

RECLAMATION

Managing Water in the West

DK-5000-15-01

**Draft Finding of No Significant Impact
and**

Final Supplemental Environmental Assessment for

**Funding of Design, Relocation, Construction, Operation and
Maintenance of the Twin Buttes Water Treatment Plant, Fort
Berthold Rural Water System, Fort Berthold Indian
Reservation, North Dakota**

Dakotas Area Office
Bismarck, North Dakota



July 2016

U.S. Department of the Interior
Bureau of Reclamation

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UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION
DAKOTAS AREA OFFICE
BISMARCK, NORTH DAKOTA

FINDING OF NO SIGNIFICANT IMPACT

Of

FINAL SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

FOR

Funding of Design, Relocation, Construction, Operation and Maintenance of the
Twin Buttes Water Treatment Plant, Fort Berthold Rural Water System, Fort
Berthold Indian Reservation, North Dakota

NO. DK-5000-15-01

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Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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**Finding of No Significant Impact
For
Supplemental Environmental Assessment
Funding of Design, Relocation, Construction, Operation and Maintenance of
the Twin Buttes Water Treatment Plant, Fort Berthold Rural Water System,
Fort Berthold Indian Reservation, North Dakota**

The proposed design, relocation, construction, operation and maintenance of the Twin Buttes Water Treatment Plant (WTP) and construction of a raw water pipeline and a buried three phase power line are part of the Fort Berthold Rural Water System (FBRWS) project. The Proposed Action would increase the water quantity needed to meet the growing demand for portable water in the Twin Buttes community and surrounding area.

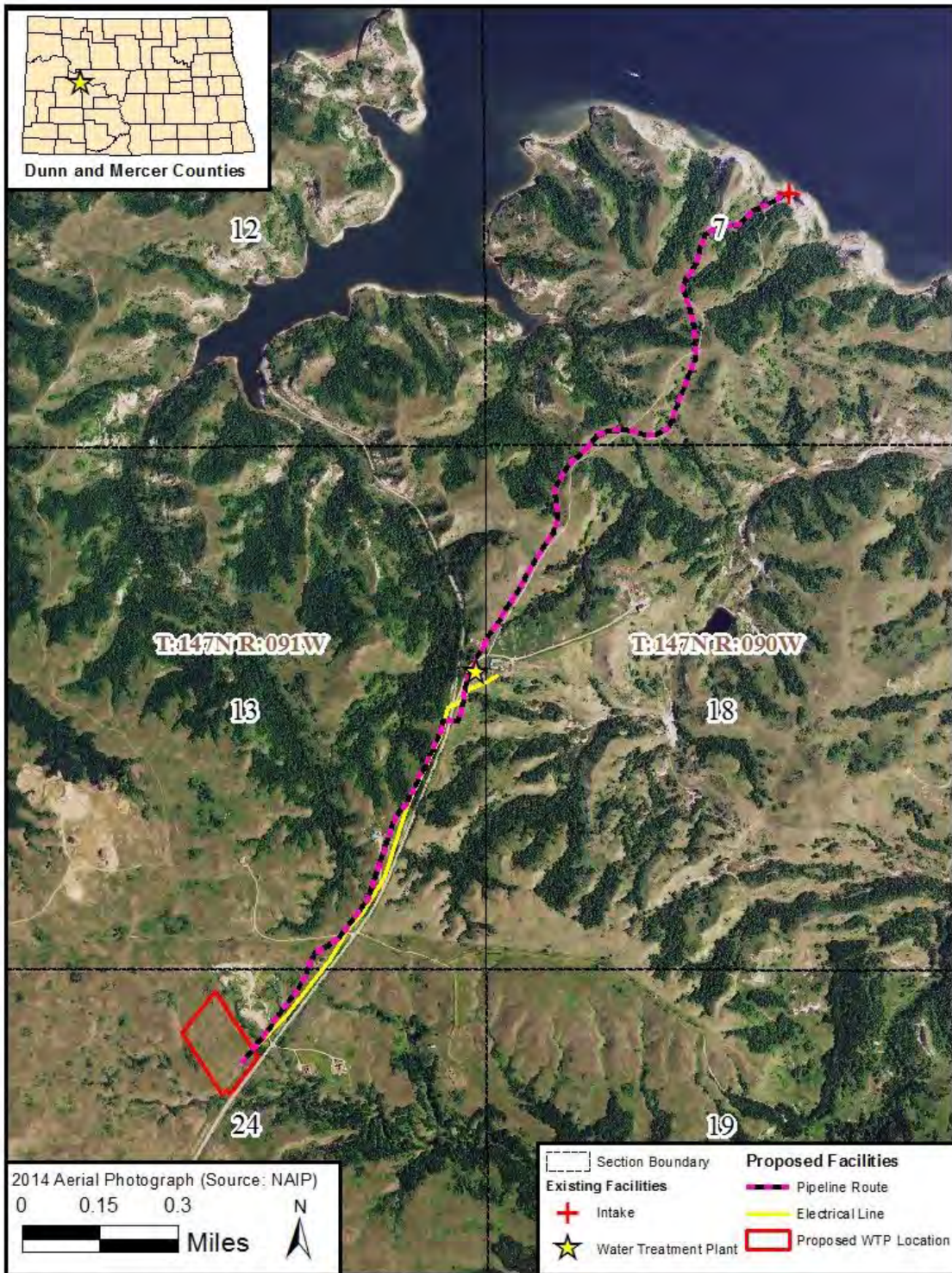
FBRWS – Twin Buttes WTP would include (**Figure 1-1**):

- a) Construction of a new WTP and associated facilities including the WTP structure, parking area, and evaporations ponds;
- b) Construction of approximately 11,000 linear feet of raw water pipeline from the intake to the new WTP site;
- c) Abandoning the existing raw water pipeline and leaving it in place;
- d) Construction of approximately one mile of buried three phase power line;
- e) Installation of booster pumps, utilities and appurtenances;
- f) Demolition of existing WTP structure and evaporation ponds that includes site restoration and disposal of building debris.
- g) Reclamation’s Environmental Mitigation Commitments and Best Management Practices (BMPs) for Municipal, Rural & Industrial projects;
- h) Future funding of operation and maintenance

This SEA is tiered from the *Programmatic Environmental Assessment for the Fort Berthold Rural Water System: Phase 2 Upgrade and Expansion* (Bureau of Reclamation, Three Affiliated Tribes, 2003, DK-600-02-07, Finding of No Significant Impact June 2003).

Six agency responses were received regarding the preparation of the SEA in response to Reclamation’s scoping notice. The comments were referenced and incorporated where appropriate within the environmental impact categories addressed in the final SEA. Appendix A of the final SEA contains the responses to scoping.

Figure 1-1. Depiction of Proposed Twin Buttes Water Treatment Plant Location and Associated Raw Water Line and Buried Three Phase Power Line.



Agency Decision

No Action. If Reclamation would adopt the No Action alternative, then no federal funds from the Dakota Water Resources Act would be made available to the Three Affiliated Tribes in support of their proposed project. Neither the purpose and need or the objectives of the Congressional authorization for the FBRWS would be served. In addition the project would not be required to abide by Reclamation's long established and tested environmental mitigation commitments and would not be eligible for FBRWS O&M program funding. Therefore this alternative was rejected.

Proposed Action. Reclamation has determined that the Proposed Action, Reclamation's preferred alternative and the Community Alternative, as described in the supplemental environmental assessment (SEA) DK-5000-15-01 will not result in significant impacts to the human and natural environment; therefore, an environmental impact statement will not be prepared. A complete description and analysis of the project's anticipated environmental impacts is contained in the SEA.

Reclamation defines significance relative to context and intensity in accordance with CEQ Regulations, 40 CFR 1508.27.

The reasons for the FONSI determination are summarized as follows:

1. All requirements of the National Environmental Policy Act have been met, including public involvement and coordination with Federal, State, and local agencies.
2. The Proposed Action will improve public health and economy of the Fort Berthold Indian Reservation.
3. The U.S. Fish and Wildlife Service concurs with Reclamation's determination that the Proposed Action, may affect is not likely to adversely affect the Dakota skipper. Reclamation has determined the Proposed Action, would have no effect on remaining listed species in Dunn and Mercer Counties, and is not likely to adversely affect designated critical habitat.
4. All stipulations of the National Historic Preservation Act and other applicable Federal laws, regulations, and guidelines concerning cultural resources will be satisfied prior to construction. Avoidance measures have been incorporated into the project's design to reduce or eliminate impacts to historic properties.
5. The project will impact Indian Trust Assets (legal interests in property or resources held in trust by the United States for Indian Tribes or individuals because of their status as Native Americans), but these impacts will be beneficial to the landowners and the Tribe.
6. All applicable Federal and State environmental laws, regulations, and executive orders will be adhered to.

7. Reclamation is including a list of environmental commitments as part of the proposed action to be implemented in order to (a) prevent, minimize, or offset the occurrence of potential adverse environmental effects and (b) ensure compliance with applicable Federal and State regulations designed to protect fish and wildlife resources, important habitats and sensitive areas, cultural and paleontological resources, human health and safety, and the public interest.

Environmental Mitigation Commitments of the Community Alternative

This section presents environmental commitments which have been developed in consultation with Federal and State agencies, the Tribes, and public through construction and responses to scoping over the last decade of rural water system development in North Dakota by Reclamation and the project sponsor. These commitments are included as an inseparable component of this Proposed Action and are designed to offset potential for significant environmental effects resulting from the Proposed Action.

As sponsor of the Twin Buttes WTP Project, FBRWS will be responsible for complying with these commitments. Should this project be constructed, the Tribe will ensure that these commitments are implemented and followed prior to and/or during construction of the Project. Appropriate environmental commitments will be incorporated into the designs and construction contracts and specifications of the pipeline and water treatment plant project.

An Interagency Environmental Review Team, with appropriate agency representation, may be assembled to review environmental compliance in the field, as needed.

These environmental commitments will be implemented to (1) prevent, minimize, or offset the occurrence of potential for adverse environmental effects and (2) ensure compliance with applicable Federal and State regulations designed to protect fish and wildlife resources, important habitats and sensitive areas, cultural and paleontological resources, human health and safety, and the public interest.

To Minimize impacts to surface waters and wetlands
Contractors will be required to make at least two boring attempts before using an alternative stream or river crossing method.
When pipeline construction through a wetland basin is unavoidable existing basin contours will be restored and trenches will be sufficiently compacted to prevent any drainage along the trench or through bottom seepage.
Project proponent and contractor will be responsible to comply with Section 404 of the Clean Water Act and avoid permanent impacts to isolated wetlands to the extent practicable.

To Minimize impacts to surface waters and wetlands – continued
<p>For unavoidable impacts to wetland habitats credit for equal value or environmental equivalent:</p> <p>(a) would be applied toward the impact and deducted from Reclamation’s Mitigation Enhancement Ledger (MEL)¹</p> <p>or</p> <p>(b) the Project proponent may develop separate acceptable mitigation.</p>
<p>Intermittent streams will be crossed only during low-flow periods and preferably when the streambeds are dry.</p>
<p>Woody species including those bordering wetlands, shelterbelts, riparian woodlands, woody draws, or woodland vegetation will be avoided to the extent possible. For unavoidable impacts to woody habitats credit for equal value or environmental equivalent:</p> <p>(a) would be applied toward the impact and deducted from Reclamation’s Mitigation Enhancement Ledger (MEL)(see earlier)</p> <p>or</p> <p>(b) the Project proponent may develop separate acceptable mitigation.</p>
<p>Native prairie will be avoided to the extent possible. However, if native prairie sod is broken during pipeline construction, existing topsoil will be carefully salvaged and replanted with native grasses in a timely manner, with a seed mix recommended by the local National Resources Conservation Service (NRCS) and approved by the landowner.</p>

To Minimize Impacts to fish and wildlife species and their habitats
<p>To the extent possible, construction will avoid:</p> <ul style="list-style-type: none"> - Wetlands - Federal, State, and Local wildlife areas and refuges - Designated critical habitats - Migratory bird habitats during the nesting brood rearing season
<p>Construction around wildlife habitats will be timed to avoid migratory bird nesting and wildlife parturition dates.</p> <ul style="list-style-type: none"> - Avoid work around wetlands April 1 – July 15 - Avoid work in Class II or higher waters (fisheries – confirm with ND Game and Fish Department) April 15 – June 1, or directionally bore. (ND Century Code: CHAPTER 33-16-02.1 STANDARDS OF QUALITY FOR WATERS OF THE STATE)

¹ Reclamation has credits for created and restored wetlands in the (MEL) that can be used to mitigate impacts to wetlands. The Garrison Diversion Unit (GDU) Mitigation and Enhancement Ledger (MEL) was developed according to the 1985 memorandum of understanding between Reclamation, the U.S. Fish and Wildlife Service (Service), and the North Dakota Game and Fish Department regarding the establishment of mitigation and enhancement debits and credits for wildlife purposes. The MEL documents GDU project impacts, mitigation requirements, and concurrence for planning purposes and for review by other agencies and the public. Projected impacts listed were first presented in the GDU Commission Report. The GDU Reformulation Act of 1986 resulted in the adjustment of the projected impacts to reflect modifications to the project. Impacts to date reflect modifications to the project.

To Minimize Impacts to fish and wildlife species and their habitats – continued
<p>Project power lines will be:</p> <p>a) Buried (Service 2010a) to minimize electrocution hazards to raptors and minimize impacts to all birds, bats, and particularly benefit whooping cranes. Use Suggested Practices for Avian Protection on Power Lines - The State of the Art in 2006, Avian Power Line Interaction Committee, Edison Electric Institute, Raptor Research Foundation, Washington, D.C., or similar standards will be used.</p> <p>http://www.eei.org/ourissues/TheEnvironment/Land/Documents/AvianProtectionPlanGuidelines.pdf (see pages 30 through 42)</p> <p>or</p> <p>b) any new, above ground power lines and an additional equal length of existing power lines in the same vicinity must be marked with visibility enhancement devices to benefit migrating whooping cranes as well as all migratory birds and bats.</p>
<p>Project sponsor and contractor are responsible for compliance with the Migratory Bird Treaty Act. Pipeline segment construction will be selected to minimize potential for environmental impacts to nesting migratory birds.</p>
<p>Construction within 660 feet of visible nesting bald eagles will be avoided from February through August.</p>
<p>To minimize impacts to fisheries resources any stream identified as a fishery (confer with ND Game and Fish Department) that cannot be directionally bored will be avoided from April 15 to June 1 and crossed later in the summer or fall when flows are low or the stream is dry.</p>
<p>If threatened or endangered species are identified and encountered during construction, all ground-disturbing activities in the immediate area will be stopped until Reclamation can consult with the Service to determine appropriate steps to avoid impacting the species.</p>
<p>Pipeline construction work is prohibited within ½ mile of designated critical habitat during the piping plover and Least tern breeding season (April 15 through August 31) when birds are present.</p>
<p>If forested habitat is identified prior to construction activities the Impact Mitigation Assessment team would determine if bat surveys are required. If any tree (with a diameter of greater than 3 inches) removal activities cannot be avoided between April and September, then northern long-eared bat surveys would be conducted to confirm absence of the species. If any suitable roost sites, possible hibernacula, or the species are observed during the onsite meeting, then any steps taken to avoid and minimize disturbance of this habitat would be documented.</p>

Miscellaneous Commitments
<p>Valve boxes will be left above grade in cultivated fields if agreeable to the landowner, or moved to the nearest fence or right-of-way. Valves will not be located adjacent to or in close proximity to a paved or graveled road and will be painted a neutral color that blends with the background, reduces visibility, and maintains the view-shed.</p>
<p>Established ground water monitoring wells will be avoided. However, if any monitoring wells are inadvertently damaged or impacted during project construction, the Water Appropriation Division of the North Dakota State Water Commission will be contacted.</p>
<p>If established survey bench marks must be removed or should any monuments be dislodged or damaged during construction, the National Geodetic Survey (Attn: N/CG 162, Rockville, Maryland 20852) will be contacted.</p>
<p>No above ground structures that will interfere with the above ground movement of floodwaters will be placed in the flood plain.</p>

Miscellaneous Commitments – continued
Prior to beginning construction through Conservation Reserve Program lands, program or private wetlands, the project proponents will consult with: <ul style="list-style-type: none"> (a) respective landowners, NRCS, U.S. Department of Agriculture Farm Services Agency to ensure that landowner eligibility in farm subsidy programs (if applicable) will not be jeopardized by project actions and (b) ensure that Swampbuster requirements will not be violated by construction activities.
The Project proponent will use project funds to reimburse landowners for crop damage and hay loss caused by construction.
Reclamation will complete and submit a Farmland Conversion Form (AD-1006) to the NRCS in compliance with the Farmland Protection Policy Act.

Construction Practices
Comply with all appropriate Federal, State, and Local laws.
Follow recommended practices for construction, restoration, and maintenance.
Maintain in-stream flows during stream crossing construction.
Use the shortest practicable alignment to minimize disturbance in crossing streams.
Spoil, debris piling, construction materials, and any other obstructions will be removed from stream crossings to preserve normal water flow.
Erosion control measures will be employed as appropriate and at stream crossings at all times: <ul style="list-style-type: none"> (a) Care will be exercised to preserve existing trees along the streambank. (b) Stabilization, erosion controls, restoration, and re-vegetation of all streambeds and embankments will be performed as soon as a stream crossing is completed and maintained until stable. (c) Riparian woody shrubs and trees will be replanted where and as necessary to preserve the shading characteristics of the watercourse and the aesthetic nature of the streambank.
Dump grounds, trash piles, and potential hazardous waste sites will be avoided.
All construction waste materials and excess or unneeded fill associated with construction will be disposed of on uplands, non-wetland areas.
Standard construction, industry measures will be taken to minimize fugitive dust emissions during construction activities. Any complaints that may arise will be dealt with in a timely and effective manner.
New pipeline, to the extent possible, will be placed just outside and parallel to the road right-of-way.

To Avoid impacts to Historic Properties and Culturally Sensitive Areas
All cultural resource investigations will be performed according to the procedures specified in the programmatic agreement among Reclamation, the SHPO, and the Advisory Council on Historic Preservation for Reclamation activities in North Dakota. Cultural resource inventories will be performed under the direction of an archaeologist that meets the Secretary of the Interior’s Professional Qualifications Standards (48 FR 44738-9). All appropriate cultural resource activities will be completed prior to the commencement of ground-disturbing activities, including Class I and Class III surveys and consultation with the SHPO. All cultural resources, except those exempted in the programmatic agreement, will be avoided if their significance cannot be established prior to disturbance. If avoidance is not practicable, Reclamation, in consultation with the SHPO would determine if the site is eligible for nomination to the National Register of Historic Places [36CFR800.4(c) and 36CFR60.4]. If the site is eligible as a historic property, initially Reclamation, SHPO, and other interested parties, depending on the type of property, will consult to determine a plan of mitigation. If an adverse effect cannot be avoided, the Advisory Council on Historic Preservation will be contacted. All ensuing activities will comply with the NHPA, as amended, and the Archaeological Resource Protection Act.

To Avoid impacts to Historic Properties and Culturally Sensitive Areas – continued

The Tribes will be consulted concerning the locations of unmarked burials or cemeteries. All such burials or cemeteries will be avoided to the extent possible. If a burial or cemetery cannot be avoided or is encountered during construction, Reclamation will comply with the Native American Graves Protection and Repatriation Act if graves are discovered on Federal or trust lands or within reservation boundaries. Reclamation will comply with North Dakota Century Code 23-06-27: "Protection of Human Burial Sites, Human Remains, and Burial Goods" for graves on private or State-owned lands.

If unrecorded cultural resources or traditional cultural properties are encountered during construction, all ground disturbance activity within the area will be stopped, Reclamation and appropriate authorities will be notified, and all applicable stipulations of the NHPA will be followed. Activities in the area will resume only when compliance has been completed.

To Minimize impacts to Paleontological Resources

All previously recorded paleontological resources and paleontologically sensitive zones within the path of the proposed action will be inspected in the field by a qualified paleontologist. Avoidance measures will be developed to avoid significant resources.

Reclamation will consult with North Dakota Geological Survey to identify areas for paleontological survey where significant fossils are likely. Paleontological surveys will be completed prior to construction. Based upon survey data, Reclamation will consult with a qualified paleontologist about revising routes to avoid damaging significant fossil locations.

Future Modifications and Changes to the System

Additions, extensions, or extraordinary maintenance to completed systems would be addressed through additional NEPA and NHPA compliance on a case by case basis if federal Reclamation funds would be used.

Supplemental Environmental Assessment

Funding of Design, Relocation, Construction, Operation and Maintenance of the Twin Buttes Water Treatment Plant, Fort Berthold Rural Water System, Fort Berthold Indian Reservation, North Dakota

DK-5000-15-01

July 2016

This document has been prepared on behalf of Three Affiliated Tribes and Bartlett and West by Wenck Associates, Inc., in conjunction with the Bureau of Reclamation's Dakotas Area office

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Funding of Design, Relocation, Construction, Operation and Maintenance
of the Twin Buttes Water Treatment Plant, Fort Berthold Indian
Reservation, North Dakota

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- Appendix A: Scoping Letter Responses
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List of Acronyms and Definitions

Action Area - All areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (i.e. Mercer and Dunn Counties).

BMPs - Best Management Practices

CFR – Code of Federal Regulations

Corps - U.S. Army Corps of Engineers

Critical Habitat - It is a specific geographic area(s) that is essential for the conservation of a threatened or endangered species and that may require special management and protection.

Connected Actions - Connected actions are those actions that are “closely related” to the proposal and alternatives. Connected actions automatically trigger other actions, they cannot or will not proceed unless other actions have been taken previously or simultaneously, or they are interdependent parts of a larger action and depend on the larger action for their justification (40 CFR Part 1508.25)

Constituent Elements - where those physical and biological features of a landscape that a species needs to survive and reproduce, are present

CEQ - Council of Environmental Quality

DWCA - Dakota Water Resources Act

EA – Environmental Assessment

EIS - Environmental Impact Statement

Environmental Mitigation Commitments - These are commitments included as an inseparable component of this Proposed Action. They are designed to offset potential for significant environmental effects resulting from the Proposed Action. These commitments will be implemented to (1) prevent, minimize, or offset the occurrence of potential for adverse environmental effects and (2) ensure compliance with applicable Federal and State regulations designed to protect fish and wildlife resources, important habitats and sensitive areas, cultural and paleontological resources, human health and safety, and the public interest.

