

PLAN OF DEVELOPMENT

FOR THE AMENDMENT OF UTU-015664-VD for the INSTALLATION of an ADDITIONAL CATHODIC PROTECTION DEEPWELL at the EXISTING CPS #1829 along the INGANCIO TO SUMAS PIPELINE WITHIN THE STATE OF UTAH ON FEDERAL LANDS

NORTHWEST PIPELINE LLC, hereby applies for a Temporary Use Permit, under Section 28 of the Mineral Leasing Act of February 25, 1920, as amended by (30 U.S.C. 185).

I. PROJECT DESCRIPTION

Northwest Pipeline LLC (NWP) completes annual surveys and inspections of its pipeline facilities as part of the Integrity Management Program. The inspection revealed the failure of CPS #1829, which revealed low levels of cathodic protection along the segment of pipeline which it was designed to protect. This site is located within lands managed by the Bureau of Land Management's Vernal Field Office (VFO) in Uintah Counties, UT. The general location of the site and required access roads are provided in the Project Location Maps in Attachment A.

The original CPS # 1829 was built in a site contrary to submitted application, therefore this proposed amendment is to correct the location and add additional permanent easement area as shown in the Project Location Maps in Attachment A.

A view of the Permanent Easement, TEWA dimensions, and access is provided in the Project Location Maps in Attachment A. Additionally, shapefiles of the project locations, workspace, and access roads have been provided under separate electronic submission.

In conjunction with the attached BLM SF-299 application form, the following information describing the project on Federal land is submitted:

- A. Type of facility. Existing 26-inch diameter high-pressure underground steel natural gas pipeline transmission facility.

Physical specifications. Existing coated 26-inch and 12-inch diameter steel pipeline.

Permanent Right-of-Way. Additional permanent right-of-way is needed. NWP currently maintains the existing easement for CPS 1829, new easement is needed as shown in the Project Location Maps within Federal land (Attachment A).

Legal Description. As shown on the attached project Location Maps (Attachment A).

Access. Access to the various work locations will be by existing and approved roads and along the pipeline right-of-way. Some minor improvements may be needed on the existing access roads to allow construction equipment and personnel to safely reach the anomaly locations. All improvements will be done within the existing road footprint. More detail on the required improvements is provided in Section III.C below.

- B. Term of years needed. 30 years.

- C. Time of year of use or operation. The pipeline is in operation 24 hours a day.

- D. Duration and timing of construction. Construction will begin upon receipt of approvals, will require approximately 2 weeks to complete, and will take place once approvals are received.
- E. Temporary extra workspace needed for construction. TEWS will be required as identified on the project location maps provided in Attachment A. These areas are needed for trench spoil storage and equipment/material storage where the CPS is located in or near road crossings, dry wash crossings, or where there may be additional excavation required due to depth of pipe or length of the anomaly. Additionally, topographical constraints may also warrant TEWS for safe excavation and inspection of the anomalies.

II. PRE-CONSTRUCTION

- A. Survey and flagging facilities. The pipeline and work areas will be flagged.
- B. Compliance. NWP will comply with all applicable federal, state, and local laws and regulations as they relate to public health and safety, environmental protection, construction, operation, and maintenance. All permits and environmental training required by agencies will be completed prior to commencing construction.
- C. Safety. All safety measures have been considered for construction, operation, maintenance, and access into the area. NWP will have an inspector on site during construction and reclamation to insure federal, state, and county regulations and requirements are adhered to. Any accidents to persons or property on federal lands will be reported immediately to the authorized officer.
- D. Other Environmental Effects.
 - 1. Air Quality. Because of the minimal scope of the project and the short duration of the repair activities, no adverse impacts to air quality are expected.
 - 2. Visual Impact. Visual quality objectives will not be adversely impacted, as the facilities are underground and the above ground repair work will be temporary and short in duration. The disturbed areas will be restored to original condition or better. Erosion control structures will be installed, as necessary.
 - 3. Water Quality/Quantity. Some wetlands and dry washes will be affected by the repair work. Additional biological and wetland/waterbody surveys are scheduled to occur in the spring of 2012 and will further define the extent of wetland/waterbody impacts based on the workspace and access requirements for the anomaly investigations. Areas that are in wetlands/waterbodies will be constructed according to the applicable best management practices as described in Section III.F below.
 - 4. Noise. Noise from the construction activities will create a temporary disruption of ambient conditions; however, any disruption will be relatively short term at the location and during daylight hours.
 - 5. Aesthetics. The construction activities will not have any significant long-term impacts on the surrounding area; actual construction related impacts will be temporary.
 - 6. Hazardous Substances. During construction, liquid fuels (diesel fuel, lubricating/engine oils), welding rods, and patch stick (hydrocarbon) will be

