

**Summary of Environmental Impacts
and Logical Termini Assessment
for
US Route 54
from
Mexico to Louisiana in Audrain, Ralls and Pike Counties,
Missouri
MoDOT Job No. J2P3447**

April 6, 2023

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List of Abbreviations and Acronyms

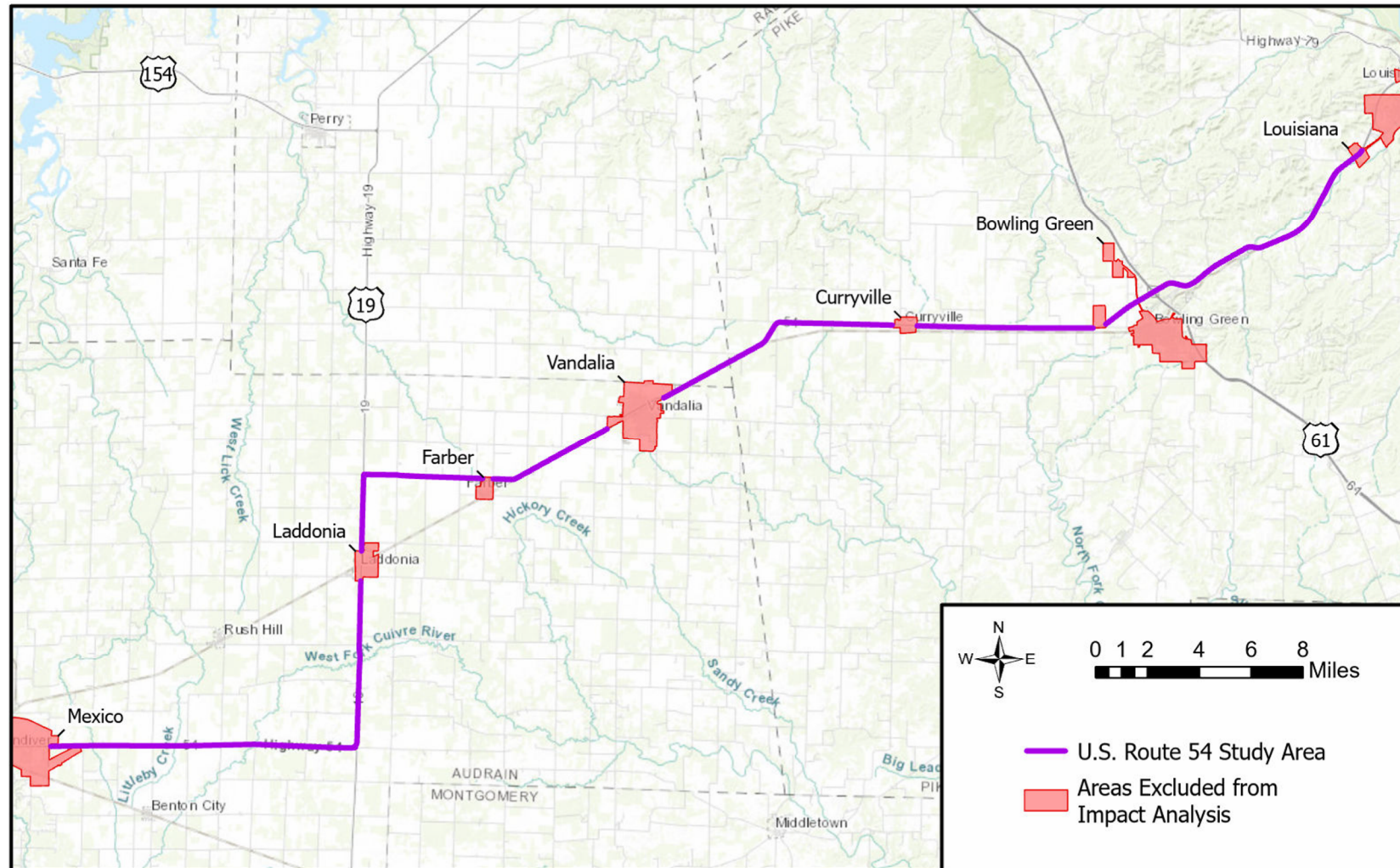
AADT	Average Annual Daily Traffic
ADT	Average Daily Traffic
ACS	American Community Survey
AASHTO	American Association of State Highway and Transportation Officials
BMP	Best Management Practices
CFR	Code of Federal Regulations
DDI	Diverging Diamond Interchange
EA	Environmental Assessment
EIS	Environmental Impact Statement
E-Start	Environmental Site Tracking and Research Tool
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
IPaC	Information for Planning and Consultation
I-70	Interstate 70
LOS	Level of Service
MDC	Missouri Department of Conservation
MDNR	Missouri Department of Natural Resources
MoDOT	Missouri Department of Transportation
NHD	National Heritage Database
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
NRCS	Natural Resources Conservation Service
ROD	Record of Decision
SHPO	State Historic Preservation Officer
SIU	Section of Independent Utility
SEMA	State Emergency Management Agency
USACE	U.S. Army Corps of Engineers
USCB	U.S. Census Bureau
USFWS	U.S. Fish and Wildlife Service
USDOT	U.S. Department of Transportation
WOUS	Waters of the U.S.

Introduction

The study area for this project extends from Mexico to Louisiana following US Route 54 in Audrain, Ralls and Pike counties and is nominally 150 feet wide. It is referred to as MoDOT Project J2P3447 and is shown below in **Figure 1**. In 2002, a Final Environmental Impact Statement was completed under project number J3P0533 for US 54 from the Mexico bypass east to the Bowling Green bypass, signed on June 7, 2002. The EIS also included portions of State Routes 19, 154 and 107 not included in this project. Included in MoDOT Project J2P3447 but not included in the 2002 EIS, is a segment of US 54 from Bowling Green to Louisiana, MO.

This document provides a summary of potential impacts within the project footprint. It does not reach the level of documentation that would be required to satisfy the National Environmental Policy Act (NEPA) (23 Code of Federal Regulations [CFR] 771.129) and associated laws and is not considered a part of that process. The Federal Highway Administration (FHWA) and MoDOT's Engineering Policy Guide (EPG) require a re-evaluation when there has been more than three years since the Record of Decision was signed or when changes related to the original study have occurred. A re-evaluation also requires validating the original purpose and need. Due to the length of time between the current project and the previous environmental studies, a re-evaluation of the 2002 EIS may be required in accordance with NEPA.

Figure 1: US 54 Project Corridor



Background

The 2002 EIS described the project as upgrading US 54 to a four-lane divided highway with bypasses of the small communities along its route as well as interchanges planned at major intersections. Access points would be consolidated and limited between communities as well. In the intervening years, traffic volumes have not increased and the population growth in the region has not risen at the rate projected. In addition, fiscal constraints limited MoDOT's ability to move forward with this project. The southern bypass of Mexico was constructed in the early 1990's prior to the writing of the EIS.

The 2002 EIS selected alternative included bypasses of Mexico, Laddonia, Farber, Vandalia, Curryville, Rush Hill (County Road B), and Center (Route 19). The selected alternate proposed that a significant length of Route 54 would be built on a new alignment between Mexico and Vandalia. The project, located in Audrain, Monroe, Pike and Ralls counties, also included improvements to Route 19 north to New London; Route 154 from Route 19 to Route 107; and Route 107 to Mark Twain Lake. These bypasses and additional roadways are not included as part of the US 54 Project J2P3447.

Purpose and Need

The 2002 EIS stated that "the need for the proposed improvements is caused by a combination of factors relating to system linkage and route importance, transportation and land use planning, future transportation demand, economic development, local community interests and deficiencies in the operation of the existing highway system."

The purpose of the proposed improvements include the following objectives as stated in the EIS:

- Improve system linkage to the national and regional highway network;
- Provide an expandable transportation system with additional capacity to accommodate forecasted traffic volumes;
- Improve operational efficiency and safety for through and local traffic, particularly in the communities along US 54 and Route 19;
- Enhance transportation service to the existing and planned economic development in the project area and within the northeast Missouri region; and
- Provide route continuity and system solutions to serve transportation demand and travel patterns to Mark Twain Lake.

Improve System Linkage to the National and Regional Highway Network

US 54 and Route 19 (part of the original project area) are included in the National Highway System and provide the principal connections in northeastern Missouri to two other NHS highways, U.S. Route 61 to the east, and I-70 to the south. These routes also connect metropolitan areas and tourism resources throughout Missouri. These routes also serve a broad agribusiness economy. US 54 is four lanes between Mexico and I-70. The Routes 54/19/107 (original project) was included in the Plan of 1992 which provided for four-lane highway service between rural cities and major lakes.

This element of the original Purpose and Need remains applicable to the proposed project area and US 54.

[Provide an Expandable Transportation System with Additional Capacity to Accommodate Forecast Traffic Volumes](#)

The capacity of Routes 54 and 19 is affected by a number of transportation demand factors such as traffic volumes and mix, travel patterns, existing and planned economic development. The 1994 origin/destination survey conducted by MoDOT found that nearly 60 percent of the trips on Routes 54 and 19 transport raw materials and finished products. It was planned that industrial expansion in Vandalia and Mexico, and the prisons at Bowling Green and Vandalia would generate additional demand. The number of lake users utilizing these routes to access the Mark Twain Lake recreation area were expected to increase. Traffic forecasts showed that the ADT on US 54 would double by 2025, the design year.

This element of the original Purpose and Need remains applicable to the proposed project area and US 54.

[Improve Operational Efficiency and Safety for Through and Local Traffic, Particularly in the Communities Along US 54 and Route 19](#)

Conflicts between local and through traffic, reduced speeds and stops in communities, and geometric deficiencies affected the operating speed, efficiency, and safety on Routes 54 and 19. It was anticipated that with increased traffic volumes, the existing highway operational problems and geometric deficiencies will become more evident, travel will become more difficult and less safe. Both routes had narrow shoulders, substandard local road intersections, and lack of adequate safety clear zones.

Between 1990 and 1994, there were 262 accidents on US 54 (the original project area), including 7 fatal accidents (10 fatalities) and 82 personal injury accidents. At Scott's Corner (US 54 at Route 19 southern intersection) and along the segments of US 54 in Farber and Vandalia, total accident rates exceeded the statewide averages by 32 percent, 27 percent, and 372 percent, respectively. The accidents were attributed to high traffic volumes, lack of separate turn lanes, conflicts between faster moving through traffic and slow-moving vehicles entering and exiting numerous and closely spaced access points, and lack of separation between opposing traffic lanes.

This element of the original Purpose and Need remains applicable to the proposed project area and US 54.

[Enhance Transportation Service to the Existing and Planned Economic Development in the Project Area and Within the Northeast Missouri Region](#)

Planned industrial expansion in Vandalia and Mexico, and the prisons at Bowling Green and Vandalia were expected to generate additional demand. The project's proximity to St. Louis was part of the discussion as important for companies seeking rural locations near urban centers. Economic benefits include the enhanced public perception of the project area. The second economic benefit lies in reduced costs of moving people and goods. These benefits enhance regional and national competitiveness.

This element of the original Purpose and Need remains applicable to the proposed project area and US 54.

Provide Route Continuity and System Solutions to Serve Transportation Demand and Travel Patterns to Mark Twain Lake

Routes 54 and 19 are major tourism links to the Mark Twain Lake recreation area. The EIS identified improvements needed to safely accommodate future transportation demand. Mark Twain Lake and Mark Twain State Park were identified as major recreation destinations for Missouri residents and out-of-state visitors. Most visitors came from outside a 50-mile radius of the lake.

This element of the original Purpose and Need is **not** applicable to the proposed project area and US 54.

Project Under Consideration

The proposed project J2P3447 would improve the US 54 by converting the existing 2-lane roadway to a shared 4-lane roadway along the 55-mile corridor. A shared 3-lane will allow most of the improvements will be completed within existing MoDOT right-of-way. The detailed study area maps are shown below in **Appendix A**.

Logical Termini

According to FHWA, logical termini for project development are defined as (1) rational end points for a transportation improvement, and (2) rational end points for a review of the environmental impacts. The environmental impact review frequently covers a broader geographic area than the strict limits of the transportation improvements. Further, FHWA has criteria to ensure meaningful evaluation of alternatives as part of a NEPA document:

1. Connect logical termini and be of sufficient length to address environmental matters on a broad scope;
2. Have independent utility or independent significance, i.e., be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made; and
3. Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

For the US 54 project J2P3447, logical termini are suggested as follows:

- Mexico to Scott's Corner (US 54 at Route 19 southern intersection)
- Scott's Corner to Bassinger's Corner (US 54 at Route 19 northern intersection)
- Bassinger's Corner to Jennings's Corner (US 54 at Route 154 intersection)
- Jennings's Corner to Bowling Green
- Bowling Green to Louisiana

Public and Agency Coordination

Public and agency coordination plans will be developed once funding has been dedicated to this project and it has moved into the NEPA phase.

Resource Impact Evaluation

The information below identifies resource impacts within the US 54 study area from a desktop evaluation, in association with Project J2P3447. Following this narrative is a summary table of the impact evaluation findings (**Table 1**). A map identifying environmental resources within the US 54 Project J2P3447, is included in **Appendix A**.

Population and Employment

The study area includes large portions of Audrain and Pike Counties and a very small portion of Ralls County. Audrain County's population in 2020 was 25,336, Pike County was 18,158, and Ralls County was 10,258. The population of Audrain and Pike counties have declined over the past ten years. Ralls County saw a small increase in population between 2010 at 2020.

The unemployment rate for Missouri in 2020 was 4.5 percent. The three counties all have slightly higher unemployment rates. The census tract unemployment rates range from 2.2 to 8.8 percent. The most common employment categories in the three counties include: Educational Services & Health Care & Social Assistance; Manufacturing; and Retail Trade.

More information on Population and Employment can be found in **Appendix B**.

Land Use

According to review of current aerial imagery, the US 54 project corridor is dominated by agricultural land. Most of the land appears to be row crops. Farmsteads, rural homes, and some rural businesses are present. Business land use increases closer to the towns. East of US 61, there is a significant amount of wooded and riparian vegetation associated with streams. Farmland and interspersed businesses are also present. Neither Audrain nor Pike County have land use plans or zoning regulations in place with one exception. Pike County has a letter on their website that states in part, "This letter is to certify that the County of Pike has no planning and zoning laws or ordinances except for floodplain areas. Any construction in a floodplain area must obtain a permit from the local Emergency Management Director." The US 54 improvements would have no negative impact on community land use plans and policies.

Community Resources

Community resources that fall within the study corridor footprint include the following:

- Two schools, Community R-6 High School (located at Scott's Corner), Van-Far R1 High School (west of Vandalia);
- Two cemeteries, Evergreen Memorial Gardens Cemetery, which is located just southwest of Vandalia and the Gates of Peace Cemetery which is located at the far eastern terminus of the study corridor, just west of Louisiana.
- There are three churches, the Refuge Church of Pike County MO (east of the US 61 interchange), Noix Creek Baptist Church (west of Louisiana), and Our Lady of Good Success (eastern terminus of the study corridor).
- Two country clubs, Vandalia Country Club and Pike County Country Club, are privately owned and require a membership to utilize the facilities.

Displacements

The number of acres that might be impacted by the potential future project are not determined at this time. It is anticipated that construction would occur almost entirely within existing right of way. A more detailed analysis of any impacts to areas outside of MoDOT right of way will occur during the NEPA process.

In the EIS there were 23 residences that would be relocated with the Preferred Alternative. This project area would be expected to impact fewer residences by nature of impacting less area than the EIS did. Based on the desktop survey, the current project corridor footprint would impact fewer residences although the properties may still be impacted.

Environmental Justice

EO 12898 mandates some federal-executive agencies to consider environmental justice as part of the NEPA analysis by identifying and addressing disproportionately high and adverse human health or environmental effects on minority and low-income populations.

US 54 crosses Audrain, Pike and Ralls counties. There are nine census tracts including four in Audrain (9501, 9502, 9504, and 9507), four in Pike (4601, 4602, 4603, 4604), and 1 in Ralls (4703) County. From 2010 to 2020, Audrain and Pike counties have had negative population growth whereas Ralls County has grown by under one percent. Missouri's percentage of minorities is around 19 percent. Audrain and Pike counties both have minority populations of 10 percent, while Ralls County has a minority population of over five percent. There are no census tracts in the Study Area that have a higher minority percentage than the State of Missouri. However, in Audrain County Census Tract 9501 and 9507 have over 16 and 15 percent minority populations respectively. This is higher than the county minority percentage of 10 percent. In Pike County, Census Tract 4601 and 4607 have minority populations that are higher than the county. When considering the age of the population, Missouri, Audrain County, Pike County all have around 17 percent of their population 65 years and older. In Ralls County, over 21 percent of the population is 65 years and older. Census Tracts 9502 and 9504 have a higher percentage of individuals 65 and over than Audrain County. Census Tracts 4601 and 4602 have populations of 65 and over of 19 and 18 percent respectively. This is higher than the Pike County population of 65 and over.

The 2002 FEIS analysis identified environmental justice populations in the study area that would experience disproportionately high and adverse effects resulting from one of the bypass alternatives. However, the bypasses were not constructed and are not being considered as part of Project J23447. No disproportionate impacts to environmental justice populations would be expected to occur as part of this project.

Soils and Geology

Construction would require the permanent clearing of vegetation along areas where additional roadway would be constructed. Thus, the soils present within the project area may become more erodible during the construction phase. However, areas temporarily cleared of vegetation would be introduced with site-appropriate seed upon completion of construction, lessening the erosion hazard and minimizing the impact. In addition, to minimize potential soil erosion during construction activities, MoDOT's Sediment and Erosion Control Program would be followed and measures described in the approved Pollution Prevention Plan, such as the utilization of berms, slope drains, ditch checks, sediment basins, silt fences,

rapid seeding and mulching, and other erosion control devices or methods would be implemented as needed. Impacts to soils and geology would be expected to be minor.

Surface Water Resources

Surface water resources within the study area have been identified. These resources are the total within all five segments of the corridor. This does not mean that these resources will be impacted, only that there is a potential to impact those identified. More detailed analysis will be determined during the NEPA phase of any future projects in the study area.

In the EIS the impacts to wetlands included approximately 8 acres. Wetland areas included in the National Wetland Inventory within the current study corridor footprint total 8.1 acres.

There are 62 stream crossings which add up to 13,612 linear feet of streams within the current project corridor.

Groundwater

The improvements anticipated are expected to occur mainly within the existing right of way and involve minimal excavation. Construction activities are not expected to impact groundwater in this area.

Floodplains

The EIS indicated that the Preferred Alternative would have impacts to 12.35 acres of floodplains. A check of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) indicates 28 acres of 100-Year Floodplain within the current project corridor footprint.

Since there would likely be temporary soil disturbance during construction activities, sediment and erosion control best management practices (BMPs) will need to be utilized during construction and disturbed areas will need to be seeded following construction.

Public Lands

Section 4(f) states that land from a publicly owned park, recreation area, wildlife or waterfowl refuge, or land of a historic site can be used for a transportation project only if there is no feasible and prudent alternative and all possible measures have been taken to minimize harm.

In the EIS, there were no public lands impacted by the project. There are Section 6(f)/Section 4 (f) properties that were inventoried in the area, but none were impacted by any of the alternatives. Many of these properties are in portions of the study area that are not included in the current project corridor.

There are no publicly owned lands within the footprint of the current project corridor.

Prime Farmland

In the EIS there were approximately 1,700 acres of prime farmland impacted by the Preferred Alternative. This project area would be expected to impact fewer acres and residences by nature of impacting less area than the EIS did. There are fewer than 200 acres of prime farmland within the current project corridor footprint.

Threatened and Endangered Species

In the EIS, the only federally listed endangered species was the Indiana bat whose range was considered to overlap with the project area. There was also potential for bald eagles over wintering near Mark Twain Lake. At the time of the EIS, Missouri Department of Conservation (MDC) identified the possibility of Slender Ladies' Tresses was on the state watch list. The MDC also indicated that prairie chickens and their "booming grounds" or leks may be located near the proposed improvements. The Preferred Alternative was determined to not be adjacent or directly impacting any known leks.

Based on the IPaC review through U.S. Fish and Wildlife Service (USFWS) conducted in February 2023 (**Appendix C**) identified some species listed Federally. The endangered species list includes the gray bat (*Myotis grisescens*) and the Indiana bat (*Myotis sodalist*). The review indicated that the project location does not overlap with Indiana bat critical habitat. The northern long-eared bat (*Myotis septentrionalis*) and spectaclecase mussel (*Cumberlandia monodonta*) are on the threatened species list. Proposed for the endangered species list is the tricolored bat (*Perimyotis subflavus*). The monarch butterfly (*Danaus plexippus*) is a candidate species but not yet listed or proposed for listing. There are no critical habitats within the project area.

The Natural Heritage Review (**Appendix D**) identified Indiana bats (which is also state-listed endangered) and northern long-eared bat as possibly occurring near the project area. The project corridor is within the range of the gray bat (also state-listed endangered) in Missouri. There is a potential for impacts to these species.

Noise

Several potentially sensitive receptors, including the Community R-6 High School at Scott's Corner, were identified and evaluated in the EIS. Some of these may need to be reevaluated during the NEPA phase of the project.

Cultural Resources

There were seven sites that were eligible for the National Register of Historic Places (NRHP) identified in the EIS. Four of these properties would have potentially been impacted by the Preferred Alternative. There are no NRHP buildings or districts identified within the current project corridor footprint.

The EIS identified five listed archaeological sites near the proposed Build Alternatives. Once the Preferred Alternative was identified, a Phase I archaeological survey identified fifteen lithic scatters, thirty isolated finds and eleven historic scatters. Most of these sites were located with the segment north of Route J, along Routes O, D and E. No further testing was recommended due to the nature of the sites and severe erosion problems within the project area. There are no known archaeological sites within the current project study footprint.

Hazardous Materials

In the EIS there were six hazardous materials sites along the system alternatives. Three of these sites were along US 54 between Scott's Corner and Mexico. The status of these sites may have changed or additional sites may have been added since the EIS was completed. This will need to be investigated further during the NEPA process.

