

National Park Service
U.S. Department of the Interior

Grand Teton National Park
Wyoming



Replace Moose Wastewater System and Address Critical Water System Deficiencies FINDING OF NO SIGNIFICANT IMPACT

The water system that serves the Moose and Beaver Creek areas in Grand Teton National Park was constructed in 1956, with some upgrades in 1983-1984. The Moose wastewater treatment plant dates from 1963 with a major upgrade in 1973. Many original components of both systems are still in service. The systems are inefficient to operate, and they are increasingly prone to failures from wear and corrosion. Their conditions pose health risks to staff and visitors and have the potential to impact the Wild and Scenic Snake River adjacent to the Moose wastewater treatment plant. The water system is the source of firefighting water for structures in the area and cannot provide flows of sufficient rates, durations, or pressures. The project is needed to:

- Address potential threats to public health, park structures, and natural and cultural resources;
- Limit service interruptions;
- Reduce leaks in the water delivery system, thereby conserving water; and
- Improve the effectiveness of the wastewater treatment system.

This document records:

- A finding of no significant impact (FONSI) as required by the National Environmental Policy Act of 1969;
- A determination of no impairment as required by the NPS Organic Act of 1916. The non-impairment findings can be found in the appendix to this FONSI; and
- A statement of findings for floodplains in accordance with Executive Order 11988, Floodplain Management.

SELECTED ACTION

Alternative 2 is the preferred alternative and the NPS' selected action because it best meets the purpose and need for the project as well as the project objectives to replace or upgrade most components of the existing water supply system. This will include:

- Drilling a new well at the Taggart site and installing new pumps in both Taggart wells.
- Replacing the well house and water treatment equipment at Beaver Creek.
- Constructing a new, 300,000-gallon water storage tank in the Taggart area and removing the smaller, worn tanks at Taggart and Windy Point.
- Replacing the water transmission pipeline that conveys water by gravity from the Taggart tank to the Beaver Creek administrative area and then to Moose.

- Installing a new water pipeline from Moose to the 4 Lazy F Ranch to provide potable water and fire protection water in this National Register of Historic Places district.

The selected action will continue to treat wastewater at a facility in Moose. The existing treatment plant, which is approximately 200 feet from the Wild and Scenic Snake River, will be demolished. A new, modern treatment plant will be constructed at a site approximately 950 feet from the Snake River and outside the 500-year floodplain. The new plant, which will meet current and anticipated future state water quality requirements, will be sized to treat projected year 2040 flows from Moose, with opportunities for future capacity expansion.

Because the new plant will be at the site where the Moose gravity sewer lines converge, all of the gravity collection pipelines will remain in service. New underground force mains will be constructed to convey wastewater from the Craig Thomas Discovery and Visitor Center to the new wastewater treatment plant, and to move treated effluent to the existing, upland percolation bed, which will continue to be used for treated wastewater disposal.

A more detailed description of the selected action is provided on pages 23 through 25 of *Replace Moose Wastewater System and Address Critical Water System Deficiencies Environmental Assessment*. This document is also available on the Internet on the NPS Planning, Environment, and Public Comment website at <http://parkplanning.nps.gov/GRTE>.

MITIGATING MEASURES

Mitigation measures and guidelines have been developed as part of implementing the selected action. These measures and guidelines are provided at the end of this document and are specific to the project area and to the resource issues analyzed in the environmental assessment.

ALTERNATIVES CONSIDERED

Two other alternatives were considered:

- The no action alternative would continue to use the existing water and wastewater systems. Routine maintenance would be provided, with repairs completed as needed, but neither system would be replaced. The systems would continue to be undersized to meet future demands for potable water, water for fighting structural fires, and sewage treatment.
- The other action alternative would replace most water system components. It would provide water storage in two new tanks at the Taggart site and at Windy Point. A 12-mile-long, pressurized sewer line would convey wastewater from Moose and the Jackson Hole Airport to the town of Jackson sewer system for treatment in the Jackson publicly owned treatment works.

ENVIRONMENTALLY PREFERABLE ALTERNATIVE

According to the U.S. Department of the Interior regulations in 43 *Code of Federal Regulations* section 46.30 that implement the National Environmental Policy Act, the environmentally preferable alternative "causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources. 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."

Alternative 2 is the environmentally preferable alternative for several reasons. It will provide reliable potable water, firefighting water, and wastewater services to the Moose area. As a result, visitors and staff can continue to use and enjoy the Moose area without concerns about water-borne disease transmission or the adequacy of firefighting flows. The better water supply for firefighting that it provides will be more effective in protecting the historical, cultural, and natural resources of Moose

and Beaver Creek. It will use water and energy more efficiently and will maintain local hydrologic conditions. It also produces less environmental disturbance than the other action alternative.

WHY THE SELECTED ACTION WILL NOT HAVE A SIGNIFICANT EFFECT ON THE HUMAN ENVIRONMENT

As defined in 40 *Code of Federal Regulations*, Section 1508.27, significance is determined by examining the following criteria:

Impacts that may be both beneficial and adverse. A significant effect may exist even if the agency believes that on balance the effect will be beneficial.

During construction, moderate, adverse impacts on visitor use and experience will occur in the area of the Taggart Lake Trail. Moderate, adverse impacts will occur on the greater sage-grouse and other sagebrush-obligate species for approximately 15 years, until the vegetation in disturbed areas approaches maturity.

Once completed, the selected action will have moderate, beneficial impacts on:

- Cultural resources from improved firefighting ability at Moose, Beaver Creek, and the 4 Lazy F Ranch;
- The ability to meet state water quality standards for ground water protection;
- The adequacy of wastewater treatment to protect human health;
- The adequacy of firefighting flows for all structures at Moose and Beaver Creek;
- The reliability of providing potable water and wastewater management; and
- NPS operations with regard to workload scheduling and avoiding interruptions of water or wastewater system services.

All other impacts will have intensities that are minor or less. The mitigation measures listed later in this document will help ensure that the intensities of the adverse impacts do not exceed the above-stated levels. Impacts of other alternatives varied and are described in the environmental assessment.

Degree of effect on public health or safety

The selected action was designed to address concerns about the current system being able to ensure adequate capacities for potable water, firefighting water, and wastewater management. Facilities will be sized to meet demand in the year 2040 and will meet all current standards plus any regulations that will foreseeably be promulgated, such as more stringent wastewater treatment. The siting and configuration of facilities will accommodate later expansion as it was justified by increasing demand beyond 2040. The design of the new water system included modeling to ensure that water supplies could be delivered at the flow rates, durations, and pressures that will meet all regulatory and operational requirements. These features will have moderate, long-term, beneficial effects on public health and safety.

The selected action will replace most existing system components with new, modern equipment that will greatly increase system reliability. Reliability also will be maintained or improved by the continued use of gravity to deliver fire-fighting flows; improved materials and design engineering, including better ability to withstand seismic activity; use of a modern, computerized system that will provide real-time control of all components, save energy, and reduce equipment wear; and wastewater treatment plant design that will facilitate shut-down for maintenance and emergency repairs. With regular maintenance, the new systems will reliably meet firefighting water, potable water, and wastewater management needs for at least the next 50 years and will have moderate, long-term, beneficial effects on public health and safety.

