

**APPENDIX D-1**  
**Columbia Gas' Environmental Construction Standards (April 2017)**



**ENVIRONMENTAL  
CONSTRUCTION STANDARDS**

**WEST VIRGINIA  
PROJECTS - 2016**

January 2016

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Columbia Pipeline Group  
Charleston, West Virginia

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## I. Introduction

Columbia is committed to complying with the applicable environmental rules and regulations of federal, state, and local governments. Columbia's goal is to meet these requirements in the pursuit of a cleaner, safer environment for future operations.

Recognizing this goal, it is Columbia's policy that all construction, operation and maintenance activities be conducted in a safe manner that minimizes impacts on stream and wetland ecosystems, wildlife habitat, cultural resources and the human environment.

To this end, Columbia has prepared these Environmental Construction Standards (ECS). The ECS provides the minimum requirements to be applied to all construction, operation and maintenance activities.

The general objective of this ECS is to provide Columbia personnel and Columbia's contractors with instructional information, complete with a practical approach to environmental concerns which can arise before, during and after facility construction. More specific objectives include:

- Minimize impacts to environmentally sensitive areas;
- Use the minimum land required for safe and efficient construction, operation, and maintenance of the facilities;
- Prevent erosion and sedimentation during construction; and
- Complete construction in a safe and timely manner.

Words and/or phrases which have special meaning (shown in **bold** at first occurrence in text) and acronyms have been defined in Section VIII (Definition of Terms).

The intent of the ECS is to confine project-related disturbance to the identified **construction work areas (CWA)** and to minimize erosion and enhance re-vegetation in those areas. Any project-related ground disturbance (including erosion) outside of these areas is subject to compliance with all applicable survey<sup>1</sup> (see superscript note in Section VI) and mitigation requirements.

The ECS is focused primarily on pipeline related construction, operation, and maintenance. However, it can be equally applied to all Columbia facilities, for example, storage facilities including well locations, compressor stations, horizontal directional drill locations and measurement/regulation stations. This ECS shall be used as the base document from which Columbia will build individual project-specific Environmental Management and Construction Plans (EM&CP) as called for in Columbia's Policy and Procedure, Plan 120-10. The EM&CP may include written recommendations from the local soil conservation authorities or land management agencies for both temporary and permanent erosion control and re-vegetation specifications. Federal, State, and local

agencies with regulations more stringent than this ECS shall supercede<sup>2</sup> (see superscript in Section VI).

## **II. Upland Construction**

### **A. General**

This chapter describes typical upland pipeline construction.

The upland pipeline construction spread operates as a moving assembly line performing specialized procedures in an efficient, planned sequence. Figure 1 presents the typical upland pipeline construction sequence. In addition, special construction crews install and alter fences, bore under roads and railroads, install stream and wetland crossings that are not done by conventional upland techniques, and construct valve settings and meter/regulator stations.

While construction work is ongoing, the construction work area will be kept clean of all rubbish and debris resulting from the work. Excess construction materials and debris will be collected, contained, and disposed of at regular intervals. This includes timber, slash, mats, garbage, drill cuttings and fluids, as well as excess rock. Non-hazardous materials and waste shall be disposed of in an approved landfill. Hazardous waste shall be disposed of in accordance with Columbia policies (Plan 120.03 and 120.04) and federal, state and local regulations.

The required public notice/entrance sign will be posted at or near the entrance to the site within 24 hours of submitting the application, and kept posted for the duration of the project. Given the linear nature of most of Columbia's construction, one point along the project will be chosen to install and maintain the public notice/entrance sign. See Figure 27 for public notice/entrance sign template.

### **B. Right-of-Way Width**

For 14-inch or larger diameter pipelines on new alignments, Columbia typically utilizes a 50-foot wide permanent right-of-way (ROW plus a 25-foot wide temporary construction ROW as illustrated in Figure 2). After the construction work area is restored, the temporary work areas are allowed to revert to their previous uses. The permanent ROW is maintained as Columbia's permanent ROW for the facility. Figure 2 also illustrates the typical pipeline construction work area when paralleling existing facilities.

In addition, there may be instances where extra work areas are needed for topsoil conservation, side hill construction, equipment staging, pipe and material storage, borrow and disposal areas, temporary and permanent access, and related construction activities. Such areas will be identified in the project plan and will undergo all required environmental and cultural resources reviews prior to use. In contrast, pipelines may be constructed through confined areas such as extremely steep and narrow ridges. Alternate construction methods may be required in

narrow construction work area situations to safeguard workers, equipment, the pipeline, and the environment.

For 12-inch and smaller diameter pipelines, a 50-foot wide ROW is typically used due to a narrower trench and the use of smaller equipment. The typical 50-foot ROW is illustrated in Figure 3. In addition, there may be areas where extra construction work areas are needed as described above.

For non-pipeline construction activities, such as storage well locations and station projects, the construction work area and permanent ROW may vary and can be dependent on property lease, property owner agreements, and/or local topography. For example, the construction work area for a typical storage well is 200 feet by 200 feet and the permanent ROW is a 300 foot radius around the well.

All project-related ground disturbance shall be limited to the construction right-of-way, extra workspace areas, pipe storage yards, borrow and disposal areas, access roads, and other areas approved in the FERC's Orders, and/or other federal/state/local environmental permits. This does not apply to activities needed to comply with the FERC Plan and Procedures (i.e. slope breakers, energy-dissipating devices, dewatering structures, drain tile system repairs) or minor field realignments and workspace shifts per landowner needs and requirements that do not affect other landowners or sensitive environmental resource areas. All construction or restoration activities outside of the approved limit of disturbance detailed in the EM&CP are subject to all applicable survey and permit requirements, as well as landowner easement agreements and must be cleared through the Natural Resource Permitting Group prior to that activity.

### **C. Clearing**

The construction work area is cleared to the width specified in the ROW agreements or EM&CP, whichever is less. During clearing operations, all brush and trees will be felled into the construction work area to prevent off-construction work area damage to trees and structures.

The clearing crew and related equipment, as well as equipment necessary for installation of equipment crossings, will be permitted a single pass through streams prior to equipment crossing installation. Federal, State and local agencies having regulations more stringent than this shall supercede<sup>2</sup> (see superscript note 2).

Should substantial soil disturbance take place during clearing, install temporary erosion and sedimentation controls as described in section D-3.

#### **1. Wood Products**

Wood Products (i.e., saw logs, pulpwood or cordwood) are the property of the landowner unless otherwise specified. They will not be used for any purpose unless permission is first obtained from the landowner. When the landowner

requests the salvage of these materials or approves wood products to be stockpiled and left on site, they will be stockpiled just off the edge of the construction work area, but not within 50 feet of streams, floodplains, or wetlands. Equipment stacking the wood products will not leave the construction work area. Usable timber that measures at least 10 inches in diameter at the butt will be cut into pole lengths (12-14ft) or as otherwise negotiated with the landowner. Off-site disposal in other than commercially operated disposal locations is subject to compliance with all applicable survey; landowner approval and mitigation requirements.

## 2. Brush

All cleared brush will be disposed of by one of the following methods:

- Brush may be piled just off the edge of the construction work area but not within 50 feet of streams, floodplains or wetlands. Equipment stacking the brush will not leave the construction work area. Brush piles will be constructed a maximum of 12 feet wide and compacted to approximately 4 feet high, with periodic breaks at a minimum of every 200 feet to permit wildlife travel. Breaks should be no smaller than 4ft wide to allow wildlife travel. Brush piles will be kept separate from usable timber and care will be taken to prevent mixing of soil and brush. The landowner should be consulted to determine acceptable brush pile locations along the construction work area. Landowner approval is required for this method.
- Brush may be burned where permitted by law. The necessary burning permits will be obtained. Fires will be of reasonable size and located and patrolled so that they will not spread off the construction work area.
- The brush may be chipped and given away, buried, or thinly spread (less than 2 inches thick) over the construction work area or blown off the construction work area (per landowner agreement and approvals) except in **agricultural lands** or within 50 feet of streams, floodplains, or wetlands. Chipping will be limited to those areas where agreed to with the landowner. If wood chips are used as mulch, do not use more than 1 ton/acre (One ton of chips spread 1 inch thick cover approximately  $\frac{1}{4}$  acre.). During **restoration**, soil will be augmented by the addition of 11 pounds of nitrogen per ton of chips to aid re-vegetation, at least half of which must be slow release.
- Brush may be hauled off-site, off-site disposal in other than commercially operated disposal locations is subject to compliance with all applicable survey; landowner approval and mitigation requirements.

## 3. Fence Crossings

Where it is necessary to remove fences, adequate temporary fences or gates as illustrated in Figure 4 will be installed **immediately** or in accordance with landowner agreement. Such temporary fences or gates will be kept closed, except when necessary for construction purposes per landowner agreement. Once construction is completed, permanent fence repairs will be completed. All fences that have been cut or removed will be permanently repaired during restoration to match the original type of the fence as much as possible. Where there is any doubt as to the usability of old fence material, new material will be used in making repairs. Fence repairs will be subject to the approval of the landowner.

## D. Grading

Grading is necessary to provide a smooth and even surface for safe and efficient operation of construction equipment. Grading will be the minimum amount necessary and includes installation of erosion control devices such as interceptor diversions, **sediment filter devices**, and equipment crossings at streams to minimize soil loss and subsequent sedimentation.

### 1. Tree Stump and Rock Removal and Disposal

Tree stumps and large rocks will be cut, graded or removed as necessary to permit construction and to provide adequate clearance for mechanical equipment and other vehicles. Tree stumps that are adjacent to roads will be cut close to the ground or removed.

Stumps and large rocks will be disposed of in the following manner with landowner approval. Off-site disposal in other than commercially operated disposal locations is subject to compliance with all applicable survey, landowner approval, and mitigation requirements.

- Buried within the construction work area except in agricultural, residential, or wetland areas;
- Windrowed just off the edge of the construction work area with landowners' permission. windrows will be a maximum of 12 feet wide with periodic breaks a minimum of 200 feet apart;
- Hauled from the site and disposed of in an approved landfill or other suitable area.

### 2. Topsoil Conservation

Unless the landowner or land management agency specifically approves otherwise, prevent the mixing of topsoil with subsoil by stripping topsoil from either the full work area or from the trench and subsoil storage area (ditch plus soil side method) in:

- Cultivated or rotated croplands, and managed pastures;
- Residential areas;
- Hayfields; and
- Other areas at the landowner's or land managing agency's request.

In deep soils (more than 12 inches of topsoil), segregate at least 12 inches of topsoil. In soils with less than 12 inches of topsoil make every effort to segregate the entire topsoil layer. Segregated topsoil may not be used for padding the pipe, constructing temporary slope breakers or trench plugs, improving or maintaining roads, or as fill material. Figure 5 illustrates topsoil conservation techniques.

The topsoil will be stockpiled separately from all subsoil and will be replaced last during backfilling and **final grading**. Where topsoil is stripped from the entire construction ROW, an additional 25-foot wide temporary work area may be used for topsoil storage with landowners' permission and appropriate environmental approvals. The controls used along the right-of-way will also serve these additional areas, where practicable. The **Environmental Inspector** will determine if additional erosion control devices, aside from those indicated in the details, are needed in topsoil storage areas. Stabilize topsoil piles and minimize loss due to wind and water erosion with the use of sediment barriers, mulch, temporary seeding, tackifiers, or functional equivalents, where necessary and/or required by environmental permits.

In residential areas, topsoil replacement (i.e., importation of topsoil) is an acceptable alternative to topsoil segregation.

### **3. Erosion Control Devices**

Temporary erosion controls will be installed prior to or during the initial disturbance of soil. The most effective and versatile erosion control devices are interceptor diversions (temporary slope breakers) and sediment filter devices as illustrated and described in Figures 6A, 6B, 7A, and 7B, as well as other approved devices. Temporary diversions will be maintained during the construction phase until final diversions are installed. Where required grading has significantly reduced the slope, the Environmental Inspector may require fewer temporary diversions consistent with the table on Figure 6A. On steep slopes or other areas of special concern which may be prone to landslides, the spacing of the interceptor diversion shall be adjusted in accordance with the table on Figure 6A.

Jute netting as illustrated in Figures 12A and 12B or equivalent approved by the Environmental Inspector may be used on **steep slopes** to help stabilize the construction work area. Do not use coconut fiber erosion control blanket/netting.

Direct the outfall of each temporary slope breaker to a stable, well vegetated area or construct an energy-dissipating device at the end of the slope breaker and off the construction right-of-way. Position the outfall of each temporary slope breaker to prevent sediment discharge into wetlands, waterbodies, or other sensitive environmental resource areas. Slope breakers may extend slightly (about 4ft) beyond the edge of the construction right-of-way to effectively drain water off the disturbed area if the appropriate state or local governing agency allows the extension.

Sediment barriers may also be necessary and are intended to stop the flow of sediments and to prevent the deposition of sediments beyond approved workspaces or into sensitive resources. At a minimum, install and maintain temporary sediment barriers across the entire construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody, wetland, or road crossing until vegetation is successful. Leave adequate room between the base of the slope and the sediment barrier to accommodate ponding of water and sediment deposition. Where wetlands or waterbodies are adjacent to and downslope of construction work areas, install sediment barriers along the edge of these areas, as necessary, to prevent sediment flow into the wetland or waterbody.

For silt fence installation, the bottom will be buried 4-6 inches deep, backfilled and compacted with stakes placed 8 feet apart (see Figure 7A). Silt fence will be cleaned out when sediment builds up to half its height or maintained/replaced if damaged. Super silt fence installation and maintenance will be in accordance with Figure 7B.

All temporary erosion control devices, including roadside ditches, will be inspected near the end of each work day or after each storm (rain) event of 1/2 inch or greater, to ensure proper functioning. Any devices damaged beyond functioning will be repaired **promptly**.

#### **4. Temporary Road Entrances**

Temporary road entrances illustrated in Figure 8 will be installed during grading where the construction work area crosses paved public roads when needed to maintain safe conditions and to prevent tracking soil and mud onto public roads. These installations are designed to remove mud from vehicle tires and tracks before accessing the road. Minimize the use of tracked equipment on public roadways. Geotextile fabric will be used as illustrated in Figure 8. The roadbed should be cleared of small stubs which tend to puncture

the fabric, thereby allowing fine particles to mix with the gravel. If necessary, up to 6 inches of soil will be removed prior to installation of the temporary road entrance to ensure a hard base for geotextile fabric and rock placement. Geotextile fabric is not required at existing, graveled access road entrances. If gravel is to be left after construction, landowner approval is required. In addition, public roads will be inspected, swept, shoveled and/or scraped as necessary to keep the road surface safe and remove any debris originating from the project. If the public road is gravel, the temporary entrance is still required to be graveled. Any damages to roadway surfaces, shoulders, and bar ditches will be repaired. Typical erosion control measures at road crossings are illustrated in Figure 9. If no access is required onto the roadway the installation of a construction entrance is not required, however, safety fencing may be installed across the ROW and signs designating "no entrance" may be erected to avoid any unintentional entrances.

## **E. Access Roads**

Typically, Columbia requires access roads to the construction and staging areas. New access roads will be built only if existing access is inadequate. The access roads will be a maximum 25 feet wide with additional width in tight turns and at intersections with public roads (this additional width must be included in the environmental surveys). Approximate location and alignment of these access roads will be shown on the project map submitted with the application. These roads will either be temporary (used for access during construction only) or permanent (used during and after construction for operation and maintenance of the facilities). All public roads are available for use as access roads without further environmental review however; all private access roads intended for use are subject to environmental reviews. Safe and accessible conditions will be maintained at all roadway crossings and access points during construction and restoration.

If tree clearing is needed for access road use, trees will be felled into the CWA of the access road itself. All trees and brush will be windrowed at the edge of the access road, with usable timber kept separate. Access road gradient will be as flat as local topography will practically allow. By breaking or changing grade frequently, fewer erosion problems will be encountered than on long, straight, continuous gradients. Interceptor diversions and/or other erosion and sediment control devices will be installed where practicable. All access roads will be maintained to provide safe access, as well as sediment control.

Roads will cross streams and wetlands as close as possible to right angles. Road gradients approaching these crossings may be flattened to decrease runoff velocity. Runoff may be dispersed just prior to the crossing by means of an interceptor diversion with a sediment filter device (compost filter sock) at the outlet. See Figures 25 and 30 for detail. Where conditions permit, new roads will be located at least 25 feet from any stream or wetland except at crossing locations. Culverts will be sized and placed to permit water flow under the access road.

After construction, temporary access roads (including any additional width used for construction) will be graded and left intact for the landowner's benefit or removed and the area restored using the same specifications as applied to the rest of the construction work area.

## **F. Residential Areas**

The following mitigation measures will be implemented for all residences within 50 feet of the construction work area:

- Mature trees and landscaping will not be removed from within the edge of the construction work area unless necessary for safe operation of construction equipment or as specified in landowner agreements;
- Immediately after backfilling the trench, all lawn and landscaping will be restored to final restoration, or temporary restoration pending weather and soil conditions;
- While the trench is open, the edge of the construction work area adjacent to the residence will be safety fenced for a distance of 100 feet on either side of the residence to ensure that equipment, materials and spoil remain within the construction work area;
- A minimum of 25 feet will be maintained between the residence and construction work area for a distance of 100 feet on either side of the residence. If the facility must be within 25 feet of a residence, it must be installed such that the trench does not remain open overnight.

If seasonal or weather conditions prevent compliance with these time frames, temporary erosion controls must be monitored and maintained until conditions allow completion of restoration.

## **G. Trenching**

### **1. Trenching Specifications**

Typically, the trench will not remain open for more than 30 days in any area unless authorized by the Environmental Inspector (additional restrictions for stream and wetland areas are provided in Section III).

- As the trench is completed, trench line breakers, as illustrated in Figure 10, will be installed promptly at every second temporary interceptor diversion at a minimum, or at increased intervals as approved by the Environmental Inspector. Top soil will not be used to construct the breakers. The breakers reduce water velocity and erosion of the trench bottom. The breakers will be maintained

promptly.

- Sediment filter devices will be installed around spoil storage areas before digging bore pits, stream crossings, and wetland crossings.
- If it is necessary to pump water from the trench or bore pits, the water will be pumped into a heavily vegetated upland area where the water will filter back into the ground, a sediment filter bag as illustrated in Figure 28, and/or through a sediment filter device such as a series of sediment logs at least 10 feet from any stream or wetland in order to minimize erosion and subsequent sedimentation of streams or wetlands. If little vegetation is present, filter sock containment will be added around the filter bag for additional sediment control. Water impounded in the trench will not be released directly or by overland flow into any **waterbody** or wetland. Dewater the trench in a manner that does not cause erosion and does not result in silt laden water flowing into a waterbody or wetland.

When the trench must remain open for a greater length of time, appropriate erosion controls and safety measures will be employed as directed by the Environmental Inspector.

## **2. Blasting**

All drilling and blasting will be done in a cautious manner. Suitable precautions will be taken to avoid injury or damage to persons, livestock, or other property.

If blasting is necessary within 150 feet of residential or commercial buildings, an independent contractor will be hired to perform pre- and post-blast structural inspections and, if necessary, seismographic monitoring.

In those instances where blasting has the potential to affect water quantity/quality from domestic or agricultural wells or springs in the proximity of the construction work area, Columbia will conduct pre- and post-blasting (within two months of construction work restoration) testing of water wells within an appropriate distance (typically 150 feet) of the pipeline with landowner permission. These tests may include a pump inspection, flow rate, and bacteriological cultures. If a water well is damaged as a result of Columbia's activities, Columbia will provide a temporary source of water and/or compensate the owner.

## **3. Temporary Construction Access over the Trench Line**

Where access across the trench line is required, temporary facilities such as trench plugs and fences, wooden mats or steel plates will be constructed or installed to permit safe crossing of livestock, vehicles, equipment, and persons from one side of the trench to the other.

#### **4. Drainage Tile and Irrigation Facilities**

Attempt to locate existing drain tiles and irrigation systems. Columbia personnel will contact landowners and/or the local National Resource Conservation Service (NRCS) to determine the locations of future drain tiles that are likely to be installed within 3 years of the authorized construction, if planned, the pipeline will be installed at a sufficient depth to accommodate the drainage tile. For adjacent pipeline loops in agricultural areas, install the new pipeline with at least the same depth of cover as the existing pipeline(s) and within US Department of Transportation (DOT) specifications. Mark locations of drain tiles damaged during construction.

Engage qualified drain tile specialists, as needed to conduct or monitor repairs to drain tile systems affected by construction. Use drain tile specialists from the project area, if available. Drainage tile removed, cut, broke, or otherwise damaged during construction will be repaired or replaced as illustrated in Figure 11. Temporary measures approved by the Inspector will be taken to provide suitable drainage until permanent repairs are made. Repair damaged drain tiles to their original or better condition. Do not use filter-covered drain tiles unless the local soil conservation authorities and landowner agrees.

Water flow will be maintained in crop irrigation systems unless shutoff is coordinated with affected parties.

#### **H. Backfilling Specifications**

Backfilling will follow pipe lowering as closely as practical. Topsoil will not be used to pad the pipe. Soil that has been excavated during construction and not used for backfill will be evenly spread over the cleared construction work area or removed from the site and properly disposed of at an approved disposal area. All waste materials such as barrels, cans, drums, stumps, coating and wrap, rubbish, or other refuse will not be placed in the trench.

Trench line barriers, as illustrated in Figure 10, will be placed in the trench prior to backfilling to prevent water movement and subsequent erosion. An engineer or similarly qualified professional shall determine the need for and spacing of trench line barriers. Otherwise, trench line barriers shall be installed at the spacing illustrated in Figure 10 and up-slope of any permanent interceptor diversions. Trench line barriers may be constructed of materials such as sand bags or polyurethane foam. Foam barriers can be used if the appropriate State or Local governing agencies allow.

Excess rock, including blast rock, may be used to backfill the trench to the top of the existing bedrock profile. Care should be taken to not damage the pipeline.

#### **I. Final Grading, Restoration and Stabilization**

After construction activities, all disturbed areas will be stabilized with either (1) final

grading and restoration; or (2) **temporary stabilization** measures, in order to prevent erosion and sedimentation until final grading and restoration can be completed. If construction or restoration unexpectedly continues into the winter season when conditions could delay successful de-compaction, topsoil replacement, or seeding until the following spring, file with the Secretary for review and written approval of the Director, a winter construction plan. This does not apply to projects constructed under the automatic authorization provisions of FERC's regulation.

## **1. Final Grading**

Final grading will be completed within 20 calendar days of backfilling (10 days in residential areas), weather and soil conditions permitting. Should unsuitable soil conditions persist, or be expected to persist, for more than 20 calendar days (10 days in residential areas), the Environmental Inspector will record the conditions and require the installation of temporary stabilization measures, and final grading and restoration will be delayed. In no case shall final grading be delayed beyond the end of the next recommended seeding season.

If final grade can be established, but conditions are not ideal for permanent seeding, the Environmental Inspector will specify application of temporary stabilization measures (including temporary seeding and mulching), and may also consider concurrent application of final seed mix and mulch as provided in Table 2A, or per the local conservation authority. A travel lane may be left open temporarily to allow access by construction traffic if the temporary erosion control structures are installed, inspected, and maintained. When access is no longer needed, the travel lane must be removed and the right-of-way restored to pre-construction contours.

During final grading, soil over the trench may be mounded to allow for future settling. Where fill in the trench or major depressions have settled below ground level, additional fill will be added as needed, and the area brought to final grade. The Environmental Inspector may approve a temporary travel lane in the construction work area, where needed, to facilitate the remainder of construction and/or restoration. This travel lane must be restored when access through the area is no longer required.

Conserved topsoil will be returned during final grading.

Excess rock will be removed from at least the top 12 inches of soil, to the extent practicable, in all cultivated or rotated agricultural land, hayfields, pastures, residential areas, and other areas at the landowner's request. The size, density, and distribution of rock on the construction work area should be similar to adjacent areas not disturbed by construction. The landowner may approve other rock size provisions in writing. Rock that is not returned to the trench is considered construction debris, unless approved for use as mulch or

for some other use on the construction work area by the landowner or land managing agency. All construction debris from all work areas must be removed unless the landowner or land managing agency approves leaving materials onsite for beneficial reuse, stabilization, or habitat restoration.

Final erosion control devices including interceptor diversion/slope breakers will be installed during final grading. Sediment filter devices needed to protect off-construction work area resources will be re-installed or rebuilt promptly after final grading. See figures 6A and 6B for installation and spacing details. Final diversions will be constructed such that water does not pond in them and is conveyed off the right-of-way. Final interceptor diversions will not be installed in agricultural or pasture land without landowner's consent.

## **2. Soil Compaction Testing**

Test topsoil and subsoil for compaction at regular intervals in agricultural and residential areas disturbed by construction activities. Conduct tests on the same soil type under similar moisture conditions in undisturbed areas to identify approximate preconstruction conditions. Use U.S. Army Corps of Engineers-style cone penetrometers or other appropriate devices to conduct tests.

Plow severely compacted agricultural areas with a paraplow or other deep tillage implement. In areas where topsoil has been segregated, plow the subsoil before replacing the segregated topsoil. Alternatively, make arrangements with the landowner to plant and plow under a "green manure" crop, such as alfalfa, to decrease soil bulk density and improve soil structure. If subsequent construction and cleanup activities result in further compaction, conduct additional tilling.

Perform appropriate soil compaction mitigation in severely compacted residential areas.

## **3. Restoration**

Restoration as defined in Section VIII (Definition of Terms), will begin within 6 days of final grading, weather and soil conditions permitting. Fertilizer and lime will be disked into the soil (except rocky soils) to a depth of 3 to 4 inches to prepare a seedbed. In rocky soils, fertilizer and lime may be incorporated into the soil with tracked equipment. Seeding and mulching the construction work area will promptly follow seedbed preparation. Ensure that mulch is adequately anchored to minimize loss due to wind and water. Mulch tackifiers used in accordance with the manufacturers recommendations may be used as an alternative. Do not use liquid mulch binders within 100 feet of wetlands or waterbodies.

The typical application rates for lime, fertilizer, seed, and mulch are listed in

Table 2A. They will be used unless the right-of-way agreement, permit or local NRCS provides project-specific recommendations. If tall fescue is used, plant endophyte free certified seed.

If hydroseeding is utilized, lime and fertilizer applications should be equivalent to Table 2A unless ROW agreement, permit or the local NRCS provides project specific recommendations.

Hay or straw mulch shall be applied in accordance with Table 2A over hydroseeding. Hydromulch can be used in conjunction with (for texture purposes) but not substituted for hay or straw mulch. **Scarify** the seedbed to facilitate lodging and germination of seed.

Uniformly apply and cover seed in accordance with the written recommendations of the local soil conservation authorities or land management agencies.

Base seeding rates on Pure Live Seed. Use seed within 12 months of seed testing. Treat legume seed with an inoculate specific to the species using the manufacturer's recommended rate of inoculant appropriate for the seeding method. If the above recommendations are not available for conventional seeding, use 4 times the manufacturers recommended rate of inoculate. For hydroseeding, use 10 times the manufacturer's recommended rate of inoculate.

In the absence of recommendations from the local conservation authority, a seed drill equipped with a cultipacker is preferred for application, but broadcast or hydroseeding can be used at double the recommended seeding rates. Where seed is broadcast, firm the seedbed with a cultipacker, roller or other suitable means after seeding. In rocky soils or where site conditions may limit the effectiveness of this equipment, other alternatives may be approved by the Environmental Inspector.

Restoration will not be performed in agricultural lands from the beginning of the spring thaw through May 15 unless requested by the landowner. Restoration will be coordinated with the landowner's planting schedule. Grazing deferment plans will be developed with willing landowners, grazing permittees, and land management agencies as appropriate to minimize grazing disturbance of re-vegetation efforts.

Permanent seeding, liming, and fertilizing may be performed by the landowner. The Environmental Inspector will ensure that the restoration is satisfactory and consistent with the regulatory requirements.

Restore all turf, ornamental shrubs, and specialized landscaping in accordance with the landowner's request, or compensate the landowner. Restoration work must be performed by personnel familiar with local horticultural and turf establishment practices.

Jute netting as illustrated in Figures 12A and 12B or equivalent approved by the Environmental Inspector may be used on **steep slopes** to help stabilize the construction work area. Do not use coconut fiber erosion control blanket/netting.

Synthetic monofilament mesh/netted erosion control materials should not be used in areas designated as sensitive wildlife habitat, unless the product is specifically designed to minimize harm to wildlife. Anchor erosion control fabric with staples or other appropriate devices.

Restoration shall be considered successful if the right-of-way surface condition is similar to adjacent undisturbed lands, construction debris removed (unless requested otherwise by the landowner or land managing agency), re-vegetation is successful, and proper drainage has been restored.

Re-vegetation in non-agricultural areas shall be considered successful if upon visual survey the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands. In agricultural areas, re-vegetation shall be considered successful if crop yields are similar to adjacent undisturbed portions of the same field.

#### **4. Temporary Stabilization**

Seeding and mulching rates are provided in Table 2B. Consideration will be given to the following when determining if temporary stabilization measures are to be implemented:

- If final grading and installation of permanent interceptor diversions or slope breakers will not be completed in an area within 20 days after the trench in that area is backfilled (10 days in residential areas);
- Anticipated weather conditions;
- Resources on and off the construction work area to be protected. If temporary stabilization measures are utilized, final grading and/or restoration must commence once weather and soil conditions permit;
- Construction or restoration activity is interrupted or won't take place for extended periods (greater than 21 days).

Apply mulch in accordance with the specifications outlined in this section, however; during temporary restoration increase mulch application on all slopes (8 percent or more) within 100 feet of waterbodies and wetlands to a rate of 6,000 lbs/acre (3 tons).

#### **5. Restoring Man-Made Structures**

All existing man-made installations that are disturbed or damaged during construction along new ROW will be repaired or replaced and left in equivalent or better condition than they were found prior to construction, unless alternative arrangements made with landowners dictate otherwise. Man-made installations on existing ROW that are disturbed or damaged during construction will be addressed consistent with Columbia's encroachment policy.

## **6. Off-Road Vehicle (ORV) Control**

Columbia will discuss with each landowner and park manager along new ROW (not adjacent to existing ROW) in forest lands the need for ORV control. If requested, one or more of the following ORV control measures will be installed:

- Plant conifers (pine trees) across the construction work area. The spacing of trees and length of construction work area planted should provide for adequate facility maintenance, but should be sufficient to limit access and to screen the ROW from view. Trees will not be planted directly over the pipeline.
- Install a slash and timber barrier, a pipe barrier, or a line of boulders across the construction work area to restrict vehicle access.
- Install a locking gate with fencing extending a reasonable distance to prevent bypass.
- Install "No Trespass" signs.

## **J. Noise Impact Mitigation and Dust Control**

Construction equipment will be properly muffled and maintained to avoid producing excessive noise near **noise sensitive areas**.

Efforts will be made to control fugitive dust along all portions of the project including at sensitive areas such as residential areas and road crossings. Water trucks will be used, at a minimum, to dampen the work area if dust becomes a problem.

## **K. Other Controls**

All projects will be maintained as clean and orderly. All solid wastes and construction/demolition, material will be disposed of in accordance with the Code of West Virginia and Legislative Rule Title 33, Series 1 (Solid Waste Management Rule).

All erosion and sediment controls on the site will be inspected at least once every seven calendar days and within 24 hours after any storm event greater than 0.5 inches of rain per 24-hour period. Inspections will be documented. Records of these inspections will be kept on-site and made available for review by regulatory

personnel.

Employees will be trained on the components and goals of the SWPPP including spill response, housekeeping, and routine inspection of E&S controls.

## **L. Hydrostatic Testing**

Typically, Columbia verifies a facility's integrity by hydrostatic testing. Water can be drawn from local sources (streams, ponds, public water supplies) in a manner that will minimize impacts to the environment and other existing users, while maintaining adequate stream flow. Water from state designed *high quality streams* or *exceptional value waters*, waterbodies which provide habitat for federally listed threatened or endangered species, or streams utilized as public water supplies will not be used unless other water sources are not readily available and the appropriate federal, state or local agency permits its use.

Intake hoses will be screened.

Locate hydrostatic test manifolds outside wetlands and riparian areas to the maximum extent practicable.

All required federal, state and local approvals for the withdrawal and/or discharge of hydrostatic test water will be obtained prior to such activities.

Comply with all approval/permit conditions which may include notifying the appropriate state agency of withdraw/discharge, collection of samples in accordance with permit conditions where required, and discharging in a manner to meet all discharge parameters where required.

Maintain adequate flow rates to protect aquatic life and provide water for downstream withdrawals by existing users.

All welds will be radiographically inspected or hydrostatically tested before pipe installation under waterbodies or wetlands.

The discharge of the hydrostatic test water will be performed in a manner that minimizes erosion. The energy of the released test water will be dissipated by discharging the water:

- Into a well-vegetated upland area;
- Into a tank(s)
- Into a body of water (with all required permits and meeting all conditions); or
- Through a sediment filter device and/or a sediment trap to filter out various particulate matter or allow it to infiltrate through the soil.

If necessary, regulate the water discharge rate, use energy dissipation device(s); and/or install sediment barriers to prevent erosion, scour, suspension of sediments, or excessive stream flow. During the discharge, the Environmental Inspector must ensure that erosion and sedimentation are properly controlled.

Do not discharge into waters from state designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or streams utilized as public water supplies unless the appropriate federal, state or local agency grants permission.

Methanol may be injected after discharging the water, to dry the pipe. Excess methanol will be retrieved from the facility and used during subsequent operation of Columbia's facilities.

This guidance is for hydrostatic testing of new pipe. Permitting requirements associated with hydrostatic testing of used pipe can be extensive. Contact the NRP Group prior to testing any used pipe.

#### **M. Post Construction Activities and Reporting**

Follow up inspections must be conducted of all disturbed areas, as necessary, to determine the success of re-vegetation and address landowner concerns, at a minimum, follow up inspections must be conducted after the first and second growing seasons. If re-vegetation is unsuccessful, continue re-vegetation efforts until adequately restored.

Quarterly reports must be filed with the Secretary documenting the results of follow up inspections; any problem areas, including those identified by the landowner; and corrective actions taken for at least 2 years following construction. This does not apply to project construction under automatic authorization, prior notice, or advanced notification provisions in the FERC's regulations.

### **III. Stream and Wetland Crossings**

#### **A. Stream Crossings**

##### **1. General**

The main objective of any waterbody crossing is to construct the pipeline in a manner which minimizes erosion and subsequent sedimentation into the waterbody. Crossings will be constructed as close as possible to right angles with the waterbody channel. Adequate downstream flow rates will be maintained at all times to protect aquatic life and prevent the interruption of existing downstream uses. Each waterbody crossing will be treated as a separate construction entity, such that trenching, pipe installation, backfilling and temporary stabilization or final restoration are completed in the minimum number of consecutive calendar days possible.

Whenever a time limit is imposed on a crossing procedure, that time limit is only applicable to trenching (except blasting), lowering in, and backfilling. Clearing, grading and equipment crossing installation and removal activities are not included as part of the separate construction entity. Construction equipment will not be allowed in the water except as provided in this Section.

Unless expressly permitted or further restricted by the appropriate federal or state agency in writing on a site-specific basis, in-stream work, except that required to install or remove equipment bridges, must occur during the following time windows:

- Coldwater Fisheries: June 1 through September 30
- Coolwater and Warmwater Fisheries: June 1 through November 30

Columbia will notify authorities responsible for potable water supply intakes located within 3 miles downstream, at least one week before beginning work in the waterbody, or as required by state or local regulation.

When water levels are temporarily high, the Environmental Inspector will direct that starting any waterbody crossing be postponed until water levels subside.

Any extra work areas will be located at least 50 feet away from the water's edge, except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land. Where topographic conditions do not permit a fifty-foot setback, contact the Natural Resources Permitting Group for approval. All extra work areas must be located at least 10 feet from the water's edge and limited to the size needed to construct the crossing. Pipe assembly for the waterbody crossing is usually performed in the extra work areas prior to or concurrently with trenching.

Standards relating to spill prevention at waterbodies are contained in Section IV, (Spill Prevention).

If the facility parallels a waterbody, attempt to maintain at least 15 feet of undisturbed vegetation between the waterbody and the right-of-way except at the crossing location. Where waterbodies are adjacent to the construction right-of-way, install sediment barriers along the edge of the construction right-of-way to contain spoil and sediment within the right-of-way.

Waterbody buffers (extra work area setbacks, refueling restrictions, etc.) must be clearly marked in the field with signs and/or highly visible flagging until construction related ground disturbing activities are completed.

## **2. Crossing Techniques**

Columbia typically utilizes either the dry-ditch (flume pipe), dam and pump, or wet ditch techniques to install pipelines across waterbodies. Figures 14, 15,

and 16 illustrate these methods. **Upland construction** techniques may be used for **intermittent waterbody** crossings without perceptible flow at the time of the crossing, provided that a culvert is **promptly** installed to carry stormwater flow across the trench area and the erosion and sediment control devices illustrated in Figure 13 are installed.

The wet ditch method may be used when the following conditions are met:

- When the distance across the flume pipes becomes too wide for a backhoe to dig from both sides and connect the trench underneath the pipes. This measurement would vary according to the number of flume pipes, the height of the stream banks, the size and digging angle of the backhoe, the depth to bed rock, and ease of digging.
- When the crossing can be accomplished within 72 hours, however; every effort should be made to complete the crossing in one working day. All disturbed stream banks will be stabilized the same day the construction is finished.
- When the crossing is at right angles ( $\pm 5^\circ$ ) to the stream channel.
- If water is pumped during the installation of the pipe it must be treated as per the dewatering specifications indicated in detail on Figure 29.

#### **a) Minor Waterbodies**

Minor waterbodies will be considered those which are 10 feet wide or smaller at the top of the bank. For crossings of coldwater fisheries and coolwater and warmwater fisheries considered significant by the state, install the pipeline using the dry-ditch method or dam and pump method, unless approved otherwise, in writing, by the appropriate state agency.

For other **minor waterbody** crossings, complete in-stream construction in the waterbody using the wet ditch method within 24 hours (except for blasting and pneumatic chipping; see Section III.6). Limit use of equipment operating in the waterbody to that needed to construct the crossing.

#### **b) Intermediate Waterbodies**

Intermediate waterbodies will be considered those which are 10-100 feet wide at the top of the bank. The wet ditch method will be used for all **intermediate waterbody** crossings. Only the equipment necessary for excavating the trench, lowering-in the pipe, and backfilling the trench is allowed in the waterbody. Columbia will attempt to complete

trenching and backfill work in the waterbody within 48 hours, unless site-specific conditions make completion within 48 hours infeasible.

For crossings of coldwater fisheries and coolwater and warmwater fisheries considered significant by the state 10 to 30 feet in width, install the pipeline using the dry-ditch method or dam and pump method, unless approved otherwise in writing by the appropriate state agency.

### **c) Major Waterbodies**

Major waterbodies will be considered those which are 100ft wide or larger at the top of bank. Major waterbodies could also include waterbodies that are smaller, if there are special conditions that warrant a site-specific plan be created, such as threatened or endangered species habitat, stream classification, or other factors. Due to their sensitive nature, **major waterbody** crossings will have site-specific construction plans approved by the Natural Resource Permitting group. Horizontal Directional Drilling may be considered as an alternative for these crossings.

## **3. Clearing**

Tree and brush clearing will be performed as previously described in Section II, "Upland Construction". All cleared materials will be disposed of at least 50 feet from the water's edge.

## **4. Grading**

Grading equipment will not enter the water to grade the banks. Waterbody banks will be graded only where, and as much as, necessary to permit safe and efficient operation of construction equipment. During grading operations, sediment filter devices will be installed across the entire construction right-of-way promptly and as close to the water as practical. Removable sediment filter devices must be installed across the travel lane. These removable sediment filter devices, if removed during the day, must be re-installed by the end of the work day or when precipitation is imminent. All disturbed areas within 50 feet of the water's edge will be promptly mulched. The mulch will be maintained until the waterbody crossing restoration is complete. Spoil from grading will be piled at least 10 feet from the stream banks and immediately protected with sediment filter devices so that it will not erode into the waterbody. On waterbody crossings with approaches sloped 5 percent or greater, interceptor diversions will be installed 50 feet from the water's edge to divert surface runoff into adjacent vegetation. If vegetation is sparse or nonexistent, a sediment filter device (not including silt fence) will be installed at the discharge of the diversion. Install a sediment filter device across the entire construction right-of-way at

the base of slopes 5 percent or greater where the base of the slope is less than 50 feet from a stream. Leave adequate room between the sediment filter device and base of the slope for sediment deposition.

Construction equipment bridges consisting of culvert(s) with clean rock fill of non-erodible material or equipment pads/timber mats, as illustrated in Figures 18 and 19, will be installed during grading operations at all waterbodies. For proper culvert installation, the Environmental Inspector may permit grading/excavating equipment to enter the water. Equipment bridges are not required at minor waterbodies that do not have a state-designed fishery classification (for example, agricultural or intermittent drainage ditches). However, if an equipment bridge is used, it must be constructed in accordance with this ECS. Construct equipment bridges to maintain unrestricted flow and to prevent soil from entering the stream.

## **5. Trenching**

Notifications to applicable jurisdictional agencies will be made at least 2 days prior to any trenching in waterbodies, or as specified in permits.

Prior to trenching within the waterbody, water impounded in the upland trench will be pumped into a properly installed filter bag (Figure 29) and/or a series of sediment logs, or a heavily vegetated upland area where the water can filter back into the ground. Prevent the flow of spoil or silt-laden water into any waterbody.

Sediment filter devices for trench spoil will be installed prior to or during commencing trenching activities. Sediment filter devices can be temporarily removed from the trench line to allow trenching activities to proceed and then promptly replaced.

All spoil from minor and intermediate waterbody crossings, and upland spoil from major waterbody crossings, must be placed in the construction ROW at least 10 feet from the water's edge or in additional extra work areas. For all new construction activities, the minimum depth of cover for all waterbody crossings is 48 inches in normal soils and 24 inches in consolidated rock.

Trench plugs will be used at all non-flumed waterbody crossings to prevent diversion of water into upland portions of the pipeline trench and to keep any accumulated trench water out of the waterbody. Trench plugs must be of sufficient size to withstand upslope water pressure.

For dry ditch method crossings, use sand bag or sand bag and plastic sheeting diversion structure or equivalent to develop an effective seal and to divert stream flow through the flume pipe (some modifications to the stream bottom may be required in order to achieve an effective seal). In addition, do not remove flume pipe during trenching, pipe laying, backfilling activities, or

initial streambed restoration efforts.

## **6. Blasting**

During the pre-planning of waterbody crossings, an evaluation will be made concerning the need for blasting. If the evaluation is inconclusive, the waterbody bed will be tested for consolidated rock prior to trenching.

Blasting will not be done within waterbody channels without prior approval from applicable government authorities having jurisdiction and at least 2 day notice to the authority, or as specified in permits.

If the waterbody bottom is consolidated rock, it can be drilled and shot at any time prior to commencing the crossing. However, removal of shot rock, and any additional drilling, shooting and material removal, must be completed within the minimum number of consecutive calendar days practical. The time frame for completing the crossing will immediately commence once a trench of appropriate dimensions is established.

## **7. Backfilling**

Waterbody bottoms will be returned as near as practical to their original contours. Spoil from the trench will be used as backfill. Clean gravel or native cobbles will be used for the final one foot of fill in the backfilled trench in all coldwater fisheries.

The sediment filter devices removed at the stream, during active construction activity, will be promptly reinstalled after backfilling.

## **8. Restoration**

The preferred restoration method is to achieve final grade and restore the waterbody, its banks, and 50 foot buffers within 24 hours of backfilling. In the absence of site-specific seeding recommendations, the specifications listed in Table 2A will be used. If conditions do not permit the preferred method, the construction work area not in use for access will be promptly rough graded and stabilized in accordance with Table 2B. Stabilize waterbody banks and install permanent sediment barriers/sediment filter devices within 24 hours of completing the crossing. For dry-ditch crossings, complete streambed and bank stabilization before returning flow to the waterbody channel.

Liquid mulch binders will not be used within 100 feet of waterbodies. For each waterbody crossed, install a permanent interceptor diversion/slope breaker and a trench breaker at the base of slopes near the waterbody. Locate the trench breaker immediately upslope of the interceptor diversion/slope breaker. In some areas, with the approval of the

Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the waterbody.

All equipment bridges will be removed once access in the area is no longer required.

Return all waterbody banks to preconstruction contours or to a stable angle of repose as approved by the Environmental Inspector. If the waterbody banks are such that an unstable final soil grade would result and vegetative stabilization is inadequate, the Environmental Inspector will require mechanical stabilization of the waterbody banks. Mechanical stabilization includes riprap, gabions, jute netting, etc.

Unless otherwise specified by state permit, limit the use of riprap to areas where flow conditions preclude effective vegetative stabilization techniques, such as seeded erosion control fabric.

Re-vegetate disturbed riparian areas with conservation grasses and legumes or native plant species, preferable woody species.

Application of riprap must comply with the US Army Corps of Engineers (COE) or its delegated agency permit terms and conditions. In general, riprap will be of field or quarry run stone, which is hard and durable. The riprap will be large enough to prevent normal waterbody current from moving it, typically 6-inch rock for slow moving waterbodies and 12-inch or larger rock for others. The riprap will be placed at least 18-inches thick and generally thicker at the base. The riprap slope will be no steeper than 1:1 and should conform to the remainder of the waterbody bank slopes where they are flatter than 1:1.

Install erosion control fabric, Figures 12A and 12B, such as jute netting or bonded fiber blankets at a minimum, on waterbody banks at the time of final bank re-contouring. Synthetic monofilament mesh/netted erosion control blanket cannot be used in areas designated as sensitive wildlife habitat unless the product is specifically designed to minimize harm to wildlife. Anchor the erosion control fabric with staples or other appropriate devices.

Sediment filter devices will be removed once permanent re-vegetation is successful.

## **B. Wetland Crossings**

### **1. General**

The main objective of any wetland crossing is to construct the pipeline and restore the original contour of the wetland. Wetlands will be marked in the field by a knowledgeable person prior to the start of construction with signs

and/or highly visible flagging until construction is complete. The Environmental Inspector will maintain these field markings during construction. A maximum 75-foot wide construction work area may be used through wetlands. Mulch will not be used as a temporary erosion control measure in wetlands.

Aboveground facilities will not be located in any wetland, except where the location of such facilities outside of wetlands would prohibit compliance with US DOT regulations.

When water levels are temporarily high, the Environmental Inspector will direct that starting construction in the wetland will be postponed until after the water levels subside.

Standards relating to spill prevention at wetlands are contained in Section IV, (Spill Prevention).

## **2. Crossing Techniques**

For wetland crossings without standing water or saturated soils, upland construction techniques can be used provided the top 12 inches of soil taken from the trench is stockpiled separately from the remaining excavated material. If standing water or saturated soils become present during construction activities in wetlands that were initially dry, construction will revert back to standard wetland crossing techniques as outlined in this section. The construction right-of-way may be used for access when the wetland soil is firm enough to avoid rutting or the construction right-of-way has been appropriately stabilized to avoid rutting (e.g., with timber riprap or matting). In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas. Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way.

Wetland crossings in non-saturated soil wetlands will be constructed in a manner that will minimize the amount of time construction activities are occurring in the wetland, such as the length of time the topsoil is segregated and the trench is open.

Wetland crossings with standing water or saturated soils will be constructed as separate construction entities, such that trenching, pipe installation, backfilling, and restoration are completed in the minimum number of consecutive calendar days necessary. Clearing, grading and equipment crossing installations are not included as part of the separate construction entity. The "push-pull" or "float" technique of pipe installation will be utilized whenever water and other site conditions permit. Assemble the pipeline in an upland area unless the wetland is dry enough to

adequately support skids and pipe.

If standing water or saturated soils are present or if construction equipment causes ruts or mixing of the topsoil and subsoil, use **low- ground-weight** construction equipment, or operate normal equipment on timber matting (only 2 layers), or mats. Timber matting must be in good condition and not have large holes in it where sediment could enter the wetland. Tree stumps, rock, gravel, soil imported from outside the wetland or brush will not be used to stabilize the construction work area or as equipment pads in wetlands. Remove all equipment mats, and timber matting during restoration of the wetland.

Staging areas will be located at least 50 feet from the wetland edge except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land and will be limited to the minimum necessary to construct the crossing. If topographic conditions do not permit a 50-foot setback, these areas must be located at least 10 feet from the wetland's edge with prior approval from the Natural Resources Permitting group.

The only access roads, other than the construction work area, that can be used in wetlands without FERC approval are those existing roads that can be used with no modification and no impact on the wetland.

Limit construction equipment operating in wetland areas to that needed to clear the construction work area, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the ROW. All other construction equipment shall use access roads located in upland areas to the maximum extent practicable. Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction work area.

A typical wetland crossing is illustrated in Figure 19.

### **3. Clearing**

Tree and brush clearing will be performed as previously described in Section II, (Upland Construction). Cut vegetation off at ground level, leaving existing root systems in place, and remove (vegetation) from the wetland for disposal.

### **4. Grading**

Grading in wetlands will consist of the minimum necessary for safe and efficient equipment operation. Limit pulling of tree stumps and grading activities to directly over the trench line. Do not grade or remove stumps or root systems from the rest of the construction work area in wetlands unless the Chief Inspector and **Environmental Inspector** determine that safety-related construction constraints require removal of tree stumps from under

the working side of the construction work area. Areas where stumps are removed will be noted by the Inspector so, if necessary, those areas can be replanted with woody vegetation as described in wetland restoration.

Where wetlands are adjacent to the construction right-of-way and right-of-way slopes towards the wetland, install sediment barriers along the edge of the construction work area to prevent sediment flow into the wetland. Remove these sediment barriers after successful restoration has occurred.

Sediment filter devices will be installed promptly across the construction work area prior to or during grading at any wetland edge and maintained until construction work area re-vegetation is complete. Temporary interceptor diversions will be installed adjacent to wetlands. Locations for these devices are illustrated in Figure 19.

## **5. Trenching**

Sediment filter devices can be temporarily removed from the trench line to allow trenching activities to proceed. Spoil piles will be protected with sediment filter devices to prevent the flow of spoil off the construction work area.

## **6. Blasting**

During the pre-planning of crossing wetlands with standing water or saturated soils, an evaluation will be made concerning the need for blasting. If the evaluation is inconclusive, the wetland will be tested for consolidated rock prior to trenching. If the wetland has consolidated rock, it must be drilled and shot as part of the single construction entity.

## **7. Backfilling**

If trench dewatering is required, the water will be filtered and discharged through a sediment filter bag (Figure 29) and/or a series of sediment logs or into a heavily vegetated area outside of the wetland (where the water will filter back into the ground), so that no silt-laden water enters directly into a wetland or waterbody. Remove any dewatering structure as soon as possible after the completion of dewatering activities. Spoil from the trench will be used as backfill. The surface will be re-contoured as closely as practical to the original so that drainage patterns will not be changed. In wetlands without standing water or saturated soils, the conserved top soil layer will be returned to the surface during backfilling.

Sediment filter devices will be promptly re-installed after backfilling. Where the pipeline trench may drain a wetland, construct trench line barriers and/or seal the trench bottom as necessary to maintain the original wetland hydrology. For each wetland crossed, install a permanent interceptor diversion and trench line barriers at the base of

slopes near the boundary between the wetland and adjacent upland areas. Locate the trench line barriers immediately upslope of the interceptor diversion.

Concrete coating activities will not take place within 100 feet of any wetland.

## **8. Restoration**

For each wetland crossed, install a trench breaker at the base of slopes near the boundary between the wetland and adjacent upland areas. Install a permanent slope breaker/interceptor diversion across the construction right-of-way at the base of a slope greater than 5 percent where the base of the slope is less than 50 feet from the wetland, or as needed to prevent sediment transport into the wetland. In addition, install sediment barriers/sediment filter devices as shown in Figure 19. In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the wetland.

Consult with the appropriate land management or state agency to develop a project-specific wetland restoration plan. The restoration plan should include measures for re-establishing herbaceous and/or woody species, controlling the invasion and spread of undesirable exotic species (e.g., purple loosestrife and phragmites), and monitoring the success of the re-vegetation and weed control efforts.

Upon completion of construction in wetland areas with standing water or saturated soils, all access improvements will be promptly removed. In the absence of specific recommendations from conservation authorities, the seed mix and rate specified in Table 2B will be used. Fertilizer, lime or mulch will not be used, unless required in writing by a jurisdictional agency.

Fertilizer, lime, or mulch will not be used in wetlands unless required in writing by the appropriate federal or state agency. Asphaltic emulsions will not be used to stabilize mulch within 100 feet of wetlands. Liquid mulch binders will not be used within 100 feet of wetlands.

## **IV. Spill Prevention, Containment and Control**

### **A. General**

Spills of any amount of petroleum products or polluting materials are to be prevented. All employees handling fuels and other hazardous materials must be properly trained. All equipment must be in good operating order. Fuel trucks transporting fuel to on-site equipment must travel on approved access roads. The following will be followed to help avoid spills and minimize the impact of spills which accidentally occur:

- Bulk quantities up to 5,000 gallons of diesel fuel and 5,000 gallons of gasoline will be stored in one location (the fuel depot) for the Project. Adequate spill containment measures, such as containment dikes, combined with impervious lining will be installed before fuel storage tanks are filled, and will be maintained throughout the Project. Bulk quantities of hazardous liquids (e.g., solvents and lubricants) will be stored at the fuel depot locations.
- Fuel can be stored at the equipment staging areas and as much equipment as practical will be refueled there. Any equipment that must be refueled in the field will be fueled from tanks carried to the work site. Fuel carriers (greater than 110 gallons capacity) will not be permitted to cross wetlands or ford waterbodies. Equipment refueling will not be performed within 100 feet of any body of water or wetland, except by hand-carried cans (5 gallon maximum capacity), when necessary. If construction equipment must be refueled within 100 feet of a waterbody, follow the procedures outlined in the project-specific SPCC Plan. Care will be taken during refueling not to overfill or spill fuel onto the housing of equipment.
- Lesser quantities of fuel (up to 500 gallons) and solvents and lubricants (e.g., motor oils, hydraulic fluid) may be stored along the construction work area as necessary to service equipment used on the Project (quantities vary depending on the size of the construction spread being used), provided that this storage does not conflict with other parts of this plan. Sorbent booms and clean-up kits will be kept at all storage locations and will be readily available at all times.
- All fuel storage areas will be located at least 100 feet from streams, ponds, or wetlands; at least 200 feet from active private water wells, and at least 400 feet from municipal water wells, unless using an operational fuel storage area established on Columbia property. All fuel storage areas will not be located within any designated municipal watershed area (except at locations designated for these purposes by an appropriate governmental authority): Equipment servicing, lubricating and refueling will also be in accordance with these requirements whenever possible (i.e., except when stationary equipment such as drilling rigs is being used). Where these conditions cannot be met, the Environmental Inspector will prepare a supplemental SPCC plan, based on field conditions, to protect these resources.
- Use of hazardous materials for vehicle maintenance will follow the same requirements mentioned above for equipment refueling. Impervious or sorbent materials will be placed under the work area before the work begins. Additional sorbent materials will also be readily available. Waste materials created during maintenance (e.g., used oil) will be collected for proper disposal. The work site and the vehicle will be checked by a Columbia inspector after the maintenance work is complete to ensure that all hazardous materials are properly contained. All waste material, including partially used

or empty containers, discarded parts, clean up rags, and used sorbent materials, as well as discarded hazardous materials containers (e.g., oil cans, grease tubes), will be collected for proper disposal.