EPA – U.S Environmental Protection Agency

ESA - Endangered Species Act of 1973

FBRWS – Fort Berthold Rural Water System

FONSI - Finding of No Significant Impact, the decision document that concludes an EA

Garrison Diversion - Garrison Diversion Conservancy District

GDU - Garrison Diversion Unit

GDGD - Garrison Diversion Conservancy District

MHA – Madan, Hidatsa, and Arikara Nation or Three Affiliated Tribes.

MR&I - Municipal Rural and Industrial (water supply)

NEPA - National Environmental Policy Act of 1969 as amended

NHPA - National Historic Preservation Act of 1966 as amended

NRCS - U.S. Department of Agriculture, Natural Resources Conservation Service

O, M & R - Operation, Maintenance & Replacement

Primary Constituent Elements - Primary constituent elements are those physical and biological features of a landscape that a species needs to survive and reproduce.

Programmatic EA – Refers to the Programmatic Environmental Assessment for the Fort Berthold Rural Water System: Phase 2 Upgrade and Expansion

Proposed project - The subject of this SEA, Funding of Design, Relocation, Construction, Operation and Maintenance of the Twin Buttes Water Treatment Plant

Reclamation - U.S. Department of the Interior, Bureau of Reclamation

Reservation – The Fort Berthold Indian Reservation

ROW - Right of Way.

SDWA - Safe Drinking Water Act.

SEA – Supplemental Environmental Assessment

USFWS - U.S. Department of the Interior, U.S. Fish and Wildlife Service

WTP – Water treatment plant

Executive Summary

The Bureau of Reclamation (Reclamation) Dakotas Area Office is the lead federal agency for the proposed Twin Buttes water treatment plant (WTP) expansion, upgrade, relocation, and construction. The existing Twin Buttes WTP is no longer adequate to meet the growing water demands in the Twin Buttes community and surrounding area. The existing WTP currently serves only the community of Twin Buttes and is capable of producing up to 80 gallons/minute of potable water working on a 22 hour/day runtime; this leaves little time for downtime and maintenance. As the Fort Berthold Rural Water System (FBRWS) continues to develop and serve the entire South Segment (approximately 200 connections), the minimum production would need to be at least 100 gallons/minute for the current water demands. In order to prepare for future development, reduce the risks associated with running a plant at maximum capacity, and meeting current standing requests for water from South Segment residents, greater potable water production is needed

The Proposed Action is the funding and construction of a replacement WTP with a higher capacity that would serve the Twin Buttes community and eventually the South Segment with reliable potable water. A new WTP location was selected since the existing WTP site cannot be expanded due to cultural resources and topographic limitations. The Proposed Action includes funding and construction of a new WTP and associated facilities including parking, evaporation ponds, approximately two miles of raw water pipeline, one mile of buried three phase power line, and appurtenances.

Effects to the human and natural environment would be mitigated by following the Bureau of Reclamation’s Dakotas Area Office, Environmental Mitigation Commitments (Chapter 2, Table 2). A summary of effects as a result of the Proposed Action is shown in Table 1.

Table 1. Summary of Potential Temporary and Permanent Effects of the Proposed Action

Resource	Temporary Effect	Permanent Effect
Surface Water Resources	No effects anticipated	Withdrawals from the Missouri River would be about 967 acre feet/year
Threatened and Endangered Species	Temporary disturbance to native habitats along the raw water pipeline route; potential habitat for T+E species avoided	No effects anticipated, potential habitat avoided
Land Resources	Construction disturbance to soils and vegetation in the project footprint	Long term conversion of pasture land for use as a WTP.
Socioeconomics	No effects anticipated	Increased water supplies and improved water delivery would benefit the entire South Segment.
Climate Change	Undetectable increase in vehicle emissions (GHGs) during construction	No effects anticipated
Environmental Justice	No effects anticipated	Increased water supplies and improved water delivery would benefit the entire South Segment.
Indian Trust Assets	Construction disturbance to soils and vegetation in the project footprint	Property transactions along the pipeline ROW could potentially diminish land utility. Water rights put to beneficial use.

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Chapter 1 Introduction and Regulatory Background

Introduction

The Bureau of Reclamation (Reclamation) is the lead federal agency and owner of the Fort Berthold Rural Water System (FBRWS) that is operated and maintained for the benefit of the Tribe. At the request of Bartlett and West Engineering, on behalf of the Mandan, Hidatsa, and Arikara Nation (MHA Nation or Three Affiliated Tribes), Wenck Associates, Inc. (Wenck) has prepared this Supplemental Environmental Assessment (SEA) for the construction of a replacement Twin Buttes Water Treatment Plant (WTP) for the FBRWS. The proposed project would continue to serve the town of Twin Buttes and already-served rural customers, in addition to those rural users that would be added in the future through water distribution system expansion projects, service line contracts, and/or approved connection agreements (**Figure 1**).

The proposed action would include the funding of relocation and construction of a new WTP and associated facilities needed to operate the plant. The WTP site would involve construction of the WTP structure, parking, and evaporation ponds. Proposed utilities include approximately two miles of larger raw water pipeline, one mile of buried three phase power line, and appurtenances. The existing WTP would be demolished and the existing site would be restored to near original conditions after the new WTP is constructed and functioning as designed. All construction activities would be compliant with Reclamation's Environmental Mitigation Commitments and Best Management Practices (BMPs) for Municipal, Rural and Industrial (MR&I) water supply projects. Construction is planned for the 2016 construction season. The WTP, associated facilities, and demolition of the existing WTP are referred to hereafter as the proposed project.

National Environmental Policy Act (NEPA) and National Historical Preservation Act (NHPA) Process

Reclamation is the owner and lead federal agency for the proposed action. Therefore, Reclamation is ultimately responsible for compliance with the National Environmental Policy Act (NEPA) of 1969 (as Amended) as well as Section 106 of NHPA (the National Historic Preservation Act of 1966) in consultation with the MHA Nation. Reclamation would ultimately accept or reject the SEA.

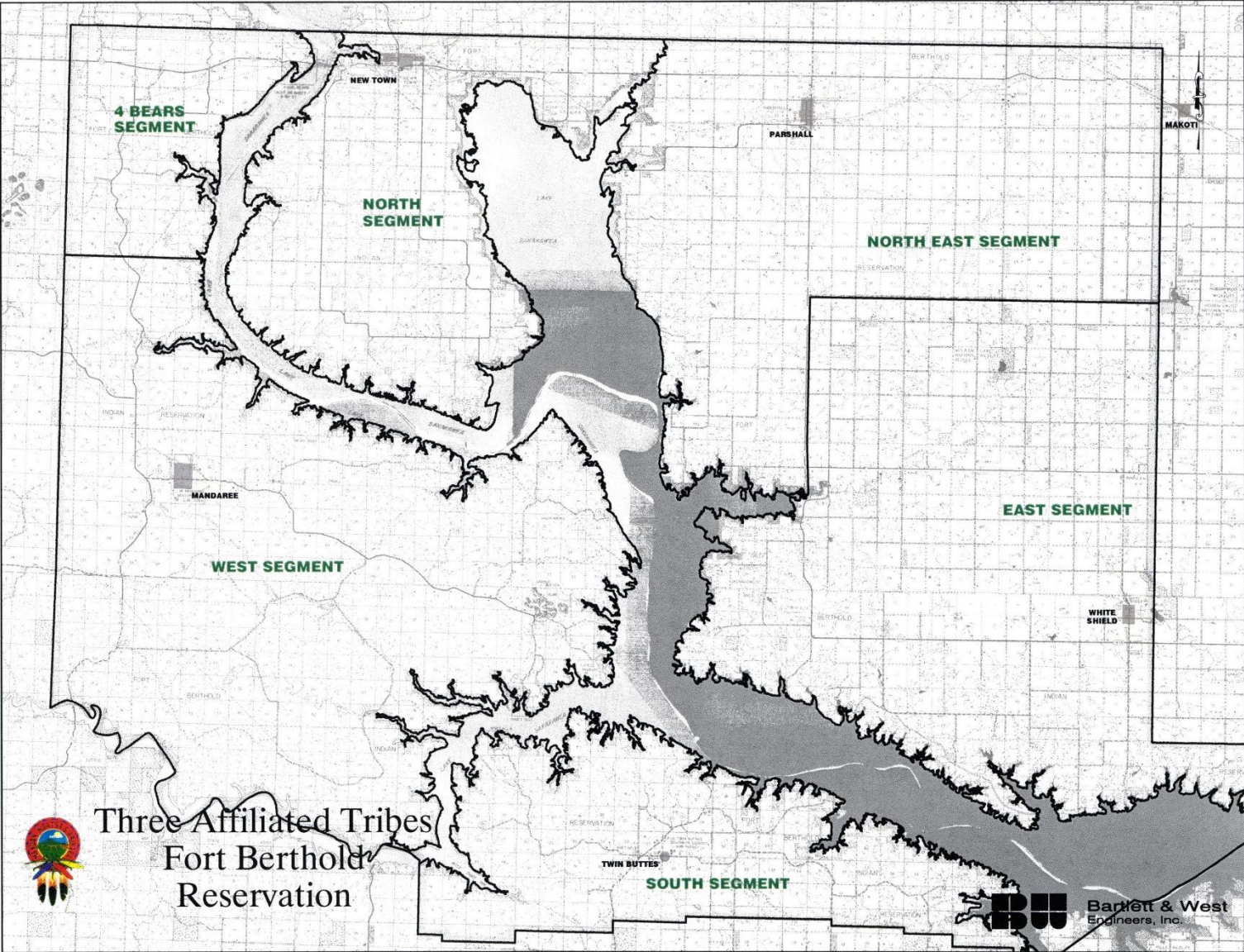
To comply with the NEPA and related environmental laws and regulations, federal agencies must consider the potential environmental effects of its decisions regarding approval of projects proposed on federally-owned and administered land or projects under federal control. In addition, Reclamation must evaluate connected actions as required in the Council of Environmental Quality (CEQ) 40 Code of Federal Regulations (CFR) 1508.25 in evaluating the effects of the entire action. This evaluation may include assessing impacts on non-federally managed lands. This SEA documents the proposed federal action, alternative actions considered, expected impacts of those actions, the final decision, and compliance with environmental laws and regulations. This SEA has been tiered from the original Programmatic Environmental

Assessment prepared for Phase 2 of the FBRWS (Reclamation and Three Affiliated Tribes 2003) (refer “Historical and Regulatory Background” below for further details).

Wenck has been designated by the Three Affiliated Tribes to prepare this SEA to assist Reclamation with fulfilling the NEPA requirements for this proposed action, CEQ Regulations (40 CFR 1500-1508) and related environmental regulatory requirements. This action is being completed in accordance with 40 CFR 1506.5(a) and 1506.5(b), which allows an applicant to prepare a SEA for federal action. However, Reclamation has independently evaluated and verified the information and analysis undertaken in this SEA and takes full responsibility for the scope and content contained herein.

This SEA may lead to a Finding of No Significant Impact (FONSI) if impacts are found to be insignificant or, if significant environmental impacts are identified, Reclamation may proceed with the preparation of an environmental impact statement. Reclamation defines significance in accordance with 40 CFR 1508.27 in reference to context and intensity. This SEA is being prepared to assist the involved federal agencies and the deciding official in determining what environmental impacts are likely to occur as a result of proceeding with the construction of the proposed project.

Figure 1. Overview map of the Fort Berthold Indian Reservation with FBRWS Segment Boundaries
(Source: Bartlett & West 2006)



Historical and Regulatory Background

The FBRWS was authorized by Section 7(c) of Public Law 89-108 (enacted on August 5, 1965), as amended by Public Law 99-294 (enacted on May 12, 1986). The law states that “The Secretary is authorized and directed to construct, operate, and maintain such municipal, rural, and industrial water systems as he deems necessary to meet the economic, public health and environmental needs of the Fort Berthold, Standing Rock, and Fort Totten Indian Reservations.” Funding for the MR&I system on each of these reservations was designated in the Garrison Diversion Reformulation Act of 1986, which authorized \$8 million to plan, design, and construct the FBRWS. In December of 2000, the Dakota Water Resources Act (DWRA) was passed to provide a Reservation-wide water supply and delivery system to all residents of the Reservation. A future appropriation of \$70 million was made in the DWRA.

The 1988 *Special Report: Plan Formulation, Fort Berthold Reservation Municipal, Rural, and Industrial Water Supply*, collaboratively developed by Reclamation and the Three Affiliated Tribes, indicated a significant shortfall in funding for the FBRWS. The report estimated that the costs of construction could approach \$60 million, much greater than what was originally appropriated at the time. Therefore, a phased development approach was adopted. Phase 1 included all features that had been already been planned, designed, or constructed to serve as many people as possible under the original allocation level; the focus of Phase 1 was to deliver water to Reservation communities. Phase 2 would be construction of planned facilities not constructed under Phase 1 and other facilities necessary to meet full Reservation-wide MR&I water needs.

Using the \$8 million allocated by the Garrison Diversion Reformulation Act, four (4) water treatment plants and limited associated infrastructure were constructed in the late 1990s as part of Phase 1. Various NEPA related documents were prepared for these WTPs in the mid- to late-1990s. These features, with associated NEPA documents, included:

- Four Bears Intake and Water Treatment Plant located in the Four Bears Segment and constructed for the water supply needs of the 4 Bears Casino.
 - Environmental Assessment for the Four Bears MR&I System
- Mandaree Water Treatment Plant located in the West Segment of the Reservation constructed to serve the water needs of the community of Mandaree.
 - Categorical Exclusion Checklist (CEC) for Mandaree project features
- White Shield Intake and Water Treatment Plant located in the East Segment and constructed to serve the water needs of the community of White Shield.
 - Environmental Assessment for the White Shield MR&I system
- Twin Buttes Water Treatment Plant located in the South Segment and constructed to serve the water needs of the community of Twin Buttes.
 - Twin Buttes Project Report (with Environmental Assessment and Finding of No Significant Impact) Garrison Diversion Unit Indian Studies, Fort Berthold Indian Reservation Municipal, Rural and Industrial Water Supply.

In March of 1995, the Three Affiliated Tribes and Reclamation entered into a cooperative agreement under Public Law 93-638 specifically for planning and NEPA compliance components of Phase 2 of the FBRWS. Public Law 93-638, as amended, is the Indian Education

and Self Determination Act, which allows federal agencies to make grants directly to federally recognized Indian tribes and gives authority to Native American tribes to directly administer funding from these grants. Three Affiliated Tribes and the Secretary of the Interior have used Public Law 93-638 to designate roles for the FBRWS planning, design, construction, and OM&R activities.

In 2002, the *Fort Berthold Rural Water System Water Development Engineering Report* (the Engineering Report) was prepared by Bartlett & West to review the current and potential future water needs of the Reservation. The Engineering Report was revised in 2003, 2004, and 2006. Within this report were analyses of current and future water needs, a listing of needed infrastructure to provide for such needs, cost estimates for the construction of such infrastructure, cost estimates for the operation and maintenance of such infrastructure, and a plan for a phased development of such infrastructure over an extended period of time. Specific engineering and water treatment discussions are described in detail in this report. Reference to this report is made throughout this document as “the Engineering Report” by Bartlett & West 2006.

After development of the Engineering Report, Reclamation completed the *Programmatic Environmental Assessment for the Fort Berthold Rural Water System: Phase 2 Upgrade and Expansion* (Programmatic EA) (Bureau of Reclamation and Three Affiliated Tribes 2003). The Programmatic EA analyzed the environmental effects of proposed Phase 2 infrastructure identified in the Engineering Report. The scope of the Programmatic EA included the construction, operation, and maintenance of the FBRWS to meet the economic, public health, and environmental needs of all residents within the exterior boundaries of the Reservation. In the Programmatic EA, Phase 2 was defined as:

- Construction of 679 miles of pipeline, nine (9) booster stations, and eight (8) water storage tanks;
- Upgrading/expanding the existing water treatment plants in Mandaree, White Shield, Four Bears, and Twin Buttes; and
- Construction of a new, or expanding the current, OM&R building to meet the needs of additional staff.

Specifically, for the Twin Buttes area in the South Segment, the Programmatic EA specified the following would be built under Phase 2 plans:

- WTP upgrades and expansion;
- 59 miles of pipeline and;
- One 120,000 gallon ground storage tank

The purpose of the Programmatic EA was to provide information about Phase 2 FBRWS projects to the public and to Tribal, State, and Federal Agencies, which would either provide funding, licensing, or permitting. The Programmatic EA established the framework for decision-making on future projects. When the Programmatic EA was published, there was still uncertainty for pipeline alignments and locations of additional facilities; additional NEPA compliance was anticipated after publishing the Programmatic EA.

The purpose of this SEA is to provide further environmental analysis tiered from the original Programmatic EA to address construction of a new WTP and associated facilities near Twin Buttes, North Dakota.

Purpose and Need for the Proposed Action

The existing Twin Buttes WTP is no longer adequate to meet the growing water demands in the Twin Buttes community and surrounding area. The existing plant was designed to meet the needs of only the Twin Buttes community; an expansion/upgrade of this system was anticipated as part of Phase 2 projects to meet the needs of the entire South Segment community, including rural residents. The Engineering Report analyzed potential water demands in the South Segment by estimating the number of connections and users within the study area. The Engineering Report revealed that water demand in 2000, assuming distribution systems were in place, would require 205 gallons/minute of WTP capacity (since most of distribution systems are not in place for rural residents, this does not represent actual demands since the existing WTP currently serves just the Twin Buttes community, some rural residents and scattered home sites). In 2025 and 2050, water needs would increase to 269 and 357 gallons/minute, respectively, assuming distribution systems were in place (Engineering Report, p. 60).

The existing Twin Buttes WTP was designed to produce 50 gallons/minute of potable water and serves 99 service connections. However, the plant currently can produce up to a maximum of 80 gallons/minute of potable water equal to 105,600 gallons of potable water/day (assumes a 22 hour runtime, with 2 hours for backwash cycles). The highest peak demand since October 2013 was 105,000 gallons, only 600 gallons less than what the plant can produce at maximum. On average, water demand is about 725 gallons/user/day, which is about 0.5 gallons/user/minute.

As the FBRWS is developed, the goal is to provide potable water to the entire South Segment, which would be about 200 service connections. This requires the plant to produce 100 gallons/minute to meet demands. Therefore, operating at a maximum of 80 gallons/minute, the existing plant is not capable to supply the water needs of the entire South Segment. In fact, operating at its current capacity with the existing users, even a small volume leak could have devastating impacts on system storage and the continued ability to meet water usage demands. Ultimately, in order to prepare for future development and to reduce the risks associated with running a plant at maximum capacity and meeting current water demands from South Segment residents, greater potable water production is necessary.

The proposed project is the replacement of the existing Twin Buttes WTP with a higher capacity plant, and includes additional facilities required to operate the new plant. The purpose of the proposed project would follow the original Programmatic EA mandate: to meet the economic, public health, and environmental needs of all residents within the external boundaries of the Reservation by providing sufficient quantities of Safe Drinking Water Act (SDWA)-compliant water in adequate, sustainable quantities to residents living in Twin Buttes and eventually to the entire South Segment of the Reservation. This would be accomplished by the relocation and construction of a new WTP connected to the existing FBRWS infrastructure. A higher capacity WTP would provide a more secure water supply for current users in the Twin Buttes area while

also meeting the projected future population growth and expansion to rural residents living in the South Segment.

Limitation of the Existing WTP Site

The existing Twin Buttes WTP was built in the mid- late- 1990s and designed to meet only the needs of the Twin Buttes community residents at that time. Rebuilding a new plant with sufficient capacity at the existing location is not feasible since the land footprint is too small to accommodate the required water treatment infrastructure. Therefore, a new location and treatment plant are needed to meet current and future water demands. The proposed new WTP would be designed to produce 350 gallons/minute, but could be upgraded to run at 600 gallons/minute to allow for additional future growth in the South Segment service area including future sales of industrial water.

Relocating the WTP would trigger expansion of associated infrastructure. With a higher output capacity, a higher volume of water would be pumped from the existing intake to the WTP. This would require replacing the existing raw water intake pipeline, which is currently not sized to withstand the new operating capacity. Three-phase power would also need to be routed to the new plant.

Decisions to be Made

During development of this SEA, Reclamation, Three Affiliated Tribes and the FBRWS Director have made decisions cooperatively to direct the future decision-making of the proposed project. Alternative WTP site locations have been considered and discarded based on engineering, environmental, and cultural grounds (See Page 2-10, Other Alternatives Considered); the preferred WTP location has been agreed upon because it is owned by the MHA Nation. However, at the time this SEA was written, the route of the raw water pipeline remains undecided.

Currently, two options are available for the raw water pipeline. The preferred route would follow and parallel the existing raw water pipeline to avoid disturbance outside of the existing easement. However, the preferred route would cross private (allotted) land where the landowner has not yet provided consent for the proposed project. Without consent, the alternative route would require a reroute to the west to avoid the preferred route property (**Figure 2**). The final decision for this route would be made in the decision document for this SEA.

Federal funds are not currently available to Reclamation to fund the construction of the WTP. However, the Tribe has proposed to fund the project, which would ultimately be absorbed into the Fort Berthold Rural Water System's OM&R program that is funded by Reclamation. Although federal funds are currently unavailable, the WTP and raw water pipeline are an integral part of the FBRWS, and as such the cost of construction for the replacement WTP and raw water pipeline would be an allowable cost and eligible for reimbursement, provided all Reclamation's requirements are met. The Tribe may request reimbursement for their cash investment to build the needed replacement WTP.

Chapter 2 Proposed Action and Alternatives Considered

Proposed Action – the Preferred and Community Alternative

The proposed action, the community alternative and Reclamation and the Three Affiliated Tribe's preferred alternative, would be the construction and operation of a new WTP at a site about one mile from the existing WTP location. The new location would be south of a gravel mine on gently sloping topography. This property was selected because:

- the property is owned by the MHA Nation;
- it would be in close proximity to the existing WTP, which would reduce construction costs of the new raw water pipeline;
- it would be adjacent to an existing paved road and provide direct access to the property;
- and the area did not contain cultural resources or habitat for threatened or endangered species.