The potential for a sewage release will be substantially reduced by features of this alternative that include new, modern equipment and greater storage of influent if the plant goes out of service. The effect on the safety of park staff will be minor, long-term, and beneficial. Spills will be less likely to occur and will have a reduced risk of entering the Snake River because of the increased distance to the river, resulting in a negligible to minor, beneficial impact on visitors health and safety.

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

Effects on park lands are described in detail in the environmental assessment. Impacts that are greater than minor are summarized under the first criterion, above. Most of these impacts will be beneficial. All of the moderate, adverse impacts will decline to negligible either at the end of construction or when the restored sagebrush vegetation approaches maturity in approximately 15 years.

Limited wetland impacts will occur where the buried water main crosses the Beaver Creek wetland and channel. Because of the small size of the disturbance and the best management practices and other mitigation that will be employed for construction and restoration, the short-term, adverse impacts will have minor intensity, and long-term impacts will be negligible.

The Moose area contains seven sites and/or historic districts that are listed in the National Register of Historic Places. The degree to which the action may affect these cultural resource are provided in the significance section on page 5 of the FONSI

The scenic, recreational, fish and wildlife, cultural, and water quality outstandingly remarkable values of the Wild and Scenic Snake River will be improved, primarily because of the removal of the existing wastewater treatment facility approximately 200 feet from the Snake River and construction of a new treatment facility approximately 950 feet from the Snake River bank. Beneficial effects on these outstandingly remarkable values will be long-term and minor.

No prime farmlands or ecologically critical areas will be affected.

Degree to which effects on the quality of the human environment are likely to be highly controversial

Throughout the environmental assessment process, the proposal to replace the Moose wastewater system and address critical water system deficiencies was not controversial and the effects are not expected to generate future controversy. Public scoping and comments on the proposal did not indicate any substantive contentious issues and the environmental assessment did not identify significant impacts associated with the selected action.

Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks

No highly uncertain effects or unique or unknown risks are anticipated to occur with implementation of the selected action. This action will upgrade water supply and wastewater management infrastructure to improve health and safety, visitor experience, and park operations. The selected action involves the use of proven, mature technologies. Standard construction and operation techniques, best management practices, and other mitigation will minimize risks.

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

The selected action will not set a precedent for future actions with significant effects, and it does not represent a decision in principal about any future consideration in Grand Teton National Park or elsewhere in the national park system.

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts

As demonstrated in the environmental assessment, this action will not result in any significant cumulative effects.

Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

The Moose area contains seven sites and/or historic districts that are listed in the National Register of Historic Places. These include the:

- 4 Lazy F Dude Ranch;
- Old Administrative Area Historic District at Beaver Creek;
- Chapel of the Transfiguration;
- Menor's Ferry;
- Moose Entrance Kiosk;
- Murie Ranch Historic District; and
- Murie Residence.

Descriptions of these cultural resource are provided on pages 40 through 42 of the environmental assessment.

The better protection of cultural resources resulting from improved firefighting ability at Moose, Beaver Creek, and the 4 Lazy F Ranch will result in long-term, moderate, beneficial effects on cultural resources. Other impacts on cultural resources will be negligible or minor. In a letter dated June 7, 2012, the Wyoming State Historic Preservation Office stated, "Provided the NPS follows the procedures established in the regulations, we have no objections to the project." The SHPO concurred on November 21, 2012 that no historic properties will be affected.

Implementation of the selected action will reliably deliver water for firefighting that meet all NPS and state requirements for volume, duration, and pressure. This will improve the ability to fight structural fires that could cause the loss or destruction of the listed cultural resources. This improvement will have long-term, moderate, beneficial effects.

Construction activities associated with the project will temporarily introduce non-historic visual, audible, and atmospheric elements into cultural resource settings. Such intrusions will occur only during construction and will result in negligible or minor, adverse impacts.

The National Park Service determined there will be no historic properties affected. SHPO concurred with the determination of effect on November 21, 2012.

Degree to which the action may adversely affect an endangered or threatened species or its critical habitat

In a letter dated May 10, 2012, the U.S. Fish and Wildlife Service concurred with the National Park Service on its determination of "may affect, but is not likely to adversely affect" for the Canada lynx, grizzly bear, and gray wolf. The U.S. Fish and Wildlife Service does not provide concurrence for candidate species (wolverine, greater sage-grouse, and yellow-billed cuckoo) but appreciated reviewing the information on these species. Mitigation measures listed in the environmental assessment and repeated in this document are part of the consultation and will be followed to protect these species and their designated critical habitat.

The 22 state-listed species of concern with potential habitat in the project area include 2 amphibians, 1 reptile, 11 birds, and 8 mammals. The Wyoming Game and Fish Department provided comments on the environmental assessment on April 27, 2012. Its comments did not identify concern about the analysis of any of the state-listed species but requested use of the Density and Disturbance Calculation Tool for the greater sage-grouse. The response to that request is provided later under "Substantive Comments." The above-cited mitigation measures will also help protect state species of concern.

Whether the action threatens a violation of federal, state, or local environmental protection law

This action does not threaten a violation of any federal, state, or local environmental protection law.

PUBLIC INVOLVEMENT

The environmental assessment was made available for public review and comment during a 30-day period ending April 27, 2012. A total of six responses were received. This included two responses from agencies (U.S. Fish and Wildlife Service and Wyoming Game and Fish Department), one from a conservation organization, and three from individuals (no form letters).

Two of the letters (none from individuals) clearly stated a preference among alternatives. The unanimous preference was for alternative 2, the selected action.

Substantive comments on the environmental assessment centered on disturbance of greater sage-grouse habitat and the need to install a water main to the 4 Lazy F Ranch.

These concerns did not result in any changes to the text of the environmental assessment but are addressed in errata sheets attached to this document. This finding of no significant impact and the errata sheets will be sent to all commenters.

CONCLUSION

As described above, the selected action does not constitute an action meeting the criteria that normally require preparation of an environmental impact statement. The selected action will not have a significant effect on the human environment. Environmental impacts that could occur are limited in context and intensity, with generally adverse impacts that range from localized to widespread, short- to long-term, and negligible to moderate. There are no unmitigated adverse effects on public health, public safety, threatened or endangered species, sites or districts listed in or eligible for listing in the National Register of Historic Places, or other unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the action will not violate any federal, state, or local environmental protection law.

Based on the foregoing, it has been determined that an environmental impact statement is not required for this project and, thus, will not be prepared.

Approved: _____


John Wessels, Regional Director, Intermountain Region, NPS

1/15/13

Date

MITIGATION MEASURES INCLUDED AS PART OF THE SELECTED ACTION

Soil

Use shoring in all trenches rather than side sloping to minimize surface disturbance. Width of trench shall be limited to no more than six (6) feet wider than the outside diameter of the pipe to be laid. Utilize site protective mats for all areas where heavy equipment will be operated, excepting storage/laydown areas, areas directly over the trench, authorized haul roads, and areas where existing or proposed topography precludes the safe/effective use of such site protective mats. Perform restoration promptly and, where possible, roll the sod that contains the topsoil and vegetation back on top of the filled trench where the plants can reestablish and limit the opportunity for exotic invasive species.

