



Critical Issues Analysis

Heartland Port Project

Prepared for
Heartland Port Authority

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Abbreviations

ACHP	Advisory Council on Historic Preservation
AJD	Approved Jurisdictional Determination
ASTM	American Society for Testing and Materials
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIA	Critical Issues Analysis
CO	Carbon Monoxide
CWA	Clean Water Act
DoD	Department of Defense
EIS	Environmental Impact Statement
ERC	Environmental Research Center of Missouri, Inc.
ESA	Environmental Site Assessment
E-START	Environmental Site Tracking and Research Tool
FAA	Federal Aviation Administration
HAP	Hazardous Air Pollutant
HPA	Heartland Port Authority of Central Missouri
IPaC	Information for Planning and Consulting
MBTA	Migratory Bird Treaty Act
MDC	Missouri Department of Conservation
MDNR	Missouri Department of Natural Resources
MoDOT	Missouri Department of Transportation
MoNHP	Missouri Natural Heritage Program
MRLC	Multi-Resolution Land Characteristics
NDNOD	Non-DoD Owned, Non-Operational Defense Site
NEPA	National Environmental Policy Act
NFA	No Further Action
NHPA	National Historic Preservation Act
NLCD	National Land Cover Database
NO _x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	National Resources Conservation Service
NRHP	National Register of Historic Places
NSR	New Source Review
NWI	National Wetland Inventory
PAD-US	Protected Area Database of the United States
PJD	Preliminary Jurisdictional Determination
PM _{2.5}	particulate matter with a diameter less than 2.5 microns
PM ₁₀	particulate matter with a diameter less than 10 microns
Project	Heartland Port Project
RBCA	Risk-Based Corrective Action

RC	Conservation District
REC	Recognized Environmental Condition
RU	Rural District
SHPO	State Historic Preservation Office
SO _x	Sulfur Oxides
TRI	Toxic Release Inventory
USACE	United States Army Corps of Engineers
USDA	United States Department of Agricultural
USEPA	United State Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
WSS	Web Soil Survey

1 Executive Summary

The intent of this Critical Issues Analysis (CIA or "report") is to summarize the critical issues as they relate to land use, natural and cultural resources, and permitting requirements for the proposed Heartland Port Project (Project) being proposed by the Heartland Port Authority of Central Missouri (HPA) in Jefferson City, Missouri. The HPA is considering development of three sites as part of the Project: North Site 1, North Site 2, and South Site.

Based on the findings of this report, the South Site has potential avoidance areas and/or presents a potentially longer permitting process/potentially higher costs to develop. The proposed dock for the South Site would project into the designated Floodway for the Missouri River and would likely require modification of in-river United States Army Corps of Engineers (USACE) structures. A small creek (Rising Creek) traverses the site and has its own designated Floodway. Filling or obstructing within Floodway area would require review to confirm there would be no impact on flood levels. Additionally, the site has potential cultural resources on site and would require wetland permitting.

North Site 1 does not have similar potential avoidance areas as the South Site and the permitting process should require less time to complete. The primary permitting impediment identified during this project relates to the site's location within the regulatory Floodway. Filling or obstructing within Floodway area would require review to confirm there would be no impact on flood levels. The existing infrastructure present at this site may result in a lower cost site to develop compared to the South Site.

North Site 2 does not have similar potential avoidance areas as the South Site and the permitting process should require less time to complete. There is no existing dock structure at this site, which could lead to a higher cost of development compared to North Site 1. However, there is existing infrastructure that could be used for port operations west of North Site 2 at the adjacent Capital Sand operation. The primary permitting impediment identified during this project relates to the site's location within the regulatory Floodway. Filling or obstructing within Floodway area would require review to confirm there would be no impact on flood levels. The relatively small site area may reduce the feasibility of capital investment in this site as a long-term port location, but its location adjacent to and directly east of the existing Capital Sand infrastructure is positive.

No other critical issues, with what Barr Engineering Co. (Barr) and Hanson Professional Services Inc. (Hanson) would consider significant potential for schedule or cost delays, were identified at this time. Additional consultation with agencies and public scoping may identify concerns and create future design or permitting challenges that were not evident during the CIA review process.

As described under separate cover (refer to design basis memo), development activities may potentially occur in the below order and phases. These phases take into consideration the findings of this report but are not based solely on the findings of this report.

-
- Develop North Site 1 to leverage existing site infrastructure. Initial development would potentially include roadway improvements, temporary structure staging, truck dump pit, and limited in-river construction of new dolphin structures, pipe piles, and/or new cell structures.
 - Further develop North Site 1 as necessary to meet demand by expanding the existing dock infrastructure and the addition of a new dolphin structure or pipe pile.
 - Develop the South Site after demand has exceeded North Site 1 capacity. Initial South Site development would potentially include access road improvements, above storage construction, truck dump pit, conveyor staging, and limited in-river construction of new dolphin structures, pipe piles, and/or new cell structures.
 - Further develop the South Site as necessary to meet demand by constructing a sheet pile dock and dolphin structure/pipe pile and increasing the storage and work areas.

Barr and Hanson recognize the above order and phases seem to represent what currently appears to be the most efficient path forward based on the findings of this report and information provided by HPA. Developing North Site 1 before the South Site may reduce the time necessary to obtain permits and require less capital investment to complete. However, the above order and phases are subject to change depending on the availability of capital or findings from future site studies.

2 Introduction

The intent of this CIA is to summarize the critical issues as they relate to land use, natural and cultural resources, and permitting requirements for the project being proposed by the HPA in Jefferson City, Missouri.

This report presents the findings of the desktop-based CIA. The report sections include:

- Section 1: Executive Summary
 - Provides high-level summary of most pertinent findings of the report.
- Section 2: Introduction
 - Provides a project description and review of background information that pre-dates this report.
- Section 3: Land Use and Land Cover
 - Provides a description of the current project site land uses, public lands in the vicinity, zoning assigned to project sites, current land cover, potential sources of contamination, and possible land use constraints.
- Section 4: Natural and Cultural Resources
 - Provides the findings of the desktop evaluations of wetlands and waterbodies, floodplains and floodways, area topography, soils, cultural and historical resources, and protected species.
- Section 5: Permit Requirements
 - Permits including federal and state permits necessary to develop and operate the project.
- Section 6 : Conclusions
 - Provides conclusions including recommended next steps.

2.1 Project Description

The Mississippi-Missouri River System represents the main thoroughfare for agricultural shipments by barge from the Midwest to New Orleans for worldwide export and has served as the backbone of inland commercial navigation in the U.S. for over one hundred years. As part of the Mississippi-Missouri River System, the State of Missouri has 550 navigable miles on the Missouri River, which are home to numerous public port authorities and private river terminals. A study by Texas A&M University's Transportation Institute (Kruse et al., 2017) suggested barges can move a ton of cargo 647 miles with a single gallon of fuel, far exceeding the distances achieved by trains (477 miles) and trucks (145 miles). By doing so, barges provide an opportunity to transport goods cheaper and with less emissions. Because moving freight by

water is cost effective and more environmentally friendly compared to other transportation modes, Missouri businesses, farmers, and industries share a logistical advantage that many other states and regions cannot offer.

The HPA was created in 2018 with the intent to promote economic growth through the development of marine transportation infrastructure in central Missouri. The Missouri River is under-utilized for waterborne transportation and can provide opportunities to reduce the strain on the aging highway system while providing a cost effective, environmentally friendly, and commercially viable transportation option for agricultural commodities, raw materials, and manufactured goods. HPA commissioned a study in 2018 to evaluate the market feasibility, develop a conceptual plan, and study the economic effects of a proposed central Missouri multimodal port (the "Project").

The Project involves the development of a public port near Jefferson City, at the interface of Cole and Callaway Counties (Figure 1). In 2018, the Project considered two sites for port development and a third site was more recently added for consideration. The three sites under consideration include:

- North Site 1 would occupy approximately 22 acres on the north side of the Missouri River at an existing facility owned by OCCI Inc. and in an unincorporated portion of Callaway County and is accessible from Callaway County Road 4038 (Figure 2).
- The South Site is located on the south side of the Missouri River within the incorporated limits of Jefferson City and is accessible from No More Victims Road (Figure 3). It encompasses approximately 118 acres.
- North Site 2 is located on the north side of the Missouri River and is accessible from Mokane Road. North Site 2 consists of approximately 3 acres and is adjacent to Capital Sand's existing sand and gravel operation (Figure 4).

The Project, regardless of which site(s) is/are selected, would be developed based on the commodities most likely to be handled at that location, with the layout and scale of each location to be determined. Depending on site's location and commodities to be handled, infrastructure at each site could include a dock with dolphin structures, access roads, laydown/storage areas, mobile harbor crane, and landside loaders and forklifts. A barge fleeting area(s) will be required to facilitate barge loading/unloading. Although not envisioned as part of initial port development, future railroad access (via the Union Pacific Railroad's line that is immediately adjacent to the site) is feasible at the South Site.

Current HPA efforts are being funded through a capital improvement grant from the State of Missouri, administered by the Missouri Department of Transportation (MoDOT). The HPA is also a recipient of a US Department of Agriculture Rural Business Development grant. Development of port facilities is anticipated to be funded by a combination of the preceding grants and other potential public/private partnerships.

2.2 Project Purpose and Need

The Project was identified during the 2018 HPA-commissioned market feasibility study to reduce cost and increase the efficiency of transporting goods to and from central Missouri. The Project would benefit

potential users with fast and efficient access to Missouri's most important freight arteries in all relevant modes (i.e., truck, rail, and waterways). While truck and rail are the predominant modes of freight transportation in Missouri, levels of service on the state freight network are exhibiting signs of congestion and poor freight fluidity.

The HPA also commissioned a comprehensive market study to better understand the financial viability of a marine freight transportation port in Jefferson City. The market study was completed in 2020 and investigated the financial feasibility of the Project. As part of the comprehensive market study, a survey was conducted of potential users of a port facility in Jefferson City. Survey respondents estimated their current annual shipments and annual receipts. The data from these responses was used in conjunction with other industry sources to estimate the potential traffic for the proposed port facility.

Market analysis revealed that there are potentially five categories of non-containerized import commodities and five categories of non-containerized export commodities that represent the overall market for the Project. The general conclusion of the comprehensive market study suggested that the proposed multimodal port would help to enhance the economic environment for traded and non-traded sector businesses in central Missouri by improving the cost of doing business in the region.

The USACE and the Missouri Department of Natural Resources (MDNR) agreed during initial agency discussions that increasing navigation would be in the public interest.

3 Land Use

Section 3 briefly describes land use and land cover of the three proposed Project sites. Barr reviewed publicly available database to assess Project site current and presumed past land uses, public lands in the vicinity, zoning assigned to Project sites, current land cover, potential sources of contamination, and possible land use constraints. On April 9, 2021, Barr staff completed a site visit of the South Site. The main purpose of this visit was to complete an initial site walk of this area and document existing conditions. On May 20, 2021, Barr staff completed a site visit of North Site 1 and inspected North Site 2 from the adjacent Capital Sand and Gravel facility. The main purpose of this visit was to complete an initial site walk of North Site 1 and view the shoreline and existing docking structures adjacent to North Site 2. On June 15 and 16, 2021, Barr staff completed a site visit at North Site 1 and South Site. The main purpose of the June 2021 site visit was to complete a field delineation of onsite waters and wetlands on North Site 1 and South Site. Barr was also noted general site conditions such as vegetation communities present, site landmarks and features, and current site disposition.

3.1 Land Use description

To identify current and historical land use of the three proposed sites, Barr reviewed U.S. Geological Survey (USGS) topographic maps for years: 1886, 1939, 1942, 1954, 1955, 1958, 1959, 1967, 1980, 1982, 1984, 2011, 2015, and 2017 (USGS, 2021). Barr also reviewed publicly available aerial photographs from Google Earth (accessed June 7, 2021) for the following years; 1991, 1995, 2002, 2003, 2004, 2005, 2006, 2007, 2009, 2010, 2011, 2013, 2015, 2017, and 2019. Satellite view of Jefferson City Area, Google Earth, accessed June 20, 2021 and June 23, 2021, <https://www.google.com/maps/@38.5673075,-92.1004792,7551m/data=!3m1!1e3>

Below are dates and aerial credit for each year aerial reviewed.

3/29/91 USGS	6/14/2007 USDA Farm Service
4/6/95 USGS	6/15/2009 USDA Farm Service
5/8/2002 Maxar Technologies	7/10/2010 USDA farm Service
12/21/2003 Goggle Earth	6/7/2011 Google Earth
7/28/2004 USDA Farm Service	5/13/2013 Google Earth
6/14/2005 USDA Farm Service	3/30/2015 Google Earth
3/14/2006 USGS	3/17/2017 Google
6/9/2006 USDA Farm Service	4/14/2019 Maxar Technologies
	11/8/2019 Google Earth

3.1.1 North Site 1

The existing land use at North Site 1 includes a storage area, dock, unpaved access road, barge loading and unloading equipment, and various construction equipment owned by OCCI, Inc. It appears based on aerial imagery that the site was converted to its current use from converted agricultural lands.

An unpaved access road extends south from Callaway County Road 4038 to the river's edge and crosses the site on its eastern side. Docking facilities first appear on site in the 2003 aerials. The 2005 aerial shows evidence of expanded riverside activities and the 2006 aerial shows evidence of a small storage area north of the river, but within North Site 1 boundary. Riverside facilities and the northern storage area both appear to have expanded in 2011 with additional yard expansion in 2015 and riverside expansion in 2017. By 2019, aerials seem to show a stop of the expansion at North Site 1. In addition to changes to facilities at North Site 1, aerials show an increase in the tree canopy from 1991 to 2019 adjacent to the river and an increase in possible brush or shrubs on the north side of the site from 2006 to 2019.

3.1.2 South Site

The South Site is a relatively undeveloped parcel with an existing road on the north side of the site. The Missouri Algoa Correctional facility is located directly to the east and Missouri National Guard Training Facility is located directly to the west of the South Site.

The 1995 aerial shows evidence of possible standing water on the southwestern border of the site, with additional possible standing water on the adjacent National Guard property. Water levels and vegetation densities on the southwest border fluctuates in subsequent years. The 2003 aerial shows evidence of a linear feature extending north from a water treatment facility south of the South Site, through the site and to the Missouri River. This linear feature generally coincides with the location of manholes and a water treatment outfall observed on site for a discharge pipe between the water treatment facility and Missouri River. The 2004 aerial shows a linear feature crossing the northern portion of the South Site. This second feature crosses the first feature and has an inconsistent visual signature in following years and may represent an upland ditch. This second feature was indiscernible during a site visit in June 2021. The 2010 aerial seems to show flooding on the South Site adjacent to Rising Creek, the southwest border and on the Missouri River. The potential ditch crossing the northern portion of the site also seems to contain water and appears to extend to Rising Creek on the South Site's northeastern border. The 2011 aerial shows evidence of possible new drainages on the north side of Rising Creek, possibly in response to the 2010 flooding. The drainage in the 2011 aerial generally coincides with the location of overgrown stone/riprap line ditches observed on site.

3.1.3 North Site 2

North Site 2 is an undeveloped parcel with a wooded shoreline and an unpaved access road extending south from Mokane Road. The northern border of the site appears to have historically been used for agricultural purposes.

The 1991 aerial shows a relatively thin wooded southern border that parallels the Missouri River. A linear feature appears in the 1995 aerial crossing North Site 2 across the southern portion of the site and extends eastward. The feature extends for several miles to the east, includes defined angles and smooth curves, and closely follows the river. Based on the scale of the feature, proximity to the river and seemingly manmade nature of the feature, this may be a flood control structure, such as a levee. After 1995, the agriculture field appears smaller as the wooded edge along the river increased from approximately 100 feet in depth (1991) to approximately 300 feet in depth (2002) as trees and other

vegetation appear to have grown between the manmade structure and the river. The potential for the feature to be a levee or other flood control structure is further reinforced in the 2007 and 2010 aerials as the area south of the feature is shown flooded while the agricultural fields to the north appear unaffected by floodwaters. It also appears that the existing Capital Sand operation to the west of North Site 2 utilizes the river area south of North Site 2 for fleet storage of barges. For all years, excluding 2013, barges are evident just offshore and apparently tethered to structures in the Missouri River.

3.2 Public lands

Barr researched public lands in proximity to North Site 1, South Site, and North Site 2 via the USGS Protected Area Database of the United States (PAD-US). Public lands within proximity to the three sites under consideration are:

- Smoky Waters Conservation Area
 - The Smoky Waters Conservation Area is located approximately 1.0 mile and 2.6 miles east of the South Site and North Site 1, respectively. The Smoky Water Conservation Area is an island formed by the confluence of the Missouri River and Osage River. Missouri Department of Conservation (MDC) manages the conservation area and maintains public parking and hiking trails. Smoky Waters Conservation Area also provides shoreline public fishing and is the location of a historic campsite of the Lewis and Clark expedition in 1804. No other public lands were identified on the USGS PAD-US database as being within 2.0 miles of North Site 1 or South Site.
- Jefferson City managed parks
 - Several Jefferson City managed public parks are located in the vicinity of North Site 2 including:
 - Noren River Access - The Noren River Access is a Jefferson City managed boat ramp, located approximately 0.8 miles west of North Site 2. Noren River Access also has a short hiking trail, public fishing opportunities, and is a popular site for photography.
 - Ellis-Porter Riverside Park - The Ellis-Porter Riverside Park is a multi-purpose outdoor facility located approximately 1.5 miles east of North Site 2. The park boasts an amphitheater for outdoor shows and concerts, sports field complex for baseball/softball and football, swimming pool, 280-person outdoor pavilion, lush gardens, picnic areas, and historical informational kiosks.
 - Quigg Commons - Quigg Commons, located approximately 1.0 mile west of North Site 2, is a cooperative project between the Central Missouri Master Gardeners and Jefferson City Parks. Quigg Commons includes lush demonstration gardens, a children's garden, a conifer garden, and bogs. Quigg Common also maintains a selection of plants collected by Lewis and Clark.

- North Jefferson City Recreational Area - The North Jefferson City Recreation Area located approximately 1.0 mile northwest of North Site 2, is an expansive park providing multiple baseball/softball/tee-ball fields, multi-purpose fields, a dog park, rent-a-gardens, a 250-person outdoor pavilion, playgrounds, and hiking trails. The 165-acre park also includes an RC car racetrack, public shelters, and indoor meeting room.
- Washington Park - Washington Park, located approximately 1.2 miles southwest of North Site 2, also provides a variety of recreational opportunities, but is unique with an ice arena. Washington Park also includes baseball/softball fields, a walking trail, tennis courts, horseshoe pits, and a skate park.

The Project is not anticipated to impact the use of these parks and common areas. It is possible that members of the public that use these public properties may be participants in the public outreach process during future permitting and review processes.

3.3 Zoning

Barr reviewed zoning maps and codes for Jefferson City and Callaway County to review zoning overlays and applicable zoning related local permitting requirements.

3.3.1 North Site 1

Callaway County has not adopted planning or zoning standards for unincorporated portions of the county. As North Site 1 is located within unincorporated Callaway County, zoning constraints do not apply.

3.3.2 South Site

The South Site falls within Jefferson City zoning, specifically Conservation District (RC) zoning. Conservation District zoning is generally meant for the development of parks and open space and is intended for the continuity of rural areas and preservation of environmentally sensitive lands. Jefferson City Code of Ordinance identifies that Conservation District zoned properties can apply for a conditional use permit to allow for barge transportation/docking.

3.3.3 North Site 2

North Site 2 lies with Jefferson City zoning, specifically Rural District (RU) zoning. RU is intended for very low-density residential uses and the operation of existing crop farms and ranches. Jefferson City Code of Ordinance identifies that RU zoned properties can apply for a conditional use permit to allow for barge transportation/docking.

3.4 Land Cover Description

Barr reviewed the USGS National Land Cover Database (NLCD) (MRLC Consortium, 2021) for information concerning landcover at the three sites. The NLCD provides a simple and comprehensive way to visualize land cover in a single GIS layer. The latest version of the NCLD contains 28 different land cover

characteristics including tree canopy, shrub/scrub cover, herbaceous cover, urban impervious surfaces, open water, wetlands, and other land covers (Figure 5).

3.4.1 North Site 1

A review of the 2016 NLCD for North Site 1 identified one major cover type: 14.9 acres (68.9%) of cropland. During the June 2021 site visit to North Site 1, Barr observed fields on the north side of the site that likely have been used for crops in past years, however, no active crop fields were observed. The NLCD also identified 3.5 acres (16.3%) of barren land, 1.2 acres (5.3%) open water, 1.1 acres (6.2 %) of low intensity development, and 0.7 acres (3.3%) of emergent herbaceous wetlands. These NLCD characteristics were generally confirmed during Barr's June 2021 site visit.

3.4.2 South Site

The South Site was identified by the NLCD to be nearly half covered in croplands, 58.2 acres (49.2%) with an additional 12.2 acres (10.3%) of hay or pastures. The NLCD further identified approximately 10.7 acres (9.1%) of low intensity development or developed open space. However, during the June 2021 site visit, crops and hay fields were not present, nor were significant areas of development present (except for a paved road on the northern half of the site), but rather a large area of overgrown, feral fields was observed. The NLCD also identified 21.7 acres (18.4%) of the South Site is covered in deciduous forest, 10.5 acres (8.9%) of mixed forest, 4.0 acres (3.4%) of woody wetlands, and 0.8 acres (0.7%) open water. These characteristics were generally confirmed during Barr's June 2021 site visit.

3.4.3 North Site 2

The NLCD identified one dominant cover type for North Site 2, 2.2 acres (79.4%) of woody wetlands. The remainder of the site is covered by 0.3 acres (10.8%) cultivated crops, 0.2 acres (7.2%) hay or pasture fields, and less than 0.1 acre (2.8%) each open water and barren land. These characteristics were generally confirmed during Barr's visual inspection of the site in May 2021.

3.5 Contamination Review

Barr searched for sites with potential sources of contamination within 2 miles of North Site 1, South Site, and North Site 2, on the MDNR Environmental Site Tracking and Research Tool (E-START) (MDNR, 2021), Missouri Solid Waste Management Map (MDNR, 2021), and U.S. Environmental Protection Agency (USEPA) Toxic Release Inventory Factsheet (USEPA, 2021). Types of sites included in the search were:

- underground storage tanks (USTs),
- leaking USTs,
- Brownfields, hazardous waste and used oil facilities,
- Voluntary Cleanup Program sites,
- Formerly Used Defense Sites,

- solid waste facilities,
- toxic release inventory (TRI) sites,
- environmental incidents, and
- National Priority List and other sites regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Within the study area 18 hazardous waste cleanup sites, 1 solid waste facility, 1 TRI site, and 103 USTs were identified.

Table 1 includes sites located within a 0.5-mile radius around North Site 1, South Site, and North Site 2. Figure 6 includes the locations by site number for North Site 1 and South Site and Figure 7 includes the locations by site number for North Site 2.

Table 1 Contaminant Site Location Table

Site Number	Name	Site Type	Location (Decimal Degrees)	Nearest Project Site(s)
38	Union Pacific Railroad	Underground Storage Tank	38.5818, -92.1745	North Site 2
39	Union Electric - Jefferson City	Underground Storage Tank	38.58114, -92.17520	North Site 2
56	Jefferson City Station	Former Underground Storage Tank	38.57732, -92.16738	North Site 2
74	Water Pollution Control Plant	Former Underground Storage Tank	38.5895, -92.1650	North Site 2
98	Army National Guard Paint Shop	Underground Storage Tank	38.5512, -92.0734	South Site
101	Algoa Correctional Center	Former Underground Storage Tank	38.55315, -92.05252	South Site
111	Jefferson City FMGP	Hazardous Waste Cleanup	38.58112, -92.17515	North Site 2
112	Jefferson City FMGP	Hazardous Waste Cleanup	38.58123, -92.17520	North Site 2
113	Hotel Governor	Hazardous Waste Cleanup	38.57723, -92.17062	North Site 2

Barr recommends a Phase I Environmental Site Assessment to determine whether Recognized Environmental Conditions (RECs) have occurred associated with the brownfield sites, active hazardous cleanup sites, or UST facilities with ongoing or incomplete investigations/corrective actions near the Project sites as illustrated in Figure 6 and Figure 7.

3.5.1 North Site 1

There are no listed sites present within a 0.5-mile radius of North Site 1 (Figure 6).

3.5.2 South Site

Within a 0.5-mile radius of the South Site, two UST facilities were identified (Figure 6). The identified UST facilities are the Army National Guard Paint Shop (98), and the Algoa Correctional Center (101).

To the east of the South Site is the Algoa Correctional Center (101), which is a Petroleum storage tank facility with corrective action ongoing.

3.5.3 North Site 2

Within an 0.5-mile radius around North Site 2 on the north side of the Missouri River, one UST facilities were identified (Figure 7). The UST facilities within this boundary the Water Pollution Control Plant (74). The Water Pollution Control Plant (74) site was closed prior to 2004.

South of the Missouri River, three UST facilities and three hazardous waste cleanup sites were observed within a 0.5-mile radius of North Site 2 (Figure 7). The UST facilities were the Union Pacific Railroad (38), Union Electric – Jefferson City (39), and the Jefferson City Station (56). The hazardous waste cleanup sites identified were the Jefferson City FMGP (111), Jefferson City FMGP (112), and Hotel Governor (113). However, it is not anticipated that the USTs and hazardous waste cleanup sites south of the Missouri River will impact North Site 2 as the river would act as a hydraulic barrier and prevent contaminants from reaching the Project site. In addition, each of these sites is either closed, in long-term stewardship, or has received a NFA letter from the MDNR.

The location of one UST facility closed prior to the implementation of the 2004 Tanks Risk-Based Corrective Action (RBCA) was unknown. The MDNR E-START indicated the unmapped facility to exist in Jefferson City along Highway 54 near the East Bridge, however, the coordinates of the facility were unable to be determined.

3.6 Nearby Utilities (Pipelines, Transmission lines), Airports, and Other Potential Land Use Constraints

As described above, Barr reviewed numerous years of aerial imagery for historical and present land use of the proposed Project sites. Barr also reviewed these data for potential land use constraints. The construction and operation of a river shipping port requires specific, specialized and potentially oversized equipment which can interfere with existing infrastructure. Furthermore, construction equipment and materials may stress existing roads, bridges, and other resources.

3.6.1 North Site 1

North Site 1 currently includes a small riverside, loading and unloading facility and associated equipment. The site appears to have started to be used for storage and loading and offloading in 2005 with several upgrades to equipment on site and area layout through the years. Accessing the site requires crossing an intermittent/seasonal channel with a culvert installed to cross the channel. If North Site 1 were selected to be developed by HPA, the culvert may need to be inspected for compliance with anticipated construction and operational traffic weights. If the culvert is not to standards for estimated traffic, it may need to be replaced. Similarly, if the equipment currently used on site for loading and offloading barges does not

meet the needs of future potential loads, equipment including cranes, docking features, and platforms may need to be replaced. Additionally, it is presumed at this time that Project construction and operational traffic would access North Site 1 via Highway 94, and County Roads 4033, 4035, and 4038. Weight limits, widths, and approach and departure angles of the county roads may need to be verified or modified to meet estimated construction and/or operational traffic.

North Site 1 Missouri River shoreline was identified on USACE Kansas City District bank stabilization and navigation plan (USACE, 2021) as having stone filled dike/revetment protections. The location of the USACE dike/revetment coincides with the location of Reveaux Drainage District owner and operated levee across the shoreline. Developing North Site 1 as a river port may require impacting the shoreline protection. This could create additional layers of review and/or engineering as well as add time and cost to the Project.

3.6.2 South Site

The South Site currently contains a bridge that crosses Rising Creek and a paved road on the northern portion of the site. Both features are in poor condition and will likely need to be substantially repaired or replaced. The 2003 aerial of the South Site shows evidence of a linear feature extending from a wastewater facility, located south of the site, crossing through the South Site, and apparently terminating at the Missouri River. During a June 2021 site visit, Barr observed an outfall pipe marked as wastewater treatment discharge in the vicinity of the terminus of the linear feature observed in the 2003 aerial. Furthermore, Barr observed two manholes adjacent to Rising Creek that were also identified as wastewater lines. Based on the 2003 aerial and observed wastewater manholes and discharge on the South site, it is evident that a wastewater pipeline crosses under the site. The depth, size, and exact location of the pipeline are uncertain currently, however, the presence of this infrastructure may pose a constraint in developing or require utility relocation as part of site development for the South Site.

Access to the South Site would currently require traffic to enter the site via No More Victims Road. The road crosses Rising Creek via a large box culvert and roadside overhead utilities and poles are present. The box culvert, utilities, and road should all be inspected to verify construction and operational traffic weights and sizes can be safely accommodated by No More Victims Road. Lastly, the South Site is located adjacent to the Missouri Alcoa Correctional facility and the Jefferson City Correctional Facility. Locating a large construction and eventual industrial facility adjacent to a prison complex may pose security and or logistical issues that may place additional burdens on the Project or correctional facilities.

