Houston Engineering Inc.

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ENVIRONMENTAL ASSESSMENT WORKSHEET

Whisky Creek and South Tributary Channel Restoration Project

Prepared for:

Buffalo-Red River Watershed District
1303 4th Ave. NE
Barnesville, MN 56514

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Environmental Assessment Worksheet

This most recent Environmental Assessment Worksheet (EAW) form and guidance documents are available at the Environmental Quality Board's website at**:** https://www.eqb.state.mn.us**/** The EAW form provides information about a project that may have the potential for significant environmental effects. Guidance documents provide additional detail and links to resources for completing the EAW form.

Cumulative potential effects can either be addressed under each applicable EAW Item or can be addressed collectively under EAW Item 21.

Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. Project title

Whisky Creek and South Tributary Channel Restoration Project

2. Proposer Contact Information

Buffalo-Red River Watershed District
Contact person: Kristine Goeden
Title: District Administrator
Address: 1303 4th Ave. NE
City, State, ZIP: Barnesville, MN 56514
Phone: 218.789.3100
Fax:
Email: kaltrichter@brrwd.org

3. RGU Contact Information

Buffalo-Red River Watershed District
Contact person: Kristine Goeden
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4. Reason for EAW Preparation

Required:	Discretionary:
☐ EIS Scoping	☐ Citizen petition
× Mandatory EAW	☐ RGU discretion
	☐ Proposer initiated

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s):
4410.4300 Subp. 26. Stream Diversion: "For a diversion, realignment, or channelization of any designated trout stream, or affecting greater than 500 feet of natural watercourse with a total drainage area of ten or more square miles unless exempted by part 4410.4600, subpart 14, item E, or 17, the local government unit shall be the RGU."

4410.4300 Subp. 27. A. Wetlands and Public Waters: "For projects that will change or diminish the course, current, or cross-section of one acre or more of any public water or public waters wetland except for those to be drained without a permit pursuant to Minnesota Statutes, chapter 103G, the local government unit shall be the RGU."

5. Project Location

- **Appendix A1: Project Location Map**
- County: Clay County
- City/Township: Near Barnesville, MN; Alliance and Barnesville Townships
- PLS Location (¼, ¼, Section, Township, Range):
    - Phase 1: S18-23, T137N, R46W (Barnesville Township).
    - Phase 2: S10, 14, 15, 23, 24, 25 and 36, T137N, R47W (Alliance Township); S30-33, T137N, R46W (Barnesville Township)
- Watershed (81 major watershed scale): Buffalo River (58) (**Appendix A2: Watershed Map**)
- GPS Coordinates (midpoints): Phase 1: 46.670869, -96.500551; Phase 2: 46.660909, -96.556543
- Tax Parcel Number: 02.031.2000, 02.022.4600, 02.032.2000, 01.036.1100, 02.031.0400, 02.032.1000, 01.036.0100, 02.033.2060, 01.023.4002, 02.021.2000, 01.014.3000, 01.025.1000, 02.022.4400, 02.019.1101, 02.020.2201, 02.018.3000, 02.030.0300, 01.023.4000, 02.023.3001, 02.020.1101, 02.026.2000, 02.023.3301, 01.023.4001, 01.024.4000, 02.021.4330, 02.021.4000, 02.022.3000, 02.060.0101, 01.023.2201, 02.019.0200, 02.019.1500, 01.023.0100, 01.024.0000, 02.021.1800, 01.013.4700, 01.015.2000, 01.010.3770, 02.018.4000, 02.032.3000, 02.020.1000, 02.020.2000, 02.023.3701, 01.025.4600, 01.025.4000, 02.017.0300, 02.031.3000, 01.015.0300, 01.010.4001, 02.031.2001, 01.015.1000, 01.014.2000

6. Project Description

a. Provide the brief project summary to be published in the *EQB Monitor*, (approximately 50 words).

The Buffalo-Red River Watershed District is proposing a channel restoration project of segments of Whisky Creek and the South Tributary. The restoration project will provide flood damage reductions, sediment buildup reduction, and channel erosion reduction that would lead to improved water quality and natural habitats. The restoration project will be implemented in two phases, phase 1 is restoration of Whisky Creek and phase 2 is restoration of the South Tributary.

b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipmentor industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities

<u>Project Description</u>

The Buffalo-Red River Watershed District is proposing a two-phase channel restoration project that includes segments of Whisky Creek and the South Tributary (**Appendix A3: Proposed Project Maps**). The goal of the project is to provide flood damage reduction to adjacent agriculture fields while restoring more natural aquatic and riparian habitats. In general, the project involves restoring the low-flow channels and stabilizing and improving the channel floodplains. This will improve the aquatic habitats and adjacent riparian habitats but also provide flood damage reductions by reducing the erosion and sedimentation within the channel.

Phase 1: Whisky Creek

Phase 1 of restoration includes approximately 5.26 miles of Whisky Creek and portions of Clay County Ditch 34 beginning at 120th Street South and ending at County Road 2. The project

components for the restoration of Whisky Creek includes low flow channel excavation, wider floodplain, and construction of setback levees. The areas of interests will be placed in permanent easements.

Phase 2: South Tributary
Phase 2 of restoration includes approximately 9.27 miles of the South Tributary of Whisky Creek. The project components for phase 2 of the restoration includes low flow channel excavation and a two-step floodplain. This phase will not include the use of setback levees. The areas of interests along the South Tributary will be placed in permanent easements.

Construction Methods
Construction activities associated with the project are likely to result in temporary noise and dust. Dust will be minimized through standard dust control measures such as applying water to exposed soils and limiting the extent and duration of exposed soil conditions in accordance with MnDOT standard specifications. This will be accomplished without causing erosion and sedimentation to the stream. Construction contractors will be required to comply with applicable local noise restrictions and ordinances to the most reasonable extent.

Whisky Creek and South Tributary Channel Restoration Project will involve:
- Mobilization of equipment
- Clearing and grubbing
- Excavation
- Spoil pile embankment
- Culvert installation/replacements
- Temporary erosion control
- Establishment of vegetation

Natural Resource Impacts
Both phases of the proposed project is located within a landscape made up of agricultural fields, streams, wet ditches, and emergent wetlands. The aquatic resources along both the Whisky Creek corridor and the South Tributary corridor are identified by the NWI wetland inventory and the MN Public Waters inventory. Construction activities will impact some of these aquatic resources. These activities include channel excavation to establish low flow meanders, excavation of floodplain areas, and placing fill as setback levees (only the Whisky Creek portions). Impacts to aquatic resources are subject to State and Federal regulations and will require authorization through a CWA/WCA permit and Minnesota Public Waters Work Permit.

There are no Minnesota Biological Survey (MBS) Native Plant Communities or Site of Biodiversity Significance that will be permanently adversely impacted from the proposed project. The project will not permanently impact any rare features or rare species identified from the NHIS database. State-listed species, Wilson's phalarope and Marbled godwit, have been identified in the vicinity of the Whisky Creek corridor. Coordination with the DNR and avoidance measures will be taken to prevent impacts to these two species.

Best management practices (BMPs) for erosion and sedimentation control during construction will include but are not limited to, sediment control logs, erosion control blankets, and silt fences. Erosion and sedimentation controls will be used to avoid impacts to adjacent land, wetlands, and sensitive habitat areas. The construction activities are likely to produce noise and dust. The construction crew will be required to follow local noise ordinances and restrictions. Limiting the

extent of soil exposure or watering exposed soils will be done to minimize dust pollution. Disposal of all excess materials and debris from construction will occur in accordance with State and county regulations.

Timing and Duration:
The anticipated schedule is outlined below:

- Project EAW: Spring/Summer 2024 (Both phases of project)
- Plans, Specification, and Cost Estimate: Fall 2023 (Phase 1)
- Desired Construction Start: Summer 2026 (Phase 1) & 2027-2030 (Phase 2)
- Construction Completion: Fall 2026 (Phase 1) & 2027-2030 (Phase 2)

c. Project magnitude:

Table 1. Project magnitudes

	Impact Zone
Total project acreage (project area)	Phase 1: 351.74 acres Phase 2: 446.11 acres
Existing Conditions	Phase 1: 27,754 linear ft. (5.26 miles) Phase 2: 48,963 linear ft. (9.27 miles)
Restored Conditions	Phase 1: 51,423 linear ft. (9.74 miles) Phase 2: 48,963 linear ft. (9.27 miles)
Number and type of residential units	N/A
Commercial building area (in square feet)	N/A
Industrial building area (in square feet)	N/A
Institutional building area (in square feet)	N/A
Other uses – specify (in square feet)	N/A
Structure height(s)	N/A

d. Explain the project purpose; if the project will be carried out by a governmental unit, explain theneed for the project and identify its beneficiaries.

In general, the purpose and need of the project is to restore the low flow channels and floodplains of Whisky Creek and the South Tributary. Completion of the restoration will provide improved aquatic and riparian habitats, reduce channel erosion, and improve flood protection to the area's landowners.

e. Are future stages of this development including development on any other property planned orlikely to happen? Ξ Yes □ No
If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

The projects construction and permitting will be completed in 2 phases. This EAW will cover the project in its entirety, across all phases of the project.

f. Is this project a subsequent stage of an earlier project? □ Yes Ξ No
If yes, briefly describe the past development, timeline and any past environmental review.

7. Climate Adaptation and Resilience

a. Describe the climate trends in the general location of the project (see guidance: *Climate Adaptation and Resilience*) and how climate change is anticipated to affect that location duringthe life of the project.

Based on the most recent "National Climate Assessment (NCA)"[1] report, developed by the U.S. Global Change Research Program (USGCRP), described the climate trends in the Midwest as having increases in growing-season temperatures, increases in spring humidity, increases in late-growing-season droughts, increases in heavy rainfalls, and exacerbated stressors on ecosystems. Based on the MN DNR Minnesota Climate Explorer,[2] the Snake River Watershed will experience increases in average, maximum, and minimum annual temperatures as well as more variable or fluctuating annual precipitation.

b. For each Resource Category in the table below: Describe how the project's proposed activitiesand how the project's design will interact with those climate trends. Describe proposed adaptations to address the project effects identified.

Table 2. Climate adaptation and resilience of proposed project

Resource Category	Climate Considerations	Project Information	Adaptations
Project Design	The design of the restoration includes meanders and set back levees that will improve flood protection and reduces erosion and sedimentation.	The project will improve flood protection and reduces erosion and sedimentation for the surrounding area that may see a climate trend of more variable precipitation and heavy rainfall events.	The project will improve regional protections from the current projected climate trends.
Land Use	Changes in land use along both project corridors will include increasing stream habitats and riparian habitats.	The project will improve drainage, provide flood storage, and increase habitats along the Whisky Creek and South Tributary corridors.	The project will provide protection from precipitation trends and habitat quality trends that would otherwise be degraded from invasives and non-native species.

[1] U.S. Global Change Research Program (2018) Fourth National Climate Assessment – Impacts, Risks, and Adaptation in the United States, Volume 2. https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf

[2] Minnesota Department of Natural Resources (2023) Minnesota Climate Explorer. https://arcgis.dnr.state.mn.us/ewr/climateexplorer/main/historical

8. Cover types.

Cover types within the AOI were estimated based on reference to U.S. Department of Agriculture Cropland Data Layer (2023)[3].

Table 3. Estimated cover types before and after project completion for Phase 1.

Cover Types	Before(acres)	After (acres)
Wetlands and shallow lakes (<2 meters deep)	83.68	
Deep lakes (>2 meters deep)	0	
Wooded/forest	4.81	
Rivers /streams	12.72	
Brush/Grassland	27.35	
Cropland	214.40	
Livestock rangeland/pastureland	0	
Lawn/landscaping	0	
Green infrastructure TOTAL (from table below*)	0	
Impervious surface	0	
Stormwater Pond (wet sedimentation basin)	0	
Developed Open Space	6.00	
Developed Low Intensity	2.77	
TOTAL	351.74	351.74

Table 4. Estimated cover types before and after project completion for Phase 2.

Cover Types	Before(acres)	After (acres)
Wetlands and shallow lakes (<2 meters deep)	81.89	
Deep lakes (>2 meters deep)	0.43	
Wooded/forest	3.72	
Rivers /streams	44.98	
Brush/Grassland	28.57	
Cropland	264.64	
Livestock rangeland/pastureland	0	
Lawn/landscaping	0	
Green infrastructure TOTAL (from table below*)	0	
Impervious surface	0	
Stormwater Pond (wet sedimentation basin)	0	
Developed Open Space	13.82	
Developed Low Intensity	6.60	
Developed High Intensity	0.17	
Developed Medium Intensity	1.28	
TOTAL	446.11	446.11

[3] U.S. Department of Agriculture – National Agricultural Statistics Service (2022) Cropland CROS. https://croplandcros.scinet.usda.gov/

9. Permits and approvals required

Table 5. Required Permits and Approvals

Unit of Government	Type of Application	Status
U.S. Army Corps of Engineers	Section 404	To be applied for
U.S. Fish and Wildlife Service	ESA Consultation and Approval	To be completed
Minnesota State Historic Preservation Office	Cultural Resources Review and Concurrence	To be completed
Minnesota Pollution Control Agency	Section 401; NPDES permit	To be applied for
Minnesota Department of Natural Resources	Public Waters Work Permit	To be applied for
Minnesota Department of Natural Resources	State-listed Species and Rare Features Review (NHIS)	Completed
Clay County Soil and Water Conservation District	Wetland Conservation Act Permit	To be applied for

10. Land use

a. Describe:
   i. Existing land use of the site as well as areas adjacent to and near the site, including parksand open space, cemeteries, trails, prime or unique farmlands.

Land Use

The existing land use along the Whisky Creek (phase 1) and the South Tributary (phase 2) corridors is predominately agricultural row crops, developed open areas, and aquatic resources. A review of U.S. Geological Survey (USGS) National Land Cover Database (NLCD)[4] indicates that Whisky Creek is dominated by cultivated crops (87.41 % of the AOI) with remnants of woody wetlands, herbaceous wetlands, and open space developed areas (**Table 5; Appendix A4: NLCD Landcover Map**). The South Tributary is dominated by row crops (Swift Coulee flows through a landscape dominated by row crops broken up by woody wetlands, herbaceous wetlands, developed open areas, and developed low intensity areas (**Table 6; Appendix A4**).

Table 6. Land Cover Types along Whisky Creek (NLCD 2021)[5]

Cover Type	Acreage	Percent of AOI
Cultivated Crops	307.46	87.41%
Deciduous Forest	2.21	0.63%
Developed, Low Intensity	3.03	0.86%
Developed, Medium Intensity	0.01	0.00%
Developed, Open Space	7.13	2.03%
Emergent Herbaceous Wetlands	25.90	7.36%
Woody Wetlands	6.00	1.71%

[4] Multi-Resolution Land Characteristics (MRLC) (2019) National Land Cover Database. https://www.mrlc.gov/data?f%5B0%5D=year%3A2019

[5] U.S. Geological Service (2021) National Land Cover Database. https://www.usgs.gov/centers/eros/science/national-land-cover-database

Table 7. Land Cover Types along the South Tributary (NLCD 2021)

Cover Type	Acreage	Percent of AOI
Cultivated Crops	395.38	88.63%
Deciduous Forest	5.64	1.26%
Developed, High Intensity	0.21	0.05%
Developed, Low Intensity	6.75	1.51%
Developed, Medium Intensity	1.33	0.30%
Developed, Open Space	14.66	3.29%
Emergent Herbaceous Wetlands	5.94	1.33%
Hay/Pasture	0.33	0.07%
Woody Wetlands	15.87	3.56%

Parks and Open Spaces

There are no federal, state, county designated lands within the Whisky Creek or South Tributary corridors. The project corridors and surrounding landscape is privately owned agricultural land and public transportation infrastructure. The nearest state land is the 93-acre Interstate Highway 94 Borrow Pit WMA locate north of Barnesville, MN and approximately 1.75 miles northeast of the Whisky Creek corridor and 4.43 miles northeast of the South Tributary corridor.

Cemeteries

There are no cemeteries within the Whisky Creek or South Tributary corridors. The Barnesville City Cemetery is the nearest cemetery to both corridors. This cemetery is approximately 0.60 miles southeast of the Whisky Creek corridor and 3.12 miles east of the South Tributary corridor.

Trails

There are no state-designated trails within or near either of the two project corridors. The nearest walking and hiking trails include the Heartland State Trail located in Detroit Lake, MN approximately 30 miles east of the project corridors and the Central Lakes State Trail located in Fergus Falls, MN approximately 33 miles southeast of the project corridors. There are no Minnesota State Water Trails near the Whisky Creek or South Tributary corridors. The nearest water trail is the Red River of the North located 8.8 miles west of the project corridors. The Whisky Creek corridor intersects the Clay Trail Alliance snowmobiling trail (MN Trail #100). The South Tributary corridor does not intersect any snowmobiling trails.

Farmland Classification[6]

The AOI consists of three types of farmland classifications that indicate a soils suitability for food, feed, fiber, forage, and oilseed crops. The classifications identified in the AOI include “all areas are prime farmland, farmland of statewide importance, and prime farmland if drained.”

Phase 1: Whisky Creek

Approximately 107.14 acres are identified by the NRCS as “all areas are prime farmland” (30.46 % of corridor), 134.37 acres are “prime farmland if drained” (38.20 % of corridor), 103.06 acres are “not prime farmland” (29.30 % of corridor), and 7.16 acres are “farmland of statewide importance” (2.04 % of corridor).

[6] U.S. Department of Agriculture, Natural Resources Conservation Service (2023) Web Soil Survey. https://websoilsurvey.nrcs.usda.gov/app/

Table 8. Farmland Classification Ratings within the Whisky Creek corridor (NRCS 2024)

Soil Symbol	Soil Name	Rating	Acres in AOI	Percent of AOI
I119A	Bearden silty clay loam, 0 to 2 percent slopes	All areas are prime farmland	9.19	2.61%
I150B	Zell-LaDelle silt loams, 1 to 6 percent slopes	All areas are prime farmland	3.35	0.95%
I312A	Wyndmere fine sandy loam, 0 to 2 percent slopes	All areas are prime farmland	28.43	8.08%
I356A	Ulen fine sandy loam, 0 to 2 percent slopes	Farmland of statewide importance	7.16	2.04%
I376A	Colvin silty clay loam, 0 to 1 percent slopes	Prime farmland if drained	27.55	7.83%
I377A	Wheatville silt loam, 0 to 2 percent slopes	All areas are prime farmland	33.64	9.56%
I41A	Markey muck, 0 to 1 percent slopes	Not prime farmland	0.25	0.07%
I467A	Bearden silt loam, 0 to 2 percent slopes	All areas are prime farmland	4.86	1.38%
I49A	Rauville silty clay loam, 0 to 2 percent slopes, frequently flooded	Not prime farmland	102.80	29.23%
I5A	Borup loam, 0 to 1 percent slopes	Prime farmland if drained	8.68	2.47%
I634A	Augsburg silt loam, 0 to 1 percent slopes	Prime farmland if drained	50.46	14.35%
I646A	Viking clay loam, 0 to 1 percent slopes	Prime farmland if drained	8.33	2.37%
I716A	Arveson clay loam, 0 to 1 percent slopes	Prime farmland if drained	39.36	11.19%
I724A	Elmville fine sandy loam, 0 to 2 percent slopes	All areas are prime farmland	27.67	7.87%
I795A	Lamoure silt loam, 0 to 2 percent slopes, frequently flooded	Not prime farmland	0.01	0.00%
		Totals for Area of Interest	**351.74**	**100.00%**

Phase 2: South Tributary

Approximately 195.24 acres are identified by the NRCS as “all areas are prime farmland” (43.76 % of AOI), 152.41 acres are “prime farmland if drained” (34.16 % of AOI), and 98.47 acres are “not prime farmland” (22.07 % of AOI).

Table 9. Farmland Classification Ratings within the South Tributary corridor (NRCS 2024)

Soil Symbol	Soil Name	Rating	Acres in AOI	Percent of AOI
I119A	Bearden silty clay loam, 0 to 2 percent slopes	All areas are prime farmland	1.26	0.28%
I132A	Northcote-Eaglepoint clays, 0 to 1 percent slopes	Prime farmland if drained	0.12	0.03%
I150B	Zell-LaDelle silt loams, 1 to 6 percent slopes	All areas are prime farmland	0.71	0.16%
I185A	Viking clay, 0 to 1 percent slopes	Prime farmland if drained	2.64	0.59%

Soil Symbol	Soil Name	Rating	Acres in AOI	Percent of AOI
I376A	Colvin silty clay loam, 0 to 1 percent slopes	Prime farmland if drained	34.38	7.71%
I377A	Wheatville silt loam, 0 to 2 percent slopes	All areas are prime farmland	95.77	21.47%
I377B	Wheatville loam, dry, 2 to 6 percent slopes	All areas are prime farmland	13.48	3.02%
I383A	Overly silty clay loam, 0 to 2 percent slopes	All areas are prime farmland	0.31	0.07%
I467A	Bearden silt loam, 0 to 2 percent slopes	All areas are prime farmland	16.78	3.76%
I507A	Glyndon loam, 0 to 2 percent slopes	All areas are prime farmland	23.66	5.30%
I507B	Glyndon loam, dry, 2 to 6 percent slopes	All areas are prime farmland	35.66	7.99%
I5A	Borup loam, 0 to 1 percent slopes	Prime farmland if drained	0.62	0.14%
I634A	Augsburg silt loam, 0 to 1 percent slopes	Prime farmland if drained	36.79	8.25%
I646A	Viking clay loam, 0 to 1 percent slopes	Prime farmland if drained	77.87	17.45%
I712A	Glyndon silty clay loam, 0 to 2 percent slopes	All areas are prime farmland	7.62	1.71%
I795A	Lamoure silt loam, 0 to 2 percent slopes, frequently flooded	Not prime farmland	98.47	22.07%
		Totals for Area of Interest	**446.11**	**100.00%**

ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and anyother applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

Clay County Local Water Management Plan[7]

The plan was prepared by the Clay Soil & Water Conservation District and the Local Water Management Plan Advisory Committee and went into effect May 9th, 2017. The purposed of the plan is to:

1. "To identify existing or potential problems and opportunities for protection, management, or development of water resources and related land resources in the county.
2. To develop and implement a plan of action to promote sound hydrologic management of water and related land resources in the county.
3. To work towards effective environmental protection and management in the county."

Additionally, the plan states that pursuant to Minnesota Statute 103B.311 subd. 4, the plan must "address water management issues over the entire county, address problems in the context of watershed units and groundwater systems, be based upon principles of sound hydrologic management of water, effective environmental protection, and efficient management, be

[7] Clay Soil & Water Conservation District, Local Water Management Plan Advisory Committee (2017) Clay County Local Water Management Plan. https://claycountymn.gov/DocumentCenter/View/5492/Clay-County-LWMP-2017-2026-?bidId=

consistent with local water management plans prepared by counties and watershed management organizations wholly or partially within a single watershed unit or groundwater systems, and to address water management issues over a ten year period with five year implementation plans."

Clay County Comprehensive Plan[8]

Adopted May 17th, 2022, the plan was developed by the Fargo-Moorhead Metropolitan Council of Governments in coordination between the Clay County Board of Commissioners, Clay County Planning Commission, and Clay County Administration. The outlines the goals and objectives as they relate to Community and Resilience, Housing, Land-Use, Transportation, Agriculture, Natural Resources and the Environment, Economic Development, and Intergovernmental Coordination. The goals and objectives that pertain to Land-Use, Agriculture, and Natural Resources include:

1. "Land-Use
    a. Agricultural
        i. Recognize and protect the agricultural character of Clay County.
    b. Residential
        i. Promote and encourage quality and diversified residential development.
        ii. Provide opportunities for quality rural residential development in Clay County.
        iii. Recognize the diversity of living and working arrangements in the unincorporated areas of Clay County.
    c. Commercial Industrial
        i. Encourage commercial and industrial development that is in harmony with the agricultural and rural character of Clay County.
        ii. Promote the incorporated communities of Clay County as prime location for commercial industrial development.
2. Agricultural
    a. Support the long-term protection of the County's strong diverse agricultural economy.
3. Natural Resources and the Environment
    a. Environmental health
        i. Ensure affordable, efficient, safe, and environmentally sound individual and community wastewater management for the benefit of Clay County property owners.
        ii. Reduce nuisance conditions in Clay County caused by blight, pollution, and unsightly land uses and practices.
        iii. Protect groundwater resources in Clay County to ensure safe and clean drinking water as well as adequate supply for people and agriculture during drought.
    b. Floodplains
        i. Foster a community resilient to the impacts of flooding through targeted mitigation planning and implementation for the benefit of Clay County residents, agriculture, and industry.
    c. Prairies and woodlands
        i. Protect and enhance remnant tracts of native prairie and forests for the benefit and enjoyment of Clay County residents and visitors.
        ii. Grow and restore prairie and woodland areas in clay county for the benefit and enjoyment of Clay County businesses, residents, and visitors.
    d. Resource Recovery and Solid Waste
        i. Foster an integrated waste management system that protects the public health

[8] Clay County (2022) Clay County Comprehensive Plan. https://claycountymn.gov/DocumentCenter/View/13090/Clay-County-Comprehensive-and-Transportation-Plan

and environment of Clay County in a manner appropriate to the characteristics of the waste stream.

e. Shoreland and Stormwater
    i. Protect and enhance the health and vitality of Clay County surface waters including lakes, rivers, and streams for the benefit and enjoyment of Clay County residents and visitors.
f. Wetlands
    i. Recognize the importance of wetlands for the services they provide and protect wetlands from encroachment, development, and degradation.
g. Public Open Space
    i. Maintain and enhance County lands acquired through FEMA Hazard Grant Funding to serve the community and the greater region."

Buffalo-Red River Comprehensive Watershed Management Plan[9]

The Buffalo-Red River Comprehensive Watershed Management Plan was developed in 2020 through the BWSR administered One Watershed, One Plan (1W1P). The plans measurable goals include "sediment, total phosphorus, hydrology/flooding, soil health, streambank/channel stability, wetlands/grasslands, ditch banks/outlets, dissolved oxygen, bacteria, lake shoreland, and groundwater/source water protection." Each category includes short-term goals, the priority issues, and potential management actions.

iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenicrivers, critical area, agricultural preserves, etc.

Clay County administers a Shoreland Management Ordinance that regulates the use and orderly development of shorelands in the county to prevent and eliminate pollution of public waters, to maintain historic values of significant historic sites in the unincorporated areas of Clay County, and to preserve and enhance their natural resources as provided in the Environmental Rights Act (Minnesota Statues 116B).

iv. If any critical facilities (i.e. facilities necessary for public health and safety, those storing hazardous materials, or those with housing occupants who may be insufficiently mobile) are proposed in floodplain areas and other areas identified as at risk for localized flooding,describe the risk potential considering changing precipitation and event intensity.

There are no critical facilities proposed to be built within floodplain areas.

b. Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 9aabove, concentrating on implications for environmental effects.

The project is compatible with nearby land uses, zoning, and each plan described in 9a. The Restoration Project will improve drainage, reduce flooding and erosion, and restore stream and riparian habitats. There is also possibility that the restoration will improve water quality within channels and subsequently to downstream waterbodies. The project also protects against damages to agriculture fields, landowner properties, and public transportation structures caused by flooding.

[9] Buffalo – Red River Watershed District (2022) Buffalo – Red River Watershed Comprehensive Watershed Management Plan. file:///C:/Users/bhengel/Downloads/BRRW_CWMP_Final_10-28-20.pdf

c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 10b above and any risk potential.

The proposed project will require some current land-uses such as croplands and hay fields to be converted to non-production land-uses. The benefits of the overall project will offset these incompatibilities.

11. Geology, soils and topography/land forms

a. Geology - Describe the geology underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

The geology of Minnesota was developed during the Wisconsin Glaciation Period, the latest glaciation period.[10] During this period, several glaciers advanced across the state including the Wadena ice lobe, Rainy lobe, Itasca ice lobe, Superior ice lobes, and the most recent Des Moines Lobe. These glaciers altered the landscape by cutting out riverbeds, depositing sediments that created the rolling topography, and glacier melt fed the thousands of lakes. The geology of county includes flat glacial lake plains from the retreat of glacial Lake Agassiz and undulating hummocky topography from the advance and retreat of Wadena Lobe. The bedrock around the project area has depths between 100 feet in depth to 300 feet in depth.
The DNR and Minnesota Geologic Survey assess pollution sensitivity to near-surface geologic materials.[11] This assessment analyzes the rate of water movement through the soil to the water table at a depth of 10 feet. The sensitivity rating is described as high, moderate, low, very low, and ultra-low sensitivity of pollution of groundwater. High sensitivity ratings indicate that water travels through the surface at a rate between hours and a week, low and very low indicate a rate of week to a year and ultra-low indicates a travel rate of greater than a year. The majority of the surrounding area is identified as having ultra-low pollution sensitivity, while the Whisky Creek and the South Tributary corridors have increased pollution sensitivity ranging between low and moderate as well as moderate to high pollution sensitivity.
The geologic features have no limitations or susceptibility to adverse impacts that would be a concern for the proposed project.

[10] Minnesota Department of Natural Resources (2018) Geologic Atlas of Clay County, Minnesota. https://files.dnr.state.mn.us/waters/groundwater_section/mapping/cga/c29_clay/clay_report.pdf

[11] Minnesota Natural Resource Atlas (2023) Pollution Sensitivity – Near Surface Materials. https://mnatlas.org/gis-tool/?id=k_0148

b. Soils and topography - Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highlypermeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed inresponse to Item 12.b.ii.

Soils

According to the USDA, NRCS, Web Soil Survey[12], the predominate soils within the projects corridors includes:

1. Whisky Creek Corridor
    - I49A, Rauville silty clay loam, 0 to 2 percent slopes, frequently flooded (29.23 % of the AOI)
    - I634A, Augsburg silt loam, 0 to 1 percent slopes (14.35 % of the AOI)
    - I716A, Arveson clay loam, 0 to 1 percent slopes (11.19 % of the AOI)
2. South Tributary Corridor
    - I795A, Lamoure silt loam, 0 to 2 percent slopes, frequently flooded (22.07 % of the AOI)
    - I377A, Wheatville silt loam, 0 to 2 percent slopes (21.47 % of the AOI)
    - I646A, Viking clay loam, 0 to 1 percent slopes (17.45 % of the AOI)

All soil units identified within the project area are shown in **Table 3 (Appendix A5: USDA Soils Map).** The soil data includes each soil series Hydrologic group. The Hydrologic group describes each soil's series runoff potential. Runoff potential is based on the rate of water infiltration of soils that are unvegetated, wet, and receive precipitation during long-duration storm events. The hydrologic groups include (A, B, C, or D) in which A represents high infiltration rates (low runoff potential), B represents moderate infiltration rates, C represents slow infiltration rates, and D represents very slow infiltration rates (high runoff potential). Some soils are labeled with dual hydrologic groups (A/D, B/D, or C/D) to describe runoff potential in soils that have been altered in some way (drainage). In these cases, the first letter represents runoff potential in drained areas and the second letter represents runoff potential in undrained areas. The soils within the Whisky Creek corridor are characterized by moderate runoff potential while the south tributary is characterized by moderate to high runoff potential (**Table 3**). The soil textures within the Whisky Creek corridor are predominantly silty loam (26.25 % of the area), silty clay loam (39.67 % of the area), clay loam (13.56 % of the area, and fine sandy loam (17.99 % of the area) (**Table 4**). The soil textures within the South Tributary corridor are predominantly silty loam (55.71 %), loam (16.46 %), and clay loam (17.45 %) (**Table 4**).

[12] U.S. Department of Agriculture, Natural Resources Conservation Service (2023) Web Soil Survey. https://websoilsurvey.nrcs.usda.gov/app/

Table 10. USDA Soils in the Whisky Creek corridor.

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
I119A	Bearden silty clay loam, 0 to 2 percent slopes	C	9.19	2.61%
I150B	Zell-LaDelle silt loams, 1 to 6 percent slopes	C	3.35	0.95%
I312A	Wyndmere fine sandy loam, 0 to 2 percent slopes	B	28.43	8.08%
I356A	Ulen fine sandy loam, 0 to 2 percent slopes	B	7.16	2.04%
I376A	Colvin silty clay loam, 0 to 1 percent slopes	C/D	27.55	7.83%
I377A	Wheatville silt loam, 0 to 2 percent slopes	C	33.64	9.56%
I41A	Markey muck, 0 to 1 percent slopes	A/D	0.25	0.07%
I467A	Bearden silt loam, 0 to 2 percent slopes	C	4.86	1.38%
I49A	Rauville silty clay loam, 0 to 2 percent slopes, frequently flooded	B/D	102.80	29.23%
I5A	Borup loam, 0 to 1 percent slopes	B/D	8.68	2.47%
I634A	Augsburg silt loam, 0 to 1 percent slopes	C/D	50.46	14.35%
I646A	Viking clay loam, 0 to 1 percent slopes	D	8.33	2.37%
I716A	Arveson clay loam, 0 to 1 percent slopes	B/D	39.36	11.19%
I724A	Elmville fine sandy loam, 0 to 2 percent slopes	B	27.67	7.87%
I795A	Lamoure silt loam, 0 to 2 percent slopes, frequently flooded	B/D	0.01	0.00%
Totals for Area of Interest			**351.74**	**100.00%**

Table 11. USDA Soils in the South Tributary corridor.

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
I119A	Bearden silty clay loam, 0 to 2 percent slopes	C	1.26	0.28%
I132A	Northcote-Eaglepoint clays, 0 to 1 percent slopes	D	0.12	0.03%
I150B	Zell-LaDelle silt loams, 1 to 6 percent slopes	C	0.71	0.16%
I185A	Viking clay, 0 to 1 percent slopes	D	2.64	0.59%
I376A	Colvin silty clay loam, 0 to 1 percent slopes	C/D	34.38	7.71%
I377A	Wheatville silt loam, 0 to 2 percent slopes	C	95.77	21.47%
I377B	Wheatville loam, dry, 2 to 6 percent slopes	C	13.48	3.02%
I383A	Overly silty clay loam, 0 to 2 percent slopes	C	0.31	0.07%
I467A	Bearden silt loam, 0 to 2 percent slopes	C	16.78	3.76%
I507A	Glyndon loam, 0 to 2 percent slopes	C	23.66	5.30%
I507B	Glyndon loam, dry, 2 to 6 percent slopes	C	35.66	7.99%
I5A	Borup loam, 0 to 1 percent slopes	B/D	0.62	0.14%
I634A	Augsburg silt loam, 0 to 1 percent slopes	C/D	36.79	8.25%
I646A	Viking clay loam, 0 to 1 percent slopes	D	77.87	17.45%
I712A	Glyndon silty clay loam, 0 to 2 percent slopes	C	7.62	1.71%
Totals for Area of Interest			**446.11**	**100.00%**

Table 12. Soil Textures in the Whisky Creek corridor.

Soil Texture	Acres in AOI	Percent of AOI
Clay loam	47.69	13.56%
Fine sandy loam	63.27	17.99%
Loam	8.68	2.47%
Muck	0.25	0.07%
Silt loam	92.32	26.25%
Silty clay loam	139.55	39.67%

Table 13. Soil Textures in the South Tributary corridor.

Soil Texture	Acres in AOI	Percent of AOI
Clay	2.76	0.62%
Clay loam	77.87	17.45%
Loam	73.41	16.46%
Silt loam	248.51	55.71%
Silty clay loam	43.56	9.76%

The landscape that surrounds both phases of the project are primarily agricultural fields broken up by drainage ditches and streams. To accommodate agricultural production, the hydrology in the region was significantly altered through the construction of drainage ditches and straightening of rivers and streams. Within the Buffalo River Watershed there are an estimated 270.32 miles of drainage ditches or channelized streams. Of the 270.32 miles approximately 14.52 miles are directly associated with the Whisky Creek and South Tributary corridors. The ditch systems were an attempt to drain the area to make it "more productive", to encourage settlement, provide flood protection for agriculture fields, residential properties, and road infrastructure. The proposed project will be restoring segments of Whisky Creek and the South Tributary to maintain and improve flood protection while also restore and enhancing the natural resources.

Topography

The AOI and the surrounding areas are located within two ecological land classifications based on the Minnesota DNR and U.S. Forest Services "Ecological Classification System."[13] The ecological land classification is the Prairie Parkland Province, Red River Valley Section, Red River Prairie subsection. The Prairie Parkland Province makes up the northwestern border of Minnesota and climatic conditions favored grassland habitats. The Red River Valley Section (RRV), Red River Prairie subsection is comprised of the glacial lake plain from the receding of Glacial Lake Agassiz with landforms such as till plain, beach ridges, sand dunes, and water re-worked till. The topography of this subsection is predominately flat with many wetlands, streams, and beach ridges. Prior to the conversion to agricultural production, the main habitats included tallgrass prairie and wet prairies.

[13] Minnesota Department of Natural Resources (2023) Ecological Classification System. https://www.dnr.state.mn.us/ecs/index.html

12. Water resources

a. Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.

i. Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches.Include any special designations such as public waters, shoreland classification and floodway/floodplain, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include the presence of aquatic invasive speciesand the water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.

Wetlands and Public Waters

Based on a review of the Minnesota Department of Natural Resources Statewide Wetland inventory, the Whisky Creek and South Tributary corridors includes the stream channels and several interconnected riparian wetlands (**Appendix A6: NWI and Public Waters Map**).[14] Of the wetlands located along the Whisky Creek corridor, the majority of the basins are Circular 39 Type 1 wetlands (totaling 23.11 acres; 36.68 % of corridors NWI features) and Type 3 wetlands (totaling 33.54 acres; 53.23 % of corridors NWI features) with some small tracts of Type 4, Type 6, and Type 7 wetlands (**Table. 5**). Additionally, the stream channel is identified as a Public Waters Watercourse (Name: Whisky Creek; DNR ID: 101502; Kittle: H-026-056-009-004) (**Appendix A6: NWI and Public Waters Map**). The South Tributary corridor is predominately Circular 39 Type 1 wetlands (totaling 61.46 acres; 34.76 % of corridors NWI features) and Type 3 wetlands (totaling 105.49 acres; 59.67 % of corridors NWI features) with some small tracts of Type 4, Type 6, and Type 7 wetlands (**Table. 5**). The South Tributary channel is identified as two segments of Public Waters Watercourses including Unnamed Creek (DNR ID: 123406; Kittle: H-026-056-009-004-001) and Unnamed Creek (DNR ID: 123408; Kittle: H-026-056-009-004-001-002).

Table 14. Wetland features within the Whisky Creek corridor.

Cowardin Code	Wetland Community	Circular 39	Acres in AOI
PEM1A	Seasonally Flooded/Saturated Emergent Wetland	1	8.16
PEM1Ad	Seasonally Flooded/Saturated Emergent Wetland	1	7.31
PEM1Af	Seasonally Flooded/Saturated Emergent Wetland	1	7.03
PEM1C	Shallow Marsh	3	7.88
PEM1Cd	Shallow Marsh	3	5.37
PEM1Cx	Shallow Marsh	3	20.07
PEM1F	Shallow Marsh	3	0.22
PFO1A	Hardwood Swamp	1	0.17
PFO1Ad	Hardwood Swamp	1	0.44
PFO1C	Hardwood Swamp	7	1.56
PSS1A	Shrub Swamp	6	1.12
PSS1C	Shrub Swamp	6	0.17
PSS1Cx	Shrub Swamp	6	0.64

[14] Minnesota Department of Natural Resources (2023) NWI Wetland Finder. https://arcgis.dnr.state.mn.us/ewr/wetlandfinder/

Cowardin Code	Wetland Community	Circular 39	Acres in AOI
PUBF	Deep Marsh	4	0.31
R2UBH	Riverine	90	0.03
R2UBHx	Riverine	90	2.53
		Totals	**63.01**

Table 15. Wetland features within the South Tributary corridor.