Minimize areas of disturbance by marking and strictly enforcing construction site and staging area boundaries, travel paths, and work limits with highly visible means such as fences.

Schedule construction during dry periods and when surface and ground water levels are low to minimize soil compaction.

Use erosion control best management practices to minimize soil erosion. Examples include silt fences, sediment traps, erosion check screens and filters, and hydro-mulch. Use materials such as straw bales, fabric barriers, and sandbags to prevent soil from entering waterways.

Within the limits of construction, salvage topsoil whenever possible in surface disturbance areas and keep strictly segregated from other materials. Depths of soil to be salvaged typically range from 4 to 30 inches.

To prevent anaerobic conditions, topsoil shall be stockpiled in windrows, and to a depth not exceeding thirty six (36) inches. Stockpile topsoil away from excavations and future work and protect it from mixing with subsoil. Grade and shape stockpiles to allow unimpeded drainage of surface water. If topsoil will be stored for more than a short time, use seeding with a fast-growing native species to provide a protective cover and prevent the introduction of exotic invasive plants. Maximize the use of previously disturbed areas for staging and stockpile areas to minimize ground disturbance.

Require dust control during construction using methods such as watering, covering haul loads, and controlling vehicle speeds.

Where backfilling is required, such as in the water main trench and site of the Windy Point tank, ensure that the backfill does not extend above the original ground surface contour level after settling.

Obtain any fill materials from a source approved by the park ecologist. Maximize the use of excess excavated soil at other project sites.

For construction not finished by winter, protect disturbed areas and soil stockpiles using best management practices. This could include covering soil piles with impermeable materials.

Replace the topsoil as part of site restoration after construction is completed. Distribute topsoil evenly to provide an effective rooting medium over the entire area of disturbance.

Where hydric soils are to be disturbed, these must be salvaged and kept strictly separate from all other materials. If the hydric soils are to be stockpiled for longer than fourteen (14) calendar days, they shall be covered with impermeable material or otherwise protected from desiccation in a manner approved by the project botanist.

Vegetation

Prior to construction, develop a project revegetation plan. The plan should include, but not be limited to, the use of native species (preferably from the same gene pool), native seed/ plant mixes, mulch, salvaged plant materials, management of exotic invasive species, monitoring to ensure successful recovery, and actions to be taken if monitoring indicates problems. Include natural spacing, abundance, and diversity of native plant species. Ensure that there will be no irrigation needs beyond plant establishment.

In establishing construction boundaries, minimize impacts on vegetation by avoiding shrubs and trees (including their root systems) where possible. Prohibit the damage or removal of vegetation without prior approval in the project documents or from NPS vegetation staff.

Require contractors to pressure-wash construction equipment before it enters the park to ensure that it is free of mud or seed-bearing material.

For soil stabilization and erosion control, use only certified weed-free materials to avoid introduction of exotic plant species. Review all proposed materials on a case-by-case basis.

Follow construction best management practices for revegetation preparation and revegetation. After site work is completed, scarify compacted soil and reestablish original contours. Spread topsoil in as near to its original location as possible to help preserve microorganisms and seeds of native plants. Whenever possible, salvage and preserve disturbed vegetation for reuse.

Use mulching, seeding, and/or planting with species native to the immediate area to improve revegetation success.

The project revegetation plan also will address control of exotic invasive species. This will include pretreatment of exotic invasive species in the project area, control measures required during construction, and post-construction treatment and follow-up.

The revegetation plan will include maintenance to monitor and mitigate impacts for at least three years after construction. It will stipulate additional measures if recovery of a weed-free cover of native species could not be documented at the end of this period.

Water Resources

Prepare a storm water pollution prevention plan (SWPPP). Specify site-specific measures to reduce and control erosion, sedimentation, and compaction that can degrade water quality.

Plan and maintain vegetated buffers between areas of soil disturbance and waterways.

Use soil erosion best management practices such as sediment traps, erosion check screen filters, and hydro mulch to prevent the entry of sediment into waterways.

Promptly remove and properly dispose of any hazardous waste that is generated in the project area.

Inspect equipment for leaks of oil, fuels, or hydraulic fluids before and during use to prevent soil and water contamination. Require contractors to implement a plan to promptly clean up any leaks or spills from equipment, such as hydraulic fluid, oil, fuel, or antifreeze.

Minimize onsite fueling and maintenance. If these activities cannot be avoided, store fuels and other fluids, and perform fueling and maintenance, in designated areas that are bermed and lined to contain spills. Require provisions for the containment of spills and the removal and safe disposal of contaminated materials, including soil.

Implement best management practices to avoid or minimize potential adverse impacts on wetlands, stream channel, and water quality at the pipeline crossing of Beaver Creek and its wetlands.

Take action that has only negligible to minor, new adverse effects on site hydrology and fluvial processes, including flow, circulation, velocities, hydroperiods, water level fluctuations, sediment transport, channel morphology, and so on. Take care to avoid any rutting caused by vehicles or equipment.

Conduct the action so it has only negligible to minor, new adverse effects on normal movement, migration, reproduction, or health of aquatic or terrestrial fauna, including at low flow conditions.

Conduct the action to avoid degrading water quality to the maximum extent practicable. Employ measures to prevent or control spills of fuels, lubricants, or other contaminants from entering the waterway or wetland. Ensure the action is consistent with state water quality standards and Clean Water Act Section 401 certification requirements.

Maintain appropriate erosion and siltation controls during construction, and permanently stabilize all exposed soil or fill material at the earliest practicable date.

Properly maintain structures or fill material to avoid adverse impacts on aquatic environments or public safety.

Avoid heavy equipment use in wetlands if at all possible. Place heavy equipment used in wetlands on mats, or take other measures to minimize soil and plant root disturbance and to preserve preconstruction ground and water surface elevations.

Whenever possible, place excavated material on an upland site. However, when this is not feasible, place temporary stockpiling of excavated material in wetlands on filter cloth, mats, or some other semipermeable surface, or take comparable measures to ensure that underlying wetland habitat is protected. Stabilize the material with straw bales, filter cloth, or other appropriate means to prevent reentry of excavated material into the waterway or wetland.

Remove temporary stockpiles or other temporary disturbances in wetlands in their entirety as soon as practicable. Return wetland areas temporarily disturbed by stockpiling or other activities during construction to their pre-existing elevations, and restore soil, hydrology, and native vegetation communities as soon as practicable.

Facilitate revegetation of disturbed soil areas by salvaging and storing existing topsoil and reuse it in restoration efforts in accordance with NPS policies and guidance. Store topsoil for as short a time as possible to prevent loss of seed and root viability, loss of organic matter, and degradation of the soil microbial community.

Where plantings or seeding are required, obtain native plant material from a local NPS source and use in accordance with NPS policies and guidance. Implement management techniques to foster rapid development of target native plant communities and to prevent or minimize invasion by exotic invasive or other undesirable species.

