



# GLMRIS – Brandon Road

Appendix G - Phase I HTRW Site Assessments

**FINAL**

**NOVEMBER 2018**



**US Army Corps  
of Engineers®**  
Rock Island &  
Chicago Districts

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**GREAT LAKES AND MISSISSIPPI RIVER INTERBASIN STUDY –  
BRANDON ROAD**

**APPENDIX G - PHASE I HTRW SITE ASSESSMENTS**

October 2018

**List of Attachments**

Attachment 1: GLMRIS Brandon Road HTRW Risk Mitigation

Attachment 2: Memorandum – Update to the HTRW and non-HTRW Report for Brandon Road Lock and Dam, Great Lakes and Mississippi River Interbasin Study (GLMRIS)

Attachment 3: Hazardous, Toxic and Radioactive Waste (HTRW) and Non-HTRW Investigation

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**Attachment 1:**

**GLMRIS Brandon Road HTRW Risk Mitigation**

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## EXECUTIVE SUMMARY

A risk associated with the potential for Hazardous, Toxic and Radioactive Waste (HTRW) at a proposed project site has been identified by the project team. A piece of land adjacent to the downstream approach channel at Brandon Road Lock and Dam, known colloquially as the NRG site, has an uncertain history and possibly was used for the unregulated disposal of coal combustion residues. ***There is a great deal of uncertainty regarding the nature of any waste materials placed on the site, the extent of the waste materials, and the legal status of the materials in the future should the site be used for construction.*** Because of the history of the land and the uncertainty associated with the site, the initial risk was identified as “high.” ***After taking risk avoidance measures, the project team feels that the project is viable, and the risk associated with HTRW is medium.***

The project team sought to resolve risk through several parallel activities. First, a plan for a comprehensive field investigation of the site was developed. USACE has not been able to access the site to complete a Phase II investigation for the property; a future field investigation remains the best approach for resolving the questions associated with the site. It is strongly recommended that a field investigation for the site be undertaken whenever circumstances allow site access.

Second, a thorough search of historical records was undertaken. Documentation from USACE (Chicago and Rock Island Districts, dating back to the time of the Brandon Road Lock and Dam construction), the Illinois Environmental Protection Agency, NRG (limited to publically available documentation) was reviewed. The records review provided some clarification on the site history, but did not result in sufficient documentation to resolve uncertainty.

Third, the project team developed alternatives for implementation that account for the risk and uncertainty. Four implementation options were identified. Option 1 is for a local sponsor to purchase the entire property, with USACE providing technical assistance on the characterization of the site and for regulatory coordination. Option 2 is for USACE to purchase the entire site if directed by Congress, but conducting the field investigation and regulatory coordination prior to any purchase agreements. Option 3 is to use only a small portion of the site, to avoid wastes to the extent practicable (this option also requires a field investigation, and could be implemented with either a local sponsor or USACE purchasing the property). Option 4 avoids the site entirely, although with potential impacts to navigation, as well as project schedule and budget implications.

***Any of these four implementation options will allow the project to move forward while minimizing and controlling the risks to USACE associated with the current unresolved HTRW status of the property of interest.***

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## **1. Introduction**

The purpose of this document is to discuss the project risk stemming from Hazardous, Toxic and Radioactive Waste (HTRW) related concerns, including steps that have been taken to minimize or control risk. The document is organized as a comprehensive discussion of the site, the basis for the risk, the steps that have been taken to minimize or address the risk, and finally the recommendations for moving forward under various scenarios.

### **1.1. Project Location**

The project is the Great Lakes – Mississippi River Interbasin Study Brandon Road Lock and Dam study. Brandon Road Lock and Dam is located in Joliet, Will County, Illinois along the lower Des Plaines River (approximately River Mile 286). The project under consideration is the alteration (reconstruction and paving) of the downstream approach channel to add aquatic species control or deterrent technologies. Adjacent to the Lock and Dam property is a parcel of interest (hereinafter referred to as the “NRG site”) for the project. Figure N-1 shows the project site. The NRG site is currently owned by a power company that operates the Joliet Generating Station immediately southwest of the parcel of interest. It has been determined that the property has an unclear history and possibly contains unregulated wastes, as discussed further below.

### **1.2. Proposed Project Features**

The NRG site is proposed for construction access, support buildings, parking, sediment/stone handling and stockpiling, and other possible project support activities. The land would be used temporarily during construction to minimize navigation impacts during the downstream approach reconstruction, and as a handling/stockpiling location for sediment and rock removed during the approach channel reconstruction. The land would be used on a permanent basis for support buildings to operate the control/deterrent technologies, for material storage to support the control technologies, and for staff support including parking.

The proposed usage of the NRG site includes some non-invasive activities (temporary roadway for construction access), as well as some invasive activities (digging foundations for buildings). Due to the unknown character of the NRG site (discussed further, below) all activities are seen as having some risk of liability from unresolved waste issues, however the invasive work is a much higher risk. Using the NRG site for stockpiling wet sediment would also potentially be a higher risk action unless the water is isolated (such that it cannot migrate into the ground and contact buried materials).

### **1.3. History of Site**

Brandon Road Lock and Dam was constructed in the early 1930's. At that time, based on historical aerial photography and topographic maps, the land adjacent to the lock and dam was open and probably originally part of a farm (Figure N-2). This property was used in the 1930's for sediment/rock handling/disposal associated with the construction of the lock and dam. (USACE 1939) The earliest aerial photo, from 1939, appears to show sediment discharge areas and a pond or wet area (Figure N-2). Throughout the 1940's and 1950's, the pond area increased in size (for unknown reasons and by unknown hands) until by the early 1960's a pond appears to cover the majority of the site. (Figures N-3 and 4). By the 1970's, the area appears to be in the process of being filled in, and by the early 1980's, the land appears vacant and vegetated. (Figures N-5 and 6) The property appears in a similar condition from the late 1980's until now.

The property is owned by Midwest Generating/NRG, a power supply company. The NRG site had previously been owned by Commonwealth Edison, and was part of a property transfer to Midwest Generating along with the Joliet Station 29, 9 and boilers 7 & 8. These assets constitute the “Joliet Generating Station”, a power plant originally constructed circa 1917 as a coal fired power plant. In 2016 the plant was converted to a natural gas power plant, and is used for “peaking” (IE when electricity demand is high).

NRG currently maintains “coal combustion residual” (ash) ponds for handling ash or other materials left from power generation. (Figure N-7) The waste materials are stored and dewatered at the ponds, but are taken off-site for disposal in a permitted landfill. The current ash ponds are located southwest of the property of interest. These ponds were constructed in the late 1970’s (Geosyntec 2016), which is consistent with the closure of the NRG site as an impoundment or fill area. The current ponds have been re-lined, but have been accused of being a source of groundwater contamination (IEPA, 2012). Groundwater contaminants that may be associated with the Joliet coal ash ponds currently in use include ammonia, arsenic, barium, boron, chloride, copper, fluoride, molybdenum, nitrates, sodium, sulfate, and an elevated pH. (Stant and Barkley, 2011). It is assumed that if the NRG site also contains ash waste, the groundwater conditions may be similarly impacted as the area around the current ponds.

#### **1.4. Evidence Related to the Condition of the Site**

Some evidence of the previous use of the NRG site exists. The historic aerial photographs clearly show land disturbances. Although the exact nature of the activities cannot be ascertained from the photos, the appearance is consistent with excavation and filling actions.

A real estate disclosure statement from Commonwealth Edison (for the transfer of property to Midwest Generation in 1999) acknowledges that the lands were used for the generation, manufacture, processing, transportation, treatment, storage or handling of “hazardous substances” as defined by the Illinois Environmental Protection Act, as well as for petroleum and hazardous or special waste as defined under the Resource Conservation and Recovery Act (RCRA). The disclosure also acknowledges that the property contains a landfill used to transfer or manage waste, hazardous waste, hazardous substances, or petroleum (as well as acknowledging the presence of surface impoundments, waste piles, underground storage tanks, above ground storage tanks, wastewater treatment facilities, and container storage areas). However the disclosure is for multiple parcels, and the waste features are not associated with specific parcels in the disclosure. (Will County Recorder, 1999)

The Joliet Generating Station uses non-contact cooling water and other waters, and for this reason maintains an on-site wastewater treatment facility. The facility is regulated under NPDES permit IL0064254. That permit includes a list of outfalls for the larger property. Outfall 003 is for the “abandoned ash landfill”. This outfall is located on the NRG site (Figure N-8). The title for the outfalls comes from the permit application, filled out by the permit holder (Midwest Generation). The name is likely a realistic description of the site past usage.

#### **1.5. Site Status, Risk and Uncertainty**

Based on the available information, it is concluded the NRG site was used for coal combustion residue (ash, fly ash, bottom ash) disposal by Commonwealth Edison starting after World War II. Based on the aerial imagery for the site, the property was excavated in the 1950’s, and filled over time through the 1970’s. At that time the property was covered with clean fill and vegetated, and has been maintained since.

It is possible that the site contains other wastes or materials. Based on the local area, the NRG site is underlain by fractured limestone, and a perched water table is probably in contact with the waste materials; the groundwater is expected to be contaminated due to contact with the wastes. It is highly unlikely that any pit or landfill areas were lined based on the apparent construction timeframe circa 1950. The current NPDES (IL0064254) permit for the facility notes that the site has a cover which is required to be maintained although the cover composition is not described. ***There is a great deal of uncertainty regarding the nature of any waste materials placed on the site, the extent of the waste materials, and the legal status of the materials in the future should the site be used for construction.***

Fly ash is a listed waste, but the material is not necessarily characteristically hazardous based on chemical testing. Other locations in the Chicago area with known fly ash disposal (Pine Station Nature Preserve, for example, USACE 2018) have high metal concentrations in areas with fly ash, however soil testing does not fail the toxicity characteristic leaching procedure (TCLP) criteria under RCRA. It is likely that the soils would contain elevated levels of metals and possibly organic compounds (polycyclic aromatic hydrocarbons, PAHs); some of these concentrations may be high enough to represent a risk to site workers without controls. It is likely that the groundwater on the site has been impacted by the same.

The current condition of the property represents a potential risk to USACE in multiple ways. The site is a potential worker health and safety risk since conditions are not documented. The unknown characteristics of the soils including any fill materials present a geotechnical risk for construction of buildings. The need for off-site (landfill) disposal of any waste materials encountered represents a cost risk (potentially to be borne by a local sponsor). The historical waste handling represents a regulatory risk for future remediation activities for both soils and groundwater, and also represents a potential legal risk since NRG/Midwest Generating is already the target of lawsuits regarding the handling/disposal of coal combustion residue (Stant and Barkley, 2011).

One positive note is that the State of Illinois apparently knows about the site (since it is clearly labeled “abandoned ash landfill” in the NPDES documentation) and has not taken regulatory action against NRG to remediate or mitigate site conditions. However the situation may change if the site is disturbed, and it is possible that the current status is simply a “holding pattern” until such time as the State decides to take action. Regulatory coordination, and additional data on the site conditions, would be needed to clarify the regulatory status of the site.

## **2. Eliminating or Decreasing Risk**

Recognizing the risk and uncertainty associated with the property of interest, the project team followed several courses of action to attempt to decrease or eliminate risk associated with the site. These endeavors are discussed further in the sections below.

### **2.1. Field Investigation**

#### **2.1.1. Proposed Investigation**

The project team developed a comprehensive plan for systematically investigating conditions on the site. The investigation would include a grid sampling layout with borings extending to bedrock (estimated to be 10 – 15 feet below ground surface). Borings would be sampled for environmental parameters as well as geotechnical properties. A combination of discrete and composite samples would be used. Environmental parameters would include TAL metals, PAHs, volatile organics, PCBs, pesticides, TCLP metals analyses, pH and cyanide. Groundwater samples would also be taken (temporary wells would be installed) for the same environmental parameters (except TCLP) plus conventional water parameters (ammonia, COD, TDS, hardness, TOC, phosphorus, sulfate, nitrate). Geotechnical work includes visual

classification of soils, moisture content, hand penetrometer, Atterberg limits, sieve analysis, and organic content. The estimated cost of the contracted work to characterize the entire site is approximately \$350,000 (Figure N-9); this does not include in-house labor for contracting, contract oversight, or interpretation of the results. Two alternatives were also identified for more limited field investigations (Figure N-10 and Figure N-11); these investigations are discussed in more detail below.

### **2.1.2. Access Limitations**

The current property owner, NRG, will not provide right of entry for USACE staff, either to merely walk the property or to conduct sampling. USACE is willing to propose a more limited sampling plan for the purposes of satisfying the environmental concerns (with the idea that geotechnical sampling could be conducted at a later time) or to limit the horizontal extent of the sampling (see discussion below regarding using part or none of the property) including only sampling with a hand auger for visual identification of the soils. NRG declined to allow any site work, based on pending litigation related to ash disposal.

The project team considered that we could take samples below the ordinary high water mark, accessed from the river. It could be possible to use a hand auger to sample into the side of the site. It was concluded that such sampling would be very limited spatially, the river bank is very rocky and may not be accessible with a hand auger, and limited sampling would not likely uncover much information about the larger site. Based on historical aerial photographs, excavation and filling activities did not extend to the river bank.

### **2.1.3. Result of Field Investigation**

This action is on hold pending real estate access. In the event a local sponsor is identified, it is strongly recommended that this investigation take place prior to the purchase of the property (as a condition for purchasing the property). The latest that the field investigation could occur is the beginning of Preliminary Engineering and Design (PED) Phase. The information to be generated by the field investigation is needed for foundation design and to determine appropriate disposal of any excess materials, as well as for future worker safety.

*The proposal for a field investigation has not resulted in the reduction of risk at this time.*

## **2.2. Historical Records Search**

### **2.2.1. USACE Records**

Chicago District provided oversight of Brandon Road Lock and Dam beginning with the construction of the facility in the 1930's until the 1980's when Division and District lines were reorganized within the Corps of Engineers. At that time, records related to Brandon Road Lock and Dam were transferred to the Rock Island District. Older records were sent to long term records storage and those are now housed at the National Archive center in Chicago.

USACE staff investigated historical records to determine what, if any, involvement USACE may have had with the property in question, including but not limited to past disposal of dredged material on the property. Records investigated at the National Archive included maintenance and operation records for Illinois Waterway Locks and Dams (including Brandon Road but also other facilities); construction records for Illinois Waterway Locks and Dams; dredging records for the lower Des Plaines River, for the Illinois Waterway, and for the Chicago Area Waterway; aerial photographs; maps; civil works project records related to the Illinois Waterway, lower Des Plaines River, Chicago Area Waterways, and Chicago

area; civil works reports related to the various waterways; and general office records from the Chicago District from 1889 – 1975.

Conclusions from this search effort include that USACE probably side cast materials (clean rock and soils) from the construction of Brandon Road Lock and Dam onto the property of interest. Various plans identified the property as “spoil” area or bank available for placement of excavated materials (USACE, 1930; USACE, 1930s). There were multiple references to the placement of materials near the “government moorings” in the 1930’s; a subsequent reference (USACE, 1975) places the government moorings along the property of interest [the mooring location is apparently abandoned and no longer in use.] This finding is consistent with the earliest aerial photograph, which seems to indicate a “wash” area (an area where wet materials have been placed and drained into a delta formation on land) and with operations daily reports from the 1930’s.

Records transferred to Rock Island District and archived at that office include the original Environmental Impact Statement for the Illinois Waterway maintenance (USACE 1975) and newer evaluations (USACE, 2005) as well as additional aerial photographs of the Brandon Road Lock and Dam and surroundings. These records indicate placement of most maintenance dredge material from 1974 - 2000 occurred at a disposal site located on the left bank of the lock, opposite the property of interest. However one event in 1988 places 4,667 cubic yards of material on the right descending bank at River Mile 285.3 - 285.6 (USACE 2001; USACE 2005; USACE, 2018) on the property of interest. The property was called the Commonwealth Edison “clay pit” and considered (though not recommended) as a placement alternative described as “near capacity” (USACE, 2005). There was no information on later possible uses of the property and no information on Commonwealth Edison activities near Brandon Road.

### **2.2.2. IEPA Records**

Illinois Environmental Protection Agency (IEPA) records related to the NRG NPDES permit IL0064254 were requested under the freedom of information act. The goal was to find records on the “abandoned ash landfill” mentioned in the permit, particularly with regard to the materials placed there, the time of operation, and the closure of the site. Several requests were made for discrete periods of time and for various facility numbers, activities, and permits for the Joliet Generating Station. Information provided by the agency included monitoring and reporting for the NPDES permit, information related to the current ash impoundments including construction documentation and groundwater monitoring information, documentation of the wastewater treatment by NRG, fish impingement and related fisheries reports required as part of the cooling water use, public hearings related to ash handling and the discharge permit, and similar documents related to the operation of the Joliet Generating Station.

Based on the documentation provided, IEPA considers that the groundwater around the current ash impoundment ponds (southwest of the property of interest) is contaminated by leakage from the impoundments. NRG relined the ponds and has increased groundwater monitoring. (IEPA, 2011) It does not appear that the groundwater from the current ash impoundment area flows onto the property of interest, but rather flows toward the river. (Patrick, 2011) The property of interest appears to have been closed by the 1980’s. No documentation related to the “cover” for the site was found. IEPA requires that NRG maintain a Stormwater Pollution Prevention Plan (SWPPP) for the site and inspect for erosion, but does not actually keep the SWPPP on record. Reporting records indicate that the site is stable and not eroding, which is consistent with aerial photos and visual inspection of the site from the river. An on-line search and a facility records search did not return any RCRA documents related to the closure of the NRG site, but only related to the current ash impoundment and ash disposal sites (the current ash disposal site is located across the river from the NRG site). There does not appear to have been a RCRA permit issued for closure of a landfill at the NRG site, however the actions at the property appear to pre-date current RCRA requirements.

IEPA records related to a USACE “landfill” and waste handling activities were also obtained under the freedom of information act that might have impacted the property of interest from the 1970s through 2000s. Three IEPA Inspection Reports from 1978 (Site No. 19780902) and follow-up correspondence with USACE (IEPA, 1978) state that the area “located on the north bank of the Des Plaines River, just west of Brandon Road south of its intersection with Route 6” was an operating landfill with ponding on site, flowing on site, seepage, evidence of past flows, refuse, and standing water. In letters between IEPA Land Fill Operations and the USACE Joliet Project Office, IEPA notified USACE the landfill was in violation of the Illinois Pollution Control Board Rules and Regulations on Solid Waste, and USACE informed IEPA that clean-up would begin in December 1978. The IEPA and the Historical Inventory of Solid Waste Disposal Sites in Northeastern Illinois, published in 1988 by the Northeast Illinois Planning Commission (NIPC, 1988), list the “US Army Corp of Engineers” inactive solid waste landfill (IEPA No. 1978090002) located on the land south of Route 6 and west of Brandon Road. While historical aerial photos do suggest land disturbance on the property (USACE, 2015), interviews with USACE staff did not confirm a former disposal site at this location and topographic maps do not show significant elevation change in the area over time as expected for a conventional landfill operation. From the location information provided, it is unclear whether the “landfill” referenced was located on the property of interest or on the opposite bank of the lock (USACE-owned property).

An IEPA Notification of Regulated Waste Activity submitted in 1995 acknowledged less than 100 kg per month of hazardous waste activity by the USACE “Lock Dam 03” at 1100 Brandon Road in Joliet (EPA ID No. ILR000005587, State Generator ID No. 1970455312), and that fluorescent light bulbs were found at the site (IEPA, 1995). A request by USACE for the removal of rubber tires from the site in 2001 was completed by an external contractor (IEPA, 2001). While it is possible that USACE waste handling and/or disposal between the 1970s and 2000s occurred on the property of interest, it is not definitive due to lack of location information.

### **2.2.3. NRG Records**

NRG is required to make the SWPPP for their facility publically available for review. Accordingly, USACE staff requested to review the SWPPP at a meeting with NRG on February 28, 2018. The SWPPP included a cursory description of the site (that it was a covered “abandoned landfill”) and reiterated the requirement that the site be inspected at least annually to ensure that the land is covered and vegetated, and is not eroding. A topographic map included in the SWPPP clearly shows that the southwestern end of the site is “mounded” which would seem to indicate that fill materials had been placed in that area. (Figure N-12) The NRG staff professed to not have documentation as to the nature of the fill materials, which would have been placed prior to their involvement with the Joliet Generating Station. NRG staff indicated that they had no records regarding the history of the site, and that the SWPPP portions relating to the site of interest had basically been provided by the previous property owner.

### **2.2.4. Result of the Records Search**

The records searches did not provide any definitive information regarding the NRG site history and the nature of the materials at the site, but do appear to indicate that the site conditions are “stable” and not under active enforcement.

*The records review provided some clarification on the site history, but did not result in sufficient documentation to resolve uncertainty.*

### **2.3. Avoid Use of the Property**

The project team considered options to using the property, either using only a small portion of the land (immediately adjacent to the waterway) or not using any of the land. The team found that it would be possible, although not optimal, to construct the project without use of the property of interest. The implementation options are discussed further, below.

### **3. Potential Paths Forward**

Although risk associated with the possibility of HTRW exists, the project team believes that the risk is medium and that the project remains viable. Four distinct and viable implementation options have been identified, and further variations on these are also possible. These implementation options address the HTRW risk associated with the NRG property in different manners. Purchase of the entire NRG site affords the greatest flexibility to support proposed and possible future ANS control activities (Implementation Options 1 and 2, below). The purchase or use of a smaller portion of the NRG site could also be viable (Implementation Options 3A and 3B). The Brandon Road project could be implemented without use of the NRG site (Implementation Option 4) although this would affect the project schedule and budget and may have other issues.

Future decisions would be informed by the field investigation and coordination with IEPA, USACE and/or the project sponsor could decide to purchase all parcels or choose options 3 or 4 below (purchase a portion or none of the parcels). The presented implementation options address the risk associated with the history and uncertainty of the NRG site.

### **3.1. Implementation Option 1 – Local Sponsor Purchases Property**

#### **3.1.1. Option 1 Implementation Description**

*Option 1 would include use of the site for construction staging, storage of materials, support building construction, parking and other support features.*

Figure N-13 shows the land use and proposed layout. This option uses the maximum extent of the property. The availability of the entire property allows for maximum flexibility during construction (space for simultaneous construction activities and staging areas) as well as maximum flexibility to support future adaptive management activities including the construction of new technology. Options 1 and 2 include construction of the right descending bank wall (along the property) by cutting into the bank and blasting rock as needed. This maintains the current channel width.

#### **3.1.2. Risk to Local Sponsor and USACE**

If a local sponsor is identified who is willing to purchase the property, USACE could provide technical advice on the field investigation needed for “due diligence” (essentially the same scope of work already developed by USACE, Figure N-9) as well as technical support for data interpretation and regulatory coordination. Assuming that the condition of the property can be characterized adequately, a local sponsor could purchase the property for use in the project after coming to financial and/or legal agreements with the current owner. Any additional environmental costs related to regulatory actions or additional disposal costs for excess materials from the site would be the responsibility of the local sponsor. USACE would minimize excavation and excess material production, and would likely recommend paving a large portion of the site to prevent disturbance of the existing cover. The field investigation would be conducted at a

future date by an unknown entity, as a way to address the unknown conditions and uncertainty with the site. Under this path, USACE has little risk related to existing site conditions and future liability.

## 3.2. Implementation Option 2 – USACE Purchases Property

### 3.2.1. Option 2 Implementation Description

*As with Implementation Option 1, Option 2 would include use of the entire site for construction staging, storage of materials, support building construction, parking and other support features.*

Figure N-13 shows the land use and proposed layout. This option uses the maximum extent of the property. The availability of the entire property allows for maximum flexibility during construction (space for simultaneous construction activities and staging areas) as well as maximum flexibility to support future adaptive management activities including the construction of new technology. Option 2 includes construction of the right descending bank wall (along the property) by cutting into the bank and blasting rock as needed. This maintains the current channel width.

### 3.2.2. Risk to USACE

If directed by Congress, the Government could purchase the property. ***A field investigation comparable to what has been proposed would need to be completed prior to purchase, to fully inform the Government as to the site conditions and potential liability.*** (Figure N-9) It is recommended that the investigation and future use of the property, including any controls for the property conditions, be coordinated with IEPA prior to any real estate action, to ensure future regulatory compliance. Under this path, USACE would have increased project costs associated with dealing with the site (investigation, regulatory coordination, possible material disposal or other site response actions), and USACE also has some residual risk associated with the conditions on the site. The risk would be greatly reduced by the field investigation and coordination with IEPA prior to any land purchase, but based on the assumption that the site contains some waste materials the future liability risk could not be completely eliminated.

## 3.3. Implementation Option 3 – Use only a Portion of the Site

### 3.3.1. Option 3A Implementation Description

Option 3A is shown in Figure N-14. In this option, only a strip of the NRG site plus the far northeastern end would be purchased by USACE and/or a local sponsor. These portions of the site are concluded to have less risk of waste based on historical aerial photos. A complete field investigation would be needed for that portion of the property (Figure N-10). The property would be used for construction access and staging, although not for sediment dewatering or storage. The minimum footprint would be used for support buildings. A larger area on the eastern end would be used for construction staging. All areas to be used would include minimal excavation, and the covering of the site with a geotextile plus gravel layer, to avoid impacting the existing cover. Option 3A includes construction of the right descending bank wall (along the property) by cutting into the bank and blasting rock as needed; this is partly based on aerial photo evidence that the waste does not appear to extend to the bank. Constructing the wall by cutting into the bank maintains the current channel width. The use of a limited portion of the site decreases flexibility for construction and greatly decreases flexibility to support future adaptive management activities, due to the space limitations.

### **3.3.2. Risks to a Local Sponsor and USACE**

USACE could use a smaller footprint of the site, which may allow avoidance of pollution. A (spatially limited) field investigation including environmental and geotechnical sampling would be needed prior to any property purchase, to confirm conditions along the strip of land that would be used. The overall risks for increased cost and for future liability would be similar to Implementation Options 1 and 2, since at least a portion of the property would be purchased. The risk would be at least somewhat controlled by hopefully avoiding some or all of the wastes thought to be on site. Using a portion of the site permanently may not entirely eliminate risk, depending on the extent of issues on the site.

