

Illinois Department of Natural Resources
CONSERVATION PLAN (December 15, 2022)
(Application for an Incidental Take Authorization)
Per 520ILCS 10/5.5 and 17 Ill. Adm. Code 1080

150-day minimum required for public review, biological and legal analysis, and permitting

PROJECT APPLICANT: bp One Pipeline Company LLC (BP), 30 S. Wacker Dr., 10th Fl., Chicago, IL, 60606

PROJECT NAME: bp One Pipeline Company LLC's, Mississippi River Geotechnical Boring/HDD Pipe Replacement and Possible Emergent Repairs

COUNTY: Hancock County, Illinois

AMOUNT OF IMPACT AREA: 9,049.6 ft² (0.21 acres) below the Ordinary High-Water Mark (OHWM) of Mississippi River.

1. A description of the impact likely to result from the proposed taking of the species that would be covered by the authorization, including but not limited to:

- A. Identification of the **area to be affected** by the proposed action, includes a legal description and a detailed description including street address, map(s), and GIS shapefile. Include an indication of ownership or control of affected property. Attach photos of the project area.

A portion of BP's existing 20-inch crude pipeline on the bed of the Mississippi River has low depth of cover (LDOC) and/or exposures. This pipeline will be abandoned, and a new pipeline will be installed using Horizontal Directional Drilling (HDD). The project is located at 2700-2898 N. Morman Springs Road, Nauvoo, IL (Township 7N, Range 8W, Section 17, and approximate coordinates are 40.60338431 degrees latitude, -91.34582785 degrees longitude). The primary objective of this project is to drill three geotechnical bores to aid in the design and implementation of the HDD to avoid inadvertent returns. All work will be supported from work boats and barges staged in the river. Barges will remain in place at each location for the duration of the drilling activities at that location.

The planned barge(s) for this work is a sectional barge with spuds. These types of barges are generally slim and long. Sectional barges are put together at the shipyard before departure, to the size needed for the intended work. For drilling operations overwater, there will more than likely be a few of these sectional barges combined to provide enough working surface for the personnel, drill rig, tooling, and workspace surrounding the drill rig. Spuds are typically added to the outer edges of the attached sectional barges once assembled. Some sectional barges have openings in the barge deck to place spuds as well. The spuds are lowered and lifted with an onboard winch system. Once assembled, the sectional barge is floated on the river with a typical pushboat (tugboat). Once the barge has been floated to the intended work area and with the assistance of either handheld or professional survey devices, the barge is positioned with the tugboat over the proposed boring location. Once in position, the spuds will be dropped to anchor the barge in place.

The spuds do not need to be pushed or hammered as they have enough weight to seat themselves below the mudline. These assembled sectional barges will typically have three (3) to four (4) spuds that will be used for anchoring. An opening in the barge deck is used for drilling, either an opening that was specifically cut for drilling operations or a preexisting spud opening.

After the barge is anchored, the drill crew will rig up the drill rig. Once rigged up, an outer casing is set from the barge deck to the mudline, referred to as the conductor casing. The conductor casing is thick-walled steel, with a typical diameter of 5 or 6 inches. The conductor casing is set to the mudline with the onboard winch system and/or the winches on the drill rig. Once the conductor casing is set to the mudline, it will be tamped in place with the drill rig's Standard Penetration Test 140-pound hammer (SPT hammer). Once the conductor casing is set, the drill crew sets additional steel casing inside the conductor casing. The inner casing will consist of either 3-inch or 4-inch casing (N-series or H-series casing). The inner casing is set with the winch lines on the drill rig. Once set to the mudline, the inner casing is then seated below the mudline with the drill rig's rotary head to establish a seal for drilling fluid. Initially, the inner casing is typically set approximately 5 feet below the mudline to establish the seal. Note that if a good seal is difficult to achieve, sometimes both 3-inch and 4-inch casings are used. The series of casings set to provide a seal for drilling fluid is an attempt to maintain as much drilling fluid returns as possible during drilling operations. Note that due to the river current and disturbed nature of the mudline, some drilling fluid loss at the mudline is typical and expected.

When drilling overwater, the water source used for drilling is the river itself. A screened suction hose is dropped into the river that is connected to the drill rig's onboard water pump. Water is then pumped from the river to fill the drilling fluid returns pit positioned behind the drill rig. Once the drilling fluid returns pit is full, additives will be mixed into the water (typically bentonite gel for soil and liquid polymer for rock). Once the drilling fluid is mixed, it is then pumped downhole through the drill pipe and/or wireline core rods to the drill bit. The drilling fluid and cuttings are then transported up the borehole and through the inner casing. A wash tee is utilized on top of the inner casing at the barge deck which expels the drilling fluid returns through a screen and into the drilling fluid returns pit. The drilling fluid is circulated continuously during this process; from the drilling fluid returns pit to downhole and vice-versa. This rotary drilling process attempts to maintain the drilling fluid returns at all times within the hoses, drilling fluid returns pit, drill pipe, wireline core rods, and inner casing. It can be very difficult to maintain all drilling fluid returns when drilling in a waterbody mostly due to the unstable condition of the mudline. Drilling fluid can also be lost into the formation itself (soil or bedrock) while advancing the borehole. At times, drilling fluid returns can be completely lost downhole due to formational fluid loss and/or a lost seal at the mudline. When this occurs, drilling fluid can no longer be maintained in the drilling fluid returns pit on the barge deck. In this occurrence, typically only water is used to continue advancing the borehole by continuously pumping water downhole from the suction hose placed in the river. Once the boring is complete, any drilling fluid returns contained within the hoses and drilling fluid returns pit are typically discharged into the river at the water surface. The drilling fluid returns will be pumped into 55-gallon drums on the barge deck. Once full, each drum is sealed with a metal lid and labeled. At the end of drilling operations and once the barge is floated back to the shipyard, a crane is used to offload the drums from the barge and placed on the dock. A waste

management contractor would then be utilized to pick up the drums and properly dispose of the drilling fluid per state requirements. Drumming and disposal is an option for the drilling fluid if it cannot be discharged directly into the river, but there is an additional cost for the waste management company, waste identification, and waste disposal.

A comprehensive “Spill Mitigation and Response Plan,” including local contacts, is provided in Attachment E.

Considering the 12-inch diameter spuds (0.8 ft² each) and one six-inch diameter drill hole (0.2 ft²) per bore location the total direct impact area for each bore location will be no more than 3.4 ft² (0.00008 acres) for a total of 10.2 ft² (0.0002 acres) among the three planned bore locations. Accounting for indirect effects that may occur from spudding and drilling an additional 60-in radius beyond each spud and drill hole is assumed for this calculation. An additional 94.2 ft² of indirect impact is assumed for each spud location and 86.4 ft² for each drill hole location for a total indirect impact area of 463.2 ft² (0.01 acres) per bore location, assuming four spuds are used. All three drill locations combined will have a total of 1,389.6 ft² (0.03 acres) of indirect impacts. Total direct and indirect impact areas for the three bore locations will be total of 1,399.8 ft² (0.03 acres). Though unlikely, complications may arise during drilling that may necessitate the barge and drill unit to move from the initial location. For this calculation it is assumed that this might, but unlikely will, happen once per bore location. Therefore doubling the potential direct impact for a total of 20.4 ft² (0.0005 acres) results in 2,779.2 ft² (0.06 acres) of indirect impacts and 2,799.6 ft² (0.06 acres) of direct and indirect impact areas combined.

Additional impact areas may arise prior to the execution of the HDD and decommissioning of the existing pipeline. The additional impacts would be emergent in nature and target specific areas along the existing pipeline that may be declared to be in an actionable state from continued monitoring and surveying of the existing suspended pipeline span. Further investigation to define better resolution and the preferred repair method would be determined at that time and relayed to the IDNR. Pipeline repairs could entail vortex-induced vibration (VIV) suppression clamps, fill material, sandbags, gravel bags, grout bags, and/or additional methods as deemed appropriate by the engineering team. It is anticipated that this will not likely need to occur based on current data, but a large flood event or other obstruction along the pipeline may rapidly deteriorate conditions prior to the decommissioning of the existing line. It is estimated that no more than 6,250 ft² (0.14 acres) of additional impact to remedy emergent repairs will occur. Individual repairs will be minimized to impact the least amount of streambed as practicable.

Taking into account this potential contingency, total potential impacts, including direct and indirect impact areas of the bore locations and potential emergent repair areas, will be 9,049.6 ft² (0.21 acres).

The project will not require equipment access (other than the work boats) or staging areas, nor will it require the use of temporary bladder dams or cofferdams. The site will be accessed via a nearby public boat launch. Work barges and other vessels may remain in the project location during non-working hours. The property owner below the OHWM affected by this project is Ferguson LLP. Though no terrestrial impacts will occur, the adjacent landowner above the OHWM is the Illinois Department of Conservation (BP's ROW easement holder) Reed Wildlife State Habitat Area. BP's pipeline easement is at

the south end of Illinois Department of Conservation's Reed Wildlife State Habitat Area, between where that road cuts off diagonally to the southwest, and a house (Shea and Jenny Seiber); BP will not be affecting the house (Figure 1).

See attached mapping (Figure 1: Topographic Quadrangle and Project Location, Figure 2: Area of Disturbance) and site photos (Attachment A); GIS based shapefiles of the proposed project was provided to the Illinois Department of Natural Resources (IDNR) electronically.

B. **Biological data** on the affected species including life history needs and habitat characteristics. Attach all pre-construction biological survey reports.

A biological survey (2014) was conducted for threatened and endangered (T&E) species known from Hancock County. A habitat survey (2020) was also conducted to assess river substrate/mussel habitat suitability across the entire river. Findings from the 2014 mussel survey indicated that the impacts to T&E species would be limited to direct and indirect aquatic impacts to freshwater mussels. Please see the attached biological survey report (Attachment B) for complete findings. In the fall of 2020, a habitat survey was performed to review the river bottom substrates within the disturbance area and along the entire crossing as it spanned the Mississippi River. No formal report was submitted to the state; however, information has been discussed internally between EnviroScience and BP. The habitat survey results indicated the river was shallow (less than 10 ft deep) in the reaches outside the scour location. The bottom substrate was sand and mud; limited heterogeneity in substrate composition was observed.

BP performed database searches/reviews for federally and state-listed species through U.S. Fish and Wildlife Service's Information for Planning and Consultation (IPaC) and IDNR Ecological Compliance Assessment Tool (EcoCAT) (Attachment C). The following federally listed species are known to occur in the project vicinity:

- Higgins Eye (pearlymussel) (*Lampsilis higginsii*)
- Sheepnose Mussel (*Plethobasus cyphus*)
- Spectaclecase (mussel) (*Cumberlandia monodonta*)
- Indiana Bat (*Myotis sodalis*)
- Northern Long-Eared Bat (*Myotis septentrionalis*)
- Eastern Prairie Fringed Orchid (*Platanthera leucophaea*)
- Monarch Butterfly

Project activities will be entirely below the OHWM of the Mississippi River. Tree clearing will not be required. Project activities are not likely to affect any of the terrestrial species.

The EcoCAT issued September 9, 2022 identified the following state-listed species as having potential for occurrence in/near the project area:

- Ohio Pigtoe (*Pleurobema cordatum*)
- Butterfly Mussel (*Ellipsaria lineolata*)

Monkeyface (*Quadrula metanevra*) was not observed live in the 2014 biological survey (shell only); however, other sources list this species as commonly encountered within Pool 19 of the Mississippi River (Kelner, 2017). We have included Monkeyface in this ITA as

an affected species due to its potential to occur within the affected area. The Ohio Pigtoe may have been a misidentification in 2014 as it is not considered a Mississippi River species (Kelner, 2017). Though listed plant species are within the vicinity of the project, they do not need to be included in the Illinois Conservation Plan and therefore have been omitted from this document.

Life History Information – Mussels

Higgins Eye (pearlymussel) (*Lampsilis higginsii*) – Federally Endangered

The Higgins Eye Pearlymussel is known from, but is rarely collected in, surveys in Pool 19 of the Mississippi River. It does not usually appear in sample collections since populations are small either naturally or have declined and may or may not be near extirpation (Kelner, 2017). Habitat loss and degradation of the Mississippi River resulting from channel navigation improvements and pollution are attributed to this species' decline. The Higgins Eye is up to 15 cm (6 in) long, and the shell is yellow, greenish, reddish, or brown, often with green rays. The Higgins Eye occurs only in the Mississippi River and the lower portion of some of its large tributaries (Havlik, 1980). It occupies stable substrates that vary from sand to boulders, but not firmly packed clay, flocculent silt, organic material, bedrock, concrete, or unstable sand. Most often, Higgins Eye is collected within aggregations that contain at least 15 other species at densities greater than 0.01 individual/m² (USFWS, 2004).

The Higgins Eye are gravid in May and September, and they are a bradyctictic brooder, which means the females brood their young long-term before they are released as glochidia. Once the glochidia are expelled from the female's gills, they attach to fish gills or fins by clamping. The glochidia live as parasites on the host fish until they develop into juvenile mussels, at which point they detach from the fish and fall to the streambed as free-living mussels. The bluegill (*Lepomis macrochirus*), freshwater drum (*Aplodinotus grunniens*), green sunfish (*Lepomis cyanellus*), largemouth bass (*Micropterus salmoides*), northern pike (*Esox lucius*), sauger (*Sander canadense*), smallmouth bass (*Micropterus dolomieu*), walleye (*Sander vitreus*), and yellow perch (*Perca flavescens*) have been reported to be viable host fish species for the glochidia of the Higgins Eye mussel (Waller and Holland-Bartels, 1988; Watters, 1994).

Sheepnose Mussel (*Plethobasus cyphus*) – Federally Endangered

The Sheepnose is a larger-stream species occurring primarily in shallow shoal habitats with moderate to swift currents over coarse sand and gravel (Oesch, 1984). Habitats with Sheepnose may also have mud, cobble, and boulders. Sheepnose in larger rivers may occur in deep runs (Parmalee and Bogan, 1998). Strayer (1999) demonstrated in field trials that mussels in streams occur chiefly in flow refuges, or relatively stable areas that displayed little movement of particles during flood events. Flow refuges conceivably allow relatively immobile mussels to remain in the same general location throughout their entire lives (Butler, 2002).

Sheepnose glochidia are released in the form of conglutinates, which mimic fish food items. Conglutinates resemble small pink worms, which infect fish gills when the fish attempt to eat them (Butler, 2002). Glochidia must encounter a specific fish host(s) to survive. If they do not, they will perish. Little is known regarding Sheepnose host fishes

(Roberts and Brenderman, 2000). The Sauger (*Sander canadensis*) and central stoneroller (*Campostoma anomalum*) are the only known natural hosts (Surber 1913, Wilson 1914; Waters et al. 2009, p 221). In many mussel species, a few weeks are spent parasitizing the fishes' gill tissue, after which time they drop off from the fish and begin a free-living existence on the stream bottom. Unless they drop off in a suitable habitat, they will die. Thus, there are several weak links in the life cycle that may prevent successful reproduction and recruitment of juveniles into existing populations (Butler, 2002). The state of Illinois lists Sheepnose as an "Endangered" species (IDNR, 2015).

Spectaclecase (mussel) (*Cumberlandia monodonta*) – Federally Endangered

The Spectaclecase mussel historically inhabited the Mississippi River in Minnesota (Thiel, 1981), with only rare sightings in Pool 19 of the Mississippi River. This species has very specific habitat requirements, occurring in colonies among boulders and under large rocks. The Spectaclecase is elongate and compressed with a concave ventral margin. It can be up to 23 cm (9 in.) long. The outside of the shell is dark brown to black and rayless. The Spectaclecase has a very narrow range of habitat preferences. Within these microhabitats, the Spectaclecase is often found among patches of boulders that are intermixed with mud, sand, and gravel substrates (Cummings and Mayer, 1992; Parmalee and Bogan, 1998). The Spectaclecase mussel is a bradyctictic (long-term) brooder, and the fish hosts for the glochidia of the Spectaclecase are currently unknown (Parmalee and Bogan, 1998). The colonial nature of this species makes it especially vulnerable to zebra mussel infestation. Other threats to Spectaclecase mussels include habitat modification, non-point and point source water pollution, and siltation.

Ohio Pigtoe (*Pleurobema cordatum*) – State Endangered

The Ohio Pigtoe is currently only reported to occur within the Ohio River basin in Illinois; there are no records for Ohio Pigtoe within the Mississippi River or in Hancock County per the Illinois Natural History Survey Mollusk Collection and Database (INHS, 2020). However, the EcoCAT review for the project returned Ohio Pigtoe as potentially occurring in the vicinity of the project. Additionally, the 2014 survey in the project area reported one live individual as well as fresh and weathered shell material of Ohio Pigtoe. Its occurrence in the Mississippi River is likely very uncommon, and additional collections are needed to confirm its presence in the Mississippi River.

The shells of this mussel are heavy and obliquely triangular. The shell is brown, and a sulcus is present anterior to the posterior ridge. It can be found in strong currents on substrates of sand and gravel. Only two species have been identified as potential hosts: Bluegill (*Lepomis macrochirus*) and Rosefin Shiner (*Lythrurus ardens*) (Yokley, 1972; Fuller, 1974). The Ohio Pigtoe is likely tachyctictic (short-term brooder) with females carrying glochidia May through August as females with glochidia have been observed in June (Parmalee and Bogan, 1998).

Butterfly Mussel (*Ellipsaria lineolata*) – State Threatened

The Butterfly Mussel within the Mississippi River in Illinois is commonly collected in Pool 19 of the Mississippi River (Kelner, 2017). Most specimens that have been collected and logged into the record of the Illinois Natural History Survey since 2001 have been collected in the Mississippi River (INHS, 2014). Records for the INHS collection include specimens

that have been collected in the Mississippi River off the following counties of western Illinois, proceeding from north to south: Jo Daviess, Carroll, Whiteside, Rock Island, Mercer, Henderson, Hancock, Adams, Pike, Calhoun, Jersey, and Madison. The Butterfly Mussel usually inhabits areas of large rivers with swift currents in sand or gravel substrates.

The Butterfly Mussel is bradyctictic, with females brooding their young long-term from August through July before they are released as glochidia (Baker, 1928). Known fish hosts for the glochidia of the Butterfly Mussel include Sunfish (*Lepomis spp.*), Sauger (*Stizostedion canadense*), and Drum (*Aplodinotus grunniens*) (Fuller, 1978).

Monkeyface (*Theliderma metanevra*) – State Threatened

Monkeyface were once widely distributed in the larger streams of the Mississippi basin, and it is known to occur in Pool 19 of the Mississippi River (Kelner, 2017). The shell of the monkeyface can reach up to 12.7 cm (5 in.) long. It is squarish in shape with thick valves and a prominent posterior ridge, which often has a series of large knobs surrounded by scattered pustules (bumps). The posterior slope of the shell is flattened, appearing winged, often with a series of small ridges that curve upward. The posterior shell margin is indented. The outside of the shell is yellowish, greenish, or brown, and usually marked with green chevrons (V-shaped markings). Fish hosts for the glochidia of the monkeyface are known to include sunfish (*Lepomis spp.*), bluegill (*L. macrochirus*), and sauger (*Stizostedion canadense*) (Parmalee and Bogan 1998).

The monkeyface is declining throughout most of its range. The viability of remaining populations is jeopardized by the continuing decline in habitat conditions on the Mississippi River associated with its management as a navigation canal, and from non-point and point source water and sediment pollution. Dams, channelization, and dredging increase siltation physically alter habitat conditions, and block the movement of fish hosts. The monkeyface is also being impacted by the infestation of non-native zebra mussels (*Dreissena polymorpha*) in the Mississippi River and its tributaries. Zebra mussels can attach in large numbers to the shells of native mussels, eventually causing death by suffocation. If observed trends cannot be reversed, the monkeyface will likely become endangered in the future. The Monkeyface was listed as “Threatened” by the IDNR in 2020.

- C. **Description of project activities** that will result in taking of an endangered or threatened species, including practices and equipment to be used (1), a timeline of proposed activities (2), and any permitting reviews (3), such as a U.S. Fish and Wildlife Service (USFWS) biological opinion (BO) or U.S. Army Corps of Engineers (USACE) wetland review. Please consider all potential impacts such as noise, vibration, light, predator/prey alterations, habitat alterations, increased traffic, etc.
1. Project activities potentially impacting in or resulting in a take of federal and/or state-listed species include:
 - Equipment and materials staged within BP’s existing ROW and within the Mississippi River (Illinois; see Figure 2).
 - Spudding of work barges within the area of disturbance.
 - Drilling for geotechnical bores

An anticipated timeline for completing all project activities is provided below. Construction is estimated to begin in spring 2023. Work is anticipated to take 4 weeks to complete, weather and other conditions permitting. It is BP's intent to perform the work as soon as river and weather conditions allow to guide any design or engineering changes.

Proposed and Anticipated Timeline

<i>Proposed Action</i>	<i>Anticipated Action Schedule</i>	<i># Days of In-Stream Work</i>
Drilling geotechnical bore holes	Spring 2023	28 days
Emergent repairs to existing line	As Encountered	As Encountered
<i>TOTAL PROJECT DURATION</i>		<i>28 + days</i>

2. Permitting Activities

A Joint Application was submitted to the U.S. Army Corps of Engineers/Illinois DNR/Illinois EPA/Iowa DNR in September 2022 (Subject: BP's Mississippi River Geotechnical Boring Project). A copy of the permit and related correspondence are provided in Attachment D.

Permitting Activities undertaken by BP for this Project

Permit	Submitted	Status	Comments
Clean Water Act Section 404/Section 10 Approval to work under Nationwide Permit 6 (Survey Activities) or Letter of Permission for Mississippi River	Yes	Approved	Joint Application
Section 7 Federal Endangered Species Act compliance	Yes	Approved	Joint Application; No Effect Determination
Section 106 Cultural Resources Compliance	Yes	Approved	Joint Application; No Effect Determination
USCG Review for Navigable Waterway	Yes	Approved	Joint Application
Illinois EPA and Iowa DNR Section 401 Water Quality Certification	Yes	Approved	Joint Application
Illinois DNR Office of Water Resources <u>Permit Exemption</u> (Includes both Floodway and Public Waters).	Yes	N/A	Copy of the Joint Application submitted to IDNR, No Permit Required
Reed Wildlife State Habitat Area IDNR Land Use Permit to Work on IDNR owned property.	N/A	NA	No Permit Required for Bores
Iowa Sovereign Lands Permit for Construction in a Sovereign Meandered River	Yes	Approved	
Iowa DNR State-Listed Species Clearance	Yes	Pending	
Illinois DNR ITA	Yes	In Process	This Conservation Plan is Request for Authorization
Hancock County, Illinois Floodplain Approval	Yes	Approved	
City of Fort Madison Floodplain Permit	Yes	NA	No Permit Necessary

D. Explanation of the anticipated **adverse effects on listed species**.

- *How will the proposed action impact each of the species' life cycle stages?*

The geotechnical borings and potential emergent repairs can result in several temporary and possibly permanent impacts to the riverbed, which in turn can result in adverse effects to resident aquatic and threatened or endangered species. Mussels are very susceptible to adverse effects to their habitat as they are relatively immobile. Direct impacts to mussel species living in the area of disturbance and adjacent areas include crushing, smothering, dislodging, or death. Temporary disturbance of the streambed and riverbanks could result in substrate shifts, localized altered flow regimes, vibration, and downstream sediment deposition, which are attributed to mussel decline (Fuller, 1974; Aldridge et al., 1987; Bogan, 1993; Williams, 1993). Indirect effects on mussels are associated with disruptions

to their life cycle. Host fish activity may be altered by minor changes in habitat and turbidity, leading to disruption of unionids' life cycles. Mussel species in the immediate area of the construction could have less efficient reproduction as the mussel/host fish interaction is disrupted. Also, mussels living in the vicinity of the project could have interrupted feeding and respiration. The project construction methods were designed to minimize the above-listed effects.

- *Describe potential impacts to individuals and the population. Include information on the species life history strategy (life span, age at first reproduction, fecundity, recruitment, survival) to indicate the most sensitive life history stages. Identify where there is uncertainty, place reasonable bounds around the uncertainty, and describe how the bounds were determined. For example, indicate if it is uncertain how many individuals will be taken, make a reasonable estimate with high and low bounds, and describe how those estimates were made.*

The adult life stage of mussels will be primarily affected due to the short duration of the project. The number of listed species anticipated to be affected is relatively comparable to previously authorized projects with similar conservation commitments. Because the effects of this project will be short and temporary, it does not represent a threat to the continuation of the affected species within Illinois. The project's ultimate purpose is to provide support to guide the HDD of the new pipeline, which will ultimately better for the ecosystem and will require less maintenance and permanent impacts to the Mississippi River to prevent additional impacts to the mussel resources from scour or an unintentional product release from the pipeline that could potentially affect many more mussels compared to the impacts from the proposed repair.

Based on the 2014 survey, only general estimates of mussel abundance can be inferred. In that survey, a total of 477 live mussels were observed in the scour hole area and vicinity. Overall, 22 live species were detected, including two Illinois-listed species: Butterfly, and Ohio Pigtoe. It is unlikely Ohio Pigtoe occurs in the Mississippi River and was likely an inadvertent misidentification of the Round Pigtoe. Based on available data of mussel distribution of the Mississippi River, Ohio Pigtoe does not occur (Kelner, 2017). Since the EcoCAT returned Ohio Pigtoe for this project, it is included in the take estimate. It is assumed that these species still occur within the area of disturbance. Also collected in the scour area in 2014 was a weathered shell of the Sheepsnose, a federally listed species.

Since the 2014 survey was a qualitative assessment, it is nearly impossible to determine the approximate density of the mussel community as a whole or for individual species. A survey of the entire pipeline and the salvage effort planned specifically for the area of disturbance for this project will determine with more accuracy take estimates of mussels present within the work area.

Based on the biological survey data and no terrestrial impacts, it is unlikely that additional impacts to listed species other than to mussels known from Hancock County will occur from the project activities.

2. Measures the applicant will take to minimize and mitigate that impact and the funding that will be available to undertake those measures, including, but not limited to:

- A) Plans to **minimize the area affected** by the proposed action, the estimated **number of individuals** of each endangered or threatened species that will be taken, and the **amount of habitat** affected (please provide an estimate of area by habitat type for each species).

Minimization Measures

- The proposed alternative was engineered to provide the minimum amount of unnecessary contact in the river. The working area will be accessed via boat and established and/or public boat access will be used to not create additional disturbance
- The minimum number of spuds will be utilized to stabilize each barge to reduce the impact area at each bore location
- Drilling fluid returns will be pumped into 55-gallon drums on the barge deck. Once full, each drum is sealed with a metal lid and labeled. At the end of drilling operations and once the barge is floated back to the shipyard, a crane is used to offload the drums from the barge and placed on the dock. A waste management contractor would then be utilized to pick up the drums and properly dispose of the drilling fluid per state requirements.
- The emergent repairs, if necessary, will be reduced to the smallest foot practicable to maintain pipeline integrity.

Take Estimate

- For the purposes of this document, data from the 2014 survey were used to determine the number of individuals that will be impacted and to develop density and abundance estimates (Table 1). The search area associated with the 2014 survey was 200 ft by 22 ft (4,400 ft²) on an exposed portion of the pipeline and an additional 80 ft diameter circular area (5,027 ft²) centered on a suspended portion of the pipe for a total of 9,427 ft². All mussels encountered in that survey were relocated to suitable habitat approximately 0.3 miles (0.5 kilometers) upstream at coordinates 40.60113, -91.33592. The table below used the 2014 data to estimate the take per species for the 2023 estimates. Since no pre-survey is planned, the 2014 take estimates would apply.
- Data from the 2014 survey were used to develop the take estimate for the 2023 geotechnical borings. The abundance of each mussel from 2014 was divided by the 2014 project area to determine density. The 2014 density was then multiplied by the 2023 impact area to determine the population abundance estimate. The 2023 population estimate was then multiplied by two to account for an estimated 50% recovery rate in 2014 to achieve the 2023 take estimate. Bolded species indicate state and /or federally listed species.
- Since no terrestrial impacts will occur, take estimates for the listed mammals and plants described in Section 1.B are not warranted.

Table 1. 2022 Population estimate and proposed take estimate for the 2022 Project area.

Common Name	Scientific Name	Abundance 2014 ¹	2014 Density ²	Estimated within Current Project	Take Estimate ³
Mucket	<i>Actinonaias ligamentina</i>	4	0.005	4	8
Threeridge	<i>Amblema plicata</i>	114	0.130	109	219
Rock Pocketbook	<i>Arcidens confragosus</i>	1	0.001	1	2
Wartyback	<i>Cyclonaias nodulata</i>	5	0.006	5	10
Pimpleback	<i>Cyclonaias pustulosa</i>	58	0.066	56	111
Purple Wartyback	<i>Cyclonaias tuberculata</i>	D	-	1	2
Butterfly	<i>Ellipsaria lineolata</i>	6	0.007	6	12
Wabash Pigtoe	<i>Fusconaia flava</i>	2	0.002	2	4
Plain Pocketbook	<i>Lampsilis cardium</i>	6	0.007	6	12
Higgin's Eye Pearlymussel⁴	<i>Lampsilis higginsii⁴</i>	Not Detected	-	1	2
Fatmucket	<i>Lampsilis siliquoidea</i>	1	0.001	1	2
White Heelsplitter	<i>Lasmigona complanata</i>	19	0.022	18	36
Fragile Papershell	<i>Leptodea fragilis</i>	3	0.003	3	6
Black Sandshell	<i>Ligumia recta</i>	16	0.018	15	31
Spectaclecase⁴	<i>Margaritifera monodonta⁴</i>	Not Detected	-	1	2
Washboard	<i>Megalonaias nervosa</i>	24	0.027	23	46
Threehorn Wartyback	<i>Obliquaria reflexa</i>	33	0.038	32	63
Hickorynut	<i>Obovaria olivaria</i>	12	0.014	12	23
Sheepnose	<i>Plethobasus cyphus</i>	D	-	1	2
Ohio Pigtoe⁵	<i>Pleurobema cordatum⁵</i>	1	0.001	1	2
Pyramid Pigtoe	<i>Pleurobema rubrum</i>	D	-	1	2
Round Pigtoe	<i>Pleurobema sintoxia</i>	D	-	1	2
Pink Heelsplitter	<i>Potamilus alatus</i>	15	0.017	14	29
Pink Papershell	<i>Potamilus ohioensis</i>	3	0.003	3	6
Giant Floater	<i>Pyganodon grandis</i>	1	0.001	1	2
Mapleleaf	<i>Quadrula quadrula</i>	151	0.172	145	290
Ebonysshell	<i>Reginaia ebenus</i>	D	-	1	2
Monkeyface	<i>Theliderma metanevra</i>	D	-	1	2
Pistolgrip	<i>Tritogonia verrucosa</i>	D	-	1	2
Fawnsfoot	<i>Truncilla donaciformis</i>	1	0.001	1	2
Deertoe	<i>Truncilla truncata</i>	1	0.001	1	2
Total Live		477			
Total Species (Live)		22			
Total T&E Species		7		13	25

¹ Abundance observed in scour hole and buffer areas (2014).

² Presented as mussels per square meter (survey area 9,427 ft² [876 m²])

³ Density adjusted to account for mussels missed and those burrowed beyond the top six inches (50% recovery rate in 2014).

