C: Conservation and Mitigation Measures

Table 8-2. Summary of Resource Protection Measures for the Proposed Action

Resource	Project Phase	Description
Land Use, Recreation and Visual Resources	Construction	• Segregating the upper 12 inches of agricultural topsoil during construction and replacing it during site restoration. • Avoiding functional loss (stopping or obstructing) of active irrigation ditches during construction or providing alternate sources of water. • Avoiding or minimizing potential damage to drain tile systems and repairing damaged drain tiles using original or new material. • Restoring disturbed areas as per the Con/Rec units and landowner agreements. • Minimizing construction noise in the immediate vicinity of herds of livestock. • Installing temporary fences with gates around construction areas to prevent injury to livestock or workers. • Leaving hard plugs (short lengths of unexcavated trench) or installing soft plugs (areas where the trench is excavated and replaced with minimally compacted material) to allow livestock and wildlife to cross the trench safely where required by landowner. • Maintaining all existing improvements such as fences, gates, irrigation ditches, cattle guards and reservoirs to the degree practicable where required by the landowner agreement. • Routing the proposed pipeline along existing ROWs in forest lands, when practicable. • Felling trees toward the pipeline centerline to minimize additional tree disturbance. • Providing construction shielding for certain land improvements (e.g., fences and sheds) and to preserve landscaping and mature trees. • Restoring all fences, landscaping improvements, shrubs, lawn areas and other structures to landowner-agreed requirements following construction. • Where the transmission lines associated with pump stations would cross federal lands, following required mitigation measures according to current land or forest management plans. • Routing transmission lines and distribution lines along existing linear corridors such as existing power lines, roadways, fence lines, field lines, parcel boundaries, or section lines to reduce impacts to land use and visual resources **to the extent practicable**. • Working with individual landowners to minimize impacts to their property **to the extent practicable**. • Consulting with farm owners and operators to minimize impacts to irrigation equipment and farming practices **to the extent practicable**. • Providing compensation for crop damage associated with construction or maintenance of transmission and distribution lines that connect to pump stations. • Considering strategic structure placement and varying structure type (e.g., lattice, H-frame, or single-pole) and material (e.g., wood, steel, or weathered steel) to reduce potential impacts to visual resources **to the extent practicable**. • Where possible, utilizing topographic or vegetative screening to reduce visual impacts. • If possible, collocating transmission lines or distribution lines on the same structures to consolidate infrastructure.
Geology and Soils	Construction	• Construction of the pipeline to withstand probable seismic events within the seismic risk zones and in accordance with U.S. Department of Transportation regulations (49 CFR 195, Transportation of Hazardous Liquids by Pipeline) and all other applicable federal and state regulations.

Table 8-2. Summary of Resource Protection Measures for the Proposed Action

Resource	Project Phase	Description
Geology and Soils (continued)	Construction	• Design and construction of the pipeline in accordance with 49 CFR 192 and 193, which require pipeline facilities to be designed and constructed in a manner to provide adequate protection from washouts, floods, unstable soils, landslides or other hazards that could cause the proposed pipeline facilities to move or sustain abnormal loads. Keystone also proposes to use specialized pipeline installation techniques, such as padding and the use of rock-free backfill, which are designed to effectively insulate the proposed pipeline from minor earth movements. • Installation of sediment barriers (e.g., silt fencing, straw or hay bales and sand bags), trench plugs, temporary slope breakers, drainage channels or ditches and use of mulching in areas of high erosion potential as outlined in the CMRP. • Restoration and revegetation of areas disturbed by construction along the pipeline ROW consistent with the CMRP and specific landowner requirements. • Implementation of compaction control measures, including ripping (loosening of compacted soils with a dozer equipped with a ripper blade or deep plow) to relieve compaction, particularly in areas where topsoil has been removed. • Restricting power line work during wet conditions to minimize rutting. • Monitoring the ROW following construction for erosion, settling and landslide activity, and, in areas of prime farmland, monitoring for any degradation in soil productivity. • Removal and segregation **up to** 12 inches of topsoil in non-forested agricultural areas located within prime farmland during excavation to a windrow along the edge of the ROW, with care taken to minimize the potential for mixing topsoil and subsoil. • Compensation of landowners in the event that agricultural productivity is impaired by vehicular compaction for demonstrated losses associated with decreased productivity.
	Operations	• Implementation of erosion and sediment control and reclamation (including revegetation) procedures similar to those described for construction activities and also as described in the CMRP for operations wherever soil is exposed and steep slopes are present or erosion potential is high.
Air Quality	Construction	• Employing water trucks, sprinklers or calcium chloride (limited to roads) to control dust levels during construction activities. • Controlling speed of all contractor vehicles in work areas and on roads. • Controlling emissions from construction equipment combustion, open burning and temporary fuel transfer systems and associated tanks to the extent required by state and local agencies through the permit process. • Prevention of wind-blown particles from sand blasting operations from reaching any residence or public building by placement of curtains of suitable material, as necessary. • Compliance with all applicable state regulations and local ordinances with respect to truck transportation and fugitive dust emissions.
Noise and Vibration	Construction	• Coordinating pipeline work schedules in areas near residences and businesses where construction activities or noise levels may be considered disruptive to minimize disruption. • Minimizing noise during non-daylight hours and within 1 mile of residences or other noise sensitive areas such as hospitals, motels, campgrounds or state and federal parks.

Table 8-2. Summary of Resource Protection Measures for the Proposed Action

Resource	Project Phase	Description
Noise and Vibration (continued)	Construction	• Providing advance notice to landowners within 500 feet of the ROW prior to construction, limiting the hours during which construction activities with high decibel noise levels are conducted, and ensuring construction proceeds quickly through such areas. • Minimizing noise in the immediate vicinity of herds of livestock or poultry operations, which are particularly sensitive to noise through use of noise control measures identified above. • Establishing a toll-free telephone line for landowners to report any construction noise-related issues and follow-up on appropriate mitigation measures, as necessary.
	Operations	• Implementing a three-step noise control plan for pump station operations in a progressive order when noise reductions are required: (1) install pipe lagging for all pipe suction pipes and discharge pipes; (2) install acoustic blankets for all pumps; and (3) upgrade enclosure for all motors, which would provide 3 decibels noise attenuation for each motor compared with a standard motor enclosure.
Water Resources	Construction	• Implementing the Project's SPCC Plan to avoid or minimize the potential impact of harmful spills and leaks during construction. • Compliance with requirements of all permits issued for the waterbody and wetland crossings by federal, state or local agencies. This includes requirements imposed by USACE during **for general permit verifications or permit approvals**. USACE will determine compliance with the ESA and Section 106 within permit areas using information from the SEIS documents and any additional supporting information provided by the applicant. • Installation of sediment barriers immediately after initial disturbance of the waterbody, wetland or adjacent upland per the CMRP. • Selection of most appropriate method at each crossing based on site-specific conditions (i.e., environmental sensitivity of the waterbody, depth, rate of flow, subsurface soil conditions and the expected time and duration of construction) at the time of crossing. • Use of non-toxic drilling fluids and additives during HDD activities. • Development of a contingency plan to address a frac-out during a HDD. The plan shall include instructions for monitoring during the directional drill and mitigation in the event that there is a release of drilling fluids. Additionally, the waterbody shall be monitored downstream for any signs of drilling fluid. • Re-establishment of the streambank contour and stabilization of streambanks and installation of temporary sediment barriers following the measures provided in the CMRP and applicable permits. • Reduction of construction ROW crossing widths to 85 feet or less in standard wetlands unless non-cohesive soil conditions require utilization of a greater width and unless the USACE during review of pre-construction notifications or other regulatory authority authorizes a greater width. • Limiting the duration of construction-related disturbance within wetlands in accordance with USACE **permit requirements**. • Performing all equipment maintenance and repairs on upland locations at least 100 feet from waterbodies and wetlands. • As much as is feasible, replace topsoil and restore original contours with no crown over the trench. Remove excess spoil and stabilize wetland edges and adjacent upland areas by establishing permanent erosion control measures and revegetation, as applicable, during final clean up.