*At this time, the project team recommends moving forward with Implementation Option 3A. The project team considers 3A the best option to reduce HTRW risk while minimizing impacts to project construction and operation costs, schedule, navigation during construction, and adaptability for future uses.*

## **3.4. Implementation Option 3B – Use only a Portion of the Site as Temporary Access**

### **3.4.1. Option 3B Implementation Description**

This option does not include purchase of the NRG property. Option 3B includes temporary use of the property for construction access, but no purchase of the land and no permanent features located on the land (Figure N-15). An abbreviated field investigation would be conducted to ensure that the land is structurally suitable to support heavy construction equipment (Figure N-11). The construction access area would be augmented with geotextile gravel to provide a suitable road and staging surface and to protect the existing site cover. Support buildings would be located on the “island” along the left descending bank; the existing land would be expanded into the river to accommodate the space requirements. To avoid constructing permanent features on the site, the right descending bank wall would be constructed into the channel a short distance, so that no excavation of the bank would be needed. Moving the right descending bank wall away from the existing bank would reduce the channel width. The construction as well as the operation and maintenance of the buildings on the left descending bank would increase marine congestion in the area, since materials and supplies would need to be transported by barge to the island. The use of the island decreases flexibility to support future adaptive management activities, due to the space limitations.

### **3.4.2. Risks to a Local Sponsor and USACE**

The proposed use of the land for only temporary construction access would reduce risks since USACE would not excavate any materials, would not encounter or alter site groundwater, and would not disturb any existing cover on the site. Lack of long-term ownership would decrease the risk to a local sponsor and to the USACE.

## **3.5. Implementation Option 4 – Avoid the Site**

If for some reason the property cannot be purchased, the project could be implemented without using the site. (Figure N-16) Support facilities would be constructed on the left descending bank which is owned by the Government; the footprint of the existing “island” would be extended to accommodate the space requirements. The cost of the buildings would be increased due to more difficult utility requirements. To avoid constructing permanent features on the NRG site, the right descending bank wall would be

constructed into the channel a short distance, so that no excavation of the bank would be needed. Moving the right descending bank wall away from the existing bank would reduce the channel width. Reconstruction of the downstream approach channel would occur via water, which would impact navigation, project cost, and project schedule. The construction as well as the operation and maintenance of the buildings on the left descending bank would increase marine congestion in the area, since materials and supplies would need to be transported by barge to the island. The use of the island decreases flexibility to support future adaptive management activities, due to the space limitations.

### **3.5.1. Risks to USACE**

Option 4 avoids risks related to potential HTRW and environmental liability that may be associated with the NRG site, but increases other project risks. Notably, the change in construction methods would increase navigation impacts (both the extent and duration of impacts), would increase project costs, and would increase the overall project schedule. Option 4 is technically feasible, but not desirable for reasons of cost, schedule, and navigation impacts. Implementation Option 4 should be considered the last technically viable path allowing the project to move forward for approval.

## **4. References**

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USACE Rock Island District, 2018, 1988 Dredging Placement Site below Brandon Road, GIS screenshot, captured May 2018.

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## FIGURES

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Figure N-1: Site Map and Parcel of Interest



Figure N-2: 1939 Aerial Photograph, Parcel of Interest



Figure N-3: 1946 Aerial, Parcel of Interest

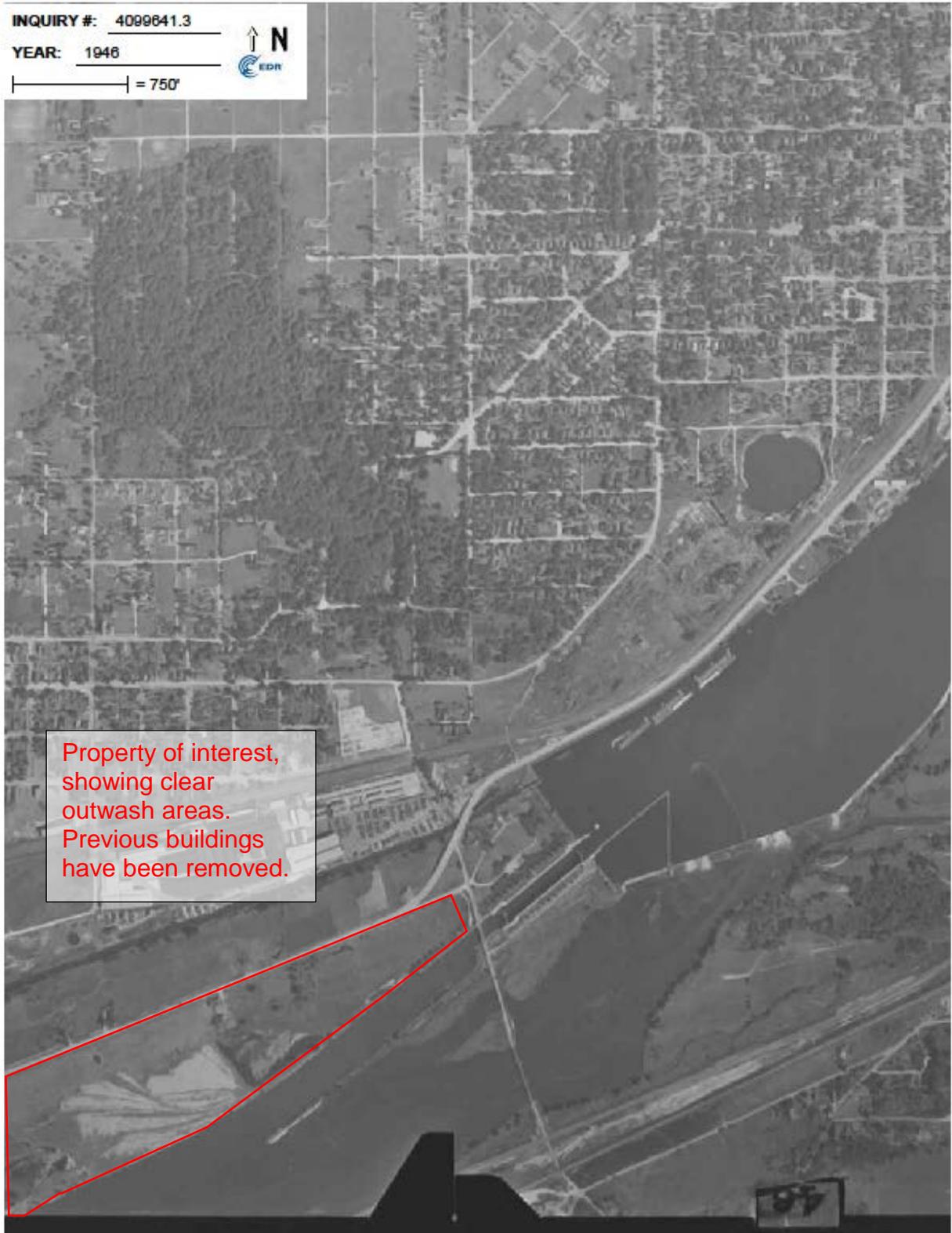


Figure N-4: 1963 Aerial, Parcel of Interest



Figure N-5: 1974 Aerial, Parcel of Interest



Figure N-6: 1988 Aerial, Parcel of Interest



Figure N-7: Current Joliet Generating Station Facilities

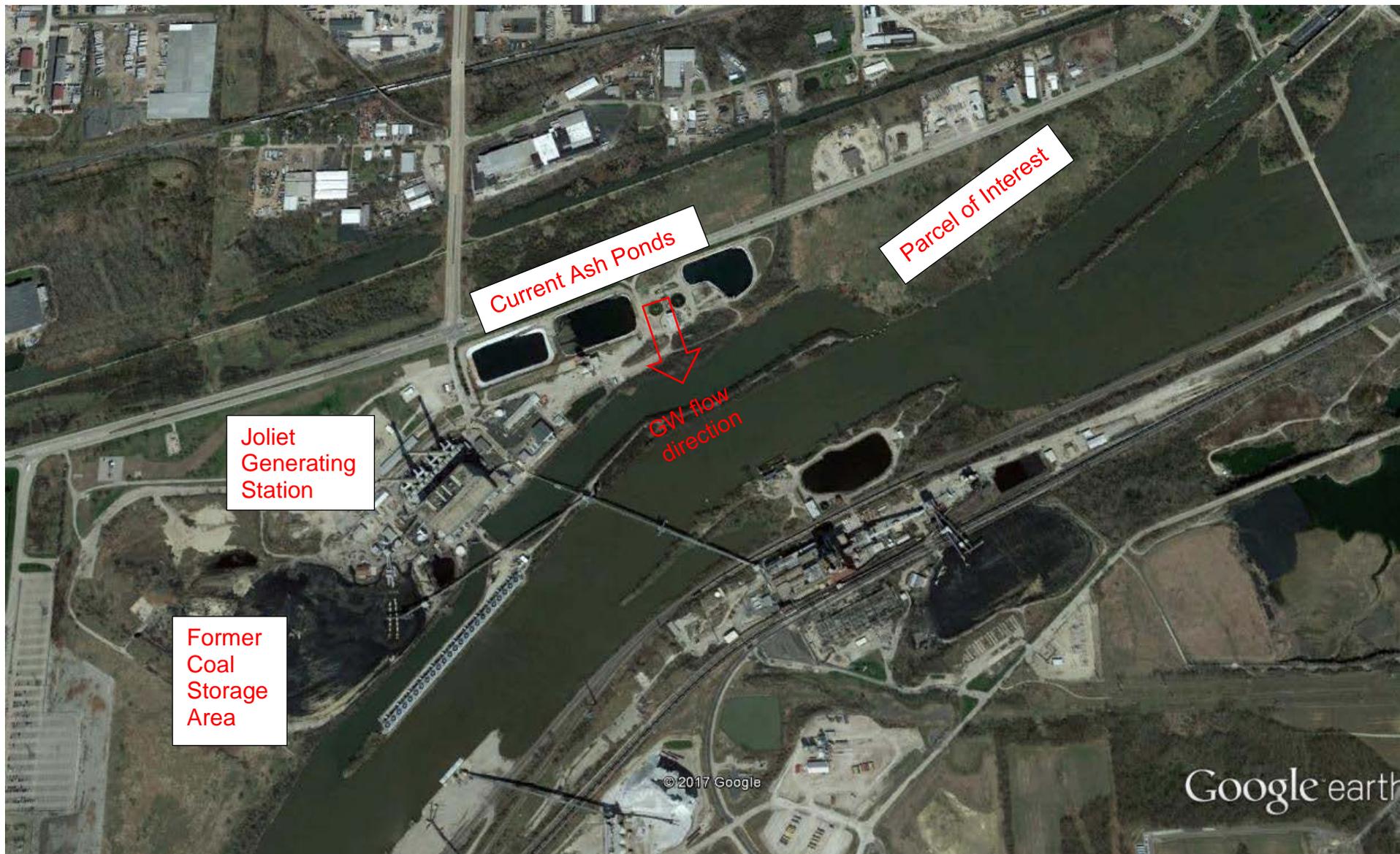


Figure N-8: Outfall 003 Location

Public Notice/Fact Sheet – Page 5 – NPDES Permit No. IL0064254

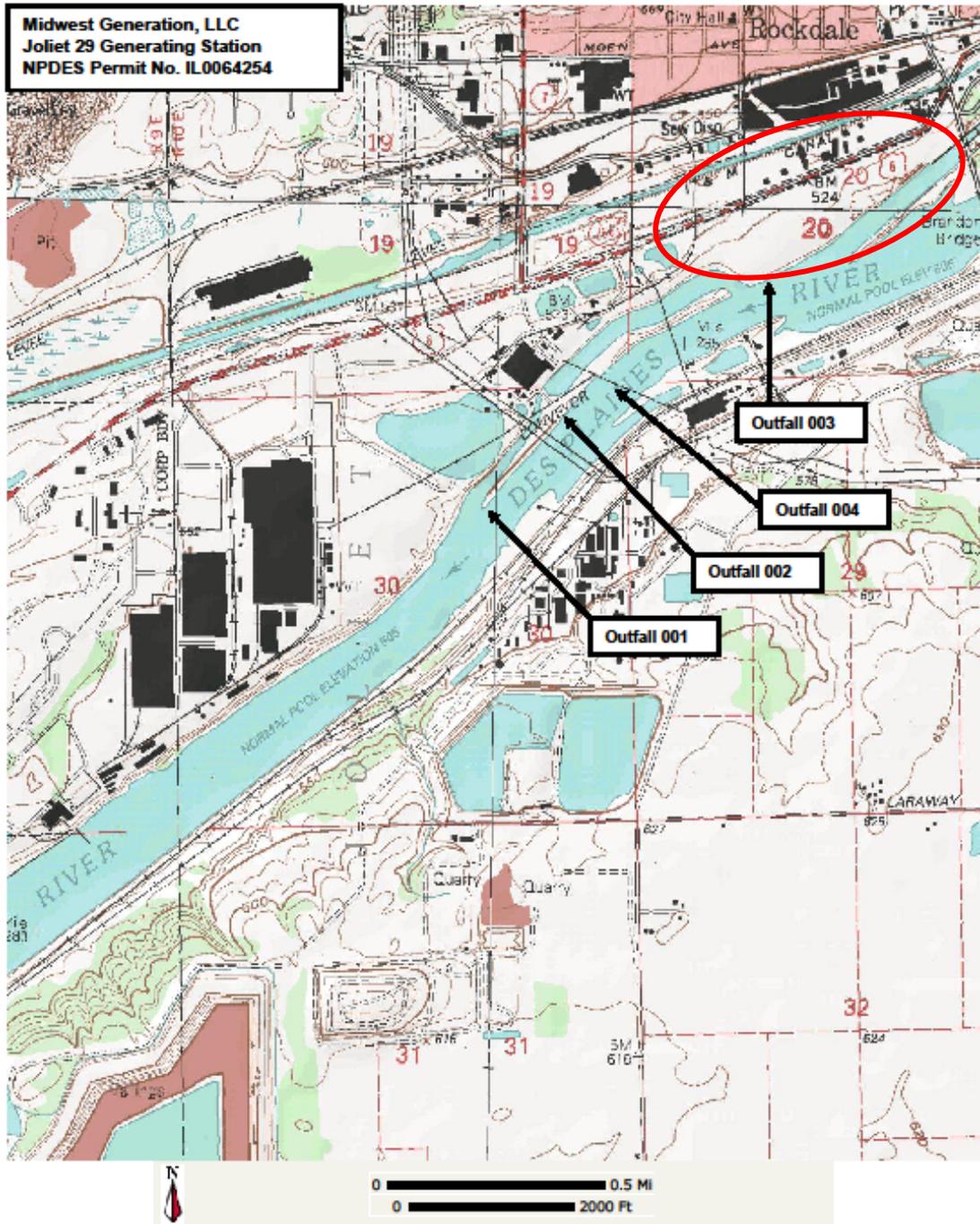


Figure N-9: Layout for Geotechnical and Environmental Characterization of Full Site

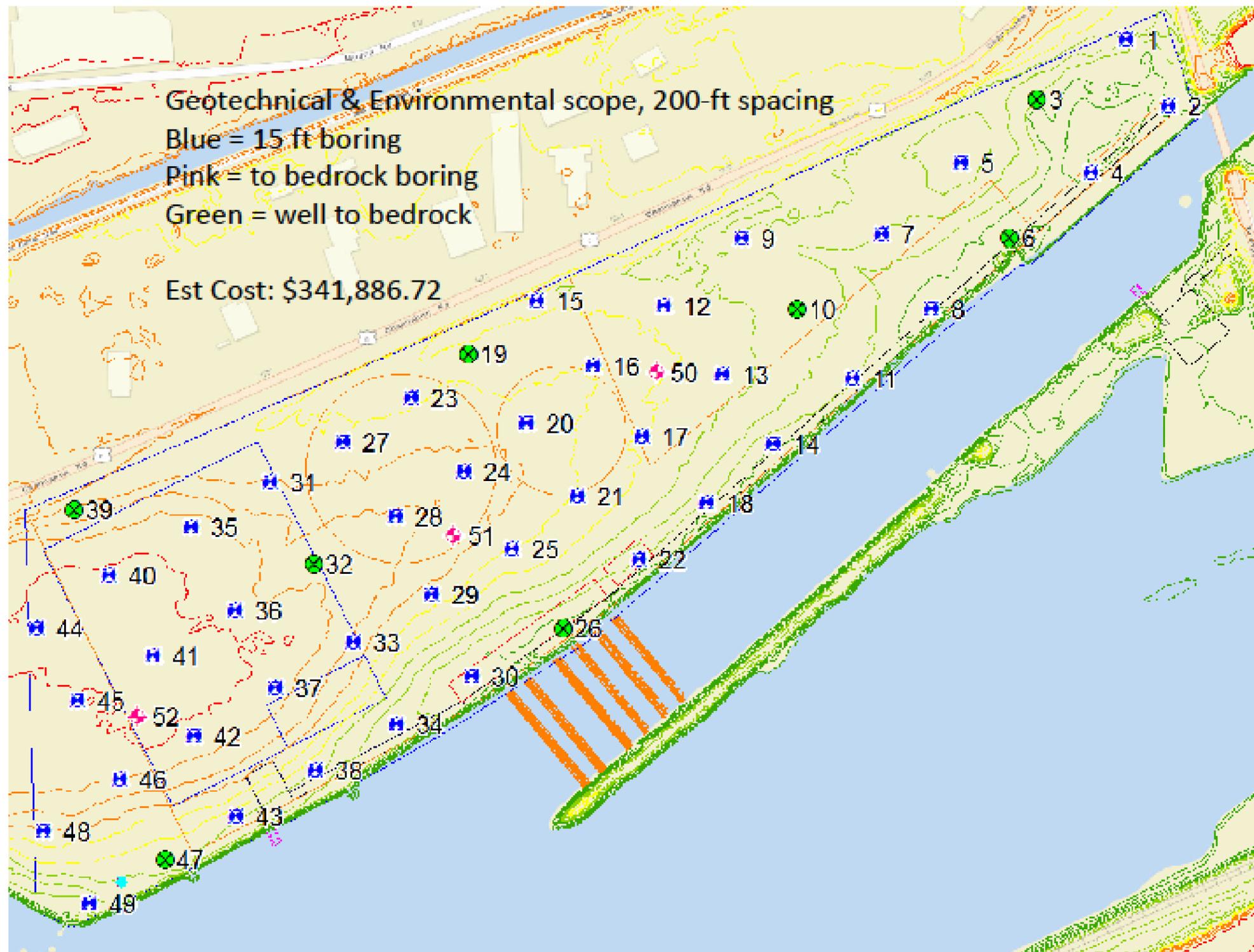


Figure N-10: Layout for Geotechnical and Environmental Characterization of 200 ft Strip of Site

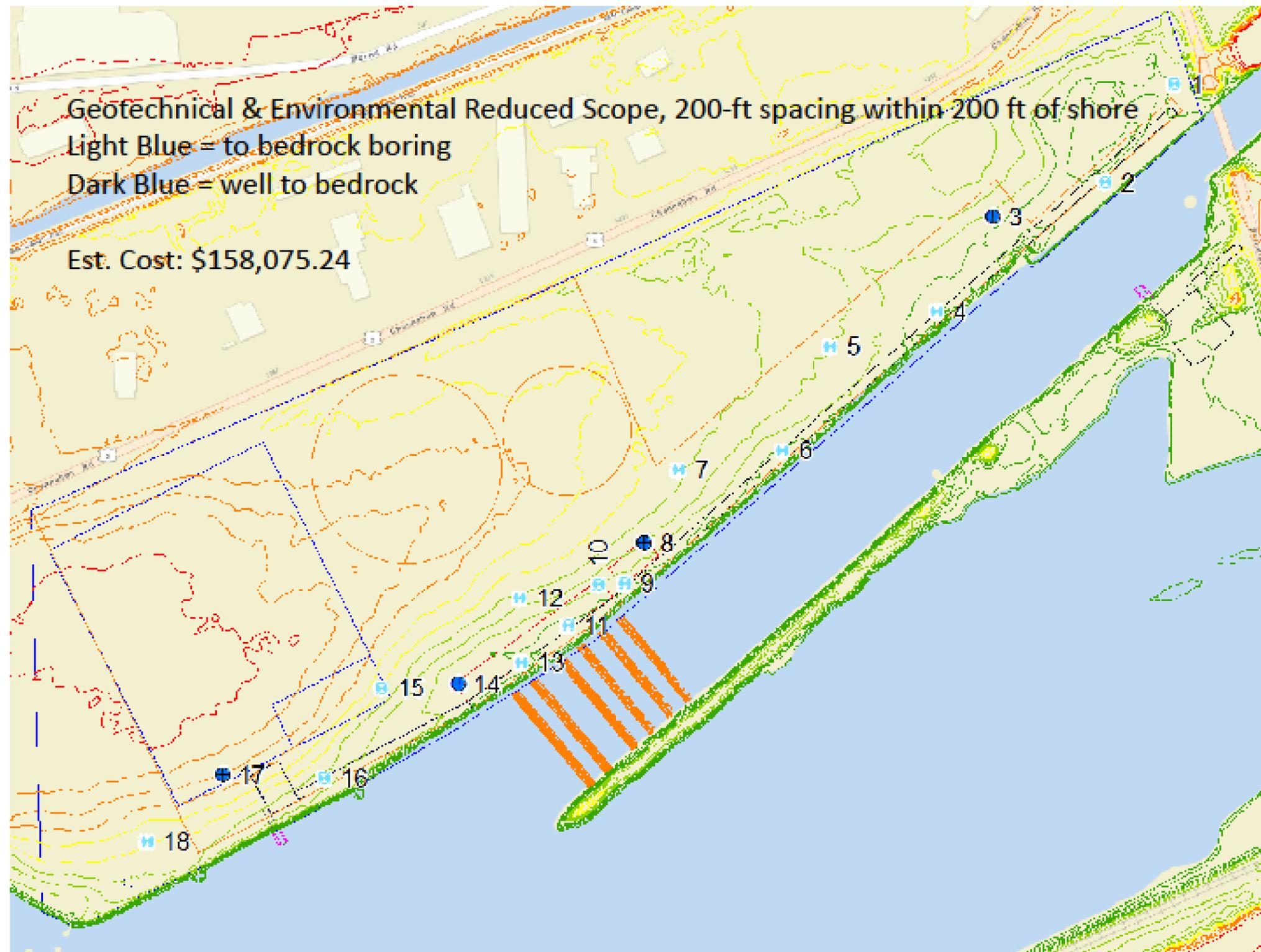


Figure N-11: Layout for Geotechnical Characterization Only of Narrow Strip for Temporary Site Access