3.6.3 North Site 2

North Site 2, as described above and based on 1995 aerials of the site, appears to have a levee or other flood control structure on site. If a flood control structure is in place, it may be a part of Capital View Levee District levee system which is owned, operated, and maintained by the Capital View Drainage District. Developing the site as a river port may require impacting the levee. This could create additional layers of review and/or engineering as well as add time and cost to the Project, assuming impacts to the levee are permissible. In addition to the levee, the 2002 aerial of North Site 2 shows evidence of linear features extending from a water treatment facility to the Missouri River. The water treatment facility is

located approximately 0.25 miles north/northeast of the site. The linear features shown in the aerials do not cross the site but may run along or under the unpaved access road to the site. In addition, overhead utility lines and wood poles (including a pole at the unpaved access road) line Mokane Road, the main paved road to access North Site 2. The utilities and road should all be inspected to verify construction and operational traffic weights and sizes can be safely accommodated by Mokane Road.

Jefferson City Memorial Airport is located near the intersection of Mokane Road and Hibernia, with runway 12/30 extending for approximately 6,000 feet. This locates the airport and its facilities within less than 6 miles of each of the three proposed sites. As such, Federal Aviation Administration (FAA) regulations require notification be filed and a hazard assessment be completed, via submission of standard forms 7460-1 and 7460-2. It is unlikely the proximity of the sites to the airport will pose a significant constraint but will add an additional review of the Project. If operation or construction of the Project, at any of the sites, require the use of structures over 200 feet in height (cranes for example), the FAA may require signaling, strobes or flagging, be placed on such structures.

As discussed in Section 3.1.3, it appears that for several years, the Capital Sand sand and gravel operation used riverfront on North Site 2 for fleet storage or barges. The cooperation of Capital Sand would be required to utilize current Capital Sand infrastructure at North Site 2.

4 Natural and Cultural Resources

The following section briefly describes the regulated natural and cultural resources with a potential to occur at the Project sites. Protected natural resources included waterways, wetlands and listed threatened or endangered species, or species protected under specific regulations. Protected cultural resources include historic properties or sites, sites of religious or cultural importance to Native Americans, or historically significant structures, landmarks, or features. It is important to note the inclusion or omission of particular resources is not a confirmation or denial of a resource being present in the Project area, as future field studies will be necessary to assess the likelihood of such resources to be present.

4.1 Wetlands and Waterbodies

Barr completed a review of various publicly available databases and completed a desktop review for potential wetlands and waters on all sites in May 2021. Barr followed up their desktop effort with a field review and wetlands delineation of the potential wetlands and surface water on North Site 1 and South Site in June 2021.

The desktop review incorporated soils data from the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (WSS), current and historical aerials of the three sites and surface water and wetlands data presented in the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) and USGS National Hydrography Dataset.

Any proposed development within wetlands or waters would likely require review and permitting through the USACE, MDNR and/or additional agencies (Section 5). Permit requirements will be dependent upon final design.

4.1.1 North Site 1

The review of NWI and WSS data for North Site 1 indicated the likely presence of forested wetlands at the Missouri River's edge (Figure 8). Between the two databases, the width of the potential wetlands varied between 60 and 120 feet, but both suggest the wetlands extended the full shoreline of North Site 1, a length of approximately 800 feet.

On June 15 and 16, 2021, Barr completed a field delineation of North Site 1 to identify and map waters and wetlands on site. The wetland delineation report is provided in Attachment 1. In summary, North Site 1 wetlands are limited to the shoreline of the Missouri River and includes approximately 1.39 acres of riverine wetlands (Figure 6 of Attachment 1). Barr did observe the shoreline to include large rock or rip rap, and soils placed on the bank of the Missouri River. The presence of rip rap and rock on the bank supports the prior dike or revetment construction at North Site 1 consistent with what is shown on figures provided by USACE. In addition, Barr did review a drainage feature that crossed the access road to North Site 1 for potential wetland, however this channel did not show evidence of proper hydrology or support proper vegetation to be classified as a wetland. The channel is likely an intermittent drainage.

4.1.2 South Site

NWI and WSS data for the South Site suggested riverine systems as part of the Missouri River on the north border, but also associated with Rising Creek that crossed the South Site from southwest to northeast (Figure 9). There were also indications that potential vegetated wetlands could be present on the south-central portion of the South Site. Both datasets used imagery backgrounds that illustrated inundated land on the southwest border of the South Site; however, neither database suggested the presences of wetlands in this area. The WSS identified non-hydric soils on the southwest border and the NWI illustrated no wetlands in the area.

On June 15 and 16, 2021, Barr completed a field delineation of North Site 1 and South Site to identify and map waters and wetlands on site. The complete field delineation report is included in Attachment 1. The South Site does contain riverine wetlands associated with the Missouri River (SSMR, 3.98 acres) and Rising Creek (SSCK, 5.68 acres, Figure 5 of Attachment 1). Both systems showed evidence of fluctuating water levels as the observed waterline was well below recent scour lines on adjacent banks. Reviewing seasonal rainfall totals, it appears that in early to mid-spring in 2021, rainfall totals were at or above normal levels. However, by late spring and the time of the field delineations, annual rainfall total had dropped to below normal and river/creek water levels reflected the recent decline in precipitation. Delineated limits of both riverine systems were estimated based on field indicator (i.e., scour line, debris line, water-stained features/plants), but generally followed the locations of the desktop reviews.

Several functioning and non-functioning beaver-created ponds were observed on the southwest border that impounded a large area of standing water. The large area of inundation appears to have been sustained for a substantial duration as soils had taken on the characteristics of hydric conditions and vegetation that prefer and thrive in wet conditions had been established, meaning the area met the requirements of a wetland. The beaver pond influenced area encompassed approximately 3.06 acres on the southwest border of the site and extended off site to the adjacent property. This area includes the beaver pond inundation area (SSBP, 2.78 acres), a channel that appears to drain the beaver pond area to the east (SSSC, 0.13 acres) and a channel that appears to drain the beaver pond area to the south (SSBW, 0.15 acres).

4.1.3 North Site 2

The NWI suggested the Missouri River was the only surface water or wetland on North Site 2 (Figure 10). The WSS identified hydric soils, and potentially forested wetlands, along the southern wooded border of North Site 2. The WSS data delineated the hydric soils in a location that coincides with the above referenced levee or flood control feature. This area is illustrated in several aerials as being inundated with water. Although the NWI does not identify wetlands other than the Missouri River, based on the soils data and aerials of the area, the wooded area between the Missouri River and hypothesized levee has the potential to be wooded wetlands.

4.2 Floodplains and Floodways

Each of the three proposed port sites have floodplain considerations that will affect both permitting and development of the sites. North Site 1 and North Site 2 (Figure 11 and Figure 12) Site lie entirely within

designated Floodway area for the Missouri River, while the South Site (Figure 13) is partly within the Floodway, with much of the remaining area in Flood Fringe. Also, a small creek (Rising Creek) traverses the South Site and has its own designated Floodway.

The regulatory floodplain, or Flood Hazard Area, is (for detailed study areas) comprised of Floodway and Flood Fringe area. The Floodway is intended to remain free of encroachments because it is considered a critical corridor for efficient passage of flood flows. The Flood Fringe is area within the floodplain that is outside of the Floodway, where encroachment by fill or development is permitted with certain requirements (e.g., floodproofing of structures).

Any proposed development within the Floodway must have zero impact on regulatory flood levels or, if they do impact flood levels, cannot affect any structures. In addition, property owners would need to consent to any increase in flood levels, even if there are no structures affected.

Proposed fill associated with docks, loading areas, storage areas, or road improvements that is located within the Floodway would need to satisfy this requirement. The Floodway zone is wide for this portion of the Missouri River, which would lessen the potential impact of proposed fill or obstructions. The potential impact would need to be evaluated using a hydraulic model prior to permitting.

Fill and other development are permitted within the Flood Fringe, provided that any structures are elevated above the 100-year flood elevation or otherwise flood-proofed.

4.3 Site Topography

North Site 1 is very flat, and a portion of the site has been raised to what is assumed to be a 100-year flood elevation through the use of fill material. The South Site is relatively flat, with a total elevation variation of about 15 feet. Rising Creek, a tributary to the Missouri River, is immediately adjacent and corresponds to the lowest elevations on the site. North Site 2 is relatively flat with dense vegetation.

Topography data and a preliminary boundary survey from the South Site was provided by HPA to the Barr/Hanson team for review. Topography data was also collected from North Site 1 by Hanson Professional Services Inc. in July 2021. These topography data may be used for future infrastructure design purposes. Supplemental survey data collection may be necessary to complete final design.

4.4 Hydrographic Survey

Barr subcontracted with Prairie Engineers, P.C. (Prairie) to collect hydrographic survey data of the Missouri River from 0.5 miles upstream to 0.5 miles downstream of each of the three sites. Hydrographic survey data were also collected for a fleeting site approximately 2,000 feet west of the South Site off the shoreline of the Missouri National Guard property. Prairie performed the hydrographic survey field work in July 2021 and provided the hydrographic survey data in tabular format and in Civil3D files for future use in concept and detailed design.

4.5 Soil Types Description

Barr reviewed soil information from the USDA NRCS WSS geographic database (USDA, 2019). The NRCS WSS provides hazard summaries for soil types. These summaries are generally identified in terms of certain types of construction or infrastructure and can be informative for a variety of development activities.

4.5.1 North Site 1

North Site 1 contains the following soil types (Figure 14):

- Lowmo silt loam, 0-2% slope
- Sarpy-Treloar Complex, 0-2% slope
- Blencoe silty clay loam, 0-2% slope
- SansDessein silty clay, 0-2% slope

The entire North Site 1 was rated by NRCS as very limited for unpaved roads, paved roads, and small commercial development. Limiting issues identified included low soil strength, frost action, and flooding potential. North Site 1 was also rated high for steel corrosion but rated low for concrete corrosion.

4.5.2 South Site

The South Site contains the following soil types (Figure 15):

- Menfro silt loam, 20-45% slope
- Urban-land Freeburg Complex, 0-3% slope
- Dockery silt loam, 0-2% slope
- Blake silt loam, 0-2% slope
- Hayne silt loam, 0-2% slope
- SansDessein silty clay, 0-2% slope
- Rock outcrop-Bardley Complex, 35-99% slope
- Deible silt loam, 0-2% slope
- Jemerson silt loam, 0-3% slope
- Tanglenook silt loam, 0-2% slope

The South Site was rated by the NRCS as very limited for unpaved roads, paved roads, and small commercial development, except for Urban land-Freeburg Complex which was unrated. The reason identified for the very limited rating included slope, frost action, soil strength, flood potential, depth to

saturation, and shrink/swell potential. The South Site was further rated high for steel corrosion for most of the site, except for areas of Menfro silt loam and Jemerson silt loam which were rated moderate for steel corrosion and Urban land-Freeburg Complex which was not rated. The South Site was generally rated low for concrete corrosion except for areas of Deibel silt loam, Jemerson silt loam and Tanglenook silt loam which were rated moderate and Urban land-Freeburg Complex which was unrated.

4.5.3 North Site 2

North Site 2 contains the following soil types (Figure 16):

- Lowmo silt loam, 0-2% slope
- Sarpy-Treloar Complex, 0-2% slope

The entire North Site 2 was rated by the NRCS as very limited for unpaved roads, paved roads, and small commercial development. Limiting issues included low soil strength, frost action, and flooding potential. The site was also rated high for steel corrosion but rated low for concrete corrosion.

4.6 Cultural Resources

In the National Historic Preservation Act of 1966 (NHPA), Congress specifically called out that the preservation of historic places “is in the public interest so that its vital legacy of cultural, educational, aesthetic, inspirational, economic and energy benefits will be maintained and enriched for future generations of Americans.” The Missouri State Historic Preservation Office (SHPO), within the MDNR, is the agency authorized to uphold the responsibilities of the NHPA as amended, in the state. SHPO’s responsibilities include but are not limited to reviewing nominations of in-state sites to the National Register of Historic Places, administrating Missouri’s architectural and archaeological survey programs, and Section 106 review and compliance. Under Section 106 of the NHPA, federal agencies must consider the impact of their actions, such as permitting a private project, on historic properties and provide the federal Advisory Council on Historic Preservation (ACHP) the opportunity to comment on proposed actions. While the SHPO participates in the Section 106 consultation process, it is the federal agency who is legally responsible for all required findings and determinations associated with a project.

To successfully complete Section 106 review, federal agencies must gather information to decide whether “historic properties” are present in the project area. Generally, “historic properties” can be defined as properties that are listed in or eligible for listing in the National Register of Historic Places (NRHP). If “historic properties” could be negatively impacted, the federal agency must notify the ACHP and must consult with the SHPO and interested parties to discuss ways to avoid or mitigate damage to the historic properties. When historic properties will be harmed, Section 106 review usually ends with a legally binding agreement that establishes how the federal agency will address the adverse effects. In the few cases where this does not occur, and the ACHP issues advisory comments, the head of the federal agency must consider the comments in making a final decision.

A preliminary data review of the Missouri SHPO archaeology and NRHP GIS layers was completed by Environmental Research Center of Missouri, Inc. (ERC) in June 2021 for the Project study area (ERC, 2021).

Findings presented as a result of the preliminary data review contain confidential information that

cannot be shared externally beyond HPA per protections awarded to sensitive information relative to historical properties Section 304 of National Historic Preservation Act (16U.S.C 4702-3, Advisory Council on Historic Preservation Policy, and the freedom of Information Act Exemption 3 (5U.S.C. 552(b)3)).

ERC's review did not identify NRHP properties located within any of the proposed sites nor were such properties identified within ¼ mile of the three sites. The majority of NRHP sites identified during the review were architectural examples located in urban areas of Jefferson City.

ERC's review did not identify recorded archaeology sites within North Site 2 or North Site 1. For reference, ERC identified that North Site 2 was surveyed for archaeological resources in 1999, but North Site 1 has not previously been surveyed. If either North Site 1 or North Site 2 move forward for development, Phase I archaeological surveys of North Site 1 and/or North Site 2 will likely be required by SHPO to document current conditions and potential presence of cultural or historical resources at the locations. Phase I surveys would likely include pedestrian investigations of the sites. Pedestrian investigations involve walking defined transects across the sites and looking for artifacts on the surface of the ground and documenting and mapping the location and description of any found artifacts. These surveys must be completed by a qualified archaeologist.

ERC did find records showing the South Site has been the subject of two previous Phase I archaeological surveys which have identified one NRHP eligible prehistoric archaeology site, one unevaluated prehistoric archaeology site, and two prehistoric archaeology sites that have been determined not eligible for listing on the NRHP.

The presence of documented archaeological sites does not preclude the South Site from development; however, it will require further review and potentially additional costs if mitigation is required. If the South Site is to be developed for the Project, additional surveys or investigation would be required to document current conditions and define the boundaries of archaeological resources on site.

Regardless of the site(s) to be developed for the Project, additional cultural resources surveys would be required to be completed to document current conditions and potential presences of archaeological, cultural, or historical resources. If such resources are present at any of the sites, a determination of the NRHP eligibility will need to be made. If NRHP eligible sites are present, and a site needs to be developed to meet Project goals, all efforts, design, and best management practices would need to be implemented to protect NRHP eligible sites and resources. If impacts to NRHP eligible sites cannot be avoided, mitigation plans would need to be developed and approved by SHPO, and the USACE with input from tribal consultation and the ACHP. Archaeological surveys should be considered and completed as soon as possible to inform future Project decisions including additional consultations, design/layout, and permitting efforts. Furthermore, in a meeting with the USACE, it was suggested any cultural surveys or documentation would likely need to meet Osage Nation standards. This may add additional time and effort to completing future archaeological surveys.

4.7 Protected Species

Barr completed a desktop protected species assessment, which included a review of aerial photographs, the Missouri Natural Heritage Program (MONHP) Database, and the USFWS Information for Planning and Consulting (IPaC) tool. Upon completion of the design, Barr is available to assist with confirming whether the Project is anticipated to affect a protected species and complete the necessary consultation with the applicable agencies. This assessment will draw upon the desktop information described below.

The Missouri state Endangered Species Act and the Missouri Wildlife Code protect state listed species. The Missouri Department of Conservation is the administrative, regulatory, and enforcement agency for state sensitive species. An MONHP Database inquire was made to identify potential state-listed species within a 0.5-mile radius of the study area.

The federal Endangered Species Act provides protection to rare flora and fauna at the federal level and classifies listed species as endangered, threatened, or candidate species. It also designates critical habitat for endangered or threatened species. The USFWS IPaC was used to identify federally listed species in the vicinity of the study area. It should be noted that a species may be protected at both federal and state levels and that impacts to listed species requires additional agency consultation and potentially mitigation.

4.7.1 State-Listed Species and Sensitive Resource Areas

The purpose of the State review was to determine the potential for adverse impacts to species and resources protected by the Missouri Endangered Species Act and the Missouri Wildlife Code. Barr reviewed the MONHP database to identify any state records of threatened or endangered species within the Project vicinity. Database information was obtained from MONHP on May 20, 2021 and identified three state-listed species and two sensitive resource areas to review for Project impacts (Table 2).

Table 2 State-Listed and Sensitive Resource Areas (MONHP Database)

Common Name	Scientific Name	State Status	Group
Indiana Bat	<i>Myotis sodalis</i>	Endangered	Mammal
Gray Bat	<i>Myotis grisescens</i>	Endangered	Mammal
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	Endangered	Fish
Osage River - Sensitive Aquatic Species Waters	N/A	Includes Species of Conservation Concern (Endangered or Not Listed)	Sensitive Resource Area
Osage River - Fish Spawning Reach	N/A	Includes Species of Conservation Concern (Endangered or Not Listed)+	Sensitive Resource Area

4.7.2 Federally Listed Species

In accordance with the Endangered Species Act of 1973, Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act, Barr evaluated the likelihood for federally protected species to be impacted by the Project. Barr reviewed the USFWS Midwest Region's county list and verified potential impacts to

protected species using the USFWS IPaC tool. The following federally listed species reviewed are shown in Table 3.

Table 3 Federally Listed Species Summary (USFWS IPaC Data)

Common Name	Scientific Name	Federal Status	Group
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Bald and Golden Eagle Protection Act / Migratory Bird Treaty Act	Bird
Indiana Bat	<i>Myotis sodalis</i>	Endangered	Mammal
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	Threatened	Mammal
Gray Bat	<i>Myotis grisescens</i>	Endangered	Mammal
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	Endangered	Fish
Topeka Shiner	<i>Notropis topeka</i>	Endangered	Fish
Pink Mucket	<i>Lampsilis abrupta</i>	Endangered	Mussel
Scaleshell Mussel	<i>Leptodea leptodon</i>	Endangered	Mussel
Spectaclecase Mussel	<i>Cumberlandia monodonta</i>	Endangered	Mussel

4.7.3 Protected Species Summary

North Site 2 and the South Site occur in areas of potentially suitable roosting habitat for Northern Long-eared Bat and Indiana Bat. There are no known hibernacula for these species within the vicinity of the study area, with the nearest hibernacula located approximately 3 miles northeast in Callaway County. These species hibernate in caves and mines and roost along streams and rivers and within upland forests. If removal of woody vegetation is conducted during the inactive season (November 1 – March 31) for Indiana Bat and Northern Long-eared Bat, the Project will have “no effect” on both species. Furthermore, if removal of woody vegetation greater than 3 inches diameter-at-breast-height occurs during the active season (April 1 – October 31), no prohibited take of Northern Long-eared Bat will occur due to the lack of known maternity roost trees and hibernacula within 150 feet and 0.25 mile of the Project site, respectively, according to the Northern Long-eared Bat final 4(d) rule and programmatic Biological Opinion published by the USFWS (Federal Register, 2016). If removal of woody vegetation greater than 5 inches diameter-at-breast-height occurs during the active season of Indiana Bat, further review of the final Project area is recommended.

The study area does not occur within the vicinity of known hibernacula for Gray Bat based on desktop review. This species lives in caves year-round, utilizing caves adjacent to rivers during the summer and deep, vertical caves in the winter. It is recommended to confirm absence of known hibernacula prior to Project activities and avoid entry and disturbance to any cave habitat within the Project vicinity.

Suitable nesting habitat for Bald Eagle is located within the vicinity of North Site 2 and the South Site. Bald eagles are protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Bald eagles typically nest in mature trees near large waterbodies that provide an adequate food supply. There are multiple bald eagle records within the study area. Due to the level of human disturbance within this area, bald eagles may choose not to nest nearby; however, eagles that utilize this area are likely

accustomed to anthropogenic disturbance. If work will occur during the bald eagle nesting (January 15 - July 31), further review is warranted, including conducting an eagle nest survey to confirm the presence or absence of active nests and eagles. If an active nest is identified within a 660 ft buffer of the Project site, including access route, it is recommended that the USFWS be contacted prior to proceeding with work.

North Site 2 and the South Site may provide suitable nesting habitat for Wood Thrush and the Red-headed Woodpecker. Wood thrush typically nest in moderately developed understories of deciduous and mixed forests located near water, while Red-headed Woodpecker usually nests within forested areas containing dead trees and/or dead limbs. If work will occur during the nesting season (i.e., third week of May through July for Wood Thrush and the second week of May through the second week of September for Red-headed Woodpecker) further review is recommended. The current interpretation of the Migratory Bird Treaty Act excludes incidental take of migratory birds; however, the USFWS published a proposed ruling on May 7, 2021 that expands the Migratory Bird Treaty Act and prohibits incidental take of migratory birds. The proposed ruling has not been finalized; however, the new ruling may go into effect as early as the summer of 2021. A habitat and/or nest survey can be utilized prior to Project activities to confirm the suitability of nesting habitat and/or the presence or absence of nests within the Project vicinity.

Suitable spawning habitat for Pallid Sturgeon may be limited since the Project occurs within a Section 10 waterway with a history of dredging. Pallid sturgeon typically spawn in areas of the Missouri River with strong currents and firm sandy substrates. This species is very rare in the lower reaches of the Missouri River downstream of Gavin's Point Dam. Further review for Pallid Sturgeon is recommended for impacts to riverine habitat and water quality.

Based on our desktop review, Barr does not anticipate impacts to other state or federally protected species. Further review of potential impacts to protected species is recommended following final Project design.

5 Permit Requirements

Permit requirements will be dependent upon design. Anticipated permit requirements are summarized in Attachment 2. Permitting requirements with longer lead times and/or more significant application requirements, additional information is provided in the following subsections proceeding Table 4. Project introductory calls were completed with the USACE on June 29, 2021 (Attachment 3) and MDNR on July 1, 2021 (Attachment 4) and meeting notes are available under a separate cover. During introductory calls with the USACE and MDNR, North Site 1 was referred to as the North Site and North Site 2 was referred to as the Capital Sand Site. These sites were renamed to North Site 1 and North Site 2 following those meetings.

5.1 United States Army Corps of Engineers

The USACE regulates activities that occur within waters of the United States and jurisdictional wetlands. The USACE is provided the authority to regulate such activities under the Rivers and Harbors Act of 1899 and the Clean Water Act. Three main areas of federal permitting applicable to the Project are Section 10 and Section 408 (Rivers and Harbors Act of 1899) and Section 404 (Clean Water Act).

Section 10 of the Rivers and Harbors Act of 1899 requires a permit from the USACE prior to the construction of any structure in or over, or the placement of dredged or fill material in any officially designated navigable water of the United States. The law applies to any dredging or disposal of dredged materials, excavation, filling, re-channelization, or any other modification of an officially designated navigable water of the United States, regardless of the size of a structure or undertaking. It includes, without limitation, any wharf, weir, boom breakwater, jetty, bank protection (e.g., riprap, revetment, bulkhead), mooring structures such as pilings, aerial or subaqueous power or communication lines, intake or outfall pipes, permanently moored floating vessel, tunnel, artificial canal, boat ramp, aids to navigation, and any other permanent, or semi-permanent obstacle or obstruction. The USACE Kansas City District has identified the Missouri River, river mile 49.8 to river mile 552.7 (approximately from the Missouri/Iowa border to St. Charles County Missouri) as officially designated navigable waters. The Project will be located within a reach of the Missouri River defined by the USACE Kansas City District as an officially designated navigable water and may include construction activities and placement of fill material and Project related infrastructure within the rivers defined limits; therefore, the Project will likely require a Section 10 permit.

The USACE Civil Works Directorate is a major component of the USACE peace time mission. The Civil Works programs includes water resource development projects such as flood risk management, waterway, recreation opportunities, emergency response, and navigation of waters of the United States. In order to ensure that Civil Works projects continue to provide their intended benefits to the public, Congress mandated that any use or alteration of a Civil Works project by another party is subject to the approval of USACE. This requirement was established in Section 14 of the Rivers and Harbors Act of 1899, which has since been amended several times and is codified at 33 USC 408 (Section 408). The USACE, under the authority of Section 408, regulates and must permit third party actions that may affect or alter the function of Civil Works Program projects. The Project has the potential to alter navigable channels within

the Missouri River as developed and maintain by the USACE through the Civil Works program. The Project will require Section 408 review and permitting if modification of USACE projects is necessary.

The USACE, under Section 404 of the Clean Water Act (CWA), regulates discharge of dredged or fill material into waters of the United States, including jurisdictional wetlands. Section 404 permits can be issued under a General permit, a Nationwide permit, or Individual permit review and conditions. General Permits are a pre-defined common list of activities that generally result in minimal if any impacts to waters of United States and jurisdictional wetlands. General permits involve minimal review or oversight by the USACE. Nationwide permits are issues for activities that are common and are likely to have minor to moderate impacts to waters of the United States and jurisdictional wetlands (i.e., 0.5 acre). Nationwide permits can require additional consultation, review, and oversight from the USACE, including but not limited to specific limits on disturbances, required notifications, and limitation on materials or activities that are permitted. Individual permits are issued for activities that have the potential to have moderate to significant impacts to waters of the United States or wetlands. Individual Permits may require detailed minimization and mitigation efforts to reduce impacts, alternative analysis. The Project will require a Section 404 Individual permit.

The USACE, prior to issuing any permit, must take into consideration the environmental impacts of any permitted activity as required by NEPA. In addition, under NEPA, the USACE, acting as the lead federal agency for the Project, must also ensure all other federal environmental regulations are being followed. The NEPA review for the Project may result in the preparation and review of an Environmental Impact Statement (EIS). The NEPA process will also require public involvement including filing public notices, public scoping, and public comment period on the EIS document. If an EIS is not required, an Environmental Assessment may also be completed to document the NEPA review.

5.2 Missouri Department of Natural Resources

5.2.1 Air Quality

MDNR monitors and regulates air quality and permitting through the Air Pollution Control Program, authorized in 10 CSR 10-6.060. Construction permits, also known as a New Source Review (NSR) permit, are required for new construction. Construction permits allow the development of projects that would emit new sources of air pollutants through the construction process. Construction permits are required prior to commencing construction. There are three general types of construction permits: Major Source, Minor Source and De Minimis.

To assist project proponents in understanding what type of Construction Permit a project may need, MDNR developed *Permit Applicability Determination for Criteria Air Pollutants* flowchart. Table 4 summarizes the most common regulated pollutants and applicable limits referenced in the flow chart and codified in 10 CSR 10-6.020.

Table 4 Construction Permit Emission Levels of Common Air Pollutants

Pollutant ⁽¹⁾	Insignificant Levels (lbs/hours) ⁽²⁾	Regulated De-Minimis Level/Federal Significant Levels (tons per years)	Major Source Thresholds: NSR Non-Named Sources (tons per year)	Major Source Thresholds: Operating Permit and NSR Named Sources (tons per year)
PM ₁₀	1.0	15	250	100
PM _{2.5}		10	250	100
SO _x	2.75	40	250	100
NO _x	2.75	40	250	100
VOC	2.75	40	250	100
CO	6.88	100	250	100
HAPs	0.5 ⁽³⁾	10/25	10/25	10/25

- (1) PM₁₀ = particulate matter with diameter less than 10 microns; PM_{2.5} = particulate matter with diameter less than 2.5 microns; SO_x = Sulfur Oxides; NO_x = Nitrogen Oxides; VOC = Volatile Organic Compounds; CO= Carbon Monoxide; HAPs= Hazardous Air Pollutants.
- (2) Insignificance levels are defined in 10 CSR 10-6.061 *Construction Permit Exemptions* and are only applicable to previously permitted facilities.
- (3) The insignificance level indicated is a general value. This exemption may not apply to a HAP with an annual emission rate that exceeds its screening model action level as established in subsection (12)(J) of 10 CSR 10-6.060.

Missouri’s operating permit program applies to all facilities that have the potential to emit more than the specified de minimis level of any regulated air contaminant (Table 4). MDNR requires operating permits prior to a project commencing operations that include an air emission source. MDNR issues three types of operating permits: Part 70, Intermediate or Synthetic Minor, and Basic State.

- Basic operating permits are issued for facilities where potential emissions are greater than the de minimis level, but less than 100 tons per year of any non-HAP pollutant.
- Part 70 permits are issued for facilities with potential emissions exceeding 100 tons per year of any non-HAP or 10 tons per year of any single HAP, or 25 tons per year of two or more HAPs.
- Intermediate or Synthetic Minor operating permits are issued for facilities with potential emissions above the major source level, that choose to take voluntary limits on their operations to keep emissions below the major source threshold.

These conditions are called Federally Enforceable Permit Conditions, and the limited emissions become the installation’s new potential emissions.