The preferred alternative would include:

- a) a new WTP and associated facilities including the WTP structure, parking, and evaporation ponds;
- b) construction of approximately 11,000-12,000 linear feet (LF) (depending on the route) of raw water pipeline from the intake to the new WTP site;
- c) abandoning the existing raw water pipeline but leaving it in place;
- d) construction of approximately one mile of three phase power line;
- e) installation of booster pumps, utilities and appurtenances;
- f) demolition of the existing WTP structure and evaporation ponds that includes site restoration;
- g) Reclamation's Environmental Mitigation Commitments and BMPs for MR&I projects;
- h) and future funding of operation and maintenance

Environmental Mitigation Commitments

This section presents environmental commitments which have been developed in consultation with Federal and State agencies, the Tribes, and the public in response to construction activities and scoping over the last decade of rural water system development in North Dakota by Reclamation and the project sponsor (Table 2). These environmental commitments would be implemented to (1) prevent, minimize, or offset the occurrence of or potential for adverse environmental effects and (2) ensure compliance with applicable Federal and State regulations designed to protect fish and wildlife resources, important habitats and sensitive areas, cultural and paleontological resources, human health and safety, and the public interest.

Should this project be constructed, the Tribe would ensure the environmental commitments are implemented prior to and/or during construction of the proposed project. Appropriate environmental commitments would be incorporated into the designs, construction contracts, and specifications of the project. An Interagency Environmental Review Team, with appropriate agency representation, may be assembled to review environmental compliance in the field, as deemed appropriate.

Over the past two decades, Reclamation has constructed MR&I water supply projects throughout North and South Dakota. Public scoping and consultation with state and local governments have resulted in the development and practice of an array of proven methods for minimizing or avoiding adverse environmental effects from the construction of these projects. Reclamation has made these commitments an inseparable part of the proposed action for all MR&I proposals, including the proposed action.

Table 2. Required Mitigation Measures for the Proposed Action

To Minimize impacts to surface waters and wetlands
Contractors will be required to make at least two boring attempts before using an alternative stream or river crossing method.
When pipeline construction through a wetland basin is unavoidable existing basin contours will be restored and trenches will be sufficiently compacted to prevent any drainage along the trench or through bottom seepage.
Project proponent and contractor will be responsible to comply with Section 404 of the Clean Water Act and avoid permanent impacts to isolated wetlands to the extent practicable.
For unavoidable impacts to wetland habitats credit for equal value or environmental equivalent: (a) would be applied toward the impact and deducted from Reclamation’s Mitigation Enhancement Ledger (MEL) ¹ or (b) the Project proponent may develop separate acceptable mitigation.
Intermittent streams will be crossed only during low-flow periods and preferably when the streambeds are dry.
Woody species including those bordering wetlands, shelterbelts, riparian woodlands, woody draws, or woodland vegetation will be avoided to the extent possible. For unavoidable impacts to woody habitats credit for equal value or environmental equivalent: (a) would be applied toward the impact and deducted from Reclamation’s Mitigation Enhancement Ledger (MEL)(see earlier) or (b) the Project proponent may develop separate acceptable mitigation.
Native prairie will be avoided to the extent possible. However, if native prairie sod is broken during pipeline construction, existing topsoil will be carefully salvaged and replanted with native grasses in a timely manner. Reseeding mixes would be applied on a site specific basis. This approach allows the contractor to comply based on ownership by agency as well as Tribal preference and BIA guidance.

¹ Reclamation has credits for created and restored wetlands in the (MEL) that can be used to mitigate impacts to wetlands. The Garrison Diversion Unit (GDU) Mitigation and Enhancement Ledger (MEL) was developed according to the 1985 memorandum of understanding between Reclamation, the U.S. Fish and Wildlife Service (Service), and the North Dakota Game and Fish Department regarding the establishment of mitigation and enhancement debits and credits for wildlife purposes. The MEL documents GDU project impacts, mitigation requirements, and concurrence for planning purposes and for review by other agencies and the public. Projected impacts listed were first presented in the GDU Commission Report. The GDU Reformulation Act of 1986 resulted in the adjustment of the projected impacts to reflect modifications to the project. Impacts to date reflect modifications to the project.

To Minimize Impacts to fish and wildlife species and their habitats

To the extent possible, construction will avoid:

- Wetlands
- Federal, State, and Local wildlife areas and refuges
- Designated critical habitats
- Migratory bird habitats during the nesting brood rearing season

Construction around wildlife habitats will be timed to avoid migratory bird nesting and wildlife parturition dates.

- Avoid work around wetlands April 1 – July 15
- Avoid work in Class II or higher waters (fisheries – confirm with ND Game and Fish Department) April 15 – June 1, or directionally bore. (ND Century Code: CHAPTER 33-16-02.1 STANDARDS OF QUALITY FOR WATERS OF THE STATE)

Project power lines will be:

- a) Buried (Service 2010a) to minimize electrocution hazards to raptors and minimize impacts to all birds, bats, and particularly benefit whooping cranes. Use Suggested Practices for Avian Protection on Power Lines - The State of the Art in 2006, Avian Power Line Interaction Committee, Edison Electric Institute, Raptor Research Foundation, Washington, D.C., or similar standards will be used.

<http://www.eei.org/ourissues/TheEnvironment/Land/Documents/AvianProtectionPlanGuidelines.pdf>

(see pages 30 through 42)

or

- b) any new, above ground power lines and an additional equal length of existing power lines in the same vicinity must be marked with visibility enhancement devices to benefit migrating whooping cranes as well as all migratory birds and bats.

Project sponsor and contractor are responsible for compliance with the Migratory Bird Treaty Act. Pipeline segment construction will be selected to minimize potential for environmental impacts to nesting migratory birds.

Construction within 660 feet of visible nesting eagles will be avoided from February through August.

To minimize impacts to fisheries resources any stream identified as a fishery (confer with ND Game and Fish Department) that cannot be directionally bored will be avoided from April 15 to June 1 and crossed later in the summer or fall when flows are low or the stream is dry.

If threatened or endangered species are identified and encountered during construction, all ground-disturbing activities in the immediate area will be stopped until Reclamation can consult with the U.S. Fish and Wildlife Service to determine appropriate steps to avoid impacting the species.

Pipeline construction work is prohibited within ½ mile of designated critical habitat during the piping plover and Least tern breeding season (April 15 through August 31) when birds are present.

If forested habitat is identified prior to construction activities the Impact Mitigation Assessment team would determine if bat surveys are required. The final 4(d) rule must be followed. If any tree removal activities cannot be avoided between April and October, then northern long-eared bat surveys would be conducted to determine presence/absence of the species. If any maternity roost sites or hibernacula, or the species are observed during the onsite meeting, then the USFWS must be consulted.

Miscellaneous Commitments
Valve boxes will be left above grade in cultivated fields if agreeable to the landowner, or moved to the nearest fence or right-of-way. Valves will not be located adjacent to or in close proximity to a paved or graveled road and will be painted a neutral color that blends with the background, reduces visibility, and maintains the view-shed.
Established ground water monitoring wells will be avoided. However, if any monitoring wells are inadvertently damaged or impacted during project construction, the Water Appropriation Division of the North Dakota State Water Commission will be contacted.
If established survey bench marks must be removed or should any monuments be dislodged or damaged during construction, the National Geodetic Survey (Attn: N/CG 162, Rockville, Maryland 20852) will be contacted.
No above ground structures that will interfere with the above ground movement of floodwaters will be placed in the flood plain.
Prior to beginning construction through Conservation Reserve Program lands, program or private wetlands, the project proponents will consult with: <ul style="list-style-type: none"> (a) respective landowners, NRCS, U.S. Department of Agriculture Farm Services Agency to ensure that landowner eligibility in farm subsidy programs (if applicable) will not be jeopardized by project actions and (b) ensure that Swampbuster requirements will not be violated by construction activities.
The Project proponent will use project funds to reimburse landowners for crop damage and hay loss caused by construction.
Reclamation will complete and submit a Farmland Conversion Form (AD-1006) to the NRCS in compliance with the Farmland Protection Policy Act.

Construction Practices
Comply with all appropriate Federal, State, and Local laws.
Follow recommended practices for construction, restoration, and maintenance.
Maintain in-stream flows during stream crossing construction.
Use the shortest practicable alignment to minimize disturbance in crossing streams.
Spoil, debris piling, construction materials, and any other obstructions will be removed from stream crossings to preserve normal water flow.
Erosion control measures will be employed as appropriate and at stream crossings at all times: <ul style="list-style-type: none"> (a) Care will be exercised to preserve existing trees along the streambank. (b) Stabilization, erosion controls, restoration, and re-vegetation of all streambeds and embankments will be performed as soon as a stream crossing is completed and maintained until stable. (c) Riparian woody shrubs and trees will be replanted where and as necessary to preserve the shading characteristics of the watercourse and the aesthetic nature of the streambank.
Dump grounds, trash piles, and potential hazardous waste sites will be avoided.
All construction waste materials and excess or unneeded fill associated with construction will be disposed of on uplands, non-wetland areas.
Standard construction, industry measures will be taken to minimize fugitive dust emissions during construction activities. Any complaints that may arise will be dealt with in a timely and effective manner.
New pipeline, to the extent possible, will be placed just outside and parallel to the road right-of-way.

To Avoid impacts to Historic Properties and Culturally Sensitive Areas

All cultural resource investigations will be performed according to the procedures specified in the programmatic agreement among Reclamation, the SHPO, and the Advisory Council on Historic Preservation for Reclamation activities in North Dakota. Cultural resource inventories will be performed under the direction of an archaeologist that meets the Secretary of the Interior’s Professional Qualifications Standards (48 FR 44738-9). All appropriate cultural resource activities will be completed prior to the commencement of ground-disturbing activities, including Class I and Class III surveys and consultation with the SHPO. All cultural resources, except those exempted in the programmatic agreement, will be avoided if their significance cannot be established prior to disturbance. If avoidance is not practicable, Reclamation, in consultation with the SHPO would determine if the site is eligible for nomination to the National Register of Historic Places [36CFR800.4(c) and 36CFR60.4]. If the site is eligible as a historic property, initially Reclamation, SHPO, and other interested parties, depending on the type of property, will consult to determine a plan of mitigation. If an adverse effect cannot be avoided, the Advisory Council on Historic Preservation will be contacted. All ensuing activities will comply with the NHPA, as amended, and the Archaeological Resource Protection Act.

The Tribes will be consulted concerning the locations of unmarked burials or cemeteries. All such burials or cemeteries will be avoided to the extent possible. If a burial or cemetery cannot be avoided or is encountered during construction, Reclamation will comply with the Native American Graves Protection and Repatriation Act if graves are discovered on Federal or trust lands or within reservation boundaries. Reclamation will comply with North Dakota Century Code 23-06-27: “Protection of Human Burial Sites, Human Remains, and Burial Goods” for graves on private or State-owned lands.

If unrecorded cultural resources or traditional cultural properties are encountered during construction, all ground disturbance activity within the area will be stopped, Reclamation and appropriate authorities will be notified, and all applicable stipulations of the NHPA will be followed. Activities in the area will resume only when compliance has been completed.

To Minimize impacts to Paleontological Resources

All previously recorded paleontological resources and paleontologically sensitive zones within the path of the proposed action will be inspected in the field by a qualified paleontologist. Avoidance measures will be developed to avoid significant resources.

North Dakota's State Paleontologist has recommended a survey for this proposed action. Paleontological surveys will be completed prior to construction. Based upon survey data, Reclamation will consult with a qualified paleontologist about revising routes to avoid damaging significant fossil locations.

Proposed Action Alternative: Pipeline Routes

At the time this SEA was written, two routes have been proposed for the raw water pipeline that would deliver raw water from the existing water intake on Lake Sakakawea to the new WTP. The final decision on these routes will depend on the outcome of landowner negotiations. The Alternative Route is slightly longer than the Preferred Route. However, environmental impacts would be relatively similar given the similar topography and land use within both routes. Therefore, potential environmental effects are analyzed for the raw water line in general rather than for each specific route.

Preferred Route

The preferred pipeline route (pink/black) would follow existing roads and trails to the new WTP. From the water intake on Lake Sakakawea, it would parallel the existing raw water pipeline at about a 10-foot offset from the existing WTP (**Figure 1**). The preferred route would parallel North Dakota (ND) Highway 8 on its north side to the new WTP.

Alternative Route

The alternative pipeline route (green/black) would deviate from the preferred route (pink/black) (**Figure 2**). This option would be employed if an easement for the preferred route is not obtained. The alternative route would trend generally in an east/west direction in Section 18, Township (T) 147 North (N), Range (R) 90 West (W). It would cross into Section 12, T147N, R91W, then trend south into Section 13, T147N, R91W. From the existing WTP, it would follow the preferred route.

Project Area

The proposed project would be located where the boundaries of east Dunn and west Mercer Counties, North Dakota meet (**Figure 2**).

In Mercer County, the proposed project would be in portions of:

- Sections 7 and 18, T147N, R90W;

In Dunn County, the proposed project would be in portions of:

- Sections 13 and 24, T147N, R91W

The project area is defined as the construction footprint for the proposed WTP, utility and access road corridors (**Figure 1**). The maximum construction footprint at the WTP would be approximately five (5) acres. The construction right-of-way (ROW) for the utility corridors (water and electrical) and the access road would be 75 feet wide total, with a permanent easement width of 50 feet along the corridor. Direct ground disturbance would be confined to the limits of the permanent and temporary construction easement. The permanent easement is typically 50 feet on either side of the as-installed pipeline. Utilities would be co-located to reduce ground disturbance. During construction, the proposed project would result in a maximum temporary disturbance area of approximately 11.5 acres within the project area, not including the raw water pipeline route (**Table 3**). A total of up to 7.8 acres would be reclaimed, with a total permanent disturbance of 3.7 acres².

² Engineering design of the WTP has yet to be finalized, and therefore some uncertainty remains as to how much of the project area would be disturbed and reclaimed. These numbers reflect an estimate for project disturbance and reclamation, and disturbance may be greater or less than this estimate depending on final plans.

Figure 2. Overview Map of the Proposed Action

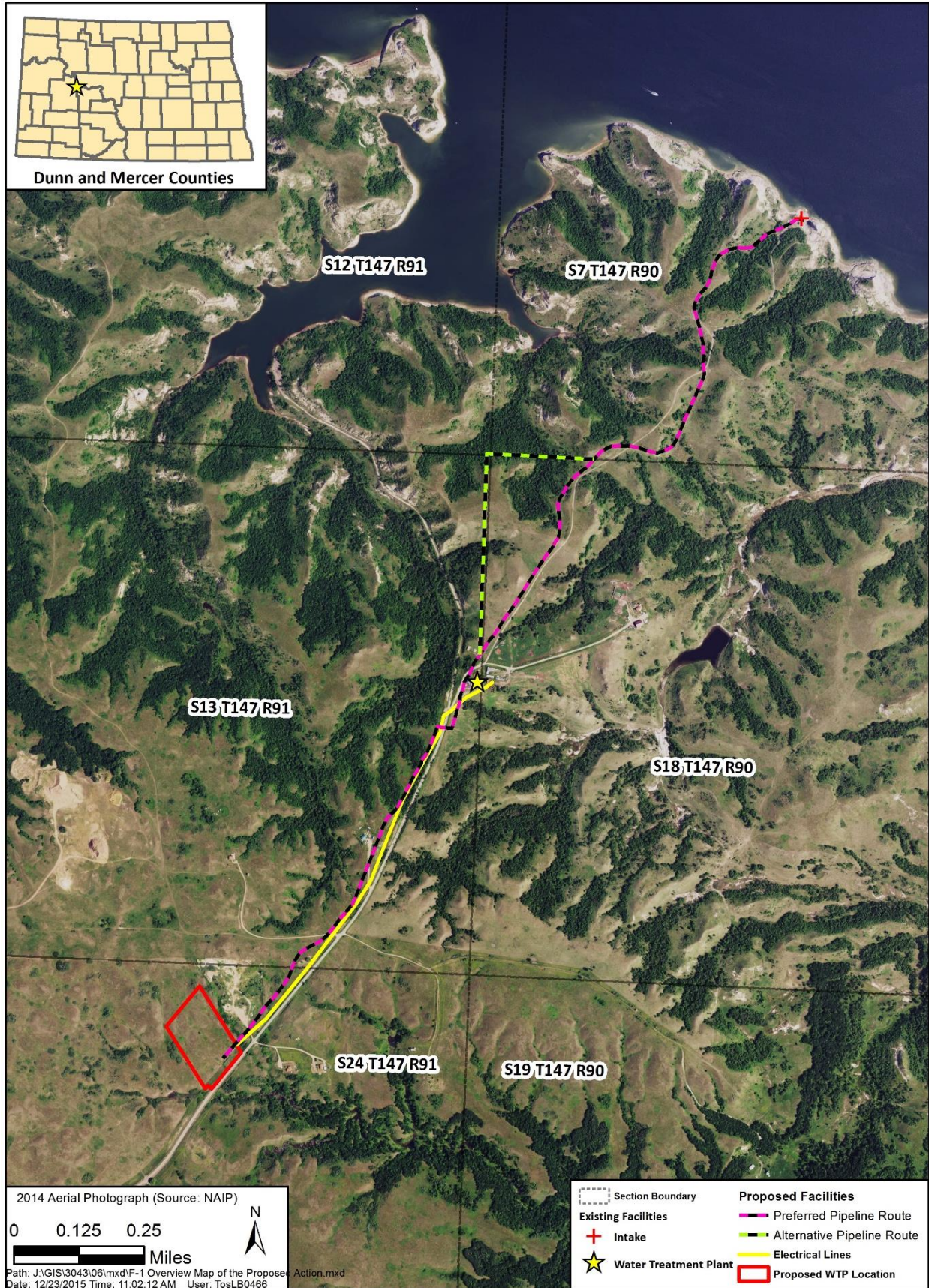


Table 3. Preliminary surface disturbance estimates for each project element.

Project Tasks	Temporary Surface Disturbance (acres)	Reclaimed Area (acres)	Permanent Surface Disturbance (acres)
WTP Construction	5.0	1.3	3.7
Utility Construction (Preferred Route-Alternative Route)	5.2-5.5	5.2-5.5	0.0
Demolition of Existing WTP	1.0	1.0	0.0
Total	11.2-11.5	7.5-7.8	3.7

Proposed Action Alternative: Specific Construction Activities

The proposed action would involve construction of a new WTP, including the WTP structure, parking, and evaporation ponds. The proposed action would also include construction of approximately two miles of raw water pipeline, one mile of three phase power line, utilities, and appurtenances. Future funding of operation and maintenance is also included as part of the proposed action. The existing water treatment plant would be demolished and the site would be restored. Construction activities would be compliant with Reclamation’s Environmental Mitigation Commitments and best management practices for MR&I water supply projects (p. 2-3).

Site Preparation

Prior to construction of the WTP structure and associated facilities, the proposed construction footprint would be prepared to meet engineering specifications including the footprint of the WTP structure and parking area (approximately 2.5 acres) and evaporation ponds (1.2 acres). Stockpile areas for the pipeline would be established within the construction footprint in the WTP area or pipeline corridor (defined as a 50-foot-wide corridor centered on the proposed pipeline centerline). Erosion control structures would be installed throughout the construction footprint prior to construction. Straw wattles, fiber mats, silt fences, or a combination of methods would be used to control erosion as needed and modified as identified.

Heavy equipment, including scrapers and dozers, would strip vegetation from the soil surface within a 20-foot-wide corridor along the utility route. Trees and shrubs along the utility corridor would be cut level to the ground surface. Topsoil would be stripped from the ground surface within the 20-foot wide corridor and stockpiled separately from subsoil. Cut woody vegetation may be chipped into topsoil piles for use as an erosion control.

Specific BMPs would be used in areas of rangeland or wooded vegetation. Tree cutting would be avoided to the extent possible by either boring under woody vegetation or shifting the pipeline route to avoid these obstacles. If woody vegetation cannot be avoided, it would only be cut between October 1 and March 31 and mitigated according to Reclamations environmental commitments (page 2-5). Rangeland would be cleared and grubbed outside of the migratory bird nesting period (February 1 to July 15). If grubbing cannot occur during this time, then surveys would be conducted by a qualified biologist for nesting birds in areas not cleared prior to February 1st and construction would only be allowed to proceed within five days of that survey.

WTP Construction

Following site preparation, exposed subsoil in the WTP footprint would be graded to a level surface using heavy equipment. Evaporation ponds would be excavated to design depths, and

excess subsoil not suitable for site restoration would be spread over the remaining exposed surfaces, or otherwise disposed of, and overdressed with topsoil. The WTP foundation would be poured, and the WTP constructed. Exposed soils would be seeded (see the following subsection *Reclamation* for further details.) The completed project would be absorbed into the FBRWS, OM&R program funded by Reclamation.

Utility Installation

The utility trench would be excavated after the corridor is cleared of vegetation and topsoil has been stripped and stockpiled. A linear utility trench would be excavated to have 7.5 feet of cover to the top of the installed pipe and approximately 48 inches for the underground electrical lines. The maximum length of working exposed trench would be 300 feet; trenches would be backfilled the same day they are excavated. The pipeline would be bored through woody draws if possible to avoid disturbance to woody vegetation. Topsoil would be replaced after backfilling of subsoil and would be spread evenly to approximate original contours (see the following subsection *Reclamation* for further details.)

Existing WTP Demolition

The existing WTP would be demolished and the site stabilized and reclaimed. Equipment that can be repurposed for the new WTP would be used to the extent possible. Other surface structures and materials would be demolished, removed, and disposed of according to tribal, state, and federal regulations. Contents of the evaporation ponds would be removed and disposed at an approved location and the pond would be backfilled and restored to original contours. The area occupied by the old WTP and associated facilities would be recontoured, dressed with topsoil, and seeded, restoring the area to approximate original conditions. The site restoration may include rerouting the existing road that leads to the intake entrance.

Early discussions explored potential use of the old WTP building for cold storage. However, this was deemed infeasible. Employees would have to drive from the new WTP to the old WTP to get needed supplies, maintenance costs would be incurred for two facilities, and the old WTP site would require surveillance and other security measures to prevent vandalism. To reduce travel and the need to maintain two separate facilities, a garage was incorporated into the plans for the new WTP for storage options and it was decided to demolish and reclaim the old WTP site.