located on the right-of-way or TEWS. After construction is completed, all hazardous substances will be removed from the right-of-way and TEWS.

- E. Third Party Notification. One-Call notification will be completed prior to beginning work.

III. Construction

- A. Schedule. As previously mentioned, the start of construction will begin as soon as authorization is received. The work is expected to be completed approximately 2 weeks.
- B. Notification. If stipulated, the BLM district manager will be notified at least 5 days prior to the start of construction and/or any surface disturbance.
- C. Access. As mentioned previously, vehicles will use existing roads and the existing pipeline right-of-way to access work areas.
- D. Scope of Construction Work. At the CPS location, a new deepwell will be drilled adjacent to the existing. Tie-in cables will run under ground, within the easement from the existing CPS to the new CPS. All excavation work will be contained within NWP's existing right-of-way and TEWS. A list of the typical types of construction equipment and materials is provided in Attachment C.

Final site work will include cleanup/remediation of the right-of-way, TEWS, and access roads to preconstruction conditions and the area will be reseeded using the seed mix and method agreed upon by the VFO.

- E. Wet Surface conditions. All construction and maintenance activities will cease when soils or road surfaces become saturated to the extent the construction equipment is unable to stay within the right-of-way and approved access roads, TEWS, or staging areas and/or when activities cause irreparable harm to the roads or soils.
- F. Best Management Practices. To make certain the project will not result in significant adverse impacts on the environment and that it is in compliance with various land use and environmental laws and policies, NWP will implement the appropriate measures during project activities and comply with FERC's Upland Erosion Control, Revegetation, and Maintenance Plan & Wetland and Waterbody Construction and Mitigation Procedures (Plan & Procedures). Measures implemented will be determined based on conditions at the time of construction and generally will include one or more of the best management practices described below:
 - i. Environmental Oversight - NWP will assign a designated Environmental Lead for the project. The primary responsibility of the Environmental Lead will be to determine environmental measures necessary for field activities. The Environmental Lead is the environmental technical resource to monitor compliance with, and provide interpretation of, the environmental protection measures for the Construction Chief. The Construction Chief is ultimately responsible for all construction compliance. The Environmental Lead will also determine other permit requirements and may conduct field inspections of the project.

The BLM has authority to inspect any and all activities on federal land managed by the BLM. NWP will provide the BLM inspector with safety training to conduct inspections. Problems identified by the BLM inspector will be reported in writing immediately following

the inspection to the NWP's Environmental Lead and/or Construction Chief. E-mail is an acceptable form of written communication.

