

Nebraska Department of Transportation

Wetland and Water Resource Procedure Document

April 2020



NEBRASKA

Good Life. Great Journey.

DEPARTMENT OF TRANSPORTATION

This procedure document supersedes the “NDOT Wetland and
Water Resource Procedure Document”
(May 2018).

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Acronyms, Abbreviations, and Short Forms

ACHP	Advisory Council on Historic Preservation
bank	streambank
bed	streambed
BMP	best management practice
CE	categorical exclusion
CFR	Code of Federal Regulations
Coast Guard	U.S. Coast Guard
CWA	Clean Water Act of 1972
DEC	[NDOT] District Environmental Coordinator
Document	[NDOT] Wetland and Water Resource Procedure Document
EA	environmental assessment
EDU	[NDOT] Environmental Documents Unit
EIS	environmental impact statement
ESA	Endangered Species Act of 1973
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FR	Federal Register
FWCA	Fish and Wildlife Coordination Act
General Condition(s)	Clean Water Act Section 404 Nationwide Permit General Condition(s)
GIS	geographic information systems
GPS	global positioning system
H&H	hydrologic and hydraulic
HUC	hydrologic unit code
IRT	Interagency Review Team
JD	jurisdictional determination
LEDPA	least environmentally damaging practicable alternative
LIDAR	Light Detection and Ranging
LOCs	limits of construction
LPA	Local Public Agency
NAD 83	North American Datum of 1983
NAIP	National Agriculture Imagery Program
NDEE	Nebraska Department of Environment and Energy
NDEQ	Nebraska Department of Environmental Quality

NDOR	Nebraska Department of Roads
NDOT	Nebraska Department of Transportation
NEPA	National Environmental Policy Act of 1969
NESCA	Nebraska Endangered Species Conservation Act
NeSCAP	Nebraska Stream Condition Assessment Procedure
NFIP	National Flood Insurance Program
NHD	National Hydrography Dataset
NHPA	National Historic Preservation Act of 1966
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	U.S. National Park Service
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
NWP	Clean Water Act Section 404 Nationwide Permit
OHWM	ordinary high water mark
PCN	pre-construction notification
PLSS	public land survey system
PQS	Professionally Qualified Staff
PS&E	[NDOT] Plans, Specifications, and Estimates
Rapanos guidance	USEPA and USACE guidance issued on December 2, 2008, and titled Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in <i>Rapanos v. United States & Carabell v. United States</i>
RDCU	[NDOT] Roadside Development and Compliance Unit
Regional Condition(s)	Clean Water Act Section 404 Nationwide Permit Regional Condition(s) for Nebraska
RGL	Regulatory Guidance Letter
RHA	Rivers and Harbors Appropriation Act of 1899
RIBITS	[USACE] Regulatory In-lieu Fee and Bank Information Tracking System
ROD	Record of Decision
ROW	right-of-way
RPW	relatively permanent water
Section 9	Section 9 of the Rivers and Harbors Appropriation Act
Section 10	Section 10 of the Rivers and Harbors Appropriation Act
Section 401	Section 401 of the Clean Water Act
Section 404	Section 404 of the Clean Water Act
SHPO	State Historic Preservation Office (History Nebraska)

State	State of Nebraska
SWPPP	Stormwater Pollution Prevention Plan
Title 117	Nebraska Administrative Code Title 117, Nebraska Surface Water Quality Standards
TNW	traditional navigable water
TRU	[NDOT] Technical Resources Unit
USACE	U.S. Army Corps of Engineers
USACE form	U.S. Army Corps of Engineers Wetland Determination Data Form
USC	United States Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
WCS	water conveyance structure
WETS	NRCS climate table that defines normal monthly precipitation

Chapter 1 Introduction and Purpose

This Wetland and Water Resource Procedure Document (Document) is intended for use by Nebraska Department of Transportation (NDOT) staff and Consultants who perform wetland and water resource activities for NDOT-administered projects in Nebraska. It is applicable to highway and trail improvement projects, both those that receive federal aid and those that are wholly funded by the State of Nebraska (State). This Document includes content specific to—and supersedes previously distributed NDOT guidance on—wetland delineations and water conveyance structure evaluations and documentation. This Document is not intended to replace the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) or any of the U.S. Army Corps of Engineers (USACE) 2010 regional supplements. Rather, this Document is intended to augment these recognized guidance publications and focus on methods and best practices used by NDOT.

This Document provides uniform instruction for all parties performing wetland and water resource activities for NDOT-administered transportation projects in Nebraska.

This Document facilitates compliance with applicable federal and State directives, as detailed in Chapter 3. Furthermore, it is intended to facilitate Clean Water Act of 1972 (CWA) Section 404 permitting processes as well as impact evaluations required by the National Environmental Policy Act of 1969 (NEPA). Agencies and other parties involved with wetland and water resource permitting in Nebraska, and their associated responsibilities, are discussed in Chapter 4. Specific wetland and water resource procedures are detailed in Chapters 5 through 20. For each of these procedures,

applicable definitions and background information are provided under the main heading. In most cases, the subsequent subheadings are as follows:

1. Applicability – Condition(s) under which the procedure is required for highway and trail improvement projects
2. Methodology – Approach used to perform the procedure and receive potentially required authorization
3. Documentation – List of documents (or deliverables), and associated responsible parties, that result from the procedure
4. Attachments – Pertinent information or example documents provided as an attachment to this Document

Definitions of key terms are provided in Chapter 21. References cited in this Document are listed in Chapter 22.

Through in-depth, recent coordination with USACE regarding expectations and standard operating procedures, NDOT has documented recurring USACE procedural recommendations. Document content that is provided in *italic font* represents these recurring USACE recommendations. These items should be carefully considered and implemented when following the procedures provided herein.

Chapter 2 Contact Information

The Manager of NDOT's Technical Resources Unit (TRU) should be consulted regarding questions or comments related to this Document. If necessary, the TRU Manager would consult with one or more of the following to address potential inquiries: Federal Highway Administration (FHWA), USACE, and other resource agencies.

The TRU Manager's contact information is as follows:

Mr. Dillon Dittmer, Highway Environmental Program Manager
Nebraska Department of Transportation
Project Development Division
1500 Highway 2
P.O. Box 94759
Lincoln, NE 68509-4759
(402) 479-4411
Dillon.Dittmer@nebraska.gov

Consultant-derived, project-related questions and general project communications should be directed to the applicable TRU Wetland Project Manager. Regular communication between these parties is critical to maintaining effective project development and program delivery.

Chapter 3 Regulatory Context

This Document would facilitate compliance with the regulatory directives discussed in this section. Some of the regulatory directives included are tangential to Section 404. This Document provides content that is intended to increase awareness about these directives but is not intended to detail applicable NDOT compliance procedures. Included content is secondary to separate, more detailed NDOT compliance procedure publications.

3.1 Clean Water Act Section 404

CWA Section 404 established a program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands (33 United States Code [USC] 1251 et seq.). The purpose of the legislation is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters through prevention, reduction, and elimination of pollution. Responsibility for administering and enforcing Section 404 in Nebraska is shared by USACE and the U.S. Environmental Protection Agency (USEPA). USACE administers the day-to-day program, including Individual Permit decisions and jurisdictional determinations; develops policy and guidance; and enforces Section 404

CWA Section 404 established a program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands (33 USC 1251 et seq.).

provisions. USEPA develops and interprets environmental criteria used in evaluating permit applications, identifies activities that are exempt from permitting, reviews and comments on Individual Permit applications, enforces Section 404 provisions, and has authority to veto USACE permit decisions (USEPA 2016).

3.2 Clean Water Act Section 401

Under CWA Section 401, states and Native American tribes can review and approve, condition, or deny all federal permits or licenses that might result in a discharge to state or tribal waters, including wetlands (33 USC 1251 et seq.). Approval is provided in the form of Water Quality Certification that must be obtained from the state or tribe before any activity that may result in a pollution discharge to waters of the United States can be permitted by a federal agency (including CWA Section 404 authorization from USACE).

In Nebraska, Water Quality Certification is issued by the Nebraska Department of Environment and Energy (NDEE) on non-tribal land and USEPA on tribal land.¹ It certifies that a proposed discharge would comply with applicable water quality standards, effluent limitations, new source performance standards, toxic pollutants, and other water resource requirements of State and tribal law

Under CWA Section 401, states and tribes can review and approve, condition, or deny all federal permits or licenses that might result in a discharge to state or tribal waters, including wetlands (33 USC 1251 et seq.).

¹ The tribes in USEPA Region 7 (including Nebraska) do not have approved water quality standards or CWA Section 401 authority for the purpose of regulating water resources within the borders of tribal land, pursuant to CWA Section 518(e). In the absence of such authority, USEPA provides recommendations for Water Quality Certification on tribal land within USEPA Region 7 and in accordance with CWA Section 401 (USEPA 2007).

or regulation (see Section 3.13 regarding Nebraska water quality legislation).

3.3 Rivers and Harbors Appropriation Act Sections 9 and 10

Sections 9 and 10 of the Rivers and Harbors Appropriation Act of 1899 (33 USC 401, 403) grant the federal government control over obstructions to navigable waters.

Sections 9 and 10 of the Rivers and Harbors Appropriation Act of 1899 (RHA; 33 USC 401, 403) grant the federal government control over obstructions to navigable waters and are intended to protect open and unfettered waterborne commerce between states.

Section 9 outlines the requirements for approval to construct dams, dikes, bridges, or causeways in a navigable waterway and is administered by the U.S. Coast Guard (Coast Guard). Section 10 provides authority to approve construction of smaller structures, such as wharves, booms, and bulkheads, as well as to approve dredging and filling operations. This section also bans all obstructions to “the navigable capacity of any of the

waters of the United States, unless the obstruction is affirmatively authorized by Congress” and is administered by USACE.

3.4 General Bridge Act

The General Bridge Act of 1946 (formerly Section 9 of the RHA of 1899) empowers the Coast Guard to regulate the construction of bridges and causeways within or across waterways it defines as navigable (33 USC 525).

3.5 Executive Order 11990, Protection of Wetlands

On May 24, 1977, Executive Order 11990, Protection of Wetlands, was provided “in order to avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative” (42 Federal Register [FR] 26961).

Executive Order 11990 applies to only federal agencies and federal undertakings, including NDOT projects that receive federal aid via FHWA.

Executive Order 11990 applies to only federal agencies and federal undertakings, including NDOT projects that receive federal aid via FHWA. In addition, Executive Order 11990 applies to both wetlands that are jurisdictional and wetlands that are non-jurisdiction under Section 404, and states that:

Each [federal] agency shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency’s responsibilities for (1) acquiring, managing, and disposing of Federal lands and facilities; and (2) providing Federally undertaken, financed, or assisted construction and improvements; and (3) conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities....

In furtherance of Section 101(b)(3) of the National Environmental Policy Act of 1969 (42 U.S.C. 4331(b)(3)) to improve and coordinate Federal plans, functions, programs and resources to the end that the Nation may attain the widest range of beneficial uses of the environment without degradation and risk to health or safety, each [federal] agency, to the extent

permitted by law, shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds (1) that there is no practicable alternative to such construction, and (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use. In making this finding the head of the [federal] agency may take into account economic, environmental and other pertinent factors. (42 FR 26961)

3.6 23 CFR 777, FHWA Mitigation of Impacts to Wetlands and Natural Habitat

FHWA's regulation titled Mitigation of Impacts to Wetlands and Natural Habitat (23 CFR 777) provides a policy and procedures for the evaluation and mitigation of adverse environmental impacts on wetlands and natural habitat resulting from federal-aid projects funded pursuant to provisions of Title 23 of the Code of Federal Regulations.

3.7 National Environmental Policy Act

NEPA (42 USC 4321 et seq.) "establishes national environmental policy and goals for the protection, maintenance, and enhancement of the environment and it provides a process for implementing these goals within the federal agencies" (Center for Environmental Excellence by AASHTO 2016). In addition,

NEPA contains a Declaration of National Environmental Policy. This policy requires the federal government to use all practicable means to create and maintain conditions under which man and nature can exist in productive harmony. Section 102...requires federal agencies to incorporate environmental considerations in their planning and decision-making through a systematic interdisciplinary approach. (USEPA 2015)

The FHWA Nebraska Division administers the federal-aid transportation program in Nebraska where NDOT has been delegated the authority to act as the lead federal agency for NEPA evaluations and decisions for federal-aid transportation projects in the State, pursuant to 23 USC 326 and the Memorandum of Understanding dated September 5, 2018, and executed by FHWA and NDOT.. In association with NEPA, and in cooperation with USACE and USEPA, NDOT considers whether federal-aid transportation projects would result in significant impacts on wetlands, water resources, or both.

FHWA administers the federal-aid transportation program and NDOT acts as the lead federal agency for NEPA evaluations. For projects with no federal nexus beyond a CWA Section 404 permit, USACE acts as the lead federal agency in administering NEPA.

USACE administers CWA Section 404 and the associated federal permit process. For projects with no federal nexus beyond a Section 404 permit, USACE acts as the lead federal agency for NEPA evaluations and decisions associated with federal permit authorization.²

² In most cases involving highway improvement projects, USACE would act as the lead federal agency for NEPA when 1) the project involves a Section 404 action/permit, and 2) the project does not involve federal-aid funding. Rare instances may occur in which another federal agency, with jurisdiction over an applicable federal nexus, would act as the lead federal agency for NEPA.

3.8 Endangered Species Act

The Endangered Species Act of 1973 (ESA) provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found (16 USC 1531 et seq.). The lead federal agencies for implementing the ESA are the U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration (NOAA) Fisheries. The law requires that federal agencies (including FHWA and USACE) ensure that the actions they authorize, fund, or carry out (including federal-aid highway improvement projects and Section 404/Section 10 permit authorizations) are not likely to jeopardize the continued existence of any listed species, or result in the destruction or adverse modification of designated critical habitat of such species. Project- or activity-specific consultation with USFWS, NOAA Fisheries, or both is often carried out by the lead federal agency to ensure compliance with the law.

In January 2012, FHWA, the Nebraska Department of Roads (NDOR),³ USFWS, and the Nebraska Game and Parks Commission entered into a Programmatic Agreement for ESA and Nebraska Endangered Species Conservation Act (NESCA) compliance. This Programmatic Agreement is referred to as “the Matrix” and represents the process and tools applied to facilitate ESA and NESCA compliance of Nebraska’s federal-aid transportation program.

3.9 National Historic Preservation Act

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires federal agencies to take into account the effects of their undertakings (including federal-aid highway improvement projects and CWA Section 404 permit authorizations) on historic properties, and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment (16 USC 470).

Federal agencies initiate Section 106 reviews in consultation with State and tribal officials. The Nebraska State Historic Preservation Office (SHPO) coordinates the State’s historic preservation program and consults with agencies during Section 106 review. Agencies also consult with officials of federally recognized Indian tribes and Native Hawaiian organizations when historic properties of significance to tribes or Native Hawaiian organizations are involved.

The July 31, 2015, Programmatic Agreement among FHWA, ACHP, Nebraska SHPO, and NDOR sets forth specific procedures and responsibilities intended to facilitate Section 106 compliance of Nebraska’s federal-aid transportation program.

3.10 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) of 1934 requires that fish and wildlife resources receive equal consideration with other project purposes of water resource development (that is, planning, development, maintenance, and coordination of wildlife conservation and rehabilitation). FWCA also requires that federal agencies that construct, license, or permit (including CWA Section 404 authorizations) water resource development projects must first consult with USFWS and the Nebraska Game and Parks Commission (the State fish and wildlife agency in Nebraska) regarding the impacts on fish and wildlife resources and measures to mitigate these impacts (16 USC 661 et seq.).

Instructions related to FWCA compliance are provided in NDOT’s Instructions and Guidance for Completing the Nebraska Categorical Exclusion Determination Form for Federal-Aid Projects (NDOR 2015).

³ Prior to 2017, highway construction and maintenance was administered by the state agency known as the Nebraska Department of Roads or NDOR, which is now the Nebraska Department of Transportation or NDOT.

3.11 Executive Order 11988, Floodplain Management

Executive Order 11988 requires federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. In accomplishing this objective,

Each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities for (1) acquiring, managing, and disposing of Federal lands and facilities; (2) providing Federally undertaken, financed, or assisted construction and improvements; and (3) conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing activities. (42 FR 26951)

3.12 23 CFR 650A, Location and Hydraulic Design of Encroachments on Floodplains

23 CFR 650A implements FHWA's policies and procedures for the location and hydraulic design of highway encroachments on floodplains. It applies to all encroachments and actions that affect base floodplains, except for repairs made with emergency funds during or immediately following a disaster. It documents FHWA's policy:

- (a) To encourage a broad and unified effort to prevent uneconomic, hazardous or incompatible use and development of the Nation's flood plains,
- (b) To avoid longitudinal encroachments, where practicable,
- (c) To avoid significant encroachments, where practicable,
- (d) To minimize impacts of highway agency actions which adversely affect base flood plains,
- (e) To restore and preserve the natural and beneficial flood-plain values that are adversely impacted by highway agency actions,
- (f) To avoid support of incompatible flood-plain development,
- (g) To be consistent with the intent of the Standards and Criteria of the National Flood Insurance Program, where appropriate, and
- (h) To incorporate "A Unified National Program for Floodplain Management" of the Water Resources Council into FHWA procedures. (23 CFR 650.103)

3.13 Title 117, Nebraska Surface Water Quality Standards

NDEE regulates surface water quality standards in Nebraska in accordance with Nebraska Administrative Code Title 117, Nebraska Surface Water Quality Standards. Within Title 117, the connection to CWA Section 401 Water Quality Certification (see Section 3.2, above) is stated in Chapter 2, Application of Standards:

These standards may be applied through...Title 120 - Procedures Pursuant to Section 401 of the Federal Clean Water Act, 33 u.s.c. § 1251 et seq., for Certification by the Department of Activities Requiring a Federal License or Permit which May Result in a Discharge.

Title 117, Chapter 3, Antidegradation Clause, expands NDEE authority of Nebraska Surface Water Quality Standards to all activities that have the potential to degrade waters of the State (including streams, lakes, and wetlands), regardless of federal jurisdiction or permitting authority. Chapter 3 states, "The water quality of surface waters, consistent with uses applied in these Standards, shall be maintained and protected. Water quality degradation which would adversely affect existing uses will not be allowed."

The Antidegradation Clause (Nebraska Administrative Code Title 117, Chapter 3) expands NDEE authority of Nebraska Surface Water Quality Standards to all activities that have the potential to degrade waters of the State, regardless of federal jurisdiction or permitting authority.

Chapter 4 Roles and Responsibilities

Roles and responsibilities of agencies and other parties involved with wetland and water resource permitting in Nebraska are discussed below. In certain instances, roles and responsibilities differ depending on the funding source (that is, federal aid versus State funding only).

Some of the agencies and parties included are tangential to Section 404. This Document provides content that is intended to increase awareness about the roles and responsibilities of these parties.

4.1 Federal Highway Administration

FHWA is responsible for administering and delivering the federal-aid transportation program in Nebraska, where NDOT is responsible for the environmental review, consultation, and other actions required by applicable Federal environmental laws pursuant to 23 USC 326 and the Memorandum of Understanding dated September 5, 2018, and executed by FHWA and NDOT. Included in program delivery are broad-reaching environmental considerations in which NDOT acts as the lead federal agency. In this capacity, NDOT is responsible for ensuring project compliance with all applicable federal legislation, including CWA, NEPA, and Executive Order 11990. Specific to NEPA, NDOT determines whether projects are categorically excluded, whether significant impacts would result, and appropriate mitigation measures.

FHWA's role in wetland and water resource permitting is limited to auditing those projects that receive federal aid. FHWA is in no way involved in highway improvement projects funded wholly by the State.

USACE is responsible for the day-to-day administration of CWA Section 404 and RHA Section 10, including processing permit applications and issuing authorizations to discharge dredged and/or fill material into waters of the United States.

4.2 U.S. Army Corps of Engineers

In association with USEPA, USACE is responsible for the day-to-day administration of CWA Section 404 and RHA Section 10. This responsibility includes processing permit applications and issuing authorizations to discharge dredged and/or fill material into waters of the United States, including navigable waters and some wetlands. USACE acts in this role on all highway improvement projects that require Section 404/ Section 10 permit authorization, regardless of highway improvement funding source.

In association with highway improvement projects that do not involve federal aid but do require a Section 404/Section 10 permit, USACE often acts as the lead federal agency in promulgating project compliance with all applicable federal legislation, including NEPA.⁴

4.3 U.S. Environmental Protection Agency

In association with CWA Section 404, USEPA develops and interprets environmental criteria used in evaluating permit applications, identifies activities that are exempt from permitting, reviews and comments on Individual Permit applications, enforces Section 404 provisions, and has authority to veto USACE permit decisions (USEPA 2016).

⁴ Rare instances may occur in which another federal agency, with jurisdiction over an applicable federal nexus, would act as the lead federal agency for NEPA.

Native American tribes in USEPA Region 7 (including Nebraska) do not have approved water quality standards or CWA Section 401 authority for the purpose of regulating water resources within the borders of tribal land pursuant to CWA Section 518(e). In the absence of such authority, USEPA provides recommendations for Water Quality Certification on tribal land within USEPA Region 7 and in accordance with CWA Section 401 (USEPA 2007).

4.4 Advisory Council on Historic Preservation

The ACHP is an independent federal agency established by the NHPA that promotes the preservation, enhancement, and productive use of our Nation's historic resources. The ACHP advises the President and Congress on national historic preservation policy. A key responsibility of the ACHP is to administer the requirements of NHPA Section 106, a review process that ensures that historic properties are considered during the development of any federal project (including federal-aid highway improvement projects or CWA Section 404 permit authorizations). The ACHP's Office of Federal Agency Programs handles this responsibility.

4.5 U.S. Fish and Wildlife Service

USFWS administers the ESA. Pursuant to ESA Section 7(a)(2), USFWS consults with federal agencies to ensure that any action those agencies authorize, fund, or carry out (including federal-aid highway improvement projects and CWA Section 404 permit authorizations) is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat.

In accordance with the FWCA, USFWS consults with federal agencies that construct, license, or permit (including CWA Section 404 authorizations) water resource development projects regarding potential impacts on fish and wildlife resources and measures to mitigate those impacts.

4.6 U.S. Coast Guard

The Coast Guard administers RHA Section 9 and the General Bridge Act. In this role, the Coast Guard has permitting authority for the construction and removal of dams, dikes, bridges, or causeways in navigable waterways. These acts placed the navigable waters of the United States under the exclusive control of the Coast Guard to prevent any interference with their navigability by bridges or other obstructions except by express permission of the United States Government. The only waterway in or along Nebraska that is subject to RHA Section 9 and the General Bridge Act is the Missouri River downstream of Gavins Point Dam.

4.7 Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA), within the U.S. Department of Homeland Security, administers the National Flood Insurance Program (NFIP) through its Regional Offices and their Mitigation Divisions. The Regional Offices are responsible for the following (FEMA 2010):

- Assisting NFIP state coordinating agencies
- Advising local officials responsible for administering floodplain management regulations⁵

⁵ Floodplain administrators act on behalf of their participating community: a county, city, or village that participates in the NFIP. Participating communities regulate floodplain development activities within their jurisdictions via ordinances and permits. At the state level, the Nebraska Department of Natural Resources administers floodplain rules and regulations.

- Assessing community compliance with minimum NFIP criteria
- Answering questions from design professionals, builders, and the public
- Providing information about flood insurance and responding to questions from citizens
- Maintaining and revising flood hazard maps and data
- Providing information and training on many aspects of NFIP
- Working with states and communities to resolve identified problems with community programs

The FEMA Flood Insurance and Mitigation Administration in Washington, D.C., sets national policy for floodplain regulations, researches floodplain construction practices, and administers the flood hazard mapping program (FEMA 2010).

4.8 Native American Tribes

Federally recognized Native American tribes act as consulting parties to the NHPA Section 106 process when federal undertakings (including federal-aid highway improvement projects and CWA Section 404 permit authorizations) have the potential to affect significant historic properties on tribal land, or culturally significant historic properties regardless of location. In accordance with NHPA Section 101(d)(2), tribes recognized by the U.S. National Park Service (NPS) formally assume the responsibilities of the SHPO for purposes of Section 106 compliance on tribal lands. These tribes have designated Tribal Historic Preservation Officers whom federal agencies consult, in lieu of the SHPO, for undertakings occurring on, or affecting historic properties on, tribal lands.

As of October 2018, the following Indian tribes or groups in Nebraska are federally recognized by the Bureau of Indian Affairs:

- Iowa Tribe of Kansas and Nebraska
- Omaha Tribe of Nebraska
- Ponca Tribe of Nebraska
- Sac and Fox Nation of Missouri (Kansas and Nebraska)
- Santee Sioux Nation
- Winnebago Tribe of Nebraska

4.9 Nebraska Department of Environment and Energy

In accordance with Nebraska Administrative Code Title 117, Nebraska Surface Water Quality Standards and CWA Section 401, NDEE can review and approve, condition, or deny all federal permits (including CWA Section 404 authorizations) or licenses that might result in a discharge to State waters, including wetlands (33 USC 1251 et seq.). Approval is provided in the form of Water Quality Certification, which confirms that a proposed discharge would comply with applicable water quality standards, effluent limitations, new source performance standards, toxic pollutants, and other water resource requirements of State law or regulation (see Section 3.13 regarding Nebraska water quality legislation). Additionally, Title 117, Chapter 3, Antidegradation Clause, expands NDEE authority of Nebraska Surface Water Quality

NDEE project approval is provided in the form of Water Quality Certification, which confirms that a proposed discharge would comply with applicable water quality standards.

Standards to all activities that have the potential to degrade waters of the State (including streams, lakes, and wetlands), regardless of federal jurisdiction or permitting authority.

In efforts to streamline federal permit approvals, NDEE typically provides conditional authorization for all CWA Section 404 Nationwide Permits (NWP) every 5 years in association with the revocation and reissuance of the NWPs.

4.10 Nebraska State Historic Preservation Office

History Nebraska (Nebraska SHPO) administers Nebraska's historic preservation program and consults with federal agencies during NHPA Section 106 reviews, including those required of federal-aid highway improvement projects or CWA Section 404 permit authorizations. More specifically, Nebraska SHPO identifies historic properties, assesses the effects that a project may have on historic properties, and seeks ways to avoid or reduce adverse project effects on historic properties.

4.11 Nebraska Department of Transportation – Headquarters

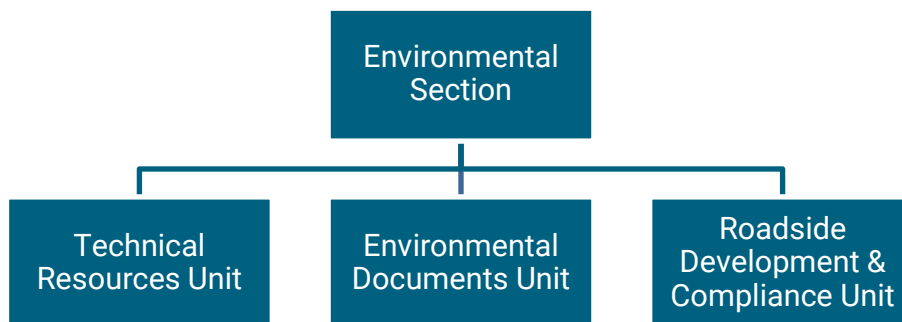
NDOT's Environmental Section is responsible for wetland and water resource analysis, documentation, permitting, and associated activities, including NEPA and National Pollutant Discharge Elimination System compliance.

NDOT is headquartered in Lincoln, Nebraska. In this location, NDOT's Project Development Division oversees wetland and water resource matters for highway improvement projects.

Within the Project Development Division, NDOT's Environmental Section is responsible for wetland and water resource analysis, documentation, permitting, and associated activities, including NEPA and National Pollutant Discharge Elimination System (NPDES) compliance. These activities are accomplished by multiple "Units" within the Environmental Section, each of which has specific responsibilities pertaining to wetlands and water resources:

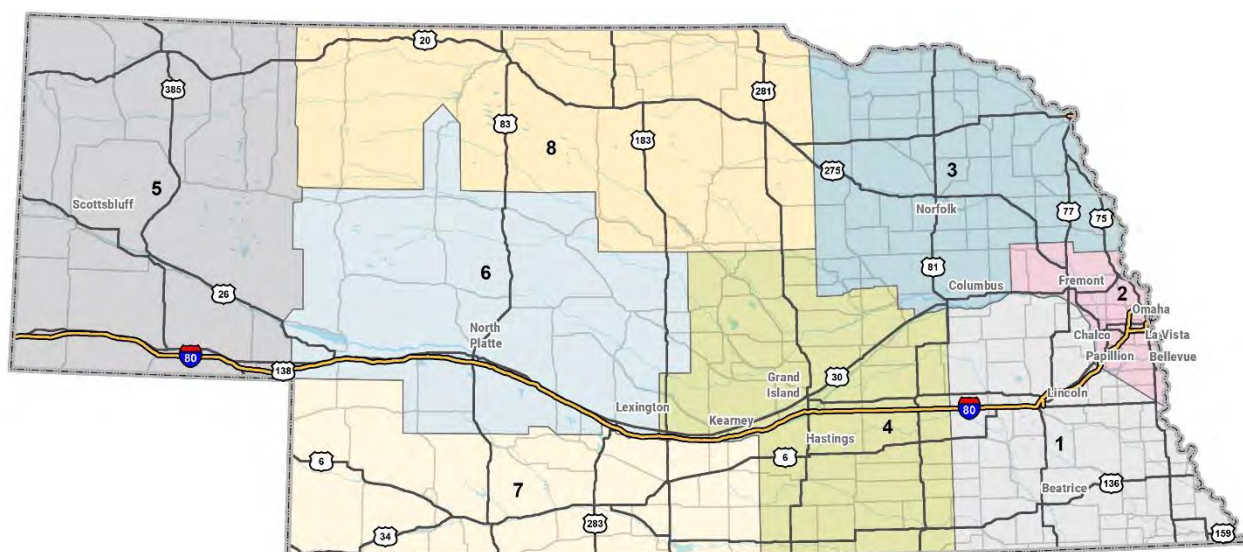
- Technical Resources Unit (TRU) – Responsible for all aspects of CWA Section 404/401 permit authorization receipt, including wetland determination and delineation, compensatory mitigation design and banking, pre-construction notification (PCN) and CWA Section 404 Individual Permit application filing, and response to public and agency comments. TRU is also responsible for ensuring compliance with Section 106 of the National Historic Preservation Act of 1966 (cultural resources) and Section 7 of the Endangered Species Act of 1973 (threatened and endangered species), as well as addressing regulated material concerns, noise studies, and air studies.
- Environmental Documents Unit (EDU) – Responsible for preparing NEPA documents, including categorical exclusions (CEs), environmental assessments (EAs), and environmental impact statements (EISs).
- Roadside Development and Compliance Unit (RDCU) – Responsible for the design and inspection of best management practices (BMPs) intended to minimize sedimentation in wetlands and streams adjacent to, and downstream of, transportation improvement projects. Associated activities are carried out in accordance with a Stormwater Pollution Prevention Plan (SWPPP).

The organization of NDOT's Environmental Section is shown in Figure 1.

Figure 1: NDOT Organization

4.12 Nebraska Department of Transportation – Districts

For local administration and maintenance purposes, NDOT divides the State into eight districts, as shown in Figure 2. District personnel are generally responsible for project execution, including the implementation and inspection of measures necessary to maintain compliance with applicable wetland and water resource commitments and permit conditions. District Project Managers and District Environmental Coordinators (DECs) constitute the primary District personnel acting in this role.

Figure 2: NDOT District Boundaries

4.13 Consultants

For purposes of this Document, the term “Consultant” refers to any party retained by NDOT to perform professional services on a contract basis. Consultants may be retained to perform any of the activities detailed in this Document. Consultants must satisfy professional criteria established by NDOT in order to perform certain professional services. One such example is the Qualified Scientist⁶ criteria, required of Consultants performing wetland and water resource delineation and impact calculation services.

⁶ A Qualified Scientist is an individual who (1) has a bachelor’s degree in botany, biology, soils, ecology, landscape architecture, or a related natural resources field; and (2) has completed a 40-hour basic wetland delineation training course from an accredited trainer.

Chapter 5 Wetland Determinations

Wetland determination⁷ is a method for evaluating the relative type, size, and location of wetlands and water resources via geographic information systems (GIS) desktop review and abbreviated field reconnaissance. Wetland determinations are different from wetland delineations (see Chapter 6) because a determination does not follow all aspects of sampling as described in the *1987 Corps of Engineers Wetlands Delineation Manual* and only approximates the presence or absence of wetlands and water resources based on vegetation and surface hydrology.⁸

5.1 Applicability

Wetland determinations may be applicable to projects that have the potential to impact known or potential wetlands or water resources, or both. This includes any project that has potential grading and/or equipment operations occurring below the existing roadway embankment hinge point,⁹ shown in Figure 3. Wetland determinations are implemented in early planning stages, when the presence or absence of wetlands and water resources could influence the project scope. Findings can provide project designers with the necessary information to plan for the avoidance and/or minimization of aquatic resource impacts.

Wetland determinations approximate the presence or absence of wetlands and water resources based on vegetation and surface hydrology.

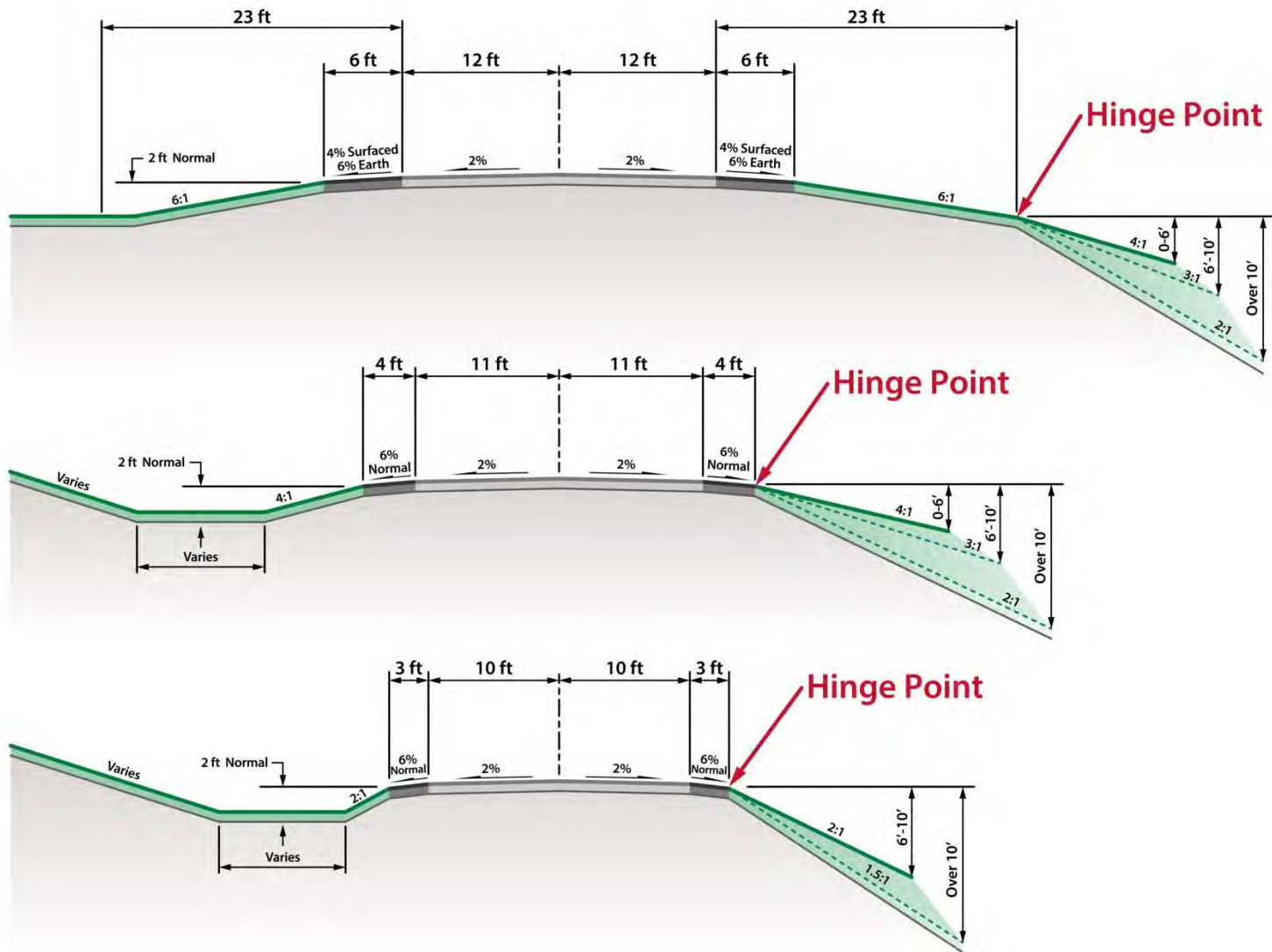
Wetland determinations are a valuable planning tool or early assessment method in support of corridor studies, and NEPA and CWA Section 404(b)(1) evaluations that involve multiple alternatives. However, the application of wetland determinations is limited because this method of wetland identification supports only select CWA Section 404 nationwide permit applications.

⁷ A wetland determination is not a mandatory step in the wetland review process but can be a valuable planning tool in the early stages of a project.

⁸ In addition to those considerations associated with wetland determinations, wetland delineations also evaluate hydric soils and subsurface hydrology.

⁹ For purposes of this Document, "hinge point" is the location where the roadway driving surface meets the ditch foreslope (that is, the location where the 6:1 shoulder meets the 3:1 embankment foreslope), as illustrated in Figure 3.

Figure 3: Hinge Point



5.2 Methodology

Wetland determinations must be completed by a Qualified Scientist. Associated methods involve a three-step approach:



5.2.1 GIS Desktop Review and Pre-Mobilization

GIS desktop review is intended to identify areas adjacent to the project that may potentially exhibit wetland characteristics. The desktop review includes Google Earth review as well as the use of several GIS data sources, including, but not limited to, the following:

- NDOT Wetland Geodatabase¹⁰
- National Wetlands Inventory (NWI) mapped wetlands
- USDA Soil Surveys
- National Hydrography Dataset (NHD) waterways
- National Agriculture Imagery Program (NAIP) aerial imagery
- NDOT Wetland Prediction Model

Based on desktop findings, review of design files (when available), and project coordination with the TRU Wetland Project Manager, field maps should be developed for use during the field reconnaissance. The field maps should display NWI mapped wetlands, NHD waterways, NAIP color aerial photography (and potential wetland areas determined during aerial photography review), and the boundary of the study area.

5.2.2 Field Reconnaissance

During the field reconnaissance, Qualified Scientists investigate the study area to determine the presence or absence of wetlands and water resources using only vegetation and surface hydrology information. Findings are recorded on USACE data forms, sample locations are recorded using a global positioning system (GPS) with sub-meter accuracy, and ground-level site photography is collected. Applicable data are analyzed in each of the following locations and instances:¹¹

- Areas observed in the field as containing hydrophytic vegetation and/or a defined channel

While not required, it is suggested to also investigate the following locations, and collect data if hydrophytic vegetation and channel features are observed:

- Every NWI-mapped wetland location
- Every NHD-mapped waterway or water body location
- Any location appearing on recent aerial photography to convey or hold surface water

¹⁰ NDOT maintains a statewide geodatabase of wetlands historically delineated in association with NDOT projects.

¹¹ Unlike wetland delineations, wetland determinations do not require (1) data collection or documentation of upland transitional areas that occur adjacent to observed wetlands, and (2) field verification of potential *Wetlands in an Agricultural Setting areas* determined via aerial photography interpretation

If a wetland is identified, the type (including Cowardin classification [Cowardin et al. 1979] and Nebraska Wetland Subclass) is documented. If an area displays evidence of a defined channel or ordinary high water mark (OHWM), the general characteristics of the channel (for example, channel width, bank height, presence or absence of wetland fringe, and flow regime) are also documented. If an area is identified as an erosional feature, include justification for this designation. Where desktop resources (for example, NWI and NHD) suggest that a wetland or stream may be present, it is equally important to document the absence of wetlands and water resources, where applicable. The locations and sizes of wetlands and water resources can be estimated on field maps and subsequently digitized

Where desktop resources depict a wetland or stream and one is not observed in the field, it is important to document the absence of the water resource.

using GIS, or these spatial attributes can be captured in the field via GPS.¹²

5.2.3 Reporting

Wetland determinations result in an associated report and GIS geodatabase. The report includes a project location map, wetlands/water resources maps, USACE data forms, and ground-level site photography.

Additionally, when NDOT contracts Consultants to perform wetland determinations, the report may include the following:

1. Introduction – Provide brief background information on the project.
2. Methods – Describe the study area and resources used in the desktop review. Specify applied methods and note that they are not intended to satisfy the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) or a regional supplement (USACE 2010a, 2010b).
3. Results – Develop tables for the type, size, and location of wetlands/water resources.
4. Discussion – Discuss jurisdictional considerations for identified wetlands and water resources.
5. References – Include references for data used during the review.

The geodatabase includes GPS data collected during field reconnaissance or digitized GIS data of aquatic resource boundaries and sample points documented on field maps. When completing the GIS geodatabase, the Qualified Scientist uses the geodatabase template provided by NDOT. Applicable criteria are detailed in Section 6.3.1, Table 1.

5.3 Documentation

Wetland determination documentation is consistent with those items detailed in the preceding sections and listed below; responsible parties are provided in parentheses:

- Wetland Determination Report (NDOT TRU or Consultant – see Section 5.2.3)
- GIS Geodatabase (NDOT TRU or Consultant – see Section 5.2.3)

¹² Field GPS mapping is not mandatory for wetland determinations.

Chapter 6 Wetland Delineations

Wetland delineations determine the specific type, size, and location of wetlands and water resources in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the Great Plains or Midwest regional supplement, as appropriate (USACE 2010a, 2010b). The following content is not intended to replace these recognized guidance publications. Rather, it is intended to augment USACE guidance and focus on methods and best practices used by NDOT. In addition to the methods applied to wetland determinations (see Chapter 5), wetland delineations evaluate subsurface hydrology and the presence or absence of hydric soil indicators. Wetland delineations also require the mapping of wetland/upland boundaries using sub-meter GPS.

6.1 Applicability

Wetland delineations are applied to projects that have the potential to impact known or potential wetlands, water resources, or both, including those projects for which CWA Section 404 permit authorization is required. This generally includes projects that involve grading and/or equipment operations below the existing roadway hinge point (see Figure 3, above).

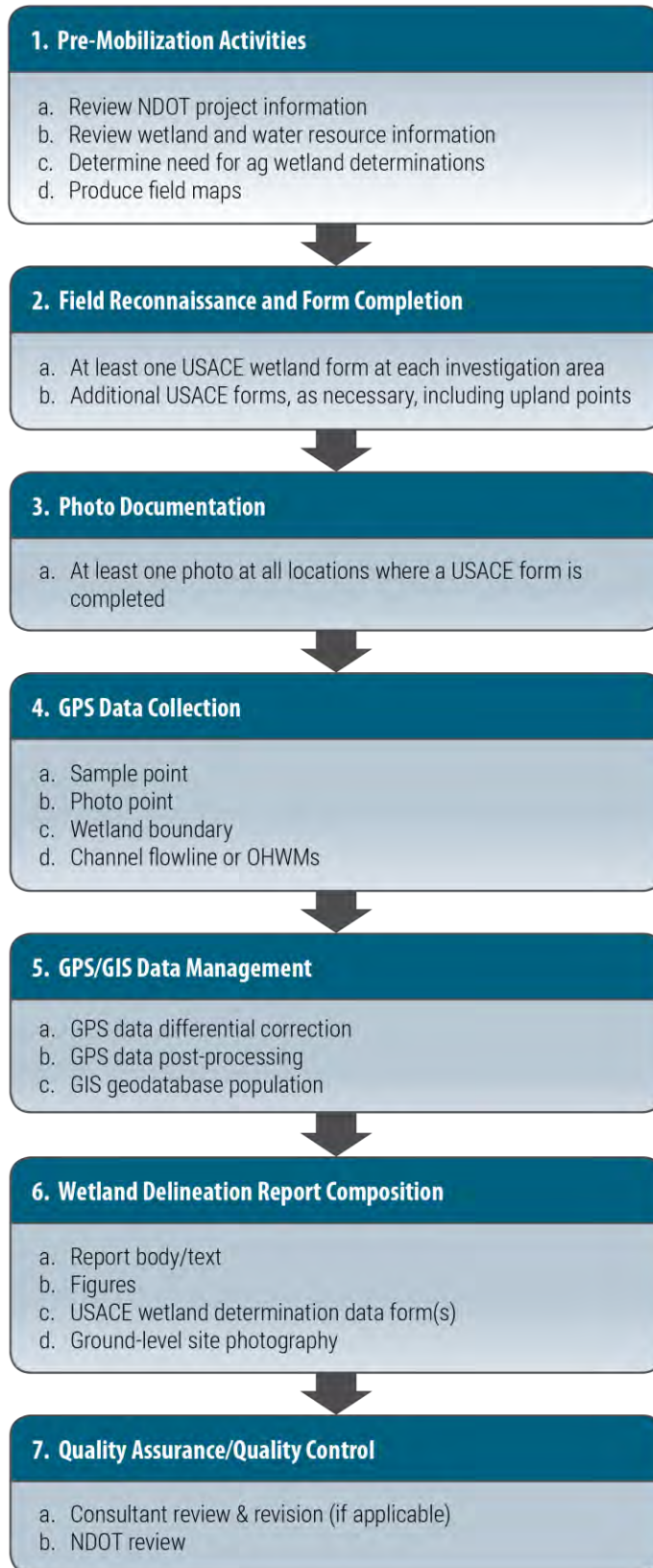
The limits of wetland delineation application can vary within a study area depending on whether or not a bridge or bridge-sized structure is present at the area being evaluated for wetland criteria.¹³ When a bridge or bridge-sized structure is present, the study area extends 150 feet beyond designed limits of construction (LOCs) or 150 feet beyond the right-of-way (ROW), whichever is farther from the roadway centerline or as decided by the TRU Wetland Project Manager. When a bridge or bridge-sized structure is absent, the study area extends 50 feet beyond LOCs or within ROW, whichever is farther from the roadway centerline. The delineation study area will also extend 500 feet beyond the beginning and end points of the project alignment. Wetland delineations may be performed beyond both the south-north or west-east project limits, as decided by the TRU Wetland Project Manager prior to field reconnaissance.

6.2 Methodology

NDOT procedures for completing wetland delineations are summarized in Figure 4 and are detailed in Sections 6.2.1 through 6.2.4.

¹³ When differentiating between stream channels and erosional features, it may be necessary to evaluate the drainageways' morphology further upstream and downstream of NDOT right-of-way (ROW) than standard evaluation limits.

Figure 4: Wetland and Water Resource Delineation Procedure



6.2.1 Pre-Mobilization Activities

Project staff will perform the following activities prior to wetland and water resource field reconnaissance:

1. Review NDOT project information – Project staff will review NDOT project information, including the project description. In addition, project staff will obtain the NDOT design files (.dgn) for the project, if available, by contacting the TRU Wetland Project Manager. For Multi-Service projects, design files, if available, can be received by contacting the consultant design staff.
2. Review wetland and water resource information – Project staff will review available wetland and water resource information, including, but not limited to, the NWI and NHD.
3. Decide if *Wetlands in an Agricultural Setting* determinations are necessary – Project staff will determine if planned improvements have the potential to impact cultivated land and if the procedures for evaluating *Wetlands in Agricultural Settings* (see Chapter 7) are necessary.
4. Produce field maps¹⁴ – Using the information collected in the preceding steps, project staff will produce hard copy field maps that locate (1) NWI-mapped wetlands and (2) NHD-mapped waterways and water bodies. Field maps will be produced on an aerial background and include project LOCs (when available) and the study area.

A Qualified Scientist has a bachelor's degree in botany, biology, soils, ecology, landscape architecture, or a related natural resources field; and has completed a 40-hour basic wetland delineation training course from an accredited trainer.

6.2.2 Field Reconnaissance

Project staff, including at least one Qualified Scientist, will determine and document existing conditions relative to wetlands and water resources during on-site field reconnaissance of transportation improvement projects. At each site investigated, results will be documented on at least one USACE form.

6.2.2.1 Wetland Investigation and Documentation

Standard wetland criteria will be investigated and documented on a USACE form in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and applicable regional supplement (USACE 2010a, 2010b). Generally, this effort involves determining the presence or absence of dominant hydrophytic vegetation, hydric soil indicators, and wetland hydrology. At the ultimate discretion of the Qualified Scientist, NDOT suggests that information is collected and a USACE form is completed in each of the following locations and instances:

- Areas observed in the field as containing hydrophytic vegetation and/or a defined channel.

While not required, it is suggested to also investigate the following locations, and collect data if hydrophytic vegetation and channel features are observed:

- Every NWI-mapped wetland location
- Every NHD-mapped waterway or water body location
- Any location appearing to convey or hold surface water on recent aerial photography

¹⁴ In addition to producing hard copy field maps, project staff may upload noted GIS data layers to a GPS unit. This practice is often useful in geospatially locating notable features along the project alignment.

The number of USACE forms to be completed at the above-listed locations varies on a case-by-case basis. If an area is determined to be upland, no additional USACE forms are necessary. When a wetland is present, a minimum of two USACE forms will be completed. The first USACE form will document the wetland.¹⁵ The second USACE form will document the upland transition adjacent to the wetland.¹⁶

6.2.2.2 Water Resource Investigation and Documentation

Water resource data will be investigated in the field and documented in the wetland delineation report. Generally, this effort involves determining the presence or absence of features that could influence the location's jurisdiction under CWA Section 404.¹⁷

Accurate water resource identification requires appropriate distinctions between defined stream channels and erosional features.¹⁸ Defined stream channels are characterized as having a differentiated streambed (bed) and streambank (bank), and an identifiable OHWM. Defined stream channels are generally contiguous across NDOT ROW (on both sides of the road) and are substantial enough to interrupt agricultural practices on adjacent properties. Stream channels convey surface water and groundwater across the watershed. Conversely, erosional features often occur as scour holes concentrated at culverts and are often not contiguous across NDOT ROW or substantial enough to interrupt adjacent agricultural practices. Erosional features are the result of localized, turbulent forces of water flow.

Defined stream channels are generally contiguous across NDOT ROW (on both sides of the road) and are substantial enough to interrupt agricultural practices on adjacent properties. Stream channels convey surface water and groundwater across the watershed. Conversely, erosional features often occur as scour holes concentrated at culverts and are often not contiguous across NDOT ROW or substantial enough to interrupt adjacent agricultural practices. Erosional features are the result of localized, turbulent forces of water flow.

Defined stream channels are characterized as having a differentiated streambed (bed) and streambank (bank), and an identifiable OHWM. Defined stream channels are generally contiguous across NDOT ROW (on both sides of the road) with the exception of the channel segment within an existing culvert) and are substantial enough to interrupt agricultural practices¹⁹ on adjacent properties. Conversely, erosional features often occur as scour holes concentrated at culvert inlets/outlets and are often not contiguous across NDOT ROW (do not occur on both sides of the road) or substantial enough to interrupt adjacent agricultural practices. Erosional features also commonly occur parallel to roadway alignments as head cut extensions of perpendicular stream channels.

¹⁵ More than one USACE form may be required for a continuous wetland of varying vegetative communities, or for long linear wetlands where it may be beneficial to reiterate wetland criteria at a determined sampling interval.

¹⁶ When documenting the upland transition of a roadside ditch wetland, the upland sample point is collected at either end of the roadside ditch wetland. The upland sample point is not collected on the roadway embankment, adjacent to the wetland sample point.

¹⁷ NDOT assumes that all wetlands and water resources are jurisdictional under CWA Section 404 unless a USACE jurisdictional determination states otherwise.

¹⁸ When differentiating between stream channels and erosional features, it may be necessary to evaluate the drainageways' morphology both upstream and downstream of NDOT ROW. This evaluation may consider if/how an associated culvert acts as a hard point that differentiates head cutting on either side of NDOT ROW.

¹⁹ A stream channel interrupts agricultural practices when it is of sufficient width and/or depth that discing and/or planting does not occur within its banks.

Photo 1: Aerial View of Large Erosional Head cut Extension of Defined Stream Channel



Photo 2: Ground-level View of Erosional Head cut Depicted in Photo 1



Erosional features are commonly referred to as gullies or rills and are formally defined as follows:

Gullies are relatively deep channels that are ordinarily formed on valley sides and floors where no well-defined channel previously existed. They are commonly found in areas with low-density vegetative cover or with soils that are highly erodible. Rills are formed by overland water flows eroding the soil surface during rain storms. The two main processes that result in the formation of gullies and similar erosional features are down cutting and head cutting, which are forms of longitudinal (incising) erosion. These actions ordinarily result in erosional cuts that are often deeper than they are wide, with very steep banks, often small beds, and typically only carry water during precipitation events. (USEPA and USACE 2012)

When documenting field conditions relative to erosional features, project staff will specifically state on a USACE form the considerations that lead to the erosional feature determination. In addition, project staff will photo document these conditions and map the erosional feature extents with GPS or other mapping methods. These features are mapped as a “Generic” line feature in GIS and displayed on the aquatic resources figure with the appropriate label and symbology that would distinguish the erosional feature from a jurisdictional waterway.

6.2.2.3 Photo Documentation

Photo documentation of field conditions is an important component of wetland delineation procedures. Photos are taken regardless of on-site conditions (that is, whether the site is wet or dry, or whether or not a wetland or water resource is present). Select project photos will ultimately be included in the project’s wetland delineation report and will include appropriate captions and orientation. Photo documentation will be collected as follows whenever a USACE form is completed:

- If the location fails to satisfy wetland criteria, at least one photo will be taken to document upland conditions.
- If the location satisfies wetland criteria, at least one photo will be taken to document wetland conditions, and at least one photo will be taken to document the upland transition (to be characterized by a second USACE form).
- If the location includes a defined stream channel, erosional feature, open water area, or other non-wetland feature that warrants documentation, at least one photo will be taken.
- If the location represents conditions on both sides of a road (generally connected by a WCS), at least one photo will be taken on each side of the road.

Photo documentation of field conditions is an important component of these procedures. Photos are taken to document both presence and absence of wetlands and water resources.

6.2.2.4 GPS Data Collection

Project staff will use a GPS unit capable of achieving sub-meter accurate data (differentially corrected) (see Section 6.2.3). In association with GPS data collection, project staff may concurrently populate the NDOT-produced file geodatabase (.gdb) on the GPS unit (see Section 6.3.1).²⁰ Field completion of the geodatabase includes the in-field designation of multiple feature attributes that describe the wetland or water resource.

Specific features to be collected are as follows:²¹

- Sample Points – A uniquely identified sample point will be collected at every location where a USACE form is completed, including both locations that meet wetland criteria and locations that fail to meet wetland criteria.
- Photo Points – A uniquely identified photo point will be collected at every location where a photo is taken.²² If several photos are taken from a single location, one photo point is sufficient. In this instance, the associated GIS (.shp) file attributes will indicate all Photo IDs associated with this location.
- Wetland Boundary – In locations that satisfy wetland criteria, the wetland boundary is determined consistent with methods detailed in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and appropriate regional supplement (USACE 2010a, 2010b). With exceptions,²³ wetland/upland boundaries are generally represented by the transition from dominant hydrophytes to dominant vegetation prone to the habitation of uplands. When feasible, project staff are to walk the boundary with an active GPS unit in hand.²⁴

As many projects involve improvements or widening along the existing roadway alignment, it is especially important to capture the toe of the roadway embankment when mapping a ditch wetland.

- Channel Flow line or OHWM – Channel mapping methods vary depending on the width of the channel at the OHWM, as follows:
 - For channels of OHWM width less than or equal to 3 feet, project staff will map a single line along the channel flow line (or thalweg) on either side of a WCS, as appropriate (potential of two lines).

²⁰ Project staff may choose to populate geodatabase attributes following field reconnaissance. If this method is used, field staff must be certain to collect and document field information necessary to populate the geodatabase following field reconnaissance.

²¹ GPS data collection extents may vary by project; however, the following extents generally apply. Collect data 500-Ft. beyond the beginning and end points of the alignment. Along the project alignment, GPS data collection occurs 50 feet beyond designed LOCs or within ROW, whichever is farther from the roadway centerline. At locations that include a bridge or bridge-sized structure, GPS data collection occurs 150 feet beyond LOCs or 150 feet beyond ROW, whichever is farther from the roadway centerline.

²² When photos depict areas characterized by georeferenced sample points and the location in which the photo was taken is within relative proximity to that point, photos points (separate from the already collected sample point) are not necessary.

²³ Exceptions include changes in wetland topography and hydrology that are not indicated by vegetation.

²⁴ Project staff shall not walk wetland/upland boundaries when doing so would compromise their safety or well-being. In that instance, wetland boundaries are approximated on field maps and digitized using appropriate software applications.

- For channels of OHWM width greater than 3 feet, project staff will map one line along each OHWM (total of two lines) on either side of a WCS, as appropriate (potential total of four lines).

Regardless of channel width, it is important to begin mapping at the existing structure inlet/outlet. This practice facilitates the accurate capture of linear channel impacts resulting from structure widening.

6.2.3 GPS Data Differential Correction

Following field data collection, GPS data will be differentially corrected to achieve improved spatial accuracy (typically sub-meter or sub-foot). This level of spatial accuracy is necessary in defining wetland and water resource locations and boundaries. All differentially corrected GPS data will be provided in North American Datum 1983 State Plane Nebraska FIPS 2600 (Feet) (NAD 83).

Specific post-processing methods depend on the applied software application. Commonly applied (and acceptable) software applications include Trimble Positions® and Esri's ArcPad®.

6.2.4 GPS Data Post-Processing

Following differential correction of collected GPS data, data will be further post-processed such that GIS (.shp) files can ultimately be provided to design staff for accurate resource impact calculation. Most commonly, points and/or lines collected in the field and intended to represent closed polygons²⁵ will be appropriately converted.

In addition, the following items are verified during GPS data post-processing:

- A sample point is provided and appropriately located for every location where a USACE form was completed.
- Each sample point has a unique ID that ascends sequentially in the direction of ascending mile markers.
- All depicted line and polygon features occur in appropriate locations. Polygons will have a hollow line style.
- OHWM lines on each side are provided for all defined channels greater than 3 feet wide.
- The lines intended to represent identified stream channels are broken in locations where they are conveyed beneath roads or driveways via existing culverts or box culverts.
- Auxiliary data that may have meaning exclusive to field staff are removed.

²⁵ It is understood that field/terrain conditions often deter the collection of closed GPS polygons and that point and polyline features are often collected under these conditions. This practice is acceptable so long as the post-processed polygon accurately represents site conditions.

6.3 Documentation

6.3.1 GIS Geodatabase Population

NDOT TRU, or its Consultant, will populate the NDOT-produced file geodatabase (.gdb) for each project (see Attachment B). The file geodatabase contains predetermined attributes by feature class (see Table 1). Feature classes and associated attributes are uniform to all projects and applied as follows:

A file geodatabase (.gdb) that contains uniform and predetermined attributes by feature class will be prepared for each project.

- Sample Point – point file that spatially captures a location where a USACE form is completed. This feature class can be associated with a wetland, channel, or upland location.
- Photo Point – point file that spatially captures a location where a photo(s) is taken.²⁶ This feature class can be associated with a wetland, channel, or upland location.
- Wetland – polygon file that spatially captures the extents, or boundary, of a delineated wetland. This feature class is to be associated with only wetland locations.
- Channel – polyline file associated with only stream locations. This feature class can be applied to spatially capture the following:
 - Flow line (or thalweg) of a defined channel of OHWM width less than or equal to 3 feet
 - OHWM of a defined channel of OHWM width greater than 3 feet
- Generic – polyline file for application when other feature classes do not apply (for example, an erosional feature, as detailed in Section 8.2.3).

Descriptions of all feature file attributes are provided in Table 1 in alphabetical order by attribute name. Also provided in Table 1 are possible attribute entries and the association of attributes by feature class. Attachment B provides screenshots of populated geodatabase feature classes.

²⁶ When photos depict areas characterized by georeferenced sample points, and the location where the photo was taken is within relative proximity to that point, photos points (separate from the already collected sample points) are not necessary.

Table 1: GIS Feature Class Attributes

Attribute Name	Attribute Description	Possible Entries ^{1,2}	Applicability to Feature Class				
			Sample Point	Photo Point	Wetland	Channel	Generic
OBJECTID	Default field of GIS that requires no modification by project staff.	Not Applicable	X	X	X	X	X
Shape	Default field of GIS that requires no modification by project staff.	Not Applicable	X	X	X	X	X
Biologist	Name(s) of the biologist(s) who performed the investigation.	Open	X	X	X	X	
Control Number or Control_Nu or Control_Num	NDOT (5-digit) control number of the project being investigated.	Open	X	X	X	X	X
Field_ID, Field ID, FieldID	Field-designated ID number. This value may or may not be consistent with the ID number presented in the wetland delineation report and as attribute "Report ID."	Open	X		X	X	
Field ID	Original photo number, as designated by a digital camera in the field. This value may or may not be consistent with the photo ID number presented in the wetland delineation report and as attribute "Report ID."	Open		X			
Report ID, ReportID, Report_ID	Unique wetland or water resource identification number, as designated in the associated wetland delineation report. This value may or may not be consistent with the field-designated ID number (attribute "Field ID").	Open	X		X	X	
Report ID	Unique photo identification number, as designated in the associated wetland delineation report. This value may or may not be consistent with the camera-designated ID number (attribute "Field ID").	Open		X			
ChannelType	Designation of type of channel	"Ephemeral," "Intermittent," "Perennial"				X	
Wetland Type	Type of wetland, using the Cowardin classification system (Cowardin et al. 1979).	Multiple possible entries, as defined by the Cowardin classification system (e.g., PEMA)			X		

Attribute Name	Attribute Description	Possible Entries ^{1,2}	Applicability to Feature Class				
			Sample Point	Photo Point	Wetland	Channel	Generic
Wetland Subclass	Type of wetland subclass, using the Nebraska Wetland Subclasses (Based on hydro-geomorphic classification system Jasmer, Steinle and LaGrange)	Multiple possible entries (e.g. Floodplain Depressions), as defined by NE Subclass			X		
Shape_Area	Default fields of GIS that require no modification by project staff.	Not Applicable			X		
Shape_Length						X	X
Width	When used in association with a stream/channel, the width of the channel at the OHWM (feet) is noted.	Multiple defined entries that designate width in feet				X	
Comments	Helpful applicable information <u>not specified</u> by other attributes (optional).	Open	X	X	X	X	X
Date, Date_	Date on which the investigation occurred (DD/MM/YYYY).	Open	X	X	X	X	
Investigation	Level of wetland and water resource investigation applied. Desktop Investigation is completed exclusively via GIS analysis. Preliminary Investigation consists of surface observations only and visual mapping. Final Investigation is consistent with <i>Corps of Engineers Wetlands Delineation Manual</i> guidance and includes wetland boundary mapping using GPS.	"Desktop" "Preliminary" "Final"			X	X	
Orientation	Direction (Cardinal Direction: e.g. North) in which a photograph was taken.	Open		X			
Structure	Presence of a WCS at the location. If a WCS is present, the type of structure is specified.	"None," "Culvert," "Bridge," "Flume," "Other"	X				
Biologist	Consultant or NDOT staff performing the delineation	Open	X	X	X	X	
Firm	Consultant Firm or NDOT performing the delineation	Multiple possible entries			X		
Acres	Area of wetland, scour or open water	Open			X		
Direction	Direction degrees (e.g. 0 – 360 degrees)	open		X			

¹ "Null" is also a possible entry for most attributes. "Null" represents the default entry if no other value is entered.

² "Open" means that there are no pre-defined entries for the attribute. Project staff may enter any applicable value.

6.3.2 Wetland Delineation Report

A wetland delineation report is prepared by NDOT TRU, or its' Consultant, and may be submitted to USACE in association with a jurisdictional determination (JD) request, a PCN, a CWA Section 404

A wetland delineation report is a document for which specific content and organization have been developed by NDOT and is used in all cases.

Individual Permit application, or any combination thereof. The content and organization of the wetland delineation report have been developed by NDOT, and an example wetland delineation report is provided as Attachment A. An electronic delineation template is provided on NDOT's Sharefile site. The following standard headings and appendices are used in all cases; subheadings and additional

appendices may be added as appropriate:

- Section 1: Introduction – To include project description and extents, and a brief summary of findings.
- Section 2: Wetland Delineation Methodology – To include the date(s) of delineation field reconnaissance, the names of project staff who performed field reconnaissance, and a summary of applied methods detailed in this Document (see Section 6.2).
- Section 3: Results – To include (1) a table that provides wetland identification, wetland type (Cowardin | Nebraska Subclass), wetland area (acres), a total for wetland acres, associated report figure, and potential USACE jurisdiction by specific Sample ID; and (2) a table that provides stream name, hydrologic regime, associated report figure, delineated length, OHWM width (Feet) and potential USACE jurisdiction by specific Sample ID.
- Section 4: Discussion – To include (1) a description of the study area; (2) discussion of, and justification for, potentially non-jurisdictional resources; and (3) discussion of unique areas where professional judgment was applied.
- Section 5: References – To include citation of this Document and other sources.
- Appendix A: Figures – To include (1) The Project Location Figure shown on a 7.5 minute quadrangle topographic map base (1:24,000 scale) showing the project alignment and displays planned improvement extents. A Project Location figure that locates the project in relation to State and county boundaries; and (2) A Figure Index Map (as applicable) for longer delineation alignments; and Wetland/Water Resource Sheets that display the entire project length, including delineated wetlands and water resources, along with associated sample locations, on aerial photography. The Wetland/Water Resource Sheets are displayed at an appropriate scale to show detail (for example, 1 inch = 200 feet). However, if an area requires greater detail to show a delineated feature, it may be necessary to use an inset map with a larger scale (for example, 1 inch = 100 feet). Sample location numbering increases in the direction of ascending mile markers. This may require post-field renumbering if samples were not collected sequentially in the field.

Figures should also include the wetland delineation study area, hollow wetland polygons, labels with wetland type and identification name, channel lines and name (if applicable), cross street/road names, and highway mile markers.

In addition, all figures use general cartographic principles, including the use of a scale bar, north arrow, mile markers, legend, labels, aerial imagery source, and appropriate title information, including project name, control number, and project number.

- Appendix B: USACE Wetland Determination Data Forms – As required by standard USACE wetland delineation procedures.

- Appendix C: Ground-Level Site Photography – As discussed in Section 6.2.2.3. Photo numbering is consistent with the associated Sample ID. Where multiple photos are displayed in association with a single Sample ID, photos are numbered 1a, 1b, 1c, etc.

NDOT's TRU staff will perform a desktop review of all wetland delineation reports. At the discretion of TRU staff, field reviews of wetland delineation reports may also be performed.

6.4 Attachments

The following attachments to this Document relate to wetland delineations:

- Attachment A – Wetland Delineation Report (Example)
- Attachment B – Wetland Geodatabase (Example)

Chapter 7 Delineation – Wetlands in an Agricultural Setting

The USACE Midwest *Regional Supplement to the Corps of Engineers Wetland Delineation Manual* considers agricultural settings to be difficult wetland situations (2010b).²⁷ The Midwest regional supplement also considers agricultural areas to be atypical situations²⁸ because they generally lack a natural plant community and may be planted in crops or pasture species or altered by mowing, grazing, or other management practices. Soils may be disturbed by regular cultivation, at least in the surface layers, and hydrology may be manipulated. Regardless, agricultural areas may be regulated under CWA Section 404.

7.1 Applicability

Wetlands in an Agricultural Setting delineations are not required for all highway improvement projects in Nebraska. Delineations of *Wetlands in an Agricultural Setting* are necessary only for projects (or project segments) that involve new horizontal roadway alignment and/or construction activities outside of NDOT ROW and within areas that are actively cultivated.

Delineations of Wetlands in an Agricultural Setting are necessary only for projects (or project segments) that involve new horizontal roadway alignment and/or construction activities outside of NDOT ROW and within areas that are actively cultivated.

7.2 Methodology

In the most basic sense, delineations of wetlands in an agricultural setting involves the following two steps, neither of which depends on the presence of hydrophytic vegetation:

- Step 1 – Identify agricultural areas that exhibit wetland signatures via aerial photography interpretation.²⁹
- Step 2 – Determine if areas identified in Step 1 display hydric soil and wetland hydrology indicators through field verification.³⁰

In accordance with the USDA Natural Resources Conservation Service (NRCS) Part 650 Engineering Field Handbook, Chapter 19: Hydrology Tools for Wetland Identification and Analysis (USDA NRCS 2015), the methods involved in Steps 1 and 2 are described below.

²⁷ The Great Plains regional supplement does not include the same amount of content on agricultural land as the Midwest regional supplement; however, it does contain limited discussion of “managed plant communities,” including agricultural land. Nevertheless, the *Wetlands in an Agricultural Setting* methods conveyed in this Document apply throughout the state, regardless of the applicable regional supplement.

²⁸ Atypical situations are wetlands in which vegetation, soil, or hydrology indicators are absent or altered due to recent human activities or natural events.

²⁹ Wetland delineations of *Wetlands in an Agricultural Setting* may also employ the desktop resources used in standard wetland delineations, as discussed in Section 6.2.1.

³⁰ Field verification of *Wetlands in an Agricultural Setting* can involve accessing private land, often including planted crops. These situations require close coordination with TRU and may require coordination with the landowner in association with NDOT’s Communications Division.

7.2.1 Wetlands in an Agricultural Setting - Aerial Photography Interpretation

Prior to field reconnaissance for wetland delineations in agricultural settings, desktop mapping is completed as described below.

Areas containing NRCS-mapped hydric soils are identified. The presence or absence of mapped hydric soils may contribute to wetland delineation decisions in particularly difficult agricultural areas.

Areas that display wetland hydrology signatures on historical color or black and white aerial photography (do not use infrared aerial imagery) are identified. Wetland hydrology signatures may include any of the following:

1. Hydrophytic vegetation
2. Surface water
3. Flooded or drowned out crops
4. Stressed crops due to wetness
5. Difference in vegetation in a field (due to different planting dates)
6. Inclusion of wet areas as set-asides
7. Patches of greener vegetation (during “dry” years only)

Aerial photography interpretation is conducted using a minimum of 5 years and a maximum of 12 years of aerial photography. A range of 8 to 10 years of aerial photography is strongly encouraged.

The aerial photograph depicting the wettest conditions is analyzed first and used as a baseline for determining wetland boundaries. Areas that do not display wetland signatures in the wettest condition are likely non-wetland.

Aerial photography interpretation is conducted using a minimum of 5 years and a maximum of 12 years of aerial photography. A range of 8 to 10 years of aerial photography is strongly encouraged; this amount of NAIP imagery is generally available via online sources, including the USDA Geospatial Data Gateway (<http://datagateway.nrcs.usda.gov/>). If possible, at least five aerial photographs that depict “normal” precipitation conditions should be used.³¹ The balance of other aerial photographs analyzed should be equivalent between “wet” and “dry” conditions.

When analyzing aerial photographs for the above-listed wetland signatures, the aerial photograph depicting the wettest conditions is analyzed first and used as a baseline for determining wetland boundaries. Areas that do not display wetland signatures in the wettest condition are likely non-wetland.

Findings are documented both geospatially and on an Offsite Determination for Agricultural Lands Data Form, provided as Attachment C. For every year of aerial photography in which wetland signatures are observed, geospatial documentation consists of an individual .shp file/polygon for each

³¹ In accordance with the NRCS Part 650 Engineering Field Handbook (USDA NRCS 2015 – see Form excerpt in Attachment C), precipitation levels are assigned “wet,” “dry,” or “normal” designations based on a comparison of actual precipitation in the 3 months preceding the date when the aerial photo was taken and the “30 percent chance” values assigned to the nearest climate station in the associated NRCS climate table that defines normal monthly precipitation, referred to as a WETS table. Actual precipitation values above the “more than 30 percent chance value” are considered “wet.” Actual precipitation values between the “less than 30 percent chance value” and the “more than 30 percent chance value” are considered “normal.” Actual precipitation values below the “less than 30 percent chance value” are considered “dry.” WETS precipitation data can be accessed by following the instructions at http://www.wcc.nrcs.usda.gov/climate/navigate_wets.html.

area that displays wetland signatures. That is, five GIS polygons may be collected for a single area that displays wetland signatures in 5 years of aerial photography. In this example, and assuming that 5 years of positive wetland signatures is more than half of the total number of aerial photographs analyzed,³² the preliminary³³ wetland boundary is the common area of intersect among the 5 years.

7.2.2 Wetlands in an Agricultural Setting - Field Verification

Following completion of a *Wetland in an Agricultural Setting* aerial photography interpretation (detailed in Section 7.2.1), identified *Wetlands in an Agricultural Setting* boundaries must be field verified for the presence of both wetland hydrology and hydric soil indicators. *In accordance with USACE requirements and NRCS recommendations, field verification must occur during the growing season and is best performed in late spring or fall.*³⁴

In accordance with USACE requirements and NRCS recommendations, field verification must occur during the growing season and is best performed in late spring or fall.

Field verification must include at least one soil pit and hydric soil analysis per wetland in an agricultural setting polygon identified via aerial photography interpretation. Although no area threshold has been established, delineators should consider the evaluation of multiple soil profiles when field verifying a large agricultural area. *Due to tilling and associated USACE instruction, soil pits in agricultural settings are dug to 40 inches (when hydric soil indicators are absent at shallower depths).* Findings are to be documented on a USACE form. The presence of a hydric soil indicator³⁵ affirms the area delineated through aerial photography interpretation as wetland. The absence of hydric soil indicators or an observation of misinterpreted aerial photography interpretation³⁶ negates the area delineated through aerial photography interpretation and results in a non-wetland or upland designation for the area.

In addition to soil analysis, field verification includes general observations regarding wetland suitability. Such observations may include depressed topography, surface or subsurface hydrology, crop health, and remnant vegetation. Observations are documented on the same USACE form as the soil analysis.

In certain situations, field verification may also involve the evaluation of nearby reference areas, or non-cultivated areas that occur at the same relative elevation and within the same NRCS-mapped soil unit. If present, reference areas can be used to formulate assumptions on whether a nearby cultivated area would display wetland criteria if agricultural practices ceased. Additionally, when feasible, landowner interviews can provide valuable information regarding the relative hydrology of agricultural fields.

³² Agricultural areas are considered to meet wetland hydrology criteria when wetland signatures are apparent in greater than half of the aerial photographs analyzed.

³³ Boundaries of *Wetlands in an Agriculture Setting* are considered “preliminary” following aerial photography interpretation completion and prior to field verification.

³⁴ *Wetlands in an Agricultural Setting* field verification may be subject to access limitations, as dictated by present agriculture. Under no scenario shall field verification activities damage crops or property improvements. Accessibility questions are directed to the applicable TRU Wetland Project Manager.

³⁵ In agricultural settings, redoximorphic features may be present, but not readily apparent. NRCS recommends “crushing” soil samples with fingers and allowing crushed samples some atmospheric exposure before determining the presence or absence of redoximorphic features.

³⁶ The presence of sandy, alkaline, or saline soils can be misinterpreted as a wetland signature during aerial photography interpretation.

7.3 Documentation

Wetlands in an Agricultural Setting delineation documentation is consistent with those items detailed in the preceding sections and listed below; responsible parties are provided in parentheses:

- Stand-alone *Wetlands in an Agricultural Setting* delineation report or incorporation of agricultural wetland findings within an overall wetland delineation report, to include (NDOT TRU or Consultant):
 - Maps that show the type, size, and location of *Wetlands in an Agricultural Setting*
 - USACE forms that contain hydric soil and wetland hydrology information but may lack vegetation data
 - Offsite Determination for Agricultural Lands Data Form, including the presence or absence of wetland signatures by area and year
 - NRCS Rainfall Documentation Form, which determines whether an analyzed aerial photograph depicts wet, dry, or normal conditions
 - Applied aerial photography, including date designation
- Geodatabase of delineated *Wetlands in an Agricultural Setting* (NDOT TRU or Consultant)

7.4 Attachments

The following attachment to this Document provides information relative to delineations of *Wetlands in an Agricultural Setting*:

- Attachment C – Offsite Determination for Agricultural Lands Data Form and NRCS Rainfall Documentation Form

Chapter 8 CWA Section 404 Jurisdictional Determination Request

USACE determines the jurisdiction of aquatic resources under CWA Section 404 on a case-by-case basis. Applicants (including NDOT) can offer an opinion but cannot determine CWA Section 404 jurisdiction.

The execution of JD requests is determined by the TRU Wetland Project Manager on a project-specific basis, including the determination of whether a Preliminary JD or an Approved JD is requested.

The following definitions are provided in 33 Code of Federal Regulations (CFR) 331.2:

Jurisdictional determination (JD) means a written Corps determination that a wetland and/or waterbody is subject to regulatory jurisdiction under Section 404 of the Clean Water Act (33 U.S.C. 1344) or a written determination that a waterbody is subject to regulatory jurisdiction under Section 9 or 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 401 *et seq.*).... For example, such geographic JDs may include, but are not limited to, one or more of the following determinations: the presence or absence of wetlands; the location(s) of the wetland boundary, ordinary high water mark, mean high water mark, and/or high tide line; interstate commerce nexus for isolated waters; and adjacency of wetlands to other waters of the United States. All JDs will be in writing and will be identified as either preliminary or approved. JDs do not include determinations that a particular activity requires a Department of the Army permit.

Preliminary JDs are written indications that there may be waters of the United States on a parcel or indications of the approximate location(s) of waters of the United States on a parcel. Preliminary JDs are advisory in nature and may not be appealed. Preliminary JDs include compliance orders that have an implicit JD, but no approved JD.

Approved jurisdictional determination means a Corps document stating the presence or absence of waters of the United States on a parcel or a written statement and map identifying the limits of waters of the United States on a parcel. Approved JDs are clearly designated appealable actions and will include a basis of JD with the document.

Regulatory Guidance Letter (RGL) 16-01 (USACE 2016a) details JDs and explains the differences between Preliminary JDs and Approved JDs. It also provides guidance on when it may be appropriate to issue an Approved JD as opposed to a Preliminary JD, and when it may be appropriate to forego JD preparation entirely. RGL 16-01 also includes two JD request forms, provided as appendices, which must be provided to USACE by any Applicant requesting a JD, including NDOT.

RGL 16-01 discusses when a JD is, and is not, necessary and includes two JD request forms that must be provided to USACE when requesting a JD.

8.1 Applicability

Despite NDOT's likely completion of a project-specific wetland determination and/or wetland delineation, NDOT generally does not request a JD (preliminary or approved) from USACE. In the interest of limiting USACE workload and focusing available USACE workforce on priority NDOT permit considerations, JDs are not requested when wetland and water resource delineations and impact calculations have determined any of the following:

1. Wetland and water resources would be completely avoided.

2. Wetland and water resource impacts are below applicable NWP notification thresholds when assuming all impacted resources are jurisdictional.
3. Wetland and water resource impacts trigger an applicable NWP notification threshold(s), and there is no ambiguity regarding the jurisdiction of impacted resources (see Section 8.2).

Conversely, a JD may be beneficial when wetland and water resource delineations and impact calculations have determined either of the following:

1. Wetland and water resource impacts may or may not trigger an applicable NWP notification threshold(s), dependent upon the JD finding(s) for a resource(s) for which jurisdiction is ambiguous (see Section 8.2).
2. Wetland and water resource impacts may or may not exceed an acceptable NWP impact threshold(s),³⁷ dependent upon the JD finding(s) for a resource(s) for which jurisdiction is ambiguous (see Section 8.2).

8.2 Methodology

Prior to requesting a JD from USACE, it is important to evaluate and document resources along a project for jurisdictional considerations and to put forth a recommendation of jurisdiction in the request. To do this, it is important to understand jurisdictional regulations and directives. More specifically, it is important to understand resources that are jurisdictional and those that may not be.

The most recent guidance on CWA Section 404 jurisdiction was published by USEPA and USACE on December 2, 2008, and is titled *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States*. This guidance is often referred to as the Rapanos guidance and is summarized in Sections 8.2.1 through 8.2.4.

8.2.1 Identification of Jurisdictional Resources

The following resources are clearly jurisdictional under CWA Section 404. Impacts on these resources alone would not necessitate a JD request to USACE because NDOT understands them to be jurisdictional:

1. Traditional navigable waters (TNWs) – TNWs include all RHA Section 10 waters (which includes only the Missouri River in Nebraska) and other waters that are navigable-in-fact³⁸ (which generally includes all named rivers in Nebraska).
2. Wetlands adjacent to TNWs – In terms of adjacent wetlands, 33 CFR 328.3(c) and the Rapanos guidance (USEPA and USACE 2008) define “adjacent” as bordering, contiguous, or neighboring. 33 CFR 328.3(c) goes on to state that “wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like are ‘adjacent wetlands.’”
3. Relatively permanent tributaries of TNWs – Relatively permanent tributaries of TNWs are non-navigable, relatively permanent waters (RPWs) that flow continuously for at least 3 months per year.

³⁷ If or when acceptable NWP impact threshold(s) are exceeded, a more intensive and less desirable CWA Section 404 Individual Permit may be required (see Chapter 13).

³⁸ Navigable-in-fact waters either (1) have been, (2) are being, or (3) could be used for commercial navigation, including commercial water-borne recreation (for example, boat rentals, guided fishing trips, and water ski tournaments).

4. Wetlands that directly abut RPWs – The Rapanos guidance clarifies that abutting wetlands have a continuous surface connection with the RPW that is not separated by uplands, a berm, dike, or similar feature (USEPA and USACE 2008).

8.2.2 Identification of Potentially Jurisdictional Resources

The following resources may or may not be jurisdictional under CWA Section 404. A jurisdictional finding of these resources is dependent on a significant nexus finding—a finding that the resource significantly affects the chemical, physical, and biological integrity of other waters more readily understood as navigable. Impacts on these resources alone or in combination with other resources may necessitate a JD request to USACE, dependent upon whether or not the JD finding would trigger one of the request criteria listed in Section 8.1:

1. Non-navigable tributaries that are not RPWs – These resources are defined channels that do not flow continuously for at least 3 months per year.
2. Wetlands adjacent to non-navigable tributaries that are not RPWs – These are wetlands that border, or are contiguous or neighboring to, a defined channel that does not flow continuously for at least 3 months per year.³⁹
3. Wetlands adjacent to, but that do not directly abut, an RPW – These are wetlands that border or are contiguous or neighboring to—but that do not have a continuous surface connection to—a defined channel that flows continuously for at least 3 months per year.

8.2.3 Identification of Non-Jurisdictional Resources

In accordance with applicable regulations and guidance, ditches, swales, erosional features, and isolated depressions may not be jurisdictional under CWA Section 404. Regardless of perceived jurisdiction, and because USACE JDs are contingent upon accurate field data, ditches, swales, erosional features, and isolated depressions must be delineated and characterized during field reconnaissance. Impacts on these resources alone or in combination with other resources may necessitate a JD request to USACE dependent upon whether or not the JD finding would trigger one of the request criteria listed in Section 8.1. As such, Project staff must provide enough information to validate opinions on jurisdiction. Ditches, swales, erosional features, and isolated depressions are defined as follows:

1. Ditches – According to the preamble to USACE regulations, found at 51 FR 41217, “non-tidal drainage and irrigation ditches excavated on dry land” are not considered waters of the United States. Similarly, the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (USACE and USEPA 2007), the Questions and Answers for *Rapanos* and *Carabell* Decision document (USACE 2007a), and the Rapanos guidance (USEPA and USACE 2008) state that “ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water” generally are not waters of the United States or jurisdictional under the CWA⁴⁰ “because they are not tributaries or they do not have a significant nexus to [downstream TNWs].”

³⁹ As defined in 33 CFR 328.3(c), adjacent wetlands may be “separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like.”

⁴⁰ The Questions and Answers for *Rapanos* and *Carabell* Decision document (USACE 2007a) and the Rapanos guidance (USEPA and USACE 2008) say “not waters of the United States” while the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (USACE and USEPA 2007) says “not jurisdictional under the CWA.”

2. Swales – The *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (USACE and USEPA 2007) defines swales as “generally shallow features in the landscape that may convey water across upland areas during and following storm events. Swales usually occur on nearly flat slopes and typically have grass or other low-lying vegetation throughout the swale.” Furthermore, the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (USACE and USEPA 2007), the Questions and Answers for *Rapanos* and *Carabell* Decision document (USACE 2007a), and the *Rapanos* guidance (USEPA and USACE 2008) consistently and uniformly state that swales “are generally not waters of the [United States] because they are not tributaries or they do not have a significant nexus to [downstream] TNWs.”
3. Erosional features – The *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (USACE and USEPA 2007), the Questions and Answers for *Rapanos* and *Carabell* Decision document (USACE 2007a), and the *Rapanos* guidance (USEPA and USACE 2008) consistently and uniformly state that erosional features (for example, gullies and small washes characterized by low volume, infrequent, and short duration flow) “are generally not waters of the [United States] because they are not tributaries or they do not have a significant nexus to [downstream] TNWs.”
4. Isolated depressions – As stated in the January 15, 2003, USEPA and USACE Joint Memorandum regarding the Supreme Court’s decision in *Solid Waste Agency of Northern Cook County (SWANCC) v. USACE*, USEPA and USACE are precluded from asserting CWA jurisdiction over isolated waters that are intrastate and non-navigable.⁴¹

8.2.4 Jurisdictional Request Preparation

A formal JD request may be provided to USACE following (1) the determination that a JD is required, and (2) the determination and documentation that some potential exists for a non-jurisdictional finding(s). Only NDOT staff submit JD requests to USACE.

In association with RGL 16-01, JD requests will include USACE JD request forms and supporting data, including the associated Wetland Delineation Report and general project information such as project name, project number, control number, project location, and project scope. Projects with several jurisdictional considerations may require the provision of additional information, including Light Detection and Ranging (LIDAR) data or historic aerial photography.

JD request preparation and submittal scheduling should account for applicable processing timelines and seasonal restrictions. Additionally, Approved JDs require that a site visit be conducted by USACE. Generally, USACE prefers to conduct site visits during the growing season. Under no circumstances would a site visit be conducted when site conditions are not discernible due to snow cover or other considerations.

8.3 Documentation

JD documentation is consistent with those items detailed in the preceding sections and listed below; responsible parties are provided in parentheses:

- JD Request Forms and Supporting Data (NDOT TRU or Consultant)
- Preliminary or Approved JD (USACE)

⁴¹ Regardless of the USACE decision on CWA (federal) jurisdiction, isolated wetland depressions may be subject to the surface water quality requirements in Title 117, Chapter 3, Antidegradation Clause, and associated NDEE coordination requirements.

Chapter 9 Impact Quantification

The following definitions are provided to aid in impact quantification procedures; the difference between permanent and temporary wetland and water resource impacts is provided in the definition of “Loss of Waters of the United States”:

- Discharge of Fill Material – Defined in 33 CFR 323.2(f) as
 the addition of fill material into waters of the United States. The term generally includes, without limitation, the following activities: Placement of fill that is necessary for the construction of any structure or infrastructure in a water of the United States; the building of any structure, infrastructure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, or other uses; causeways or road fills; dams and dikes; artificial islands; property protection and/or reclamation devices such as riprap, groins, seawalls, breakwaters, and revetments; beach nourishment; levees; fill for structures such as sewage treatment facilities, intake and outfall pipes associated with power plants and subaqueous utility lines; placement of fill material for construction or maintenance of any liner, berm, or other infrastructure associated with solid waste landfills; placement of overburden, slurry, or tailings or similar mining-related materials; and artificial reefs.
- Loss of Waters of the United States – Defined in 82 FR 2006 in association with the 2017 CWA Section 404 Nationwide Permits as

[w]aters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss

*“Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States”
(82 FR 2006).*

of stream bed includes the acres or linear feet of stream bed that are filled or excavated as a result of the regulated activity. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

- Stream Channelization – Defined in 82 FR 2007 in association with the 2017 CWA Section 404 Nationwide Permits as “[t]he manipulation of a stream’s course, condition, capacity, or location that causes more than minimal interruption of normal stream processes.”

9.1 Applicability

In association with FHWA's implementing regulation on Evaluation of Impacts (23 CFR 777.7), wetland and water resource impact quantification is completed following wetland delineation activities (see Chapter 6) to determine one or more of the following:

1. If a project is absent of jurisdictional impacts and requires no Section 404 authorization⁴²
2. If a project qualifies for authorization under an NWP
3. If a project requires USACE notification, in accordance with the specific notification criteria set forth in the appropriate NWP
4. If a project triggers compensatory mitigation requirements (such as the 0.10 acre wetland impact trigger set forth in NWP General Condition 23: Mitigation) and how much compensatory mitigation is required (for mitigation design or bank credit allocation considerations)
5. If a project requires Individual Permit authorization due to resulting impacts beyond allowable NWP thresholds

Impact quantification may be necessary for projects that include grading beyond the hinge point (see Figure 3, above) and/or WCS improvements, and for which wetlands and/or waters of the United States have been delineated. Coordination with the TRU Wetland Project Manager occurs prior to impact quantification.

