

Attachment 1B

Environmental Specifications

Environmental Specifications for the Keystone XL Project in Montana

April 2012

**STATE OF MONTANA
ENVIRONMENTAL SPECIFICATIONS FOR THE
KEYSTONE XL PIPELINE PROJECT IN MONTANA**

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DEFINITIONS

ACCESS EASEMENT: Any land area over which the OWNER has obtained an easement from a landowner allowing travel to and from the Project. Access easements may or may not include access roads

ACCESS ROAD: Any travel course which is constructed by substantial recontouring of land and which is intended to permit passage by most four-wheeled vehicles

ACCESS ROUTE: Any state highway or county road that will be used to transport equipment, supplies and materials or personnel to and from the Project

ARM: Administrative Rules of Montana

BEGINNING OF CONSTRUCTION: Any project-related earthmoving or removal of vegetation (except for clearing of survey lines)

BLM: United States Department of Interior, Bureau of Land Management

BLM INSPECTOR: BLM employee or designee charged with inspecting the pipeline for compliance with the BLM requirements

BOR: United States Bureau of Reclamation

BOARD: Montana Board of Environmental Review

CERTIFICATE: Certificate of Compliance

CFR: Code of Federal Regulations

DOS: United States Department of State

DEQ: State of Montana, Department of Environmental Quality or its successor

DNRC: State of Montana, Department of Natural Resources and Conservation

EIS: Environmental Impact Statement for the Keystone XL Oil Pipeline Project

ENVIRONMENTAL INSPECTOR: Persons hired by the OWNER who shall be responsible for monitoring and ensuring compliance with all mitigation measures required by the CERTIFICATE and these specifications, and other grants, permits, certificates, or other authorizing documents

FWP: State of Montana, Department of Fish, Wildlife, and Parks

INITIAL RECLAMATION: The clean-up, backfilling, recontouring, respreading of topsoil, repairing of damage to roads and property, seeding, and installation of erosion controls following installation of the facility

LANDOWNER: The owner of private property or the managing agency for public lands

MCA: Montana Code Annotated

MDT: State of Montana, Department of Transportation

MOU: Memorandum of Understanding

NRCS: United States Department of Agriculture, Natural Resources Conservation Service

OWNER: The owner(s) of the facility, and its field representative or other agents

PA: Programmatic Agreement

ROD: Record of Decision

ROW: Right-of-Way

SENSITIVE AREA: Areas which exhibit environmental characteristics that may make them susceptible to impact from construction of a pipeline facility. The extent of these areas is defined for each project. These may include but are not limited to any of the areas listed in Circular MFSA-2 Sections 3.2(1)(d) and 3.4(1)

SHPO: State of Montana, Montana Historical Society, State Historic Preservation Office

STATE INSPECTOR: DEQ employee or DEQ's designee with the responsibility for monitoring the OWNER's and OWNER's contractor compliance with terms and conditions of the CERTIFICATE issued for the Project

SPECIAL USE SITES: Areas disturbed outside the construction right-of-way for a specific purpose including, but not limited to, staging areas, borrow pits, construction work camps, power lines less than 10 miles in length, storage or other building sites, and new sites for construction waste disposal

THPO: Tribal Historic Preservation Office

TRIBES: Native American Tribes that have documented cultural ties to the project area and have indicated interest in the project.

INTRODUCTION

These environmental specifications were developed by DEQ to minimize adverse environmental impacts and are incorporated into the CERTIFICATE. Measures proposed by the OWNER in its Construction, Mitigation, and Reclamation Plan (CMRP) to minimize adverse environmental impacts are set forth in Appendix B of the Final Environmental Impact Statement for the Keystone XL Project (EIS). The measures proposed by the OWNER are incorporated by reference as enforceable provisions of the CERTIFICATE. Should there be a conflict between the environmental specifications developed by DEQ, the measures developed by the OWNER, or measures developed by a federal agency, the more environmentally protective provision will apply.

The purpose of these specifications is to mitigate potential environmental impacts during the construction, operation, and reclamation of the pipeline facility in Montana. These specifications are intended to be incorporated into the texts of contracts, plans, and Plan of Operations.

Appendices at the end of these specifications refer to individual topics of concern and to site-specific concerns. Some of the Appendices will be prepared by the OWNER working in consultation with DEQ prior to the start of construction and submitted for review and approval by DEQ.

0.0 GENERAL SPECIFICATIONS

These specifications apply to all lands affected by the pipeline and associated facilities. The OWNER may contract with the LANDOWNER for revegetation or reclamation if the LANDOWNER wants different reclamation standards from those listed herein to apply on the LANDOWNER's property, and if not reclaiming to the standards specified herein would not adversely impact the public and other LANDOWNERS. Where the LANDOWNER requests practices other than those listed in these specifications, DEQ may authorize such a change provided that the STATE INSPECTOR is notified in writing of the change and determines that the change will not be in violation of (1) the CERTIFICATE; (2) any conditions imposed by DEQ, and (3) DEQ's finding of minimum adverse impact.

On private or state land, these specifications will be enforced by the STATE INSPECTOR. On BLM or other federal lands, enforcement will be the joint responsibility of the STATE INSPECTOR and the BLM INSPECTOR.

0.1 ENVIRONMENTAL PROTECTION

The OWNER shall conduct all operations in a manner to protect the quality of the environment.

0.2 CONTRACT DOCUMENTS

It is the OWNER's responsibility to ensure compliance with these specifications. If appropriate, the OWNER may incorporate by reference these specifications into contracts executed with its contractors or other agents. The OWNER is responsible for its agents' adherence to these specifications in performing the work.

0.3 BRIEFING OF EMPLOYEES

The OWNER shall ensure that its contractor(s) and all field supervisors are provided with a copy of these specifications and informed of the applicability of individual sections to specific procedures. It is the responsibility of the OWNER to ensure its contractor(s), subcontractor(s) and contractor(s) and subcontractor(s) employees comply with these measures. The OWNER's Project Supervisor shall ensure all employees are informed of and implement the applicable environmental specifications discussed herein prior to and during construction. Site-specific measures provided in the appendices attached hereto shall be incorporated into the design and construction specifications or other appropriate contract document. The OWNER will have regular contact and site supervision of its contractors and subcontractors to ensure compliance is maintained.

0.4 COMPLIANCE WITH REGULATIONS

The OWNER shall comply with the CERTIFICATE issued by DEQ and applicable local, state, and federal laws, regulations, and requirements. Pursuant to 75-20-401, MCA, state or local governmental agencies may not require approval, consent, permit, certificate or other conditions for the construction, operation or maintenance of the pipeline following issuance of the CERTIFICATE. DEQ, however, retains authority to determine compliance with air and water quality standards. The OWNER is also required to comply with requirements of County Weed Control Boards (7-22-2201, *et seq.*, MCA), state laws regarding use of water (85-1-101, *et seq.*, MCA), protection of employees, and easements or licenses authorizing the crossing of state-owned land and the beds of navigable streams or rivers.

The OWNER must:

- a) Request any proposed modification to the procedures and measures described in its application submitted pursuant to 75-20-101, *et seq.*, MCA, or

- CERTIFICATE conditions in a written amendment application to DEQ pursuant to 75-20-219, MCA, and ARM 17.20.1801 through 1804;
- b) Justify each modification relative to site-specific conditions; and
 - c) Explain how that modification provides an equal or greater level of environmental protection than the original measure.

0.5 LIMITS OF LIABILITY

0.5.1 In order to provide assurance that any spill or leak of crude oil from the pipeline or appurtenant facilities is adequately cleaned up, the OWNER shall comply with one of the two following assurance requirements, at its election:

1. The OWNER shall post a surety bond in the amount of \$100 million dollars as adjusted by calculating the Gross Domestic Product – Implicit Price Deflator (GDP-IPD) as reported by the Bureau of Economic Analysis, U.S. Department of Commerce, from the date the Certificate of Compliance is issued and adjusting the amount of the surety bond by this percentage. The surety bond shall support any obligations the Company has to clean up pollution from Keystone XL Pipeline in Montana and be in a form acceptable to DEQ. The amount of the surety bond shall be adjusted every five years by calculating the GDP-IPD over that period and adjusting the amount of the surety bond by this percentage; or
2. The OWNER shall file annually with Montana DEQ, by May 1 of each year:
 - a. A certificate of insurance as evidence that it is carrying a minimum of \$200 million in third party liability insurance as adjusted by calculating the GDP-IPD from the date the Certificate is issued and adjusting the amount of the third party liability insurance policy by this percentage. The third party liability insurance shall cover sudden and accidental pollution incidents from Keystone XL Pipeline in Montana; and
 - b. A copy of the OWNER's SEC Form 10-K and Annual Report.

In the event the OWNER fails to make requisite insurance certificate and Form 10-K and Annual Report filings under this requirement, DEQ may, by written notice, require the OWNER to make the requisite filings within 30 days. If the OWNER fails to timely comply with such notice, it shall immediately post a surety bond in a form acceptable to the Department and in the amount of \$100 million dollars as adjusted by calculating the GDP-IPD from the date the Certificate of Compliance is issued and adjusting the amount of the surety bond by this percentage.

0.5.2 The OWNER shall maintain in effect at all times a surety bond or third party liability insurance policy as required by 0.5.1. In the event that OWNER fails to maintain such assurance, DEQ may, by written notice, require the OWNER to provide such assurance within 30 days. If OWNER fails to provide such assurance within 30 days of the notice, the OWNER shall cease operation of the Keystone XL Pipeline until OWNER complies with the notice.

0.5.3 The OWNER is not responsible of correction of environmental damage or destruction of property caused by negligent acts of DEQ employees during construction, operation and maintenance, decommissioning, and reclamation of the Project.

0.5.4 No person will be held responsible for a pipeline leak that occurs as a result of his/her normal farming practices over the top of or near the pipeline.

0.5.5 The OWNER shall pay commercially reasonable costs and indemnify and hold the LANDOWNER harmless for any loss, damage, claim or action resulting from the OWNER's use of the easement, including any resulting from any release of regulated substances or from abandonment of the facility, except to the extent such loss, damage, claim or action results from the gross negligence or willful misconduct of the LANDOWNER or its agents.

0.6 DESIGNATION OF SENSITIVE AREAS

0.6.1 DEQ and the OWNER have designated areas along the ROW and associated facilities as SENSITIVE AREAS. The locations of these SENSITIVE AREAS are described in Appendix A. Additional SENSITIVE AREAS may be added by DEQ after review of plans submitted pursuant to Sections 0.9, 1.1.2, 1.1.4, and 1.1.3. Special precautions and procedures specified in Appendix A and elsewhere in these specifications shall be taken in these areas during construction, operation, and maintenance.

0.6.2 Throughout these specifications DEQ refers to locations of SENSITIVE AREAS and other features by mileposts. These mileposts were developed based on the location of the facility as depicted in the EIS. The OWNER shall depict these SENSITIVE AREAS and features on the final designs required by Sections 1.1.2 and 1.1.3.

0.7 RECLAMATION AND REVEGETATION BOND

The amount and bonding mechanisms are specified by DEQ in Appendix B. The OWNER may not start preconstruction activities until the OWNER submits and DEQ approves the preconstruction bond. The OWNER may not start construction until the OWNER submits and DEQ approves the construction bond. The OWNER may not begin to operate the pipeline until the OWNER submits and DEQ approves the post-construction bond. The bond or bonds shall be in a form acceptable to DEQ.

0.8 ACCESS

When easements for construction access are obtained, provision will be made by the OWNER to ensure that DEQ personnel and DEQ contractors will be allowed access to

the right-of-way and to any off-right-of-way access roads and access easements used for construction during the term of the bonds. Liability for damage caused by providing such access for the STATE INSPECTOR shall be limited by section 0.5 Limits of Liability. The STATE INSPECTOR will inform the OWNER's on-site representative prior to use of any on and off right-of-way access sites. The OWNER shall not prevent STATE INSPECTORS from carrying out their duties under 75-20-402, MCA.

0.9 DESIGNATION OF INSPECTORS

0.9.1 DEQ shall designate a STATE INSPECTOR or INSPECTORS to monitor the OWNER's compliance with these specifications and any other project-specific mitigation measures adopted by DEQ. The STATE INSPECTOR shall be the OWNER's Liaison with the State of Montana on construction, post-construction, and construction reclamation activities for the certified pipeline facility on all lands. The STATE INSPECTOR may coordinate monitoring with BLM. All communications to DEQ shall be submitted to the STATE INSPECTOR. The names of the INSPECTORS are in Appendix C. The STATE INSPECTOR(S) shall implement the Monitoring Plan described in Appendix D.

0.9.2 The OWNER shall employ a team of one or more ENVIRONMENTAL INSPECTORS per construction spread, or as may be established by DEQ. The ENVIRONMENTAL INSPECTORS shall be:

- a) Responsible for monitoring and ensuring compliance with all mitigation measures required by the CERTIFICATE and other applicable state grants, permits, certificates, or other authorizing documents;
- b) Responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract and any other authorizing document;
- c) Empowered to order correction of acts that violate the environmental conditions of the CERTIFICATE and any other authorizing document;
- d) Separate from all other activity inspectors and shall be present whenever construction is taking place;
- e) Responsible for documenting compliance with the environmental conditions of the CERTIFICATE. Copies of the documentation shall be e-mailed to the STATE INSPECTOR; and
- f) Responsible for maintaining status reports on compliance with all requirements including but not limited to other Montana or federal grants, permits, certificates, or authorizing documents. Copies of these reports shall be e-mailed to the STATE INSPECTOR.

0.10 OTHER MEASURES

Adoption of other measures may be required for Project approval at the time of certification. These special measures shall be incorporated in Appendix A: SENSITIVE AREAS.

1.0 PRECONSTRUCTION PLANNING AND COORDINATION

1.1 PLANNING

1.1.1 Planning of all stages of construction and maintenance activities is essential to ensure that construction-related impacts will be kept to a minimum. Before commencement of construction, the OWNER shall plan the timing of construction, construction and maintenance access and requirements, location of special use sites, and location of associated facilities in order to reduce or minimize impacts to the environment.

1.1.2 At least 30 days before the start of preconstruction activities at pipe yards, contractor/construction yards, pump stations, and access roads to pump stations, and the preconstruction clearing of trees, construction, the OWNER shall submit a plan map(s) and an electronic version of the plan map(s) acceptable to DEQ depicting the location of these sites. At least 45 days before the start of construction, the OWNER shall submit a plan map(s) and an electronic version of the plan map(s) acceptable to DEQ depicting the location of the centerline of the pipeline; all ACCESS ROADS; and associated facilities, such as valve stations, power lines less than 10 miles in length, communication facilities, hydrostatic test discharge sites, variations in construction and operational ROW width (Appendix E), vehicle wash or cleaning stations specified by County Weed Control Boards, and if known, other special use sites. The scale of the map(s) shall be 1:24,000 or larger. In addition, the map(s) shall indicate the areas on range and pasture land where the ROW would be stripped of topsoil and areas where soil and vegetation on the working side of the trench would not be removed. These locations must be reviewed and approved by the STATE INSPECTOR prior to construction in these areas.

1.1.3 At least 45 days before the start of construction, the OWNER shall file an Implementation Plan for the review and written approval of DEQ. The OWNER must file revisions to the plan as schedules change. The plan shall identify:

- a) How the OWNER will implement the construction procedures and mitigation measures described in its application, and supplemental mitigation measures identified in the EIS for the Project, and those required by the CERTIFICATE;
- b) How the OWNER will incorporate or has incorporated these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation

required at each site is clear to onsite construction and ENVIRONMENTAL INSPECTORS;

- c) The number of the OWNER's ENVIRONMENTAL INSPECTORS assigned per spread and aboveground facility site, and how the OWNER will ensure that sufficient personnel are available to implement the environmental mitigation;
- d) Company personnel, including ENVIRONMENTAL INSPECTORS and contractors, who will receive copies of the appropriate materials in (a) and other communications from DEQ;
- e) The location and expected dates of the environmental compliance training the OWNER will give to all personnel involved with construction, restoration, reclamation, and revegetation (including initial and refresher training as the Project progresses and personnel change);
- f) The company personnel (if known) and specific portion of the OWNER's organization responsible for compliance;
- g) The procedures (including use of contract penalties) the OWNER will follow if noncompliance occurs; and
- h) For each component of the facility (pipeline, valves, pump station, road crossings, stream crossings and associated power lines), a Gantt or PERT chart (or similar Project scheduling diagram), and dates for:
 - (1) the completion of all required surveys and reports;
 - (2) the environmental compliance training of onsite personnel;
 - (3) the start of construction; and
 - (4) the start and completion of INITIAL RECLAMATION and revegetation.

1.1.4 Construction is anticipated to occur in two consecutive construction seasons. Prior to the start of construction in each of the two years, the OWNER shall submit a Montana Hydrostatic Test Plan (Appendix F) to DEQ for approval. The plan shall identify a final list of all water sources that will be used in Montana for hydrostatic testing, horizontal directional drilling, vehicle washing and dust abatement along with associated withdrawal rates and volumes approved by DNRC, a final list of hydrostatic test water discharge points, volumes and rates of discharges, site specific measures that would be used to prevent rill and gully erosion, and a plan for monitoring the quality of water being discharged.

1.1.5 The OWNER shall submit detailed alignment maps/sheets and an electronic equivalent acceptable to DEQ at a scale not smaller than 1:24,000 identifying staging areas and other areas that would be used or disturbed and have not been identified in plan map(s) required under Section 1.1.2, above. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of LANDOWNER approval, whether any cultural resources or federally listed threatened or endangered species will be affected, and whether any other environmentally SENSITIVE AREAS are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. DEQ shall make a good faith effort to complete its

review as quickly as possible. Each area must be approved in writing by DEQ before construction in or near that area.

1.1.6 If special use sites are not known at the time of submission of the plan map(s), no later than seven days prior to the start of construction at that site, the OWNER shall submit for review and approval supplemental map(s) showing the following information: communication facilities and special use sites, including staging areas, location of safety valves, directional drilling sites and associated staging areas, horizontal boring sites, batch plant sites, borrow pits, and storage or other buildings. This information shall be presented on a map with a scale of 1:24,000 or larger. The maps shall be accompanied by an electronic version acceptable to DEQ.

1.1.7 Changes or updates to the information submitted in Sections 1.1.2 and 1.1.3 shall be submitted to DEQ for approval as they become available. Changes affecting SENSITIVE AREAS must be submitted to DEQ for review at least five working days before construction at that site and approved before construction at that location by the STATE INSPECTOR. DEQ shall make a good faith effort to complete its review as quickly as possible.

1.1.8 Long-term maintenance routes to all points on the pipeline and associated power lines must be planned before construction begins. Where known, new construction ACCESS ROADS intended to be maintained for permanent use shall be differentiated from temporary ACCESS ROADS on the plan map(s) required under Section 1.1.2, above.

1.1.9 Where requested by a LANDOWNER, at least 30 days prior to any construction in an area on private or state land where a request has been made, the OWNER will provide survey information for the construction right-of-way to document the baseline condition and topography, plant community (con/rec units), vegetative condition of lands enrolled in the Conservation Reserve Program, soil type(s), forage type (high, medium, or low quality grasslands), a map showing the location and species of noxious weeds, riparian areas, fences, and trees (mature or otherwise). The report shall be prepared by a range scientist. The report shall include representative photographs of each such area prior to construction. A copy of the assessment shall be provided to the LANDOWNER at no charge.

1.1.10 The OWNER shall implement the Construction Inspections of Designated Access Routes on Public Roads (Appendix Q) plan to document the pre-construction condition of roads, bridges, culverts, and cattle guards.

1.2 PRECONSTRUCTION CONFERENCE

1.2.1 In each year of construction, before commencement of any construction activities defined in 75-20-104(6)(a), MCA, the OWNER shall hold a preconstruction conference. The STATE INSPECTOR shall be notified of the date and location for

this meeting. One of the purposes of this conference shall be to brief the contractor and land management agencies regarding the content of these specifications and other DEQ-approved mitigating measures, and to make all parties aware of the roles of the OWNERS's ENVIRONMENTAL INSPECTOR(S) and STATE INSPECTOR.

1.2.2 The OWNER's representative, the contractor's representative, the OWNER's ENVIRONMENTAL INSPECTOR(S), STATE INSPECTOR, and representatives of affected state and federal agencies who have land management or permit and easement responsibilities shall be invited to attend the preconstruction conference.

1.3 PRECONSTRUCTION CONTACT WITH LOCAL OFFICIALS

1.3.1 In each year during which preconstruction or construction activities occur, the OWNER shall provide written notification to local and county public officials and game wardens in affected jurisdictions at least 30 days prior to the beginning of construction. These jurisdictions include but are not limited to the towns of Malta, Glasgow, Circle, Glendive, Terry, and Baker and the counties within which these towns are located. The notice shall provide information on the anticipated temporary increase in population, when the increase is expected, and where the workers will be stationed. In each year during which preconstruction or construction activities occur, the OWNER also shall hold a meeting in the towns listed above which may be affected for each active construction spread to discuss potential temporary changes. The invited local officials shall include the county commissioners, city administrators, law enforcement officials, local fire departments, emergency service providers, and representatives of the Chambers of Commerce.

1.4 HISTORICAL, ARCHAEOLOGICAL AND PALEONTOLOGICAL

1.4.1 The OWNER shall implement the requirements in Appendix G regarding cultural resources. If a PA is executed as a result of federal approval of the project, the OWNER shall follow the terms of the PA. In addition to the requirements of the PA, the OWNER shall remain obligated to implement the requirements of Appendix G, Section III.D, for the Open Trench Inspection Plan.

1.4.2 The OWNER shall implement the measures required by the Paleontological MOU in Appendix H in consultation with the other state and federal agencies listed in Appendix H.

2.0 CONSTRUCTION OF FACILITIES

2.1 GENERAL

2.1.1 The preservation of the natural landscape contours and environmental features shall be an important consideration in the location and construction of all associated facilities. Construction of these associated facilities shall be planned and conducted so as to minimize destruction, scarring, or defacing of the natural vegetation and landscape. Any necessary earthmoving shall be planned and designed to be as compatible as possible with natural landforms.

2.1.2 Temporary special use areas shall be the minimum size necessary to accommodate the special use. The temporary special use areas shall be located where most environmentally compatible, considering slope, fragility of soils, or fragility of vegetation, and risk of erosion.

2.1.3 The OWNER shall maintain all work areas in a neat, clean, and sanitary condition at all times. Trash or construction debris (in addition to solid wastes described in Section 2.13) shall be regularly removed during construction, reclamation, and revegetation of the affected areas.

2.1.4 The OWNER shall segregate top soil from subsoil. Excepted as noted in Appendix A, up to 12 inches of topsoil shall be salvaged unless otherwise requested by the LANDOWNER.

2.1.5 In the development of the CMRP in areas where the NRCS recommends or LANDOWNERS request, the OWNER shall conduct analytical soil probing and/or soil boring and analysis in areas of particularly sensitive soils where reclamation potential is low. Records regarding this process shall be available to the STATE INSPECTOR and to the specific LANDOWNER affected by such soils upon request.

2.1.6 Through development of the CMRP and consultation with the NRCS and the LANDOWNER, the OWNER shall identify soils for which alternative handling methods are recommended. Alternative soil handling methods shall include but are not limited to the "triple-lift" method where conditions justify such treatment. The OWNER shall thoroughly inform the LANDOWNER regarding the options applicable to their property, including their respective benefits and negatives, and implement whatever reasonable option for soil handling is selected by the LANDOWNER. Records regarding this process shall be available to the STATE INSPECTOR upon request.

2.1.7 The OWNER shall, in consultation with the NRCS and LANDOWNER, ensure that its construction planning and execution process, including CMRP and its other construction documents, shall adequately identify, plan, and implement mitigating measures for areas susceptible to erosion; areas with high concentrations of sodium

bentonite; areas with sodic, saline, and sodic-saline soils; and any other areas with low reclamation potential.

2.1.8 The OWNER shall strip topsoil from the trench, the trench plus the stockpile area, or the entire ROW as requested by the LANDOWNER. Soil salvage depths are estimated in Appendix I and actual amounts will be determined during construction as excavation indicates the amount of topsoil available. Other areas outside the pipeline ROW where soil is to be stripped may be designated by the STATE INSPECTOR(S).

2.1.9 Vegetation such as trees, plants, shrubs, and grass on or adjacent to the ROW which does not interfere with the performance of construction work, or operation of the pipeline, shall be preserved.

2.1.10 The OWNER shall take all necessary actions to avoid adverse impacts to SENSITIVE AREAS listed in Appendix A. The STATE INSPECTOR(S) shall be notified two working days in advance of initial clearing or grading in these areas. The OWNER shall mark or flag the clearing limits of disturbance in certain SENSITIVE AREAS as designated in Appendix A and Appendix L. All construction activities must be conducted within this marked area.

2.1.11 The OWNER shall acquire appropriate land rights and provide compensation for damages caused by construction, operation, maintenance, and decommissioning of the pipeline and associated facilities.

2.1.12 Flow in a stream course may not be permanently diverted. If temporary diversion is necessary, flow must be restored before a major runoff season or the next spawning season, as determined by the STATE INSPECTOR(S) in consultation with the managing agencies.

2.1.13 Construction of all pump stations and above ground facilities shall comply with federal and state mandated building and electric safety codes. The OWNER shall adhere to all International Code Council (ICC) regulations relating to the construction of the facility.

2.2 CONSTRUCTION MONITORING

2.2.1 Within one week of starting construction, the OWNER shall submit to DEQ weekly status reports until all construction and INITIAL RECLAMATION activities are complete. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

- a) The construction status of each spread, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally SENSITIVE AREAS;

- b) A listing of all problems encountered and each instance of noncompliance observed by the ENVIRONMENTAL INSPECTORS during the reporting period (both for the conditions imposed by DEQ and any environmental conditions/permit requirements imposed by other federal or state agencies);
- c) A description of the corrective actions implemented in response to all instances of noncompliance, and their cost;
- d) The effectiveness of all corrective actions implemented; and
- e) A description of any LANDOWNER complaints that may relate to compliance with the requirements of the CERTIFICATE, and the measures taken to satisfy the concerns.

2.2.2 The STATE INSPECTOR is responsible for implementing the Monitoring Plan contained in Appendix D. The plan specifies the type of monitoring data and activities required and terms and schedules of monitoring data collection, and assigns responsibilities for data collection, inspection reporting, and other monitoring activities.

2.2.3 The STATE or ENVIRONMENTAL INSPECTOR(S) may require mitigating measures or procedures at some sites beyond those listed in the Appendices in order to minimize environmental damage due to unique circumstances that arise during construction. The STATE INSPECTOR and the OWNER will attempt to rely upon a cooperative working relationship to reconcile potential problems relating to minimization of impacts. When construction activities will cause excessive environmental impacts due to seasonal field conditions or damage to sensitive features, the designated STATE INSPECTOR will discuss with the OWNER possible mitigating measures or minor construction rescheduling to avoid these impacts and may impose additional mitigating measures in the area of jurisdiction. The STATE INSPECTOR shall provide the OWNER with written documentation of the reasons for the additional mitigating measures within 24 hours of their imposition. All parties will attempt to adequately identify and address these areas and planned mitigation, to the extent practicable, during final design to minimize conflicts and delays during construction activities.

2.2.4 If these specifications are not being achieved, DEQ may take corrective action as described in 75-20-408, MCA.

2.3 TIMING OF CONSTRUCTION

2.3.1 Construction and motorized travel may be restricted or prohibited at certain times of the year in areas described in Appendix J. Exemptions to these timing restrictions may be granted by the STATE INSPECTOR in writing if the OWNER can clearly demonstrate to affected state agencies that no substantial environmental impacts will occur as a result.

2.3.2 In order to prevent rutting and excessive damage to vegetation outside of wetlands, the OWNER shall not perform construction activities during periods of high soil moisture when construction vehicles will cause rutting deeper than four inches on a) areas where topsoil is not stripped from the construction ROW for the pipeline or other associated facilities or, b) areas where excessive soil mixing is occurring or would occur as a result of the rutting.

2.3.3 In order to reduce rutting and excessive damage to off-right-of-way ACCESS ROADS, vehicle travel shall be restricted during periods when there is a substantial buildup of mud on tires and cleats or formation of ruts deeper than four inches. This condition would be waived if the OWNER shows written approval from the affected LANDOWNER in advance of construction activity on a private road. The OWNER shall present the STATE INSPECTOR with written documentation, a map, and shape file of such LANDOWNER approval at least five days in advance of construction traffic using a road. Nonetheless, the OWNER shall not create hazardous driving conditions on private roads. The OWNER shall repair damage to private roads when conditions dry sufficiently to effect repairs. Damage shall be repaired to a reasonably acceptable condition in consultation with the STATE INSPECTOR and the LANDOWNER.

2.4 PUBLIC SAFETY

2.4.1 All construction activities shall be done in compliance with existing health and safety laws.

2.4.2 After construction is complete, noise levels shall not exceed the following standards as a result of the operation of the facility and associated facilities. For the pipeline and associated facilities, the average annual noise levels, as expressed by an A-weighted day-night scale (Ldn), will not exceed 60 decibels at the fence line or property boundary, whichever is further from the pumps, unless the affected LANDOWNER waives this condition.

2.5 PROTECTION OF PROPERTY

2.5.1 Construction shall not take place over or upon the ROW of any railroad, public road, public trail, or other public property until negotiations and/or necessary approvals have been completed with the LANDOWNER. Where it is necessary to cross a trail with ACCESS ROADS, the trail corridor will be restored. All roads and trails designated by government agencies as needed for fire protection or other purposes shall be kept free of logs, brush, and debris resulting from operations under these specifications. Any such trail damaged by this Project shall be promptly restored to its original condition.

2.5.2 Reasonable precautions shall be taken to protect, in place, all public land monuments and private property corners or boundary markers. If any such land markers or monuments are destroyed, the marker shall be reestablished and referenced in accordance with the procedures outlined in the “Manual of Instruction for the Survey of the Public Land of the United States” or, in the case of private property, the specifications of the county engineer. Reestablishment will be at the expense of the OWNER.

2.5.3 Construction shall be conducted so as to prevent damage to existing property including, but not limited to, water lines, transmission lines, distribution lines, telephone lines, pipelines, railroads, ditches, irrigation canals, and fiber optic lines. If such property is damaged by construction, operation, or decommissioning, the OWNER shall repair such damage immediately to a reasonably satisfactory condition in consultation with the LANDOWNER.

2.5.4 In areas with livestock, the OWNER shall comply with the reasonable requests of LANDOWNERS regarding measures to control livestock or wildlife until the vegetation meets the standards established in Section 3.2.1(b) and Appendix A. LANDOWNERS shall be compensated for lost grazing during reclamation. Where requested by LANDOWNERS, temporary gates shall be constructed of sufficiently high quality to withstand repeated opening and closing during construction, to the satisfaction of the LANDOWNER. Care shall be taken to ensure that all gates are left in the condition in which they are found upon entry. The LANDOWNER shall be compensated for any losses to personal property due to construction, operation, maintenance, or decommissioning activities. Gates shall be inspected and repaired when necessary during construction and decommissioning. Any gates installed by the OWNER shall be inspected and repaired when necessary during the operation and maintenance period. When wire fences are replaced, wire shall be stretched tight with a fence stretcher before stapling or securing to the fence posts.

2.5.5 During construction, operation, and decommissioning, the OWNER must notify the STATE INSPECTOR and, if possible, the affected LANDOWNER within two working days of damage to land, crops, property, or irrigation facilities; contamination or degradation of water; or livestock injury caused by the OWNER’s activities. The OWNER shall restore any damaged resource or property, or provide reasonable compensation to the affected party.

2.5.6 The OWNER shall install permanent gates as requested by a LANDOWNER to provide access for maintenance vehicles.

2.5.7 When facilities cross fences, the OWNER shall make reasonable effort to accommodate the LANDOWNER’s wishes on gate location and width.

2.5.8 Any breaching of natural barriers to livestock movement by construction activities will require fencing sufficient to control livestock unless alternative arrangements are made with the affected LANDOWNER. Alternative arrangements

shall be indicated on a line list or environmental worksheet describing these arrangements and submitted to the STATE INSPECTOR prior to construction.

2.5.9 During construction and operation, the OWNER shall preserve wind breaks where they would not interfere with operation of the pipeline, unless otherwise requested by a LANDOWNER.

2.6 TRAFFIC CONTROL

2.6.1 Before beginning any construction within a state highway ROW, the OWNER shall consult with the appropriate MDT field office regarding the proposed occupancy and to resolve any problems. The OWNER shall provide DEQ with documentation that this consultation has occurred at least 30 days before the start of construction in each year of construction. This documentation shall identify measures recommended by MDT and to what extent the OWNER agrees to comply with these measures. In the event the OWNER does not agree to a measure recommended by MDT, DEQ shall resolve any disputes regarding state highways.

2.6.2 In areas where the construction creates a potential hazard on ACCESS ROUTES, the OWNER shall control traffic according to the applicable MDT regulations. Safety signs or flaggers advising motorists of construction equipment shall be placed on major state highways, as required by MDT and on county roads, as required by the applicable county, and in accordance with the Manual on Uniform Traffic Control Devices. The installation of proper road signing will be the responsibility of the OWNER.

2.6.3 The managing agency shall be notified, as soon as practicable, when it is necessary to close public roads to public travel for short periods to provide safety during construction. If roads are closed to public travel for more than 30 minutes, a detour shall be provided.

2.6.4 Construction vehicles and equipment will be operated at speeds safe for existing road and traffic conditions.

2.6.5 Access for fire and emergency vehicles will be provided at all times.

2.6.6 Public travel through and use of active construction areas shall be limited at the discretion of the managing agency.

2.7 ACCESS ROADS AND VEHICLE MOVEMENT

2.7.1 Construction of new ACCESS ROADS shall be held to the minimum reasonably required to construct and maintain the facility. State, county, and other existing roads shall be used for construction access wherever possible. ACCESS

ROADS intended to be permanent should be appropriately designed. The location of ACCESS ROADS shall be established in consultation with affected LANDOWNERS, and LANDOWNER concerns shall be accommodated where reasonably possible and not in contradiction to these specifications or other DEQ conditions.

2.7.2 All new roads to and from the pipeline construction ROW, both temporary and permanent, shall be constructed with the minimum possible clearing and soil disturbance to minimize erosion.

2.7.3 Where practical, all roads shall be designed to accommodate one-way travel of the largest piece of equipment plus pull-outs for passing. Road width shall be no wider than necessary.

2.7.4 Where practical, temporary ACCESS ROADS shall be constructed on the most level land available. Where temporary roads cross flat land, they shall not be graded or bladed unless necessary, but will be flagged or otherwise marked to show their location and to prevent travel off the roadway.

2.7.5 The OWNER will maintain all permanent ACCESS ROADS, including drainage facilities, which are constructed for use during the period of construction. In the event that a road would be left in place, the OWNER and LANDOWNER may enter agreements regarding maintenance for erosion control following construction.

2.7.6 All permanent ACCESS ROAD surfaces, including those under construction, will be prepared with the necessary erosion control practices as determined by the STATE INSPECTOR or the managing agency prior to the onset of winter.