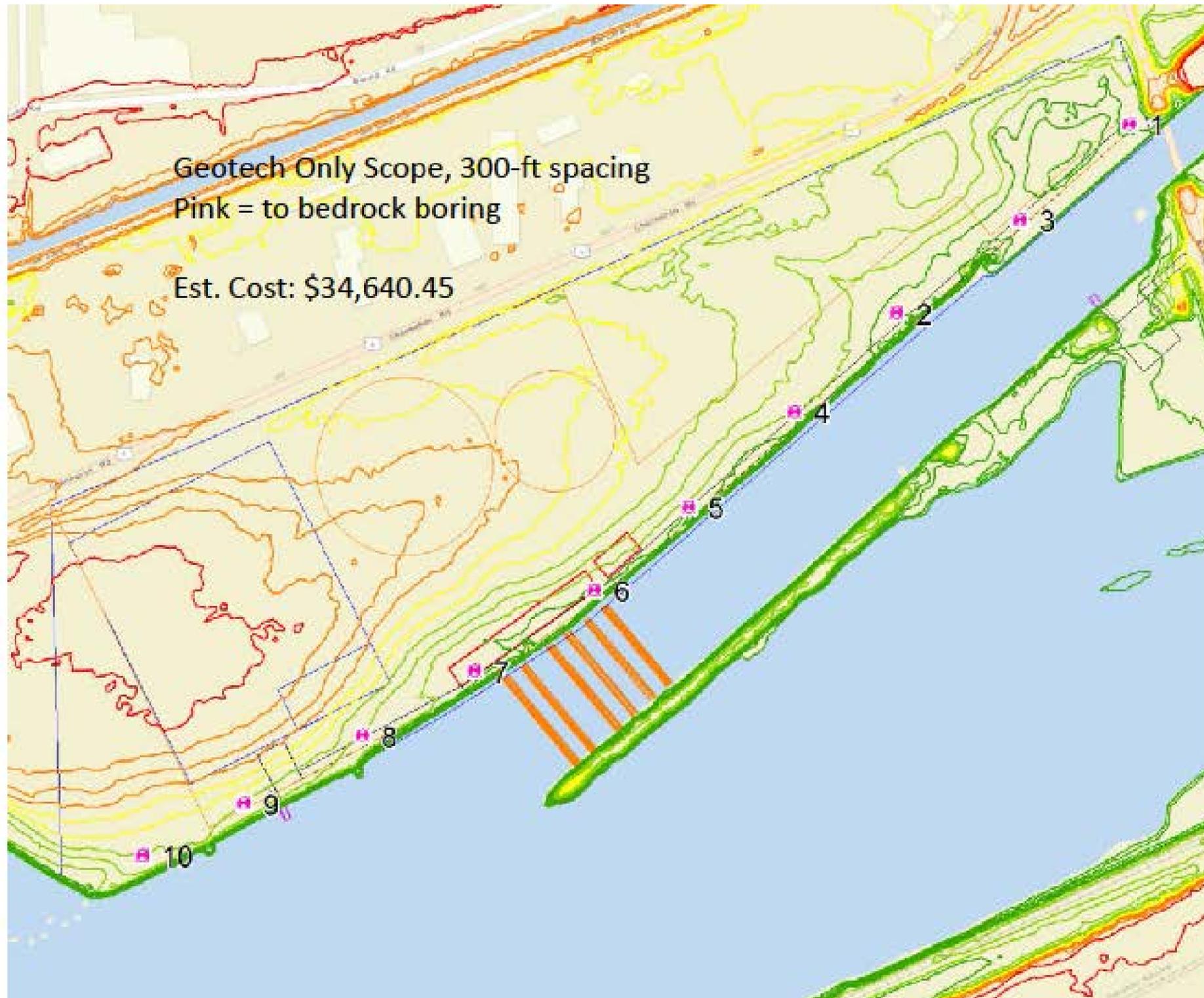


Figure N-12: Topography of NRG Site, Showing “Mounded” Area

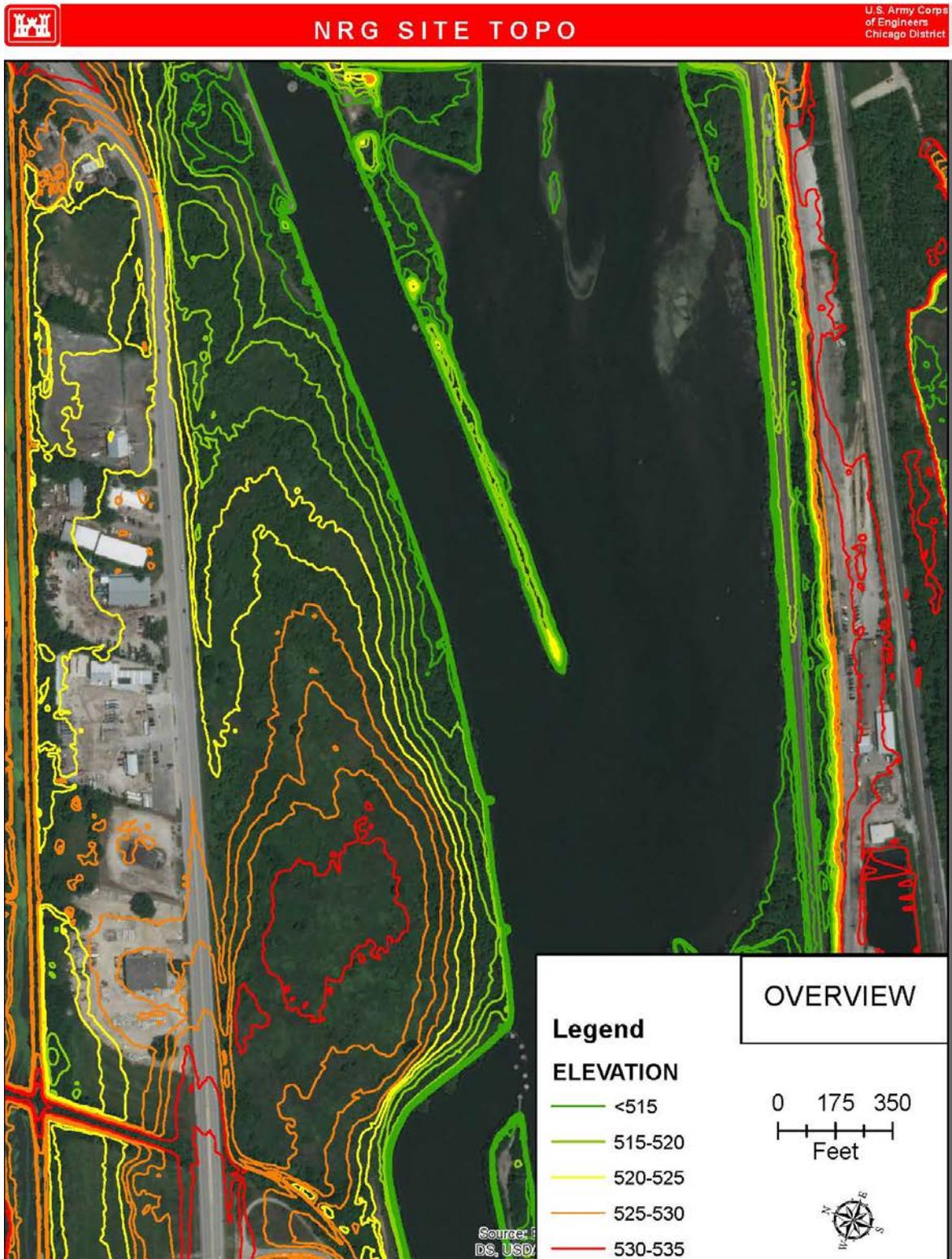
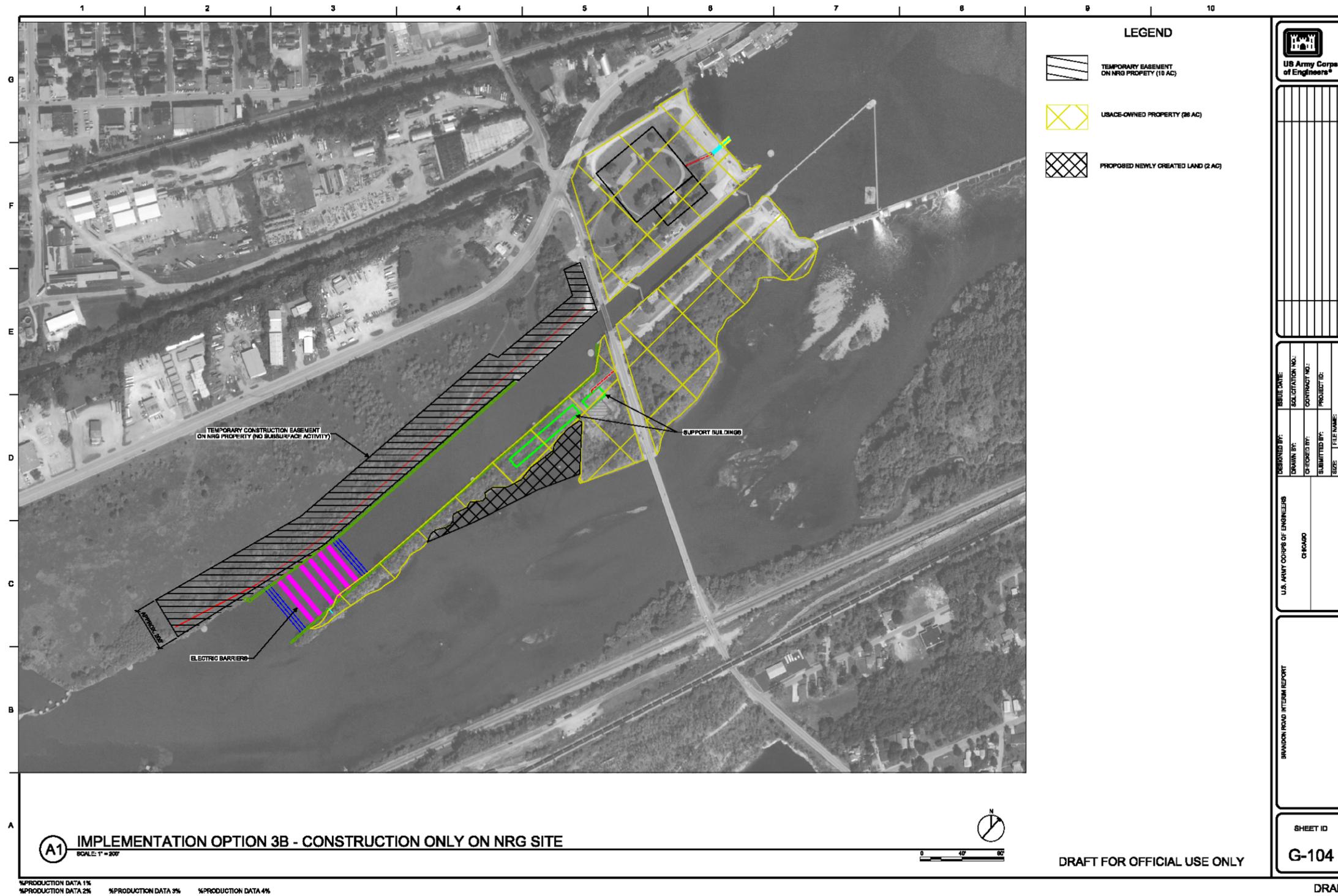




Figure N-14: Implementation Option 3A (Use a Small Portion of the Site)



Figure N-15: Implementation Option 3B (Only Temporary, Non-invasive Use of a Portion of Site)



**LEGEND**

	TEMPORARY EASEMENT ON NRG PROPERTY (10 AC)
	USACE-OWNED PROPERTY (26 AC)
	PROPOSED NEWLY CREATED LAND (2 AC)

**US Army Corps of Engineers**

DESIGNED BY:	ISSUE DATE:	DATE
DRAWN BY:	SOLICITATION NO.:	
CHECKED BY:	CONTRACT NO.:	
SUBMITTED BY:	PROJECT ID:	
SCALE:	FILE NAME:	
	C:\USARP	

U.S. ARMY CORPS OF ENGINEERS  
CHICAGO

BRANDON ROAD INTERIM REPORT

SHEET ID  
**G-104**

DRAFT

**(A1)** IMPLEMENTATION OPTION 3B - CONSTRUCTION ONLY ON NRG SITE  
SCALE: 1" = 200'

DRAFT FOR OFFICIAL USE ONLY

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%PRODUCTION DATA 2%    %PRODUCTION DATA 3%    %PRODUCTION DATA 4%

Figure N-16: Implementation Option 4 (Avoid the Site)



**LEGEND**

	CONSTRUCTION WORK AREA WITHIN NAVIGATIONAL SERVITUDE (10 AC)
	USACE-OWNED PROPERTY (26 AC)
	PROPOSED NEWLY CREATED LAND (2 AC)

**US Army Corps of Engineers®**

DESIGNED BY:	ISSUE DATE:	SOLICITATION NO.:	DATE:
DRAWN BY:	CHICAGO	CONTRACT NO.:	
CHECKED BY:		PROJECT ID:	
SUBMITTED BY:	FILE NAME:	SIZE:	DESCRIPTION:
	CS-104-001		

BRANDON ROAD INTERIM REPORT

SHEET ID  
**G-102**

**A1 IMPLEMENTATION OPTION4 - AVOID THE SITE**  
SCALE: 1" = 200'

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**Attachment 2:**

**Memorandum – Update to the HTRW and non-HTRW Report for Brandon Road Lock and Dam, Great Lakes and Mississippi River Interbasin Study (GLMRIS)**

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MEMORANDUM FOR CELRC-PM-PM (Heath) and CELRC-PM-PL (Potthoff)

SUBJECT: Update to the HTRW and non-HTRW Report for Brandon Road Lock and Dam, Great Lakes Mississippi River Interbasin Study (GLMRIS)

1. A preliminary investigation, for the purposes of identifying HTRW and non-HTRW issues within the project area, was completed for the Brandon Road Lock and Dam in May 2015. At that time, project alternatives had not been fully developed, so it was not possible to fully evaluate the conditions for any specific plan. Now that alternatives have been identified, the previous investigation was reviewed to determine if any locations require additional investigation.
2. At least three alternatives would include the construction of supporting facilities (buildings, storage areas, roads) upland and adjacent to the existing approach channel. The area of interest is on the north side of the approach channel and lock, south of Channahon Road, and west of Brandon Road. This consists of three parcels of land currently owned by NRG (Midwest Generation LLC). Figure 1 shows the parcels. Possible future work for these parcels could include the construction of support buildings with foundations, roads, storage areas, and possible other supporting features such as utilities. Construction of these features would require excavation along the approach channel, across all three parcels owned by NRG.

<b>PIN</b>	<b>Owner</b>
30-07-20-300-007-0000	Midwest Generation LLC
30-07-20-215-001-0000	Midwest Generation LLC
30-07-20-215-002-0000	Midwest Generation LLC

3. A Phase I investigation of the project area was completed in May 2015, although at that time a proposed work location and activities had not been determined. That investigation documented the results from a review of historical information, database search, and interviews with staff. This information noted that additional investigation may be needed and that there were some questions regarding the history of the land just north of the approach channel to the lock.
4. For the area of interest defined above, the most conclusive information on past usage comes from the historical aerial photos. These photos begin in 1939, after the Brandon Road lock and dam have been constructed. One new historical aerial was found, for 1970, to add to the progression.
  - a. Starting in 1939, there appears to be an open water or excavation area along the south end of the approach channel. The dark appearance and drainage patterns on the south end of the dark spot are consistent with an open water

- area.
- b. From 1939 through 1962 the dark area appears to be filled with water and getting larger over time.
  - c. In 1970 (Figure 2), the area in question is still dark, but the southern end appears to have haul roads and is being filled in. The northern end of the area appears to be water still, but possibly with vegetation growing in an island. The area being filled is dark, which could indicate water, topsoil, or other materials such as fly ash. From the aerial photo, it is not possible to tell what the fill material is.
  - d. Starting in 1974, the area has been filled in and appears to be all earth with no surface water.
  - e. In 1978 the land appears to contain some undulating piles, which could be excess fill. The piles are lighter colored and similar to the surrounding ground, which would indicate that the material is soil.
  - f. By 1983 and afterwards, the land is flat and appears to be grassed, with little or no activity and no significant land disturbance.
5. The historical topographic records for this area do not provide additional information, and the area in question is at the divide between two quadrangle maps and is not shown clearly. There are no Sanborn maps for this area, indicating a lack of commercial or industrial buildings, which is consistent with the aerial photograph information.
  6. The area in question is variously referred to in historical documents as “the Commonwealth Edison Clay Pit” (USACE, 2001), as “the USACE landfill” (NIPR, 1988), and commonly as the “Joliet Station” property. An environmental disclosure statement includes the three parcels, when the land ownership was transferred from Commonwealth Edison Company to Unicom Investment Inc. (Midwest Generation, LLC). This disclosure indicates that the parcels being transferred, which include more than the three parcels of interest to the current project, were used for handling and storage of various petroleum, hazardous substances, special wastes, or other materials potentially covered under the Resource Conservation and Recovery Act and Illinois Environmental Protection Act. More specifically, the various parcels may have been used for a landfill, surface impoundment, waste pile or containerized or tank storage. Unfortunately, there is no information included on the specific location (which parcel) or nature of any of these activities.
  7. A site visit was not conducted on the property, as the current land owner (Midwest Generation) has not provided right of entry. The previous investigation also did not include a site visit. The property is visible from the existing lock and dam, but appears to be only a vegetated field. No details are visible from a distance.
  8. Based on the information available, several conclusions can be made at this time:
    - a. The area of interest (the three parcels listed above) have been greatly disturbed over the last century. It is unlikely that the site contains native soils or historical artifacts in good condition, due to previous wide-scale excavation and filling

- activities.
- b. The area of interest may have been used for the disposal of materials that would now be regulated or would be cause for environmental concern, but the nature of any fill materials placed on this property is not known.
  - c. Because the proposed use of the land would require excavation for foundations and other constructed features, the parcels of interest require additional investigation (soil borings or test pits) to obtain information on both the geotechnical properties and the environmental quality of the materials.
9. It is recommended that a phase II investigation be conducted on this property prior to planning any development. The investigation should identify the nature and extent of materials within the footprint of the land that USACE would use, including the horizontal and vertical extent. Assuming that the land was filled with anthropogenic materials, samples should be taken for chemical analysis, to determine whether the material is characteristically hazardous and to determine the appropriate disposition of any excavated materials. It is recommended that a geotechnical investigation be conducted in conjunction with the environmental investigation, so that a complete set of conditions is available for future planning.
10. Questions about this memorandum should be addressed to Dr. Jennifer Miller, [jennifer.miller@usace.army.mil](mailto:jennifer.miller@usace.army.mil) or 312-846-5505.

JAY SEMMLER, PE  
Chief, Hydraulic and Environmental  
Engineering Section

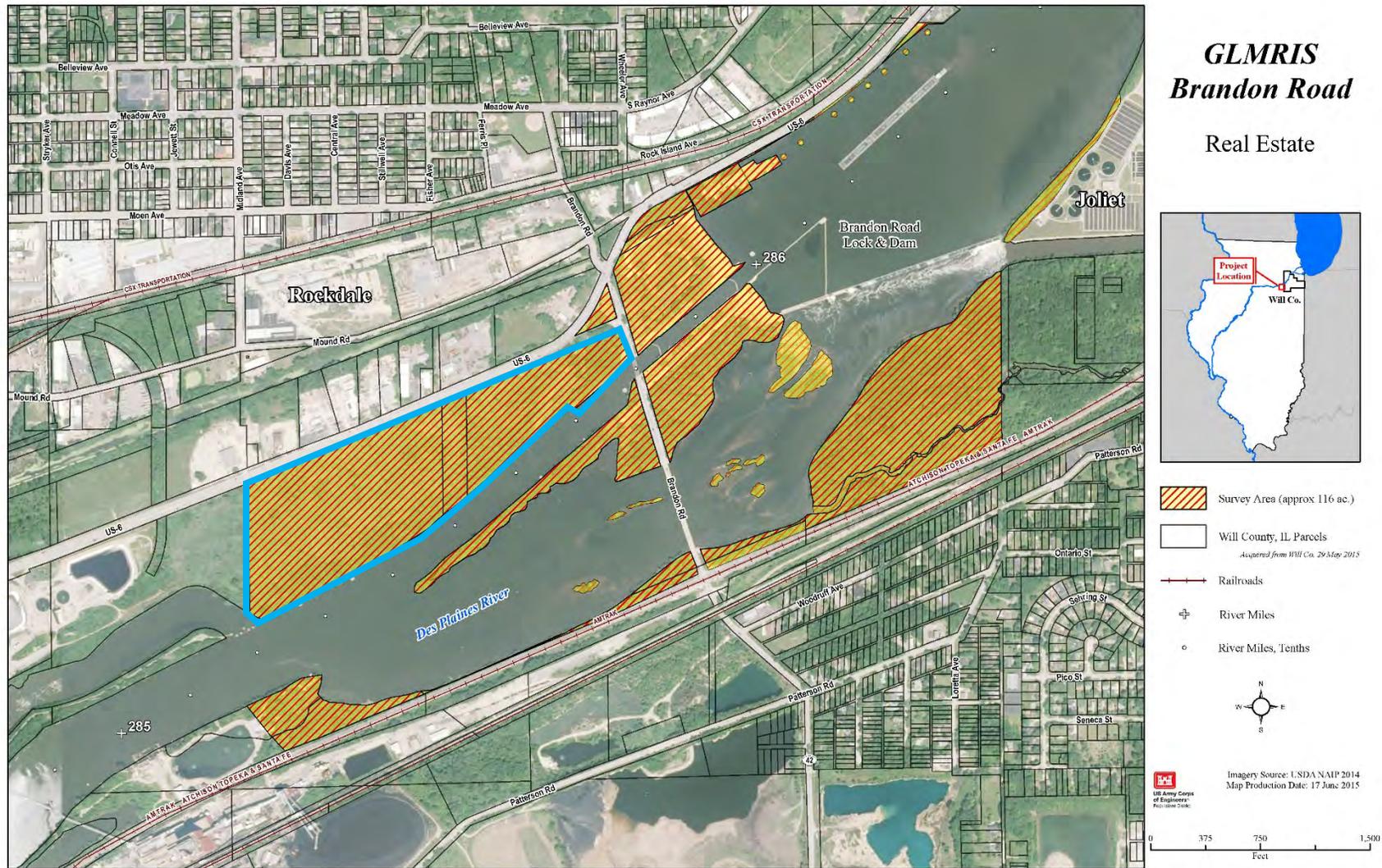


Figure 1: Parcels of Interest for Possible Future Use. Parcels of interest for this discussion are outlined in blue.

Figure 2: 1970 Aerial Photo, with parcels of interest outlined in blue. Note the haul roads on the property.



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**Attachment 3:**

**Hazardous, Toxic and Radioactive Waste (HTRW) and Non-HTRW Investigation**

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**CELRC-TS-DH**

**MEMORANDUM FOR CELRC-PM-PM (Heath) and CELRC-PM-PL (Potthoff)**

**SUBJECT:** HTRW and non-HTRW Report for Brandon Road Lock and Dam, Great Lakes Mississippi River Interbasin Study (GLMRIS)

1. Enclosed is the HTRW investigation report for the Brandon Road Lock and Dam, Great Lakes Mississippi River Interbasin Study (GLMRIS). The investigation was conducted during the feasibility phase of the project and is based on an existing information review, database research, historical topographic map and aerial photograph review, interviews and a site visit. Results of the HTRW investigation are summarized in the “Site Summary” section of the report. This assessment identified two concerns in connection to hazardous substances, HTRW, or other regulated contaminants on site:
  - a. Sediment quality
  - b. Possible historical landfill
2. Sediment in the study area, collected by MWRD from 2008 to 2011, exceeded Illinois Clean Construction Demolition Debris (CCDD) reference criteria for five parameters: cadmium, chromium, iron, lead, and manganese and exceeded Illinois Tiered Approach to Corrective Action Objectives (TACO) criteria for lead. In 2008, sediment chemistry data collected by Patrick Engineering for Northern Illinois Hydropower exceeded Illinois TACO criteria for arsenic, chromium, lead and mercury. One polychlorinated biphenyl (PCB) contaminant, Aroclor 1242, was also detected, at concentrations up to 2.82 mg/kg. An Environmental Assessment completed by USACE in 2000 also detected total PCBs at concentrations up to 6.4 mg/kg. If sediment dredging or disturbances will be part of the project implementation, it is recommended that a tiered investigation, following the Inland Testing Manual, be conducted to determine the best means of handling sediment, and to conform to the Clean Water Act §404(b)(1) requirements.
3. The Illinois EPA and the Statewide Inventory of Land-Based Disposal Sites, published in 1988 by the Northeast Illinois Planning Commission, list a solid waste landfill owned by USACE on the vacant land south of Route 6 and west of Brandon Road. Historical aerial photos also suggest land disturbance in this area. In a report evaluating dredged material placement alternatives, this area was identified as the “Commonwealth Edison clay pit” (USACE, 2001). No further documentation about the clay pit or its current contents was found, and therefore no definitive conclusion could be reached regarding the nature of the historical land disturbances on this property. If measures are selected for implementation at this location, it is recommended that the soils be further investigated to determine if there was a landfill or not. Soil samples should be collected and analyzed to characterize any fill materials that may have been placed in the area.

4. Questions regarding this HTRW investigation can be directed to Jennifer Miller at (312) 846-5505.

JAY A. SEMMLER, P.E.  
Chief, Hydraulics & Environmental  
Engineering Section

Enclosure

Fleer 215-656-6166

TS-D-HE

**HAZARDOUS, TOXIC AND RADIOACTIVE WASTE (HTRW)  
AND NON-HTRW INVESTIGATION**

**Brandon Road Lock and Dam  
Great Lakes Mississippi River Interbasin Study (GLMRIS)**

Hydraulic and Environmental Engineering Section (TS-DH)  
U.S. Army Corps of Engineers, Chicago District

May 2015

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**HAZARDOUS, TOXIC AND RADIOACTIVE WASTE (HTRW)  
AND NON-HTRW INVESTIGATION  
Brandon Road Lock and Dam  
Great Lakes Mississippi River Interbasin Study (GLMRIS)**

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**Attachments**

- Attachment A – EDR Database Search Results
- Attachment B – Historical Topographic Maps
- Attachment C – Historical Aerial Photos
- Attachment D – Interviews
- Attachment E – Sediment Data
- Attachment F – Site Visit Photos

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## **1. INTRODUCTION**

The purpose of this report is to discuss the hazardous, toxic, and radioactive waste (HTRW) investigation for the Brandon Road Lock and Dam site, as part of the Great Lakes Mississippi River Interbasin Study (GLMRIS). This report identifies both HTRW and non-HTRW environmental issues, and presents appropriate measures to resolve these issues. The methods used in performing the investigation are described in detail. Conclusions and recommendations regarding potential impacts due to HTRW, non-HTRW, and recognized environmental conditions (RECs) associated with the project site are provided.

## **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 HTRW investigation 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, a site visit, and a historical aerial photograph and topographic map review. As stated in the 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 indicated the potential for HTRW, testing, as warranted, and analysis similar to a Feasibility Study should be conducted prior to proceeding with the project design.

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

## **3. GUIDANCE**

Supplemental guidance was provided by the Standard Practice for Environmental Assessments: Phase I Environmental Site Assessment Process (Designation: E 1527-13) 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 1527-13 guidelines but not to the same level of detail described by the ASTM E 1527-13 guidance.

### **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.

### **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 a non-HTRW issue considered, in addition to petroleum releases from Leaking Underground Storage Tanks (LUSTs), because of the potential to impose environmental hazards. Non-HTRW and RECs identified during the investigation are also discussed in this report, along with resolutions and/or recommendations for resolving any open issues.

## **4. LAWS AND REGULATIONS**

### **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, 42 U.S.C. 9601 et seq (CERCLA). (See 42 U.S.C. 9601(14).) Hazardous substances regulated under CERCLA include ‘hazardous wastes’ under Sec. 3001 of the Resource Conservation and Recovery Act, 42 U.S.C. 6921 et seq; ‘hazardous substances’ identified under Section 311 of the Clean Air Act, 33 U.S.C. 1321, ‘toxic pollutants’ designated under Section 307 of the Clean Water Act, 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, 15 U.S.C. 2606; these do not include petroleum or natural gas unless already included in the above categories. (See 42 U.S.C. 9601(14).)”

As stated in the definition of hazardous substance in the Environmental Statutes, 1988 Edition, the term 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. 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.

### **State**

The State of 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 is any “hazardous substance” or “petroleum.” A hazardous substance UST is defined as an UST system that contains a “hazardous substance,” or any mixture of “hazardous substances” and “petroleum” which is not a petroleum UST system. The 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.

## **5. SITE DESCRIPTION**

The Brandon Road Lock and Dam is located at the southwest edge of Joliet, 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.

This study evaluates potential measures to control the transfer of aquatic nuisance species through the navigation lock at Brandon Road. Components of a future project at this site could be constructed in the lock chamber, the approach channel, or on the lands adjacent to the lock chamber and approach channel, all shown in Figure 1 below. The land on either side of the lock chamber is owned by the US Army Corps of Engineers, as is the peninsula southeast of the approach channel. On the northwest side of the approach channel, the land adjacent to the Des Plaines River and west of Brandon Road is owned by Midwest Generation/NRG Energy. A lock house, parking lot, and various appurtenances to the lock facility are located on either side of the lock chamber. The land on either side of the approach channel is undeveloped and vegetated. Significant grading, soil and non-native fill excavation, and sediment management activities may be conducted to complete the proposed project.