5.2.2 Water

Section 401 of the Clean Water Act gives the states the authority to protect in state waters and wetlands by authorizing states to regulating certain activities. Through the issuance of a Section 401 Water Quality Certification, MDNR validates that proposed projects do not violate Missouri water quality standards. All activities that involve the placement of dredged or fill material into waters of the state (including wetlands) must have a 401 certification from the MDNR. If the USACE determines a 404 Permit is needed (see above), a 401 Certification from MDNR is needed as well. MDNR Water Protection Program monitors

and regulates Missouri's water pollution control efforts and issues the 401 Water Quality Certifications. Permit applicants are required to show that all applicable and feasible efforts have been made to avoid and/or minimize the project's adverse impacts to waters of the state, including wetlands. If adverse impacts cannot be avoided, The MDNR can require mitigation from the applicant to offset the unavoidable adverse impacts resulting from the project. When MDNR issues a 401 certification, including any required mitigation, it becomes part of the 404-permit issued by the USACE.

Land disturbance permits are required for all construction disturbances of an acre or more. The focus and primary elements of a land disturbance permit are a National Pollutant Discharge Elimination System (NPDES) permit and the development of a stormwater pollution prevention plan or SWPPP. A SWPPP should incorporate project and site-specific best management practices to be implemented to minimize the potential of the discharge of pollutants, including eroded soils, in waters of the state. The implementation, management, and maintenance of a well-developed SWPPP and best management practices ensures pollutants do not leave the construct site and contaminate waters of the state. It is expected that project construction on any of the potential sites will disturb more than one acre and a SWPPP and NPDES permit will be required.

5.3 Federal Emergency Management Administration

The Federal Emergency Management Administration (FEMA) requirements are largely administered at the County level via their floodplain ordinance, which is required for their participation in the National Flood Insurance Program.

6 Recommended Next Steps

A potential development approach and phasing are described in the conceptual layout and design basis memo also being provided at the time of this report in late summer, 2021. The authors of this CIA note that the proposed phasing of North Site 1, whereby the existing dock structure would be used for initial development at North Site 1, would be significantly easier to permit as it would likely not trigger the permitting thresholds described in Section 5.1. By using the existing dock, there would not be any construction of a new obstruction in a Section 10 water, impacts to a Civil Works project, or fill below the OHWM of a Section 404 waterbody. Based on the findings of this report and the financial and logistical information that have been provided by HPA, this approach seems most feasible. However, this may be subject to change depending on the availability of capital or findings from future site studies.

6.1 Next Steps - All Sites

The following next steps are applicable to all three sites, should HPA choose to move forward with any or all of the three sites:

- A Phase I Environmental Site Assessment to determine whether Recognized Environmental Conditions (RECs) have occurred associated with the brownfield sites, active hazardous cleanup sites, or UST facilities with ongoing or incomplete investigations/corrective actions near the Project sites prior to any land transactions.
- HPA should complete a title search to review titles for official boundaries and potential easements. HPA may also want to have further discussions with landowners to begin the process of purchase / establish lease agreements.
- It had been suggested during the June 29, 2021 virtual meeting with the USACE that a jurisdictional determination application be filed with the USACE to initiate a review of potentially jurisdictional aquatic resources on the three Project Sites. The USACE informed HPA that two options are available, a Preliminary Jurisdictional Determination (PJD) or an Approved Jurisdictional Determination (AJD). The two options would require different levels of investigation and documentation. The PJD would not require field data, but rather would rely on publicly available data, aerial imagery, and agency information pertinent to aquatic resources at a given location. The AJD would be based on field data and completing an assessment of site conditions based on the "Corps of Engineers Wetlands Delineation Manual" (USACE, 1987) and "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)" (USACE, 2010). Under a PJD, the USACE assumes that all resources that appear to be waters or wetlands are jurisdictional. Under an AJD, the USACE must make a determination of resources based on criteria defined in the "Corps of Engineers Wetlands Delineation Manual" and "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)" and generally results in less jurisdictional areas as compared to a PJD. Both the AJD and PJD require that the applicant own the land being evaluated or have a leasing agreement in place.

- Once HPA chooses the sites to proceed with further design, a comprehensive environmental and engineering schedule to align the level of design with the permitting needs should be developed. This schedule should also be incorporated into a broader project schedule with necessary action items outside of engineering and environment (e.g., funding, land acquisition, etc.).
- Confirm with the city, county, and/or DOT whether a traffic study may be required to supplement any potential local permitting requirements once access is confirmed and total trips can be estimated to better understand total potential of effect.
- Additional agency consultation will be required for the project after a conceptual design is completed and proposed timing of construction activities is better understood. Further outreach would include follow up with USACE and MDNR and the following agencies:
 - United State Fish and Wildlife Services
 - Callaway County and/or Jefferson City
- Complete preliminary hydraulic modeling for the concept design to evaluate likely impacts on flood levels, and to determine whether the proposed project will require modification to mitigate such impacts.

Additional next steps specific to individual sites are summarized in the following sections.

Implementation of these steps would be dependent on HPA's interest and timing for pursuit of a given site.

6.2 North Site 1 - Next Steps

- Cultural Resources
 - This site has not been previously surveyed, a pedestrian survey performed by a qualified archaeologist is recommended. The ultimate path forward for addressing cultural resource needs must be determined with further consultation involving the SHPO, potentially involving the Osage Nation, and the USACE or other permitting authorities.

6.3 South Site - Next Steps

- Land Use
 - As noted in Section 3.1.2, there is indication of a linear feature crossing the northern portion of the South Site which crosses another linear feature extending from the water treatment facility to the Missouri River. Coordination with the landowner and adjacent landowners is recommended to obtain additional information regarding additional detail on what these features are and any potential design constraints or considerations that may apply.
- Zoning

-
- HPA would need to apply for and receive a conditional use permit. Barr/Hanson recommends early engagement with the City of Jefferson to confirm the application requirements for the conditional use permit and to get their early input on design prior to applying.
 - Protected Species
 - Species specific surveys and consultation with the USFWS and MDNR will be required prior to construction and in conjunction with project permit review.
 - Cultural Resources
 - Additional cultural resource survey and/or SHPO consultation is recommended as follow up to the findings of previous surveys completed on this parcel.
 - This would include Phase II Testing of previously unevaluated sites, if considered necessary by SHPO. In addition, any previously evaluated sites would first have to be archaeologically established in the field. The extent of this work would be dependent upon negotiation with SHPO , the USACE, and likely the Osage Nation regarding the number of test units necessary.
 - The ultimate path forward for addressing cultural resource needs must be determined with further consultation involving the SHPO, likely involving the Osage Nation, and potentially involved the USACE or other permitting authorities.

6.4 North Site 2 - Next Steps

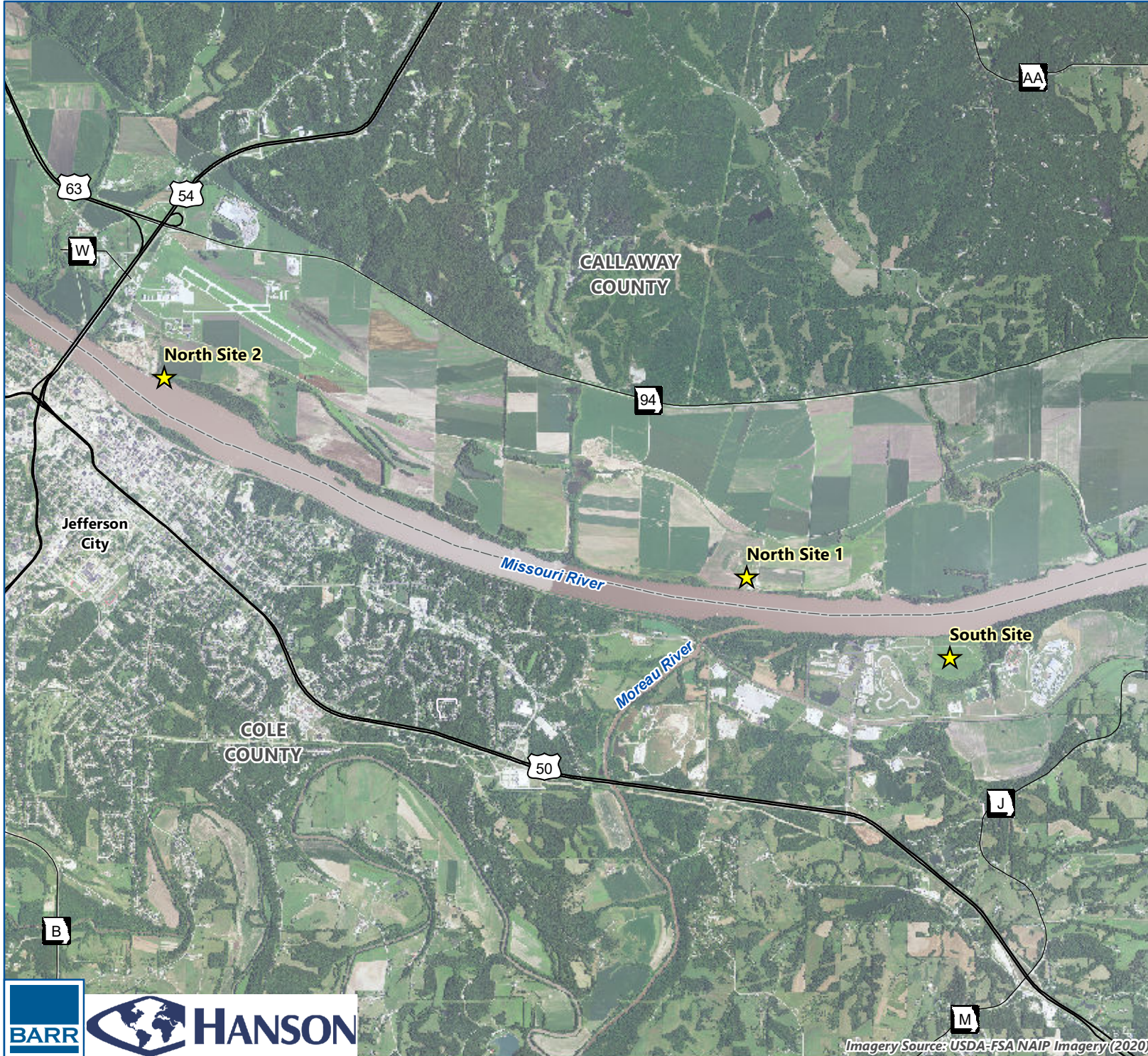
- Zoning
 - HPA would need to apply for and receive a conditional use permit. Barr recommends early engagement with the City of Jefferson to confirm the application requirements for the conditional use permit and to get their early input on design prior to applying.
- Protected Species
 - Species specific surveys and consultation with the USFWS and MDNR will be required prior to construction and in conjunction with project permit review.
- Cultural Resources
 - A pedestrian survey was previously completed on this property and no cultural resources were identified.
 - Due to the extended duration since the site was investigated over 20 years ago, a follow up pedestrian survey performed by a qualified archaeologist is recommended. However, the ultimate path forward for addressing cultural resource needs must be determined

with further consultation involving the SHPO, likely involving the Osage Nation, and potentially involved the USACE or other permitting authorities.

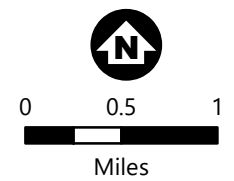
7 References

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Figures



- ★ Site Location
- County Boundary

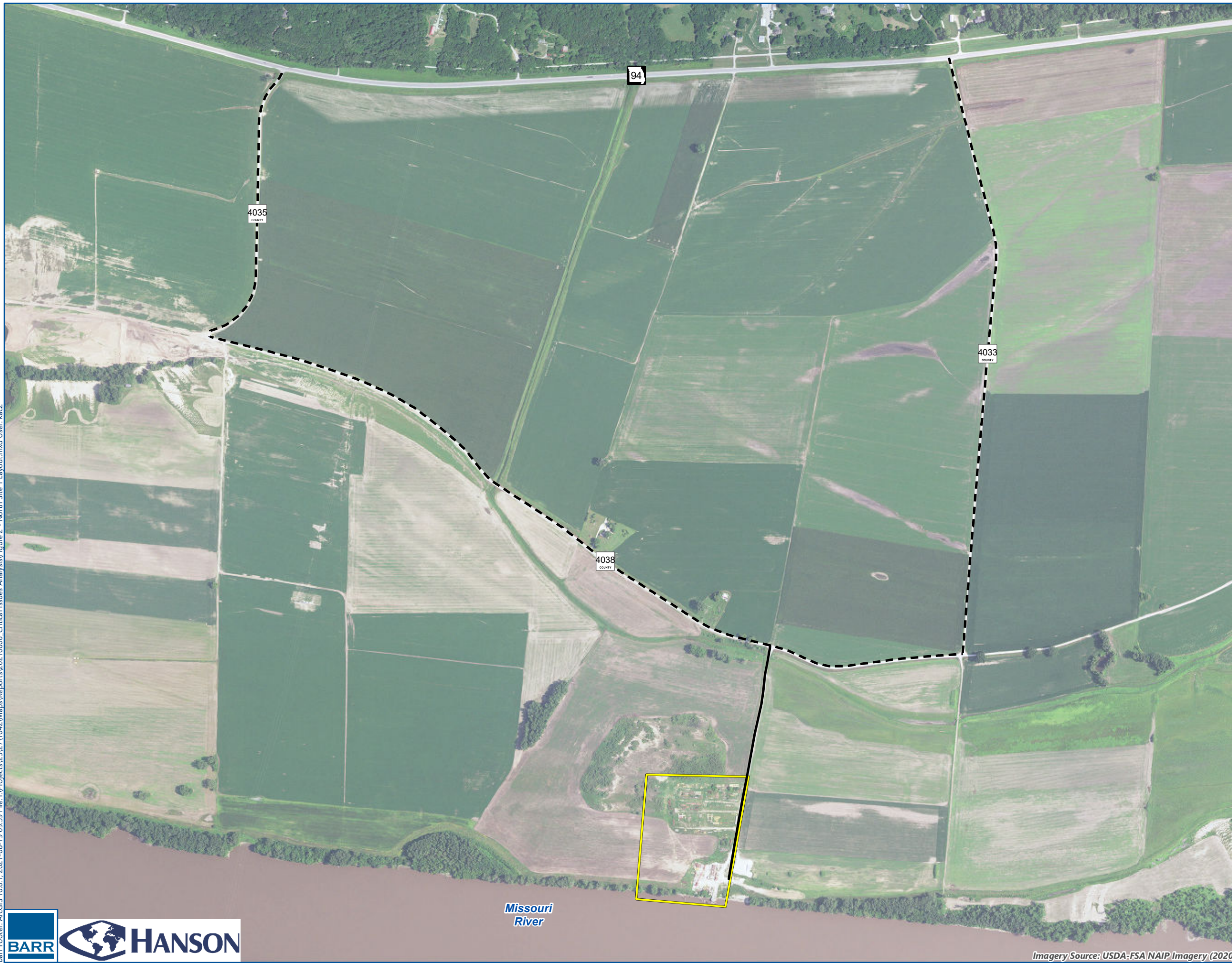





SITE LOCATION
Heartland Port Authority
Cole and Callaway
County, MO

FIGURE 1

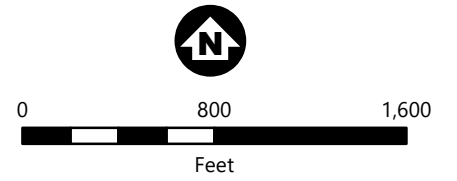


Barr Footer: ArcGIS 10.8.1, 2021-08-19 09:59 File: I:\Projects\25271042\Maps\Reports\20210806_Critical Issues Analysis\Figure 2 - North Site 1 Layout.mxd User: kac2



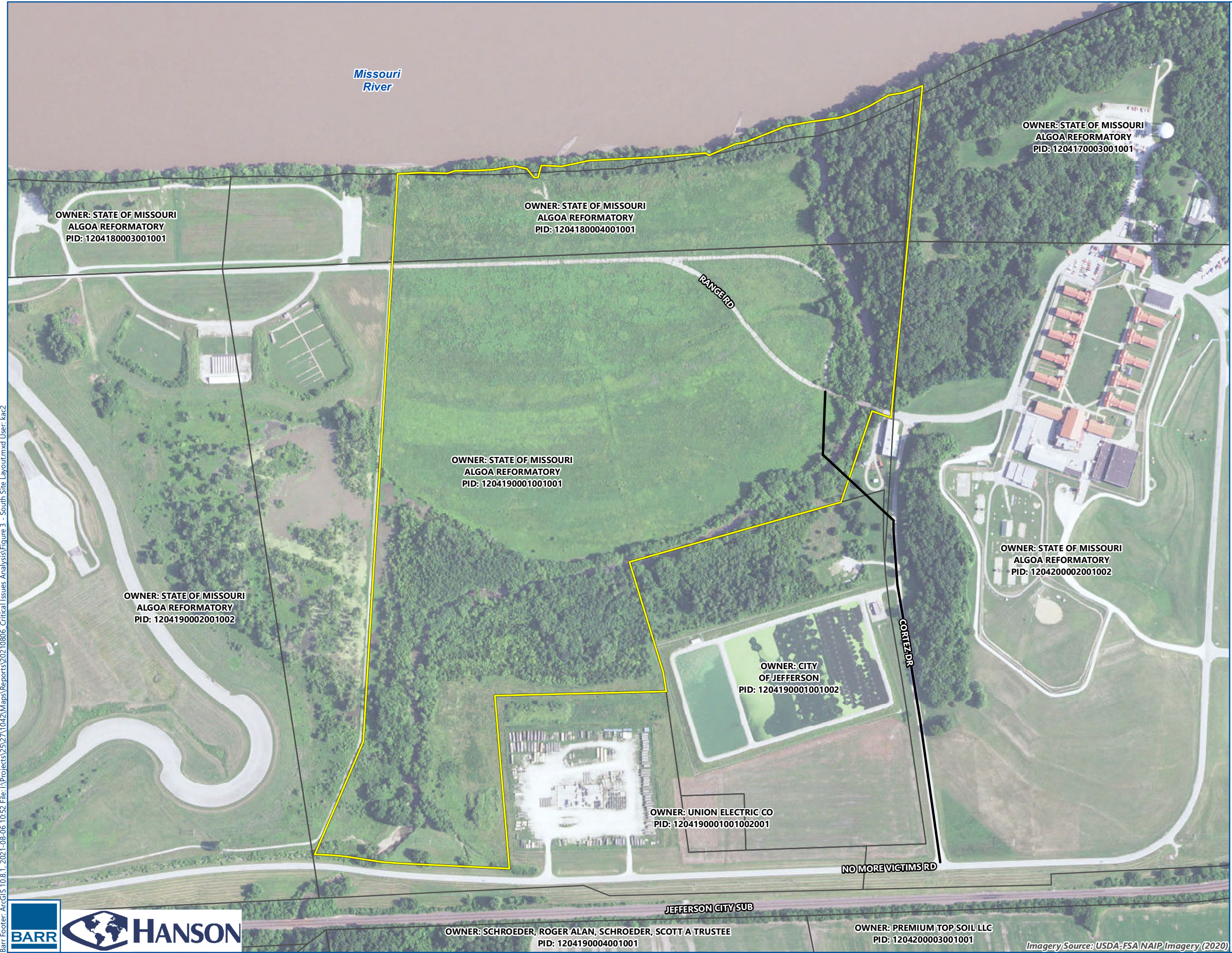
-  Approximate Site Boundary
-  County Roads Used for Site Access (See Note 1)
-  Entrance Road




Notes:
 1. County Roads used for North Site 1 access are under consideration for improvement to accommodate increased hauling activities to and from site.



NORTH SITE 1 LAYOUT
 Heartland Port Authority
 Cole and Callaway
 County, MO
FIGURE 2

Barr Footer: ArcGIS 10.8.1, 2021-08-06 10:52 File: I:\Projects\25271042\Maps\Reports\20210806 Critical Issues Analysis\Figure 3 - South Site Layout.mxd User: kac2



-  Approximate Site Boundary
-  Entrance Road
-  Parcel Boundary

OWNER: STATE OF MISSOURI
ALGOA REFORMATORY
PID: 1204170003001001

OWNER: STATE OF MISSOURI
ALGOA REFORMATORY
PID: 1204180003001001

OWNER: STATE OF MISSOURI
ALGOA REFORMATORY
PID: 1204180004001001

OWNER: STATE OF MISSOURI
ALGOA REFORMATORY
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OWNER: STATE OF MISSOURI
ALGOA REFORMATORY
PID: 1204190002001002

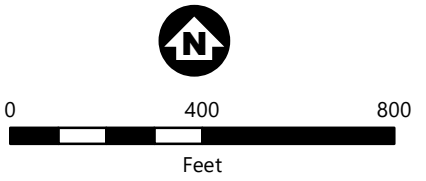
OWNER: STATE OF MISSOURI
ALGOA REFORMATORY
PID: 1204200002001002

OWNER: CITY
OF JEFFERSON
PID: 1204190001001002

OWNER: UNION ELECTRIC CO
PID: 1204190001001002001

OWNER: SCHROEDER, ROGER ALAN, SCHROEDER, SCOTT A TRUSTEE
PID: 1204190004001001

OWNER: PREMIUM TOP SOIL LLC
PID: 1204200003001001

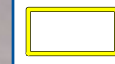


SOUTH SITE LAYOUT
Heartland Port Authority
Cole and Callaway
County, MO
FIGURE 3

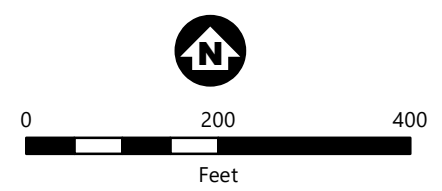
Imagery Source: USDA-FSA NAIP Imagery (2020)

Barr Footer: ArcGIS 10.8.1, 2021-08-19 10:00 File: I:\Projects\25271042\Maps\Reports\20210806_Critical Issues Analysis\Figure 4 - North Site 2 Layout.mxd User: kac2



 Approximate Site Boundary

Missouri River

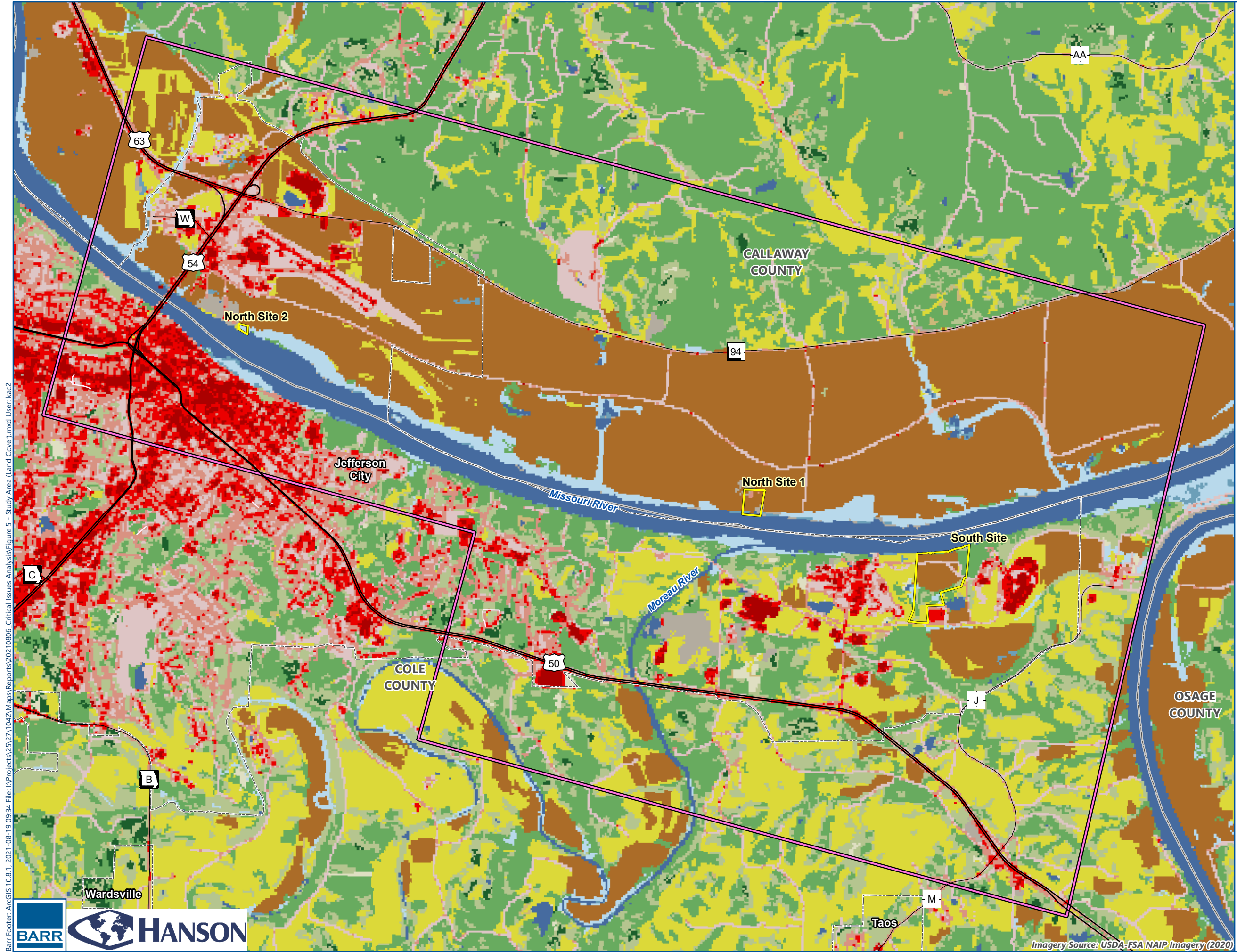


NORTH SITE 2 LAYOUT
Heartland Port Authority
Cole and Callaway
County, MO

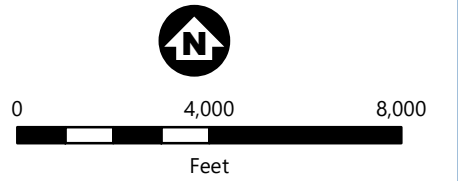
FIGURE 4



Imagery Source: USDA-FSA NAIP Imagery (2020)



- Study Area Boundary
- Approximate Site Boundary
- County Boundary
- NLCD 2016 Land Cover
- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Herbaceous
- Hay/Pasture
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceous Wetlands

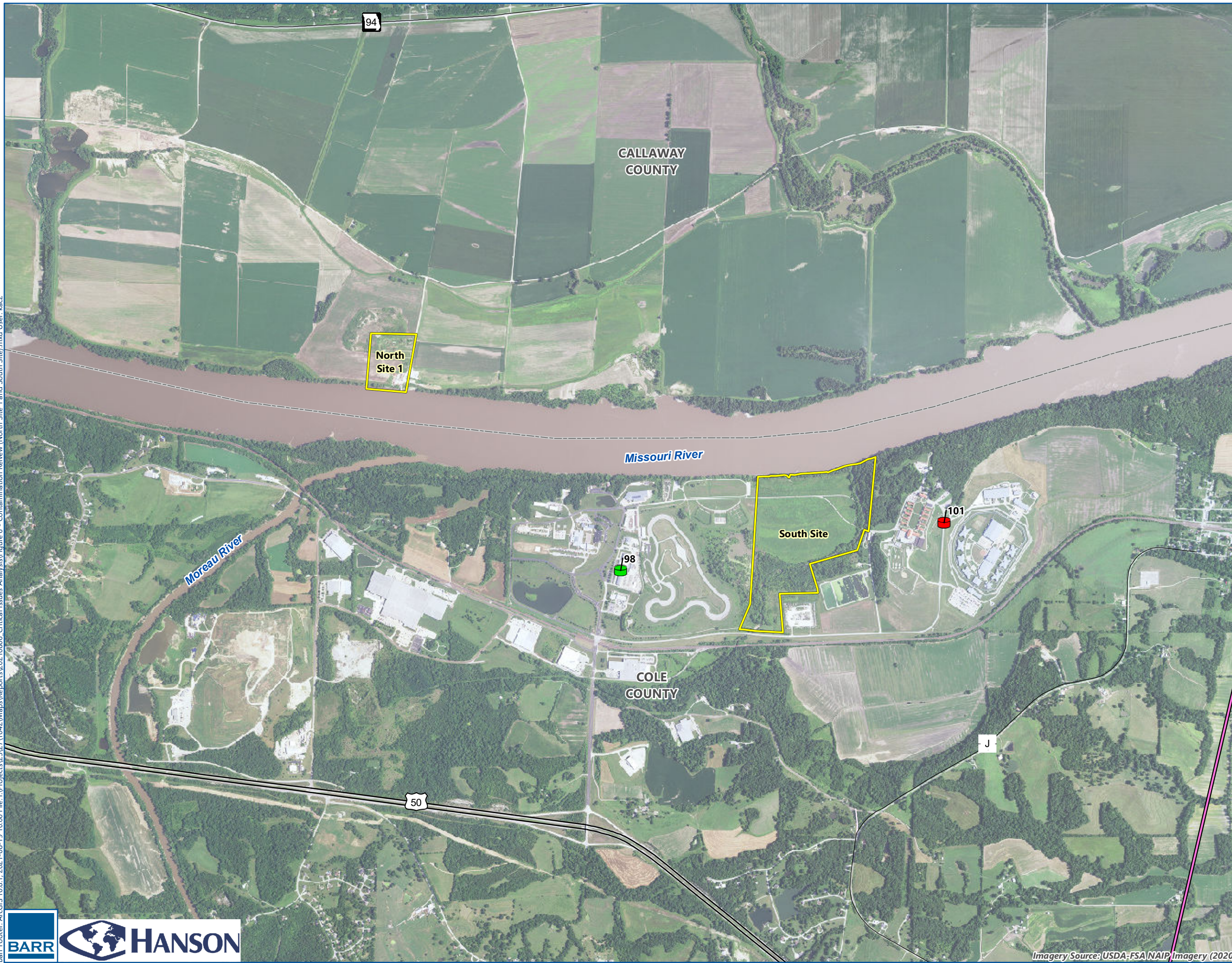



STUDY AREA (LAND COVER)
 Heartland Port Authority
 Cole and Callaway
 County, MO
FIGURE 5