Impact quantification may be necessary for projects that include grading beyond the hinge point and/or water conveyance structure improvements, and for which wetlands and/or waters of the United States have been delineated.

9.2 Methodology

Impact quantification is completed in AutoCAD or Microstation by roadway or bridge design engineers. In the most basic sense, this is done by overlaying an impact file on delineated wetland and water resource files and running intersects for each overlapping location. The limits of the permanent impact fill are consistent with the LOCs. Temporary impacts are also quantified beyond LOCs and are intended to accommodate sediment and erosion control measures, or construction vehicles and equipment that may drive beyond the LOCs, or both. Typical temporary impact widths are as follows:

- 6 feet beyond LOCs in linear areas of fill (the area between the toe of the slope and the silt fence).
- 15 feet beyond LOCs at WCS locations. If LOCs include areas of culvert/channel cleanout, the additional 15-foot temporary impact width is not applied.

In some circumstances—most notably bridges—more substantial construction access accommodations are warranted (for example, a temporary crossing). Temporary impacts (as defined in relation to “Loss of Waters of the United States”) associated with construction access accommodations or other activities must be considered on a case-by-case basis and included in impact quantification procedures. This information must be provided to USACE in association with a PCN or Individual Permit application.⁴³

⁴² Impact quantification accounts for waters of the State, as regulated by Nebraska Administrative Code Title 117, even when no Section 404 jurisdictional waters of the United States are impacted.

⁴³ Because temporary impacts are not considered to be losses of waters of the United States, temporary impact quantification is not applied toward the NWP impact or mitigation thresholds, as listed in Section 12.1. Also, in

Specific to stream channel impact quantification and consistent with NDOT Form 290: Waterway Permit Data Sheet (see Section 9.3), it is important to differentiate between filled stream channel and channel cleanout/shaping. Filled stream channel

Filled stream channel results from activities such as channel straightening or shifting channel to new alignment. Channel cleanout/shaping results from removing constricting vegetation, accumulated sediment, debris, and regrading disturbed soil.

results from activities such as channel straightening, existing culvert extension, or culvert construction on a new alignment. Channel cleanout/shaping takes place between end of culvert and NDOT ROW and generally consists of removing constricting vegetation, accumulated sediment, debris, and regrading disturbed soil. This is done (as needed) to ensure that water flow will not be restricted or impeded in the vicinity of highway drainage structures. This distinction is important when considering project authorization under an NWP. In Nebraska, USACE has specified Regional Conditions that projects must

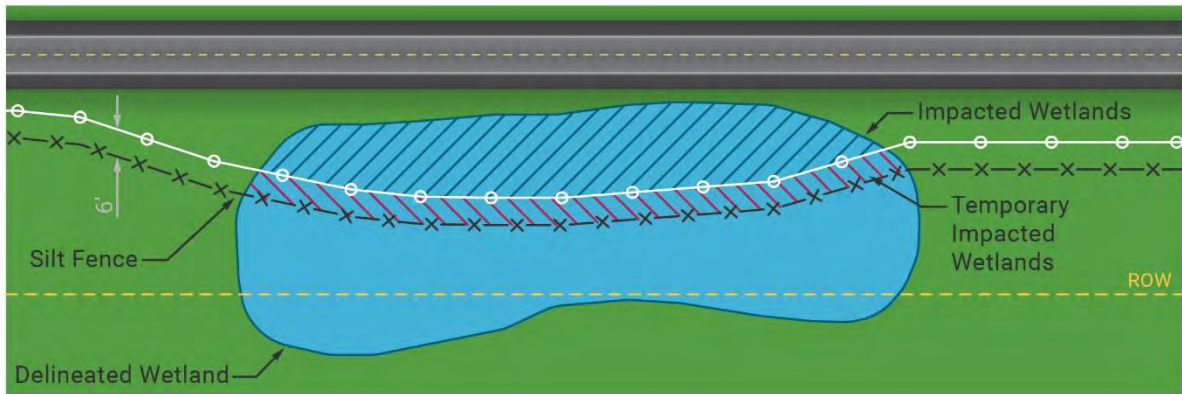
meet to obtain NWP authorization. One specific Nebraska Regional Condition specifies different stream channel impact thresholds for length reduction (100 linear feet per single and complete crossing) vs. loss of stream bed (300 linear feet per single and complete crossing). Generally speaking, length reduction results only from channelization activities, including channel straightening or realignment. Culvert extension, construction, or other activities that alter natural stream bed represent loss of stream bed.

Impact quantification is performed by NDOT Roadway Design or Consultant design staff. In all cases, quantified impacts are expressed as a measure of acres for wetlands and as both acres and linear feet for water resources. Also, in all cases, NDOT and/or Consultant wetland staff will check resulting impact quantification to ensure that the data were accurately derived and are presented in a manner consistent with USACE permitting expectations.

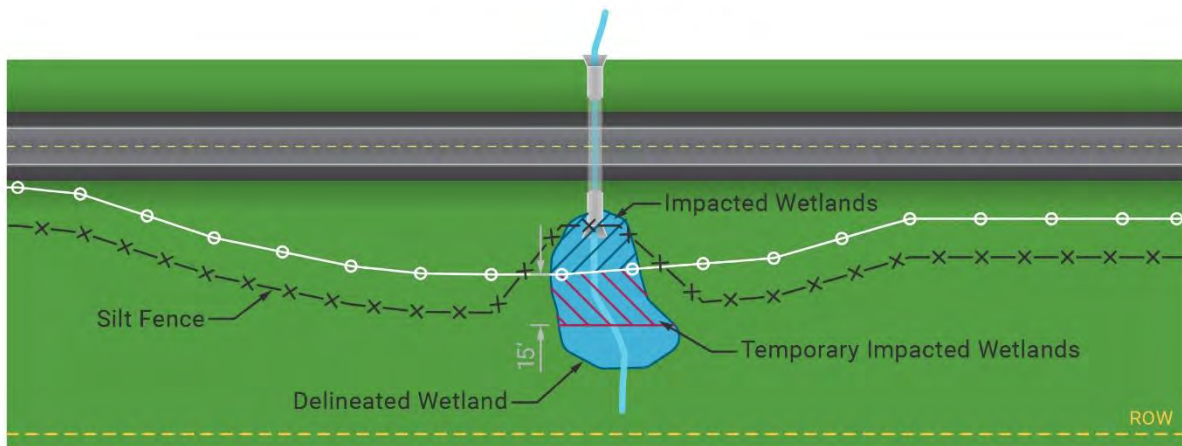
Generally speaking, stream channel loss results only from channelization activities, including channel straightening or realignment. Other filled stream channel activities (culvert extension or construction) represent stream channel impact.

some instances, including the use of a temporary construction crossing for which design is pending, temporary impact information may be provided to USACE subsequent to the permit application, but prior to construction.

Figure 5: Impact Quantification



Linear Grading



Culvert Areas

Legend	
	Limits of Construction
	Wetlands Do Not Disturb
	Impacted Wetlands
	Temporary Impacted Wetlands

9.3 Documentation

Wetland and water resource impacts are individually documented on NDOT Form 290: Waterway Permit Data Sheet (see Attachment D). NDOT Form 290 is prepared by NDOT Roadway Design or its Consultant. Important components of NDOT Form 290 are as follows:

1. Impact table
2. Avoidance and minimization description(s)

Wetland and water resource impacts are documented on NDOT Form 290: Waterway Permit Data Sheet and E Sheets.

E (aerial) sheets geographically depict wetland and water resource impact locations. E Sheets provide a plan view of wetland and stream channel boundaries in relation to limits of construction and planned WCS improvements. The provided information is plotted on an aerial photograph background that includes project stationing. Wetland type (Cowardin classification [Cowardin et al. 1979]) is provided for depicted wetland areas. Hydrologic regime is provided for depicted stream channels. E sheets are prepared by NDOT Roadway Design or its Consultant.

9.4 Attachments

The following attachment to this Document relates to impact quantification:

- Attachment D – NDOT Form 290: Waterway Permit Data Sheet (Example)

Chapter 10 Projects Not Requiring USACE Notification

Although this section details scenarios in which no USACE notification is required, the following definition of pre-construction notification is provided to briefly define USACE notification and when it may be required or when it may be provided regardless of requirement:

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Preconstruction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where preconstruction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit. (82 FR 2006)

Additional detail on PCN is provided in Chapter 12.

10.1 Applicability

USACE project notification is not required in the following scenarios:

- Section 404(f) exemptions
- Above-ground vegetation removal with no subsurface disturbance
- No Section 404 jurisdictional impacts
- Non-notifying NWP authorization

10.1.1 CWA Section 404(f) Exemptions

Section 404(f) of the Clean Water Act lists activities that are not prohibited by, or otherwise subject to regulation under, Section 404. These activities do not require notification to, or authorization by, USACE in association with CWA Section 404. Not all exempted activities are applicable to NDOT highway improvement projects. The following exempted activities may occur in association with a highway improvement project:

- Section 404(f)(1)(B) – Maintenance, including emergency reconstruction of recently damaged parts, of currently serviceable structures such as dikes, dams, levees, groins, riprap, breakwaters, causeways, and bridge abutments or approaches, and transportation structures. If a maintenance activity would involve any modifications to the original fill design, including the location of the fill, the type of material to be used, and the amount of material used, then the activity does not qualify for the maintenance exemption; however, the activity may qualify for authorization under NWP 3, Maintenance (see Section 12.1).
- Section 404(f)(1)(C) – Construction or maintenance of farm or stock ponds or irrigation ditches, or the maintenance of drainage ditches.⁴⁴ RGL 07-02 provides additional information regarding this

⁴⁴ RGL 07-02 (USACE 2007b) provides more detailed guidance regarding the Section 404(f) exemption for construction or maintenance of irrigation ditches and maintenance of drainage ditches. Similarly, RGL 87-07 (USACE 1987) details the Section 404(f)(1)(C) statutory exemption for drainage ditch maintenance.

exemption, including definitions for irrigation ditches, drainage ditches, construction, and maintenance.

- Section 404(f)(1)(D) – Construction of temporary sedimentation basins on a construction site that does not include placement of fill material into the navigable waters

10.1.2 Above-Ground Vegetation Cutting and Removal

Consistent with the following regulation, mowing, chain sawing, and related activities that do not involve subsurface disturbance do not require USACE notification or Section 404 authorization, even when carried out in a wetland or other area jurisdictional under Section 404⁴⁵:

The term *discharge of dredged material* does not include...activities that involve only the cutting or removing of vegetation above the ground (e.g., mowing, rotary cutting, and chain sawing) where the activity neither substantially disturbs the root system nor involves mechanized pushing, dragging, or other similar activities that redeposit excavated soil material. (33 CFR 323.2(d)(2)(ii))

10.1.3 No Jurisdictional Impacts

Traditional highway improvement projects that result in no impacts (temporary or permanent) to jurisdictional resources do not require USACE notification.⁴⁶ This would include both projects that involve no grading beyond the hinge point or WCS improvements and projects that involve one or both of these activities but effectively avoid the discharge of fill material within a jurisdictional area.

10.1.4 Non-Notifying Nationwide Permit Authorization

In some circumstances, highway improvement projects qualify for NWP authorization without USACE notification. These “non-notifying” authorizations can occur in association with the following NWPs:

- NWP 3(a)(c): Maintenance⁴⁷ – of a previously authorized, currently serviceable structure or fill
- NWP 12: Utility Line Activities – contingent upon none of the seven associated notification criteria being triggered
- NWP 14: Linear Transportation Projects – contingent upon impacts on waters of the United States being less than 0.10 acre and there being no discharge to a special aquatic site, including wetlands

⁴⁵ Conversely, 33 CFR 323.2(d)(3)(i) states that mechanized land clearing is generally not exempted from regulation.

⁴⁶ In some cases where no jurisdictional wetland or water resource impacts have been identified, NDOT may still choose to submit a PCN to USACE to verify, and receive a binding decision regarding, the no impact finding.

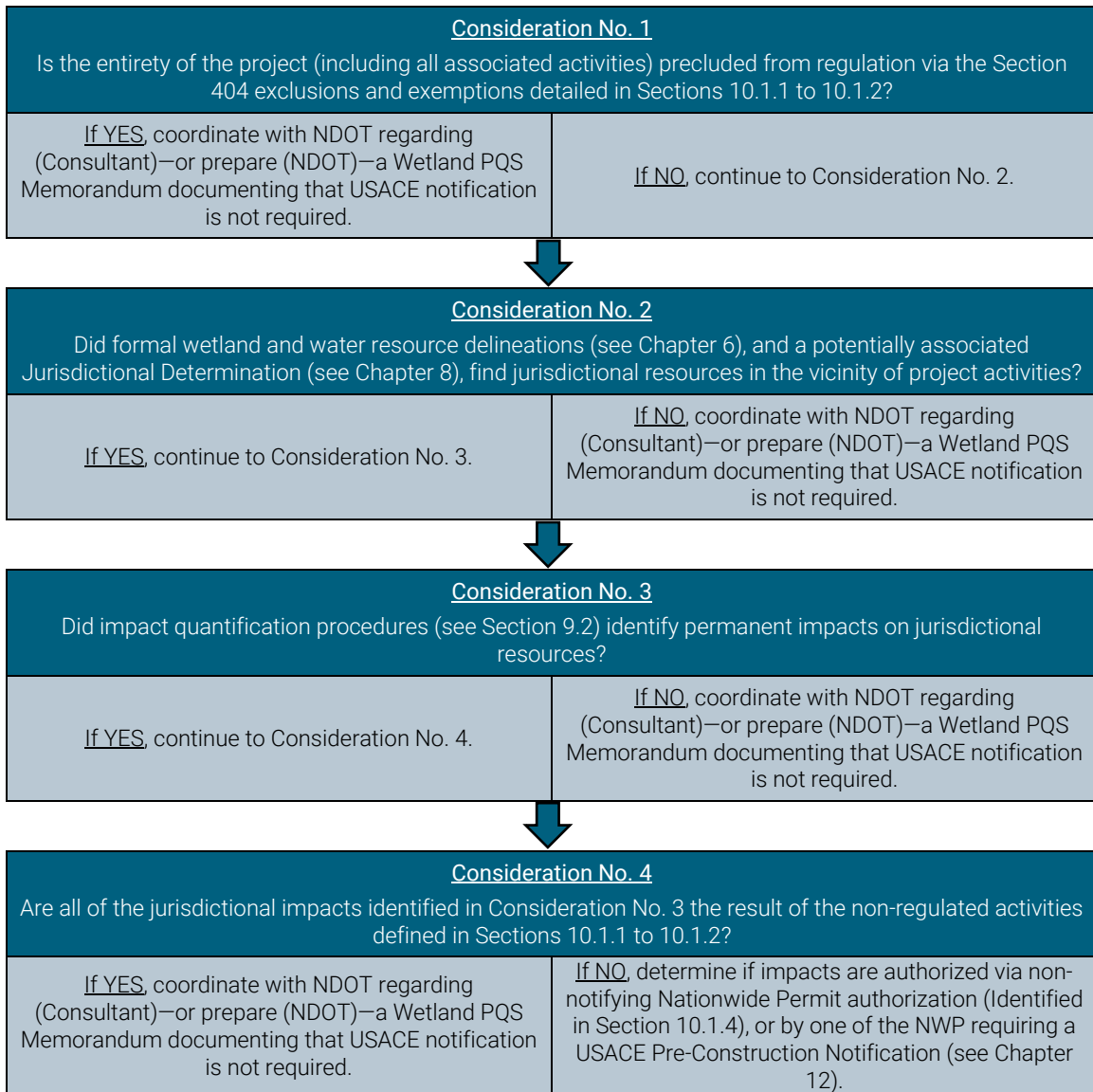
⁴⁷ For activities authorized by NWP 3(b), which authorizes the removal of accumulated sediments and debris in the vicinity of existing structures, the permittee must submit a PCN.

When considering the applicability of a non-notifying Section 404 authorization, it is important to carefully review the USACE Regional Conditions to the current NWP's because some of the Nebraska Regional Conditions consist of USACE notification requirements beyond those listed in the NWP's themselves.

When considering a non-notifying Section 404 authorization, it is important to carefully review the Regional Conditions to the NWP's because some involve additional USACE notification requirements.

10.2 Methodology

The determination of whether USACE notification is required is dependent upon the following considerations:



10.3 Documentation

The decision that USACE notification is not required for a project is documented in a Non-notifying Nationwide 3 Permit Form prepared by NDOT TRU (only). In this instance, the Non-notifying Nationwide 3 Permit Form would provide rationale and documentation that exempts the project from notification. Also in this instance, the Non-notifying Nationwide 3 Permit Form will include environmental construction commitments, including General and Regional Conditions and Special Conditions if warranted (standard and/or project-specific), that are necessary to facilitate a minimal impact and no notification scenario. In all instances, the Non-notifying Nationwide 3 Permit Form conditions are included in the Environmental Commitments Green Sheet.

When Consultants perform wetland delineation field reconnaissance and/or impact quantification procedures and determine that USACE notification is not required for a project, the Consultant may be asked by TRU to prepare a “No Impact” or “No Notification” letter/package that outlines the site conditions and project considerations (likely consistent with those outlined in Section 10.2, Considerations 1 through 4) that led to the no notification determination.⁴⁸ NDOT concurrence would be provided via the above-described NDOT Non-notifying Nationwide 3 Permit Form (Attachment M).

⁴⁸ Consultant-developed “No Impact” or “No Notification” letters/packages are unique to locally administered projects. For state-administered projects, relevant content will always be developed by TRU and documented in a Wetland PQS Memorandum.

Chapter 11 USACE Pre-Application Meeting

A USACE pre-application meeting may be attended by USACE, FHWA, NDOT, and potentially other resource agencies, stakeholders, and the Consultant. Pre-application meetings can prove beneficial as attendees determine initial project/permitting considerations and USACE expectations.

Although not specific to pre-application meetings, 33 CFR 325.1(b) discusses pre-application consultation for major applications. Additionally, RGL 92-01, Federal Agencies Roles and Responsibilities, discusses pre-application consultation (USACE 1992). Generally speaking, a USACE pre-application meeting may be attended by USACE, FHWA, NDOT, and potentially other resource agencies and stakeholders (as needed⁴⁹) to discuss a project for which a PCN or Individual Permit application has not yet been filed. Consultants may also attend when applicable.

11.1 Applicability

USACE pre-application meetings may be applicable for any project that would involve wetland or water resource impacts and an associated CWA Section 404 NWP or Individual Permit. However, pre-application meetings are not necessary for the majority of NDOT highway improvements projects. These meetings are generally reserved for projects for which any of the following considerations is uncertain:

- Jurisdiction under CWA Section 404
- Permit type (Nationwide or Individual)
- Permit strategy
- Alternatives analysis and screening
- Mitigation

When applicable, pre-application meetings can be beneficial as attendees determine initial project/permitting considerations and USACE expectations.

11.2 Methodology

USACE pre-application meetings are requested by NDOT. The request is made via a formal letter to the attention of the Nebraska Regulatory State Program Manager in the Wehrspann Field Office at 8901 South 154th Street, Omaha, Nebraska 68138-3635. The request specifies the proposed meeting location (generally the USACE Wehrspann Field Office or the project site) and asks that USACE respond to a specified project contact (TRU Wetland Project Manager or Consultant) and provide dates that USACE is available for the meeting. If the pre-application meeting request is NDOT's first correspondence with USACE regarding the project, then NDOT shall also request that a USACE project manager and file number be assigned.

⁴⁹ At their discretion, USACE may invite additional resource agencies to participate in pre-application meetings.

Prior to the pre-application meeting, NDOT or its Consultant will develop a meeting agenda and distribute it to all attending parties at least 1 week prior to the meeting. Generally, the meeting agenda includes the following:

1. General project attributes (scope, location, and schedule)
2. Quantified wetland and water resource impacts
3. Specific permitting considerations and meeting objectives (potentially including those considerations listed in Section 11.1)

During the meeting, NDOT may choose to use reference materials intended to inform the attending resource agencies and promote valuable discussion. These materials may include maps and design plans, and corresponding wetland/water resource impact tables. When applicable, reference materials should be distributed to all attending parties at least 1 week prior to the meeting.

Following the meeting, NDOT or its Consultant prepares detailed meeting notes that capture the meeting attendees, discussion, outcomes, and action items. Meeting notes are distributed to all meeting attendees with an invitation and deadline for review and comment. Final meeting notes are distributed to all attendees upon relevant comment incorporation and completion.

Following a pre-application meeting, detailed meeting notes that capture the meeting attendees, discussion, outcomes, and action items are prepared and distributed to all attendees.

11.3 Documentation

Pre-application meeting documentation is consistent with those items detailed in the preceding sections and listed below; responsible parties are provided in parentheses:

- Pre-application meeting request letter (NDOT TRU or Consultant)
- Meeting agenda (NDOT TRU or Consultant)
- Meeting materials – for example, wetland delineation report, maps, plans, alternatives analysis, and impact calculations (NDOT TRU or Consultant)
- Meeting notes (NDOT TRU or Consultant)

Chapter 12 Pre-Construction Notification for Nationwide Permits

An NWP is a type of General Permit that provides CWA Section 404 authorization for defined activities on a nationwide basis. NWPs are revoked, reviewed, and (presumably) reissued every 5 years. The most recent NWP reissuance occurred in 2017 (82 FR 1860-2008).

Pre-construction notification is defined in the 2017 CWA Section 404 NWPs as:

A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Preconstruction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where preconstruction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit. (82 FR 2006)

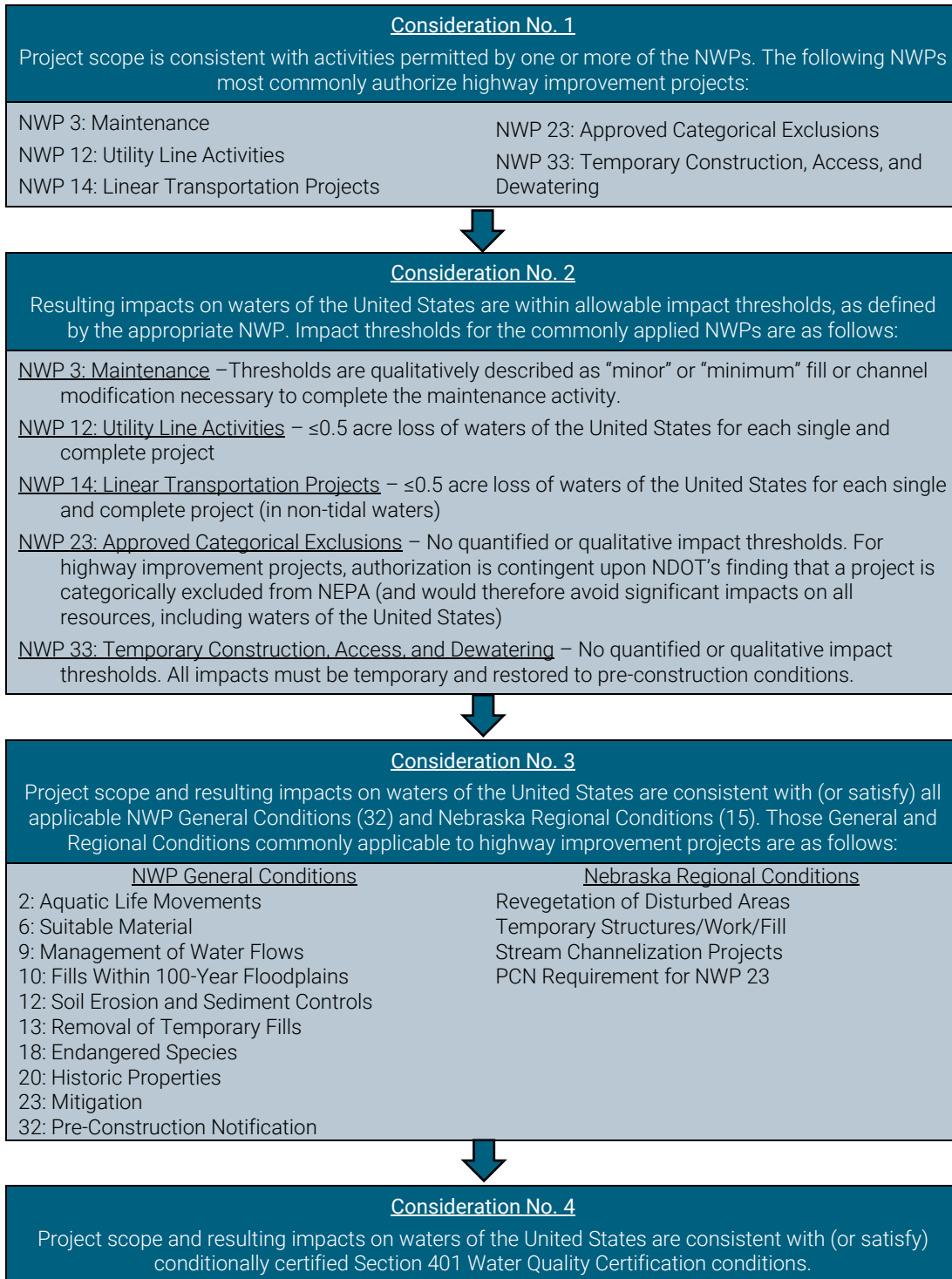
As detailed in CWA Section 404 NWP General Condition 31: Pre-Construction Notification, and relative to USACE procedures for PCN processing, “the district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt” (82 FR 2003). If the PCN is determined to be incomplete, the district engineer must “notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete” (82 FR 2003). Upon the determination that an application is complete, the district engineer has 45 calendar days to authorize the project via formal permit letter. In the event that 45 calendar days pass and no formal permit letter has been provided by the district engineer, the prospective permittee may proceed with the applied-for project, so long as applicable NWP General and Regional Conditions are adhered to.

12.1 Applicability

12.1.1 Nationwide Permit Authorization Applicability

NWP authorization is applicable for the majority of NDOT projects that involve the discharge of dredged or fill material to waters of the United States. More specifically, NWP authorization applies to all projects that satisfy each of the following considerations:

Nationwide Permit authorization is contingent upon consistency with all General Conditions, Regional Conditions, and Section 401 Water Quality Certification Conditions.



12.1.2 Pre-Construction Notification Applicability

Many NDOT highway improvement projects are authorized by a NWP with a PCN requirement. NDOT projects that may impact waters of the United States but that do not trigger associated USACE notification requirements are carefully considered on a case-by-case basis. A non-notification scenario must be approved by NDOT prior to commencing construction activities. The notification requirements of commonly applied NWPs are as follows:

Projects that impact waters of the United States but that do not trigger associated USACE notification requirements are carefully considered on a case-by-case basis. A non-notification scenario must be approved by NDOT prior to commencing construction activities.

- NWP 3: Maintenance – PCN is not required for most maintenance activities authorized by this permit (including associated temporary fills related to construction access); however, PCN is required for removal of accumulated sediments and debris outside of the immediate vicinity of existing structures.
- NWP 12: Utility Line Activities – PCN criteria for NWP 12 are lengthy and not summarized herein. If applicable, reference the entirety of NWP 12 to determine if PCN is required.
- NWP 14: Linear Transportation Projects – A PCN must be submitted to USACE prior to commencing the activity if (1) the loss of waters of the United States exceeds 0.10 acre, or (2) there is a discharge (of any size or quantity) in a special aquatic site, including wetlands.
- NWP 23: Approved Categorical Exclusions – Although associated RGLs define specific activities that necessitate PCN, in accordance with federal regulation, a Nebraska Regional Condition states that all permittees shall notify the Nebraska Regulatory Office in accordance with NWP General Condition 31 prior to initiating any regulated activity under NWP 23 in Nebraska.

Additionally, Nebraska Regional Conditions dictate that a PCN be submitted when any of the following resources would be impacted by a project, regardless of which NWP applies to the project and whether or not associated notification requirements are triggered. With the exception of natural springs, riffle pool complexes, reservation boundaries, and peatlands, all resources are mapped in Attachment E.

- All Class A State Resource Waters
- All rivers designated as Wild and Scenic or listed on the Nationwide Rivers Inventory
- Big Creek (and tributaries)
- Brush Creek (and tributaries)
- Eastern saline wetlands
- Elkhorn River
- Loup River
- Missouri River
- Natural springs (and waters within 100 feet of the source)
- North Platte River
- Peatlands

- Platte River
- Rainwater basin wetlands
- Republican River
- Reservation Boundaries
- Riffle and pool complexes
- Salt Creek (and tributaries, including Rock Creek and tributaries)
- South Platte River
- Taylor Creek (and tributaries)
- Union Creek (and tributaries)

12.2 Methodology

For purposes of NDOT CWA Section 404 permitting, a PCN is a document of specific content and report-style format that is prepared by NDOT or its Consultant and is submitted to USACE. The designated content and format have been developed by NDOT through coordination with USACE and are applied in all PCN development and submittal scenarios. An example PCN is provided as Attachment F. A PCN template is also provided through NDOT ShareFile site

Specific PCN contents are as follows:

- Department of the Army Form 6082 – including appropriate signatures⁵⁰ and PCN document references, where applicable.
- Project location map – On a 7.5 minute quadrangle topographic map base (1:24,000 scale) showing project location with insert showing the county and its' position in Nebraska, and the Project start and end points.
- Impact table – including impact location (decimal degrees and PLSS), Impact Station, Section/Township/Range, Feature ID, impact type (Cowardin classification [Cowardin et al. 1979], and Nebraska Wetland Subclass) if wetland, impact amount, channel impact (if applicable) (temporary/permanent), area (acres), and length (linear feet), project impact total.
- Narrative –
 - Standard language regarding NDOT has assumed FHWA responsibilities for categorical exclusions. Identify if the project has federal funding.
 - Wetland delineation summary – including delineator identification, delineation date(s), and applicable guidance documents
 - NWP General and Regional Conditions – including a broad statement that NDOT will comply with all NWP General and Regional Conditions, and a conditions list with more detailed descriptions of how the project complies with applicable conditions⁵¹

⁵⁰ Regarding Department of the Army Form 6082, Applicant and Agent signatories vary depending on whether the project is administered by NDOT or a Local Public Agency (LPA). For an NDOT-administered project, the NDOT District Engineer (in the NDOT District in which the project will occur) is the Applicant and the TRU Wetland Project Manager is the Agent. For an LPA-administered project, the appropriate LPA representative is the Applicant and the Consultant is the Agent.

⁵¹ Only applicable conditions need to be discussed, not all conditions.

- Mitigation – if applicable and including an impact/mitigation table.
- Block 19 - Description of Proposed Activities (Site Impact Descriptions) – including narrative on planned activities (specific notation or null statements are included relative to riprap placement and temporary construction access accommodations); resulting impact quantities by location (station), type (Cowardin classification [Cowardin et al. 1979]), duration (temporary/permanent), area (acres), and length (linear feet); and accompanying aerial photography-based figures, data forms, and photos from the Wetland Delineation Report. See PCN template on NDOT Sharefile site for details.
- Block 24: Compensatory Mitigation Measures – Insert NDOT Bank Ledger or the 12-Point Compensatory Mitigation plan. See Chapter 16 for plan details.
- Block 26 & 26: Endangered Species Act & Historic Properties – at a minimum to include threatened and endangered species and cultural resources concurrences.⁵²

Block 30: Other Information Required for Nationwide Permit Preconstruction Notification – Include this section only if requesting NWP 3, NWP 33 or NWP 45. Reference Form 6082 instructions for what to include.

- Attachment A: Drawings & Illustrations - generally provided electronically and including either the entire plan set or specific excerpts:
 - E (aerial) Sheet(s): Identify Impact Site ID with call-out.
 - Typical section drawing(s)
 - Bridge type, size, and location drawing(s) (if applicable)
 - Cross sections as applicable
 - Temporary access detail sheet(s) (if applicable)
 - Include KMZ of E Sheet information on CD
- Attachment B, Wetland Delineation Report – Include a hard copy of the site impact portions of the report (aerials, datasheets and photos) or include a hard copy of the entire report. Also include the full report on CD.

For purposes of NDOT CWA Section 404 permitting, a PCN is a document of specific content and report-style format that has been developed by NDOT through coordination with USACE.

For an NDOT-administered project, the NDOT District Engineer (in the NDOT District in which the project will occur) is the Applicant, the TRU Wetland Project Manager is the Agent, and NDOT submits the PCN to USACE.

In addition to the listed items, projects involving a bridge crossing of the Missouri River below Gavins Point Dam require additional information in accordance with RHA Section 10. The additional information includes specific discussion of permanent and temporary activities within the USACE-specified construction reference plane elevation of the Missouri River (USACE 2006), and how these activities would avoid and minimize obstructions to commercial navigation.

To ensure that PCNs provide all necessary information, NDOT has developed a PCN checklist that is to be used during the review process and prior to submittal to USACE (see Attachment G).

⁵² Endangered species and cultural resource approvals are generally facilitated via the associated FHWA/NDOT Programmatic Agreements, and associated NDOT Professionally Qualified Staff (PQS) memorandums.

12.3 Documentation

PCN documentation is consistent with those items detailed in the preceding sections and listed below; responsible parties are provided in parentheses:

- PCN (NDOT TRU or Consultant – see Section 12.2)
- NWP authorization letter (USACE)

12.4 Attachments

The following attachments to this Document relate to the PCN:

- Attachment E – Nebraska NWP Regional Conditions Resources Figure
- Attachment F – Pre-Construction Notification (Example)
- Attachment G – NDOT Pre-Construction Notification Review Checklist

Chapter 13 CWA Section 404 Individual Permit Application

The preparation and processing of a CWA Section 404 Individual Permit application is more labor intensive, more time consuming, and generally more difficult than that of an NWP. For those reasons, NDOT will make all reasonable attempts to develop projects that can be authorized via simpler means (an NWP or a No Permit Required scenario). However, due to scope and/or location, certain projects necessitate Individual Permit application processing. These circumstances and the permitting methods applied under those circumstances are discussed in this section.

13.1 Applicability

Individual Permit applications are reserved for projects that do one or more of the following: (1) are not consistent with the activities authorized by NWPs; (2) exceed the impact threshold(s) of the applicable NWP(s) and/or Nebraska Regional Conditions; (3) prompt substantial and/or unique public concern; or (4) are elevated to Individual Permit consideration by USACE via discretionary authority.

13.2 Methodology

Individual Permit applications are largely consistent with the content and format required for a PCN (see Chapter 12). In addition to information provided in a PCN, an Individual Permit application will include the following components:

- Alternatives analysis – This analysis will be performed in accordance with CWA Section 404(b)(1) to ensure that the applied-for project is the least environmentally damaging practicable alternative (LEDPA) (see Chapter 14).
- Adjacent property owner contact information – The names and mailing addresses of persons who own property adjacent to the applied-for project must be provided in order to facilitate USACE mailing of a Public Notice and request for comment.⁵³
- Environmental considerations to support NEPA – For highway improvement projects that do not receive federal aid but require a CWA Section 404 Individual Permit, USACE will act as the lead federal agency in administering NEPA analysis in support of federal (Section 404) permit authorization.⁵⁴ In this scenario, USACE may request that NDOT provide information regarding human and environmental resource considerations not normally included in a standard Individual Permit application. These considerations are contained in what is commonly known as an Environmental Document. The necessity of an Environmental Document would be determined on a case-by-case basis via close coordination with USACE.

In addition to standard PCN contents, Individual Permit applications also require alternatives analysis, adjacent property owner contact information, and environmental considerations to support NEPA.

⁵³ The schedule of projects that require Individual Permit processing should account for a 30-day public notice and comment period and subsequent NDOT responses.

⁵⁴ This scenario is not common for NDOT projects.

The Applicant, Agent, and submitting party vary depending on whether the project is administered by NDOT or an LPA. For an NDOT-administered project, the NDOT District Engineer (in the NDOT District in which the project will occur) is the Applicant, the TRU Wetland Project Manager is the Agent, and NDOT submits the Individual Permit application to USACE. For an LPA-administered project, the appropriate LPA representative is the Applicant, the Consultant or NDOT is the Agent, and the LPA, NDOT, or the Consultant submits the Individual Permit application to USACE.

13.3 Documentation

Individual Permit documentation is consistent with those items detailed in the preceding sections and listed below; responsible parties are provided in parentheses:

- CWA Section 404 Individual Permit application (NDOT TRU or Consultant)
- CWA Section 404(b)(1) alternatives analysis (NDOT TRU or Consultant)
- Responses to public comments⁵⁵ (NDOT TRU or Consultant)
- Environmental Document – to support a USACE NEPA decision (NDOT TRU or Consultant)
- CWA Section 404 Individual Permit authorization and NEPA decision (USACE)

⁵⁵ Comment responses are necessary to support USACE's decision regarding whether or not the project is averse to the public interest.

Chapter 14 CWA Section 404(b)(1) Alternative Analysis

The substantive criteria for evaluating discharges of dredged or fill material into waters of the United States are the CWA Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material. The guidelines are codified in 40 CFR 230 and were developed by USEPA to determine whether activities involving discharges of dredged or fill material are permissible under CWA Section 404. The underlying precept of these guidelines is that "...dredged or fill material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern" (40 CFR 230.1(c)).

14.1 Applicability

14.1.1 General Applicability

CWA Section 404(b)(1) alternatives analysis is applied to only projects that do not qualify for NWP authorization. This alternatives analysis is also used when USACE applies its discretionary authority to necessitate Individual Permit processing, regardless of quantified impacts. The detailed alternatives analysis, required by Section 404(b)(1), is intended to identify the LEDPA, which is the only permissible alternative by USACE regulation.

The detailed alternatives analysis, required by Section 404(b)(1), is intended to identify the least environmentally damaging practicable alternative (LEDPA), which is the only permissible alternative by USACE regulation.

14.1.2 Relationship with NEPA

NEPA and CWA Section 404(b)(1) differ in how alternatives analysis is performed. NEPA requires that an EIS "rigorously explore and objectively evaluate all reasonable alternatives" (40 CFR 1502.14). NEPA also specifies that "reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant" (46 FR 18027). The purpose of comparing the various reasonable alternatives is to give the decision maker a clear basis for choice. While NEPA seeks to provide the decision maker with the information to make a wise and informed decision, it does not dictate what the decision should be.

In contrast, USACE has long recognized that the range of Section 404(b)(1) practicable alternatives is a subset of the range or reasonable alternatives in NEPA. The Section 404(b)(1) Guidelines provide a pass/fail test rather than serving as a disclosure requirement. The decision maker must determine which alternatives are truly practicable and can then, based on the range of practicable alternatives, authorize only the alternative that does the least damage to the aquatic ecosystem. This difference is critical in that Section 404(b)(1) becomes a decision-making tool rather than a decision aid.

14.2 Methodology

The CWA Section 404(b)(1) Guidelines establish four criteria or “tests” that the discharge of dredged or fill material must meet in order to comply with Subpart B of the guidelines (40 CFR 230.10):

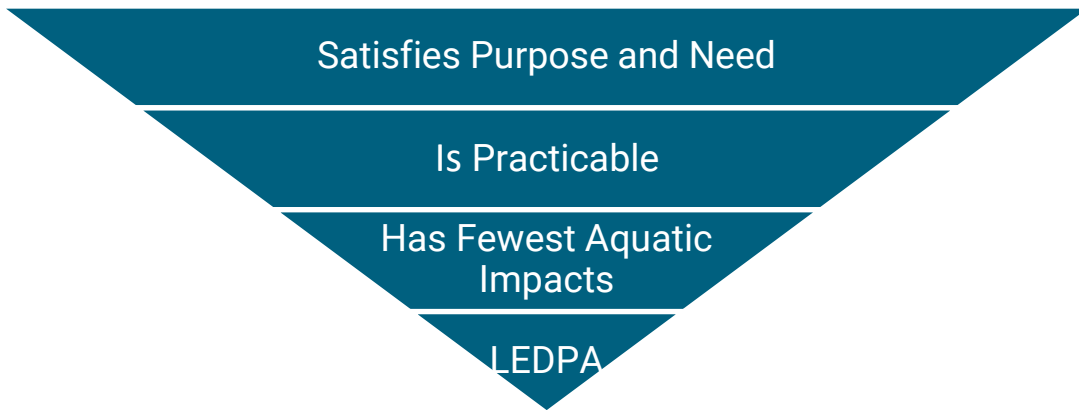
1. Whether there is a practicable alternative to the discharge that would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences;
2. Whether the discharge would violate any applicable state water quality standards, CWA Section 307, or the ESA;
3. Whether the discharge would cause or contribute to a significant degradation of waters of the United States; and
4. Whether appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem.

Of these four tests, the practicability test (listed above as criterion 1) is often referred to as the “lynchpin” or “heart” of the Section 404(b)(1) Guidelines. This test is the means of identifying the LEDPA. In the guidelines, the definition of a “practicable” alternative is twofold:

1. A practicable alternative “is available and capable of being done after taking into consideration cost, existing technology, and logistics...” (40 CFR 230.10(a)(2)).
2. The three practicability criteria—cost, existing technology, and logistics—apply “in light of overall project purposes” (40 CFR 230.3(q)). Thus, in order to be practicable, an alternative must not only meet the three criteria, but also must meet the overall purpose and need of the proposed activity.

According to the Section 404(b)(1) Guidelines, a practicable alternative (1) is available and capable of being done after taking into consideration cost, existing technology, and logistics, and (2) must fulfill the basic purpose of the proposed activity.

During Section 404(b)(1) alternatives screening, the alternatives first must satisfy the purpose and need and then must be determined practicable based on cost, existing technology, and logistics, as discussed above. Remaining alternatives are compared relative to aquatic resource impacts, including both wetland and water resource impacts. The alternative that results in the fewest aquatic impacts is considered the LEDPA unless other significant environmental consequences are identified. The Section 404(b)(1) alternatives screening process is shown in Figure 6.

Figure 6: Section 404(b)(1) Alternatives Screening

14.3 Documentation

Adherence to CWA Section 404(b)(1) is generally documented in a Section 404(b)(1) Alternatives Analysis prepared by NDOT TRU or its Consultant, as summarized in the preceding sections.

Chapter 15 CWA Section 401 and Nebraska Administrative Code Title 117

As detailed in Section 3.2, CWA Section 401 allows states and tribes the opportunity to review and approve, condition, or deny all federal permits or licenses that might result in a discharge to state or tribal waters, including wetlands (33 USC 1251 et seq.). Approval is provided in the form of Water Quality Certification that must be obtained before any activity that may result in a pollution discharge to waters of the United States can be permitted by a federal agency, including CWA Section 404 authorization from USACE. In Nebraska, Water Quality Certification is addressed via Nebraska Administrative Code Title 120, and formal certifications are issued by NDEE on non-tribal land and by USEPA on tribal land.⁵⁶

CWA Section 401 approval is provided in the form of Water Quality Certification that must be obtained from NDEE before any activity that may result in a pollution discharge to waters of the United States can be permitted by a federal agency.

As detailed in Section 3.13, NDEE regulates surface water quality standards in Nebraska in accordance with Nebraska Administrative Code Title 117, Nebraska Surface Water Quality Standards (2012). CWA Section 401 Water Quality Certification is contingent upon adherence to Title 117. Additionally, Title 117, Chapter 3, Antidegradation Clause, expands NDEE authority of Nebraska Surface Water Quality Standards to all activities that have the potential to degrade waters of the State (including streams, lakes, and wetlands) regardless of federal jurisdiction or permitting authority.

15.1 Applicability

CWA Section 404 permit authorization is contingent upon CWA Section 401 Water Quality

Nebraska Administrative Code Title 117 regulates all activities that have the potential to degrade waters of the State, regardless of federal jurisdiction, and may apply to highway improvement projects that are not regulated under CWA Sections 404 and 401.

Certification. As such, CWA Section 401 applies to all projects that necessitate CWA Section 404 permit authorization.

Because Title 117 regulates all activities that have the potential to degrade waters of the State, regardless of federal jurisdiction, Title 117 may apply to highway improvement projects, or specific project activities, for which CWA Sections 404 and 401 do not apply. This may include the discharge of fill material to

wetland areas found to be non-jurisdictional by USACE.

⁵⁶ The tribes in USEPA Region 7 (including Nebraska) do not have approved water quality standards or CWA Section 401 authority for the purpose of regulating water resources within the borders of tribal land, pursuant to CWA Section 518(e). In the absence of such authority, USEPA provides recommendations for Water Quality Certification on tribal land within EPA Region 7 and in accordance with CWA Section 401 (USEPA 2007).

15.2 Methodology

Methods intended to address CWA Section 401 and Nebraska Administrative Code Title 117 vary depending on federal impact jurisdiction, federal permitting intensity, and consistency with NDEE-prescribed water quality conditions. Sections 15.2.1 through 15.2.3 describe appropriate methods for varying scenarios.

15.2.1 Title 117 Letter of Opinion

In the instance that a highway improvement project results in impacts on waters of the State that are not regulated by CWA Section 404 (including isolated wetlands), NDOT will request a Letter of Opinion from NDEE; a Letter of Opinion formalizes NDEE's determination as to whether or not a proposed project would violate Nebraska Surface Water Quality Standards (Title 117). In certain instances, an NDEE opinion of no violation is contingent upon

A Letter of Opinion formalizes NDEE's determination as to whether or not a proposed project would violate Nebraska Surface Water Quality Standards (Title 117).

compensatory mitigation at specified ratios of mitigation to impact area, including 1:1 for certified mitigation bank credit allocation and 1.5:1 for permittee-responsible mitigation.⁵⁷

When requesting a Letter of Opinion from NDEE, NDOT will provide information somewhat consistent with, but less intensive than, that contained in a PCN (see Chapter 12). The request would be in letter format and would outline the project and resulting Title 117 impacts. If applicable, the letter would also specify and differentiate Section 404 jurisdictional impacts and notify NDEE of USACE/Section 404 coordination efforts. Depending on the intensity of impacts on waters of the State, a compensatory mitigation plan may or may not be included in the request.

15.2.2 Conditionally Certified Water Quality Certification

For those projects federally authorized via CWA Section 404 NWP, USACE will coordinate with NDEE regarding NDEE's conditionally certified CWA Section 401 Water Quality Certification (NDEQ 2017). This certification is contingent upon the satisfaction of, or consistency with, 11 conditions that are intended to deter water quality impacts. Most commonly, USACE and NDEE will find that a project satisfies the specified conditions, and Water Quality Certification is thereby granted. If USACE or NDEE finds the project to be inconsistent with any of the 11 conditions, the project will require Individual Water Quality Certification (see Section 15.2.3).

For projects that involve non-jurisdictional (Section 404) aquatic resource impacts, a Letter of Opinion request to NDEE may be required (in addition to an associated CWA Section 404 NWP; see Section 15.2.1).

⁵⁷ NDEE generally views ditch wetland and channel impacts as self-mitigating (via construction of the new/replacement ditch). No Title 117 mitigation is required for ditch wetland impacts.

15.2.3 Individual Water Quality Certification

An Individual CWA Section 401 Water Quality Certification is required of projects when either of the following apply:

- The project is federally authorized via a CWA Section 404 Individual Permit.
- The project is federally authorized via a CWA Section 404 NWP but does not satisfy one or more of NDEE's conditions for certification.

When Individual Water Quality Certification is required, USACE will act as the primary point of contact for NDEE; however, USACE may ask NDOT to provide additional information, as requested by NDEE.

In most cases, the information provided to USACE in the associated CWA Section 404 Individual Permit application or PCN is sufficient to facilitate NDEE's Individual Water Quality Certification review. However, Individual Water Quality Certification requires a public notice and comment period (generally 21 to 30 days in duration) and may prompt the need for NDOT responses to public comments that could affect the project's Water Quality Certification. The public notice/comment process may occur concurrent with, or separate from, public notice/comment requirements of CWA Section 404.

For projects that involve non-jurisdictional (Section 404) aquatic resource impacts, a Letter of Opinion request to NDEE may be required (in addition to an associated CWA Section 404 Permit; see Section 15.2.1).

An Individual Water Quality Certification is required when (1) the project is federally authorized via a CWA Section 404 Individual Permit or (2) the project is federally authorized via a CWA Section 404 NWP but does not satisfy one or more of NDEE's conditions for certification.

15.3 Documentation

CWA Section 401 and Nebraska Administrative Code Title 117 documentation is consistent with those items listed below; responsible parties are provided in parentheses:

- Title 117 Letter of Opinion Request (NDOT TRU or Consultant – see Section 15.2.1)
- Pre-Construction Notification (NDOT TRU or Consultant – see Chapter 12)
- CWA Section 404 Individual Permit application (NDOT TRU or Consultant – see Chapter 13)
- Mitigation Plan (NDOT TRU or Consultant – see Section 16.2.6)
- Response to public comments (NDOT TRU or Consultant)
- Letter of Opinion (NDEE)
- Individual Section 401 Water Quality Certification (NDEE)

Chapter 16 Compensatory Mitigation

According to the 2017 NWP, compensatory mitigation is defined as “[t]he restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved” (82 FR 2005). These mitigation types are defined and discussed below; provided ratios of mitigation to impact area are general in nature and subject to USACE discretion on a case-by-case basis:

- **Restoration** – Defined in 82 FR 2007 as “The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: Reestablishment and rehabilitation.”⁵⁸ Restoration is desirable in terms of associated mitigation ratios. Generally, USACE will apply a mitigation ratio of 1.5:1 (mitigation:impact) for impacts mitigated via restoration. Restoration is also the only mitigation type applied to temporary impacts (in which temporary impacts are restored to pre-project conditions).
- **Establishment (creation)** – Defined in 82 FR 2006 as “The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.” Generally, USACE will apply a mitigation ratio of 2:1 (mitigation:impact) for impacts mitigated via establishment.
- **Enhancement** – Defined in 82 FR 2006 as “The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s).” Generally, USACE will apply a mitigation ratio of 4:1 (mitigation:impact) for impacts mitigated via enhancement.
- **Preservation** – Defined in 82 FR 2007 as “The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.” Generally, USACE will apply a mitigation ratio of 10:1 (mitigation:impact) for impacts mitigated via preservation.

16.1 Applicability

According to NWP General Condition 23: Mitigation, compensatory mitigation is generally required for any project that permanently impacts more than 0.10 acre of wetland (82 FR 2001). Additionally, compensatory mitigation may be required for projects that impact or relocate a length of stream channel to be determined by USACE on a case-by-case basis. Lastly, compensatory mitigation, in the form of restoration, may be required to offset temporary impacts on wetlands and water resources—most commonly associated with temporary construction access accommodations.

According to NWP General Condition 23, compensatory mitigation is generally required for any project that permanently impacts more than 0.10 acre of wetland (82 FR 2001).

⁵⁸ 82 FR 2007 clarifies that re-establishment “results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.” Conversely, rehabilitation “results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area” (82 FR 2007).

Mitigation activities are implemented in accordance with FHWA's regulation on Mitigation of Impacts (23 CFR 777.9).

16.2 Methodology

Multiple considerations are associated with the development of compensatory wetland and stream mitigation, as detailed in Sections 16.2.1 through 16.2.12.

16.2.1 Identification of Impacts

Prior to developing compensatory mitigation, it is important to thoroughly understand the amount, type, duration, and location of associated impacts, as follows:

- Amount of impact – The amount of impact to be mitigated is essential in determining the amount of compensatory mitigation required for development. USACE generally requires mitigation in excess of a 1:1 (mitigation:impact) ratio. USACE-approved mitigation ratios are determined prior to mitigation design and development. The methods provided in Section 9.2 detail how to determine the amount of impact.
- Type of impact – The type of resource being impacted is also important in determining the appropriate type of compensatory mitigation to develop. Wetland versus stream impacts are differentiated. Additionally, the type of wetland being impacted is identified in accordance with both the Cowardin classification system (Cowardin et al. 1979) and Nebraska Wetland Subclass.
- Duration of impact – The duration of impact, in terms of permanent versus temporary, is paramount in determining whether “traditional” mitigation activities are appropriate (applied to permanently impacted resources) or whether restoration of resources temporarily impacted by a project are necessary.
- Location of impact – The location of resource impacts plays an important role in determining if wetland mitigation bank credits can be applied (see Section 16.2.2), or where associated mitigation may be developed. When considering the allocation of wetland mitigation bank credits, impacts must occur within the bank's Service Area, as specified in the wetland mitigation bank's Site Development Plan or Prospectus. *When considering new mitigation development, impact location is most commonly considered in terms of watershed (or 8-digit hydrologic unit code [HUC]) and USEPA Level IV Ecoregion.*

16.2.2 Determination of Available Mitigation Bank Credits

NDOT owns and maintains a series of wetland mitigation banks throughout Nebraska. NDOT's banks are authorized by USACE to provide compensatory wetland and stream mitigation to State-administered highway projects only. The commercial sale of wetland mitigation bank credits to outside developers is not authorized. NDOT maintains detailed records and credit/debit ledgers for each of its wetland mitigation banks. A brief summary of each bank is available to the public via USACE's Regulatory In-lieu Fee and Bank Information Tracking System (RIBITS) website at <http://geo.usace.army.mil/ribits/index.html>.

The allocation of wetland mitigation bank credit(s) toward unavoidable, project-induced impacts is generally the preferred mitigation method for State-administered projects, where applicable. To allocate

NDOT owns and maintains a series of wetland mitigation banks throughout Nebraska. NDOT's banks are authorized by USACE to provide compensatory wetland and stream mitigation to State-administered highway projects only.

wetland mitigation bank credit(s) as compensatory mitigation, NDOT must determine whether or not the impacts occur within the Service Area of an NDOT bank that contains a sufficient balance of credits. To determine the sufficiency of credits, the credit allocation ratios, detailed in Table 2, must be considered. If acceptable bank credits are identified,⁵⁹ the associated project’s Mitigation Plan (contained within the PCN or Individual Permit application) shall reference the credit allocation. Additionally, the PCN shall provide the most current bank ledger that includes the project-specific debit.

Table 2: Mitigation Bank Credit Allocation Ratios

Wetland Type (Cowardin Classification)	Wetland Type (Nebraska Wetland Subclass)	Certified Credit Allocation Ratio (Mitigation:Impact)	Pre-Credit Allocation Ratio (Mitigation:Impact)
X	X	1:1	1.5:1
X	--	2:1	3:1
--	X	2:1	3:1
--	--	4:1	6:1

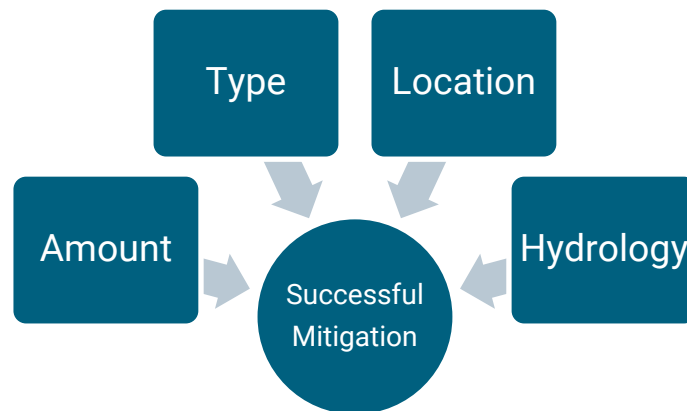
Note: An "X" denotes in-kind mitigation (that is, common wetland types between impacted and mitigation wetlands). A "--" denotes out-of-kind mitigation (that is, a discrepancy in wetland types between impacted and mitigation wetlands).

If identified impacts cannot be mitigated via existing wetland mitigation bank credit allocation, NDOT will evaluate mitigation development options, as detailed in Sections 16.2.3 through 16.2.12.

16.2.3 General Wetland Mitigation Development Considerations

General wetland mitigation development considerations are shown in Figure 7 and are applicable to permittee-responsible and new wetland mitigation bank development.

Figure 7: Considerations for General Wetland Mitigation Development



⁵⁹ TRU staff dictate which mitigation bank is applied to projects that could potentially use multiple banks. Under no circumstances would Consultants make this decision.

The considerations for general wetland mitigation development are described as follows:

- Amount of mitigation – Prior to commencing mitigation development, it is critical to accurately determine the amount (wetland area or stream length) of mitigation necessary to successfully mitigate impacts. *USACE mitigation: impact ratios vary depending on whether impacted resources are mitigated in-kind or out-of-kind, as shown in Table 3.* Furthermore, mitigation planning should over-design, thereby including more than the minimum amount of mitigation required by the USACE permit in case the entirety of the design does not successfully develop.
- Type of mitigation – Generally, the type of mitigation required for development is directly linked to the type of resource being impacted. Because mitigation ratios are generally lower for in-kind mitigation (as opposed to out-of-kind), NDOT will attempt to mitigate impacts in kind. Additionally, wetland mitigation development should be consistent with both the Cowardin classification system (Cowardin et al. 1979) and Nebraska Wetland Subclass, where possible. Mitigation type is also considered relative to the duration of the impact. Temporary impacts are generally addressed via restoration to pre-construction conditions, while permanent impacts may be mitigated via multiple means, including restoration (preferred) and establishment.
- Location of mitigation – When determining the location of mitigation, the first consideration is whether the mitigation will be developed on-site or off-site. Where used, on-site mitigation may be preferable due to diminished ROW acquisition and/or decreased contractor mobilization costs. The location of off-site mitigation is most commonly considered in terms of watershed (or 8-digit HUC) and USEPA Level IV Ecoregion common to the impact location. Off-site mitigation determinations, and the area in which mitigation may occur, are made on a case-by-case basis.
- Hydrology source – Early identification of sufficient wetland hydrology is critical in planning wetland mitigation development. Wetland hydrology may be provided by surface water, groundwater, or a combination thereof. Section 16.2.4 discusses applied methods for hydrology determinations.

Table 3: Permittee-Responsible Mitigation Ratios

Wetland Type (Cowardin Classification)	Wetland Type (Nebraska Wetland Subclass)	Ratio (Mitigation:Impact)
X	X	2:1
X	--	4:1
--	X	4:1
--	--	8:1

Note: An "X" denotes in-kind mitigation (that is, common wetland types between impacted and mitigation wetlands). A "--" denotes out-of-kind mitigation (that is, a discrepancy in wetland types between impacted and mitigation wetlands).

16.2.4 Hydrologic and Hydraulic Study

Mitigation development requires that some level of hydrologic and hydraulic (H&H) study is performed to assess hydrologic sources and to determine their potential influence on wetland development. The type, or focus, of the study is largely dependent upon the anticipated hydrology source, as follows:

- Surface water⁶⁰ – For a mitigation design that is driven by a surface water source, a water budget may be necessary to determine the amount of surface water available to promote wetland development. Water budgets use hydrology determinations (runoff) and hydraulic calculations and/or modeling to determine flow discharge and elevations. Contributing considerations may include topographic survey (including applicable stream cross sections and WCS invert elevations), WCS type and size, stream gage analysis, delineated watershed size, land uses, and soil types and parameters.
- Groundwater – For a mitigation design that is driven by groundwater, it is important to understand the depth to groundwater and to produce a grading plan that includes ground surface elevations within close proximity to groundwater. In association with topographic survey, groundwater monitoring well readings or soil boring information is evaluated to determine appropriate site contours.

In most mitigation development scenarios, some level of hydrologic and hydraulic study is necessary to assess hydrologic sources and to determine their potential influence on wetland development.

16.2.5 Mitigation Site Design and Plan Drawing Preparation

Mitigation designs vary widely depending on several variables, including hydrology source and topography. Hydrology sources may include surface water diversion and/or impoundment, or excavation to groundwater, or a combination thereof. *All designs include a 50-foot-wide (minimum) upland buffer that surrounds the mitigation wetland and includes native, perennial grasses and forbs.*⁶¹

Mitigation design plans are prepared in accordance with standard NDOT roadway design standards and are intended to include detail and quantities sufficient to facilitate contractor bidding.

Mitigation design plans are prepared in accordance with standard NDOT roadway design standards and are intended to include detail and quantities sufficient to facilitate contractor bidding. Design plans will universally include a grading plan, spot elevations, seeding/planting plan,⁶² and quantities sheet. Other plan set components may include inlet/outlet detail plans, fence plans, construction and removal plans, sediment control plans, and special provisions.

⁶⁰ Prior to advancing a mitigation design dependent upon surface water, it may be necessary to coordinate with the applicable Natural Resources District regarding surface water appropriations and/or the Nebraska Department of Natural Resources regarding potentially necessary permits (for example, a permit to impound surface water).

⁶¹ Upland buffer requirements may not apply when their inclusion would impact existing wetlands or separate mitigation wetlands from a larger, existing wetland complex. The exclusion of upland buffer from wetland mitigation design shall be coordinated with TRU on a case-by-case basis.

⁶² A seeding plan is intended for grasses and forbs. A planting plan is intended for shrubs and trees. The two may be combined on a single plan sheet. The USACE Nebraska Regulatory Office has designated specific species that shall not be included in wetland mitigation seeding/planting plans. Under no circumstances will designated species be included in mitigation design plans.

16.2.6 Narrative (12-Point) Compensatory Wetland Mitigation Plan

In addition to actual plan drawings, a narrative mitigation plan is also required in association with a Section 404 permit application. *The narrative plan (commonly referred to as the 12-Point Compensatory Wetland Mitigation Plan) details the following components, and an example is provided as Attachment H:*

1. Mitigation site objectives – Briefly explain the type of wetland/stream mitigation proposed. Is it restoration, establishment, enhancement, and/or preservation? Describe the area in which the mitigation is proposed to be constructed; how is it similar to, or different than, the impacted wetland/stream area?
2. Site selection and justification – Is the mitigation site at the same location as the impacted wetland/stream, or within the same watershed? If not, how was the site selected?
3. Site protection instrument – Describe legal arrangements made to protect the mitigation site (for example, deed restriction or conservation easement).
4. Baseline mitigation site information – Describe the site's existing conditions (prior to mitigation improvements). Determine and document whether or not existing wetlands or other waters occur on the site via a Baseline Wetland Delineation (see Section 16.2.7). Identify existing vegetation, hydrologic conditions, and soil types and parameters. Detail the site's location using latitude and longitude, the legal description, and a map.
5. Determination of credits – Describe one of the following: (1) the number of credits to be produced by a new mitigation bank; (2) how permittee-responsible mitigation would compensate for permitted impacts; or (3) the number and type of certified mitigation bank credits to be debited or purchased, and how these values were determined.
6. Mitigation work plan – Describe the proposed mitigation work. Include the construction methods, elevations and side slopes (if applicable), dates the work will start and end, water sources, site boundaries, buffers around the wetland/stream, method for establishing desired plant communities, and so on.
7. Maintenance plan – Describe NDOT's standard commitment to maintain mitigation sites to ensure proper functionality over time.
8. Performance standards – List and describe measurable criteria used to determine whether or not the mitigation site develops properly.
9. Monitoring requirements – Describe NDOT's standard practice of annually monitoring performance standards (see Chapter 17). Include specific deadlines for the submittal of monitoring results, and identify a monitoring period/duration.
10. Long-term management plan – Describe how the mitigation site will be managed after the monitoring period is completed.
11. Adaptive management plan – Briefly describe a management strategy to ensure that adequate mitigation is provided in the event that the site does not perform as expected.
12. Financial assurances – Describe NDOT's status as a State department and taxing authority, and the resulting financial assurances that can be allocated to ensure the success of the mitigation project.

16.2.7 CWA Section 404 Permitting and Baseline Wetland Delineation

The development of wetland mitigation may itself impact wetlands or waters of the United States (for example, due to grading or structure installation). In this instance, a CWA Section 404 permit

authorization may be required for mitigation development. Commonly, these impacts are authorized via NWP 27: Aquatic Habitat Restoration, Establishment, and Enhancement Activities. However, USACE may choose to incorporate mitigation-borne impacts into the permit authorization for the associated project (that is, the project toward which the planned mitigation is allocated). To determine the location and extents of mitigation-borne impacts, a Baseline Wetland Delineation must be performed on the mitigation site (prior to planned improvements). Methods associated with a Baseline Wetland Delineation are wholly consistent with NDOT's standard and *Wetlands in an Agricultural Setting* delineation practices, detailed in Sections 6.2 and 7.2, respectively.

16.2.8 Real Estate Protective Provision

USACE requires that the functions and values of all mitigation sites are protected in perpetuity by an appropriate real estate protective measure. As such, NDOT will obtain an appropriate means of real estate protection and will file this measure with the appropriate governing body (for example, the County Assessor's office). Protection is most commonly applied via a deed restriction or conservation easement. Allowable and unallowable activities may be specified in the protection instrument. Example protection instrument language is provided as Attachment I.

NDOT will obtain an appropriate means of real estate protection for all compensatory mitigation projects and will file this measure with the appropriate governing body.

16.2.9 Stream-Specific Mitigation Development Considerations

The following considerations are specific to stream mitigation development; the buffer strip and side slope considerations are incorporated in all circumstances, while the Nebraska Stream Condition Assessment Procedure (NeSCAP) is applied on an as-needed basis:

- *Buffer strips* – Consistent with the USACE Nebraska Regional Condition for stream channelization projects, "buffer strips must be set along both sides of a channelized, relocated, or other new stream channel. Buffers shall be at least 50 feet wide and start at the top of the high bank of the channel. Buffers will be accepted on a 4H:1 V-slope or flatter and if proposed the 50 foot measurement will start at the OHW. New buffers in disturbed areas shall be revegetated with a mixture of perennial grasses, forbs and trees as appropriate" (USACE 2017). Invasive and non-native species are not appropriate for planting within buffer strips. Revegetation will be acceptable when ground cover of appropriate perennial, native grasses and forbs reaches 75 percent (USACE 2017).
- *Sideslopes* – The side slopes of a mitigation stream channel will be no steeper than 3:1 (horizontal: vertical).
- *NeSCAP* – The USACE-developed assessment of streams and floodplain/riparian areas can be applied to determine functional units of impacted and mitigation stream channels (USACE 2016b). The application of NeSCAP replaces traditional linear foot for linear foot mitigation with the comparison of determined functional units. NeSCAP requires the collection of desktop and on-site data and considers the following variables in assigning a Stream Condition Index to analyzed stream channels: (1) hydraulic conveyance and sediment dynamics; (2) in-stream habitat/available cover; (3) floodplain interaction–connectivity; (4) riparian vegetation composition; (5) riparian buffer continuity and width; and (6) riparian land use (USACE 2016b).

16.2.10 Bank-Specific Mitigation Development Components

When developing a mitigation bank, NDOT will follow the procedures and protocols specified in its Umbrella Mitigation Banking Agreement. Included therein are details on the following:

- Site Development Plan – The banking-specific document that is provided to USACE and the Interagency Review Team (IRT) in anticipation of mitigation bank approval. Site Development Plans detail multiple facets of the mitigation bank. Its contents are largely consistent with the Narrative (12-Point) Compensatory Wetland Mitigation Plan, detailed in Section 16.2.6. Beyond these standard components, the Site Development Plan includes details on how credits are produced, at what ratio(s) credits will be applied to impacts, and when the credits become available for allocation. An example Site Development Plan is provided as Attachment J.
- Geographic Service Area – The spatial limits within which project impacts can be mitigated via the mitigation bank being developed. The Umbrella Mitigation Banking Agreement provides details on how these limits are established.
- Ledger – The spreadsheet that tracks mitigation bank credits, debits, and credit balance. The ledger details credits and debits by resource type and itemizes debits by project. The current ledger is provided to USACE in association with any project for which the mitigation plan is bank credit allocation. An example ledger is provided as Attachment K.

16.2.11 Restoration-Specific Components

Restoration may be required to offset temporary impacts on wetlands and water resources that most commonly result from construction access accommodations. Temporary impact restoration generally involves the following:

- Removal of temporary fill material from waters of the United States and subsequent discharge in an upland location
- Reestablishment of pre-construction site contours
- Revegetation consistent with the Nebraska Regional Condition titled Revegetation of Disturbed Areas (USACE 2017)
- Notification and documentation (including photos) of restoration completion submitted to the USACE Nebraska Regulatory Office

16.2.12 NEPA Analysis

For mitigation projects that use federal funding, the implementation of the mitigation project must be analyzed for potentially significant effects on the human and natural environment in accordance with NEPA. NEPA compliance for mitigation sites can be completed in association with the NEPA analysis performed for the associated project (that is, the project for which the site mitigates impacts) via a NEPA document that includes both the project extents and the mitigation site. Mitigation site NEPA analysis may also be performed independent of the associated project.

For mitigation projects that use State funds only, USACE acts as the lead federal agency in mitigation site development and NEPA compliance. In this instance, NDOT does not develop a formal NEPA document; however, NDOT is responsible for demonstrating compliance with NHPA Section 106 and ESA Section 7, and for completing appropriate hazardous materials and floodplains evaluations. Resulting PQS Memorandums and supporting documentation are provided to USACE.

16.3 Documentation

Mitigation development documentation is consistent with those items detailed in the preceding sections and listed below; responsible parties are provided in parentheses:

- H&H analysis – data collection, calculations, and recommendations (NDOT Hydraulics or Consultant – see Section 16.2.4)
- Mitigation site design drawings (NDOT Roadway Design or Consultant – see Section 16.2.5)
- Narrative (12-Point) Compensatory Wetland Mitigation Plan (NDOT TRU or Consultant – see Section 16.2.6)
- NEPA document – includes or is specific to mitigation site development and accounts for NHPA Section 106, ESA Section 7, hazardous materials, and floodplains (NDOT EDU or Consultant)
- CWA Section 404 permit – includes or is specific to mitigation site development (NDOT TRU or Consultant)
- Baseline Wetland Delineation Report (NDOT TRU or Consultant – see Section 16.2.7)
- Real estate provision (NDOT ROW or NDOT TRU – see Section 16.2.8)
- NeSCAP stream functional assessment (NDOT TRU or Consultant – see Section 16.2.9)
- Site Development Plan (NDOT TRU or Consultant – see Section 16.2.10)
- Bank ledger (NDOT TRU – see Section 16.2.10)

16.4 Attachments

The following attachments to this Document relate to compensatory mitigation:

- Attachment H – 12-Point Compensatory Wetland Mitigation Plan (Example)
- Attachment I – Deed Restriction and Conservation Easement (Example)
- Attachment J – Site Development Plan (Example)
- Attachment K – Wetland Mitigation Bank Ledger (Example)

Chapter 17 Wetland and Stream Mitigation Monitoring

Wetland and water resource mitigation monitoring is the process of evaluating and documenting (1) post-construction site conditions, (2) wetland and/or stream development, and (3) adherence to USACE-prescribed permit conditions and associated performance standards. As stated in 33 CFR 332.6 (a)(1), "monitoring the compensatory mitigation project site is necessary to determine if the project is meeting its performance standards, and to determine if measures are necessary to ensure that the compensatory mitigation project is accomplishing its objectives." Additional monitoring requirements are provided in 33 CFR 332.6, 40 CFR 230.96, and USACE RGL 08-03 (2008).

Annual monitoring can be required for both wetland and stream mitigation. Monitoring is typically required for 5 years. Project-specific schedule and reporting requirements will be provided by USACE in the associated CWA Section 404 permit and/or approved mitigation plan.

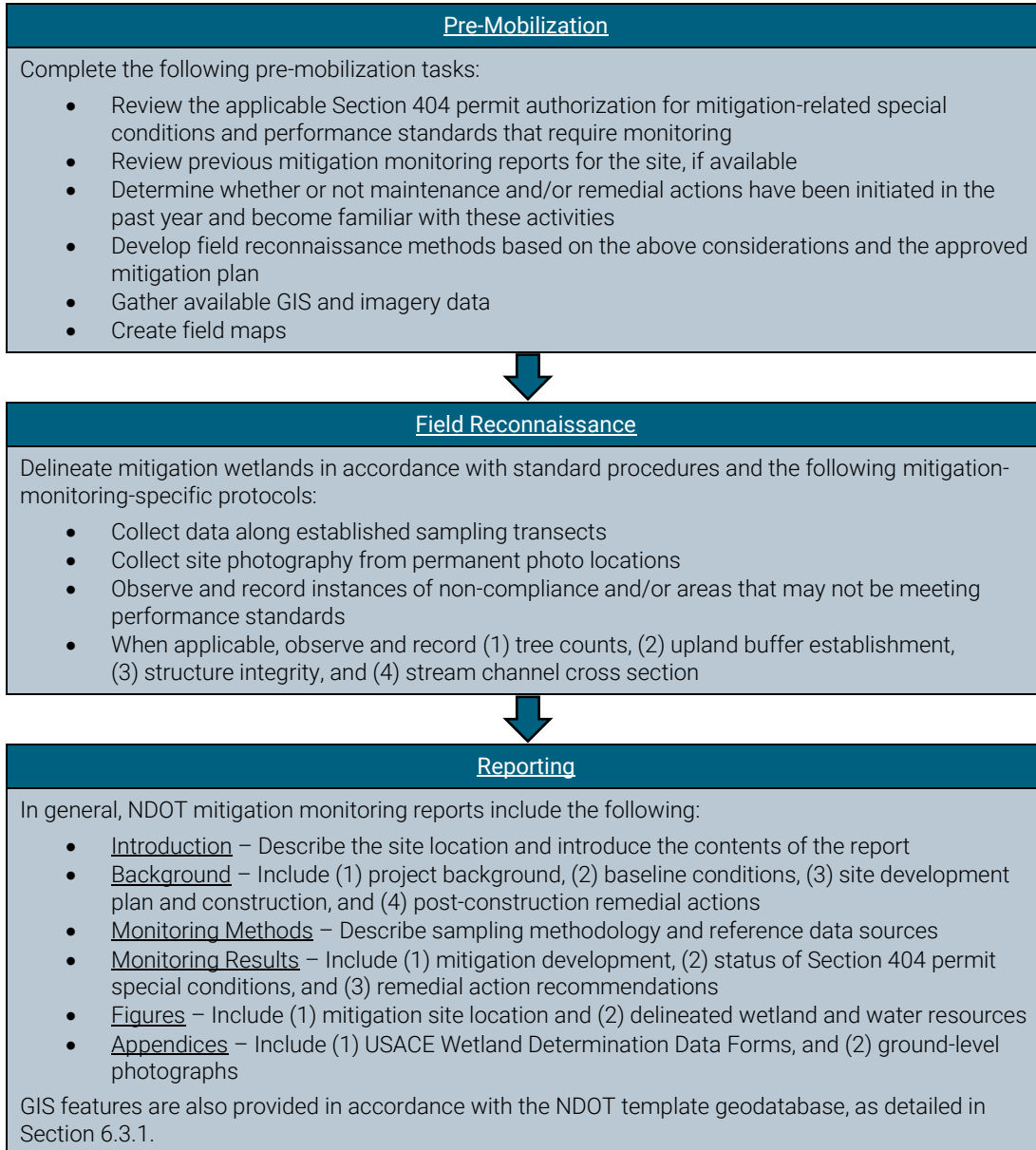
Mitigation monitoring is the process of evaluating and documenting (1) post-construction site conditions, (2) wetland and/or stream development, and (3) adherence to USACE-prescribed permit conditions and associated performance standards.

17.1 Applicability

Mitigation monitoring is required by USACE for all NDOT mitigation development projects, including both wetland and stream mitigation and including both mitigation banks and site-specific mitigation sites. Restoration efforts associated with temporarily impacted areas are also subject to monitoring. Specific requirements are provided by USACE as special conditions within the applicable CWA Section 404 permit authorization.

17.2 Methodology

With some exceptions, methods for mitigation monitoring are similar to those for wetland delineations (see Chapter 6). These methods are summarized below and detailed in Sections 17.2.1 through 17.2.3:



17.2.1 Pre-Mobilization

Before project staff are mobilized for field reconnaissance, they need to become familiar with the special conditions in the CWA Section 404 permit associated with the mitigation site. These conditions often result in monitoring requirements unique to individual sites. While on-site, project staff should be aware of these unique monitoring requirements and ensure that all pertinent data are gathered. This is especially critical during the first year of monitoring, when baseline monitoring methods are established.

Project staff need to become familiar with the special conditions in the CWA Section 404 permit associated with the mitigation site. These conditions often result in monitoring requirements unique to individual sites.

Other pre-mobilization tasks include review of past site-specific monitoring reports, determining whether or not maintenance and/or remedial actions have been initiated in the past year and becoming familiar with these activities, gathering available GIS and imagery data, and creating field maps. GIS data collected prior to field reconnaissance are listed below. To allow for easier navigation during the monitoring visit, some or all of the following features are displayed on the field map(s) and loaded on a mobile GPS unit:

- Site boundary
- Grading/construction limits
- Tree planting locations
- Structure locations
- Previously established sampling transects
- Previously established sampling locations
- Previously established photo locations
- Previously delineated wetland/water resource boundaries
- NAIP color aerial photography

The above may not be a comprehensive list and/or some of these resources may not be applicable to every mitigation site. Regardless, it is important to understand the conditions and standards of the specific mitigation site so that the necessary data can be compiled and the status of the mitigation site's conditions and performance standards can be determined.

17.2.2 Field Reconnaissance

Field reconnaissance is most commonly completed on a yearly, or annual, basis. It requires the delineation of wetland/stream/open water and upland boundaries. The procedures for completing monitoring delineations is very similar to the procedures documented in Chapter 6 for wetland delineations, including the use of the appropriate USACE Wetland Determination Data Forms and the documentation of vegetative cover, soil characteristics, and presence or absence of wetland hydrology. Also consistent with general wetland delineation procedures is the collection of GPS data to include sample locations, photo locations, wetland/upland boundaries, water resource boundaries, and so on.

In addition to general wetland delineation procedures, NDOT also performs monitoring-specific activities, as follows:

- Sampling transects – Transects may be required for monitoring. When used, transects and associated sample points are used to document wetlands, uplands, and their representative transitions. The number of transects and sample points will vary from site to site. The number of sample locations should be sufficient to accurately delineate wetland/upland boundaries and associated site conditions, including varying vegetative communities.
- Permanent photo points – Field reconnaissance also requires the establishment of photo points. USACE RGL 08-03 (2008) requires that the monitoring report include photo documentation and that photo location points be displayed on appropriate maps. The photo points are located in areas that provide perspective on the conditions of the site, including specific conditions and/or performance standards required of the associated CWA Section 404 permit. Photo locations remain constant throughout the monitoring period to provide a visual representation of how the mitigation site develops over time. Beyond established/permanent photo locations, unique photos are also collected, as necessary, to document notable site conditions.
- Remedial actions – While conducting field reconnaissance, the Qualified Scientist is responsible for not only observing and documenting successful site conditions, but also documenting non-compliant considerations or issues potentially requiring remedial action.⁶³ These features are documented in the field and incorporated into the monitoring report so that NDOT and/or USACE can determine if remedial action is necessary.
- Additional items – Other monitoring-specific field observations are as follows:
 - Tree/shrub counts (forested or scrub/shrub mitigation only)
 - Buffer establishment (wetland and/or stream buffer)
 - General structure integrity (such as a water control structure or berm)
 - In-channel structure integrity (such as bank stabilization or a riffle/pool complex)
 - Channel cross section survey (stream mitigation only)

In addition to general wetland delineation procedures, mitigation monitoring also involves (1) establishment and use of permanent sampling transects and photo points, (2) identification of necessary remedial actions, and (3) other site-specific considerations, as appropriate.

⁶³ Non-compliant issues could include (1) the establishment of non-native invasive species, (2) malfunctioning water control structures, (3) unsuccessful tree plantings, (4) insufficient native grass buffer, or (5) any other feature that is inhibiting the site from meeting its mitigation objectives.

17.2.3 Reporting

The submission of monitoring reports to USACE is required by 33 CFR 332.6, which states that “[t]he submission of monitoring reports to assess the development and condition of the compensatory mitigation project is required, but the content and level of detail for those monitoring reports must be commensurate with the scale and scope of the compensatory mitigation project, as well as the compensatory mitigation project type.”

Monitoring reports for site-specific mitigation sites are due to USACE by November 30, while reports for mitigation banks are due by December 31.

Monitoring reports are provided to USACE on an annual basis. The applicable submittal deadline is contingent upon which type of mitigation site is being monitoring: bank or site-specific. *Monitoring reports for site-specific mitigation sites are due to USACE by November 30, while reports for mitigation banks are due by December 31.*

Monitoring report contents follow the directives provided in USACE RGL 08-03 (2008). A NDOT mitigation monitoring report template can be found on the NDOT Sharefile site

but in general, the mitigation monitoring reports include the following (See Attachment L- Example):

1. Project Overview
 - 1.1. Project Summary
 - 1.2. Site Location
 - 1.3. Timeline
 - 1.4. Performance Standard Summary
 - 1.5. Corrective Actions
 - 1.6. Recommendations
2. Monitoring Requirements
 - 2.1. General Requirements
 - 2.2. Performance Standards
3. Wetland Monitoring Methods
 - 3.1. Mitigation Site Baseline Condition
 - 3.2. Standard Methods
 - 3.3. Site Specific Conditions
4. Monitoring Results
 - 4.1. Wetland development
 - 4.1.1. Vegetation
 - 4.1.2. Hydrology
 - 4.1.3. Hydric Soils
 - 4.1.4. Tree Count
 - 4.2. Performance Standard Summary & Compliance Standard
5. Conclusion

Appendices:

Appendix A: Figures

Appendix B: Wetland Determination Data Forms

Appendix C: YEAR Ground Level Site Photography

Appendix D: As-Built Site Topography

Appendix E: Deed Restriction

Appendix F: Seeding

The report also includes a location figure and a wetland and water resources figure(s) that displays the mitigation site boundary, transects, sampling locations, photo locations, delineated wetland boundaries, upland buffer, and other water resource boundaries. Appendices can vary. At a minimum, appendices provide the USACE Wetland Determination Data Forms and ground-level photographs. Additional appendices could include mitigation site construction plans and the USACE authorization.

GIS features are also provided/reported in accordance with the NDOT-provided template geodatabase, as detailed in Section 6.3.1. Not all of the attributes are applicable to mitigation monitoring. The reporting scientist will coordinate with the TRU Wetland Project Manager on what attributes are included in the geodatabase.

17.3 Documentation

Mitigation monitoring documentation is consistent with those items detailed in the preceding sections and listed below; responsible parties are provided in parentheses:

- Attachment L Example: Annual wetland/stream mitigation monitoring report (NDOT TRU or Consultant – see Section 17.2.3)
- GIS geodatabase (NDOT TRU or Consultant – see Section 6.3.1)
- As-built topographic survey (NDOT District)
- Real estate provision (NDOT ROW or NDOT TRU – see Section 16.2.8)

Chapter 18 NEPA and CWA Section 404

As detailed in Section 3.7,

NEPA contains a Declaration of National Environmental Policy. This policy requires the federal government to use all practicable means to create and maintain conditions under which man and nature can exist in productive harmony. Section 102...requires federal agencies to incorporate environmental considerations in their planning and decision-making through a systematic interdisciplinary approach (USEPA 2015).

Prior to initiating CWA Section 404, it is important to understand whether the project involves a federal nexus and if/how NEPA applies to the project. NEPA triggers that are common to highway improvement projects are as follows:

- The use of federal funds
- The necessity of federal permits or approvals, including, but not limited to, a CWA Section 404 Individual Permit

The following wetland and water resource considerations are evaluated during NEPA analysis and may influence the associated decision-making process:

- Type, size, and location of wetlands and stream channels⁶⁴
- Location and scope of project improvements and resulting aquatic resource impacts⁶⁵
- Type and intensity of anticipated CWA Section 404 permit authorization

In accordance with NDOT's NEPA procedures, TRU staff prepare a Wetland PQS Memorandum for all federal-aid projects. The Wetland PQS Memorandum is a mandatory attachment to the project's NEPA document. Contents of the Wetland PQS Memorandum vary by project. Common contents are as follows:

- Project description
- Approval of a Consultant's wetland delineation
- Quantification of wetland and water resource impacts by type
- Statement that CWA Section 404 permitting and associated USACE notification is or is not required
- Type of CWA Section 404 permit that is required
- Discussion of CWA Section 401 and Nebraska Administrative Code Title 117 requirements
- Discussion of construction commitments that facilitate impact avoidance or minimization

⁶⁴ Unless a JD has been provided by USACE, all wetlands and water resources are assumed jurisdictional for purposes of NEPA analysis.

⁶⁵ NEPA decisions are occasionally made prior to wetland delineations, final design, and the identification of detailed wetland impacts. If ultimate impacts are not consistent with those discussed in the NEPA document, the NEPA record would need to be rectified.

18.1 Lead Federal Agency

The Nebraska Department of Transportation (NDOT) has assumed the Federal Highway Administration's (FHWA's) responsibilities for Categorical Exclusions under the *Memorandum of Understanding between Federal Highway Administration, Nebraska Division and the Nebraska Department of Transportation, State Assumption of Responsibility for Categorical Exclusions, 23 U.S.C. §326 (the CE MOU)*. Pursuant to 23 U.S.C. §326(e) and the CE MOU (September 5, 2018), whenever NDOT is assigned a responsibility under the CE MOU, NDOT shall be deemed to be a Federal agency for purposes of the Federal law(s) under which the responsibilities are exercised by the State, including the responsibilities as lead Federal agency and Federal permittee. For highway improvement projects that do not receive federal aid but that do require CWA Section 404 (federal) permit authorization, USACE acts as the lead federal agency in administering NEPA.

18.2 Timing of Section 404 Permit Application versus NEPA Evaluation

Depending on the project scope and the anticipated impacts on wetlands and water resources, a CWA Section 404 permit application is submitted to USACE either prior to or following a NEPA decision.

When a federal-aid transportation project in Nebraska satisfies the following criteria, a CWA Section 404 permit application can be submitted prior to NDOT's NEPA decision:

- A Preferred Alternative has been identified/selected.
AND
- NEPA will be satisfied via an NDOT-approved CE.
AND
- The project qualifies for authorization under NWP 14: Linear Transportation Projects (or any other NWP with the exception of NWP 23: Approved Categorical Exclusions).⁶⁶
OR
- NEPA will be satisfied via an EA/Finding of No Significant Impact (FONSI) or EIS/Record of Decision (ROD), and both FHWA and USACE agree on the Preferred Alternative.⁶⁷

Conversely, in either of following scenarios, CWA Section 404 permit application submittal is contingent upon a final NEPA decision:

- NEPA will be satisfied via an EA/FONSI or EIS/ROD, and FHWA and USACE have not agreed on the Preferred Alternative.
- NEPA will be satisfied via a NDOT-approved CE, and aquatic resource impacts are not within allowable impact thresholds of NWP 14: Linear Transportation Projects (or another more applicable NWP). In this scenario, CWA Section 404 permit authorization may be provided via NWP 23: Approved Categorical Exclusions.
- An approved CE document must be submitted with a NWP 23 application

⁶⁶ Impact findings within allowable thresholds must be the result of wetland delineations and advanced design.

⁶⁷ When evaluating multiple alternatives via an EA or EIS, wetland determinations (as opposed to wetland delineations) are often conducted and resulting aquatic resource impacts compared.

Chapter 19 U.S. Coast Guard Bridge Permitting

Applicable bridge legislation includes RHA Section 9 and the General Bridge Act of 1946. These acts placed the navigable waters of the United States under the exclusive control of the Coast Guard to prevent interference with their navigability by bridges or other obstructions except by express permission of the United States Government. A bridge permit is the written approval of the location and plans of the bridge or causeway to be constructed or modified. Federal law prohibits the construction of these structures unless authorized by the Coast Guard.

For purposes of Coast Guard bridge permitting, “navigable waters” are defined in 33 CFR 2.36 as including the following (unless specifically declared otherwise by Congress):

- (1) **Territorial seas of the United States;**
- (2) **Internal waters of the United States that are subject to tidal influence; and**
- (3) **Internal waters of the United States not subject to tidal influence that:**
 - (i) **Are or have been used, or are or have been susceptible for use, by themselves or in connection with other waters, as highways for substantial interstate or foreign commerce, notwithstanding natural or man-made obstructions that require portage, or**
 - (ii) **A governmental or non-governmental body, having expertise in waterway improvement, determines to be capable of improvement at a reasonable cost (a favorable balance between cost and need) to provide, by themselves or in connection with other waters, as highways for substantial interstate or foreign commerce.**

The Coast Guard Eighth District, Western Rivers Bridge Office in St. Louis, Missouri, administers bridge permitting in Nebraska and is the appropriate point of contact for associated questions.

19.1 Applicability

Coast Guard bridge permitting applies to NDOT projects that construct or modify a bridge or causeway across a navigable waterway of the United States. This includes temporary bridges used for construction access or traffic detour.

In Nebraska, the only navigable river that necessitates a Coast Guard bridge permit is the Missouri River downstream of Gavins Point Dam. Work within 250 feet of the Missouri River shoreline or bridge modification, construction, or removal over the Missouri River requires authorization by the Coast Guard.

Coast Guard bridge permitting applies to NDOT projects that construct or modify a permanent or temporary bridge or causeway crossing of the Missouri River downstream of Gavins Point Dam.