Table 1: Potential Environmental Impacts

US 54: Segments		<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
Community Impacts						
National Register of Historic Places (Buildings or Districts)	No.	0	0	0	0	0
Potential Low Income or Minority Populations (EJ)	Yes/No	No	No	No	No	No
Community Resources						
Schools	No.	0	1	0	0	0
Cemeteries	No.	0	0	1	0	1
Churches	No.	0	0	0	0	3
Country Club	No.	0	0	0	0	1
Parks	No.	0	0	0	0	0
Environmental Impacts						
Hazardous Material Sites (RCRA)	No.	1	0	2	1	2
Stream Crossings	No.	11	6	14	8	23
Linear feet of stream	No. feet	1752.1	3437.1	2251.8	1361.2	4,810.1
NWI Impacts	acre	1.0	2.1	1.4	0.8	2.8
Potential Threatened/Endangered Species Habitat	Yes/No	Yes	Yes	Yes	Yes	Yes
Wooded Areas	acre	0.6	8.6	2.2	1.9	1.2
Prime Farmland	acre	33.6	36.5	20.2	11.6	81.4
100-Year Floodplain Impacts	acre	3.1	2.3	4.6	0	18.2

A: Mexico to Scott's Corner; B: Scott's Corner to Bassinger's Corner; C: Bassinger's Corner to Jennings's Corner; D: Jennings's Corner to Bowling Green; E: Bowling Green to Louisiana

Appendix A – Project Corridor Resource Maps



- Study Corridor
- Airport
- + Railroad
- Park
- Country Club
- Cemetery

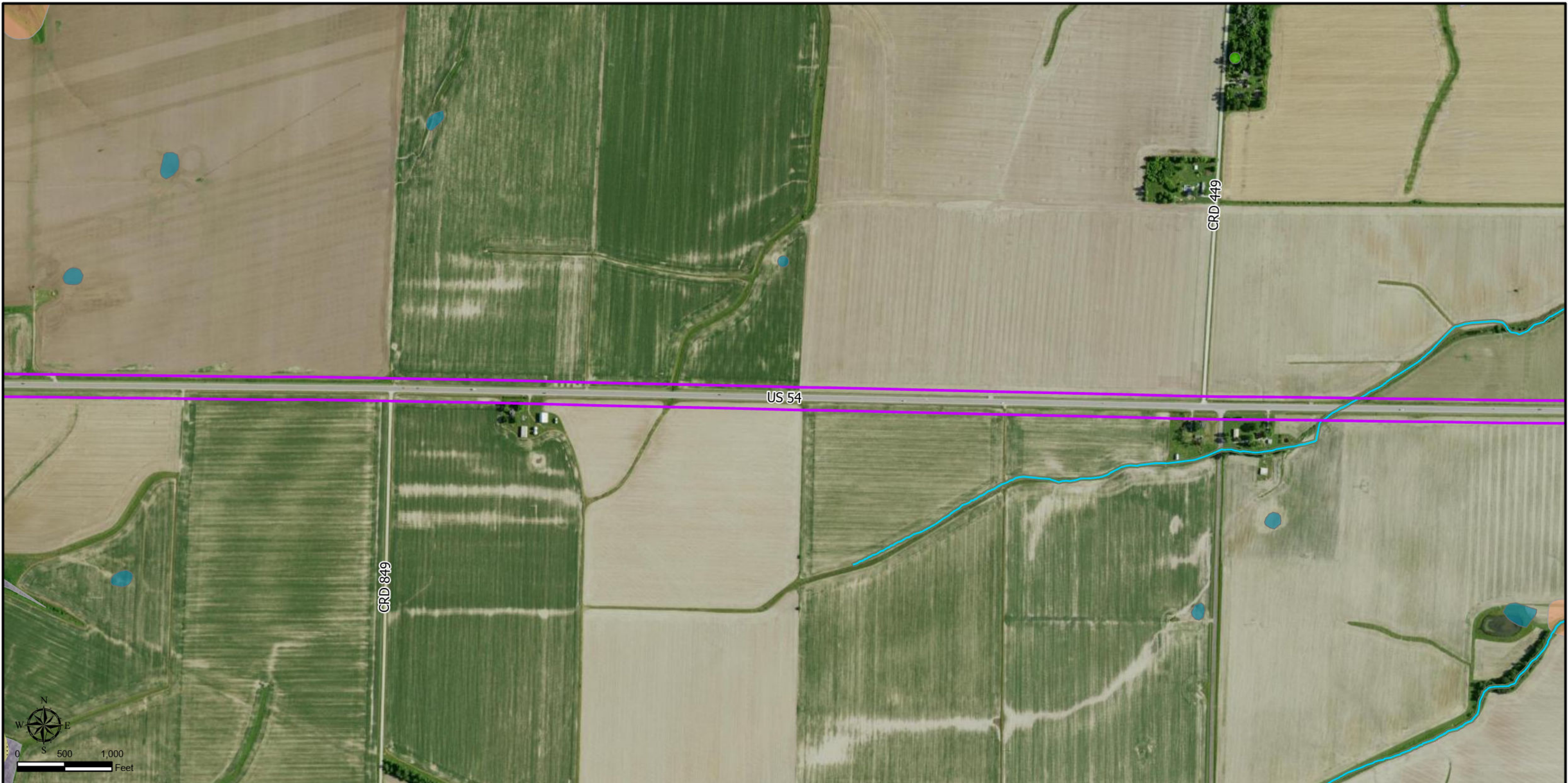
- Forested Areas
- ⛪ Church
- 🚒 Fire Station
- RCRA Site
- TSCA Site
- UST Site

- Missouri Department of Corrections
- School
- NHD Stream
- 100 Year Floodplain
- Floodway
- Prime Farmland