Table 8-2. Summary of Resource Protection Measures for the Proposed Action

Resource	Project Phase	Description
Water Resources (continued)	Construction	• As much as is feasible, locating transmission line structures outside of wetlands, waterbodies and floodplains. • In areas with a shallow water table, installing transmission line structures using caissons to prevent poles from contacting groundwater. • As described in the CMRP, restoring wetlands affected by construction activities to the extent practicable.
	Operations	• After a flood event, inspecting transmission line structures in floodplains and removing accumulated debris.
Biological Resources	Construction	• Limiting construction traffic to the ROW, existing roads, newly constructed roads and approved private roads. • Clearly staking construction ROW boundaries, including pre-approved TWAs, to prevent disturbance to unauthorized areas. • Implementing reclamation and revegetation measures as described in the proposed CMRP Con/Rec units. • Using certified seed mixes to limit the introduction of noxious weeds within 12 months of seed germination testing, and adjusting seeding rates based on test results per the Con/Rec units. • Seeding at a rate appropriate for the region and for the stability of the reclaimed surface based on pure live seed **as per the Con/Rec Units**. • Develop and adhere to a weed control plan for Nebraska in consultation with County Weed Boards. • Using pre-construction treatment such as mowing prior to seed development or herbicide application (in consultation with county or state regulatory agencies, and landowners) for areas of noxious weed infestations prior to clearing grading, trenching or other soil disturbing work to weed infestation locations identified on construction drawings. • Stripping and storing topsoil contaminated with weed populations separately from clean topsoil and subsoil. • On BLM lands, avoiding construction within identified big game winter ranges from December 1 to May 15 of each year. • Using mulch and straw or hay bales that are free of noxious weeds for temporary erosion and sediment control. • Cleaning all construction equipment, including timber mats, with air or high-pressure washing equipment prior to moving equipment to the next job site; cleaning the tracks, tires and blades of equipment by hand or compressed air to remove excess soil prior to movement of equipment out of weed infested areas; or use cleaning stations to remove vegetative materials with high pressure washing equipment. • Implementing weed control measures as required by **the state-specific Weed Management Plan** and in conjunction with the landowner. • Reseeding disturbed native range with native seed mixes after topsoil replacement consistent with applicable Con/Rec and landowner requirements. • Keystone would develop a Conservation Plan consistent with the December 2017 **Interior Solicitor's Opinion M-37050** and current applicable USFWS guidance. • If applicable, develop construction timing restrictions and buffer zones through consultation with regulatory agencies. • If construction would occur during the bald or golden eagle nesting season during January to August, complete pre-construction surveys to locate active nest sites. • Installation of sediment barriers immediately after initial disturbance of

Table 8-2. Summary of Resource Protection Measures for the Proposed Action

Resource	Project Phase	Description
		waterbodies or adjacent uplands.
Biological Resources (continued)	Construction	• Maintaining the ROW width and limiting the extent of riparian vegetation loss. • Minimization of grading and grubbing along streambanks. • Minimizing in-stream use of equipment, locating workspaces at least 10 feet from waterbodies to the extent practicable. • Using dry-ditch techniques at crossings where the timing of construction does not adequately protect environmentally sensitive waterbodies, as determined by the appropriate regulatory authority. • Installing BFDs on power lines across and for 0.25 mile on either side of large rivers.
Socioeconomics and Environmental Justice	Construction	• Identifying and documenting routes that would be used for moving materials and equipment, which would minimize potential impacts. • Constructing pipeline crossings of paved roads by boring beneath the roads, allowing traffic activity to continue. • During the construction phase, maintaining roads used for construction in a condition that is safe for both members of the public and the workforce. • After construction is complete, restoring the roads used to their preconstruction conditions or better. • Submitting a road use plan prior to mobilization and coordinating with the appropriate state and county representatives to develop a mutually acceptable plan.
Cultural Resources	Construction and Operations	• Implementation of the existing Programmatic Agreement for the Keystone XL Pipeline along the proposed pipeline route and along new power lines to avoid, if possible, or mitigate adverse effects on eligible historic properties. If impacts to **historic** properties could not be avoided, mitigation plans would be reviewed by the Department and the consulting parties following the protocols outlined in the Programmatic Agreement. • Implementation of an HDD contingency plan to reduce the potential for and effects of a frac-out during an HDD. This would reduce the potential for indirect effects on **historic properties** if present near HDD sites. • Avoidance of direct impacts to Ponca corn by construction during post-harvest or use of alternate construction methods such as boring the planted lands. • Following the terms of the Unanticipated Discoveries Plan should any unanticipated discoveries of **historic properties** be made during construction or operation of the pipeline or power lines.
Greenhouse Gases	Construction	• Controlling speed of all contractor vehicles in work areas and on roads. • Controlling emissions from construction equipment combustion, open burning and temporary fuel transfer systems and associated tanks to the extent required by state and local agencies through the permit process.

BFD = bird flight diverter; BLM = Bureau of Land Management; CFR = Code of Federal Regulations; CMRP = Construction Mitigation and Reclamation Plan; ESA = Endangered Species Act; HDD = horizontal directional drill; MBTA = Migratory Bird Treaty Act; SEIS = Supplemental Environmental Impact Statement; SPCC = Spill Prevention, Control and Countermeasures; ROW = right-of-way; TWA = temporary workspace area; USACE = U.S. Army Corps of Engineers; USFWS = U.S. Fish and Wildlife Service

Table 8-3. Specific Measures for Species Protected under the ESA

Bird: Interior least tern (*Sternula antillarum)*
• **Crossings of major rivers and riverine habitat will be completed using HDD, resulting in a pipeline burial depth of 25 feet or greater, regardless of the season.**
• **Keystone will implement measures identified in the HDD contingency plan, including monitoring of the HDD bore, monitoring downstream of the HDD site for evidence of drilling fluids, and mitigation measures should a frac-out occur.**
• **Where practicable, vegetative screening at HDD sites will be maintained to prevent disturbance of interior least terns.**
• **Should HDD activities occur at night, lights will be down-shielded when the site is within 0.25 mile of potentially suitable habitat and vegetative screening is lacking.**
• **Pre-construction presence/probable absence surveys of pipeline crossings will occur within 0.25 mile of potentially suitable breeding habitat at the Platte, Elkhorn, and Niobrara rivers in Nebraska; the Cheyenne River in South Dakota; and the Yellowstone River in Montana during the interior least tern nesting season (April 15 to September 1) to ensure that there are no nesting pairs within 0.25 mile of the construction area. If interior least tern nests are found at the crossings, Keystone will: (1) adhere to a 0.25-mile buffer of no pipeline construction activity and (2) continue to monitor nests if any are within 0.25 mile of the construction footprint until young have fledged.**
• **Daily surveys for nesting terns will be conducted during the nesting season when construction activities occur within 0.25 mile of potential nesting habitat.**
• **If nesting terns are present, Keystone will make minor adjustments to the pipeline corridor, if practicable, to avoid nesting interior least terns, in coordination with USFWS. This may involve shifting the pipeline corridor away from nests to avoid disturbances to interior least tern nests or other modifications depending on the circumstances.**
• **To the extent practicable, construction will occur mostly during daytime hours and will comply with any local noise regulations.**
• **Construction equipment will be properly equipped with mufflers to lessen noise impacts.**
• **Keystone will prepare and implement a project-specific SPCC Plan.**
• **Keystone will mark and maintain a 100-foot buffer from river crossings, free from hazardous materials, fuel storage, and vehicle fuel transfers. These buffers will be maintained during construction except when fueling and refueling the water pump near the river edge, which is required for the HDD crossing and hydrostatic test water withdrawal. Water pump fueling will be completed by trained personnel and will use secondary containment; a spill kit will be onsite.**
• **Refueling and lubrication of construction equipment will occur in uplands and greater than 100 feet from streams and wetlands. Where this is not possible, designated personnel with special training in refueling, spill containment, and cleanup will conduct these activities.**
• **All equipment maintenance and repairs will be performed in upland locations at least 100 feet from waterbodies and wetlands.**
• **All equipment will be parked at least 100 feet from a watercourse or wetland overnight, if possible.**
• **Equipment will not be washed in streams or wetlands.**
• **Construction and restoration activities will be conducted to allow for prompt and effective cleanup of spills of fuel and other hazardous materials.**
• **Each construction crew and cleanup crew will have sufficient tools and materials on hand to stop leaks, including supplies of absorbent and barrier materials that will allow for rapid containment and recovery of spilled materials.**
• **Water withdrawal for hydrostatic testing will be less than 10 percent of the baseline daily flow.**
• **Keystone will minimize temporary water reductions by withdrawing only the volume of water needed for hydrostatic testing as outlined in its permits. Water will be returned to its source within a 30-day period except where the hydrostatic test water is used to test multiple spreads. At the conclusion of hydrostatic testing, the remaining water will be returned to the source.**
• **During aerial surveillance, aircraft will maintain at least 1,000 feet of elevation.**
• **If construction of power lines occurs during the interior least tern nesting season, surveys of potentially suitable riverine and/or sand pit nesting habitat within 0.25 mile of new power lines will be conducted within 2 weeks of construction to determine presence of nesting pairs. If nesting interior least terns are present, construction will cease until chicks fledge from the site.**

Table 8-3. Specific Measures for Species Protected under the ESA

- **Power providers will install anti-perching measures on all structures within 0.1 mile of either side of the proposed crossings of the Platte, Elkhorn, Niobrara, Cheyenne, Yellowstone, Milk and Missouri rivers.**

