National Park Service

US Department of the Interior

Theodore Roosevelt National Park
North Dakota

EXECUTIVE ORDER 11990: WETLANDS PROTECTION
and
EXECUTIVE ORDER 11988: FLOODPLAIN MANAGEMENT

South Unit Loop Road Reconstruction Project
Wetlands and Floodplains Statement of Findings

Theodore Roosevelt National Park
Billings County, North Dakota

ANGELA RICHMAN

Digitally signed by ANGELA RICHMAN
Date: 2022.03.15 12:23:36 -06'00'

Recommended:

Angela Richman — Date
Acting Superintendent, Theodore Roosevelt National Park
National Park Service

Certification of Technical Adequacy and Service-wide Consistency

FORREST HARVEY

Digitally signed by FORREST HARVEY
Date: 2022.03.15 13:52:56 -06'00'

Concurred:

Forrest "Ed" Harvey, Ph.D., PG — Date
Chief, Water Resources Division
National Park Service

HERBERT FROST

Digitally signed by HERBERT FROST
Date: 2022.04.21 13:42:13 -05'00'

Approved:

Herbert C. Frost, Ph.D. — Date
Regional Director, DOI Regions 3, 4, 5
National Park Service

CONTENTS

LIST OF FIGURES

LIST OF TABLES

INTRODUCTION

The National Park Service (NPS) is proposing to reconstruct portions of Scenic Loop Drive (also known as Loop Road) in the South Unit of Theodore Roosevelt National Park (the park). The park is located near Medora, North Dakota, approximately 133 miles west of Bismarck, North Dakota, and 130 miles south of Williston, North Dakota. Scenic Loop Drive is one of the oldest sections of road in the South Unit; however, large-scale rehabilitation work has not been performed on the road in 20 years. During previous maintenance and repair efforts, subgrade and stormwater management issues were identified but were not fully addressed. As a result, areas of the road have succumbed to landslides and other damage over time. The proposed project would reconstruct 6.15 miles of Scenic Loop Drive to provide long-term, sustainable access for future visitor use. The project would also include improvements to pullouts along the road and improvements to parking areas.

PROJECT BACKGROUND

The Federal Highway Administration, Central Federal Lands Highway Division, in partnership with NPS, proposes to stabilize sections of failed roadway embankment along Scenic Loop Drive between mile marker 22 and mile marker 28. Landslides of various magnitudes and poor subgrade material within the park have affected the road for many years. A 150-foot section of Scenic Loop Drive collapsed in spring 2019, requiring closure of the roadway (figure 1). Subsequent sinkholes in the road required further closures. In fall 2019, the park found two areas of potential roadway failure at Scoria Point and West Ridgeline, with other areas of concern identified. These areas of concern showed continued deterioration when reassessed in winter 2019-2020. Geotechnical and pavement engineering studies along Scenic Loop Drive have recommended 6.15 miles of roadway for reconstruction, including bank stability repairs, roadway deep patches, drainage improvements, and slope regrading.

Historically, sections of Scenic Loop Drive have failed because of subsurface water conditions and existing culverts partially or fully filled with sediment. Several active seeps (i.e., wetlands where groundwater reaches the surface through an aquifer) have been observed, and it is assumed that most of the areas displaying embankment failure are experiencing a loss of strength because of high moisture content under the road surface.

FIGURE 1. A FAILED SECTION OF SCENIC LOOP DRIVE FROM A LANDSLIDE

PURPOSE OF AND NEED FOR THE PROJECT

The purpose of the project is to restore access to park resources in the South Unit by providing a stable and more sustainable roadway that addresses visitor and staff safety, enhances the visitor's experience, improves efficiencies in park operations, and minimizes impacts on natural and cultural resources.

The project is needed because the existing drainage system cannot convey stormwater runoff from the road surface effectively, resulting in unstable slopes that have damaged pavement along Scenic Loop Drive causing partial or total closures. These road closures have adversely impacted visitor enjoyment of the area and the park's ability to provide visitor services because portions of the road are currently unstable, inaccessible, and unsafe (figures 2 through 5).

PROJECT AREA

The project area is 6.15 miles of Scenic Loop Drive located southeast of East River Road and approximately 6.5 miles from Medora, North Dakota (figure 6). The project area consists of a 400-foot-wide corridor (i.e., approximately 200 feet from the centerline on each side of the road). The project area also includes several locations beyond the 400-foot-wide corridor to allow for adequate stormwater drainage.

