

# **Fort Union Trading Post National Historic Site Expanded Park Housing/Utilities and Environmental Assessment**



**December 2015**

*This page intentionally left blank*

## TABLE OF CONTENTS

<b>CHAPTER 1 – PURPOSE AND NEED</b>	<b>4</b>
INTRODUCTION	4
PARK BACKGROUND AND LOCATION	4
PROJECT BACKGROUND	5
SCOPE OF THE PROJECT	6
PARK PURPOSE, SIGNIFICANCE, AND FUNDAMENTAL RESOURCES AND VALUES	6
PURPOSE AND NEED	7
IMPACT TOPICS	8
<b>CHAPTER 2 – ALTERNATIVES</b>	<b>11</b>
INTRODUCTION	11
PROPOSED ACTION	11
NO-ACTION ALTERNATIVE	11
ALTERNATIVE A (PREFERRED)	14
ALTERNATIVES CONSIDERED BUT DISMISSED	19
MITIGATION MEASURES	19
ENVIRONMENTALLY PREFERABLE ALTERNATIVE	20
PREFERRED ALTERNATIVE	21
<b>CHAPTER 3 – AFFECTED ENVIRONMENT</b>	<b>20</b>
<b>CHAPTER 4 – ENVIRONMENTAL CONSEQUENCES</b>	<b>28</b>
<b>CHAPTER 5 – CONSULTATION AND COORDINATION</b>	<b>37</b>
U.S. FISH AND WILDLIFE SERVICE	37
NORTH DAKOTA STATE HISTORIC PRESERVATION OFFICE	37
CULTURALLY ASSOCIATED TRIBES	37
LIST OF PREPARERS AND CONTRIBUTORS	38
REFERENCES	39
<b>APPENDICES</b>	<b>40</b>
APPENDIX A – FLOODPLAIN STATEMENT OF FINDING	41
APPENDIX B – CONSULTATION LETTERS	48

## Chapter 1 - Purpose and Need

### Introduction

The National Park Service (NPS) manages and protects Fort Union Trading Post National Historic Site (Park) in western North Dakota. Housing availability is extremely limited in this sparsely populated region. The oil industry, intensively drilling in this area, is the catalyst for the job market which has further strained housing availability. Infrastructure which supports existing Park housing is at designed capacity. Any expansion of Park housing must examine the support infrastructure (wastewater treatment) upgrades or expansion as this is integral to expansion of Park housing. This Environmental Assessment (EA) documents the results of a study that examined the potential environmental impacts of the alternative housing and infrastructure support for the Park.



Location of the Park in North Dakota and Montana

### Park Background and Location

Beginning in 1828, at the request of the Assiniboiné Nation, Fort Union Trading Post emerged as one of the Upper Missouri's most profitable fur trade post. Built by John Jacob Astor, it was the most famous fur trade post of John Jacob Astor's American Fur Company. The trading post included eight Upper Missouri tribes – Assiniboiné, Plains Cree, Blackfeet, Plains Chippewa, Crow, Mandan, Hidatsa, and Arikara – trading buffalo hides, beaver pelts, and other furs for hundreds of goods imported from eight countries. In exchange for furs, tribal trading partners received fabricated materials such as calico cloth,

guns and ammunition, clothing, pipes, beads, and cooking ware. The trading post sold more than \$100,000 in merchandise each year, from 1828 to 1867.

In 1926, the state of North Dakota bought the Fort from a local landowner to prevent the land from being mined for gravel. Before the land could be excavated, World War II initiated, leaving the land preserved for the time being. In 1961, the site was designated a National Historic Landmark, and in 1966 Congress approved of its creation as Fort Union Trading Post National Historic Site making it part of the NPS. Archaeological inventories were initiated on a seasonal basis beginning in 1969, 1970, and 1972 and continued through 1988 as a result of the Midwest Archeological Center (MWAC) efforts and a Congressional mandate to reconstruct the fort. The 1988 MWAC excavations include the west and south palisade walls, the main gate, and the Indians and Artisans House. The work was divided into a series of eight blocks numbered 15 to 22. Excavations uncovered millions of artifacts.

The Park, a management unit of the U.S. Department of Interior's NPS, is situated along the Missouri River and straddles the North Dakota/Montana border. The Park lies in northwestern North Dakota and northeastern Montana, with portions located in North Dakota's Williams and McKenzie Counties, and Montana's Roosevelt and Richland Counties. It is one of the earliest National Historic Landmarks in the United States.

#### Project Background

In 2011, the *Housing Needs Assessment* identified a shortage in housing. The assessment included a local market analysis (LMA) which examined local communities and available housing (for sale or lease) within a 60-mile commute (one-way) of the Park. An unprecedented number of available jobs in the surrounding area have created a situation where prospective Park employees are unable to find affordable homes to purchase and properties available for long-term lease are extremely limited. The petroleum industry, intensively drilling in this area, is the catalyst for the job market. Almost no short-term rental properties are available (NPS 2011).

The Park has two permanent housing units, each containing three bedrooms, and a temporary trailer, which includes a foundation pad. The housing area also includes a privately owned Recreational Vehicle (RV) on Park owned foundation pad. Park officials have routinely used all six bedrooms to house permanent and seasonal staff members who require lodging. The required occupant (an employee who is required to live in Park housing to respond to emergency situations) at the Park is entitled to use one of the three bedroom units exclusively but has opened up their residence in the past to give seasonal employees a place to live. Following consideration of current Park housing inventory and LMA results, it was identified the Park is in need of 11 seasonal bedroom units (NPS 2011).

The Park maintenance shop, temporary trailer, RV, and housing area wastewater are serviced by a septic tank, lift station and two mound leach field systems. Existing support infrastructure (wastewater treatment) of Park housing is at or past design capacities (100%+ utilization). The wastewater system was originally designed for the permanent structures and maintenance shop only, not the temporary trailer or RV. This has further strained the wastewater system. In addition, one of the two mound

systems is no longer operating. Expansion of housing will require upgrades (modification or expansion) to the wastewater treatment system as this is integral to the utility makeup of the area.

### Scope of the Project

Scoping is the initial process used to identify the affected environment that may be impacted by the proposed project, and to identify alternatives for achieving the proposed action, while minimizing the potential impacts. Scoping was conducted by an interdisciplinary team of professionals from the Park, MWAC, and the Midwest Regional Office throughout the spring of 2015.

### Purpose and Significance of Fort Union Trading Post NHS

Purpose statements convey the reasons a park unit was set aside as part of the National Park System. Significance statements capture the essence of the park unit's importance to the nation's natural and cultural heritage, and describe why an area is important regionally, nationally, and even globally. The purpose and significance statements for the Park are presented below.

### Park Purpose (NPS 2013)

The purpose of Fort Union Trading Post NHS is to commemorate and interpret the significant role of the fort as the preeminent fur trading post on the Upper Missouri River, and to preserve its resources.

### Significance Statements (NPS 2013)

Fort Union Trading Post NHS is significant as a unit of the national park system for the following reasons:

- o Fort Union is significant for its impact on the history, exploration, transportation, economics, and culture of the American frontier on the Upper Missouri River from 1828 to 1867.
- o Fort Union epitomizes the mutually advantageous interaction of American Indian and European American cultures associated with the fur-trading on the Upper Missouri River region of the American frontier.
- o Fort Union is the best representation of the establishment and maintenance of a permanent fur trading post on the Upper Missouri River that capitalized on a long-established American Indian trade network.
- o Fort Union's abundant archeological, archival, and documentary resources offer a rare comprehensive record of the physical site and human activities during the fur trade. This record allowed for accurate reconstruction of the fort and continues to support extensive exhibits of Northern Plains material culture (trade goods, tools, and personal items) from both the prehistoric and fur trade eras.
- o Fort Union's rural landscape provides a sense of place for visualizing the past, recognizing the isolation of the area, and appreciating the wide-open spaces of the confluence of the Missouri and Yellowstone Rivers to both American Indians and European Americans.

### Fundamental Resources and Values (NPS 2013)

Fundamental resources and values (FRVs) are those features, systems, processes, experiences, stories, scenes, sounds, smells, or other attributes determined to warrant primary consideration during planning

and management processes because they are essential to achieving the purpose of the park and maintaining its significance. Fundamental resources and values are closely related to a park's legislative purpose and are more specific than significance statements.

Fundamental resources and values help focus planning and management efforts on what is truly significant about the park. One of the most important responsibilities of NPS managers is to ensure the conservation and public enjoyment of those qualities that are essential (fundamental) to achieving the purpose of the park and maintaining its significance. If fundamental resources and values are allowed to deteriorate, the park purpose and/or significance could be jeopardized.

The following fundamental resources and values have been identified for Fort Union Trading Post NHS:

- o The Fort Union archeological site and the museum collection and archives. As an archeological resource, the Fort Union site is the focal point of the Park and preserves nationally significant information that can be used to increase the knowledge of the American fur trade and interactions with American Indian cultures. The museum collection generated from archeological excavations of the site is one of the largest in the NPS.
- o Reconstructed trading post and American Indian encampment. Because the fort has been partially reconstructed, visitors can better visualize the time period and life of the fort. The reconstructed fort provides a "stage" for the living history presentations at the site. The prairie surrounding the fort is where American Indians camped while trading at the fort. Tepees standing north of the fort help visitors visualize life at the fort in the 1800s.
- o Missouri River, the watershed, and associated habitat zones. The physical and visual relationship of Fort Union to the Missouri River is essential to understanding the cultural resources of the site, and is a tangible reminder of early life ways, European American exploration and exploitation of resources, and events that contributed to the settlement and development of the American West. The Missouri River served as the major transportation corridor while the fort was operating.
- o Cultural Landscape/viewshed. Located in rural North Dakota and Montana, the landscape is largely free of modern development. The viewshed, which includes the prairie surrounding the fort, helps the visitor gain a sense of what the area was like in the 1800s.

#### Purpose and Need for the Plan

The purpose of the Fort Union Trading Post National Historic Site Expanded Park Housing/Utility Plan is to:

- o Address the critical shortage of employee housing that meets current NPS housing standards.
- o Increase the housing capacity of the Park to adequate number of bedrooms as identified by the *Housing Needs Assessment*. This includes 11 bedroom units for Park staff, volunteers, and researchers.
- o Evaluate the need for upgrading the existing wastewater treatment system as the sewer utilities are operating at or beyond design capacities (100%+ utilization). The addition of new housing will further strain the functionality of the system.

- Ancillary Infrastructure requirements – provide utility (potable water, electrical, and cable) connections to proposed housing units, and provide effluent connection to proposed drain field site.

In order to uphold the purpose for which Fort Union Trading Post NHS was established, the Park is in need of additional housing for Park staff (seasonal and permanent). Due to the Park's location and the regional economic environment, purchasing housing outside of the Park is not feasible, and even rental properties are unattainable for Park employees, as documented by the *Housing Assessment* and *State of the Park* reports and highlighted in the *Williston Herald News*. Additional housing and an upgraded wastewater system would need to be constructed in order to accommodate Park employees. The existing mound system is currently operating at or beyond design capacities (100%+ utilization). Ancillary infrastructure requirements, including utility (electrical, potable water, and cable) connections to any proposed housing units, and effluent connection to proposed drain field site, would also be needed.

#### Impact Topics Retained In This Plan

NPS Policy requires that all proposed projects be screened for potential impacts against a list of natural and cultural resource categories. Impacts topics are resources of concern that could be affected, either beneficially or adversely, by implementing any of the proposed alternatives. The NPS used an interdisciplinary review process to determine which resources could be affected by this project. The following impact topics are analyzed in this document:

##### Archeology –

The full extent of archeological resources in the project area are unknown. Approximately one-third of the Park has been inventoried for archeological resources. Expansion of Park housing and upgrading Park infrastructure will require ground disturbing activities and could affect archeological resources. Section 106 of the National Historic Preservation Act of 1966, as amended, provides the framework for federal review and protection of cultural resources, and ensures that they are considered during federal project planning and execution. As a result of potential impacts to unknown archaeological resources, this topic will be retained for further analysis.

##### Floodplains –

Presidential Executive Order 11988 mandates floodplain management. The riparian area along the Missouri River is classified as the 100-year floodplain, and a portion of that floodplain extends up to the project area. During the flood of 2011, existing Park housing was not impacted; however, the existing mound/leachate system was affected by the high water in the soils causing the system to not function properly. Further analysis of the floodplain extent is needed to determine if the proposed housing is located within this designated area. Therefore, this topic will be retained for further analysis.

##### Viewshed –

NPS *Management Policies 2006* states the Park's scenery and scenic features are included among the resources and values that are to be protected and conserved. The Park's viewshed has been identified



as a fundamental resource and value. The proposed action calls for development of housing and support infrastructure. These actions could potentially result in short-to-long term adverse impacts if not designed and implemented properly. Therefore this topic will be retained for further analysis.

#### Impact Topics Dismissed In This Plan

The impact topics described in this section are not fully evaluated in this EA because they were not identified during scoping as being of concern, nor is it anticipated that implementation of the proposed action would substantially affect these resources. Additional information regarding their dismissal is provided for each potential impact topic.