Wildlife

Areas of vegetation removal will be surveyed for nesting birds by park biologists if construction is between May 10 and August 1. These surveys will be conducted within a week of construction. If nests are found, park staff will work with construction contractors to modify the location or alter the timing of the construction plan to prevent nesting disturbance. Ideally, conduct work after August 1 to avoid any conflicts. Inform construction workers and supervisors that under the Migratory Bird Treaty Act, no migratory bird, nest, or egg can be disturbed, removed, or destroyed. Provide instructions for notification of NPS staff if the potential for disturbance is discovered.

Protect bald eagle nests from human disturbance between February 15 and August 15. Plan work to ensure that it does not occur within a half-mile of any active bald eagle nest from February 1 to August 15.

Plan work in the park so that it does not occur within 100 yards of any osprey, trumpeter swan, peregrine falcon, or great blue heron nests from April 1 to September 1.

Avoid working at the Snake River bridge at Moose and along the Gros Ventre River if trumpeter swans are in the area. Typically, swans do not nest at either location but they are known to use both areas for loafing and foraging the winter months. No construction should take place before September 1 near the swan territory if swans are actively nesting.

Construction activities must not take place before 8 a.m. or after 6 p.m. to protect animals whose movements and activities correspond with crepuscular hours.

Train all contractors and their employees regarding the NPS' bear management plan, safety protocols, and food storage regulations. Require storage and handling of food, fuel, and other attractants to minimize potential conflicts. Ensure that all project crews meet standards for sanitation, attractant storage, and access.

Notify NPS staff if bats are located in any project facilities. To minimize adverse effects to any bats present, survey buildings before they are removed. If bats are found using the site as a roost, delay removal activities until after an NPS survey determines that individuals and/or young have left the buildings.

Sage-Grouse and Other Sage-Dependent Species

Prohibit all habitat removal between March 15 and June 30 to protect breeding, nesting, and brood rearing grouse, as stipulated in the Wyoming Governor's Executive Order. Do not remove any habitat within 1 mile of any sage grouse leks between April 1 and June 30.

Require survey of sagebrush habitat for nests by park personnel if vegetation removal takes place prior to August 1.

Revegetate disturbed sagebrush areas using appropriate soil and grade preparation, weed control, and native plant revegetation techniques. Use native seed mix containing perennial grasses and forbs as well as sagebrush seed. Monitor revegetation of native sage-grouse habitats for a period of five years after initial restoration attempts. Require additional revegetation work if initial revegetation attempts fail to meet revegetation standards.

Minimize the footprint of support areas such as travel zones and staging sites by locating them as much as possible in the work corridor or in existing disturbed areas.

Other Candidate, Threatened, and Endangered Species

Complete section 7 consultation with the U.S. Fish and Wildlife Service before starting the project.

Inform construction workers and supervisors about the potential for special status species in the work area. Include contract provisions that require a stop in construction activities if a special status species is discovered until NPS staff members evaluate the situation. Modify protection measures as appropriate to protect the discovery.

Implement measures to reduce adverse effects caused by nonnative plants and wildlife on candidate, threatened, and endangered species.

Cultural Resources

Detailed archeological inventories have been conducted for most areas in the park that could be affected by the alternatives and along parts of the sewer line route from the park boundary to Jackson. Before project designs are finalized, conduct detailed cultural resource inventories for all uninventoried areas. If archeological resources that are eligible for listing in the National Register of Historic Places are discovered, alter the project design to avoid them.

If previously unknown archeological resources are discovered during construction, halt all work in the immediate vicinity of the discovery until the resources can be identified and documented. If the project component cannot be rerouted and the resources preserved in situ, prepare an appropriate mitigation strategy in consultation with the Wyoming state historic preservation officer and American Indian tribes traditionally associated with park lands. All references to the SHPO for this project shall reference project # 1112LRC002.

In the unlikely event that human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during construction, follow the provisions outlined in the Native American Graves Protection and Repatriation Act (25 United States Code 3001-3013).

Inform all contractors and subcontractors of the penalties for illegally collecting artifacts or intentionally damaging archeological sites or historic properties. Instruct contractors and subcontractors regarding procedures to follow in case previously unknown archeological resources are uncovered during construction.

Health and Safety

Implement measures to close and/or redirect trails in areas that will be affected by construction to ensure visitor health and safety. Provide information on alternatives that will help hikers achieve their goal while staying away from the work area.

Implement a traffic control plan during construction, as warranted. Include strategies to maintain safe and efficient traffic flow.

Implement measures to reduce adverse effects of construction on visitor health and safety.

Operations of the National Park Service and Partners

Coordinate activities of contractors and park staff to minimize disruption of normal park activities. Inform construction workers and supervisors about the special sensitivity of park values, regulations, and appropriate housekeeping.

To minimize potential impacts on concessioners and visitors, consider stipulations on construction timing. For example, operate heavy construction equipment in noise-sensitive areas between 8 a.m. and 6 p.m. to minimize noise impacts.

Prior to construction, conduct a meeting with concessioners, project managers, and business resources staff to provide information on anticipated issues that may occur.

Visitor Use and Experience

Share information regarding implementation of this project and its effects on the trail system and roads with the public. Distribute or post information at entrance stations, on the park's website, at trailheads, at other visitor sites, and through press releases.

Develop and enforce an NPS- approved traffic and pedestrian control plan for use during construction. The plan will minimize disruption to visitors and park operations and ensure safety of the public, park employees, and residents.

Require contractors to coordinate with park staff to minimize disruption of normal park activities. Inform construction workers and supervisors about the special sensitivity of park values, regulations, and appropriate housekeeping.

Include specific provisions and implementation measures in the NPS contract to prevent storm water pollution during construction activities, in accordance with the Clean Water Act's National Pollutant Discharge Elimination System permit program and all other federal, state, and local regulations.

Require the contractor to develop and implement a storm water pollution prevention plan and dust control plan prior to construction. The NPS will provide the contractor with information related to storm water protection and dust control.

General Construction Best Management Practices

Clearly state all protection measures in the construction specifications.

Minimize the amount of ground disturbance for activities not directly related to construction, such as staging and stockpiling areas. Return all staging and stockpiling areas to pre-construction conditions following construction. Limit parking of construction and employee vehicles to designated staging areas or existing roads and parking lots.

Identify and define construction zones with construction tape, snow fencing, or other material prior to any construction activity. Use the zone to confine activity to the minimum area required for construction. Stipulate that construction activities, including material staging and storage, cannot occur beyond the construction zone fencing.

Comply with federal and state regulations for the storage, handling, and disposal of all hazardous material and waste. If hazardous materials will be used on site, make provisions for storage, containment, and disposal.

In the contract, identify specific provisions to prevent storm water pollution during construction activities, in accordance with the National Pollutant Discharge Elimination System permit program of the Clean Water Act and all other federal regulations, and in accordance with the storm water pollution prevention plan to be prepared for this project.

Provide the contractor with a copy of U.S. Environmental Protection Agency document EPA 832-F-99-003, Storm Water Management Fact Sheet-Dust Control. Require the contractor to submit a dust control plan prior to construction.

If recycled concrete is used for backfill, ensure that it is free of waste metal products, debris, toxic material, or other deleterious substances and that it meets gradation and aggregate test requirements.