Cowardin Code	Wetland Community	Circular 39	Acres in AOI
PEM1A	Seasonally Flooded/Saturated Emergent Wetland	1	37.84
PEM1Ad	Seasonally Flooded/Saturated Emergent Wetland	1	5.80
PEM1Af	Seasonally Flooded/Saturated Emergent Wetland	1	14.81
PEM1C	Shallow Marsh	3	86.82
PEM1F	Shallow Marsh	3	18.68
PFO1A	Floodplain Forest	1	3.02
PFO1C	Hardwood Swamp	7	4.94
PSS1C	Shrub Swamp	6	0.43
PUBF	Deep Marsh	4	4.14
PUBFx	Deep Marsh	4	0.34
		Totals	**176.80**

MPCA 303d Impaired Waters List[15]

The Minnesota Pollution Control Agency maintains a list of waters that are impaired and "fail to meet water quality standards" required by the Clean Water Act. These impairments include "mercury levels that lead to limits of fish consumption, phosphorus and other nutrients that grow algae, sediment that clouds water, bacteria that can make water unsafe for swimming, unhealthy conditions for fish and bugs, PFOS found in fish tissue, and sulfate impairments that may hinder the production of wild rice." Based on the MPCA's Draft 2024 Impaired Waters List, there are 102 waterbodies (83 streams and 19 lake) listed as impaired with various stressors within the Buffalo River Watershed. The Whisky Creek and the South Tributary are both listed as impaired waters. Additionally, the waterbodies downstream of these channels are all listed as impaired. These waterbodies include the South Branch – Buffalo River, Buffalo River, and the Red River of the North. These waters and their impairments are listed below (**Table 6; Appendix A7: MPCA Impaired Waters Map)**.

[15] Minnesota Pollution Control Agency (2022) 303d Impaired Waters List. https://www.pca.state.mn.us/air-water-land-climate/minnesotas-impaired-waters-list

Table 16. MPCA 303d Impaired Waters List adjacent to the AOI

Water body name	Water body description	Year added to List	AUID	Use Class	Affected designated use	Pollutant or stressor
Buffalo River	S Br Buffalo R to Red R	2012	09020106-501	2Bg	Aquatic Consumption	Mercury in fish tissue
Buffalo River	S Br Buffalo R to Red R	2012	09020106-501	2Bg	Aquatic Recreation	Escherichia coli (E. coli)
Buffalo River	S Br Buffalo R to Red R	1996	09020106-501	2Bg	Aquatic Life	Turbidity
Buffalo River, South Branch	Stony Cr to Buffalo R	2022	09020106-503	2Bg	Aquatic Life	Dissolved oxygen
Buffalo River, South Branch	Stony Cr to Buffalo R	2012	09020106-503	2Bg	Aquatic Life	Turbidity
Buffalo River, South Branch	Stony Cr to Buffalo R	2012	09020106-503	2Bg	Aquatic Recreation	Escherichia coli (E. coli)
Buffalo River, South Branch	Whisky Cr to Stony Cr	2022	09020106-504	2Bg	Aquatic Life	Dissolved oxygen
Buffalo River, South Branch	Whisky Cr to Stony Cr	2012	09020106-504	2Bg	Aquatic Life	Turbidity
Buffalo River, South Branch	Whisky Cr to Stony Cr	2012	09020106-504	2Bg	Aquatic Recreation	Escherichia coli (E. coli)
Unnamed creek	Unnamed cr to Whisky Cr	2022	09020106-585	2Bg	Aquatic Recreation	Escherichia coli (E. coli)
Whisky Creek	T137 R47W S13, east line to S Br Buffalo R	2020	09020106-509	2Bg	Aquatic Life	Fish bioassessments
Whisky Creek	T137 R47W S13, east line to S Br Buffalo R	2020	09020106-509	2Bg	Aquatic Life	Benthic macroinvertebrates bioassessments
Whisky Creek	T137 R47W S13, east line to S Br Buffalo R	2012	09020106-509	2Bg	Aquatic Life	Turbidity
Whisky Creek	T137 R47W S13, east line to S Br Buffalo R	2012	09020106-509	2Bg	Aquatic Recreation	Escherichia coli (E. coli)
Whisky Creek	Headwaters to -96.447 46.659	2022	09020106-610	2Bg	Aquatic Recreation	Escherichia coli (E. coli)
Whisky Creek	-96.447 46.659 to T137 R46W S18, west line	2012	09020106-611	2Bg	Aquatic Recreation	Escherichia coli (E. coli)
Whisky Creek	-96.447 46.659 to T137 R46W S18, west line	2010	09020106-611	2Bg	Aquatic Life	Turbidity
Red River of the North	All Segments from Georgetown, MN north to Canadian border.	-	09020107-501 09020107-522 09020301-543 09020301-544 09020306-523 09020306-524 09020311-560 09020311-561	1C, 2Bdg	Aquatic Life; Aquatic Consumption	Mercury in fish tissue; Mercury in water column; Total suspended solids (TSS); Turbidity

ii. Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells,including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this.

The Minnesota Pollution Control Agency published groundwater profiles for Minnesota, both the Whisky Creek corridor and the South Tributary corridor fall within the Red River Valley Region.[16] The Red River Valley Region is characterized by beach ridges that act as local recharge areas and are susceptible to groundwater contamination. The regions groundwater quality consists of high-dissolved solids including manganese, potential arsenic, chloride, sulfate, nitrate, and total dissolved solids.

The Minnesota DNR published the Geologic Atlas of Clay County, Minnesota in 2018. This report describes the geology and hydrogeology throughout the county. Both project corridors have a depth to water table between 0-10 feet. The Buffalo Aquifer runs parallel to the Buffalo River beginning north of the City of Moorhead and extends south to the county boundary. This aquifer is characterized as a linear sand body that is buried beneath low permeable sediments. Additionally, there are location that the sand bodies of this aquifer extend to the surface exposing the aquifer to potential contamination.

Based on the Minnesota Department of Health's Source Water Protection database, there are no Drinking Water Supply Management Areas (DWSMA) or Wellhead Protection areas within the either of the project corridors.[17] There are several DWSMAs located in nearby towns including the Barnesville (ID: 1140001), Comstock (ID: 1140002), and Sabin (ID: 1140010). Each of these DWSMAs are characterized as "moderately" vulnerability. Additionally, these areas are identified as Wellhead Protection Areas.

The Minnesota Department of Health maintains a Minnesota Well Index as an inventory of active and inactive wells in Minnesota.[18] There are four wells (ID's: 119172, 166232, 759851, 759852) located within the Whisky Creek corridor and three wells (ID's: 117071, 564147, 564148) within the South Tributary Corridor. Additionally, there are many well located within a 1-mile buffer of both corridors (**Table 7**).

Table 17. Wells within a mile of the Whisky Creek Corridor (Minnesota Well Index 2021)

Well No.	Name	Status	Well Type
119164	J.H. FISCH COMPANY	Active	Domestic Well
119172	GILBERTSON, JOE	Active	Domestic Well
143144	BARRY, NEIL	Active	Domestic Well
151667	HOFFMAN, JOHN	Sealed	Domestic Well
166232	GILBERTSON, JOE	Sealed	Domestic Well
180037	KREBBS, KENNETH AND PAMELA	Active	Domestic Well
213480	SMITH, GARY	Active	Irrigation Well

[16] Minnesota Pollution Control Agency (2023) Ground Water Profile: Red River Valley Region. https://www.pca.state.mn.us/sites/default/files/gwp-redriver.pdf

[17] Minnesota Department of Health (2023) Source Water Protection Database. https://mdh.maps.arcgis.com/apps/View/index.html?appid=8b0db73d3c95452fb45231900e977be4

[18] Minnesota Department of Health (2023) Minnesota Well Index. https://mnwellindex.web.health.state.mn.us/

Well No.	Name	Status	Well Type
215480	SMITH, GERY TW1	Unknown	Test Well
232379	GETZ, MARVIN	Active	Irrigation Well
232382	WILTS, HARLAND NO.1	Active	Irrigation Well
232383	EWING, JIM NO.1	Active	Irrigation Well
232384	PETERSON BROTHERS	Active	Irrigation Well
232385	PETERSON, ART	Active	Irrigation Well
429386	CAYLER, ROGER	Active	Domestic Well
461127	THOMAS, EARL	Active	Domestic Well
462597	MACKNER, ROGER	Active	Domestic Well
485606	HENG, JAMES	Active	Domestic Well
496610	GROMESH, GREG	Active	Domestic Well
504994	LEE, GARY	Active	Domestic Well
511754	LAFAYETTE, CLARENCE	Active	Domestic Well
613138	TEMANSON, DARVIN	Active	Domestic Well
701336	JORUD, MIKE	Active	Domestic Well
723411	HENG, KEN	Active	Domestic Well
724421	KREBS, KENNETH	Active	Domestic Well
724495	DREWICKE, CIMARRON	Active	Domestic Well
724496	KRUEGER, LOUIS	Active	Domestic Well
733820	HANSON, JAMEY	Active	Domestic Well
752546	BARRY, NEIL	Active	Domestic Well
754200	KRAMER, WALLY	Active	Domestic Well
759851	BERG, DAN	Active	Domestic Well
759852	GOEHRING, KARL	Active	Domestic Well

Table 18. Wells within a mile of the South Tributary Corridor (Minnesota Well Index 2021)

Well No.	Name	Status	Well Type
21728	240-22/1 P1	Sealed	Exploration Well
22073	240-22/1 R1	Sealed	Exploration Well
117071	GETZ, MARVIN	Active	Domestic Well
143104	SCHENCK, JAMES	Active	Domestic Well
143123	THOMPSON, FORREST	Active	Domestic Well
143144	BARRY, NEIL	Active	Domestic Well
143153	BUTENHOFF, LAWRENCE	Active	Domestic Well
143154	HAL SILLERS, DOUG	Active	Test Well
143183	THOMPSON, LINCOLN TW-1	Sealed	Test Well
143184	THOMPSON, LINCOLN TW-2	Sealed	Test Well
143185	THOMPSON, LINCOLN	Active	Domestic Well
143189	AKERS, DORAIN	Active	Domestic Well
197077	LIEDBERG, AL	Active	Domestic Well
213480	SMITH, GARY	Active	Irrigation Well
228469	USGS 65-328	Unknown	Scientific Investigation Well

Well No.	Name	Status	Well Type
228480	USGS 46-9	Unknown	Scientific Investigation Well
228481	USGS 65-324	Unknown	Scientific Investigation Well
247579	RVR-2	Sealed	Scientific Investigation Well
248918	65-314 USGS	Unknown	Scientific Investigation Well
329634	HAUGEN, BRENT	Sealed	Abandoned
330387	HAUGEN, BRENT	Sealed	Other
429386	CAYLER, ROGER	Active	Domestic Well
439457	AKERS, LOIS	Active	Domestic Well
439458	SISSON, HARRIET	Unknown	Domestic Well
485747	SCHINDLER, FRANK	Active	Domestic Well
516289	TRI-T FARMS/THOMPSON	Active	Domestic Well
516290	HANSTINE, RICHARD	Active	Domestic Well
564147	WAGNER, ROGER	Active	Domestic Well
564148	FRANK THOMPSON & SONS	Sealed	Domestic Well
608439	STUBSTAD, CURTIS	Active	Domestic Well
613119	WHISKY CREEK FARMS	Active	Domestic Well
652740	LESMEISTER, DEAN	Active	Domestic Well
727123	RUSTAD, MARK	Active	Domestic Well
752546	BARRY, NEIL	Active	Domestic Well
752550	HAUGEN, BRENT	Active	Domestic Well

b. Describe effects from project activities on water resources and measures to minimize or mitigatethe effects in Item b.i. through Item b.iv. below.

i. Wastewater - For each of the following, describe the sources, quantities and composition ofall sanitary, municipal/domestic and industrial wastewater produced or treated at the site.

Construction related to the project will not produce or treat any sanitary, municipal/domestic, or industrial wastewater.

1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water andwaste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.

Not applicable.

2) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for sucha system. If septic systems are part of the project, describe the availability of septage disposal options within the region to handle the ongoing amounts generated as a result of the project. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion.

Not applicable.

3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigateimpacts. Discuss any effects to surface or groundwater from wastewater discharges,taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects.

Not applicable.

ii. Stormwater - Describe changes in surface hydrology resulting from change of land cover. Describe the routes and receiving water bodies for runoff from the project site (major downstream water bodies as well as the immediate receiving waters). Discuss environmental effects from stormwater discharges on receiving waters post construction including how the project will affect runoff volume, discharge rate and change in pollutants.Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion. For projects requiring NPDES/SDS Construction Stormwater permit coverage, state the total number of acres that will be disturbed by the project and describe the stormwater pollution prevention plan (SWPPP), including specific best management practices to address soil erosion and sedimentation during and after project construction. Discuss permanent stormwater management plans, including methods of achieving volume reduction to restore or maintain the natural hydrology of the site using green infrastructure practices or other stormwater management practices. Identify any receiving waters that have construction-related water impairments orare classified as special as defined in the Construction Stormwater permit. Describe additional requirements for special and/or impaired waters.

The Whisky Creek and South Tributary corridors provide a reduction in runoff and flood water for the surrounding landscape that is predominately rural residential properties and cultivated fields. The runoff discharge flows through Whisky Creek and the South Tributary and discharges into the South Branch of the Buffalo River, the main branch of the Buffalo River, and finally into the Red River of the North. Without proper Best Management Practices (BMPs) changes in discharge could cause environmental effects to the project corridor and the downstream waterbodies. These environmental effects could include stream bank erosion, sedimentation, significant nutrient fluxes, seasonal algal blooms, and dissolved oxygen deficiencies. If not properly managed, these environmental effects could have significant impacts on floodplain and aquatic habitats as well as potential concerns to human health.

The use of Best Management Practices (BMPs) to manage runoff into these waterbodies will avoid or minimize the environmental effects listed above. During construction, standard erosion control devices and methods will be used around waterbodies, wetlands, and sensitive resources including along the channels to minimize the stormwater and sediment discharges into these areas. These BMPs will be utilized throughout the entirety of the construction phase. The erosion control devices will consist of, but not limited to, erosion control blankets, silt curtains, and straw sediment control logs. Through coordination with the DNR during the permitting phase of the project, the watershed district will consider ways to protect the fish and wildlife within the project corridors such as “wildlife friendly erosion controls” and other biodegradable devices. Post-construction activities will include the restoration of disturbed areas, which may include, but are not limited to, grading to final contours, seeding, and mulching. Areas of re-seeding will be done using a Minnesota BWSR native seed mix.

The project proposers will develop an erosion control plan, apply for an MPCA Construction Stormwater General Permit, and prepare a Stormwater Pollution Prevention Plan (SWPPP) to address permanent and construction-related erosion, sediment, and pollution control. The standards and rules established by local and watershed agencies will be followed to the extent possible to mitigate the water quality and quantity impacts created by the proposed project.

iii. Water appropriation - Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe anywell abandonment. If connecting to an existing municipal water supply, identify the wells tobe used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Discuss how the proposed water use is resilient in the event of changes in total precipitation, large precipitation events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation. Describe contingency plans should theappropriation volume increase beyond infrastructure capacity or water supply for the project diminish in quantity or quality, such as reuse of water, connections with another water source, or emergency connections.

Water appropriation is not anticipated for this project, but some level of dewatering may be required but the water will remain in the same waterbody. A water appropriation permit will be required in any situation in which dewatering occurs at a rate greater than the allowed 6.94 gallons per minute per day (10,000 gallons per day). All project dewatering would comply with the MPCA NPDES Construction Stormwater Permit and discharged in a manner that would not adversely affect the receiving water or downstream properties.

iv. Surface Waters

a) Wetlands - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigationfor unavoidable wetland impacts will occur in the same minor or major watershed and identify those probable locations.

Due to the nature of the proposed work for Phase 1 and Phase 2, there will be impacts to surface waters including both Whisky Creek and the South Tributary. Though the work will restore both channels to a more natural and sustainable function, the work will require physical changes to current aquatic and riparian habitats, plant community composition, and hydrologic regimes. The physical changes will include permanently excavating the proposed low flow channel and permanently filling portions of the current low flow channel that will result in a natural meandering of the channels. Additionally, there will be some excavation and fill to restore the channels

floodplains. These impacts will permanently alter the hydrologic regime, plant community composition, and in some places impact adjacent wetlands. As summarized in Section 12.a.i., approximately 17.9 % of the Whisky Creek corridor and 39.6 % of the South Tributary corridor are NWI identified wetlands. These NWI wetlands are predominately Type 1 and Type 3 wetlands with some areas of Type 6 and Type 7 wetlands.

The permanent impacts to aquatic resources will require the acquisition of local, state, and federal permits. These permits include Clean Water Act (CWA) permits, Minnesota Wetland Conservation Act (WCA) permits, Minnesota DNR Public Water Works permit, and County zoning permits.

Direct Impacts

As discussed previously, the direct impacts to wetlands along both corridors include loss of wetlands from excavation of meandering low flow channels, converting both herbaceous and woody wetlands into stream type habitats, and permanently altering the current hydrologic regimes of each channel. There will be additional wetland loss during Phase 1 for the construction of the proposed setback levees along the Whisky Creek corridor. All direct impacts will be minimized through BMPS, avoided by design alignment alterations, and mitigated per permit conditions. Most of the direct impacts will be self-offsetting as wetlands will redevelop within floodplains and where the current alignment is filled.

Indirect Impacts

The indirect impact to wetlands from both phases of the project may include change in surface water and flooding fluxes and altering the regions drainage systems. These indirect impacts will result in stream channel improvements as the project restores two streams and the wetlands within the active floodplains.

Climate Trends

Based on the most recent "National Climate Assessment (NCA)" report, developed by the U.S. Global Change Research Program (USGCRP), described the climate trends in the Midwest as having increases in growing-season temperatures, increases in spring humidity, increases in late-growing-season droughts, increases in heavy rainfalls, and exacerbated stressors on ecosystems. The increase in heavy rainfalls, drought, and ecosystem stressors will cause negative impacts to the water resources within the project corridors. Restoration projects similar to the proposed project will have positive impacts to the environment in face of the current climate trends. Restoring the channel and floodplains will protect against the climate trends by benefiting the ecosystem but also preventing damages to transportation infrastructure and local landowners from flooding.

b) Other surface waters- Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicialditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water BMPs that are proposed to avoid or minimize turbidity/sedimentation while physically altering thewater features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.

The project will impact segments of Whisky Creek and the South Tributary, both of which are Minnesota Public Waters. In general, both phases of the project will restore the streams low flow channels and adjacent floodplains. To achieved this, there will be both permanent excavation and permanent fill. The permanent excavation will be completed in both upland and wetland areas. Additionally, the permanent fill will occur within both upland and wetland areas.

Similar to the impacts to wetlands, the changes to the channels will cause changes in hydrology regime, modify aquatic communities, and alter channel water chemistry. Overall, the project will result in positive outcomes by improving flood water storage, improve the aquatic communities, and potentially improve the water quality.

The permanent impacts to aquatic resources will require the acquisition of local, state, and federal permits. These permits include Clean Water Act (CWA) permits, Minnesota Wetland Conservation Act (WCA) permits, Minnesota DNR Public Water Works permit, and County zoning permits.

Direct Impacts

As described in previous sections, the direct impacts to Whisky Creek and the South Tributary includes low flow channel realignment to improve floodwater storage, improve aquatic habitats, and improve water quality within these channels and downstream of both channels. The direct impacts will alter both the channels habitat but also the wetland complexes adjacent to the channel. The direct impacts will be required and unavoidable but is considered a restoration of the existing conditions and therefor will be offset.

Indirect Impacts

The indirect impacts for both phases of the project will include change in regional drainage, surface fluxes, and downstream water chemistry. These indirect impacts will be minimized by the restoration of the channelized stream and the wetlands within the active floodplain will re-establish.

Climate Trends

As mentioned previously, the climate trends in the Midwest include increases in growing-season temperatures, increases in spring humidity, increases in late-growing-season droughts, increases in heavy rainfalls, and exacerbated stressors on ecosystems. At its current condition, the increase in heavy rainfalls, drought, and ecosystem stressors will cause negative impacts to the Whisky Creek, the South Tributary, and adjacent wetlands. The restoration project will improve the flood water storage and stream habitats that would be degraded by the climate trends if left in its current condition.

13. Contamination/Hazardous Materials/Wastes

a. Pre-project site conditions - Describe existing contamination or potential environmental hazardson or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.

The MPCA, "What's in My Neighborhood"[19] online database was reviewed for the presence of potentially contaminated sites and other environmental information within either of the project corridors. There are no potentially contaminated sites located within these corridors but there are several sites within close proximity. The following sites are located within one mile the project corridors:

Phase 1 – Whisky Creek Corridor

1. Brian Ellefson Farm (ID: 027-62084) - active feedlot.
2. Greg Berg Farm (ID: 027-114776) - active feedlot.
3. Barnesville WWTP (MN0022501) - sewage treatment facilities.
4. Barnesville City of Maintenance Shop (A000010412).
5. Whisky Creek Restoration Project (C00039912).
6. Barnesville Dump (SA0007328).
7. James Heng Farm (ID: 027-62090) - active feedlot.

Phase 2 – South Tributary Corridor

8. C.H.R. Construction Services, LLC (L4008).
9. Curt Stubstad Ring Dike (ID: C00030404).

b. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solidwaste including source reduction and recycling.

The improper handling, storage, and disposal of solid waste could result in contamination of rivers, streams, wetlands, groundwater resources, and other sensitive aquatic habitats. Contamination could adversely affect many of the fish, wildlife, and aquatic invertebrates and could result is public health risks. The project contractors will ensure the careful handling, storing, and disposing of solid waste generated during construction to avoid spills into sensitive resources. If a spill of toxic substances should occur, it is the responsibility of the contractor to notify the Project Engineer and Minnesota Department of Public Safety and Minnesota Duty Officer, and appropriate action to remediate will be taken in accordance with MPCA guidelines and regulations in place at the time of construction.

All solid waste, including materials and debris, produced from construction will be disposed of in accordance with MPCA requirements. Any contaminated soils during construction will be handled in accordance with MPCA requirements. The hazardous materials that will be used for this project will be limited to the general fuel and lubricants utilized by construction equipment. All fuel and lubricants will be stored in temporary storage tanks away from aquatic resources and other sensitive areas.

[19] Minnesota Pollution Control Agency (2023) What's in My Neighborhood. https://mpca.maps.arcgis.com/apps/webappviewer/index.html?id=9d45793c75644e05bac197525f633f87

c. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any new above or below ground tanks to store petroleum or other materials. Indicate the number, location, size and age of existing tanks on the property that the project will use. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverseeffects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

Similar to what was previously discusses, improperly handled, hazardous materials could have significant impacts to water quality, adverse impacts to plant communities, wildlife, fish, and invertebrate species. If contamination occurs within Whisky Creek or the South Tributary, the contamination could travel downstream to the South Branch - Buffalo River, Buffalo River, and the Red River of the North. Contamination would pose risks to public health as well as aquatic species. If a spill should occur during construction, it is the responsibility of the contractor to notify the Project Engineer and Minnesota Department of Public Safety and Minnesota Duty Officer, and appropriate action to remediate will be taken in accordance with MPCA guidelines and regulations in place at the time of construction.

d. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, anddisposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.

No above or below-ground storage tanks are planned for permanent use in conjunction with the project. Temporary storage tanks for petroleum products may be used for refueling equipment during construction. A spill kit will be kept near all storage tanks at all times.

14. Fish, wildlife, plant communities, and sensitive ecological resources (rare features)

a. Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.

The Whisky Creek and the South Tributary corridors are located within the Prairie Parkland Province (PPA), Red River Valley Section (RRV), and the Red River Prairie Subsection of the DNR Ecological Classification System. The PPA is approximately 16 million acres the runs along the entirety of the western boundary of Minnesota. The PPA Province was influenced by the expansion and retraction of several glacial ice sheets. The latest ice sheet, the Des Moines Lobe, deposited calcareous drift in southern Minnesota while Glacial Lake Agassiz deposited deep-water sediments across the northern portion of Minnesota. The pre-settlement plant community present within the PPA was predominately tallgrass prairie. The RRV Section is located within the basin of Glacial Lake Agassiz. The section is characterized by extremely flat plains, beach ridges, and wave-cut scarp. Historically the RRV Section was dominated by upland and wetland prairies with tree and shrub communities lining river and stream corridors. The Red River Prairie Subsection falls between the Red River of the North and the historical tallgrass prairie boundary. The minor landforms include till plains, beach ridges, sand dunes, and water-reworked till. The tallgrass prairie and wet prairies pre-settlement vegetation were converted into agricultural production. Wetlands and streams were extensively ditched to accommodate the growing agricultural practices. There are several key habitats common to the subsection and present within both project corridors. These include prairie, forest-lowland deciduous, and wetland non-forest.

Prairie

The Prairie habitat is predominately native grasses and forbs. The most common grasses include big bluestem (Andropogon gerardii), prairie dropseed (Sporobolus heterolepis), and little bluestem (Schizachyrium scoparium). The wet prairie is dominated by big bluestem (Andropogon gerardii), prairie chordgrass (Spartina pectinata), and a variety of sedges (Carex spp.). The most common forbs include leadplant (Amorpha canescens), prairie rose (Rosa arkansana), red-osier dogwood (Cornus sericea), and a variety of willows (Salix spp.). The Species in Greatest Conservation NeedSGCN species identified within this habitat include regal fritillary (Speyeria idalia) (dependent upon the beared birdfoot violet (Viola pedate)), arogos skipper (Atrytone arogos) (dependent upon big bluestem (Andropogon gerardii)), uncas skipper (Hesperia uncas) (dependent upon hairy grama (Bouteloua hirsuta)), red-tailed leafhopper (Aflexia rubranura) (dependent upon prairie dropseed (Sporobolus heterolepis)), and the Dakota skipper (Hesperia dacotae) (dependent upon bunchgrasses and a variety of flowering forbs). Although uncommon, the bird species considered to be SGCN include chestnut-collared longspur (Calcarius ornatus), Sprague's pipit (Anthus spragueii), and Baird's sparrow (Ammodramus bairdii).

Forest-lowland Deciduous

This habitat occurs on floodplains and terraces along rivers and streams. These areas are seasonally flooded, receiving flood waters from the associated riverine systems. In the regions of the AOI, these habitats canopies are dominated by black ash () and silver maple () with other some areas of green ash, american elm, bur oak, and basswood. The understories are patchy but dominated by speckled alder (*Alnus incana*), mountain maple (*Acer spicatum*), dogwoods (*Cornus spp.*), gooseberries/currants (*Ribes spp.*), and winterberry (*Ilex verticillate*). The SGCN species includes prothonotary warblers (*Protonotaria citrea*), cerulean warblers (*Setophaga cerulea*), red-shouldered hawks (*Buteo lineatus*), and eastern massasauga (*Sistrurus catenatus*).

Nonforested wetlands

This key habitat consists of four wetland types including marshes, wet meadows, fens, and bogs. Marsh-type wetlands are commonly dominated by cattails (Typha spp.), bulrushes (Schoenoplectus spp.), and arrowheads (Sagittaria spp.). Wet meadows are dominated by lake sedge (Carex lacustris), tussock sedge (Carex stricta), and bluejoint (Calamagrostis canadensis). Open rich peatlands are characteristic of fine-leaved sedges (Carex spp.) and a variety of mosses (especially brown mosses). Graminoid fens are predominately brown mosses (Amblystegiaceae), peat moss species (Sphagnum spp.), sedges (Carex spp.), buckbean (Menyanthes trifoliata), and tufted bulrush (Scirpus Cespitosus). Calcarerous fens are dominated by tufted bulrush (Trichophorum cespitosum), Kalm's lobelia (Lobelia kalmia), and grass of parnassus (Parnassia spp.) including some rare species of twig rush (Cladium mariscoides) and hairlike beak rush (Rhynchospora capillacea). Nonforest wetlands are declining and are commonly disturbed by invasive species such as purple loosestrife (Lythrum salicaria) and glossy buckthorn (Rhamnus cathartica). Several species identified as SGCN commonly utilize this habitat. These species include sedge wrens (Cistothorus stellaris), yellow rails (Coturnicops spp.), Nelson's sharp-tailed sparrows (Ammodramus nelson), two-spotted skippers (Euphyes bimacula), least bitterns (Ixobrychus exilis), American bitterns (Botaurus lentiginosus), marsh wrens (Cistothorus palustris), Virginia rails (Rallus limicola), and Forster's terns (Sterna forsteri).

b. Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota Biological Survey Sites of Biodiversity Significance, andother sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (**LA-944**) and/or correspondence number (**MCE 2023-00363**) from which the data were obtained and attach the Natural Heritage Review letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.

State-Listed Species

The Minnesota Wildlife Action Plan (2015-2025)[20] was developed to "ensure the long-term viability of Minnesota's wildlife with a focus on species that are rare, declining, and vulnerable to decline; enhance opportunities to enjoy Species of Greatest Conservation Need (SGCN) and to participate in conservation; acquire the resources necessary to implement the Minnesota Wildlife Action Plan." Identified threatened and endangered species are protected through Minnesota's Endangered and Threatened Species (Minnesota Statutes, Section 84.0895)[21] law passed by state legislatures in 1971. Currently, there are 143 Endangered species and 149 Threatened species listed by the Minnesota DNR and protected under the aforementioned Minnesota Statutes. The list includes species of mammals, birds, amphibians, reptiles, fish, mollusks, jumping spiders, dragonflies, butterflies, moths, caddisflies, tiger beetles, leafhoppers, fungi, lichens, mosses, and liverworts but the majority of the Endangered or Threatened species are vascular plants (86 Endangered; 93 Threatened). The MN DNR Rare Species Guide describes the distribution of listed threatened and endangered species based on the DNR Natural Heritage Information System's "Biotics Database" which is based on the presence and absence of a species and not on known species distribution. There are currently 20 species listed as present within Clay County (**Table 8**).[22] State-listed species within Clay County includes eight threatened species and twelve endangered species. Of the species in this list, three are listed as being federally listed. These inc

[20] Minnesota Department of Natural Resources (2015) Minnesota's Wildlife Action Plan 2015-2025. https://files.dnr.state.mn.us/assistance/nrplanning/bigpicture/mnwap/wildlife-action-plan-2015-2025.pdf

[21] State of Minnesota Statutes (2022) 84.0895 Protection Of Threatened And Endangered Species. https://www.revisor.mn.gov/statutes/cite/84.0895

[22] Minnesota Department of Natural Resources (2023) Rare Species Guide. https://www.dnr.state.mn.us/rsg/index.html

lude the threatened Dakot Skipper (*Hesperia dacotae*), the threatened Western Prairie Fringed Orchid (*Platanthera praeclara*), and the endangered poweshiek skipperling (*Oarisma poweshiek*).

Table 19. State-listed Threatened and Endangered Species in Marshall County

Common name	Scientific name	Group	Federal status	State status
Assiniboia Skipper	*Hesperia assiniboia*	insect	none	endangered
Baird's Sparrow	*Centronyx bairdii*	bird	none	endangered
Burrowing Owl	*Athene cunicularia*	bird	none	endangered
Chestnut-collared Longspur	*Calcarius ornatus*	bird	none	endangered
Clustered Broomrape	*Orobanche fasciculata*	vascular plant	none	threatened
Dakota Skipper	*Hesperia dacotae*	insect	threatened	endangered
Garita Skipperling	*Oarisma garita*	insect	none	threatened
Hair-like Beak Rush	*Rhynchospora capillacea*	vascular plant	none	threatened
Henslow's Sparrow	*Centronyx henslowii*	bird	none	endangered
Loggerhead Shrike	*Lanius ludovicianus*	bird	none	endangered
Louisiana Broomrape	*Orobanche ludoviciana*	vascular plant	none	threatened
One-flowered Broomrape	*Orobanche uniflora*	vascular plant	none	threatened
Poweshiek Skipperling	*Oarisma poweshiek*	insect	endangered	endangered
Short-beaked Arrowhead	*Sagittaria brevirostra*	vascular plant	none	endangered
Sprague's Pipit	*Anthus spragueii*	bird	none	endangered
Sterile Sedge	*Carex sterilis*	vascular plant	none	threatened
Uhler's Arctic	*Oeneis uhleri varuna*	insect	none	endangered
Western Prairie Fringed Orchid	*Platanthera praeclara*	vascular plant	threatened	endangered
Whorled Nutrush	*Scleria verticillata*	vascular plant	none	threatened
Wilson's Phalarope	*Phalaropus tricolor*	bird	none	threatened

The United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation Tool[23] identified the northern long-eared bat (*Myotis septentrionalis*) as a endangered species and the monarch butterfly (*Danaus* plexippus) as a candidate species being potentially within the proposed project corridors (**Attachment 3: U.S. FWS Threatened and Endangered Species Review Letter**). No critical habitats were identified within the project area. The IPaC identified one eagle, the bald eagle (*Haliaeetus leucocephalus*), and 5 migratory bird species within the project corridors. The migratory birds includes the bald eagle (*Haliaeetus leucocephalus*), black tern (*Chlidonias niger*), black-billed cuckoo (*Coccyzus erythropthalmus*), bobolink (*Dolichonyx oryzivorus*), chimney swift (*Chaetura pelagica*), Fanklin's gull (*Leucophaeus pipixcan*), and western grebe (A*echmophorus occidentalis*).

Avoidance and minimization measures will be taken to address any impacts to all Federal and State Threatened and Endangered Species. The USFWS and a Minnesota Endangered Species Coordinator will be consulted prior to construction to identify any endangered species that could be impacted by the proposed project and to identify measures to avoid or minimize impacts to these species (e.g., avoid locations, and change the timing of construction). In addition, a Natural Heritage Information System (NHIS) data review was submitted and the MN DNR Division of Ecological and Water Resources determined that there are two state-listed species within the vicinity of the Whisky Creek corridor but no state-listed species in the vicinity of the South Tributary corridor (**Attachment 1: Minnesota DNR**

[23] U.S. Fish and Wildlife Service (2023) Information for Planning and Consultation. https://ipac.ecosphere.fws.gov/

NHIS Rare Features Review Letter (Phase 1); Attachment 2: Minnesota DNR NHIS Rare Features Review Letter (Phase 2)).[24] The two listed species in the vicinity of Whisky Creek includes Wilson's phalarope (*Phalaropus tricolor*) – threatened species, and Marbled godwit (*Limosa fedoa*) – special concern species.

Minnesota Biological Survey (MBS)

The Minnesota Biological Survey (MBS) identifies and describes sites of biodiversity significance and areas of native plant communities. Sites of biological significance are ranked based on landscape context and ecological function, native plant community quality and rarity, and species quality and rarity. The ranks include below, moderate, high, and outstanding in which a "below" rank lacks rare species/native plant community occurrence or does not meet MBS standards and an "outstanding" rank has the best quality of rare species/native plant communities. A review of current MBS data indicates that there are no rare features located within either of the project corridors. There are no rare features within a mile of the South Tributary corridor, but there are some features within a mile of the Whisky Creek corridor. There are 4 Native Plant Communities and 5 Sites of Biodiversity Significance (**Table 9; 10**; **Appendix A8: MBS Rare Features Map**).

Table 20. Native Plant Communities within a one-mile buffer of the Whisky Creek corridor

Code and Name	S Rank Category	Acres
UPn23b - Mesic Prairie (Northern)	S1-S3	37.26
UPn23b - Mesic Prairie (Northern)	S1-S3	58.34
WPn53b - Wet Brush-Prairie (Northern)	S1-S3	199.21
WPn53d - Wet Saline Prairie (Northern)	S1-S3	80.85

Table 21. Sites of Biodiversity Significance within a one-mile buffer of the Whisky Creek corridor

Name	County Number	Biodiversity Significance	Acres
BARNESVILLE 27	14162	Moderate	144.37
BARNESVILLE 34/35	14163	High	323.34
BARNESVILLE 26	14160	Below	131.7
BARNESVILLE-SABIN HWY 52-RR ROW	14183	Moderate	118.43
Barnsville 26,25	14223	Moderate	37.29

Noxious Weeds

The Minnesota Department of Agriculture lists 29 "State Prohibited Noxious Weeds", 15 "Restricted Noxious Weeds, and four "Specially Regulated Plants" (Table 11).[25] Clay County lists three noxious weeds that are on the MDA Approved County Noxious Weeds list. These species include the bull thistle (*Cirsium vulgare*), kochia (*Bassia scoparia*), and musk thistle (*Carduus nutans*). The project will comply with the Minnesota Noxious Weed Law (Minnesota Statutes 18.75-18.91) to effectively control and eradicate weeds that could be present within or near the construction footprint.

[24] Minnesota Department of Natural Resources (2023) Minnesota Conservation Explorer – NHIS Database. https://mce.dnr.state.mn.us/

[25] Minnesota Department of Agriculture (2023) Minnesota Noxious Weed List. https://www.mda.state.mn.us/plants-insects/minnesota-noxious-weed-list

Table 22. Minnesota Department of Agriculture's Noxious Weed List

Prohibited: Eradicate	
Black swallow-wort (*Cynanchum louiseae*)	Diffuse knapweed (*Centaurea diffusa*)
Common/cutleaf teasel (*Dipsacus fullonum*)	Meadow knapweed (*Centaurea x moncktonii*)
Dalmatian toadflax (*Linaria dalmatica*)	Oriental bittersweet (*Celastrus orbiculatus*)
Giant hogweed (*Heracleum mantegazzianum*)	Palmer amaranth (*Amaranthus palmeri*)
Grecian foxglove (*Digitalis lanata*)	Poison hemlock (*Conium maculatum*)
Japanese honeysuckle (*Lonicera japonica*)	Tree-of-heaven (*Ailanthus altissima*)
Japanese hops (*Humulus japonicus*)	Yellow starthistle (*Centaurea solstitialis*)
Brown knapweed (*Centaurea jacea*)	Cutleaf teasel (*Dipsacus laciniatus*)
Prohibited: Control	
Common barberry (*Berberis vulgaris*)	Leafy spurge (*Euphorbia esula*)
Canada Thistle (*Cirsium arvense*)	Narrowleaf bittercress (*Cardamine impatiens*)
Common tansy (*Tanacetum vulgare*)	Plumeless thistle (*Carduus acanthoides*)
Spotted knapweed (*Centaurea stoebe*)	Purple loosestrife (*Lythrum salicaria*)
Japanese knotweed (*Polygonum cuspidatum*)	Wild parsnip (*Pastinaca sativa*)
Giant knotweed (*Polygonum sachalinense*)	Non-native phragmites (*Phragmites australis*)
Bohemian knotweed (*Polygonum x bohemicum*)	
Restricted Noxious Weeds	
Amur honeysuckle (*Lonicera maackii*)	Japanese barberry (*Berberis thunbergii*)
Bell's honeysuckle (*Lonicera x bella*)	Morrow's honeysuckle (*Lonicera morrowii*)
Black locust (Robinia *pseudoacacia*)	Multiflora rose (*Rosa multiflora*)
Common buckthorn (*Rhamnus cathartica*)	Porcelain berry (*Ampelopsis brevipedunculata*)
Glossy buckthorn (*Frangula alnus*)	Siberian peashrub (*Caragana arborescens*)
Crown vetch (*Securigera varia*)	Tatarian honeysuckle (*Lonicera tatarica*)
European alder (*Alnus glutinosa*)	Wild carrot (*Daucus carota*)
Garlic mustard (*Alliaria petiolata*)	
Specially Regulated	
Amur maple (*Acer ginnala*)	Common poison ivy (*Toxicodendron radicans*)
Norway maple (*Acer platanoides*)	Winged burning bush (*Euonymus alatus*)

Terrestrial invasives

There are 11 invasive terrestrial animals, 54 invasive terrestrial plants, and 6 invasive terrestrial pathogens listed in Minnesota (Table 12).[26] These species have the potential to be present within the project area. Clay County doesn't maintain a list of county invasive species. All construction equipment will be thoroughly checked for seeds, soil, and vegetation pre-construction and post-construction to prevent the spread of any invasive species at the site. A thorough cleaning will be done to remove all seeds and debris from construction equipment. The project will comply with the Minnesota DNR Operational Order 113 to "prevent the introduction, establishment, or spread of invasive species by implementing site-level management."