##### Soils –

According to soil surveys, the Park's soil types are generally characterized as silty clays. These soil types are deep and well drained with low permeability. Compaction of soils is likely during construction of housing and upgrading of infrastructure. The total area disturbed by the proposed project would involve a small percentage of the overall Park acreage. Therefore, soils are dismissed from analysis.

##### Air Quality –

The federal 1970 Clean Air Act stipulates that federal agencies have an affirmative responsibility to project a park's air quality from adverse air pollution impacts. The Park is located within a Class II air quality area. This is less stringent and pristine as compared to a Class I area. Construction of Park housing and upgrades to support infrastructure would be limited to short-term effects including temporary introduction of particulates into the environment. As a result, air quality will be dismissed from further analysis.

##### Visitor Experience –

The NPS policy directs parks to consider the effects of their management decisions on visitor experience and use. The installation of new housing and an upgraded wastewater treatment system may result in short-term, temporary impacts to the visitor experience. In the long-term, additional Park housing and an upgraded wastewater treatment system would be negligible from the existing visitor experience. Therefore visitor experience can be dismissed from further analysis.

##### Public Health –

One purpose for developing this plan is the need to address the wastewater capacity issues. The existing septic tank, lift station, and mound leach field systems are currently at or beyond design capacities according to the NPS Regional Engineers. Recently, one of the two mound systems has failed. The development of new wastewater system (mound or drain field) will address the existing capacity issues, thus minimizing public health issues. Because this plan will address that issue, public health has been dismissed from further analysis.

##### Historic Structures –

The proposed action will not have an impact on historic structures; as a result, this topic will not be retained for additional analysis.

#### Cultural Landscape—

The Park's cultural landscape has been identified as a fundamental resource and value and is a contributing feature of the National Historic Landmark (NPS 2014c, NPS 2013). The Park boundary encompasses 240.54 acres of former prairie. Currently, restored prairie and agricultural fields surround most of the Park. Historically a portion of the project area was used for gardening as the housing area borders the Garden Coulee drainage, and is near the Crow Flies High site. The proposed actions will be placed within the existing cultural landscape; however, by the nature of their construction and mitigation measures, will not be readily apparent. Cultural landscapes have been dismissed from further analysis.

#### Vegetation –

Vegetation at the Park is a mixture of native grasses, sedges, and forbs which encompass the restored prairie. The floodplain of the Missouri River includes riparian species; cottonwood, green ash, and willow. Proposed actions will result in limited removal of vegetation for the development of Park housing and upgraded support infrastructure. Vegetation removal will primarily take place in areas previously disturbed. This impact topic has been dismissed from further analysis.

#### Species of Concern –

Several state-listed and federally listed species are known to exist in and around the region. The U.S. Fish and Wildlife Service (USFWS) determined the Interior Least Tern, Whooping Crane, Pallid Sturgeon, Piping Plover, Rufa Red Knot, and Sprague's Pipit can be found in Williams County, where the Park is found (See USFWS letter of consultation). The proposed action would have no impact on species of concern because the listed species are either not present or unknown/unlikely to occur within the project area. Therefore, this topic has been dismissed from further consideration.

#### Indian Trust Resources –

Indian Trust Resources are those resources held in trust for American Indians by the United States. These can be lands or specific resources granted by treaty. There are no known properties that can be classified as trust resources, no resources at the Park have been protected through treaty or by other governments. As a result, Indian Trust Resources has been dismissed from further analysis.

#### Environmental Justice –

Executive Order 12898 requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs or policies on minorities and low-income populations and communities. The proposed action in this EA would not adversely affect socially or economically disadvantaged populations. As a result, Environmental Justice has been dismissed from further analysis.

## Chapter 2 - Alternatives

### Introduction

NEPA requires that federal agencies conduct a careful, complete, and analytical study of the impacts resulting from proposals that have the potential to affect the environment, and to consider alternative to those proposals, well before any decisions are made. This section describes the action alternative and no-action alternative. The following is a description of the alternatives selected for analysis and a discussion of the environmentally preferable and preferred alternative.

### Proposed Action

A proposed action is “the bureau activity under consideration” (46.30). “A proposed action is one option (alternative) for addressing purpose and need” (DO-12, 2015). The proposed action is to design and construct new Park housing, an associated wastewater treatment system, and other infrastructure to accommodate additional staffing needs which will enable the Park to fulfill its mission of protecting their fundamental resources and values.

### No-Action Alternative (No additional housing units or upgrades to wastewater system)

The no-action alternative provides a basis for comparison with the action alternative and the respective environmental consequences. Under the no-action alternative, the Park would not expand staff housing. The Park would continue to have two permanent structures (each with three bedrooms), one temporary manufactured housing unit (temporary trailer), and one RV site. The Park would continue to have difficulty in recruiting employees as a result of unattainable housing in the commuting area. The average monthly rental rates for a one-bedroom apartment in Williston, ND region is between \$1,300 and \$2,000 per month, and expected based on market research to continue.

Existing wastewater treatment (septic tank, pumps, mound system) which services sewage from the housing and adjacent maintenance facility would continue to function at or beyond design capacities (100% + utilization). This system includes two mounds with perforated piping which is connected by piping from the lift station with one pump and septic tank. The perforated piping is embedded in sand approximately 4 feet aboveground covered in soil and vegetation. Currently, one of the two mound systems is no longer functioning and has been abandoned in place. The abandoned mound was installed in 1984, while the still-functioning mound was installed in 2004. The connection valve between the two mounds now directs all waste to the operating mound. The upgraded mound is approximately 80 x 40 feet (3,200 sf) and the older, no longer operating mound is approximately 80 x 30 feet (2,400 sf). The soils in the location of the existing mound system are composed of clay soils which are impermeable, resulting in the mound system improperly draining liquid waste. This is most prevalent during flooding events, which raises the groundwater levels. If another 2011 flood-like event were to occur it could result in wastewater treatment system not functioning. Also, at a very minimum the existing system requires the addition of another pump in the lift station because this system serves multiple dwellings. If it only served one house, a single pump would suffice.



Aerial imagery of Park housing and existing septic tank and lift station.



Existing permanent housing unit, temporary trailer, and Maintenance Facility. View looking west.



Maintenance Facility, temporary trailer, and existing permanent housing unit. View looking east.

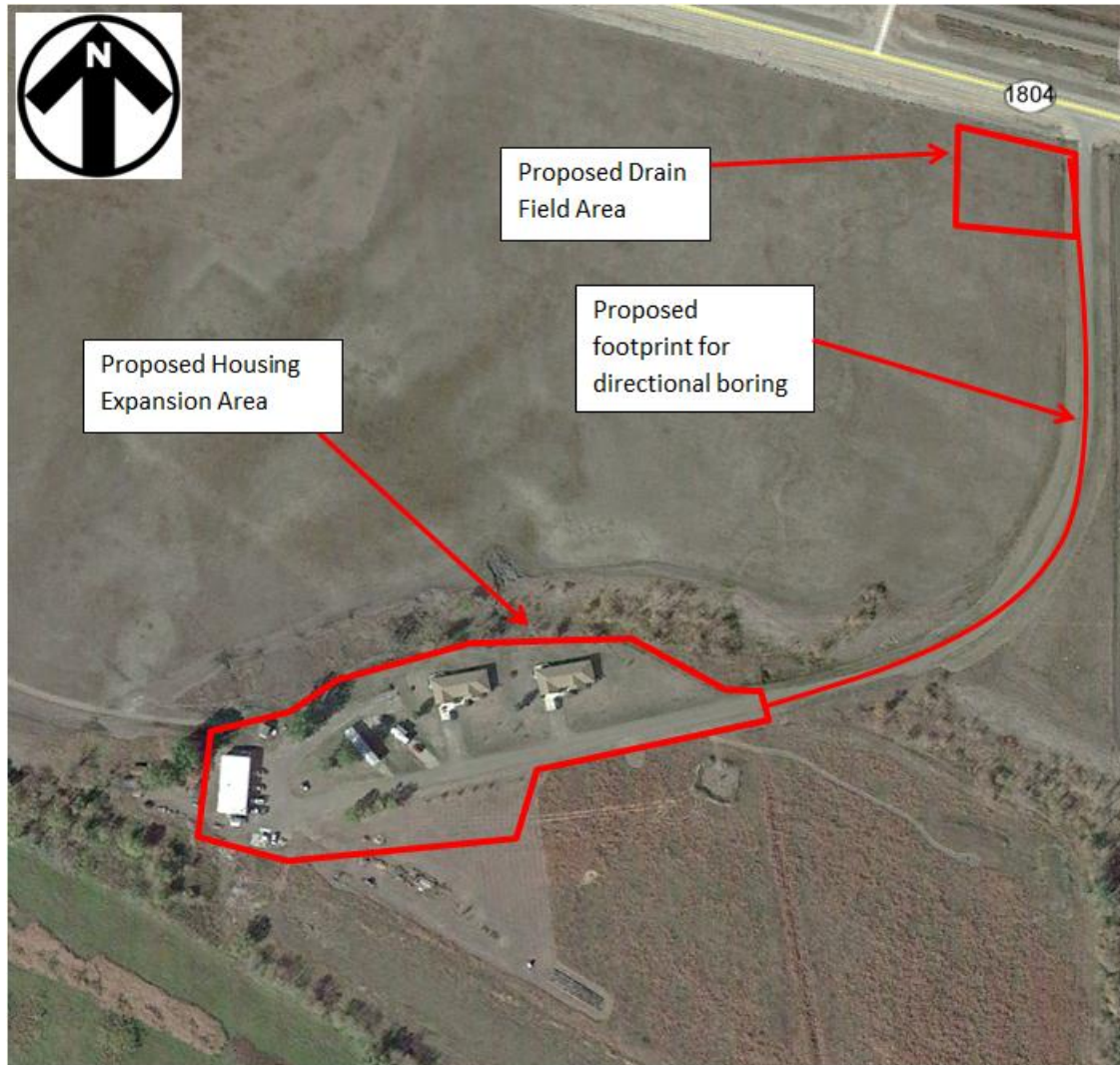


Maintenance Facility, temporary trailer, RV, Two permanent housing units. View looking north.



### Action Alternative A (Preferred)

Under the action alternative, two components will be completed to meet the purpose and need; expanded Park housing and wastewater upgrades. Below includes the proposed project area for housing expansion and upgrading wastewater system.



Aerial imagery of proposed housing expansion and lift station renovation areas.

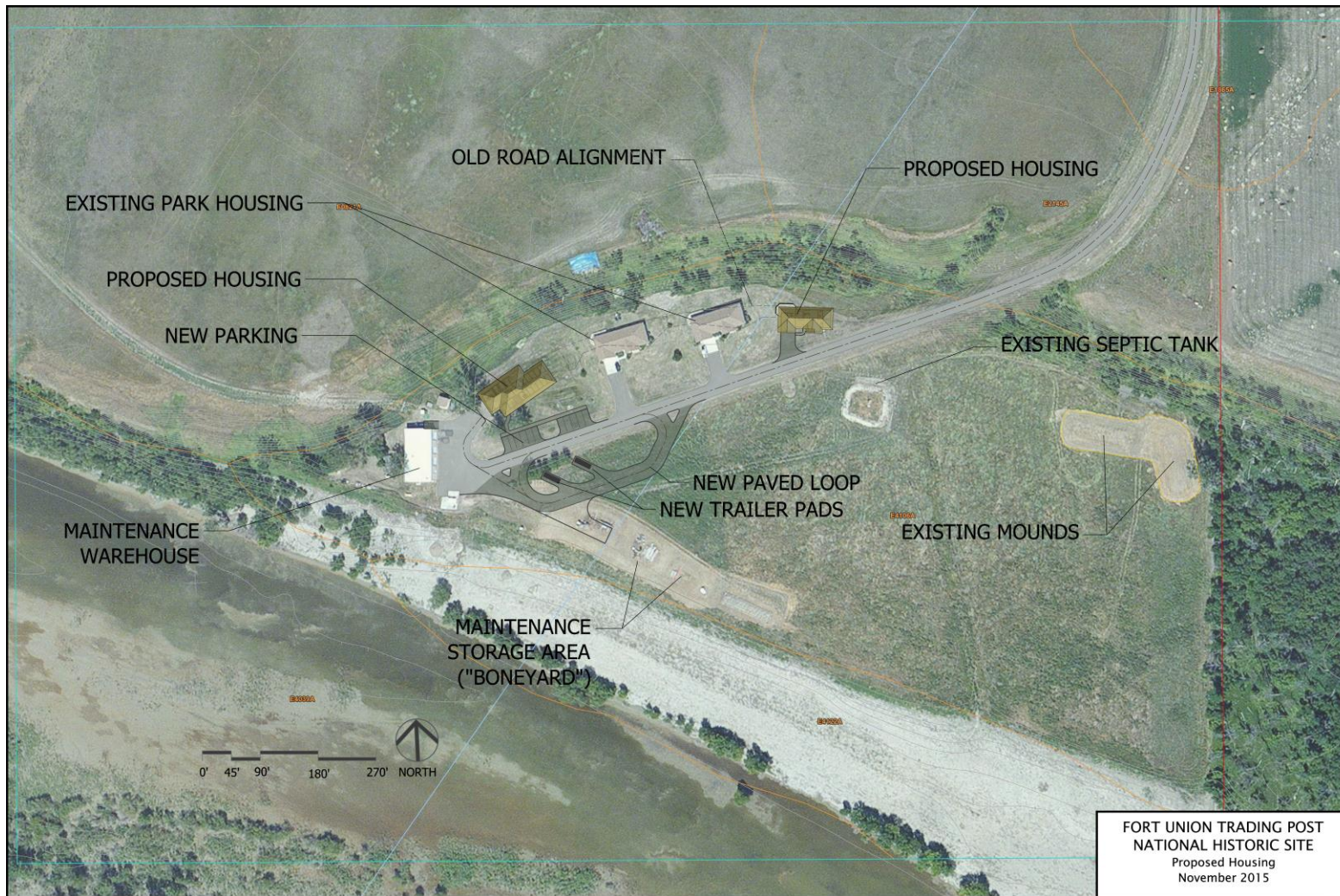
### Housing

New Park housing would be installed within the vicinity of the existing housing area. New housing would include a configuration of housing units to accommodate up to an additional 11 bedroom units. The new configuration may include a dorm style configuration or a series of duplexes. The exact configuration will be determined at the point at which funding is available to construct housing. However it is finally configured, this will include an area of approximately 12.5 acres for installation and construction staging activities (see red highlighted area above).