## **6. GENERAL METHODS**

The following sections contain information that was requested and gathered in accordance with ER 1165-2-132 for this assessment. The information was obtained from:

- Records review: Regulatory documentation; sediment and water quality data; historical topographic maps and aerial photographs, etc.
- Interviews: Owners/occupants and local government staff, including: Lockmaster Perry Jones; Office of the State Fire Marshal; Joliet Fire Department Hazardous Materials Team.
- Site reconnaissance

This information was used to determine if the ANS control measures for Brandon Road Lock and Dam will have an impact on any HTRW occurrences that may exist in the surrounding areas, and if HTRW problems will have an impact on the implementation of the project. The information gathered from the above list of sources is detailed in the following sections.



**Figure 1. Location Map (Will County, Illinois 2015).**  
 Area of interest is highlighted yellow.

PIN	Owner
30-07-20-216-001-0000	US Army Corps of Engineers
30-07-20-300-007-0000	Midwest Generation LLC
30-07-20-215-001-0000	Midwest Generation LLC
30-07-20-215-002-0000	Midwest Generation LLC

## 7. USER PROVIDED INFORMATION

### Interviews

Owners/occupants and local government staff were interviewed in order to obtain additional information about potential recognized environmental conditions on or adjacent to the project site. CELRC-TS-DH Staff (Fleer) interviewed Lockmaster Perry Jones on October 2, 2014. The Office of the State Fire Marshal Underground Storage Tank (UST) Coordinator and Joliet Fire Department Hazardous Materials Team were contacted by mail. Thomas Dumoulin, Stephen Gustafson, and Mark Cornish of the Corps of Engineers Rock Island District (CEMVR) also provided information about the subject site by both phone and email.

Lockmaster Perry Jones described the current and historical uses of the subject property. When asked about recognized environmental conditions at or adjacent to the subject property, he reported that lead-based paint had been detected on the handrail surrounding the lock chamber, on the catwalks over the dam, and on the head gates. Mr. Jones also reported that lock house is monitored twice each week for radon, and that the monitoring data dating back to 2006 is available at the USACE Peoria office. At one point the lock house was scheduled for demolition because of the radon issue. Instead, the basement floor was partially excavated and a radon reduction system was installed, which vents to the outdoors as shown in Photos 33-35 (Attachment F). Mr. Jones also stated that USACE has conducted dredging operations just downstream of the lock chamber and placed the material east of the approach channel on the island separating the lock and dam tailwaters. The last dredging event he recalled, shown in Figure 2, took place in 2002. Aside from the lead paint, radon and dredged material, Mr. Jones reported no past land uses that would have resulted in the generation, treatment, storage, or disposal of hazardous wastes at the Brandon Road Lock and Dam property. The lockmaster also said that he had never observed pits, ponds or lagoons on or adjacent to the property suggestive of recognized environmental conditions. Mr. Jones had no knowledge of the landfill mentioned in the EDR report (Attachment A). A full interview report is provided in Attachment D.

Rock Island District Environmental Engineer Stephen Gustafson provided a Phase I Environmental Site Assessment prepared in support of the project to maintain authorized navigation depths in the Illinois Waterway (USACE, 2002). The main HTRW concern noted in the 2001 Phase I report was the use of lead-based coatings on the movable Brandon Road bridge. Lead was a major ingredient in many types of exterior paint until enactment of the Lead-Based Paint Poisoning Prevention Act of 1971. Given the nature of lead-based coatings to “chalk,” or lose some of their surface material, it was expected that lead dust and chips washed off and may have accumulated in the soil and sediments around the coated structure. All other recognized environmental conditions identified in the Phase I report were judged to be *de minimis* impacts.

The Phase I report indicated that the channel downstream of the Brandon Road Lock was dredged 11 times during the period from 1974 to 2001. The dredged material was placed on either side of the lock tailwater, as shown in Figure 3. Chemical analysis of the dredged material is discussed in an Environmental Assessment (USACE, 2005) and is summarized in Paragraph 8.4 of this document. Rock Island District Biologist Mark Cornish provided two additional documents concerning the placement of material dredged from the navigation channel downstream of the Brandon Road Lock (USACE 2001, 2005). The documents state that historic

dredged material placements were upland placement on the left descending bank, and that more recent placements were on the east descending bank. The dredged material is mainly bedrock stone of 6-12 inches in diameter, with boulders up to two cubic yards in size.

Rock Island District Geotechnical Engineer Thomas Dumoulin provided information about the four monitoring wells located in the dam embankments at the north end of the subject property. The purpose of the monitoring wells is to monitor the seepage through the foundation and the effectiveness of the cutoff walls. CEMVR staff manually collect water surface elevation data from the wells each quarter.

Office of the State Fire Marshal Underground Storage Tank (UST) Coordinator provided documentation confirming the removal of two underground storage tanks on the subject property. The Joliet Fire Department Hazardous Materials Team indicated by phone that they had no record of any emergency response activities at or near the site.

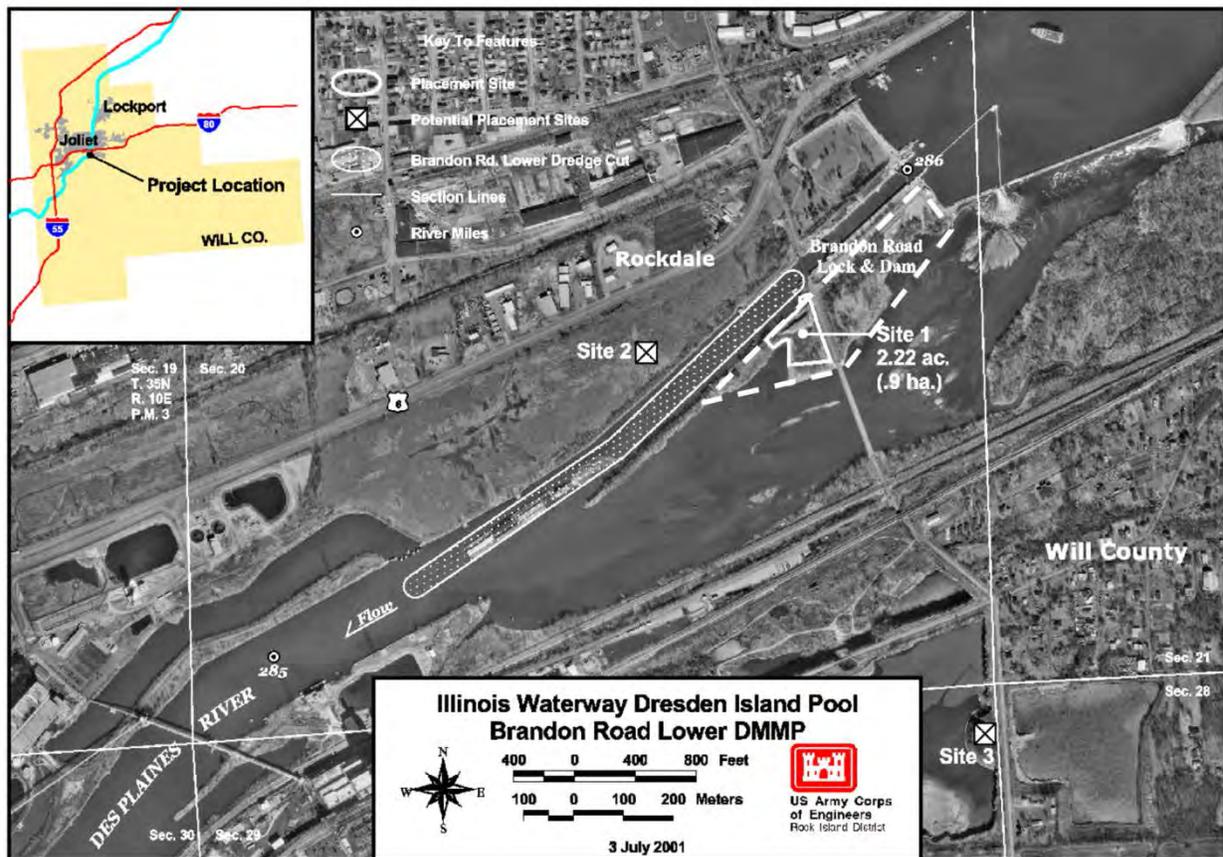


Figure 2. Dredge cut and placement location map

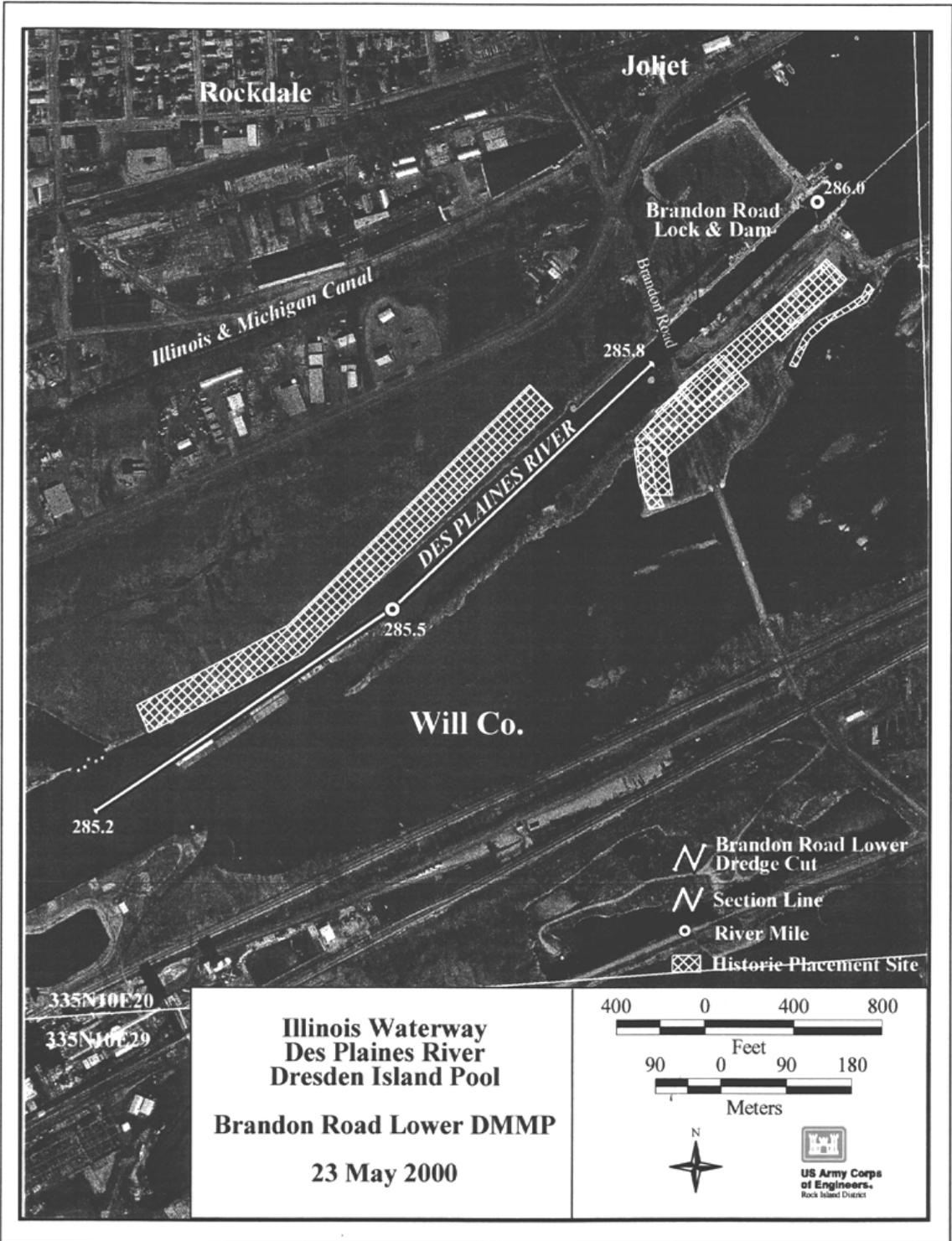


Figure 3. Historic Dredged Material Placement sites

## **8. RECORDS REVIEW**

### **8.1 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 were provided by Environmental Data Resources (EDR) for the following years: 1892, 1918, 1953, 1954, 1962, 1973, 1993, 1998 and 1999. Historical aerial photos were also reviewed, from 1939, 1946, 1952, 1956, 1962, 1974, 1978, 1983, 1988, 1993, 1998, and nearly every year after 2000.

The earliest topographic maps, shown in Figure 4, show the alignment of the Des Plaines River prior to construction of the lock and dam. The Illinois and Michigan Canal and the Chicago and Rock Island Pacific Railroad run parallel to the Des Plaines River near the project site. The Brandon Road Lock and Dam were constructed from 1927-1933. Dam construction altered the natural geography of the area substantially, by creating a pool upstream of the structure as shown in Figure 5. Historical aerial photographs suggest a history of significant earthwork activities just north of the approach channel downstream of the lock chamber. Figure 4 shows a series of aerial photos taken from 1939 through 1974 of the vacant land north of the approach channel, south, south of Route 6/Channahon Road and west of Brandon Road. The photos show significant changes to the land surface over time, suggesting either earthwork activities or dredged material disposal. No significant elevation change can be discerned from the topographic maps. After this period, the property becomes increasingly vegetated.

The Joliet Generating Station is located just southwest of the lock and dam. Unit 6 was built on the south side of the river in 1959 and units 7 and 8 were constructed on the north side of the river in 1965 and 1966, respectively (Midwest Generation, 2009). Between 1954 and 1973, a backwater pond connected to the larger Des Plaines River was further excavated to draw cooling water further inland to the power station site. It is not clear where the spoils from this excavation were placed.

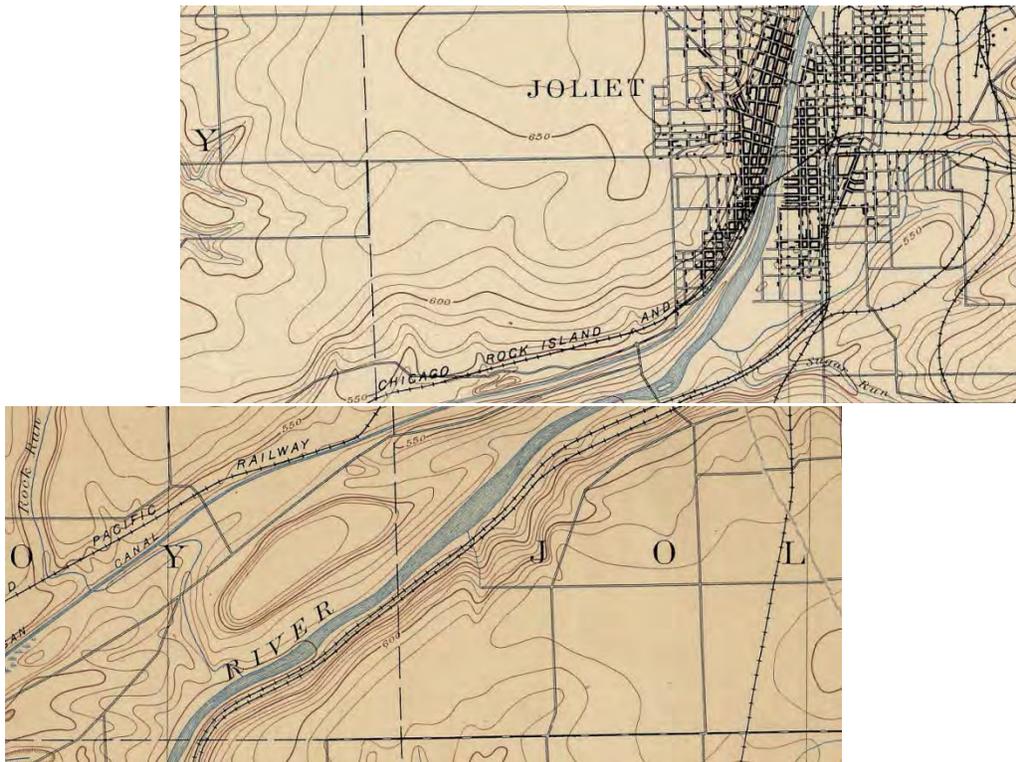


Figure 4. 1890 Topographic Map showing river alignment prior to dam construction

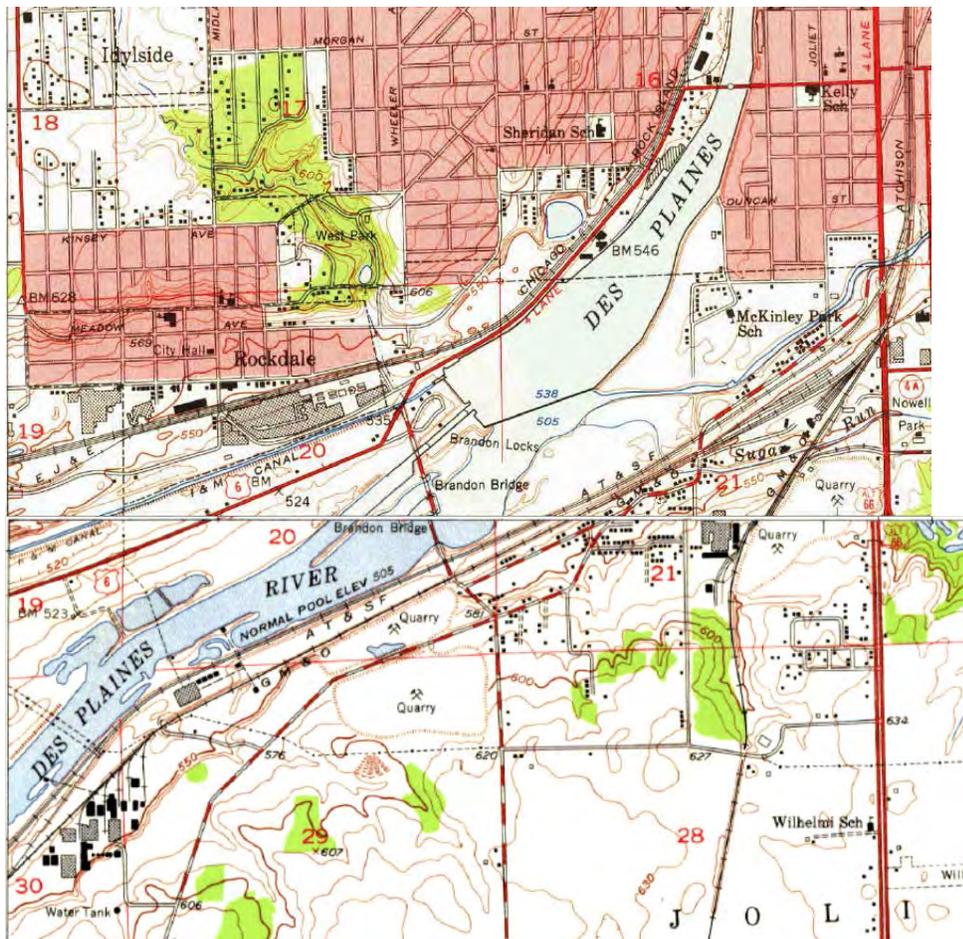


Figure 5. 1954 Topographic Map showing stream geometry following lock construction



1939 Aerial Photo

1952 Aerial Photo



1962 Aerial Photo

1974 Aerial Photo

**Figure 6. Historical aerial photographs suggesting land disturbances north of approach channel**

## 8.2 Database Search

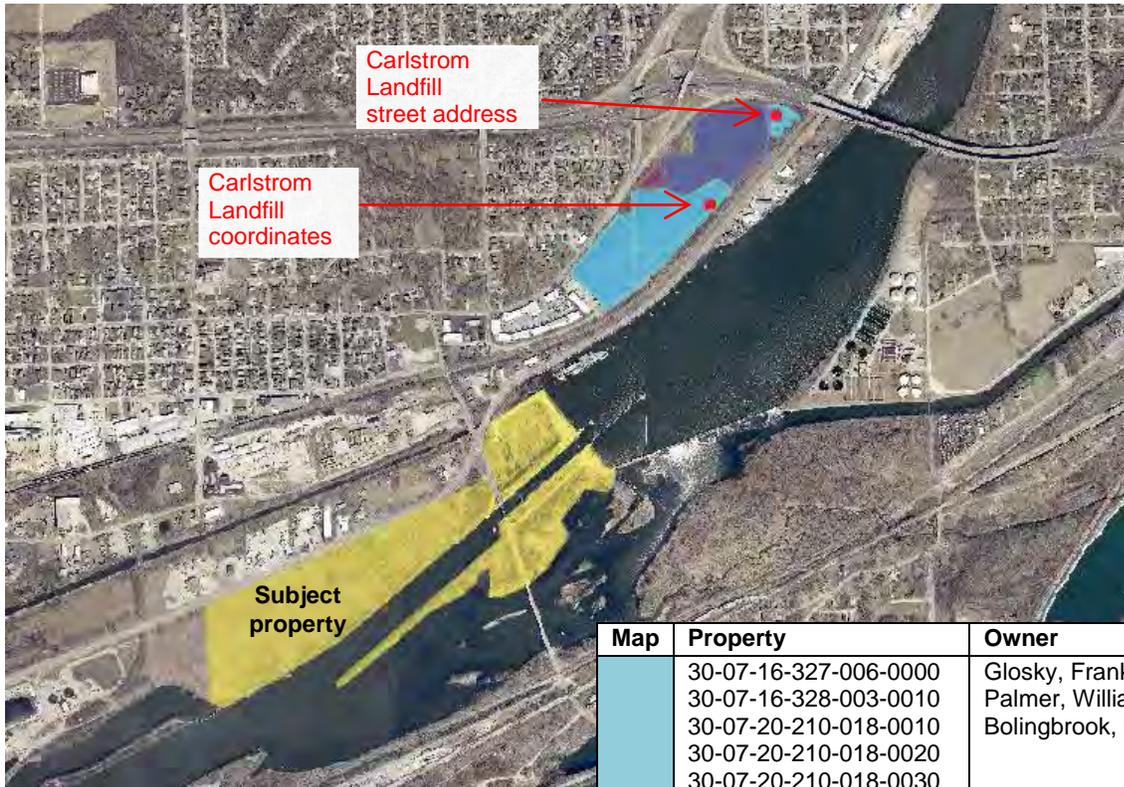
The database search conducted for the Brandon Road project location was conducted by Environmental Data Resources, Inc. (EDR) in 2014. EDR searched federal and state databases using the minimum search distances provided in the ASTM E1527-13 guidelines. Table 1 notes the recommended ASTM search distance for federal and state databases. A description of information included in each database is included below.

**Table 1. ASTM recommended search radii for database searches**

Database	Approximate Minimum Search Distance (mi)
Federal NPL Site List	1.0
Federal CERCLIS List	0.5
Federal CERCLIS NFRAP site list	Property and Adjoining Properties
Federal RCRA CORRACTS Facilities List	1.0
Federal RCRA non-CORRACTS TSD Facilities List	0.5
Federal RCRA Generators List	Property and Adjoining Properties
Federal ERNS List	Property Only
State Equivalent NPL	1.0
State Equivalent CERCLIS	0.5
State Landfill/Solid Waste Disposal Site Lists	0.5
State LUST Lists	0.5
State registered UST List	Property and Adjoining Properties

### CERCLIS

The Comprehensive Environmental Response, Compensation, and Liability, Information System (CERCLIS) contains data on any potential hazardous waste site that has been reported by states, municipalities, private companies, or private persons pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Two CERCLIS sites were identified within 1 mile of the barrier site: Carlstrom Landfill and Purex Corporation/Turco Products. Purex Corporation/Turex Products was assessed to be a low priority in 1984 and no further remedial action is planned. The Carlstrom Landfill site is located at 639 Rock Island Avenue in Rockdale, Illinois, approximately 0.3 miles northeast of the proposed project location. The site address is shown by a red dot in Figure 7, below. The lat/long coordinates given in the EPA Envirofacts database are also shown in Figure 7. The exact extents of the landfill are unknown, but may be as large as the blue and purple polygons together. The facility was entered in CERCLIS in 1979 and assigned a high priority for further assessment in 1986. An expanded site inspection was completed in 2004 and the site was recommended for HRS (Hazard Ranking System) scoring. No records of decision or other information about the nature or extent of contamination on site was readily available. While the impacts on site are unknown, the site is not adjacent to the potential GLMRIS project. A railroad, the Brandon Road Pool, and the Illinois and Michigan Canal lie between the Carlstrom Landfill and the proposed project sites. Therefore, no impacts to the projects would be expected.



**Figure 7. Carlstrom Landfill location**

Map	Property	Owner
	30-07-16-327-006-0000 30-07-16-328-003-0010 30-07-20-210-018-0010 30-07-20-210-018-0020 30-07-20-210-018-0030	Glosky, Frank and Palmer, William Bolingbrook, IL
	30-07-16-325-015-0000	Orlando RV Park, Inc. Chicago, IL
	30-07-16-326-005-0000	Normanbhoy IRA LLC Cupertino, CA

### **RCRIS**

The Resource Conservation and Recovery Information System (RCRIS) lists sites which generate, transport, store, and/or dispose of hazardous waste defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. The environmental records search located three SQG and four CESQG sites within the recommended search distance of the proposed project, as shown in Table 2. No violations were reported for any of the sites. No RCRA Corrective Action sites were located within the recommended search distance. Because there are no violations noted, it is unlikely that these site have impacted the proposed project area.

### **SWF/LF**

The database search results located three landfill sites in proximity to the proposed GLMRIS project. Persico Landfill and M&W Landfill #3 are both located 0.33 miles north of the subject property and both are now closed. The closed landfills are hydraulically isolated from the subject property and therefore not likely to impact the proposed project.