19.2 Methodology

The Coast Guard bridge permit application package is detailed in the Bridge Permit Application Guide (Coast Guard 2016). The application package consists of a cover letter, project plans, an environmental evaluation, and a checklist for each of these components.

The cover letter must include:

1. Applicant information
2. Consultant/Agent information
3. Description of the proposed bridge
4. Legal authority for proposed action
5. Dimensions of the navigation opening
6. Discussion of long-term navigational impacts
7. Description of the existing bridge(s), if applicable
8. Discussion of construction methodology and removal of existing bridge(s), as applicable
9. Agency jurisdiction
10. Summary of environmental analysis

Plan sheets must be provided in 8.5- by 11-inch format and must include:

1. Plan sheet checklist
2. Title blocks
3. Location/vicinity map
4. Plan view
5. Elevation view
6. Typical section view
7. Details of the bridge protective system
8. Temporary structures/falsework
9. Bridge lighting plan

If a NEPA document has been prepared for the associated bridge action, two copies of the document are provided to the Coast Guard.⁶⁸ In the instance that NDOT administers a Missouri River bridge project without federal participation (and an associated NEPA document), NDOT would complete and document a thorough environmental evaluation and provide it to the Coast Guard in association with the bridge permit application. In this instance, NDOT's environmental evaluation would be incorporated into the Coast Guard's bridge-permit-associated NEPA analysis.

Within 30 days of application receipt, the Coast Guard may send a letter to the applicant requesting additional information. When the Coast Guard determines the bridge permit application to be complete, the Coast Guard prepares a public notice, coordination letters, and Coast Guard Notice to Mariners. The Coast Guard typically holds a 30-day public comment period, at the end of which they review received comments and provide the applicant an opportunity to respond. The Coast Guard may also hold scoping/coordination meetings and public hearings, if determined necessary.

After the Coast Guard District completes a full evaluation and prepares its Findings of Fact, it provides a recommendation to issue or deny the bridge permit and then proceeds with permit issuance or denial. The permit is then sent on to Coast Guard Headquarters in Washington, D.C., where Headquarters reviews the proposed project and issues or denies a permit. In total, the Coast Guard

⁶⁸ For federal-aid projects that require NEPA analysis, NDOT will initiate early NEPA coordination/scoping with the Coast Guard.

bridge permit process is intended to take 60 to 90 days following receipt of a complete bridge permit application.

NDOT will invite the Coast Guard to participate in any pre-bid/pre-construction meetings when a project requires a Coast Guard bridge permit.

19.3 Documentation

Coast Guard bridge permitting documentation consists of a Coast Guard Bridge Permit Application Package, as detailed above. It is completed by NDOT TRU or its Consultant.

Chapter 20 Generalized Timelines

NDOT has established generalized timelines for the submittal and approval of coordination actions and permit applications.

20.1 Nine Months Prior to Project Turn-In

The permit applications listed below are submitted to the appropriate authorities 9 months prior to project turn-in to allow sufficient review time for resource agencies as well as to accommodate the time required to address agency comments:

- CWA Section 404/RHA Section 10 Permit Application – This application is provided to USACE by TRU or the project sponsor and includes a Compensatory Mitigation Plan, when necessary. Review and approval turnaround varies based on the type of permit. In general, the project schedule accounts for a 75-day review and approval time frame for an NWP and 9 months for an Individual Permit. RHA Section 10 authorization is applicable to only projects involving the Missouri River downstream of Gavins Point Dam.
- CWA Section 401 Water Quality Certification and Nebraska Administrative Code Title 117 Letter of Opinion – If a project is not conditionally certified by NDEE or if impacts result on wetland and water resources that are not regulated under CWA Section 404, TRU or the project sponsor initiates appropriate coordination with NDEE.⁶⁹
- Coast Guard Bridge Permit Application – This application is provided to the Coast Guard by TRU or the project sponsor for projects that involve the Missouri River downstream of Gavins Point Dam.

Actual deadlines for submittal are ultimately determined by the TRU Wetland Project Manager.

20.2 Three Months Prior to Project Turn-In

When required, the permit authorizations listed below are received by NDOT or the project sponsor 3 months prior to project turn-in:

- CWA Section 404 Permit
- CWA Section 401 Water Quality Certification
- Title 117 Letter of Opinion
- Coast Guard Bridge Permit
- RHA Section 10 Permit
- Floodplain Development Permit
- NPDES Discharge Authorization Number⁷⁰
- Summary of Environmental Commitments (Green Sheets)

Approved permits shall be obtained prior to Plans, Specifications, and Estimates (PS&E) turn-in.

⁶⁹ If a project occurs on tribal land, CWA Section 401 Water Quality Certification is coordinated through USEPA.

⁷⁰ A Construction Storm Water Notice of Intent is filed with NDEE by NDOT's RDCU or the project sponsor. If the project is on tribal land, the Construction Storm Water Notice of Intent is filed with USEPA.

Chapter 21 Definitions

absolute cover – “The percentage of the ground surface that is covered by the aerial portions (leaves and stems) of a plant species when viewed from above” (USACE 2010b).

adjacent – “Bordering, contiguous, or neighboring. Wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like are ‘adjacent wetlands’” (33 CFR 328.3(c)).

Agent – For purposes of this Document, any party authorized to represent an Applicant in CWA Section 404 permitting activities. For NDOT projects, the TRU Wetland Project Manager is the Agent who represents the NDOT District Engineer, the Applicant.

Applicant – For purposes of this Document, the primary sponsor for a project. Applicants may be represented by an Agent for purposes of CWA Section 404 permitting activities. For NDOT projects, the NDOT District Engineer (in the NDOT District in which the project will occur) is the Applicant.

approved jurisdictional determination – “A [USACE] document stating the presence or absence of waters of the United States on a parcel or a written statement and map identifying the limits of waters of the United States on a parcel. Approved JDs are clearly designated appealable actions and will include a basis of JD with the document” (33 CFR 331.2).

atypical situations – “Wetlands in which vegetation, soil, or hydrology indicators are absent [or altered] due to recent human activities or natural events” (USACE 2010b).

baseline wetland delineation – For purposes of this Document, a wetland delineation performed on a prospective wetland mitigation site (prior to development). It is intended to identify baseline mitigation site conditions in accordance with Compensatory Mitigation for Losses of Aquatic Resources; Final Rule (73 FR 19594-19705).

best management practices (BMPs) – “Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development” (82 FR 2005).

Bridge-sized structure: A multiple span concrete box culvert measuring more than 20-Ft. along the roadway centerline.

channel – For purposes of this Document, characterized as having a differentiated streambed and streambank and an identifiable ordinary high water mark. Channels are generally contiguous across NDOT ROW and are substantial enough to interrupt agricultural practices on adjacent properties.

compensatory mitigation – “The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved” (82 FR 2005).

construction reference plane (CRP) – “A sloping datum representing the stage, or water surface elevation met or exceeded 75% of the time during navigation season (April to November) (USACE 2006).

Consultant – Any party retained by NDOT to perform professional services on a contract basis.

corrective actions – For purposes of this Document, those actions identified during environmental compliance or stormwater inspections and recommended to deter sediment from leaving a

construction site or actions to address non-compliance with an environmental commitment or permit condition.

Cowardin classification – A universally recognized wetland and deepwater habitat classification system developed for USFWS by Cowardin et al. in 1979 and “intended to describe ecological taxa, arrange them in a system useful to resource managers, furnish units for mapping, and provide uniformity of concepts and terms” (Environmental Laboratory 1987; Cowardin et al. 1979).

discharge of fill material – “The addition of fill material into waters of the United States. The term generally includes, without limitation, the following activities: Placement of fill that is necessary for the construction of any structure or infrastructure in a water of the United States; the building of any structure, infrastructure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, or other uses; causeways or road fills; dams and dikes; artificial islands; property protection and/or reclamation devices such as riprap, groins, seawalls, breakwaters, and revetments; beach nourishment; levees; fill for structures such as sewage treatment facilities, intake and outfall pipes associated with power plants and subaqueous utility lines; placement of fill material for construction or maintenance of any liner, berm, or other infrastructure associated with solid waste landfills; placement of overburden, slurry, or tailings or similar mining-related materials; and artificial reefs” (33 CFR 323.2(f)).

District Environmental Coordinator (DEC) – A designated NDOT employee in each of eight NDOT Districts whose responsibility it is to promote and monitor environmental compliance during highway construction and maintenance.

dominant species – “A plant species that exerts a controlling influence on or defines the character of a community” (Environmental Laboratory 1987).

enhancement – “The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area” (82 FR 2006).

Environmental Documents Unit (EDU) – NDOT Unit (within the Project Development Division and Environmental Section) that is responsible for preparing NEPA documents.

ephemeral stream – “An ephemeral stream has flowing water [within a defined bed and bank] only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow” (82 FR 2006).

erosional features – Gullies and rills. “Gullies are relatively deep channels that are ordinarily formed on valley sides and floors where no well-defined channel previously existed. They are commonly found in areas with low-density vegetative cover or with soils that are highly erodible. Rills are formed by overland water flows eroding the soil surface during rain storms” (USEPA and USACE 2012). Erosional features can be found in environments where compacted soil and sparse vegetation have increased overland flow significantly. “The two main processes that result in the formation of gullies and similar erosional features are downcutting and headcutting, which are forms of longitudinal (incising) erosion. These actions ordinarily result in erosional cuts that are often deeper than they are wide, with very steep banks, often small beds, and typically only carry water during precipitation events” (USEPA and USACE 2012).

establishment – “The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area” (82 FR 2006).

- facultative plants (FAC)* – “Plants with a similar likelihood (estimated probability 33 percent to 67 percent) of occurring in both wetlands and non-wetlands” (Environmental Laboratory 1987).
- facultative upland plants (FACU)* – “Plants that occur sometimes (estimated probability 1 percent to <33 percent) in wetlands, but occur more often (estimated probability >67 percent to 99 percent) in non-wetlands” (Environmental Laboratory 1987).
- facultative wetland plants (FACW)* – “Plants that occur usually (estimated probability >67 percent to 99 percent) in wetlands, but also occur (estimated probability 1 percent to 33 percent) in non-wetlands” (Environmental Laboratory 1987).
- federal nexus* – For purposes of this Document, federal nexus is synonymous with the NEPA definition of major federal action. It includes “new and continuing activities, including projects and programs entirely or partly financed, assisted, conducted, regulated, or approved by federal agencies” (40 CFR 1508.18).
- floodplain* – “Any land area susceptible to being inundated by water from any source” (44 CFR 59.1).
- geodatabase* – The common data storage and management framework for ArcGIS®: a central data repository for spatial data storage and management.
- Geographic Service Area (GSA)* – The spatial limits surrounding a wetland/stream mitigation bank where unavoidable project impacts can be mitigated via bank credit allocation.
- Green Sheet* – An NDOT-developed document that lists and details all project-specific environmental commitments established during NEPA and permitting processes. The Green Sheet becomes part of the construction contract and communicates environmental commitments to be followed during and following construction.
- hinge point* – For purposes of this Document, the location where the roadway driving surface meets the ditch foreslope (that is, the location where the 6:1 shoulder meets the 3:1 embankment foreslope), as illustrated in Figure 3.
- hydric soil* – “A soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation” (Environmental Laboratory 1987).
- hydrologic regime* – “The sum total of water that occurs in an area on average during a given period” (Environmental Laboratory 1987).
- hydrology* – “The science dealing with the properties, distribution, and circulation of water” (Environmental Laboratory 1987).
- hydrophyte* – “Any macrophyte that grows in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content; plants typically found in wet habitats” (Environmental Laboratory 1987).
- hydrophytic vegetation* – “The sum total of macrophytic plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content” (Environmental Laboratory 1987).
- indicator status* – “One of the categories (e.g., OBL) that describes the estimated probability of a plant species occurring in wetlands” (Environmental Laboratory 1987).
- Interagency Review Team (IRT)* – Multi-agency entity that reviews and approves wetland/stream mitigation banks in Nebraska. Members include representatives from USACE, NRCS, USEPA, FHWA, USFWS, NDEE, and the Nebraska Game and Parks Commission.

intermittent stream – A stream that “has flowing [surface] water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow (82 FR 2006).

inundation – “A condition in which water from any source temporarily or permanently covers a land surface” (Environmental Laboratory 1987).

jurisdictional determination (JD) – “A written [USACE] determination that a wetland and/or waterbody is subject to regulatory jurisdiction under Section 404 of the Clean Water Act (33 U.S.C. 1344) or ... Section 9 or 10 of the Rivers and Harbors [Appropriation] Act of 1899 (33 U.S.C. 401 *et seq.*)” (33 CFR 331.2).

lead federal agency – For purposes of this Document, that agency responsible for promulgating NEPA, including supporting environmental legislation, for a specific project. When federal transportation funding is provided via FHWA, NDOT acts as the lead federal agency for assigned CEs. When a project does not involve federal aid but requires a CWA Section 404 (federal) permit authorization, USACE acts as the lead federal agency.

least environmentally damaging practicable alternative (LEDPA) – The practicable alternative that results in the fewest aquatic resource impacts, and the only permissible alternative in accordance with CWA Section 404(b)(1) Guidelines.

ledger – Spreadsheet that tracks wetland/stream mitigation bank credits, debits, and credit balance. The ledger details credits and debits by resource type and itemizes debits by project.

Letter of Opinion – NDEE’s formal, written determination regarding whether or not a project would violate Nebraska Surface Water Quality Standards (Title 117). In certain instances, an NDEE opinion of no violation is contingent upon compensatory mitigation at a specified ratio of mitigation to impact area.

limits of construction (LOCs) – For purposes of this Document, the limits of grading, as determined by the professional design engineer.

loss of waters of the United States – “Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States” (82 FR 2006).

mitigation bank – “A site, or suite of sites, where resources (e.g., wetlands, streams, riparian areas) are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation for impacts authorized by [Department of the Army] permits.... The operation and use of a mitigation bank are governed by a mitigation banking instrument” (73 FR 19671).

mitigation monitoring – For purposes of this Document, the process of evaluating and documenting (1) post-construction site conditions, (2) wetland and/or stream development, and (3) adherence with USACE-prescribed permit conditions and associated performance standards. Annual monitoring is typically required for 5 years.

Mitigation Monitoring Report – Report that documents and graphically depicts the development and condition of a compensatory mitigation project (site-specific or bank), including the project's adherence to associated permit special conditions and/or performance standards. Mitigation monitoring reports are provided to USACE on an annual basis, typically for 5 years.

Mitigation Plan, 12-Point – Narrative plan/document that details how unavoidable wetland/water resource impacts would be mitigated. A mitigation plan is required in association with a CWA Section 404 permit application. It must detail the following: mitigation site objectives, site selection and justification, site protection instrument, baseline mitigation site information, mitigation work plan, maintenance plan, performance standards, monitoring requirements, long-term management plan, adaptive management plan, and financial assurances.

Nationwide Permit (NWP) – A type of CWA Section 404 General Permit that authorizes activities (on a nationwide basis) that have minimal individual and cumulative adverse effects on the aquatic environment.

Nationwide Permit (NWP) General Condition – Conditions (32) of varying substance that must be adhered to in order to qualify for CWA Section 404 authorization under any/all NWP(s).

Nationwide Permit (NWP) Regional Condition – Conditions, in addition to NWP General Conditions, imposed by the USACE Division or District Engineer and that must be adhered to in order to qualify for CWA Section 404 authorization under any/all or certain NWPs. In association with the 2017 NWPs, the USACE Omaha District Nebraska Regulatory Office has imposed multiple Regional Conditions that must be adhered to by NDOT in association with highway improvement projects in Nebraska.

navigable-in-fact – Rivers that are considered public navigable rivers. Rivers are considered navigable-in-fact “when they are used, or are susceptible of being used, in their ordinary condition, as highways for commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water [*The Daniel Ball*, 77 U.S. 557, 563 (U.S. 1871)]” (USACE 2007c).

navigable waters – “Those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce” (33 CFR 329.4).

Nebraska Wetland Subclass – A wetland classification system that is unique to Nebraska and that assigns designations to common wetland types in the State.

obligate upland plants (UPL) – “Plants that occur rarely (estimated probability <1 percent) in wetlands, but occur almost always (estimated probability >99 percent) in non-wetlands under natural conditions” (Environmental Laboratory 1987).

obligate wetland plants (OBL) – “Plants that occur almost always (estimated probability >99 percent) in wetlands under natural conditions, but which may also occur rarely (estimated probability <1 percent) in non-wetlands” (Environmental Laboratory 1987).

ordinary high water mark (OHWM) – “A line on the shore [or bank] established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas” (82 FR 2006).

perennial stream – A stream that “has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow” (82 FR 2006).

performance standards – “Observable or measurable physical (including hydrological), chemical and/or biological attributes that are used to determine if a compensatory mitigation project meets its objectives” (73 FR 19672).

permanent impact – Type of impact resulting in permanent adverse effects, including permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody (82 FR 2006).

practicable – “Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes” (82 FR 2006).

pre-application meeting – For purposes of this Document, meeting between USACE and NDOT (and potentially a Consultant) to discuss a project for which a PCN or Individual Permit application has not yet been filed. When applicable, pre-application meetings can be beneficial as attendees determine initial project/permitting considerations and USACE expectations.

pre-construction notification (PCN) – “A request submitted by the project proponent to [USACE] for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where preconstruction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit” (82 FR 2006).

preliminary jurisdictional determination (JD) – “Written indications that there may be waters of the United States on a parcel or indications of the approximate location(s) of waters of the United States on a parcel. Preliminary JDs are advisory in nature and may not be appealed” (33 CFR 331.2).

preservation – “The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions” (82 FR 2007).

project staff – Any person(s) working to advance the planning and development of a project. Project staff may employed by NDOT, an LPA, a Consultant, or any combination thereof.

Qualified Scientist – An individual who (1) has a bachelor’s degree in botany, biology, soils, ecology, landscape architecture, or a related natural resources field; and (2) has completed a 40-hour basic wetland delineation training course from an accredited trainer.

redoximorphic features – Color patterns in soil caused by saturated soil conditions and the resulting oxidation and reduction of iron and/or manganese (aka soil mottling).

reestablishment – “The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions” (82 FR 2007).

Regulatory Guidance Letter (RGL) – “Developed by [USACE] as a system to organize and track written guidance issued to its field agencies. RGLs are normally issued as a result of evolving policy, judicial decisions and changes to [USACE] regulations or another agency’s regulations which affect the permit program. RGLs are used only to interpret or clarify existing Regulatory Program policy, but do provide mandatory guidance to [USACE] district offices. RGLs are sequentially numbered and expire on a specified date. However, unless superseded by specific provisions of

subsequently issued regulations or RGLs, the guidance provided in RGLs generally remains valid after the expiration date” (USACE no date).

rehabilitation – “The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area” (82 FR 2007).

relatively permanent water (RPW) – Tributaries of traditional navigable “waters that typically (e.g., except due to drought) flow year-round or waters that have a continuous flow at least seasonally (e.g., typically three months)” (USEPA and USACE 2008).

remedial action – For purposes of this Document, an action necessary to address or correct an identified deficiency of a compensatory mitigation project (site-specific or bank). Remedial actions may be necessary when a compensatory mitigation project fails to achieve associated permit conditions or performance standards.

restoration – “The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation” (82 FR 2007).

Roadside Development and Compliance Unit (RDCU) – NDOT Unit (within the Project Development Division and Environmental Section) that is responsible for the design and inspection of BMPs intended to deter erosion and retain sediment in accordance with a SWPPP.

Section 404(b)(1) Alternatives Analysis – Decision-making tool or document that identifies the LEDPA (or permittable alternative). This is accomplished by first identifying those alternatives that satisfy the purpose and need, then those alternatives that are truly practicable (often a subset of the range or reasonable alternatives in NEPA), and then the alternative that does the least damage to the aquatic ecosystem.

Section 404(b)(1) Guidelines – Guidelines intended “to restore and maintain the chemical, physical, and biological integrity of waters of the United States through the control of discharges of dredged or fill material.... Fundamental to these Guidelines is the precept that dredged or fill material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern” (40 CFR 230.1).

significant nexus – A circumstance in which upstream wetlands or water resources significantly affect the chemical, physical, and biological integrity of downstream traditional navigable waters. According to the *Rapanos* decision, a significant nexus is required in order to assert CWA Section 404 jurisdiction over certain wetlands and water resources. Associated analysis involves the assessment of flow characteristics and functions of a tributary and/or adjacent wetland (USEPA and USACE 2008).

single and complete linear project – “A project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term ‘single and complete project’ is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a

large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately” (82 FR 2007).

Site Development Plan – The banking-specific document that is provided to USACE and the IRT in anticipation of wetland/stream mitigation bank approval. Its contents are largely consistent with the Narrative (12-Point) Compensatory Wetland Mitigation Plan. Beyond these standard components, Site Development Plans also include details on how mitigation bank credits are produced, at what ratio(s) credits will be applied to impacts, and when the credits become available for allocation.

Stormwater Pollution Prevention Plan (SWPPP) – A document that details plans for avoidance and minimization of pollutants from entering regulated waters. It includes permanent and temporary erosion control plans, specifications, and special provisions.

stream channelization – “The manipulation of a stream’s course, condition, capacity, or location that causes more than minimal interruption of normal stream processes” (82 FR 2007).

streambed – “The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed” (82 FR 2007).

swale(s) – “Generally shallow features in the landscape that may convey water across upland areas during and following storm events. Swales usually occur on nearly flat slopes and typically have grass or other low-lying vegetation throughout the swale. Swales are generally not waters of the U.S. because they are not tributaries or they do not have a significant nexus to TNWs. Even when not themselves waters of the United States, swales may still contribute to a surface hydrologic connection between an adjacent wetland and a TNW” (USACE and USEPA 2007).

Technical Resources Unit (TRU) – NDOT Unit (within the Project Development Division and Environmental Section) that is responsible for all aspects of CWA Section 404/401 permit authorization receipt, including wetland determination and delineation, compensatory mitigation design and banking, pre-construction notification and CWA Section 404 Individual Permit application filing, and response to public and agency comments. TRU is also responsible for ensuring compliance with Section 106 of the National Historic Preservation Act of 1966 (cultural resources) and Section 7 of the Endangered Species Act of 1973 (threatened and endangered species), as well as addressing regulated material concerns, noise studies, and air studies.

temporary impact – Type of impact resulting from the temporary filling, flooding, excavation, or draining of aquatic resources (generally during construction activities) and the subsequent restoration to pre-construction contours and elevations (generally following construction activities) (82 FR 2006).

traditional navigable water – “All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide” (33 CFR 328.3(a)(1), 40 CFR 230.3(s)(1)), as well as all other waters that are navigable-in-fact.

transect – For purposes of this Document, “a line on the ground along which observations are made at some interval” (Environmental Laboratory 1987).

upland – “Any area that does not qualify as a wetland because the associated hydrologic regime is not sufficiently wet to elicit development of vegetation, soils, and/or hydrologic characteristics associated with wetlands” (Environmental Laboratory 1987).

water conveyance structure (WCS) – A culvert, bridge, or flume.

Water Quality Certification – Certification that a proposed discharge would comply with applicable water quality standards, effluent limitations, new source performance standards, toxic pollutants, and other water resource requirements of state and tribal law or regulation. CWA Section 401 allows states and tribes the opportunity to review and approve, condition, or deny all federal permits or licenses that might result in a discharge to state or tribal waters, including wetlands (33 USC 1251 et seq.). Approval is provided in the form of Water Quality Certification that must be obtained from the state or tribe before any activity that may result in a pollution discharge to waters of the United States can be permitted by a federal agency (including CWA Section 404 authorization from USACE). In Nebraska, Water Quality Certification is addressed via Nebraska Administrative Code Title 120, and formal certifications are issued by NDEE on non-tribal land and by USEPA on tribal land.

water resource – For purposes of this Document, a non-wetland aquatic resource, such as a stream channel or river, pond, or lake.

waters of the United States – For purposes of this Document, those wetland and water resources regulated by CWA Section 404 and/or RHA Section 10. See 33 CFR 328.3 for the detailed regulatory definition.

wetland(s) – “Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” (Environmental Laboratory 1987).

wetland boundary – “The point on the ground at which a shift from wetlands to non-wetlands or aquatic habitats occurs” (Environmental Laboratory 1987).

wetland delineation – For purposes of this Document, the practice in which type, size, and location of wetlands are determined and the boundary between wetlands and uplands is spatially identified. This practice is performed in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and appropriate regional supplement (USACE 2010a, 2010b).

Wetland Delineation Report – For purposes of this Document, a document of specific content that details the type, size, and location of wetlands and waters of the United States, including associated wetland/upland boundaries, sample locations, figures, data forms, and photography. Wetland Delineation Reports are prepared by NDOT staff or Consultants, and may be submitted to USACE in association with JD requests, PCNs, or Individual Permit applications. For purposes of data storage, Wetland Delineation Reports are normally accompanied by a geodatabase that includes applicable wetland and water resource .shp files.

wetland determination – A method for evaluating the relative type, size, and location of wetland and water resources via GIS desktop review and field reconnaissance. Wetland determinations are different from wetland delineations because a determination only approximates the presence or absence of wetlands and water resources based on vegetation and surface hydrology. Wetland determinations cannot be applied toward a CWA Section 404 permit application and/or associated impact calculations.

wetland hydrology – “The sum total of wetness characteristics in areas that are inundated or have saturated soils for a sufficient duration to support hydrophytic vegetation” (Environmental Laboratory 1987).

Wetland PQS Memorandum – For purposes of this Document, an NDOT-produced memorandum specific to wetland and water resources that summarizes project impacts and considerations and is attached to the associated NEPA document.

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ATTACHMENT A
Wetland Delineation Report
(Example)

WETLAND DELINEATION REPORT SYRACUSE SOUTH

PROJECT NUMBER: STP-50-1(115)
CONTROL NUMBER: 13276
JOHNSON AND OTOE COUNTIES, NEBRASKA



AUGUST 2019

PREPARED FOR:

NEBRASKA

Good Life. Great Journey.

DEPARTMENT OF TRANSPORTATION

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1.0 Introduction

1.1 Project Background

Add consultant name here was retained by the Nebraska Department of Transportation (NDOT) for wetland delineation services for the proposed improvement of Nebraska Highway 50 (N-50) from 2 miles north of N-41 on the south to Syracuse on the north, in Johnson and Otoe Counties, Nebraska (see Appendix A, Figure 1).

This document summarizes the findings of a wetland delineation completed in accordance with the 1987 U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (1987 Manual), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0) (Midwest Regional Supplement), and the May 2018 NDOT Wetland and Water Resource Procedure Document.

1.2 Project Summary

The purpose of this report is to identify Waters of the U.S. (WOUS), including wetlands, within the environmental study area (ESA). A total of 45 areas meeting all three criteria for wetland classification were identified during the site visits. The identified wetlands were primarily located in the roadside ditches and along streams. 38 of the wetlands were identified as palustrine emergent temporarily/seasonally flooded (PEMA/PEMC), one wetland was identified as palustrine unconsolidated bottom (PUB), four wetlands were identified as palustrine scrub-shrub temporarily flooded (PSSA), and two wetlands were identified as palustrine forested temporarily flooded (PFOA). In addition, a total of 27 stream channels were identified during the site visits.

1.3 Project Location

The project consists of a 14-mile segment of N-50 spanning from mile marker 37.93 (approximately 733 Road in Johnson County) on the south to mile marker 51.89 approximately 350 feet south of 1st Street in Syracuse, Otoe County) on the north (see Appendix A, Figure 1). The project begins in Sections 27 & 28, Township 6 North, Range 11 East and proceeds north through Sections 21 & 22, 15 & 16, 9 & 10, and 3 & 4, Township 6 North, Range 11 East; Sections 33 & 34, 27 & 28, 21 & 22, 15 & 16, 9 & 10, and 3 & 4, Township 7 North, Range 11 East; and Sections 33 & 34, 27 & 28, and 21 & 22, Township 8 North, Range 11 East (see Appendix A, Figure 1). The coordinates for the southern terminus of the project are 40.450593° N latitude and -96.179844° W longitude; the coordinates for the northern terminus of the project are 40.652584° N latitude and -96.178934° W longitude; and the coordinates for the approximate center point of the project are 40.551952° N latitude and -96.179576° W longitude.

1.4 Project Description

The proposed project involves concrete repair, resurfacing, repair of five bridges, and replacement of one bridge-sized concrete box culvert (CBC) with a bridge-sized CBC.

Along the project alignment, the ESA extends 50 feet beyond the limits of construction (LOCs) or within right-of-way (ROW), whichever is farther from the roadway centerline. At bridge-sized culverts and bridges along the project alignment, the ESA extends 150 feet beyond designed LOCs or 150 feet beyond ROW, whichever is farther from the roadway centerline.

2.0 Wetland Delineation

2.1 Desktop Review

Prior to the field delineation, a desktop review was conducted using U.S. Geological Survey (USGS) topographic maps, U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI), Natural Resources Conservation Service (NRCS) Web Soil Survey, Federal Emergency Management Agency (FEMA) Digital Flood Insurance Rate Maps (DFIRM), USGS National Hydrography Dataset (NHD), as well as current and historic aerial imagery provided through Google Earth to identify potential Waters of the U.S. (WOUS), including wetlands, and areas historically prone to wetland development. The following is a summary of the desktop review.

USGS 7.5-Minute Series Topographic Map

The USGS topographic maps (Spring Creek, Osage, and Syracuse) show the project corridor within rolling topography with elevations ranging from approximately 1,030 feet to approximately 1,220 feet above mean sea level (see Appendix A, Figure 1). The topographic maps depict 20 potential waters of the U.S. (WOUS) within the ESA, as listed below from south to north:

- Unnamed tributary to Coon Creek
- Coon Creek
- Unnamed tributary to Coon Creek
- Unnamed tributary to Coon Creek
- Unnamed tributary to Coon Creek
- South Fork Little Nemaha River
- Unnamed tributary to South Fork Little Nemaha River
- Unnamed tributary to Mittleberg Reservoir
- Unnamed tributary to Mittleberg Reservoir
- Unnamed tributary
- Unnamed tributary
- Unnamed tributary to Muddy Creek
- Muddy Creek
- Unnamed tributary to Muddy Creek
- Boxelder Creek
- Unnamed tributary to Little Nemaha River
- Unnamed tributary to Little Nemaha River
- Little Nemaha River
- Unnamed tributary to Little Nemaha River
- Unnamed tributary (parallels west side of N-50)

USFWS NWI

The NWI depicts numerous aquatic resources within the ESA including: PEM1A/PEM1Ax, PEM1C, PFOA/PFOAx, PSSA, R4SBC/R4SBCx, and R2UBGx.

NRCS Web Soil Survey

The Web Soil Survey maps 28 soil units within the ESA. According to the NRCS, 17 hydric soils are mapped within the ESA and include:

- Zoe-Zook silty clay loams, occasionally flooded
- Zoe silty clay loam, occasionally flooded
- Zook silty clay loam, occasionally flooded
- Kennebec silt loam, rarely flooded
- Kennebec-Nodaway silt loams, rarely flooded
- Judson silt loam, 2 to 6 percent slopes
- Pawnee clay loam, 4 to 8 percent slopes, eroded
- Shelby clay loam, 17 to 30 percent slopes
- Shelby and Burchard clay loams, 11 to 17 percent slopes
- Wymore silty clay loam, 0 to 2 percent slopes
- Wymore silty clay, 3 to 6 percent slopes, eroded
- Nodaway silt loam, occasionally flooded
- Nishna silty clay, occasionally flooded
- Nodaway silt loam, channeled, frequently flooded
- Nodaway-Colo complex, occasionally flooded
- Wabash silty clay, occasionally flooded
- Morrill-Malmo, eroded, complex, 3 to 11 percent slopes

FEMA DFIRM

The FEMA DFIRM shows the ESA on the following panels, listed from south to north:

- 31097C0175C, effective date 04/17/2006
- 31097C0070C, effective date 04/17/2006
- 31131C0375C, effective date 08/04/2004
- 31097C0075C, effective date 04/17/2006
- 31131C0220C, effective date 08/04/2004

The majority of the ESA is mapped as Zone X (unshaded), which are areas outside the 0.2% annual chance floodplain. However, the FEMA DFIRM depicts six floodplains within the ESA, as listed below from south to north:

- Zone A – located between 734 Road and 735 Road
- Zone A – located south of 736 Road
- Zone A – located between 736 Road and 737 Road
- Zone A – located between Q Road and P Road
- Zone A – located north of M Road
- Zone A – located from approximately 410 feet south of L Road to approximately 1,700 feet south of 1st Street

Zone A designates special flood hazard areas with a 1% annual chance flood hazard. No regulatory floodways are depicted within the ESA.

USGS NHD

The online NHD mapping tool shows the ESA within the following hydrologic unit codes, listed from south to north:

- 102400060104 – Lower South Fork Little Nemaha River
- 102400060206 – Muddy Creek
- 102400060208 – Ziegler Creek-Little Nemaha River

The online NHD mapping tool also shows the same 20 aquatic resources depicted on the USGS topographic maps.

Aerial Imagery

A review of both recent and historic aerial imagery (1993 – 2015) in Google Earth depicts the area surrounding the ESA within a rural setting surrounded by agricultural fields. No noticeable changes to the landscape were observed in the aerial images reviewed.

2.2 Delineation Methods

Consultant employee name here with consultant name here conducted a wetland delineation on June 17-20 and July 1-3, 2019 in accordance with the methods described in the 1987 Manual, the Midwest Regional Supplement, and the May 2018 NDOT Wetland and Water Resource Procedure Document using a routine wetland determination method, including the standard multi-parameter approach (vegetation, soils, and hydrology) for wetland identification. An area is considered to be a wetland if hydrophytic vegetation, hydric soils, and wetland hydrology are all present. Sample locations were determined using NWI maps and visual observations that supported a hydrophytic plant community, where applicable, as well as characteristics of hydric soils and wetland hydrology. Definitions and methods for determining each of these three parameters are summarized below:

Hydrophytic Vegetation

Definition: The prevalence (>50%) of dominant plant species that are adapted to life in saturated soil conditions.

Method: To determine if vegetation was hydrophytic, the scientific name and indicator status of dominant plant species at each wetland were recorded on USACE data sheets. Dominance refers to the spatial extent of a species that is directly observed in the field. The most abundant plant species that individually or collectively account for more than 50 percent of the total coverage of each vegetation stratum and any other individual species comprising 20 percent or more of the total are considered to be dominant species for that stratum. Where 50 percent or more of all dominant species were hydrophytic, the hydrophytic vegetation parameter was met. Absolute percent cover of dominant species within each stratum is listed on USACE data sheets.

Hydric Soils

Definition: Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper 12 inches.

Method: Soils from each sample location were characterized using Munsell Soil Color Charts and soil texturing. Soil samples were also compared to the NRCS Web Soil Survey and Nebraska Hydric Soils List. If one or more of the hydric soil indicators on the USACE data sheet were identified, the soil was considered to be hydric.

Wetland Hydrology

Definition: Fourteen or more consecutive days of flooding, ponding, or water table within 12 inches of the surface during the growing season at a minimum frequency of 5 out of 10 years (50%).

Method: Wetland hydrology was determined by observing the presence of primary and/or secondary indicators listed on the USACE data sheet. If one primary indicator or two secondary indicators were present, the wetland hydrology parameter was met.

Field maps were developed using aerial photography combined with information from the NRCS Web Soil Survey, USFWS NWI, USGS NHD, and USGS topographic maps. Field-delineated wetland boundaries were determined based on visual observation and the USACE wetland delineation process by completing paired sample points, where possible, and investigating vegetation, soil, and hydrology parameters. Vegetation was identified to the species level and referenced to the State of Nebraska 2016 Wetland Plant List. Soil and hydrology characteristics were evaluated by using a sharpshooter/tile spade to examine the soil profile. Wetland boundaries were then recorded using a Trimble GeoXH Series GPS unit with sub-meter accuracy. Portions of some wetlands extended beyond the limits of the ESA; however, only wetland boundaries within the ESA were delineated. Site photographs are included in Appendix B and USACE wetland determination data forms are included in Appendix C.

3.0 Wetland Delineation Results

Data were collected at 202 locations within the ESA to document existing conditions. A total of 45 areas meeting all three criteria for wetland classification were identified during the site visits, as detailed below in Table 1 and overlain on aerial imagery in Appendix A, Figure 2 Sheets 1-40. The identified wetlands were primarily located in the roadside ditches and along streams. 38 of the wetlands were identified as PEMA/PEMC and were generally dominated by reed canary grass (*Phalaris arundinacea*), pinkweed (*Persicaria pensylvanica*), prairie cordgrass (*Spartina pectinata*), broad-leaf cattail (*Typha latifolia*), and river club-rush (*Schoenoplectus fluviatilis*). One PUB wetland was identified and consisted of an open water area at a culvert outlet. Four PSSA wetlands were identified, generally dominated by sandbar willow (*Salix interior*), American elm (*Ulmus americana*), and green ash (*Fraxinus pennsylvanica*). Two PFOA wetlands were identified, generally dominated by black willow (*Salix nigra*), eastern cottonwood (*Populus deltoides*), and green ash.

Total of 27 stream channels were identified during the site visits, as detailed below in Table 2 and overlain on aerial imagery in Appendix A, Figure 2 Sheets 1-40.

Table 1: Delineated Wetlands

Sample Point	Wetland ID	Figure 2 Sheet #	Wetland Classification (Cowardin) ¹	Nebraska Wetland Subclass	Acres	Possibly Non-Jurisdictional
12	12	4	PFOA	Floodplain Depressions	0.004	No
19	19	4	PEMA/PEMC	Riverine Channel	0.015	No
22, 23, 25	22	5	PEMA/PEMC	Riverine Channel	0.543	No
N/A	29	7	PUB	Riverine Channel	0.035	No
32	32	8	PEMA/PEMC	Riverine Channel	0.088	No
36, 37	36	9	PEMA/PEMC	Riverine Channel	0.606	No
45	45	11	PEMA/PEMC	Riverine Channel	0.031	No

Sample Point	Wetland ID	Figure 2 Sheet #	Wetland Classification (Cowardin) ¹	Nebraska Wetland Subclass	Acres	Possibly Non-Jurisdictional
47	47	11	PEMA/PEMC	Riverine Channel	0.1	No
55	55	14	PEMA/PEMC	Floodplain Depressions	0.061	No
60	60	16	PEMA/PEMC	Riverine Channel	0.074	No
63	63	16	PEMA/PEMC	Riverine Channel	0.019	No
70	70	18	PEMA/PEMC	Riverine Channel	0.08	No
73	73	18	PEMA/PEMC	Riverine Channel	0.187	No
80, 81	80	19	PEMA/PEMC	Riverine Channel	0.219	No
88	88	21	PEMA/PEMC	Riverine Floodplain	0.125	No
90	90	21	PSSA	Riverine Channel	0.172	No
91	91	21	PFOA	Riverine Channel	0.095	No
94	94	21	PEMA/PEMC	Riverine Channel	0.166	No
96	96	21	PEMA/PEMC	Riverine Channel	0.895	No
100, 98	100	22	PEMA/PEMC	Riverine Channel	0.243	No
102	102	22	PEMA/PEMC	Riverine Channel	0.134	No
105	105	22	PEMA/PEMC	Riverine Channel	0.007	No
112	112	25	PEMA/PEMC	Riverine Floodplain	0.046	No
114	114	25	PEMA/PEMC	Riverine Channel	0.005	No
116	116	25	PEMA/PEMC	Riverine Channel	0.002	No
118	118	25	PEMA/PEMC	Riverine Floodplain	0.049	No
124	124	28	PEMA/PEMC	Riverine Channel	0.073	No
127	127	28	PEMA/PEMC	Riverine Channel	0.229	No
135	135	30	PEMA/PEMC	Riverine Channel	0.061	No
137	137	30	PEMA/PEMC	Riverine Channel	0.047	No
139	139	30	PEMA/PEMC	Riverine Channel	0.051	No
142	142	30	PEMA/PEMC	Riverine Channel	0.065	No
145	145	30	PEMA/PEMC	Riverine Channel	0.02	No
148	148	31	PEMA/PEMC	Riverine Channel	0.047	No
160	160	35	PEMA/PEMC	Riverine Channel	0.006	No
161	161	35	PEMA/PEMC	Riverine Channel	0.002	No
174	174	37	PEMA/PEMC	Floodplain Depressions	0.091	No
180	180	37	PEMA/PEMC	Riverine Channel	0.013	No
189	189	38	PSSA	Floodplain Depressions	0.123	No
191, 193	193	38	PEMA/PEMC	Floodplain Depressions	0.152	No
195	195	38	PSSA	Floodplain Depressions	0.114	No
196	196	38 & 39	PEMA/PEMC	Riverine Channel	0.286	No

Sample Point	Wetland ID	Figure 2 Sheet #	Wetland Classification (Cowardin) ¹	Nebraska Wetland Subclass	Acres	Possibly Non-Jurisdictional
197	197	38 & 39	PEMA/PEMC	Floodplain Depressions	0.031	No
199	199	39	PSSA	Floodplain Depressions	0.092	No
200	200	39	PEMA/PEMC	Floodplain Depressions	0.091	No
Total PEMA/C					4.96	
Total PUB					0.035	
Total PSSA					0.099	
Total PFOA					0.501	
Grand Total Wetlands					5.595	

Notes: ¹ PEMA = Palustrine Emergent, Temporarily Flooded; PEMC = Palustrine Emergent, Seasonally Flooded; PUB = Palustrine Unconsolidated Bottom; PSSA = Palustrine Scrub-Shrub, Temporarily Flooded; PFOA = Palustrine Forested, Temporarily Flooded

Table 2: Other Water Resources

Figure 2 Sheet #	Channel ID	Comments
2	1	Field mapped ephemeral stream
2	2	NHD intermittent stream east of N-50
	2	NHD intermittent stream east of N-50
3	3	Field mapped ephemeral stream west of N-50
4	4	NHD perennial stream E & W of N-50
5	5	NHD intermittent stream east of N-50
8	6	NHD intermittent stream west of N-50
	6	NHD intermittent stream east of N-50
8	7	Field mapped intermittent stream east of N-50
9	8	Field mapped intermittent stream west of N-50
9	9	Field mapped intermittent stream west of N-50
9	10	NHD perennial stream east of N-50
11	11	NHD perennial stream E & W of N-50
11	12	NHD intermittent stream east of N-50
11	13	NHD intermittent stream west of N-50
14 & 15	14	NHD intermittent stream west of N-50
	14	NHD intermittent stream east of N-50
19	15	NHD intermittent stream east of N-50
20	16	Field mapped ephemeral stream east of N-50
21	17	NHD intermittent stream west of N-50
	17	NHD intermittent stream east of N-50
22	18	NHD intermittent stream east of N-50
23	19	NHD perennial stream E & W of N-50
25	20	NHD intermittent stream east of N-50
	20	NHD intermittent stream west of N-50

Figure 2 Sheet #	Channel ID	Comments
32	21	NHD perennial stream E & W of N-50
35	22 22	Field mapped ephemeral stream west of N-50 Field mapped ephemeral stream east of N-50
35	23 23	NHD perennial stream west of N-50 NHD perennial stream east of N-50
36	24	NHD perennial stream E & W of N-50
37	25 25	NHD perennial stream east of N-50 NHD perennial stream west of N-50
37 & 38	26	NHD intermittent stream west of N-50
39	27	NHD intermittent stream west of N-50

Notes: Other Water Resources are non-wetland resources such as channels, ponds, and canals.

4.0 Discussion

The wetlands identified during the delineation are assumed to be jurisdictional and regulated by the USACE under Section 404 of the Clean Water Act unless a Jurisdictional Determination is received from the USACE stating otherwise.

Conditions were typical for the site for the time of year the delineation was completed. The spring of 2019 had a higher than average rainfall making the conditions for hydrophytic vegetation more favorable. The wetland determinations were made using professional judgement. In order to be a wetland all three wetland criteria (hydrophytic vegetation, hydric soils, and hydrology) must be present. Several areas were identified and recorded that contained only hydrophytic vegetation (mostly reed canary grass). These areas were not considered wetland because they lacked hydric soils and hydrology and did not appear to be in problematic areas. A couple of other areas contained hydric soils but lacked hydrophytic vegetation and hydrology. Based on the lack of hydrophytic vegetation and lack of hydrology indicators following a winter and spring that had more precipitation than average, it was determined that the areas are not saturated long enough to support hydrophytic vegetation and, therefore, are not considered wetlands. Wetland boundaries were mapped in the field by following the hydrophytic to upland species of vegetation, elevation change, and sample points.

5.0 References


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- USGS. 2019. National Hydrography Dataset. Department of the Interior. Available at URL <http://nhd.usgs.gov/index.html>.
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Appendix A Figures

Figure 1 – Topographic Vicinity Map

Figure 2 – NHD Index Map & Delineated Wetlands/WOUS Map (Sheets 1-40)

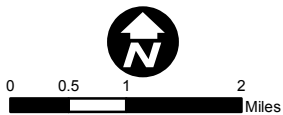
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 Study Area

Project End
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Long: -96.178934° W

Project Beginning
Lat: 40.450593° N
Long: -96.179844° W

Johnson & Otoe Counties

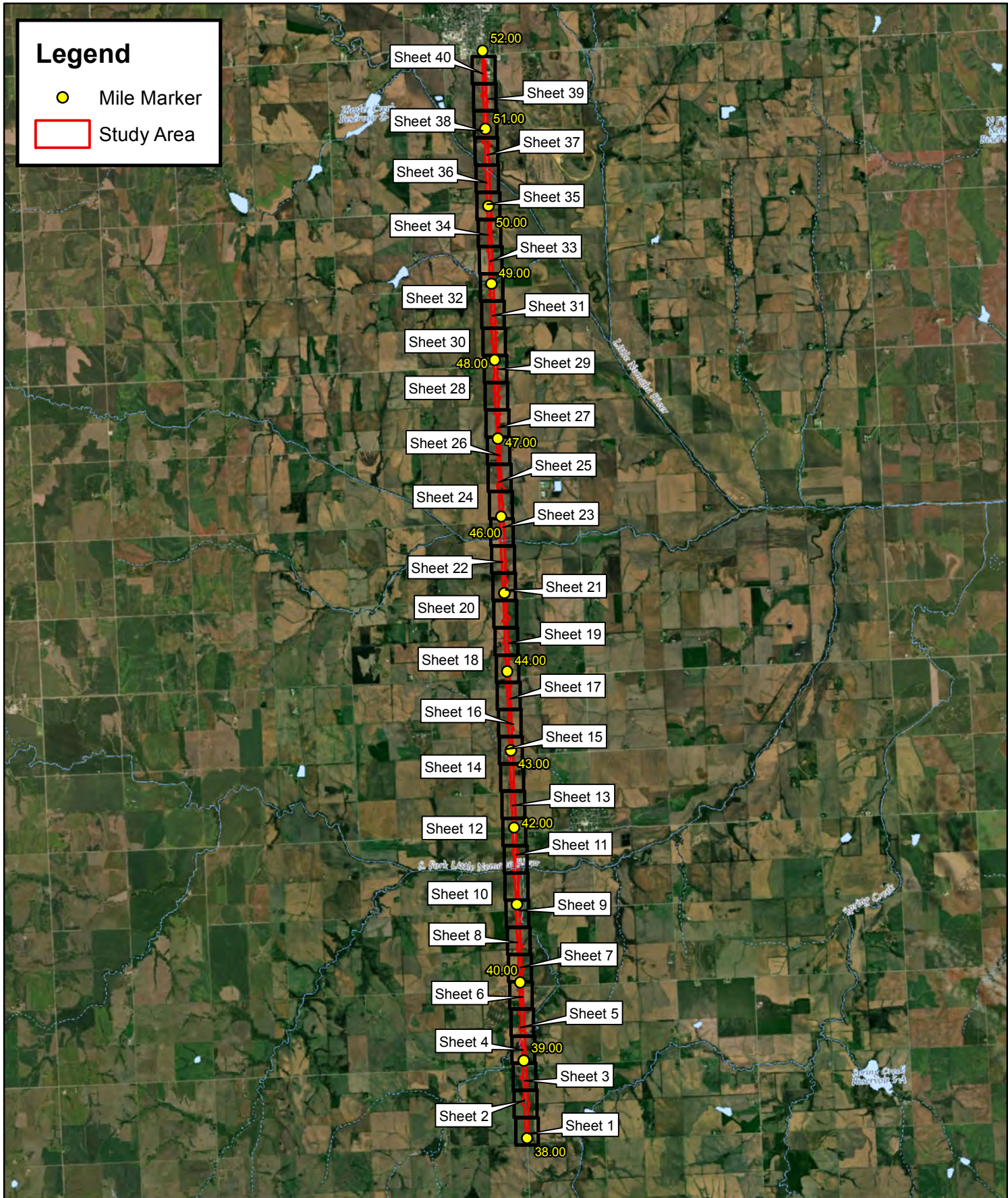


Syracuse South
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Control No. 13276

Topographic Vicinity Map
Spring Creek, Osage, and Syracuse
Figure 1

Legend

- Mile Marker
- ▭ Study Area



0 0.5 1 2 Miles

Syracuse South
Johnson & Otoe Counties, NE
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Control No. 13276

National Hydrography Dataset
Aerial Imagery
Figure 2

Legend

- ▶ Photo Point
- Sample Point
- Channel
- Wetland
- Mile Marker
- Study Area



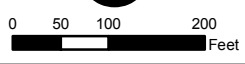
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38.00

1c

1a

1b

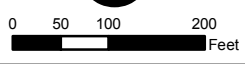
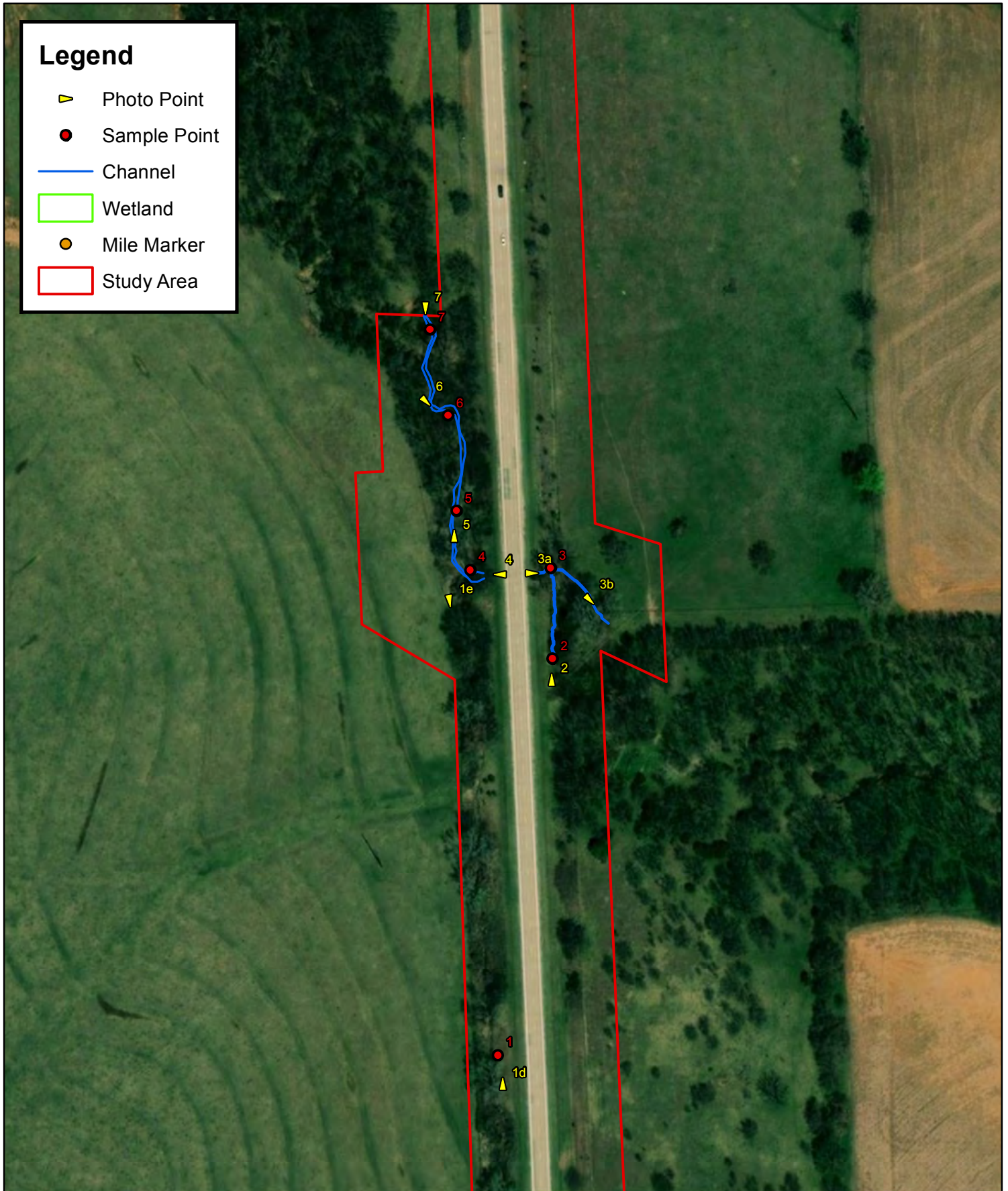


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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

- ▶ Photo Point
- Sample Point
- Channel
- Wetland
- Mile Marker
- Study Area

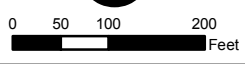
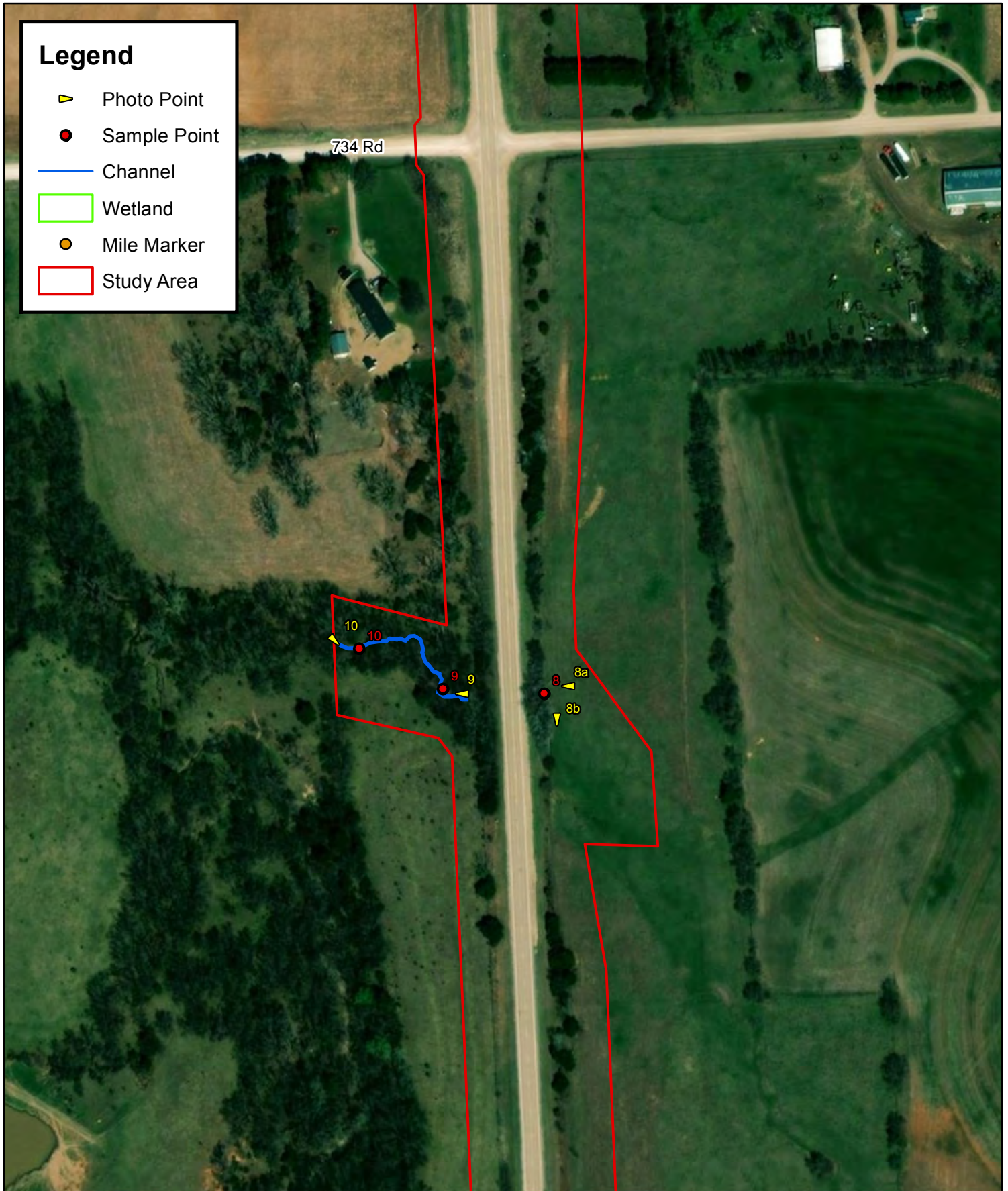


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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

- ▶ Photo Point
- Sample Point
- Channel
- Wetland
- Mile Marker
- Study Area

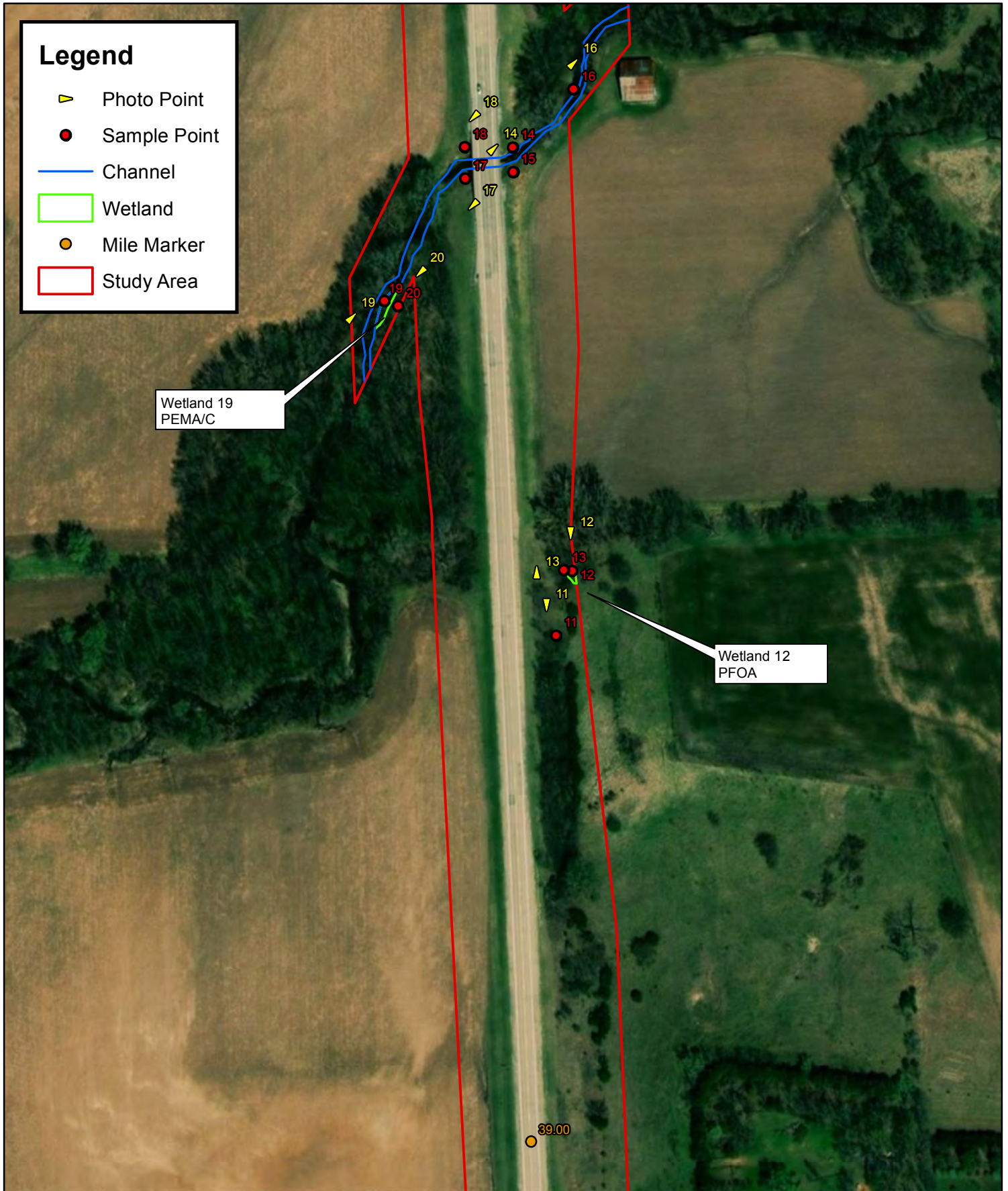


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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

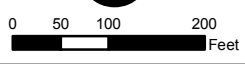
- ▶ Photo Point
- Sample Point
- Channel
- ▭ Wetland
- Mile Marker
- ▭ Study Area



Wetland 19
PEMA/C

Wetland 12
PFOA

39.00

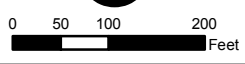
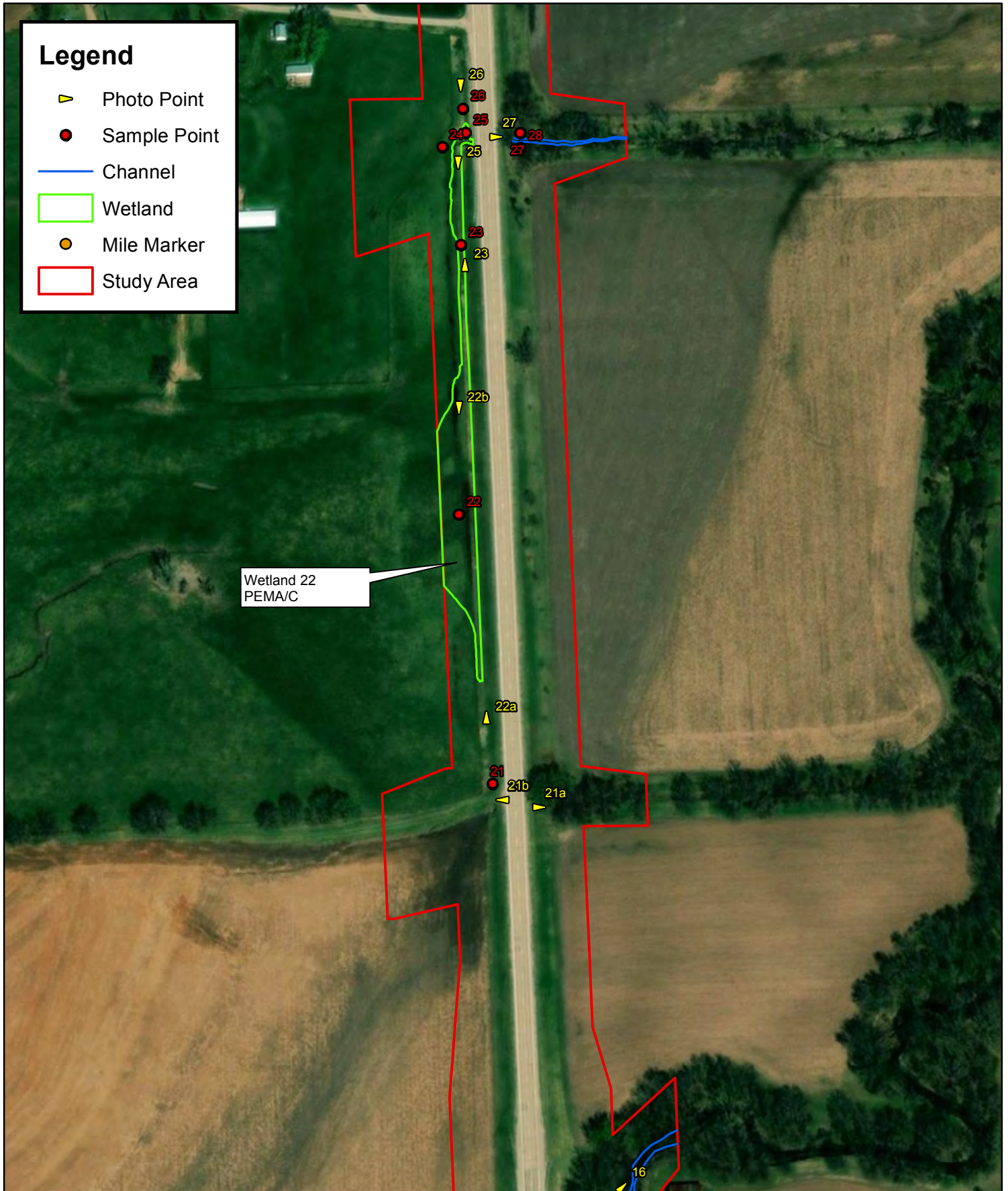


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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

- ▶ Photo Point
- Sample Point
- Channel
- ▭ Wetland
- Mile Marker
- ▭ Study Area

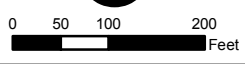


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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

- ▶ Photo Point
- Sample Point
- Channel
- Wetland
- Mile Marker
- Study Area

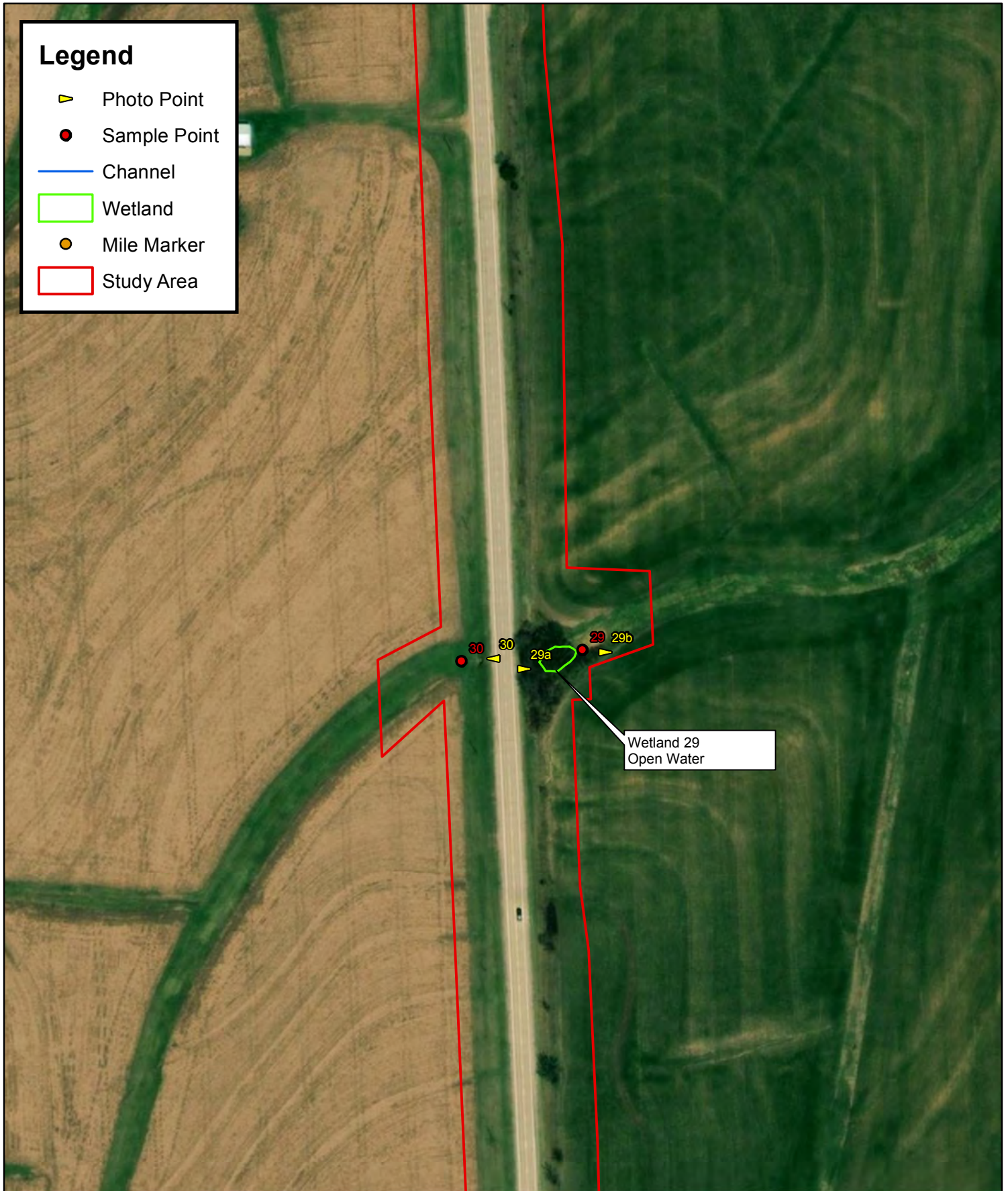


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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

- ▶ Photo Point
- Sample Point
- Channel
- ◻ Wetland
- Mile Marker
- ◻ Study Area



Wetland 29
Open Water



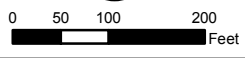
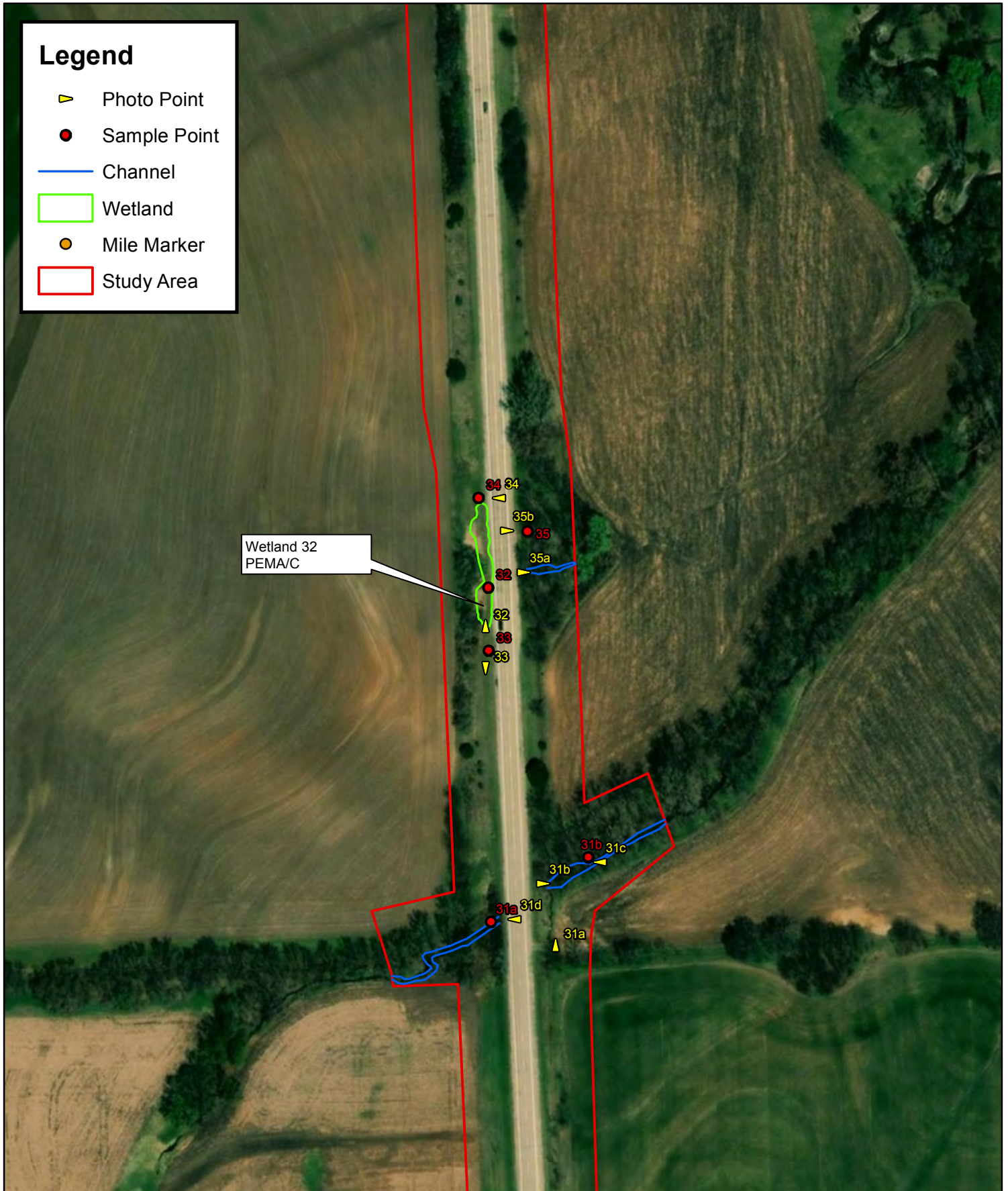
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Feet

Syracuse South
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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

- ▶ Photo Point
- Sample Point
- Channel
- ▭ Wetland
- Mile Marker
- ▭ Study Area

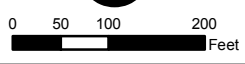


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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

- ▶ Photo Point
- Sample Point
- Channel
- ▭ Wetland
- Mile Marker
- ▭ Study Area

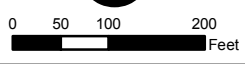
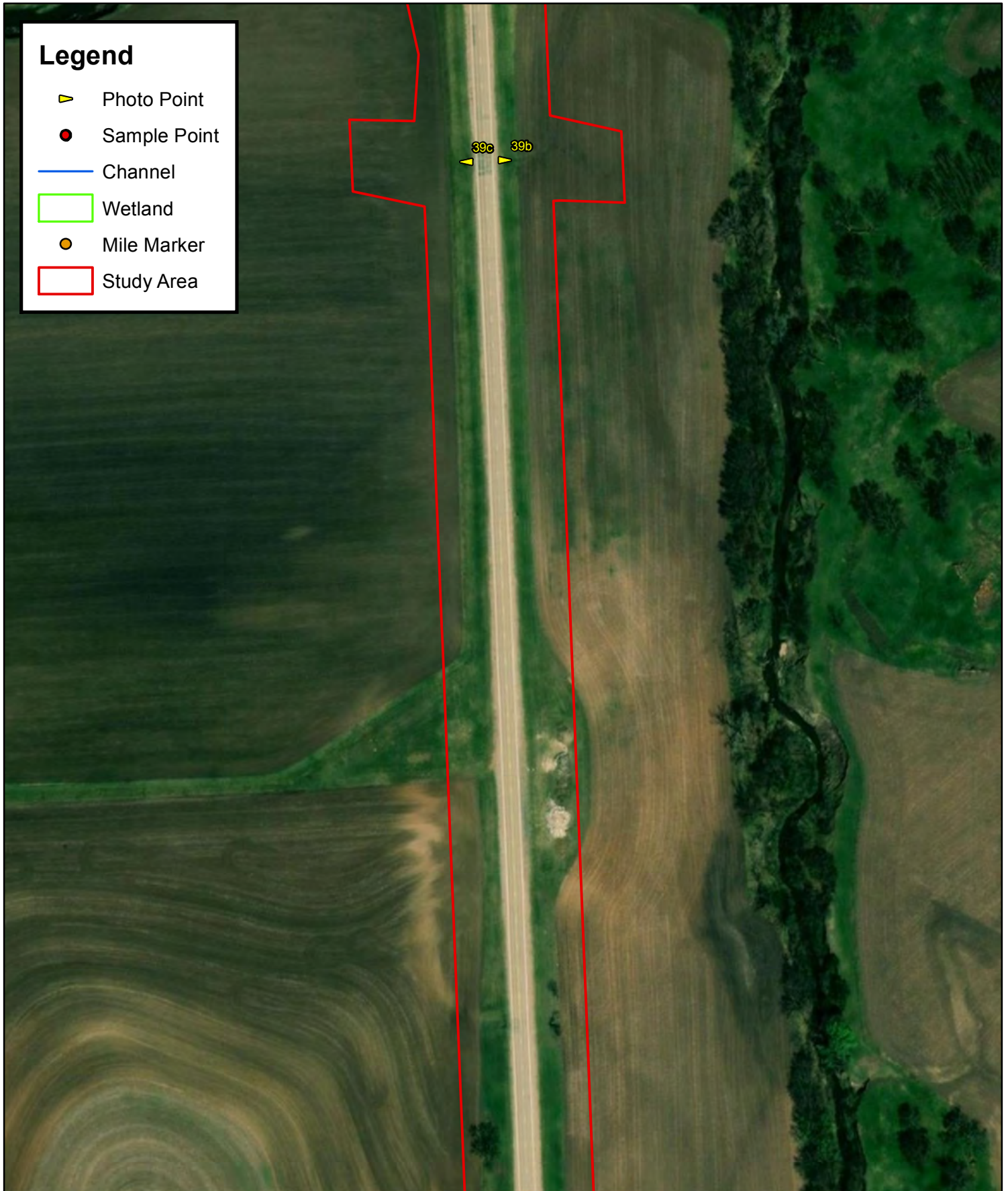


Syracuse South
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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

- ▶ Photo Point
- Sample Point
- Channel
- Wetland
- Mile Marker
- Study Area



Syracuse South
Johnson & Otoe Counties, NE
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Control No. 13276

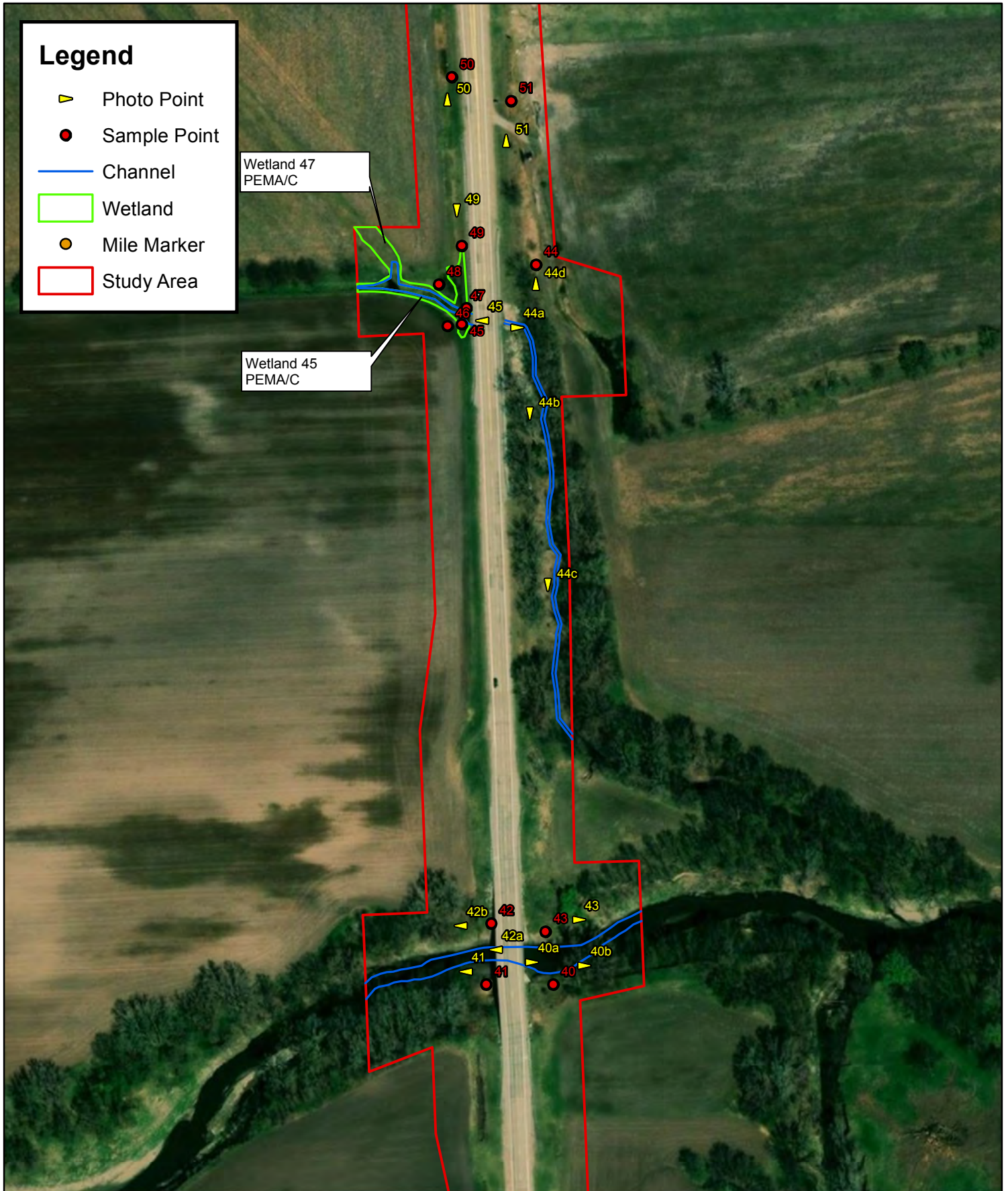
Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

- ▶ Photo Point
- Sample Point
- Channel
- Wetland
- Mile Marker
- Study Area

Wetland 47
PEMA/C

Wetland 45
PEMA/C



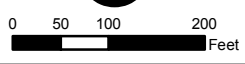
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Feet

Syracuse South
Johnson & Otoe Counties, NE
Project No. STP-50-1(115)
Control No. 13276

Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

- ▶ Photo Point
- Sample Point
- Channel
- Wetland
- Mile Marker
- Study Area



Syracuse South
Johnson & Otoe Counties, NE
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Control No. 13276

Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

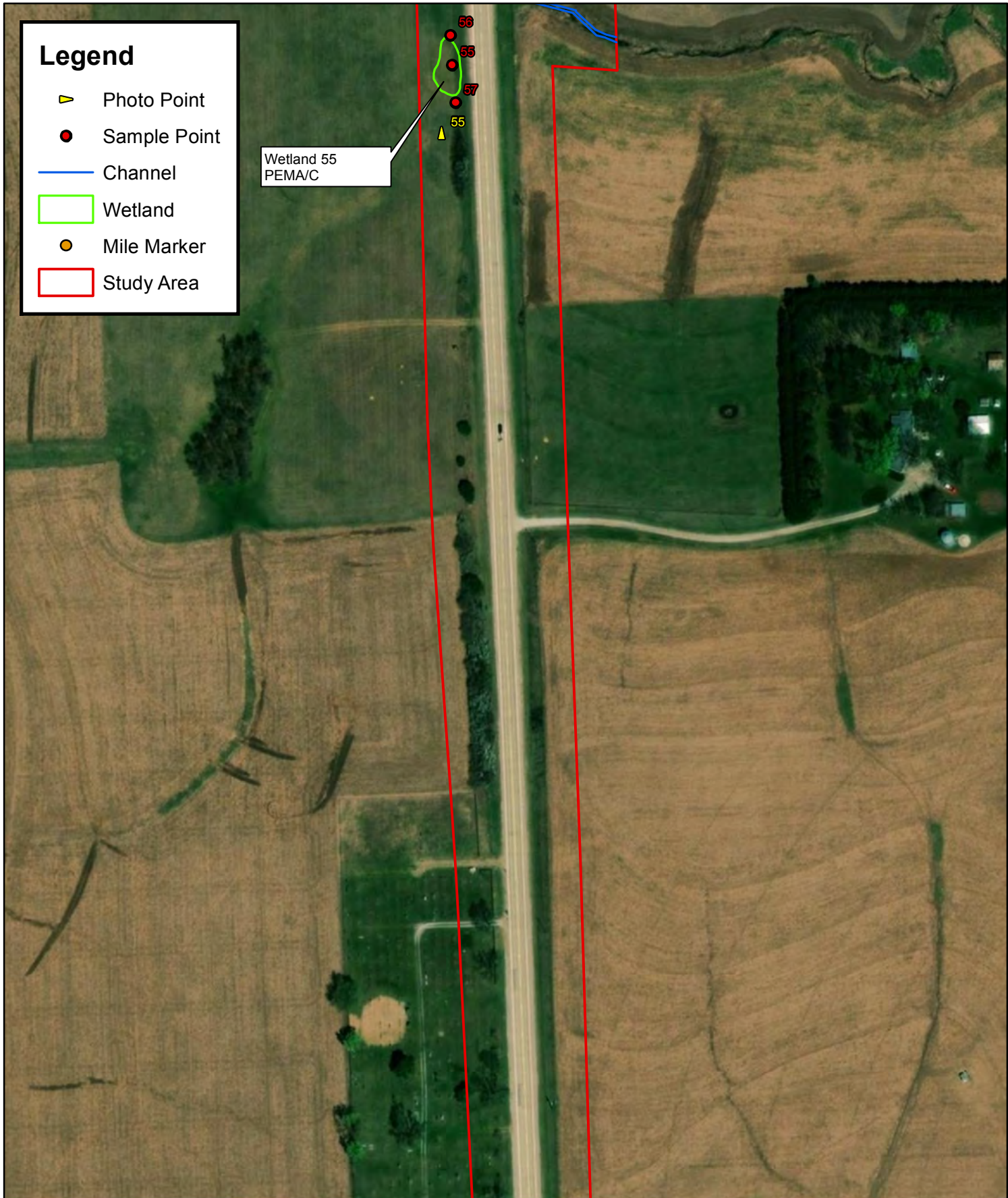
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- Channel
- ◻ Wetland
- Mile Marker
- ◻ Study Area



0 50 100 200
Feet

Syracuse South
Johnson & Otoe Counties, NE
Project No. STP-50-1(115)
Control No. 13276

Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet



Legend

- ▶ Photo Point
- Sample Point
- Channel
- Wetland
- Mile Marker
- Study Area

Wetland 55
PEMA/C

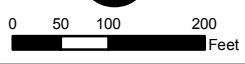
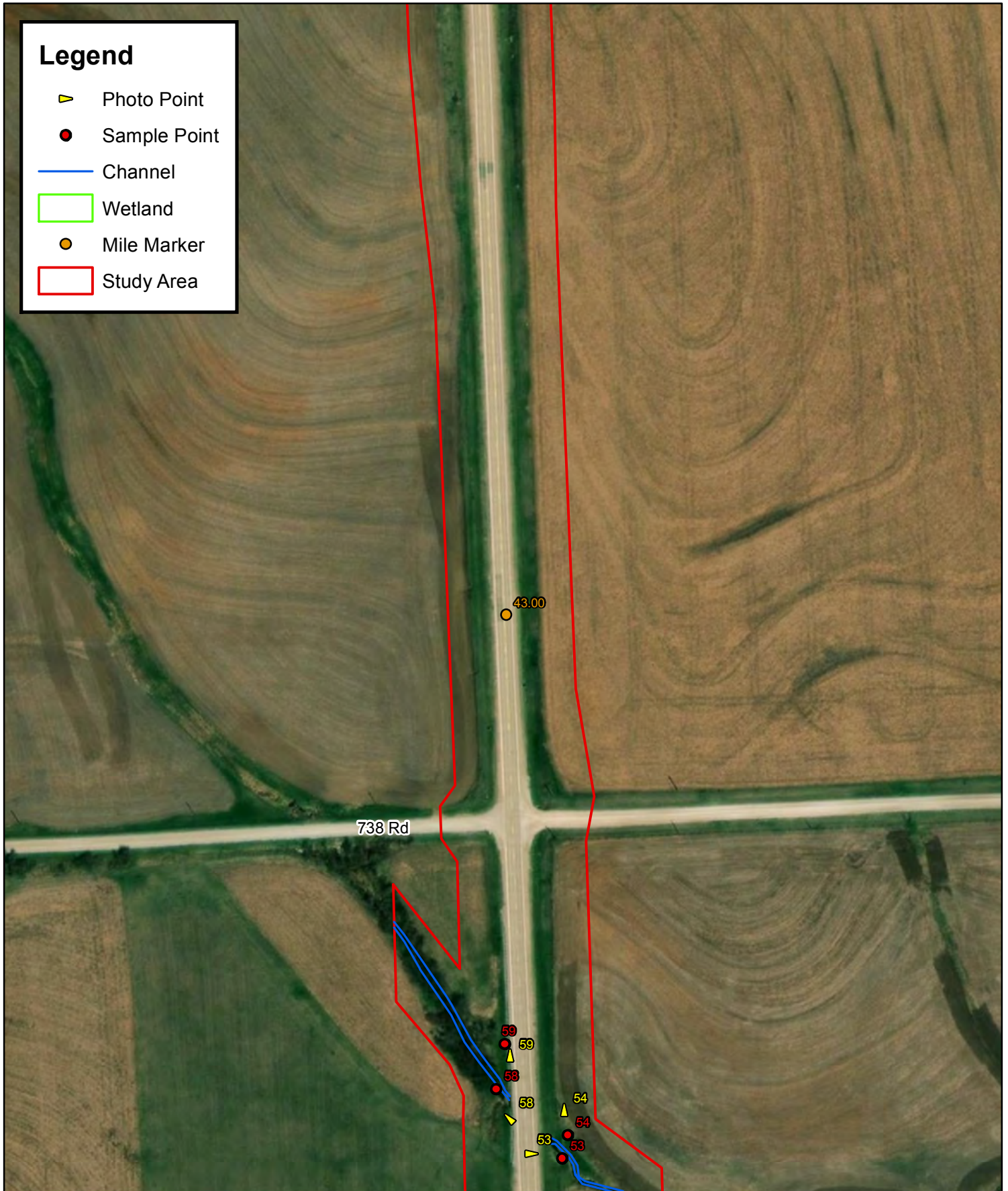
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Feet