2.7.7 Snow removal shall be done in a manner to preserve and protect topsoil, road signs, and culverts; to ensure safe and efficient transportation; and to prevent excessive erosion to roads, streams, and adjacent land.

2.7.8 At the conclusion of construction, final maintenance will be performed on all existing private roads used for construction access by the OWNER. These roads will be returned to a condition at least as good as when construction began.

2.7.9 Travel on ACCESS ROADS shall be conducted so as to prevent damage to existing infrastructure. Damage shall be reported and repaired as specified in Appendix Q.

2.8 EQUIPMENT OPERATION

2.8.1 During construction, unauthorized cross-country travel and the development of roads other than those approved are prohibited. The OWNER shall be liable for any damage, destruction, or disruption of private property and land caused by

construction personnel and equipment as a result of unauthorized cross-country travel and/or road development.

2.8.2 To prevent excessive soil damage in areas where a graded roadway has not been constructed, the limits and locations of access for construction equipment and vehicles shall be marked or specified at each new site before any non-survey related equipment is moved to the site. Construction foremen and personnel shall be well versed in recognizing these markers and shall understand the restriction on equipment movement that is involved.

2.8.3 Work crew foremen shall be qualified and experienced in the type of work being accomplished by the crew they are supervising. Earthmoving equipment shall be operated only by qualified, experienced personnel.

2.8.4 Prior to the start of construction, final locations of cleaning stations and other conditions required by County Weed Control programs will be shown on environmental worksheets or an appended line list and indicated on appropriate project maps (see Section 2.1.1). Vehicles shall be cleaned and weed infested areas will be pre-treated. The OWNER shall submit copies of the revegetation plans approved by the County Weed Control Boards pursuant to 7-22-2152, MCA, and comply with these plans. The approved plans shall be included in Appendix K.

2.8.5 Gravel/stone ramps will be installed at access points to paved public roads, as needed, to prevent or minimize the tracking of mud, dirt, sediment, or similar materials onto the roadway. Deposits that have been tracked by vehicles or that have been transported by wind or storm run-off from the ROW will be promptly cleaned up.

2.9 RIGHT-OF-WAY CLEARING AND SITE PREPARATION

2.9.1 The STATE INSPECTOR shall be notified at least 10 days prior to any timber clearing.

2.9.2 For associated power lines, where no grading occurs during clearing of the construction ROW, shrubs shall be preserved to the greatest extent possible. Shrub removal shall be limited to crushing or cutting where necessary. Plants may be cut off at ground level, leaving roots undisturbed so that they may re-sprout.

2.9.3 Clearing on both the working side and the spoil side of the ROW shall be kept to the minimum necessary. Where clearing of trees is necessary, the ROW boundary shall be flagged to identify trees located outside the right-of-way.

2.9.4 During construction, care will be taken to avoid damage to trees and shrubs on the edge of the construction ROW that do not interfere with clearing requirements. Trees along the margin of the ROW that are of high value, as determined by the

LANDOWNER or INSPECTORS, shall be wrapped with snow fence to protect them from damage.

2.9.5 Unless otherwise requested by the LANDOWNER, felling shall be directional in order to minimize damage to remaining trees. Maximum stump height shall be no more than 12 inches on the uphill side, or 1/3 the tree diameter, whichever is greater.

2.9.6 The OWNER shall prevent significant amounts of soil from being contained in the piling and windrowing of material to be burned. The OWNER shall also minimize the destruction of ground cover in the piling and windrowing of material to be burned. The OWNER shall use non-mechanized methods if necessary to minimize soil erosion and vegetation disturbance. Piles shall be located so as to minimize danger to timber and damage to ground cover when burned.

2.10 EROSION AND SEDIMENT CONTROL

2.10.1 The OWNER shall comply with the erosion control measures described in the Storm Water Pollution Prevention Plan filed with DEQ.

2.10.2 The open-cut, wet method of constructing stream crossings is not allowed if water is present at the time of construction.

2.10.3 At least 60 days prior to the start of construction at a perennial stream crossing or at the crossing of a stream containing a fish species of special concern, the OWNER shall submit a site-specific Stream Crossing Plan. At least 30 days prior to constructing the facility or associated facilities at a perennial stream crossing or stream containing a fish species of special concern, the STATE INSPECTOR shall conduct an on-site inspection of the crossing. The OWNER shall provide access to the stream crossing. The STATE INSPECTOR shall invite the OWNER, FWP, representatives of the local conservation district(s), and the LANDOWNER or land management agency to attend this inspection. The purpose of the inspection shall be to determine the final location of the crossing, the crossing method, width and depth of burial to be used and site-specific reclamation measures. The results of these inspections shall be included in Appendix L.

2.10.4 The OWNER shall install culverts or other structures in state waters in accordance with DEQ 318 permit conditions.

2.10.5 ACCESS ROADS shall cross drainage bottoms at sharp or nearly right angles, and avoid tall cut banks requiring cut and fills whenever possible. Use of temporary bridges, fords, culverts, or other structures to avoid stream bank damage is required when water is present at the crossing of streams. A one-time crossing of the stream to install temporary crossings may be allowed if no access is readily available. No stream crossings will be allowed without proper water quality permits and written authorization from DEQ.

2.10.6 Streambed materials shall not be removed for use in backfill, embankments, road surfacing, or for other construction purposes except where removed from the trench at a stream crossing.

2.10.7 Trench breakers will be installed where necessary to control the flow of ground water along the trench.

2.10.8 Blasting may be allowed in or near streams if precautions are taken to protect the stream from debris and entry of nitrates or other contaminants into the stream, after applicable permits and authorizations are obtained. The OWNER shall obtain the written approval of the STATE INSPECTOR prior to conducting any blasting near streams.

2.10.9 The OWNER shall be responsible for the stability of all embankments created during construction. Embankments and backfills shall contain no stream sediments, frozen material, large roots, sod, or other materials which may reduce their stability.

2.10.10 Culverts, arch bridges, or other stream crossing structures shall be installed at all permanent crossings of flowing or dry watercourses where fill is likely to wash out during the life of an ACCESS ROAD. On ACCESS ROADS, all temporary culverts shall be sized to pass 2-year flood requirements and shall be removed after reclamation. The STATE INSPECTOR may approve exceptions. Permanent culverts shall be sized to pass the 100-year flood requirements. Culvert size shall be determined by standard procedures which take into account the variations in vegetation and climatic zones in Montana, the amount of fill, and the drainage area above the crossing. All culverts shall be installed at the time of ACCESS ROAD construction.

2.10.11 No perennial watercourses shall be permanently blocked or diverted.

2.10.12 The OWNER shall maintain instream flow during diversion of hydrostatic test water so that instream flows do not fall below the following rates in streams where FWP holds water reservations to protect instream flows. Instream flow rates and volumes are indicated in Table 1.

Table 1: Montana Fish, Wildlife and Parks Instream Reservations

Stream	Reach	Dates	Flow		
			Cubic feet/second	Acre feet	Acre feet/year
Frenchman River	International boundary to mouth	Jan., Feb., Mar., Dec.	2.0	480	2,900
		Apr. through	5.0	2,420	

		Nov.			
Rock Creek	International boundary to mouth	Jan., Feb., Mar., Dec.	2.0	480	4,352
		Apr. through Nov.	8.0	3,872	
Missouri River #8	Milk River to state line	Year-round	5,178		3,748,500
Redwater River #1	Circle to East Redwater Creek	Jan., Feb., Mar., Dec.	2.0	480	1,932
		Apr. through Nov.	3.0	1,452	
Redwater River #2	East Redwater Creek to mouth	Jan., Feb., Mar., Dec.	2.0	480	2,416
		Apr. through Nov.	4.0	1,936	
Box Elder Creek	One mile west of Belltower to state line	Jan., Feb., Mar., Dec.	4.0	960	4,348
		Apr. through Nov.	7.0	3,388	
Little Beaver Creek	Russell Creek to state line	Year-round	3.0	2,171	2,171

2.10.13 The OWNER shall implement the DEQ-approved Montana Hydrostatic Test Plan (Appendix F).

2.10.14 Any accidental spills of oils, contaminants, or any other hazardous materials shall be cleaned up immediately per Appendix M. The STATE INSPECTOR shall be notified of spills of hazardous materials.

2.10.15 Point discharge of hydrostatic test water will be dispersed in a manner that prevents discharge to state waters unless appropriate permits are obtained.

2.10.16 Water used in embankment material processing, aggregate processing, concrete curing, foundation and concrete lift cleanup, and other waste water processes shall not be discharged into surface waters without a valid discharge permit from DEQ.

2.10.17 If trench dewatering is necessary, water will be discharged to the ground where adequate vegetative cover exists to prevent channeling and sediment transport, or into temporary dewatering structures constructed of silt fence and/or straw bales.

No discharges to surface waters are allowed without a valid construction Dewatering General Permit authorization letter from DEQ.

2.10.18 No biocides or other chemicals shall be added to hydrostatic test water. The OWNER shall collect a sample from each hydrostatic test water source, and water samples from the pipe will be taken during discharge of the hydrostatic test water and tested. The testing will be for iron, heavy metals, total organic compounds, and any additives. A report containing the results of this testing shall be submitted to the STATE INSPECTOR.

2.10.19 Except for water bars and other erosion controls, the final reclaimed surface shall not interrupt drainages or substantially alter overland flow patterns.

2.11 ARCHAEOLOGICAL, HISTORICAL, AND PALEONTOLOGICAL RESOURCES

2.11.1 All construction activities shall be conducted in accordance with the stipulations provided in Appendix G for Historic Properties and inadvertent discoveries. For Historic Properties where impacts cannot be avoided, a mitigation plan shall be developed as set forth in Appendix G in consultation with applicable landowners and state agencies. If a PA is executed as a result of federal approval of the project, the OWNER shall follow the terms of the PA. In addition to the requirements of the PA, the OWNER shall remain obligated to implement the requirements of Appendix G, Section III.D, for the Open Trench Inspection Plan.

2.11.2 Prior to and during construction activities, the OWNER shall handle paleontological resources in accordance with the MOU and Paleontological Treatment Plan set forth in Appendix H.

2.11.3 In the event of inadvertent discovery of paleontological materials during construction activities, the OWNER shall follow the Paleontological Treatment Plan as required in the MOU in Appendix H.

2.12 PREVENTION AND CONTROL OF FIRES

2.12.1 The OWNER shall comply with the Fire Prevention and Suppression Plan set forth in Appendix N. This plan shall meet the requirements of the managing agency and/or the fire control agencies having jurisdiction. The STATE INSPECTOR shall be invited to attend all meetings with these agencies to discuss or prepare this plan.

2.12.2 The OWNER shall not burn refuse (including but not limited to trash, rags, tires, plastics, or other debris) except as allowed by the county, town, state, or governing municipality having jurisdiction per the Burning Plan and Fire Plan in Appendix O.

2.12.3 Prior to burning any refuse, the OWNER shall obtain the approval of the LANDOWNER and a Montana Open Burning Permit.

2.13 WASTE DISPOSAL

2.13.1 The OWNER shall use licensed solid waste disposal sites. Inert materials (Group III wastes) may be disposed of at Class III landfill sites; mixed refuse (Group II wastes) shall be disposed of at Class II landfill sites as required by ARM 17.50.504(2)(a).

2.13.2 Emptied pesticide containers or other chemical containers must be triple rinsed to render them acceptable for disposal in Class II landfills or for scrap recycling pursuant to ARM 4.10.803. Names of Class II landfills in the counties crossed are listed in Table 2. Pesticide residue and pesticide containers shall be disposed of in accordance with ARM 4.10.805 and 806. Pesticide container rinse water shall be added to batches of pesticide for application.

Table 2: Class II Landfills in the Counties Crossed by the Project

County	Class II Landfill	Location	Phone
Fallon	Coral Creek Landfill	Baker, MT	(406) 778-7111
Valley	Valley County Refuse District #1	Glasgow, MT	(406) 228-6241
Custer	Miles City Area Solid Waste District	Miles City, MT	(406) 233-3325
Richland	Richland County Solid Class II Landfill	Sidney, MT	(406) 433-2407

2.13.3 All waste material that is a hazardous waste, as defined in Section 75-10-403, MCA, and wastes containing any concentration of polychlorinated biphenyls must be transported to an approved designated hazardous waste management facility, as defined in ARM 17.50.504, for treatment or disposal.

2.13.4 All used oil shall be hauled away and recycled or disposed of in a licensed Class II landfill authorized to accept liquid wastes or in accordance with Sections 2.13.2 and 2.13.3. There shall be no intentional release of oil or other toxic substances into streams or soil. The OWNER shall immediately report any accidental spill into a waterway to the STATE INSPECTOR. Any spill of refined petroleum products greater than 25 gallons must be reported to the State of Montana, Department of Military Affairs, Disaster and Emergency Services Division, at (406) 841-3911. All spills shall be cleaned up in accordance with the OWNER’s Emergency Spill Response Plan.

2.13.5 All hazardous wastes and materials shall be stored in appropriate secondary containment structures until disposed of.

2.13.6 Self-contained toilets shall comply with applicable federal, state, and local health laws and regulations.

2.13.7 The OWNER shall not dispose of waste in any manner that causes it to reach state waters.

3.0 CLEANUP, RECLAMATION, AND RESTORATION

3.1 BACKFILLING, GRADING, AND CLEANUP

3.1.1 The OWNER shall backfill trenches within 30 days of initial excavation at any location. No more than 30 miles of open trench will be allowed at any time within any given construction spread. Exceptions include tie-ins, valve sites, and at pump stations where the trench shall be backfilled as soon as practicable.

3.1.2 The OWNER shall complete final grading, topsoil replacement, and installation of permanent erosion control structures in non-residential areas within 20 days after backfilling the trench.

If weather or other conditions beyond the OWNER's control prevent compliance with these requirements, the OWNER shall notify and obtain the approval of the State Inspector. Upon receiving the approval of the State Inspector, the OWNER shall notify the affected landowner(s) of the delay and the date by which the backfilling, grading and cleanup is expected to be completed. The OWNER shall implement temporary erosion controls until conditions allow for completion of backfilling, grading, and cleanup.

3.1.3 The OWNER shall remove all litter from the ROW, pipe yards, along ACCESS ROADS leading to the ROW, and all other areas affected by construction. Such litter shall be legally disposed of as soon as possible, but in no case later than within 60 days of completion of construction.

3.1.4 All signs of temporary construction facilities such as haul roads, work areas, buildings, foundations or temporary structures, stockpiles of excess or waste materials, and any other vestiges of construction shall be removed and the areas reclaimed, in consultation with the LANDOWNER.

3.1.5 If voids over the pipeline occur, they shall be reported to the STATE INSPECTOR along with a plan for repair of these areas. Repairs must be made as quickly as reasonably possible without causing undue damage, as agreed to by the

STATE INSPECTOR. All material used in repairs must be from sources certified to be weed free.

3.2 RESTORATION, RECLAMATION, AND REVEGETATION

3.2.1 Restoration, reclamation, and revegetation of the ROW; ACCESS ROADS; borrow sites, gravel, fill, stone, or aggregate excavation; or any other disturbance shall be in accordance with the OWNER's Construction, Mitigation, and Reclamation Plan with the following exceptions:

- a) Seeding of affected lands shall be conducted during the first normal period for favorable planting conditions after final preparation. Final preparation will not be delayed more than 45 days after pipe is lowered into the trench. Any rills or gullies that would preclude successful establishment of vegetation shall be removed or stabilized. Only certified weed-free seed and mulch shall be used in revegetation; and
- b) The OWNER is required to reestablish vegetation as set forth in the following reclamation standards. These reclamation standards shall be used to determine whether an adequate vegetation cover has been reestablished for purposes of bond release and/or bond forfeiture:
 - (i) In rangeland or pasture land, coverage of desirable perennial plant species shall be 30% or more of that on adjacent rangeland or pastureland of similar slope and topography the year following seeding, and 80% or more of the coverage of adjacent rangeland or pastureland of similar slope and topography within five years following seeding. Permanent access roads used during operations and those areas of pump stations and valve sites where vegetation would compromise safe operation of the facility are exempt from this requirement
 - (ii) The OWNER shall be responsible for restoring vegetative cover on all CRP areas, to a cover comparable to adjacent undisturbed CRP lands with similar soils and topography within five years, unless the land is removed from CRP. Permanent access roads used during operations and those areas of pump stations and valve sites where vegetation would compromise safe operation of the facility are exempt from this requirement ;
 - (iii) On private lands, the OWNER may contract with the LANDOWNER for revegetation or reclamation, which would release the OWNER from the reclamation bond performance on the property upon showing DEQ that the LANDOWNER wants different reclamation standards from those specified in (i) applied on his property and that not reclaiming to the standards specified in (i) would not have adverse impacts on the public and other LANDOWNERS; and
 - (iv) On public lands, the OWNER may contract with the affected land management agency for revegetation or reclamation, which would

release the OWNER from the reclamation and revegetation bond performance on the property upon showing DEQ that the land management agency wants different reclamation standards from those specified in (i) and that not reclaiming to the standards specified in (i) would not have adverse impacts on the public and other LANDOWNERS.

3.2.2 After construction is complete, and in cooperation with the LANDOWNER, temporary roads shall be closed, and unless specified by the LANDOWNER, revegetated as specified in (a) or (b) above. Permanent unsurfaced ACCESS ROADS not open to public use shall be revegetated as soon after use as possible, unless specified otherwise by the LANDOWNER.

3.2.3 Earth next to the pipeline or ACCESS ROADS that cross streams shall be replaced at slopes less than the normal angle of repose for the soil type involved.

3.2.4 Side-casting of waste materials from the construction of permanent ACCESS ROADS may be allowed on slopes over 40 percent after approval by the LANDOWNER. Side-casting of waste material, however, shall not be allowed within the buffer strip established for stream courses, in areas of high or extreme soil instability, or in other SENSITIVE AREAS specifically identified in Appendix A.

3.2.5 Seeding prescriptions, the seeding rate to be used in revegetation, and requirements for hydro seeding, fertilizing, and mulching (collectively referred to as the seeding methodology) shall be based on the requirements of County Weed Control Boards, and the availability of seed at the time of reclamation. The OWNER shall submit its proposed seeding methodology to DEQ at least 30 days prior to the start of construction. The county approved seeding methodology will be incorporated into the Revegetation Rehabilitation Plan set forth in Appendix I.

3.2.6 Excavated material not suitable or required for backfill shall be evenly distributed over the cleared area prior to spreading any topsoil, unless otherwise required by the LANDOWNER. The size and quantity of large (greater than 3 inches) rocks and boulders on the surface of the ROW following final clean-up shall be similar to that present on adjacent undisturbed land. All rock removed from the ROW shall be disposed of as directed by the LANDOWNER.

3.2.7 The OWNER shall use specific seed mixes and techniques that address areas having saline, sodic, or saline and sodic soil characteristics; steep slopes; sandy or clayey textures; or acid soil conditions.

3.2.8 The OWNER shall alleviate soil compaction as proposed or where requested by the LANDOWNER; compaction may be alleviated on all lands traversed by construction equipment by plowing using appropriate deep-tillage and draft equipment. Alleviation of compaction of the topsoil shall be performed during suitable weather conditions, and must not be performed when weather conditions

have caused the soil to become so wet that activity to alleviate compaction would damage the future production capacity of the land.

3.2.9 If there is any dispute between the LANDOWNER and OWNER as to what areas need to be ripped or chiseled, or the depth at which compacted areas should be ripped or chiseled, a professional soil scientist shall be consulted. The OWNER shall retain a professional soil scientist or an appropriately qualified, licensed, professional engineer to conduct compaction tests. Copies of the results shall be provided to the LANDOWNER making claims for compensation for damages. If complete restoration is not possible, the OWNER shall compensate the LANDOWNER for lost productivity.

3.2.10 In the case of a claim for damages related to soil compaction, the OWNER shall retain a professional soil scientist who is also licensed by the State of Montana or an appropriately qualified licensed professional engineer to perform a soil survey for compaction using appropriate field equipment such as a soil penetrometer. Where there are row crops, samples shall be taken in the middle of the row, but not in rows where the drive wheels of farm equipment normally travel. Copies of the results of the above-described survey shall be provided to the LANDOWNER making such claim within 45 days of completion of the soil survey.

3.2.11 The OWNER shall develop and implement an environmental complaint resolution procedure. The procedure shall provide LANDOWNERS with clear and simple directions for identifying and resolving their environmental mitigation problems/concerns during construction and operation of the Project. Prior to construction, the OWNER shall mail the environmental complaint resolution procedure to each LANDOWNER whose property would be crossed by the Project:

- a) In the complaint resolution procedure, the OWNER shall:
 - (i) Provide a local contact that LANDOWNERS shall call first with their concerns and indicate how soon to expect a response;
 - (ii) Instruct LANDOWNERS that if they are not satisfied with the response, they should call the OWNER, provide a phone number for the OWNER, and indicate how soon to expect a response; and
- b) In addition, during construction and reclamation the OWNER shall include in its weekly status report a table that contains the following information for each problem/concern:
 - (i) The identity of the caller and the date of the call;
 - (ii) The identification number from the certificated alignment sheet(s) of the affected property and appropriate location by milepost;
 - (iii) A description of the problem/concern; and
 - (iv) An explanation of how and when the problem was resolved or will be resolved, or why it has not been resolved.

3.2.12 The Owner shall conduct a postconstruction inspection of all public roads that served as ACCESS ROUTES and repair any damage of the public roads caused by

the Owner's traffic on the public roads related to preconstruction, construction, and postconstruction activities as specified in Appendix Q.

3.3 MONITORING

3.3.1 Upon notice by the OWNER, the STATE INSPECTOR will schedule initial post-construction field inspections following clean up and road closure. The STATE INSPECTOR will notify the OWNER of these inspections. Follow-up visits will be scheduled as required to monitor the effectiveness of erosion controls and reseeding measures. The OWNER will contact the LANDOWNER for post-construction access and to document the LANDOWNER's satisfaction with the OWNER's restoration measures; such documentation shall be provided to the STATE INSPECTOR. The STATE INSPECTOR shall document observations for inclusion in monitoring reports regarding bond release or the success of mitigation measures.

3.3.2 Success of revegetation shall be based on criteria specified in Section 3.2.1 (i), (ii), (iii), or (iv).

3.3.3 Failure of the OWNER to adequately reclaim all disturbed areas in accordance with Section 3.2 of these specifications shall be cause for forfeiture of the bond or bonds and/or penalties described in Section 0.7.

4.0 OPERATION AND MAINTENANCE

4.1 RIGHT-OF-WAY MANAGEMENT AND ROAD MAINTENANCE

4.1.1 Depressions, holes, cracks, uneven settling, or water drainage problems that develop over or near the trench that interfere with natural drainage or vegetation establishment, shall be repaired by the OWNER within 45 days (weather permitting) of being reported or observed. Depressions, holes, cracks, uneven settling, or water drainage problems that develop over or near the trench that interfere with land use shall be repaired as expediently as practicable but in no case more than 45 days later (weather permitting) of being reported or observed by the OWNER or, at the LANDOWNER's request.

4.1.2 Vegetation that has been saved through the construction process and which does not pose a hazard or potential hazard to the pipeline, particularly that of value to fish and wildlife, shall be allowed to grow on the ROW.

4.1.3 Vegetative cover, water bars, cross drains, and the proper slope shall be maintained on permanent ACCESS ROADS and service roads in order to prevent soil erosion.

4.1.4 All permanent above-ground facilities shall be painted or treated to blend with their natural surroundings. The color shall be selected from colors similar to the standard environmental colors (BLM Rocky Mountain Five-State Interagency Committee) in consultation with the BLM and DEQ.

4.2 MAINTENANCE INSPECTIONS

4.2.1 The OWNER shall correct soil erosion or revegetation problems on the ROW or ACCESS ROADS. The OWNER is responsible for permanent erosion controls on the facility for the life of the Project. The OWNER may correct such problems through agreement with the LANDOWNER.

4.2.2 Operation and maintenance inspections using ground vehicles shall be timed so that routine maintenance shall be done when ACCESS ROADS are firm, dry, or frozen, wherever possible. On rangeland, maintenance vegetative clearing shall be conducted in a manner that encourages growth of shrubs up to three feet tall, including sage brush, on the ROW unless otherwise requested by a LANDOWNER. Shrubs may be removed along a 10-foot wide path within the ROW to allow for maintenance access.

4.3 CORRECTION OF LANDOWNER PROBLEMS

4.3.1 If the facility causes interference with radio, TV, or other stationary communication systems after the facility is operating, the OWNER shall correct the interference.

4.4 HERBICIDES AND WEED CONTROL

4.4.1 Weed control, including any application of herbicides in the right-of-way, will be in accordance with recommendations of the Montana Department of Agriculture and local Weed Control Boards.

4.4.2 Herbicides will not be used in certain areas identified by DEQ and FWP, as listed in Appendix P or as requested by the LANDOWNER.

4.4.3 Proper herbicide application methods will be used to keep drift and non-target damage to a minimum.

4.4.4 Herbicides must be applied according to label specifications and in accordance with Section 4.4.1, above. Only herbicides registered in compliance with applicable federal and state regulations may be applied.

4.4.5 In areas disturbed by the pipeline and associated facilities, the OWNER will cooperate with LANDOWNERS in the control of noxious weeds and provide 48 hours notification before weed treatment is completed on private land.

4.4.6 All applications of herbicides must be performed by an applicator with a valid Montana license.

4.4.7 During the second and third growing seasons following the completion of restoration and reseeded, the OWNER and STATE INSPECTOR shall inspect the ROW and ACCESS ROADS for newly established stands of noxious weeds. The OWNER shall provide access for the inspection. The County Weed Control supervisor shall be invited to attend this inspection. In the event that stands of weeds are encountered, appropriate control measures shall be taken by the OWNER.

4.5 MONITORING

4.5.1 DEQ may continue to monitor operation and maintenance activities for the life of the Project in order to ensure compliance with the specifications in this section.

4.5.2 DEQ may require the OWNER to fund additional monitoring to address environmental problems that develop during the life of the project. The additional monitoring would be limited to that required to ensure compliance with these specifications..

5.0 MITIGATION OF POSSIBLE ENVIRONMENTAL IMPACTS DUE TO DECOMMISSIONING OR ABANDONMENT

5.1 NOTICE AND RECLAMATION

5.1.1 One year prior to the anticipated date for decommissioning or abandonment of the certificated facility, the OWNER shall notify DEQ or its successor of the plans for decommissioning or abandonment.

5.1.2 If the method of decommissioning or abandonment required under federal law results in ground disturbing activities, OWNER shall be responsible to DEQ or its successor for complying with reclamation and environmental protection standards established at the time of Project certification, including applicable provisions of these specifications or standards in affect at that time.

5.1.3 The OWNER will be responsible for repairs and reclamation caused by erosion or subsidence of the right-of-way associated with the presence of the facility incurred after abandonment.

5.1.4 The standards listed in Section 3.2.1 for reclamation and revegetation shall be used to determine release of the Reclamation and Revegetation Bond, or to determine that expenditure of the Reclamation and Revegetation Bond is necessary to meet the requirements of the CERTIFICATE, unless otherwise determined by the DEQ.

Appendices

- Appendix A: Sensitive Areas
- Appendix B: Bonds
- Appendix C: STATE INSPECTORS and OWNER's Liaisons
- Appendix D: Monitoring Plan
- Appendix E: Variations in Approved Locations
- Appendix F: Hydrostatic Test Discharge Plan
- Appendix G: Programmatic Agreement
- Appendix H: Paleontological Memorandum of Understanding
- Appendix I: Rehabilitation Plan Erosion Control, Reclamation, and Revegetation Plan
- Appendix J: Areas Where Restrictions in the Timing of Construction Apply
- Appendix K: Noxious Weed Management Plan
- Appendix L: Requirements at Stream Crossings
- Appendix M: Hazardous Materials Management Plan for construction and Spill Prevention, Control and Countermeasure Plan for construction
- Appendix N: Fire Prevention and Suppression Plan
- Appendix O: Burning Plan and Fire Plan
- Appendix P: Watersheds and Other Areas Where the use of Herbicides is Prohibited
- Appendix Q: Construction Inspections of Designated Access Routes on Public Roads

Appendix A: Sensitive Areas

The following provisions shall be followed to assist in the protection of biological resources during construction and operations:

- All vehicles, equipment, bridges, and matting that will be used in streams or wetlands must be washed and dried before entering the job site in order to reduce the chances of transporting aquatic nuisance species to Montana streams and wetlands. Likewise, hydrostatic test water from other states must not be discharged into Montana waters in order to reduce the chances for transporting aquatic nuisance species to Montana streams and wetlands.
- Prior to the start of construction, the OWNER shall conduct surveys to determine the locations of greater sage-grouse leks and the peak number of males in attendance at these leks within three miles of the facility, unless the facility is screened by topography. The OWNER shall use survey methods approved by DEQ, FWP, and BLM. Results of the surveys shall be presented to the STATE INSPECTOR.
- Prior to the start of construction within three miles of a greater sage-grouse lek, the OWNER shall also conduct surveys to determine the peak number of male greater sage-grouse at leks identified by FWP and BLM more than three miles from the facility, for use as a baseline in determining whether construction activities or presence of the pipeline has affected greater sage-grouse numbers.
- Pipeline construction within three miles of active greater sage-grouse leks in suitable nesting habitat not screened by topography from March 1 to June 15 is prohibited with the following exceptions:
 - a. The OWNER may pass equipment as a single group along the permitted right-of-way or approved location through a restricted lek buffer area.
 - b. Equipment will only pass through a restricted lek buffer between 10:00 am and 2:00 pm, to avoid disturbing displaying birds during critical times of the day.
 - c. If major grading is required to pass equipment along the permitted right-of-way or approved location, this grading will take place outside of the March 1 through June 15 restriction period.
 - d. As the equipment passes through the areas, if any large hummocks or rocks impede the travel lane, the lead dozer will lower its blade on the way through to move the obstruction to the side and/or smooth out any larger hummocks or rocks.
- The OWNER shall conduct surveys of sharp-tailed grouse leks prior to construction using methods approved by DEQ in consultation with FWP, to detect leks that can be seen from the construction ROW and associated power lines. Results of the surveys shall be presented to the STATE INSPECTOR.

- Construction within 0.25 mile of active sharp-tailed grouse leks that can be seen from the construction ROW is prohibited from March 1 to June 15. This same timing restriction applies to routine maintenance. It does not apply when emergency maintenance or response is required for safe operation of the Project.

During the construction and reclamation period, the following exceptions will apply:

- a. The OWNER may pass equipment as a single group in the construction right-of-way or on an offsite access route that crosses a restricted lek buffer area.
 - b. The equipment may only pass through the restricted lek buffer area between 10:00 am and 2:00 pm to avoid disturbing displaying birds during critical times of the day.
 - c. Grading of the construction right-of-way or of the offsite access route is prohibited from March 1 through June 15.
 - d. As the equipment passes through a restricted lek buffer area, the lead dozer may lower its blade to move to the side rocks that impede the travel lane or to smooth out hummocks that impede the travel lane.
- The OWNER shall contact BLM and FWP to determine what mitigation measures are needed for a lek found within the construction ROW and implement those measures.
 - In sagebrush habitat, the OWNER will reduce the mound left over the trench in areas where settling would not present a path for funneling runoff down slopes. In these areas additional measures shall be taken to compact backfilled spoils to reduce settling.
 - The OWNER shall establish a compensatory mitigation fund to be used by DEQ, BLM, and FWP to enhance and preserve sagebrush communities for greater sage-grouse and other sagebrush-obligate species in eastern Montana. The size of the fund will be based on the acreage of silver sagebrush and Wyoming big sagebrush habitat disturbed during pipeline construction within greater sage-grouse core habitat mapped by FWP and important habitat between approximate mileposts 96.5 to 130.5. For each acre disturbed, the OWNER shall contribute \$600 to the fund.
 - During operations, inspection flights shall be limited to afternoons from March 1 to June 15 as practicable in sagebrush habitat designated by FWP (considering weather conditions and federal inspection requirements).
 - The OWNER shall fund a study under the direction of DEQ, FWP, and BLM that would show whether the presence of the facility has affected greater sage-grouse numbers, based on the peak number of male greater sage-grouse in attendance at leks. For a period of four years, the agencies shall annually monitor, compare, and report the peak number of male greater sage-grouse at three leks within three miles of the pipeline that are not screened by topography, to the number of males

in attendance at three leks more distant than three miles from the facility, before and after construction of the pipeline. At the end of this four year period, DEQ, FWP, and BLM will determine whether there has been a change in the number of male greater sage-grouse in attendance. If there is a decrease, the OWNER will be required to increase the numbers of greater sage-grouse elsewhere to offset the observed reductions. Documented greater sage-grouse population increases as a result of expenditures from the compensatory mitigation fund, above, may be used to fulfill this requirement.

- The OWNER shall implement reclamation measures (e.g., application of mulch or compaction of soil after broadcast seeding, and reduced seeding rates for non-native grasses and forbs) that favor the establishment of silver sagebrush and big sagebrush in disturbed areas, where compatible with the surrounding land use and habitats, unless otherwise requested by the affected LANDOWNER.
- Prior to construction, the OWNER shall conduct studies along the route to identify areas that support stands of big sagebrush and silver sagebrush and incorporate these data into reclamation activities to prioritize re-establishment of sagebrush communities, as required above.
- Unless otherwise requested by the LANDOWNER, in areas supporting stands of big sagebrush and silver sagebrush, the OWNER shall monitor establishment of sagebrush on reclaimed areas annually for at least four years to ensure that sagebrush plants become established at densities similar to densities in adjacent sagebrush communities, and implement additional seeding or plantings of sagebrush if necessary. Reports of this monitoring activity shall be submitted to the DEQ annually.
- The OWNER and DEQ shall establish criteria in conjunction with FWP and BLM to determine when reclamation of sagebrush communities has been successful, based on the pre- and post construction studies described above. This shall not relieve the OWNER of its responsibility to meet the revegetation standards in Appendix B.
- Unless requested by the affected LANDOWNER, the OWNER shall use locally adapted sagebrush seed, collected within 100 miles of the areas to be reclaimed.
- To protect nesting for Sprague's pipit, a sensitive species in Montana, if construction will occur during the April 15 to July 15 grassland ground-nesting bird nesting season, nest-drag surveys must be completed by the OWNER to determine the presence or absence of nests on lands in Phillips and Valley counties, and implement timing restrictions recommended by USFWS and MFWP. Results of the surveys shall be presented to the STATE INSPECTOR.
- To minimize destruction of mountain plover nests and disturbance of breeding mountain plovers, no construction, reclamation, or other non-emergency ground disturbing activities will occur from April 10 to July 10, unless surveys conducted by the OWNER consistent with the Plover Guidelines or other methods approved by the USFWS find that no plovers are nesting in the area. Suitable mountain plover habitat in Fallon and Valley counties along the approved route must be

surveyed three times between April 10 and July 10, with each survey separated by at least 14 days. The earlier date will facilitate detection of early-breeding plovers. If a nest is identified, construction activities within 0.25 mile of the nest shall be delayed for 37 days (typical fledging duration) or until fledging, whichever is sooner. If a brood of flightless chicks is identified, construction activities must be delayed for at least seven days or until fledging. Routine, non-emergency, maintenance activities shall be scheduled outside the April 10 to July 10 period in mountain plover habitat, unless surveys conducted by the OWNER indicate that no plovers are nesting in the area and that flightless chicks are not present. Results of surveys that detect mountain plovers shall be presented to the STATE INSPECTOR.