- All motor fuel, lube oil, chemicals, and other polluting substances will be tightly sealed and clearly labeled during transportation and storage.
- Fuel trucks, pumps, mechanic's vehicles, the contractor's foremen's vehicles, Columbia Environmental Inspector vehicles, and each construction crew will be equipped with appropriately sized spill kits containing absorbent materials approved for petroleum products and have sufficient tools and material to stop leaks.
- Construction equipment will not be washed in any body of water or wetland, nor will runoff resulting from washing operations be permitted to directly enter any body of water or wetland area.
- Construction equipment, vehicles, materials, hazardous materials, chemicals, fuels, lubricating oils, and petroleum products will not be parked, stored, or serviced within 100 feet of all bodies of water and wetlands. These activities can occur closer if the Environmental Inspector determines there are no reasonable alternatives and appropriate steps are taken to prevent spills and provide prompt cleanup in the event of a spill.
- Pumps operating within 100 feet of a waterbody or wetland boundary must utilize appropriate secondary containment systems.
- Concrete coating activities cannot be performed within 100 feet of a wetland or waterbody boundary, unless the location is an existing industrial site designated for such use. These activities can occur closer only if the Environmental Inspector determines there is no reasonable alternative and appropriate steps (including secondary containment structures) are used to prevent spills and provide for prompt cleanup in the event of a spill.
- All equipment will be checked, by a Columbia inspector, daily for leaks prior to beginning work in bodies of water or wetlands. Steps will be taken to repair leaks or remove the equipment from service, if necessary.

If barge mounted equipment is to be employed, the contractor will develop specific spill-prevention plans to be reviewed and approved by Natural Resource Permitting group.

## **B. Spill Cleanup**

Spills occurring during construction, operation and maintenance are to be reported immediately to the Monitoring Center at 1-800-835-7191 in accordance with Columbia policies, plans and procedures (Plan Number 120.02.01). Columbia's

Environmental Health and Safety department will be responsible for contacting the appropriate agencies, except as provided for below.

If the call to the Monitoring Center is not returned within 30 minutes and the spill has impacted water, the person discovering the spill or release will contact the National Response Center at 1-800-424-8802 and the West Virginia Department of Environmental Protection at 1-800-642-3074 and report the release. That person will continue calling the Monitoring Center until a representative is reached.

If a spill should occur, Columbia will ensure immediate action is taken to minimize the impact of the spill, and see that appropriate cleanup action is immediately undertaken.

In the event of a spill into or in the vicinity of bodies of water or wetlands, the following will occur immediately:

- Source will be immediately stopped;
- Spill will be contained by placing sorbing booms or constructing dikes;
- Spill will be collected with sorbing materials, skimmed off water surfaces with booms, and/or the contaminated soil will be excavated;
- Waste materials will be properly stored and disposed in accordance with Columbia policy.

The affected areas will be restored as closely as possible to their previous condition.

If the spill is such that Columbia personnel or the on-site contractor cannot immediately and effectively respond, Columbia's environmental contractor, who specializes in spill cleanup, will be employed.

## **V. Environmental Construction Management and Inspection**

### **A. General**

Columbia is responsible for compliance with the environmental conditions contained in the project's EM&CP, which include all permits and other approvals. One or more Environmental Inspectors will be assigned to every project and will report to the Natural Resources Permitting group. At least one Environmental Inspector is required for each construction spread during active construction or restoration. Environmental Inspectors shall have peer status with all other activity inspectors.

### **B. Environmental Inspector**

The Environmental Inspector is responsible for assuring that the construction activity is performed in accordance with the environmental conditions of the EM&CP and landowner requirements and has the authority to stop work and order

appropriate corrective action as outlined in Section V.E. For construction activities that are found by the Natural Resource Permitting group to have minimal environmental impacts, the Environmental Inspector may also serve to monitor other construction functions. At a minimum, the Environmental Inspector(s) shall be responsible for:

- Inspecting construction activities for compliance and ensuring compliance with the requirements of the EM&CP, ECS, and any permits, landowner agreements or FERC certificates obtained for the Project;
- Identifying, documenting and overseeing corrective actions, as necessary to bring an activity back into compliance;
- Verifying that the limits of authorized construction work areas and locations of access roads are properly marked before clearing and maintained throughout construction;
- Verifying the location of drainage and irrigation systems;
- Identifying erosion/sediment control and stabilization needs in all areas;
- Ensuring that the design of slope breakers will not cause erosion or direct water into sensitive environmental resource areas, including cultural resource sites, wetlands, waterbodies, and sensitive species habitat;
- Verifying that trench dewatering activities are properly monitored and do not result in the deposition of sand, silt, and/or sediment near the point of discharge into wetlands or waterbodies, cultural resource sites, and sensitive habitats. If such deposition is occurring, the dewatering activity shall be stopped and the design of the discharge shall be changed to prevent reoccurrence; and verify that dewatering structures are removed after completion of dewatering activities;
- Verifying the testing of subsoil and topsoil in agricultural and residential areas to measure compaction and determine the need for corrective action;
- Advising the Chief Inspector when conditions (such as wet weather or frozen soils) make it advisable to restrict construction activities in agricultural areas;
- Ensuring restoration of contours and topsoil;
- Verifying that the soils imported for agricultural or residential use are noxious weed and soil pest free, unless otherwise approved by the landowner;
- Ensuring that temporary erosion controls are properly installed and maintained;

- Inspecting temporary erosion control measures at least on a daily basis in areas of active construction or equipment operation, on a weekly basis in areas with no construction or equipment operation, and within 24 hours of each 0.5 inch of rainfall. This responsibility may be transferred to field operations after construction is complete but before restoration is successful;
- Ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification, or as soon as conditions allow if compliance with this time frame would result in greater environmental impacts;
- Keeping records of compliance with the environmental conditions of the (EM&CP and any certificates) and other federal or state environmental permits during active construction and restoration;
- Keeping records of the mitigation measures proposed or approved as part of the FERC Order, and/or other federal, state, or local environmental permits during active construction and restoration;
- Identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase;
- Establishing a program to monitor the success of restoration;
- Implementation of this program may be transferred to (Field Services) upon completion of construction and restoration activities;
- Looking for evidence of contamination and, if found, cease activities in that area and notify the Environmental Health & Safety department and the Natural Resource Permitting group and wait for further instruction. If the contamination is determined to be hazardous, an experienced hazardous waste contractor will be mobilized to handle the waste; the hazardous waste contractor will follow a site-specific health and safety plan and standard operating procedures for working in hazardous environments, which is maintained by the Environmental Health & Safety department;
- Verifying the location of signs and visible flagging marking the boundaries of wetlands, waterbodies other sensitive resource areas, or areas with special requirements along the construction work area; and
- Verifying the locations for any disposal of excess construction materials for beneficial reuse comply with applicable laws and regulations.

### **C. Environmental Training**

The Engineering & Construction Project Manager assigned to the construction activity and/or the Columbia employee in responsible charge, will be responsible for assuring that the Environmental Inspector(s), other inspectors and any contractor's

foreman have been trained in all environmental aspects of the activity, and fully understands the environmental conditions contained in the activity's EM&CP.

The Natural Resource Permitting group staff will conduct training for construction personnel when sensitive resources are present, when permit/certificate conditions mandate, or when requested by the Team Leader.

#### **D. Contractor's Environmental Compliance Specialist (Environmental Foreman)**

For construction activities that utilize an outside contractor, the contractor will be required to provide at least one qualified environmental compliance specialist. This specialist will become thoroughly familiar with Columbia's EM&CP for the activity.

The specialist will be responsible for the contractor's efforts to correctly install and maintain environmental control devices and for construction in environmentally sensitive areas. Contractor's specialist will work in cooperation with Columbia's employees responsible for environmental compliance.

The Contractor's Environmental Foreman must be available at all times during the project and have the appropriate number of available employees to adequately implement the project's EM&CP.

#### **E. Environmental Construction Management**

The Environmental Inspector and each functional inspector shall have the authority to stop work on a particular construction function to which they are assigned if it deviates from the environmental conditions of the activity's EM&CP, as well as FERC Orders, stipulations of other environmental permits or approvals, or landowner easement agreements. The deviation shall be reported immediately to the Columbia employee in responsible charge of the activity and the Environmental Inspector. The Columbia employee in responsible charge, the Engineering & Construction Team Leader and the Natural Resource Permitting group department will be responsible for the resolution of the deviation. The Environmental Inspector shall also have the authority to order appropriate corrective action.

Stop work authority for the entire construction activity rests with the Columbia employee in responsible charge or the Engineering & Construction Team Leader.

The Natural Resource Permitting group may, from time to time, perform inspections of construction activities to review the implementation of the EM&CPs. The Natural Resource Permitting group will have stop work authority during these inspections should deviations from the activity's EM&CP occur. Any corrective actions that are required shall be taken as directed by the Natural Resources Permitting Group.

#### **F. Environmental Variances/Modifications**

Unapproved variances from or modifications to the EM&CP and this ECS are not permitted. Any proposed variance from the EM&CP will require approval from the EM&CP preparer, prior to commencing the activity. The approval for a variance will be in writing. In instances where written approval is not practical (i.e., emergencies and weekends), verbal approval may be given provided that written confirmation is provided as soon as possible.

Any proposed variance from this ECS will require approval from the Natural Resource Permitting group prior to commencing the activity.

## **VI. Emergency Construction**

In the event of an emergency, the Company employee in responsible charge will take such action as is necessary to contain the emergency giving due regard to minimizing environmental impact. In conjunction with other Columbia policies, the requirements contained in this ECS will be followed as close as possible. Columbia will notify DEP if such circumstances arise.

<sup>1</sup>Will include all environmental and regulatory mandated surveys such as but not limited to, threatened and endangered species surveys, archeology surveys, wetland delineations etc.

<sup>2</sup>Deviations that involve measures different from those contained in this ECS will only be permitted by written approval from the Natural Resource Permitting group. The Natural Resource Permitting group may be required to obtain written approval from the Director of the Office of Pipeline Regulation (OPR) (Federal Energy Regulatory Commission), or his/her designee, unless specifically required in writing by another Federal, state, or Native American land management agency for the portion of the project on its land. The Natural Resource Permitting group shall coordinate the filing of other agency requirements with the Secretary of the Commission (Secretary). This filing shall be prior to construction.

## **VII. Winter Season Construction Plan**

### **A. General**

Columbia will typically initiate a winter season construction plan for projects taking place on or after November 1 of each season, as well as projects where all construction activities (including restoration) have not been completed prior to November 1 of each season. For the purposes of this plan, the winter season will be defined as from November 1 – March 15 of each year. The Natural Resource Permitting group, in conjunction with the Environmental Inspector, will determine if soil temperatures, depth of soil freezing, snow accumulation, historical regional conditions, or pending weather forecast dictate initiating the winter season construction plan prior to these dates, or allow for extending these dates. If a project's primary regulatory agency has winter construction regulations or permit conditions, Columbia will defer to those, rather than this winter season construction plan.

The winter season construction plan will apply to projects taking place within the portions of the Columbia's pipeline system where adverse winter conditions could be expected. Typically, this will include New York, New Jersey, Pennsylvania, Maryland, Delaware, West Virginia, Ohio, and Kentucky.

## **1. Snow Removal and Storage**

Removal of snow from the construction workspace may be necessary to provide safe and efficient working conditions, as well as to expose soils for grading and excavation. Snow may also need to be removed along access roads to allow safe access to the ROW.

Snow storage will take place within ROW or approved workspace. Care will be taken to avoid mixing snow with soil. Gaps will be provided in snow stockpiles to allow for site drainage or existing drainage patterns, with the appropriate erosion and sediment control devices installed. Snow can also be blown off ROW, with landowner approval, and spread evenly to minimize damage to woody vegetation or other resources off ROW.

Snow may be used for beneficial uses, such as insulation over the trench line prior to excavation, if practical, or to reduce frost penetration along the trench line. Snow can also be used to build frost roads through wetlands and other saturated or otherwise unstable areas. Temp gates/fence crossings will occur prior to or concurrent with snow removal activities and in accordance with landowner requirements.

Construction signage will be used to designate sensitive areas, cultural resource sites, protected species habitat, or other avoidance areas to prevent inadvertent damage during snow removal activities.

## **2. Temporary Erosion and Sediment Control**

In areas where there is shallow freezing that occurs in the morning and evening followed by a daytime thaw, different construction activities may be approved or restricted by the Chief Inspector or Environmental Inspector, depending on the time of day. Columbia will attempt to install the necessary temporary erosion and sediment control devices in advance of the winter season, where possible. All erosion and sediment controls will be inspected on a weekly basis, within 24 hours of a 0.5 inch rainfall event, and within 24 hours of a large snowmelt event. Columbia will keep an Environmental Inspector and environmental labor crew on site or on call through the winter season and periods of thaw to monitor erosion control structures and stabilization efforts and make adjustments or repairs as necessary and as ROW conditions allow. Crews will have the proper equipment available to allow access to the ROW under soft soil conditions, such as all-terrain vehicles with oversized tires, to prevent rutting, topsoil mixing, and damage to other temporary erosion controls such as drivable berms.

### **3. Topsoil Segregation**

Topsoil will be segregated during winter construction in the same locations and manner as during non-winter construction. Long-term topsoil stockpiling to manage the topsoil and accomplish more effective seeding and restoration may be necessary after the spring thaw.

When topsoil is frozen at the time of topsoil stripping, multiple passes (vs. a single pass) with a bulldozer or other specialized equipment may be necessary to remove only the topsoil and not the subsoil.

Restoration of topsoil will ideally occur after both the stockpiled topsoil and the exposed subsoil have thawed, the ground has dried following the spring melt, and the soils are more easily worked. Right-of-way stabilization measures will be implemented regardless of whether topsoil restoration occurs under frozen conditions or is delayed until spring thaw. Some options for temporary stabilization of the ROW and segregated topsoil pile include mulching and dormant seeding. Frozen topsoil may be placed over the disturbed areas if the Environmental Inspector determines it reasonable to do so.

If a landowner requests permanent stabilization be initiated within the winter season, Columbia will comply with the landowner request and/or relevant terms of the landowner agreement.

### **4. Backfilling**

The longer time that excavated materials from the trench are exposed to freezing ambient air temperatures, the more difficult it can become to properly backfill the trench with these materials. This may give the perception that there is significant excess spoil material left after trench backfill is completed. Rather than removing the "excess" material, a slight crown could be created over the trench line to allow for subsidence once the material has thawed.

Crowning material over the trench or ditch line may be a suitable practice where trench subsidence is anticipated. The crown will be constructed directly over the backfilled trench with native material. Subsoil used to build the crown should not extend above natural surface grade. The crown will be capped with native topsoil material to ensure elevations will be restored with topsoil at the surface. If the topsoil layer has been removed as a block of frozen material, the blocks will be placed on top of the trench line as part of the crown and be pieced together to the extent practicable to prevent large gaps following thawing of the material. Small gaps will be left in the crown to allow for natural surface drainage before the material is fully settled during spring and summer thaw. Columbia will monitor for subsidence and excessive crowning conditions.

Columbia will minimize the amount of open trench during frozen conditions to

reduce the risk of freezing excavated spoil materials. Outer layers of a frozen spoil pile will be stripped of in order to use unfrozen inner subsoil first during backfilling. The remaining frozen subsoil will be broken into smaller pieces prior to backfilling to reduce the size of voids in the backfilled trench. Specialized equipment may be needed to break up frozen backfill material to minimize future subsidence.

## **5. Restoration**

The Natural Resource Permitting department, in conjunction with the Project Manager and Environmental Inspector, will determine whether the project can be completely restored during the winter season or if permanent restoration activities will be delayed until after the spring thaw. If permanent restoration will take place during the winter season, the steps shown in the upland portion of this ECS will be followed, along with Table 2A. If permanent restoration will be delayed, subsoil will be left in a roughened condition to slow the sheetflow of water. All open areas will be backfilled or provided safety fencing for protection. The exception to this practice will be pipelines left uncovered for longwall mining activities.

All disturbed areas that are unable to have permanent restoration completed will be mulched or have soil tackifiers applied. See Table 2B for temporary stabilization application rate.

To ensure adequate vegetation growth when seeding during the winter season, higher seeding rates will be considered, to account for lower germination success, on a case by case basis. Cold weather grasses will also be utilized.

## **B. Wetland and Waterbody Crossing**

Wetland and waterbody crossings during winter construction will be constructed in the same manner as non-winter construction. Spoil material with high water content (e.g., non-cohesive soils) can freeze to the ground surface in its storage location. If this occurs, separation of wetland and other soils will take place to the maximum extent practicable.

The environmental inspector can delay wetland or waterbody crossings when winter conditions warrant such delay.

## **C. Dewatering**

When dewatering activities are necessary during freezing conditions, pumps may have to be installed in small, heated shelters to prevent the pumps from freezing and becoming non-operational or causing damage to the pumps that could result in a spill or leak of lubricants or fuel. Dewatering activities performed during frozen conditions should be continuously monitored and adjusted as necessary. Discharge

locations will be carefully evaluated and selected based on site conditions including vegetation cover, soil type, and topography. Columbia will attempt to install dewatering structures (e.g., filter bags) earlier in the construction process when ground conditions are favorable for installation, where feasible. Dewatering structures will be promptly removed after use to prevent freezing and proper cleanup. All spill prevention measures described in Section IV (Spill Prevention, Containment, and Control) of this ECS will also be followed during winter season construction.

## **VIII. Definition of Terms**

**AGRICULTURAL LANDS:** Permanent or rotated croplands, hayfields, and pastures.

**COLUMBIA:** Columbia Gas Transmission Corporation

**COE:** U.S. Army Corps of Engineers

**CONSTRUCTION WORK AREA (CWA)** Construction work areas include permanent and temporary ROW, contractor's yards, pipe and materials storage yards, staging areas, and access roads.

**ECS:** Environmental Construction Standards

**ENVIRONMENTAL INSPECTOR:** The Inspector responsible for environmental compliance on a construction project.

**EPA:** Environmental Protection Agency

**FWS:** U.S. Fish and Wildlife Service

**EM&CP:** Environmental Management and Construction Plan

**FINAL GRADING:** Includes returning the construction work area as closely as practical to its original contour, redistributing conserved topsoil, soil compaction testing in agricultural lands, and installing final interceptor diversions.

**IMMEDIATELY:** Without interval of time; "right now".

**INSPECTOR:** Collectively: the Chief Inspector, Environmental Inspector, Environmental Coordinator, Utility Inspector, or any other inspector assigned to do an environmental task.

**INTERMITTENT WATERBODY:** A waterbody channel which generally carries water in the spring or immediately after a rain event; designated on topographic maps and environmental construction drawings with a broken line.

**INTERMEDIATE WATERBODY:** A waterbody greater than 10 feet at the water's edge at the time of construction but less than or equal to 100 feet wide.

**LOW-GROUND-WEIGHT:** Construction equipment that is designed “specifically for” or “frequently used in” areas where compaction and sinking is to be minimized. This equipment can be less than 5lbs/in<sup>2</sup> or contain wider tracks than the standard minimum size width tracks for the model equipment to be used.

**MAJOR WATERBODY:** A waterbody greater than 100 feet wide at the water's edge at the time of construction.

**MINOR WATERBODY:** A waterbody less than or equal to 10 feet wide at the water's edge at the time of construction.

**MSDS:** Material Safety Data Sheet

**NRCS:** Natural Resource Conservation Service

**NOISE SENSITIVE AREA:** Includes residences, schools, churches, cemeteries, hospitals, farms, camping facilities and outdoor amphitheatres and playgrounds.

**ORV:** Off-road vehicle.

**PERENNIAL WATERBODY:** A waterbody which generally flows all year in years of normal rainfall; waterbody level is generally lowest in the fall, highest in the spring; designated with a solid line on topographic maps and environmental construction drawings.

**PROMPTLY:** By the end of the work day.

**REMOVABLE SEDIMENT FILTER DEVICES:** Compost filter socks, Erosion Eels, straw wattles, or other similar BMPs.

**RESTORATION:** Includes fertilizing, liming, disking, seeding and mulching, and crimping mulch.

**RIVER:** A waterbody which is 100 feet wide or more.

**ROW:** Right-of-way.

**SCARIFY:** To make shallow cuts into the soil surface. This should be accomplished with a disk, rake, tracked equipment (grousers) or other suitable means.

**SEDIMENT FILTER DEVICE:** Properly embedded silt fence, erosion control logs, or other approved device.

**SPCC:** Spill Prevention Control and Countermeasure Plan

**STEEP SLOPE:** Slope of approximately 33% or greater.

**TEMPORARY STABILIZATION:** Includes installing temporary interceptor diversions and sediment filter devices, mulching critical areas and at times, seeding to hold soil in place until final grading and restoration can be accomplished.

**UPLAND CONSTRUCTION:** All areas which are not waterbodies, rivers, streams, or wetlands.

**WATERBODY:** Includes any natural or artificial waterbody, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes.

**WETLAND:** An area of special concern with soils prone to holding water for long periods of time, generally also characterized by distinctive plants such as rushes, sedges, cattails, or certain trees. Includes any area that satisfies the requirements of the current Federal methodology for identifying and delineating wetlands.

**IX. Tables**

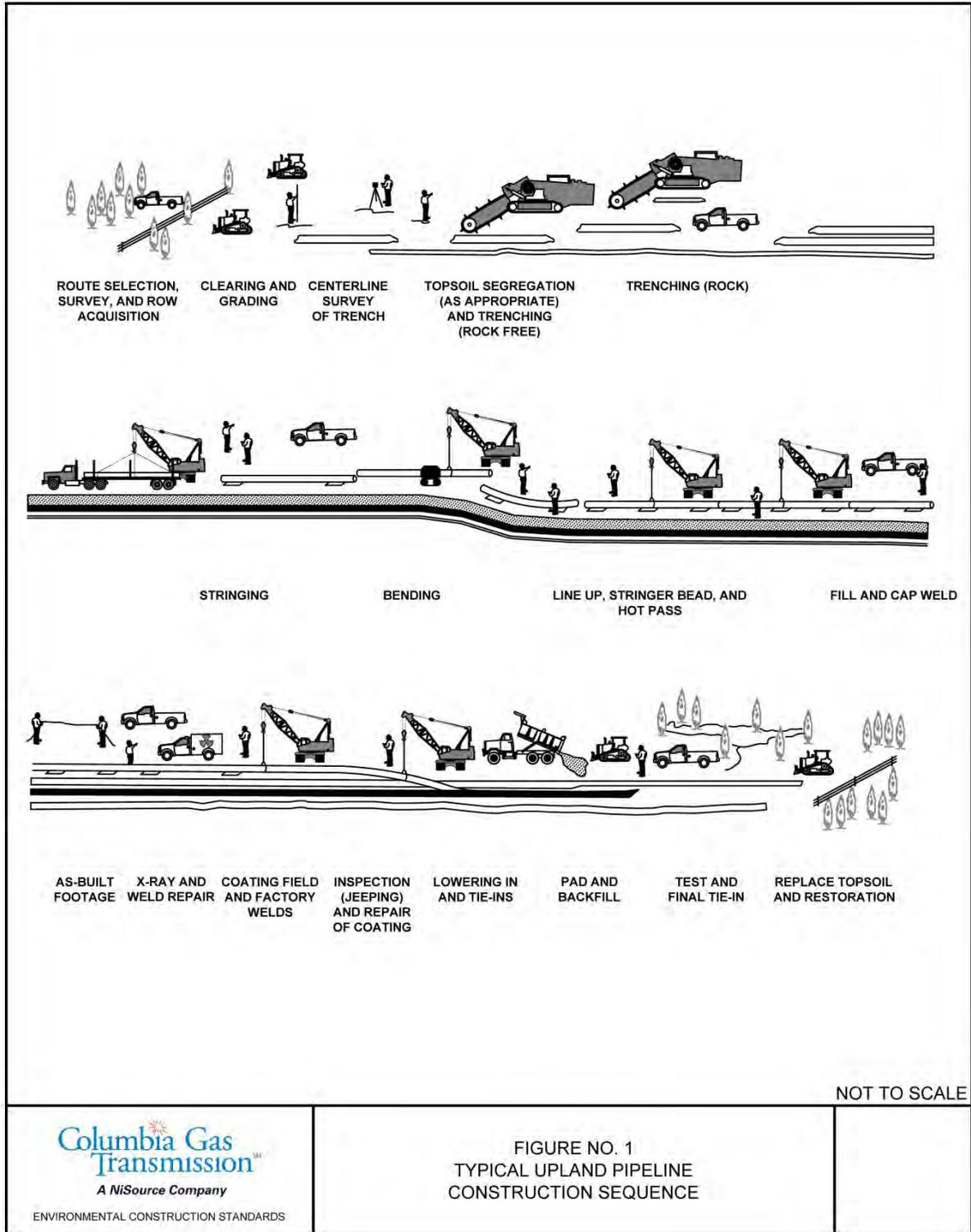
**Table 2A – Permanent Seed Mix for Upland Row and Waterbody Crossings**

**Table 2B – Seed Mix for Temporary Stabilization**

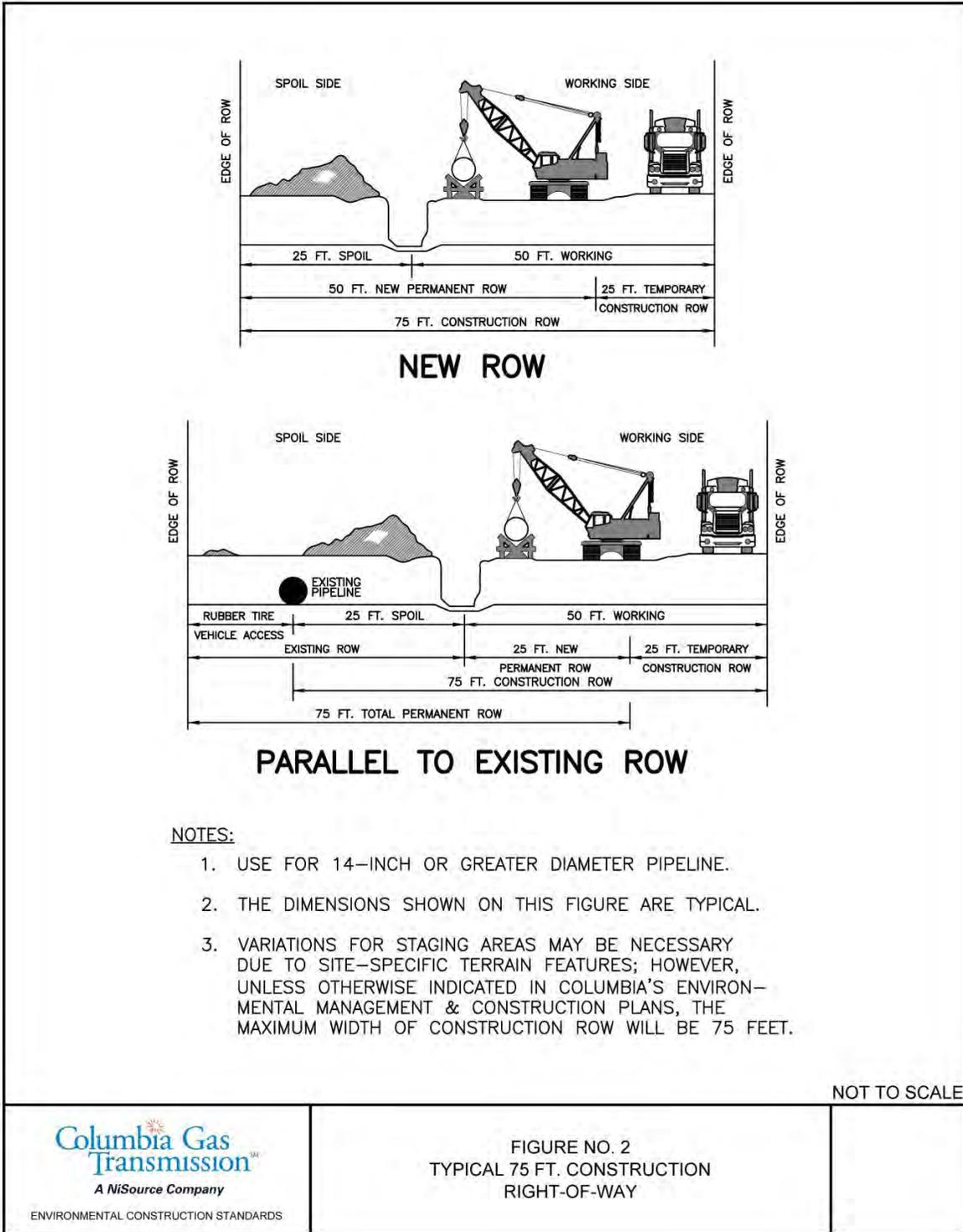
**Table 2C – Seed Mix Requirements in Wetlands**

TABLE 2A – PERMANENT SEED MIX FOR UPLAND ROW AND WATERBODY CROSSINGS	
TYPE	RATE (lbs/ACRE)
<b>SEED<sup>1</sup></b>	
ORCHARD GRASS AND/OR TALL FESCUE <sup>2</sup>	29
BIRDSFOOT TREFOIL (EMPIRE) <sup>3</sup>	9
ANNUAL RYE	12
<b>FERTILIZER</b>	
10-10-10 (OR EQUIVALENT)	600 <sup>4</sup>
<b>MULCH</b>	
HAY OR STRAW	4,000
AGRICULTURAL LIME	4,000
<sup>1</sup> PURE LIVE SEED WITHIN 12 MONTHS OF TESTING <sup>2</sup> IF TALL FESCUE IS USED, PLANT ENDOPHYTE-FREE CERTIFIED SEED <sup>3</sup> LEGUMES TO BE INOCULATED BY MANUFACTURER'S RECOMMENDATIONS, IF NOT AVAILABLE LEGUMES ARE TO BE INOCULATED AT 4 TIMES RECOMMENDED RATE FOR CONVENTIONAL METHODS AND 10 TIMES RECOMMENDED RATE FOR HYDRO SEEDING <sup>4</sup> WHERE WOOD CHIPS ARE SPREAD, ADDITIONAL NITROGEN (12 TO 15 lbs/TON OF CHIPS) WILL BE SPREAD <sup>5</sup> SEED RATE MUST BE DOUBLED FOR BROADCAST SEEDING.	
TABLE 2B – SEED MIX FOR TEMPORARY STABILIZATION	
TYPE	RATE (lbs/ACRE)
<b>SEED</b>	
ANNUAL RYE	40
<b>MULCH</b>	
HAY OR STRAW	6,000
TABLE 2C – SEED MIX REQUIREMENTS IN WETLANDS	
TYPE	RATE (lbs/ACRE)
<b>SEED<sup>1</sup></b>	
ANNUAL RYE	40
<sup>1</sup> ANNUAL RYE IS USED AS TEMPORARY RE-VEGETATIVE MEASURE UNTIL INDIGENOUS PLANTS RE-ESTABLISH COVER. A MONITORING PROGRAM WILL BE IN EFFECT TO INSURE ADEQUATE COVER IS ESTABLISHED.	
 <p><b>Columbia Gas Transmission</b> A NiSource Company</p>	
<p>ENVIRONMENTAL CONSTRUCTION STANDARDS</p>	
<p>TABLES PROJECT SEED MIXES</p>	

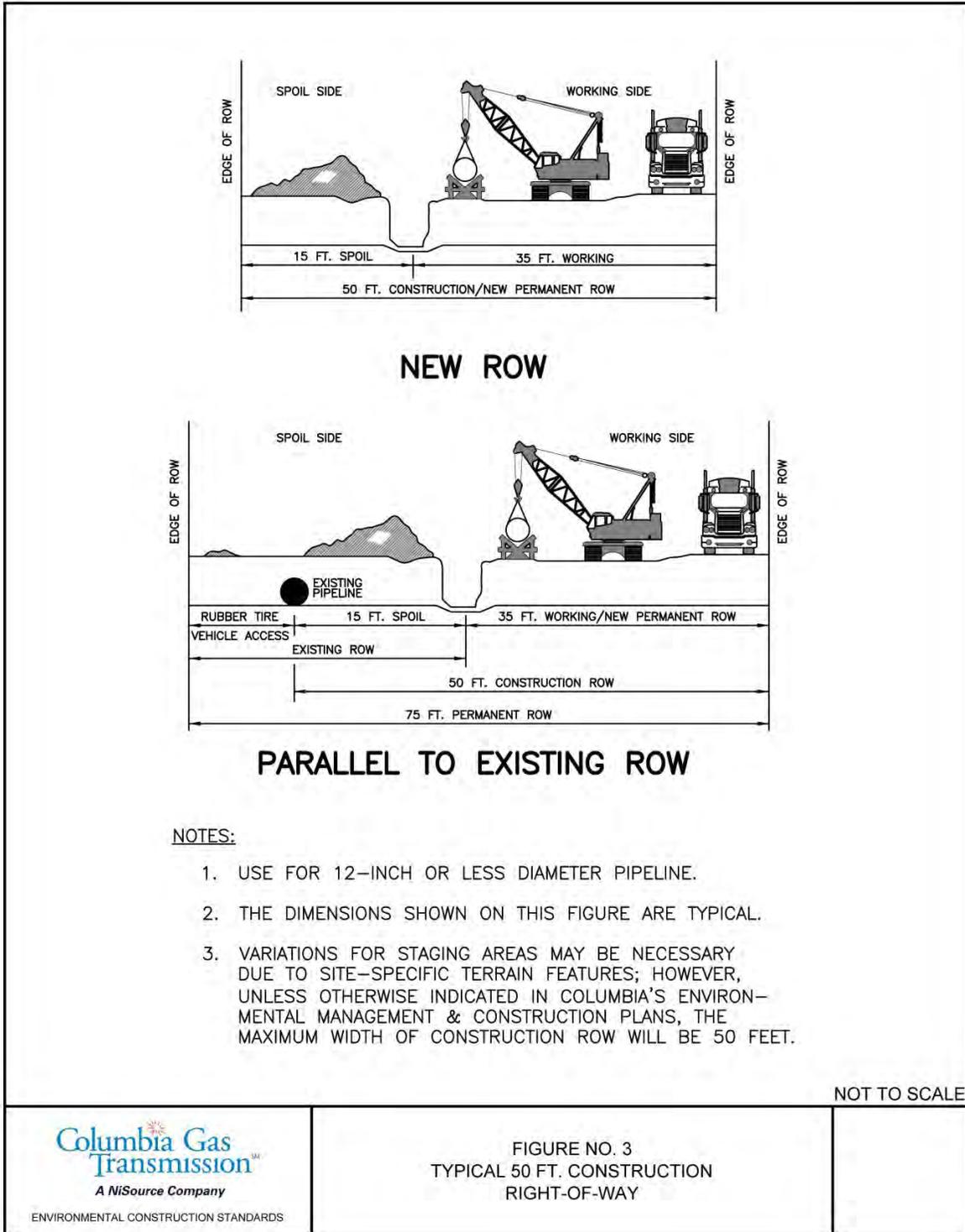
**X. Figures**  
**Figure 1 – Typical Upland Pipeline Construction Sequence**



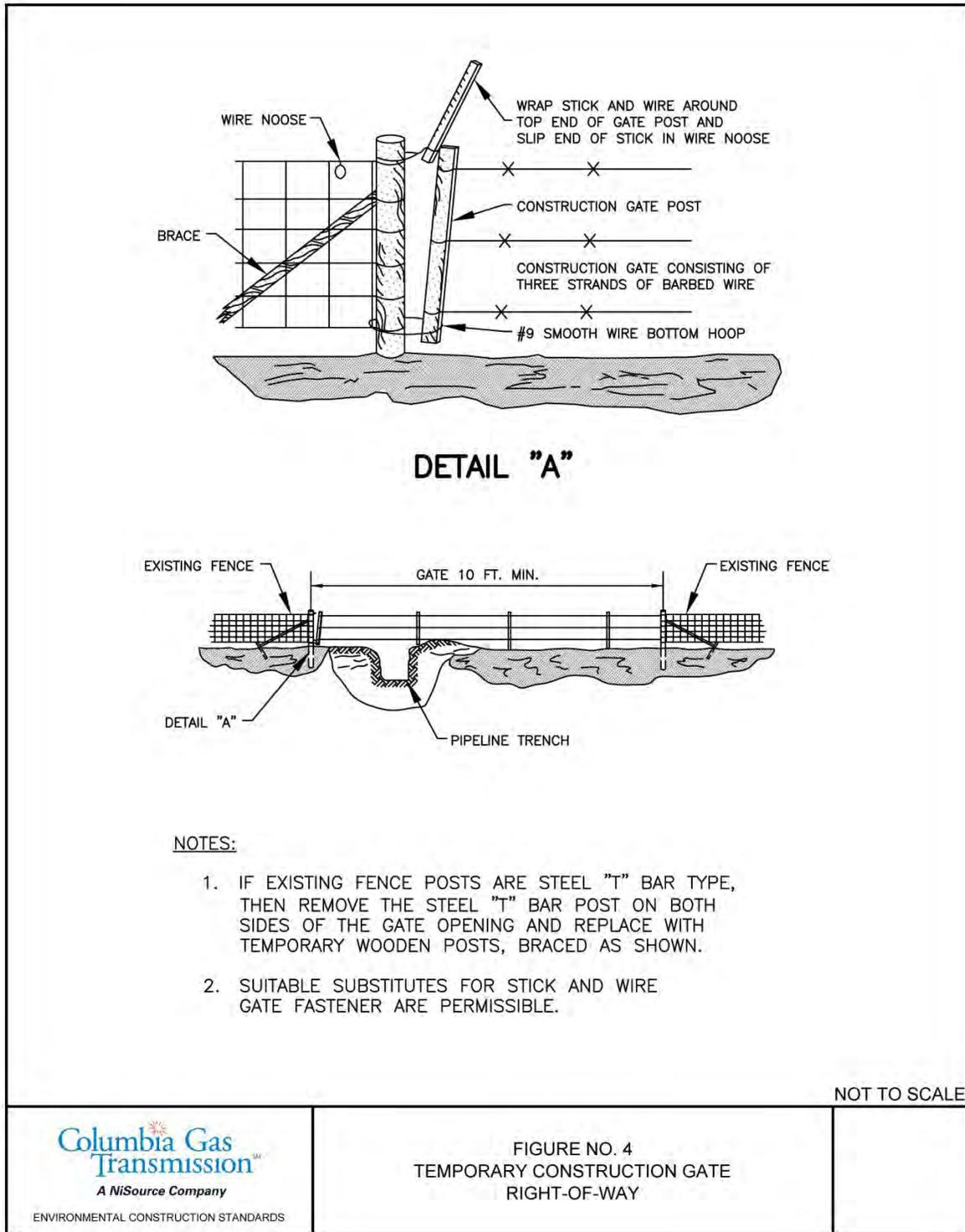
**Figure 2 – Typical 75ft. Construction Right-of-Way**



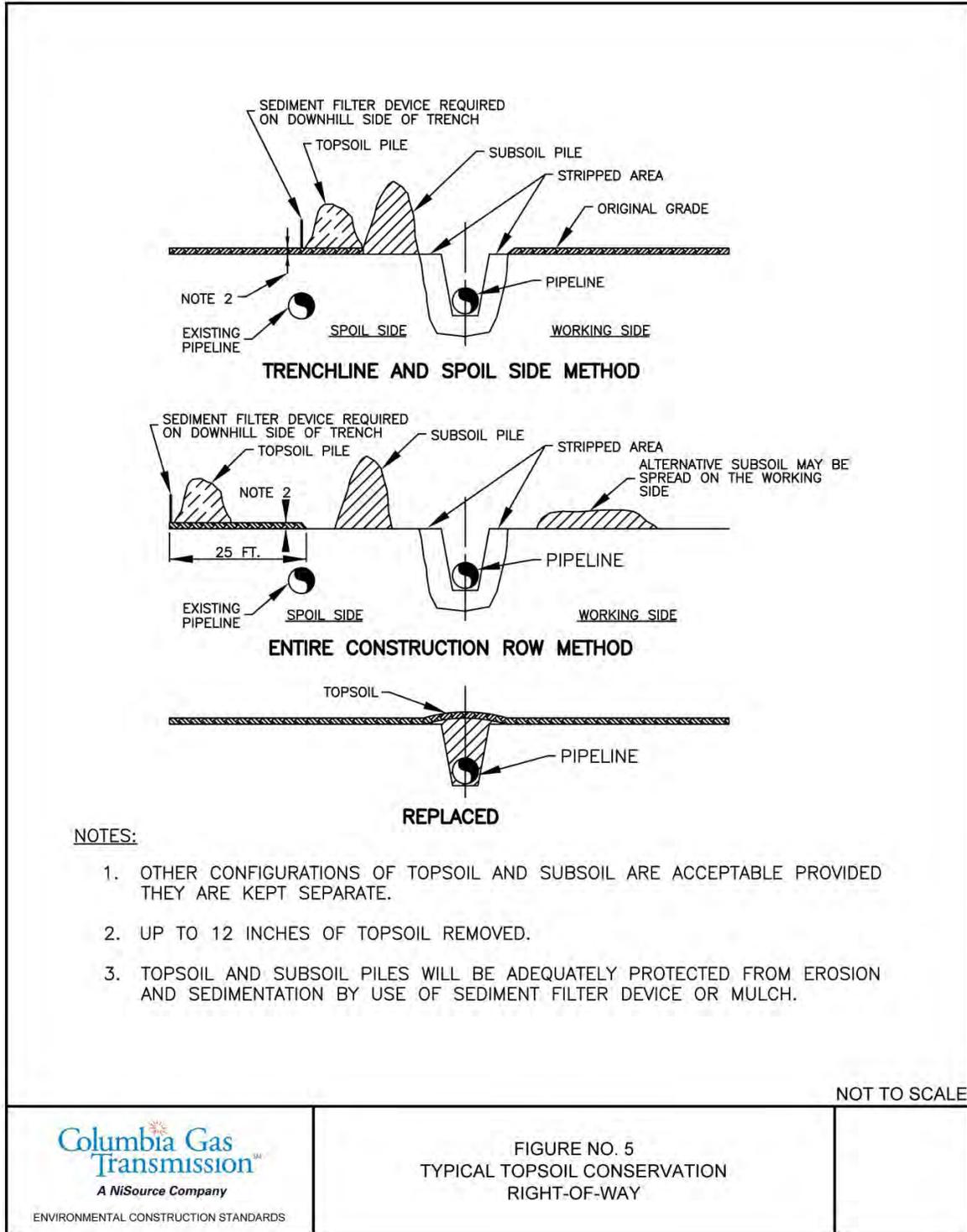
**Figure 3 – Typical 50ft. Construction Right-of-Way**



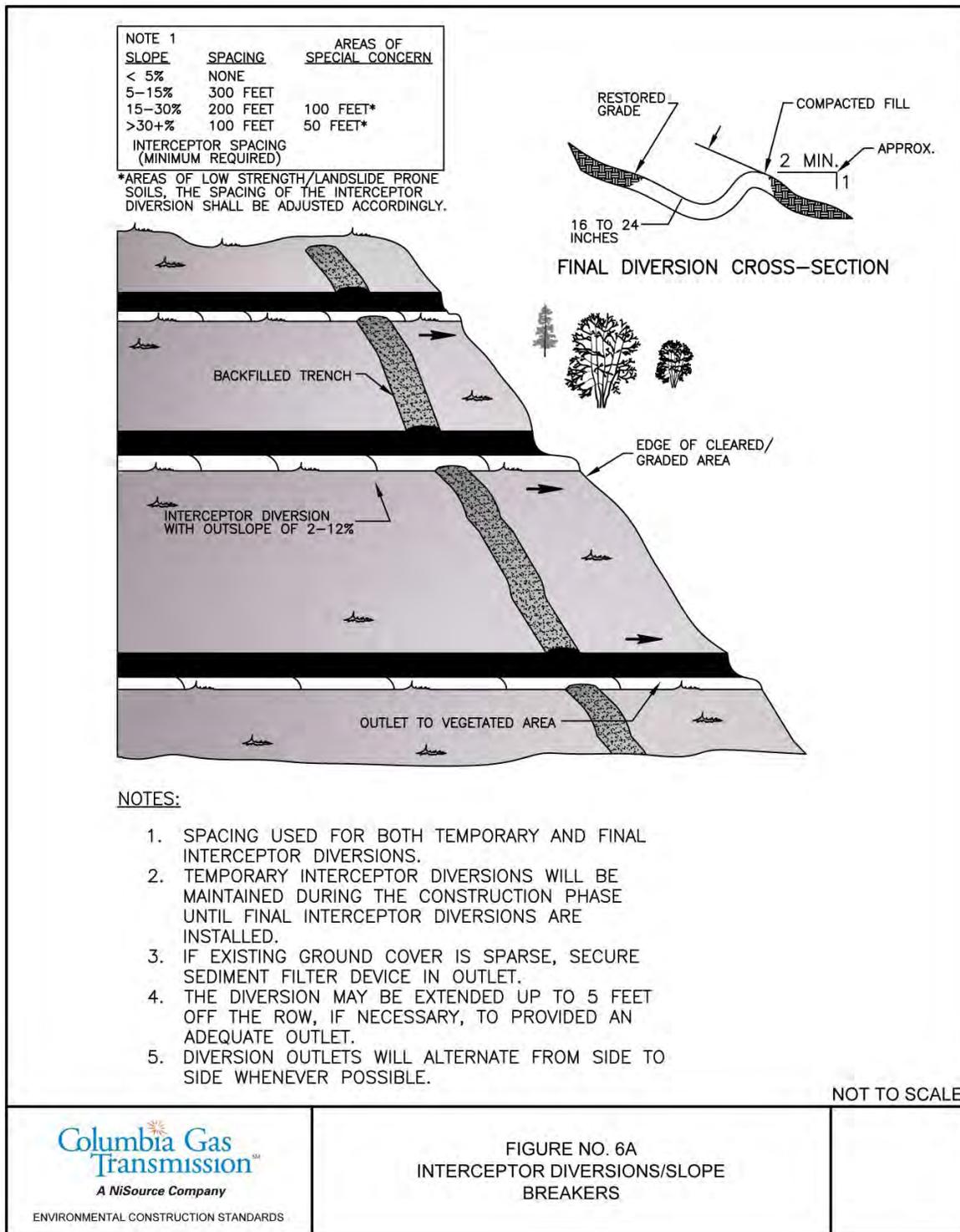
**Figure 4 – Temporary Construction Gate**



**Figure 5 – Typical Topsoil Conservation**

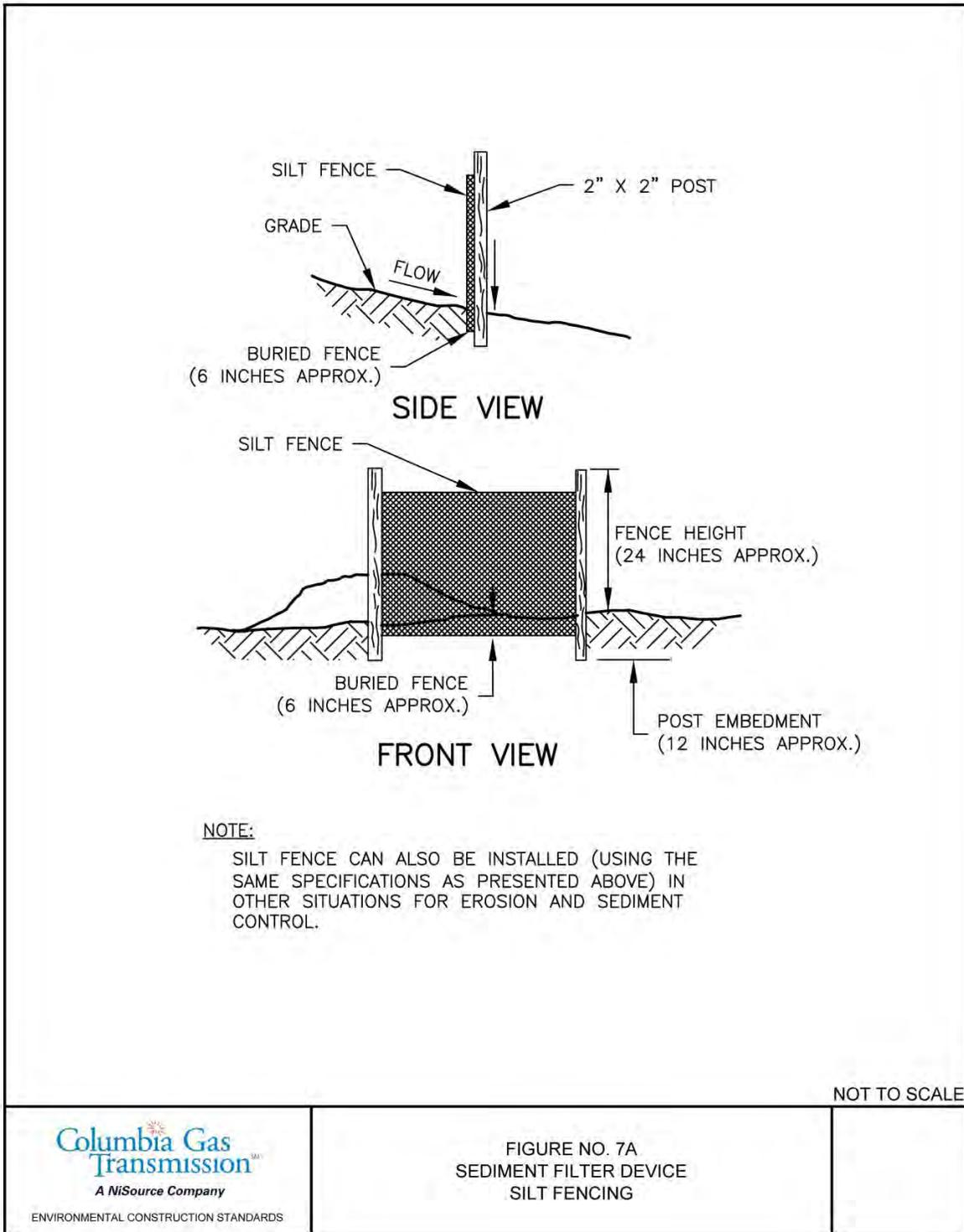


**Figure 6A – Interceptor Diversions/Slope Breakers**



## Figure 6B – Interceptor Diversions

**Figure 7A – Sediment Filter Device Silt Fencing**

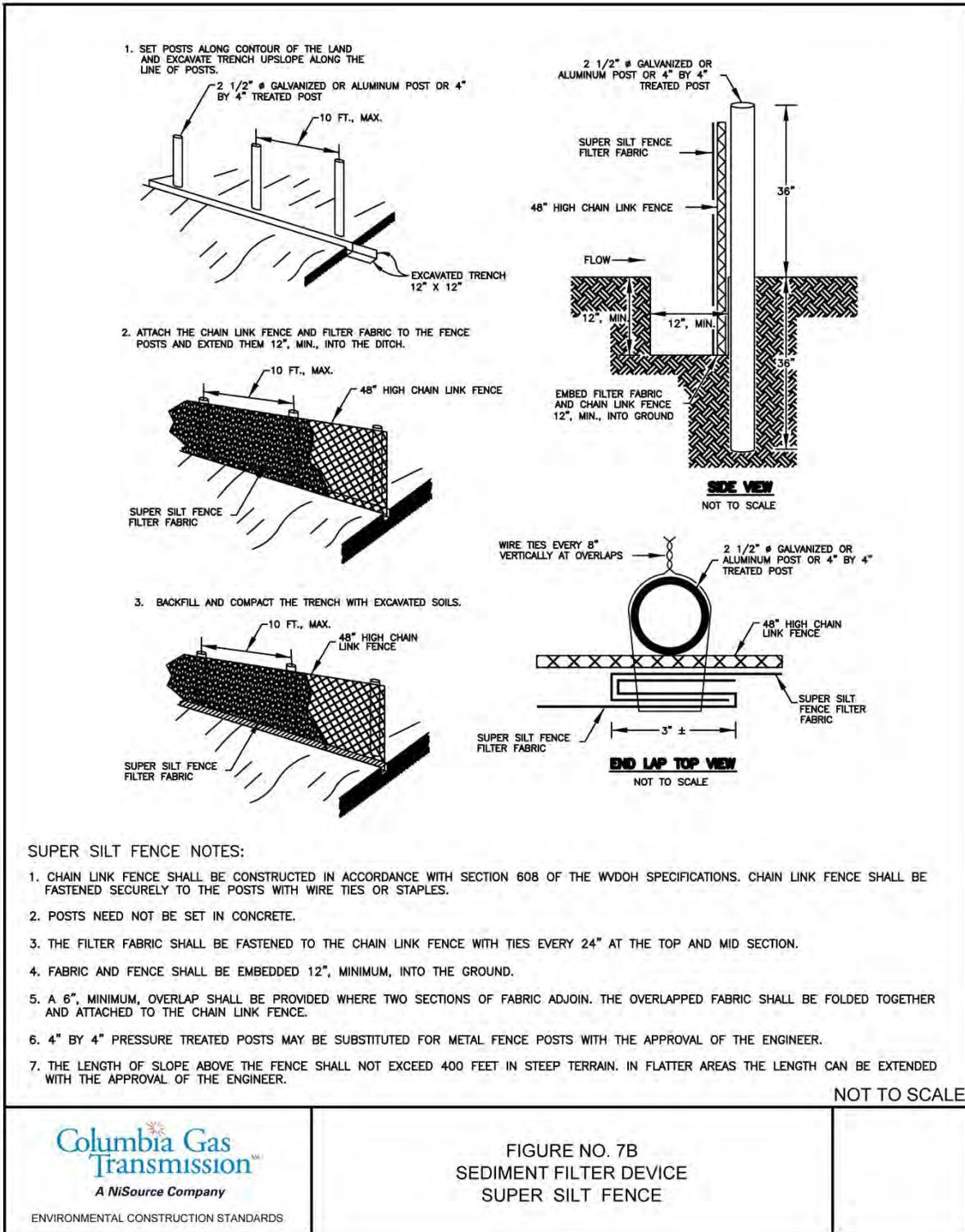


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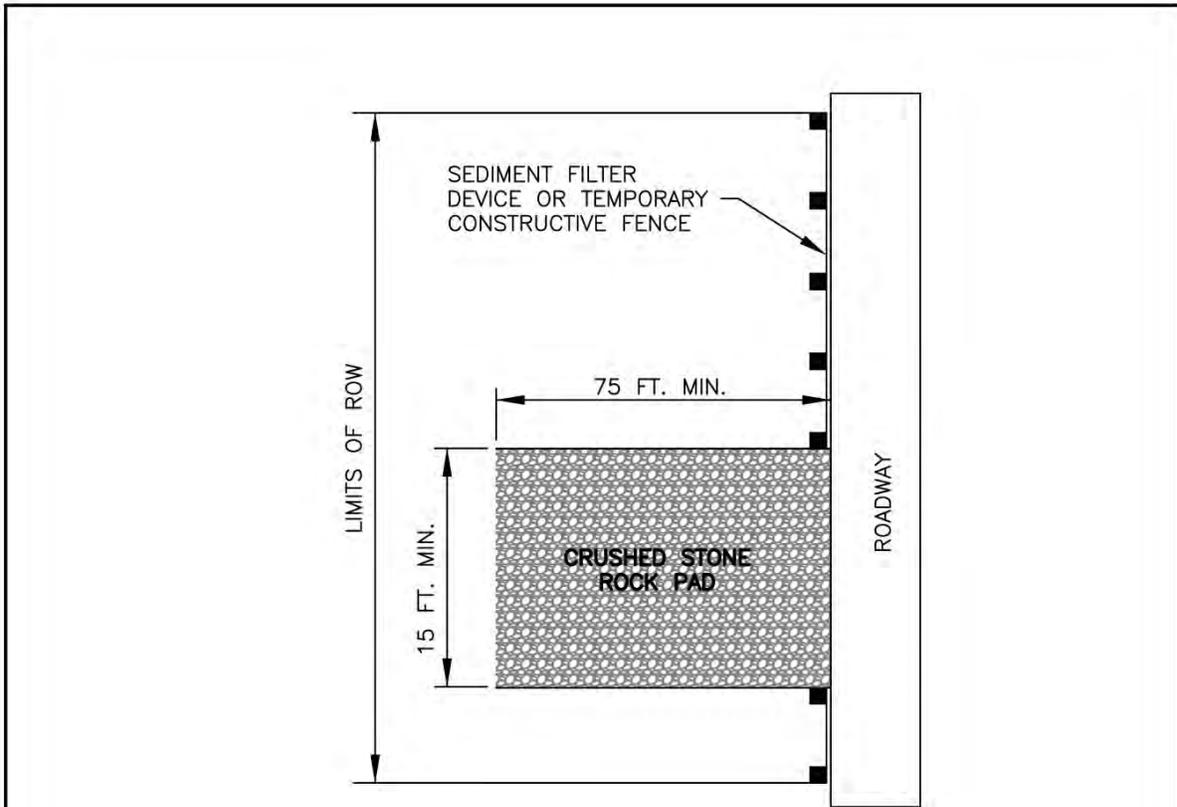
ENVIRONMENTAL CONSTRUCTION STANDARDS

FIGURE NO. 7A  
 SEDIMENT FILTER DEVICE  
 SILT FENCING

**Figure 7B – Sediment Filter Device Super Silt Fencing**



**Figure 8 – Temporary Road Entrance Rock Pads**



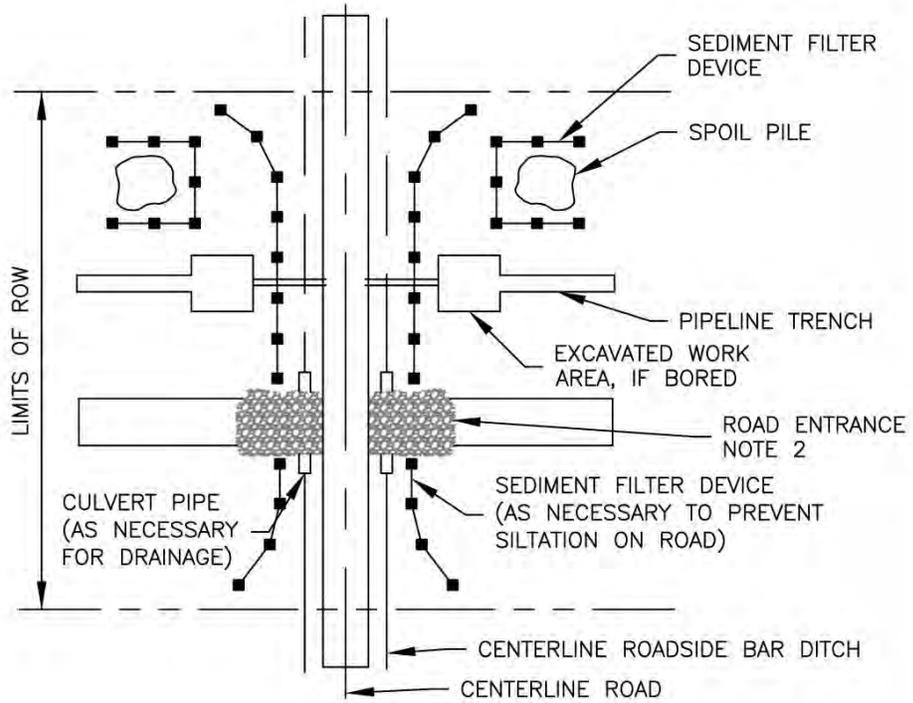
**NOTES:**

1. CRUSHED STONE SIZE WILL BE AASHTO NUMBER 1 COARSE AGGREGATE OR EQUIV. (4 INCH DIAMETER MIN.)
2. ROCK PAD WILL BE AT LEAST 6 INCHES THICK.
3. THE ROAD ENTRANCE WILL HAVE A GEOTEXTILE FABRIC BENEATH THE ROCK PAD.
4. IF ROCK PAD BECOMES COVERED WITH MUD SO AS TO BECOME INEFFECTIVE, ADDITIONAL STONE WILL BE ADDED.
5. ALL STONE AND FABRIC MUST BE REMOVED DURING ROW RESTORATION.
6. THE ROCK PAD MAY BE ENLARGED TO INCLUDE A TURNING RADIUS.