All permanent housing will be placed north of the access road, within the vicinity of the existing housing units. The existing housing units will be retained and used. The access road will not be altered; a roundabout or some configuration to add access for larger vehicles like semi-tractor trailers at the Maintenance Shop would allow for easier ingress/egress of large vehicles.

All areas within the proposed housing expansion outline have the potential for ground disturbing activities. Construction activities will include excavation of proposed housing units to the regional frost line, which is approximately seven feet below the surface. This will include foundation footers and concrete masonry units attached to concrete slab. The voided area will be back filled. Existing trailer pads will be maintained or slightly moved to allow for new permanent housing units. The existing temporary trailer will be removed. Maintaining the trailer pads will allow the Park to place temporary RV trailers on pads on an as needed basis.





EXAMPLE DESIGN OF HOUSING CONFIGURATION. PLEASE NOTE NEW HOUSING WILL INCLUDE A MAXIMUM OF 11 NEW BEDROOM UNITS.



### Wastewater Treatment System

A new wastewater treatment system will ensure the Park's existing and proposed housing units properly dispose of and treat wastewater effectively and in an appropriate location while providing increased septic tank capacity.

The proposed location for the septic drain field is south of North Dakota Highway 1804 and west of the housing/maintenance access road. The soils of this location are classified as sandy loams. Soils are deep and moderately well drained with appropriate permeability based on June 2015 percolation testing which indicated the soils were permeable enough for effluent to percolate away from the drain field, but fine grained enough to filter out pathogenic bacteria and viruses. The proposed drain field is located well above the existing 100 year flood plain, thus reducing groundwater contamination issues. This location complies with the North Dakota State Administrative Code Title 62-03.1-03: Private Sewage Disposal Systems.

A proposed new wastewater system sized for existing and future housing at the Park will include septic tanks, a dual pump lift station, sewer force main and a gravelless leach bed drain field chamber system. Construction of the force main from the new lift station to the proposed new drain field site will be completed using directional boring methods with approximately seven foot bury depth. The majority of this action will take place in previously disturbed areas in or along the access road right-of-way. The drain field chambers will be placed on native soil approximately four feet below the surface and the entire area will be re-seeded with native plant species. The new wastewater system will include two, 2,000 gallon septic tanks, wet well with dual pumps and automatic controls, valve manhole, approximately 1,000 feet of force main and 1,200 feet of drain field chambers. The new drain field chamber system will disturb approximately 0.5 acres and will have a 20 to 30 year life expectancy. See figure for basic design of the drain field chamber system. An adjacent area equal in size directly west of this proposed location would serve as a future back up drain field location. The total costs for design and construction of the waste water system upgrade is approximately \$150,000 to \$200,000. The existing mound waste disposal system will be taken off line but will remain in place for emergency/maintenance purposes only. All necessary permits/licenses from the North Dakota First District Health Unit will be obtained when design and funding are finalized.



Example image of septic drain field.

#### Other Infrastructure

Other ancillary infrastructure will be required. This includes providing connections from the existing potable water, electrical, and cable lines to the new housing units. The connection to the proposed drain field site will utilize the right-of-way of the access road. Trenching from the existing main lines to the housing and drain field will be conducted. Construction of driveways and a small parking lot will also be completed for occupants of the new housing units.

### Alternatives Considered but Dismissed

Other alternatives were considered by the planning team, but were dismissed early in the initial evaluation process because they did not meet project purpose and need, were deemed unrealistic, or were inconsistent with Agency or Park mission. This section describes those alternatives that were eliminated from further consideration, and the basis for excluding them from analysis in this plan/EA.

### Housing

No other areas within the Park boundary were appropriate for expansion of Park housing because of the widespread presence of archeological resources, the 100-year floodplain, and viewshed concerns with impeding sight lines from the reconstructed fort to the surrounding lands. Conversely, federal property outside Park boundary was identified as a potential housing site; however, the site lacked utility infrastructure and was in the proximity to an active petroleum facility. Providing all new infrastructure would be cost prohibitive.

### Wastewater Treatment System

The proposal to upgrade the existing wastewater treatment system in the existing location was dismissed because of soil quality, high water table, and proximity to floodplain incompatibilities. A main component of this plan is to find suitable location for the long-term treatment of wastewater. The proposal to construct wastewater system in the triangular land area northeast of existing Park housing and immediately east of the access road was dismissed because this area does not meet the minimum size requirements for the placement of a drain field wastewater treatment system. The consideration to construct wastewater treatment directly north of existing Park housing was dismissed because development would likely result in unreasonable adverse impacts to known archeological resources. Other alternative locations were more feasible and appropriate to reduce resource impacts.

### Mitigation Measures

- All activities will comply with the *Secretary of Interior's Standards and Guidelines for Archeology and Historic Preservation* and *Director's Order 28: Cultural Resource Management*.
- Qualified Archeologists will be on-site to monitor ground disturbing activities at the proposed housing and drain field locations.
- Designated monitors from culturally associated tribes will be invited to be on-site during ground disturbing activities at the proposed housing and drain field locations.
- In compliance with the statute and all regulations of the *Native American Graves Protection and Repatriation Act* of 1990, and following the provision specified in the regulations, the Park superintendent will notify all potentially culturally affiliated Tribes upon the discovery of American Indian human remains, funerary objects, sacred objects, or objects of cultural patrimony. The Park manager will consult with the federally recognized Tribes that are potentially affiliated, either through the Tribal governments or their duly designated representatives. All decisions regarding the disposition and/or treatment of American Indian human remains, funerary objects, sacred objects, or objects of cultural patrimony will be made in full compliance with the *Native American Graves Protection and Repatriation Act* statute and regulations.

- Construction/installation of housing units with sufficient elevation to be out of the 100-year floodplain. This includes raising housing units ~ 4-5 feet from base elevation.
- Construction/installation of housing units with muted earth colors will complement the surrounding area to allow housing and other infrastructure to blend into the landscape and reduce visual intrusions.
- Housing units will have height limitations to reduce visual intrusions.
- Signs, high water indicators, and other safety information indicating that a site is flood-prone will be installed and educational materials suggesting appropriate actions in the event of flooding would be supplied to all residents.

#### Environmentally Preferable Alternative

According to the Department of Interior regulations implementing NEPA (43 CFR 46.30), the environmentally preferable alternative is the alternative “required by 40 CFR 1505.2(b) to be identified in a record of decision (ROD), that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural processes. The environmentally preferable alternative is identified upon consideration and weighing by the Responsible Official of long-term environmental impacts against short-term impacts in evaluating what is the best protection of these resources. In some situations, such as when different alternatives impact different resources to different degrees, there may be more than one environmentally preferable alternative.”

Action Alternative A is the environmentally preferable alternative because it will ensure the Park has adequate housing for staff to be stewards of the resources with minimal impact to those resources. The new drain field will ensure the Park has a long-term solution for the proper treatment of sewage in an appropriate location.

#### Agency Preferred Alternative

The NPS typically identifies a preferred alternative to convey to the public its intentions. The agency’s preferred alternative “... is the alternative which the Bureau believes would best accomplish the purpose and need of the proposed action while fulfilling its statutory mission and responsibilities, giving consideration to economic, environmental, technical, and other factors.” (43 CFR 46.420(d)).

The recommended preferred alternative is the Action Alternative A, because it would best address the purpose and need of the Park for housing Park staff, and would be the most economical and environmentally friendly solution to those needs.

## Chapter 3 - Affected Environment

### Archeological Resources

Federal land managers are required under Section 110 of the National Historic Preservation Act, as amended, to determine the nature and extent of archeological resources on lands under their control by developing plans for and conducting archeological surveys. Section 106, as amended, provides the framework for federal review and protection of cultural resources, and ensures they are considered during federal project planning and execution. It also requires inventories for resources prior to committing to an undertaking that might have an adverse effect to resources eligible for the National Register of Historic Places.

The majority of the Park has had a reconnaissance level archeological inventory, which is essentially what can be seen on the surface. In addition to these surface visual observations, test excavations and geophysical surveying methods have been utilized at the Park. The Park has a total of 19 archeological sites entered into the NPS Archeological Site Management Information System (ASMIS). Six of these sites have been determined eligible for or are listed on the National Register of Historic Places and have been identified as contributing to the National Historic Landmark.

The 1961 National Historic Landmark contained approximately eight acres, but did not define a boundary. The National Historic Landmark encompasses the Park and is considered a historic district which includes archeological resources. In 2014 the National Historic Landmark nomination was updated to augment the original 1961 document and its subthemes. The updated nomination was needed following extensive archeological investigations undertaken since the 1961 designation, including the physical boundary of the associated resources of Fort Union and the National Historic Landmark boundary. This nomination identified six sites as contributing to the nationally significant district, although not all have been officially evaluated (NPS 2014c). Condition assessments have been done, and 18 of the 19 sites are classified as in good condition and one in fair condition. Impacts to known sites are minimal, but ongoing rodent burrowing at the main fort is a primary concern. Missouri River erosion is currently not a threat to the north bank of the river, but as the river meanders it remains a concern. The footprint of the existing housing area and vicinity has been inventoried for archeological resources. Effects from climate change could impact archeological resources in the future, from events such as flooding, drought, woody vegetation, and invasive species as documented by the NPS Natural Resource Condition Assessment (NPS 2014a).

The archeological content seen in these surface investigations includes material cultural items from the fur trade era (1826–1867), as well as prehistoric (ca. 10,000 BP – 1860) and historic American Indian occupations (1860s–1884), and the early 20<sup>th</sup>-century community of Mondak. However, for projects such as the installation of a septic drain field, the archeological requirements exceed the reconnaissance level and would need a more detailed investigation (geophysics and other methods) in order to better understand the extent and content of these sites. Geophysical and pedestrian surveys of the area identified as the proposed location of the septic drain field for the Action Alternative were completed by MWAC in July of 2015 and no significant cultural resources were recorded in that area (NPS 2015b).

### Viewshed

A viewshed is the geographic area that is visible from a location. It includes all surrounding points that are in line-of-sight with that location. The viewshed, or cultural landscape, visible from Fort Union is one of the Park's fundamental resources and values. *Management Policies 2006*, the NPS's interpretation of the Organic Act of 1916 stresses the need to protect the viewsheds and scenery of NPS units (section 4.1).

For the Park, viewshed to and from the Fort is of particular importance because the primary reason for visitation to the historical site is to immerse oneself in the cultural history associated with the period of significance. The remoteness of the Park has helped preserve the historic viewshed and invokes a sense of what the Fort might have looked like 200 years ago. The Park intends to preserve the historical setting, feeling, and association as described in Park's long-range interpretive plan, which indicates that visitors will have the opportunity to "discover the landscape - views, wildlife, fort, and river - the same way and in the same condition to the extent possible that Lewis and Clark, Catlin, and Bodmer did" (NPS 2010).

The Bodmer Overlook is one of two primary viewing areas in the Park; at that location, Karl Bodmer possibly painted "Assiniboine at Fort Union," which portrays the Fort and Native Americans interacting with European fur traders. From the overlook, visible features include the fort, the native prairie within the Park, and the confluence of the Yellowstone and Missouri Rivers (NPS 2010). Within the Bodmer Overlook viewshed, cultivated crops (46%) and grasslands (21%) are the primary cover classes of the viewshed; from 2006 National Land Cover Dataset (NLCD). Overall, based on NLCD land cover data, the viewshed from Bodmer Overlook is agriculture-rich with interspersed wetlands along the river. Portions of Park housing are visible from Bodmer Overlook.

Views along the palisade walkway of the reconstructed historic fort are a second primary viewshed for Park visitors. This includes views towards the Missouri River and views north towards Bodmer Overlook. This provides visitors an opportunity to experience the historic views from the Park. As with Bodmer Overlook, primary cover classes include cultivated crops and grasslands. Both Bodmer Overlook and palisade walkway are classified as panoramic landscapes which includes broad horizontal composition with little to no sense of boundary restriction. This provides visitors with a sense of place as the landscape is vast.