The Illinois EPA and the Statewide Inventory of Land-Based Disposal Sites, published in 1988 by the Northeast Illinois Planning Commission, also list a SWF/LF owned by USACE on the vacant land south of Route 6. Interviews with USACE staff did not confirm a former disposal site at this location. Historical aerial photos are difficult to discern but do suggest land disturbance in this area in the 1970s. Historical topographic maps do not show significant elevation change in the area over time, which would be expected for a conventional landfill operation. In a report evaluating dredged material placement alternatives, this area was identified as the “Commonwealth Edison clay pit” (USACE, 2001). An Environmental Assessment authored for the dredging project further states that the Commonwealth Edison clay pit was “near capacity” (USACE, 2005). No further documentation about the clay pit or its current contents was found. No definitive conclusion could be reached regarding the nature of the historical land disturbances on this property. However, the available constellation of facts suggests the possibility that clay was extracted from the site and the pit was backfilled and listed as a landfill. If measures are selected for implementation on the property south of Route 6 and west of Brandon Road, now owned by NRG Energy, it is recommended that the soils be further investigated to determine if there was a landfill or not. Soil samples should be collected from the area of historic land disturbances and analyzed to characterize any fill materials that may have been placed in the area.

#### **LUST/UST**

Two LUST sites were identified within the recommended search distance of the proposed project site. The diesel LUST owned by Gary Richter was issued a NFR letter in 1999. The second site, Meade Electric Company, Inc., is a gasoline LUST located approximately 0.27 miles north of the project location, north of the Illinois and Michigan Canal. It was discovered in 1997 and was listed as high priority for cleanup. A corrective action plan for cleanup was submitted to the Illinois EPA, and a NFR letter was issued in March of 2011. USTs listed for the subject property and adjacent properties, Amoco Chemical Corp, Central Transport, and UIC Inc., have all been removed. USTs at Unit Step Co and Best Environmental, Inc are still in place and are exempt from registration.

#### **IL SRP**

The Site Remediation Program (SRP) database lists all voluntary remediation projects administered through the pre-notice site clean-up program (1989 to 1995) and the site remediation program (1996 to present). The database search located no SRP sites within a mile of the subject property.

**Table 2. Database Search Results**

Database	Map ID	Site Name	Proximity to Site	Status
CERCLIS	1	Carlstrom Landfill	0.31 mi NE	Assigned a high priority for further assessment. Recommended for HRS scoring in 2004. Across the river from the property of interest, so unlikely to have impacted the site.
CERCLIS-NFRAP, RCRA-NonGen	4	Purex Corp. Turco Products	0.33 mi N	Site archived 08/26/1993.
RCRA-SQG	2	Rockdale Automotive	0.22 mi N	No violations found.
RCRA-SQG	7	Mapco, Inc.	0.22 mi N	No violations found.
RCRA-SQG	7	Texas Truck Service	0.22 mi N	No violations found.
RCRA-CESQG	5	US Army Corps of Engineers LD3	0.12 mi N	No violations found.
RCRA-CESQG	6	Varlen Instruments	0.09 mi N	No violations found.
RCRA-CESQG	6	Chemtech Services Inc.	0.09 mi N	No violations found.
RCRA-CESQG, UST	5	Central Transport	0.12 mi N	No violations found. Two diesel USTs, both removed.
SWF/LF	4	M&W Landfill #3	0.33 mi N	Closed final cover. Permitted.
SWF/LF	4	Persico Landfill	0.33 mi N	Closed final cover. Unpermitted Unauthorized.
SWF/LF, UST	9, 12	US Army Corps of Engineers	Adjacent to the north	Landfill reported south of Brandon Road and Route 6, though no supporting information was found. One diesel and another fuel tanks, both removed.
LUST	11	Richter, Gary	0.15 mi NW	Diesel LUST. NFA/NFR letter: 7/27/1999
RCRA-SQG, LUST	3	Meade Electric Company, Inc.	0.27 mi N	Gasoline LUST identified as a high priority for cleanup. NFA/NFR letter: 3/22/2011.
UST	11	Amoco Chemical Corp	0.15 mi NW	Three fuel tanks, all removed.
UST	6	Unit Step Co	0.09 mi N	Gasoline USTs exempt from registration.
UST	6	UIC Inc.	0.09 mi N	Diesel UST removed.
UST	10	Best Environmental Inc.	0.06 mi N	Gasoline UST exempt from registration.

### 8.3 Water Quality

The Lower Des Plaines River is classified for General Use water quality standards, which are designed to be protective of aquatic life, wildlife, agricultural use, secondary contact use, and most industrial uses (35 IAC Subtitle C, Chapter 1, Part 302). Water quality in the Lower Des Plaines River is impaired for two of these designated uses. Upstream of the dam (G-23), concentrations of dissolved oxygen, iron, manganese, and total dissolved solids impair use of the waterway for aquatic life. Both upstream and downstream of the dam (G-12), mercury and PCB concentrations impair use of the waterway for fish consumption (Illinois EPA 2015). Both segments support Indigenous Aquatic Life.

Neither segment is listed as biologically significant, however segment G-12 has been given a category “B” diversity rating and a category “D” integrity rating in the 2008 Illinois Department of Natural Resources publication, *Integrating Multiple Taxa in a Biological Stream Rating System* (Illinois DNR 2008). Segment G-23 has not been given diversity or integrity ratings.

### 8.4 Sediment Quality

The Metropolitan Water Reclamation District (MWRD) regularly collects water quality, sediment quality, and biological data from throughout the Chicago Area Waterway System and the Illinois Waterway. On the Illinois Waterway System, Stations 1 through 4 are located upstream of the Brandon Road Lock and Dam and stations 5 through 49 are located downstream, as shown in Attachment A. The most recent and proximate sediment data were collected from stations 2 and 5 in 2008, 2009 and 2011. Station 2 is located just below the Lockport Lock and Dam and Station 5 is located just below the Brandon Road Lock and Dam. Sediment data collected by MWRD are shown in Attachment E.

Screening criteria and remediation objectives for sediment have not yet been published for by either federal or state environmental protection agencies. For discussion purposes, the Maximum Allowable Concentrations of chemical constituents allowed in “Uncontaminated Soil” and Illinois Clean Construction Demolition Debris (CCDD) are provided in Table A-1 as a point of comparison. The Illinois Tiered Approach to Corrective Action Objectives (TACO) criteria for residential are also provided, though they were developed to serve as land-based remediation objectives and are not necessarily valid for sediment. Sediment data collected by MWRD from 2008 to 2011 exceed the Illinois CCDD reference criteria for five parameters: cadmium, chromium, iron, lead, and manganese. Illinois TACO reference criteria were exceeded for lead.

Additional sediment data were collected above Brandon Road Lock and Dam in 2008. In 2009 and again in 2014, Northern Illinois Hydropower (NIH) requested water quality certification under Section 401 of the Clean Water Act from Illinois EPA for a hydropower project at Brandon Road Lock and Dam. NIH’s proposed activities included dredging sediment impounded above the dam, so they collected and analyzed six sediment samples in August 2008. Four samples were collected from within the skimmer wall just upstream of the dam and lock chamber, and two additional samples were collected just above the dam. Sampling locations and results are also shown in Attachment E.

The NIH/Patrick analysis found: arsenic at 22.6 mg/kg; chromium up to 836 mg/kg; lead up to 724 mg/kg; and mercury up to 1.14 mg/kg. One polychlorinated biphenyl (PCB) contaminant, Aroclor 1242, was detected, up to 2.82 mg/kg. No pesticides, VOCs or PAHs were found to exceed reference criteria. Metals concentrations in the sediment exceeded the Illinois EPA's Tiered Approach to Corrective Action Objectives (TACO) Tier 1 Soil Remediation Objectives as well as Illinois CCDD criteria.

An Environmental Assessment completed for the Illinois Waterway navigation project presents the results of sediment sampling and analysis completed in 2000 (USACE, 2005). In this analysis, metals did not exceed either Illinois TACO or CCDD criteria. PCB concentrations (up to 6.4 mg/kg) were detected in channel sediment, which exceeds both state and federal remediation objectives.

Further sediment collection and analysis may be needed to determine potential impacts to the proposed project. It is recommended that if proposed project activities will involve dredging or significant sediment work, a separate sediment quality investigation, following the Inland Testing Manual, be conducted.

## **9. SITE RECONNAISSANCE**

CELRC Environmental Engineering staff (Fleer) visited the subject property on October 2, 2014 in order to conduct site reconnaissance as described in ASTM E1527-13. The objective of the site reconnaissance is to obtain information indicating the likelihood of identifying recognized environmental conditions in connection with the property. During the site visit, staff walked the lock and dam site and adjacent properties when not obstructed by dense vegetation and tall fences.

The periphery of the property was observed from Channahon Road/Route 6 and Brandon Road, and the interior of the site was observed on foot. The area located east of Brandon Road and both north and south of the lock chamber was thoroughly observed, as shown in Photos 14 through 67, Attachment F. Lock staff maintain supplies of hydraulic oil, fuel, and lawn care chemicals on site as needed for site operations and maintenance. Two above-ground storage tanks are located on the site. A 250 gallon tank containing diesel is located outside the lock house and a 250 gallon tank of gasoline is located on the northeast corner of the lock chamber, by the electrical shop. Paints and herbicides are stored in lockers by the electrical house. Small containers of gasoline are stored in a fire cabinet in a garage near the lock house. Fifty-five gallon drums of hydraulic oil are stored near the electrical shop and are in use at each of the four corners of the lock chamber. No evidence of spills was observed.

The southeast side of the lock chamber is an island bisected by Brandon Road. The northeastern section of this island consists of lock and dam structures. The western section of this island is densely vegetated. Dredged material has been placed just downstream of the lock chamber, on the east side of the approach channel. The last dredged material placement at Brandon Road took place in 2001-02. The lockmaster mentioned that local residents use this area for fishing, which was consistent with the proliferation of empty beer cans and other garbage observed on

site. Despite some litter, past uses of the property do not appear to involve the use, treatment, storage, disposal, or generation of hazardous substances or petroleum products.

The large parcel located north of the approach channel, west of Brandon Road and South of Channahon Road was also littered with debris as shown in Photos 70 through 74, Attachment F. Aside from the minor illegal dumping activities that have clearly taken place, no visual evidence of a historical landfill was observed. However, observations of this area were limited by the density of vegetation present on site.

## **10. SITE SUMMARY**

This investigation was performed to determine if the selected measures will have an impact on any HTRW occurrences that may exist in the surrounding areas, and if RECs will have an impact on the implementation of the project.

The Carlstrom Landfill, located at 639 Rock Island Avenue in Rockdale, Illinois, is listed in CERCLIS. The landfill is located upstream of the Brandon Road Lock on the northwest side of the Des Plaines River. Information available in the EPA Envirofacts and CERCLIS databases indicate that an expanded site inspection was completed in 2004 and that the property is awaiting a Hazard Ranking System scoring. No additional information about the nature or extent of contamination on site was readily available. While the impacts on the site are unknown, the site is not adjacent to the potential GLMRIS project and is hydraulically isolated by the Des Plaines River and I&M canal, so impacts to the project are not likely.

The Illinois EPA and IL NIPC list a landfill owned by the US Army Corps of Engineers, west of Brandon Road and south of Route 6/Channahon Rd. The Brandon Road Lockmaster did not corroborate this information, and no landfill was reported at this location in earlier site documentation. Historical photos do suggest changes to the land cover over time, but the historical topographic maps do not show changes in ground elevation as you would expect from a conventional landfill operation. Two historical documents reference a clay pit at this location, which may have been backfilled and covered. During the site visit, some dumping of furniture and other garbage was observed in this area. From the available information, it remains unclear whether or not a landfill may have been operated at this site. If measures are selected for implementation on the property now owned by NRG Energy, south of Route 6 and west of Brandon Road, it is recommended that the soils be further investigated to determine if there was a landfill or not. Test pits or borings could be done in the area of historic land disturbances to determine if fill materials have been placed in the area.

Sediment data collected by MWRD from 2008 to 2011 exceed the Illinois CCDD reference criteria for five parameters: cadmium, chromium, iron, lead, and manganese. Illinois TACO reference criteria were exceeded for lead. Sediment data collected by Northern Illinois Hydropower in 2008 exceeded Illinois TACO reference criteria for arsenic, chromium, lead and mercury. NIH also detected the presence of Aroclor 1242, a PCB congener, at concentrations up to 2.82 mg/kg. Sediment data collected by USACE in 2002 detected total PCBs at concentrations up to 6.4 mg/kg. Water quality at the project site is impaired. Concentrations of dissolved oxygen, iron, manganese, and total dissolved solids impair the use of the waterway for

aquatic life and mercury and PCB concentrations impair use of the waterway for fish consumption. If sediment dredging or disturbances will be part of the project implementation, it is recommended that a tiered investigation, following the Inland Testing Manual, be conducted to determine the best means of handling sediment, and to conform to the CWA 404(b)(1) requirements.

This report contains the results of the HTRW and non-HTRW investigations for the Brandon Road Lock and Dam site located in Will County, Illinois, as part of the Great Lakes Mississippi River Interbasin Study (GLMRIS). No HTRW investigation can wholly eliminate uncertainty regarding the potential for HTRW associated with a project area. Performance of the HTRW investigation is intended to reduce, but not eliminate, uncertainty regarding the potential for HTRW in connection with a project area.

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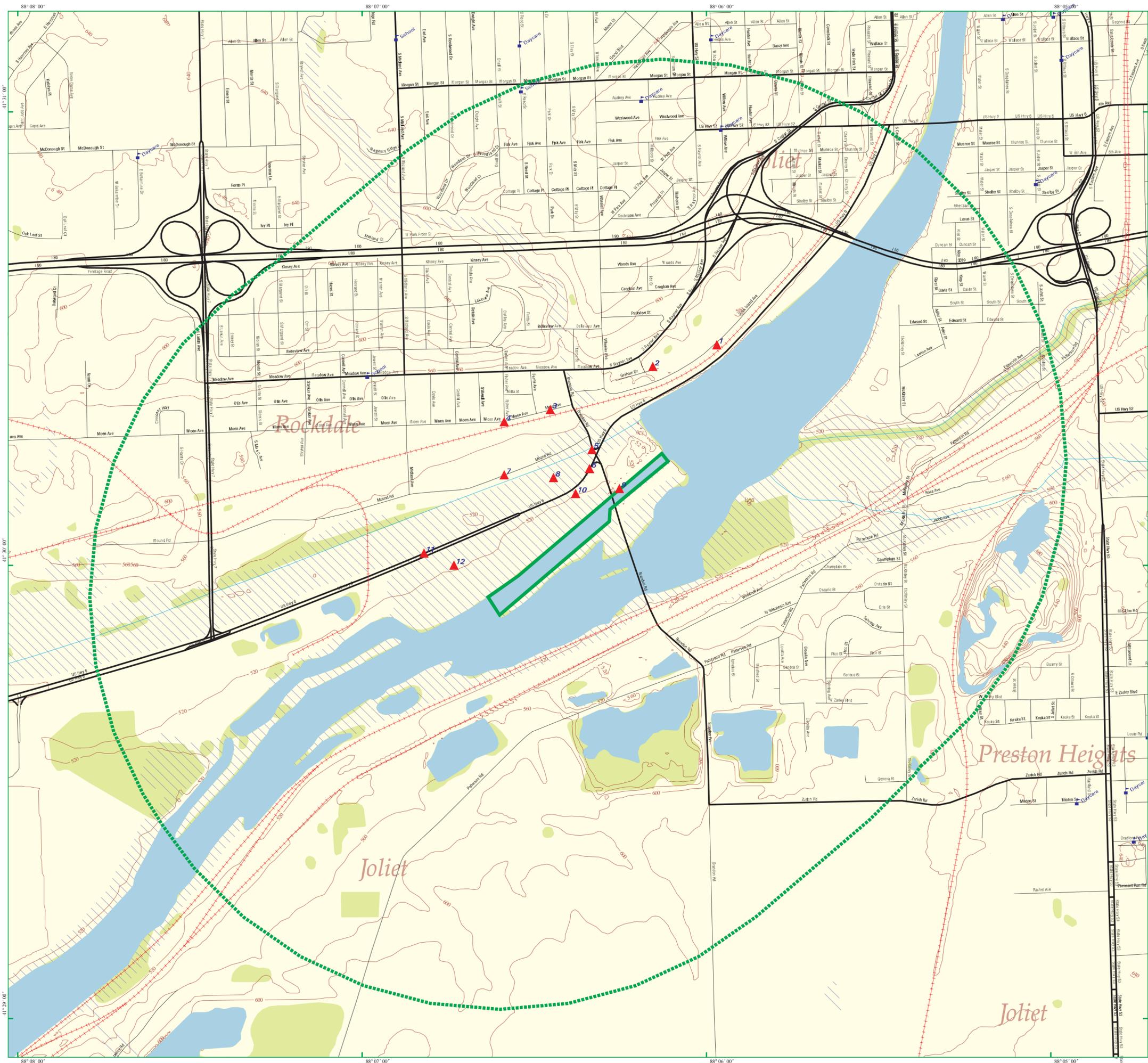
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**Attachment A**  
**EDR Database Search Results**

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# EDR DataMap® Area Study

## Brandon Road



- Listed Sites
- Earthquake Epicenters (Richter 5 or greater)
- Search Boundary
- Roads
- Major Roads
- Waterways
- Railroads
- Contour Lines
- Pipelines
- Fault Lines
- Water
- Superfund Sites
- Federal DOD Sites
- Indian Reservations BIA
- 100-Yr Flood Zones
- National Wetland Inventory



Joliet, IL



Scale in Miles



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**Attachment B**  
**Historical Topographic Maps**

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**Brandon Road**

Brandon Road

Joliet, IL 60436

Inquiry Number: 4099641.4

October 08, 2014

# EDR Historical Topographic Map Report



6 Armstrong Road, 4th Floor  
Shelton, Connecticut 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

# EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

***Thank you for your business.***  
Please contact EDR at 1-800-352-0050  
with any questions or comments.

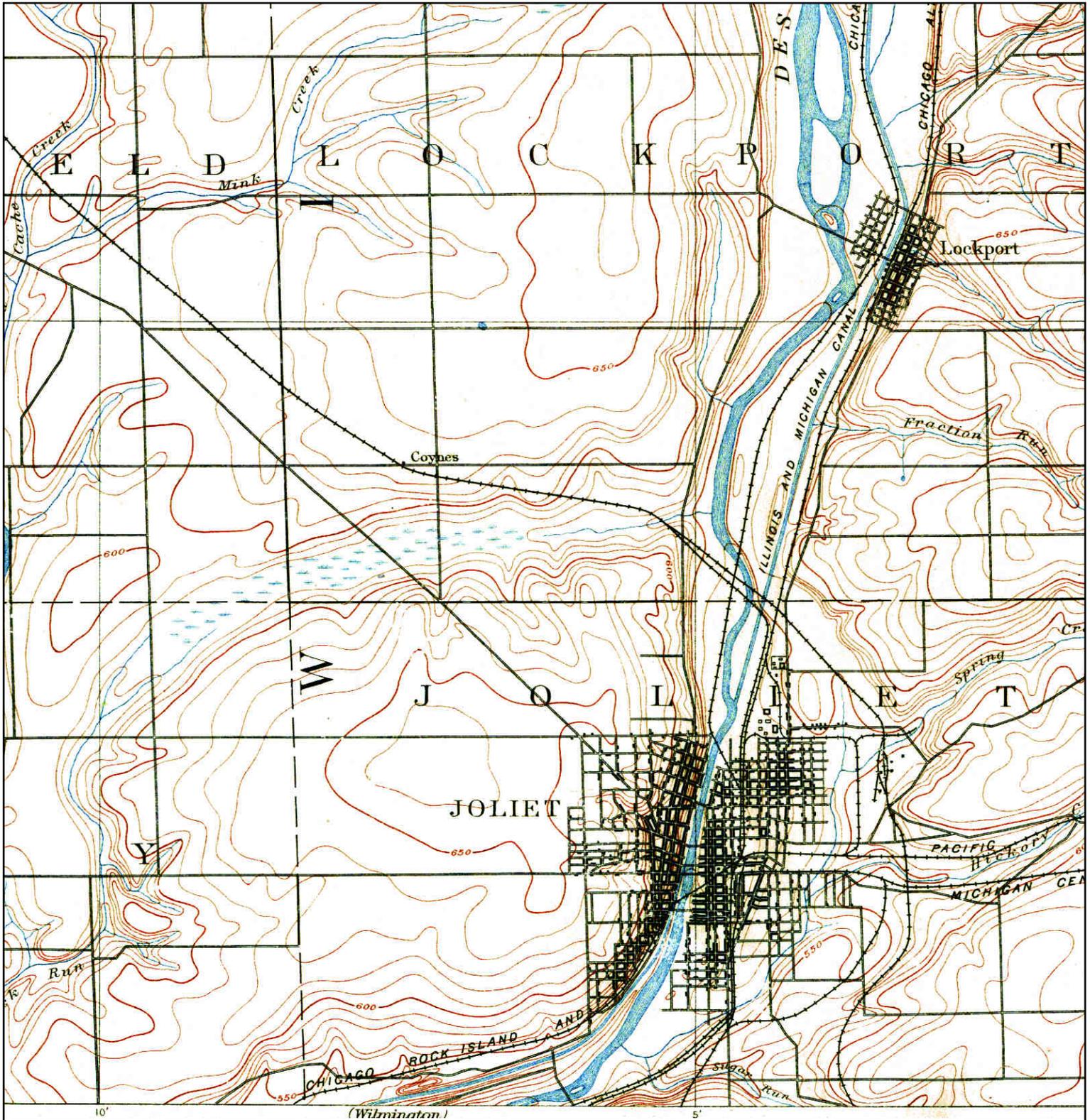
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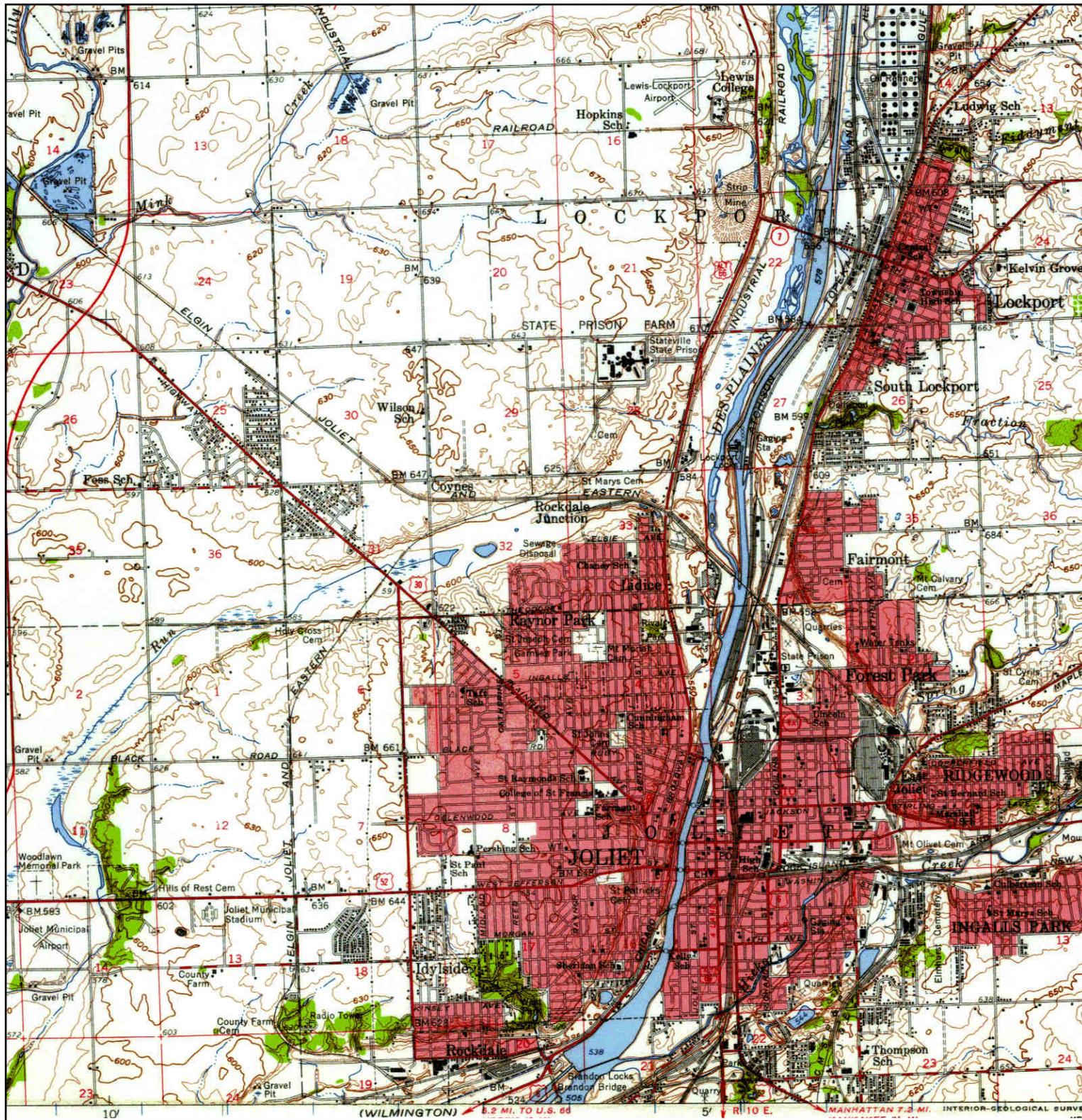
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# Historical Topographic Map