NOT TO SCALE

 <p><b>Columbia Gas Transmission</b> A NiSource Company ENVIRONMENTAL CONSTRUCTION STANDARDS</p>	<p>FIGURE NO. 8 TEMPORARY ROAD ENTRANCE ROCK PADS</p>	
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**Figure 9 – Typical Erosion Control Measures at Road Crossings**



**NOTES:**

1. SIMILAR PROCEDURES WILL BE USED AT RAILROAD CROSSINGS.
2. REFER TO FIGURE 8.

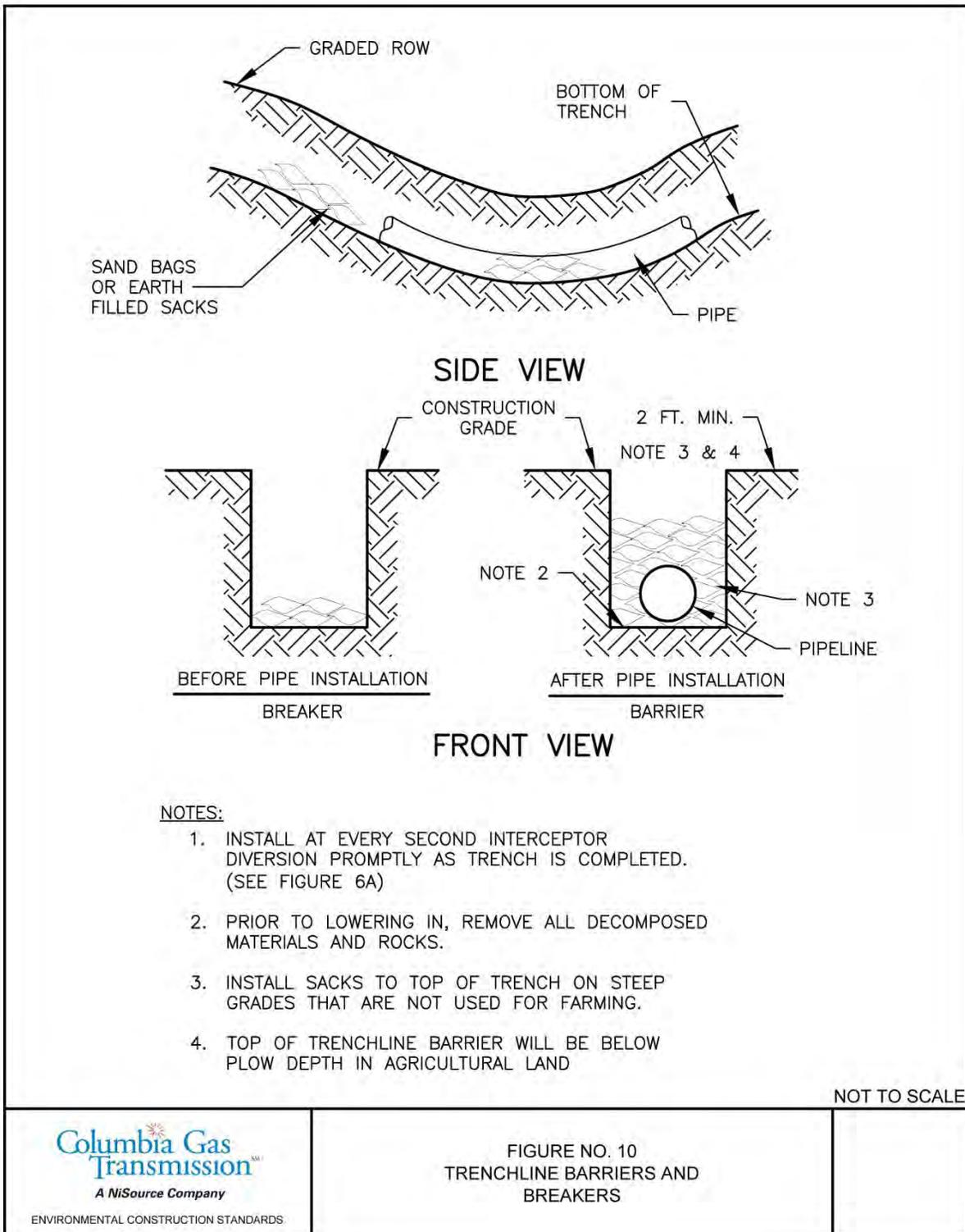
NOT TO SCALE



ENVIRONMENTAL CONSTRUCTION STANDARDS

FIGURE NO. 9  
TYPICAL EROSION CONTROL MEASURES  
AT ROAD CROSSINGS

**Figure 10 – Trench Line Barriers and Breakers**

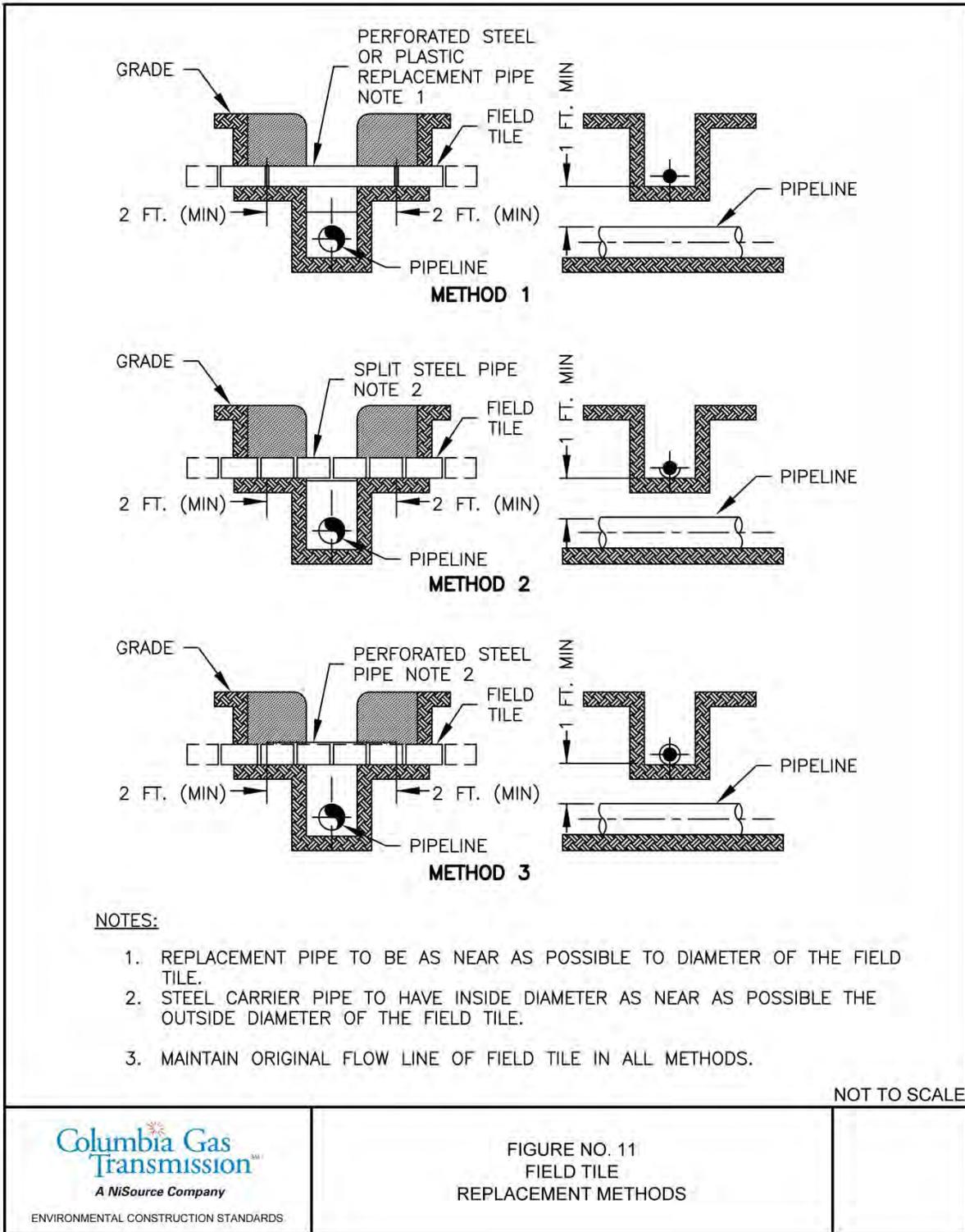


**Columbia Gas Transmission**  
A NiSource Company

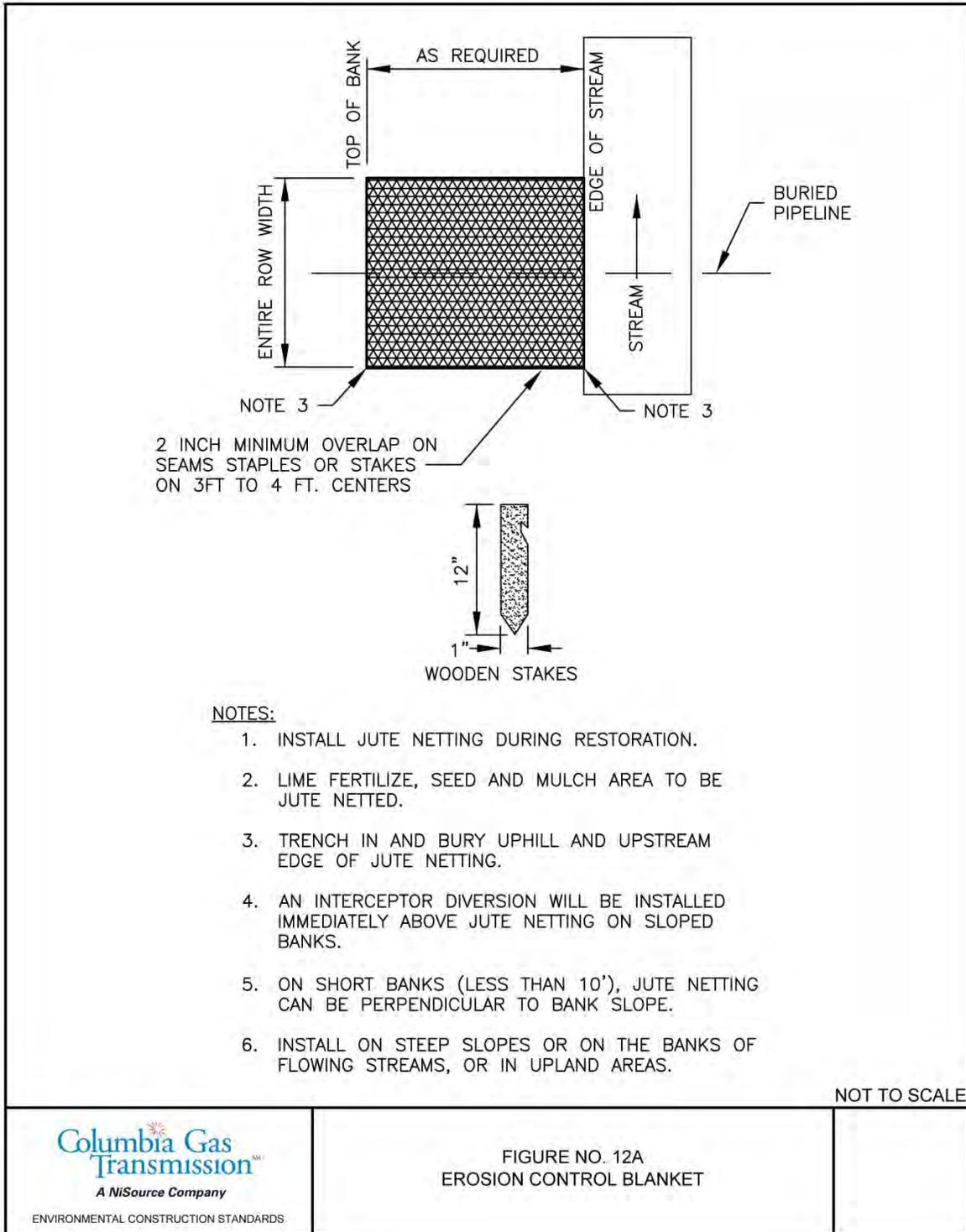
ENVIRONMENTAL CONSTRUCTION STANDARDS

FIGURE NO. 10  
TRENCHLINE BARRIERS AND  
BREAKERS

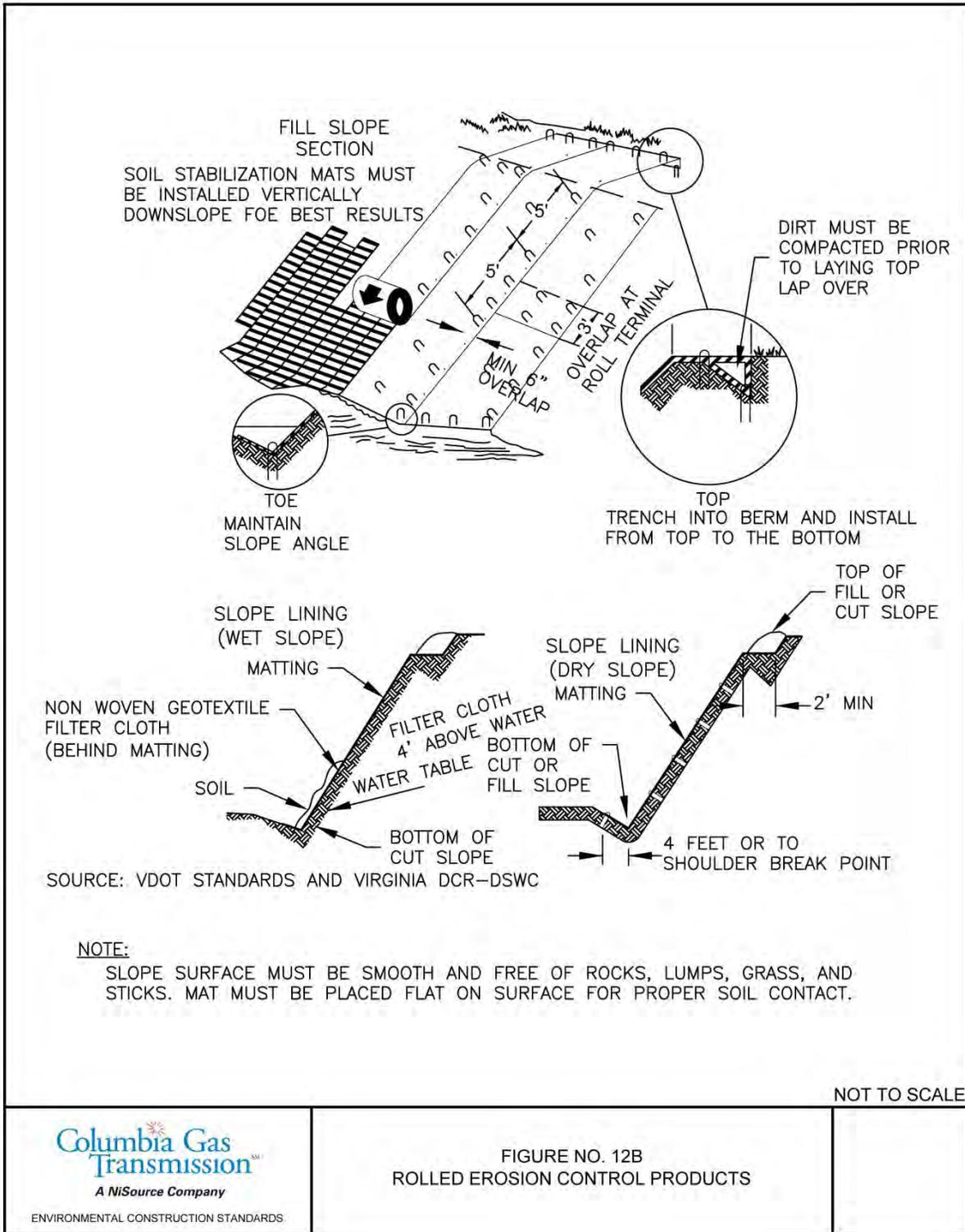
**Figure 11 – Field Tile Replacement Method**



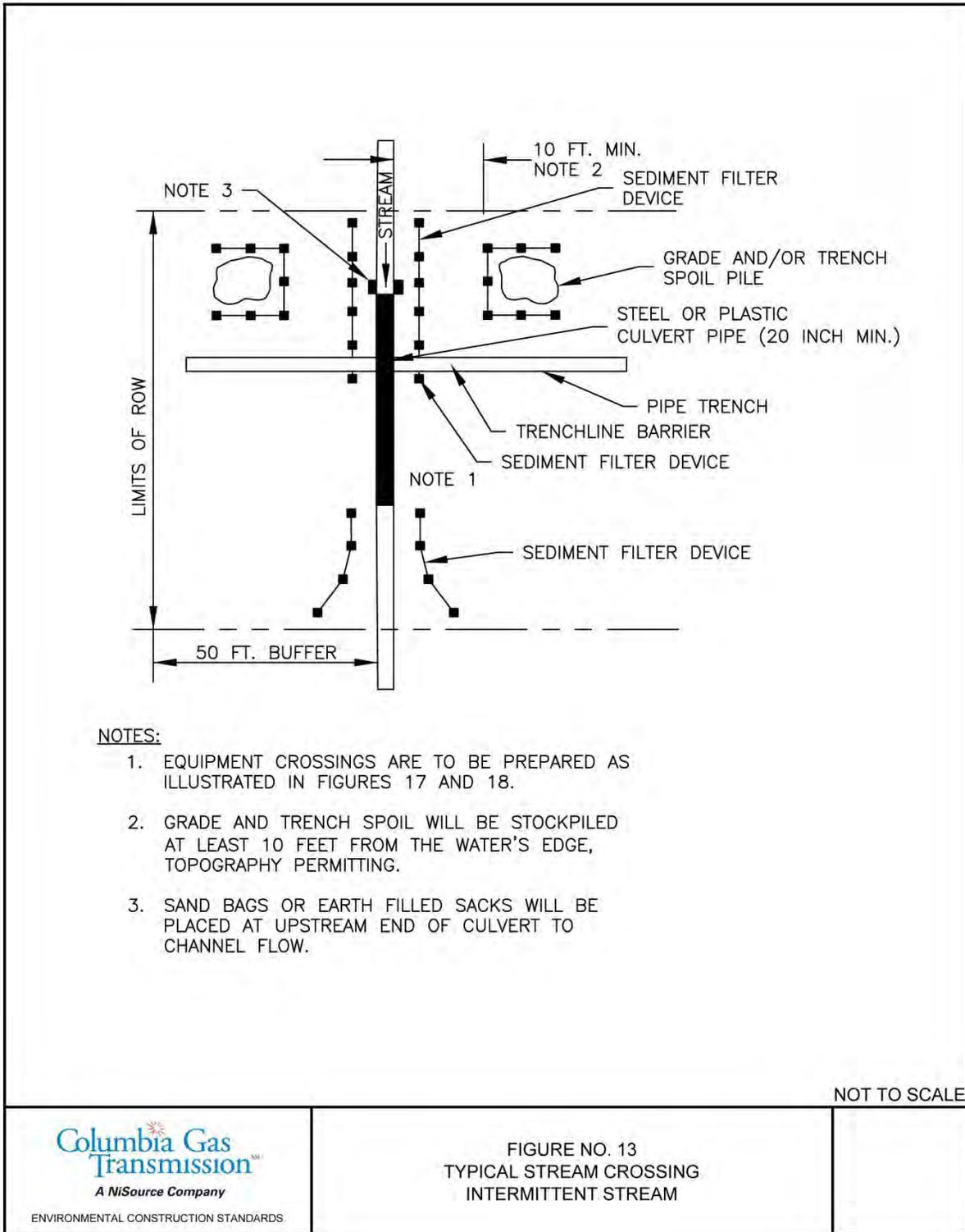
**Figure 12A – Erosion Control Blanket**



**Figure 12B – Rolled Erosion Control Products**



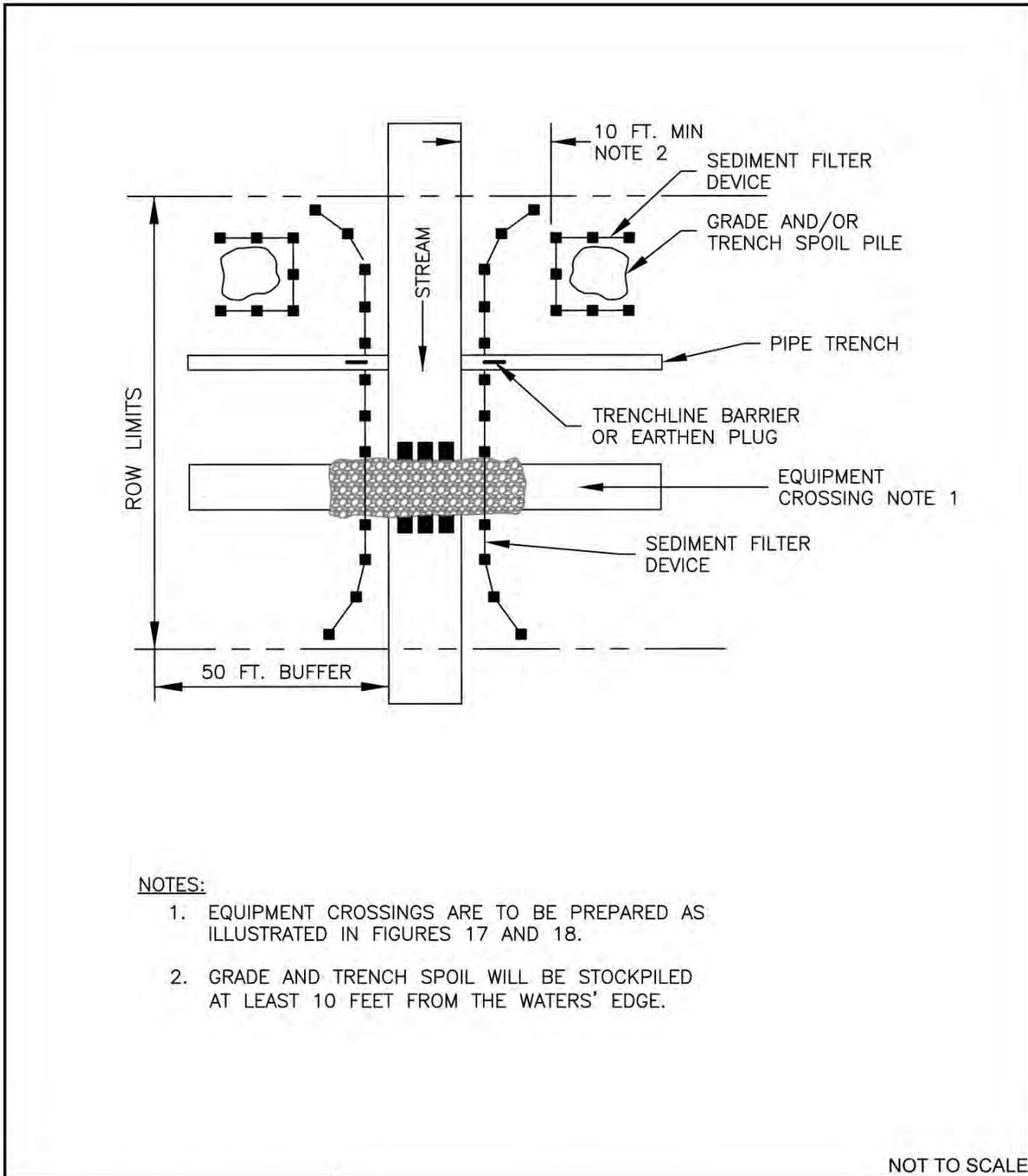
**Figure 13 – Typical Stream Crossing Intermittent Stream**



**Figure 14 – Typical Stream Crossing Dry-Ditch**

**Figure 15 – Typical Stream Crossing Dam and Pump**

**Figure 16 – Typical Stream Crossing Wet-Ditch**



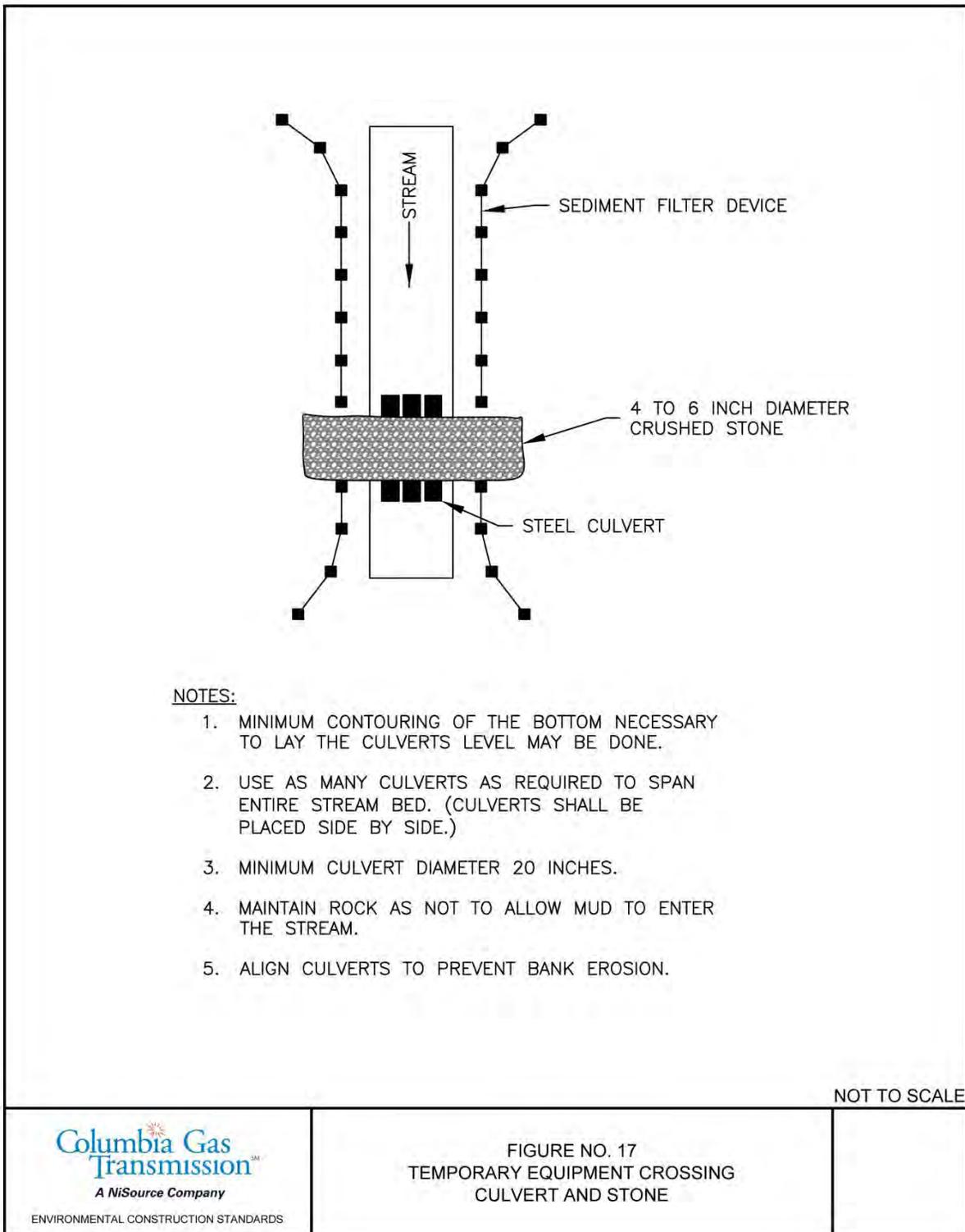
**NOTES:**

1. EQUIPMENT CROSSINGS ARE TO BE PREPARED AS ILLUSTRATED IN FIGURES 17 AND 18.
2. GRADE AND TRENCH SPOIL WILL BE STOCKPILED AT LEAST 10 FEET FROM THE WATERS' EDGE.

NOT TO SCALE

 <p><b>Columbia Gas Transmission</b> A NiSource Company ENVIRONMENTAL CONSTRUCTION STANDARDS</p>	<p>FIGURE NO. 16 TYPICAL STREAM CROSSING WET-DITCH</p>	
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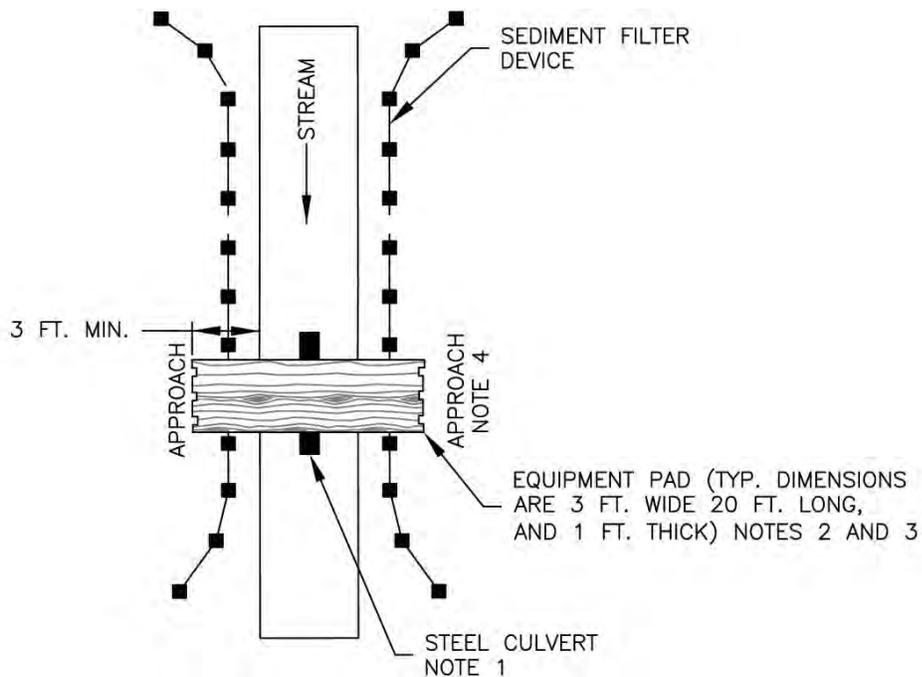
**Figure 17 – Temporary Equipment Crossing Culvert and Stone**



**NOTES:**

1. MINIMUM CONTOURING OF THE BOTTOM NECESSARY TO LAY THE CULVERTS LEVEL MAY BE DONE.
2. USE AS MANY CULVERTS AS REQUIRED TO SPAN ENTIRE STREAM BED. (CULVERTS SHALL BE PLACED SIDE BY SIDE.)
3. MINIMUM CULVERT DIAMETER 20 INCHES.
4. MAINTAIN ROCK AS NOT TO ALLOW MUD TO ENTER THE STREAM.
5. ALIGN CULVERTS TO PREVENT BANK EROSION.

**Figure 18 – Temporary Equipment Crossing Equipment Pads**



NOTES:

1. CULVERT PIPE UTILIZED IF ADDITIONAL SUPPORT IS REQUIRED
2. ADDITIONAL PADS CAN BE PUT SIDE BY SIDE IF EXTRA WIDTH IS REQUIRED
3. EQUIPMENT PAD TYPICALLY CONSTRUCTED OF HARDWOOD; MUST ACCOMMODATE THE LARGEST EQUIPMENT USED.
4. RAMP APPROACHED CAN EITHER BE GRADED OR DUG INTO GROUND. IF NECESSARY, CRUSHED STONE WILL BE USED TO RAMP UP TO THE EQUIPMENT PADS.
5. MINIMUM CULVERT DIAMETER 20 INCHES.
6. MAINTAIN PADS SO AS NOT TO ALLOW MUD TO ENTER THE STREAM

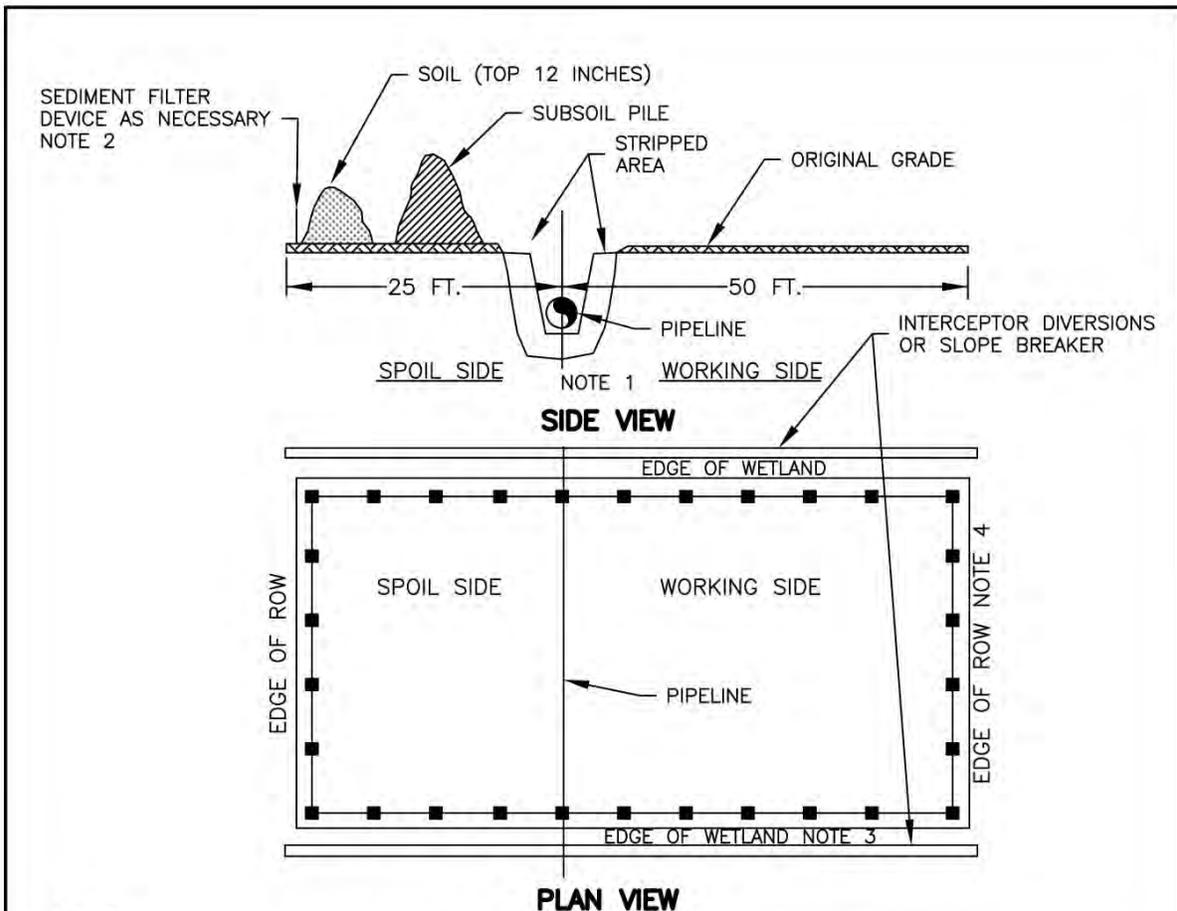
NOT TO SCALE



ENVIRONMENTAL CONSTRUCTION STANDARDS

FIGURE NO. 18  
TEMPORARY EQUIPMENT CROSSING  
EQUIPMENT PADS

**Figure 19 – Typical Wetland Crossing**



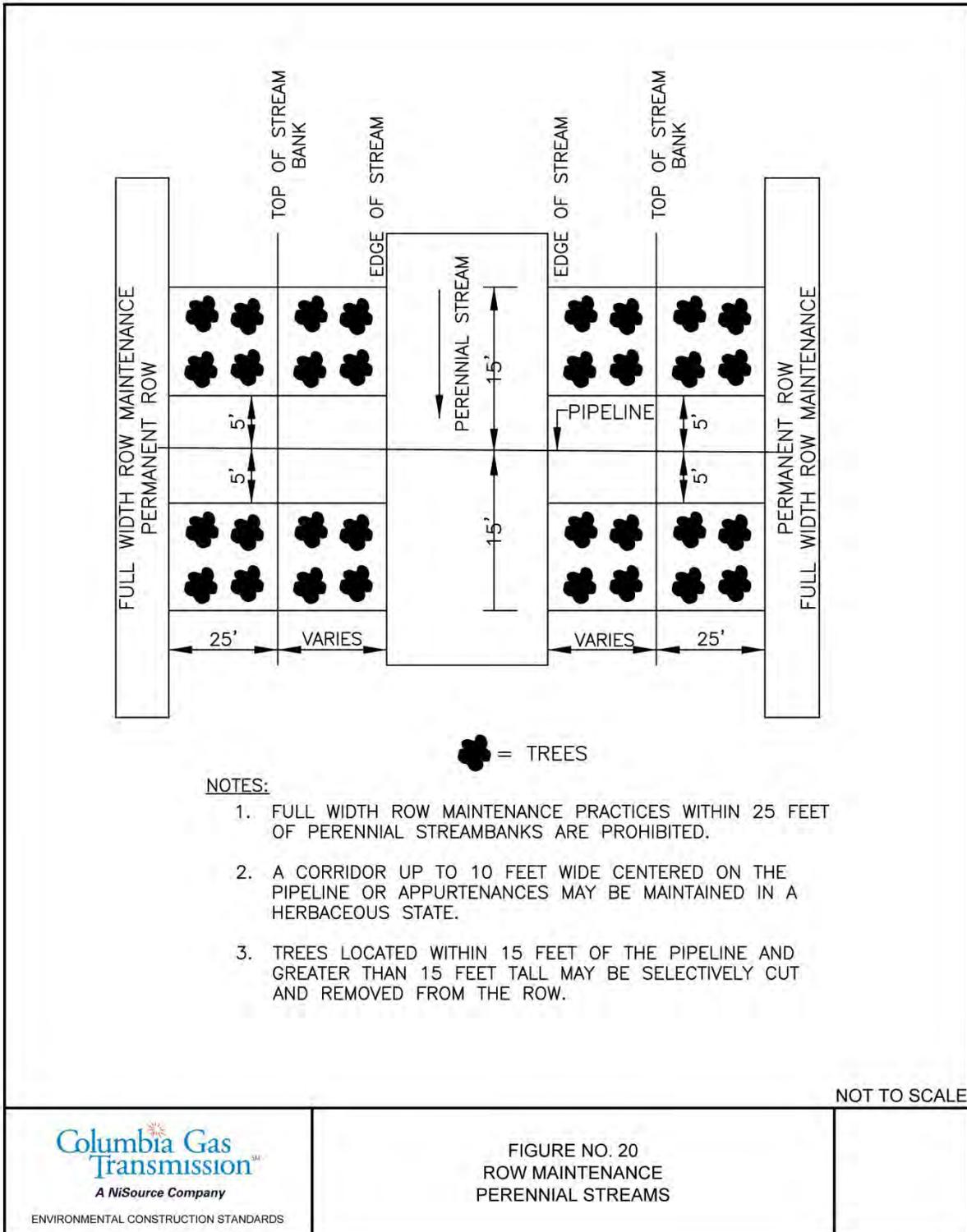
**NOTES:**

1. FOR WETLAND CROSSINGS WITHOUT STANDING WATER OR SATURATED SOILS, UPLAND CONSTRUCTION TECHNIQUES CAN BE USED. IF STANDING WATER OR SATURATED SOILS BECOME PRESENT DURING CONSTRUCTION ACTIVITIES IN WETLANDS THAT WERE INITIALLY DRY, OPERATE PER REQUIREMENTS IN SECTION III.B.2. OF THIS ECS (SEE NOTE 2).
2. WETLANDS WITH STANDING WATER, SATURATED OR FROZEN SOIL, OPERATE EQUIPMENT PER REQUIREMENTS IN SECTION III.B.2. (ECS).
3. IN WETLAND AREAS WHICH CONTAIN NO STANDING WATER OR IF SOILS ARE SATURATED OR FROZEN, TOPSOIL (TOP 12 INCHES) AND SUBSOIL WILL BE STOCKPILED SEPARATELY WITHIN THE WETLAND CONSTRUCTION ROW.
4. A SEDIMENT FILTER DEVICE WILL BE PLACED ACROSS THE ROW AT THE WETLAND'S EDGE, IMMEDIATELY UPSLOPE OF THE WETLAND BOUNDARY.
5. A SEDIMENT FILTER DEVICE WILL BE PLACED AT THE EDGE OF THE ROW AND AROUND SOIL AND SUBSOIL PILES AS NECESSARY.

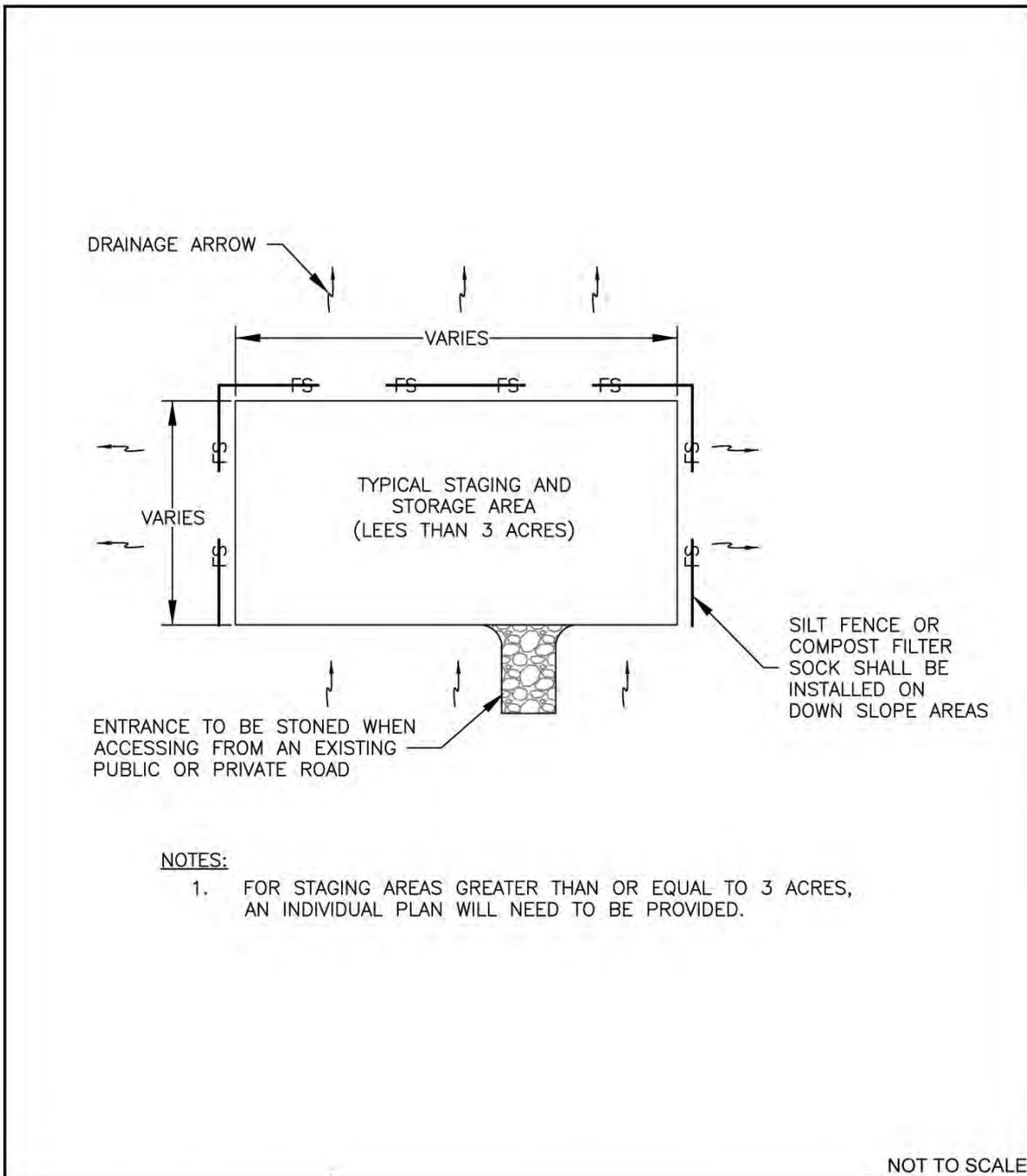
NOT TO SCALE

 <p><b>Columbia Gas Transmission</b> A NiSource Company</p> <p>ENVIRONMENTAL CONSTRUCTION STANDARDS</p>	<p>FIGURE NO. 19 TYPICAL WETLAND CROSSING</p>	
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**Figure 20 – ROW Maintenance Perennial Streams**



**Figure 21 – Typical Staging/Storage Area**



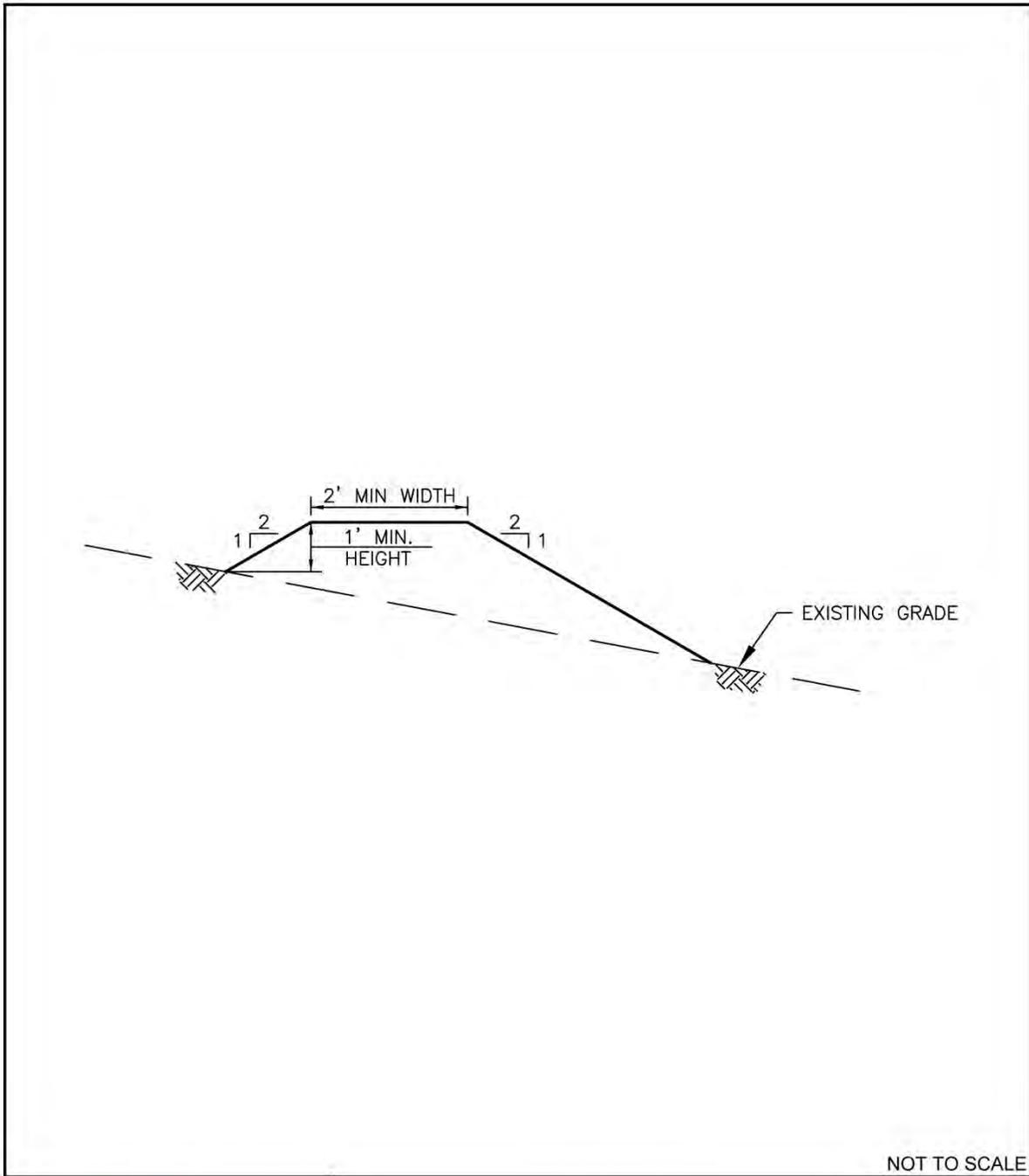
**NOTES:**

1. FOR STAGING AREAS GREATER THAN OR EQUAL TO 3 ACRES, AN INDIVIDUAL PLAN WILL NEED TO BE PROVIDED.

NOT TO SCALE

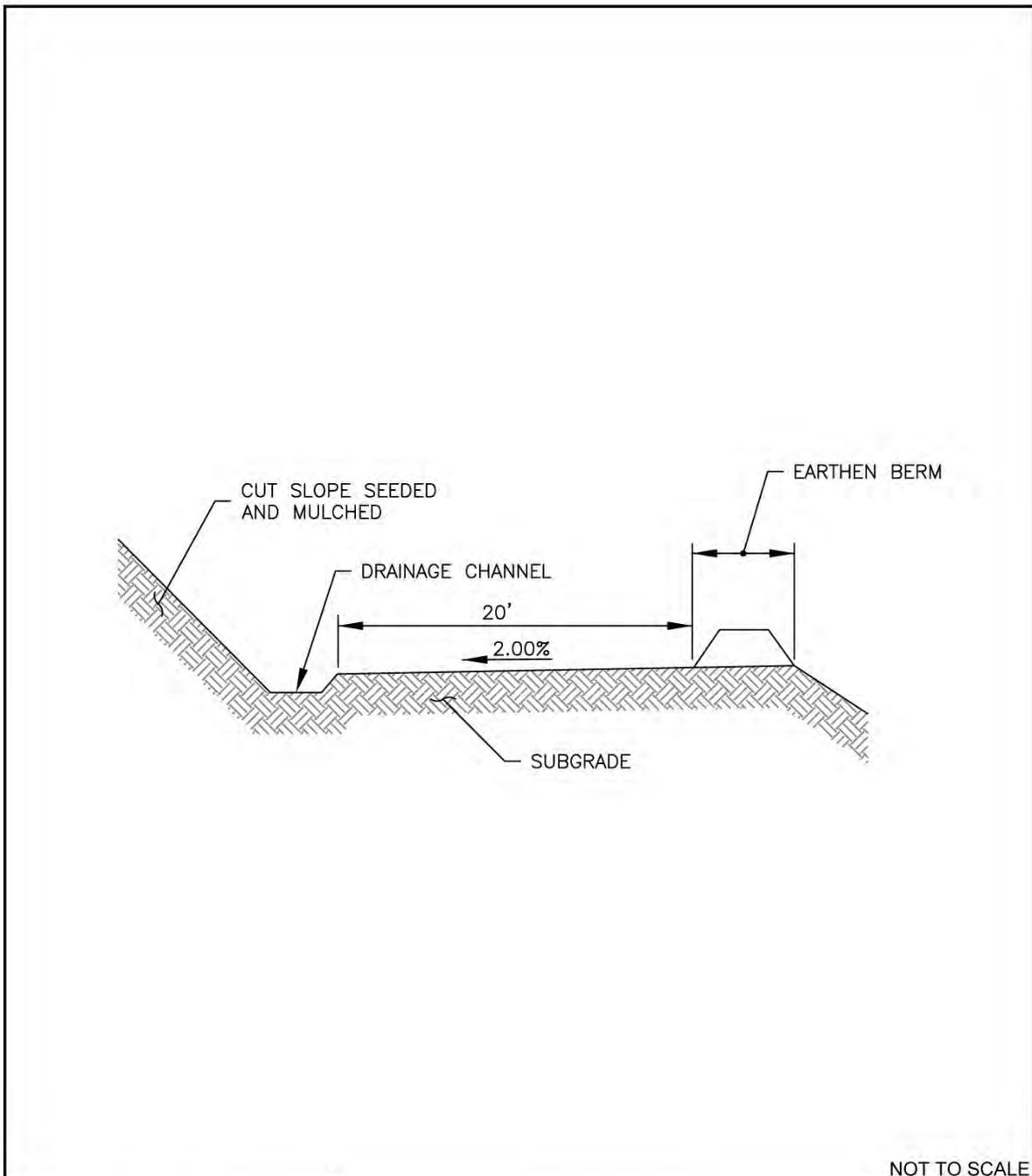
<p><b>Columbia Gas Transmission</b> A NiSource Company ENVIRONMENTAL CONSTRUCTION STANDARDS</p>	<p>FIGURE NO. 21 TYPICAL STAGING/STORAGE AREA</p>	
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**Figure 22 – Typical Earthen Berm**



<p><b>Columbia Gas Transmission</b> A NiSource Company ENVIRONMENTAL CONSTRUCTION STANDARDS</p>	<p>FIGURE NO. 22 TYPICAL EARTHEN BERM</p>	
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**Figure 23 – Typical Newly Constructed Access Road**



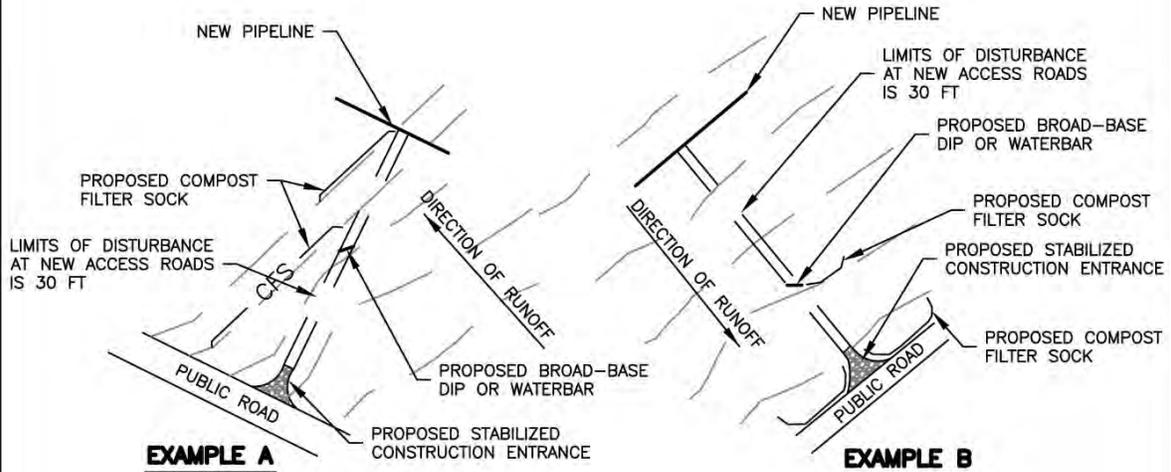
NOT TO SCALE

<p><b>Columbia Gas Transmission</b> A NiSource Company ENVIRONMENTAL CONSTRUCTION STANDARDS</p>	<p>FIGURE NO. 23 TYPICAL NEWLY CONSTRUCTED ACCESS ROAD</p>	
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**Figure 24 – Typical Access Road E&S Control**

STABILIZED CONSTRUCTION ENTRANCE:

1. USE TWO TO FOUR INCH (2–4”) STONE LOW VOLUME ENTRANCES. LARGER STONE (4–6”) FOR HEAVY USE OR MATERIAL DELIVERY ENTRANCES.
2. LENGTH IS AS REQUIRED, BUT NOT LESS THAN FIFTY (50’) (EXCEPT ON SINGLE RESIDENCE LOT WHERE A THIRTY FOOT (30’) MINIMUM LENGTH WOULD APPLY).
3. THICKNESS SHOULD NOT BE LESS THAN SIX INCHES (6”).
4. THE WIDTH SHALL BE A MINIMUM OF TWENTY FEET (20’) BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. GEOTEXTILE FABRICS SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO THE PACING OF STONE.
6. ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF A CULVERT IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES SHALL BE USED.