- The OWNER shall conduct pre-construction surveys for interior least tern within a distance of 0.25 mile on either side of the pipeline in any suitable breeding habitat near the Yellowstone and Missouri rivers during the breeding season (May 1 through August 15 inclusive). The OWNER shall conduct daily surveys for nesting terns when construction activities occur within 0.25 mile of potential nesting habitat. Construction will not be permitted within 0.25 mile of an occupied nest site during the breeding season (May 1 through August 15) or until the fledglings have left the nesting area. Results of the preconstruction and daily surveys that detect least terns shall be presented to the STATE INSPECTOR.
- If construction activities within 0.25 miles of the Missouri or Yellowstone rivers are scheduled to occur between May 1 and August 15, the OWNER shall conduct pre-construction surveys for piping plovers within a distance of 0.25 mile on either side of the pipeline in any suitable breeding habitat. Daily surveys for nesting piping plovers must be conducted during the nesting season when construction activities occur within 0.25 mile of potential nesting habitat. Construction will not be permitted within 0.25 mile from an occupied nest site during the breeding season (May 1 through August 15) or until the fledglings have left the nesting area. Results of preconstruction and daily surveys that detect piping plovers shall be presented to the STATE INSPECTOR.
- In Phillips and Valley counties where swift fox occur, den surveys shall be conducted by the OWNER between February 15 and July 31 and, if dens are found, construction activities within 500 m of an active swift fox den will not occur between February 15 and July 31. Swift fox potentially occur in Prairie, Dawson, and Fallon counties along the proposed route. Den surveys shall be conducted by the OWNER between February 15 and July 31 in Prairie, Dawson, and Fallon counties and if a den is found within 500 m of a facility or associated facility, construction will not occur between February 15 and July 31. Results of the surveys that detect swift fox dens shall be presented to the STATE INSPECTOR.
- Prior to and during construction, the OWNER shall conduct surveys for active bald eagle nests and communal roost sites prior to construction. If any of these are found, the OWNER shall implement the measures in the Montana Bald Eagle

Management Plan or if this plan expires, then the OWNER shall use current guidance from the U.S. Fish and Wildlife Service. Results of the surveys that detect bald eagle nests or communal roost sites shall be presented to the STATE INSPECTOR.

- Prior to March 15 of each year of construction, the OWNER shall survey approved locations and nearby areas for the presence of golden eagle nests. If a golden eagle nest is found, the OWNER shall, restrict construction, reclamation, and non-emergency maintenance activities within 1000 m of the nest from March 15 until July 15, or until the young have fledged unless approval is obtained from the STATE INSPECTOR based on experience, growth stage of young, screening, and habituation to activity. Results of the surveys that detect golden eagle nests shall be presented to the STATE INSPECTOR.
- The OWNER will survey for the presence of ferruginous hawk nests. If an active nest is found, no construction, reclamation, or non-emergency maintenance activities may take place within 1000 m of the nest between March 15 and July 15, or until young have fledged unless approval is obtained from the STATE INSPECTOR based on experience, growth stage of young, screening, and habituation to activity. The OWNER will conduct surveys for nesting burrowing owls in Phillips, Valley, southern McCone, and southern Dawson counties during the period between April 15 and August 1. If nesting burrowing owls are found, no construction, reclamation, or non-emergency maintenance activities will occur within 500 m of an active nest until chicks have fledged. Results of surveys that detect ferruginous hawk nests shall be presented to the STATE INSPECTOR.
- The OWNER shall conduct surveys for nests of other raptor species not listed above. If an active nest is found, no construction and reclamation activities may occur within 1000 m between March 15 and July 15, or until the young have fledged unless approval is obtained from the STATE INSPECTOR based on experience, growth stage of young, screening, and habituation to activity. Results of the surveys shall be presented to the STATE INSPECTOR.
- Prior to each year of construction, the OWNER shall survey the approved corridor in Fallon County for black-tailed prairie dog colonies. When reasonably possible, construction within identified colonies that are large enough by themselves or in conjunction with other colonies to comprise essential Category 3 complexes should be avoided.
- Great blue heron rookeries should be avoided by 500 feet.
- If a western hog-nosed snake or milksnake hibernaculum is found within the construction ROW during construction, then a construction timing restriction between October 1 and May 1 will be used at that site to prevent loss to a large number of individuals. The STATE INSPECTOR shall be informed of the location of any hibernacula found.
- To protect small animals from entanglement, erosion control netting must be composed of material with plastic netting with openings greater than two inches across.

- In order to protect the Great Plains toad and plains spadefoot toad, all wetlands identified as PEM's in the USACOE permits shall be considered habitat. The OWNER shall place a silt fence along both sides of the construction ROW in these wetlands to exclude these species from the construction area. If extremely wet conditions exist during construction, the OWNER shall monitor for locations with Great Plains toads and plains spadefoot toad. If these species are found, the OWNER shall install exclusion fencing at these locations.
- Unless otherwise requested by the LANDOWNER in writing, the DEQ and the OWNER shall, for a period of five years following initial seeding, monitor cover and densities of native and non-native perennial forbs and perennial grasses exclusive of noxious weeds on reclaimed native prairie, pasture, and riparian areas. Native prairie and riparian areas must be reseeded with native forbs and grasses, while pastures must be reseeded with species approximating the existing vegetation exclusive of noxious weeds. Where densities and cover are not comparable to adjacent communities, to achieve bond release per the criteria in Section 3.2.1, the OWNER shall reseed the areas not meeting the bond release criteria in Appendix B unless specified in writing by the STATE INSPECTOR.
- The OWNER, working in conjunction with the LANDOWNER, shall appropriately manage livestock grazing of reclaimed areas until successful reclamation of sagebrush communities has been achieved, as described above.
- The OWNER shall implement measures to reduce or eliminate colonization of reclaimed areas by noxious weeds and invasive annual grasses such as cheatgrass, to the extent that these species do not exist in undisturbed areas adjacent to the right-of-way.
- During construction, when trenches are open, the OWNER shall conduct daily inspections to locate and remove animals that have been trapped in the open trench.
- Between June 1 and August 15, the OWNER shall conduct surveys in forested riparian habitat using the methods described in the Handbook of Inventory Methods and Standard Protocols for Surveying Bats in Alberta (<http://www.srd.alberta.ca/FishWildlife/WildlifeManagement/documents/Handbook-InventoryMethodsStandardProtocols-SurveyingBatsInAlberta-Dec06.pdf>) to determine the location of bat (fringed myotis, *Myotis thysanodes*, long-eared myotis, *Myotis evotis*) maternity roosts and Townsend's big-eared bat (*Corynorhinus townsendii*) roost trees. If found, disturbance of roosts should be avoided where possible until the bats have left the area in late summer or fall, and removal of roost trees should be avoided wherever practicable. Results of the surveys shall be presented to the STATE INSPECTOR.
- Tree clearing will be minimized through a narrowing of the construction ROW and final centerline location near crossings of certain streams identified in Appendix L of these specifications.
- Pre- and post construction monitoring plans will be developed for depressional wetlands of the Prairie Potholes region in Montana, and wetlands that no longer

pond water after the pipeline is installed will receive additional compaction, replacement, or at the LANDOWNER's or managing agency's discretion compensatory payments will be made for drainage of the wetland.

- Construction activities are not anticipated in areas where sage or sharp-tailed grouse concentrate during severe winters. If construction activities occur in these areas, the STATE INSPECTOR may impose timing restrictions if construction activities extend beyond November 15. In these areas, the STATE INSPECTOR shall determine the need for restrictions based upon the severity of winter conditions and consultation with FWP biologists.

Land Use

The OWNER shall bore irrigation ditch and canal crossings where requested by a LANDOWNER, to reduce the potential for canal seepage following construction.

Following construction or maintenance activities, crossings of leveled irrigated fields, ditches, canals, and border dikes shall be restored to a state that existed prior to construction. Changes in leveled irrigated field, canal, and dike grade over the pipeline trench as a result of soil settling shall be repaired by the OWNER at the first reasonable opportunity after such settling is observed by the OWNER, STATE INSPECTOR, or reported by the LANDOWNER. Leakage of canals, ditches, and dikes shall be restored as closely as practicable to a state that existed prior to construction. If further settling over the trench causes leakage from canals, ditches, or dikes, this leakage shall be repaired by the OWNER at the first reasonable opportunity after it is reported by the LANDOWNER.

Prior to construction, the OWNER will select, subject to DEQ approval, and the OWNER will pay for a public liaison officer to facilitate the exchange of information between the OWNER's contractors and employees, and LANDOWNERS, local communities, and residents, and to resolve promptly any complaints or problems that may develop for LANDOWNERS, local communities, and residents as a result of the pipeline. The liaison shall report to DEQ.

If during operations, settling or piping should occur on cultivated land, then the OWNER shall consult with a professional soil scientist or an appropriately qualified licensed professional engineer regarding the level of compaction and efficacy of ditch plugs. Repairs shall be made to limit the flow of water along the pipeline based on the recommendations of the soil scientist or professional engineer. Copies of the results shall be provided to the LANDOWNER. If complete restoration is not possible, the OWNER shall compensate the LANDOWNER for lost productivity. Nothing in this requirement shall limit the remedies available to a LANDOWNER under 75-20-405, MCA.

The OWNER will use existing soil survey data to locate probable areas where topsoil (i.e., the A horizon) deeper than 12 inches is likely to occur. The OWNER will confer with the NRCS and DEQ to determine if soil sampling is necessary to refine the soil

characteristics in those areas, and to determine if additional soil salvage and handling procedures will be necessary to maintain equivalent productivity.

The OWNER will use existing soil survey data to locate areas where special soil handling procedures (such as triple-lift or over-stripping topsoil) would help preserve soil productivity and reclamation potential. Soil survey data will be analyzed by horizon to locate areas where lower soil horizons may contain high salt concentrations, fluvial gravels, or unconsolidated bedrock that are not present in surface or near surface horizons and thus could reduce revegetation success. The OWNER will base this analysis on criteria that are used in Canada for evaluating potential triple-lift soils. The OWNER will consult with the NRCS on the locations and characteristics of these soils, and on soil sampling procedures to refine soil mapping units where special handling procedures will be applied. The OWNER will provide the NRCS and DEQ with the results of this soils analysis and the locations where special soil handling procedures may be necessary.

The OWNER shall mark and avoid the stock water tank in Township 7 North, Range 59 East, Section 35.

If water lines need to be relocated, the OWNER shall be responsible for relocating the water lines, including bearing all costs associated with their relocation.

Appendix B: Bonds

The OWNER has agreed to submit reclamation and revegetation bonds in the increments described as follows:

- A pre-construction bond to ensure reclamation and revegetation of initial disturbance from activities at pipe yards, contractor yards, pump stations, access roads to pump stations, and pre-clearing of trees. The amount of the pre-construction bond is \$1,902,732. Upon successful regrading, erosion control and seeding of these disturbed areas as determined by DEQ, DEQ will release a portion of this bond and retain another portion for successful revegetation. Upon attaining the amount of vegetative cover described in Section 3.2.1, DEQ will release the remaining portion of this pre-construction bond.
- A construction bond to ensure reclamation and revegetation of disturbances caused by pipeline and associated facility construction not described above. The amount of the construction bond is \$13,570,992. Upon successful regrading, erosion control, and seeding of disturbed areas as determined by DEQ, DEQ will release a portion of this bond and retain another portion for successful revegetation. Upon attaining the amount of vegetative cover described in Section 3.2.1, DEQ will release the remaining portion of this construction bond.
- A post-construction bond to ensure that erosion is controlled for the life of the project and that above ground facilities are removed and areas occupied by these facilities are reclaimed and revegetated at the end of the project's life. The amount of this post-construction bond is \$615,675. DEQ will hold this bond until the project has been decommissioned in accordance with the plans for decommissioning required in Section 5.1. The amount of this bond shall be adjusted every five years by calculating the percentage change of the Gross Domestic Product-Implicit Price Deflator ("GDP-IPD") as reported by the Bureau of Economic Analysis, U.S. Department of Commerce, over that period and adjusting this bond by this percentage. Upon successful decommissioning of the project including but not limited to establishing the amount of vegetative cover described in Section 3.2.1, DEQ will release this post-construction bond.

Appendix C: Names and Addresses
of the
STATE INSPECTORS and OWNER's Liaisons

The STATE INSPECTOR:

Warren McCullough (or his designee)

Montana Department of Environmental Quality Fax: 406-444-1499

P.O. Box 200901, 1520 E. 6th Ave.

Helena, MT 59620-0901

E-mail address:
wmccullough@mt.gov

State Environmental Inspection Monitoring Contractors:

OWNER's Environmental Inspector's Phone List:

Spread 1-

Spread 2 -

Spread 3 -

Spread 4 -

Appendix D: Monitoring Plan

The STATE INSPECTOR is responsible for implementing this Monitoring Plan required by 75-20-303(b) and (c), MCA, and for reporting whether terms of the CERTIFICATE and Environmental Specifications (including but not limited to adequacy of erosion controls, successful seed germination, and areas where weed control is necessary) are being met. Additional mitigating measures may be identified by the STATE INSPECTOR on Federal lands in order to minimize environmental damage due to unique circumstances that arise during construction.

In addition to participating in preconstruction conferences, the STATE INSPECTOR shall conduct on-site inspections during the period of construction. At a minimum, the STATE INSPECTOR will be present at the start of construction on each spread and during the start of construction in each type of SENSITIVE AREA encountered on each spread. Subsequently, STATE INSPECTOR shall strive to conduct on-site reviews of construction activities on at least a weekly schedule. More frequent monitoring may be necessary.

The STATE INSPECTOR shall record the dates of inspection, areas inspected, and instances where construction activities are not in conformance with Environmental Specifications or terms and conditions of the CERTIFICATE for the Project. Inspection reports shall be submitted in a timely manner to the OWNER's Liaison who will see that corrections are made or that such measures are implemented in a timely manner.

When violations of the CERTIFICATE are identified, the STATE INSPECTOR shall report the violation in writing to the OWNER, who shall immediately take corrective action. If violations continue, civil penalties described in 75-20-408, MCA, may be imposed.

Upon the completion of construction in an area, the INSPECTORS will determine that Environmental Specifications have been followed, and that activities described in OWNER's application have been completed and revegetation is progressing in a satisfactory manner.

DEQ may obtain the assistance of FWP to monitor impacts on wildlife between the time of certification and the completion of construction, including improper harvest of wildlife by employees, contractors, or other agents of the OWNER on the ROW, access roads, routes, and areas adjacent thereto.

In the event DEQ determines that the OWNER is not correcting damage created during construction in a satisfactory manner or that initial revegetation is not progressing satisfactorily, DEQ may forfeit the reclamation and revegetation bond in an amount it determines to be sufficient to correct the problem.

Weed Control

During the second and third growing seasons following the completion of restoration and reseeded, the OWNER and INSPECTORS will inspect the ROW and ACCESS ROADS for newly established stands of noxious weeds, to identify those areas where noxious weeds were not established prior to construction. The County Weed Control supervisor will be invited to attend this inspection. In the event that stands of weeds are encountered, appropriate control measures will be taken by the OWNER.

Spills

A STATE INSPECTOR will be named to coordinate DEQ response and monitoring of spills not pre-empted by federal authority. The STATE INSPECTOR will determine that recovery and cleanup efforts are complete, that impacts to the environment have been minimized when the nature and costs of various cleanup alternatives are considered, and that affected areas are adequately reclaimed. All DEQ monitoring, cleanup, reclamation, and revegetation costs shall be paid for by the OWNER.

Groundwater Monitoring Plan

In order to protect groundwater resources, the OWNER shall conduct pre- and post-construction monitoring of any wells or springs within 100 feet of the right-of-way. After the pipeline location has been approved, the OWNER will determine whether any wells or springs are within 100 feet of the right-of-way. The survey will be conducted by checking state well records, agency records, and personal communication with private LANDOWNERS and field review. Baseline field surveys of each well or spring will include a visual estimate of flow and water clarity, and field-measured temperature, electrical conductivity, and pH. The results of required surveys will be filed with the agencies before construction commences near these wells and springs.

After construction is complete, the wells and springs will be surveyed again for the same parameters to determine if construction has caused any impacts on the groundwater. If during construction any additional wells or springs are found within 100 feet of the right-of-way, the OWNER will sample these water sources, as described above. In the event that post-construction monitoring shows that construction had an adverse effect on the groundwater, the OWNER shall provide for an emergency potable water source, if needed, and provide for the necessary repairs, replacement, and/or relocation of the affected wells and springs to restore the supply system to its former capacity. If it is determined that there has been an impact on the quantity or quality of water available from a well or spring within 100 feet of the pipeline right-of-way as a result of pipeline construction or operation, then the OWNER will attempt to restore the well or spring to its original capacity, as determined in the pre-construction survey, using all reasonable efforts and typical well and/or spring restoration techniques.

If a well cannot be returned to its original quality or capacity using all reasonable efforts and typical restoration techniques, the OWNER will install a new well to the

LANDOWNER's reasonable satisfaction with characteristics similar to the well lost. If a spring cannot be returned to its original quality or capacity using all reasonable efforts and typical restoration techniques, the OWNER will install a new well to replace the spring as determined by mutual agreement between the OWNER and the LANDOWNER and/or water right holder; and negotiate with the LANDOWNER and/or water right holder appropriate damages.

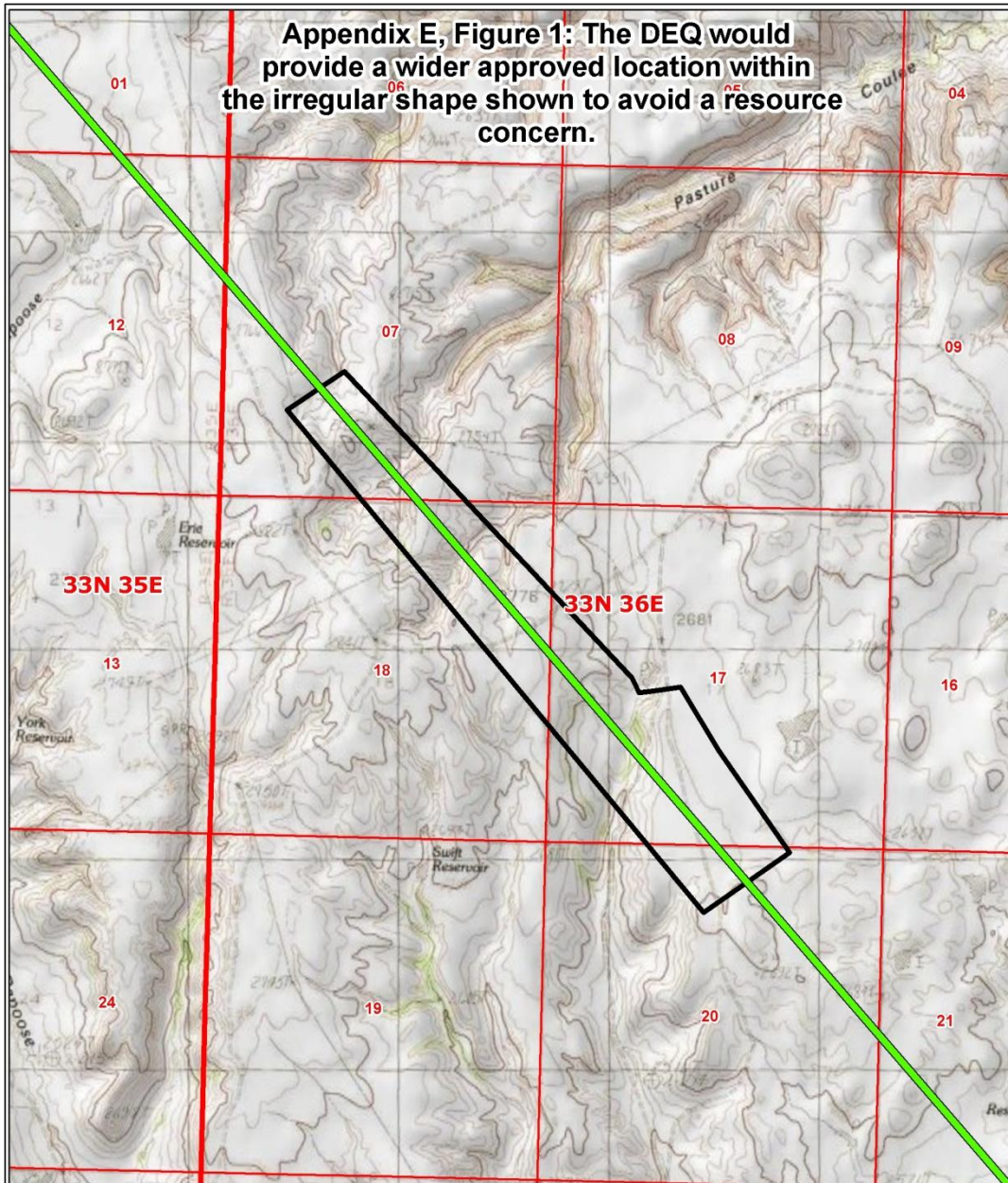
If it is not technically feasible after using all reasonable efforts to install a new well at an existing or mutually agreeable alternate location, then the OWNER will negotiate with the LANDOWNER and/or water right holder appropriate damages to compensate for such loss.

Prior to commencement of construction, the Monitoring Plan, including the Ground Water Monitoring Plan, must be approved by DEQ.

Appendix E: Variations in Approved Locations

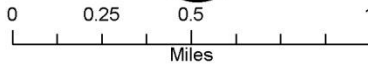
The approved locations shall be 250 feet on either side for the referenced centerline indicated on the maps included with the CERTIFICATE, except as noted below. Construction activities shall be conducted in the minimum area necessary for safe and prudent construction, in accordance with these specifications and indicated in TransCanada Keystone, L.P.'s (the OWNER) Major Facility Siting Act Application as amended prior to issuance of the Certificate of Compliance. In the areas indicated on the following maps, variations in the width of the approved location are granted to reduce impacts. Construction of the Project will occur within the areas shown on the attached maps.

Appendix E, Figure 1: The DEQ would provide a wider approved location within the irregular shape shown to avoid a resource concern.

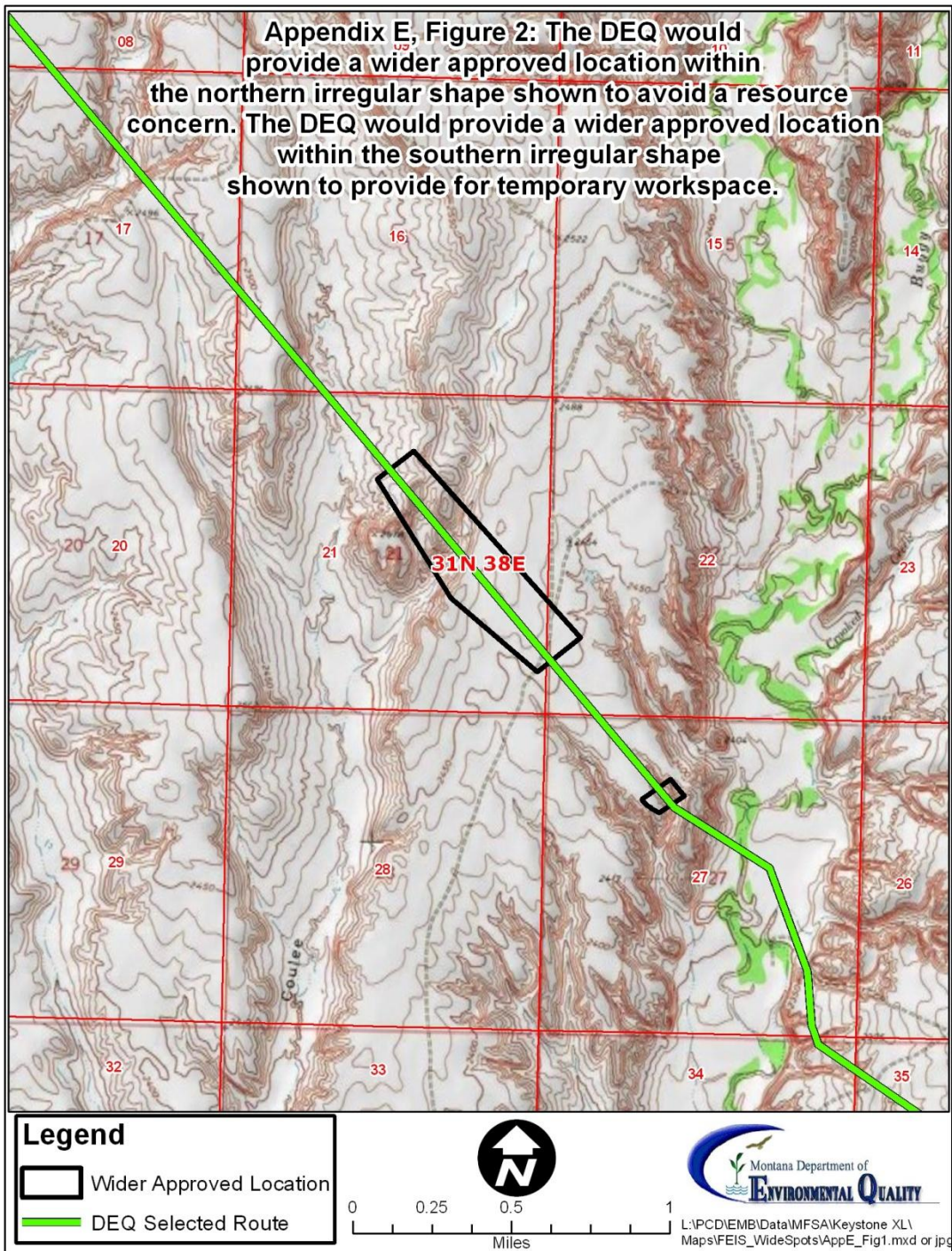


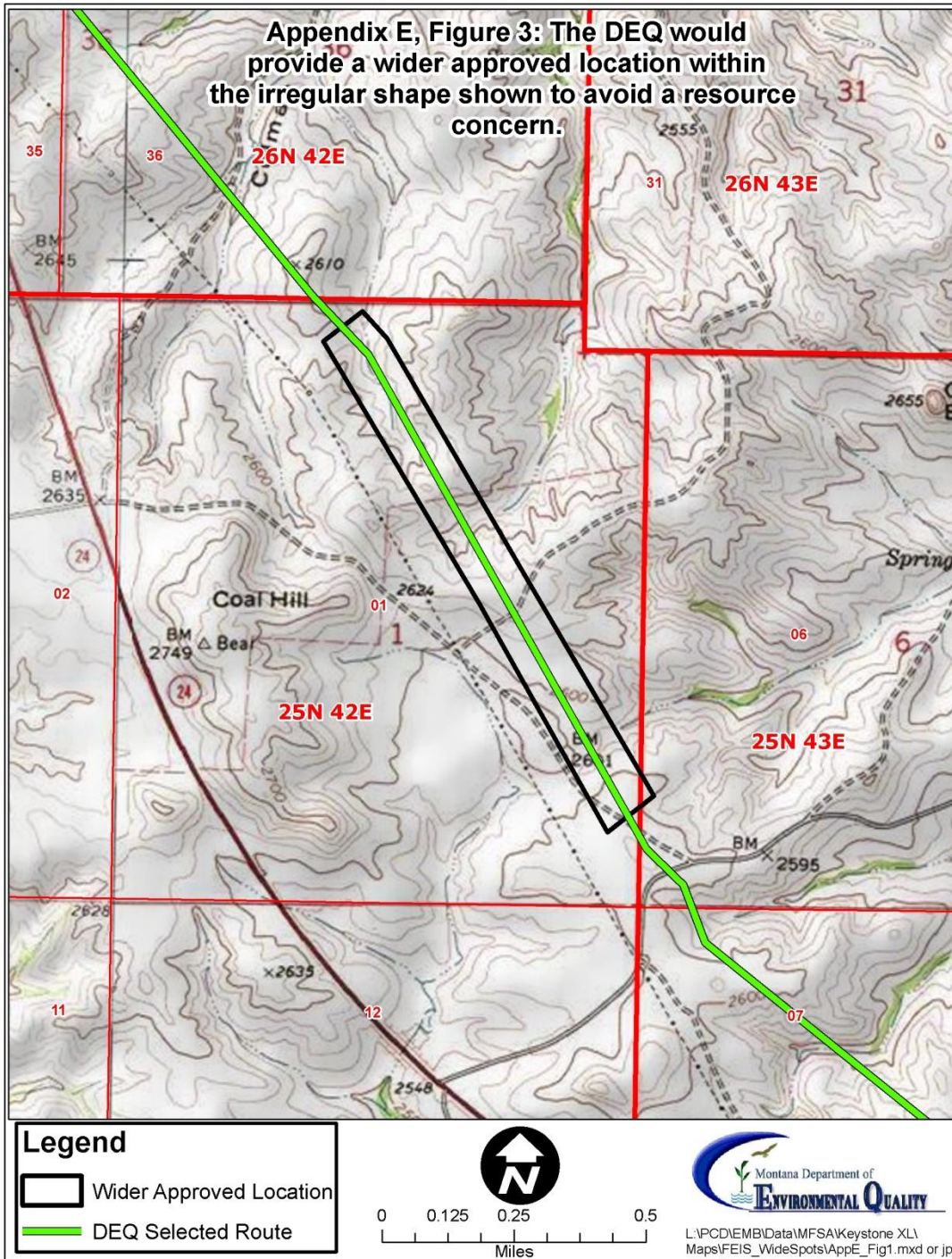
Legend

-  Wider Approved Location
-  DEQ Selected Route

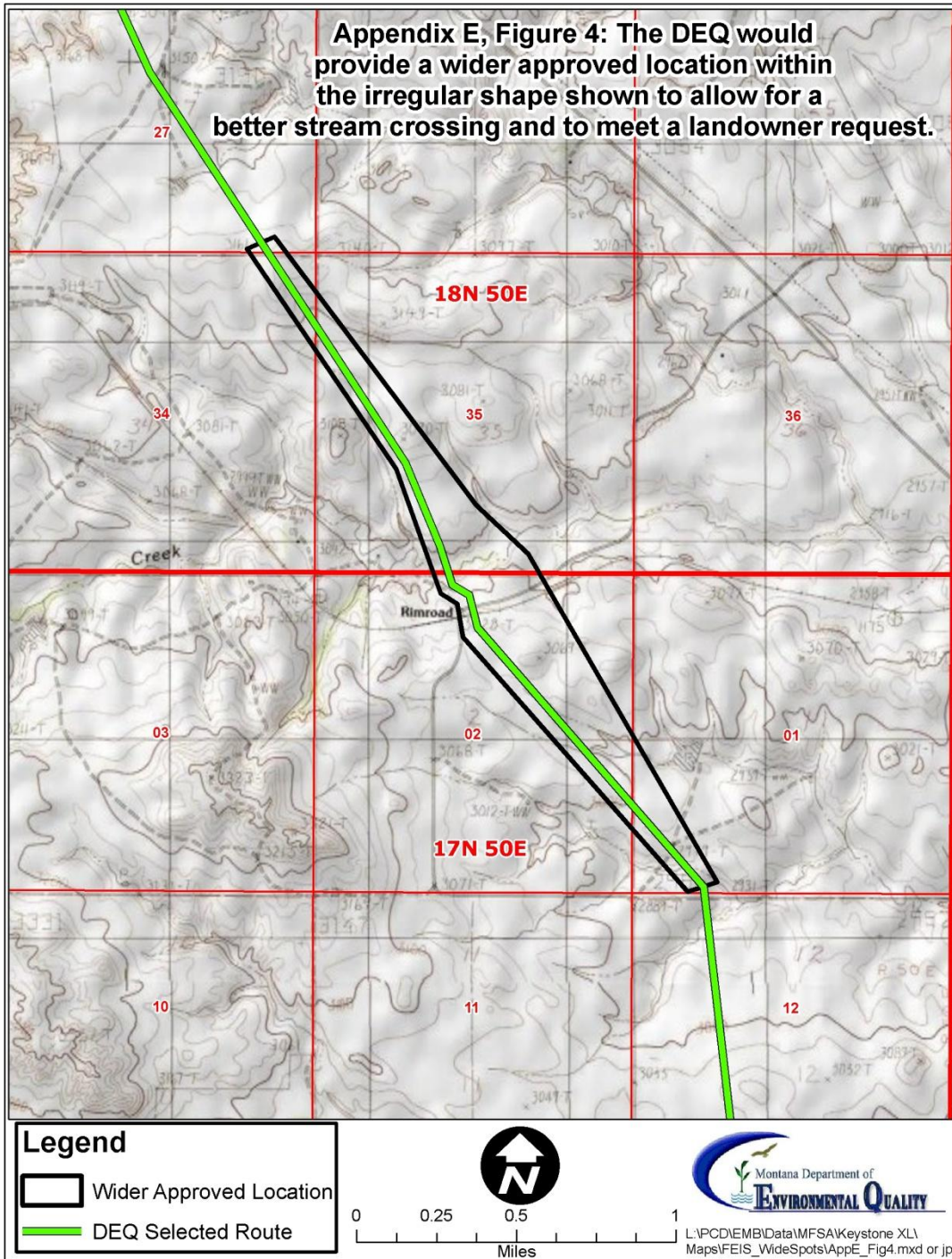


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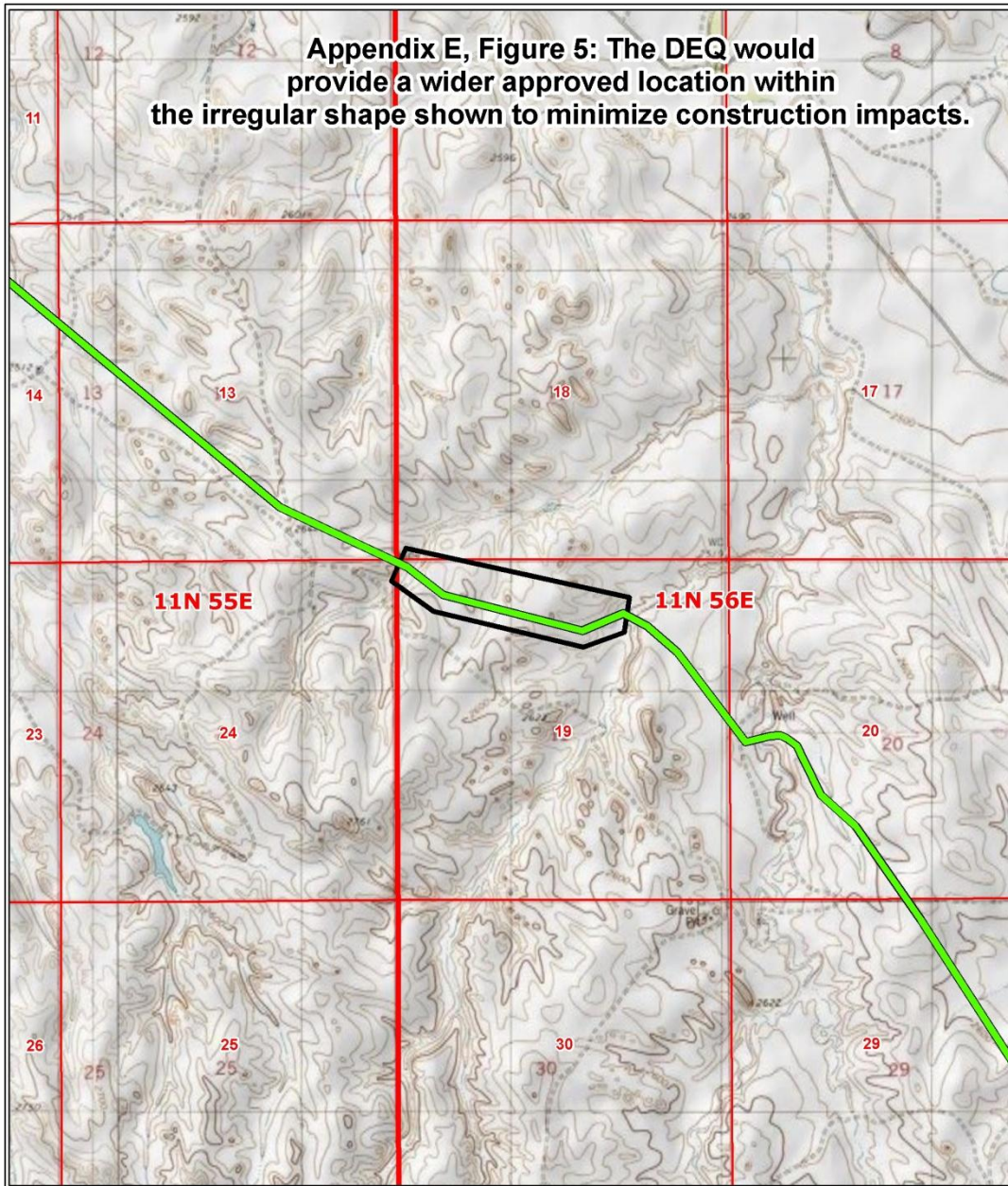






Appendix E, Figure 4: The DEQ would provide a wider approved location within the irregular shape shown to allow for a better stream crossing and to meet a landowner request.