⁴ Mussels not detected in 2014, but were flagged in the IPaC as occurring in the vicinity

⁵ Species is not known to occur in the Mississippi River and was likely a misidentification of *Pleurobema sintoxia* (Kelner, 2017)

Bolded species indicate state and/or federally listed species

Affected Habitat

- Very minimal impacts will occur to the river bottom from the spud areas and drill holes. Impacts will be brief, temporary, and will quickly fill in with native substrates and the biota will return to preconstruction levels. Direct impacts will be no more than 20.4 ft² (0.0005 acres) and indirect, temporary impacts with a 60 in buffer will be 2,779 ft² (0.06 ac) for a total of 2,799.6 ft² (0.06 acres) of direct and indirect impact areas combined for the boring operations.
 - If needed, the emergent repairs may impact the river bottom depending on construction method used. If impacting the river bottom, the repairs may be permanent, but minimal in footprint. We anticipate a direct, permanent take of no more than 6,250 ft² (0.14 acres) of river bottom and potentially suitable mussel habitat combined among all repairs
 - Since no terrestrial impacts including tree clearing or earth moving are needed for this project, loss of habitat estimates for the listed mammals and plants described in Section 1.B are not warranted.
- B) **Plans for management of the area** affected by the proposed action that will **enable continued use** of the area by endangered or threatened species by maintaining/re-establishing suitable habitat (for example: native species planting, invasive species control, use of other best management practices, restored hydrology, etc.).

All in-river work for the bore holes within the Mississippi River will be temporary. The several holes that will affect the streambed will quickly and naturally be filled in. The emergent repairs may be permanent; however each repair will have a minimal footprint. The pipeline will continue to be monitored per USDOT regulations and any problems that may arise will be communicated to the IDNR as they occur.

- C) Description of **all measures to be implemented to avoid, minimize, and mitigate** the effects of the proposed action on endangered or threatened species.

Avoidance measures include working outside the species' habitat.

- In-water impacts have been minimized as much as practical.

Minimization measures include timing work when species is less sensitive, reducing the project footprint, or relocating species out of the impact area.

- Work timing will be at seasonally normal or low flow.
- Only the necessary number of spuds will be utilized to maintain the integrity of the boring operation
- Emergent repairs will be constructed using the least invasive techniques and smallest footprints practicable
- No mussel relocations are planned for this project. BP assumes take of the listed species as a result of their construction activities.
- The ultimate goal of this project is to install a new pipeline via HDD. This is a long-term solution and will not create more take of listed species caused by the chronic scouring on the Illinois side of the Mississippi River. This long-term solution is the best possible repair/replacement option for the existing pipeline.

Mitigation is additional beneficial action that will be taken for the species such as needed research, conservation easements, propagation, habitat work, or recovery planning.

- If, for some reason, the conservation and minimization measures are not effective, BP is committed to additional beneficial actions, specifically funding habitat work or propagation efforts.

It is the applicant's responsibility to propose mitigation measures. IDNR expects applicants to provide species conservation benefits 5.5 times larger than their adverse impact.

To mitigate the project's effects on the Higgins Eye Pearlymussel, Sheepnose, Spectaclecase, Butterfly, Ohio Pigtoe, and Monkeyface, BP commits \$5,580 to mussel propagation research, habitat preservation, or mussel conservation efforts as recommended by the agencies, in lieu of doing a mussel relocation on the relatively small and potentially unplanned, emergent repair areas. This commitment will be achieved through the recommendation of the IDNR. Funds may be provided for research and propagation institutions (e.g., the Ohio State University/Columbus Zoo Mussel Propagation Facility, Genoa National Fish Hatchery, etc.) or for conservation funds (e.g., Illinois Wildlife Preservation Fund).

- D) Plans for **monitoring** the effects of the proposed actions on endangered or threatened species, such as monitoring the species' survival rates, reproductive rates, and habitat before and after construction, include a plan for follow-up **reporting to IDNR**. Monitoring surveys should be targeted at reducing the uncertainty identified in Section 1.D.

Scour, and therefore habitat, monitoring will continue to occur on the existing pipeline until the new pipeline is installed via HDD. If additional impacts are identified during the scour monitoring. BP will notify IDNR within 90 days if any in-stream actions will be required.

- E) **Adaptive management practices** that will be used to deal with changed or unforeseen circumstances that may affect the endangered or threatened species.

- *Adaptive management is a way to make decisions in the face of uncertainty by monitoring the uncertain element over time and adjusting to the new information. Adaptive management requires identifying objectives and uncertainties, thinking through a range of potential outcomes, developing triggers that will lead to different actions being taken, and monitoring to detect those triggers.*
- *Consider environmental variables such as flooding, drought, and species dynamics as well as other catastrophes. Management practices should include contingencies and specific triggers. Note: Not foreseeing any changes does not qualify as an adaptive management plan.*

A qualified biologist will be available for consultation during key in-water construction tasks to ensure environmental commitments from the Conservation Plan, any issued USFWS BO, and stormwater/erosion control plan are met, and any unforeseen circumstances are quickly addressed and communicated to the resource agencies.

Solids from drilling activities may be released inadvertently at the surface or potentially at the mudline. BP will monitor the collection of the solids on the barge and notify the IDNR if an abnormal and/or excessive amount is released.

Since all work is proposed to occur from the river, erosion and sediment control are not anticipated. All equipment refueling will be performed at a commercial facility in town when possible. If needed, all fuel will be stored in containment on site.

In the event that an emergent repair is needed, the contractor will provide a loss of material contingency plan to ensure lost materials are recovered or reported properly.

- F) **Verification that adequate funding exists** to support and implement all minimization and mitigation activities described in the conservation plan. This may be in the form of bonds, certificates of insurance, escrow accounts, or other financial instruments adequate to carry out all aspects of the conservation plan.

BP commits the financial resources to support and implement all minimization and mitigation activities described in this Conservation Plan.

3. A description of alternative actions the applicant considered that would reduce take, and the reasons that each of those alternatives was not selected. A “no-action” alternative shall be included in this description of alternatives. Please describe the economic, social, and ecological tradeoffs of each action.

- *Consideration of alternative actions is an important tool in conservation planning as it allows for thinking of other options and evaluating the potential outcomes in terms of all relevant objectives. However, to be useful it requires creativity in developing alternatives and systematic analysis in evaluating the alternatives.*
- *In evaluating alternatives, describe the economic, social, and ecological tradeoffs of each.*

BP reviewed two alternatives for the scour repair, which are described below.

1. The No Action Alternative
2. Alternative 1: Geotechnical Bores and Emergent Repairs

A. The No Action Alternative –

The No Action Alternative would not meet the project objectives of stabilizing and securing the pipeline from inadvertent releases, breaks, and structural deterioration from pipeline exposure due to the scour, incurring a greater hazard to the public and environment if left un-repaired. The bore holes are necessary to guide and advise the HDD planning team.

B. Alternative 1: Geotechnical Bores or HDD or Emergent Repairs –

Using spud barges to drill the geotechnical bores will guide the HDD team in planning efforts by determining the geology of the area and help identify potential concerns for when the HDD is initiated. These bores will help prevent inadvertent returns of the drill the river bottom. Conducting the emergent repairs, if needed, will mitigate human and environmental risks associated with inadvertent releases, breaks, and structural

deterioration by re-stabilizing the pipeline where it is scoured and/or exposed. Alternative 1 is the preferred alternative to remedy the scour and prevent potential safety, environmental, and human risk if left unprotected.

4. Data and information to indicate that the proposed taking will not reduce the likelihood of the survival of the endangered or threatened species in the wild within the State of Illinois, the biotic community of which the species is a part, or the habitat essential to the species existence in Illinois.

The present project represents a brief impact on resident T&E species, the long-term maintenance and stewardship of this site by BP are in the best interest of T&E species and the public. Emergent repairs, if needed, will occur in the areas of greatest scour, which is not typically considered mussel habitat.

5. An implementing agreement, which shall include, but be limited to (on a separate piece of paper containing signatures):

- A. Names and signatures of all participants in the execution of the conservation plan.
- B. The obligations and responsibilities of each of the identified participants with schedules and deadlines for completion of activities included in the conservation plan and a schedule for preparation of progress reports to be provided to the IDNR. The estimated schedule for submission of these progress reports to the IDNR is as follows:

BP will notify the IDNR within 30 days of the completion of drilling or construction activities.

- C. Certification that each participant in the execution of the conservation plan has the legal authority to carry out their respective obligations and responsibilities under the conservation plan.
- D. Assurance of compliance with all other federal, state, and local regulations pertinent to the proposed action and to execution of the conservation plan.
- E. Copies of any final federal authorizations for a taking already issued to the applicant, if any.

Assurance of compliance with all other federal, state, and local regulations pertaining to the proposed action and to the execution of the Conservation Plan: Coordination by BP with the U.S. Army Corps of Engineers Rock Island District is ongoing and the joint application was approved on October 3, 2022. In addition, the project is under continued coordination with the resource agencies. Since completing the EcoCAT and IPaC, regular email and call updates have been conducted to keep agencies informed of progress on the project, including the status of mussel surveys. Coordination has occurred or is occurring concurrently with the following agencies:

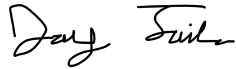
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- U.S. Coast Guard
- Illinois Environmental Protection Agency
- Illinois Department of Natural Resources

- Iowa Department of Natural Resources
- Hancock County
- City of Ft. Madison, Iowa

Coordination with the U.S. Army Corps of Engineers Rock Island District provided a no effect determination and Federal Endangered Species Act compliance was achieved.

6. CERTIFICATION:

BP certifies that it has the authority to complete the project as described in this Conservation Plan. BP oversees construction either directly or through designees, and will assure that all applicable state laws will be adhered to during the completion of the project and through the agreed-to monitoring commitments.



Project Engineer

1/4/2023

Name, Title

Date:

BP Representative

*PLEASE SUBMIT TO: Incidental Take Authorization Coordinator, Illinois Department of
Natural Resources, Division of Natural Heritage, One Natural Resources Way,
Springfield, IL 62702 OR DNR.ITAcordinator@illinois.gov*

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ATTACHMENT A
Location Mapping and Site Photos

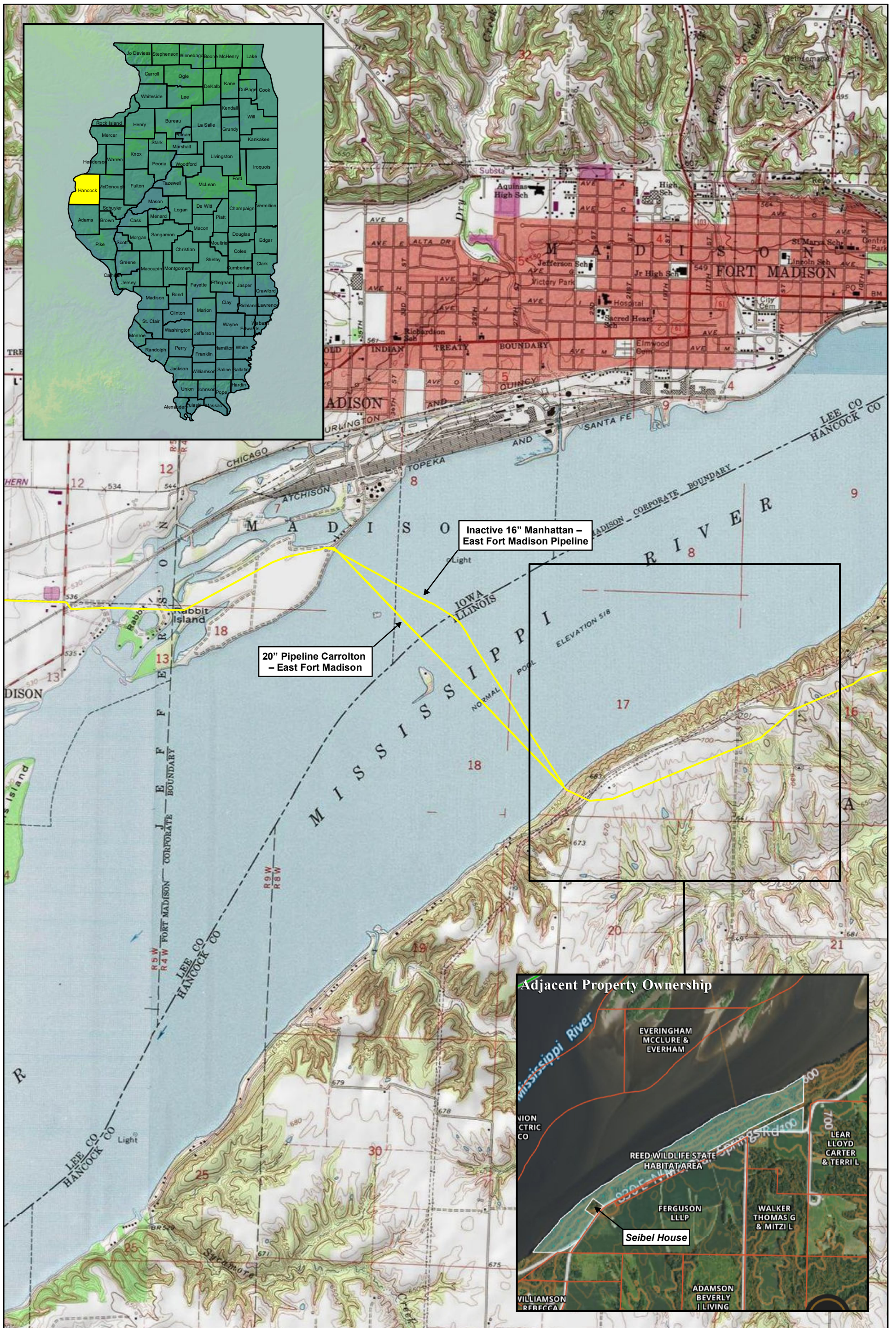


Figure 1. USGS 7.5-min Topographic Map of Niota Quadrangle. Mississippi River Pipeline LDOC and Scour Mitigation, Hancock County, Illinois.

— Pipeline

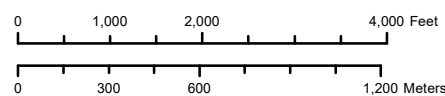
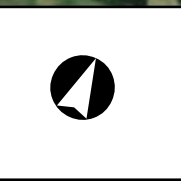
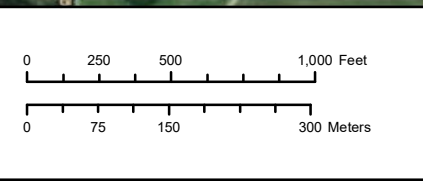




Figure 2. Aerial Map of Site with Impact Areas for the BP One Pipeline Company LLC's, Mississippi River Geotechnical Boring/HDD Pipe Replacement and Possible Emergent Repairs. Hancock County, Illinois.

- Proposed Boring Location
- 20-in Active Pipeline
- 16-in Abandoned Pipeline
- Proposed HDD Alignment
- Potential Emergent Repair Area



*bp One Pipeline Company LLC's
Mississippi River Geotechnical Boring/HDD Pipe Replacement and
Possible Emergent Repairs
Photographed October 9, 2020*



Photo 1. View of pipeline crossing looking west. Photo taken from the Mississippi River on the right descending bank.



Photo 2. View from the pipeline crossing in the Mississippi River. View is looking south at the head of Hass's Island.

*bp One Pipeline Company LLC's
Mississippi River Geotechnical Boring/HDD Pipe Replacement and
Possible Emergent Repairs
Photographed October 9, 2020*



Photo 3. View facing south. Photo is of the left descending bank upstream of the pipeline cross looking downstream.



Photo 4. View facing east. Photo is of left descending bank from the pipeline crossing, mid-channel of the Mississippi River.

*bp One Pipeline Company LLC's
Mississippi River Geotechnical Boring/HDD Pipe Replacement and
Possible Emergent Repairs
Photographed October 9, 2020*



Photo 5. View facing north. Photo is of the left descending bank looking upstream of the pipeline crossing.



Photo 6. View facing east. Photo is looking from mid-channel towards the left descending bank over the scour area.

ATTACHMENT B
Biological Survey Report (2014)

Philip Mathias

From: Becca Winterringer
Sent: Friday, May 29, 2020 3:04 PM
To: Hayes, Bradley
Subject: RE: 2009769 EcoCAT BP pipeline 20" No. 1 System Crude Pipeline, Mississippi River, Hancock County, Illinois
Attachments: PB_PipelineEmergency_Interim_Report_Sept30_2014_REVISED05292020.pdf; Extracted pages from V2_6729_EnviroScience_General_Mussel_Proposal_MRM-223.pdf

Hi Brad:

Thanks for bringing that to my attention. I did a little back pedaling as this was before my time at EnviroScience. I talked to the lead person and confirmed that the river mile is indeed a typo. The results correspond to approximate river mile 380.5. We are making the changes internally here. Attached is page one from the 2014 survey proposal clearly identifying the subject project location. This also clearly misidentifies the river mile. I have re-attached the letter report with the correct river mile, noting the revision. The lat long referenced is clearly our project location.

My apologies on the confusion.

I'm available to discuss if you'd like to call me at 636-544-4754.

Thanks!
Becca

From: Hayes, Bradley <Bradley.Hayes@illinois.gov>
Sent: Friday, May 29, 2020 1:59 PM
To: Becca Winterringer <bwinterringer@enviroscienceinc.com>
Subject: Re: 2009769 EcoCAT BP pipeline 20" No. 1 System Crude Pipeline, Mississippi River, Hancock County, Illinois

Thanks Becca,
Are those the correct survey results? The river miles don't look right? Do you have a second to discuss?
Thanks,
Brad

From: Becca Winterringer <bwinterringer@enviroscienceinc.com>
Sent: Friday, May 29, 2020 12:41 PM
To: Hayes, Bradley <Bradley.Hayes@illinois.gov>
Subject: [External] RE: 2009769 EcoCAT BP pipeline 20" No. 1 System Crude Pipeline, Mississippi River, Hancock County, Illinois

Brad:
Attached are the results of the 2014 mussel survey. Let me know if you have any questions or need additional information.

Have a good weekend.

Thanks,
Becca

From: Hayes, Bradley <Bradley.Hayes@illinois.gov>

Sent: Wednesday, May 27, 2020 8:54 AM

To: Becca Winterringer <bwinterringer@enviroscienceinc.com>

Subject: Re: 2009769 EcoCAT BP pipeline 20" No. 1 System Crude Pipeline, Mississippi River, Hancock County, Illinois

Thanks Becca,

I think that works for now. I was just trying to get a better grasp on what the actual impact to the stream bed looked like, and the plans showed that pretty well. Do you happen to have the results of the 2014 survey?

Brad

From: Becca Winterringer <bwinterringer@enviroscienceinc.com>

Sent: Tuesday, May 26, 2020 3:21 PM

To: Hayes, Bradley <Bradley.Hayes@illinois.gov>

Subject: [External] RE: 2009769 EcoCAT BP pipeline 20" No. 1 System Crude Pipeline, Mississippi River, Hancock County, Illinois

Hi Brad,

See attached for the current elevation profile and plan sheets showing the pipeline crossing and scour hole. The hydrographic survey and remediation design is not expected to be completed for another 4-6 weeks; these are the only "plan" sheets available.

The scope of work provided in the EcoCAT description was provided by BP and is all I have at the moment. Is there something specific regarding the scope of work that you need? I expect specific details on exact placement within the repair area will not be known until the hydrographic survey is completed. I believe BP also performed a LDC emergency exposure repair along the same line at the same location in 2015. We have advised that a mussel survey may be requested by agencies. A mussel survey was performed in 2014 at the same location for the same issue.

BP is investigating a long term solution. In the interim, there is still a need to address the LDC in the short term. The Joint Application (IL and USACE) is expected to be submitted once the hydrographic survey is completed (6-8 weeks). They hope to initiate the LDC work in 2021.

Hope this is helpful. I am in and out of the field this week so feel free to call me at 636-544-5754.

Have a good day.

Thanks,
Becca

From: Hayes, Bradley <Bradley.Hayes@illinois.gov>

Sent: Tuesday, May 26, 2020 9:54 AM

To: Becca Winterringer <bwinterringer@enviroscienceinc.com>

Subject: 2009769 EcoCAT BP pipeline 20" No. 1 System Crude Pipeline, Mississippi River, Hancock County, Illinois

Hello Becca,

I have begun reviewing the project you submitted to EcoCAT for BP pipeline 20" No. 1 System Crude Pipeline, Mississippi River, Hancock County, Illinois and have a question? How quickly did you plan to get out there? Could you provide plans and more details on the scope of work? Are there any plans to survey the area for

mussels? We have records of state listed mussels along the bank just north of the site and downstream as well.

Thanks,
Brad

Brad Hayes

Resource Planner

Division of Real Estate Services and Consultation

Office of Realty & Capital Planning

Illinois Department of Natural Resources

One Natural Resources Way

Springfield, IL 62702

Bradley.Hayes@Illinois.gov

Phone: (217) 782-0031

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INTRODUCTION

EnviroScience, Inc. (ES) is pleased to submit this proposal and work scope to Central States Underwater Contracting (CSU) and BP North America (BP) to support the emergency pipeline scour repair at Mississippi River Mile 223.65 (left descending bank), Hancock County, Illinois three miles downstream from Niota, IL. The project location is at coordinates lat. 40.598713°, long. -91.341262° (decimal degrees WGS84) and is presented below. The scope of services is to assist BP to survey, salvage, and relocate mussels to suitable habitat. ES personnel have some of the most extensive endangered mussel survey and translocation experience in the country.

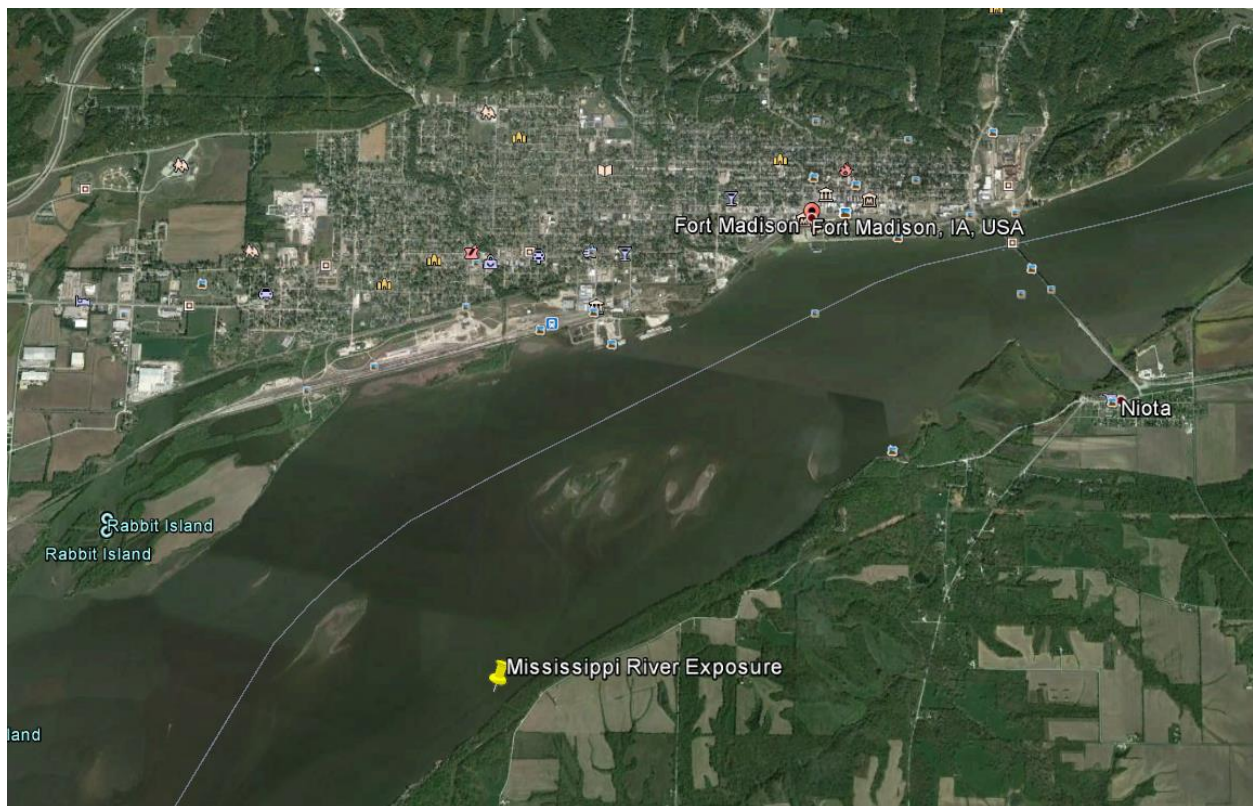


Figure 1. Project Location (Map source Google Earth)

Interim Mussel Survey Report
September 30, 2014

Aimee Mackey, CPESC
Project Manager
Parsons
919.324.4955
aimee.mackey@parsons.com

Re: Freshwater Mussel Survey / Relocation at BP Pipeline Emergency
Stabilization Project at Mississippi River Mile ~~223.65~~ (LDB)

Dear Ms. Mackey:

Freshwater mussel salvage and relocation work at the BP Pipeline Emergency Scour Repair Project at Mississippi River Mile ~~223.65~~ (LDB) was completed on September, 4th, 2014. A total of 477 living mussels of 22 species (See Table 1, below) were relocated to suitable habitat approximately 0.5km upstream from the project site at coordinates 40.60113, -91.33592 (decimal degrees, WGS84). This data includes data that was previously reported during the initial mussel survey and salvage phase on August 27th. An additional total of 7 species were only detected from dead shells, many of which were very old, possibly two to 3 decades or more.

Among the living mussels that were relocated were species listed as state endangered in Illinois (*Pleurobema cordatum*, Ohio pigtoe) and listed as threatened in both Iowa and Illinois (*Ellipsaria lineolata*, Butterfly) and threatened in Illinois (*Ligumia recta*, Black Sandshell). Weathered dead shells of the federally and state endangered Sheepsnose (*Plethobasus cyphus*) were collected but no live or fresh dead individuals were found.

Most mussels recovered originated from the western deep scour zone area where habitat was mud, sand, and gravel in approximately 30ft of water. The eastern portion of exposed pipeline was in shallower water (22ft) with a hard packed sand bottom and contained comparatively few mussels (Table 1).



5070 Stow Road
Stow, OH 44224

A full report will be submitted to your office and the Iowa DNR, Illinois DNR, and USFWS as part of EnviroScience's 2014 permit reporting commitments. If you have any questions or comments, please do not hesitate to contact me.

Very best regards,

A handwritten signature in blue ink, appearing to read "Greg Zimmerman", with a long horizontal flourish extending to the right.

Greg Zimmerman
Vice President

Table 1

Species, Common Names, Status, Numbers, and Relative Abundance of Freshwater Mussels Found at the BP Pipeline Scour Repair Project at Mississippi River Mile 380.5 (LDB)

Species	Common Name	Federal Status ¹	IA Status ¹	IL Status ¹	Living Mussels			Dead Mussels		Relative frequency (% total) Live	
					scour hole	Scour hole buffer	East exposed pipe	Live Total	FD		D
1	<i>Actinonaias ligametina</i>				3	1		4	x	x	0.8%
2	<i>Amblema plicata</i>				8	105	1	114	x	x	23.9%
3	<i>Arcidens confragosus</i>				1			1	x	x	0.2%
4	<i>Cyclonaias tuberculata</i>		T	T						x	0.0%
5	<i>Ellipsaria lineolata</i>		T	T	3	3		6		x	1.3%
6	<i>Fusconaia ebena</i>			T						x	
7	<i>Fusconaia flava</i>				2			2		x	0.4%
8	<i>Lampsilis cardium</i>				4	2		6		x	1.3%
9	<i>Lampsilis siliquoidea</i>				1			1		x	0.2%
10	<i>Lasmigona complanata</i>				9	10		19	x	x	4.0%
11	<i>Leptodea fragilis</i>				1	2		3	x	x	0.6%
12	<i>Ligumia recta</i>			T	3	13		16	x	x	3.4%
13	<i>Megaloniais nervosa</i>				9	14	1	24		x	5.0%
14	<i>Obliquaria reflexa</i>				10	21	2	33	x	x	6.9%
15	<i>Obovaria olivaria</i>				5	6	1	12	x	x	2.5%
16	<i>Plethobasus cyphus</i>	FE	E	E						x	
17	<i>Pleurobema cordatum</i>			E		1		1	x	x	0.2%
18	<i>Pleurobema rubrum</i>			E						x	
19	<i>Pleurobema sintoxia</i>		E							x	
20	<i>Potamilus alatus</i>				3	10	2	15	x	x	3.1%
21	<i>Potamilus ohioensis</i>				1	2		3		x	0.6%
22	<i>Pyganodon grandis</i>				1			1	x	x	0.2%
23	<i>Quadrula metanevra</i>									x	
24	<i>Quadrula nodulata</i>				2	3		5	x	x	1.0%
25	<i>Quadrula pustulosa</i>				31	27		58	x	x	12.2%
26	<i>Quadrula quadrula</i>				55	79	17	151	x	x	31.7%
27	<i>Tritogonia verrucosa</i>									x	
28	<i>Truncilla donaciformis</i>				1			1	x		0.2%
29	<i>Truncilla truncata</i>						1	1	x	x	0.2%
Total:					153	299	25	477			100.0%
No. of Live Species					20	16	7	22			

¹ E = Endangered; SC = Special Concern; T = Threatened

² FD=fresh dead shell, D=includes weathered dead and subfossil shells

ATTACHMENT C
EcoCAT & IPaC Coordination Results



Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov

JB Pritzker, Governor
Colleen Callahan, Director

September 9, 2022

Abigail Lanham
Parsons Corporation
30 S Wacker Drive
Chicago, IL 60606

**RE: BP's MS River Geotechnical Boring/HDD Pipe Replacement
Consultation Program
EcoCAT Review #2303854
Hancock County**

Dear Ms. Lanham,

The Department has received your submission for this project for the purposes of consultation pursuant to the *Illinois Endangered Species Protection Act* [520 ILCS 10/11], the *Illinois Natural Areas Preservation Act* [525 ILCS 30/17], and Title 17 *Illinois Administrative Code* Part 1075.

The proposed action consists of conducting seven (7) geotechnical borings within the Mississippi River between river mile 380 and 381. This will be in support of replacing the existing pipeline, which will eventually be installed using horizontal directional drill (HDD) methods.

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

State Listed

Butterfly Mussel (*Ellipsaria lineolate*)

Ohio Pigtoe (*Pleurobema cordatum*)

Due to the project scope and proximity to protected resources the Department recommends the following actions be taken to avoid adversely impacting listed species in the vicinity of the project:

Butterfly Mussel, Ohio Pigtoe Mussel

- 1) The Department recommends a mussel survey and relocation effort be conducted to mitigate impacts to listed and non-listed freshwater mussel populations.
- 2) The principal investigator should obtain a Scientific Collector Permit and relocation authorization.
 - a) Instructions on how to apply for research permits can be found at: [PERMITS - Permits \(illinois.gov\)](#)
 - b) Results of the survey and relocation operation should be sent to the Department for review.
 - c) State-listed species may not be relocated without an Incidental Take Authorization (ITA). They should be promptly released where captured, and the Department should be notified within 48 hours.
 - d) Visit the link below for more information on the ITA process:
 - i) [Incidental Take Authorizations - Species Conservation \(illinois.gov\)](#)

Given the above recommendations are adopted the Department has determined that impacts to these protected resources are unlikely. The Department has determined impacts to other protected resources in the vicinity of the project location are also unlikely.

In accordance with 17 Ill. Adm. Code 1075.40(h), please notify the Department of your decision regarding these recommendations.