- ii. Preventing the Introduction or Spread of Invasive and Noxious Weeds - Prior to beginning the project, all heavy construction equipment (e.g., bulldozers, trackhoes, sideboom tractors) will be inspected to ensure they are clean and free of potential weed seed before they are brought onto BLM land to reduce the potential for invasion or spread of undesirable exotic vegetation. Additionally, the NWP Environmental Lead and/or Construction Chief will verify that straw bales for use in dewatering structures, mulch, and/or erosion control are certified free of noxious weeds.
- iii. Vegetation Clearing – The project may involve vegetation clearing. If necessary, clearing may be conducted over the full width of the permanent right-of-way as well as in any approved TEWS beyond the edge of the permanent right-of-way. Site-specific consent from the BLM will be obtained prior to vegetation clearing in approved TEWS beyond the edge of the permanent right-of-way.
- iv. Topsoil Segregation - In areas where activities require excavation, such as potholing and pipe inspection, site grading and trench excavation will be limited to only the amount necessary to complete the activity. To prevent the mixing of the organic layer (i.e., topsoil) with underlying mineral soils (i.e., subsoil) in uplands, topsoil spoil from over the area to be excavated (i.e., the trenchline) will be graded to the edge of the work area where it will be stored separately from subsoil. Topsoil will be segregated to a maximum depth of 12 inches. If less than 12 inches of topsoil is present, every effort will be made to segregate the existing amount. In unsaturated wetlands, topsoil will be segregated over the trench line only. In saturated wetlands, topsoil will not be segregated due to the difficulty of such an operation. During backfilling, subsoil will be backfilled first, followed by topsoil.
- v. Soil Erosion and Sediment Control - To minimize potential impacts associated with earth movement, soil erosion and sediment control measures will be installed on the right-of-way and TEWS as necessary. The purpose of soil erosion and sediment control measures is to minimize soil loss due to wind erosion and/or storm water runoff, and to prevent silt-laden water from entering wetlands, waterbodies, or public roads. Typically, temporary erosion control measures are installed during clearing and grading and permanent erosion control measures are installed during restoration. Typical erosion control measures include:
 - 1)slope breakers,
 - 2)trench breakers,
 - 3)temporary vegetation,
 - 4)mulch and erosion control fabric, and
 - 5)sediment barriers.

Erosion control measures are also used for construction site dewatering. Section F.vi provides a detailed discussion of site dewatering.

Slope Breakers. Where the activities disturb soil on slopes, slope breakers may be required at the discretion of the Environmental Lead/Inspector and Construction Chief. Slope breakers are berms placed across the construction right-of-way to reduce the velocity of the storm water runoff and to divert storm water off the right-of-way). Temporary slope breakers may be installed during grading where soil conditions, weather and duration of the activity dictate. These are typically constructed of compacted soil, straw bales, or sand bags. Table 1 summarizes the requirements for placement and spacing of slope breakers.

Table 1 – Slope Breaker Spacing Requirements

Percent Slope	Maximum Breaker Spacing
0 to < 5	None
5 to 15	300 feet
>15 to 30	200 feet
> 30	100 feet

The outfall of each slope breaker will be directed to a stable, well-vegetated area or energy dissipating device at the end of the breaker. Throughout the duration of work, temporary slope breakers will be inspected and maintained on a regular basis.

Once work is completed, slope breakers may be replaced on the right-of-way to prevent erosion that may occur after activities have concluded. Permanent slope breakers will be made from soil and will be constructed during final grading. Placement and design of permanent slope breakers will be the same as temporary slope breakers.

Trench Breakers. Trench breakers are permanent structures placed in the pipeline trench intended to slow the flow of subsurface water and prevent subsurface erosion after the trench has been backfilled. Trench breakers are generally installed immediately up slope of every slope breaker and will be keyed into the side walls of the trench. Trench breakers will also be installed at the base of slopes adjacent to waterbodies and in wetlands where needed to avoid sub-surface erosion or draining of wetlands. Trench breakers will be installed just before backfilling and are usually constructed with sand bags.

Temporary Vegetation. In large exposed areas where permanent or dormant seeding cannot be completed during the current growing season, temporary vegetation may be planted to help stabilize soil. Typical temporary seed mixtures will include species approved by the BLM and may include rye, oats, barley, and/or wheat, as appropriate. Before seeding, a firm seed bed will be prepared using a disk, field cultivator, drag, rake, or similar implement as further described in Section F.xii.

Mulch and Erosion Control Fabrics. Mulch typically consists of straw or a paper-based biodegradable material spread over a disturbed area to stabilize the soil and retain moisture to aid in establishing permanent vegetative cover. Mulch may also consist of erosion control fabrics. Erosion control fabrics usually consist of a geotextile mesh interwoven with large fibers, such as straw or wood strands. Jute thatching or bonded fiber blankets are two types of erosion control fabrics.

Mulch may be applied after seeding in dry, sandy areas and on slopes greater than 8 percent depending on the duration of the project and other site-specific conditions. If straw is used, it is spread uniformly over the disturbed area such that 75 percent coverage is achieved. Straw mulch will be certified weed free to prevent the spread of undesirable vegetation.