Appendix E, Figure 5: The DEQ would provide a wider approved location within the irregular shape shown to minimize construction impacts.



Legend

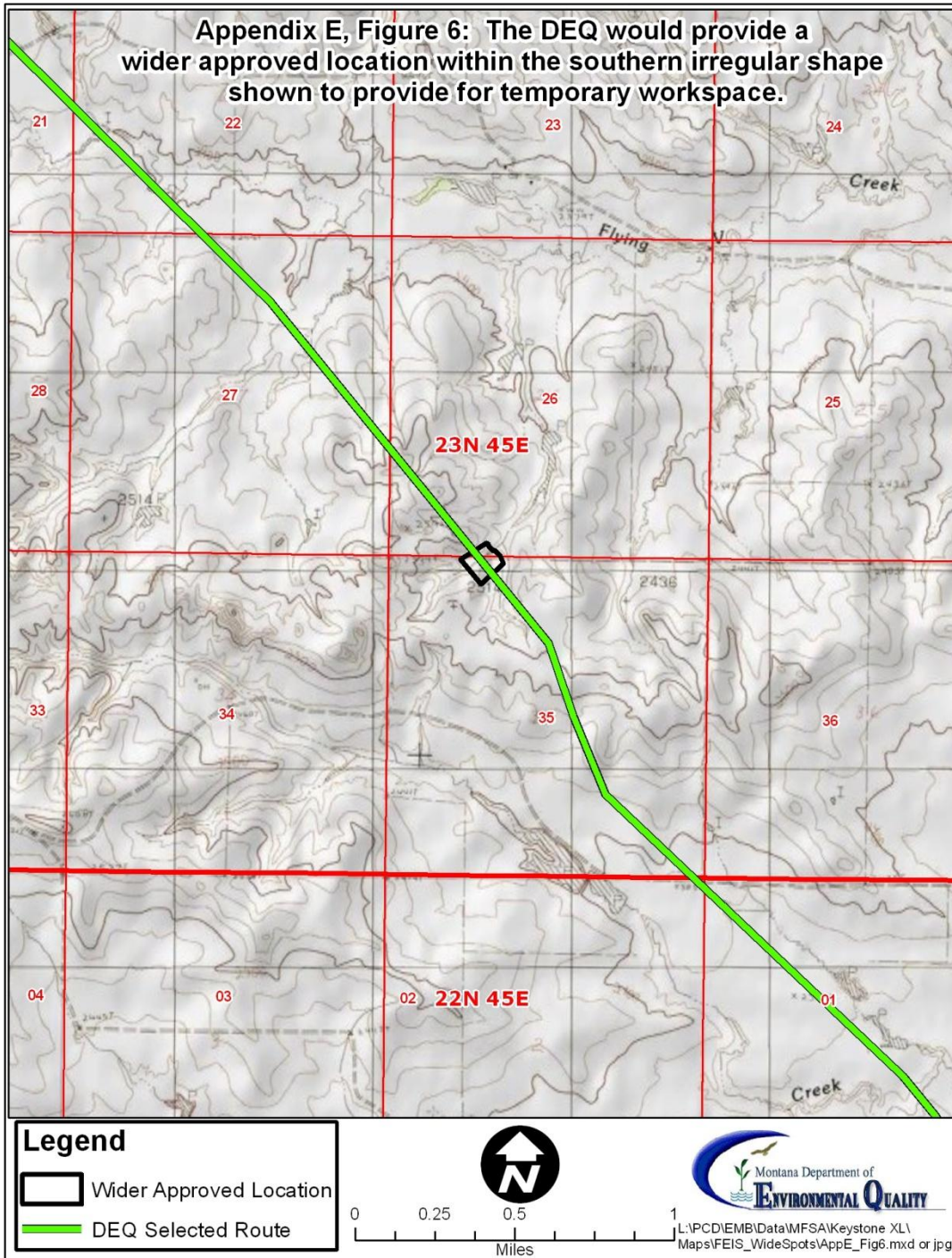
-  Wider Approved Location
-  DEQ Selected Route

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Miles




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Appendix E, Figure 6: The DEQ would provide a wider approved location within the southern irregular shape shown to provide for temporary workspace.



Appendix F: Hydrostatic Test Discharge Plan

General measures used in hydrostatic testing are described in Volume 1, Section 3, of the Final EIS. The OWNER shall submit site specific hydrostatic discharge plans to DEQ for approval.

Appendix G: Cultural Resource Protections and Guidelines

[Signature pages are omitted.]

Programmatic Agreement

Among

The U.S. Department of State,
U.S. Bureau of Land Management,
U.S. Army Corps of Engineers,
U. S. Bureau of Reclamation,
National Park Service,
Western Area Power Administration,
U.S. Department of Agriculture Rural Utilities Service,
U.S. Department of Agriculture Natural Resources Conservation Service,
U.S. Department of Agriculture Farm Service Agency
U.S. Bureau of Indian Affairs
Montana Department of Natural Resources and Conservation,
Montana Department of Environmental Quality,
Advisory Council on Historic Preservation,
Montana State Historic Preservation Officer,
Kansas State Historic Preservation Officer,
Texas State Historic Preservation Officer,
Nebraska State Historic Preservation Officer,
Oklahoma State Historic Preservation Officer,
South Dakota State Historic Preservation Officer, and
TransCanada Keystone Pipeline, LP
Regarding the Keystone XL Pipeline Project

WHEREAS, the U.S. Department of State (DOS) receives and considers applications for permits for cross border oil pipelines pursuant to the authority delegated by the President of the United States under Executive Order (EO) 13337 (69 Federal Register 25299); and

WHEREAS, on September 19, 2008, the DOS received an application for a Presidential Permit from TransCanada Keystone Pipeline, LP (Keystone) for the Keystone XL Pipeline Project (Keystone XL Project or the Project); and

WHEREAS, DOS has determined that issuance of a Presidential Permit for the Keystone XL Project includes review under Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. 470f, as amended) and its implementing regulations, "Protection of Historic Properties," (36 CFR Part 800); and

WHEREAS, the Project undertaking consists of construction of approximately 1,375 miles of new crude oil pipeline in the United States and utilizes 298 miles of the previously approved Keystone Cushing Extension, associated aboveground facilities (such as pump stations and transmission facilities and substations), and ancillary facilities (such as lateral pipeline, temporary workplace areas and pipe storage, access roads, and contractor yards); and

WHEREAS, the proposed Keystone XL Project pipeline alignment crosses Montana, South Dakota, Nebraska, Kansas, Oklahoma, and Texas; and

WHEREAS, the proposed Keystone XL Project pipeline alignment crosses seven National Historic Trails: the Lewis and Clark National Historic Trail (LCNHT); Oregon, California, Mormon Pioneer, and Pony Express National Historic Trails; the Santa Fe National Historic Trail; and the El Camino Real de los Tejas National Historic Trail (ELTE). Each of these trails was designated by the U.S. Congress and have as their purpose “the identification and protection of the historic route and its historic remnants and artifacts for public use and enjoyment;” (National Trails System Act, P.L. 90-543, as amended); and

WHEREAS, on February 2, 2011, the Advisory Council on Historic Preservation (ACHP) entered consultation finding that criteria 3 and 4 of Appendix A, Criteria for Council Involvement in Reviewing Individual Section 106 Cases, of the regulations (36 CFR Part 800) implementing Section 106 of NHPA, had the potential to be met; and

WHEREAS, the United States Army Corps of Engineers (USACE) has determined that the approval for the Keystone XL Project to cross USACE administered lands (30 U.S.C. § 185) and to place structures in, under, or over navigable waters of the United States, as defined under 33 CFR 329, pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. § 403), and a permit for the placement of dredge or fill material in waters of the United States as part of the Keystone XL Project in accordance with Section 404 of the Clean Water Act (33 U.S.C. § 344; see 33 CFR 323), are federal actions related to the undertaking that require the USACE to comply with Section 106 of NHPA and 36 CFR Part 800; and

WHEREAS, the U.S. Bureau of Land Management (BLM) has determined the approval of the Keystone XL Project to cross Federal lands administered by the BLM would require authorization under Section 28 of the Mineral Leasing Act of 1920, as amended [(MLA) 30 USC 185]; and

WHEREAS, the BLM has determined that Keystone will require access roads crossing public lands administered by the BLM in support of the Keystone XL Pipeline Project and that the access roads will require authorization under Title V of the Federal Land Policy and Management Act, as amended [(FLMPA) 43 USC 1701]; and

WHEREAS, the BLM has determined that the Keystone XL Project will require electrical power from rural electrical cooperatives and that portions of the transmission lines will cross public lands administered by the BLM and that the transmission lines crossing public lands will require authorization under Title V of the Federal Land Policy and Management Act, as amended [(FLMPA) 43 USC 1701]; and

WHEREAS, the BLM approvals of these Project crossings in areas under its jurisdiction is a federal action associated with the undertaking that requires the BLM to comply with Section 106 of the NHPA and 36 CFR Part 800; and

WHEREAS, the U.S. Bureau of Reclamation (RECLAMATION) manages lands and facilities that will be crossed by the Keystone XL Project and this is a federal action related to the undertaking that requires RECLAMATION to comply with Section 106 of the NHPA and 36

CFR Part 800; and

WHEREAS, the Natural Resources Conservation Service (NRCS) has determined that it retains rights to a 2,693 acre parcel subject to the Wetlands Reserve Program (WRP) (16 U.S.C. 3837 et. seq.) easements in Fannin County, Texas and that the installation and maintenance of the Project pipeline on this WRP easement is a federal action associated with the undertaking that requires compliance with Section 106 of NHPA and 36 CFR Part 800; and

WHEREAS, the Farm Service Agency (FSA), manages private lands with federal easements along the Project APE as part of its Grasslands Reserve Program (jointly administered with the NRCS) as well as the Conservation Resource Program, and the Farmable Wetlands Program; and

WHEREAS, the FSA approval of the Project crossings in these areas is a federal action associated with the undertaking that requires the FSA to comply with Section 106 of the NHPA and 36 CFR Part 800; and

WHEREAS, the Rural Utilities Service (RUS) has determined that the financial assistance it may provide to rural electric cooperatives and other entities for construction or modification of electrical transmission facilities (including transmission lines and substations) to power some Keystone XL Project pump stations or to ensure transmission system reliability, under USDA Rural Development's Utilities Programs, are Federal actions related to the undertaking that require RUS to comply with Section 106 of NHPA and 36 CFR Part 800; and

WHEREAS, the Bureau of Indian Affairs (BIA) has responsibility for approving any right-of-ways crossing Indian Trust lands and this is a federal action related to the undertaking that requires the BIA to comply with Section 106 of the NHPA and 36 CFR Part 800; and

WHEREAS, the Western Area Power Administration (WESTERN) has determined that the modification and construction of substations and transmission lines that WESTERN will own and that will provide power to the Keystone XL project, will require review under Section 106 of NHPA and 36 CFR Part 800; and

WHEREAS, the National Park Service (NPS) has been invited to consult with the DOS concerning the Project due to the potential for adverse effects to several National Historic Trails including the LCNHT and ELTE; and

WHEREAS, the Montana Department of Natural Resources and Conservation has participated in consultation and has been invited by DOS under 36 CFR § 800.6(c) (2) to sign this Programmatic Agreement (PA) as an invited signatory; and

WHEREAS, the Montana Department of Environmental Quality has participated in consultation and has been invited by DOS under 36 CFR § 800.6(c) (2) to sign this PA as an invited signatory; and

WHEREAS, the USACE, BLM, RUS, BIA, NRCS, WESTERN, RECLAMATION, and FSA have designated the DOS as the lead federal agency for purposes of Section 106 of the NHPA in

accordance with 36 CFR § 800.2(a)(2); and

WHEREAS, the Keystone XL Project area of potential effect (APE) includes: (1) in Montana – a 300 foot wide corridor, 150 feet on each side from the centerline; (2) in South Dakota – a 300 foot wide corridor, 150 feet on each side from the centerline; (3) in Nebraska – a 300 foot wide corridor, 150 feet from each side from the centerline; (4) in Kansas – all areas of disturbance related to the construction of two pump stations; (5) in Oklahoma – a 300 foot wide corridor, from centerline of outermost existing pipeline; and (6) in Texas - a 300 foot wide corridor, with 200 feet from the existing infrastructure feature centerline on the side where the proposed pipeline is to be collocated and 100 feet from the existing feature centerline on the opposite side, or, if the route is not collocated with existing infrastructure, then the survey area will be centered on the proposed pipeline (150 feet on each side). For transmission lines and access roads in each state, a 100 foot wide corridor centered on the Project centerline will be used. For pumping stations and other areas that are to be disturbed by construction related activities and ancillary facilities (including construction camps and pump stations), the APE will include all areas of disturbance and areas to be indirectly affected; and

WHEREAS, the DOS has determined that the construction of the Keystone XL Project may have an adverse effect on properties listed in or eligible for listing in the National Register of Historic Places (NRHP), and has consulted with the Montana, South Dakota, Nebraska, Kansas, Oklahoma, and Texas State Historic Preservation Officers (SHPOs), Tribal Historic Preservation Officers (THPOs), Indian Tribes, and the ACHP, pursuant to 36 CFR Part 800; and

WHEREAS, the BLM will incorporate this PA into its decisional process on any authorization under the MLA or FLPMA it may issue for the Keystone XL Project, and will include in any authorization it issues on the Keystone XL Project, a condition that Keystone will abide by its commitments in this PA; and

WHEREAS, in accordance with 36 CFR §§ 800.4(b)(2) and 800.5(a)(3), the DOS has elected to phase identification and evaluation of historic properties, and application of the criteria of adverse effect, respectively, because access to those areas identified in Attachment A has been restricted by property owners' refusal to grant Keystone permission to enter their private property; and

WHEREAS, Attachment G includes summary information on the identification, evaluation, and effect assessment updates on the Project that were included in the Final Environmental Impact Statement (FEIS); and

WHEREAS, additional identification, evaluation and effect assessments for the Project will need to be undertaken as all areas of construction have yet to be determined; and

WHEREAS, pursuant to 36 CFR § 800.14(b), the DOS has elected to execute this PA for the Keystone XL Project because effects on historic properties cannot be fully determined prior to the issuance of a permit for the undertaking; and

WHEREAS, Attachment G also summarizes consultation with Indian tribes and Nations,

SHPOs, and other agencies; and

WHEREAS, the DOS will incorporate this PA into its decisional process on any Presidential Permit that it may issue for the Keystone XL Project and will include in any permit it issues on the Keystone XL Project a condition that Keystone will abide by its commitments in this PA; and

WHEREAS, Keystone, which will construct the Keystone XL Project pipeline, has participated in consultation, has been invited by DOS under 36 C.F.R. §§ 800.2(c)(4) and 800.6(c)(2) to sign this agreement as an invited signatory and intends to sign this agreement as an invited signatory; and

WHEREAS, for the purposes of this agreement, “Indian tribes and Nations” shall have the same definition as “Indian tribes” which appears in Section 301(4) of the NHPA; and

WHEREAS, DOS invited the Indian tribes listed in Attachment B to participate in consultation; and

WHEREAS, the Absentee-Shawnee Tribe of Indians of Oklahoma; the Alabama-Coushatta Tribe of Texas, Blackfeet Tribe, Caddo Nation of Oklahoma, Cheyenne River Sioux, Cheyenne-Arapaho Tribe of Oklahoma, Chippewa-Cree Indians, Choctaw Nation of Oklahoma, Crow Tribe of Indians, Delaware Nation, Fort Peck Tribes, Gros Ventre and Assiniboine Tribe of Ft. Belknap, Ho-Chunk Nation of Wisconsin, Iowa Tribe of Kansas and Nebraska, Iowa Tribe of Oklahoma, Kaw Nation, Kialegee Tribal Town of the Creek Nation in Oklahoma, Kickapoo Tribe of Kansas, Kiowa Indian Tribe of Oklahoma, Lower Sioux Indian Community, Miami Tribe of Oklahoma, Mille Lacs Band of Ojibwe, Muscogee (Creek) Nation, Northern Arapaho Tribe, Northern Cheyenne Tribe, Northern Ute Tribe, Oglala Sioux Tribe, Osage Nation, Pawnee Nation of Oklahoma, Ponca Tribe of Indians of Oklahoma, Ponca Tribe of Nebraska, Rosebud Sioux Tribe, Sac & Fox Nation of Oklahoma, Santee Sioux Tribe of Nebraska, Shoshone-Bannock Tribe, Sisseton-Wahpeton Oyate Sioux, Spirit Lake Tribe, Standing Rock Sioux Tribe, Three Affiliated Tribes, Tonkawa Tribe, Turtle Mountain Band of Chippewa, Wichita and Affiliated Tribes, Winnebago Tribe, and Yankton Sioux have participated in consultation and have been invited to concur in this PA, in accordance with 36 C.F.R. §§ 800.2(c)(2) and 800.6(c)(3);

NOW, THEREFORE, the DOS, USACE, BLM, RUS, BIA, FSA, NRCS, WESTERN, RECLAMATION, NPS, ACHP, and the Montana, South Dakota, Nebraska, Kansas, Oklahoma, and Texas SHPOs agree that the following stipulations will be implemented in order to take into account the effect of the undertaking on historic properties and to satisfy all responsibilities under Section 106 of the NHPA.

STIPULATIONS

The DOS, BLM, RUS, BIA, FSA, NRCS, WESTERN, USACE, RECLAMATION, and NPS as appropriate, will ensure that the following stipulations are carried out.

I. STANDARDS AND DEFINITIONS

- A. Identification and evaluation studies and treatment measures required under the terms of this PA will be carried out by or under the direct on-site supervision of a professional(s) who meets, at a minimum, the *Secretary of the Interior's Historic Preservation Professional Qualification Standards* (48 FR 44716, September 29, 1983).
- B. In developing scopes of work for identification and evaluation studies, and treatment measures required under the terms of this PA, Keystone and RUS applicants will take into account the following regulations and guidelines:
1. The ACHP's guidance on conducting archaeology under Section 106 (2007);
 2. The ACHP's *Policy Statement Regarding the Treatment of Burial Sites, Human Remains and Funerary Objects* (February 23, 2007);
 3. Applicable SHPO guidance;
 4. The Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716-42, September 29, 1983);
 5. The "*Treatment of Archaeological Properties*" (ACHP 1983);
 6. The *Guidelines for Reporting on Cultural Resources Investigations for Pipeline Projects*" (Federal Energy Regulatory Commission, Office of Energy Projects, December 2002);
 7. Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. § 403);
 8. Section 404 of the Clean Water Act (33 U.S.C. § 344);
 9. BLM 8110 Manual: Identifying and Evaluating Cultural Resources;
 10. Montana/Dakotas Cultural Resources Handbook 8110-1: Guidelines for Identifying Cultural Resources;
 11. The National Trails System Act (P.L. 90-543, as amended);
 12. Section 28 of the Mineral Leasing Act of 1920 (30 USC 185);
 13. Title V of the Federal Land Policy and Management Act of 1976 (43 USC 1701); and
 14. *National Register Bulletin 38, Guidelines for Evaluating and Documenting Traditional Cultural Properties* (NPS 1990; Revised 1992: 1998)

C. Definitions

Coordination Plan: A plan (more fully explained in Stipulation V.B and V.D.) that describes the coordination of construction with identification and evaluation of cultural resources, treatment of adverse effects, and protection of unanticipated discoveries.

Concurring Parties: An invited consulting party to this PA that agrees with the content of the PA. The refusal of a concurring party to sign the PA does not invalidate this PA as noted in 36 C.F.R. § 800.6(c)(3). Concurring parties may not terminate the PA.

Construction spread: A construction unit or segment of a pipeline alignment or corridor to be determined by Keystone prior to construction.

Consulting Parties: Parties that have consultative roles in the Section 106 process, as defined in 36 C.F.R. § 800.2(c).

Data Recovery: The recovery of archaeological information from a historic property subject to an adverse effect.

Determination of Effect: A determination made by a federal agency in regards to a Project's effect upon a historic property as defined in 36 C.F.R. Part 800.

Determination of Eligibility: A determination made by a federal agency in regards to a cultural resource's eligibility for inclusion in the National Register of Historic Places (NRHP) and more fully described in 36 C.F.R. Part 60 and 36 C.F.R. § 800.16(1)(2).

Effect: An alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the NRHP (see 36 C.F.R. § 800.16(i)).

Environmental Impact Statement: An analysis of a major federal action's environmental impacts conducted consistent with NEPA.

Historic Property: Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian Tribe or Native Hawaiian organization and that meet the National Register criteria (see 36 C.F.R. § 800.16(1)(a)).

Invited Signatory: The DOS has invited TransCanada Keystone Pipeline LP, the Montana Department of Natural Resources and Conservation, and the Montana Department of Environmental Quality to be signatories to this PA pursuant to 36 C.F.R. § 800.6(c)(2). The refusal of any invited signatory to sign the PA does not invalidate the PA.

Historic Trail and Archaeological Monitoring Plan: A plan (more fully described in Stipulation V.E and Attachment F.) that identifies appropriate areas for monitoring construction by professionals under the supervision of individuals that meet the professional qualifications in Stipulation I. The plan's principal goal is to reduce the potential for impacts to unidentified historic properties.

Signatory Parties: All signatories to this PA, which includes the DOS, BLM, RECLAMATION, USACE, NPS, WESTERN, RUS, NRCS, FSA, BIA, Montana Department of Natural Resources and Conservation, Montana Department of Environmental Quality, and the SHPOs of Montana, South Dakota, Nebraska, Kansas,

Oklahoma, and Texas. (Signatory parties include the federal agency(ies), SHPOs, THPOs (or designee) if the undertaking is carried out on Tribal land or affects historic properties on Tribal land, and also any invited signatories [not including invited concurring parties]).

Tribal Monitoring Plan: A plan (more fully described in Stipulation V.E. and Attachment E) that identifies appropriate areas for monitoring construction by tribal members appointed by their respective tribes. These tribal members shall meet the qualifications as noted in Stipulation V.E.3. The plan's principal goal is to reduce the potential for impacts to previously unidentified historic properties that may also be properties of religious and cultural significance that meet the National Register criteria (see 36 CFR § 800.16(1)(a)).

Treatment Plan: A plan developed in consultation with the parties to this PA that identifies the minimization, and mitigation measures for historic properties located within the APE that will be adversely affected by the Project.

II. CONFIDENTIALITY

DOS, BLM, NRCS, BIA, RUS, WESTERN, RECLAMATION, NPS and USACE will safeguard information about historic properties of religious and cultural significance to Indian tribes, including location information, or information provided by Indian tribes to assist in the identification of such properties, to the extent allowed by Section 304 of NHPA [16 U.S.C. 470w3] and other applicable laws.

III. THE RESPONSIBILITIES OF FEDERAL AGENCIES WITH LAND MANAGEMENT AND OTHER PERMITTING AUTHORITIES

- A. The USACE will ensure that the requirements of this PA have been met for that part of the APE under its jurisdiction, pursuant to Section 10 and Section 404 permitting authority.
- B. The USACE will comply with Section 106 and its implementing regulations (36 CFR Part 800) for the issuance of permits for those actions under its jurisdiction.
- C. The BLM will comply with Section 106 and its implementing regulations (36 CFR Part 800) for the issuance of permits for those actions under its jurisdiction.
- D. RECLAMATION will review and comment on the evaluation and treatment of any historic properties managed by RECLAMATION.
- E. Attachment H includes maps that illustrate the Project areas cross lands managed by the BLM and RECLAMATION.

- F. Consultation for this Project between Indian tribes and federal land management and permitting agencies will be coordinated through the DOS.

IV. KEYSTONE XL PROJECT – CONSTRUCTION OR MODIFICATION OF ELECTRICAL DISTRIBUTION/TRANSMISSION FACILITIES

- A. Prior to granting approval of financial assistance to construct or modify electrical transmission facilities by rural electric cooperatives or other entities, RUS will complete the requirements of 36 CFR §§ 800.3 through 800.7.
- B. In implementing Stipulation IV.A, RUS may authorize an applicant to initiate Section 106 consultation in accordance with 36 CFR § 800.2(c) (4). In doing so, RUS may not delegate its responsibility to conduct government-to-government consultation with Indian tribes to an applicant, unless RUS and that tribe agree, in writing, to conduct consultation in that manner.
- C. Prior to construction of the 230kV transmission line WESTERN will own, WESTERN will complete the requirements of 36 CFR §§ 800.3 through 800.7. In implementing Stipulation IV.C., WESTERN will serve as a signatory party under the DOS PA. WESTERN shall coordinate implementation of Stipulation IV.C with the DOS.
- D. RUS will ensure that the terms of Stipulation VI.B and Attachment C are incorporated into construction contracts to ensure that its applicants and construction contractors meet their responsibility for notification of any unanticipated discoveries. When RUS funded projects occur on BLM land, the RUS will coordinate with BLM to ensure compliance with Stipulation VI.B. and Attachment C of this Agreement.
- E. Prior to granting approval or financial assistance for construction or modification of electrical distribution/transmission facilities that are necessary components of the pipeline project and therefore considered within the Project APE, any federal agency that is incorporated into this agreement pursuant to Stipulation XIV will complete the requirements of 36 CFR §§ 800.3 through 800.7 for those facilities under its jurisdiction if not already carried out elsewhere in this agreement.
- F. DOS retains responsibility for completing the requirements of 36 CFR §§ 800.3 through 800.7 for those electrical distribution/transmission facilities that are necessary components of the Project if they are not under the jurisdiction of any federal agency and not referenced in Stipulation IV. A through E above.

V. KEYSTONE XL PROJECT – PIPELINE CONSTRUCTION

- A. The DOS provided SHPOs, consulting Indian tribes, and other consulting parties with an opportunity to provide their views on the identification and evaluation of historic properties (as defined in 36 CFR § 800.16(l), including historic properties of religious and cultural significance to Indian tribes, and the treatment of affected historic properties,

in connection with the construction of the Keystone XL Project as described in Stipulation V.C of this PA.

B. Identification and Evaluation of Historic Properties

1. In consultation with the SHPOs, consulting Indian tribes, and other consulting parties, the DOS will make a reasonable and good faith effort to complete the identification and evaluation of historic properties within the APE for each construction spread prior to the initiation of construction of that spread, in accordance with 36 CFR §§ 800.4(a), (b) and (c). On federal lands, the scope of the identification effort will be determined by the appropriate federal land managing agency in consultation with the DOS, applicable SHPOs, consulting Indian tribes, and other consulting parties.
2. For the APE in Montana, South Dakota, Nebraska, Kansas, Oklahoma, and Texas, DOS will make a reasonable and good faith effort to complete the identification and evaluation of historic properties, in accordance with 36 CFR §§ 800.4(a), (b) and (c), before Keystone initiates construction activities (including vegetative clearing to comply with the Migratory Bird Treaty Act if clearing is undertaken).
 - a. In the identification and evaluation of historic properties to which Indian tribes attach religious and cultural significance, the DOS will take into consideration information submitted by Indian tribes to DOS prior to construction.
 - b. In the event identification of historic properties cannot be completed for any construction spreads prior to construction, Keystone will develop and submit a Coordination Plan to DOS for review and approval pursuant to Stipulation V.D that describes the measures it will implement to complete the identification and evaluation of historic properties before such properties are adversely affected by vegetation clearing and construction activities related to that spread.

C. Treatment of Historic Properties

1. Whenever feasible, avoidance of adverse effects to historic properties will be the preferred treatment. In consultation with the DOS, ACHP, SHPOs, THPOs, and consulting parties, Keystone may elect to consider and implement avoidance measures prior to completing the evaluation of historic properties.

Avoidance and minimization measures may include:

- a. Avoidance through pipeline or access road route variation or Project feature relocation;
- b. Avoidance through abandonment;
- c. Avoidance through bore or horizontal directional drill;
- d. Avoidance by narrowing the construction corridor (“neck down”); and
- e. Avoidance through the use of existing roadways as Project access roads to the extent practicable.

2. When historic properties are identified in the APE pursuant to Stipulation V.B, DOS will apply the criteria of adverse effect in accordance with 36 CFR § 800.5(a) in consultation with the ACHP, SHPO and other consulting parties. If DOS finds that historic properties might be adversely affected by actions covered under this PA and within the APE, DOS will consult with the ACHP, SHPOs, consulting Indian tribes, and other consulting parties to determine prudent and feasible ways to avoid adverse effects.
 - a. Once DOS approves avoidance measures, Keystone will implement those measures.
3. If DOS determines that the adverse effect cannot be avoided, DOS will consult with the ACHP, SHPOs, consulting Indian tribes, and other consulting parties to determine those measures to be implemented by Keystone to minimize and mitigate adverse effects on affected historic properties identified in the APE.
4. If, after consultation, DOS determines that the adverse effect cannot be avoided, Keystone will draft a comprehensive Treatment Plan for each adversely affected historic property. The Treatment Plan describes the measures identified by DOS under Stipulation V.C.3 to minimize and mitigate the adverse effect of pipeline construction activities on historic properties, the manner in which these measures will be carried out, and a schedule for their implementation.
 - a. When mitigation consists of or includes data recovery, the Treatment Plan also will identify the specific research questions to be addressed by data recovery with an explanation of their relevance, the archaeological methods to be used, and provisions for public interpretation and education, subject to Stipulation II restrictions, if any.
 - b. A Treatment Plan may also include mitigation for adverse effects to historic districts, buildings and structures. This mitigation may include the recordation of historic properties according to Historic American Building Survey/Historic American Engineering Record Standards and Guidelines for Architectural and Engineering Documentation. Other types of mitigation for adverse effects to historic districts, buildings, and structures may also be described in the Treatment Plan. The mitigation proposed for an adverse effect to a historic district, building, and/or structure will be commensurate with the level of significance and extent of adverse effect and will be determined in a manner consistent with Stipulation V.C.4.c.
 - c. Keystone will submit the draft Treatment Plan to the DOS, BLM (if applicable), ACHP, THPOs, the SHPO of the applicable state, MT DEQ (if applicable), MT DNRC (if applicable), and other applicable consulting parties for a thirty (30) calendar day review. Keystone shall address timely comments and recommendations submitted by SHPOs, consulting Indian tribes, and other consulting parties in preparation of the Final Treatment Plan.

- d. When it has addressed all of the timely comments and recommendations, Keystone will submit the Final Treatment Plan to DOS for review and approval. Keystone will also submit the Final Treatment Plan to BLM for review and approval when involving lands subject to Stipulation III.C. DOS and BLM shall issue their final decision on the Treatment Plan within thirty (30) calendar days. Once the Final Treatment Plan is approved by DOS (and the BLM if involving BLM-managed lands), copies of the Treatment Plan will be distributed to all SHPOs, consulting Indian tribes, and other consulting parties.
5. Keystone will make a reasonable and good faith effort to complete implementation of the Final Treatment Plan approved by DOS prior to beginning construction of any spread for which the Treatment Plan is required. If it is not possible to meet this schedule, Keystone will develop a Coordination Plan in accordance with Stipulation V.D that establishes how appropriate treatment will be determined and implemented during construction of the respective spread.

D. Coordination of Construction and Historic Preservation Activities

1. The DOS will make a reasonable and good faith effort to complete the identification and evaluation of historic properties, and the mitigation of adverse effects to them in accordance with Stipulations V.B and V.C prior to the initiation of vegetative clearing if vegetative clearing and construction on the Keystone XL spreads, including the Montana, South Dakota, Nebraska, Kansas, Oklahoma and Texas spreads, is to be undertaken.
2. If these DOS activities cannot be completed prior to the start of vegetative clearing and construction of these spreads, Keystone shall develop and provide to DOS a detailed plan describing how the requirements of Stipulations V.B and V.C – identification, evaluation and treatment of historic properties – will be completed in coordination with vegetative clearing and construction activities in such a way that historic properties will not be adversely affected prior to the implementation of any mitigation measures.
 - a. A Coordination Plan will be prepared for each state and will include those measures developed by Keystone pursuant to Stipulations V.B and V.C to complete the identification and evaluation of historic properties, and, as appropriate, mitigation of adverse effects to them during and coordinated with vegetation clearing and construction activities. In addition, the Coordination Plan will include a schedule for all proposed activities and recommended measures for the protection of unanticipated discoveries in accordance with Attachment C, as appropriate.
 - b. Keystone will submit the draft Coordination Plan for each state for such spreads, including the Montana, South Dakota, Nebraska, Kansas, Oklahoma and Texas spreads, to the DOS, BLM (as applicable) ACHP, SHPOs, THPOs, and consulting

parties for thirty (30) calendar day review. Keystone shall address timely comments and recommendations submitted by the applicable SHPO, consulting Indian tribes, and other consulting parties in preparation of the Final Coordination Plan for each state. When it has addressed all of the comments and recommendations, Keystone will submit the Final Coordination Plan for each state to DOS for review. DOS shall issue its final decision on the Coordination Plan for each state within thirty (30) calendar days. Following approval by DOS, the Final Coordination Plan for each state will be distributed to all of the SHPOs, consulting Indian tribes, and other consulting parties.

