CHECKLIST ENVIRONMENTAL ASSESSMENT

Project Name:	ExxonMobil Pipeline Yellowstone River Bundle Crossing HDD Easement
Proposed Implementation Date:	April/May 2015
Proponent:	ExxonMobil Pipeline Company
Location:	Sections 27 and 34, Township 1 North, Range 26 East (Yellowstone River – Public Land Trust)
County:	Yellowstone County

I. TYPE AND PURPOSE OF ACTION

ExxonMobil Pipeline Company is requesting a new 470.05 feet long by 30 feet wide easement to allow the installation of a new 12-inch diameter crude oil pipeline beneath the Yellowstone River through the use of Horizontal Directional Drilling (HDD). The proposed entry point for the HDD is 565 feet east of the east bank of the Yellowstone River and the exit point is 150 feet west of the west bank. ExxonMobil Pipeline has an existing 10' easement for a 12-inch pipeline that is located between 20-40 feet downstream of the new proposed easement location. The existing pipeline is a part of a 5 pipeline "bundle" that was installed in the early 1990s in a trench in the Yellowstone River. All of the pipelines were installed at the same time and are tied together with cables and timbers and separated from each other by about one foot. The pipelines located in the "bundle" are owned by: ExxonMobil Pipeline; CHS, Inc. (Cenex Harvest States); Yellowstone Pipeline Company (Phillips 66 Pipeline, LLC); Phillips 66 Pipeline, LLC and Montana Dakota Utilities. Except for the MDU pipeline, which transports natural gas, all of the other pipelines carry petroleum products.

In 2015, when ExxonMobil originally contacted the DNRC Southern Land Office (SLO) about this potential easement request, the SLO expressed a desire to try and coordinate any new easement requests between all five pipelines that are in the bundled crossing. On 11 August 2015, the SLO facilitated a meeting with all of the owners, except MDU who was invited but did not attend, as well as all of the permitting agencies including: Yellowstone Conservation District, Yellowstone County Floodplain, MT Department of Environmental Quality, MT Fish Wildlife & Parks, and US Army Corps of Engineers. In that meeting, the pipeline owners agreed to work with each other and to try and coordinate any new directional drilling projects. It now appears that each pipeline owner will submit their projects independently. After the SLO received a draft copy of this easement in January 2016, the SLO did contact the other pipeline owners and it now appears that another application may be submitted by CHS. If this application arrives in time, the SLO will attempt to complete the application and environmental review so that both new pipelines are on the same Land Board agenda.

According to ExxonMobil, the project purpose is based on two primary objectives: enhancing safety and increasing commercial viability. The new pipeline will be installed approximately 50 feet beneath the thalweg of the Yellowstone River. The potential for the new HDD pipeline to be damaged by scour or moving debris, or third party impact, is reduced significantly with the increased depth. The proposed project was selected by ExxonMobil because it demonstrated the greatest enhancement to pipeline safety within the Yellowstone River and because it increased commercial viability of moving product. By installing the new HDD pipeline, ExxonMobil should encounter fewer instances where the pipeline must be shut down for operational safety due to flooding or other events on the Yellowstone River that could impact pipeline safety.

The existing pipelines in the bundled crossing have a depth of cover varying between 3.3 to 6.4 feet, depending on the year the study was undertaken. The banks on both sides of the Yellowstone at this crossing are fairly stable, with the west bank being completely armored, and there is a low likelihood of channel migration in this reach. However, the armoring could increase the potential for river scour in high water or ice jam events.

The existing ExxonMobil pipeline between the HDD tie-ins is proposed to be cleaned of all crude, filled with nitrogen and capped and will be "inactive" for the purposes of the US Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA). However, the pipeline will still be monitored by ExxonMobil as if it were an active pipeline. Monitoring includes continuation of cathodic protection, aerial surveys and depth of cover assessments (every 5 years and following certain storm events that produce severe flooding resulting in river scour and/or river channel migration), as required by PHMSA.

II. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED:

Provide a brief chronology of the scoping and ongoing involvement for this project.

The DNRC did not perform any formal public scoping for this project. However, the 310 Permit was discussed at a Yellowstone Conservation District meeting on 13 January 2016 with representatives from ExxonMobil and other permitting agencies in attendance.

2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

Montana Natural Streambed and Land Preservation Act (310 Permit) – Issued
Yellowstone County Floodplain Permit – Pending
Clean Water Act Section 404 Wetland/Riparian Dredge and Fill Permitting Program – Pending
Montana Pollutant Discharge Elimination System - Pending
Short-Term Water Quality Standard for Turbidity Related to Construction Activity (318 Authorization)/401 Water Quality Certification – Pending

3. ALTERNATIVES CONSIDERED:

No Action Alternative: Deny the request to issue a new easement to permit the installation of a new segment of pipeline under the bed of the Yellowstone River via Horizontal Directional Drilling (HDD).