[26] Minnesota Department of Natural Resources (2023) Terrestrial Invasive Species. https://www.dnr.state.mn.us/invasives/terrestrial/id.html

Table 23. Minnesota DNR Listed Terrestrial Invasive Species

Animals			
European starling	Mute Swan	Eurasian swine	
Earthworms	Jumping worm	Asian-long horned beetle	
Brown marmorated stink bug	Emerald ash borer	Spongy moth	
Japanese beetle	Spotted lanternfly		
Plants			
Birdsfoot trefoil	Brown knapweed	Diffuse knapweed	Meadow knapweed
Bull thistle	Butter and eggs	Canada thistle	Common tansy
Common teasel	Cow vetch	Hairy vetch	Creeping Charlie
Crown vetch	Cut-leaved teasel	Dalmatian toadflax	Erect hedgeparsley
Garlic mustard	Giant hogweed	Grecian foxglove	Hoary alyssum
Leafy spurge	Lesser celandine	Musk thistle	Narrowleaf bittercress
Orange hawkweed	Oxeye daisy	Poison hemlock	Queen Anne's lace
Spotted knapweed	White sweet clover	Yellow sweet clover	Wild parsnip
Yellow starthistle	Amur silver grass	Reed canary grass	Smooth brome grass
Amur cork tree	Amur maple	Autumn olive	Black locust
Buckthorn	Japanese barberry	Multiflora rose	Non-native bush honeysuckles
Non-native knotweeds	Norway maple	Russian olive	Siberian elm
Siberian peashrub	Tree of heaven	Winged burning bush	Black swallow-wort
Japanese hops	Oriental bittersweet		
Pathogens			
Annosum root rot	Bur oak blight (BOB)	Oak wilt	
Sudden oak death	Thousand cankers disease	White-nose syndrome	

Aquatic invasives[27]

There are 19 invasive animals, 10 invasive plants, and 10 diseases identified by the Minnesota DNR as infesting the wetlands and waterbodies in Minnesota (Table 13). There are no infested waters located in either of the project corridors and two waterbodies in all of Clay County. In Clay County, Lake Tilde is infested with red swamp crayfish and Turtle Lake is infested with zebra mussels. The spread of these species is managed through state aquatic invasive species laws including the "clean, drain, and dispose." The DNR requires all boats exiting a lake to "clean" the watercraft by removing vegetation and species, "drain" the water from the watercraft, and "dispose" of unwanted live bait. The project will comply with the Minnesota DNR Operational Order 113 to "prevent the introduction, establishment, or spread of invasive species by implementing site-level management." The contractor will implement practices that will prevent the spread of invasive species. This includes all construction equipment be thoroughly cleaned prior to construction to prevent contaminating the site with new invasive and also thoroughly cleaned following construction completion to prevent the spread of any invasive species at the site.

[27] Minnesota Department of Natural Resources (2023) Aquatic Invasive Species. https://www.dnr.state.mn.us/invasives/ais/id.html

Table 24. Minnesota DNR Listed Aquatic Invasive Species

Animals	
Banded mystery snail (*Vivaparus georgianus*)	Red swamp crayfish (*Procambarus clarkii*)
Bighead carp (*Hypophthalmichthys nobilis*)	Round goby (*Neogobius melanostomus*)
Black carp (*Mylopharyngodon piceus*)	Ruffe (*Gymnocephalus cernuus*)
Bloody red shrimp (*Hemimysis anomala*)	Rusty crayfish (*Orconectes rusticus*)
Chinese mystery snail (*Cipangopaludina chinensis*)	Sea lamprey (*Petromyzon marinus*)
Common carp (*Cyprius carpio*)	Silver carp (*Hypophthalmichthys molitrix*)
Faucet snail (*Bithynia tentaculata*)	Spiny waterflea (*Bythotrephes longimanus*)
Goldfish (*Carassius auratus*)	White perch (*Morone americana*)
Grass carp (*Ctenopharyngodon idella*)	Zebra mussel (*Dreissena polymorpha*)
New Zealand mud snail (*Potamopyrgus antipodarum*)	
Plants	
Brazilian elodea (*Egeria densa*)	Non-native phragmites (*Phragmites australis*)
Brittle naiad (*Najas minor*)	Non-native waterlilies (*Nymphaea*)
Curly-leaf pondweed (*Potamogeton crispus*)	Purple loosestrife (*Lythrum salicaria*)
Eurasian watermilfoil (*Myriophyllum spicatum*)	Starry stonewort (*Nitellopsis obtusa*)
Flowering rush (*Buotmus umbellatus*)	Yellow iris (*Iris pseudacorus*)
Diseases	
Viral Hemorrhagic Septicemia	Lymphosarcoma
Bass tapeworm	Lymphocystis
Neascus	Heterosporis
Dermal sarcoma	Spring Viremia of Carp (SVC)
Myofibrogranuloma	Yellow/White Grub

Infested Waters[28]

The Minnesota DNR maintains a list of infested waters in Minnesota. As previously discussed, there are no waterbodies identified within the project corridors as being infested. In the county, Lake Tilde is infested with red swamp crayfish and Turtle Lake is infested with zebra mussels.

Rare Features

The Minnesota DNR, Natural Heritage Information System (NHIS)(LA-944; MCE#: 223-00363) and Minnesota DNR Minnesota Conservation Explorer was consulted to identify the presence of rare features within or near the project corridors, discuss the potential impacts, and identify minimization and avoidance measures (**Attachment 1: Minnesota DNR NHIS Rare Features Review Letter (Phase 1); Attachment 2: Minnesota DNR NHIS Rare Features Review Letter (Phase 2)**). Separate reviews were submitted for each corridor as construction will occur in two phases. The review of the Whisky Creek corridor (Phase 1) indicates there are no native plant communities or sites of biodiversity significance but there are two state-listed species (Wilson's phalarope (*Phalaropus tricolor*) – threatened species, and Marbled godwit (*Limosa fedoa*) – special concern species) documented in the vicinity of the corridor. The review of the South Tributary corridor (Phase 2) indicates that there are no state-listed species, native plant communities, sites of biodiversity significance, or other rare features that would require a further review by the MN DNR.

[28] Minnesota Department of Natural Resources (2023) Infested Waters List. https://www.dnr.state.mn.us/invasives/ais/infested.html

c. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project including how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separatelydiscuss effects to known threatened and endangered species.

Habitats/Plant Communities

Both phases of the proposed project will have impacts to terrestrial and aquatic habitats present within each corridor. The impacts along the Whisky Creek and South Tributary corridors includes habitat loss, habitat fragmentation, and biodiversity composition alteration. These impacts will be offset by the overall project through protecting and restoring the habitats within the corridors. Benefits include increasing surface water area, improving aquatic habitat quality and quantity, establish additional floodplain wetlands, and protect restored habitats under permanent easement (RIM).

Fish and Wildlife

The Whisky Creek and South Tributary corridors are used by many species for forage, cover, and breeding. During construction, these species will be temporary impacted by vegetation removal, topsoil stripping, altering the hydrologic regime, and temporary dispersion of species. Upon completion of the project, the habitats within the project corridors will be restored and enhanced as to significantly benefit the fish and wildlife species that utilize it. The project will cause permanent impacts to the habitats, but these alterations will result in an enhancement of these habitats.

State-listed Species

Based on reviews of all publicly available data and DNR review, it was determined that there will be no adverse impact to any State-listed Species due to the lack of species presence and proximity.

Federal-listed Species

The USFWS IPaC Tool identified the northern long-eared bat as an endangered species and the monarch butterfly as a candidate species being potentially within the project corridors. No critical habitats were identified within the project corridors. The project proposer will coordinate with the USFWS during the permitting phase of the project to ensure any tree removal occurs during non-active periods for the northern long-eared bat.

There are no DNR-identified infested waters within the project area. The project proposer will consult with the DNR prior to construction as a precautionary effort to avoid the spread of both terrestrial and aquatic invasive species as a result of the project.

Climate Trends

As discussed previously, the climate trends indicate an increase in heavy rainfall events and increase in high temperatures. There is potential that more heavy rainfall events could lengthen peak flood waters through Whisky Creek and the South Tributary potentially transporting and spreading invasive species and infesting connecting waterbodies. High temperatures could alter the habitats present along the project corridors including the spread of invasive species.

d. Identify measures that will be taken to avoid, minimize, or mitigate the adverse effects to fish, wildlife, plant communities, ecosystems, and sensitive ecological resources.

The projects design and permitting phases will be utilized to reduce or avoid adverse effects to rare features and sensitive resources to the greatest extent possible. Prior to construction, the

project proposer will coordinate with the MN DNR and USFWS to ensure that no threatened or endangered species are present within the construction footprint. If any protected species is encountered or observed during construction, construction activities will be paused until coordination with federal and state agencies is completed. All impacts to aquatic resources identified as Public Waters will be mitigated through a Minnesota Public Water Works Permit and the permit's specific conditions. All wetland impacts outside the public waters jurisdiction will be mitigated through a Wetland Conservation Act (WCA) Permit and the permit conditions. A permit application will be submitted to the USACE and mitigation will be based on the agency's "jurisdictional determination".

15. Historic properties

Describe any historic structures, archeological sites, and/or traditional cultural properties on or inclose proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.
A review of the Minnesota's Office of the State Archaeologist (OSA) public database[29] indicates that there are archaeological sites located along or adjacent to the project corridors.
A detailed archaeological survey has not been completed for the project. Coordination with SHPO will be done to ensure that the project will not impact any historic or cultural resources. Coordination will include requesting a literature search and review by SHPO to identify any potential sensitive sites within the project area and, if SHPO deems it necessary, a cultural resources Phase-1 Survey will be completed prior to construction.

16. Visual

Describe any scenic views or vistas on or near the project site. Describe any project related visualeffects such as vapor plumes or glare from intense lights. Discuss the potential visual effects fromthe project. Identify any measures to avoid, minimize, or mitigate visual effects.

Although anticipated to be minor, there will be temporary impacts to neighboring properties and roadway users during construction. These impacts will be minor as they will be confined to the construction zone and during normal daylight hours. The visual impacts may include dust clouds, vapor plumes, and intense light glares. These impacts will be managed by dust control measures (wetting soil, reduced machine speeds on exposed soils, limit exposed soils, etc.), the timing of construction, and the orientation of construction lights.

17. Air

a. Stationary source emissions - Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess

[29] Minnesota Office of the State Archaeologist (2023) Minnesota OSA Public Viewer. https://osaportal.gisdata.mn.gov/OSAViewer

the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effectsfrom stationary source emissions.

The project will not result in stationary source air emissions concerns.

b. Vehicle emissions - Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimizeor mitigate vehicle-related emissions.

The use of heavy machinery and equipment typical of construction projects will result in burning of gasoline but is not anticipated to adversely impact current air quality at the site. The emissions will be temporary and will not exceed current emission standards. There are no management measures planned for the project. All equipment will be maintained to operate based on factory-suggested operations including periodic maintenance intervals to avoid inefficiencies in operations that would increase emissions.

The project will not have long-term emissions impacts and will not cause an increase in traffic. No mitigation plans have been established for the project.

c. Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust andodors generated during project construction and operation. (Fugitive dust may be discussed under item 17a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize ormitigate the effects of dust and odors.

The dust and odors generated during the construction will be minimal and will occur during construction activities that includes site access, removal of sediments, and placement of fill. Dust impacts will be managed by dust control methods mentioned in previous sections. Odors generated during construction will be the result of exhaust of diesel engines and fuel storage. The odors will be managed by zone restricting, operation timing, and standard emission controls.

18. Greenhouse Gas (GHG) Emissions/Carbon Footprint

a. GHG Quantification: For all proposed projects, provide quantification and discussion of project GHG emissions. Include additional rows in the tables as necessary to provide project-specific emission sources. Describe the methods used to quantify emissions. If calculation methods are not readily available to quantify GHG emissions for a source, describe the process used to cometo that conclusion and any GHG emission sources not included in the total calculation.

The project will require the use of heavy machinery typically used for construction projects. These include excavators, bulldozers, and loaders. All of which burn diesel fuel during construction. Construction emissions from these vehicles were estimated using the EPA's Simplified GHG Emissions Calculator (SGEC) (**Table 14**).[30] For this assessment, it was assumed that the machinery would be in operation for Phase 1 approximately 120 days, 8 hours per day (equivalent to 120 days/year) and Phase 2 approximately 360 days, 8 hours per day (equivalent to 120 days/year). The exact days and hours per day of construction will vary depending on each phase, timing of year, and environmental/climate conditions.

Table 25. Constriction Emissions calculated by SGEC.

Scope	Type of Emission	EmissionSub-type	Project-related CO_2eEmissions (tons/year)	Calculation method(s)
Phase 1 & 2	Combustion	Mobile Heavy Equipment	315.5 tons/year	EPA Simplified GHG Emissions Calculator (SGEC)

b. GHG Assessment
   i. Describe any mitigation considered to reduce the project's GHG emissions.
   ii. Describe and quantify reductions from selected mitigation, if proposed to reduce the project's GHG emissions. Explain why the selected mitigation was preferred.
   iii. Quantify the proposed projects predicted net lifetime GHG emissions (total tons/#of years) and how those predicted emissions may affect achievement of the Minnesota Next Generation Energy Act goals and/or other more stringent state or local GHG reduction goals.

Due to the nature of the project, no mitigation is proposed to reduce the projects GHG emissions. The emissions will be localized and limited to the construction periods. Upon completion, the project will have no GHG emissions from day-to-day functions. Periodic maintenance may be required to ensure the stream functions correctly.

[30] U.S. Environmental Protection Agency (2023) Simplified GHG Emissions Calculator. https://www.epa.gov/climateleadership/simplified-ghg-emissions-calculator

19. Noise

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to statenoise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigatethe effects of noise.

The noise generated during construction will be caused by the mobilization and use of heavy machinery and equipment. Noise impacts from construction activities will be temporary and restricted to the construction period. Local residents and roadway users adjacent to the construction zone could be impacted by increased noise resulting in some adverse effects on everyday quality of life including annoyances during everyday activities, especially outdoor activities. All local residents and visitors will be notified about the timing and duration of construction prior to the beginning of construction. The project will not have permanent noise pollution impacts to the site.

20. Transportation

a. Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternativetransportation modes.

The project construction activities will not adversely impact the flow of traffic along adjacent roadways. The majority the project is located in agricultural fields that will require temporary access roads.

b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system.*If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW.* Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 *(available at: http://www.dot.state.mn.us/accessmanagement/resources.html)* or a similar local guidance,

Peak hour traffic generated will not exceed 250 vehicles nor will the total daily trips exceed 2,500 as a result of the project. Local residents and roadway users may encounter some lane congestion or slow speed during construction due to the mobilization and operations of heavy machinery. There are no traffic improvements necessary to accommodate the temporary construction or operations and maintenance activities associated with the project.

c. Identify measures that will be taken to minimize or mitigate project related transportation effects.

The local residents and roadway users will be informed when construction is anticipated in order to allow users to accommodate, if necessary. The project does not require a detour for the project construction.

21. **Cumulative potential effects** (Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items)

    a. Describe the geographic scales and timeframes of the project related environmental effects thatcould combine with other environmental effects resulting in cumulative potential effects.

       The project-related impacts on the environmental as a result of the project will be minimal and upon project completion will be offset by the restoration. Upon completion of the project, the restorations of Whisky Creek and the South Tributary will provide greater flood water storage form surrounding landscapes, improved terrestrial and aquatic resources, and prevent erosion/sedimentation.

    b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographicscales and timeframes identified above.

       There are no foreseeable future projects within the watershed that will intersect the scale and timeframe of the proposed project.

    c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmentaleffects due to these cumulative effects.

       There are no cumulative potential effects anticipated with this project that would adversely alter or modify environmental conditions or pose potential harm to the environment or well-being of individuals living within the area of the project.

22. **Other potential environmental effects** If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environmentwill be affected, and identify measures that will be taken to minimize and mitigate these effects.

    There are no additional environmental effects to other than what has been provided in this EAW.

RGU CERTIFICATION. *(The Environmental Quality Board will only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.)*

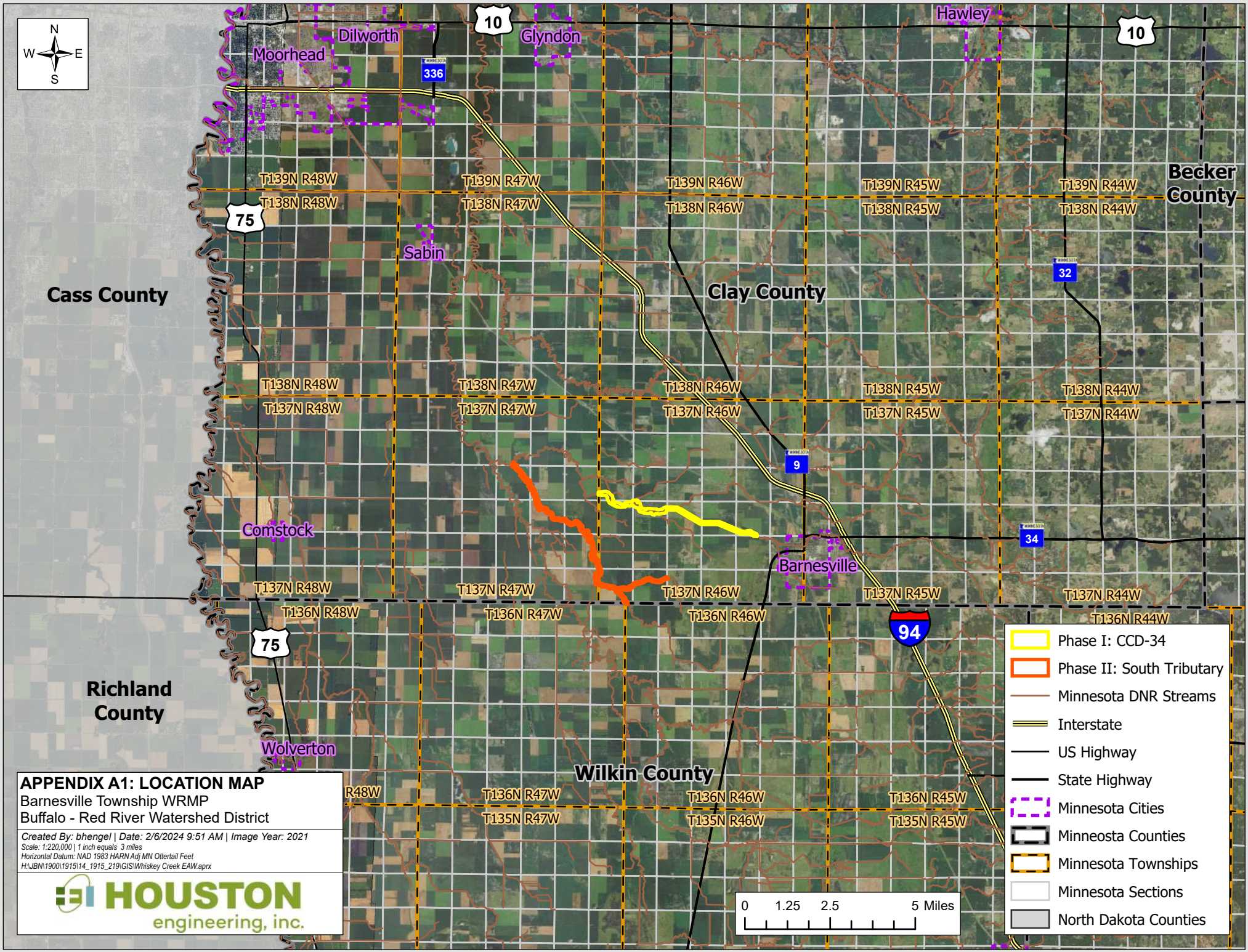
I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9c and 60,respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

Signature Kristine M Goeden Date 7/8/2024

Title Administrator

Appendices



APPENDIX A1: LOCATION MAP
Barnesville Township WRMP
Buffalo - Red River Watershed District

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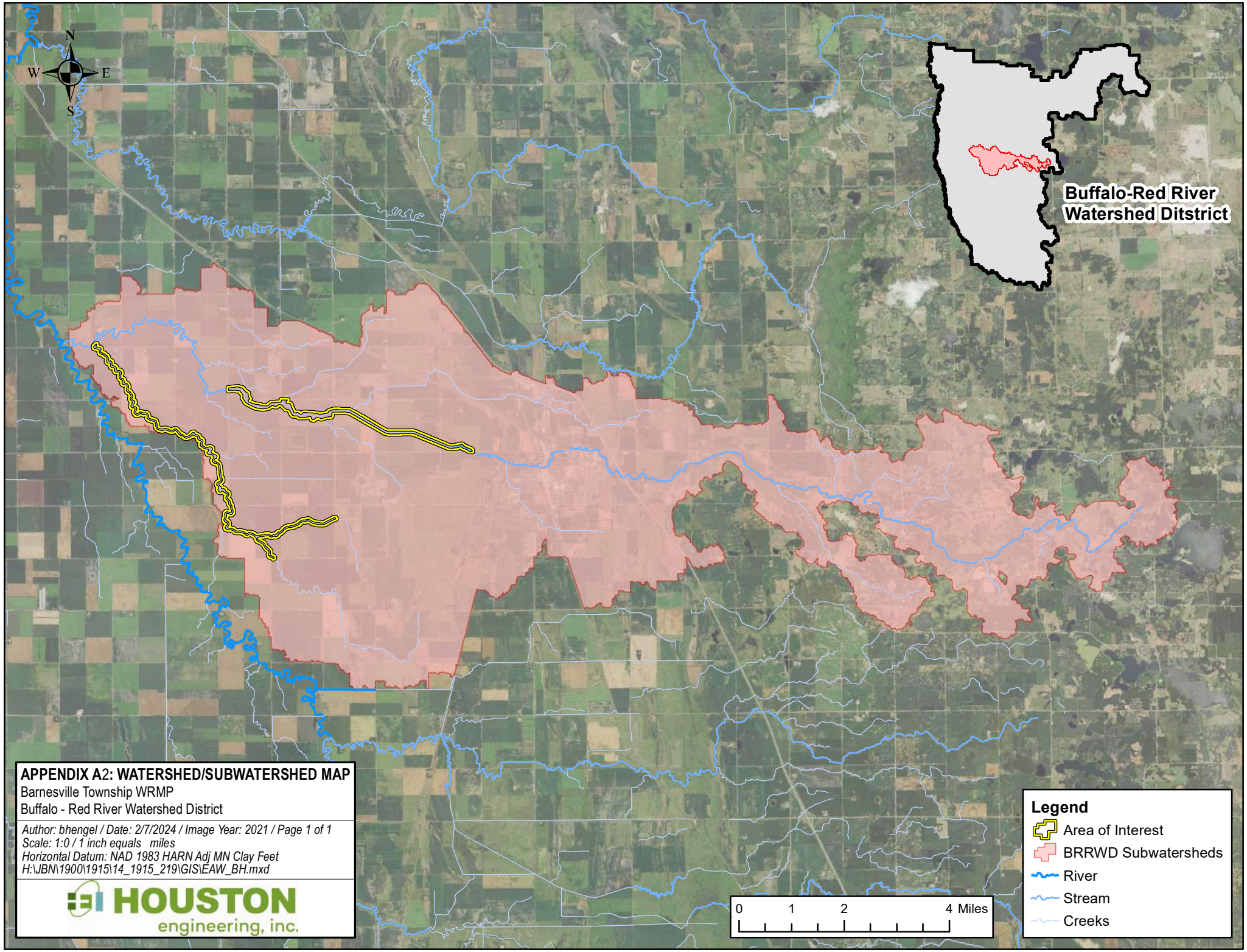

APPENDIX A2: WATERSHED/SUBWATERSHED MAP

Barnesville Township WRMP

Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page 1 of 1
Scale: 1:0 / 1 inch equals miles
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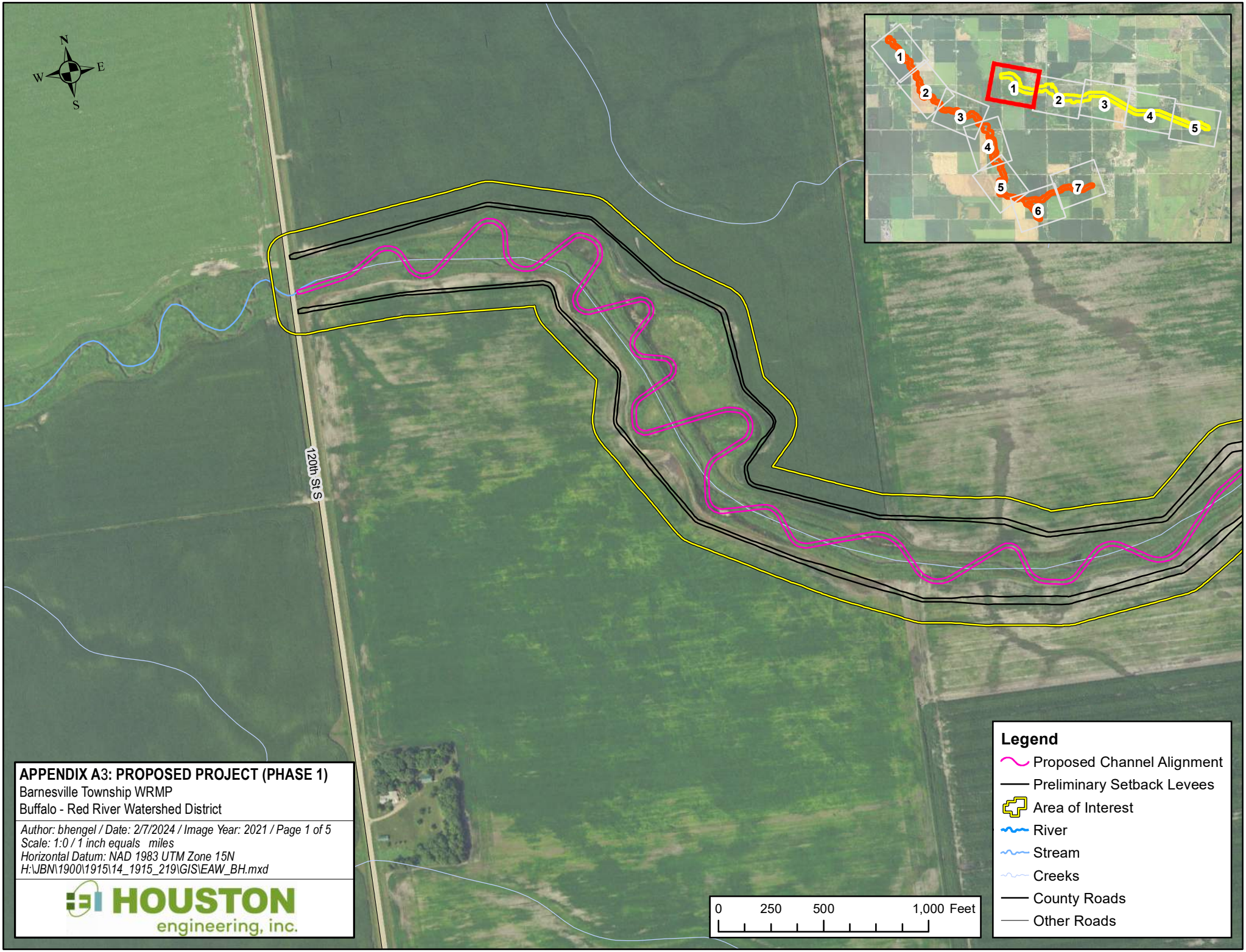

APPENDIX A3: PROPOSED PROJECT (PHASE 1)

Barnesville Township WRMP

Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page 1 of 5
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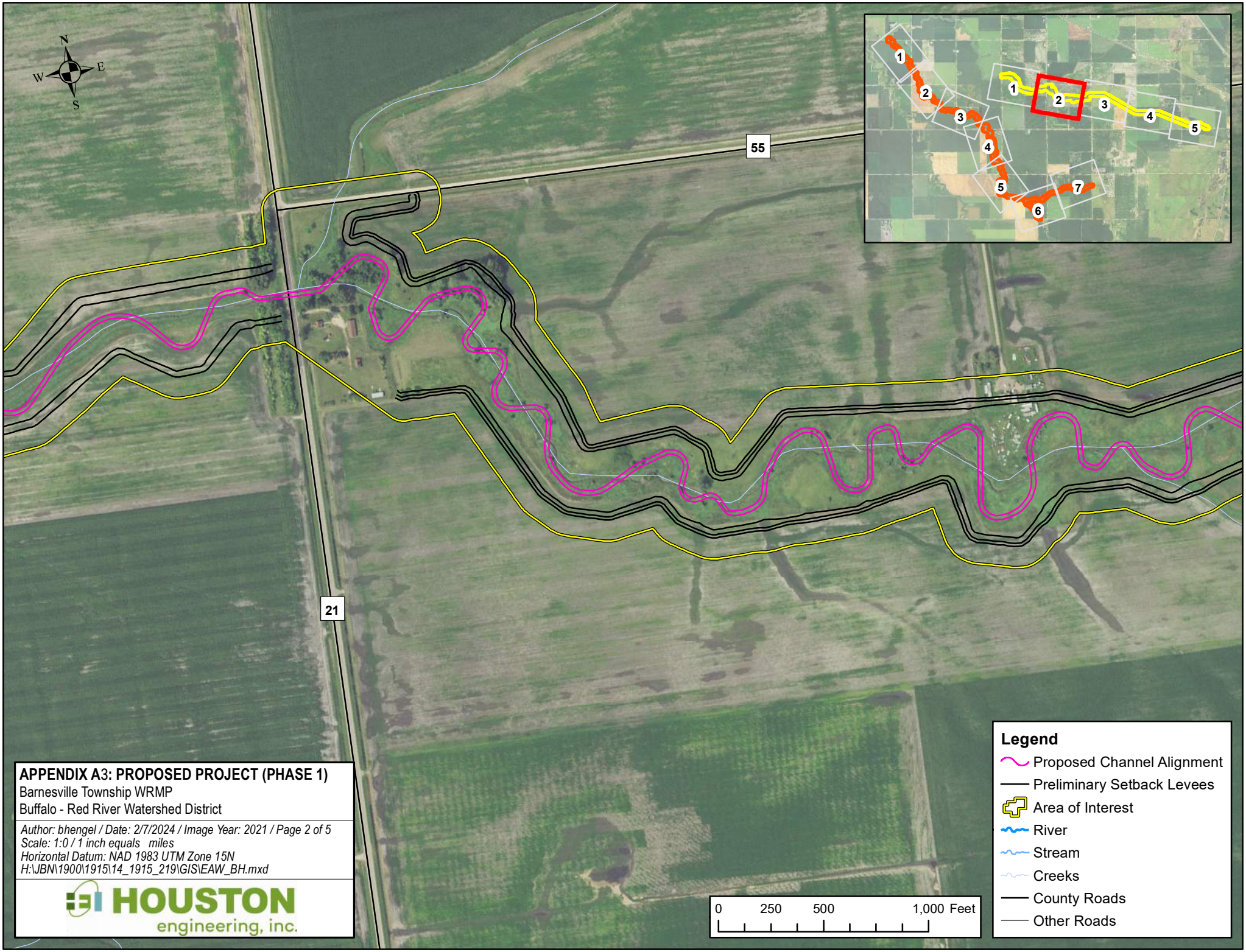

APPENDIX A3: PROPOSED PROJECT (PHASE 1)
Barnesville Township WRMP
Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page 2 of 5
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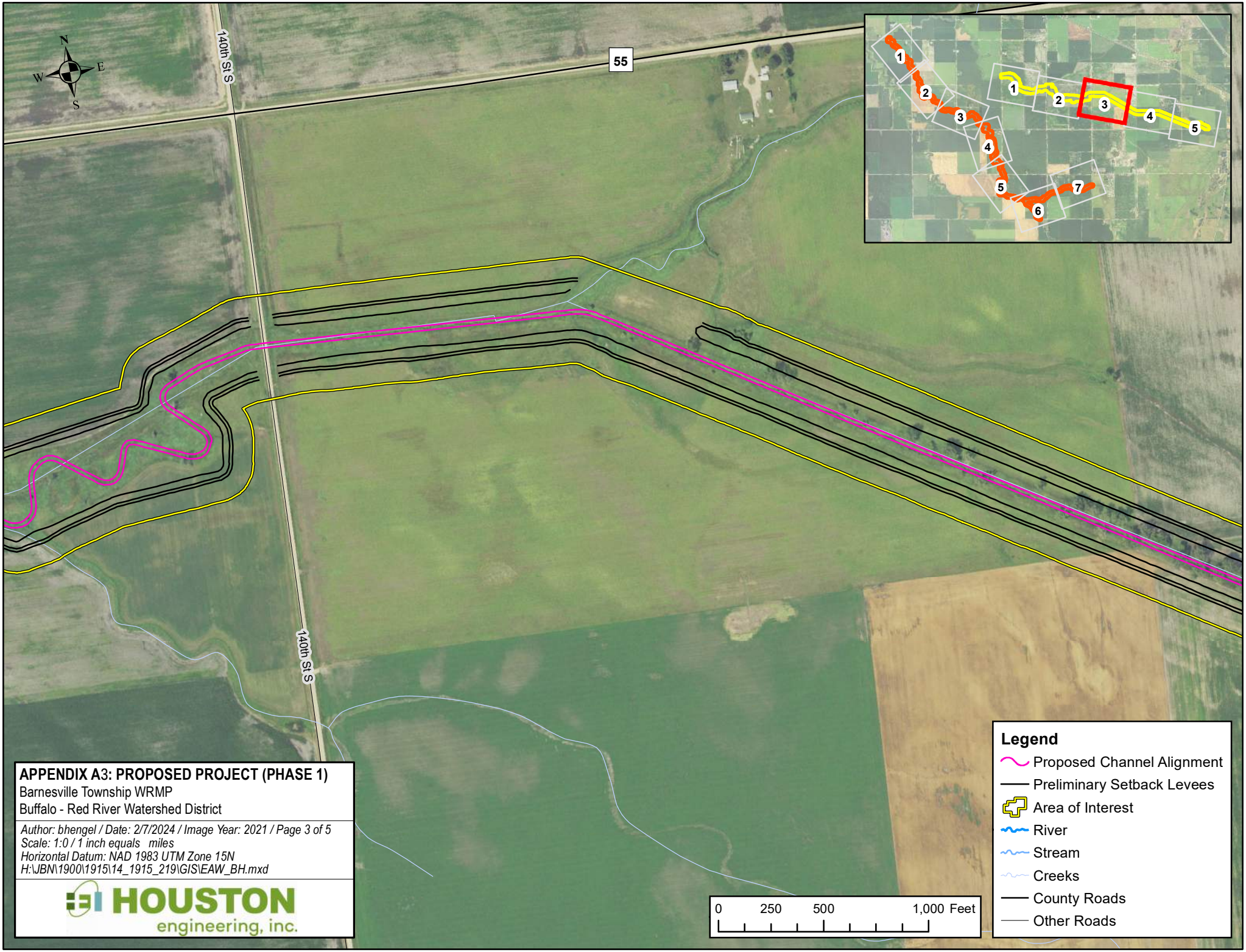

APPENDIX A3: PROPOSED PROJECT (PHASE 1)
Barnesville Township WRMP
Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page 3 of 5
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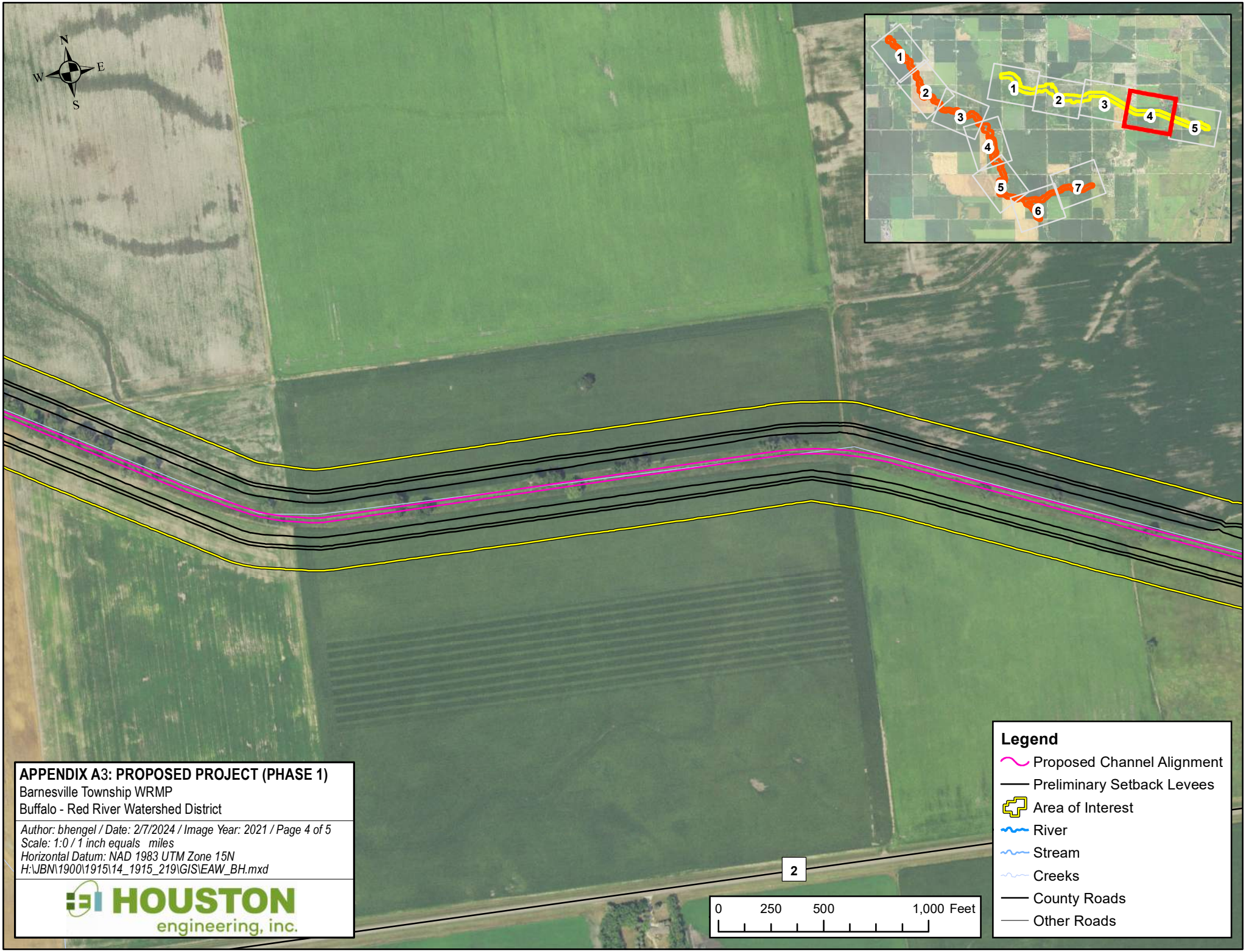

APPENDIX A3: PROPOSED PROJECT (PHASE 1)
Barnesville Township WRMP
Buffalo - Red River Watershed District