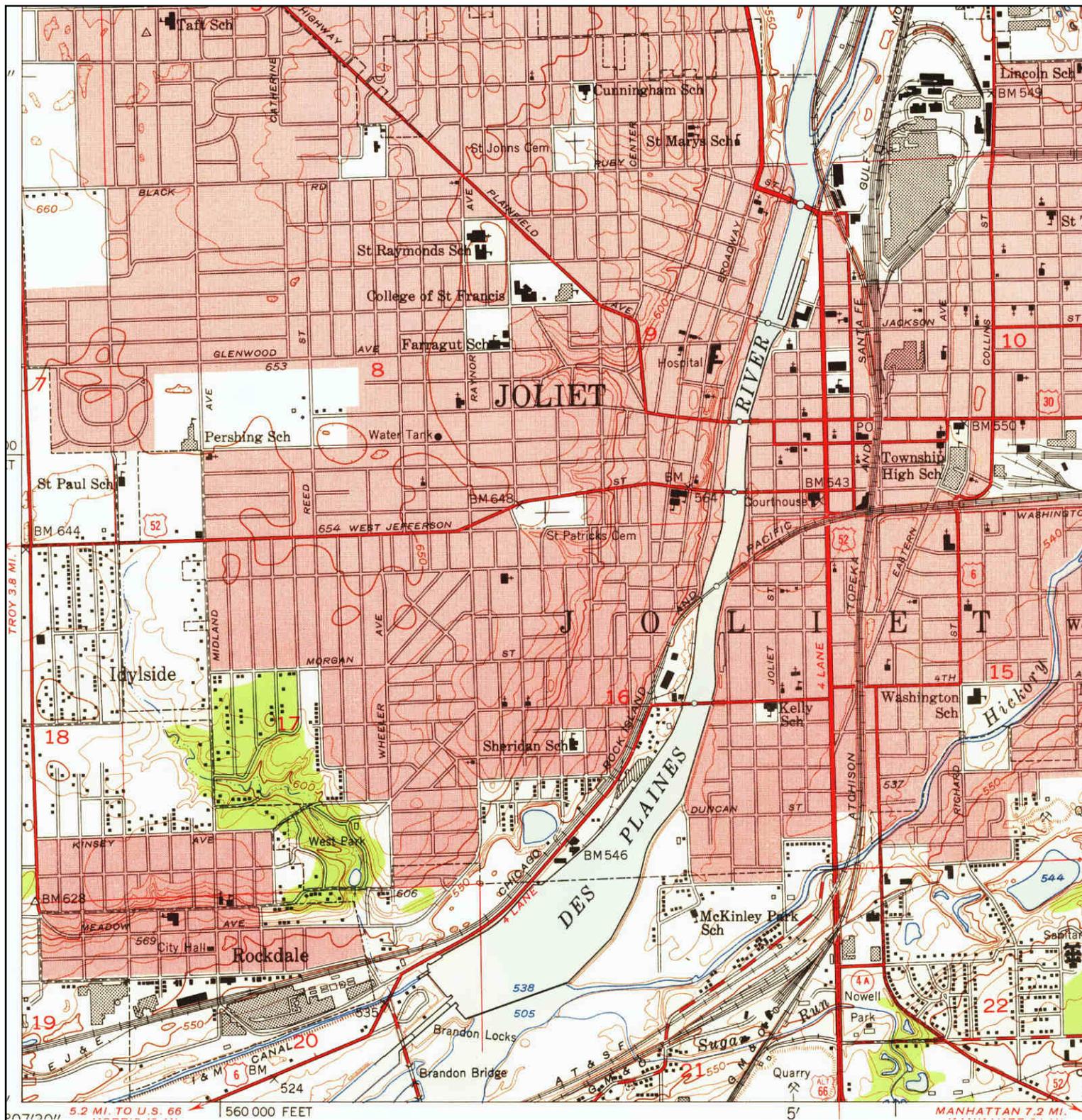
	<b>TARGET QUAD</b>	<b>SITE NAME:</b> Brandon Road	<b>CLIENT:</b> U.S. Army Corps of Engineers
	NAME: JOLIET	ADDRESS: Brandon Road	<b>CONTACT:</b> Lauren Fleer
	MAP YEAR: 1892	Joliet, IL 60436	<b>INQUIRY#:</b> 4099641.4
		<b>LAT/LONG:</b> 41.5024 / -88.1046	<b>RESEARCH DATE:</b> 10/08/2014
	<b>SERIES:</b> 15		
<b>SCALE:</b> 1:62500			

# Historical Topographic Map



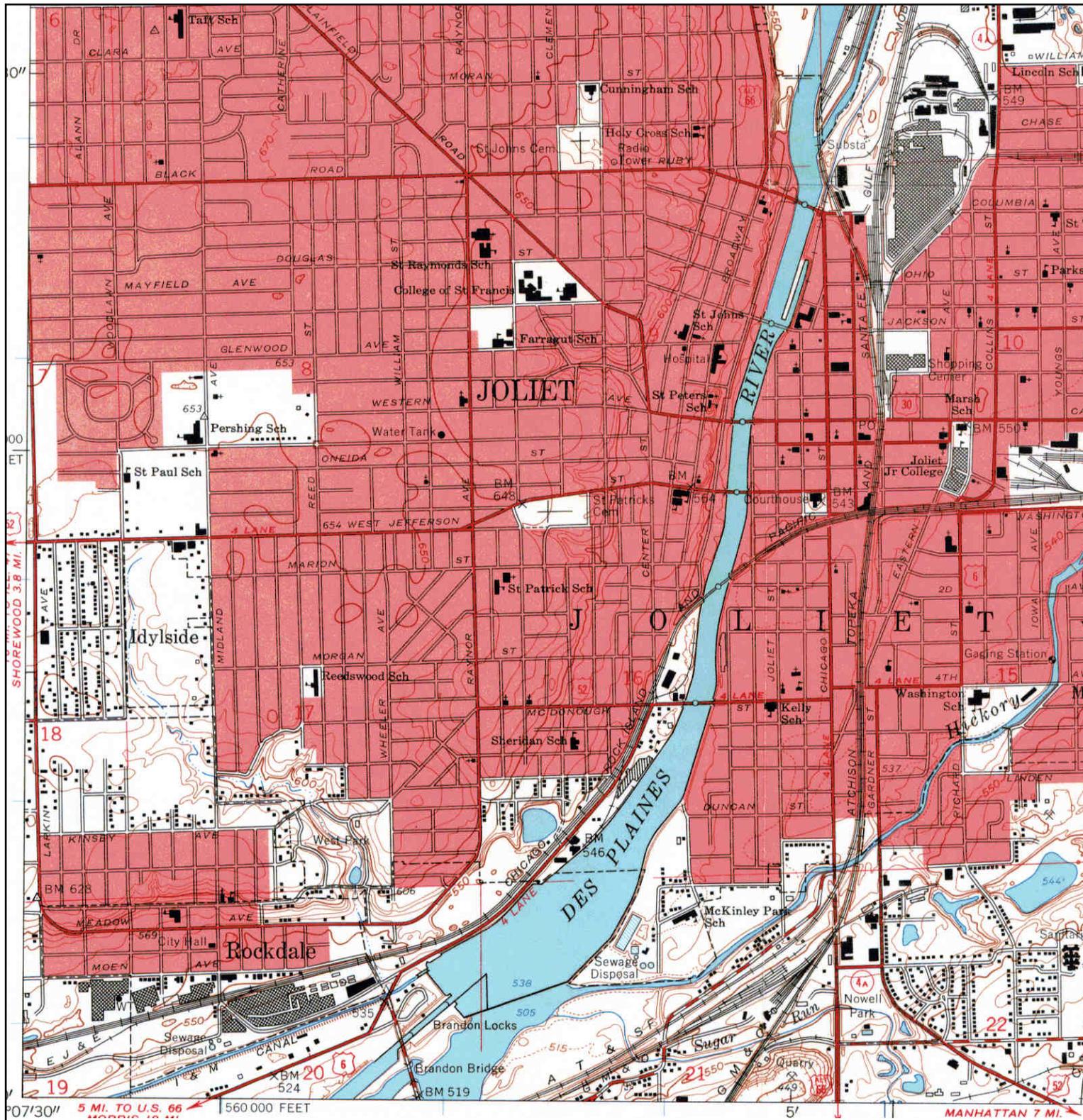
	<b>TARGET QUAD</b>	<b>SITE NAME:</b> Brandon Road	<b>CLIENT:</b> U.S. Army Corps of Engineers
	NAME: JOLIET	<b>ADDRESS:</b> Brandon Road	<b>CONTACT:</b> Lauren Fleer
	MAP YEAR: 1954	Joliet, IL 60436	<b>INQUIRY#:</b> 4099641.4
	SERIES: 15	<b>LAT/LONG:</b> 41.5024 / -88.1046	<b>RESEARCH DATE:</b> 10/08/2014
	SCALE: 1:62500		

# Historical Topographic Map



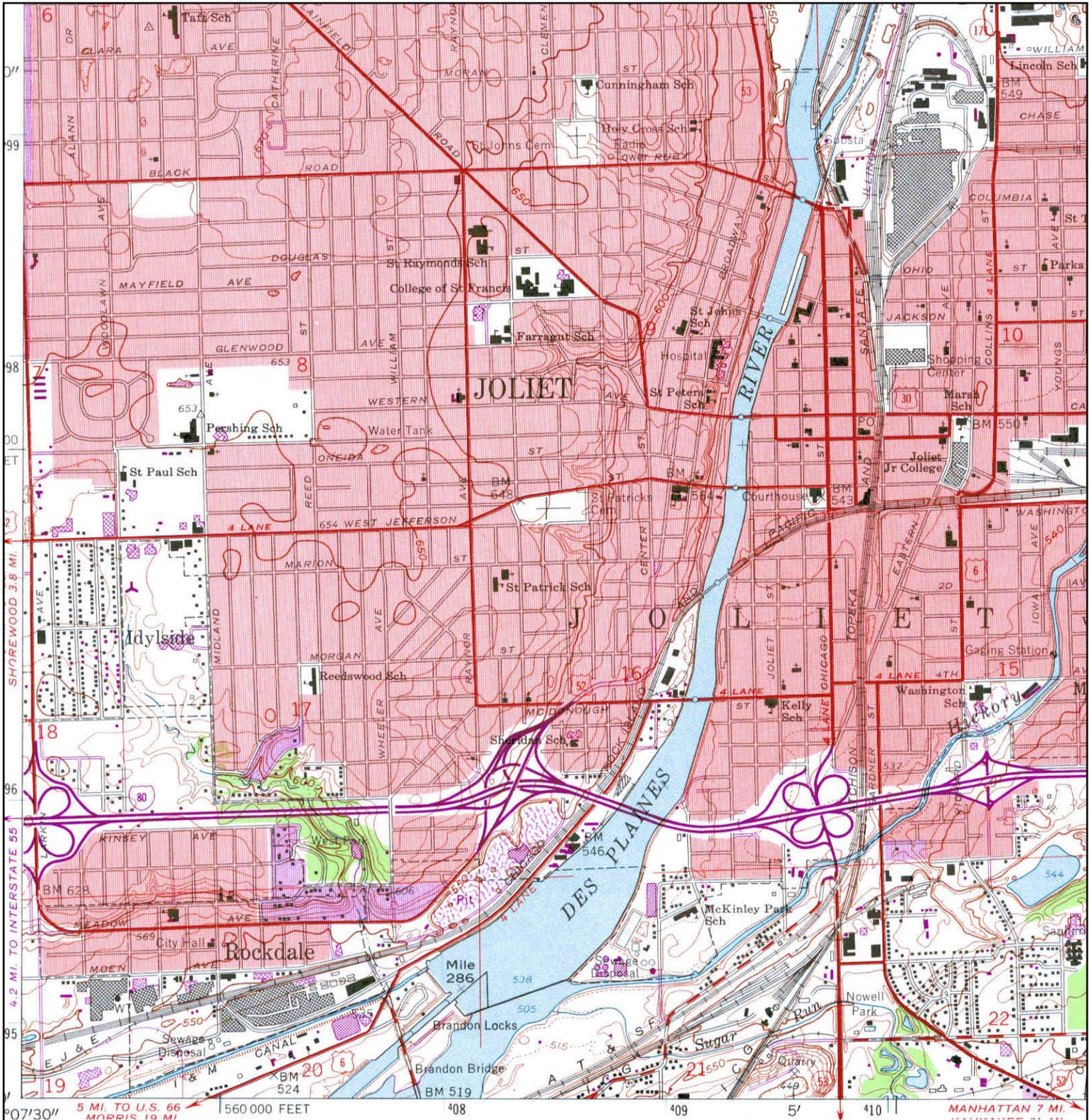
	<b>TARGET QUAD</b> NAME: JOLIET MAP YEAR: 1954	SITE NAME: Brandon Road ADDRESS: Brandon Road Joliet, IL 60436 LAT/LONG: 41.5024 / -88.1046	CLIENT: U.S. Army Corps of Engineers CONTACT: Lauren Fleer INQUIRY#: 4099641.4 RESEARCH DATE: 10/08/2014
	SERIES: 7.5 SCALE: 1:24000		

# Historical Topographic Map



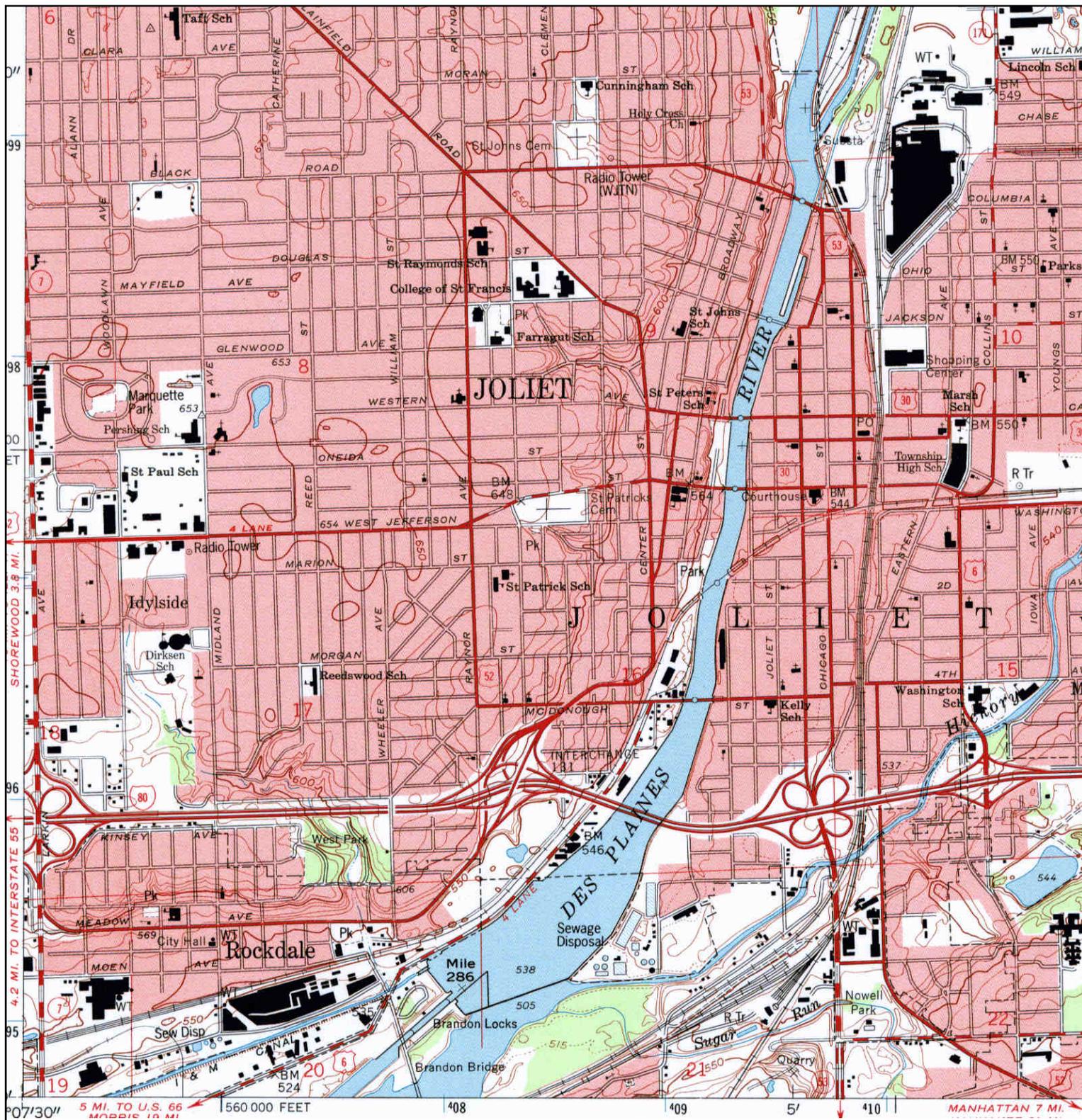
<p>N ↑</p>	TARGET QUAD	SITE NAME:	Brandon Road	CLIENT:	U.S. Army Corps of Engineers
	NAME: JOLIET	ADDRESS:	Brandon Road	CONTACT:	Lauren Fleer
	MAP YEAR: 1962	LAT/LONG:	Joliet, IL 60436	INQUIRY#:	4099641.4
	SERIES: 7.5			RESEARCH DATE:	10/08/2014
	SCALE: 1:24000				

# Historical Topographic Map



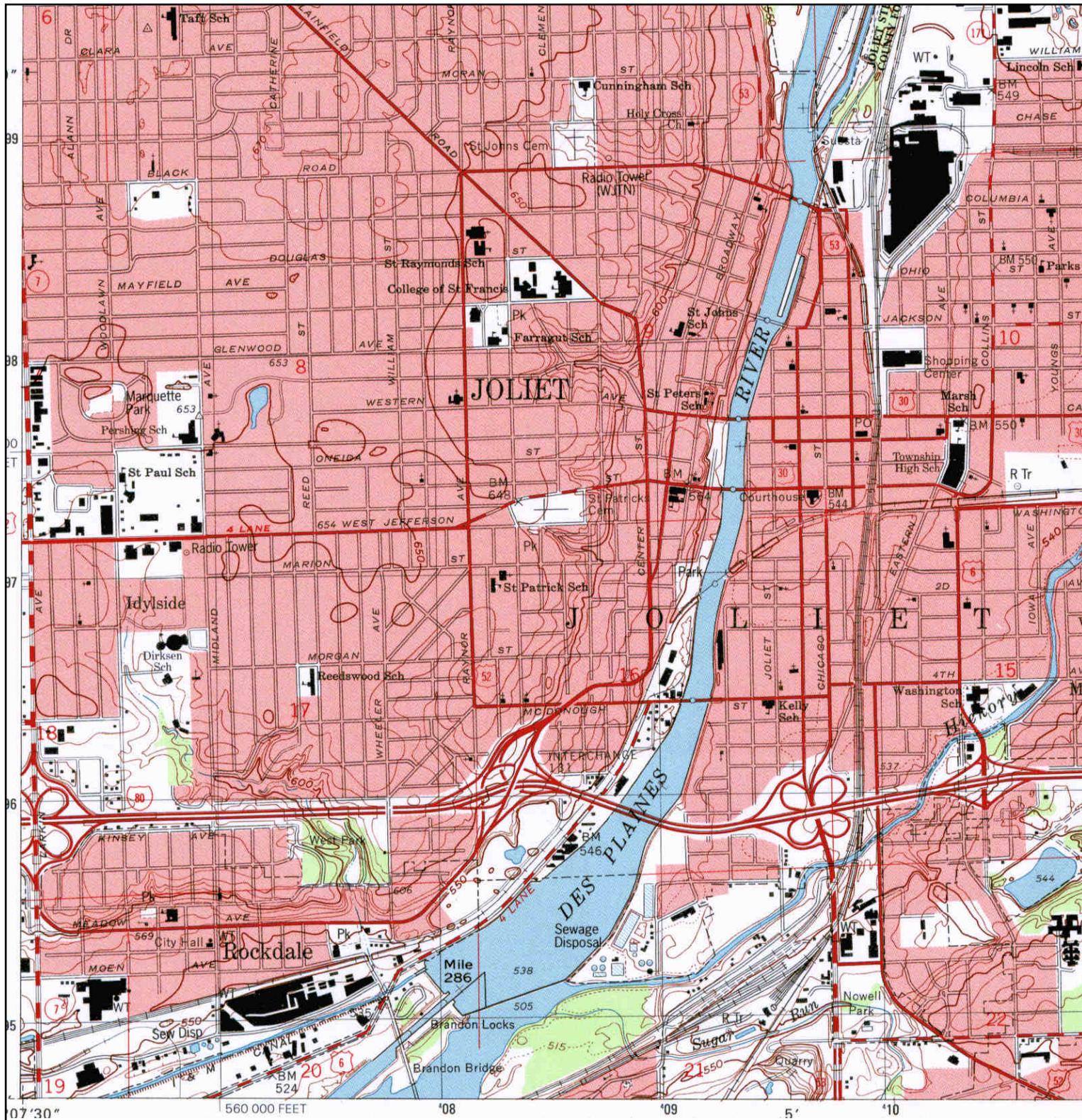
	<b>TARGET QUAD</b>	<b>SITE NAME:</b> Brandon Road	<b>CLIENT:</b> U.S. Army Corps of Engineers
	NAME: JOLIET	<b>ADDRESS:</b> Brandon Road	<b>CONTACT:</b> Lauren Fleer
	MAP YEAR: 1973	Joliet, IL 60436	<b>INQUIRY#:</b> 4099641.4
	PHOTOREVISED FROM :1962	<b>LAT/LONG:</b> 41.5024 / -88.1046	<b>RESEARCH DATE:</b> 10/08/2014
	SERIES: 7.5		
	SCALE: 1:24000		

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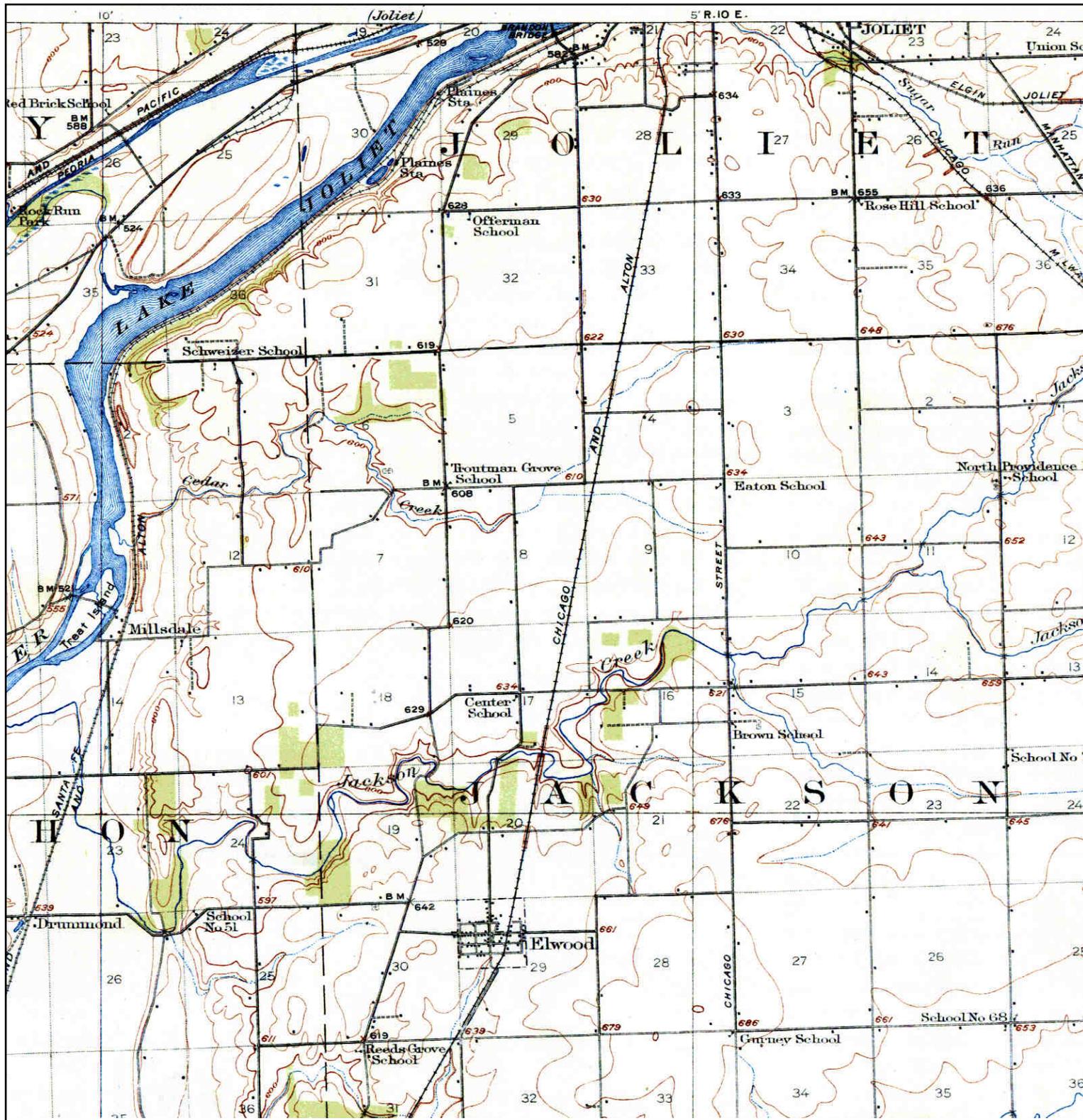
	<b>TARGET QUAD</b>	<b>SITE NAME:</b> Brandon Road	<b>CLIENT:</b> U.S. Army Corps of Engineers
	NAME: JOLIET	ADDRESS: Brandon Road	<b>CONTACT:</b> Lauren Fleer
	MAP YEAR: 1993	Joliet, IL 60436	<b>INQUIRY#:</b> 4099641.4
	SERIES: 7.5	<b>LAT/LONG:</b> 41.5024 / -88.1046	<b>RESEARCH DATE:</b> 10/08/2014
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# Historical Topographic Map