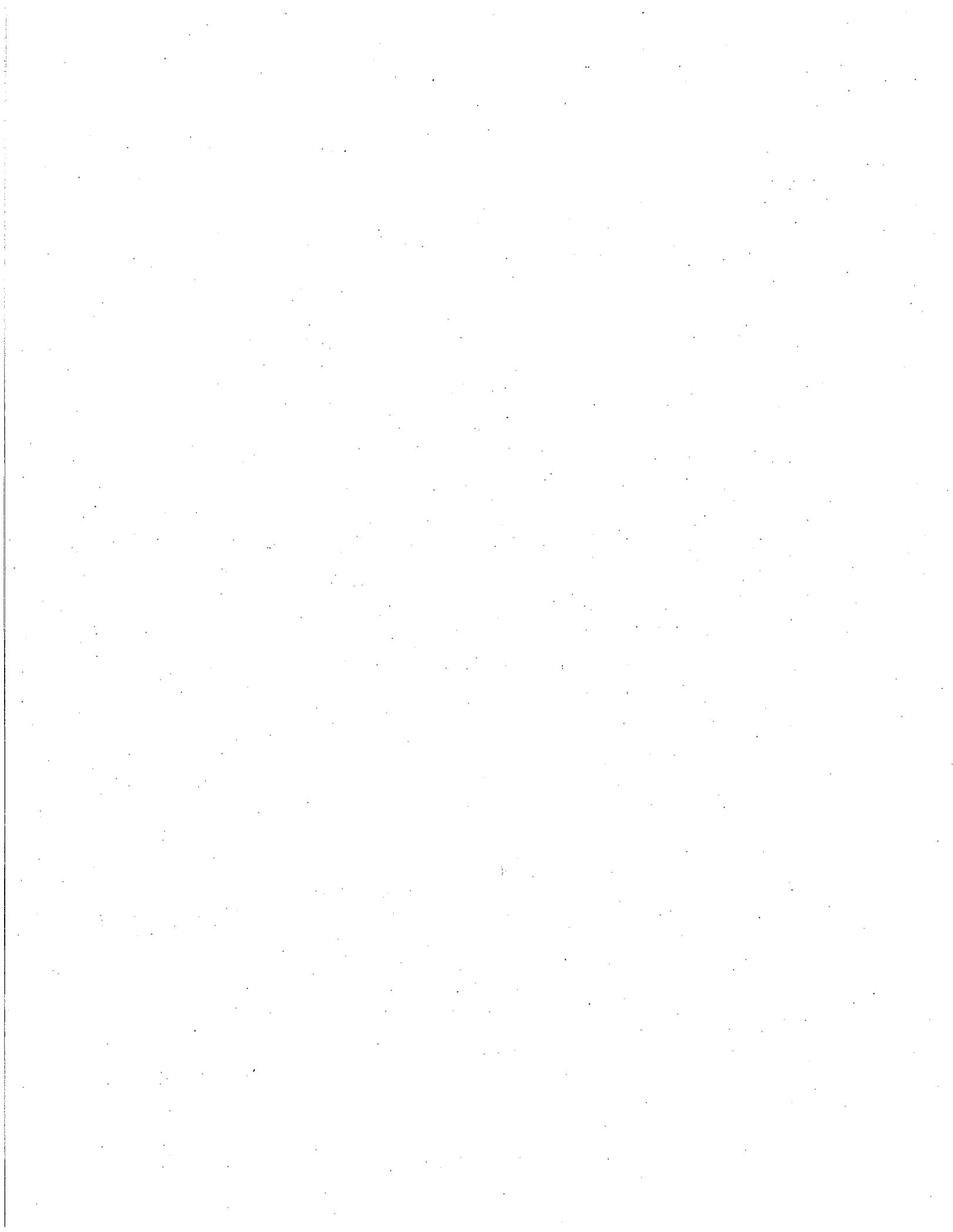
Backfill excavated areas that are not to be used for structural requirements with appropriate material and contour them so that, after settling, they will blend with the surrounding terrain.

In areas where structural fill is required, to ensure that backfill and compaction requirements are met to finished grade.

Ensure that construction equipment uses the best available technology for sound dampening muffler and exhaust systems.

To save fuel and reduce noise and emissions, require contractors to develop and implement a plan that prevents excessive idling of all vehicles used in construction.

Require good housekeeping practices such as placing debris in refuse containers daily, emptying containers regularly, and prohibiting the burning or burying of refuse in the park.



ERRATA SHEETS
Replace Moose Wastewater System and
Address Critical Water System Deficiencies
Environmental Assessment

This section addresses comments received that warranted clarification or explanation. Substantive comments regarding the environmental assessment on an action to replace the Moose wastewater system and address critical water system deficiencies centered on three topics: disturbance of greater sage-grouse habitat, the need to install a water main to the 4 Lazy F Ranch, and the potential for a sewer line to Jackson to encourage other development. The environmental assessment and this errata section form the record on which the FONSI is based.

All of the text changes are the result of typographical errors in the environmental assessment. No text changes were needed to address the substantive comments on the environmental assessment.

TEXT CHANGES

In line 15 on page 28, change *tan* to *tank*.

In line 34 on page 118, change *probably* to *probable*.

SUBSTANTIVE COMMENTS

Disturbance of Greater Sage-Grouse Habitat

Comment: We recommend, per the Governor's Executive Order for Sage Grouse, a DDCT (Density and Disturbance Calculation Tool) analysis be conducted to evaluate the amount of existing habitat disturbance and the addition of new disturbance proposed with each of the action alternatives. In addition, this analysis will help determine which alternative best complies with the Governor's Order.

Response: Although it is not included in the environmental assessment, an evaluation was performed to determine compliance with the Wyoming Greater Sage Grouse Core Area Protection Executive Order 2011-5 b and the need to apply the Density and Disturbance Calculation Tool. The selected action will temporarily disturb approximately 13 acres in core area sagebrush habitat. There will be no permanent loss of sagebrush habitat, as the area will be revegetated with natural vegetation. All of this temporary disturbance will occur along the 3.1-mile-long pipeline from the new Taggart tank to the existing Moose distribution system valve. The construction area for the new Taggart tank is not in core area sagebrush habitat.

The Wyoming Game and Fish Department (2011) *Density and Disturbance Calculation Tool (DDCT) Manual* states that "Pipelines regardless of width/distance are not to be considered toward the density calculations. Pipelines will contribute towards the disturbance calculation until the area is successfully reclaimed." The threshold for conducting a disturbance calculation is an average of 5% surface disturbance per 640 acres (32 acres per square mile).

The 13 acres of surface disturbance in core area sagebrush habitat from the selected action's pipeline will average approximately 4.2 acres per linear mile. Both the total and average disturbance are below the threshold for conducting a disturbance calculation. Therefore, the core area sagebrush disturbance complies with Executive Order 2011-5 and a disturbance calculation is not required.

The selected action, which will temporarily disturb 13 acres in core area sagebrush habitat, will better comply with the intent of the governor's order to minimize disturbance and disruption than alternative 3, which would disturb 21 acres in core area sagebrush habitat. Habitat disturbances from the selected action will be eliminated in approximately 15 years as revegetated sagebrush areas approached maturity. Best compliance with the order's intent might appear to be associated with alternative 1, which would continue to use the existing pipeline. However, the need for repeated repairs could cumulatively disturb more core area sagebrush habitat than either of the action alternatives and emergency repairs might require disturbance even during critical life-cycle stages of the greater sage-grouse.