- NWI Type
- Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Riverine

Environmental Resources

US Route 54
Mexico, MO to Louisiana, MO
Field Maps



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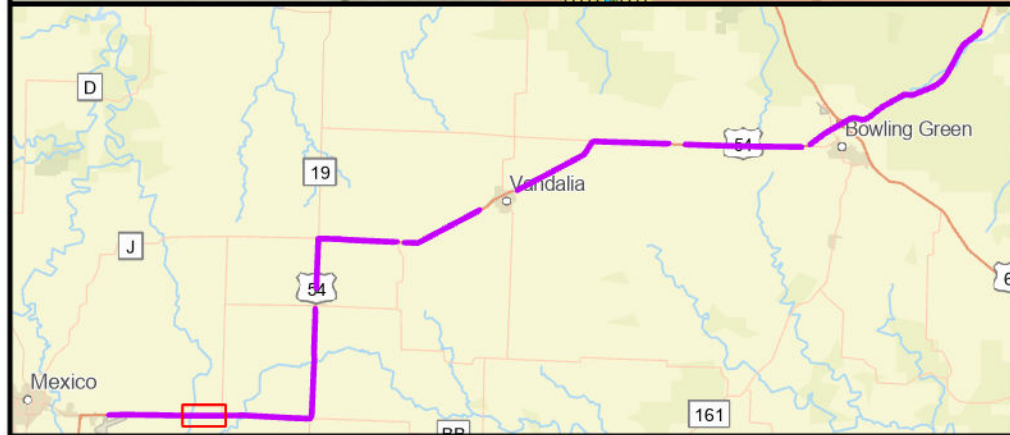
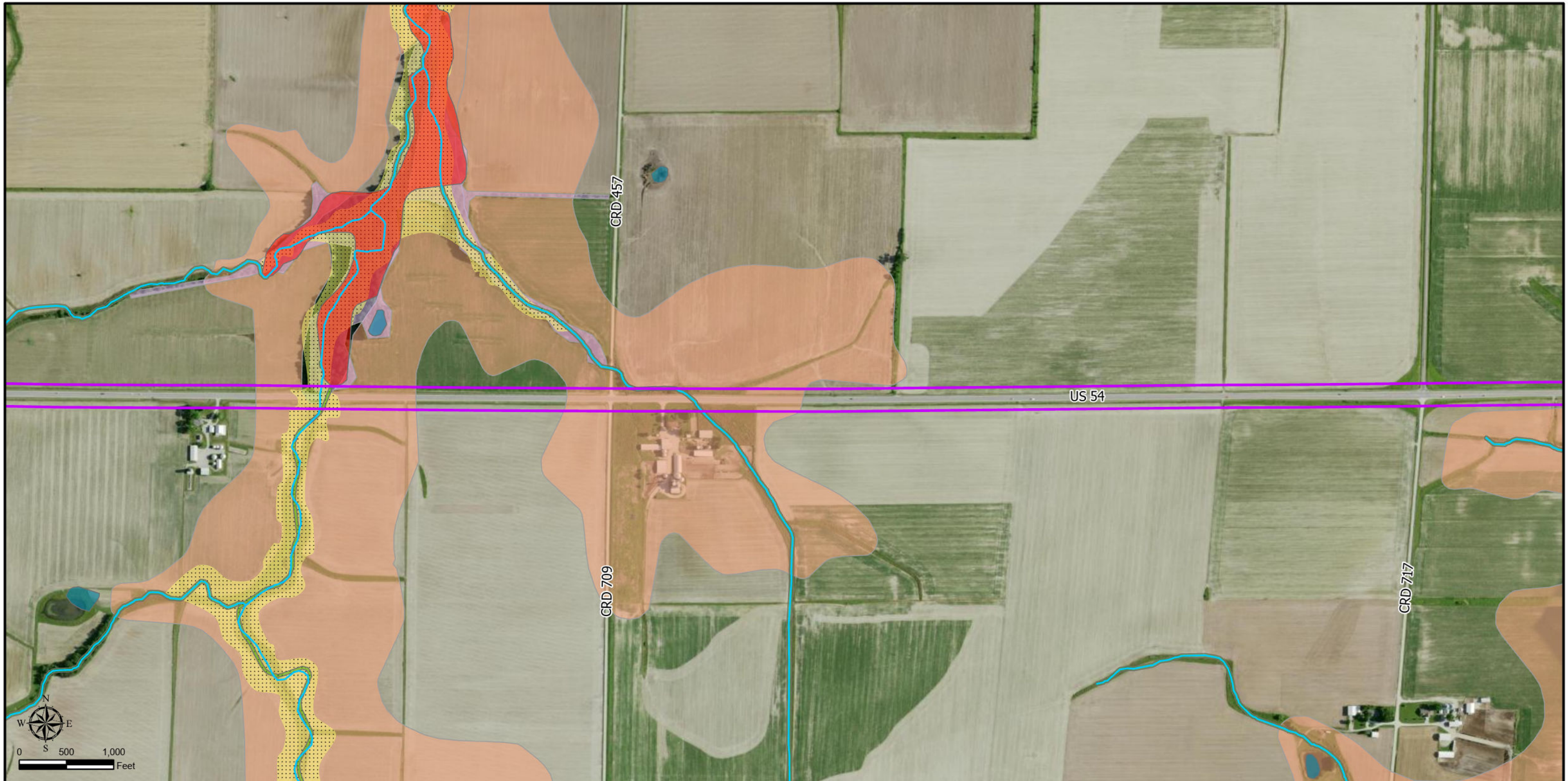
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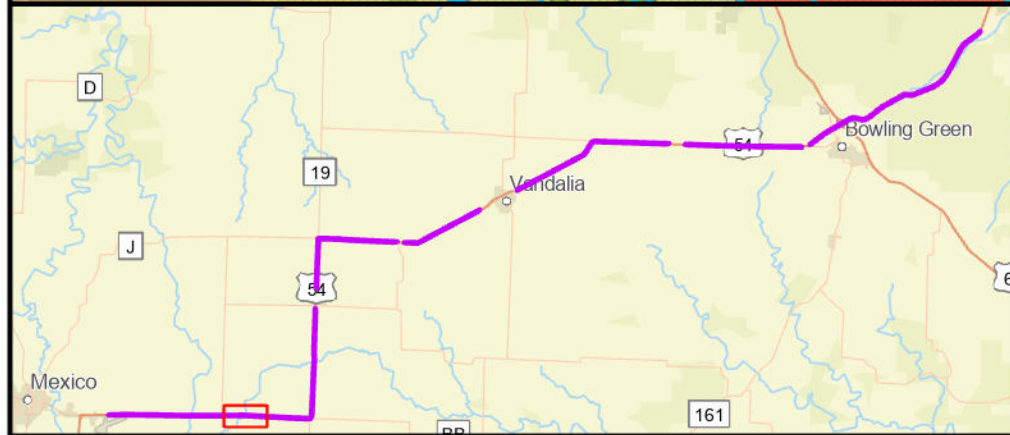
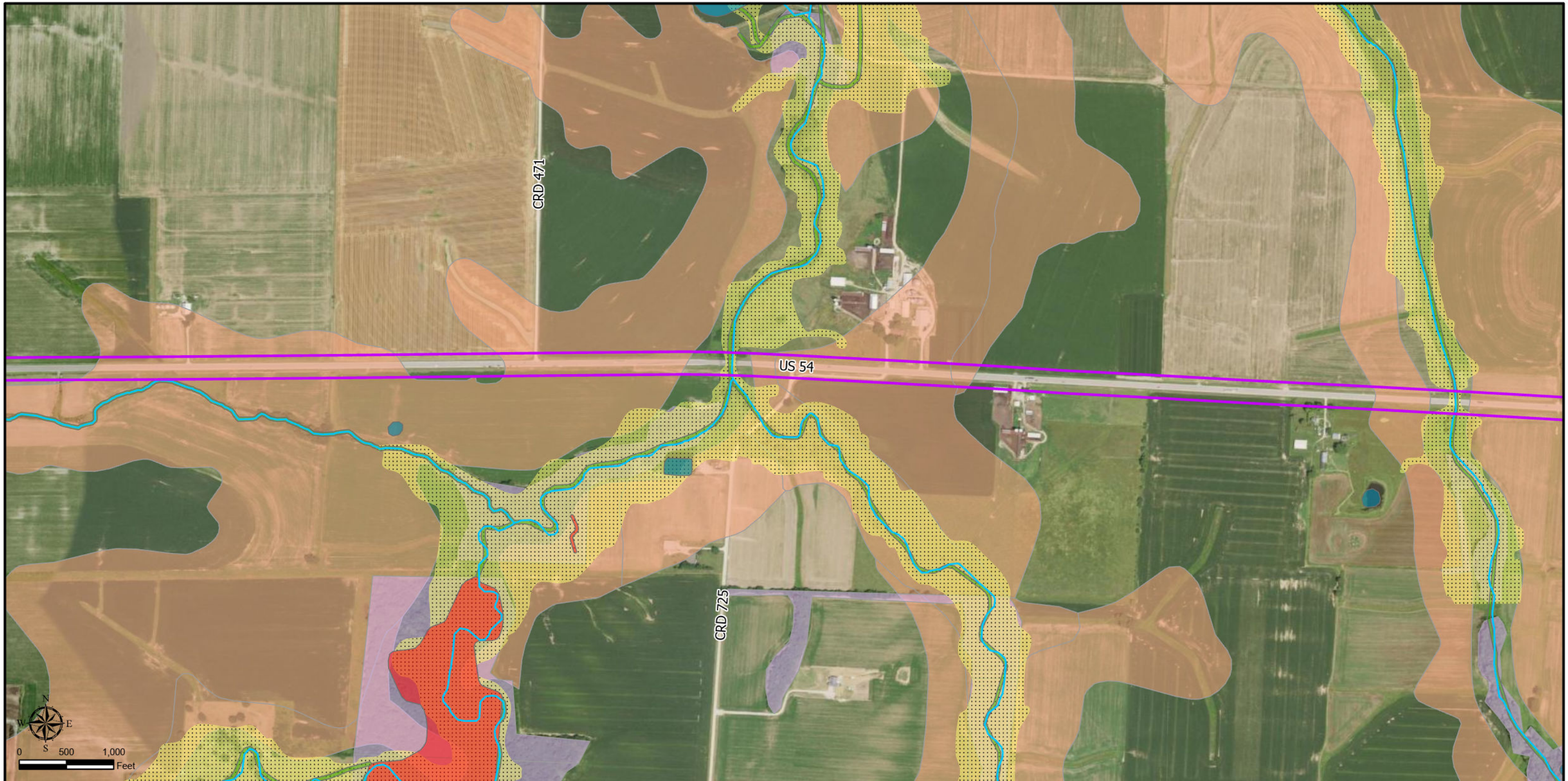
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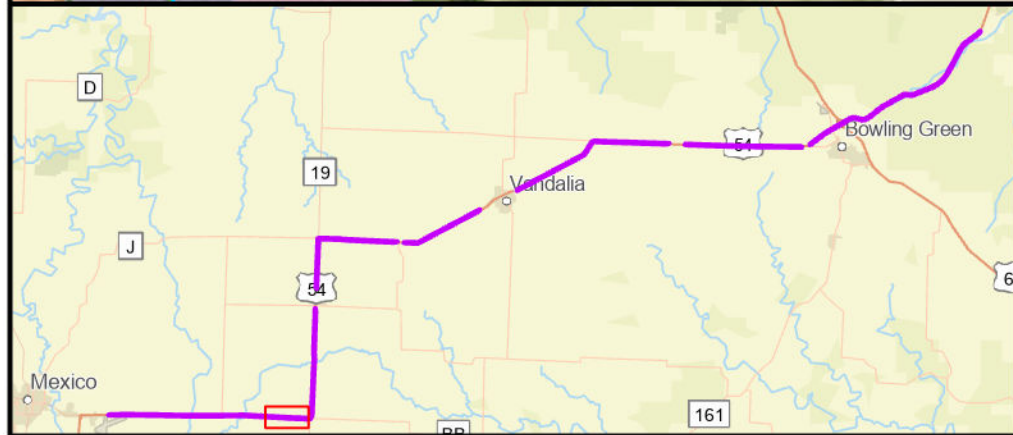
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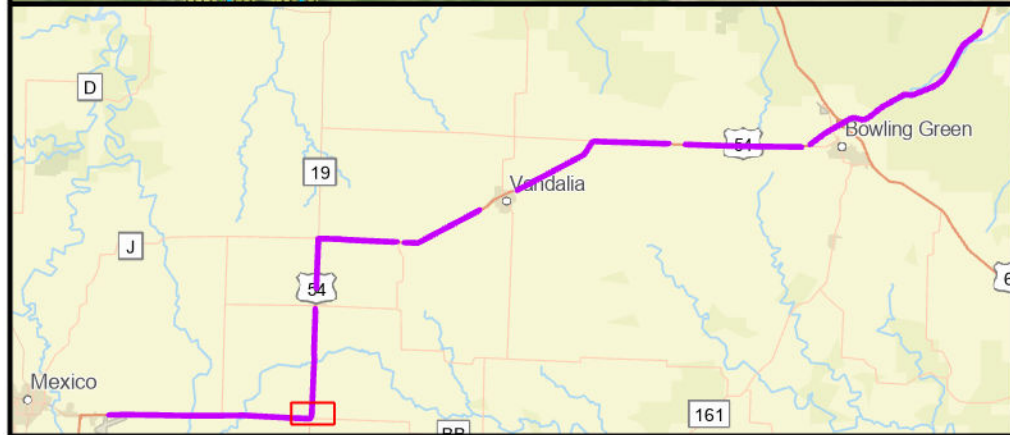
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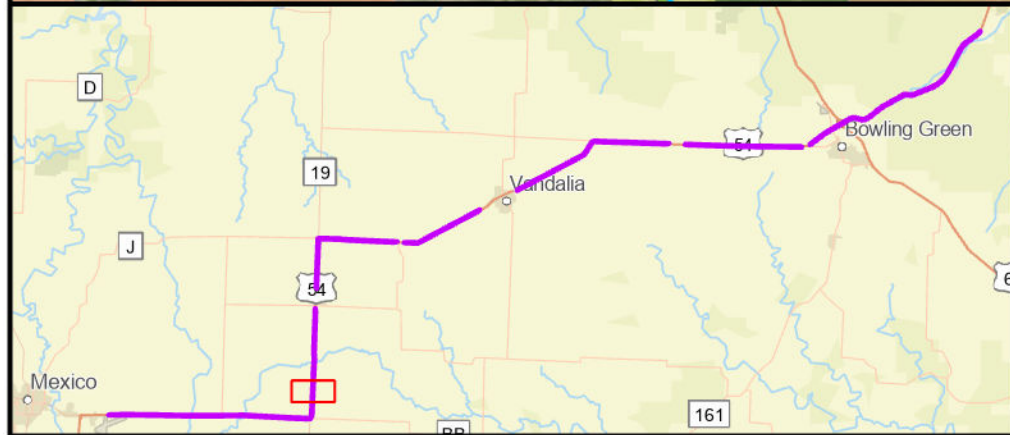
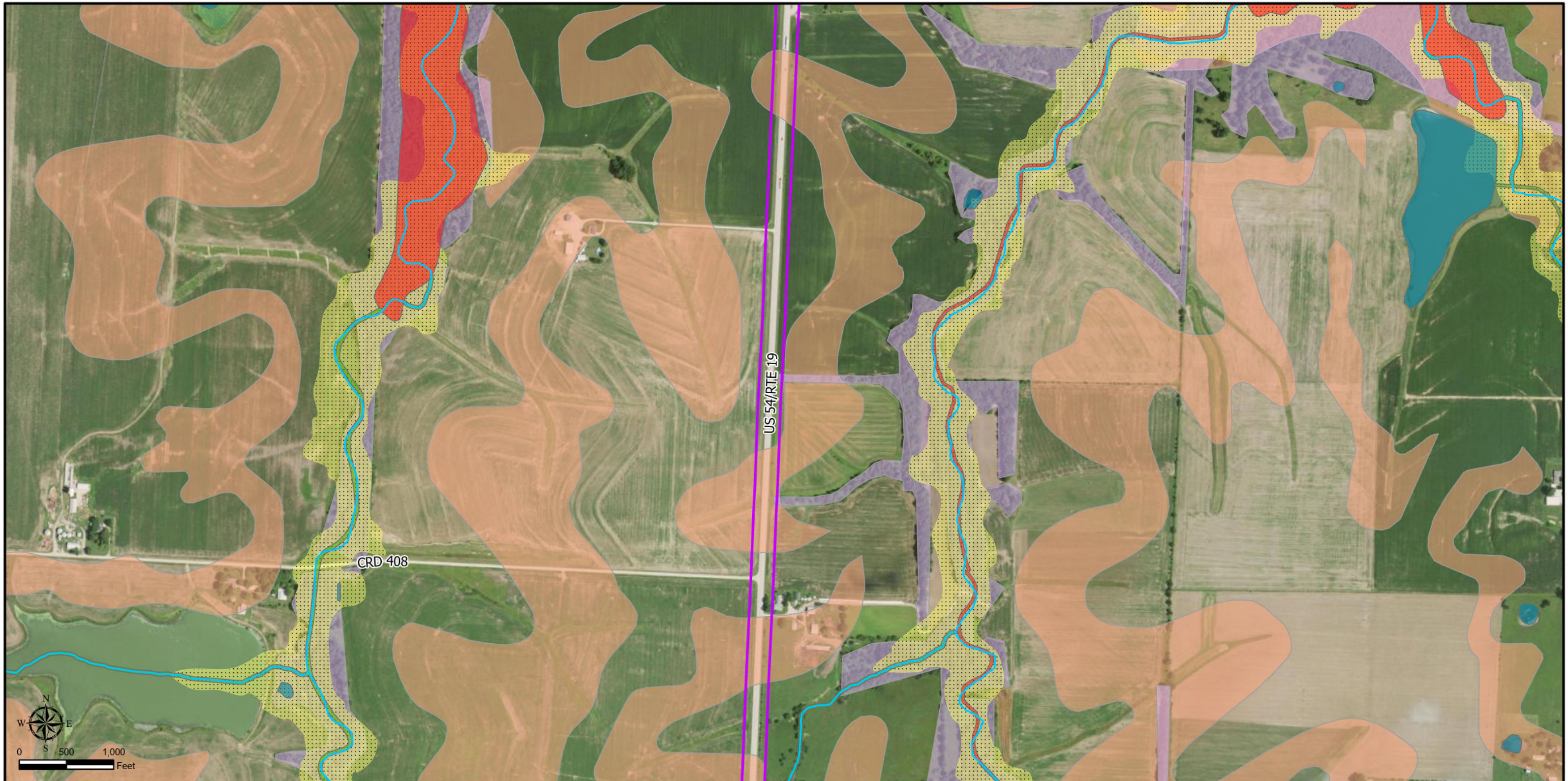
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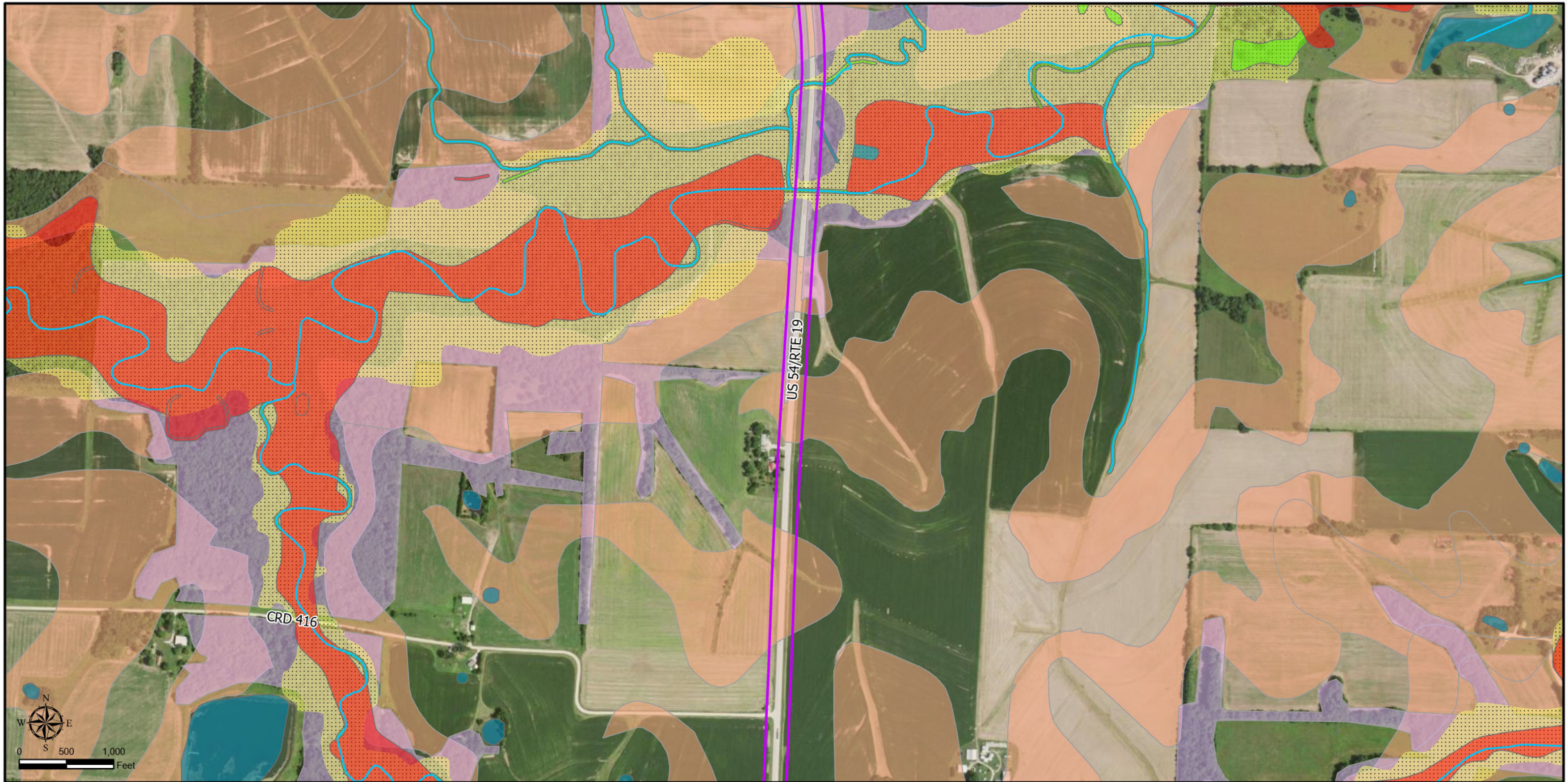
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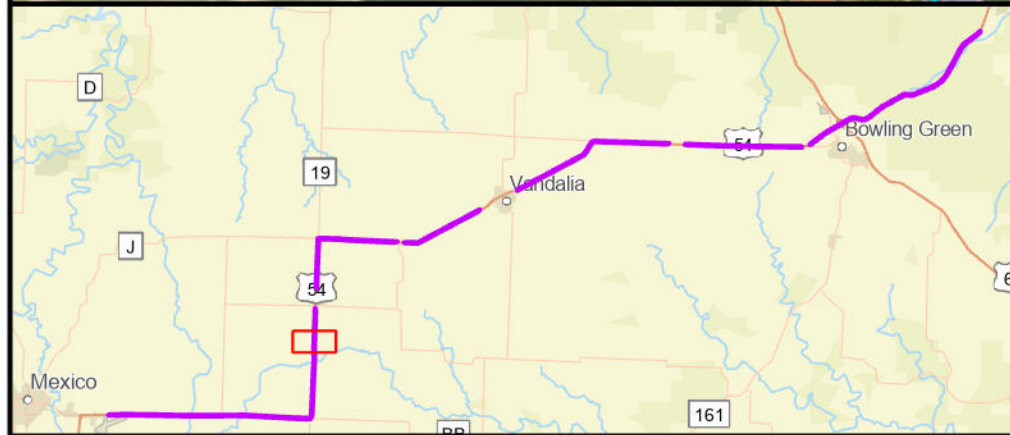
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US Route 54