Bird: Piping plover (*Charadrius melodus)*

- **Crossings of major rivers and riverine habitat will be completed using HDD, resulting in a pipeline burial depth of 25 feet or greater, regardless of the season.**
- **Keystone will implement measures identified in the HDD contingency plan, including monitoring of the HDD bore, monitoring downstream of the HDD site for evidence of drilling fluids, and mitigation measures should a frac-out occur.**
- **Where practicable, vegetative screening at HDD sites will be maintained to prevent disturbance of piping plovers.**
- **Should HDD activities occur at night, lights will be down-shielded when the site is within 0.25 miles of potentially suitable habitat and vegetative screening is lacking.**
- **Pre-construction presence/probable absence surveys of pipeline crossings will occur within 0.25 mile of potentially suitable breeding habitat at the Platte, Elkhorn, and Niobrara rivers in Nebraska; the Cheyenne River in South Dakota; and the Yellowstone River in Montana during the piping plover nesting season (April 15 to September 1) to ensure that there are no nesting pairs within 0.25 mile of the construction area. If piping plover nests are found at the crossings, Keystone will: (1) adhere to a 0.25-mile buffer of no pipeline construction activity and (2) continue to monitor nests if any are within 0.25 mile of the construction footprint until young have fledged.**
- **Daily surveys for nesting piping plovers will be conducted during the nesting season when construction activities occur within 0.25 mile of potential nesting habitat.**
- **If nesting piping plovers are present, Keystone will make minor adjustments to the pipeline corridor, if practicable, to avoid nesting plovers, in coordination with USFWS. This may involve shifting the pipeline corridor away from nests to avoid disturbances to piping plover nests or other modifications depending on the circumstances.**
- **To the extent practicable, construction within 0.25 mile of a piping plover nest will occur mostly during daytime hours and will comply with any local noise regulations.**
- **Construction equipment will be properly equipped with mufflers to lessen noise impacts.**
- **Keystone will prepare and implement a project-specific SPCC Plan.**
- **Keystone will mark and maintain a 100-foot buffer from river crossings, free from hazardous materials, fuel storage, and vehicle fuel transfers. These buffers will be maintained during construction except when fueling and refueling the water pump near the river edge that is required for the HDD crossing and hydrostatic test water withdrawal. Water pump fueling will be completed by trained personnel and will use secondary containment and a spill kit will be onsite.**
- **Refueling and lubrication of construction equipment will occur in uplands and greater than 100 feet from streams and wetlands. Where this is not possible, designated personnel with special training in refueling, spill containment, and cleanup will conduct these activities.**
- **All equipment maintenance and repairs will be performed in upland locations at least 100 feet from waterbodies and wetlands.**
- **All equipment will be parked at least 100 feet from a watercourse or wetland overnight, if possible.**
- **Equipment will not be washed in streams or wetlands.**
- **Construction and restoration activities will be conducted to allow for prompt and effective cleanup of spills of fuel and other hazardous materials.**
- **Each construction crew and cleanup crew will have sufficient tools and materials on hand to stop leaks, including supplies of absorbent and barrier materials that will allow for rapid containment and recovery of spilled materials.**
- **Water withdrawal for hydrostatic testing will be less than 10 percent of the baseline daily flow.**
- **Keystone will minimize temporary water reductions by withdrawing only the volume of water needed for hydrostatic testing as outlined in its permits. Water will be returned to its source within a 30-day period except where the hydrostatic test water is used to test multiple spreads. At the conclusion of hydrostatic testing, the remaining water will be returned to the source.**

Table 8-3. Specific Measures for Species Protected under the ESA

- **During aerial surveillance, aircraft will maintain at least 1,000 feet of elevation.**
- **If construction of power lines occurs during the piping plover nesting season, surveys of potentially suitable riverine and/or sand pit plover nesting habitat within 0.25 mile of new power lines will be conducted within 2 weeks of construction to determine presence of nesting pairs. If nesting plovers are present, construction will cease until all chicks fledge from the site.**
- **Power providers will install anti-perching measures on all structures within 0.1 mile of either side of the proposed crossings of the Platte, Elkhorn, Niobrara, Cheyenne, Yellowstone, Milk and Missouri rivers.**
- **Should potentially suitable breeding or foraging habitat for piping plover be identified near the proposed Project at a later time, power lines near breeding habitat (and within 0.25 mile of each side) and lines that will be built between rivers and sand and gravel mining areas will be marked with BFDs to reduce potential injury or mortality to piping plovers.**
- **Power lines will be routed to avoid construction within 0.50 mile of potentially suitable piping plover nesting habitat in alkali wetlands in Montana.**
- **NorVal Electric Cooperative will install BFDs in all locations where the power line to PS-10 comes within 0.25 mile of either side of the Milk River. Additionally, BFDs will be installed for 0.25 mile on either side of two unnamed reservoirs crossed by the proposed power line to PS-10.**

Bird: Rufa red knot (*Calidris canutus rufa)*

- **Crossings of major rivers and riverine habitat will be completed using HDD, resulting in a pipeline burial depth of 25 feet or greater, regardless of the season.**
- **Keystone will implement measures identified in the HDD contingency plan, including monitoring of the HDD bore, monitoring downstream of the HDD site for evidence of drilling fluids, and mitigation measures should a frac-out occur.**
- **Keystone will prepare and implement a project-specific SPCC Plan.**
- **To the extent practicable, construction will occur mostly during daytime hours and will comply with any local noise regulations.**
- **Construction equipment will be properly equipped with mufflers to lessen noise impacts.**
- **Keystone will mark and maintain a 100-foot buffer from river crossings, free from hazardous materials, fuel storage, and vehicle fuel transfers. These buffers will be maintained during construction except when fueling and refueling the water pump near the river edge that is required for the HDD crossing and hydrostatic test water withdrawal. Water pump fueling will be completed by trained personnel and will use secondary containment and a spill kit will be onsite.**
- **Refueling of lubrication of construction equipment will occur in uplands and greater than 100 feet from streams and wetlands. Where this is not possible, designated personnel with special training in refueling, spill containment, and cleanup will conduct these activities.**
- **All equipment maintenance and repairs will be performed in upland locations at least 100 feet from waterbodies and wetlands.**
- **All equipment will be parked at least 100 feet from a watercourse or wetland overnight, if possible.**
- **Equipment will not be washed in streams or wetlands.**
- **Construction and restoration activities will be conducted to allow for prompt and effective cleanup of spills of fuel and other hazardous materials.**
- **Each construction crew and cleanup crew will have sufficient tools and materials on hand to stop leaks, including supplies of absorbent and barrier materials that will allow for rapid containment and recovery of spilled materials.**
- **Water withdrawal for hydrostatic testing will be less than 10 percent of the baseline daily flow.**
- **Keystone will minimize temporary water reductions by withdrawing only the volume of water needed for hydrostatic testing as outlined in their permits. Water will be returned to its source within a 30-day period except where hydrostatic test water is used to test multiple spreads. At the conclusion of hydrostatic testing, the remaining water will be returned to the source.**

Table 8-3. Specific Measures for Species Protected under the ESA

Bird: Whooping crane (*Grus americana*)
• Crossings of major rivers and riverine habitat will be completed using HDD, resulting in a pipeline burial depth of 25 feet or greater, regardless of the season.
• Keystone will implement measures identified in the HDD contingency plan, including monitoring of the HDD bore, monitoring downstream of the HDD site for evidence of drilling fluids, and mitigation measures should a frac-out occur.
• Should HDD activities occur at night, lights will be down-shielded during the spring and fall whooping crane migration seasons in areas that provide potentially suitable habitat.
• Where practicable, vegetative screening at HDD sites will be maintained to prevent disturbance of whooping cranes.
• During spring (March–May) and fall (October–November) whooping crane migration periods, environmental monitors will complete a daily brief survey of any wetland or riverine habitat areas potentially used by whooping cranes in the morning and afternoon before starting equipment and following the Whooping Crane Survey Protocol previously developed by the USFWS and NGPC. If whooping cranes are sighted, the environmental monitor will immediately contact the USFWS and respective state agency in Nebraska, South Dakota, and/or Montana for further instruction and require that all human activity and equipment start-up be delayed. Work could proceed if whooping crane(s) leave the area. The compliance manager will record the sighting, bird departure time, and work start time on the survey form. The USFWS will notify the compliance manager of whooping crane migration locations during the spring and fall migrations through information gathered from the whooping crane tracking program.
• Keystone will re-vegetate disturbed areas (particularly within riparian zones and in wetland habitats) in accordance with the CMRP and USACE permit requirements.
• Use of helicopters within 0.5 mile of any whooping crane(s) will be prohibited.
• Keystone will prepare and implement a project-specific SPCC Plan.
• Keystone will mark and maintain a 100-foot buffer from river crossings, free from hazardous materials, fuel storage, and vehicle fuel transfers. These buffers will be maintained during construction except when fueling and refueling the water pump near the river edge that is required for the HDD crossing and hydrostatic test water withdrawal. Water pump fueling will be completed by trained personnel and will use secondary containment and a spill kit will be onsite.
• Refueling and lubrication of construction equipment will occur in uplands and greater than 100 feet from streams and wetlands. Where this is not possible, designated personnel with special training in refueling, spill containment, and cleanup will conduct these activities.
• All equipment maintenance and repairs will be performed in upland locations at least 100 feet from waterbodies and wetlands.
• All equipment will be parked at least 100 feet from a watercourse or wetland overnight, if possible.
• Equipment will not be washed in streams or wetlands.
• Construction and restoration activities will be conducted to allow for prompt and effective cleanup of spills of fuel and other hazardous materials.
• Each construction crew and cleanup crew will have sufficient tools and materials on hand to stop leaks, including supplies of absorbent and barrier materials that will allow for rapid containment and recovery of spilled materials.
• Water withdrawal for hydrostatic testing will be less than 10 percent of the baseline daily flow.
• Keystone will minimize temporary water reductions by withdrawing only the volume of water needed for hydrostatic testing as outlined in its permits. Water will be returned to its source within a 30-day period except where the hydrostatic test water is used to test multiple spreads. At the conclusion of hydrostatic testing, the remaining water will be returned to the source.
• During aerial surveillance, aircraft will maintain at least 1,000 feet of elevation.
• Should power line routes be adjusted, they will be sited greater than 5 miles from Designated Critical Habitat and/or documented high-use areas.
• Power providers will mark new lines within 1 mile of potentially suitable habitat within the 95-percent migration corridor.