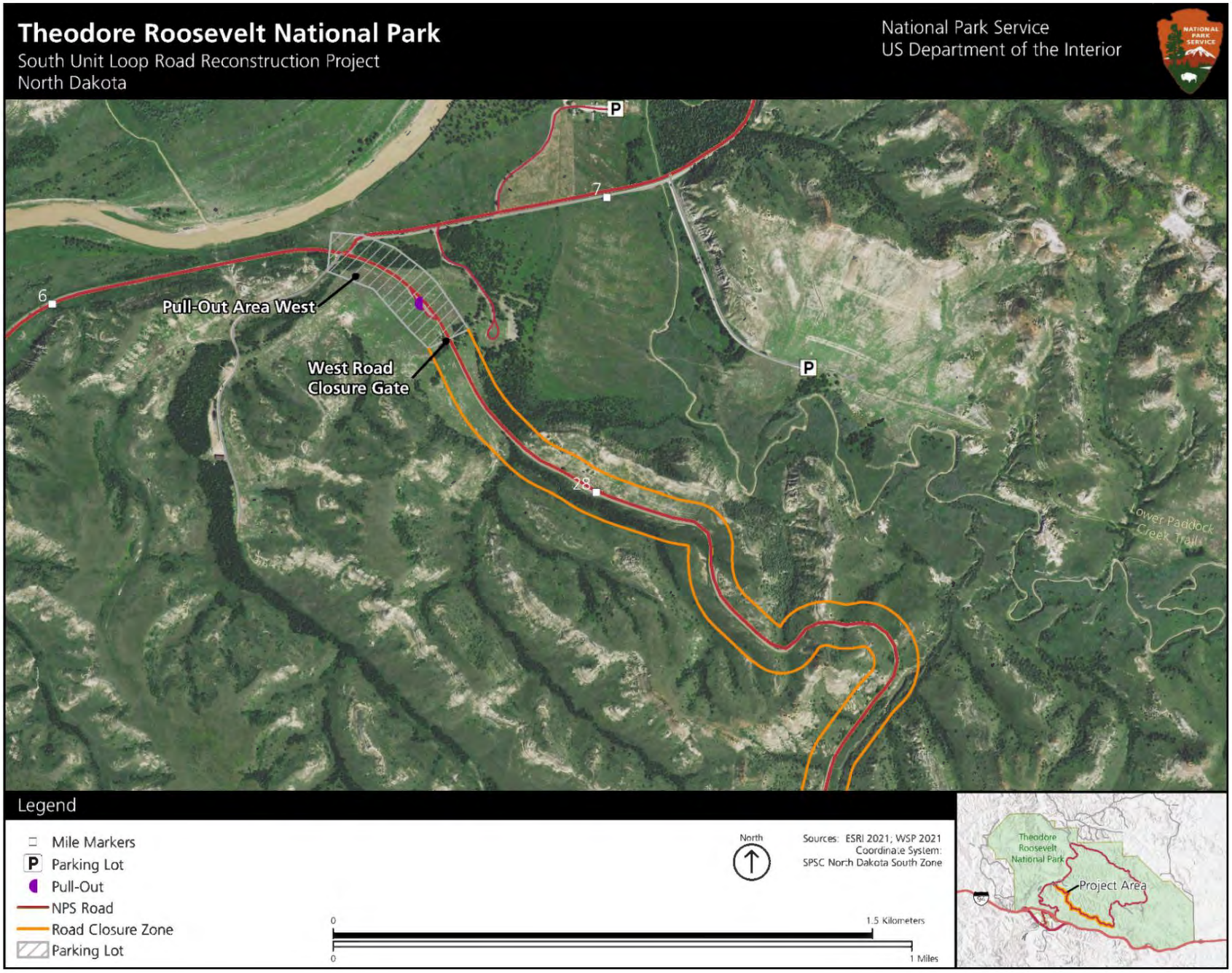

FIGURE 2. ROAD PROBLEM AREAS: WEST

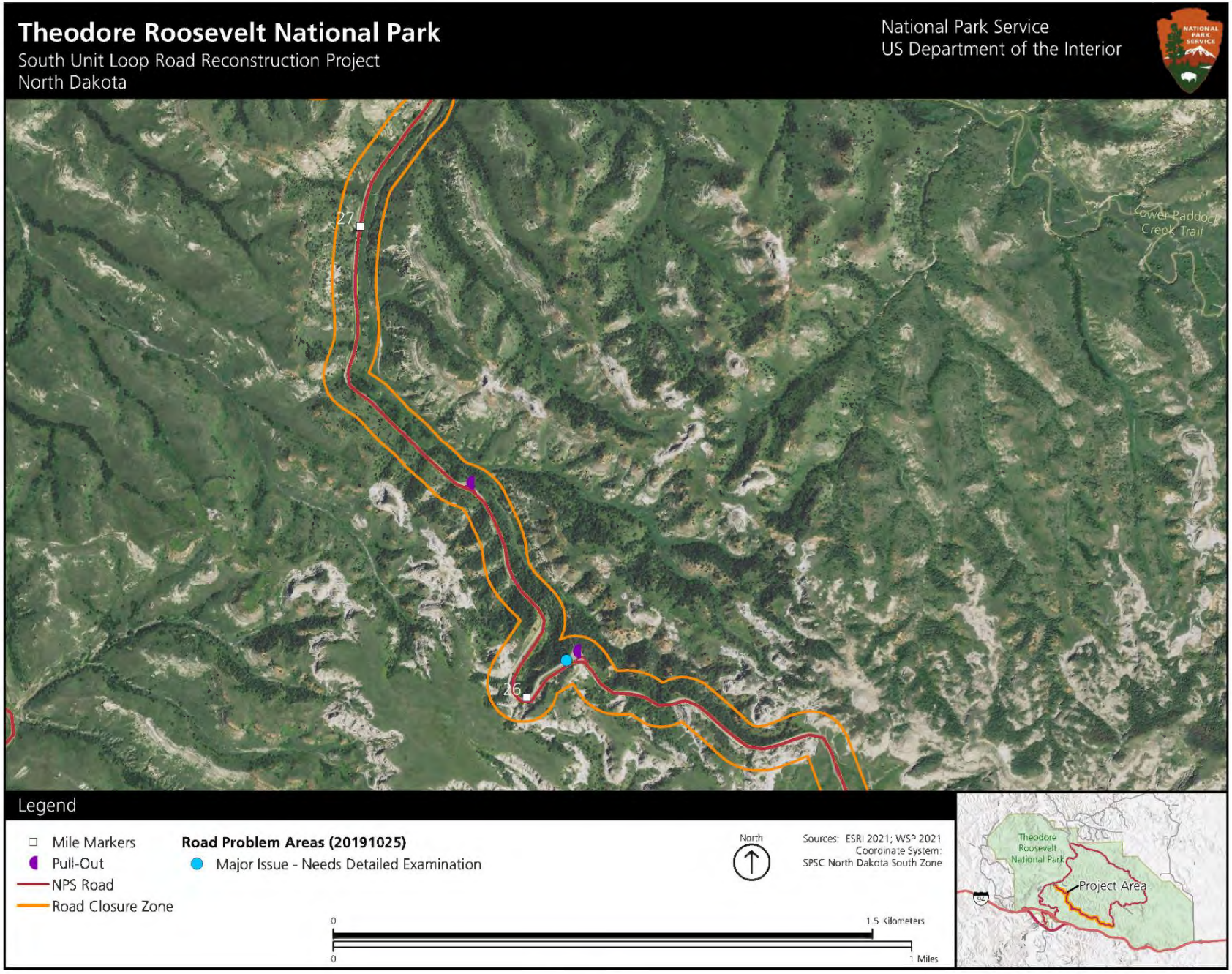

FIGURE 3. ROAD PROBLEM AREAS: WEST-CENTRAL

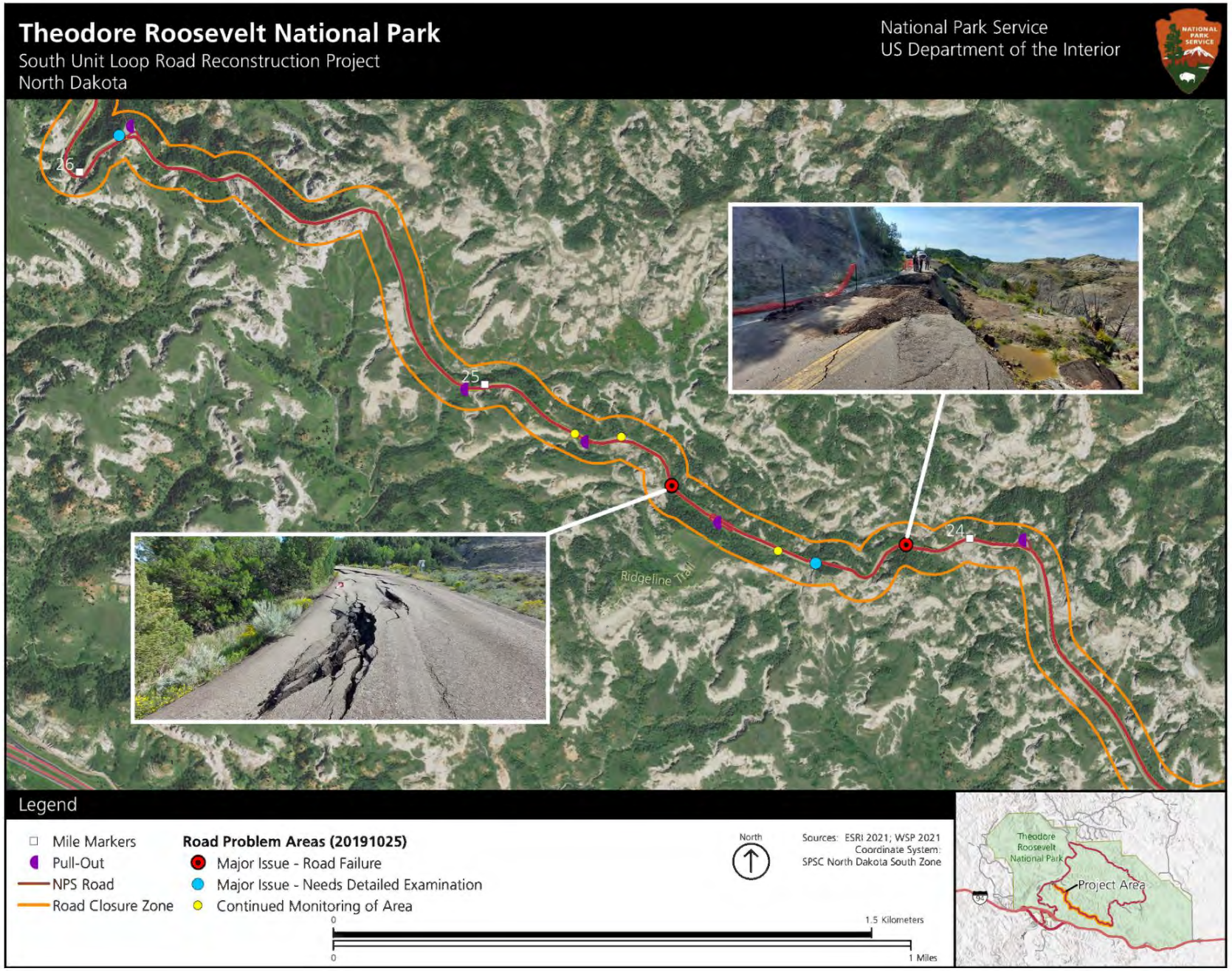

FIGURE 4. ROAD PROBLEM AREAS CENTRAL-EAST

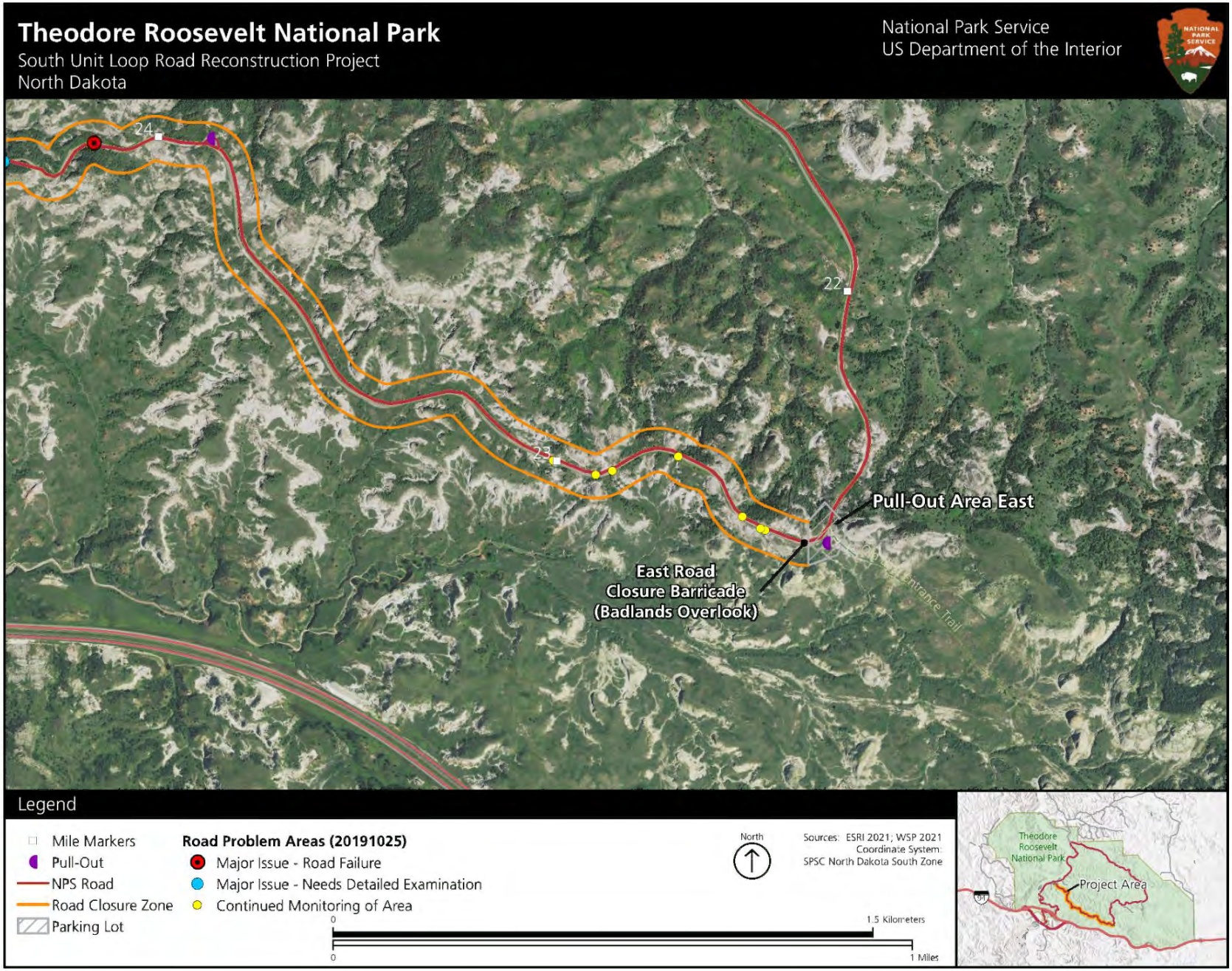

FIGURE 5. ROAD PROBLEM AREAS: EAST

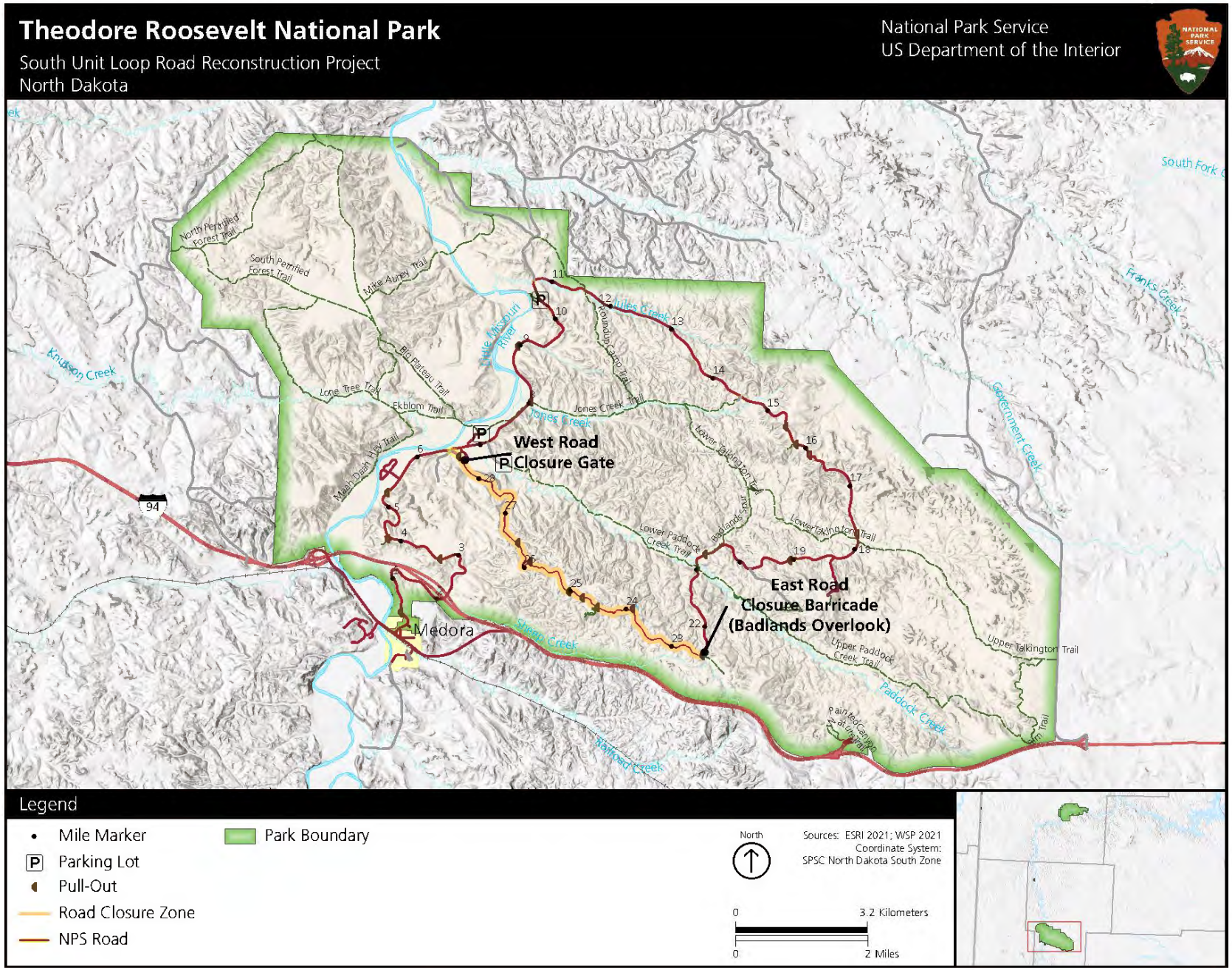

FIGURE 6. PROJECT AREA IN THE SOUTH UNIT

Wetlands

A certified wetland delineator delineated wetland and stream boundaries in September 2021 to identify these resources within the project area. Prior to the delineation, the delineator completed a desktop review to identify the potential wetlands that may be present near the project. He reviewed existing maps and databases, including aerial imagery, US Geological Survey (USGS) 7.5-minute quadrangle maps, the Billings County soil survey (online using the US Department of Agriculture-Natural Resources Conservation Service Web Soil Survey [USDA-NRCS n.d.]), the National Wetlands Inventory (USFWS 2020), and the National Hydrography Dataset (USGS n.d.). Delineation procedures followed the protocols of NPS Director's Order #77-1: *Wetland Protection*.