Mexico, MO to Louisiana, MO
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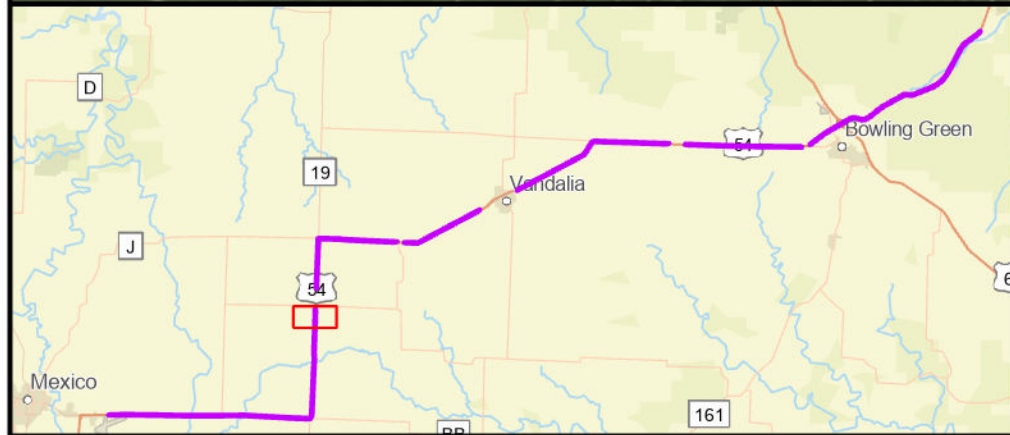
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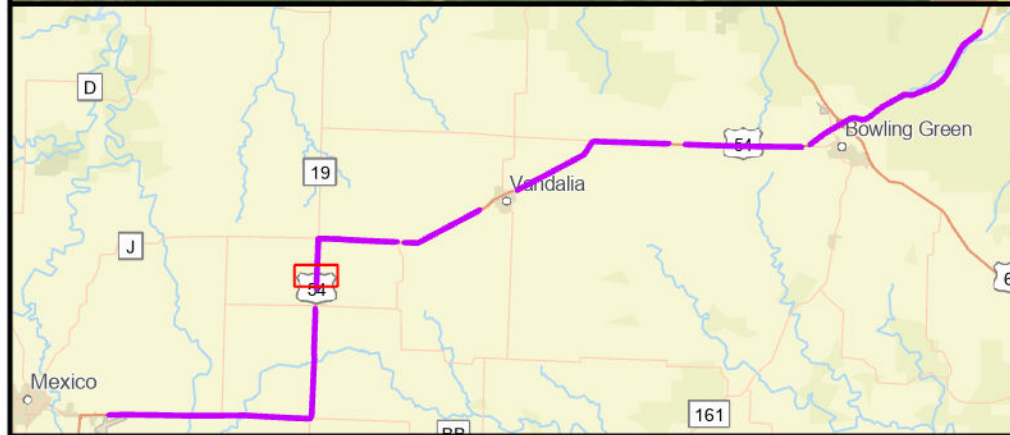
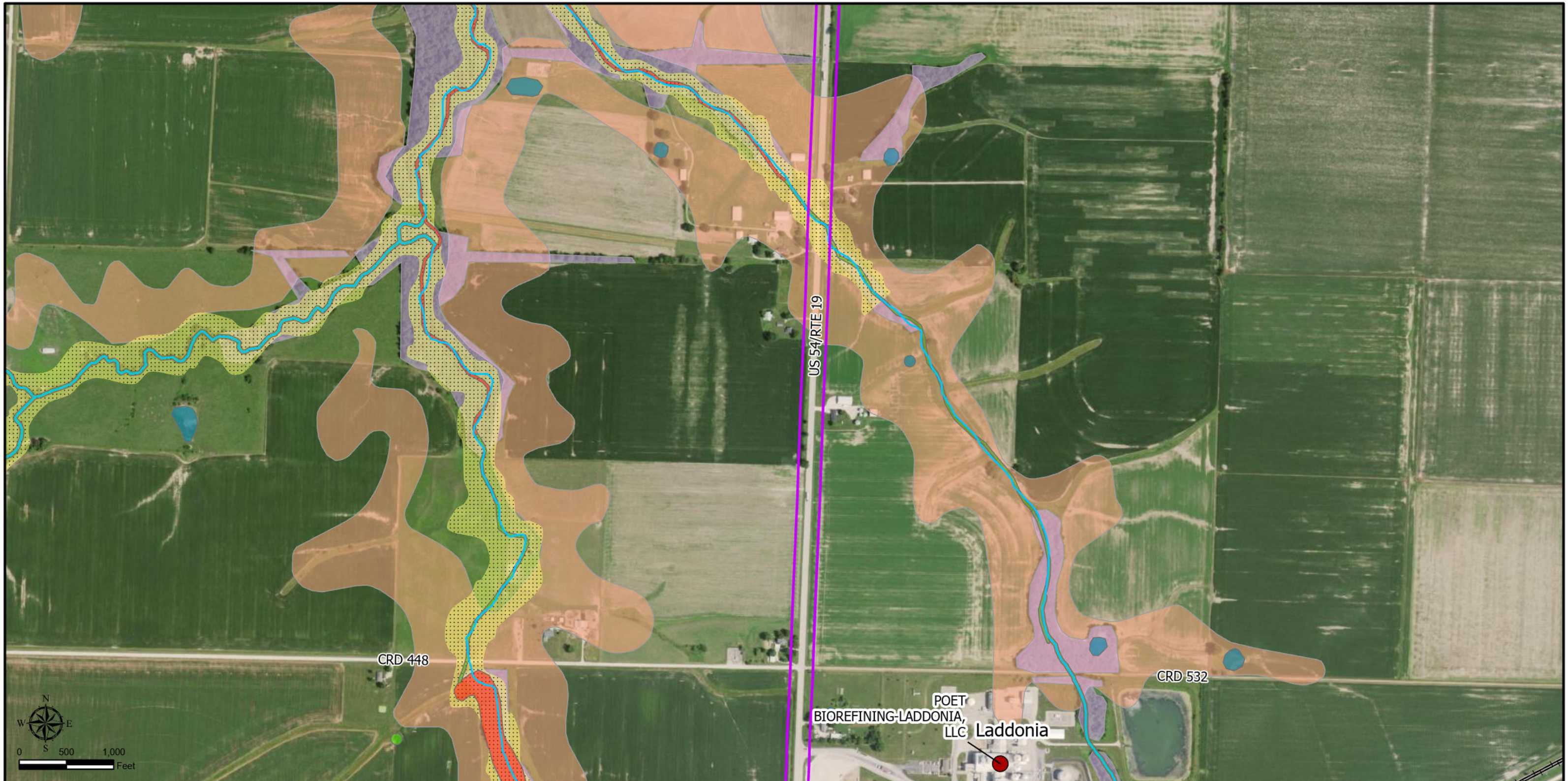
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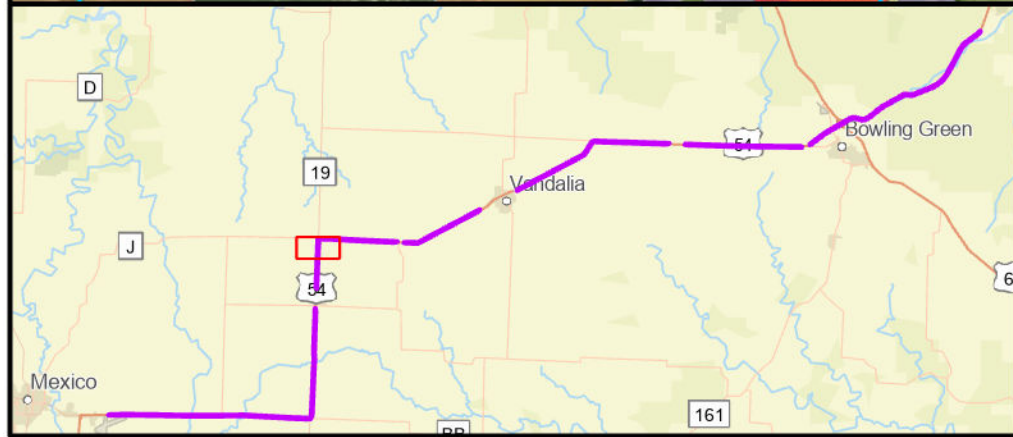
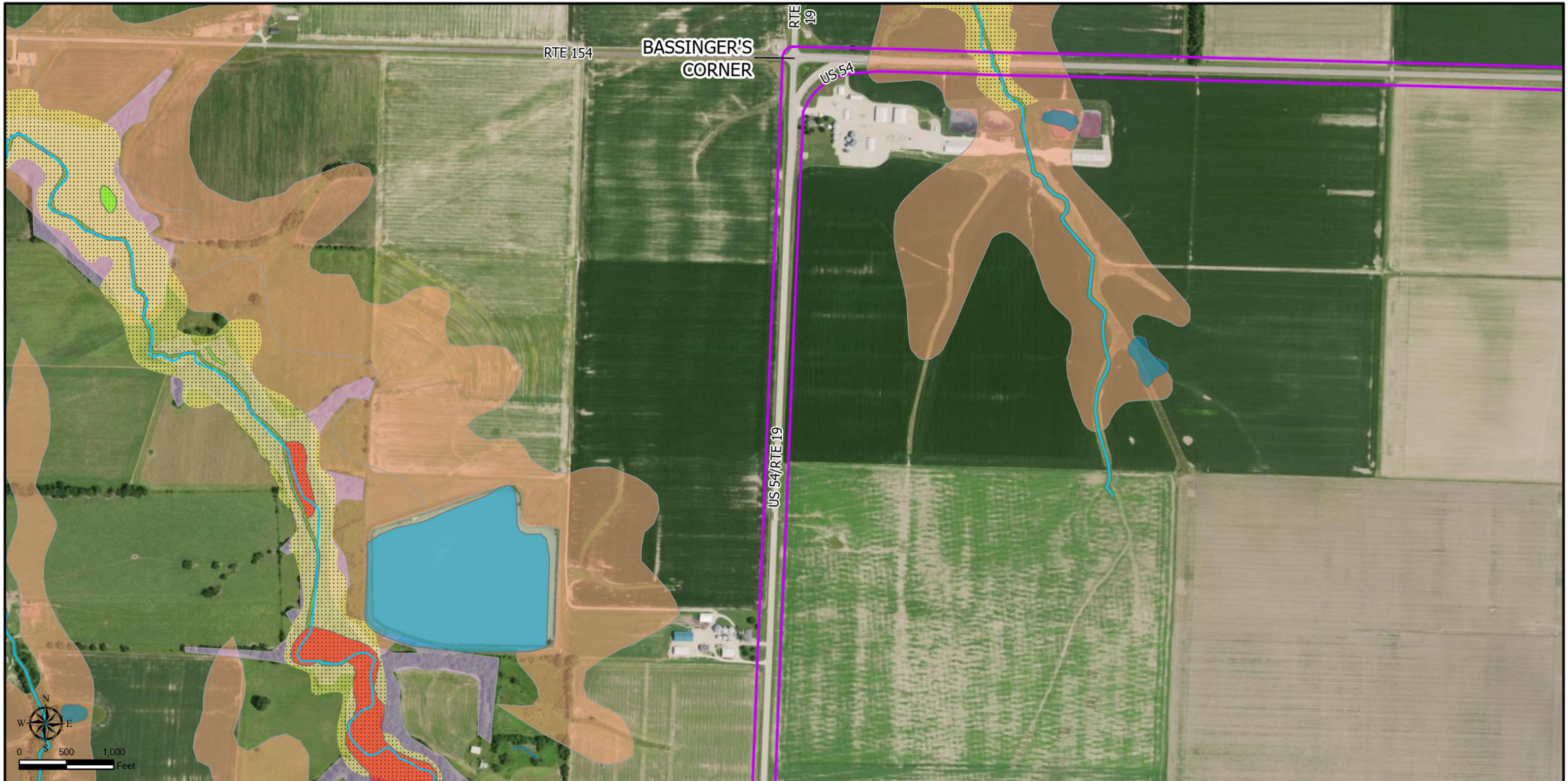
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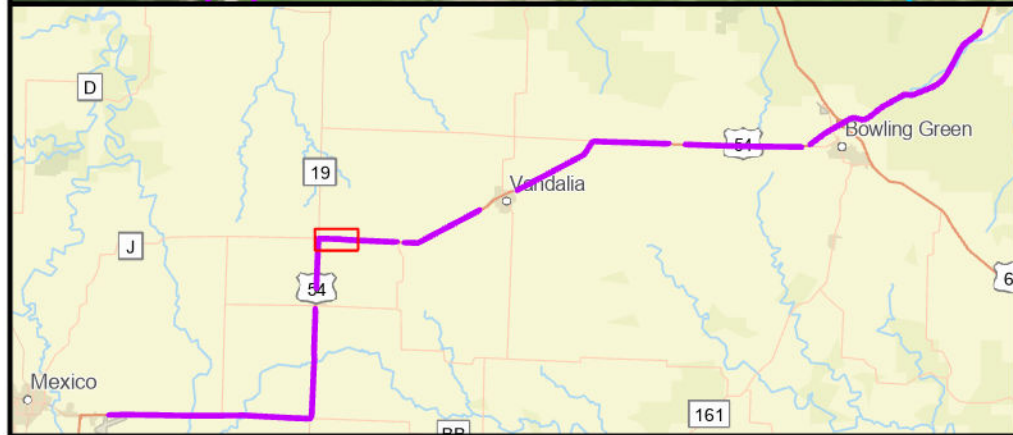
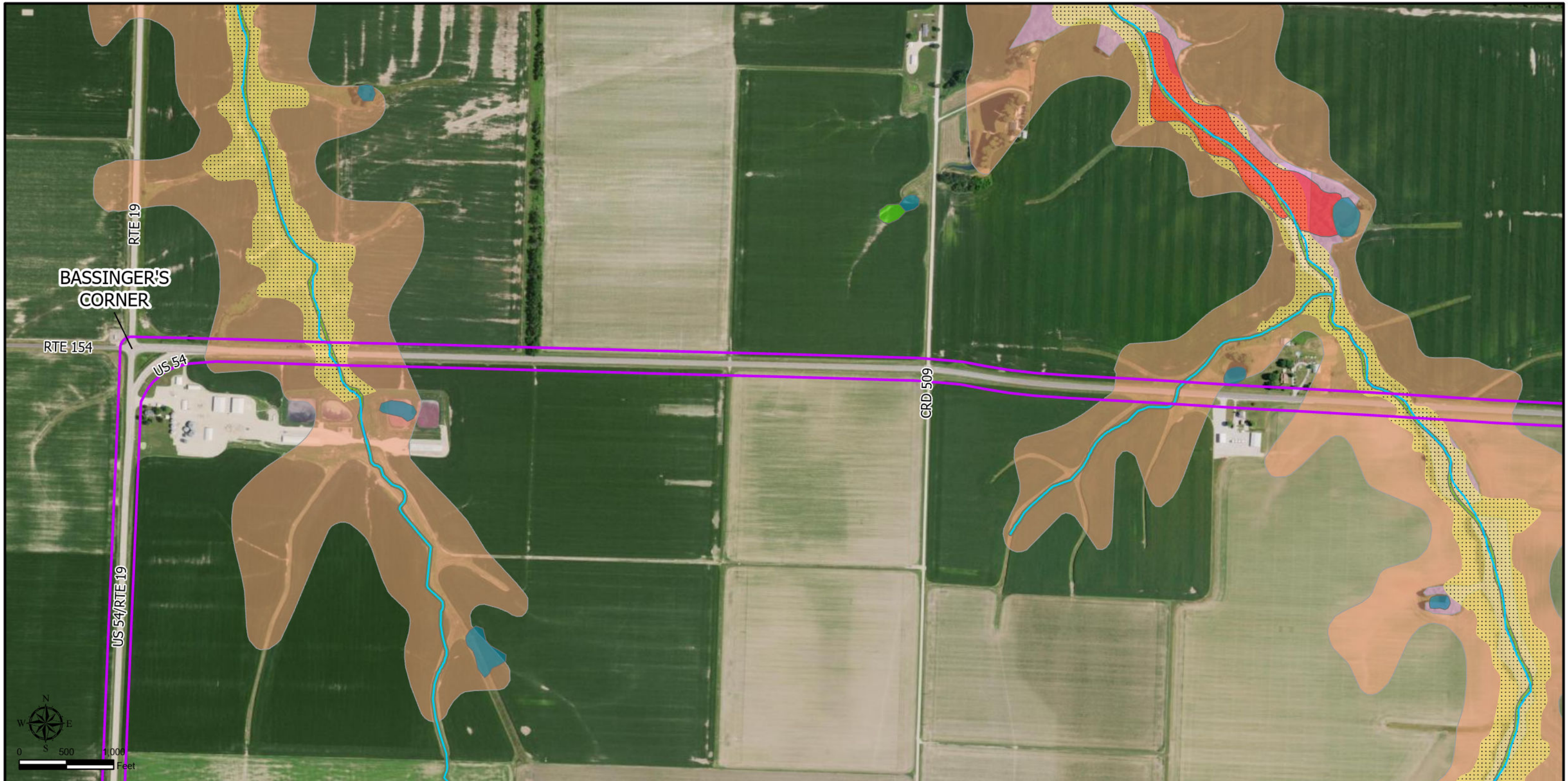
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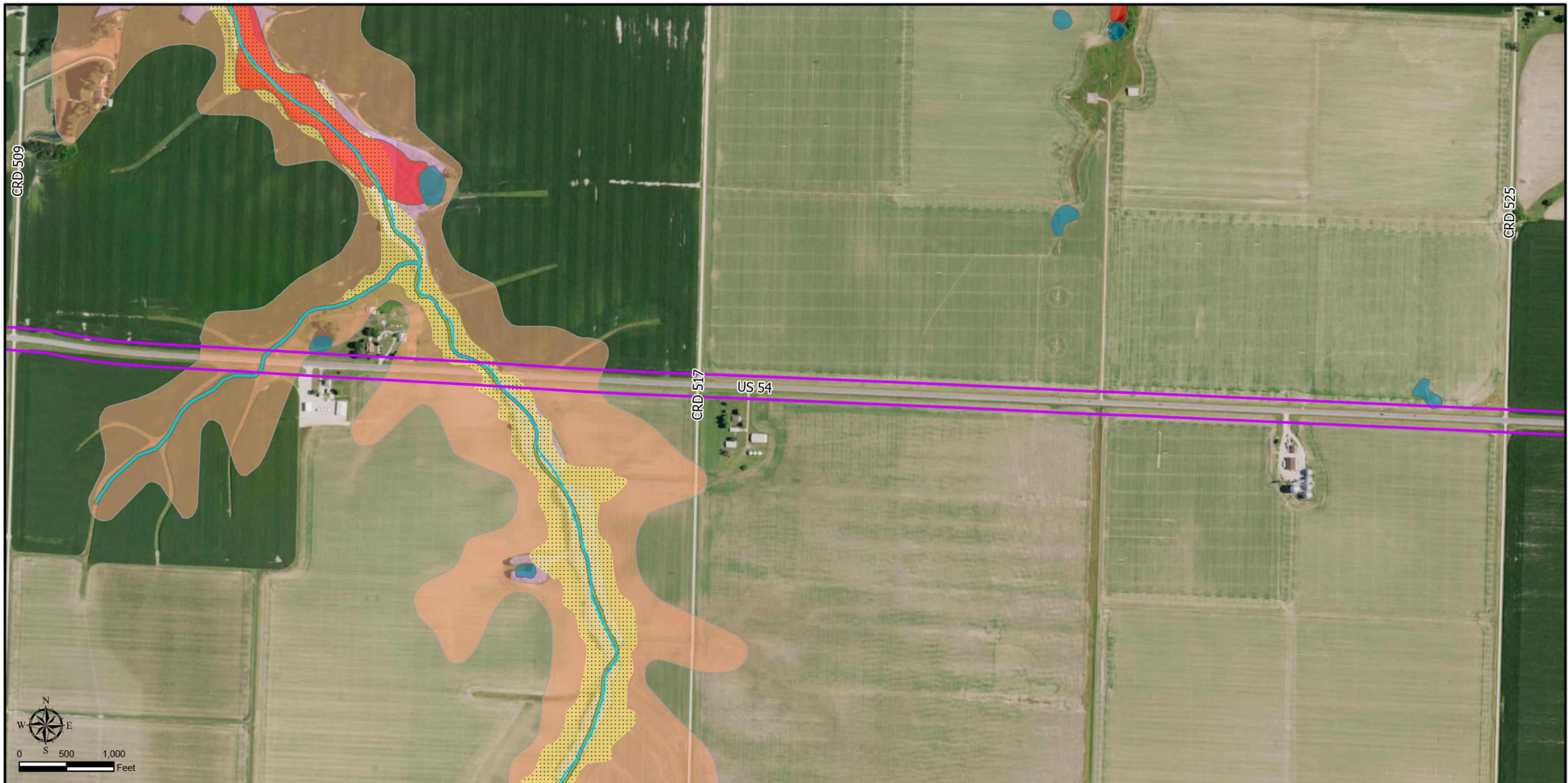
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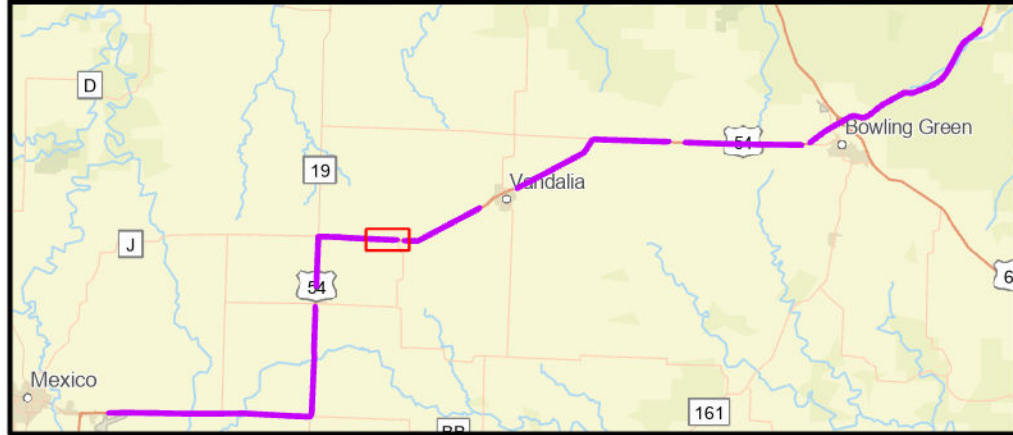
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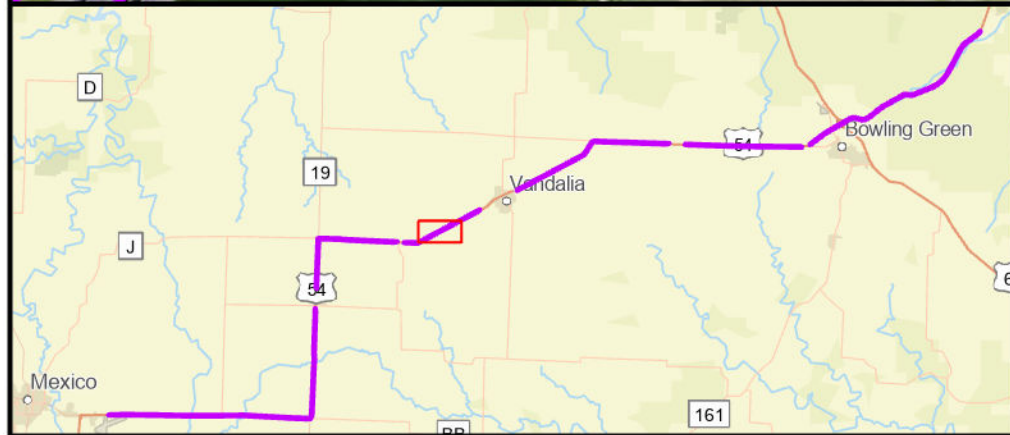
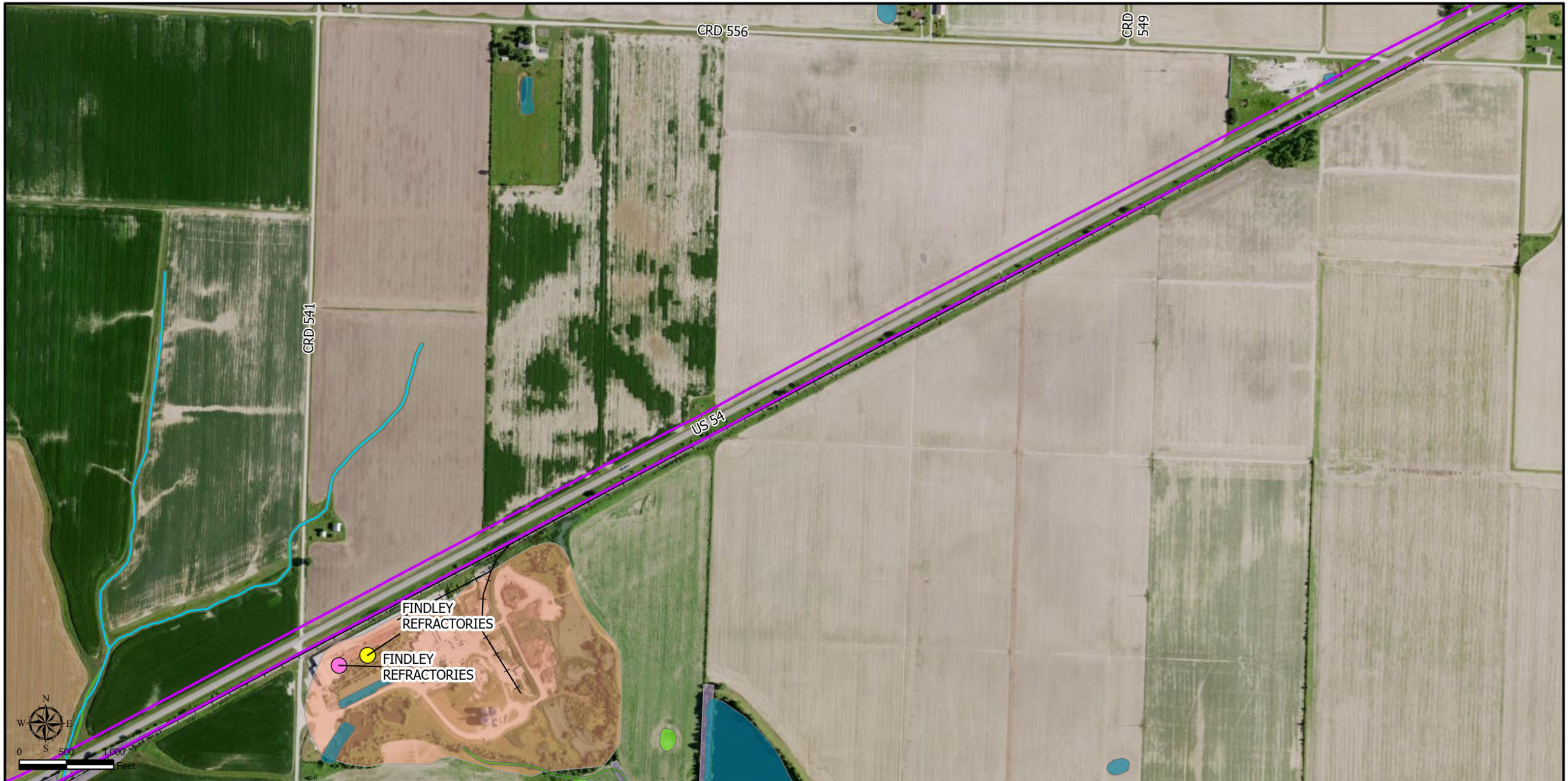
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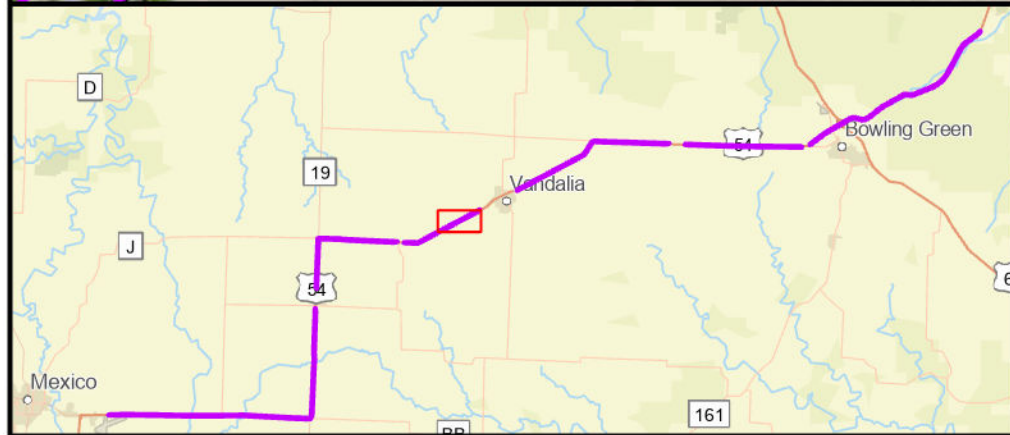
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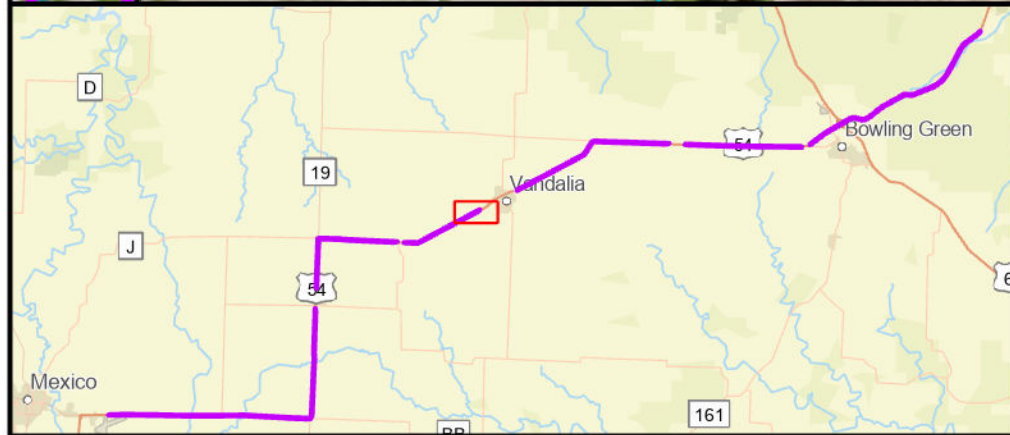