Table 8-3. Specific Measures for Species Protected under the ESA

- **Power providers will mark new lines near potentially suitable habitat outside the 95-percent migration corridor at the discretion of the local USFWS Ecological Services Field Office, based on the biological needs of the whooping crane. Thus far, this will include the following:**
  - **The power line to PS-09 will be marked with BFDs within 0.25 mile of crossings of the Milk River.**
  - **The power line to PS-10 will be marked with BFDs within 0.25 mile of crossings of the Milk River and within 0.25 mile of two unnamed reservoirs crossed by the line.**
  - **The power line to PS-12 will be marked with BFDs within 0.25 mile of crossings of the Redwater River and Buffalo Springs Creek.**
  - **The power line to PS-14 will be marked with BFDs within 0.25 mile of crossings of Pennel Creek and an unnamed pond in the northwest corner of section 35, township 9 north, range 58 east, in Fallon County, Montana.**
- **Keystone will develop a compliance monitoring plan that requires written confirmation that the power lines have been marked and that the markers are maintained in working condition.**
- **Power providers will complete daily presence/probable absence surveys in potentially suitable habitat according to the Project's protocol described above if construction occurs during the spring and fall migration periods. Should a whooping crane be sighted within 0.5 mile of a work area, all work will cease until the whooping crane leaves that immediate area. USFWS and NGPC will be contacted immediately and notified of the presence of whooping crane.**

Mammal: Black-footed ferret (*Mustela nigripes*)

- **Keystone will provide USFWS with the results of Montana prairie dog town surveys and continue to coordinate with the Montana USFWS Ecological Services Office to determine the need for black-footed ferret surveys, in accordance with the USFWS Black-footed Ferret Survey Guidelines.**
- **Workers will be prohibited from keeping domestic pets in construction camps and/or worksites.**
- **Workers will be made aware of how canine distemper and sylvatic plague diseases are spread (domestic pets and fleas).**
- **Workers will be prohibited from feeding wildlife.**
- **Concentrations of dead and/or apparently diseased animals (prairie dogs, ground squirrels, others) will be reported to the appropriate state and federal agencies.**
- **Keystone will prepare and implement a Project-specific SPCC Plan.**
- **Electrical service providers will implement protection measures to minimize raptor perching in accordance with the APLIC, Suggested Practices for Avian Protection on Power Lines.**
- **Big Flat Electric Cooperative will provide immediate notification to the USFWS in the unlikely event that a black-footed ferret is sighted during construction of the power line to PS-09.**

Mammal: Northern long-eared bat *(Myotis septentrionalis)*

- **Keystone will implement measures identified in the HDD contingency plan, including monitoring of the HDD bore, monitoring downstream of the HDD site for evidence of drilling fluids, and mitigation measures should a frac-out occur.**
- **Should HDD activities occur at night, lights will be down-shielded.**
- **Where practicable, vegetative screening at HDD sites will be maintained to prevent disturbance of northern long-eared bats.**
- **No tree removal will occur within 0.25 miles of a known occupied hibernaculum.**
- **No tree removal will occur within 150 feet of a known occupied maternity roost tree during the pup season (June 1 to July 31).**
- **Pre-construction presence/absence surveys will be completed if there is a need to remove potentially suitable habitat within the proposed action area during the pup season (June 1 to July 31). If required, surveys will be conducted pursuant to local USFWS field office and state resource agency requirements and the need for any additional tree clearing restrictions, if any, will be determined in coordination with applicable state and federal resource agencies pending survey results.**
- **During aerial surveillance, aircraft will maintain at least 1,000 feet of elevation.**
- **Keystone will prepare and implement a project-specific SPCC Plan.**

Table 8-3. Specific Measures for Species Protected under the ESA

Fish: Pallid sturgeon (*Scaphirhynchus albus*)
• **HDD would be used under the Milk, Missouri, Yellowstone, and Platte rivers.**
• **At least a 100-foot setback from the water's edge for the HDD drill pads would be used at the HDD crossings at the Milk, Yellowstone, Missouri, and Platte rivers.**
• **Potential releases during HDD (frac-outs) would be contained by BMPs that are described within the HDD contingency plans required for drilled crossings.**
• **Broadcast applications of pesticides or herbicides would be avoided within 0.25 mile of water bodies.**
• **Upstream and downstream fish passage would be maintained during any stream habitat disturbance.**
• **The intake end of any water withdrawal pump would be screened with mesh having openings no larger than 0.125 inch, a floating surface intake would be used to avoid the benthic habitat used by the sturgeon; water velocity at the screen would not exceed 12 centimeters per second to prevent entrainment of larval fish, and the intake screens would be periodically checked for fish impingement. Should a sturgeon become impinged against the screen, all pumping operations would immediately cease and the compliance manager for Keystone would immediately contact the USFWS to determine if additional protection measures would be required.**
• **Water withdrawal from the Milk, Missouri, and Yellowstone rivers for any purpose would be avoided from May 15 through July 15 of any year to avoid pallid spawning periods and the impingement and entrainment of free embryos and larval pallid sturgeon that drift with the current during that time of year.**
• **Water withdrawal from the Platte River for any purpose would be avoided March 1 through June 30 of any year to avoid pallid spawning periods and the impingement and entrainment of free embryos and larval pallid sturgeon that drift with the current during that time of year.**
• **Care would be taken during the discharge to prevent erosion or scouring of the waterbody bed and banks to avoid impacts to spawning habitat for the species. Hydrostatic test discharge would be in upland locations near the source of the water. Water would be discharged over several days and through a hay bale apparatus or other velocity reduction and erosion control device.**
• **Temporary water reductions would be avoided based on Keystone's plan to withdraw the volume needed and to return water back to its source within a 30-day period for the Platte River.**
• **Major rivers would be crossed using the HDD method with a pipeline burial depth of 25 feet or greater below the river bed to avoid direct impacts to habitat.**
• **Proposed HDD entry and exit points are more than 600 feet from the Platte River; if these points are changed, at least a 100-foot setback from the water's edge would be maintained.**
• **Measures identified in a required HDD contingency plan would be implemented, including monitoring of the directional drill bore, monitoring downstream for evidence of drilling fluids, and mitigation measures to address a frac-out should one occur.**
• **Major river crossings are subject to an intensive integrity management program stipulated by the USDOT (Integrity Management Rule, 49 CFR 195) and require heavier wall pipe be used for the HDD method**.
Fish: Topeka shiner (*Notropis topeka*)
• **Crossing of Union Creek will be completed using HDD, resulting in a pipeline burial depth of 25 feet or greater.**
• **Keystone will implement measures identified in the HDD contingency plan, including monitoring of the HDD bore, monitoring downstream of the HDD site for evidence of drilling fluids, and mitigation measures should a frac-out occur.**
• **Pre-construction presence/probable absence surveys of Union and Taylor creeks will be completed during the year of construction.**
• **A dry crossing method or HDD will be used if the Topeka shiner is identified during pre-construction surveys.**
• **Keystone will ensure that water required for HDD operations or hydrostatic testing will be sourced from locations without Topeka shiner presence.**
• **Keystone will maintain at least a 100-foot setback from the water's edge for any HDD drill pads, should the HDD method be used.**
• **Keystone will implement BMPs outlined in the CMRP to prevent and minimize sediment runoff from construction areas from entering receiving streams that may provide potentially suitable Topeka shiner habitat.**