The classification of all waters, wetlands, and uplands were based on field observations and the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). As part of the wetland delineation, the delineation team recorded vegetative community types, inventoried dominant plant species, described the wetlands, and noted open waters. Additionally, they documented soil profiles and hydrologic indicators.

The wetland delineation identified 11 palustrine emergent (PEM) wetlands within the project area, totaling approximately 0.31 acres. These wetlands are listed in table 1 along with supplemental information collected during the delineation. Figures 7a through 7f show the locations and classifications of the wetlands throughout the project area.

TABLE 1. WETLANDS WITHIN THE PROJECT AREA

Wetland ID	Cowardin Classification[1]	Acres
W1	PEM1A	0.01
W2	PEM1A	0.08
W3	PEM1A	0.02
W4	PEM1A	<0.01
W5	PEM1A	0.06
W6	PEM1A	<0.01
W7	PEM1A	0.03
W8	PEM1A	0.01
W9	PEM1A	0.03
W10	PEM1A	0.01
W11	PEM1A	0.04
Total Wetland Acres		0.31[2]

[1] Federal Geographic Data Committee (2013) / Cowardin Classification: PEM1A = palustrine emergent persistent temporarily flooded; PEM1B palustrine emergent persistent seasonally saturated.

[2] Wetland area <0.01 calculated as 0.01 acres for calculating overall wetland acreage.

Data regarding the functions and values were collected for each wetland. Descriptions and data on each wetland are provided below. The scientific names and wetland indicator status of vegetation noted during the delineation follow the common name the first time each plant species is referenced. The wetland indicator status is a measure of the relative tendency of a particular species to occur in

wetlands under normal conditions. The following is a summary of the indicator categories and the probability the species is located in a wetland:

- Obligate (OBL) Probability >99%
- Facultative Wetland (FACW) Probability 67–99%
- Facultative (FAC) Probability 34–66%
- Facultative Upland (FACU) Probability 1–33%
- Upland (UPL) Probability <1%

Wetland W1 consisted of seasonally saturated emergent habitat formed in a valley with a relatively flat bottom. Vegetation in the wetland was characterized by common three-square (*Schoenoplectus pungens*; OBL) and prairie cordgrass (*Spartina pectinata*; FACW). Soils in the wetland consisted of 18 or more inches of dark gray to dark grayish brown sandy clay with common (more than 2 and less than 20%) to many (more than 20%), prominent redox concentrations. Soils within most of the wetland were saturated at a depth of 6 inches and exhibited signs of a salt crust on the surface. Based on observed conditions, it appeared that wetland W1 receives surface water runoff from adjacent uplands and periodically from wetland W2. The area between the two wetlands exhibited hydric soil conditions but did not exhibit wetland hydrology, vegetation, or indications of concentrated flow (i.e., channel). Excess surface water from wetland W1 flowed into an intermittent stream (stream S5) located at the east side of the wetland, which subsequently flowed into Paddock Creek.

The wetland was determined to provide sediment retention and stabilization, as well as nutrient production and export into stream S5. The primary hydrologic function provided by the wetland is groundwater recharge. The wetland offers habitat for small terrestrial species but is not capable of retaining surface water for long durations to accommodate aquatic organisms. The wetland is not visible from Scenic Loop Drive but provides a unique and rare habitat for the surrounding landscape.

Wetland W2 consisted of seasonally saturated emergent habitat formed along an intermittent stream (stream S6). The wetland is located within a valley at the terminus of stream S6, upgradient of wetland W1. Vegetation in the wetland was characterized by common three-square with some curly-cup gumweed (*Grindelia squarrosa*; UPL). Soils within the wetland consisted of 18 or more inches of dark grayish brown sandy clay with common, prominent redox concentrations. Soil was not inundated or saturated within 18 inches of the surface. A salt crust was observed on the soil surface throughout the extent of the wetland. Based on observed conditions, wetland W2 appeared to receive surface water runoff from adjacent uplands and stream S6, and excess surface water from the wetland flowed into wetland W1 via overland sheet flow.

This wetland provides sediment retention and soil stabilization to the area and protects stream S6 from scouring during periods of flow. Hydrologic functions performed by this wetland include groundwater recharge and floodwater attenuation. The wetland provides habitat for small terrestrial species but is not capable of retaining surface water for long durations to accommodate aquatic organisms. The wetland is not viewable from Scenic Loop Drive but provides a unique and rare habitat for the surrounding landscape.

Wetland W3 consisted of seasonally saturated emergent habitat associated with a groundwater seep located on a hillside adjacent to Scenic Loop Drive. Vegetation in the wetland was characterized by narrowleaf cattail (*Typha angustifolia*; OBL), common three-square, and common spikerush (*Eleocharis palustris*; OBL). Soils within the wetland consisted of approximately 1 to 2 inches of reddish brown to strong brown sandy clay with few (less than 2%) dark gray mottles underlain by 16 or more inches of dark gray sandy clay with common, prominent redox concentrations with fragments of organic material. Soils were typically saturated within 8 inches with a water table at approximately 12 inches, with some areas of standing water perched in tracks left by bison (*Bison*

bison). A salt crust was also observed on the soil surface throughout the wetland. Based on observed conditions, wetland W3 appeared to receive surface water runoff from adjacent uplands and Scenic Loop Drive and groundwater seepage from the hillside. There was no readily apparent outlet for surface water flow from wetland W3 (it appeared isolated).

Wetland W3 provides sediment retention and stabilization along a steep hillside and groundwater filtration as it flowed from the wetland downhill. Habitat provided to small terrestrial species is minimal, and no habitat is provided for aquatic species. The wetland is directly adjacent to the road and offers a visual aesthetic and educational opportunity for visitors.

Wetland W4 consisted of seasonally saturated emergent habitat associated with a groundwater seep located on a hillside along Scenic Loop Drive. Vegetation in the wetland was characterized by sparse patches of alkali cordgrass (*Spartina gracilis*; FACW), with most parts of the wetland characterized by bare soil. Soils within the wetland consisted of approximately 4 to 6 inches of dark grayish brown clay with common, prominent redox concentrations underlain by 6 or more inches of gray clay with common, prominent redox concentrations. Soils were not inundated or saturated within 18 inches. A salt crust was observed on the soil surface throughout the wetland. Based on observed conditions, wetland W4 appeared to receive surface water runoff from adjacent uplands and groundwater seepage from the hillside. There was no readily apparent outlet for surface water flow from wetland W4 (it appeared isolated).

Because of its small size, wetland W4 provides very little in terms of functional value. It provides a small amount of sediment retention along the hillside, along with some groundwater discharge. Habitat for terrestrial species is minimal—no surface water was documented within its boundaries, and vegetation was sparse throughout the wetland. Wetland W4 provides educational opportunities to the public because it is in direct view of Scenic Loop Drive.

Wetland W5 consisted of seasonally saturated emergent habitat formed along an ephemeral stream (stream S8) situated along the toeslope of a forested hillside. Vegetation in the wetland was characterized by foxtail barley (*Hordeum jubatum*; FACW), Nuttall's alkali grass (*Puccinellia nuttalliana*; OBL), curly-cup gumweed, prairie rose (*Rosa arkansana*; FACU), Canada thistle (*Cirsium arvense*; FACU), and green ash (*Fraxinus pennsylvanica*; FAC). Soils within the wetland consisted of 18 or more inches of dark grayish brown clay with common to many, prominent redox concentrations. Soils were not inundated or saturated within 18 inches. Visible indications of wetland hydrology included surface soil cracks and the FAC-Neutral test. Based on observed conditions, wetland W5 appeared to receive surface water runoff from adjacent uplands, and excess surface water from the wetland flowed into an ephemeral stream (stream S8) located at the southeast end of the wetland that subsequently flowed into Paddock Creek.

Wetland W5 provides sediment and retention to stormwater flow received from stream S8, along with groundwater recharge because no outflow location was observed within the wetland boundaries. Hoofprints from bison were observed throughout the wetland, which indicates the wetland may serve as a source of drinking water for surrounding animals following precipitation events. The wetland is not easily identifiable from the road because the view is blocked by trees. The wetland provides a unique habitat and heritage to the park due to its rarity.

Wetland W6 consisted of seasonally flooded emergent habitat formed in a concave portion of a hillside at the terminus of an ephemeral stream (stream S25). Vegetation in the wetland was characterized by narrowleaf cattail. Soils within the wetland consisted of approximately 4 to 8 inches of dark grayish brown silt underlain by 6 or more inches of dark grayish brown clay with common distinct to prominent redox concentrations. The upper silt layer appeared to have been the result of sediment deposition from upgradient erosion. Soils inundated with shallow water (1 to 2 inches) were perched in small depressions within the wetland. Other visible indications of wetland hydrology included surface soil cracks and the FAC-Neutral test. Based on observed conditions,

wetland W6 appeared to receive surface water runoff from adjacent uplands and stream S25, and excess surface water from the wetland flowed downgradient via sheet flow into an ephemeral stream located south of the project area limits and subsequently into Sheep Creek.

Wetland W6 is another small riverine PEM wetland that provides sediment retention for the area and helps prevent sediment from stream S25 from flowing farther downhill. The hydrologic benefits include stormwater flow attenuation and groundwater recharge. The wetland may provide habitat for small terrestrial creatures, but because of its size, it does not likely provide a significant source of usable habitat for larger animals in the area. The wetland is not visible from Scenic Loop Drive but provides a unique and rare habitat type for the surrounding area.

Wetland W7 consisted of seasonally saturated emergent habitat situated in a depressional part of a valley. Vegetation in the wetland was characterized by narrowleaf cattail, Canada thistle, and coastal salt grass (*Distichlis spicata*; FACW). Soils in the wetland consisted of 18 or more inches of dark gray sandy loam with common prominent redox concentrations. The upper silt layer appeared to have been the result of sediment deposition from upgradient erosion. Soils inundated with shallow water (1 to 2 inches) were perched in small depressions within the wetland. Soils were not inundated or saturated within 18 inches. An algal crust was observed covering the soil surface of the wetland. Based on observed conditions, wetland W7 appeared to receive surface water runoff from adjacent uplands, and excess surface water from the wetland flowed downgradient via sheet flow into an ephemeral stream located north of the project area limits and subsequently into Paddock Creek.

This wetland is isolated and does not contain a direct connection to any other surface waterbody. It serves as a sediment retention source and groundwater recharge area. The wetland provides habitat diversity for the surrounding area and may serve as suitable habitat for smaller terrestrial species. Its uniqueness and heritage provide value to the surrounding landscape because of its rarity; however, the wetland is not directly visible to park visitors from Scenic Loop Drive.