Reclamation

The entire utility corridor and portions of the new WTP site would be reclaimed after construction activities are complete. Disturbed areas would initially be seeded with a cover-crop to stabilize soils in the short term. Reseeding and reclamation of the disturbed areas would occur sometime in the late fall following construction; if construction runs into the late fall, reclamation may occur in early spring. Regardless of the timing, all disturbed areas would be reseeded on a site specific basis. This approach would allow the contractor to comply based on ownership as well as Tribal preference and BIA guidance. Reclaimed areas would be monitored during operation to document vegetation establishment. If vegetation does not successfully colonize the disturbed area, the area would be reseeded or soil amendments (e.g. fertilizer) would be added to facilitate successful vegetation growth.

Operation

The proposed project would be operated using a Supervisory, Control, and Data Acquisition (SCADA) system to monitor the integrity of the water pipelines and the existing intake structure. Staff would occasionally use a vehicle to travel the access road to monitor the raw water intake.

The WTP would be manned by three full time WTP operators working in shifts, with periodical maintenance by distribution operator crews.

Maintenance, Repair, and Replacement

Maintenance activities would typically revolve around production of drinking water. Other activities would include upkeep of the WTP building and grounds including care for the parking facilities, keeping up the grounds, care for the settling ponds, grading, mowing around the facilities, addressing pipeline leaks, and other routine activities around the WTP.

Repair of pipe leaks would represent routine repair work within the existing and prior disturbed right of way for the pipeline. Should work need to extend outside Reclamation's easement additional environmental compliance must be completed and in particular with regard to Section 106 compliance of NHPA. Environmental Commitments (shown in Table 2) would be followed during all maintenance construction activities.

Other Alternatives Considered

Alternative No. 1

Under Alternative 1, the WTP site would be approximately 700 feet west of the existing WTP, the closest of all alternatives to the existing WTP site (**Figure 3**). The proposed site was on top of a hill overlooking Lake Sakakawea, which was ideal from a water distribution standpoint since gravity would assist in water distribution. However, numerous cultural sites were present and could not be avoided due to topographic limitations in the area. The site also had potential habitat for the Dakota skipper (*Hesperia dacotae*) butterfly, a listed species under the Endangered Species Act (ESA). Access to the site would require the installation of an approach off ND Hwy 8 and construction of a 0.25 mile access road through steep draws and drainages. The cost for earthwork in completing the WTP site grading would be significantly more than the Preferred Alternative given the irregular topography of the available land for development. No further analysis of this alternative was pursued.

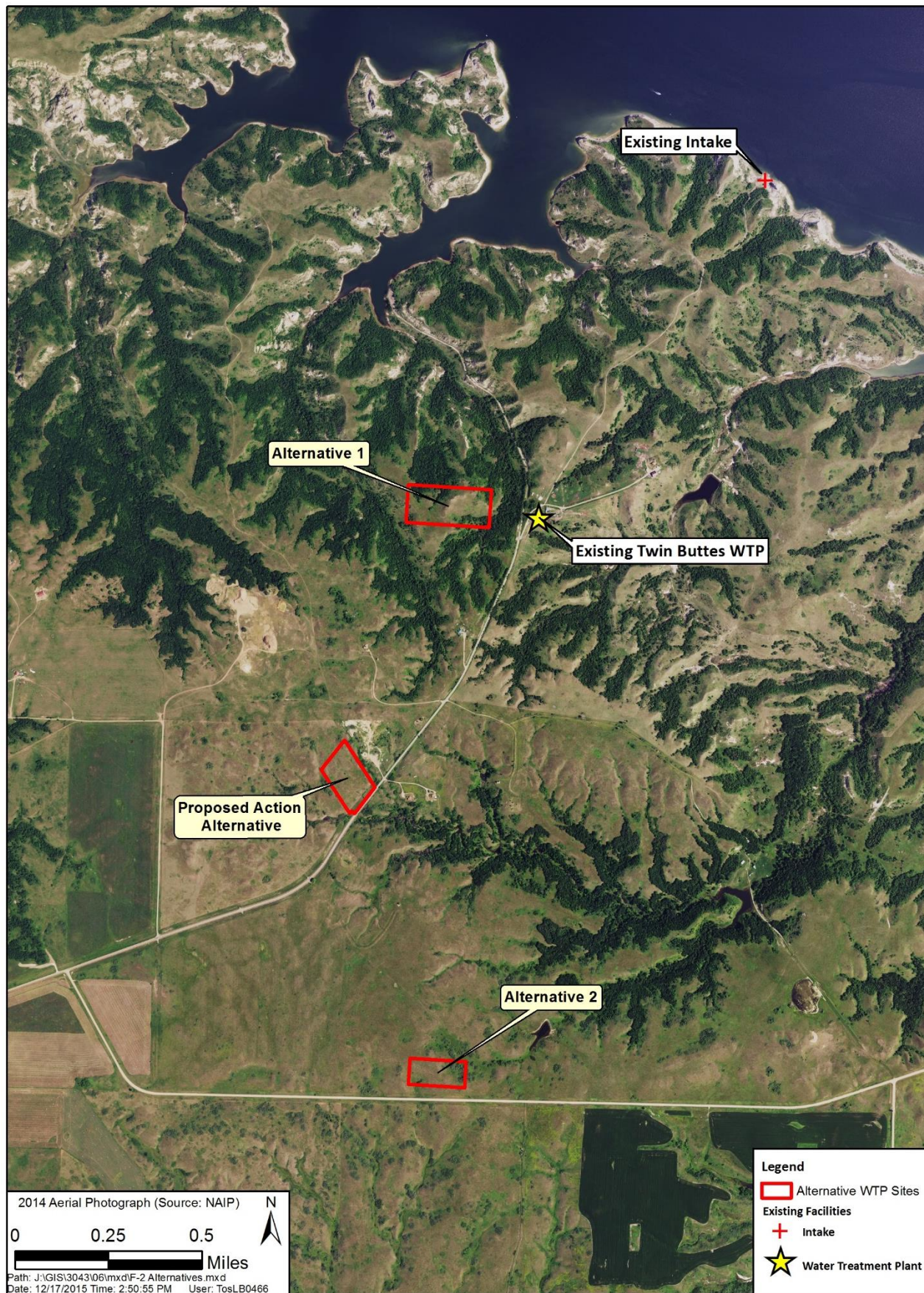
Alternative No. 2

Under Alternative 2, the WTP site would be about 1.5 miles from the existing WTP, the farthest from existing facilities of the alternatives considered (**Figure 3**). It would be on relatively flat topography in a grazed pasture owned by the Three Affiliated Tribes. The most efficient route of the raw water pipeline at this location would cross private land unavailable to the Tribe. Rerouting the pipeline within the road easement was a possibility and would require approximately 23,700 LF of raw water pipeline and an additional 5,000 LF of pipeline to convey finished water to the existing FBRWS infrastructure. No further analysis of this alternative was pursued.

No Action Alternative

Under the No Action Alternative, the existing WTP would continue to operate. Water demand in the Twin Buttes area would be expected to rise following current trends. Water supplies would continue to be limited by the existing WTP maximum capacity of 80 gallons/minute, and some Reservation residents would not be served by the FBRWS as a direct result. Most livestock water availability would be curtailed. This alternative would not meet the purpose and need of the proposed action or the functional demands of the FBRWS, which is to meet the economic, public health, and environmental needs of all residents within the external boundaries of the Reservation.

Figure 3. Alternative WTP Site Locations



Chapter 3 Affected Environment

Introduction

This section describes the existing conditions and potential impacts for resources which may be affected by the proposed project. The affected environment includes the existing communities, land, water, and air-sheds that might be affected by the proposed project. Environmental consequences to these resources may be direct (as a result of construction, operation, or maintenance) or indirect (generally subsequent to a direct effect but not directly resulting from proposed action), positive (beneficial) or negative (adverse), and long term (permanent, long-lasting) or short term (temporary). Measures that would be implemented to reduce, minimize, or eliminate impacts (mitigation measures) were presented in **Table 2** as an inseparable part of the proposed action, Required Mitigation Measures for the Proposed Action, and discussed under each resource. The ultimate anticipated impacts of the project, accounting for the use of mitigation measures, are summarized at the end of each resource section. **Table 1** shows a summary of the temporary and permanent impacts that could occur as a result of the proposed action.

The area of potential impacts (affected area) would be resource-specific and is defined in each individual resource discussion. The boundary of the affected area for each resource extends to where effects can be reasonably and meaningfully measured. Direct impacts would generally occur within the project area. However, some impacts may occur on a broader scale, encompassing an area beyond the project area. Impacts that may extend beyond the project area are disclosed in the environmental consequences section of each resource.

In light of Reclamation's well documented, vetted, and practiced environmental commitments and programmatic agreement with the North Dakota State Historic Preservation Office, collaboratively developed with the help of Federal and State agencies, public comments, and a decade of MR&I construction experience, and presented as part of the proposed action alternative, the following resources will not be discussed further: wetlands, wildlife and fisheries, geology, air quality, fugitive dust levels, topography, water quality, vegetation, viewshed, cultural resources, and paleontology.

This Section will address the effects of construction of the new WTP and associated facilities for following resources: Surface Waters, Endangered Species, Land Resources, Socioeconomics, Climate Change, Indian Trust Assets, and Environmental Justice.

Surface Water

The Federal Water Pollution Control Act of 1972, as amended by the Clean Water Act (CWA) of 1977, provides the authority to the Environmental Protection Agency (EPA) and United States Army Corps of Engineers (the Corps) to establish water quality standards, control discharges into surface waters, develop waste treatment management plans and practices, and issue permits for discharges (Section 402) and for dredged or fill material (Section 404). Within the Reservation,

the Missouri River/Lake Sakakawea is considered a navigable waterway, and is therefore subject to Section 10 of the Rivers and Harbors Act of 1899.

Affected Environment

The existing raw water pipeline follows a ridgeline to the Missouri River, crossing several upland drainages, typically woody draws. No streams, wetlands, or other water bodies, other than Lake Sakakawea, are present within the project area.

Surface water resources within the project area are limited to the Missouri River, which would provide raw water for the proposed project. Lake Sakakawea (also referred to as the Lake) has long been the recognized preferred source of water for a Reservation-wide water supply and distribution project (Bartlett & West 2006; p. 69). Inflows into the Lake can vary depending on snowfall condition within the Missouri River Basin in Montana. However, historical fluctuations of the Lake have not been significant from a water supply perspective, and past management of such Lake levels by the Corps makes the Lake a dependable supply source for water for the FBRWS.

FBRWS intakes on Lake Sakakawea are authorized by Congress, regulated by USACE, and owned by Reclamation. Water rights of American Indian Reservations are a matter of federal law stemming from the U.S. Supreme Court decision in *Winters v. United States*, which enunciated the Winters Doctrine. According to the doctrine, the establishment of an Indian reservation implied that sufficient water was reserved (or set aside) to fulfill purpose for which the reservation was created: to reserve land for tribes to become self-sufficient and self-reliant. In *Arizona v. California* (1963) the U.S. Supreme Court held that water allocated should be sufficient to meet both present and future needs of the reservation to assure the viability of the reservation as a homeland. Case law also supports the premise that Indian reserved water rights are not lost through non-use. The current water allocation for the South Segment is 484 acre-feet/year, a number used by the USACE to plan releases from Lake Sakakawea (USACE 2011). However, according to Winters Doctrine, the Three Affiliated Tribes are allowed to adjust their water right in order to meet the needs of the Tribe. Since the Tribe has a valid water right on Lake Sakakawea based on the Winters Doctrine, and since Lake Sakakawea is the only water source in the area with a reliable quantity of quality water, no further discussion of water source will be undertaken in this SEA. However, water rights are considered an Indian Trust Asset and are discussed further in that section of this EA.

The Lake Sakakawea reservoir is part of a six-reservoir system on the Missouri River, operated as an integrated system by the Corps. Lake Sakakawea has the largest storage capacity of the reservoirs at approximately 23.8 million acre-feet (MAF), which is one-third of the total storage capacity in the main stem system (USACE 2011). By comparison, a standard Olympic size swimming pool contains about two acre-feet of water (660,430 gallons or 2,500,000 liters).

Operation of the Garrison Dam/Lake Sakakawea Project follows an annual cycle. The average annual volume of water that enters the lake is 16.6 MAF and the average annual volume of the lake is 18.5 MAF. On the basis of these averages, it takes slightly more than one year for the water to pass through the Lake (USGS 1996). Typically, water levels, and subsequent storage, are lowest during the winter months to prepare for spring flooding, when water levels are highest. The desired operating storage is around 22.5 MAF, leaving 1.5 MAF of storage exclusively for flood control. Water stored above 22.5 MAF is typically released by March 1.

Environmental Effects of the Proposed Action

Construction of the proposed project would result in disturbance to soils and vegetation on uplands adjacent to Lake Sakakawea, which would have the potential to release sediment into upland drainages leading to surface waters. Ground disturbance would be short term and temporary during construction. The existing raw water pipeline would be decommissioned and abandoned in place. Installation of the proposed raw water pipeline would follow Reclamation's mitigation measures related to surface water resources as described in **Table 2**.

Specifically, woody draws crossed by the pipeline and breaks would be bored where feasible. Near Lake Sakakawea, erosion control structures including, but not limited to, straw wattles, fiber mats, silt fences, or a combination of methods would be used during soil moving activities to prevent sediment migration to the Lake. These structures would be maintained until the pipeline corridor has been reclaimed and stabilized with native vegetation.

During operation, the proposed project would have the long-term effect of surface water depletions from Lake Sakakawea. The proposed project would result in an annual depletion of between 565-967 acre-feet/year. Initially, the WTP would be designed to operate at a maximum of 350 gallons/minute, or 565 acre-feet/year; by comparison, the current WTP operates at approximately 80 gallons/minute. In order to plan for future growth around the Twin Buttes area and possible industrial water sales, the plant would be able to operate at up to 600 gallons/minute, or 967 acre feet/year; the current WTP operates at approximately 104-129 acre feet year (assuming average treatment is 65-75 acre feet [See Purpose and Need for the Proposed Action for further details on the existing WTP]). In the context of Lake Sakakawea storage capacity, the maximum depletion of 967 acre-feet/year would be about 0.004 percent of the total storage. Annual depletion at this level would not inhibit operations of the Garrison Dam/Lake Sakakawea or cause other significant effects to surface water resources in the project area.

The proposed project would incrementally contribute to cumulative water depletions from Lake Sakakawea. Due to the large storage capacity of the Lake, combined with the very small annual depletion, cumulative effects as a result of the proposed project would be insignificant and discountable. Several depletion analyses conducted since 2005 evaluated existing and reasonably foreseeable withdrawals by municipal, rural, and irrigation intakes in the Missouri River basin. These studies concluded that proposed projects withdrawing up to 80,000 acre-feet/year from Lake Sakakawea (80 times more than the Twin Buttes WTP) would have no significant effects on Missouri River flows or reservoir levels (Corps of Engineers 2006, 2013).

With the implementation of surface water mitigation measures, combined with the relatively small depletion from Lake Sakakawea for water intake, no direct, indirect, or cumulative impacts to surface water resources would occur as a result of the Preferred Alternative.

Environmental Effects of the No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed. Water would continue to be treated at the existing WTP at a rate of 50 gallons/minute, with annual water depletion of approximately 80 acre-feet/year from Lake Sakakawea.

Threatened and Endangered Species

Wenck prepared a biological assessment (BA) for the preferred community alternative for the proposed action (Appendix B). The BA was submitted to Bismarck Ecological Services office, U.S. Fish and Wildlife Service, on July 24, 2015, under Section 7 of the Endangered Species

Act. The Service returned a letter of concurrence on the determinations of effect for the species considered on 13 November 2015 (Appendix B). This section provides a summary of the findings from that BA.

Affected Environment

The U.S. Fish and Wildlife Service county level occurrence data were used to identify potential species listed under the ESA within the project area (USFWS 2015a). Federally listed, proposed, or candidate species under the ESA that may occur in the project area (Dunn and Mercer Counties, ND) are shown in **Table 4**.

Table 4. Federally Listed, Proposed and Candidate Resources within the Action Area.

Species/Critical Habitat	Status	Location
Interior Least Tern (<i>Sterna antillarum</i>)	Endangered	Dunn, Mercer
Whooping Crane (<i>Grus americana</i>)	Endangered	Dunn, Mercer
Black Footed Ferret (<i>Mustela nigripes</i>)	Endangered	Dunn, Mercer
Pallid Sturgeon (<i>Scaphirhynchus albus</i>)	Endangered	Dunn, Mercer
Gray Wolf (<i>Canis lupus</i>)	Endangered	Dunn, Mercer
Piping Plover (<i>Charadrius melodus</i>)	Threatened	Dunn, Mercer
Piping Plover Designated Critical Habitat	Designated Critical Habitat	Dunn, Mercer
Dakota Skipper (<i>Hesperia dacotae</i>)	Threatened	Dunn
Rufa Red Knot (<i>Calidris canutus rufa</i>)	Threatened	Dunn, Mercer
Northern Long-Eared Bat (<i>Myotis septentrionalis</i>)	Threatened	Dunn, Mercer
Sprague's Pipit (<i>Anthus spragueii</i>)	Candidate	Dunn, Mercer

Source: USFWS 2015a

Environmental Effects of the Proposed Action Alternative

Direct, indirect, and cumulative impacts to threatened and endangered species were documented in the BA for the proposed project (Appendix B). A summary of the determinations is shown in **Table 5**. For more details on the effects analysis, refer to the BA attached in Appendix B. The U.S. Fish and Wildlife Service concurred with these determinations on November 13, 2015 (Appendix B).

Table 5. Determination of Effects as a result of the Proposed Action.

Determination	Species/Critical Habitat
<p><i>No Effect:</i> This determination is appropriate when the proposed project will not directly or indirectly affect (neither negatively nor beneficially) individuals of listed, proposed species or designated/proposed critical habitat of such species. No concurrence from USFWS required.</p>	<p>Interior Least Tern, Whooping Crane, Pallid Sturgeon, Gray Wolf, Piping Plover, Piping Plover Designated Critical Habitat, Northern Long-eared Bat, Sprague’s Pipit.</p>
<p><i>May Affect but Not Likely to Adversely Affect:</i> This determination is appropriate when the proposed project is likely to cause insignificant, discountable, or wholly beneficial effects to individuals of listed species and/or designated critical habitat. Concurrence from USFWS is recommended.</p>	<p>Dakota Skipper</p>
<p><i>May Affect and Likely to Adversely Affect:</i> This determination is appropriate when the proposed project is likely to adversely impact individuals of listed species and/or designated critical habitat. Formal consultation with USFWS required.</p>	<p>N/A</p>
<p><i>May affect but Not Likely to Jeopardize candidate or proposed species/critical habitat:</i> This determination is appropriate when the proposed project may affect, but is not expected to jeopardize the continued existence of a species proposed for listing or a candidate species, or adversely modify an area proposed for designation as critical habitat. Concurrence from USFWS optional.</p>	<p>N/A</p>
<p><i>Likely to Jeopardize candidate or proposed species/critical habitat:</i> This determination is appropriate when the proposed project is reasonably expected to jeopardize the continued existence of a species proposed for listing or a candidate species, or adversely modify an area proposed for designation as critical habitat. Conferencing with USFWS required.</p>	<p>N/A</p>

Environmental Effects of the No Action Alternative

There would be *no effect* to threatened, endangered, or proposed species and to designated and proposed critical habitats under the No Action Alternative.

Land Resources

Land resources are broadly defined as the combination of geology, physiography, vegetation, climate, soils, land use, wildlife, and hydrology that comprise the native habitats in the project area. Classifications systems used to delineate land resources vary based on scale. Ecoregions are a broad classification system used by the EPA to denote land areas sharing similar environmental resources (Bryce et. al 1996). Ecoregions are divided into several levels, with Level 1 being the broadest classification and Level IV being the most detailed.

The Natural Resources Conservation Service (NRCS) uses Ecological Site Descriptions (ESDs) to classify and delineate land units based on soils and how each area would respond to management activities or disturbance. This classification system is more applicable to projects on the local level since it uses detailed soil survey maps. However, soil surveys are limited depending on the scale at which the survey was conducted. Therefore, the analysis below uses a combination of the EPA ecoregions, NRCS ESDs (combined with soil surveys), and biological field surveys to determine the baseline conditions in the project area.