Table 8-3. Specific Measures for Species Protected under the ESA

- **Broadcast applications of pesticides or herbicides will be avoided near water bodies.**
- **Keystone will avoid water depletions within occupied river basins.**
- **Upstream and downstream fish passage will be maintained during any stream habitat disturbance.**
- **The intake end of any water withdrawal pump will be screened with mesh having openings no larger than 0.125 inch. Water velocity at the screen will not exceed 0.5 feet per second, and the intake screens will be checked periodically for fish impingement. Should a Topeka shiner become impinged against the screen, all pumping operations will immediately cease and the compliance manager for Keystone will immediately contact the USFWS to determine if additional protection measures will be required. An environmental inspector will be present every day during water withdrawals to ensure compliance with permit conditions and to ensure that Keystone's commitments are met.**

Insect: American burying beetle (*Nicrophorus americanus)*

- **Mowing: The purpose of mowing construction areas is to ensure that the American burying beetle is not attracted to the active construction site. Mowing occurs when the American burying beetle is active, so depending on the ground disturbance timeframe, the period when these procedures will be implemented is from March 15 through October 31, based on NGPC guidance. NGPC recommends mowing construction areas 2 weeks prior to the commencement of ground disturbing activities between these dates. For winter construction activities (October 31 to March 31) mowing would occur by October 15. Mowing and raking away grass clippings allows the ground to dry out. In accordance with NGPC guidance, construction areas will be mowed such that the vegetation is as low as possible without causing erosion (less than 8 inches). Hand clearing or mechanical mowing will be used to mow uplands. Forested uplands will not be cleared ahead of mainline construction and wetlands and streams will also be avoided. This short vegetation height will be maintained for the duration of active construction during the American burying beetle overall active period (until October 31) or until construction in the vicinity is completed, whichever is earlier. Mowing will be completed every 2 weeks, if necessary, to ensure vegetation is kept less than 8 inches tall until grading commences. Once mowed, clippings will be removed. Possible methods include raking, windrowing, or baling. If the grass has stopped growing, or grading commences, mowing can stop. All construction, work vehicles and personal vehicles will be staged in mowed areas. If it is not possible to maintain vegetation under 8 inches in height, construction will avoid such areas until the vegetation can be mowed to less than 8 inches in height. For power line construction in potentially suitable American burying beetle habitat, mowing will be done only in construction areas with soil disturbance (pole installation), as recommended by the USFWS and NGPC. Once mowing procedures have been initiated, weekly reports will be kept and submitted to USFWS, NGPC, and SDGFP. These reports will demonstrate that the conservation measures are being implemented and become part of the records. Weekly reports are only required during the American burying beetle active period (April 1 to October 31) while construction on the project is active. Photos documenting grass heights will be provided.**
- **Carrion removal: Removing carrion (essential for American burying beetle feeding and reproduction) will make the work area less attractive to the American burying beetle. By removing carrion in areas where construction would occur, this ensures that American burying beetle would not be feeding or burying carcasses in an area where they could encounter construction equipment. In accordance with NGPC guidance, the work area will be prepared by removing any and all carcasses prior to construction. Carcasses as small as songbirds, snakes, and rodents are ideal food for the American burying beetle; therefore, this removal activity will be thorough. Carcass removal will occur between March 15 and October 31 or until construction is completed, whichever is earlier. Personnel will survey the ROW daily to remove carrion. Carcass removal can be done at any time throughout the day; however, the preferred timing is in the late afternoon, since the American burying beetle is active at night. This will ensure that American burying beetles are not drawn to the area by roadkill caused by daytime traffic. Disposal of carcasses will be at least 0.5 miles away from the work site. For power line construction in potentially suitable American burying beetle habitat, carrion removal will be done only in construction areas with soil disturbance (pole installation), as recommended by the USFWS and NGPC. Carrion removal reports will be submitted as with the mowing reports. Once carrion removal procedures have been initiated, weekly reports will be kept and submitted to USFWS, NGPC, and SDGFP, as well as the designated Environmental Inspector for filing. These reports demonstrate that the conservation measures are being implemented and become part of the records. Weekly reports are only required during the American burying beetle active period (April 1 to October 31) while construction on the project is active. If the number and species of carrion can be easily identified (for example, deer carcass, bull snake, mouse, etc.), this information will be included in the report. Photo documentation of carrion removed will be provided.**

Table 8-3. Specific Measures for Species Protected under the ESA

- **During the construction phase, most construction activity will take place in daylight hours. Construction activities taking place at night would require artificial lighting and could thereby have an effect on American burying beetle by disruption of normal behavior patterns. Construction at night and the use of lights will be limited to specific situations requiring this activity such as critical tie-ins, HDDs, and during certain weather conditions. Where such activities require lighting, the lights will be down shielded and utilize warm amber-colored lights with a color temperature of 3000 Kelvin or less and intensity no greater than 70,000 lumens. Lighting required for contractor yards and pump stations will also be down shielded, except where required for safety and security, and will utilize sodium vapor or LED lighting meeting the above specifications.**
- **Keystone will implement an education program for construction personnel engaged in the proposed Project. This will include a presentation focused on identifying the American burying beetle, explaining its life history, its current range, and its habitat requirements. Construction personnel will be instructed to report any sightings of American burying beetle or brood chambers if encountered. Education cards will be provided to all construction personnel. Signs will be placed at construction entrances identifying the area as potential American burying beetle habitat.**
- **Immediately following construction, disturbed areas will be ripped to a depth of 24 inches to relieve soil compaction existing at the site from the use of heavy equipment. This effort will improve or enhance American burying beetle habitat by making soils easier for beetles to bury in. Keystone's CMRP provides further details with regard to relief of soil compaction within ROWs following construction.**
- **Erosion control techniques such as silt fencing, hay bales, water bars, and other efforts will be used to prevent washing away of topsoil, formation of gullies, or other erosion that could negatively affect American burying beetle habitat through the action of surface water. Keystone's CMRP provides further details with regard to erosion control following construction.**
- **Immediately following construction, disturbed areas will be temporarily stabilized by broadcasting cool season species such as annual rye grass or wheat seed. Where necessary, clean, weed-free wheat straw will be used as mulch to protect seed and increase soil moisture. These grasses are annual species that senesce when temperatures warm during summer; they will not become permanently established. During the spring, a mixture of native warm season grasses will be planted within the ROW. This will include species such as little bluestem, big bluestem, Indiangrass, and switchgrass. Natural recruitment of other native grasses and forbs will also occur. It should be noted that some portions of the ROW, in response to landowner requirements, will be revegetated using non-native species such as smooth brome. This type of re-vegetation will likely be restricted to areas that are currently dominated by improved grass pastures and will therefore not lead to a reduction of habitat dominated by native species. In the limited circumstance where landowners request re-vegetation of previously native vegetation to non-native vegetation, Keystone will consider this as a permanent effect on habitat and will provide appropriate mitigation for those areas. Keystone's CMRP provides further details with regard to restoration of ROWs following construction.**
- **Keystone is committed to habitat restoration following construction. The American burying beetle monitoring program will provide assurances that the acres disturbed would be restored appropriately. Failure is unlikely due to Keystone's commitment to re-seed in subsequent years if unsuccessful after the first growing season. Criteria for successful reclamation are: 1) reclamation will be measured 4 years after the commencement of construction; 2) for reclamation to be deemed successful, native grasslands restored on the ROW must be comparable to those on adjacent undisturbed lands; 3) 70 percent of the dominant species on the ROW must be the same as those that occur on adjacent off-ROW lands.**
- **WAPA and the power providers would endeavor to reduce the likelihood of American burying beetles occurring in the potentially affected area by mowing vegetation to less than 8 inches in height, removing grass clippings, and inspecting the work area daily to remove all carcasses; these measures would be in force from March 15 through October 31 or until construction in the vicinity is completed, whichever is earlier.**
- **The NPPD and Rosebud Electric Cooperative will schedule power line and switching station construction activities during the American burying beetle dormant or inactive time (October 31 to March 31). The power providers will coordinate with USFWS and NGPC to determine appropriate measures to minimize potential effects if such scheduling cannot be accomplished due to unexpected circumstances, including weather delays.**