The Park recently acquired the last of a series of parcels fronting the south side of the Missouri River, across the river from the reconstructed fur trade-era fort. The Park's federal boundaries now extend south of the river to include over 43 acres of both riparian and prairie vegetation. Acquisition of these parcels was a high priority for the Park, as federal ownership allows for the maintenance of a riparian vegetative setting that both partially screens views of development to the south, and helps set the historic scene associated with the mid-19th-century fur trade era.

While some data help explain the integrity of Bodmer Overlook and palisade walkway viewsheds with respect to development over time, a standard method for analyzing and assessing the condition of the visual resources in the Park has not been applied to the Park. Moderate concern for the site's setting, feeling, and association is warranted due to adjacent development pressures. This includes intense oil and gas production (oil well jump-jacks and flares), and transportation modifications on adjoining parcels within the viewshed. Possible future alternative energy, communications, or other infrastructure development adjacent to the Park is a continuing threat.

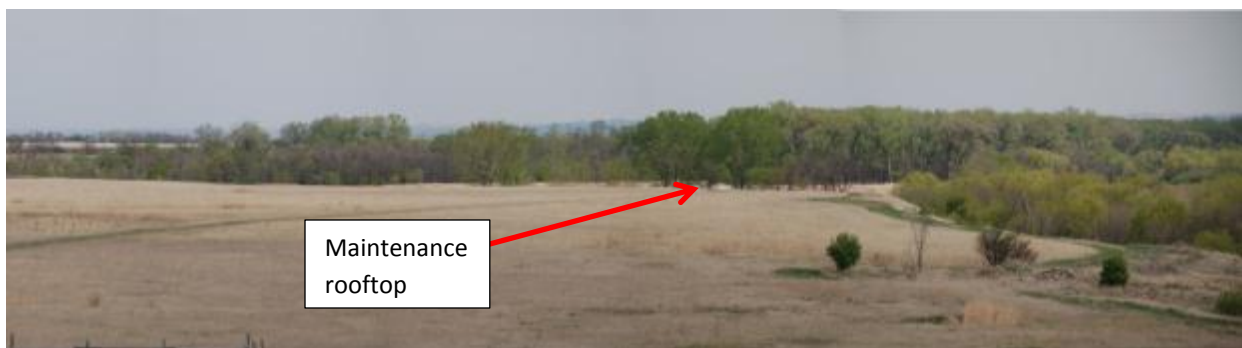


View from Bodmer Overlook, to the east of the fort.





View from Bodmer Overlook. Includes Maintenance Shop rooftop.



View from Palisade Walk at the reconstructed for towards Park housing & maintenance area

### Floodplain

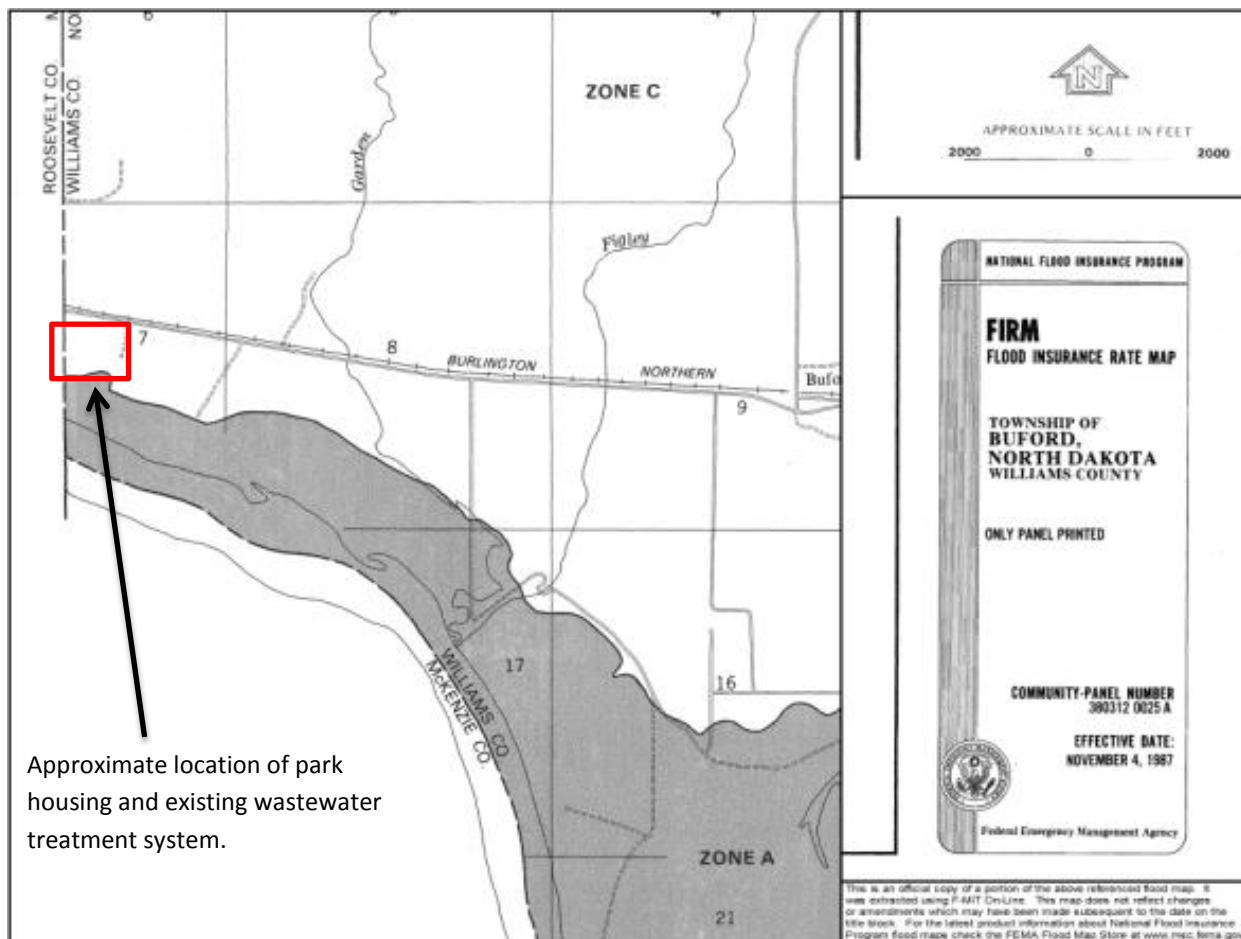
The Park is located approximately 3.7 miles upstream of the confluence of the Yellowstone and Missouri Rivers and the southern boundary of the Park is bisected by the Missouri River. Fort Peck Dam (approximately 185 river miles) upstream from the Park was completed in 1940 and it has changed the hydraulic regime of the Missouri River. This includes changed natural sediment loads, altered natural hydrology, and the composition and extent of floodplain forest communities (NPS, 2006). Reduced

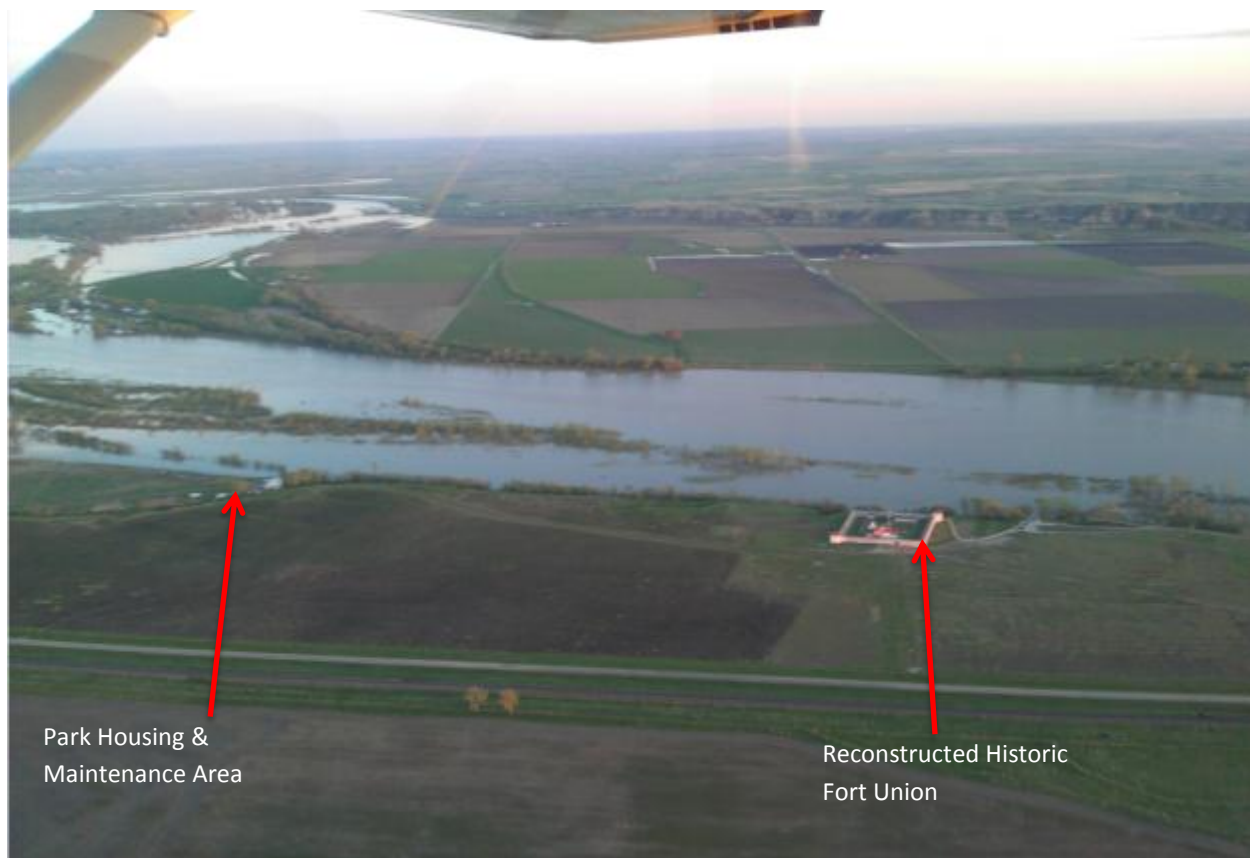


sediment loading has increased the stream power and caused the flows to be much more erosive. Fort Peck Dam also caused other changes in Missouri River hydrology, disrupting the magnitude and frequency of peak flows. These hydrological changes have caused meander wavelength to decrease and, subsequently, the location of erosion near the Park has changed (NPS, 2006). In the past decade the river has been meandering south away from primary Park lands, resulting in erosion of the small section of recently acquired Park land on the opposite boundary.

Approximately 50 acres of the Park lie on either side of the river. A floodplain delineation was conducted by Federal Emergency Management Agency (FEMA) in 1987 which showed the 100 year floodplain (simply a flood that statistically has a 1-percent chance of occurring in any given year) would encompass much of the maintenance/housing area and most of the visitor's parking area west of the fort (FEMA 1987). The most recent flood event was in 2011 which, according to the North Dakota Investigations Division of the State Water Commission (N.D. State Water Commission, Email correspondence, January 2015), was estimated to be at least a 100-year flood event or greater. During the flood of 2011, the existing Park housing area did not flood, though water did rise to near the top of the bank. From that we understand the original floodplain delineation by FEMA may have used information which is now outdated. We now believe that the 100 year floodplain for the Park is at or slightly below the bank where the maintenance building is located.

A rising water table in response to the 2011 flood caused the existing mound/leachate system to not function properly. The existing mound system is built in an area comprised of clay soils which are generally impermeable, and when the ground water rose to near the surface, the result was the mound system could not properly drain liquid waste. While relatively rare, these high water events put a strain on the existing Park infrastructure.





Aerial picture of 2011 flood event along Missouri River. View looking south.



Photo of high water mark, June 16, 2011. View looking east.

## Chapter 4 - Environmental Consequences

This section analyzes the potential environmental consequences, or impacts, that occur under the no-action alternative or could occur as a result of implementation of the action alternative. Topics analyzed in this chapter include archeology, viewshed, and floodplains.

### General Methodology for Analyzing Impacts:

In accordance with the CEQ regulations, direct, indirect, and cumulative impacts are described (40 CFR 1502.16) and the impacts are assessed in terms of context and intensity (40 CFR 1508.27). Where appropriate, mitigating measures for adverse impacts for each resource may vary; therefore, these methodologies are described under each impact topic.

**Type of Impact** describes the classification of the impact as either *beneficial* or *adverse*, *direct* or *indirect*. The terms “impact” and “effect” are used interchangeably throughout this EA.

- o *Beneficial*: An impact that would result in a positive change to the resource when compared to the existing conditions.
- o *Adverse*: An impact that causes an unfavorable result to the resource when compared to the existing condition.
- o *Direct*: Impacts that would occur as a result of the proposed action at the same time and place of implementation (40 CFR 1508.8).
- o *Indirect*: Impacts that would occur as a result of the proposed action but later in time or farther in distance, but still reasonably foreseeable from the action (40 CFR 1508.8).

### Cumulative Impact Scenario Analysis Methodology

The CEQ regulations require the assessment of cumulative impacts in the decision making process for federal projects. Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative impacts are considered for both the no-action and preferred alternatives.

Cumulative impacts were determined by combining the impacts of the action alternative (implementation of Alternative A) with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other ongoing or reasonably foreseeable future projects at the Park and, if applicable, the surrounding region.