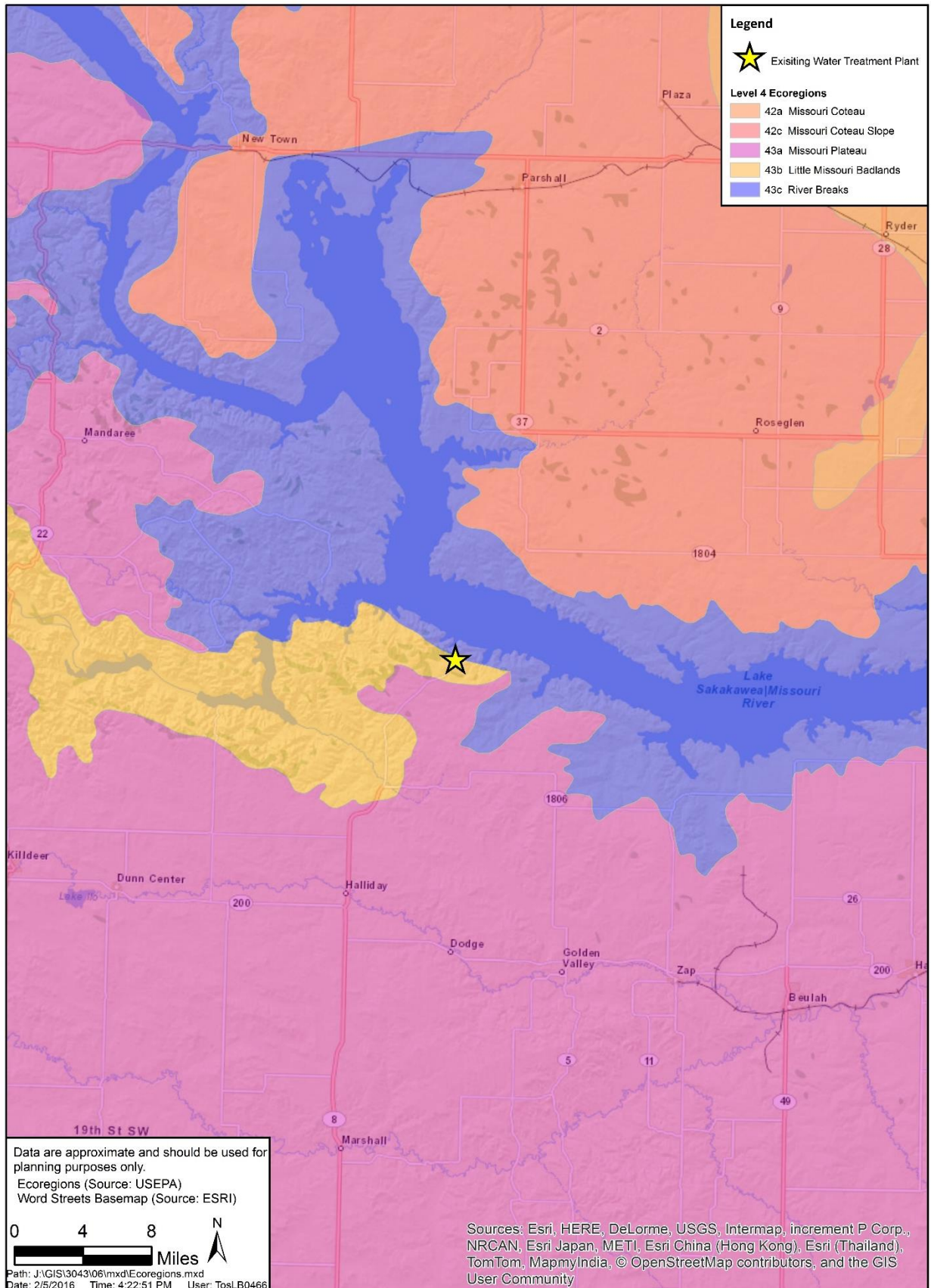
Affected Environment

The proposed project area is within the broad Northwestern Great Plains (Level III) ecoregion and near the confluence of three Level IV ecoregions: the River Breaks, the Little Missouri Badlands, and the Missouri Plateau (**Figure 4**). Based on biological field surveys and descriptions of each of the Level IV ecoregions, it appears the project area is more specifically within the River Breaks and the Missouri Plateau ecoregions. Near Lake Sakakawea in the River Breaks, the project area was comprised of broken terraces and uplands that have formed from soft, easily erodible soils and parent materials (Bryce et al 2008). The topography was dissected by woody draws with upland hillsides dominated by native prairie. Moving south from Lake Sakakawea, the topography of the project area gradually became flatter, with fewer woody draws and drainages, typical of the Missouri Plateau.

Vegetation communities vary based on these two distinct land resource areas. Rolling topography typical of the River Breaks was dominated by western wheatgrass (*Pascopyrum smithii*), little bluestem (*Schizachyrium scoparium*) and needlegrass (*Hesperostipa* sp.). Draws and north facing slopes were dominated by green ash (*Fraxinus pennsylvanica*), Rocky Mountain Juniper (*Juniperus scopulorum*), and other woody species. Flatter topography of the Missouri Plateau was dominated by western wheatgrass prairie. Invasion from non-native species occurred primarily near existing disturbances (i.e., roads). Smooth brome (*Bromus inermis*), sweetclover (*Melilotus* sp.) and crested wheatgrass (*Agropyron cristatum*), all non-native plants, were typically present adjacent to existing roads but were also scattered within native areas. These vegetation communities appeared to coincide loosely with ESDs.

The River Breaks and Missouri Plateau ecoregions appeared to each have a distinctive ESD, which differ in their land use capabilities. Soils in the steep, broken topography near Lake Sakakawea were classified as “Not Suited,” indicating that the steep topography makes the area unsuitable for forage production due to the high potential for erosion. Flatter topography, specifically near the existing WTP and the proposed WTP, was classified as “Limy Upland” or “Loam.” Limy upland soils are typically high in concentrations of calcium carbonate, which reduces the availability of some plant nutrients and can limit their ability to revegetate after disturbances. Loams are typically not limited by any particular chemical constituent. However, both limy upland and loam soils, if present on steep slopes, are susceptible to erosion if not properly managed.

Figure 4. Ecoregion boundaries near the Proposed Action



Environmental Effects of the Proposed Action Alternative

Construction of the proposed project would result in disturbance to vegetation and soil resources within the project area. Adverse impacts to soil resources could in turn negatively affect revegetation efforts and long-term land uses in disturbed areas. Disturbed soils are also more likely to migrate into drainages and waterways, affecting water quality and hydrology. Since most of the length of the pipeline route traverses soils that are susceptible to erosion, mitigating and reducing soil impacts are critical to reducing impacts to other land resources. Impacts are therefore discussed primarily from a soils perspective. Potential impacts to soil resources as a result of the proposed project would include increased susceptibility to erosion, mixing of soil horizons, compaction, and contamination from spills, which are each further discussed below. However, most impacts would be expected to be short lived and temporary when using mitigation measures described in Table 2.

Erosion. Soils exposed during and after construction and reclamation would be vulnerable to wind and water erosion until vegetation is established. This is especially true for construction in the Missouri River Breaks on the northern end of the project area. Erosion control structures, such as fiber rolls, straw wattles, fiber mats, silt fences, or a combination of methods would be installed as necessary according to site-specific needs. Site-specific Storm water pollution and prevention plan (SWPPP) plans would be prepared and implemented for all construction activities as required, which would outline measures and practices to control storm water runoff, sediment discharge, and erosion. With the use of these measures, erosion would be minimized.

Horizon Mixing. Excavation of pipeline trenches would permanently disturb soil horizons in localized areas. New construction would be designed and sited, as much as practicable, to areas that have previously been disturbed to minimize permanent disturbance to native, previously undisturbed soils. The new raw water pipeline has been routed to follow the previously disturbed, existing raw water pipeline and existing roads except where deviations are needed due to the rugged topography. Excavation and grading extents would be limited as practicable to minimize soil disturbance. Topsoil would be segregated from subsoils and replaced on the surface after pipeline construction is complete. Native areas would be replanted with native grasses in a timely manner on a site specific basis. This approach would allow the contractor to comply with reseeding measures based on ownership as well as Tribal and BIA guidance.

Compaction. Compaction of soils may occur from the use of heavy equipment within the project area. During reclamation of temporarily disturbed areas (i.e., the utility corridor route), de-compaction techniques would be used as needed to prepare soils for seeding. Compaction of soils would be permanent underneath the WTP foundation and under the pipelines.

Contamination. Equipment refueling could result in a spill and localized chemical contamination of soils. Site-specific SPCC plans would be prepared and implemented for all construction activities as required, which would outline spill prevention measures and clean-up and reporting procedures. Refueling would occur in designated areas away from waterways. With the use of these measures, effects to soils would be avoided or minimized.

Impacts to native vegetation have been reduced to the extent possible by routing the proposed raw water pipeline within previously disturbed corridors. If native prairie sod is broken during pipeline construction, existing topsoil would be salvaged to preserve the native seedbank; these areas would be replanted with native grasses to ensure successful revegetation. Woody draws or woodland vegetation would be avoided to the extent possible. For unavoidable impacts to woody

habitats, credit for equal value or environmental equivalent would be applied toward the impact and deducted from Reclamation’s Mitigation Enhancement Ledger (MEL) (see Environmental Commitments, page 2-5) or the Project proponent may develop separate acceptable mitigation. With the use of these mitigation measures, effects to native vegetation and woody habitats would be avoided or minimized. Impacts to Corps lands would be mitigated according to Corps policy including replacement ratios and seed mixes in accordance with the Garrison Project Office standards.

Environmental Effects of the No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed. Impacts to land resources would not occur.

Socioeconomics

The socioeconomic analysis focuses on the Reservation as a whole compared to surrounding counties. Since data is lacking for the South Segment specifically, using nearby counties is a surrogate for trends that are occurring in the region.

Affected Environment

Population and Projected Growth

Based on U.S. Census Bureau data, the population of American Indian residents living on the Reservation has increased since 1980, especially in the past four years. (**Table 6**). Tribal enrollment numbers support the trend of increasing American Indian population growth. According to the Engineering Report, tribal enrollment in the Three Affiliated Tribes has increased from 7,200 members in 1986 to 9,750 members in 2000. It is estimated that approximately half of the new enrollees reside within the Reservation (Bartlett & West 2006). Conversely, the population of non-American Indian residents decreased between 1980 and 2010, but sharply increased in the period between 2010 and 2014; this phenomenon is likely due to increased oil and gas development in this time.

Table 6. Reservation Population Change Over Time.

Year	American Indian	Other	Total
1980	2,640	2,937	5,577
1990	2,999	2,396	5,395
2000	3,986	1,929	5,915
2010	4,556	1,785	6,341
2014	4,608	2,582	7,190

Source: Bartlett & West (2006), US Census Bureau (2000, 2010, 2015).

In the broader context of North Dakota, the Reservation is part of a group of counties that have seen population level effects as a result of the ongoing oil and gas boom (**Table 7**). Oil producing counties and the Reservation show higher growth rates from 2000-2015 than non-oil producing counties. Mercer County, which outside of the concentrated oil and gas development, showed the smallest populations increase of 2.4 percent compared to other counties in the area. Conversely, McKenzie County, within the oil patch, showed an increase in population of over 123.5 percent. Reservation-wide, the population increased by 21.6% during 2000-2014 (2015 data was not available Reservation-wide). Since the Reservation lies within the oil patch, the population increase in part may be a result of oil and gas development.

Table 7. Population and Demographic Trends for Billings, Dunn, McKenzie, McLean, Mercer, and Mountrail Counties compared to the Reservation and North Dakota

Location	Population in 2000 ^{1,2}	Population in 2010 ¹	Population in 2015 ^{2*}	Percent Change 2000-2015	Predominant Group 2015* (percent of total) ²	Predominant Minority Group (percent of total) ²
Billings	888	783	936	5.4	Caucasian (95.0)	Asian (3.7)
Dunn	3,600	3,536	4,646	29.0	Caucasian (85.9)	American Indian (9.7)
McKenzie	5,737	6,360	12,826	123.5	Caucasian (81.7)	American Indian (14.1)
McLean	9,311	8,962	9,744	4.6	Caucasian (90.6)	American Indian (7.2)
Mercer	8,644	8,424	8,853	2.4	Caucasian (95.4)	American Indian (2.4)
Mountrail	6,631	7,673	10,331	55.8	Caucasian (68.7)	American Indian (27.2)
Fort Berthold Reservation	5,915	6,341	7,190 ³	21.6	American Indian (64.1) ³	Caucasian (28.4) ³
Statewide	642,200	672,591	756,927	17.9	Caucasian (89.1)	American Indian (5.4)

Source: ¹US Census Bureau 2010; ²US Census Bureau 2015 ³US Department of Commerce 2015

Note: Data for the Fort Berthold Reservation was not available for 2015, so 2014 data was substituted to show general trends.

The South Segment has the smallest population of the six Reservation segments, estimated at 279 in 2000. Current census data was not available for the South Segment of the Reservation, so nearby county data was used as a surrogate measure of the population growth. Dunn and Mercer County, which comprise the South Segment, the population has increased by 29.0 percent in Dunn County, and 2.4 percent in Mercer County. The difference between these growth rates is likely an effect of oil and gas development. Since the South Segment is on the edge of the oil patch, it is assumed the population of this segment would continue in trends similar to the remainder of the Reservation, albeit with a slower growth since it is on the edge of the oil patch.

Economic Conditions

Compared to other counties in the region, the Reservation has a lower median household income and per capita income compared to other counties in the region (**Table 8**). In addition, the unemployment rate and percentage of individuals living below the poverty level is higher than the nearby counties and statewide.

The South Segment is isolated from the rest of the Reservation by the Little Missouri River to the east and Lake Sakakawea to the north (**Figure 1**). Few employment opportunities exist within the segment. The Twin Buttes School employs 34 individuals and Twin Buttes Custom Homes employs 25. Several citizens of the segment are employed outside the Reservation in the energy and lignite coal production industry which abounds in this part of North Dakota.

Landowners in this segment are ranchers, as the rolling hills next to Lake Sakakawea are not generally suitable for crop production (Bartlett & West 2006).

Table 8. Employment and Income in the Analysis Area.

Location	Individuals living below poverty level (2014)¹	Unemployment Rate (2011)²	Median Household Income (2014)¹	Per Capita Income¹ (2014*)
Billings	10.1%	3.7%	\$64,306	\$42,832
Dunn	11.5%	2.6%	\$69,063	\$38,216
McKenzie	14.6%	2.8%	\$67,578	\$34,688
McLean	11.6%	1.7%	\$53,778	\$31,187
Mercer	8.3%	2.6%	\$66,712	\$31,584
Mountrail	12.0%	2.6%	\$66,250	\$33,839
Fort Berthold Reservation	23.6%	11.1%	\$53,609	\$22,833
Statewide	11.9%	2.4%	\$55,579	\$30,894

¹Department of Commerce 2015 ² U.S. Department of Agriculture 2012;

Environmental Effects of the Proposed Action

With an increased water supply, the proposed project would provide many benefits to tribal residents within the South Segment of the Reservation. An increased capacity of the WTP would allow the FBRWS to expand to include rural residents within the South Segment. The proposed project would provide a stable, quality water supply eliminating uncertainty or gaps in water availability that come from inconsistent or unsafe water supplies for rural residents living in the South Segment. In turn, this stable water supply may make the South Segment increasingly attractive to new businesses and industry, thus providing the potential for improving and growing the local and regional economy.

Recreation, tourism and rural development would all benefit by the improvement of rural water supplies. Currently, groundwater sources limit the water quality and availability for rural residents and for rural recreational opportunities. Construction of the proposed project would provide the opportunity to expand the FBRWS into areas that are currently uninhabitable or unusable for recreation due to the lack of a good water source. Thus, rural development, expansion of rural-based recreational businesses such as fishing outfitters, and recreational housing along Lake Sakakawea would be possible. This proposed project could contribute and serve anticipated rural population growth of the area.

With increased water supply in rural areas, livestock production would also be positively affected. The Engineering Report assumed that livestock watering would be part of the FBRWS expansion within the South Segment. Reliable water supplies for livestock could have several beneficial effects, all of which provide opportunities for increased revenue, including: improved access to rangeland limited by water source; improved options for rangeland management such as prescribed grazing; ability to expand herds; and opportunities for feedlot or finishing operations.

Economic benefits would be expected relatively soon after the proposed project is completed. Once the WTP is constructed, Reclamation could move forward with plans to expand the FBRWS into rural areas in the South Segment. While economic benefits may not be drastic or occur immediately, they would be long-term and increase steadily over the life of the FBRWS and beyond. Improving water supply for the South Segment would be expected to benefit both tribal and non-tribal members.

Environmental Effects of the No Action Alternative

Under the No Action Alternative, the Twin Buttes WTP would continue to operate at maximum capacity, and would eventually fall behind the growing needs of the Twin Buttes community. If populations continue to grow, water availability and system capacities would be increasingly strained. Once water availability and quality reach a level that is unsatisfactory for individuals and families, the population may begin to decline if households choose to relocate to other areas with more reliable and desirable water conditions. Relocations would have a negative impact on the local economy and could affect cultural and family cohesion for tribal members.

Continued instability in water supply and water quality would mean continued uncertainty for entities tied to the local and regional economy. Schools, government, hospitals, businesses, and recreation/tourist attractions using water would continue to operate with unreliable water supplies. Uncertain water supply limits production and growth, thereby limiting direct and indirect (tax) revenues for existing entities and local government. The agricultural sector, particularly ranching, would continue to be negatively affected by water quality and supply, since livestock experience lower production rates and reduced health due to poor quality of water. Growth in the ranching sector would be limited to existing conditions or be reduced if land and livestock do not continue to attract younger generations of ranchers. By extension, rural residents would continue to rely on ground water wells or cisterns, which may not meet SDWA water quality standards.

The No Action Alternative would limit economic benefits to the Tribe, and rural Reservation residents in the South Segment would remain dependent on their unreliable and poor water quality and supply.

Climate Change

Changes in precipitation patterns from climate change could affect Missouri River flows and operation of the Garrison Dam, the water source of the Twin Buttes WTP. Climate change is analyzed here in two ways: 1) how climate change may be affected by the proposed project and 2) how the proposed project may be affected by climate change.

It is important to note that climate change projections have geographic and temporal variation (Reclamation 2011). Climate studies and models are an amalgamation of various climate-related data, resulting in a generalized average of climatic variables. As such, each of these variables carries with it an inherent uncertainty. This uncertainty tends to increase with time; estimates of climate projected out 100 years have a lower confidence than projections for the next 10 to 20 years. Even with this uncertainty, climate studies and models provide a functional planning tool to evaluate potential future activities.

Contributors to Climate Change

Intergovernmental Panel on Climate Change (IPCC) scientists and experts conclude that most of the observed changes in climate are very likely due to observed increases in anthropogenic greenhouse gas (GHG) concentrations, which trap heat in the atmosphere (IPCC 2014). Carbon dioxide (CO₂) is an example of a GHG that occurs naturally and is emitted to the atmosphere through both natural processes and human activities. Other GHGs are synthesized and emitted solely through human activities (e.g., fluorinated gases). The principal GHGs identified by the EPA that enter the atmosphere due to human activities are CO₂, methane (CH₄), nitrous oxide (N₂O), and fluorinated gases. CO₂ is the primary GHG emitted through human activities. The

EPA collects data on and encourages limiting or reducing emissions of anthropogenic sources of GHGs to the earth's atmosphere (USEPA 2015).

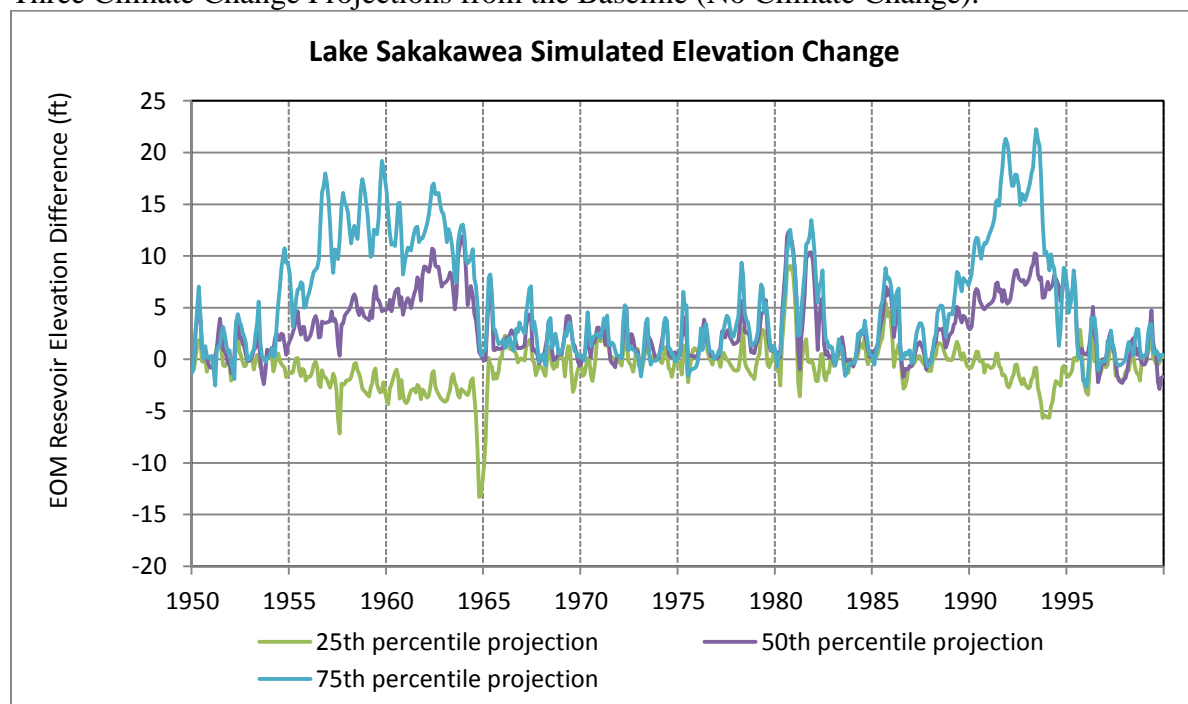
Affected Environment

The Reservation is within the Northwestern Glaciated Plains and Northwestern Great Plains Ecoregions (Bryce et al. 1998). Average annual precipitation is approximately 16 inches. Mean temperatures range from 13 degrees Fahrenheit in January to 69 degrees Fahrenheit in July (High Plains Regional Climate Center 2015).

Reclamation (2012) simulated changes in monthly runoff in the Missouri River basin under 112 downscaled climate and hydrology projections. At Garrison Dam, the median monthly changes show increased flow from December to June and decreased flows from July to November, with a net increase in mean annual flow (median change in mean annual flow) of about 6 percent during the 2040 to 2069 period as compared to the 1950 to 1999 baseline.

Figure 5 shows the difference in simulated end-of-month Lake Sakakawea elevations between the baseline (no climate change) and three climate change hydrologic projections. The three projections displayed (25th percentile, 50th percentile [median], and 75th percentile) represent the middle half of the 112 projections that were developed. The median projection provides a sense of the anticipated effect, while the 25th percentile (lower runoff) and 75th percentile (higher runoff) display uncertainty associated with the projections. The median projection results in higher reservoir elevations (greater storage) in 88 percent of the months over the 50-year period of analysis. The 25th-percentile projection is generally similar to the baseline, with slightly lower reservoir elevations in 65 percent of the months. The 75th-percentile projection shows consistently higher reservoir elevations, with some months more than 20 feet higher than the baseline simulation. These results suggest that Lake Sakakawea elevations and reservoir storage are likely to increase in the future as a result of climate change.

Figure 5. Differences in Simulated End of Month Lake Sakakawea Water Surface Elevation for Three Climate Change Projections from the Baseline (No Climate Change).



Note: Reference hydrologic period is 1950 – 1999. Source: Modified from Corps of Engineers 2013.

Environmental Effects of the Proposed Action

Effect of the Project on Climate Change

Temporary direct emissions of GHGs would occur during project construction. Combustion emissions from engine exhaust of construction equipment would include SO₂, NO₂, CO, volatile organic compounds (VOCs), and GHGs. Contractors would be required to maintain equipment exhaust systems to factory or better specifications to minimize emissions and noise. Most emissions produced during the construction period of site-specific project work would be temporary, and would not produce a quantity of GHG emissions sufficient to contribute to climate change or to be recognizable at the project area.