Table 8-3. Specific Measures for Species Protected under the ESA

Plant: Western prairie fringed orchid *(Platanthera praeclara)*
• Pre-construction presence/probable absence surveys will be conducted within potentially suitable habitat that was not previously surveyed, including the power line route to PS-21. Survey results will be submitted to the USFWS for review. Species presence will be assumed in potentially suitable habitat if surveys cannot be conducted during the flowering period.
• The Project alignment will be adjusted to avoid any identified populations as practicable and/or approved by the landowner.
• To the greatest extent practicable, the width of the construction ROW will be reduced in areas where western prairie fringed orchid populations have been identified.
• Keystone will develop and implement a noxious and invasive weed control program consistent with the CMRP to reduce the potential for spread or invasion of weeds.
• Herbicide application will occur by spot spraying.
• Use of herbicides within 100 feet of documented western prairie fringed orchid occurrence will be restricted.
• Keystone will minimize the potential for altered hydrology (e.g., surface water flow, infiltration and groundwater levels) in potentially suitable habitat through BMPs outlined in the CMRP.
• Keystone will salvage and segregate topsoil appropriately where populations have been identified to preserve native seed sources in the soil for use in revegetation efforts in the ROW.
• Keystone will restore wet meadow habitat using a USFWS- and NGPC-approved seed mix.
• Potentially suitable wet meadow habitats will be restored following Project construction.
• Restoration of construction-related impacts on wet meadow habitats identified as potentially suitable for the western prairie fringed orchid will be monitored for a 5-year period, per USACE guidelines.
• Keystone has sited aboveground facilities to avoid potentially suitable western prairie fringed orchid wetland habitat.
• Keystone will prepare and implement a project-specific SPCC Plan.
• Keystone will mark and maintain a 100-foot buffer from river crossings, free from hazardous materials, fuel storage, and vehicle fuel transfers. These buffers will be maintained during construction except when fueling and refueling the water pump near the river edge that is required for the HDD crossing and hydrostatic test water withdrawal. Water pump fueling will be completed by trained personnel and will use secondary containment and a spill kit will be onsite.
• Refueling and lubrication of construction equipment will occur in uplands and greater than 100 feet from streams and wetlands. Where this is not possible, designated personnel with special training in refueling, spill containment, and cleanup will conduct these activities.
• All equipment maintenance and repairs will be performed in upland locations at least 100 feet from waterbodies and wetlands.
• All equipment will be parked at least 100 feet from a watercourse or wetland overnight, if possible.
• Equipment will not be washed in streams or wetlands.
• Construction and restoration activities will be conducted to allow for prompt and effective cleanup of spills of fuel and other hazardous materials.
• Each construction crew and cleanup crew will have sufficient tools and materials on hand to stop leaks, including supplies of absorbent and barrier materials that will allow for rapid containment and recovery of spilled materials.
• Water withdrawal for hydrostatic testing will be less than 10 percent of the baseline daily flow.
• Keystone will minimize temporary water reductions by withdrawing only the volume of water needed for hydrostatic testing as outlined in its permits. Water will be returned to its source within a 30-day period except where hydrostatic test water is used to test multiple spreads. At the conclusion of hydrostatic testing, the remaining water will be returned to the source.
• Pre-construction presence/probable absence surveys will be conducted in potentially suitable habitat along the power line routes to PS-22 through PS-25, during the appropriate flowering period. The NPPD will delineate and designate areas where western prairie fringed orchid habitat is present as "avoidance areas" where placement of structures and construction traffic will not occur.

APLIC = Avian Power Line Interaction Committee; BA = Biological Assessment; BFD = bird flight diverter; CMRP = Construction Mitigation and Reclamation Plan; ESA = Endangered Species Act; HDD = horizontal directional drill; NGPC = Nebraska Game and Parks Commission; NPPD = Nebraska Public Power District; PS = Pump Station; ROW = right-of-way; SDGFP = South Dakota Game Fish and Parks; SEIS = Supplemental Environmental Impact Statement; SPCC = Spill Prevention Control and Countermeasure; USACE = U.S. Army Corps of Engineers; USFWS = U.S. Fish and Wildlife Service; WAPA = Western Area Power Administration

Table 8-4. BLM Sensitive Species, State Protected Species, and Animals and Plants of Conservation Concern

Species	Conservation Measures
Swift fox (*Vulpes velox*)	• Revegetate the ROW to support small mammal and insect prey. • Conduct surveys of potential den sites on federal land and within suitable habitat in the proposed Project footprint in South Dakota. • Restrict construction activities within one-quarter mile of active natal dens between April 1 and August 31. • Conduct surveys of potential den sites between February 15 and July 31 in suitable habitat in the proposed Project footprint Phillips, Valley, Prairie, Dawson, and Fallon counties in Montana (MDEQ and MFWP). • Restrict construction activities within 0.31 mile of active dens from February 15 to July 31 in Montana on state or federal land (MDEQ and MFWP).

BLM = Bureau of Land Management; HDD = horizontal directional drill; MBTA = Migratory Bird Treaty Act; MDEQ = Montana Department of Environmental Quality; MFWP = Montana Fish, Wildlife, and Parks; NGPC = Nebraska Game and Parks Commission; ROW = right-of-way; SDGFP = South Dakota Department of Game, Fish, and Parks; USFWS = U.S. Fish and Wildlife Service

Table 8-5. Summary of Resource Protection Measures for the Proposed Electrical Power Infrastructure

Resource	Description
Land Use and Recreation	• **If construction is planned for agricultural areas, measures would be taken to avoid or minimize crop damage, restore the disturbed land to its prior condition, and to compensate landowners for any damages.** • **In accordance with BLM requirements, each power line that crosses BLM-managed lands would submit a BLM-Specific Construction, Mitigation, and Reclamation Plan.** • **Where the power infrastructure associated with pump stations would cross federal lands, required mitigation measures would be followed according to current land or forest management plans.** • **Power providers would attempt to route power infrastructure along existing linear corridors such as existing power lines, roadways, fence lines, field lines, parcel boundaries, or section lines to reduce impacts to land use and visual resources.**
Soils	• **To minimize soil impacts, work would be restricted during wet conditions to minimize rutting; compaction would be relieved by disking, chiseling or ripping; stones would be removed; topsoil or soil amendments may be added; and industry standard soil erosion and sedimentation controls would be used.**
Air Quality	• **Power providers will comply with all applicable state regulations and local ordinances with respect to truck transportation and fugitive dust emissions.**
Noise	• **Construction equipment would be properly equipped with mufflers to lessen noise impacts.**

Table 8-5. Summary of Resource Protection Measures for the Proposed Electrical Power Infrastructure

Resource	Description
Water Resources	• **To minimize impacts on surface water, industry standard soil erosion and sedimentation controls would be used during construction.** • **When feasible, power pole structures would be located outside of wetlands, waterbodies, and floodplains.** • **In areas with a shallow water table, power pole structures would be installed using caissons to prevent poles from contacting groundwater.** • **After a flood event, power pole structures would be inspected in floodplains and accumulated debris would be removed.** • **Refueling and lubrication of construction equipment would occur in uplands and greater than 100 feet from streams and wetlands. Where this is not possible, designated personnel with special training in refueling, spill containment, and cleanup would conduct these activities.** • **All equipment maintenance and repairs would be performed in upland locations at least 100 feet from waterbodies and wetlands.** • **All equipment would be parked at least 100 feet from a watercourse or wetland overnight, where possible.** • **Equipment would not be washed in streams or wetlands.** • **Broadcast applications of pesticides or herbicides would be avoided within 0.25 miles of water bodies.**
Wetlands	• **When feasible, power pole structures would be located outside of wetlands, waterbodies, and floodplains.** • **Refueling and lubrication of construction equipment would occur in uplands and greater than 100 feet from streams and wetlands. Where this is not possible, designated personnel with special training in refueling, spill containment, and cleanup would conduct these activities.** • **All equipment maintenance and repairs would be performed in upland locations at least 100 feet from waterbodies and wetlands.** • **All equipment would be parked at least 100 feet from a watercourse or wetland overnight, where possible.** • **Equipment would not be washed in streams or wetlands.** • **Wetlands affected by construction activities, if any, would be restored to the extent practicable.** • **Construction in wetland areas would utilize protective matting or be restricted to frozen conditions to help minimize rutting.** • **Emergent wetlands would be allowed to persist within the permanent ROW outside of access roads and power pole structure locations.**
Terrestrial Vegetation	• **During the construction phase, equipment and support vehicles would be power washed before entering or leaving a work area where noxious weeds are present.** • **If noxious or invasive plant species are detected in the ROW at any time during the life of the proposed Project and connected actions, the appropriate local weed and pest control agency would be contacted to ensure that proper methods are used for eradication of the noxious or invasive plants.** • **Herbicides would not be applied broadly to the ROW, but could be applied to individual tree stumps to eliminate re-sprouting.**

Table 8-5. Summary of Resource Protection Measures for the Proposed Electrical Power Infrastructure