Consultation on the part of the Department is closed, unless the applicant desires additional information or advice related to this proposal. Consultation for Part 1075 is valid for two years unless new information becomes available which was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the action has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary.

The natural resource review reflects the information existing in the Illinois Natural Heritage Database at the time of the project submittal and should not be regarded as a final statement on the project being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are unexpectedly encountered during the project's implementation, the applicant must comply with the applicable statutes and regulations.

This letter does not serve as permission to take any listed or endangered species. As a reminder, no take of an endangered species is permitted without an Incidental Take Authorization or the required permits. Anyone who takes a listed or endangered species without an Incidental Take Authorization or required permit may be subject to criminal and/or civil penalties pursuant to the *Illinois Endangered Species Act*, the *Fish and Aquatic Life Act*, the *Wildlife Code* and other applicable authority.

The Department also offers the following conservation measures be considered to help protect native wildlife and enhance natural areas in the project area:

If erosion control blanket is to be used, the Department also recommends that wildlife-friendly plastic-free blanket be used around wetlands and adjacent to natural areas, if not feasible to implement project wide, to prevent the entanglement of native wildlife.

Please contact Kyle Burkwald (Kyle.Burkwald@Illinois.gov) with any questions about this review.
Sincerely,



Bradley Hayes
Manager, Impact Assessment Section
Division of Real Estate Services and Consultation
Office of Realty & Capital Planning
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
Bradley.Hayes@Illinois.gov
Phone: (217) 782-0031

CC
Heather Osborn – IDNR
Brian Metzke - IDNR



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Illinois-Iowa Ecological Services Field Office
Illinois & Iowa Ecological Services Field Office
1511 47th Ave
Moline, IL 61265-7022
Phone: (309) 757-5800 Fax: (309) 757-5807

In Reply Refer To:

September 01, 2022

Project Code: 2022-0081201

Project Name: BP's MS River Geotechnical Boring/HDD Pipe Replacement Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2))

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Wetlands
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Illinois-Iowa Ecological Services Field Office

Illinois & Iowa Ecological Services Field Office

1511 47th Ave

Moline, IL 61265-7022

(309) 757-5800

Project Summary

Project Code: 2022-0081201
Project Name: BP's MS River Geotechnical Boring/HDD Pipe Replacement Project
Project Type: Distribution Line - Maintenance/Modification - Below Ground
Project Description: BP is proposing to conduct 7 geotechnical borings within the Mississippi River to determine the feasibility of replacing their existing pipeline with a new section beneath the river using a horizontal directional drill.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@40.605578949999995,-91.34989251690536,14z>



Counties: Illinois and Iowa

Endangered Species Act Species

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Clams

NAME	STATUS
Higgins Eye (pearlymussel) <i>Lampsilis higginsii</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5428	Endangered
Sheepnose Mussel <i>Plethobasus cyphus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6903	Endangered
Spectaclecase (mussel) <i>Cumberlandia monodonta</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7867	Endangered

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Eastern Prairie Fringed Orchid <i>Platanthera leucophaea</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/601	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- [Riverine](#)

LAKE

- [Lacustrine](#)
-

IPaC User Contact Information

Agency: Parsons

Name: Abigail Lanham

Address: 151 W 4TH STREET Box 16

City: Cincinnati

State: OH

Zip: 45202

Email: abigail.lanham@parsons.com

Phone: 5135716094

ATTACHMENT D
Joint Application

September 28, 2022

Illinois Department of Natural Resources
Office of Water Resources
Downstate Regulatory Programs Section
One Natural Resources Way
Springfield, IL 62702-1271
Kristian.Peterson@Illinois.gov

Subject: Permit Not Required Request for BP's Mississippi River Geotechnical Boring Project along their Freeman – Manhattan Pipeline within Lee County, Iowa and Hancock County, Illinois (Corps Permit # 2022-1308)

Mr. Peterson,

Parsons, on behalf of bp One Pipeline Company LLC (BP) is submitting this "Permit Not Required" (PNR) request in support of a proposed project to conduct seven (7) geotechnical borings within and adjacent to the Mississippi River within the floodway/floodplain. On September 1, 2022, during a telephone conversation with Laura Green of Parsons, you indicated that a floodplain/floodway permit is not required because advancing borings does not meet the definition of construction. The Floodway and Public Waters regulations are written "rules for the regulation of construction" and "borings don't result in obstruction of mud flow". For documentation purposes, BP is requesting that the DNR issue a PNR for this work.

BP is also acquiring the following approvals:

- Approval under the Clean Water Act Section 404/401/10 from the USACE Rock Island District, the Illinois EPA and the Iowa DNR (Corps Permit # 2022-1308)
- Iowa Sovereign Lands Construction Permit from the Iowa DNR
- Floodplain Permit from Iowa DNR
- Hancock County, IL Floodplain Permit
- Fort Madison, IA Floodplain Permit

These borings are proposed to assess the feasibility and aid in the design of a future pipeline replacement project beneath the Mississippi River using a horizontal directional drill (HDD), which will require additional permitting, and include the site-specific project/permit numbers, as discussed above. BP's existing Freeman - Manhattan pipeline within the river is scouring out and requires replacement.

Two borings will be located in the riparian area of the Mississippi River in Lee County, IA (just outside BP's existing valve station) and Hancock County, IL (in a farm field). Additionally, five (5) other borings will be located in the Mississippi River at approximately 1,000-ft intervals across the river. Note, borings will not be advanced in the navigation channel. See the maps attached to the Joint Application and the latitude/longitude coordinates below:

- Soil Boring #1: 40.612909°, -91.360629°
- Soil Boring #2: 40.611833°, -91.359425°
- Soil Boring #3: 40.610206°, -91.357203°
- Soil Boring #4: 40.607144°, -91.351172°
- Soil Boring #5: 40.603384°, -91.345828°
- Soil Boring #6: 40.599717°, -91.340370°
- Soil Boring #7: 40.597571°, -91.337454°

In Iowa there will be 3 borings (2 in water and 1 on land). In Illinois, there will be 4 borings (3 in water and 1 on land). Borings will be advanced to bedrock. The borings in the river will be conducted from barges. Each bore will consist of a 5-6" diameter outer casing which will be hammered in from the barge deck to the mudline. Then, a 3-4" steel casing will be placed inside the outer casing. Two casings will help to create a seal for drilling fluid to maintain as much fluid as possible

during drilling. Once set, the drill crew will begin drilling and sampling the overburden soil. After confirming bedrock contact, the drill crew will extract the drill pipe and set wireline core rods to the bedrock contact and begin continuous rock coring the bedrock formation. Drill cuttings and fluid will be collected and placed inside drums stored on the barge. All boreholes will be backfilled with a bentonite/concrete mix.

For the bores in the river, during drilling, only incidental discharge is expected. River water will be used for drilling. A screened suction hose will be dropped into the river and connected to the drill rig's water pump. Water will be pumped to fill the drilling fluid returns pit. Additives will be mixed in - typically bentonite gel for soil and liquid polymer for rock. The mixture will then be pumped downhole through the drill pipe to the drill bit. The fluid and cuttings will be transported up the borehole and the casing. Drilling fluid can be lost into the formation itself while advancing the borehole and/or a lost seal. Once the boring is complete, any solid cuttings (usually grain-sized) that are generated during drilling and any drilling fluid returns contained within the hoses and drilling fluid returns pit will be pumped into drums on the barge and disposed of accordingly under BP's waste management policy.

For the borings on either side of the river, the disturbed areas will be returned to pre-construction conditions. No wetlands will be disturbed, and no tree felling will be necessary.

In regard to threatened and endangered species, Section 7 consultation between Brant Vollman (USACE) and Region 3 USFWS was recently completed earlier this year for a proposed scour mitigation project in the river on the Illinois side along this same pipeline system. BP was proposing to fill the scour holes surrounding their existing pipeline with rock but decided to cancel the project, and instead, pursue design of an HDD pipeline replacement. USFWS determined that that project was not likely to adversely affect the higgins eye pearl mussel (*Lampsilis higginsii*), sheepsnose mussel (*Plethobasus cypheyus*), or spectaclecase mussel (*Cumberlandia monodonta*). USFWS' letter is included with the Attachments.

In regard to state-listed species, an Iowa Environmental Review has been requested. The response will be forwarded upon receipt. The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

- Butterfly (*Ellipsaria lineolata*)
- Ohio Pigtoe (*Pleurobema cordatum*)

In addition, the IL DNR recommended a mussel survey and relocation effort be conducted to mitigate impacts to listed and non-listed freshwater mussel populations. BP intends to utilize EnviroScience to conduct a mussel survey of the proposed boring locations in late September/early October, the results of which will be forwarded as an addendum upon receipt. The borings will only be 5-6 inches in diameter, so the disturbance area is quite small.

In regard to cultural resources, a cultural resource desktop analysis was completed by a Parsons archaeologist to analyze the archeological sites or architectural resources that exist within the study area. The study area encompasses the following areas:


- a. an area of 1-mile radius around the HDD entry and geotechnical bore site B-1 in Iowa and HDD exit and drill site B-7 in Illinois;
- b. an area of 1-mile on either side of drill sites B-2 through B-7 in the Mississippi River;
- c. an area of 1 mile on three sides of the pipe string location in Hancock County, Illinois, with the fourth side along the shoreline of the Upper Mississippi River.

Results of the cultural resource study are attached.

bp One Pipeline Company LLC
Mississippi River Geotechnical Boring Project
September 2022

Please feel free to contact me via email at Abigail.Lanham@Parsons.com or via telephone at 513-571-6094 with any questions or concerns.

Sincerely,

A handwritten signature in cursive script that reads "Abigail Lanham". The signature is written in dark ink on a light-colored background.

Abigail Lanham
Environmental Scientist
Parsons

cc:

Ernest Falcon, BP
Diane Hoeting, BP/Parsons
Laura Green, Parsons

Joint Application Form

17. DIRECTIONS TO THE SITE

Boring #1 is located adjacent to BP's Fort Madison Valve Station (approximate physical address 2207 35th St.). From Fort Madison, Iowa, head west on Ave H toward 10th St. Continue on Ave I. Take Ave M to Avenue L. Turn left onto Avenue L. Turn left onto 35th St, and Soil Boring #1 will be on the right after 1 mile. The other boring locations will be at approximately 1,000-foot intervals headed southeast of Soil Boring #1 out in the river. The proposed river boring depths in the river will be about 170 ft.

18. Nature of Activity (Description of project, include all features)

Excavations: In Iowa there will be 3 borings (2 in water and 1 on land). In Illinois, there will be 4 borings (3 in water and 1 on land). Borings will be advanced to bedrock. The 2 borings in the river will be conducted from barges. Each bore will consist of a 5-6" diameter outer casing which will be hammered in from the barge deck to the mudline. Then, a 3-4" steel casing will be placed inside the outer casing. Two casings will help to create a seal for drilling fluid to maintain as much fluid as possible during drilling. Once set, the drill crew will begin drilling and sampling the overburden soil. After confirming bedrock contact, the drill crew will extract the drill pipe and set wireline core rods to the bedrock contact and begin continuous rock coring the bedrock formation. None of the river borings will be advanced in the navigation channel. Drill cuttings and fluid will be collected and placed inside drums stored on the barge. All boreholes will be backfilled with a bentonite/concrete mix.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

BP is proposing to advance seven geotechnical borings within and/or adjacent to the Mississippi River on both the Illinois and Iowa side to assist with designing a pipeline replacement project under the river using horizontal directional drill technology. (We are concurrently coordinating with Illinois' agencies).

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

None of the geotechnical bores will impact wetlands. For the bores in the river, during drilling, only incidental discharge is expected. River water will be used for drilling. A screened suction hose will be dropped into the river and connected to the drill rig's water pump. Water will be pumped to fill the drilling fluid returns pit. Additives will be mixed in - typically bentonite gel for soil and liquid polymer for rock. The mixture will then be pumped downhole through the drill pipe to the drill bit. The fluid and cuttings will be transported up the borehole and the casing. Drilling fluid can be lost into the formation itself while advancing the borehole and/or a lost seal. Once the boring is complete, any solid cuttings (usually grain-sized) that are generated during drilling and any drilling fluid returns contained within the hoses and drilling fluid returns pit will be pumped into drums on the barge and disposed of accordingly under BP's waste management policy.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Types: There is a potential for minimal river water mixed with additives (typically bentonite gel for soil and liquid polymer for rock) and minimal solid cuttings (usually grain-sized) that are generated during drilling to be lost during drilling.

Amounts: Incidental discharge only.

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Five 5-6" boreholes (2 in Iowa and 3 in Illinois), < 0.000 acres total.

23. Description of Avoidance, Minimization, and Compensation (see instructions)

Geotechnical borings will be advanced by trained professionals, and the soil cuttings/drilling fluid will be placed into drums for disposal upon completion of drilling. The navigation channel will be avoided.

24. Is Any Portion of the Work Already Complete? Yes No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

IL Dept of Conservation - 524 S Second St Springfield, IL 62706
Shea & Jenny Seiber - 2704 N Morman Springs Rd Niota, IL 62358
Ferguson LLLP - 2735 N County Rd 1150 Niota, IL 623582
Central Illinois Public Service Co - Ameren Services Tax Department Saint Louis MO 63166

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

Approval under the Clean Water Act Section 404/401/10 from the USACE Rock Island District, the Illinois EPA and the Iowa DNR (Corps Permit # 2022-1308) - permit pending
Iowa Sovereign Lands Construction Permit from the Iowa DNR - permit pending
Floodplain Permit from Iowa DNR - permit pending
Hancock County, IL Floodplain Permit - permit pending
Fort Madison, IA Floodplain Permit - permit pending

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

_____	_____	Abigail Lanham	09/28/2022
SIGNATURE OF APPLICANT	DATE	SIGNATURE OF AGENT	DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

US Army Corps of Engineers Consent Required

Certain minor activities are eligible for authorization by general permits, which include Nationwide (NWP) and Regional General (RGP) permits. By selecting "No" below, you are acknowledging that you have verified that your project meets the general, special, and 401 Water Quality Certification conditions of a NWP relative to your request and that no notification criteria has been met. No further coordination with the Corps of Engineers Regulatory Division is necessary if this "No" box is selected.

Yes No

Additional Information

Do you have any additional information that we should know about regarding your application?
The Joint Application will also be submitted to the Illinois EPA and the Illinois DNR.

Threatened & Endangered Species



Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov

JB Pritzker, Governor
Colleen Callahan, Director

September 9, 2022

Abigail Lanham
Parsons Corporation
30 S Wacker Drive
Chicago, IL 60606

**RE: BP's MS River Geotechnical Boring/HDD Pipe Replacement
Consultation Program
EcoCAT Review #2303854
Hancock County**

Dear Ms. Lanham,

The Department has received your submission for this project for the purposes of consultation pursuant to the *Illinois Endangered Species Protection Act* [520 ILCS 10/11], the *Illinois Natural Areas Preservation Act* [525 ILCS 30/17], and Title 17 *Illinois Administrative Code* Part 1075.

The proposed action consists of conducting seven (7) geotechnical borings within the Mississippi River between river mile 380 and 381. This will be in support of replacing the existing pipeline, which will eventually be installed using horizontal directional drill (HDD) methods.

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

State Listed

Butterfly Mussel (*Ellipsaria lineolate*)

Ohio Pigtoe (*Pleurobema cordatum*)

Due to the project scope and proximity to protected resources the Department recommends the following actions be taken to avoid adversely impacting listed species in the vicinity of the project:

Butterfly Mussel, Ohio Pigtoe Mussel

- 1) The Department recommends a mussel survey and relocation effort be conducted to mitigate impacts to listed and non-listed freshwater mussel populations.
- 2) The principal investigator should obtain a Scientific Collector Permit and relocation authorization.
 - a) Instructions on how to apply for research permits can be found at: [PERMITS - Permits \(illinois.gov\)](#)
 - b) Results of the survey and relocation operation should be sent to the Department for review.
 - c) State-listed species may not be relocated without an Incidental Take Authorization (ITA). They should be promptly released where captured, and the Department should be notified within 48 hours.
 - d) Visit the link below for more information on the ITA process:
 - i) [Incidental Take Authorizations - Species Conservation \(illinois.gov\)](#)

Given the above recommendations are adopted the Department has determined that impacts to these protected resources are unlikely. The Department has determined impacts to other protected resources in the vicinity of the project location are also unlikely.

In accordance with 17 Ill. Adm. Code 1075.40(h), please notify the Department of your decision regarding these recommendations.

Consultation on the part of the Department is closed, unless the applicant desires additional information or advice related to this proposal. Consultation for Part 1075 is valid for two years unless new information becomes available which was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the action has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary.

The natural resource review reflects the information existing in the Illinois Natural Heritage Database at the time of the project submittal and should not be regarded as a final statement on the project being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are unexpectedly encountered during the project's implementation, the applicant must comply with the applicable statutes and regulations.

This letter does not serve as permission to take any listed or endangered species. As a reminder, no take of an endangered species is permitted without an Incidental Take Authorization or the required permits. Anyone who takes a listed or endangered species without an Incidental Take Authorization or required permit may be subject to criminal and/or civil penalties pursuant to the *Illinois Endangered Species Act*, the *Fish and Aquatic Life Act*, the *Wildlife Code* and other applicable authority.

The Department also offers the following conservation measures be considered to help protect native wildlife and enhance natural areas in the project area:

If erosion control blanket is to be used, the Department also recommends that wildlife-friendly plastic-free blanket be used around wetlands and adjacent to natural areas, if not feasible to implement project wide, to prevent the entanglement of native wildlife.

Please contact Kyle Burkwald (Kyle.Burkwald@Illinois.gov) with any questions about this review.
Sincerely,



Bradley Hayes
Manager, Impact Assessment Section
Division of Real Estate Services and Consultation
Office of Realty & Capital Planning
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
Bradley.Hayes@Illinois.gov
Phone: (217) 782-0031

CC
Heather Osborn – IDNR
Brian Metzke - IDNR



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Illinois-Iowa Ecological Services Field Office
Illinois & Iowa Ecological Services Field Office
1511 47th Ave
Moline, IL 61265-7022
Phone: (309) 757-5800 Fax: (309) 757-5807

In Reply Refer To:

September 01, 2022

Project Code: 2022-0081201

Project Name: BP's MS River Geotechnical Boring/HDD Pipe Replacement Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2))

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Wetlands
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Illinois-Iowa Ecological Services Field Office

Illinois & Iowa Ecological Services Field Office

1511 47th Ave

Moline, IL 61265-7022

(309) 757-5800

Project Summary

Project Code: 2022-0081201
Project Name: BP's MS River Geotechnical Boring/HDD Pipe Replacement Project
Project Type: Distribution Line - Maintenance/Modification - Below Ground
Project Description: BP is proposing to conduct 7 geotechnical borings within the Mississippi River to determine the feasibility of replacing their existing pipeline with a new section beneath the river using a horizontal directional drill.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@40.605578949999995,-91.34989251690536,14z>



Counties: Illinois and Iowa

Endangered Species Act Species

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Clams

NAME	STATUS
Higgins Eye (pearlymussel) <i>Lampsilis higginsii</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5428	Endangered
Sheepnose Mussel <i>Plethobasus cyphus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6903	Endangered
Spectaclecase (mussel) <i>Cumberlandia monodonta</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7867	Endangered

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Eastern Prairie Fringed Orchid <i>Platanthera leucophaea</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/601	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- [Riverine](#)

LAKE

- [Lacustrine](#)
-

IPaC User Contact Information

Agency: Parsons

Name: Abigail Lanham

Address: 151 W 4TH STREET Box 16

City: Cincinnati

State: OH

Zip: 45202

Email: abigail.lanham@parsons.com

Phone: 5135716094



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Illinois - Iowa Field Office
1511 47th Avenue
Moline, Illinois 61265
Phone: (309) 757-5800 Fax: (309) 757-5807

IN REPLY REFER
TO:

Brant Vollman
U.S. Army Corps of Engineers

June 2, 2022
Electronic Mail

Brant Vollman,

Thank you for your request to reinstate consultation regarding the BP U.S. Pipelines & Logistics' Mississippi River Pipeline LDOC and Scour Mitigation project. The project is located in the Mississippi River in Hancock County, Illinois and may affect, but is not likely to adversely affect the Higgins eye pearl mussel (*Lampsilis higginsii*), sheepsnose mussel (*Plethobasus cyphus*), or spectacle mussel (*Cumberlandia monodonta*).

The U.S. Army Corps of Engineers previously issued nationwide permit verification letter (CEMVR- OD-P 2020-0912) for the project, however the project area has since been expanded to include additional portions of the pipeline that are either exposed or exhibit low depth of cover (LDOC). The primary objective of this project is to fill the existing scour holes, cover the LDOC and/or exposures along the pipeline, and armor the surrounding area to provide long-term prevention of future scour. The proposed project will include lining the riverbed with geotextile fabric and protecting the pipeline via placement of geotextile gravel bags on the riverbed. In addition, the scour holes underneath the pipeline will be filled with bulk rock fill (shot rock from blasting and drilling) and covered with rip rap. A similar repair was conducted in 2014. The active scour holes are very unlikely to contain any suitable habitat for these mussel species as the continual movement of material reduces the likelihood that any mussel resources will be established in this area. The applicant has also stated the geotextile gravel bags will be placed by a diver to avoid impacting areas outside of the scour holes.

We concur that the proposed project is not likely to adversely affect Higgins eye, sheepsnose or spectacle mussels.

This precludes the need for further action on this project as required under Section 7 of the Endangered Species Act of 1973, as amended. If project plans change or portions of the proposed project were not evaluated, it is our recommendation that the changes be submitted for our review.

These comments are provided in accordance with the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*). If you have any questions regarding these comments, please contact me at the email address below.

Kraig McPeck
Field Supervisor
U.S. Fish & Wildlife Service
Illinois - Iowa Ecological Services Field Office
1511 47th Ave
Moline, IL 61265
ph: 309-757-5800 x 202
kraig_mcpeck@fws.gov

Figures

From: [Workman, Chad \(SALEM LAND\)](#)
To: [Lanham, Abigail \[NN-US\]](#)
Subject: [EXTERNAL] RE: BP1 Mississippi River crossing info
Date: Friday, September 09, 2022 8:32:50 AM
Attachments: [image001.png](#)
[image002.png](#)

I was able to finally reach the land owners on each side. I received verbal approval for the geotechnical bore sites from each.

West side: Fred Hoenig 319-470-3965

East side: Jeff Ferguson 217-430-3658

Thanks,

Chad Workman

Contract Right-of-Way Agent

BP Pipelines (North America) Inc.

30 S. Wacker Dr, Suite 900

Chicago, IL 60606

Cell 217-638-5558

Chad.Workman@BP.com

From: Abigail.Lanham@parsons.com <Abigail.Lanham@parsons.com>

Sent: Wednesday, August 31, 2022 1:05 PM

To: Workman, Chad (SALEM LAND) <CHAD.WORKMAN@bp.com>

Subject: RE: BP1 Mississippi River crossing info

Hi Chad,

We will need to upload the landowner's approval for Soil Boring #1 for the Joint Permit Application to the USACE. Will you send that over when you have it?

Thanks,

Abigail Lanham, M.En

Environmental Scientist

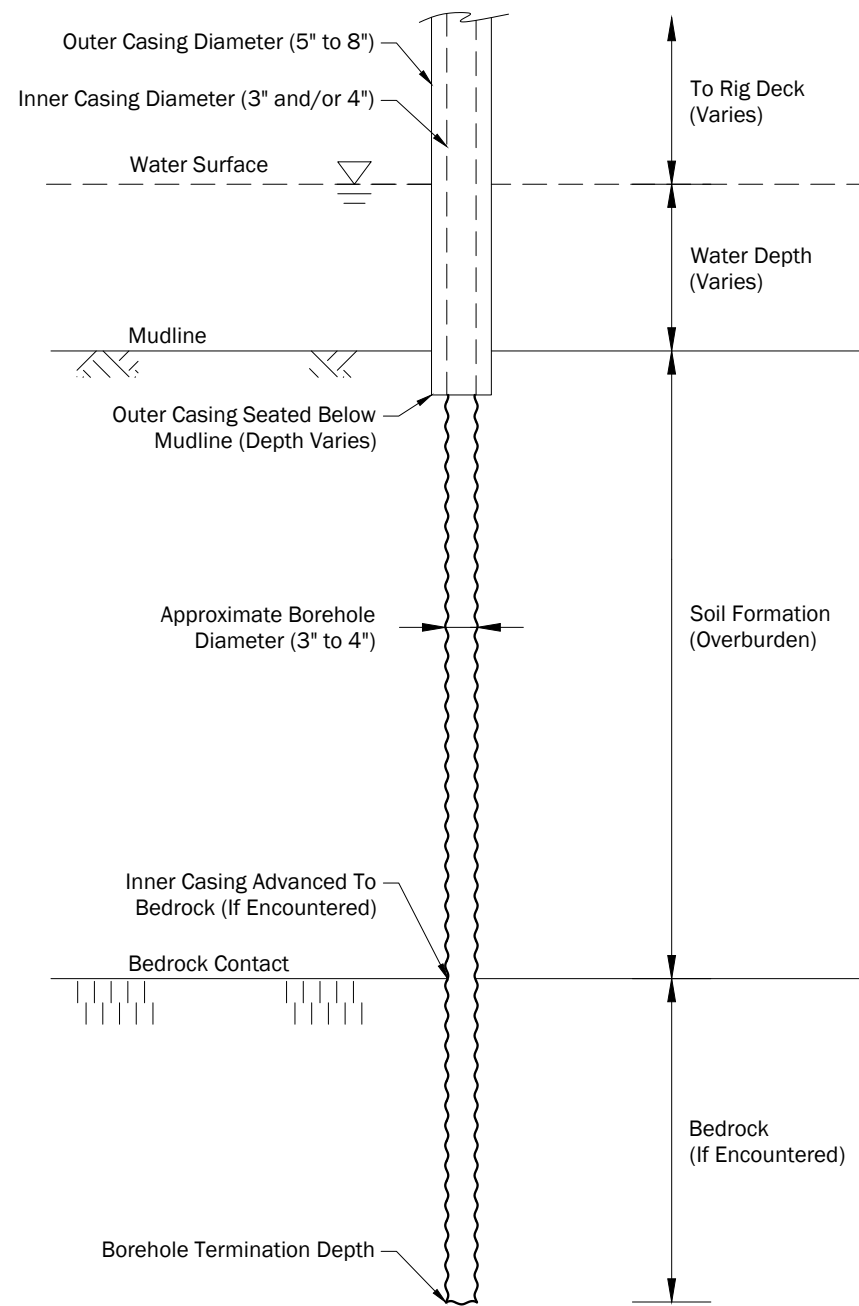
c: (513) 571-6094

[Parsons \[eur03.safelinks.protection.outlook.com\]](#) [[eur03.safelinks.protection.outlook.com](#)]
[\[eur03.safelinks.protection.outlook.com\]](#) | [LinkedIn \[eur03.safelinks.protection.outlook.com\]](#)
[\[eur03.safelinks.protection.outlook.com\]](#) [[eur03.safelinks.protection.outlook.com](#)] | [Twitter](#)
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[\[eur03.safelinks.protection.outlook.com\]](#) [[eur03.safelinks.protection.outlook.com](#)]

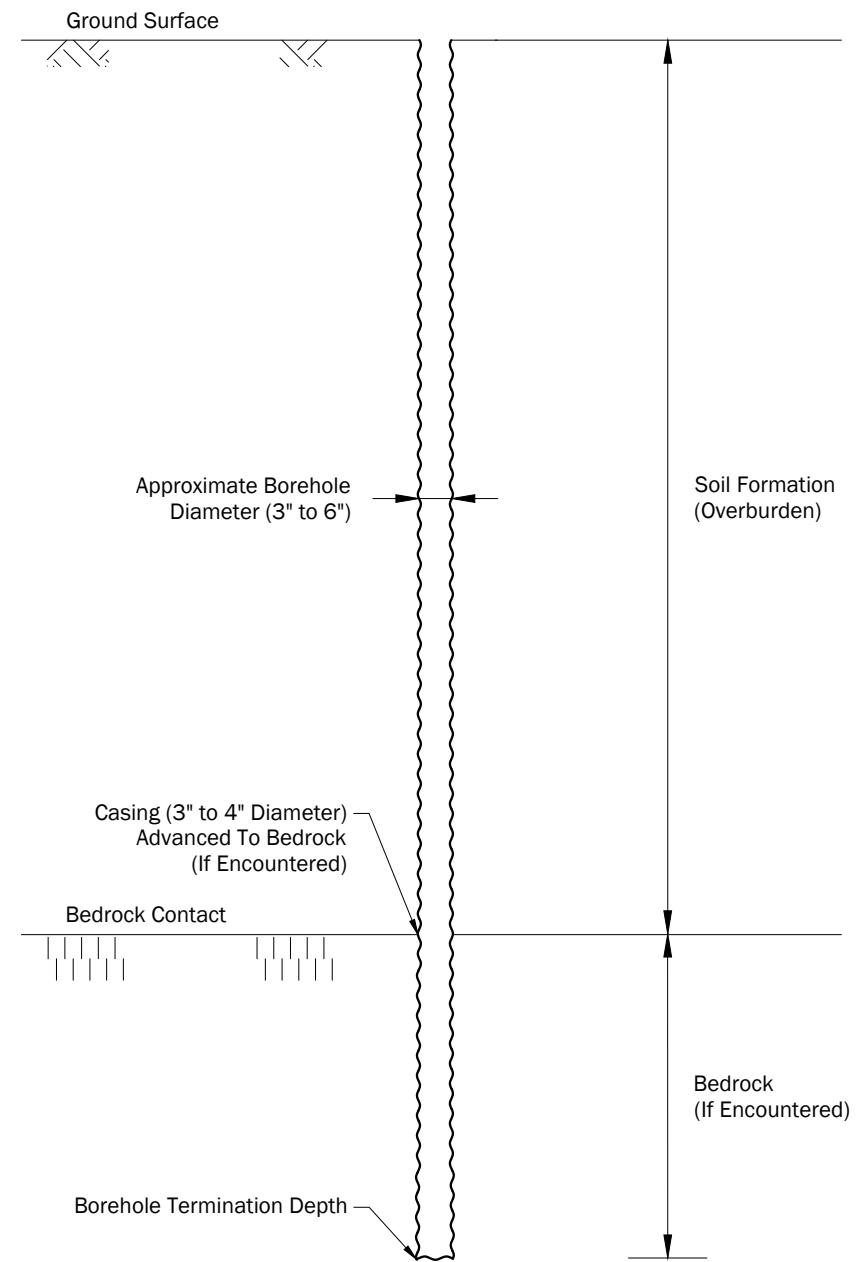


P:\0_0894248\CAD\00\HDD\Mississippi River HDD\Boring Location Map\DWG\0894248 BLM X-Section.dwg TAB:Typical Borehole Cross Section with Pictures Date Exported: 09/08/22 - 10:37 by svoigt