3. Keystone will complete implementation of the Final Coordination Plan approved by DOS during construction of the Montana, South Dakota, Nebraska, Kansas, Oklahoma and Texas spreads.

E. Historic Trail and Archaeological Monitoring Plan (“HTAM Plan”) and Tribal Monitoring Plan

1. In consultation with the SHPOs and Indian tribes, Keystone will monitor construction in selected areas of the APE of each spread as a supplement to identification efforts. Any historic properties identified by Keystone during monitoring will be treated in accordance with Stipulation VI.A and C.
 - a. The HTAM Plan outlines areas that have been previously identified by DOS during identification and evaluation efforts that warrant monitoring during soil disturbing activities for potential effects to historic properties.
 - b. The Tribal Monitoring Plan outlines areas that have been previously identified by Indian Tribes, either through the preparation of Traditional Cultural Property reports or through consultation, that warrant monitoring during clearing and trenching for potential effects to previously unidentified historic properties that may include properties of religious and cultural importance to an Indian tribe and that meet the National Register criteria (See 36 C.F.R. § 800.16(1)(a)).
2. Historic Trail monitoring will be performed by a professional who either meets the qualification standards for archaeology established in Stipulation I.A or is under the on-site supervision of such a professional. When the monitoring occurs on BLM managed lands, all monitors must have a valid Archaeological Resources Protection Act (ARPA) permit or be included on a BLM Cultural Resource Use Permit.
3. For tribal monitoring, other types of experience with construction monitoring and/or traditional cultural knowledge may be substituted for degrees required by the Standards at the discretion of the DOS. When the monitoring occurs on BLM managed lands, all monitors must have a valid Archaeological Resources Protection Act (ARPA) permit or be included on a BLM Cultural Resource Use Permit.

4. Keystone shall consider information provided by Indian tribes in a timely manner when completing the identification of historic properties before construction begins under Stipulation V.B and in implementing a HTAM Plan and Tribal Monitoring Plan provided for under Stipulation V.E. Keystone shall provide Indian tribes a reasonable opportunity to participate as monitors during Project construction. In those areas previously identified by Indian tribes as needing monitoring, the Tribal Monitoring Plan stipulates that at least one and at most two monitors will be used per construction spread depending upon the extent and location of construction activities.
5. Keystone has submitted a plan for historic trail and archaeological monitoring and tribal monitoring for each spread to the DOS, BLM, ACHP, SHPO, THPOs, and Consulting Parties for review and comment prior to the signing of this Agreement. The Tribal Monitoring Plan and HTAM Plan are attached to this agreement in Attachments E and F.
6. Keystone will implement the HTAM Plan and Tribal Monitoring Plan for each spread that has been approved by DOS.

F. Construction

1. Lead Environmental Inspector (EI): Prior to initiating vegetative clearing or construction, Keystone will employ the Lead EI whose responsibilities will include ensuring compliance with the terms of this PA. In meeting this responsibility, the Lead EI will rely on the technical expertise of on-site professionals who meet the standards established in Stipulation I.A and tribal monitors with experience outlined in Stipulation V.E.3.
 - a. The Lead EI will monitor construction activities on-site and prepare a daily log reporting to Keystone on activities performed to implement the terms of this PA, as appropriate. Keystone will make the daily log available to the DOS and SHPOs, consulting Indian tribes, and other consulting parties upon request.
 - b. Keystone will ensure through the construction contract that the Lead EI will possess the authority to stop construction in the event of an inadvertent discovery in accordance with Stipulation VI.A and Attachment C.
2. Training: Keystone will ensure that if the Lead EI does not meet the professional qualification standards established in Stipulation I.A, the Lead EI receives appropriate training in historic preservation from a professional who meets the standards established in Stipulation I.A in order to perform the requirements of this PA. Keystone also will provide an appropriate level of training in historic preservation conducted by a professional who meets the standards established in Stipulation I.A to all construction personnel (including new, added, replaced workers) so that PA requirements are understood and unanticipated discoveries quickly identified. Keystone will conduct this training prior to initiating vegetative clearing or

construction activities on a spread, and conduct periodic refresher training during construction of the spread.

3. This Programmatic Agreement and Attachment E, the Tribal Monitoring Plan, have given tribes the opportunity to provide information about historic properties of concern to the tribe(s).
4. Construction Contract: Keystone will incorporate the terms of Stipulation VI.A and Attachment C into construction contracts to ensure that its Lead EI and construction contractors meet their responsibility for notification of the unanticipated discoveries.

G. Scheduling

The DOS may authorize the start of vegetative clearing and construction for an individual spread when the plans prepared in accordance with Stipulations V.D and V.E as appropriate for that spread, have been submitted by Keystone and approved by DOS in accordance with the terms of this PA.

VI. UNANTICIPATED DISCOVERIES DURING CONSTRUCTION OF THE KEYSTONE XL PROJECT

A. Pipeline Construction

1. “Applicable federal agency” is the federal agency with jurisdiction for the land on which construction is occurring or, in the absence of such an agency, DOS, as appropriate.
2. If previously unidentified historic properties are discovered by monitors or construction personnel unexpectedly as pipeline construction activities are carried out within the one-hundred and ten (110) foot-wide construction corridor or other ancillary facilities and access roads within the APE, the construction contractor will immediately halt all construction activity within a one-hundred and fifty (150) foot radius of the discovery, notify Keystone’s Lead EI of the discovery and implement interim measures to protect the discovery from looting and vandalism. Within forty-eight (48) hours of receipt of this notification of the discovery, the Lead EI shall:
 - a. Inspect the work site to determine the extent of the discovery and ensure that construction activities have halted;
 - b. Clearly mark the area of the discovery;
 - c. Implement additional measures other than those mentioned above, as appropriate, to protect the discovery from looting and vandalism; and
 - d. Notify the applicable federal agency SHPOs, consulting Indian tribes, and other consulting parties of the discovery.

3. The applicable federal agency shall notify all consulting parties that it will be receiving comments concerning the unanticipated discovery and provide contact information. The applicable federal agency will have seven (7) calendar days following notification provided in accordance with Stipulation VI.A.2 to determine the National Register eligibility of the discovery after considering the timely filed views of the SHPOs, consulting Indian tribes, and other consulting parties and Keystone . The applicable federal agency may assume the newly discovered property to be eligible for the National Register for the purposes of Section 106 pursuant to 36 CFR § 800.13(c).
4. For properties determined eligible or assumed to be eligible pursuant to Stipulation VI.A.3, the applicable federal agency will notify the ACHP, SHPOs, consulting Indian tribes, and other consulting parties of those actions that it proposes to resolve adverse effects which may include a Treatment Plan as outlined in Stipulation V.C.
 - a. SHPOs, consulting Indian tribes, and other consulting parties will have forty-eight (48) hours to provide their views on the proposed actions.
 - b. The applicable federal agency will ensure that the timely filed recommendations of SHPOs, consulting Indian tribes, and other consulting parties are taken into account prior to granting approval of the measures that Keystone will implement to resolve adverse effects.
 - c. Keystone will carry out the approved measures prior to resuming construction activities in the location of the discovery.
5. Dispute Resolution: The applicable federal agency will seek and take into account the recommendations of the ACHP in resolving any disagreements that may arise regarding resolution of adverse effects that relate to the implementation of Stipulation VI. The applicable federal agency will use the contact information provided in Attachment C or D in order to notify the ACHP. Within seven (7) calendar days of receipt of such a written request, the ACHP will provide the applicable federal agency with recommendations on resolving the dispute. The applicable federal agency will take into account any timely filed recommendations provided by the ACHP in making a final decision about how to proceed.

B. Construction or Modification of Electrical Transmission Facilities

1. If previously unidentified historic properties are discovered unexpectedly during construction or modification of transmission facilities funded by RUS, the RUS applicant's construction contractor will immediately halt all construction activity within a one-hundred and fifty (150) foot radius of the discovery, notify the RUS applicant of the discovery and implement interim measures to protect the discovery from looting and vandalism. Within forty-eight (48) hours of receipt of this notification of the discovery, the RUS applicant shall:
 - a. Notify the RUS Contact (and BLM Contact if discovery occurs on BLM land);

- b. Inspect the work site to determine the extent of the discovery and ensure that construction activities have halted;
 - c. Clearly mark the area of the discovery; and
 - d. Implement additional measures, as appropriate, to protect the discovery from looting and vandalism.
2. Upon receipt of such notification RUS and BLM (if applicable) will coordinate the notification of SHPOs, consulting Indian tribes, and other consulting parties and notify the SHPOs, consulting Indian tribes, and other consulting parties of the discovery.
3. RUS and BLM (if applicable) will have seven (7) calendar days following notification provided in accordance with Stipulation VI.B.1 to determine the National Register eligibility of the discovery in consultation with the SHPOs, consulting Indian tribes, other consulting parties, and Keystone. RUS may assume the newly discovered property to be eligible for the National Register for the purposes of Section 106 pursuant to 36 CFR § 800.13(c).
4. For properties determined eligible pursuant to Stipulation VI.B.3, RUS, in coordination with the BLM (if applicable), will notify the SHPOs, consulting Indian tribes, and other consulting parties of those actions that it proposes to resolve adverse effects. SHPOs, consulting Indian tribes, and other consulting parties will provide their views on the proposed actions within forty-eight (48) hours. RUS will ensure that the timely filed recommendations of the SHPOs, consulting Indian tribes, and other consulting parties are taken into account prior to granting approval of those actions that the applicant will implement to resolve adverse effects. Once RUS approval has been granted, its applicant will carry out the approved measures prior to resuming construction activities in the location of the discovery.
5. Dispute Resolution: RUS and BLM (if applicable) will seek and take into account the recommendations of the ACHP in resolving any disagreements that may arise regarding the resolution of adverse effects that relate to the implementation of Stipulation VI. The applicable federal agency will use the contact information provided in Attachment D in order to notify the ACHP. Within seven (7) calendar days of receipt of such a written request, the ACHP will provide RUS and BLM (if applicable) with its recommendations for resolving the dispute. RUS and BLM (if applicable) will take into account any recommendations provided by the ACHP in making a final decision about how to proceed.
6. Reporting: No later than six (6) months following the resumption of construction within the location of the discovery, RUS will submit a final report to the SHPOs, consulting Indian tribes, and other consulting parties describing implementation of the actions taken in accordance with Stipulation VI.B and, as appropriate, the analysis and interpretation of recovered information.

C. Unanticipated Discovery of Human Burials and Remains, and Funerary Objects

1. When Native American human remains or funerary objects or objects of cultural patrimony are unexpectedly discovered during construction of the Keystone XL Project on federal or tribal lands within the APE, Keystone or a RUS applicant, as appropriate, will notify immediately the federal agency responsible for compliance with the Native American Graves Protection and Repatriation Act (NAGPRA) [25 U.S.C. 3001 et. seq.] and its implementing regulations, 43 C.F.R. Part 10.
2. Non-Native American human burials and remains, and funerary objects discovered on federal lands within the APE will be treated by the federal agency having jurisdiction of the remains in accordance with applicable federal law, taking into account the ACHP's *Policy Statement on the Treatment of Burial Sites, Human Remains and Funerary Objects* (February 23, 2007).
3. DOS, WESTERN, and RUS will treat human burials and remains discovered on non-federal land in accordance with the provisions of Attachment C and any applicable laws. In those instances where the USACE has jurisdiction under Section 10 or 404 permitting authority for non-federal lands in the APE, the applicable federal agencies will ensure that Keystone complies with the provisions of Attachment C acting in the place of the DOS. In determining appropriate actions to be carried out, DOS, RUS, and/or other federal agencies will be guided by the ACHP's *Policy Statement on the Treatment of Burial Sites, Human Remains and Funerary Objects* (February 23, 2007).

VII. CURATION

- A. Federal agencies will curate any artifacts, materials or records resulting from archaeological identification and mitigation conducted on federal lands under their jurisdiction in accordance with 36 CFR Part 79, "*Curation of Federally-Owned and Administered Archaeological Collections.*" Federal agencies with jurisdiction over the federal lands will consult with Indian tribes as required in 36 CFR 79.
- B. Keystone and RUS applicants will return all artifacts recovered from private lands to the respective landowner after analysis is complete, unless applicable state law requires otherwise. Keystone and RUS applicants will encourage and assist landowners in donating any returned artifacts to a local curation facility identified by the respective SHPO. Keystone and RUS applicants shall pay all required curation fees associated with the donation of artifacts to the local curation facility.
- C. On federally controlled or owned properties, federal agencies will determine the disposition of human burials, human remains and funerary objects in accordance with applicable federal law.

VIII. REPORTING

- A. Within three months of completion of pipeline construction of a spread, Keystone will submit a comprehensive draft report to DOS describing the results and findings of the implementation of the actions and plans specified in Stipulations V.C through G, VI.A, including Attachment C.
- B. Keystone will submit a draft comprehensive report for each spread to the SHPOs, consulting Indian tribes, and other consulting parties of the respective states in which the spread is located, for thirty (30) day review and comment. Keystone shall address timely comments and recommendations submitted by SHPOs, consulting Indian tribes, and other consulting parties in preparation of the Final Comprehensive Report for that spread. Keystone will submit the final report to DOS for review and approval. The final comprehensive report will be provided by DOS to the SHPOs, consulting Indian tribes, and other consulting parties once approved.

IX. MONITORING IMPLEMENTATION OF THE PA

Each quarter following the execution of this PA until it expires or is terminated, the DOS with the assistance of the USACE, BLM, RUS, FSA, NRCS, BIA, and RECLAMATION as necessary will provide the SHPOs, consulting Indian tribes, and other consulting parties to this PA a progress report summarizing the work carried out pursuant to its terms. Such report will include any scheduling changes proposed, any problems encountered, and any disputes and objections received in the efforts to carry out the terms of this PA. DOS will maintain and update a list of the current contact for the SHPOs, consulting Indian tribes, and other consulting parties and will be distributed in each quarterly report.

X. DISPUTE RESOLUTION

- A. “Appropriate federal agency” refers to the DOS, BLM, RUS, RECLAMATION, and USACE, or other federal land managing and/or permitting agency as applicable.
- B. Should any signatory or concurring party to this PA object at any time to any actions proposed or the manner in which the terms of this PA are implemented, the appropriate federal agency will consult with such party to resolve the objection. If the appropriate federal agency determines that such objection cannot be resolved, the appropriate federal agency will:
 - 1. Forward all documentation relevant to the dispute, including the applicable federal agency’s proposed resolution, to the ACHP. The ACHP will provide the appropriate federal agency with its advice on the resolution of the objection within thirty (30) calendar days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the appropriate federal agency will prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. The appropriate federal agency will then proceed according to its final decision.

2. If the ACHP does not provide its advice regarding the dispute within the thirty (30) calendar day time period, the applicable federal agency may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the appropriate federal agency will prepare a written response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the PA, and provide them and the ACHP with a copy of such written response.
- C. The federal agencies are responsible for carrying out all other actions subject to the terms of this PA that are not the subject of the dispute.
 - D. The process of dispute resolution outlined in Stipulation X does not pertain to disputes that arise from unanticipated discoveries covered in Stipulation VI.

XI. DURATION

This PA will be null and void if all of its stipulations have not been carried out within five (5) years from the date of its execution. At such time, and prior to work continuing on the Keystone XL Project, the DOS, USACE, BLM, RUS, WESTERN, RECLAMATION and NPS will either (a) execute a Memorandum of Agreement (MOA) or PA pursuant to 36 CFR §§ 800.6 or 800.14(b), respectively, or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR. § 800.7. Prior to such time, the DOS may consult with the other signatories to reconsider the terms of the PA and amend it in accordance with Stipulation XII. The DOS, USACE, BLM, RUS, WESTERN, RECLAMATION and NPS will notify the signatories and concurring parties as to the course of action they will pursue.

XII. AMENDMENT

Any signatory party to this PA may propose in writing to the other signatory parties that it be amended. The signatory parties will consult in an effort to reach agreement on an amendment. Any amendment will be effective on the date it is signed by all of the signatories and filed with the ACHP.

XIII. TERMINATION

- A. If any signatory to this PA determines that its terms will not or cannot be carried out, that party will immediately consult with the other parties to attempt to develop an amendment per Stipulation XII. If within thirty (30) calendar days an amendment cannot be reached, any signatory may terminate its participation in the PA upon written notification to the other signatories.
- B. Termination by an individual SHPO shall only terminate the application of this Agreement within the jurisdiction of the SHPO.

- C. If the PA is terminated in its entirety, and prior to work continuing on the undertaking, the DOS shall request, take into account, and respond to the comments of the ACHP in accordance with 36 CFR § 800.7(a). Following consultation with the ACHP, the DOS will notify the signatories and concurring parties as to the course of action it will pursue.

XIV. COORDINATION WITH OTHER FEDERAL REVIEWS

In the event that Keystone or a federal agency applies for additional federal funding or approvals for the Keystone XL Project and the undertaking remains unchanged, such funding or approving agency may comply with Section 106 by agreeing in writing to the terms of this PA and notifying and consulting with the applicable SHPO and the ACHP. Any necessary modifications will be considered in accordance with Stipulation XII.

XV. SCOPE OF THE PA

This Agreement is limited in scope to actions that will facilitate the construction of the Keystone XL Project and related facilities, and is entered into solely for that purpose.

EXECUTION of this PA by the DOS, ACHP, BLM, RUS, WESTERN, USACE, RECLAMATION, NPS, NRCS, FSA, BIA, the Montana SHPO, South Dakota SHPO, Nebraska SHPO, Kansas SHPO, Oklahoma SHPO, and Texas SHPO and implementation of its terms evidence that the DOS, WESTERN, BLM, RUS, NRCS, FSA, BIA, USACE, RECLAMATION, and NPS have taken into account the effects of the Keystone XL Project on historic properties and afforded the ACHP an opportunity to comment.

ATTACHMENT A

The following Tables show properties for which Keystone has been denied access to conduct identification and evaluation studies as of the finalization of the PA.

Table 1: Areas Not Surveyed along Mainline Route in Montana					
State	County	From Milepost	To Milepost	Status	Miles
Montana	Fallon	249.1	250.2	Needs survey	1.1
Montana	Fallon	227.2	227.4	Needs survey	0.2
Montana	Fallon	228.1	228.1	Surveyed on November 2010 CL; Addendum 6 in progress	0.01
Montana	Dawson	0.2	1.4	Needs survey	1.2
Montana	Dawson	4.8	6.3	Needs survey	1.5
Montana	Dawson	7.6	9.1	Needs survey	1.5
Montana	Dawson	17.2	17.6	Needs survey	0.5
Montana	Dawson	17.9	18.4	Needs survey	0.5
Montana	Dawson	18.4	19.1	Needs survey	0.7
Montana	Dawson	20.4	20.7	Surveyed on November 2010 CL; Addendum 6 in progress	0.3
Montana	Dawson	21.7	22.2	Surveyed on November 2010 CL; Addendum 6 in progress	0.4
Montana	McCone	148.4	149.7	Needs survey; Incorporated into November 2010 CL	1.3
Montana	McCone	144.4	144.5	Needs survey; Incorporated into November 2010 CL	0.1
Montana	Valley	1.1	1.2	Needs survey; Incorporated into November 2010 CL-MT-LO-01	0.1
Montana	Dawson	1.9	2	Needs survey; Incorporated into November 2010 CL	0.1
Montana	Fallon	0	0.01	Needs survey	0.01
Montana	McCone	0	0.5	Needs survey	0.5

Table 1: Areas Not Surveyed along Mainline Route in Montana

State	County	From Milepost	To Milepost	Status	Miles
Montana	McCone	0	2.2	Surveyed on November 2010 CL; Addendum 6 in progress	2.2
Montana	Dawson	0	1.9	Surveyed on November 2010 CL; Addendum 6 in progress	1.9
Montana	Dawson	1	2	Surveyed on November 2010 CL; Addendum 6 in progress	2
Montana	Sheridan			Surveyed on November 2010 CL; Addendum 6 in progress	
Montana	Roosevelt			Surveyed on November 2010 CL; Addendum 6 in progress	
Montana	Prairie			Needs survey	

Table 2: Areas Not Surveyed along Mainline Route in South Dakota

State	County	From Milepost	To Milepost	Status	Miles
South Dakota	Harding	352.8	353.7	Needs survey	0.9
South Dakota	Meade	417.9	418.2	Needs survey	0.3
South Dakota	Haakon	481.4	481.5	Surveyed on November 2010 CL; Addendum 7 in progress	0.1
South Dakota	Jones	492	492.6	Needs survey	0.6
South Dakota	Dawson	194	194.5	Surveyed on November 2010 CL; Addendum 7 in progress	0.5
South Dakota	Harding	2.9	3.2	Needs survey	0.3
South Dakota	Harding	3.8	4.4	Needs survey	0.3
South Dakota	Meade	1.1	1.3	Surveyed on November 2010 CL; Addendum 7 in progress	0.1

Table 2: Areas Not Surveyed along Mainline Route in South Dakota					
State	County	From Milepost	To Milepost	Status	Miles
South Dakota	Hughes			Surveyed on November 2010 CL; Addendum 7 in progress	

Table 3: Areas Not Surveyed along Mainline Route in Nebraska					
State	County	From Milepost	To Milepost	Status	Miles
Nebraska	Keya Paha	599.70	600.50	Surveyed 6-4-11 on Nov 2010 CL; Addendum No. 7 report in progress	0.80
Nebraska	Keya Paha	600.90	601.50	Needs survey	0.60
Nebraska	Keya Paha	614.20	614.45	Needs survey	0.25
Nebraska	Holt	630.80	631.65	Surveyed 6-2-11 on Nov 2010 CL; Addendum No. 7 report in progress	0.85
Nebraska	Holt	632.70	633.15	Surveyed 6-7-11 on Nov 2010 CL; Addendum No. 7 report in progress	0.45
Nebraska	Holt	634.75	635.45	Surveyed 6-3-11 on Nov 2010 CL; Addendum No. 7 report in progress	0.70
Nebraska	Holt	653.55	655.45	Surveyed 6-7-11 on Nov 2010 CL; Addendum No. 7 report in progress	1.90
Nebraska	Holt	656.80	657.90	Surveyed 6-3-11 on Nov 2010 CL; Addendum No. 7 report in progress	1.10
Nebraska	Garfield	672.55	679.50	Not on Nov 2010 CL	6.95
Nebraska	Wheeler	687.60	687.90	Surveyed 6-10-11 on Nov 2010 CL; Addendum No. 7 report in progress	0.30
Nebraska	Wheeler	688.15	688.35	Surveyed 6-10-11 on Nov 2010 CL; Addendum No. 7 report in progress	0.20

Table 3: Areas Not Surveyed along Mainline Route in Nebraska

State	County	From Milepost	To Milepost	Status	Miles
Nebraska	Wheeler	688.70	688.95	Surveyed 6-10-11 on Nov 2010 CL; Addendum No. 7 report in progress	0.25
Nebraska	Wheeler	691.40	691.65	Surveyed 6-11-11 on Nov 2010 CL; Addendum No. 7 report in progress by applicant	0.25
Nebraska	Wheeler	692.70	693.35	Surveyed 6-11-11 on Nov 2010 CL; Addendum No. 7 report in progress	0.65
Nebraska	Greeley	698.35	698.70	Surveyed 6-6-11 on Nov 2010 CL; Addendum No. 7 report in progress	0.35
Nebraska	Greeley	700.10	700.35	Surveyed 6-6-11 on Nov 2010 CL; Addendum No. 7 report in progress	0.25
Nebraska	Greeley	700.55	702.55	Surveyed 6-6-11 on Nov 2010 CL; Addendum No. 7 report in progress	2.00
Nebraska	Greeley	703.25	705.35	Partially surveyed 6-6-11 on Nov 2010 CL with 1.35 miles no access from MP 704.0 to 705.35; Addendum No. 7 report in progress	1.35
Nebraska	Greeley	709.80	709.80	Surveyed 5-31-11 on Nov 2010 CL; Addendum No. 7 report in progress	0.00
Nebraska	Greeley	716.40	717.10	Surveyed 6-1-11 on Nov 2010 CL; Addendum No. 7 report in progress	0.70
Nebraska	Greeley	799.00	799.10	Surveyed 5-27-11 on Nov 2010 CL; Addendum No. 7 report in progress	0.10
Nebraska	Fillmore	799.40	799.60	Not on Nov 2010 CL	0.20
Nebraska	Fillmore	800.15	800.60	Needs survey	0.45

State	County	From Milepost	To Milepost	Status	Miles
Oklahoma	Seminole	42.460	n/a	Needs survey	0.39 ac
Oklahoma	Grady	Offline	n/a	Needs survey	74.2 ac
Oklahoma	Hughes	75.650	n/a	Needs survey	0.250
Oklahoma	Hughes	75.70	75.80	Needs survey	0.100
Oklahoma	Pottawatomie	Offline	n/a	Needs survey	17 ac
Oklahoma	Pittsburg	Offline	n/a**	Needs survey	9.12 ac
Oklahoma	Coal	88.640	n/a	Needs survey	0.122
Oklahoma	Atoka	127.440	n/a	Needs survey	3.1 ac
Oklahoma	Atoka	127.60	128.34	Needs survey	0.737
Oklahoma	Bryan	132.800	n/a**	Needs survey	2.529

**Not applicable

State	County	From Milepost	To Milepost	Status	Miles
Texas	Fannin	160.650	n/a	Needs survey	3 ac
Texas	Fannin	161.85	n/a	Needs survey	0.65 ac
Texas	Lamar	162.30	162.43	Needs survey	0.130
Texas	Lamar	173.980	n/a	Needs survey	2 ac
Texas	Lamar	185.110	n/a	Needs survey	2 ac
Texas	Hopkins	206.880	n/a	Needs survey	0.48 ac
Texas	Franklin	231.31	n/a	Needs survey	0.049
Texas	Wood	233.42	n/a	Needs survey	0.082
Texas	Wood	251.34	251.55	Needs survey	0.210
Texas	Upshur	262.31	262.35	Needs survey	0.040
Texas	Upshur	262.42	n/a	Needs survey	0.002
Texas	Upshur	262.580	n/a	Needs survey	1.29 ac
Texas	Smith	274.64	275.18	Needs survey	0.540
Texas	Smith	275.19	n/a	Needs survey	0.880
Texas	Nacogdoches	Offline	n/a	Needs survey	12.8 ac
Texas	Houston	Offline	n/a	Needs survey	8.3 ac
Texas	Polk	392.290	n/a	Needs survey	0.62 ac
Texas	Liberty	Offline	n/a	Needs survey	13.4 ac
Texas	Jefferson	Offline	n/a	Needs survey	72.6 ac
Texas	Jefferson	453.44	n/a	Needs survey	0.755

Table 5: Areas Not Surveyed along Mainline Route in Texas					
State	County	From Milepost	To Milepost	Status	Miles
Texas	Jefferson	480.77	481.43	Needs survey	0.665
Texas	Jefferson	483.49	483.80	Needs survey	0.300
Texas	Jefferson	482.970	n/a	Needs survey	4.9 ac

ATTACHMENT B

List of Indian Tribes Invited by the Department of State to Participate in Consultation:

Absentee-Shawnee Tribe of Indians of Oklahoma, Alabama Quassarte Tribal Town, Alabama-Coushatta Tribe of Texas, Apache Tribe, Blackfeet Nation, Caddo Nation of Oklahoma, Cherokee Nation, Cheyenne River Sioux, Cheyenne-Arapaho Tribe of Oklahoma, Chickasaw Nation of Oklahoma, Chippewa-Cree Indians, Choctaw Nation of Oklahoma, Citizen Potawatomi Nation, Comanche Nation, Confederated Salish and Kootenai Tribes of the Flathead Indian Nation, Crow Creek Reservation, Crow Creek Sioux Tribe, Crow Tribe of Indians, Delaware Nation, Delaware Tribe of Indians, Eastern Band of Cherokee Indians, Eastern Shawnee Tribe, Eastern Shoshone Tribe, Flandreau Santee Sioux Tribe, Forest County Potawatomi Community of Wisconsin Potawatomi Indians, Fort Berthold Reservation, Fort Peck Tribes, Fort Sill Apache Tribe, Gros Ventre and Assiniboine Tribe of Ft. Belknap, Gun Lake Potawatomi, Hannahville Indian Community of Michigan, Ho-Chunk Nation of Wisconsin, Huron Potawatomi Nation, Iowa Tribe of Kansas and Nebraska, Iowa Tribe of Oklahoma, Jena Band of Choctaw Indians, Jicarilla Apache Tribe, Kaw Nation, Kialegee Tribal Town of the Creek Nation of Oklahoma, Kickapoo Traditional Tribe of Texas, Kickapoo Tribe of Kansas, Kickapoo Tribe of Oklahoma, Kiowa Indian Tribe of Oklahoma, Lower Brule Sioux Tribe, Lower Sioux Indian Community, Miami Tribe of Oklahoma, Mille Lacs Band of Ojibwe, Modoc Tribe of Oklahoma, Muscogee Creek Nation, Nez Perce, Northern Arapaho Tribe, Northern Cheyenne Tribe, Northern Ute Tribe, Oglala Sioux, Omaha Tribe of Nebraska, Osage Nation, Otoe-Missouri Tribe, Ottawa Tribe of Oklahoma, Pawnee Nation of Oklahoma, Peoria Indian Tribe of Oklahoma, Poarch Band of Creek Indians, Pokagon Band of Potawatomi Indians of Michigan, Ponca Tribe of Indians of Oklahoma, Ponca Tribe of Nebraska, Prairie Band of Potawatomi Indians, Prairie Island Indian Community, Quapaw Tribal Business Committee, Quapaw Tribe, Red Lake Band of Chippewa Indians of Minnesota, Rosebud Sioux Tribe, Sac & Fox Nation of Oklahoma, Sac & Fox Nation of Missouri in Kansas and Nebraska, Sac & Fox Tribe of the Mississippi in Iowa, Santee Sioux Tribe of Nebraska, Seminole Nation, Seneca-Cayuga Tribe of Oklahoma, Shakopee Mdewakanton Sioux, Shawnee Tribe, Shoshone-Bannock Tribe, Sisseton-Wahpeton Oyate Sioux, Sisseton-Wahpeton Oyate Wahpeketze, Southern Ute Indian Tribe, Spirit Lake Tribe, Standing Rock Sioux Tribe, Stockbridge-Munsee Tribe, Thlopthlocco Tribal Town, Three Affiliated Tribes, Tonkawa Tribe, Trenton Indian Service Area, Turtle Mountain Band of the Chippewa, United Keetoowah Band of Cherokee Indians, Upper Sioux -Pezihutazizi Kapi, Ute Mountain Tribe, White Earth Band of Minnesota Chippewa, Wichita and Affiliated Tribes, Winnebago Tribe, Wyandotte Nation, Yankton Sioux, Ysleta del Sur Pueblo

ATTACHMENT C

STATE-BY-STATE PLANS FOR THE UNANTICIPATED DISCOVERY OF HUMAN REMAINS OR BURIALS ON NON-FEDERAL LANDS DURING CONSTRUCTION OF THE KEYSTONE XL PIPELINE PROJECT

I. For construction of the Keystone XL Project in Montana, Keystone will implement the following measures:

1. When an unmarked human burial or unregistered grave is encountered during construction activities, Keystone will comply with the Human Skeletal Remains and Burial Site Protection Act (Montana Code Ann. §22-3-801 through §22-3-811).
2. Upon encountering an unmarked human burial or unregistered grave during ground disturbing construction activities, the construction contractor will immediately stop work within a one-hundred and fifty (150) foot radius from the point of discovery and notify Keystone's Lead Environmental Inspector (EI). The construction contractor will implement interim measures to protect the discovery from vandalism and looting, but must not remove or otherwise disturb any human remains or other items in the immediate vicinity of the discovery.
3. Immediately following receipt of such notification, the Lead EI will ensure that construction activities have halted within a one-hundred and fifty (150) foot radius from the point of discovery and assume responsibility for implementing additional measures, as appropriate, to protect the discovery from looting and vandalism until the requirements of state law have been completed.
4. The Lead EI will notify the county coroner, the DOS, ACHP, SHPO, consulting Indian tribes, and other consulting parties within forty-eight (48) hours of the discovery.
5. Within seventy-two (72) hours after notification, the county coroner will determine jurisdiction. If the coroner refers the matter to the SHPO, the SHPO will determine the treatment, including mitigation and disposition of the unmarked human burial or unregistered grave in accordance with Montana Code Ann. §22-3-801 through §22-3-811. Keystone will implement the treatment and disposition measures deemed appropriate by the SHPO.
6. Keystone will resume construction activities in the area of the discovery upon receipt of written authorization from either the county coroner or the Montana SHPO, whoever has jurisdiction under state law.

II. For construction of the Keystone XL Project in Kansas, Keystone will implement the following measures:

1. When unmarked human burial sites or human skeletal remains are encountered during construction activities, Keystone will comply with Kansas' Unmarked Burial Sites Preservation Act (KSA 75-2741 to 75-2754) and its implementing regulations (KAR 126-1-1 through 126-1-2).
2. Upon encountering unmarked human burials or unregistered graves during ground disturbing construction activities, the construction contractor will immediately stop work within a one-hundred and fifty (150) foot radius from the point of discovery and notify Keystone's Lead EI.

The construction contractor will implement interim measures to protect the discovery from vandalism and looting, but must not remove or otherwise disturb any human remains or other items in the immediate vicinity of the discovery.

3. Immediately following receipt of such notification, the Lead EI will:
 - a. Ensure that construction activities have halted within a one-hundred and fifty (150) foot radius from the point of discovery;
 - b. Implement additional measures, as appropriate, to protect the discovery from looting and vandalism until the requirements of state law have been completed; and
 - c. Notify the appropriate county sheriff's office, the chairperson of the Unmarked Burial Sites Preservation Board (Kansas State Archaeologist), the DOS, the ACHP SHPOs, consulting Indian tribes, and other consulting parties of the discovery.
4. If Keystone determines that disturbance to the unmarked burial site or human remains cannot be avoided, Keystone will consult with the DOS, the SHPO, consulting Indian tribes, and other consulting parties to develop a detailed work plan for treatment of the burial site or human remains that includes provisions for the removal, treatment and disposition of human remains. In accordance with state law, Keystone will submit this work plan to the Unmarked Burial Sites Preservation Board as part of its request for a permit under KAR 126-1-2.
5. Keystone will resume construction activities in the area of the discovery once implementation of the measures authorized under the permit has been completed.