Proposed Alternative: Issue a 30-year term easement to permit the installation of a new 12-inch pipeline under the bed of the Yellowstone River through the use of Horizontal Directional Drilling (HDD). Utilization of the HDD method would permit the pipeline to be installed up to 50' beneath the riverbed. Additionally it is recommended that the State require that depth of cover analysis be conducted on the existing pipeline that goes into "inactive" status. The depth of cover information shall be conducted and submitted to the DNRC at least every 5 years or following flows in excess of 58,900 cubic feet per second (cfs), as measured by the USGS Gauge in Billings or as requested by DNRC when there is reasonable evidence indicating the potential exposure of the inactive pipeline. Such evidence may include, but not be limited to, objects or materials appearing to be caught on the pipeline and that the pipeline be removed if it becomes exposed and/or a hazard to river navigation. Additionally, it is recommended that the existing pipeline be required to be removed once all five of the existing pipelines in the bundled crossing have been abandoned.

III. IMPACTS ON THE PHYSICAL ENVIRONMENT

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" If no impacts are identified or the resource is not present.*

4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:

Consider the presence of fragile, compactable or unstable soils. Identify unusual geologic features. Specify any special reclamation considerations. Identify any cumulative impacts to soils.

The proposed alternative would permit the use of Horizontal Directional Drilling (HDD) to install a new segment of pipeline up to 50' below the bed of the Yellowstone River, except for a short stretch near the west bank where the pipeline depth would be ±30'. The project would have an entry point on the east side of the Yellowstone River, east of the Lockwood Water Plant on land owned by Cenex (CHS). The exit point will be on the east side of the river on land owned by Yellowstone County that is part of the fairgrounds. Any impacts to state-owned land would be from the boring of the new pipeline route under the riverbed. No significant adverse impacts are expected to geology and soil quality by implementing the proposed alternative.

5. WATER QUALITY, QUANTITY AND DISTRIBUTION:

Identify important surface or groundwater resources. Consider the potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality. Identify cumulative effects to water resources.

The proposed alternative would allow for a new 12-inch crude oil pipeline segment to be installed via Horizontal Directional Drilling (HDD). The use of HDD would limit the adverse impacts to water quality and quantity by allowing for the facility to be located up to 50 feet below the bed of the Yellowstone River, except for a short stretch near the west bank where the pipeline depth would be ±30', in a layer of sandstone which would provide additional protection for the pipeline from scouring of the river bottom. The existing pipeline is located between 20-40 feet downstream of the new proposed easement location.

Short term impacts from the construction/drilling operation are not expected to have significant adverse impacts. ExxonMobil will be required to follow Montana Best Management Practices (BMP) for stormwater runoff, as well as permitting requirements from the Montana Department of Environmental Quality. This would include installing erosion control and sediment control devices to prevent topsoil from reaching the river.

The existing ExxonMobil pipeline is a part of a five pipeline bundle that was installed in the early 1990s in a trench in the bed of the Yellowstone River. All of the pipelines were installed at the same time and are tied together with cables and timbers and separated from each other by about one foot. The existing ExxonMobil pipeline between the HDD tie-ins is proposed to be cleaned of all crude, filled with nitrogen and capped and will be "inactive" for the purposes of PHMSA. However, the pipeline will still be monitored by ExxonMobil as if it were an active pipeline. This monitoring will include continued cathodic protection, aerial surveys and depth of cover assessments.

6. AIR QUALITY:

What pollutants or particulate would be produced? Identify air quality regulations or zones (e.g. Class I air shed) the project would influence. Identify cumulative effects to air quality.

The proposed alternative would require the operation of construction machinery including but not limited to a HDD drill rig, tracked excavator, dump trucks and miscellaneous support equipment. Not all machinery would be operating at the same time. The entire project is expected to last approximately 20 weeks, with the actual HDD process taking about 1-2 weeks of that timeframe. The proposed alternative would result in a relatively short duration construction project and is not expected to have significant long term adverse impacts to air quality.

7. VEGETATION COVER, QUANTITY AND QUALITY:

What changes would the action cause to vegetative communities? Consider rare plants or cover types that would be affected. Identify cumulative effects to vegetation.

The proposed alternative would result in a new pipeline segment being bored up to 50' under the existing riverbed and would not result in any vegetation disturbance on state-owned land. No significant impacts to vegetation cover, quantity or quality on state-owned lands are expected by implementing the proposed alternative.

8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:

Consider substantial habitat values and use of the area by wildlife, birds or fish. Identify cumulative effects to fish and wildlife.

A variety of small mammals, raptors and songbirds may traverse this area; however it is located in developed area immediately adjacent to the City of Billings with the fairgrounds on the west bank, while the east bank contains the Lockwood Water Treatment Plant along with various light industrial uses. In addition, the HDD entry site is located about 250' from US Highway 87 and the BNSF railroad. The noise from the drill rig and associated activities could disperse or cause wildlife to temporarily avoid the area. No significant adverse impacts to terrestrial, avian and aquatic life and habitats are expected to occur as a result of implementing the proposed alternative.

9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:

Consider any federally listed threatened or endangered species or habitat identified in the project area. Determine effects to wetlands. Consider Sensitive Species or Species of special concern. Identify cumulative effects to these species and their habitat.