Syracuse South
Johnson & Otoe Counties, NE
Project No. STP-50-1(115)
Control No. 13276

Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

- ▶ Photo Point
- Sample Point
- Channel
- ◻ Wetland
- Mile Marker
- ◻ Study Area

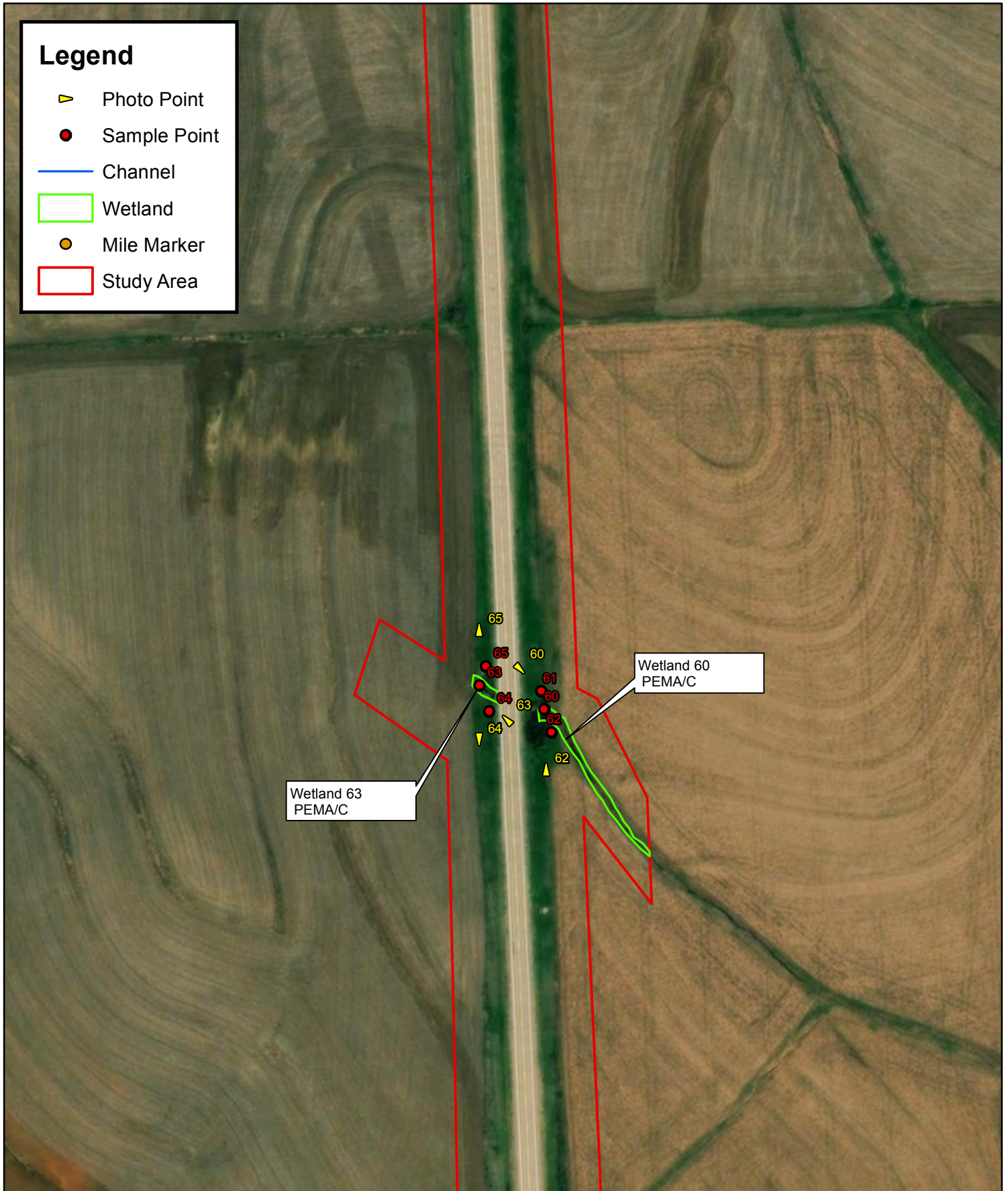


Syracuse South
Johnson & Otoe Counties, NE
Project No. STP-50-1(115)
Control No. 13276

Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

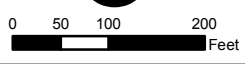
Legend

- ▶ Photo Point
- Sample Point
- Channel
- ▭ Wetland
- Mile Marker
- ▭ Study Area



Wetland 63
PEMAC

Wetland 60
PEMAC

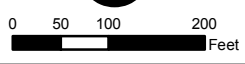


Syracuse South
Johnson & Otoe Counties, NE
Project No. STP-50-1(115)
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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

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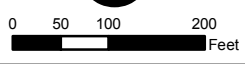
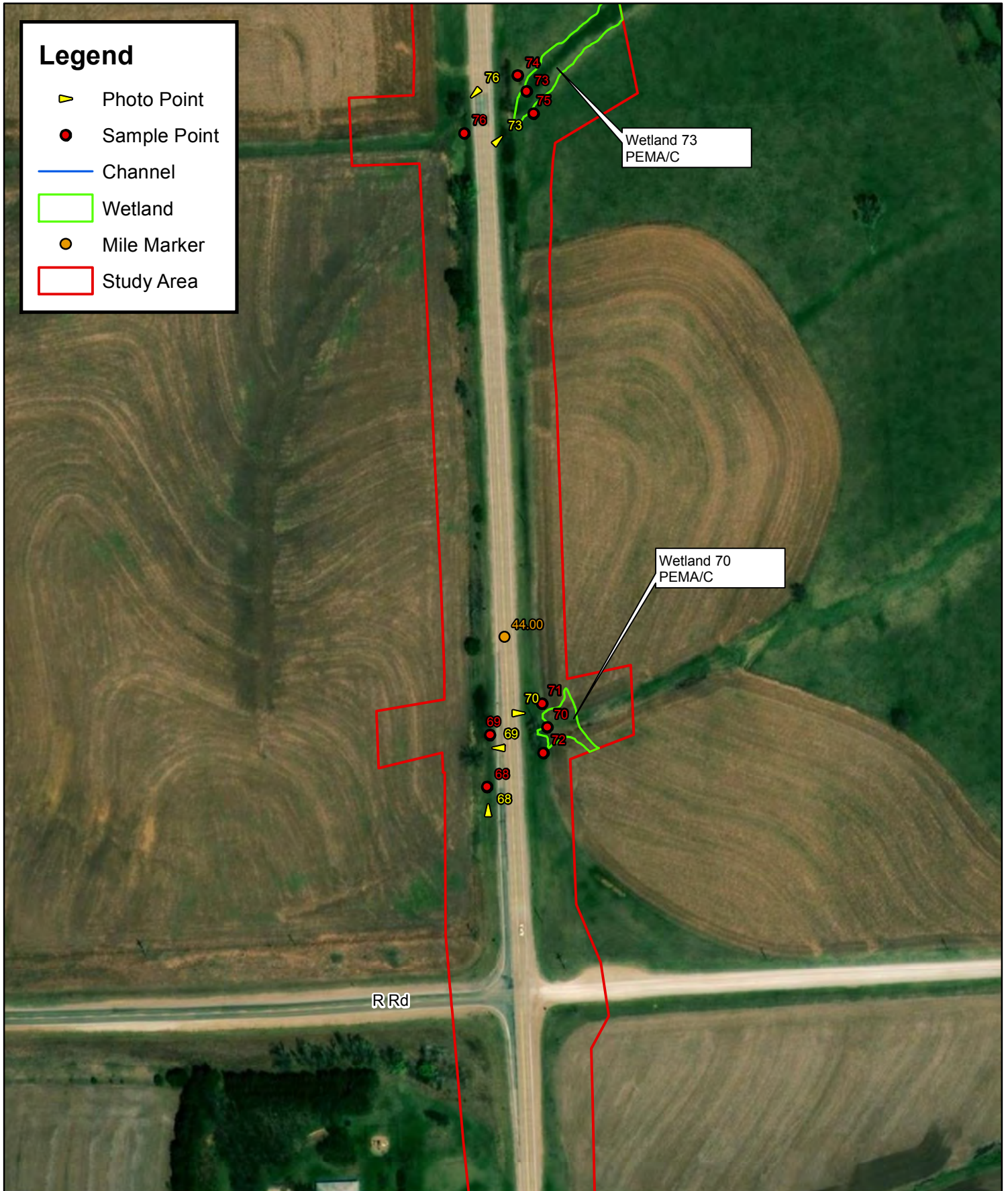


Syracuse South
Johnson & Otoe Counties, NE
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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

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- Sample Point
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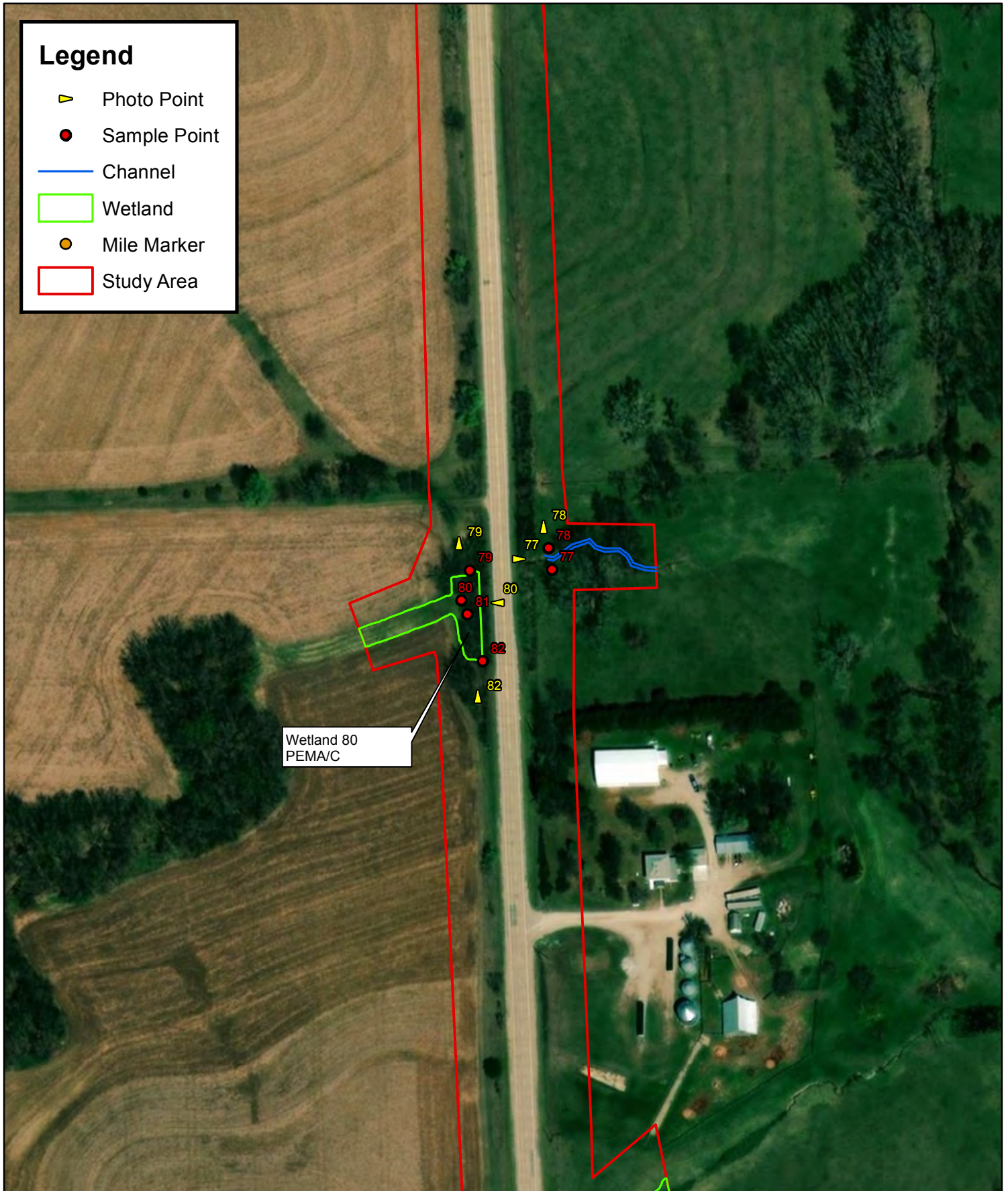


Syracuse South
Johnson & Otoe Counties, NE
Project No. STP-50-1(115)
Control No. 13276

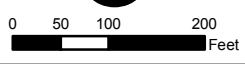
Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

- ▶ Photo Point
- Sample Point
- Channel
- ▭ Wetland
- Mile Marker
- ▭ Study Area



Wetland 80
PEMA/C

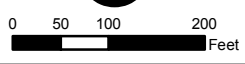


Syracuse South
Johnson & Otoe Counties, NE
Project No. STP-50-1(115)
Control No. 13276

Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

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- Sample Point
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- Mile Marker
- Study Area

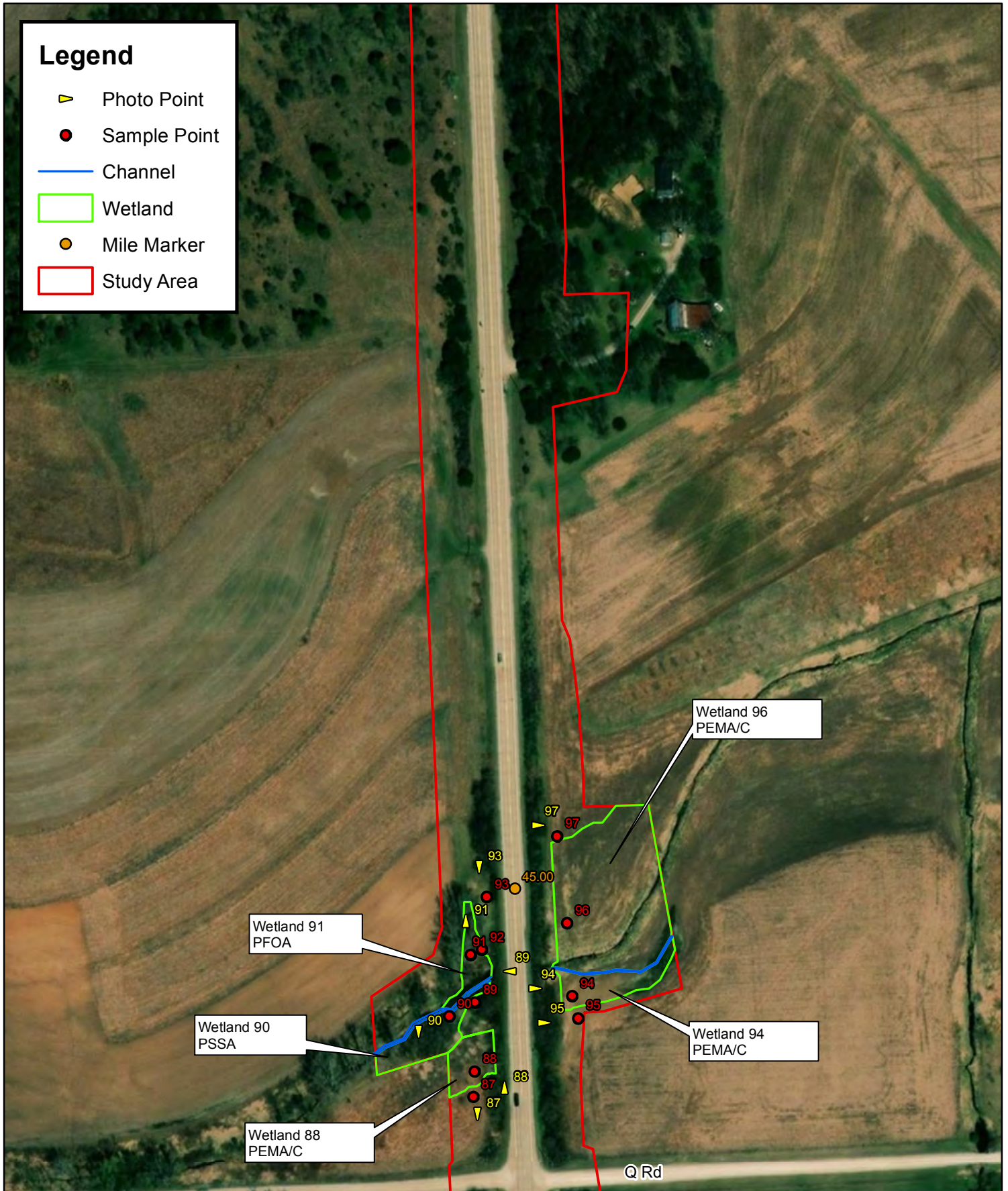


Syracuse South
Johnson & Otoe Counties, NE
Project No. STP-50-1(115)
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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

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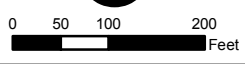
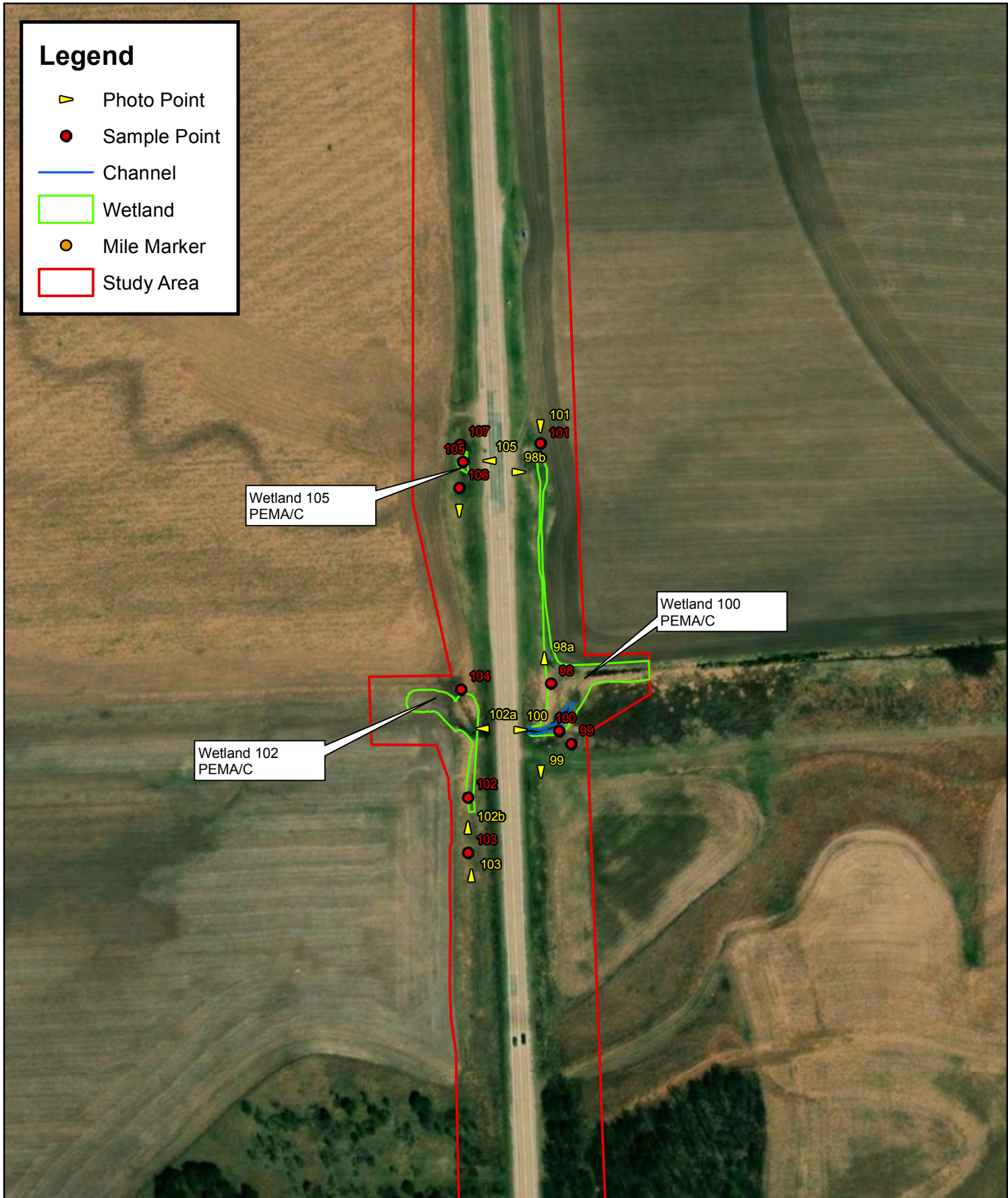
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Feet

Syracuse South
Johnson & Otoe Counties, NE
Project No. STP-50-1(115)
Control No. 13276

Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

- ▶ Photo Point
- Sample Point
- Channel
- ▭ Wetland
- Mile Marker
- ▭ Study Area

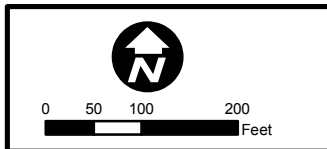
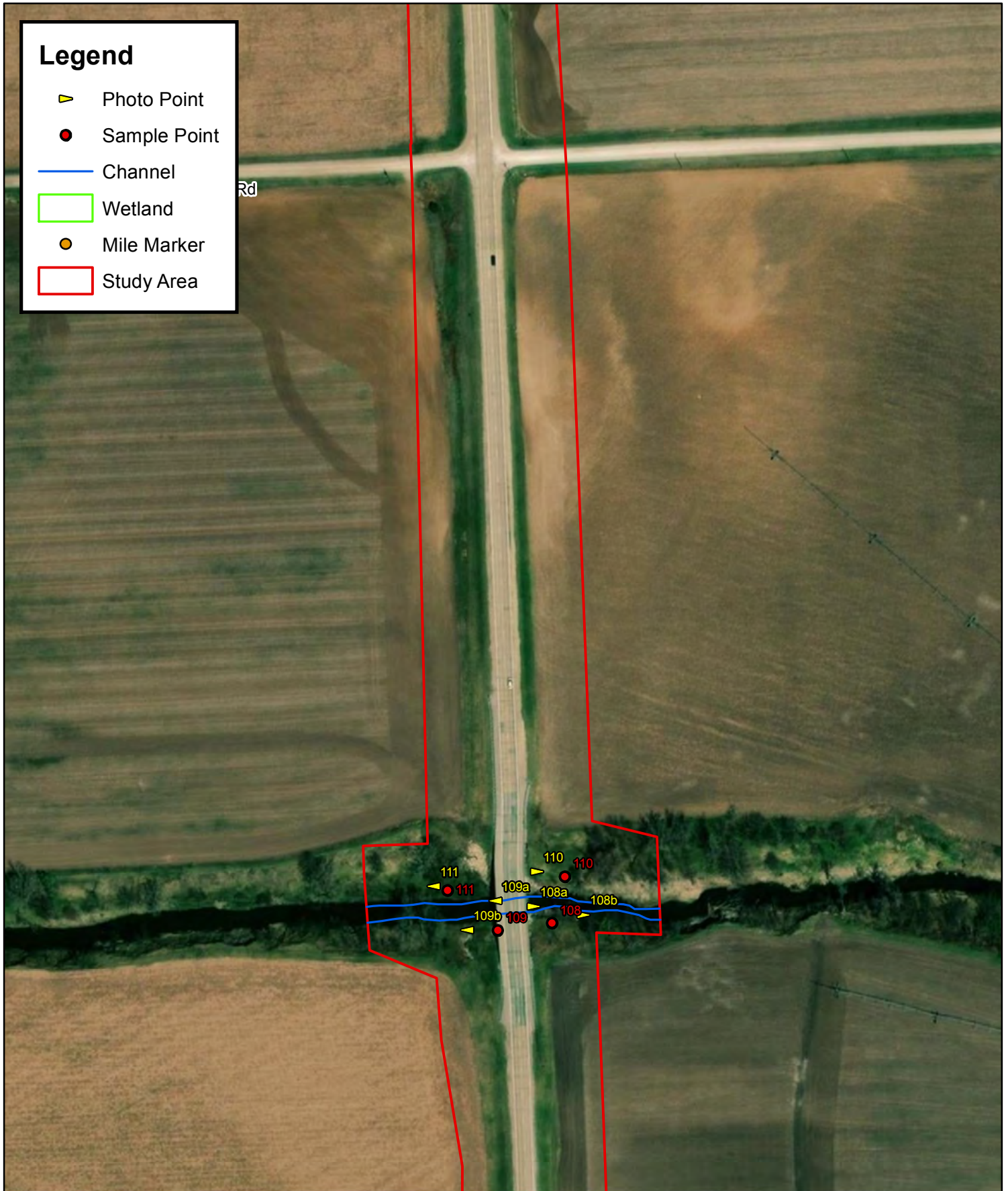


Syracuse South
Johnson & Otoe Counties, NE
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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

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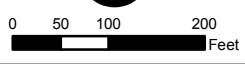
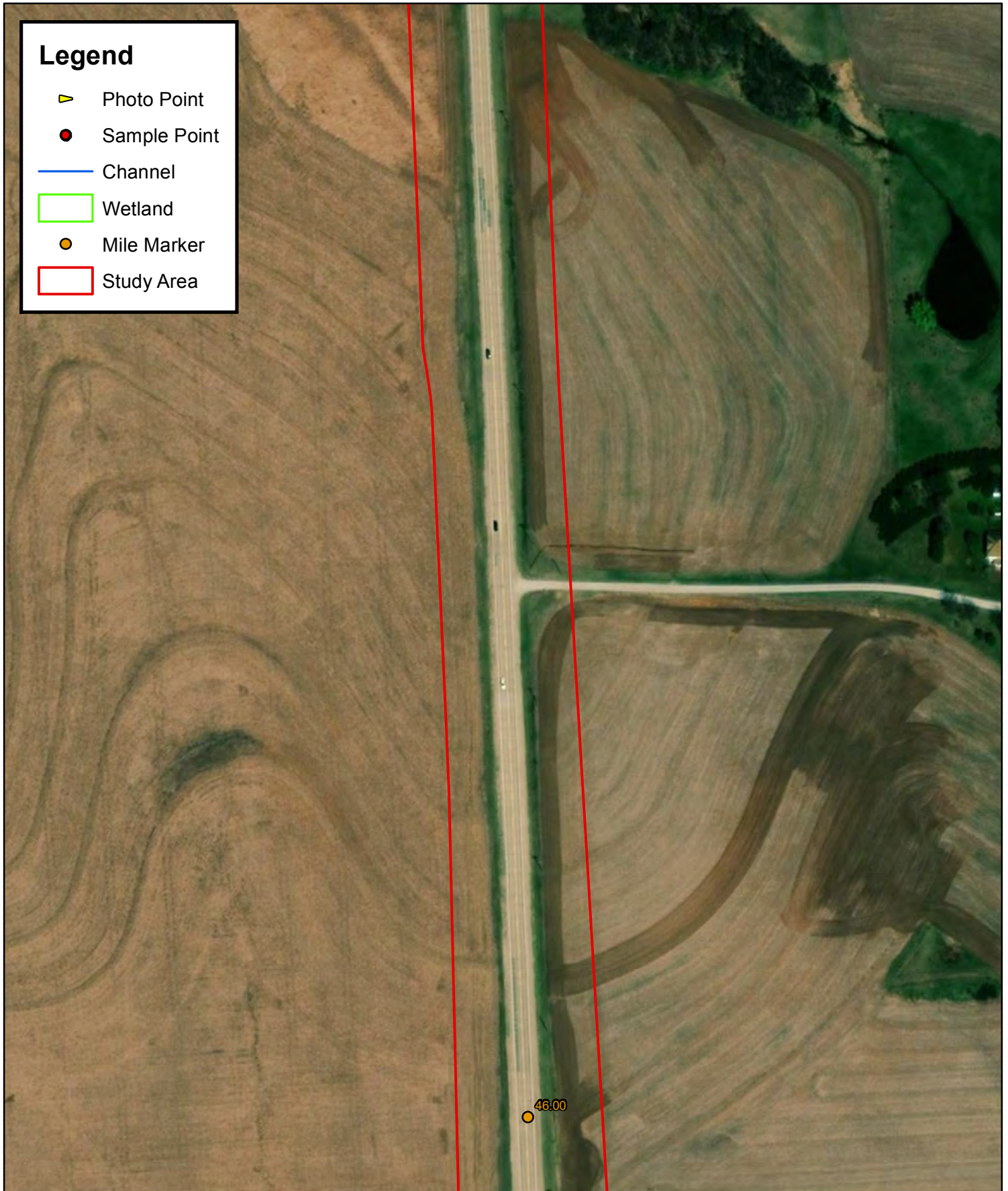


Syracuse South
Johnson & Otoe Counties, NE
Project No. STP-50-1(115)
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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

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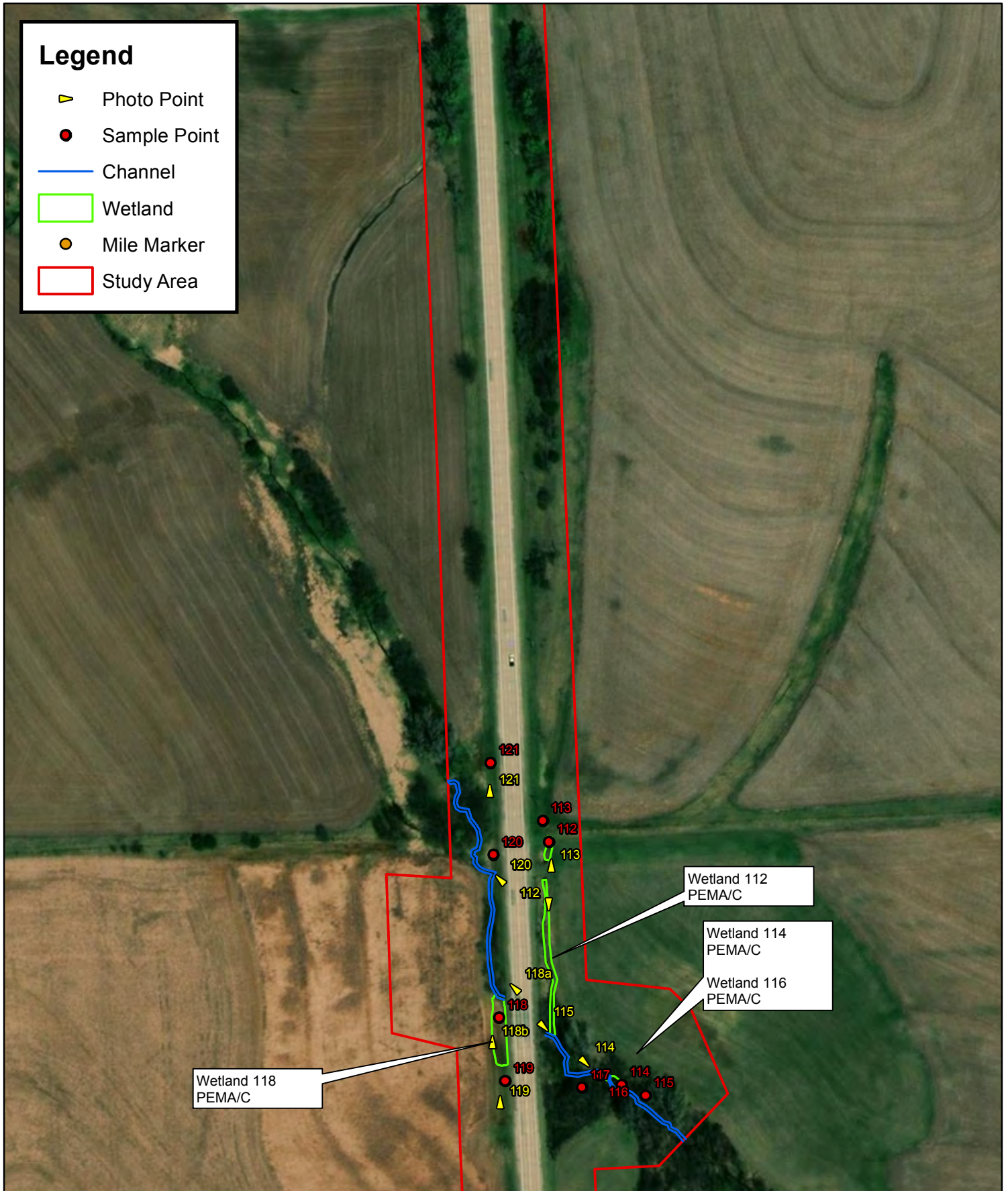


Syracuse South
Johnson & Otoe Counties, NE
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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

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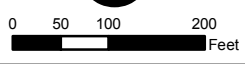
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Syracuse South
Johnson & Otoe Counties, NE
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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

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- Sample Point
- Channel
- ◻ Wetland
- Mile Marker
- ◻ Study Area

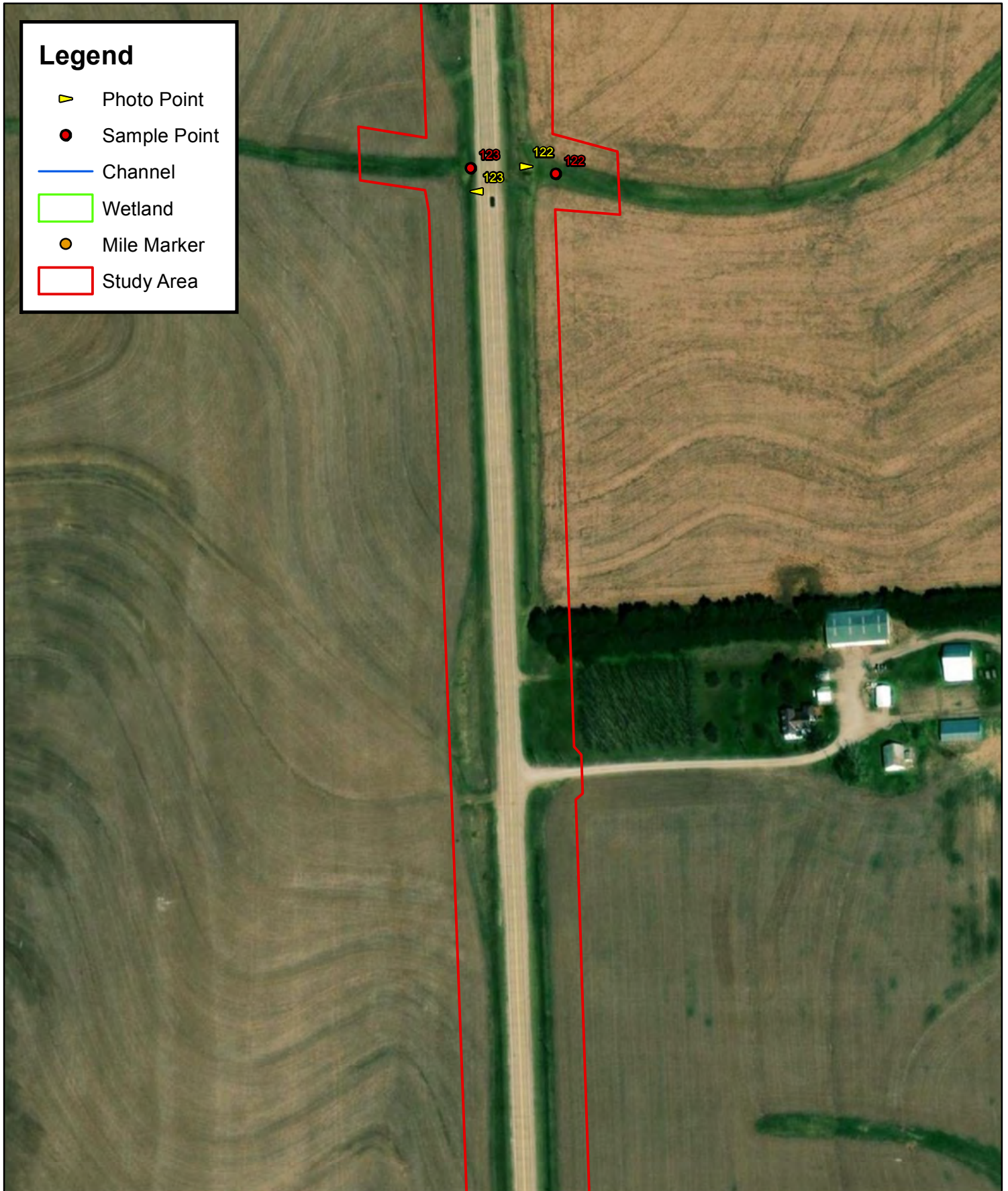


Syracuse South
Johnson & Otoe Counties, NE
Project No. STP-50-1(115)
Control No. 13276

Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

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- Wetland
- Mile Marker
- Study Area



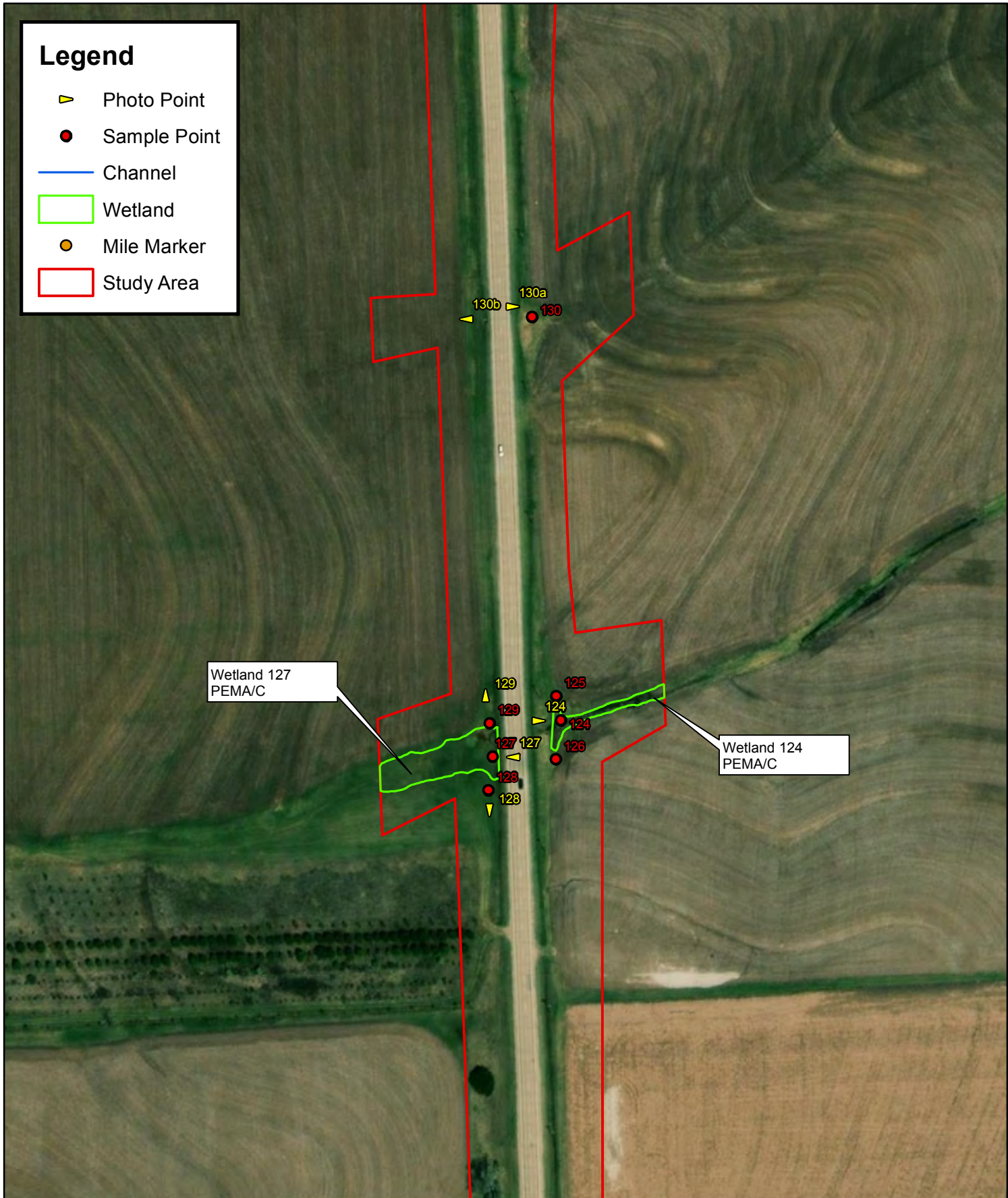
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Syracuse South
Johnson & Otoe Counties, NE
Project No. STP-50-1(115)
Control No. 13276

Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

- ▶ Photo Point
- Sample Point
- Channel
- ▭ Wetland
- Mile Marker
- ▭ Study Area



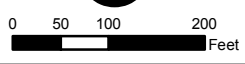
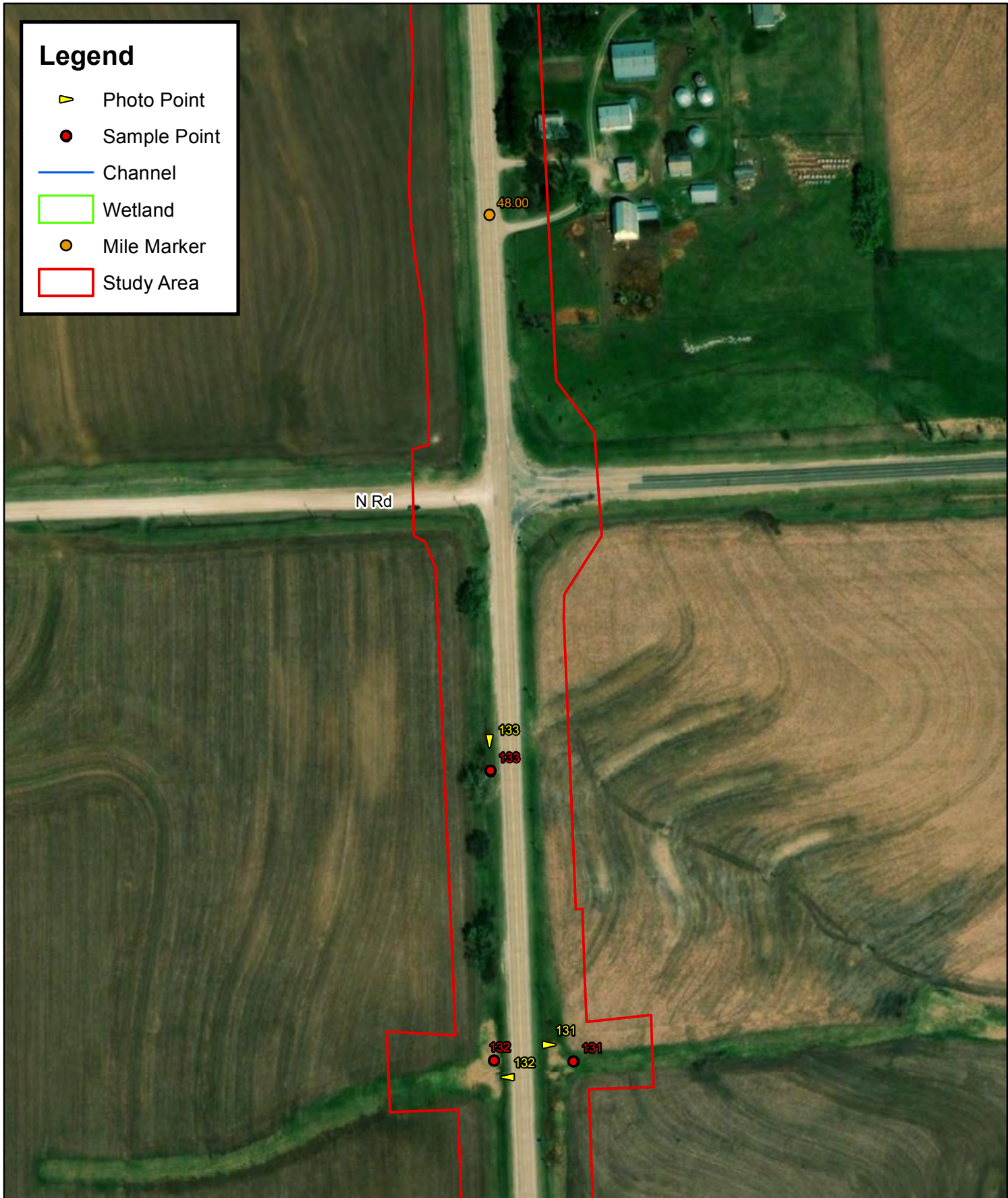
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Feet

Syracuse South
Johnson & Otoe Counties, NE
Project No. STP-50-1(115)
Control No. 13276

Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

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- Sample Point
- Channel
- ▭ Wetland
- Mile Marker
- ▭ Study Area

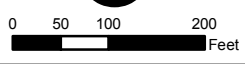
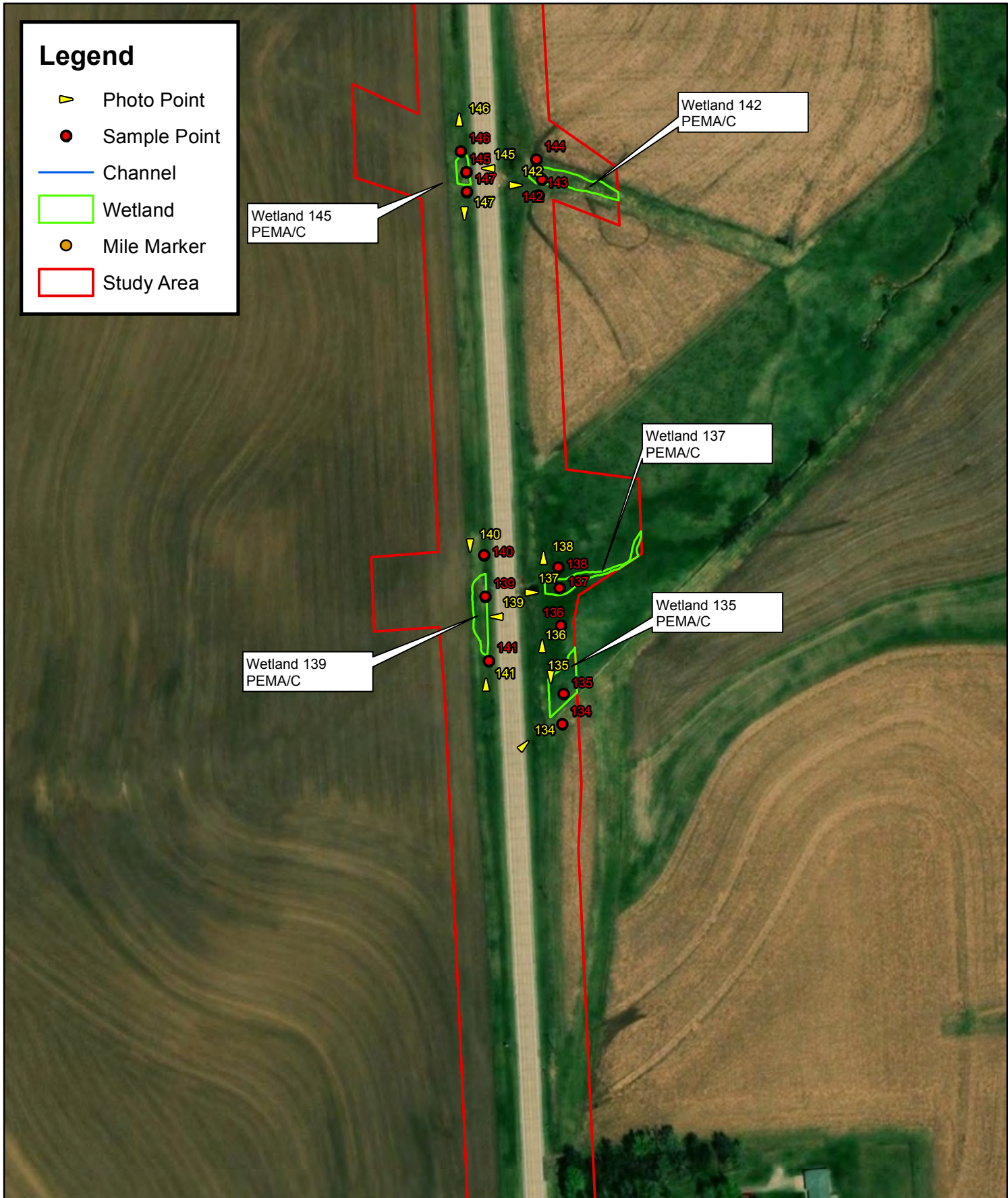


Syracuse South
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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

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- ▭ Wetland
- Mile Marker
- ▭ Study Area

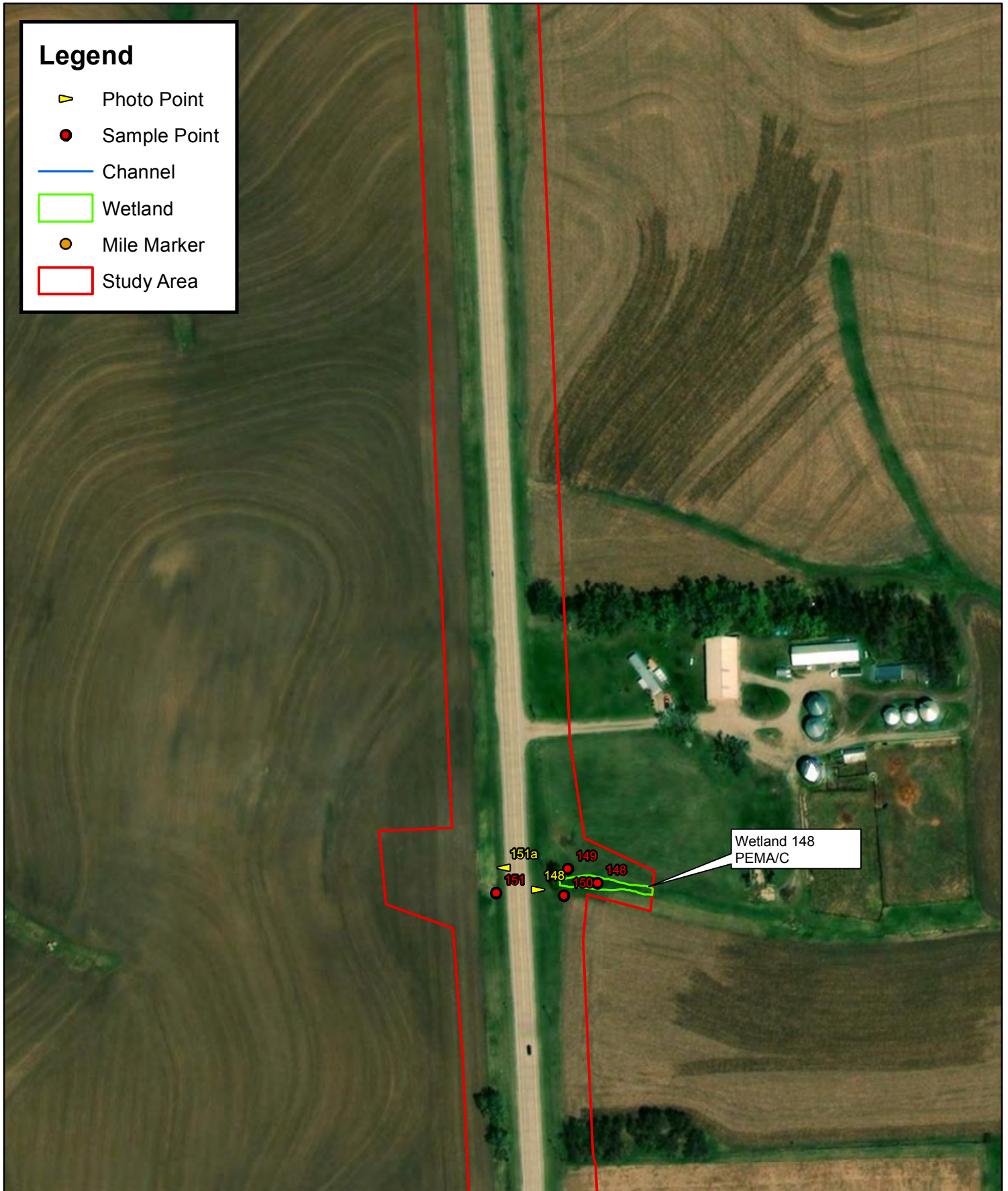


Syracuse South
Johnson & Otoe Counties, NE
Project No. STP-50-1(115)
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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

- ▶ Photo Point
- Sample Point
- Channel
- ▭ Wetland
- Mile Marker
- ▭ Study Area



Wetland 148
PEMA/C



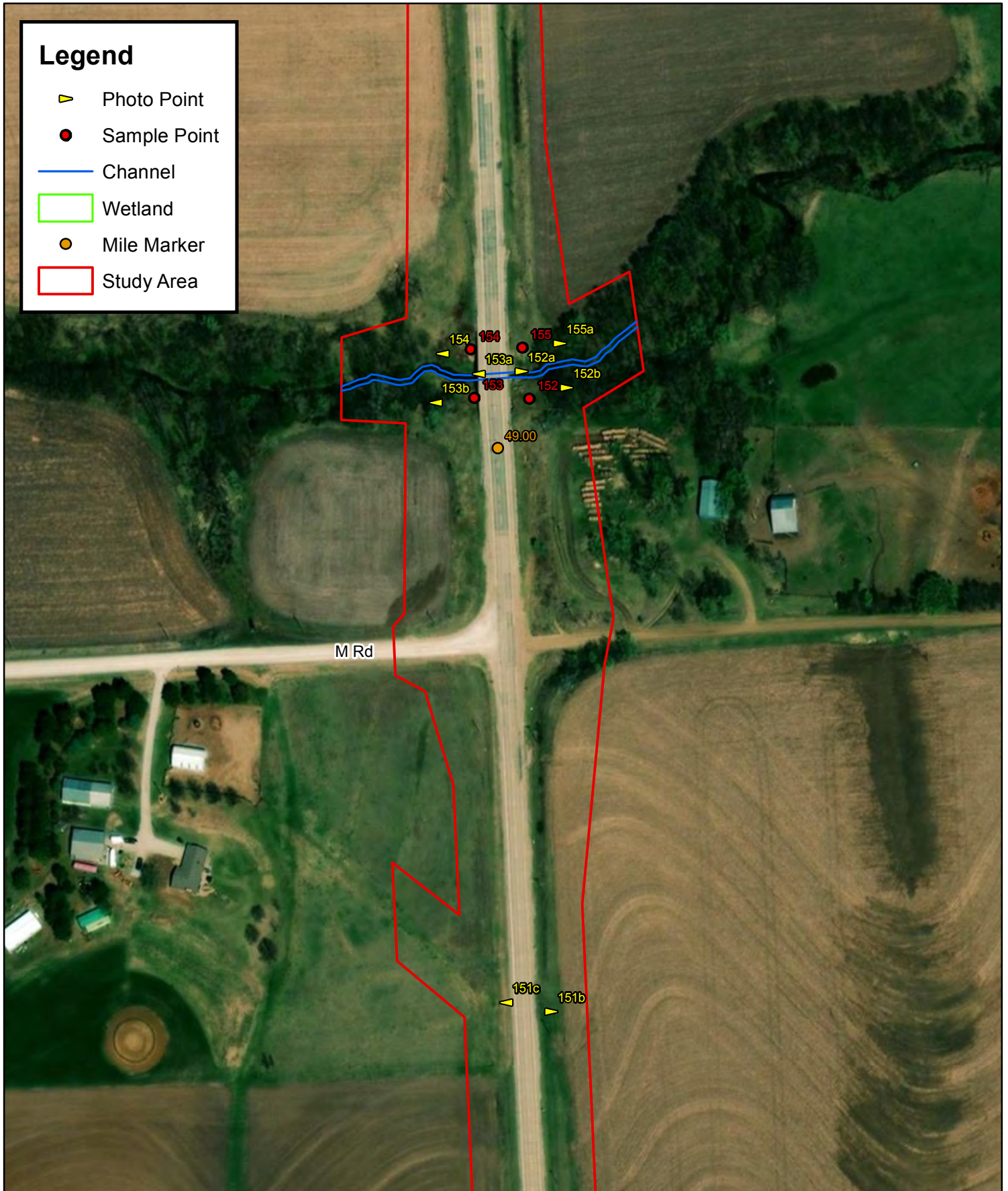
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Feet

Syracuse South
Johnson & Otoe Counties, NE
Project No. STP-50-1(115)
Control No. 13276

Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

- ▶ Photo Point
- Sample Point
- Channel
- Wetland
- Mile Marker
- Study Area



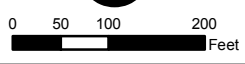
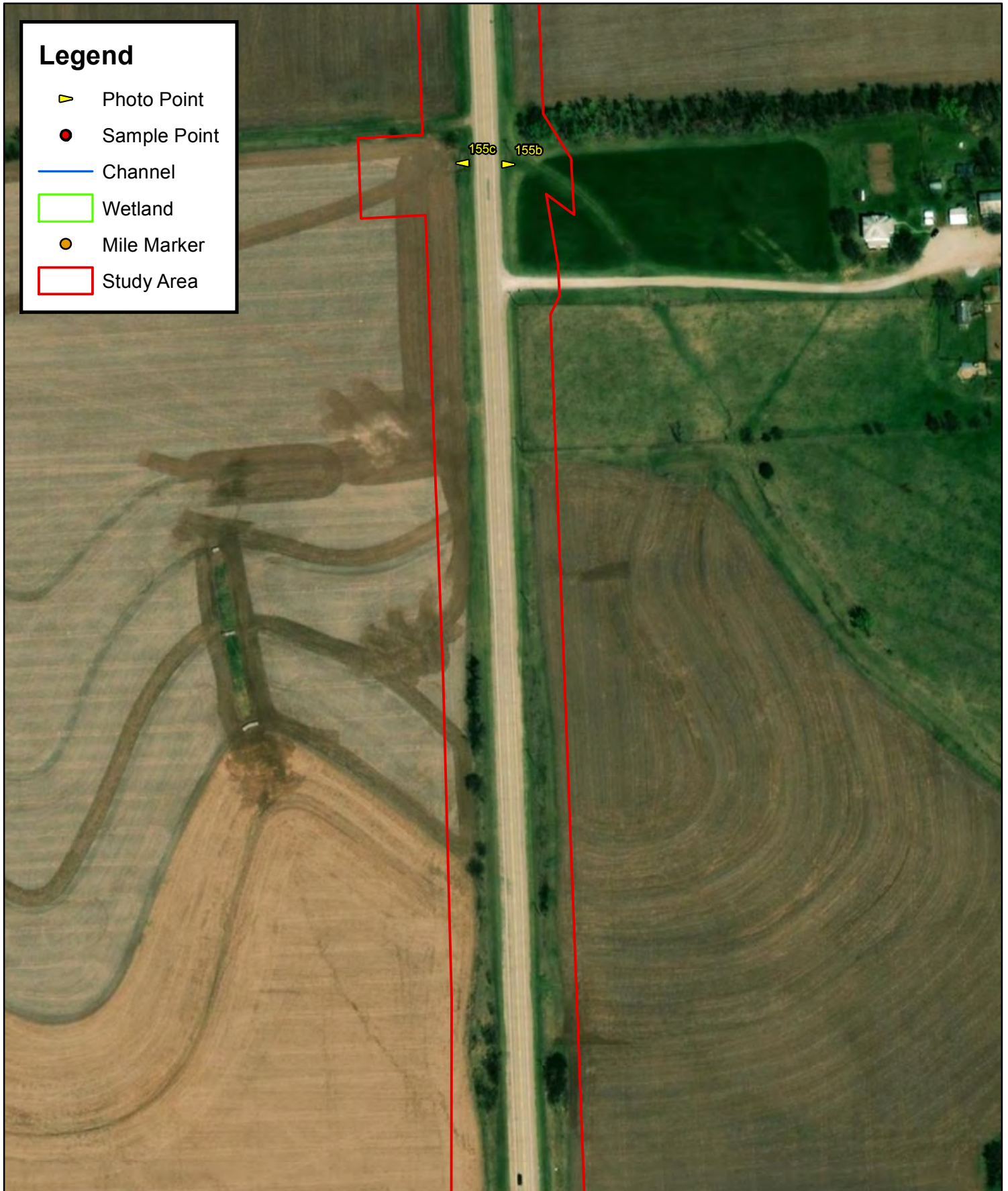
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Feet

Syracuse South
Johnson & Otoe Counties, NE
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Control No. 13276

Delineated Wetlands/WOUS
Aerial Imagery
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- Sample Point
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- ◻ Wetland
- Mile Marker
- ◻ Study Area



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- ▶ Photo Point
- Sample Point
- Channel
- ◻ Wetland
- Mile Marker
- ◻ Study Area



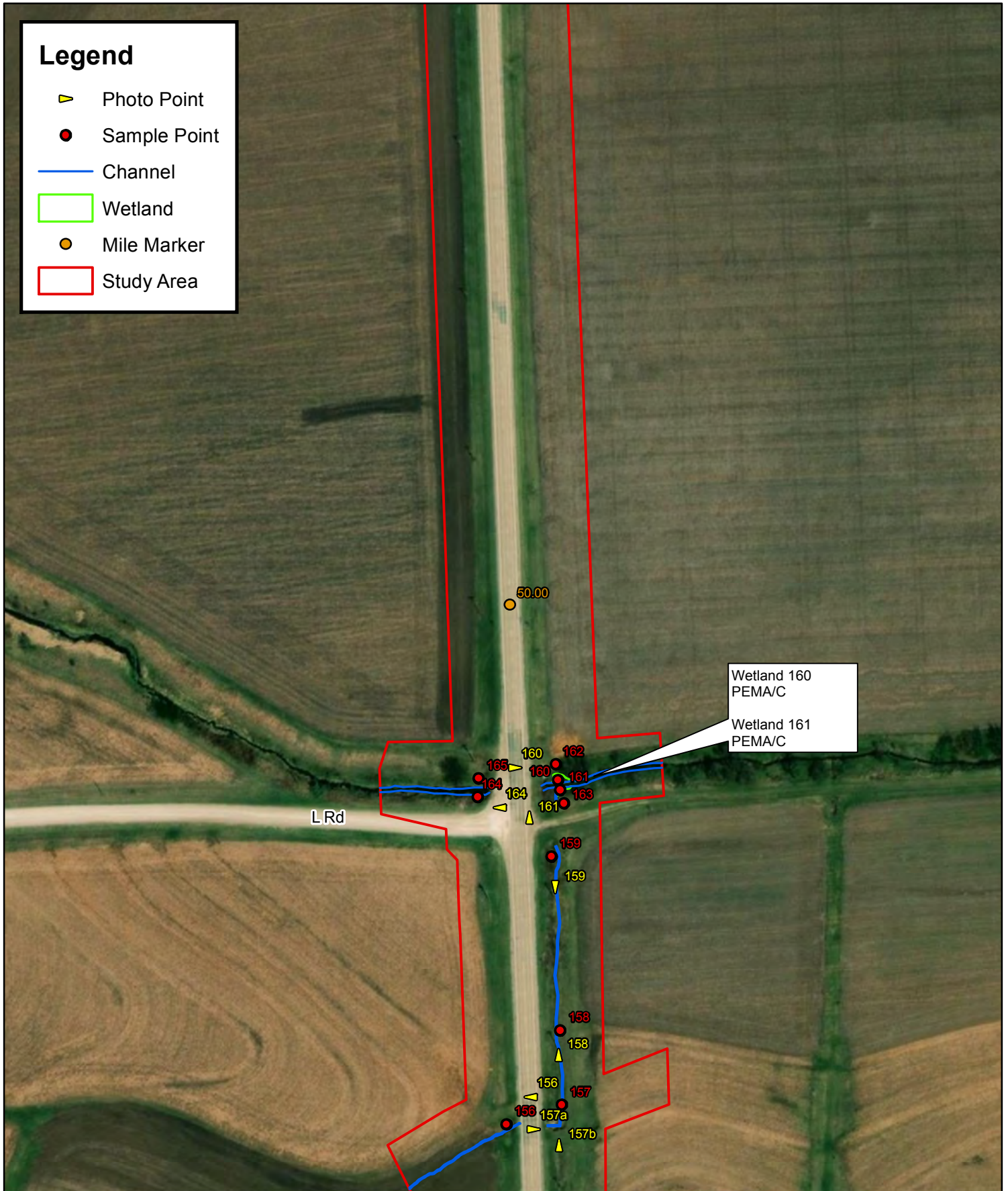
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Feet

Syracuse South
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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

- ▶ Photo Point
- Sample Point
- Channel
- ◻ Wetland
- Mile Marker
- ◻ Study Area



Wetland 160
PEMAC
Wetland 161
PEMAC

LRd

50.00

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157a
157b



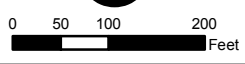
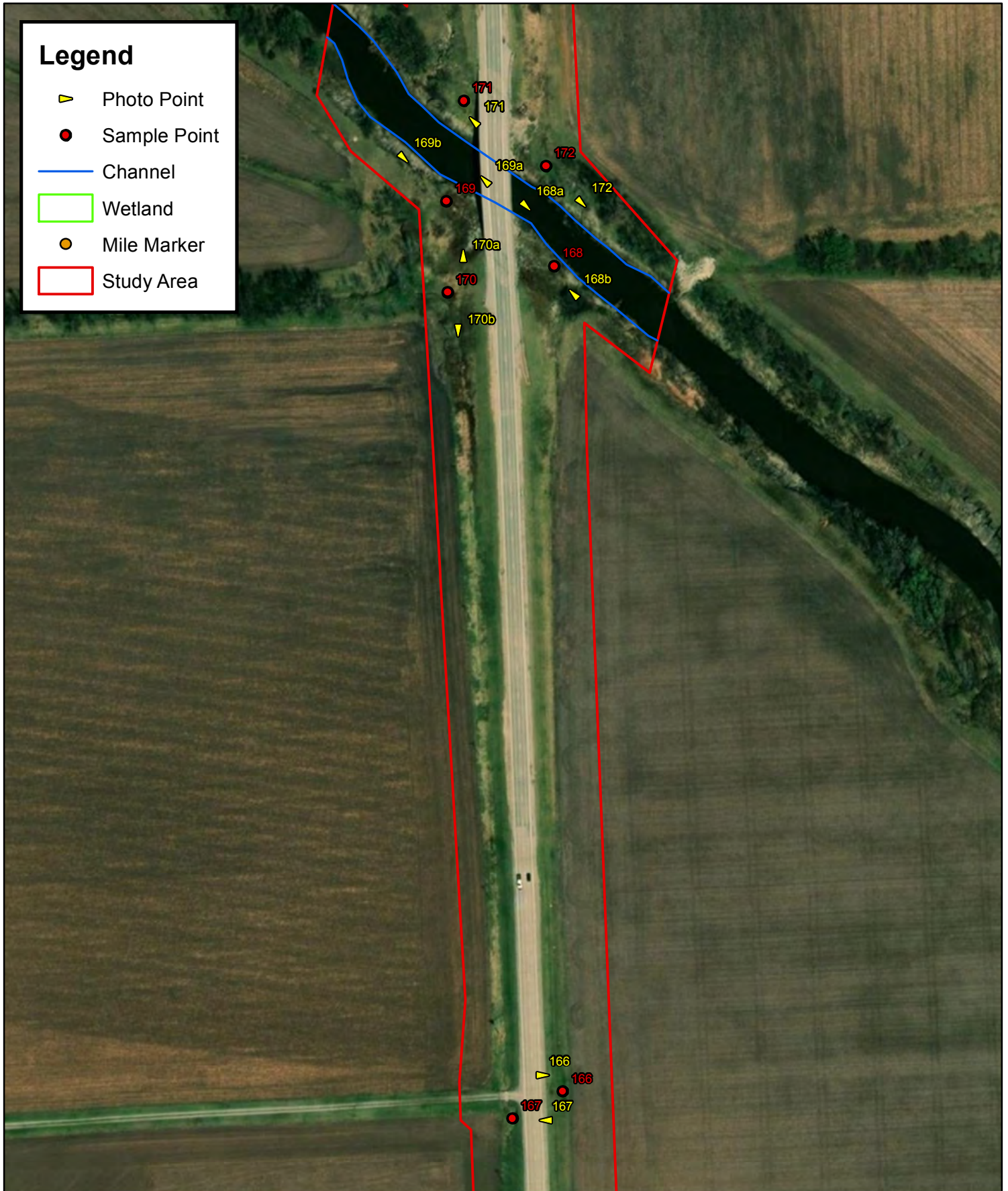
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Syracuse South
Johnson & Otoe Counties, NE
Project No. STP-50-1(115)
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Delineated Wetlands/WOUS
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- Wetland
- Mile Marker
- Study Area

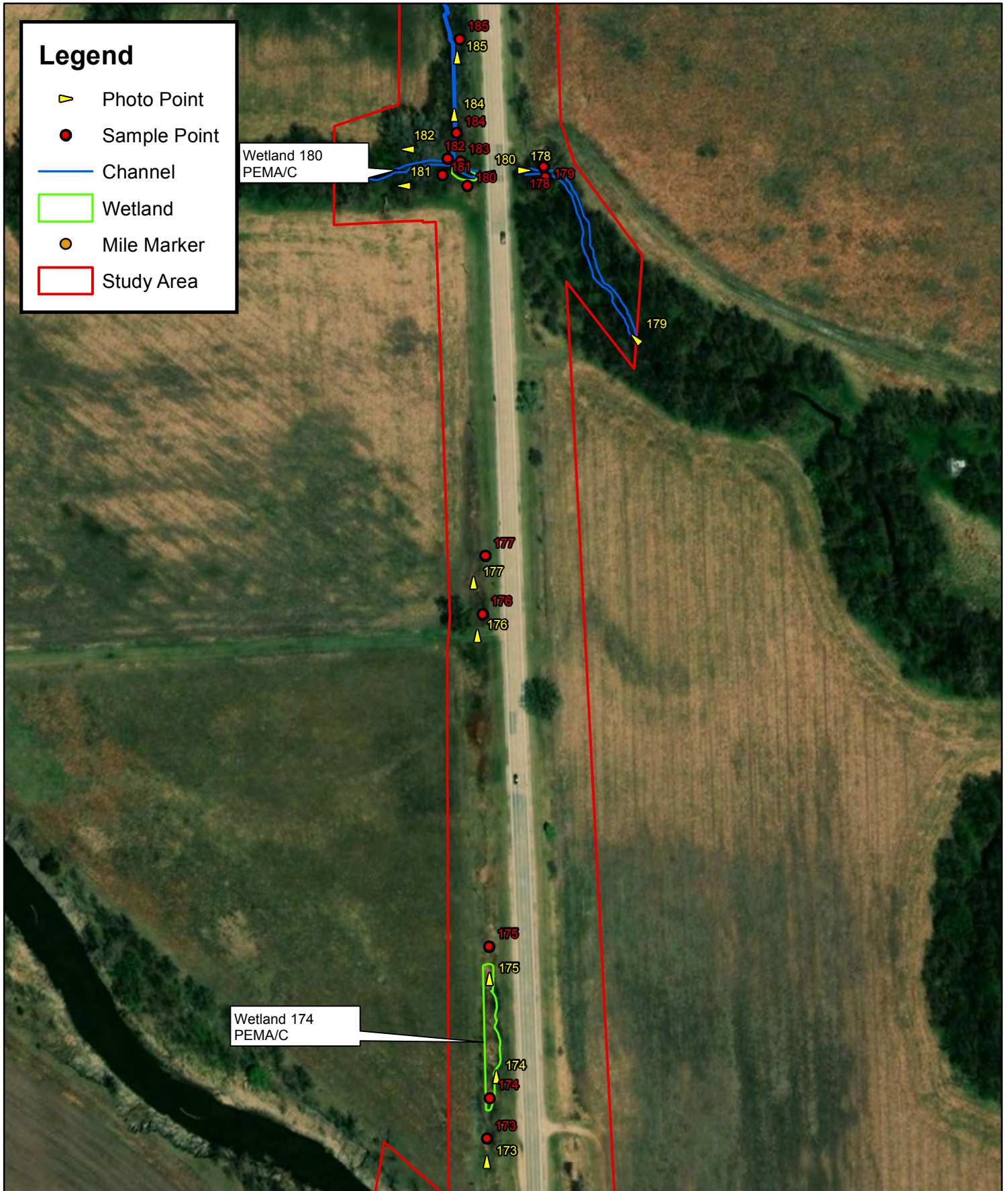


Syracuse South
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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

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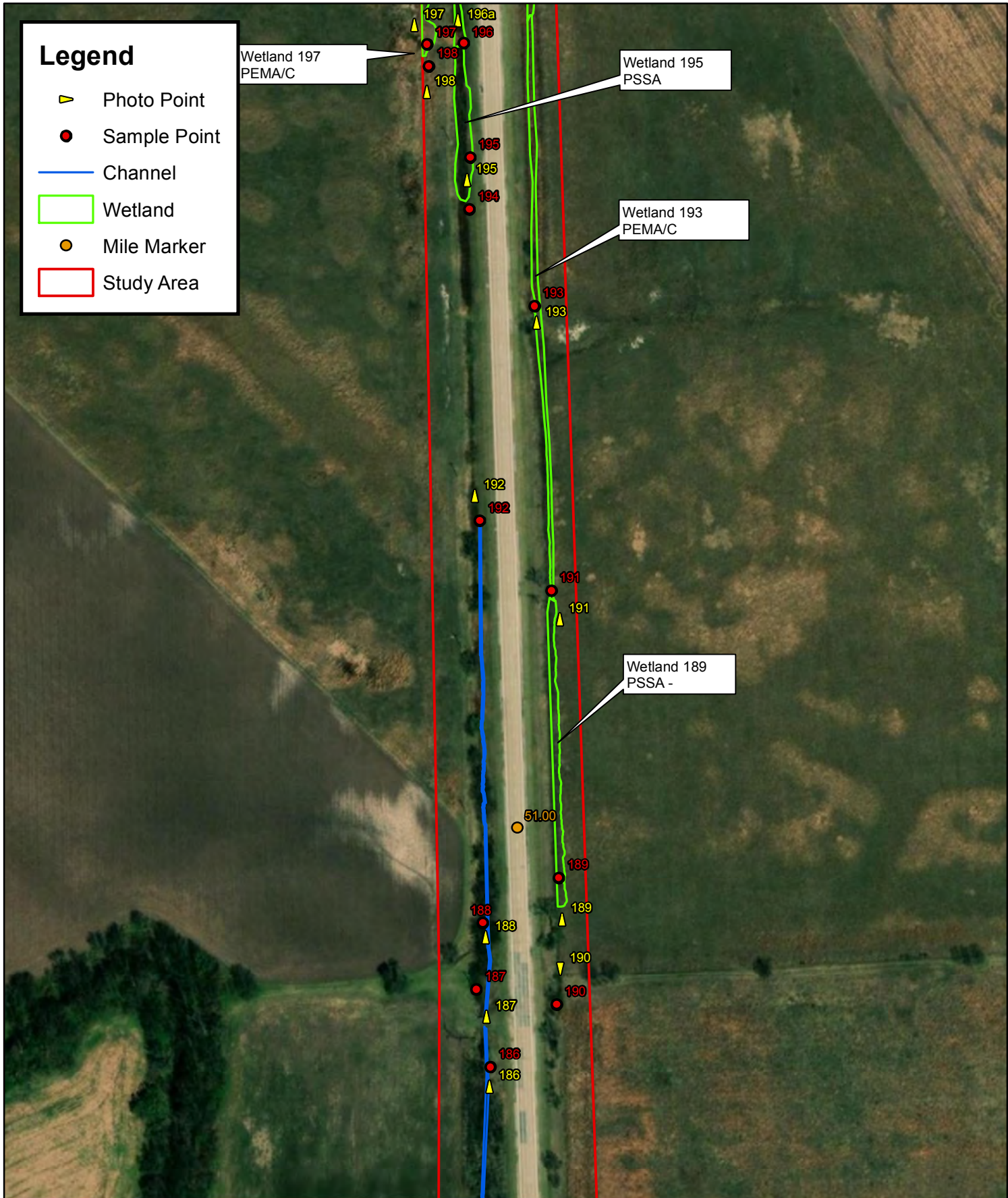
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- Sample Point
- Channel
- ▭ Wetland
- Mile Marker
- ▭ Study Area



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Syracuse South
Johnson & Otoe Counties, NE
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Aerial Imagery
Figure 2 Sheet



Legend

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- Channel
- Wetland
- Mile Marker
- Study Area

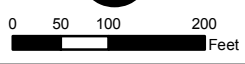
Wetland 197
PEMA/C

Wetland 195
PSSA

Wetland 193
PEMA/C

Wetland 189
PSSA -

197 196a 196
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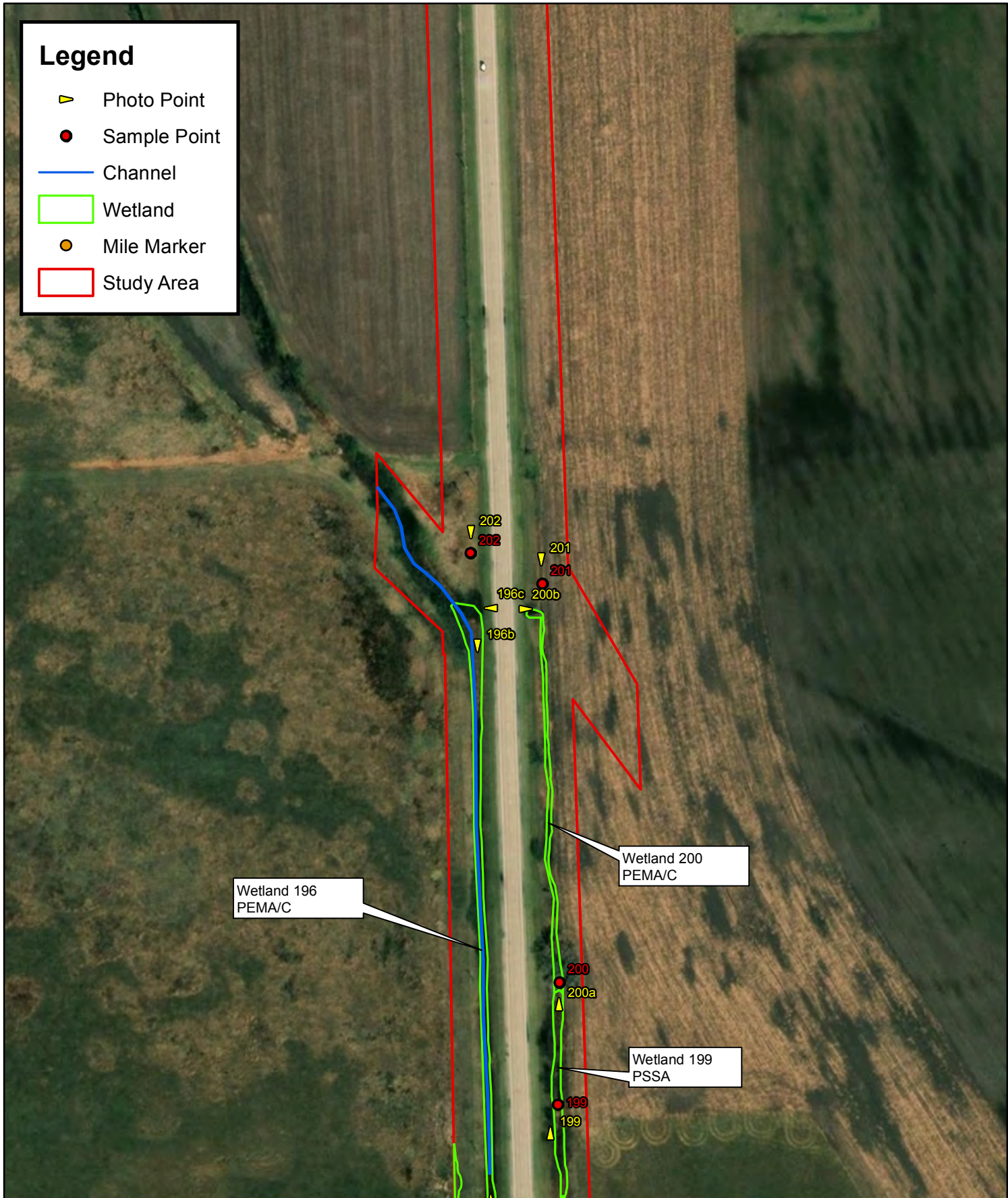


Syracuse South
Johnson & Otoe Counties, NE
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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Legend

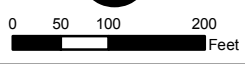
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- Sample Point
- Channel
- ▭ Wetland
- Mile Marker
- ▭ Study Area



Wetland 196
PEMA/C

Wetland 200
PEMA/C

Wetland 199
PSSA



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- Study Area



0 50 100 200
Feet

Syracuse South
Johnson & Otoe Counties, NE
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Delineated Wetlands/WOUS
Aerial Imagery
Figure 2 Sheet

Appendix B

USACE Wetland Determination Data Forms

Appendix C

Site Photos

ATTACHMENT B
Geodatabase Screen Captures

Sample Point										
OBJECTID *	SHAPE *	Control Number	Field_ID	Report_ID	Structure	Comments	Biologist	Date_	X	Y
4	Point	42617	S-001	S-001	Culvert	Culvert under US-136 with NHD waterway and PEMA.	John Doe & Jane Doe	6/2/2014	-98.730635	40.08919
5	Point	42617	S-002	S-002	None	Upland to S-001.	John Doe & Jane Doe	6/2/2014	-98.73026	40.089216
6	Point	42617	S-003	S-003	None	Upland ditch; mapped NHD not observed.	John Doe & Jane Doe	6/2/2014	-98.725848	40.089774
7	Point	42617	S-004	S-004	Bridge	Bridge with PFOA containing mapped NHD and NWI.	John Doe & Jane Doe	6/2/2014	-98.719733	40.089193
9	Point	42617	S-005	S-005	Bridge	Bridge with PEMA & mapped NWI; NHD not observed.	John Doe & Jane Doe	6/2/2014	-98.720296	40.090006
11	Point	42617	S-006	S-006	None	Upland to S-004 and S-005.	John Doe & Jane Doe	6/2/2014	-98.71984	40.088913
13	Point	42617	S-007	S-007	None	Upland berm north of US-136.	John Doe & Jane Doe	6/2/2014	-98.720263	40.089795
14	Point	42617	S-008	S-008	None	Upland ditch north of US-136.	John Doe & Jane Doe	6/2/2014	-98.715667	40.089438
15	Point	42617	S-009	S-009	Culvert	Upland culvert under US-136.	John Doe & Jane Doe	6/2/2014	-98.71546	40.089403
16	Point	42617	S-010	S-010	None	Upland ditch north of US-136.	John Doe & Jane Doe	6/2/2014	-98.718507	40.089442
17	Point	42617	S-011	S-011	None	Mapped NHD waterway not observed.	John Doe & Jane Doe	6/2/2014	-98.714129	40.088678
18	Point	42617	S-012	S-012	None	Upland forested depression assoc. with S-014.	John Doe & Jane Doe	6/2/2014	-98.707526	40.089004
19	Point	42617	S-013	S-013	Other	Drop structure adj. to ag field north of US-136.	John Doe & Jane Doe	6/2/2014	-98.708352	40.089473

Channel or Linear Wetland											
OBJECTID *	SHAPE *	Control Number	Field ID	Report ID	Channel or Linear Wetland	Width or Type	Comments	Biologist	Date_	Investigation	SHAPE_Length
7	Polyline	42617	S-001	S-001	Channel	1' wide	NHD mapped ephemeral waterway N & S of US-136	John Doe & Jane Doe	6/2/2014	Final	267.701439
11	Polyline	42617	S-004	S-004	Channel	1' wide	NHD mapped ephemeral waterway S of US-136.	John Doe & Jane Doe	6/2/2014	Final	302.889663
15	Polyline	42617	S-016	S-016	Channel	3' wide	NHD mapped ephemeral waterway N of US-136.	John Doe & Jane Doe	6/2/2014	Final	207.255908
14	Polyline	42617	S-017	S-017	Channel	3' wide	NHD mapped ephemeral waterway S of US-136.	John Doe & Jane Doe	6/2/2014	Final	254.568672
16	Polyline	42617	S-021	S-021	Channel	7' wide	NHD mapped perennial waterway N & S of US-136.	John Doe & Jane Doe	6/2/2014	Final	1121.241437
19	Polyline	42617	S-037	S-037	Channel	1' wide	NHD mapped ephemeral waterway N of US-136.	John Doe & Jane Doe	6/3/2014	Final	773.053605
23	Polyline	42617	S-042	S-042	Channel	2' wide	NHD mapped ephemeral waterway N of US-136.	John Doe & Jane Doe	6/3/2014	Final	330.061375
27	Polyline	42617	S-051	S-051	Channel	3' wide	NHD mapped ephemeral waterway S of US-136.	John Doe & Jane Doe	6/3/2014	Final	229.760063
28	Polyline	42617	S-060	S-060	Channel	10' wide	NHD mapped ephemeral waterway N & S of US-136.	John Doe & Jane Doe	6/3/2014	Final	1107.701325
29	Polyline	42617	S-062	S-062	Channel	10' wide	NHD mapped ephemeral waterway N & S of US-136.	John Doe & Jane Doe	6/3/2014	Final	1098.105827
71	Polyline	42617	S-065	S-065	Channel	3' wide	NHD mapped ephemeral waterway N & S of US-136.	John Doe & Jane Doe	6/3/2014	Final	188.252566
30	Polyline	42617	S-065	S-065	Channel	8' wide	NHD mapped ephemeral waterway N & S of US-136.	John Doe & Jane Doe	6/3/2014	Final	546.249177
31	Polyline	42617	S-077	S-077	Channel	3' wide	NHD mapped ephemeral waterway S of US-136.	John Doe & Jane Doe	6/3/2014	Final	127.772126

Wetland												
OBJECTID *	SHAPE *	Control Number	Field ID	Report ID	Wetland Type	Comments	Biologist	Date_	Investigation	SHAPE_Length	SHAPE_Area	Acres
5	Polygon	42617	S-001	S-001	PEMA/PEMC	Culvert under US-136 with NHD waterway and PEMA.	John Doe & Jane Doe	6/2/2014	Final	604.702837	3670.013704	0.084252
9	Polygon	42617	S-004	S-004	PFOA	Bridge with PFOA containing mapped NHD and NWI.	John Doe & Jane Doe	6/2/2014	Final	3372.404258	76178.668343	1.748829
16	Polygon	42617	S-005	S-005	PEMA/PEMC	Bridge with PEMA; mapped NHD not present.	John Doe & Jane Doe	6/2/2014	Final	3067.664443	48805.829169	1.120432
161	Polygon	42617	S-017B	S-017B	Open Water	Open water impoundment south of US-136.	John Doe & Jane Doe	6/2/2014	Final	350.092705	7133.49113	0.163763
27	Polygon	42617	S-019	S-019	Open Water	Open water impoundment; assoc. with S-019.	John Doe & Jane Doe	6/2/2014	Final	309.292847	4614.627323	0.105938
28	Polygon	42617	S-019	S-019	PEMA/PEMC	PEMA surrounding open water impoundment.	John Doe & Jane Doe	6/2/2014	Final	797.294175	4669.61544	0.1072
155	Polygon	42617	S-021	S-021	PEMA/PEMC	Mapped NHD waterway with PEMA fringe.	John Doe & Jane Doe	6/2/2014	Final	2039.64558	14013.180991	0.3217
166	Polygon	42617	S-025	S-025	PFOA	PFOA north of US-136 assoc. with S-021.	John Doe & Jane Doe	6/2/2014	Final	228.989069	2897.308766	0.066513
41	Polygon	42617	S-027	S-027	PEMA/PEMC	Mapped NHD waterway with PEMA fringe.	John Doe & Jane Doe	6/3/2014	Final	4139.210622	53194.077533	1.221173
51	Polygon	42617	S-031	S-031	PEMA/PEMC	Culvert north of US-136 with PEMA.	John Doe & Jane Doe	6/3/2014	Final	934.441288	1375.592366	0.031579
52	Polygon	42617	S-037	S-037	PEMA/PEMC	Mapped NHD waterway with PEMA.	John Doe & Jane Doe	6/3/2014	Final	544.41177	2450.73675	0.056261
60	Polygon	42617	S-040	S-040	PEMA/PEMC	Mapped NHD waterway with PEMA.	John Doe & Jane Doe	6/3/2014	Final	2917.614205	31067.284516	0.71321
67	Polygon	42617	S-044	S-044	PEMA/PEMC	Ditch with PEMA north of US-136.	John Doe & Jane Doe	6/3/2014	Final	1019.995765	1981.218927	0.045483

These are only examples. Please refer to the file geodatabase template and Table 1 in the EPU Manual for information on the GIS Feature Class Attributes.