Resource	Description
Wildlife	• **Workers would be prohibited from feeding wildlife.** • **Workers would be prohibited from keeping domestic pets at worksites.** • **Concentrations of dead and/or apparently diseased animals (prairie dogs, ground squirrels, others) would be reported to the appropriate state and federal agencies.** • **To the extent practicable, construction would occur during daytime hours and comply with any local noise regulations.** • **Construction equipment would be properly equipped with mufflers to lessen noise impacts.** • **Construction within identified big game habitat priority areas would be avoided from December 1 to May 15 of each year. This measure would be mandatory on all BLM-managed lands and may be implemented on other portions of the proposed infrastructure, as well.** • **Perch deterrents would be installed under certain circumstances where the structure configuration allows and risk to wildlife from increased avian predation would be high.**
Protected and Special Status Species[a]	• **The power provider for PS-09 would provide immediate notification to the USFWS in the unlikely event that a black-footed ferret is sighted during construction of the power line to PS-09.** • **Workers would be prohibited from keeping domestic pets at worksites.** • **Workers would be informed of how canine distemper and sylvatic plague diseases are spread (namely, domestic pets and fleas).** • **Workers would be prohibited from feeding wildlife.** • **Concentrations of dead and/or apparently diseased animals (prairie dogs, ground squirrels, others) would be reported to the appropriate state and federal agencies.** • **Power providers would implement protection measures to minimize raptor perching in accordance with the Avian Power Line Interaction Committee (APLIC) Suggested Practices for Avian Protection on Power Lines (APLIC 1996, 2012).** • **Power providers would install anti-perching measures on all structures within 0.1 mile of either side of the proposed crossings of the Platte, Elkhorn, Niobrara, Cheyenne, Yellowstone, Milk and Missouri rivers.** • **For the power infrastructure that would serve PS-14, the power provider would install perch discouragers on the structures as requested by MTFWP to minimize raptor use of structures to prey on sage grouse.** • **To the extent practicable, construction would occur during daytime hours and comply with any local noise regulations.** • **Construction equipment would be properly equipped with mufflers to lessen noise impacts.** • **A 100-foot buffer from river crossings, free from hazardous materials, fuel storage, and vehicle fuel transfers would be marked and maintained.** • **Refueling and lubrication of construction equipment would occur in uplands and greater than 100 feet from streams and wetlands. Where this is not possible, designated personnel with special training in refueling, spill containment, and cleanup would conduct these activities.** • **All equipment maintenance and repairs would be performed in upland locations at least 100 feet from waterbodies and wetlands.**

Table 8-5. Summary of Resource Protection Measures for the Proposed Electrical Power Infrastructure

Resource	Description
Protected and Special Status Species (continued)	• All equipment would be parked at least 100 feet from a watercourse or wetland overnight, where possible. • Equipment would not be washed in streams or wetlands. • Construction and restoration activities would be conducted to allow for prompt and effective cleanup of spills of fuel and other hazardous materials. • Each construction crew and cleanup crew would have sufficient tools and materials on hand to stop leaks, including supplies of absorbent and barrier materials that would allow for rapid containment and recovery of spilled materials. • If construction of power lines occurs during the interior least tern or piping plover nesting season, surveys of potentially suitable riverine and/or sand pit nesting habitat within 0.25 mile of new power lines would be conducted within 2 weeks of construction to determine presence of nesting pairs. If nesting interior least terns or piping plovers are present, construction would cease until chicks fledge from the site. • The power provider for PS-09 would provide immediate notification to the USFWS in the unlikely event that a black-footed ferret is sighted during construction of the power line to PS-09. • Workers would be prohibited from keeping domestic pets at worksites. • Workers would be informed of how canine distemper and sylvatic plague diseases are spread (namely, domestic pets and fleas). • Workers would be prohibited from feeding wildlife. • Concentrations of dead and/or apparently diseased animals (prairie dogs, ground squirrels, others) would be reported to the appropriate state and federal agencies. • Power providers would implement protection measures to minimize raptor perching in accordance with the Avian Power Line Interaction Committee (APLIC) Suggested Practices for Avian Protection on Power Lines (APLIC 1996, 2012). • Power providers would install anti-perching measures on all structures within 0.1 mile of either side of the proposed crossings of the Platte, Elkhorn, Niobrara, Cheyenne, Yellowstone, Milk and Missouri rivers. • For the power infrastructure that would serve PS-14, the power provider would install perch discouragers on the structures as requested by MTFWP to minimize raptor use of structures to prey on sage grouse. • To the extent practicable, construction would occur during daytime hours and comply with any local noise regulations. • Construction equipment would be properly equipped with mufflers to lessen noise impacts. • A 100-foot buffer from river crossings, free from hazardous materials, fuel storage, and vehicle fuel transfers would be marked and maintained. • Refueling and lubrication of construction equipment would occur in uplands and greater than 100 feet from streams and wetlands. Where this is not possible, designated personnel with special training in refueling, spill containment, and cleanup would conduct these activities. • All equipment maintenance and repairs would be performed in upland locations at least 100 feet from waterbodies and wetlands. • All equipment would be parked at least 100 feet from a watercourse or wetland overnight, where possible.

Table 8-5. Summary of Resource Protection Measures for the Proposed Electrical Power Infrastructure

Resource	Description
Protected and Special Status Species (continued)	• **Equipment would not be washed in streams or wetlands.** • **Construction and restoration activities would be conducted to allow for prompt and effective cleanup of spills of fuel and other hazardous materials.** • **Each construction crew and cleanup crew would have sufficient tools and materials on hand to stop leaks, including supplies of absorbent and barrier materials that would allow for rapid containment and recovery of spilled materials.** • **If construction of power lines occurs during the interior least tern or piping plover nesting season, surveys of potentially suitable riverine and/or sand pit nesting habitat within 0.25 mile of new power lines would be conducted within 2 weeks of construction to determine presence of nesting pairs. If nesting interior least terns or piping plovers are present, construction would cease until chicks fledge from the site.** • **During spring (March–May) and fall (October–November) whooping crane migration periods, environmental monitors would complete a brief daily survey of any wetland or riverine habitat areas potentially used by whooping cranes in the morning and afternoon before starting equipment and following the Whooping Crane Survey Protocol previously developed by the USFWS and NGPC (USFWS 2017). If whooping cranes are sighted, the environmental monitor would immediately contact the USFWS and respective state agency in Nebraska, South Dakota, and/or Montana for further instruction and require that all human activity and equipment start-up be delayed. Work could proceed if whooping crane(s) leave the area. The compliance manager would record the sighting, bird departure time, and work start time on the survey form. The USFWS would notify the compliance manager of whooping crane migration locations during the spring and fall migrations through information gathered from the whooping crane tracking program.** • **Disturbed areas, as applicable, would be re-vegetated (particularly within riparian zones and in wetland habitats).** • **Use of helicopters within 0.5 mile of any whooping crane(s) would be prohibited.** • **Should power line routes be adjusted, they would be sited greater than 5 miles from Designated Critical Habitat and/or documented high-use areas for whooping cranes.** • **Power providers would mark new lines within 1 mile of potentially suitable habitat within the whooping crane 95 percent migration corridor.** • **Power providers would mark new lines near potentially suitable whooping crane habitat outside the 95-percent migration corridor at the discretion of the local USFWS Ecological Services Field Office, based on the biological needs of the whooping crane. Thus far, this would include the following: (1) The power line to PS-09 would be marked with BFDs within 0.25 mile of crossings of the Milk River. (2) The power line to PS-10 would be marked with BFDs within 0.25 mile of crossings of the Milk River and within 0.25 mile of two unnamed reservoirs crossed by the line. (3) The power line to PS-12 would be marked with BFDs within 0.25 mile of crossings of the Redwater River and Buffalo Springs Creek. (4) The power line to PS-14 would be marked with BFDs within 0.25 mile of crossings of Pennel Creek and an unnamed pond in the northwest corner of section 35, township 9 north, range 58 east, in Fallon County, Montana.** • **For the power infrastructure that would serve pump stations in Nebraska, the power provider(s) would complete a field review with the USFWS and NGPC to determine if any areas are present with a higher probability of whooping crane use (i.e., wetlands or large ponded areas (stock ponds), meadows, and obvious flight corridors to and from such areas to feeding habitats). The power provider(s) would install spiral BFDs, consistent with APLIC standards, in appropriate areas as identified during the field review.**

Table 8-5. Summary of Resource Protection Measures for the Proposed Electrical Power Infrastructure