Barr Footer: ArcGIS 10.8.1, 2021-08-19 09:34 File: I:\Projects\251271042\Maps\Reports\20210806_Critical Issues Analysis\Figure 5 - Study Area (Land Cover).mxd User: kac2




Imagery Source: USDA-FSA NAIP Imagery (2020)





 Approximate Site Boundary

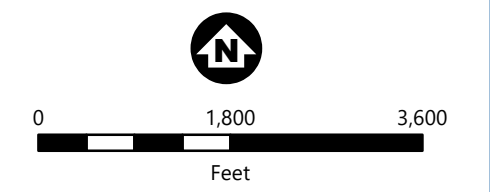
 Study Area Boundary

 County Boundary

Regulated Petroleum and Hazardous Substance Storage Tank Facilities

 Investigation/Corrective Action is Ongoing or Incomplete

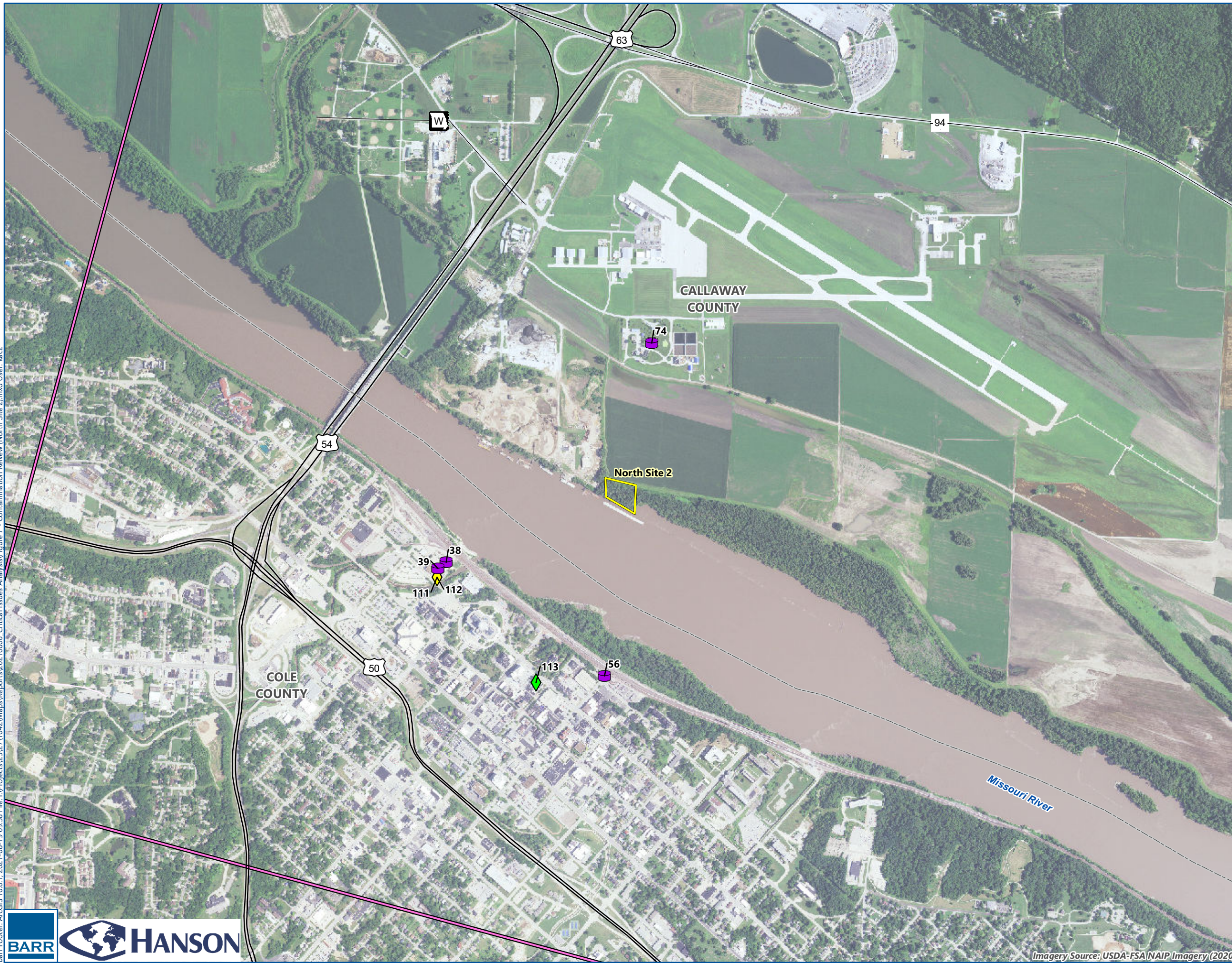
 No Further Action Letter Issued without Restriction










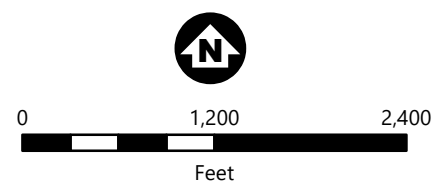
CONTAMINATION REVIEW
(NORTH SITE 1 AND SOUTH SITE)
Heartland Port Authority
Cole and Callaway
County, MO

FIGURE 6

Barr Footer: ArcGIS 10.8.1, 2021-08-19 09:58 File: I:\Projects\251042\Maps\Reports\20210806 Critical Issues Analysis\Figure 7 - Contamination Review (North Site 2).mxd User: kar2



-  Approximate Site Boundary
 -  Study Area
 -  County
- Regulated Petroleum and Hazardous Substance Storage Tank Facilities
-  Facility Closed Prior to Implementation of 2004 Tanks RBCA
- Hazardous Waste Program Cleanup Sites
-  Long-Term Stewardship
 -  Completed
 -  Brownfield



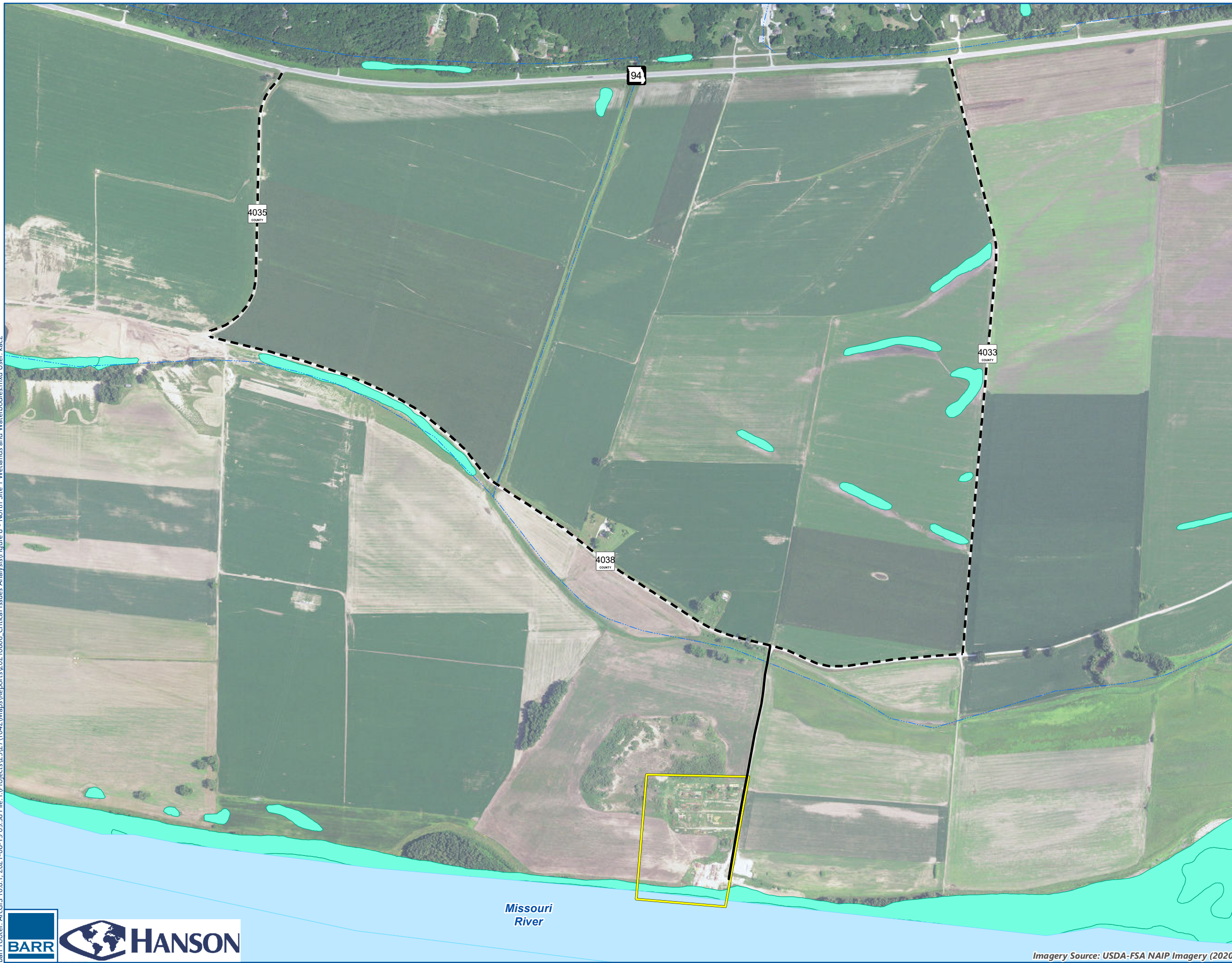
CONTAMINATION REVIEW
 (NORTH SITE 2)
 Heartland Port Authority
 Cole and Callaway
 County, MO










FIGURE 7



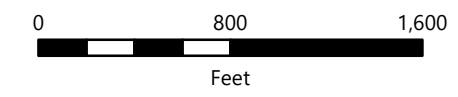
Imagery Source: USDA-FSA NAIP Imagery (2020)

Barr Footer: ArcGIS 10.8.1, 2021-08-19 09:58 File: I:\Projects\25271042\Maps\Reports\20210806_Critical Issues Analysis\Figure 8 - North Site 1 Wetlands and Waterbodies.mxd User: kac2



-  Approximate Site Boundary
-  County Roads Used for Site Access (See Note 1)
-  Entrance Road
- Rivers and Streams**
-  Perennial Stream or River
-  Intermittent Stream, River, or Wash
-  Perennial Canal, Ditch, or Aqueduct
-  Intermittent Canal, Ditch, or Aqueduct
-  Lake, Pond, or River
-  Wetlands (NWI)

Notes:
 1. County Roads used North Site 1 access are under consideration for improvement to accommodate increased hauling activities to and from site.

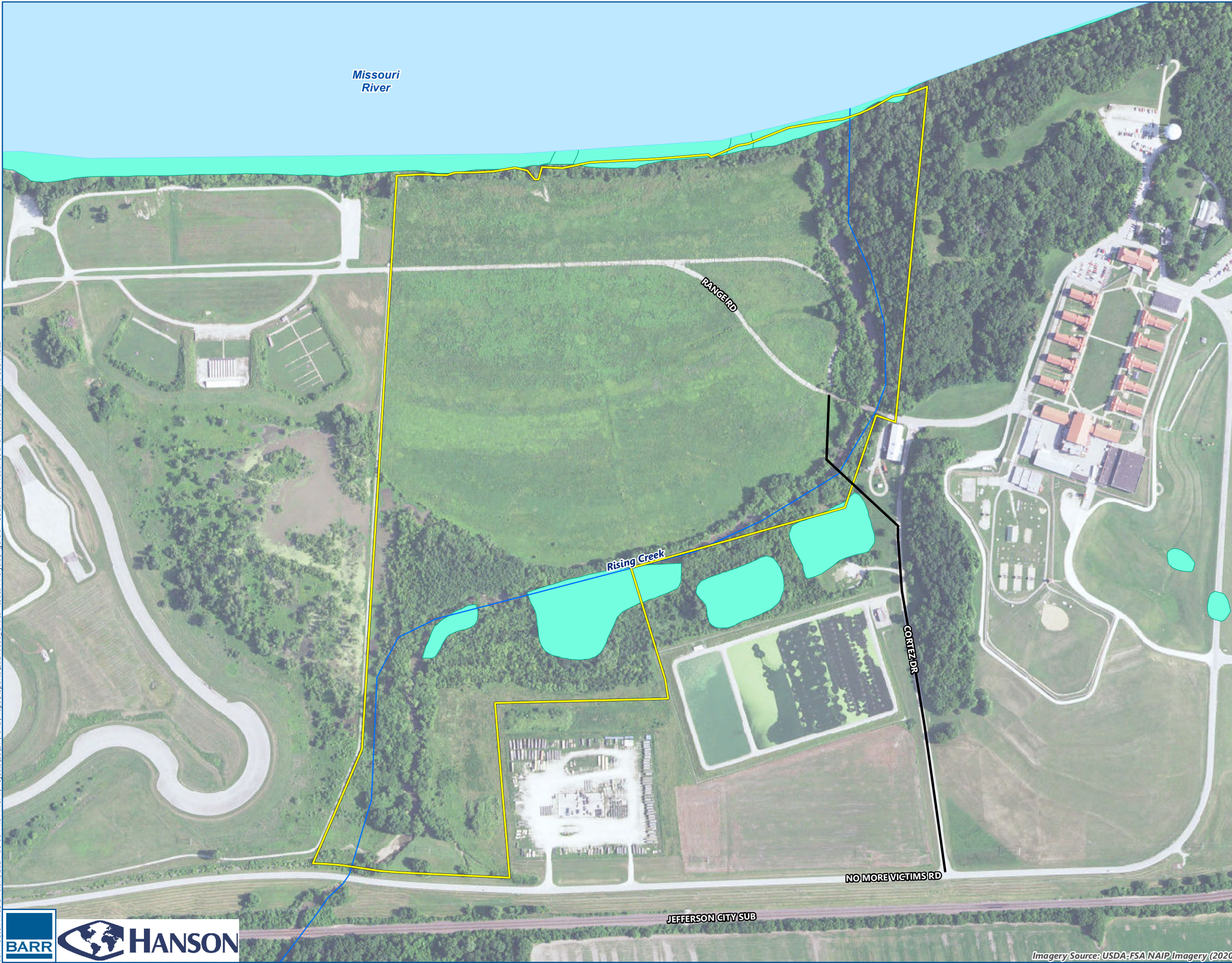


NORTH SITE 1 WETLANDS AND WATERBODIES
 Heartland Port Authority
 Cole and Callaway
 County, MO

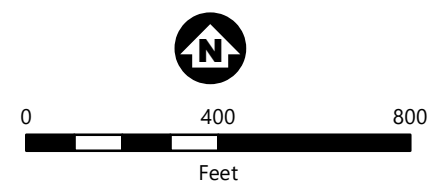
FIGURE 8



Imagery Source: USDA-FSA NAIP Imagery (2020)



- Approximate Site Boundary
- Entrance Road
- Rivers and Streams
- ~ Perennial Stream or River
- Lake, Pond, or River
- Wetlands (NWI)






SOUTH SITE WETLANDS AND WATERBODIES
Heartland Port Authority
Cole and Callaway
County, MO

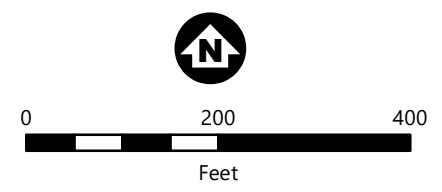
FIGURE 9

Barr Footer: ArcGIS 10.8.1, 2021-08-19 09:59 File: I:\Projects\25271042\Maps\Reports\20210806_Critical Issues Analysis\Figure 10 - North Site 2 Wetlands and Waterbodies.mxd User: kac2



-  Approximate Site Boundary
-  Lake, Pond, or River
-  Wetlands (NWI)

Missouri River



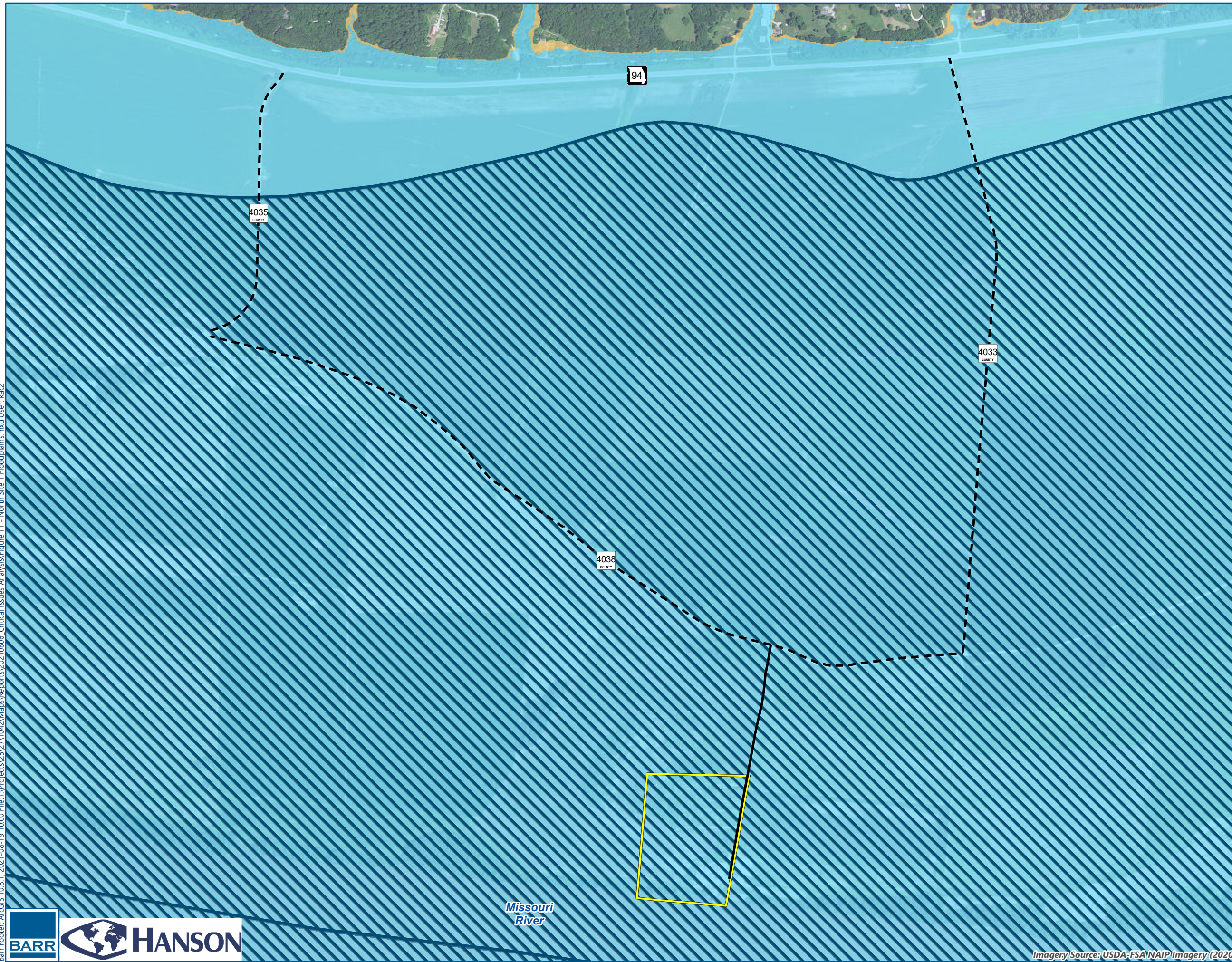
NORTH SITE 2 WETLANDS AND WATERBODIES
Heartland Port Authority
Cole and Callaway
County, MO







FIGURE 10



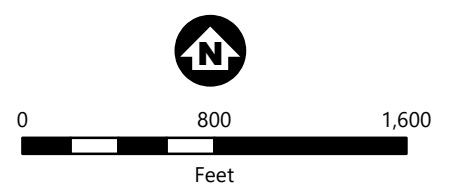
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Barr Footer: ArcGIS 10.8.1, 2021-08-19 10:00 File: I:\Projects\25271042\Maps\Reports\20210806 Critical Issues Analysis\Figure 11 - North Site 1 Floodplains.mxd User: kac2



-  Approximate Site Boundary
-  County Roads Used for Site Access (See Note 1)
-  Entrance Road
- Flood Hazard Zones (FEMA)
 -  1% Annual Chance Flood Hazard
 -  Regulatory Floodway
 -  0.2% Annual Chance Flood Hazard

Notes:
 1. County Roads used for North Site 1 access are under consideration for improvement to accommodate increased hauling activities to and from site.

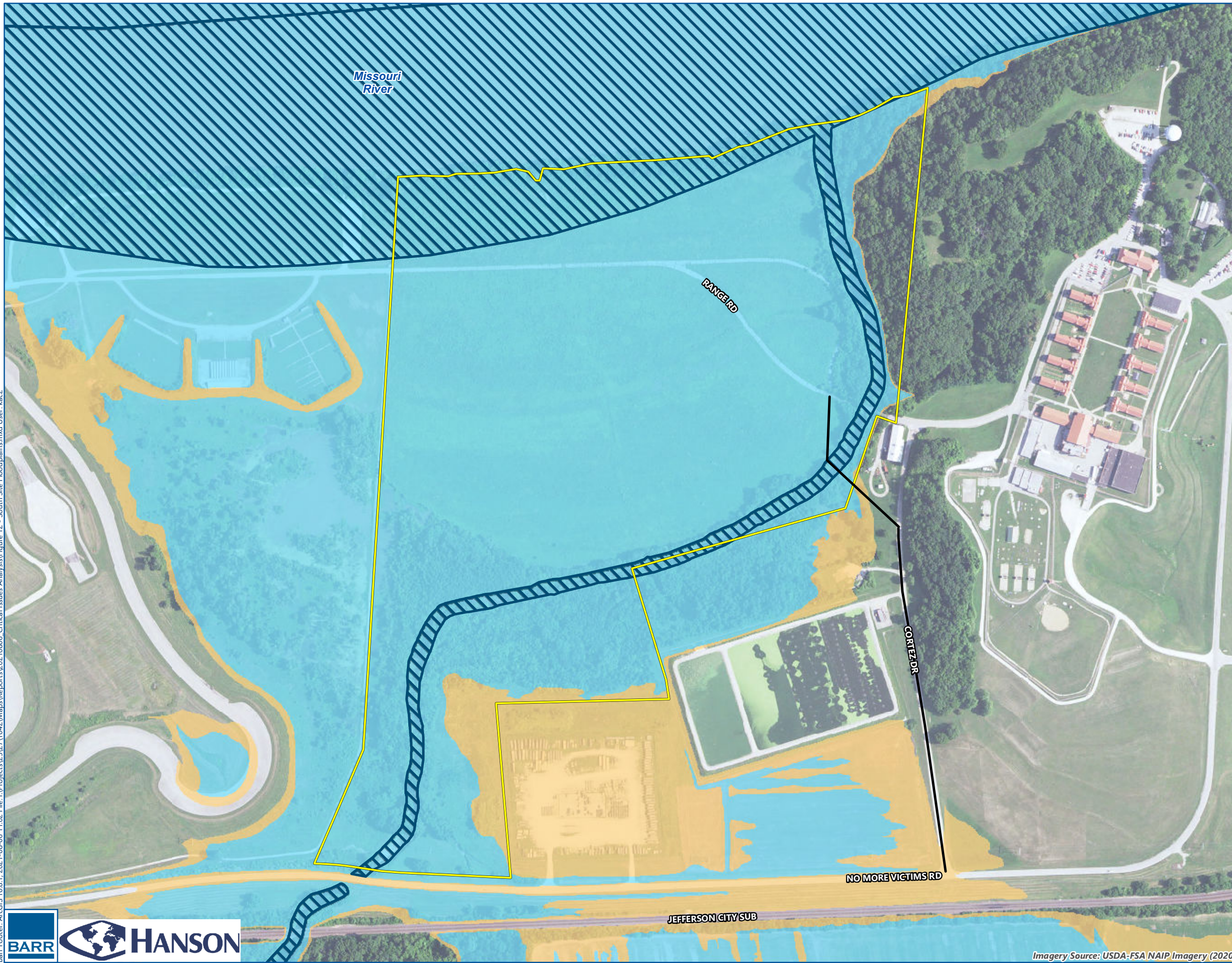







Missouri River

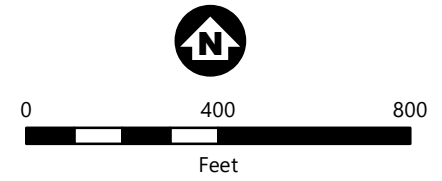
Imagery Source: USDA-FSA NAIP Imagery (2020)

NORTH SITE 1 FLOODPLAINS
 Heartland Port Authority
 Cole and Callaway
 County, MO
FIGURE 11

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-  Approximate Site Boundary
-  Entrance Road
- Flood Hazard Zones (FEMA)
-  1% Annual Chance Flood Hazard
-  Regulatory Floodway
-  0.2% Annual Chance Flood Hazard




SOUTH SITE FLOODPLAINS
 Heartland Port Authority
 Cole and Callaway
 County, MO
FIGURE 12





Imagery Source: USDA-FSA NAIP Imagery (2020)

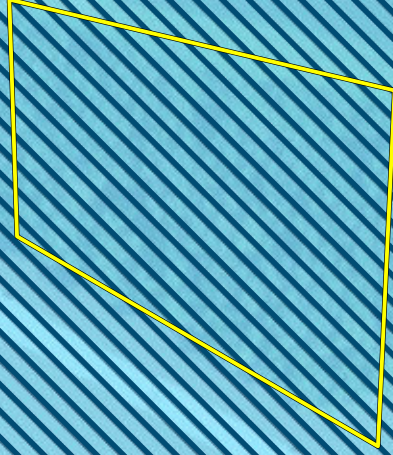
Barr Footer: ArcGIS 10.8.1, 2021-08-19 09:57 File: I:\Projects\25271042\Maps\Reports\20210806 Critical Issues Analysis\Figure 13 - North Site 2 Floodplains.mxd User: kac2

 Approximate Site Boundary


Flood Hazard Zones (FEMA)

 1% Annual Chance Flood Hazard

 Regulatory Floodway



Missouri
River



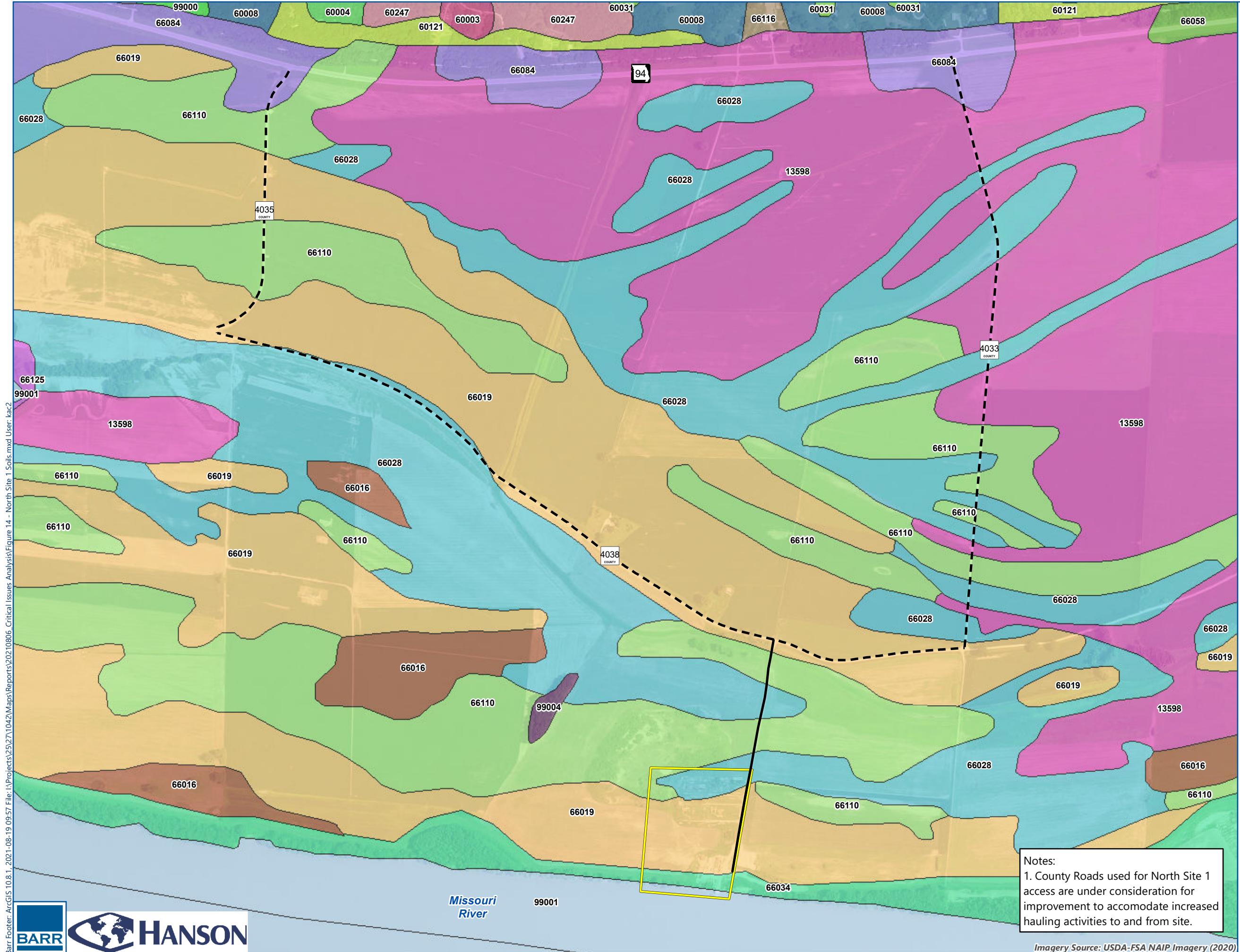
0 200 400
Feet



Imagery Source: USDA-FSA NAIP Imagery (2020)

NORTH SITE 2 FLOODPLAINS
Heartland Port Authority
Cole and Callaway
County, MO

FIGURE 13



Approximate Site Boundary

County Roads Used for Site Access (See Note 1)

Entrance Road

Soils - Map Unit Name (SSURGO Soils)

- 66058** Belknap silt loam, 0 to 2 percent slopes, occasionally flooded
- 66028** Blencoe silty clay loam, 0 to 2 percent slopes, occasionally flooded
- 13598** Booker silty clay, frequently ponded, 0 to 2 percent slopes, occasionally flooded
- 99004** Dumps, sand piles
- 66084** Dupo silt loam, 0 to 2 percent slopes, occasionally flooded
- 60121** Goss-Gasconade-Rock outcrop complex, 5 to 35 percent slopes
- 66116** Haymond silt loam, 0 to 2 percent slopes, occasionally flooded
- 66020** Haynie silt loam, 0 to 2 percent slopes, frequently flooded
- 66019** Lowmo silt loam, 0 to 2 percent slopes, occasionally flooded
- 60004** Menfro silt loam, 14 to 20 percent slopes, eroded
- 60008/60005** Menfro silt loam, 20 to 45 percent slopes
- 60003** Menfro silt loam, 9 to 14 percent slopes, eroded
- 99000** Pits, quarry
- 73050** Rock outcrop-Bardley complex, 35 to 99 percent slopes, extremely stony
- 66125** SansDessein silty clay, 0 to 2 percent slopes, frequently flooded
- 66110** SansDessein silty clay, 0 to 2 percent slopes, occasionally flooded
- 66034** Sarpy-Treloar complex, 0 to 2 percent slopes, frequently flooded
- 66016** Treloar-Haynie complex, 0 to 2 percent slopes, occasionally flooded
- 99001** Water
- 60247** Winfield silt loam, 20 to 30 percent slopes, eroded
- 60031** Winfield silt loam, 9 to 14 percent slopes, eroded

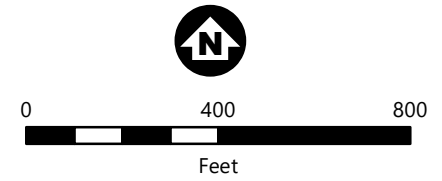
Scale: 0 400 800 Feet

Notes:
 1. County Roads used for North Site 1 access are under consideration for improvement to accommodate increased hauling activities to and from site.