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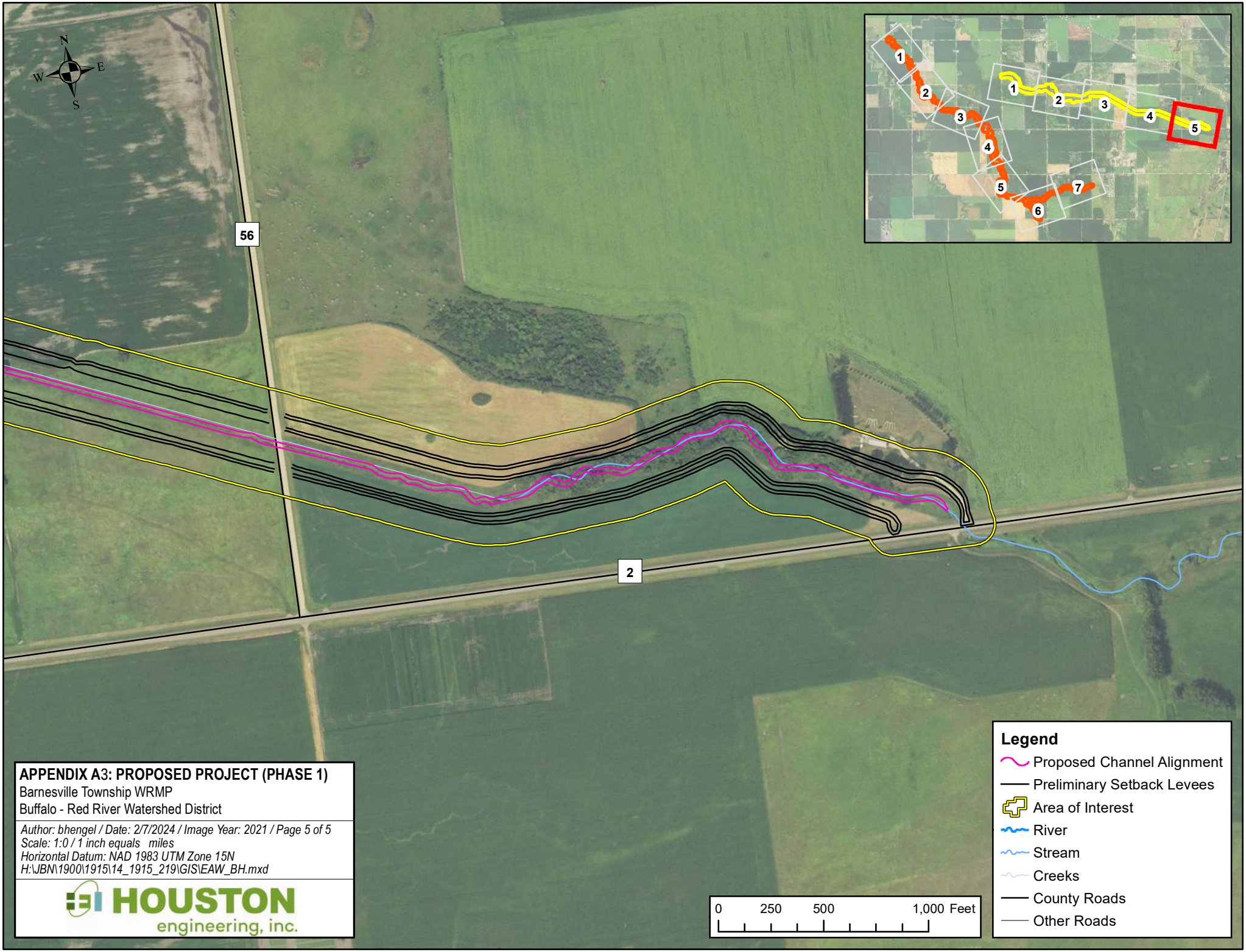

APPENDIX A3: PROPOSED PROJECT (PHASE 1)
Barnesville Township WRMP
Buffalo - Red River Watershed District

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APPENDIX A3: PROPOSED PROJECT (PHASE 2)

Barnesville Township WRMP

Buffalo - Red River Watershed District

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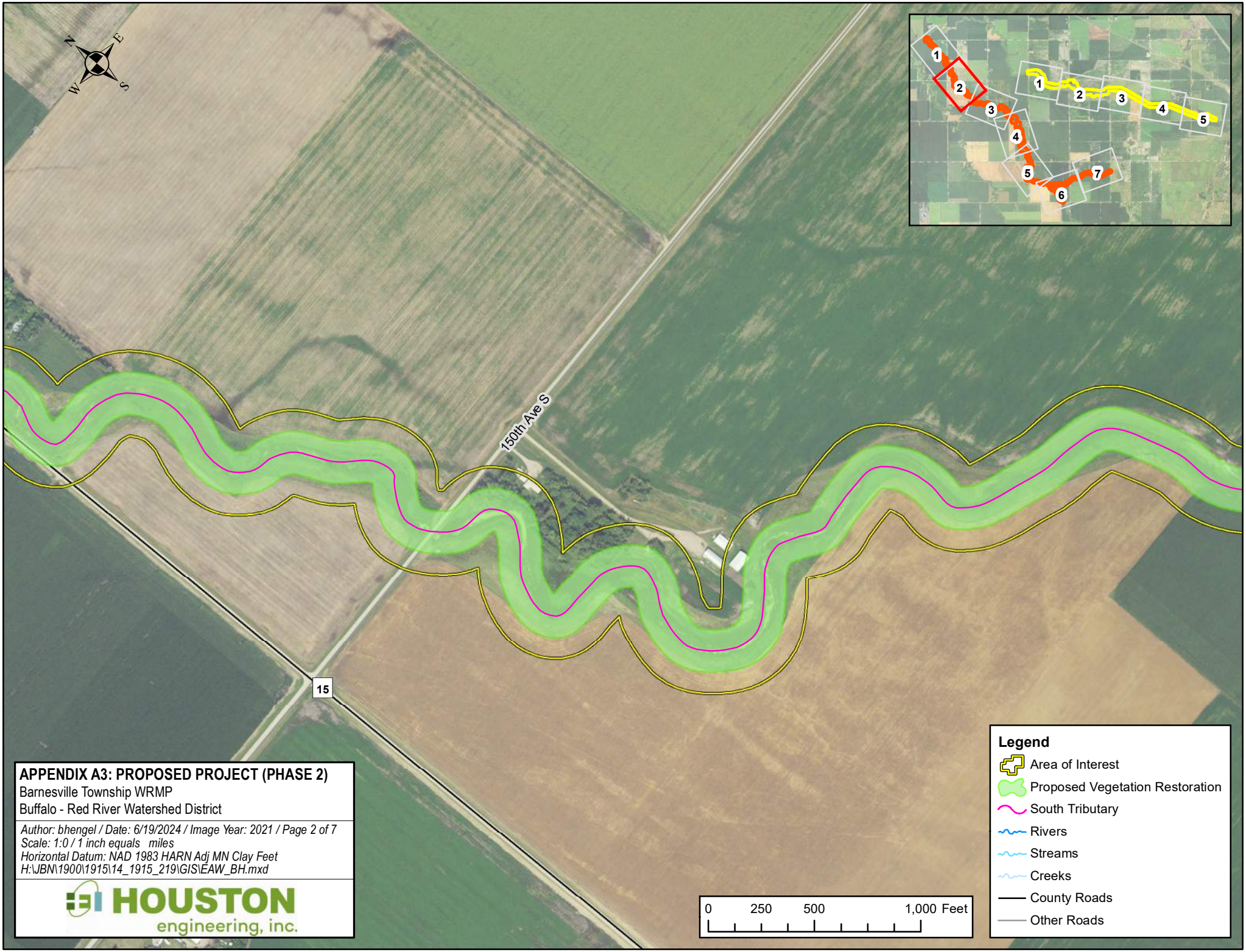

APPENDIX A3: PROPOSED PROJECT (PHASE 2)

Barnesville Township WRMP

Buffalo - Red River Watershed District

Author: bhengel / Date: 6/19/2024 / Image Year: 2021 / Page 2 of 7
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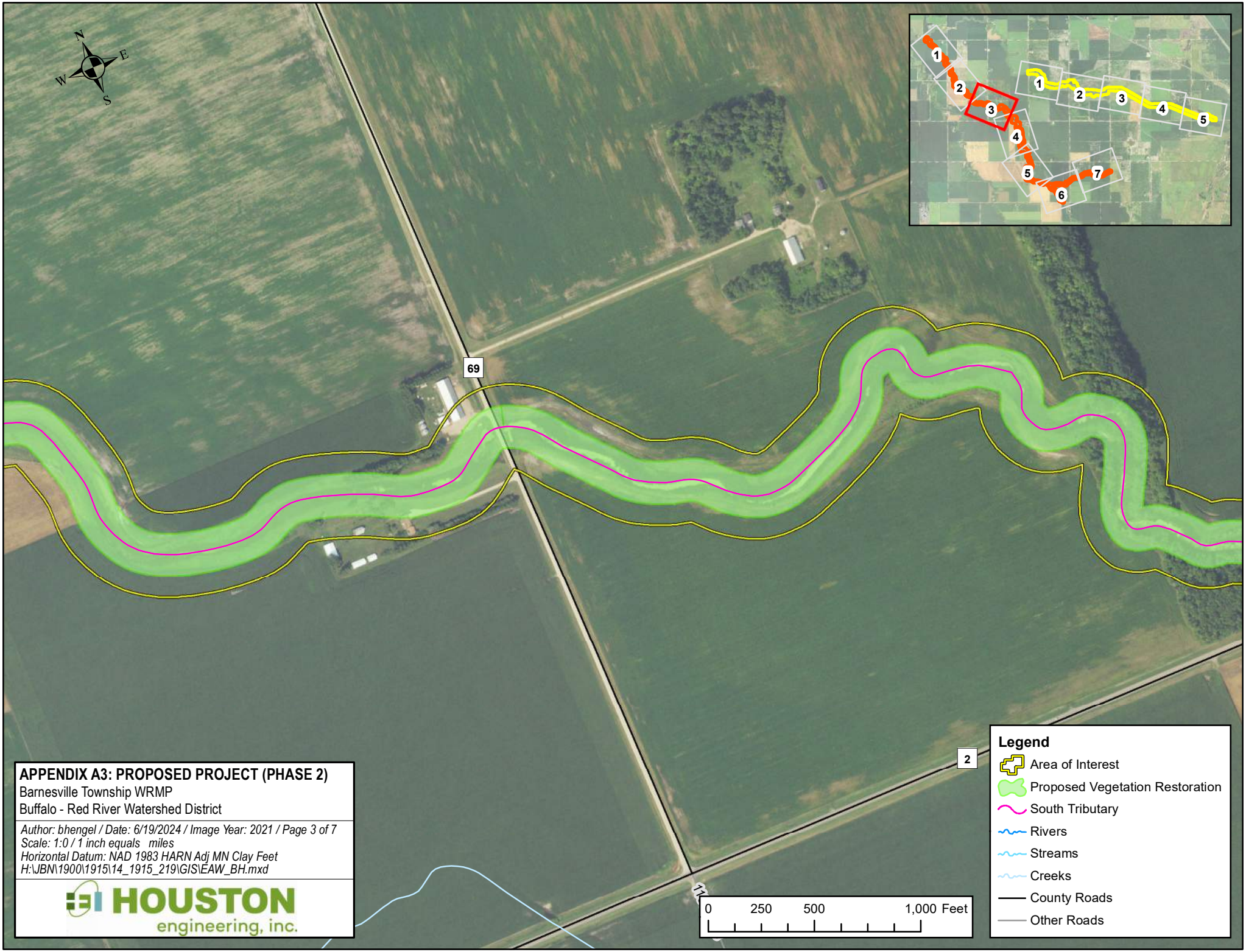

APPENDIX A3: PROPOSED PROJECT (PHASE 2)
Barnesville Township WRMP
Buffalo - Red River Watershed District

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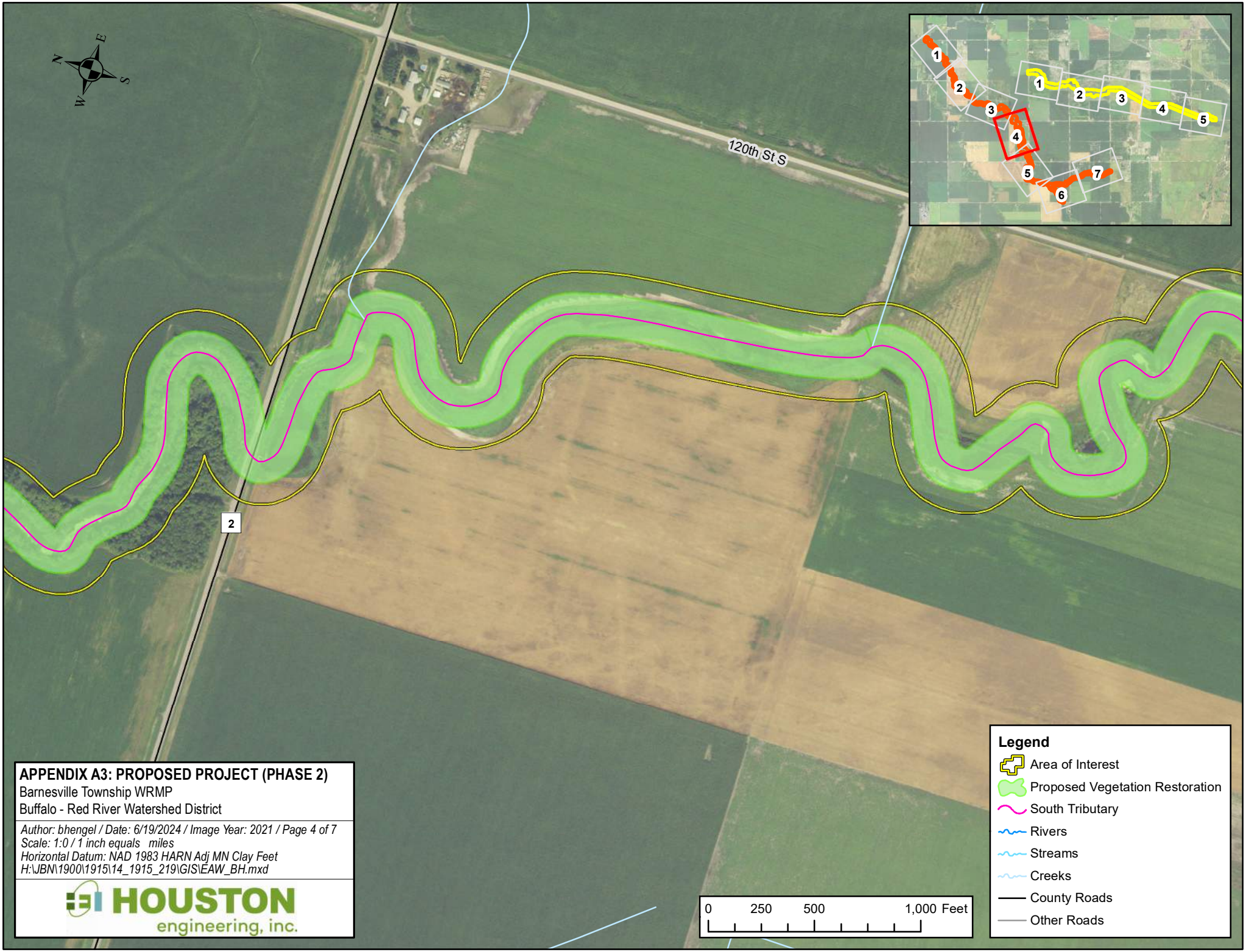

APPENDIX A3: PROPOSED PROJECT (PHASE 2)
Barnesville Township WRMP
Buffalo - Red River Watershed District

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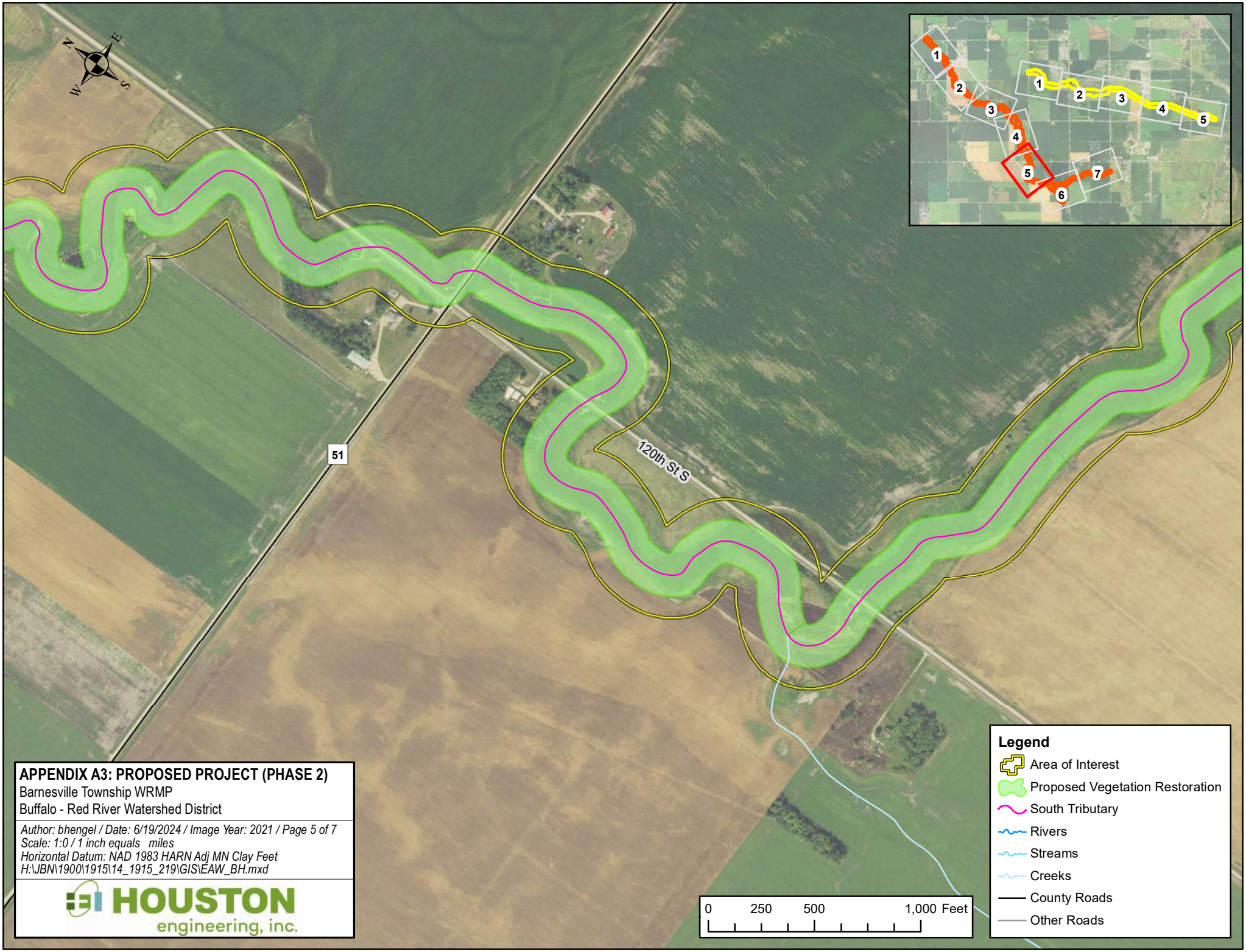

APPENDIX A3: PROPOSED PROJECT (PHASE 2)
Barnesville Township WRMP
Buffalo - Red River Watershed District

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Scale: 1:0 / 1 inch equals miles
Horizontal Datum: NAD 1983 HARN Adj MN Clay Feet
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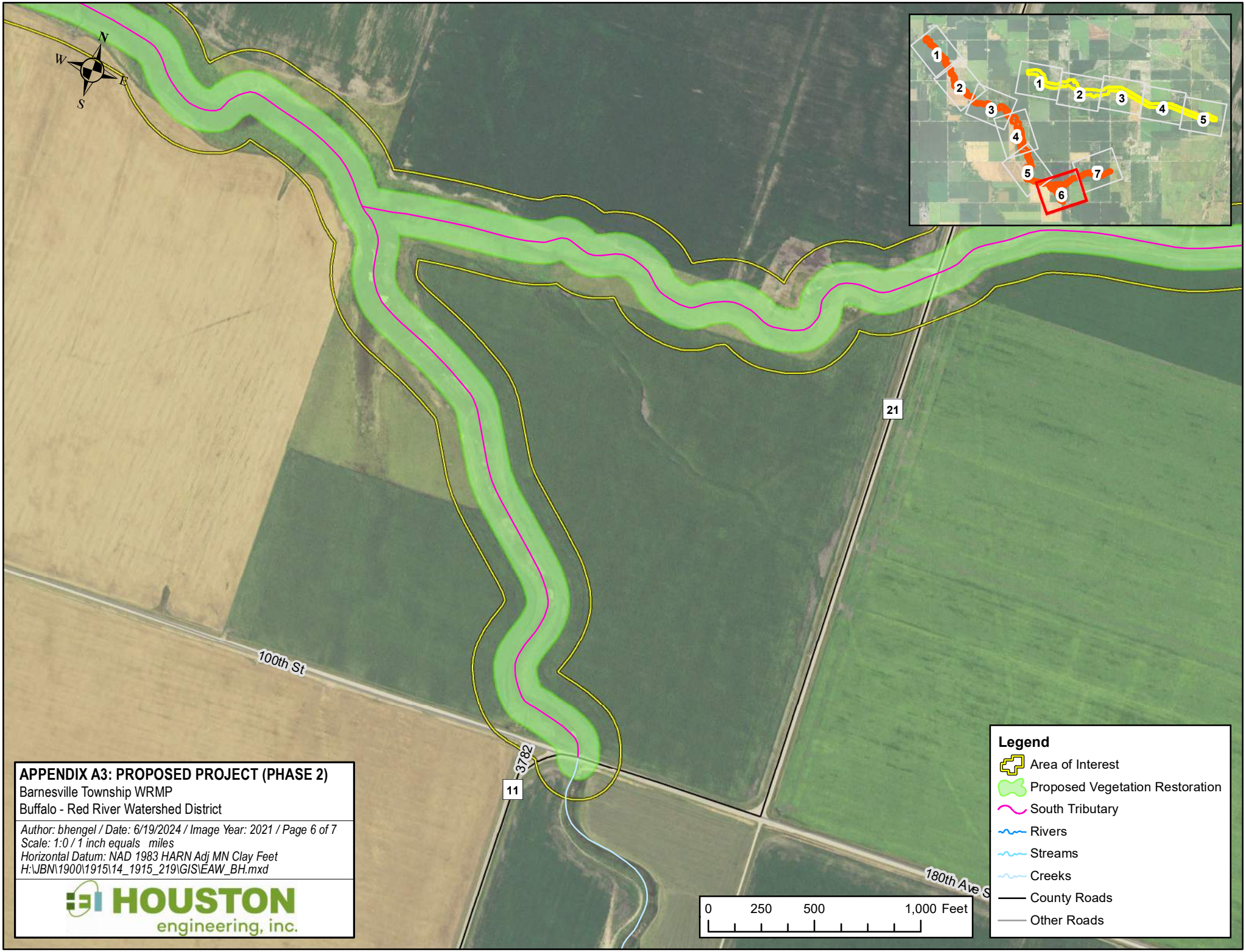
HOUSTON engineering, inc.



APPENDIX A3: PROPOSED PROJECT (PHASE 2)
Barnesville Township WRMP
Buffalo - Red River Watershed District

Author: bhengel / Date: 6/19/2024 / Image Year: 2021 / Page 6 of 7
Scale: 1:0 / 1 inch equals miles
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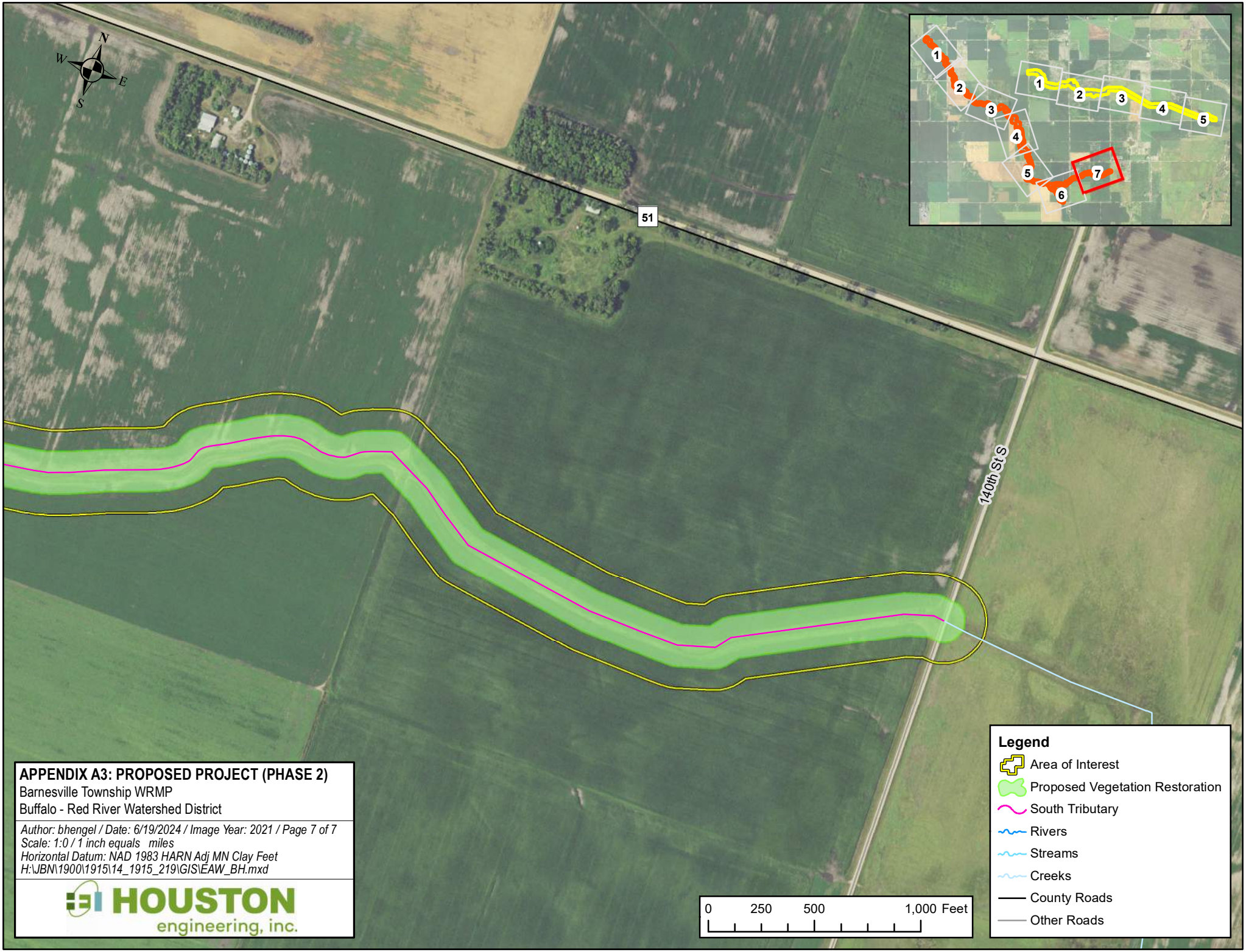
HOUSTON engineering, inc.



APPENDIX A3: PROPOSED PROJECT (PHASE 2)
Barnesville Township WRMP
Buffalo - Red River Watershed District

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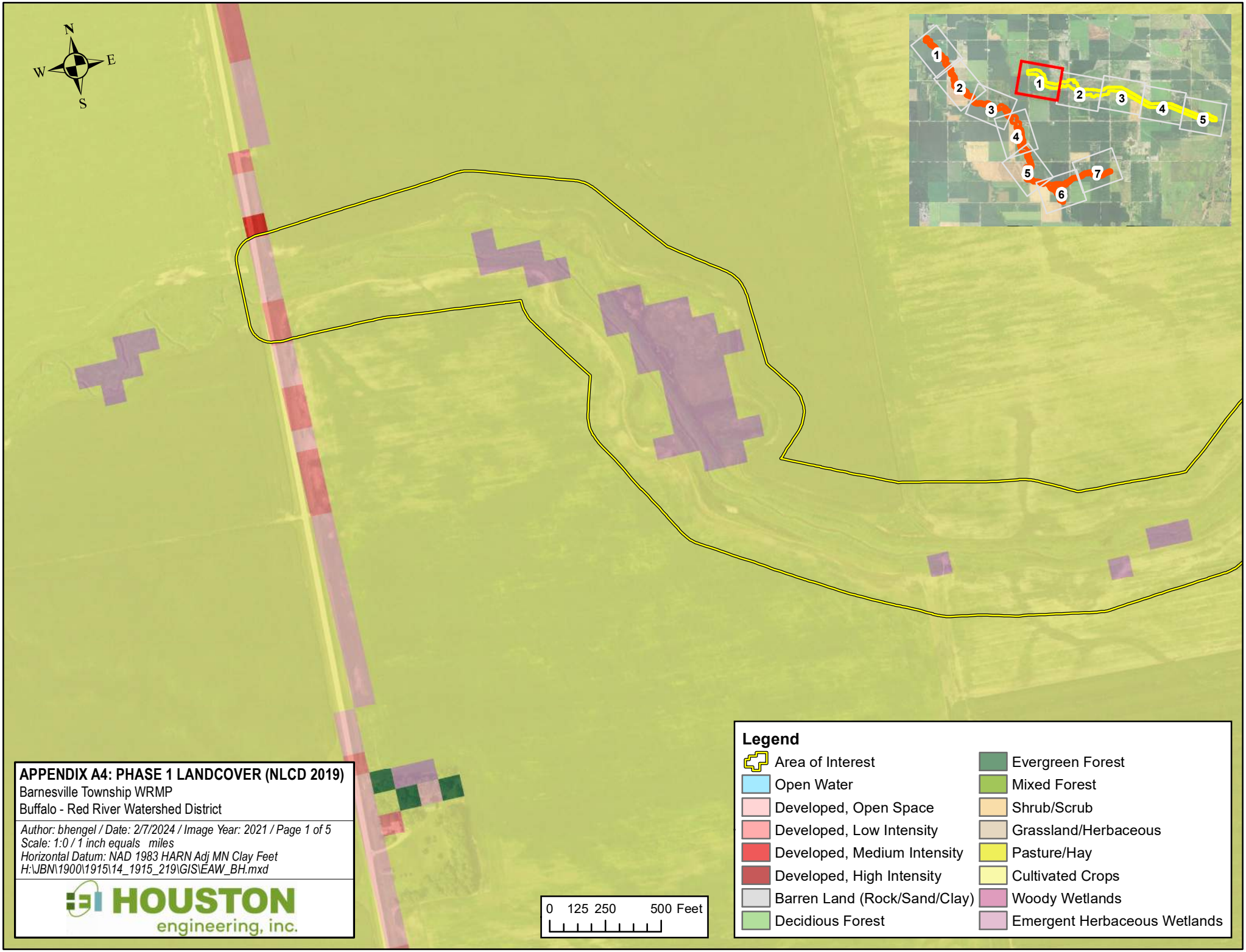

APPENDIX A4: PHASE 1 LANDCOVER (NLCD 2019)
Barnesville Township WRMP
Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page 1 of 5
Scale: 1:0 / 1 inch equals miles
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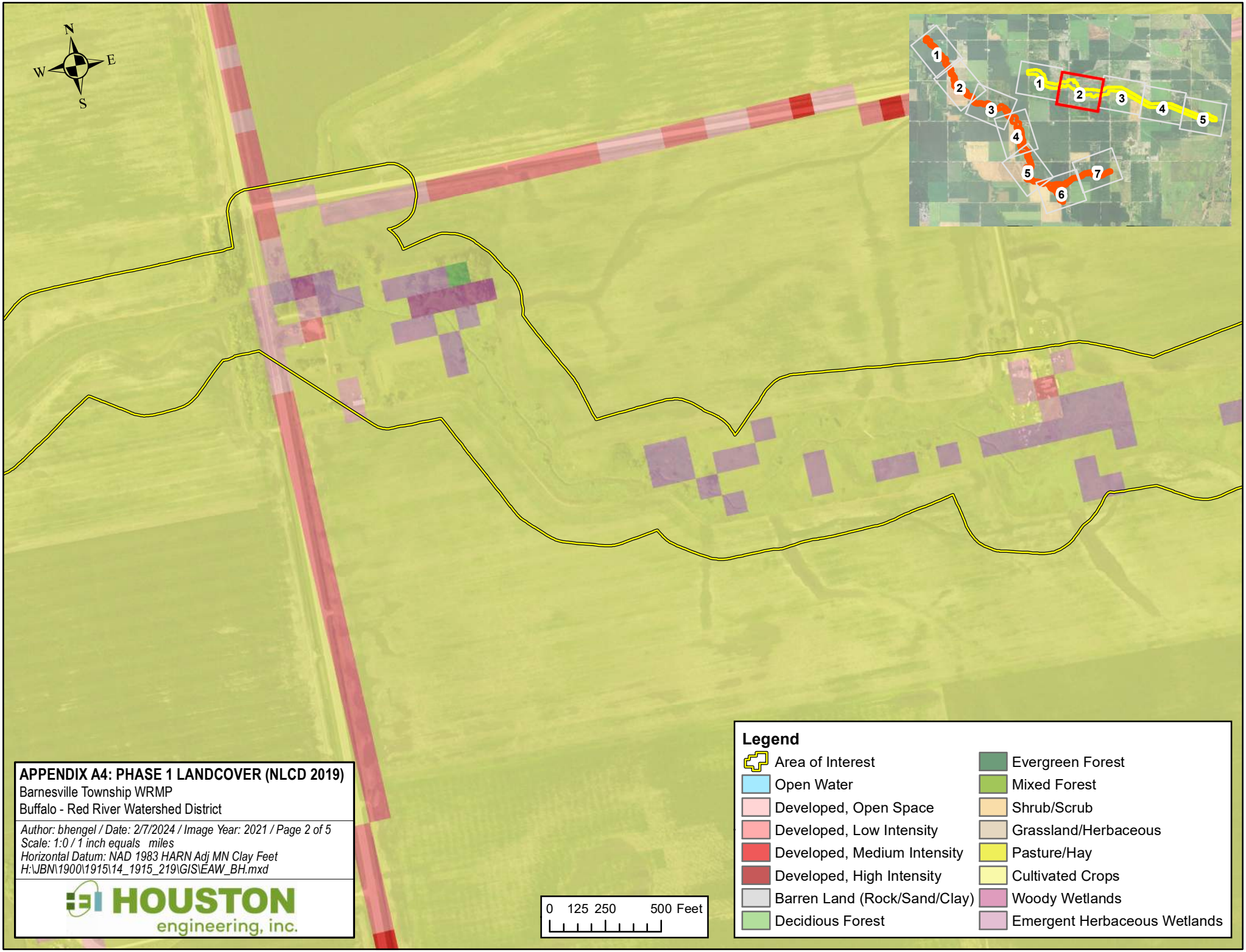
HOUSTON engineering, inc.



APPENDIX A4: PHASE 1 LANDCOVER (NLCD 2019)
Barnesville Township WRMP
Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page 2 of 5
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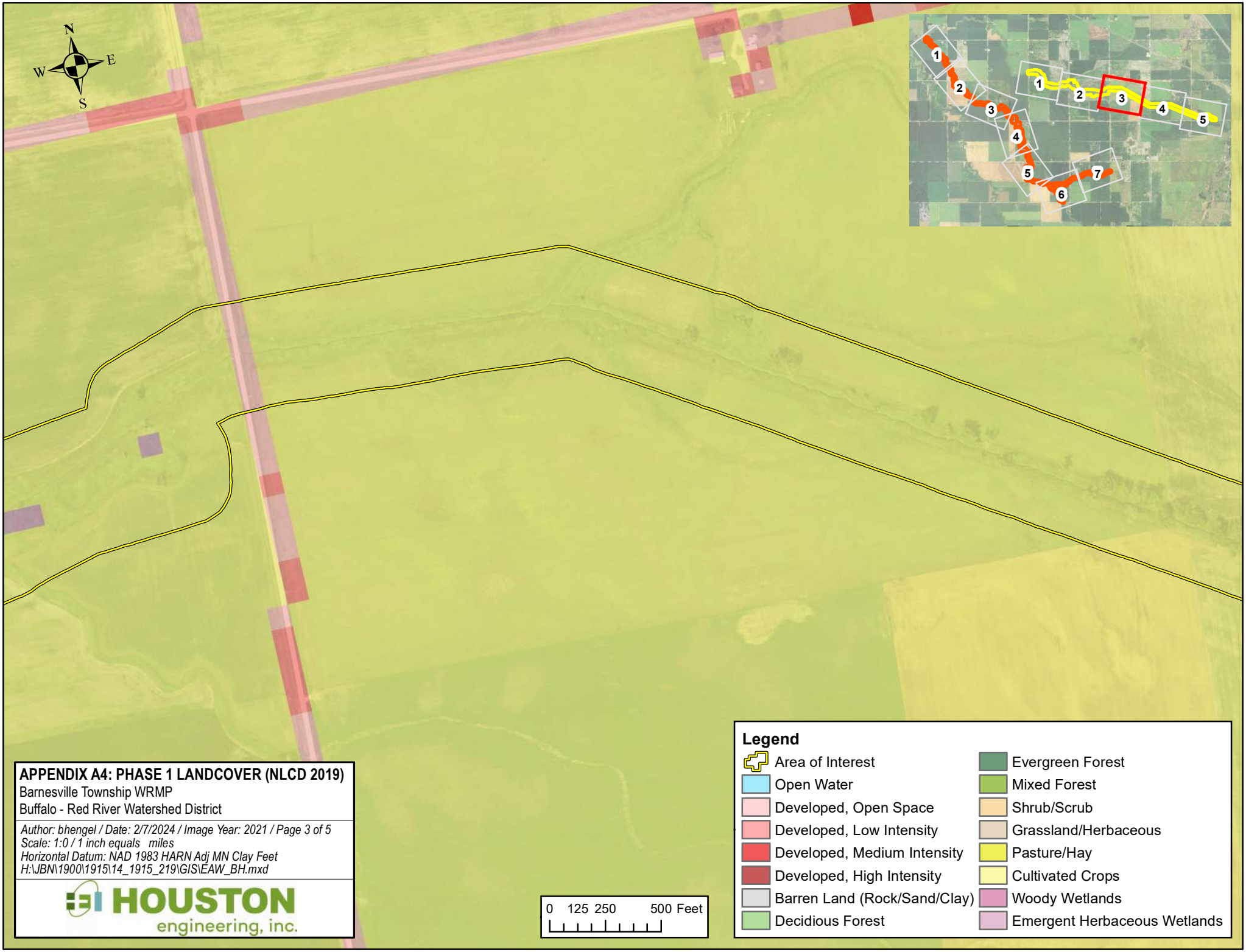

APPENDIX A4: PHASE 1 LANDCOVER (NLCD 2019)
Barnesville Township WRMP
Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page 3 of 5
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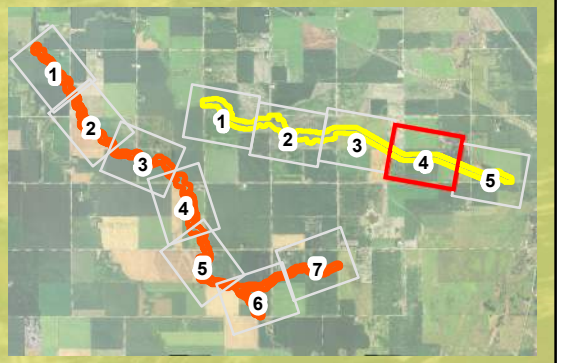
HOUSTON engineering, inc.