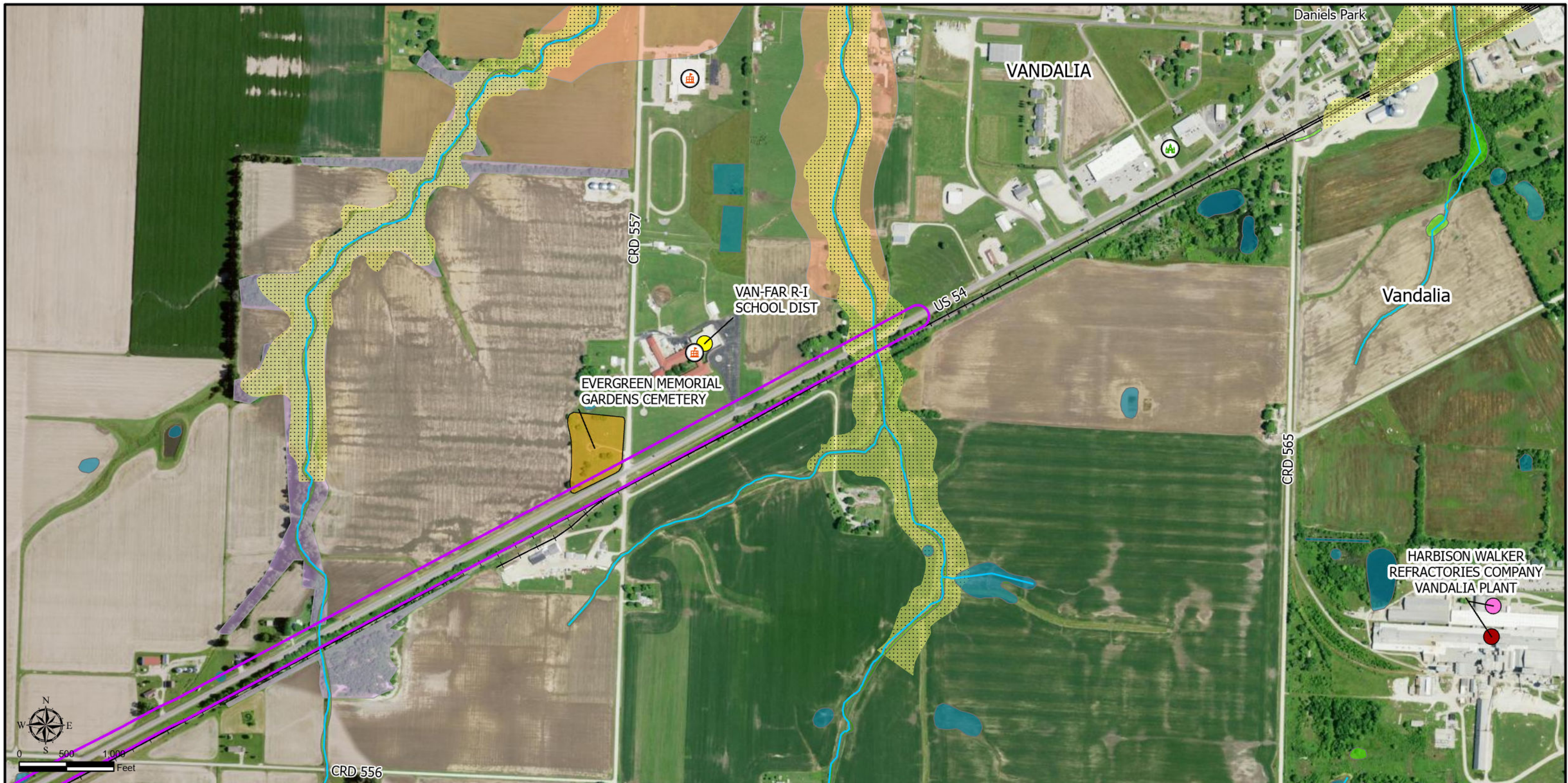
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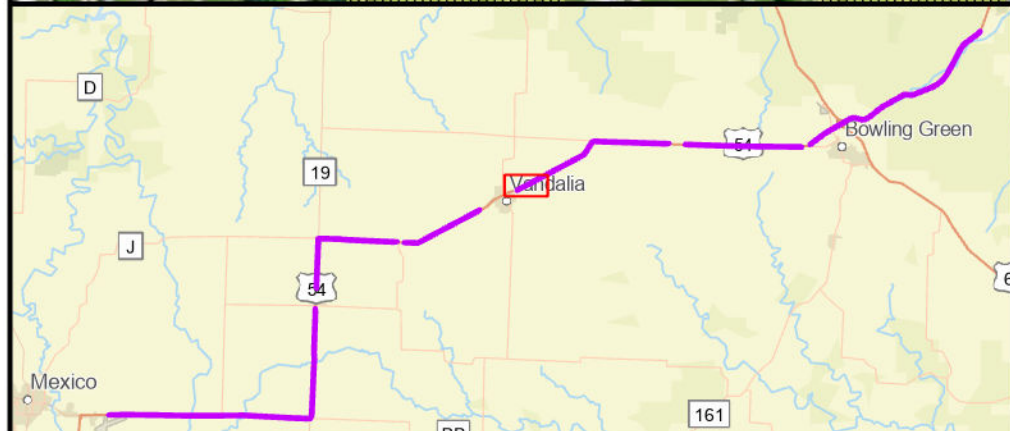
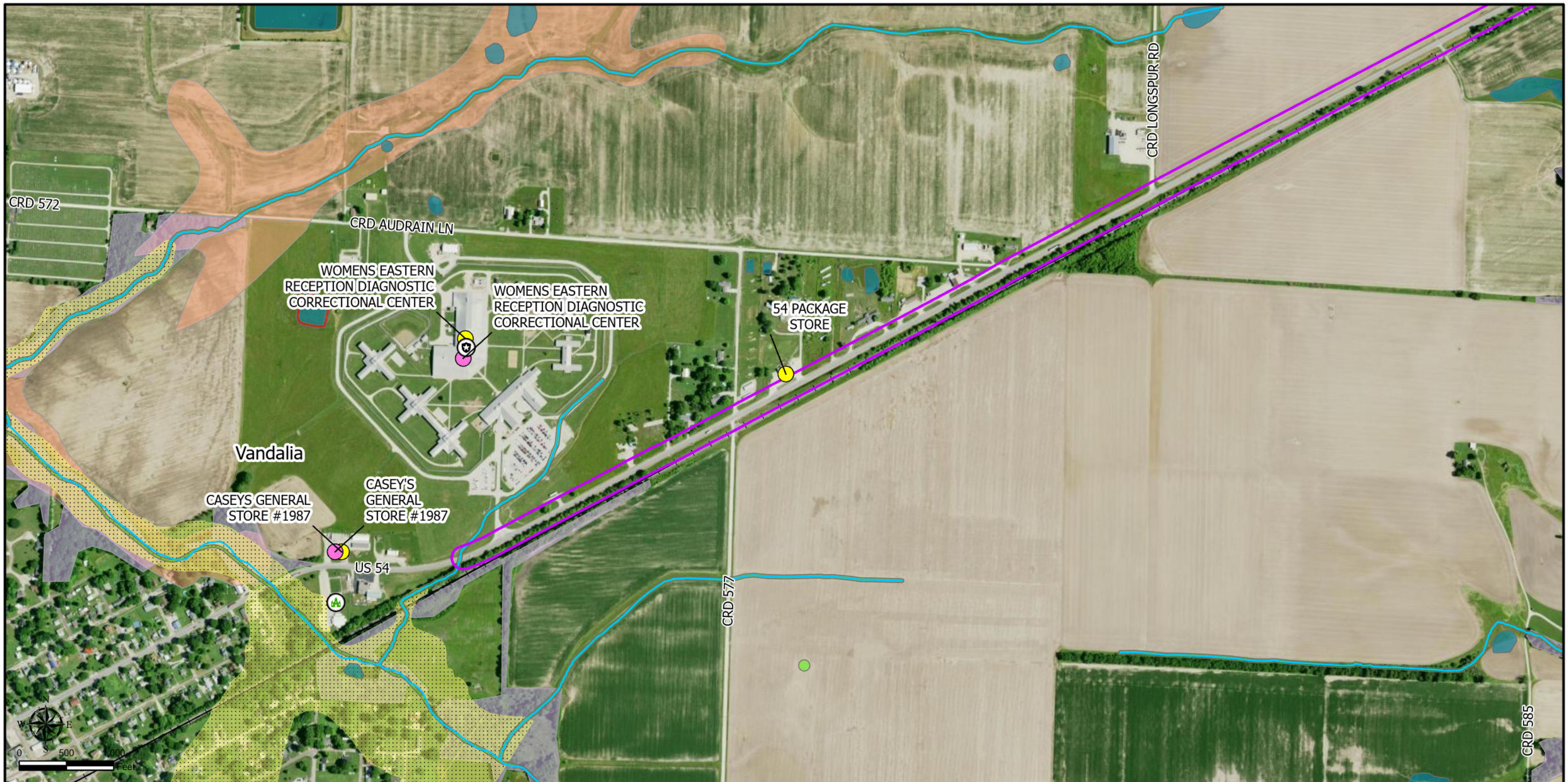
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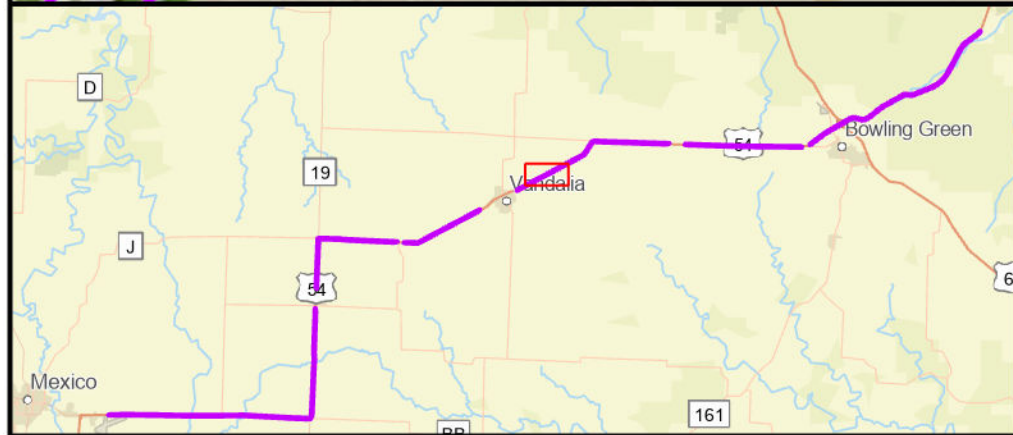
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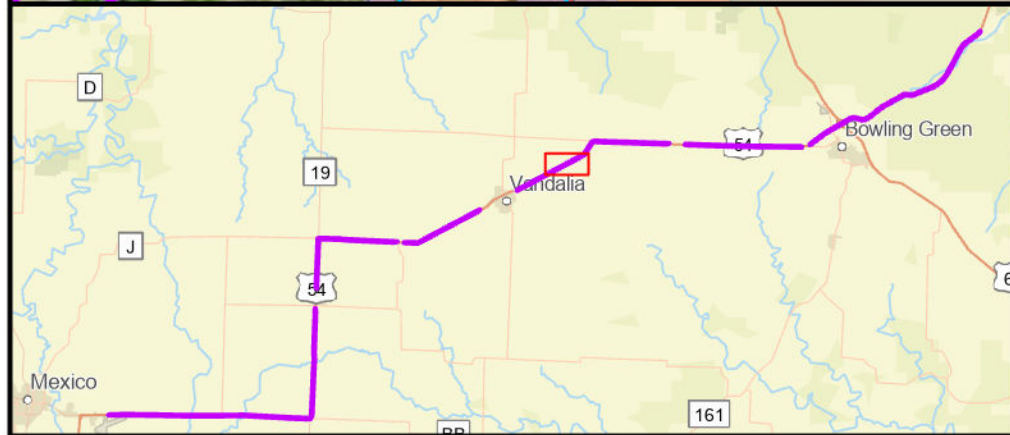
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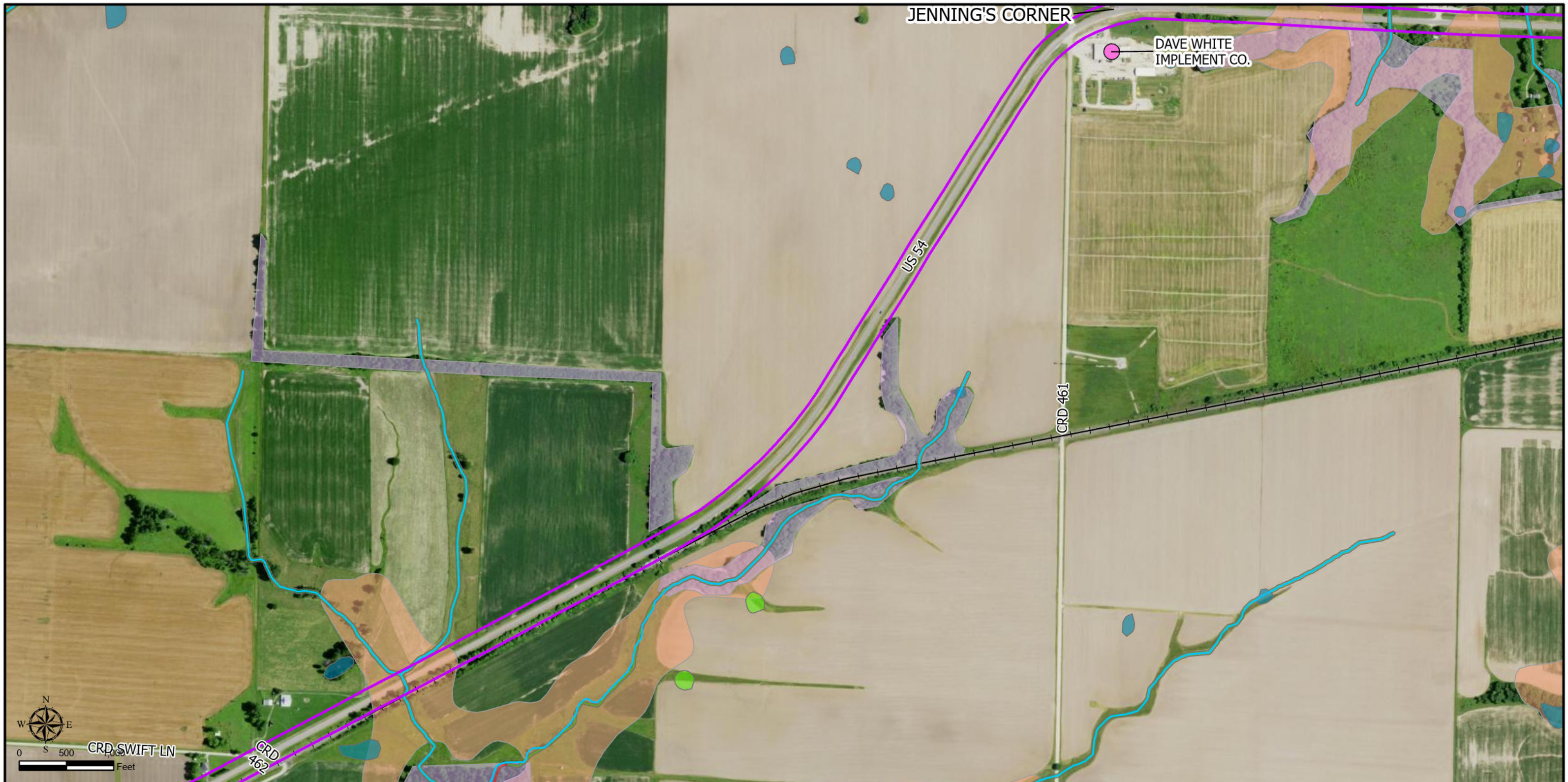
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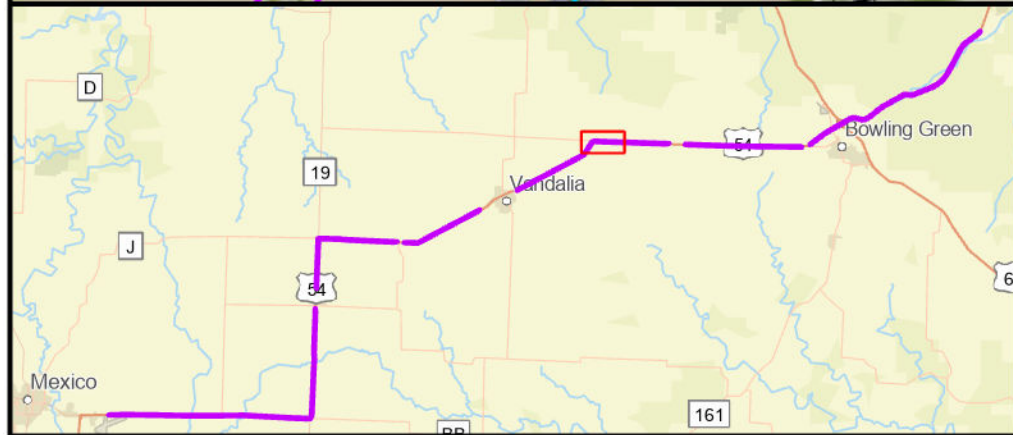
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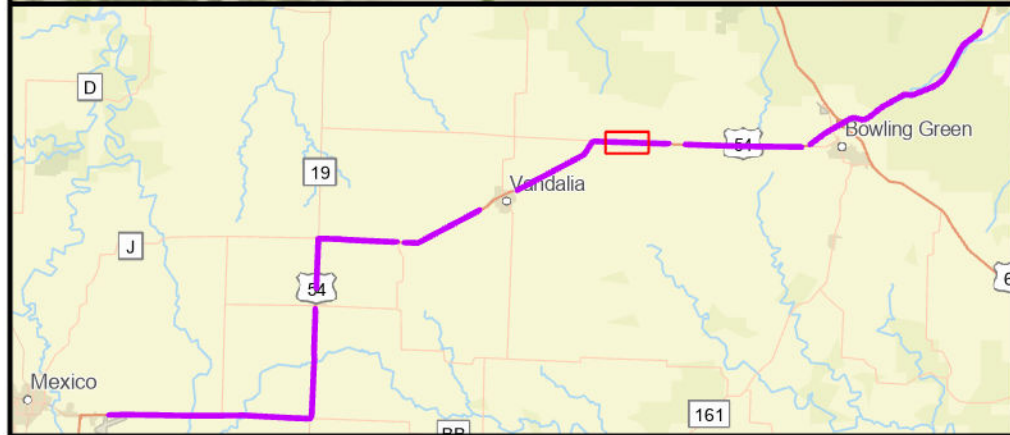
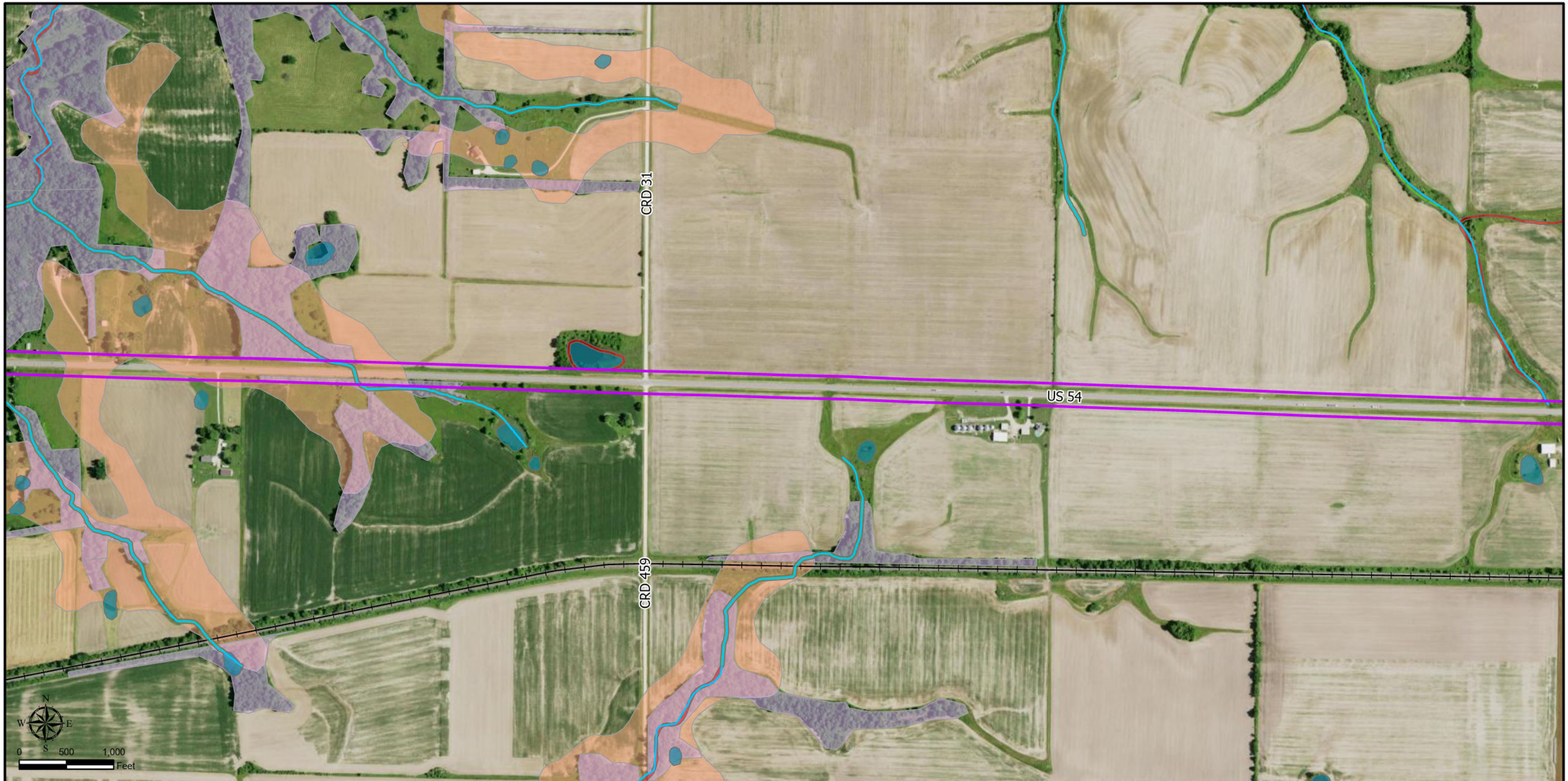
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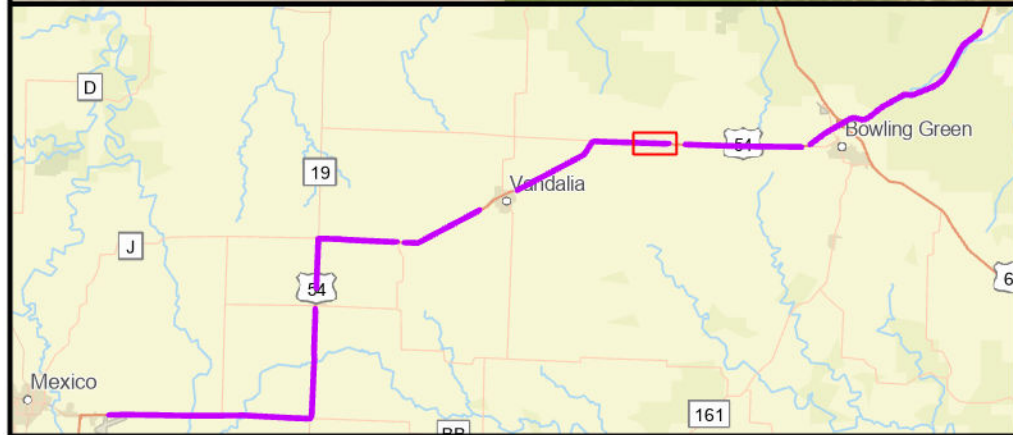
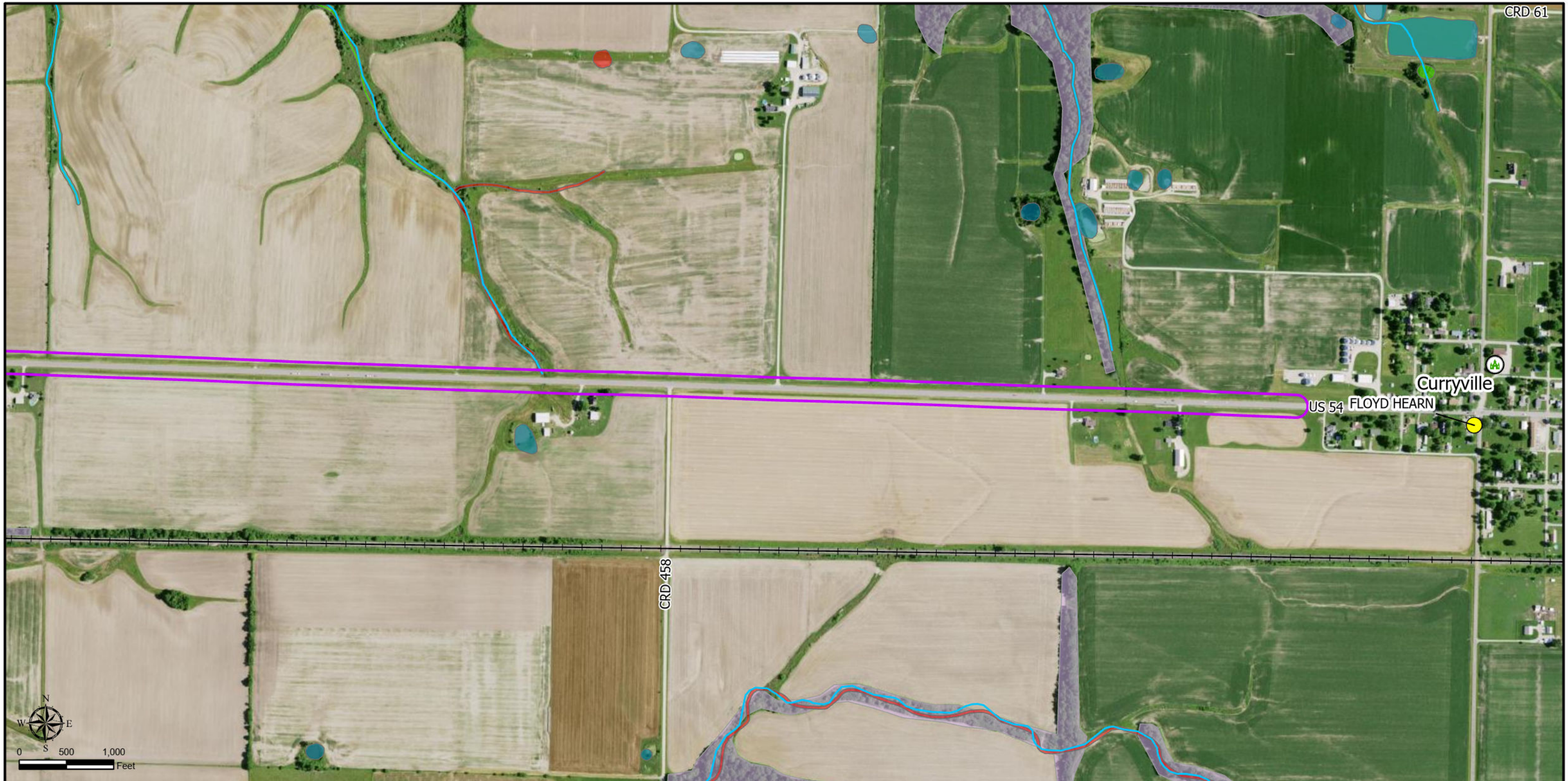
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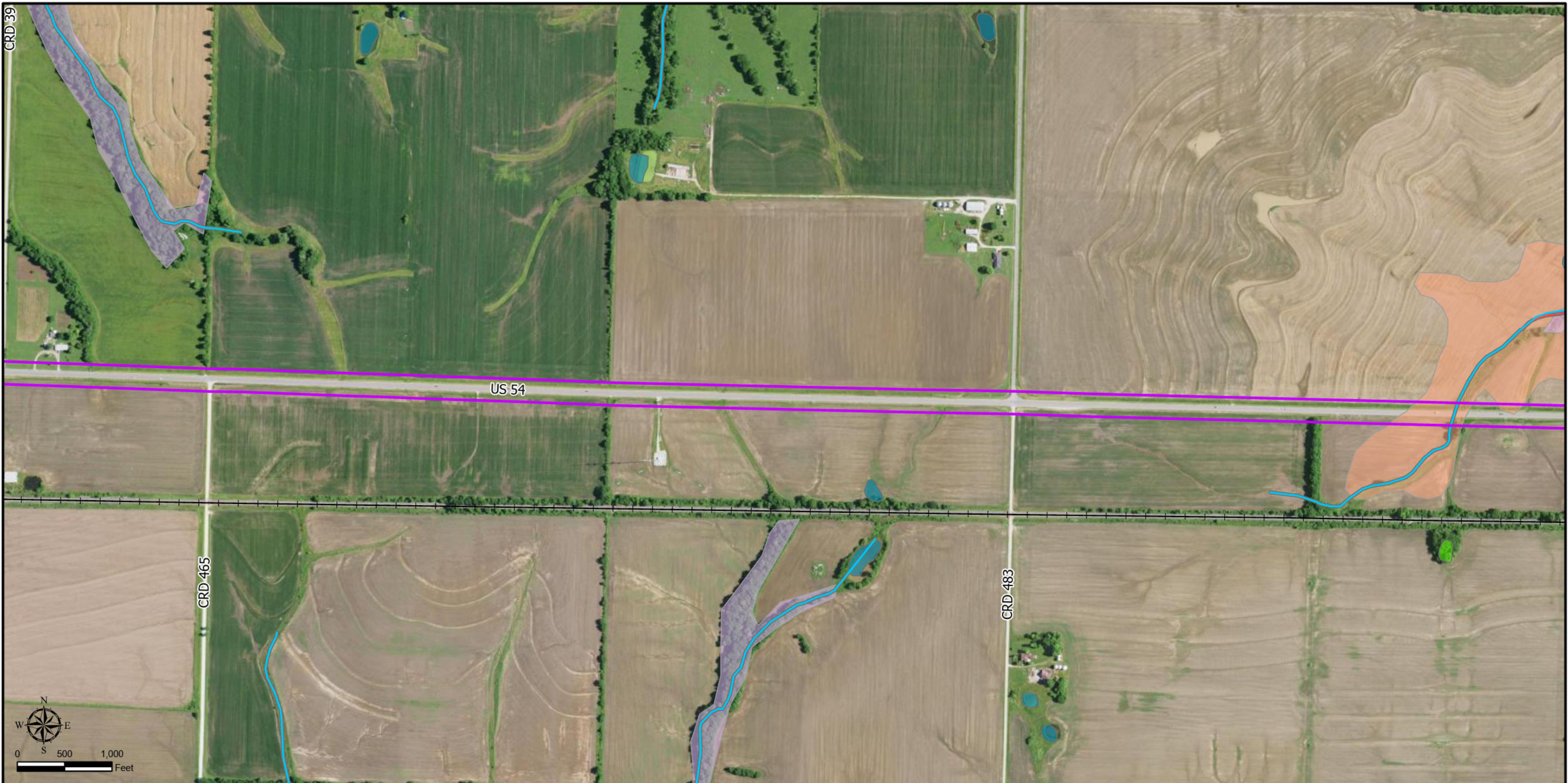