Mulch will be anchored to minimize loss by wind and water. Anchoring will be accomplished by scarifying the surface of the ground, applying the mulch using a blower, and crimping the mulch after it has been applied. If anchoring by mechanical means, a mulch anchoring tool (crimper) or tracked equipment will be used to crimp the mulch.

Banks will be stabilized. As necessary, jute thatching or bonded fiber blankets will be installed on affected water-body banks at the time of final bank recontouring. The fabric will be anchored with biodegradable staples, stakes, or other appropriate devices.

Sediment Barriers. Sediment barriers may be installed where activities result in earth disturbance. Sediment barriers are typically constructed from silt fence or staked straw bales and are intended to reduce runoff velocity and filter sediment out of storm water runoff. Temporary sediment barriers will be installed during clearing immediately adjacent to waterbodies and wetlands and in other areas along the construction right-of-way to prevent the movement of spoil and/or silt laden water off the right-of-way or into waterbodies or wetlands. Temporary sediment barriers will also be installed at the base of all slopes adjacent to road crossings until permanent control measures or vegetation has been re-established.

Sediment barriers will be inspected and maintained on a regular basis during active work. Sediment build-up shall be removed from the barriers as necessary to maintain functionality. Removed sediment shall be spread in an upland area and seeded where appropriate. Temporary sediment barriers will remain in place until permanent revegetation measures are successful. Once permanent vegetation is established, accumulated sediment behind the barrier will be removed or stabilized and the barrier will be removed.

- vi. **Site Dewatering** - During activities, water may accumulate in the work area or excavated trench. If dewatering is necessary, all water will be discharged into well-vegetated uplands, or if well-vegetated uplands are not available, into a dewatering device. Where water is withdrawn from a wetland, an attempt will be made to direct the water discharges into another part of the same wetland, or in such a manner that the water eventually returns to the wetland. In all cases, dewatering will occur at least 100 feet from waterbodies. Dewatering devices are intended to prevent erosion and sedimentation by slowing the rate of discharge and filtering suspended sediments out of the water. Dewatering devices include filter bags and/or structures made of weed-free straw bales and geotextile fabric. Dewatering shall not exceed the capacity of the filtration/dissipating device. Water discharges will be performed in accordance with state and federal regulations. Sediment trapped by dewatering devices shall be removed as necessary to maintain functionality. Removed sediment shall be spread in an upland area and seeded where appropriate.

- vii. **Hydrostatic Testing** – No Hydrostatic Testing will occur during this project.

- viii. **Road Protection Measures** –

Equipment Transportation. All tracked vehicles will be transported to the work site on rubber-tired trailers. At paved road crossings, tracked vehicles will cross on rubber mats, tires, plywood sheets, steel plates, or similar protective materials to prevent damage to the road surface.

Erosion Control Adjacent to Roads. Ingresses and egresses to the construction right-of-way will be maintained in a condition which will prevent tracking of sediment onto the roadway to minimize the potential for tracking mud onto the roads. A combination of matting, culvert installation, and crushed stone pads placed on geotextile fabric will be installed where needed at access points. Temporary sediment barriers will be installed at the base of all slopes adjacent to roads to minimize the possibility of sedimentation to the roadway.

Road Closures. Some roads may need to be closed to traffic during activities. Suitable detours will be established, where required, by the agency with jurisdiction over the road. Road closures will be established in a manner that will minimize effects on traffic

movement to the greatest extent possible. Roads that are closed will be identified by appropriate road signs and barricades warning of detours and closings. Detour signs will be used as needed to clearly identify the detour route. Barricades left in place during night-time hours will be properly reflectorized and equipped with warning lights. All signs and barricades will be removed immediately when no longer needed.

Construction Across Roads. In some cases, activities will involve maintenance of the pipeline beneath a road or driveway. Such activities will be conducted using conventional upland construction procedures except that the road or driveway will be closed during construction. The amount of time needed to construct across a road or driveway and restore it to its original condition will be limited to the minimum amount of time possible. At roads that provide access to private land within BLM lands, private landowners will be notified of the proposed schedule for road closures, and bridging equipment, such as steel plates, will be available at the work site to allow landowner passage, if requested. If the road must remain open for residential access, then a "Road Closed to Thru Traffic" or similar sign will be used at the barricade location.