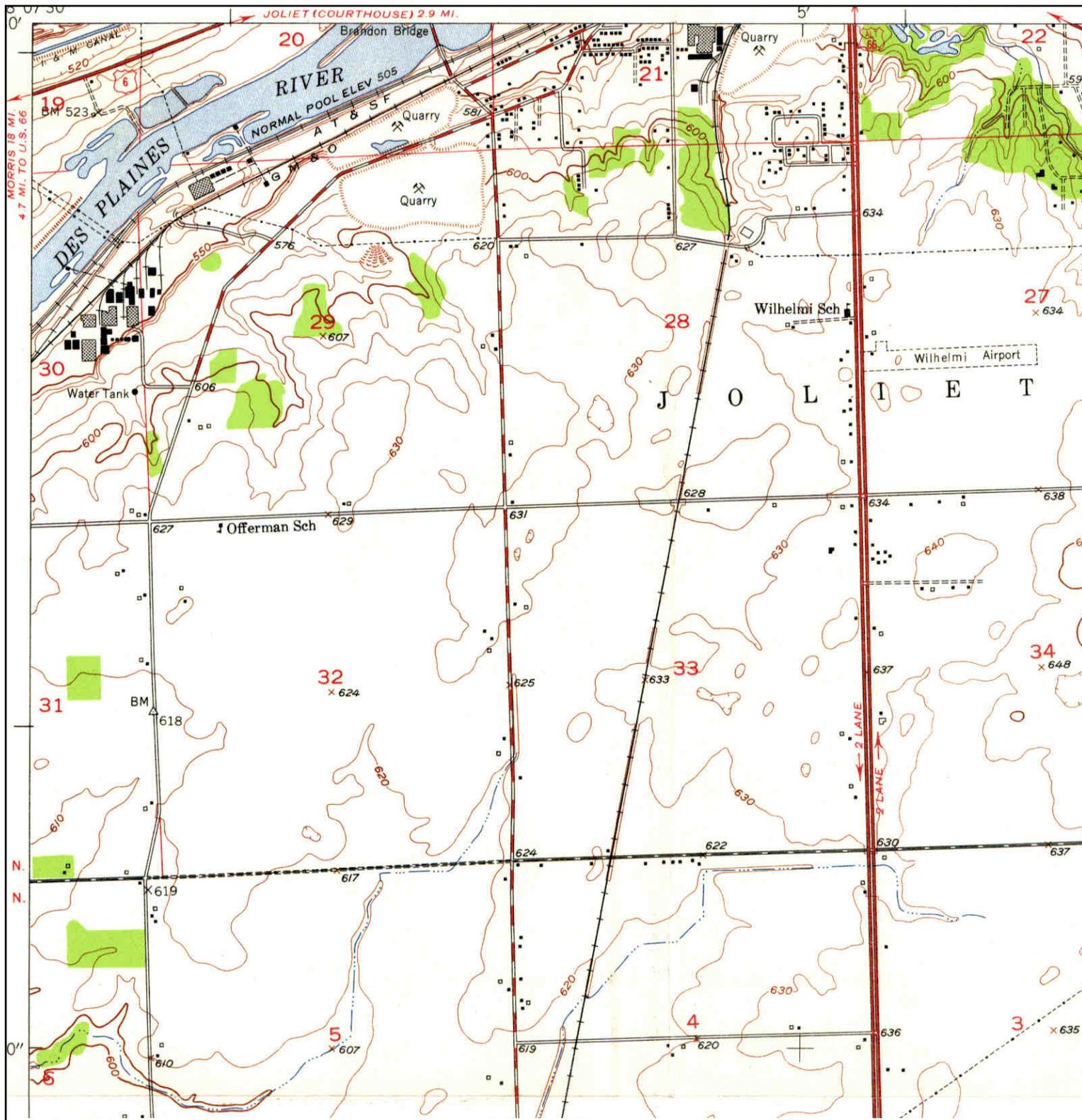
<p>N ↑</p>	<p><b>TARGET QUAD</b>                  NAME: JOLIET                  MAP YEAR: 1998</p>	<p><b>SITE NAME:</b> Brandon Road  <b>ADDRESS:</b> Brandon Road                  Joliet, IL 60436  <b>LAT/LONG:</b> 41.5024 / -88.1046</p>	<p><b>CLIENT:</b> U.S. Army Corps of Engineers  <b>CONTACT:</b> Lauren Fleer  <b>INQUIRY#:</b> 4099641.4  <b>RESEARCH DATE:</b> 10/08/2014</p>
	<p>SERIES: 7.5                  SCALE: 1:24000</p>		

# Historical Topographic Map



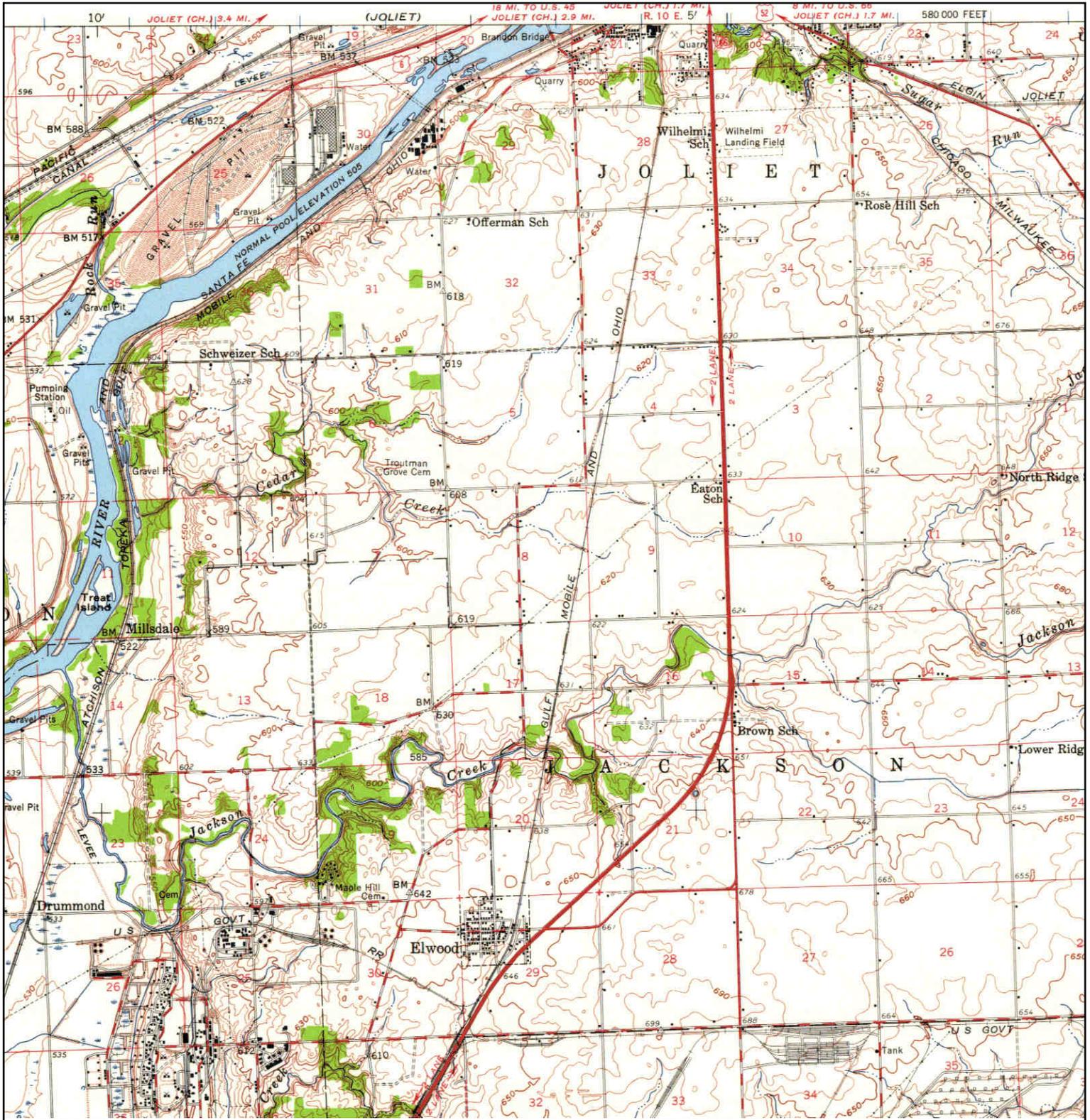
	<b>ADJOINING QUAD</b>			
	NAME:	WILMINGTON	SITE NAME:	Brandon Road
	MAP YEAR:	1918	ADDRESS:	Brandon Road Joliet, IL 60436
	SERIES:	15	LAT/LONG:	41.5024 / -88.1046
	SCALE:	1:62500	CLIENT:	U.S. Army Corps of Engineers
		CONTACT:	Lauren Fleer	
		INQUIRY#:	4099641.4	
		RESEARCH DATE:	10/08/2014	

# Historical Topographic Map



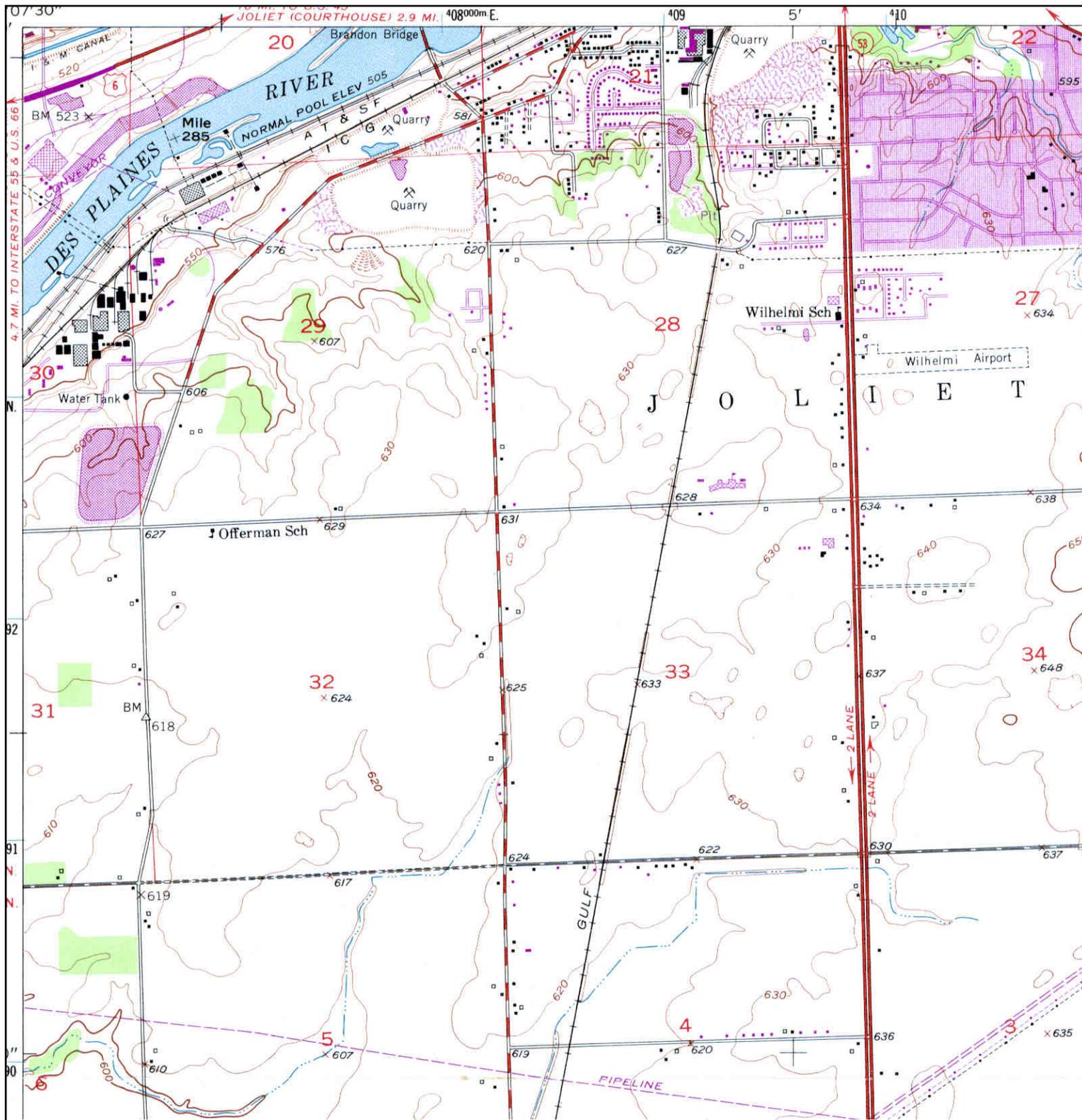
	<b>ADJOINING QUAD</b>			
	NAME: ELWOOD	SITE NAME: Brandon Road		CLIENT: U.S. Army Corps of Engineers
	MAP YEAR: 1953	ADDRESS: Brandon Road Joliet, IL 60436		CONTACT: Lauren Fleer
	SERIES: 7.5	LAT/LONG: 41.5024 / -88.1046		INQUIRY#: 4099641.4
	SCALE: 1:24000	RESEARCH DATE: 10/08/2014		

# Historical Topographic Map



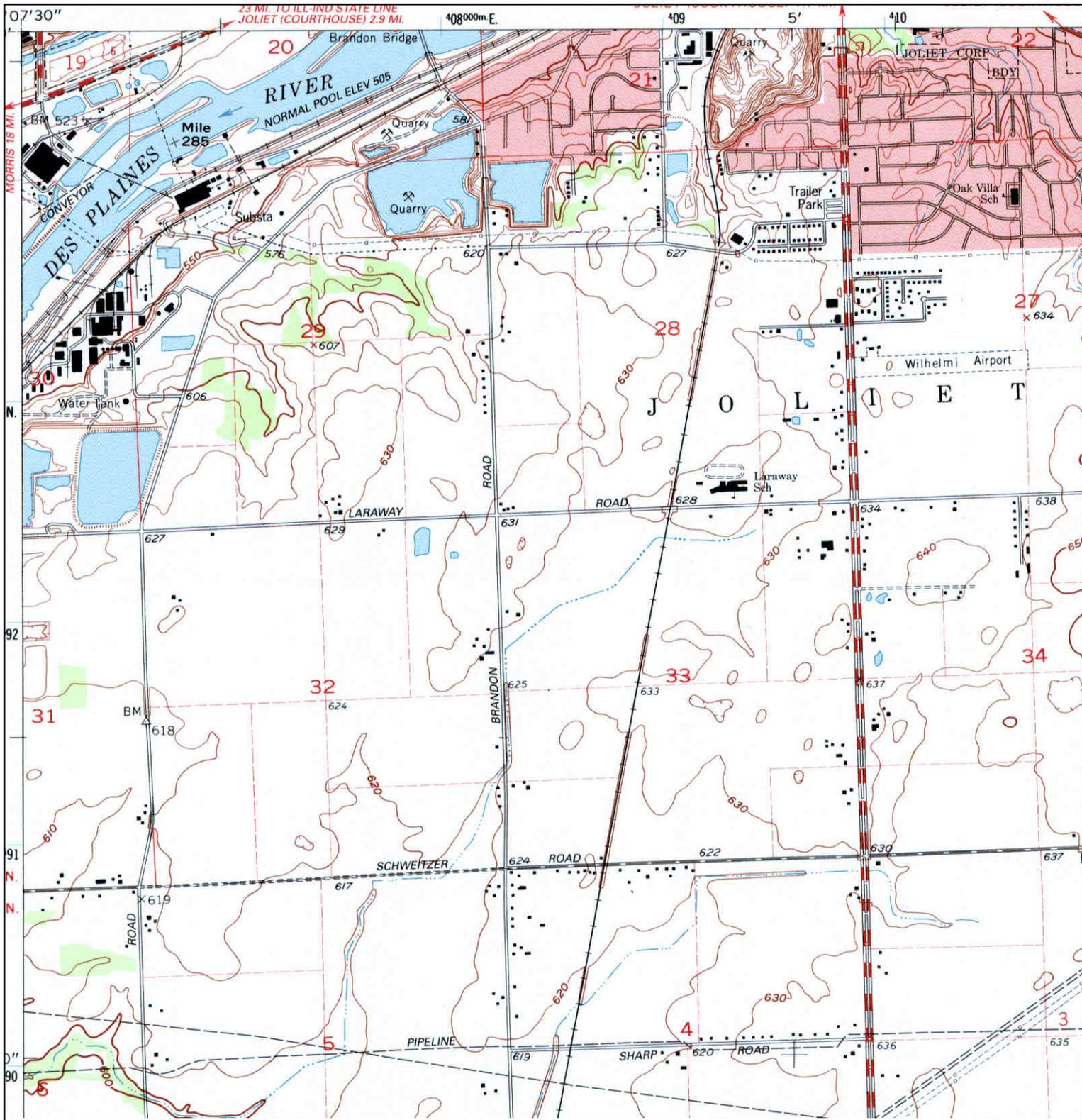
	<b>ADJOINING QUAD</b>		
	NAME:	WILMINGTON	<b>SITE NAME:</b> Brandon Road
	MAP YEAR:	1954	<b>ADDRESS:</b> Brandon Road Joliet, IL 60436
	SERIES:	15	<b>LAT/LONG:</b> 41.5024 / -88.1046
	SCALE:	1:62500	<b>CLIENT:</b> U.S. Army Corps of Engineers <b>CONTACT:</b> Lauren Fleer <b>INQUIRY#:</b> 4099641.4 <b>RESEARCH DATE:</b> 10/08/2014

# Historical Topographic Map



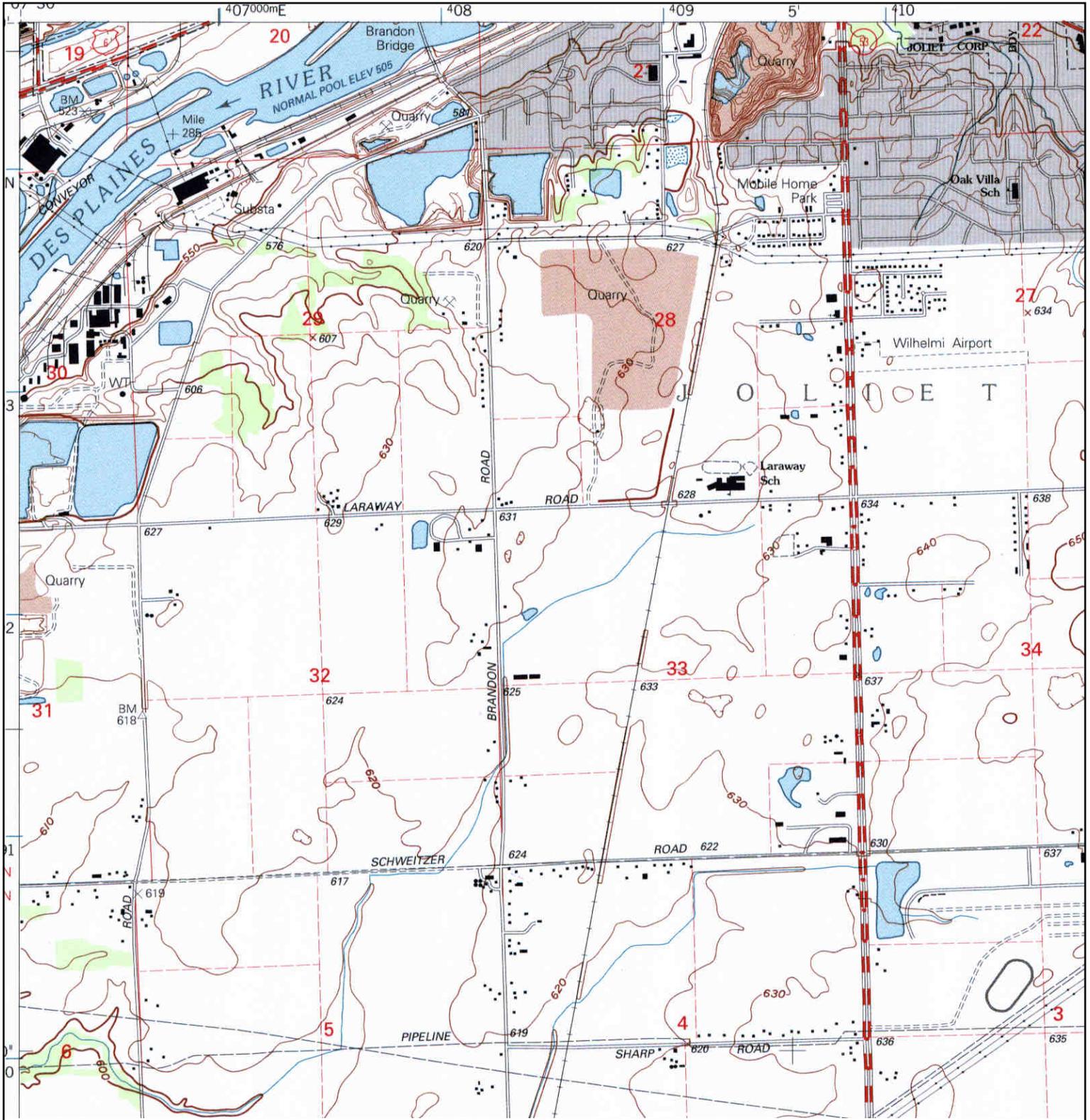
	<b>ADJOINING QUAD</b>	<b>SITE NAME:</b> Brandon Road	<b>CLIENT:</b> U.S. Army Corps of Engineers
	NAME: ELWOOD	<b>ADDRESS:</b> Brandon Road	<b>CONTACT:</b> Lauren Fleer
	MAP YEAR: 1973	<b>JOLIET, IL 60436</b>	<b>INQUIRY#:</b> 4099641.4
	PHOTOREVISED FROM :1953	<b>LAT/LONG:</b> 41.5024 / -88.1046	<b>RESEARCH DATE:</b> 10/08/2014
	SERIES: 7.5		
	SCALE: 1:24000		

# Historical Topographic Map



	<b>ADJOINING QUAD</b>		<b>CLIENT:</b> U.S. Army Corps of Engineers <b>CONTACT:</b> Lauren Fleer <b>INQUIRY#:</b> 4099641.4 <b>RESEARCH DATE:</b> 10/08/2014
	<b>NAME:</b> ELWOOD	<b>SITE NAME:</b> Brandon Road	
	<b>MAP YEAR:</b> 1993	<b>ADDRESS:</b> Brandon Road Joliet, IL 60436	
	<b>SERIES:</b> 7.5	<b>LAT/LONG:</b> 41.5024 / -88.1046	
	<b>SCALE:</b> 1:24000		

# Historical Topographic Map



	<b>ADJOINING QUAD</b>			
	NAME: ELWOOD	SITE NAME: Brandon Road		CLIENT: U.S. Army Corps of Engineers
	MAP YEAR: 1999	ADDRESS: Brandon Road Joliet, IL 60436		CONTACT: Lauren Fleer
	SERIES: 7.5	LAT/LONG: 41.5024 / -88.1046		INQUIRY#: 4099641.4
	SCALE: 1:24000	RESEARCH DATE: 10/08/2014		

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**Attachment C**  
**Historical Aerial Photos**

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**Brandon Road**

Brandon Road  
Joliet, IL 60436

Inquiry Number: 4099641.3

October 09, 2014

## The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th Floor  
Shelton, Connecticut 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

# EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

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***Thank you for your business.***  
Please contact EDR at 1-800-352-0050  
with any questions or comments.