Barr Footer: ArcGIS 10.8.1, 2021-08-19 09:57 File: I:\Projects\25271042\Maps\Reports\20210806_Critical Issues Analysis\Figure 14 - North Site 1 Soils.mxd User: kac2



- Approximate Site Boundary
- Entrance Road
- Soils - Map Unit Name (SSURGO Soils)
- 66012 Blake silt loam, 0 to 2 percent slopes, frequently flooded
- 74659 Deible silt loam, 0 to 2 percent slopes, occasionally flooded
- 66004 Dockery silt loam, 0 to 2 percent slopes, frequently flooded
- 64002 Freeburg silt loam, 1 to 3 percent slopes
- 73251 Gatewood-Moko complex, 8 to 20 percent slopes, very stony
- 66020 Haynie silt loam, 0 to 2 percent slopes, frequently flooded
- 75399 Jamesfin silt loam, 0 to 3 percent slopes, frequently flooded
- 75415 Jemerson silt loam, 0 to 3 percent slopes, occasionally flooded
- 60004 Menfro silt loam, 14 to 20 percent slopes, eroded
- 60005 Menfro silt loam, 20 to 45 percent slopes
- 60001 Menfro silt loam, 5 to 9 percent slopes, eroded
- 60003 Menfro silt loam, 9 to 14 percent slopes, eroded
- 73050 Rock outcrop-Bardley complex, 35 to 99 percent slopes, extremely stony
- 66125 SansDessein silty clay, 0 to 2 percent slopes, frequently flooded
- 75458 Tanglenook silty clay loam, 0 to 2 percent slopes, occasionally flooded
- 99027 Urban land, 3 to 15 percent slopes
- 64010 Urban land-Freeburg complex, 0 to 3 percent slopes, rarely flooded
- 60051 Urban land-Harvester complex, 3 to 15 percent slopes
- 99001 Water



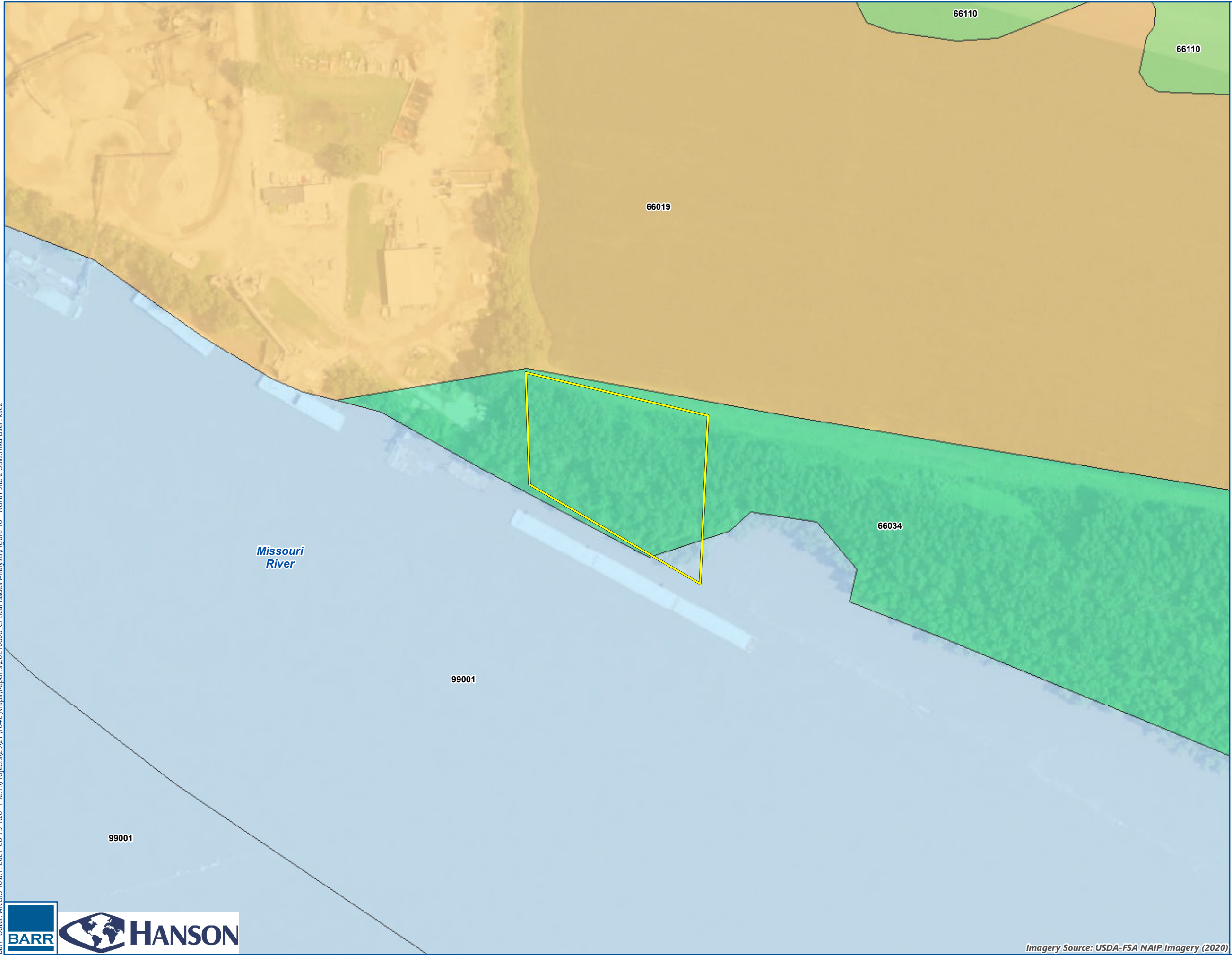
SOUTH SITE SOILS
 Heartland Port Authority
 Cole and Callaway
 County, MO
FIGURE 15






Barr Footer: ArcGIS 10.8.1, 2021-08-06 11:04 File: I:\Projects\25271042\Maps\Reports\20210806 Critical Issues Analysis\Figure 15 - South Site Soils.mxd User: kac2

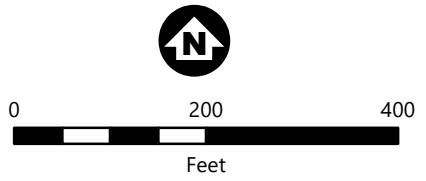


Imagery Source: USDA-FSA NAIP Imagery (2020)

Barr Footer: ArcGIS 10.8.1, 2021-08-19 10:01 File: I:\Projects\25271042\Maps\Reports\20210806_Critical Issues Analysis\Figure 16 - North Site 2 Soils.mxd User: kac2



-  Approximate Site Boundary
- Soils - Map Unit Name (SSURGO Soils)
-  66019 Lowmo silt loam, 0 to 2 percent slopes, occasionally flooded
-  66110 SansDessein silty clay, 0 to 2 percent slopes, occasionally flooded
-  66034 Sarpy-Treloar complex, 0 to 2 percent slopes, frequently flooded
-  99001 Water



NORTH SITE 2 SOILS
 Heartland Port Authority
 Cole and Callaway
 County, MO

FIGURE 16



Imagery Source: USDA-FSA NAIP Imagery (2020)

Attachments

Attachment 1

Wetland Delineation Report

Heartland Port Project: North Site 1 and South Site

Wetland Delineation Report

Heartland Port Project: North Site 1 and South Site

Prepared for
Heartland Port Authority



August 2021

Wetland Delineation Report

August 2021

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1 Introduction

Barr Engineering Co. (Barr) was retained by Heartland Port Authority of Central Missouri (HPA) to complete a wetland delineation in preparation for evaluation of potential impacts to support the design and construction of the Heartland Port Project (Project). The Project includes three sites: North Site 1, South Site, and North Site 2. This report describes wetland resources located within North Site 1 and South Site. North Site 1 would occupy approximately 21.5 acres on the north side of the Missouri River in an unincorporated portion of Callaway County. North Site 1 is accessible from Callaway County Road 4038 approximately 5.25 miles west of Jefferson City Memorial Airport. The South Site is located on the south side of the Missouri River within the incorporated limits of Jefferson City and is accessible from No More Victims Road. It encompasses approximately 118.1 acres and is located adjacent to and west of the Missouri Alcoa Correctional Center.

On June 15 and 16, 2021, Barr conducted a wetland delineation within the evaluation area to assist with the planning activities. This Wetland Delineation Report has been prepared in accordance with the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual ("1987 Manual", USACE, 1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Mid-West Region (Version 2.0, USACE, 2010).

This report includes general environmental information (Section 2.0), descriptions of the delineated wetland area (Section 3.0), and a discussion of regulations and the administering authorities (Section 4.0). The Figures section includes the Site Location Map, Site Topography Maps, Water Resources Maps (NWI and NHD), Soil Survey Maps, and Wetland Delineation Maps. Appendix A includes Wetland Data Forms, site photographs are included in Appendix B, and an aerial imagery review is provided in Appendix C.

2 General Environmental Setting

2.1 Site Description

The evaluation area for this wetland delineation, was defined to include North Site 1, the South Site, County Road 4033 and County Road 4035 between Highway 94 and County Road 4038, and County Road 4038 between County Road 4035 and County Road 4033. The evaluation area included 50-feet on either side of road paved surface, where access was available. Most of the evaluation area consists of feral undeveloped land (**Figure 1**). North Site 1 and South Site are located adjacent to the Missouri River.

2.2 Site Topography

The topography within the evaluation area and the surrounding area is generally rolling terrain with occasional steep slopes at drainages. The evaluation area generally slopes toward the Missouri River and to the east. Elevations within the evaluation area range from approximately 580 to 520 feet MSL (**Figures 2 and 3**).

2.3 Precipitation

Recent precipitation data were compared to historic data for evaluating annual and monthly deviations from normal conditions. Precipitation data were obtained from the Natural Resources Conservation Service, Agricultural Applied Climate Information Service (<http://agacis.rcc-acis.org/?fips=29051>) for the Project area.

Antecedent (preceding) moisture conditions were wetter the normal range based on precipitation during the month prior to the June 15 and 16, 2021 site visit (**Table 1**). Precipitation data for the Project was incomplete for the previous two years; however, based on available data, precipitation for 2019 and 2020 appear to have been within normal range. (**Table 2**). Based on the determined moisture conditions, the climatic/hydrologic conditions are not typical at the site for this time of year.

Table 1 Antecedent Moisture Conditions Prior to June 15, 2021

Antecedent Moisture Conditions Prior to June 15, 2021
Heartland Port Authority Wetland Delineation Jefferson City, MO

Precipitation data for target wetland location:

County: Cole and Callaway County

Nearest Community: Jefferson City, MO

USDA NRCS National Weather and Climate Center data for Precipitation Totals:

Station: Jefferson City Water Plant

Data source: Agricultural Applied Climate Information System (AgACIS): [AgACIS \(rcc-acis.org\)](http://AgACIS (rcc-acis.org))

Data retrieved: August 3, 2021

Site Visit: June 15 and 16, 2021

Values (inches)	First Month Prior March 2021	Second Month Prior April 2021	Third Month Prior May 2021
Precipitation Total for this Location	4.54	5.68	4.66
There is 30% Chance this Location will have less than:	2.57	3.2	3.84
There is 30% Chance this Location will have more than:	4.2	5.62	6.22
Type of Month: Dry Normal Wet	Wet	Wet	Normal
Monthly Score	3*3=9	2*3=6	1*2=2
Multi-month Score 6 to 9 dry , 10 to 14 normal , 15 to 18 wet	17 wet		

Table 2 WETS Precipitation Data from 1999 to 2021

Precipitation in Comparison to WETS Data
 Heartland Port Authority Wetland Delineation, Jefferson City, MO

Precipitation data for target wetland location:

County: Cole County

Nearest Community: Jefferson City, MO

Data obtained for the state of Missouri which includes Cole and Callaway County

Data source: Agricultural Applied Climate Information System (AgACIS): [AgACIS \(rcc-acis.org\)](http://rcc-acis.org)

Data retrieved: August 3, 2021

2000-2021 Summary Statistics													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
30%	1.27	1.24	2.57	3.2	3.84	3.07	2.32	2.61	2.24	2.02	1.6	1.42	27.4
70%	2.79	2.63	4.2	5.62	6.22	5.22	4.99	5.24	5.05	4.88	3.51	3.04	53.39
mean	2.29	2.16	3.56	4.71	5.28	4.39	4.09	4.32	4.14	3.99	2.88	2.49	44.31

Year to Year Totals													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2000	1.09	3.57	1.71	0.71	7.84	5.86	3.81	6.15	3.34	3.32	2.18	0.91	40.49
2001	2.23	4.74	1.36	4.6	8.22	5.24	3.97	2.13	3.69	6.09	2.65	1.82	46.74
2002	2.81	1.06	2.43	4.67	9	1.78	4.64	4.8	M1.60	3.32	1.11	1.58	38.8
2003	0.85	1.85	3.45	4.43	4.1	4.96	1.32	1.9	11.5	3.07	3.07	4.39	44.89
2004	3.27	0.71	5.23	2.89	5.5	1.6	6.77	9.81	1.78	3.21	7.94	1.36	50.07
2005	7.24	2.26	1.8	3.68	1.94	4.1	0.39	10.22	7.47	1.17	3.19	1	44.46
2006	1.68	0.18	2.97	3.12	2.19	2.1	3	4.03	0.69	2.76	4.19	M2.86	29.77
2007	3.01	2.26	3.34	5.17	3.39	5.47	1.37	M1.53	1.55	2.3	1.35	4.45	35.19
2008	1.27	4.51	4.68	5.62	7.1	6.39	10.49	2.65	12.32	1.45	1.13	3.58	61.19
2009	0.42	M2.00	3.92	M4.45	5.54	4.8	4.68	M2.16	5.12	12.33	4.13	M3.12	52.67
2010	M2.95	M2.54	3.16	4.69	5.1	6.34	6.13	3.85	6.33	0.48	2.16	M0.79	44.52

Year to Year Totals

2011	M1.56	M4.34	6.17	4.4	5.83	4.13	0.86	M3.34	3.59	1.21	4.59	3.66	43.68
2012	M0.60	M2.25	6.32	7.74	1.81	1.86	1.55	M0.55	M3.26	M4.06	0.97	M1.35	32.32
2013	M2.78	M3.93	M2.95	M9.19	4.96	M6.02	3.91	2.13	2.62	2.71	1.65	1.27	44.12
2014	0.89	1	0.9	8.85	3.71	3.17	M2.69	3.26	1.97	M8.12	1.46	M2.79	38.81
2015	0.66	1.1	2.18	3.78	7.51	6.33	6.04	3.77	0.7	M1.00	9.55	7.75	50.37
2016	0.77	0.65	2.8	3.5	5.13	1.48	5.75	8.39	7.48	0.92	1.08	0.88	38.83
2017	1.4	0.55	5.62	8.86	7.89	3.68	3.84	5.68	2.68	5.8	0.45	0.54	46.99
2018	2.19	3.31	3.51	1.14	3.1	M2.02	3.33	4.46	2.15	9.07	2.63	4.59	41.5
2019	3.19	2.72	M4.67	2.86	8.75	4.12	1.66	7.84	M2.32	M7.41	M2.15	M1.17	48.86
2020	M6.30	2.17	4.54	3.58	2.93	5.71	9.88	2.14	M4.76	M0.00		M0.44	42.45
2021	M3.15	M1.97	M4.54	5.68	4.66	9.46	M4.00	M0.14					33.6

2.4 Hydrology

The project properties, North Site 1 and South Site, are located within the Lower Missouri – Moreau (Missouri Department of Natural Resources [MDNR], 2021).¹ North Site 1 lies north of the Missouri River and south of Callaway County 4038. The South Site lies south of the Missouri River and north of No More Victims Road. Rising Creek transects the South Site generally flowing from southwest to northeast, to its convergences with the Missouri River. There are no MDNR listed impaired waters within the boundaries of the project properties.

2.5 Soil Resources

Soil information for the project site was reviewed from the USDA NRCS WSS geographic database (<https://websoilsurvey.nrcs.usda.gov/app/>, accessed June 25, 2021).

The South Site contains the following soil types (Figure 6):

- 60005 Menfro silt loam, 20-45% slope
- 64010 Urban-land Freeburg Complex, 0-3% slope
- 66004 Dockery silt loam, 0-2% slope
- 66012 Blake silt loam, 0-2% slope
- 66020 Haynic silt loam, 0-2% slope
- 66125 SansDessein silty clay, 0-2% slope
- 74659 Deible silt loam, 0-2% slope
- 75415 Jemerson silt loam, 0-3% slope
- 75458 Tanglenook silt loam, 0-2% slope

North Site 1 contains the following soil types (Figure 7):

- 66019 Lowmo silt loam, 0-2% slope
- 66034 Sarpy-Treloar Complex, 0-2% slope
- 66028 Blencoe silty clay loam, 0-2% slope
- 66110 SansDessein silty clay, 0-2% slope

¹ Missouri Department of Natural Resources. Missouri Watersheds. [Online] [Cited: July 20, 2021.] <https://dnr.mo.gov/omw/OMWWatersheds.htm>.

The USDA NRCS classifies Sarpy-Treloar Complex, SansDessein silty clay, Blake silt loam, Haynic silt loam, Deible silt loam, and Tanglenook silt loam as hydric solis.

2.6 National Wetlands Inventory and Water Resources

The National Wetlands Inventory (NWI) was developed by the U.S. Fish and Wildlife Service (USFWS) in the late-1970s, based primarily on interpretation of aerial photographs. This dataset contains inaccuracies, due to spatial errors from aerial imagery rectification, hydrologic variability, and human landscape modification. The NWI often underestimates wetlands that have been actively altered due to agricultural practices.

The review of NWI and WSS data for North Site 1 indicated the likely presence of forested wetlands at the Missouri River's edge. The width of the potential wetlands varied between 60 and 120 feet between the databases, but both suggest the wetlands extended the full shoreline of North Site 1, or approximately 800 feet.

NWI and WSS data for the South Site suggested riverine systems as part of the Missouri River on the north border, but also associated with Rising Creek that crossed the South Site from southwest to northeast. There were also indications that potential vegetated wetlands could be present on the south-central portion of the South Site. Both datasets used imagery backgrounds that illustrated inundated land on the southwest border of the South Site; however, neither database suggested the presences of wetlands in this area. The WSS identified non-hydric soils on the southwest border and the NWI illustrated no wetlands in the area.

3 Wetland Delineation

3.1 Wetland Delineation and Classification Methods

Wetlands within the evaluation area were delineated and classified in the field on June 15 and 16, 2021. The wetland delineation was established according to the Routine On-Site Determination Method specified in the U.S. Army Corps of Engineers Wetlands Delineation Manual (1987 Edition) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Mid-West Region (Version 2.0, USACE, 2010).

The delineated wetland boundaries and sample points were surveyed using a Global Positioning System (GPS) with sub-meter accuracy (**Figures 8 and 9 provides the location of each wetland in relation to the Project area**). The Level 3 Routine Method was used, which specifies that some wetland boundaries are identified using only off-site methods and other wetland boundaries are determined through onsite field data collection.

Wetlands were classified using the U.S. Fish and Wildlife Service (USFWS) Cowardin System (Cowardin et al., 1979) and the USFWS Circular 39 system (Shaw and Fredine, 1956).

When conducting the field delineation, sample sites were established in both wetland and upland areas, and observations were recorded on wetland determination data forms (**Appendix A**). Soil borings were conducted in and around wetland areas, to a depth of at least 24 inches below the ground surface where possible. Representative soil samples from each boring were examined for the presence of hydric soil indicators using the Natural Resources Conservation Service (NRCS) hydric soil indicators (Version 8.2). Soil colors (e.g., 7.5YR 4/2, etc.) were determined using a Munsell® soil color chart and noted on the Wetland Data Forms **Appendix A**.

Hydrologic conditions were evaluated at each soil boring, and this information was also noted on the Wetland Data Forms. The dominant plant species were identified, and the corresponding wetland indicator status of each plant species was determined and noted on the Wetland Data Forms (**Appendix A**). Photographs taken at the time of the site visit are provided in **Appendix B**. An aerial imagery review was conducted for all wetland evaluation areas to determine if wet signatures were present during normal precipitation years (**Appendix C**).

3.2 Wetland Descriptions

There were 7 areas for wetland evaluations as seen on **Figures 8 and 9**. Though drier than normal conditions were present, and a number of agricultural disturbances have been present both recently and historically, six out of seven evaluation areas were determined to be wetlands having hydric soil indicators, hydrophytic vegetation present, and hydrology indicators. These wetlands consisted of four different community types: perennial river shorelines, perennial stream basin, seasonally flooded intermittent channels and seasonally flooded terrace communities. A description of each wetland community is provided below, with representative photographs in **Appendix B**. A summary of wetlands and classification types is found in **Table 4**.

Table 3 Wetland Summary

Determination Area	Wetland ID	Data Plots	Cowardin	Acres
1	SSMR	SSMR9	R2UB	3.98*
2	SSCK	SSCK4	R2UB	5.68
3	SSBP	SSBP, SSBPUP	PEM/SS1	2.78
4	SSSC	SSBP, SSBPUP	R4SB5	0.13
5	SSBW	SSBP, SSBPUP	R4SB5	0.15
6	NSMR	NSMR3	R2UB	1.39**
7	4033	4033	Upland	---

*Area calculated for riverine systems associated with the South Site-Missouri River is based on an estimated 100 feet off the property line of the South Site.

**Area calculated for riverine system associated with North Site 1 -Missouri River is based on the site boundary that extended into the Missouri River.

3.2.1 Determination Area 1 (SSMR)

Wetland 1 consists of the Missouri River shoreline community on the north border of the South Site (**Figure 8**). Vegetation in Wetland 1 was largely absent presumably due to seasonal flooding and shoreline scouring by the Missouri River. Vegetation was limited to sparse occurrences of common buttonbush (*Cephalanthus occidentalis*). Soils were clayey silt and silty clay loams with gleyed matrix (F2). Shallow rock inhibited the observation of soils observations below 8-10 inches in depth, however, soil survey data indicates Haynic silt loam soils type (66020) at sample point. Haynic soils are classified as hydric.

The hydrology source for Wetland 1 is the Missouri River. The perennial flow of the Missouri River met the wetland hydrology indicators for surface water (A1), water marks (B1), inundation visible on aerial imagery (B7), sparsely vegetated concave surface (B8), water-stained leaves (B9), and saturation visible on aerial imagery (C9). Aerial imagery reviewed and water marks were used to help determine boundaries where vegetation was not continuous across the wetland. This wetland was determined to have an R2UB Cowardin classification.

The transition to upland is characterized by upward sloping topography with an absence of hydrology and hydrophytic vegetation indicators.

3.2.2 Determination Area 2 (SSCK)

Wetland 2 consists of the Rising Creek perennial stream basin community within the South Site (**Figure 8**). Rising Creek enters the South Site as it outfalls through a large culvert under No More Victims Road on the South Site's south boundary. Wetlands 2 includes Rising Creek and unnamed drainages that discharge to the creek on the South Site. Soils were observed clayey silt loams with gleyed matrix (F2). Rock inhibited soil test pits below 12 inches in depth, however, soil survey data indicates Haynic silt loam soils type (66020) at sample point. Haynic soils are classified as hydric.

The hydrology source for Wetland 2 is Rising Creek. Wetland 2 met the primary wetland hydrology indicators for surface water (A1) water marks (B1), water-stained leaves (B9) and sparsely vegetated concave surface (B8). Secondary hydrology indicators included a drainage patterns (B10) and saturation visible on aerial imagery (C9). This wetland was determined to have Cowardin classification of R2UB.

The transition to upland within the Rising Creek stream basin is generally characterized by upward sloping topography with an absence of hydrology and hydrophytic vegetation indicators.

3.2.3 Determination Area 3 (SSBP)

Wetland 3 consists of a beaver influenced, flooded terrace on the southwestern boundary of the South Site (**Figure 8**). Vegetation in Wetland 3 consists of black willow (*Salix nigra*), common buttonbush, marsh seedbox (*Ludwigia palustris*), narrow-leaf cattail (*Typha angustifolia*), spotted lady's thumb (*Persecaria maculosa*), common reed (*Phragmites australis*), and blue-eyed grass (*Sisyrinchium albidum*). Surface soils were silty with high organic content underlain by silt loams to a depth of approximately 18 inches. Soils exhibited anerobic conditions having a hydrogen sulfide odor (A4), stripped matrix (S6) and loamy gleyed matrix (F2).

The hydrology source for the flooded terrace wetlands is precipitation and overland flow. Wetland 3 included primary indicators of wetland hydrology to include surface water (A1), inundation visible on aerial imagery (B7), water marks (B1), water-stained leaves (B9), and hydrogen sulfide odor (C1). Secondary hydrology indicators included saturation visible on aerial imagery (C9). This wetland was determined to have Cowardin classification of PEM/SS1.

The transition to upland within the flooded terrace wetland is characterized by an absence of hydrology indicators and dominant upland plant communities. Wetland 3, SSBP, was influenced by beaver activity, which indirectly influenced hydrology conditions within Wetland 4 (SSSC) and Wetland 5 (SSBW).

3.2.4 Determination Area 4 (SSSC)

Wetland 4 consists of a seasonally flooded intermittent channel on the southwest portion of the South Site and influenced by Wetland 3 (**Figure 8**). Wetland 3 and associated beaver activity indirectly influenced Wetland 4 (SSSC). Wetlands 3, in wetter years, appears to overflow its terrace basin and beaver dams to outflow into Wetland 4, an intermittent channel that appears to drain Wetland 3 to Rising Creek to the east. Vegetation in Wetland 4 was sparse and limited to common buttonbush and silver maple (*Acer saccharinum*). Soils exhibited a stripped matrix (S6) and loamy gleyed matrix (F2) hydric soil indicators.