- ix. **Spill Prevention, Containment, and Countermeasure** - Many activities require the use of heavy equipment and hazardous materials on the right-of-way. Where heavy equipment or hazardous materials are used, NWP will be required to follow the measures outlined in its Spill Plan. NWP's Spill Plan is attached as Attachment D.
- x. **Unanticipated Discovery of Heritage Resources or Human Remains** - Although no significant heritage resources have been identified on NWP's permanent right-of-way and the right-of-way has been disturbed previously by pipeline installation and maintenance activities, there is always the possibility that deeply buried archaeological sites or human remains could be encountered during excavation. In the event that historic properties or human remains are found during excavation, the procedures outlined in NWP's Unanticipated Discovery Plan (see Attachment E).
- xi. **Stream Protection Measures** - From time to time, activities may require equipment to pass through or work in waterbodies. For example, the pipeline may need to be weighted and lowered at a stream crossing where it has "floated" to the surface or where hydrologic conditions have resulted in stream bed scour or migration and exposed the pipe.

Activities and connected actions (such as driving through or bridging of waterbodies) are not allowed in or within 100 feet of waterbodies. The following stream protection measures apply only to activities in waterbodies that have a definable bed and bank and contain water at the time of in-stream work, provided they are not listed in the preceding sentence. Additional stream protection measures may be utilized based on applicable requirements identified in the U.S. Army Corps of Engineers permit or applicable state agency authorization.

Timing. If specific areas are identified with resource-specific timing stipulations, NWP will adhere to the appropriate timeframes unless otherwise approved or responding to an emergency situation.

Bridging. Where equipment must get from one side of a waterbody to the other and there is no adequate upland access to both sides of the stream, temporary bridges will be installed across the streams to allow equipment to cross the streams. Bridge spans over 20 feet wide may require in-stream support. Bridges will be removed immediately after restoration is complete.

Riparian Clearing. Where activities, except routine vegetation clearing, occur in or near streams, vegetation will be left in place within 100 feet of streams until just prior to the work, except as necessary to install an equipment bridge across the stream.

Erosion Control. Immediately after clearing of stream banks, sediment barriers will be installed adjacent to stream banks. Silt fence and/or staked straw bales will be installed across the full width of the cleared right-of-way parallel to the stream immediately after clearing. Straw bales located across the active portion of the work area may be removed during the day when work is being conducted, but will be replaced each night. Soil erosion and sediment control devices are described in Section E.v.

Dry Construction Techniques. Intermittent streams that are not flowing at the time of construction may be open-cut as a 'dry' crossing. Dry crossing for flowing streams involves diverting the flow around the work area to prevent the stream flow from coming into contact with the disturbed stream bed. The flow is generally channeled over the work site through a flume or around the sites through pumps and hoses. All in-stream work will be conducted from equipment positioned on the stream banks or a temporary bridge. Equipment will not be allowed to ford, drive into, or work from within the stream (except when it is necessary to install bridging as described above). Where in-stream work is required, dry construction techniques will be used. Two examples of dry construction techniques are the flume technique and dam-and-pump technique.

The flume technique involves positioning a flume pipe in the stream such that it is centered over the main channel of the stream and it spans the work area. Sand bags are installed in the stream at the upstream end of the flume pipe to dam the stream and funnel the water into the flume. After installing sand bags on the upstream end, bags are also installed on the downstream end thereby effectively isolating the flow of the stream from the work area. To create a dry work area, the standing water from between the dams is pumped into a dewatering structure located at least 100 feet away from the stream banks.

The dam-and-pump technique is similar to the flume technique and involves damming the stream with sand bags upstream and downstream of the proposed trench before in-stream disturbance. Using a portable water pump, water is pumped from the upstream dam around the work area to the downstream side, thereby effectively isolating the flow of the stream from the work area. Backup pump(s) will be available at all times. Stream flow pumped across the work area is discharged onto an energy dissipation device, such as plywood boards, to prevent scouring of the stream bed. Like the flume technique, water trapped between the dams is pumped into a dewatering structure located a minimum of 100 feet away from the stream banks.