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## Date EDR Searched Historical Sources:

Aerial Photography October 09, 2014

### Target Property:

Brandon Road  
Joliet, IL 60436

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
1939	Aerial Photograph. Scale: 1"=500'	Flight Date: January 01, 1939	USGS
1946	Aerial Photograph. Scale: 1"=750'	Flight Date: July 22, 1946	EDR
1952	Aerial Photograph. Scale: 1"=500'	Flight Date: April 16, 1952	EDR
1956	Aerial Photograph. Scale: 1"=1000'	Flight Date: June 02, 1956	EDR
1962	Aerial Photograph. Scale: 1"=500'	Flight Date: January 01, 1962	USGS
1974	Aerial Photograph. Scale: 1"=500'	Flight Date: January 01, 1974	USGS
1978	Aerial Photograph. Scale: 1"=500'	Flight Date: January 01, 1978	USGS
1983	Aerial Photograph. Scale: 1"=500'	Flight Date: April 20, 1983	EDR
1988	Aerial Photograph. Scale: 1"=500'	Flight Date: January 01, 1988	USGS
1993	Aerial Photograph. Scale: 1"=500'	Flight Date: January 01, 1993	USGS
1998	Aerial Photograph. Scale: 1"=500'	DOQQ - acquisition dates: April 11, 1998	USGS/DOQQ
2002	Aerial Photograph. Scale: 1"=500'	Flight Date: April 10, 2002	EDR
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	USDA/NAIP
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	USDA/NAIP
2007	Aerial Photograph. Scale: 1"=500'	Flight Year: 2007	USDA/NAIP
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	USDA/NAIP
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	USDA/NAIP
2011	Aerial Photograph. Scale: 1"=500'	Flight Year: 2011	USDA/NAIP
2012	Aerial Photograph. Scale: 1"=500'	Flight Year: 2012	USDA/NAIP



**INQUIRY #:** 4099641.3

**YEAR:** 1939

| = 500'



INQUIRY #: 4099641.3

YEAR: 1946



| = 750'



48



INQUIRY #: 4099641.3

YEAR: 1952

| = 500'





**INQUIRY #:** 4099641.3

**YEAR:** 1956

| = 1000'





INQUIRY #: 4099641.3

YEAR: 1962

| = 500'





**INQUIRY #:** 4099641.3

**YEAR:** 1974

| = 500'





INQUIRY #: 4099641.3

YEAR: 1978

| = 500'





**INQUIRY #:** 4099641.3

**YEAR:** 1983

| = 500'





INQUIRY #: 4099641.3

YEAR: 1988

| = 500'





INQUIRY #: 4099641.3

YEAR: 1993

| = 500'





INQUIRY #: 4099641.3

YEAR: 1998

| = 500'





INQUIRY #: 4099641.3

YEAR: 2002

| = 500'





**INQUIRY #:** 4099641.3

**YEAR:** 2005

|—————| = 500'





INQUIRY #: 4099641.3

YEAR: 2006

| = 500'



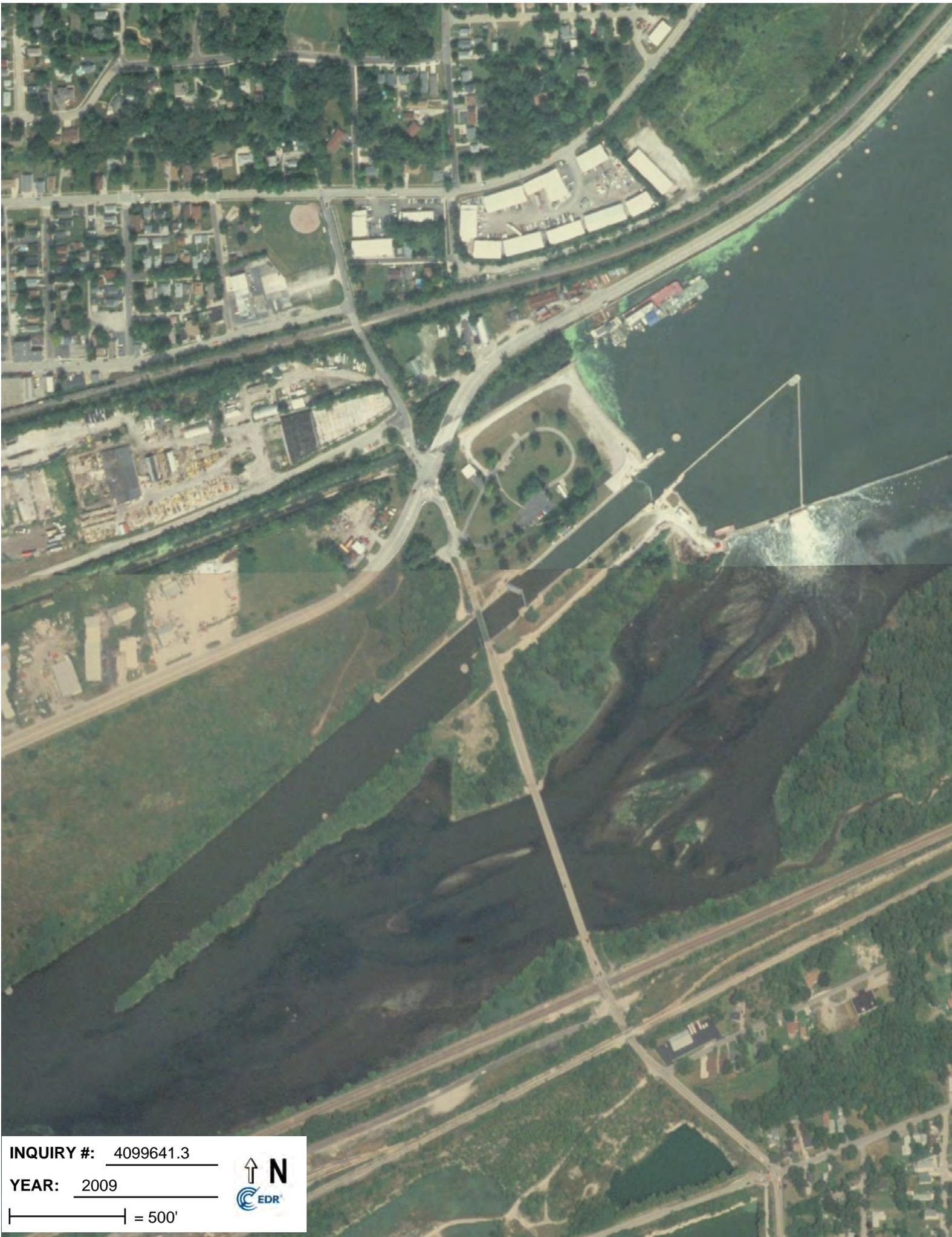


**INQUIRY #:** 4099641.3

**YEAR:** 2007

| = 500'





**INQUIRY #:** 4099641.3

**YEAR:** 2009

| = 500'





INQUIRY #: 4099641.3

YEAR: 2010

| = 500'





INQUIRY #: 4099641.3

YEAR: 2011

| = 500'





**INQUIRY #:** 4099641.3

**YEAR:** 2012

| = 500'



**Attachment D**  
**Interviews**

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US Army Corps of Engineers  
Chicago District  
Phase I Environmental Site Assessment Interview

Interviewer: Lauren Fleer, Environmental Engineer, CELRC-TS-DH  
Interview Media: In Person  
Date: 2-Oct-2014  
Person interviewed: Perry Jones, Lockmaster  
Address: Brandon Road Lock & Dam, 1100 Brandon Road, Joliet, IL 60436  
Telephone: 815-744-1714, 815-258-4175  
E-mail: [Perry.Jones@usace.army.mil](mailto:Perry.Jones@usace.army.mil)

### **Subject Property**

1. What are the current uses of the subject property?

Navigation lock since 1933. Vacant land to the south and east.

2. What were the past uses of the subject property and the time periods of each use?

No known previous uses.

3. Are structures (i.e. bridges, buildings, roads, etc.) present or were they ever present on the subject site? If yes provide the information below.

Two houses, residences for the lockmaster and mechanic, formerly stood on the lower lock site. They were both demolished prior to 1998. Structures still present on site include: lock, dam, lock house, transformer, garage, control houses, electrical shop, pump house, access road, and parking lot.

The lock house is monitored twice each week for radon. Radon monitoring data is available going back to 2006. At one point the lock house was scheduled for demolition. Instead, the basement floor was partially excavated and a radon reduction system was installed, which vents the radon outside.

4. Are any of the following associated with any structures on the subject property?

a. Lead-based coatings

Lead has been detected on the handrail surrounding the lock chamber, on the catwalks over the dam and on the head gates. The Peoria USACE office holds records of lead testing.

b. Asbestos materials – No

c. PCBs – No

5. Are you aware of any dry, irrigation, injection, abandoned, or drinking water wells on the subject property?

Four wells are located at the north side of the lock chamber, two on the east side and two on the west side. They are monitored monthly by Derek Clark and Tom Dumoulin of the USACE Rock Island District. There is a fifth well near the pump house. Water is pumped from this well and used for cleaning, flushing toilet, etc. The lock staff once used this well for drinking water but they now buy bottled water. The well water was last characterized in 2007.

6. Has there ever been a septic system on the subject property? If yes provide the location.

No, sanitary waste discharges to sewer owned by the City of Joliet.

7. Did past uses of the subject property result in the generation, treatment, storage, or disposal of hazardous wastes?

No.

8. Have you ever observed: pits, ponds, or lagoons on the subject property suggestive of the treatment or disposal of hazardous waste? No.
9. Are there above ground or underground storage tanks on the subject property or have above ground or underground storage tanks been removed from the subject property? If yes provide further information below.

Two above ground storage tanks are located on the site. A 250 gallon tank containing diesel is located outside the lock house and a 250 gallon tank of gasoline is located on the northeast corner of the lock chamber, by the electrical shop.

10. Are the following stored on the subject property?

- a. Industrial drums – 55 gallon drums of hydraulic oil are stored near the electrical shop and are in use at each of the four corners of the lock chamber.
- b. Sacks of chemicals – No.
- c. Damaged or discarded automotive or industrial batteries – No.
- d. Pesticides, Herbicides, Paints or Other Chemical in Individual Containers greater than five (5) gallons in volume or fifty (50) gallons in the aggregate? Paints and herbicides are stored in lockers by the electrical house. Small containers of gasoline are stored in a fire cabinet in a garage near the lock house.

11. Has soil or other debris been disposed of on the subject property, or been removed from the subject property?

- a. Fill material – Dredged material has been placed just downstream of the lock chamber, on the east side of the approach channel. The last dredged material placement at Brandon Road took place in 2001-02. John Hayes and Nicole Manasco (MVR) would be able to provide additional information.
- b. Location of source – Contact MVR for source information.
- c. Location of placement – Downstream of the lock chamber, on the east side of the approach channel.

12. Are you aware of areas of stressed vegetation, stained soil, or foul odor on the subject property; where on the subject property have you observed these characteristics? No.

13. Do you know of any spills or other chemical releases that have taken place at the property? No.

14. Do you know of any environmental cleanups that have taken place at the property? No.

15. Based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of contaminant releases at the property? No.

## Adjoining property

1. What are the current uses of adjoining property
  - a. North – Des Plaines River
  - b. South – Vacant, owned by State of Illinois
  - c. East – City of Joliet Sewage Plant
  - d. West – Route 6
2. What were the past uses of adjoining property and the time periods for each use?
  - a. Vacant
  - b. Residential
  - c. Industrial
  - d. Commercial
3. Are there structures or were there ever structures on adjoining properties? If yes provide details below.

No structures have existed on the State of Illinois land just south of the lock, nor on the land east of the lock chamber and approach channel.
4. Did past uses of adjoining property result in the generation, treatment, storage, or disposal of hazardous wastes? No.
5. Have you ever observed pits, ponds, or lagoons on adjoining property suggestive of the treatment or disposal of hazardous waste? No.

Have investigations/remedial actions occurred?

What permits do you have and have there been violations?

Have any known spills/releases occurred?

Has site been subject to any EH&S regulatory action?

Has site been subject to any EH&S complaints or lawsuits?

Are there any active/abandoned septic systems?

Are there any wells at the site? Use?

Does the property have any ASTs or USTs? How many? Ages?

Where does stormwater discharge to?

Does facility discharge air pollutants? Have air pollution controls?

CELRC-TS-DH

Captain Fred Offerman  
Hazardous Materials Team  
Joliet Fire Department  
101 East Clinton  
Joliet, Illinois 60432

Dear Mr. Offerman:

The U.S. Army Corps of Engineers, Chicago District, is conducting a Phase I Environmental Site Assessment of the Brandon Road Lock and Dam, located at 1100 Brandon Road in southwest Joliet, Illinois. The purpose of this investigation is to identify any recognized environmental conditions at or adjacent to the Brandon Road Lock and Dam, shown in the figure below. We would like to request any records your office may have on file pertaining to environmental health and safety at this site. Records of interest include documentation of: inspections related to hazardous material; chemical spills; installation or removal of underground storage tanks; or any calls for emergency assistance at the site.

Thanks in advance for your assistance with this investigation. Please contact the undersigned at 312-846-5501 or at [lauren.a.fleer@usace.army.mil](mailto:lauren.a.fleer@usace.army.mil) with any questions.

Sincerely,

A handwritten signature in black ink that reads "Lauren A. Fleer". The signature is written in a cursive style with a large, stylized initial 'L'.

Lauren Fleer  
Environmental Engineer

CELRC-TS-DH

David Culp  
Office of Health Protection  
Illinois Department of Public Health  
525 W. Jefferson St., 2nd Floor  
Springfield, IL 62761-0001

Dear Dr. Culp:

The U.S. Army Corps of Engineers, Chicago District, is conducting a Phase I Environmental Site Assessment of the Brandon Road Lock and Dam site in southwest Joliet, Illinois. The purpose of this investigation is to identify any recognized environmental conditions at or adjacent to the Brandon Road Lock and Dam, shown in the figure below. We would like to request any records your office may have on file pertaining to environmental health and safety at this site. Records of interest include documentation of: active or abandoned septic systems; wells; lead, asbestos, or other hazardous materials; or any other potential exposure to environmental hazards.

Thanks in advance for your assistance with this investigation. Please contact the undersigned at 312-846-5501 or at [lauren.a.fleer@usace.army.mil](mailto:lauren.a.fleer@usace.army.mil) with any questions.

Sincerely,

Lauren Fleer  
Environmental Engineer

CELRC-TS-DH

Chief Joe Formhals  
Joliet Fire Department  
101 East Clinton  
Joliet, Illinois 60432

Dear Chief Formhals:

The U.S. Army Corps of Engineers, Chicago District, is conducting a Phase I Environmental Site Assessment of the Brandon Road Lock and Dam site in southwest Joliet, Illinois. The purpose of this investigation is to identify any recognized environmental conditions at or adjacent to the Brandon Road Lock and Dam, shown in the figure below. We would like to request any records your office may have on file pertaining to environmental health and safety at this site. Records of interest include documentation of: inspections related to hazardous material; chemical spills; installation or removal of underground storage tanks; or any calls for emergency assistance at the site.

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Sincerely,

Lauren Fleer  
Environmental Engineer

# Brandon Road

Lauren Fleer, 312-846-5501  
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Legend



Google earth

2000 ft



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**Attachment E**  
**Sediment Chemistry Data**

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**Table E-1. Chemical characteristics and trace metals in sediment collected from monitoring stations in the Brandon Road and Dresden Island, pools of the Illinois Waterway**

In mg/L unless otherwise noted. Highlighted cells exceed one or more of the reference criteria shown.

	2008 <sup>a</sup>	2008 <sup>a</sup>	2009 <sup>b</sup>	2009 <sup>b</sup>	2011 <sup>c</sup>	Reference criteria	
	Sta. 2 Brandon Road	Sta. 5 Dresden Island	Sta. 2 Brandon Road	Sta. 5 Dresden Island	Sta. 2 Brandon Road	Illinois CCDD	Illinois TACO
Total Solids (%)	43	70	41	74	47	--	--
Total Volatile Solids (%)	15	4	9	17	16	--	--
Ammonia Nitrogen	296	7	234	13	59	--	--
Total Kjeldahl Nitrogen	3,335	709	5,415	584	2,268	--	--
Nitrite + Nitrate	6	3	11	3	25	--	--
Total Phosphorus	6,069	1,863	10,143	926	8,058	--	--
Total Cyanide	0.147	0.089	1.236	0.188	--	--	--
Phenols	1.779	0.254	0.166	0.058	0.346	100	23,000
Arsenic	<25	<25	<25	<25	<10	13	750
Cadmium	6	<2	7	<2	5.2	5.2	78
Chromium	95	32	82	21	62	21	230
Copper	127	35	119	23	111	2,900	2,900
Iron	36,446	20,037	31,236	12,208	32,302	15,900	--
Lead	171	72	148	506	124	107	400
Manganese	862	493	773	292	845	636	1,600
Mercury	<1.250	<1.250	<1.250	<1.250	0.48	0.89	23
Nickel	33.8	28.5	29	13	29	100	1,600
Silver	<1	<1	<1	<1	2.5	4.4	390
Zinc	649	264	593	178	491	5,100	23,000

<sup>a</sup> Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). 2009. "Water and Sediment Quality Along the Illinois Waterway from the Lockport Lock to Peoria During 2008." Report No. 09-46.

<sup>b</sup> Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). 2010. "Water and Sediment Quality Along the Illinois Waterway from the Lockport Lock to Peoria During 2009." Report No. 10-50.

<sup>c</sup> Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). 2012. "Water and Sediment Quality Along the Illinois Waterway from the Lockport Lock to the Peoria Lock During 2011." Report No. 12-35.

**Table E-2. Chemical Analysis Results from Bed Sediment Samples Collected from the Brandon Road Lower Dredge Cut (USACE, 2005)**

In mg/kg dry wt. Highlighted cells exceed one or more of the reference criteria shown.

ANALYTE	RM 285.3R	RM 285.4R	SSL <sup>1</sup>		PEL <sup>2</sup>	TEL <sup>3</sup>	CBSG <sup>4</sup>	Illinois CCDD	Illinois TACO
			Ingest	Inhale					
Arsenic	<18	<13	0.4	750	17.0	5.9	9.79	13	750
Chromium <sup>5</sup>	32.0	20.0	390	270	90.0	37.3	43.4	21	230
Copper	31.5	22.5	---	---	197	35.7	31.6	2,900	2,900
Lead	73	59	400	---	91.3	35	35.8	107	400
Mercury	<0.18	< 0.13	---	---	0.486	0.174	0.18	0.89	23
Zinc	260	180	23,000	---	315	123	121	5,100	23,000
PCBs <sup>1</sup>	1.1	6.4	1	---	0.277	0.0341	0.059	1	1

<sup>1</sup> SSL - U.S. EPA Soil Screening Level based on human health

<sup>2</sup> PEL - Canadian Sediment Quality Guidelines based on ecological receptors

<sup>3</sup> TEL - sediment quality assessment values for freshwater ecosystems (Smith et al. 1996)

<sup>4</sup> CBSG - Consensus-based Sediment Guidelines for freshwater (MacDonald et al. 2000)

<sup>5</sup> Total chromium or total PCBs

**Attachment F**  
**Site Visit Photos**

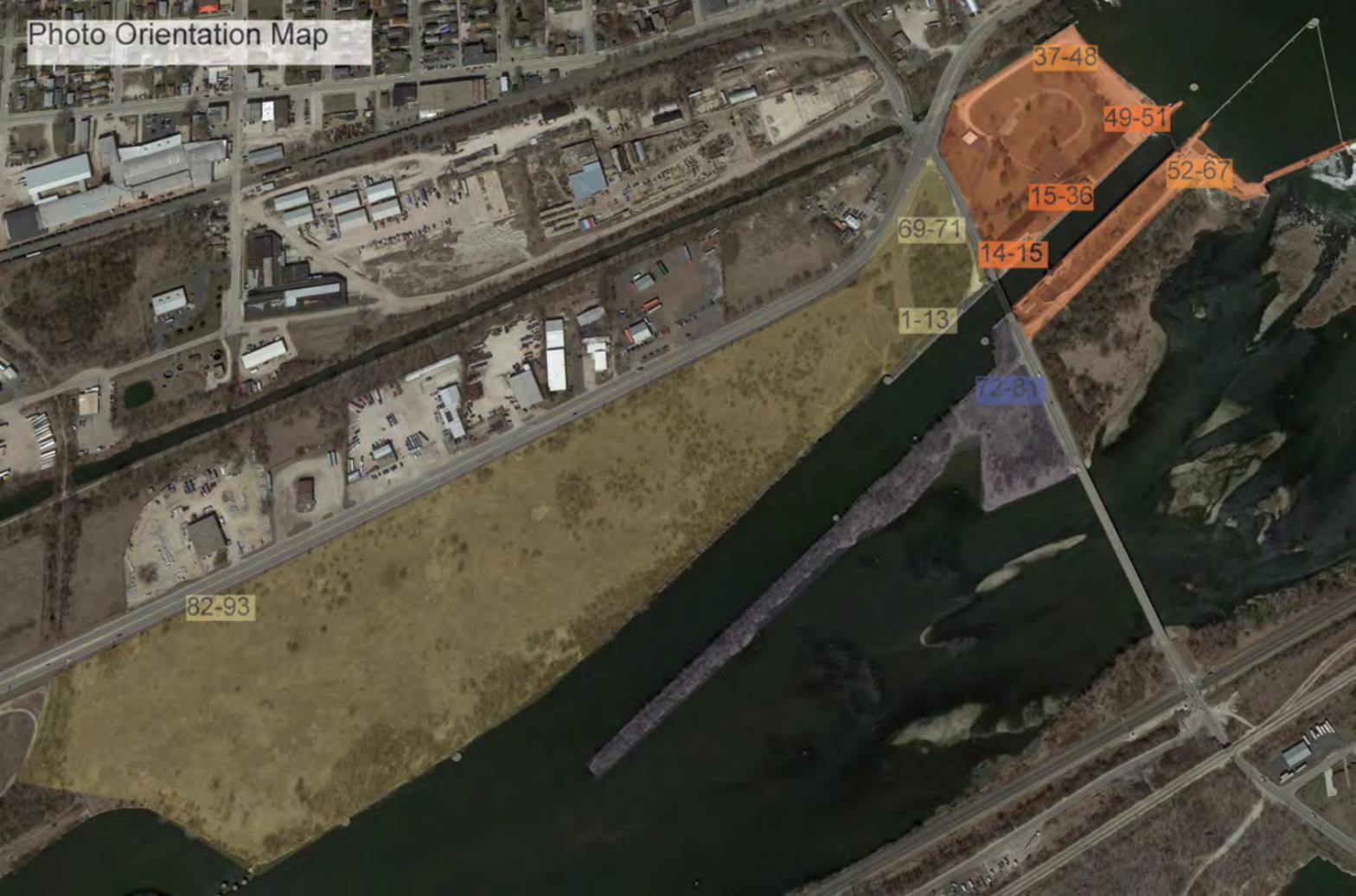
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**Brandon Road Lock and Dam  
HTRW Site Visit  
2-Oct-2014**

Lauren Fler, CELRC-TS-DH

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# Photo Orientation Map



82-93

69-71

1-13

72-81

37-48

49-51

15-36

14-15

52-67



1. Looking north into lock chamber, lower gates open



2. Fish passage warning sign, south of Brandon Road bridge



3. Facing east, west of Brandon Road bridge



4. West of lock chamber, facing east along fence line.



5. West of lock chamber, facing east along fence line



6. West of dam, facing west toward Joliet Generating Station



7. West of dam, facing south across approach channel



8. West of dam, facing east during barge passage



9. Lower tow haulage.



10. Brandon Road draw bridge control house



11. Chemical barge exiting lock chamber.



12. Breaker panel outside bridge control house.



13. Electrical equipment outside Brandon Road Bridge control house.



14. Electrical panel on southwest corner of lock chamber.



15. Southwest corner of lock chamber, safety signage for emptying valve.



16. Electrical panel west of lock chamber.



17. Mechanical equipment, southwest corner of lock chamber.



18. Hydraulic oil, southwest corner of lock chamber.



19. Desiccant breather to isolate lubricants from humidity. Polyester, silica gel filter media.



20. Mechanical equipment, southwest corner of lock chamber.



21. Signage showing drawbridge hours.



22. Garage south of lock house.



23. Fire cabinet, garage south of lock house.



24. Gasoline storage, garage south of lock house



25. Spill kit, garage south of lock house.



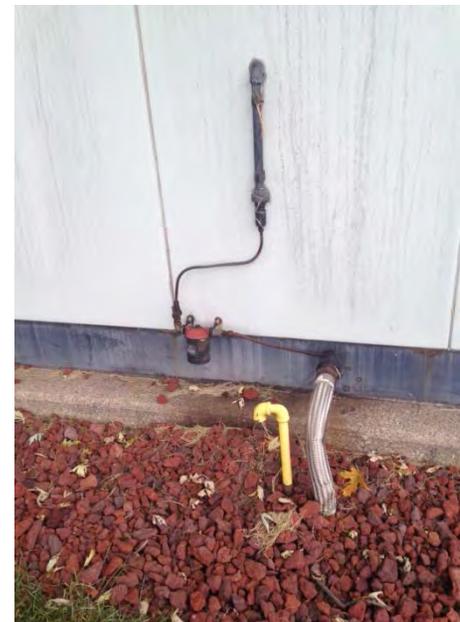
26. Transformer south of lock house



27. Transformer south of lock house



28. Diesel storage tank south of lock house, 250 gal.



28. Rear of transformer



29. South of lock house



30. South of lock house, facing power pole, parking lot



31. Diesel storage south of lock house



32. Rear of lock house



33. Radon reduction system, south of lock house



34. Radon vent, south of lock house



34. Radon reduction system, south of lock house



35. Radon reduction system, north side of lock house



36. Herbicides in use the day of site visit.



37. View north from abandoned I&M canal.



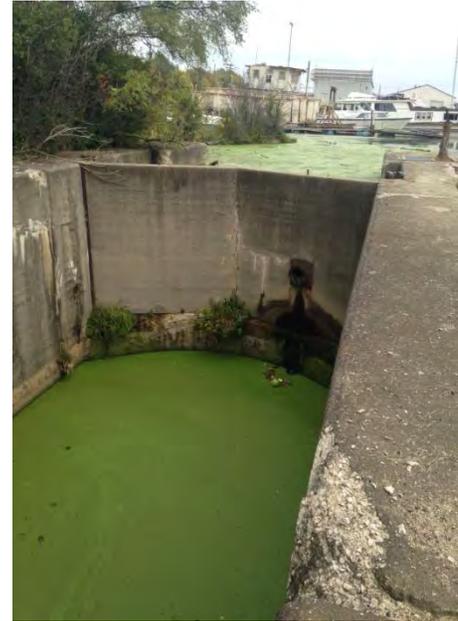
38. Bulkhead blocking I&M canal



39. View northeast from abandoned I&M canal lock chamber



40. View south at I&M canal



41. View north from I&M canal.



42. Leaking valve in bulkhead



43. View south on I&M canal



44. View south at I&M canal



45. View west at abandoned lock chamber, overgrown fence.



46. View facing west at abandoned lock chamber, overgrown staircase



47. Deteriorated staircase, east side of abandoned lock chamber



48. View south to lower lock site



49. At the northwest corner of lock chamber. Used for storing racks, shovels, axes and other spare tools.



50. North gate control shed.



51. Facing northeast from concrete slab west of electrical shop.



52. Drums stored on concrete pad outside electrical shop.



53. Drums stored on concrete pad outside electrical ship.



54. Hydraulic oil stored outside electrical shop



55. Hydraulic oil stored outside electrical shop



56. Vintage drum containing ?



57. Additional material storage outside electrical shop



58. East side of electrical shop



59. Hydraulic oil stored on the east side of the electrical shop



60. Label for hydraulic oil



61. Electrical shop



62. Material storage lockers south of electrical shop



63. 250 gallon tank of gasoline



64. East of electrical shop. Contain 55-gallon drums of hydraulic fluid.



65. Electrical manhole and garbage can south of electrical shop



66. South of electrical shop



67. Access road on the southeast side of the lock chamber



68. Handrail around lock chamber, tested positive for lead



69. Asphalt turnout west of Brandon Road on north side of river, across from USACE facility entrance



70. Dirt road proceeds west beyond asphalt turnaround, debris



71. Dirt road heading west from Brandon Road into State-owned vacant land, north of river



72. Abandoned couches, west of Brandon Road on north side of river



73. Signage found west of Brandon Road on north side of river



74. Signage found west of Brandon Road on north side of river



75. Gravel road, vegetation west of Brandon Road on north side of river



76. West of Brandon Road, south of river, facing east



77. Debris, hunting paraphernalia west of Brandon Road, south side of river.



78. West of Brandon Road, south side of river, facing north.



79. Garbage, steel member west of Brandon Road, south of river



80. West side of Brandon Road, south of river, facing west



81. West side of Brandon Road, south of river, facing west



82. View east from Route 6, south of Brandon Road. Access restricted.



83. View east from Route 6, south of Brandon Road. Access restricted..



84. View east from Route 6, south of Brandon Road. Access restricted.



85. View east from Route 6. Generating station in background.



86. Neighbor to the west of large vacant property, Joliet Generating Station



87. Neighbor to the west of large vacant property, Joliet Generating Station



88. Neighbor to the west of large vacant property, Joliet Generating Station



89. Fence line between large vacant property and Joliet Generating Station



90. Neighbor to the west of large vacant property, Joliet Generating Station



91. Neighbor to the west of large vacant property, Joliet Generating Station



92. Neighbor to the west of large vacant property, Joliet Generating Station



93. Neighbor to the west of large vacant property, Joliet Generating Station

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