NOTES:

1. NO SILT FENCE REQUIRED IF CRITERIA FOR A NATURAL VEGETATIVE FILTER (BUFFER) STRIP IS MET AND LOCATED DOWN SLOPE OF CONSTRUCTION. THE VEGETATIVE FILTER (BUFFER) STRIP SHALL BE IN ACCORDANCE WITH VEGETATIVE FILTER (BUFFER) STRIP DETAIL.
2. REGULAR SILT FENCE WILL BE USED WHERE DRAINAGE AREA IS NO MORE THAN 1/4 ACRE PER 100’ OF SILT FENCE AND THE MAXIMUM GRADIENT ABOVE FENCE IS 2:1. BELTED SILT RETENTION FENCE SHALL BE UTILIZED WHERE CONDITIONS EXCEED SILT FENCE REQUIREMENTS. SLOPE LENGTH ABOVE BELTED SILT RETENTION FENCE SHALL NOT EXCEED 400’.
3. USE THIS DETAIL FOR ALL PROPOSED/NEW AND UPGRADED EXISTING ACCESS ROADS.

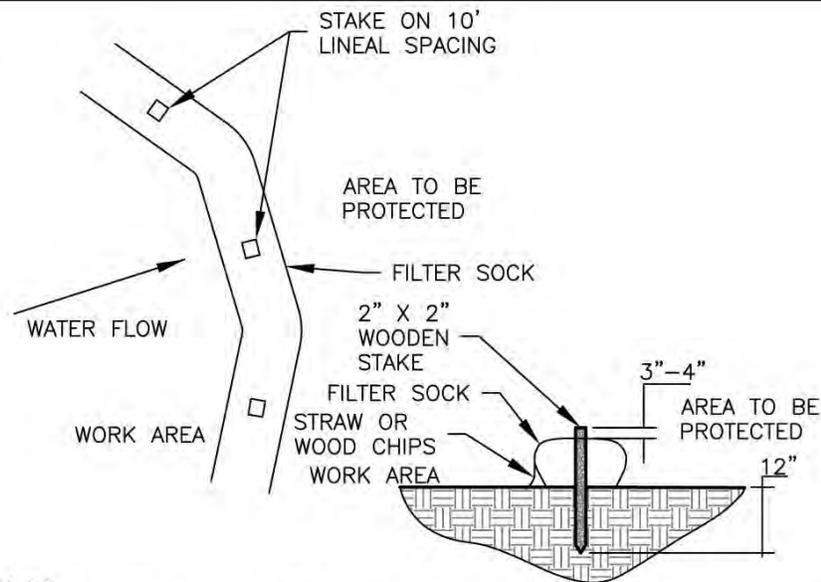
NOT TO SCALE



ENVIRONMENTAL CONSTRUCTION STANDARDS

FIGURE NO. 24  
TYPICAL ACCESS ROAD  
E & S CONTROL

**Figure 25 – Typical Compost Filter Sock**



**NOTES:**

1. COMPOST FILTER SOCK TO BE FILTREXX SILTSoxx OR APPROVED EQUIVALENT.
2. 8", 12" 18" AND 24" COMPOST FILTER SOCK TO BE USED. SEE PLAN SHEET FOR SIZES AND LOCATIONS.
3. ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE COMPOST FILTER SOCK.
4. COMPOST FILTER SOCK SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED COMPOST FILTER SOCK SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.

**FILTER SOCK SIZING CHART**

SLOPE PERCENT	8 IN (200 mm) SiltSoxx™	12 IN (300 mm) SiltSoxx™	18 IN (450 mm) SiltSoxx™	24 IN (600 mm) SiltSoxx™	32 IN (800 mm) SiltSoxx™
	6.5 IN (160 mm)**	9.5 IN (240 mm)**	14.5 IN (360 mm)**	19 IN (480 mm)**	26 IN (650 mm)**
2 (OR LESS)	600 (180)	750 (225)	1000 (300)	1300 (400)	1650 (500)
5	400 (120)	500 (150)	550 (165)	650 (200)	750 (225)
10	200 (120)	250 (75)	300 (90)	400 (120)	500 (150)
15	140 (40)	170 (50)	200 (60)	325 (100)	450 (140)
20	100 (30)	125 (38)	140 (42)	260 (80)	400 (120)
25	80 (24)	100 (30)	110 (33)	200 (60)	275 (85)
30	60 (18)	75 (23)	90 (27)	130 (40)	200 (60)
35	60 (18)	75 (23)	80 (24)	115 (35)	150 (45)
40	60 (18)	75 (23)	80 (24)	100 (30)	125 (38)
45	40 (12)	50 (15)	60 (18)	80 (24)	100 (30)
50	40 (12)	50 (15)	55 (17)	65 (20)	75 (23)

\* BASED ON FAILURE POINT OF 36 IN (0.9 m) SUPER SILT FENCE (WIRE REINFORCED) AT 1000 FT. (303 m) OF SLOPE, WATERSHED WIDTH EQUIVALENT TO RECEIVING LENGTH OF SEDIMENT CONTROL DEVICE, 1 IN/24 hr (25 mm/24 hr) RAIN EVENT.

\*\* EFFECTIVE HEIGHT OF SiltSoxx™ AFTER INSTALLATION AND WITH CONSTANT HEAD FROM RUNOFF AS DETERMINED BY OHIO STATE UNIVERSITY.

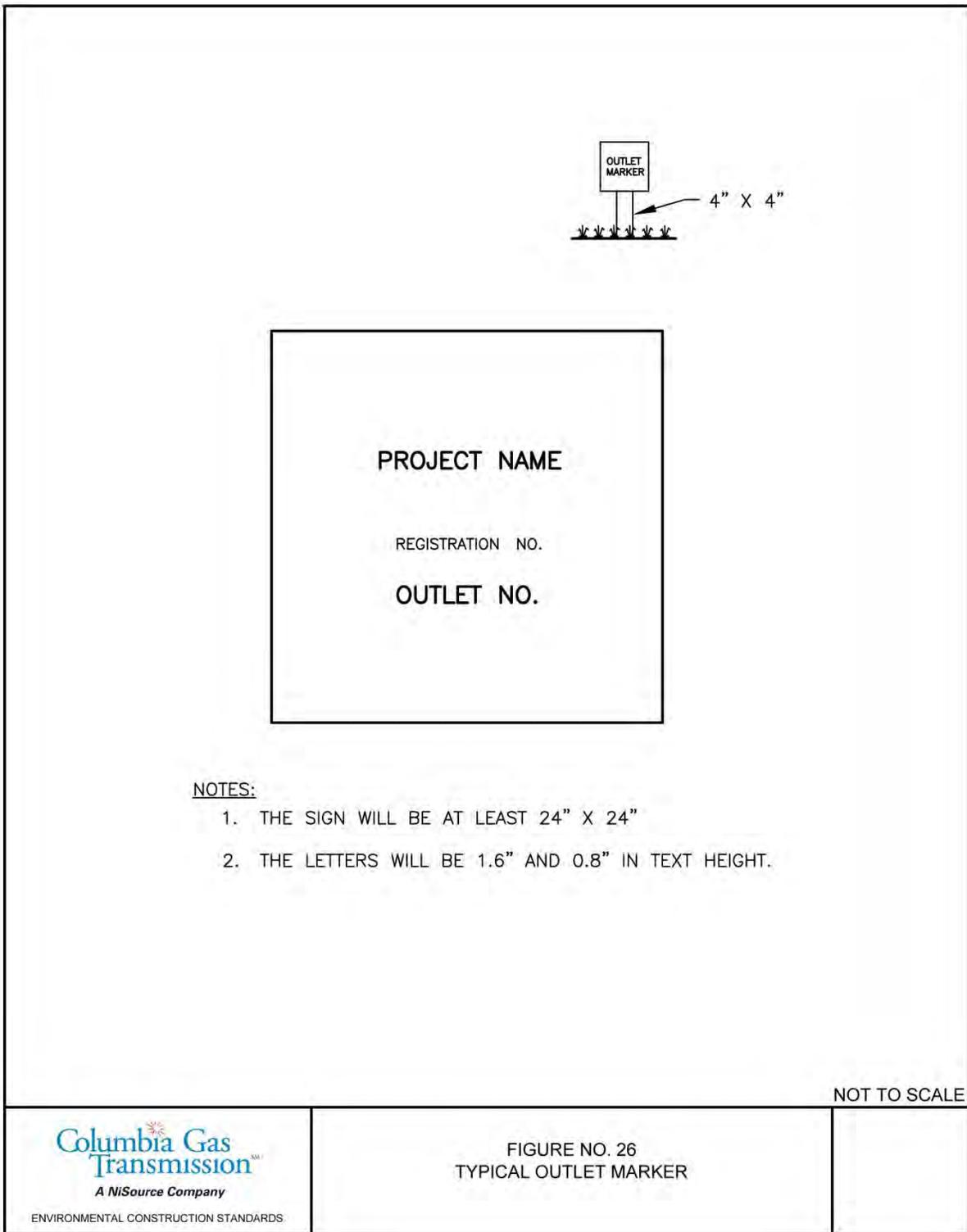
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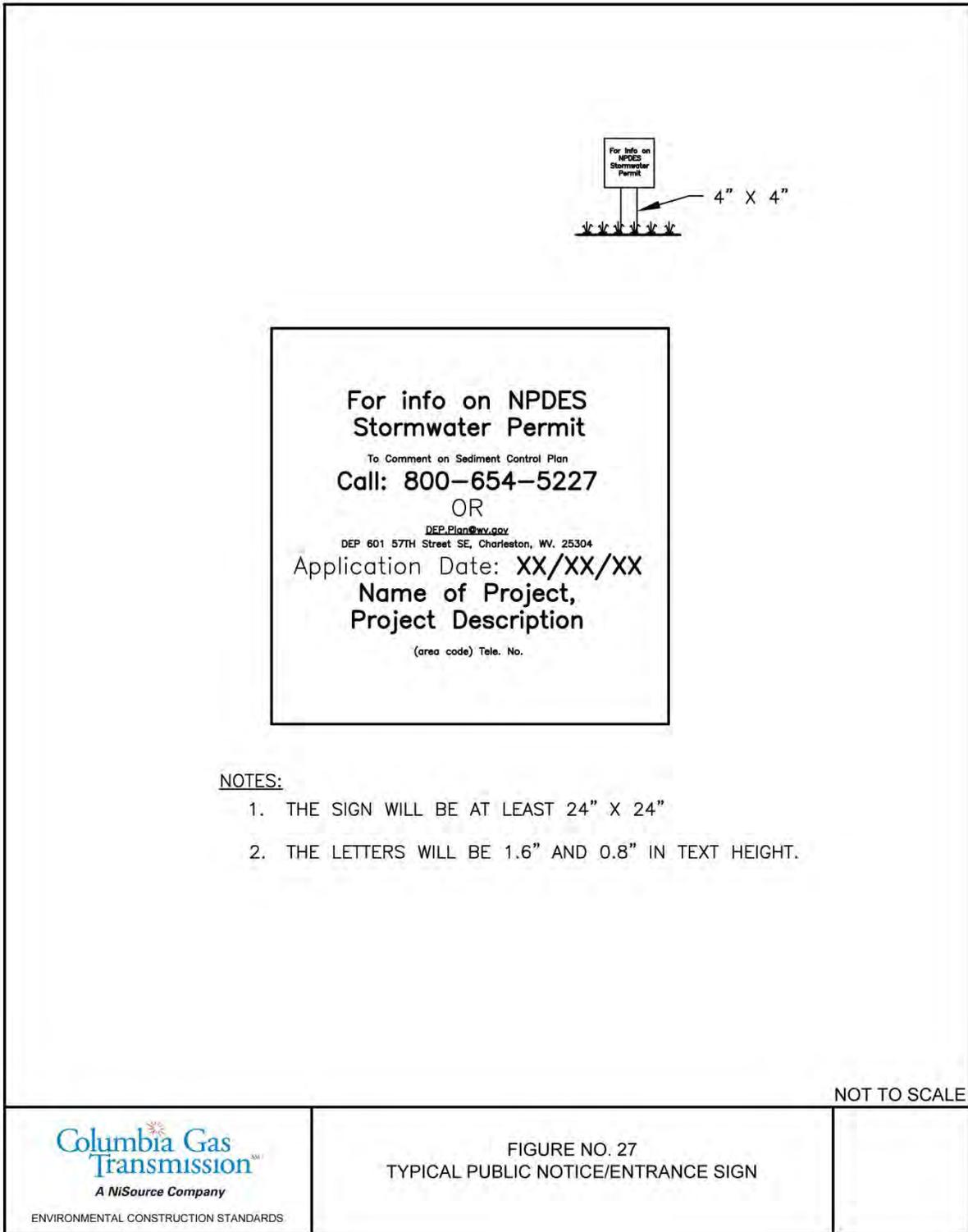
ENVIRONMENTAL CONSTRUCTION STANDARDS

FIGURE NO. 25  
TYPICAL COMPOST FILTER SOCK

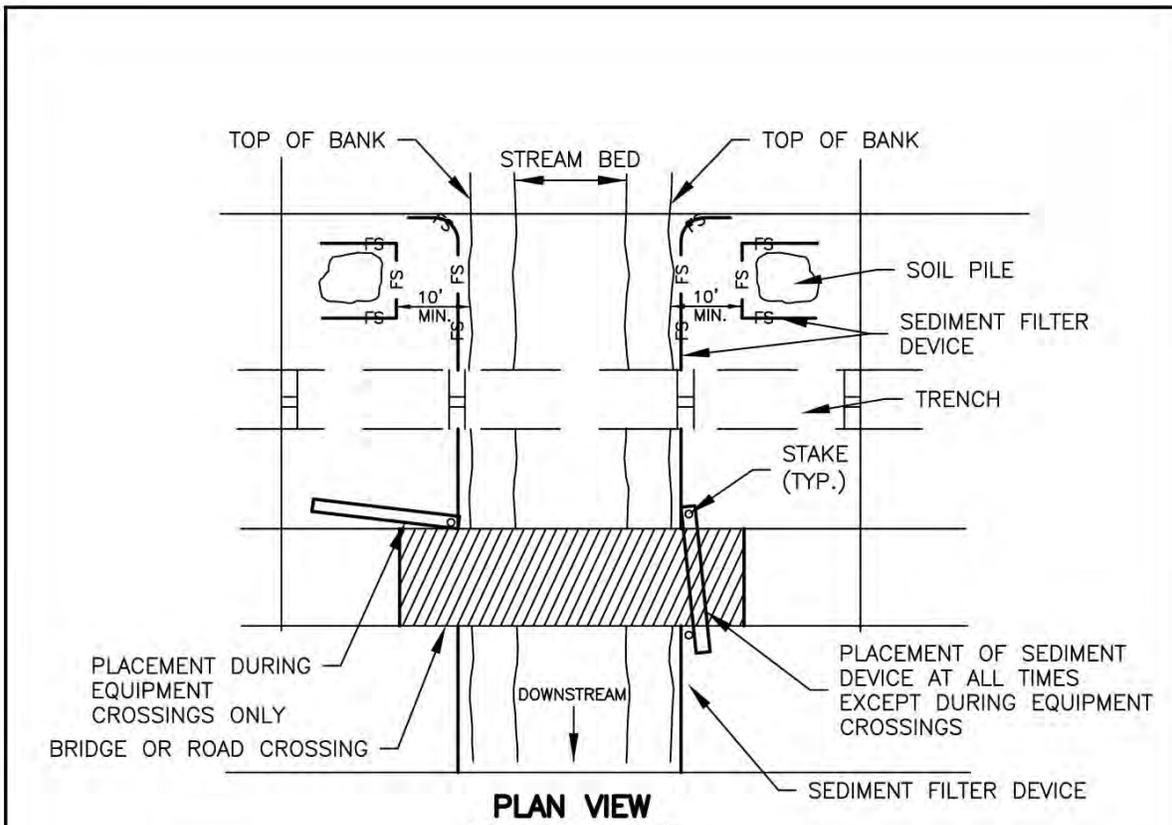
**Figure 26 – Typical Outlet Marker**



**Figure 27 – Typical Public Notice/Entrance Sign**



**Figure 28 – Typical Removable Sediment Filter Device**



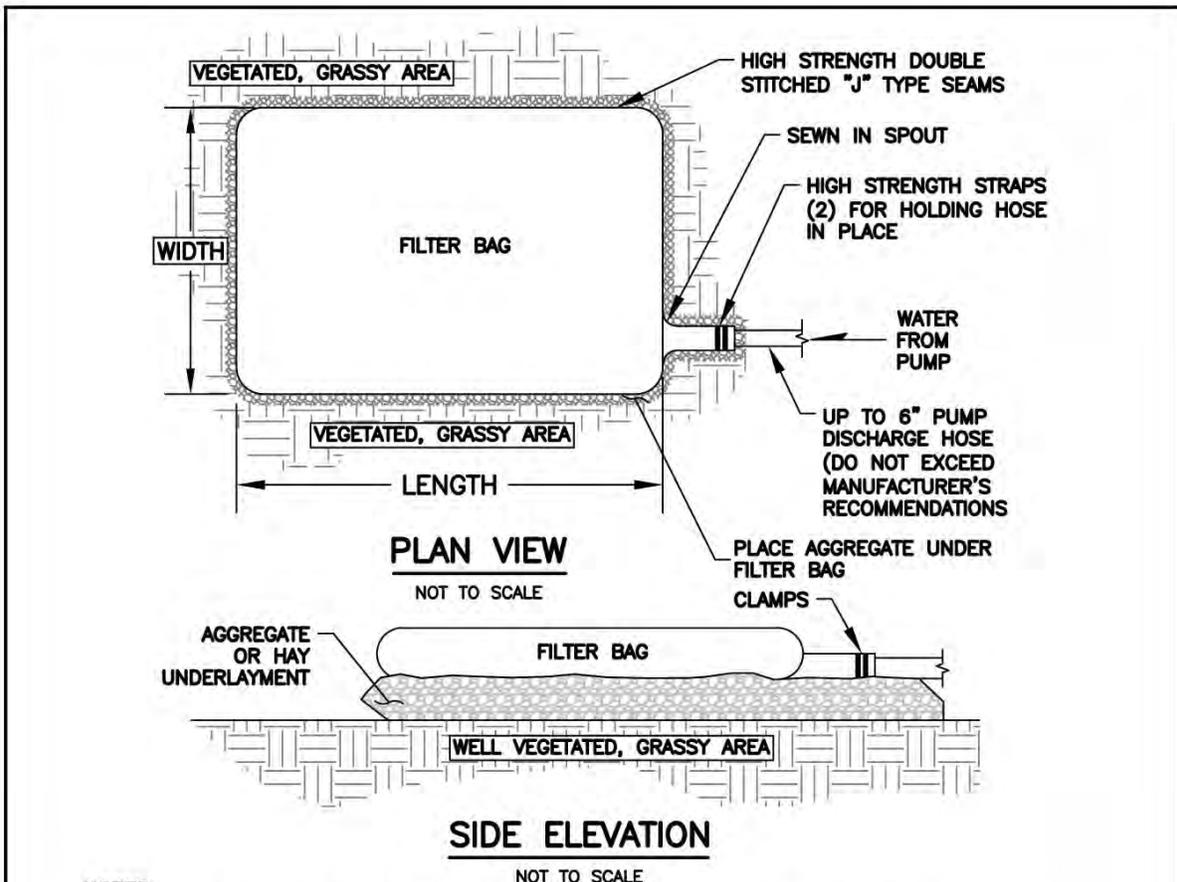
**NOTES:**

1. SEDIMENT FILTER DEVICE (COMPOST FILTER SOCK, SILT FENCE, OR OTHER APPROVED EQUIVALENT), SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SEDIMENT FILTER DEVICE SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
2. SEDIMENT FILTER DEVICE AT ENTRANCES SHALL BE IN PLACE FROM START OF DAY, DURING CONSTRUCTION ACTIVITIES AND AT END OF DAY. SEDIMENT FILTER DEVICE MAY BE TEMPORARILY MOVED AS SHOWN ON THE LEFT DURING EQUIPMENT CROSSING ACTIVITIES BUT MUST BE REPLACED IMMEDIATELY UPON COMPLETION OF CROSSING.
3. COMPOST FILTER SOCK TO BE FILTREXX SILTSOXX OR APPROVED EQUIVALENT.

NOT TO SCALE

 <p><b>Columbia Gas Transmission</b> A NiSource Company</p> <p>ENVIRONMENTAL CONSTRUCTION STANDARDS</p>	<p>FIGURE NO. 28 TYPICAL REMOVABLE SEDIMENT FILTER DEVICE</p>	
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**Figure 29 – Typical Water Filter Bag**



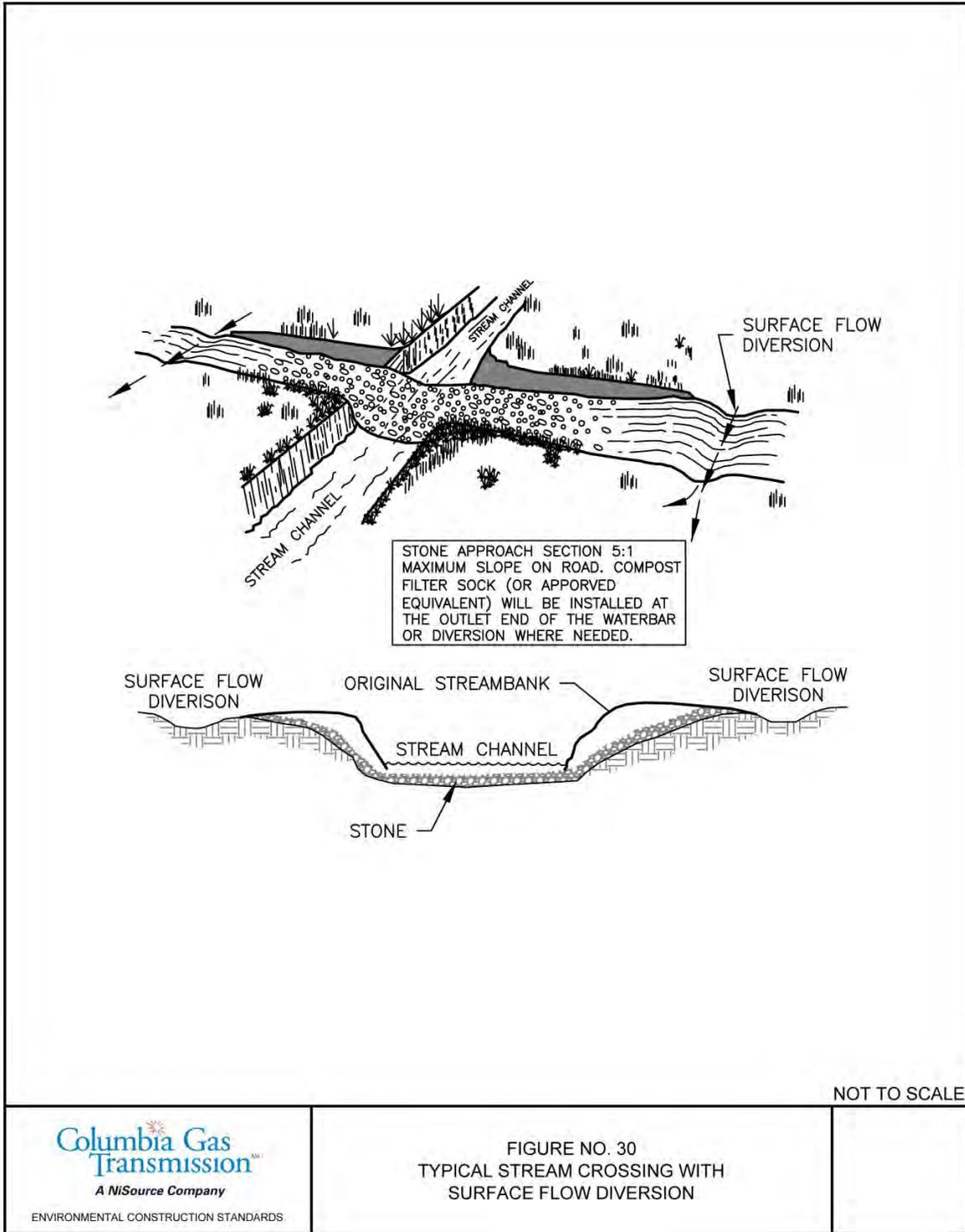
**NOTES:**

1. FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS.
2. BAGS MUST BE PLACED WITHIN THE PERMITTED AREA IF ACCESSING THE BAG WITH MACHINERY IS REQUIRED FOR DISPOSAL PURPOSES. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED.
3. BAGS SHOULD BE LOCATED IN WELL-VEGETATED (GRASSY) AREAS, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE FLOW PATH CAN BE PROVIDED OR ALLOW DISCHARGE FROM BAG TO FLOW THROUGH A SERIES OF SEDIMENT LOGS ETC.... BAGS CAN BE USED INSIDE SEDIMENT TRAPS.
4. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%.
5. THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. DO NOT ALTER OR CUT BAGS.
6. AGGREGATE OR HAY SHALL BE PLACED UNDERNEATH FILTER BAGS.
7. SEDIMENT FILTER DEVICE (COMPOST FILTER SOCK, HAY BALE OR APPROVED EQUIVALENT) SHALL BE PLACED WHERE WARRANTED OR AS DETERMINED BY THE EI.

NOT TO SCALE

 <p><b>Columbia Gas Transmission</b> A NiSource Company ENVIRONMENTAL CONSTRUCTION STANDARDS</p>	<p>FIGURE NO. 29 TYPICAL WATER FILTER BAG</p>	
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Figure 30 – Typical Stream Crossing Surface Flow Diversion



**APPENDIX D-2**  
**Columbia Gulf's Environmental Construction Standards (April 2017)**



# Columbia Pipeline Group

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## **ENVIRONMENTAL CONSTRUCTION STANDARDS**

April 2017

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Columbia Gas Transmission  
Charleston, West Virginia

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## I. INTRODUCTION

Columbia is committed to complying with the applicable environmental rules and regulations of federal, state, and local governments. Columbia's goal is to meet these requirements in the pursuit of a cleaner, safer environment for future operations.

Recognizing this goal, it is Columbia's policy that all construction, operation and maintenance activities be conducted in a safe manner that minimizes impacts on stream and wetland ecosystems, wildlife habitat, cultural resources and the human environment. To this end, Columbia has prepared these Environmental Construction Standards (ECS). The ECS provides the minimum requirements to be applied to all construction, operation and maintenance activities.

The general objective of this ECS is to provide Columbia personnel and Columbia's contractors with instructional information, complete with a practical approach to environmental concerns, which can arise before, during and after facility construction. More specific objectives include:

- minimize impacts to environmentally sensitive areas;
- use the minimum land required for safe and efficient construction, operation, and maintenance of the facilities;
- prevent erosion and sedimentation during construction; and
- complete construction in a safe and timely manner.

Words and/or phrases which have special meaning (shown in **bold** at first occurrence in text) and acronyms have been defined in Definition of Terms Section VIII.

The intent of the ECS is to confine project-related disturbance to the identified **construction work areas** and to minimize erosion and enhance revegetation in those areas. Any project-related ground disturbance (including erosion) outside of these areas is subject to compliance with all applicable survey<sup>1</sup> (see superscript note 1) and mitigation requirements.

The ECS is focused primarily on pipeline related construction, operation, and maintenance. However, it can be equally applied to all Columbia facilities, for example, storage facilities including well locations, compressor stations, horizontal directional drill locations and measurement/regulation stations. This ECS shall be used as the base document from which Columbia will build individual project-specific Environmental Management and Construction Plans (EM&CP) as called for in Columbia's Policy and Procedure, Plan 120-10. The EM&CP may include written recommendations from the local soil conservation authorities or land management agencies for both temporary and permanent erosion control and revegetation specifications. Federal, State and local agencies having regulations more stringent than this ECS shall supercede<sup>2</sup> (see superscript note 2).

## II. UPLAND CONSTRUCTION

### A. General

This chapter describes typical upland pipeline construction.

The upland pipeline construction spread operates as a moving assembly line performing specialized procedures in an efficient, planned sequence. Figure 1 presents this typical upland pipeline construction sequence. In addition, special construction crews install and alter fences, bore under roads and railroads, install stream and **wetland** crossings that are not done by conventional upland techniques, and construct valve settings and meter/regulator stations.

While construction work is on going, the construction work area will be kept clean of all rubbish and debris resulting from the work. Excess construction materials and debris must be collected, contained, and disposed of at regular intervals. This includes timber, slash, mats, garbage, drill cuttings and fluids, as well as excess rock. Non-hazardous materials and waste shall be disposed of in an approved landfill. Hazardous waste shall be disposed of in accordance with Columbia policies (Plan 120.03 and 120.04) and federal, state and local regulations.

### B. Right-of-Way Width

For 14-inch or larger diameter pipelines on new alignments, Columbia typically utilizes a 50-foot wide permanent right-of-way (ROW plus a 25-foot wide temporary construction ROW as illustrated in Figure 2). After the construction work area is restored, the temporary work areas are allowed to revert to its previous uses. The permanent ROW is maintained as Columbia's permanent ROW for the facility. Figure 2 also illustrates the typical pipeline construction work area when paralleling existing facilities.

In addition, there may be instances where extra work areas are needed for topsoil conservation, side hill construction, equipment staging, pipe and material storage, borrow and disposal areas, temporary and permanent access, and related construction activities. Such areas will be identified in the project plans and will undergo all required environmental and cultural resources reviews prior to use. In contrast, pipelines may be constructed through confined areas such as extremely steep and narrow ridges. Alternate construction methods may be required in narrow construction work area situations to safeguard workers, equipment, the pipeline, and the environment.

For 12-inch and smaller diameter pipelines, a 50-foot wide ROW is typically used due to a narrower trench and the use of smaller equipment. The typical 50-foot ROW is illustrated in Figure 3. In addition, there may be areas where extra construction work areas are needed as described above.

For non-pipeline construction activities, such as storage well locations and station projects, the construction work area and permanent ROW may vary and can be dependent on property lease, property owner agreements, and/or local topography.

For example, the construction work area for a typical storage well is 200 feet by 200 feet and the permanent ROW is a 300-foot radius around the well.

All project-related ground disturbance shall be limited to the construction right-of-way, extra work space areas, pipe storage yards, borrow and disposal areas, access roads, and other areas approved in the FERC's Orders, and/or other federal/state/local environmental permits. This does not apply to activities needed to comply with the FERC Plan and Procedures (i.e. slope breakers, energy-dissipating devices, dewatering structures, drain tile system repairs) or minor field realignments and workspace shifts per landowner needs and requirements that do not affect other landowners or sensitive environmental resource areas. All construction or restoration activities outside of the approved limit of disturbance detailed in the EM&CP are subject to all applicable survey and permit requirements, as well as landowner easement agreements and must be cleared through the Natural Resource Permitting Group prior to that activity.

### **C. Clearing**

The construction work area is cleared to the width specified in the ROW agreements or EM&CP, whichever is less, during clearing operations, all brush and trees will be felled into the construction work area to prevent off-construction work area damage to trees and structures.

The clearing crew and related equipment and equipment necessary for installation of equipment crossings will be permitted a single pass through streams prior to equipment crossing installations unless the stream is a **high quality stream** or designated as **exceptional value water**. Federal, State and local agencies having regulations more stringent than this shall supercede<sup>2</sup> (see superscript note [2](#)).

Should substantial soil disturbance take place during clearing install temporary erosion and sedimentation controls as described in section D-3.

#### **1. Wood Products**

Wood Products (i.e., sawlogs, pulpwood or cordwood) are the property of the landowner unless otherwise specified. They will not be used for any purpose unless permission is first obtained from the landowner. When the landowner requests salvage of these materials or approves wood products to be stockpiled and left on site, they will be stockpiled just off the edge of the construction work area, but not within 50 feet of streams, floodplains, or wetlands. Equipment stacking the wood products will not leave the construction work area. Usable timber that measures at least 10 inches in diameter at the butt will be cut into pole lengths (12-14ft) or as otherwise negotiated with the landowner. Off-site disposal in other than commercially operated disposal locations is subject to compliance with all applicable survey, landowner approval and mitigation requirements.

#### **2. Brush**

All cleared brush will be disposed of by one of the following methods:

- Brush may be piled just off the edge of the construction work area but not within 50 feet of streams, floodplains or wetlands. Equipment stacking the brush will not leave the construction work area. Brush piles will be constructed a maximum of 12 feet wide and compacted to approximately 4 feet high, with periodic breaks at a minimum of every 200 feet to permit wildlife travel. Breaks should be no smaller than 4ft wide to allow wildlife travel. Brush piles will be kept separate from usable timber and care will be taken to prevent mixing of soil and brush. The landowner should be consulted to determine acceptable brush pile locations along the construction work area. Landowner approval is required for this method.
- Brush may be burned where permitted by law. The necessary burning permits will be obtained. Fires will be of reasonable size and located and patrolled so that they will not spread off the construction work area.
- The brush may be chipped and given away, buried, or thinly spread (less than 2 inches thick) over the construction work area or blown off the construction work area (per landowner agreement and approvals) except in **agricultural lands** or within 50 feet of streams, floodplains, or wetlands. If wood chips are used as mulch, do not use more than 1 ton/acre\*. Chipping will be limited to those areas where agreed to with the landowner. During **restoration**, soil will be augmented by the addition of 11 pounds of nitrogen per ton of chips to aid re-vegetation, at least half of which must be slow release.
- Brush may be hauled off-site. Off-site disposal in other than commercially operated disposal locations is subject to compliance with all applicable survey, landowner approval and mitigation requirements.

\*One ton of chips spread 1 inch thick cover approximately  $\frac{1}{4}$  acre.

### 3. Fence Crossings

Where it is necessary to remove fences, adequate temporary fences or gates as illustrated in Figure 4 will be installed **immediately** or in accordance with landowner agreement. Such temporary fences or gates will be kept closed, except when necessary for construction purposes per landowner agreement. Once construction is completed, permanent fence repairs will be completed. All fences that have been cut or removed will be permanently repaired during restoration to match the original type of the fence as much as possible. Where there is any doubt as to the usability of old fence material, new material will be used in making repairs. Fence repairs will be subject to the approval of the landowner.

## D. Grading

Grading is necessary to provide a smooth and even surface for safe and efficient operation of construction equipment. Grading will be the minimum amount necessary and includes prompt installation of erosion control devices such as interceptor diversions, **sediment filter devices**, and equipment crossings at streams to minimize soil loss and subsequent sedimentation.

### 1. Tree Stump and Rock Removal and Disposal

Tree stumps and large rocks will be cut, graded or removed as necessary to permit construction and to provide adequate clearance for mechanical equipment and other vehicles. Tree stumps that are adjacent to roads will be cut close to the ground or removed.

Stumps and large rocks will be disposed of in the following manner with landowner approval. Off-site disposal in other than commercially operated disposal locations is subject to compliance with all applicable survey, landowner approval and mitigation requirements.

- buried within the construction work area except in agricultural, residential, or wetland areas;
- windrowed just off the edge of the construction work area with landowners' permission. Windrows will be a maximum of 12 feet wide with periodic breaks a minimum of 200 feet apart;
- hauled from the site and disposed of in an approved landfill or other suitable area.

### 2. Topsoil Conservation

Unless the landowner or land management agency specifically approves otherwise, prevent the mixing of topsoil with subsoil by stripping topsoil from either the full work area or from the trench and subsoil storage area (ditch plus soil side method) in:

- a. actively cultivated or rotated croplands and pastures;
- b. residential areas;
- c. hayfields; and
- d. other areas at the landowner's or land managing agency's request.

In deep soils (more than 12 inches of topsoil), segregate at least 12 inches of topsoil. In soils with less than 12 inches of topsoil make every effort to segregate the entire topsoil layer. Segregated topsoil may not be used for padding the pipe, constructing temporary slope breakers or trench plugs, improving or maintaining roads, or as fill material. Figure 5 illustrates topsoil conservation techniques.

The topsoil will be stockpiled separately from all subsoil and will be replaced last during backfilling and **final grading**. Where topsoil is stripped from the entire construction ROW, an additional 25-foot wide temporary work area may be used for topsoil storage with landowners' permission and appropriate environmental approvals. The **Inspector** will determine if additional erosion control devices are needed in topsoil storage areas. Stabilize topsoil pile and minimize loss due to wind and water erosion with the use of sediment barriers, mulch, temporary seeding, tackifiers, or functional equivalents, where necessary and/or required by environmental permits.

In residential areas, topsoil replacement (i.e., importation of topsoil) is an acceptable alternative to topsoil segregation.

### **3. Erosion Control Devices**

Temporary erosion controls will be installed immediately after or during the initial disturbance of soil. The most effective and versatile erosion control devices are interceptor diversions (temporary slope breakers) and sediment filter devices as illustrated and described in Figures 6A, 6B, 7, 8, 25 and other approved devices. Temporary diversions will be maintained during the construction phase until final diversions are installed. Where required grading has significantly reduced the slope, the Inspector may require fewer temporary diversions consistent with the table on Figure 6.

At a minimum, install and maintain temporary sediment barriers (silt fence, staked hay or straw bales, compacted earth, sand bags, or other appropriate materials) across the entire construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody, wetland, or road crossing until revegetation is successful. Leave adequate room between the base of the slope and the sediment barrier to accommodate ponding of water and sediment disposition.

Direct the outfall of each temporary slope breaker to a stable, well vegetated area or construct an energy-dissipating device at the end of the slope breaker and off the construction right-of-way. Position the outfall of each temporary slope breaker to prevent sediment discharge into wetlands, waterbodies, or other sensitive environmental resource areas. Slope breakers may extend slightly (about 4 feet) beyond the edge of the construction right-of-way to effectively drain water off the disturbed, if the appropriate State or Local governing agency allows this extension.

Sediment barriers may also be necessary and are intended to stop the flow of sediments and to prevent the deposition of sediments beyond approved workspaces or into sensitive resources. At a minimum, install and maintain temporary sediment barriers across the entire construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody, wetland, or road crossing until vegetation is successful. Leave adequate room between

the base of the slope and the sediment barrier to accommodate ponding of water and sediment deposition. Where wetlands or waterbodies are adjacent to and downslope of construction work areas, install sediment barriers along the edge of these areas, as necessary to prevent sediment flow into the wetland or waterbody.

For silt fence installation, the bottom will be buried 4-6 inches deep, backfilled and compacted, with stakes placed 8 feet apart. See Figure 7. Silt fence will be cleaned out when sediment builds up to half its height or maintained/replaced if damaged.

All temporary erosion control devices, including roadside ditches, will be inspected near the end of each work day or after each storm (rain) event of 1/2 inch or greater, to ensure proper functioning. Any devices damaged beyond functioning will be repaired **promptly**.

#### **4. Temporary Road Entrances**

Temporary road entrances will be installed during grading where the construction work area crosses public roads when needed to maintain safe conditions and to prevent tracking soil and mud onto public roads. These installations are designed to remove mud from vehicle tires and tracks before accessing the road. Minimize the use of tracked equipment on public roadways. Geotextile fabric will be used as illustrated in Figures 9, 10 and 11. The roadbed should be cleared of small stubs because these tend to puncture the fabric, thereby allowing fine particles to mix with the gravel. If necessary, up to 6 inches of soil will be removed prior to installation of the temporary road entrance to ensure a hard base for geotextile fabric and rock placement. Geotextile fabric is not required at existing, graveled access road entrances, if gravel is to be left after construction landowner approval is required.

In addition, public roads will be swept, shoveled or scraped as necessary to keep the road surface safe. Any damages to roadway surfaces, shoulders, and bar ditches will be repaired. If the public road is gravel, the temporary entrance is not required to be graveled. Typical erosion control measures at road crossings are illustrated in Figure 12. If no access is required onto the roadway the installation of a construction entrance is not required, however, safety fencing should be installed across the ROW and signs designating "no entrance" can be erected to avoid any unintentional entrances.

#### **E. Access Roads**

Typically, Columbia requires access roads to the construction and staging areas. New access roads will be built only if existing access is inadequate. The access roads will be a maximum 25-foot wide with additional width in tight turns and at intersections with public roads (this additional width must be included in the environmental surveys). The roads will either be temporary (used for access during construction only) or permanent (used during and after construction for

operation and maintenance of the facilities). All public roads are available for use as access roads without further environmental review. However, all private access roads intended for use are subject to environmental reviews. Safe and accessible conditions will be maintained at all roadway crossings and access points during construction and restoration.

If tree clearing is needed for access road use, trees will be felled into the CWA of the access road itself. All trees and brush will be windrowed at the edge of the access road, with usable timber kept separate. Access road gradient will be as flat as local topography will practically allow. By breaking or changing grade frequently, fewer erosion problems will be encountered than on long, straight, continuous gradients. Interceptor diversions and/or other erosion and sediment control devices will be installed as needed. All access roads will be maintained to provide safe access, as well as sediment control.

Roads will cross streams and wetlands as close as possible to right angles. Road gradients approaching these crossings will be flattened to decrease runoff velocity. Runoff will be dispersed just prior to the crossing by means of an interceptor diversion with a sediment filter device at the outlet. Where conditions permit, new roads will be located at least 25 feet from any stream or wetland except at crossing locations. Culverts will be sized and placed to permit water flow under the access road.

After construction, temporary access roads (including any additional width used for construction) will be graded and left intact for the landowner's benefit, or removed and the area restored using the same specifications as applied to the rest of the construction work area.

## **F. Residential Areas**

The following mitigation measures will be implemented for all residences within 50 feet of the construction work area:

- Mature trees and landscaping will not be removed from within the edge of the construction work area unless necessary for safe operation of construction equipment or as specified in landowner agreements;
- Immediately after backfilling the trench, all lawn and landscaping will be restored to final restoration, or temporary restoration pending weather and soil conditions;
- The edge of the construction work area adjacent to the residence will be safety fenced for a distance of 100 feet on either side of the residence to ensure that equipment, materials and spoil remain within the construction work area;
- A minimum of 25 feet will be maintained between the residence and construction work area for a distance of 100 feet on either side of the residence. If the facility must be within 25 feet of a residence, it must be installed such that the trench does not remain open overnight.

If seasonal or weather conditions prevent compliance with these time frames, temporary erosion controls must be monitored and maintained until conditions allow completion of restoration.

## **G. Trenching**

### **1. Trenching Specifications**

Typically, the trench will not remain open for more than 30 days in any area unless authorized by the Inspector (additional restrictions for stream and wetland areas are provided in Section III).

- As the trench is completed, trench line breakers as illustrated in Figure 13 will be installed promptly at every second temporary interceptor diversion at a minimum, or at increased intervals as approved by the Environmental Inspector. Topsoil will not be used to construct the breakers. The breakers reduce water velocity and erosion of the trench bottom. The breakers will be maintained promptly.
- Sediment filter devices will be installed around spoil storage areas before digging bore pits, stream crossings, and as necessary wetland crossings.
- If it is necessary to pump water from the trench or bore pits, the water will be pumped into a heavily vegetated upland area where the water will filter back into the ground, a sediment trap as illustrated in Figure 14A, a sediment filter bag as illustrated in figure 14B, or through a sediment filter device such as a series of terra tubes, filter sock, or flocculent logs at least 10 feet from any stream or wetland in order to minimize erosion and subsequent sedimentation of streams or wetlands. If little vegetation is present, straw bales or filter sock containment will be added around the filter bag for additional sediment control. Water impounded in the trench will not be released directly or by overland flow into any **waterbody** or wetland. Dewater the trench in a manor that does not cause erosion and does not result in heavily silt laden water flowing into a waterbody or wetland.

When the trench must remain open for a greater length of time, appropriate erosion controls and safety measures will be employed as directed by the Inspector.

### **2. Blasting**

All drilling and blasting will be done in a cautious manner, and suitable precautions will be taken to avoid injury or damage to persons, livestock, or other property.

If blasting is necessary within 150 feet of residential or commercial buildings, an independent contractor will be hired to perform pre- and post-blast structural inspections and, if necessary, seismographic monitoring.

In those instances where blasting has the potential to affect water quantity/quality from domestic or agricultural wells or springs in the proximity of the construction work area, Columbia will conduct pre- and post-blasting (within two months of construction work restoration) testing of water wells within an appropriate distance (typically 150 feet) of the pipeline with landowner permission. These tests may include a pump inspection, flow rate, and bacteriological cultures. If a water well is damaged as a result of Columbia's activities, Columbia will provide a temporary source of water and/or compensate the owner.

### **3. Temporary Construction Access over the Trench Line**

Where access across the trench line is required, temporary facilities such as trench plugs and fences, wooden mats or steel plates will be constructed or installed to permit safe crossing of livestock, vehicles, equipment, and persons from one side of the trench to the other.

### **4. Drainage Tile and Irrigation Facilities**

Attempt to locate existing drain tiles and irrigation systems. Columbia personnel will contact landowners and/or the local National Resource Conservation Service (NRCS) to determine the locations of future drain tiles that are likely to be installed within 3 years of the authorized construction, if planned the pipeline will be installed at a sufficient depth to accommodate the drainage tile. For adjacent pipeline loops in agricultural areas, install the new pipeline with at least the same depth of cover as the existing pipeline(s) and within US Department of Transportation (DOT) specifications. Mark locations of drain tiles damaged during construction.

Engage qualified drain tile specialists, as needed to conduct or monitor repairs to drain tile systems affected by construction. Use drain tile specialists from the project area, if available. Drainage tile removed, cut, broke, or otherwise damaged during construction will be repaired or replaced as illustrated in Figure 15. Temporary measures approved by the Inspector will be taken to provide suitable drainage until permanent repairs are made. Repair damaged drain tiles to their original or better condition. Do not use filter-covered drain tiles unless the local soil conservation authorities and landowner agrees.

Water flow will be maintained in crop irrigation systems unless shutoff is coordinated with affected parties.

## **H. Backfilling Specifications**

Backfilling will follow pipe lowering as closely as practical. Topsoil will not be used to pad the pipe. Soil that has been excavated during construction and not used for backfill will be evenly spread over the cleared construction work area or removed from the site and properly disposed. All waste materials such as barrels, cans, drums, stumps, coating and wrap, rubbish, waste, or other refuse will not be placed in the trench.

Trench line barriers as illustrated in Figure 13 will be placed in the trench prior to backfilling to prevent water movement and subsequent erosion. An engineer or similarly qualified professional shall determine the need for and spacing of trench line barriers. Otherwise, trench line barriers shall be installed at the spacing illustrated in Figure 13 and up-slope of any permanent interceptor diversions. Trench line barriers may be constructed of materials such as sand bags or polyurethane foam. Foam barriers can be used if the appropriate State or Local governing agency allows.

Excess rock, including blast rock, may be used to backfill the trench to the top of the existing bedrock profile. Care should be taken to not damage the pipeline.

## **I. Final Grading, Restoration and Stabilization**

After construction activities, all disturbed areas will be stabilized with either (1) final grading and restoration; or (2) **temporary stabilization** measures in order to prevent erosion and sedimentation until final grading and restoration can be completed. If construction or restoration unexpectedly continues into the winter season when conditions could delay successful de-compaction, topsoil replacement, or seeding until the following spring, file with the Secretary for review and written approval of the Director, a winter construction plan. This does not apply to projects constructed under the automatic authorization provisions of FERC's regulation.

### **1. Final Grading**

Final grading will be completed within 20 calendar days of backfilling (10 days in residential areas), weather and soil conditions permitting. Should unsuitable soil conditions persist, or be expected to persist, for more than 20 calendar days (10 days in residential areas), the Inspector will record the conditions and require the installation of temporary stabilization measures, and final grading and restoration will be delayed until conditions allow. In no case shall final grading be delayed beyond the end of the next recommended seeding season.

If final grade can be established, but conditions are not ideal for permanent seeding, the Inspector will specify application of temporary stabilization measures (including temporary seeding), and may also consider concurrent application of final seed mix and mulch as provided in Table 2a or per the local conservation authority. A travel lane may be left open temporarily to allow access by construction traffic if the

temporary erosion control structures are installed, inspected, and maintained. When access is no longer needed, the travel lane must be removed and the right-of-way restored.

Grade the construction right-of-way to restore pre-construction contours.

During final grading, soil over the trench may be mound to allow for future settling. Where fill in the trench or major depressions have settled below ground level, additional fill will be added as needed, and the area brought to final grade. The Inspector may approve a temporary travel lane in the construction work area where needed to facilitate the remainder of construction and/or restoration. This travel lane must be restored when access through the area is no longer required.

Conserved topsoil will be returned during final grading.

Excess rock will be removed from at least the top 12 inches of soil to the extent practicable in all cultivated or rotated agricultural land, hayfields, pastures, residential areas, and other areas at the landowner's request. The size, density and distribution of rock on the construction work area should be similar to adjacent areas not disturbed by construction. The landowner may approve other rock size provisions in writing. Rock that is not returned to the trench is considered construction debris, unless approved for use as mulch or for some other use on the construction work area by the landowner or land managing agency. All construction debris from all work areas must be removed unless the landowner or land managing agency approves leaving materials onsite for beneficial reuse, stabilization, or habitat restoration.

Final erosion control devices including interceptor diversion/slope breakers will be installed during final grading. See Figures 6A and 6B for installation and spacing details. Final diversion will be constructed such that water does not pond in them and is conveyed off the ROW. Sediment filter devices needed to protect off-construction work area resources will be installed or rebuilt promptly after final grading. Final interceptor diversions will not be installed in agricultural or pasture land without landowner's consent.

## **2. Soil Compaction Testing**

Test topsoil and subsoil for compaction at regular intervals in agricultural and residential areas disturbed by construction activities. Conduct tests on the same soil type under similar moisture conditions in undisturbed areas to identify approximate preconstruction conditions. Use U.S. Army Corps of Engineers-style cone penetrometers or other appropriate devices to conduct tests.

Plow severely compacted agricultural areas with a paraplow or other deep tillage implement. In areas where topsoil has been segregated, plow the subsoil before replacing the segregated topsoil. Alternatively,

make arrangements with the landowner to plant and plow under a "green manure" crop, such as alfalfa, to decrease soil bulk density and improve soil structure. If subsequent construction and cleanup activities result in further compaction, conduct additional tilling.

Perform appropriate soil compaction mitigation in severely compacted residential areas.

### 3. Restoration

Restoration as defined in Definition of Terms – Section VIII, will begin within 6 days of final grading, weather and soil conditions permitting. Fertilizer and lime will be disked into the soil (except rocky soils) to a depth of 3 to 4 inches to prepare a seedbed. In rocky soils, fertilizer and lime may be incorporated into the soil with tracked equipment. Seeding and mulching the construction work area will promptly follow seedbed preparation. Ensure that mulch is adequately anchored to minimize loss due to wind and water. Mulch tackifiers used in accordance with the manufacturers recommendations may be used as an alternative. Do not use liquid mulch binders within 100 feet of wetlands or waterbodies.