Resource	Description
Protected and Special Status Species (Continued)	• **For the power infrastructure that would serve pump stations in Nebraska, the power provider(s) would install spiral BFDs on the shield wire on the line span between the banks at the Platte River crossing and one span on each side of the crossing.** • **Should potentially suitable breeding or foraging habitat for piping plover be identified near the proposed infrastructure at a later time, power lines near breeding habitat (and within 0.25 mile of each side) and lines that would be built between rivers and sand and gravel mining areas would be marked with BFDs to reduce potential injury or mortality to piping plovers.** • **Keystone would develop a compliance monitoring plan that requires written confirmation that the power lines have been marked and that the markers are maintained in working condition.** • **Broadcast applications of pesticides or herbicides would be avoided within 0.25 miles of water bodies.** • **No tree removal would occur within 0.25 miles of a known occupied northern long-eared bat hibernaculum.** • **No tree removal would occur within 150 feet of a known occupied northern long-eared bat roost tree during the pup season (June 1-July 31)** • **Pre-construction presence/absence surveys would be completed if there is a need to remove trees during the northern long-eared bat pup season.** • **Should power line routes be adjusted, they would be routed to avoid construction within 0.50 mile of potentially suitable piping plover nesting habitat in alkali wetlands in Montana.** • **Along power lines necessary to serve the pump stations in Montana, the three sage-grouse mitigation plans approved by the Montana Sage-Grouse Oversight Team on December 18, 2018, would be implemented.** • **For proposed power lines in Montana that would serve PS-09, PS-10 and PS-13, local power providers would implement specific measures to avoid, minimize, and mitigate impacts to sagebrush habitat in coordination with the Montana Sage-Grouse Habitat Conservation Program. For one or more of these projects, such measures include considering alternate routes, burying distribution lines, observing seasonal stipulations for construction activities, installing power pole structures to minimize disturbance to sagebrush cluster locations, using non-nest supporting poles and conducting monthly inspections for avian impacts.** • **For proposed power lines in Montana that would serve PS-09 and PS-10, local power providers would compensate for residual impacts to habitat by completing habitat credit projects approved through the Montana Mitigation System, by obtaining credits from other entities, or by making in lieu fee payments to the State of Montana Greater Sage-Grouse Stewardship Fund.** • **Local power providers would implement measures developed in coordination with Keystone and the USFWS regarding ways to minimize or mitigate impacts on the greater sage-grouse and threatened and endangered species from the proposed infrastructure, per Keystone's mitigation plan for the greater sage-grouse.**

Table 8-5. Summary of Resource Protection Measures for the Proposed Electrical Power Infrastructure

Resource	Description
Protected and Special Status Species (continued)	• **For the power infrastructure that would serve PS-14, the power provider would work with Keystone to avoid any construction of the electric transmission line from March 1 to June 15. However, if construction is projected to occur during the period of March 1 to June 15 within three miles of active greater sage-grouse leks that are not screened by topography or that are within suitable nesting habitat regardless of screening, the power provider would avoid construction within 1 mile of leks from 8 pm until 2 hours after sunrise the following day on a daily basis and monitor active leks (displaying males) within three miles of the project during construction between March I and June 15. The power provider would contact the USFWS to obtain additional guidance if construction-related disturbance of lekking sage grouse is noted.** • **For the power infrastructure that would serve PS-14, the power provider would, where approved by landowners, control unauthorized off-road vehicle access to the construction ROW through the use of signs; fences with locking gates; slash and timber barriers, pipe barriers, or boulders lined across the construction ROW; or plant conifers of other appropriate trees or shrubs in accordance with landowner or manager request where such planting would not diminish the quality of adjacent Sprague's pipit habitat.** • **For the power infrastructure that would serve pump stations in Nebraska, the power provider(s) would complete field surveys for the western prairie fringed orchid and small white lady's slipper during the appropriate bloom periods only in areas along the final line routes that are considered "suitable" habitat. The power provider(s) would delineate and mark areas where either species is observed as "avoidance areas" where placement of structures and construction traffic would not occur.** • **Pre-construction presence/probable absence surveys would be conducted within potentially suitable western prairie fringed orchid habitat that was not previously surveyed, including the power line route to PS-21. Survey results would be submitted to the USFWS for review. Presence of this species would be assumed in potentially suitable habitat if surveys cannot be conducted during the flowering period.** • **Power Line alignments would be adjusted to avoid any identified populations of western prairie fringed orchid as practicable and/or approved by the landowner.** • **To the greatest extent practicable, the width of the construction ROW would be reduced in areas where western prairie fringed orchid populations have been identified.** • **A noxious and invasive weed control program would be developed and implemented to reduce the potential for spread or invasion of weeds.** • **Herbicide application would occur by spot spraying only.** • **Use of herbicides within 100 feet of documented western prairie fringed orchid occurrence would be restricted.** • **Potentially suitable wet meadow habitats disturbed by construction, if any, would be restored using a USFWS- and NGPC-approved seed mix following construction.** • **Restoration of construction-related impacts on wet meadow habitats identified as potentially suitable for the western prairie fringed orchid, if any, would be monitored for a 5-year period, per USACE guidelines.** • **Pre-construction presence/probable absence surveys for western prairie fringed orchid would be conducted in potentially suitable habitat along the power line routes to PS-22 through PS-25, during the appropriate flowering period. The power provider(s) would delineate and mark areas where western prairie fringed orchid habitat is present as "avoidance areas" where placement of structures and construction traffic would not occur.**

Table 8-5. Summary of Resource Protection Measures for the Proposed Electrical Power Infrastructure

Resource	Description
Protected and Special Status Species (continued)	• Power Line alignments would be adjusted to avoid any identified populations of western prairie fringed orchid as practicable and/or approved by the landowner. • To the greatest extent practicable, the width of the construction ROW would be reduced in areas where western prairie fringed orchid populations have been identified. • A noxious and invasive weed control program would be developed and implemented to reduce the potential for spread or invasion of weeds. • Herbicide application would occur by spot spraying only. • Use of herbicides within 100 feet of documented western prairie fringed orchid occurrence would be restricted. • Potentially suitable wet meadow habitats disturbed by construction, if any, would be restored using a USFWS- and NGPC-approved seed mix following construction. • Restoration of construction-related impacts on wet meadow habitats identified as potentially suitable for the western prairie fringed orchid, if any, would be monitored for a 5-year period, per USACE guidelines. • Pre-construction presence/probable absence surveys for western prairie fringed orchid would be conducted in potentially suitable habitat along the power line routes to PS-22 through PS-25, during the appropriate flowering period. The power provider(s) would delineate and mark areas where western prairie fringed orchid habitat is present as "avoidance areas" where placement of structures and construction traffic would not occur. • The NPPD and Rosebud Electric Cooperative would schedule power line and switching station construction activities during the American burying beetle dormant or inactive time (October 31 to March 31). The power providers would coordinate with USFWS and NGPC to determine appropriate measures to minimize potential effects if such scheduling cannot be accomplished due to unexpected circumstances, including weather delays. • WAPA would follow a set of standard construction and mitigation practices; these practices would be mandatory on portions of the power infrastructure involving WAPA. • WAPA and the power providers for PS-20, PS-21, and PS-22 would endeavor to reduce the likelihood of American burying beetles occurring in the potentially affected area by mowing vegetation to less than 8 inches in height, removing grass clippings, and inspecting the work area daily to remove all carcasses; these measures would be in force from March 15 through October 31 or until construction in the vicinity is completed, whichever is earlier.
Visual Resources	• Power providers would attempt to route power infrastructure along existing linear corridors such as existing power lines, roadways, fence lines, field lines, parcel boundaries, or section lines to reduce impacts to land use and visual resources. • Strategic structure placement and varying structure type (e.g., lattice, H-frame, or single-pole) and material (e.g., wood, steel, or weathered steel) would be considered to reduce potential impacts to visual resources. • Where feasible, power lines would be collocated on the same structures to consolidate infrastructure.
Socioeconomics and Environmental Justice	• A program that would include inspection of roadways and roadway structures, repair of damage that may occur to those facilities, establishment of an approved Traffic Management Plan, and coordination with state and local transportation agencies would be implemented. Before construction begins, contractors would develop detailed traffic plans that address all applicable laws, regulations, and ordinances.

Table 8-5. Summary of Resource Protection Measures for the Proposed Electrical Power Infrastructure

Resource	Description
Cultural Resources	• If impacts on NRHP-eligible properties could not be avoided, mitigation plans will be developed and implemented. • Whenever feasible, known cultural resources would be avoided, impacts would be minimized when avoidance is not possible, and impacts would be mitigated when minimization is not sufficient. In addition, Unanticipated Discovery Plans would be implemented to ensure minimization of impacts on unknown cultural resources that may be inadvertently encountered during construction or operation of the proposed infrastructure. • For the power infrastructure that would serve PS-14, PS-22, PS-23, PS-23B, PS-24, PS-25, and PS-26, power providers would provide an opportunity for SHPO(s) and consulting Indian tribes and other interested parties to review and comment on the proposed power infrastructure. • For the power infrastructure that would serve PS-14, field surveys of all remaining areas would be completed and consultation with Montana SHPO would occur before construction. Prior to construction, any known sites would be marked to avoid adverse impacts on sites.

a. Protected and Special Status Species in relation to the electrical power and infrastructure include species protected under the ESA, the MBTA, and the Bald and Golden Eagle Protection Act, as well as BLM and state-specific regulations.

APLIC = Avian Power Line Interaction Committee; BA = Biological Assessment for the Keystone XL Project; BFD = Bird Flight Diverter; BLM = Bureau of Land Management; DR = Data Request to Keystone; HDD = horizontal directional drill; MDEQ = Montana Department of Environmental Quality; MTFWP = Montana Department of Fish, Wildlife and Parks; NGPC = Nebraska Game and Parks Commission; NHPA = National Historic Preservation Act; PS = Pump Station; SEIS = Supplemental Environmental Impact Statement; SHPO = State Historic Preservation Office; USFS = U.S. Forest Service; USFWS = U.S. Fish and Wildlife Service