III. For construction of the Keystone XL Project in Nebraska, Keystone will implement the following measures:

1. When unmarked human skeletal remains or burial goods are discovered during construction activities, Keystone will comply with Nebraska Rev. Stat. § 12-1201 through § 12-1212, et seq. and § 28-1301.
2. Upon encountering unmarked human skeletal remains or burial goods during ground disturbing construction activities, the construction contractor will immediately stop work within a one-hundred and fifty (150) foot radius from the point of discovery and notify Keystone's Lead EI. The construction contractor will implement interim measures to protect the discovery from vandalism and looting, but must not remove or otherwise disturb any human remains or other items in the immediate vicinity of the discovery.
3. Immediately following receipt of such notification, the Lead EI will ensure that construction activities have halted within a one-hundred and fifty (150) foot radius from the point of discovery and assume responsibility for implementing additional measures, as appropriate, to protect the discovery from looting and vandalism until the requirements of state law have been completed.
4. Keystone will notify the local law enforcement officer in the county, the DOS, the ACHP, the SHPO, consulting Indian tribes, and other consulting parties within forty-eight (48) hours of the discovery.
5. If local law enforcement determines that the remains are not associated with a crime, Keystone will determine if it is prudent and feasible to avoid disturbing the remains. If Keystone

determines that disturbance cannot be avoided, the Nebraska State Historical Society will notify the Commission on Indian Affairs in writing and seek associated tribes or kin.

6. Keystone will resume construction activities in the area of the discovery when the human skeletal remains or burial goods have been accepted by the Nebraska State Historical Society for the purposes of disposition.

IV. For construction of the Keystone XL Project in Texas, Keystone will implement the following measures:

1. When unmarked human burials or human remains are discovered during construction activities, Keystone will comply with Antiquities Code (Texas Code Ann. §191); Health and Safety (Texas Code Ann. §711.004).
2. Upon encountering unmarked human burials or human remains during ground disturbing construction activities, the construction contractor will immediately stop work within a one-hundred and fifty (150) foot radius from the point of discovery and notify Keystone's Lead EI. The construction contractor will implement interim measures to protect the discovery from vandalism and looting, but must not remove or otherwise disturb any human remains or other items in the immediate vicinity of the discovery.
3. Immediately following receipt of such notification, the Lead EI will:
 - a. Ensure that construction activities have halted within a one-hundred and fifty (150) foot radius from the point of discovery;
 - b. Implement additional measures, as appropriate, to protect the discovery from looting and vandalism until the requirements of state law have been completed; and
 - c. Notify the local law enforcement agency, the DOS, the ACHP, the State Historic Preservation Office (SHPO)/Texas Historical Commission (THC), consulting Indian tribes, and other consulting parties and the State Department of Health of the discovery.
4. If local law enforcement determines that the remains are not associated with a crime, Keystone will determine if it is prudent and feasible to avoid disturbing the remains. If Keystone determines that disturbance cannot be avoided, Keystone will remove and reinter the human remains in accordance with rules adopted by the SHPO and the State Health Department.
5. Keystone will resume construction activities in the area of the discovery once implementation of the measures required by the SHPO/THC and State Health Department has been completed.

V. For construction of the Keystone Project in Oklahoma, Keystone will implement the following measures:

1. When a burial ground, human remains or burial furniture is discovered during construction activities, Keystone will comply with Okla. Stat. Ann. 21 §1161-1168.7 (Oklahoma Burial Law).
2. Upon encountering a burial ground, human remains or burial furniture during ground disturbing construction activities, the construction contractor will immediately stop work within a one-hundred and fifty (150) foot radius from the point of discovery and notify Keystone's Lead EI. The construction contractor will implement interim measures to protect the discovery from

vandalism and looting, but must not remove or otherwise disturb any human remains or other items in the immediate vicinity of the discovery.

3. Immediately following receipt of such notification, the Environmental Inspector will
 - a. ensure that construction activities have halted within a one-hundred and fifty (150) foot radius from the point of discovery;
 - b. implement additional measures, as appropriate, to protect the discovery from looting and vandalism until the requirements of state law have been completed; and
 - c. notify the appropriate law enforcement officer in the county in which the remains have been discovered, the Chief Medical Examiner, the DOS, the ACHP, the SHPO, consulting Indian tribes, other consulting parties, and the landowner of the discovery.
4. Upon learning that remains are not associated with a crime, Keystone has fifteen (15) calendar days within which to notify the SHPO and the Oklahoma State Archaeologist. If the remains have a direct historical relationship to a tribe, the State Archaeologist will notify the SHPO and consults with the tribal leader within fifteen (15) calendar days. If Keystone determines that disturbance cannot be avoided, Keystone will treat the burial site or human remains in accordance with procedures established by the SHPO, the Oklahoma State Archaeologist, and consultation with the tribal leader.
5. Keystone will resume construction activities in the area of the discovery upon completion of the measures authorized by the SHPO and Oklahoma State Archaeologist.

VI. For construction of the Keystone XL Project in South Dakota, Keystone will implement the following measures:

1. When unmarked human skeletal remains and/or funerary objects are discovered during construction activities, Keystone will comply with South Dakota State Law Chapter 34-27.
2. Upon encountering an unmarked human skeletal remains and/or funerary objects during ground disturbing construction activities, the construction contractor will immediately stop work within a one-hundred and fifty (150) foot radius from the point of discovery and notify Keystone's Lead EI. The construction contractor will implement interim measures to protect the discovery from vandalism and looting, but must not remove or otherwise disturb any human remains or other items in the immediate vicinity of the discovery.
3. Immediately following receipt of such notification, the Lead EI will ensure that construction activities have halted within a one-hundred and fifty (150) foot radius from the point of discovery and assume responsibility for implementing additional measures, as appropriate, to protect the discovery from looting and vandalism until the requirements of state law have been completed.
4. The Lead EI will notify the local law enforcement agency, the DOS, the ACHP, the SHPO, the South Dakota State Archaeologist, consulting Indian tribes, and other consulting parties within forty-eight (48) hours of the discovery.
5. If local law enforcement determines that the remains are not associated with a crime, Keystone will determine if it is prudent and feasible to avoid disturbing the remains. If Keystone determines that disturbance cannot be avoided, Keystone will consult with the South Dakota State Archaeologist, SHPOs, consulting Indian tribes, and other consulting parties to determine

acceptable procedures for the removal, treatment and disposition of the human skeletal remains and funerary objects within five (5) calendar days. Keystone will implement the plan for removal, treatment, and disposition of the human skeletal remains and funerary objects as authorized by the South Dakota State Archaeologist.

6. Keystone may resume construction activities in the area of the discovery upon completion of the plan authorized by the State Archaeologist.

ATTACHMENT D

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B. CONSULTING TRIBES

Note: The following list of tribes responded to DOS requests for consultation on the Keystone XL Project.

1. Absentee-Shawnee Tribe of Indians of Oklahoma
2. Alabama-Coushatta Tribe of Texas
3. Blackfeet Nation
4. Caddo Nation of Oklahoma
5. Cheyenne River Sioux Tribe
6. Cheyenne-Arapaho Tribe of Oklahoma
7. Chippewa-Cree Indians
8. Choctaw Nation of Oklahoma
9. Crow Tribe of Indians
10. Delaware Nation
11. Fort Peck Tribes
12. Gros Ventre and Assiniboine Tribe of Ft. Belknap
13. Ho-Chunk Nation of Wisconsin
14. Iowa Tribe of Kansas and Nebraska
15. Iowa Tribe of Oklahoma
16. Kaw Nation
17. Kialegee Tribal Town of the Creek Nation of Oklahoma
18. Kickapoo Tribe of Kansas
19. Kiowa Indian Tribe of Oklahoma
20. Lower Brule Sioux Tribe
21. Lower Sioux Indian Community
22. Miami Tribe of Oklahoma
23. Mille Lacs Band of Ojibwe
24. Muscogee (Creek) Nation
25. Northern Arapaho Tribe
26. Northern Cheyenne Tribe
27. Northern Ute Tribe
28. Oglala Sioux Tribe
29. Osage Nation
30. Pawnee Nation of Oklahoma
31. Ponca Tribe of Indians of Oklahoma
32. Ponca Tribe of Nebraska
33. Rosebud Sioux Tribe
34. Sac & Fox Nation of Oklahoma
35. Santee Sioux Tribe of Nebraska
36. Shoshone-Bannock Tribe
37. Sisseton-Wahpeton Oyate Sioux
38. Spirit Lake Tribe
39. Standing Rock Sioux Tribe
40. Three Affiliated Tribes
41. Tonkawa Tribe
42. Turtle Mountain Band of Chippewa
43. Wichita and Affiliated Tribes
44. Winnebago Tribe
45. Yankton Sioux

Attachment E

Tribal Monitoring Plan

Attachment F

Historic Trails and Archaeological Monitoring Plan

Attachment G

Summary of Identification and Evaluation Efforts and Effect Assessment for Historic Properties within the Project APE and Consultation with Indian Tribes and Nations, SHPOs, and Other Agencies

Attachment H

Project Maps

Appendix H: Paleontological Memorandum of Understanding

**MEMORANDUM OF UNDERSTANDING
FOR PALEONTOLOGICAL RESOURCE INVESTIGATIONS
ON THE MONTANA PORTION OF THE KEYSTONE XL PIPELINE PROJECT**

WHEREAS, in February 2010, the Montana Department of Environmental Quality (DEQ) received a complete application for a certificate of compliance from TransCanada Keystone Pipeline, LP (Keystone) for the portion of the Keystone XL Pipeline Project that is proposed to be constructed in Montana, hereinafter referred to as the Project. Keystone is required to obtain a certificate of compliance from DEQ prior to construction of the Project under the Major Facility Siting Act (MFSA); and

WHEREAS, the Area of Potential Effects (APE) for the Project includes a 300 foot-wide survey area that includes a 110-foot-wide construction corridor for the proposed pipeline as approved by DEQ. Finally, the APE includes all areas that are directly affected by construction of proposed pumping stations, stockpile yards, and other associated facilities; and

WHEREAS, the U.S. Department of State (DOS) is the lead federal agency responsible for administering the National Environmental Policy Act, the Endangered Species Act, and the National Historic Preservation Act; and

WHEREAS, the Bureau of Land Management (BLM), in accordance with the Federal Land Policy and Management Act (FLPMA 1976) is required to minimize adverse impacts on natural, environmental, scientific, cultural and other resources and values on federal land. Instruction Memorandum (IM) 2009-011 requires BLM to assess and mitigate potential impacts to paleontological resources on federal land; and

WHEREAS, DEQ is the lead state agency responsible for administering the Montana Environmental Policy Act and MFSA prior to issuance of a certificate of compliance; and

WHEREAS, the Montana Department of Natural Resources and Conservation (DNRC), in accordance with the Montana State Antiquities Act (Section 22-3-421, *et seq.*, M.C.A.), is required, in part, to assess and mitigate potential adverse effects to paleontological remains on agency managed state land; and

WHEREAS, the Montana State Historic Preservation Office (SHPO) in accordance with the Montana State Antiquities Act (Section 22-3-423(7), M.C.A.) shall cooperate and assist local, state, and federal government agencies in comprehensive planning that allows for the preservation of paleontological resources; and

WHEREAS, the Programmatic Agreement (PA) developed under Section 106 of the National Historic Preservation Act (NHPA) for the Keystone XL Project will maintain precedence over this MOU in regards to the identification and evaluation of paleontological resources that may have Traditional Cultural Property (TCP) value; and

WHEREAS, DEQ has consulted with the BLM, DOS, DNRC, SHPO and Keystone to secure concurrence with the terms of this Memorandum of Understanding; and

WHEREAS, the Bureau of Reclamation, National Park Service and the U.S. Corps of Engineers were invited to consult in the development of this Memorandum of Understanding and have declined to participate;

NOW THEREFORE, the following terms and conditions will govern the consideration of paleontological resources that may be affected by the Project.

STIPULATIONS AND METHODS OF INVESTIGATION:

- 1) Keystone has completed most of the paleontological record searches and survey work using BLM paleontological resource management guidelines (BLM Manual H-8270-1; BLM IM 2008-009; BLM IM 2009-011) using the services of a permitted and qualified paleontologist.
- 2) Keystone shall use the services of a qualified paleontologist (BLM Manual H 8270-1; IM 2009-011) to gather and evaluate information concerning the existence and location of paleontological resources within the APE as needed.
- 3) Where required, Keystone shall submit a written request under ARM 17.20.804(2) to conduct a paleontological literature and file search with the Montana SHPO for a one (1) mile wide area (0.5 mile on either side of the centerline) of the route and associated facility locations as defined by 75-20-104(3)(a), M.C.A., prior to conducting field surveys. Keystone shall conduct a concurrent file search with the appropriate field offices of the BLM and with the DNRC for state-owned lands.
- 4) Keystone's paleontological consultant shall continue to maintain a valid BLM Paleontological Resources Use Permit and any other permits required under federal or state law.
- 5) Where surveys have not been completed, Keystone shall complete a pedestrian survey prior to construction. Keystone shall conduct the pedestrian survey at an intensity required under BLM IM 2009-011.
- 6) Keystone shall monitor construction in those portions of the APE with unknown, moderate, high, and very high paleontological potential (classes 3a, 3b, 4, or 5) based on the Potential Fossil Yield Classification System (PFYC). Areas of very low to low potential (1 or 2) will not be subject to pedestrian survey. Areas of moderate potential (3a), if discovered, will be spot checked only. Areas with unknown potential (if any) (3b), and with high and very high potential (4 and 5) will be subject to a 100% pedestrian survey of bedrock exposures. Existing access roads that have been "crowned and ditched" do not need to be surveyed.
- 7) Keystone shall record and evaluate paleontological resources located in the APE on the forms and within the standards specified in the Montana SHPO

Planning Bulletin No. 21, as well as BLM Manual H-8270-1, BLM IM 2008-009, and BLM IM 2009-011.

- 8) Keystone shall evaluate paleontological resources located within the APE for scientific significance as outlined in the BLM IM 2009-011. In areas that have been previously inventoried in which the agency with jurisdiction is satisfied with the work, no additional inventory is required.
- 9) Prior to DEQ's issuance of a certificate of compliance, Keystone will draft and submit for agency review and approval, a comprehensive Paleontological Resources Mitigation Plan that describes: 1) the measures developed in consultation with the consulting parties to minimize and mitigate the adverse effects of the Project's construction activities on paleontological resources; 2) the manner in which these measures will be carried out; 3) a schedule for their implementation; and 4) how paleontological discoveries within each spread planned for Montana will be handled. The Paleontological Resources Mitigation Plan will be included within Keystone's Plan of Development and DEQ's Environmental Specifications.

- a. Keystone will make a reasonable and good faith effort to complete implementation of the Paleontological Resources Mitigation Plan approved by the cooperating agencies prior to beginning construction of any spread. If it is not possible to meet this schedule, Keystone will develop a Coordination Plan that establishes how appropriate treatment will be determined and implemented during construction of the respective spread.

- b. The Mitigation Plan will specify the precise locations within the Project APE where monitoring is required, and will describe procedures for fossil salvage and paleontological data recordation for non-extensive, isolated scientifically significant fossil discoveries. These types of discoveries are anticipated to be the most common during the course of construction as is typical during pipeline construction projects, and they can be quickly documented and collected with minimal construction delays. The Mitigation Plan will include agency or land owner notification procedures as appropriate, and procedures that construction personnel should follow in the event that an unexpected fossil discovery is made in an area that is not monitored by a paleontologist. The Mitigation Plan will also include procedures to be followed in the event of an extensive paleontological discovery as described in "c" below.

- c. Extensive paleontological discoveries are defined as discoveries that are unanticipated and cannot be quickly mitigated due to their large size and/or complexity (e.g., partial or complete associated dinosaur skeleton or extensive vertebrate microfossil accumulation). For extensive paleontological discoveries, a Locality-Specific Paleontological Mitigation Plan will be developed and approved by the pertinent agency

and SHPO. The Locality-Specific Paleontological Mitigation Plan will identify the specific research questions to be addressed with an explanation of their scientific significance, the paleontological methods to be used, and provisions for curation, public interpretation and education, subject to confidential restrictions, if any.

d. Keystone will submit the draft Locality Specific Paleontological Mitigation Plan to consulting parties for a seven (7) working day review. Keystone shall address timely comments and recommendations submitted by consulting parties in preparation of the draft Locality Specific Paleontological Mitigation Plan.

e. When it has addressed all of the comments and recommendations, Keystone will submit the Final Locality Specific Paleontological Mitigation Plan to all consulting parties and carry out the recommended mitigative measures.

- 10) BLM, DEQ, SHPO, DNRC, and DOS will provide information in their possession regarding paleontological materials to aid the other agencies in satisfaction of their respective responsibilities.
- 11) All parties to this agreement will have jurisdiction of paleontological resources identified on lands which they manage. All parties to this agreement will be invited to comment on all paleontological resources identified as a result of this agreement.

Execution of this Memorandum of Understanding by BLM, SHPO, DEQ, DNRC, DOS, and Keystone evidences that all parties have reviewed and commented upon the terms and conditions guiding the paleontological resource investigation for the Keystone XL Pipeline Project within the state of Montana.

[Signature page is omitted.]

Appendix I: Rehabilitation Plan
Erosion Control, Reclamation, and Revegetation Plan

The erosion control, reclamation, and revegetation procedures to be followed by the OWNER are detailed in the Montana Storm Water Pollution Prevention Plan and plans approved by County Weed Control Boards for Keystone XL Pipeline Project construction activities.

Appendix J: Areas Where Additional Restrictions in the Timing of Construction Apply

Construction activities at stream crossings will not occur during spring runoff.

Within big game winter ranges shown on Figure 1, the STATE INSPECTOR may impose timing restrictions if construction activities extend beyond November 15. In these areas, the STATE INSPECTOR will determine the need for restrictions based upon the severity of winter conditions and consultation with FWP biologists.

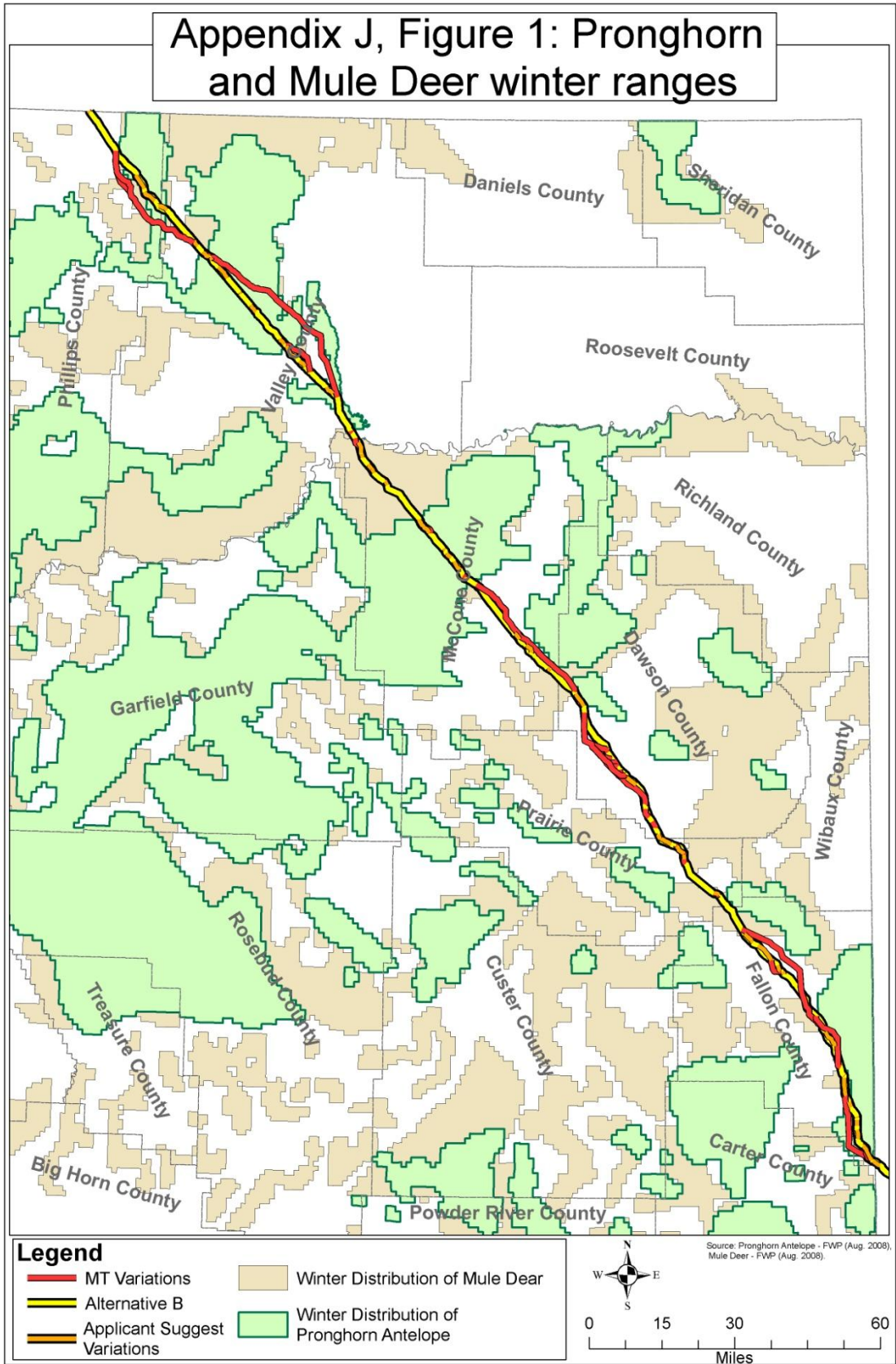
Other restrictions on the timing of construction are required in Section 2.3.2 and 2.3.3 of these specifications for excessively wet conditions.

Timing restrictions for grouse and other species are described in Appendix A.

Prior to construction, the OWNER shall submit a Winterization Plan for DEQ approval and implement the approved plan if winter conditions prevent reclamation completion until spring. This plan will be updated by the OWNER as field conditions change during construction and updates will be provided to the STATE INSPECTOR. In order to ensure backfilled materials are adequately compacted, construction will not occur when spoils and soils are frozen, unless otherwise permitted by the STATE INSPECTOR. If there is more than six inches of snow or ice within the trench, then that segment of trench will not be backfilled until snow or ice has been removed or melted, unless otherwise agreed to in writing by the affected LANDOWNER. This written approval will be provided to the STATE INSPECTOR.

If winter conditions are encountered during final reclamation, final reclamation may be delayed until the following spring, unless otherwise agreed to by the affected LANDOWNER in writing. A copy of such a written agreement will be provided to the STATE INSPECTOR. In either case, the standards listed in Section 3.2 shall be used to judge the success of reclamation.

Appendix J, Figure 1: Pronghorn and Mule Deer winter ranges



Appendix K: Noxious Weed Management Plan

Final locations of wash or cleaning stations will be indicated below after a route is selected by DEQ but prior to the start of construction.

Table K-1. Noxious Weed Wash or Cleaning Station Sites and Potential Water Sources for Wash or Cleaning Stations in Montana

Wash/Cleaning Station	Location	Milepost	Direction of Work	Water Sources

Appendix L: Requirements at Stream Crossings

At stream crossings the OWNER shall calculate the depth of scour based on a 100-year flood event and the size of sediment found at the crossing. The OWNER shall bury the pipeline below this calculated depth to help ensure that floods and lateral channel movement do not expose the pipeline over its lifetime. The burial depth shall be extended laterally as approved by DEQ after field inspection of the crossing site. For streams where horizontal directional drill crossings would not occur, crossings must be conducted during low flows prior to or following spring runoff.

As required in Section 2.10.3 of these Environmental Specifications, at least 30 days prior to constructing the facility or associated facilities at a perennial stream crossing or stream containing a fish species of special concern, DEQ shall conduct an on-site inspection of the crossing. The purpose of the inspection shall be to determine the final location of the crossing, the crossing method, width and depth of burial to be used, and site-specific reclamation measures. The following parties shall be invited to attend this inspection: representatives for the OWNER, FWP, representatives of the local conservation district(s), and the LANDOWNER or land management agency.

DEQ began these inspections in October of 2010 and other inspections occurred in 2011 and will continue into 2012. In addition to perennial streams, several intermittent streams with sizeable drainage areas above the proposed crossings were examined in October. The following notes summarize the results of the 2010 inspections. Site-specific plans must still be submitted for these streams by the OWNER's representatives.

The winter of 2010-2011 resulted in higher than normal low elevation snowpack in Eastern Montana. Rains during the spring of 2011 added to snow melt, causing flooding along many of the streams and rivers crossed by the proposed Project. Consequently, DEQ and the OWNER will jointly recheck channel morphology at each crossing examined in 2010 and make adjustments necessary as determined by DEQ to minimize impacts.

In the following stream specific discussions, various burial depths are specified. These burial depths at stream crossings take into account the calculated depth of stream channel erosion and scour that may occur in a flood event. Most of these burial depths are deeper than required by federal regulations. Burying the pipeline below scour depth helps to prevent future construction activities in and near streams to rebury the pipeline should it be exposed. The burial depths described below assume that alluvial materials are encountered. If bedrock is encountered during construction, the pipeline would be buried to a minimum of two feet below the top of the bedrock surface.

Unless otherwise noted, dam and pump or dam and flume methods will be used to construct the crossings if water is present at the time of construction.

Date: Oct. 12, 2011
Stream Name: Frenchman Creek
Approximate Milepost: 25.2
FWP fisheries value class: 3

Are special status fish or amphibians present? No records were found in FWP's MFISH database and no special status species were observed during the inspection.

If so, timing of spawning and rearing? Not applicable (NA).

Are special timing restrictions needed? Other than to construct the crossing outside the spring runoff period, no additional timing restrictions are proposed beyond those listed in the Environmental Specifications.

What is the depth of burial based on stream channel scour calculations? Burial depth will be eight feet below the minimum thalweg elevation (the low point in the stream channel cross section).

What is the width of deep burial to avoid pipeline exposure due to stream meander? Increased burial depth will be maintained for at least 500 feet from above the west bank to just east of the tall willows on the east bank. Alternatively, a horizontal directional drill is preferable if geologic conditions are suitable for such a crossing.

How will streambanks be stabilized following construction? Bank hardening with riprap is not allowed. During initial reclamation following construction disturbance, erosion control blankets are to be installed on the streambanks and the stream banks are to be revegetated with deep willow sprigging or willow wattles. Temporary fencing will be added on both banks to allow the willow plantings to become established. If channel migration occurs in the future beyond the 500 feet wide deep burial, the pipeline would be lowered in place to protect it from exposure.

Should clearing of riparian or wetland vegetation be minimized? Yes, minimize the clearing of riparian and wetland vegetation to the extent reasonably possible, by reducing the ROW to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Should the right of way width be reduced at the approaches to the stream crossing? Yes, reduce the ROW width at the approaches to the crossing to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Are additional valves recommended? No.

Is equipment cleaning required before and after work in stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW and from the work site.

Will construction dewatering be necessary? Possibly.

Will hydrostatic test water be diverted from this stream or river? Possibly. Instream flow rights held by MFWP must be maintained.

Are there any site specific issues or mitigating measures? This crossing is located adjacent to another pipeline. Construction activities must not harm or damage the existing pipeline.

Main line equipment is to cross the creek on a temporary bridge.

The pipeline crossing is to be constructed using the dam and pump, dam and flume, or horizontal directional drill method. If a horizontal directional drill crossing is used, all drilling mud and cuttings are to be disposed of in a manner that they will not reach or be transported by runoff to state waters.

In the past Frenchman Creek has meandered across most of the valley and spring flooding probably inundated much of the valley east of the proposed stream crossing. Stream channel morphology at the crossing site is influenced by presence of Frenchman Reservoir roughly 0.5 mile downstream. In case the stream should begin to meander during the life of the pipeline, the pipeline could be exposed beyond the area slated for deep burial. To monitor this possibility, aerial markers are to be added on the west bank, the east bank, and another at the angle east of the crossing at approximately MP 25.6. The stream channel and pipeline location (indicated between markers) will be monitored from the air or ground to determine if stream meander is taking place that would threaten the pipeline. If monitoring indicates stream meander may encroach on the pipeline, the pipeline will be lowered in place to ensure its integrity.

Are rookeries present within 500m of the crossing? None was observed during the inspection.

Date: Oct. 19, 2010
Stream Name: Rock Creek
Approximate Milepost: 39.1
FWP fisheries value class: 3

Are special status fish or amphibians present? No records were found in FWP's MFISH database and no special status species were observed during the inspection, but pearl dace have been reported.

If so, timing of spawning and rearing? Not applicable (NA).

Are special timing restrictions needed? Other than to construct the crossing outside the spring runoff period, no additional timing restrictions are proposed beyond those listed in the Environmental Specifications.

What is the depth of burial based on stream channel scour calculations? Burial depth will be eight feet below the minimum thalweg elevation (the low point in the stream channel cross section).

What is the width of deep burial to avoid pipeline exposure due to stream meander? Increased burial depth shall be maintained for at least 125 feet from the base of the steep bank on the north side of Rock Creek to above the low bank (beyond the cottonwood tree located downstream of the crossing) on the south side of the stream crossing.

How will streambanks be stabilized following construction? Bank hardening with riprap is not allowed. During initial reclamation following construction disturbance, erosion control blankets are to be installed on the streambanks and the stream banks are to be revegetated. If monitoring indicates stream meander may encroach on the pipeline, the pipeline will be lowered in place to protect it from exposure.

Should clearing of riparian or wetland vegetation be minimized? Yes, minimize the clearing of riparian and wetland vegetation to the extent reasonably possible, by reducing the ROW to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Should the right of way width be reduced at the approaches to the stream crossing? Yes, reduce the ROW width at the approaches to the crossing to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Are additional valves recommended? No.

Is equipment cleaning required before and after work in stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW.

Will construction dewatering be necessary? Possibly.

Will hydrostatic test water be diverted from this stream or river? NA (not applicable).

Are there any site specific issues or mitigating measures? Main line equipment is to cross the creek on a temporary bridge. The pipeline crossing is to be constructed using the dam and pump, dam and flume, or horizontal directional drill method. If a horizontal directional drill crossing is used, all drilling mud and cuttings are to be disposed of in a manner that they will not reach or be transported by runoff to state waters.

The stream channel at the crossing site remained relatively stable during flooding in the spring of 2011.

Are rookeries present within 500m of the crossing? None was observed during the inspection.

Date: Oct. 19, 2010
Stream Name: Willow Creek
Approximate Milepost: 40.4
FWP fisheries value class: 4

Are special status fish or amphibians present? No records of special status fish or amphibians were found in FWP's MFISH database for this stream and no special status species were observed during the inspection, but pearl dace have been reported.

If so, timing of spawning and rearing? NA.

Are special timing restrictions needed? Other than to construct the crossing outside the spring runoff period, no additional timing restrictions are proposed beyond those listed in the Environmental Specifications.

What is the depth of burial based on stream channel scour calculations? Burial depth will be at least eight feet below the minimum thalweg elevation. Alternatively, a horizontal directional drill is preferable if geologic conditions are suitable for such a crossing.

What is the width of deep burial to avoid pipeline exposure from stream meander? This deeper burial will be maintained for approximately 100 feet from the base of the tall west bank to the southeast.

How will streambanks be stabilized following construction? No bank hardening with riprap is allowed. Erosion control blankets are to be installed during initial reclamation on stream banks. In addition, stream banks are to be planted with willow sprigs installed to just below the water table on each side of the creek. The disturbed stream banks also are to be reseeded.

Should clearing of riparian or wetland vegetation be minimized? Yes, to the extent possible, by reducing the ROW to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Should the right of way width be reduced at the approaches to the stream crossing? Yes, reduce to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Are additional valves recommended? No.

Is equipment cleaning required before and after work in stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW.

Will construction dewatering be necessary? Possibly.

Will hydrostatic test water be diverted from this stream or river? Not applicable.

Are there any site specific issues or mitigating measures? Main line equipment is to cross the creek on a temporary railroad bridge.

The pipeline crossing is to be constructed using the dam and pump, dam and flume, or horizontal directional drill method. If a horizontal directional drill crossing is used, all drilling mud and cuttings are to be disposed of in a manner that they will not reach or be transported by runoff to state waters.

In the past, Willow Creek has meandered across most of the valley. During the spring of 2011 flooding the channel remained relatively stable at the proposed crossing. However, a high water channel approximately 0.25 mile east of the proposed crossing was filled and there was evidence of headcutting in this high water channel when the crossing was reviewed in 2011. Deeper burial is required through this high water channel and 15 feet either side of this channel to protect the pipeline from future exposure.

In case the stream should begin to meander during the life of the pipeline, the pipeline could be exposed beyond the area slated for deep burial. To monitor this possibility, aerial markers are to be added on west bank, another about 1,500 feet east of the crossing at the turn in the pipeline, and a third about 600 feet further south, as shown on the attached figure. The stream channel and pipeline location (indicated between markers) will be monitored from the air or ground to determine if stream meander is taking place that would threaten the pipeline. If monitoring indicates stream meander may encroach on the pipeline, the pipeline will be lowered in place to ensure its integrity.

Are rookeries present within 500m of the crossing? Rookeries were not observed during the inspection.

Date: Oct. 13, 2011
Stream Name: Buggy Creek
Approximate Milepost: 55.26

FWP fisheries value class: Not rated. There was no flowing water present at the crossing site at the time of the inspection however a few scour holes upstream and downstream from the crossing contained standing pools of water.

Are special status fish or amphibians present? No records were found in FWP's MFISH database and no special status species were observed during the inspection, but pearl dace have been reported.

If so, timing of spawning and rearing? Not applicable (NA).

Are special timing restrictions needed? Other than to construct the crossing outside the spring runoff period, no additional timing restrictions are proposed beyond those listed in the Environmental Specifications.

What is the depth of burial based on stream channel scour calculations? Burial depth will be six feet below the minimum thalweg elevation (the low point in the stream channel cross section).

What is the width of deep burial to avoid pipeline exposure due to stream meander? Increased burial depth will be maintained for at least 15 feet on each side of the stream. If monitoring indicates that channel migration could occur in the future beyond the deep burial, the pipeline will be lowered in place to protect it from exposure.

How will streambanks be stabilized following construction? Bank hardening with riprap is not allowed. During initial reclamation following construction disturbance, erosion control blankets are to be installed on the streambanks and the stream banks are to be revegetated. Cottonwoods are to be planted off the permanent ROW and these plantings and the streambanks are to be temporarily fenced. After the banks are revegetated and cottonwoods established, the fencing shall be removed.

Should clearing of riparian or wetland vegetation be minimized? Yes, minimize the clearing of riparian and wetland vegetation to the extent reasonably possible, by reducing the ROW to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Should the right of way width be reduced at the approaches to the stream crossing? Yes, reduce the ROW width at the approaches to the crossing to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Are additional valves recommended? No.

Is equipment cleaning required before and after work in stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW and after construction of the crossing is complete.

Will construction dewatering be necessary? Possibly.

Will hydrostatic test water be diverted from this stream or river? NA (not applicable).

Are there any site specific issues or mitigating measures? Main line equipment is to cross the creek on a temporary bridge if water is present. The pipeline crossing is to be constructed using the dam and pump, dam and flume, or horizontal directional drill method. If a horizontal directional drill crossing is used, all drilling mud and cuttings are to be disposed of in a manner that they will not reach or be transported by runoff to state waters.

Are rookeries present within 500m of the crossing? Rookeries were not observed during the inspection.

Date: Oct. 13, 2011

Stream Name: Cherry Creek

Approximate Milepost: 65.95

FWP fisheries value class: Not rated. There was no flowing water present at the crossing site at the time of the inspection.