The typical application rates for lime, fertilizer, seed and mulch are listed in Table 2a. They will be used unless the ROW agreement, permit or local NRCS provides project-specific recommendations. If Tall Fescue is used, plant endophyte free certified seed. If mulching before seeding, increase mulch application on all slopes within 100 feet of waterbodies and wetlands to a rate of 3 tons/acre of straw or equivalent.

If hydroseeding is utilized, lime and fertilizer applications should be equivalent to Table 2a unless ROW agreement, permit or the local NRCS provides project specific recommendations. Hay or straw mulch shall be applied in accordance with Table 2a over hydroseeding. Hydromulch can be used in conjunction with (for texture purposes) but not substituted for hay or straw mulch. **Scarify** the seedbed to facilitate lodging and germination of seed.

Uniformly apply and cover seed in accordance with the written recommendations of the local soil conservation authorities or land management agencies.

Base seeding rates on Pure Live Seed. Use seed within 12 months of seed testing. Treat legume seed with an inoculate specific to the species using the manufacturer's recommended rate of inoculant appropriate for the seeding method. If the above recommendations are not available for conventional seeding, use 4 times the manufactures recommended rate of inoculate. For hydroseeding, use 10 times the recommended rate of inoculate.

In the absence of recommendations from the local conservation authority, a seed drill equipped with a cultipacker is preferred for application, but

broadcast or hydroseeding can be used at double the seeding rates shown in Table 2a. Where seed is broadcast, firm the seedbed with a cultipacker, roller or other suitable means after seeding. In rocky soils or where site conditions may limit the effectiveness of this equipment, other alternatives may be approved by the environmental inspector.

Restoration will not be performed in agricultural lands from the beginning of the spring thaw through May 15 unless requested by the landowner. Restoration will be coordinated with the landowner's planting schedule. Grazing deferment plans will be developed with willing landowners, grazing permittees, and land management agencies as appropriate to minimize grazing disturbance of revegetation efforts.

Permanent seeding, liming, and fertilizing may be performed by the landowner. The Inspector will ensure that the restoration is satisfactory and consistent with the regulatory requirements.

Restore all turf, ornamental shrubs, and specialized landscaping in accordance with the landowner's request, or compensate the landowner. Restoration work must be performed by personnel familiar with local horticultural and turf establishment practices.

Jute netting as illustrated in Figure 16 or equivalent approved by the Inspector may be used on **steep slopes** to help stabilize the slope. Do not use coconut fiber erosion control blanket/netting.

Restoration shall be considered successful if the right-of-way surface condition is similar to adjacent undisturbed lands, construction debris is removed (unless requested otherwise by the landowner or land managing agency), revegetation is successful, and proper drainage has been restored.

Synthetic monofilament mesh/netted erosion control materials in areas designated as sensitive wildlife habitat, unless the product is specifically designed to minimize harm to wildlife. Anchor erosion control fabric with staples or other appropriate devices.

Revegetation in non-agricultural areas shall be considered successful if upon visual survey the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands. In agricultural areas, revegetation shall be considered successful if crop yields are similar to adjacent undisturbed portions of the same field, unless the easement agreement specifies otherwise.

#### **4. Temporary Stabilization**

When the Inspector determines that temporary stabilization measures are required, they will be completed as soon as possible. The seeding and mulching rates are provided in Table 2b. Consideration will be given to

the following when determining if temporary stabilization measures are to be implemented:

- if final grading and installation of permanent interceptor diversions or slope breakers will not be completed in an area within 20 days after the trench in that area is backfilled (10 days in residential areas);
- anticipated weather conditions; and
- resources on and off the construction work area to be protected.
- Construction or restoration activity is interrupted for extended periods.

If temporary stabilization measures are utilized, final grading and/or restoration must commence once weather and soil conditions permit.

Apply mulch in accordance with the specifications outlined in this section however, during temporary restoration; increase mulch application on all slopes (8 percent or more) within 100 feet of waterbodies and wetlands to a rate of 6,000 lbs/acre (3 tons).

#### **5. Restoring Man-Made Structures**

All existing man-made installations that are disturbed or damaged during construction along new ROW will be repaired or replaced and left in equivalent or better condition than they were found prior to construction, unless alternative arrangements with landowners dictate otherwise.

Man-made installations on existing ROW that are disturbed or damaged during construction will be addressed consistent with Columbia's encroachment policy.

#### **6. Off-Road Vehicle (ORV) Control**

Columbia will discuss with each landowner and park manager along new ROW (not adjacent to existing ROW) in forest lands the need for ORV control. If requested, one or more of the following ORV control measures will be installed:

- Plant conifers (pine trees) across the construction work area. The spacing of trees and length of construction work area planted should provide for adequate facility maintenance, but should be sufficient to limit access and to screen the ROW from view. Trees will not be planted directly over the pipeline.
- Install a slash and timber barrier, a pipe barrier, or a line of boulders across the construction work area to restrict vehicle access.

- Install a locking gate with fencing extending a reasonable distance to prevent bypass.
- Install “No Trespass” signs.

#### **J. Noise Impact Mitigation and Dust Control**

Construction equipment will be properly muffled and maintained to avoid producing excessive noise near **noise sensitive areas**.

Efforts will be made to control dust at sensitive areas such as residential areas and road crossings. Water trucks will be used at a minimum to dampen the work area if dust becomes a problem.

#### **K. Hydrostatic Testing**

Typically, Columbia verifies a facility’s integrity by hydrostatic testing. Water can be drawn from local sources (streams, ponds, public water supplies) and in a manner that will minimize impacts to the environment and other existing users, while maintaining adequate stream flow. Water from state designed *high quality streams* or *exceptional value waters*, waterbodies which provide habitat for federally listed threatened or endangered species, or streams utilized as public water supplies will not be used unless other water sources are not readily available and the appropriate federal, state or local agency permits its use.

Intake hoses will be screened.

Locate hydrostatic test manifolds outside wetlands and riparian areas to the maximum extent practicable.

All required federal, state and local approvals for the withdrawal and/or discharge of hydrostatic test water will be obtained prior to such activities.

Maintain adequate flow rates to protect aquatic life and provide water for downstream withdrawals by existing users.

Comply with all approval/permit conditions which may include notifying the appropriate state agency of withdraw/discharge, collection of samples in accordance with permit conditions where required, and discharging in a manner to meet all discharge parameters where required.

All welds will be radiographically inspected or hydrostatically tested before pipe installation under waterbodies or wetlands.

The discharge of the hydrostatic test water will be performed in a manner that minimizes erosion. The energy of the released test water will be dissipated by discharging the water:

- into a well-vegetated upland area;

- into a tank(s)
- into a body of water (with all required permits and meeting all conditions);  
or
- through sediment filter devices or a sediment trap to filter out various particulate matter or allow it to infiltrate through the soil.

If necessary, regulate the water discharge rate, use energy dissipation device(s); and/or install sediment barriers to prevent erosion, scour, suspension of sediments, or excessive streamflow. During the discharge, the Inspector must ensure that erosion and sedimentation are properly controlled.

Do not discharge into waters from state designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or streams utilized as public water supplies unless the appropriate federal, state or local agency grants permission.

Methanol may be injected, after discharging the water, to dry the pipe. Excess methanol will be retrieved from the facility and used during subsequent operation of Columbia's facilities.

This guidance is for hydrostatic testing of new pipe. Permitting requirements associated with hydrostatic testing of used pipe can be extensive. Contact the NRP Group prior to testing any used pipe.

## **L. POST-CONSTRUCTION ACTIVITIES AND REPORTING**

Follow up inspections must be conducted of all disturbed areas, as necessary, to determine the success of re-vegetation and address landowner concerns. At a minimum, follow up inspections must be conducted after the first and second growing seasons. If re-vegetation is unsuccessful, continue re-vegetation efforts until adequately restored.

Quarterly reports must be filed with the Secretary documenting the results of follow up inspections; any problem areas, including those identified by the landowner; and corrective actions taken for at least 2 years following construction. This does not apply to projects construction under automatic authorization, prior notice, or advanced notification provisions in the FERC's regulations.

### III. STREAM AND WETLAND CROSSINGS

#### A. Stream Crossings

##### 1. General

The main objective of any waterbody crossing is to construct the pipeline in a manner, which minimizes erosion and subsequent sedimentation into the waterbody. Crossings will be constructed as close as possible to right angles with the waterbody channel. Adequate downstream flow rates will be maintained at all times to protect aquatic life and prevent the interruption of existing downstream uses. Each waterbody crossing will be treated as a separate construction entity, such that trenching, pipe installation, backfilling and temporary stabilization or final restoration are completed in the minimum number of consecutive calendar days possible.

Whenever a time limit is imposed on a crossing procedure, that time limit is only applicable to trenching (except blasting), lowering in, and backfilling. Clearing, grading and equipment crossing installation and removal activities are not included as part of the separate construction entity. Construction equipment will not be allowed in the water except as provided in this Section.

Unless expressly permitted or further restricted by the appropriate federal or state agency in writing on a site-specific basis, in-stream work, except that required to install or remove equipment bridges, must occur during the following time windows:

- Coldwater Fisheries - June 1 through September 30
- Coolwater and Warmwater Fisheries - June 1 through November 30

Columbia will notify in writing authorities responsible for potable water supply intakes located within 3 miles downstream, at least one week before beginning work in the waterbody, or as required by state or local regulation.

When water levels are temporarily high, the Inspector will direct that starting any waterbody crossing be postponed until water levels subside.

Any extra work areas will be located at least 50 feet away from the water's edge, except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land. Where topographic conditions do not permit a fifty-foot setback, contact the Natural Resources Permitting group for approval. All extra work areas must be located at least 10 feet from the water's edge and limited to the size needed to construct the crossing. Pipe assembly for the waterbody crossing is usually performed in the extra work areas prior to or concurrently with trenching.

Standards relating to spill prevention at waterbodies are contained in Section IV, "Spill Prevention".

If the facility parallels a waterbody, attempt to maintain at least 15 feet of undisturbed vegetation between the waterbody and the right-of-way except at the crossing location. Where waterbodies are adjacent to the construction right-of-way, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil and sediment within the right-of-way.

Waterbody buffers (extra work area setbacks, refueling restrictions, etc.) must be clearly marked in the field with signs and/or highly visible flagging until construction related ground disturbing activities are completed.

## 2. Crossing Techniques

Columbia typically utilizes either the dry-ditch (flume pipe) wet-ditch; or Dam and Pump techniques to install pipelines across waterbodies. Figures 18, 19 and 20 illustrate these methods. **Upland construction** techniques may be used for **intermittent waterbody** crossings without perceptible flow at the time of the crossing, provided that a culvert is **promptly** installed to carry stormwater flow across the trench area and the erosion and sediment control devices illustrated in Figure 17 are installed.

### a) Minor Waterbodies

Minor waterbodies will be considered those which are 10 feet wide or smaller, at the top of bank. For crossings of coldwater fisheries and coolwater and warmwater fisheries considered significant by the state, install the pipeline using the dry-ditch method or Dam and Pump method, unless approved otherwise in writing by the appropriate state agency.

For other **minor waterbody** crossings, complete instream construction in the waterbody using the wet-ditch method within 24 hours (except for blasting and pneumatic chipping; see Section III.6.). Limit use of equipment operating in the waterbody to that needed to construct the crossing. Wet-ditch method will only be used if approved.

### b) Intermediate Waterbodies

Intermediate waterbodies will be considered those which are 10-100 feet wide, at the top of bank. The wet-ditch method can be used for **intermediate waterbody** crossings, where approved. Only the equipment necessary for excavating the trench, lowering-in the pipe, and backfilling the trench is allowed in the waterbody. Columbia will attempt to complete trenching and backfill work in

the waterbody within 48 hours, unless site-specific conditions make completion within 48 hours infeasible.

For crossings of coldwater fisheries, coolwater fisheries, and warmwater fisheries considered significant by the state which are 10 to 30 feet in width, install the pipeline using the dry-ditch method or Dam and Pump method, unless approved otherwise in writing by the appropriate state agency.

**c) Major Waterbodies**

Major waterbodies will be considered those which are 100ft wide or larger, at the top of bank. Major waterbodies could also include waterbodies that are smaller, if there are special conditions that warrant a site-specific plan be created, such as threatened or endangered species habitat, stream classification, or other factors.

Due to their sensitive nature, **major waterbody** crossings will have site-specific construction plans approved by the Natural Resource Permitting group. Horizontal Directional Drilling may be considered as an alternative for these crossings.

**3. Equipment Bridges**

Only clearing equipment and equipment necessary for installation of equipment bridges may cross waterbodies prior to bridge installation. Limit the number of such crossings of each waterbody to one per piece of equipment. Equipment bridges will be constructed to allow unrestricted flow and to prevent soil from entering the waterbody. See Figures 21 and 22. Soil cannot be used to construct or stabilize equipment bridges. If timber mats are used as equipment bridges, the mats must be in good condition, with no large holes that could allow sediment to enter the waterbody.

Equipment bridges must be able to withstand and pass the highest flow expected to occur while the bridge is in place. Align culverts to prevent bank erosion and streambed scour.

Temporary equipment bridges must be removed as soon as practicable after permanent seeding. If there will be more than 1 month between final cleanup and the beginning of permanent seeding and reasonable alternative access to the right-of-way is available, remove temporary equipment bridges as soon as practicable after final cleanup.

**4. Clearing**

Tree and brush clearing will be performed as previously described in Section II, "Upland Construction". All cleared materials will be disposed of at least 50 feet from the water's edge.

## **5. Grading**

Grading equipment will not enter the water to grade the banks. Waterbody banks will be graded only where, and as much as, necessary to permit safe and efficient operation of construction equipment. During grading operations, sediment filter devices will be installed across the entire construction right-of-way promptly and as close to the water as practical. Removable sediment filter devices must be installed across the travel lane. These removable sediment filter devices, if removed during the day, must be re-installed by the end of the work day or when heavy precipitation is imminent. All disturbed areas within 50 feet of the water's edge will be promptly mulched. The mulch will be maintained until the waterbody crossing restoration is complete. Spoil from grading will be piled at least 10 feet from the stream banks and immediately protected with sediment filter devices so that it will not erode into the waterbody. On waterbody crossings with approaches sloped 5 percent or greater, interceptor diversions will be installed 50 feet from the water's edge to divert surface runoff into adjacent vegetation. If vegetation is sparse or nonexistent, a sediment filter device will be installed at the discharge of the diversion. Install a sediment filter device across the entire construction right-of-way at the base of slopes 5 percent or greater where the base of the slope is less than 50 feet from a stream. Leave adequate room between the sediment filter device and base of the slope for sediment deposition.

Construction equipment bridges consisting of culvert(s) with clean rock fill of non-erodable material or equipment pads as illustrated in Figures 21 and 22 will be installed during grading operations at all waterbodies. For proper culvert installation, the Inspector may permit grading/excavating equipment to enter the water. Equipment bridges are not required at minor waterbodies that do not have a state-designed fishery classification (for example, agricultural or intermittent drainage ditches). However, if an equipment bridge is used, it must be constructed in accordance with this ECS. Construct equipment bridges to maintain unrestricted flow and to prevent soil from entering the stream.

## **6. Trenching**

Notifications to applicable jurisdictional agencies will be made at least 2 days prior to any trenching in waterbodies, or as specified in permits

Prior to trenching within the waterbody, water impounded in the upland trench will be pumped into a sediment trap (Figure 14A) and/or properly installed filter bag (Figure 14B) and/or a series of terra tubes, sediment logs or flocculent logs, or a heavily vegetated upland area where the water can filter back into the ground. Prevent the flow of spoil or heavily silt-laden water into any waterbody. If little vegetation is present, add a straw bale or filter sock containment around the filter bag for additional sediment control.

Sediment filter devices for trench spoil will be installed prior to commencing trenching activities. Sediment filter devices can be temporarily removed from the trench line only to allow trenching activities to proceed.

All spoil from minor and intermediate waterbody crossings, and upland spoil from major waterbody crossings, must be placed in the construction ROW at least 10 feet from the water's edge or in additional extra work areas.

For all new construction activities, the minimum depth of cover for all waterbody crossings is 48 inches in normal soils and 24 inches in consolidated rock.

Trench plugs will be used at all non-flumed waterbody crossings to prevent diversion of water into upland portions of the pipeline trench and to keep any accumulated trench water out of the waterbody. Trench plugs must be of sufficient size to withstand upslope water pressure.

For dry ditch method crossings, use sand bag or sand bag and plastic sheeting diversion structure or equivalent to develop an effective seal and to divert stream flow through the flume pipe (some modifications to the stream bottom may be required in to achieve an effective seal). In addition, do not remove flume pipe during trenching, pipelaying, or backfilling activities, or initial streambed restoration efforts.

## **7. Blasting**

During the pre-planning of waterbody crossings, an evaluation will be made concerning the need for blasting. If the evaluation is inconclusive, the waterbody bed will be tested for consolidated rock prior to trenching. Blasting will not be done within waterbody channels without prior approval from applicable government authorities having jurisdiction and at least 2-day notice to the authority, or as specified in permits

If the waterbody bottom is consolidated rock, it can be drilled and shot at any time prior to commencing the crossing. However, removal of shot rock, and any additional drilling, shooting and material removal, must be completed within the minimum number of consecutive calendar days practical. The time frame for completing the crossing will immediately commence once a trench of appropriate dimensions is established.

## **8. Backfilling**

Waterbody bottoms will be returned as near as practical to their original contours. Spoil from the trench will be used as backfill. Clean gravel or native cobbles will be used for the final one-foot of fill in the backfilled trench in all coldwater fisheries.

The sediment filter devices removed at the stream will be promptly reinstalled after backfilling.

## **9. Restoration**

The preferred restoration method is to achieve final grade and restore the waterbody, its banks, and 50-foot buffers within 24 hours of backfilling. In the absence of site-specific seeding recommendations, the specifications listed in Table 2a will be used. If conditions do not permit the preferred method, the construction work area not in use for access will be promptly rough graded and stabilized in accordance with Table 2b.

Stabilize waterbody banks and install permanent sediment barriers/sediment filter devices within 24 hours of completing the crossing. For dry-ditch crossings, complete streambed and bank stabilization before returning flow to the waterbody channel.

Liquid mulch binders will not be used within 100 feet of waterbodies.

For each waterbody crossed, install a permanent interceptor diversion/slope breaker and a trench breaker at the base of slopes near the waterbody. Locate the trench breaker immediately upslope of the interceptor diversion/slope breaker. In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the waterbody.

All equipment bridges will be removed once access in the area is no longer required.

Return all waterbody banks to preconstruction contours or to a stable angle of repose as approved by the Environmental Inspector. If the waterbody banks are such that an unstable final soil grade would result and vegetative stabilization is inadequate, the Inspector will require mechanical stabilization of the waterbody banks. Mechanical stabilization includes riprap, gabions, jute netting, etc.

Unless otherwise specified by state permit, limit the use of riprap to areas where flow conditions preclude effective vegetative stabilization techniques, such as seeded erosion control fabric.

Revegetate disturbed riparian areas with conservation grasses and legumes or native plant species, preferably woody species.

Application of riprap must comply with the US Army Corps of Engineers, or its delegated agency, permit terms and conditions. In general, riprap will be of field or quarry run stone, which is hard and durable. The riprap will be large enough to prevent normal waterbody current from moving it, typically 6-inch rock for slow moving waterbodies and 12 inch or larger rock for others. The riprap will be placed at least 18 inches thick and

generally thicker at the base. The riprap slope will be no steeper than 1:1 and should conform with the remainder of the waterbody bank slopes where they are flatter than 1:1.

Install erosion control fabric, Figure 16, such as jute netting or bonded fiber blankets at a minimum, on waterbody banks at the time of final bank re-contouring. Synthetic monofilament mesh/netted erosion control blanket cannot be used in areas designated as sensitive wildlife habitat unless the product is specifically designed to minimize harm to wildlife. Anchor the erosion control fabric with staples or other appropriate devices.

Sediment filter devices will be removed once permanent revegetation is successful.

## **B. Wetland Crossings**

### **1. General**

The main objective of any wetland crossing is to construct the pipeline and restore the original contour of the wetland. Wetlands will be clearly marked in the field by a knowledgeable person prior to the start of construction with signs and/or highly visible flagging until construction is complete. The Inspector will maintain these field markings during construction. A maximum 75-foot wide construction work area may be used through wetlands.

Mulch will not be used as a temporary erosion control measure in wetlands.

Aboveground facilities will not be located in any wetland, except where the location of such facilities outside of wetlands would prohibit compliance with US DOT regulations.

When water levels are temporarily high, the Environmental Inspector will direct that starting construction in the wetland will be postponed until after the water levels subside.

Standards relating to spill prevention at wetlands are contained in Section IV, "Spill Prevention".

### **2. Crossing Techniques**

For wetland crossings without standing water or saturated soils, upland construction techniques can be used provided the top 12 inches of soil taken from the trench is stockpiled separately from the remaining excavated material. The construction right-of-way may be used for access when the wetland soil is firm enough to avoid rutting or the construction right-of-way has been appropriately stabilized to avoid rutting (e.g., with timber matting, prefabricated equipment mats, or terra mats), In

wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas. Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way.

Wetland crossings in non-saturated soil wetlands will be constructed in a manner that will minimize the amount of time construction activities are occurring in the wetland, such as the length of time the topsoil is segregated and the trench is open.

Wetland crossings with standing water or saturated soils will be constructed as separate construction entities, such that trenching, pipe installation, backfilling, and restoration are completed in the minimum number of consecutive calendar days necessary. Clearing, grading and equipment crossing installations are not included as part of the separate construction entity. The "push-pull" or "float" technique of pipe installation will be utilized whenever water and other site conditions permit. Assemble the pipeline in an upland area unless the wetland is dry enough to adequately support skids and pipe.

If standing water or saturated soils are present or if construction equipment causes ruts or mixing of the topsoil and subsoil, use **low-ground-weight** construction equipment, or operate normal equipment on timber matting (only 2 layers), prefabricated equipment mats or terra mats. Timber matting must be in good conditions and not have large holes in it where sediment could enter the wetland. Tree stumps, rock, gravel, soil imported from outside the wetland or brush will not be used to stabilize the construction work area or as equipment pads in wetlands. Remove all equipment mats, and timber matting during restoration of the wetland.

Staging areas will be located at least 50 feet from the wetland edge except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land and will be limited to the minimum necessary to construct the crossing. If topographic conditions do not permit a 50-foot setback, these areas must be located at least 10 feet from the wetland's edge with prior approval from the Natural Resources Permitting group.

The only access roads, other than the construction work area, that can be used in wetlands without FERC approval are those existing roads that can be used with no modification and no impact on the wetland.

Limit construction equipment operating in wetland areas to that needed to clear the construction work area, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the ROW. All other construction equipment shall use access roads located in upland areas to the maximum extent practicable. Where access roads in upland areas do not

provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction work area.

A typical wetland crossing is illustrated in Figure 23.

### **3. Clearing**

Tree and brush clearing will be performed as previously described in Section II, "Upland Construction". Cut vegetation off just above ground level, leaving existing root systems in place, and remove (vegetation) from the wetland for disposal.

### **4. Grading**

Grading in wetlands will consist of the minimum necessary for safe and efficient equipment operation. Limit pulling of tree stumps and grading activities to directly over the trench line. Do not grade or remove stumps or root systems from the rest of the construction work area in wetlands unless the Chief Inspector and Environmental Inspector determine that safety-related construction constraints require removal of tree stumps from under the working side of the construction work area. Areas where stumps are removed will be noted by the Inspector so, if necessary, those areas can be replanted with woody vegetation as described in wetland restoration.

Where wetlands are adjacent to the construction right-of-way and the right-of-way slopes toward the wetland, install sediment barriers along the edge of the construction work area as necessary to prevent sediment flow into the wetland. Remove these sediment barriers after successful restoration has occurred.

Sediment filter devices will be installed promptly across the construction work area during grading at any wetland edge and maintained until construction work area revegetation is complete. Temporary interceptor diversions will be installed adjacent to wetlands. Locations for these devices are illustrated in Figure 23.

### **5. Trenching**

Sediment filter devices can be temporarily removed from the trench line to allow trenching activities to proceed. Spoil piles will be protected with sediment filter devices, if determined necessary by the Inspector, to prevent the flow of spoil off the construction work area.

### **6. Blasting**

During the pre-planning of crossing wetlands with standing water or saturated soils, an evaluation will be made concerning the need for blasting. If the evaluation is inconclusive, the wetland will be tested for

consolidated rock prior to trenching. If the wetland has consolidated rock, it must be drilled and shot as part of the single construction entity.

## **7. Backfilling**

If trench dewatering is required, the water will be filtered and discharged through a sediment trap (Figure 14A) and/or filter bag (Figure 14B) and/or a series of terra tubes, sediment logs or flocculent logs or into a heavily vegetated area outside the wetland (where the water will filter back into the ground), so that no heavily silt-laden water enters directly into a wetland or waterbody. Remove any dewatering structure as soon as possible after the completion of dewatering activities. Spoil from the trench will be used as backfill. The surface will be recontoured as closely as practical to the original condition so that drainage patterns will not be changed. The conserved topsoil layer will be returned to the surface after backfilling.

Sediment filter devices will be promptly installed after backfilling.

Where the pipeline trench may drain a wetland, construct trench line barriers and/or seal the trench bottom as necessary to maintain the original wetland hydrology. For each wetland crossed, install a permanent interceptor diversion and trench line barriers at the base of slopes near the boundary between the wetland and adjacent upland areas. Locate the trench line barriers immediately upslope of the interceptor diversion.

Concrete coating activities will not take place within 100 feet of any wetland.

## **8. Restoration**

For each wetland crossed, install a trench breaker at the base of slopes near the boundary between the wetland and adjacent upland areas. Install a permanent slope breaker/interceptor diversion across the construction right-of-way at the base of a slope greater than 5 percent where the base of the slope is less than 50 feet from the wetland, or as needed to prevent sediment transport into the wetland. In addition, install sediment barriers/sediment filter devices as shown in Figure 23. In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the wetland.

Consult with the appropriate land management or state agency to develop a project-specific wetland restoration plan. The restoration plan should include measures for re-establishing herbaceous and/or woody species, controlling the invasion and spread of undesirable exotic species (e.g., purple loosestrife and phragmites), and monitoring the success of the revegetation and weed control efforts.

Upon completion of construction in wetland areas with standing water or saturated soils, all access improvements will be promptly removed. In the absence of specific recommendations from conservation authorities, the seed mix and rate specified in Table 2c will be used. Fertilizer, lime or mulch will not be used, unless required in writing by a jurisdictional agency.

Fertilizer, lime, or mulch will not be used in wetlands unless required in writing by the appropriate federal or state agency. Asphaltic emulsions will not be used to stabilize mulch within 100 feet of wetlands. Liquid mulch binders will not be used within 100 feet of wetlands.

#### **IV. SPILL PREVENTION, CONTAINMENT AND CONTROL**

##### **A. General**

Spills of any amount of petroleum products or polluting materials are to be prevented. All employees handling fuels and other hazardous materials must be properly trained. All equipment must be in good operating order. Fuel trucks transporting fuel to on-site equipment must travel on approved access roads. The following will be followed to help avoid spills and minimize the impact of spills, which accidentally occur:

- Bulk quantities up to 5,000 gallons of diesel fuel and 5,000 gallons of gasoline will be stored in one location (the fuel depot) for the Project. Adequate spill containment measures, such as containment dikes, combined with impervious lining will be installed before fuel storage tanks are filled, and will be maintained throughout the Project. Bulk quantities of hazardous liquids (e.g., solvents and lubricants) will be stored at the fuel depot locations.
- Fuel can be stored at the equipment staging areas and as much equipment as practical will be refueled there. Any equipment that must be refueled in the field will be fueled from tanks carried to the work site. Fuel carriers (greater than 110 gallons capacity) will not be permitted to cross wetlands or ford waterbodies. Equipment refueling will not be performed within 100 feet of any body of water or wetland except by hand-carried cans (5 gallon maximum capacity) when necessary. If construction equipment must be refueled within 100 feet of a waterbody, follow the procedures outlined in the project-specific SPCC Plan. Care will be taken during refueling not to overfill or spill fuel onto the housing of equipment.
- Lesser quantities of fuel (up to 500 gallons) and solvents and lubricants (e.g., motor oils, hydraulic fluid) may be stored along the construction work area as necessary to service equipment used on the Project (quantities vary depending on the size of the construction spread being used), provided that this storage does not conflict with other parts of this

plan. Sorbent booms and clean-up kits will be kept at all storage locations and will be readily available at all times.

- All fuel storage areas will be located at least 100 feet from streams, ponds, or wetlands; at least 200 feet from active private water wells, and at least 400 feet from municipal water wells, unless using an operational fuel storage area established on Columbia property. All fuel storage areas will not be located within any designated municipal watershed area (except at locations designated for these purposes by an appropriate governmental authority): Equipment servicing, lubricating and refueling will also be in accordance with these requirements whenever possible (i.e., except when stationary equipment such as drilling rigs is being used). Where these conditions cannot be met, the Environmental Inspector will prepare a supplemental SPCC plan, based on field conditions, to protect these resources.
- Use of hazardous materials for vehicle maintenance will follow the same requirements mentioned above for equipment refueling. Impervious or sorbent materials will be placed under the work area before the work begins. Additional sorbent materials will also be readily available. Waste materials created during maintenance (e.g., used oil) will be collected for proper disposal. The work site and the vehicle will be checked by a Columbia inspector after the maintenance work is complete to ensure that all hazardous materials are properly contained. All waste material, including partially used or empty containers, discarded parts, clean up rags, and used sorbent materials, as well as discarded hazardous materials containers (e.g., oil cans, grease tubes), will be collected for proper disposal.
- All motor fuel, lube oil, chemicals, and other polluting substances will be tightly sealed and clearly labeled during transportation and storage.
- Fuel trucks, pumps, mechanics' vehicles, the contractor's foremen's vehicles and Columbia Inspectors' vehicles, and each construction crew will be equipped with appropriate sized spill kits containing absorbent materials approved for petroleum products and have sufficient tools and material to stop leaks.
- Construction equipment will not be washed in any body of water or wetland, nor will runoff resulting from washing operations be permitted to directly enter any body of water or wetland area.
- Construction equipment, vehicles, materials, hazardous materials, chemicals, fuels, lubricating oils, and petroleum products will not be parked, stored, or serviced within 100 feet of all bodies of water and wetlands. These activities can occur closer if the Environmental Inspector determines there are no reasonable alternatives and appropriate steps are taken to prevent spills and provide prompt cleanup in the event of a spill.

- Pumps operating within 100 feet of a waterbody or wetland boundary must utilize appropriate secondary containment systems.
- Concrete coating activities cannot be performed within 100 feet of a wetland or waterbody boundary, unless the location is an existing industrial site designated for such use. These activities can occur closer only if the Environmental Inspector determines there is no reasonable alternative and appropriate steps (including secondary containment structures) are used to prevent spills and provide for prompt cleanup in the event of a spill.
- All equipment will be checked, by a Columbia inspector, daily for leaks prior to beginning work in bodies of water or wetlands. Steps will be taken to repair leaks or remove the equipment from service, if necessary.

If barge mounted equipment is to be employed, the contractor will develop specific spill-prevention plans to be reviewed and approved by Natural Resource Permitting group.

## **B. Spill Cleanup**

Spills occurring during construction, operation and maintenance are to be reported immediately to the Monitoring Center at 1-800-835-7191 in accordance with Columbia policies, plans and procedures (Plan Number 120.02.01). Columbia's Environmental Health and Safety department will be responsible for contacting the appropriate agencies, except as provided for below.

If the call to the Monitoring Center is not returned within 30 minutes and the spill has impacted water, the person discovering the spill or release will contact the National Response Center at 1-800-424-8802 and report the release. That person will continue calling the Monitoring Center until a representative is reached.

If a spill should occur, Columbia will ensure immediate action is taken to minimize the impact of the spill, and see that appropriate cleanup action is immediately undertaken.

In the event of a spill into or in the vicinity of bodies of water or wetlands, the following will occur immediately:

- the source will be immediately stopped;
- the spill will be contained by placing sorbing booms or constructing dikes;
- the spill will be collected with sorbing materials, skimmed off water surfaces with booms, and/or the contaminated soil will be excavated;
- the waste materials will be properly stored and disposed in accordance with Columbia policy.

The affected areas will be restored as closely as possible to their previous condition.

If the spill is such that Columbia personnel or the on-site contractor cannot immediately and effectively respond, Columbia's environmental contractor, who specializes in spill cleanup, will be employed.

## **V. MAINTENANCE**

### **A. General**

Maintenance of Columbia's ROWs is an ongoing process, which is governed by Columbia policy, certificate and permit conditions and landowner agreements. Full width vegetation maintenance clearing shall not be done more frequently than every 3 years. However, to facilitate periodic corrosion and leak surveys, a corridor not exceeding 10 feet in width centered on the pipeline may be maintained annually in a herbaceous state. In no case shall full width vegetation maintenance clearing occur between April 15 and August 1 of any year.

Maintenance activities will be performed with emphasis on preservation and enhancement of the environment. All applicable certificate and permit conditions will be incorporated into the future maintenance plan of the facility.

Specific procedures when required by regulations will be developed in coordination with the appropriate agency to prevent the introduction or spread of noxious weeds and soil pests resulting from construction and restoration activities.

### **B. Upland Areas**

Plant growth on the ROW will be inspected regularly and maintained for the life of the facility. Follow-up inspections will occur after the first and second growing season.

Revegetation in non-agricultural areas shall be considered successful if upon visual survey the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands. In agricultural areas, revegetation shall be considered successful if crop yields are similar to adjacent undisturbed portions of the same field.

Continue revegetation efforts until revegetation is successful.

Monitor and correct problems with drainage and irrigation systems resulting from pipeline construction in active agricultural areas until restoration is successful.

ROW are generally maintained by mowing or other mechanical means, and through the use of herbicides. Use of herbicides will follow Columbia policy.

Only those herbicides approved by the EPA will be used. Herbicide use will be in accordance with existing regulations and label instructions.

If revegetation is not successful, the area will be restored as soon as practical.

Problems with drainage and irrigation systems resulting from construction activities will be reported to the local Operations Team Leader. Corrective measures will be performed as needed.

Erosion problems on the facility ROW and access roads will be reported to the local Operations Team Leader or the Natural Resource Permitting group. Corrective measures will be performed as needed. Erosion control devices that are no longer required must be removed. Removal of the erosion control devices will be at the discretion of the local Operations Team Leader and the Engineering & Construction department. Similarly, additional erosion control devices will be installed as required.

Maintain all temporary sediment barriers in place until permanent revegetation measures are successful or the upland areas adjacent to wetlands, waterbodies, or roads are stabilized. Remove temporary sediment barriers from an area once that area is successfully restored.

Efforts to control unauthorized off-road vehicle use, in cooperation with the landowner, shall continue throughout the life of the project. Maintain signs, gates, and vehicle trails as necessary.

### **C. Waterbodies, Wetlands, and Environmentally Sensitive Areas**

Columbia will work cooperatively with appropriate government agencies in an effort to minimize the impacts of ROW maintenance in waterbodies, wetlands, and other environmentally sensitive areas.

Limit vegetation maintenance adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, to grow. Figure 24 illustrates ROW maintenance standards near waterbodies.

Do not use herbicides or pesticides in or within 100 feet of a waterbody or wetland except as specified by the appropriate land management or state agency.

In wetlands, a corridor up to 10 feet wide centered on the pipeline will be maintained in a herbaceous state. In addition, trees that are located within 15 feet of the pipeline and greater than 15 feet tall may be selectively cut. All felled trees will be removed from the wetland.

Attempts will be made to prevent the invasion or spread of undesirable exotic vegetation (i.e., purple loosestrife and phragmites) within wetland areas disturbed during construction. Typically, these efforts include Columbia's wetland construction techniques and the use of approved herbicides.

Monitor the success of wetland revegetation annually for the first 3 years after construction or until wetland revegetation is successful. Revegetation should be considered successful if the cover of native herbaceous and/or woody species is at least 80 percent of the total area, and the diversity of native species is at least 50 percent of the diversity originally found in the wetland. If revegetation is not successful at the end of 3 years, develop and implement (in consultation with a professional wetland ecologist) a remedial revegetation plan to actively revegetate the wetland with native wetland herbaceous and woody plant species. Continue revegetation efforts until wetland revegetation is successful.

For certain locations through Columbia's system listed threatened, endangered, or special concern species and their habitats have been identified. In addition, eligible cultural resources, wetlands, and other environmentally sensitive areas may also have been identified. In these instances, permits normally include maintenance provisions that must be adhered to for the life of the facility.

## **VI. ENVIRONMENTAL CONSTRUCTION MANAGEMENT AND INSPECTION**

### **A. General**

Columbia is responsible for compliance with the environmental conditions contained in a Projects' EM&CP, which include all permits and other approvals. One or more Environmental Inspectors will be assigned to every Project and will report to the Natural Resources Permitting group. At least one Environmental Inspector is required for each construction spread during active construction or restoration. Environmental Inspectors shall have peer status with all other activity inspectors.

### **B. Environmental Inspector**

The Environmental Inspector is responsible for assuring that the construction activity is performed in accordance with the environmental conditions of the EM&CP and landowner requirements and have the authority to stop work and order appropriate corrective action as outlined in Section VI.E. For construction activities that are found by the Natural Resource Permitting group to have minimal environmental impacts, the Environmental Inspector may also serve to monitor other construction functions.

At a minimum, the Environmental Inspector(s) shall be responsible for:

- Inspecting construction activities for compliance and ensuring compliance with the requirements of the EM&CP, ECS, and any permits, landowner agreements or FERC certificates obtained for the Project;
- Identifying, documenting and overseeing corrective actions, as necessary to bring an activity back into compliance;

- Verifying that the limits of authorized construction work areas and locations of access roads are properly marked before clearing, and maintained throughout construction;
- Verifying the location of drainage and irrigation systems;
- Identifying erosion/sediment control and stabilization needs in all areas;
- Ensuring that the design of slope breakers will not cause erosion or direct water into sensitive environmental resource areas, including cultural resource sites, wetland, waterbodies, and sensitive species habitat;
- Verifying that trench dewatering activities are properly monitored and do not result in the deposition of sand, silt, and/or sediment near the point of discharge into a wetlands or waterbodies, cultural resource sites, and sensitive habitats. If such deposition is occurring, the dewatering activity shall be stopped and the design of the discharge shall be changed to prevent reoccurrence; and verifying that dewatering structures are removed after completion of dewatering activities;
- Verifying the testing of subsoil and topsoil in agricultural and residential areas to measure compaction and determine the need for corrective action;
- Advising the Chief Inspector when conditions (such as wet weather or frozen soils) make it advisable to restrict construction activities in agricultural areas;
- Ensuring restoration of contours and topsoil;
- Verifying that the soils imported for agricultural or residential use are noxious weed and soil pest free, unless otherwise approved by the landowner;
- Ensuring that erosion controls are properly installed to prevent sediment flow into sensitive environmental resource areas (wetlands, waterbodies, cultural resource sites, and sensitive species habitats) and onto roads, and determining the need for additional erosion control devices; ensuring erosion controls are maintained, daily if necessary;
- Inspecting temporary erosion control measures at least on a daily basis in areas of active construction or equipment operation, on a weekly basis in areas with no construction or equipment operation, and within 24 hours of each 0.5 inch of rainfall; This responsibility may be transferred to field operations after construction is complete but before restoration is successful;
- Ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification, or as soon as conditions allow if

compliance with this time frame would result in greater environmental impacts;

- Keeping records of compliance with the environmental conditions of the (EM&CP and any certificates) and other federal or state environmental permits during active construction and restoration; Keeping records of the mitigation measures proposed or approved as part of the FERC Order, and/or other federal/state/local environmental permit during active construction and restoration;
- Identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase;
- Establishing a program to monitor the success of restoration. Implementation of this program may be transferred to (Field Services) upon completion of construction and restoration activities;
- Looking for evidence of contamination and, if found, cease activities in that area and notify the Environmental Health & Safety department and the Natural Resource Permitting group and wait for further instruction. If the contamination is determined to be hazardous, an experienced hazardous waste contractor will be mobilized to handle the waste; the hazardous waste contractor will follow a site-specific health and safety plan and standard operating procedures for working in hazardous environments, which is maintained by the Environmental Health & Safety department; and
- Verifying the location of signs and visible flagging marking the boundaries of wetlands, waterbodies other sensitive resource areas, or areas with special requirements along the construction work area;
- Verifying the locations for any disposal of excess construction materials for beneficial reuse comply with applicable laws and regulation.

### **C. Environmental Training**

The Engineering & Construction Project Manager assigned to the construction activity and/or the Columbia employee in responsible charge, will be responsible for assuring that the Environmental Inspector(s), other inspectors and any contractor's foreman have been trained in all environmental aspects of the activity, and fully understands the environmental conditions contained in the activity's EM&CP.

The Natural Resource Permitting group staff will conduct training for construction personnel when sensitive resources are present or when permit/certificate conditions mandate, or when requested by the Team Leader.

**D. Contractor's Environmental Compliance Specialist (Environmental Foreman)**

For construction activities that utilize an outside contractor, the contractor will be required to provide at least one qualified environmental compliance specialist. This specialist will become thoroughly familiar with Columbia's EM&CP for the activity. The specialist will be responsible for the contractor's efforts to correctly install and maintain environmental control devices and for construction in environmentally sensitive areas. Contractor's specialist will work in cooperation with Columbia's employees responsible for environmental compliance.

The Contractor's Environmental Foreman must be available at all times during the project and have the appropriate number of available employees to adequately implement the project's EM&CP.

**E. Environmental Construction Management**

The Environmental Inspector and each functional inspector shall have the authority to stop work on a particular construction function to which they are assigned if it deviates from the environmental conditions of the activity's EM&CP, as well as FERC Orders, stipulations of other environmental permits or approvals, or landowner easement agreements. The deviation shall be reported immediately to the Columbia employee in responsible charge of the activity and the Environmental Inspector. The Columbia employee in responsible charge, the Engineering & Construction Team Leader and the Natural Resource Permitting group department will be responsible for the resolution of the deviation. The Environmental Inspector shall also have the authority to order appropriate corrective action.

Stop work authority for the entire construction activity rests with the Columbia employee in responsible charge or the Engineering & Construction Team Leader.

The Natural Resource Permitting group may, from time to time, perform inspections of construction activities to review the implementation of the EM&CPs. The Natural Resource Permitting group will have stop work authority during these inspections should deviations from the activity's EM&CP occur. Any corrective actions that are required shall be taken as directed by the Natural Resources Permitting group.

**F. Environmental Variances**

Unapproved variances from an EM&CP and this ECS are not permitted. Any proposed variance from an EM&CP will require approval from the EM&CP preparer, prior to commencing the activity. The approval for a variance will be in writing. In instances where written approval is not practical (i.e., emergencies and weekends), verbal approval may be given provided that written confirmation is provided as soon as possible.

Any proposed variance from this ECS will require approval from the Natural Resource Permitting group prior to commencing the activity.

## **VII. EMERGENCY CONSTRUCTION**

In the event of an emergency, the Company employee in responsible charge will take such action as is necessary to contain the emergency giving due regard to minimizing environmental impact. In conjunction with other Columbia policies, the requirements contained in this ECS will be followed as close as possible.

<sup>1</sup> Will include all environmental and regulatory mandated surveys such as but not limited to, threatened and endangered species surveys, archeology surveys, wetland delineations etc.

<sup>2</sup> Deviations that involve measures different from those contained in this ECS will only be permitted by written approval from the Natural Resource Permitting group. The Natural Resource Permitting group may be required to obtain written approval from the Director of the Office of Pipeline Regulation (OPR) (Federal Energy Regulatory Commission), or his/her designee, unless specifically required in writing by another Federal, state, or Native American land management agency for the portion of the project on its land. The Natural Resource Permitting group shall coordinate the filing of other agency requirements with the Secretary of the Commission (Secretary). This filing shall be prior to construction.

## **VIII. WINTER SEASON CONSTRUCTION PLAN**

### **A. General**

Columbia will typically initiate a winter season construction plan for projects taking place on or after November 1 of each season, as well as projects where all construction activities (including restoration) have not been completed prior to November 1 of each season. For the purposes of this plan, the winter season will be defined as from November 1 – March 15 of each year. The Natural Resource Permitting group, in conjunction with the Environmental Inspector, will determine if soil temperatures, depth of soil freezing, snow accumulation, historical regional conditions, or pending weather forecast dictate initiating the winter season construction plan prior to these dates, or allow for extending these dates. If a project's primary regulatory agency has winter construction regulations or permit conditions, Columbia will defer to those, rather than this winter season construction plan.

The winter season construction plan will apply to projects taking place within the portions of the Columbia's pipeline system where adverse winter conditions could be expected. Typically, this will include New York, New Jersey, Pennsylvania, Maryland, Delaware, West Virginia, Ohio, and Kentucky.

#### **1. Snow Removal and Storage**

Removal of snow from the construction workspace may be necessary to provide safe and efficient working conditions, as well as to expose soils

for grading and excavation. Snow may also need to be removed along access roads to allow safe access to the ROW.

Snow storage will take place within ROW or approved workspace. Care will be taken to avoid mixing snow with soil. Gaps will be provided in snow stockpiles to allow for site drainage or existing drainage patterns, with the appropriate erosion and sediment control devices installed. Snow can also be blown off ROW, with landowner approval, and spread evenly to minimize damage to woody vegetation or other resources off ROW.

Snow may be used for beneficial uses, such as insulation over the trench line prior to excavation, if practical, or to reduce frost penetration along the trench line. Snow can also be used to build frost roads through wetlands and other saturated or otherwise unstable areas. Temp gates/fence crossings will occur prior to or concurrent with snow removal activities and in accordance with landowner requirements.

Construction signage will be used to designate sensitive areas, cultural resource sites, protected species habitat, or other avoidance areas to prevent inadvertent damage during snow removal activities.

## **2. Temporary Erosion and Sediment Control**

In areas where there is shallow freezing that occurs in the morning and evening followed by a daytime thaw, different construction activities may be approved or restricted by the Chief Inspector or Environmental Inspector, depending on the time of day. Columbia will attempt to install the necessary temporary erosion and sediment control devices in advance of the winter season, where possible. All erosion and sediment controls will be inspected on a weekly basis, within 24 hours of a 0.5 inch rainfall event, and within 24 hours of a large snowmelt event. Columbia will keep an Environmental Inspector and environmental labor crew on site or on call through the winter season and periods of thaw to monitor erosion control structures and stabilization efforts and make adjustments or repairs as necessary and as ROW conditions allow. Crews will have the proper equipment available to allow access to the ROW under soft soil conditions, such as all-terrain vehicles with oversized tires, to prevent rutting, topsoil mixing, and damage to other temporary erosion controls such as drivable berms.

## **3. Topsoil Segregation**

Topsoil will be segregated during winter construction in the same locations and manner as during non-winter construction. Long-term topsoil stockpiling to manage the topsoil and accomplish more effective seeding and restoration may be necessary after the spring thaw.

When topsoil is frozen at the time of topsoil stripping, multiple passes (vs. a single pass) with a bulldozer or other specialized equipment may be necessary to remove only the topsoil and not the subsoil.

Restoration of topsoil will ideally occur after both the stockpiled topsoil and the exposed subsoil have thawed, the ground has dried following the spring melt, and the soils are more easily worked. Right-of-way stabilization measures will be implemented regardless of whether topsoil restoration occurs under frozen conditions or is delayed until spring thaw. Some options for temporary stabilization of the ROW and segregated topsoil pile include mulching and dormant seeding. Frozen topsoil may be placed over the disturbed areas if the Environmental Inspector determines it reasonable to do so.

If a landowner requests permanent stabilization be initiated within the winter season, Columbia will comply with the landowner request and/or relevant terms of the landowner agreement.

#### **4. Backfilling**

The longer time that excavated materials from the trench are exposed to freezing ambient air temperatures, the more difficult it can become to properly backfill the trench with these materials. This may give the perception that there is significant excess spoil material left after trench backfill is completed. Rather than removing the "excess" material, a slight crown could be created over the trench line to allow for subsidence once the material has thawed.

Crowning material over the trench or ditch line may be a suitable practice where trench subsidence is anticipated. The crown will be constructed directly over the backfilled trench with native material. Subsoil used to build the crown should not extend above natural surface grade. The crown will be capped with native topsoil material to ensure elevations will be restored with topsoil at the surface. If the topsoil layer has been removed as a block of frozen material, the blocks will be placed on top of the trench line as part of the crown and be pieced together to the extent practicable to prevent large gaps following thawing of the material. Small gaps will be left in the crown to allow for natural surface drainage before the material is fully settled during spring and summer thaw. Columbia will monitor for subsidence and excessive crowning conditions.

Columbia will minimize the amount of open trench during frozen conditions to reduce the risk of freezing excavated spoil materials. Outer layers of a frozen spoil pile will be stripped of in order to use unfrozen inner subsoil first during backfilling. The remaining frozen subsoil will be broken into smaller pieces prior to backfilling to reduce the size of voids in the backfilled trench. Specialized equipment may be needed to break up frozen backfill material to minimize future subsidence.

## **5. Restoration**

The Natural Resource Permitting department, in conjunction with the Project Manager and Environmental Inspector, will determine whether the project can be completely restored during the winter season or if permanent restoration activities will be delayed until after the spring thaw. If permanent restoration will take place during the winter season, the steps shown in the upland portion of this ECS will be followed, along with Table 2A. If permanent restoration will be delayed, subsoil will be left in a roughened condition to slow the sheet flow of water. All open areas will be backfilled or provided safety fencing for protection. The exception to this practice will be pipelines left uncovered for longwall mining activities.

All disturbed areas that are unable to have permanent restoration completed will be mulched or have soil tackifiers applied. See table 2b for temporary stabilization application rate.

To ensure adequate vegetation growth when seeding during the winter season, higher seeding rates will be considered, to account for lower germination success, on a case by case basis. Cold weather grasses will also be utilized.

### **B. Wetland and Waterbody Crossing**

Wetland and waterbody crossings during winter construction will be constructed in the same manner as non-winter construction. Spoil material with high water content (e.g., non-cohesive soils) can freeze to the ground surface in its storage location. If this occurs, separation of wetland and other soils will take place to the maximum extent practicable.

The environmental inspector can delay wetland or waterbody crossings when winter conditions warrant such delay.

### **C. Dewatering**

When dewatering activities are necessary during freezing conditions, pumps may have to be installed in small, heated shelters to prevent the pumps from freezing and becoming non-operational or causing damage to the pumps that could result in a spill or leak of lubricants or fuel. Dewatering activities performed during frozen conditions should be continuously monitored and adjusted as necessary. Discharge locations will be carefully evaluated and selected based on site conditions including vegetation cover, soil type, and topography. Columbia will attempt to install dewatering structures (e.g., filter bags and straw bale structures) earlier in the construction process when ground conditions are favorable for installation, where feasible. Dewatering structures will be promptly removed after use to prevent freezing and proper cleanup. All spill prevention measures described in Section III (Spill Prevention, Containment, and Control) of this ECS will also be followed during winter season construction.



## IX. DEFINITION OF TERMS\*

**AGRICULTURAL LANDS:** Permanent or rotated croplands, hayfields, and pastures.

**COLUMBIA:** Columbia Gas Transmission Corporation

**COE:** U.S. Army Corps of Engineers

**CONSTRUCTION WORK AREA:** Construction work areas include permanent and temporary ROW, contractor's yards, pipe and materials storage yards, staging areas, and access roads.

**ECS:** Environmental Construction Standards

**ENVIRONMENTAL INSPECTOR:** The Inspector responsible for environmental compliance on a construction project.

**EPA:** Environmental Protection Agency

**FWS:** U.S. Fish and Wildlife Service

**EM&CP:** Environmental Management and Construction Plan

**EXCEPTIONAL VALUE WATER(S):** A stream or waterbody which constitutes an outstanding national, State, regional or local resource, such as waters of national, State or county parks or forests, or waters which are used as a source of unfiltered potable water supply, or waters of wildlife refuges or State game lands, or waters which have been characterized by the Fish Commission as "Wilderness Trout Streams." and other waters of substantial recreational or ecological significance.

**FINAL GRADING:** Includes returning the construction work area as closely as practical to its original contour, redistributing conserved topsoil, soil compaction testing in agricultural lands, and installing final interceptor diversions.

**HIGH QUALITY STREAM:** A cold water fishery or significant warm water fishery as designated by a state resource agency.

**IMMEDIATE:** Without interval of time; "right now".

**INSPECTOR:** Collectively: the Chief Inspector, Environmental Inspector, Utility Inspector, or any other inspector assigned to do an environmental task.

**INTERMITTENT WATERBODY:** A waterbody channel which generally carries water in the spring or immediately after a rain event; designated on topographic maps and environmental construction drawings with a broken line.

**INTERMEDIATE WATERBODY:** A waterbody greater than 10 feet wide at the water's edge at the time of construction but less than or equal to 100 feet wide.

**LOW-GROUND-WEIGHT:** Construction equipment that is designed "specifically for" or "frequently used in" areas where compaction and sinking is to be minimized. This

equipment can be less than 5 lbs/in<sup>2</sup> or contain wider tracks than the standard minimum size width tracks for the model equipment to be used.

**MAJOR WATERBODY:** A waterbody greater than 100 feet wide at the water's edge at the time of construction.

**MINOR WATERBODY:** A waterbody less than or equal to 10 feet wide at the water's edge at the time of construction.

**MSDS:** Material Safety Data Sheet

**NRCS:** Natural Resource Conservation Service

**NOISE SENSITIVE AREA:** Includes residences, schools, churches, cemeteries, hospitals, farms, camping facilities and outdoor amphitheaters and playgrounds.

**ORV:** Off-road vehicle.

**PERENNIAL WATERBODY:** A waterbody which generally flows all year in years of normal rainfall; waterbody level is generally lowest in the fall, highest in the spring; designated with a solid line on topographic maps and environmental construction drawings.

**PROMPTLY:** By the end of the work day.

**RESTORATION:** Includes fertilizing, liming, disking, seeding and mulching, and crimping mulch.

**RIVER:** A waterbody which is 100 feet wide or more.

**ROW:** Right-of-way.

**SCARIFY:** To make shallow cuts into the soil surface. This should be accomplished with a disk, rake, tracked equipment (grousers) or other suitable means.

**SEDIMENT FILTER DEVICE:** Properly embedded silt fence, erosion control logs, terra tubes, staked bales or other approved device.

**SPCC:** Spill Prevention Control and Countermeasure Plan

**STEEP SLOPE:** Slope of approximately 33% or greater.

**TEMPORARY STABILIZATION:** Includes installing temporary interceptor diversions and sediment filter devices, mulching critical areas and at times, seeding to hold soil in place until final grading and restoration can be accomplished.

**UPLAND CONSTRUCTION:** All areas which are not waterbodies, rivers, streams, or wetlands.

**WATERBODY:** Includes any natural or artificial waterbody, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes.

**WETLAND:** An area of special concern with soils prone to holding water for long periods of time, generally also characterized by distinctive plants such as rushes, sedges, cattails, or certain trees. Includes any area that satisfies the requirements of the current Federal methodology for identifying and delineating wetlands.

\*Includes all grammatical variations of each term.