A proposed project area search of the Montana Natural Heritage Program database identified seventeen animals listed as a species of concern or threatened species: Plains Spadefoot, Great Blue Heron, Bald Eagle, Peregrine Falcon, Pinyon Jay, Veery, Loggerhead Shrike, Brewer's Sparrow, Yellowstone Cutthroat Trout, Sauger, Little Brown Myotis, Hoary Bat, Spotted Bat, Spiny Softshell, Greater Short-horned Lizard, Plains Hog-nosed Snake and Western Milksnake. The proposed project area is located outside of Greater Sage-grouse core and general habitats.

The proposed action would result in a new pipeline being bored under the state-owned riverbed and would not result in any surface disturbance on state-owned land. The project would have an entry point near the Lockwood Water Treatment plant and exit on the west side of the river in the fairgrounds owned by Yellowstone County. The area on the east side of the river contains light industrial uses, so it would not be expected to have much suitable habitat for wildlife. Due to the location and relatively short duration of the project, the proposed action is not expected to have a significant adverse impact on any of the species listed above.

10. HISTORICAL AND ARCHAEOLOGICAL SITES:

Identify and determine effects to historical, archaeological or paleontological resources.

The portion of the pipeline that is under state ownership will be installed via Horizontal Directional Drilling and located up to 50' below the river bed of the Yellowstone River. No significant adverse impact to historic and archaeological sites on state-owned land is expected as a result of implementing the proposed alternative.

11. AESTHETICS:

Determine if the project is located on a prominent topographic feature, or may be visible from populated or scenic areas. What level of noise, light or visual change would be produced? Identify cumulative effects to aesthetics.

The pipeline crosses the Yellowstone River downstream of the US Highway 87 bridge and BNSF railroad bridge. The HDD entry point will be near the Lockwood Water Treatment plant and exit on the west side of the river in the fairgrounds owned by Yellowstone County. The area on the east side of the river contains a variety of light industrial uses, while the exit area on the fairgrounds is relatively undeveloped. There is also a bike-pedestrian trail that runs along the west side of the Yellowstone River in this area that the HDD pipeline will go under.

Based on previous HDD requests, it is estimated that noise levels from the proposed action will be between 65-70 dBA. This level is loud enough that it could impact speech for park and recreation users. There are no residential structures close enough to be impacted by the noise of the drill rig. The entire construction project is expected to take approximately 20 weeks, with 1-2 weeks of that actual drilling time. The remaining time would consist of setup and takedown along with tying in the new line with the existing facility on each side of the river.

Implementation of the Proposed Alternative would cause minor temporary short term impacts to aesthetics during the pipeline construction due to visual impacts and noise from the HDD drill rig and other heavy equipment. The proposed action would add to the existing noise levels, but this temporary addition is not expected to cause a significant adverse impact due to the proximity of the highway, railroad and light industrial uses.

12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:

Determine the amount of limited resources the project would require. Identify other activities nearby that the project would affect. Identify cumulative effects to environmental resources.

Implementation of the Proposed Alternative is not expected to have a significant adverse impact on environmental resources of land, water or energy.

13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:

List other studies, plans or projects on this tract. Determine cumulative impacts likely to occur as a result of current private, state or federal actions in the analysis area, and from future proposed state actions in the analysis area that are under MEPA review (scoped) or permitting review by any state agency.

Other permits that are required by other local, state and federal agencies or departments for the proposed project are listed above in Section 2 of this EA. There are expected to be additional new HDD easement requests by the other pipeline owners in this "bundle" at some point in the future. The DNRC unsuccessfully attempted to try and get all the owners to coordinate any drilling projects and their associated environmental review. In spite of a meeting facilitated by DNRC with four of the five owners present, the pipeline owners decided not to coordinate their projects. Instead, each project will undergo its own separate analysis when a new easement is proposed.

IV. IMPACTS ON THE HUMAN POPULATION

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" If no impacts are identified or the resource is not present.*

14. HUMAN HEALTH AND SAFETY:

Identify any health and safety risks posed by the project.

Implementation of the Proposed Alternative would provide for increased health and safety by taking a pipeline that currently has some risk of exposure out of service before there is an incident that would cause an oil spill in the Yellowstone River.

The SLO is recommending that the existing pipeline be allowed to remain in the "bundle" until all five of the pipelines have been abandoned and then it will be required to be removed. The existing pipeline between the HDD tie-ins is proposed to be cleaned of all crude, filled with nitrogen and capped and will be "inactive" for the purposes of the US Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA). However, the pipeline will still be monitored by ExxonMobil as if it were an active pipeline. Monitoring includes continuation of cathodic protection, aerial surveys and depth of cover assessments. The SLO is recommending that the proponent be required to conduct depth of cover analysis on the old pipeline and the results submitted to the DNRC at least every 5 years; or following flows in excess of 58,900 cubic feet per second (cfs), as measured by the USGS Gauge in Billings; or as requested by DNRC when there is reasonable evidence indicating the potential exposure of the inactive pipeline. Such evidence may include, but not be limited to, objects or materials appearing to be caught on the pipeline and that either pipeline be removed if it becomes exposed and/or a hazard to river navigation.