Need for a Water Main to the 4 Lazy F Ranch

Comment: Questions the need and expense involved in running new water lines to the 4 Lazy F Ranch. That ranch does not serve as a viable housing area, and therefore well water should suffice for firefighting needs. The park has considered using that area for temporary volunteer housing for groups, but a dedicated line to the site seems to indicate future plans for more human inhabitation on the site. Given its immediate proximity to the Snake River, and location within extremely sensitive wildlife habitat, we do not feel that redevelopment of this area, or increased human presence is appropriate or desirable. The NPS should re-evaluate the necessity of this water line unless more justification is provided for the proposed future use and redevelopment of the area, particularly given the scarce financial resources available for infrastructure development.

Response: The 4 Lazy F Dude Ranch historic district north of Moose was listed in the National Register of Historic Places in 1990, based on its significance as an example of a purpose-built guest ranch. The NPS acquired the property, which includes approximately 20 buildings, in 2006. The NPS has determined that well water pressures and volumes are inadequate for fighting structural fires in the numerous wood buildings of this historic district. Therefore, the purpose of the proposed water main is to provide fire protection to this culturally significant park feature regardless of its future management or use.

The National Park Service currently is preparing a historic properties management plan and environmental assessment. The plan will address future preservation and management alternatives for 14 listed or eligible properties in the park, including the 4 Lazy F Ranch.

Future Development Resulting from a Sewer Line to Jackson

Comment: Future development concerns pertain to Alternative 3. Although the EA states that no new development will be able to hook on to the sewage line to town, there is no formal language prohibiting this from happening in the future. Depending on future developments approved adjacent to the park, there could be significant pressure on the NPS to allow new or existing subdivisions to tie into the NPS/Jackson Hole Airport line to Jackson, whereby increasing the development potential of such subdivisions.

Response: This concern was identified during scoping, and the commenter acknowledges that it was addressed in the environmental assessment. Therefore, the comment did not result in any errata or text changes in the environmental assessment.

An environmental assessment is not the appropriate document for the type of formal language requested in this comment. If alternative 3 had been selected, a contract or other legal document containing this prohibition would have been prepared. Development actions at the Jackson Hole Airport are beyond the scope of this project and are governed by the 1983 Agreement between the Airport Board and the Department of the Interior.

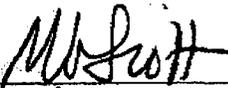
Floodplain Statement of Findings

National Park Service
U.S. Department of the Interior
Grand Teton National Park, Wyoming

Statement of Findings for Floodplains

Replace Moose Wastewater System and Address Critical Water System Deficiencies

Recommended:
Mary Gibson Scott



Superintendent

8/27/12

Date

Certification of
Technical Adequacy:
William Jackson



Chief, Water Resources Division

09-09-2012

Date

Recommended:
John Wessels



Regional Director, Intermountain Region

1/15/13

Date

Executive Order 11988, Floodplain Management, requires the National Park Service (NPS) to evaluate the likely impacts of actions in floodplains, avoid adverse impacts associated with the occupancy and modification of floodplains, and avoid support of floodplain development wherever there is a practicable alternative. *Director's Order 77-2: Floodplain Management* (NPS 2003) and its companion document, *Procedural Manual 77-2* (NPS 2004), provide NPS policies and procedures for complying with Executive Order 11988. This statement of findings documents compliance with these NPS floodplain management procedures.

This floodplain statement of findings reviews the project to replace the Moose wastewater system and address critical water system deficiencies. It describes the flood hazard associated with selected alternative (without mitigation), analyzes risks at alternative sites, describes the effects on floodplain values, and describes and evaluates mitigation measures.

Brief Description of the Proposed Action

The NPS proposes to upgrade or replace the water and wastewater systems that serve the headquarters, housing, and largest visitor center area at Moose. Water supply to the Beaver Creek administrative area and 4 Lazy F Ranch complex also would be provided. The locations and relative spatial relationships of the systems and their components are shown in figures 2 and 3 of the environmental assessment.

About 16,600 linear feet of buried water line will connect the new Taggart storage tank to the Moose area. The pipeline will be buried in existing utility right-of-way next to the existing pipeline, which will be burst in place. About 6,400 linear feet of buried pipeline from Moose will be laid along the existing road corridor and will provide water to the 4 Lazy F Ranch. About 24.1 acres will be temporarily disturbed by project installation. Floodplain avoidance was a key consideration of the NPS in selecting the action alternative for potable and firefighting water supplies. As a result, consistent with the guidance in *Procedural Manual 77-2* (NPS 2004), there is no need to consider effects on these facilities.

The project would replace the existing, 35,000-gallon-per-day wastewater treatment facility with a modern, 86,000-gallon-per-day treatment facility. The existing, 2,000-square-foot treatment plant is on an upland site about 180 feet from the Snake River bank. The 3,300-square-foot replacement facility will occupy an upland site in the Moose headquarters area, about 950 feet from the Snake River. All other wastewater components are outside floodplains or would be underground where they would not affect, or be affected by, floodplains.

Brief Site Description

The Moose area includes park headquarters, visitor use areas, and administrative and maintenance facilities. Most of the development consists of Class I actions, which include constructed features such as administrative, housing, and warehouse buildings that entice or require humans to occupy the site and/or are prone to flood damage. These facilities within a 100-year floodplain are subject to the floodplain policies and procedures.

Class II actions include any activity for which even a slight chance of flooding is too great. These are subject to the floodplain policies and procedures if they lie in the 500-year floodplain. Examples listed in Procedural Manual 77-2 include sewage treatment plants. Therefore, the treatment plant in the preferred alternative would be a Class II action.

None of the facilities around Moose are Class III actions, which are subject to flash flooding.

Characterization of the Flooding and Associated Floodplain Processes

About 20 miles upstream from Moose, flows in the Snake River are regulated by Jackson Lake Dam. This 65.5-foot-high dam, which was completed in 1916 and is operated by the Bureau of Reclamation to provide irrigation water, has a storage capacity of 847,000 acre-feet. The outlet works capacity at full pool is 24,000 cubic feet per second. When added to the spillway capacity of 8,690 cubic feet per second, this results in a maximum flow below the dam of 32,690 cubic feet per second (Bureau of Reclamation 2009). Maximum flows at Moose would include this rate plus the flow from the relatively small tributaries that join the Snake River below the dam.

The maximum recorded flow at Moose during its period of record from 1995 to present is 25,300 cubic feet per second, recorded on June 11, 1997. That date also had the highest daily mean flow of 24,500 cubic feet per second (U.S. Geological Survey 2010). Information regarding the effects in Moose is provided later in this statement of findings under "Geomorphologic Considerations."

The best available data were used to determine the extent of existing floodplain boundaries and water surface characteristics of the Snake River. Floodplain boundaries are shown on figure 1, which includes 5-foot elevation contours (yellow lines).