The former access road from the highway to the entrance of the historic fort provided the most direct route but also resulted in viewshed obtrusions and possibly archeological resource impacts. In 1989, the Park developed a new gravel access road by locating the access towards the west of the reconstructed fort; in 1993 the Park paved the roadway. This reduced viewshed obtrusions but could have contributed to further displacement of archeological resources. This action resulted in at least a portion of the visitor

parking lot being placed within the 100-year floodplain but within an existing gravel mined area, effectively screening visitor parking from the viewshed towards the Park from the north.

Past and ongoing ranching and agricultural farming in the vicinity has resulted in the loss of archeological materials from plowing and other related development activities. Cultivation of land became more pronounced following the passage of the Homestead Act of 1862. The Park has a scenic easement north of the reconstructed fort which has prevented development and allowed more protection of the viewshed, particularly views from Bodmer Overlook towards the reconstructed fort and Missouri River. The scenic easement permits agricultural activities while precluding development actions; such as buildings.

Prior to 1984 there was a mobile home visitor center and two mobile homes for Park housing located just north of the historic fort ruins. In 1984, the Park constructed the maintenance shop and access road. The following year, staff housing (originally two mobile homes) was put in place, and in 1997 the existing permanent housing units (single family homes) were constructed. Majority of these structures are not visible from the Park's primary viewsheds, however, portions of the maintenance roof does intrude into the sightlines. This development has had some level of detrimental effect on the Park visually because it introduces a modern intrusion into an otherwise historic view.

An access route from the reconstructed fort to the maintenance shop/housing area likely started as a farm trail; however, continued use by Park staff eventually resulted in a two-track access road. This included use of heavy vehicles which compacted soils, increased erosion, and disturbed intact archeological resources. These actions have resulted in adverse impacts to the archeological resources. This path is now no longer used for vehicles and the impacts have ended.

Ongoing and reasonably foreseeable petroleum extraction in the area is a concern for the primary viewshed and archeological resources within the region. This includes deterioration of clear visibility caused by petroleum operations which contribute to regional haze issues. The degree to which petroleum extraction will continue is connected to the world markets and other factors. In 2005 there was significant increase in petroleum extraction; however, economic downturn slowed these efforts in 2008. Petroleum extraction efforts are now on the increase from 2009 to present day (2015).

Upstream dams and natural functions of the Missouri River have altered the natural meandering movements and moved the river away from the reconstructed fort. The Missouri River was historically in closer proximity to the historic fort, once at the base of the bluff below the fort. The dams upriver and continual bank stabilizing at the fort and up river have altered the normal river flow patterns.

The existing Burlington Northern and Santa Fe Railway track which is located north of the Park and north of the highway is currently expanding the tracks from single to double within the railroad's existing right-of-way. This is being done to accommodate the flow of petroleum products out of the area and is expected to result in increased train traffic, noise, and potentially hazardous spill risks in the event of a derailment or similar accident. The increase of train traffic is expected to deteriorate the historic viewshed and negatively impact the setting, feeling, and association of the site's period of significance.

### Assessing Impacts Using CEQ Criteria:

The impacts of the alternatives are assessed using the CEQ definition of “significantly” (1508.27), which requires consideration of both context and intensity:

- **Context:** Significance varies with the physical setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. This means that the significance of any action may be analyzed within the appropriate context, such as society as a whole (human, national), the affected region, or the locality. Both short-term and long-term effects are often characterized as duration.
  - **Duration:**
    1. *Short-term*: impacts generally last only during the initiation and implementation of the project, and the resources resume their pre-project conditions following the implementation of the project.
    2. *Long-term*: impacts last beyond the initiation and implementation of the project, and the resources may not resume their pre-project conditions for a longer period of time.
- **Intensity:** this refers to the severity of the impact. The following should be considered in evaluating intensity:
  1. Impacts that may be both beneficial and adverse. A significant effect may exist even if the federal agency believes that, on balance, the effect will be beneficial.
  2. The degree to which the proposed action affects public health or safety.
  3. Unique characteristics of the geographic area, such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.
  4. The degree to which the effects on the quality of the human environment are likely to be highly controversial.
  5. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.
  6. The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.
  7. Whether the action is related to other actions with individually insignificant, but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.
  8. The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, or may cause loss or destruction of significant scientific, cultural, or historical resources.

9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.
10. Whether the action threatens a violation of federal, state, or local law or requirements imposed for the protection of the impact.

## **Archeological Resources**

### No-Action Alternative

#### Impacts –

Under the no-action alternative, there would be no new development of housing or alternative wastewater treatment system. The one mound system which is not functioning properly would likely have to be replaced at some time with another in relatively the same area. This area does not appear to have subsurface archeological remains. No direct or adverse impacts to archeological resources would be expected.

#### Conclusion –

The no-action alternative would result in no additional direct or adverse impacts to the archeological resources because no new development would occur.

### Alternative A

#### Impacts –

Under the action alternative, development for new housing would occur in the immediate vicinity of existing housing units, along the right-of-way of the service road. Existing housing units are generally located on the original road alignment and to the extent possible new housing would utilize this previously disturb area. Near the Park housing access road on Highway 1803, the drain field wastewater treatment system would be constructed (see action alternative map in Chapter 2). In July 2015, geophysical archeological analysis by the MWAC determined the lack of subsurface resources in the proposed project area.

Previous inventories by MWAC for the existing housing units and service road provided preliminary evidence of the lack of archeological resource presence. Historically, the Missouri River was located where the present day Park housing is situated. Thus, the presence of archeological resources is limited. Although geophysical analysis and other surveying have been completed for the area of the wastewater treatment system and housing areas, it is possible some archeological resources are present and could be adversely impacted. As a result, qualified archeologists would be needed to monitor the excavation activities associated with the wastewater system - both in the area of the septic drain field and at the insertion points for the drainline carrying effluent to that area - and to monitor those activities associated with construction of new housing to minimize impacts to possible archeological resources.

#### Conclusion –

The action alternative could have limited, inadvertent adverse impacts on archeological resources. The possibility exists for archeological resources impacts during ground disturbing actions regardless of

geophysical analysis. Qualified Archeologists will monitor excavation activities to prevent impacts to archeological resources to the extent possible should they be discovered.

## **Viewshed**

### No-Action Alternative

#### Impacts –

Under the no-action alternative, no placement of housing would occur. Adverse impacts on the Park's viewshed would be limited to the existing features on the landscape, such as the highway, railroad tracks, and oil field equipment. Existing Park housing and maintenance shop rooftops intrude slightly into the viewshed. Impacts from actions on the surrounding landscape, such as petroleum extraction, would continue and could intensify.

#### Conclusion –

The no-action alternative would result in no new direct adverse impacts to the Park's viewshed because no new housing or wastewater treatment system would be developed.

### Alternative A

#### Impacts –

This alternative calls for the development of new housing units, related infrastructure, and a new wastewater treatment system. Under this alternative there could be a slight to moderate alteration on the Park's viewshed from the proposed development, especially from higher vantage points (Bodmer's Overlook and palisade walkway), which may distract from the visual continuity of the landscape. However, proposed development would utilize a harmonized color palette that blends into the landscape.

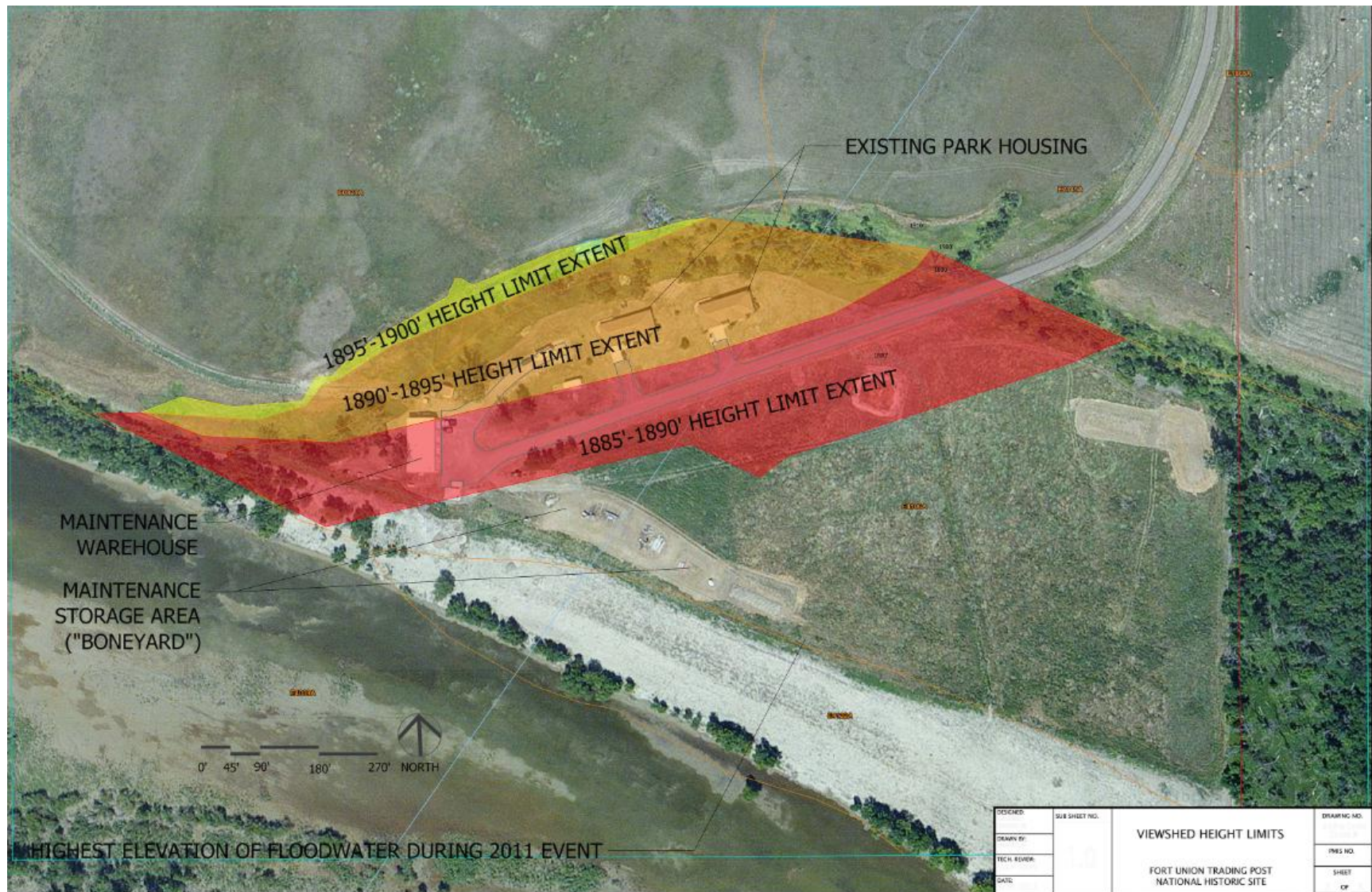
The color and surface material of the rooftops can mitigate most of adverse impacts on the viewshed. The visibility of the existing warehouse could also be mitigated by painting the rooftops a darker color with flat based paint or stain (not glossy). While the roofs of the houses may be visible, they blend better into the scenery and are less noticeable than the light colored maintenance shop roof.

Height restrictions and harmonizing coloration schemes for the new construction will lessen the visual intensity of the impact on the landscape and viewshed. The closer to the base of the terrace, the taller a structure can be. The further away from the terrace the shorter the structures must be in order to not protrude into the viewshed. Impacts would be short-term to the viewshed if housing units are placed in proximity to the terrace. Impacts would be long-term to the viewshed if housing units are constructed south of the access road. Other mitigation techniques in addition to height limits for new constructed elements could include the use of a secondary vegetated roof, constructed above a standard roof. Construction of a second, vegetated "green roof" would give the appearance of being a natural extension of the grassy upper terrace using native species.

#### Conclusion –



Impacts associated with this alternative could be long-term and adverse on the viewshed if mitigation as described above is not implemented. The intensity of this impact is subject to the final configuration of the housing. If housing units are placed in proximity to the terrace, impacts would be short-term. If all mitigation measures are implemented, impacts on the viewshed would be short-term, limited to construction activities.



Viewshed Height Limitations Image

## **Floodplains**

### No-Action Alternative

#### Impacts –

No new housing or wastewater treatment system would be developed under the no-action alternative. There would be no change in the ability of the floodplain to convey floodwaters, or its values and functions.

#### Conclusion –

The no-action alternative would have no impact on the floodplain.

### Alternative A

#### Impacts –

This alternative proposes to develop additional housing and related infrastructure in the vicinity of the existing housing area which is believed to be at or just slightly above the 100-year floodplain, as discussed in Chapter 3. Executive Order (EO) 11988 (Floodplain Management) requires federal agencies to minimize occupancy of and modifications to floodplains. Specifically, the EO prohibits federal agencies from funding construction in the 100-year floodplain unless there are no practicable alternatives. Justification for this action is detailed in the Statement of Finding (See Appendix A).