Wetland W8 consisted of seasonally saturated emergent habitat situated in a depression. Vegetation in the wetland was characterized by salt grass, foxtail barley, and common spikerush. Soils in the wetland consisted of approximately 3 to 5 inches of very dark brown clay with distinct redox concentrations underlain by 12 or more inches of dark gray clay with common prominent redox concentrations. Soils were not inundated or saturated within 18 inches. Visible indications of wetland hydrology included surface soil cracks and the FAC-Neutral test. Based on observed conditions, wetland W8 appeared to receive surface water runoff from adjacent uplands, and excess surface water from the wetland flowed downgradient via sheet flow into an ephemeral stream located north of the project area limits and subsequently into Paddock Creek.

This wetland is isolated and does not contain a direct connection to any other surface waterbody. It serves as a sediment retention source and groundwater recharge area. The wetland provides habitat diversity for the surrounding area and may serve as suitable habitat for smaller terrestrial species. Its uniqueness and heritage provide value to the surrounding landscape because of its rarity; however, the wetland is not directly visible to park visitors from Scenic Loop Drive.

Wetland W9 consisted of seasonally flooded emergent habitat situated in a depressional area in a valley downgradient of a significant slope failure along the north side of Scenic Loop Drive. The hillside showed evidence of instability (large cracks and soil movement), and sediment from the slope had been discharged into the wetland. Sediment deposition appeared to block an ephemeral stream (stream S31), preventing water from flowing west. There was no significant vegetation in the wetland. Soils in the wetland consisted of recently deposited sediment (dark grayish brown silt, sand, and fine gravel) from the slope failure. Soils were inundated with shallow (approximately 1 to 3 inches) water. Based on observed conditions, it appeared that wetland W9 receives surface water runoff from adjacent uplands and stream S31. At the time of the visit, there was no readily apparent outlet for surface water runoff from the wetland. However, under normal/pre-slope failure

circumstances, excess surface water from wetland W9 appears to flow into an ephemeral stream (stream S30) located to the west and subsequently into Paddock Creek. Delineation of wetland W9 was based on observation of conditions present at the time of the visit and applying best professional judgement to assess the disturbed conditions. It is possible and likely that the characteristics and/or limits of wetland W9 will change over time depending on the nature and extent of disturbance.

Wetland W9 provides sediment and retention to stormwater flow received from stream S31 and groundwater recharge, since no outflow location was observed within the wetland boundaries. The wetland contained a large amount of sediment as a result of the landslide from the road failure uphill. The wetland appears to have prevented the sediment from entering the ravine below, and possibly reaching stream S30. The wetland provides a unique habitat and heritage to the park because of its rarity. The wetland may be visible from Scenic Loop Drive upon completion of the reconstruction work and would provide an educational opportunity to park visitors.

Wetland W10 consisted of seasonally saturated emergent habitat situated in a depressional part of a valley. Vegetation in the wetland was sparse and characterized by narrowleaf cattail and a single cottonwood (*Populus deltoides*; FAC). Soils within the wetland consisted of approximately 4 to 8 inches of dark grayish brown silt with common prominent redox concentrations underlain by 6 or more inches of black peat. The upper silt layer appeared to have been the result of sediment deposition from upgradient erosion. Soils were inundated with shallow (approximately 1 to 3 inches) water. Other visible indications of wetland hydrology included surface soil cracks, sparsely vegetated concave surface, and the FAC-Neutral test. Based on observed conditions, it appeared that wetland W10 receives surface water runoff from adjacent uplands and Scenic Loop Drive, and excess surface water from the wetland flowed downgradient via sheet flow into an ephemeral stream located north of the project area limits and subsequently into Paddock Creek.

This wetland is isolated and does not contain a direct connection to any other surface waterbody. The wetland serves as a sediment retention source and groundwater recharge area. The wetland provides habitat diversity for the surrounding area and may serve as suitable habitat for smaller terrestrial species. Its uniqueness and heritage provide value to the surrounding landscape because of its rarity; however, the wetland is not directly visible to park visitors from Scenic Loop Drive.

Wetland W11 consisted of seasonally saturated emergent habitat situated in a depressional part of a valley with relatively flat topography. Vegetation in the wetland was characterized by salt grass, rough cocklebur (*Xanthium strumarium*; FAC), and Nuttall's alkali grass. Soils in the wetland consisted of 18 or more inches of dark gray sandy clay with common to many, prominent redox concentrations. Soils were not inundated or saturated within 18 inches. Visible indications of wetland hydrology included surface soil cracks and the FAC-Neutral test. Based on observed conditions, it appeared that wetland W11 receives surface water runoff from adjacent uplands and Scenic Loop Drive, and excess surface water from the wetland flowed downgradient via sheet flow into an ephemeral stream located south of the project limits and subsequently into Sheep Creek.

Wetland W11 provides sediment and retention to stormwater flow from a roadside stormwater drain, along with groundwater recharge since no outflow location was observed within the wetland boundaries. The wetland may serve as a source of habitat for small animals, although no evidence was recorded that indicated the presence of standing water in the wetland. The wetland is not easily identifiable from the road because trees block the view. The wetland provides a unique habitat and heritage to the park because of its rarity.