For both the flume and dam-and-pump techniques, in-stream work can begin after the work area is dewatered. Spoil from in-stream excavation will be stored in an area located a minimum of 10 feet from the stream banks. To prevent water from adjacent upland excavation from flowing into the in-stream trench, an earthen plug will be left in place in the trench on both banks of the stream to separate the stream trench from upland trench until pipe installation.

Cleanup and Restoration. After in-stream work is completed, the trench in the stream bed will be immediately backfilled with native spoil and the stream banks will be recontoured. Where stipulated in cold water fisheries, the top 12 inches of the trench in the stream bed will be backfilled with washed gravel.

Disturbed banks will be seeded immediately following final grading, weather and soil conditions permitting. Erosion control fabric will be placed on top of the seed to minimize scouring and aid in revegetation. Some stream banks will be stabilized with rock riprap in lieu of seeding and erosion control fabric if appropriate. Rock riprap will match the color of the naturally occurring rock as closely as possible. Additional erosion control devices, such as silt fence and/or straw bales, will be installed along all stream banks as needed. Silt fence and straw bale structures will remain in place until vegetation is well established.

- xii. Restoration and Revegetation - Once activities are completed, cleanup and restoration will begin. Debris will be taken to an approved facility and original ground contours will be restored, unless site-specific conditions dictate otherwise. Permanent erosion control devices will be installed and the disturbed work area will be revegetated. All disturbed areas will be seeded within a reasonable timeframe following final grading, weather and soil conditions permitting.

Seeding. Before seeding, a firm seed bed will be prepared using a disk, field cultivator, drag, rake, or similar implement. If soils are compacted or rutted, the soil structure will be rehabilitated so that productivity can be maintained. During seeding, seed will be uniformly applied and incorporated into the top layer of soil. Where seed is broadcast, the seed will be incorporated into the soil by raking or dragging. Where a hydroseeder is used, the seed bed will be scarified to allow the seeds to lodge and germinate. All seed will be applied at manufacturer's suggested rates based on the equipment dispersal type.

Permanent seeding will be performed in accordance with the following BLM required mixes:

Zone 1 - Proposed Seed Mixture		
Squirreltail	<i>Elymus clymoides</i>	2 lbs/acre
Western wheatgrass	<i>Pascopyrum smithii</i>	2 lbs/acre
Siberian wheatgrass	<i>Agropyron fragile</i>	2 lb/acre
Scarlet Globemallow	<i>Sphaeralcea coccinea</i>	1 lb/acre
Rocky Mountain Beeplant	<i>Cleome serrulata</i>	1 lb/acre
Shadscale	<i>Atriplex confertifolia</i>	2 lbs/acre
Fourwing saltbush	<i>Atriplex canescens</i>	2 lbs/acre

Zone 2 - Proposed Seed Mixture		
Squirreltail	<i>Elymus clymoides</i>	2 lbs/acre
Western wheatgrass	<i>Pascopyrum smithii</i>	2 lbs/acre
Needle and Thread Grass	<i>Stipa comate</i>	1 lb/acre
Indian Ricegrass	<i>Oryzopsis hymenoides</i>	1 lb/acre
Scarlet Globemallow	<i>Sphaeralcea coccinea</i>	1 lb/acre
Rocky Mountain Beeplant	<i>Cleome serrulata</i>	1 lb/acre
Shadscale	<i>Atriplex confertifolia</i>	3 lbs/acre
Fourwing saltbush	<i>Atriplex canescens</i>	2 lbs/acre

Zone 4 - Proposed Seed Mixture		
Thickspike Wheatgrass	<i>Elymus lanceolatus</i> v. <i>lanceolatus</i>	3 lbs/acre
Western wheatgrass	<i>Pascopyrum smithii</i>	3 lbs/acre
Great Basin Wildrye	<i>Leymus cineris</i>	2 lbs/acre
Arrowleaf Balsamroot	<i>Balsamorhiza sagittata</i>	1 lb/acre
Blue Flax	<i>Linum perenne</i>	1 lb/acre

Seed will be aerially broadcasted and covered immediately after application. Seed will be applied between August 15 and December 15. If slopes or rocky conditions preclude the use of the drill, then the seed shall be broadcasted and covered immediately after application. All seed rates are in terms of Pure Live Seed. Operator shall notify the Authorized Officer when seeding has commenced, and shall retain all seed tags.