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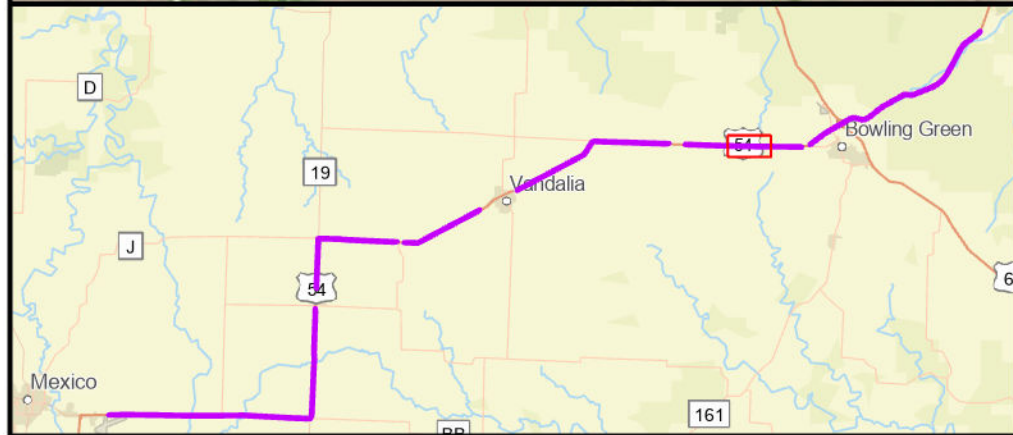
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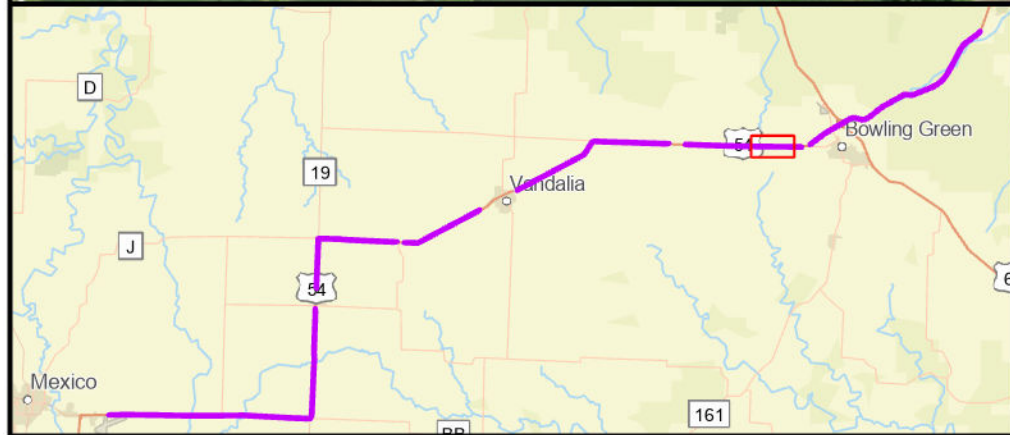
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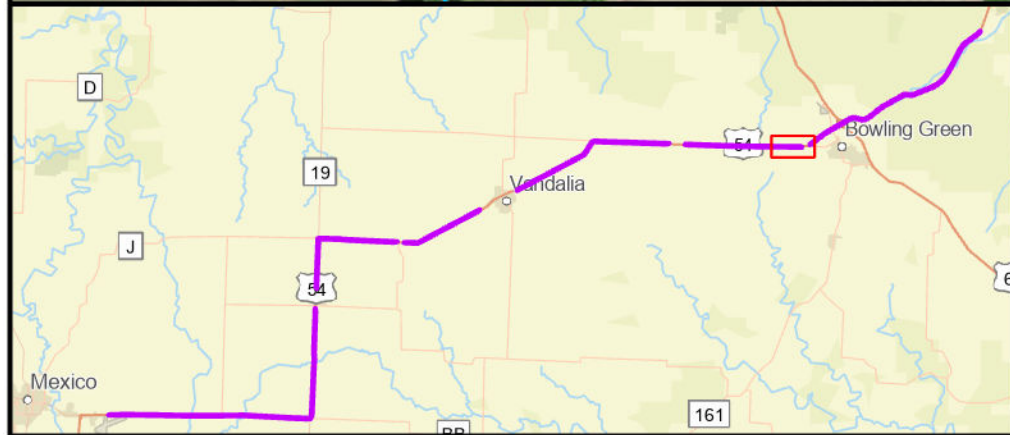
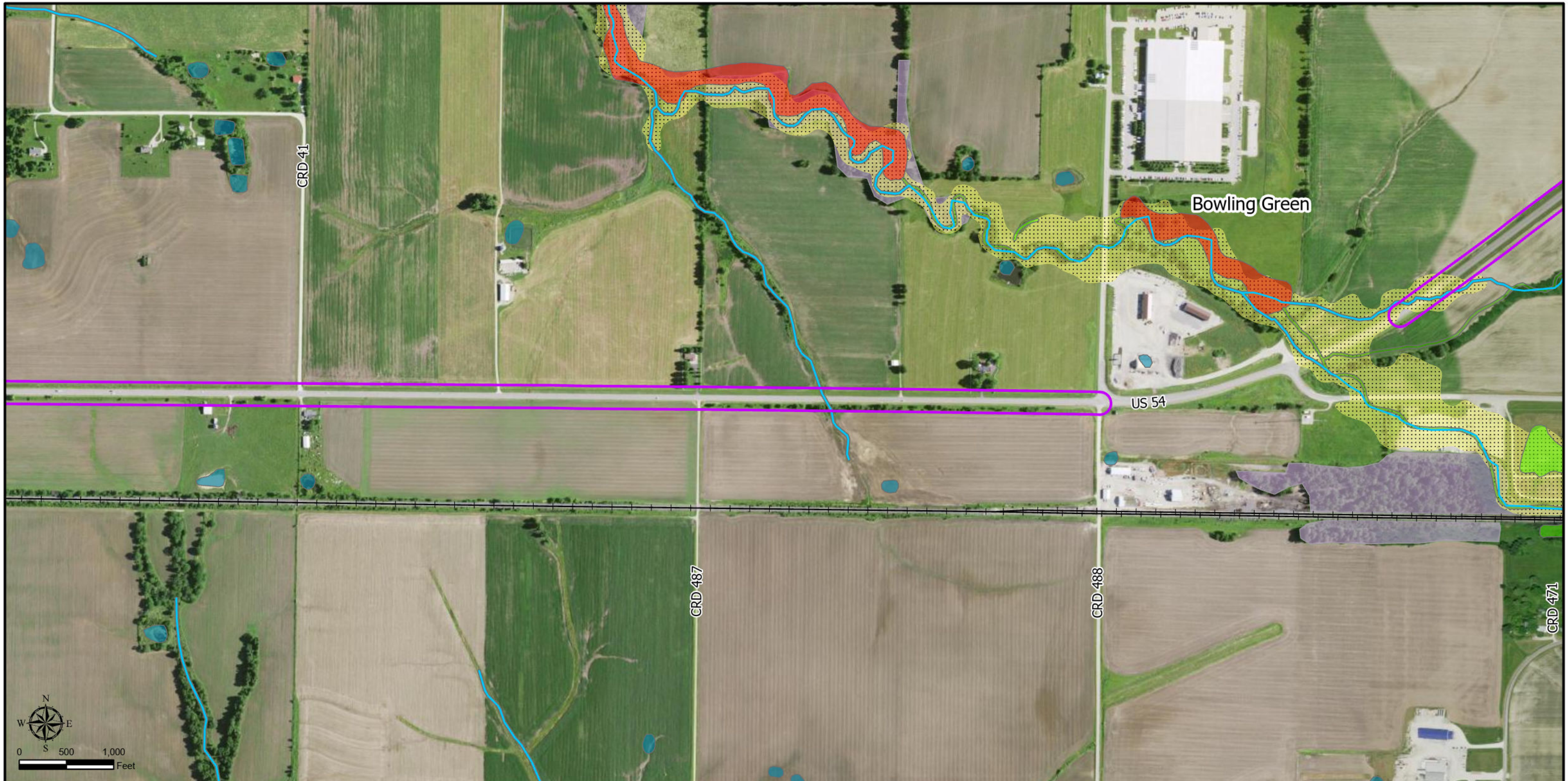
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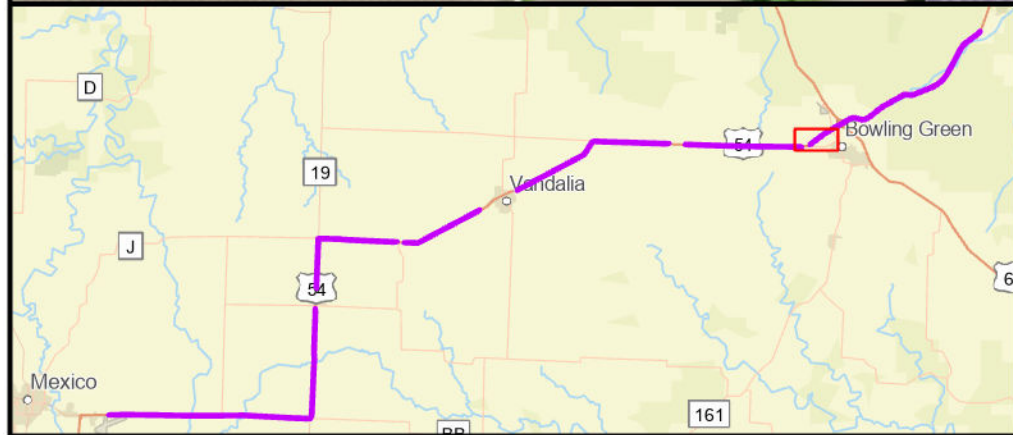
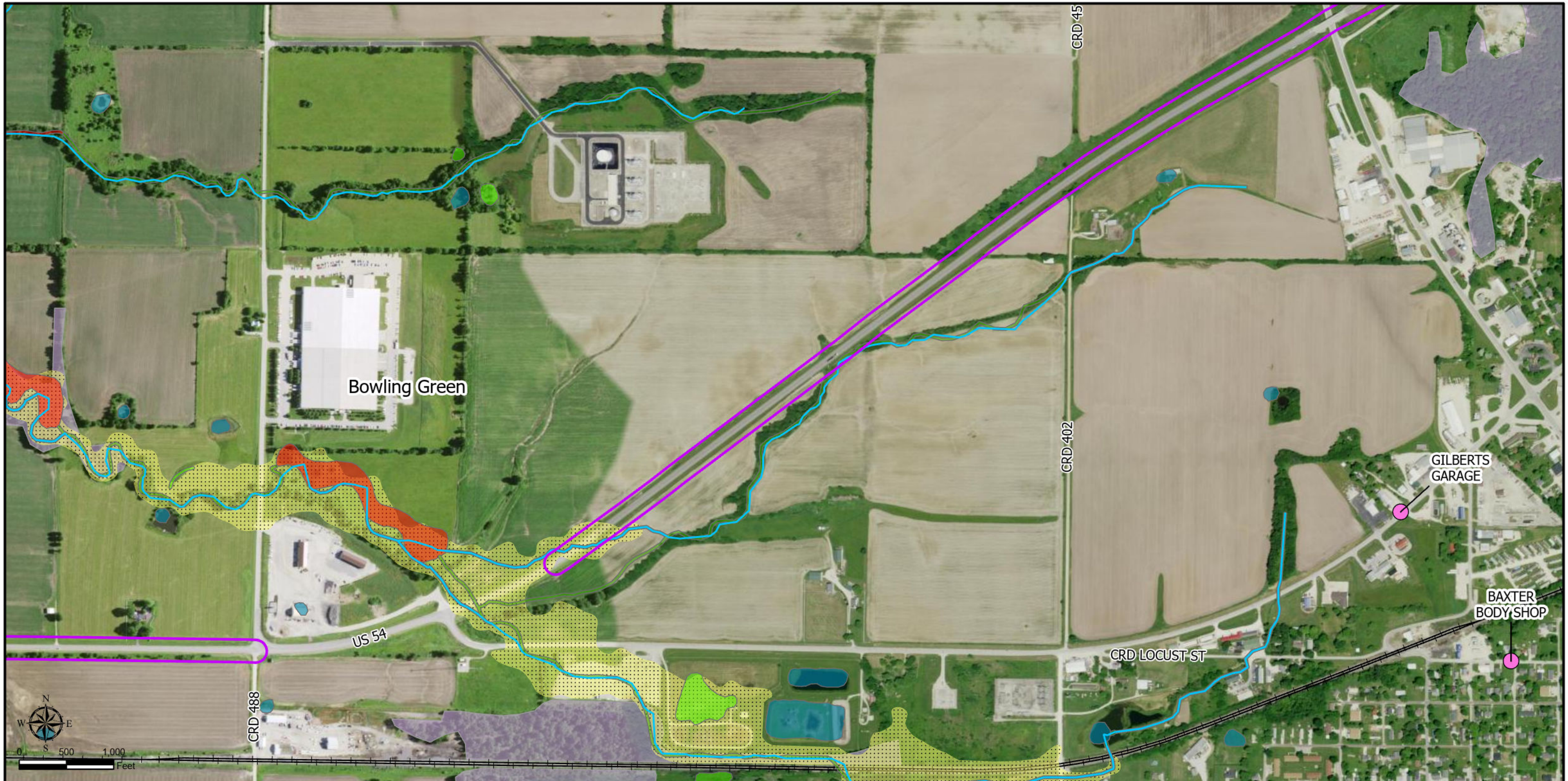
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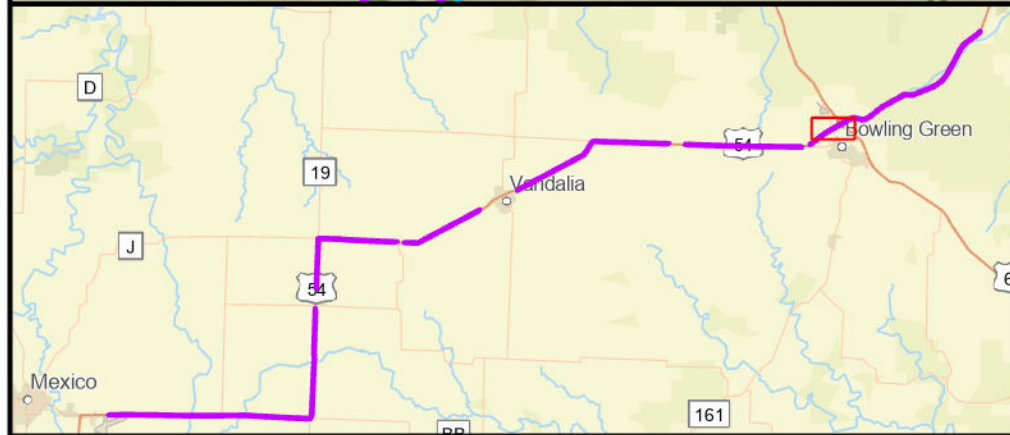
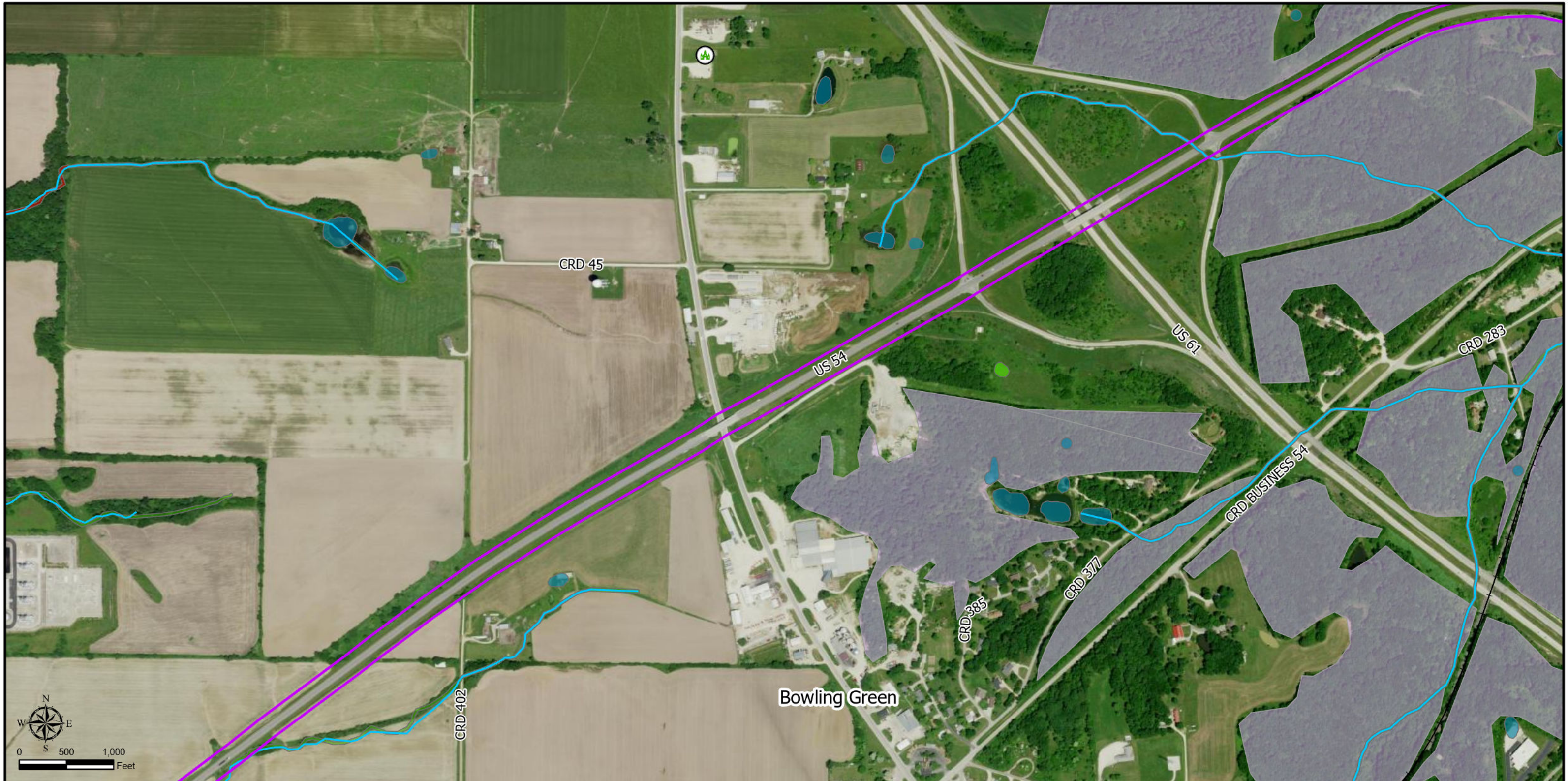
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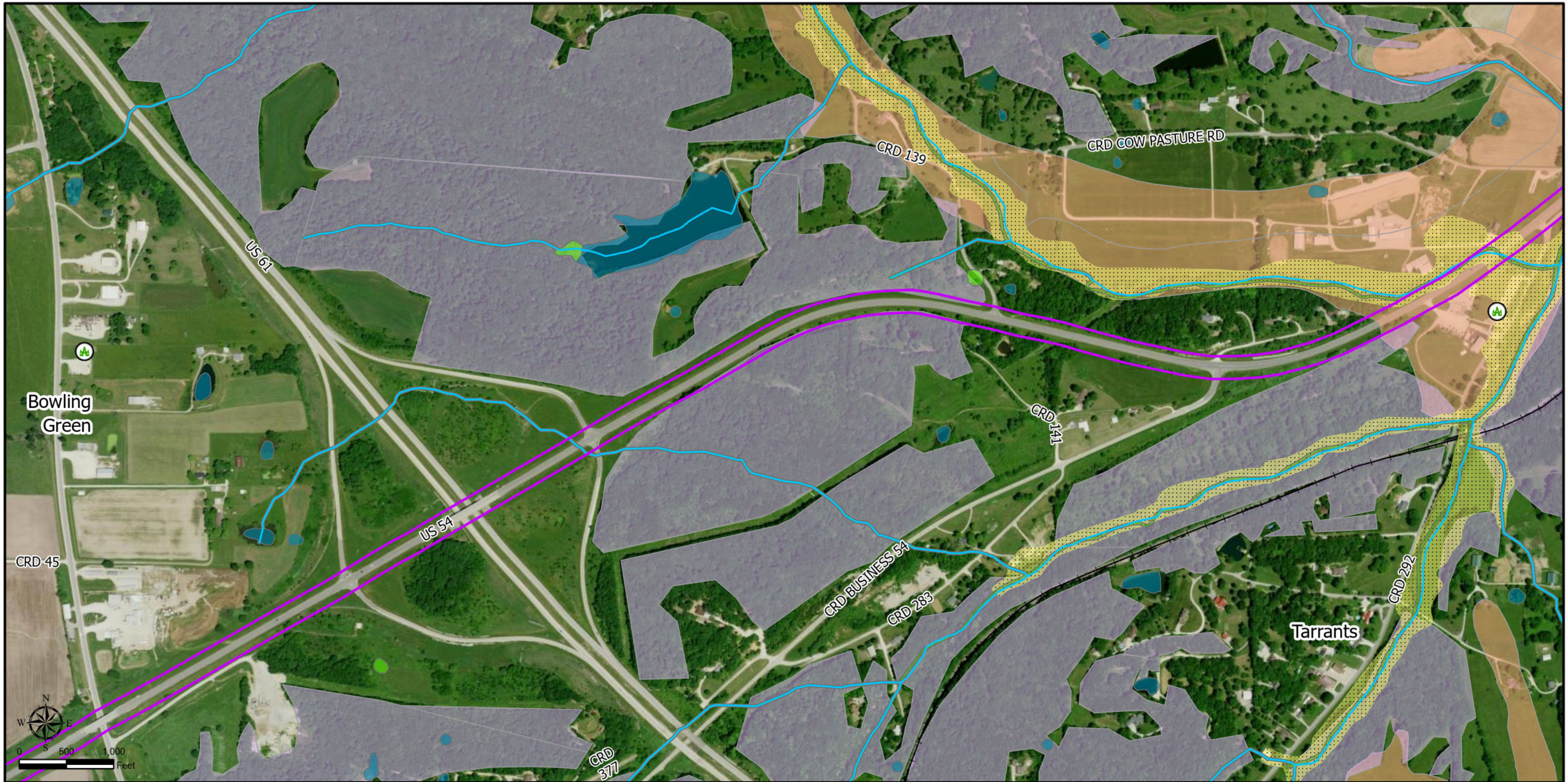
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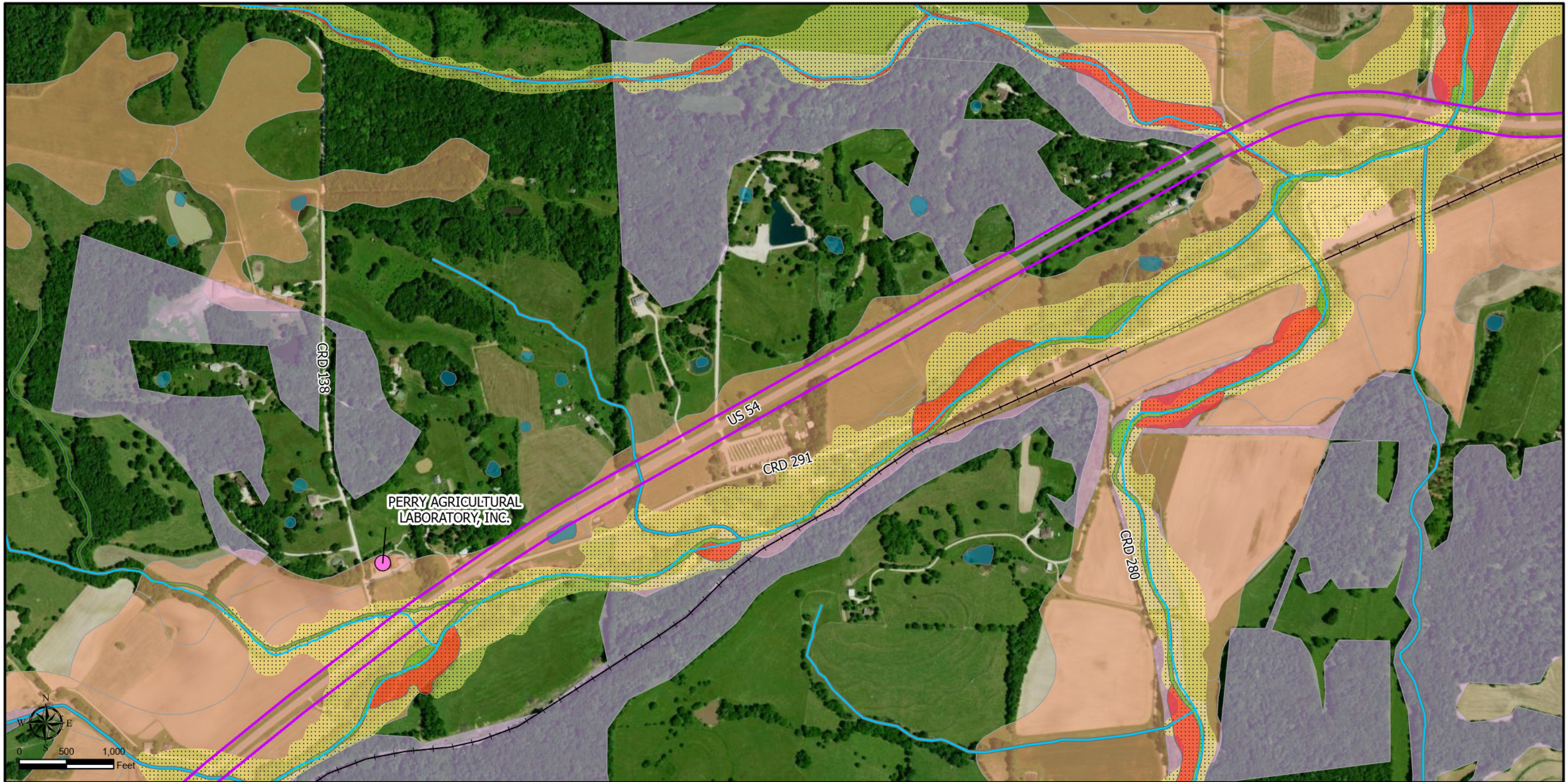
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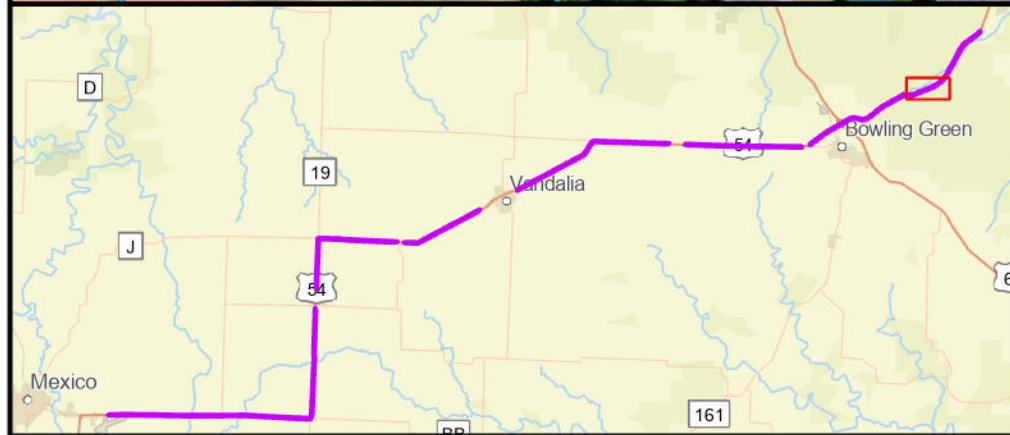
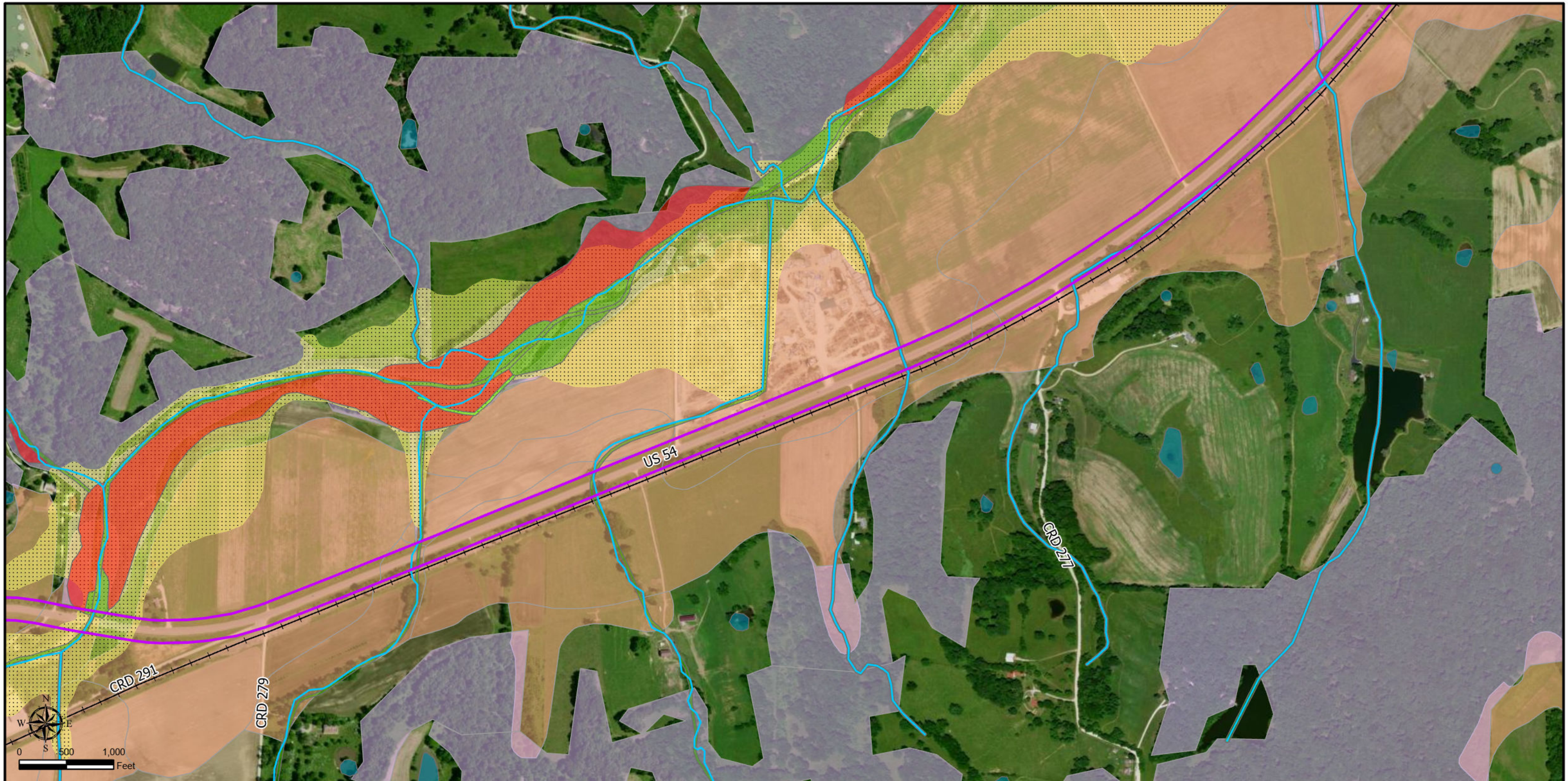
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 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Riverine