The floodplain is a very important component of the natural processes of the Missouri River. It functions to slow and disperse the energy of floodwaters, and provides diverse habitat for wildlife and plants that thrive on flood disturbance. The effectiveness of a river and floodplain to convey and store flood-water can be adversely affected by the placement of impediments to the floodplain's ability to slow and disperse flood energy. In addition, because of the power of floods, it is the policy of the NPS to avoid the long- and short-term environmental effects associated with the occupancy of floodplains. The safety of employees and their belongings is very important, as well as protecting the investment in infrastructure from flood waters.

As discussed in Chapter 3, the floodplain of the Missouri River was mapped as extending into the housing/maintenance area of the Park in 1987. However, during 2011 flood which was considered a 100 year or greater event did not reach the Park housing units. Existing housing units are slightly elevated. Any new housing would be raised (approximately 4-5 feet) from the base elevation. This would provide the necessary protection to the occupants and property from future flooding events. Housing development and related infrastructure will not result in adverse impacts to the floodplain natural processes.

#### Conclusion –

Impacts associated with this alternative could be adverse if mitigation as described above is not implemented. However, a condition of construction housing in this proximity to the Missouri River the NPS would slightly elevate new housing units to provide long-term protection to the occupants and property. Adverse impacts to the floodplain would not occur.

### **Cumulative Impact Conclusion**

Cumulative impacts associated with the action alternative would be centered on potential further historic viewshed and archeological impacts. The construction of new Park housing and wastewater treatment plant could further deteriorate the historic context of the Park derived from the setting, feeling, and association of the site to the cultural and interpreted resources. Mitigation measures such as height limitations and harmonizing colors complimentary of the surrounding area will reduce visual intrusions. The footprint of the new wastewater treatment plant is located in an area generally absent of archeological resources. Drain fields have a life expectancy of approximately 20-30 years. An adjacent area equal in size directly west of this proposed location would serve as a future back up drain field location. The Park has limitations on where future wastewater treatment systems could be located from the widespread presence of sensitive resources. The generally flat appearance of the drain field will not impact the viewshed and may screen the visual appearance of the access road.

Ongoing and reasonably foreseeable petroleum extraction in the area is a concern for the primary viewshed and archeological resources within the region and is likely to continue. This can result in deterioration of clear visibility caused by petroleum operations exhaust which contributes to regional haze issues. If the Missouri River starts to meander towards the reconstructed fort it could result in stream bank erosion and more intensive flooding extent.

## Chapter 5 - Consultation and Coordination

### Consultation

#### U.S. Fish and Wildlife Service (FWS)

On April 28, 2015, the NPS consulted with a representative of the FWS to evaluate the potential impacts of this project on threatened or endangered species and their habitat. The NPS is unaware of the existence of any of these species or their habitat within the bounds of the project area. Based upon the review of the species list and the lack of species likely to be affected by the project, the Park believes the plans to expand Park housing and upgrade support infrastructure would likely result in no effects to listed species.

#### North Dakota State Historical Preservation Office (SHPO)

On April 28, 2015, the NPS mailed a letter to the SHPO providing a description of the proposed project. This letter initiated consultation under Section 106 of the National Historic Preservation Act, as amended. On May 4, 2015, the SHPO concurred with the NPS on the proposed percolation tests and appropriate mitigation techniques. The SHPO will be sent the Expanded Housing/Utilities Plan when it is released on public review.

#### Culturally Associated Tribes

On April 28, 2015, the NPS mailed a scoping letter introducing the proposed project to the following nine tribes via the designated Tribal Historic Preservation Office (THPO):

- THPO, Mandan, Hidatsa and Arikara Nation (The Three Affiliated Tribes)
- THPO, Standing Rock Sioux Tribe
- THPO, Turtle Mountain Band of Chippewa
- THPO, Fort Peck Assiniboine and Sioux Tribes
- THPO, The Blackfeet Nation
- THPO, Chippewa Cree Tribe of the Rocky Boy's Reservation
- THPO, Confederated Salish and Kootenai Tribes of the Flathead Reservation
- THPO, The Crow Tribe of Indians
- THPO, Northern Cheyenne Tribe

The THPO for the Northern Cheyenne Tribe responded with comments on May 5, 2015, notifying the NPS they would like to pursue continued 106 consultation with the project and requested the presence of tribal monitors during the archeological geophysical investigations. The NPS and Northern Cheyenne worked together to facilitate this request but were unable to make arrangements to support travel and salaries in time to conduct the project. The Park will continue to work with the tribe and consult with them as the project planning continues. The THPOs listed above will be sent the Expanded Housing/Utilities Plan when it is released on public review.

List of Preparers and Contributors

*Fort Union Trading Post National Historic Site*

Andy Banta, Superintendent

Travis Lisenbee, Facility Manager

*Midwest Regional Office*

James Lange, Environmental Protection Specialist

Nicholas Chevance, Regional Environmental Coordinator

Bob Reiss, Project Engineer

Gary Krysl, Architect

Robert Kammel, Housing Manager

Ian Shanklin, Landscape Architect

*Midwest Archeological Center*

Jay Sturdevant, Archeologist

Robert Bryson, Archeologist and Manager

## References

Federal Emergency Management Agency

1987 *Floodplain Delineation*

National Park Service (NPS)

2015a *Director's Order 12 NEPA Handbook*

2015b *Midwest Archeological Center, Trip Report for archeological investigations for a relocated septic system*

2015c *State of the Park Report*

2015d *Fort Union National Historic Site, website*  
<http://www.nps.gov/fous/learn/historyculture/index.htm>

2014a *National Resource Condition Assessment*

2014b *Natural Resource Stewardship & Science, Climate Change Exposures*

2014c *National Historic Landmark Nomination (Updated), 2014.*

2013 *Foundation Document*

2012 *Cultural Landscape Inventory*

2011 *Housing Needs Assessment and Certification*

2010 *Long Range Interpretive Plan*

2006 *Geomorphological assessment of bank erosion along the Missouri River near Fort Union Trading Post National Historic Site*

North Dakota Investigations Division of the State Water Commission

2015 *Email correspondence*

Williston Herald

2014 *"Williston rent highest in nation"* (February 15, 2014)

## **Appendices**

APPENDIX A – FLOODPLAIN STATEMENT OF FINDING

APPENDIX B – CONSULTATION LETTERS



# Appendix A

## Floodplain Statement of Finding

### STATEMENT OF FINDINGS FOR EXECUTIVE ORDER 11988 FLOODPLAIN MANAGEMENT EXPANDED PARK HOUSING AND UTILITIES ENVIRONMENTAL ASSESSMENT FORT UNION TRADING POST NATIONAL HISTORIC SITE

Recommend: \_\_\_\_\_  
Superintendent, Fort Union Trading Post National Historic Site                      Date

Concurred: \_\_\_\_\_  
Chief, Water Resources Division                      Date

Concurred: \_\_\_\_\_  
Regional Director, Midwest Region                      Date

## Introduction

Executive Order (EO) 11988, "Floodplain Management" requires the National Park Service (NPS) and other agencies to evaluate the likely impacts of actions in floodplains. It is NPS policy to preserve floodplain values and minimize potentially hazardous conditions associated with flooding. If a proposed action is in an applicable regulatory floodplain, then flood conditions and associated hazards must be quantified and a formal statement of finding (SOF) must be prepared. Director's Order (DO) – 77-2: Floodplain Management provides direction for the preparation of a floodplain SOF. This SOF has been prepared to comply with EO 11988 and DO-77-2.

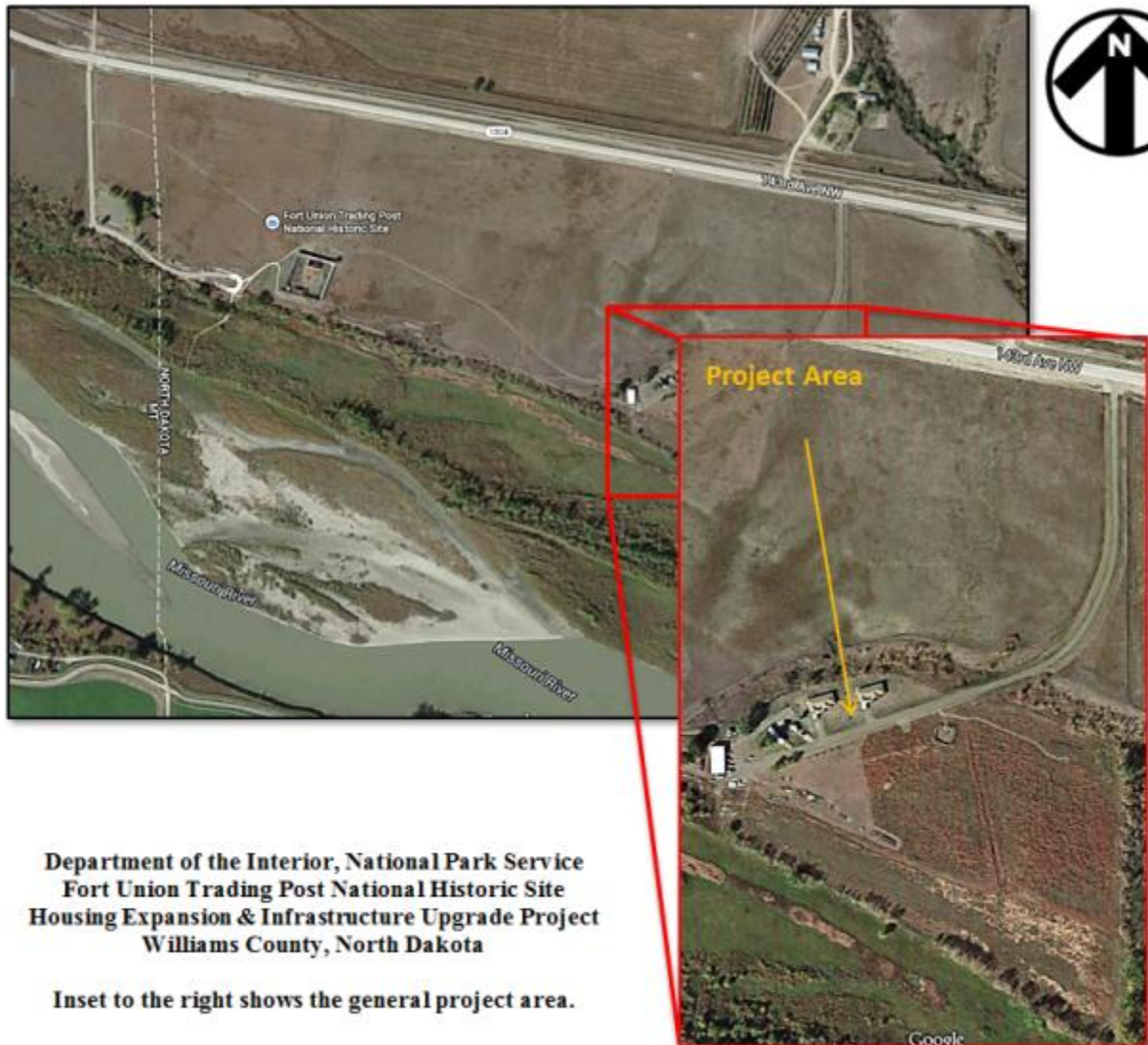
## Proposed Action

Fort Union National Historic Site intends to design and construct new Park housing, an associated wastewater treatment system, and other infrastructure to accommodate additional staffing needs which will enable the Park to fulfill its mission of protecting their fundamental resources and values.

New Park housing would be installed within the vicinity of the existing housing area. New housing would include a configuration of housing units to accommodate up to an additional 11 bedroom units. The new configuration may include a dorm style configuration or a series of duplexes. The exact configuration will be determined at the point at which funding is available to construct housing. However it is finally configured, this will include an area of approximately 12.5 acres for installation and construction staging activities (see red highlighted area below).

All permanent housing will be placed north of the access road, within the vicinity of the existing housing units. The access road will not be altered; a roundabout or some access configuration will be added to allow access for larger vehicles like semi-tractor trailers to the maintenance shop.

All areas within the proposed housing expansion outline have the potential for ground disturbing activities. Construction activities will include excavation of proposed housing units to the regional frost line, which is approximately seven feet below the surface. This will include foundation footers and/or concrete masonry units attached to concrete slab. The voided areas will be back filled. Existing trailer pads will be maintained in place or moved to allow for new permanent housing units. The existing temporary trailer will be removed. Maintaining the trailer pads will allow the Park to place temporary recreational vehicle-style (RV) trailers on pads on an as needed basis.



**Department of the Interior, National Park Service  
Fort Union Trading Post National Historic Site  
Housing Expansion & Infrastructure Upgrade Project  
Williams County, North Dakota**

**Inset to the right shows the general project area.**



Aerial imagery of proposed housing expansion.

#### Justification for use of the floodplain

The Park manages and protects the Park resources in western North Dakota. Housing availability is extremely limited in this sparsely populated region. In 2011, the Park completed a Housing Needs Assessment which identified a shortage in housing for Park staff, permanent and temporary. The assessment completed a local market analysis (LMA) which examined local communities and available housing (for sale or lease) within a 60-mile (one-way) commute of the Park. Due to the Park's location and the regional economic environment, purchasing housing outside of the Park is not feasible, and even rental properties are unaffordable for Park employees, as documented LMA and State of the Park reports.