0 125 250 500 Feet

Legend

- Area of Interest
- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land (Rock/Sand/Clay)
- Decidious Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Grassland/Herbaceous
- Pasture/Hay
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceous Wetlands

APPENDIX A4: PHASE 1 LANDCOVER (NLCD 2019)
Barnesville Township WRMP
Buffalo - Red River Watershed District

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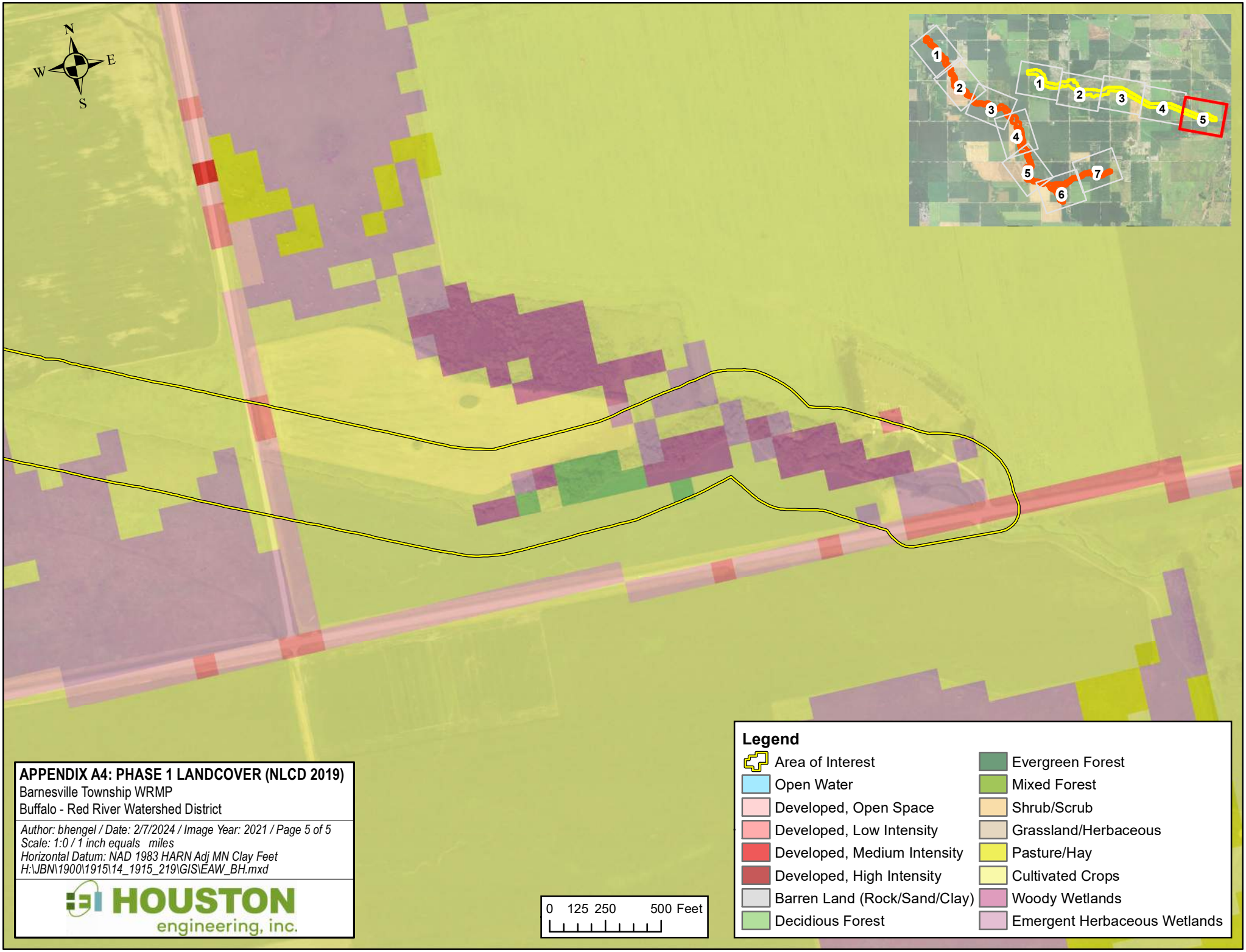

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Barnesville Township WRMP
Buffalo - Red River Watershed District

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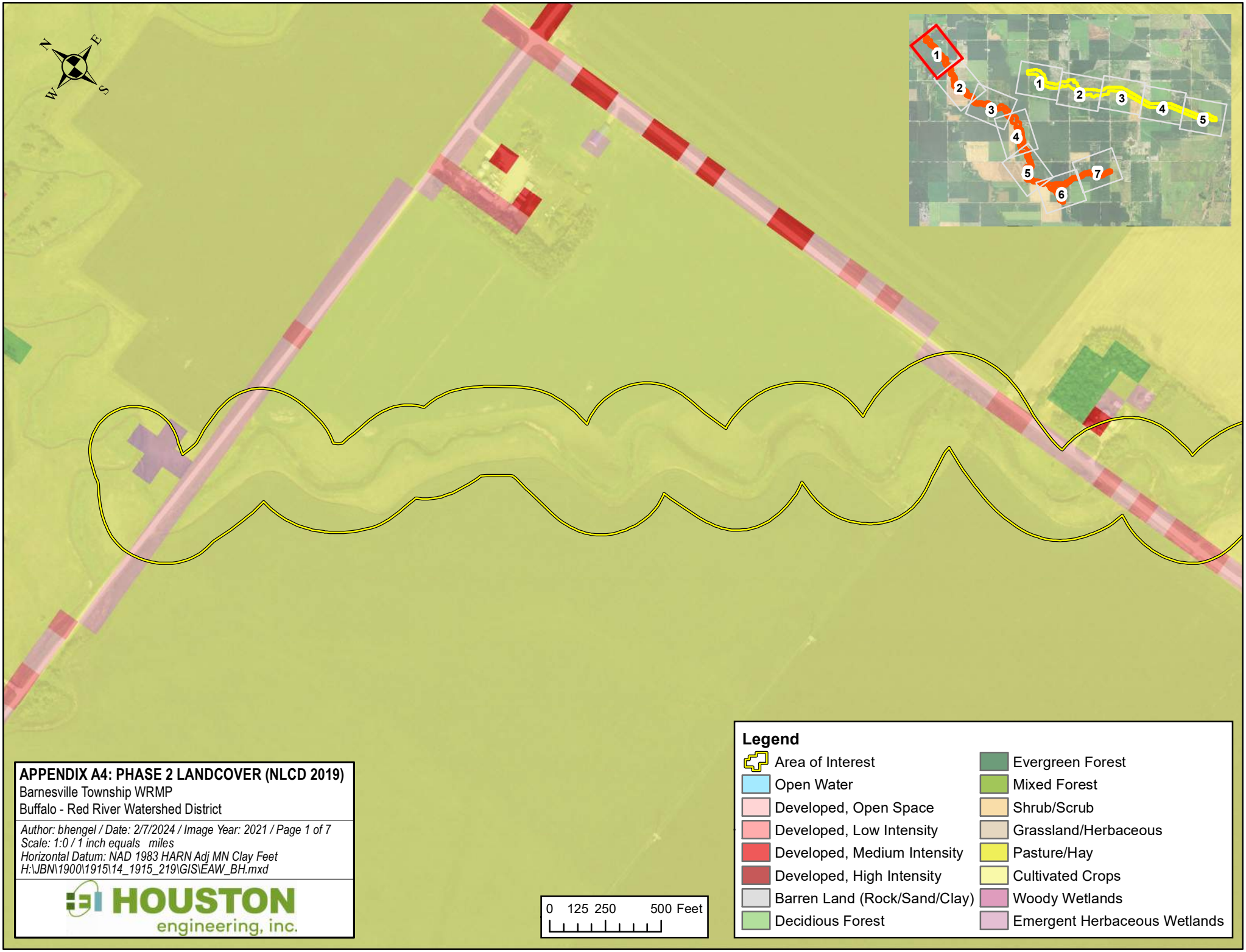

APPENDIX A4: PHASE 2 LANDCOVER (NLCD 2019)

Barnesville Township WRMP

Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page 1 of 7
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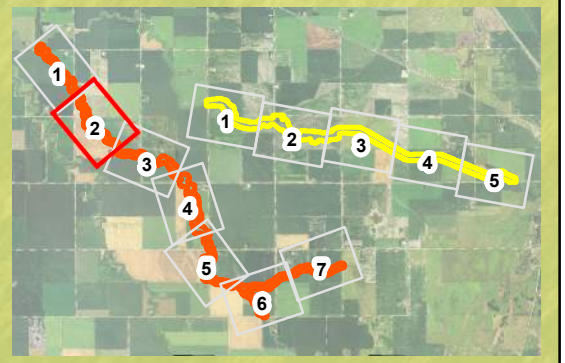
HOUSTON engineering, inc.



APPENDIX A4: PHASE 2 LANDCOVER (NLCD 2019)
Barnesville Township WRMP
Buffalo - Red River Watershed District

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HOUSTON engineering, inc.

0 125 250 500 Feet

Legend

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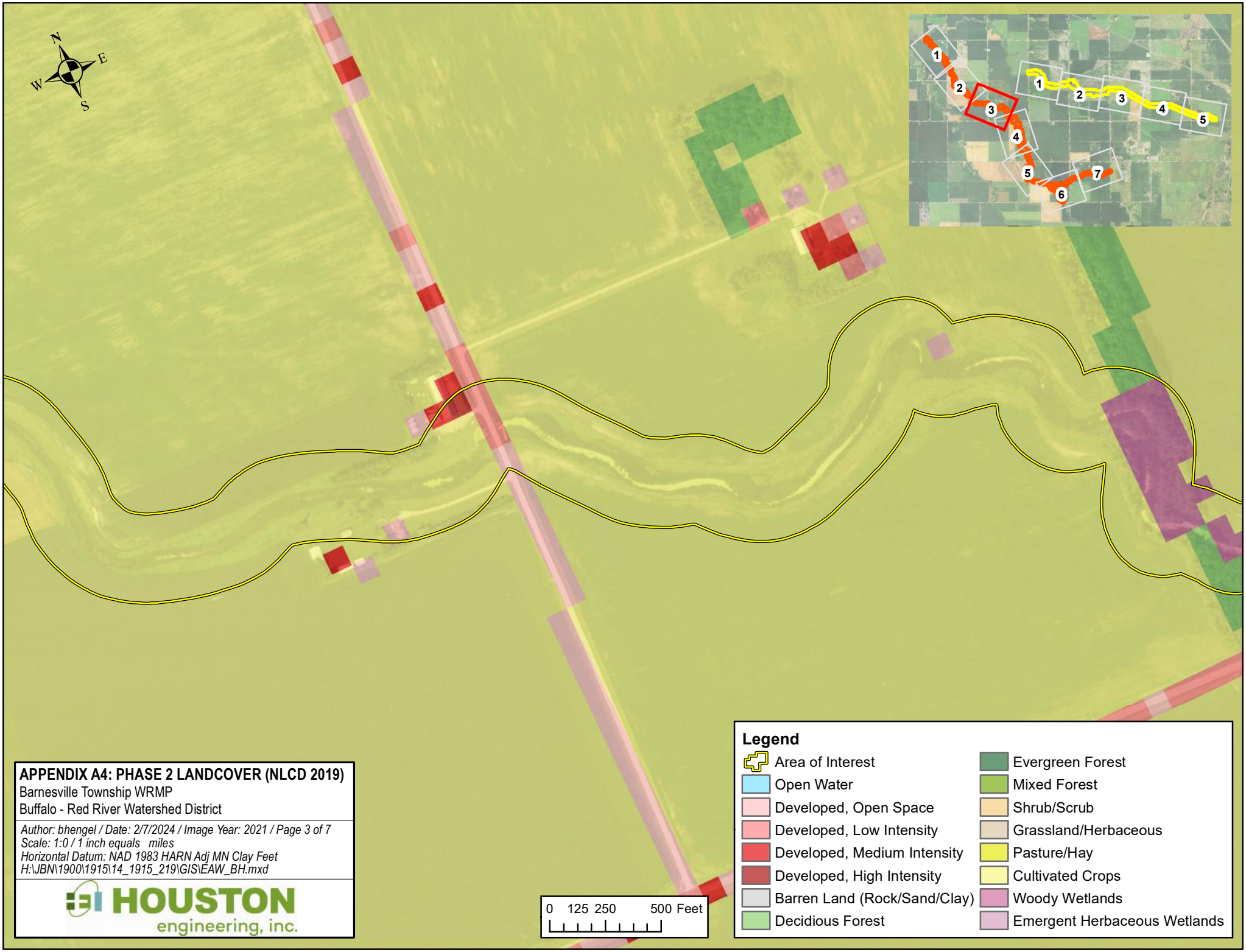

APPENDIX A4: PHASE 2 LANDCOVER (NLCD 2019)

Barnesville Township WRMP

Buffalo - Red River Watershed District

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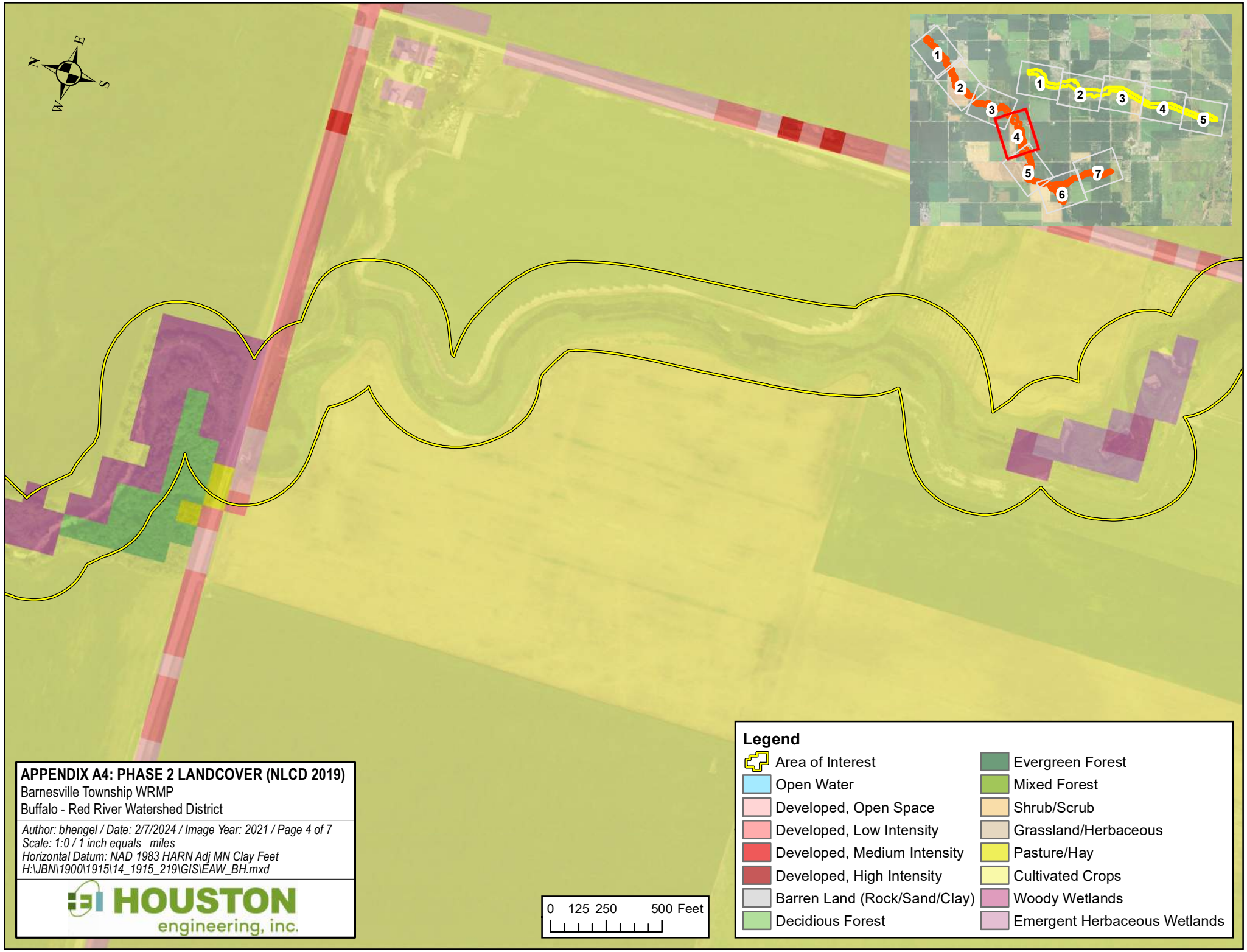

APPENDIX A4: PHASE 2 LANDCOVER (NLCD 2019)
Barnesville Township WRMP
Buffalo - Red River Watershed District

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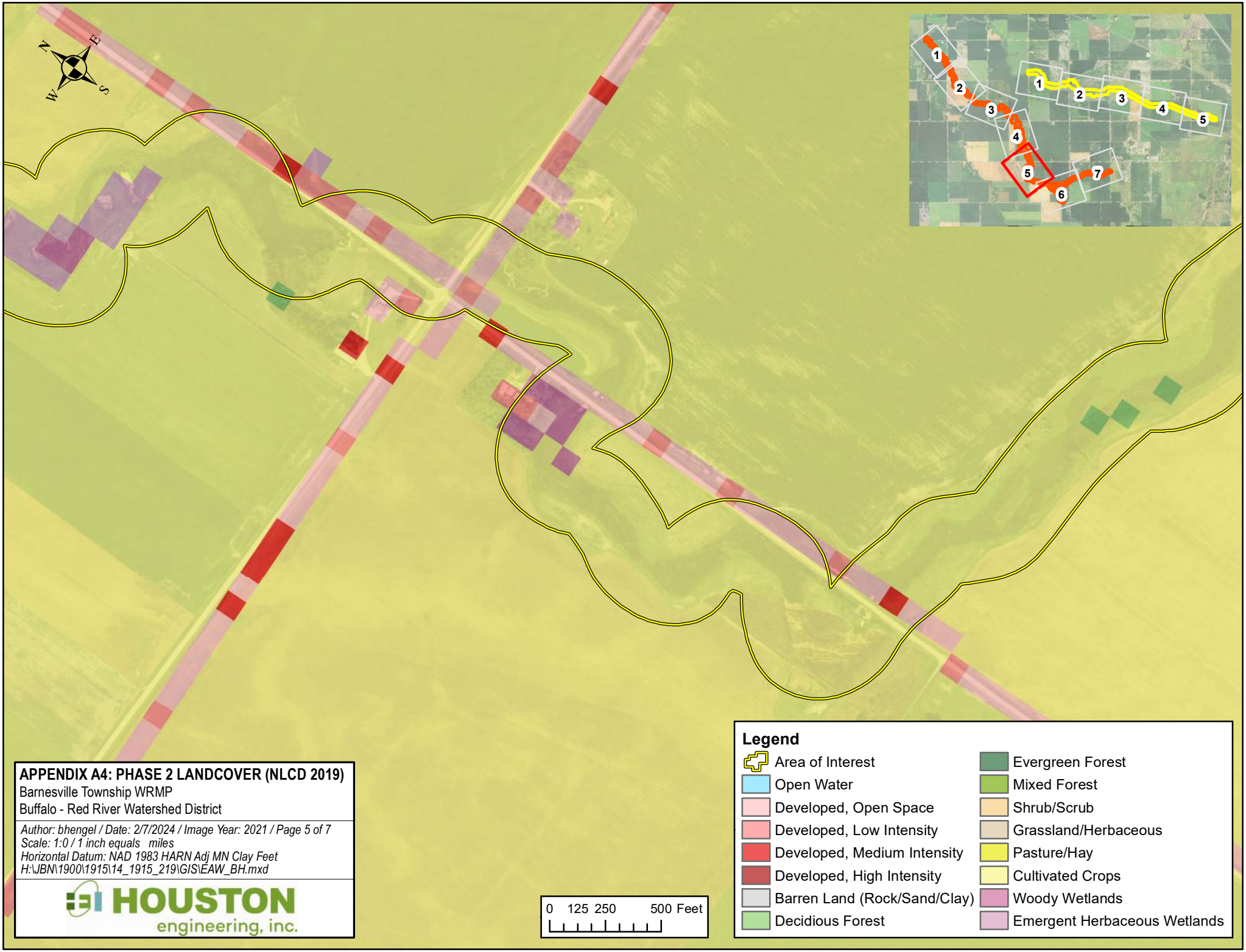

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Barnesville Township WRMP
Buffalo - Red River Watershed District

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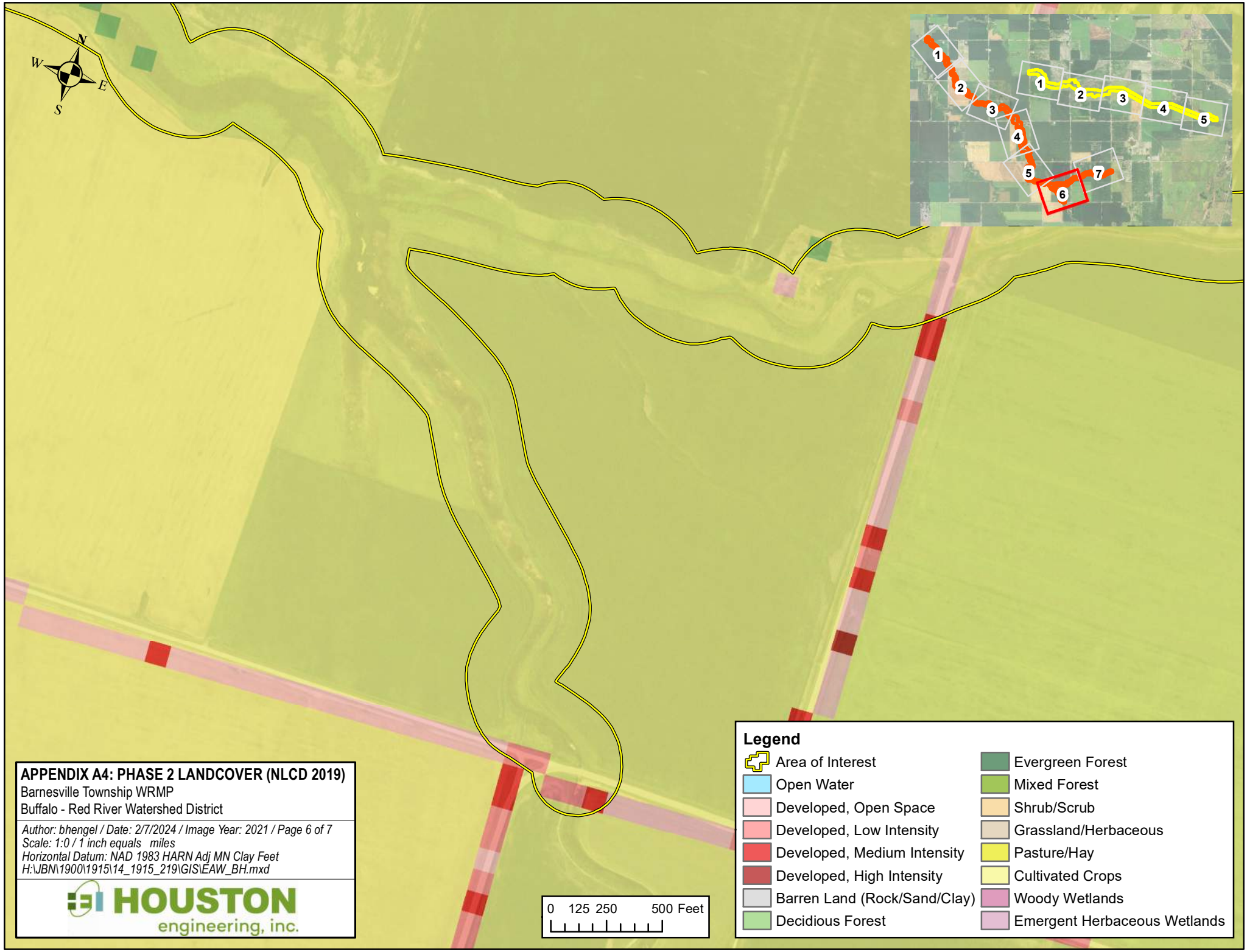

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Barnesville Township WRMP
Buffalo - Red River Watershed District

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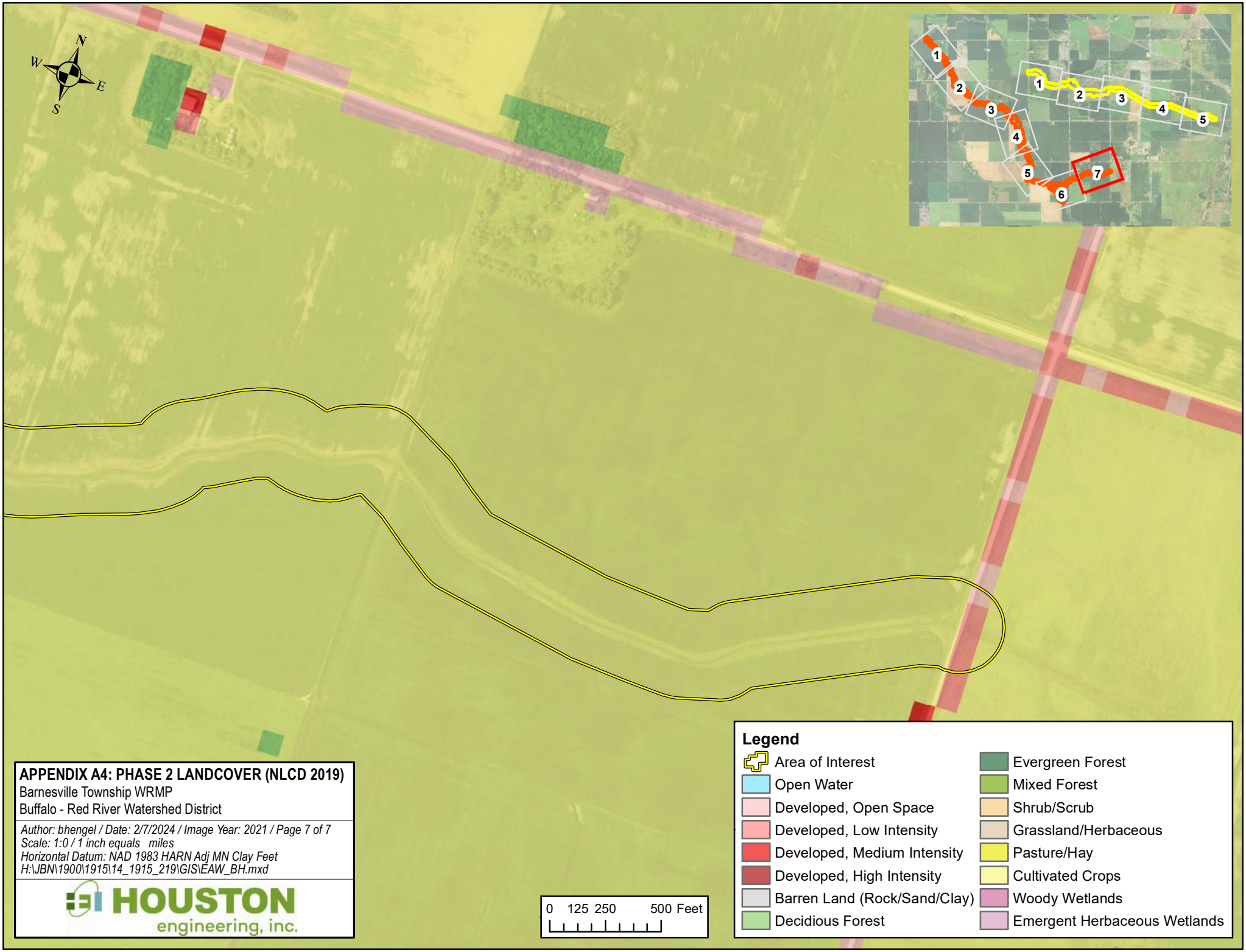

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Barnesville Township WRMP

Buffalo - Red River Watershed District

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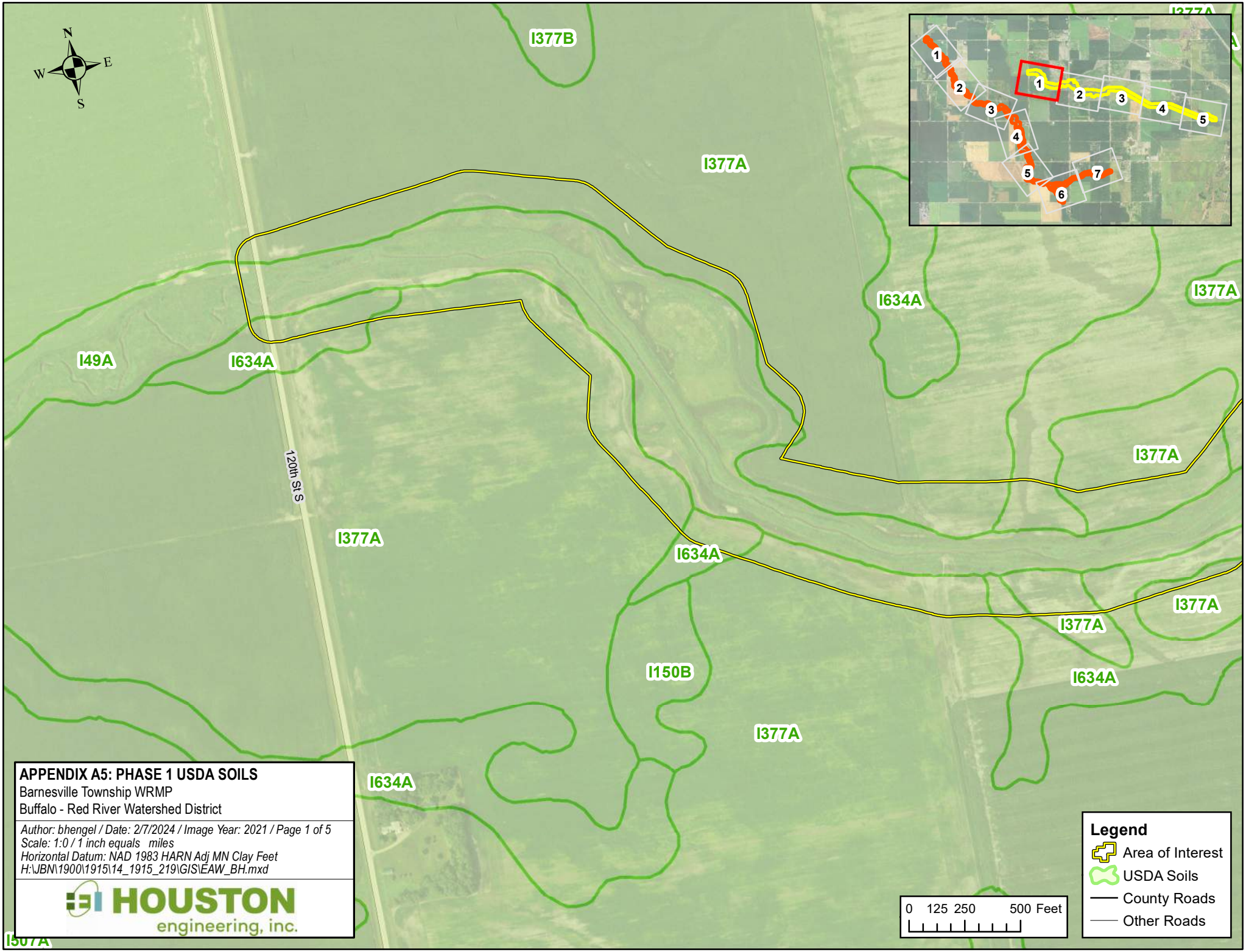

APPENDIX A5: PHASE 1 USDA SOILS

Barnesville Township WRMP

Buffalo - Red River Watershed District

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Scale: 1:0 / 1 inch equals miles
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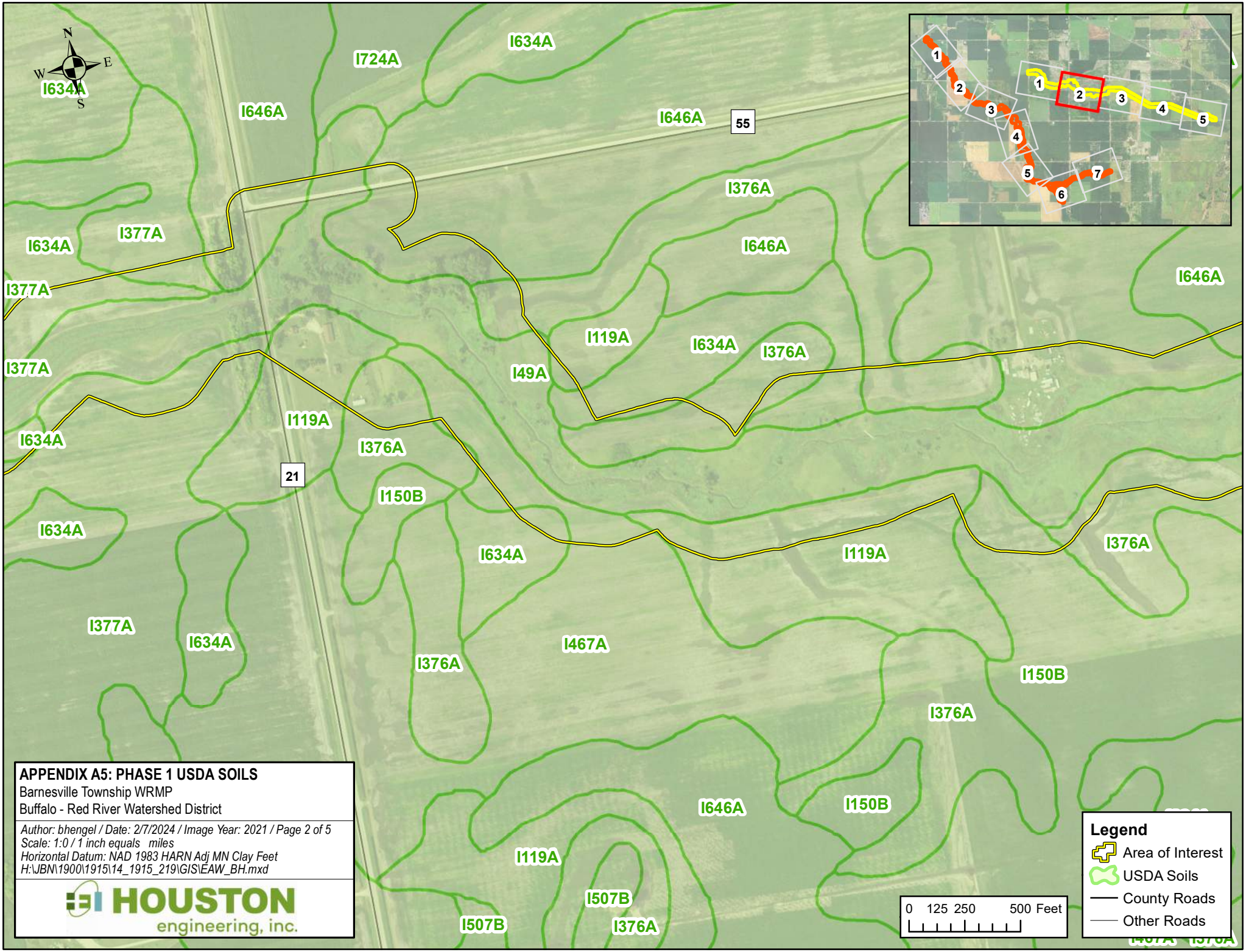

APPENDIX A5: PHASE 1 USDA SOILS

Barnesville Township WRMP

Buffalo - Red River Watershed District

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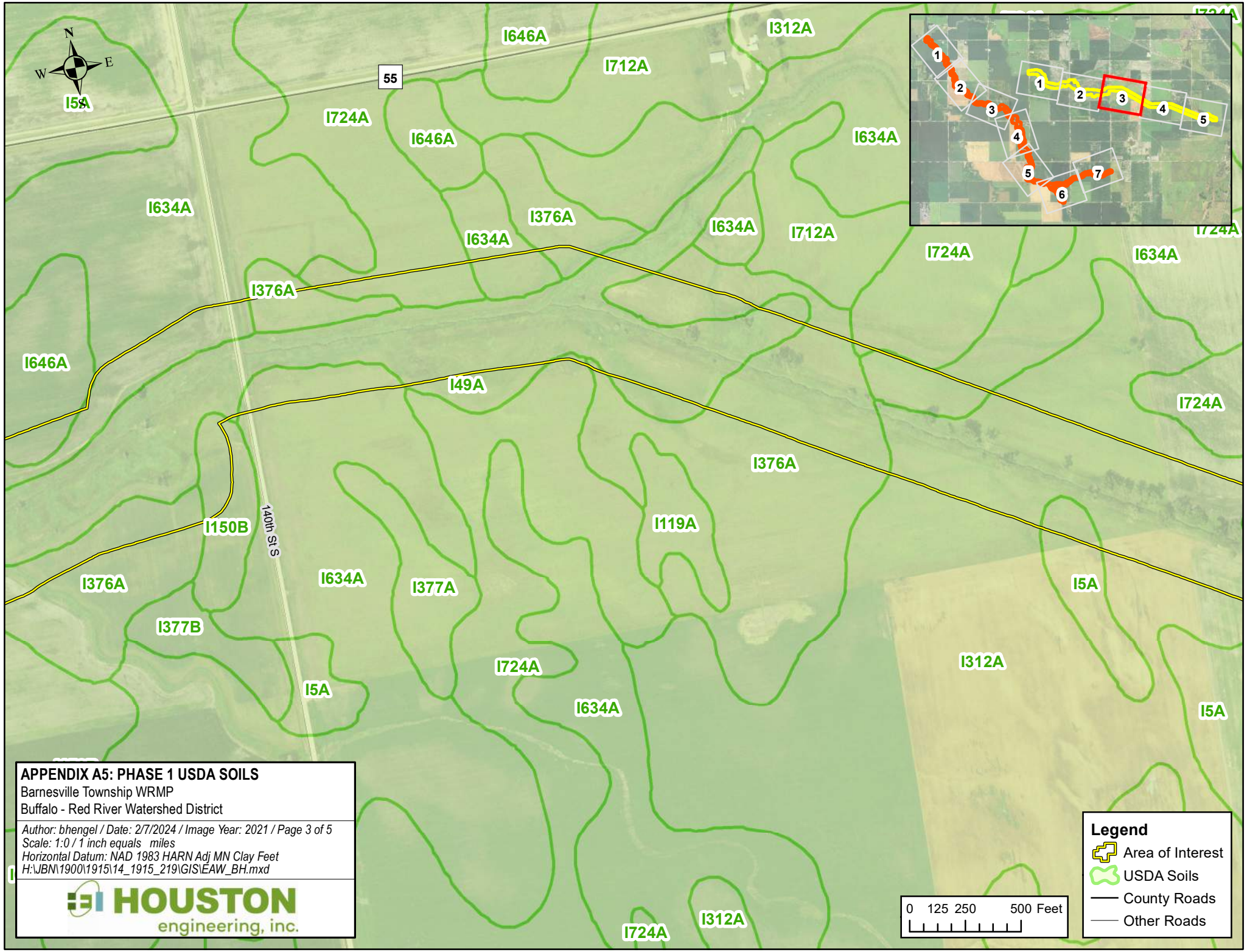

APPENDIX A5: PHASE 1 USDA SOILS

Barnesville Township WRMP

Buffalo - Red River Watershed District

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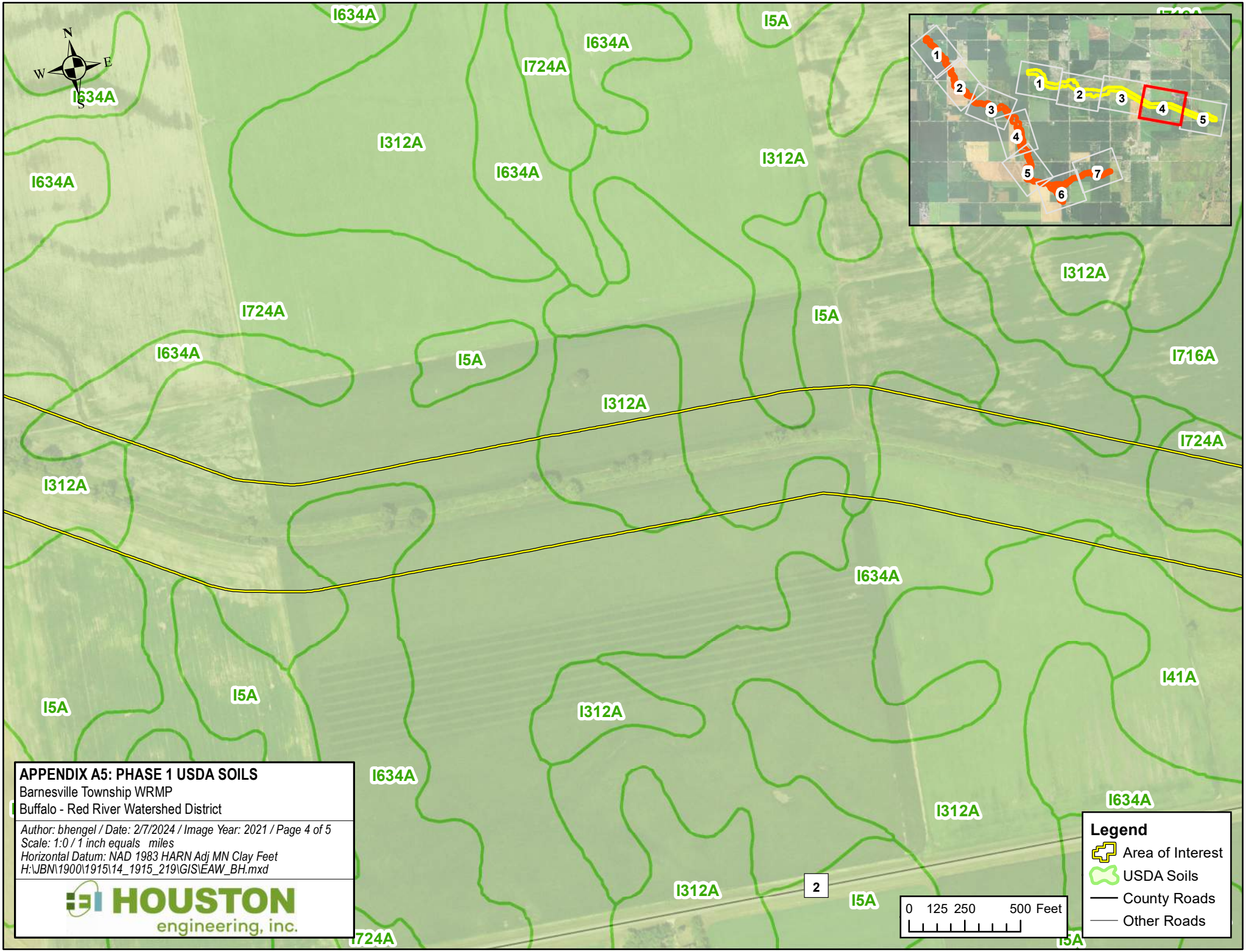
HOUSTON engineering, inc.