The hydrology source for Wetland 4 is precipitation and overland flow. The seasonally flooded intermittent channel met primary hydrology indicators for water marks (B1), sediment deposits (B2), drift deposits (B3), sparsely vegetated concave surface (B8), and water-stained leaves (B9). Drainage patterns (B10) were the only secondary indicator observed. This wetland was determined to have Cowardin classification of R4SB5.

The transition to upland within the seasonally flooded, intermittent channel is characterized by upward sloping topography with an absence of hydrology indicators and the presence of upland vegetation communities.

3.2.5 Determination Area 5 (Wetland SSBW)

Wetland 5 consists of a seasonally flooded intermittent channel on the southwest portion of the South Site and is hydrologically influenced by Wetland 3 (**Figure 8**). Wetland 3 and associated beaver activity indirectly influences Wetland 5 (SSBW). In wetter years, Wetland 3 appears to overflow its terrace basin to outflow into Wetland 5, which is an intermittent channel that appears to drain Wetland 3 to Rising Creek to the south. Vegetation in Wetland 5 was sparse and limited to common buttonbush and marsh seedbox. Soils exhibited stripped matrix (S6) and loamy gleyed matrix (F2) hydric soil indicators.

The hydrology source for Wetland 5 is precipitation and overland flow. The seasonally flooded intermittent channel met the wetland primary hydrology indicators for surface water (A1), water marks (B1), sparsely vegetated concave surface (B8), and water-stained leaves (B9). Drainage patterns (B10) were the only secondary indicator observed. This wetland was determined to have Cowardin classification of R4SB5.

The transition to upland within the seasonally flooded intermittent channel is characterized by upward sloping topography with an absence of hydrology indicators and the presence of upland vegetation communities.

3.2.6 Determination Area 6 (NSMR)

Wetland 6 consists of the Missouri River shoreline community on the south border of North Site 1 (**Figure 9**). The shoreline of North Site 1 has been significantly impacted by current development and activity at the site. Evidence of fill material, including, non-native soils, debris (metal, trash, etc.), rock and concrete were observed at the water's edge and up slope on the adjacent bank. Vegetation was largely absent presumably due to recent activities at North Site 1, seasonal flooding and scour of the shoreline by the Missouri River. Rock and debris inhibited the observation of soils below approximately four to six inches in depth, however, soil survey data indicates Sarpy-Treloar complex soil type (66034) on the south border of North Site 1. Sarpy-Treloar complex soils are classified as hydric.

The hydrology source for Wetland 1 is the Missouri River. The Missouri River met the wetland hydrology primary indicators for surface water (A1), water marks (B1), inundation visible on aerial imagery (B7), and water-stained leaves (B9). Secondary indicators included drainage patterns (B10) and saturation visible on aerial imagery (C9). Aerial imagery and water marks were used to help determine boundaries due limited vegetation and soil disturbances due to past site activities. This wetland was determined to have Cowardin classification of R2UB.

The transition to upland within Wetland 6 is characterized by upward sloping topography with an absence of hydrology and hydrophytic vegetation indicators.

3.2.7 Determination Area 7 (4033)

Determination Area 7 (4033) included a low-lying area between County Road 4033 and an active agricultural field. Barr determined that based on the field visit and aerial imagery review that this location did not meet the required wetland vegetation, hydrology or soil criteria. This area was determined to be classified as uplands.

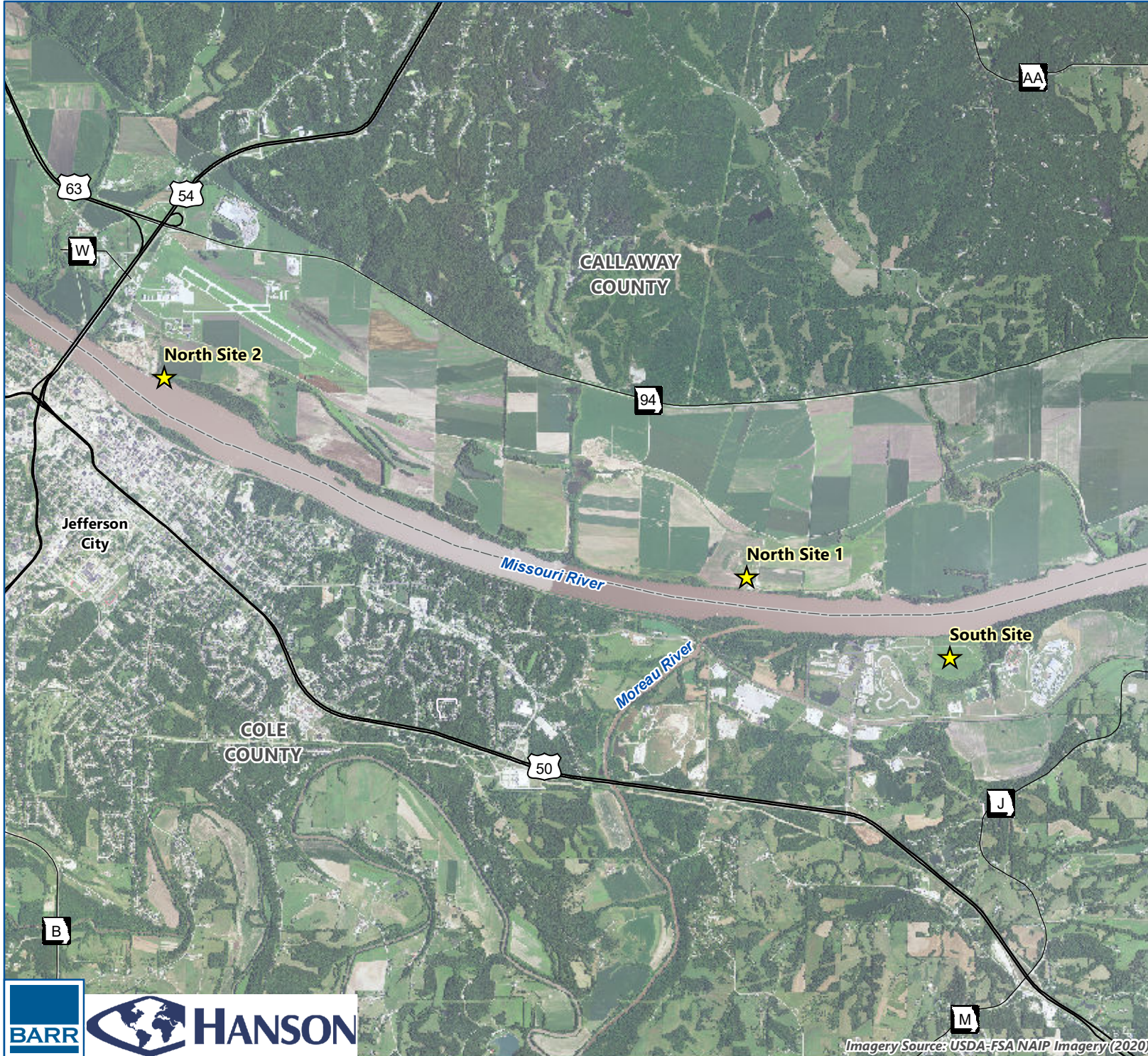
4 Regulatory Overview



The USACE regulates the placement of dredge or fill materials into wetlands that are located adjacent to or interstate or navigable waters under the authority of Section 404 of the Clean Water Act. The USACE has jurisdiction over the Project and will also review impacts to wetlands under the authority of the National Environmental Policy Act. The USACE should be contacted before altering any wetlands.

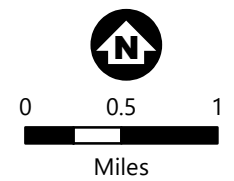
5 References

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- U.S. Department of Agriculture, Natural Resources Conservation Service. Web Soil Survey. *Soil Survey of Callaway County, MO*. <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm> Site Accessed June 2021.
- U.S. Fish and Wildlife Service. 1956. *Wetlands of the United States Circular 39*. U.S. Government Printing Office, Washington, D.C.
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Figures



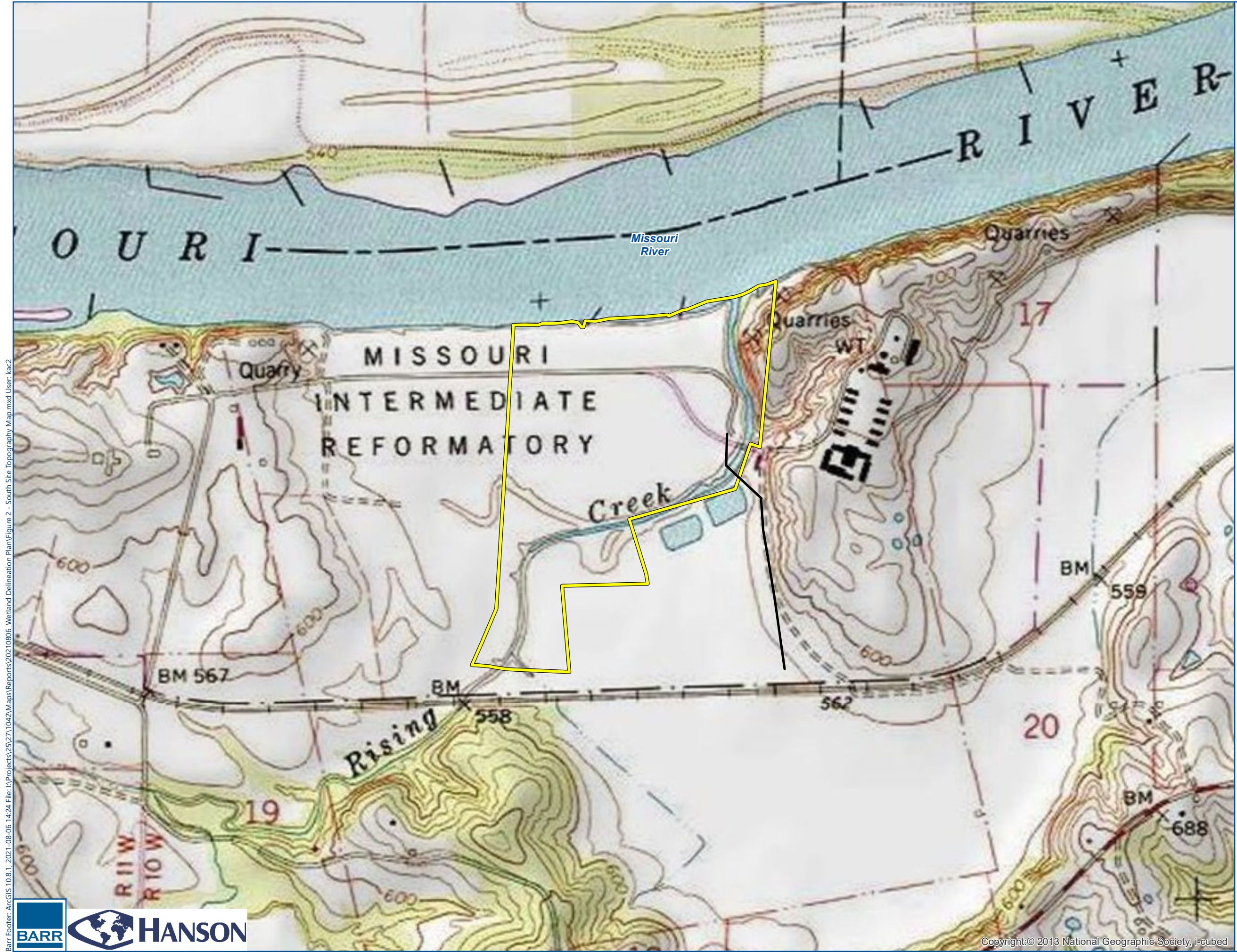
-  Site Location
-  County Boundary





SITE LOCATION
Heartland Port Authority
Cole and Callaway
County, MO

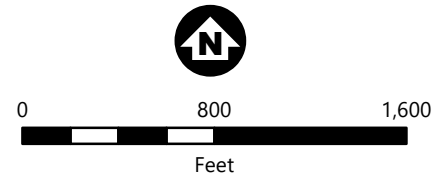
FIGURE 1





 Approximate Site Boundary

 Entrance Road



SOUTH SITE TOPOGRAPHY MAP
 Heartland Port Authority
 Cole and Callaway
 County, MO

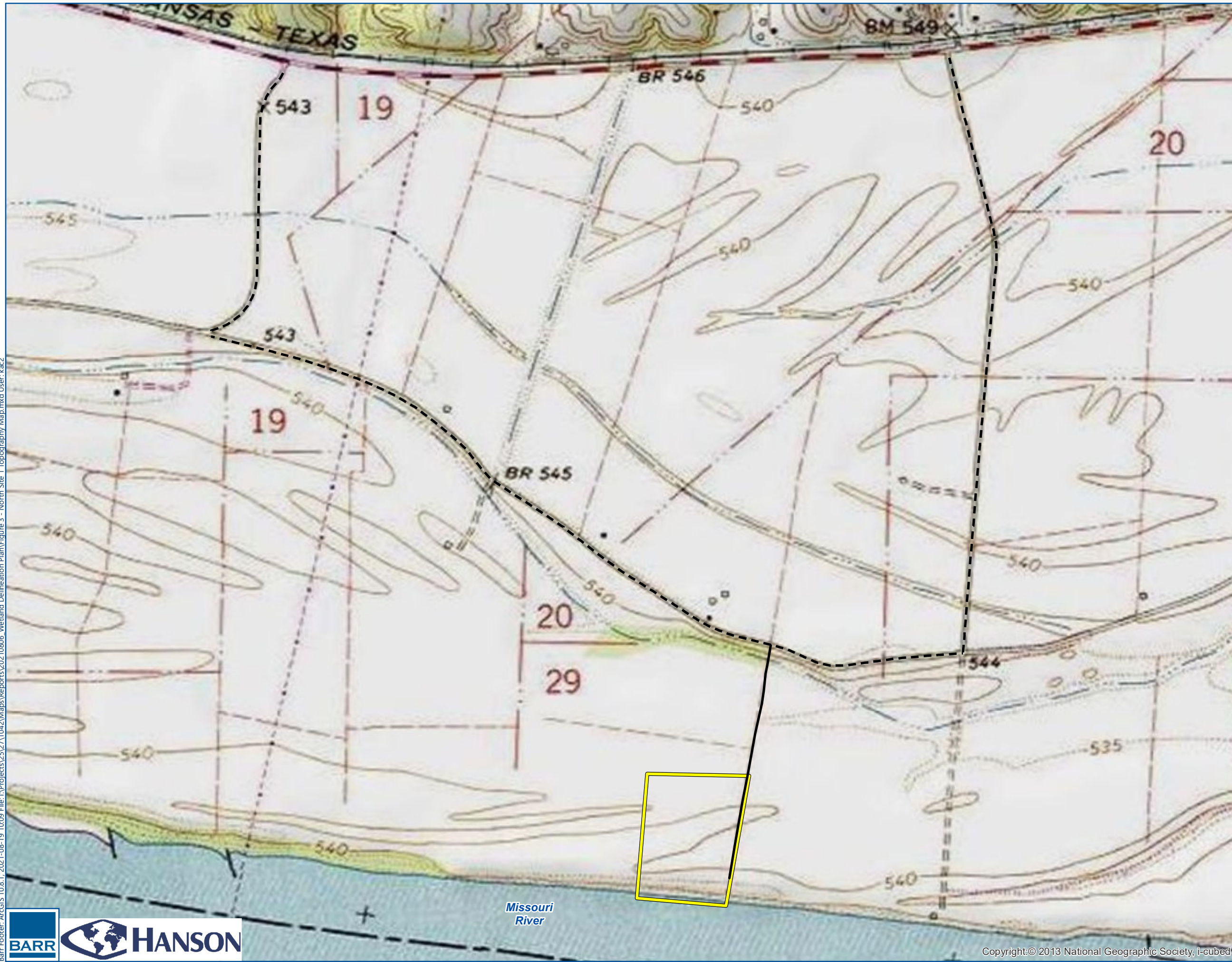
FIGURE 2




Barr Footer: ArcGIS 10.8.1, 2021-08-06 14:24 File: I:\Projects\25271042\Maps\Reports\20210806_Wetland Delineation Plan\Figure 2 - South Site Topography Map.mxd User: kac2



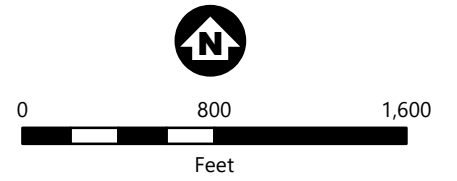
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Barr Footer: ArcGIS 10.8.1, 2021-08-19 10:09 File: I:\Projects\25271042\Maps\Reports\20210806_Wetland Delineation Plan\Figure 3 - North Site 1 Topography Map.mxd User: kac2



-  Approximate Site Boundary
-  County Roads Used for Site Access (See Note 1)
-  Entrance Road

Notes:
 1. County Roads used for North Site 1 access are under consideration for improvement to accommodate increased hauling activities to and from site.



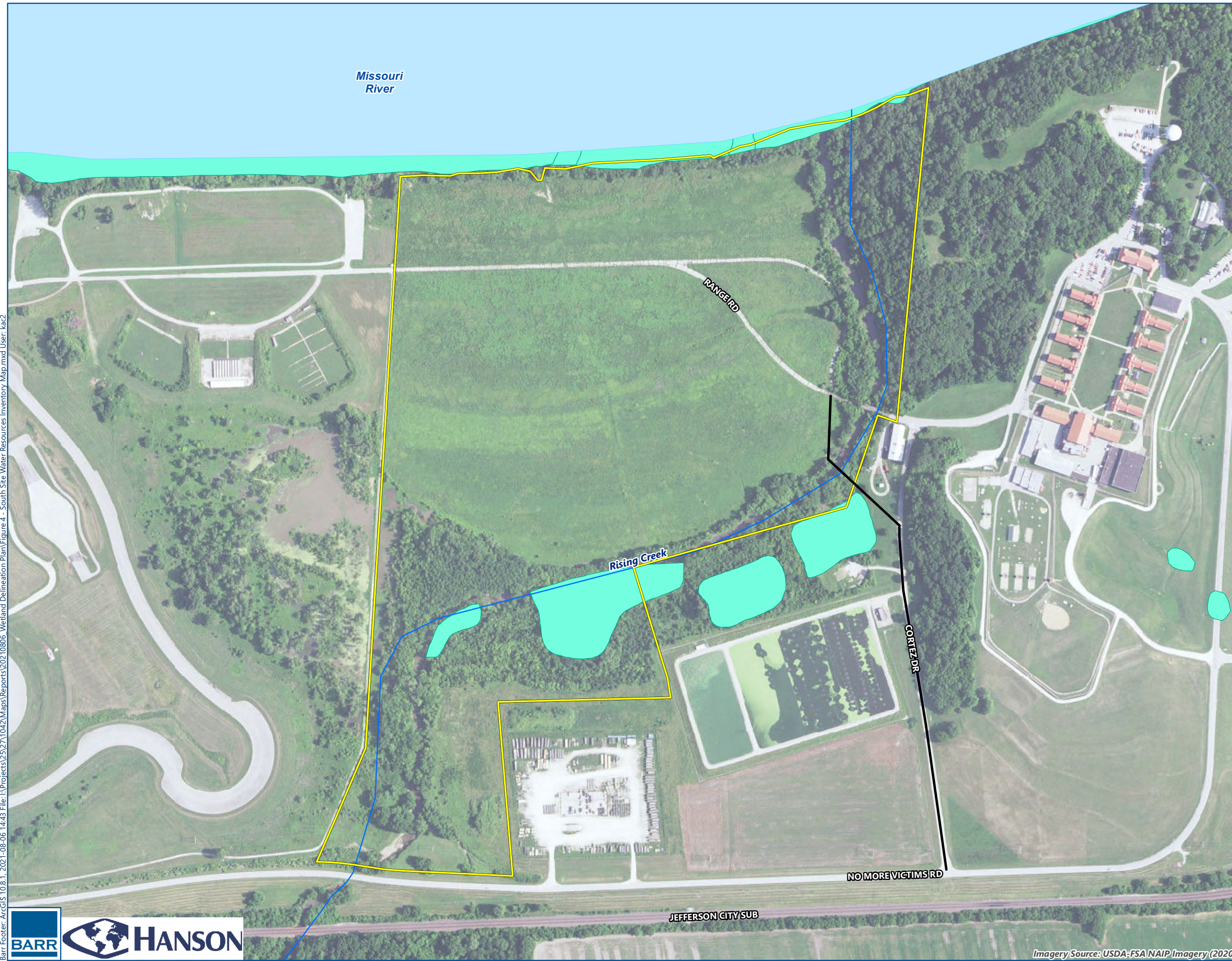
NORTH SITE 1 TOPOGRAPHY MAP
 Heartland Port Authority
 Cole and Callaway
 County, MO






FIGURE 3

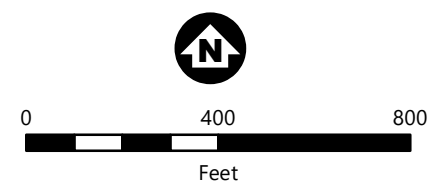


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Barr Footer: ArcGIS 10.8.1, 2021-08-06 14:43 File: I:\Projects\25271042\Maps\Reports\20210806_Wetland Delineation Plan\Figure 4 - South Site Water Resources Inventory_Map.mxd User: kac2



-  Approximate Site Boundary
-  Entrance Road
- Rivers and Streams**
-  Perennial Stream or River
-  Lake, Pond, or River
-  Wetlands (NWI)



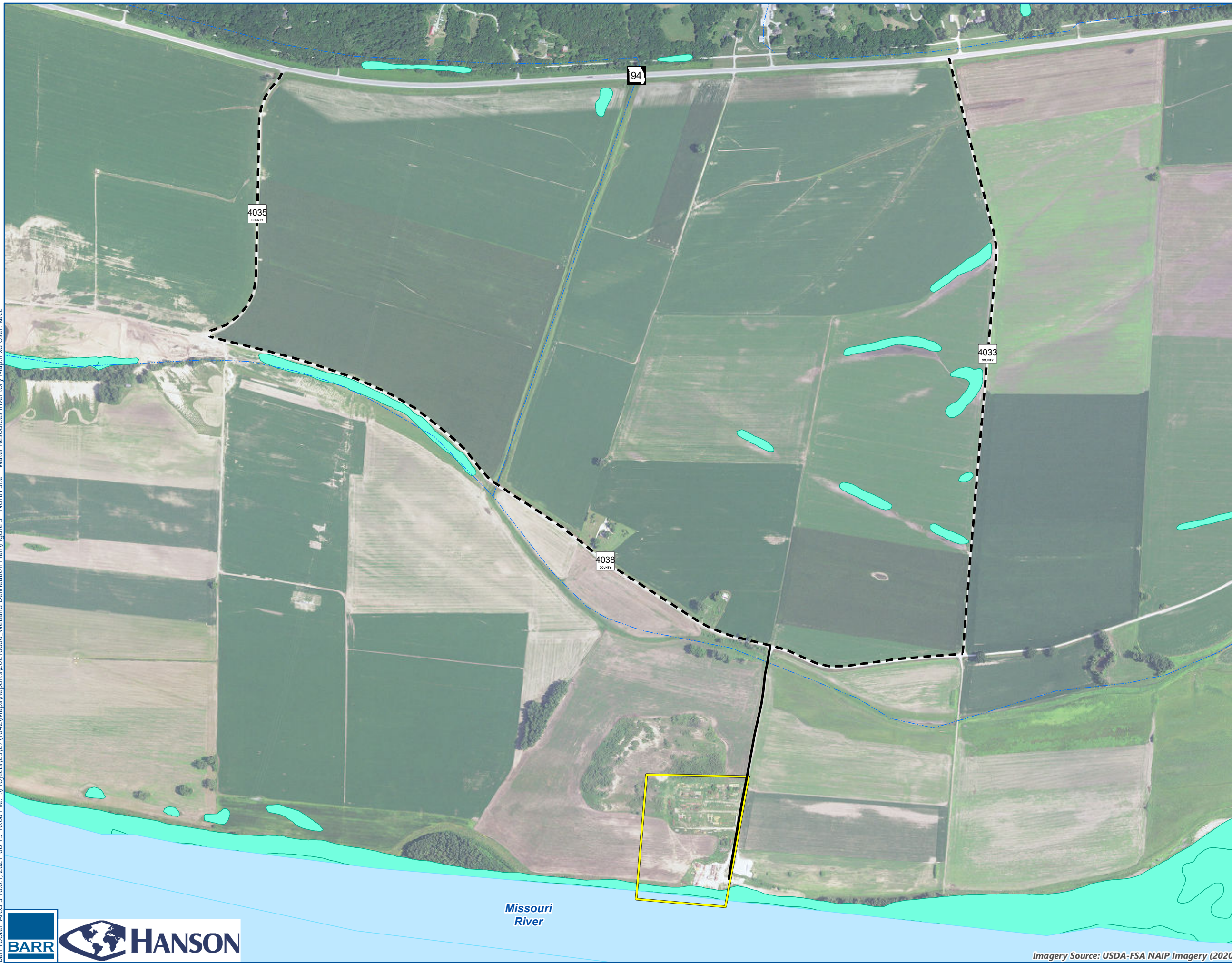
SOUTH SITE WATER RESOURCES INVENTORY MAP
Heartland Port Authority
Cole and Callaway County, MO










FIGURE 4



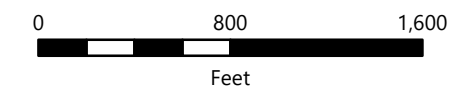
Imagery Source: USDA-FSA NAIP Imagery (2020)

Barr Footer: ArcGIS 10.8.1, 2021-08-19 10:08 File: I:\Projects\25271042\Maps\Reports\20210806 - Wetland Delineation Plan\Figure 5 - North Site 1 Water Resources Inventory Map.mxd User: kac2



-  Approximate Site Boundary
-  County Roads Used for Site Access (See Note 1)
-  Entrance Road
- Rivers and Streams**
-  Perennial Stream or River
-  Intermittent Stream, River, or Wash
-  Perennial Canal, Ditch, or Aqueduct
-  Intermittent Canal, Ditch, or Aqueduct
-  Lake, Pond, or River
-  Wetlands (NWI)

Notes:
 1. County Roads used for North Site 1 access are under consideration for improvement to accommodate increased hauling activities to and from site.