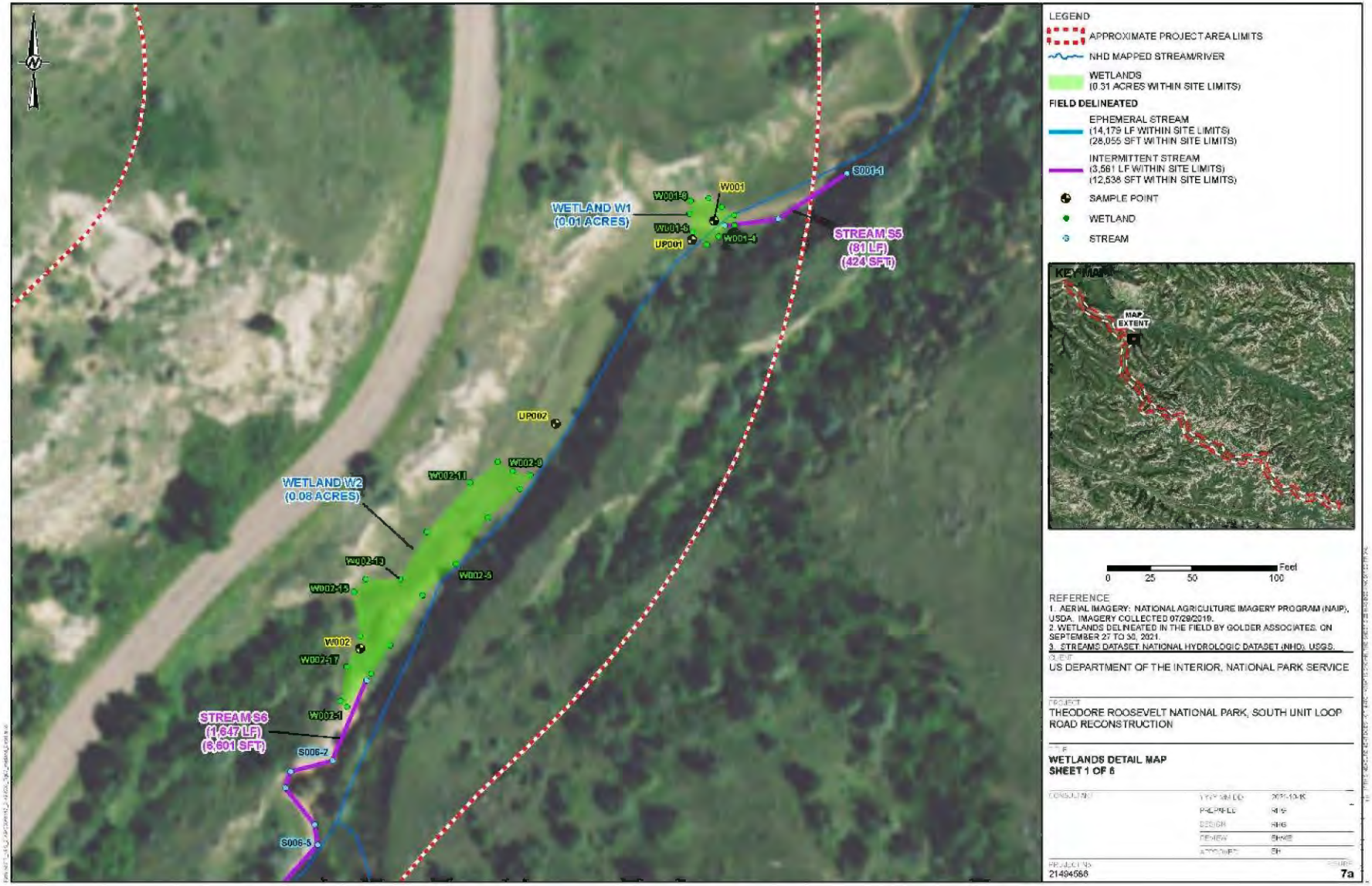

FIGURE 7A. WETLANDS DETAIL MAP

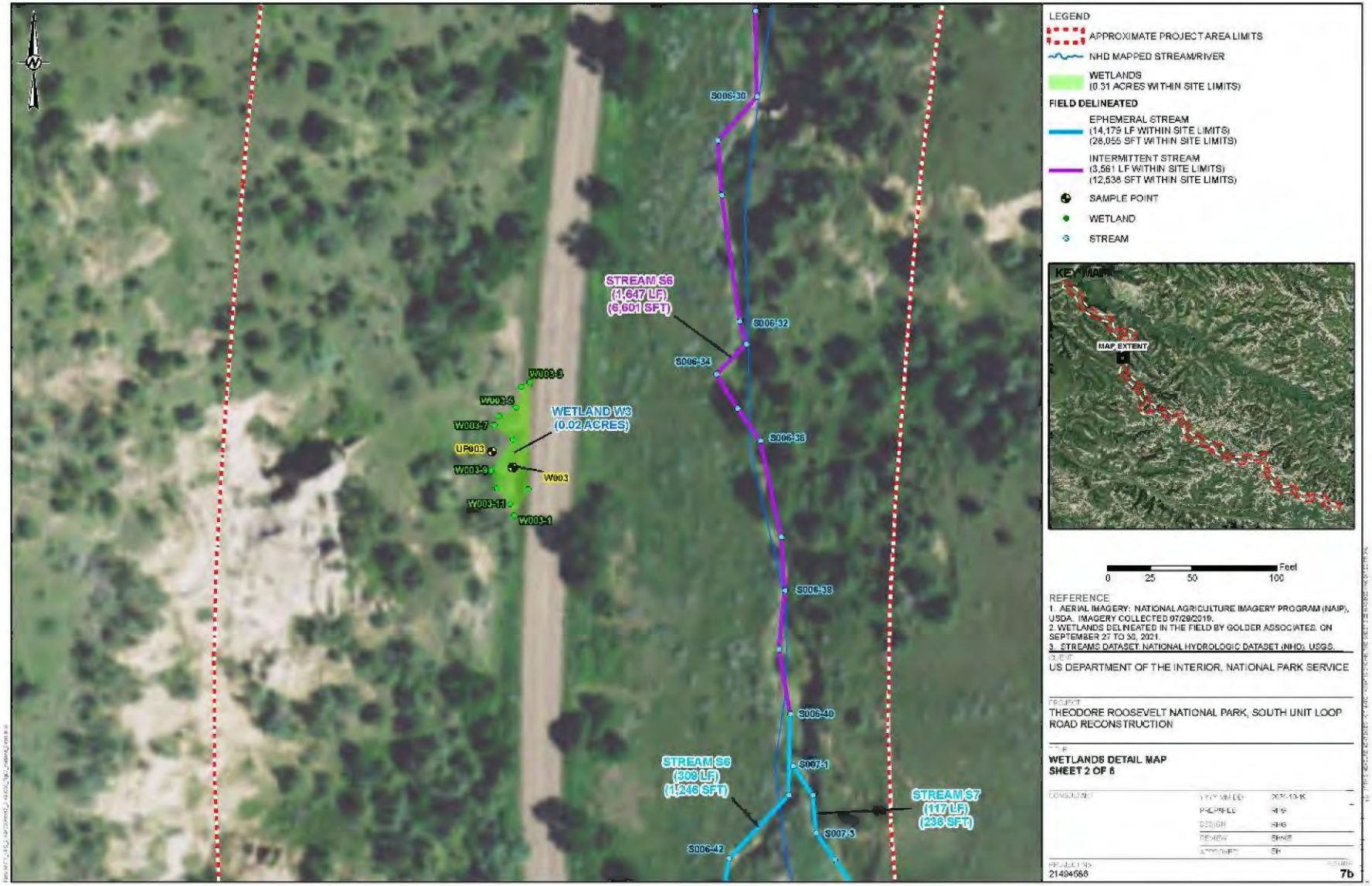

FIGURE 7B. WETLANDS DETAIL MAP

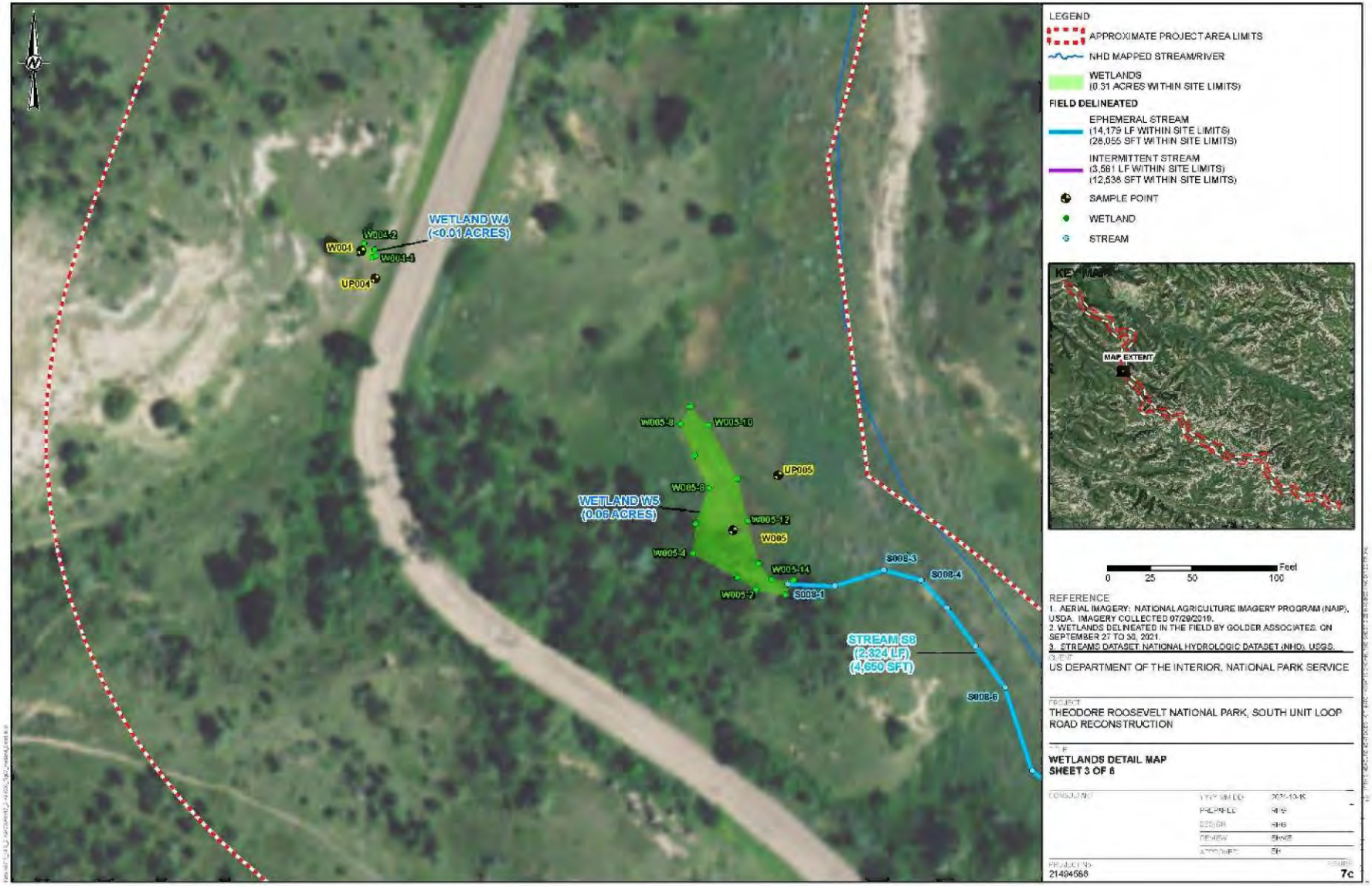

FIGURE 7C. WETLANDS DETAIL MAP

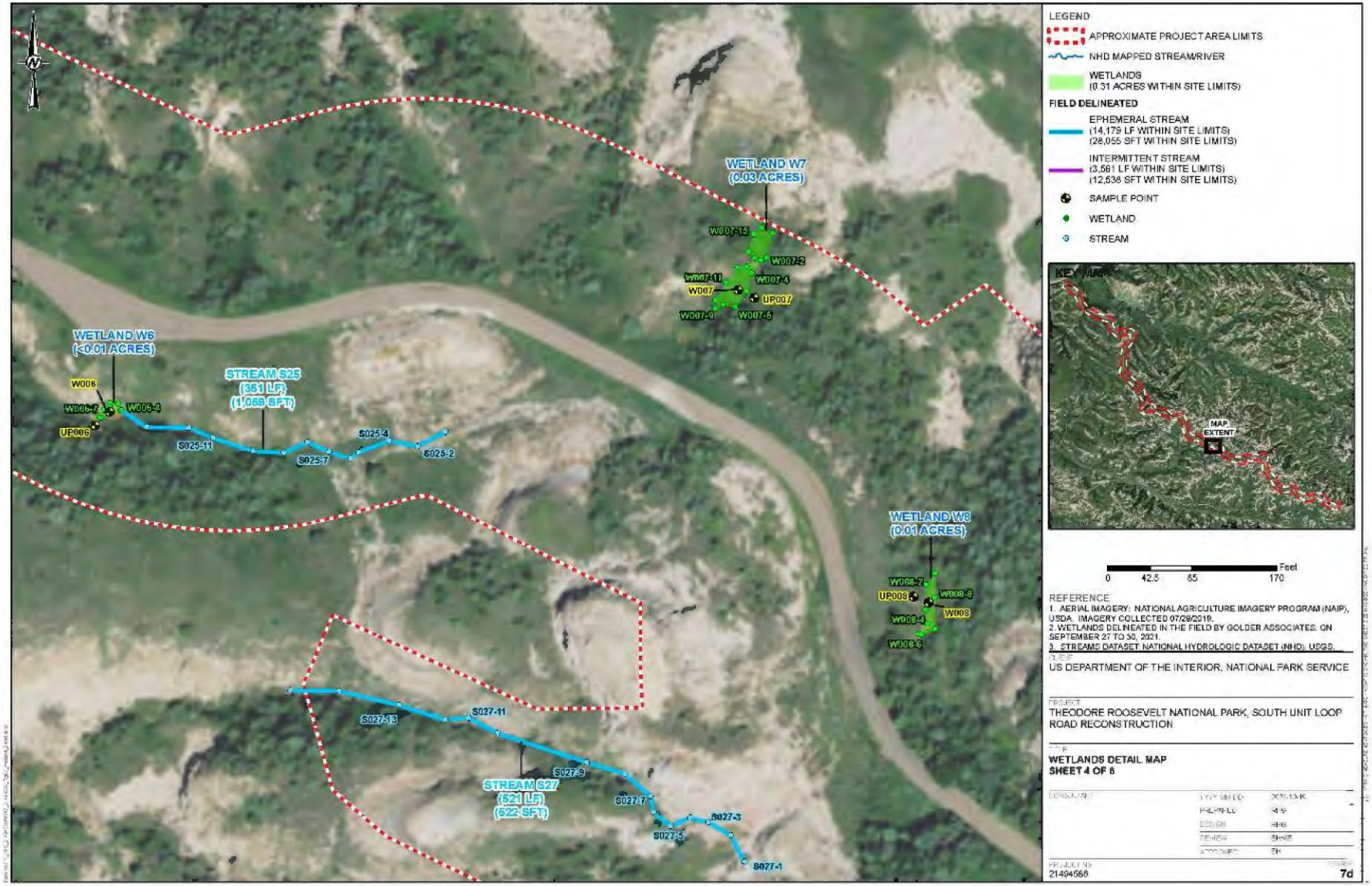

FIGURE 7D. WETLANDS DETAIL MAP

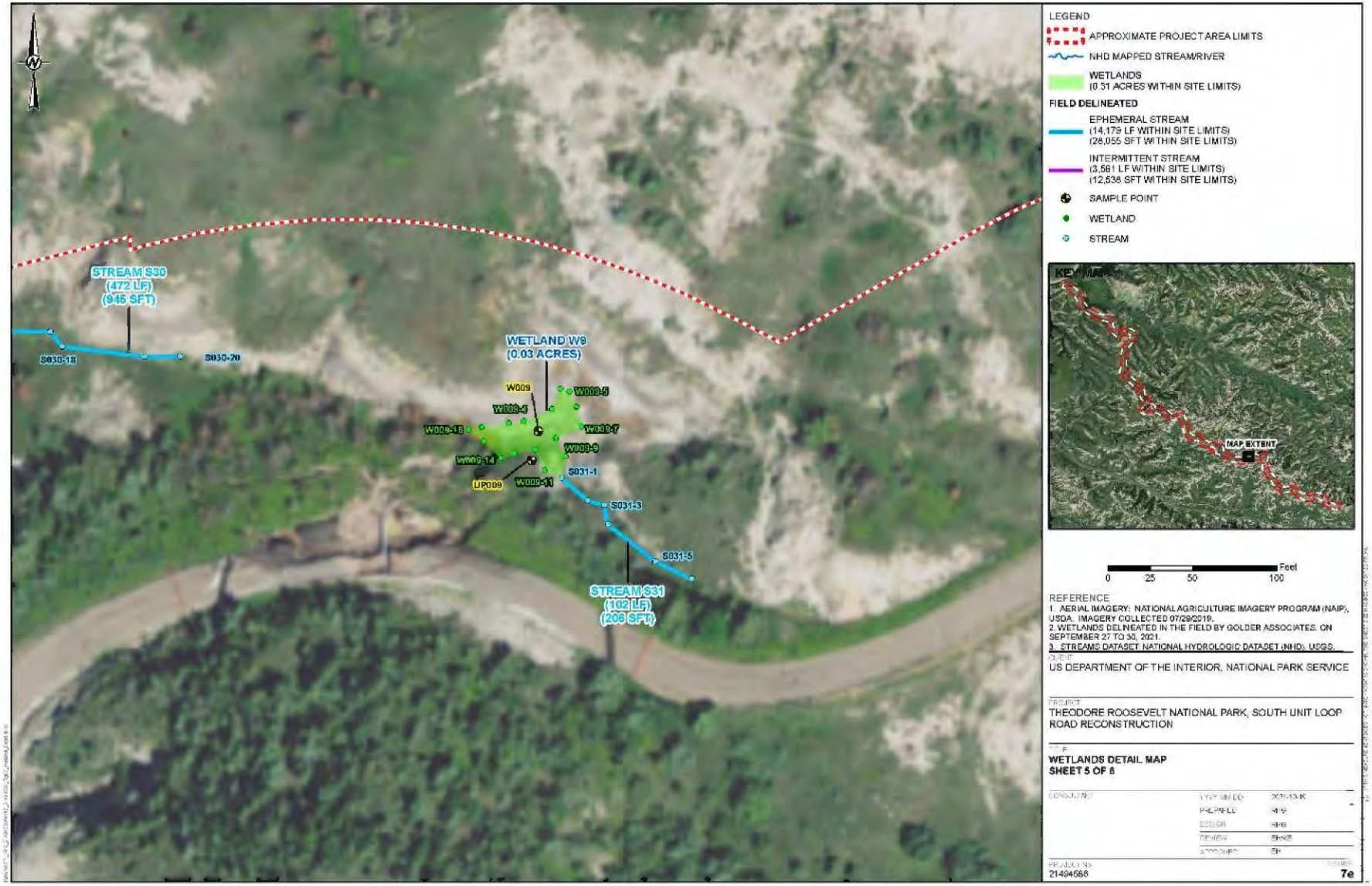

FIGURE 7E. WETLANDS DETAIL MAP

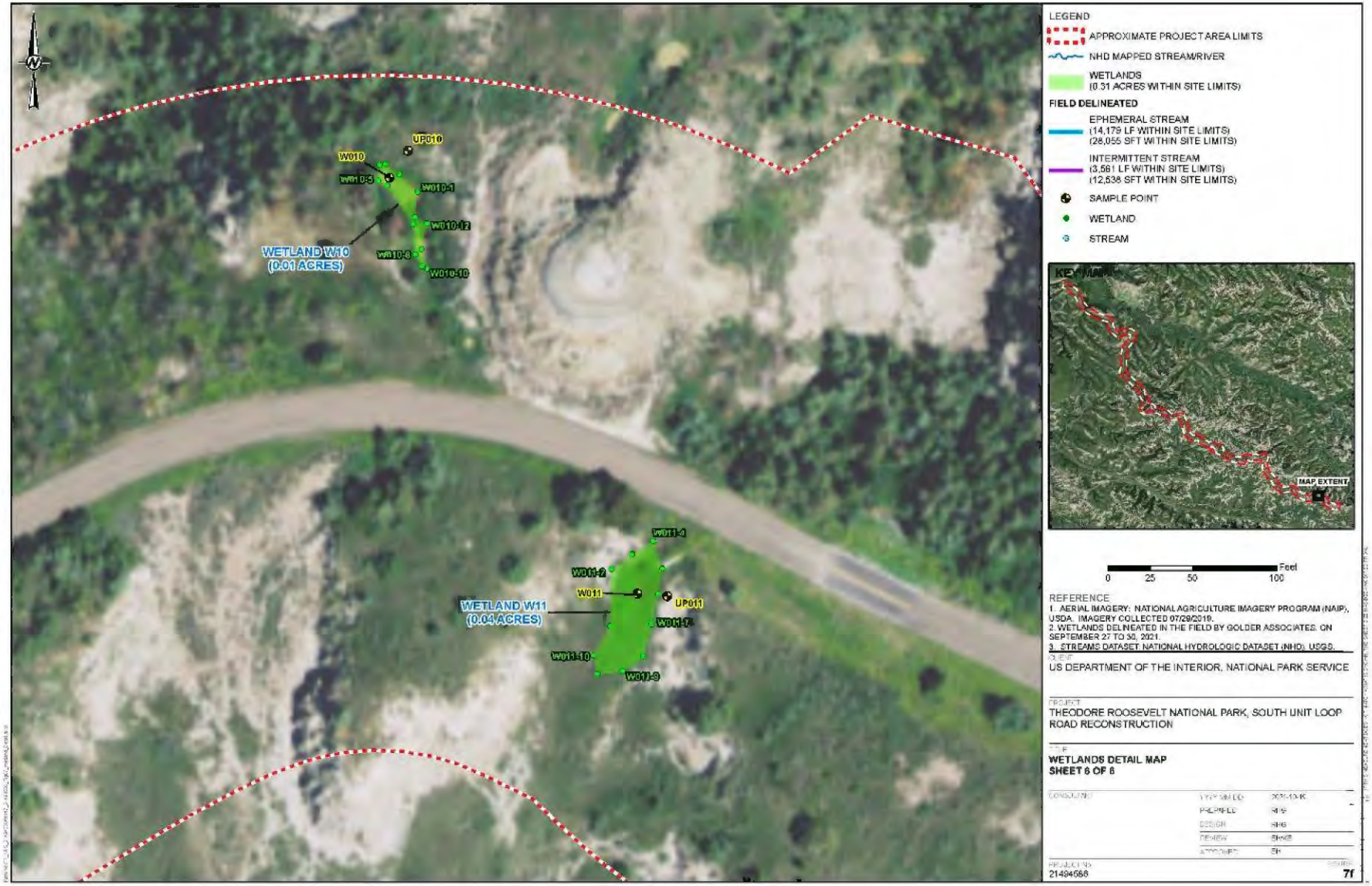

FIGURE 7F. WETLANDS DETAIL MAP

Waterbodies (Streams)

The certified wetland delineator identified 39 streams in the project area, of which, 35 were classified as ephemeral, 3 streams contained ephemeral and intermittent reaches, and 1 was classified solely as intermittent. The length of streams totaled approximately 17,740 linear feet. These streams are listed in table 2 along with supplemental information collected during the delineation. Figures 8a–8e show the locations and classifications of the streams throughout the project area.