APPENDIX A5: PHASE 1 USDA SOILS
Barnesville Township WRMP
Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page 4 of 5
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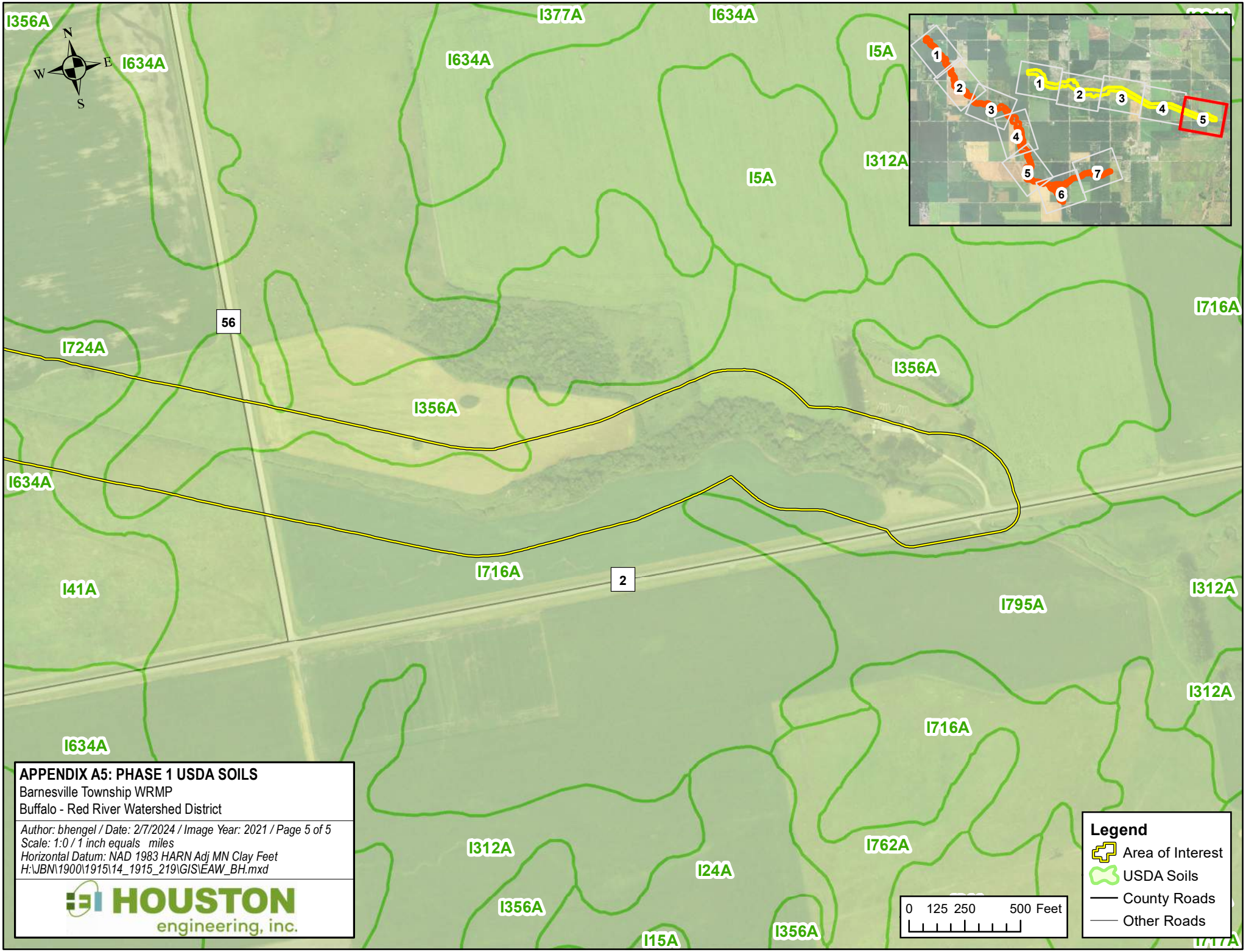
HOUSTON engineering, inc.



APPENDIX A5: PHASE 1 USDA SOILS

Barnesville Township WRMP

Buffalo - Red River Watershed District

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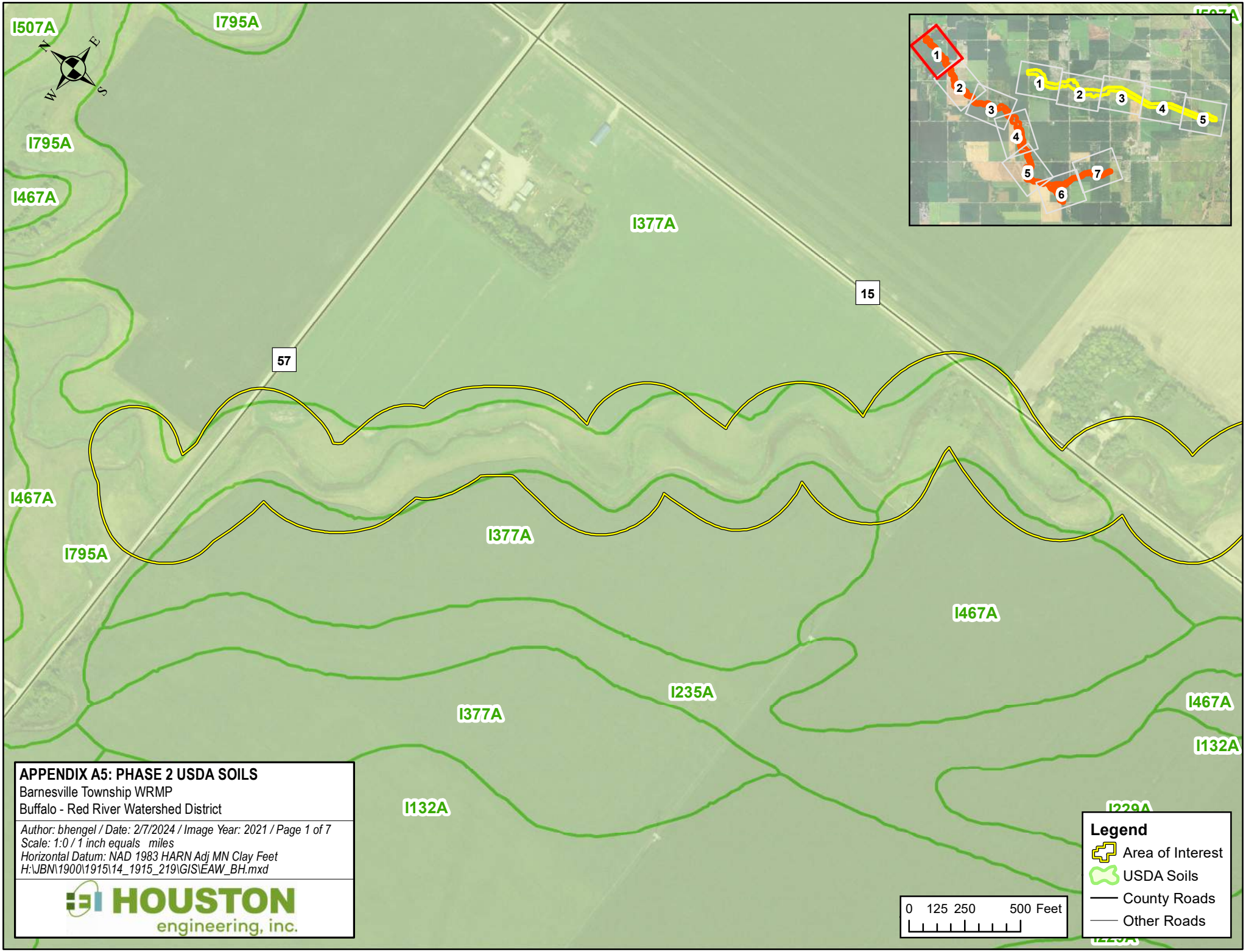

APPENDIX A5: PHASE 2 USDA SOILS

Barnesville Township WRMP

Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page 1 of 7
Scale: 1:0 / 1 inch equals miles
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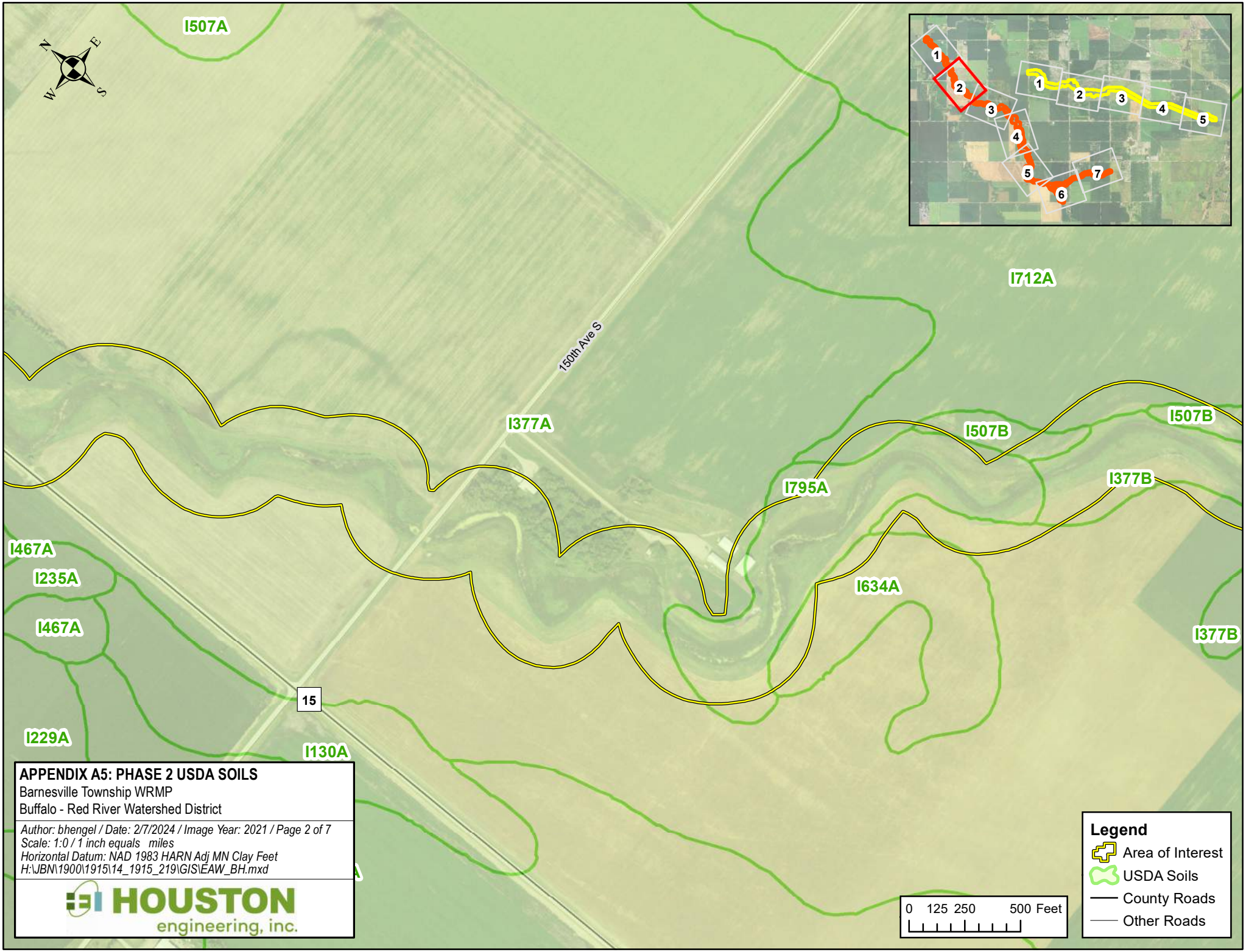

APPENDIX A5: PHASE 2 USDA SOILS

Barnesville Township WRMP

Buffalo - Red River Watershed District

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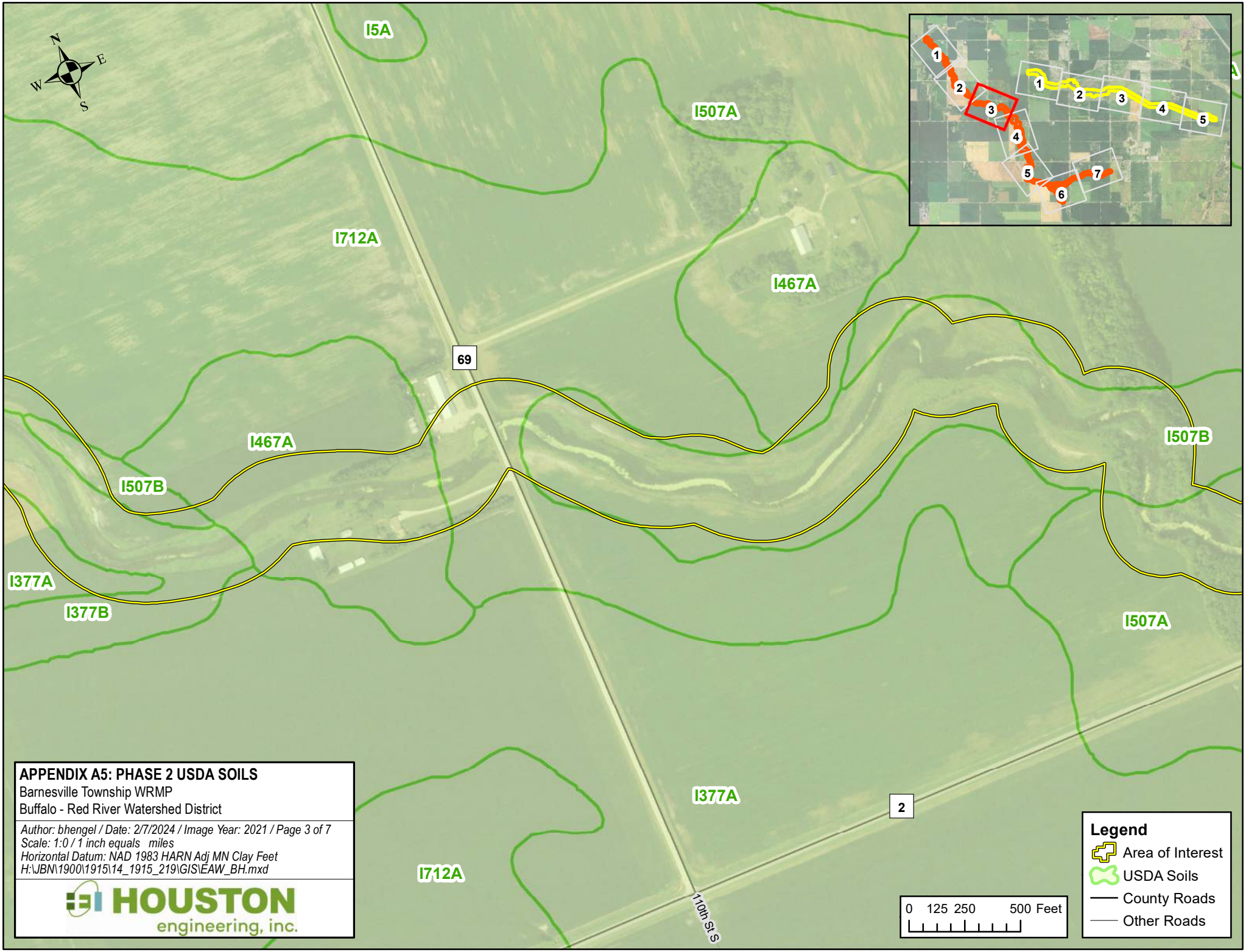

APPENDIX A5: PHASE 2 USDA SOILS

Barnesville Township WRMP

Buffalo - Red River Watershed District

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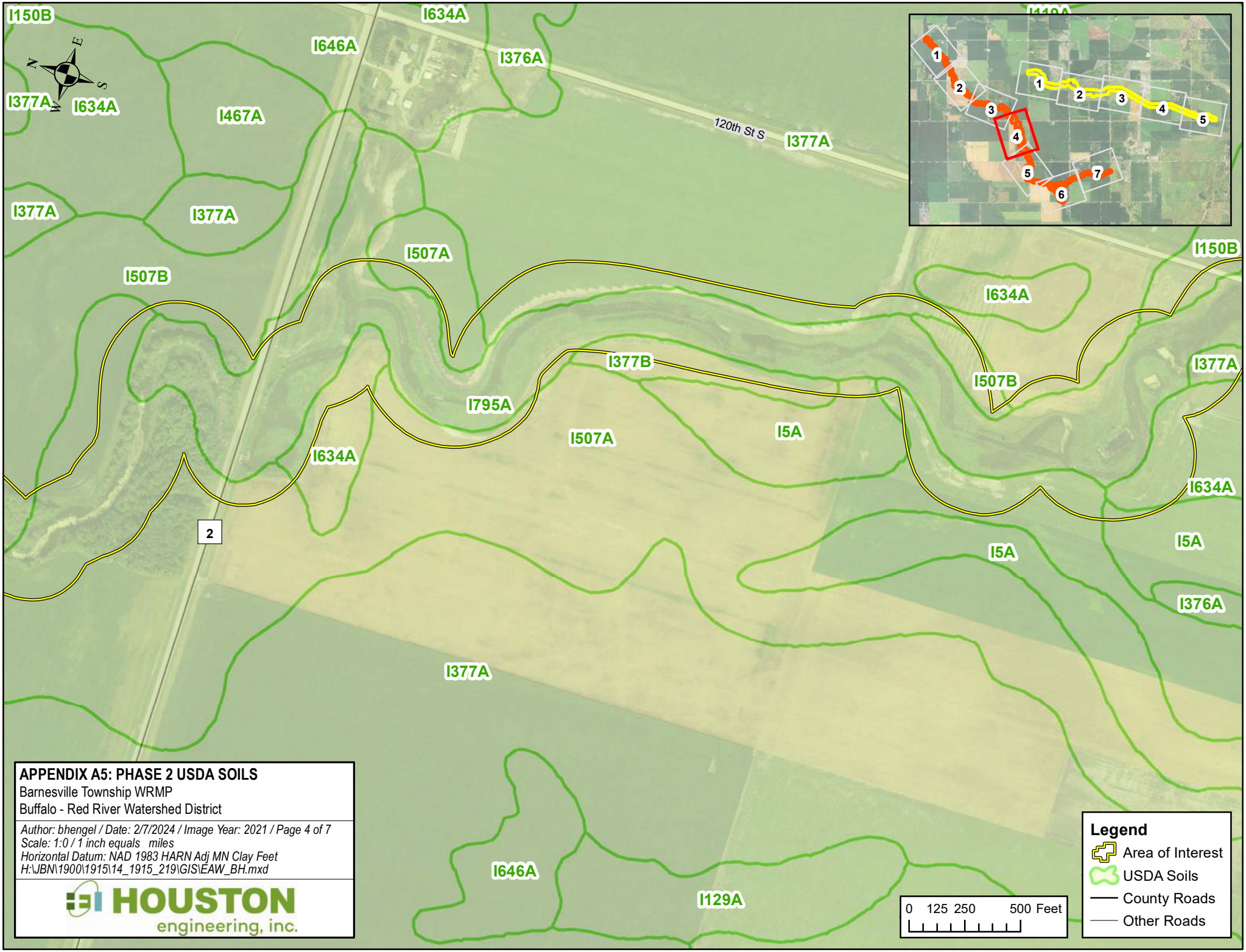

APPENDIX A5: PHASE 2 USDA SOILS

Barnesville Township WRMP

Buffalo - Red River Watershed District

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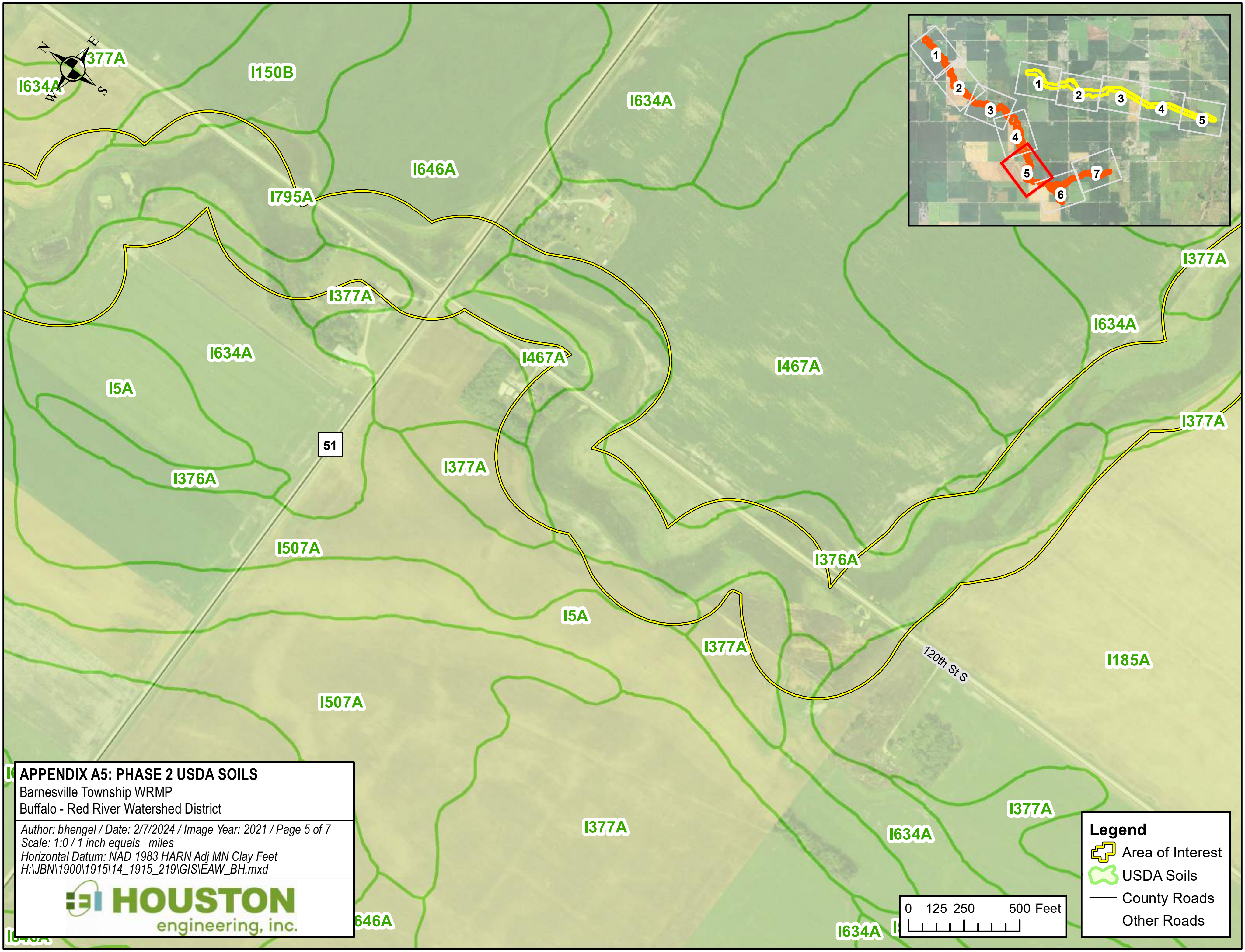

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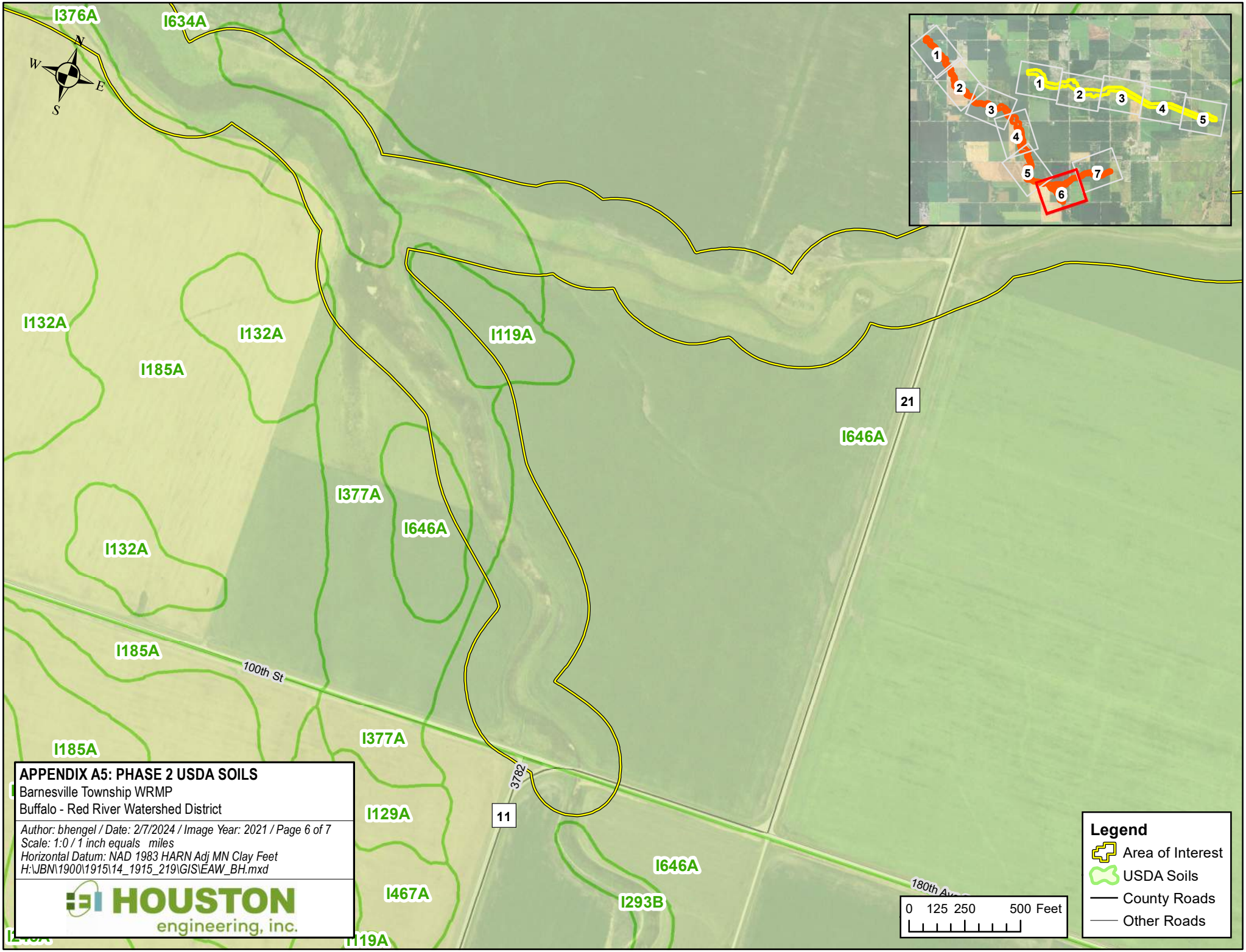

APPENDIX A5: PHASE 2 USDA SOILS
Barnesville Township WRMP
Buffalo - Red River Watershed District

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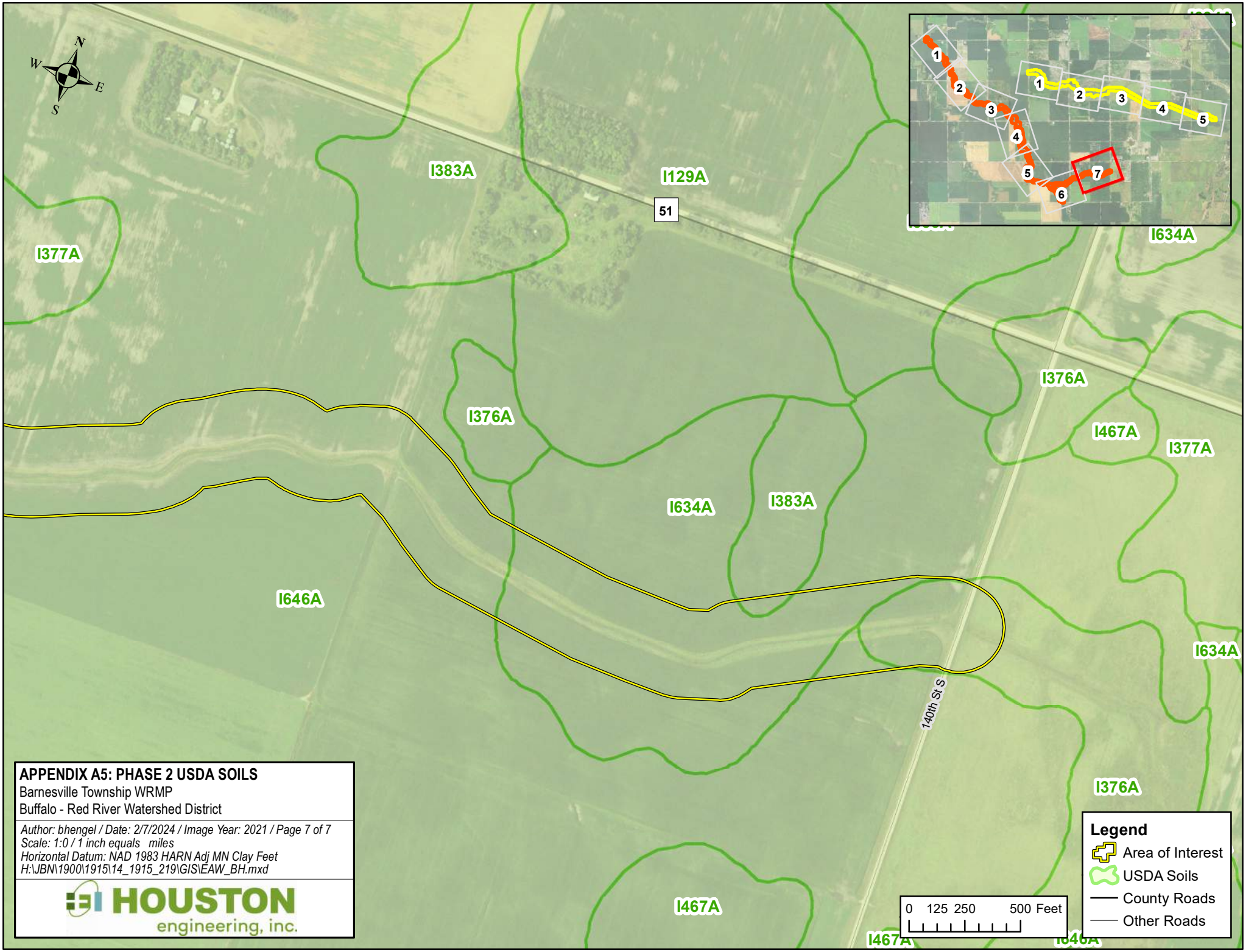

APPENDIX A5: PHASE 2 USDA SOILS

Barnesville Township WRMP

Buffalo - Red River Watershed District

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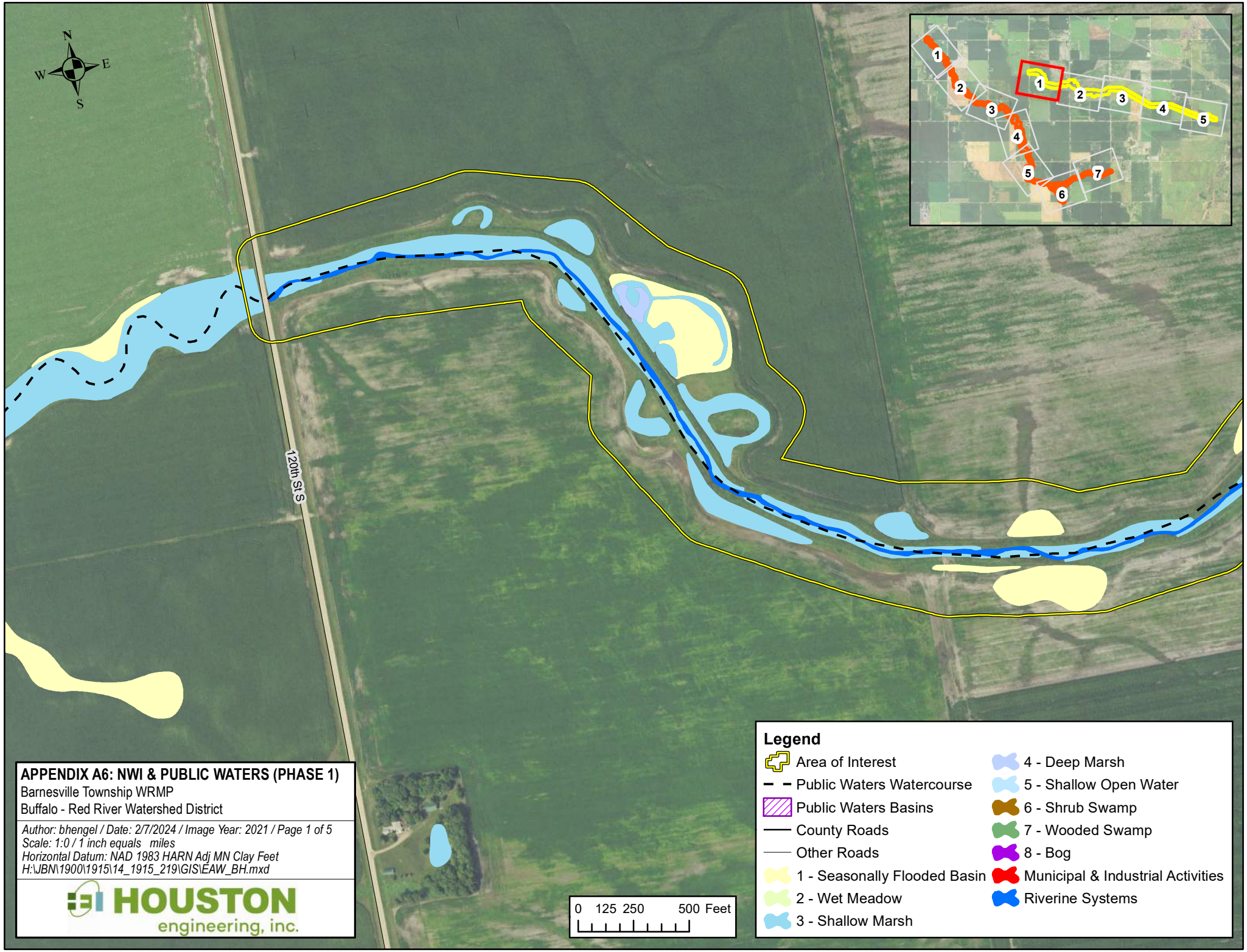

APPENDIX A6: NWI & PUBLIC WATERS (PHASE 1)
Barnesville Township WRMP
Buffalo - Red River Watershed District