Are special status fish or amphibians present? No records were found in FWP's MFISH database and no special status species were observed during the inspection, but pearl dace have been reported.

If so, timing of spawning and rearing? Not applicable (NA).

Are special timing restrictions needed? Other than to construct the crossing outside the spring runoff period, no additional timing restrictions are proposed beyond those listed in the Environmental Specifications.

What is the depth of burial based on stream channel scour calculations? Burial depth will be six feet below the minimum thalweg elevation (the low point in the stream channel cross section).

What is the width of deep burial to avoid pipeline exposure due to stream meander? Increased burial depth will be maintained from the high bank on the west side to the high bank on the east side of the crossing. If monitoring indicates that channel migration could occur in the future beyond the deep burial, the pipeline will be lowered in place to protect it from exposure.

How will streambanks be stabilized following construction? Bank hardening with riprap is not allowed. During initial reclamation following construction disturbance, erosion control blankets are to be installed on the streambanks and the stream banks are to be revegetated. Cottonwoods are to be planted off the permanent ROW and these plantings and the streambanks are to be temporarily fenced. After the banks are revegetated and cottonwoods established, the fencing shall be removed.

Should clearing of riparian or wetland vegetation be minimized? Yes, minimize the clearing of riparian and wetland vegetation to the extent reasonably possible, by reducing the ROW to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Should the right of way width be reduced at the approaches to the stream crossing? Yes, reduce the ROW width at the approaches to the crossing to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Are additional valves recommended? No.

Is equipment cleaning required before and after work in stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW and after construction of the crossing is complete.

Will construction dewatering be necessary? Possibly.

Will hydrostatic test water be diverted from this stream or river? NA (not applicable).

Are there any site specific issues or mitigating measures? Main line equipment is to cross the creek on a temporary bridge if water is present. The pipeline crossing is to be constructed using the dam and pump, dam and flume, or horizontal directional drill method. If a horizontal directional drill crossing is used, all drilling mud and cuttings are to be disposed of in a manner that they will not reach or be transported by runoff to state waters.

Are rookeries present within 500m of the crossing? Rookeries were not observed during the inspection.

Date: Oct. 19, 2010
Stream Name: Milk River
Approximate Milepost: 83.3
FWP fisheries value class: 1

Are special status fish or amphibians present? Yes.

If so, timing of spawning and rearing? Spring-early summer.

Are special timing restrictions needed? Other than to construct the crossing outside the spring runoff period, no additional timing restrictions are proposed beyond those listed in the Environmental Specifications.

What is the depth of burial based on stream channel scour calculations? Depth of scour is estimated to be six feet below the minimum thalweg elevation. A horizontal directional drill is proposed to be about 40 feet below the thalweg, well below scour depth.

What is the width of deep burial to avoid pipeline exposure from stream meander? See the drawing of the crossing. The drilled crossing will be about 3,400 feet long from the bluff north of the highway and north of the Milk River to about 600 feet south of the river.

How will streambanks be stabilized following construction? Because this crossing is proposed as a horizontal directional drill, the streambanks should not be disturbed by pipeline construction.

Should clearing of riparian or wetland vegetation be minimized? Not applicable because this is a horizontal directional drill crossing.

Should the right of way width be reduced at the approaches to the stream crossing? Not applicable because this is a horizontal directional drill crossing.

Are additional valves needed? Valves will be placed approximately at mileposts 81.88 and 85.5.

Is equipment cleaning required before and after work in stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW. Canada thistle and leafy spurge are present at the stream crossing so equipment must be cleaned before moving through the stream crossing area. No cleaning is required if the existing bridge near Nashua is used to move equipment around the stream crossing.

Will construction dewatering be necessary? Unlikely.

Will hydrostatic test water be diverted from this stream or river? Not applicable.

Are there any site specific issues or mitigating measures? Main line equipment is to cross the river on a temporary bridge that would span the river or use existing bridges nearby. This temporary bridge may require off ROW access. Approaches to the temporary bridge will likely require grading, and these disturbances are to be reclaimed and revegetated.

Valley County's floodplain administrator has indicated the proposed pipeline would have no adverse effects on the Milk River floodplain (Shipp 2011). The pipeline location will be marked at fence lines across the floodplain and inspected from the air or if necessary from the ground to determine if stream channel migration is occurring. If monitoring indicates that future channel migration could occur beyond the deep burial zone associated with the drilled crossing, the pipeline will be lowered in place or a new drill conducted to prevent pipeline exposure.

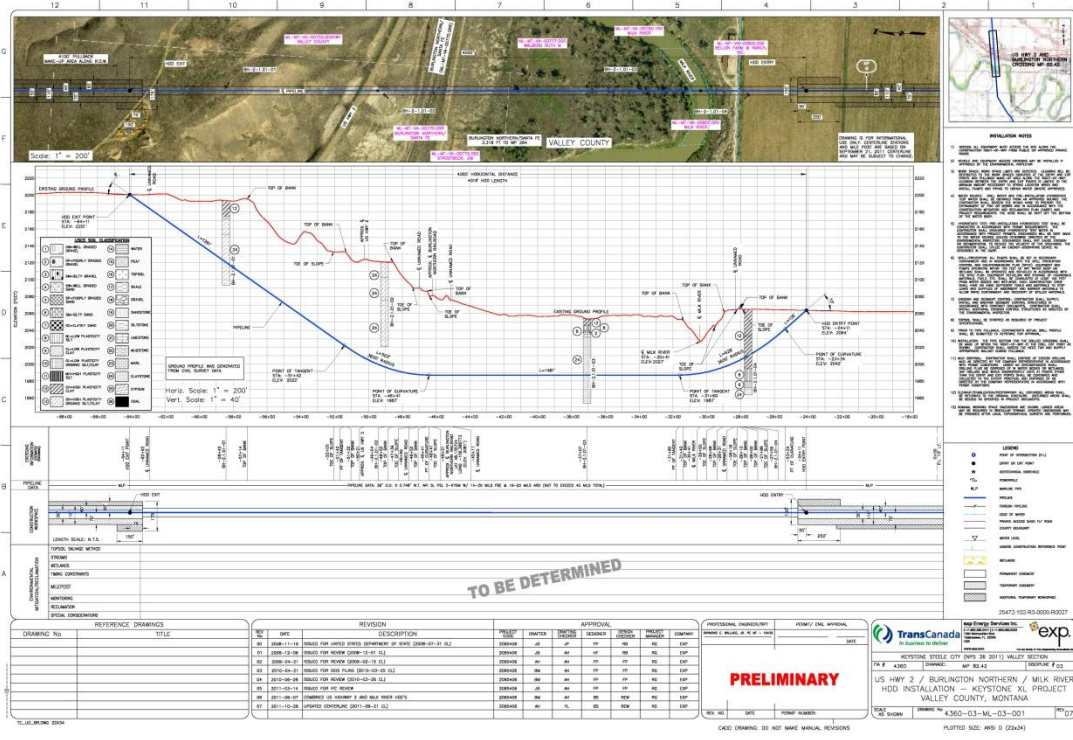
All drilling mud and cuttings are to be disposed of in a manner that they will not reach or be transported by runoff to state waters.

Are rookeries present within 500m of the crossing? Rookeries were not observed during the inspection.

Flooding during the spring of 2011 inundated the crossing site and some standing water was observed near the original start of the horizontal directional drill on the inside of the meander at the crossing. Some bank failure appeared to have occurred as a result of the flooding on the outside of the river bend at the crossing.

Reference:

Shipp, Cameron. 2011. Letter dated February 16, 2011 from Cameron Shipp, Valley County Floodplain administrator, to Dan Nebel, professional geologist, Terracon Consultants, Inc. Billings.



DRAWING No.	REFERENCE DRAWINGS	TITLE

REV.	DATE	DESCRIPTION	APPROVAL		
			DESIGNED	CHECKED	DATE
01	2009-11-19	ISSUED FOR UNITED STATES DEPARTMENT OF STATE (2009-11-19-01)			
02	2009-12-29	ISSUED FOR REVIEW (2009-12-29-02)			
03	2010-04-22	ISSUED FOR REVIEW (2010-04-22-03)			
04	2010-04-22	ISSUED FOR NEW PLAN (2010-04-22-04)			
05	2010-04-22	ISSUED FOR REVIEW (2010-04-22-05)			
06	2011-08-14	ISSUED FOR REVISION			
07	2011-08-02	ISSUED FOR REVISION (2011-08-02-07)			
08	2011-05-26	ISSUED FOR REVISION (2011-05-26-08)			

PROFESSIONAL ENGINEER	DATE	SCALE	PROJECT NUMBER

PRELIMINARY

TransCanada
 US HWY 2 / BURLINGTON NORTHERN / MILK RIVER
 HDD INSTALLATION - KEYSTONE XL PROJECT
 VALLEY COUNTY, MONTANA

25473 152 93 0000 R0007

Date: Oct. 19, 2010
Stream Name: Missouri River
Approximate Milepost: 89.6
FWP fisheries value class: 1

Are special status fish or amphibians present? Yes.

If so, timing of spawning and rearing? Spring-early summer.

Are special timing restrictions needed? No.

What is the depth of burial based on stream channel scour calculations? Two different estimates of scour depth were made by Keystone's consultants. The first estimate of scour depth based on a 100-year flow was five feet below the minimum thalweg elevation. A horizontal directional drill is proposed to be about 37 feet below the thalweg, well below this calculated scour depth.

The second scour estimate examined 2-year to 500-year flows as well as local scour caused by debris. This analysis indicates that the pipeline will be 30 feet below the greatest scour depth and approximately 44 feet below the greatest estimated local scour.

What is the width of deep burial to avoid pipeline exposure from stream meander? See the drawing of the crossing. The drilled crossing will be about 2,482 feet long, including the recommended extension of the drill another 450 feet on the south side of the river to place the pipeline well below a high water channel located there.

How will streambanks be stabilized following construction? Bank hardening with riprap is not allowed. The entry and exit points for the horizontal directionally drilled crossing will be located outside the likely stream channel meander zone.

Should clearing of riparian or wetland vegetation be minimized? Yes, clearing of trees and shrubs is to be minimized to the extent possible, recognizing that the set up for a horizontal directional drill will need more space in the riparian zone than a conventional crossing. The entry/exit point on the south side of the river will be south of the cottonwood trees associated with the high water channel, to preserve these trees.

Should the right of way width be reduced at the approaches to the stream crossing? Yes, to the extent possible, recognizing that the set up for a horizontal directional drill will need more space in the riparian zone than a conventional crossing. Mature cottonwood trees should be preserved where practicable on the construction right of way south of the river.

Are additional valves required? Yes, an additional motor operated block valve is required on the north side of the Missouri River at either approximate milepost 87.9 or milepost 88.6. An additional check and manually operated valve is required on the south side of the Missouri River at approximate milepost 90.6.

Is equipment cleaning required before and after work in stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW and before leaving the drill side on the south side of the river.

Will construction dewatering be necessary? Construction dewatering is unlikely.

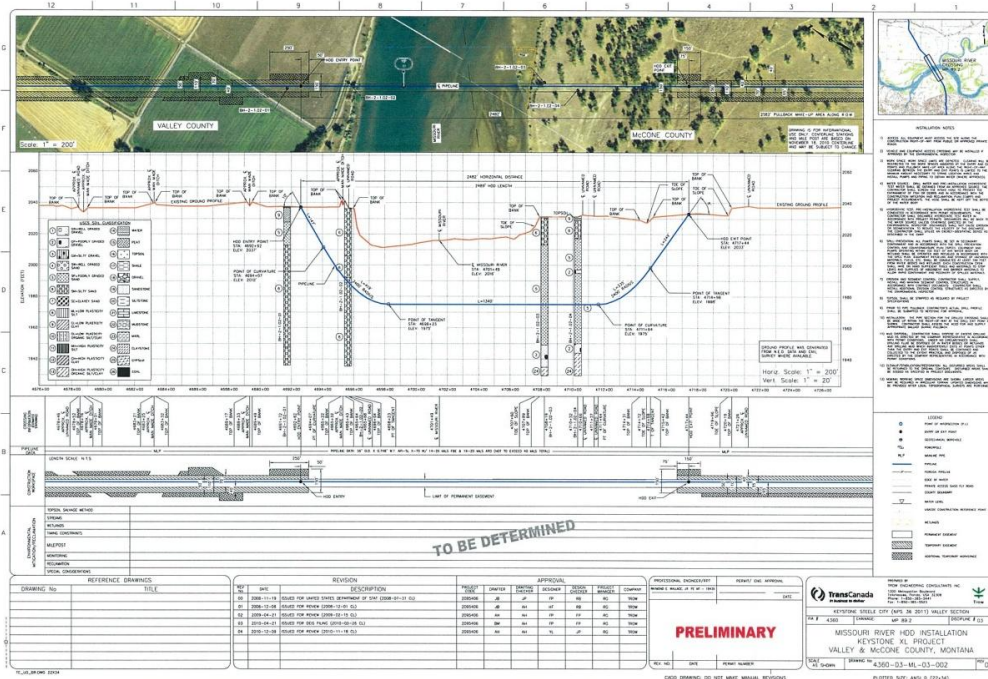
Will hydrostatic test water be diverted from this stream or river? Yes. The diversion rate for hydrostatic testing is not yet determined. Keystone will have to apply for and obtain a water use permit from the Department of Natural Resources and Conservation. Montana Fish, Wildlife and Parks holds an instream flow reservation that may restrict the time and rate at which water is diverted from the Missouri River.

Are there any site specific issues or mitigating measures? Main line equipment must drive around this crossing on existing roads.

The stream channel did not migrate appreciably during the 2011 flood.

All drilling mud and cuttings are to be disposed of in a manner that they will not reach or be transported by runoff to state waters.

Are rookeries present within 500 M of the crossing? Rookeries were not observed during the inspection.





Date: Oct. 20, 2010
Stream Name: Strupel Coulee Tributary
Approximate Milepost: 94.4

FWP fisheries value class: The stream is not rated. This is a very small intermittent stream with almost no water flowing at the time of the inspection.

Are special status fish or amphibians present? No records were found in FWP's MFISH database and no special status species were observed during the inspection.

If so, timing of spawning and rearing? NA.

Are special timing restrictions needed? Other than to construct the crossing outside the spring runoff period, no additional timing restrictions are proposed beyond those listed in the Environmental Specifications.

What is the depth of burial based on stream channel scour calculations? The five-foot burial depth below the minimum thalweg elevation will take into account head cutting observed in the drainage.

What is the width of deep burial to avoid pipeline exposure from stream meander? The five foot burial depth is to be maintained for at least 30 feet total, extending about 15 feet on each side of the stream channel.

How will streambanks be stabilized following construction? Bank hardening with riprap is not allowed. During initial reclamation following construction disturbance, erosion control blankets are to be installed on the stream banks, and the stream banks are to be reseeded and revegetated.

Should clearing of riparian or wetland vegetation be minimized? Yes, to the extent possible, by reducing the ROW to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan. Save as many of the large shrubs as possible. Flag the larger trees as save trees.

Should the right of way width be reduced at the approaches to the stream crossing? Yes, reduce to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Are additional valves needed? No.

Is equipment cleaning required before and after work in the stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW.

Will construction dewatering be necessary? Possibly.

Will hydrostatic test water be diverted from this stream or river? Not applicable.

Are there any site specific issues or mitigating measures? Main line equipment is to cross the creek on a temporary bridge.

Rookeries present within 500m of the crossing? Rookeries were not observed during the inspection.

Date: Oct. 20, 2010

Stream Name: Jorgenson Coulee Tributary

Approximate Milepost: 95.7

FWP fisheries value class: Not rated. No flowing water was present at the time of the inspection.

Are special status fish or amphibians present? No records were found in FWP's MFISH database and no special status species were observed during the inspection.

If so, timing of spawning and rearing? NA.

Are special timing restrictions needed? Other than to construct the crossing outside the spring runoff period, no additional timing restrictions are proposed beyond those listed in the Environmental Specifications.

What is the depth of burial based on stream channel scour calculations? The pipeline will be buried five feet below the bottom of the scour hole on the downstream side of the construction ROW.

What is the width of deep burial to avoid pipeline exposure from stream meander? The five-foot burial depth below the thalweg will be maintained across the valley bottom for about 40 feet total, beginning 15 feet from the north side of the creek and extending 25 feet on the south side.

How will streambanks be stabilized following construction? Bank hardening with riprap is not allowed. During initial reclamation following construction disturbance, erosion control blankets are to be installed on the stream banks, and the stream banks are to be reseeded and revegetated.

Should clearing of riparian or wetland vegetation be minimized? Yes, clearing is to be minimized to the extent possible by reducing the ROW to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan. Flag and save as many of the green ash trees as possible.

Should the right of way width be reduced at the approaches to the stream crossing? Yes, reduce to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Are additional valves needed? No.

Is equipment cleaning required before and after work in stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW.

Will construction dewatering be necessary? Possibly.

Will hydrostatic test water be diverted from this stream or river? Not applicable.

Are there any site specific issues or mitigating measures? Main line equipment is to cross the creek on temporary matting or, if flowing water is present, on a temporary bridge.

Are rookeries present within 500m of the crossing? Rookeries were not observed during the inspection.

Date: Oct. 20, 2010

Stream Name: East Fork Prairie Elk Creek (close to the original crossing location just southwest of a deep pool).

Approximate Milepost: 128.8

FWP fisheries value class: 5. Flowing water was not present at the time of the inspection.

Are special status fish or amphibians present? No records were found in FWP's MFISH database and no special status species were observed during the inspection.

If so, timing of spawning and rearing? NA.

Are special timing restrictions needed? Other than to construct the crossing outside the spring runoff period, no additional timing restrictions are proposed beyond those listed in the Environmental Specifications.

What is the depth of burial based on stream channel scour calculations? Burial depth will be eight feet below the minimum thalweg elevation (the low point in the stream channel cross section).

What is the width of deep burial to avoid pipeline exposure from stream meander? Increased burial depth will be extended for approximately 70 feet across the low channel bottom.

How will streambanks be stabilized following construction? Bank hardening with riprap is not allowed. During reclamation, erosion control blankets are to be installed on the stream banks, and the stream banks are to be reseeded and revegetated.

Should clearing of riparian or wetland vegetation be minimized? Yes, to the extent possible by reducing the ROW to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Should the right of way width be reduced at the approaches to the stream crossing? Yes, reduce to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Are additional valves recommended? No.

Is equipment cleaning required before and after work in stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW.

Will construction dewatering be necessary? Possibly.

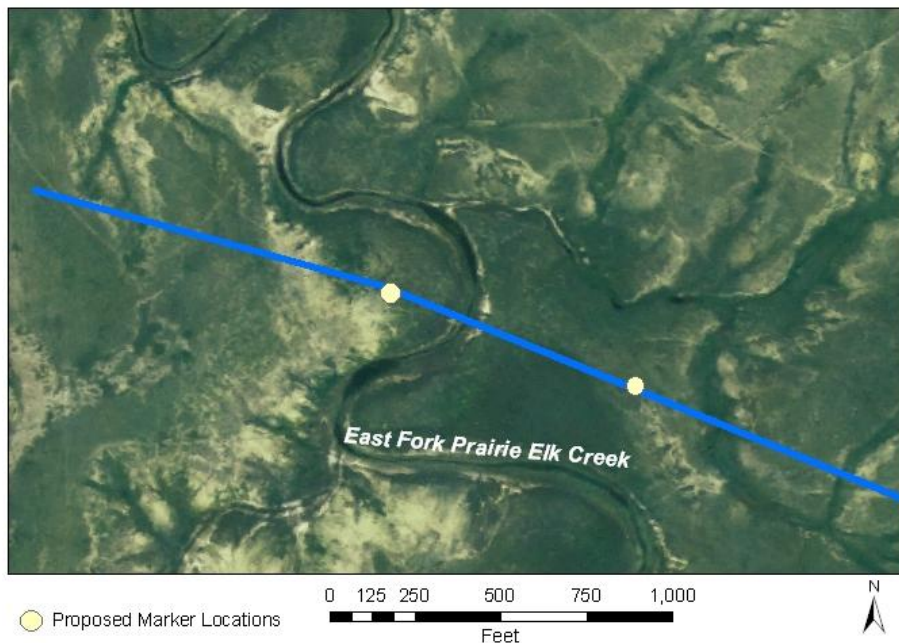
Will hydrostatic test water be diverted from this stream or river? Not applicable.

Are there any site specific issues or mitigating measures? Main line equipment is to cross the creek on temporary matting if flowing water is not present. If flowing water is present, then equipment would use a temporary bridge.

The stream channel remained relatively stable after the high water in the spring of 2011.

Add aerial markers on the east and west sides of the creek, as shown on the attached figure. Using these markers, the crossing will be monitored from the air during regularly scheduled aerial inspections, or if necessary from the ground, to determine if stream meander is taking place. If monitoring indicates stream meander may encroach on the pipeline, the pipeline will be lowered in place below scour depth to ensure its integrity.

Are rookeries present within 500m of the crossing? No rookeries were observed.



Date: Oct. 22, 2010

Stream Name: Redwater River. Note that during the field inspection the crossing alignment was adjusted, as noted on the attached figure, to avoid a tall stream bank.

Approximate Milepost: 148.4
FWP fisheries value class: 2

Are special status fish or amphibians present? Yes.

If so, timing of spawning and rearing? Spring/summer.

Are special timing restrictions needed? Other than to construct the crossing outside the spring runoff period, no additional timing restrictions are proposed beyond those listed in the Environmental Specifications.

What is the depth of burial based on stream channel scour calculations? Burial depth based on the original MTV-6 location was estimated to be 10 feet below the minimum thalweg elevation (the low point in the stream channel cross section).

What is the width of deep burial to avoid pipeline exposure from stream meander? Final width has not yet been determined for the revised location and will be prior to construction at this site. Because of the width and depth of this crossing, a horizontal directional drill crossing (HDD) is a preferred alternative to the dry open trench crossing method if the HDD crossing is technically feasible.

How will streambanks be stabilized following construction? Bank hardening with riprap is not allowed. During initial reclamation, erosion control blankets are to be installed on the stream banks, and the stream banks are to be reseeded and revegetated.

Should clearing of riparian or wetland vegetation be minimized? Yes, by reducing the ROW to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Should the right of way width be reduced at the approaches to the stream crossing? Yes, reduce to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Are additional valves recommended? No.

Is equipment cleaning necessary before and after work in stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW.

Will construction dewatering be necessary? Probably.

Will hydrostatic test water be diverted from this stream or river? Not applicable.

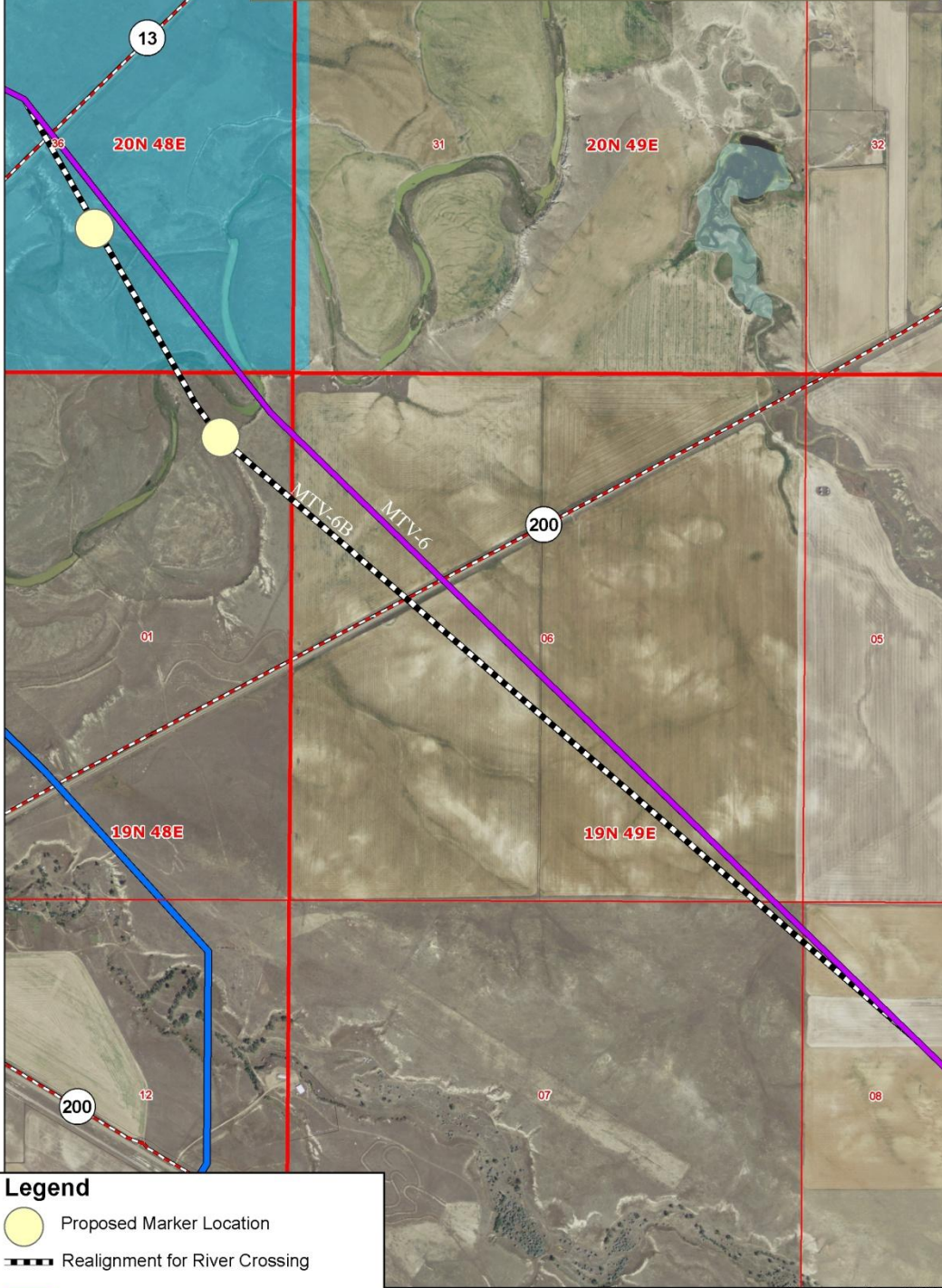
Site specific issues/mitigations? During the field inspection the crossing of Redwater River was moved about 500 feet upstream, as shown on the attached figure, to avoid a 20-foot vertical bank on the south side of the river. Main line equipment is to cross the stream on a temporary bridge near the revised crossing location. The bridge will span the stream. To avoid crossing at a wide pool where spanning may not be possible, this equipment crossing may be located outside the construction ROW.

The stream channel remained relatively stable during the 2011 spring runoff.

Aerial markers are to be installed outside the stream channel meander zone so that air surveys that occur about every other week can determine whether channel movement could expose the pipeline. If channel movement looks as though it is progressing toward the pipeline, then the pipeline will be lowered below scour depth to prevent exposure.

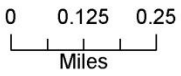
Are rookeries present within 500 M of the stream crossing? No rookeries were observed.

Proposed Keystone XL pipeline: Realignment for Redwater River crossing



Legend

- Proposed Marker Location
- Realignment for River Crossing
- Montana Variations
- Proposed Alternative B
- State and secondary highway
- State Lands



GIS map created by C. Jones 11/19/10
L:\PC\EM\B\Gib\WPSA\keystone_XL\Maps\Realignment_Maps\RedwaterC6.mxd or .jpg

Date: Oct. 21, 2010
Stream Name: Clear Creek at realignment
Approximate Milepost: 177.1

FWP fisheries value class: 3. Flowing water was not present at the time of the inspection.

Are special status fish or amphibians present? No special status species were observed during the inspection.

If so, timing of spawning and rearing? NA.

Are special timing restrictions needed? Other than to construct the crossing outside the spring runoff period, no additional timing restrictions are proposed beyond those listed in the Environmental Specifications.

What is the depth of burial based on stream channel scour calculations? Burial depth will be six feet below the minimum thalweg elevation (the low point in the stream channel cross section).

What is the width of deep burial to avoid pipeline exposure from stream meander? Deep pipeline burial will be maintained from the base of the high bank on the south side of the creek to the field edge north of the channel for approximately 40 feet total.

How will streambanks be stabilized following construction? Bank hardening with riprap is not allowed. During initial reclamation following construction disturbance, erosion control blankets are to be installed on the stream banks, and the stream banks are to be reseeded and revegetated.

Should clearing of riparian or wetland vegetation be minimized? Yes, by reducing the ROW to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Should the right of way width be reduced at the approaches to the stream crossing? Yes, reduce to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Are additional valves needed? No.

Is equipment cleaning required before and after work in the stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW. Canada thistle is present so equipment needs to be cleaned before moving from the construction area.

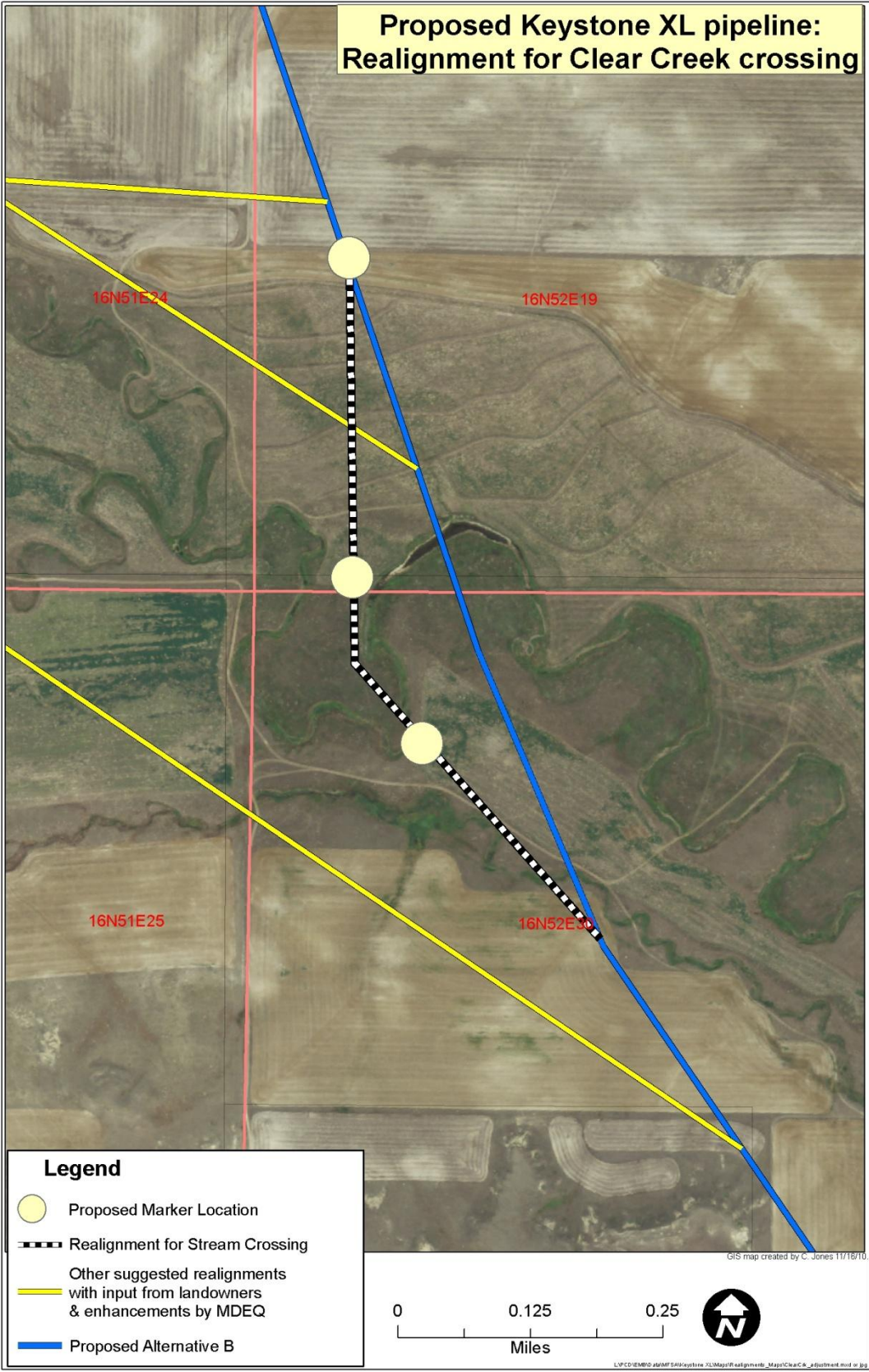
Will construction dewatering be necessary? Probably.

Will hydrostatic test water be diverted from this stream or river? Not applicable.

Site specific issues/mitigations? This crossing was moved about 600 feet to the west in order to avoid a deep pool and developed spring, as shown on the attached figure. Main line equipment is to cross the creek on a temporary bridge that will span the creek. Aerial markers are to be installed over the centerline on the field boundary south of the creek and at the two fence lines north of the crossing. Using these markers, the crossing will be monitored from the air or, if necessary, from the ground to determine if stream meander is taking place. If monitoring indicates stream meander may encroach on the pipeline, the pipeline will be lowered in place below scour depth to ensure its integrity.

The stream channel configuration did not change substantially during the spring of 2011 high flows.

Are rookeries present within 500m of the crossing? No rookeries were observed.



Date: Oct. 21, 2010
Stream Name: Yellowstone River
Approximate Milepost: 197.8
FWP fisheries value class: 1

Are special status fish or amphibians present? Yes.

If so, timing of spawning and rearing? Spring-early summer.

Are special timing restrictions needed? None.

What is the depth of burial based on stream channel scour calculations? Two different estimates of scour depth were made by Keystone's consultants. The first depth of scour is estimated to be five feet below the minimum thalweg elevation based on a 100-year flow. A horizontal directional drill is proposed to be about 55 feet below the thalweg, well below scour depth.

The second analysis examined scour that may result from 2-year to 500-year flows using an unrestricted depth of gravel. These estimates indicate that the pipeline would be between 35 and 17 feet below the calculated scour depths. Note however that a borehole indicates that sandstone, more resistant to scour than gravel, is present and that there would be up to 35 feet of sandstone above the pipeline providing additional scour resistance.

What is the width of deep burial to avoid pipeline exposure from stream meander? See the drawing of the crossing. The drilled crossing would be about 3,200 feet long, extending below the high water channel on the north side of the river as well as the main channel.

How will streambanks be stabilized following construction? No bank stabilization is anticipated due to the horizontal directional drill.

Should clearing of riparian or wetland vegetation be minimized? The entry points will be outside the riparian zones.

Should the right of way width be reduced at the approaches to the stream crossing? NA.

Are additional valves required? Yes. The motor actuated block valve on the north side of the Yellowstone River must be moved from approximately milepost 195.5 to between approximate mileposts 197.1 and 197.2, as indicated on the attached figure. An additional check valve must be added on the south side of the Yellowstone River at approximate milepost 198.1, as shown on the attached figure.