Typical Boring Cross-Section Overwater

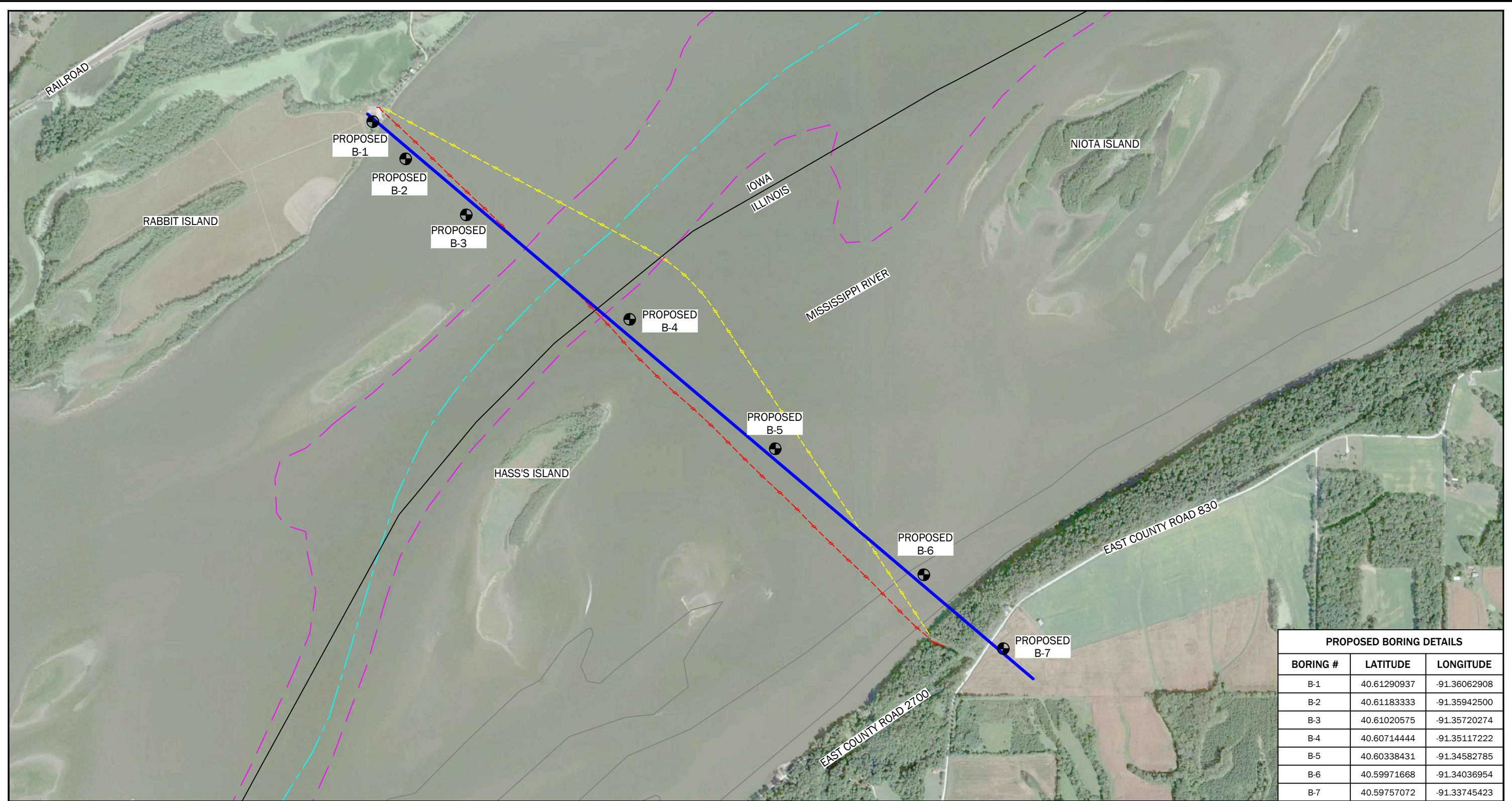


Typical Boring Cross-Section On Land



Note:
This Drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Typical Borehole Cross-Section	
Proposed Geotechnical Borings	
	Example Figure









PROPOSED BORING DETAILS		
BORING #	LATITUDE	LONGITUDE
B-1	40.61290937	-91.36062908
B-2	40.61183333	-91.35942500
B-3	40.61020575	-91.35720274
B-4	40.60714444	-91.35117222
B-5	40.60338431	-91.34582785
B-6	40.59971668	-91.34036954
B-7	40.59757072	-91.33745423

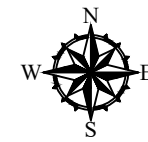
NOTES:

1. THE LOCATIONS OF ALL FEATURES SHOWN ARE APPROXIMATE.
2. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED IN AN ATTACHED DOCUMENT. GEOENGINEERS, INC. CANNOT GUARANTEE THE ACCURACY AND CONTENT OF ELECTRONIC FILES. THE MASTER FILE IS STORED BY GEOENGINEERS, INC. AND WILL SERVE AS THE OFFICIAL RECORD OF THIS COMMUNICATION.
3. GEOENGINEERS, INC. HAS NOT VERIFIED THE FIELD LOCATION OF THE EXISTING UTILITIES.
4. 20-INCH CARROLLTON-EAST FORT MADISON PIPELINE SURVEY DATA (MARCH 2022) PROVIDED BY DOC MAPPING, LLC.
5. 16-INCH ABANDONED PIPELINE ALIGNMENT OBTAINED FROM DRAWING NO. 10-5912, REVISION NO. 00174-0051-0 (DECEMBER 1952) PROVIDED BY BP SOLUTIONS.
6. NAVIGATION CHANNEL AND SAILING LINE OBTAINED FROM U.S. ARMY CORPS OF ENGINEERS, INLAND ELECTRONIC NAVIGATIONAL CHART DATABASE, UPPER MISSISSIPPI RIVER, RIVER MILES 359 TO 432, ACCESSED SEPTEMBER 2022 (FILE NAME U37UM359_SHAPE.ZIP).

REFERENCES: AERIAL IMAGE TAKEN FROM GOOGLE EARTH PRO © 2022, LICENSED TO GEOENGINEERS, INC., IMAGE DATED 09/15/2021.

LEGEND

-  PROPOSED BORING LOCATION
-  PROPOSED HDD ALIGNMENT
-  APPROXIMATE NAVIGATION CHANNEL
-  APPROXIMATE SAILING LINE
-  20-INCH CARROLLTON-EAST FORT MADISON PIPELINE (SURVEYED LOCATION)
-  16-INCH ABANDONED PIPELINE (APPROXIMATE LOCATION)

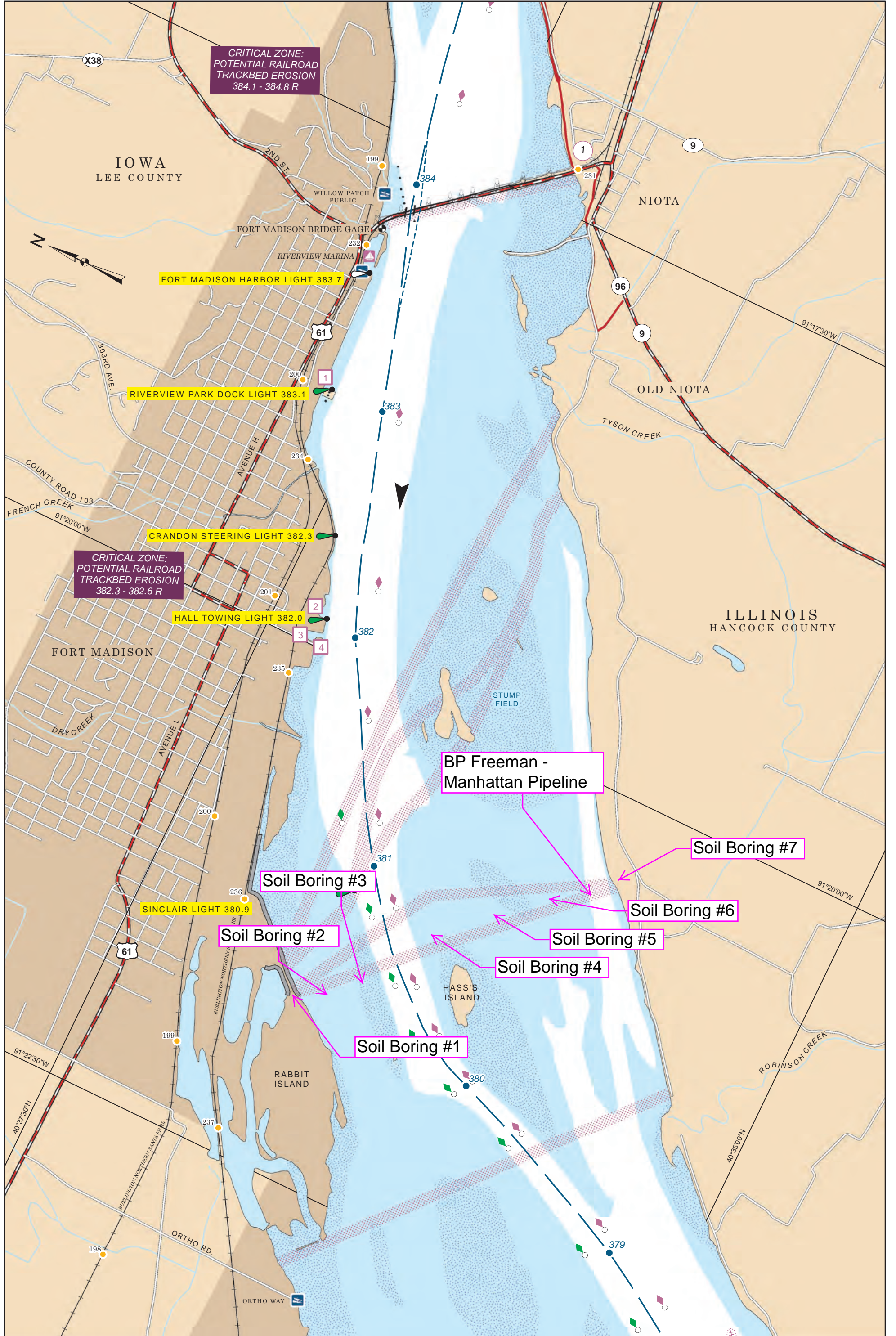


BORING LOCATION MAP

BP - 20-INCH MISSISSIPPI RIVER CROSSING
MISSISSIPPI RIVER HDD
LEE COUNTY, IOWA & HANCOCK COUNTY, ILLINOIS



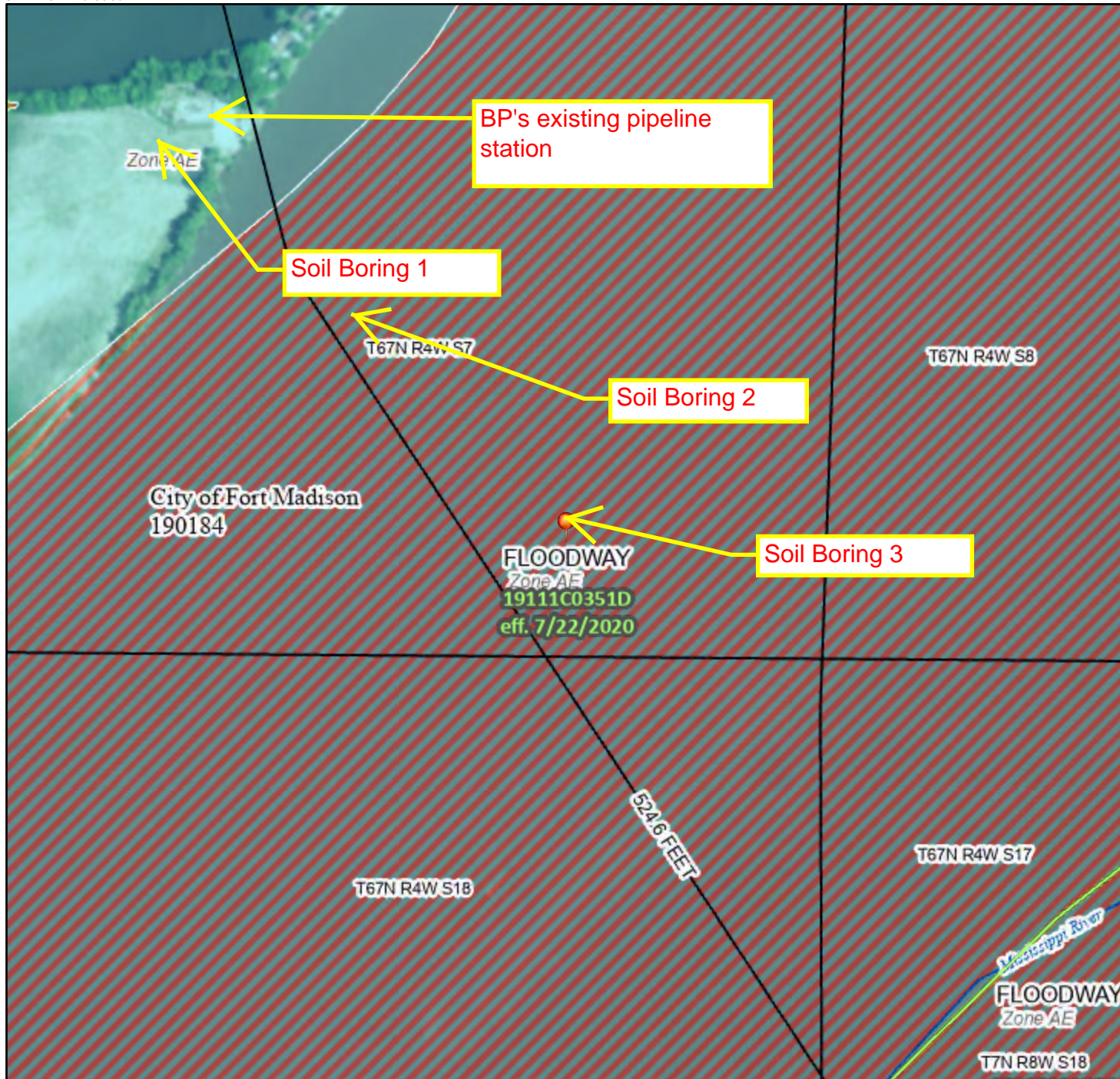
FIGURE 1



National Flood Hazard Layer FIRMette



91°21'45"W 40°36'50"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A, V, A99	With BFE or Depth Zone AE, AO, AH, VE, AR	Regulatory Floodway

		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D

OTHER AREAS OF FLOOD HAZARD	NO SCREEN	Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D

OTHER AREAS	GENERAL STRUCTURES	
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall

		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature

OTHER FEATURES	
	Digital Data Available
	No Digital Data Available
	Unmapped

MAP PANELS	
	The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

	N
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This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

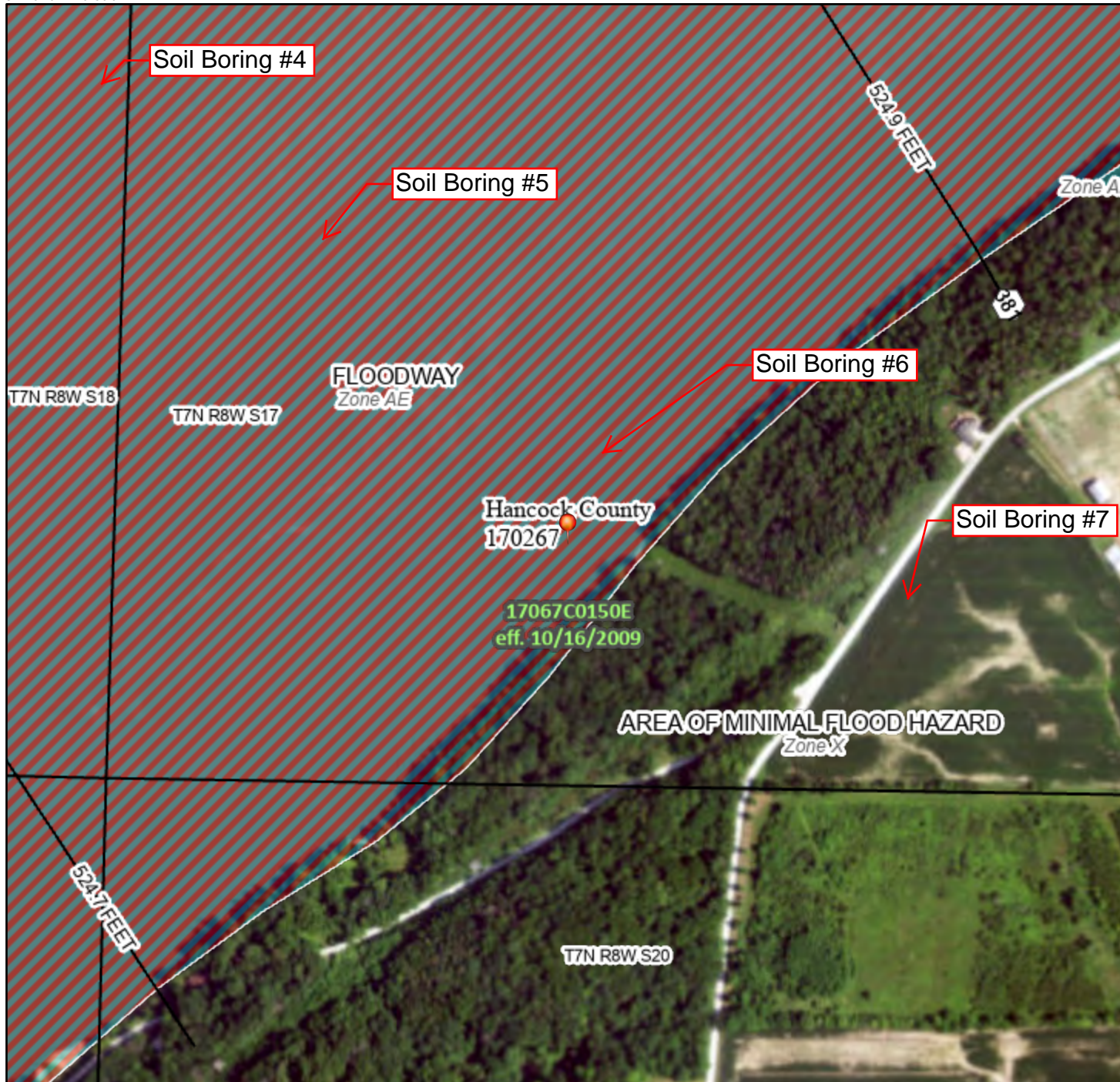
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/2/2022 at 2:43 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

National Flood Hazard Layer FIRMMette



91°20'46"W 40°36'6"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

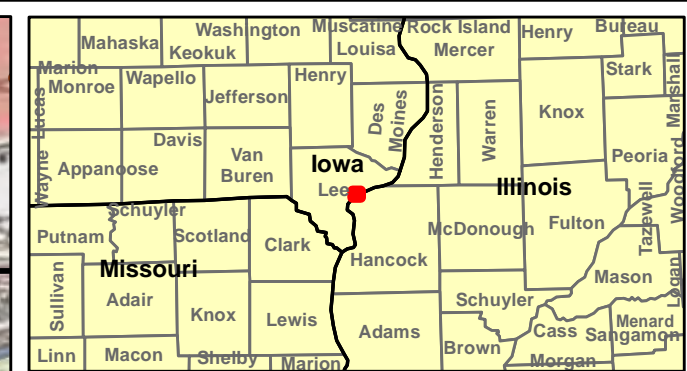
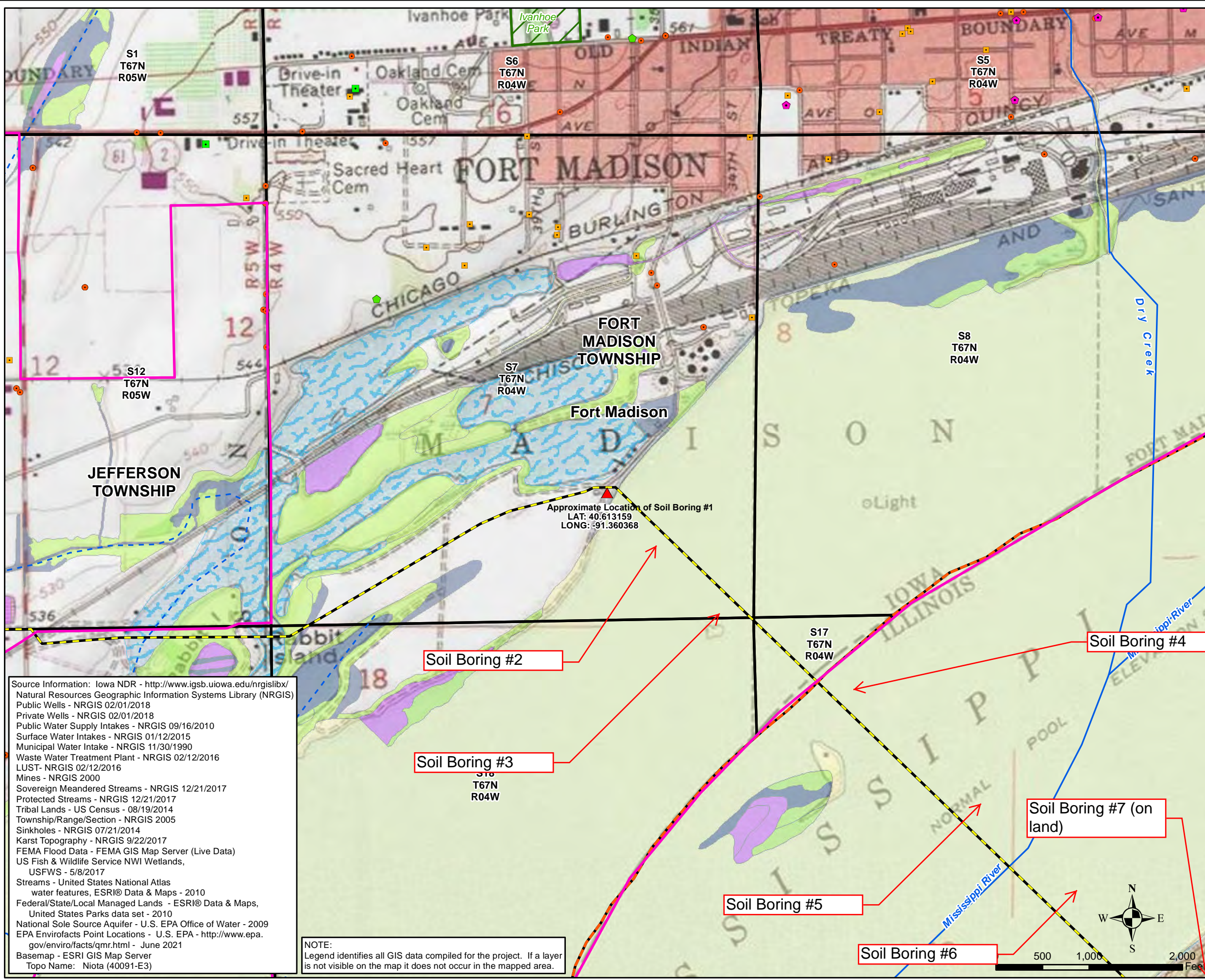
- | | | |
|-----------------------------|--|--|
| SPECIAL FLOOD HAZARD AREAS | | Without Base Flood Elevation (BFE)
<i>Zone A, V, A99</i> |
| | | With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i> |
| | | Regulatory Floodway |
| OTHER AREAS OF FLOOD HAZARD | | 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i> |
| | | Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i> |
| | | Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i> |
| | | Area with Flood Risk due to Levee <i>Zone D</i> |
| OTHER AREAS | | NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i> |
| | | Effective LOMRs |
| GENERAL STRUCTURES | | Area of Undetermined Flood Hazard <i>Zone D</i> |
| | | Channel, Culvert, or Storm Sewer |
| | | Levee, Dike, or Floodwall |
| OTHER FEATURES | | 20.2 Cross Sections with 1% Annual Chance Water Surface Elevation |
| | | 17.5 Coastal Transect |
| | | Base Flood Elevation Line (BFE) |
| | | Limit of Study |
| | | Jurisdiction Boundary |
| MAP PANELS | | Coastal Transect Baseline |
| | | Profile Baseline |
| | | Hydrographic Feature |
| | | Digital Data Available |
| | | No Digital Data Available |
| | | Unmapped |

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/13/2022 at 3:16 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.


This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



- Site Location
- BP Pipeline
- Other Pipelines
- Streams - Named
- Streams - Unnamed
- Sovereign Meandered Rivers
- Protected Streams
- Public Wells
- Private Wells
- Public Water Supply Intake
- Municipal Water Intake
- Surface Water Intake
- Waste Water Treatment Plant
- Leaking Underground Storage Tank Program (LUST)
- EPA Envirofacts Point Locations
- Municipal Boundary
- Sole Source Aquifer
- Tribal Lands
- Federal/State/Local Managed Lands
- Area within 1000 feet of known sinkholes
- Karst Topography
- or Sinkhole
- Township/Range/Section
- Mines
- National Wetland Inventory (NWI) Wetlands**
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine
- Federal Emergency Management Agency (FEMA) Floodplains**
- 100 Year Floodplain
- 500 Year Floodplain
- Regulatory Floodway

Source Information: Iowa NDR - [http://www.igsb.uiowa.edu/nrgislibx/NaturalResourcesGeographicInformationSystemsLibrary\(NRGIS\)](http://www.igsb.uiowa.edu/nrgislibx/NaturalResourcesGeographicInformationSystemsLibrary(NRGIS))
 Public Wells - NRGIS 02/01/2018
 Private Wells - NRGIS 02/01/2018
 Public Water Supply Intakes - NRGIS 09/16/2010
 Surface Water Intakes - NRGIS 01/12/2015
 Municipal Water Intake - NRGIS 11/30/1990
 Waste Water Treatment Plant - NRGIS 02/12/2016
 LUST- NRGIS 02/12/2016
 Mines - NRGIS 2000
 Sovereign Meandered Streams - NRGIS 12/21/2017
 Protected Streams - NRGIS 12/21/2017
 Tribal Lands - US Census - 08/19/2014
 Township/Range/Section - NRGIS 2005
 Sinkholes - NRGIS 07/21/2014
 Karst Topography - NRGIS 9/22/2017
 FEMA Flood Data - FEMA GIS Map Server (Live Data)
 US Fish & Wildlife Service NWI Wetlands, USFWS - 5/8/2017
 Streams - United States National Atlas water features, ESRI® Data & Maps - 2010
 Federal/State/Local Managed Lands - ESRI® Data & Maps, United States Parks data set - 2010
 National Sole Source Aquifer - U.S. EPA Office of Water - 2009
 EPA Envirofacts Point Locations - U.S. EPA - <http://www.epa.gov/enviro/facts/qmr.html> - June 2021
 Basemap - ESRI GIS Map Server
 Topo Name: Niota (40091-E3)


NOTE:
 Legend identifies all GIS data compiled for the project. If a layer is not visible on the map it does not occur in the mapped area.



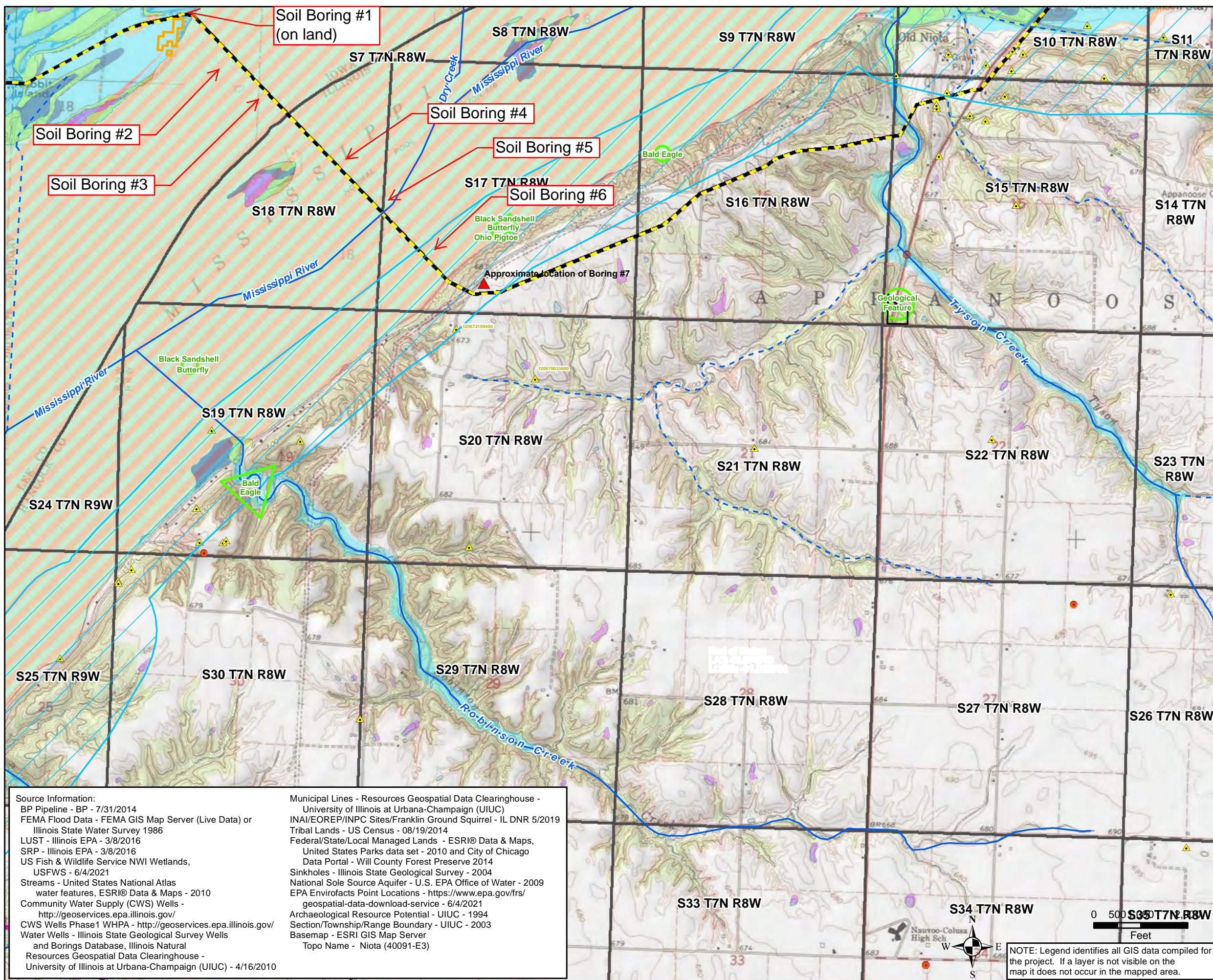
BP Terminals and Pipelines

**Mississippi River HDD
 HDD Entry**
 Lee County, Iowa

August 2022



2443 Crowne Point Drive; Sharonville, OH 45241; 513-326-3040




- Site Location
- BP Pipeline
- Other Pipelines
- Streams - Named
- Streams - Unnamed
- CWS Wells
- CWS Wells Phase1 WHPA
- Drinking Water Wells
- Leaking Underground Storage Tank Program (LUST)
- Site Remediation Program (SRP)
- EPA Envirofacts Point Locations
- EOREP Data
- INPC Data
- Franklin Ground Squirrel Potential Habitat
- Section/Township/Range Boundary
- Sinkholes
- Sole Source Aquifer
- Federal/State/Local Managed Lands
- Tribal Lands
- Archaeological Resource Potential
- Illinois Natural Area Inventory
- Municipal Boundary
- High Potential Zone for Rusty Patched Bumble Bee
- National Wetland Inventory (NWI) Wetlands**
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine
- Federal Emergency Management Agency (FEMA) Floodplains**
- 100 Year Floodplain
- 500 Year Floodplain
- Regulatory Floodway

Source Information:
 BP Pipeline - BP - 7/31/2014
 FEMA Flood Data - FEMA GIS Map Server (Live Data) or Illinois State Water Survey 1986
 LUST - Illinois EPA - 3/8/2016
 SRP - Illinois EPA - 3/8/2016
 US Fish & Wildlife Service NWI Wetlands, USFWS - 6/4/2021
 Streams - United States National Atlas water features, ESRI® Data & Maps - 2010
 Community Water Supply (CWS) Wells - <http://geoservices.epa.illinois.gov/>
 CWS Wells Phase1 WHPA - <http://geoservices.epa.illinois.gov/>
 Water Wells - Illinois State Geological Survey Wells and Borings Database, Illinois Natural Resources Geospatial Data Clearinghouse - University of Illinois at Urbana-Champaign (UIUC) - 4/16/2010

Municipal Lines - Resources Geospatial Data Clearinghouse - University of Illinois at Urbana-Champaign (UIUC)
 INAI/EOREP/INPC Sites/Franklin Ground Squirrel - IL DNR 5/2019
 Tribal Lands - US Census - 08/19/2014
 Federal/State/Local Managed Lands - ESRI® Data & Maps, United States Parks data set - 2010 and City of Chicago Data Portal - Will County Forest Preserve 2014
 Sinkholes - Illinois State Geological Survey - 2004
 National Sole Source Aquifer - U.S. EPA Office of Water - 2009
 EPA Envirofacts Point Locations - <https://www.epa.gov/frs/geospatial-data-download-service> - 6/4/2021
 Archaeological Resource Potential - UIUC - 1994
 Section/Township/Range Boundary - UIUC - 2003
 Basemap - ESRI GIS Map Server
 Topo Name - Niota (40091-E3)

NOTE: Legend identifies all GIS data compiled for the project. If a layer is not visible on the map it does not occur in the mapped area.