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Scale: 1:0 / 1 inch equals miles
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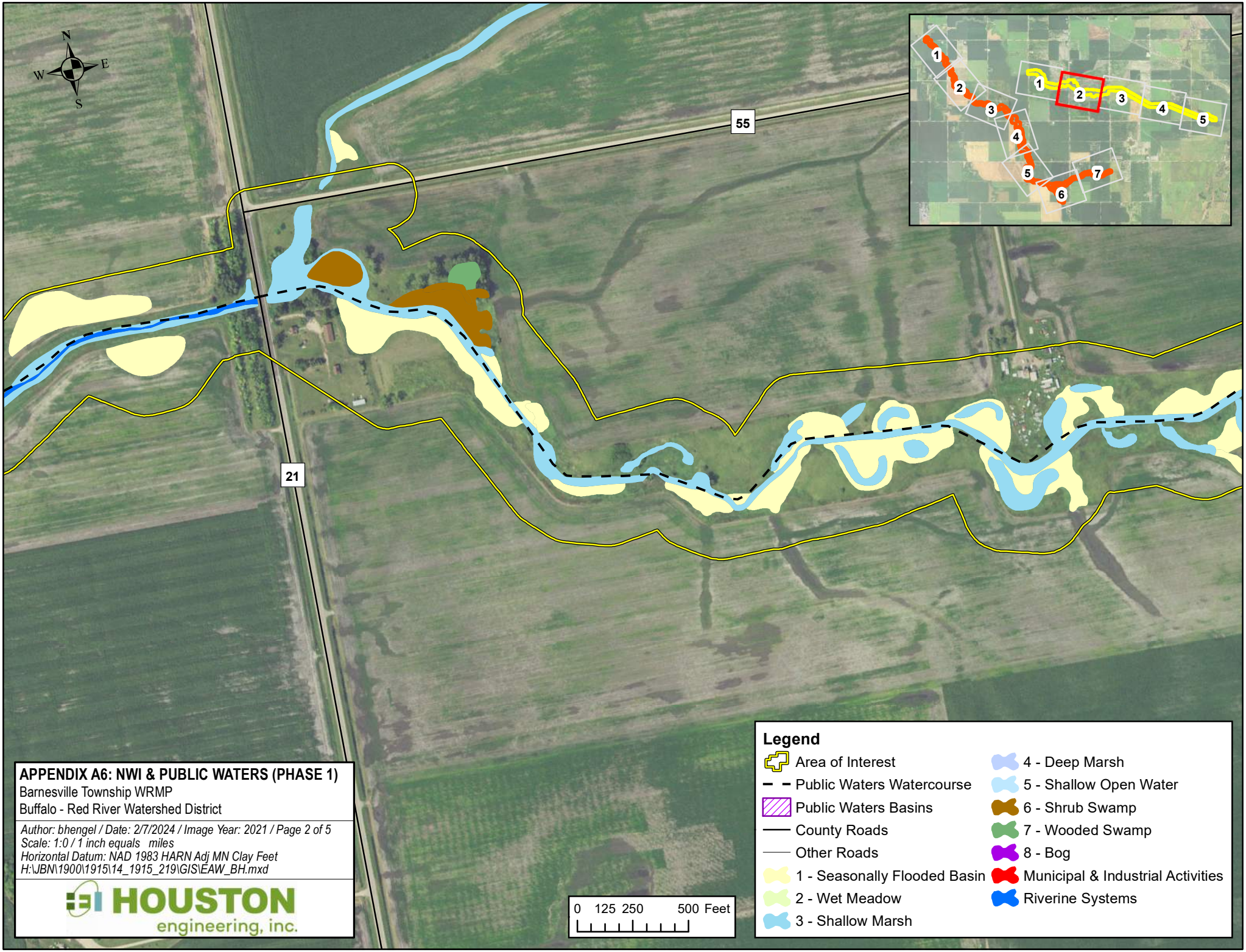

APPENDIX A6: NWI & PUBLIC WATERS (PHASE 1)
Barnesville Township WRMP
Buffalo - Red River Watershed District

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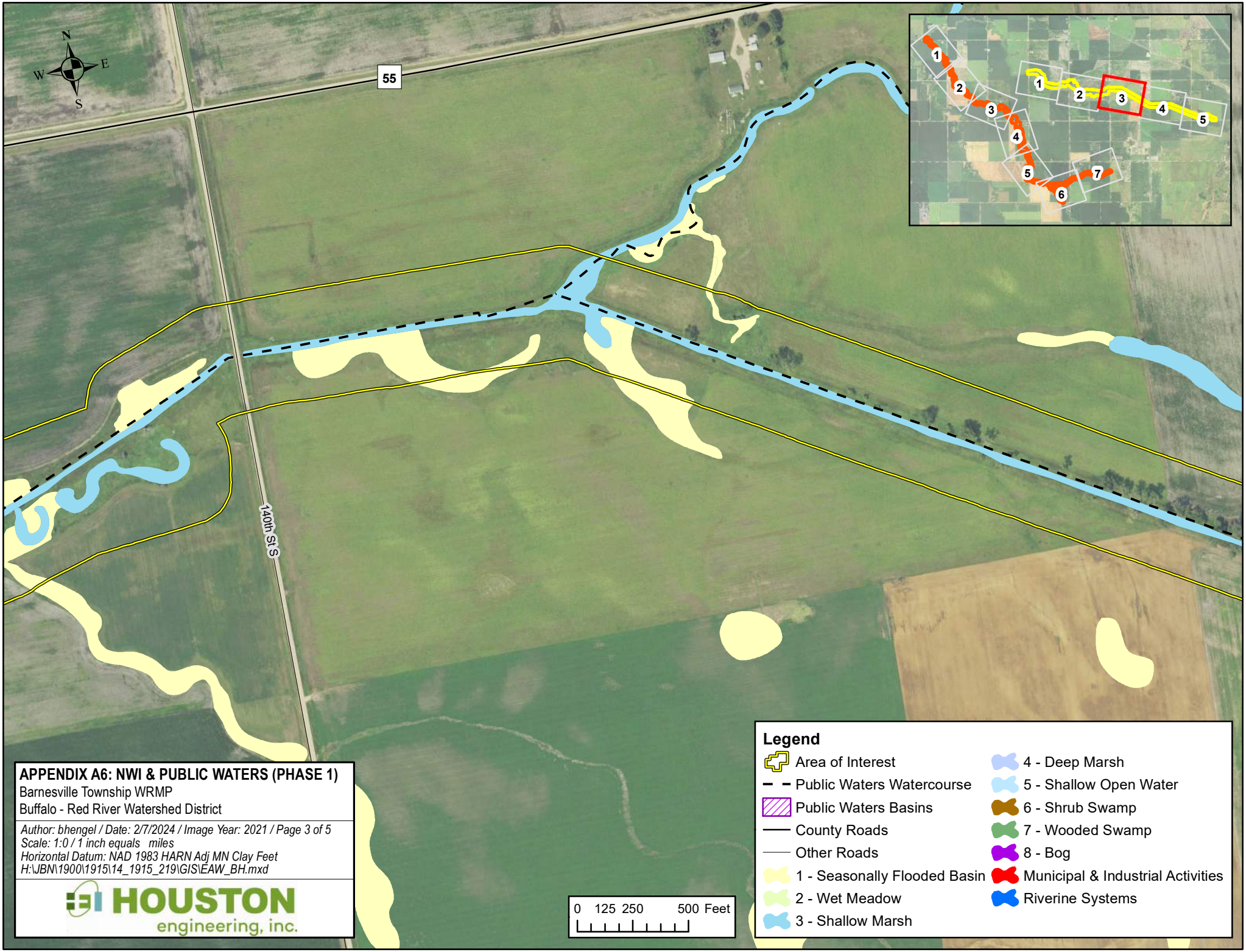

APPENDIX A6: NWI & PUBLIC WATERS (PHASE 1)
Barnesville Township WRMP
Buffalo - Red River Watershed District

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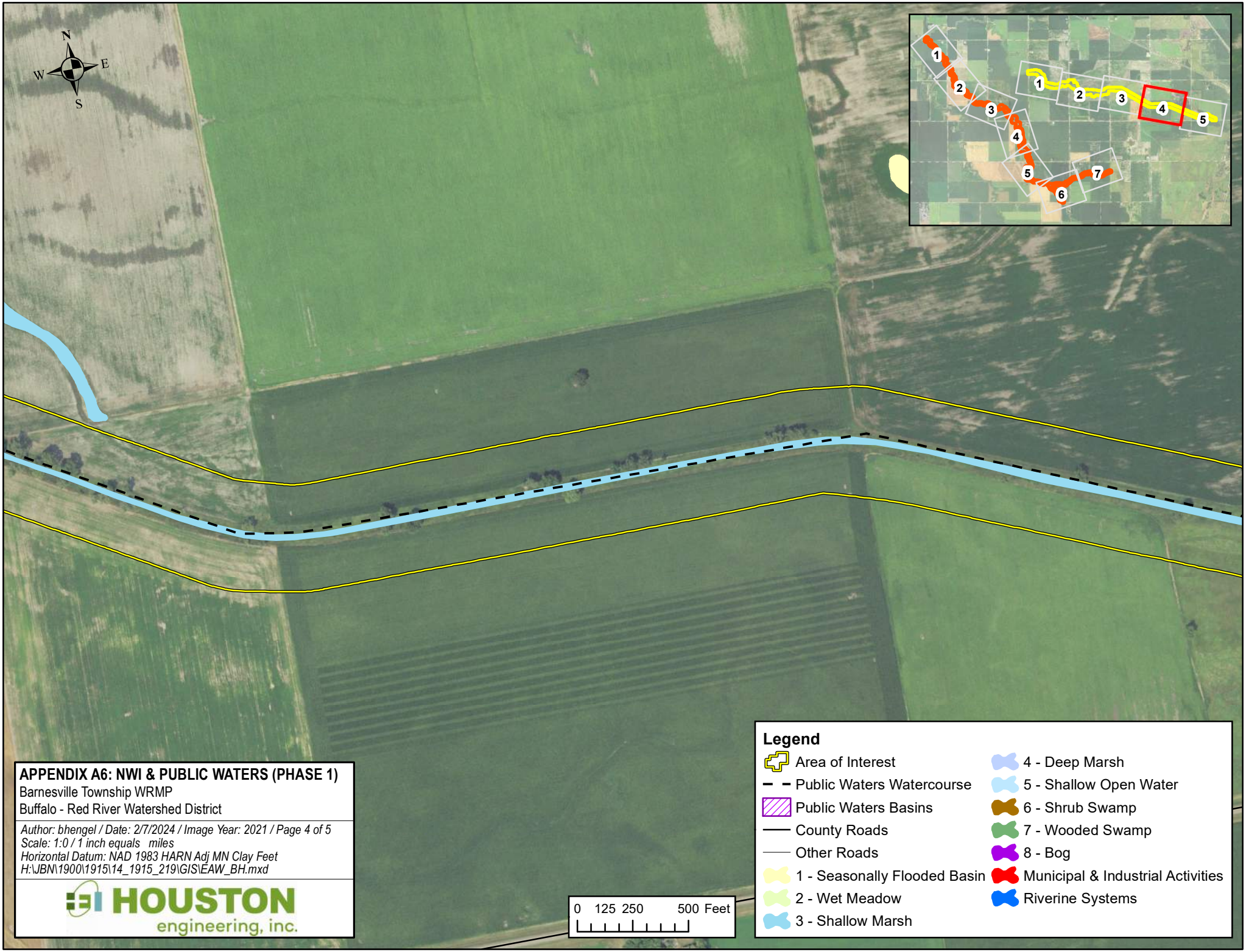

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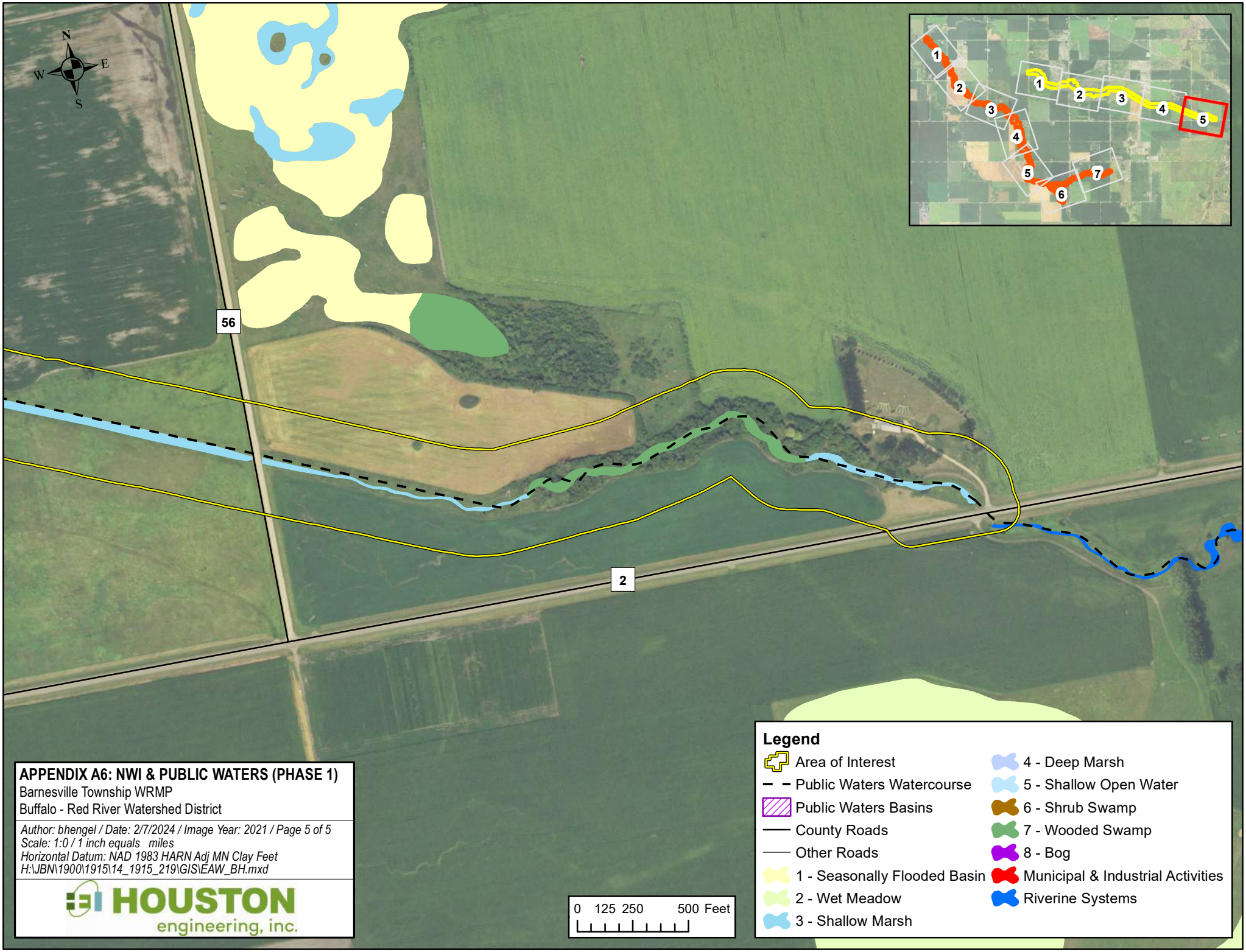
HOUSTON engineering, inc.



APPENDIX A6: NWI & PUBLIC WATERS (PHASE 1)
Barnesville Township WRMP
Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page 5 of 5
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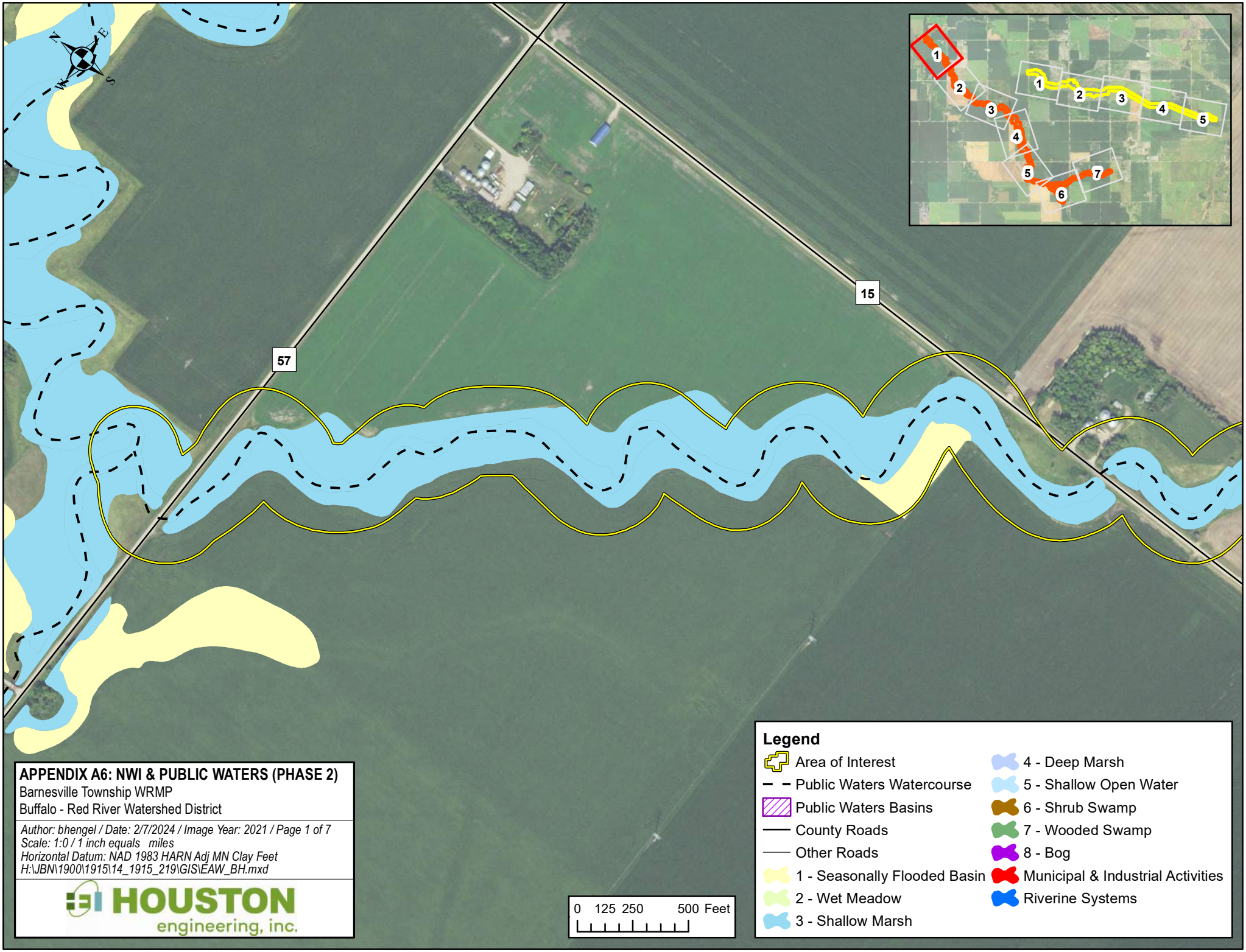

APPENDIX A6: NWI & PUBLIC WATERS (PHASE 2)
Barnesville Township WRMP
Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page 1 of 7
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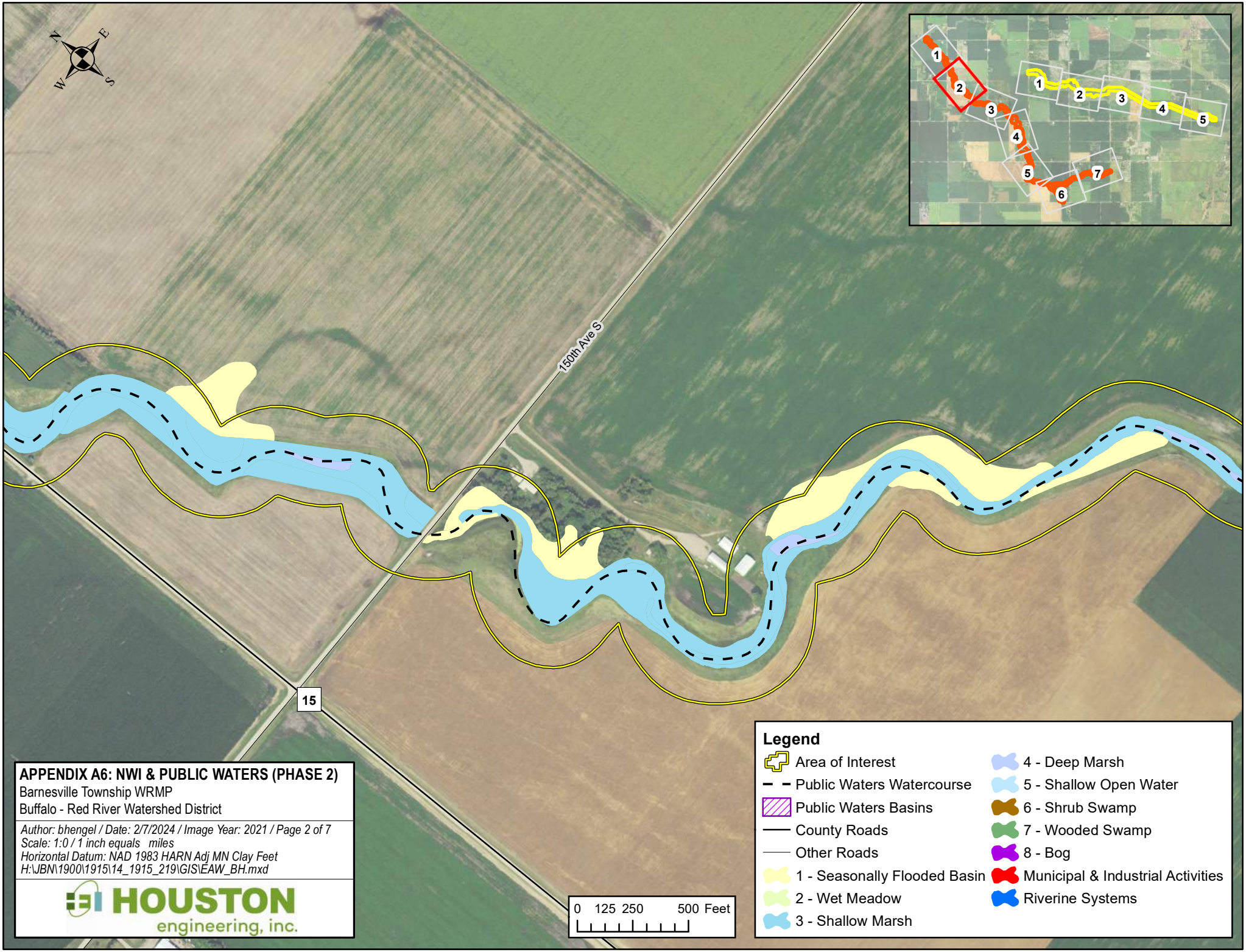

APPENDIX A6: NWI & PUBLIC WATERS (PHASE 2)
Barnesville Township WRMP
Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page 2 of 7
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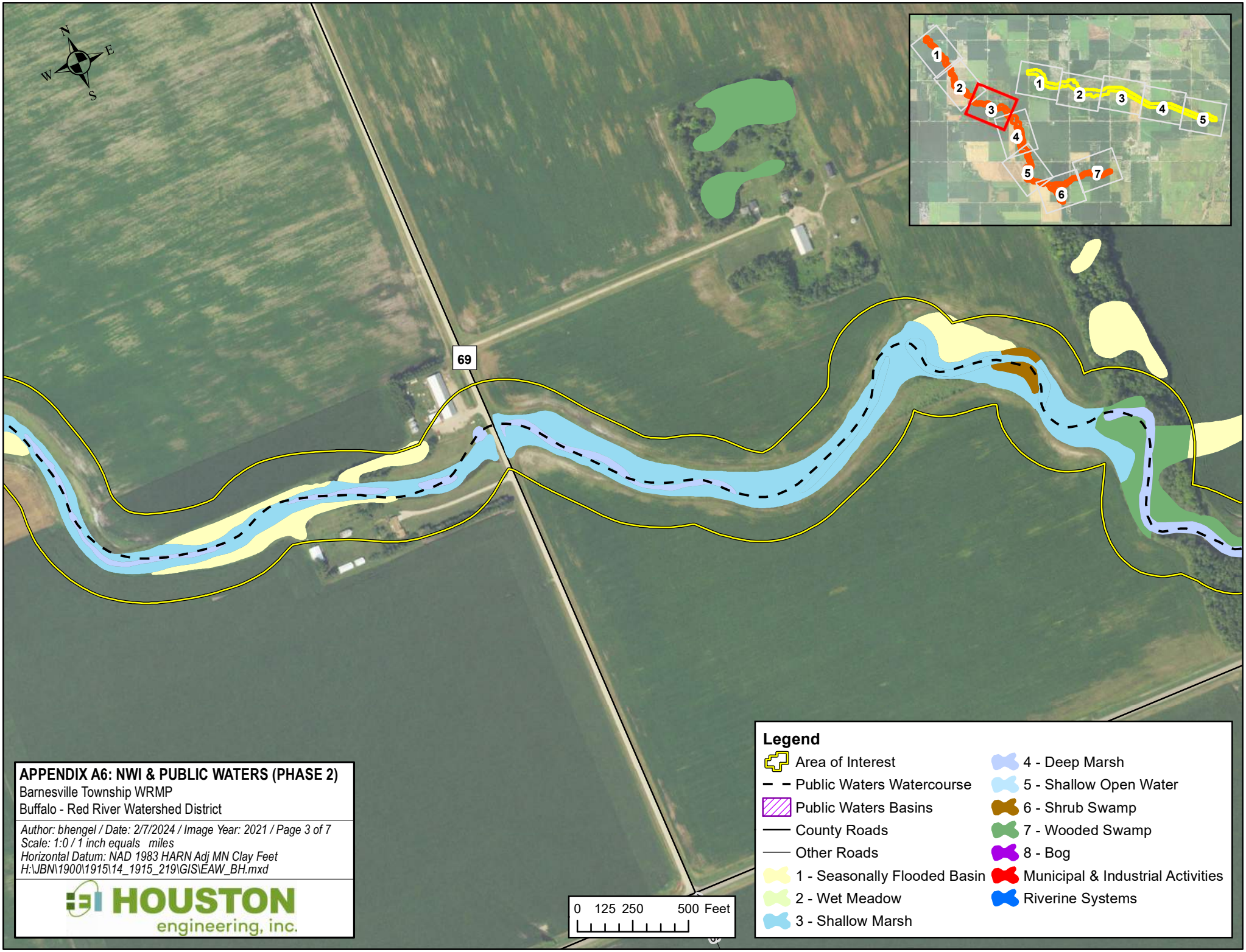

APPENDIX A6: NWI & PUBLIC WATERS (PHASE 2)
Barnesville Township WRMP
Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page 3 of 7
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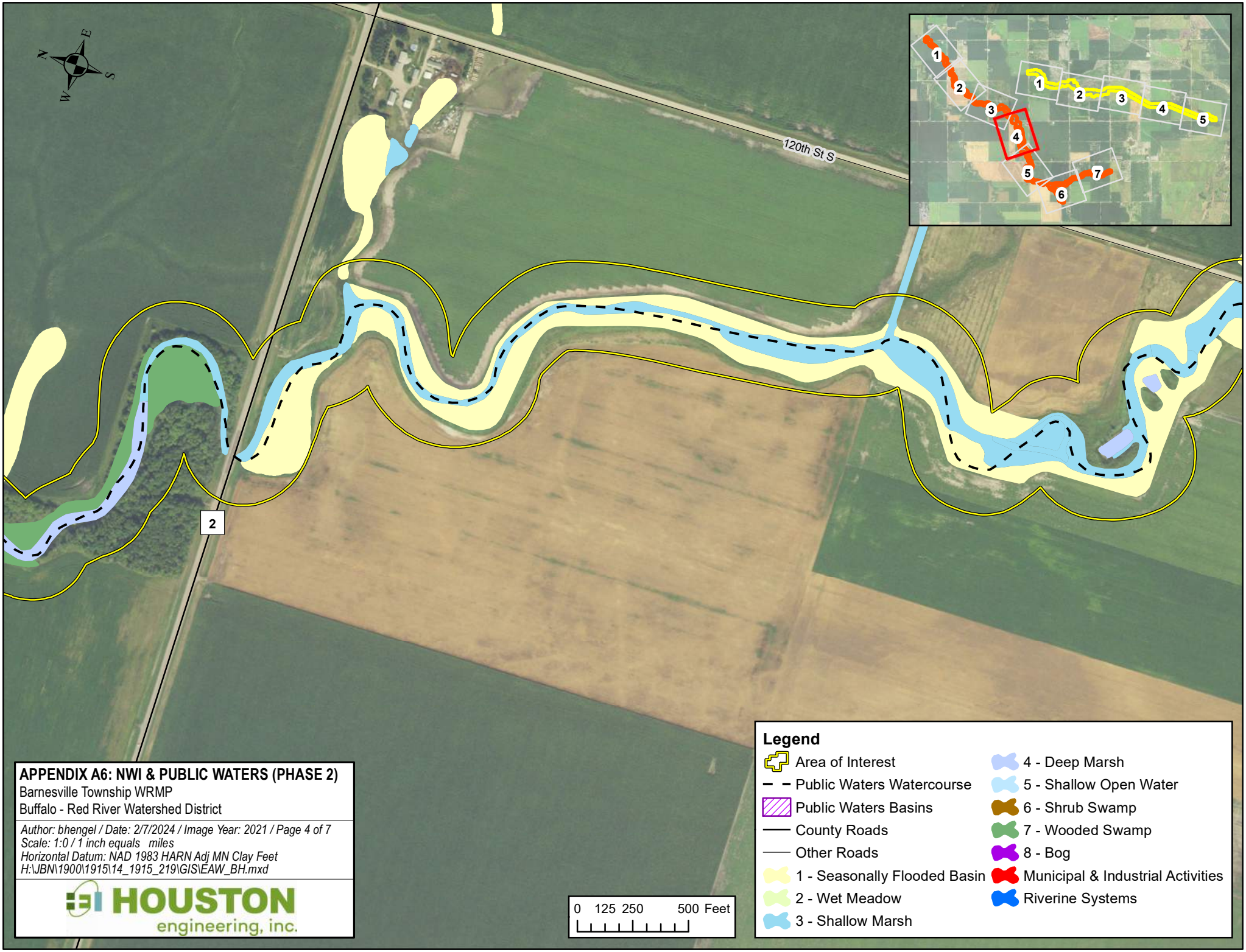

APPENDIX A6: NWI & PUBLIC WATERS (PHASE 2)
Barnesville Township WRMP
Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page 4 of 7
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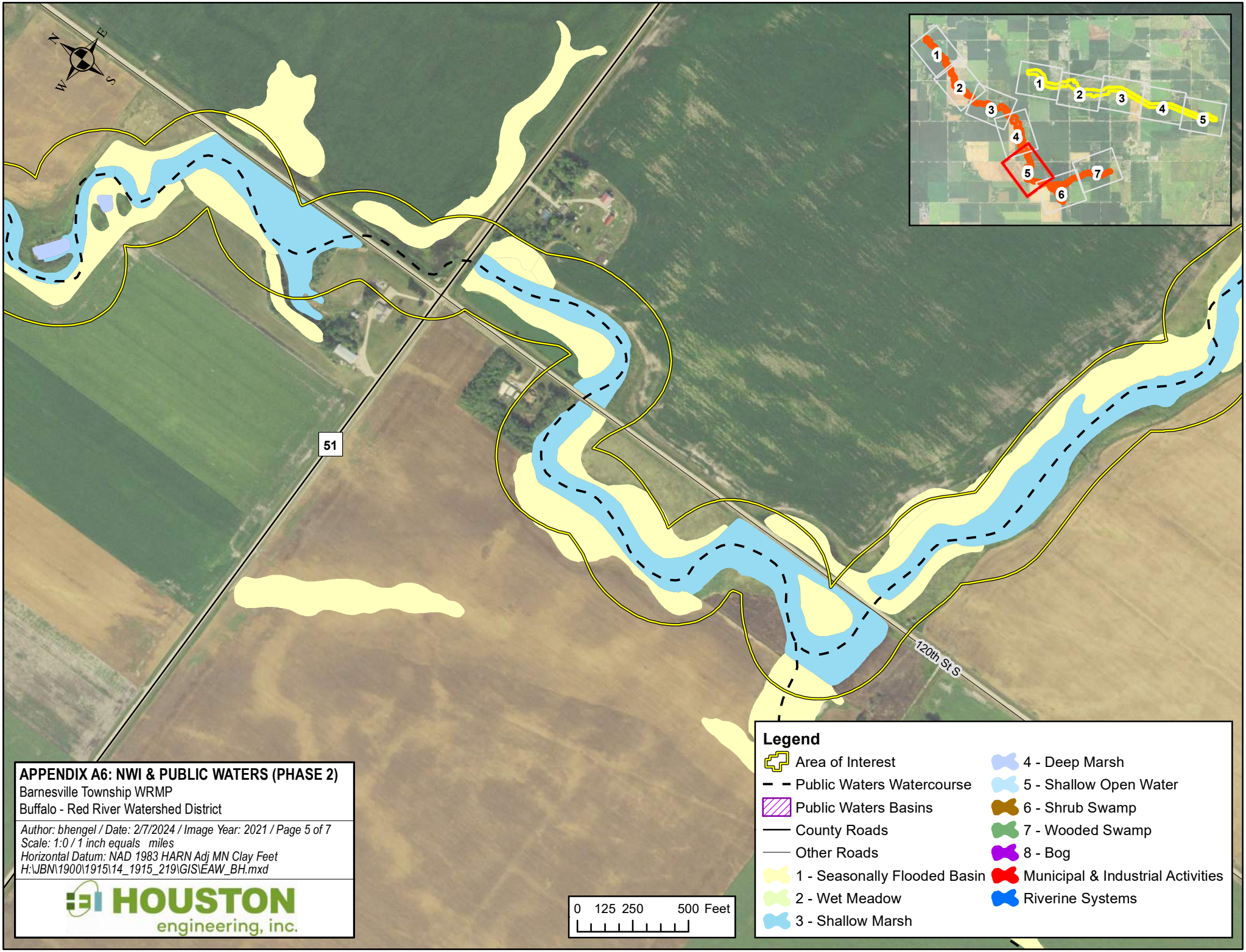
HOUSTON engineering, inc.



APPENDIX A6: NWI & PUBLIC WATERS (PHASE 2)
Barnesville Township WRMP
Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page 5 of 7
Scale: 1:0 / 1 inch equals miles
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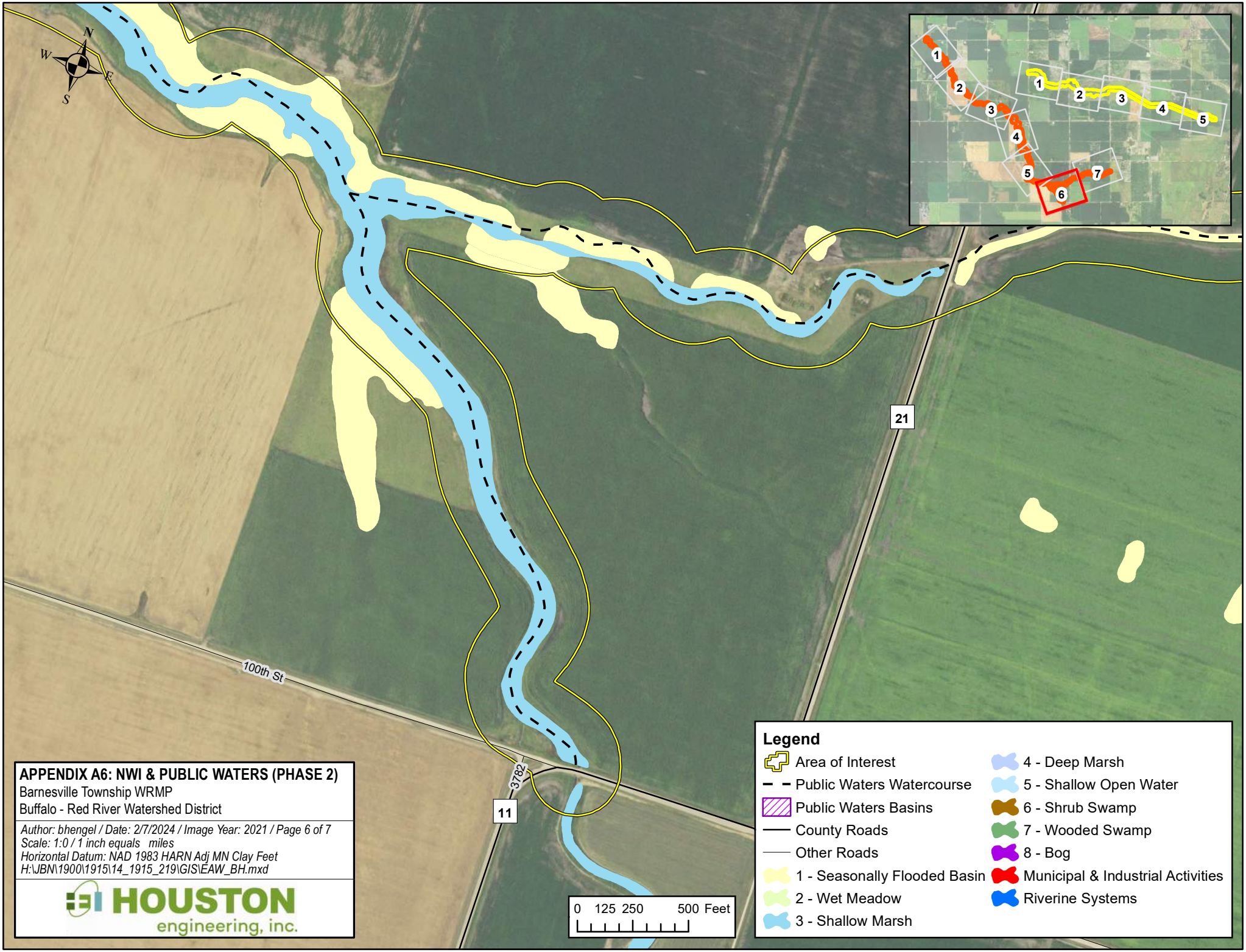
HOUSTON engineering, inc.



APPENDIX A6: NWI & PUBLIC WATERS (PHASE 2)
Barnesville Township WRMP
Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page 6 of 7
Scale: 1:0 / 1 inch equals miles
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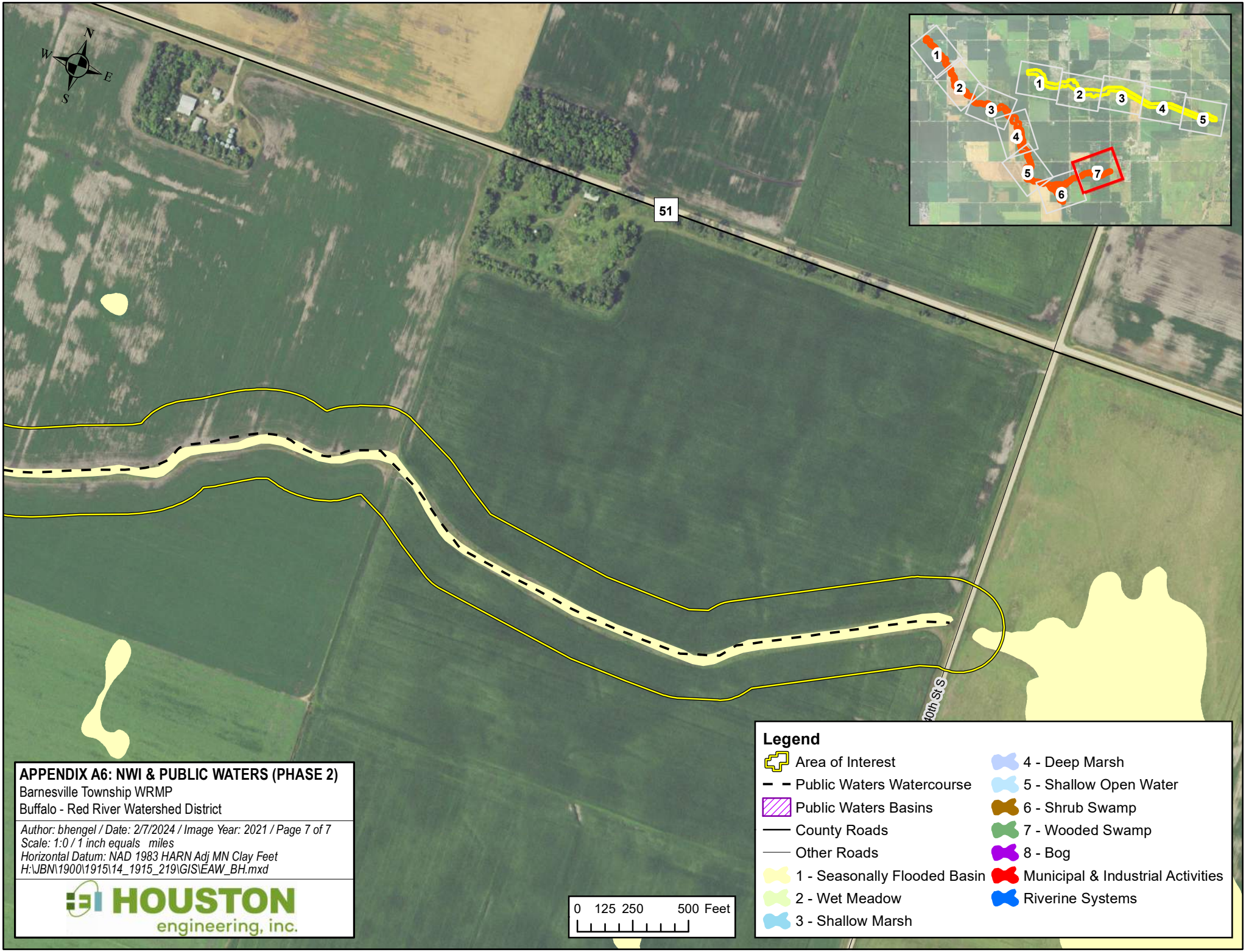
HOUSTON engineering, inc.