TABLE 2. STREAMS WITHIN THE PROJECT AREA

Stream ID	Flow Regime	Linear Feet
S1	Ephemeral	1,381
S2	Ephemeral	33
S3	Ephemeral	212
S4	Ephemeral	47
S5	Intermittent	81
S6	Ephemeral	309
	Intermittent	1,647
S7	Ephemeral	117
S8	Ephemeral	2,324
S9	Ephemeral	1,019
S10	Ephemeral	293
S11	Ephemeral	191
S12	Ephemeral	157
S13	Ephemeral	30
S14	Ephemeral	152
S15	Ephemeral	206
S16	Ephemeral	311
S17	Ephemeral	351
	Intermittent	959
S18	Ephemeral	47
S19	Ephemeral	60
S20	Ephemeral	200
S21	Ephemeral	23
S22	Ephemeral	219
S23	Ephemeral	840
S24	Ephemeral	905
S25	Ephemeral	351

Stream ID	Flow Regime	Linear Feet
S26	Ephemeral	342
S27	Ephemeral	521
S28	Ephemeral	106
S29	Ephemeral	194
S30	Ephemeral	472
S31	Ephemeral	102
S32	Ephemeral	1,082
	Intermittent	874
S33	Ephemeral	79
S34	Ephemeral	76
S35	Ephemeral	234
S36	Ephemeral	109
S37	Ephemeral	852
S38	Ephemeral	109
S39	Ephemeral	123
Ephemeral		14,179
Intermittent		3,561