BP Terminals and Pipelines

**Mississippi River HDD
 HDD Exit & End of String**

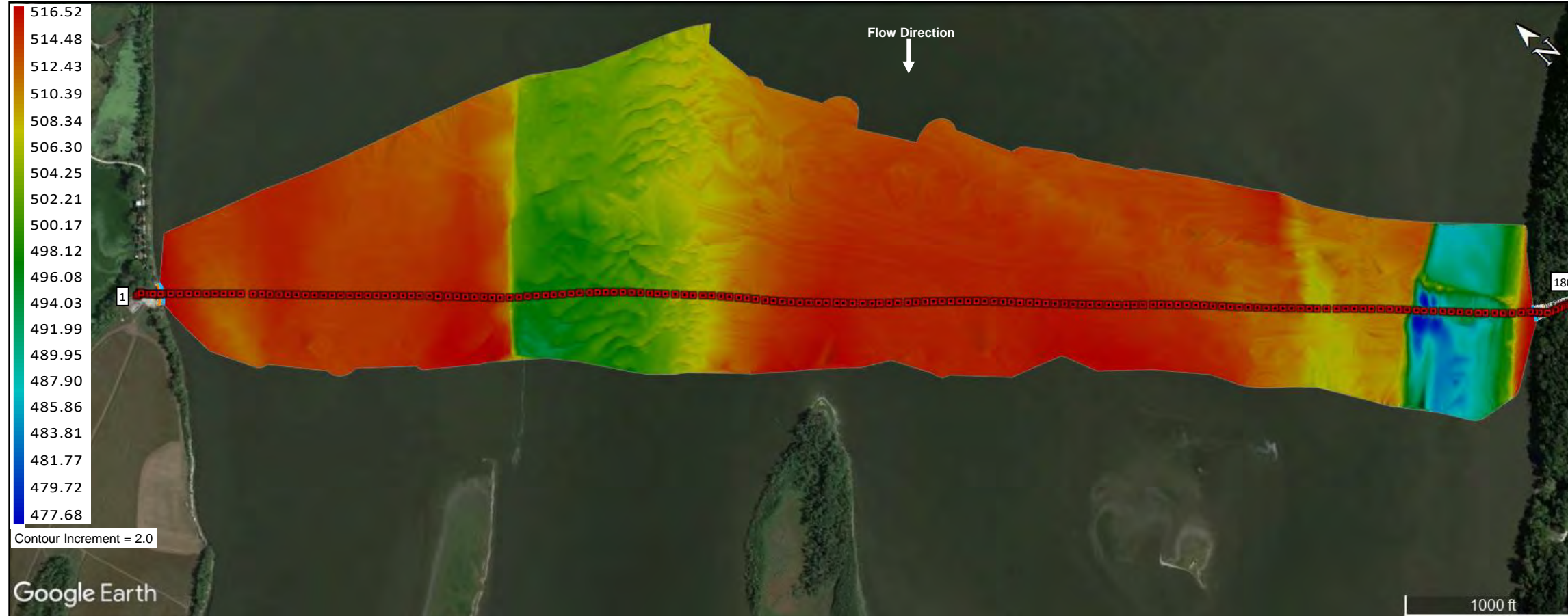
Hancock County, Illinois

September 2022



2443 Crowne Point Drive; Sharonville, OH 45241; 513-326-3040

PLAN VIEW

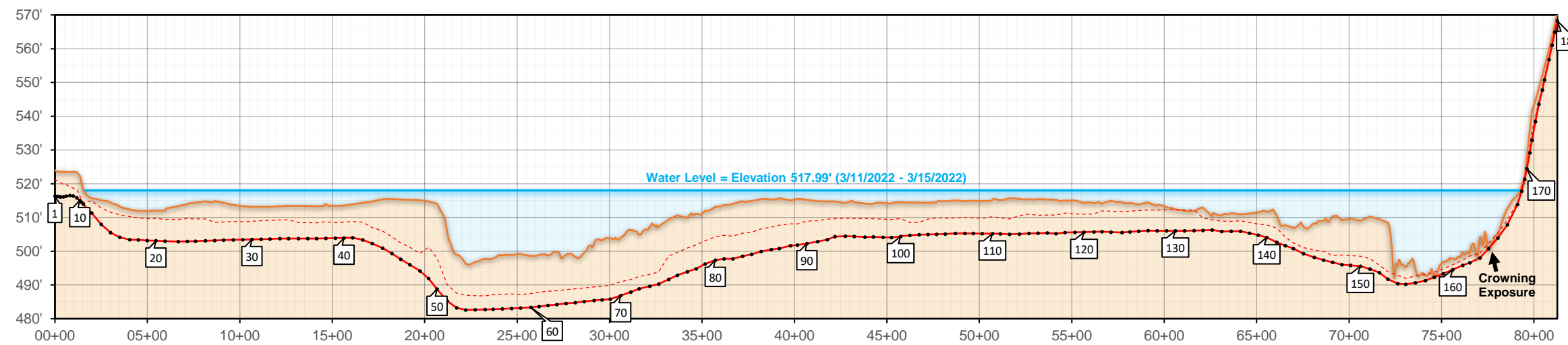


DoC DATA

Pt. ID	STA#	Latitude	Longitude	Topo Elev. (ft)	T.O.P. Elev. (ft)	DoC (ft)	MS DoC* (ft)
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Due to a high number of pipeline depth of cover points in this crossing, all point data can be referenced within the provided Excel spreadsheet for this particular line.

PROFILE VIEW



Land Data
Underwater Data
Italics = Projected topo or bathymetric points and DoC / MSDoC


LEGEND	DEFINITIONS	GEODETIC SETTINGS	PLOT NOTES	CONTROL POINT VERIFICATION			
<ul style="list-style-type: none"> Water Level Topo / Bathymetry Projected Topo / Bathymetry +VSDV T.O.P. Point No Data (obstruction, loss of signal) Overlaid Data (if applicable) 	<p>DoC - Depth of Cover</p> <p>T.O.P. - Top of Pipe (or Cable, Conduit, etc.)</p> <p>+VSDV - Positive aspect of vertical confidence level. Represents a 95% likelihood that the true position of the target lies deeper than this point.</p> <p>MSDoC* - Minimum Statistical Depth of Cover. This reflects the measured distance from the +VSDV component to the Topo / Bathymetry line.</p>	<p>NAD83 - Iowa South 1402 NAVD88-GEOID12B (Conus) Units = sft</p> <p>RTK corrections provided by DoC Mapping base station w/ OPUS post-processing.</p>	<p>A single-beam sonar and a multi-beam sonar were used to determine bathymetric elevations in the area surrounding this crossing site.</p>	<p>CONTROL POINTS WERE ESTABLISHED AND/OR REFERENCED BY DoC MAPPING TO ADJUST FOR HORIZONTAL AND VERTICAL VARIANCE DURING THE TIME OF THIS SURVEY. INFORMATION FOR THE CONTROL POINTS BELOW:</p> <table border="0"> <tr> <td>ID: OPUS E: 2234373.881 N: 230703.899 EL: 523.513</td> <td>ID: CO1 E: 2234348.512 N: 230687.785 EL: 522.886</td> <td>ID: CO2 E: 2234449.933 N: 230662.585 EL: 522.580</td> </tr> </table> <p>PLEASE REFER TO THE "CONTROL POINT VERIFICATION SHEET" FOR MORE DETAILS ON THE CONTROL POINT(S) AND DoC MAPPING'S OBSERVATIONS.</p>	ID: OPUS E: 2234373.881 N: 230703.899 EL: 523.513	ID: CO1 E: 2234348.512 N: 230687.785 EL: 522.886	ID: CO2 E: 2234449.933 N: 230662.585 EL: 522.580
ID: OPUS E: 2234373.881 N: 230703.899 EL: 523.513	ID: CO1 E: 2234348.512 N: 230687.785 EL: 522.886	ID: CO2 E: 2234449.933 N: 230662.585 EL: 522.580					

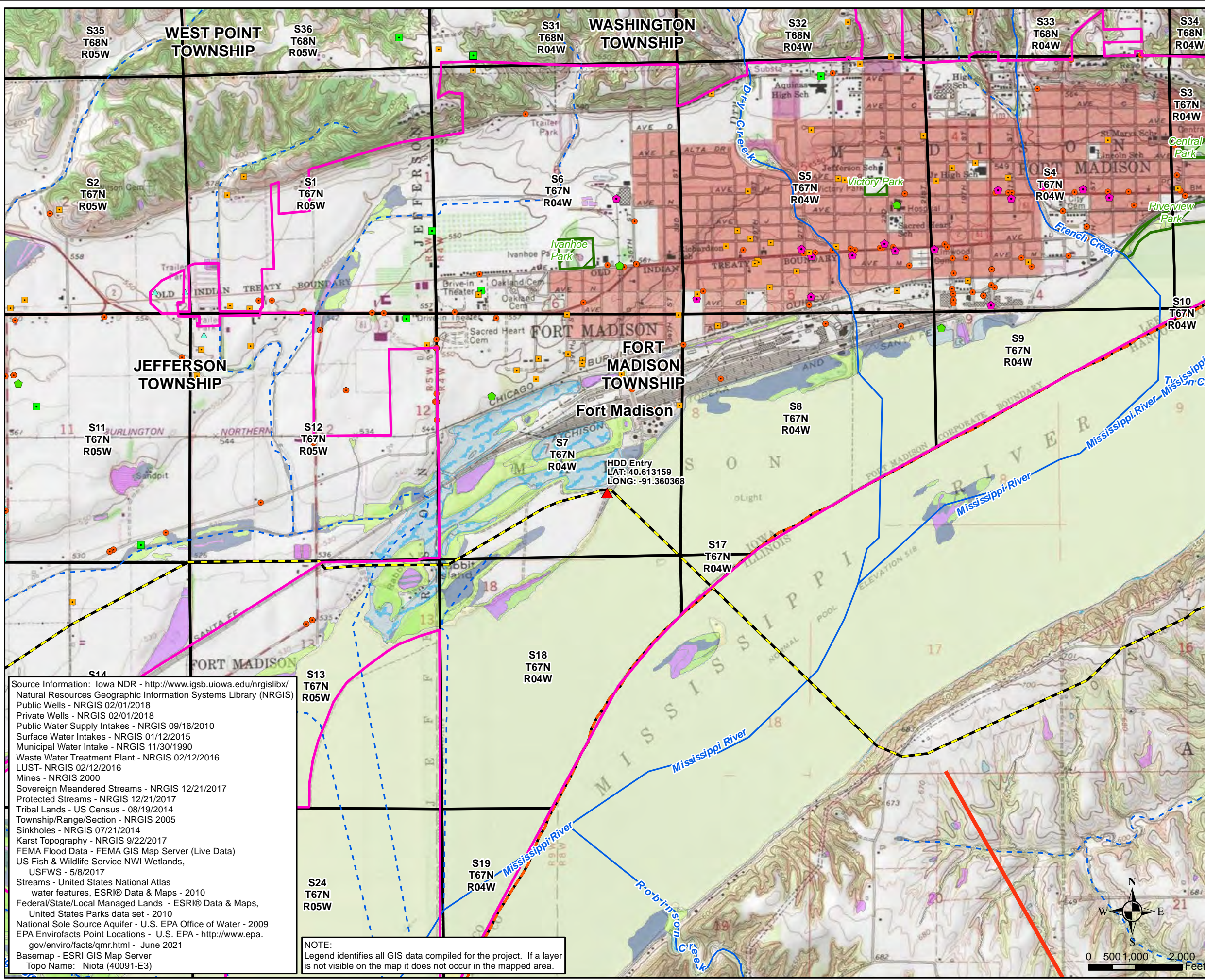


CARROLLTON-EAST FORT MADISON (20")
DEPTH OF COVER STUDY
DATE(S): 3/11/2022 - 3/15/2022
MISSISSIPPI RIVER (FORT MADISON)
HANCOCK COUNTY
NAUVOO, IL

PLAN / PROFILE

PREPARED FOR:






- Site Location
- BP Pipeline
- Other Pipelines
- Streams - Named
- Streams - Unnamed
- Sovereign Meandered Rivers
- Protected Streams
- Public Wells
- Private Wells
- Public Water Supply Intake
- Municipal Water Intake
- Surface Water Intake
- Waste Water Treatment Plant
- Leaking Underground Storage Tank Program (LUST)
- EPA Envirofacts Point Locations
- Municipal Boundary
- Sole Source Aquifer
- Tribal Lands
- Federal/State/Local Managed Lands
- Area within 1000 feet of known sinkholes
- Karst Topography
- Sinkhole
- Township/Range/Section
- Mines
- National Wetland Inventory (NWI) Wetlands**
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine
- Federal Emergency Management Agency (FEMA) Floodplains**
- 100 Year Floodplain
- 500 Year Floodplain
- Regulatory Floodway

Source Information: Iowa NDR - <http://www.igsb.uiowa.edu/nrgislibx/>
 Natural Resources Geographic Information Systems Library (NRGIS)
 Public Wells - NRGIS 02/01/2018
 Private Wells - NRGIS 02/01/2018
 Public Water Supply Intakes - NRGIS 09/16/2010
 Surface Water Intakes - NRGIS 01/12/2015
 Municipal Water Intake - NRGIS 11/30/1990
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 Basemap - ESRI GIS Map Server
 Topo Name: Niota (40091-E3)


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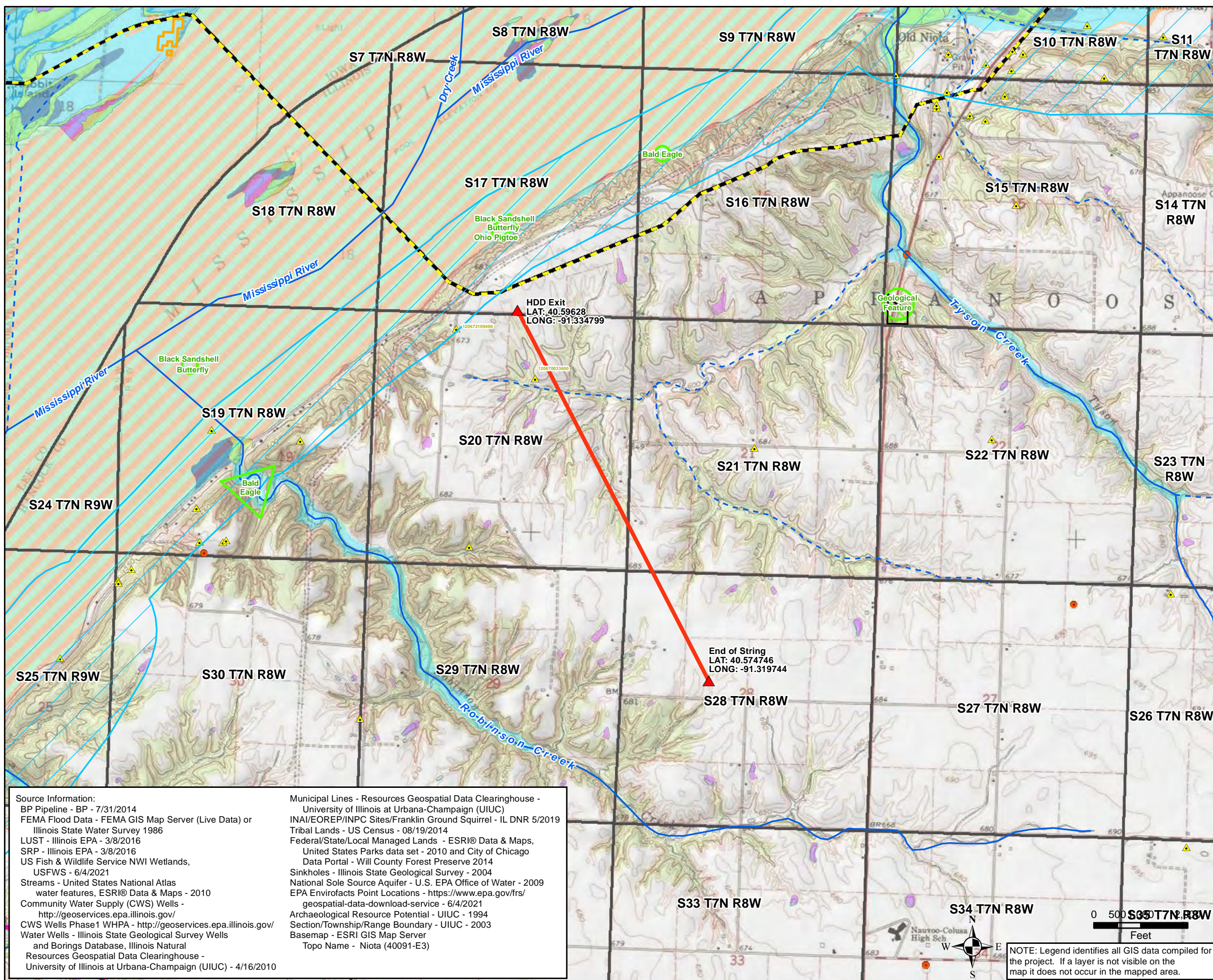
BP Terminals and Pipelines

Mississippi River HDD
HDD Entry
 Lee County, Iowa

September 2022



2443 Crowne Point Drive; Sharonville, OH 45241; 513-326-3040




- Site Location
- BP Pipeline
- Other Pipelines
- Streams - Named
- Streams - Unnamed
- CWS Wells
- CWS Wells Phase1 WHPA
- Drinking Water Wells
- Leaking Underground Storage Tank Program (LUST)
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Municipal Lines - Resources Geospatial Data Clearinghouse - University of Illinois at Urbana-Champaign (UIUC)
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 Tribal Lands - US Census - 08/19/2014
 Federal/State/Local Managed Lands - ESRI® Data & Maps, United States Parks data set - 2010 and City of Chicago Data Portal - Will County Forest Preserve 2014
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 Section/Township/Range Boundary - UIUC - 2003
 Basemap - ESRI GIS Map Server
 Topo Name - Niota (40091-E3)

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BP Terminals and Pipelines

**Mississippi River HDD
 HDD Exit & End of String**

Hancock County, Illinois

September 2022



2443 Crowne Point Drive; Sharonville, OH 45241; 513-326-3040

Cultural Resources

Study

IOWA Sovereign Lands Tracking Number 2022-1744
USACE Tracking Number 2022-1308

Subject: Cultural Resource Amendment to the Joint Application for Floodplain Permit, Sovereign Lands Construction Permit and Approval under the Clean Water Act Section 404/401/10 for BP's Mississippi River Geotechnical Boring Project along their Freeman – Manhattan Pipeline within Lee County, Iowa and Hancock County, Illinois

INTRODUCTION

Parsons conducted a desktop map review of the of the Illinois' Historic and Architectural Resources GIS (HARGIS) Map and the Iowa I-Sites Public Data Web Map and documented the historic structures near the vicinity of BP's No. 1 System, Freeman to Manhattan Pipeline segment in the September 15, 2022, Joint Application for Floodplain Permit submission. As noted in the Joint Application, Parsons' archaeologist was concurrently working with the State Historic Preservation Offices in Iowa and Illinois to conduct a more thorough investigation of the potential for cultural resources in the vicinity of BP's above referenced pipeline. A summary of BP's project on this segment of their pipeline and the results of the cultural resource investigation are detailed below.

BP is proposing to advance seven (7) geotechnical borings within and adjacent to the Mississippi River. The results will support the engineering design for the Horizontal Directional Drill (HDD) of BP's No. 1 System, Freeman – Manhattan 20- inch diameter crude pipeline segment, under the Mississippi River located within Appanoose Township of Hancock County, Illinois and Fort Madison, Lee County, Iowa (near BP's East Fort Madison station in Niota, Illinois and the BP's valve station located in Fort Madison, Iowa).

BP is attempting to remedy a low depth of cover (LDOC) over the Freeman to Manhattan Pipeline segment in the river, approximately 100 feet off the east riverbank. River flows have also created large scour holes on either side of the pipeline which pose a serious risk to pipeline operations should the scour holes widen. In July 2022, BP decided to move forward with a HDD design under the river to remediate the LDOC and scour risk to the Freeman – Manhattan pipeline. HDD is a trenchless method of installing underground pipe along a prescribed bore path by using a surface launched drilling rig that minimizes impact to the surrounding area. Locations of the seven (7) geotechnical borings proposed in and around the river are provided in Appendix A, Figure 1 and the location of the HDD and subsequent stringing, welding, and coating of the pipe segments, in Illinois are provided in Appendix A, Figure 2-3.

STUDY AREA

In September of 2022, a cultural resources desktop analysis was completed to support environmental permitting for the initial geotechnical borings associated with the proposed HDD water crossing work. The objective of this analysis was to compile existing information on known cultural resources and assess the likelihood that unrecorded archaeological sites or architectural resources exist within a study area that encompasses the following:

- a. an area of 1-mile radius around the HDD entry and geotechnical bore site B-1 in Iowa and HDD exit and drill site B-7 in Illinois;
- b. an area of 1-mile on either side of drill sites B-2 through B-7 in the Mississippi River;
- c. an area of 1 mile on three sides of the pipe string location in Hancock County, Illinois, with the fourth side along the shoreline of the Upper Mississippi River.

Appendix A shows the project areas and Appendix B shows the study area.

SITE FILE SEARCH AND LITERATURE REVIEW

The desktop analysis for resources in Illinois and Iowa included the review of literature, historic maps and databases with digitized cultural resources documents and geographic information system (GIS) data listed below.

Illinois

- The National Register of Historic Places (NRHP) - maintained by the National Park Service (NPS) and National Archives and Records Administration (NARA)
- Illinois’s Historic and Archaeological Resources Geographic Information System (HARGIS) - maintained by the Illinois State Historic Preservation Office (SHPO)
- Illinois Inventory of Archaeological Sites (IIAS) - maintained by the Illinois State Museum and the Illinois SHPO
- Illinois CRM Report Archive (CRM) - maintained by the Illinois State Archaeological Survey (ISAS)

Iowa

- The NRHP - maintained by the NPS and NARA
- I-Sites Public Data Web Map – maintained by the Iowa SHPO (last updated 2017)
- Iowa Historic Architectural Database (HADB) – maintained by the Iowa SHPO

The HADB provides a list of the NRHP listed and eligible properties, inventory forms and reconnaissance and intensive level survey reports undertaken in each county, but the actual files associated with these entries need to be requested from the Iowa SHPO.

For archaeological resources, this review relied entirely on the site file search undertaken by the Iowa SHPO Office, specifically the Sites Files Manager with the Office of the State Archaeologist (OSA). Per their letter dated September 14, 2022, they pulled their information from the following resources:

- Iowa Archaeological Site File (IASF)– maintained by the Iowa SHPO, OSA
- Historic Indian Location Database
- Notable Locations Database (database of locations with potential historical and archaeological value)

PREVIOUSLY CONDUCTED SURVEYS AND ASSOCIATED REPORTS

Illinois

The IIAS and CRM search identified two cultural resources surveys that have been previously undertaken within the 1-mile radius around the HDD exit and drill site B-7. Both these surveys (Survey Nos. 10079 and 21799) are also located within the study area around the pipe string location (see Table 1 and Figure 4, Appendix B). It should be noted that there was one additional survey noted on IIAS within the study area, but the CRM survey information is not available with the Illinois SHPO, who in an email dated September 26, 2022, stated that they “unfortunately, do not have any details (or reports) for survey coverages that have been ID’d as 99999” and that survey may have been associated with a bridge project from the 80’s, but cannot confirm.

TABLE 1: PREVIOUS INVESTIGATIONS AND SURVEYS WITHIN THE STUDY AREAS				
TITLE	PUBLICATION DATE	SURVEY NO.	AUTHOR(S) (INSTITUTIONS)	SURVEY RESULTS
Archaeological Survey Short Report Form - Dallas Rural	2000	10079	Carpinella and Tieken (Western Illinois University)	Phase I archaeological reconnaissance has located archaeological

Water District-Phase 7 Expansion Project			Archaeological Research Lab)	materials; site(s) does(do) not meet requirements for National Register eligibility. Project clearance recommended.
Phase I Cultural Resource Survey - 2.4-Acre Bluebird Farms Livestock Facility, Hancock County, IL	2016	21799	Craig and Rein (Prairie Archaeology and Research)	Phase I Archaeological Reconnaissance did not locate and archaeological materials. Project clearance recommended.
Not available	Not Available	99999	Not Available	Not Available

Iowa

The details of the previous cultural resource survey were not available for review by the Iowa SHPO at the time of this analysis. They, however, provided a topographic map showing areas where these “intensive” surveys had been conducted. The map indicates that there were four previous surveys (Survey Nos. 20050956034, 20010356014, 20100656115 and 20101156011) undertaken within the study area (see Appendix B, Figure 11). No other details were available at the time of preparation of this assessment.

PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES

Illinois

The IAS search resulted in the identification of five prehistoric archaeological sites in the study areas in Illinois. Four of these sites (HA 48, HA 49, HA 50 and HA 51) were located in the study area of the geotechnical boring site B-7 and the proposed HDD exit location. These sites are also located within the study area of the pipe string. There is also one additional prehistoric site (HA 880) identified in the study area for the pipe string location. (Table 2 and Appendix B, Figure 4).

SITE NO./SITE NAME	SURVEY YEAR	DESCRIPTION	NRHP STATUS
HA 48 Reed I	1973 2000	The site was a thin scatter of lithic tools and debris scattered on an upland ridge near the Mississippi bluff near an intermittent stream. Agriculture and erosion had damaged the site per the survey undertaken in 2000.	Not Eligible
HA 49 Reed II	1973	Archaic camp site originally recorded in 1973 consisting of lithic material concentrated along the crest of rise in dissected uplands above the Mississippi River and occasional flakes found on adjacent rises.	Not Eligible
HA 50 Reed III	1973 2000	Archaic camp site originally recorded in 1973 consisted of a thin scatter of lithic material along rise descending from the bluff summit	Not Eligible

		above the Mississippi River. However, archaeological reconnaissance in 2000 found no material at this site location.	
HA 51 Woodie's Site	1973	Early Archaic camp site consisting of thinly scattered lithic material over extant of slight rise in dissected uplands above the Mississippi River.	Not Eligible
HA 880	1999	Prehistoric site	Not Eligible

Iowa

The IASF search undertaken by the Iowa SHPO identified four prehistoric and historic Euro-American sites within the 1-mile radius around the HDD entry and bore site B-1 (see Table 3 and Appendix B, Figure 10). Their NRHP eligibility was not disclosed. The Office of the Iowa State Archaeologist confirmed that no sites were identified within 100 meters or 0.06 miles of the bore and HDD entry site.

TABLE 3: PREVIOUSLY RECORDED ARCHEOLOGICAL SITES WITHIN ONE MILE OF THE GEOTECHNICAL BORING SITE AND PROPOSED HDD ENTRY LOCATION			
SITE NO./SITE NAME	SURVEY YEAR	DESCRIPTION	NRHP STATUS
13LE659	Undisclosed	Prehistoric - Lithic scatter	Undisclosed
13LE895	Undisclosed	Prehistoric and Historic Euro-American - Open habitation and Historic scatter	Undisclosed
13LE896	Undisclosed	Prehistoric and Historic Euro-American - Open habitation and isolated find (cow tooth)	Undisclosed
13LE897	Undisclosed	Prehistoric and Historic Euro-American - Open habitation and Historic Farm/residence	Undisclosed

PREVIOUSLY SURVEYED CEMETERIES

Illinois

The IAS search resulted in the identification of one unnamed cemetery (ID# 9293) within the 1-mile radius around the HDD exit and drill site B-7. No cemeteries were located within the area of 0.25 mile on all sides of the pipe string location (see Appendix B, Figures 5a and 5b). The presence of this cemetery was also confirmed both the 1891 and 1908 plat maps of the township. It has not been previously evaluated for NRHP eligibility.

Iowa

The IASF search undertaken by the Iowa SHPO and review of historical plat maps resulted in the identification of two cemeteries, namely the Sacred Heart Cemetery (ID# 56-04458) and the Oakland Cemetery (ID# 56-04457.1) within the 1-mile radius around the HDD entry and bore site B-1 (see Appendix B, Figures 6 and 7). Both cemeteries were also identified in both the 1891 and 1908 plat maps of the township. They have not been previously evaluated for NRHP eligibility.

PREVIOUSLY DOCUMENTED SUBMERGED RESOURCES

Illinois and Iowa

The Rock Island District of the U.S. Army Corps of Engineers (USACE) conducted a historic overview and background search for potential submerged resources within their authorized boundaries of the Illinois Waterway and Upper Mississippi River navigation channels. The report identified all possible submerged boats, structures

and significant navigational markers dating from the 19th century to the 1960s. Three submerged resources were noted within 2-3 miles of the proposed project location (Custer and Custer: 1, 10, 30-31) (see Table 4 and Appendix D).

NAME	YEAR BUILT	DISPOSITION	DISPOSITION DATE	RIVER MILE MARKER	LOCATION
Jeannie D.	1862	Sank	1875	383	Fort Madison
John Taylor	1875	Burned	1899	383	Fort Madison
John Paul	1927	Sank	1969	378.4	Nauvoo

PREVIOUSLY IDENTIFIED AREAS OF ARCHAEOLOGICAL POTENTIAL

Illinois

The IAS search resulted in the identification of an area of high archaeological potential along the banks of the Mississippi River (see Appendix B, Figure 4).

Iowa

The IASF search undertaken by the Iowa SHPO identified much of the study area within Fort Madison as having high archaeological potential. However, the project area is clearly outside of this area of high archaeological potential (see Appendix B, Figure 7). The Office of the Iowa State Archaeologist also confirmed that no sites were identified within 100 meters or 0.06 miles of the project location in Iowa (boring site B-1 and adjacent HDD entry site and B-2 and B-3 in the Mississippi River).