ATTACHMENT C
Wetlands in an Agriculture Setting
Forms

Figure 19-81 Rainfall documentation form

Rainfall Documentation
(Use with photographs)

Date _____

Weather station _____ Landowner _____ Tract no. _____

County _____ State _____

Soil name _____ Growing season _____

Photo date _____

		Long-term rainfall records							
	Month	3 yrs in 10 less then	Normal	3 yrs in 10 more then	Rain fall	Condition dry, wet normal	Condition value	Month weight value	Product of previous to columns
1st Prior month									
2nd Prior month									
3rd Prior month									
Compared to photo date					Sum				

Note: If sum is

6-9 Then prior period had been drier than normal	Condition value Dry =1
10-15 Then prior period has been normal	Normal =2
15-18 Then prior period has been wetter than normal	Wet =3

Figure 19-82 Completed rainfall documentation form

Rainfall Documentation
(Use with photographs)

Date 5-31-93

Weather station Hillsboro Landowner D. Wood Tract no. _____

County Washington State OR

Soil name _____ Growing season 3/7—11/15

Photo date 6/86

		Long-term rainfall records							
	Month	3 yrs in 10 less than	Normal	3 yrs in 10 more than	Rain fall	Condition dry, wet normal	Condition value	Month weight value	Product of previous to columns
1st Prior month	May	1.06	1.62	1.94	2.04	W	3	2	9
2nd Prior month	Apr	1.50	2.15	2.56	1.47	D	1	2	2
3rd Prior month	Mar	2.67	4.02	4.81	3.47	N	2	1	2
								Sum	13

Compared to photo date

Note: If sum is

6-9	Then prior period had been drier than normal	Condition value	Dry =1
10-15	Then prior period has been normal		Normal =2
15-18	Then prior period has been wetter than normal		Wet =3

ATTACHMENT D
Form 290 Instructions

WATERWAY PERMIT DATA SHEET

Instruction Sheet

This instruction sheet is to be used as guidance for filling out the Waterway Permit Data Sheet (NDOT Form 290).

Thresholds:

- **Wetland Mitigation is typically required with total impacts over 0.1 acres.**
- **Impacts over 0.5 acres at a single site requires further permitting investigation by the Wetlands Project Manager and the Corps.**
- **Stream Channelization – Net loss shall not exceed 100 linear ft., and no more than 300 linear ft. of channel should be impacted.**
- **Contractor access crossings require review by the Wetlands Project Manager and/or the Corps.**

1. Will the Project Permanently Impact Wetlands?

Permanent wetland impacts change the bottom elevation of the wetland. Fill materials include, but are not limited to: rock, sand, soil, clay, plastics, construction debris, wood chips, etc. Avoidance and minimization analysis should occur. Describe in detail, on Attachment 1, why the wetland was impacted. *Example: Shoulder grading to 3:1.*

2. Will the Project Permanently Impact Delineated Channel(s)?

Permanent channel impacts are locations where fill material will not be removed after construction is complete. Although fill material may not be placed directly in water, line work on the wetland feature file represents the Ordinary High Water Mark which is considered, for these purposes, as a channel. Avoidance and minimization analysis should occur. Describe in detail, on Attachment 1, why the channel was impacted. *Example: Existing 6-foot by 6-foot concrete box culvert will be extended 10 feet right and 12 feet left. Channel grading and cleanout will be needed 25 feet right and 23 feet left.*

3. Will Channel Change(s) Be Required?

Channel change, in most cases, is where the alignment of the channel is shifted to another location or removing of length (ex. Removing a bend or oxbow). This requires early coordination with Wetlands Project Manager due to significant permitting requirements.

4. Will Temporary Impacts to Wetlands or Channels Occur?

Temporary impacts to wetlands or channels are areas in which the bottom elevation of any wetland is changed, but is returned to the pre-construction elevation after the project completion. This may be a temporary crossing/platform, haul road, berm, etc. Describe in detail the temporary impacts and the reason for the need of temporary fill. *Example: A 300 foot shoofly will be needed to facilitate traffic during construction and will temporarily impact wetlands. The shoofly will be built using rip rap, clean earthen fill, and asphalt paving (see plan sheet xxxxxx.dgn). All materials will be removed and re-graded before project is complete.*

5. Have Impact Avoidance or Minimization Measures been Taken?

Provide a brief explanation describing how impacts to wetland/channels are being avoided and minimized on the project (Existing alignment, guardrail instead of slope grading, design modifications). If yes, complete Attachment 1 with location(s) and description(s).

WATERWAY PERMIT DATA SHEET

Instruction Sheet

6. Will the Project Modify Any Drainage Structures Impacting Wetlands?

If yes, include a summary of modifications to the drainage structures to Attachment 1 with location(s) and description(s). Drainage Structures include all man-made structures use to convey surface waters, such as bridges, culverts, flumes and storm sewers. In addition, if there are impacts to wetlands/channels associated with the structure modification, a detailed description of the site/activities should be included.

7. Does the Project Include Bridge Division Design Activities?

If yes, complete Attachment 1 with location(s) and description(s)

8. Are Temporary Contractor Access Crossings or Work Platforms Needed?

If yes, complete Attachment 1 with location(s) and description(s). Information on design and location needs to be provided to USACE and approval is needed prior to construction.

9. Is Riprap Being Placed on the Project in Wetlands or Channels?

If yes, complete Attachment 1 with location(s), quantity above/below OHWM, and description (Type, size, etc.).

10. Have 2W Sheets Been Completed?

If yes, upload pdfs to OnBase at Roadway Design\NDOR RD Environmental Wetlands.

If design stage is indicated as final, no questions should be answered with TBD.

WATERWAY PERMIT DATA SHEET

Instruction Sheet

Station	Modified Structures & Impact Site Descriptions ¹	Wetland Impact			Channel/Open Water Impact ³			
		TYPE ²	Permanent	Temporary	Permanent Fill		Cleanout/Shaping	
			ACRES	ACRES	ACRES	Length (FT)	ACRES	Length (FT)
1. 579+88. to 583+64 RT.	Existing culvert 48" x 375' Broke-Back REINF. CONCRETE SEWER PIPE, extend 3' Rt with new F.E.S	NA	0.0					
2. 588+25 to 589+32 RT	Grading of the roadway embankment due to removal of the existing shoulder and widening 24' for a lane addition and paved shoulder. The existing 125' long 24" reinforced concrete culvert associated with Wetland 3 will be extended 12 feet and flared end sections will be installed.	PEMA/C	0.03					
3. 599+49 to 599+50 RT	Existing 18" x 63' REINFORCED CONCRETE SEWER PIPE W/INLET IN INLET AND OUTLET IN MANHOLE. New Pipe Connected: 18" x 91' DBL. Broke-Back REINF. CONC. SEWER PIPE W/INLET IN MANHOLE AND F.E.S. ON OUTLET. Impacts due to grading to accommodate new pipe connection.	PEMA/C	0.001					
4. 605+15 to 605+16 RT/LT	Existing 24" X 91' RD. EQ. REINFORCED CONCRETE PIPE W/ F.E.S. ON INLET AND OUTLET., Extend 12' on Rt and replace FES	NA	0.0					
5. 610+79 to 610+90 LT	Impacts due to modification of the Northbound Center Street on-ramp, to create a new auxiliary lane. Will require grading and erosion control to accommodate the lane addition. A new 40' long 18" reinforced concrete drainage structure will also be installed at Station 610+85 to drain the modified on-ramp. Temporary impacts due to channel cleanout to accommodate new culvert.	PEMA/C PFOA PSSA	0.055 0.062 0.024		0.02	40	0.005	10
6.								
7.								
8.								
9.								
Total			0.172		0.02	40	0.005	10

FOOTNOTES:

1. Describe all items checked "Yes" from Questions 1-9 on NDOT Form 290 at individual sites. For sites with impacts only: include types of fill, dimensions, reasons for impact, riprap required (type, length, cubic yards in channel, purpose).
2. List wetland type from wetland file (PEMA/C, PSSA, PFOA, OTHER)
3. Cleanout/Shaping includes impacts and construction disturbance

WATERWAY PERMIT DATA SHEET

Instruction Sheet

List any additional relevant details for the project:

Site 8 - The new pipe is part of the new drainage management system in the NW quadrant of the Pacific/I-680 interchange. The area has experienced significant scour and erosion and the new system has been designed to upgrade the runoff management facility, slow runoff velocity, and prevent future scour and erosion due to rain events. A detention basin will be excavated in the upland area approximately 300 feet southwest of the impacted wetland.

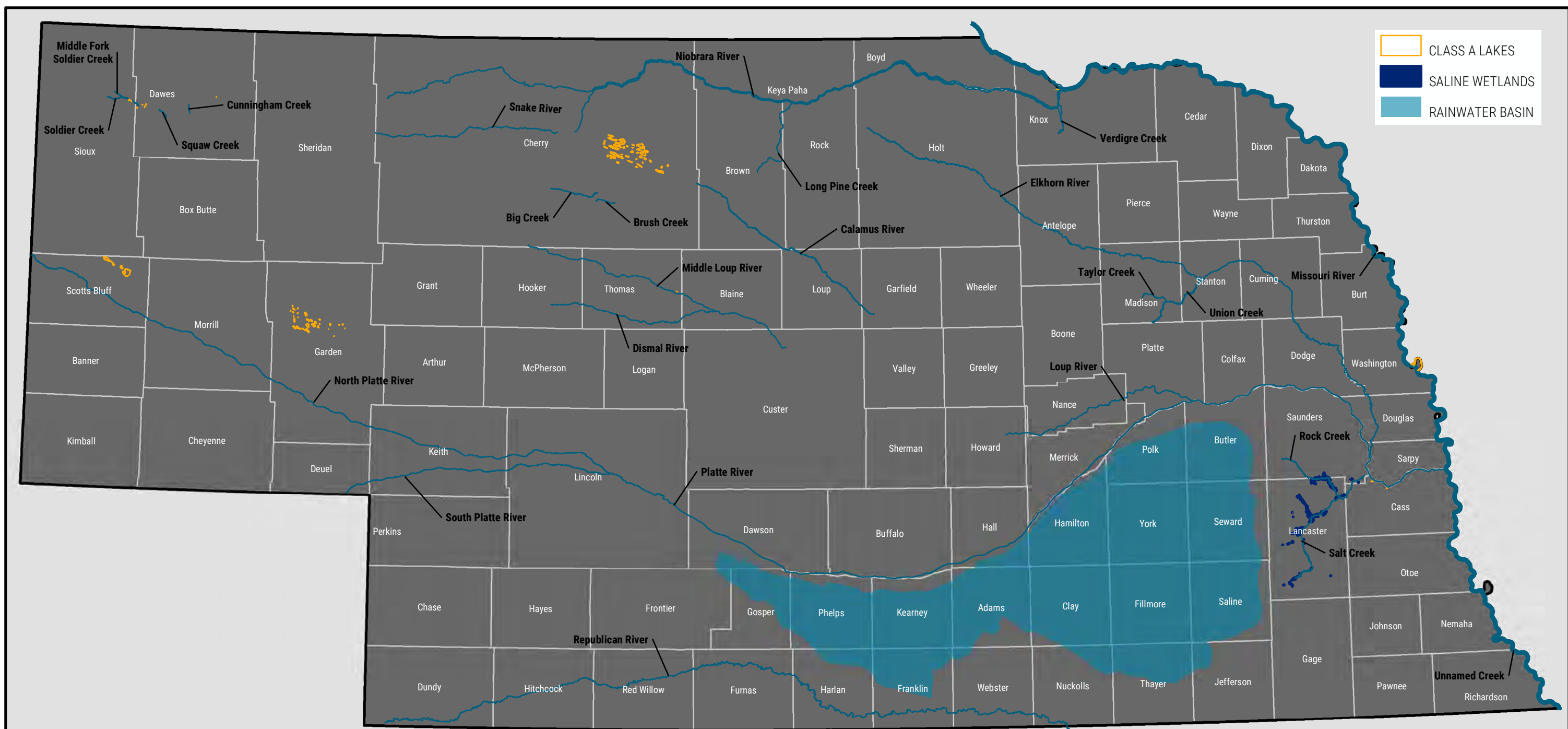
Site 9 - interlocking pavers will be installed as indicated in attached specifications sheet

Avoidance and minimization:

The project description has been updated to include: "Three retaining walls will be constructed along the northbound lanes to limit the extension of culvert pipes and avoid the need for additional ROW for the widened embankment". Specifically, the wetland at station 609+50 was avoided.

ATTACHMENT E

Regional Conditions Resources Prompting PCN



CLASS A LAKES
 SALINE WETLANDS
 RAINWATER BASIN

NDEQ CLASS A WATERS	NATIONAL RIVERS INVENTORY	WILD & SCENIC RIVERS	NEBRASKA NWP REGIONAL CONDITIONS STREAMS
Cunningham Creek Middle Fork Soldier Creek Missouri River Niobrara River Soldier Creek Squaw Creek Unnamed Creek Verdigre Creek Class A Lake (92)	Calamus River Dismal River Long Pine Creek Middle Loup River Niobrara River Snake River	Missouri River Niobrara River Verdigre Creek	Big Creek Brush Creek Elkhorn River Loup River North Platte River Platte River Republican River Rock Creek Salt Creek South Platte River Taylor Creek Union Creek



**NEBRASKA NWP REGIONAL CONDITIONS -
 RESOURCES THAT PROMPT NOTIFICATION**
 NDOT WETLAND AND WATER RESOURCE PROCEDURE DOCUMENT



ATTACHMENT F
Pre-Construction Notification (PCN)
Example

U.S. Army Corps of Engineers (USACE)
NATIONWIDE PERMIT PRE-CONSTRUCTION NOTIFICATION (PCN)
 33 CFR 330. The proponent agency is CECW-CO-R.

Form Approved -
OMB No. 0710-0003
Expires: 02-28-2022

DATA REQUIRED BY THE PRIVACY ACT OF 1974

Authority Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Regulatory Program of the Corps of Engineers (Corps); Final Rule 33 CFR 320-332.

Principal Purpose Information provided on this form will be used in evaluating the nationwide permit pre-construction notification.

Routine Uses This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of the agency coordination process.

Disclosure Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued.

The public reporting burden for this collection of information, 0710-0003, is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

PLEASE DO NOT RETURN YOUR RESPONSE TO THE ABOVE EMAIL.

One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the district engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

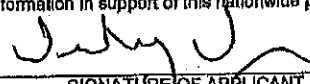
1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE
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(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME First - Wesley Middle - Last - Wahlgren Company - Nebraska Department of Transportation Company Title - District Engineer E-mail Address -			8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required) First - Mary Middle - T Last - Schroer Company - Nebraska Department of Transportation E-mail Address - mary.t.schroer@nebraska.gov		
6. APPLICANT'S ADDRESS Address - 211 North Tilden St. PO Box 1488 City - Grand Island State - NE Zip - 68802 Country - USA			9. AGENT'S ADDRESS Address - 1500 Highway 2 City - Lincoln State - NE Zip - 68502 Country - USA		
7. APPLICANT'S PHONE NOS. with AREA CODE a. Residence b. Business c. Fax d. Mobile 308-385-6265			10. AGENT'S PHONE NOS. with AREA CODE a. Residence b. Business c. Fax d. Mobile 402-479-3969		

STATEMENT OF AUTHORIZATION

11. I hereby authorize, Mary Schroer to act in my behalf as my agent in the processing of this nationwide permit pre-construction notification and to furnish, upon request, supplemental information in support of this nationwide permit pre-construction notification.


 SIGNATURE OF APPLICANT 2-21-2020
 DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME or TITLE (see instructions)
 Sutton - Grafton; Project No. STP-6-5(116); NDOT Control No. 42779

Project's impacts at the Rainwater Basin Wetland Mitigation Bank. NDOT would debit a total of 0.319 credits from the bank to mitigate for Project impacts (Table 2). A ledger for the Rainwater Basin Wetland Mitigation Bank is included in attached Block 24.

25. Is any portion of the nationwide permit activity already complete? Yes No If Yes, describe the completed work:

26. List the name(s) of any species listed as endangered or threatened under the Endangered Species Act that might be affected by the proposed NWP activity or utilize the designated critical habitat that might be affected by the proposed NWP activity. (see instructions)
A review of state and federally listed threatened and endangered species was completed and the Project's Biological Assessment (BA) was approved by NDOT biologists on 2/18/2020 using the FHWA/NDOT programmatic matrix review process (9/5/2018). The review resulted in a "May Affect, Not Likely to Adversely Affect" determination for Whooping Crane (Attachment B).



27. List any historic properties that have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic property or properties. (see instructions)
A review of historic properties and cultural resources was completed and the Section 106 Review was approved by NDOT on 5 March 2019, and resulted in a "No Historic Properties Affected" (attached Block 27). The PQS Tier II review was approved by a programmatic agreement between FHWA, the State Historic Preservation Office (SHPO), and the Advisory Council on Historic Preservation (9/5/2018).

28. For a proposed NWP activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, identify the Wild and Scenic River or the "study river":
No portion of the Project is located within a component of the National Wild and Scenic River System or in a river officially designated by Congress as a "study river".

29. If the proposed NWP activity also requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, have you submitted a written request for section 408 permission from the Corps district having jurisdiction over that project? Yes No
If "yes", please provide the date your request was submitted to the Corps district:

30. If the terms of the NWP(s) you want to use require additional information to be included in the PCN, please include that information in this space or provide it on an additional sheet of paper marked Block 30. (see instructions)

31. Pre-construction notification is hereby made for one or more nationwide permit(s) to authorize the work described in this notification. I certify that the information in this pre-construction notification is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

 2-21-2020  2/21/20
SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

The pre-construction notification must be signed by the person who desires to undertake the proposed activity (applicant) and, if the statement in Block 11 has been filled out and signed, the authorized agent.

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

BLOCK 15: Location of Proposed Activity

BLOCK 16: Location Descriptions

BLOCK 22: Quantity of Wetlands or Other Waters Directly Affected by Proposed NWP Activity

BLOCK 24: Compensatory Mitigation Statement

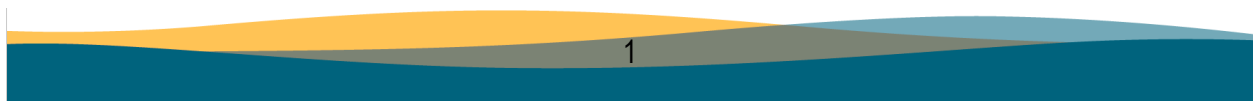


Table 1. Anticipated Impacts to Wetlands and Waters of the U.S.

Impact Site ID	Station Location/Range ¹	Latitude, Longitude (decimal degrees)	Section Township Range	Sample Plot ID ²	Wetland Impact			Permanent Channel		Temporary Channel Cleanout / Shaping ³	
					Type Cowardin NE-Subclass	Permanent (acres)	Temporary (acres)	Area (acres)	Length (feet)	Area (acres)	Length (feet)
1	914+29 Lt.	40.613233, -97.851297	35, 8N, 5W	S-4	PEMA/C FD		0.003				
Site 1 Impact Totals							0.003				
2	936+50 Lt.	40.618115, -97.846361	35, 8N, 5W	S-12	PSSA FD	0.057					
Site 2 Impact Totals						0.057					
3	1041+83 Rt.	40.623191, -97.809542	31, 8N, 4W	S-39	PEMA/C FD	0.012	0.005				
Site 3 Impact Totals						0.012	0.005				
4	1063+00 Rt.	40.623602, -97.802025	32, 8N, 4W	S-46	PEMA/C FD	0.011	0.147				
4	1063+00 Rt.	40.623602, -97.802025	32, 8N, 4W	S-46						0.003	120
Site 4 Impact Totals						0.011	0.147			0.003	120
5	1109+00 Rt.	40.624874, -97.785460	33, 8N, 4W	S-58						0.002	20
Site 5 Impact Totals										0.002	20
6	1144+00 Rt.	40.625409, -97.772749	33, 8N, 4W	S-69	PEMA/C FD		0.006				
Site 6 Impact Totals							0.006				
7	1192+91 – 1195+00 Lt.	40.625948, -97.755270	27, 8N, 4W	S-83	PEMA/C FD	0.002	0.005				
Site 7 Impact Totals						0.002	0.005				
8	1190+00 – 1196+00 Rt.	40.625961, -97.755276	27, 8N, 4W	S-79, S-81	PEMA/C FD	0.103	0.032				
Site 8 Impact Totals						0.103	0.032				
9	1251+00 Lt.	40.625998, -97.734346	27, 8N, 4W	S-114	PEMA/C FD	0.007	0.001				
Site 9 Impact Totals						0.007	0.001				
10	1282+50 – 1285+50 Rt.	40.625977, -97.722453	25, 8N, 4W	S-118a, S-118b	PEMA/C FD	0.021	0.004				
Site 10 Impact Totals						0.021	0.004				

Impact Site ID	Station Location/Range ¹	Latitude, Longitude (decimal degrees)	Section Township Range	Sample Plot ID ²	Wetland Impact			Permanent Channel		Temporary Channel Cleanout / Shaping ³	
					Type Cowardin NE-Subclass	Permanent (acres)	Temporary (acres)	Area (acres)	Length (feet)	Area (acres)	Length (feet)
11	1282+50 – 1285+50 Lt.	40.625960, -97.722461	25, 8N, 4W	S-120	PEMA/C FD	0.049	0.047				
Site 11 Impact Totals						0.049	0.047				
Project Impact Totals						0.262	0.250			0.005	140

- Notes:
- ¹ Rt. = Right side of highway US-6; Lt. = Left side of highway US-6.
 - ² Sample ID is assigned in the Project's Wetland Delineation Report (Attachment B)
 - ³ Channel cleanout/shaping takes place between end of culvert and NDOT ROW and generally consists of removing accumulated sediment, debris, and regrading disturbed soil. This is done (as needed) to ensure that water flow will not be restricted or impeded.

The Nebraska Department of Transportation (NDOT) has assumed the Federal Highway Administration's (FHWA's) responsibilities for Categorical Exclusions under the *Memorandum of Understanding between Federal Highway Administration, Nebraska Division and the Nebraska Department of Transportation, State Assumption of Responsibility for Categorical Exclusions, 23 U.S.C. §326 (the CE MOU)*. Pursuant to 23 U.S.C. §326(e) and the CE MOU, whenever NDOT is assigned a responsibility under the CE MOU, NDOT shall be deemed to be a Federal agency for purposes of the Federal law(s) under which the responsibilities are exercised by the State, including the responsibilities as lead Federal agency and Federal permittee. This Project is federally-funded and is being reviewed under the CE MOU, as described above.

A wetland delineation for this Project was performed on September 12 through September 16, 2016 by Burns & McDonnell and field reviewed by NDOT on October 10, 2018. The methods used to identify aquatic resources, including wetlands, were those set forth in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (Y-87-l) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0) (2010)*. The Wetland Delineation Report is provided in Attachment B (and on CD).

NATIONWIDE PERMIT GENERAL CONDITIONS

NDOT is planning appropriate design and construction accommodations that would comply with all applicable Nationwide Permit General and Regional Conditions. Listed below are relevant conditions.

Condition 2 – Aquatic Life Movements

All permanent and/or temporary crossings of waterbodies shall be suitably designed and constructed to maintain low flows to sustain the movement of aquatic species.

Condition 6 – Suitable Material

Fill material used for construction of the Project would be consistent with NDOT Standard Specifications for Highway Construction and shall not include prohibited restricted materials listed by the USACE.

Condition 8 – Adverse Impacts from Impoundments

If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

Condition 9 – Management of Water Flows

To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters will be maintained. Culverts will be constructed to withstand expected high flows and will not restrict or impede the passage of normal flows.

Condition 10 – Fills within 100-year Floodplain

NDOT will comply with applicable FEMA-approved state or local floodplain management requirements. Project construction activities occurring within "Zone A" floodplain areas would require floodplain permits

from the local regulating authority in Clay and Fillmore Counties prior to construction. Prior to Project letting, NDOT will acquire all necessary floodplain permits.

Condition 11 – Equipment

Heavy equipment working in wetlands will be placed on mats, or other measures, to minimize soil disturbance.

Condition 12 – Soil Erosion and Sediment Controls

Appropriate soil erosion and sediment controls will be used and maintained in effective operating conditions during construction. Side slopes of disturbed areas adjacent to affected stream channel segments and/or wetlands will be seeded as soon as possible after Project completion. Silt fence will be installed to protect identified streams and/or wetlands from erosion deposition during the construction phase, as needed. Silt fence cleanout will occur as needed. Silt fence will be maintained until 75 percent of the existing background vegetative cover is established on all side slopes adjacent to water bodies (consistent with Nebraska Department of Environment and Energy (NDEE) and USEPA standards for re-vegetation under Section 402 of the Clean Water Act).

All silt fence shall be removed prior to NPDES permit closeout. For projects not requiring NPDES permits, all silt fence will be removed from the Project at the end of construction.

Condition 13 – Removal of Temporary Fills

All temporary fill materials will be obtained from an upland source. Upon completion of construction activity, all temporary fill material will be removed in its entirety from wetlands and Waters of the U.S. and placed in an upland location. The affected area shall be restored to its pre-construction elevations and revegetated, as appropriate. No temporary structures, cofferdams, or temporary contractor access crossings will be needed.

Condition 23 – Mitigation

The Project will permanently impact 0.205 acre of PEMA/C wetlands and 0.057 acre of PSSA wetlands. NDOT proposes to mitigate the Projects impacts at the Rainwater Basin Wetland Mitigation Bank. NDOT would debit a total of 0.319 credits from the bank to mitigate for Project impacts (Table 2). A ledger for the Rainwater Basin Wetland Mitigation Bank is included in the attached Block 24.

Table 2. Proposed Wetland Mitigation

Site ID	Impacted Wetland Type ¹	NE Sub-class ²	Impacted Area (acres)	Replacement Wetland Type ¹	NE Sub-class ²	Replacement Ratio	Replaced Acre (acres)
2	PSSA	FD	0.057	PEMA/C	FD	2:1	0.114
3	PEMA/C	FD	0.012	PEMA/C	FD	1:1	0.012
4	PEMA/C	FD	0.011	PEMA/C	FD	1:1	0.011
7	PEMA/C	FD	0.002	PEMA/C	FD	1:1	0.002
8	PEMA/C	FD	0.103	PEMA/C	FD	1:1	0.103
9	PEMA/C	FD	0.007	PEMA/C	FD	1:1	0.007
10	PEMA/C	FD	0.021	PEMA/C	FD	1:1	0.021
11	PEMA/C	FD	0.049	PEMA/C	FD	1:1	0.049
Total Impacts			0.262	Total Replacement			0.319

¹ PEMA/C = Palustrine Emergent Temporarily/Seasonally Flooded; PSSA = Palustrine Scrub-Shrub Temporarily Flooded

² FD = Floodplain Depression

Condition 25 – Water Quality

The Project is anticipated to be authorized via Nationwide Permit 14, which was granted conditional water quality certification by NDEE. The Project will impact a traditional rainwater basin wetland and notification to NDEE is required. NDEE will provide an individual Section 401 Water Quality Certification waiver for impacts to traditional rainwater basin wetlands.

Condition 31 – Activities Affecting Structures or Works Built by the United States

There are no parts of the Project that require permission from the Corps pursuant to 33 U.S.C. 408 (Condition 32 (b)(10)).

BLOCK 19:

Description of Proposed Activity

USACE requires hard copies of wetland delineation figures, datasheets and photos associated with each site impact. These can be provided, in this Block after each site impact location or within an attached Wetland Delineation Report. If the hard copies are provided in Block 19, Also include the complete wetland delineation report on CD.

Site 1

At Station 914+29 Lt. there are 0.003 acre of temporary wetland impacts (Sheet E1, Attachment A). No temporary structure or riprap is proposed at this location. This PEMA/C | FD wetland (W-4) is located in the roadway ditch and is characterized by sample points S-4 (wetland in-point) and S-5 (upland outpost) and photo points P-4a, P-4b, and P-5. Impacts to wetlands will result from work on an existing culvert Flared End Section (F.E.S). The F.E.S. will be removed and reset.

Site 2

At Station 936+50 Lt. there are 0.057 acre of permanent wetland impacts (Sheet E1, Attachment A). No temporary structure or riprap is proposed at this location. This PSSA | FD wetland (W-12) is located in the roadway ditch and is characterized by sample points S-12 (wetland in-point) and S-13 (upland outpost) and photo points P-12a, P-12b, and P-13. Impacts to wetlands will result from clearing woody vegetation from the roadside runout area.

Site 3

At Station 1041+83 Rt. there are 0.005 acre of temporary wetland impacts and 0.012 acre of permanent wetland impacts (Sheet E3, Attachment A). No temporary structure or riprap is proposed at this location. This PEMA/C | FD wetland (W-39) is located in the roadway ditch and is characterized by sample points S-39 (wetland in-point) and S-40 (upland outpost) and photo points P-39a, P-39b, and P-40. Impacts to wetlands will result from work on a 4-foot by 3-foot by 61-foot concrete box culvert and wingwalls. The culvert endwalls and two feet of barrel will be removed. The culvert will be extended 14 feet to the right.

Site 4

At Station 1063+00 Rt. there are 0.147 acre of temporary wetland impacts, 0.011 acre of permanent wetland impacts, and 120 linear feet (0.003 acre) of permanent stream impacts (Sheet E3, Attachment A). No temporary structure or riprap is proposed at this location. This PEMA/C | FD wetland (W-46) and ephemeral stream S-46 are located in the roadway ditch and are characterized by sample points S-46 (wetland in-point) and S-47 (upland outpost) and photo points P-46a, P-46b, and P-47. Impacts to waters will result from channel cleanout/reshaping and ditch grading to mitigate erosion of the roadway embankment.

Site 5

At Station 1109+00 Rt. there are 20 linear feet (0.002 acre) of temporary stream impacts (Sheet E4, Attachment A). No temporary structure or riprap is proposed at this location. Intermittent stream S-58 is located in the roadway ditch adjacent to W-58, W-61, and W-63 and is characterized by sample points S-58 (wetland in-point) and S-59 (upland outpost) and photo points P-58a, P-58b, and P-60. Impacts to waters will result from tree removal near the end of the culvert.

Site 6

At Station 1144+00 Rt. there are 0.006 acre of temporary wetland impacts (Sheet E5, Attachment A). No temporary structure or riprap is proposed at this location. This PEMA/C | FD wetland (W-69) is located in the roadway ditch and is characterized by sample points S-69 (wetland in-point) and S-70 (upland outpoint) and photo points P-69a, P-69b, and P-70. Impacts to wetlands will result from tree clearing.

Site 7

At Station 1192+91 – 1195+00 Lt. there are 0.005 acre of temporary wetland impacts and 0.002 acre of permanent wetland impacts (Sheet E5, Attachment A). No temporary structure or riprap is proposed at this location. This PEMA/C | FD wetland (W-83) is located in the roadway ditch and is characterized by sample points S-83 (wetland in-point) and S-84 (upland outpoint) and photo points P-83a, P-83b, and P-84. Impacts to wetlands will result from work on two 6-foot by 4-foot by 53-foot concrete box culverts and wingwalls. The culvert endwalls and two feet of barrel will be removed and extended 17 feet to the left.

Site 8

At Station 1190+00 – 1196+00 Rt. there are 0.032 acre of temporary wetland impacts and 0.103 acre of permanent wetland impacts (Sheet E5, Attachment A). No temporary structure or riprap is proposed at this location. PEMA/C | FD wetland (W-79) is located in the roadway ditch and is characterized by sample points S-79 (wetland in-point) and S-80 (upland outpoint) and photo points P-79a and P-80. PEMA/C | FD wetland (W-81) is located in the roadway ditch and is characterized by sample points S-81 (wetland in-point) and S-82 (upland outpoint) and photo points P-79b, P-81, and P-82. Impacts to wetlands will result from work on two 6-foot by 4-foot by 61-foot concrete box culverts and wingwalls. The ditch will be graded. The culvert endwalls and two feet of barrel will be removed and extended 18 feet to the right.

Site 9

At Station 1251+00 Lt. there are 0.001 acre of temporary wetland impacts and 0.007 acre of permanent wetland impacts (Sheet E6, Attachment A). No temporary structure or riprap is proposed at this location. This PEMA/C | FD wetland (W-114) is located in the roadway ditch and is characterized by sample points S-114 (wetland in-point) and S-115 (upland outpoint) and photo points P-114a, P-114b, and P-115. Impacts to wetlands will result from work on a 3-foot by 2-foot by 54-foot concrete box culvert and wingwalls. The culvert endwalls and two feet of barrel will be removed and extended 19 feet to the left.

Site 10

At Station 1282+50 – 1285+50 Rt. there are 0.004 acre of temporary wetland impacts and 0.021 acre of permanent wetland impacts (Sheet E7, Attachment A). No temporary structure or riprap is proposed at this location. This PEMA/C | FD wetland (W-118) is located in the roadway ditch and is characterized by sample points S-118a and S-118b (wetland in-points) and S-119a and S-119b (upland outpoints) and photo points P-118a, P-118b, P-118c, P-119a, and P-119b. Impacts to wetlands will result from work on an 8-foot by 3-foot by 52-foot concrete box culvert and wingwalls. The culvert endwalls and two feet of barrel will be removed and extended 18 feet to the right.

A temporary and permanent Right-of-way (ROW) purchase will impact a traditional rainwater basin wetland at this location. Additional ROW is required for access to grading and culvert extension. Impacts to wetlands will result from grading, excavation, and extension of the existing culvert. There are 0.070 acre of permanent wetland impacts at this location (Sheet E7, Attachment A) due to permanent ROW easement. This is required to allow for future maintenance at the culvert.

Site 11

At Station 1282+50 – 1285+50 Lt. there are 0.047 acre of temporary wetland impacts and 0.049 acre of permanent wetland impacts (Sheet E7, Attachment A). No temporary structure or riprap is proposed at this location. This PEMA/C | FD wetland (W-120) is located in the roadway ditch and is characterized by sample points S-120 (wetland in-point) and S-121a and S-121b (upland outpoints) and photo points P-120a, P-120b, P-121a, and P-121b. Impacts to wetlands will result from grading and excavation and extension of an 8-foot by 3-foot by 52-foot concrete box culvert and wingwalls. The culvert endwalls and two feet of barrel will be removed and extended 18 feet to the left.

BLOCK 24: Compensatory Mitigation Measures

Mitigation Site Name: **Rainwater Basin Wetland Mitigation Bank**
 NDOR Project Number: **STPB-30(11)**
 NDOR Control Number: **41984**
 Legal Description: **Section 7 T8N R2W, Fillmore County**
 Geographic Service Area: **Central Loess Plains, Historic Rainwater Basin**
 Total Size (ac.): **59.03**
 Cowardin Class(es): **PEMA/C**
 NE Wetland Subclass(es): **Floodplain Depressional, Playa Depressional**

Approved Site Dev. Plan: **1/2/1996**
 Construction Complete: **5/30/1998**
 Bank Certified: **3/14/2012**
 % of Credits: **100**

ACCOUNTING			
Type	Credits Produced	Debits Used	Balance
BUFFER	0.14	0.00	0.14
PEMA/C	29.56	24.65	4.910
PSSA	0.00	0.00	0.00
PFOA	0.00	0.00	0.00
PEMF	0.00	0.00	0.00
TOTAL	29.70	24.65	5.05

WETLAND CREDITS							
Credit Establishment	Available Acres ¹	Credit Release ²	Mitigation Type	Credit Development Ratio ³	Cowardin Class	NE Sub-Class ⁵	Credits Available
9/13/2000	24.85	Partial Certification	Creation	1	PEMA/C	PD	24.85
9/13/2000	0.14	Partial Certification	Creation	1	BUFFER	NA	0.14
3/14/2012	4.71	Certified	Creation	1	PEMA/C	PD	4.71

EXPECTED DEVELOPMENT					
	PEMA/C (ac.)	PSSA (ac.)	PFOA (ac.)	PEMF (ac.)	TOTAL CREDITS
Re-Establishment (1:1)	0	0	0	0	0
Rehabilitation (1:1)	0	0	0	0	0
Enhancement (3:1)	0	0	0	0	0
Creation (1:1)	0	0	0	0	0
Protection (10:1)	0	0	0	0	0
Buffer (4:1)	0	0	0	0	0
TOTAL CREDITS	0	0	0	0	0

WETLAND DEBITS														
Permit Date	COE Permit Number	Project Name	NDOR Control Number	NDOR Project Number	Impacted Acres	Impacted Cowardin Class	Impacted NE Sub-Class ⁵	In Bank Service Area?	Future Project to be Debited?	Debit Ratio ⁴	Credit Cowardin Class	Credit NE Sub-Class ⁵	Total Debits	Notes
NA	98-50667	Fairmont - McCool Jct	41586	NH 81-1(118)	6.0000	NA	NA	Yes	No	1.5	PEMA/C	FD	9.0000	
NA	98-10515	McCool Jct. - I-80	41587	NH 91-2(122)	1.8400	NA	NA	Yes	No	1	PEMA/C	FD	1.8400	
NA	97-50184	Belvidere - Brunning	41576	F 81-1(1020)	1.0000	NA	NA	Yes	No	1	PEMA/C	FD	1.0000	
NA	97-50403	Aurora West	41503B	STPD 34-5(112)	0.6000	NA	NA	Yes	No	1	PEMA/C	FD	0.6000	
NA	97-50973	Trumbell Spur	41752	STPD S010(101)	0.1400	NA	NA	Yes	No	1.5	PEMA/C	FD	0.2100	
NA	00-10069	Geneva N & S	41576	F 81-2(1023)	3.1400	NA	NA	Yes	No	1	PEMA/C	FD	3.1400	
NA	01-11393	Strang N & S	41575	F 81-1(1022)	2.0300	NA	NA	Yes	No	1	PEMA/C	FD	2.0300	
NA	03-10465	Plymouth West	11890	STPD 4-6(108)	0.2200	NA	NA	Yes	No	1	PEMA/C	FD	0.2200	
NA	03-10425	Abie to N-15	12138	S128(103)	0.44	NA	NA	Yes	No	1	PEMA/C	FD	0.4400	
NA	04-11468	In East Osceola	42050A	STR-81-2(1035)	0.0100	NA	NA	Yes	No	2	PEMA/C	FD	0.0200	
1/29/2007	2007-156-WEH	Oak Spur	42300	S65A(101)	0.0600	PEMA/C	RC	Yes	No	2	PEMA/C	FD	0.1200	
10/1/2007	2007-2045-WEH	Aurora to Central City	41859	14-2(119)	0.1900	PEMA/C	RC	Yes	No	2	PEMA/C	FD	0.3800	0.82 Total Debits
10/1/2007	2007-2045-WEH	Aurora to Central City	41859	14-2(119)	0.1100	PFOA	RC	Yes	No	4	PEMA/C	FD	0.4400	
NA	(Title 117) 08-00581-WEH	D-1, I-80 Truck Parking	12888	80-3(143)	0.2400	PEMA/C	NA	Yes	No	1.5	PEMA/C	FD	0.3600	Title 117 Mitigation
1/26/2009	2008-2688-WEH	Fairbury South Bridges	12813	15-1(113)	0.1940	PEMA/C	RF	Yes	No	2	PEMA/C	FD	0.3880	Old Ledger was incorrect, had 0.39 Debits
NA	(Title 117)	Edgar Spur	42401	S188(104)	0.2500	NA	NA	Yes	No	1	PEMA/C	FD	0.2500	Title 117 Mitigation
2/23/2009	2008-00243-WEH	Charleston Link (L93E I80 - US34)	40022	S-193E(1009)	0.0220	PEMA/C	RC	Yes	No	2	PEMA/C	FD	0.0440	
2/23/2009	2008-00243-WEH	Charleston Link (L93E I80 - US34)	40022	S-193E(1009)	0.0780	PEMA/C	FD	Yes	No	1	PEMA/C	FD	0.0780	0.268 Total Debits
2/23/2009	2008-00243-WEH	Charleston Link (L93E I80 - US34)	40022	S-193E(1009)	0.1460	PEMA/C	FD	Yes	No	1	PEMA/C	FD	0.1460	
12/9/2010	2010-2466-WEH	Ruskin East & West Culverts	42467A	136-5(1015)	0.1090	PEMA/C	RC	Yes	No	2	PEMA/C	FD	0.2180	
12/9/2010	2010-2466-WEH	Ruskin East & West Culverts	42467A	136-5(1015)	0.0320	PEMA/C	FD	Yes	No	1	PEMA/C	FD	0.0320	0.25 Total Debits
12/12/2013	2013-00241-WEH	East Junction US-281 to Lawrence	42654	STP-4-4(108)	0.027	NA	FD	Yes	No	2	PEMA/C	FD	0.0540	
12/12/2013	2013-00241-WEH	East Junction US-281 to Lawrence	42654	STP-4-4(108)	0.067	PSSA	FD	Yes	No	2	PEMA/C	FD	0.1340	
12/12/2013	2013-00241-WEH	East Junction US-281 to Lawrence	42654	STP-4-4(108)	0.243	PEMA/C	FD	Yes	No	1	PEMA/C	FD	0.2430	
12/12/2013	2013-00241-WEH	East Junction US-281 to Lawrence	42654	STP-4-4(108)	0.025	PEMA/C	RC	Yes	No	2	PEMA/C	FD	0.0500	0.525 Total Debits
12/12/2013	2013-00241-WEH	East Junction US-281 to Lawrence	42654	STP-4-4(108)	0.018	PFOA	FD	Yes	No	2	PEMA/C	FD	0.0360	
12/12/2013	2013-00241-WEH	East Junction US-281 to Lawrence	42654	STP-4-4(108)	0.002	PFOA	RC	Yes	No	4	PEMA/C	FD	0.0080	
10/27/2015	NOW-2015-01316-WEH	E Jct US-6 to Aurora	42598	STP-14-1(120)	0.0359	PEMA/C	RF	Yes	No	2	PEMA/C	FD	0.0718	
10/27/2015	NOW-2015-01316-WEH	E Jct US-6 to Aurora	42598	STP-14-1(120)	0.2482	PEMA/C	FD	Yes	No	1	PEMA/C	FD	0.2482	0.32 Total Debits
12/8/2016	2015-0024-WEH	Fairbury West Viaduct	13184	NH-136-6(122)	0.2244	PEMA/C	RF	Yes	No	2	PEMA/C	PD	0.4488	
2/21/2017	1999-10094-WEH	Axtell Bank Closure - Temporal Loss	70920	STPB-50(31)	0.0400	PEMA/C	NA	Yes	No	3	PEMA/C	PD	0.1200	Original 0.018 ac Impacts @ 2:1
6/6/2017	NWO-2017-00424	Bertrand to Loomis	71038	STP-23-3(111)	0.3070	PEMA/C	FD	Yes	No	1	PEMA/C	FD	0.3070	
7/13/2018	2018-00886-WEH	Fairbury North	11718	STP-15-1(110)	0.3276	PEMA/C	FD	Yes	No	1	PEMA/C	FD	0.3276	
7/13/2018	2018-00886-WEH	Fairbury North	11718	STP-15-1(110)	0.0186	PSSA	RC	Yes	No	4	PEMA/C	FD	0.0744	0.7566 Total Debits
7/13/2018	2018-00886-WEH	Fairbury North	11718	STP-15-1(110)	0.1773	PEMA/C	RC	Yes	No	2	PEMA/C	FD	0.3546	
10/31/2019	NWO-2019-01517	Osceola E&W	42785	NH-81-2(146)	0.1076	PEMA/C	RC	Yes	No	2	PEMA/C	FD	0.2152	0.39 acre debited
10/31/2019	NWO-2019-01517	Osceola E&W	47855	NH-81-2(146)	0.1810	PEMA/C	FD	Yes	No	1	PEMA/C	FD	0.1810	
12/17/2018	Letter of Opinion	Hastings SE	41086	S-6-4(1022)	0.5000	PEMA/C	NA	Yes	No	1	PEMA/C	FD	0.5000	Title 117 Mitigation for Ag wetlands
1/3/2020		Sutton - Grafton	42779	STP-6-5(116)	0.2	PEMA/C	FD	Yes	Yes	1	PEMA/C	FD	0.2000	Total debited 0.32 acre
1/3/2020		Sutton - Grafton	42779	STP-6-5(116)	0.06	PSSA	FD	Yes	Yes	2	PEMA/C	FD	0.1200	

NOTES: ¹ Availability based on credit release schedule of 5% upon approved Site Development Plan, 10% upon construction completion, and 15% when areas are meeting 1987 Manual (See Umbrella Agreement for details)
² Schedule for credit release - Pre-Crediting or Certified Credits
³ Credit Production Ratios (Please enter number, not ratio. Ex: 1, 2, 3, 4, 10) - Restoration/Re-Establishment (1:1); Restoration/Rehabilitation (1:1); Enhancement (3:1); Creation (1:1); Protection/Maintenance (10:1); Buffer (4:1)
⁴ The ratio of credits to debits (for example, 1.5 acres of created wetland for every 1 acre of wetland lost) and depends on certified/pre-credit and cowardin/NE sub-class (see Umbrella Agreement for details)
⁵ Riverine Channel (RC); Riverine Floodplain (RF); Saline Depressions (SD); Playa Depressions (PD); Floodplain Depressions (FD); Sandhill Depressions (SHD); Western Alkaline Floodplain Depressions (WAFD); Sandhill Alkaline Depressions (SAD); Mineral Soil Flats (MSF); Organic Soil Flats (OSF); Slope Wetlands (SW)

BLOCK 26 & 27: Endangered Species Act & Historic Properties

Biological Assessment NDOT PQS Memorandum

Project Name: **Sutton - Grafton** Project Number: **STP-6-5(116)**
Control Number: **42779**

The biological assessment final approval on: **2/18/2020**

Date of Project Description used for this review: 10/16/2018

Threatened and Endangered Species Effect Determination:

- The Project(s) will have "No Effect" to all state or federally listed species or their designated critical habitat (CE Level 1).
- A "May Affect, Not Likely to Adversely Affect" determination is made for the following species/critical habitat with the conservation conditions listed below: **Whooping Crane**
 - This BA did NOT require further consultation with the resource agencies.
 - This BA required further consultation with the resource agencies (CE Level 2).

USFWS Concurrence Date: [Click here to enter a date.](#)

NGPC Concurrence Date: [Click here to enter a date.](#)

- Unique conservation conditions were developed and are included below.
- A "May Affect, Likely to Adversely Affect" determination is made for the following species/critical habitat with the conservation conditions listed below: (CE Level 3).

Additional Coordination with Other Tribal or Federal Agencies:

Description of Coordination:

Bald and Golden Eagle Protection Act:

This project was also reviewed for potential impacts to bald and golden eagles. NDOT believes the project site does not have appropriate habitat for eagles. Due to the lack of suitable habitat and information that there are no known bald eagle nests within the project area, NDOT has determined that there will be no impact to these species.

Migratory Bird Treaty Act:

NDOT has developed an Avian Protection Plan (APP) to reduce conflicts between construction of NDOT projects and the laws governing migratory birds. This procedure is designed to protect and conserve avian populations and reduce avian conflicts through changes in project scheduling (i.e. tree clearing outside of primary nesting period), increased migratory bird surveys, and changes in project construction timelines. NDOT will utilize its APP to reduce conflicts with migratory birds on this project.

Fish and Wildlife Coordination Act:

This project is anticipated to be covered under a Nationwide Permit, therefore coordination under the Fish and Wildlife Coordination Act does not apply.

Conservation Conditions: *Responsible Party for conservation condition shown in parentheses.*

Listed below are the required Conservation Conditions that apply to this project. These measures are not subject to change without the prior written approval of the NDOT Environmental Section. **Copy and paste the conditions listed below verbatim in the NEPA document, the Green Sheet, and in the contract documents:**

- A-1 Changes in Project Scope.** If there is a change in the project scope, the project limits, or environmental commitments, the NDOT Environmental Section must be contacted to evaluate potential impacts prior to implementation. Environmental commitments are not subject to change without prior written approval from the NDOT Environmental Section. *(District Construction, Contractor)*
- A-2 Conservation Conditions.** Conservation conditions are to be fully implemented within the project boundaries as shown on the plans. *(District Construction, Contractor)*
- A-3 Early Construction Starts.** Request for early construction starts must be coordinated by the Project Construction Engineer with NDOT Environmental for approval of early start to ensure avoidance of listed species sensitive lifecycle timeframes. Work in these timeframes will could require consultation with the USFWS and NGPC. *(District Construction, Contractor)*
- A-4 E&T Species.** If federal or state listed species are observed during construction, contact NDOT Environmental. Contact NDOT Environmental for a reference of federal and state listed species. *(NDOT Environmental, District Construction, Contractor)*
- A-5 Refueling.** Refueling will be conducted outside of those sensitive areas identified on the plans, in the contract, and/or marked in the field. *(Contractor)*
- A-6 Restricted Activities.** The following project activities shall, to the extent possible, be restricted to between the beginning and ending points (stationing, reference posts, mile markers, and/or section-township-range references) of the project, within the right-of-way designated on the project plans: borrow sites, burn sites, construction debris waste disposal areas, concrete and asphalt plants, haul roads, stockpiling areas, staging areas, and material storage sites.

For activities outside the project limits, the contractor should refer to the Nebraska Game and Park Commission website to determine which species ranges occur within the off-site area. The contractor should plan accordingly for any species surveys that may be required to approve the use of a borrow site, or other off-site activities. The contractor should review Chapter 11 of the Matrix (on NDOT's website), where species survey protocol can be found, to estimate the level of effort and timing requirements for surveys.

Any project related activities that occur outside of the project limits must be environmentally cleared/permitted with the Nebraska Game and Parks Commission as well as any other appropriate agencies by the contractor and those clearances/permits submitted to the District Construction Project Manager prior to the start of the above listed project activities. The contractor shall submit information such as an aerial photo showing the proposed activity site, a soil survey map with the location of the site, a plan-sheet or drawing showing the location and dimensions of the activity site, a minimum of 4 different ground photos showing the existing conditions at the proposed activity site, depth to ground water and depth of pit, and the "Platte River depletion status" of the site. The District Construction Project Manager will notify the NDOT Environmental Section. The contractor must receive notice of acceptance from NDOT, prior to starting the above listed project activities. These project activities cannot adversely affect state and/or federally listed species or designated critical habitat. (NDOT Environmental, District Construction, Contractor).

- A-7 Waste/Debris.** Construction waste/debris will be disposed of in areas or a manner which will not adversely affect state and/or federally listed species and/or designated critical habitat. (*Contractor*)
- A-8 Post Construction Erosion Control.** Erosion control activities that may take place by NDOT Maintenance or Contractors after construction is complete, but prior to project close-out, shall adhere to any standard conservation conditions for species designated for the project area during construction. (NDOT Maintenance, District Construction, Contractor)
- S-3 Revegetation.** All permanent seeding and plantings (excluding managed landscaped areas) shall use species and composition native to the project vicinity as shown in the Plan for the Roadside Environment. However, within the first 16 feet of the road shoulder, and within high erosion prone locations, tall fescue or perennial ryegrass may be used at minimal rates to provide quick groundcover to prevent erosion, unless state or federally listed threatened or endangered plants were identified in the project area during surveys. If listed **plants** were identified during survey, any seed mix requirements identified during resource agency consultations shall be used for the project. (NDOT Environmental)
- S-4 Sensitive Areas.** Environmentally Sensitive Areas will be marked on the plans, in the field, or in the contract by NDOT Environmental for avoidance. (NDOT Environmental, District Construction)
- S-5 Species Surveys.** If species surveys are required for this project, results will be sent by NDOT to the USFWS, NGPC, and if applicable COE. (NDOT Environmental, District Construction)

Whooping Crane:

WC-1 Construction activities will not occur during Whooping Crane migration periods. (Spring migration: March 10 – May 10; and fall migration: September 16 – November 16). (NDOR Environmental, Construction, Contractor)

OR

WC-2 If construction activities occur during Whooping Crane migration periods (Spring migration: March 10 – May 10; and fall migration: September 16 – November 16), NDOR trained personnel, or a qualified biologist, will conduct surveys according to protocol at the following locations: ***within ½ mile of the two wetlands located approximately 2.95 miles west of Grafton (MM 246.72)*** If species are present the District will notify the Contractor to stop work within 1/2 mile of the whooping crane and follow the protocol to determine when work can

resume (**also not initiate work if species is found in the morning survey**). Options for resuming work may include but are not limited to (NDOR Environmental, Construction, Contractor):

- Construction activities are limited to the hours from 10:00 a.m. to 4:00 p.m. (CST) during the migration period, unless morning survey indicates Whooping Cranes are not present.
- If a whooping crane is observed during the survey within ½ mile of the project, but departs the area (further than ½ mile from the project) then work can resume. Document this departure according to protocol.

Bald Eagle:

Suitable **Bald Eagle** nesting and/or roosting habitat exists within 0.5 miles of the Environmental Study Area. If construction will begin between February 1 and April 15, a nest survey must be completed at least 1 but not more than 14 days prior to construction. If construction will begin between April 15 and October 1, a nest survey completed in March is sufficient, as nests will likely already be constructed if nesting will occur that year. However, a nest survey may be completed anytime during this timeframe, as long as it is completed prior to construction. If bald eagles are nesting in the area, consultation with NGPC and USFWS will be required prior to beginning construction activities. Eagle roosting surveys will be conducted if construction occurs between October 1 and January 31. (NDOT Environmental, Contractor)

NDOT Construction Project Managers should contact NDOT Environmental at 402-479-4464 or zach.cunningham@nebraska.gov at least 30 days prior to construction start to schedule any required surveys.



NDOT PQS Reviewer

2/18/2020


Date

This(These) Project(s) has(have) been reviewed under the programmatic agreement entitled Programmatic Agreement Among the Federal Highway Administration, U.S. Fish and Wildlife Service, Nebraska Department of Transportation, and Nebraska Game and Parks Commission for the Determination of Effects to State and Federal Listed Species From the Federal-Aid Highway Program (January 2017) and meet stipulations included in this agreement.

The State has determined that this project has no significant impact(s) on the environment and that there are no unusual circumstances as described in 23 CFR 771.117(b). As such, the project is categorically excluded from the requirements to prepare an environmental assessment or environmental impact statement under the NEPA. The State has been assigned, and hereby certifies that it has carried out, the responsibility to make this determination pursuant to 23 U.S.C. §326 and a Memorandum of Understanding dated September 5, 2018, executed between FHWA and the State

Section 106 Tier II PQS Memo – No Historic Properties Affected

Control No:	42779	Project No:	STP-6-5(116)	Project Name:	Sutton-Grafton
Date of Project Description:	10/16/2018	Project Location:	Clay and Fillmore Counties		

NDOT PQS Project Effects Determination:	No Historic Properties Affected		
NDOT PQS Signature:		Date:	3/5/2019

Tribal Consultation (leave blank if not applicable):

THPO/ Tribes	Correspondence Sent (date)	THPO/Tribal Response (date)	Comments

CLG Consultation (leave blank if not applicable):

CLG	Correspondence Sent (date)	CLG Response (date)	Comments

Other Consulting Parties	Correspondence Sent (date)	Response (date)	Comments

Area of Potential Effects (APE)

The area of potential effects (APE) for archeological and architectural/structural properties was chosen to adequately identify any historic properties that, if present, may be potentially altered by this undertaking. In order to accommodate any potential minor changes to the undertaking that may occur during continued project development, the APE for archeological properties extends 50-feet beyond the existing ROW at stream crossings [bridges and culverts] and extends 20-feet beyond existing ROW for the remainder of the undertaking. The vertical depth of the archeological APE extends to approximately 15-feet below the existing ground surface. The APE for architectural/structural properties extends 100-feet beyond existing ROW in rural areas and extends 25-feet beyond existing ROW in urban areas. Both of the APEs further extend an additional 500-feet beyond the undertaking's beginning and ending points to accommodate activities such as transitioning the pavement. A detour route is not required for this undertaking.

APE considered is consistent with 36 CFR 800.16(d) – (Y/N): Yes

Summary of Archeological Investigations

An archeological evaluation was completed by History Nebraska Highway Archeologist Karen Steinauer in February 2018. A review of the Nebraska State Historical Society Cultural Resources Geographic Information System (NCRGIS) archeological resources database and historic maps indicates that the boundary of previously recorded archeological site 25CY10 extends into the APE. Site 25CY10 is the remains of a post-Woodland period pre-historic potential camp site which contained chert flakes and shatter, a piece of shale, a bone fragment, and a ceramic body sherd (Steinacher 1977). Background research indicated that portions of the APE have been previously archeologically surveyed for unrelated undertakings (Koch 1999 and Ludwickson 2011). The APE was subjected to a vehicular reconnaissance which resulted in the selection of seven tracts for additional investigation through an intensive pedestrian survey. Areas situated on topographic settings with low potential to contain significant archeological sites, areas situated on previously disturbed soils, or areas previously archeologically surveyed with negative results were not included in the intensive pedestrian survey.

As a result of these intensive survey methodologies no new archeological sites were discovered and site 25CY10 was revisited. The southern portion of the recorded boundary of site 25CY10 have been previously disturbed by urban/industrial activities including borrow and stockpiling activities. The location of the borrow site was previously archeologically surveyed for an unrelated undertaking with negative results (Koch 1999). Site 25CY10 has been bisected by the construction of US-6 and the Burlington Northern Railroad. The existing US-6 ROW within the vicinity of site 25CY10 has been steeply graded to accommodate a curve in the roadway. Therefore the existing ROW has low potential to contain significance archeological deposits. The northern portion of site 25CY10 (located north of the existing US-6 roadway and the Burlington

Northern Railroad), which may potentially contain intact soils, was intensively pedestrian surveyed with negative results. Previous shallow sub-surface testing of this area was negative for cultural resources (Steinacher 1977).

Steinauer recommended the boundaries of site 25CY10 be reduced due to the level of disturbance associated with the site's southern boundaries. The revised boundary of site 25CY10 is located approximately 190-feet northwest of the APE and is therefore outside of the APE for the current undertaking. As site 25CY10 is located outside of the APE the site was not evaluated for its potential eligibility for inclusion in the National Register of Historic Places (NRHP). As the site has not been evaluated for its potential eligibility for inclusion in the NRHP the site has been designated as a Sensitive Area to be avoided.

There are no archeological historic properties present within the APE.

Summary of Architectural / Structural Investigations

An architectural/structural evaluation was completed by History Nebraska Preservation Associate Megan Hilger in March 2018. Hilger investigated the undertaking using the Nebraska State Historic Preservation Office (SHPO) inventory and site files, Google Earth aerial imagery, the Clay County and Fillmore County Assessor's web pages, and other primary and secondary resources. Background research did not identify any previously recorded historic properties present within the APE. Hilger performed a desktop assessment of the APE and evaluated all properties identified as meeting the SHPO Historic Resources Survey Manual Criteria for survey and guidelines set forth in the 1991 National Park Service Bulletin 15: *How to Apply the National Register Criteria for Evaluation* (NPS Bulletin 15). These criteria include, but are not limited to, properties that are 50 years old or older, and are in their original location; and which possess sufficient physical integrity to convey National Register of Historic Places (NRHP) significance. The properties that met the above criteria were evaluated using the guidelines set forth in the NPS Bulletin 15. All surveyed properties were evaluated to determine NRHP eligibility. The investigation resulted in identification of ten properties within the APE. Of the properties identified within the APE, five properties were evaluated for their potential eligibility for inclusion in the NRHP. None of these properties were recommended as not eligible for inclusion in the NRHP due to a lack of NRHP significance and/or a lack of integrity. The remaining five properties were not included in the current survey as the properties did not meet the SHPO Historic Resources Survey Manual Criteria for survey.

The bridge sized structure which may be repaired as part of this undertaking (S006 24830) is not identified as an NRHP eligible structure in the Nebraska inventories of bridges before 1947 or of those from 1947 to 1965. These inventories were a joint effort between the Nebraska Department of Roads and SHPO and evaluated the National Register eligibility of all bridges in the state. The bridge sized structure is also not listed on the structures excluded from the November 2012 Advisory Council on Historic Preservation Program Comment issued for Streamlining Section 106 Review for Actions Affecting Post-1945 Concrete and Steel Bridges.

There are no architectural/structural historic properties present within the APE.

Historic Properties Identified Within APE (leave blank if none):

Archeological Site	ROW Needed? (Specify Type & Amount)	Architectural Property	ROW Needed? (Specify Type & Amount)

Sensitive Areas (leave blank if none):

	MM - MM		MM – MM
25CY10	MM 242.78 – MM 242.86		

A Sensitive Area has been identified along the proposed project. The Sensitive Area is located between MM 242.78 to MM 242.86 (STA 931+94 to STA 936+13) approximately 190-feet northwest of US-6 (see attached map). No grading or project activities, including but not limited to, working, staging, borrowing, stockpiling, or storing material and/or equipment, shall occur within the boundary of the Sensitive Area. The Sensitive Area shall be indicated on the project plans.

Provide narrative to support no historic property affected finding

As no historic properties were discovered as a result of the cultural resources surveys a finding of *No Historic Properties Affected* is appropriate.

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by NDOT pursuant to 23 USC 326 and the Memorandum of Understanding dated September 5, 2018, and executed by FHWA and NDOT.

This undertaking has been reviewed under the programmatic agreement entitled Programmatic Agreement Among the Federal Highway Administration, the Nebraska State Historic Preservation Officer, the Advisory Council on Historic Preservation and the Nebraska Department of Roads to Satisfy the Requirements of Section 106 for the Federal Aid Highway Program in the State of Nebraska (July 2015), as amended, and meets the requirements to be considered a Tier II Project.

Project Name: Sutton - Grafton

Project No.: STP-6-5(116)

Control Number: 42779

Date: 10/16/2018

Project Description:

This project is located on US-6 in Clay and Fillmore Counties, starting 0.16 miles southwest of the northeast corporate limits of Sutton at mile marker (MM) 242.43, and extending east to MM 249.83, 0.21 miles east of the west corporate limits of Grafton. Construction may begin and/or end approximately 200 feet ahead of or beyond the actual project limits to accommodate transitioning the pavement.

The existing roadway on this segment of US-6 consists of two 12 foot wide asphalt lanes and 10 foot wide shoulders, of which 8 feet is paved with asphalt.

The improvements on this project consist of milling and resurfacing the roadway and surfaced shoulders with asphalt, and resurfacing driveways and intersections.

Scope details include:

- Grading beyond the hinge point will be required for the following work:
 - Drives and intersections
 - Culvert/flared end section repair
 - Culvert cleanout
 - Culvert extensions
 - Erosion mitigation
 - Clearing and grubbing
- There are 21 culverts on the project, five (5) of which are concrete box culverts with wingwalls located inside the Fixed Obstacle Clearance distance. The results of a RSAP analysis determined that extending these box culverts was the most cost effective practical design alternative.
- The existing asphalt will be milled prior to resurfacing.
- Asphalt patching operations will be performed prior to resurfacing.
- Underlying concrete will be repaired prior to resurfacing.
- Existing surfaced driveways and intersections will be resurfaced.
- Rock or gravel will be placed behind driveways and intersections to match the new asphalt.
- Project surveying and staking will be required.
- Areas disturbed during construction will be stabilized utilizing methods of erosion control as shown in the Storm Water Pollution Prevention Plan (SWPPP).
- Rumble strips will be constructed on the resurfaced shoulders.
- Permanent pavement markings will be applied to the new surfacing.
- Additional property rights will be required to build this project.
- Access to adjacent properties will be maintained during construction but may be limited at times due to phasing requirements.
- This project will be constructed under traffic with lane closures controlled by appropriate traffic control devices and practices.



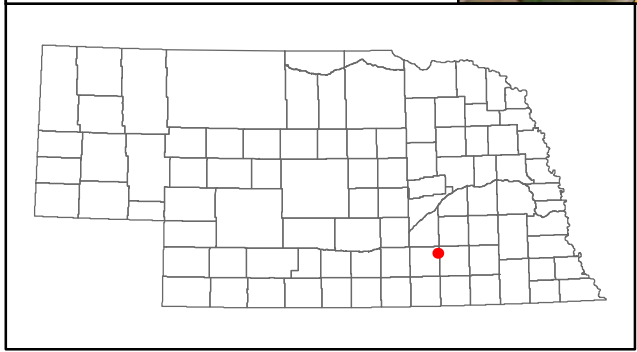
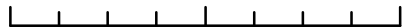
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Sutton - Grafton

Control No. 42779

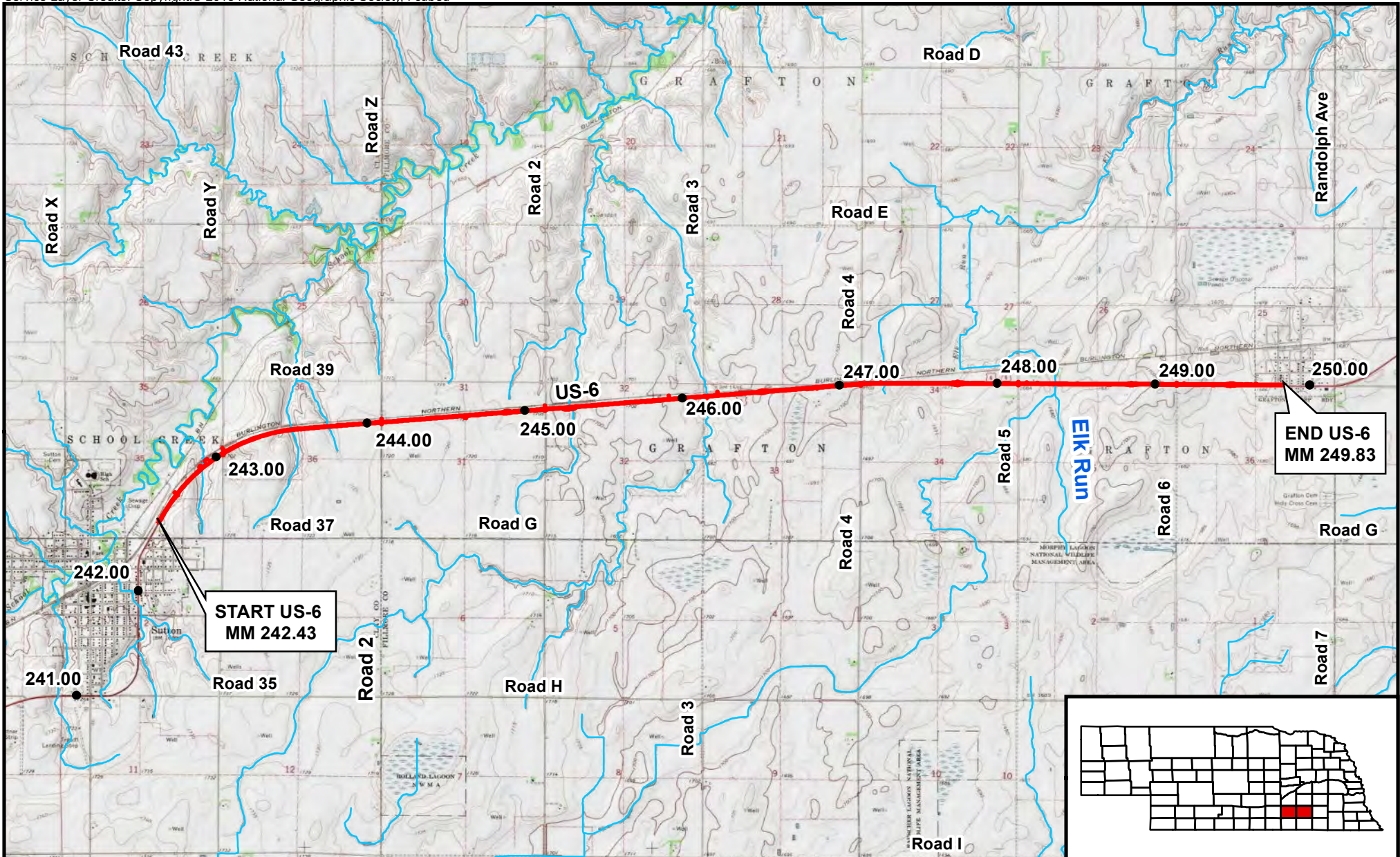
Project No. STP-6-5(116)

0 0.02 0.04 0.08 Miles




Hamilton	York	Seward
Clay	Fillmore	Saline
Nuckolls	Thayer	Jefferson


Attachment A: Drawings & Illustrations



- Limits of Construction
- ~ NHD Streams
- Mile Markers



0 1 2



Miles


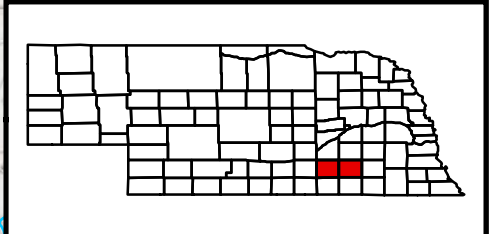



Figure 1
 Project Location and Overview Map
 Sutton to Grafton
 NDOT CN 42779
 Clay & Fillmore Counties, Nebraska

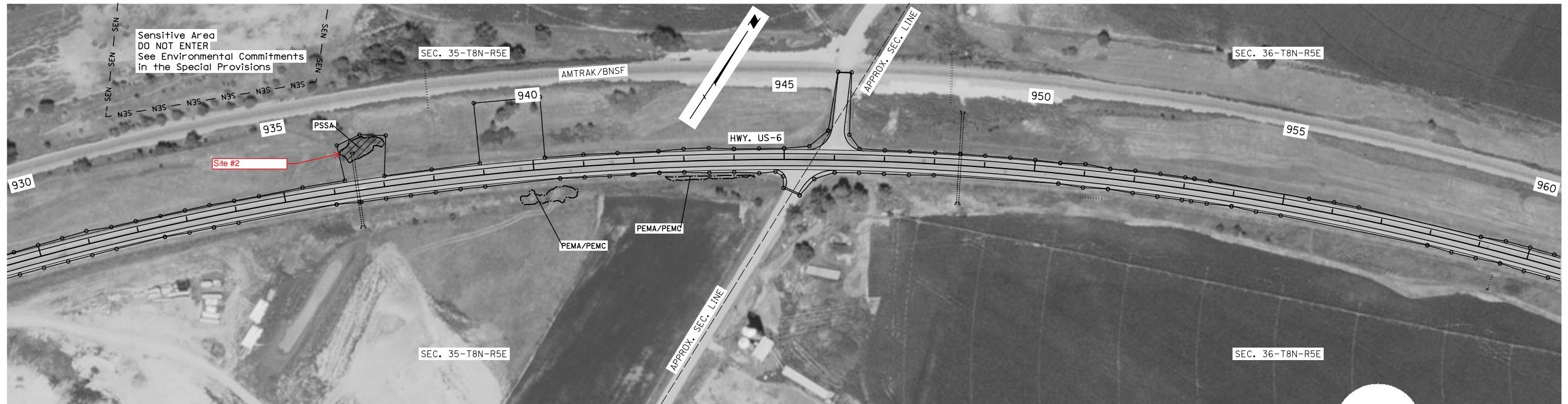
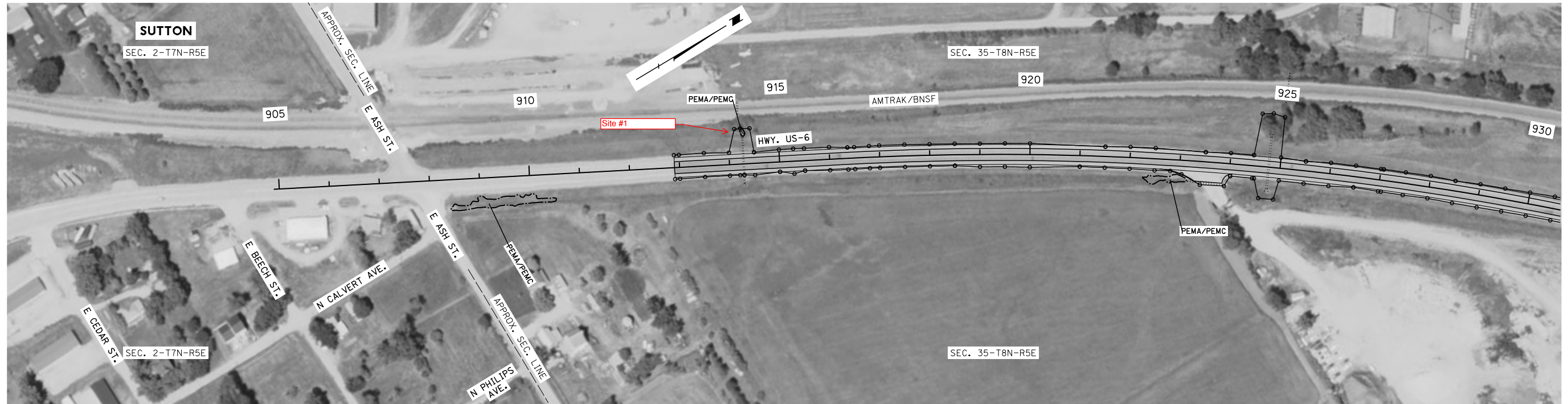
ROADWAY DESIGN DIVISION.

LEGEND

- SEN - SENSITIVE AREA - DO NOT ENTER
- HAZ - HAZARDOUS MATERIAL SITE
- LIMITS OF CONSTRUCTION
- WETLANDS - DO NOT DISTURB
- ▨ IMPACTED WETLANDS
- ▨ TEMPORARY IMPACTED WETLANDS

PRELIMINARY PLAN
NOT FINAL - SUBJECT TO CHANGE

PROJECT NO.	SHEET NO.
6-5(116)	E1
C.N. 42779	



SUTTON - GRAFTON
CLAY & FILLMORE COUNTIES

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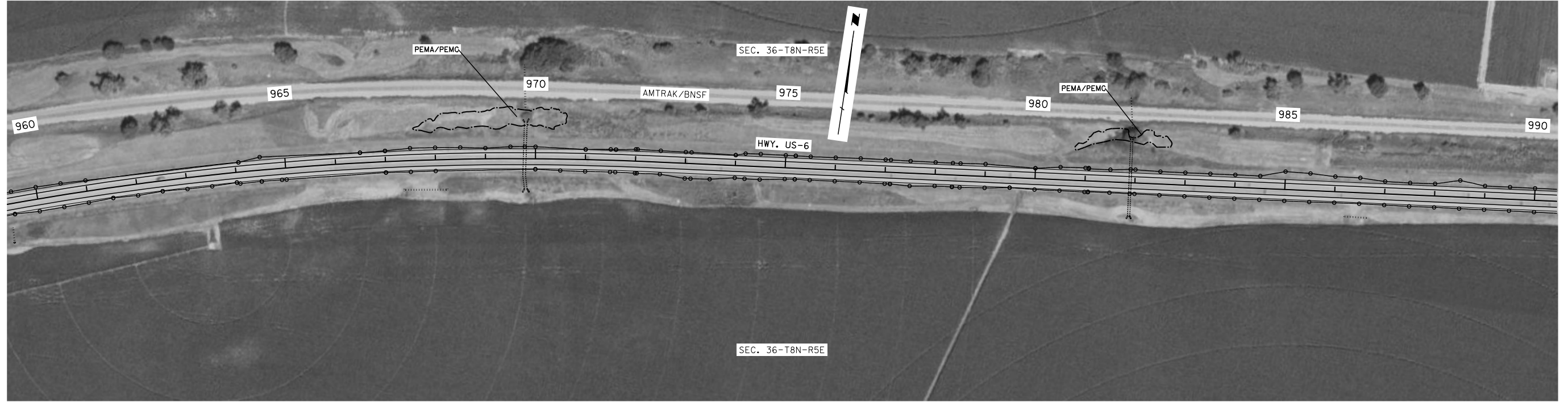
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- LIMITS OF CONSTRUCTION
- WETLANDS - DO NOT DISTURB
- ▨ IMPACTED WETLANDS
- ▨ TEMPORARY IMPACTED WETLANDS

PRELIMINARY PLAN
NOT FINAL - SUBJECT TO CHANGE

PROJECT NO.	SHEET NO.
6-5(116)	E2
C.N. 42779	



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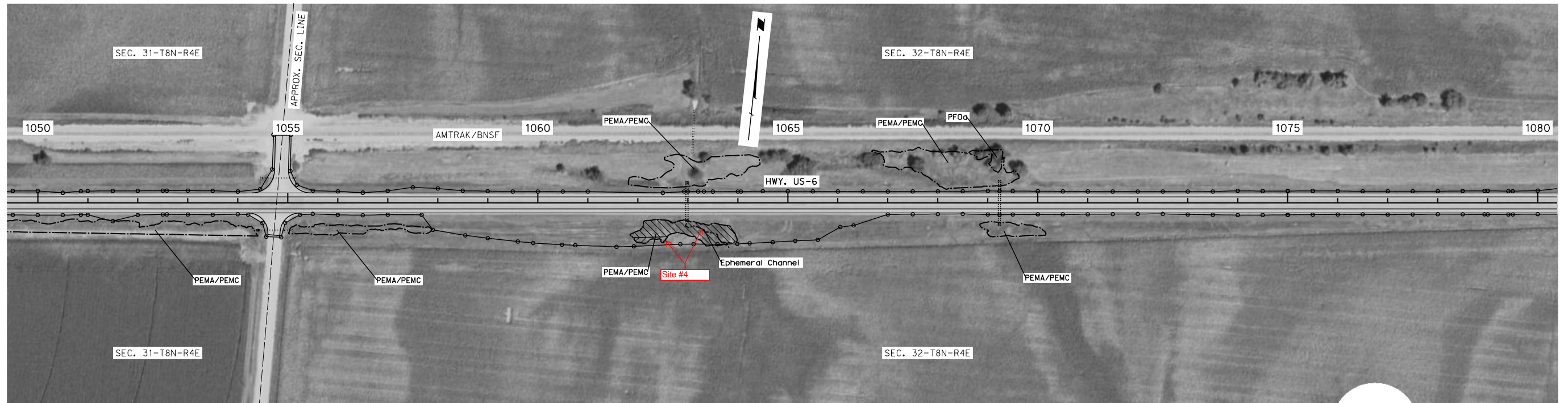
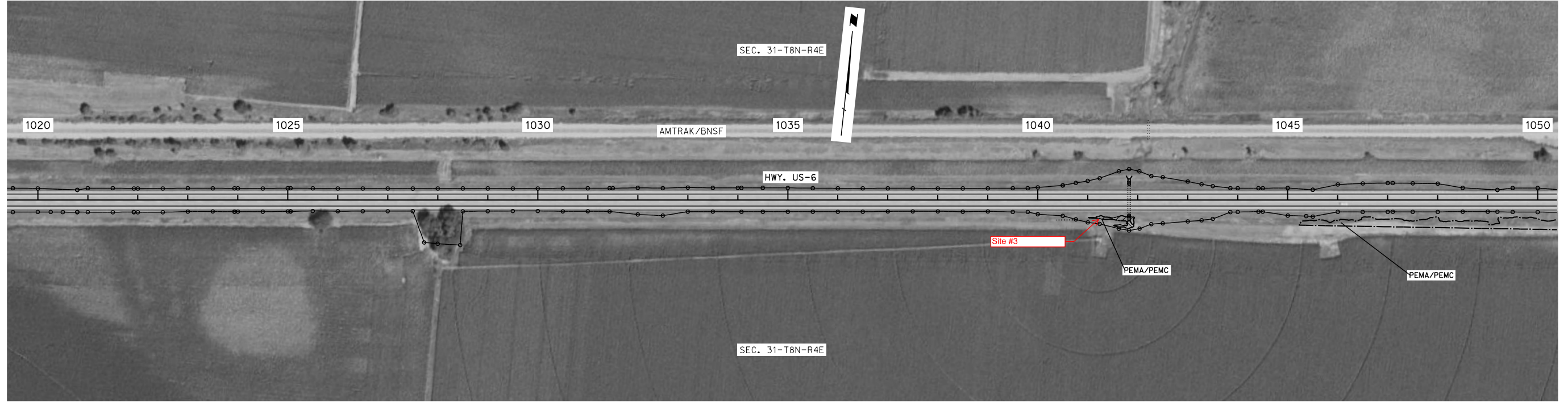
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- HAZ - HAZARDOUS MATERIAL SITE
- LIMITS OF CONSTRUCTION
- WETLANDS - DO NOT DISTURB
- ▨ IMPACTED WETLANDS
- ▨ TEMPORARY IMPACTED WETLANDS

PRELIMINARY PLAN
NOT FINAL - SUBJECT TO CHANGE

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6-5(116)	E3
C.N. 42779	



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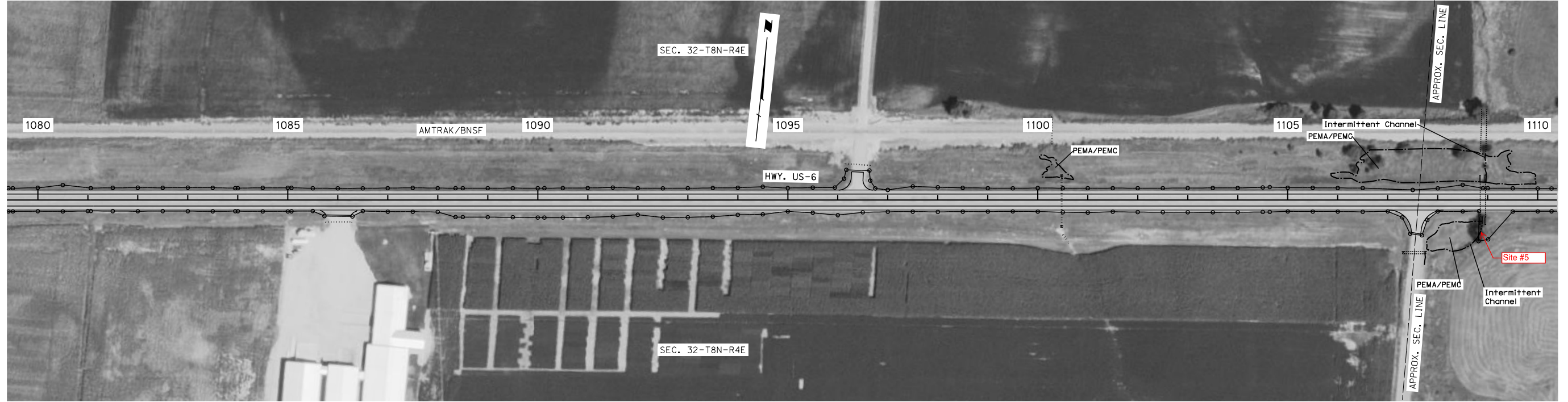
ROADWAY DESIGN DIVISION.

LEGEND

- SEN - SENSITIVE AREA - DO NOT ENTER
- HAZ - HAZARDOUS MATERIAL SITE
- LIMITS OF CONSTRUCTION
- WETLANDS - DO NOT DISTURB
- ▨ IMPACTED WETLANDS
- ▨ TEMPORARY IMPACTED WETLANDS

PRELIMINARY PLAN
NOT FINAL - SUBJECT TO CHANGE

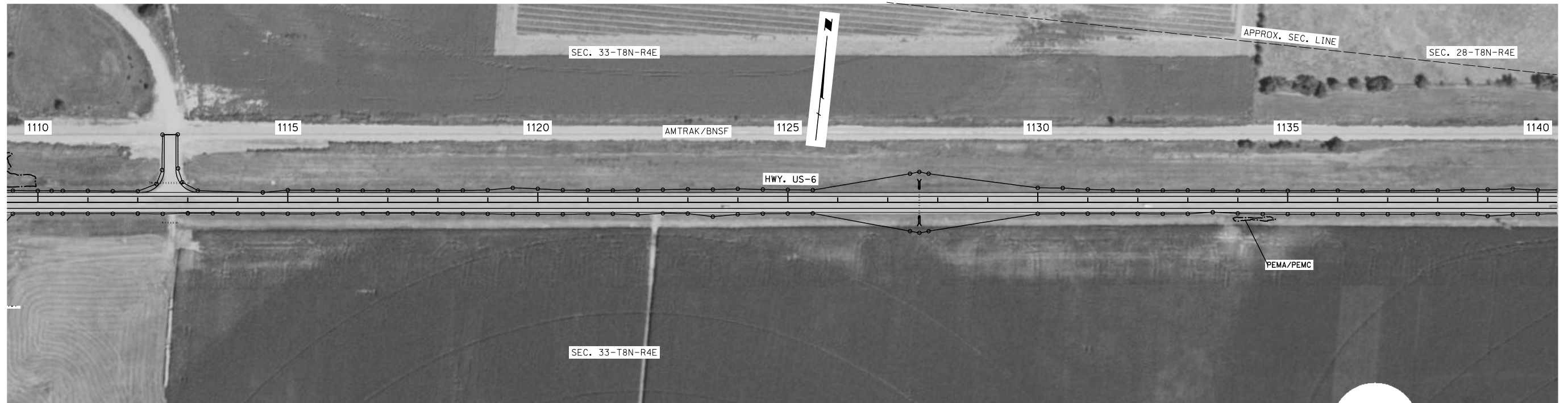
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6-5(116)	E4
C.N. 42779	



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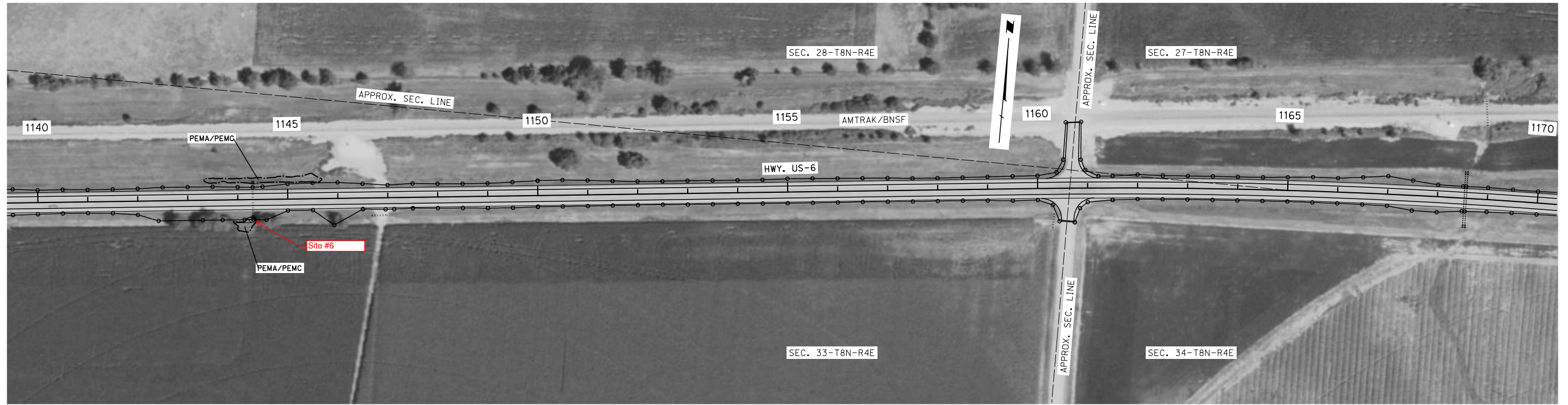
ROADWAY DESIGN DIVISION.