- xiii. Wetland Protection Measures – From time to time, activities may require equipment to pass through, or work in, wetlands. For example, pipeline coating may need to be repaired in an upland area which is accessible only by driving down the right-of-way through wetlands or may be necessary within a wetland. The following wetland protection measures apply to activities which require equipment to pass through, or work in, wetlands. These measures apply only to wetlands as defined by the Army Corps of Engineers 1987 Federal Wetlands Delineation Manual or the appropriate regional supplement.

Activities and connected actions are not allowed in or within 50 feet of wetlands unless specifically approved. The following wetland protection measures apply only to activities in wetlands that meet the 1987 U.S. Army Corps of Engineers criteria. Additional wetland protection measures may be utilized based on applicable requirements identified in the U.S. Army Corps of Engineers permit or applicable state agency authorization.

Erosion Control. Where ground disturbing activities are required in or near wetlands, sediment barriers consisting of silt fence and/or straw bales will be installed immediately after initial disturbance of the wetland or adjacent upland areas. Where necessary, sediment barriers will be installed across the entire width of the construction right-of-way immediately up-slope of the wetland boundary and at other locations along the right-of-way to prevent the flow of spoil into wetlands. Sediment barriers will also be installed along the edge of the construction right-of-way, where necessary, to protect wetland areas that are adjacent to but outside the affected work area and to contain spoil material and sediment on the right-of-way. Soil erosion and sediment control devices are described in Section E.v.

Ground Stabilization. In areas where heavy equipment must travel through, or operate in, saturated wetlands, low ground pressure vehicles may be used. If low ground pressure vehicles cannot be used or if there is significant potential for rutting, equipment pads may be used to support the equipment and reduce soil compaction and mixing within the wetland.

Prefabricated equipment pads are transportable timber mats which provide temporary support for heavy equipment in unstable areas. The mats are typically 25 feet long and 5 feet wide and consist of heavy wooden timbers bolted or cabled together. In wetlands which require equipment support, the prefabricated mats are generally set on the ground over the area where equipment will travel. However, in some instances, mats will be laid directly under the equipment with additional mats placed in the direction of the travel. As

the equipment moves over the mats, the mats behind are picked up and placed in front of the equipment. Using this technique, only a limited number of mats are required.

Soil imported from areas outside the wetland, tree stumps, or brush/slash may not be used as stabilization materials in wetlands. All material used in wetlands for stabilization will be removed during cleanup.

Topsoil Segregation. In cases where activities require excavation in wetlands, topsoil will be stripped from the area of excavation (i.e., the trenchline) and stored separately from subsoil. If the wetland contains standing water or the soils are saturated, then topsoil will not be segregated. After activities, the subsoil from excavation will be backfilled into the trench and the topsoil, where segregated, will be replaced.

Cleanup and Restoration. Where excavation in wetlands is required at wetland boundaries, a permanent trench breaker (see Section E.v) may be installed at that edge to prevent the subsurface draining or piping of water from the wetland. If the wetland is located at the base of a slope, a permanent earthen slope breaker will be constructed across the entire width of the construction right-of-way near the boundary of the wetland and adjacent upland area.

The original surface contours of the wetland will be restored. Pre-existing drainage culverts in wetlands will be replaced if damaged or cleaned out to restore flow.

No fertilizer, mulch, or lime will be applied in wetlands. Sediment barriers will be removed from the construction right-of-way after revegetation of adjacent upland areas is determined to be successful.

IV. POST CONSTRUCTION

- A. Drawings. No as-built drawings will be provided as the pipeline will be in the same location.
- B. Fence restoration. Fences will be restored if crossed.
- C. Erosion Control. See Section E.xii above.
- D. Painting. None will be necessary.
- E. Clean up. All waste material will be hauled and properly disposed of in accordance with federal, state, and local regulations. No wastes or unused materials will be of disposed of on site.

V. ABANDONMENT PLAN

Does not apply.