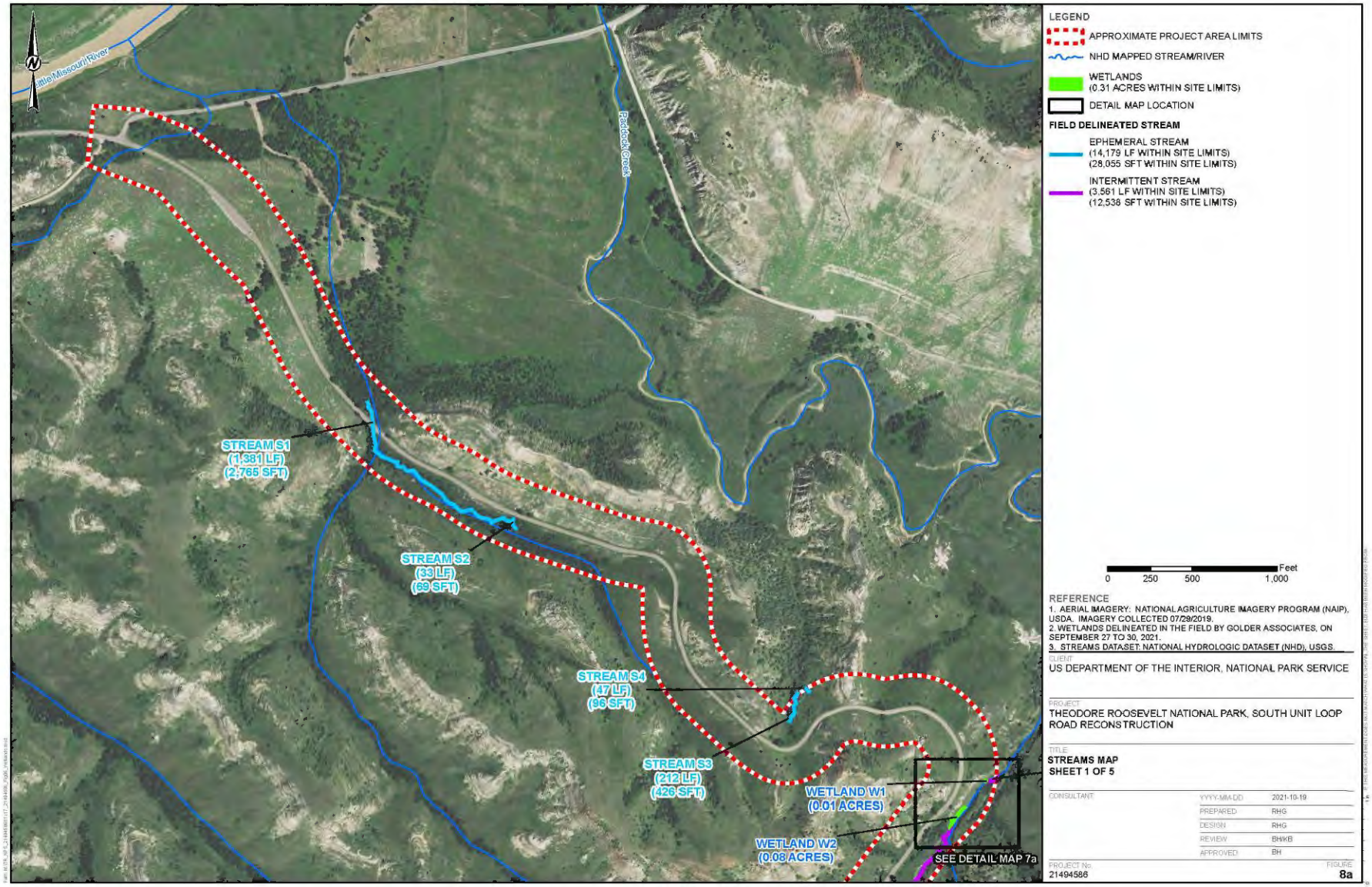

FIGURE 8A. STREAM MAP

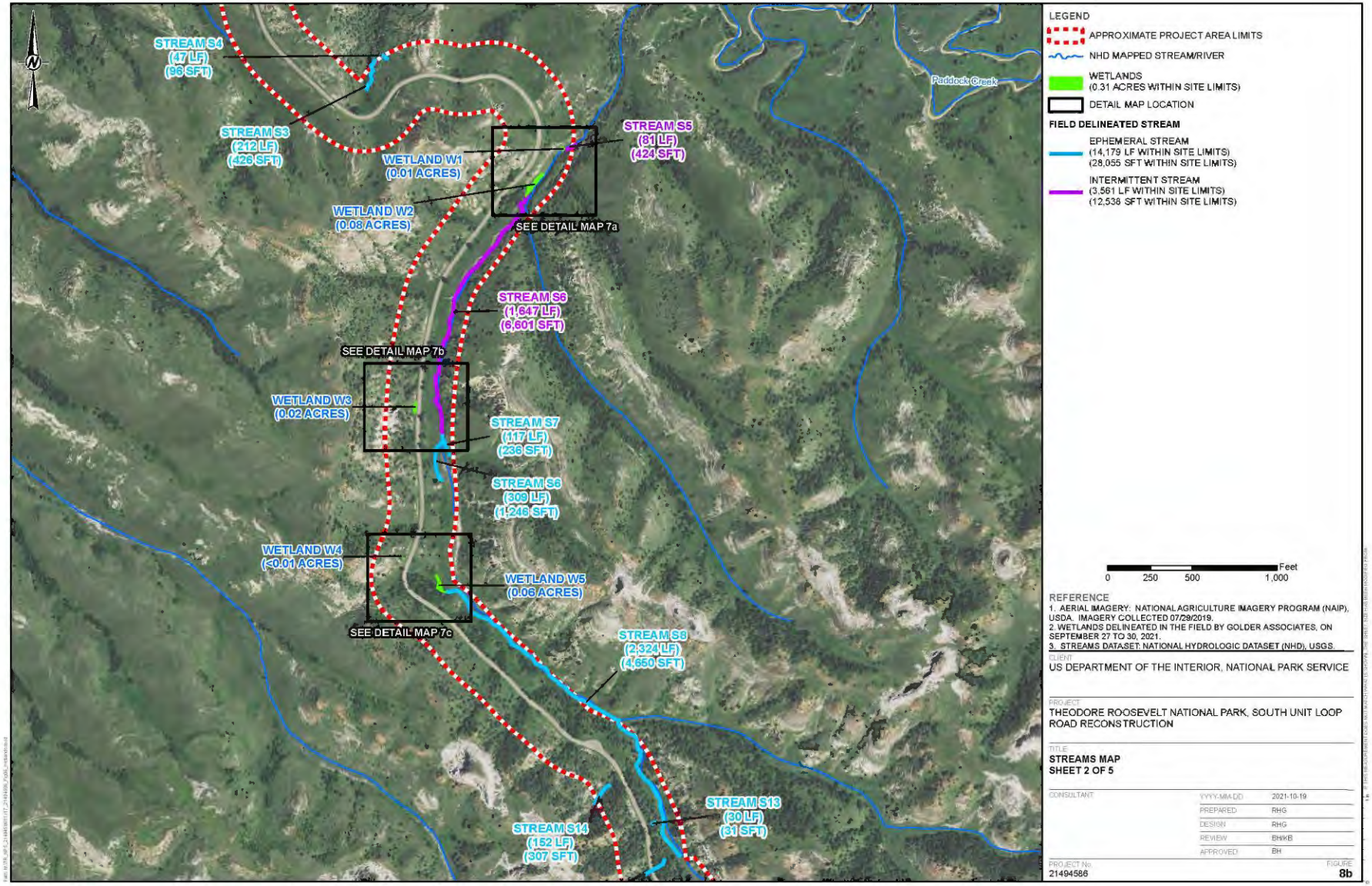

FIGURE 8B. STREAMS MAP

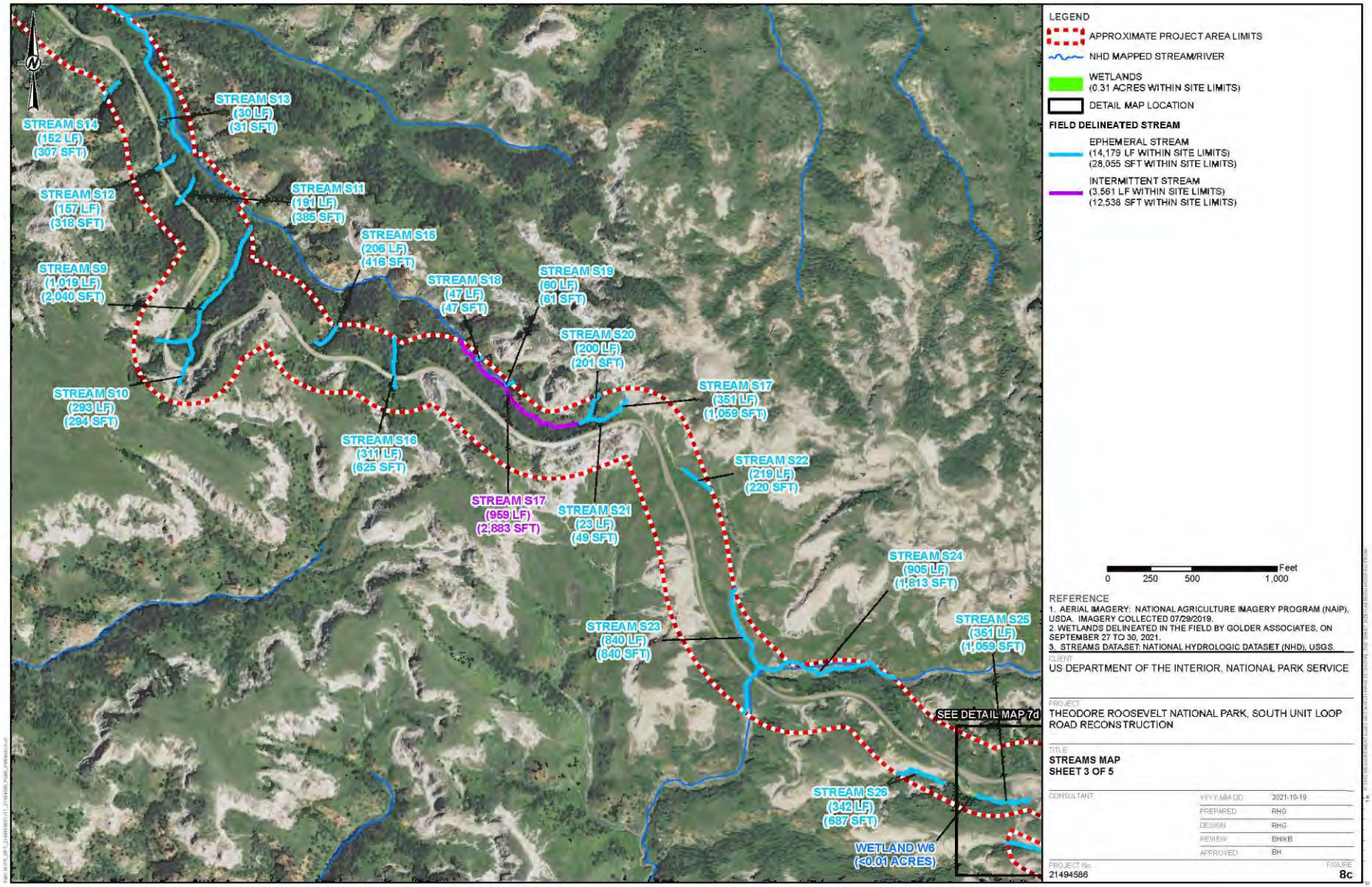

FIGURE 8C. STREAMS MAP

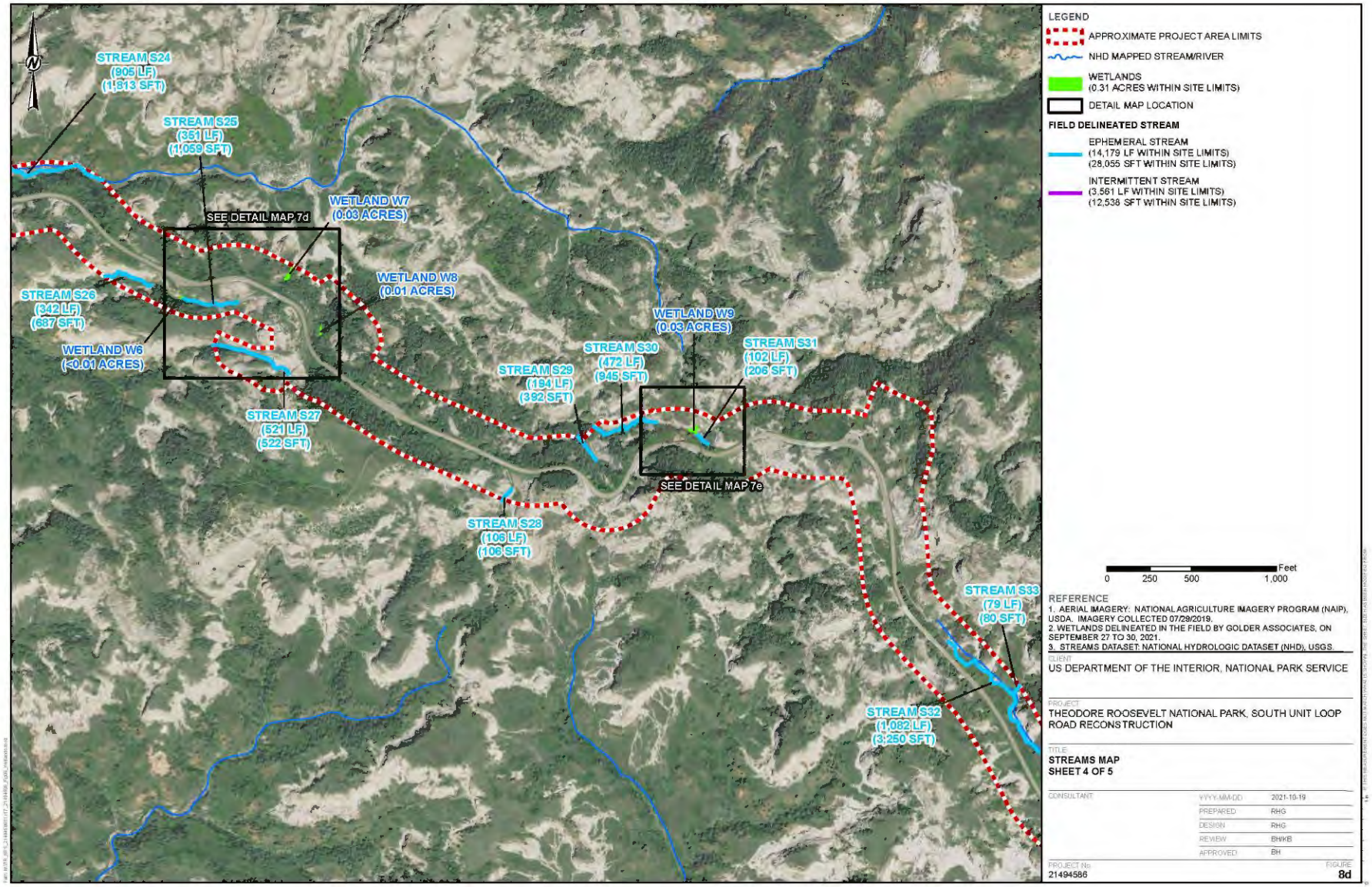

FIGURE 8D. STREAMS MAP

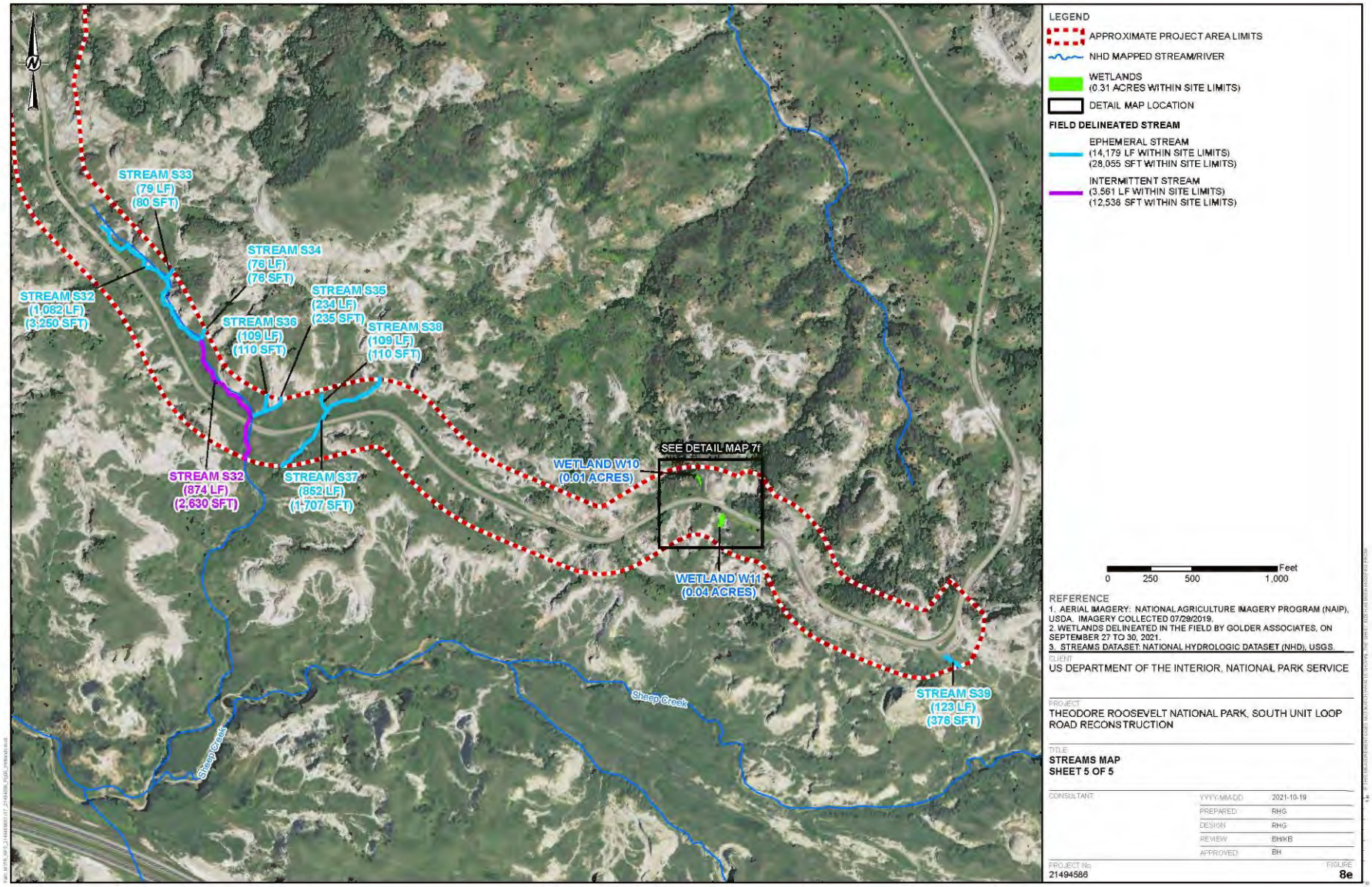

FIGURE 8E. STREAMS MAP

Floodplains

Executive Order 11988, "Floodplain Management," requires federal agencies to evaluate the likely impacts of actions in floodplains, avoid "adverse impacts associated with the occupancy and modification of floodplains, and avoid direct and indirect support of floodplain development wherever there is a practicable alternative."

Floodplains are defined in NPS Director's Order #77-2 as "the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, and including, at a minimum, that area subject to temporary inundation by a regulatory flood" (NPS 2002).

The Federal Emergency Management Agency (FEMA) is the federal agency tasked with mapping and cataloging the nation's floodplains; these data are available to the public in the National Flood Hazard Layer data. Billings County, North Dakota, is not a county that is currently mapped by FEMA. No part of the project area is mapped within a designated 100-year or more floodplain.

ALTERNATIVES

This section describes the preliminary alternatives developed for reconstructing portions of Scenic Loop Drive in the South Unit of the park. Two alternatives are discussed: the no-action alternative and one action alternative. The action alternative presents a reasonable and feasible approach that meets the purpose of, and need for, action.

Alternative 1: No Action

Alternative 1, the no-action alternative, describes current management and the existing condition of Scenic Loop Drive in the South Unit of the park (figure 9).

Under alternative 1, the 6.15-mile section of Scenic Loop Drive would remain closed to visitors, erosion would continue to worsen the condition of the roadway, and structural and accessibility issues would remain. Current management (i.e., road closure) would continue under this alternative; however, it would not relieve the risk of future roadway failures.

FIGURE 9. PROJECT AREA CONDITION UNDER THE NO-ACTION ALTERNATIVE

Alternative 2: Reconstruction of South Unit Loop Road (Proposed Action)

Alternative 2 is the proposed action and would address multiple roadway problem areas along Scenic Loop Drive by reconstructing 6.15 miles of road from mile marker 22 to 28 for longevity and resilience. This alternative would include subgrade excavation, installation of a subgrade geotextile rodent barrier, the replacement of pavement, roadway stabilization, drainage improvements (i.e., stormwater infrastructure), structural improvements (i.e., retaining walls), pull-out area improvements, and replacing currently undersized or damaged stone culverts. These treatment options are based on existing data, geological and soils studies, field exploration, survey and mapping of surface features, groundwater and hydraulics analyses, geotechnical back-analysis, and stability analyses.

Alternative 2 would reconstruct the road and reopen the project area, fulfilling the purpose of, and need for, action to resume park operations and allow visitors to enjoy the area.

PROJECT IMPACTS

Most of the impacts resulting from the project would be temporary because the surrounding geological contours would be restored upon completion of the project. Permanent impacts resulting from the project are expected to be minimal and fall under all mitigation and reporting thresholds stated below and in applicable permits and regulations.

Wetlands

Alternative 2, the proposed action, would largely replace the current footprint of the road and would not involve impacts on undisturbed habitat beyond the project area. Several wetlands (W1, W2, and W5) are located in areas protected by the surrounding topography that are likely to prevent impacts from construction (e.g., within valleys or at the bottom of steep slopes,). Wetlands W3 and W4 are the only wetlands directly adjacent to Scenic Loop Drive. Both of these wetlands are isolated and do not display any connections to other wetlands or waterbodies (i.e., streams) that would classify them as waters of the United States. According to Section 404 of the Clean Water Act, because these wetlands do not fall under the jurisdiction of the US Army Corps of Engineers (USACE), no mitigation would be required to offset permanent impacts on these wetlands.

Wetland W9 is situated downhill of a significant landslide that required the closure of the road. This wetland may have been partially formed by sediment deposition from the landslide and blockage of surface water flow through stream S31. Construction associated with recontouring the hillside to stabilize the landslide would likely affect this wetland. Because the soil uphill of the wetland is not stable, ground movement could occur during construction that would result in sediment and soil filling portions or all of the wetland. Following construction and grading associated with the road repairs, the ground surface/contours of the area within, and adjacent to, wetland W9 would be restored to previously existing conditions, which may reduce the current wetland area but restore the free flow of surface water through the stream. At most, the total area of permanently impacted wetland (wetland W9) would be 0.03-acres.

Due to the small area of permanent impact and presumption that most or all parts of wetland W9 are the result of relatively recent sediment deposition and surface water blockage, no mitigation is proposed or deemed necessary per typical guidance for wetland impacts authorized under one or more USACE nationwide permits (NWPs). Based on a preliminary assessment of potential wetland and stream impacts, the proposed project could be authorized under the provisions of NWP 18 – Minor Discharges and/or NWP 33 – Temporary Construction, Access, and Dewatering.