**X. TABLES**

**TABLE 2A  
SEED MIX REQUIREMENTS FOR UPLAND ROW AND WATERBODY CROSSINGS**

Type		Rate (lbs/acre)
Seed <sup>1</sup>	Orchard Grass and/or Tall Fescue <sup>2</sup>	29
	Birdsfoot-trefoil (Empire) <sup>3</sup>	9
	Annual Rye	12
Fertilizer	10-10-10 (or equivalent)	600 <sup>4</sup>
Agricultural Lime		4000
Mulch	Hay or Straw	4000
<p><sup>1</sup> Pure live seed within 12 months of testing.</p> <p><sup>2</sup> If tall fescue is used, plant endophyte-free certified seed.</p> <p><sup>3</sup> Legumes to be inoculated by manufacturer's recommendations, if not available legumes are to be inoculated at 4 times recommended rate for conventional methods. 10 times recommended rate for hydro seeding.</p> <p><sup>4</sup> Where wood chips are spread, additional nitrogen (11lbs per ton of chips) will be spread.</p> <p>- Seed mixes other than that shown above need to be approved by the NRP group, Environmental Inspector, and/or the appropriate governing agency prior to using.</p> <p>- Refer to restoration section of ECS when broadcasting seed or hydroseeding. Application rate will be doubled.</p>		

**TABLE 2B  
SEED MIX FOR TEMPORARY STABILIZATION**

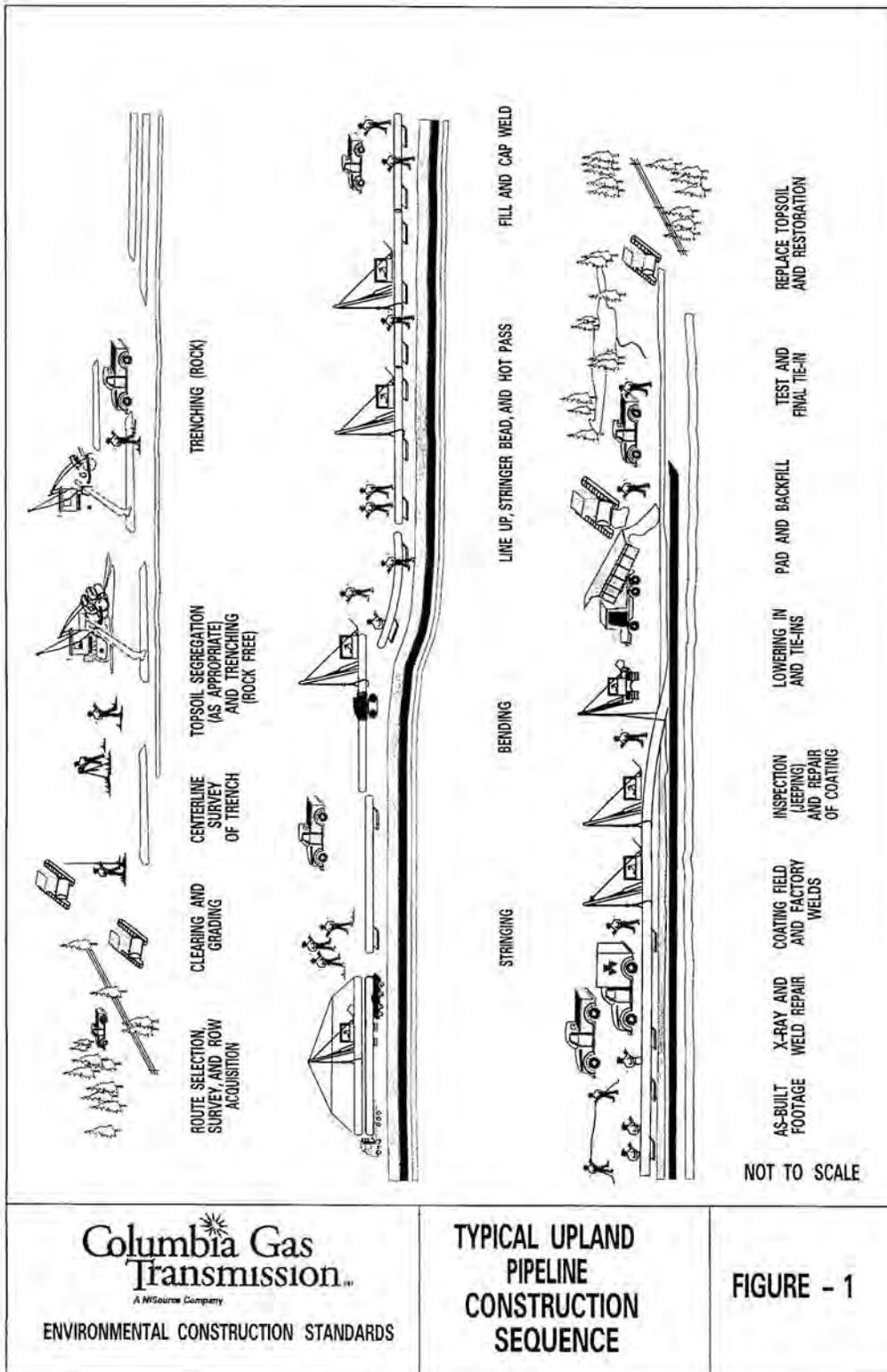
Type		Rate (lbs/acre)
Seed	Annual Rye	40
Mulch	Hay or Straw	6000

**TABLE 2C  
SEED MIX REQUIREMENTS IN WETLANDS**

Type		Rate (lbs/acre)
Seed*	Annual Rye	40
<p>* Annual Rye is used as a temporary revegetative measure until indigenous plants re-establish cover. A monitoring program will be in effect to insure adequate cover is established.</p>		

XI. FIGURES

Figure 1 – Typical Upland Pipeline Construction Sequence



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**TYPICAL UPLAND PIPELINE CONSTRUCTION SEQUENCE**

**FIGURE - 1**

Figure 2 – Typical 75ft. Construction Right-of-Way

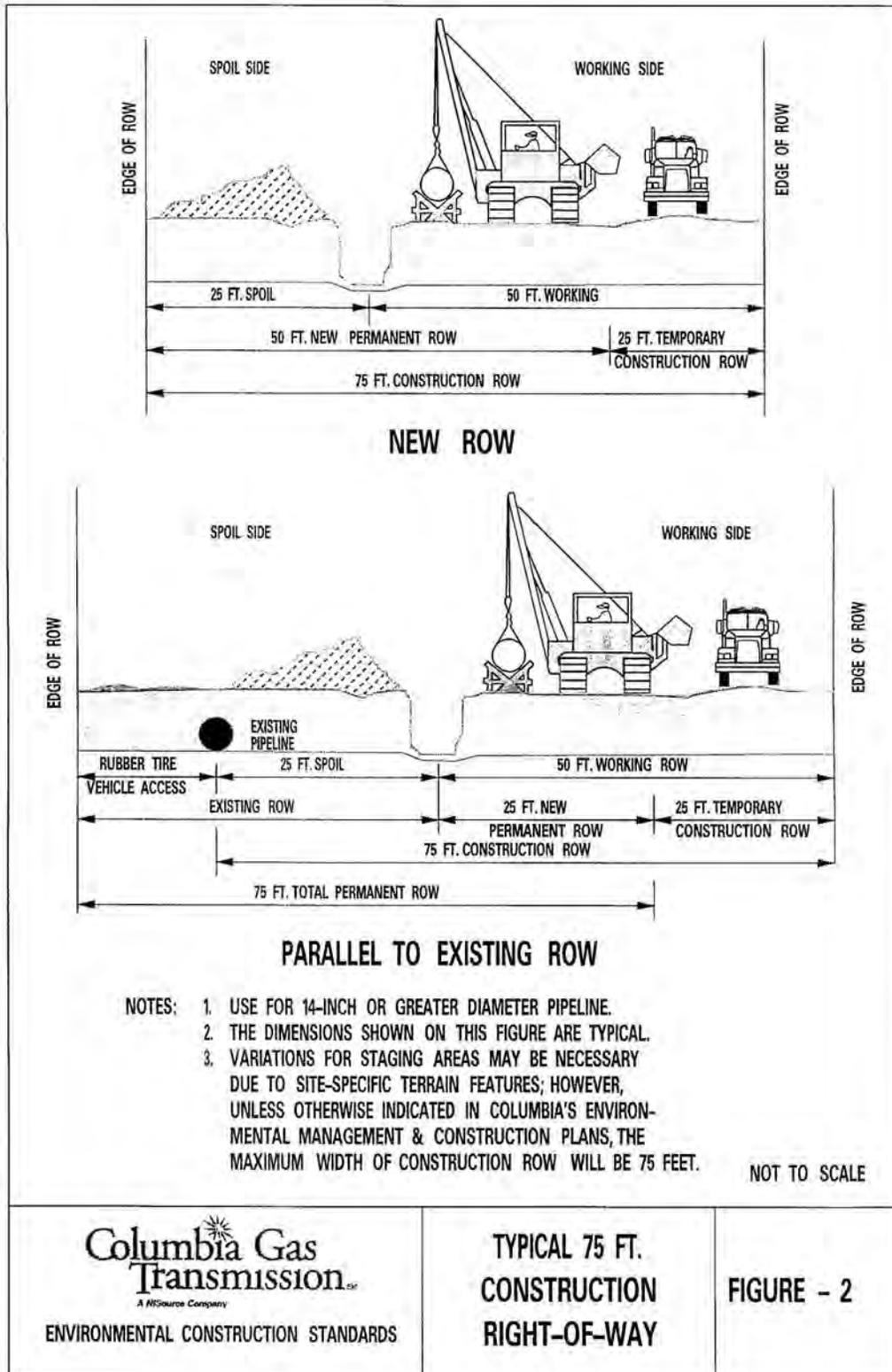


Figure 3 – Typical 50ft. Construction Right-of-Way

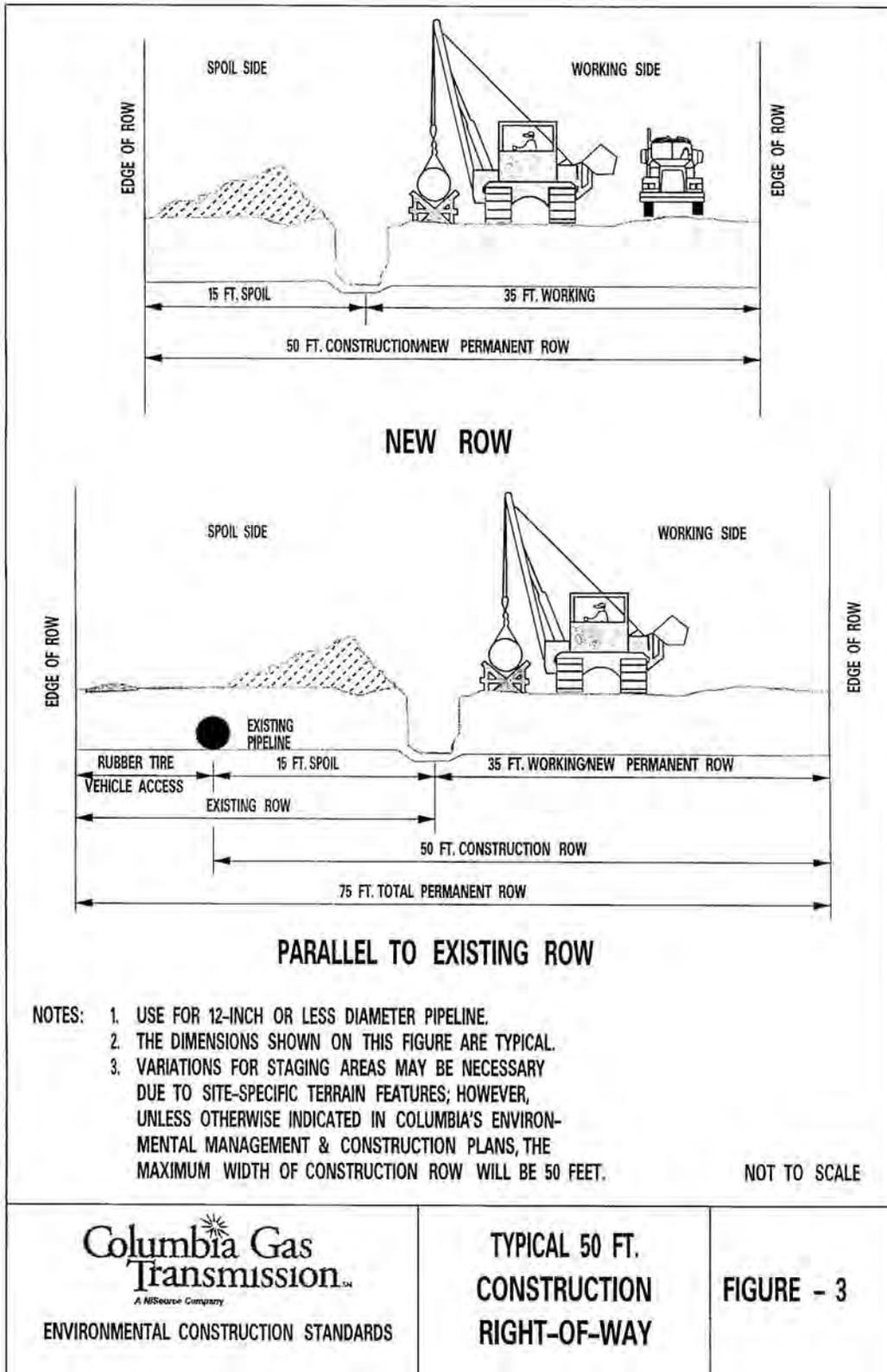


Figure 4 – Temporary Construction Gate

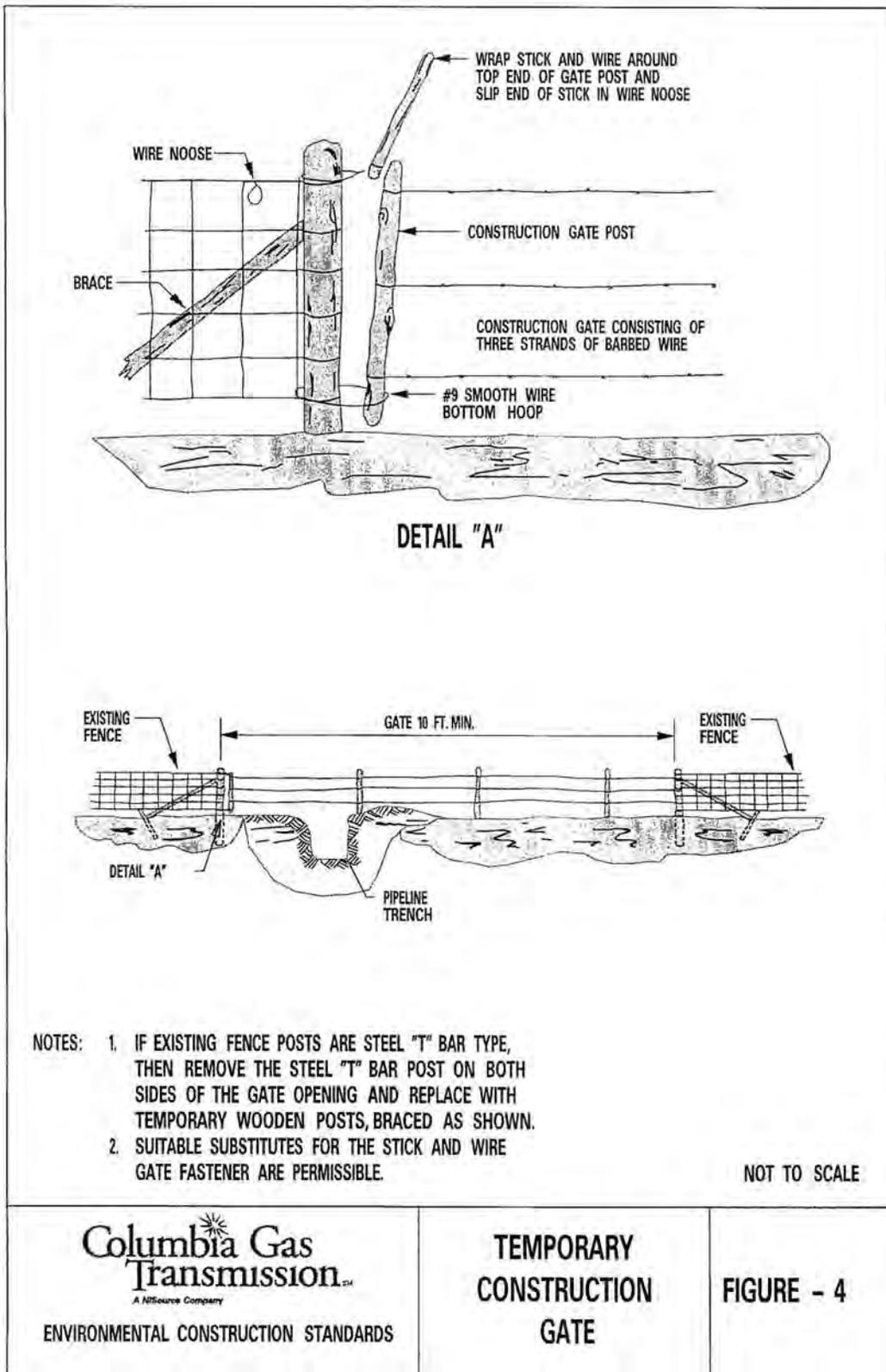


Figure 5 – Typical Soil Conservation

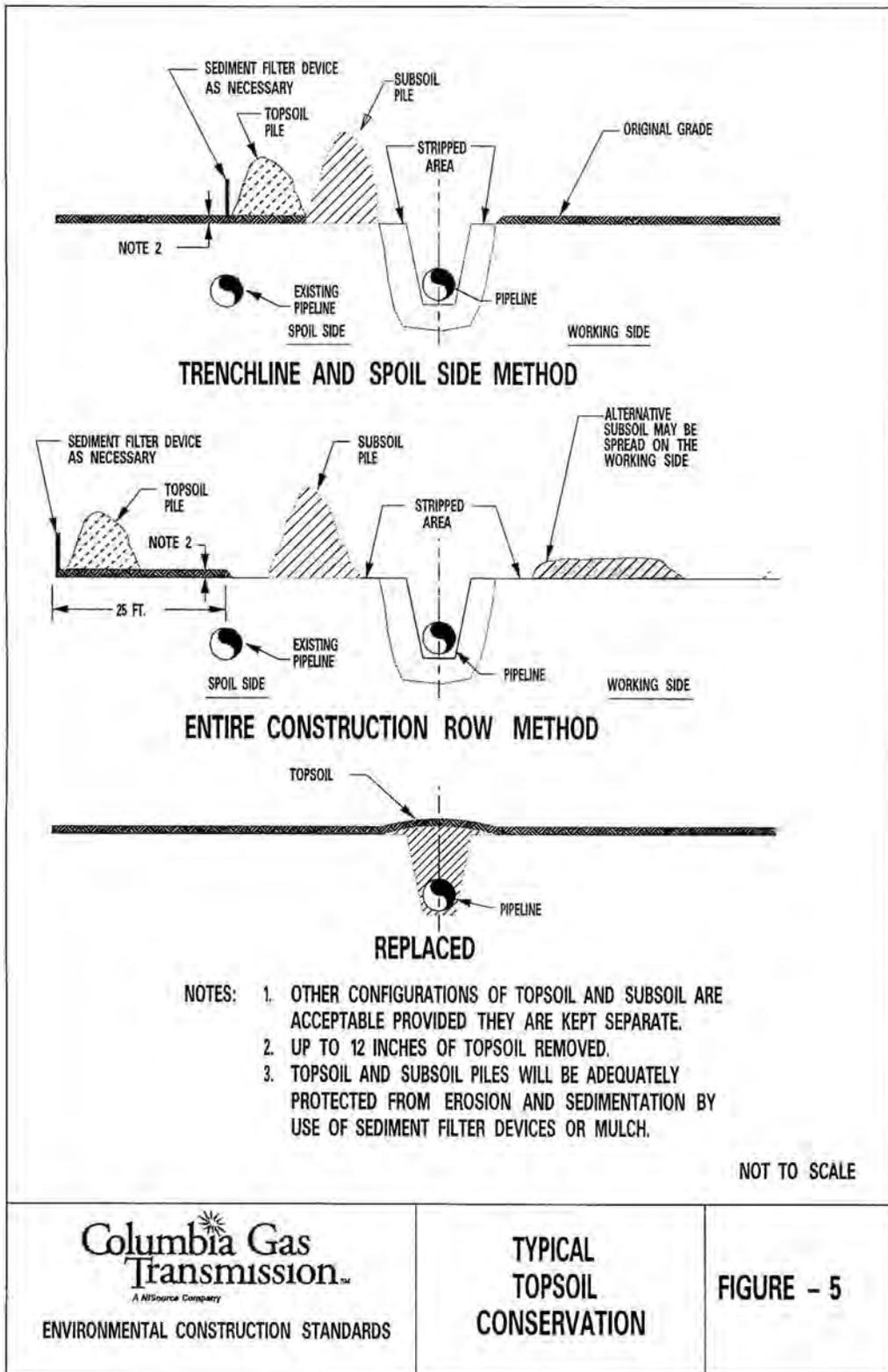
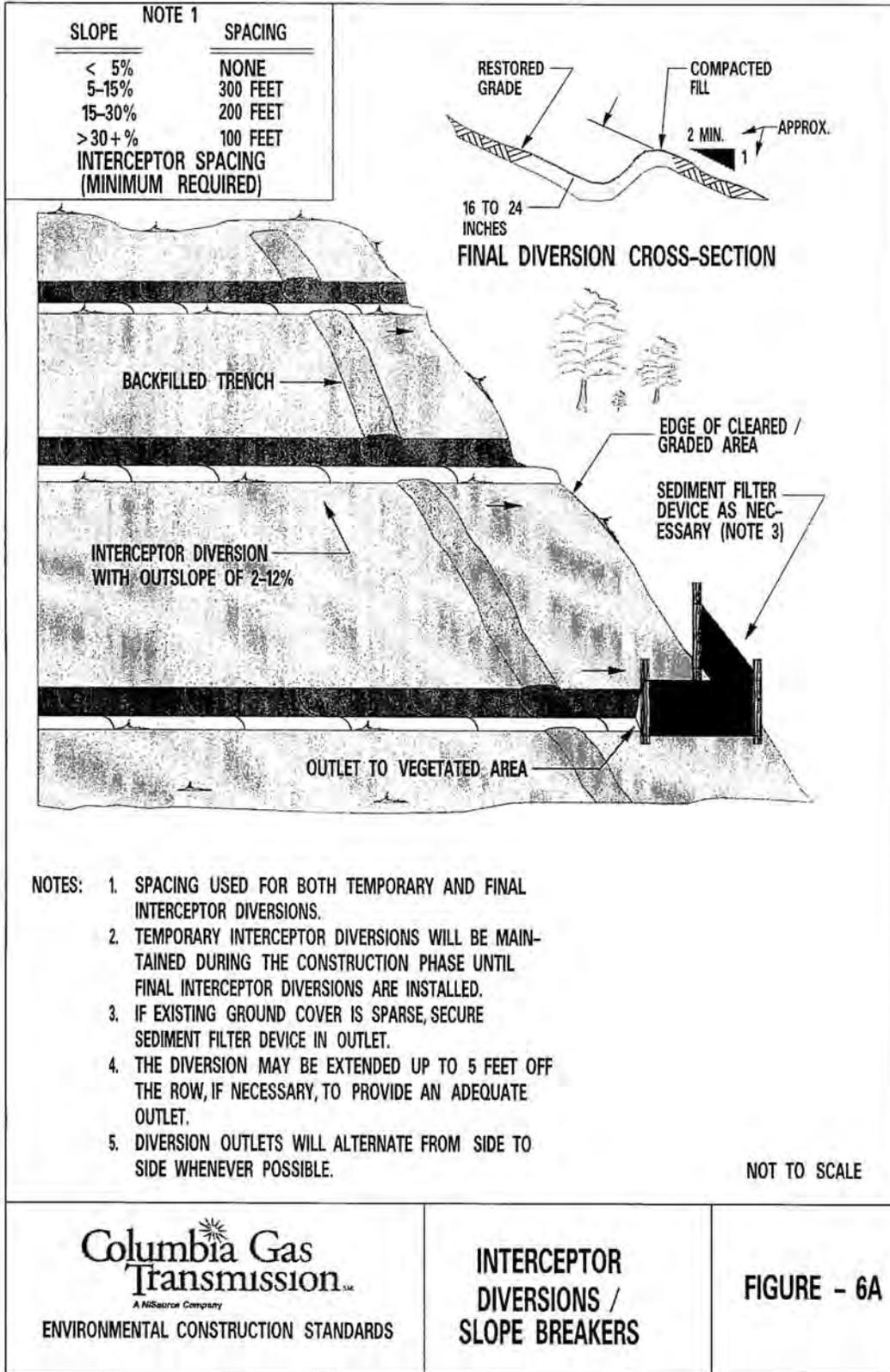


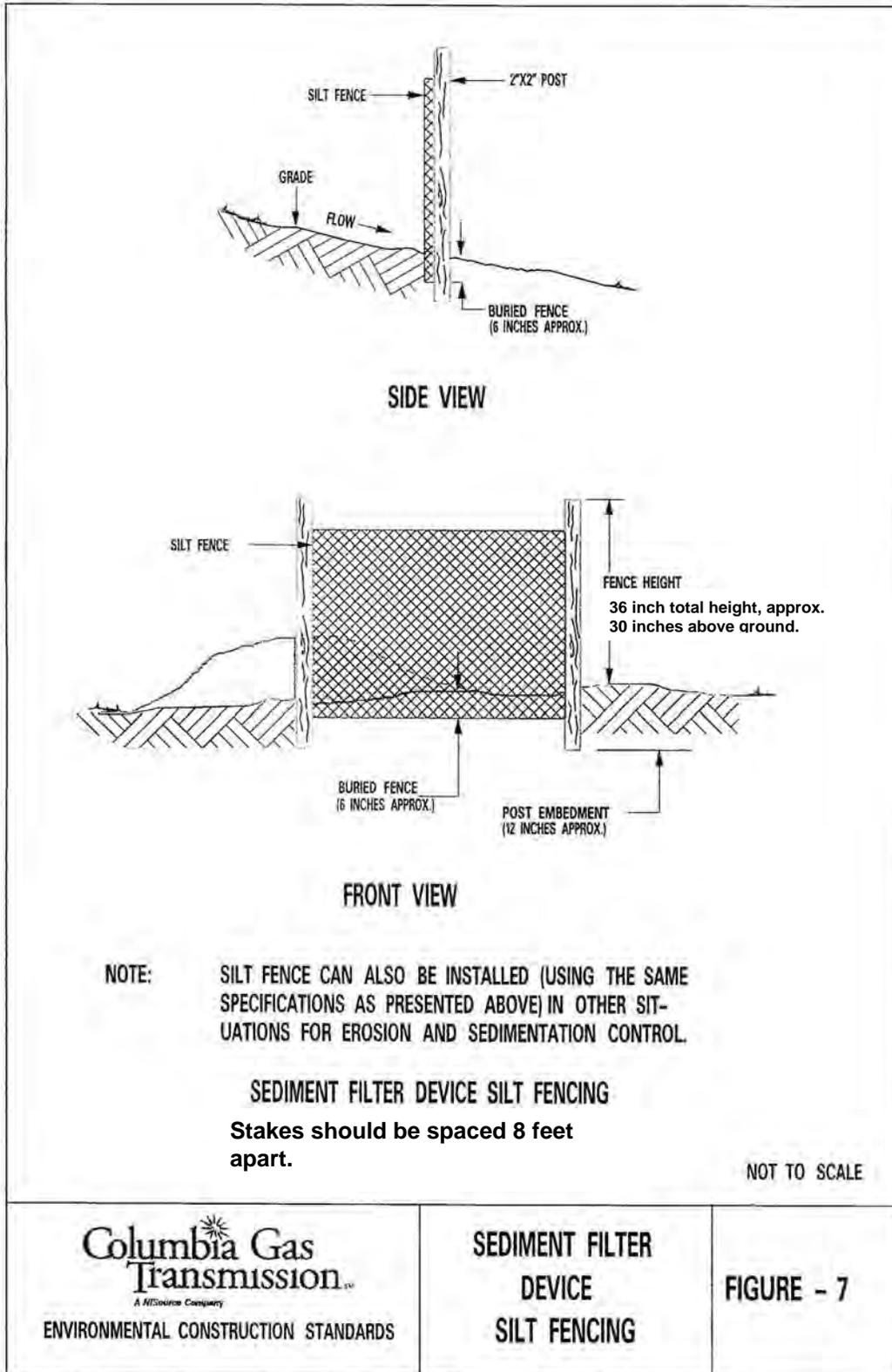
Figure 6A - Interceptor Diversions/Slope Breakers



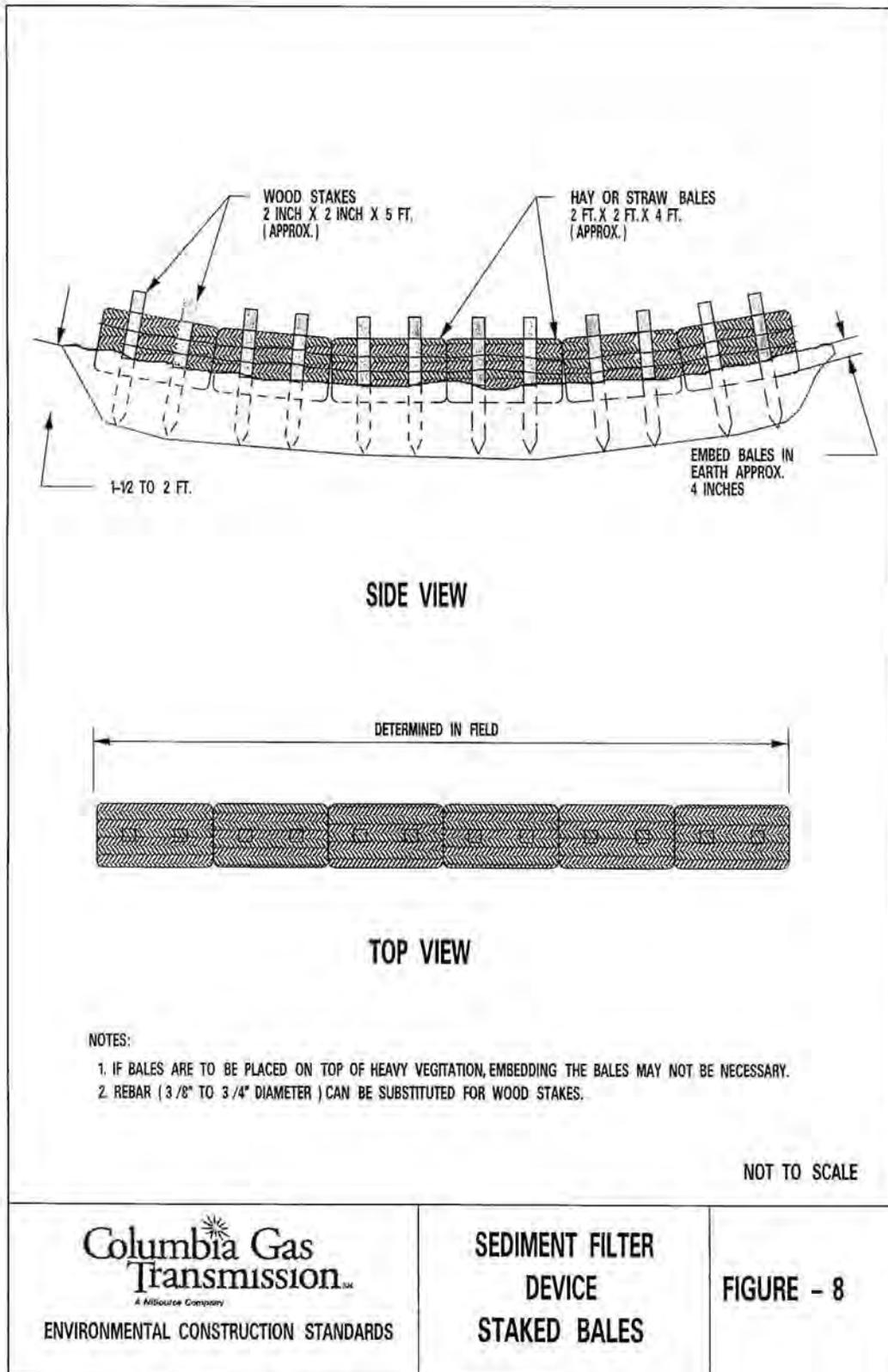
**Figure 6B – Interceptor Diversions**

<p>INTERCEPTOR DIVERSIONS /SLOPE BREAKERS</p> <p>Interceptor diversions are the most common and effective device used for erosion control on construction ROW. During construction, temporary diversions are installed to control water on the graded ROW. During restoration final diversions are installed to protect the ROW from erosion until the vegetation reestablishes on the disturbed areas.</p> <p>Temporary diversions are generally made by building a curb 8 to 14 inches high across the ROW. The curbs are shaped to allow passage of construction equipment and inspector vehicles. The diversion should have a gradient of 2%– 12%, and must drain either into the trench or off the ROW. Where water is directed off the ROW, the outlet will be protected by a sediment filter device or heavy vegetation. Temporary diversions may be broken down by construction equipment during the workday, but will be restored by the end of each day. Temporary diversions will be spaced along the ROW in accordance with Figure 6A. The actual number of temporary diversions may vary from that of final diversions because the construction ROW's artificial grade may reduce the slope. Temporary diversions may be constructed out of silt fence, staked hay or straw bales or sand bags with the Environmental Inspectors approval. Position the outfall of each temporary slope breaker to prevent sediment discharge into wetland, waterbodies, or other sensitive areas.</p> <p>Final diversions typically consist of a curb 16 to 24 inches high below a shallow swale. The curb is constructed of compacted earth fill with side slopes of 2:1 or flatter to allow passage of maintenance equipment. The diversions should extend across the entire ROW and drain water with a 2% to 12% gradient. The outlets of final diversions are stabilized with sediment filter devices, rock, brush, or heavy vegetation. Final diversions will be spaced along the ROW in accordance with Figure 6A (or as shown on the Environmental Construction Drawings), and will tie into existing diversions where present. In places where final grade creates side slopes or slopes which break in more than one direction, diversion installation may need to vary to create an outslope of 2% to 12% which will carry water off the ROW.</p> <p>Alternative diversion construction may be used in areas where an earthen diversion is impractical. In these instances, temporary diversions may be constructed with sediment filter devices as noted above.</p>		
 <p><b>Columbia Gas Transmission</b> <small>A NISource Company</small></p> <p>ENVIRONMENTAL CONSTRUCTION STANDARDS</p>	<p><b>INTERCEPTOR DIVERSIONS</b></p>	<p><b>FIGURE - 6B</b></p>

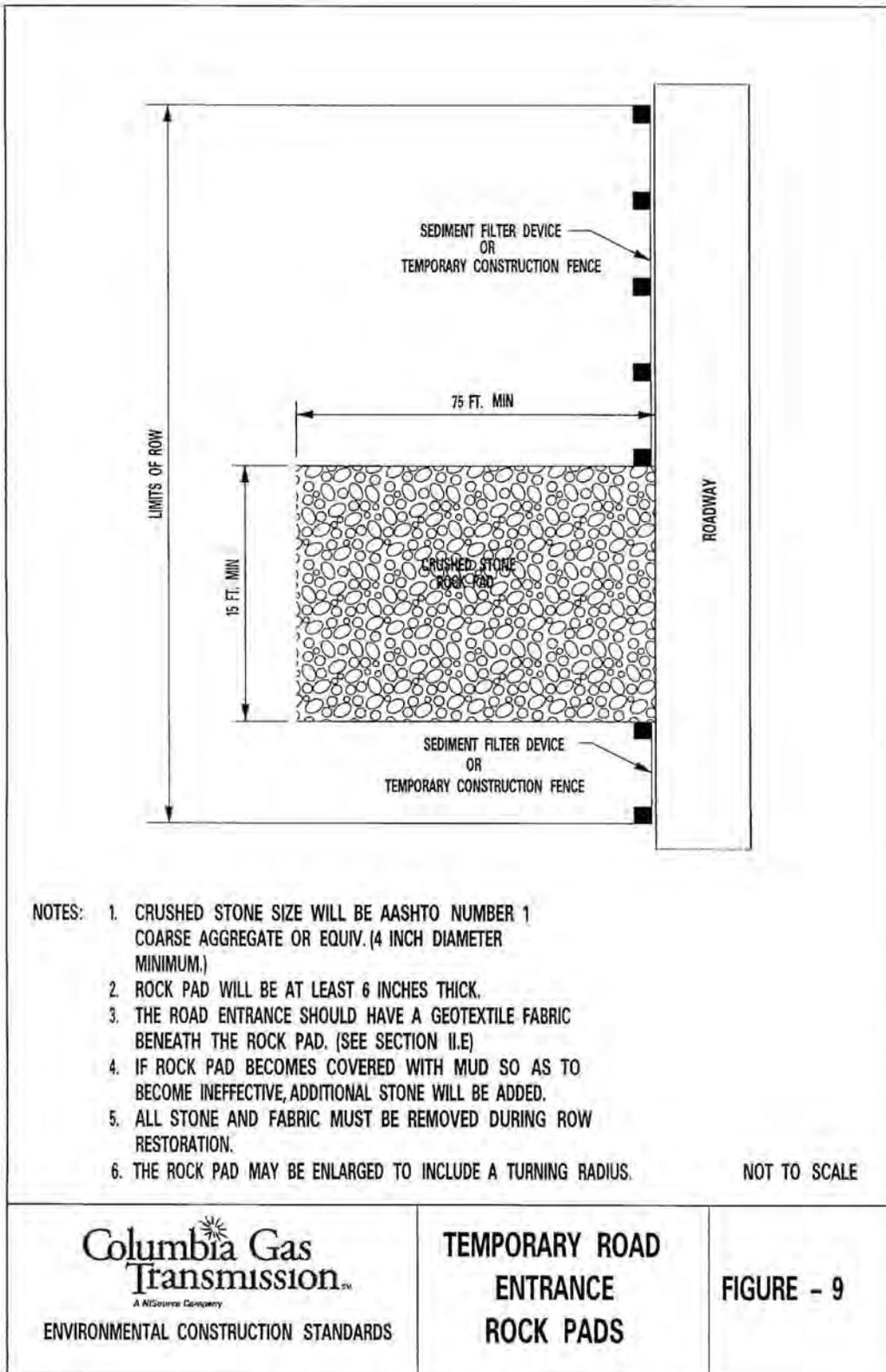
**Figure 7 – Sediment Filter Device Silt Fencing**



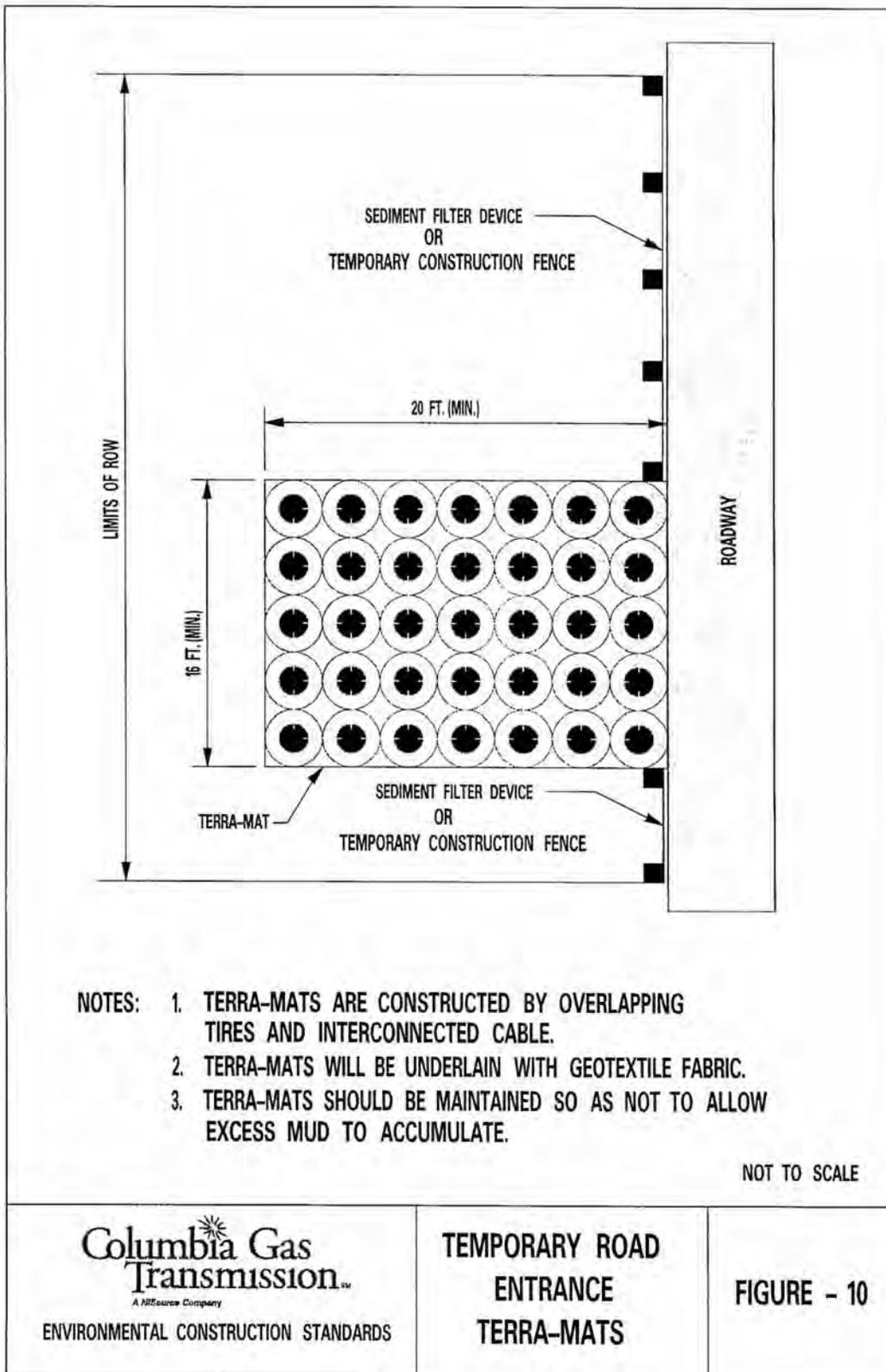
**Figure 8 – Sediment Filter Device Staked Bales**



**Figure 9 – Temporary Road Entrance Rock Pads**



**Figure 10 – Temporary Road Entrance Terra-Mats**



- NOTES:
1. TERRA-MATS ARE CONSTRUCTED BY OVERLAPPING TIRES AND INTERCONNECTED CABLE.
  2. TERRA-MATS WILL BE UNDERLAIN WITH GEOTEXTILE FABRIC.
  3. TERRA-MATS SHOULD BE MAINTAINED SO AS NOT TO ALLOW EXCESS MUD TO ACCUMULATE.

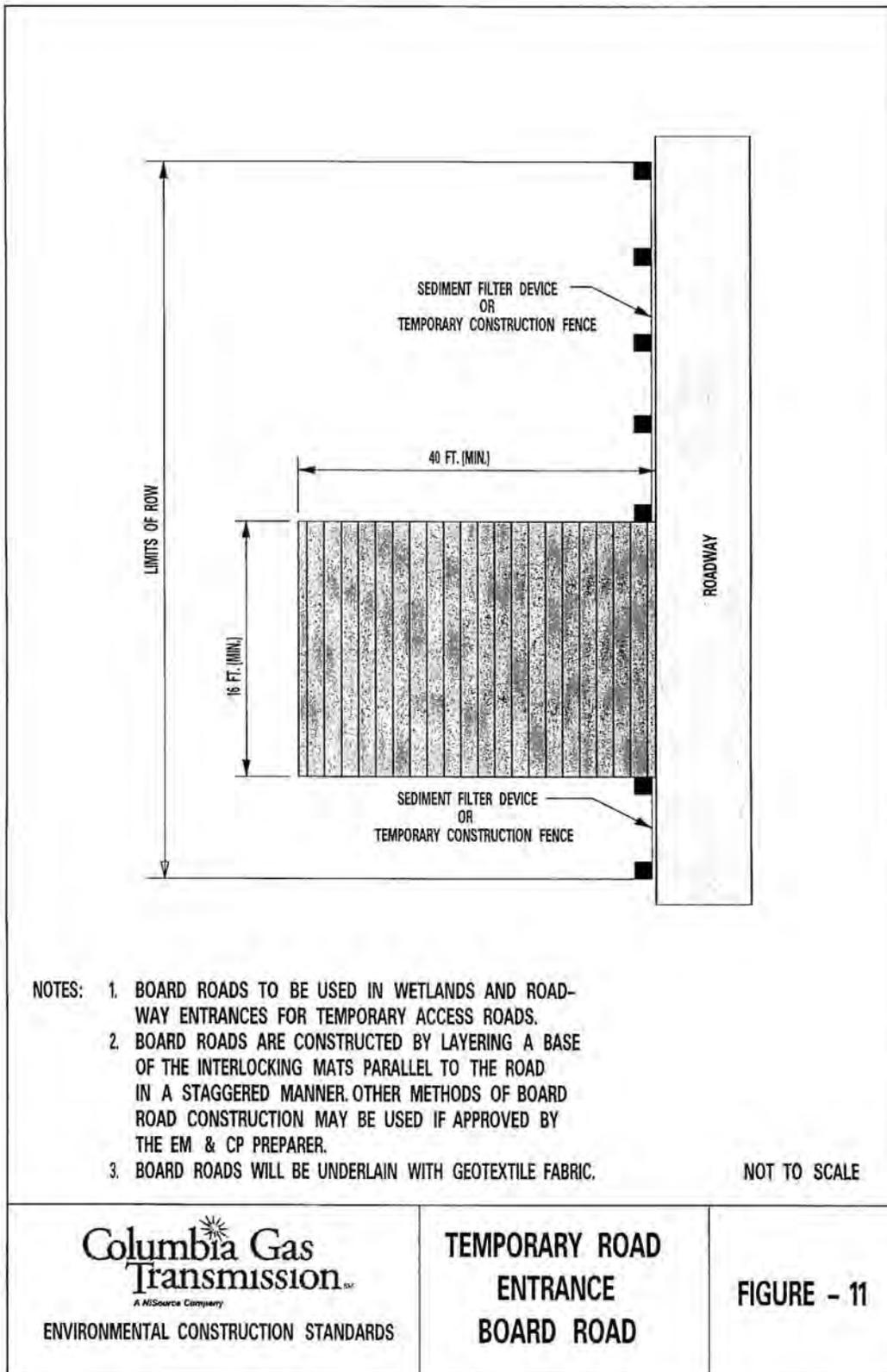
NOT TO SCALE

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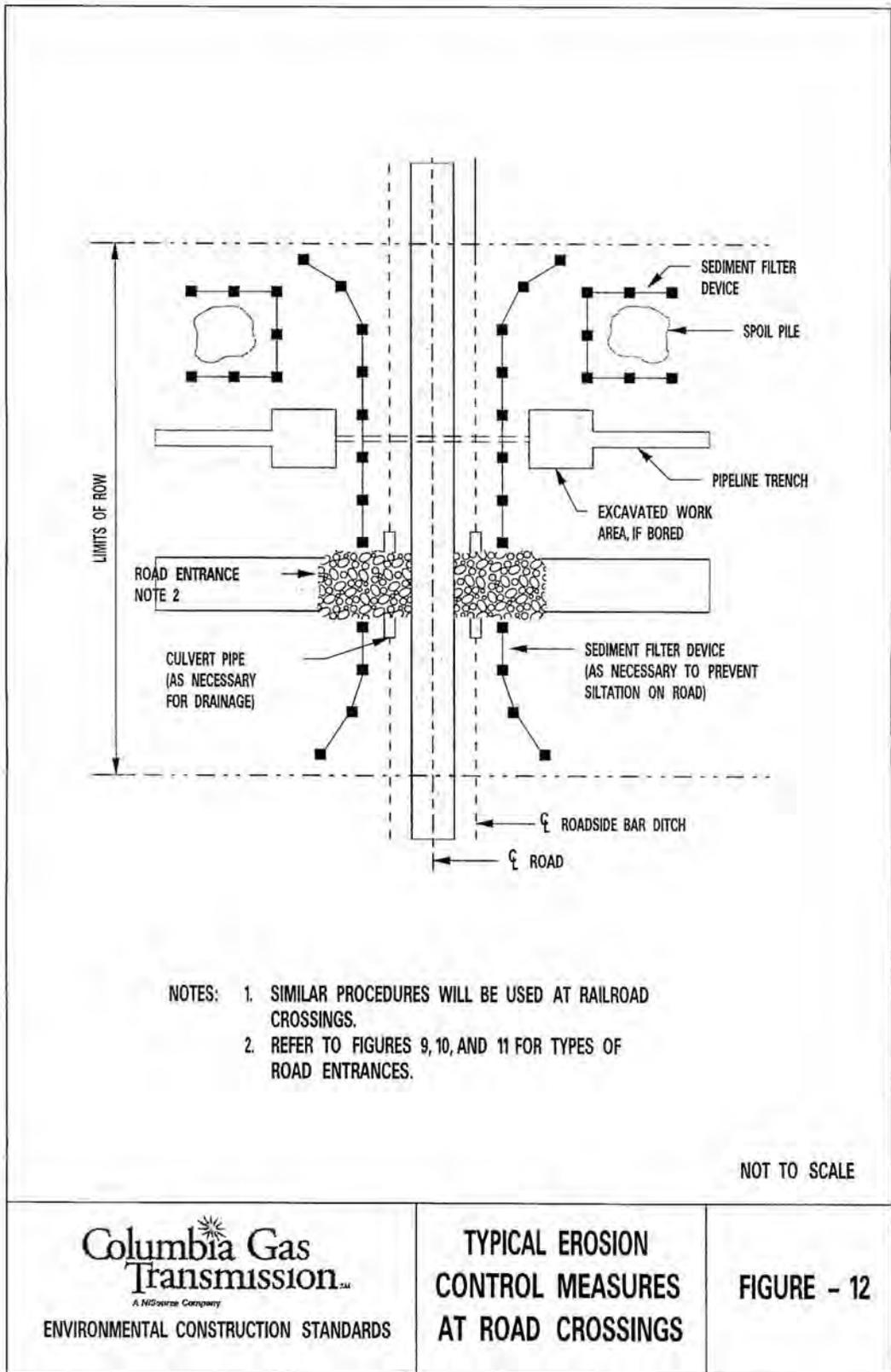
**TEMPORARY ROAD  
 ENTRANCE  
 TERRA-MATS**