LEGEND

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- HAZ - HAZARDOUS MATERIAL SITE
- LIMITS OF CONSTRUCTION
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- ▨ IMPACTED WETLANDS
- ▨ TEMPORARY IMPACTED WETLANDS

PRELIMINARY PLAN
NOT FINAL - SUBJECT TO CHANGE

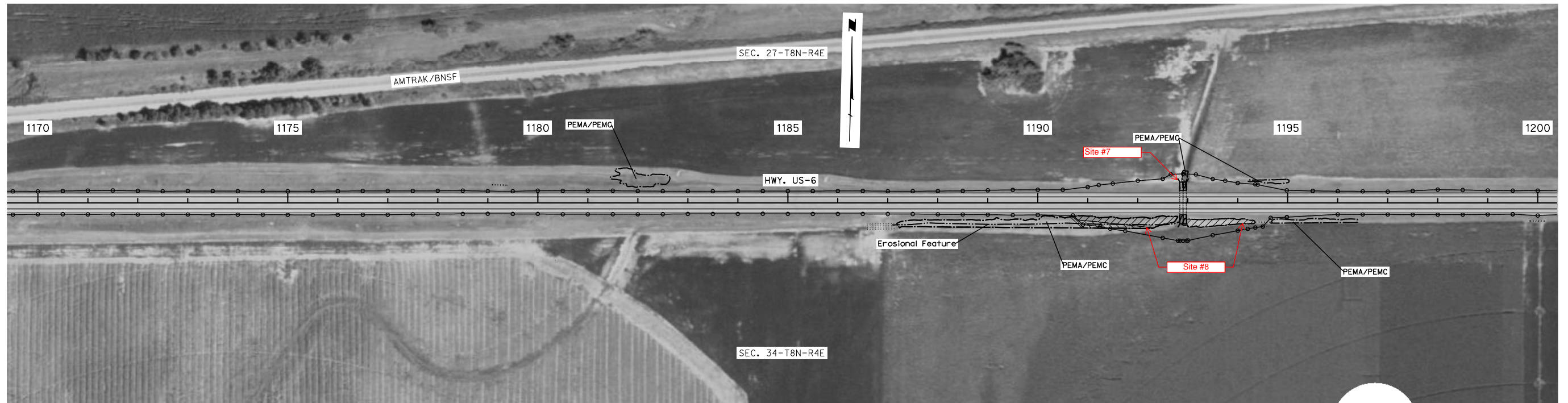
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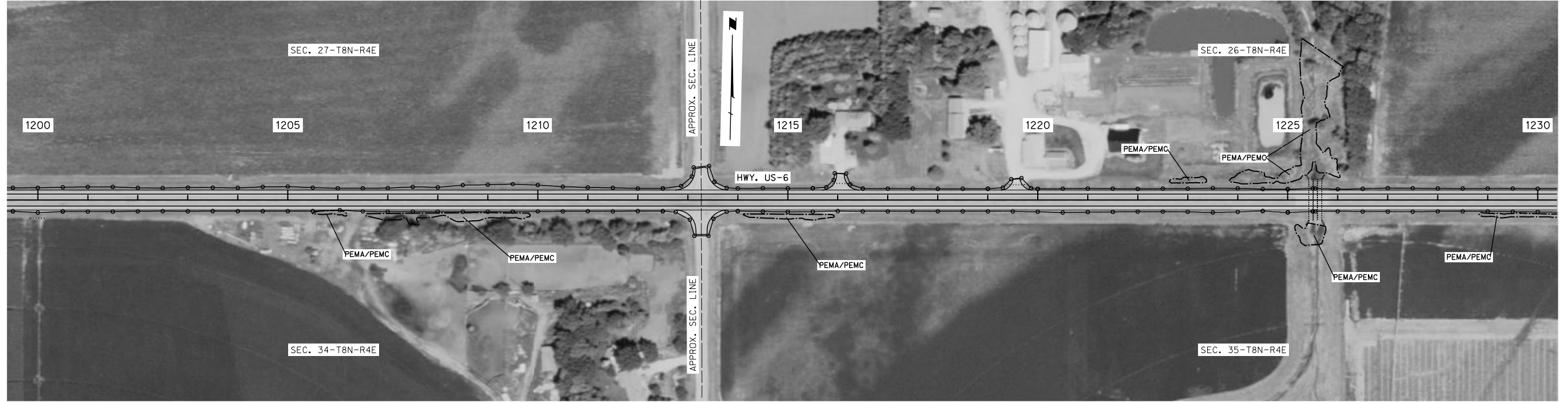
ROADWAY DESIGN DIVISION.

LEGEND

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- HAZ - HAZARDOUS MATERIAL SITE
- LIMITS OF CONSTRUCTION
- WETLANDS - DO NOT DISTURB
- ▨ IMPACTED WETLANDS
- ▨ TEMPORARY IMPACTED WETLANDS

PRELIMINARY PLAN
NOT FINAL - SUBJECT TO CHANGE

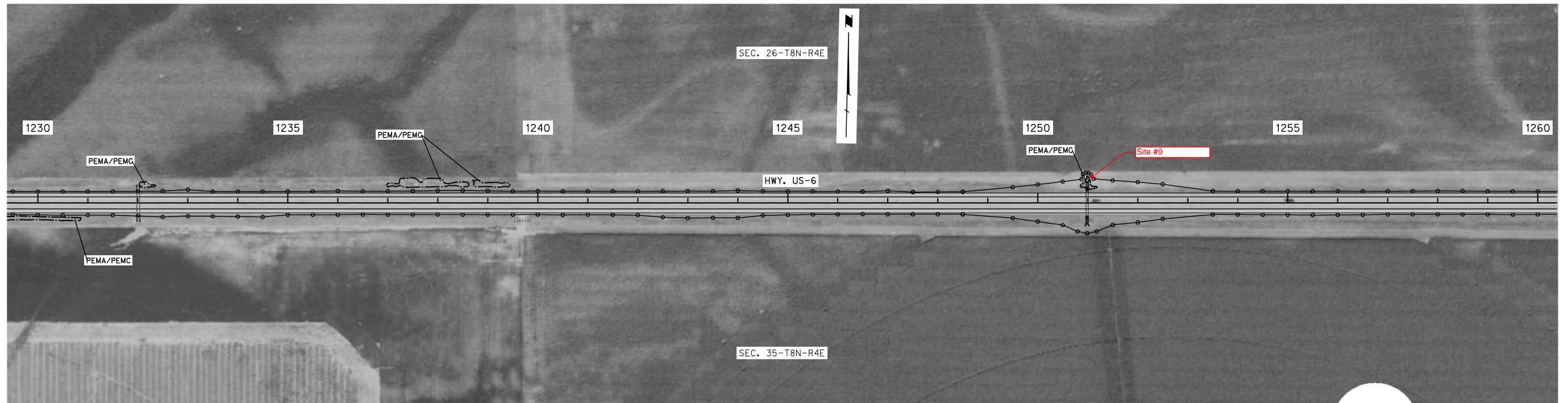
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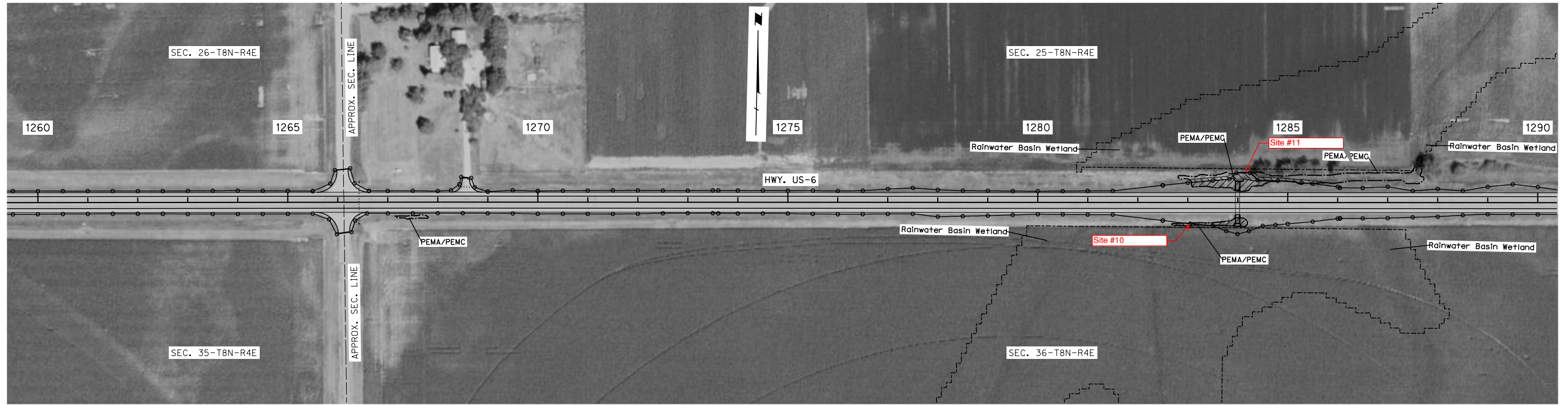
ROADWAY DESIGN DIVISION.

LEGEND

- SEN - SENSITIVE AREA - DO NOT ENTER
- HAZ - HAZARDOUS MATERIAL SITE
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- WETLANDS - DO NOT DISTURB
- ▨ IMPACTED WETLANDS
- ▧ TEMPORARY IMPACTED WETLANDS

PRELIMINARY PLAN
NOT FINAL - SUBJECT TO CHANGE

PROJECT NO.	SHEET NO.
6-5(116)	E7
C.N. 42779	



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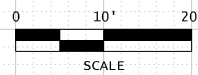
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CULVERT ENDWORK SHALL BE PERFORMED BY THE CULVERT CONTRACTOR. SUBJECT TO CHANGE.



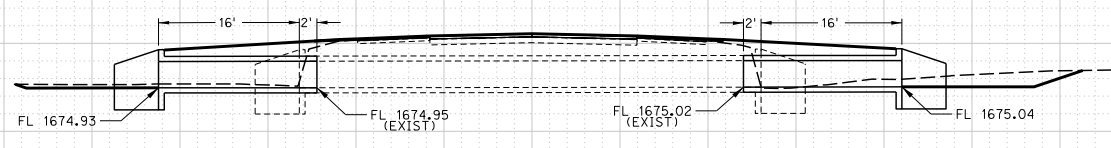
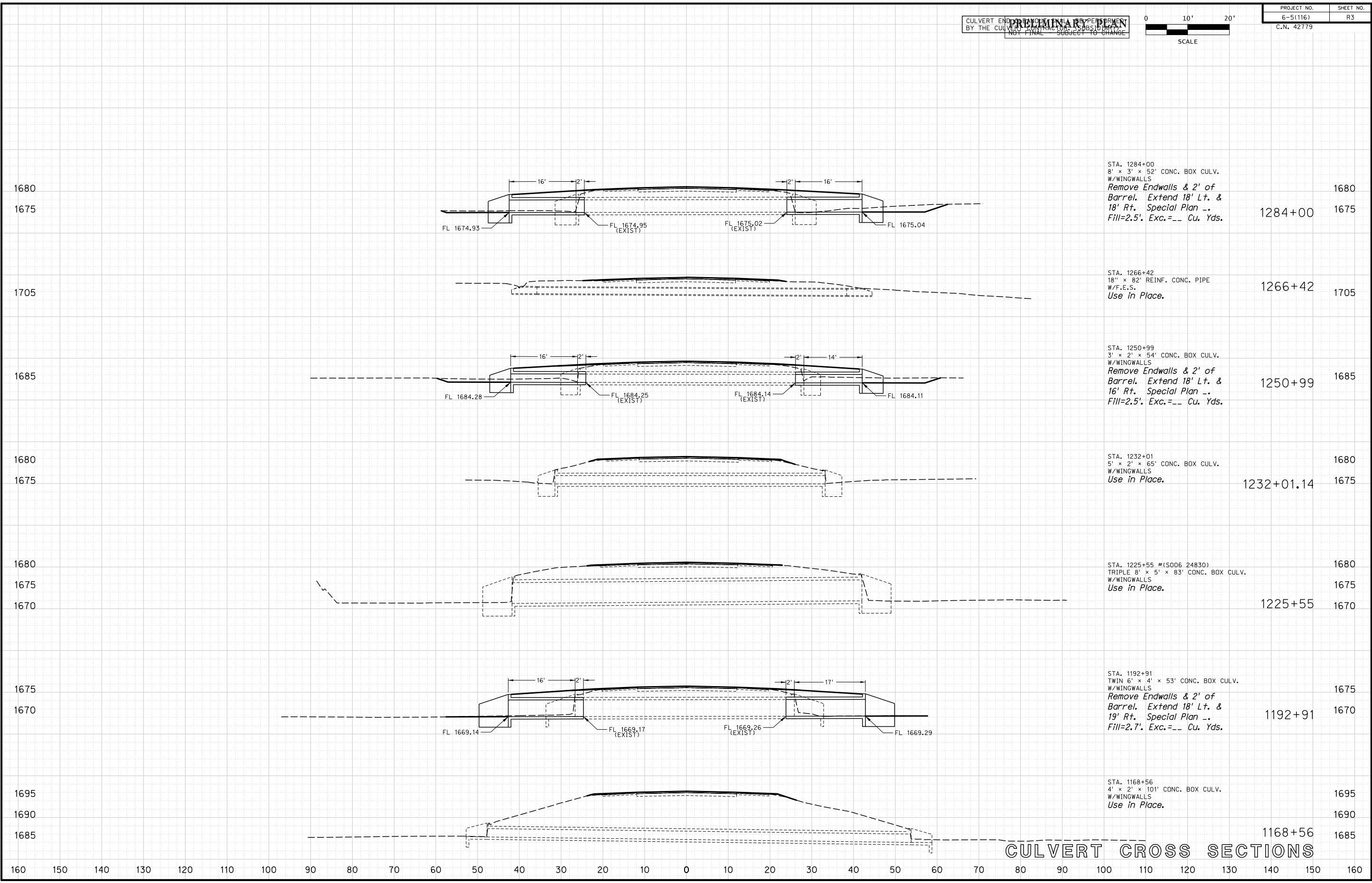
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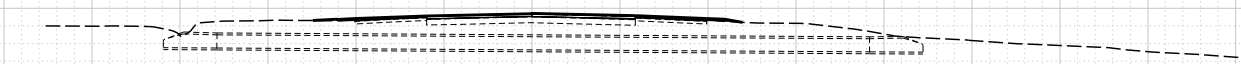
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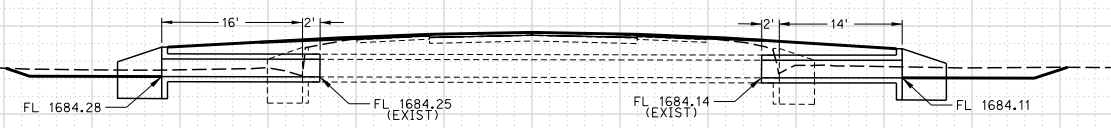
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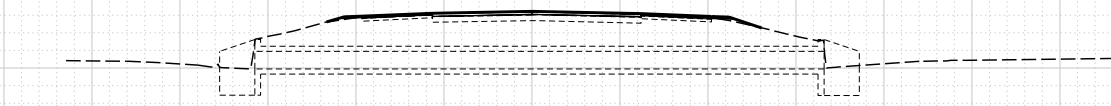
STA. 1284+00
8' x 3' x 52' CONC. BOX CULV.
W/WINGWALLS
Remove Endwalls & 2' of Barrel. Extend 18' Lt. & 18' Rt. Special Plan --
Fill=2.5'. Exc.=-- Cu. Yds.



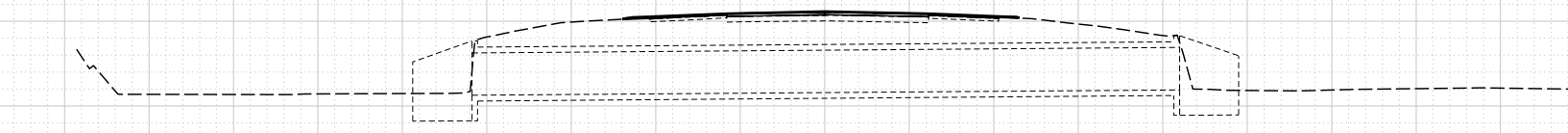
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18' x 82' REINF. CONC. PIPE
W/F.E.S.
Use in Place.



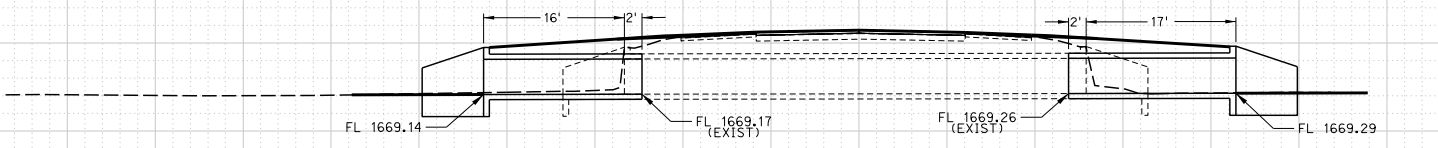
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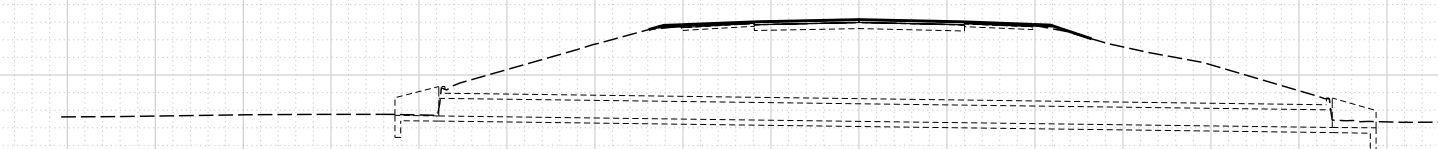
STA. 1232+01
5' x 2' x 65' CONC. BOX CULV.
W/WINGWALLS
Use in Place.



STA. 1225+55 # (S006 24830)
TRIPLE 8' x 5' x 83' CONC. BOX CULV.
W/WINGWALLS
Use in Place.



STA. 1192+91
TWIN 6' x 4' x 53' CONC. BOX CULV.
W/WINGWALLS
Remove Endwalls & 2' of Barrel. Extend 18' Lt. & 19' Rt. Special Plan --
Fill=2.7'. Exc.=-- Cu. Yds.



STA. 1168+56
4' x 2' x 101' CONC. BOX CULV.
W/WINGWALLS
Use in Place.

CULVERT CROSS SECTIONS

Attachment B: Wetland Delineation Report

The hard copy of the wetland delineation, included with the PCN, can include only those aerials, data sheets and photos that reflect the site impact locations in Block 19. In this case, also include the entire wetland delineation report on CD. An alternative option is to provide a hard copy of the entire wetland delineation report and a copy on CD.

ATTACHMENT G

Pre-Construction Notification Checklist

PCN Author	NDOT TRU PM	Peer Reviewer(s)

Date submitted to USACE:

USACE Project Number:		First Review
NDOT Project Name:	Y/N/NA	Comments:
NDOT C.N.:		
NDOT Project Number:		
PCN COMPONENTS	Review	
1) Signed 4345 included?		
2) Are Aerial photograph(s) of the proposed project included?		
3) Are color photographs of the proposed project area included?		
4) Are plans of the proposed project showing impacted wetlands (permanent and temporary impacts) and LOCs included?		
5) Are Lat/Long coordinates (preferably in decimal degree format) and Section, Township, Range of proposed impact sites included?		
6) Is accurate wetland delineation completed in accordance with USACE guidance included? (indicate if USACE has field visited the site in comments)		
7) Include detailed site description of the activity conducted in wetlands and/or waters of the U.S. The following information has been included for wetland and WOUS impacts (linear ft. and acre) for the proposed project: <ul style="list-style-type: none"> • Acres of wetlands permanently impacted • Acres of wetlands temporarily impacted (temporary work, construction access, etc.) • Acres below OHWM permanently impacted. • Acres below OHWM temporarily impacted • Linear feet of channel(s) to be filled/ excavated. • Detail channel work taking place (shaping, filling, shifting, tubing, relocating, etc.). • Dimensions of culverts, culvert extensions, bridges being placed. 		

PCN COMPONENTS	First	Comments:
<p>8) Temporary structure/fill (ex. Access crossing /temporary bridge/shoofly, etc.) needed to aid in construction of the proposed project and are adequately described? Items to include: Type to be used, location, sketch/drawings, dimensions and materials, approximate duration, and restoration plan.</p>		
<p>9) If Riprap is required (e.g. bank stabilization, dissipation basins, etc.), has it been adequately described? Items to include: Type of material to be used, dimensions of dissipation basins, linear feet placed, and cubic yards per foot placed below the OHWM.</p>		
<p>10) If mitigation is required, is 12-point Mitigation Plan or approved bank ledger included? For onsite mitigation, include wetland delineation of proposed site.</p>		
<p>11) Is Documentation of compliance with the Endangered Species Act Included? General Condition 18.</p>		
<p>12) Is Documentation of compliance with Section 106 of the National Historic Properties Act included? General Condition 20. Any additional THPO correspondence been addressed?</p>		
<p>13) If Project requires Nationwide 23 permit, is Categorical Exclusion Document included?</p>		
<p>14) If the project is taking place on a designated Wild and Scenic River or Study River, is Section 7(a) determination completed by the National Park Service enclosed?</p>		
<p>15) Are all applicable General/Regional conditions addressed? (e.g., Aquatic Life Movements, Management of Water Flows, etc.)</p>		
<p>16) Is an Individual Water Quality Certification required?</p>		
<p>17) Are there any other separate and distant crossings for this linear project that require USACE authorization, but do not require pre-construction notification?</p>		
<p>18) Does any part of the project require authorization from USACE pursuant to 33 U.S.C 408? If yes, has the applicant submitted a written request for Section 408 authorization?</p>		
<p>19) Other pertinent Information included/needed for this project? (If so, list.)</p>		

ATTACHMENT H
12-Point Mitigation Plan
Example



**Ord North Mitigation
12-Point Mitigation Plan**

Ord, Valley County, NE

NDOR Project No.
STPD-70-4(106)

NDOR Control No.
41914

USACE Project No.
2010-2618-WEH

March 2016

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List of Attachments

Area Map

NDOR Plan Sets - Construction Drawings

NDOR specified herbaceous seed mix, tree and shrubs

NDOR Financial Assurances Letter

1.0 INTRODUCTION

The proposed Nebraska Department of Roads (NDOR) project, (Ord North, CN 41914), involves the replacement of a bridge over the North Loup River and the replacement of the pavement on the approaches from the intersection of 14th Street and Nebraska Highway 70 (N-70) in Ord to approximately 500 feet east of the Haskell Creek Road/ Springdale Road intersection. The US Army Corps of Engineers Nebraska Regulatory Office (Corps) has assigned Phil Rezac as project manager and designated Ord North with their project number 2010-2618-WEH.

The project has been designed to avoid impacts to streams, waterbodies, and wetlands as much as practicable. Unavoidable impacts will result in the permanent fill of 0.4140-ac of emergent PEMA wetland, 0.3451-ac of scrub-shrub PSSA wetland, 0.0095 acres of forested PFOA wetland, and 0.0387 acres of aquatic bed open water PFOA wetland. Impacts to an unnamed ephemeral stream and Dane Creek will result in permanent impacts of 97 linear feet of stream channel. As a consequence of constructing the Ord North project, NDOR is required to mitigate for unavoidable impacts to Waters of the US (WOUS).

2.0 MITIGATION SITE OBJECTIVES

NDOR proposes onsite (permittee responsible) mitigation through the establishment of a floodplain depression wetland located approximately one-half mile northwest of the Ord North bridge project within the floodplain of the North Loup River.

Although a functional assessment of wetlands is not required for the 12-Point Mitigation Plan, it should be noted that the creation of the Ord North permittee responsible mitigation site will improve wetland functions in the area of the roadway project. The mitigation wetland will be seeded with native hydrophytic trees and shrubs, grasses, forbs, and sedges which will contribute to sediment and nutrient entrapment/transformation. The mitigation site would provide additional functions for flood control and improved water quality in the watershed. The mitigation wetland would contribute to the function of providing food and cover for wildlife, especially small mammals, amphibians, and birds as the site is located adjacent to riparian areas of the North Loup River.

3.0 SITE SELECTION AND JUSTIFICATION

Alternatives considered for project mitigation included an offsite location, mitigation banking, and on-site (permittee responsible) mitigation. Off-site mitigation was not initially investigated due to an assumed regulatory preference for banking and/or on-site alternatives. Mitigation banking was not feasible as there are no existing NDOR mitigation banks available within the same eco-region. Development of the Ord North mitigation site will conform to the current (proposed) Umbrella Mitigation Banking Agreement protocol as both the

mitigation and project impact sites are located within the same eco-region and hydrological unit class (HUC-8).

On-site mitigation was determined to be the most beneficial as adequate space was available for in-kind mitigation to create emergent and scrub-shrub wetlands within the riverine floodplain subclass. The presence of existing emergent wetlands at the proposed Ord North mitigation site provides positive indications of the practicability of constructing a self-sustaining aquatic resource for compensatory mitigation at this location.

As discussed with the Corps during pre-application meetings conducted October 24 and November 20, 2014, the Ord North on-site location is also large enough for NDOR to create a second permittee responsible mitigation site for the Burwell North (CN 80798) project. In addition, after accounting for Ord North and Burwell North as permittee responsible mitigation sites, a small NDOR mitigation bank encompassing approximately 5.4 acres will be created in the remaining area. This bank is intended to accept additional NDOR project impacts in the same or adjoining HUC-8s that are slated for project delivery in the next few years.

4.0 SITE PROTECTION INSTRUMENT

NDOR is committed to protecting the mitigation site and assuring that it provides its intended wetland function in perpetuity. To this end, NDOR would place a Covenant of Dedication on the site that would protect its wetland functions via appropriate Deed and Use Restrictions that would deter development or practices that could handicap the functionality of the site. After completion of construction, NDOR would provide the Corps a legal description of the land to be preserved, as determined by a registered land surveyor, and a draft Covenant of Dedication. A certified copy of the real estate instruments, recorded with the Valley County, Nebraska Registrar of Deeds would be submitted to the Corps 60 days after the sites have been completed.

It is anticipated that the following land use restrictions would be included:

1. There shall be no construction or placement of structures or mobile homes, fences, signs, billboards or other advertising material, or other structures, whether temporary or permanent, on the land;
2. There shall be no filling, draining, excavating, dredging, mining, drilling or removal of topsoil, loam, peat, sand, gravel, rock, minerals or other materials;
3. With the exception of an access road (including the Dane Creek Bridge) to enable the city of Ord to access their municipal wastewater treatment lagoons, there shall be no construction of roads or paths for vehicular or pedestrian travel or any change in the topography of the land;
4. There shall be no removal, destruction, or cutting of trees or plants, spraying with biocides, insecticides, or pesticides, grazing of animals, farming, tilling

of soil, or other agricultural activity. However, maintenance activities are acceptable upon approval from the Corps;

5. There shall be no operation of all-terrain vehicles or any other type of motorized vehicle on the land;
6. The real estate instrument shall be reviewed by the Corps prior to signature to assure compliance with permit conditions;
7. The real estate instrument is made in perpetuity.

5.0 BASELINE MITIGATION SITE INFORMATION

The parcel NDOR has acquired from the city of Ord for development of mitigation encompasses approximately 19.3 acres. The area reserved for buffers, some of which includes existing wetlands, is approximately 5.1 acres. After accounting for access roads and other existing wetlands, the constructed wetland acres available at Ord is estimated at 7.8 acres.

The proposed Ord North mitigation site is located in central Nebraska in Section 16, Township 19 North, Range 14 West, Valley County, Nebraska. The property currently consists of agricultural land and undeveloped land with some wooded areas associated with tree rows and drainages. An emergent wetland abutting both banks of an intermittent stream is located to the east of the mitigation site. (The intermittent stream flows from north to south.) Further east and adjacent to the site is a series of four municipal waste water treatment lagoons owned and operated by the City of Ord. Dane Creek, a perennial stream flowing northwest to southeast into the North Loup River, forms the southern boundary of the mitigation site. West of the site is agricultural land utilized for production of hay, corn and soybeans.

A wetland delineation for the Ord North project was conducted on behalf of NDOR in October of 2013 by Olsson Associates (Olsson). Based on the results of the wetland delineation, NDOR design calculated project wetland impacts as noted in Section 1 and Table 1 (Section 6) of this report. Additional delineation work in the western portion of the mitigation site was conducted in house by NODR on July 29, 2014. Existing emergent wetland areas within the mitigation site are described in Olsson and NDOR wetland delineation reports provided to the Corps during pre-application meetings conducted October 24 and November 20, 2014.

The mitigation wetlands will be located on areas determined to be uplands during the delineation field visit. Dominant vegetation in the upland area west of the access road generally consisted of smooth brome (*Bromus inermis*), Kentucky bluegrass (*Poa pratensis*), and tall fescue (*Schedonorus arundinaceus*). Dominant vegetation in the upland area east of the access road generally consisted of smooth brome in the herb layer, a partial shrub layer with European buckthorn

(*Rhamnus carthartica*), and a partial arboreal layer consisting of hackberry (*Celtis occidentalis*), Siberian elm (*Ulmus sp.*) and mulberry (*Morus sp.*).

6.0 MITIGATION RATIOS AND WORK PLAN

Based on information discussed in pre-application meetings and current Corps guidance, a 2:1 ratio is proposed for impacts that will be mitigated with the same Cowardin classification and Nebraska Wetland Subclass. A 4:1 ratio is proposed for impacts that will be mitigated with a different Nebraska Wetland Subclass designation.

Further information regarding the proposed mitigation ratios and amounts for the Ord North permittee responsible site is provided in Table 1 below. Note that NDOR will, at a time concurrent with development of the adjoining mitigation bank, also seek some preservation credits for existing wetlands at the 19.3 acre parcel acquired from the city of Ord for multiple project mitigation. Such anticipated preservation credits are not included in Table 1. As previously noted, development of the Ord North mitigation site will conform to the current (proposed) Umbrella Mitigation Banking Agreement protocol as both the mitigation and project impact sites are located within the same eco-region and hydrological unit class (HUC-8).

Table 1 – Impacts and Mitigation for Wetlands/WOUS

Type of Wetland/Waters*	Impacts	Replacement Type	Replacement Subclass#	Replacement Ratio	Replaced Wetland (Acres)
PEMA/C FD	0.3926	PEMA/C FD	FD	2:1	0.7852
PEMA/C RC	0.0214	PEMA/C FD	FD	4:1	0.0856
PSSA FD	0.3297	PSSA FD	FD	2:1	0.6594
PSSA RC	0.0154	PSSA FD	FD	4:1	0.0616
PABF FD	0.0387	PEMA/C FD	FD	4:1	0.1548
PFOA FD	0.0095	PEMA/C FD	FD	4:1	0.0380
Totals	0.8073				1.7846

*PEMA – Palustrine Emergent Temporarily Flooded wetland

*PSSA – Palustrine Scrub-Shrub Temporarily Flooded wetland

*PFOA – Palustrine Forested Temporarily Flooded wetland

#RF – Riverine Floodplain

#RC – Riverine Channel

Based on monitoring well information and USGS stream gauge data, it was determined hydrology for the mitigation site will be available by ground water and supplemental overland flow. No diversion from the intermittent stream or Dane Creek is proposed at this time to provide mitigation site hydrology. The mitigation site is located in the floodplain of the North Loup River and the site

would be excavated to a depth slightly above the ground water table to mimic a natural habitat for emergent wetlands similar to other wetlands in the area.

Existing topsoils will be salvaged and stockpiled for reuse onsite after excavation to intended depths. A native seed mix of wetland herbs and forbs selected by an NDOR roadside range specialist will be planted following site construction to develop emergent PEMA wetlands. The PSSA and PFOA wetlands may be planted by NDOR staff harvesting and replanting locally harvested whips and logs of selected species, e.g. cottonwood (*Populus deltoides*), black willow (*Salix nigra*), false indigo (*Amorpha fruticosa*) and peach leaf willow (*S. amygdaloides*). Construction drawings and seed mix specifications for the Ord North mitigation site are attached.

7.0 MAINTENANCE PLAN

NDOR will be the property owner and will be responsible for site protection and maintenance. NDOR is aware of and accepts financial responsibility for maintenance of the mitigation site. In addition, NDOR would assume responsibility for necessary corrective actions, in the instance that the mitigation site fails to meet success criteria during the monitoring period. The mitigation site and adjacent buffer area will be protected with a deed restriction which will restrict activities and include maintenance protocols.

The mitigation site and existing wetland complex are located in an undeveloped area located adjacent to the city lagoon ponds. The site can be seen as a larger undeveloped buffer surrounding the city waste water lagoon along the North Loup River. The mitigation area has been designed and is generally intended to require minimum maintenance. There are no water diversion structures associated with the development of the mitigation site that will require long-term maintenance. Maintenance needs will be constantly reassessed based on monitoring events, input from district maintenance, periodic visits by NDOR EPU staff and possibly mitigation bank tours.

8.0 PERFORMANCE STANDARDS

The performance standard for the mitigation site is that after five years the observed emergent wetlands will generally meet the wetland criteria as established in the *1987 Corps of Engineers Wetlands Delineation Manual*. (Note that arboreal species will require ten years to meet the performance standard.)

Wetland hydrology will be established through excavation to the water table and runoff from surrounding upland areas. The minimum hydrology will be saturation within 12 inches of the surface for at least two weeks of the growing season. The mitigation bank will establish emergent herbaceous, shrubby, and arboreal hydrophytic species and wetland hydrology in a floodplain depression wetland.

The measurable goal for the wetland mitigation site is to establish a percentage cover of hydrophytic species over time as follows:

Year 1 - 25% cover hydrophytes

Year 2 - 50%

Year 3 - 75%

Years 4 and 5 - greater than 75% cover hydrophytes

By Year 5 or sooner, over 75% of the observed dominant plant PEMA and PSSA species at the mitigation site will be hydrophytes. PFOA species will be on a 10 year establishment regime, with similar percentage goals prorated. As an alternate standard of success, over 75% of the observed mitigation site vegetation will score less than or equal to 3.0 on the Prevalence Index. Native volunteer trees and shrubs, live staking or burying of locally selected cuttings and logs, bare root saplings, and other propagation methods upon Corps approval may be used for scrub-shrub and tree replacements in order to satisfy defined performance standards.

9.0 MONITORING REQUIREMENTS

In efforts to accurately document site development, NDOR would implement its standard wetland mitigation monitoring practices on the Ord North mitigation site. Specifically, annual monitoring would consist of vegetation community, hydrology, and wetland boundary mapping along designated sampling transects. Transects would be utilized to comprehensively sample the entire sites and to document transitions between upland and wetland area and between different wetland types, as well as, document a chronology of changes in the amount and type of wetlands that develop on the sites.

Monitoring would begin during the first full growing season following construction. Annual site monitoring reports would be submitted to the Corps Wehrspann Regulatory Office by November 30 of each year for up to ten consecutive years. Monitoring reports would identify the amount and type of wetlands that develop on the site by mapping and describing wetland hydrology and vegetation in accordance with the Corps delineation methods. Additionally, a set of as-built plans of the sites would be provided, along with annual photos taken from common locations at least once during the growing season.

10.0 LONG-TERM MANAGEMENT PLAN

As previously noted, the mitigation area has been designed and is generally intended to require minimum maintenance. There are no water diversion structures associated with the development of the mitigation site that will require long-term maintenance. Maintenance needs will be constantly reassessed based

on monitoring events, input from district maintenance, mitigation bank tours and periodic visits by NDOR EPU staff.

The mitigation site will be inspected regularly for the presence of noxious weeds which will be controlled with appropriate measures. Noxious/invasive species include but are not limited to common reed (*Phragmites australis*), musk thistle (*Carduus nutans*), leafy spurge (*Euphorbia esula*), and purple loosestrife (*Lythrum salicaria*).

11.0 ADAPTIVE MANAGEMENT PLAN

If at any time during the monitoring period it is determined that the mitigation site(s) are failing to meet success criteria, NDOR would assume responsibility for required corrective actions. In addition, NDOR would be responsible for the regular maintenance of the sites, as stated in Section 7.0.

12.0 FINANCIAL ASSURANCES

NDOR would be responsible for all costs associated with site construction, maintenance, protection, monitoring, corrective actions, and long term management. NDOR has adequate funding to facilitate all noted costs. The NDOR Financial Assurances Letter for the Ord North mitigation site prepared for the Corps is provided as an attachment.



Pete Ricketts
Governor

STATE OF NEBRASKA

DEPARTMENT OF ROADS
Kyle Schneweis, P.E., Director

1500 Highway 2 • PO Box 94759 • Lincoln NE 68509-4759
Phone (402) 471-4567 • FAX (402) 479-4325 • www.roads.nebraska.gov

October 20, 2015

Phil Rezac
Regulatory Project Manager
US Army Corps of Engineers
Nebraska Regulatory Office - Wehrspann
8901 So. 154th Street, Suite 1
Omaha, NE 68138-3621
Phil.M.Rezac@usace.army.mil

re: Ord North project
NDOR Control No. 41914
NDOR Project No. STPD-70-4(106)
Corps Project No. 2015-0746-WEH

Attention Mr. Rezac:

Pertaining to the Ord North permittee responsible mitigation site, Nebraska Department of Roads (NDOR) would be responsible for all costs associated with site construction, maintenance, protection, monitoring, corrective actions, and long term management. NDOR has adequate funding to facilitate all noted costs.

Wesley Wahlgren, P.E.
Highway District Engineer, District 4
Nebraska Department of Roads
211 North Tilden Street
Grand Island, NE 68802-1488

ATTACHMENT I
Deed Restriction
Example

STATE OF NEBRASKA, COUNTY OF NANCE, as I, the undersigned, hereby certify the foregoing is a full and correct copy as filed and recorded in this court. Witness my hand and official seal at Fullerton, Nebraska this 20th day of Nov 2014

Filed for Record this 20TH day of NOVEMBER
A.D. 2014 at 10:00 O'clock A.M.
Recorded in Book 47 of MISC page 497-504
DANETTE ZAREK NANCE COUNTY CLERK
#2019-00780

Danette Zarek Nance County Clerk

By Janie Bosak



Fullerton South
NDOT Project # 14-2(124) Control Number 42403
U.S. Army Corps of Engineers Permit No. NWO-2008-02914-WEH

COVENANT OF DEDICATION

KYLE SCHNEWEIS, P.E., DIRECTOR, in the name of the STATE OF NEBRASKA and for the DEPARTMENT OF TRANSPORTATION of said State of Nebraska, (hereinafter referred to as **PERMITTEE**) under the provisions of Section 39-1326 R.R.S. of Nebraska, 1943, now stipulates to the following statements of fact, and further agrees to restrict the use and title of the realty described in **Attachments 1 and 2** to this document (hereinafter referred to as the "**Land**") in accordance with the terms and conditions set forth herein.

STIPULATIONS OF FACT

1. That Wes Wahlgren, District 4 Engineer, on behalf of PERMITTEE is the recipient for Department of the Army permit number NWO-2008-02914-WEH to place fill material in wetlands and a channel, located in Nance County, Nebraska; and that the U.S. Army Corps of Engineers has regulatory jurisdiction over the discharge of dredged or fill material into said Waters of the U.S. pursuant to Section 404 of the Clean Water Act (33 USC 1344).

2. That PERMITTEE is the owner in fee of the real estate described in Attachments 1 and 2.

3. That PERMITTEE and the Omaha District of the U.S. Army Corps of Engineers have reached an agreement whereby PERMITTEE will be permitted to discharge fill material in wetlands and the channel in accordance with the terms and conditions of Department of the Army permit number NWO-2008-02914-WEH; and that in consideration for said discharge of fill material in the wetlands and the channel, PERMITTEE will provide mitigation for the adverse environmental effects resulting from the placement of fill material in the wetlands and the channel by dedicating the realty described in Attachments 1 and 2 for perpetual use as a conservancy area in accordance with the terms and conditions of this document and the above-mentioned permit.

4. That the above-mentioned dedication shall consist of the execution of this document by all parties necessary to restrict the use and title of the Land; and that this document shall be recorded in the Office of the Register of Deeds for Nance County, Nebraska.

5. That a certified copy of this document, as recorded in the Office of the County Register of Deeds for Nance County, Nebraska, will be sent to the District Engineer of the Omaha District of the U.S. Army Corps of Engineers within 60 days following construction completion of the mitigation site as issued under the permit number NWO-2008-02914-WEH.

6. That the terms and conditions of this Covenant of Dedication shall, as of the date of execution of this document, bind PERMITTEE to the extent of his legal and/or equitable interest in the Land; and that this Covenant shall run with the land and be binding on PERMITTEE and its successors and assigns forever.

7. That the terms and conditions of this Covenant shall be both implicitly and explicitly included in any transfer, conveyance, or encumbrance of the Land or any part thereof, and that any instrument of transfer, conveyance, or encumbrance affecting all or any part of the Land shall set forth the terms and conditions of this document either by reference to this document or set forth in full text.

DEED AND USE RESTRICTIONS

PERMITTEE hereby warrants that he is the owner in fee of the realty described in Attachments 1 and 2; and that the Land is hereby dedicated in perpetuity for use as a conservancy area.

PERMITTEE hereby agrees to restrict the use and title of the Land as follows:

1. There shall be no construction or placement of structures or mobile homes, fences, signs, billboards or other advertising material, or other structures, whether temporary or permanent, on the land;
2. There shall be no filling, draining, excavating, dredging, mining, drilling or removal of topsoil, loam, peat, sand, gravel, rock, minerals or other materials;
3. There shall be no construction of roads or paths for vehicular or pedestrian travel or any change in the topography of the land;
4. During the establishment of native grasses, spraying, mowing and other mechanical means may be used to control noxious weeds and invasive annual species. After establishment of native grasses, noxious weeds will continue to be controlled through chemical or mechanical means. After establishment, the buffer zone and stream banks may be mowed between July 15 and the start of the next growing season, every 3 years during normal rainfall conditions or every 5 years during below normal rainfall conditions;
5. No motorized vehicles will be allowed within the buffer zone or stream banks except for those that are used for mowing or spraying;
6. There shall be no grazing of animals, farming, tilling of soil, or other agricultural activity in the buffer zone or stream bank areas.
7. This Covenant of Dedication may be changed, modified or revoked only upon written approval of the District Engineer of the Omaha District of the U.S. Army Corps of

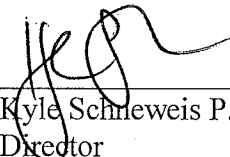
Engineers. To be effective, such approval must be witnessed, authenticated, and recorded pursuant to the law of the State of Nebraska. The appropriate documents shall be reviewed by the Corps of Engineers prior to signature to assure compliance with permit conditions.

a. Corps of Engineers representative's initials ARN;

8. The Covenant is made in perpetuity such that the present owner and its' heirs and assignees forever shall be bound by the terms and conditions set forth herein.

Duly executed this 10th day of October, 2018

SEAL

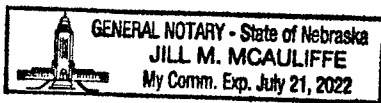


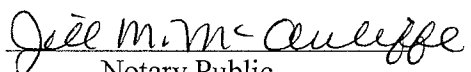
Kyle Schneweis P.E., PERMITTEE
Director
State of Nebraska, Department of Transportation

STATE OF NEBRASKA)
)ss
LANCASTER COUNTY)

On this 10th day of October, A.D., 2018, before me, a General Notary Public, duly commissioned and qualified, personally came Kyle Schneweis, P.E., Director of the State of Nebraska, Department of Transportation, to me known to be the identical person whose name is affixed to the foregoing instrument as permittee and acknowledged the same to be a voluntary act and deed.

WITNESS my hand and Notary Seal the day and year last above written.




Notary Public

My commission expires the 21st day of July, A.D. 2022

PROJECT 14-2(124)
FULLERTON SOUTH
C.N. 42403
COVENANT OF DEDICATION

A TRACT OF LAND LOCATED IN PART OF THE SOUTHWEST QUARTER ALL IN SECTION 23, TOWNSHIP 16 NORTH, RANGE 6 WEST OF THE SIXTH PRINCIPAL MERIDIAN, NANCE COUNTY, NEBRASKA, DESCRIBED AS FOLLOWS:

REFERRING TO THE SOUTHWEST CORNER OF SAID SOUTHWEST QUARTER SECTION; THENCE EASTERLY A DISTANCE OF 818.12 FEET ALONG THE SOUTH LINE OF SAID QUARTER SECTION; THENCE NORTHEASTERLY DEFLECTING 043 DEGREES, 23 MINUTES, 47 SECONDS LEFT, A DISTANCE OF 48.03 FEET TO A POINT ON THE EASTERLY HIGHWAY 14 RIGHT OF WAY LINE; THENCE NORTHEASTERLY DEFLECTING 000 DEGREES, 00 MINUTES, 00 SECONDS, A DISTANCE OF 700.66 FEET ALONG SAID RIGHT OF WAY LINE; THENCE NORTHEASTERLY DEFLECTING 010 DEGREES, 12 MINUTES, 32 SECONDS RIGHT, A DISTANCE OF 208.76 FEET; THENCE NORTHEASTERLY DEFLECTING 011 DEGREES, 36 MINUTES, 56 SECONDS LEFT, A DISTANCE OF 241.53 FEET TO THE POINT OF BEGINNING; THENCE NORTHEASTERLY DEFLECTING 000 DEGREES, 00 MINUTES, 00 SECONDS, A DISTANCE OF 473.51 FEET; THENCE NORTHEASTERLY DEFLECTING 003 DEGREES, 29 MINUTES, 30 SECONDS LEFT, A DISTANCE OF 15.24 FEET; THENCE NORTHEASTERLY DEFLECTING 000 DEGREES, 00 MINUTES, 00 SECONDS, A DISTANCE OF 10.40 FEET TO A POINT ON THE SOUTH LINE OF A PERMANENT EASEMENT FOR A PRIVATE IRRIGATION PIPELINE; THENCE SOUTHEASTERLY DEFLECTING 078 DEGREES, 50 MINUTES, 51 SECONDS RIGHT, A DISTANCE OF 707.80 FEET ALONG SAID LINE TO A POINT ON THE NORTH SOUTH QUARTER SECTION LINE OF SAID SECTION; THENCE SOUTHERLY DEFLECTING 059 DEGREES, 58 MINUTES, 05 SECONDS RIGHT, A DISTANCE OF 161.89 FEET ALONG SAID LINE; THENCE WESTERLY DEFLECTING 099 DEGREES, 26 MINUTES, 43 SECONDS RIGHT, A DISTANCE OF 975.81 FEET TO THE POINT OF BEGINNING CONTAINING 5.71 ACRES, MORE OR LESS.

AND ALSO:

A TRACT OF LAND LOCATED IN PART OF THE SOUTHWEST QUARTER AND PART OF THE SOUTHEAST QUARTER ALL OF SECTION 23, TOWNSHIP 16 NORTH, RANGE 6 WEST OF THE SIXTH PRINCIPAL MERIDIAN, NANCE COUNTY, NEBRASKA, DESCRIBED AS FOLLOWS:

REFERRING TO THE SOUTHWEST CORNER OF SAID SOUTHWEST QUARTER SECTION; THENCE EASTERLY A DISTANCE OF 818.12 FEET ALONG THE SOUTH LINE OF SAID QUARTER SECTION; THENCE NORTHEASTERLY DEFLECTING 043 DEGREES, 23 MINUTES, 47 SECONDS LEFT, A DISTANCE OF 48.03 FEET TO A POINT ON THE EASTERLY HIGHWAY 14 RIGHT OF WAY LINE; THENCE NORTHEASTERLY DEFLECTING 000 DEGREES, 00 MINUTES, 00 SECONDS, A DISTANCE OF 700.66 FEET ALONG SAID RIGHT OF WAY LINE; THENCE NORTHEASTERLY DEFLECTING 010 DEGREES, 12 MINUTES, 32 SECONDS RIGHT, A DISTANCE OF 208.76 FEET; THENCE NORTHEASTERLY DEFLECTING 011 DEGREES, 36 MINUTES, 56 SECONDS LEFT, A

DISTANCE OF 715.04 FEET; THENCE NORTHEASTERLY DEFLECTING 003 DEGREES, 29 MINUTES, 30 SECONDS LEFT, A DISTANCE OF 15.24 FEET; THENCE NORTHEASTERLY DEFLECTING 000 DEGREES, 00 MINUTES, 00 SECONDS, A DISTANCE OF 30.78 FEET TO A POINT ON THE NORTH LINE OF A PERMANENT EASEMENT FOR A PRIVATE IRRIGATION PIPELINE TO THE POINT OF BEGINNING; THENCE NORTHWESTERLY DEFLECTING 101 DEGREES, 09 MINUTES, 09 SECONDS LEFT, A DISTANCE OF 68.77 FEET; THENCE NORTHEASTERLY DEFLECTING 084 DEGREES, 48 MINUTES, 17 SECONDS RIGHT, A DISTANCE OF 230.28 FEET; THENCE NORTHEASTERLY DEFLECTING 021 DEGREES, 28 MINUTES, 57 SECONDS RIGHT, A DISTANCE OF 216.75 FEET; THENCE NORTHERLY DEFLECTING 026 DEGREES, 11 MINUTES, 20 SECONDS LEFT, A DISTANCE OF 268.74 FEET; THENCE NORTHERLY DEFLECTING 014 DEGREES, 21 MINUTES, 53 SECONDS LEFT, A DISTANCE OF 172.78 FEET; THENCE NORTHERLY DEFLECTING 013 DEGREES, 28 MINUTES, 55 SECONDS LEFT, A DISTANCE OF 395.46 FEET; THENCE NORTHERLY DEFLECTING 007 DEGREES, 04 MINUTES, 49 SECONDS RIGHT, A DISTANCE OF 20.47 FEET; THENCE EASTERLY DEFLECTING 069 DEGREES, 10 MINUTES, 45 SECONDS RIGHT, A DISTANCE OF 139.83 FEET; THENCE NORTHERLY DEFLECTING 079 DEGREES, 18 MINUTES, 10 SECONDS LEFT, A DISTANCE OF 24.31 FEET; THENCE WESTERLY DEFLECTING 093 DEGREES, 36 MINUTES, 18 SECONDS LEFT, A DISTANCE OF 130.14 FEET; THENCE NORTHERLY DEFLECTING 103 DEGREES, 43 MINUTES, 43 SECONDS RIGHT, A DISTANCE OF 154.48 FEET; THENCE EASTERLY DEFLECTING 081 DEGREES, 32 MINUTES, 48 SECONDS RIGHT, A DISTANCE OF 144.14 FEET TO A POINT ON THE SOUTHERLY EXISTING COUNTY ROAD RIGHT OF WAY LINE; THENCE EASTERLY DEFLECTING 007 DEGREES, 32 MINUTES, 55 SECONDS RIGHT, A DISTANCE OF 208.83 FEET ALONG SAID RIGHT OF WAY LINE; THENCE EASTERLY DEFLECTING 000 DEGREES, 51 MINUTES, 56 SECONDS RIGHT, A DISTANCE OF 578.34 FEET ALONG SAID RIGHT OF WAY LINE; THENCE EASTERLY DEFLECTING 004 DEGREES, 51 MINUTES, 58 SECONDS LEFT, A DISTANCE OF 74.80 FEET ALONG SAID RIGHT OF WAY LINE; THENCE EASTERLY DEFLECTING 005 DEGREES, 22 MINUTES, 00 SECONDS RIGHT, A DISTANCE OF 105.40 FEET ALONG SAID RIGHT OF WAY LINE TO A POINT ON THE NORTHWESTERLY OLD HIGHWAY 14 RIGHT OF WAY LINE; THENCE SOUTHWESTERLY DEFLECTING 136 DEGREES, 15 MINUTES, 58 SECONDS RIGHT, A DISTANCE OF 1052.32 FEET ALONG SAID RIGHT OF WAY LINE TO A POINT ON THE NORTH SOUTH QUARTER SECTION LINE OF SAID SECTION; THENCE SOUTHERLY DEFLECTING 046 DEGREES, 05 MINUTES, 30 SECONDS LEFT, A DISTANCE OF 1086.33 FEET ALONG SAID LINE TO A POINT ON THE NORTH LINE OF A PERMANENT EASEMENT FOR A PRIVATE IRRIGATION PIPELINE; THENCE NORTHWESTERLY DEFLECTING 120 DEGREES, 01 MINUTES, 55 SECONDS RIGHT, A DISTANCE OF 692.30 FEET ALONG SAID LINE TO THE POINT OF BEGINNING CONTAINING 21.66 ACRES, MORE OR LESS.

PROJECT 14-2(124)
FULLERTON SOUTH
C.N. 42403
COVENANT OF DEDICATION

A TRACT OF LAND LOCATED IN THE SOUTH HALF OF THE SOUTHEAST QUARTER OF SECTION 27, TOWNSHIP 16 NORTH, RANGE 6 WEST OF THE SIXTH PRINCIPAL MERIDIAN, NANCE COUNTY, NEBRASKA, DESCRIBED AS FOLLOWS:

REFERRING TO THE SOUTHEAST CORNER OF SAID QUARTER SECTION; THENCE NORTHERLY A DISTANCE OF 1322.70 FEET ALONG THE EAST LINE OF SAID QUARTER SECTION; THENCE WESTERLY DEFLECTING 089 DEGREES, 43 MINUTES, 00 SECONDS LEFT, A DISTANCE OF 50.72 FEET TO A POINT ON THE WESTERLY HIGHWAY 14 RIGHT OF WAY LINE TO A POINT ON THE NORTH LINE OF THE SOUTH HALF OF SAID QUARTER SECTION TO THE POINT OF BEGINNING; THENCE WESTERLY DEFLECTING 000 DEGREES, 00 MINUTES, 00 SECONDS A DISTANCE OF 78.64 FEET ALONG SAID NORTH LINE; THENCE SOUTHERLY DEFLECTING 105 DEGREES, 42 MINUTES, 12 SECONDS LEFT, A DISTANCE OF 61.30 FEET; THENCE SOUTHEASTERLY DEFLECTING 033 DEGREES, 29 MINUTES, 04 SECONDS LEFT, A DISTANCE OF 83.19 FEET TO A POINT ON THE WESTERLY HIGHWAY 14 RIGHT OF WAY LINE; THENCE NORTHERLY DEFLECTING 131 DEGREES, 16 MINUTES, 25 SECONDS LEFT, A DISTANCE OF 113.38 FEET ALONG SAID RIGHT OF WAY LINE TO THE POINT OF BEGINNING CONTAINING 0.13 ACRES, MORE OR LESS.

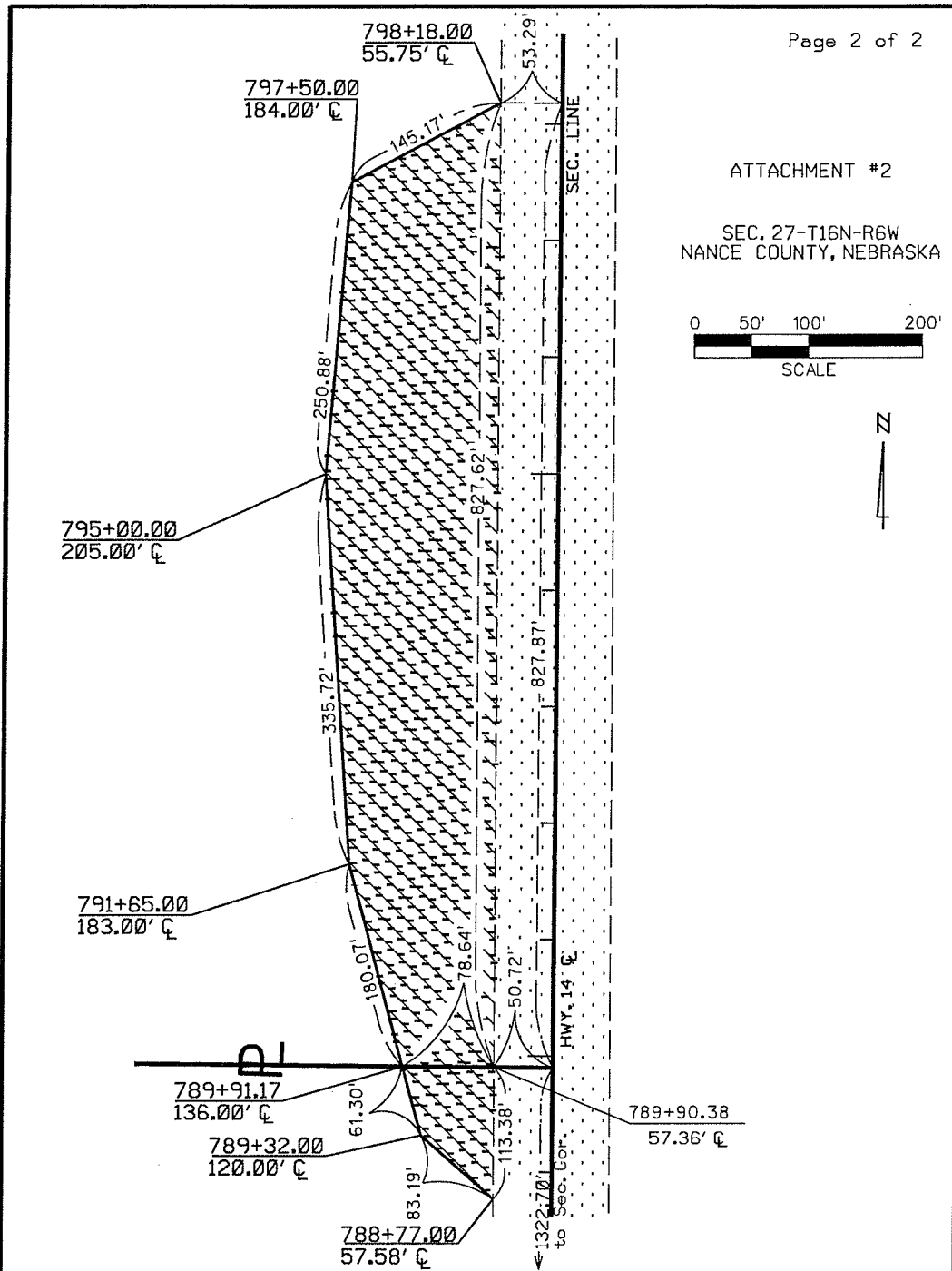
AND ALSO:

A TRACT OF LAND LOCATED IN THE NORTH HALF OF THE SOUTHEAST QUARTER OF SECTION 27, TOWNSHIP 16 NORTH, RANGE 6 WEST OF THE SIXTH PRINCIPAL MERIDIAN, NANCE COUNTY, NEBRASKA, DESCRIBED AS FOLLOWS:

REFERRING TO THE SOUTHEAST CORNER OF SAID QUARTER SECTION; THENCE NORTHERLY A DISTANCE OF 2150.57 FEET ALONG THE EAST LINE OF SAID QUARTER SECTION; THENCE WESTERLY DEFLECTING 090 DEGREES, 00 MINUTES, 00 SECONDS LEFT, A DISTANCE OF 53.29 FEET TO A POINT ON THE WESTERLY HIGHWAY 14 RIGHT OF WAY LINE TO THE POINT OF BEGINNING; THENCE SOUTHWESTERLY DEFLECTING 028 DEGREES, 13 MINUTES, 20 SECONDS LEFT, A DISTANCE OF 145.17 FEET; THENCE SOUTHERLY DEFLECTING 057 DEGREES, 15 MINUTES, 58 SECONDS LEFT, A DISTANCE OF 250.88 FEET; THENCE SOUTHERLY DEFLECTING 008 DEGREES, 33 MINUTES, 32 SECONDS LEFT, A DISTANCE OF 335.72 FEET; THENCE SOUTHERLY DEFLECTING 011 DEGREES, 22 MINUTES, 22 SECONDS LEFT, A DISTANCE OF 180.07 FEET TO A POINT ON THE SOUTH LINE OF THE NORTH HALF OF SAID QUARTER SECTION; THENCE EASTERLY DEFLECTING 074 DEGREES, 17 MINUTES, 48 SECONDS LEFT, A DISTANCE OF 78.64 FEET ALONG SAID SOUTH LINE TO A POINT ON THE WESTERLY HIGHWAY 14 RIGHT OF WAY LINE; THENCE NORTHERLY DEFLECTING 090 DEGREES, 27 MINUTES, 41 SECONDS LEFT, A DISTANCE OF 827.62 FEET ALONG SAID RIGHT OF WAY LINE TO THE POINT OF BEGINNING CONTAINING 2.36 ACRES, MORE OR LESS.

ATTACHMENT #2

SEC. 27-T16N-R6W
NANCE COUNTY, NEBRASKA

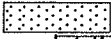


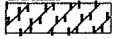
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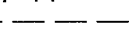
COVENANT AREA

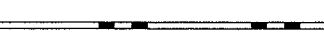
STATE OF NEBRASKA
DEPARTMENT OF ROADS
RIGHT OF WAY DIVISION
LINCOLN, NEBRASKA

PERMIT NO. NWO-2008-02914-WEH
PROJECT NO. 14-2(124)
PROJECT NAME FULLERTON SOUTH
CONTROL NO. 42403

PREV. R.O.W. 

COVENANT AREA 

EXISTING ROW 

CONTROLLED ACCESS 

DRAWN BY - K BEHLEN
CHECKED BY - 12/19/17

ATTACHMENT J
Site Development Plan
Example



Oreapolis Mitigation Bank

Site Development Plan

Cass County, Nebraska

February 2016

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OREAPOLIS MITIGATION BANK

SITE DEVELOPMENT PLAN

Project Number NH-75-2 (168)
Control Number 21849F

1.0 PROJECT OVERVIEW AND OBJECTIVES

1.1 Project Summary and Location

As authorized by the U.S. Army Corps of Engineers (USACE) on February 18, 2010 via Department of the Army, Clean Water Act (CWA) Section 404 Permit No. 2010-00317-KEA (see Appendix A), the Nebraska Department of Roads (NDOR) is proposing to construct the Oreapolis Mitigation Site/Bank (the Site or the Bank) south of Bellevue and east of U.S. Highway 75 (US-75) (See Figure 1, Project Location). More specifically, the Site occupies a portion of the northeast $\frac{1}{4}$ of the north $\frac{1}{2}$ of Section 1, Township 12 North, Range 13 East, Cass County, Nebraska. The Site occupies a portion of a 50 acre agricultural parcel developed to create wetland mitigation credits. The Site is flat, and adjacent to an unnamed tributary to the Missouri River that forms the northern Site perimeter. The Site is also bordered by a wooded community to the south, and an agricultural field to the west. Runoff from the Project Area drains into the tributary that ultimately flows into the Plattsmouth Chute in the nearby Schilling Wildlife Management Area and eventually the Missouri River. The Site is located in Hydrologic Unit Code (HUC) 102002 – Lower Platte, 02, Lower Platte (as amended to match HUC 6 boundaries (see Figure 2, Hydrologic Unit Codes) and the Missouri Alluvial Plain and Nebraska/Kansas Loess Hills EPA Level IV Ecoregion.

Following construction, and prior to any project mitigation debiting, the 50 acre parcel would ultimately develop 36.46 acres of palustrine emergent (PEM) wetlands (Nebraska Subclass Riverine Floodplain), enhancement of 0.18 acres of PEM wetlands, restore 6.4 acres of palustrine forested (PFO)/palustrine scrub-shrub (PSS) wetlands (Nebraska Subclass Riverine Floodplain), and 4,420 linear feet of stream channel producing an anticipated 22,055 stream functional units. In addition, the parcel would develop 2.8 acres of upland buffer along the western Site boundary. Impacts related to two NDOR projects are also being mitigated on the 50 acre parcel reducing the amount of potential wetland and stream credits available to the Site. Once the Site Development Plan has been approved, the entire 50 acre parcel would be considered the Site; however, credits at the 50 acre parcel allotted to mitigate the two NDOR projects would be considered pre-credited and would not be eligible for use by other projects.

1.1.1 Project Background

Extensive coordination with USACE has occurred regarding the Site and the two NDOR roadway projects mitigated at the same 50 acre parcel:

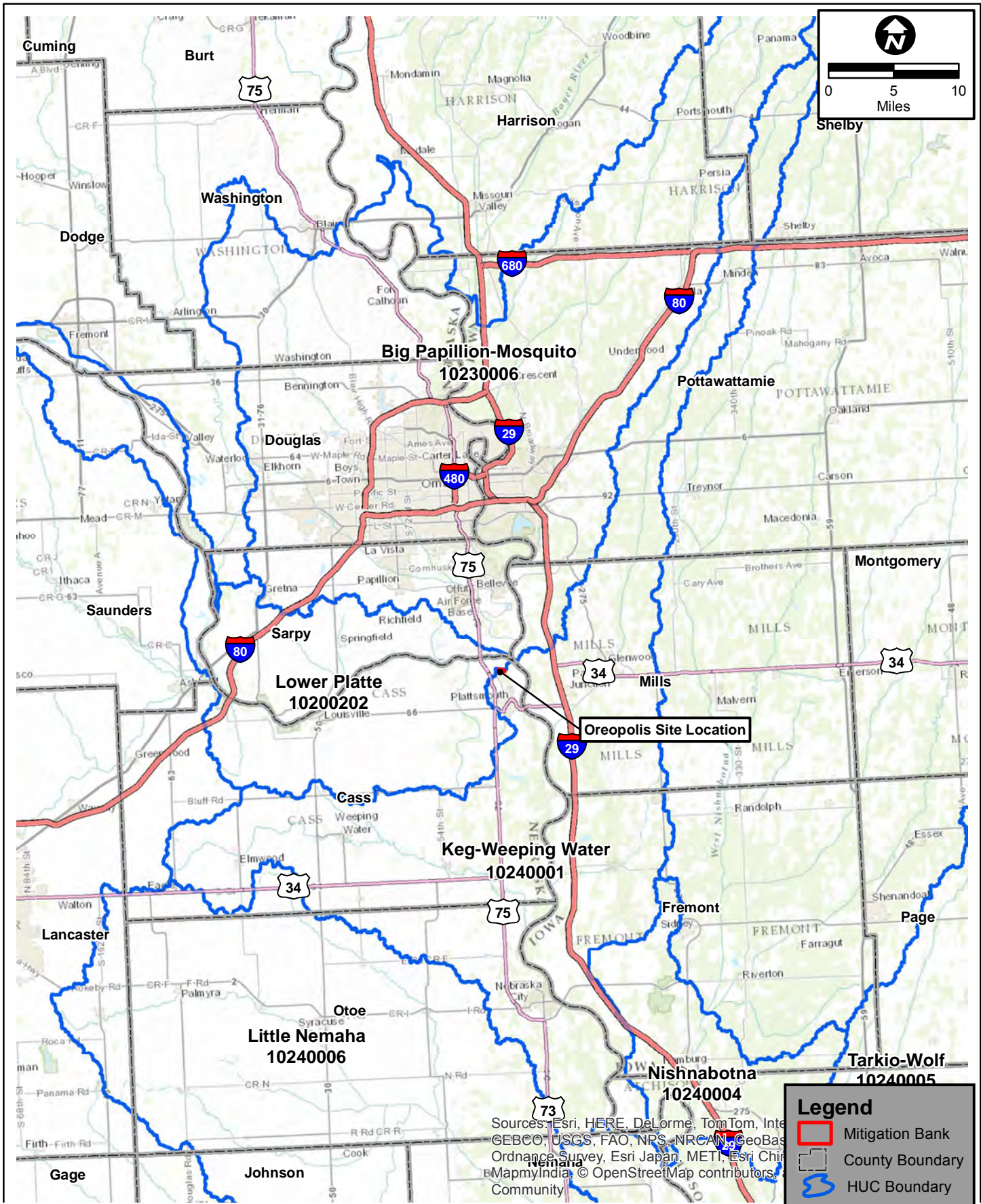
- Submittal and processing of two comprehensive CWA Section 404 Individual Permit Applications in which the Site was identified as the Mitigation Plan
- Submittal and processing of one CWA Section 404 Nationwide Permit Application for construction of the Oreapolis Mitigation Site
- Multiple agency meetings that preceded the noted permit applications

Through the noted scoping and coordination efforts, USACE has determined that the 50 acre parcel is of adequate size and appropriate location to fulfill the mitigation requirements of Department of the Army Permits 2003-10140-WEH for the U.S. 34 Bellevue Bridge (USACE April 2010) and 2007-00796-WEH for the U.S. 75 Plattsmouth to Bellevue project (USACE November 2010). In association with this Site Development Plan, and in accordance with NDOR's Umbrella Mitigation Banking Agreement (NDOR, June 2015), surplus wetland mitigation that results at the location will be coordinated with Nebraska's Interagency Review Team (IRT) and "banked" for allocation toward future project impacts. NDOR understands that the Corps and IRT will review the Site Development Plan independent from these two previously permitted projects.

The diversion and storage of surface water, associated with Site development, was authorized by the Nebraska Department of Natural Resources on May 9, 2011 (see Appendix A).

A Floodplain Development Permit for the project was authorized by the City of Plattsmouth, Nebraska on January 25, 2010 (see Appendix A).

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Sources: Esri, HERE, DeLorme, TomTom, Intermap, Swire, GEBCO, USGS, FAO, NPS, NRCAN, GeoBC, IGN, Ordnance Survey, Esri Japan, METI, Esri China (Beijing), Swire, MapmyIndia, © OpenStreetMap contributors, Swire, Community

Legend

- Mitigation Bank
- County Boundary
- HUC Boundary



Hydrologic Unit Codes

Oreopolis Mitigation Bank
 Site Development Plan
 Cass County, Nebraska

DATE	February 2016
FIGURE	2

1.2 Factors for Site Selection

The following factors were considered for the selection of this Site to be included in the NDOR mitigation banking system:

- 1) Landscape position
- 2) Available hydrology
- 3) Technical Feasibility/Sustainability
- 4) Ability to support desired aquatic and other watershed functions

1.2.1 Landscape position

Although the area to be occupied by the Site has functioned as an agricultural parcel for many years, the area itself lies in a historical floodplain within the loess hills of eastern Nebraska. The Site's occupation of the historical floodplain, and its associated and relative elevation, allow for minimal excavation requirements in order to achieve surface and subsurface wetland hydrology and re-establish historic floodplain wetland functions. Additionally, the Site's position on the landscape is representative of historic floodplains that were once common within drainages within the valleys of the loess hills and specifically within close proximity to the Missouri River.

1.2.2 Available Hydrology

Beyond the occurrence of the Site within the historical floodplain and its proximity to groundwater, the Site is also bordered to the north by an unnamed tributary that feeds into the Plattsmouth Chute and eventually the Missouri River in the easterly adjacent Schilling Wildlife Management Area. As detailed in Section 3.0, development of the Site involves the engineered diversion of normal flows from this drainage onto the Site.

1.2.3 Technical Feasibility/Sustainability

The Site's location provides ample hydrology to support an emergent wetland system and a low velocity stream channel. The flat topography and surrounding grade allows for minimal engineered elements to sustain a functional wetland and stream system. Minimal site operation and maintenance requirements are needed for long-term sustainability of the Site.

1.2.4 Ability to Support Desired Aquatic and Other Watershed Functions

The Site will support emergent wetland vegetation and associated shallow water habitat that will support aquatic life. The Site will also provide watershed functions such as flood control and nutrient and sediment management. There is space at the Site to incorporate upland plantings (herbaceous, shrub, and tree layers) to provide buffers to the wetland area and provide wildlife habitat.

1.3 Purpose, Goals, and Objectives

The primary purpose of the Project is to provide compensatory wetland mitigation for NDOR roadway projects that result in unavoidable impacts to wetlands. The secondary Project purpose is to develop certified wetland and stream mitigation credits for allocation toward unavoidable resource impacts resulting from future or undetermined NDOR projects.

The Project is needed because NDOR projects address the needs of transportation infrastructure considered important by FHWA, the States of Nebraska and Iowa, and because NDOR projects

often result in unavoidable impacts to waters of the U.S. that require compensatory wetland mitigation in accordance with 33 CFR 332.

The goals, and corresponding objectives, of this plan are specified in the following subsections:

Goal No. 1: Provide a restoration of sustainable palustrine emergent and palustrine forested/palustrine scrub-shrub wetlands.

Specific objectives are as follows:

- Restore a 50-acre agricultural parcel into 36.46 acres of palustrine emergent (PEM) wetlands.
- Enhance 0.18 acres of existing palustrine emergent (PEM) wetlands
- Restore 6.4 acres of palustrine forested (PFO)/palustrine scrub-shrub (PSS) wetlands. Wetland restoration is intended to provide wildlife habitat, water quality benefits, and flood storage (as specified in Goals 2 and 3).

Goal No. 2: Develop a stream channel on site that will provide an alternative habitat to the on-site restored wetlands

Specific objectives are as follows:

- Create 4,420 linear feet of meandering stream channel utilizing base flow from the adjacent unnamed tributary along the Burlington-Northern Santa Fe (BNSF) rail line right-of-way.
- Create a total of 19,215 stream functional units per the Nebraska Stream Condition Assessment Procedure (USACE 2012).
- Allow for stream overbanking to provide surface hydrology to the restored wetlands.

Goal No. 3: Establish a consistent upland buffer between aquatic resources

Specific objectives are as follows:

- Create 2.8 acres of upland buffer along the western Site boundary. Buffer creation would act to filter sediment and agricultural contaminants, prior to surface water runoff reaching the restored wetland areas.
- Create an upland buffer with a mix of herbaceous, shrub, and tree species.

1.4 Geographic Service Area

The geographic service area (GSA) is the geographic region in which a Site is authorized to provide compensatory mitigation required by Department of the Army permits. The following are the guidelines set forth in NDOR's Umbrella Mitigation Banking Agreement (NDOR March 2015) for GSA establishment:

“In general, the GSA for a Site will consist of the portion of the HUC 8 containing the Site and portions of adjacent HUC 8s to the Site that are located in the same EPA Eco-Region Level IV as the Site. No consideration will be given to the area where the EPA Eco-Region Level IV extends across the boundary of the HUC 6 containing the bank. However, sites located near river confluences with adjacent HUC 6 boundaries may be reviewed by USACE for consideration to the method. Any portion of an adjacent HUC 8 that is not located within the boundary of the

EPA Eco-Region Level IV containing the bank site will not be considered part of the service area. The Site Development Plan will provide the proposed GSA boundary based on this methodology with refinements to Level IV Ecoregion boundaries based on more detailed landscape or on-site information. The rationale for this approach is to take into account for the scale at which the Level IV Ecoregions were developed as compared to actual landscapes.”

The Site is located in Hydrologic Unit Code (HUC) 102002 – Lower Platte, 02, Lower Platte (as amended to match HUC 6 boundaries (see Figure 2, Hydrologic Unit Codes) and the Missouri Alluvial Plain and Nebraska/Kansas Loess Hills EPA Level IV Ecoregion.

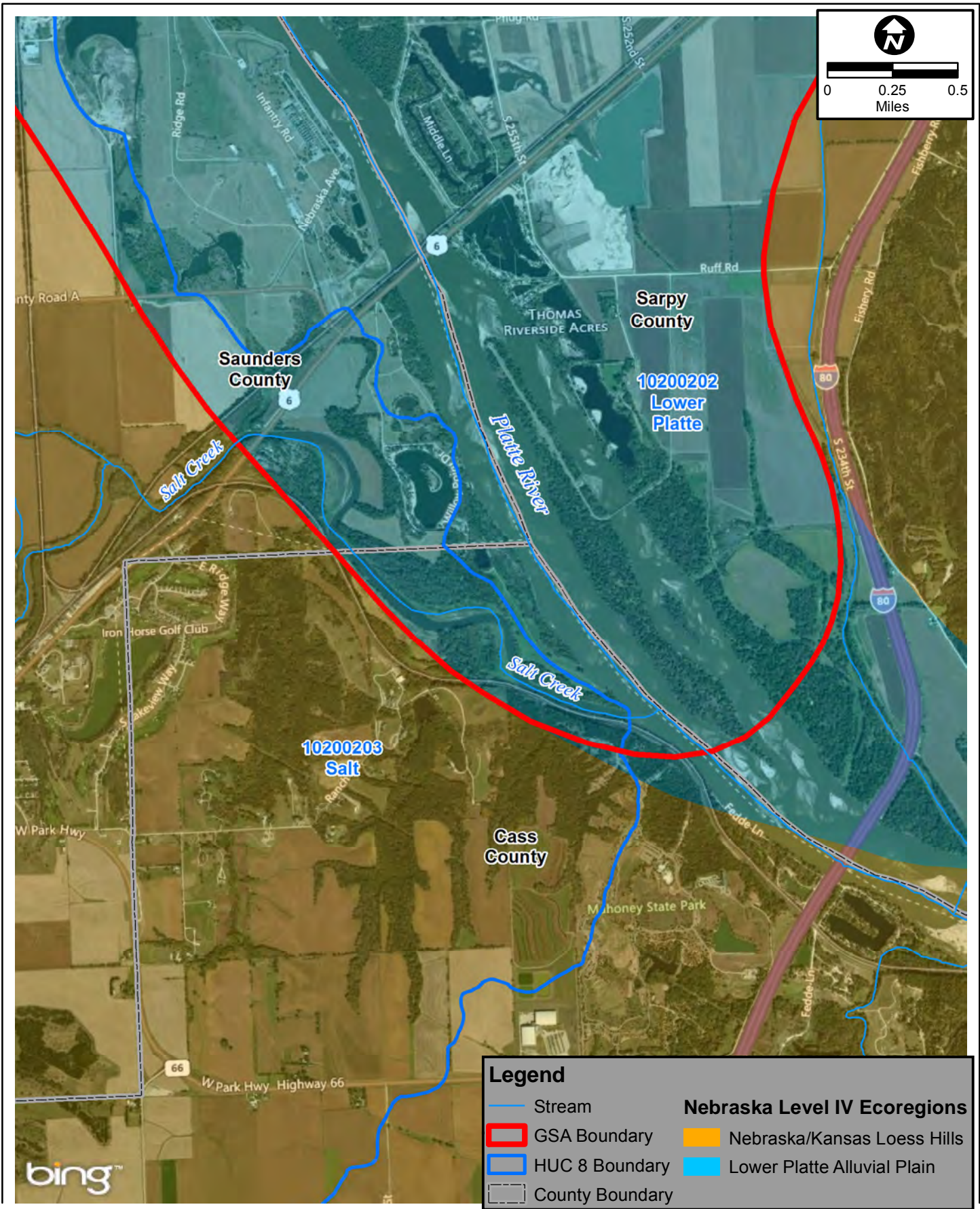
Based on these guidelines, the GSA for the Site consists of the following geographic areas:

- Lower Platte HUC 8 watershed (10200202) within the Nebraska/Kansas Loess Hills EPA Level IV Ecoregion
- Salt HUC 8 watershed (10200203) within the Nebraska/Kansas Loess Hills EPA Level IV Ecoregion
- Lower Platte-Shell HUC 8 watershed (10200204) within the Nebraska/Kansas Loess Hills EPA Level IV Ecoregion

In addition, a portion of the Lower Platte Alluvial Plain EPA Level IV ecoregion near the confluence of Salt Creek with the Platte River appears to better reflect the landform described for the Nebraska/Kansas Loess Hills EPA Level IV Ecoregion. The Lower Platte Alluvial Plain is a flat alluvial plain with 2-50 feet of local relief in elevation. The geology consists of calcareous alluvium, silt, clay, sand, and gravel with cretaceous sandstone bedrock. The Nebraska/ Kansas Loess Hills consist of glaciated, deep rolling loess-covered hills with 100-300 feet of local relief in elevation. The geology consists of Loess mantle with underlying calcareous glacial till on Pennsylvanian shale, sandstone, and limestone (Chapman et al. 2001). The difference in geology is reflected in the Platte River Valley width, which abruptly decreases from approximately 5.5 miles at the Elkhorn confluence to 1.5 miles at the Salt Creek confluence. This change in valley width is an indication of the change in channel morphology between The Lower Platte Alluvial Plain and Nebraska/ Kansas Loess Hills ecoregions. Therefore, the GSA for the Site is modified from the existing boundary of the Lower Platte Alluvial Plain and Nebraska/Kansas Loess Hills EPA Level IV Ecoregion approximately 1.5 miles southeast of the Salt Creek confluence with the Platte River to the Salt Creek confluence.

Refer to Figure 3 for the specific detail of this modification of the ecoregion boundary and Figure 4 for the final GSA for the Site.

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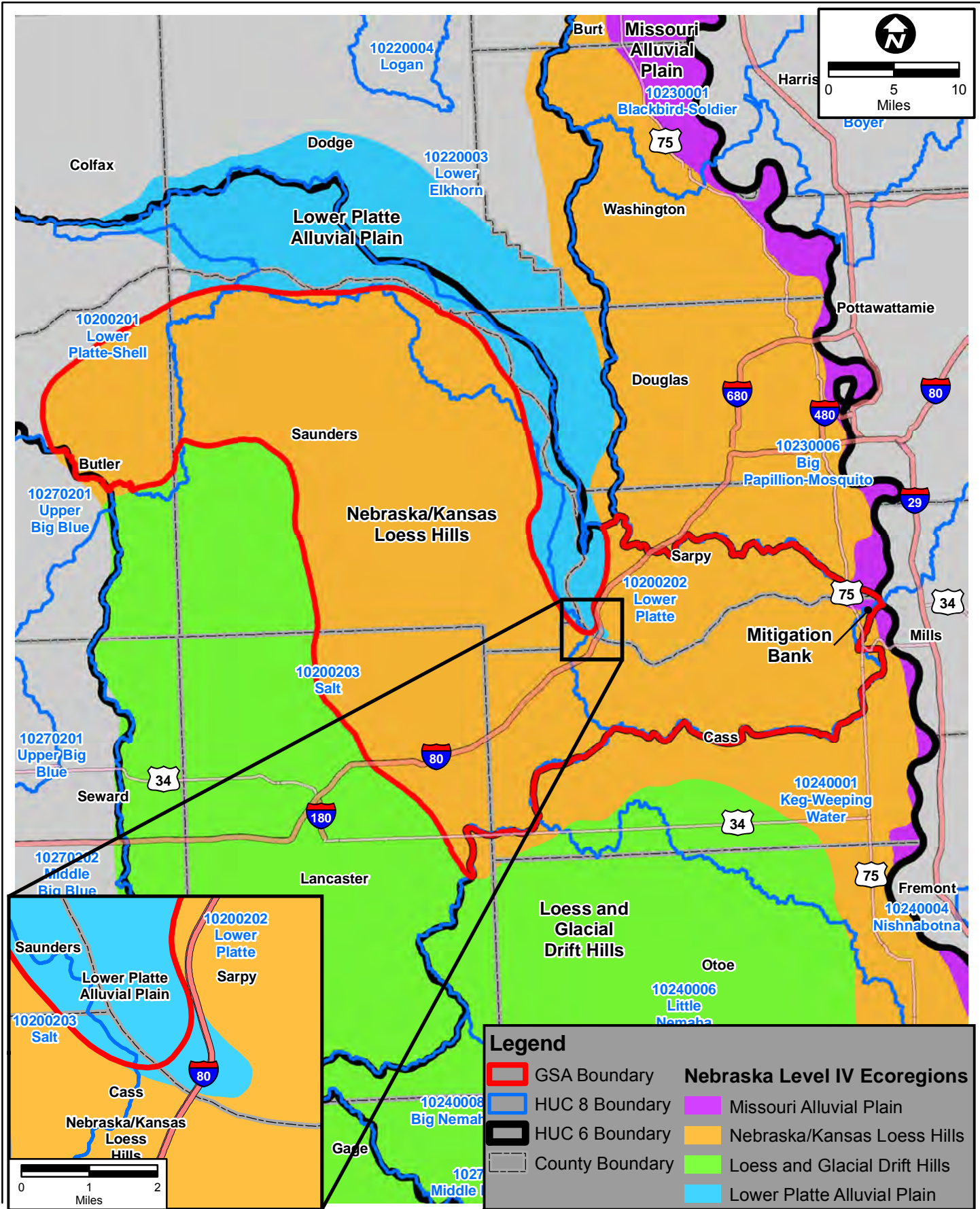


Geographic Service Area Modification

Oreapolis Mitigation Bank
Site Development Plan
Cass County, Nebraska

DATE	February 2016
FIGURE	3

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Geographic Service Area

Oreapolis Mitigation Bank
 Site Development Plan
 Cass County, Nebraska

DATE
 February 2016

FIGURE
 4

1.5 Financial Assurances

NDOR will own, maintain full control, and be responsible for the management and long-term maintenance of the Bank. NDOR will be responsible for securing adequate funding for operation and maintenance of the Bank during its operational life, as well as for the long-term management of the wetlands and stream. NDOR will provide appropriate documentation of its long-term intent to manage and maintain the Bank to USACE and the IRT.

NDOR is a governmental unit with taxing authority and the financial capability to implement mitigation banking. Thus, NDOR has access to the necessary financial resources to fund Bank needs, including long-term management and unforeseen events.

1.6 Real Estate Provision for Site Protection

NDOR will initially assume sole ownership of the Site and will establish a permanent conservation easement protecting the Site's wetland functions (by deterring development or practices that could handicap its functionality) prior to the release of credits for mitigation purposes. NDOR shall submit the draft conservation easement to USACE for review. NDOR shall also provide copies of the signed purchase agreement and the executed conservation easement to USACE upon execution. The conservation easement would also be filed with Cass County, Nebraska. If NDOR relinquishes ownership of the Site, the conservation easement would protect the developed Site resources in perpetuity. The existing conservation easements for the US-34 and US-75 projects include requirements that would protect the Site. The following depict specific requirements of the conservation easement, as provided by USACE in authorizations 2003-10140-WEH (U.S. 34 Bellevue Bridge) and 2007-00796-WEH (U.S. 75 Plattsmouth to Bellevue):

- There shall be no construction or placement of structures or mobile homes, fences, signs, billboards or other advertising material, or other structures, whether temporary or permanent, on the land.
- There shall be no tilling, draining, excavating, dredging, mining, drilling or removal of topsoil, loam, peat, sand, gravel, rock, minerals or other materials.
- There shall be no building of roads or paths for vehicular or pedestrian travel or any change in the topography of the land.
- There shall be no removal, destruction, or cutting of trees or plants, spraying with biocides, insecticides, or pesticides, grazing of animals, farming, tilling of soil, or other agricultural activity. Management activities are acceptable upon approval from the Corps. Noxious weed control is allowed, but must be documented in monitoring.
- There shall be no operation of all-terrain vehicles or any other type of motorized vehicle on the land, except for pre-existing access roads at the mitigation site. All-terrain vehicles may be used for maintenance and monitoring.
- This Covenant of Dedication may be changed, modified or revoked only upon written approval of the District Engineer of the Omaha District of the U.S. Army Corps of Engineers. To be effective, such approval must be witnessed, authenticated, and recorded pursuant to the law of the State of Nebraska. This Covenant needs to be reviewed by the Corps of Engineers prior to signature to assure compliance with permit conditions.

This Covenant is made in perpetuity such that the present owner and its heirs and assigns forever shall be bound by the terms and conditions set forth herein.

1.7 Implementation Schedule

Because the Site will provide project-specific mitigation for projects already commenced and due to grading overlap amongst these projects, Site construction is currently underway. Excavated material resulting from Site development will be used as fill material for the Nebraska approach of the US-34 Bellevue Bridge Project.

The certification of wetland mitigation bank credits would not be requested until USACE verifies that the Site meets all project-specific mitigation obligations, including the anticipated five year monitoring condition. Once USACE determines that all project-specific mitigation obligations have been met, wetland mitigation bank credits would be requested for surplus mitigation wetlands that have shown consistent establishment on the Site.

2.0 BASELINE DESCRIPTION OF MITIGATION SITE

2.1 Aquatic Resources

Wetlands within the Site were delineated using the routine method detailed in the *U.S. Army Corps of Engineers 1987 Wetland Delineation Manual* (Environmental Laboratory 1987) (see Appendix B). Identified wetland areas were classified according to Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. December 1979) and associated Nebraska Wetland Subclasses (LeGrange 2010).

Field delineations (NDOR 2009) determined that two wetlands, totaling 0.59 acre, currently exist on the parcel (see Table 1 – Baseline Wetland Delineation). The first is a palustrine emergent community within, and adjacent to, an unnamed tributary. The Riverine Channel designation of the Nebraska Wetland Subclass best describes the resources in this area. The other wetland is also an emergent community within a depression adjacent to an unnamed stream channel. The Floodplain Depressional designation of the Nebraska Wetland Subclass best describes the resources in this area. See Figure 4, Existing Wetlands and Waters of the U.S.