Waterbodies (Streams)

The installation of new stormwater infrastructure or culverts under the road would temporarily affect several streams in the project area. These temporary impacts are expected to be minimal and would not cause long-term degradation to the streams. All impacts would be localized and temporary during construction of the project. Following construction and grading associated with the road repairs, the ground surface/contours of the areas within, and adjacent to, affected streams would be restored to previously existing conditions to maintain the free flow of surface water along the streambeds. Because no permanent impacts would occur and the area of temporary impacts would be small, no mitigation is proposed or deemed necessary per typical guidance for stream impacts authorized under one or more USACE NWPs.

Based on preliminary assessment of potential wetland and stream impacts, it appears the proposed project can be authorized under the provisions of NWP 18 – Minor Discharges and/or NWP 33 – Temporary Construction, Access, and Dewatering.

Floodplains

No part of the project area is mapped within a designated 100-year or more floodplain. NPS Director's Order #77-2 states that if precise floodplain information is unavailable, NPS should assume the project area is within a regulatory floodplain unless the site can be determined beyond reasonable doubt to be outside the floodplain. Therefore, the proposed stormwater infrastructure for the project has been designed to pass the 10-year storm event without significant surface water impoundment and maintain stability during 100-year storm events (HDR 2020). The project has also been designed to stabilize the road and restore surface water flow, including stream segments that may have been affected by sediment deposition from uphill road/slope failures. No specific federal, state, or local permits or approvals are required for activities affecting floodplains in the project area.

MITIGATION

NPS Director's Order #77-1 and the USACE NWPs noted above state that any impacts on wetlands within the project area totaling 0.1 acres or more require compensatory mitigation (NPS 2016). Because the project would not exceed these permanent impact thresholds to require wetland or stream mitigation, no mitigation is proposed to offset project-related impacts.

Most of the wetlands and streams in the project area would be avoided during construction. Temporary impacts are expected to occur during construction, but the surrounding contours would be restored, and disturbed areas would be revegetated upon completion of the project. Impacts on wetlands and streams would be minimized by the implementation of appropriate soil erosion and sedimentation control measures during construction. Should changes in construction techniques or project design occur, impacts would be reevaluated to determine if mitigation is required.

Mitigation for regulatory floodplains may consist of any combination of seasonal closure, structural flood protection measures, and specific actions to minimize impacts to floodplain natural resource values.

CONCLUSION

Temporary impacts on wetlands and streams are likely to occur during construction. A small area (up to 0.03-acres) of permanent impacts on wetlands may occur. Neither temporary nor permanent wetland or stream impacts would exceed reporting and mitigation thresholds stated in applicable regulations. The project will not affect areas that meet the definition of a 100-year floodplain, although detailed analysis of this conclusion is restricted because of the lack of FEMA floodplain data for the county.

REFERENCES

Council on Environmental Quality, Executive Office of the President (CEQ)

2014 Memorandum for Heads of Federal Departments and Agencies: Effective Use of Programmatic NEPA Reviews. Executive Office of the President Council on Environmental Quality. December 18, 2014.

Cowardin, L. M., V. Carter V., F. C. Golet, and E. T. LaRoe

1979 *Classification of Wetlands and Deepwater Habitats of the United States*. US Fish and Wildlife Service Report No. FWS/OBS/-79/31.Washington, D.C.

Federal Geographic Data Committee

2013 *Classification of Wetlands and Deepwater Habitats of the United States*. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and US Fish and Wildlife Service, Washington, DC.

HDR Inc.

2020 *Memorandum Concerning the Preliminary Hydrology and Hydraulics Design for the South Unit Loop Road Reconstruction Project at Theodore Roosevelt National Park.*

National Park Service (NPS)

2002 *National Park Service Procedural Manual #77-2: Floodplain Management.*

2016 *National Park Service Procedural Manual #77-1: Wetland Protection.*

US Department of Agriculture-Natural Resources Conservation Service (NRCS-USDA)

No date Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Soil Survey Geographic (SSURGO) Database. https://sdmdataaccess.sc.egov.usda.gov

US Fish and Wildlife Service (USFWS)

2020 Publication date (08/1983). National Wetlands Inventory website. US Department of the Interior, Fish and Wildlife Service, Washington, D.C. http://www.fws.gov/wetlands/

US Geological Survey (USGS)

No date National Hydrography Dataset. https://www.usgs.gov/core-science-systems/ngp/national-hydrography/national-hydrography-dataset?qt-science_support_page_related_con=0#qt-science_support_page_related_con

WSP USA

2021 "Wetland Delineation Report." October 2021. Report prepared for the NPS under contract. On file at NPS Denver Service Center.