Operation of the MR&I system would include low level, long-term GHG emissions from O&M vehicles and diesel generators. Additionally, operation of the WTP and MR&I facilities would consume energy likely produced by fossil fuels. This would contribute to the overall GHG production in the region. However, since the existing water treatment infrastructure throughout the area currently uses electricity and O&M vehicles, operation of the proposed project would not increase electricity and O&M vehicle use compared to the existing conditions. Emission reduction strategies may be employed for the project, such as the use of low carbon fuels and fuel-efficient vehicles for the O&M fleet.

The proposed project would include vehicle emissions during construction and operation. However, the amount generated would not be a significant source of GHGs, and therefore would not measurably contribute to climate change.

Effect of Climate Change on the Project

If temperatures continue to rise, demand for water may increase as a result in the project area. Changes in timing of precipitation could also increase or decrease water demands, depending on the time of year precipitation falls or snowmelts occur. This could result in increased water withdrawals from Lake Sakakawea.

Effects of the proposed project on Lake Sakakawea would be minor, with a maximum possible withdrawal of 0.004 percent of the average lake volume. Since Lake Sakakawea would still be able to provide a reliable source of water, and since it appears that the storage volume of the Lake would increase with climate change, impacts of climate change on the proposed project are not anticipated.

Indian Trust Assets

Affected Environment

Indian Trust Assets (ITAs) are “legal interests in property or resources held in trust by the United States for Indian tribes or individual Indians” (Indian Trust Policy issued July 2, 1993). The Secretary of the Interior is the trustee for the United States on behalf of Indian tribes. ITAs include land, minerals, timber, ethnobotanical resources, hunting and fishing rights, water rights, and in-stream flows. ITAs may be located on or off-Reservation lands. During the NEPA process, Reclamation, as a representative of the Secretary of the Interior, must evaluate whether the proposed action may affect ITAs. This policy reaffirms the legal trust relationship and the government-to-government relationship between the Secretary of the Interior and Indian tribes. Examples of ITA include trust lands, hunting and fishing rights, and Indian water rights (Reclamation 1993).

Trust lands are present within the project area, and would be crossed by the proposed pipeline route. Trust lands within the project area are administered by the Bureau of Indian Affairs.

For the proposed project, Indian water rights are the primary ITA involved. The Three Affiliated Tribes water right to the Missouri River stems from the Supreme Court decision in *Winter's v. the United States* (1908), which enunciated the Winter's Doctrine. According to the doctrine, the establishment of an Indian reservation implied that sufficient water was reserved (or set aside) to fulfill purposes for which the reservation was created, with the priority date being the date the reservation was established. As such, Indian water rights, when quantified, constitute an ITA. Despite the fact that this action would affect an ITA this action would take place at the request of the MHA Nation. In *Arizona v. California* (1963) the U.S. Supreme Court held that water allocated should be sufficient to meet both present and future needs of the reservation to assure the viability of the reservation as a homeland. These rights are also not forfeited by non-use. Currently, the only tribal reserved water rights that have been quantified or are being quantified are:

- State of Wyoming settlement with tribes of the Wind River Reservation (adjudicated under the McCarran Amendment)
- Compact between the state of Montana and the tribes of the Fort Peck Reservation (awaiting congressional approval)
- Compact between the state of Montana and the tribes of the Fort Belknap Reservation (ratified by the state legislature)
- Compact between the state of Montana and the Crow tribe (ratified by the state legislature)
- Compact between the state of Montana and the tribes of the Rocky Boys Reservation (awaiting congressional approval)
- Compact between the State of Montana and the Northern Cheyenne Tribe (The Northern Cheyenne Reserved Water Rights Settlement Act [Public Law 102-374])

The Corps is responsible for operation of reservoirs within the Missouri River basin, including Lake Sakakawea. Under Winter's Doctrine, the Corps recognizes that American Indian Tribes are entitled to water rights in streams running through and along Reservation boundaries. The Three Affiliated Tribes, with the Agreement at Fort Berthold (July 27, 1866) and subsequent establishment of the Fort Berthold Indian Reservation, have water rights to the Missouri River main-stem flow; this water right is currently unquantified. However, the Corps recognizes tribal water rights to the Missouri River regardless of whether these rights have not been quantified or adjudicated. In effect, if the Three Affiliated Tribes adjudicated their water right on Lake Sakakawea, the Corps would consider it an existing depletion and adjust operations accordingly.

“When a Tribe exercises its water rights, these consumptive uses will then be incorporated as an existing depletion. Unless specifically provided for by law, these rights do not entail an allocation of storage. Accordingly, water must actually be diverted to have an impact on the operation of the System. Further modifications to System operation, in accordance with pertinent legal requirements, will be considered as Tribal water rights are exercised in accordance with applicable law (USACE 2006 Missouri River Main stem Reservoir System Master Control Manual, Missouri River Basin, Appendix E, page 10.)

Environmental Effects of the Proposed Action

Although the proposed action would affect an ITA it would be for the benefit of the Tribe and at their request. The proposed project would require real property transactions involving trust lands

along the pipeline route. The transactions would be easements and land acquisitions for the proposed pipeline. This type of transaction diminishes the utility of the land to the grantor permanently while the project is operating. The transaction would provide fair market compensation to the land grantor, and provide a greater benefit to residents in the Twin Buttes community from access to free water. The benefits to the individual landowner and community at large outweigh the negative impacts from the loss of utility. Furthermore, direct impacts to the land would be temporary during construction, with reclamation occurring throughout the entire utility corridor after construction is complete.

With regards to water rights, the proposed project would allow the Three Affiliated Tribes to exercise their implied water right to the Missouri River/Lake Sakakawea and put their water to beneficial use. The proposed project would result in beneficial effects to the Three Affiliated Tribes by increasing the potable water supply within the town of Twin Buttes and the South Segment.

Environmental Effects of the No Action Alternative

Under the No Action Alternative, trust lands would not be temporarily disturbed and easements through trust lands would not diminish the utility of said lands. However, positive effects would not be realized to tribal members and landowners as water would continue to be less available to the Tribe and tribal members for MR&I uses if demand continues to rise.

Environmental Justice

Executive Order 12898 (1994) requires that measures must be taken to avoid disproportionately high adverse impacts on minority or low-income communities by pursuing fair treatment and meaningful involvement of minority and low-income populations. Fair treatment means that minorities and low income groups would not bear a disproportionate share of negative human health or environmental impacts. Meaningful involvement means that affected populations have the opportunity to participate in the decision process and their concerns are considered.

Tribal members of the Reservation qualify as a minority and low-income population pursuant to Environmental Justice. While 64.1 percent of Reservation residents are American Indians, they comprise only 5.2 percent of the total population of North Dakota, of which the majority is Caucasian (**Table 7**). The Reservation has the highest rates of individuals living below poverty level and the highest unemployment rate compared to surrounding counties and the statewide average (**Table 8**). In addition, the Reservation has a median household income lower than the statewide average (**Table 8**). Native American individuals and households on the Fort Berthold Reservation are distinctly disadvantaged.

Potential Effects of the Proposed Action

The majority of people in the project area are American Indian's with low income levels and therefore the community represents a minority and low-income population. The preferred action would not result in additional risks or adverse environmental impacts to American Indians living in the project area. On the contrary, residents would benefit from the proposed project in terms of improved water delivery in the project area which could indirectly improve economic conditions for individuals and for the community as a whole.

Potential Effects of the No Action Alternative

The No Action Alternative would not provide the benefit of increased water supplies to residents living in the project area and therefore may disproportionately negatively impact the minority and low-income population.

Summary Overview of Project Effects

Reclamation has examined the potential for environmental effects to Surface Water, Endangered and Threatened Species, Land Resources Socioeconomics, Climate Change, Indian Trust Assets, and Environmental Justice. Most impacts identified are of a temporary nature.

Temporary Effects.

Effects from the proposed project are primarily of a temporary nature from construction of the WTP and raw water pipeline. Temporary disturbance to soils and vegetation would occur from heavy equipment working within the proposed project corridor. After construction is complete, the entire corridor would be reclaimed and restored to original conditions. Seeding would occur in the late fall or early spring. Construction activities would follow the Environmental Mitigation Commitments of the proposed action alternative, Reclamation’s preferred community alternative.

Permanent Effects

Approximately five acres of Tribal land would be used for long term placement of the WTP and evaporation ponds. This area would be removed from its current use as pasture to house a WTP facility to serve Twin Buttes and eventually the entire South Segment of the Reservation, thereby permanently removing this acreage from cattle production. Long-term withdrawals from Lake Sakakawea would result in an annual depletion increase of up to 0.004 percent annually; an infinitesimally miniscule withdrawal from Lake Sakakawea or effect operation of the Garrison Dam.

Residents in Twin Buttes and the South Segment would benefit from the proposed project through an improved water delivery system and increased water supply. Additionally, recreation, tourism, rural development, industrial sales of water, and livestock operations are currently limited by groundwater sources and the proposed project would allow these sectors to expand in the area, thereby resulting in the potential for economic gains in the region.

Table 9. Summary Effects Comparison of the No Action and Proposed Action Alternatives

Resource	Description	No Action	Proposed Action
Surface Water Resources	<i>Depletions</i>	No change	967 acre feet/year withdrawal from Lake Sakakawea
	<i>Temporary sedimentation and contamination of surface waters</i>	No change	Potential increase in sedimentation from 11.5 acres of construction related disturbance
Threatened and Endangered Species	<i>Disturbance of Habitat</i>	No change	Potential habitat avoided; no impacts anticipated
	<i>Direct mortality</i>	No change	Potential habitat avoided; direct mortality not anticipated

Resource	Description	No Action	Proposed Action
Land Resources	<i>Erosion, compaction, mixing, contamination</i>	No change	Potential increase during soil moving activities in the 11.5 acre construction footprint
	<i>Impacts to Native Habitats</i>	No change	Temporary effects during construction of the raw water pipeline
Socio-economics	<i>Population</i>	Could decline if unreliable, limited water supplies cause relocations	Capacity for sustained growth and development
	<i>Agricultural sector</i>	No change or decreased livestock health and production; decreased number of producers/ranches	Improved livestock health and production; variety of opportunities (grazing access, management options, feedlots, finishing), retain and attract younger generations
	<i>Rural development</i>	No change, limited	Increase, expansion in area
	<i>Property values</i>	No change or decrease	Potential decrease along pipeline route
	<i>Private investment</i>	Deterrent; no change or decline	Attraction; growth of new business and industry
	<i>Overall economy</i>	Decline, vulnerable to downturns	Stability, growth, diversity
	<i>Trust resources</i>	Water right not exercised	Water right put to beneficial use
	<i>Water quality and supply</i>	Individuals and communities at disadvantage	Equal Reservation-wide
	<i>Water Rights</i>	No change	Water right put to beneficial use
	<i>Disturbance of surficial geology</i>	No change	Likely excavation of ledge or bedrock near foothills, mountains
Climate Change	<i>Effects of the Project on Climate Change</i>	Changes in global climate and regional weather patterns would continue	Undetectable increase in vehicle emissions (GHGs) during construction and operation
	<i>Effects of Climate Change on the Project</i>	Water storage in Lake Sakakawea may increase	967 acre/feet/year would be about 0.004% of the average Lake Sakakawea volume
Indian Trust Assets	<i>Land Resources</i>	No change	Disturbance to trust lands; potential decrease in utility of land value
	<i>Water Rights</i>	Negative impact to tribal members; insufficient available for beneficial uses	Beneficial use of water rights on Lake Sakakawea
Environmental Justice	<i>Potable Water Delivery</i>	Negative impact; water supplies continue to be strained	Capacity for sustained growth and development

Chapter 4 Agency Consultation and Coordination

This chapter identifies the names and qualifications of the principal people contributing information to this SEA and a list of agencies contacted for comments on the proposed project. In accordance with Part 1502.6 of the CEQ regulations for implementing the NEPA, the efforts of an interdisciplinary team comprising technicians and experts in various fields were required to accomplish this study.

List of Preparers

A list of individuals with the primary responsibility for conducting this study, preparing the documentation, and providing technical reviews is contained in **Table 10**.

Table 10. List of Preparers.

Affiliation	Name	Title	Project Role
Bartlett & West	Ryan Waters	Project Engineer	Project development
Wenck Associates	Luke Toso	Environmental Scientist	Impact assessment and principal author
	Sara Simmers	Senior NEPA Specialist	Quality control/Quality assurance, contributing author
Beaver Creek Archeology	Wade Burns	Archaeologist	Cultural resource survey and report
Bureau of Reclamation	Kate Kenninger	Natural Resource Specialist	Compliance Review Editor
Bureau of Reclamation	Kelly McPhillips	Environmental Specialist	Compliance Review Editor
Bureau of Reclamation	Greg Hiemenz	Natural Resource Specialist	Compliance Review Editor

Agency Coordination

To initiate early communication and coordination, scoping letters were sent to tribal, federal, state, and local agencies and other interested parties on 9 December 2013. The scoping package included a brief description of the preferred alternative and a location map. Pursuant to Section 102(2) (D) (IV) of the National Environmental Policy Act of 1969, a solicitation of views was requested to ensure that social, economic, and environmental impacts were considered in the development of this project.

At the conclusion of the 30-day comment period, which ended on 20 January 2015, six responses were received. These comments provide valuable insight into the evaluation of potential environmental impacts. The comments were referenced and incorporated where appropriate within the environmental impact categories addressed in this document. Appendix A contains the Scoping Responses.

Chapter 5 References

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APPENDIX A



**STATE
HISTORICAL
SOCIETY
OF NORTH DAKOTA**

Jack Dalrymple
Governor of North Dakota

January 26, 2015

**North Dakota
State Historical Board**

Calvin Grinnell
New Town - President

A. Ruric Todd III
Jamestown - Vice President

Margaret Puetz
Bismarck - Secretary

Albert I. Berger
Grand Forks

Gereld Gertholz
Valley City

Diane K. Larson
Bismarck

Chester E Nelson, Jr.
Bismarck

Sara Otte Coleman
*Director
Tourism Division*

Kelly Schmidt
State Treasurer

Alvin A. Jaeger
Secretary of State

Mark Zimmerman
*Director
Parks and Recreation
Department*

Grant Levi
*Director
Department of Transportation*

Claudia J. Berg
Director

*Accredited by the
American Alliance
of Museums since 1986*

Mr. Luke Toso
Environmental scientist
Wenck Associates, Inc.
301 1st Street NE
Suite 202
Mandan, ND 58554-3370

ND SHPO REF. 14-1612 BIA Mandan Hidatsa Arikara Nation (MHAN) Twin Buttes Water Treatment Plant, Fort Berthold Indian Reservation, Mercer County, North Dakota

Dear Mr. Toso,

We received your correspondence regarding ND SHPO REF. 14-1612 BIA Mandan Hidatsa Arikara Nation Twin Buttes Water Treatment Plant, Fort Berthold Indian Reservation, Mercer County, North Dakota.

We request that a copy of cultural resource site forms and reports be sent to this office so that the cultural resources archives can be kept current for researchers.

Thank you for your consideration. Consultation is with MHAN Tribal Historic Preservation Office. If you have any questions please contact Susan Quinnell, Review & Compliance Coordinator at (701)328-3576 or squinnell@nd.gov

Sincerely,


Claudia J. Berg
State Historic Preservation Officer (North Dakota)



NORTH DAKOTA
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov



February 3, 2015

Kelly McPhillips
Environmental Specialist
Bureau of Reclamation
P.O. Box 1017
Bismarck, ND 58502

Re: Twin Buttes Water Treatment Plant
Fort Berthold Indian Reservation
Dunn and Mercer Counties

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FEB 9 2015		
REPLY DATE		
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		Kelly
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CONTROL NO.		
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Dear Mr. McPhillips:

This department has reviewed the information concerning the above-referenced project submitted by Luke Toso, Wenck Associates, Inc. under date of January 20, 2015, with respect to possible environmental impacts.

This department believes that environmental impacts from the proposed construction will be minor and can be controlled by proper construction methods. With respect to construction, we have the following comments:

1. All necessary measures must be taken to minimize fugitive dust emissions created during construction activities. Any complaints that may arise are to be dealt with in an efficient and effective manner.
2. Care is to be taken during construction activity near any water of the state to minimize adverse effects on a water body. This includes minimal disturbance of stream beds and banks to prevent excess siltation, and the replacement and revegetation of any disturbed area as soon as possible after work has been completed. Caution must also be taken to prevent spills of oil and grease that may reach the receiving water from equipment maintenance, and/or the handling of fuels on the site. Guidelines for minimizing degradation to waterways during construction are attached.
3. Projects disturbing one or more acres are required to have a permit to discharge storm water runoff until the site is stabilized by the reestablishment of vegetation or other permanent cover. Projects located within tribal boundaries are required to obtain a permit from the U.S. Environmental Protection Agency. Further information on the storm water permit may be obtained from the U.S. EPA's website or by calling the U.S. EPA – Region 8 at (303) 312-6312.

Environmental Health
Section Chief's Office
701.328.5150

Division of
Air Quality
701.328.5188

Division of
Municipal Facilities
701.328.5211

Division of
Waste Management
701.328.5166

Division of
Water Quality
701.328.5210

Also, cities and counties may impose additional requirements and/or specific best management practices for construction affecting their storm drainage system. Check with the local officials to be sure any local storm water management considerations are addressed.

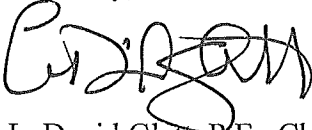
4. Noise from construction activities may have adverse effects on persons who live near the construction area. Noise levels can be minimized by ensuring that construction equipment is equipped with a recommended muffler in good working order. Noise effects can also be minimized by ensuring that construction activities are not conducted during early morning or late evening hours.

The department owns no land in or adjacent to the proposed improvements, nor does it have any projects scheduled in the area. In addition, we believe the proposed activities are consistent with the State Implementation Plan for the Control of Air Pollution for the State of North Dakota.

These comments are based on the information provided about the project in the above-referenced submittal. The U.S. Army Corps of Engineers may require a water quality certification from this department for the project if the project is subject to their Section 404 permitting process. Any additional information which may be required by the U.S. Army Corps of Engineers under the process will be considered by this department in our determination regarding the issuance of such a certification.

If you have any questions regarding our comments, please feel free to contact this office.

Sincerely,



L. David Glatt, P.E., Chief
Environmental Health Section

LDG:cc
Attach.



Construction and Environmental Disturbance Requirements

These represent the minimum requirements of the North Dakota Department of Health. They ensure that minimal environmental degradation occurs as a result of construction or related work which has the potential to affect the waters of the State of North Dakota. All projects will be designed and implemented to restrict the losses or disturbances of soil, vegetative cover, and pollutants (chemical or biological) from a site.

Soils

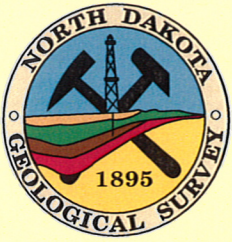
Prevent the erosion of exposed soil surfaces and trapping sediments being transported. Examples include, but are not restricted to, sediment dams or berms, diversion dikes, hay bales as erosion checks, riprap, mesh or burlap blankets to hold soil during construction, and immediately establishing vegetative cover on disturbed areas after construction is completed. Fragile and sensitive areas such as wetlands, riparian zones, delicate flora, or land resources will be protected against compaction, vegetation loss, and unnecessary damage.

Surface Waters

All construction which directly or indirectly impacts aquatic systems will be managed to minimize impacts. All attempts will be made to prevent the contamination of water at construction sites from fuel spillage, lubricants, and chemicals, by following safe storage and handling procedures. Stream bank and stream bed disturbances will be controlled to minimize and/or prevent silt movement, nutrient upsurges, plant dislocation, and any physical, chemical, or biological disruption. The use of pesticides or herbicides in or near these systems is forbidden without approval from this Department.

Fill Material

Any fill material placed below the high water mark must be free of top soils, decomposable materials, and persistent synthetic organic compounds (in toxic concentrations). This includes, but is not limited to, asphalt, tires, treated lumber, and construction debris. The Department may require testing of fill materials. All temporary fills must be removed. Debris and solid wastes will be removed from the site and the impacted areas restored as nearly as possible to the original condition.



North Dakota Geological Survey

Edward C. Murphy - State Geologist

Department of Mineral Resources

Lynn D. Helms - Director

North Dakota Industrial Commission

www.state.nd.us/ndgs

January 29, 2015

Kelly McPhillips
Environmental Specialist
Bureau of Reclamation
P.O. Box 1017
Bismarck, ND 58502

Kelly,

I have reviewed our records to determine if any paleontological sites have been reported from the tracts listed for the project:

Twin Buttes Water Treatment Plant, Fort Berthold Indian Reservation - ND

I have one recorded fossil locality within one half mile of the potential impact area. Paleocene rocks occur at or near the surface along this tract of land in Mercer County. Vertebrate, invertebrate, and plant fossils have been recovered from these Paleocene age rocks elsewhere in North Dakota. I suggest that these tracts be examined by a qualified paleontologist to determine if any fossils sites are present before land impact.

Sincerely,

Jeff Person
Paleontologist
North Dakota Geological Survey

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FEB 4 2015	
REPLY DATE	
INFO. COPY TO:	
DATE	INITIAL TO
2/4/15	KMP Kelly
	Daniel
	Jc
CLASSIFICATION	
PROJECT	
CONTROL NO.	
FOLDER I.D.	



January 23, 2015

Luke Toso
Wenck Associates
301 1st Street NE
Suite 202
Mandan, ND 58554-3370

"Letter of Clearance" In Conformance with the North Dakota Federal Program Review System -
State Application Identifier No.: ND150123-0022

Dear Mr. Toso:

SUBJECT: Funding of Design, Relocation, Construction, Operation and Maintenance of the
Twin Buttes Water Treatment Plant, Fort Berthold Indian Reservation ND

The above referenced notice has been reviewed through the North Dakota Federal Program Review Process. As a result of the review, clearance is given to the project only with respect to this consultation process.

If the proposed project changes in duration, scope, description, budget, location or area of impact, from the project description submitted for review, then it is necessary to submit a copy of the completed application to this office for further review.

We also request the opportunity for complete review of applications for renewal or continuation grants within one year after the date of this letter.

