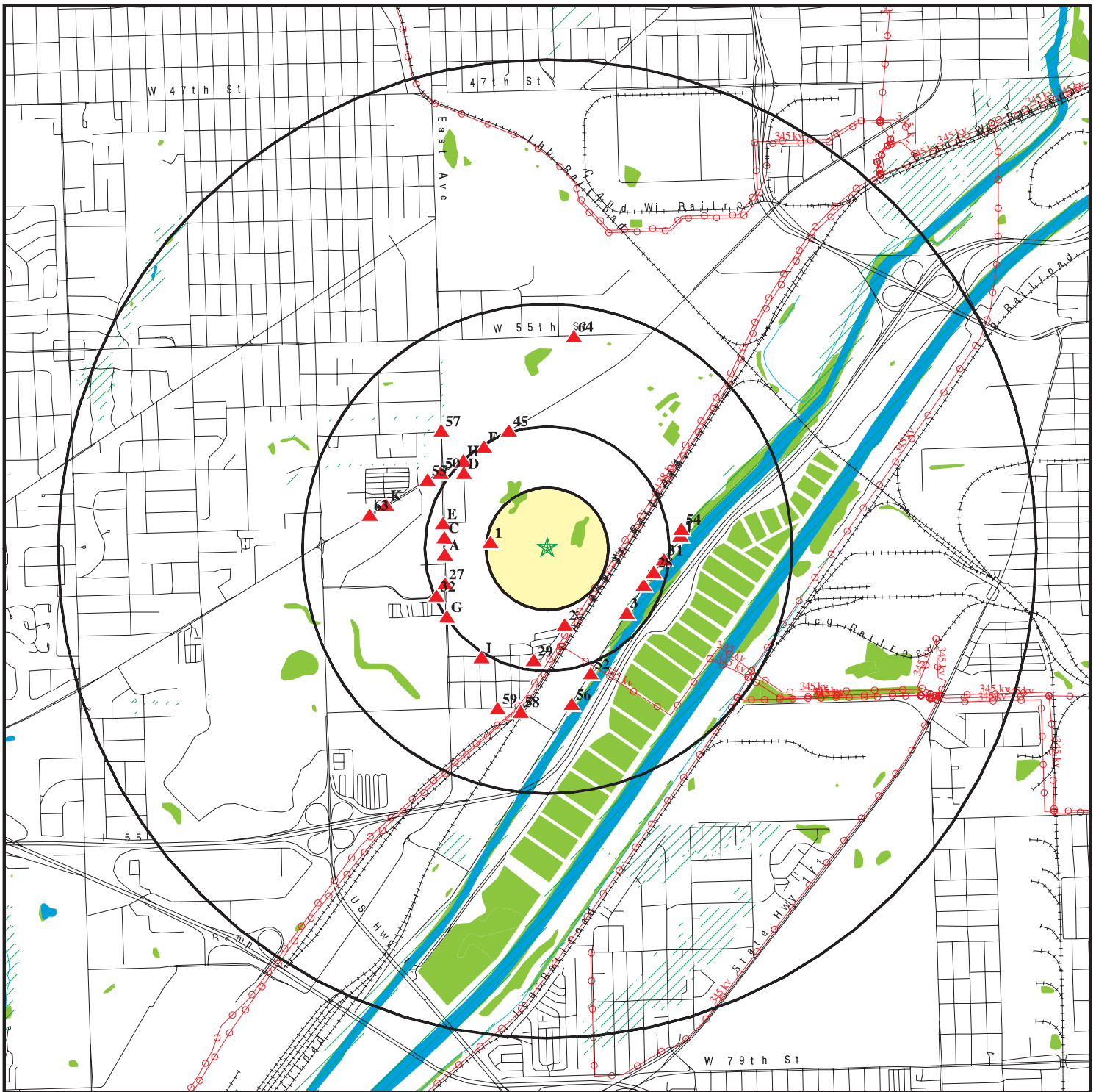
This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: State Line Reservoir  
 ADDRESS: 14301 Burnham Ave  
 Chicago IL 60633  
 LAT/LONG: 41.6349 / 87.5346

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Lauren Fleer  
 INQUIRY #: 3646652.2s  
 DATE: June 25, 2013 11:41 am

G-98

# OVERVIEW MAP - 3646652.16s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- ☒ National Priority List Sites
- ☒ Dept. Defense Sites
- ▨ Indian Reservations BIA
- ⚡ Power transmission lines
- ⚡ Oil & Gas pipelines from USGS
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory



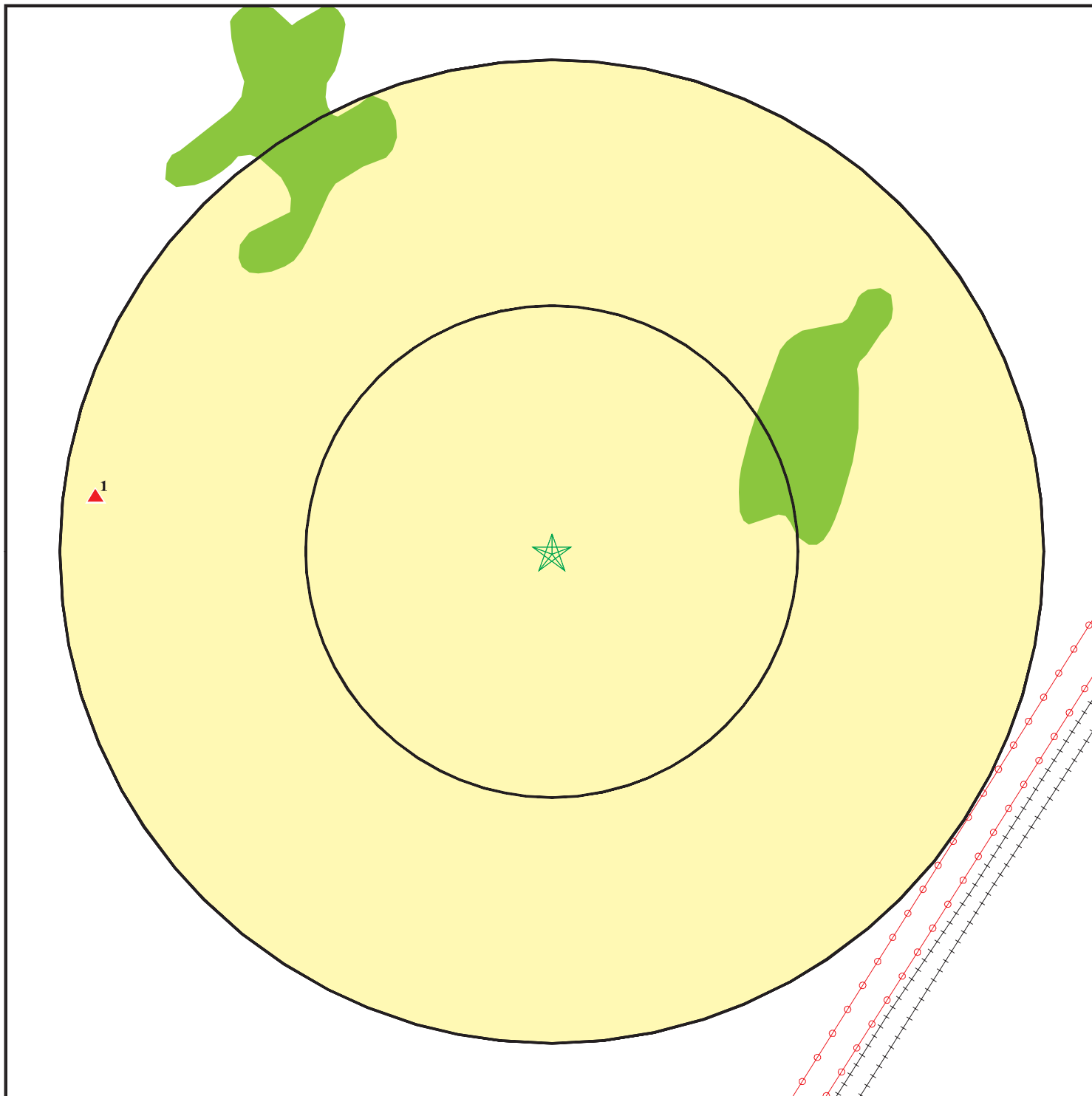
This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Mccook 2  
 ADDRESS: 8735 Pelican Ave.  
 LA Grange IL 60525  
 LAT/LONG: 41.7783 / 87.8503

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Lauren Fleer  
 INQUIRY #: 3646652.16s  
 DATE: June 25, 2013 11:40 am

G-99

# DETAIL MAP - 3646652.16s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- ☒ National Priority List Sites
- ☒ Dept. Defense Sites

- ☒ Indian Reservations BIA
- ⚡ Power transmission lines
- ⚡ Oil & Gas pipelines from USGS
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory

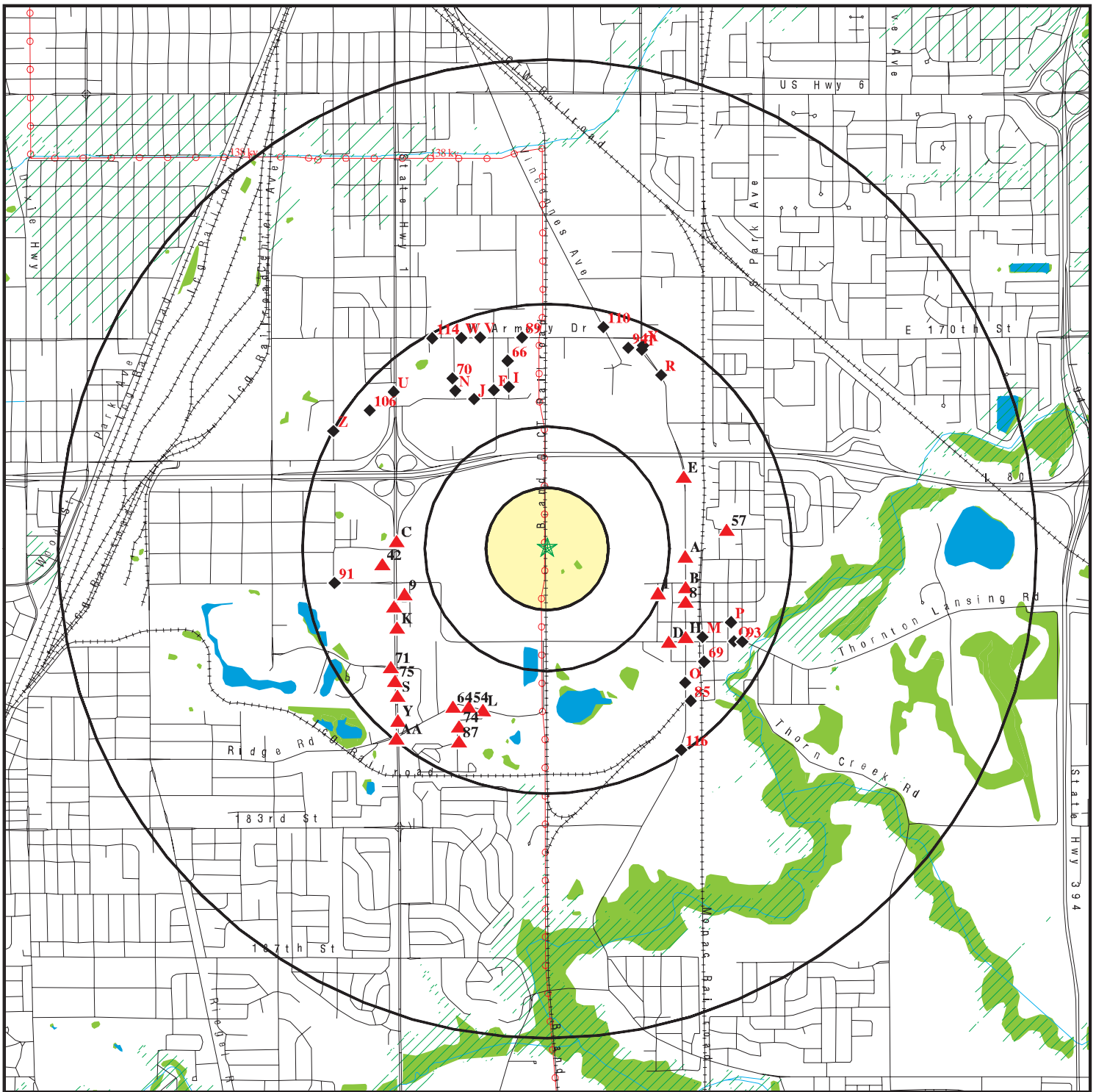
This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Mccook 2  
 ADDRESS: 8735 Pelican Ave.  
 LA Grange IL 60525  
 LAT/LONG: 41.7783 / 87.8503

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Lauren Fleer  
 INQUIRY #: 3646652.16s  
 DATE: June 25, 2013 11:41 am

G-100

# OVERVIEW MAP - 3646652.23s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- ⚡ Power transmission lines
- ⚡ Oil & Gas pipelines from USGS
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory

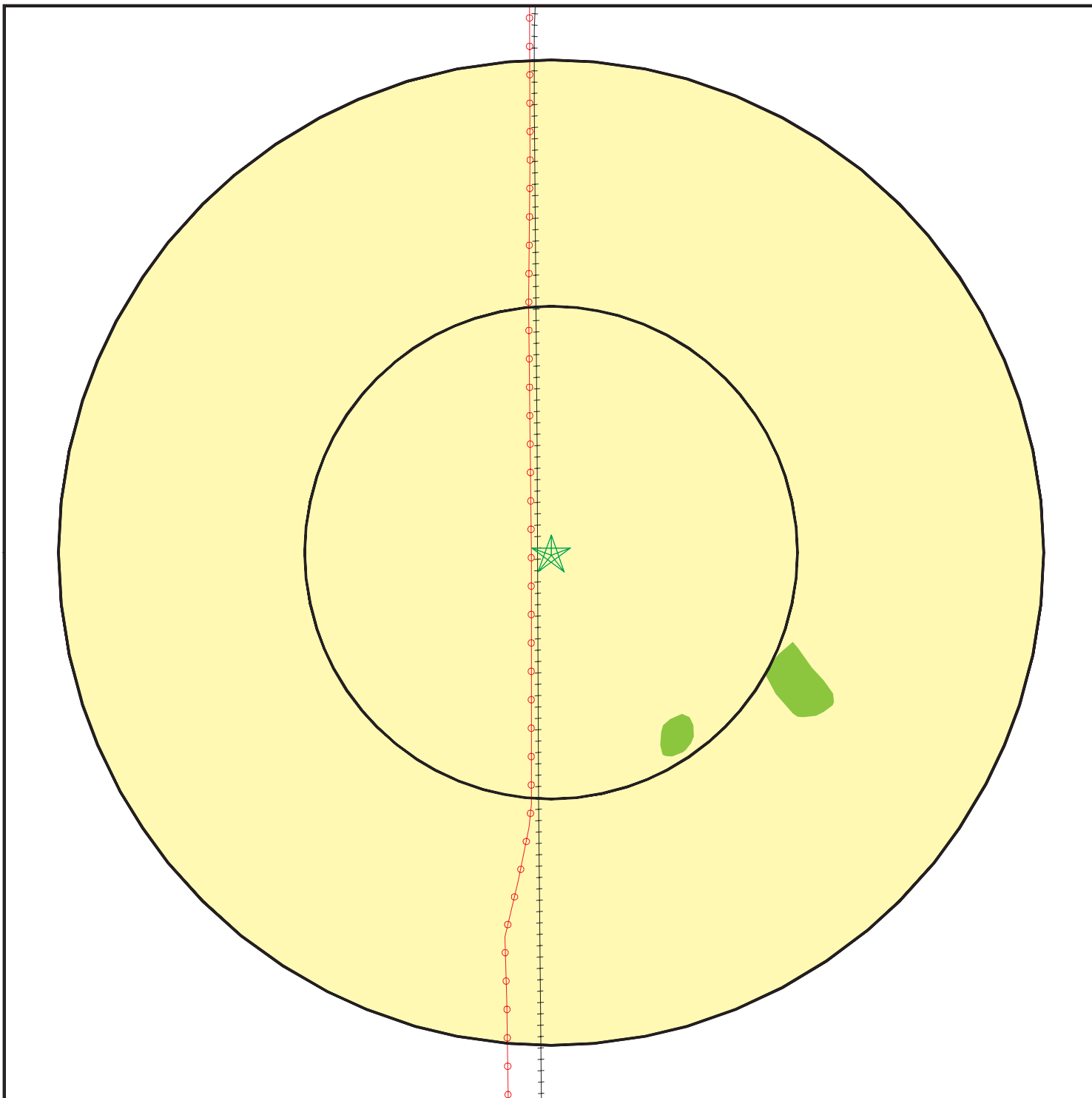
This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Thornton 2  
 ADDRESS: 700 W. Margaret St.  
 Thornton IL 60476  
 LAT/LONG: 41.5739 / 87.6244

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Lauren Fleer  
 INQUIRY #: 3646652.23s  
 DATE: June 25, 2013 11:39 am

G-101

# DETAIL MAP - 3646652.23s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- ☒ National Priority List Sites
- ☒ Dept. Defense Sites

- ☒ Indian Reservations BIA
  - ⚡ Power transmission lines
  - ⚡ Oil & Gas pipelines from USGS
  - ▨ 100-year flood zone
  - ▨ 500-year flood zone
  - National Wetland Inventory
- 0 1/16 1/8 1/4 Miles
- N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Thornton 2  
 ADDRESS: 700 W. Margaret St.  
 Thornton IL 60476  
 LAT/LONG: 41.5739 / 87.6244

CLIENT: U.S. Army Corps of Engineers  
 CONTACT: Lauren Fleer  
 INQUIRY #: 3646652.23s  
 DATE: June 25, 2013 11:41 am

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