15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:

Identify how the project would add to or alter these activities.

Implementation of the Proposed Alternative would allow the ExxonMobil pipeline to remain fully operational once the HDD is complete and the new segment is connected to the existing system. The proposed project was selected by ExxonMobil because it demonstrated the greatest enhancement to pipeline safety within the Yellowstone River and because it increased the commercial viability of moving product. By installing the new HDD pipeline, ExxonMobil should encounter fewer instances where the pipeline must be shut down for operational safety due to flooding or other events on the Yellowstone River that could impact pipeline safety.

16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:

Estimate the number of jobs the project would create, move or eliminate. Identify cumulative effects to the employment market.

Implementation of the Proposed Alternative would not have a significant impact to quantity and distribution of employment.

17. LOCAL AND STATE TAX BASE AND TAX REVENUES:

Estimate tax revenue the project would create or eliminate. Identify cumulative effects to taxes and revenue.

Implementation of the Proposed Alternative is not expected to have a significant impact on local and state taxes since it would only replace an existing segment of the ExxonMobil Pipeline.

18. DEMAND FOR GOVERNMENT SERVICES:

Estimate increases in traffic and changes to traffic patterns. What changes would be needed to fire protection, police, schools, etc.? Identify cumulative effects of this and other projects on government services

Implementation of the Proposed Alternative is not expected to have a significant adverse impact on the demand for government services.

19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:

List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.

Implementation of the Proposed Alternative will not conflict with any locally adopted plans.

20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:

Identify any wilderness or recreational areas nearby or access routes through this tract. Determine the effects of the project on recreational potential within the tract. Identify cumulative effects to recreational and wilderness activities.

This section of the Yellowstone River is fairly actively used and there is a Fishing Access site adjacent to the Lockwood Water Treatment Plant on the east bank, which is located approximately 500 feet upstream of the proposed pipeline crossing. The project may result in a temporary closure of the bike-pedestrian is on the west bank and runs parallel to the Yellowstone River, since the HDD will have to go under the path to get to its tie in point.

21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:

Estimate population changes and additional housing the project would require. Identify cumulative effects to population and housing.

Implementation of the Proposed Alternative is not expected to have a significant adverse impact to density and distribution of population and housing.

22. SOCIAL STRUCTURES AND MORES:

Identify potential disruption of native or traditional lifestyles or communities.

Implementation of the Proposed Alternative is not expected to have a significant adverse impact on social structures and mores.

23. CULTURAL UNIQUENESS AND DIVERSITY:

How would the action affect any unique quality of the area?

Implementation of the Proposed Alternative is not expected to have a significant adverse impact on cultural uniqueness or diversity.

24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:

Estimate the return to the trust. Include appropriate economic analysis. Identify potential future uses for the analysis area other than existing management. Identify cumulative economic and social effects likely to occur as a result of the proposed action.

The State will benefit by getting a fee of $4,273.50 ($150/rod x 28.49 rods) for the new 30 year HDD easement. The Public Lands Trust is the beneficiary of this payment since it involves a navigable river.

EA Checklist Prepared By:	Name: Jeff Bollman, AICP	Date: 4 March 2016
	Title: Area Planner, Southern Land Office	

V. FINDING

25. ALTERNATIVE SELECTED:

The Proposed Alternative has been selected and it is recommended that a 30-year term easement be granted to ExxonMobil for the purpose of installing a 12-inch diameter petroleum pipeline underneath the navigable riverbed of the Yellowstone River to replace an existing 12-inch pipeline. This new pipeline segment will be installed by Horizontal Directional Drilling (HDD) and located up to 50' below the river bed. The new pipeline easement will vary in distance from the existing pipeline, but will be between 20' to 40' upstream of the existing pipeline.

In addition, it is recommended that the existing pipeline be allowed to remain in the "bundle" until all five of the pipelines have been abandoned and then it will be required to be removed along with all of the pipelines in that crossing. The existing pipeline between the HDD tie-ins is proposed to be cleaned of all crude, filled with nitrogen and capped and will be "inactive" for the purposes of the US Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA). However, the pipeline will still be monitored by ExxonMobil as if it were an active pipeline. Monitoring includes continuation of cathodic protection, aerial surveys and depth of cover assessments. The SLO is recommending that ExxonMobil be required to conduct depth of cover analysis on the old pipeline and the results submitted to the DNRC at least every 5 years; or following flows in excess of 58,900 cubic feet per second (cfs), as measured by the USGS Gauge in Billings; or as requested by DNRC when there is reasonable evidence indicating the potential exposure of the inactive pipeline. Such evidence may include, but not be limited to, objects or materials appearing to be caught on the pipeline and that either pipeline be removed if it becomes exposed and/or a hazard to river navigation.