Please use the above SAI number for reference to the above project with this office. Your continued cooperation in the review process is much appreciated.

Sincerely,

A handwritten signature in black ink that reads "Rikki Roehrich".

Rikki Roehrich
Program Specialist
Division of Community Services

cmh



North Dakota State Water Commission

900 EAST BOULEVARD AVENUE, DEPT 770 • BISMARCK, NORTH DAKOTA 58505-0850
701-328-2750 • TDD 701-328-2750 • FAX 701-328-3696 • INTERNET: <http://swc.nd.gov>

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JAN 23 2015

REPLY DATE		
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DATE	INITIAL	TO
2/4/15	LMP	Kelly
CLASSIFICATION		
PROJECT		
CONTROL NO.		
FOLDER I.D.		

January 26, 2015

Kelly McPhillips
Environmental Specialist
Bureau of Reclamation
PO Box 1017
Bismarck, ND 58502

Dear Ms. McPhillips:

This is in response to your request for review of environmental impacts associated with the relocation, construction, operation and maintenance of the Twin Buttes Water Treatment Plant located on Fort Berthold Indian Reservation, ND.

The proposed project has been reviewed by State Water Commission staff and the following comments are provided:

- There are no floodplains identified and/or mapped where this proposed project is to take place. The project takes place in Dunn and Mercer Counties. No floodplain permits are necessary from Dunn or Mercer Counties relative to the National Flood Insurance Program.

Thank you for the opportunity to provide review comments. If you have any questions, please call me at 701-328-4967.

Sincerely,

Linda Weispfenning
Water Resource Planner

LW:dm/1570



Natural Resources
Conservation Service

February 2, 2015

PO Box 1458
Bismarck, ND
58502-1458
Voice 701.530.2000
Fax 855-813-7556

Luke Toso
Environmental Scientist
Wenck Associates, Inc.
301 1st Street NE, Suite 202
Mandan, North Dakota 58554-3370

Subject: Funding of Design, Relocation, Construction, Operation and Maintenance of the Twin Buttes Water Treatment Plant, Fort Berthold Indian Reservation – ND.

Dear Mr. Toso:

The Natural Resources Conservation Service (NRCS) has reviewed your letter dated January 20, 2015, concerning the preparation of a Supplemental Environmental Assessment (SEA) for the relocation of the Twin Buttes Water Treatment Plant of the Fort Berthold Rural Water System, for the benefit of the Mandan, Hidatsa, and Arikara Nation on the Fort Berthold Indian Reservation.

Farmland Protection Policy Act

NRCS has a major responsibility with the Farmland Protection Policy Act (FPPA) in documenting conversion of farmland (i.e., prime, statewide importance and local importance) to non-agriculture use. It appears your proposed project is not supported by federal funding, therefore, FPPA does not apply and no further action is needed.

Wetlands

The Wetland Conservation Provisions of the 1985 Food Security Act, as amended, provide that if a USDA participant converts a wetland for the purpose or to have the effect of making agricultural production possible, loss of USDA benefits could occur. The NRCS has developed the following guidelines for the installation of permanent structures where wetlands occur. If these guidelines are followed the impacts to the wetland will be considered minimal allowing USDA participants to continue to receive USDA benefits. Following are the requirements:

- Disturbance to the wetland must be temporary.
- No drainage of wetland is allowed (temporary or permanent).
- Mechanized landscaping necessary for installation is kept to a minimum and preconstruction contours are maintained.
- Temporary side cast material must be placed in such a manner not to be dispersed in the wetland.
- All trenches must be backfilled to the original wetland bottom elevation.

Wenck Associates, Inc.
Page 2

NRCS would recommend that impacts to wetlands be avoided.

If you have additional questions pertaining to FPPA, please contact Steve Sieler, Liaison
Soil Scientist, NRCS, Bismarck, ND at 701-530-2019.

Sincerely,

A handwritten signature in blue ink that reads "Wade D. Bott". The signature is stylized, with the first letters of each name being prominent.

WADE D. BOTT
State Soil Scientist

APPENDIX B

BIOLOGICAL ASSESSMENT TWIN BUTTES WTP



Responsive partner.
Exceptional outcomes.

U.S. FISH AND WILDLIFE SERVICE
ND Ecological Services Field Office

The Fish and Wildlife Service concurs with your conclusion that the described project is not likely to adversely affect listed species. Contact this office if changes to the project are made or new information becomes available.

July 24, 2015

United States Fish and Wildlife Service
North Dakota Field Office
3425 Miriam Avenue
Bismarck, North Dakota 58501-7926

11/13/15
Date
for North Dakota State Supervisor

RE: BIOLOGICAL ASSESSMENT FOR THE PROPOSED TWIN BUTTES WATER TREATMENT PLANT RELOCATION – REQUEST FOR CONCURRENCE.

INTRODUCTION

Wenck Associates with the Bureau of Reclamation (Reclamation) are preparing a Supplemental Environmental Assessment (SEA) for the relocation of the Twin Buttes Water Treatment Plant on the Fort Berthold Indian Reservation for the Fort Berthold Rural Water System, for the benefit of the Mandan, Hidatsa, and Arikara Nation. Reclamation is the owner and lead federal agency for the proposed action. This Biological Assessment has been completed for the proposed action in compliance with Section 7 Threatened and Endangered Species Consultation under the Endangered Species Act (ESA), Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act.

PROJECT DESCRIPTION

The existing Twin Buttes Water Treatment Plant (WTP) is inadequate to meet growing water production demands on the existing water system and too small to accommodate different water treatment infrastructure or a building expansion. Therefore, a new location and treatment plant have been proposed. The proposed project would include:

- a) a new water treatment plant, which includes associated facilities including the WTP structure, parking, and evaporation ponds,
- b) a rural water filling station,
- c) construction of approximately 2.0 miles of raw water pipeline,
- d) construction of approximately one mile of buried three phase power line,
- e) booster pumps, utilities and appurtenances, and
- f) demolition of the existing water treatment plant and site restoration,
- g) compliance with Reclamation's Environmental Mitigation Commitments and Best Management Practices (BMPs) for MRI projects (page 6).

Site Preparation

Prior to construction of the WTP structure, fill station, and associated facilities, the proposed construction footprint would be prepared to meet engineering specifications. The construction footprint includes the footprint of the WTP structure and parking area (approximately 2.5 acres) and evaporation ponds (1.2 acres). The proposed fill station footprint would be approximately 1.5 acres. The proposed pipeline and utilities would be built within a 75 foot construction corridor along the entire utility corridor route, with direct surface disturbance within a 20 feet wide corridor. Laydown areas for the

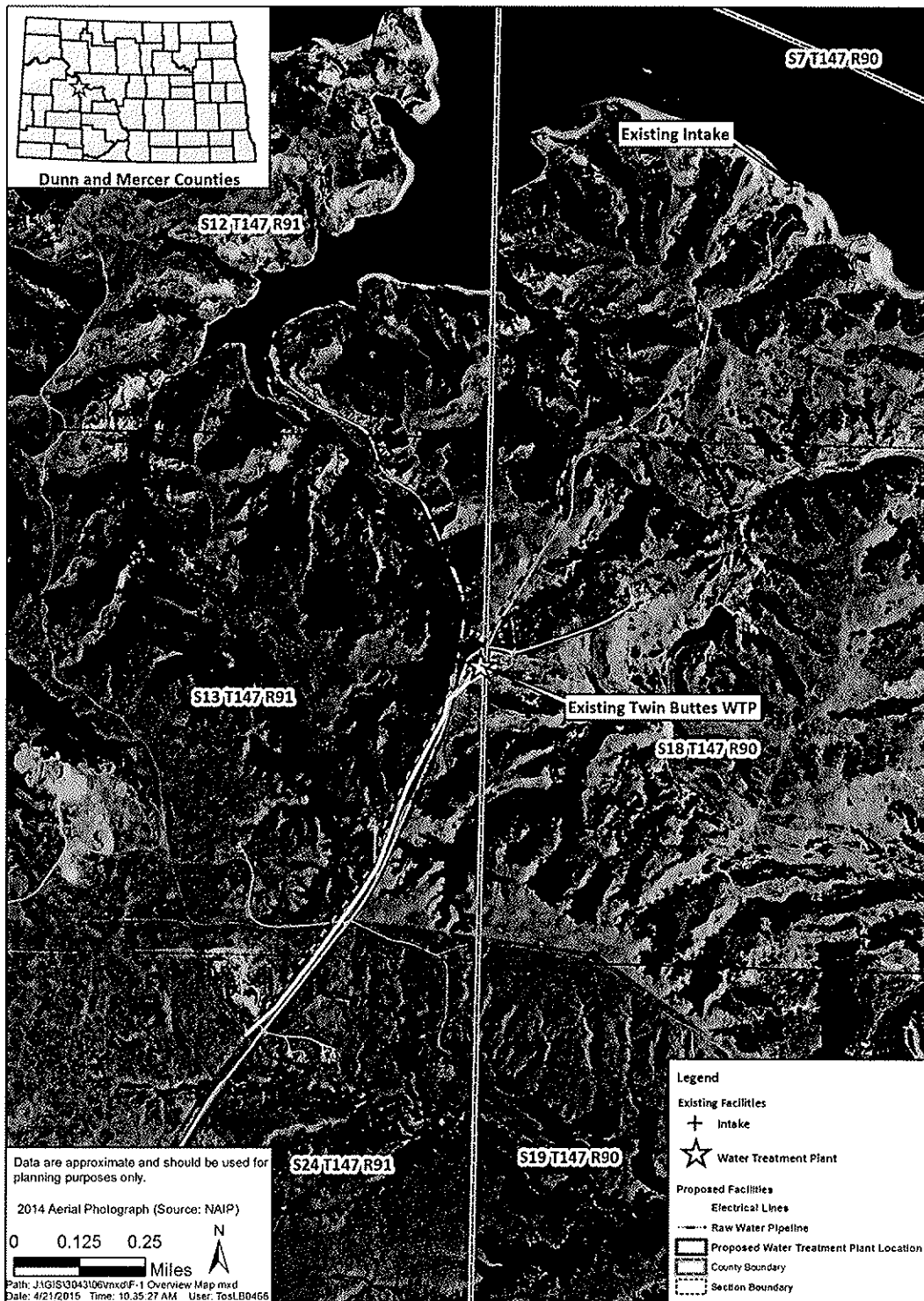


Figure 1. Overview map of the Water Treatment Plant and associated facilities

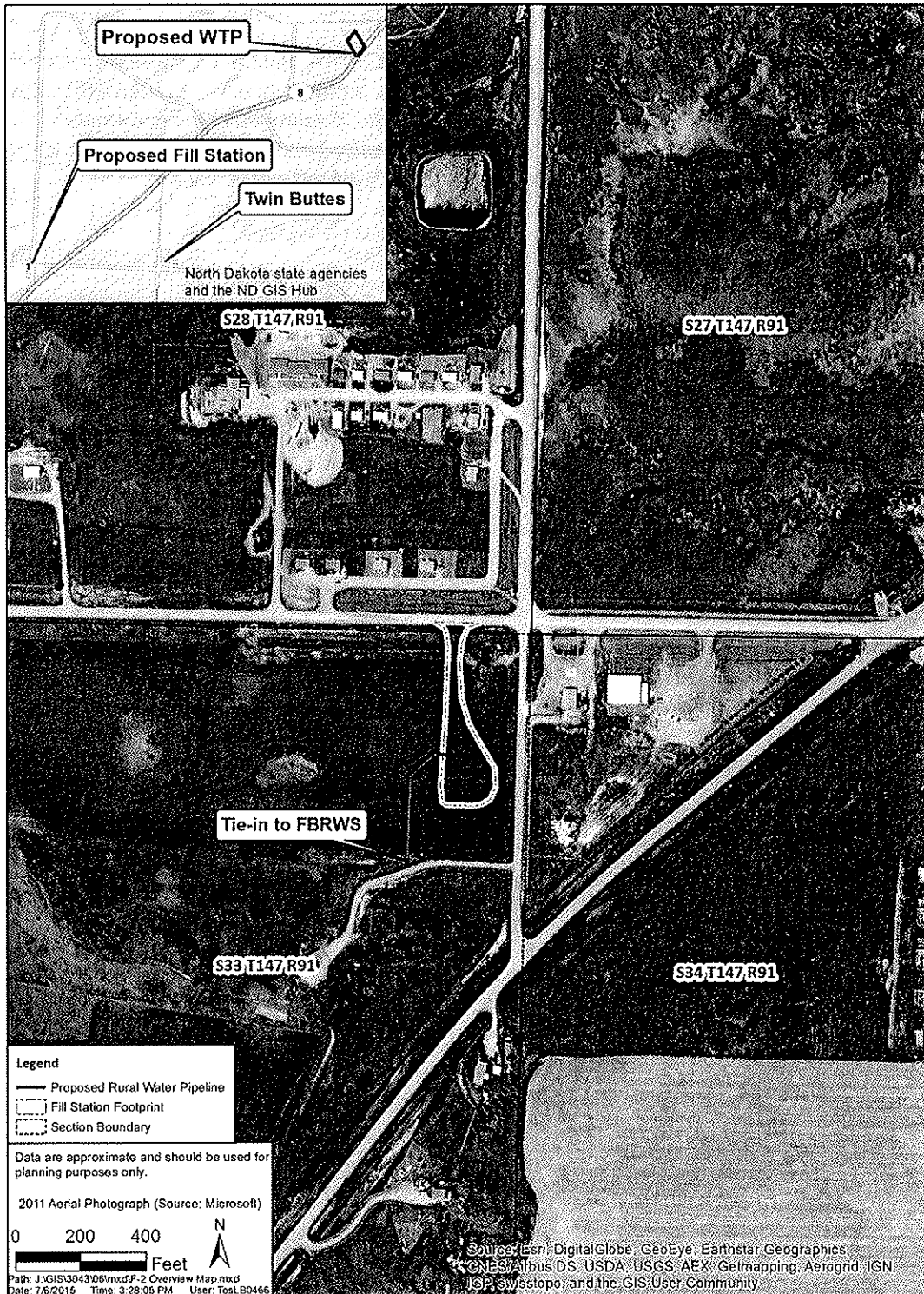


Figure 2. Overview map of the proposed fill station location.

To Minimize impacts to surface waters and wetlands
Contractors will be required to make at least two boring attempts before using an alternative stream or river crossing method.
When pipeline construction through a wetland basin is unavoidable existing basin contours will be restored and trenches will be sufficiently compacted to prevent any drainage along the trench or through bottom seepage.
Project proponent and contractor will be responsible to comply with Section 404 of the Clean Water Act and avoid permanent impacts to isolated wetlands to the extent practicable.
For unavoidable impacts to wetland habitats credit for equal value or environmental equivalent: (a) would be applied toward the impact and deducted from Reclamation's Mitigation Enhancement Ledger (MEL) ¹ or (b) the Project proponent may develop separate acceptable mitigation.
Intermittent streams will be crossed only during low-flow periods and preferably when the streambeds are dry.
To Minimize impacts to surface waters and wetlands - continued
Woody species including those bordering wetlands, shelterbelts, riparian woodlands, woody draws, or woodland vegetation will be avoided to the extent possible. For unavoidable impacts to woody habitats credit for equal value or environmental equivalent: (a) would be applied toward the impact and deducted from Reclamation's Mitigation Enhancement Ledger (MEL)(see earlier) or (b) the Project proponent may develop separate acceptable mitigation.
Native prairie will be avoided to the extent possible. However, if native prairie sod is broken during pipeline construction, existing topsoil will be carefully salvaged and replanted with native grasses in a timely manner, with a seed mix recommended by the local National Resources Conservation Service (NRCS) and approved by the landowner.

¹ Reclamation has credits for created and restored wetlands in the (MEL) that can be used to mitigate impacts to wetlands. The Garrison Diversion Unit (GDU) Mitigation and Enhancement Ledger (MEL) was developed according to the 1985 memorandum of understanding between Reclamation, the U.S. Fish and Wildlife Service (Service), and the North Dakota Game and Fish Department regarding the establishment of mitigation and enhancement debits and credits for wildlife purposes. The MEL documents GDU project impacts, mitigation requirements, and concurrence for planning purposes and for review by other agencies and the public. Projected impacts listed were first presented in the GDU Commission Report. The GDU Reformulation Act of 1986 resulted in the adjustment of the projected impacts to reflect modifications to the project. Impacts to date reflect modifications to the project.

Miscellaneous Commitments
Valve boxes will be left above grade in cultivated fields if agreeable to the landowner, or moved to the nearest fence or right-of-way. Valves will not be located adjacent to or in close proximity to a paved or graveled road and will be painted a neutral color that blends with the background, reduces visibility, and maintains the view-shed.
Established ground water monitoring wells will be avoided. However, if any monitoring wells are inadvertently damaged or impacted during project construction, the Water Appropriation Division of the North Dakota State Water Commission will be contacted.
If established survey bench marks must be removed or should any monuments be dislodged or damaged during construction, the National Geodetic Survey (Attn: N/CG 162, Rockville, Maryland 20852) will be contacted.
No above ground structures that will interfere with the above ground movement of floodwaters will be placed in the flood plain.
Prior to beginning construction through Conservation Reserve Program lands, program or private wetlands, the project proponents will consult with: <ul style="list-style-type: none"> (a) respective landowners, NRCS, U.S. Department of Agriculture Farm Services Agency to ensure that landowner eligibility in farm subsidy programs (if applicable) will not be jeopardized by project actions and (b) ensure that Swampbuster requirements will not be violated by construction activities.
The Project proponent will use project funds to reimburse landowners for crop damage and hay loss caused by construction.
Reclamation will complete and submit a Farmland Conversion Form (AD-1006) to the NRCS in compliance with the Farmland Protection Policy Act.

Construction Practices
Comply with all appropriate Federal, State, and Local laws.
Follow recommended practices for construction, restoration, and maintenance.
Maintain in-stream flows during stream crossing construction.
Use the shortest practicable alignment to minimize disturbance in crossing streams.
Spoil, debris piling, construction materials, and any other obstructions will be removed from stream crossings to preserve normal water flow.
Erosion control measures will be employed as appropriate and at stream crossings at all times: <ul style="list-style-type: none"> (a) Care will be exercised to preserve existing trees along the streambank. (b) Stabilization, erosion controls, restoration, and re-vegetation of all streambeds and embankments will be performed as soon as a stream crossing is completed and maintained until stable. (c) Riparian woody shrubs and trees will be replanted where and as necessary to preserve the shading characteristics of the watercourse and the aesthetic nature of the streambank.
Dump grounds, trash piles, and potential hazardous waste sites will be avoided.
All construction waste materials and excess or unneeded fill associated with construction will be disposed of on uplands, non-wetland areas.
Standard construction, industry measures will be taken to minimize fugitive dust emissions during construction activities. Any complaints that may arise will be dealt with in a timely and effective manner.
New pipeline, to the extent possible, will be placed just outside and parallel to the rights

PROJECT AREA (Action Area)

The proposed project would be located in Dunn and Mercer Counties, North Dakota (Figure 1).

In Mercer County, the proposed project would be in portions of:

- Sections 7 and 18 Township (T) 147 North (N), Range (R) 90 West (W);

In Dunn County, the proposed project would be in portions of:

- Sections 13 and 24, T147N, R91W

The action area for the proposed project is defined as the construction disturbance area for the proposed WTP, utility and access road corridors (Figure 1). The maximum disturbance area at the WTP would be approximately five (5) acres and 1.5 acres for the fill station. The construction ROW for the utility corridors (water and electrical) and the access road would be 75 feet wide total, with a permanent easement of 50 feet along the corridor. Direct ground disturbance would be confined to a 20 foot width within the construction corridor. Utilities would be co-located to reduce ground disturbance. During construction, the proposed project would result in a maximum disturbance area of approximately 12.5 acres within the action area (Table 1). A total of 7.6 acres would be reclaimed, with a total permanent disturbance of 4.9 acres².

Table 1. Preliminary surface disturbance estimates for each project element

Project Tasks	Temporary Surface Disturbance (acres)	Reclaimed Area (acres)	Permanent Surface Disturbance (acres)
WTP Construction	5.0	1.3	3.7
Fill Station Construction	1.5	0.3	1.2
Utility Construction	5.0	5.0	0
Demolition of Existing WTP	1.0	1.0	0
TOTAL	12.5	7.6	4.9

² Engineering design of the WTP has yet to be finalized, and therefore some uncertainty remains as to how much of the project area would be disturbed and reclaimed. These numbers reflect a conservative estimate for project disturbance and reclamation.

Western wheatgrass prairie transitioned into little bluestem dominated hills on the western portion of the proposed site (**Photo 2**). Little bluestem was particularly dense in this area, which may be a result of selective grazing of other grass species. Forbs were present, but with a low abundance within the dense little bluestem. Those forbs present included purple coneflower (*Echinacea purpurea*), purple prairie clover (*Dalea purpurea*), silver leaf scurf pea (*Pedimelum argophyllum*), Flodman's thistle (*Cirsium flodmanii*), and prairie chickweed (*Cerastium arvense*).

The southwestern corner of the site transitioned from little bluestem hillsides to a thicket of buffaloberry (*Shepherdia argentea*) (**Photo 2**). Western snowberry was abundant throughout this area, especially along the fringes of the thicket. Kentucky bluegrass was dense. Prairie rose was present, but not common. Few forbs were noted.



Photo 1. Direction: West. View of the proposed WTP site near the north eastern corner. Note heavy grazing throughout this area.



Photo 3. Direction: South. View from the shoulder of BIA Route 22 on the southern end of the project site. Note the abundant alfalfa and smooth brome.



Photo 4. Direction: East. View east along BIA Route 22 near the proposed approach to the fill station.

access road on the south shore of Lake Sakakawea (USACE 2015). The nearest historical nest was on the northern shore of Lake Sakakawea approximately 3.5 miles north of the project area.

Direct Impacts: The proposed project poses no risk to directly destroying active nests within the project area due to the distance to nearby historical nesting locations and the lack of suitable nesting habitat within the project area. Foraging habitat would not be affected by project activities. This species would not be present in the project area. Therefore, no direct impacts would occur.

Indirect Impacts: Since terns have been documented flying up to eight miles from nesting locations, the project is within the potential flyover radius of foraging terns. However, about 15 percent of the total utility corridor would be within the line-of-sight of Lake Sakakawea; the rest of the proposed project would be at a higher elevation, and outside the line-of-sight. Nevertheless, construction activity could indirectly affect foraging terns with increased noise and human activity in the area.