NORTH SITE 1 WATER RESOURCES INVENTORY MAP
 Heartland Port Authority
 Cole and Callaway County, MO

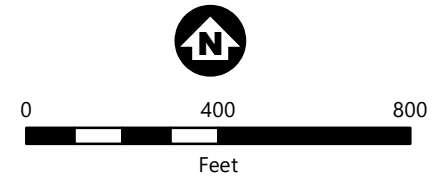
FIGURE 5



Imagery Source: USDA-FSA NAIP Imagery (2020)



- Approximate Site Boundary
- Entrance Road
- Soils - Map Unit Name (SSURGO Soils)
- 66012 Blake silt loam, 0 to 2 percent slopes, frequently flooded
- 74659 Deible silt loam, 0 to 2 percent slopes, occasionally flooded
- 66004 Dockery silt loam, 0 to 2 percent slopes, frequently flooded
- 64002 Freeburg silt loam, 1 to 3 percent slopes
- 73251 Gatewood-Moko complex, 8 to 20 percent slopes, very stony
- 66020 Haynie silt loam, 0 to 2 percent slopes, frequently flooded
- 75399 Jamesfin silt loam, 0 to 3 percent slopes, frequently flooded
- 75415 Jemerson silt loam, 0 to 3 percent slopes, occasionally flooded
- 60004 Menfro silt loam, 14 to 20 percent slopes, eroded
- 60005 Menfro silt loam, 20 to 45 percent slopes
- 60001 Menfro silt loam, 5 to 9 percent slopes, eroded
- 60003 Menfro silt loam, 9 to 14 percent slopes, eroded
- 73050 Rock outcrop-Bardley complex, 35 to 99 percent slopes, extremely stony
- 66125 SansDessein silty clay, 0 to 2 percent slopes, frequently flooded
- 75458 Tanglenook silty clay loam, 0 to 2 percent slopes, occasionally flooded
- 99027 Urban land, 3 to 15 percent slopes
- 64010 Urban land-Freeburg complex, 0 to 3 percent slopes, rarely flooded
- 60051 Urban land-Harvester complex, 3 to 15 percent slopes
- 99001 Water



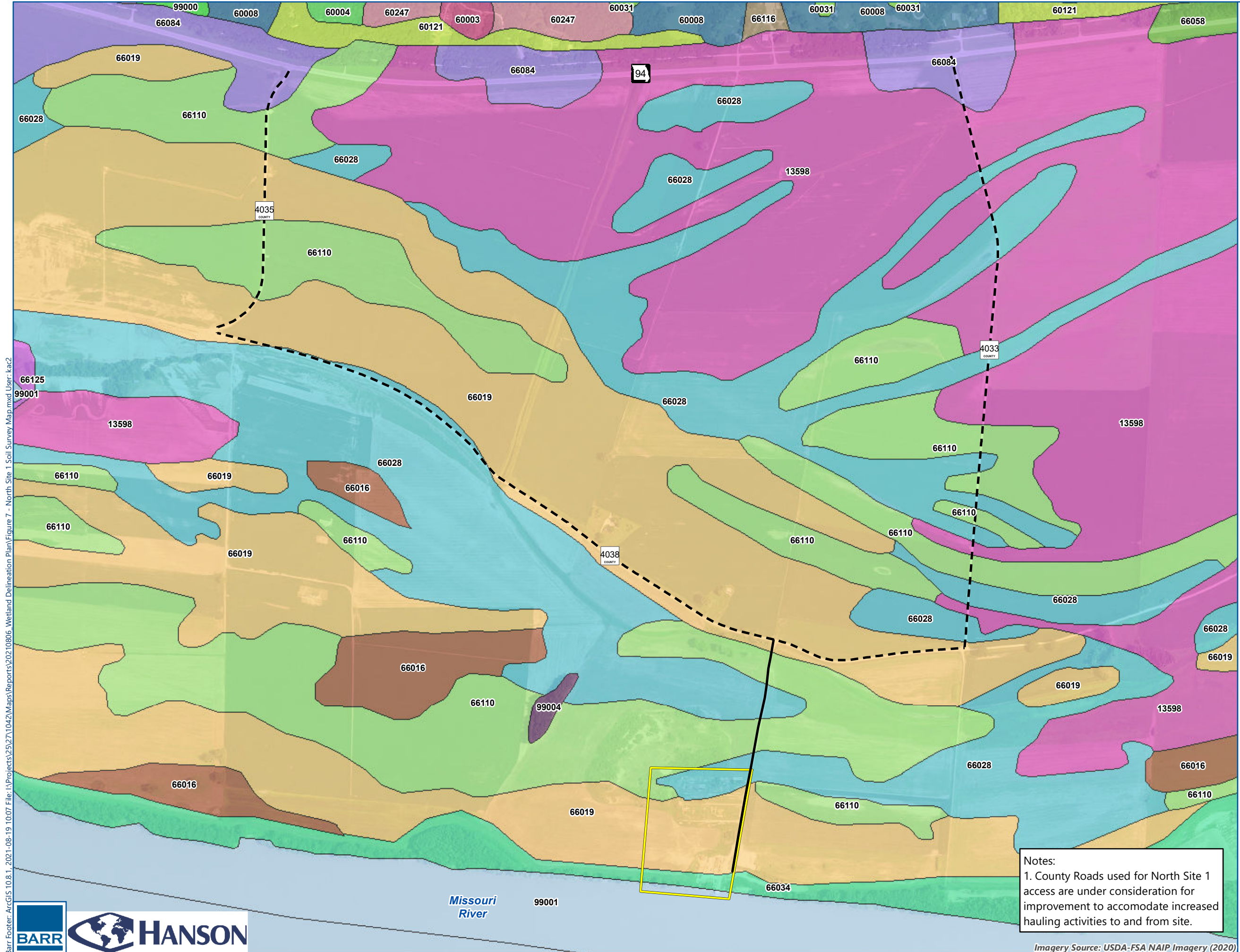
SOUTH SITE SOIL SURVEY MAP
 Heartland Port Authority
 Cole and Callaway
 County, MO

FIGURE 6

Barr Footer: ArcGIS 10.8.1, 2021-08-06 14:42 File: I:\Projects\25271042\Maps\Reports\20210806 Wetland Delineation Plan\Figure 6 - South Site Soil Survey Map.mxd User: kac2



Imagery Source: USDA-FSA NAIP Imagery (2020)



Approximate Site Boundary
 - - - - - County Roads Used for Site Access (See Note 1)
 — Entrance Road

Soils - Map Unit Name (SSURGO Soils)

- 66058 Belknap silt loam, 0 to 2 percent slopes, occasionally flooded
- 66028 Blencoe silty clay loam, 0 to 2 percent slopes, occasionally flooded
- 13598 Booker silty clay, frequently ponded, 0 to 2 percent slopes, occasionally flooded
- 99004 Dumps, sand piles
- 66084 Dupo silt loam, 0 to 2 percent slopes, occasionally flooded
- 60121 Goss-Gasconade-Rock outcrop complex, 5 to 35 percent slopes
- 66116 Haymond silt loam, 0 to 2 percent slopes, occasionally flooded
- 66020 Haynie silt loam, 0 to 2 percent slopes, frequently flooded
- 66019 Lowmo silt loam, 0 to 2 percent slopes, occasionally flooded
- 60004 Menfro silt loam, 14 to 20 percent slopes, eroded
- 60008/60005 Menfro silt loam, 20 to 45 percent slopes
- 60003 Menfro silt loam, 9 to 14 percent slopes, eroded
- 99000 Pits, quarry
- 73050 Rock outcrop-Bardley complex, 35 to 99 percent slopes, extremely stony
- 66125 SansDessein silty clay, 0 to 2 percent slopes, frequently flooded
- 66110 SansDessein silty clay, 0 to 2 percent slopes, occasionally flooded
- 66034 Sarpy-Treloar complex, 0 to 2 percent slopes, frequently flooded
- 66016 Treloar-Haynie complex, 0 to 2 percent slopes, occasionally flooded
- 99001 Water
- 60247 Winfield silt loam, 20 to 30 percent slopes, eroded
- 60031 Winfield silt loam, 9 to 14 percent slopes, eroded

0 400 800
Feet

Notes:
 1. County Roads used for North Site 1 access are under consideration for improvement to accommodate increased hauling activities to and from site.




Barr Footer: ArcGIS 10.8.1, 2021-08-19 10:07 File: I:\Projects\25271042\Maps\Reports\20210806_Wetland Delineation Plan\Figure 7 - North Site 1 Soil Survey Map.mxd User: kac2

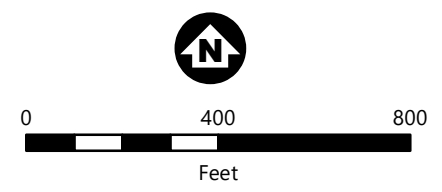


Imagery Source: USDA-FSA NAIP Imagery (2020)

Barr Footer: ArcGIS 10.8.1, 2021-08-06 14:32 File: I:\Projects\251042\Maps\Reports\20210806 - Wetland Delineation Plan\Figure 8 - South Site Wetlands.mxd User: kac2



-  Approximate Site Boundary
-  Entrance Road
- Rivers and Streams
 -  Perennial Stream or River
 -  SSBP - South Site Beaver Ponds
 -  SSBW - South Site Back Waters
 -  SSCK - South Site Creek
 -  SSMR - South Site Missouri River
 -  SSSC - South Site Side Channel







SOUTH SITE WETLANDS
Heartland Port Authority
Cole and Callaway
County, MO

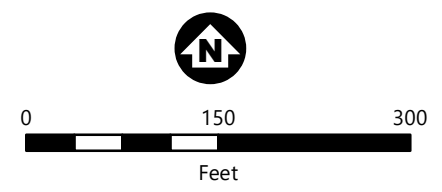
FIGURE 8

Barr Footer: ArcGIS 10.8.1, 2021-08-19 10:10 File: I:\Projects\25271042\Maps\Reports\20210806_Wetland Delineation Plan\Figure 9 - North Site 1 Wetlands.mxd User: kac2



-  Approximate Site Boundary
-  County Roads Used for Site Access (See Note 1)
-  Entrance Road
-  Wetland Boundary (NSMR - North Site Missouri River)

Notes:
 1. County Roads used for North Site 1 access are under consideration for improvement to accommodate increased hauling activities to and from site.



NORTH SITE 1 WETLANDS
 Heartland Port Authority
 Cole and Callaway
 County, MO



Imagery Source: USDA-FSA NAIP Imagery (2020)

FIGURE 9

Attachment 2

Permitting Matrix

Permitting Agency	Authority/Regulation	Permit/Approval	Trigger/Applicability	Anticipated Timeline	Fee	Notes
Federal						
U.S. Army Corps of Engineers (USACE)	Rivers and Harbor Act of 1899 (33 USC 408)	Section 408 Permit	Alteration and/or use of a USACE Civil Works Project	2 to 24 months, depending on level of impact	No fee	A decision on the Section 408 must come before a Section 10/404 is issued. In addition, other environmental compliances must be issued prior to the approval of a Section 408. A Section 408 Permit will be required for the Project.
USACE	Clean Water Act (33 USC 1344)	Individual Section 404 Permit	Discharge of dredged and/or fill materials into Waters of the United States (including jurisdictional wetlands)	2 to 24 months, depending on level of impact	No fee	A Section 404 Permit will review impacts to jurisdictional waters and authorize the Project to impact jurisdictional water to a defined limit with or without mitigation factors. A Section 404 Permit will be required for the Project.
USACE	Rivers and Harbor Act of 1899 (33 USC 403)	Section 10 Permit	Structures and/or work located in, over, or under navigable waters	2 to 24 months, depending on level of impact	No fee	A Section 10 Permit will review the potential impacts to navigation of the Missouri River based on Project design and operational plan. A Section 10 Permit will be required for the Project.
U.S. Fish and Wildlife Service (USFWS) (consultation)	Federal Endangered Species Act (16 USC 1531 et seq.)	Consultation/coordination	Impacts to federally listed endangered or threatened species.	3 months to 18 months, depending on federal nexus, level of impacts	No fee	For projects that involve a federal nexus (e.g., USACE permit), informal (for projects that would "not likely to adversely affect" endangered or threatened species) or formal (for project that would "likely adversely affect" endangered or threatened species) consultation with the USFWS is necessary. Threatened or endangered species potentially at risk are listed below in the section "General Notes."
USFWS	Bald and Golden Eagle Protection Act 16 USC 668-668d)	Consultation and/or Eagle Take Permit	Impacts to bald or golden eagles.	6 to 24 months, depending on level of impact	\$36K if Eagle Take Permit is required	Informal consultation can occur for any project, but approval of an Eagle Conservation Plan resulting in an Eagle Take Permit invokes NEPA review. The only reason why an Eagle Take Permit may be required is if a known active eagle nest is located along the riverbank and needs to be removed for the Project, this is highly unlikely. Eagle nest monitoring may be necessary if an active nest is located near the Project, but a permit is not likely necessary for monitoring.
Federal Aviation Administration (FAA)	49 USC 44718	Notice of Proposed Construction (Form 7460-1) Hazard Determination and Notice of Actual Construction or Alteration (Form 7460-2)	Structures over 200 ft, and/or within 6 nautical miles of public aviation facility	30 days	No fee	All three project sites are located within 6 miles of the Jefferson City Memorial Airport. Forms 7460-1 and 7460-2 will need to be filed.
U.S. Environmental Protection Agency (USEPA)	Oil Pollution Act (33 USC 2701 et seq.)	Spill Prevention, Control, and Countermeasure Plan	Required if project has aggregate aboveground storage capacity greater than 1,320 gallons	Needed prior to construction/operation	No fee	If the Project is designed to contain large capacity storage of fuels or regulated materials, a Spill Prevention, Control and Countermeasure Plan may be necessary.

Permitting Agency	Authority/Regulation	Permit/Approval	Trigger/Applicability	Anticipated Timeline	Fee	Notes
USEPA	Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) 42 USC 9601-9675	American Society for Testing and Materials (ASTM) Phase I Environmental Site Assessment (ESA, ASTM Standard E1527-13)	Documents presence/absence of potential or existing environmental contamination liabilities. The Phase I ESA is generally considered the first step in the process of environmental due diligence.	NA (no review by USEPA required) – typically needed prior to financing and/or construction	No fee	The Phase I ESA is the process of evaluating the environmental liability of a real estate asset, usual connected with a real estate transaction. Specifically, it is the process of conducting an in-depth and thorough inquiry into the past and present uses of a property to determine whether the property is impacted by a recognized environmental condition. The ESA is the primary tool used to qualify a user for the Landowner Liability Protections under CERCLA.
USACE as lead federal agency for the project	National Environmental Policy Act (NEPA, 42 USC 4321-4347)	Environmental Impact Statement (EIS) Record of Decision	NEPA review is triggered anytime a federal agency is involved in the funding, review or permitting of an activity. An EIS may be determined to be the appropriate level of NEPA review by the USACE; the federal agency likely to act as the lead federal agency for this project NEPA review. This will be dependent on final design.	2 years after the USACE publishes a Notice of Intent.	No fee	The timeline to complete an EIS does not reflect the time necessary to complete supporting field surveys, modeling, data collection and public involvement that will likely occur prior to the Notice of Intent being published. The full effort to complete the EIS process may extend to five years or longer to complete all required tasks. An EIS is a document required under NEPA for certain actions that "significantly affect the quality of the human environment". An EIS is a tool for decision making. It describes the positive and negative environmental effects of a proposed action, and one or more alternative actions that may be chosen instead of the action described in the EIS.
State - Missouri						
Missouri Department of Natural Resources (MDNR)	Missouri Air Conservation (10 CSR 10-6.060, 10-6.020, and 10-6.061)	New Sources Review Permit (Construction Permit)	Require for the new construction that results in a potential to emit greater than de minimis threshold amounts.	90 days	\$250 filing fee plus \$75 per hour review time	New construction of the Project will require a New Sources Review Permit. New Source Review Permit information is available at: https://dnr.mo.gov/env/apcp/permits/constpmtguide.htm https://dnr.mo.gov/pubs/pub98-apcp.htm#const https://dnr.mo.gov/pubs/pub98.htm
MDNR	Missouri Air Conservation (10 CSR 10-6.060, 10-6.020, and 10-6.061)	Operating Permit (Air)	Applies to all Missouri installations that have the potential to emit more than the specified de minimis level of any regulated air contaminant.	Up to 18 Months	\$100 filing fee	Operational air permit may be required for operation of the Project dependent on final design and operational plan. Operational air permit information is available at: https://dnr.mo.gov/pubs/pub98-apcp.htm#operating https://dnr.mo.gov/pubs/pub98.htm
MDNR	Missouri Hazardous Waste Management Law (10 CSR 25) Underground Storage Tank Law (10 CSR 20)	Hazardous Waste Management Permit Underground Storage Tanks Permit	Missouri's Hazardous Waste Permit cover a variety of issues focused on registration, hazardous waste management, management of petroleum storage tanks, and clean-up of releases. Use of onsite underground storage tanks (UST) is possible for the Project.	30 days prior to UST installation. Other permits can vary in approval timelines.	\$75 per UST Other fees applicable for other permits	Use of above ground or underground tanks at the Project is possible for equipment fuel storage. Other Hazardous Waste permits may be applicable depending on Project design and operational plan. Additional hazardous waste management and storage tank permitting information is available at: https://dnr.mo.gov/forms/780-1782-f.pdf https://dnr.mo.gov/pubs/pub98-hwp.htm https://dnr.mo.gov/pubs/pub98.htm

Permitting Agency	Authority/Regulation	Permit/Approval	Trigger/Applicability	Anticipated Timeline	Fee	Notes
Missouri Department of Conservation Missouri Natural Heritage Program	3 CSR 10.4.111 Revised Statutes of Missouri Section 252.240	Missouri State Listed Threatened and Endangered Species Review by the Missouri Natural Heritage Program	Coordination during other permitting process, usually through a federal agency. Projects that have the potential to take listed species incidentally	Concurrent with other permit processes	No fee	There is a potential for Missouri State listed endanger fish to be present in the Missouri River in the area of the proposed Project sites. Missouri Natural Heritage Program information is available at: https://mdc.mo.gov/your-property/responsible-construction/missouri-natural-heritage-program
MDNR Water Pollution Control Branch In cooperation with the USACE	Clean Water Act (CWA) (33 USC 1251 et seq.), Section 401 (33 USC 1341) Missouri Clean Water Act 10 CSR 20-2.010	Section 401 Water Quality Certification as part of the joint USACE/MDNR Application. The Section 401 Permit is in essence a part of the Section 404 Permit (see above)	Any activities requiring a Section 404 permit also requires a Section 401 water quality certification	2 – 12 months	No additional fee	Section 401 Certification is often completed in tandem with approval of Section 404 Individual Permits and does not add substantial time or cost. Additional information of Missouri's water quality certification program and permitting is available at: https://dnr.mo.gov/pubs/pub2151.htm
MDNR Division of Environmental Quality Water Protection Program	Clear Water Act (33 USC 1251 et seq.) Section 402 (33 USC 1342) Missouri Clean Water Law	National Pollutant Discharge Elimination System (NPDES) General Permit to Discharge Stormwater from Construction Site	Construction activities disturbing one or more acres of total land	30 days	\$150-\$600	A General permit to discharge stormwater will likely be required for the project, including the development and implementation of a site-specific Stormwater Pollution Prevention Plan. The Project will need to complete Form MO 780-0795, aka Form E. Additional information on the Missouri's stormwater permitting and requirements is available at: https://dnr.mo.gov/env/wpp/epermit/help.htm https://dnr.mo.gov/forms/780-0795-f.pdf https://dnr.mo.gov/pubs/pub98-wpc.htm#swpermit https://dnr.mo.gov/pubs/pub98.htm
MDNR Division of State Parks State Historic Preservation Office	National Historic Preservation Act (NHPA) (16 USC 470)	Consultation, Review of a <i>Section 106 Project Information Form</i> , Form MO 780-1027, with supporting documentation as identified on the form.	Required for all projects that are federally funded, licensed, or permitted, either directly through the federal agency, or by delegation of the federal agency to the states.	30 days	No fee	A <i>Section 106 Project Information Form</i> , Form MO 780-1027, will be required for the Project. Project should be reviewed and form completed by a professional archaeologists or architectural historians. Additional information on Missouri's Section 106 review process is available at: https://dnr.mo.gov/forms/780-1027-f.pdf https://dnr.mo.gov/pubs/pub98-shpo.htm https://dnr.mo.gov/pubs/pub98.htm

Permitting Agency	Authority/Regulation	Permit/Approval	Trigger/Applicability	Anticipated Timeline	Fee	Notes
MDNR Public Drinking Water Branch	Public Drinking Water Law, Chapter 640 (RSMo).	Public Drinking Water Construction Permit	A Construction Permit is required for all construction whether a new system is installed.	30 Day	No fee	The Project will need to complete and submit a public drinking water application form for a non-transient non-community water system that serves an industrial location. Missouri drink water permitting process and requirements area available at: https://dnr.mo.gov/pubs/pub98-pdw.htm https://dnr.mo.gov/pubs/pub98.htm
Missouri Department of Transportation	Missouri State Statutes: 304-170 304-180 304-190 304-200	Oversize/Overweight Vehicle Permit	Vehicles and loads that surpass the legal dimension and weight limits for highway vehicles. This may include construction equipment or Project materials. Legal size and weight: https://www.modot.org/sites/default/files/documents/LegalSizeandWeight%5B1%5D.pdf	Less than 30 days	Variable based on load	Oversize/Overweight loads are restricted to certain routes, speeds, and days. Coordinating schedules/activities in advance is recommended. Apply for a permit online: www.modot.org/mcs Missouri Oversize Overweight regulations are available at: www.modot.org/OSOW
Local – Jefferson City and Callaway County						
Jefferson City	Jefferson City Code of Ordinances Chapter 8 Section 20	Building Permit	New, non-residential building permit required for all non-residential construction project.	30 days	Based on Construction Cost	A Jefferson City non-residential building permit will be required for the Project. Jefferson City building permit guidance is available at: https://cms4.revize.com/revize/jeffersonmo/PPS/app-Bldg%20Permit.pdf
Jefferson City	Jefferson City Code of Ordinances Chapter 29 Sections 29-31 and 29-32	Sewer Connection	All new buildings requiring a new sewage connection.	30 days	\$467 or more, based on inspections	It is assumed that Project will have sanitary sewer connection for indoor plumbing. All new sewer connections require a Sewer Connection application and approval. Jefferson City sewer connection application guidance is available at: https://cms4.revize.com/revize/jeffersonmo/PPS/app-Sewer%20Connect-County.pdf
Jefferson City	Jefferson City Code of Ordinances Chapter 35 Section 74.B	Rezoning	If Project parcels are zoned other than industrial and special use conditions do not apply.	90 days		Both North Site 2 and South Site are located outside of Industrial zoning and rezoning is likely to be required. Jefferson City Zoning information for proposed project sites is available at: https://library.municode.com/mo/jefferson_city/codes/code_of_ordinances?nodeId=CD_ORD_CH35ZOCO_ARTVIIADPR_S35-72STAPEVPE
Callaway County						A portion of the North Site 1 is located in Callaway County. Callaway County has not adopted planning or zoning standards. No occupancy or building permits are required in unincorporated portions of Callaway County. Individuals within Callaway County government should be contacted for sewage ordinances and floodplain ordinances. The 2021 statement for the Callaway County concerning zoning and planning is available at: https://callawaycounty.org/wp-content/uploads/2020/12/Planning-and-Zoning-Information.pdf

Appendices

Appendix A

Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM - Midwest Region

SOIL

Sampling Point:

4033

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

	Depth (inches)	Matrix		Redox Features				Texture	Remarks
		Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]		
1.	0 - 4	7.5 YR 2/2	100					sandy silt	dry,
2.	4 - 16	7.5 YR 3/2	95	2.5 YR 3/6	5	RM	M	silty loam	damp
3.	-								
4.	-								
5.	-								
6.	-								

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (applicable to all LRRs, unless otherwise noted)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (explain in soil remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):	Type: _____	Depth (inches): _____	Hydric soil present?	No
Soil Remarks: Soils likely wet seasonally, but not hydric. Area likely plowed during planting season and disturbed.				

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (explain in remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

- Surface water present? **Surface Water Depth (inches):** _____
- Water table present? **Water Table Depth (inches):** _____
- Saturation present? (includes capillary fringe) **Saturation Depth (inches):** _____

Indicators of wetland hydrology present?

No

Describe Recorded Data:

Google Earth aerial suggests area may seasonally be wet/flooded.

Recorded Data: Aerial Photo Monitoring Well Stream Gauge Previous Inspections

Hydrology Remarks: Area likely seasonally wet and collects run off from adjacent road but does not appear to support sufficient hydrology.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Heartland Port Authority Applicant/Owner: Heartland Port Authority City/County: Jefferson City, Cole County State: MO Sampling Date: 06/15/21

Investigator(s): DJT2 Section: _____ Township: _____ Range: _____ Sampling Point: SSBP

Land Form: Terrace Local Relief: None Slope %: _____ Soil Map Unit Name: Dockery silt loam (66004)

Subregion (LRR): _____ Latitude: 3833752 Longitude: 9234693 Datum: _____

Cowardin Classification: PEM/SS1 Circular 39 Classification: Type 1, 3 Mapped NWI Classification: _____

Are climatic/hydrologic conditions on the site typical for this time of year? No (If no, explain in remarks) _____

Are vegetation No Soil No Hydrology Yes significantly disturbed? Yes Are "normal circumstances" present? Yes

Are vegetation No Soil No Hydrology No naturally problematic? _____

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	<u>0</u>	General Remarks (explain any answers if needed):	Preceding precipitation below average, assumed water level is normally higher. Bever ponds in area likely influence conditions. Willows dominant near outer edge of delineated feature.
Hydric soil present?	<u>Yes</u>		
Indicators of wetland hydrology present?	<u>Yes</u>		
Is the sampled area within a wetland?	<u>Yes</u>	If yes, optional Wetland Site ID: <u>SSW3</u>	

VEGETATION

	<u>Tree Stratum</u> (Plot Size: <u>30 ft</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>
1.		0		
2.		0		
3.		0		
4.		0		
Total Cover:		0		
<u>Sapling/Shrub Stratum</u> (Plot Size: <u>15 ft</u>)				
1.	Salix nigra	15	Yes	OBL
2.		0		
3.		0		
4.		0		
5.		0		
Total Cover:		15		
<u>Herb Stratum</u> (Plot Size: <u>5 ft</u>)				
1.	Salix nigra	10	Yes	OBL
2.	Cephalanthus occidentalis	7	No	OBL
3.	Ludwigia palustris	20	Yes	OBL
4.	Persicaria maculosa	5	No	FACW
5.	Typha angustifolia	2	No	OBL
6.	Phragmites australis	2	No	FACW
7.	Sisyrinchium angustifolium	2	No	FAC
8.		0		
Total Cover:		48		
<u>Woody Vine Stratum</u> (Plot Size: <u>30 ft</u>)				
1.		0		
2.		0		
Total Cover:		0		
% Bare Ground in Herb Stratum: _____		% Sphagnum Moss Cover: _____		
Vegetation Remarks: (include photo numbers here or on a separate sheet)				

<u>50/20 Thresholds:</u>	<u>20%</u>	<u>50%</u>
Tree Stratum	0	0
Sapling/Shrub Stratum	3	7.5
Herb Stratum	9.6	24
Woody Vine Stratum	0	0
<u>Dominance Test Worksheet:</u>		
Number of Dominant Species That Are OBL, FACW or FAC:	<u>3</u>	(A)
Total Number of Dominant Species Across All Strata:	<u>3</u>	(B)
Percent of Dominant Species That Are OBL, FACW or FAC:	<u>100.00%</u>	(A/B)
<u>Prevalence Index Worksheet:</u>		
<u>Total % Cover of:</u>	<u>Multiply by:</u>	
OBL Species <u>54</u>	<u>X 1 =</u>	<u>54</u>
FACW Species <u>7</u>	<u>X 2 =</u>	<u>14</u>
FAC Species <u>2</u>	<u>X 3 =</u>	<u>6</u>
FACU Species <u>0</u>	<u>X 4 =</u>	<u>0</u>
UPL Species <u>0</u>	<u>X 5 =</u>	<u>0</u>
Column Totals: <u>63</u>	(A)	<u>74</u> (B)
Prevalence Index = B/A =		<u>1.17</u>
<u>Hydrophytic Vegetation Indicators:</u>		
<u>No</u>	Rapid Test for Hydrophytic Vegetation	
<u>Yes</u>	Dominance Test is >50%	
<u>Yes</u>	Prevalence Index ≤ 3.0 [1]	
<u>No</u>	Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)	
<u>No</u>	Problematic Hydrophytic Vegetation [1] (Explain)	
[1] Indicators of hydric soil & wetland hydrology must be present, unless disturbed or problematic.		
Hydrophytic vegetation present?	<u>0</u>	

WETLAND DETERMINATION DATA FORM - Midwest Region

SOIL

Sampling Point: _____

SSBP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

	Depth (inches)	Matrix		Redox Features				Texture	Remarks
		Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]		
1.	0 - 3							high organic content silt	wet topsoil, not muck
2.	3 - 12	10 YR 4/1	80	10 YR 5/6	20	RM	M	silty loam	
3.	12 - 18	10 YR 4/1	65	10 YR 5/6	35	RM	M	silty loam	
4.	-								
5.	-								
6.	-								

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (applicable to all LRRs, unless otherwise noted)

- Histosol (A1)
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- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
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Indicators for Problematic Hydric Soils [3]:

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (explain in soil remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):	Type: _____	Depth (inches): _____	Hydric soil present? <u>Yes</u>
Soil Remarks:			

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
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- Crayfish Burrows (C8)
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- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

- Surface water present? **Surface Water Depth (inches):** _____
- Water table present? **Water Table Depth (inches):** _____
- Saturation present? (includes capillary fringe) **Saturation Depth (inches):** _____

Indicators of wetland hydrology present? Yes

Describe Recorded Data:

Several Google Earth aerials suggest inundation in the area.