The Park has two permanent housing units, each containing three bedrooms, and a temporary trailer, which includes a foundation pad. The housing area also includes a privately owned RV on Park owned foundation pad. Park officials have routinely used all six bedrooms to house permanent and seasonal staff members who require lodging. The required occupant (an employee who is required to live in Park

housing to respond to emergency situations) at the Park is entitled to use one of the three bedroom units exclusively but has opened up their residence in the past to give seasonal employees a place to live. Following consideration of current Park housing inventory and LMA results, it was identified the Park is in need of 11 seasonal bedroom units. The new configuration may include a dorm style configuration or a series of duplexes. The exact configuration will be determined at the point at which funding is available to construct housing.

No other areas within the Park boundary were appropriate for expansion of Park housing because of the widespread presence of archeological resources and viewshed concerns with impeding sight lines from the reconstructed fort to the surrounding lands. Conversely, federal property outside Park boundary was identified as a potential housing site, however, the site lacked utility infrastructure and was in the proximity to an active petroleum facility. Providing all new infrastructures would be cost prohibitive.

#### Investigation of Alternative Sites

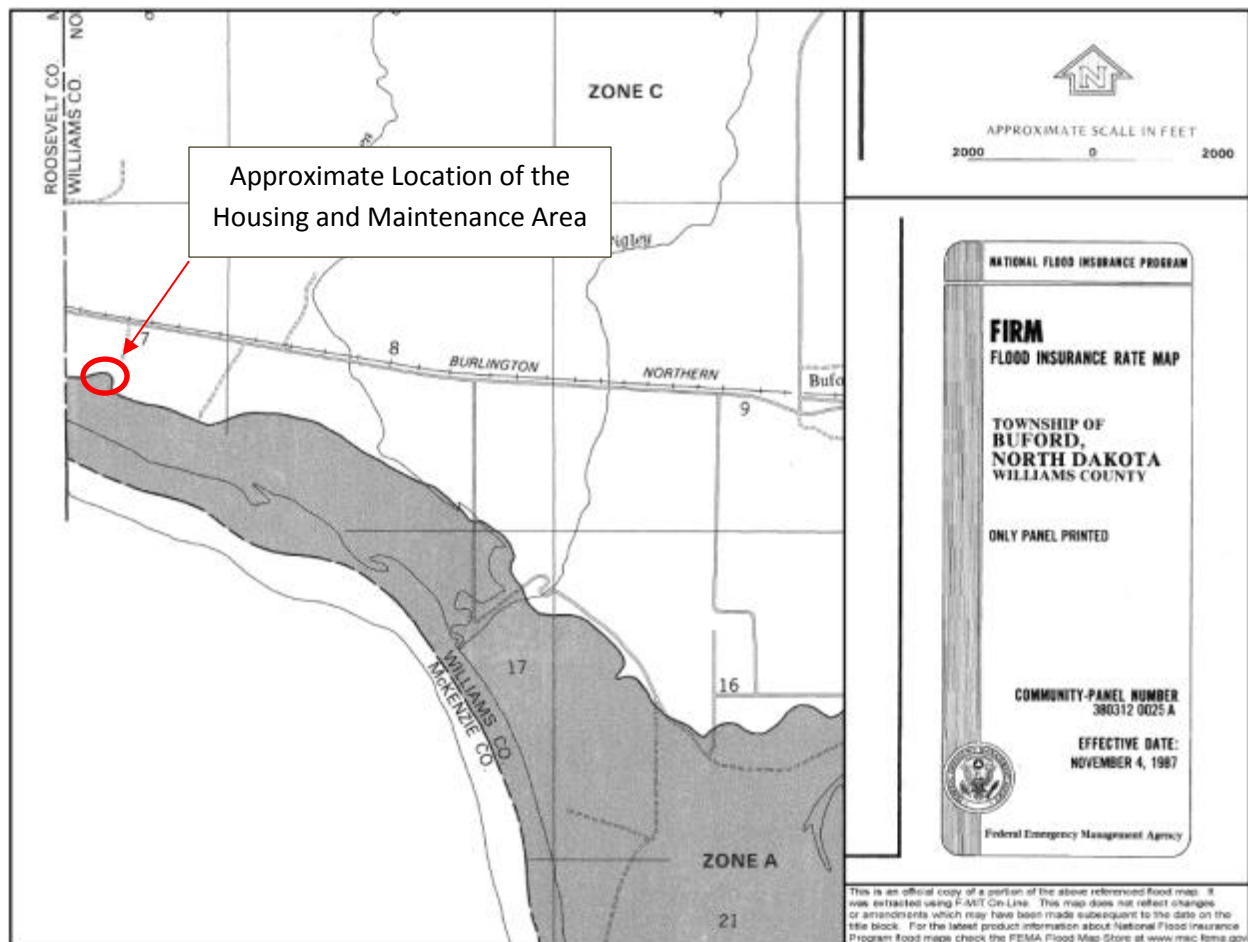
Due to the location and economic environment, purchasing housing outside of the Park is not feasible and unattainable for Park employees as documented by the Housing Assessment and State of the Park reports. Due to the widespread archeological resources and viewshed (both fundamental resources) concerns developing housing in other areas of the Park is inadvisable. Additional housing would need to be installed in the vicinity of existing housing to accommodate new employees.

#### Description of Site-Specific Flood Risk

The Missouri River is adjacent to the southern Park boundary. The most recent major flood event occurred in 2011 where flooding reached portions of the Park lands but did not flood the existing housing area or maintenance operations. The 1987 Federal Emergency Management Administration (FEMA) floodplain delineation map (see image below) shows much of the project area within the 100 year floodplain. However, based on the results of the 2011 flooding along the Missouri and because the FEMA map is almost 30 years old, it appears the FEMA map contours are slightly off from the most current United States Geological Survey (USGS) topography map contours.

To document the official level of the 2011 flood event, the superintendent sent an email to the State of North Dakota's Water Commission asking whether this was considered a 100 year flood event. The answer was an estimate that the 2011 flood was between a 100 and 500-year event. The Commission used an estimate taken from flood stage measurements at Culbertson, MT a little over 30 river miles upstream from the Park, and at Williston, North Dakota, about 35 river miles downstream of the Park. The elevation during the peak stage of the 2011 flood near the Park would have been approximately 1880.5 feet above mean sea level (amsl) in elevation according to the Water Commission.

The recurrence interval of flooding at the site is likely high; however, the extent of flooding at or above the 1880.5 foot elevation would not be common. The time required for flooding to occur is over a number of days before water could potentially reach the Park access road. The flooding is gradual and slow unlike flash flood events. Although geomorphic considerations such as erosion and channel adjustments occur along the Missouri River the proposed housing is setback approximately 1,500 feet.



FEMA Flood Insurance Map from 1987

#### How the action will be designed or modified to minimize harm to property and life

Raising the elevation of any housing above the base elevation will greatly minimize flooding hazards of the structures. Existing Park housing is slightly elevated (elevations between 1885 and 1886 feet amsl) and any new housing would also be elevated approximately 4 to 5 feet higher than the estimated 100-year flood elevation.

This fairly straightforward mitigation should be sufficient to remove the housing units from the regulatory floodplain and reduce the risk of impacts to life and property.

#### Contingency Plan and Mitigation Measures

Mitigation would be provided by incorporating methods for protecting human safety and protection of investment. Minimization of harm or risk to life and property is accomplished by raising housing foundations to account for future 100-year or greater flood events. When flooding does occur it is slow process which typically takes several days. This would allow ample amount of time to evacuate the area. Other mitigation measures include posting of signage informing house occupants of the dangers of flooding and what to do when an event takes place.



### Conclusion

The protection of people and property is a high priority to the NPS. There is no practical alternative to the construction of the proposed project within the 100-year regulatory floodplain. The proposed action would not modify drainage patterns and would not significantly change flood flow conditions downstream of the Park. The new housing units will not endanger employees or Park structures because 1) the risk of flooding in the housing area is less than that indicated by the 1987 FEMA map, per the 2011 flood event high water documentation, 2) the actual 100 year floodplain does not encroach into the housing and maintenance area based on the results of the 2011 flood event, and 3) a simple action, by raising the elevations of the housing units, ensures that flooding is unlikely to reach these units.

The NPS finds the proposed action to be consistent with EO 11988 and DO-77-2.

### References

Federal Emergency Management Agency  
1987 *Floodplain Delineation*

National Park Service (NPS)

2015 *State of the Park Report*

2011 *Housing Needs Assessment and Certification*

North Dakota Investigations Division of the State Water Commission  
2015 *Email correspondence*

## APPENDIX B – CONSULTATION LETTERS



## United States Department of the Interior NATIONAL PARK SERVICE

Fort Union Trading Post  
National Historic Site  
15550 Highway 1804  
Williston, North Dakota 58801

REPLY REFER TO:  
N16 FOUS-15)

*November 13, 2015*

Mr. Scott Larson, Field Supervisor  
U.S. Fish and Wildlife Service  
Ecological Service Office  
3425 Miriam Avenue  
Bismarck, North Dakota 58501

Dear Mr. Larson:

The Fort Union Trading Post National Historic Site (park), National Park Service, is beginning a planning process to address the shortage of park housing for both permanent and seasonal employees. The purpose of the plan is to explore the options for expanding existing employee housing and the necessary support infrastructure (wastewater treatment and other utilities). Existing employee housing and utilities are currently at capacity and cannot fully address the park's current and future needs. New housing and upgraded utilities would allow the park to more easily recruit and retain employees and ensure that public health standards are maintained.

We have reviewed the endangered species website for North Dakota (updated January 2015), which indicates the following federally listed species may occur in Williams County:

- Interior Least Tern (*Sterna antillarum athalassos*), endangered
- Whooping Crane (*Grus Americana*), endangered
- Pallid Sturgeon (*Scaphirhynchus albus*), endangered
- Gray Wolf (*Canis lupus*), endangered
- Piping Plover (*Charadrius melodus*), threatened and designated critical habitat
- Rufa Red Knot (*Calidris cantus*), threatened
- Northern Long-Eared Bat (*Myotis septentrionalis*), proposed
- Sprague's Pipit (*Anthus spragueii*), candidate

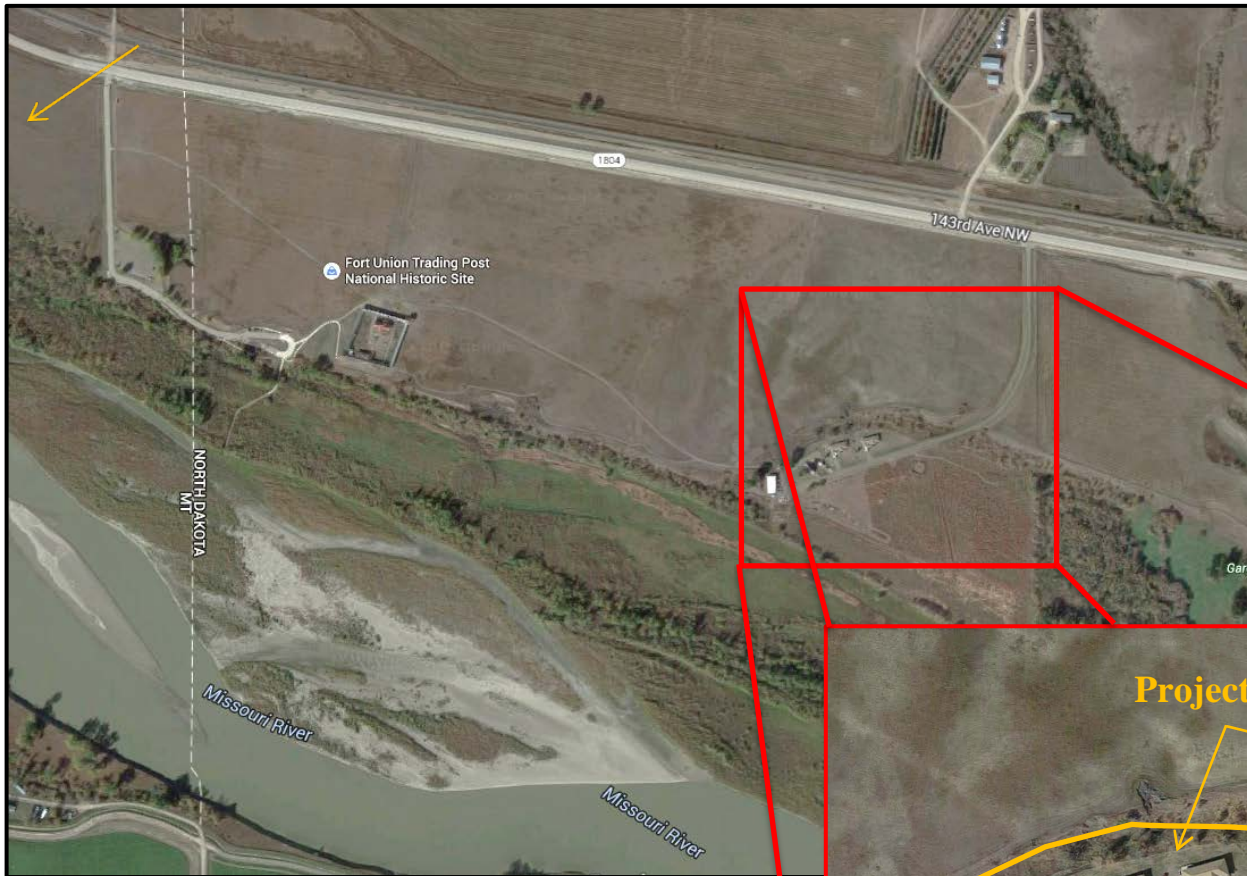
The Park is unaware of the existence of any of these species or their habitat within the bounds of the project area, as shown on the attached map. Based upon the review of the species list and the lack of species likely to be affected by the project, the Park believes the plans to expand park housing and upgrade support infrastructure would likely result in no effects to listed species.