26. SIGNIFICANCE OF POTENTIAL IMPACTS:

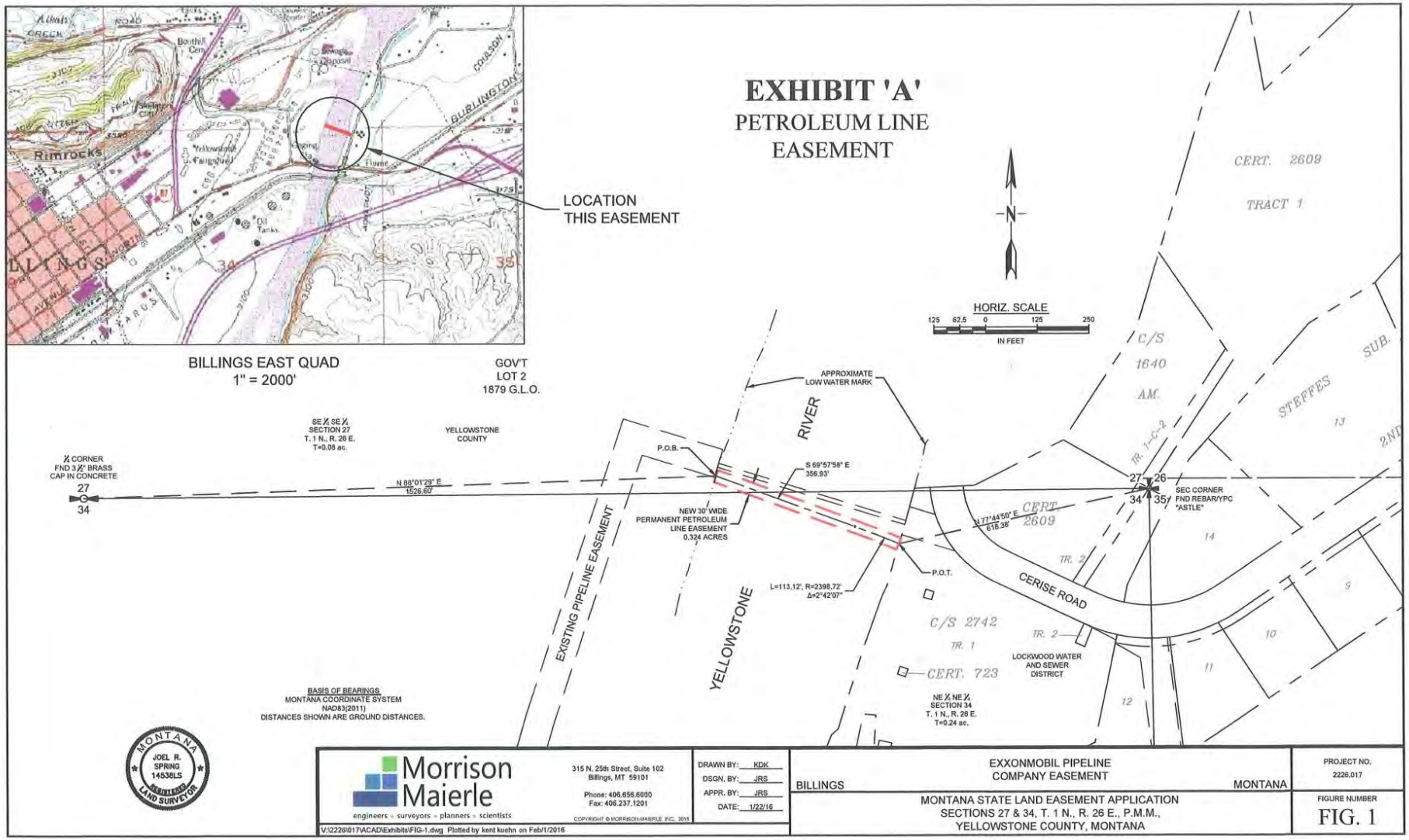
The potential for significant adverse impacts to Public Trust Lands (the navigable riverbed) are reduced by the nature of the Horizontal Directional Drilling technique that will be utilized and the depth of up to 50' beneath the existing riverbed that will be achieved. Many potential impacts listed above are short term and correspond with the construction project. There are no natural features or nearby species of concern noted that are expected to produce long term adverse impacts from implementing the proposed alternative.

27. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

[ ]	EIS	[ ]	More Detailed EA	[X]	No Further Analysis

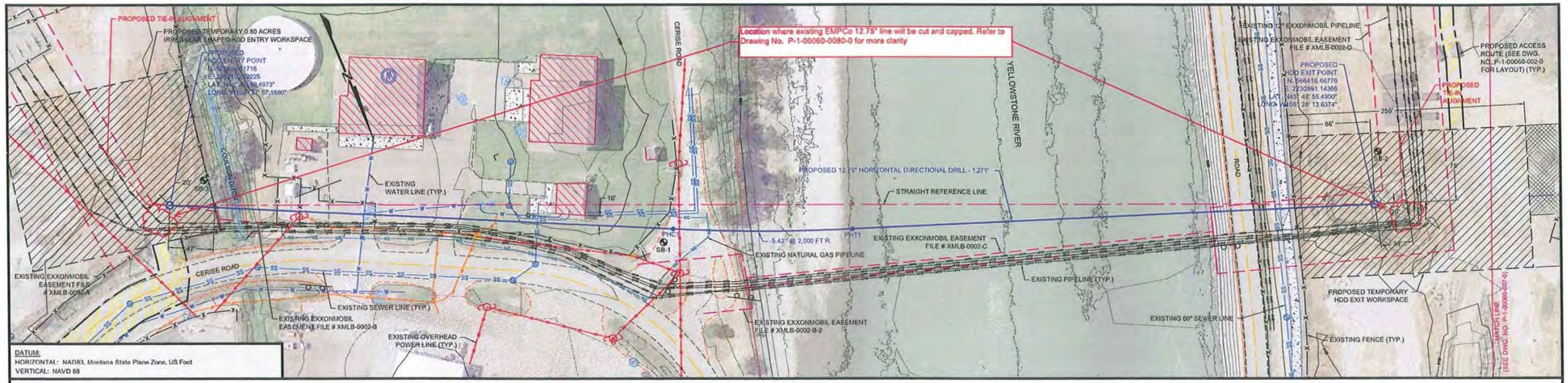
EA Checklist Approved By:	Name: Matthew Wolcott	
	Title: Area Manager, Southern Land Office	
Signature: /s/ Matthew Wolcott		**Date**: March 4, 2016

Attachment A –Proposed Pipeline Easement



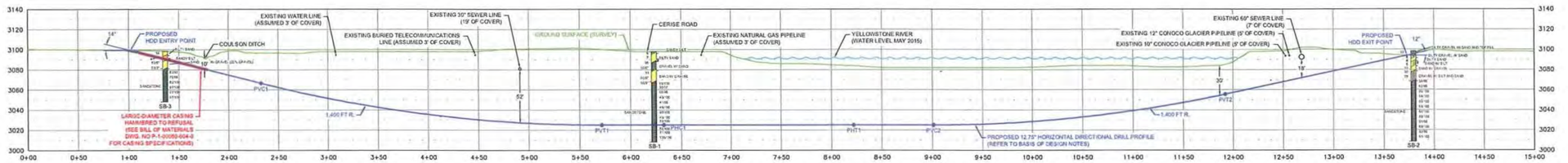
Attachment B – HDD Site Plan and Profile

Attachment C – Site Detail and Cross Section of Proposed Horizontal Directional Drill



NOTE: THIS IS A FULL SIZE DRAWING THAT IS INTENDED TO BE PRINTED ON A 24" X 36" SHEET OF PAPER.

PLAN
50 0 50
SCALE IN FEET



PROFILE
50 0 50
HORIZONTAL SCALE IN FEET
50 0 50
VERTICAL SCALE IN FEET

DIRECTIONAL DRILL DATA - ALIGNMENT BASED STATIONING YELLOWSTONE RIVER HDD		
DESCRIPTION	STATION * (FT)	ELEVATION (FT)
ENTRY @ 14°	1+01.65	3099.20
PVC 1 (14.00° @ 1,400 FT R.)	2+32.46	3066.59
PVT 1	5+71.15	3025.00
PHC 1 (-5.42° @ 2,000 FT R.)	6+32.62	3025.00
PHT 1	8+21.94	3025.00
PVC 2 (12.00° @ 1,400 FT R.)	9+01.15	3025.00
PVT 2	13+92.22	3055.59
EXIT @ 12°	13+72.91	3094.00
HORIZONTAL DISTANCE = 1,271.26 FT		
DIRECTIONAL DRILL PIPE LENGTH = 1,284.63 FT		

DIRECTIONAL DRILL DATA - STRAIGHT LINE STATIONING YELLOWSTONE RIVER HDD			
DESCRIPTION	STATION * (FT)	ELEVATION (FT)	RIGHT (FT)
ENTRY @ 14°	1+01.65	3099.20	0.00
PVC 1 (14.00° @ 1,400 FT R.)	2+32.31	3066.59	8.29
PVT 1	5+70.61	3025.00	22.56
PHC 1 (-5.42° @ 2,000 FT R.)	6+32.01	3025.00	25.52
PHT 1	8+21.25	3025.00	25.66
PVC 2 (12.00° @ 1,400 FT R.)	9+00.38	3025.00	21.97
PVT 2	13+91.14	3055.59	8.41
EXIT @ 12°	13+71.63	3094.00	0.00
HORIZONTAL DISTANCE = 1,269.98 FT			
DIRECTIONAL DRILL PIPE LENGTH = 1,284.63 FT			

* THE STATIONING IS BASED ON AN ARBITRARY REFERENCE POINT

RECOMMENDED TOLERANCES	
ITEM	TOLERANCE
PILOT HOLE ENTRY ANGLE	INCREASE ANGLE UP TO 1° (STEEPER), BUT NO DECREASE IN ANGLE ALLOWED.
PILOT HOLE ENTRY LOCATION	AS PER COORDINATES PROVIDED BY COMPANY WITH NO CHANGES WITHOUT COMPANY APPROVAL
PILOT HOLE EXIT ANGLE	INCREASE ANGLE UP TO 1° (STEEPER) OR DECREASE UP TO 2° (FLATTER).
PILOT HOLE EXIT LOCATION	UP TO 20 FEET BEYOND OR 10 FEET SHORT OF THE EXIT STAKE, BETWEEN 5 FEET LEFT AND 5 FEET RIGHT OF CENTERLINE.
PILOT HOLE DEPTH	UP TO 2 FEET ABOVE THE DESIGN DRILL PROFILE ALLOWED, UP TO 10 FEET BELOW THE DESIGN DRILL PROFILE ALLOWED.
PILOT HOLE ALIGNMENT	SHALL REMAIN WITHIN 5 FEET LEFT OR RIGHT OF THE HDD ALIGNMENT.