Environmental Resources

US Route 54
Mexico, MO to Louisiana, MO
Field Maps





- Study Corridor
- Airport
- + Railroad
- Park
- Country Club
- Cemetery

- Forested Areas
- ⛪ Church
- 🚒 Fire Station
- RCRA Site
- TSCA Site
- UST Site

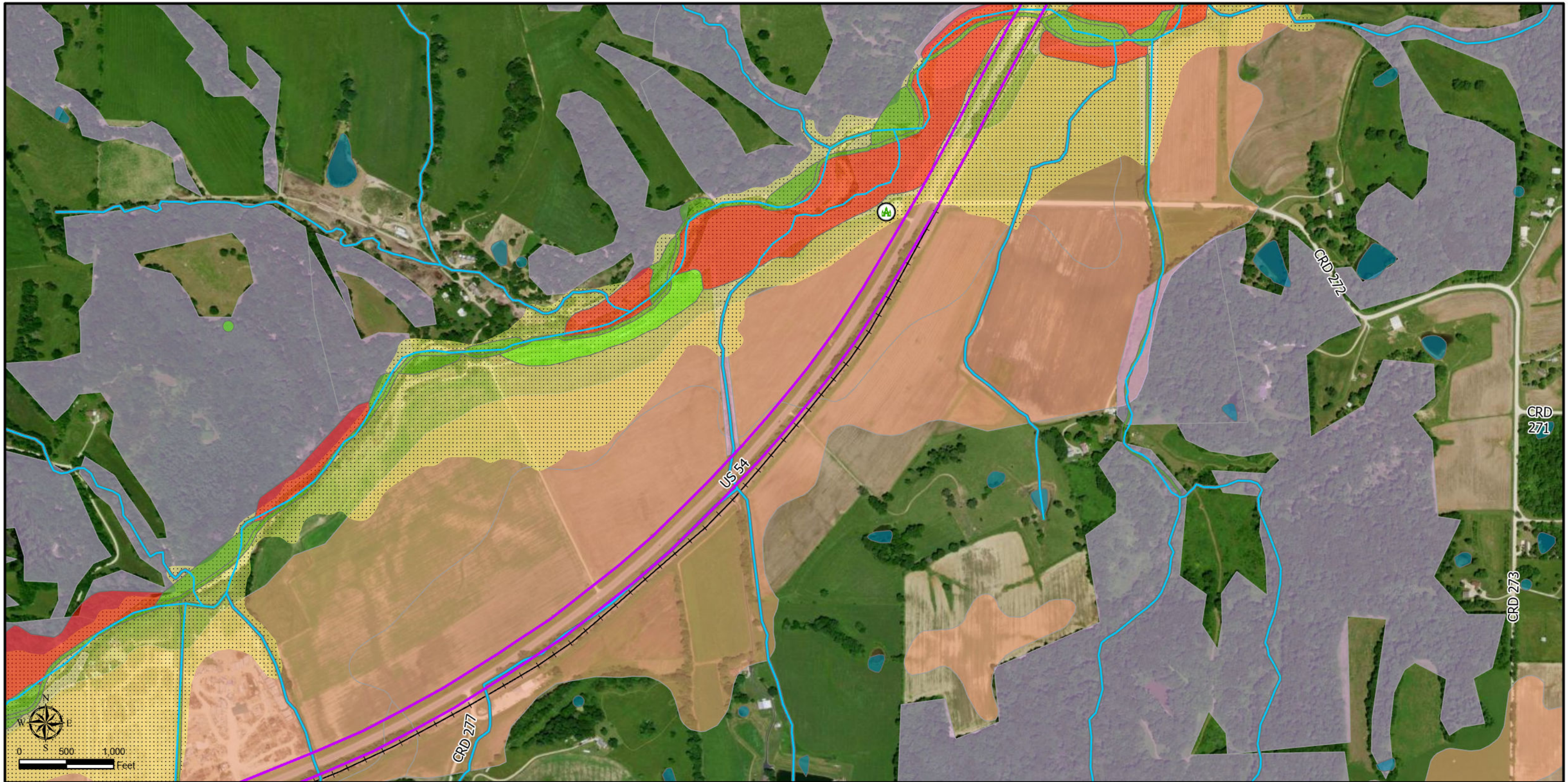
- Ⓜ Missouri Department of Corrections
- 🏫 School
- NHD Stream
- 100 Year Floodplain
- Floodway
- Prime Farmland

- NWI Type
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Environmental Resources

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Mexico, MO to Louisiana, MO
Field Maps





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- ⊙ UST Site

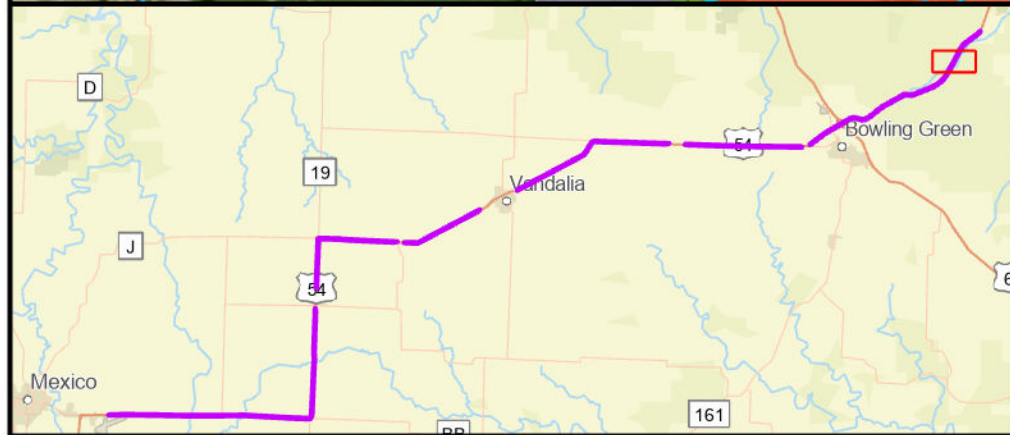
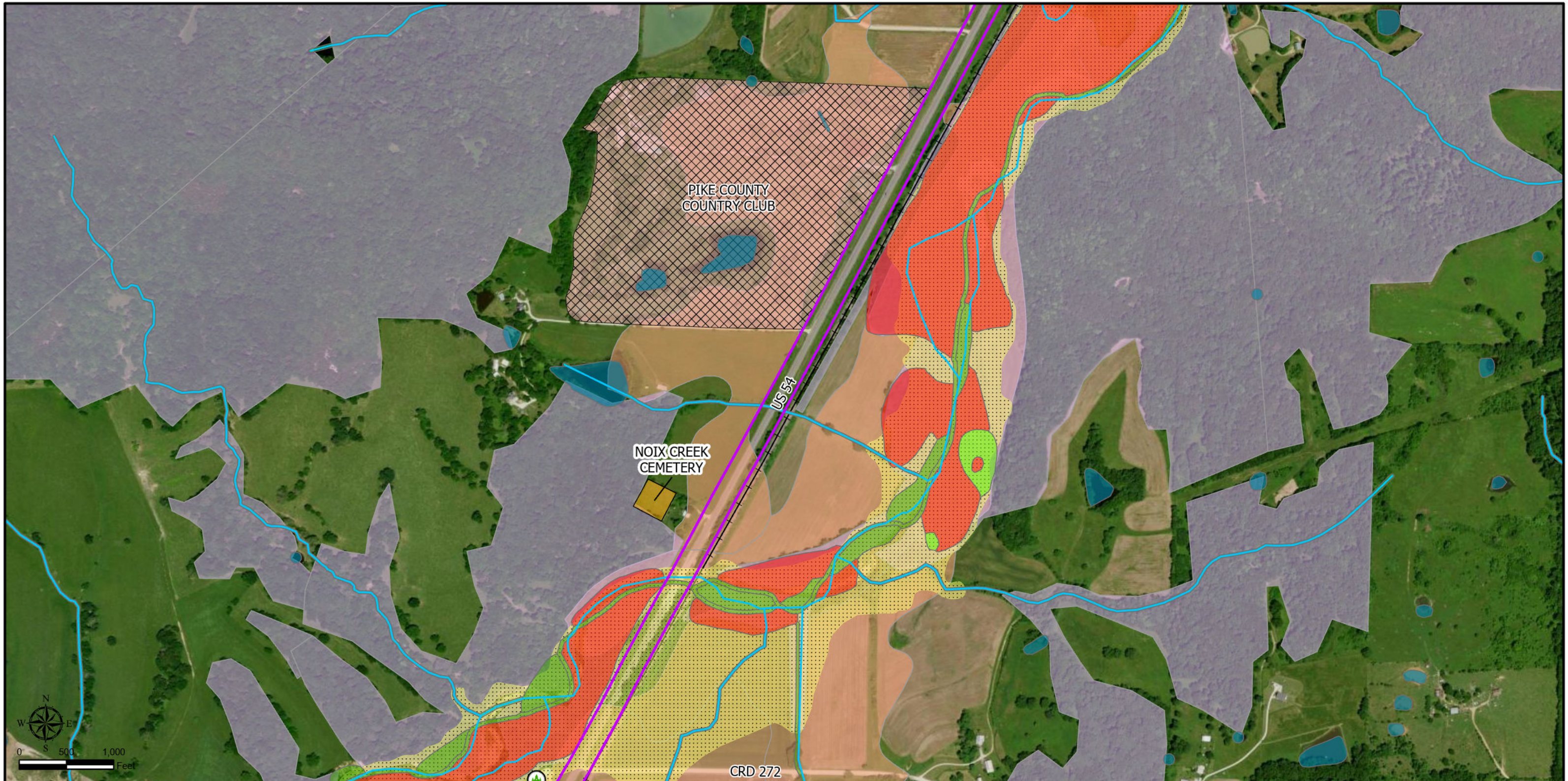
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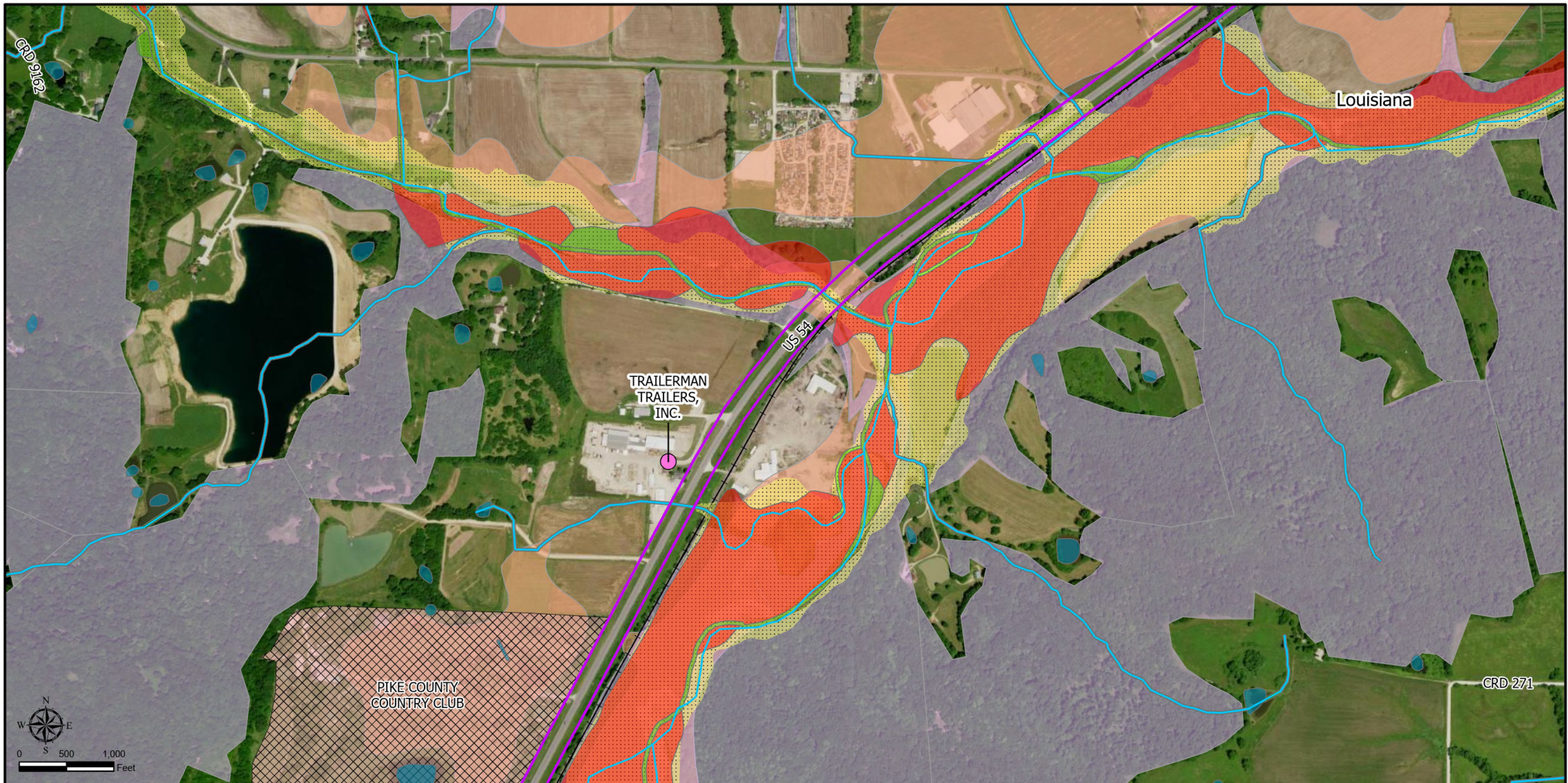
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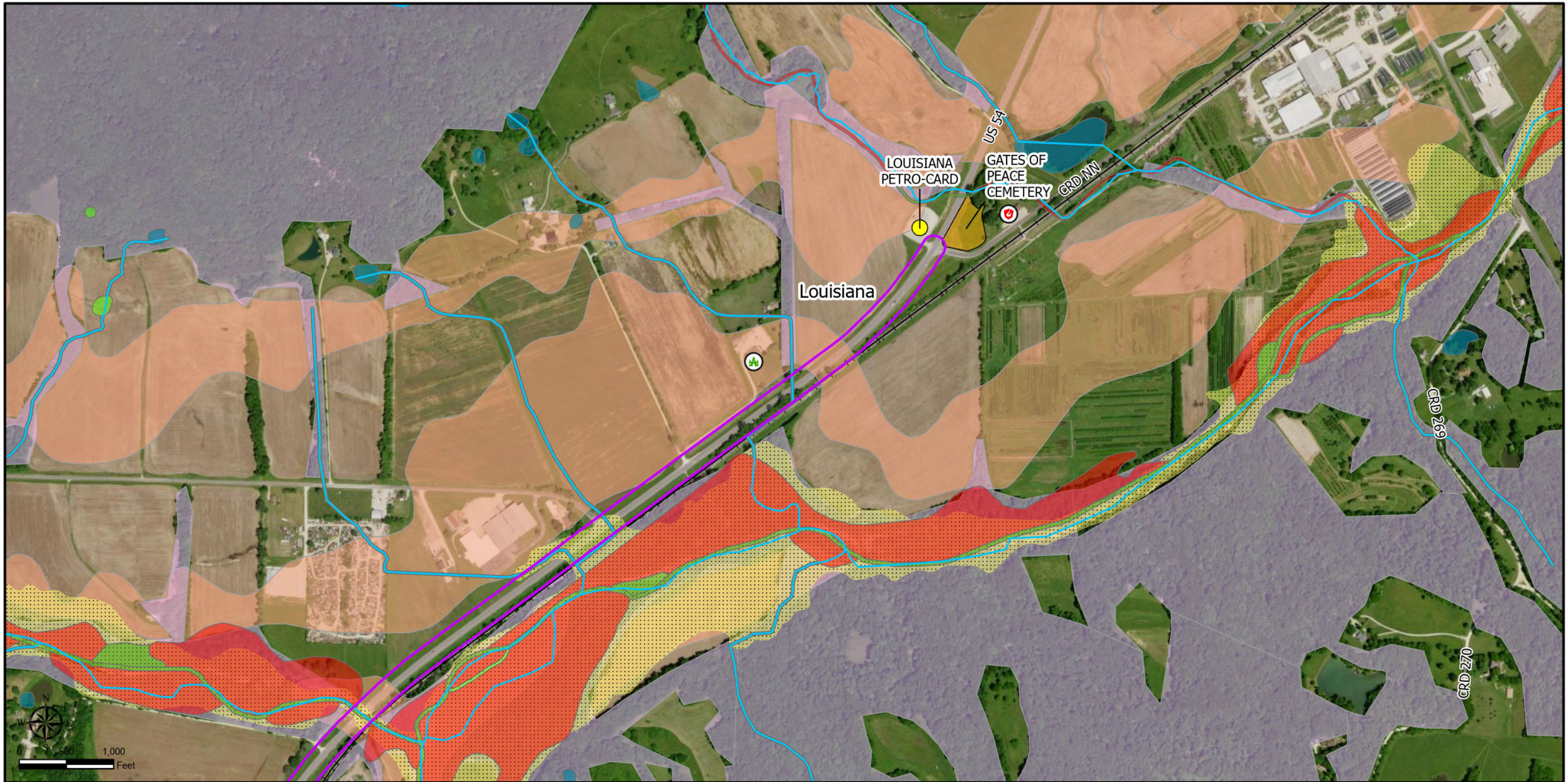
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US Route 54
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Environmental Resources

US Route 54
Mexico, MO to Louisiana, MO
Field Maps



Appendix B – Socioeconomic Technical Memorandum

Socioeconomic Summary Technical Memorandum

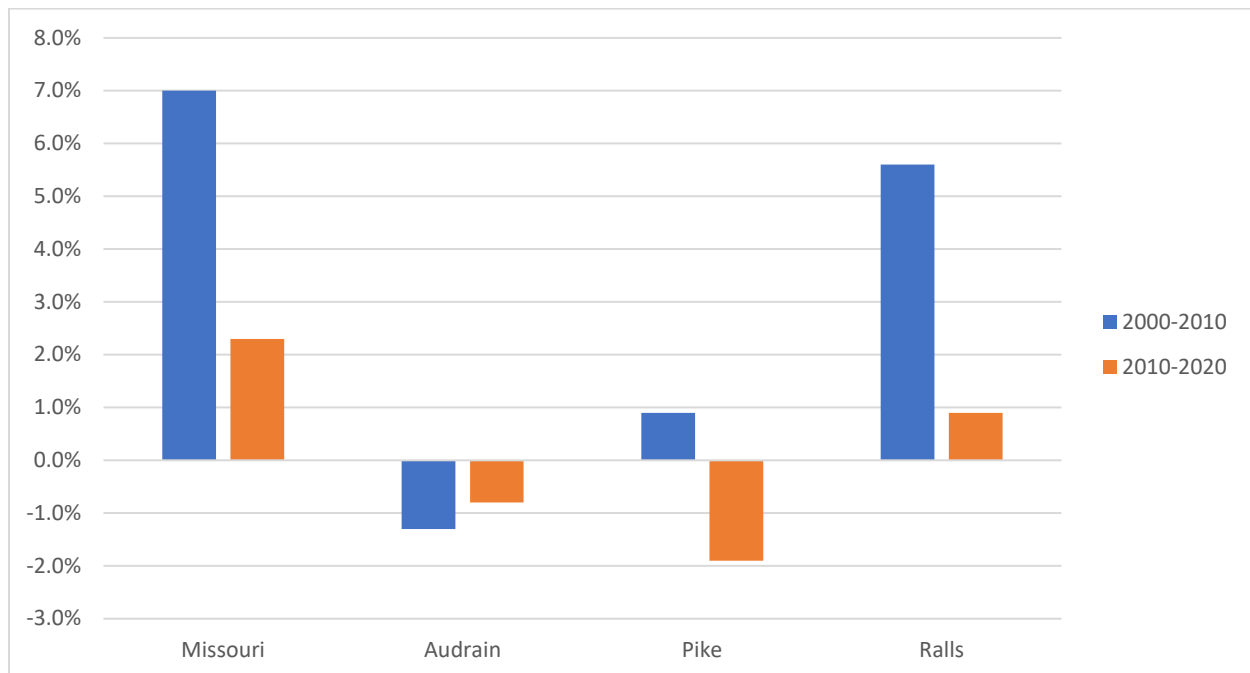
September 2022

Population Trends

In looking at population and demographic information it is important to understand the area that you are looking at. The U.S. 54 Study Area is mostly rural with some small towns along the corridor. This Study Area includes Audrain, Pike, and Ralls County. Drilling down to a more detailed level the Study Area includes nine census tracts, four in Audrain (9501, 9502, 9504, and 9507), four in Pike (4601, 4602, 4603, 4604), and 1 in Ralls (4703) County.

Ralls County is the only county with growth like the State of Missouri between 2000-2020. Ralls County grew over five percent from 2000-2010, whereas Missouri grew about seven percent during that time. From 2010 to 2020, Ralls County grew almost one percent where Missouri grew a little over two percent. Pike County grew only one percent from 2000-2010, and experienced negative growth of almost two percent from 2010-2020. Audrain experience negative growth of about one percent between both 2000-2010 and 2010-2020.

Figure 1: Population Trends



Source: U.S. Census 2000, U.S. Census 2010, ACS Profile: 2016-2020

As illustrated in Table X, Missouri's percentage of minorities is around 19 percent. Audrain and Pike counties both have minority populations of 10 percent, while Ralls County has a minority population of over five percent. There are no census tracts in the Study Area that have a higher minority percentage than the State of Missouri. However, in Audrain County Census Tract 9501 and 9507 have over 16 and 15 percent minority populations respectively. This is higher than the county minority percentage of 10 percent. In Pike County, Census Tract 4601 and 4607 have minority populations that are higher than the county.

When considering the age of the population, Missouri, Audrain County, Pike County all have around 17 percent of their population 65 years and older. In Ralls County, over 21 percent of the population is 65 years and older. Census Tracts 9502 and 9504 have a higher percentage of individuals 65 and over than Audrain County. Census Tracts 4601 and 4602 have populations of 65 and over of 19 and 18 percent respectively. This is higher than the Pike County population of 65 and over.

Table 1: Population, Race and Poverty

	Missouri	Audrain County	Pike County	Ralls County	Tract 9501	Tract 9502	Tract 9504	Tract 9507	Tract 4601	Tract 4602	Tract 4603	Tract 4604	Tract 4703
Total Population	6,124,160	25,336	18,158	10,258	4,141	5,335	2,409	3,168	3,223	3,108	5,494	4,453	3,360
White	81.3%	89.6%	89.6%	94.5%	83.6%	96.2%	92.2%	84.6%	84.3%	98.8%	98.7%	98.3%	94.8%
Black or African American	12.6%	5.5%	6.8%	1.8%	10.9%	3.1%	3.7%	11.9%	4.5%	0.8%	12.2%	7.3%	0%
Hispanic	4.3%	3.2%	2.3%	1.0%	1.2%	0.8%	3.4%	1.7%	7.2%	0.5%	0.4%	3.1%	1.7%
American Indian/ Alaskan Native	0.4%	0.4%	0.2%	0.5%	1.0%	0.1%	0.8%	0%	0%	0%	0.7%	0%	0%
Asian	2.0%	0.1%	0.5%	0.6%	0.5%	0%	0%	0%	0.6%	0.1%	0.5%	0.8%	0.4%
Native Hawaiian	0.1%	0.1%	0.1%	0%	0.2%	0.1%	0.2%	0%	0%	0%	0.3%	0%	0%
Two or More Races	3.5%	3.8%	2.0%	2.0%	3.6%	0.5%	2.8%	2.4%	5.6%	0.4%	1.3%	1.7%	3.3%
65 Years and Over	16.9%	17.8%	17.8%	21.4%	15.7%	20.6%	20.5%	16.7%	19.1%	18.2%	15.6%	15.9%	24.9%

Source: ACS Profile 2016-2020

Income and Employment

Based on the U.S. Census Bureau's 2016-2020 ACS 5-Year Estimates, the percent of the civilian labor force that is unemployed within the Study Area census tracts ranges from two percent to almost nine percent (Table X). The highest percentage of unemployed civilians is within Census Tract 4703 in Ralls County. Census Tracts 4601 and 4604 both have over six percent unemployed civilians. The median household income is highest for the State of Missouri at \$57,290. The lowest median household income is in Tract 9501 at \$38,929. The population below poverty level, where the Study Area census tracts range from almost eight percent to almost 22 percent. The state and county levels range from 13 percent to over 16 percent. Census Tracts 4603 and 4604 have populations below poverty of 21 and 20 percent respectively.