PREVIOUSLY IDENTIFIED NRHP LISTED OR ELIGIBLE ARCHITECTURAL RESOURCES

Illinois

Within the study area, the NRHP Database and the HARGIS database search revealed the presence of one previously recorded individual property listed in the National Register of Historic Places (NRHP) (see Table 5 and Appendix B, Figures 4 and 5). This property, the Cambre House and Farm, was built c. 1867, by Icarian, French immigrant Adolphe Cambre on the bluff overlooking the Mississippi River. It was listed in the NRHP in 1984 under the themes of communitarianism and ethnicity in the mid-19th century in the state. It is significant as one of the last remaining examples of Icarian construction retaining and for its association with the utopian ideals of the French communist, republican band of immigrants led by Etienne Cabet (Coney, William B. and Posadas, Barbara M. 1984).

SITE ID	SITE NAME	COUNTY/LOCATION	TIME PERIOD OF SIGNIFICANCE	CRITERIA OF SIGNIFICANCE	NRHP ELIGIBILITY
201264	Cambre House and Farm	Hancock/SW of Niota	1800-1899	Criterion A - Social/Ethnic Heritage	Listed in the NRHP on November 13, 1984

There are no historic districts located within the study area that were previously determined as potentially eligible for the NRHP. The closest historic district is the Nauvoo National Historic District, which was listed first as a National Historic Landmark in 1961 and then listed in the NRHP in 1966. It is located approximately two miles south of the geotechnical boring site B-7 and the proposed HDD exit location (see Appendix B, Figures 4 and 5)

There are also bridges within the study area that were previously determined eligible for the NRHP. The closest bridge is the NRHP eligible movable swing bridge carrying ILL 9 over the Mississippi River, which is located approximately three miles from the geotechnical boring site B-7(see Appendix B, Figures 4 and 5).

Iowa

Within the study area, the NRHP Database and the HADB inventory list review revealed no individual resources, districts or bridges that were previously listed in the NRHP. The review also did not reveal any individual resources or districts within the study area that were previously determined eligible for the NRHP. Review of the I-Sites database, however, revealed the presence of one bridge, the 35th Street over the Burlington Northern Railroad that is eligible under Criterion C of the NRHP for their Engineering (see Table 6).

SITE ID	SITE NAME	COUNTY/ LOCATION	YEAR BUILT	TYPE	NRHP ELIGIBILITY
56-04261	35th Street Bridge over Burlington Northern Railroad	Madison/ Fort Madison	Built 1888; relocated to current location in 1934	Double Intersection Pratt/Whipple Through Truss	Eligible under Criterion C - Engineering

Numerous individual resources, districts and a bridge were, however, located outside of the study area in Fort Madison that had either been listed or eligible for inclusion in the NRHP within approximately 2 to 3 miles from the geotechnical boring site B-1 and HDD entry location.

UNRECORDED CULTURAL RESOURCES

Illinois

The review of Hancock County Assessor’s property data and GIS information, including photographs, identified several previously unrecorded agricultural properties within the study area. Most of these properties have at least a couple of barns, silos and other farm outbuildings that are 50 years or older. Farmhouses associated with these agricultural outbuildings, however, have all been significantly modified or completely rebuilt. Photographs of the properties from where the project areas may be visible are shown in Appendix E.

Iowa

A review of the I-Sites web map indicated that much of the study area may have been previously surveyed. The web map showed 20 residential structures within the study area over 50 years old that had been recorded and evaluated for NRHP eligibility. The Lee County Assessor’s property data and GIS information identified several other parcels within the study area with structures that are 50 years or older, but property information, including photographs clearly indicated that most resources within the study area had had improvements made to them including additions, new windows, siding, roofs, and other modifications over time. Photographs of properties from where the project areas may be visible are shown in Appendix E.

MODIFICATIONS TO THE UPPER MISSISSIPPI RIVER

Between the late 19th and early to mid-20th centuries, a series of locks and dams were constructed on the Upper Mississippi River in a stretch of the river extending upstream of St. Louis to St. Paul, Minnesota to allow navigation even during periods of low flow. These dams significantly altered the Upper Mississippi River and transformed it from a free-flowing channel with variable flows to a series of pools where impounded water gave it more lake like qualities. The project area is located within, what the U.S. Army Corps of Engineers refers to as Pool 19, a section of the river between Dam 18 and Dam 19. Dam 19 was the oldest dam, which was built in 1913 in Keokuk by Union Electric Power Company for generation of hydroelectric power. Prior to the construction of this dam, in 1878, a 4.5-foot-deep channel was constructed in the river by dredging and construction of a series of wing dams and closing dams. This was followed by the construction of a 6-foot-deep channel in 1907, a 9-foot-deep channel and between 1930 and 1939, and a new lock at Keokuk in 1957 (Jahn and Anderson, 8 and 10-11).

These various modifications to the river that have occurred in the past century or more have caused significant disturbance of the riverbed. Actions include clearing of vegetation and snagging; channel enlargement; dredging and disposal of dredged material; construction of locks and dams and other river training structures; bank stabilization with rock and riprap; construction of flood protection levees and water level regulation, all causing significant sedimentation and scouring of the riverbed. The modified main channel over the river has a minimum depth of 9 feet and a minimum width of 400 feet. (Jahn and Anderson, 121-122).

Much of the area on the Iowa side of Pool 19 has been leveed to protect the railroad tracks as well as parcels in the river's floodplain. There are approximately 60 large islands covered with lowland woody vegetation in this pool, mostly located in its upper reaches (Jahn and Anderson, 8, 121-122). The Surveyor General's plat maps from 1817 through 1862 clearly show that impoundment of water after construction of the system of locks and dams in the Upper Mississippi River resulted in the submerging of at least three islands in the immediate vicinity of boring site B-7 on the shores of the river in Illinois. Documentary research, however, did not reveal the presence of any actual settlement on these islands, but the land was platted for sale during this period.

SUMMARY DISCUSSION AND RECOMMENDATIONS

The desktop GIS review resulted in the identification of the following previously recorded resources within the study area within Illinois and Iowa:

Illinois

- Six prehistoric archaeological sites (HA 45, HA 48, HA 49, HA 50, HA 51 and HA 880)
- One cemetery (unnamed)
- One NRHP listed individual property (Cambre House and Farm)
- Area of high archaeological probability

Iowa

- Four prehistoric and historic archaeological sites (13LE659, 13LE895, 13LE896 and 13LE897)
- Sacred Heart Cemetery and Oakland Cemetery
- One NRHP eligible Bridge - 35th Street Bridge over Burlington Northern Railroad
- Area of high archaeological probability

The NRHP listed Cambre House and Farm in Illinois and NRHP eligible 35th Street Bridge in Iowa are located approximately 0.36 miles and 0.25 miles, respectively, from where any construction related activities associated with this project will occur. The cemeteries in both Illinois and Iowa are located at least 0.5 miles away from the project areas in both states. The project areas are not visible from any of these resources due to vegetation and

other construction, such as multiple railroad tracks and associated infrastructure. As such, they will not experience any direct physical or visual impacts from the project.

In Illinois, the proposed boring site B-7, the HDD exit location, and a very small section of the string site all lie within an area identified as having high archaeological potential (see Appendix B, Figure 4). All the archaeological sites previously identified in the study areas in Illinois, including those within area of high archaeological probability, were previously determined ineligible for the NRHP after field reconnaissance. Site HA 50 is the only site in the immediate vicinity of the boring site B-7 and HDD exist location that has the potential to be impacted by the project. It was identified as a prehistoric camp site in 1973 (Dudzik, 1-3), but when the site was revisited and surveyed in 2000 no artifacts were located and it was determined as ineligible for the NRHP (Conrad and Tieken, 2). The previous archaeological investigations and trenching needed to extend the 20-inch oil pipeline in the 1950s from this location on the banks of the Upper Mississippi River in Illinois and further north to East Madison would likely have destroyed any remnants of the prehistoric campsite that may have been present in the immediate vicinity of the boring site and the HDD exit location (see Appendix B, Figure 6).

The area for stringing and welding of pipe segments is located mostly outside the area of high archaeological potential (see Appendix B, Figure 7). Much of the site passes through agricultural fields with a smaller portion in forested areas. There might be some vegetation clearing, laying of timber matting, and staging associated with transportation of the pipe segments to the site, but these activities have very low potential to cause any ground disturbance. There will be no ground excavations associated with this task. Hence, although ground may be undisturbed, the likelihood of encountering and impacting any archaeological resources in the vicinity of the pipe stringing site is very low.

The archaeological sites identified in Iowa are outside of the immediate project area and will not be impacted by any work associated with the geotechnical boring and HDD. The boring site B-1 and the HDD entry location lie outside of the area of high archaeological potential (see Appendix B, Figure 7). Also, the project area and its immediate surrounding have been significantly disturbed due to activities associated with the construction of the railroad and the Sinclair Pump Station and associated buildings nearby. Historical aerials of the project area clearly indicate that there used to be a building associated with the Sinclair Pump Station present, which was demolished sometime in the 1970s (see Appendix F).

Modifications to improve navigability of the Upper Mississippi River have also transformed the river significantly. Prior to 1866, the Upper Mississippi River was considered too unreliable for commercial boat traffic. To improve the navigability of the Upper Mississippi River, a 4-foot-deep channel was constructed in 1866. This was the first of several channel improvement projects that occurred in and around the project area for almost three decades. The culmination of this effort was the building of a system of locks and dams in the 1930s to maintain a 9-foot-deep shipping channel in the Mississippi River (Jahn and Anderson, 1-13). When the system of locks and dams was completed, the free-flowing river was transformed into a series of navigation pools. The locks and dams maintained high and relatively stable water levels in the lower portion of the pools, which ensured the passage of tows and barges even in the middle of summer. The project area is in the Pool 19 area of the Upper Mississippi River (see Figure 16). Projects, including construction of locks and dams, stabilization of riverbank with rock or riprap, extensive dredging to create the channel and to maintain it over the years, have all resulted in extensive disturbance of the river bottom making it highly unlikely that there are any remaining submerged prehistoric archaeological resources present (Jahn and Anderson, 1-13).

It is also unlikely that any submerged boats or their remnants that were previously documented in the vicinity of the project area are still present or will be encountered during the geotechnical borings or HDD for the proposed pipeline replacement project. This is because wreck removals were usually handled quickly in the navigation channel to settle insurance claims and avoid the danger of them becoming navigational hazards. Any

salvageable parts of the wreck would have been removed and then a snag boat or dipper dredge would have been used to tear up the remaining parts of the wreckage (Custer and Custer, 5).

HDD minimizes ground surface and river channel disturbances. Besides, as-built plans from 1952, U.S. Army Corps of Engineers Navigation Chart 94, and the National Pipeline Mapping System, a dataset containing information about gas transmission and hazardous liquid pipelines, clearly indicate there are at least six other submerged crude oil pipelines present in the Pool 19 area of the Upper Mississippi River (see Appendix C, Figures 9, 16 and 17). Review of available permits for the construction of these pipelines indicate that at least two of the four 8-inch steel or wrought iron oil pipelines were installed by the Sinclair-Cudahy Pipeline Company in 1917 and 1918, contiguous to and paralleling each other (see Appendix C, Figure 15). These two oil pipelines were still in service when BP's 16-inch welded steel submarine pipeline was constructed in 1945 but they appear to have been abandoned in place by 1952, when their 20-inch welded steel pipeline was constructed (see Appendix C, Figures 9, 11 and 14). Much of the 16-inch pipeline, which is currently out-of-service, appears to lie within the right-of way (ROW) of the 20-inch pipeline that will be replaced by this project (see Appendix C, Figure 11). Review of plans accompanying the 1945 permit for the 16-inch pipeline indicates that it was buried in a trench that was approximately 3 ½-feet deep (see Appendix C, Figure 14). As-built plans for the 20-inch pipeline indicate that it was buried in a trench that was approximately 8-feet deep (see Appendix C, Figures 9 and 11).

The proposed boring sites B-1 through B-7 are anywhere from 145 to 445 feet from the existing pipeline. Despite this distance, the proposed new pipeline ROW in the Mississippi River has likely been already highly disturbed by the continuous dredging to maintain the 9-foot-deep navigation channel as well as other river training activities such as the construction of a series of locks and dams, levees, dikes, concrete revetments, and bank stabilization with riprap. Also, previous flooding and trenching for the construction of the 16-inch and 20-inch pipelines within a few hundred feet of the proposed ROW for the replacement pipeline would have displaced silt and sediment in the riverbed and caused sufficient disturbance over time. As a result, the likelihood of having any intact submerged archaeological material in the riverbed is highly unlikely.

Finally, any properties that may be visually impacted by the project due to their being in the viewshed of the project area are not eligible for the NRHP because they lack integrity and/or significance.

Therefore, because there is no likelihood that any NRHP listed or eligible architectural or archaeological resources will be impacted by this project, we request your concurrence with a finding of No Historic Properties Affected in accordance with 54 U.S.C. 306108, formerly Section 106 of the National Historic Preservation Act.

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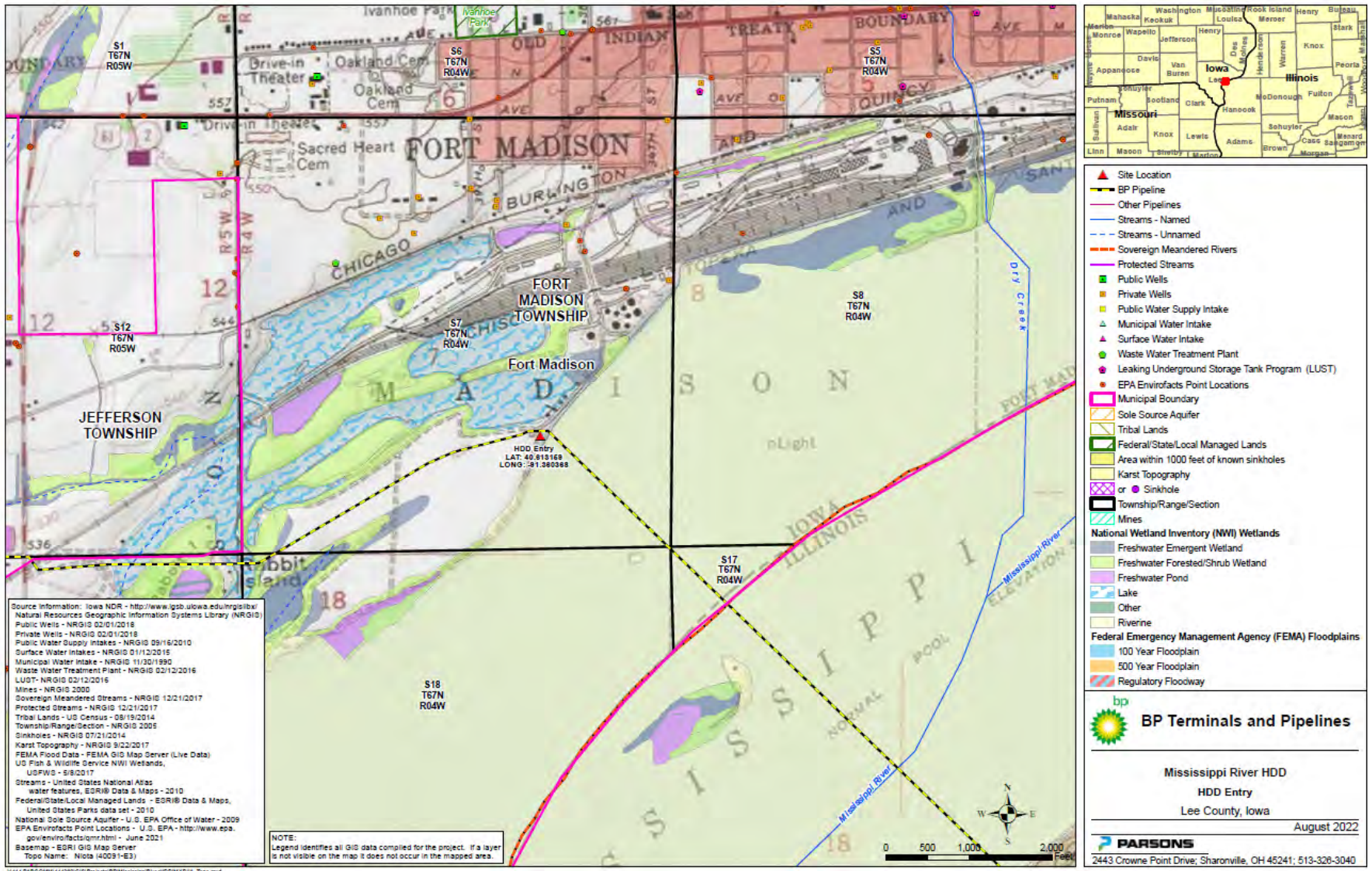


Figure 2: Proposed HDD Entry Location Map

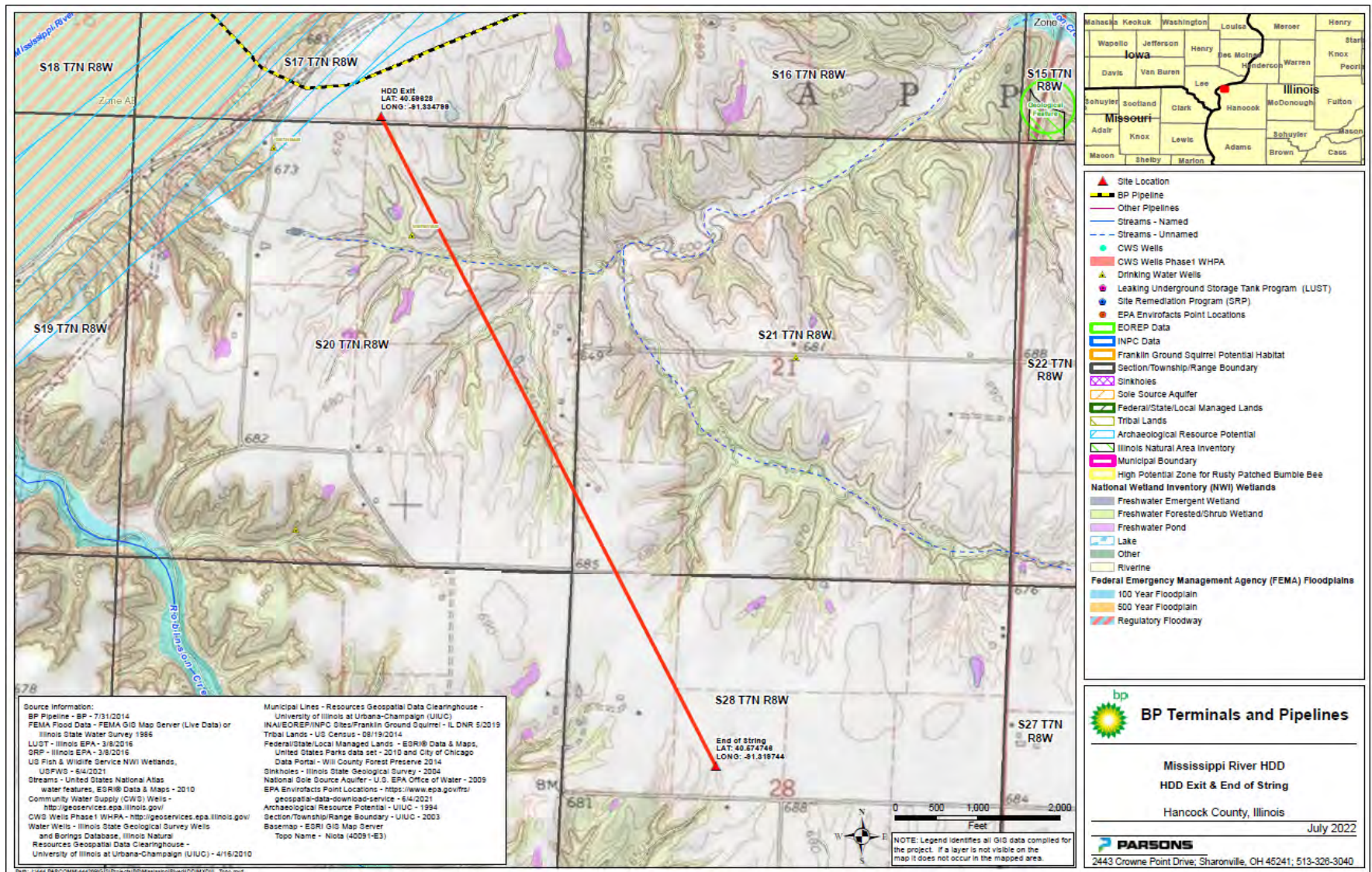


Figure 3: Proposed HDD Exit and End of String Location Map

Previously Recorded Architectural Resources within the Study Area in Illinois

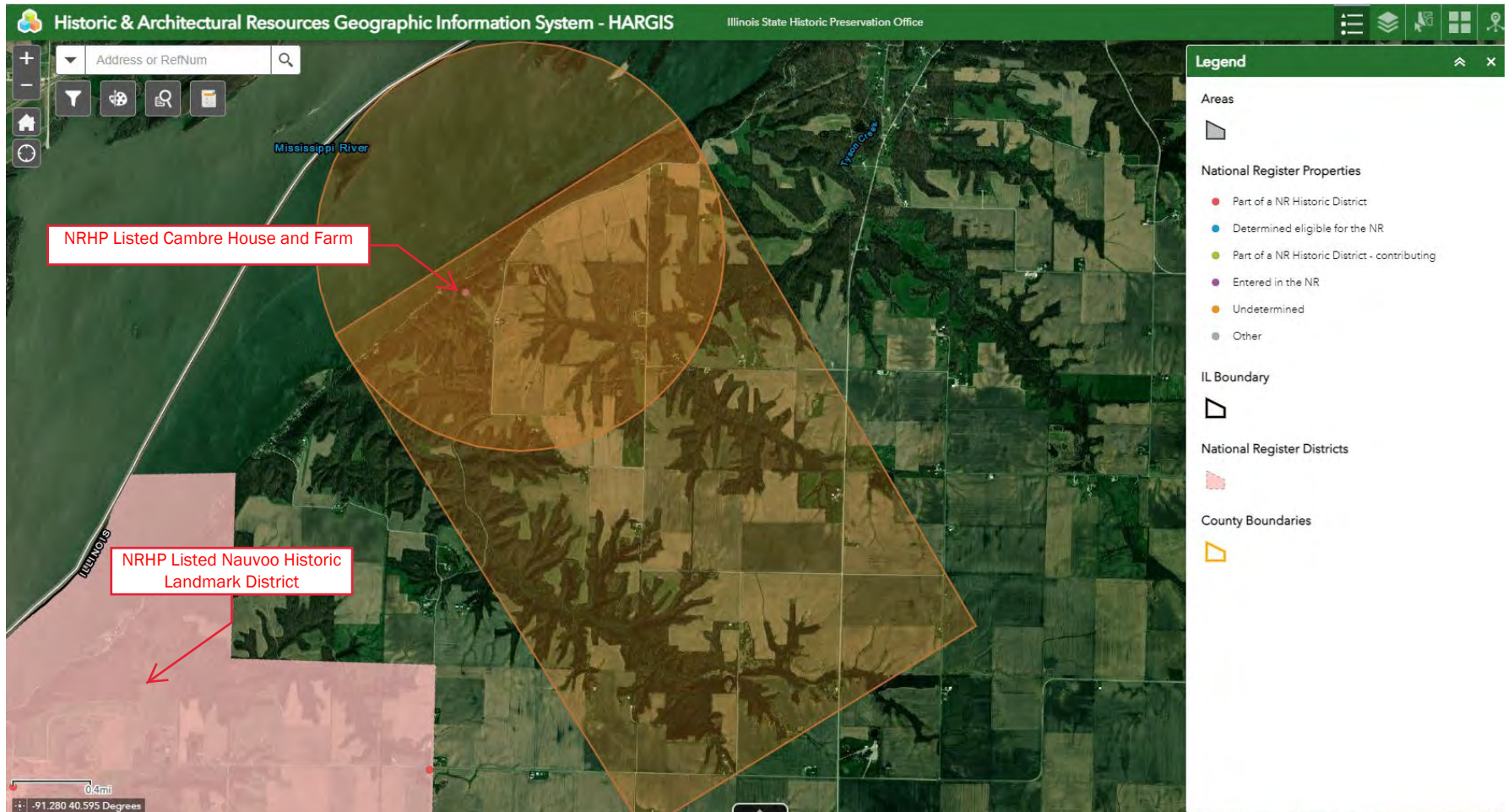


Figure 4b: Aerial Map showing previously recorded NRHP listed and eligible architectural resources, districts, and bridges within the study areas in Illinois

Previously Recorded Archaeological Resources within the Study Area in Illinois

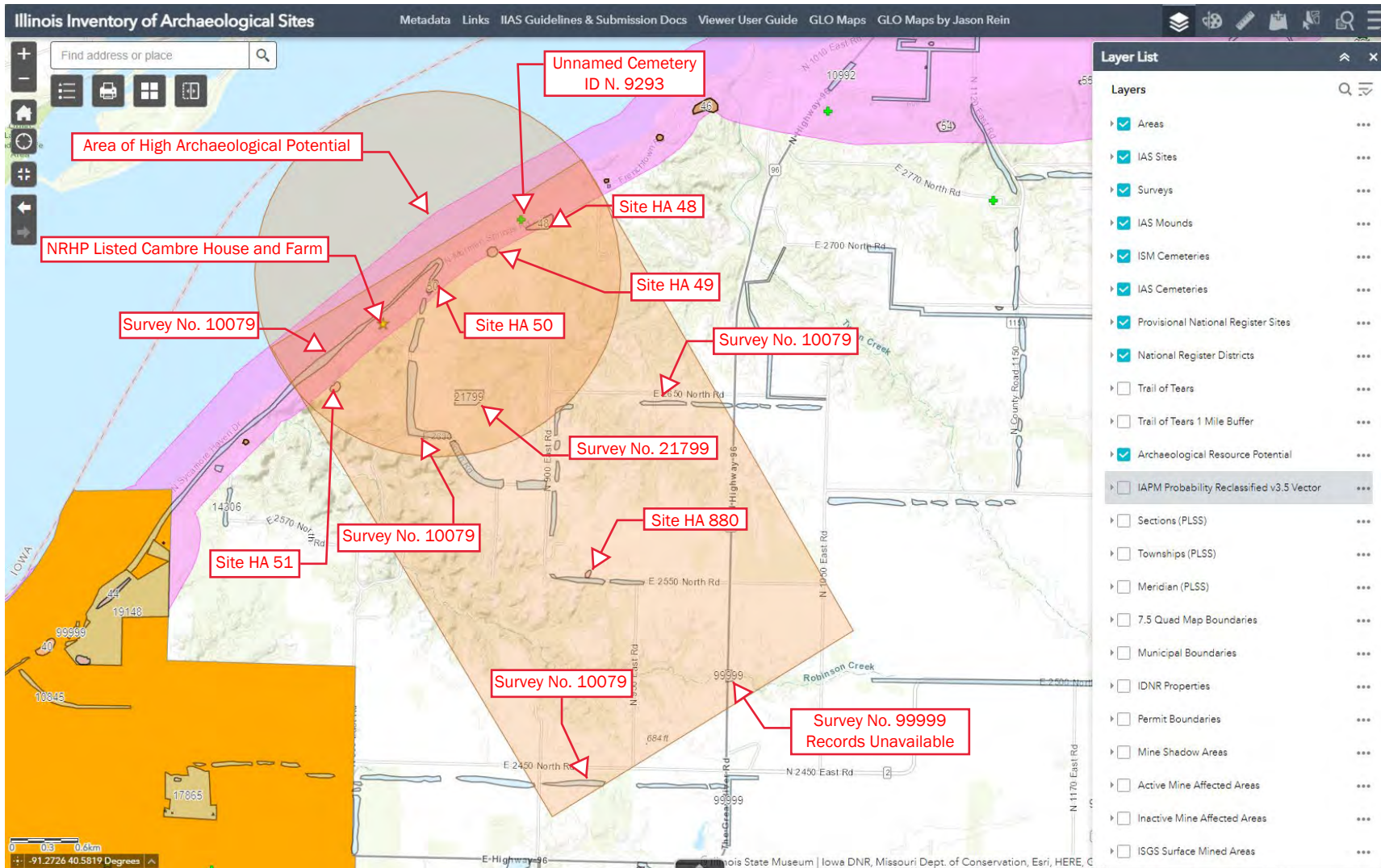


Figure 5a: Topographical Map showing previous survey areas, archaeological resource potential areas and previously recorded archaeological sites, cemeteries, mounds and NRHP sites within study areas in Illinois

Previously Recorded Archaeological Resources within the Study Area in Illinois

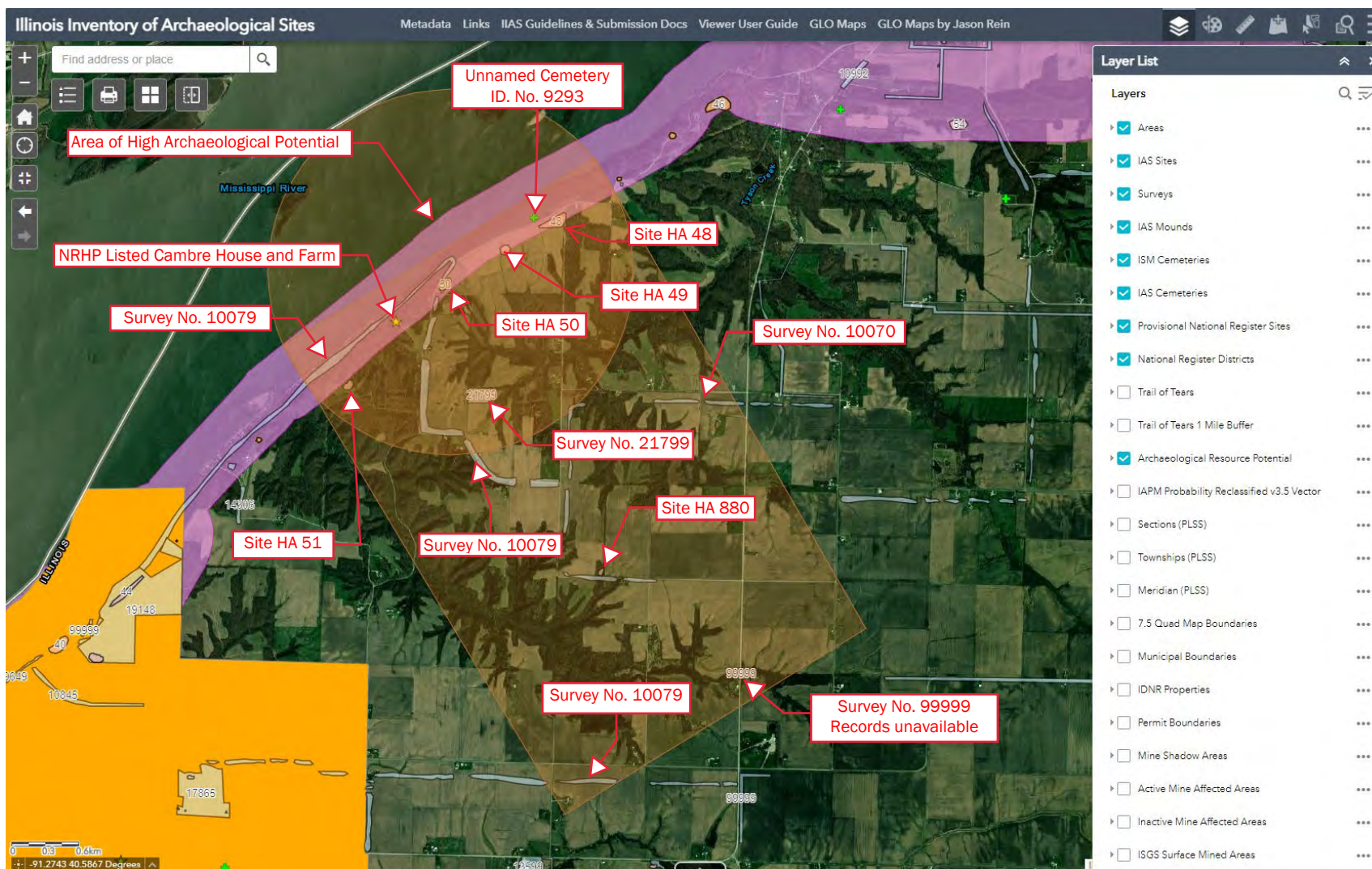


Figure 5b: Aerial Map showing previous survey areas, archaeological resource potential areas and previously recorded archaeological sites, cemeteries, mounds and NRHP sites within study areas in Illinois