Table 1. Baseline Wetland Delineation

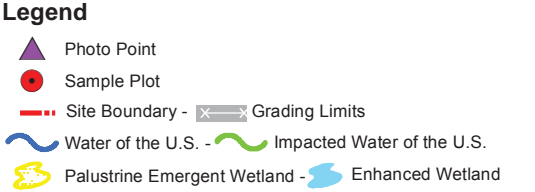
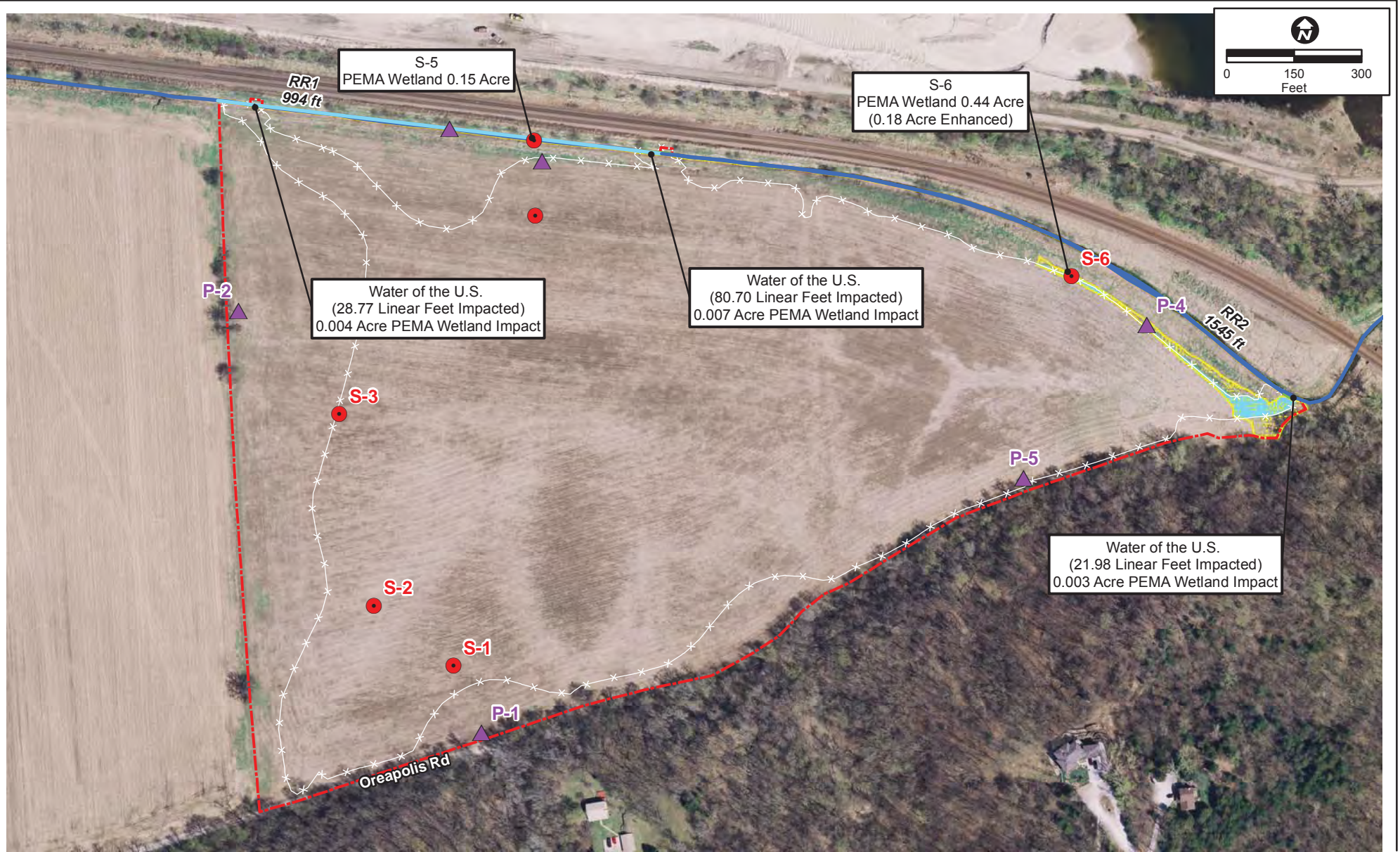
Cowardin Wetland Type	Nebraska Wetland Subclass	Dominant Species	Area (acres)
PEMA	Riverine Channel	Phalaris arundinacea (H) FACW+ 100%	0.15
PEMA	Floodplain Depressional	Phalaris arundinacea (H) FACW+ 100%	0.44
TOTALS			0.59

An unnamed tributary of the Missouri River is the only defined stream channel in the Site (see Appendix B). This waterway lies along the northern perimeter of the Site and parallels the BNSF Railway Company tracks. The approximate length of the tributary is 2,550 feet.

The Nebraska Stream Condition Assessment Procedure (NeSCAP) (USACE 2012) was performed on this tributary. Two reaches were identified for use of NeSCAP (see Figure 5). The two reaches were identified to account for future conditions of the tributary after diversion structures are constructed (see Section 3.0) Table 2 provides the Variable index ratings and resultant baseline function of this tributary (see Appendix B for the NeSCAP spreadsheet calculation worksheet).

Table 2. NeSCAP Summary for Unnamed Tributary

Variable	Condition Index Rating	
	Riparian Reach 1	Riparian Reach 2
Reach Length	995 ft	1,545 ft
Stream Width	6 ft	6 ft
V ₁ Hydraulic Conveyance and Sediment Dynamics	0.10	0.10
V ₂ In-Stream Habitat/Available Cover	0.25	0.25
V ₃ Floodplain Interaction-Connectivity	0.10	0.10
V ₄ Riparian Vegetation Composition	0.10	0.10
V ₅ Riparian Buffer Continuity and Width	0.75	0.75
V ₆ Riparian Land Use	0.25	0.25
Stream Index Rating	0.26	0.26
Stream Functional Units (Stream Area x Stream Index Rating)	1,542	2,395
Total Functional Units	3,937	



Existing Wetlands and Waters of the U.S.

Oreapolis Mitigation Bank
Site Development Plan
Cass County, Nebraska

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FIGURE	5

2.2 Threatened and Endangered Species

The U.S. Fish and Wildlife Service (USFWS) and the Nebraska Game and Parks Commission (NGPC) were consulted regarding federally- or state-listed species that may occur on the Site (see Appendix A). The USFWS determined that four species (western prairie fringed orchid, pallid sturgeon, interior least tern and piping plover) may exist within the Project Area.

Furthermore, on August 27, 2008 they concurred with the Determination of Effects listed in NDOR's Biological Evaluation: the Project would not adversely affect designated species or critical habitat. Similarly, NGPC determined that the Site would have no effect on any state-listed threatened or endangered species on November 17, 2008.

2.3 Cultural Resources

Consultation with the Nebraska State Historical Society was conducted in order to determine whether elements of archaeological significance exist on the Site. On February 13, 2008, the Nebraska State Historical Society provided documentation that no recorded historical resources exist on the property and that no survey for unrecorded resources is required (see Appendix A).

2.4 Soils

According to the U.S. Department of Agriculture, Natural Resources Conservation Service Soil Survey Geographic (SSURGO) database for Cass County, Nebraska, there are five mapped soil types within the Study Area. The following lists the soils and provides basic principles, including whether or not they are considered hydric.

- Albaton silty clay, 0 to 1 percent slopes (Ab): This deep, nearly level, poorly drained soil is on the Platte and Missouri River bottom lands. Ab is hydric.
- Colo silty clay loam, 0 to 2 percent slopes (Co): This deep, nearly level, somewhat poorly drained soil is on occasionally flooded bottom lands. Co is hydric.
- Haynie silt loam, 0 to 2 percent slopes (Ha): This deep, nearly level, moderately well drained soil is on bottom lands along major rivers. Ha is not hydric.
- Kennebec silt loam, 0 to 2 percent slopes (Ke): This deep, nearly level, moderately well drained soil is on bottom lands. Ke is partially hydric.
- Marshall silty clay loam, 2 to 5 percent slopes (MaC): This deep, gently sloping, well drained soil is on wide ridgetops and upland side slopes. Ha is not hydric.

NDOR also performed five geotechnical soil borings on the Site in May 2006. Results of the borings are provided in Appendix C. Generally, Site soils consist of lean and fat clays with trace to 30 percent occurrence of fine sand in the upper 7 to 11 feet. Below the surface layer, silty sand and poorly graded sand are more prevalent. Overall, it is thought that the soils on the Site are conducive to surface water ponding and wetland development.

2.5 Hydrology

Existing Site hydrology is limited due to the unnamed tributary that collects and conveys local drainage around the Site to the north. The slope of the existing unnamed tributary is estimated to be approximately 0.07%. Maximum velocities for bankfull flows are estimated to be 6.5 feet per second. The unnamed tributary's north bank is formed by the railroad embankment while the south bank is a berm that prevents overtopping during a 2-year event. The sources of the limited

hydrology that currently reach the Site are: 1) surface runoff from hills to the south (about 0.3 square mile of drainage area), 2) groundwater, and 3) rainfall on the Site itself (about 50 acres).

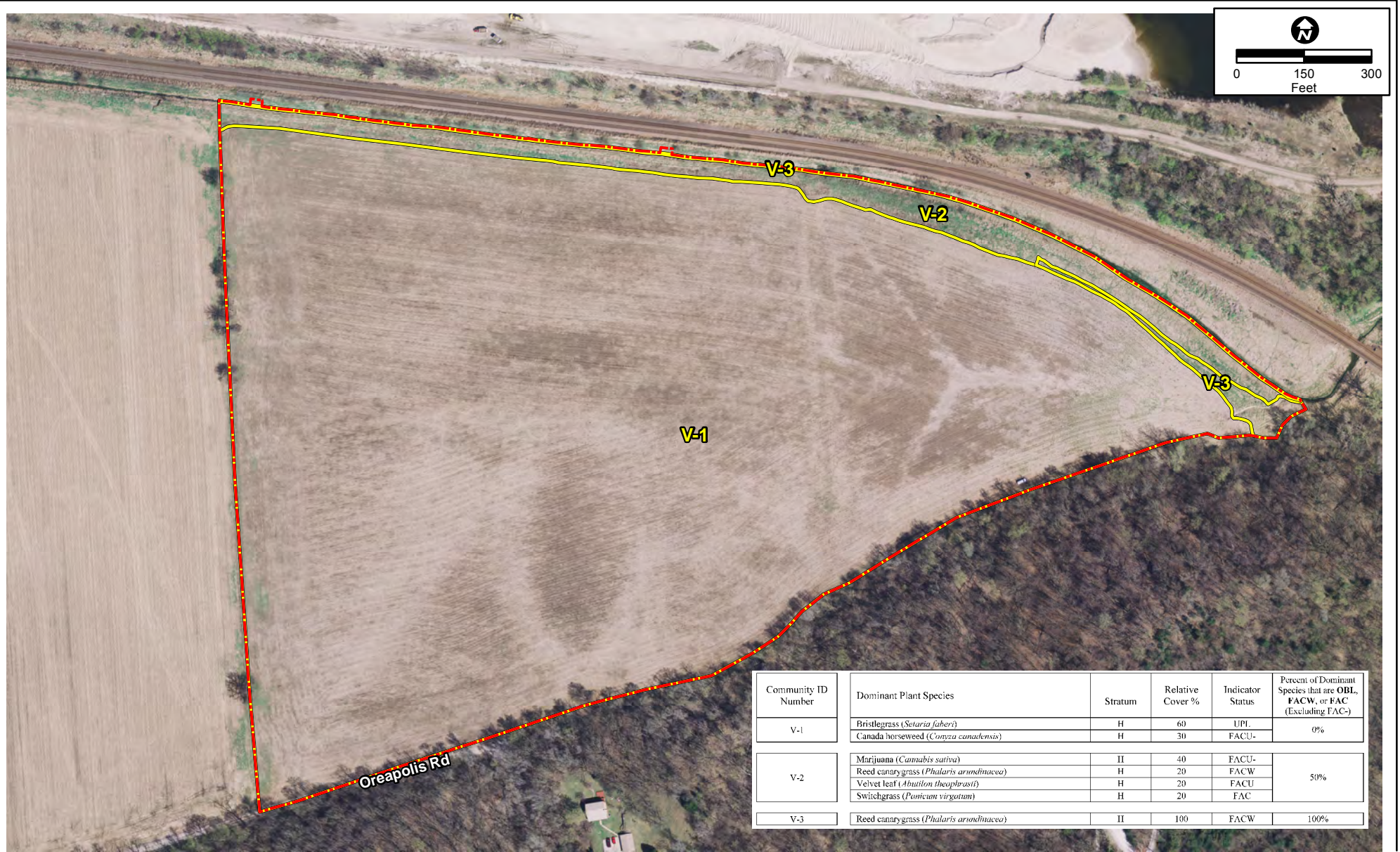
2.6 Vegetation

Although the Site has been historically used for agricultural production, the Site was fallow during the field delineation. Noted vegetation included hardy species that are highly adaptable: Canada horseweed (*Conyza canadensis*), reed canary grass (*Phalaris arundinacea*), switchgrass (*Panicum virgatum*), and giant foxtail (*Setaria sativa*).

During the Site's wetland delineation, vegetation was examined and mapped into three communities within the Site boundary. One of the three communities exhibits hydrophytic vegetation. See Figure 6 for an illustration of community boundaries and Table 3 for dominant species within each community.



Table 3. Vegetation Community Species List

Community ID Number	Dominant Plant Species	Stratum	Relative Cover (%)	Indicator Status	Dominant Species that are Hydrophytic (%)
V-1	Bristlegrass (<i>Setaria faberi</i>)	Herb	60	UPL	0
	Canada Horseweed (<i>Conyza Canadensis</i>)		30	FACU	
V-2	Marijuana (<i>Cannabis sativa</i>)		40	FACU-	50
	Reed canarygrass (<i>Phalaris arundinacea</i>)		20	FACW	
	Velvet leaf (<i>Abutilon theophrasti</i>)		20	FACU	
	Switchgrass (<i>Panicum virgatum</i>)		20	FAC	
V-3	Reed canarygrass (<i>Phalaris arundinacea</i>)		100	FACW	100



Community ID Number	Dominant Plant Species	Stratum	Relative Cover %	Indicator Status	Percent of Dominant Species that are OBL, FACW, or FAC (Excluding FAC-)
V-1	Bristlegrass (<i>Setaria faberii</i>)	H	60	UPL	0%
	Canada horseweed (<i>Caryza canadensis</i>)	H	30	FACU-	
V-2	Marijuana (<i>Cannabis sativa</i>)	II	40	FACU-	50%
	Reed canarygrass (<i>Phalaris arundinacea</i>)	H	20	FACW	
	Velvet leaf (<i>Abutilon theophrasti</i>)	H	20	FACU	
	Switchgrass (<i>Panicum virgatum</i>)	H	20	FAC	
V-3	Reed canarygrass (<i>Phalaris arundinacea</i>)	II	100	FACW	100%

Legend

-  Vegetative Communities
-  Site Boundary



Existing Vegetative Communities

Oreapolis Mitigation Bank
 Site Development Plan
 Cass County, Nebraska

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FIGURE
 6

3.0 CONSTRUCTION WORK PLAN

The following sheets from the Oreapolis Mitigation Site Plans are provided in Appendix D

- General Site Plan
- Grading Project
- Wetland Grading Plan Key Map
- Wetland Seeding Plan
- Wetland Planting Plan

Generally, the Site plan consists of diverting water onto the Site from the existing unnamed tributary that bounds the Site to the north and impounding the diverted water via an engineered structure that restricts outlet flows. Ultimately, the 50 acre parcel is designed to develop 38.9 acres of PEM wetlands, 6.4 acres of PFO wetlands, and 4,420 linear feet of stream channel.

3.1 Hydrology

Proposed flow diversions would result in 75 percent of the existing unnamed tributary normal flows being conveyed onto the Site via two gabion structures (50 percent of the original flow by the first structure and 50 percent of the remaining flow by the second structure). The remaining 25 percent of normal flows would continue conveyance within the unnamed tributary. Once diverted flows enter the Site, they would be conveyed through the Site via a meandering, constructed channel that is designed to frequently overbank onto adjacent depressional areas and result in emergent wetland development. A total of 4,420 linear feet of channel would be constructed (see Section 3.1.1 for a discussion on the typical channel profile). Channel depths would range between 1 and 3 feet. Approximately 3 feet of elevation change would occur from the inlet of the first gabion to the Site outlet. Additionally, water would be impeded from leaving the Site via a third gabion structure at the Site's outlet. The engineered outlet restriction would back water onto the Site and result in varied shallow water (wetland) habitat due to engineered, shallow excavations that would provide depth variation throughout the Site.

As surface hydrology for a site is often out of the control of site developers, surface hydrology was largely considered an independent variable parameter. However, a water budget (hydraulic model) was performed in support of Site development (see Appendix E). Associated findings determined that the proposed Site improvements would provide wetland hydrology, adequate to support a majority of hydrophytic species. Notable findings of the water budget are as follows:

- The 2-year peak discharge of the adjacent drainage is contained within the unnamed tributary (assuming no breach of the "levee" or "berm")
- Beginning between the 2-year and the 10-year event, the railroad bridge located near the proposed Site outlet significantly influences stream hydraulics, creating a backwater effect.
- The 10-year peak discharge overtops the berms in a number of locations and results in flooding of the entire Site.
- Overtopping of the meandering channel, proposed to convey diverted flow through the Site, can be anticipated if channel depths are in the range of 1.0 to 2.5 feet.

- There is a 10 percent annual chance that the Site will flood as a result of backwater from the Missouri River.

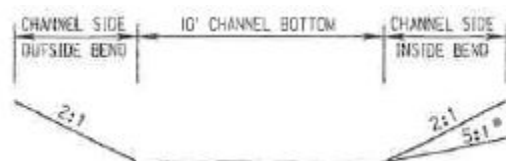
The Site's location and topography (within the nearly level floodplain shared by the Missouri River and Platte River) were the most influential factors on natural stream channel design. Natural stream channel design parameters were evaluated with respect to the Site's location and inherent stream design constraints. Specifically, four key parameters were evaluated:

- Floodplain connectivity;
- Bed Form Diversity;
- Lateral Stability; and
- Riparian Vegetation

3.1.1 Floodplain Connectivity

The designed channel would be located entirely within the merged Platte River and Missouri River floodplain; however, increased connectivity with the merged floodplain was incorporated into the stream design by creating a relatively wide (approximately 10-foot-wide) and shallow channel (1- to 2-foot deep) with 2:1 sloped banks. At three locations (approximate Stations 19+98 – 25+51, 31+86 – 38+10, and 38+79 – 42+95), the banks on one side of the channel were designed with a 5:1 slope with lower bank elevations to allow for a higher frequency of overtopping (see Typical Channel Profile below) thereby increasing the frequency of connectivity with the floodplain; overtopping of the stream banks is anticipated to occur at approximately a 2-year event. Missouri River floodwaters are anticipated to inundate the Site once every ten years.

Typical Channel Profile



3.1.2 Bed Form Diversity

The Site's flat topography, overbanking at smaller events, and soil profile indicate a naturally formed channel would possess limited bed form diversity in this area. Bed form diversity in a shallow, low velocity, sinuous channel would likely consist of sand and gravel deposits overlain by several feet of clay-silt soils (see Section 3.2 below). Low bankfull velocities as a result of channel slope within the unnamed tributary upstream of the Site and within the designed channel (less than 6.5 feet per second) would likely prevent the transport of larger alluvial deposits (coarse sand, gravel, small stones) from upstream and would limit areas of scour, preventing the formation of riffle-pool complexes. The unnamed tributary appears to be stable with little variation in bed form. Accordingly, the meandering stream was designed to be a shallow, relatively even bottomed, low velocity, sinuous stream.

3.1.3 Lateral Stability

Given the relatively low bankfull stream velocities (less than 6.5 feet per second) and conditions of the unnamed tributary adjacent to the Site, stream velocities at the bankfull stage are not

anticipated to create instability in the stream banks. Minor sediment aggradation and degradation may occur near the bends in the designed stream channel until equilibrium is achieved.

3.1.4 Riparian Vegetation

While bordering vegetation is proposed to be utilized for emergent wetland mitigation credits, the bordering vegetation was selected based on native Missouri River floodplain emergent wetland species with a proven history of successful establishment when used in mitigation design.

3.2 Soils

Beyond the shallow excavations and associated soil analysis, performed in accordance with the Site's Baseline Wetland Delineation Report (see Section 2.4), NDOR performed five geotechnical soil borings on the Site in May 2006. Results of the borings are provided in Appendix C. Generally, Site soils consist of lean and fat clays with trace to 30 percent occurrence of fine sand in the upper 7 to 11 feet. Below the surface layer, silty sand and poorly graded sand are more prevalent. Overall, it is thought that the soils on the Site are conducive to surface water ponding and wetland development.

3.3 Vegetation

Occupation of desirable hydrophytes will be facilitated by large-scale Site seeding and tree planting. Species selected for the seed mix comprise a mixture of freshwater marsh terrestrial natural community species (as described by Steinauer in *Terrestrial Natural Communities of Nebraska* [Steinauer, 2003]) and native wetland species that have demonstrated successful establishment in previous wetland mitigation sites. Steinauer freshwater marsh diagnostic and/or abundant species provided in the seed mix include common fox sedge, rice cutgrass, arrowhead, and water plantain; it is also anticipated that additional freshwater marsh diagnostic and/or abundant species will establish within the site through natural recruitment. NDOR will use its typical emergent wetland seed mix on the 36.64 acres of proposed (restored and enhanced) emergent wetland (see Appendix D for the seeding plan and Appendix F for the seed mixes). Areas proposed for forested/scrub-shrub wetland mitigation will be planted with numerous woody species, as specified in the Wetland Planting Plan (Appendix D). Lastly and as a result of March 2010 USACE coordination, a 50-foot wide buffer strip will be produced along the western boundary of the Site. This area will be planted with the Site's wetland seed mix, but would be considered buffer for credit accounting purposes (4:1 mitigation ratio instead of 1:1 mitigation ratio).

3.4 Construction Timing

Site construction is currently underway. The following considerations explain why construction was commenced prior to completion of the Site Development Plan:

- The Site is intended to provide project-specific mitigation for future projects and projects already commenced (in addition to wetland mitigation bank credits).
- Consistent with the Bellevue Bridge Study Record of Decision (FHWA and Iowa DOT December 14, 2007), any excess material resulting from Site development will be used as

fill material for the Nebraska approach of the US-34 Bellevue Bridge Project. The use of this material for this purpose would lessen the need for contractor-supplied fill and would ultimately deter the need for on-site borrow, which could result in Platte River depletions due to exposed groundwater evaporation.

- All necessary permits have been obtained.

3.5 Impacts to Aquatic Resources

The grading limits, associated with Site improvements, would result in approximately 0.01 acre of wetland impact. See Section 2.1 for a summary of anticipated wetland impacts. In addition, 131 linear feet of the channelized unnamed tributary will be impacted by diversion structures (see Figure 4, Existing Wetlands and Waters of the U.S.). The detailed characteristics of these wetland areas are discussed within the wetland delineation completed for the Site (see Appendix B).

Consistent with Department of the Army Clean Water Act Section 404 Permit No. 2010-00317-KEA (Oreapolis Mitigation Site), no compensatory wetland mitigation is required of actual Site construction/development. That is, no debiting of eventual credits would be allocated to the Site construction itself.

3.6 Enhancement to Existing Aquatic Resources

Existing wetlands at the Site not impacted by Site construction would ultimately benefit from efforts to improve and enhance Site hydrology and species diversity. Wetland enhancements would total 0.18 acre. See Appendix B for a summary of anticipated wetland enhancements.

4.0 PERFORMANCE STANDARDS

4.1 Performance Standards for Wetland Mitigation

As expectations for the Site will vary with each passing year, performance standards at the Site will be based on yearly expectations that indicate the Site is trending towards success.

Specifically, performance standards for the Site are as follows:

Emergent Wetlands

- Year 1 – Annual and perennial grasses and forbs recruited from the soil, the native wetland seed mixture, and propagules received from adjoining wetlands will begin to become established. These new plants will be interspersed, and bare ground may be apparent. Weedy annual species may be present and abundant. Absolute ground cover is at least 25 percent by the end of the first growing season. At least one primary hydrology indicator is present, distinct, and appropriate for the targeted water regime(s). Volunteer tree species are establishing (but are not expected to be dominant within the community).
- Year 2 – The plant distribution shall meet the 1987 *Corps of Engineers Wetlands Delineation Manual* Dominance Test—more than 50 percent of the dominant species are FAC or wetter. Absolute ground cover, species abundance, and species diversity are greater than Year 1. Undesirable species (for example, noxious weeds, *Typha* spp., *Phragmites* spp., and *Phalaris* spp) are neither dominant nor trending toward dominance. Weedy annuals may still be present or even dominant, but should be decreasing. Absolute ground cover is at least 50 percent. At least one primary hydrology indicator is

present, distinct, and appropriate for the targeted water regime(s). Volunteer tree species are establishing.

- Year 3 – The plant distribution shall meet the 1987 *Corps of Engineers Wetlands Delineation Manual* Dominance Test—more than 50 percent of the dominant species are FAC or wetter. Additionally, at least three native hydrophytes are among the list of dominants including one dominant Steinauer-listed freshwater marsh diagnostic species. In addition, at least one other Steinauer-listed diagnostic and/or abundant species will be present at the site. Weedy annuals may still be present but are on a continuing decline. Absolute ground cover is at least 75 percent. At least one primary hydrology indicator is present, distinct, and appropriate for the targeted water regime(s). Volunteer tree species are establishing.
- Year 4 – The Year 3 thresholds for vegetation and hydrology continue to be met. Weedy annuals are rare. Volunteer tree species are establishing.
- Year 5 – The Year 3 and 4 thresholds for vegetation and hydrology continue to be met and show all signs of sustainability. In addition, at least one Steinauer-listed freshwater marsh abundant species will be among the dominant species identified. The wetland acreage required by the permit will meet the dominance test for wetland vegetation, and at least three native hydrophytes will be among the dominant species. Absolute ground cover is at least 75 percent. At least one primary hydrology indicator is present, distinct, and appropriate for the targeted water regime(s). Further, undesirable species comprise less than 10 percent of the site, and noxious weed species are eliminated. Volunteer tree species are establishing.

Forested/Scrub-shrub Wetlands

- Year 1 – Planted tree/shrub species are establishing for the appropriate water regime. Dead trees/shrubs will be replaced. Annual and perennial grasses and forbs recruited from the soil, the native wetland seed mixture, and propagules received from adjoining wetlands will begin to become established. Weedy annual species may be present and abundant. Absolute ground cover is at least 25 percent. At least one primary hydrology indicator is present, distinct, and appropriate for the target landscape.
- Year 2 – Re-planted tree/shrub species are establishing for the appropriate water regime. Established trees/shrubs will be measured to show growth trends. Species are viable in size and disease resistant. The amount of tree/shrub replacement needed should be on a downward trend. All dead trees/shrubs will be replaced. Absolute ground cover, species abundance, and species diversity are greater than Year 1. Undesirable species are neither dominant nor trending toward dominance. Weedy annuals may still be present or even dominant, but should be less than Year 1. Absolute ground cover is at least 50 percent. At least one primary hydrology indicator is present, distinct, and appropriate for the target landscape.

- Year 3 – Re-planted tree/shrub species are establishing for the appropriate water regime. Established trees will be measured to show growth trends. Species are viable in size and disease resistant. The amount of tree/shrub replacement needed should be on a downward trend. All dead trees/shrubs will be replaced. The plant distribution shall meet the dominance test standards in the 1987 *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory January 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (Environmental Laboratory August 2010). Additionally, there are at least three native hydrophytes among the list of dominants. Absolute ground cover, species abundance, and species diversity are greater than the previous year. Weedy annuals may still be present, but should be less than the previous year. Absolute ground cover is at least 75 percent. At least one primary hydrology indicator is present, distinct, and appropriate for the target landscape.
- Year 4 and 5 – Re-planted tree/shrub species are establishing for the appropriate water regime. Established trees/shrubs will be measured to show growth trends. Species are viable in size and disease resistant. The amount of tree/shrub replacement should be on a downward trend. All dead trees/shrubs will be replaced. The Year 3 thresholds continue to be met or exceeded.
- Year 6 through Year 10 – Trees/shrubs are viable in size and disease resistant. The survival rate, after Year 5, shall not be less than 75 percent. If the survival rate is less than 75 percent, the dead trees/shrubs will be replaced. If survival rate of planted tree/shrub species is less than 75 percent of the original count, the trees/shrubs will be replaced to the original 100 percent planting count. A tree stratum and sapling/shrub stratum baseline survey will estimate percent cover of the respective stratum for the PFO wetland mitigation area. The tree and sapling/shrub stratum survey will show increasing percent of coverage over the previous year. The baseline survey will include the voluntary trees and shrubs.

Wetland Hydrology

Indicators of wetland hydrology as stated in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* are expected to be observed in created wetlands and would be used to evaluate the establishment of the wetland areas.

Wetland Soils

Hydric soils may take more than 10 years to develop; therefore, they may not be used for determining success of the wetlands.

Upland Buffer

Success of the buffer area would be determined by the establishment of perennial cover. At the end of the 5-year period, vegetative cover of at least 75 percent would be established in the upland buffer area.

4.2 Performance Standards for Stream Mitigation

Stream mitigation success would be evaluated using the NeSCAP variables. The stream mitigation project has been designed with the intent to achieve the following minimum condition index ratings for each variable. Variable V₄ Riparian Vegetation Composition and V₅ Riparian Buffer Continuity and Width will not be evaluated as part of performance standards for stream mitigation. This is because all buffer areas associated with the stream mitigation component of the Site will be utilized for project specific wetland mitigation or for mitigation banking credits. An index rating of “0” will be applied for these variables within the NeSCAP stream function calculations.

- V₁ Hydraulic Conveyance and Sediment Dynamics – 0.50
- V₂ In-Stream Habitat/Available Cover – 0.50
- V₃ Floodplain Interaction-Connectivity – 0.75
- V₄ Riparian Vegetation Composition – Addressed via emergent wetlands (Section 4.1)
- V₅ Riparian Buffer Continuity and Width – Addressed via emergent wetlands (Section 4.1)
- V₆ Riparian Land Use – 1.0

5.0 MONITORING REQUIREMENTS AND PLAN

5.1 Responsible Parties

NDOR is responsible for annual Site monitoring and reporting. NDOR reserves the right to employ an outside contractor to perform this action.

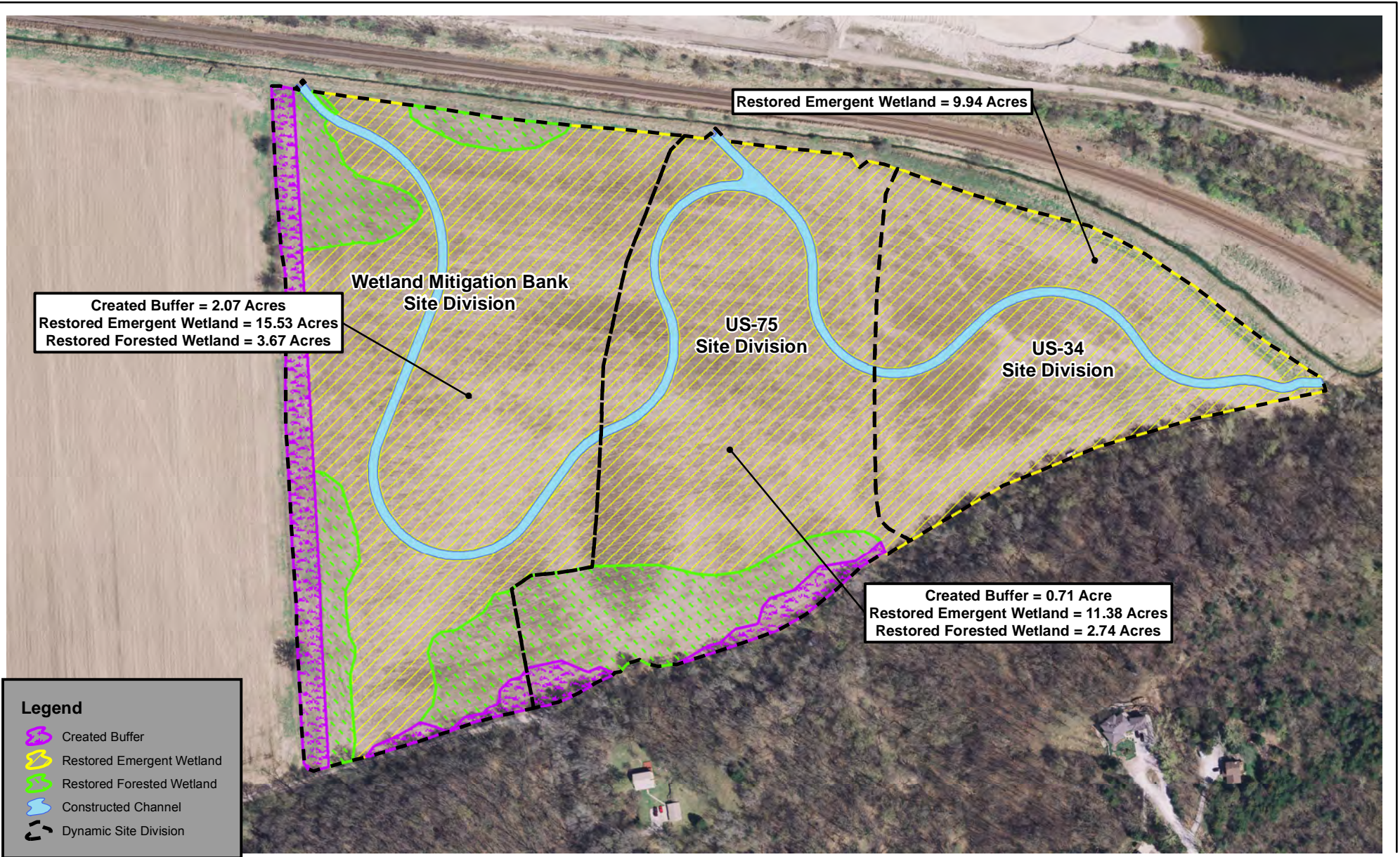
5.2 Data Collection, Assessment Tools and Methodologies

In efforts to accurately document Site development, NDOR would implement its standard wetland mitigation monitoring practices on the Site. NDOR’s standard mitigation monitoring practices adhere to the standards and practices set forth in Regulatory Guidance Letter 08-03 (USACE 2008). Specifically, annual Site monitoring would consist of vegetation community, hydrology, and wetland boundary mapping along three or four established sampling transects. Along the transects, sampling points would be established documenting the vegetation, soil, and hydrology specific to each sampling point. The north/south transects would be established during the first monitoring event to comprehensively sample areas representative of the entire Site. Vegetative communities not crossed by transects will be noted and included in the annual monitoring reports. Additionally, the transects would facilitate the documentation of transitions between upland and wetland areas and among wetland types. The established transects would be used throughout the necessary Site monitoring period to document a chronology of changes in the amounts and types of wetlands that develop on the Site. Additionally, ground-level site photographs would be taken at regular intervals from common locations.

In addition to NDOR’s standard wetland monitoring protocols, Site-specific monitoring protocols are also necessary at the Site. This is due to the Site acting to mitigate two projects (authorized by two separate Department of the Army Permits) and potentially developing subsequent wetland mitigation banking credits.

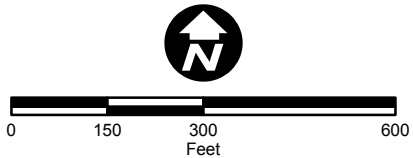
The Site will be spatially divided into three areas and the mitigation wetlands that development on the Site will be designated to: 1) the US-34 project, 2) the US-75 project, and 3) wetland

mitigation bank credit certification. The spatial divisions of the Site would be dynamic and would move, as necessary, to provide required site-specific mitigation for the US-75 and US-34 projects. With this in mind, it is initially thought that the area located at the eastern Site extreme will be the first area to develop functional emergent mitigation wetlands; therefore and consistent with current construction schedules for the projects, this area is initially allocated to provide compensatory mitigation to the US-34 Project. Moving westward and along the southern Site boundary, the second area would be initially allocated to provide compensatory emergent and forested wetland mitigation to the US-75 Project. The surplus area, located at the western end of the Site, would be considered for wetland mitigation bank credit certification. The initial spatial Site divisions are provided in Figure 7, Dynamic Site Divisions.



Legend

- Created Buffer
- Restored Emergent Wetland
- Restored Forested Wetland
- Constructed Channel
- Dynamic Site Division



Aerial Imagery: 2010 MAPA



Dynamic Site Divisions

Oreapolis Mitigation Bank
Site Development Plan
Cass County, Nebraska

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FIGURE
7

5.2.1 Wetland

Wetland monitoring will consist of Global Positioning System (GPS) mapping of the wetland vegetation communities and Site hydrology, observation of changes in soil characteristics, and collection of ground level site photos taken at regular intervals from common locations.

Annual monitoring reports of the wetland mitigation site will be submitted to USACE, Nebraska Regulatory Office, to ensure that Site is developing properly. Wetland monitoring reports will be performed according to the following procedure:

- 1) Monitoring reports shall be done following Part IV Section E (Comprehensive Determinations) of the 1987 *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory January 1987).
- 2) A set of as-built plans of the Site will serve as a baseline for future monitoring, with locations marked for observation photos.
- 3) Photos taken at observation points, and showing all representative areas of the Site, will be taken at least once a year during the growing season.
- 4) Annual monitoring reports for the Site will be due on December 1 of the monitored years.
- 5) If the Site is considered to be failing at any time, NDOR will coordinate with USACE and implement corrective action.

The following sections detail each monitoring procedure.

5.2.1.1 Ground-level Photography

The following steps will be used for this procedure:

- 1) Select permanent photo points during the first site visit. A sufficient number of points will be selected to document site design characteristics.
- 2) Record photo point designation and orientation.
- 3) Document the location, number, and orientation of each photo. Photos will be taken at each site visit.

In addition to the permanent photo point locations, additional photos will be taken to support other notable conditions, such as erosion control, remedial actions, and additional site activities. Location and orientation of these photos will be recorded and noted as additional locations to visit (depending on site characteristic) in subsequent monitoring events.

Photographs will be used as qualitative and supportive documentation to show that hydrology and vegetation permit conditions have been met. In addition, a multiple-year sequence of photographs shows development of vegetative communities.

The final product will contain the following: aerial photographs that show the location and orientation of all photos and an MS Word document that contains photos for all permanent photo point locations as well as any additional photos.

5.2.1.2 Hydrology Determination

The following steps will be used for this procedure:

- 1) Document the presence of primary hydrology indicators at hydrology sample points and through visual observation of inundation and/or saturation, watermarks, drift lines, sediment deposits, and drainage patterns.
- 2) Document secondary hydrology indicators at each hydrology sample point, including oxidized root channels in the upper 12 inches, local soil surveys, water-stained leaves, and the FAC-Neutral test.
- 3) Map hydrology sample points and the wetland hydrology boundaries on as-built plans or aerial photographs while in the field.

The hydrology data gathered will be used to identify and map the hydrologic conditions at the mitigation site. On-site hydrology data will be collected to provide an inventory of hydrology indicators present throughout the mitigation site, with data recorded at each hydrology sample point.

The result of the hydrology determination will be documented on as-built plans or aerial photographs with the wetland hydrology boundary indicated.

5.2.1.3 Soils Determination

The following steps will be used for this procedure:

- 1) Locate soil sample locations in each mapped or observed soil type. In addition, the points should be located across the gradient from wetland to upland.
- 2) Give each soil sample location a permanent designation (e.g., S1, S2, etc.).
- 3) Identify the location of all soils sample locations on as-built plans or aerial photographs. If the sample locations are found to be inadequate, they can be moved but reasons for the relocations will be provided.
- 4) Dig a pit or take a soil sample with a soil probe at each soil sample location.
- 5) Describe and record data on the profile, including a description of soil texture, soil color, presence of redox features, and thickness of each horizon. It is important to describe the soil profile immediately after completion of construction but prior to inundation. This will allow for documentation of any changes in soils as a result of the creation.
- 6) If necessary, sample additional locations to define where the hydric soil characteristics begin or end.

The soils data gathered can be used for both evaluating Site suitability for wetland creation and documenting hydric soil development. When used to evaluate the development of soils, it is important that post construction but pre-inundation or saturation conditions be documented. This will provide the baseline data needed for making comparison with future samples. Any changes in the profile descriptions will be compared and documented. In particular, changes in the abundance, size, and contrast of redox features will be noted.

The result of the soils determination will be documentation of site conditions and as-built plans or aerial photographs showing field sample locations.

5.2.1.4 Vegetation Evaluation

The routine method from the 1987 *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory January 1987) will be used for determining plant communities at the site. The method is outlined below.

- 1) During the annual field visit, a representative observation point within each community will be selected (may change from year to year).
- 2) Characterize each plant community by visually determining and recording the dominant species for the herbaceous, tree, shrub, and woody vine layers. The National List of Plant Species That Occur in Wetlands: Central Plains (Region 5) (Lichvar 2014) will be used to determine the indicator status for each species. In addition, document the aerial coverage of bare soil.
- 3) Determine and document whether hydrophytic vegetation is present using the 50:20 Rule.
- 4) Note any significant non-dominant, invasive, or colonizing species that provide additional evidence that the community is, or is not, developing into a hydrophytic community.
- 5) Determine what areas of emergent plant communities have achieved 80 percent canopy cover. Map these areas on aerial photographs.
- 6) Determine whether or not tree plantings have a 75 percent survival rate.

5.2.1.5 Wetland Boundary Delineation

The wetland boundaries are determined based on the presence of hydrology and hydrophytic vegetation. This procedure will use the data collected from the hydrology and vegetation procedures to determine and map the wetland boundary. The boundary will be based on overlaying the hydrology and vegetation maps. Hydric soils can take many years to form. If changes in hydrology have occurred so recently as to not allow hydric soils to develop and if wetland hydrology and vegetation are present, the area is a wetland. Soil samples will be documented (Soils Field Form) at strategic hydrology sample points but are for supplemental information only and will not be used in determining wetland boundaries.

The following steps will be used for this procedure:

- 1) Determine the wetland boundary in accordance with standard wetland delineation criteria (1987 Manual).
- 2) Classify the wetlands according to Cowardin et al. (1979).
- 3) Measure the area of each wetland type.
- 4) Record the wetland types and areas.
- 5) Determine the areas that meet or exceed the performance standards.

The final product of this procedure will be a map showing the wetland boundaries and acres that meet the performance standards.

5.2.2 Stream

The NeSCAP will be used to monitor the development of the mitigated stream channel. A total of 4,420 linear feet of stream channel is designed for the Site. However, the US-75 project

required a total of 451 linear feet of stream channel to be mitigated on Site. Therefore, a total of 3,969 linear feet of stream channel is available for credit production. See Figure 8 for the location of the 451 linear feet of stream channel used for the US-75 project mitigation (identified as SM 2).

Three Riparian Reaches will be established (see Figure 8). Stream Mitigation Reach 2 accounts for the 451 linear feet of stream channel used for the US-75 project mitigation. Stream Mitigation Reaches 1 and 3 will be used to establish stream mitigation credits. A reference point within each Stream Mitigation Reaches 1 and 3 will be documented by GPS and site photographs taken. The NeSCAP assessment will be performed during annual monitoring. The NeSCAP calculation workbook will be completed and submitted with the annual monitoring report (beginning in 2015). In addition, any observed changes in stream profile or other relevant site observations will be documented.

5.2.3 Mitigation Site Monitoring Report

5.2.3.1 Standard Reporting Protocols

Annual Site monitoring reports will be submitted to the USACE Wehrspann Regulatory Office to document Site development. Monitoring reports would identify both the amount and type of wetlands that develop on the Site by mapping and describing wetland hydrology and vegetation. The NeSCAP index rating will be provided. By interpreting the data included in the monitoring report, NDOR and USACE would determine whether Site development is adequate and whether the Site's performance standards are being met. Lastly, the monitoring report would provide NDOR and USACE information sufficient to determine whether corrective actions are necessary.

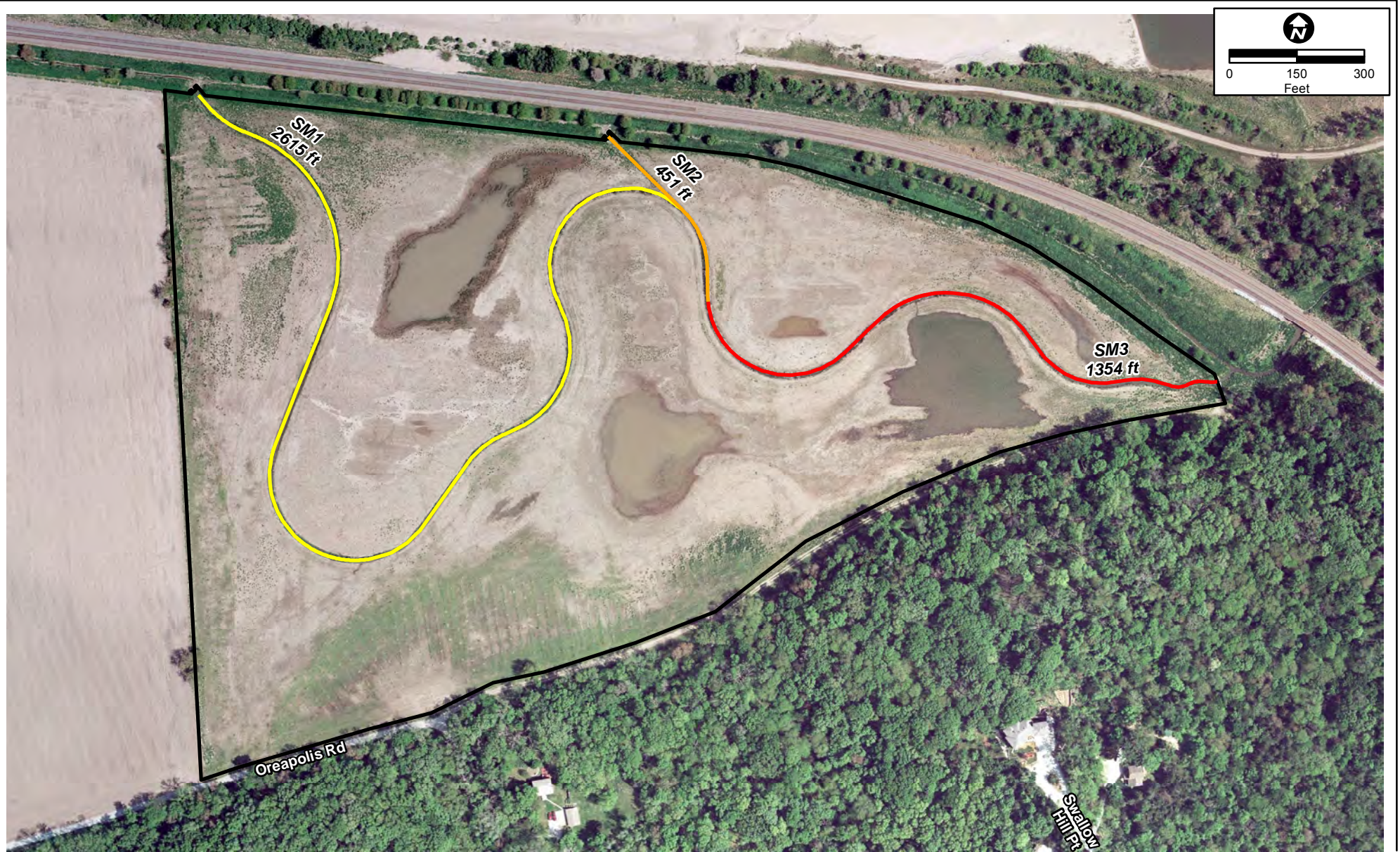
5.2.3.2 Site-Specific Reporting Protocols

A modified wetland mitigation monitoring report will be developed for Site monitoring. In addition to figures that include the dynamic Site divisions (previously noted) the reports will also include an accounting section that documents mitigation wetland development in relation to 1) the US-34 Project, 2) the US-75 Project, and 3) surplus mitigation acres that may be considered for wetland mitigation bank credit certification. Specific mitigation wetland acreages will be quantified and qualitatively discussed relative to each project requiring site-specific mitigation. That is, the reports will provide a detailed discussion on how the Site is developing relative to the site-specific mitigation requirements of the US-34 and US-75 projects. Additionally, the reports will provide a more generalized discussion relative to surplus mitigation wetland development.

6.0 CONTINGENCY PLANS AND REMEDIAL ACTIONS

If, during the monitoring period, it is determined that the Site is failing to meet conditions described in all applicable Section 404 Permits and the Site Development Plan, NDOR would evaluate potential causes for Site failure and would take appropriate corrective measures to assure that the Site meets the permit conditions. Potential corrective actions may include modification of water diversion and control structures and additional seeding or tree planting. If, after corrective measures have been taken, the Site continues to fail to meet the requirements of the permits, NDOR would seek an alternative site in order to be in compliance with the permits.

In the event that NDOR fails to implement necessary remedial actions within 30 calendar days after notification by USACE or another authorizing agency, or within an established time frame agreed upon by USACE, the IRT (acting through the Chair) will notify NDOR and the appropriate authorizing agency(ies) and will recommend appropriate remedial actions.



Legend
□ Site Boundary



Stream Mitigation Riparian Reaches

Oreapolis Mitigation Bank
Site Development Plan
Cass County, Nebraska

DATE	February 2016
FIGURE	8

7.0 LONG-TERM MANAGEMENT PROVISIONS

The operational life of the Site will terminate under the following conditions: 1) USACE has released NDOR from mitigation requirements associated with the project-specific portion of the Site; 2) compensatory mitigation credits have been exhausted; 3) banking activity is voluntarily terminated with a USACE approved written notice from NDOR; and 4) it has been determined that the Site is functionally mature and/or self-sustaining.

NDOR will either provide long-term management or will deed the Site over to another State or conservation agency. Regardless, the wetlands, streams, and/or other aquatic resources at the Site will be protected in perpetuity via a permanent conservation easement.

8.0 WETLAND CREDIT PRODUCTION

NDOR will not request the certification of wetland or stream mitigation bank credits until USACE has verified that the Site meets all site-specific mitigation obligations, including the five year monitoring condition anticipated to be included in the Section 404 permits for both the US-34 and US-75 projects. At which time that USACE determines that all site-specific mitigation obligations have been met, wetland mitigation bank credits would be requested for surplus wetland or stream mitigation credits that have shown consistent establishment on the Site.

8.1 Wetland Credit Production

As previously noted, wetland impacts related to two NDOR projects are currently being mitigated on the 50 acre parcel. Following the USACE determination that all site-specific mitigation obligations have been met (as noted above) surplus wetland and stream credits produced on the 50 acre parcel would be banked at the Site. Table 4 presents the mitigation credits used by the US-34 and US-75 projects and the maximum amount of surplus wetland area and stream length that may develop at the Site.

Table 4. Wetland Credit Production

Type of Mitigation	Anticipated Acres at Site		Anticipated Wetland Bank Credits		US-34 Debits	US-75 Debits	Net Wetland Bank Credits
PEM Floodplain Depressional Wetlands (ac)	36.46 (restored)	0.18 (enhanced)	36.46 ¹	0.06 ²	-9.94	-12.8	13.78
			36.52				
PFO/PSS ⁴ Floodplain Depressional Wetlands (ac)	6.4		6.4 ¹		--	-	6.4
Buffer (ac)	2.8		0.7 ³			--	0.7

¹ Wetland credits for wetland restoration are produced at a ratio of 1:1 for Condition 1 (NDOR, June 2015)

² Wetland credits for wetland enhancement are produced at a ratio of 3:1 for Condition 1 (NDOR, June 2015)

³ Wetland credits for upland buffer are produced at a ratio of 4:1 for Condition 1 (NDOR, June 2015)

⁴ PFO and PSS wetland development would be accounted for as individual wetland types

Minimum credit ratios have been established in accordance with The U.S. Army Corps of Engineers' Guidance for Compensatory Mitigation and Mitigation Banking in the Omaha District (USACE August 2005). These ratios are detailed in NDOR's Umbrella Mitigation Banking Agreement (NDOR June 2015); credits certified at the Site will be produced based on these ratios.

8.2 Stream Credit Production

Stream mitigation credits produced at the Bank will be determined through the application of NeSCAP (USACE 2012). A total of 4,420 linear feet of stream channel is designed for the Site. However, the US-75 project required a total of 451 linear feet of stream channel to be mitigated on Site. Therefore, a total of 3,969 linear feet of stream channel is available for credit production.

Table 5 provides the anticipated NeSCAP functional units for the proposed stream channel. See Appendix G for the NeSCAP worksheet for the Designed Channel.

Table 5. NeSCAP Summary Designed Stream Channel

Variable	Condition Index Rating	
	Stream Mitigation Reach 1	Stream Mitigation Reach 3
Reach Length	2,615 ft	1,354 ft
Stream Width	10 ft	10 ft

V ₁ Hydraulic Conveyance and Sediment Dynamics	0.75	0.75
V ₂ In-Stream Habitat/Available Cover	0.75	0.75
V ₃ Floodplain Interaction-Connectivity	1.0	1.0
V ₄ Riparian Vegetation Composition*	0	0
V ₅ Riparian Buffer Continuity and Width*	0	0
V ₆ Riparian Land Use	1.0	1.0
Stream Index Rating	0.54	0.54
Stream Functional Units (Stream Area x Stream Index Rating)	15,254	7,898
Gross Site Functional Units	23,152	
Unnamed Tributary Functional Units (pre-project condition, see Section 2.1)	3,937	
Net Functional Units at the Site	19,215	

*This condition index rating is assumed to be “0” and therefore, the resultant functional units are “0” for this variable to exclusively use all wetland areas that are within or buffer the stream mitigation reaches as project specific wetlands mitigation or as wetland mitigation banking credits. Performance Standards for emergent wetlands are used to determine success of these areas.

The following describes the rationale for the expected index rating for each variable:

- V₁ Hydraulic Conveyance and Sediment Dynamics – Based on expected overtopping frequencies (flows between 2-year and 10-year events), base flow sediment dynamics are expected to be in equilibrium. It is expected that sediment deposition occur on insides of meanders. Due to low velocities and anticipated vegetation establishment, limited erosion is anticipated on the outer bends of meanders. AA consistent channel width, for and floodplain area are anticipated for both riparian reaches. A 0.75 condition index rating (verses a 1.0) is anticipated due to the percentage of altered hydraulic conveyance of the unnamed ditch adjacent to the Site.
- V₂ Instream Habitat/Available Cover – It is anticipated that >30 percent but less than 50 percent of the riparian reaches will contain habitat features favorable for stream faunal colonization and cover. This includes areas of rooted vegetation along the channel banks and within fringes of channel to provide faunal cover. The riparian reaches will not contain drop structures culverts, or diversions within the reach that would affect the channel gradient or faunal movement.
- V₃ Floodplain Interaction-Connectivity – The riparian reaches were designed in the floodplain with minimum bank heights to promote overbanking based on channel depths between 1.0 and 2.0 feet. The riparian reaches were designed within the active floodplain to exhibit nonincised stream conditions as a Class I condition.

- V₆ Land Use – The majority of each mitigation reach will be managed for native vegetation cover resulting in a weighted average of over 8.

The unnamed ditch had 3,937 NeSCAP stream functional units (see Section 2.1) and will be considered as the pre-project condition for the purpose of calculating net NeSCAP functional units. The rationale of considering the unnamed tributary as the pre-project condition is that water diverted from the unnamed tributary is increasing the functional value by contributing to the flow regime of the Designed Channel. Based on the NeSCAP approach, the pre-project condition NeSCAP credits are subtracted from the Designed Channel NeSCAP credits to calculate the net NeSCAP functional units. Although the unnamed tributary would remain in place post-project, the approach for calculating net NeSCAP credits would effectively be the same if the unnamed tributary did not exist post-project. As shown in Table 5, subtracting the functional units generated from the unnamed tributary (3,937) from the 23,152 functional units generated from the Designed Stream Channel leaves a total of 19,215 net NeSCAP units anticipated to be available at the Site upon certification.

8.3 Credit Availability

Pre-crediting (in terms of authorizing credits following Site Development Plan approval or construction completion) is only applicable to the Site. Pre-crediting may be applied to 30 percent of the planned, surplus mitigation wetlands that satisfy Wetland Delineation Manual and Regional Supplement wetland criteria, but that are pending certification from the Nebraska Interagency Review Team (IRT). A general schedule of credit availability, including allowable pre-crediting, is provided in Table 6. Partial Bank certification is allowable, at the discretion of the IRT. Credit ratios are based on the threshold, or minimum, ratios defined by USACE (August 2005).

Table 6. Schedule of Credit Availability

Status of Mitigation Bank Site	Credit Production Ratio ¹	Percentage of Available Credits Released	Cumulative Percentage of Available Credits Released
Wetland Credits			
Site Development Plan approved	1.5:1	5% ²	5%
Construction completed	1.5:1	10% ²	15%
Wetland criteria in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0) are satisfied	1.5:1	15% ²	30%
Site is ecologically sound (that is, certified) ³	1:1	100% ⁴	100%
Stream Credits			
Site Development Plan approved	1.5:1	5% ²	5%
Construction completed	1.5:1	10% ²	15%
Site is meeting established performance standards (see Section 4.2)	1.5:1	15% ²	30%
Site is ecologically sound (that is, certified) ³ for at least two consecutive growing seasons	1:1	100%	100%

Source: USACE August 2005.

Notes:

1 credit production ratio relates to the number of acres required to produce one (1) credit.

- 2 *Based on total anticipated credits.*
- 3 *Based on established performance standards.*
- 4 *Based on total areas meeting established performance standards; partial certification is allowable.*

8.4 Compensation Ratios

Compensation ratios for both wetland and stream mitigation credits are detailed in NDOR's Umbrella Mitigation Banking Agreement (NDOR, June 2015); compensation ratios and associated credit debiting from the Site will follow the protocols contained therein.

9.0 REFERENCES

- 33 CFR 332. Compensatory Mitigation for Losses of Aquatic Resources; Final Rule.
- Chapman, Shannen S., Omernik, James M., Freeouf, Jerry A., Huggins, Donald G., McCauley, James R., Freeman, Craig C., Steinauer, Gerry, Angelo, Robert T., and Schlepp, Richard L., 2001, Ecoregions of Nebraska and Kansas (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,950,000).
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- NDOR. January 2009. Oreapolis Wetland Mitigation Site Baseline Wetland Delineation Report.
- NGPC. October 2010. Wetland Program Plan for Nebraska. Ted LeGrange.
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- USACE. October 10, 2008. RGL 08-03, Minimum Monitoring Requirements for Compensatory Mitigation Projects Involving the Creation, Restoration, and/or Enhancement of Aquatic Resources.
- USACE. 2012. *Nebraska Stream Condition Assessment Procedure (Interim)*.

ATTACHMENT K
Mitigation Bank Ledger
Example

Mitigation Site Name: **Tarnov Wetland Mitigation Bank**
 NDOR Project Number: **STPB-71(23)**
 NDOR Control Number: **31354**
 Legal Description: **S 1/2 of N 1/2 Section 19, T 18N, R 1W, Platte County**
 Geographic Service Area: **Loess Uplands and Till Plains (MLRA 102B)**
 Total Size (ac.): **-**
 Cowardin Class(es): **PEMA/C, PEMF, PFOA, BUFFER**
 NE Wetland Subclass(es): **Floodplain Depressional**

Approved Site Dev. Plan: **NA**
 Construction Complete: **Fall 1999**
 Bank Certified: **3/16/2004**
 % of Credits: **100**

Type	ACCOUNTING		Balance
	Credits Produced	Debits Used	
BUFFER	1.63	0.00	1.63
PEMA/C	54.37	47.67	6.70
PSSA	0.00	0.00	0.00
PFOA	5.53	5.53	0.00
PEMF	5.39	1.50	3.89
TOTAL	66.92	54.70	12.22

WETLAND CREDITS								
Credit Establishment Date	Available Acres ¹	Credit Release ²	Mitigation Type	Credit Development Ratio ³	Cowardin Class	NE Sub-Class ⁵	Credits Available	
9/26/2001	46.52	Partial Certification	Creation	1	PEMA/C	FD	46.52	
9/26/2001	5.39	Partial Certification	Creation	1	PEMF	FD	5.39	
9/26/2001	1.63	Partial Certification	Creation	1	BUFFER	NA	1.63	
3/16/2004	7.85	Certified	Creation	1	PEMA/C	FD	7.85	
3/16/2004	5.53	Certified	Creation	1	PFOA	FD	5.53	

	EXPECTED DEVELOPMENT					TOTAL CREDITS
	PEMA/C (ac.)	PSSA (ac.)	PFOA (ac.)	PEMF (ac.)		
Re-Establishment (1:1)	0	0	0	0	0	0
Rehabilitation (1:1)	0	0	0	0	0	0
Enhancement (3:1)	0	0	0	0	0	0
Creation (1:1)	0	0	0	0	0	0
Protection (10:1)	0	0	0	0	0	0
Buffer (4:1)	0	0	0	0	0	0
TOTAL CREDITS	0	0	0	0	0	0

Permit Date	COE Permit Number	Project Name	NDOR Control Number	NDOR Project Number	Impacted Acres	WETLAND DEBITS		In Bank Service Area?	Future Project to be Debited?	Debit Ratio ⁴	Credit Cowardin Class	Credit NE Sub-Class ⁵	Total Debits	Notes
						Impacted Cowardin Class	Impacted NE Sub-Class ⁵							
NA	94-50888	Tarnov South	32017	F-81-3(1024)	5.2800	PEMA/C	NA	Yes	No	1	PEMA/C	NA	5.2800	
NA	94-50888	Tarnov - N-91	32018	F-81-3(1025)	3.7000	PEMA/C	NA	Yes	No	1	PEMA/C	NA	3.7000	
NA	99-11211	Octavia N & S	11719	STP-BHF-15-2(114)	5.6900	PEMA/C	NA	Yes	No	1	PEMA/C	NA	5.6900	3.52 ac Impacts / 5.69 debits
NA	01-11372	Norfolk East	32021	F-275-6(1020)	0.9300	PEMA/C	NA	Yes	No	1	PEMA/C	NA	0.9300	
NA	02-10077	US-20 to N-59	31582	S-14-4(1014)	0.4600	PEMA/C	NA	Yes	No	1	PEMA/C	NA	0.4600	
NA	02-10974	Wayne East	30901	STPD-35-4(112)	0.1800	PEMA/C	NA	Yes	No	1	PEMA/C	NA	0.1800	
NA	03-10282	Norfolk North	30849A	NH-81-3(132)	0.8900	PEMA/C	NA	Yes	No	1	PEMA/C	NA	0.8900	
NA	03-10425	Niobrara River N & S	80648	NH-281-4(115)	1.5000	PEMF	NA	Yes	No	1	PEMF	NA	1.5000	
NA	03-10425	Niobrara River N & S	80648	NH-281-4(115)	2.02	PEMA/C	NA	Yes	No	1	PEMA/C	NA	2.0200	3.52 Total Debits
NA	03-11053	West Point to Oakland	31430	STPD-BR-32-7(105)	0.25	PEMA/C	NA	Yes	No	1	PEMA/C	NA	0.2500	
NA	03-11044	Fullerton North	41989	STPD-BR-14-3(110)	0.1700	PEMA/C	NA	Yes	No	1	PEMA/C	NA	0.1700	
NA	03-11231	Wakefield N & S	31219	STPD-35-4(115)	0.2400	PEMA/C	NA	Yes	No	1	PEMA/C	NA	0.2400	
NA	03-11367	Silver Creek South	41851	STPD-39-2(105)	3.1800	PEMA/C	NA	Yes	No	1	PEMA/C	NA	3.1800	1.77 ac Impacts / 3.18 Debits
NA	03-11485	Pierce East	31509	STPD-98-5(105)	0.0200	PEMA/C	NA	Yes	No	1	PEMA/C	NA	0.0200	
NA	04-10220	Osmond East	31379	NH-20-5(110)	0.0400	PEMA/C	NA	Yes	No	1	PEMA/C	NA	0.0400	
NA	04-10470	Dixon Northeast	31377	NH-20-6(106)	0.0300	PEMA/C	NA	Yes	No	1	PEMA/C	NA	0.0300	
NA	04-10232	Albion West	31689	STR-91-5(1016)	0.1300	PEMA/C	NA	Yes	No	1	PEMA/C	NA	0.1300	
5/5/2006	04-11316(13) / 04-10231(14)	Albion Northeast	31513	STPD-91-5(113)	0.0500	PEMA/C	NA	Yes	No	1	PEMA/C	NA	0.0500	404 Permit Amended
NA	04-10235	Fremont East Bypass	21494	S-275-6(1029)	0.3600	PEMA/C	NA	Yes	No	1	PEMA/C	NA	0.3600	
NA	04-10218	Pierce Southeast	31418	STPD-13-4(107)	0.2000	PEMA/C	NA	Yes	No	2	PEMA/C	NA	0.4000	
NA	04-10219	US-81 to Pierce	31653	S-13-4(1015)	0.1600	PEMA/C	NA	Yes	No	1	PEMA/C	NA	0.1600	404 Permit Amended
NA	04-10230	In Genoa	41520A	S-22-5(1013)	0.4800	PEMA/C	NA	Yes	No	1	PEMA/C	FD	0.4800	
1/30/2007	06-11256	Winnebago East	30848A	75-4(103)	0.1900	PEMA/C	RC	Yes	No	2	PEMA/C	FD	0.3800	
1/30/2007	06-11256	Winnebago East	30848A	75-4(103)	0.4500	PFOA	RC	Yes	No	2	PFOA	FD	0.9000	1.28 Total Debits
2/27/2008	06-431-WEH	North Bend North	21855A	79-3(106)	0.6851	PEMA/C	RC	Yes	No	2	PEMA/C	FD	1.3702	
2/27/2008	06-431-WEH	North Bend North	21855A	79-3(106)	0.0598	PSSA	RC	Yes	No	4	PEMA/C	FD	0.2392	1.61 Total Debits
6/15/2009	2008-01920-WEH	Madison East	31436A	32-5(106)	0.0800	PEMA/C	RC	Yes	No	2	PEMA/C	FD	0.1600	
6/15/2009	2008-01920-WEH	Madison East	31436A	32-5(106)	3.8800	PEMA/C	FD	Yes	No	1	PEMA/C	FD	3.8800	4.04 Total Debits
4/28/2010	2010-0172-WEH	US-77 - Woodcliff Road	13012	77-2(160)	0.2900	PEMA/C	RF	Yes	No	2	PEMA/C	FD	0.5800	
9/3/2010	2007-1039-WEH	Fremont South Bridge	22265	77-3(128)	0.0800	PEMA/C	RF	Yes	No	2	PEMA/C	FD	0.1600	
9/3/2010	2007-1039-WEH	Fremont South Bridge	22265	77-3(128)	0.1900	PFOA	RF	Yes	No	2	PFOA	FD	0.3800	0.54 Total Debits
12/17/2010	2009-1547-KEA	Laurel Northeast	31786	20-6(108)	0.3600	PEMA/C	RF	Yes	No	2	PEMA/C	FD	0.7200	
2/1/2006	NE 2001-11194	Wayne North Mitigation Monitoring	31434	STPD-15-4(116)	0.0400	PEMA/C	RC	Yes	No	2	PEMA/C	FD	0.0800	
2/8/2013	2012-2609-WEH	In Tilden & Battle Creek North	31897	STP-45-3(110)	0.1300	PEMA/C	FD	Yes	No	1	PEMA/C	FD	0.1300	
2/26/2013	2012-2884-WEH	Jct. US-81/N-22 West of Columbus	32163	HSIP-81-3(145)	0.1500	PEMA/C	FD	Yes	No	1	PEMA/C	FD	0.1500	
12/17/2012	2008-0599-WEH	In Norfolk; Norfolk Northeast	31416A; 31416B	DPS-35-3(107)/(108)	0.4668	PFOA	FD	Yes	No	1	PFOA	FD	0.4668	
12/19/2012	2012-02488-WEH	Stanton South	31889	STP-57-3(107)	0.2530	PEMA/C	FD	Yes	No	1	PEMA/C	FD	0.2530	
12/19/2012	2012-02488-WEH	Stanton South	31889	STP-57-3(107)	0.0300	PFOA	FD	Yes	No	1	PFOA	FD	0.0300	0.28 Total Debits
6/5/2014	2014-01101-WEH	Lindsay East & West	31518	STP-91-5(115)	0.2703	PEMA/C	RC	Yes	No	2	PEMA/C	FD	0.5406	
6/5/2014	2014-01101-WEH	Lindsay East & West	31518	STP-91-5(115)	0.0175	PEMA/C	FD	Yes	No	1	PEMA/C	FD	0.0175	0.5581 Total Debits
12/17/2014	2014-02351-WEH	St. Edward - Albion	31921	STP-39-3(105)	0.1055	PEMA/C	FD	Yes	No	1	PEMA/C	FD	0.1055	
12/17/2014	2014-02351-WEH	St. Edward - Albion	31921	STP-39-3(105)	0.1274	PEMF	FD	Yes	No	1	PEMA/C	FD	0.1274	0.2329 Total Debits
6/13/2015	2015-00693-WEH	Foster NW & SE	31825	STPD-13-4(110)	0.096	PEMA/C	FD	Yes	No	1	PEMA/C	FD	0.0960	
6/13/2015	2015-00693-WEH	Foster NW & SE	31825	STPD-13-4(110)	0.299	PEMA/C	RF	Yes	No	2	PEMA/C	FD	0.5980	0.694 Total Debits

NOTES: ¹ Availability based on credit release schedule of 5% upon approved Site Development Plan, 10% upon construction completion, and 15% when areas are meeting 1987 Manual (See Umbrella Agreement for details)
² Schedule for credit release - Pre-Crediting or Certified Credits
³ Credit Production Ratios (Please enter number, not ratio. Ex: 1, 2, 3, 4, 10) - Restoration/Re-Establishment (1:1); Restoration/Rehabilitation (1:1); Enhancement (3:1); Creation (1:1); Protection/Maintenance (10:1); Buffer (4:1)
⁴ The ratio of credits to debits (for example, 1.5 acres of created wetland for every 1 acre of wetland lost) and depends on certified/pre-credit and cowardin/NE sub-class (see Umbrella Agreement for details)
⁵ Riverine Channel (RC); Riverine Floodplain (RF); Saline Depressions (SD); Playa Depressions (PD); Floodplain Depressions (FD); Sandhill Depressions (SHD); Western Alkaline Floodplain Depressions (WAFD); Sandhill Alkaline Depressions (SAD); Mineral Soil Flats (MSF); Organic Soil Flats (OSF); Slope Wetlands (SW)

ATTACHMENT L
Mitigation Monitoring Report
Example

NEBRASKA

Good Life. Great Journey.

DEPARTMENT OF TRANSPORTATION



Pete Ricketts, Governor

27 November 2019

Mr. Phil Rezac
US Army Corps of Engineers
Wehrspann Field Office
8901 S 154th Street, Suite #2
Omaha, NE 68138

RE: Alvo North Annual Monitoring Report
NDOT Project No. STP-63-2(108)
NDOT Control No. 11450
USACE Permit No. NWO-2008-00434-WEH

Dear Mr. Rezac:

The attached report summarizes the first year of a ten-year annual monitoring effort for the wetland mitigation site associated with the Alvo North project. Please see the attached report for details.

Please contact me at (402) 479-4768, or jeff.hartman@nebraska.gov with any questions.

Respectfully Submitted,

Nebraska Department of Transportation

A handwritten signature in blue ink that reads "Jeff Hartman".

Jeff Hartman
Highway Environmental Biologist

Attachments

2019 Alvo North Mitigation Monitoring Report

Kyle Schneweis, P.E., Director

Department of Transportation

1500 Highway 2
PO Box 94759
Lincoln, NE 68509-4759

dot.nebraska.gov

OFFICE 402-471-4567 FAX 402-479-4325
NDOT.ContactUs@nebraska.gov



Wetland Mitigation Monitoring Report

Alvo North

Cass County, Nebraska

Control Number: 11450

Project Number: STP-63-2(108)

USACE Permit Number: NWO-2008-00434-WEH

Report Date: November 2019

Prepared By:

Nebraska Department of Transportation
1500 Highway 2
P.O. Box 94759
Lincoln, NE 68509-4759



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1.0 PROJECT OVERVIEW

This report summarizes the first annual mitigation monitoring of the Nebraska Department of Transportation’s (NDOT) Alvo North permittee responsible wetland mitigation site. This is the first year of a ten-year annual monitoring requirement.

USACE Permit #:	NWO-2008-00434-WEH
Permittee:	Nebraska Department of Transportation 1500 Nebraska Highway 2 Lincoln, NE 68509
Contact:	Jeff Hartman, 402.479.4768, jeff.hartman@nebraska.gov
Investigators:	Jeff Hartman, Mercy Manzanares
Date:	10/9/2019

1.1 Project Summary

On May 10th, 2017, the U.S. Army Corps of Engineers (USACE) authorized NDOT’s Alvo North project with a Department of the Army (DA) Nationwide Permit (NWP) No. 23 (permit number NWO-2008-00434-WEH). The authorized project removed the existing pavement and reconstructed the highway on a shifted alignment for approximately 6.29 miles on Nebraska Highway 63 (N-63) in Cass County, NE. The project began at mile marker 4.20 on N-63 in the northern corporate limits of Alvo, NE and extended north to mile marker 10.49, just south of the N-63 and I-80 interchange (see Figure 1: Mitigation Site Location).

The Alvo North project permanently impacted 2.0399 acres of wetlands and 0.0708 acre of channel. The 1.6595 acres of PEMA and 0.1398 acre of PEMF wetlands that were permanently impacted were mitigated with 3.1262 acres of PEMA/C | FD credits at the Rock Creek Wetland Mitigation Bank. The 0.2432 acre of permanently impacted PFOA wetlands were mitigated through the creation of an on-site permittee-responsible wetland mitigation site, which also includes a stream channel restoration component. Consistent with the project’s Section 404 NWP 23 authorization, the site is intended to provide 0.4864 acres of compensatory PFOA | RC wetland mitigation (Table 1). The permit requires site monitoring for wetland development for ten consecutive years.

Table 1. PFOA wetland impacts and required on-site mitigation.

Site	Impacted Wetlands			Replacement Wetlands				Mitigation Location
	Wetland Type	Wetland Subclass	Impacted Area (ac.)	Wetland Type	Wetland Subclass	Ratio	Replaced Area (ac.)	
1B	PFOA	RF	0.1621	PFOA	RF	2:1	0.3242	On-Site
2C	PFOA	RF	0.0341	PFOA	RF	2:1	0.0682	On-Site
6B	PFOA	RC	0.0120	PFOA	RC	2:1	0.0240	On-Site
9B	PFOA	RC	0.0350	PFOA	RC	2:1	0.0700	On-Site
Total PFOA impacted (ac.)			0.2432	Total PFOA mitigation (ac.)			0.4864	On-Site

PFOA = Palustrine Forested Temporarily Flooded; RC = Riverine Channel; RF = Riverine Floodplain



1.2 Site Location

This wetland mitigation site is located east of the new alignment of N-63, approximately 0.29 miles north of the corporate limits of Alvo, Nebraska on the boundary of Section 34 and Section 35, Township 11 North, Range 9 East in Cass County, Nebraska (Latitude: -96.389194 °W, Longitude: 40.879735 °N). See Figure 1: Mitigation Site Location.

1.3 Timeline

Mitigation site excavation started on 7/2/2018 and was completed on 7/3/2018. Seeding was performed on 5/16/2019 and tree planting on 11/2/2018. The mitigation site was completed on 5/16/2019. As-built plans are currently in progress. This is the first year of wetland mitigation monitoring.

1.4 Performance Standard Summary

All year one (1) performance standards have been met (see Table 3). As-built plans are currently being reviewed and finalized. The draft covenant of dedication has been submitted to the Corps on 10/8/2019.

1.5 Corrective Actions

There are 15 dead trees that need to be replaced. Trees will be replanted in the spring of 2020. As-built plans are currently in progress and will be submitted to the USACE when they are completed. The draft covenant of dedication was submitted to the USACE on 10/8/2019. The final version will be submitted once the USACE review is complete and NDOT submits the final documents to Cass County.

1.6 Recommendations

There are no management recommendations for the wetland mitigation site at this time. There were no invasive species or noxious weeds observed, and the wetland site is developing. NDOT will continue to monitor the sheet-pile weir at the east end of the site to make sure it is functioning properly.

2.0 MONITORING REQUIREMENTS

2.1 General Requirements

The wetland monitoring events will be conducted annually for ten years until 2028 or until the wetlands are determined successful. A monitoring report will be submitted to the USACE on or before December 1. The monitoring report format and contents will be provided in general conformance with USACE monitoring guidance (USACE 2008). This report will document whether the wetland mitigation site is successful in achieving established performance standards and provide management recommendations. If the mitigation is not successful, the permittee will prepare a contingency plan to correct deficiencies.

2.2 Performance Standards

The performance standards originated from the mitigation plan and the Section 404 NWP 23 authorization.

Year 1 – Planted tree species are establishing for the appropriate water regime. Dead trees will be replaced. Annual and perennial grasses and forbs recruited from the native wetland seed mixture will begin to become established. Weedy annual species may be present and abundant. Absolute ground cover is at least 25%, with 15% cover by hydrophytes, including at least 5% cover by saplings/trees. At least one primary hydrology indicator is present and appropriate for the target landscape.

Year 2 – All dead trees would be replaced, and re-planted tree species are establishing for the appropriate water regime. Species are viable in size and disease resistant. Established trees will be measured (height and caliper) and show a growth trend. Absolute ground cover, species abundance, and species diversity are greater than Year 1. Undesirable species, noxious weeds and invasive species, including *Typha* spp., *Phragmites* spp. and *Phalaris* spp. are neither dominant, nor trending toward dominance. Weedy annuals may still be present or even dominant, but should be less than Year 1. Absolute ground cover is at least 50%. At least one primary hydrology indicator is present and appropriate for the target landscape.

Year 3 – All dead trees would be replaced, and re-planted tree species are establishing for the appropriate water regime. Species are viable in size and disease resistant. Established trees will be measured (height and caliper) and show a growth trend. Absolute ground cover, species abundance, and species diversity are greater than in Year 2. Weedy annuals may still be present, but should be less than the previous year. Absolute ground cover is at least 60%, including 10-20% cover by saplings/trees. There are at least three native hydrophytes among the list of dominants. At least one primary hydrology indicator is present and appropriate for the target landscape.

Year 4 – All dead trees would be replaced, and re-planted tree species are establishing for the appropriate water regime, Species are viable in size and disease resistant. Established trees will be measured (height and caliper) and show a growth trend. Tree replacement trending less. Undesirable species and weedy annuals do not represent a monoculture, nor do they represent more than 25 percent aerial site cover. Invasive species, including *Phalaris arundinacea*, do not represent more than 10 percent aerial site cover. Noxious weed species are eliminated. The Year 3 thresholds continue to be met or exceeded. Absolute ground cover is at least 75%, with >50% cover by hydrophytes, including 15-25% cover of saplings/trees. There are at least three native hydrophytes among the list of dominants. At least one primary hydrology indicator is present and appropriate for the target landscape.

Year 5 – All dead trees are replaced, and replanted trees are establishing for the appropriate water regime. Species are viable in size and disease resistant. Established trees will be measured

(height and caliper) and show a growth trend. Tree replacement is trending less. The Year 4 thresholds have been maintained or surpassed, and the site shows signs of sustainability. Undesirable species and weedy annuals do not represent a monoculture, nor do they represent more than 25 percent aerial site cover. Invasive species, including *Phalaris arundinacea*, do not represent more than 10 percent aerial site cover. Noxious weed species are eliminated. Absolute ground cover is at least 75% or greater, with >50% cover by hydrophytes, including 20-30% cover of saplings/trees. There are at least three native hydrophytes among the list of dominants. At least one primary hydrology indicator is present and appropriate for the target landscape.

Year 6 to 10 – Trees are viable in size and disease resistant. The survival rate, after year 5, shall not be less than 75%. If the survival rate is less than 75%, the dead trees will be replaced to the original 100% planting count. A tree stratum and sapling strata baseline survey will estimate percent cover of the respective strata for the PFOA wetland mitigation area. The tree and sapling strata survey will show increasing percent of coverage over the previous year. The baseline survey will include the voluntary trees.

3.0 WETLAND MONITORING METHODS

3.1 Mitigation Site Baseline Condition

Wetlands around the Alvo North wetland mitigation site were delineated by Olsson Associates from May 6-8, 2013, in accordance with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region*. Prior to construction, the old highway alignment was on the mitigation site location. Field delineations determined that 0.15 acre of PEMA and 0.40 acre of PFOA wetlands were present on the east side of the road, and 0.88 acre of PEMA and 0.28 acre of PEMF were present on the west side of the road. An intermittent channel flowed through these areas and through a culvert under the road.

3.2 Mitigation Site Standard Monitoring Methods

On October 9th, 2019, NDOT biologists (Jeff Hartman, Mercy Manzanares) performed a modified comprehensive wetland determination, as described in the *1987 Corps of Engineers Wetlands Delineation Manual*, Section E for large areas that vary in complexity. These methods were used to determine if successful wetland development has occurred on the site. One transect from the south buffer to the north buffer was established during the 2019 monitoring event to document wetland development and to establish regular sampling locations to be utilized throughout site monitoring. Sample points were taken along the transect in locations where conditions transitioned from upland to wetland. A total of seven sample points were used to determine wetland and upland transitions. Sample points were examined for hydrophytic vegetation, wetland hydrology, and hydric soils. Sample data was recorded on wetland determination data forms, associated with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (see Appendix B: Wetland Determination Data Forms). The wetland/upland boundaries, sample points, and photo points were surveyed using a sub-meter accurate GPS unit. Ground-level site pictures were taken to document site conditions and are provided as Appendix C.

4.0 MONITORING RESULTS

4.1 Wetland Development

Successful wetland creation has occurred on the site, however, the tree canopy has not developed the 30% cover required to classify the area as forested (PFOA) wetlands. A total of 0.7042 acres of PEMA/C wetland and 0.6300 acres of buffer have developed on the site (see Figure 2: Mitigation Development). Table 2 provides the extent of created wetlands at the site and quantifies the progression of site development through the monitoring period.

Table 2. Annual progression of wetland development.

Wetland Type	Objective	Year 1	Year 2	Year 3	Year 4	Year 5
PEMA/C RC	0.0	0.0277	-	-	-	-
PEMA/C RF	0.0	0.7042	-	-	-	-
PFOA RC	0.0940	0.0	-	-	-	-
PFOA RF	0.3924	0.0	-	-	-	-
Total	0.4864	0.7042	-	-	-	-

4.1.1 Vegetation

There were eleven (11) plant species identified at the sample point locations during the October 2019 monitoring event. Of those, eight (8) of the species are hydrophytic (72%). Detailed species accounts, including estimated percent cover, are provided in Appendix A: Wetland Determination Data Forms.

4.1.2 Hydrology

During the October 2019 monitoring event, a portion of the site near the created channel was inundated with at least three inches of water (primary indicator). In addition to this surface water, secondary indicators of wetland hydrology (drainage patterns, geomorphic position, FAC-neutral test) were noted at multiple sample locations throughout the site.

4.1.3 Hydric Soils

Hydric soil criteria was met at all five wetland point locations. The wetland data point taken by the channel edge (SP-5) did not have a soil pit dug due to standing water and the prevalence of OBL and FACW vegetation.

4.1.4 Tree Count

During the 2019 monitoring event, NDOT biologists surveyed the 108 planted trees. A total of 15 dead trees were counted (13.9%), leaving 93 alive (86.1% surviving). See Figure 2 – Mitigation Monitoring Map for dead tree locations. There were five dead boxelders (*Acer negundo*), two dead eastern cottonwoods (*Populus deltoides*), three dead silver maples (*Acer saccharinum*), and five dead black willows (*Salix nigra*). The 15 dead trees will be replaced to the original 100% planting count.

4.2 Performance Standard Summary & Compliance Status

Wetland creation at the site is intended to satisfy multiple special conditions of the associated USACE Permit. Table 3 lists the special conditions related to wetland mitigation and provides the current status of NDOT's compliance efforts.

Table 3. Performance standard summary and special conditions compliance status.

Condition Number ¹	404 Permit Special Condition	Compliance Status
6	NDOT will create 0.4865 acre of PFOA riverine floodplain and riverine channel wetlands.	In-Progress: The 2019 monitoring event identified 0.7042 acre of PEMA/C RF/RC wetlands. Forested component is developing.
8(a) – Year 1	<ul style="list-style-type: none"> • Absolute ground cover is $\geq 25\%$ • Hydrophytes are $\geq 15\%$ • Saplings/trees are $\geq 5\%$ • At least one primary hydrology indicator is present • Dead trees are replaced 	Complete: <ul style="list-style-type: none"> • Site meets at least 25% ground cover • Hydrophytes were 41% - 100% cover • Saplings/trees were 5-10% cover • Site displayed a primary hydrology indicator • Dead trees will be replaced in Spring 2020
8(b) – Year 2	<ul style="list-style-type: none"> • Absolute ground cover is $\geq 50\%$ • Ground cover, species abundance and diversity $>$ Year 1 • Undesirable species are not dominant • At least one primary hydrology indicator is present • Dead trees are replaced 	
8(c) – Year 3	<ul style="list-style-type: none"> • Absolute ground cover is $\geq 60\%$ • Ground cover, species abundance and diversity $>$ Year 2 • 10-20% cover by trees/saplings • At least 3 native dominant hydrophytes • At least one primary hydrology indicator is present • Dead trees are replaced 	
8(d) – Year 4	<ul style="list-style-type: none"> • Dead trees are replaced • Undesirable species $< 25\%$ cover • Invasive species $< 10\%$ cover • Absolute ground cover $\geq 75\%$ • $\geq 50\%$ cover of hydrophytes • 15-25% cover of trees/saplings • At least 3 native dominant hydrophytes • At least 1 primary hydrology indicator 	
8(e) – Year 5	<ul style="list-style-type: none"> • Dead trees are replaced • Undesirable species $< 25\%$ cover • Invasive species $< 10\%$ cover • Absolute ground cover $\geq 75\%$ • $\geq 50\%$ cover of hydrophytes • 20-30% cover of trees/saplings • At least 3 native dominant hydrophytes • At least 1 primary hydrology indicator 	
8(f) – Year 6-10	<ul style="list-style-type: none"> • Survival rate of trees $\geq 75\%$ • Tree / sapling stratum survey will estimate % cover 	
9	A minimum 50-foot buffer of native vegetation will be established around the	Complete: An upland buffer of 50 ft. width and 0.39 acre on the north border and 0.24 acre on the south

Condition Number ¹	404 Permit Special Condition	Compliance Status
	wetland mitigation Site. Revegetation shall be acceptable when ground cover reaches 75 percent of the approved mixture. Corps notified with documentation.	borders the site (0.63 acre total). Ground cover has reached >75 percent.
10(a)	Monitoring reports shall include a set of as built plans of the mitigation.	In-Progress: As-Built Plans are currently in review.
10(b)	Monitoring will be conducted during the first full growing season and annual reports will be submitted to the Wehrspann Office by December 1 of each year for ten consecutive years.	In-Progress: The 2019 monitoring report represents the first of ten annual reports.
10(d)	The Corps must be notified with documentation verifying the mitigation site was constructed and seeded concurrently with any filling activities.	Complete:
11	An appropriate real estate instrument shall be placed on the Site and provided to USACE.	In-Progress: NDOT provided the Draft Covenant of Dedication to USACE on 10/8/2019. USACE response and county filing is pending.

¹ Listed conditions are limited to those relevant to wetland mitigation and associated monitoring

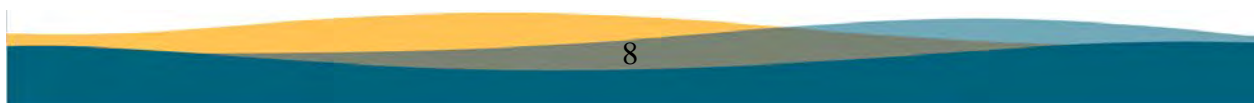
5.0 CONCLUSION

The Alvo North wetland mitigation site location was monitored in 2019 for the first of ten years of monitoring events. Based on field observations, the site is successful in meeting all the performance standards for Year 1 and has 0.7042 acres of PEMA/C | RC/RF wetlands. The tree canopy cover has not developed enough for these wetlands to be classified as PFOA, although this is the first full year of tree growth. The performance standards do not require the minimum canopy cover to qualify for PFOA classification until the fifth and sixth years.

At the time of the first monitoring event, there were no invasive species or noxious weeds that would necessitate management.

NDOT is currently reviewing and completing both the as-built plans for the mitigation site, and the covenant of dedication. The draft covenant of dedication was submitted to the USACE on 10/8/2019. The as-built plans will be submitted to the USACE when they are completed and finalized.