LEGEND
SPT (N) | TYPE OF SOIL (% GRAVEL)
TYPE OF ROCK | RQD/%REC
Boring Location
Major Contour - 10' Interval
Minor Contour - 2' Interval

FINAL

BASIS OF DESIGN:

1. PRODUCT PIPE WILL CONSIST OF 12.75" O.D. X 0.500" W.T., API-5L X-60 PIPE WITH 14–16 MILS OF FUSION BONDED EPOXY (FBE) AND A MINIMUM OF 40 MILS OF ABRASION RESISTANT OVERLAY (ARO).
2. THE MAXIMUM ALLOWABLE OPERATING PRESSURE (MAOP) = 1,440 psi.
3. THE ASSUMED MAXIMUM OPERATING TEMPERATURE = 100° FAHRENHEIT.
4. THE MINIMUM ALLOWABLE THREE JOINT RADIUS SHALL NOT BE LESS THAN 1,050 FEET.

NOTES:

1. CONTRACTOR ON THIS DRAWING REFERS TO CONSTRUCTION CONTRACTOR.
2. CONTRACTOR SHALL ADHERE TO THE SPECIFICATIONS AND REQUIREMENTS PER EXXONMOBIL PIPELINE COMPANY SPECIFICATIONS, CONTRACT DOCUMENTS AND SPECIAL PERMIT CONDITIONS, EXCEPT AS NOTED ON THIS DRAWING. IN THE EVENT THERE IS A DISCREPANCY, CONTRACTOR SHALL NOTIFY EXXONMOBIL PIPELINE COMPANY REPRESENTATIVE TO SEEK GUIDANCE AND CONFIRM WHICH GOVERNS.
3. CONTRACTOR IS RESPONSIBLE FOR CALLING MONTANA ONE–CALL AND LOCATING ALL UNDERGROUND UTILITIES PRIOR TO BEGINNING CONSTRUCTION. IF ANY UTILITY IS LOCATED WITHIN 15 FEET OF THE DESIGNED HDD PROFILE AND ALIGNMENT, CONTRACTOR SHALL OBTAIN APPROVAL FROM EXXONMOBIL PIPELINE COMPANY PRIOR TO INITIATING HDD OPERATIONS.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY AND PROTECT ANY FOREIGN UTILITY THAT MAY BE AFFECTED BY THE HDD OPERATIONS.
5. PLACEMENT OF THE HDD RIG IS NOT FIXED BY THE DESIGNATION OF THE ENTRY AND EXIT POINTS. THE USE OF DUAL HDD RIGS DURING CONSTRUCTION MAY BE AT THE DISCRETION OF THE HDD CONTRACTOR, TO BE APPROVED BY THE EXXONMOBIL PIPELINE COMPANY REPRESENTATIVE.
6. ALL EQUIPMENT MUST ACCESS THE SITE ALONG THE CONSTRUCTION RIGHT–OF–WAY OR FROM APPROVED ACCESS ROADS, AS PER ATTACHED DRAWING (REFER TO DRAWING NO. P–1–00060–002).
7. WORK SPACE: MAXIMUM WORK SPACE LIMITS ARE DEPICTED. RESTRICT CLEARING TO THE WORK SPACE INDICATED AT THE ENTRY AND EXIT POINTS AND PRODUCT PIPE STRINGING AND FABRICATION AREA ALONG THE CONSTRUCTION RIGHT–OF–WAY. CLEARING BETWEEN THE ENTRY AND EXIT POINTS REQUIRES PRIOR APPROVAL FROM THE EXXONMOBIL PIPELINE COMPANY REPRESENTATIVE AND IS LIMITED TO THE AMOUNT NECESSARY TO STRING SURVEY WIRES AND INSTALL PUMPS AND PIPING TO OBTAIN WATER (WHERE APPROVED).
8. WATER SOURCE: DRILL WATER AND HYDROSTATIC TEST WATER SHALL BE OBTAINED FROM A SOURCE APPROVED BY EXXONMOBIL PIPELINE COMPANY.
9. HYDROSTATIC TEST: PRE–INSTALLATION AND POST–INSTALLATION HYDROSTATIC TESTS SHALL BE CONDUCTED IN ACCORDANCE WITH THE HYDROSTATIC TEST PLAN AND EXXONMOBIL PIPELINE COMPANY GLOBAL PRACTICES. TEST WATER SHALL BE SAMPLED AND TESTED IN ACCORDANCE WITH PERMIT REQUIREMENTS. THE TEST WATER SHALL BE COLLECTED IN A TRUCK AND HAULED TO A DISPOSAL SITE APPROVED BY EXXONMOBIL PIPELINE COMPANY. UPON COMPLETION OF DEWATERING AND DRYING, AN ELECTRONIC CALIPER MFL ILI TOOL RUN SHALL BE COMPLETED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND EXXONMOBIL PIPELINE COMPANY GLOBAL PRACTICES.