Previously Recorded Archaeological Resources within the Study Area in Illinois

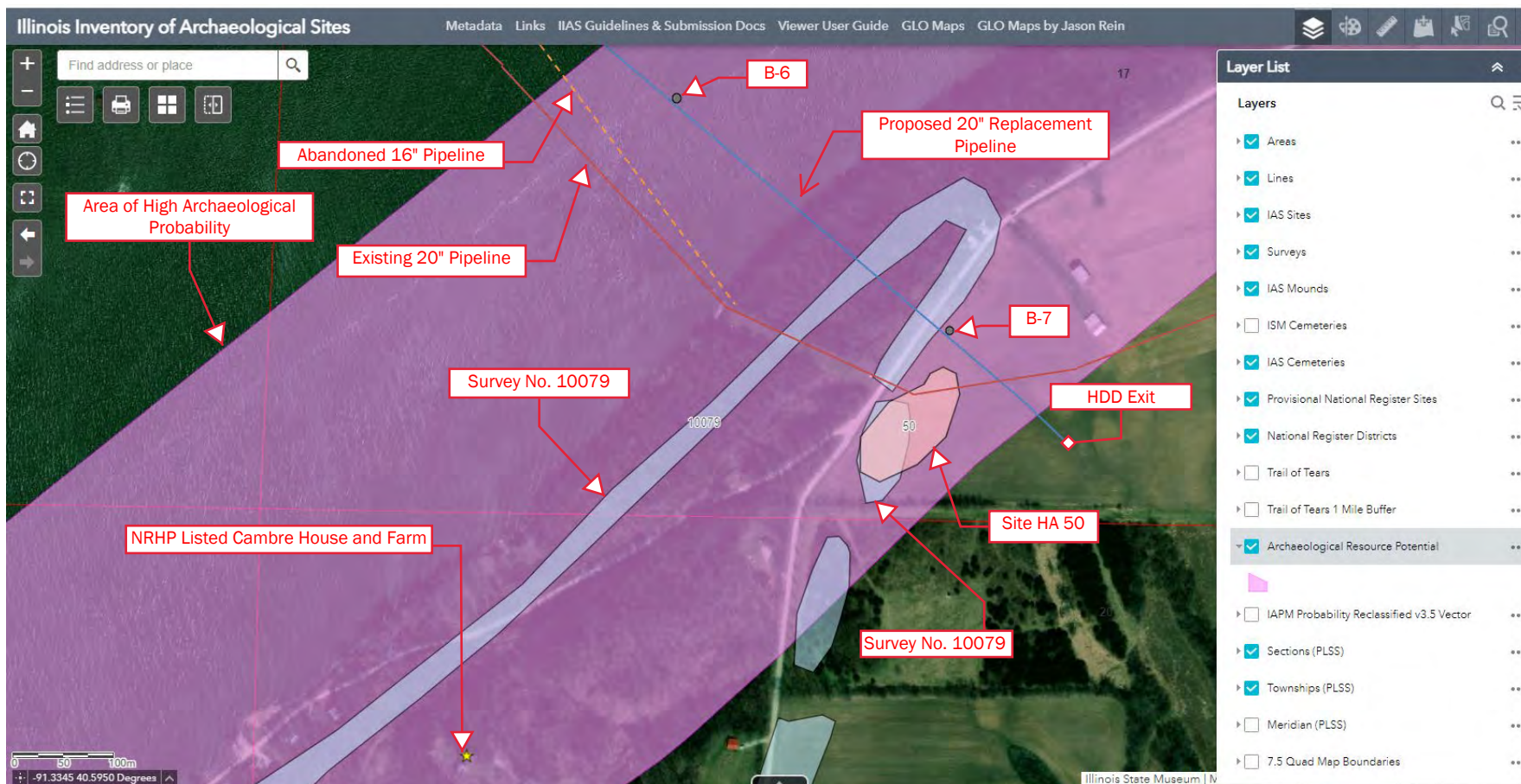


Figure 6: Aerial Map showing approximate location of the borehole drill site (B-7) and HDD exit location where there will be ground disturbance in relation to previous archaeological survey areas, archaeological resource potential areas, and previously recorded archaeological sites, cemeteries, mounds and NRHP listed and eligible resources in Illinois.



Figure 7: Aerial Map showing approximate location of the pipe segment stringing and welding in relation to previously recorded archaeological survey areas, archaeological resource potential areas, archaeological sites, cemeteries, mounds and NRHP listed and eligible resources. No excavations will occur, but activities such as laying of timber mats for access and staging areas for unloading pipe segments, pipe welding and coating, and layout of padded wooden skids to support pipes etc. are expected.

Previously Recorded Architectural Resources within the Study Area in Iowa

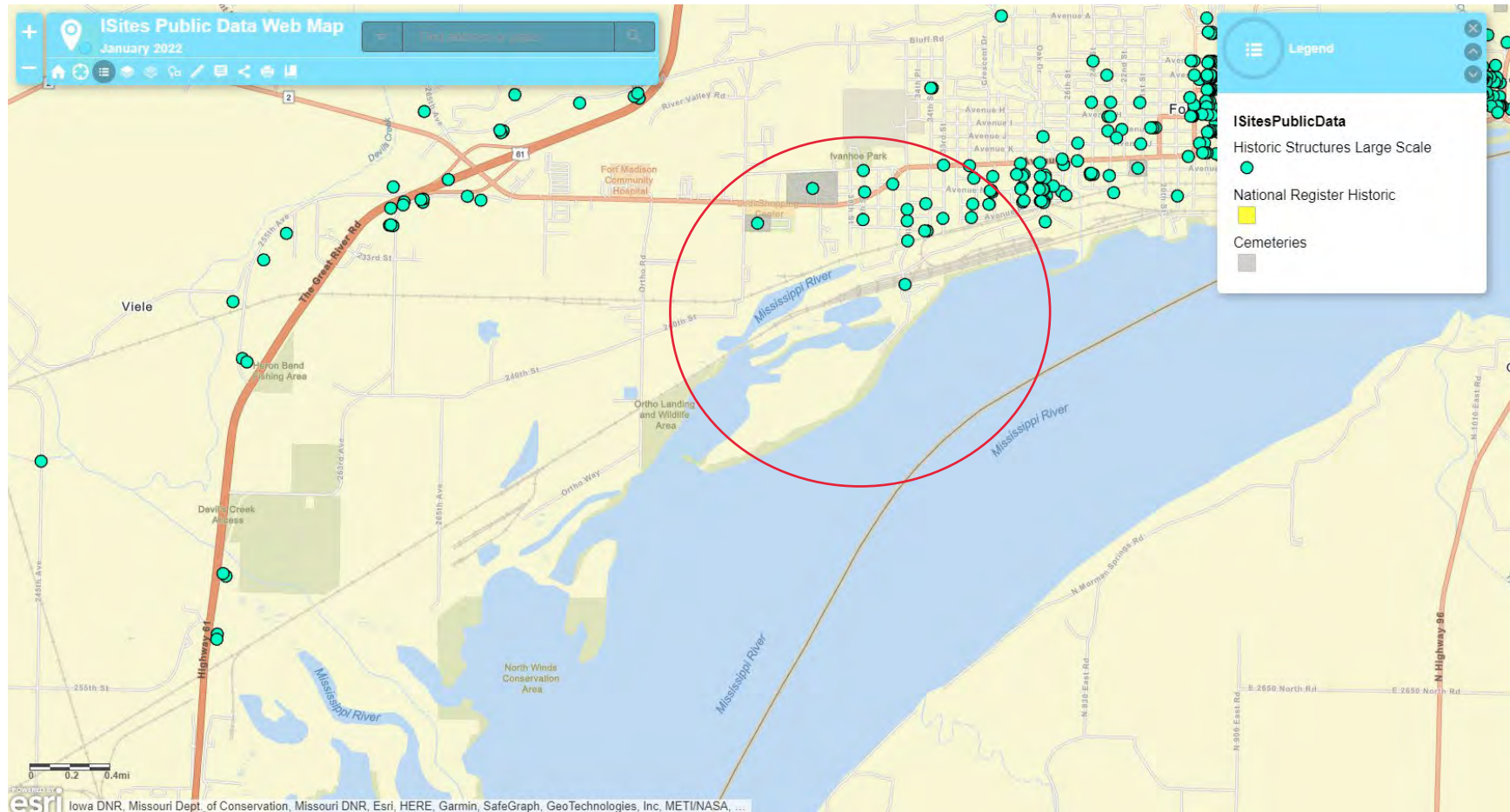


Figure 8: Street Map showing previously recorded architectural resources in and around the study area in Iowa



Figure 9: Aerial map showing previously recorded architectural resources in and around the project area in Iowa

Previously Recorded Archaeological Resources and Cemeteries within the Study Area in Iowa

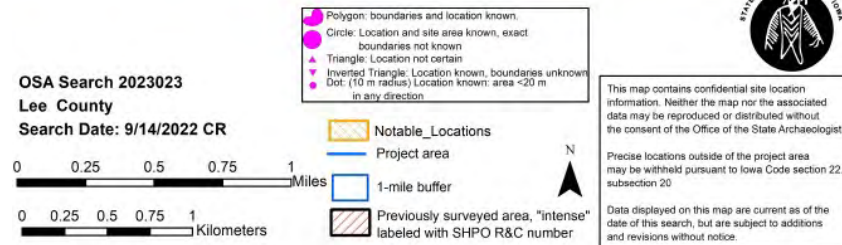
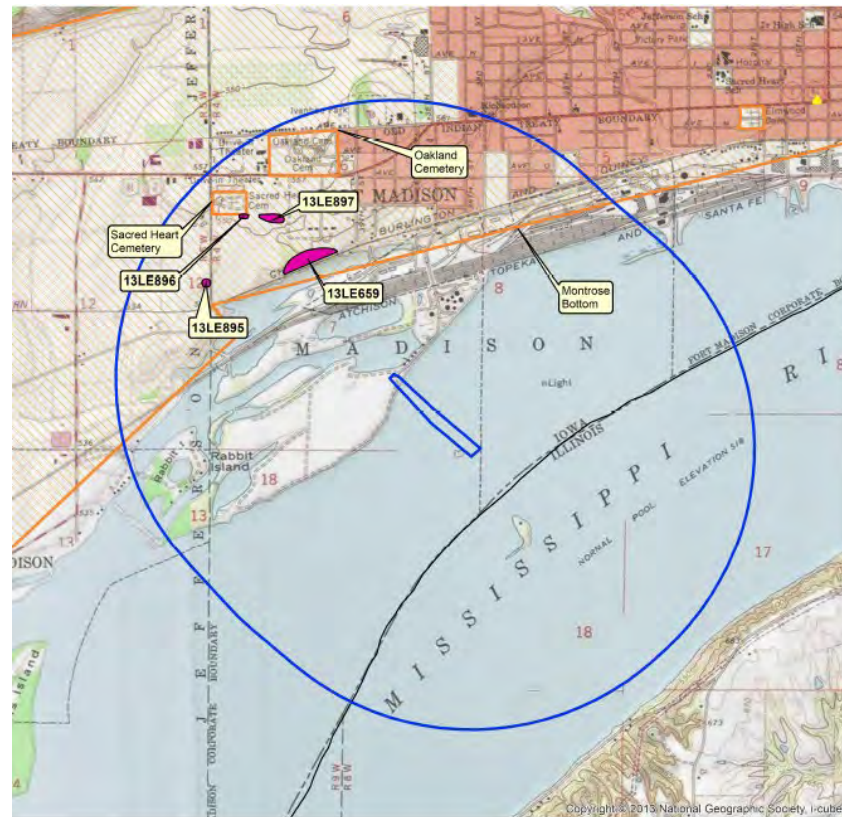


Figure 10: OSA Search - Map showing previously recorded archaeological sites, cemeteries and “Notable Locations”, which are areas of high archaeological potential within the study area in Iowa

Previously Surveyed Areas within the Study Area in Iowa



Figure 11: OSA Search - Map showing previously surveyed areas within the study area in Iowa

DEPARTMENT OF THE ARMY

NOTE.—It is to be understood that this instrument does not give any property rights either in real estate or material, or any exclusive privileges; and that it does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, State, or local laws or regulations, nor does it obviate the necessity of obtaining State assent to the work authorized. IT MERELY EXPRESSES THE ASSENT OF THE FEDERAL GOVERNMENT SO FAR AS CONCERNS THE PUBLIC RIGHTS OF NAVIGATION. (See Cummings v. Chicago, 188 U. S., 410.)

PERMIT

Rock Island District
US Army, Corps of Engineers.
Rock Island, Illinois
18 April 1952

Service Pipe Line Company
Service Pipe Line Building
Tulsa 2, Oklahoma

Gentlemen:

Referring to written request dated 7 March 1952

I have to inform you that, upon the recommendation of the Chief of Engineers, and under the provisions of Section 10 of the Act of Congress approved March 3, 1899, entitled "An act making appropriations for the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes," you are hereby authorized by the Secretary of the Army,

to construct one 20-inch steel pipe line
(Here describe the proposed structure or work.)

under and across the Mississippi River
(Here to be named the river, harbor, or waterway concerned.)

at Fort Madison, Iowa, approximately 380.6 miles above the mouth of the Ohio River
(Here to be named the nearest well-known locality—preferably a town or city—and the distance in miles and tenths from some definite point in the same, stating whether above or below or giving direction by points of compass.)

in red
in accordance with the plans shown on the drawing attached hereto marked "Proposed Submarine Oil Pipe Line Across Mississippi River at Fort Madison, Iowa, Service Pipe Line Co., Tulsa, Okla., March 7, 1952."

subject to the following conditions:

- (a) That the work shall be subject to the supervision and approval of the District Engineer, Corps of Engineers, in charge of the locality, who may temporarily suspend the work at any time, if in his judgment the interests of navigation so require.
- (b) That any material dredged in the prosecution of the work herein authorized shall be removed evenly and no large refuse piles, ridges across the bed of the waterway, or deep holes that may have a tendency to cause injury to navigable channels or to the banks of the waterway shall be left. If any pipe, wire, or cable hereby authorized is laid in a trench, the formation of permanent ridges across the bed of the waterway shall be avoided and the back filling shall be so done as not to increase the cost of future dredging for navigation. Any material to be deposited or dumped under this authorization, either in the waterway or on shore above high-water mark, shall be deposited or dumped at the locality shown on the drawing hereto attached, and, if so prescribed thereon, within or behind a good and substantial bulkhead or bulkheads, such as will prevent escape of the material in the waterway. If the material is to be deposited in the harbor of New York, or in its adjacent or tributary waters, or in Long Island Sound, a permit therefor must be previously obtained from the Supervisor of New York Harbor, Whitehall Building, New York City.
- (c) That there shall be no unreasonable interference with navigation by the work herein authorized.
- (d) That if inspections or any other operations by the United States are necessary in the interest of navigation, all expenses connected therewith shall be borne by the permittee.
- (e) That no attempt shall be made by the permittee or the owner to forbid the full and free use by the public of all navigable waters at or adjacent to the work or structure.
- (f) That if future operations by the United States require an alteration in the position of the structure, or work herein authorized, or if, in the opinion of the Secretary of the Army, it shall cause unreasonable obstruction to the free navigation of said water, the owner will be required upon due notice from the Secretary of the Army, to remove or alter the structural work or obstructions caused thereby without expense to the United States, so as to render navigation reasonably free, easy, and unobstructed; and if, upon the expiration or revocation of this permit, the structure, fill, excavation, or other modification of the watercourse hereby authorized shall not be completed, the owners shall, without expense to the United States, and to such extent and in such time and manner as the Secretary of the Army may require, remove all or any portion of the uncompleted structure or fill and restore to its former condition the navigable capacity of the watercourse. No claim shall be made against the United States on account of any such removal or alteration.
- (g) That the United States shall in no case be liable for any damage or injury to the structure or work herein authorized which may be caused by or result from future operations undertaken by the Government for the conservation or improvement of navigation, or for other purposes, and no claim or right to compensation shall accrue from any such damage.
- (h) That if the display of lights and signals on any work hereby authorized is not otherwise provided for by law, such lights and signals as may be prescribed by the U. S. Coast Guard, shall be installed and maintained by and at the expense of the owner.
- (i) That the permittee shall notify the said district engineer at what time the work will be commenced, and as far in advance of the time of commencement as the said district engineer may specify, and shall also notify him promptly, in writing, of the commencement of work, suspension of work, if for a period of more than one week, resumption of work, and its completion.
- (j) That if the structure or work herein authorized is not completed on or before the 31st day of December, 1955, this permit, if not previously revoked or specifically extended, shall cease and be null and void.

By authority of the Secretary of the Army:

G. A. FINLEY
Colonel, Corps of Engineers
District Engineer

Figure 13: 1952 Permit from Department of Army authorizing Service Pipeline Co. to construct the 20-inch pipeline under the Mississippi River, which will be replaced by this project.

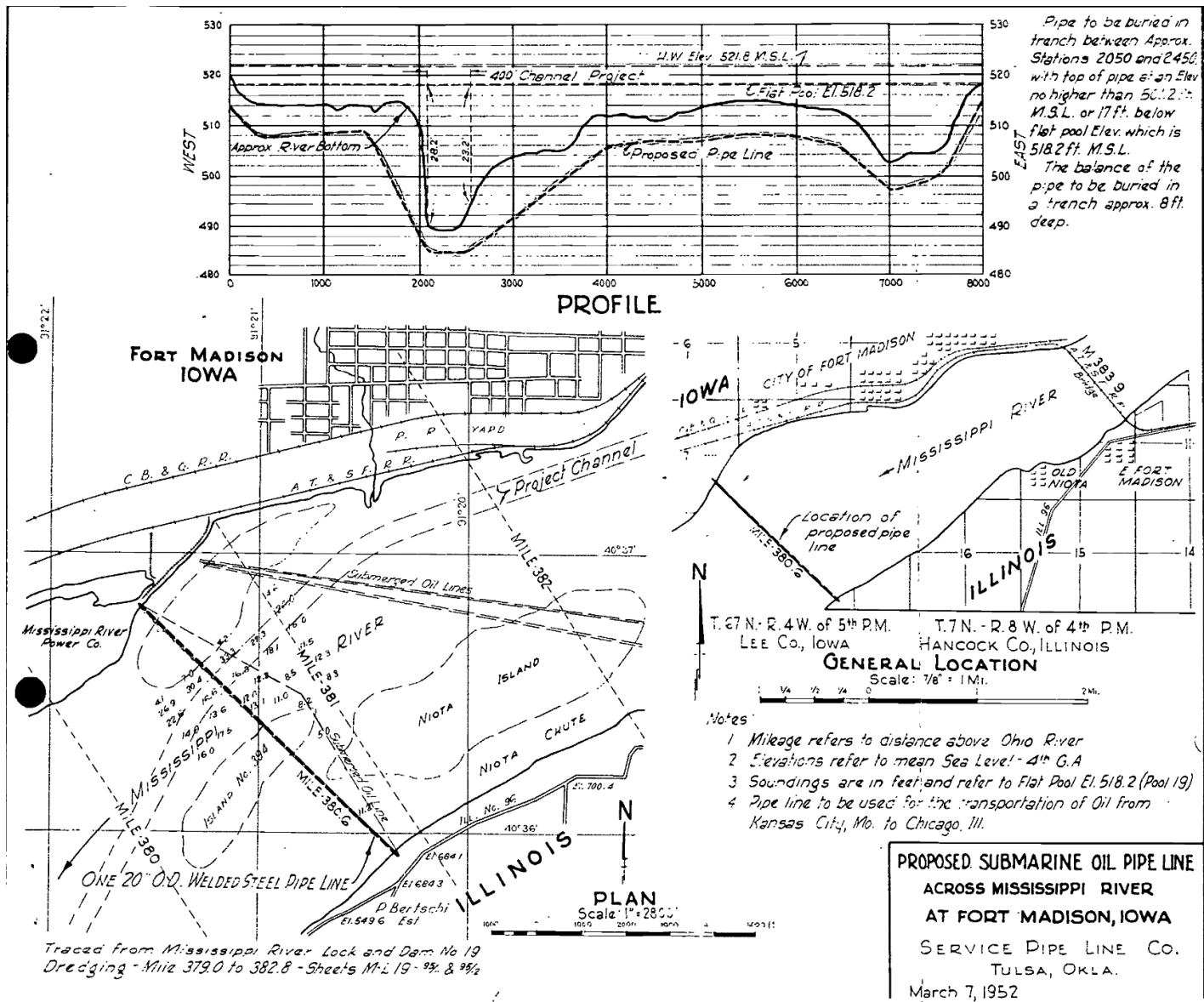


Figure 14: Plans attached to the 1952 Permit from Department of Army authorizing Service Pipeline Co. to construct the 20-inch pipeline under the Mississippi River, which will be replaced by this project.

STATE OF ILLINOIS

ADLAI E. STEVENSON, Governor PERMIT No. 7146

Department of Public Works and Buildings Division of Waterways

201 W. Monroe St. Springfield, Illinois

Permission Is Hereby Granted, this 16th day of April, 1952

To SERVICE PIPE LINE COMPANY, (A MAINE CORPORATION), P.O. BOX 1979, TULSA 2, OKLAHOMA

To construct a 20" submarine pipe line under and across the Mississippi River from applicant's Supton Junction, located in the SE 1/4 of Section 7, Township 67 North, Range 4 West, Lee County, Iowa, to its East Fort Madison Station, located in Section 11, Township 7 North, Range 8 West of the 4th P.M., Hancock County, Illinois,

in accordance with an application dated March 11, 1952 and the specifications and plans entitled Proposed Submarine Oil 20" Oil Pipe Line 20" Oil Pipe Line Crossing Tyson Creek Union Electric Co. Mississippi River at Fort Hancock County Illinois Diversion Ditch & Drainage Ditch Hancock County Madison, Iowa Date: 1-22-52 Illinois Date: 2-7-52 March 7, 1952 Tracing No. 6264 Illinois Date: 2-7-52 Tracing No. 6265

filed with the Department of Public Works and Buildings and made a part hereof, and subject to the terms and special conditions contained herein:

Examined and Recommended: Robert G. Clem, Engineer of Permits. Approved: Chas. P. Casey, Director. Approval Recommended: Thomas B. Casey, Chief Engineer.

THIS PERMIT is subject to the following conditions:

(a) This permit is granted in accordance with an act entitled: "AN ACT in relation to the regulation of the rivers, lakes and streams of the State of Illinois," approved June 10, 1911.

(b) This permit does not convey or recognize any title of the Permittee to any submerged or other lands, and furthermore, does not convey, lease or provide any right or rights of occupancy or use of the public or private property on which the proposed project or any part thereof will be located, or otherwise grant to the Permittee any right or interest in or to said property whether said property is owned or possessed by the State of Illinois or by any private or public party or parties.

(c) This permit does not in any way release the Permittee from any liability for damage to persons or property caused by or resulting from the work covered by this permit, and does not sanction any injury to private property or invasion of private rights, or infringement of any Federal, State or local laws or regulations.

(d) The Permittee shall remove all piling, cofferdams, false work, excavation and the material incident to the construction of the project herein authorized, from the river, stream or lake in which the work is done, at his own expense. Should the Permittee fail to remove such structures or material, the State reserves the right to have such removal made at the expense of the Permittee. If future operations for public navigation by the State or Federal Government or public interests of any character necessitate any changes in the position of any part of the structure or structures herein authorized, such changes shall be made by and at the expense of the Permittee or his successors in such manner as shall be fixed and determined by the State of Illinois, acting by and through the Department of Public Works and Buildings, or other properly constituted agency, and within sixty (60) days from receipt of written notice of such necessity, from said Department or other properly constituted agency.

(e) If the work herein permitted is not completed on or before December 31, 1955 this permit shall cease and be null and void.

(f) The execution and details of the work hereby authorized shall be subject to the supervision and approval of the Department of Public Works and Buildings—Division of Waterways.

(g) Starting work on the construction hereby authorized shall be considered full acceptance by the Permittee of all the terms and conditions of this permit, however, the attached acceptance, properly executed by the Permittee, must be filed in the office of the Department of Public Works and Buildings, Division of Waterways, Springfield, Illinois, within sixty (60) days of the date hereof or this permit shall be null and void.

(h) There shall be no deviation from the plans submitted and hereby approved unless the proposed change in plans shall first have been submitted to and approved, in writing, by the State of Illinois acting by and through its Department of Public Works and Buildings.

(i) The Department of Public Works and Buildings in issuing this permit has relied upon the statements and representations made by the Permittee in his application therefor, and in case any statement or representation in said application is found to be false, this permit may be revoked at the option of the Department of Public Works & Buildings, and when so revoked all rights of the Permittee hereunder shall thereupon and thereby become null and void.

(j) If the Permittee is required by an act of Congress to obtain a permit from any Federal authority for leave to do the things granted by this permit, then such Federal permit shall be obtained before this permit becomes effective.

(k) If the project authorized herein is located in or along a lake, the Permittee or his successors shall make no claim whatsoever to any right, title or interest in and to any accretions caused by the construction of said project, and by the acceptance of this permit agrees to remise, convey, release, and quit claim unto the People of the State of Illinois for the use and benefit of the public, all rights to any accretions which may accrue to said real-estate because of said project.

(l) This permit is subject to further special conditions as follows:

- 1 - This permit is void unless a permit for the proposed work is secured from the U. S. Department of the Army.
2 - This permit is void unless the top of the proposed pipe line is placed not less than two (2) feet below the bed of all streams.

Figure 15: The 1952 Permit from Illinois Department of Public Works and Buildings-Division of Waterway authorizing Service Pipeline Co. to construct the 20-inch pipeline under the Mississippi River to East Madison Station in Hancock County.

WAR DEPARTMENT

M-5147-2

NOTE.—It is to be understood that this instrument does not give any property rights either in real estate or material, or any exclusive privileges; and that it does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, State, or local laws or regulations, nor does it obviate the necessity of obtaining State assent to the work authorized. It MERELY EXPRESSES THE ASSENT OF THE FEDERAL GOVERNMENT SO FAR AS CONCERNS THE PUBLIC RIGHTS OF NAVIGATION. (See Cummings v. Chicago, 188 U. S., 410.)

PERMIT

United States Engineer Office.
Upper Mississippi Valley Division
St. Louis, Mo., 16 Oct., 1945.

Stanolind Pipe Line Company
Tulsa, Oklahoma

982-2

Gentlemen:

Referring to written request dated 10 September 1945 (by C. M. Scott, Jr., Chief Engineer)

I have to inform you that, upon the recommendation of the Chief of Engineers, and under the provisions of Section 10 of the Act of Congress approved March 3, 1899, entitled "An act making appropriations for the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes," you are hereby authorized by the Secretary of War,

to construct a 16 inch O.D. welded steel submarine oil pipe line

(Here describe the proposed structure or work.)

under and across the Mississippi River

(Here to be named the river, harbor, or waterway concerned.)

near Fort Madison, Iowa, at approximately 380.9 miles above the mouth of the Ohio River,

in accordance with the plans shown in red on the drawing attached hereto marked "Proposed Submarine Oil Pipe Line across Mississippi River at Fort Madison, Iowa. Stanolind Pipe Line Co., Tulsa, Oklahoma. Aug. 4, 1945. Auth. 8726". (One sheet)

subject to the following conditions:

- (a) That the work shall be subject to the supervision and approval of the District Engineer, Engineer Department at Large, in charge of the locality, who may temporarily suspend the work at any time, if in his judgment, the interests of navigation so require.
- (b) That any material dredged in the prosecution of the work herein authorized shall be removed evenly, and large refuse piles, ridges across the bed of the waterway, or deep holes that may have a tendency to cause injury to navigable channels or to the banks of the waterway shall be left. If any pipe, wire, or cable hereby authorized is laid in trench, the formation of permanent ridges across the bed of the waterway shall be avoided and the back filling shall be done so as not to increase the cost of future dredging for navigation. Any material to be deposited or dumped on this authorization, either in the waterway or on shore above high-water mark, shall be deposited or dumped at the locality shown on the drawing hereto attached, and, if so prescribed thereon, within or behind a good and substantial bulkhead or bulkheads, such as will prevent escape of the material into the waterway. If the material is to be deposited in the harbor of New York, or in its adjacent or tributary waters, or in Long Island Sound, a permit therefor must be previously obtained from the Supervisor of New York Harbor, Army Building, New York City.
- (c) That there shall be no unreasonable interference with navigation by the work herein authorized.
- (d) That if inspections or any other operations by the United States are necessary in the interests of navigation, expenses connected therewith shall be borne by the permittee.
- (e) That no attempt shall be made by the permittee or the owner to forbid the full and free use by the public of navigable waters at or adjacent to the work or structure.
- (f) That if future operations by the United States require an alteration in the position of the structure or work herein authorized, or if, in the opinion of the Secretary of War, it shall cause unreasonable obstruction to the free navigation of said water, the owner will be required, upon due notice from the Secretary of War, to remove or alter structural work or obstructions caused thereby without expense to the United States, so as to render navigation reasonably free, easy, and unobstructed; and if, upon the expiration or revocation of this permit, the structure, fill, excavation or other modification of the watercourse hereby authorized shall not be completed, the owners shall, without expense to the United States, and to such extent and in such time and manner as the Secretary of War may require, remove all or any portion of the uncompleted structure or fill and restore to its former condition the navigable capacity of the watercourse. No claim shall be made against the United States on account of any such removal or alteration.
- (g) That the United States shall in no case be liable for any damage or injury to the structure or work herein authorized which may be caused by or result from future operations undertaken by the Government for the conservation or improvement of navigation, or for other purposes, and no claim or right to compensation shall accrue from any such damage.
- (h) That if the display of lights and signals on any work hereby authorized is not otherwise provided for by law, such lights and signals as may be prescribed by the U. S. Coast Guard, shall be installed and maintained by and at the expense of the owner.
- (i) That the permittee shall notify the said district engineer at what time the work will be commenced, and as in advance of the time of commencement as the said district engineer may specify, and shall also notify him promptly, in writing, of the commencement of work, suspension of work, if for a period of more than one week, resumption of work and its completion.
- (j) That if the structure or work herein authorized is not completed on or before the 31st day of December, 1946, this permit, if not previously revoked or specifically extended, shall cease and be null and void.