Table 2: Economic Indicators (2020)

	Civilian Labor Force	Percent Civilian Unemployed	Median Household Income	Percent of Population Below Poverty
Missouri	3,071,591	4.5%	\$57,290	13.0%
Audrain County	11,675	5.0%	\$44,699	14.8%
Pike County	7,418	4.7%	\$44,920	16.4%
Ralls County	5,100	5.2%	\$54,194	14.1%
Tract 9501	1,311	4.3%	\$38,929	15.4%
Tract 9502	2,600	2.2%	\$44,841	9.3%
Tract 9504	1,080	2.8%	\$42,834	10.4%
Tract 9507	1,850	3.5%	\$39,861	12.0%
Tract 4601	1,449	6.3%	\$45,423	15.9%
Tract 4602	1,481	3.6%	\$53,011	7.7%
Tract 4603	1,530	2.5%	\$49,858	21.6%
Tract 4604	2,128	6.8%	\$37,569	20.2%
Tract 4703	1,645	8.8%	\$50,614	15.4%

Source: ACS Profile 2016-2020

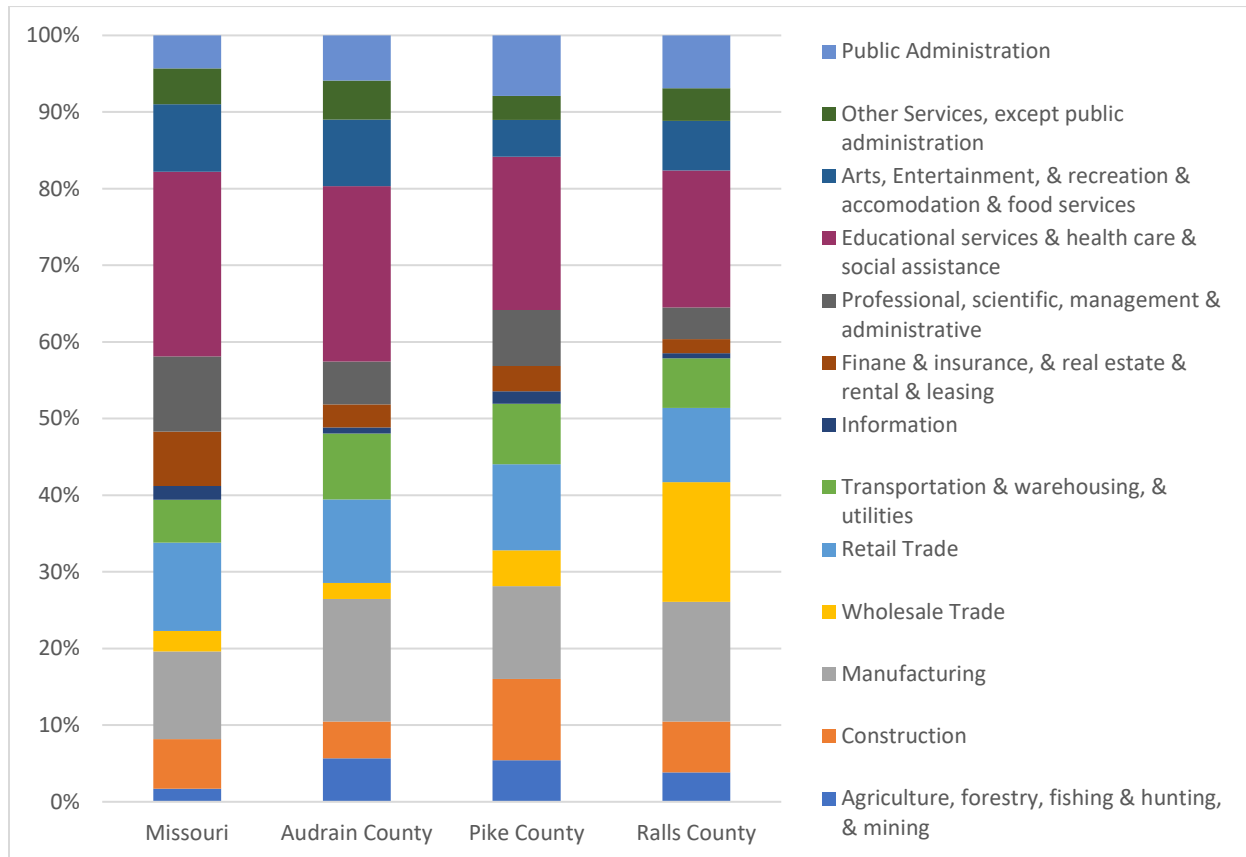
The most common employment categories within the State of Missouri and Audrain, Pike and Ralls counties include:

- Educational services & Health Care & Social Assistance;
- Manufacturing;

- Retail Trade (Figure X).

While these three counties are similar in their employment mix, Ralls County does have a high percentage of workers in the wholesale trade. Pike County has a greater percentage of workers in construction than the others. The categories listed above are strongest in Audrain County. Information has the lowest percentage of employment across the state and all three counties.

Figure 2: Employment by Industry



Appendix C – IPac Review



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Missouri Ecological Services Field Office
101 Park Deville Drive
Suite A
Columbia, MO 65203-0057
Phone: (573) 234-2132 Fax: (573) 234-2181



In Reply Refer To:
Project Code: 2023-0042260
Project Name: US Route 54 Northeast Missouri

February 06, 2023

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

To Whom It May Concern:

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

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 (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 ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Consultation Technical Assistance

Refer to the Midwest Region [S7 Technical Assistance](#) website for step-by-step instructions for making species determinations and for specific guidance on the following types of projects:

projects in developed areas, HUD, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

Federally Listed Bat Species

Indiana bats, gray bats, and northern long-eared bats occur throughout Missouri and the information below may help in determining if your project may affect these species.

Gray bats - Gray bats roost in caves or mines year-round and use water features and forested riparian corridors for foraging and travel. If your project will impact caves, mines, associated riparian areas, or will involve tree removal around these features – particularly within stream corridors, riparian areas, or associated upland woodlots –gray bats could be affected.

Indiana and northern long-eared bats - These species hibernate in caves or mines only during the winter. In Missouri the hibernation season is considered to be November 1 to March 31. During the active season in Missouri (April 1 to October 31) they roost in forest and woodland habitats. Suitable summer habitat for Indiana bats and 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 ≥ 5 inches diameter at breast height (dbh) for Indiana bat, and ≥ 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. Tree species often include, but are not limited to, shellbark or shagbark hickory, white oak, cottonwood, and maple. 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 other 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, Indiana bats or 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 stand of eastern red cedar shrubby vegetation with no potential roost trees.

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. An example ["No Effect" document](#) also can be found on the S7 Technical Assistance website.

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 #3 below) – then project proponents can conclude the proposed activities **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](#) through the S7 Technical Assistance website.
3. If IPaC returns a result that one or more federally listed bat species (Indiana bat, northern long-eared bat, or gray bat) are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities **may affect** these bat species **IF** one or more of the following activities are proposed:
 - a. Clearing or disturbing suitable roosting habitat, as defined above, at any time of year;
 - b. Any activity in or near the entrance to a cave or mine;
 - c. Mining, deep excavation, or underground work within 0.25 miles of a cave or mine;
 - d. Construction of one or more wind turbines; or
 - e. 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 listed bat species. 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. An example ["No Effect" document](#) also can be found on the S7 Technical Assistance website.

If any of the above activities are proposed in areas where one or more bat species may be present, project proponents can conclude the proposed activities **may affect** one or more bat species. We recommend coordinating with the Service as early as possible during project planning. If your project will involve removal of over 5 acres of suitable forest or woodland habitat, we recommend you complete a Summer Habitat Assessment prior to contacting our office to expedite the consultation process. The Summer Habitat Assessment Form is available in Appendix A of the most recent version of the [Range-wide Indiana Bat Summer Survey Guidelines](#).

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.

Next Steps

Should you determine that project activities **may affect** any federally listed species or trust resources described herein, 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.

If you have not already done so, please contact the Missouri Department of Conservation (Policy Coordination, P. O. Box 180, Jefferson City, MO 65102) for information concerning Missouri Natural Communities and Species of Conservation Concern.

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

John Weber

Attachment(s):

- Official Species List
-

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:

Missouri Ecological Services Field Office

101 Park Deville Drive

Suite A

Columbia, MO 65203-0057

(573) 234-2132

Project Summary

Project Code: 2023-0042260

Project Name: US Route 54 Northeast Missouri

Project Type: Road/Hwy - New Construction

Project Description: Adding passing lane to US Route 54

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@39.344807,-91.30965854658834,14z>



Counties: Audrain , Pike , and Ralls counties, Missouri

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

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

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

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

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

Mammals

NAME	STATUS
Gray Bat <i>Myotis grisescens</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949 General project design guidelines: https://ipac.ecosphere.fws.gov/project/7WWUIIRLGFAOHE7TDVOJEK2WWU/documents/generated/6868.pdf	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045 General project design guidelines: https://ipac.ecosphere.fws.gov/project/7WWUIIRLGFAOHE7TDVOJEK2WWU/documents/generated/6868.pdf	Threatened
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

Clams

NAME	STATUS
Spectaclecase (mussel) <i>Cumberlandia monodonta</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7867	Endangered

Insects

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

Critical habitats

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

IPaC User Contact Information

Agency: Missouri Department of Transportation
Name: Brett Pierson
Address: 1533 Locust St
City: Kansas City
State: MO
Zip: 64108
Email: bpierson@hgcons.com
Phone: 8166659637

Lead Agency Contact Information

Lead Agency: Federal Highway Administration

Appendix D – Heritage Review



Missouri Department of Conservation

Missouri Department of Conservation's Mission is to protect and manage the forest, fish, and wildlife resources of the state and to facilitate and provide opportunities for all citizens to use, enjoy and learn about these resources.

Natural Heritage Review Level Three Report: Species Listed Under the Federal Endangered Species Act

There are records of species listed under the Federal Endangered Species Act, and possibly also records for species listed Endangered by the state, or Missouri Species and/or Natural Communities of Conservation Concern within or near the the defined Project Area. Please contact the U.S. Fish and Wildlife Service and the Missouri Department of Conservation for further coordination.

Foreword: Thank you for accessing the Missouri Natural Heritage Review Website developed by the Missouri Department of Conservation with assistance from the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, Missouri Department of Transportation and NatureServe. The purpose of this report is to provide information to federal, state and local agencies, organizations, municipalities, corporations, and consultants regarding sensitive fish, wildlife, plants, natural communities, and habitats to assist in planning, designing, and permitting stages of projects.

PROJECT INFORMATION

Project Name and ID Number: US Route 54 Northeast Missouri #11857

Project Description: Adding a passing lane to Route US 54 in Audrain, Pike and Ralls counties

Project Type: Transportation, Roads

Contact Person: Brett Pierson

Contact Information: bpierson@hgcons.com or 8166659637

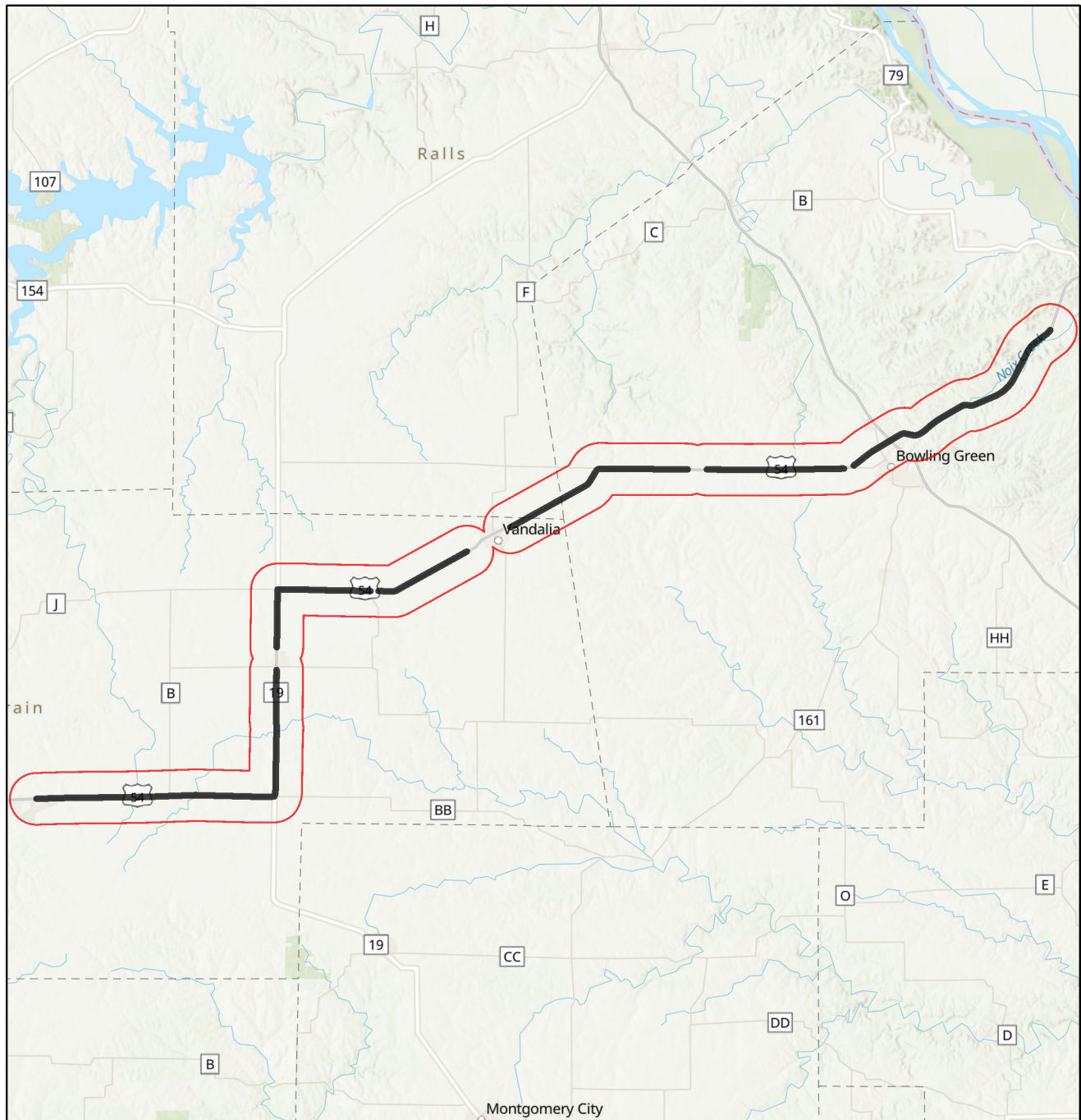
Disclaimer: This NATURAL HERITAGE REVIEW REPORT identifies if a species or natural community tracked by the Natural Heritage Program is known to occur within or near the project area submitted, and shares recommendations to avoid or minimize project impacts to sensitive species or natural habitats. Incorporating information from the Natural Heritage Program into project plans is an important step in reducing impacts to Missouri's sensitive natural resources. If an occurrence record is present, or the proposed project might affect federally listed species, the user must contact the Department of Conservation or U.S. Fish and Wildlife Service for more information.

This Natural Heritage Review Report is not a site clearance letter for the project. Rather, it identifies public lands and records of sensitive resources located close to and/or potentially affected by the proposed project. If project plans or location change, this report may no longer be valid. Because land use conditions change and animals move, the existence of an occurrence record does not mean the species/habitat is still present. Therefore, reports include information about records near but not necessarily on the project site. Lack of an occurrence record does not mean that a sensitive species or natural community is not present on or near the project area. On-site verification is the responsibility of the project. However, the Natural Heritage Program is only one reference that should be used to evaluate potential adverse project impacts and additional information (e.g. wetland or soils maps, on-site inspections or surveys) should be considered. Reviewing current landscape and habitat information, and species' biological characteristics would additionally ensure that Missouri Species of Conservation Concern are appropriately identified and addressed in planning efforts.

U.S. Fish and Wildlife Service – Endangered Species Act (ESA) Coordination: Lack of a Natural Heritage Program occurrence record for federally listed species in your project area does not mean the species is not present, as the area may never have been surveyed. Presence of a Natural Heritage Program occurrence record does not mean the project will result in negative impacts. This report does not fulfill Endangered Species Act consultation with the U.S. Fish and Wildlife Service (USFWS) for listed species. Direct contact with the USFWS may be necessary to complete consultation and it is required for actions with a federal connection, such as federal funding or a federal permit; direct contact is also required if ESA concurrence is necessary. Visit [IPaC: Home \(fws.gov\)](https://www.fws.gov/ipac) to initiate USFWS Information for Planning and Conservation (IPaC) consultation. Contact the Columbia Missouri Ecological Field Services Office (573-234-2132, or by mail at 101 Park Deville Drive, Suite A, Columbia, MO 65203) for more information.

Transportation Projects: If the project involves the use of Federal Highway Administration transportation funds, these recommendations may not fulfill all contract requirements. Please contact the Missouri Department of Transportation at 573-526-4778 or visit [Home Page | Missouri Department of Transportation \(modot.org\)](https://www.modot.org) for additional information on recommendations.

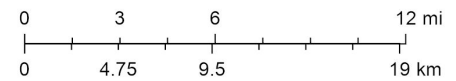
US Route 54 Northeast Missouri



December 1, 2022

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-  Buffered Project Boundary
-  Project Boundary



Missouri Dept. of Conservation, Missouri DNR, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, Esri, CGIAR, USGS

Species or Communities of Conservation Concern within the Area:

There are records of species listed under the Federal Endangered Species Act, and possibly also records for species listed Endangered by the state, or Missouri Species and/or Natural Communities of Conservation Concern within or near the defined Project Area. Please contact the U.S. Fish and Wildlife Service and the Missouri Department of Conservation for further coordination.

Email (preferred): NaturalHeritageReview@mdc.mo.gov
MDC Natural Heritage Review
Science Branch
P.O. Box 180
Jefferson City, MO
65102-0180
Phone: 573-522-4115 ext. 3182

U.S. Fish and Wildlife Service
Ecological Service
101 Park Deville Drive
Suite A
Columbia, MO
65203-0007
Phone: 573-234-2132

Other Special Search Results:

No results have been identified for this project location.

Project Type Recommendations:

Transportation - Roads: New and Maintenance projects typically change the plants and animals that live on the right-of-way or in the vicinity. Minimize erosion and sedimentation/runoff to nearby streams and lakes by carefully adhering to any Clean Water Act permit conditions; and include design elements to manage stormwater so that present water discharge rates from the site to streams during heavy rain events are not increased. Revegetation of disturbed areas is recommended to minimize erosion, as is restoration with native plant species compatible with the local landscape and wildlife needs. Annuals like ryegrass may be combined with native perennials for quicker green-up. Avoid aggressive exotic perennials such as crown vetch and sericea lespedeza.

Maintenance of ground cover in utility corridors can have significant implications for sensitive resources. Native plant species typically require low maintenance over the long term, and provide more benefits to native wildlife. Use silt fences and/or vegetative filter strips to buffer streams and drainages, and monitor those after rain events and until a well-rooted ground cover is reestablished. Please see [Best Management Practices for Construction and Development Projects Affecting Missouri Rivers and Streams \(mo.gov\)](#).

Project Location and/or Species Recommendations:

Endangered Species Act Coordination - If this project has the potential to alter habitat (e.g. tree removal, projects in karst habitat) or cause direct mortality of bats, please coordinate directly with U.S. Fish and Wildlife Service (Ecological Services, 101 Park Deville Drive, Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132 Ext. 100 for Ecological Services) for further coordination under the Endangered Species Act. Indiana bats (*Myotis sodalis*, federal- and state-listed endangered) and Northern long-eared bats (*Myotis septentrionalis*, federal-listed threatened) may occur near the project area. Both of these species of bats hibernate during winter months in caves and mines. During the summer months, they roost and raise young under the bark of trees in wooded areas, often riparian forests and upland forests near perennial streams. During project activities, avoid degrading stream quality and where possible leave snags standing and preserve mature forest canopy. Do not enter caves known to harbor Indiana bats or Northern long-eared bats, especially from September to April.

Gray Bat: The submitted project location is within the range of the Gray Myotis (i.e., Gray Bat) in Missouri. Depending on habitat conditions of your project's location, Gray Myotis (*Myotis grisescens*, federal and state-listed endangered) could occur within the project area, as they forage over streams, rivers, lakes, and reservoirs. Avoid entry or disturbance of any cave inhabited by Gray Myotis and when possible retain forest vegetation along the stream and from the cave opening to the stream. Please see [Best Management Practices for Construction and Development Projects Gray bat \(mo.gov\)](#).

Karst: This county has known karst geologic features (e.g., caves, springs, and sinkholes, all characterized by subterranean water movement). Few karst features are recorded in Natural Heritage records, and ones not noted here may be encountered at the project site or affected by the project. Cave fauna (many of which are Species of Conservation Concern) are influenced by changes to water quality; please check your project site for any karst features and make every effort to protect groundwater in the project area. Additional information and specific recommendations are available at [Management Recommendations for Construction and Development Projects Affecting Missouri Karst Habitat \(mo.gov\)](#).

Invasive exotic species are a significant issue for fish, wildlife and agriculture in Missouri. Seeds, eggs, and larvae may be moved to new sites on boats or construction equipment. Please inspect and clean equipment thoroughly before moving between project sites. See [Managing Invasive Species in Your Community | Missouri Department of Conservation \(mo.gov\)](#) for more information.

- Remove any mud, soil, trash, plants or animals from equipment before leaving any water body or work area.
- Drain water from boats and machinery that have operated in water, checking motor cavities, live-well, bilge and transom wells, tracks, buckets, and any other water reservoirs.
- When possible, wash and rinse equipment thoroughly with hard spray or HOT water (>140° F, typically available at do-it-yourself car wash sites), and dry in the hot sun before using again.

Streams and Wetlands – Clean Water Act Permits: Streams and wetlands in the project area should be protected from activities that degrade habitat conditions. For example, soil erosion, water pollution, placement of fill, dredging, in-stream activities, and riparian corridor removal, can modify or diminish aquatic habitats. Streams and wetlands may be protected under the Clean Water Act and require a permit for any activities that result in fill or other modifications to the site. Conditions provided within the U.S. Army Corps of Engineers (USACE) Clean Water Act Section 404 permit ([Kansas City District Regulatory Branch \(army.mil\)](#)) and the Missouri Department of Natural Resources (DNR) issued Clean Water Act Section 401 Water Quality Certification ([Section 401 Water Quality Certification | Missouri Department of Natural Resources \(mo.gov\)](#)), if required, should help minimize impacts to the aquatic organisms and aquatic habitat within the area. Depending on your project type, additional permits may be required by the Missouri Department of Natural Resources, such as permits for stormwater, wastewater treatment facilities, and confined animal feeding operations. Visit [Wastewater Permits | Missouri Department of Natural Resources \(mo.gov\)](#) for more information on DNR permits. Visit both the USACE and DNR for more information on Clean Water Act permitting.

For further coordination with the Missouri Department of Conservation and the U.S. Fish and Wildlife Services, please see the contact information below:

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Miscellaneous Information

FEDERAL Concerns are species/habitats protected under the Federal Endangered Species Act and that have been known near enough to the project site to warrant consideration. For these, project managers must contact the U.S. Fish and Wildlife Service Ecological Services (101 Park Deville Drive Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132; Fax 573-234-2181) for consultation.

STATE Concerns are species/habitats known to exist near enough to the project site to warrant concern and that are protected under the Wildlife Code of Missouri (RSMo 3 CSR 10). "State Endangered Status" is determined by the Missouri Conservation Commission under constitutional authority, with requirements expressed in the Missouri Wildlife Code, rule 3CSR 10-4.111. Species tracked by the Natural Heritage Program have a "State Rank" which is a numeric rank of relative rarity. Species tracked by this program and all native Missouri wildlife are protected under rule 3CSR 10-4.110 General Provisions of the Wildlife Code.

See [Missouri Species and Communities of Conservation Concern Checklist \(mo.gov\)](#) for a complete list of species and communities of conservation concern. Detailed information about the animals and some plants mentioned may be accessed at [Mofwis Search Results](#). Please contact the Missouri Department of Conservation to request printed copies of any materials linked in this document.