10. SPILL–PREVENTION: REFUELING OF ALL EQUIPMENT SHALL BE COMPLETED IN ACCORDANCE WITH THE SPCC PLAN.
11. EROSION AND SEDIMENT CONTROL: CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN SEDIMENT CONTROL STRUCTURES IN ACCORDANCE WITH CONTRACT DOCUMENTS AND THE STORM WATER POLLUTION PREVENTION PLAN. CONTRACTOR SHALL INSTALL ADDITIONAL EROSION CONTROL STRUCTURES AS DIRECTED BY THE EXXONMOBIL PIPELINE COMPANY REPRESENTATIVE.
12. INSTALLATION: THE PIPE SECTION FOR THE DRILLED CROSSING SHALL BE MADE UP WITHIN THE APPROVED CONSTRUCTION RIGHT–OF–WAY AT THE DRILL EXIT POINT AS SHOWN. AFTER THE PILOT HOLE IS COMPLETE, CONTRACTOR'S ACTUAL DRILL PROFILE SHALL BE SUBMITTED TO EXXONMOBIL PIPELINE COMPANY FOR APPROVAL. CONTRACTOR SHALL ASSESS THE NEED FOR AND SUPPLY APPROPRIATE BALLAST DURING PULLBACK.
13. DRILLING FLUID DISPOSAL: CONTRACTOR SHALL DISPOSE OF EXCESS DRILLING FLUID AS DIRECTED BY THE EXXONMOBIL PIPELINE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS. UNDER NO CIRCUMSTANCES SHALL DRILLING FLUID BE DISPOSED OF IN WATER BODIES, WETLANDS, OR ON THE GROUND. ANY DRILLING FLUID WHICH INADVERTENTLY SURFACES AT POINTS OTHER THAN THE ENTRY OR EXIT POINTS SHALL BE CONTAINED AND COLLECTED TO THE EXTENT PRACTICAL AND DISPOSED OF AS DIRECTED BY THE EXXONMOBIL PIPELINE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS.
14. CLEANUP/STABILIZATION/RESTORATION: ALL DISTURBED AREAS SHALL BE RETURNED TO THE ORIGINAL CONTOURS OR BETTER. DISTURBED AREAS SHALL BE SEEDED AS SPECIFIED IN THE CLEAN–UP AND RESTORATION REQUIREMENTS. IF THE TERRAIN ALLOWS AND ACCESS IS PERMITTED, CONTRACTOR SHALL UTILIZE LOW GROUND PRESSURE EQUIPMENT OR OTHER EQUIPMENT APPROVED BY OWNER, TO FACILITATE CONTAINMENT AND CLEAN–UP OF ANY INADVERTENT RETURNS THAT OCCUR DURING THE HDD INSTALLATION PROCESS.
15. GEOTECHNICAL DATA: BORE HOLES ARE OFFSET FROM THE PIPELINE CENTERLINE AS SHOWN ON THE PLAN VIEW. THE GEOTECHNICAL INFORMATION PROVIDED ON THIS DRAWING IS A GENERAL SUMMARY. REFER TO THE APPLICABLE GEOTECHNICAL REPORT IN THE CONTRACT DOCUMENTS FOR MORE DETAILED INFORMATION.
16. GROUND SURFACE SURVEY PERFORMED BY STV ENERGY SERVICES, INC., PROVIDED BY EXXONMOBIL PIPELINE COMPANY. COULSON DITCH SURVEY PROVIDED BY MORRISON MAIERLE, INC.
17. AERIAL PHOTOS TAKEN FROM GOOGLE EARTH PRO ©2016, LICENSED TO GEOENGINEERS, INC., IMAGE DATED JULY 31, 2015. BASE FILES PROVIDED BY STV ENERGY SERVICES, INC.

REFERENCES		REVISIONS					
DRAWING NUMBER	REFERENCE DRAWING TITLE	NO.	DESCRIPTION	BY	DATE	CHK'D	APP'D
	3817324–x–Alignment.dwg	0	ISSUED FOR FINAL	MWC	01/22/16	MAM	AES
	3817324–x–base.dwg						
	3817324–x–surface.dwg						
	ACAD–2226017–SRVY–WRKSHT.dwg						

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MWC Drawn	12/21/15 Date	
MAM Checked	01/08/16 Date	
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12–INCH MONTANA SILVERTIP CRUDE PIPELINE
BILLINGS CROSSING PROJECT
EXXONMOBIL PIPELINE COMPANY

HDD SITE PLAN AND PROFILE
YELLOWSTONE COUNTY, MONTANA

Project No. 19025–011–01
Drawing No. P–1–00060–006–0
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