- The 100-year floodplain mapped by the Federal Emergency Management Agency (FEMA 1989) includes the existing wastewater treatment plant. The site of the proposed new treatment plant is outside the FEMA 100-year floodplain but might be in the 500-year floodplain (not mapped by FEMA).
- A 2001 floodplain analysis for the Moose area was conducted by NPS' Water Resources Division (WRD) (Martin and Linn 2001) after they determined that the FEMA floodplain mapping was based on a non-detailed analysis and did not provide a sufficient level of confidence. They concluded that the 100-year floodplain is almost completely contained by the Snake River channel. The 500-year floodplain exceeds the channel capacity by 1 to 3 feet vertically and includes the area of the existing wastewater treatment plant. The new treatment plant would be more than 400 feet outside the 500-year floodplain.

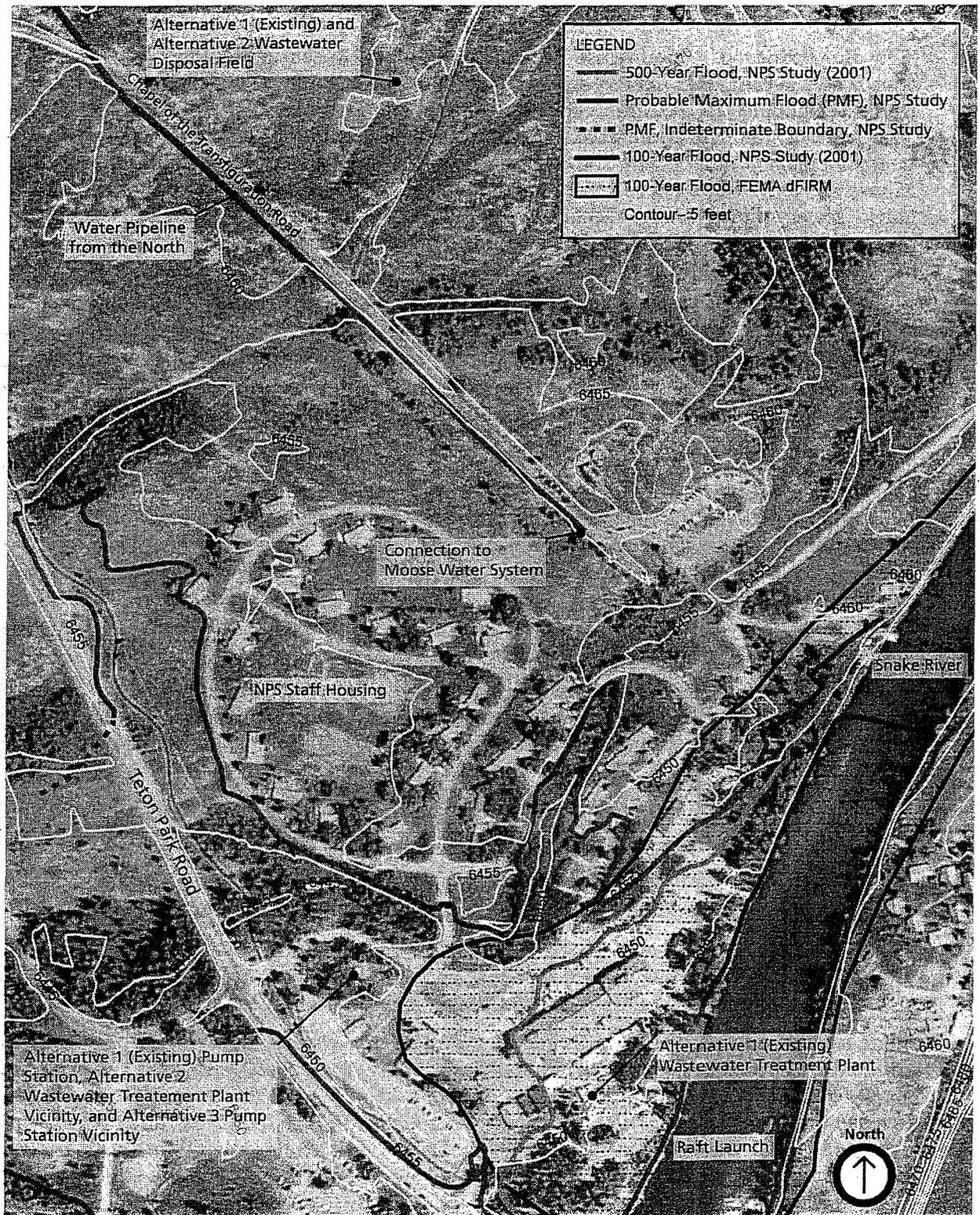


Figure 1: Floodplain Boundaries near Moose in Grand Teton National Park
Grand Teton National Park

U.S. Department of the Interior / National Park Service

Justification for Use of the Floodplain

Why the Proposed Action Must Be in a Floodplain. When the buildings at Moose were constructed in the 1960s, sanitary sewer pipelines were designed and installed to flow by gravity from the buildings to a central collection point at the southeast edge of Moose. From there, wastewater is pumped to the existing treatment plant. The preferred alternative's wastewater treatment plant would be built above this gravity-flow collection point at the southeast edge of Moose. It would be logistically impractical and prohibitively expensive to relocate all of the gravity sewers of the Moose collection system to drain to another site. Similarly, it would not be practical to install individual pumps and force mains to move wastewater from each source building to another site. Therefore, the Class II action structure must be located at this site.

Investigation of Alternative Sites. Most of the land in Moose has floodplain characteristics that are similar to, or worse than, those at the proposed site at the southeast edge of Moose. While a wastewater treatment plant could be built on higher ground outside Moose, the plant would continue to require a Class II action wastewater pumping station at the proposed site and would not provide any advantages with regard to flood vulnerability.

Description of Site-Specific Flood Risk

Recurrence Interval of Flooding. As shown in figure A-1, the existing wastewater treatment plant is in the 100-year floodplain based on the FEMA map and in the 500-year floodplain based on the NPS WRD map. The new wastewater management site for the preferred alternative is outside the NPS WRD 500-year floodplain but might be in the FEMA 500-year floodplain. To provide a worst-case analysis for this critical, Class II action, this analysis errs on the side of conservancy, considered the more restrictive FEMA floodplains in this statement of findings, and assumed that the new site is in the 500-year floodplain.

Hydraulics of Flooding at the Site. High-magnitude floods at Moose may occur because of tributary floods, large releases from the dam, and a combination of both, or, in the worst-case scenario, a sudden dam failure. The U.S. Army Corps of Engineers developed four models and concluded (Martin and Linn 2001):

- The 100-year flood would likely be in the range of 22,900 cubic feet per second. This flood would be mostly contained in the river channel.
- The 500-year flood was estimated to be 35,470 cubic feet per second. It would subject the area of the existing Moose wastewater treatment plant to flood depths of about a foot.
- The probable maximum flood, shown as the red line on figure A-1, would discharge at 39,500 cubic feet per second. It would flood the existing and proposed treatment plant sites, overtop the Teton Park Road, and threaten the Snake River bridge.

Time Required for Flooding to Occur (Amount of Warning Possible) and Opportunity for Evacuation. A dam break would result in a flow of 87,000 cubic feet per second and would take about five hours to reach Moose. The flood wave would inundate the entire Moose area with 3 to 6 feet of water, with velocities of 3 to 4 feet per second. It would overtop the bridge, isolating everything to the west (Martin and Linn 2001). The five-hour window between a dam break and flooding at Moose would provide a substantial opportunity to evacuate the site. It might be adequate to allow operators to take steps to lock down the treatment plant to minimize damage and facilitate restart after the flood passed.