**FIGURE - 10**

**Figure 11 – Temporary Road Entrance Board Road**



**Figure 12 – Typical Erosion Control Measures at Road Crossings**



**Figure 13 – Trench Line Barriers and Breakers**

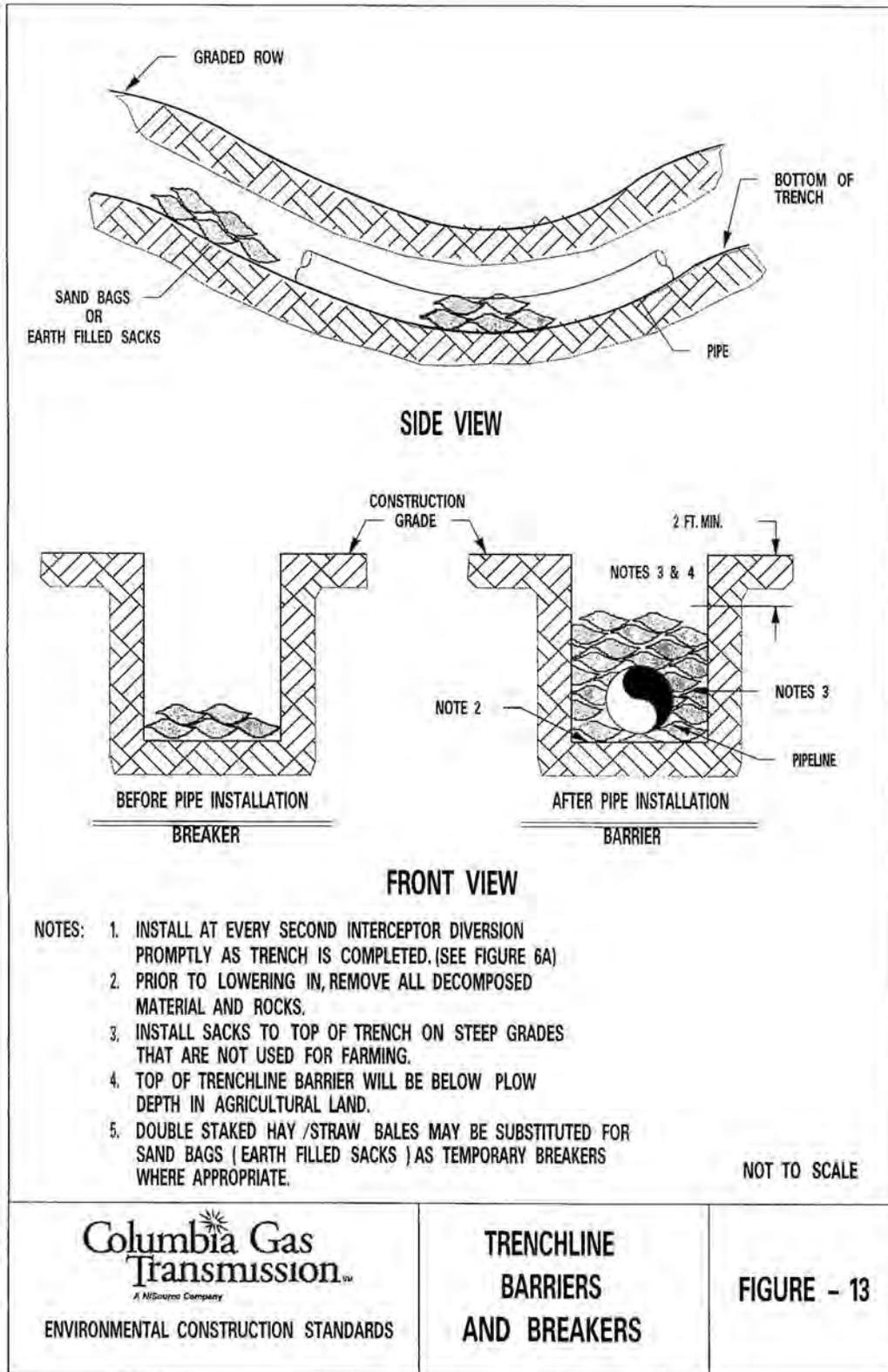


Figure 14A – Sediment Trap

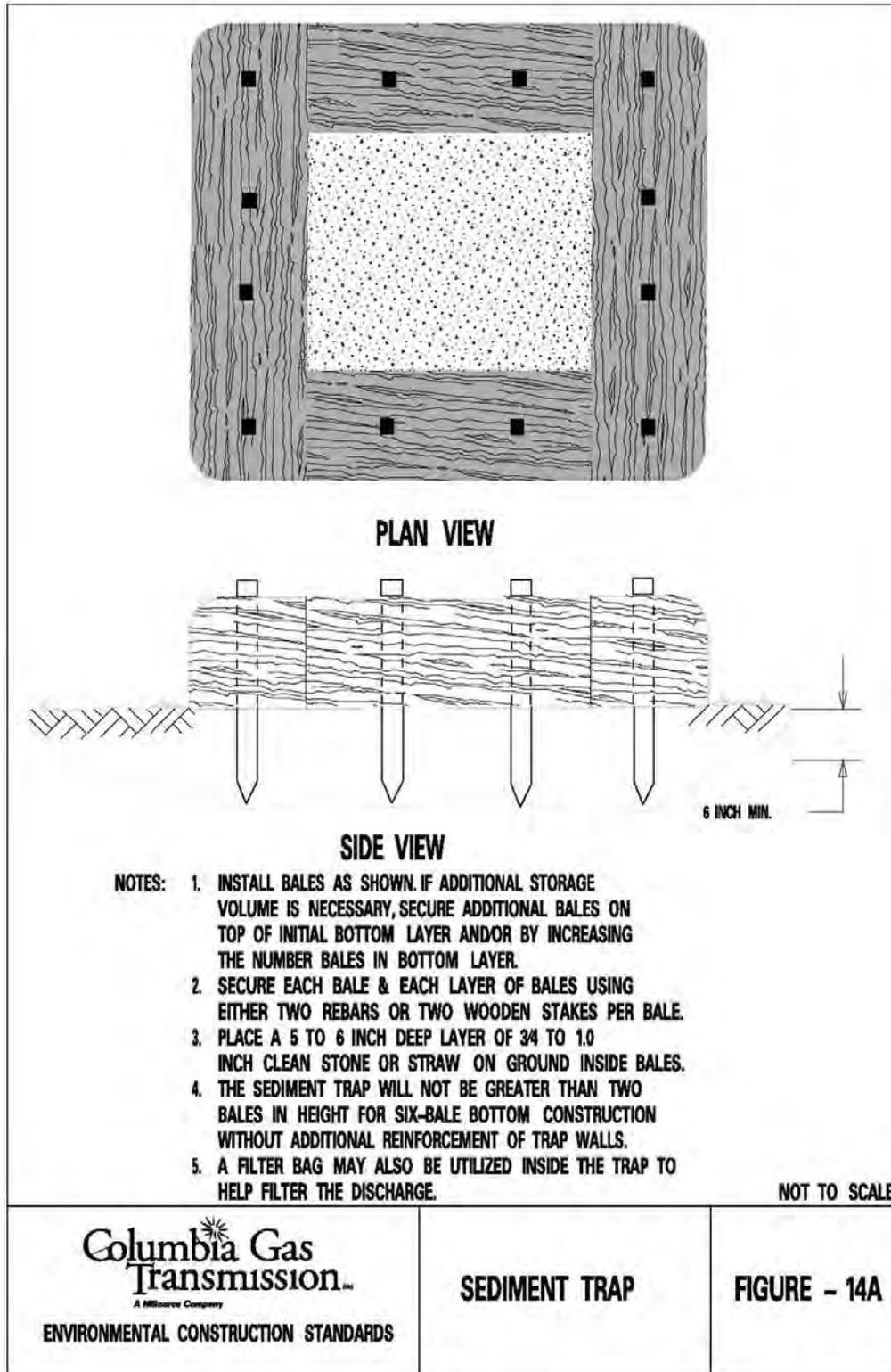


Figure 14B – Filter Bag

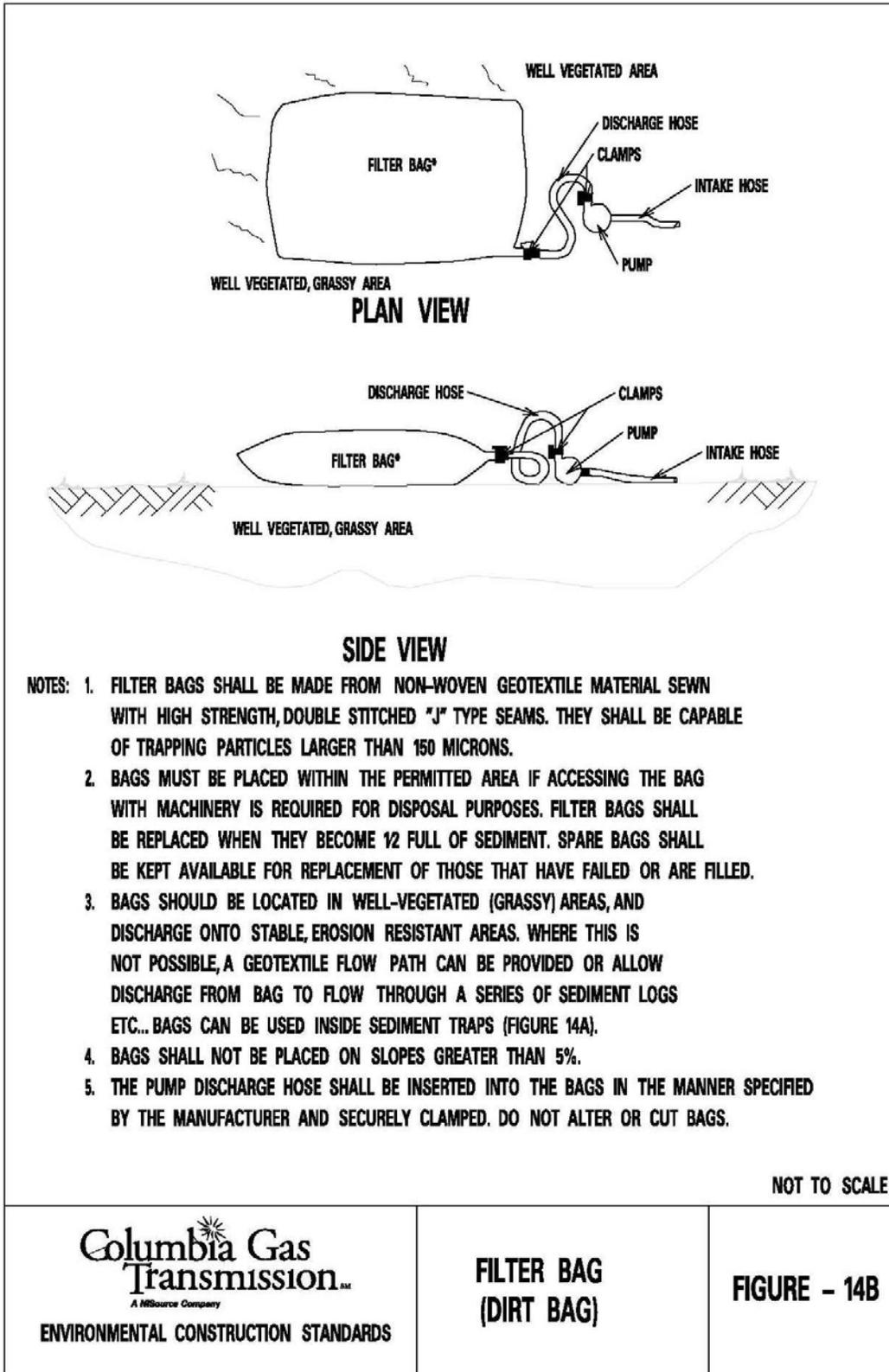
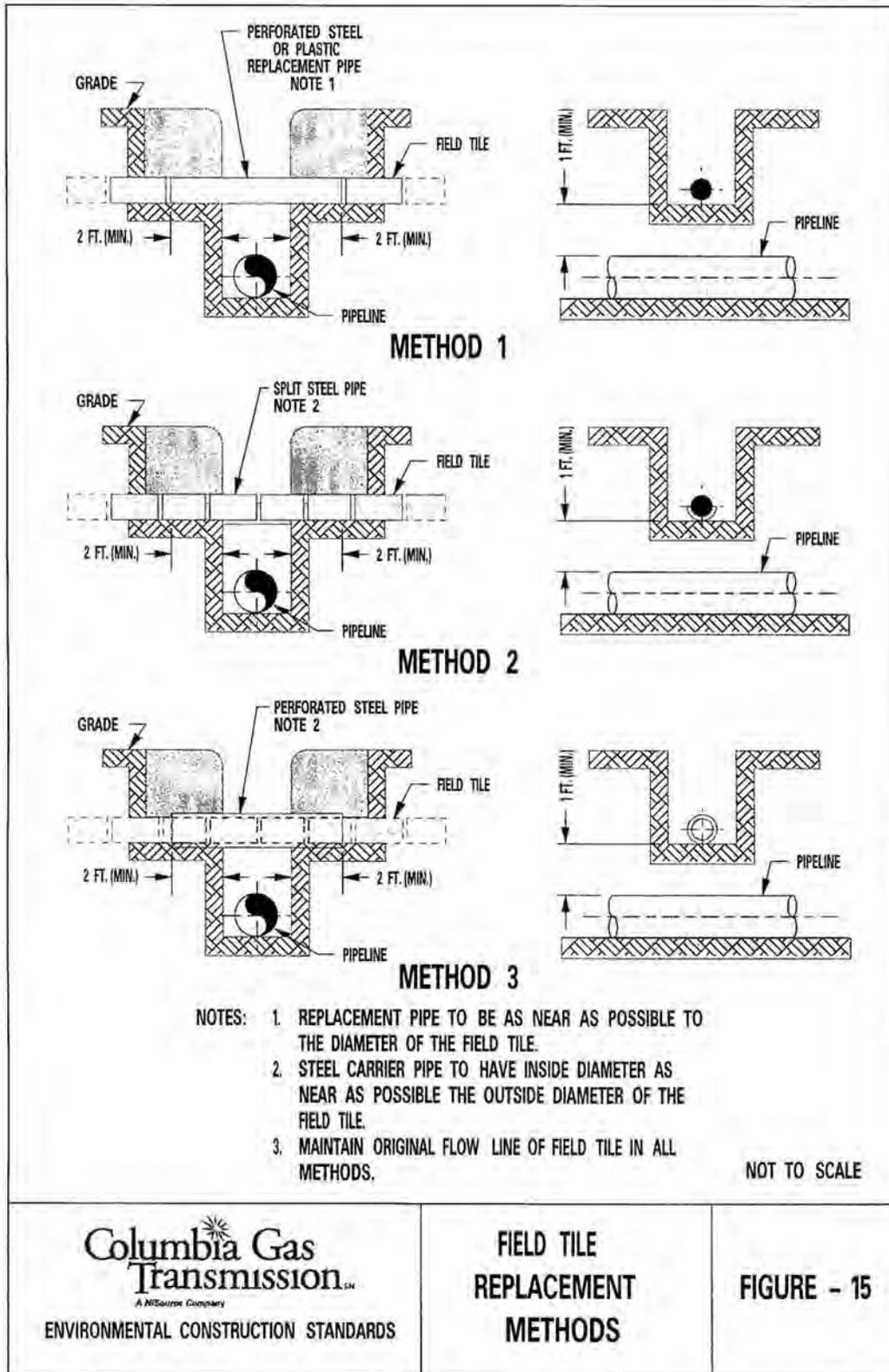


Figure 15 – Field Tile Replacement Methods



**Figure 16 – Erosion Control Blanket**

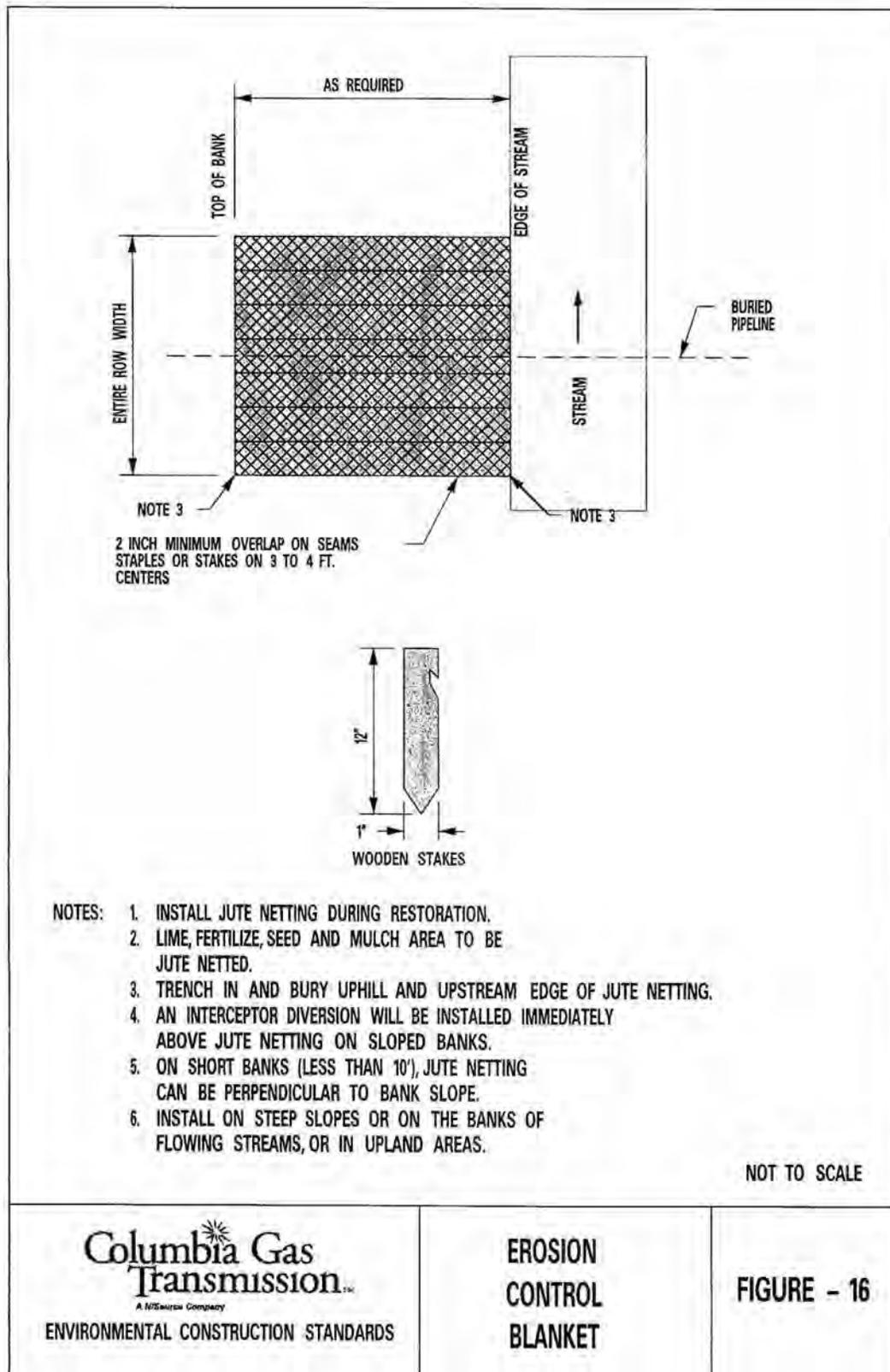


Figure 17 – Typical Stream Crossing Intermittent Streams

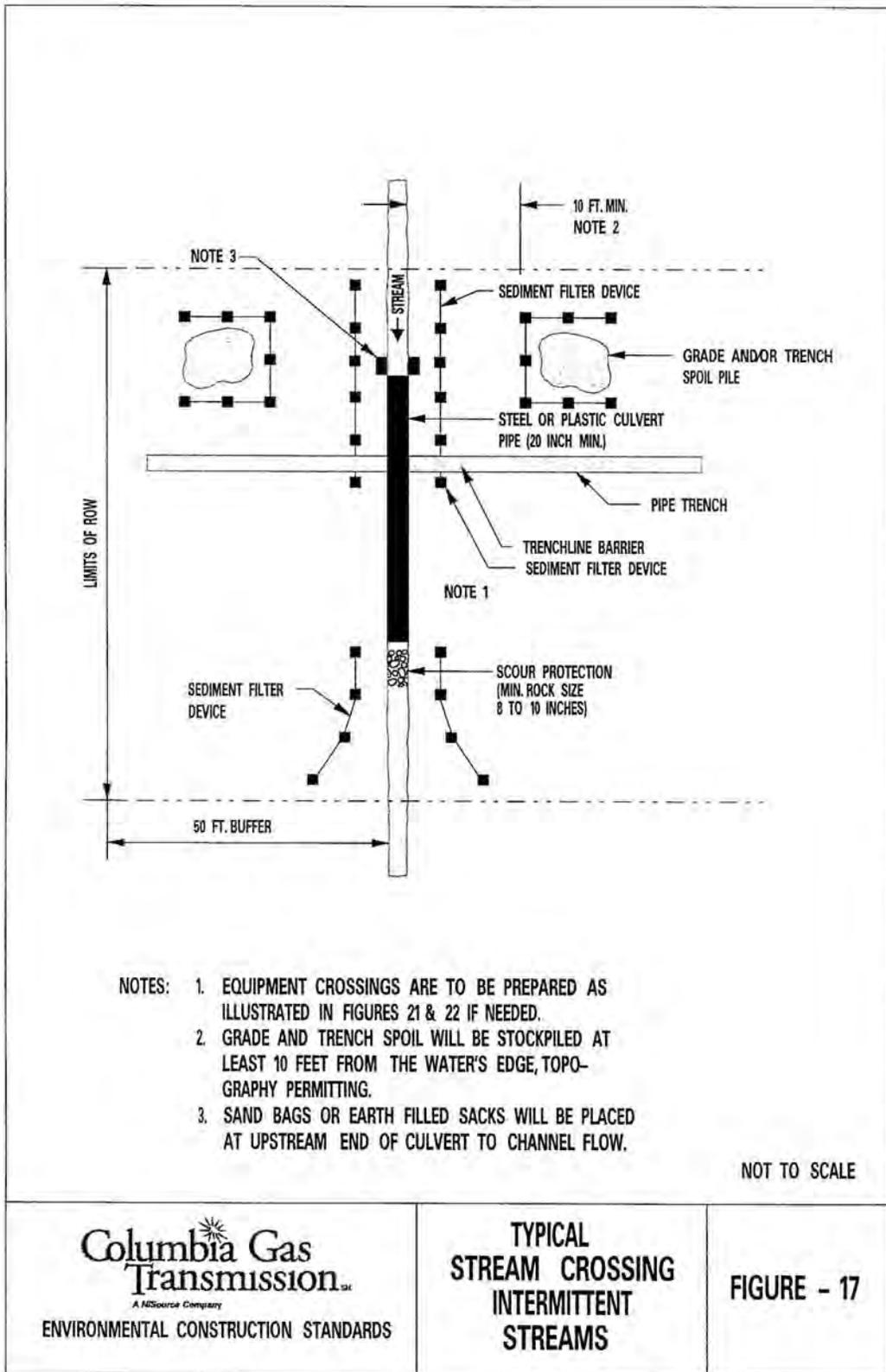


Figure 18 – Typical Stream Crossing Dry-Ditch

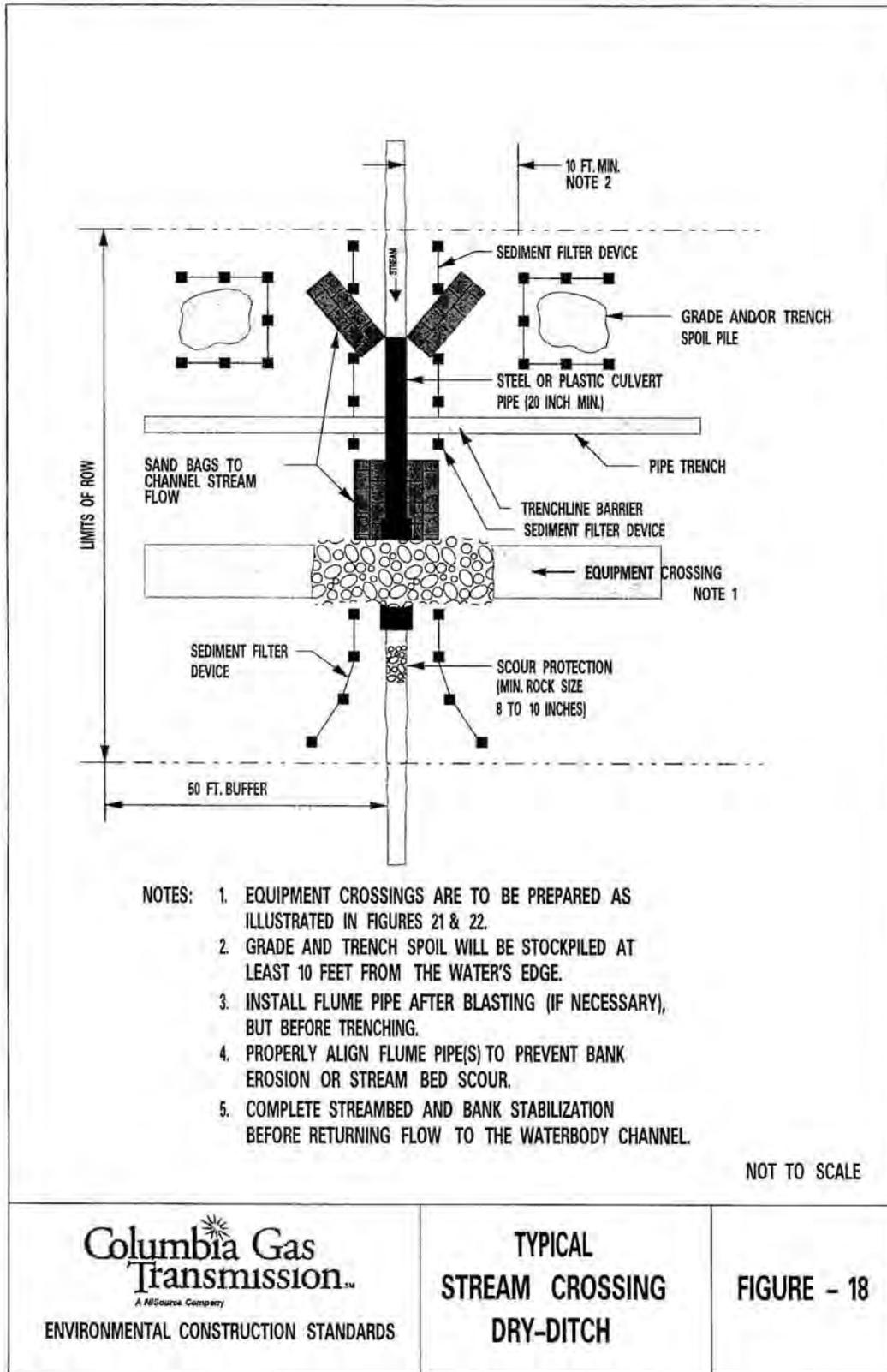
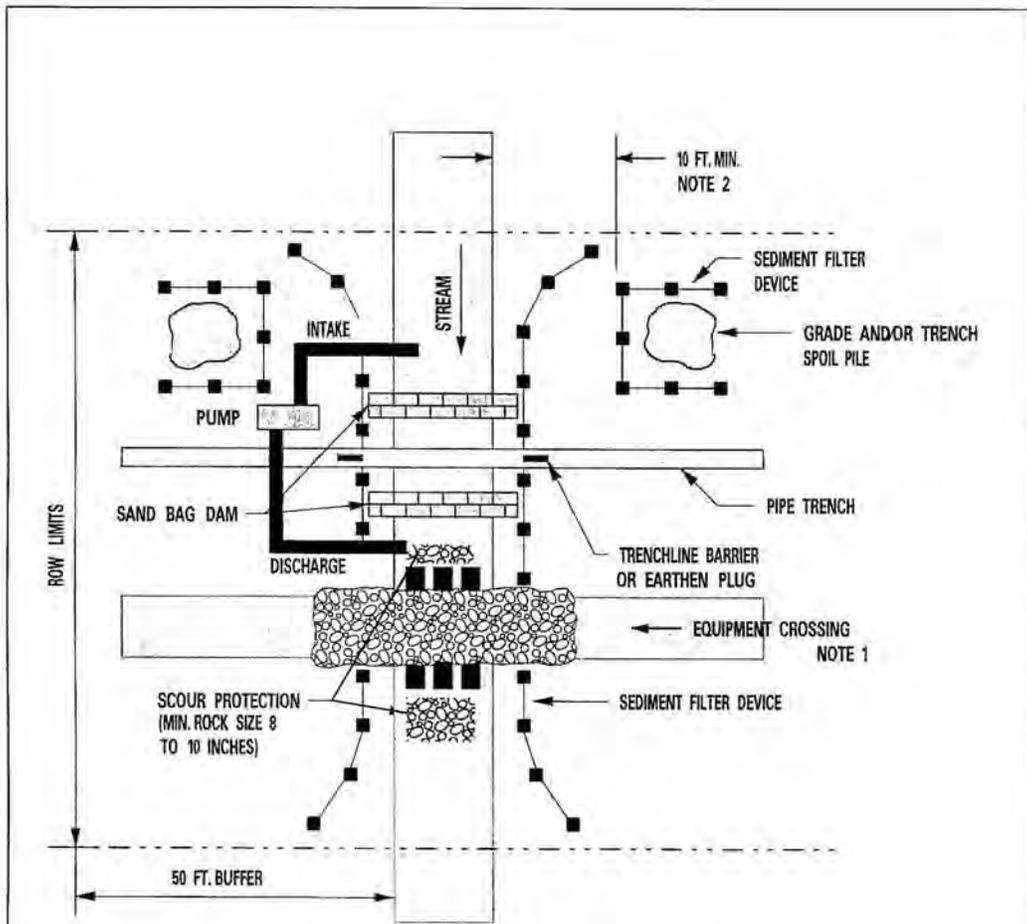


Figure 19 – Typical Stream Crossing Dam and Pump

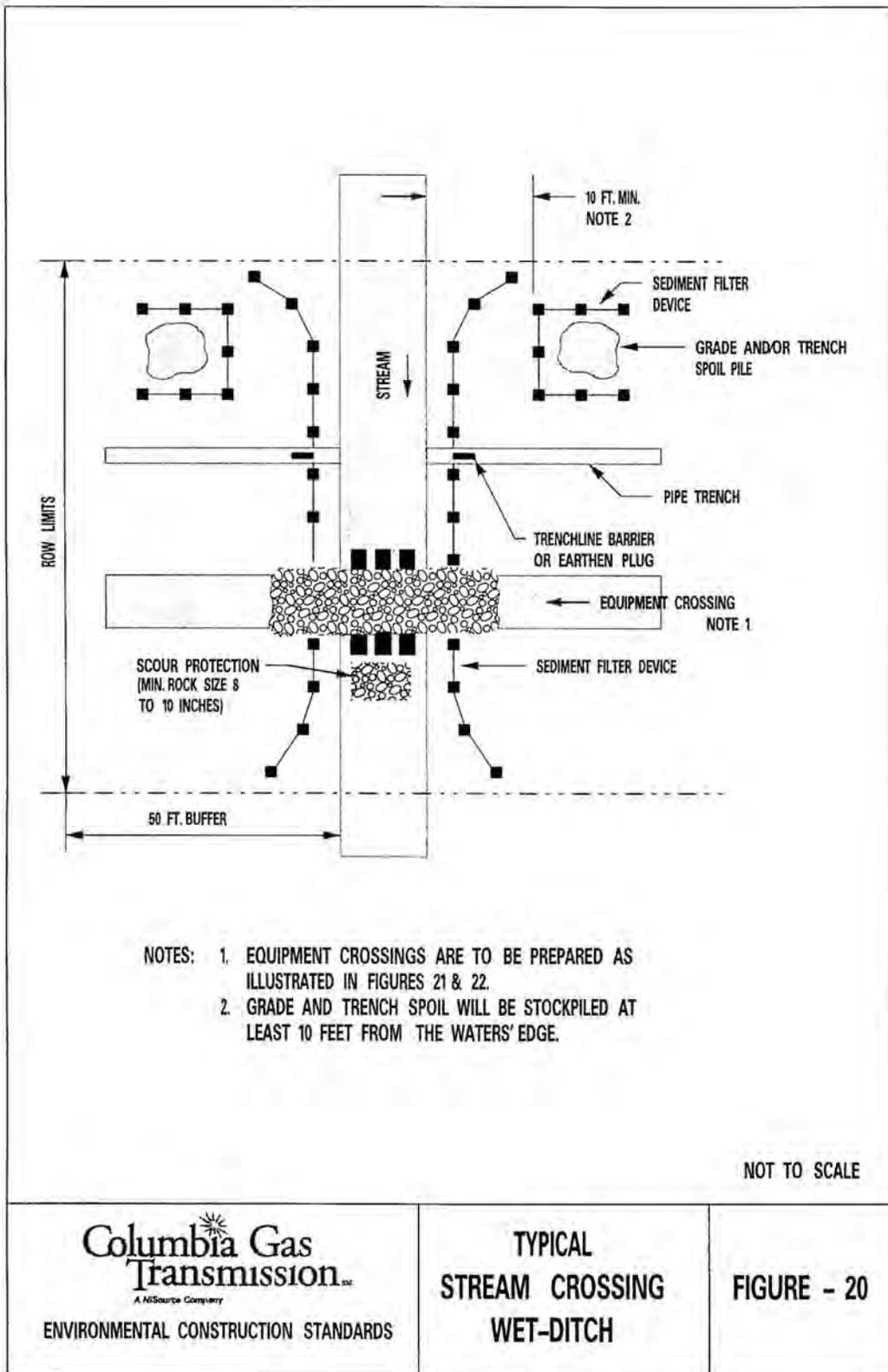


- NOTES:
1. EQUIPMENT CROSSINGS ARE TO BE INSTALLED AS ILLUSTRATED IN FIGURES 21 OR 22.
  2. GRADE AND TRENCH SPOIL WILL BE STOCKPILED AT LEAST 10 FEET FROM THE WATERS' EDGE, TOPOGRAPHY PERMITTING.
  3. PUMP INTAKES WILL BE SCREENED. PREVENT STREAMBED SCOUR AT DISCHARGE.
  4. SUFFICIENT PUMP CAPACITY WILL BE USED TO MAINTAIN STREAM FLOW AT ALL TIMES UNTIL BACKFILL AND REMOVAL OF SANDBAG DAM.
  5. BACKUP PUMPS (AS SAME NUMBER AND CAPACITY AS ACTIVE PUMPS ) WILL BE READILY AVAILABLE IN WORKING CONDITION ON SITE AT CROSSING.
  6. CONSTRUCT DAMS WITH MATERIAL THAT PREVENT SEDIMENT AND OTHER POLLUTANTS FROM ENTERING THE WATERBODY.
  7. MONITOR THE DAM AND PUMPS TO ENSURE PROPER OPERATIONS THROUGHOUT THE WATERBODY CROSSING.

NOT TO SCALE

<p style="text-align: center;">   <b>Columbia Gas Transmission</b>  <small>A NISource Company</small>  <b>ENVIRONMENTAL CONSTRUCTION STANDARDS</b> </p>	<p style="text-align: center;"> <b>TYPICAL                  STREAM CROSSING                  DAM AND PUMP</b> </p>	<p style="text-align: center;"> <b>FIGURE - 19</b> </p>
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Figure 20 – Typical Stream Crossing Wet-Ditch



**Figure 21 – Temporary Equipment Crossing Culvert and Stone**

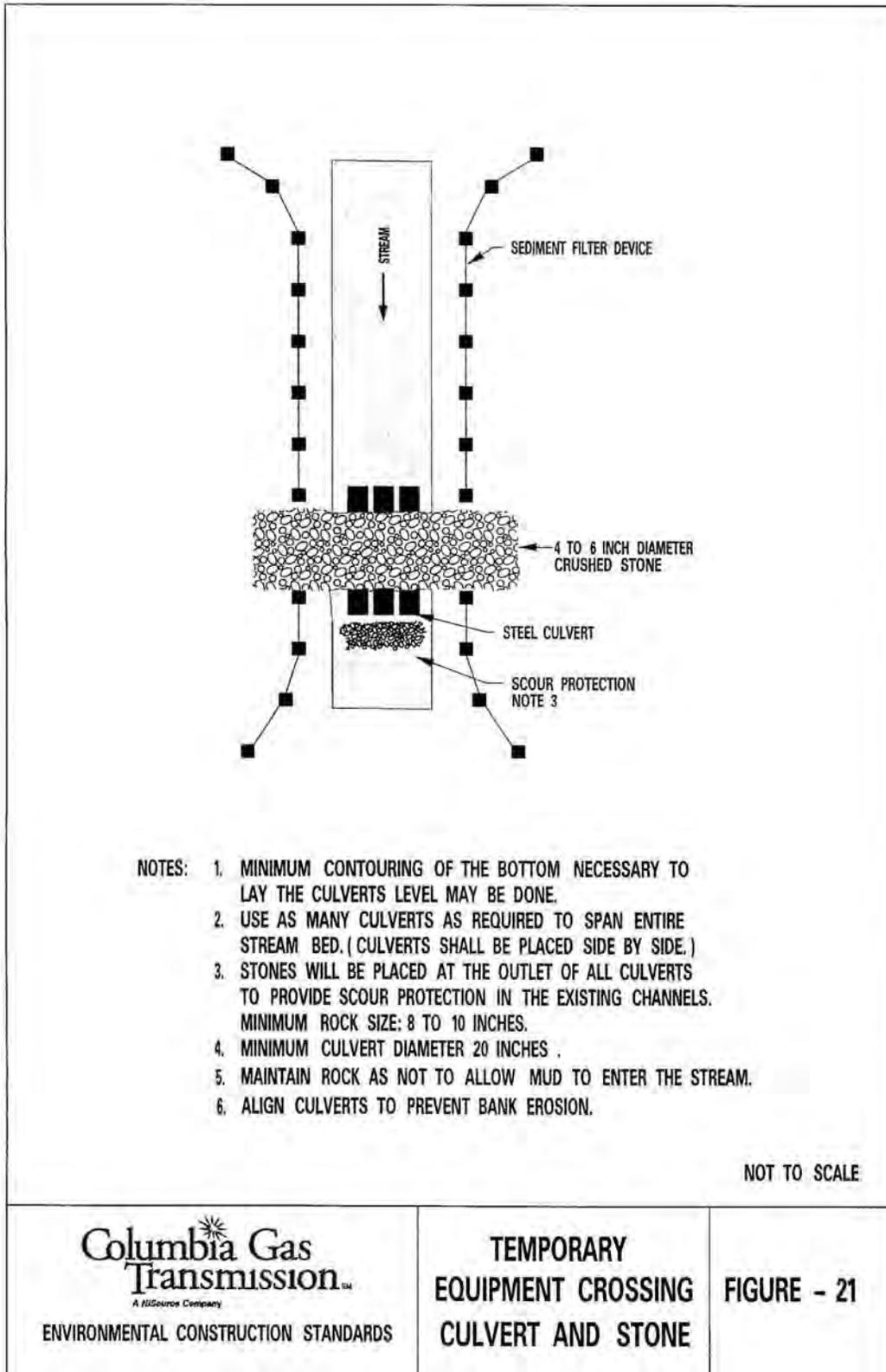


Figure 22 – Temporary Equipment Crossing Equipment Pads

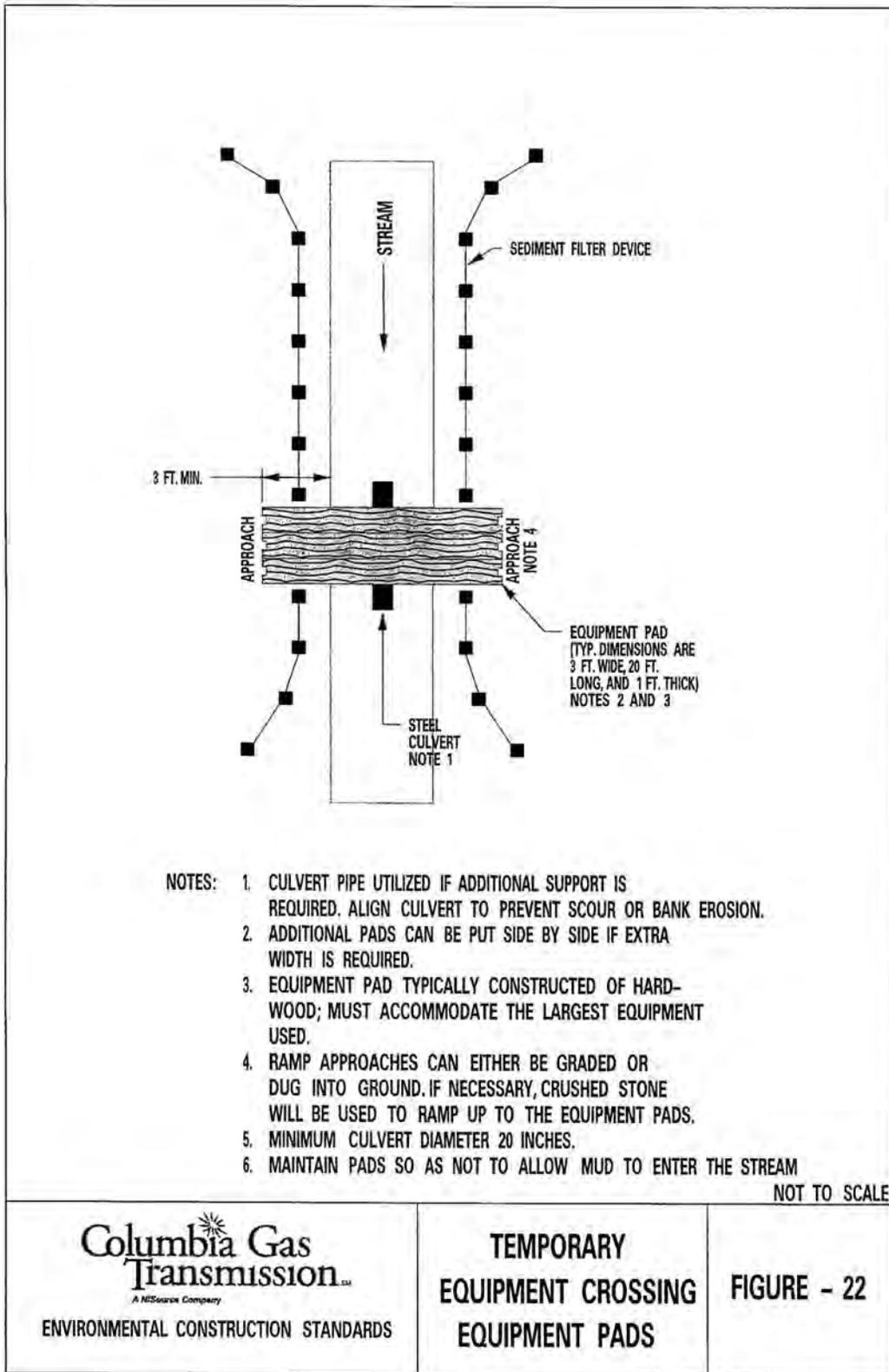


Figure 23 – Typical Wetland Crossing

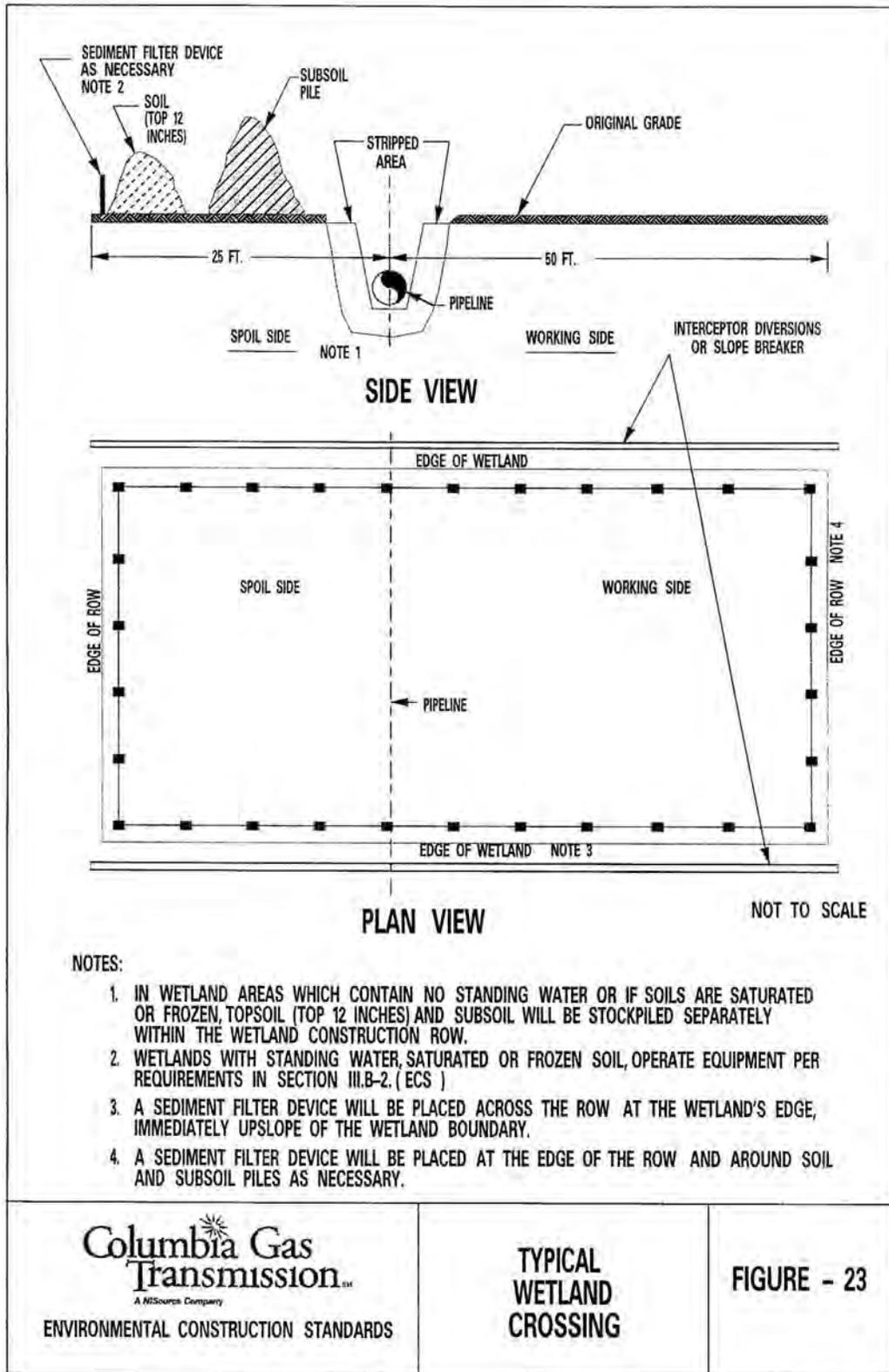
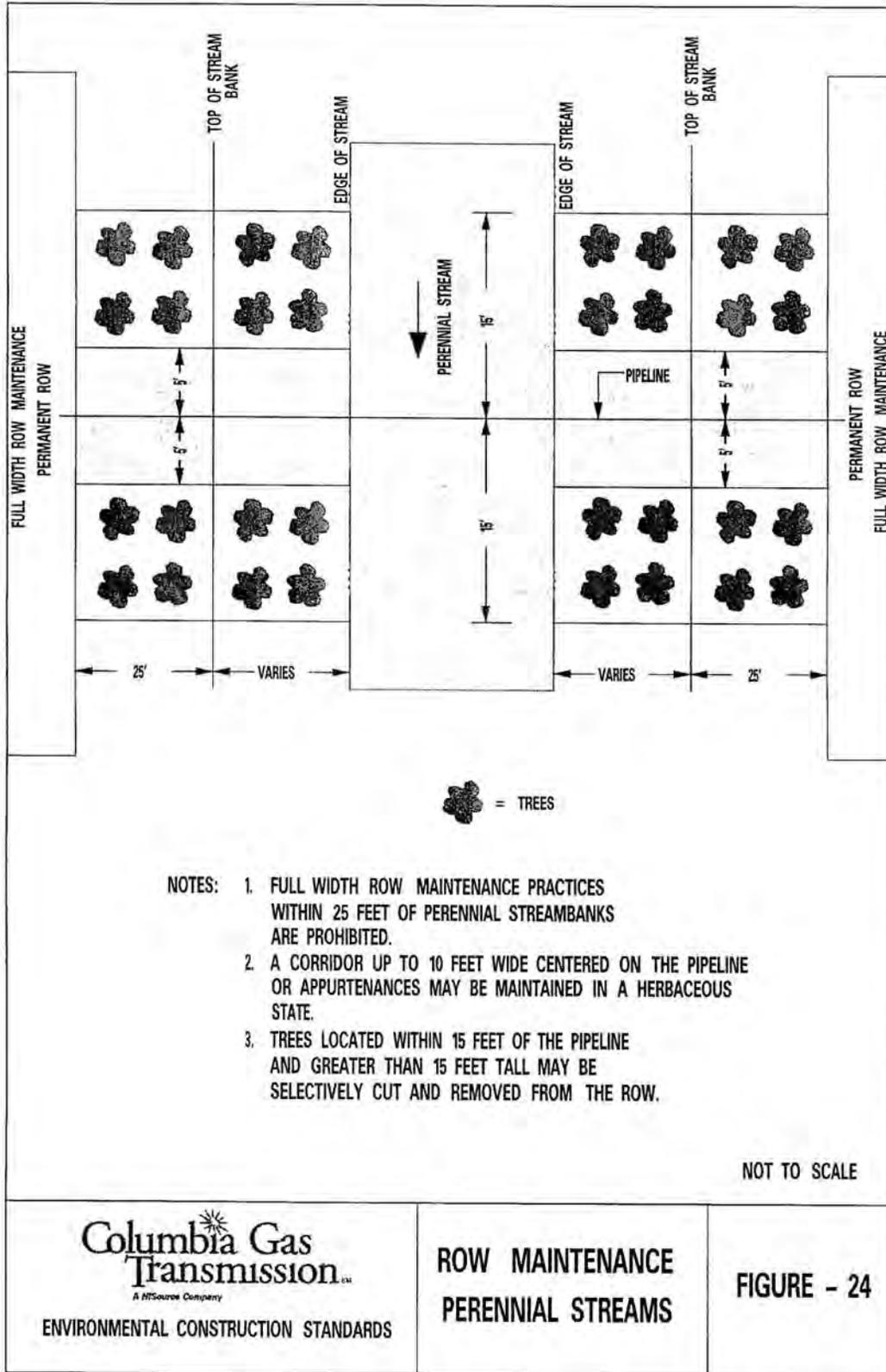
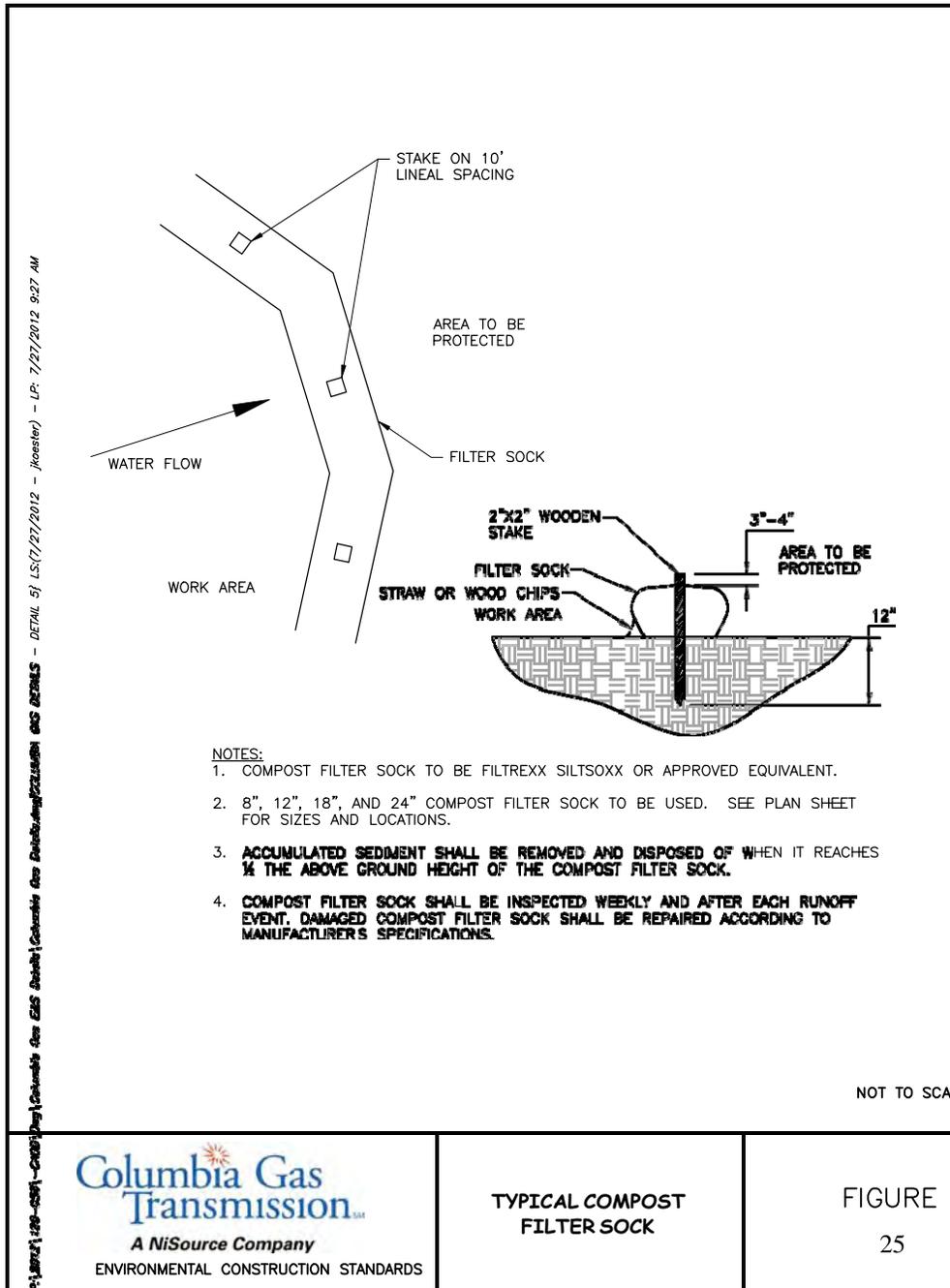


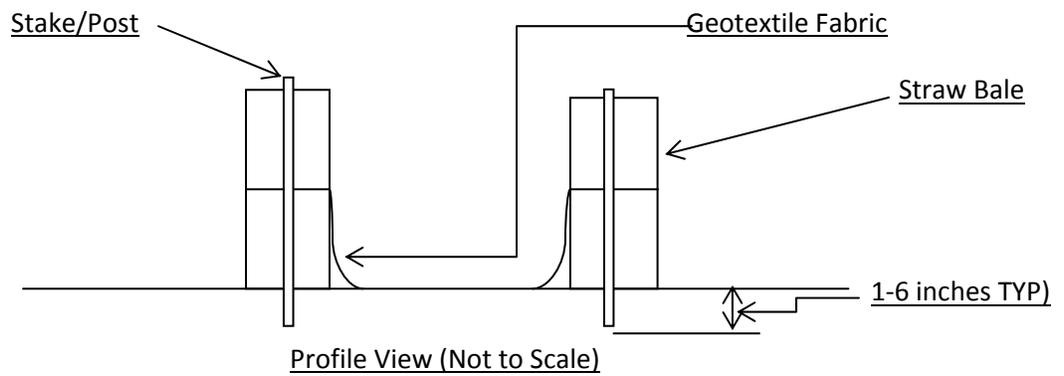
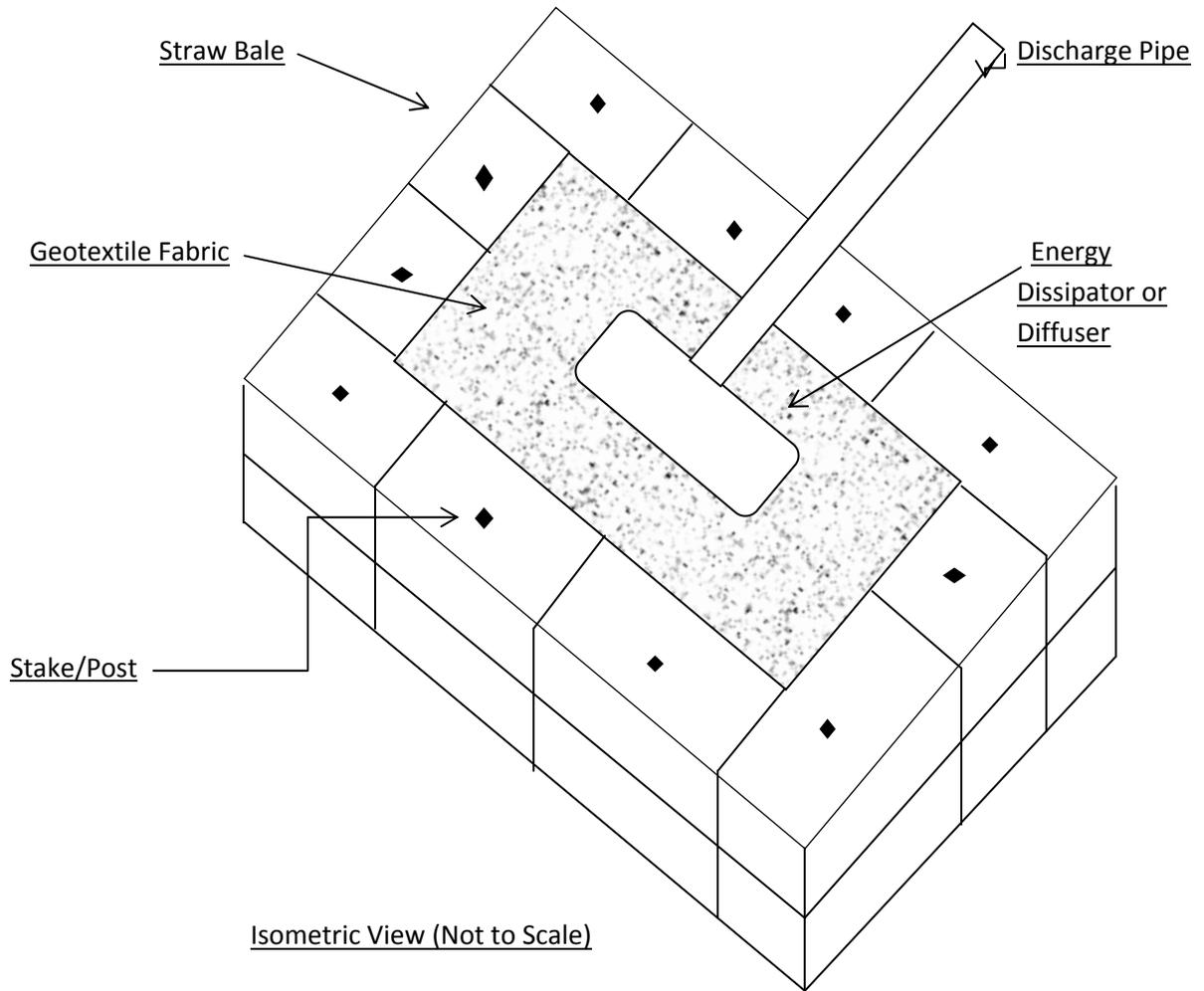
Figure 24 – ROW Maintenance Perennial Streams



**Figure 25 - Typical Compost Filter Sock**



**Figure 26 – Hydrostatic Test Dewatering Pit**



## Figure 26 – Hydrostatic Test Dewatering Pit

### Notes:

- All dewatering activities will be conducted in accordance with permit conditions.
- Discharge site should be well vegetate, where possible, and located at least 50ft from any waterbody. The topography of the site should be such that water will flow into the dewatering structure and away from any work areas.
- Direct the pumped water onto a stable spill pad constructed of straw bales or geotextile fabric staked to the ground surface.
- Discharge rates should be such that the structure will not overflow.
- Drive two stakes or posts into each bale to anchor them in place.
- Filter bags are a suitable alternative to straw bale structures for trench dewatering. Straw bales or filter sock can be added around the filter bag to provide additional sediment control where needed.
- Stakes or posts should be 2x2 wood or suitable alternative.
- Size of dewatering structure will be determined based on volume of discharge.