Recorded Data: Aerial Photo Monitoring Well Stream Gauge Previous Inspections

Hydrology Remarks: Preceding lower than normal precipitation may have affected water level in the area.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Heartland Port Authority Applicant/Owner: Heartland Port Authority City/County: Jefferson City, Cole County State: MO Sampling Date: 06/15/21
 Investigator(s): DJT2 Section: _____ Township: _____ Range: _____ Sampling Point: SSBPUP
 Land Form: Terrace Local Relief: None Slope %: _____ Soil Map Unit Name: Dockery silt loam (66004)
 Subregion (LRR): _____ Latitude: 3833545 Longitude: 9234535 Datum: _____
 Cowardin Classification: Upland Circular 39 Classification: _____ Mapped NWI Classification: _____
 Are climatic/hydrologic conditions on the site typical for this time of year? No (If no, explain in remarks) _____
 Are vegetation No Soil No Hydrology No significantly disturbed? Yes Are "normal circumstances" present? _____
 Are vegetation No Soil No Hydrology No naturally problematic? _____

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	<u>No</u>	General Remarks (explain any answers if needed):	Preceding precipitation lower than normal and beaver dams in area. However vegetation and soils do not support wetland determination.
Hydric soil present?	<u>No</u>		
Indicators of wetland hydrology present?	<u>No</u>		
Is the sampled area within a wetland?	<u>No</u>	If yes, optional Wetland Site ID: _____	

VEGETATION

	<u>Tree Stratum</u> (Plot Size: <u>30 ft</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>																																																																																																									
1.	Acer saccharinum	15	Yes	FACW	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">50/20 Thresholds:</td> <td style="text-align: center;"><u>20%</u></td> <td style="text-align: center;"><u>50%</u></td> </tr> <tr> <td>Tree Stratum</td> <td style="text-align: center;">9</td> <td style="text-align: center;">22.5</td> <td></td> </tr> <tr> <td>Sapling/Shrub Stratum</td> <td style="text-align: center;">9</td> <td style="text-align: center;">22.5</td> <td></td> </tr> <tr> <td>Herb Stratum</td> <td style="text-align: center;">7.4</td> <td style="text-align: center;">18.5</td> <td></td> </tr> <tr> <td>Woody Vine Stratum</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> </tr> <tr> <td colspan="4">Dominance Test Worksheet:</td> </tr> <tr> <td>Number of Dominant Species That Are OBL, FACW or FAC:</td> <td style="text-align: center;">2</td> <td>(A)</td> <td></td> </tr> <tr> <td>Total Number of Dominant Species Across All Strata:</td> <td style="text-align: center;">5</td> <td>(B)</td> <td></td> </tr> <tr> <td>Percent of Dominant Species That Are OBL, FACW or FAC:</td> <td style="text-align: center;">40.00%</td> <td>(A/B)</td> <td></td> </tr> <tr> <td colspan="4">Prevalence Index Worksheet:</td> </tr> <tr> <td></td> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL Species</td> <td style="text-align: center;">0</td> <td>X 1 =</td> <td style="text-align: center;">0</td> </tr> <tr> <td>FACW Species</td> <td style="text-align: center;">35</td> <td>X 2 =</td> <td style="text-align: center;">70</td> </tr> <tr> <td>FAC Species</td> <td style="text-align: center;">5</td> <td>X 3 =</td> <td style="text-align: center;">15</td> </tr> <tr> <td>FACU Species</td> <td style="text-align: center;">87</td> <td>X 4 =</td> <td style="text-align: center;">348</td> </tr> <tr> <td>UPL Species</td> <td style="text-align: center;">0</td> <td>X 5 =</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Column Totals:</td> <td style="text-align: center;">127</td> <td>(A)</td> <td style="text-align: center;">433 (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A =</td> <td></td> <td style="text-align: center;">3.41</td> </tr> <tr> <td colspan="4">Hydrophytic Vegetation Indicators:</td> </tr> <tr> <td><u>No</u></td> <td colspan="3">Rapid Test for Hydrophytic Vegetation</td> </tr> <tr> <td><u>No</u></td> <td colspan="3">Dominance Test is >50%</td> </tr> <tr> <td><u>No</u></td> <td colspan="3">Prevalence Index ≤ 3.0 [1]</td> </tr> <tr> <td><u>No</u></td> <td colspan="3">Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)</td> </tr> <tr> <td><u>No</u></td> <td colspan="3">Problematic Hydrophytic Vegetation [1] (Explain)</td> </tr> <tr> <td colspan="4">[1] Indicators of hydric soil & wetland hydrology must be present, unless disturbed or problematic.</td> </tr> <tr> <td colspan="4">Hydrophytic vegetation present? <u>No</u></td> </tr> </table>	50/20 Thresholds:		<u>20%</u>	<u>50%</u>	Tree Stratum	9	22.5		Sapling/Shrub Stratum	9	22.5		Herb Stratum	7.4	18.5		Woody Vine Stratum	0	0		Dominance Test Worksheet:				Number of Dominant Species That Are OBL, FACW or FAC:	2	(A)		Total Number of Dominant Species Across All Strata:	5	(B)		Percent of Dominant Species That Are OBL, FACW or FAC:	40.00%	(A/B)		Prevalence Index Worksheet:					<u>Total % Cover of:</u>		<u>Multiply by:</u>	OBL Species	0	X 1 =	0	FACW Species	35	X 2 =	70	FAC Species	5	X 3 =	15	FACU Species	87	X 4 =	348	UPL Species	0	X 5 =	0	Column Totals:	127	(A)	433 (B)	Prevalence Index = B/A =			3.41	Hydrophytic Vegetation Indicators:				<u>No</u>	Rapid Test for Hydrophytic Vegetation			<u>No</u>	Dominance Test is >50%			<u>No</u>	Prevalence Index ≤ 3.0 [1]			<u>No</u>	Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)			<u>No</u>	Problematic Hydrophytic Vegetation [1] (Explain)			[1] Indicators of hydric soil & wetland hydrology must be present, unless disturbed or problematic.				Hydrophytic vegetation present? <u>No</u>			
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2.	Fraxinus americana	30	Yes	FACU																																																																																																									
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4.	Campsis radicans	5	No	FACU																																																																																																									
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WETLAND DETERMINATION DATA FORM - Midwest Region

SOIL

Sampling Point: _____

SSBPUP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

	Depth (inches)	Matrix		Redox Features				Texture	Remarks
		Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]		
1.	0 - 16	7.5 YR 2.5/1	100					loamy silt	damp, organic smell
2.	-								
3.	-								
4.	-								
5.	-								
6.	-								

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2] Location: PL=Pore Lining, M=Matrix.

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- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (explain in soil remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):	Type: _____	Depth (inches): _____	Hydric soil present? <u>No</u>
Soil Remarks: Soils damp but not wet.			

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (explain in remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

- Surface water present? **Surface Water Depth (inches):** _____
- Water table present? **Water Table Depth (inches):** _____
- Saturation present? (includes capillary fringe) **Saturation Depth (inches):** _____

Indicators of wetland hydrology present? No

Describe Recorded Data:

Recorded Data: Aerial Photo Monitoring Well Stream Gauge Previous Inspections

Hydrology Remarks: Soils damp but not wet and no evidence of hydrology.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Heartland Port Authority Applicant/Owner: Heartland Port Authority City/County: Cole State: MO Sampling Date: 06/16/21
Investigator(s): DJT2 Section: _____ Township: _____ Range: _____ Sampling Point: SSBW 9
Land Form: Depression Local Relief: Concave Slope %: _____ Soil Map Unit Name: Dockery silt loam
Subregion (LRR): _____ Latitude: 38325714 Longitude: 9234688 Datum: _____
Cowardin Classification: R4SBF Circular 39 Classification: Type 1 Mapped NWI Classification: _____
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks) Eggers & Reed (primary): _____
Are vegetation No Soil No Hydrology No significantly disturbed? Are "normal circumstances" present? Yes Eggers & Reed (secondary): _____
Are vegetation No Soil No Hydrology No naturally problematic? Eggers & Reed (tertiary): _____
Eggers & Reed (quaternary): _____

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	0	General Remarks	
Hydric soil present?	0	(explain any answers if needed):	
Indicators of wetland hydrology present?	0		
Is the sampled area within a wetland?	No	If yes, optional Wetland Site ID:	

VEGETATION

	<u>Tree Stratum</u> (Plot Size: <u>30 ft</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>
1.		0		
2.		0		
3.		0		
4.		0		
Total Cover:		0		
<u>Sapling/Shrub Stratum</u> (Plot Size: <u>15 ft</u>)				
1.		0		
2.		0		
3.		0		
4.		0		
5.		0		
Total Cover:		0		
<u>Herb Stratum</u> (Plot Size: <u>5 ft</u>)				
1.	Cephalanthus occidentalis	0		OBL
2.	Ludwigia palustris	0		OBL
3.		0		
4.		0		
5.		0		
6.		0		
7.		0		
8.		0		
Total Cover:		0		
<u>Woody Vine Stratum</u> (Plot Size: <u>30 ft</u>)				
1.		0		
2.		0		
Total Cover:		0		
% Bare Ground in Herb Stratum: _____		% Sphagnum Moss Cover: _____		
Vegetation Remarks: (include photo numbers here or on a separate sheet)				

<u>50/20 Thresholds:</u>	<u>20%</u>	<u>50%</u>
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	0	0
Woody Vine Stratum	0	0
<u>Dominance Test Worksheet:</u>		
Number of Dominant Species That Are OBL, FACW or FAC:	_____	(A)
Total Number of Dominant Species Across All Strata:	_____	(B)
Percent of Dominant Species That Are OBL, FACW or FAC:	_____	(A/B)
<u>Prevalence Index Worksheet:</u>		
Total % Cover of:		Multiply by:
OBL Species	0	X 1 = 0
FACW Species	0	X 2 = 0
FAC Species	0	X 3 = 0
FACU Species	0	X 4 = 0
UPL Species	0	X 5 = 0
Column Totals:	0 (A)	0 (B)
Prevalence Index = B/A =		#Num!
<u>Hydrophytic Vegetation Indicators:</u>		
No	Rapid Test for Hydrophytic Vegetation	
No	Dominance Test is >50%	
#Type!	Prevalence Index ≤ 3.0 [1]	
No	Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)	
No	Problematic Hydrophytic Vegetation [1] (Explain)	
<small>[1] Indicators of hydric soil & wetland hydrology must be present, unless disturbed or problematic.</small>		
Hydrophytic vegetation present?	0	

WETLAND DETERMINATION DATA FORM - Midwest Region

SOIL

Sampling Point: _____

SSBW 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

	Depth (inches)	Matrix		Redox Features			Loc [2]	Texture	Remarks
		Color (moist)	%	Color (moist)	%	Type [1]			
1.	0 - 3	10 YR 4/1	95	10 YR 5/5	5	RM	M	silty loam	
2.	3 - 10	10 YR 4/1	85	10 YR 5/5	15	RM	M	silt loam	
3.	-								
4.	-								
5.	-								
6.	-								

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (applicable to all LRRs, unless otherwise noted)

- | | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input checked="" type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils [3]:

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (explain in soil remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):	Type: _____	Depth (inches): _____	Hydric soil present?	0
Soil Remarks:				

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- | | |
|---|---|
| <input checked="" type="checkbox"/> Surface Water (A1) | <input checked="" type="checkbox"/> Water-Stained Leaves (B9) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) |
| <input checked="" type="checkbox"/> Water Marks (B1) | <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) |
| <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (explain in remarks) |

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

- Surface water present? **Surface Water Depth (inches):** _____
- Water table present? **Water Table Depth (inches):** _____
- Saturation present? (includes capillary fringe) **Saturation Depth (inches):** _____

Indicators of wetland hydrology present?

Describe Recorded Data:

Recorded Data: Aerial Photo Monitoring Well Stream Gauge Previous Inspections

Hydrology Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Heartland Port Authority Applicant/Owner: Heartland Port Authority City/County: Jefferson City, Cole County State: MO Sampling Date: 06/15/21

Investigator(s): DJT2 Section: _____ Township: _____ Range: _____ Sampling Point: SSCK4

Land Form: Footslope Local Relief: _____ Slope %: _____ Soil Map Unit Name: _____

Subregion (LRR): _____ Latitude: 38332121 Longitude: 9232256 Datum: _____

Cowardin Classification: R2UB Circular 39 Classification: Type 5 Mapped NWI Classification: R2UBG

Are climatic/hydrologic conditions on the site typical for this time of year? No (If no, explain in remarks) Eggers & Reed (primary): _____

Are vegetation No Soil No Hydrology No significantly disturbed? Are "normal circumstances" present? No Eggers & Reed (secondary): _____

Are vegetation No Soil No Hydrology No naturally problematic? Eggers & Reed (tertiary): _____

Eggers & Reed (quaternary): _____

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	<u>Yes</u>	General Remarks (explain any answers if needed): Water level likely low due to preceding moisture conditions being below normal range.	
Hydric soil present?	<u>Yes</u>		
Indicators of wetland hydrology present?	<u>Yes</u>		
Is the sampled area within a wetland?	<u>Yes</u>		
If yes, optional Wetland Site ID:		<u>SSW2</u>	

VEGETATION

#	Tree Stratum (Plot Size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1.		0		
2.		0		
3.		0		
4.		0		
Total Cover:		0		
Sapling/Shrub Stratum (Plot Size: <u>15 ft</u>)				
1.		0		
2.		0		
3.		0		
4.		0		
5.		0		
Total Cover:		0		
Herb Stratum (Plot Size: <u>5 ft</u>)				
1.	Acer saccharinum	5	Yes	FACW
2.		0		
3.		0		
4.		0		
5.		0		
6.		0		
7.		0		
8.		0		
Total Cover:		5		
Woody Vine Stratum (Plot Size: <u>30 ft</u>)				
1.		0		
2.		0		
Total Cover:		0		

50/20 Thresholds:	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	1	2.5
Woody Vine Stratum	0	0

Dominance Test Worksheet:		
Number of Dominant Species That Are OBL, FACW or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW or FAC:	100.00%	(A/B)

Prevalence Index Worksheet:			
Total % Cover of:	Multiply by:		
OBL Species	0	X 1 =	0
FACW Species	5	X 2 =	10
FAC Species	0	X 3 =	0
FACU Species	0	X 4 =	0
UPL Species	0	X 5 =	0
Column Totals:	5	(A)	10
Prevalence Index = B/A =			2.00

Hydrophytic Vegetation Indicators:	
No	Rapid Test for Hydrophytic Vegetation
Yes	Dominance Test is >50%
Yes	Prevalence Index ≤ 3.0 [1]
No	Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)
No	Problematic Hydrophytic Vegetation [1] (Explain)
[1] Indicators of hydric soil & wetland hydrology must be present, unless disturbed or problematic.	
Hydrophytic vegetation present?	<u>Yes</u>

% Bare Ground in Herb Stratum: _____ % Sphagnum Moss Cover: _____

Vegetation Remarks: (include photo numbers here or on a separate sheet)

Vegetation very sparse on shoreline. Recent seasonal scouring of shore appears to have minimized current vegetation.

WETLAND DETERMINATION DATA FORM - Midwest Region

SOIL

Sampling Point:

SSCK4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

	Depth (inches)	Matrix		Redox Features				Texture	Remarks
		Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]		
1.	0 - 3	3/1 7.5YR	100					loamy	
2.	3 - 12	3/1 7.5YR	70	4/8 7.5 YR	30	RM	M	clayey silt	
3.	-								
4.	-								
5.	-								
6.	-								

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (applicable to all LRRs, unless otherwise noted)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (explain in soil remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):	Type: _____	Depth (inches): _____	Hydric soil present?	<u>Yes</u>
Soil Remarks: Sample area identified by WSS as 66020-Haynic silt loam and classified as hydric. Minor veg debris with water staining on surface				

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (explain in remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

- Surface water present? **Surface Water Depth (inches):** _____
- Water table present? **Water Table Depth (inches):** _____
- Saturation present? (includes capillary fringe) **Saturation Depth (inches):** _____

Indicators of wetland hydrology present? Yes

Describe Recorded Data:

Recorded Data: Aerial Photo Monitoring Well Stream Gauge Previous Inspections

Hydrology Remarks: Water level of adjacent notably low due to preceding below normal precipitation.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Heartland Port Authority Applicant/Owner: Heartland Port Authority City/County: Jeffeson City, Cole County State: MO Sampling Date: 06/15/21
Investigator(s): DJT2 Section: _____ Township: _____ Range: _____ Sampling Point: SSMR9
Land Form: Hillslope Local Relief: Concave Slope %: _____ Soil Map Unit Name: _____
Subregion (LRR): _____ Latitude: 38332065 Longitude: 9233814 Datum: _____
Cowardin Classification: R2UB Circular 39 Classification: Type 5 Mapped NWI Classification: R2UBH
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks) Eggers & Reed (primary): _____
Are vegetation No Soil No Hydrology No significantly disturbed? Are "normal circumstances" present? Yes Eggers & Reed (secondary): _____
Are vegetation No Soil No Hydrology No naturally problematic? Eggers & Reed (tertiary): _____
Eggers & Reed (quaternary): _____

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	<u>Yes</u>	General Remarks	
Hydric soil present?	<u>0</u>	(explain any answers if needed):	
Indicators of wetland hydrology present?	<u>Yes</u>		
Is the sampled area within a wetland?	<u>No</u>	If yes, optional Wetland Site ID:	

VEGETATION

<u>Tree Stratum</u>	(Plot Size: <u>30 ft</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>
1.		<u>0</u>		
2.		<u>0</u>		
3.		<u>0</u>		
4.		<u>0</u>		
Total Cover:		<u>0</u>		
<u>Sapling/Shrub Stratum</u>	(Plot Size: <u>15 ft</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>
1.		<u>0</u>		
2.		<u>0</u>		
3.		<u>0</u>		
4.		<u>0</u>		
5.		<u>0</u>		
Total Cover:		<u>0</u>		
<u>Herb Stratum</u>	(Plot Size: <u>5 ft</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>
1.	Cephalanthus occidentalis	<u>10</u>	<u>Yes</u>	<u>OBL</u>
2.		<u>0</u>		
3.		<u>0</u>		
4.		<u>0</u>		
5.		<u>0</u>		
6.		<u>0</u>		
7.		<u>0</u>		
8.		<u>0</u>		
Total Cover:		<u>10</u>		
<u>Woody Vine Stratum</u>	(Plot Size: <u>30 ft</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>
1.		<u>0</u>		
2.		<u>0</u>		
Total Cover:		<u>0</u>		

% Bare Ground in Herb Stratum: _____

% Sphagnum Moss Cover: _____

Vegetation Remarks: (include photo numbers here or on a separate sheet)

50/20 Thresholds:		<u>20%</u>	<u>50%</u>
Tree Stratum		<u>0</u>	<u>0</u>
Sapling/Shrub Stratum		<u>0</u>	<u>0</u>
Herb Stratum		<u>2</u>	<u>5</u>
Woody Vine Stratum		<u>0</u>	<u>0</u>
Dominance Test Worksheet:			
Number of Dominant Species That Are OBL, FACW or FAC:	<u>1</u>		(A)
Total Number of Dominant Species Across All Strata:	<u>1</u>		(B)
Percent of Dominant Species That Are OBL, FACW or FAC:	<u>100.00%</u>		(A/B)
Prevalence Index Worksheet:			
Total % Cover of:		Multiply by:	
OBL Species	<u>10</u>	X 1 =	<u>10</u>
FACW Species	<u>0</u>	X 2 =	<u>0</u>
FAC Species	<u>0</u>	X 3 =	<u>0</u>
FACU Species	<u>0</u>	X 4 =	<u>0</u>
UPL Species	<u>0</u>	X 5 =	<u>0</u>
Column Totals:	<u>10</u>	(A)	<u>10</u> (B)
Prevalence Index = B/A =		<u>1.00</u>	
Hydrophytic Vegetation Indicators:			
<u>No</u>	Rapid Test for Hydrophytic Vegetation		
<u>Yes</u>	Dominance Test is >50%		
<u>Yes</u>	Prevalence Index ≤ 3.0 [1]		
<u>No</u>	Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)		
<u>No</u>	Problematic Hydrophytic Vegetation [1] (Explain)		
[1] Indicators of hydric soil & wetland hydrology must be present, unless disturbed or problematic.			
Hydrophytic vegetation present?	<u>Yes</u>		

Sample taken near scour line in area of limited vegetation. Steep concave slope and season flooding likely limit vegetation in area.

WETLAND DETERMINATION DATA FORM - Midwest Region

SOIL

Sampling Point:

SSMR9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

	Depth (inches)	Matrix		Redox Features				Texture	Remarks
		Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]		
1.	0 - 2	4/1 5YR	95	4/8 2.5YR	5	RM	M	clayey silt	
2.	2 - 8	4/1 5YR	90	4/8 2.5YR	10	RM	M	silty clay	rock encountered at 8"
3.	-								
4.	-								
5.	-								
6.	-								

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (applicable to all LRRs, unless otherwise noted)

- | | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils [3]:

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (explain in soil remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):	Type: _____	Depth (inches): _____	Hydric soil present?	<u>0</u>
Soil Remarks: Soil survey indicates Haynic silt loam solis type (66020) at sample point. Haynic soils are classified as hydric.				

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- | | |
|---|---|
| <input checked="" type="checkbox"/> Surface Water (A1) | <input checked="" type="checkbox"/> Water-Stained Leaves (B9) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) |
| <input checked="" type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input checked="" type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input checked="" type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) |
| <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (explain in remarks) |

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

- Surface water present? **Surface Water Depth (inches):** _____
- Water table present? **Water Table Depth (inches):** _____
- Saturation present? (includes capillary fringe) **Saturation Depth (inches):** _____

Indicators of wetland hydrology present? Yes

Describe Recorded Data:

Multiple Google Earth aerials suggest water levels may be higher than during viste visit.

Recorded Data: Aerial Photo Monitoring Well Stream Gauge Previous Inspections

Hydrology Remarks: Preceding precipitaion below average, water level likely low as a result.

Appendix B

Photographs



Photo 1: SSMR Missouri River shoreline with vegetation lines, downstream



Photo 2: SSMR Missouri River shoreline and jetty (possible USACE river structure), downstream



Photo 3: SSMR Missouri River rocky shoreline (possible USACE river structure in background), downstream



Photo 4: SCK North end of Rising Creek near Missouri River, downstream.



Photo 5: SSCK Rising Creek near South Site bridge, upstream



Photo 6: SSCK Rising Creek where it enters the South Site through a concrete box culvert, downstream



Photo 7: SSCK Side channel draining to Rising Creek on southeast side of South Site, upstream



Photo 8: SSSC Side channel that appears to drain beaver-created ponds to the east, upstream



Photo 9: SSBP Northwest corner of beaver-created ponds on the southwest side of the South Site



Photo 10: SSBP East side of beaver-created pond on the southwest side of the South Site.



Photo 11: SSBW Backwaters that appear to drain beaver-created pond to the south



Photo 12: 4033 Upland edge of an agricultural field next to County Road 4033

Attachment 3

U.S. Army Corps of Engineers Meeting Notes

June 29, 2021

Heartland Port Authority (HPA) Project
US Army Corps of Engineers Introductory Meeting Notes
June 29, 2021 – 1300 to 1445

- Attendees:
 - HPA: Missy Bonnot, Roger Fischer, Jason Branstetter
 - Barr: Craig Bungler, Ty Morris, Tom MacDonald, Sarah Johnson, David Taylor
 - Hanson: Greg Kelahan
 - USACE: Matt Sailor, Mark Frazier (Chief of Regulatory), Michael Gossenauer (River Engineer – Restoration Section), Mike Chapman (Chief of River Engineering Section), David Hibbs (KC Program Manager), Derek Petre, James Rudy (Operations Manager), Jennifer Henggeler, Chance Bittner
- Jennifer led the meeting from the USACE end and introductions were provided from everyone on the Webex call.
- Craig went through the introductory slide show.
- Questions/comments during the slide show:
 - Mark Frazier asked if federal dollars were used for the project. Missy answered that no federal funds have been used to date. This question was to determine if USACE would be the lead agency related to NEPA or if it would be someone else. At this time, it would be USACE.
 - Matt Sailor's office will be assigned for regulatory review and we should consider him the point of contact (POC) moving forward. Matt noted that preliminary dialogue with the HPA had been initiated.
 - The USACE indicated it would only be one permit application submitted, then it will be sent to all of the appropriate groups. They typically try to synchronize the permitting process so permit application is reviewed concurrently.
 - Jurisdictional determinations (JDs) have not been requested yet. These typically take approximately 60 days to complete.
 - The USACE recommended we document findings for each site as they are discovered and to explain why we are taking a desired approach. Barr noted this is similar to what we are currently developing with the Critical Issues Analysis (CIA). The USACE indicated this will assist with the permit application review, particularly from an alternatives analysis perspective.
 - The USACE noted HPA needs to have a real estate interest in each site to complete the JDs at each site. This can be property ownership, but could also be memorandums of understanding (MOUs) or other agreements between HPA and property owners.
 - The USACE noted that the cultural resource review should meet Osage Nation criteria standards, as Osage Nation has previously expressed interest in areas around Rising Creek.
 - The USACE indicated one application would serve to qualify for multiple permits (i.e. 404 and 408).

- Mike Gossenauer shared figures showing all three sites have bank stabilization structures on their banks. These should be considered during design, avoiding impact to the function of the structures as much as possible.
 - Capital Sand site has bank stabilization structures along the entire portion of the site and one buried dike at the downstream end. The buried dike should not generally impact the project unless excavation was necessary that altered these structures.
 - The North Site contains one buried dike in the middle of the site and bank stabilization structures the length of the dike. The buried dike should not generally impact the project unless excavation was necessary that altered these structures.
 - The South Site has hand placed bank stabilization structures and 3 L-shaped revetment dikes (wing dikes).
- Mike Chapman asked how far we anticipate loading facilities project into the river. He said established criteria is that a maximum of 12 feet from the Rectified Channel Line (RCL) is typically allowed. There can be potential encroachment past 12 feet if it is necessary to get more depth or some other clear need is shown, but this will increase the challenges of the project, specifically the Section 408 permitting.
- Several options to deal with the existing structures at the South Site were briefly discussed, including removal of some or all of the structures and filling out to the structures.
- Jason Branstetter indicated he could send us PDFs from the river chart books that show the RCL and river structures discussed. The USACE indicated these were also available in other formats (i.e. .kmz) if we require it.
- Mark Frazier recommended including a sediment transport plan in the permit application if we anticipate needing sediment dredging. Would likely not need to do dredging for the sites on the north side of the river as the channel is self-scouring in both of those locations.
- Tom MacDonald asked about the availability of modeling near the sites. The USACE indicated FEMA has a regulatory model that USACE has a copy of. USACE recommended we utilize the Freedom of Information Act (FOIA) to request any modeling we think would be necessary. They emphasized to be specific in the request for the best results. SEMA also has a copy of the regulatory model.
- USACE LIDAR data is from 2013 / 2014. Last winter they collected new data, but it is still in post processing. Expect to have it available by end of year.
- USACE is in the process of collecting new hydrographic data for the MO river. Should be ready by the end of the year. Currently are using data from 2019.
- USACE indicated that there was not much rise left as it related to the no-rise certification.
- Recommended that it would be good to vet the plan for a given site with the navigation industry to see if they had any concerns, especially if we did any filling in the river or any construction that pushed out beyond the RCL, especially at the South Site.
- USACE indicated dredging modeling information is also available through a cross section viewer. Since they collect data at the same profile locations every time, they can show changes in channel through history of the surveying process.
- Mark Frazier noted that the L142 levee may impact the project. Roger indicated the L142 project should be upstream enough to avoid impacts to our site(s).

- Barr asked how USACE would look at the project if more than one site was moved forward. If they are independent of each other, then they would not look at them as the same project. If they are not independent of each other, then they would look at them as the same project with multiple phases. Less complicated if they are independent of each other.
- Barr asked what level of design is typically required for permitting – 30%, 60%, 90%, or other? The USACE indicated that it depends on the type of permit being requested. They recommended submitting the application as early as feasible, and we should connect with our project POC (Matt Sailor) for guidance.
- The USACE recommended holding meetings similar to this after the concept plan(s) is updated, then at the 30%, 60%, and 90% design levels to daylight any potential design/construction hurdles and keep stakeholders informed.
- Barr asked how frequently the HPA team should update the USACE on progress. The USACE responded that it depends on overall timeline of the project. Based on current timelines, quarterly updates may be adequate.
- Based on feedback received from the USACE during the call, there were no features of the three sites that would currently exclude them from consideration.
- Will need to complete aquatic resource evaluation / delineation for the permit application.
- Barr asked if the USACE saw anything that was a “no go” for these locations. USACE stated that they did not see anything that was a “no go”, but that they anticipated that the South Site would require more effort to get to completion.
- USACE would consider the project a benefit to Missouri River navigation.

Attachment 4

Missouri Department of Natural Resources Meeting Notes

July 1, 2021

Heartland Port Authority (HPA) Project
Missouri Department of Natural Resources (MDNR) Introductory Meeting Notes
July 1, 2021 – 1500 to 1600

- Attendees:
 - HPA: Missy Bonnot (Virtual), Roger Fischer (Virtual), Jason Branstetter (In-person)
 - Barr: Craig Bunger (In-person), Ty Morris (In-person), Tom MacDonald (Virtual), Sarah Johnson (Virtual), David Taylor (Virtual)
 - Hanson: Greg Kelahan (Virtual)
 - MDNR: Dru Buntin (Director of MDNR), Mike Irwin (401 Certifications), Chris Wieberg (Director – Water Program), Bryan Hopkins (Water Resources Center), Michael Abbott (Chief of Permitting)
- Craig went through the introductory slide show.
- Questions/comments during the slide show:
 - Dru Buntin stated that MDNR was supportive of the project and asked us to let them know if we had any questions they could assist with.
 - MDNR asked about the timing of the development, to which Jason Branstetter responded that it depends on funding and they're currently relying on grant funding.
 - A flood risk feasibility study for Jefferson City was included in the most recent state budget. This may provide some additional flood risk information for the sites.
 - Mike Irwin noted the Water Quality Certification (Section 401) process has changed since previous port projects along the MO River have been completed. These changes should be considered when planning around permitting activities. Would need to send a pre-filing meeting request 30 days in advance.
 - MDNR indicated the State Emergency Management Agency should be consulted and that no-rise certifications would apply.
 - MDNR indicated the permits they would require should not impact schedule as much as USACE permits, such as the Section 408 permit because of the river structures.
 - Mike Irwin provided URLs for MDNR permitting considerations at the end of the meeting.
 - Land Disturbance Permit (Section 402) is an online process (link provided: <https://dnr.mo.gov/env/wpp/epermit/help.htm>)
 - Stormwater Permit application: <https://dnr.mo.gov/env/wpp/permits/issued/docs/R80C000.pdf>
 - MDNR recommended reaching out to Fish and Wildlife Service as part of the introductory meetings for information concerning Endangered Species.
 - MDNR would consider the project a benefit to Missouri River navigation.
 - Would need a land disturbance permit for any construction. Potential permits for operations – domestic waste water, storm water, air
 - MDNR expressed a concern about wastewater, to which Roger Fischer indicated it likely won't be an issue as part of initial development of the South Site and appropriate accommodations (port-a-potties or similar) will be needed at the North Site due to floodway-related restrictions.