Geomorphic Considerations. Peak discharges are usually produced by snowmelt in the spring, with possible summer pulses resulting from thunderstorms. Flash flooding is unlikely (Martin

and Linn 2001). A springtime rain-on-snow event can produce a large, rapid rise in the river, as it did on June 11, 1997, causing moderate flood conditions in Moose. The Jackson Lake Dam was still storing most of the incoming runoff from the upper watershed. Flood conditions would have been worse if a release from the dam was necessary at the same time.

The 1997 peak flow (25,300 cubic feet per second) resulted in bank-full conditions in the upstream reach of the Moose area, and slight over-bank flooding in the boat landing area. There was substantial bank loss on the west bank upstream from the bridge. The river was almost all contained in the channel and did not result in any hazardous or costly flooding in the Moose area. The bank loss on the west side was the largest risk (Martin and Linn 2001). Since then, the NPS installed stone barbs north of the bridge to redirect flow from the bank. The barbs have been successful in trapping sediments during flow events and in stabilizing the bank (NPS 2010c).

Floodplain Mitigation

The proposed action would remove the existing wastewater treatment plant from the FEMA-mapped 100-year floodplain, and from the 500-year floodplain mapped by Martin and Linn (2001). This would slightly increase the capacity of the floodplain near the Snake River. More importantly, it would reduce the chance of flooding of this Class II action.

Based on FEMA mapping, the new wastewater treatment plant site might be in the 500-year floodplain where the probability of flooding would be 10% over the 50-year project life. (The WRD analysis classified this area as outside the 500-year floodplain.) Therefore, during design of the project, the NPS may consider actions such as those recommended in the WRD floodplain analysis for the existing plant, which included flood-proofing the treatment plant with a small levee or perhaps a waterproof seal around the building (Martin and Linn 2001). These actions could allow the new facility to continue to operate even during the probably maximum flood.

Summary

The proposed action would reduce the potential for flood effects on the critical, Class II action of wastewater management for the Moose area. This would result from moving the treatment plant to slightly higher ground about 950 feet from the riverbank. Based on FEMA mapping, the new location might be in the 500-year floodplain, but analyses from the NPS WRD place this site outside the 500-year floodplain in an area where the flood risk would be near zero.

The footprint of 3,300 square feet from the preferred alternative might slightly reduce the capacity of the 500-year floodplain. This would be mitigated by removing the existing, 2,000-square-foot treatment plant that is closer to the river, resulting in little or no net effect on the floodplain.

The water supply elements of the project would be outside, and would not affect, the Snake River floodplain. Floodplain avoidance was a key consideration of the NPS in selecting the action alternative for potable and firefighting water supplies.

The NPS concludes that the preferred alternative would reduce the impacts of potentially hazardous conditions associated with flooding in Moose. Mitigation and compliance with regulations and policies to prevent impacts on water quality, floodplain values, and loss of property or human life would be strictly adhered to during and after construction. Individual permits with other federal and cooperating state and local agencies would be obtained prior to construction. No long-term adverse impacts would occur from the alternatives analyzed.

Therefore, the NPS finds the preferred alternative to be acceptable under Executive Order 11988 for the protection of floodplains.

Note: references cited are provided in the environmental assessment.

Appendix – Non-Impairment Finding

National Park Service's *Management Policies 2006* require analysis of potential effects to determine whether actions will impair park resources. The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values.

However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within a park, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. An impact to any park resource or value may, but does not necessarily, constitute an impairment. An impact would be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- Key to the natural or cultural integrity of the park; or
- Identified as a goal in the park's general management plan or other relevant NPS planning documents.

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to pursue or restore the integrity of park resources or values and it cannot be further mitigated.

The park resources and values that are subject to the no-impairment standard include:

- The park's scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals;
- Appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;
- The park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and
- Any additional attributes encompassed by the specific values and purposes for which the park was established.

Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. The NPS' threshold for considering whether there could be an impairment is based on whether an action will have significant effects.

Impairment findings are not necessary for visitor use and experience, socioeconomics, public health and safety, environmental justice, land use, and park operations, because impairment findings relates back to park resources and values, and these impact areas are not generally considered park resources or values according

to the Organic Act, and cannot be impaired in the same way that an action can impair park resources and values. After dismissing the above topics, topics remaining to be evaluated for impairment include cultural resources, soil and vegetation, water resources, and wildlife.

Fundamental resources and values for Grand Teton National Park are identified in the 2006 *Foundation for Planning and Management, Grand Teton National Park and John D. Rockefeller, Jr. Memorial Parkway*. According to that document, all four of the impact topics cited above are considered necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park; are key to the natural or cultural integrity of the park; and/or are identified as a goal in the park's master plan and other relevant NPS planning documents.

- Cultural resources within the project area that are cited as contributing directly to the purpose and significance of the park include homestead structures, dude ranches, and the story of "crucible for conservation" evident in structures that include the Murie Ranch. National historic landmarks (Murie Ranch) and park development structures from the Civilian Conservation Corps are cited as important resources and values, although they do not contribute directly to park purpose and significance. These citations cover all seven of the historic sites and districts in the Moose area that are listed in the National Register of Historic Places. Short-term, negligible to minor, adverse construction effects will be limited to noise, dust, and visual intrusions. Long-term, moderate, beneficial effects will result from the improved ability to fight structural fires that could cause loss or destruction of the listed cultural resources. Therefore, there will be no impairment of cultural resources.
- Soil and vegetation resources identified as contributing directly to the purpose and significance of the park include sagebrush flats that provide a platform for viewing scenery, connectivity of these components of the ecological community to the Greater Yellowstone Ecosystem, and diverse vegetative communities in a small area because of the extreme topography. The selected action will disturb approximately 24 acres of soil and vegetation, but all impacts will be negligible or minor. Therefore, there will be no impairment of soil and vegetation.
- Water resources that contribute directly to the purpose and significance of the park include braided river morphology as a part of geologic processes, lakes and free-flowing water, riparian habitat for native species, and clean water. The selected action will have beneficial effects of moderate intensity on the ability to meet state water quality standards. Other impacts will be negligible or minor. Therefore, there will be no impairment of water resources.
- Wildlife resources that contribute directly to park purpose and significance relate to their contribution to scenery, the full complement of native birds and mammals and the natural predator-prey interactions that reflect the health of the ecosystem, and the opportunities to observe wildlife as part of visitor experiences in an outstanding natural environment. The selected action will have moderate, adverse impacts on the greater sage-grouse and other sagebrush-obligate species for approximately 15 years because of the disturbance of approximately 20 acres of sagebrush habitat. Other impacts will be negligible or minor. Therefore, there will be no impairment of wildlife resources.

In conclusion, as guided by this analysis, good science and scholarship, advice from subject matter experts and others who have relevant knowledge and experience, and the results of public involvement activities, it is the superintendent's professional judgment that there will be no impairment of park resources and values from implementation of the selected action.