Is equipment cleaning required before and after work in stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW. Leafy

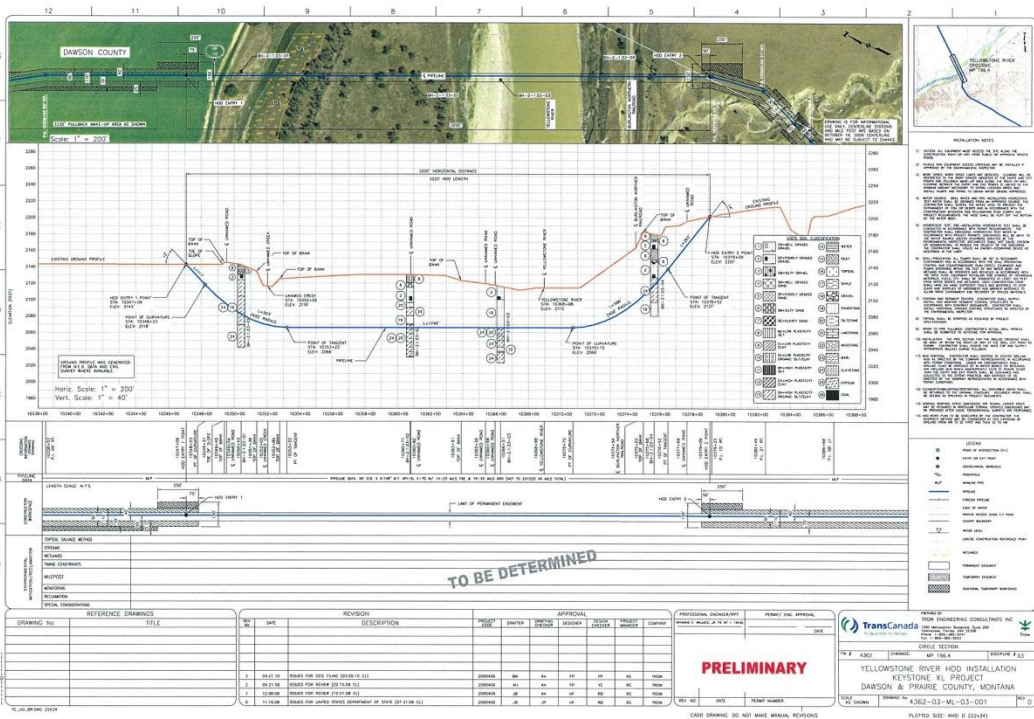
spurge is present in the uncultivated area on the north side of the river so any equipment or pumps used during hydrostatic testing in this area must be cleaned before leaving.

Will construction dewatering be necessary? Unlikely.

Will hydrostatic test water be diverted from this stream or river? The source and diversion rate have not yet determined. Keystone will have to apply for and obtain a water use permit from the Department of Natural Resources and Conservation. Montana Fish, Wildlife and Parks holds a sizeable instream flow reservation that may restrict the time and rate at which water is diverted from the Yellowstone River.

Are there any site specific issues or mitigating measures? Main line equipment is to drive around this crossing on existing roads. All drilling mud and cuttings are to be disposed of in a manner such that they will not reach or be transported by runoff to state waters.

Are rookeries present within 500m of the crossing? No rookeries were observed.





Date: Oct. 22, 2010
Stream Name: Dry Fork Creek
Approximate Milepost: 228.75

FWP fisheries value class: 6. Note that at this location Dry Fork Creek is located in a relatively wide wetland.

Are special status fish or amphibians present? No records were found in FWP's MFISH database and no special status species were observed during the inspection.

If so, timing of spawning and rearing? NA.

Are special timing restrictions needed? Other than to construct the crossing outside the spring runoff period, no additional timing restrictions are proposed beyond those listed in the Environmental Specifications.

What is the depth of burial based on stream channel scour calculations? Burial depth will be six feet below the minimum thalweg elevation (the low point in the stream channel cross section).

What is the width of deep burial to avoid pipeline exposure from stream meander? The deep pipeline burial will be extended across the wetland for about 170 feet.

How will streambanks be stabilized following construction? Bank hardening with riprap is not allowed. During initial reclamation, erosion control blankets are to be installed on the stream banks and the stream banks are to be reseeded and revegetated.

Should clearing of riparian or wetland vegetation be minimized? Yes, by moving the centerline about 50 feet east to avoid the buffalo berry shrubs and by reducing the ROW to 85 feet per page 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Should the right of way width be reduced at the approaches to the stream crossing? Yes, reduce to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Are additional valves needed? No.

Is equipment cleaning required before and after work in stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW.

Will construction dewatering be necessary? Possibly.

Will hydrostatic test water be diverted from this stream or river? Not applicable.

Site specific issues/mitigations? Move the centerline about 50 feet east to avoid the buffalo berry shrubs. Main line equipment to cross the wetland on a matted crossing.

The stream channel did not show evidence of much lateral movement as a result of high flow during the spring of 2011.

Rookeries present within 500m? No rookeries were observed.

Date: Oct. 22, 2010
Stream Name: Unnamed tributary of Pennel Creek
Approximate Milepost: 233.6

FWP fisheries value class: Not rated, flowing water was not present at the time of the inspection.

Are special status fish or amphibians present? No special status species were observed during the inspection.

If so, timing of spawning and rearing? NA.

Are special timing restrictions needed? Other than to construct the crossing outside the spring runoff period, no additional timing restrictions are proposed beyond those listed in the Environmental Specifications.

What is the depth of burial based on stream channel scour calculations? Burial depth will be six feet below the minimum thalweg elevation (the low point in the stream channel cross section).

What is the width of deep burial to avoid pipeline exposure from stream meander? The six-foot burial depth will be maintained for approximately 25 feet, with the understanding that the deep burial may extend further to the northwest to facilitate crossing of the pipelines located there.

How will streambanks be stabilized following construction? Bank hardening with riprap is not allowed. During initial reclamation, erosion control blankets are to be installed on the stream banks and the stream banks are to be reseeded and revegetated.

Should clearing of riparian or wetland vegetation be minimized? Yes, by reducing the ROW to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Should the right of way width be reduced at the approaches to the stream crossing? Yes, reduce to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Are additional valves needed? No.

Is equipment cleaning required before and after work in stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW. Canada thistle is present so equipment needs to be cleaned before moving off this site.

Will construction dewatering be necessary? Possibly.

Will hydrostatic test water be diverted from this stream or river? Not applicable.

Site specific issues/mitigations? Main line equipment is to cross the creek on a temporary bridge that will span the creek.

Are rookeries present within 500m of the crossing? No rookeries were observed.

Date: Oct. 14, 2011
Stream Name: Pennel Creek
Approximate Milepost: 235.3
FWP fisheries value class: 5

Are special status fish or amphibians present? No records were found in FWP's MFISH database and no special status species were observed during the inspection.

If so, timing of spawning and rearing? NA.

Are special timing restrictions needed? Other than to construct the crossing outside the spring runoff period, no additional timing restrictions are proposed beyond those listed in the Environmental Specifications.

What is the depth of burial based on stream channel scour calculations? Burial depth will be six feet below the minimum thalweg elevation (the low point in the stream channel cross section).

What is the width of deep burial to avoid pipeline exposure from stream meander? The six-foot burial depth will be maintained from the base of the steep south bank and maintained across the wetland fringe on the north side of the crossing.

How will streambanks be stabilized following construction? Bank hardening with riprap is not allowed. During initial reclamation, erosion control blankets are to be installed on the stream banks and the stream banks are to be reseeded and revegetated.

Should clearing of riparian or wetland vegetation be minimized? Yes, by reducing the ROW to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Should the right of way width be reduced at the approaches to the stream crossing? Yes, reduce to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Are additional valves needed? No.

Is equipment cleaning required before and after work in stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW. Canada thistle is present so equipment needs to be cleaned before moving off this site.

Will construction dewatering be necessary? Possibly.

Will hydrostatic test water be diverted from this stream or river? Not applicable.

Site specific issues/mitigations? Main line equipment is to cross the creek on a temporary bridge that will span the creek and matting will be placed on the wetland

fringe on the north bank as necessary. The south bank is very steep and will be graded back to facilitate revegetation. Erosion control will be critical on this slope and with landowner permission consideration should be given to fencing this slope until vegetation is reestablished.

Are rookeries present within 500m of the crossing? No rookeries were observed.

Date: Oct. 14, 2011
Stream Name: Sandstone Creek
Approximate Milepost: 246.85
FWP fisheries value class: 5

Are special status fish or amphibians present? No records were found in FWP's MFISH database and no special status species were observed during the inspection.

If so, timing of spawning and rearing? NA.

Are special timing restrictions needed? Other than to construct the crossing outside the spring runoff period, no additional timing restrictions are proposed beyond those listed in the Environmental Specifications.

What is the depth of burial based on stream channel scour calculations? Burial depth will be eight feet below the minimum thalweg elevation (the low point in the stream channel cross section).

What is the width of deep burial to avoid pipeline exposure from stream meander? The eight-foot burial depth will be maintained from the top of the north bank to the top of the south bank.

How will streambanks be stabilized following construction? Bank hardening with riprap is not allowed. During initial reclamation, erosion control blankets are to be installed on the stream banks and the stream banks are to be reseeded and revegetated. Snowberry shrubs are present in patches along the creek and snowberry is to be included in the seed mix.

Should clearing of riparian or wetland vegetation be minimized? Yes, by reducing the ROW to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Should the right of way width be reduced at the approaches to the stream crossing? Yes, reduce to 85 feet per p. 48 of the November 2008 Construction, Mitigation, and Reclamation Plan.

Are additional valves needed? No.

Is equipment cleaning required before and after work in stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW. Canada thistle is present so equipment needs to be cleaned before moving off this site.

Will construction dewatering be necessary? Possibly.

Will hydrostatic test water be diverted from this stream or river? Not applicable.

Site specific issues/mitigations? Main line equipment is to cross the creek on a temporary bridge that will span the creek. Aerial markers are to be installed over the centerline at the top of the bank at the crossing and at the fence to the north of the crossing. Using these markers, the crossing will be monitored from the air or, if necessary, from the ground to determine if stream meander is taking place. If monitoring indicates stream meander may encroach on the pipeline, the pipeline will be lowered in place below scour depth to ensure its integrity.

Are rookeries present within 500m of the crossing? Rookeries were not observed.

Date: Oct. 22, 2010
Stream Name: Little Beaver Creek
Approximate Milepost: 265.14
FWP fisheries value class: 5

Are special status fish or amphibians present? No special status species were noted during this inspection but frogs and turtles were observed earlier in 2010.

If so, timing of spawning and rearing? Spring and summer.

Are special timing restrictions needed? Other than to construct the crossing outside the spring runoff period, no additional timing restrictions are proposed beyond those listed in the Environmental Specifications.

What is the depth of burial based on stream channel scour calculations? Burial depth will be eight feet below the minimum thalweg elevation (the low point in the stream channel cross section).

What is the width of deep burial to avoid pipeline exposure from stream meander? Increased burial depth will be extended for approximately 180 feet across the modern floodplain, from the base of the steep bank northwest of the stream crossing to the base of the second terrace southeast of the crossing.

How will streambanks be stabilized following construction? Bank hardening with riprap is not allowed. During reclamation, erosion control blankets are to be installed on the stream banks, and the stream banks are to be reseeded and revegetated.

Should clearing of riparian or wetland vegetation be minimized? Yes, to the extent practicable given the length of the deep burial.

Should the right of way width be reduced at the approaches to the stream crossing? Yes, to the extent practicable given the length of the deep burial.

Are additional valves needed? No.

Is equipment cleaning required before or after work in stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW.

Will construction dewatering be necessary? Probably.

Will hydrostatic test water be diverted from this stream or river? Not applicable.

Site specific issues/mitigations? Main line equipment is to cross the creek on a temporary bridge that will span the creek. The centerline was moved about 100 feet downstream during the inspection to avoid the deepest part of a pool, making a dam and

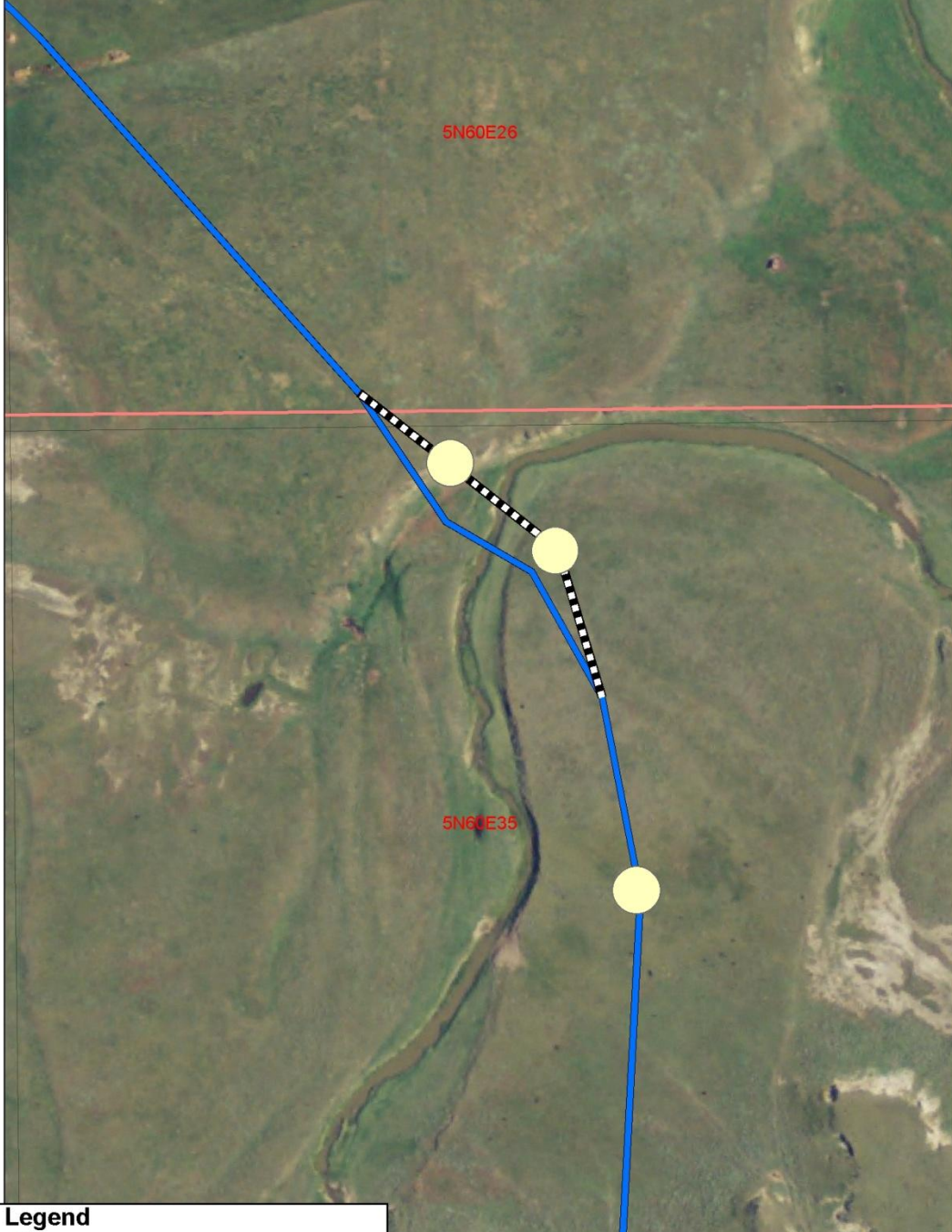
pump or dam and flume crossing more feasible. However, given the width of deep burial, a horizontal directional drill would be a preferred method of crossing if geologic conditions allow it. Erosion must be controlled on the steep bank northwest of the crossing during construction and reclamation.

Aerial markers are to be added at the points shown on the attached figure. Using these markers, the crossing will be monitored from the air or, if necessary, from the ground to determine if stream meander is taking place. If monitoring indicates stream meander may encroach on the pipeline, the pipeline will be lowered in place below scour depth to ensure its integrity.




The stream channel configuration did not appreciatively move laterally at the crossing site following the high water during the spring of 2011.

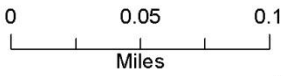
Are rookeries present within 500m of the crossing? Rookeries were not observed.

Proposed Keystone XL pipeline: Realignment for Little Beaver Creek crossing



Legend

-  Proposed Marker Location
-  Realignment for Stream Crossing
-  Proposed Alternative B



GIS map created by C. Jones 11/16/10

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Date: Oct. 14, 2011
Stream Name: North Fork Coal Bank Coulee
Approximate Milepost: 279.09
FWP fisheries resource value class: 4

Are special status fish or amphibians present? No special status species were noted during this inspection and no records were found in the FWP's MFISH database.

If so, timing of spawning and rearing? Spring and summer if they were present.

Are special timing restrictions needed? Other than to construct the crossing outside the spring runoff period, no additional timing restrictions are proposed beyond those listed in the Environmental Specifications.

What is the depth of burial based on stream channel scour calculations? Burial depth will be six feet below the minimum thalweg elevation (the low point in the stream channel cross section).

What is the width of deep burial to avoid pipeline exposure from stream meander? Increased burial depth will be extended for approximately 75 feet.

How will streambanks be stabilized following construction? Bank hardening with riprap is not allowed. During initial reclamation, erosion control blankets are to be installed on the stream banks and the stream banks are to be reseeded and revegetated.

Should clearing of riparian or wetland vegetation be minimized? Yes, to the extent practicable given the length of the deep burial.

Should the right of way width be reduced at the approaches to the stream crossing? Yes, to the extent practicable given the length of the deep burial.

Are additional valves needed? No.

Is equipment cleaning required before or after work in stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW.

Will construction dewatering be necessary? Possibly.

Will hydrostatic test water be diverted from this stream or river? Not applicable.

Site specific issues/mitigations? Main line equipment is to cross the creek on a temporary matting bridge that will span the creek.

Are rookeries present within 500m of the crossing? Rookeries were not observed.

Date: Oct. 14, 2011
Stream Name: South Fork Coal Bank Coulee
Approximate Milepost: 282.03
FWP fisheries resource value class: 5

Are special status fish or amphibians present? No special status species were noted during this inspection but frogs and turtles were observed earlier in 2010.

If so, timing of spawning and rearing? Spring and summer.

Are special timing restrictions needed? Other than to construct the crossing outside the spring runoff period, no additional timing restrictions are proposed beyond those listed in the Environmental Specifications.

What is the depth of burial based on stream channel scour calculations? Burial depth will be eight feet below the minimum thalweg elevation (the low point in the stream channel cross section).

What is the width of deep burial to avoid pipeline exposure from stream meander? Increased burial depth will be extended for approximately 65 feet from the base of the slope to the base of the slope.

How will streambanks be stabilized following construction? Bank hardening with riprap is not allowed. During initial reclamation, erosion control blankets are to be installed on the stream banks and the stream banks are to be reseeded and revegetated.

Should clearing of riparian or wetland vegetation be minimized? Yes, to the extent practicable given the length of the deep burial.

Should the right of way width be reduced at the approaches to the stream crossing? Yes, to the extent practicable given the length of the deep burial.

Are additional valves needed? No.

Is equipment cleaning required before or after work in stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW.

Will construction dewatering be necessary? Possibly.

Will hydrostatic test water be diverted from this stream or river? Not applicable.

Site specific issues/mitigations? Main line equipment is to cross the creek on a temporary bridge that will span the creek with additional matting as needed through the wetland. During the inspection a concern was raised over the possibility of punching through a confining layer and creek flow being diverted to deeper groundwater and not being available for livestock. The trench will be pumped to expose the bottom of the

trench for a visual inspection to determine if a confining layer is present. Bentonite will be used to seal the bottom of the trench if a confining layer is breached during construction

Are rookeries present within 500m of the crossing? Rookeries were not observed.

Date: Oct. 14, 2011
Stream Name: Boxelder Creek
Approximate Milepost: 284.25
FWP fisheries resource value class: 2

Are special status fish or amphibians present? Yes.

If so, timing of spawning and rearing? Spring and summer.

Are special timing restrictions needed? Other than to construct the crossing outside the spring runoff period, no additional timing restrictions are proposed beyond those listed in the Environmental Specifications.

What is the depth of burial based on stream channel scour calculations? Burial depth will be six feet below the minimum thalweg elevation (the low point in the stream channel cross section).

What is the width of deep burial to avoid pipeline exposure from stream meander? Increased burial depth will be extended for approximately 115 feet, more if a horizontal directional drill is used.

How will streambanks be stabilized following construction? Bank hardening with riprap is not allowed. During initial reclamation, erosion control blankets are to be installed on the stream banks and the stream banks are to be reseeded and revegetated.

Should clearing of riparian or wetland vegetation be minimized? Yes, to the extent practicable given the length of the deep burial.

Should the right of way width be reduced at the approaches to the stream crossing? Yes, to the extent practicable given the length of the deep burial.

Are additional valves needed? No.

Is equipment cleaning required before or after work in stream due to presence of exotic species? Equipment is to be cleaned and dried prior to moving to the ROW in Montana.

Will construction dewatering be necessary? Possibly.

Will hydrostatic test water be diverted from this stream or river? Not applicable.

Site specific issues/mitigations? Main line equipment is to cross the creek on a temporary bridge that may be located off the construction ROW. The temporary bridge will attempt to span the creek.

Additional investigations are underway to determine if geological conditions are suitable for a horizontal directionally drilled crossing. Boxelder Creek is larger than most of the

creeks crossed by the pipeline in Montana. Given the relatively large flow in the creek, the horizontal directional drilled crossing is preferred over dam and pump or dam and flume methods if it is technically feasible.

Are rookeries present within 500m of the crossing? Rookeries were not observed.

Table L-1 briefly describes the proposed burial depth at other stream crossings.

Table L-1: Additional Stream Crossing Burial Depths

Approximate Milepost	Stream Name	Depth of Burial Below the Thalweg (feet)	Width of Deep Burial (feet)
6.24	Lost Creek (MTV-6)	6	65
70.4	Spring Coulee	5	40

Appendix M: Hazardous Materials Management Plan

Releases and spills of hazardous materials will be reported immediately to the state's Disaster and Emergency Services (DES) 24-hour phone number (406) 841-3911 and the STATE INSPECTOR. If no one can be reached at that number, the release or spill will be reported to the Montana Department of Environmental Quality (DEQ) duty officer at (406) 431-0014. In addition to the following reporting requirements, notification(s) may be required by permits issued by state, federal, or local government agencies. Notification to the National Response Center (NRC) may also be required. NRC can be reached at 800-424-8802. DES and DEQ are not responsible for making this notification.

The following types of spills must be reported to DES/DEQ:

- Releases or spills of hazardous substances in amounts that meet or exceed the reportable quantities in 40 CFR Part 302. Notification to DES and NRC is required.
- Spills, overfills, and suspected releases from underground storage tanks and petroleum storage tanks. ARM 17.56.501, *et seq.*
- Releases or spills of any materials that would lower the quality of any ground waters of the state below ground water quality standards. ARM 17.30.1045.
- Spills of twenty-five (25) gallons or more of any petroleum product such as: gasoline, diesel fuel, aviation fuel, asphalt, road oil, kerosene, fuel oil; produced water, injection water, or combination thereof; and derivatives of mineral, animal, or vegetable oils.

The following types of spills should be reported to DES/DEQ:

- Spills that enter or may enter state water or a drainage that leads directly to surface water;
- Spills that cause sludge or emulsion beneath the surface of the water, stream banks, or shorelines;
- Spills that cause a film, "sheen", or change the color of the water, stream banks, or shorelines; or
- Spills of 25 gallons or more of crude oil.

The OWNER shall comply with emergency response procedures for incidents (e.g., spills, leaks, fires) involving hazardous materials developed by OWNER as required by the Construction, Mitigation, and Reclamation Plan.

Appendix N: Fire Prevention and Suppression Plan

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1.0 INTRODUCTION

This plan identifies measures to be taken during pipeline construction, operation, and maintenance to ensure that fire prevention and suppression techniques are carried out in accordance with federal, state, and applicable local regulations. The fire control authority contact names identified in Table N-1 will be updated prior to the start of construction.

2.0 PURPOSE

The risk of fire danger during pipeline construction is related to operating vehicles and other equipment off roadways; burning slash material and other open burning; welding activities; and the use of explosive materials and flammable liquids. This plan establishes standards and practices which will minimize the risk of fire danger and, in case of fire, provide for immediate suppression.

3.0 RESPONSIBILITIES AND COORDINATION

The Fire Prevention and Suppression Plan will be implemented by the OWNER. The OWNER will be responsible for providing all necessary fire-fighting equipment on the Project site to its employees, and operating under the requirements of the plan. In addition, the OWNER will contact the following authorities prior to construction to establish communication, obtain permits (if applicable), and/or fulfill other obligations as directed by the fire control authorities:

Table N-1: Fire Control Authorities

County	Authority	Fire Management Officer/ Contact	Phone Number
Phillips	BLM - Malta County	Mitch Maycox	(406) 538-1986
Valley	BLM - Miles City County	Scott McAvoy	(406) 233-2875
McCone	BLM - Miles City County	Scott McAvoy	(406) 233-2875
Prairie	BLM - Miles City County	Scott McAvoy	(406) 233-2875
Fallon	BLM - Miles City County	Scott McAvoy	(406) 233-2875

In the event of an uncontrolled fire, the OWNER will immediately notify local fire control agencies by phoning 911 if pipeline personnel do not extinguish it quickly.

In the event that open-cut trenches cross a road, the OWNER will provide a schedule of road closures to all local fire control agencies. Typically, roads could be closed for at least six hours during the open-cut construction procedure. A by-pass will be constructed prior to open-cut installation of a road crossing, unless a convenient detour can be

established on existing roads. By-passes will be constructed within the approved right-of-way or additional temporary work space.

4.0 PERFORMANCE REQUIREMENTS

The Fire Prevention and Suppression Measures Plan is only in effect from June 1 to October 31 each year. The STATE INSPECTOR or county fire authorities may change the dates of this period by advance written notice, if justified by unusual weather or other conditions. However, required tools and equipment will be kept in serviceable condition and be immediately available for fire suppression at all times.

5.0 PERMITS

The OWNER will notify the STATE INSPECTOR prior to conducting any burning. Burning will be conducted in accordance with the requirements and restrictions of the STATE INSPECTOR and air quality permits. In addition, no burning will be conducted on federal lands without prior written authorization from the BLM Fire Management Officer.

6.0 FIRE PREVENTION

The following discussion addresses methods and procedures which will be implemented prior to and during the construction period to minimize the risk of fire. Key areas of concern relate to equipment, personnel, and construction procedures.

In order to reduce fire hazard, small trees and brush cut during construction should be chipped, burned, and/or scattered. Slash 3 inches in diameter or greater may be scattered in quantities of up to 1.5 tons/acre unless otherwise requested by the LANDOWNER. Tops, limbs, and brush less than 3 inches in diameter and 3 feet in length may be left in quantities less than 3 tons/acre except on cropland and residential land or where otherwise specified by the LANDOWNER. In certain cases, the STATE INSPECTOR will authorize chipping and scattering of tops, limbs, and brush in excess of 3 tons/acre as an erosion control measure. Merchantable timber should be decked and removed at the direction of the LANDOWNER or managing agency.

6.1 Equipment

During construction, operation, maintenance, and termination of the right-of-way, all equipment with an internal combustion engine will be equipped with spark arresters. However, spark arresters are not required on trucks, buses, and passenger vehicles (excluding motorcycles) which are equipped with an unaltered muffler. In addition, each motorized unit will be equipped with a minimum of one fire extinguisher having an Underwriter Laboratories (UL) rating of at least 5 B or C, one long handled shovel size "0" or larger, and one double bit axe or pulaski (three pounds or larger).

The OWNER will provide basic fire-fighting equipment at all times, including fire extinguishers, shovels, axes, and other tools in sufficient number so that each employee can assist in the event of a fire-fighting operation. One backpack pump, long handled shovel size "0" or larger, and double-bit axe or pulaski (three pounds or larger) will be required in the vicinity of welding sites. A water truck will also be available for use. All equipment will be kept in a serviceable condition and readily available.

6.2 Personnel

The OWNER will designate one person as a Fire Guard for each construction spread who is physically able, vigilant, and suitably trained to detect fires and use required fire-fighting equipment. The Fire Guard may perform other functions during pipeline construction in addition to his/her fire guard responsibilities. The Fire Guard will be identified by a decal on his/her hardhat and/or other appropriate designation. The Fire Guard will be responsible for establishing and maintaining contact with fire control agencies. He/she will be equipped with a radio or cellular telephone so immediate contact with local fire control agencies can be made. An alternate or back-up Fire Guard will be designated to assume responsibility if the primary guard becomes unable to perform his/her duties.

The OWNER will inform each construction crew member of fire dangers, locations of extinguishers and equipment, and individual responsibilities for fire prevention and suppression during regular safety briefings. All support and employee vehicles will be parked and stored in cleared, open areas within the approved work limits. No additional areas will be cleared for parking. Personnel will not be allowed to start or maintain open fires for cooking or warming.

6.3 Construction Procedures

The OWNER will restrict operations during conditions of extreme fire danger, as directed by the STATE INSPECTOR, local land management agencies or local fire control agencies. All welding activities will be curtailed during "red flag" conditions (or high burning index) as requested by federal, state, or local agencies. When red flag conditions are forecast, the Fire Guard will contact local fire control agencies and/or the BLM Fire Management Officer for a determination as to when welding activity must cease. During a red flag condition, the OWNER must obtain approval from fire control agencies or the BLM Fire Management Officer to proceed with construction if acceptable precautions are implemented.

7.0 FIRE SUPPRESSION

All available resources will be employed to ensure that uncontrolled range, forest, or structure fires are suppressed immediately with minimum property damage.

In the event of an uncontrollable fire, the local fire control agency, STATE INSPECTOR, LANDOWNER, tenant, or land management agency will be contacted immediately. The

OWNER will maintain an up-to-date list of land owners/managers and agency contacts along each segment of the pipeline right-of-way.

8.0 MONITORING

The OWNER's ENVIRONMENTAL INSPECTORS and STATE INSPECTORS will inspect the job site and the OWNER's operations for compliance with all provisions of the Fire Prevention and Suppression Plan. In addition, federal, state, and local fire control agencies have the right to perform inspections in areas under their jurisdiction.

Appendix O: Burning Plan and Fire Plan

(To be approved prior to beginning of construction in a given area.)

Appendix P: Watersheds and Other Areas
Where the use of Herbicides are Prohibited

The DEQ has identified no areas where the use of herbicides is prohibited. Herbicides shall be applied in accordance with label instructions and County Weed Control plans.

Appendix Q: Construction Inspections of Designated Access Routes on Public Roads

Pre-Construction Phase

The OWNER shall identify county roads and state highways that will be used as designated ACCESS ROUTES to transport equipment, supplies and materials, and personnel to and from the Project. Maps showing the ACCESS ROUTES, as well as other information described in pre-construction inspection items 1 through 8 below, will be provided to the STATE INSPECTOR and MDT at least 30 days prior to the start of construction in each construction spread. This information will also be provided to the County Commission Chairman of the counties crossed by designated ACCESS ROUTES for a given construction spread at least 30 days prior to the start of construction in that spread.

A pre-construction inspection of all designated ACCESS ROUTES on public roads shall be completed by a licensed engineer to document pre-construction condition of the roads. The licensed engineer conducting the pre-construction inspection shall be selected as follows:

1. DEQ and MDT shall prepare a list of no fewer than four (4) licensed engineers acceptable to the agencies. The OWNER may provide a list of licensed engineers for agency consideration.
2. DEQ shall provide the agency list to the OWNER.
3. The OWNER shall provide DEQ and MDT with a list of at least 50 percent of the licensed engineers from the agency list.
4. DEQ and MDT shall select the licensed engineer from the short list provided by the OWNER.

The pre-construction inspection of designated ACCESS ROUTES on public roads will include:

1. Video documentation of the pre-Project condition of all designated ACCESS ROUTES on public roads.
2. Road analysis and profiling of asphalt surfaces to determine the degree of pre-construction wear. Road profiling will be completed as specified by MDT in consultation with the OWNER.
3. Documentation of pre-Project grading schedule for gravel roads by counties. Identification of segments of county road maintained for oil field access.
4. For all bridges on designated ACCESS ROUTES on public roads: documentation of weight limits, visual inspection to verify the pre-Project condition, and identification of the bridge rating if the bridge is determined to be deficient or obsolete.

5. Documentation of location, condition, and size of culverts; location and condition of cattle guards; and location and condition of any fords that would be crossed. Identification of any upgrades needed for Project access.
6. A bulleted list summarizing areas that may pose a challenge to roadways and/or bridges that may need additional follow-up.
7. Identification of segments on county roads with short sight distance that could pose a safety hazard during construction. These segments will be manned with flaggers or signed in accordance with the Manual on Uniform Traffic Control Devices during periods of heavy construction use.
8. Identification of alternative ACCESS ROUTE(S), if designated ACCESS ROUTE(S) become unusable during construction.

Results of the pre-construction inspection will be provided to the OWNER, STATE INSPECTOR, MDT, and to counties at least 30 days prior to the start of construction for review and comment.

Construction Phase

Travel on designated ACCESS ROUTES on public roads shall be conducted so as to prevent damage to existing infrastructure, and all weight limits shall be followed. If such infrastructure is damaged by vehicular travel, the OWNER shall immediately inform the STATE INSPECTOR, MDT, and the applicable county, and immediately make temporary repairs to minimize further damage and assure continued public access and safe passage. The OWNER shall make permanent repairs at the first available opportunity to a reasonably satisfactory condition in consultation with MDT or the applicable county. See also Environmental Specification 2.3.3.

Prior to and during the use of unpaved ACCESS ROUTES for construction access, the OWNER shall apply a dust palliative to such roads that are within 0.1 mile of a residence or road intersection and other areas identified by the county where dust may pose a traffic hazard to vehicles using the roads.

The OWNER shall designate a Keystone XL Project Liaison for communication regarding Project ACCESS ROUTES and provide contact information to the STATE INSPECTOR, MDT, and counties.

Post-Construction Phase

A post-construction inspection of all ACCESS ROUTES on public roads used during Project construction shall be completed by the licensed engineer selected for pre-construction inspections. If another engineer is selected, DEQ, MDT, and the OWNER shall use the selection process specified for the pre-construction phase. The post-construction inspection shall identify damage and wear-and-tear to transportation infrastructure above that considered typical for roads used to access the Project. The

inspection will be completed by a licensed engineer using the methods described above and as specified by DEQ and MDT.

Results of the post-construction inspection shall be provided to the OWNER, STATE INSPECTOR, MDT, and counties for review. Any damage or wear-and-tear to transportation infrastructure on these Project ACCESS ROUTES resulting from Project construction beyond that considered typical, as determined by consensus of MDT, the applicable county, and the OWNER, shall be repaired to the satisfaction of the owner of the easement or right-of-way. If consensus cannot be reached, the amount of damage or wear-and-tear to transportation infrastructure resulting from Project construction beyond that considered typical shall be determined by MDT for state roads and by the applicable county for county roads.

Methodology for bridge inspections: MDT Bridge Inspection Manual
See also MDT descriptions of alligator cracks and longitudinal cracks.
Signing – see Manual on Uniform Traffic Control Devices