During operation, occasional vehicle traffic would use the existing road to access the intake. Since foraging habitat is not within the line-of-sight of the existing intake, displacement of least terns as a result of vehicle traffic would not likely occur. Therefore, indirect impacts during construction or operation of the proposed project are not anticipated, and if impacts were to occur, they would be so rare and minor as to be discountable.

Cumulative Impacts: Existing roads and other developments, residential and industrial (e.g. oil and gas well construction and operation), in the area would likely continue to be improved or developed at similar rates to existing conditions. Construction and operation of the proposed project would provide a new source of rural water for the Twin Buttes Community by construction of the fill station. However, it is unlikely to accelerate development in the area since alternative water sources have likely been used to meet the demand for water; the proposed fill station would offer a centralized alternative to rural and industrial customers. No direct or indirect impacts for the proposed project are anticipated. Therefore, the proposed project would not contribute to cumulative impacts in the project area.

Environmental Commitment: Indirect impacts would be minimized by avoiding the road and pipeline construction during the nesting season from April 15 through August.

Determination: No direct, indirect, or cumulative impacts are anticipated to the interior least tern with implementation of environmental commitments. Therefore, the proposed project would have *no effect* on the interior least tern.

Whooping Crane (*Grus americana*)

Status: Endangered

Current Status: The whooping crane was federally listed as threatened with extinction in 1967 and endangered in 1970 (USFWS 1967, 1970); both listings were “grandfathered” into the Endangered Species Act of 1973. Critical habitat for the whooping crane was designated in 1978 (USFWS 1978). The individuals representing the Aransas Wood Buffalo Population (AWBP) comprise one of the rarest and most imperiled self-sustaining avian populations in the world, with a population size of less than 300 individuals (USFWS 2014a). The species breeds in wetland habitat associated with Wood Buffalo National Park in Alberta and the Northwest Territories of northern Canada, and overwinters on the Texas coast. The migration corridor for the AWBP follows an approximate straight path, with the cranes

Determination: No direct, indirect, or cumulative impacts are anticipated to the whooping crane. The proposed project would have **no effect** on the whooping crane.

Black-footed ferret (*Mustela nigripes*)

Status: Endangered

Current Status: Black-footed ferrets historically occurred in western North Dakota, but primarily in the extreme southwest part of the state (USFWS 2014a). Black-footed ferrets were assumed extirpated from the wild from 1987-1991, when individuals were reintroduced to Montana, South Dakota, Colorado, and Arizona (USFWS 2014a). Suitable habitat includes large black-tailed prairie dog colonies or complexes of colonies.

Direct Impacts: The project area does not have active or historic black-footed ferrets or prairie dog colonies and no suitable habitat is present for either species. No black-footed ferrets have been reintroduced to the region including the project area. No direct impacts would be expected from the proposed project.

Indirect Impacts: No indirect impacts would be expected from the proposed action since no potential habitat for the black-footed ferret is present within or near the project area.

Cumulative Impacts: No direct or indirect impacts would occur to the black-footed ferret. Therefore, no cumulative impacts are anticipated.

Determination: No potential habitat for the black-footed ferret is present in the project area. Therefore, the proposed project would have **no effect** on black footed ferret.

Pallid sturgeon (*Scaphirhynchus albus*)

Status: Endangered

Current Status: Pallid sturgeons prefer turbid, main stem shallow river channels with sand and gravel bars (USFWS 2014a). In North Dakota, pallid sturgeons are currently known primarily from the Missouri-Yellowstone confluence, though they can occur anywhere in the Missouri River and lower Yellowstone Rivers between the Garrison Dam and Fort Peck Dam (USFWS 2014a; USFWS, 2007). Lake Sakakawea is not identified within the pallid sturgeon Recovery Plan as a recovery priority management area (USFWS 1993). However, pallid sturgeons have been found to utilize portions of the lake where or when its characteristics approach riverine habitat (USFWS 2014a; USFWS, 2007).

Direct Impacts: There is no suitable pallid sturgeon aquatic habitat within the project area. Lake Sakakawea is adjacent to the project area; in this portion of the lake, its characteristics are lacustrine and not riverine. Therefore, the presence of pallid sturgeons in the lake near the project area is unlikely. No direct disturbance to pallid sturgeon habitat would occur during construction of the proposed project. Thus, no direct impacts would occur to the pallid sturgeon as a result of the proposed project.

Indirect Impacts: The proposed project would occur on upland areas and the upper tips of wooded drainages that lead to Lake Sakakawea. Specifically, there are upland swales within the proposed WTP location and numerous intermittent drainages crossed by the proposed utility corridor. The project would include open trenching the proposed utilities through these drainages. A small probability exists

habitat, woody vegetation would be cut only along the fringes of established wooded areas. Impacted trees would be replaced at a 4:1 ratio and grassland vegetation would be reclaimed, replacing a portion of potential dispersal habitat after construction activities are complete. Wolves dispersing through the area during construction could use undeveloped parcels in the surrounding landscape.

During operation, occasional vehicle traffic would use the access road to the intake. However, undeveloped parcels surround the site and wolves would likely use these areas first or if displaced by vehicle traffic. Therefore, indirect impacts during construction or operation of the proposed project are not anticipated, and potential to occur is so rare if impacts were to occur, they are expected to be discountable and insignificant.

Cumulative Impacts: Existing roads and other developments, residential and industrial (e.g. oil and gas well construction and operation), in the area would likely continue to be improved or developed at similar rates to existing conditions. Construction and operation of the proposed project would provide a new source of rural water for the Twin Buttes Community by construction of the fill station. However, it is unlikely to accelerate development in the area since alternative water sources have likely been used to meet the demand for water; the proposed fill station would offer a centralized alternative to rural and industrial customers. No direct or indirect impacts for the proposed project are anticipated. Therefore, the proposed project would not contribute to cumulative impacts in the project area.

Determination: The rare transient gray wolf is unlikely to occur in the project area during construction activities. In the unlikely chance that they do disperse through the area during construction or operation, direct or indirect effects are not anticipated due to avoidance. Therefore, the proposed project would have *no effect* on the gray wolf.

Piping plover (*Charadrius melodus*)

Status: Threatened

Current Status: The piping plover was federally listed as endangered under the ESA on December 11, 1985 (USFWS 1985b). Suitable nesting habitat for piping plovers in the Missouri and Yellowstone River systems is characterized as sparsely vegetated channel sandbars, sand and gravel beaches on islands, temporary pools on sandbars and islands, and island margins that interface with the river channel. Piping plovers forage on open beaches, primarily consuming insects and crustaceans. Breeding piping plovers rarely travel more than one mile from their nest sites during the breeding season (USFWS 2002).

The entire project area is within two miles of the Lake Sakakawea shoreline, which provides potential nesting and foraging habitat for the piping plover. However, no potential nesting habitat or historical nests have been observed within the project area or within line-of-sight on the south shore of Lake Sakakawea near the existing intake and access road (USACE 2015). Most nests on this stretch of Lake Sakakawea are located on the northern shore, approximately 3.5 miles north of the proposed project. The historical river thalweg is located along the southern shore where the existing intake is located. As a result, the southern shore has little exposed shoreline, with an abrupt transition to deep water habitat (Photos 6 and 7).

Direct Impacts: Constituent Elements of piping plover Designated Critical habitat are not present within the project area. The little shoreline that is exposed contains large rocks, with a steep drop off to deep water habitat. Plovers are unlikely to be present within the project area. Furthermore, construction

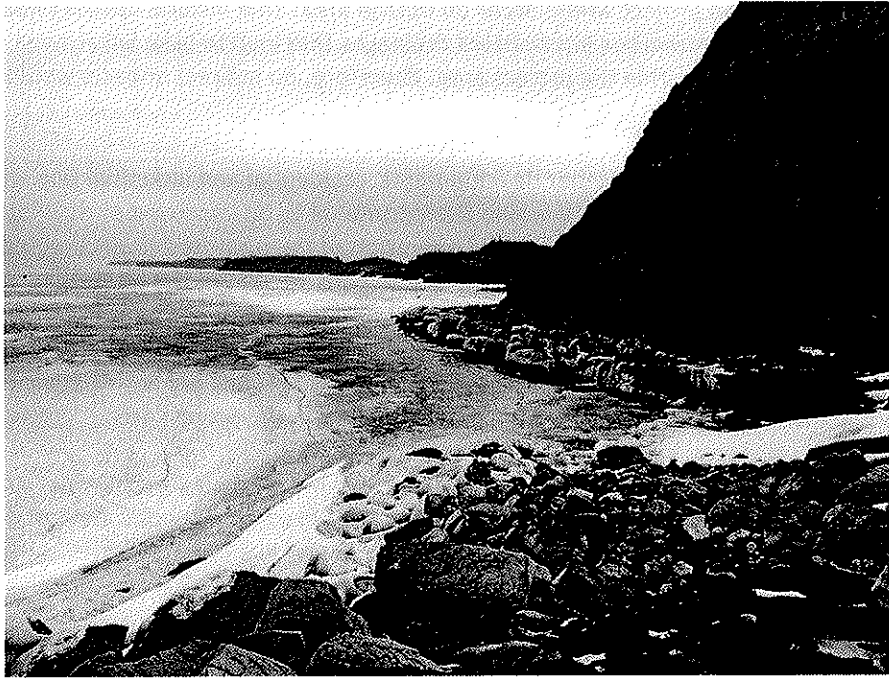


Photo 3. Direction: East. View of the shoreline just north of the existing water intake. Note the abundant rocks and lack of exposed shoreline.



Photo 4. Direction: West. View of the shoreline just north of the existing water intake. The square, articulated concrete indicates the location of the intake pipe.

sites distributed among 18 counties, or approximately 21 percent of all known historical locations of Dakota skippers range wide. It has been documented in McKenzie and Dunn counties in high rolling prairie, which would be considered Type B habitat (USFWS 2014c; Royer 2003; 79 CFR 206).

The project area is within Dunn County, where the Dakota skipper has historically been observed (USFWS 2015a). However, recent draft guidance from the USFWS does not list Dunn or Mercer county as counties that contain sites where the Dakota skipper has been recorded and where the species may be present (USFWS 2015f). The nearest proposed designated critical habitat for this species is 25 miles northwest of the project area in McKenzie County. Based on draft guidelines, the proposed project would not require conferencing with the USFWS since this species is not listed in Dunn or Mercer counties as being present. However, since these guidelines have not yet been published, botanical surveys were conducted to determine if potential habitat for this species is present within the WTP site.

Surveys for Dakota skipper habitat were conducted during natural resource surveys for the proposed project (please refer to *Habitat Assessment and Land Cover* section, which contains detailed descriptions of plant communities present within the project area). The intuitive controlled survey was used to locate areas of potentially suitable habitat for the Dakota skipper based on the characteristics of "Type B" habitat. This involved noting areas of native prairie, ideally dominated by little bluestem and/or needlegrass which typically occurs in patches on mid to upper slopes of rolling grassland. Woody vegetation and plant communities on flat topography with few forbs were assumed to not be potential habitat for Dakota skipper. Native prairie communities were systematically walked back and forth to determine if constituent elements of "Type B" habitat were present. These elements included the following:

- Low invasion (<25% of non-native grasses such as Kentucky bluegrass, smooth brome, and/or crested wheatgrass);
- Conservatively <20% woody plant cover;
- North to east facing slopes, particularly with adjacent mesic areas (USFWS 2014b; Royer 2003; 79 CFR 206);
- High diversity and abundance (>5-10% cover) of native forbs, especially purple coneflower, blanketflower, bluebell, and prairie lily;
- Dominant grass species including big bluestem, little bluestem, and needle or porcupine grasses.
- Historically light grazing pressure, determined by plant species composition.

Undisturbed little bluestem dominated plant communities were present along the western portion of the proposed WTP site. However, much of the WTP site has been heavily grazed, as evidenced by the species composition of the area. There were some purple coneflower individuals observed, but it appeared dense little bluestem and heavy grazing limited the abundance and diversity of forb species in the area. It is very unlikely that the larval species would have survived in this area due to the heavy grazing pressure over the years. Furthermore, the Dakota skipper is not present in Mercer county, and may be extant from Dunn county; the nearest proposed designated critical habitat is in McKenzie County, 25 miles west of the project area (USFWS 2013b). Since Dakota skippers are poor pioneers, this species is not likely present in the project area.

Direct Impacts: No undisturbed, lightly grazed little bluestem communities would be impacted by construction of the proposed project. Therefore, since Dakota skipper habitat is unlikely to be impacted

The red knot ranges from winter habitats in Chile, Argentina, and Brazil in South America; to the Caribbean; to the U.S. coasts from Texas to North Carolina; with smaller numbers north along the Atlantic as far as southern Canada. The species breeds in the central Canadian Arctic from northern Hudson Bay to the southern Queen Elizabeth Islands. Migration occurs throughout the Atlantic and Gulf coasts of South America, the United States, and Canada; the Caribbean; interior flyways across South America; interior flyways across the United States and Canada west as far as Alberta (Canada), Montana, Wyoming, Colorado, and Texas. Most red knot occurrences in the United States are individuals migrating along the Atlantic coast. Transient individuals are rarely observed in interior flyways. Small numbers (<10 individuals) can be found during migration in almost every inland state over which the knot flies between its wintering and breeding grounds. These reported sightings are mainly in Canada, concentrated along the Great Lakes (USFWS 2013f).

The red knot is considered to be a rare transient through North Dakota during the spring and fall migrations (Newstead et al. 2013). Red knot stopover sites would include wetland habitats similar to those selected by other shorebirds such as the interior least tern and piping plover. Red knots have been documented to use Lake Sakakawea as stopover habitat (Newstead et al. 2013). Migratory pathways typically follow coastlines, but rufa red knots have been documented to use the Northern Great Plains through the Mid-Continent Flyway, using various sites in the Northern Great Plains (including North Dakota) as stopover habitat, primarily from May through August. Information is lacking on specific non-coastal stopover habitat for the rufa red knot. In fact, the red knot has been documented to avoid the Northern Great Plains during some migrations. It is known that stopovers are time-constrained, and that the rufa red knot requires stopovers rich in easily digestible food, which may explain their use of sewage treatment ponds.

There is no suitable rufa red knot stopover habitat within the immediate project area. However, Lake Sakakawea, adjacent to the northernmost extent of the project area, could provide stopover habitat for this species. Newstead et al. documented one occurrence of a rufa red knot stopover near where the White Earth River drains into Lake Sakakawea, approximately 50 miles north/northwest of the project area (Newstead et al. 2013). Shoreline habitat near the intake would not likely support this species since the shoreline is currently used as an intake. Shoreline to the east and west outside of the project area could be used as stopover habitat, but the intake would be outside of the line-of-sight of these shores since topographic relief in the area is steep and shields the intake from view. Furthermore, most of the proposed project, except for a small portion of the utility corridor, would be outside the line-of-sight of the lake and shoreline that could be used for stopover habitat.

It should be noted that there are few scientific reports of the rufa red knot in North Dakota. The lack of reliable sightings and habitat use in North Dakota imposes limits on the probability of use in the project area.

Direct Impacts: No direct impacts would occur to Lake Sakakawea as a result of the proposed project. No other aquatic habitats, such as wetlands or streams, are present within the project area that could support stopover habitat for this species. Therefore, no direct impacts are anticipated to the rufa red knot.

Indirect Impacts: Since nearby shorelines could provide potential stopover habitat for this species, there is potential for migrating rufa red knots to fly over the project area. Construction activity, specifically the installation of buried utilities, could indirectly affect migrating rufa red knots by temporarily increasing

The northern long-eared bat is listed as occurring in both Dunn and Mercer counties (USFWS 2015). Specific occurrence information to the project area is not available. The project area could contain potential foraging habitat for the northern long-eared bat in the various woody draws along the shoreline of Lake Sakakawea

Direct Impacts: Direct impacts could occur if roosting trees used by northern long-eared bats were directly impacted by construction activities during summer use (March-September). Woody vegetation along the upper margins of woody draws may be removed by construction of the proposed utility corridor. However, these trees do not have exfoliating bark, crevices, cavities, or cracks; trees are also generally smaller than 3 inches dbh. For these reasons, the project area would not provide likely roosting habitat for this species. In addition, tree removal would only occur during from October 31 – March 31 to minimize impacts during summer use. Therefore, no direct impacts are anticipated to this species.

Indirect Impacts: Indirect impacts to the northern long-eared bat would occur if construction related activities disturbed potential foraging and roosting habitat, or displaced foraging or roosting long-eared bats due to noise and human activity. To minimize these impacts, the utility corridor has been sited to avoid wooded draws and would follow existing access roads where possible. The effects of displacement of foraging or roosting bats would be minimized since potential habitat is located in the broader area surrounding the project, so individuals would likely move to these areas during temporary construction disturbance. With the required environmental commitments, no indirect impacts are anticipated.

Cumulative Impacts: Existing roads and other developments, residential and industrial (e.g. oil and gas well construction and operation), in the area would likely continue to be improved or developed at similar rates to existing conditions. Construction and operation of the proposed project would provide a new source of rural water for the Twin Buttes Community by construction of the fill station. However, it is unlikely to accelerate development in the area since alternative water sources have likely been used to meet the demand for water; the proposed fill station would offer a centralized alternative to rural and industrial customers. No direct or indirect impacts for the proposed project are anticipated. Therefore, the proposed project would not contribute to cumulative impacts in the project area.

Environmental Commitments:

- Removal of trees and shrubs would only occur from October 1 – March 31 during winter hibernation.
- Reclamation of disturbances would occur as soon as possible after construction is complete.

Determination: No direct, indirect, or cumulative impacts are anticipated to the northern long-eared bat. Therefore the proposed project will have **no effect** on the northern long-eared bat.

Sprague's Pipit (*Anthus spragueii*)

Status: Candidate

Current Status: Sprague's pipit (*Anthus spragueii*) was designated a candidate species under the ESA in September 2010 (USFWS 2010). It is a ground nesting bird closely tied with native grassland habitat in the north-central United States in Minnesota, Montana, North Dakota and South Dakota, as well as south-central Canada (Jones 2010). During the breeding season, Sprague's pipits prefer large patches of

industrial customers. No direct or indirect impacts for the proposed project are anticipated. Therefore, the proposed project would not contribute to cumulative impacts in the project area.

Required Mitigation:

- If possible, timing of construction would occur outside of the prime breeding season for migratory birds, February 1st to July 15th. If construction cannot be avoided during this period, then a qualified biologist would conduct bird/nest surveys within five days prior to initiation of construction or site preparation would take place outside of the nesting season. Reclamation and USFWS would be notified if any active nests are discovered. If any deceased migratory bird is found on-site during construction, construction activities shall cease and the USFWS shall be notified for advice on how to proceed.
- Disturbed areas would be reclaimed as soon as possible after construction. The only permanent disturbance would occur at the WTP location and fill station. All other areas would be reclaimed and seeded with native plant species.

Determination: No direct, indirect, or cumulative impacts are anticipated to the Sprague's pipit. Therefore, the proposed project would have *no effect* on the Sprague's pipit.

OTHER FEDERALLY SIGNIFICANT WILDLIFE RESOURCES

Eagles

Both the bald eagle (*Haliaeetus leucocephalus*) and the golden eagle (*Aquila chrysaetos*) are protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668d, as amended). In North Dakota, bald eagle breeding pairs currently nest along the Missouri River south of the Garrison Dam. Potential foraging habitat includes areas near large, perennial water bodies, including Lake Sakakawea. Golden eagles are found in western North Dakota and typically nest in the most rugged portions of the badlands where buttes adjoin native prairie.

The Bureau of Indian Affairs (BIA) has completed a programmatic survey of bald and golden eagle nests on the Fort Berthold Indian Reservation (BIA 2014). Prior to field surveys, this report was referenced to identify potential eagle nests nearby the project area.

On-the-ground surveys for eagle nests were done as part of the on-site field survey within 0.5 mile of the proposed project. Surveys were conducted prior to leaf out to identify potential nesting activity. No golden or bald eagle nests were observed within 0.5 mile of the route, nor were any nests observed incidentally in the project area during the on-site survey. BIA records indicate that the nearest golden eagle nest is 0.7 miles west of the existing intake in the steep exposed badland butte outside of the line-of-sight of the proposed project (BIA 2014).

No potential nesting habitat for bald or golden eagles would be directly impacted by the project. If eagles were to occur within the project area they would likely be flying overhead. The proposed project is unlikely to cause any adverse impacts to bald or golden eagles.

Migratory Birds

Numerous migratory birds pass through or breed and nest in North Dakota from February 1st to July 15th. Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) (916 U.S.C. 703-711) and

CONCLUSIONS AND DETERMINATION OF EFFECTS

Table 2: Determination of Effects

Determination	Species/Critical Habitat
<i>No Effect:</i> This determination is appropriate when the proposed project will not directly or indirectly affect (neither negatively nor beneficially) individuals of listed, proposed species or designated/proposed critical habitat of such species. No concurrence from USFWS required.	Interior Least Tern, Whooping Crane, Pallid Sturgeon, Gray Wolf, Piping Plover, Piping Plover Designated Critical Habitat, Northern Long-eared Bat, Sprague's Pipit.
<i>May Affect but Not Likely to Adversely Affect:</i> This determination is appropriate when the proposed project is likely to cause insignificant, discountable, or wholly beneficial effects to individuals of listed species and/or designated critical habitat. Concurrence from USFWS is recommended.	Dakota Skipper
<i>May Affect and Likely to Adversely Affect:</i> This determination is appropriate when the proposed project is likely to adversely impact individuals of listed species and/or designated critical habitat. Formal consultation with USFWS required.	N/A
<i>May affect but Not Likely to Jeopardize candidate or proposed species/critical habitat:</i> This determination is appropriate when the proposed project may affect, but is not expected to jeopardize the continued existence of a species proposed for listing or a candidate species, or adversely modify an area proposed for designation as critical habitat. Concurrence from USFWS optional.	N/A
<i>Likely to Jeopardize candidate or proposed species/critical habitat:</i> This determination is appropriate when the proposed project is reasonably expected to jeopardize the continued existence of a species proposed for listing or a candidate species, or adversely modify an area proposed for designation as critical habitat. Conferencing with USFWS required.	N/A

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