APPENDIX A6: NWI & PUBLIC WATERS (PHASE 2)
Barnesville Township WRMP
Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page 7 of 7
Scale: 1:0 / 1 inch equals miles
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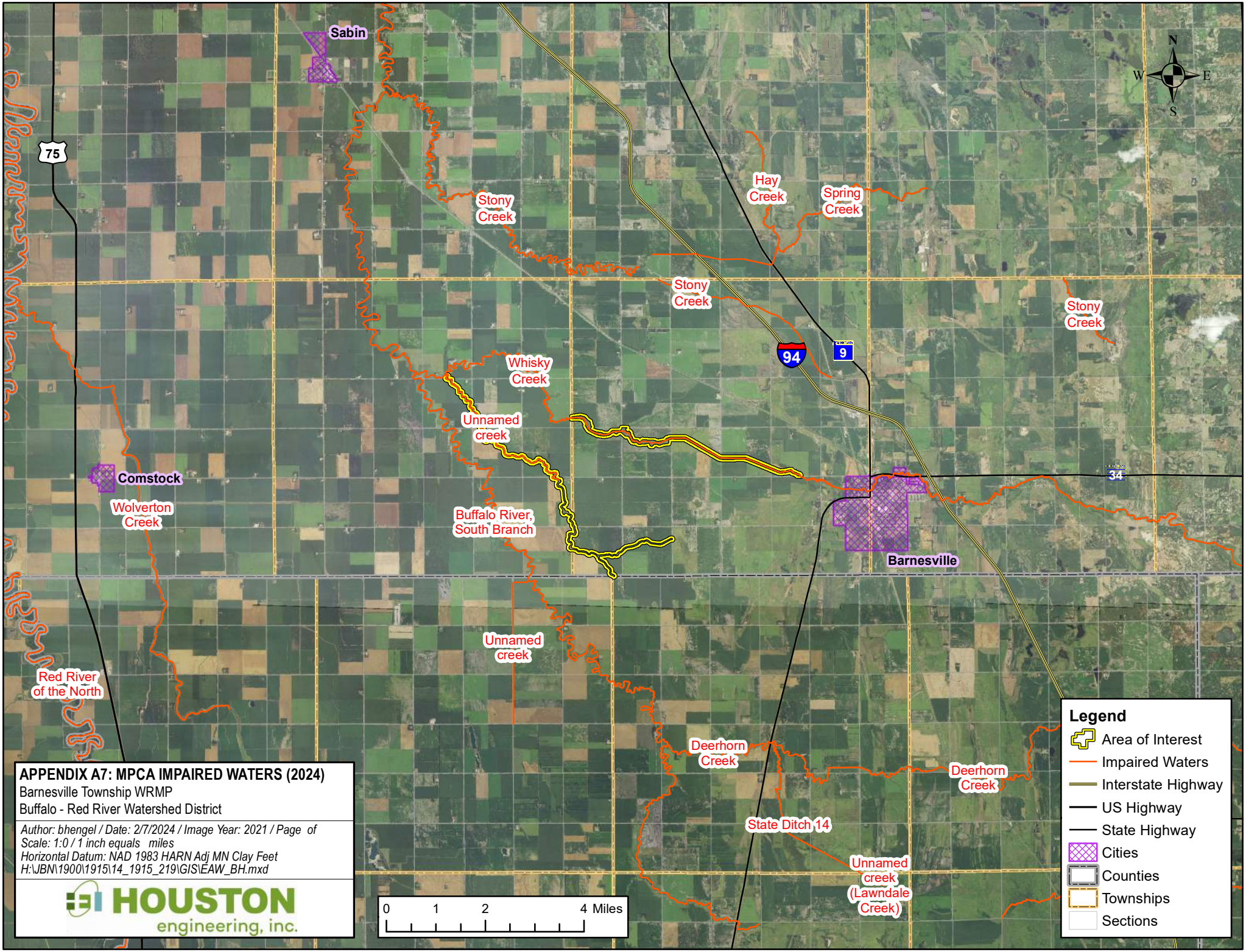
HOUSTON engineering, inc.



APPENDIX A7: MPCA IMPAIRED WATERS (2024)

Barnesville Township WRMP

Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page of
Scale: 1:0 / 1 inch equals miles
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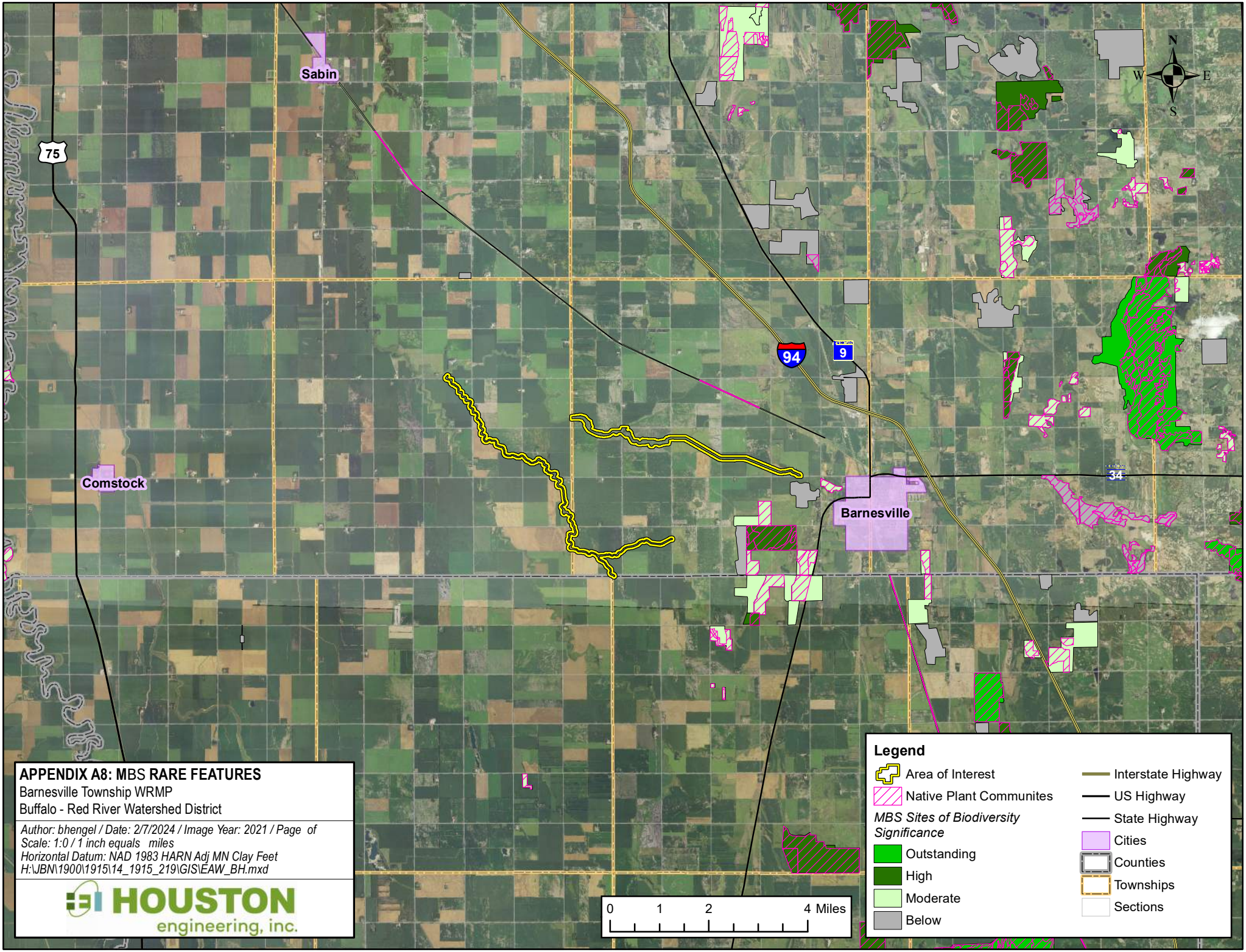
HOUSTON engineering, inc.



APPENDIX A8: MBS RARE FEATURES

Barnesville Township WRMP

Buffalo - Red River Watershed District

Author: bhengel / Date: 2/7/2024 / Image Year: 2021 / Page of
Scale: 1:0 / 1 inch equals miles
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HOUSTON engineering, inc.

Attachment 1

Minnesota DNR NHIS Rare Features Review Letter (Phase 1)

Minnesota Department of Natural Resources
Division of Ecological & Water Resources
500 Lafayette Road, Box 25
St. Paul, MN 55155-4025

April 26, 2024

Benjamin Hengel
Houston Engineering

Natural Heritage Review of the proposed Buffalo-Red River Watershed Dist. Channel Resto – Phase 1, T137N R47W Section 13, T137N R46W Sections 17-23, 26; Clay County

Dear Benjamin Hengel,

For all correspondence regarding the Natural Heritage Review of this project please include the project ID **MCE-2024-00239** in the email subject line.

As requested, the Minnesota Natural Heritage Information System has been reviewed to determine if the proposed project has the potential to impact any rare species or other significant natural features. Based on the project details provided with the request, the following rare features may be impacted by the proposed project:

State-listed Species

- Wilson's phalarope (*Phalaropus tricolor*), a state-listed threatened bird, has been documented during the breeding season in the vicinity of the proposed project. This wetland species nests on the ground in wet meadows, grassy marshes, and along edges of shallow inland waters. Minnesota's Endangered Species Statute (Minnesota Statutes, section 84.0895) and associated Rules (Minnesota Rules, part 6212.1800 to 6212.2300 and 6134) prohibit the take of threatened or endangered species without a permit. Given the presence of this state-protected bird, **initial disturbance to suitable nesting habitat must be avoided between mid-May and July, the breeding season for Wilson's phalaropes**.

  Please contact Review.NHIS@state.mn.us **to confirm that the above avoidance measure will be implemented or to inform us that avoidance is not feasible.** If avoidance is not feasible, the project area will need to be surveyed for active nests prior to any project disturbance. Requirements for surveys and lists of DNR certified lists of surveyors can be found at the Natural Heritage Review website.

- Marbled godwit (*Limosa fedoa*), a state-listed bird of special concern, has been documented in the vicinity of the project. This species prefers to feed and nest in short upland grassland areas along the edges of seasonal wetlands but is also known to nest in adjacent cropland stubble if the adequate habitat is limited. **If feasible, avoid impacts to nesting habitat between May and August.** Report any sightings to Reports.NHIS@state.mn.us; please include date, observer, location, and photograph of the marbled godwit.

- Please visit the DNR Rare Species Guide for more information on the habitat use of these species and recommended measures to avoid or minimize impacts.

Federally Protected Species

- To ensure compliance with federal law, conduct a federal regulatory review using the U.S. Fish and Wildlife Service's (USFWS) online Information for Planning and Consultation (IPaC) tool.

Environmental Review and Permitting

- Please include a copy of this letter and the MCE-generated Final Project Report in any state or local license or permit application. Please note that measures to avoid or minimize disturbance to the above rare features may be included as restrictions or conditions in any required permits or licenses.

- The Environmental Assessment Worksheet should address whether the proposed project has the potential to adversely affect the above rare features and, if so, it should identify specific measures that will be taken to avoid or minimize disturbance. Sufficient information should be provided so the DNR can determine whether a takings permit will be needed for any of the above protected species.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area. If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location and project description provided with the request. If project details change or the project has not occurred within one year, please resubmit the project for review within one year of initiating project activities.

The Natural Heritage Review does not constitute project approval by the Department of Natural Resources. Instead, it identifies issues regarding known occurrences of rare features and potential impacts to these rare features. Visit the Natural Heritage Review website for additional information regarding this process, survey guidance, and other related information. For information on the environmental review process or other natural resource concerns, you may contact your DNR Regional Environmental Assessment Ecologist.

Thank you for consulting us on this matter and for your interest in preserving Minnesota's rare natural resources.

Sincerely,

James Drake

Digitally signed by James Drake
Date: 2024.04.26 15:37:13 -05'00'

James Drake
Natural Heritage Review Specialist
James.F.Drake@state.mn.us

Cc: Owen Baird

Attachment 2

Minnesota DNR NHIS Rare Features Review Letter (Phase 2)

DEPARTMENT OF NATURAL RESOURCES

Formal Natural Heritage Review - Cover Page

See next page for results of review. A draft watermark means the project details have not been finalized and the results are not official.

Project Name: Buffalo-Red River Watershed District Channel Restoration Project - Phase 2

Project Proposer: Buffalo-Red River Watershed District

Project Type: Natural Resource Management, Water Resources

Project Type Activities: Waterbody or watercourse impacts (e.g., dewatering, discharge, excavation, fill, runoff, sedimentation, changes in hydrology));Wetland impacts (e.g., dewatering, tiling, drainage, discharge, excavation, fill, runoff, sedimentation, changes in hydrology)

TRS: T136 R46 S6, T136 R47 S1, T137 R46 S30, T137 R46 S31, T137 R46 S32, T137 R46 S33, T137 R47 S10, T137 R47 S14, T137 R47 S15, T137 R47 S23, T137 R47 S24, T137 R47 S25 +

County(s): Clay, Wilkin

DNR Admin Region(s): Northwest

Reason Requested: State EAW

Project Description: Phase 2 of restoration includes approximately 9.27 miles of the South Tributary of Whiskey Creek. The project components for phase 2 of the restoration ...

Existing Land Uses: Current land-use within the project area is predominately stream and county ditch systems surrounded by croplands and hay fields. There are some areas ...

Landcover / Habitat Impacted: The majority of the impacts will occur within the low flow channel of aforementioned segment of the South Tributary and the adjacent riparian/floodplain. ...

Waterbodies Affected: The waterbody is a portion of the South Tributary to the Whisky Creek and adjacent wetlands. The majority of the impacts will be riverbed disturbance that ...

Groundwater Resources Affected: There are no anticipated groundwater impacts.

Previous Natural Heritage Review: No

Previous Habitat Assessments / Surveys: No

SUMMARY OF AUTOMATED RESULTS

Category	Results	Response By Category
Project Details	No Comments	No Further Review Required
Ecologically Significant Area	No Comments	No Further Review Required
State-Listed Endangered or Threatened Species	No Comments	No Further Review Required
State-Listed Species of Special Concern	Comments	Recommendations
Federally Listed Species	No Records	Visit IPaC For Federal Review

DEPARTMENT OF NATURAL RESOURCES

Minnesota Department of Natural Resources
Division of Ecological & Water Resources
500 Lafayette Road, Box 25
St. Paul, MN 55155-4025

April 1, 2024

Project ID: MCE #2024-00336

Benjamin Hengel
Houston Engineering
1401 21st Avenue North
Fargo, ND 58102

RE: Automated Natural Heritage Review of the proposed Buffalo-Red River Watershed District Channel Restoration Project - Phase 2
See Cover Page for location and project details.

Dear Benjamin Hengel,

As requested, the above project has been reviewed for potential effects to rare features. Based on this review, the following rare features may be adversely affected by the proposed project:

Ecologically Significant Area

No ecologically significant areas have been documented in the vicinity of the project.

State-Listed Endangered or Threatened Species

No state-listed endangered or threatened species have been documented in the vicinity of the project.

State-Listed Species of Special Concern

Taxonomic Group	Common Name	Scientific Name	Water Regime	Habitat	Federal Status
Vertebrate Animal	Greater Prairie-chicken	Tympanuchus cupido		Upland Prairie	

- The above table identifies state-listed species of special concern that have been documented in the vicinity of your project. If suitable habitat for any of these species occurs within your project footprint or activity impact area, the project may negatively impact those species. To avoid impacting state-listed species of special concern, the DNR recommends modifying the location of project activities to avoid suitable habitat or modifying the timing of project activities to avoid the presence of the species. Please visit the DNR Rare Species Guide for more information on the habitat use of these species and recommended measures to avoid or minimize impacts. For further assistance, please contact the appropriate DNR Regional Nongame Specialist or Regional Ecologist. Species-specific

comments, if any, appear below.

Federally Listed Species

The Natural Heritage Information System does not contain any records for federally listed species within one mile of the proposed project. Please note, however, that not all federally listed species are tracked within the NHIS. To ensure compliance with federal law, please conduct a federal regulatory review using the U.S. Fish and Wildlife Service's online Information for Planning and Consultation (IPaC) tool.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area. If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location and the project description provided on the cover page. If project details change or construction has not occurred within one year, please resubmit the project for review.

The Natural Heritage Review does not constitute project approval by the Department of Natural Resources. Instead, it identifies issues regarding known occurrences of rare features and potential effects to these rare features. For information on the environmental review process or other natural resource concerns, you may contact your DNR Regional Environmental Assessment Ecologist.

Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources.

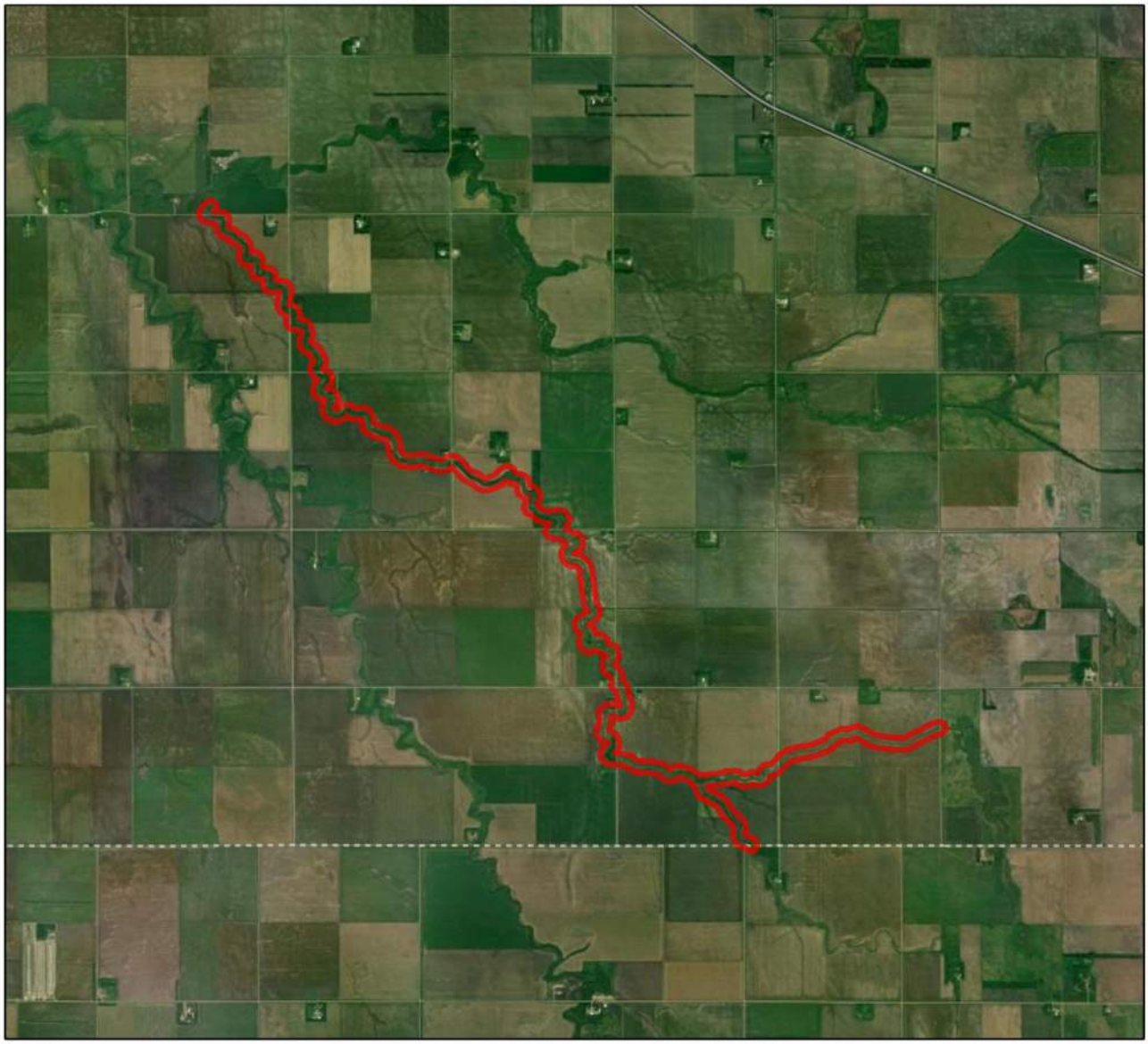
Sincerely,

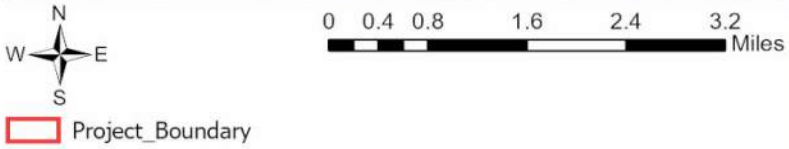
Jim Drake Jim Drake
Natural Heritage Review Specialist
James.F.Drake@state.mn.us

Links: USFWS Information for Planning and Consultation (IPaC) tool
Information for Planning and Consultation (IPaC) tool
DNR Regional Environmental Assessment Ecologist Contact Info
https://www.dnr.state.mn.us/eco/ereview/erp_regioncontacts.html

Red River Watershed District Channel Restoration Project -

Aerial Imagery With Locator Map





Project Type: Natural Resource Management, Water Resources

Project Size (acres): 435.48

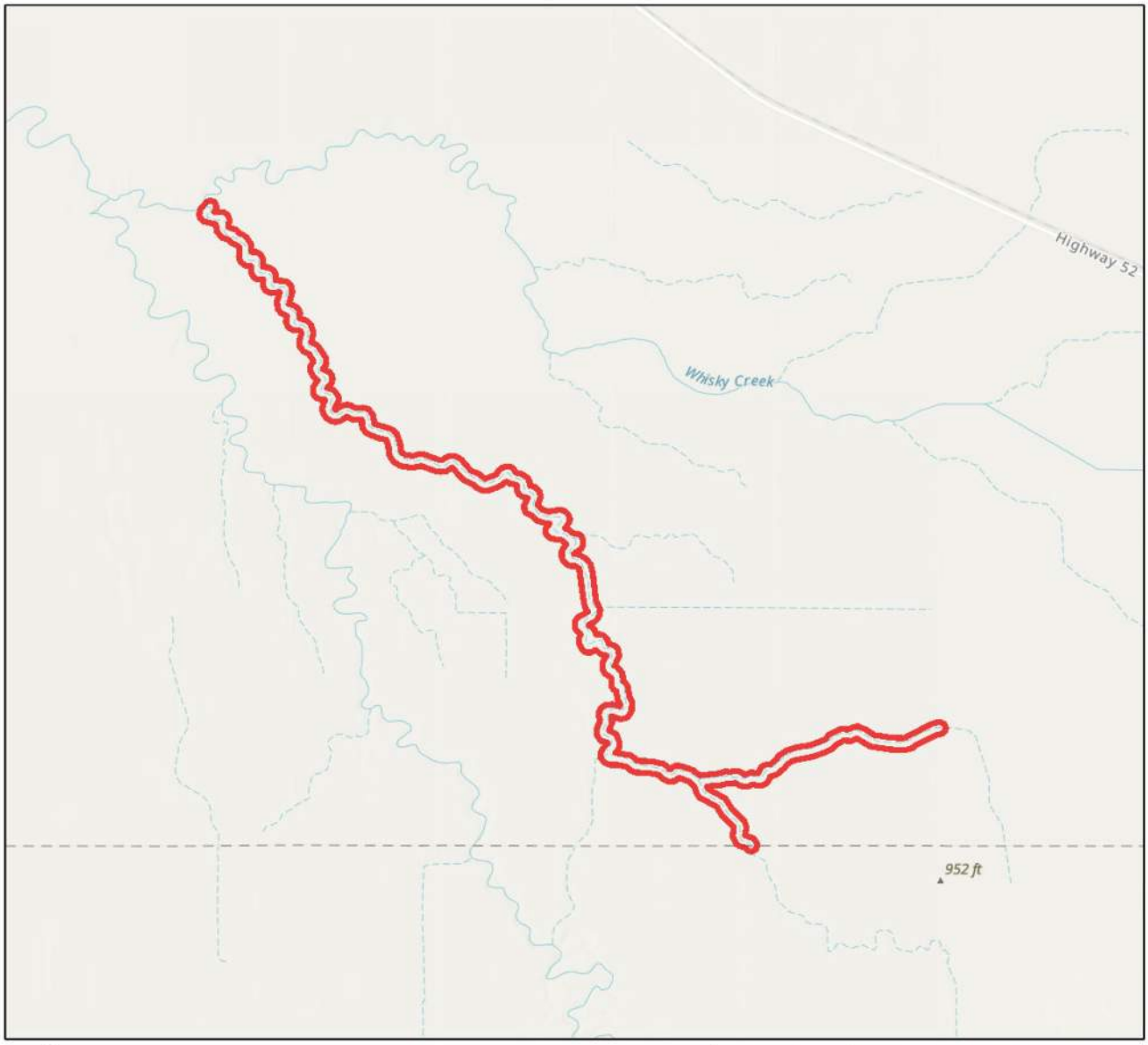
County(s): Clay, Wilkin

TRS: T136 R46 S6, T136 R47 S1, T137 R46 S30, T137 R46 S31, T137 R46 S32 +

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS
Fargo, North Dakota, Earthstar Geographics
State of North Dakota, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc,

Red River Watershed District Channel Restoration Project -

USA Topo Basemap With Locator Map



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0 0.4 0.8 1.6 2.4 3.2 Miles

Project_Boundary

Project Type: Natural Resource Management, Water Resources

Project Size (acres): 435.48

County(s): Clay, Wilkin

TRS: T136 R46 S6, T136 R47 S1, T137 R46 S30, T137 R46 S31, T137 R46 S32 +

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS
Esri, NASA, NGA, USGS
State of North Dakota, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc,

Attachment 3

U.S. FWS Threatened and Endangered Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
Phone: (952) 858-0793

In Reply Refer To: 04/01/2024 13:47:30 UTC
Project Code: 2024-0069851
Project Name: BRRWD Restoration Project

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

To Whom It May Concern:

This response has been generated by the Information, Planning, and Conservation (IPaC) system to provide information on natural resources that could be affected by your project. The U.S. Fish and Wildlife Service (Service) provides this response under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*).

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

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

Consultation Technical Assistance
Please refer to refer to our Section 7 website for guidance and technical assistance, including step-by-step instructions for making effects determinations for each species that might be present and for specific guidance on the following types of projects: projects in developed areas, HUD, CDBG, EDA, USDA Rural Development projects, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

We recommend running the project (if it qualifies) through our **Minnesota-Wisconsin Federal Endangered Species Determination Key (Minnesota-Wisconsin ("D-key"))**. A demonstration video showing how-to access and use the determination key is available. Please note that the Minnesota-Wisconsin D-key is the third option of 3 available d-keys. D-keys are tools to help Federal agencies and other project proponents determine if their proposed action has the potential to adversely affect federally listed species and designated critical habitat. The Minnesota-Wisconsin D-key includes a structured set of questions that assists a project proponent in determining whether a proposed project qualifies for a certain predetermined consultation outcome for all federally listed species found in Minnesota and Wisconsin (except for the northern long-eared bat- see below), which includes determinations of “no effect” or “may affect, not likely to adversely affect." In each case, the Service has compiled and analyzed the best available information on the species’ biology and the impacts of certain activities to support these determinations.

If your completed d-key output letter shows a "No Effect" (NE) determination for all listed species, print your IPaC output letter for your files to document your compliance with the Endangered Species Act.

For Federal projects with a “Not Likely to Adversely Affect” (NLAA) determination, our concurrence becomes valid if you do not hear otherwise from us after a 30-day review period, as indicated in your letter.

If your d-key output letter indicates additional coordination with the Minnesota-Wisconsin Ecological Services Field Office is necessary (i.e., you get a “May Affect” determination), you will be provided additional guidance on contacting the Service to continue ESA coordination outside of the key; ESA compliance cannot be concluded using the key for “May Affect” determinations unless otherwise indicated in your output letter.

Note: Once you obtain your official species list, you are not required to continue in IPaC with d-keys, although in most cases these tools should expedite your review. If you choose to make an effects determination on your own, you may do so. If the project is a Federal Action, you may want to review our section 7 step-by-step instructions before making your determinations.

Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species

1. If IPaC returns a result of “There are no listed species found within the vicinity of the project,” then project proponents can conclude the proposed activities will have **no effect** on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for **no effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.
2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project – other than bats (see below) – then project proponents must determine if proposed activities will have **no effect** on or **may affect** those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain Life History Information for Listed and Candidate Species on our office website. If no impacts will occur to a species on the IPaC species list (e.g., there is no habitat present in the project area), the appropriate determination is **no effect**. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.

3. Should you determine that project activities **may affect** any federally listed, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

Northern Long-Eared Bats
Northern long-eared bats occur throughout Minnesota and Wisconsin and the information below may help in determining if your project may affect these species.

This species hibernates in caves or mines only during the winter. In Minnesota and Wisconsin, the hibernation season is considered to be November 1 to March 31. During the active season (April 1 to October 31) they roost in forest and woodland habitats. Suitable summer habitat for northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches dbh for northern long-eared bat that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat and evaluated for use by bats. If your project will impact caves or mines or will involve clearing forest or woodland habitat containing suitable roosting habitat, northern long-eared bats could be affected.

Examples of unsuitable habitat include:

- Individual trees that are greater than 1,000 feet from forested or wooded areas,
- Trees found in highly developed urban areas (e.g., street trees, downtown areas),
- A pure stand of less than 3-inch dbh trees that are not mixed with larger trees, and
- A monoculture stand of shrubby vegetation with no potential roost trees.

If IPaC returns a result that northern long-eared bats are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities **may affect** this species **IF** one or more of the following activities are proposed:

- Clearing or disturbing suitable roosting habitat, as defined above, at any time of year,
- Any activity in or near the entrance to a cave or mine,
- Mining, deep excavation, or underground work within 0.25 miles of a cave or mine,
- Construction of one or more wind turbines, or
- Demolition or reconstruction of human-made structures that are known to be used by bats based on observations of roosting bats, bats emerging at dusk, or guano deposits or stains.

If none of the above activities are proposed, project proponents can conclude the proposed activities will have **no effect** on the northern long-eared bat. Concurrence from the Service is not required for **No**

Effect determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.

If any of the above activities are proposed, and the northern long-eared bat appears on the user's species list, the federal project user will be directed to either the range-wide northern long-eared bat D-key or the Federal Highways Administration, Federal Railways Administration, and Federal Transit Administration Indiana bat/ Northern long-eared bat D-key, depending on the type of project and federal agency involvement. Similar to the Minnesota-Wisconsin D-key, these d-keys helps to determine if prohibited take might occur and, if not, will generate an automated verification letter.

Please note: On November 30, 2022, the Service published a proposal final rule to reclassify the northern long-eared bat as endangered under the Endangered Species Act. On January 26, 2023, the Service published a 60-day extension for the final reclassification rule in the Federal Register, moving the effective listing date from January 30, 2023, to March 31, 2023. This extension will provide stakeholders and the public time to preview interim guidance and consultation tools before the rule becomes effective. When available, the tools will be available on the Service's northern long-eared bat website (https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis). Once the final rule goes into effect on March 31, 2023, the 4(d) D-key will no longer be available (4(d) rules are not available for federally endangered species) and will be replaced with a new Range-wide NLEB D-key (range-wide d-key). For projects not completed by March 31, 2023, that were previously reviewed under the 4(d) d-key, there may be a need for reinitiation of consultation. For these ongoing projects previously reviewed under the 4(d) d-key that may result in incidental take of the northern long-eared bat, we recommend you review your project using the new range-wide d-key once available. If your project does not comply with the range-wide d-key, it may be eligible for use of the Interim (formal) Consultation framework (framework). The framework is intended to facilitate the transition from the 4(d) rule to typical Section 7 consultation procedures for federally endangered species and will be available only until spring 2024. Again, when available, these tools (new range-wide d-key and framework) will be available on the Service's northern long-eared bat website.

Whooping Crane
Whooping crane is designated as a non-essential experimental population in Wisconsin and consultation under Section 7(a)(2) of the Endangered Species Act is only required if project activities will occur within a National Wildlife Refuge or National Park. If project activities are proposed on lands outside of a National Wildlife Refuge or National Park, then you are not required to consult. For additional information on this designation and consultation requirements, please review "Establishment of a Nonessential Experimental Population of Whooping Cranes in the Eastern United States."

Other Trust Resources and Activities
Bald and Golden Eagles - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. Should bald or golden eagles occur within or near the project area please contact our office for further coordination. For communication and wind energy projects, please refer to additional guidelines below.

Migratory Birds - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA to proactively prevent the

mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

Communication Towers - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed voluntary guidelines for minimizing impacts.

Transmission Lines - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. To minimize these risks, please refer to guidelines developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

Wind Energy - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's Wind Energy Guidelines. In addition, please refer to the Service's Eagle Conservation Plan Guidance, which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

State Department of Natural Resources Coordination
While it is not required for your Federal section 7 consultation, please note that additional state endangered or threatened species may also have the potential to be impacted. Please contact the Minnesota or Wisconsin Department of Natural Resources for information on state listed species that may be present in your proposed project area.

Minnesota
Minnesota Department of Natural Resources - Endangered Resources Review Homepage
Email: Review.NHIS@state.mn.us

Wisconsin
Wisconsin Department of Natural Resources - Endangered Resources Review Homepage
Email: DNRERReview@wi.gov

We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

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

This species list is provided by:

Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
(952) 858-0793

PROJECT SUMMARY

Project Code: 2024-0069851
Project Name: BRRWD Restoration Project
Project Type: Restoration / Enhancement of Waterbody
Project Description: The Buffalo-Red River Watershed District is proposing a two-phase channel restoration project that includes segments of Whiskey Creek and the South Tributary. The goal of the project is to provide flood damage reduction to adjacent agriculture fields while providing Natural Resource Enhancements (NRE). In general, the project involves restoring the low-flow channels and stabilizing and improving the channel floodplains. This will improve the aquatic habitats and adjacent riparian habitats but also provide flood damage reductions by reducing the erosion and sedimentation within the channel.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@46.66874425,-96.49309124091008,14z

Counties: Clay and Wilkin counties, Minnesota

ENDANGERED SPECIES ACT SPECIES

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis*	Endangered

No critical habitat has been designated for this species.

This species only needs to be considered under the following conditions:

- This species only needs to be considered if the project includes wind turbine operations.

Species profile: https://ecos.fws.gov/ecp/species/9045

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.

Species profile: https://ecos.fws.gov/ecp/species/9743

CRITICAL HABITATS

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

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

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

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

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

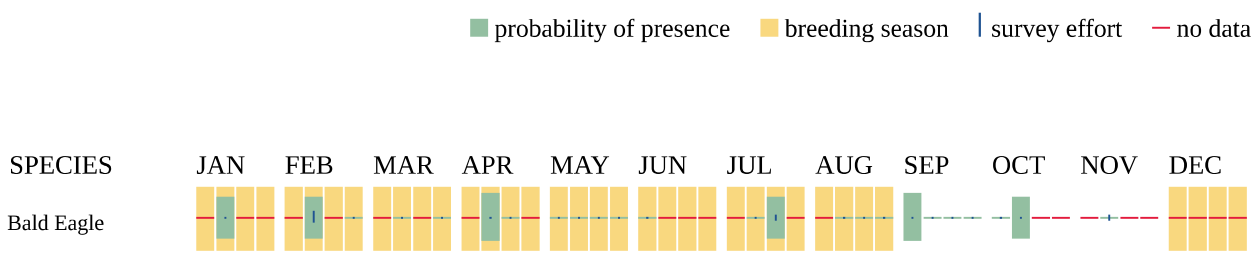
Probability of Presence (▪)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Non-BCC
Vulnerable

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31

NAME	BREEDING SEASON
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9454	Breeds May 20 to Jul 31
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Franklin's Gull *Leucophaeus pipixcan* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10567	Breeds May 1 to Jul 31
Western Grebe *aechmophorus occidentalis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

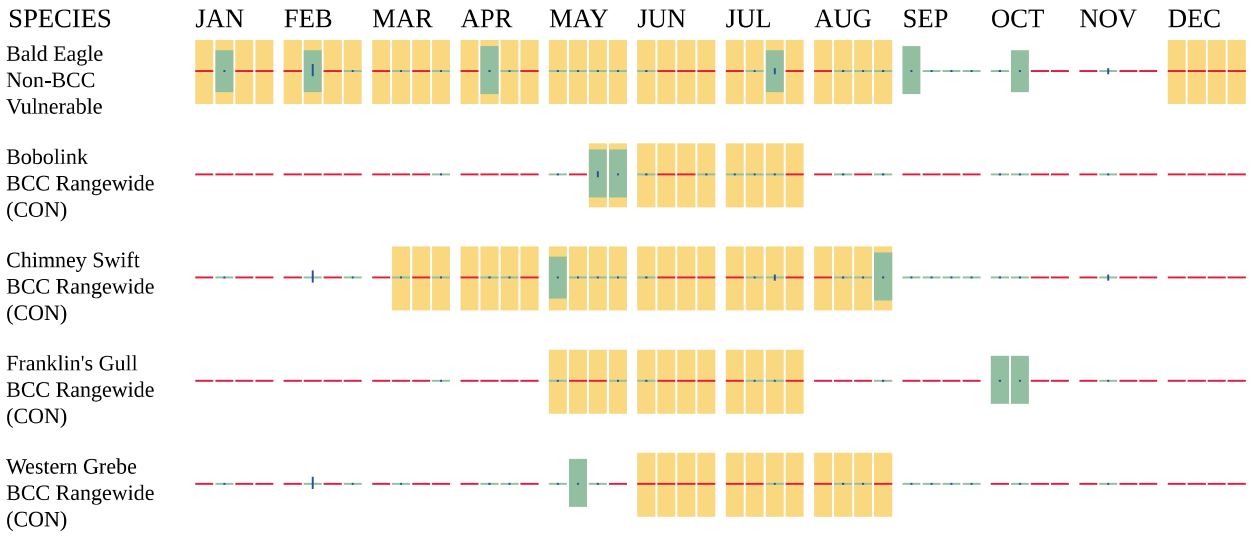
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

■ probability of presence ■ breeding season | survey effort – no data



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

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

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

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

FRESHWATER POND

- PUBF
- PUBFx

FRESHWATER FORESTED/SHRUB WETLAND

- PFO1A

- PSS1Cx
- PSS1A
- PFO1Ad
- PSS1C
- PFO1C

FRESHWATER EMERGENT WETLAND

- PEM1F
- PEM1Ad
- PEM1C
- PEM1Cx
- PEM1A
- PEM1Af
- PEM1Cd

RIVERINE

- R5UBH
- R2UBH
- R5UBFx
- R2UBHx
- R4SBC

IPAC USER CONTACT INFORMATION

Agency: Houston Engineering
Name: Benjamin Hengel
Address: 1401 21st. Ave. N
City: Fargo
State: ND
Zip: 58102
Email bhengel@houstoneng.com
Phone: 7014999468

LEAD AGENCY CONTACT INFORMATION

Lead Agency: County of Clay