Appendix A: Figures & Design Plans



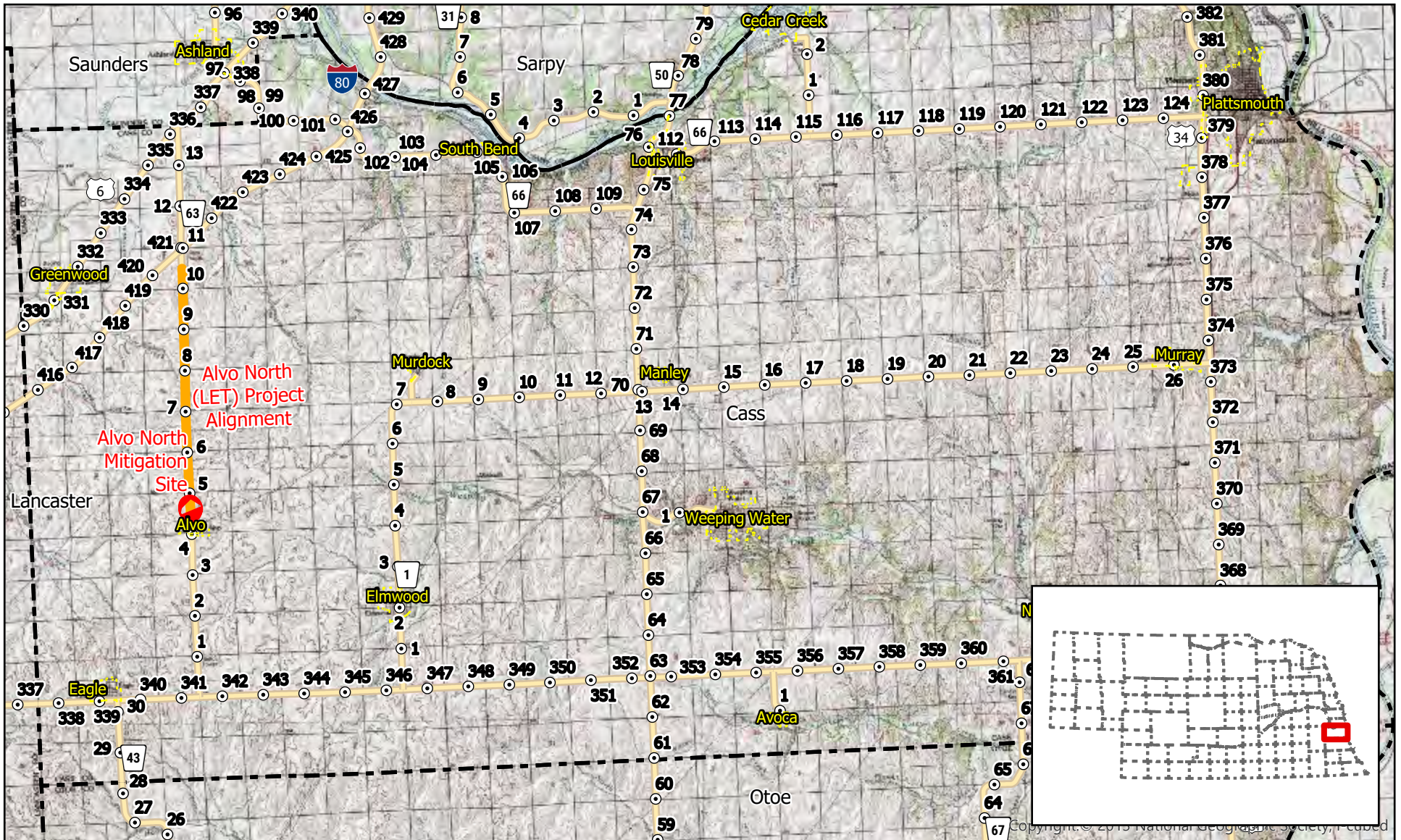
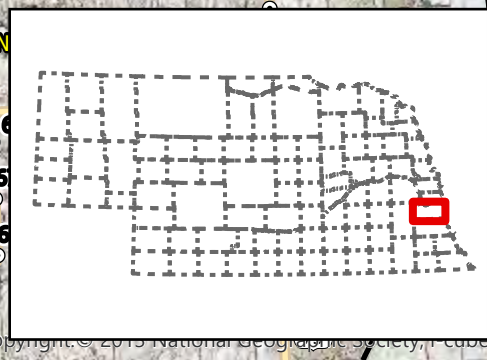
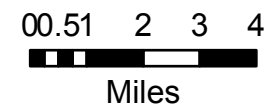


Figure 1
Project Location Map

Alvo North
 C.N. 11450
 P.N. STP-63-2(108)
 USACE NWO-2008-004340WEH

- BND_CityBoundary_DOT
- MitigationSites
- PPM_Segments
- LRS_HighwaySections_DOT
- BND_CountyBoundary_DOT
- LRS_ReferencePosts_DOT



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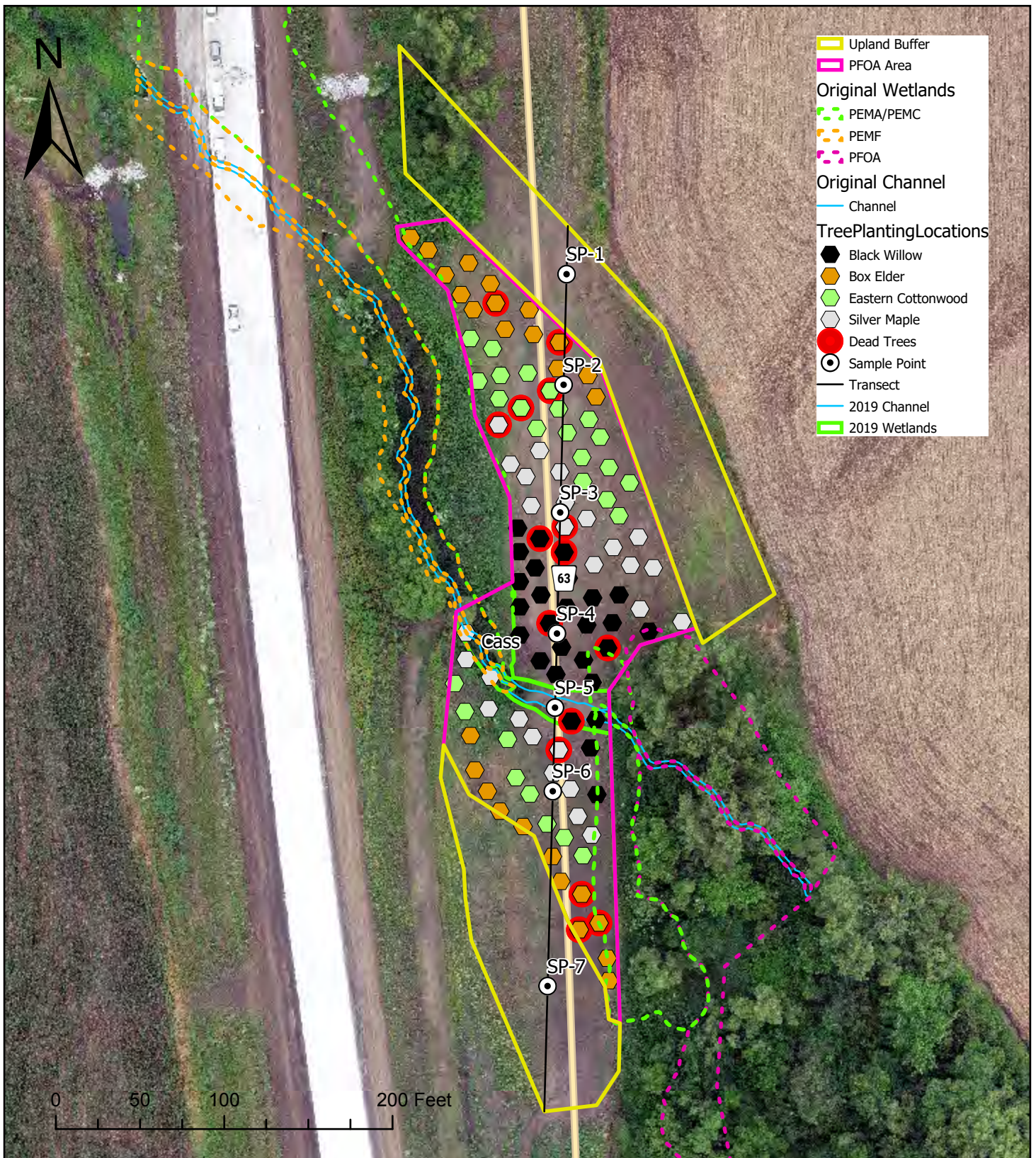
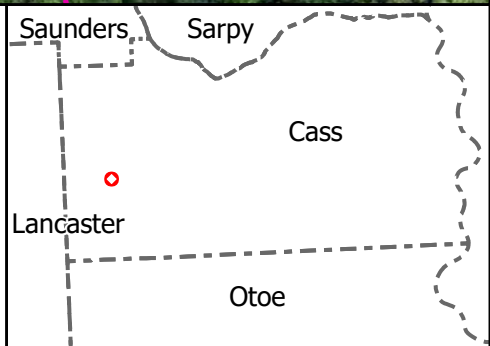
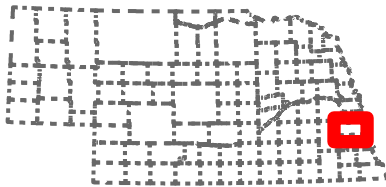


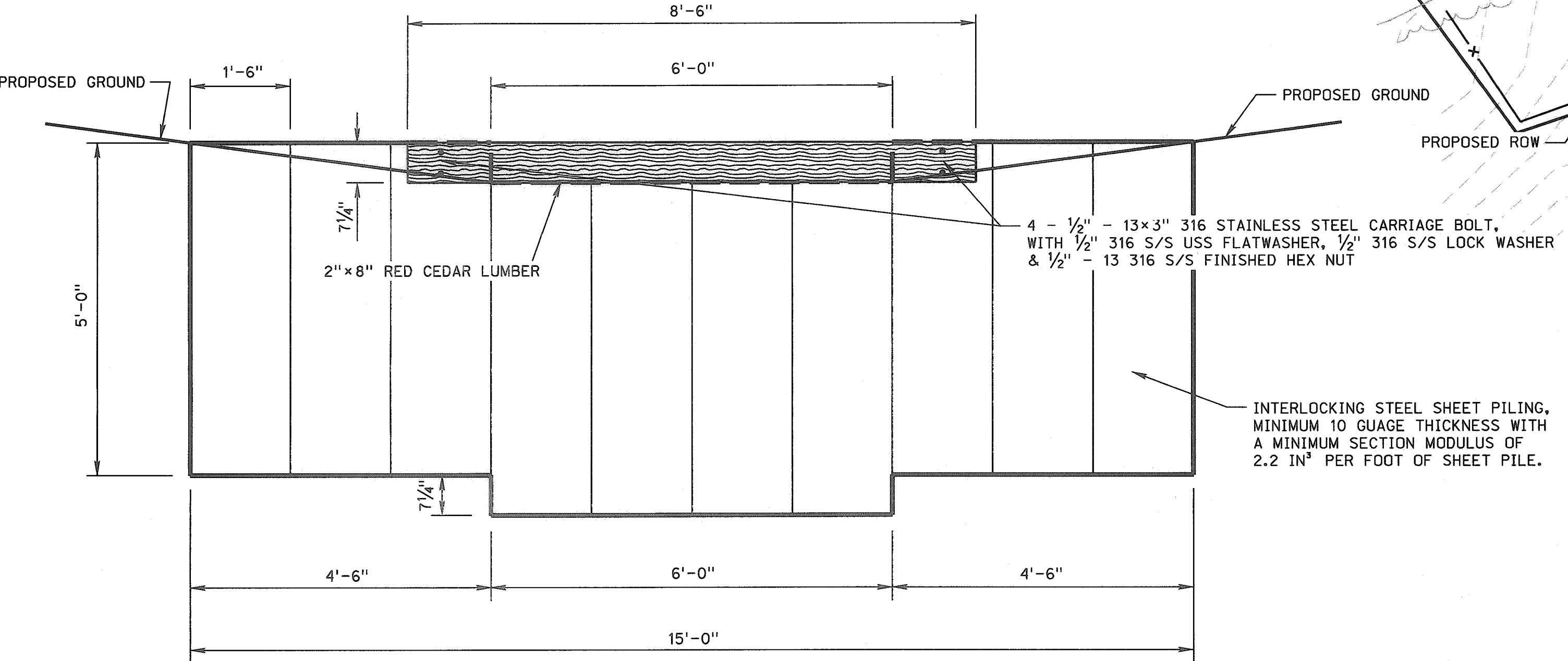
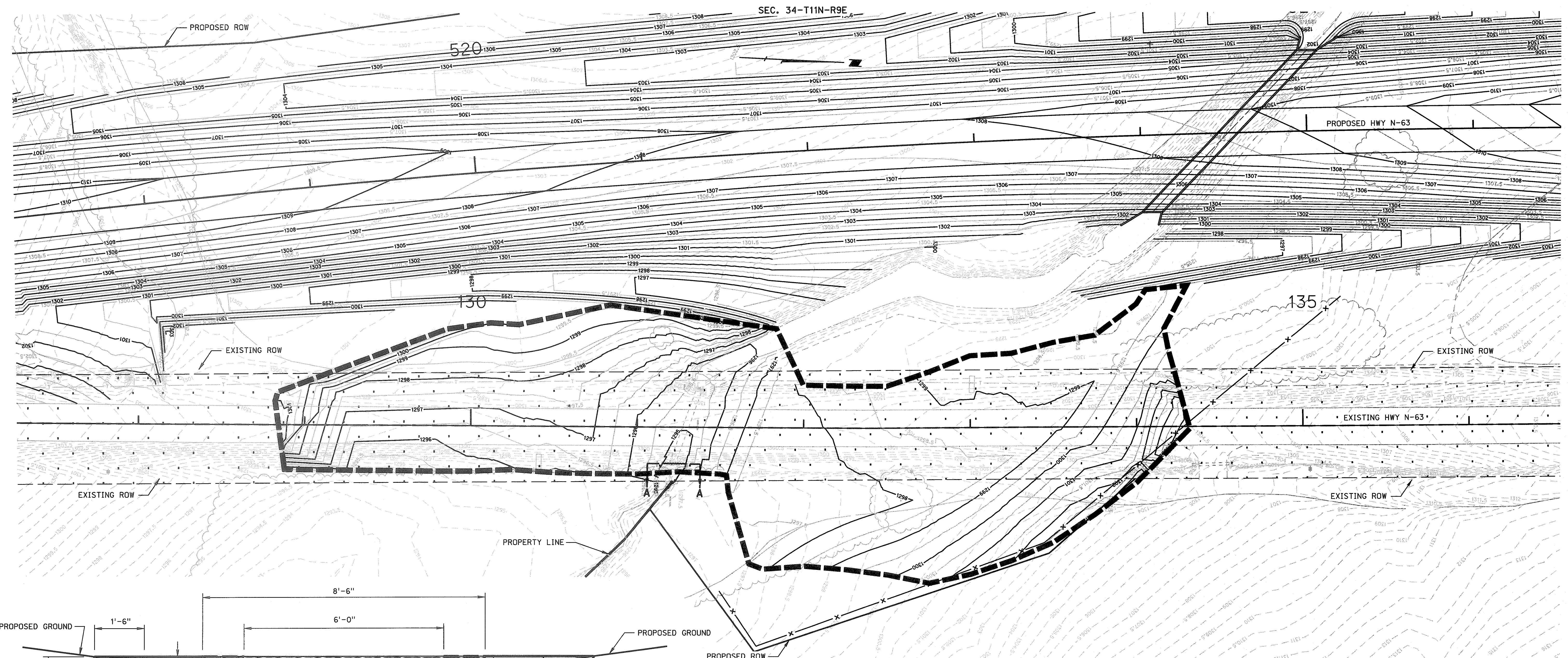
Figure 2
Alvo North 2019 Wetland
Mitigation Monitoring Map

C.N. 11450
 P.N. STP-63-2(108)
 USACE NWO-2008-004340WEH
 Date: 10/9/2019
 Biologists: Hartman, Manzanares



ROADWAY DESIGN DIVISION

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STEEL SHEET PILING DETAIL SECTION A-A

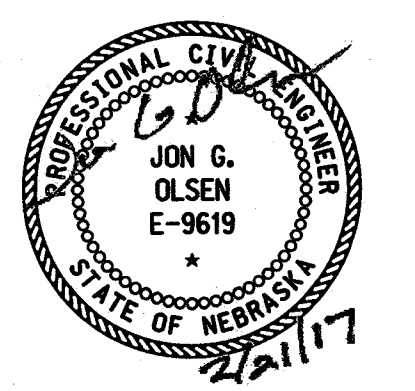
INTERLOCKING STEEL SHEET PILING, MINIMUM 10 GAUGE THICKNESS WITH A MINIMUM SECTION MODULUS OF 2.2 IN³ PER FOOT OF SHEET PILE.

SEC. 35-T11N-R9E

BUILD 4-STRAND BARBED WIRE FENCE, PLAN 714						
STATION	TO	STATION	SIDE	LIN. FT.	END	POSTS
					PULL	CORNER
521+29.76	-	525+18.35	Rt.	232	2	2

STEEL SHEET PILING			
STATION	TO	STATION	SQ. FT.
520+99.61	-	521+14.90	184' RT. 75

- LEGEND**
- 1299 — PROPOSED GRADE MAJOR CONTOUR LINE
 - 1299.5 — PROPOSED GRADE MINOR CONTOUR LINE
 - - - 1299 - - - EXISTING GRADE CONTOUR LINE
 - ▬▬▬ BOUNDARY OF WETLAND GRADING



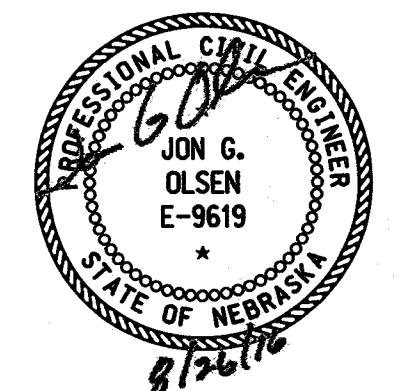
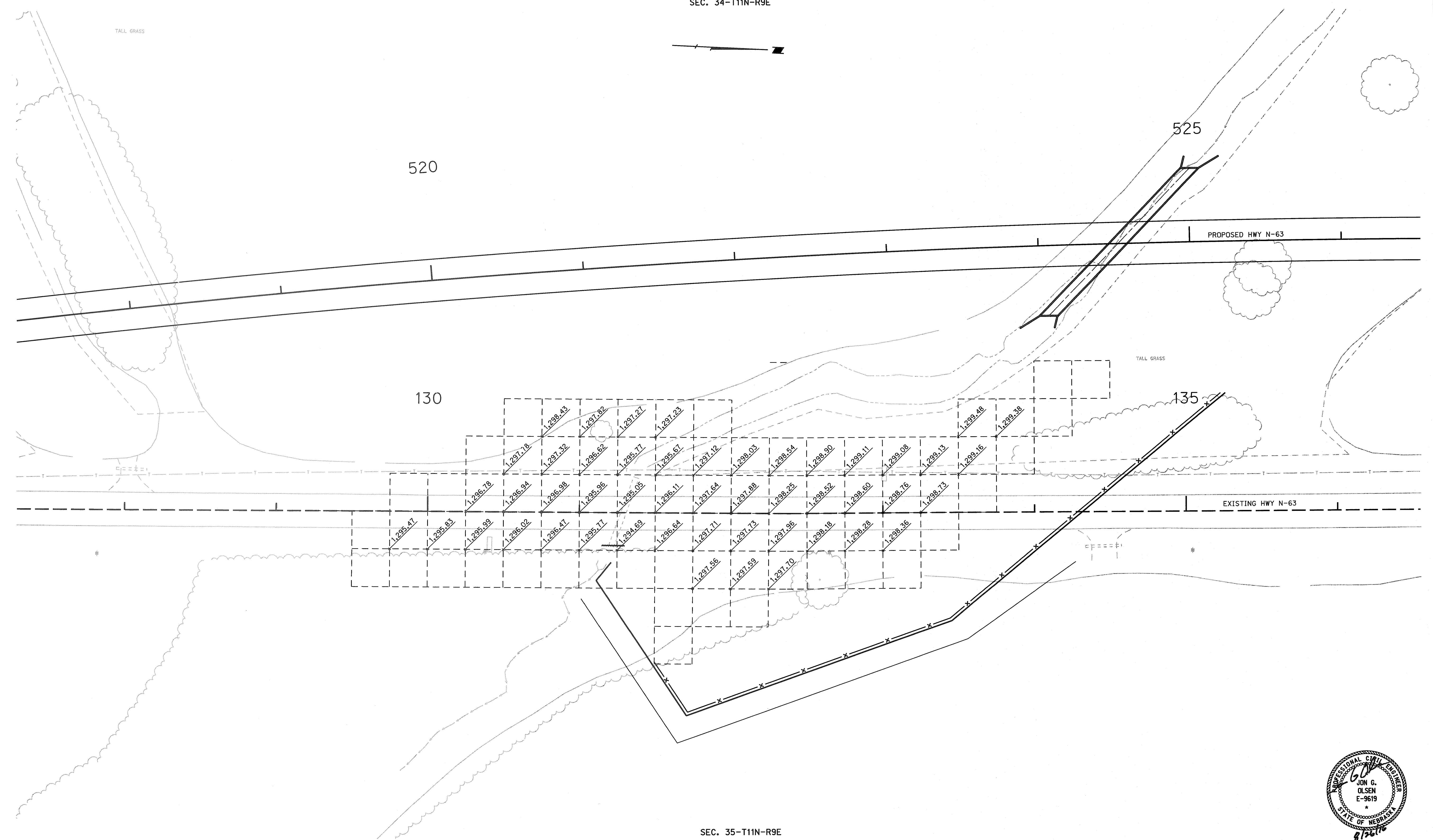
WETLAND GRADING PLAN

ROADWAY DESIGN DIVISION

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SEC. 34-T11N-R9E

SEC. 35-T11N-R9E



WETLAND SPOT ELEVATIONS

ROADWAY DESIGN DIVISION

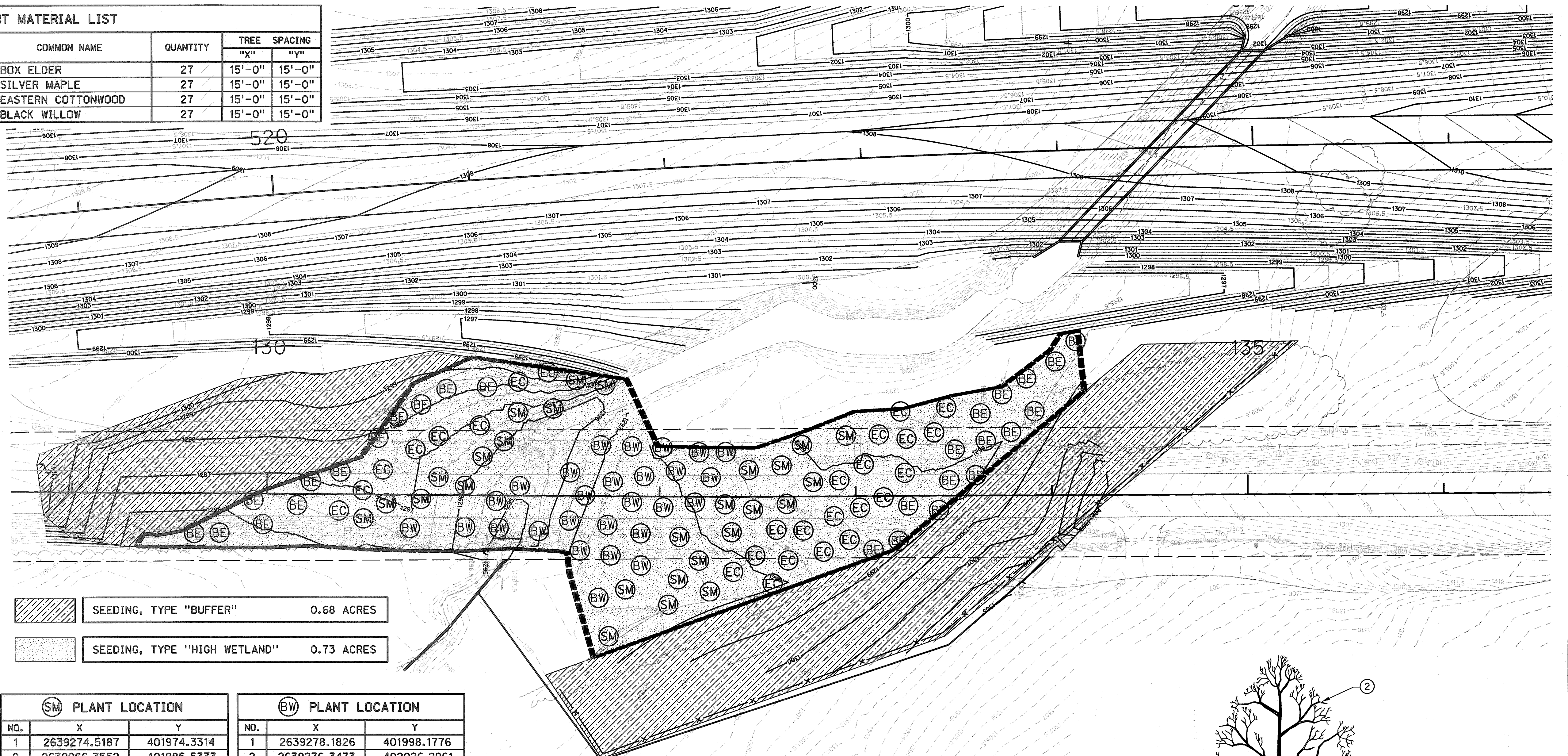
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SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY	TREE SPACING	
				"X"	"Y"
BE	ACER NEGUNDO	BOX ELDER	27	15'-0"	15'-0"
SM	ACER SACCHARINUM	SILVER MAPLE	27	15'-0"	15'-0"
EC	POPULUS DELTOIDES	EASTERN COTTONWOOD	27	15'-0"	15'-0"
BW	SALIX NIGRA	BLACK WILLOW	27	15'-0"	15'-0"

BE PLANT LOCATION		
NO.	X	Y
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8	2639233.0669	401979.9673
9	2639221.7564	401989.2488
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11	2639206.4961	402013.3553
12	2639204.4576	402033.9880
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14	2639272.7301	402247.3957
15	2639254.6598	402251.4711
16	2639256.2198	402267.1852
17	2639240.6978	402271.7345
18	2639237.4898	402285.1498
19	2639224.9826	402273.7240
20	2639219.6214	402289.1928
21	2639214.4760	402301.9103
22	2639205.9138	402285.8271
23	2639203.3859	402313.2972
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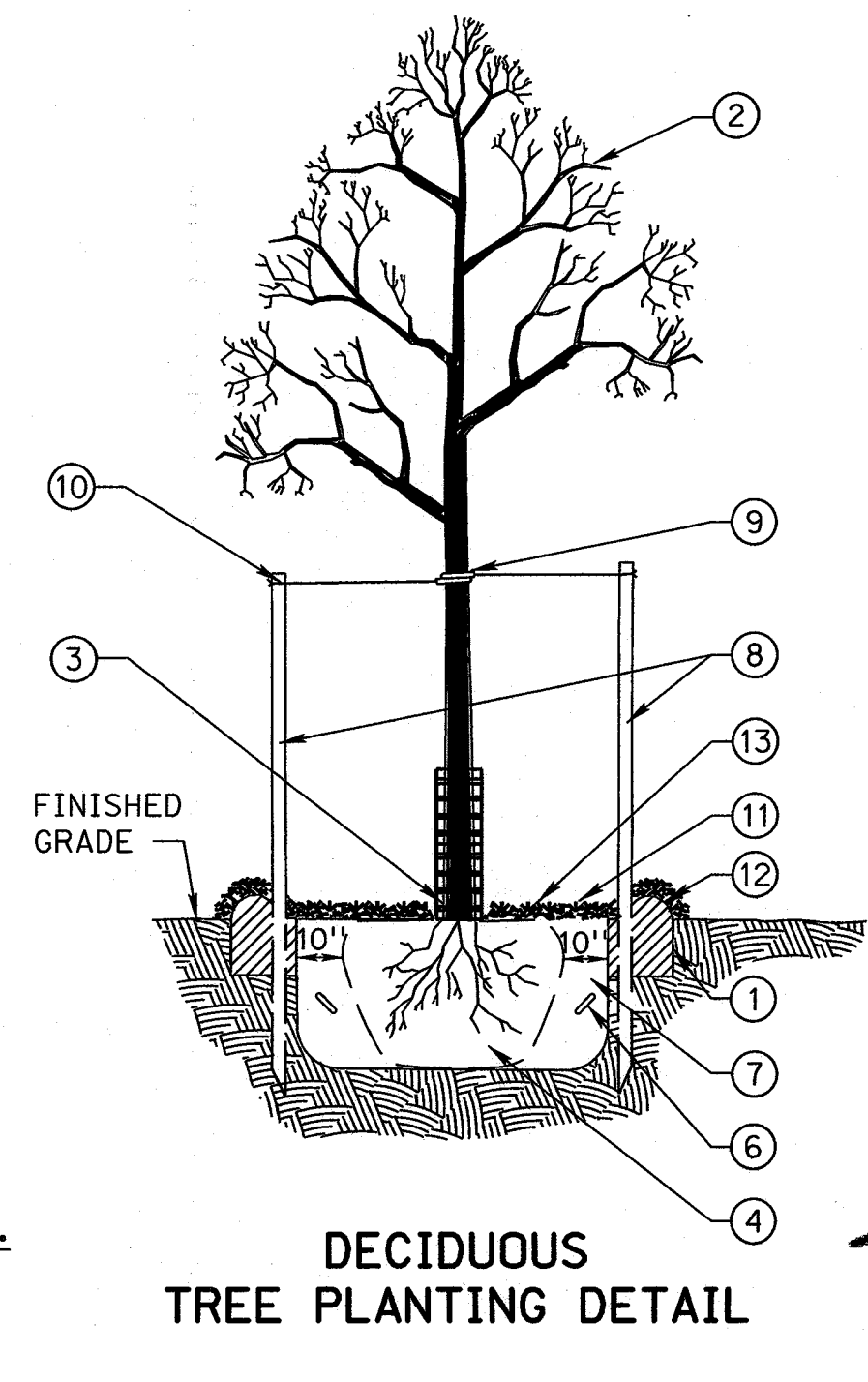
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5	2639230.6817	402010.5164
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7	2639200.9822	402049.7395
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9	2639292.4844	402163.9462
10	2639297.4573	402184.2924
11	2639283.6985	402174.7876
12	2639285.3215	402191.6955
13	2639270.1084	402184.9433
14	2639269.8583	402198.6615
15	2639280.0717	402209.4801
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17	2639261.8574	402213.8871
18	2639256.9128	402226.9259
19	2639251.0561	402238.6560
20	2639243.4124	402215.6750
21	2639234.7447	402227.7011
22	2639238.0548	402248.8436
23	2639219.1196	402234.6100
24	2639220.6414	402248.8785
25	2639216.7110	402262.7658
26	2639206.8407	402245.0089
27	2639203.7377	402268.2898

SM PLANT LOCATION		
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2	2639266.3552	401985.5333
3	2639263.1133	402003.1525
4	2639251.5324	402011.5112
5	2639255.3247	402025.2238
6	2639239.9989	402033.4029
7	2639231.6112	402044.0807
8	2639216.6928	402050.2452
9	2639213.7245	402068.3500
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11	2639200.6411	402093.9197
12	2639328.3757	402102.1820
13	2639304.0646	402109.4807
14	2639310.8058	402131.7565
15	2639297.6676	402136.0337
16	2639303.1657	402152.5802
17	2639287.6399	402146.2687
18	2639276.1440	402135.7806
19	2639272.5029	402162.1759
20	2639258.4954	402158.1505
21	2639260.4952	402172.4949
22	2639256.7946	402189.5481
23	2639240.4023	402169.3200
24	2639237.2709	402185.9278
25	2639244.9287	402202.3568
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27	2639220.4823	402217.9220

BW PLANT LOCATION		
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2	2639276.3473	402026.2961
3	2639275.8993	402043.4369
4	2639262.3541	402041.4937
5	2639254.1688	402053.1019
6	2639276.5488	402063.9137
7	2639270.4909	402079.1333
8	2639257.2788	402086.6525
9	2639245.9536	402078.5171
10	2639231.3347	402093.4840
11	2639231.1283	402109.3643
12	2639249.6176	402100.4167
13	2639285.3832	402085.3852
14	2639271.8209	402098.7748
15	2639259.5597	402110.6630
16	2639246.0436	402116.3280
17	2639230.9323	402124.9366
18	2639232.5693	402143.6189
19	2639242.6234	402132.2413
20	2639261.4670	402126.8234
21	2639275.2673	402115.8448
22	2639287.1351	402101.1638
23	2639309.0441	402096.0118
24	2639291.5255	402116.8214
25	2639258.2971	402142.7666
26	2639245.0340	402150.1726
27	2639231.7710	402157.1207



SEEDING, TYPE "BUFFER" 0.68 ACRES
SEEDING, TYPE "HIGH WETLAND" 0.73 ACRES



- TILL AREA 6 INCHES DEEP AND 6' x 6' FOR TREES.
- PRUNE ACCORDING TO APPROVED PRUNING METHODS. (BROKEN BRANCHES ONLY)
- SET SET TREE COLLAR APPROX. 1" ABOVE GRADE.
- ALL BARE ROOT PLANT MATERIAL SHALL HAVE ROOTS DIPPED IN ABSORBENT POLYMER SOLUTION.
- BURLAP AND TWINE, IF ANY SHALL BE REMOVED FROM TRUNK OF TREE.
- FERTILIZER TABLETS SHALL BE PLACED INTO THE PLANTING HOLE AFTER ONE HALF OF THE BACKFILLING HAS BEEN COMPLETED AND SHALL NOT BE PLACED DIRECTLY AGAINST THE ROOT.
- BACKFILL SHALL BE FIRMLY PLACED ABOUT BALL OR ROOTS.
- 2" x 2" x 6'-0" (NOMINAL) WOOD STAKE.
- APPROVED GUY MATERIAL.
- GUY WIRE SHALL BE SECURELY FASTENED TO STAKES BY STAPLING OR APPROVED EQUAL.
- THE COMPLETED WATER BASIN SHALL BE FILLED WITH WATER PRIOR TO THE INSTALLATION OF THE MULCH.
- VEGETATION CONTROL CHEMICAL AND FERTILIZER SHALL BE PLACED BEFORE MULCHING.
- MULCH ENTIRE DISTURBED AREA 3" DEEP.



E:\Projects\015-1986\40-Design\MicroStation\Avo North Final Design\DDN\Sheets\04-Wetlands-Aer\14500c\w03.dgn
 1/23/99 9/6/2016

Appendix B:

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Alvo North Mitigation Monitoring (11450) City/County: Cass County Sampling Date: 10/09/2019
 Applicant/Owner: NDOT State: Nebraska Sampling Point: SP-01
 Investigator(s): Jeff Hartman, Mercy Manzanares Section, Township, Range: 34, 11N, 9E
 Landform (hillslope, terrace, etc): hillslope Local relief (concave, convex, none): concave
 Slope(%): 2 Lat: 40.880202 Long: -96.389027 Datum: NAD83
 Soil Map Unit Name: 7773—Colo-Nodaway complex, frequently flooded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
---	---

Remarks: SP-1 is the upland point in the north buffer area. Photo 1.

VEGETATION - Use scientific names of plants.

<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Tree Stratum (Plot size: _____)</th> <th style="text-align: center;">Absolute %Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1. _____</td><td></td><td></td><td></td></tr> <tr><td>2. _____</td><td></td><td></td><td></td></tr> <tr><td>3. _____</td><td></td><td></td><td></td></tr> <tr><td>4. _____</td><td></td><td></td><td></td></tr> <tr><td>5. _____</td><td></td><td></td><td></td></tr> <tr> <td style="text-align: right;"><u>0</u> = Total Cover</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Sapling/Shrub Stratum (Plot size: <u>15 ft diameter</u>)</th> <th style="text-align: center;">Absolute %Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1. _____</td><td></td><td></td><td></td></tr> <tr><td>2. _____</td><td></td><td></td><td></td></tr> <tr><td>3. _____</td><td></td><td></td><td></td></tr> <tr><td>4. _____</td><td></td><td></td><td></td></tr> <tr><td>5. _____</td><td></td><td></td><td></td></tr> <tr> <td style="text-align: right;"><u>0</u> = Total Cover</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Herb Stratum (Plot size: <u>5 ft diameter</u>)</th> <th style="text-align: center;">Absolute %Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1. <u>Setaria pumila / Yellow bristlegrass</u></td><td style="text-align: center;"><u>80</u></td><td style="text-align: center;"><u>Yes</u></td><td style="text-align: center;"><u>FAC</u></td></tr> <tr><td>2. <u>Panicum virgatum var. virgatum / Switchgrass</u></td><td style="text-align: center;"><u>10</u></td><td style="text-align: center;"><u>No</u></td><td style="text-align: center;"><u>FAC</u></td></tr> <tr><td>3. <u>Amaranthus palmeri / Palmer's amaranth</u></td><td style="text-align: center;"><u>5</u></td><td style="text-align: center;"><u>No</u></td><td style="text-align: center;"><u>FACU</u></td></tr> <tr><td>4. <u>Echinochloa crus-galli / Barnyard grass</u></td><td style="text-align: center;"><u>5</u></td><td style="text-align: center;"><u>No</u></td><td style="text-align: center;"><u>FACW</u></td></tr> <tr><td>5. _____</td><td></td><td></td><td></td></tr> <tr><td>6. _____</td><td></td><td></td><td></td></tr> <tr><td>7. _____</td><td></td><td></td><td></td></tr> <tr><td>8. _____</td><td></td><td></td><td></td></tr> <tr><td>9. _____</td><td></td><td></td><td></td></tr> <tr><td>10. _____</td><td></td><td></td><td></td></tr> <tr> <td style="text-align: right;"><u>100</u> = Total Cover</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Woody Vine Stratum (Plot size: _____)</th> <th style="text-align: center;">Absolute %Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1. _____</td><td></td><td></td><td></td></tr> <tr><td>2. _____</td><td></td><td></td><td></td></tr> <tr> <td style="text-align: right;"><u>0</u> = Total Cover</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Tree Stratum (Plot size: _____)	Absolute %Cover	Dominant Species?	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Indicator Status	1. _____				2. _____				<u>0</u> = Total Cover				<p>Dominance Test worksheet:</p> <p>Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)</p> <p>Total Number of Dominant Species Across All Strata: <u>1</u> (B)</p> <p>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0</u> (A/B)</p> <p>Prevalence Index worksheet:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Total % Cover of:</th> <th style="text-align: center;">Multiply by:</th> </tr> </thead> <tbody> <tr><td>OBL species <u>0</u></td><td style="text-align: center;"><u>x 1 = 0</u></td></tr> <tr><td>FACW species <u>5</u></td><td style="text-align: center;"><u>x 2 = 10</u></td></tr> <tr><td>FAC species <u>90</u></td><td style="text-align: center;"><u>x 3 = 270</u></td></tr> <tr><td>FACU species <u>5</u></td><td style="text-align: center;"><u>x 4 = 20</u></td></tr> <tr><td>UPL species <u>0</u></td><td style="text-align: center;"><u>x 5 = 0</u></td></tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td style="text-align: center;"><u>300</u> (B)</td> </tr> </tbody> </table> <p style="text-align: center;">Prevalence Index = B/A = <u>3.0</u></p> <p>Hydrophytic Vegetation Indicators:</p> <p><input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation</p> <p><input checked="" type="checkbox"/> 2 - Dominance Test is >50%</p> <p><input checked="" type="checkbox"/> 3 - Prevalence Index ≤3.0¹</p> <p><input type="checkbox"/> 4 - Morphological Adaptations¹ (Provide supporting Problematic Hydrophytic Vegetation¹ (Explain))</p> <p>¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p> <p>Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	<u>x 1 = 0</u>	FACW species <u>5</u>	<u>x 2 = 10</u>	FAC species <u>90</u>	<u>x 3 = 270</u>	FACU species <u>5</u>	<u>x 4 = 20</u>	UPL species <u>0</u>	<u>x 5 = 0</u>	Column Totals: <u>100</u> (A)	<u>300</u> (B)
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Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: SP-01

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 2/2	99	10YR 5/8	1	C	M	Clay	
5-18	10YR 5/3	30					Clay	
5-18	10YR 2/1	70					Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
 Water Table Present? Yes _____ No X Depth (inches): _____
 Saturation Present? Yes _____ No X Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Alvo North Mitigation Monitoring (11450) City/County: Cass County Sampling Date: 10/09/2019
 Applicant/Owner: NDOT State: Nebraska Sampling Point: SP-02
 Investigator(s): Jeff Hartman, Mercy Manzanaras Section, Township, Range: 34, 11N, 9E
 Landform (hillslope, terrace, etc): hillslope Local relief (concave, convex, none): concave
 Slope(%): 1 Lat: 40.880014 Long: -96.389053 Datum: NAD83

Soil Map Unit Name: 7773—Colo-Nodaway complex, frequently flooded NWI classification: None

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

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks: SP-2 is located within the northern end of the PFOA boundary. Photo 2.

VEGETATION - Use scientific names of plants.

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Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: SP-02

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 5/1	100			C		Clay	Saturation and gravel
4-14	10YR 3/1	95	10YR 6/8	5	C	M	Clay	Gravel present
14-18	10YR 2/1	90	10YR 5/8	10	C	M		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____
 Water Table Present? Yes _____ No Depth (inches): _____
 Saturation Present? Yes _____ No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: erosional features showing drainage patterns

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Alvo North Mitigation Monitoring (11450) City/County: Cass County Sampling Date: 10/09/2019
 Applicant/Owner: NDOT State: Nebraska Sampling Point: SP-03
 Investigator(s): Jeff Hartman, Mercy Manzanaras Section, Township, Range: 34, 11N, 9E
 Landform (hillslope, terrace, etc): hillslope Local relief (concave, convex, none): concave
 Slope(%): 1 Lat: 40.879806 Long: -96.38915 Datum: NAD83

Soil Map Unit Name: 7773—Colo-Nodaway complex, frequently flooded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <u>SP-3 is a wetland point located in the middle of the north PFOA boundary. Photo 3.</u>	

VEGETATION - Use scientific names of plants.

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FACU species <u>10</u>	x 4 = <u>40</u>																																																																																																												
UPL species <u>0</u>	x 5 = <u>0</u>																																																																																																												
Column Totals: <u>107</u> (A)	<u>269</u> (B)																																																																																																												
	<p>Hydrophytic Vegetation Indicators:</p> ___ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting Problematic Hydrophytic Vegetation ¹ (Explain))																																																																																																												
	<p>¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>																																																																																																												
	<p>Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>																																																																																																												

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: SP-03

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10 YR 3/1	95	10 YR 4/4	5	C	M	Clay	
4-18	10 YR 4/1	80	10 YR 5/8	20	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____
 Water Table Present? Yes _____ No Depth (inches): _____
 Saturation Present? Yes _____ No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

erosional features showing drainage patterns.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Alvo North Mitigation Monitoring (11450) City/County: Cass County Sampling Date: 10/09/2019
 Applicant/Owner: NDOT State: Nebraska Sampling Point: SP-04
 Investigator(s): Jeff Hartman, Mercy Manzanares Section, Township, Range: 34, 11N, 9E
 Landform (hillslope, terrace, etc): hillslope Local relief (concave, convex, none): concave
 Slope(%): 0 Lat: 40.879591 Long: -96.389095 Datum: NAD83
 Soil Map Unit Name: 7773—Colo-Nodaway complex, frequently flooded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks: SP-4 is a wetland point located just north of the channel in PFOA boundary. Photo 4.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute %Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
0 = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15 ft diameter</u>)				
1. <u>Salix nigra / Black willow</u>	5	Yes	OBL	
2. _____				
3. _____				
4. _____				
5. _____				
5 = Total Cover				
Herb Stratum (Plot size: <u>5 ft diameter</u>)				
1. <u>Setaria pumila / Yellow bristlegrass</u>	80	Yes	FAC	
2. <u>Panicum virgatum var. virgatum / Switchgrass</u>	10	No	FAC	
3. <u>Amaranthus palmeri / Palmer's amaranth</u>	5	No	FACU	
4. <u>Echinochloa crus-galli / Barnyard grass</u>	5	No	FACW	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
100 = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
0 = Total Cover				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
 Total Number of Dominant Species Across All Strata: 2 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	<u>5</u>	x 1 =	<u>5</u>
FACW species	<u>5</u>	x 2 =	<u>10</u>
FAC species	<u>90</u>	x 3 =	<u>270</u>
FACU species	<u>5</u>	x 4 =	<u>20</u>
UPL species	<u>0</u>	x 5 =	<u>0</u>
Column Totals:	<u>105</u> (A)		<u>305</u> (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index ≤3.0¹
 4 - Morphological Adaptations¹ (Provide supporting Problematic Hydrophytic Vegetation¹ (Explain))

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: SP-04

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 2/1	80	10YR 6/8	20	C	M	Clay	
6-12	10YR 3/1	80	10YR 6/8	20	C	M	Clay	
12-18	10YR 3/1	85	10YR 6/8	15	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): 18
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Alvo North Mitigation Monitoring (11450) City/County: Cass County Sampling Date: 10/09/2019
 Applicant/Owner: NDOT State: Nebraska Sampling Point: SP-05
 Investigator(s): Jeff Hartman, Mercy Manzanaras Section, Township, Range: 34, 11N, 9E
 Landform (hillslope, terrace, etc): hillslope Local relief (concave, convex, none): flat
 Slope(%): 0 Lat: 40.879486 Long: -96.389088 Datum: NAD83

Soil Map Unit Name: 7773—Colo-Nodaway complex, frequently flooded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <u>SP-5 is a wetland point located on the edge of the channel in the middle of the site. Channel area is filling in with wetland species. Photo 5.</u>	

VEGETATION - Use scientific names of plants.

<table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Tree Stratum (Plot size: _____)</th> <th style="text-align: center;">Absolute %Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> <tr><td>1. _____</td><td></td><td></td><td></td></tr> <tr><td>2. _____</td><td></td><td></td><td></td></tr> <tr><td>3. _____</td><td></td><td></td><td></td></tr> <tr><td>4. _____</td><td></td><td></td><td></td></tr> <tr><td>5. _____</td><td></td><td></td><td></td></tr> <tr><td colspan="2" style="text-align: right;">0 = Total Cover</td><td></td><td></td></tr> </table> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Sapling/Shrub Stratum (Plot size: _____)</th> <th style="text-align: center;">Absolute %Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> <tr><td>1. _____</td><td></td><td></td><td></td></tr> <tr><td>2. _____</td><td></td><td></td><td></td></tr> <tr><td>3. _____</td><td></td><td></td><td></td></tr> <tr><td>4. _____</td><td></td><td></td><td></td></tr> <tr><td>5. _____</td><td></td><td></td><td></td></tr> <tr><td colspan="2" style="text-align: right;">0 = Total Cover</td><td></td><td></td></tr> </table> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Herb Stratum (Plot size: <u>5 ft diameter</u>)</th> <th style="text-align: center;">Absolute %Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> <tr><td>1. <u>Echinochloa crus-galli / Barnyard grass</u></td><td style="text-align: center;">75</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FACW</td></tr> <tr><td>2. <u>Typha angustifolia / Narrow leaf cattail, Narrow-leaved cattail</u></td><td style="text-align: center;">10</td><td style="text-align: center;">No</td><td style="text-align: center;">OBL</td></tr> <tr><td>3. <u>Panicum virgatum var. virgatum / Switchgrass</u></td><td style="text-align: center;">5</td><td style="text-align: center;">No</td><td style="text-align: center;">FAC</td></tr> <tr><td>4. <u>Setaria pumila / Yellow bristlegrass</u></td><td style="text-align: center;">5</td><td style="text-align: center;">No</td><td style="text-align: center;">FAC</td></tr> <tr><td>5. _____</td><td></td><td></td><td></td></tr> <tr><td>6. _____</td><td></td><td></td><td></td></tr> <tr><td>7. _____</td><td></td><td></td><td></td></tr> <tr><td>8. _____</td><td></td><td></td><td></td></tr> <tr><td>9. _____</td><td></td><td></td><td></td></tr> <tr><td>10. _____</td><td></td><td></td><td></td></tr> <tr><td colspan="2" style="text-align: right;">95 = Total Cover</td><td></td><td></td></tr> </table> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Woody Vine Stratum (Plot size: _____)</th> <th style="text-align: center;">Absolute %Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> <tr><td>1. _____</td><td></td><td></td><td></td></tr> <tr><td>2. _____</td><td></td><td></td><td></td></tr> <tr><td colspan="2" style="text-align: right;">0 = Total Cover</td><td></td><td></td></tr> </table>	Tree Stratum (Plot size: _____)	Absolute %Cover	Dominant Species?	Indicator Status	1. _____				2. _____				3. _____				4. _____				5. _____				0 = Total Cover				Sapling/Shrub Stratum (Plot size: _____)	Absolute %Cover	Dominant Species?	Indicator Status	1. _____				2. _____				3. _____				4. _____				5. _____				0 = Total Cover				Herb Stratum (Plot size: <u>5 ft diameter</u>)	Absolute %Cover	Dominant Species?	Indicator Status	1. <u>Echinochloa crus-galli / Barnyard grass</u>	75	Yes	FACW	2. <u>Typha angustifolia / Narrow leaf cattail, Narrow-leaved cattail</u>	10	No	OBL	3. <u>Panicum virgatum var. virgatum / Switchgrass</u>	5	No	FAC	4. <u>Setaria pumila / Yellow bristlegrass</u>	5	No	FAC	5. _____				6. _____				7. _____				8. _____				9. _____				10. _____				95 = Total Cover				Woody Vine Stratum (Plot size: _____)	Absolute %Cover	Dominant Species?	Indicator Status	1. _____				2. _____				0 = Total Cover				<p>Dominance Test worksheet:</p> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0</u> (A/B)
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Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: SP-05

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: Hydric soils assumed due to standing water and prevalence of FACW/OBL wetland vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 3
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Alvo North Mitigation Monitoring (11450) City/County: Cass County Sampling Date: 10/09/2019
 Applicant/Owner: NDOT State: Nebraska Sampling Point: SP-06
 Investigator(s): Jeff Hartman, Mercy Manzanares Section, Township, Range: 34, 11N, 9E
 Landform (hillslope, terrace, etc): hillslope Local relief (concave, convex, none): concave
 Slope(%): 1 Lat: 40.879349 Long: -96.389137 Datum: NAD83

Soil Map Unit Name: 7773—Colo-Nodaway complex, frequently flooded NWI classification: None

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

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Remarks: SP-6 is located in the PFOA area between the buffer and channel on the south side of the mitigation site. Photo 6.

VEGETATION - Use scientific names of plants.

<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 10%;">Absolute %Cover</th> <th style="width: 10%;">Dominant Species?</th> <th style="width: 10%;">Indicator Status</th> <th style="width: 20%;"></th> </tr> </thead> <tbody> <tr> <td colspan="5">Tree Stratum (Plot size: _____)</td> </tr> <tr><td>1. _____</td><td></td><td></td><td></td><td></td></tr> <tr><td>2. _____</td><td></td><td></td><td></td><td></td></tr> <tr><td>3. _____</td><td></td><td></td><td></td><td></td></tr> <tr><td>4. _____</td><td></td><td></td><td></td><td></td></tr> <tr><td>5. _____</td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="4"></td><td style="text-align: right;">0 = Total Cover</td></tr> <tr> <td colspan="5">Sapling/Shrub Stratum (Plot size: <u>15 ft diameter</u>)</td> </tr> <tr><td>1. <i>Acer saccharinum</i> / Silver maple</td><td style="text-align: center;">5</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FACW</td><td></td></tr> <tr><td>2. <i>Populus deltoides</i> / Eastern cottonwood</td><td style="text-align: center;">5</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FAC</td><td></td></tr> <tr><td>3. _____</td><td></td><td></td><td></td><td></td></tr> <tr><td>4. _____</td><td></td><td></td><td></td><td></td></tr> <tr><td>5. _____</td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="4"></td><td style="text-align: right;">10 = Total Cover</td></tr> <tr> <td colspan="5">Herb Stratum (Plot size: <u>5 ft diameter</u>)</td> </tr> <tr><td>1. <i>Setaria pumila</i> / Yellow bristlegrass</td><td style="text-align: center;">80</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FAC</td><td></td></tr> <tr><td>2. <i>Panicum virgatum var. virgatum</i> / Switchgrass</td><td style="text-align: center;">15</td><td style="text-align: center;">No</td><td style="text-align: center;">FAC</td><td></td></tr> <tr><td>3. <i>Amaranthus palmeri</i> / Palmer's amaranth</td><td style="text-align: center;">5</td><td style="text-align: center;">No</td><td style="text-align: center;">FACU</td><td></td></tr> <tr><td>4. _____</td><td></td><td></td><td></td><td></td></tr> <tr><td>5. _____</td><td></td><td></td><td></td><td></td></tr> <tr><td>6. _____</td><td></td><td></td><td></td><td></td></tr> <tr><td>7. _____</td><td></td><td></td><td></td><td></td></tr> <tr><td>8. _____</td><td></td><td></td><td></td><td></td></tr> <tr><td>9. _____</td><td></td><td></td><td></td><td></td></tr> <tr><td>10. _____</td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="4"></td><td style="text-align: right;">100 = Total Cover</td></tr> <tr> <td colspan="5">Woody Vine Stratum (Plot size: _____)</td> </tr> <tr><td>1. _____</td><td></td><td></td><td></td><td></td></tr> <tr><td>2. _____</td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="4"></td><td style="text-align: right;">0 = Total Cover</td></tr> </tbody> </table>		Absolute %Cover	Dominant Species?	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Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: SP-06

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10 YR 3/1	85	10 YR4/6	15	C	M	Clay	
6-18	10 YR 3/1	80	10 4/4	20	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
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Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Alvo North Mitigation Monitoring (11450) City/County: Cass County Sampling Date: 10/09/2019
 Applicant/Owner: NDOT State: Nebraska Sampling Point: SP-07
 Investigator(s): Jeff Hartman, Mercy Manzanares Section, Township, Range: 34, 11N, 9E
 Landform (hillslope, terrace, etc): hillslope Local relief (concave, convex, none): Concave
 Slope(%): 2 Lat: 40.879054 Long: -96.389162 Datum: NAD83
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Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: SP-7 is located in the upland buffer on the south side of the mitigation site. Photo 7.	

VEGETATION - Use scientific names of plants.

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0 = Total Cover																																																																																																																									
Herb Stratum (Plot size: 5 ft diameter)	Absolute %Cover	Dominant Species?	Indicator Status																																																																																																																						
1. <i>Setaria pumila</i> / Yellow bristlegrass	80	Yes	FAC																																																																																																																						
2. <i>Panicum virgatum</i> / Switchgrass	10	No	FAC																																																																																																																						
3. <i>Taraxacum officinale ssp. officinale</i> / Common dandelion	5	No	FACU																																																																																																																						
4. <i>Sporobolus cryptandrus</i> / Sand dropseed	5	No	FACU																																																																																																																						
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100 = Total Cover																																																																																																																									
Woody Vine Stratum (Plot size: _____)	Absolute %Cover	Dominant Species?	Indicator Status																																																																																																																						
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2. _____																																																																																																																									
0 = Total Cover																																																																																																																									
	<p>Prevalence Index worksheet:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Total % Cover of:</th> <th style="text-align: center;">Multiply by:</th> </tr> <tr><td>OBL species <u>0</u></td><td style="text-align: center;">x 1 = <u>0</u></td></tr> <tr><td>FACW species <u>0</u></td><td style="text-align: center;">x 2 = <u>0</u></td></tr> <tr><td>FAC species <u>90</u></td><td style="text-align: center;">x 3 = <u>270</u></td></tr> <tr><td>FACU species <u>10</u></td><td style="text-align: center;">x 4 = <u>40</u></td></tr> <tr><td>UPL species <u>0</u></td><td style="text-align: center;">x 5 = <u>0</u></td></tr> <tr><td>Column Totals: <u>100</u> (A)</td><td style="text-align: center;"><u>310</u> (B)</td></tr> </table> <p style="text-align: center;">Prevalence Index = B/A = <u>3.1</u></p>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>90</u>	x 3 = <u>270</u>	FACU species <u>10</u>	x 4 = <u>40</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>100</u> (A)	<u>310</u> (B)																																																																																																										
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Column Totals: <u>100</u> (A)	<u>310</u> (B)																																																																																																																								
	<p>Hydrophytic Vegetation Indicators:</p> ___ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% ___ 3 - Prevalence Index ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting Problematic Hydrophytic Vegetation ¹ (Explain))																																																																																																																								
	<p>¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>																																																																																																																								
	<p>Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>																																																																																																																								

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: SP-07

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10 YR 3/1	100					Clay loam	
12-20	10 YR 3/1	80	10 YR 4/4	1	C	M	Clay loam	
12-20	10 YR 4/2	20					Clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
 Water Table Present? Yes _____ No X Depth (inches): _____
 Saturation Present? Yes _____ No X Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix C:

2019 Ground-Level Site Photography

WET-08 Midwest Region v3 (Beta) Photo Sheet



Project	Alvo North Monitoring (11450)
ID	59929
Survey Date	10/09/2019
User	Jeff Hartman
Sample Point	SP-01
Coordinates	40.8802126162135, -96.3890249748681
Speed	0.0 m/s
Heading	271.87353515625 degrees
Altitude	396.833933103222 m
Accuracy	5 m
Description	View of SP-1 in north upland buffer area. Facing South.



Project	Alvo North Monitoring (11450)
ID	59923
Survey Date	10/09/2019
User	Jeff Hartman
Sample Point	SP-02
Coordinates	40.8800292620816, -96.3890589215759
Speed	0.949999988079071 m/s
Heading	168.675567626953 degrees
Altitude	397.376188231407 m
Accuracy	5 m
Description	View of SP-2 within north end of the PFOA boundary. Facing South.



Project	Alvo North Monitoring (11450)
ID	59919
Survey Date	10/09/2019
User	Jeff Hartman
Sample Point	SP-03
Coordinates	40.8798103267708, -96.3891546429101
Speed	0.0 m/s
Heading	164.481567382812 degrees
Altitude	396.921005805321 m
Accuracy	5 m
Description	View of SP-3 located in the middle of the PFOA area on the north side. Facing south.



Project	Alvo North Monitoring (11450)
ID	59928
Survey Date	10/09/2019
User	Jeff Hartman
Sample Point	SP-04
Coordinates	40.8795912657314, -96.3890948799405
Speed	0.0 m/s
Heading	134.880477905273 degrees
Altitude	394.690935006745 m
Accuracy	5 m
Description	SP-4 is a wetland point located on the north side of the channel.



Project	Alvo North Monitoring (11450)
ID	59924
Survey Date	10/09/2019
User	Jeff Hartman
Sample Point	SP-05
Coordinates	40.8794860309371, -96.3890875876848
Speed	0.0 m/s
Heading	326.001678466797 degrees
Altitude	395.459030780392 m
Accuracy	5 m
Description	SP-5 is located on the edge of the channel in the middle of the site. Facing east.



Project	Alvo North Monitoring (11450)
ID	59920
Survey Date	10/09/2019
User	Jeff Hartman
Sample Point	SP-06
Coordinates	40.8793294150763, -96.389135867447
Speed	0.0 m/s
Heading	60.5385818481445 degrees
Altitude	393.261953763277 m
Accuracy	5 m
Description	View of SP-6 located in the PFOA area on the south side of the channel. Facing north.



Project	Alvo North Monitoring (11450)
ID	59927
Survey Date	10/09/2019
User	Jeff Hartman
Sample Point	SP-07
Coordinates	40.8790410776072, -96.3891593367759
Speed	0.779999971389771 m/s
Heading	7.78027439117432 degrees
Altitude	397.467217200151 m
Accuracy	5 m
Description	View of SP-7 located in the upland buffer on the south side of the site. Facing north.

Appendix D:

As-Built Site Topography

(in-progress)



Appendix E:

Covenant of Dedication

(in-progress)

Appendix F: Seeding

Memorandum

DATE October 17, 2018

TO Jesse de los Santos, Construction Project Manager

FROM Carol Wienhold Con, Environmental Section

THRU Ronald Poe, Environmental Section

SUBJECT Project Number 63-2(108), C.N. 11450, Alvo North

The following seed was approved to be mixed at Miller Seed Co., Lincoln:

- 0.7 acre of seeding "Wetland High" (NOTE: blue vervain and ironweed are substituted for golden glow and field mint, which are not available.)
- 0.75 acre of seeding "Buffer"

Following seed application, the Construction Project Manager is requested to return the completed "Project Seeding Record" (DR Form 61, available on [dorimage1/dorforms/dr61](#)) to Carol Wienhold (carol.wienhold@nebraska.gov) at NDOR's Environmental Section, Lincoln.

Copies to:

District Engineer – Tom Goodbarn
District Construction Engineer – Curt Mueting
Asst. Construction Engineer – Bob Rankin
OnBase: PPD Environmental-RSU/PPD Project Seeding Document/Seed Analysis Approval



1600 Cornhusker Hwy
 Lincoln, NE 68521
 Phone: 402-438-1232
 Fax: 402-438-1068
 www.millerseed.com

Mix Worksheet

Invoice # 44923
 Date: 10/16/17
 Acres: 0.7

Customer: Tri State Seeding
Project: STP-63-2(108) Alvo
 Wetland High
 CN-11450

Lot #	PLS %	PLS LBS/Acre	Item	BULK LBS	PLS LBS
17-0555	93.52%	6	Virginia Wildrye	4.49	4.20
CALCAN497A	97.79%	0.2	Blue Joint Grass	0.14	0.14
CARVUL01-17WF	89.75%	0.6	Fox Sedge	0.47	0.42
CARSCO497A	91.35%	0.04	Broom Sedge	0.03	0.03
SWB-3043	95.91%	1	Switchgrass	0.73	0.70
F9026	63.42%	1	Prairie Cordgrass	1.10	0.70
ASIN051716	85.61%	0.2	Swamp Milkweed	0.16	0.14
ASTNOV01-17PA	72.03%	0.1	New England Aster	0.10	0.07
14A9000A	80.05%	0.05	Boneset	0.04	0.04
TG-14	88.18%	0.1	Thickspike Gayfeather	0.08	0.07
17-0241	94.70%	0.2	Blue Vervain	0.15	0.14
17-0159	97.25%	0.2	Ironweed	0.14	0.14
RS-18	98.00%	18	Wheat	12.86	12.60
Total LBS				20.50	

subs



1600 Cornhusker Hwy
 Lincoln, NE 68521
 Phone: 402-438-1232
 Fax: 402-438-1058
 www.millerseed.com

Invoice # 44923
 Date: 10/16/2017

Seed Tags

<u>KIND</u>		<u>VARIETY</u>	
Virginia Wildrye		VNS	
PURITY	97.42%	<u>LOT#</u>	17-0555
CROP	0.01%	GERM	82.00%
INERT	2.56%	DORMANT	14.00%
WEEDS	0.01%	TOTAL	96.00%
PLS:	93.52%	TEST DATE	5/18
NOXIOUS WEEDS	None Found	ORGIN	IA

<u>KIND</u>		<u>VARIETY</u>	
Blue Joint Grass		VNS	
PURITY	99.79%	<u>LOT#</u>	CALCAN497A
CROP	0.00%	GERM	88.00%
INERT	0.21%	DORMANT	10.00%
WEEDS	0.00%	TOTAL	98.00%
PLS:	97.79%	TEST DATE	3/18
NOXIOUS WEEDS	None Found	ORGIN	WI

<u>KIND</u>		<u>VARIETY</u>	
Fox Sedge		VNS	
PURITY	99.72%	<u>LOT#</u>	CARVUL01-17WF
CROP	0.00%	GERM	9.00%
INERT	0.28%	DORMANT	81.00%
WEEDS	0.00%	TOTAL	90.00%
PLS:	89.75%	TEST DATE	10/17
NOXIOUS WEEDS	None Found	ORGIN	PA

<u>KIND</u>		<u>VARIETY</u>	
Broom Sedge		VNS	
PURITY	98.23%	<u>LOT#</u>	CARSCO497A
CROP	0.00%	GERM	93.00%
INERT	1.77%	DORMANT	0.00%
WEEDS	0.00%	TOTAL	93.00%
PLS:	91.35%	TEST DATE	2/18
NOXIOUS WEEDS	None Found	ORGIN	WI

<u>KIND</u>		<u>VARIETY</u>	
Switchgrass		Blackwell	
PURITY	99.91%	<u>LOT#</u>	SWB-3043
CROP	0.08%	GERM	4.00%
INERT	0.00%	DORMANT	92.00%
WEEDS	0.01%	TOTAL	96.00%
PLS:	95.91%	TEST DATE	11/17
NOXIOUS WEEDS	None Found	ORGIN	KS

<u>KIND</u>		<u>VARIETY</u>	
Prairie Cordgrass		Red River	
PURITY	69.69%	<u>LOT#</u>	F9026
CROP	16.00%	GERM	25.00%
INERT	30.15%	DORMANT	66.00%
WEEDS	0.00%	TOTAL	91.00%
PLS:	63.42%	TEST DATE	3/18
NOXIOUS WEEDS	None Found	ORGIN	MN

<u>KIND</u>		<u>VARIETY</u>	
Swamp Milkweed		VNS	
PURITY	98.40%	<u>LOT#</u>	ASIN051716
CROP	0.00%	GERM	87.00%
INERT	1.60%	DORMANT	0.00%
WEEDS	0.00%	TOTAL	87.00%
PLS:	85.61%	TEST DATE	3/18
NOXIOUS WEEDS	None Found	ORGIN	PA

<u>KIND</u>		<u>VARIETY</u>	
New England Aster		VNS	
PURITY	88.92%	<u>LOT#</u>	ASTNOV01-17PA
CROP	0.00%	GERM	39.00%
INERT	10.97%	DORMANT	42.00%
WEEDS	0.11%	TOTAL	81.00%
PLS:	72.03%	TEST DATE	3/18
NOXIOUS WEEDS	None Found	ORGIN	PA

Seller makes no warranty either expressed or implied except that the product conforms to the description on the label. Buy
 agrees that seller's liability under this warranty is limited to the amount of the purchase prices and seller has no
 responsibility for special consequential or contingent damages.

<u>KIND</u>		<u>VARIETY</u>	
Boneset		VNS	
PURITY	93.08%	<u>LOT#</u>	14A9000A
CROP	0.00%	GERM	86.00%
INERT	6.92%	DORMANT	0.00%
WEEDS	0.00%	TOTAL	86.00%
PLS:	80.05%	TEST DATE	12/17
NOXIOUS WEEDS	None Found	ORGIN	IA

<u>KIND</u>		<u>VARIETY</u>	
Thickspike Gayfeather		VNS	
PURITY	99.08%	<u>LOT#</u>	TG-14
CROP	0.00%	GERM	89.00%
INERT	0.92%	DORMANT	0.00%
WEEDS	0.00%	TOTAL	89.00%
PLS:	88.18%	TEST DATE	10/17
NOXIOUS WEEDS	None Found	ORGIN	NE

<u>KIND</u>		<u>VARIETY</u>	
Blue Vervain		VNS	
PURITY	99.68%	<u>LOT#</u>	17-0241
CROP	0.01%	GERM	11.00%
INERT	0.30%	DORMANT	84.00%
WEEDS	0.01%	TOTAL	95.00%
PLS:	94.70%	TEST DATE	1/18
NOXIOUS WEEDS	None Found	ORGIN	IA

<u>KIND</u>		<u>VARIETY</u>	
Ironweed		VNS	
PURITY	98.23%	<u>LOT#</u>	17-0159
CROP	0.07%	GERM	99.00%
INERT	1.69%	DORMANT	0.00%
WEEDS	0.01%	TOTAL	99.00%
PLS:	97.25%	TEST DATE	10/17
NOXIOUS WEEDS	None Found	ORGIN	IA

<u>KIND</u>		<u>VARIETY</u>	
Wheat		VNS	
PURITY	99.25%	<u>LOT#</u>	RS-18
CROP	0.01%	GERM	98.00%
INERT	0.02%	DORMANT	0.00%
WEEDS	0.00%	TOTAL	98.00%
PLS:	98.00%	TEST DATE	8/18
NOXIOUS WEEDS	None Found	ORGIN	NE

Seller makes no warranty either expressed or implied except that the product conforms to the description on the label. Buy agrees that seller's liability under this warranty is limited to the amount of the purchase prices and seller has no responsibility for special consequential or contingent damages.



1600 Cornhusker Hwy
 Lincoln, NE 68521
 Phone: 402-438-1232
 Fax: 402-438-1068
 www.millerseed.com

Mix Worksheet

Invoice # 44923
 Date: 10/16/18
 Acres: 0.75

Customer: Tri State Seeding
Project: STP-63-2(108) Alvo
 Buffer
 CN-11450

Lot #	PLS %	PLS LBS/Acre	Item	BULK LBS	PLS LBS
6JE563-87A	88.25%	4	Slender Wheatgrass	3.40	3.00
WWB-2023	88.88%	4	Western Wheatgrass	3.38	3.00
17-0555	93.52%	3.5	Virginia Wildrye	2.81	2.63
F9005	88.01%	4.5	Canada Wildrye	3.83	3.38
CARSCO497A	91.35%	0.03	Broom Sedge	0.02	0.02
SWB-3043	95.91%	1.5	Switchgrass	1.17	1.13
IYN-3039	93.17%	2	Indiangrass	1.61	1.50
BLZ17	79.79%	2.5	Little Bluestem	2.35	1.88
F9026	63.42%	0.75	Prairie Cordgrass	0.89	0.56
DWS-9099	91.21%	0.15	Sand Dropseed	0.12	0.11
F7-2809	79.47%	2	Big Bluestem	1.89	1.50
ASTNOV01-17PA	72.03%	0.1	New England Aster	0.10	0.08
J16-16-VR02-2	84.62%	0.1	Plains Coreopsis	0.09	0.08
TG-14	88.18%	0.1	Thickspike Gayfeather	0.09	0.08
1SW17RS	80.59%	0.3	Common Milkweed	0.28	0.23
RS-17	89.33%	12	Wheat	10.08	9.00
Total LBS				32.10	

MILLER

SINCE 1939

SEED

1600 Cornhusker Hwy
Lincoln, NE 68521
Phone: 402-438-1232
Fax: 402-438-1068
www.millerseed.com

Invoice # 44923
Date: 10/16/2018

Seed Tags

<u>KIND</u>		<u>VARIETY</u>	
Slender Wheatgrass		VNS	
PURITY	99.25%	<u>LOT#</u>	6JE563-87A
CROP	0.00%	GERM	97.00%
INERT	0.62%	DORMANT	0.00%
WEEDS	0.00%	TOTAL	97.00%
PLS:	88.25%	TEST DATE	7/18
NOXIOUS WEEDS	None Found	ORGIN	ID

<u>KIND</u>		<u>VARIETY</u>	
Western Wheatgrass		Barton	
PURITY	93.56%	<u>LOT#</u>	WWB-2023
CROP	0.00%	GERM	95.00%
INERT	6.31%	DORMANT	0.00%
WEEDS	0.13%	TOTAL	95.00%
PLS:	88.88%	TEST DATE	3/18
NOXIOUS WEEDS	None Found	ORGIN	KS

<u>KIND</u>		<u>VARIETY</u>	
Virginia Wildrye		VNS	
PURITY	97.42%	<u>LOT#</u>	17-0555
CROP	0.01%	GERM	82.00%
INERT	2.56%	DORMANT	14.00%
WEEDS	0.01%	TOTAL	96.00%
PLS:	93.52%	TEST DATE	5/18
NOXIOUS WEEDS	None Found	ORGIN	IA

<u>KIND</u>		<u>VARIETY</u>	
Canada Wildrye		Mandan	
PURITY	95.66%	<u>LOT#</u>	F9005
CROP	0.01%	GERM	92.00%
INERT	4.33%	DORMANT	0.00%
WEEDS	0.00%	TOTAL	92.00%
PLS:	88.01%	TEST DATE	5/18
NOXIOUS WEEDS	None Found	ORGIN	ND

<u>KIND</u>		<u>VARIETY</u>	
Broom Sedge		VNS	
PURITY	98.23%	<u>LOT#</u>	CARSCO497A
CROP	0.00%	GERM	93.00%
INERT	1.77%	DORMANT	0.00%
WEEDS	0.00%	TOTAL	93.00%
PLS:	91.35%	TEST DATE	2/18
NOXIOUS WEEDS	None Found	ORGIN	WI

<u>KIND</u>		<u>VARIETY</u>	
Switchgrass		Blackwell	
PURITY	99.91%	<u>LOT#</u>	SWB-3043
CROP	0.08%	GERM	4.00%
INERT	0.00%	DORMANT	92.00%
WEEDS	0.01%	TOTAL	96.00%
PLS:	95.91%	TEST DATE	11/17
NOXIOUS WEEDS	None Found	ORGIN	KS

<u>KIND</u>		<u>VARIETY</u>	
Indiangrass		NE 54	
PURITY	96.05%	<u>LOT#</u>	IYN-3039
CROP	3.88%	GERM	12.00%
INERT	0.07%	DORMANT	85.00%
WEEDS	0.00%	TOTAL	97.00%
PLS:	93.17%	TEST DATE	11/17
NOXIOUS WEEDS	None Found	ORGIN	KS

<u>KIND</u>		<u>VARIETY</u>	
Little Bluestem		Blaze	
PURITY	83.11%	<u>LOT#</u>	BLZ17
CROP	4.22%	GERM	22.00%
INERT	12.67%	DORMANT	74.00%
WEEDS	0.00%	TOTAL	96.00%
PLS:	79.79%	TEST DATE	3/18
NOXIOUS WEEDS	None Found	ORGIN	NE

Seller makes no warranty either expressed or implied except that the product conforms to the description on the label. Buy agrees that seller's liability under this warranty is limited to the amount of the purchase prices and seller has no responsibility for special consequential or contingent damages.

<u>KIND</u>		<u>VARIETY</u>	
Prairie Cordgrass		Red River	
PURITY	69.69%	<u>LOT#</u>	F9026
CROP	16.00%	GERM	25.00%
INERT	30.15%	DORMANT	66.00%
WEEDS	0.00%	TOTAL	91.00%
PLS:	63.42%	TEST DATE	3/18
NOXIOUS WEEDS	None Found	ORGIN	MN

<u>KIND</u>		<u>VARIETY</u>	
Sand Dropseed		VNS	
PURITY	97.03%	<u>LOT#</u>	DWS-9099
CROP	0.40%	GERM	84.00%
INERT	2.31%	DORMANT	10.00%
WEEDS	0.26%	TOTAL	94.00%
PLS:	91.21%	TEST DATE	8/18
NOXIOUS WEEDS	None Found	ORGIN	KS

<u>KIND</u>		<u>VARIETY</u>	
Big Bluestem		Roundtree	
PURITY	80.27%	<u>LOT#</u>	F7-2809
CROP	0.46%	GERM	98.00%
INERT	19.27%	DORMANT	1.00%
WEEDS	0.00%	TOTAL	99.00%
PLS:	79.47%	TEST DATE	1/18
NOXIOUS WEEDS	None Found	ORGIN	NE

<u>KIND</u>		<u>VARIETY</u>	
New England Aster		VNS	
PURITY	88.92%	<u>LOT#</u>	ASTNOV01-17PA
CROP	0.00%	GERM	39.00%
INERT	10.97%	DORMANT	42.00%
WEEDS	0.11%	TOTAL	81.00%
PLS:	72.03%	TEST DATE	3/18
NOXIOUS WEEDS	None Found	ORGIN	PA

<u>KIND</u>		<u>VARIETY</u>	
Plains Coreopsis		VNS	
PURITY	92.99%	<u>LOT#</u>	J16-16-VR02-2
CROP	0.00%	GERM	67.00%
INERT	6.75%	DORMANT	24.00%
WEEDS	0.26%	TOTAL	91.00%
PLS:	84.62%	TEST DATE	4/18
NOXIOUS WEEDS	None Found	ORGIN	OR

<u>KIND</u>		<u>VARIETY</u>	
Thickspike Gayfeather		VNS	
PURITY	99.08%	<u>LOT#</u>	TG-14
CROP	0.00%	GERM	89.00%
INERT	0.92%	DORMANT	0.00%
WEEDS	0.00%	TOTAL	89.00%
PLS:	88.18%	TEST DATE	10/17
NOXIOUS WEEDS	None Found	ORGIN	NE

<u>KIND</u>		<u>VARIETY</u>	
Common Milkweed		VNS	
PURITY	99.49%	<u>LOT#</u>	1SW17RS
CROP	0.00%	GERM	81.00%
INERT	0.51%	DORMANT	0.00%
WEEDS	0.00%	TOTAL	81.00%
PLS:	80.59%	TEST DATE	10/17
NOXIOUS WEEDS	None Found	ORGIN	NE

<u>KIND</u>		<u>VARIETY</u>	
Wheat		VNS	
PURITY	99.25%	<u>LOT#</u>	RS-17
CROP	0.01%	GERM	90.00%
INERT	0.73%	DORMANT	0.00%
WEEDS	0.01%	TOTAL	90.00%
PLS:	89.33%	TEST DATE	8/18
NOXIOUS WEEDS	None Found	ORGIN	NE

Seller makes no warranty either expressed or implied except that the product conforms to the description on the label. Buyer agrees that seller's liability under this warranty is limited to the amount of the purchase price and seller has no responsibility for special consequential or contingent damages.

ATTACHMENT M
NWP 3 Non-Notifying Memo
Example

NWP 3 non-notifying Form

Check all permit types that apply: NWP 3(a) NWP 3(c)

Document Date:

This Nationwide Permit (NWP) non-notify memo is valid until March 18, 2022, which is the expiration date of the 2017 NWP.

Project information

Project Name:

Project Number:

Control Number:

Project Description: **Include date of PD used in OnBase**

Permanent Wetland Impacts:

Temporary Wetland Impacts:

Permanent Channel Impacts:

Temporary Channel Impacts:

Channel Shaping/Cleanout:

401 Mitigation required Yes No. If yes include:

Acres/type impacted:

Acres/type mitigated:

Location impacts mitigated (bank/onsite):

Permit Compliance Check

To use this non-notify memo, project activities must comply with all bullets in this section. Check the boxes as they apply. If some of these items do not apply to the project, submit a pre-construction notification to the USACE.

State Title 117 Waters: All waters/wetlands are assumed to be federally jurisdictional.

Section 401 Water Quality General Conditions, under the 2017 NWP, have been met for the NWP 3: Springs (natural artesian discharge of ground water to the surface where the point of origin is an aquifer); Class A State Resource Waters; State Endangered and Threatened Species; Rainwater Basin Wetlands; Eastern Saline Wetlands; Compensatory mitigation for wetlands, rivers and streams.

Nebraska Regional Conditions #1 – 8 have not been triggered to require a PCN submittal to the Corps.

No part of the project, impacting wetlands and WOUS, will deviate from the original alignment?

The structure or fill is previously authorized, currently serviceable or a currently serviceable structure or fill authorized by 33 CFR 330.3. Check which box the activity qualifies under:

- Previously authorized, currently serviceable.
Include authorization date or
- Authorized by 33 CFR330.3 and is currently serviceable (structures or fill prior to 7/1/1977)
Include as-built date

- All regulated activities on the project can be categorized as repair, rehabilitation or replacement of the structure or fill.
- The structure or fill is not being put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification.
- All regulated activities are minor deviations in the existing structures' configuration or fill area.
- The project is not located within the reservation boundaries of Indian Country in Nebraska.
- Endangered Species and Critical Habitat Clearance: Must result in "No Effect" OR "May Affect, Not Likely to Adversely Affect".
- Historic Clearance: SHPO concurrence must result in "No historic properties affected." OR "No potential to cause affects to historic properties." (See General Condition #20 below)
- Regulated activities do not temporarily or permanently occupy or use a USACE federally authorized Civil Works project- Section 408; (General Condition 31).

Stream Channel

Will there be the removal of any authorized structure or fill on this project? Yes No
Include a NDOT290 attachment for any impacts to Wetlands and Waters of the U.S. (WOUS)

Will there be a stream channel modification associated with this project? Yes No
If yes, respond to the following bullets (A "yes" is required with the following stream questions to continue with a Non-notify NWP 3; a "no" precludes the project from a non-notifying permit):

- Does the channel modification cause minimal interruption of normal stream processes?
Yes No
- The proposed stream modifications are minimum necessary for the repair, rehabilitation or replacement of the structure or fill and are immediately adjacent to the project (within existing right-of-way). Yes No
- The removal of material from the stream channel will be immediately adjacent to the project (within existing right-of-way) Yes No NA
- The removal of accumulated sediment or debris is within and in the immediately vicinity of the structure or fill (within existing right-of-way)? Yes No

Repair of Damaged Structures or Fill Caused by Storms

- Is the repair, rehabilitation or replacement required due to damage from a storm, flood, fire or other discrete event? Yes No (If No, skip this section)
 - If yes, include **Attachment** that describes:
 - Date of the event;
 - Damage associated with the event;
 - Action required for the repair, rehabilitation, replacement.
 - Contacting NDEQ 401 Coordinator is Required? Yes (Contact only if a bridge is out); No
If a bridge is out, contact the Section 401 Coordinator and the NDEQ email address NDEQ.401certfication@nebraska.gov
 - Has the repair, rehabilitation, or replacement commenced or is under contract to commence within two years of the date of their destruction or damage? Yes No (If no, a non-notify NWP 3 cannot be used. A waiver must be requested from the USACE to use a NWP 3 past the two-year limit).
-

Temporary Structure information

Will there be a temporary structure or fill associated with this project? Yes No

In no, skip this section.

- If yes:
 - Describe, identify type(s) and location(s) in the **Attachment**;
 - Include any impacts in the NDOT290;
 - Be sure that applicable General, Regional and Special Conditions listed below are checked)?
 - Dates of construction, length of time in place
- Include design submitted from the contractor.

The placement of causeways is not authorized under NWP #3.

Riprap

(The discharge of fills/riprap for scour holes abutting existing structures like bridge piers and culverts is allowed; also allowed riprap for dissipation structures within wingwalls, adding to existing riprap and for bridge dripline.)

- Are there any regulated impacts associated with the riprap? Yes No
 - If yes, identify in the NDOT290.
-

Impacts Summary Section

(Add date for Referenced NDOT 290 in OnBase)

Nationwide Permit 3

Maintenance

- (a) The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. This NWP also authorizes the removal of previously authorized structures or fills. Any stream channel modification is limited to the minimum necessary for the repair, rehabilitation, or replacement of the structure or fill; such modifications, including the removal of material from the stream channel, must be immediately adjacent to the project. This NWP also authorizes the removal of accumulated sediment and debris within, and in the immediate vicinity of, the structure or fill. This NWP also authorizes the repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within two years of the date of their destruction or damage. In cases of catastrophic events, such as hurricanes or tornadoes, this two-year limit may be waived by the district engineer, provided the permittee can demonstrate funding, contract, or other similar delays.

- (c) This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the maintenance activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. After conducting the maintenance activity, temporary fills must be removed in their entirety and the affected areas returned to pre- construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

2017 Regional Conditions

Check all the Regional Conditions that apply for this project under the non-notifying permit:

RC 9(a) - All areas adjacent (contiguous, bordering, neighboring) to jurisdictional waters disturbed by construction shall be revegetated with appropriate perennial, native grasses and forbs and maintained in this condition. In accordance with Executive Order 13112, the use of invasive species and non-native species is not appropriate for revegetation of disturbed areas. A cover crop may be planted to aid in the establishment of native vegetation. The disturbed areas shall be reseeded concurrently with the project or immediately upon completion. Revegetation shall be acceptable when ground cover of appropriate perennial, native grasses and forbs reaches 75%. If this seeding cannot be accomplished by September 15 in the year of project completion, then an erosion blanket shall be placed on the disturbed areas. The erosion blanket shall remain in place until ground cover of appropriate perennial, native grasses and forbs reaches 75%. If the seeding can be accomplished by September 15, all seeded areas shall be properly mulched to prevent erosion.

RC 9(b) - When the vegetation has become established, all temporary erosion control materials shall be removed from the project site. Biodegradable or photodegradable materials need not be removed.

RC 10(a)(i) - The use of dredged material in the construction of **temporary structures** or used for temporary work or used as temporary fill shall not be allowed. The term “dredged material” is defined as material that is excavated or dredged from waters of the U.S. All temporary fill material shall be obtained from an upland source.

RC 10(a)(ii) - Upon completion of the construction activity, all **temporary fill** material shall be removed in its entirety from the water of the U.S. to an upland area and the affected area shall be restored to its pre-construction condition. Wetlands disturbed by temporary construction shall be seeded with appropriate native hydrophytic species.

RC 10(a)(ii) – General Condition No. 13 (Removal of Temporary Fills) is amended by adding the following: When temporary fills are placed in wetlands, a horizontal marker (i.e. fabric, certified weed-free straw, or ground survey with minimum accuracy of 0.10-foot, etc.) must be used to demarcate the existing ground elevation of wetlands that will be temporarily filled during construction, in order to restore the wetlands to pre-project conditions.

The proposal for the temporary structure/work/fill, if not already provided, shall be submitted 14 days prior to construction to the NDOT environmental project manager.

2017 General Conditions

Check all the General Conditions that may apply for this project under the non-notifying permit:

Aquatic Life Movements (GC #2) - No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate

through the area, less the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.

Spawning Areas (GC #3)

Migratory Bird Breeding Areas (GC #4)- Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

Shellfish Beds (GC #5)

Suitable Material (GC #6) - No activity may use unsuitable fill material as defined in the list below. Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

OMAHA DISTRICT PROHIBITED/RESTRICTED MATERIALS:

1. Vehicle bodies, farm machinery and metal junk, including appliances and metal containers, are prohibited.
2. The use of old or used asphalt paving material as a fill material and the use of new or used asphalt for bank stabilization or erosion control is prohibited.
3. The use of organic debris as fill material is prohibited. (Properly anchored trees, treetops, root wads, logs, and hay bales may be allowed on a case-by-case basis.)
4. Any material subject to leaching when in an aquatic environment is prohibited (for example, but not limited to, chemically-treated building material, roofing material, and wood debris).
5. Individual or unanchored tires are prohibited. (Tires may be allowed on a case-by-case basis when placed in the form of a mat or grid with multiple anchoring points to reduce the risk of design failure.)
6. Small aggregate (i.e. less than 6 inches in diameter) may not be placed below the ordinary high water mark (OHWM) of a water body for the purpose of bank stabilization or erosion control when such aggregate will be unstable or subject to frequent failure. Small aggregate may, however, be placed below the OHWM if its purpose is to fill the interstices of a well graded rock riprap revetment or channel lining.
7. Slab material, regardless of source, must be broken before placement so that the dimension of the largest slab will not be more than 3.5 times the dimension of the smallest slab (unless justified by a qualified engineer) and must be free of exposed rebar, wire and wire mesh.
8. The use of clean brick, broken concrete and cinder block for erosion control or bank stabilization will be considered on a case-by-case basis. If allowed, the broken concrete must be free of exposed rebar, wire, wire mesh, asphalt paving material, paint, and other erodible materials. Broken concrete must range in size from 6 to 36 inches (unless justified by a qualified engineer).

Adverse Effects from Impoundments (GC #8) - If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water and/or restricting its flow must be minimized to the maximum extent practicable.

Management of Water Flows (GC #9) - To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, and temporary and permanent road crossings, except

as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

Fills Within 100-Year Floodplains (GC #10) – This activity must comply with applicable FEMA-approved state or local floodplain management requirements.

Equipment (GC #11) - Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

Soil Erosion and Sediment Controls (GC #12) - Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

Removal of Temporary Fills (GC #13) – The use of dredged material in the construction of temporary structures or used for temporary work or used as temporary fill shall not be allowed. The term “dredged material” means material that is excavated or dredged from waters of the U.S. All temporary fill material shall be obtained from an upland source.

Upon completion of the construction activity, all temporary fill material shall be removed in its entirety from the water of the U.S. to an upland area and the affected area shall be restored to its pre-construction elevations. Wetlands disturbed by temporary construction shall be seeded with appropriate native hydrophytic species.

General Condition No. 13 (Removal of Temporary Fills) is amended by adding the following: When temporary fills are placed in wetlands, a horizontal marker (i.e. fabric, certified weed-free straw, a ground survey with minimum accuracy of 0.10-foot, etc.) must be used to demarcate the existing ground elevation of wetlands that will be temporarily filled during construction, in order to restore the wetlands to pre-project conditions.

Endangered Species (and Critical Habitat); Migratory Birds and Bald and Golden Eagles (GC # 18 and #19)

T&E PQS Memo Date:

Click here to enter text.

Comments: No Effect

May Affect or Not Likely to Adversely Affect

Historic Properties (GC #20) -

Project Effects Determination:

No Historic Properties Affected.

No Potential to cause effects to historic properties.

Date PQS Memo Received:

Discovery of Previously Unknown Remains and Artifacts (GC #21) – If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the District Engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed.

Water Quality (GC #25) – See *Permit Compliance Section above*.

Activities Affecting Structures or Works Built by the United States (GC #31) – There are no parts of the project that require permission from the USACE pursuant to 33 U.S.C. 408 (Condition 32(b)(10)).

Special Conditions:

Check all the Special Conditions that may apply for this project under the non-notifying permit:

Any temporary fill (e.g. bridge debris, construction debris, etc.) discharged below the ordinary high water mark shall be removed on a daily basis. All debris shall be disposed of upland in such a manner that it cannot enter any wetlands or WOUS.

Construction mats or timber mats must be used to minimize heavy machinery impacting any wetlands or waters of the U.S. All mats will be removed upon completion of construction and any disturbance of wetlands or waters of the U.S. will be restored by minor grading to preconstruction conditions. Disturbed areas will be seeded with perennials, native grasses and forbs. Erosion control measures will be implemented as appropriate. No construction debris or riprap shall be used as construction mats.

Excavated and/or dredged material removed from the cofferdam locations shall be discharged into an upland area and shall not be side-cast or stored in wetlands or below the OHWM of the channel. Dewatering of the cofferdam area shall require the pump outlet to discharge onto a hard surface (wood, concrete, etc.), so as not to scour up sediment and carry it downstream. Following construction, the cofferdam shall be completely removed to an upland location.