By authority of the Secretary of War:

M. H. Wilson
Colonel, Corps of Engineers,
Acting Division Engineer.

WAR DEPARTMENT
O. C. of E.
Form No. 98
Revised Jan. 17, 1940

16-12168

U. S. GOVERNMENT PRINTING OFFICE

Figure 16: 1945 Permit from the War Department authorizing Stanolind Pipeline Co. to construct the 16-inch pipeline under the Mississippi River.

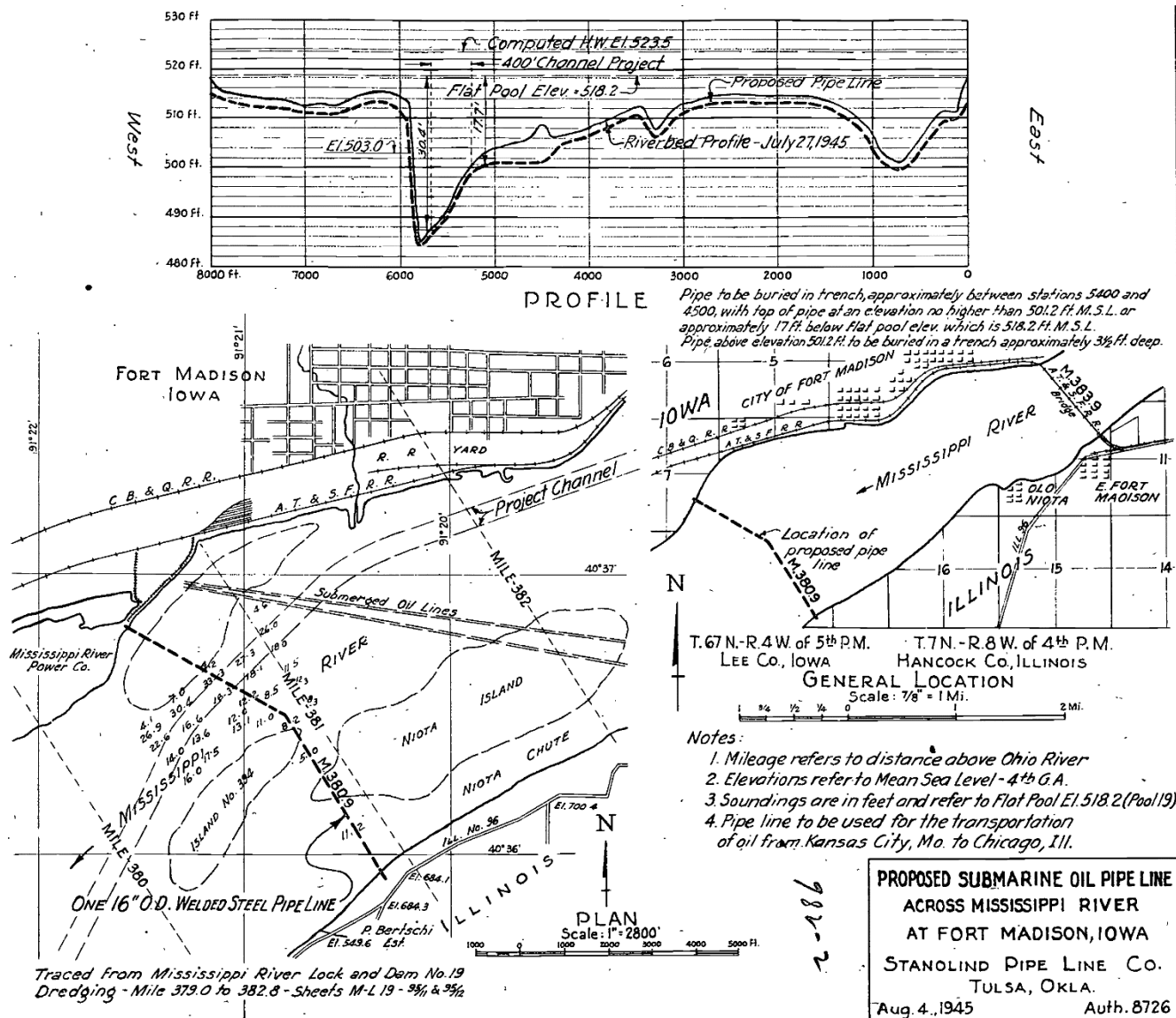


Figure 17: 1945 Plans attached to the permit from the War Department authorizing Stanolind Pipeline Co. to construct the 16-inch pipeline under the Mississippi River.

WAR DEPARTMENT.
UNITED STATES ENGINEER OFFICE.

ROCK ISLAND, ILL., NOV. 5, 1918.

Sinclair-Cudahy Pipe Line Company,

Tulsa, Oklahoma.

Referring to written request dated Tulsa, Okla., Oct. 29, 1918,

I have to inform you that, upon the recommendation of the Chief of Engineers and under the provisions of section 10 of the Act of Congress approved March 3, 1899, entitled "An act making appropriations for the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes,"

you are hereby authorized by the Secretary of War,

to lay, maintain and operate an 8-inch pipe line of steel or wrought iron for the transportation of crude oil in interstate commerce, said pipe line to be at least 7 feet below low water following the natural bed of the river as shown in profile said pipe line to be a second crossing contiguous to and paralleling a similar line for which a permit was granted Jan. 25, 1917,

in and across the Mississippi River at Lake Keokuk formed by the pondage of the water power dam at Keokuk, Iowa,

from a point opposite Ft. Madison, Ia., about 5,600 feet below the bridge of the Atchison, Topeka and Santa Fe Railway nearly due west to a point below Fort Madison.

in accordance with the plans shown on the drawing attached hereto marked "2nd Mississippi River Crossing for Sinclair-Cudahy Pipe Line Co. (I.C.156)."

subject to the following conditions:

(a) That this authority does not give any property rights either in real estate or material, or any exclusive privileges; and that it does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, State, or local laws or regulations, nor does it obviate the necessity of obtaining State assent to the work authorized. It merely expresses the assent of the Federal Government so far as concerns the public rights of navigation. (See *Cummings v. Chicago*, 188 U. S., 410.)

(b) That the work shall be subject to the supervision and approval of the district engineer, Engineer Department at Large, in charge of the locality, who may temporarily suspend the work at any time if, in his judgment, the interests of navigation so require.

(c) That if any pipe, wire, or cable is herein authorized, it shall be placed and maintained with a clearance not less than that shown by the profile on the plan attached hereto.

(d) That so far as any material is dredged in the prosecution of the work herein authorized it shall be removed evenly, and no large refuse piles shall be left. It shall be deposited to the satisfaction of the said district engineer and in accordance with his prior permission or instructions, either on shore above high water or at such dumping ground as may be designated by him, and where he may so require, within or behind a good and substantial bulkhead or bulkheads, such as will prevent escape of the material into the waterway; and so far as the pipe, wire, or cable is laid in a trench, the formation of permanent ridges across the bed of the waterway shall be avoided and the back filling shall be so done as not to increase the cost of future dredging for navigation. If the material is to be deposited in the harbor of New York, or in its adjacent or tributary waters, or in Long Island Sound, a permit therefor must be previously obtained from the Supervisor of New York Harbor, Army Building, New York City.

(e) That there shall be no unreasonable interference with navigation by the work herein authorized.

(f) That if inspections or any other operations by the United States are necessary in the interests of navigation, all expenses connected therewith shall be borne by the permittee.

(g) That the permittee assumes all responsibility for damages to the work or structure herein authorized, and for damage caused by it or by work of the permittee in connection therewith to passing vessels or other craft, and shall not attempt in any way to prevent free use by the public of the area at or adjacent to the work or structure.

(h) That if future operations by the United States require an alteration in the position of the structure or work herein authorized, or if, in the opinion of the Secretary of War, it shall cause unreasonable obstruction to the free navigation of said water, the permittee will be required, upon due notice from the Secretary of War, to remove or alter the structural work or obstructions caused thereby without expense to the United States so as to render navigation reasonably free, easy, and unobstructed; and if, upon the expiration or revocation of this permit, the structure, fill, excavation, or other modification of the watercourse hereby authorized shall not be completed, the permittee shall, without expense to the United States, and to such extent and in such time and manner as the Secretary of War may require, remove all or any portion of the uncompleted structure or fill and restore to its former condition the navigable capacity of the watercourse. No claim shall be made against the United States on account of any such removal or alteration.

(i) That if the display of lights and signals on any work hereby authorized is not otherwise provided for by law, such lights and signals as may be prescribed by the Bureau of Lighthouses, Department of Commerce, shall be installed and maintained by and at the expense of the permittee.

(j) That the permittee shall notify the said district engineer at what time the work will be commenced, and as far in advance of the time of commencement as the said district engineer may specify, and shall also notify him promptly, in writing, of the commencement of work, suspension of work, if for a period of more than one week, resumption of work, and its completion.

(k) That if the structure or work herein authorized is not completed and written notice of completion is not filed with the aforesaid district engineer on or before the end of the third full calendar year after the date hereof, this authorization, if not previously revoked or specifically extended, shall cease and be null and void.

By authority of the Secretary of War:

A. MACKENZIE,
Maj. Gen., U. S. Army, Retired.
District Engineer, Rock Island Dist.

Figure 18: 1918 Permit from the War Department authorizing Sinclair-Cudahy Pipeline Co. to construct the 18-inch pipeline under the Mississippi River.

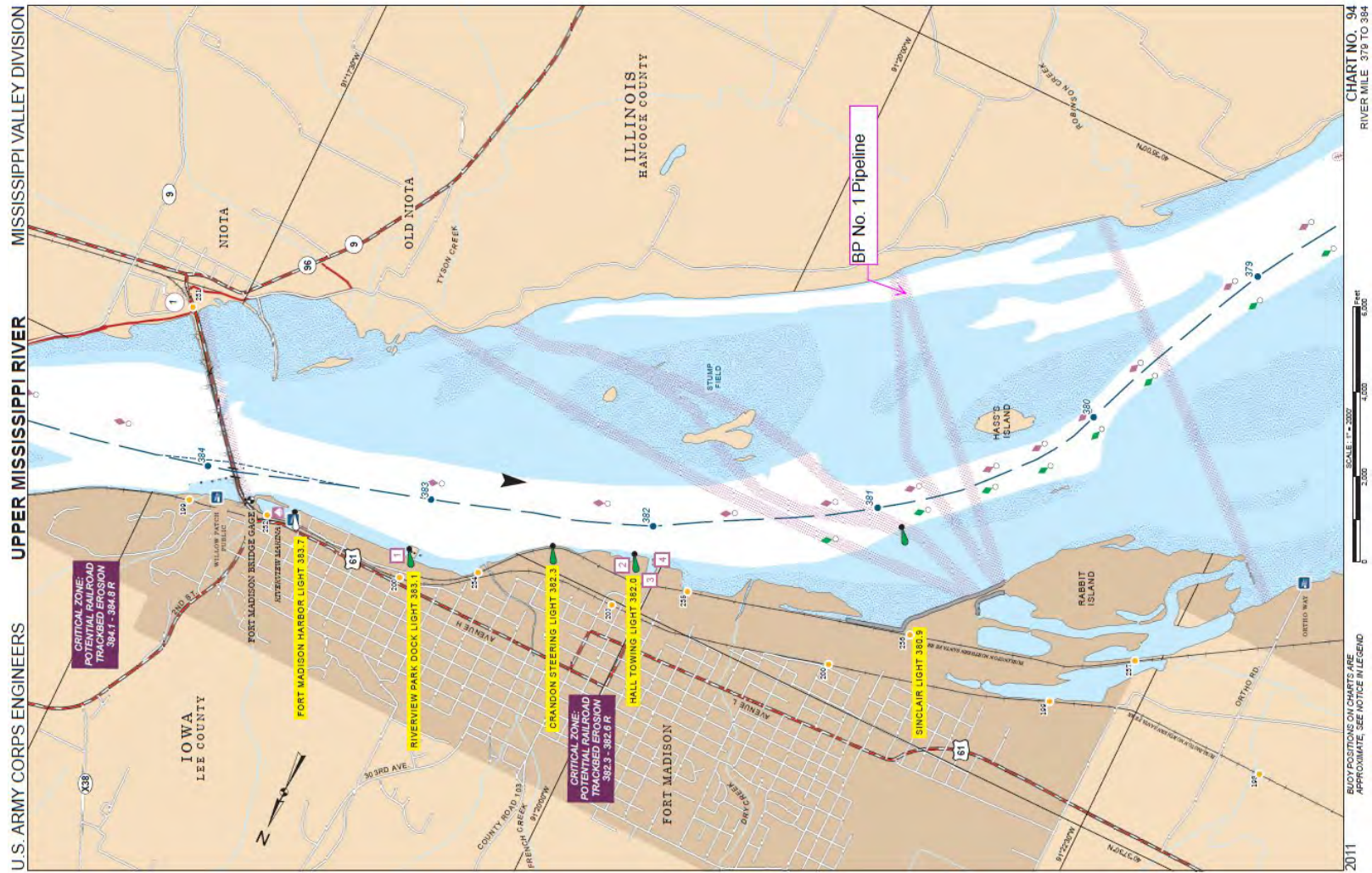
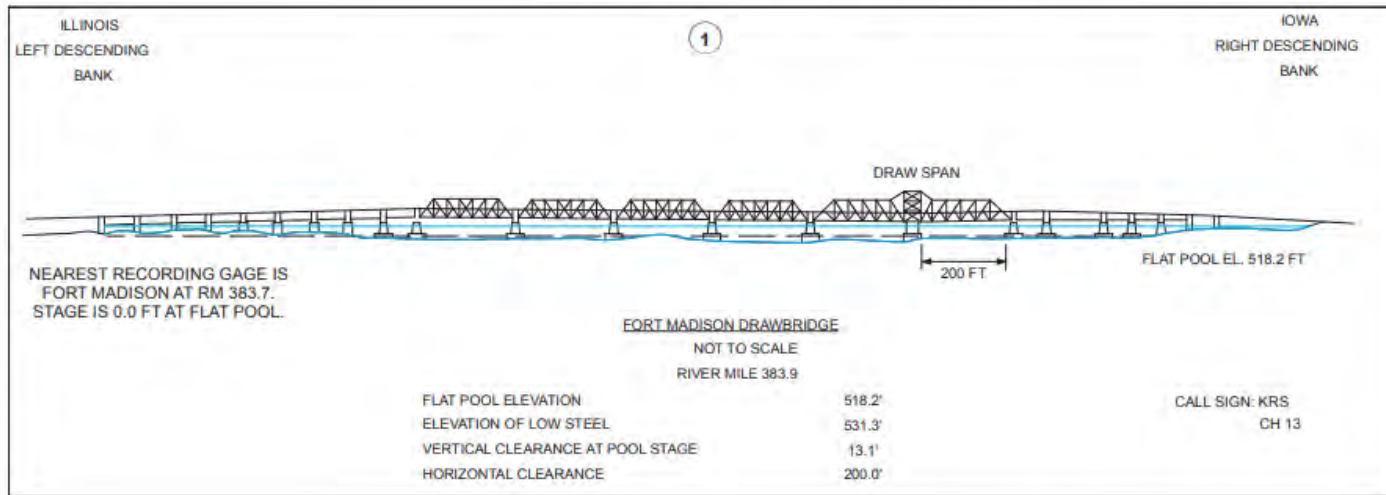


Figure 19: Navigation Chart 94 for Pool 19.

Source: "Chart 94- Upper Mississippi River Miles 384-379." *Upper Mississippi Navigation Charts*. U.S. Army Corps of Engineers. Rock Island District. Rock Island, IL. <https://www.mvr.usace.army.mil/Missions/Navigation/Navigation-Charts/Upper-Mississippi-River/>. Accessed September 2022.



FACILITIES	
1	Fort Madison Casino Boat Dock.
2	Hall Towing, Barge Terminal Upper Wharf.
3	Hall Towing Slip.
4	Hall Towing, Barge Terminal, Lower Wharf.

UTILITY CROSSING			
Miles	Description	Vertical Clearance	Owner
383.9	Aerial Crossing	91.0'	IES Utilities Power Co.
383.9	Pipeline	Not Applicable	Buckeye Partners, LP
381.4	Pipeline	Not Applicable	Abandoned
381.1	Pipeline	Not Applicable	Abandoned
380.7	Pipeline	Not Applicable	Abandoned
380.6	Pipeline	Not Applicable	BP Pipeline (North America) INC.
379.6	Pipeline	Not Applicable	Enterprise Products Operating LLC

Figure 20: Navigation Chart 94-Cross Section near the Fort Madison Drawbridge for Pool 19.

Source: "Chart 94- Upper Mississippi River Miles 384-379." *Upper Mississippi Navigation Charts*. U.S. Army Corps of Engineers. Rock Island District. Rock Island, IL. <https://www.mvr.usace.army.mil/Missions/Navigation/Navigation-Charts/Upper-Mississippi-River/>. Accessed September 2022.

Appendix D
Previously known Submerged Historic Properties in the Upper Mississippi River
within a 2-3 mile radius of the Project Area

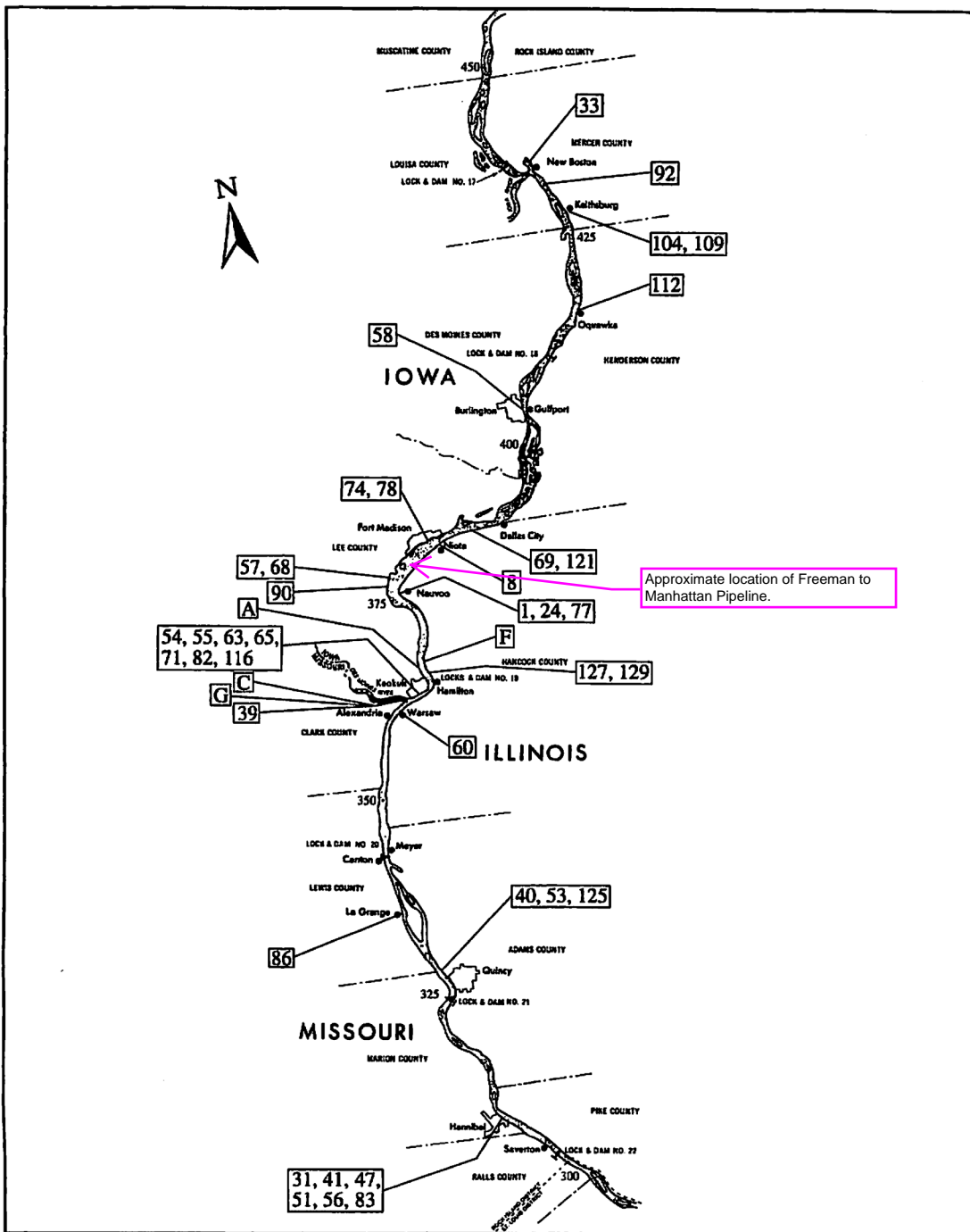


Figure 21: Map of Documented sites in the Upper Mississippi River, Miles 300-449.

Source: Custer, J. E. and Custer, S. M. 1997. "An Investigation of Submerged Historic Properties in the Upper Mississippi River and Illinois Valley." *Cultural Resources Management Report No. 306*. American Resources Group, Ltd, Carbondale IL. for U.S. Army Corps of Engineers Rock Island District.

**UPPER MISSISSIPPI RIVER AND ILLINOIS WATERWAY
SUBMERGED HISTORIC PROPERTY SURVEY FORM:
BOATS**

BOAT NAME: John Taylor **OFFICIAL NO.:** **PAC:** (2)U
DATE BUILT: 1875 **PLACE BUILT:** Madison, Indiana
PROPULSION: **TYPE:**
TONNAGE: 87.95 gross tons **HULL DIMENSIONS:** 115 x 23 x 4.5
ENGINES: **BOILERS:**
CONSTRUCTION: **FIRST HOME PORT:**

HISTORIC SUMMARY: She ran from Burlington, Iowa, to Illinois. She was rebuilt at Rock Island in 1888 to become 137 gross tons. In 1888 she was sold to Atlee Brothers of Ft. Madison, Iowa, and used for handling lumber.

DISPOSITION: Burned

DISPOSITION DATE: May 1, 1899 **LAST SIGHTING:**
LOCATION: Ft. Madison, Iowa **RIVER:** Mississippi **MILE:** 383

DISPOSITION SUMMARY: She burned at the ferry landing on the Illinois shore opposite Ft. Madison, Iowa.

COMMENTS:

REFERENCES: DCHS, Bigelow Collection: *Hawkeye* [Burlington, Iowa], 10 June 1966.

PHOTOGRAPHS:

Steamboat Masters & Associates, Inc., 2316 Northwestern Parkway, Louisville, KY 40212, (502) 778-6784

Figure 24: Ferry sunk approximately 2.5 miles north of the existing and proposed pipeline location.

Source: Custer, J. E. and Custer, S. M. 1997. "An Investigation of Submerged Historic Properties in the Upper Mississippi River and Illinois Valley." *Cultural Resources Management Report No. 306*. American Resources Group, Ltd, Carbondale IL. for U.S. Army Corps of Engineers Rock Island District.

Appendix E
Photographs of previously unrecorded agricultural properties 50 years or older in Illinois
from where project areas and associated activities may be visible



Photos 1-2: 2705 N. Mormon Springs Road. Located immediately adjacent to project area for geotechnical bore hole B-7 and HDD exit location. Bore hole B-7 and HDD exit site would be visible from this property.



Photos 3-4: 2621 N County Rd 900. House over 50 years old. Altered by additions, new roof and windows and a prefabricated garage structure. Pipe string may be visible from this property.

Source: Hancock County GIS Information: <https://gis.wiu.edu/js/hancock/> . Accessed September 20, 2022.

Appendix E
Photographs of previously unrecorded agricultural properties 50 years or older in Illinois
from where project areas and associated activities may be visible



Photos 5-8: 2656 N County Rd 900. Farmhouse less than 50 years old, but outbuilding including barn and silos are over 50 years or older. Pipe string may be visible from this property.

Source: Hancock County GIS Information: <https://gis.wiu.edu/js/hancock/> . Accessed September 20, 2022.

Appendix E
Photographs of previously unrecorded agricultural properties 50 years or older in Illinois
from where project areas and associated activities may be visible.



Photos 9-12: 2570 N County Rd 900. Farmhouse is significantly altered with new brick facing, metal roof, new windows, and a large porch addition. Other outbuildings including barns and silos are over 50 years old but have also undergone alterations. Pipe string may be visible from this property.

Source: Hancock County GIS Information: <https://gis.wiu.edu/js/hancock/> . Accessed September 20, 2022.

Appendix E

Photographs of previously unrecorded agricultural properties 50 years or older in Illinois from where project areas and associated activities may be visible.



Photos 13-14: 935 E County Rd 2550. House less than 50 years old. Pipe string may be visible from this property.

Source: Hancock County GIS Information: <https://gis.wiu.edu/js/hancock/> . Accessed September 20, 2022.

Appendix E

Photographs of previously unrecorded properties 50 years or older in Iowa from where project areas and associated activities may be visible



Photo 15: 2226 35th St. A 1970s Mobile home located adjacent to project area.



Photo 16: 2223 35th St. A 1960s Mobile home located near the project area.



Photo 18: 2219 35th St. A 1960s Mobile home located near the project area.



Photo 19: 2215 35th St. A 1960s Mobile home located near the project area.

Appendix E

Photographs of previously unrecorded properties 50 years or older in Iowa from where project areas and associated activities may be visible



Photo 20: 2211 35th St. A highly altered house with multiple additions.

Source: Lee County GIS Information: <https://beacon.schneidercorp.com/> . Accessed September 20, 2022.

Appendix F

Historical Aerials of Project Areas



1930s Aerial Photograph showing Project Area in Iowa.

Source: *Historical Aerial Photo Project*, Iowa Department of Natural Resources. <https://programs.iowadnr.gov/maps/aerials/>. Accessed September 20, 2022.

Appendix F

Historical Aerials of Project Areas



1930s Aerial Photograph showing Project Area in Illinois.

Source: *Historical Aerial Photo Project*, Iowa Department of Natural Resources. <https://programs.iowadnr.gov/maps/aerials/>. Accessed September 20, 2022.

Appendix F

Historical Aerials of Project Areas



1950s Aerial Photograph showing Project Area in Iowa.

Source: *Historical Aerial Photo Project*, Iowa Department of Natural Resources. <https://programs.iowadnr.gov/maps/aerials/>. Accessed September 20, 2022.

Appendix F

Historical Aerials of Project Areas



1950s Aerial Photograph showing Project Area in Illinois.

Source: *Historical Aerial Photo Project*, Iowa Department of Natural Resources. <https://programs.iowadnr.gov/maps/aerials/>. Accessed September 20, 2022.

Appendix F

Historical Aerials of Project Areas



1970s Aerial Photograph showing Project Area in Iowa.

Source: *Historical Aerial Photo Project*, Iowa Department of Natural Resources. <https://programs.iowadnr.gov/maps/aerials/>. Accessed September 20, 2022.

Appendix F

Historical Aerials of Project Areas



1970s Aerial Photograph showing Project Area in Illinois.

Source: *Historical Aerial Photo Project*, Iowa Department of Natural Resources. <https://programs.iowadnr.gov/maps/aerials/>. Accessed September 20, 2022.

ATTACHMENT E
Spill Mitigation and Response Plan

Attachment E. Spill Mitigation and Response Plan

Equipment Inspection

All overwater equipment and operations are in compliance with United States Coast Guard (USCG) requirements and regulations. For owned and operated vessels, working boats (tug, push, crew, etc.) are inspected monthly at a minimum, and barges (spud, cargo, sectional, etc.) are inspected weekly at a minimum in accordance with the manufacturer's recommendations. In addition, vessels are inspected prior to being mobilized to a new project site. Heavy equipment onboard, primarily consisting of a crawler crane and drill rig, are inspected on a daily basis. Secondary equipment onboard (mobile pumps, welding machines, winch systems, etc.) are inspected prior to each use. Any safety and/or environmental deficiencies discovered during inspection are corrected prior to the vessel or equipment being placed into service.

Environmental Spill Control

Chemical spills that could occur generally consist of equipment fluids (diesel fuel, engine oil, hydraulic oil, etc.). These spills could occur at a slow rate, such as from a leaking gasket, or instantly, such as from a hose rupture. A chemical release during overwater operations may consist of a slow leak that is easily contained and cleaned up on the barge deck or of an uncontrolled chemical spill where product is discharged into the waterbody. Any chemical spills observed during inspection or operations will be mitigated with secondary containment and cleaned immediately with spill kit items. In the event of a chemical release into the waterbody, the discharged product will float along the water surface and produce a sheen as common equipment fluids are less dense than water. Any release of product into the waterbody will be contained, captured, and removed from the waterbody with spill kit items. The nature of the product floating along the water surface allows assurance that any chemical release has been properly controlled.

Spill Kits and Disposal

Multiple spill kits will be available onboard per USCG requirements and regulations, as well as company policies. Spill kits will be stocked in the working boat(s) and on the barge deck(s). Sufficient spill kit materials will be available for all operational equipment working overwater, including the vessels themselves and the heavy and secondary equipment onboard. Spill kit items may consist of, at a minimum, sorbent booms and socks, sorbent wipers and pads, and proper personal protective equipment (PPE) for handling. All spill kit items contaminated from response are considered hazardous material and will be collected and placed into thick-mil plastic bags, tied, and labeled. All bagged hazardous material will be removed from the project site and delivered to an approved disposal facility for hazardous waste.

Product (Hazardous Material)

All equipment fluids onboard are considered hazardous material. Containers of product will be properly labeled and stored in a manner that prevents release to the environment in compliance with Occupational Safety and Health Administration's (OSHA's) standards for hazard communication. Areas in the working boat(s) and on the barge deck(s) will be designated for product storage. Product storage areas will be selected to minimize exposure to equipment travel and foot traffic, or any other type of interference, and enclosures and secondary containment will be utilized where appropriate. Safety Data Sheets (SDS) will be readily available onsite for all products used and/or stored during overwater operations.

Attachment E. Spill Mitigation and Response Plan

bp One Pipeline Company LLC's

Incident Reporting Process

Loss of Primary Containment— <u>Non DOT</u> jurisdictional equipment	Workforce → Ops TL	As soon as practical
	Ops TL → DOM, (and EPIC Supervisor if contractor)	< 1 hour
	Ops TL → Environmental Coordinator → HSSE Mgr	< 1 hour
	Ops TL → Environmental Coordinator → National Response Center and local agency, if required (Refer to local Facility Response Plan)	As soon as practical
	Ops TL → C&CM Advisor → BP Notification Center (see criteria in Appendix II)	< 1 hour

A list of local contacts is listed on the next page

Attachment E. Spill Mitigation and Response Plan

Illinois Environmental Protection Agency

- ***If the emergency involves the release of potentially hazardous materials to the environment:***
 - **(217) 782-3637**
 - **National Response Center**
 - **(800) 424-8802**
 - **Illinois Emergency Management Agency**
 - (217) 782-7860 or
 - (800) 782-7860 (in Illinois)
-

U.S. EPA Region 5 - IL

77 W. Jackson Boulevard
Chicago, IL 60604-3590

(312) 353-2000

(800) 621-8431 (in Region 5 only)

U.S. EPA Region 7 - IA

11201 Renner Boulevard
Lenexa, KS 66219

(913) 551-7003

(800) 223-0425

Iowa Department of Natural Resources: Environmental Protection

For environmental spills, please call the 24-hour emergency number

(515)-725-8694

National Response Corporation (NRC)

24hr Emergency Service & Response:

(877) 880-4672

(631) 224-9141

U.S. Coast Guard Atlantic Area

Eighth Coast Guard District
Response Division: **(504) 671-2230**
Hale Boggs Federal Building
500 Poydras St., Suite 1324
New Orleans, LA 70130