The park appreciates your effort to review and comment on this determination. If you have comments or concerns, please contact me at the address above, or by telephone at (701) 572-1029

Sincerely,

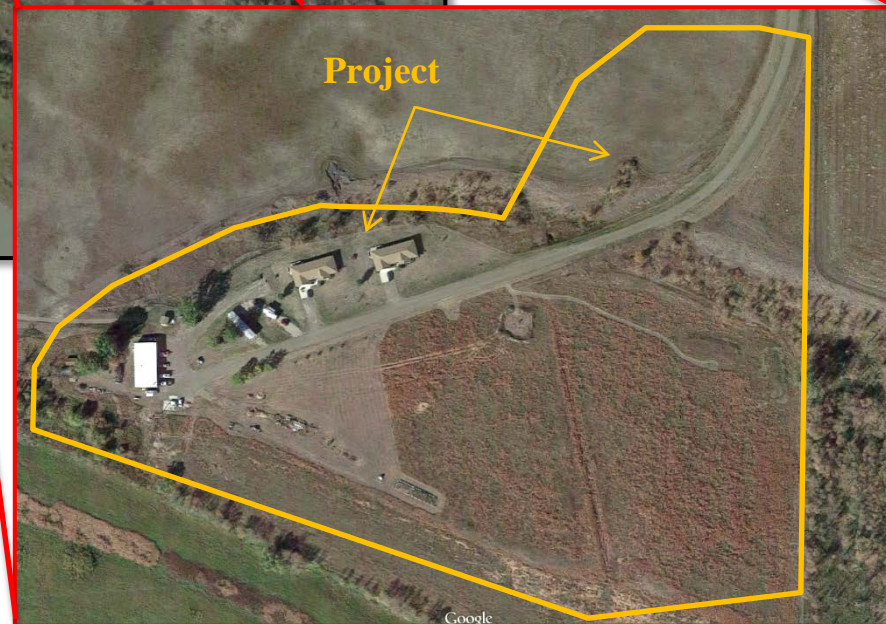
Andrew Banta  
Superintendent

bcc:  
NPS-MWR-PC (Chevance)



**Department of the Interior, National Park Service  
Fort Union Trading Post National Historic Site  
Housing Expansion & Infrastructure Upgrade Project  
Williams County, North Dakota**

**Inset to the right shows the general project area.**





United States Department of the Interior  
NATIONAL PARK SERVICE

Fort Union Trading Post  
National Historic Site  
15550 Highway 1804  
Williston, North Dakota 58801

REPLY REFER TO:  
N16 FOUS-15)

OCT 19 2015

October 16, 2015

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

Project as described is not expected to have significant impact on fish and wildlife resources. Contact this office if changes to the project are made or new information becomes available.

11/13/2015

Date

for

North Dakota State Supervisor

Mr. Scott Larson, Field Supervisor  
U.S. Fish and Wildlife Service  
Ecological Service Office  
3425 Miriam Avenue  
Bismarck, North Dakota 58501

Dear Mr. Larson:

The Fort Union Trading Post National Historic Site (park), National Park Service, is beginning a planning process to address the shortage of park housing for both permanent and seasonal employees. The purpose of the plan is to explore the options for expanding existing employee housing and the necessary support infrastructure (wastewater treatment and other utilities). Existing employee housing and utilities are currently at capacity and cannot fully address the park's current and future needs. New housing and upgraded utilities would allow the park to more easily recruit and retain employees and ensure that public health standards are maintained.

We have reviewed the endangered species website for North Dakota (updated January 2015), which indicates the following federally listed species may occur in Williams County:

- Interior Least Tern (*Sterna antillarum athalassos*), endangered
- Whooping Crane (*Grus Americana*), endangered
- Pallid Sturgeon (*Scaphirhynchus albus*), endangered
- Gray Wolf (*Canis lupus*), endangered
- Piping Plover (*Charadrius melodus*), threatened and designated critical habitat
- Rufa Red Knot (*Calidris cantus*), threatened
- Northern Long-Eared Bat (*Myotis septentrionalis*), proposed
- Sprague's Pipit (*Anthus spragueii*), candidate

The Park is unaware of the existence of any of these species or their habitat within the bounds of the project area, as shown on the attached map. Based upon the review of the species list and the lack of species likely to be affected by the project, the Park believes the plans to expand park housing and upgrade support infrastructure would likely result in no effects to listed species.





# United States Department of the Interior

## NATIONAL PARK SERVICE

Fort Union Trading Post  
National Historic Site  
15550 Highway 1804  
Williston, North Dakota 58801

REPLY REFER TO:

H 22 FOUS 2015

April 27, 2015

Fern Swenson, Director  
Historic Preservation Division  
State Historical Society of North Dakota  
North Dakota Historic Preservation Office  
612 East Boulevard Avenue  
Bismarck, North Dakota 58508-0830

Dear Ms. Swenson:

The Fort Union Trading Post National Historic Site (park), National Park Service, is beginning project planning to address the shortage of park housing for both permanent and seasonal employees. The purpose of the plan is to explore the options for expanding existing employee housing and the necessary support infrastructure (wastewater treatment and other utilities). Existing employee housing and utilities are currently at capacity and cannot fully address the park's current and future needs. New housing and upgraded utilities would allow the park to more easily recruit and retain employees and ensure that public health standards are maintained.

In the development of the park housing and upgraded infrastructure project, we intend to confine this development to areas currently used for existing housing and infrastructure and, to the greatest extent possible, avoid any adverse effects to cultural resources. We are aware of the several important cultural sites that exist on the upper terrace above the present housing site. In order to avoid significant archeological resources, we are proposing to conduct phased investigations in the project area. In order to determine whether an area can be used for a septic system, a percolation test will be needed to determine the absorption rate of the soil for a septic drain field. A percolation test will consist of digging a small set of holes in the soil to a specified depth, then filling the holes with water to a specific level and timing the drop of the water level as the water percolates into the surrounding soil. A minimum of three test holes will be hand dug or augured, most commonly six to eight inches in diameter, from three to six feet below the surface. We will have an archeologist on site to monitor the digging of the holes. Then, prior to establishing alternative locations for infrastructure and housing, we will conduct comprehensive archeological inventories, using surface inventory and geophysical assessments in the areas with the potential for archeological remains. We will use this information to create feasible and reasonable alternative(s), and prepare an environmental assessment to disclose the impacts of the project on resources affected by the project. Additional investigations may be recommended depending on the alternatives being considered and the assessment of impacts to archeological resources identified within the project area.

This letter initiates consultation under Section 106 of the National Historic Preservation Act, as amended. We are extending this opportunity to you to provide comments to us and identify issues that you wish us to consider during this planning project. Your participation will help us better plan our development, and

will help ensure that impacts to resources are adequately considered during the preparation of this plan and the implementation of the project.

Thank you for your comments and we look forward to hearing from you. If you have any questions regarding this project, please contact me at the address above or by telephone at (701) 572-1029.

Sincerely,

Andrew Banta  
Superintendent

bcc:  
NPS-MWR-PC (Chevance)



**STATE  
HISTORICAL  
SOCIETY  
OF NORTH DAKOTA**

RECEIVED MAY 08 2015

Jack Dalrymple  
*Governor of North Dakota*

**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*

May 4, 2015

Andrew E. Banta  
Superintendent  
Fort Union Trading Post National Historic Site  
15550 Highway 1804  
Williston, ND 58801-8680

NDSHPO REF.: 84-0085 and 15-1045 NPS Fort Union NHS 2015 Park  
Housing Inventory and Septic Percolation Borings  
[T152N R104W Section 8, SW]  
H4217 FOUS


Dear Andy:

We have received and reviewed recent correspondence and documentation for NDSHPO REF.: 84-0085 and 15-1045 NPS Fort Union NHS 2015 "Park Housing Inventory and Septic Percolation Borings" and find it acceptable. An adjacent and adjoining FOUS parcel was inventoried in 2004 (with Ms. 8900, on file, see enclosed aerial photograph).

We concur with having a permitted archaeologist monitor the proposed septic percolation borings, and we would also recommend that a one-inch Oakville soil core be used in these locations prior to the power augering being conducted. We also concur with the Class III CRI survey and the geophysical investigation recommendations for the proposed housing parcel tract.

Thank you for the opportunity to review the project, and we look forward to reviewing the accompanying reporting of the investigations and to further consultation. If you have questions please contact either Paul Picha [ppicha@nd.gov](mailto:ppicha@nd.gov) at (701) 328-3574 or Fern Swenson [fswenson@nd.gov](mailto:fswenson@nd.gov) at (701) 328-3575.

Sincerely,

 Claudia J. Berg  
State Historic Preservation Officer (North Dakota)  
and  
Director, State Historical Society of North Dakota  
enc. as stated



# United States Department of the Interior

## NATIONAL PARK SERVICE

Fort Union Trading Post  
National Historic Site  
15550 Highway 1804  
Williston, North Dakota 58801

REPLY REFER TO:

H 22 FOUS 2015

April 27, 2015

Mr. Elgin Crows Breast  
Tribal Historic Preservation Officer  
Mandan, Hidatsa and Arikara Nation  
404 Frontage Road  
New Town, North Dakota 58763

Dear Mr. Crows Breast:

The Fort Union Trading Post National Historic Site (park), National Park Service, is beginning a planning process to address the shortage of park housing for both permanent and seasonal employees. The purpose of the plan is to explore the options for expanding existing employee housing and the necessary support infrastructure (wastewater treatment and other utilities). Existing employee housing and utilities are currently at capacity and cannot fully address the park's current and future needs. New housing and upgraded utilities would allow the park to more easily recruit and retain employees and ensure that public health standards are maintained.

In the development of the park housing and upgraded infrastructure project, we intend to confine this development to areas currently used for existing housing and infrastructure and, to the greatest extent possible, avoid any adverse effects to cultural resources. We are aware of the several important cultural sites that exist on the upper terrace above the present housing site. In order to avoid significant archeological resources, we are proposing to conduct phased investigations in the project area. In order to determine whether an area can be used for a septic system, a percolation test will be needed to determine the absorption rate of the soil for a septic drain field. A percolation test will consist of digging a small set of holes in the soil to a specified depth, then filling the holes with water to a specific level and timing the drop of the water level as the water percolates into the surrounding soil. A minimum of three test holes will be hand dug or augured, most commonly six to eight inches in diameter, from three to six feet below the surface. We will have an archeologist on site to monitor the digging of the holes. Then, prior to establishing alternative locations for infrastructure and housing, we will conduct comprehensive archeological inventories, using surface inventory and geophysical assessments in the areas with the potential for archeological remains. We will use this information to create feasible and reasonable alternative(s), and prepare an environmental assessment to disclose the impacts of the project on resources affected by the project. Additional investigations may be recommended depending on the alternatives being considered and the assessment of impacts to archeological resources identified within the project area.

We are extending this opportunity to you to provide comments to us and identify issues that you wish us to consider during this planning project. Specifically, we would like to know if there are resources in the project area that may be of concern to you, if you would like the opportunity to visit the park and the project area, and if you would like to participate in the phased archeological investigations and

monitoring proposed for this project. Your participation will help us better plan our development, and will help ensure that resources important to you are adequately considered during the preparation of this plan and the implementation of the project.

Thank you for your comments and we look forward to hearing from you. If you have any questions regarding this project, please contact me at the address above or by telephone at (701) 572-1029.

Sincerely,

Andrew Banta  
Superintendent

bcc:  
NPS-MWR-PC (Chevance)

Additional Tribal contacts and cc's

**Standing Rock Sioux Tribe**  
Waste'Win Young, THPO  
PO Box D  
Fort Yates, North Dakota 58538

**Turtle Mountain Band of Chippewa**  
Brady Grant, THPO  
PO Box 900  
Belcourt, North Dakota 58316

**Fort Peck Assiniboine and Sioux Tribes**  
Darrell "Curley" Youpee, THPO  
PO Box 1027 / 501 Medicine Bear Road  
Poplar, Montana 59255

**The Blackfeet Nation**  
John Murray, THPO  
850 Government Square  
Browning, Montana 59417

**Chippewa Cree Tribe of the Rocky Boy's Reservation**  
Alvin Windy Boy, Sr., THPO  
9740 Upper Box Elder Road  
PO Box 230  
Box Elder, Montana 59521

**Confederated Salish and Kootenai Tribes of the Flathead Reservation**

Ira L. Matt, THPO

PO Box 278

Pablo, Montana 59855

**The Crow Tribe of Indians**

Emerson Bull Chief, THPO

PO Box 159

Crow Agency, Montana 59002

**Northern Cheyenne Tribe**

Conrad Fisher, Director

PO Box 128

Lame Deer, Montana 59043