**APPENDIX E-1**  
**ATWS for the Mountaineer XPress Project Located within**  
**50 feet of Wetlands and Waterbodies**  
**and**  
**Deviations from FERC's Plan and Procedures**

APPENDIX E-1  
Table 1  
**Mountaineer XPress Project**  
**Requested Modifications to FERC's Wetland and Waterbody Construction and Mitigation Procedures**  
**Additional Temporary Workspace within 50 Feet of Wetlands or Waterbodies**

Facility/ Milepost	ATWS ID	Feature	Distance (feet)	Dimensions (feet)	ATWS Location Justification
<b>MXP-100</b>					
1.08	ATWS #6	Waterbody crossing	21	25x100	Location restricted by topography and proximity to feature.
1.12	ATWS #7	Waterbody crossing	19	25x99	ATWS needed for waterbody crossing.
6.24	ATWS #59	Truck turnaround area	25	25x74	Vehicle turn-around at intersection of ROW and access road.
6.40	ATWS #60A	Pipe bend location	25	25x100	ATWS location restricted by topography and proximity to pipe bend.
6.44	ATWS #60B	Wetland crossing	47	25x100	ATWS location restricted by topography.
6.54	ATWS #60D	Waterbody crossing	46	25x100	ATWS location restricted by topography and proximity to features.
6.59	ATWS #60E	Wetland crossing	27	25x100	ATWS location restricted by proximity to wetland workspace reduction area.
11.44	ATWS #96	Side slope	22	25x492	ATWS location restricted by topography and proximity to waterbody crossing.
11.51	ATWS #97	Waterbody crossing	15	106x76	ATWS needed for road and waterbody crossings. Located restricted by area between the features.
13.30	ATWS #114	Waterbody crossing	41	49x50	ATWS location restricted by topography and proximity to features.
15.00	ATWS #140	Road crossing	20	100x74	ATWS needed for road and waterbody crossing. Location maintains greater than 15 feet offset from adjacent off right-of-way feature.
22.49	ATWS #222	Side slope	45	25x466	ATWS needed for side slope construction. Waterbody is within construction workspace.
24.12	ATWS #252	Waterbody crossing	28	25x100	ATWS needed for pipe bend location and side slope construction. Location maintains greater than 15 foot offset from adjacent resource.
24.61	ATWS#258	Railroad crossing	44	50x215	ATWS location restricted between the two features.
26.42	ATWS #271	Waterbody crossing	33	25x99	ATWS needed for pipe bend location and waterbody. Location maintains greater than 15-foot offset from adjacent resource.
27.89	ATWS #281A	Steep slope	26	50x300	ATWS needed for steep slope construction. ATWS located at the top of the slope.
28.57	ATWS #290	Waterbody crossing	46	25x99	ATWS needed for waterbody crossing. Location restricted by topography and proximity to feature.
29.35	ATWS #293	Pipe bend location	29	25x60	ATWS location restricted by proximity to pipe bend.
30.34	ATWS #304	Waterbody crossing	48	25x100	ATWS needed for waterbody crossing. Location restricted by topography and proximity to feature.
34.94	ATWS #343	Road Crossing	37	25x53	ATWS location restricted by topography.
35.31	ATWS #350	Waterbody Crossing	48	25x50	ATWS location restricted by topography.
38.28	ATWS #372	Road crossing	18	25x172	ATWS location restricted by topography.
38.29	ATWS #373	Road crossing	39	25x105	ATWS location restricted by topography.
38.56	ATWS #373A	Waterbody Crossing	0	25x200	ATWS location restricted by topography.

APPENDIX E-1  
Table 1  
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Facility/ Milepost	ATWS ID	Feature	Distance (feet)	Dimensions (feet)	ATWS Location Justification
47.61	ATWS #428B	Truck Turnaround	24	25x164	ATWS location restricted by topography.
48.35	ATWS #431	Road Crossing	0	25x230	ATWS location restricted by topography.
48.47	ATWS #431A	Road crossing	8	25x60	Direct Pipe workspace for Highway 50 crossing between highway and Buckeye Creek
48.49	ATWS #431B	Road crossing	0	25x75	ATWS for road crossing and Buckeye Creek
53.81	ATWS #452G	Truck turnaround	16	80x112	ATWS location restricted by proximity to access road intersection with construction right-of-way
54.50	ATWS #479	Foreign utility crossover	42	25x99	ATWS needed for foreign utility line crossing. Location restricted by topography and proximity to feature.
59.59	ATWS #496B	Road crossing	18	25x100	ATWS location restricted by topography and proximity to features.
59.66	ATWS #498A	Bridge assembly	37	110x307	ATWS location restricted by proximity to feature.
67.48	ATWS #547	Road crossing	31	37x152	ATWS location restricted by proximity to features.
68.35	ATWS #554	Waterbody crossing	45	49x50	ATWS needed for waterbody crossing. Location restricted by topography and proximity to feature.
71.22	ATWS #579	Waterbody crossing	17	25x99	ATWS needed wetland avoidance neck down. ATWS maintains greater than 15 foot offset from adjacent feature.
71.47	ATWS #583	Pipe bend location	30	25x126	ATWS needed for pipe bend location. Location maintains greater than 15 foot offset from adjacent feature.
72.27	ATWS #588	Wetland crossing	36	50x200	ATWS needed for wetland, road, and waterbody crossing. Location restricted by proximity to all features.
72.28	ATWS #589	Wetland crossing	45	50x355	ATWS location restricted by proximity to features.
72.40	ATWS #589A	Waterbody crossing	2	25x246	ATWS location restricted by proximity to features.
72.53	ATWS #591	Waterbody crossing	5	25x363	ATWS for pipe bend and waterbody crossing. Location restricted by topography and adjacent resources.
72.75	ATWS #594	Waterbody crossing	39	25x137	ATWS needed for road and waterbody crossing. Location restricted by proximity to these features.
73.22	ATWS #597	Waterbody crossing	43	459x79	ATWS needed for two waterbody and one wetland crossing. Location restricted by topography and proximity to features.
74.50	ATWS #612	Waterbody crossing	10	50x570	ATWS needed for waterbody crossing.
74.98	ATWS #619	Waterbody crossing	42	50x148	ATWS needed for waterbody crossing. Location restricted by topography and proximity to feature.
75.50	ATWS #629	Waterbody crossing	9	25x99	ATWS needed for waterbody crossing.
76.39	ATWS #639A	Waterbody crossing	9	25x30	ATWS location restricted by proximity to features.

APPENDIX E-1  
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Facility/ Milepost	ATWS ID	Feature	Distance (feet)	Dimensions (feet)	ATWS Location Justification
77.05	ATWS #646	Waterbody crossing	46	50x169	ATWS needed for pipe bend location and waterbody crossing.
77.56	ATWS #654	Waterbody crossing	35	25x228	ATWS needed for pipe bend location and for waterbody crossing. Located greater than 15 feet from adjacent waterbody/resource.
77.94	ATWS #662	Truck Turnaround	24	25x100	ATWS location restricted by Access Road intersection.
79.70	ATWS #683	Waterbody crossing	37	50x149	ATWS needed for waterbody crossing. Location restricted by topography and proximity to waterbody. Closest resource is within construction work area.
79.71	ATWS #684	Waterbody crossing	45	25x229	ATWS needed for waterbody crossing. Location restricted by topography and proximity to waterbody
90.35	ATWS #795	Pipe bend location	44	25x109	ATWS needed for pipe bend location. Location maintains greater than 15 feet separation from adjacent resource.
90.63	ATWS #799	Road crossing	46	25x152	ATWS needed for road and waterbody crossing. Location restricted by topography and proximity to features.
90.69	ATWS #801	Waterbody crossing	44	25x149	ATWS needed for waterbody crossing. Location restricted by topography and proximity to feature.
91.16	ATWS #807	Waterbody crossing	31	25x103	ATWS needed for waterbody crossing. Location restricted by topography and proximity to feature.
93.92	ATWS #835A	Pipe bend location	16	25x157	ATWS location restricted by proximity to pipe bend.
93.97	ATWS #836	Pipe bend location	16	365x31	ATWS needed for side slope construction and pipe bend location.
94.35	ATWS #843	Waterbody crossing	40	32x86	ATWS needed for road and waterbody crossing. ATWS on opposite side of road from waterbody.
94.40	ATWS #845	Pipe bend location	35	25x185	ATWS needed for pipe bend location. Closest feature is within construction work area.
94.75	ATWS #850	Waterbody crossing	43	553x179	ATWS needed for waterbody crossing and pipe bend location.
94.90	ATWS #852	Waterbody crossing	47	167x255	ATWS location restricted by topography and proximity to feature.
95.28	ATWS #856	Topsoil segregation	43	25x99	ATWS location restricted by topography.
96.56	ATWS #867	Waterbody Crossing	49	50x263	ATWS needed for road and waterbody crossing. ATWS situated between road and waterbody.
96.57	ATWS #868	Road crossing	20	50x312	ATWS needed for road and waterbody crossing. ATWS situated between road and waterbody.
96.92	ATWS #874	Waterbody crossing	10	102x207	ATWS needed for waterbody crossing. Location restricted by topography and proximity to feature.
97.38	ATWS #879	Waterbody crossing	33	123x129	ATWS needed for waterbody crossing. Location restricted by topography and proximity to feature.

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Facility/ Milepost	ATWS ID	Feature	Distance (feet)	Dimensions (feet)	ATWS Location Justification
97.35	ATWS #880	Waterbody crossing	25	235x132	ATWS needed for waterbody crossing. Location restricted by topography and proximity to feature.
97.38	ATWS #880A	Road crossing	44	25x89	ATWS location restricted by topography and proximity to features.
97.47	ATWS #882	Waterbody crossing	48	25x379	ATWS location restricted by topography and proximity to feature.
97.67	ATWS #883	Road crossing	35	25x199	ATWS needed for road and waterbody crossing. Location restricted by topography and proximity to features.
100.15	ATWS #918	Road crossing	27	137x70	ATWS needed for road and waterbody crossing. ATWS on opposite side of road from closest waterbody.
104.00	ATWS #970	Wetland crossing	49	25x346	ATWS needed for pipe bend location and side slope construction. NOTE: wetland is on opposite side of construction workspace.
104.66	ATWS #978	Road crossing	22	25x99	ATWS needed for road and waterbody crossing. ATWS on opposite side of road from waterbody.
104.71	ATWS #979	Road crossing	29	340x64	ATWS needed for road and waterbody crossing. Location restricted by topography and proximity to features.
105.73	ATWS #991	Pipe bend location	36	25x110	ATWS needed at pipe bend location.
107.15	ATWS #1016	Pipe bend location	30	25x249	ATWS needed for two pipe bend locations. Location maintains a least a 15 foot separation from adjacent features.
107.47	ATWS #1021	Waterbody crossing	41	50x112	ATWS needed for two waterbody crossings. Location restricted by proximity to both waterbodies.
109.84	ATWS #1045	Pipe bend location	36	25x112	ATWS needed for pipe bend location. Closest resource is within construction work area.
110.54	ATWS #1058	Waterbody crossing	31	50x100	ATWS location restricted by topography and proximity to features.
111.67	ATWS #1067	Waterbody crossing	40	50x102	ATWS location restricted by topography and proximity to features.
113.30	ATWS #1090	Road crossing	28	199x203	ATWS location restricted by topography and proximity to road.
113.30	ATWS #1091	Road crossing	41	164x160	ATWS needed for highway crossing. Location greater than 15 feet from adjacent, off ROW waterbody.
115.24	ATWS #1103	Road crossing	40	25x175	ATWS needed for road and waterbody crossing. Waterbody is on opposite side of highway.
116.12	ATWS#1116	Road crossing	45	134x249	ATWS location restricted by topography and proximity to feature.
118.55	ATWS #1135A	Road crossing	39	25x125	ATWS location restricted by proximity to road crossing.
122.85	ATWS #1181A	Road crossing	35	25x98	ATWS location restricted by topography and proximity to road crossing.
123.23	ATWS #1187	Pipe bend location	21	25x114	ATWS location restricted by topography and proximity to pipe bend.

APPENDIX E-1  
Table 1  
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Facility/ Milepost	ATWS ID	Feature	Distance (feet)	Dimensions (feet)	ATWS Location Justification
124.05	ATWS #1194	Road crossing	9	25x226	ATWS location restricted by proximity to pipe bend and adjacent features. ATWS associated with Highway 77 bore.
124.07	ATWS #1193A	Road crossing	30	115x115	ATWS location restricted by topography and proximity to road bore.
124.57	ATWS #1197	Road crossing	29	216x50	ATWS needed for road crossing. ATWS location restricted by road crossing and proximity to waterbody.
124.84	ATWS #1197A	Side slope	0	29x308	ATWS location restricted by topography and proximity to feature.
125.08	ATWS #1197C	Waterbody crossing	41	29x308	ATWS location restricted by topography and proximity to features.
125.23	ATWS #1198	Pipe bend location	36	25x107	ATWS location restricted by topography and proximity to feature.
127.01	ATWS #1216	Pipe bend location	19	25x113	ATWS location restricted by topography and proximity to pipe bend.
129.42	ATWS #1235	Road crossing	35	50x54	ATWS needed for road and waterbody crossing. ATWS located on opposite side of road from feature.
129.45	ATWS #1236	Road crossing	10	50x111	ATWS needed for road and waterbody crossing.
129.45	ATWS #1237	Road crossing	10	50x95	ATWS needed for road and waterbody crossing.
130.98	ATWS #1248A	Waterbody crossing	3	50x100	ATWS location restricted by topography and proximity to feature.
131.71	ATWS #1248G	Pipe bend location	17	25x84	ATWS location restricted by topography and proximity to features.
131.84	ATWS #1248L	Side slope	45	25x100	ATWS location restricted by topography.
132.75	ATWS #1269	Pipe bend location	27	15x106	ATWS location restricted by proximity to pipe bend.
133.14	ATWS #1272	Road crossing	25	50x354	ATWS location restricted topography and proximity to features.
133.15	ATWS #1273	Road crossing	26	50x345	ATWS location restricted topography and proximity to features.
134.33	ATWS #1281	Waterbody crossing	36	25x146	ATWS needed for waterbody crossing and pipe bend location. ATWS location maintains at least a 15 foot offset from adjacent resource.
134.68	ATWS #1284	Road crossing	7	50x104	ATWS needed for road crossing.
137.06	ATWS #1309	Waterbody crossing	9	25x100	ATWS location restricted by topography.
138.00	ATWS #1331	Wetland crossing	15	25x145	ATWS needed for road and wetland crossing.
138.02	ATWS #1332	Road crossing	36	25x113	ATWS situated between road and Spring Valley Branch for use on both crossings. Closest resource is within construction ROW.
138.03	ATWS #1331A	Wetland crossing	15	25x31	ATWS location restricted by proximity to road and wetland features.
138.49	ATWS #1343	Road crossing	37	25x123	ATWS needed for road crossing. Waterbody is located on opposite side of road.
141.27	ATWS #1373	Truck turnaround area	38	25x99	ATWS needed for vehicle turn-around at intersection of access road and work area.

APPENDIX E-1  
Table 1  
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Facility/ Milepost	ATWS ID	Feature	Distance (feet)	Dimensions (feet)	ATWS Location Justification
141.82	ATWS #1380	Waterbody crossing	46	214x113	ATWS needed for waterbody crossing. Location restricted by topography and proximity to feature. Maintains greater than 15 foot separation from off ROW feature.
142.01	ATWS #1383	Road crossing	30	50x179	ATWS needed for road crossing.
143.42	ATWS #1400	Pipe bend location	19	25x110	ATWS needed for pipe bend location.
144.46	ATWS #1420	Pipe bend location	49	25x81	ATWS location restricted by proximity to pipe bend.
144.99	ATWS #1428	Waterbody crossing	40	25x100	ATWS location restricted by topography and proximity to feature.
145.03	ATWS #1429	Truck turnaround area	19	25x99	ATWS needed for vehicle turn-around at intersection of access road and pipeline ROW, in flat terrain
146.25	ATWS #1450	Road crossing	40	171x116	ATWS needed for road and waterbody crossing. ATWS situated between road and waterbody.
147.17	ATWS #1462A	Water appropriation location	0	50x50	Water appropriation site for Kanawha River
146.30	ATWS #1450A	Waterbody crossing	37	25x100	ATWS location restricted by topography and proximity to feature.
147.02	ATWS #1462B	HDD	22	50x287	ATWS required for Kanawha River HDD.
147.73	ATWS #1462C	HDD	0	55x2,031	ATWS required for Kanawha River HDD pipe assembly.
148.19	ATWS #1467	Road crossing	39	50x104	ATWS location restricted by proximity to road.
150.48	ATWS #1485A	Waterbody crossing	14	50x99	ATWS location restricted by topography and proximity to feature.
154.10	ATWS #1526	Pipe bend location	42	25x117	ATWS required for PI, ATWS greater than 15 feet from adjacent off ROW resource.
154.83	ATWS #1529A	Top of steep slope	47	25x139	ATWS location restricted by topography and proximity to features.
154.91	ATWS #1529B	Road crossing	48	35x50	ATWS location restricted by proximity between features.
156.36	ATWS #1536A	Top of steep slope	43	25x125	ATWS location restricted by adjacent features.
156.92	ATWS #1542	Pipe bend location	16	25x115	Stream is within TWS. ATWS required for PI.
157.78	ATWS #1548	Pipe bend location	43	25x108	ATWS needed for pipe bend location.
160.73	ATWS #1599A	Road crossing	29	75x107	ATWS location restricted by proximity to road and waterbody crossing.
160.87	ATWS #1601	Road crossing	44	25x275	ATWS needed for road, driveway, and waterbody crossing.
161.61	ATWS #1610A	Road crossing	7	41x50	ATWS location restricted by proximity to road and wetland features.
162.82	ATWS #1622	Road crossing	0	50x255	ATWS needed within a wetland for highway bore. No ATWS available on other side of road due to topography.

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Facility/ Milepost	ATWS ID	Feature	Distance (feet)	Dimensions (feet)	ATWS Location Justification
163.66	ATWS #1627	Road crossing	45	50x300	ATWS location restricted by proximity to road and topography.
<b>MXP-200</b>					
1.09	ATWS #SL 3A	Waterbody crossing	29	25x154	ATWS location restricted by proximity to feature.
1.15	ATWS #SL 3B	Waterbody crossing	37	25x125	ATWS location restricted by proximity to feature.
2.96	ATWS #SL 17A	Truck turnaround	33	25x100	ATWS location restricted by proximity to intersection with access road.
3.07	ATWS #SL 19	Road crossing	41	25x100	ATWS needed for road and waterbody crossing. Location restricted between features.
<b>Ripley Regulator Station</b>					
N/A	ATWS #R1	Ripley tie-in	0	306x13	ATWS location restricted by proximity to Ripley Regulator Station.
Notes: ATWS = additional temporary workspace; ROW = right-of-way; N/A = Not applicable					

APPENDIX E-1  
Table 2

**Comparison of Columbia's West Virginia Environmental Construction Standards with  
FERC's Upland Erosion Control, Revegetation and Maintenance Plan and Wetland and Waterbody Construction and Mitigation Procedures  
Mountaineer XPress Project**

Requirement	Source	Status
<b>FERC's Upland Erosion, Control, Revegetation and Maintenance Plan</b>		
<p><b>APPROVED AREAS OF DISTURBANCE</b> The construction right-of-way width for a project shall not exceed 75 feet or that described in the FERC application unless otherwise modified by a FERC Order. However, in limited, non-wetland areas, this construction right-of-way width may be expanded by up to 25 feet without Director approval to accommodate full construction right-of-way topsoil segregation and to ensure safe construction where topographic conditions (e.g., side-slopes) or soil limitations require it. Twenty-five feet of extra construction right-of-way width may also be used in limited, non-wetland or non-forested areas for truck turn-arounds where no reasonable alternative access exists.</p>	FERC Plan, Section IV.A.2	Additional construction ROW requested by Columbia Gas. Approved by FERC.
<p><b>MONITORING AND MAINTENANCE</b> Routine vegetation mowing or clearing over the full width of the permanent right-of-way in uplands shall not be done more frequently than every 3 years. However, to facilitate periodic corrosion/leak surveys, a corridor not exceeding 10 feet in width centered on the pipeline may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In no case shall routine vegetation mowing or clearing occur during the migratory bird nesting season between April 15 and August 1 of any year unless specifically approved in writing by the responsible land management agency or the U.S. Fish and Wildlife Service.</p>	FERC Plan, Section VII.A.5	Adopted for the Project
<p><b>REPORTING</b> The project sponsor shall maintain records that identify by milepost:</p> <ol style="list-style-type: none"> <li>a. method of application, application rate, and type of fertilizer, pH modifying agent, seed, and mulch used;</li> <li>b. acreage treated;</li> <li>c. dates of backfilling and seeding;</li> <li>d. names of landowners requesting special seeding treatment and a description of the follow-up actions;</li> <li>e. the location of any subsurface drainage repairs or improvements made during restoration; and</li> <li>f. any problem areas and how they were addressed.</li> </ol>	FERC Plan, Section VII.B.1	Adopted for the Project
<b>FERC's Wetland and Waterbody Construction and Mitigation Procedures</b>		
<p><b>PRECONSTRUCTION FILING</b> The following information must be filed with the Secretary of the FERC (Secretary) prior to the beginning of construction, for the review and written approval by the Director:</p> <ol style="list-style-type: none"> <li>1. site-specific justifications for extra work areas that would be closer than 50 feet from a waterbody or wetland; and</li> <li>2. site-specific justifications for the use of a construction right-of-way greater than 75-feet-wide in wetlands</li> </ol>	FERC Procedures, Section II.A	Provided in Table 1 above. Approved by FERC.
<p><b>GENERAL CROSSING PROCEDURES</b> Where pipelines parallel a waterbody, maintain at least 15 feet of undisturbed vegetation between the waterbody (and any adjacent wetland) and the construction right-of-way, except where maintaining this offset will result in greater environmental impact.</p>	FERC Procedures, Section V.B.3.c	Additional construction ROW requested Site-specific crossing plans were provided. Approved by FERC.
<p><b>GENERAL CROSSING PROCEDURES</b> Only clearing equipment and equipment necessary for installation of equipment bridges may cross waterbodies prior to bridge installation. Limit the number of such crossings of each waterbody to one per piece of clearing equipment</p>	FERC Procedures, Section V.B.5.a	Adopted for the Project
<p><b>GENERAL CROSSING PROCEDURES</b> Design and maintain each equipment bridge to withstand and pass the highest flow expected to occur while the bridge is in place. Align culverts to prevent bank erosion or streambed scour. If necessary, install energy dissipating devices downstream of the culverts</p>	FERC Procedures, Section V.B.5.c	Adopted for the Project

APPENDIX E-1  
Table 2

**Comparison of Columbia's West Virginia Environmental Construction Standards with  
FERC's Upland Erosion Control, Revegetation and Maintenance Plan and Wetland and Waterbody Construction and Mitigation Procedures  
Mountaineer XPress Project**

Requirement	Source	Status
<p><b>POST-CONSTRUCTION MAINTENANCE</b> Limit routine vegetation mowing or clearing adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, to permanently revegetate with native plant species across the entire construction right-of-way. However, to facilitate periodic corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In addition, trees that are located within 15 feet of the pipeline that have roots that could compromise the integrity of the pipeline coating may be cut and removed from the permanent right-of-way. Do not conduct any routine vegetation mowing or clearing in riparian areas that are between HDD entry and exit points.</p>	<p>FERC Procedures, Section V.D.1</p>	<p>Adopted for the Project</p>
<p><b>POST-CONSTRUCTION MAINTENANCE</b> Do not use herbicides or pesticides in or within 100 feet of a waterbody except as allowed by the appropriate land management or state agency.</p>	<p>FERC Procedures, Section V.D.2</p>	<p>Adopted for the Project</p>
<p><b>POST-CONSTRUCTION MAINTENANCE</b> Time of year restrictions specified in section VII.A.5 of the Plan (April 15 – August 1 of any year) apply to routine mowing and clearing of riparian areas.</p>	<p>FERC Procedures, Section V.D.3</p>	<p>Adopted for the Project</p>
<p><b>RESTORATION</b> Remove temporary sediment barriers located at the boundary between wetland and adjacent upland areas after revegetation and stabilization of adjacent upland areas are judged to be successful as specified in section VII.A.4 of the Plan.</p>	<p>FERC Procedures, Section VI.C.8</p>	<p>Adopted for the Project</p>
<p><b>POST-CONSTRUCTION MAINTENANCE AND REPORTING</b> Do not conduct routine vegetation mowing or clearing over the full width of the permanent right-of-way in wetlands. However, to facilitate periodic corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In addition, trees within 15 feet of the pipeline with roots that could compromise the integrity of pipeline coating may be selectively cut and removed from the permanent right-of-way. Do not conduct any routine vegetation mowing or clearing in wetlands that are between HDD entry and exit points.</p>	<p>FERC Procedures, Section VI.D.1</p>	<p>Adopted for the Project</p>
<p><b>POST-CONSTRUCTION MAINTENANCE AND REPORTING</b> Do not use herbicides or pesticides in or within 100 feet of a wetland, except as allowed by the appropriate federal or state agency.</p>	<p>FERC Procedures, Section VI.D.2</p>	<p>Adopted for the Project</p>
<p><b>POST-CONSTRUCTION MAINTENANCE AND REPORTING</b> Time of year restrictions specified in section VII.A.5 of the Plan (April 15 – August 1 of any year) apply to routine mowing and clearing of wetland areas.</p>	<p>FERC Procedures, Section VI.D.3</p>	<p>Adopted for the Project</p>
<p><b>POST-CONSTRUCTION MAINTENANCE AND REPORTING</b> Monitor and record the success of wetland revegetation annually until wetland revegetation is successful.</p>	<p>FERC Procedures, Section VI.D.4</p>	<p>Adopted for the Project</p>
<p><b>POST-CONSTRUCTION MAINTENANCE AND REPORTING</b> Wetland revegetation shall be considered successful if all of the following criteria are satisfied: a. the affected wetland satisfies the current federal definition for a wetland (i.e., soils, hydrology, and vegetation); b. vegetation is at least 80 percent of either the cover documented for the wetland prior to construction, or at least 80 percent of the cover in adjacent wetland areas that were not disturbed by construction; c. if natural rather than active revegetation was used, the plant species composition is consistent with early successional wetland plant communities in the affected ecoregion; and d. invasive species and noxious weeds are absent, unless they are abundant in adjacent areas that were not disturbed by construction.</p>	<p>FERC Procedures, Section VI.D.5</p>	<p>Adopted for the Project</p>

APPENDIX E-1  
Table 2

**Comparison of Columbia's West Virginia Environmental Construction Standards with  
FERC's Upland Erosion Control, Revegetation and Maintenance Plan and Wetland and Waterbody Construction and Mitigation Procedures  
Mountaineer XPress Project**

<b>Requirement</b>	<b>Source</b>	<b>Status</b>
<p><b>POST-CONSTRUCTION MAINTENANCE AND REPORTING</b>            Within 3 years after construction, file a report with the Secretary identifying the status of the wetland revegetation efforts and documenting success as defined in section VI.D.5, above. The requirement to file wetland restoration reports with the Secretary does not apply to projects constructed under the automatic authorization, prior notice, or advance notice provisions in the FERC's regulations. For any wetland where revegetation is not successful at the end of 3 years after construction, develop and implement (in consultation with a professional wetland ecologist) a remedial revegetation plan to actively revegetate wetlands. Continue revegetation efforts and file a report annually documenting progress in these wetlands until wetland revegetation is successful.</p>	<p>FERC Procedures, Section VI.D.6</p>	<p>Adopted for the Project</p>

**APPENDIX E-2**  
**Temporary Workspace for the Gulf XPress Project Located within**  
**50 feet of Wetlands and Waterbodies**  
**and**  
**Deviations from FERC's Plan and Procedures**

APPENDIX E-2  
Table 1

**Gulf XPress Project  
Requested Modifications to FERC's Wetland and Waterbody Construction and Mitigation Procedures  
Workspace Within 50 Feet of Wetlands and Waterbodies**

Facility	Feature ID	Flow Regime or Wetland Type	Distance from Workspace	Location Justification
<b>Kentucky</b>				
Leach C Meter Station	S-BOA-001	Ephemeral	0	Located within the temporary workspace required for the meter station facilities. Columbia Gulf would maintain flow across the work area during construction and restore the waterbody to preconstruction contours following construction.
	W-BOA-001	Palustrine Emergent	0	Located within the temporary workspace for the meter station facilities. Columbia Gulf would install construction mats or segregate wetland topsoil to minimize impacts on this feature during construction and restore wetland contours following construction.
	O-BOA-001	Stock Pond	0	Located within the temporary workspace required for the meter station facilities. Columbia Gulf would install erosion controls and maintain a 25-foot buffer around this pond.
Morehead Compressor Station	O-ROA-001	Impoundment/ Stock Pond	0	Located within the permanent workspace of the compressor station facilities.
	W-ROA-001	Palustrine Emergent	0	Located within temporary workspace and footprint of the permanent access road, which are necessary to construct the facilities. The wetland is located within cultivated cropland. Columbia Gulf would install erosion controls and maintain a 25-foot buffer around this feature. Upon restoration, the wetland would be directed into a culvert beneath the permanent access road.
	S-ROA-003	Ephemeral	0	Located within the permanent workspace of the compressor station facilities. Waterbody located in cultivated cropland.
	S-ROA-004	Ephemeral	0	Located within the temporary and permanent workspaces for the compressor station facilities. Waterbody located in cultivated cropland.
Goodluck Compressor Station	S-MEA-002	Ephemeral	0	Located within the temporary workspace required to construct the compressor station facilities.
<b>Tennessee</b>				
Clifton Junction Compressor Station	O-WAA-001	Impoundment/ Stock Pond	0	Located within the permanent workspace for the compressor station facilities. Columbia Gulf would install erosion controls and maintain a 25-foot buffer around this feature.

APPENDIX E-2  
Table 1

**Gulf XPress Project  
Requested Modifications to FERC's Wetland and Waterbody Construction and Mitigation Procedures  
Workspace Within 50 Feet of Wetlands and Waterbodies**

Facility	Feature ID	Flow Regime or Wetland Type	Distance from Workspace	Location Justification
Clifton Junction Compressor Station (continued)	O-WAA-002	Impoundment/ Stock Pond	0	Located within the workspace for the new permanent access road. By impacting this feature, Columbia Gulf would be able to reduce its encroachment on an ephemeral stream (S-WAA-003) and forested area. This feature would not undergo post-construction restoration.
	S-WAA-002	Ephemeral	0	Located within the temporary and permanent workspaces for the compressor station facilities. The portion within the permanent facility footprint would not undergo post-construction restoration.
	S-WAA-003	Ephemeral	0	Located within the temporary and permanent for the permanent access road to the site. Access to facility was routed to avoid multiple waterbody channels; only two waterbodies would now be crossed. Drainage would be restored following construction, directed into a culvert beneath the permanent access road.
	S-WAA-005	Ephemeral	14	Access to facility was routed to avoid multiple waterbody channels. Permanent workspace near this waterbody is needed to maintain electric powerline to the compressor station.
	S-WAA-006	Ephemeral	44	Access to facility was routed to avoid multiple waterbody channels. Permanent workspace near this waterbody is needed to maintain access.
	S-WAA-007	Ephemeral	0	Located within temporary workspace required to construct the permanent access road to the site.
	S-WAA-008	Ephemeral	0	Located within the temporary workspace required to construct the permanent access road to site.
	S-WAA-009	Ephemeral	46	Temporary workspace near this waterbody would be necessary to maintain access to construction work area.
	S-WAA-010	Ephemeral	0	Located within temporary and permanent workspaces necessary to construct the suction and discharge piping.

APPENDIX E-2  
Table 1

**Gulf XPress Project  
Requested Modifications to FERC's Wetland and Waterbody Construction and Mitigation Procedures  
Workspace Within 50 Feet of Wetlands and Waterbodies**

Facility	Feature ID	Flow Regime or Wetland Type	Distance from Workspace	Location Justification
<b>Mississippi</b>				
New Albany Compressor Station	S-UNA-001	Ephemeral	0	Located within the temporary workspace and permanent access road necessary to construct facility and access the site. The drainage swale is located in cultivated cropland. Post-construction restoration would result in directing the waterbody into a culvert beneath the permanent access road.
	S-UNA-003	Ephemeral	0	Located within temporary and permanent workspaces for the facility. The drainage swale is located within cultivated cropland. The portion of the feature within the permanent facility site would not be restored.
	S-UNA-004	Ephemeral	0	Temporary and permanent workspaces are necessary to construct the facility. The drainage swale is located in cultivated cropland. The portion of the feature within the permanent facility site would not be restored.
	W-UNA-002	Palustrine Emergent	0	Located within temporary workspace necessary to construct the facilities
	W-UNA-003	Palustrine Emergent	0	Located within temporary and permanent workspaces necessary to construct the facilities. Wetland located in cultivated cropland. The portion of the feature within the permanent facility site would not be restored.
	W-UNA-008	Palustrine Emergent	0	Located within temporary workspace necessary to construct the facilities.
Holcomb Compressor Station	S-GRA-013	Ephemeral	0	Temporary workspace is needed to access site. Waterbody is located in upland cultivated cropland. A temporary bridge or culvert would be installed for construction and would be removed during restoration.

APPENDIX E-2  
Table 2

**Gulf XPress Project**  
**Comparison of Columbia Gulf's Environmental Construction Standards with**  
**FERC's Upland Erosion Control, Revegetation and Maintenance Plan and Wetland and Waterbody Construction and Mitigation Procedures**

Requirement	Source	Status
<b>FERC's Upland Erosion, Control, Revegetation and Maintenance Plan (Plan)</b>		
<p>FINAL GRADING, RESTORATION, AND STABILIZATION</p> <p>Diligent efforts will be made to remove rocks greater than 4 inches if off-construction work areas do not contain rocks greater than 4 inches.</p>	FERC Plan, Section V.A.4	See DEIS recommendation #15.
<p>MONITORING AND MAINTENANCE</p> <p>Routine vegetation mowing or clearing over the full width of the permanent right-of-way in uplands shall not be done more frequently than every 3 years. However, to facilitate periodic corrosion/leak surveys, a corridor not exceeding 10 feet in width centered on the pipeline may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In no case shall routine vegetation mowing or clearing occur during the migratory bird nesting season between April 15 and August 1 of any year unless specifically approved in writing by the responsible land management agency or the U.S. Fish and Wildlife Service.</p>	FERC Plan, Section VII.A.5	Adopted for the Project
<p>REPORTING</p> <p>The project sponsor shall maintain records that identify by milepost:</p> <ol style="list-style-type: none"> <li>method of application, application rate, and type of fertilizer, pH modifying agent, seed, and mulch used;</li> <li>acreage treated;</li> <li>dates of backfilling and seeding;</li> <li>names of landowners requesting special seeding treatment and a description of the follow-up actions;</li> <li>the location of any subsurface drainage repairs or improvements made during restoration; and</li> <li>any problem areas and how they were addressed.</li> </ol>	FERC Plan, Section VII.B.1	Adopted for the Project
<b>FERC's Wetland and Waterbody Construction and Mitigation Procedures (Procedures)</b>		
<p>PRECONSTRUCTION FILING</p> <p>The following information must be filed with the Secretary of the FERC (Secretary) prior to the beginning of construction, for the review and written approval by the Director:</p> <ol style="list-style-type: none"> <li>site-specific justifications for extra work areas that would be closer than 50 feet from a waterbody or wetland; and</li> <li>site-specific justifications for the use of a construction right-of-way greater than 75-feet-wide in wetlands</li> </ol>	FERC Procedures, Section II.A	Provided above in Table 1
<p>GENERAL CROSSING PROCEDURES</p> <p>Only clearing equipment and equipment necessary for installation of equipment bridges may cross waterbodies prior to bridge installation. Limit the number of such crossings of each waterbody to one per piece of clearing equipment</p>	FERC Procedures, Section V.B.5.a	Adopted for the Project
<p>GENERAL CROSSING PROCEDURES</p> <p>Design and maintain each equipment bridge to withstand and pass the highest flow expected to occur while the bridge is in place. Align culverts to prevent bank erosion or streambed scour. If necessary, install energy dissipating devices downstream of the culverts</p>	FERC Procedures, Section V.B.5.c	Adopted for the Project
<p>POST-CONSTRUCTION MAINTENANCE</p> <p>Limit routine vegetation mowing or clearing adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, to permanently revegetate with native plant species across the entire construction right-of-way. However, to facilitate periodic corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In addition, trees that are located within 15 feet of the pipeline that have roots that could compromise the integrity of the pipeline coating may be cut and removed from the permanent right-of-way. Do not conduct any routine vegetation mowing or clearing in riparian areas that are between HDD entry and exit points.</p>	FERC Procedures, Section V.D.1	Adopted for the Project
<p>POST-CONSTRUCTION MAINTENANCE</p> <p>Do not use herbicides or pesticides in or within 100 feet of a waterbody except as allowed by the appropriate land management or state agency.</p>	FERC Procedures, Section V.D.2	Adopted for the Project

APPENDIX E-2  
Table 2

**Gulf XPress Project**  
**Comparison of Columbia Gulf's Environmental Construction Standards with**  
**FERC's Upland Erosion Control, Revegetation and Maintenance Plan and Wetland and Waterbody Construction and Mitigation Procedures**

Requirement	Source	Status
<p><b>POST-CONSTRUCTION MAINTENANCE</b> Time of year restrictions specified in section VII.A.5 of the Plan (April 15 – August 1 of any year) apply to routine mowing and clearing of riparian areas.</p>	FERC Procedures, Section V.D.3	Adopted for the Project
<p><b>RESTORATION</b> Remove temporary sediment barriers located at the boundary between wetland and adjacent upland areas after revegetation and stabilization of adjacent upland areas are judged to be successful as specified in section VII.A.4 of the Plan.</p>	FERC Procedures, Section VI.C.8	Adopted for the Project
<p><b>POST-CONSTRUCTION MAINTENANCE AND REPORTING</b> Do not conduct routine vegetation mowing or clearing over the full width of the permanent right-of-way in wetlands. However, to facilitate periodic corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In addition, trees within 15 feet of the pipeline with roots that could compromise the integrity of pipeline coating may be selectively cut and removed from the permanent right-of-way. Do not conduct any routine vegetation mowing or clearing in wetlands that are between HDD entry and exit points.</p>	FERC Procedures, Section VI.D.1	Adopted for the Project
<p><b>POST-CONSTRUCTION MAINTENANCE AND REPORTING</b> Do not use herbicides or pesticides in or within 100 feet of a wetland, except as allowed by the appropriate federal or state agency.</p>	FERC Procedures, Section VI.D.2	Adopted for the Project
<p><b>POST-CONSTRUCTION MAINTENANCE AND REPORTING</b> Time of year restrictions specified in section VII.A.5 of the Plan (April 15 – August 1 of any year) apply to routine mowing and clearing of wetland areas.</p>	FERC Procedures, Section VI.D.3	Adopted for the Project
<p><b>POST-CONSTRUCTION MAINTENANCE AND REPORTING</b> Monitor and record the success of wetland revegetation annually until wetland revegetation is successful.</p>	FERC Procedures, Section VI.D.4	Adopted for the Project
<p><b>POST-CONSTRUCTION MAINTENANCE AND REPORTING</b> Wetland revegetation shall be considered successful if all of the following criteria are satisfied: a. the affected wetland satisfies the current federal definition for a wetland (i.e., soils, hydrology, and vegetation); b. vegetation is at least 80 percent of either the cover documented for the wetland prior to construction, or at least 80 percent of the cover in adjacent wetland areas that were not disturbed by construction; c. if natural rather than active revegetation was used, the plant species composition is consistent with early successional wetland plant communities in the affected ecoregion; and d. invasive species and noxious weeds are absent, unless they are abundant in adjacent areas that were not disturbed by construction.</p>	FERC Procedures, Section VI.D.5	Adopted for the Project
<p><b>POST-CONSTRUCTION MAINTENANCE AND REPORTING</b> Within 3 years after construction, file a report with the Secretary identifying the status of the wetland revegetation efforts and documenting success as defined in section VI.D.5, above. The requirement to file wetland restoration reports with the Secretary does not apply to projects constructed under the automatic authorization, prior notice, or advance notice provisions in the FERC's regulations. For any wetland where revegetation is not successful at the end of 3 years after construction, develop and implement (in consultation with a professional wetland ecologist) a remedial revegetation plan to actively revegetate wetlands. Continue revegetation efforts and file a report annually documenting progress in these wetlands until wetland revegetation is successful.</p>	FERC Procedures, Section VI.D.6	Adopted for the Project

**APPENDIX F**  
**Access Roads for the Mountaineer XPress Project**

APPENDIX F

Mountaineer XPress Project  
Access Roads a/

Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
<b>NEW PIPELINE FACILITIES</b>												
<b>MXP-100</b>												
ARMA001.6	Marshall	1.5	Temporary	444	0.3	0.2	<0.1	0	0	0	0	Existing Private Road - Minor Upgrades
ARMA002	Marshall	2.0	Temporary	270	0.2	<0.1	0.1	0	<0.1	0	0	Existing Private Road - Minor Upgrades
ARMA004.7	Marshall	5.5	Temporary	339	0.2	0	<0.1	0.2	0	0	0	Existing Private Road Major Upgrades
ARMA005	Marshall	6.3	Temporary	883	0.5	0	0.1	0.3	0.1	<0.1	0	Existing Private Road - Major Upgrades
ARMA005.1	Marshall	6.4	Temporary	3498	2.0	1.2	0.1	0.8	<0.1	0	0	New Road
ARMA005.8	Marshall	6.9	Temporary	332	0.2	0	0	0.2	0	0	0	Existing Private Road - Major Upgrades
ARMA005.9	Marshall	6.9	Temporary	1451	0.8	0.3	<0.1	0.6	0	0	0	Existing Private Road - Major Upgrades
ARMA006.1	Marshall	7.2	Temporary	2218	0.6	<0.1	0.5	<0.1	<0.1	0	0	Existing Private Road Minor Upgrades
ARMA007	Marshall	7.1	Temporary	1108	0.6	<0.1	0.1	0.4	0.1	<0.1	0	Existing Private Road - Major Upgrades
ARMA008	Marshall	10.1	Temporary	329	0.2	0	0.1	<0.1	<0.1	0	0	Existing Private Road - Minor Upgrades
ARMA008.29	Marshall	10.4	Temporary	247	0.1	0	<0.1	0.1	<0.1	0	0	Existing Private Road - Major Upgrades
ARMA008.3	Marshall	11.0	Temporary	3068	1.8	0	0	1.7	0	<0.1	0	Existing Private Road - Major Upgrades
ARMA008.4	Marshall	11.0	Temporary	5540	3.2	0	0.2	2.5	0.4	0.1	0	Existing Private Road - Major Upgrades
ARWZ001	Wetzel	12.0	Temporary	4835	2.8	0	2.5	0.3	0	<0.1	0	Existing Private Road - Major Upgrades

APPENDIX F

Mountaineer XPress Project  
Access Roads a/

Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
ARWZ001.1	Wetzel	12.3	Temporary	453	0.3	0	0.2	<0.1	<0.1	0	0	Existing Private Road - Major Upgrades
ARWZ001.5	Wetzel	12.7	Temporary	601	0.4	0	<0.1	0.1	0.2	0	0	Existing Private Road - Minor Upgrades
ARWZ001.9	Wetzel	13.1	Temporary	874	0.5	0	0	0.5	0	0	0	Existing Private Road - Major Upgrades
ARWZ002	Wetzel	13.4	Temporary	1207	0.7	0	<0.1	0.7	<0.1	0	0	Existing Private Road - Major Upgrades
ARWZ003	Wetzel	14.4	Temporary	1818	1.1	0.3	0.6	0.1	0	<0.1	0	Existing Private Road - Major Upgrades
ARWZ004	Wetzel	14.8	Temporary	1156	0.7	0	0.6	<0.1	<0.1	0	0	Existing Private Road - Major Upgrades
ARWZ005	Wetzel	16.0	Temporary	1358	0.8	<0.1	0.7	<0.1	<0.1	0	0	Existing Private Road - No Upgrades
ARWZ005.2	Wetzel	16.1	Temporary	858	0.5	0.2	0.2	0.1	<0.1	0	0	Existing Private Road - Minor Upgrades
ARWZ006.5	Wetzel	17.4	Temporary	2054	1.2	<0.1	0.6	0.5	<0.1	0	0	Existing Private Road - Major Upgrades
ARWZ006.9	Wetzel	18.8	Temporary	2327	1.3	0	0	1.3	0	0	0	Existing Private Road - Major Upgrades
ARWZ008	Wetzel	20.3	Permanent	522	0.3	<0.1	0.3	<0.1	<0.1	0	0	New
ARWZ010	Wetzel	20.7	Temporary	17	<0.1	0	<0.1	<0.1	0	0	0	New Road
ARWZ012	Wetzel	21.7	Temporary	1941	1.1	<0.1	0.2	0.9	0.1	0	0	Existing Private Road - Major Upgrades
ARWZ013	Wetzel	22.6	Temporary	655	0.4	0	<0.1	0.4	0	0	0	Existing Private Road - Minor Upgrades
ARWZ014	Wetzel	22.9	Temporary	479	0.3	0	<0.1	0.3	<0.1	0	0	Existing Private Road - Minor Upgrades
ARWZ015	Wetzel	23.4	Temporary	4051	2.3	0	0.5	0.8	1.0	0	0	Existing Private Road - Minor Upgrades

APPENDIX F

Mountaineer XPress Project  
Access Roads a/

Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
ARWZ015.8	Wetzel	24.5	Temporary	327	0.2	0	0	0.2	0	0	0	Existing Private Road - Minor Upgrades
ARWZ015.9	Wetzel	24.5	Temporary	94	0.1	0	<0.1	<0.1	<0.1	0	0	Existing Private Road - Minor Upgrades
ARWZ016	Wetzel	25.0	Temporary	1442	0.8	0	<0.1	0.8	0	0	0	Existing Private Road - Minor Upgrades
ARWZ016.4	Wetzel	26.3	Temporary	256	0.2	0.1	<0.1	<0.1	0	0	0	Existing Private Road - Minor Upgrades
ARWZ016.5	Wetzel	26.9	Temporary	8760	5.0	0	0.9	3.6	0.6	0	0	Existing Private Road - Major Upgrades
ARWZ016.6	Wetzel	27.1	Temporary	1303	0.8	0	<0.1	0.7	<0.1	0.1	0	Existing Private Road - Major Upgrades
ARWZ016.7	Wetzel	27.3	Temporary	8798	5.0	0	2.0	2.2	0.9	0	0	Existing Private Road - Major Upgrades
ARWA016.8	Wetzel	28.2	Temporary	3103	1.8	0	<0.1	1.7	<0.1	0	0	Existing Private Road Major Upgrades
ARWZ017	Wetzel	28.9	Temporary	13924	8.0	0	5.4	1.0	1.5	<0.1	0	Existing Private Road - Minor Upgrades
ARWZ018	Wetzel	29.0	Temporary	1980	1.1	0	0.3	0.9	0	0	0	Existing Private Road - Minor Upgrades
ARWZ020	Wetzel	29.8	Temporary	16417	9.4	0	2.4	6.0	1.1	<0.1	0	Existing Private Road - Minor Upgrades
ARWZ020.1	Wetzel	30.2	Temporary	7451	4.3	0	0.2	2.7	1.4	0	0	Existing Private Road Minor Upgrades
ARWZ021	Wetzel	31.1	Temporary	15302	8.8	0	<0.1	3.3	5.5	0	0	Existing Private Road - Minor Upgrades
ARWZ021.1	Wetzel	31.4	Temporary	1039	0.6	0	0	0.4	0.2	0	0	Existing Private Road - Major Upgrades
ARWZ021.2	Wetzel	31.4	Temporary	658	0.4	0	<0.1	0.3	0.1	0	0	Existing Private Road - Major Upgrades

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Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
ARTY001	Tyler	32.4	Temporary	6207	3.6	0	0.1	2.0	1.5	<0.1	0	Existing Private Road - Major Upgrades
ARTY001.1	Tyler	32.8	Temporary	1863	1.1	0	<0.1	0.4	0.6	0	0	Existing Private Road - Major Upgrades
ARTY001.2	Tyler	32.8	Temporary	3719	2.2	0	0.3	1.5	0.4	0	0	Existing Private Road - Major Upgrades
ARTY001.21	Tyler	33.3	Temporary	3661	2.1	0	<0.1	0.7	1.4	0	0	Existing Private Road - Minor Upgrades
ARTY001.7	Tyler	34.1	Temporary	1297	0.7	0	0	0.6	0.1	<0.1	0	Existing Private Road - Minor Upgrades
ARTY001.8	Tyler	34.1	Temporary	496	0.3	0	0	0.3	0	0	0	Existing Private Road - Minor Upgrades
ARTY001.9	Tyler	34.2	Temporary	274	0.2	0	<0.1	0.1	0.1	<0.1	0	Existing Private Road - Minor Upgrades
ARTY002	Tyler	34.8	Temporary	1522	0.9	0	0.1	0.6	0.1	0	0	Existing Private Road - Minor Upgrades
ARTY002.11	Tyler	35.0	Temporary	986	0.6	<0.1	0.3	0.3	<0.1	<0.1	0	Existing Private Road - Minor Upgrades
ARTY002.2	Tyler	35.1	Temporary	987	0.6	0.1	<0.1	0.4	0.1	0	0	Existing Private Road - Minor Upgrades
ARTY002.3	Tyler	35.2	Temporary	192	0.1	0.1	0	<0.1	0	0	0	Existing Private Road - Minor Upgrades
ARDO000.2	Doddridge	36.4	Temporary	5214	3.0	0	<0.1	2.8	0.2	<0.1	0	Existing Private Road - Major Upgrades
ARPY043.2	Doddridge	37.0	Temporary	251	0.1	0	<0.1	0.1	0	0	0	New Road
ARDO000.5	Doddridge	37.3	Temporary	2562	0.5	0	0.2	1.2	<0.1	<0.1	<0.1	Existing Private Road - Major Upgrades
ARDO002.41	Doddridge	40.2	Temporary	1730	1.0	0	<0.1	0.9	<0.1	<0.1	0	Existing Private Road - Minor Upgrades

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Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
ARDO002.7	Doddridge	42.3	Temporary	2552	0.7	0	0.3	0.4	0	<0.1	0	Existing Private Road - No Upgrades
ARDO002.8	Doddridge	43.0	Temporary	367	0.2	0	<0.1	0.2	<0.1	<0.1	0	Existing Private Road - Major Upgrades
ARDO002.9	Doddridge	43.4	Temporary	2603	1.5	0	<0.1	0.4	1.0	0	0	Existing Private Road - Minor Upgrades
ARDO003	Doddridge	43.9	Temporary	423	0.3	0.1	<0.1	0.1	<0.1	<0.1	0	Existing Private Road - Major Upgrades
ARDO003.01	Doddridge	44.1	Temporary	2059	1.2	0.4	<0.1	0.7	<0.1	<0.1	0	Existing Private Road - Minor Upgrades
ARDO003.1	Doddridge	44.6	Temporary	2488	1.4	0	0.1	1.1	0.2	<0.1	0	Existing Private Road - Minor Upgrades
ARDO004	Doddridge	45.3	Temporary	463	0.3	0	<0.1	0.1	0.2	0	0	Existing Private Road - Major Upgrades
ARDO005.1	Doddridge	45.9	Temporary	3759	2.2	<0.1	0	1.6	0.6	<0.1	0	Existing Private Road - Major Upgrades
ARDO005.5	Doddridge	46.1	Temporary	1054	0.6	0.3	0	0.3	0	0	0	Existing Private Road - Major Upgrades
ARDO005.6	Doddridge	46.1	Temporary	1002	0.6	0	0	0.6	<0.1	<0.1	0	Existing Private Road - Major Upgrades
ARDO005.8	Doddridge	46.2	Temporary	1346	0.8	0	0	0.5	0.3	<0.1	0	Existing Private Road - Major Upgrades
ARDO006	Doddridge	46.3	Temporary	5569	3.2	0	<0.1	2.7	0.5	<0.1	0	Existing Private Road - Minor Upgrades
ARDO006.1	Doddridge	46.3	Temporary	2577	1.5	0	0	1.5	0	0	0	Existing Private Road - Minor Upgrades
ARDO006.4	Doddridge	47.0	Temporary	1729	1.0	0	<0.1	1.0	0	<0.1	0	Existing Private Road - Major Upgrades
ARDO006.8	Doddridge	47.6	Temporary	6047	3.5	0.3	0.1	2.8	0.2	<0.1	0	Existing Private Road - Minor Upgrades

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Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
ARDO007	Doddridge	48.3	Temporary	2659	1.5	0	0	1.5	0	<0.1	0	Existing Private Road - Minor Upgrades
ARDO007.1	Doddridge	48.3	Temporary	1192	0.7	0	0.6	0.1	<0.1	<0.1	0	Existing Private Road - Minor Upgrades
ARDO007.2	Doddridge	48.5	Temporary	95	<0.1	0	<0.1	<0.1	0	0	0	Existing Private Road - Minor Upgrades
ARDO007.21	Doddridge	48.5	Temporary	240	0.1	0	<0.1	0.1	0	0	0	Existing Private Road - Minor Upgrades
ARDO007.6	Doddridge	49.5	Temporary	7797	4.5	0	<0.1	4.4	<0.1	<0.1	<0.1	Existing Private Road - Major Upgrades
ARDO009.1	Doddridge	53.8	Temporary	1996	1.2	0	<0.1	1.0	0.1	<0.1	0	Existing Private Road - Major Upgrades
ARDO009.2	Doddridge	54.2	Temporary	1577	0.9	0	0	0.9	0	<0.1	0	Existing Private Road - Major Upgrades
ARDO009.21	Doddridge	54.2	Temporary	33	<0.1	0	0	<0.1	<0.1	0	0	Existing Private Road - Major Upgrades
ARDO009.22	Doddridge	54.2	Temporary	529	0.3	0	<0.1	0.2	0.1	<0.1	0	Existing Private Road - Major Upgrades
ARDO009.3	Doddridge	54.4	Temporary	7765	4.5	0.6	<0.1	3.6	0.2	<0.1	0	Existing Private Road - No Upgrades
ARDO011	Doddridge	56.0	Temporary	6055	3.5	0.3	<0.1	3.1	0.1	<0.1	0	Existing Private Road - No Upgrades
ARDO010	Doddridge	56.6	Temporary	2182	1.3	0	0.1	1.2	0	0	0	Existing Private Road - No Upgrades
ARDO010.1	Doddridge	56.5	Temporary	2613	1.5	0	<0.1	1.4	0.1	0	0	Existing Private Road - No Upgrades
ARDO012	Doddridge	57.0	Temporary	6260	3.6	0	0.4	3.2	0.1	<0.1	0	Existing Private Road - No Upgrades
ARDO012.1	Doddridge	57.1	Temporary	2633	1.5	0	0	1.5	0.1	0	0	Existing Private Road - No Upgrades

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Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
ARDO013	Doddridge	57.5	Temporary	242	0.2	0	0	0.2	0	0	0	Existing Private Road - Minor Upgrades
ARDO013.1	Doddridge	57.8	Temporary	6837	3.9	0	1.0	2.9	0.1	0	0	Existing Private Road - Minor Upgrades
ARDO014.1	Doddridge	59.6	Temporary	440	0.3	0	<0.1	0.2	<0.1	0	0	Existing Private Road - Minor Upgrades
ARDO014.2	Doddridge	59.6	Temporary	283	0.3	<0.1	<0.1	0.2	<0.1	0	0	Existing Private Road - Minor Upgrades
ARDO015	Doddridge	60.5	Permanent	338	0.2	0	0.1	0.1	0	0	0	Existing Private Road - Minor Upgrades
ARDO015.1	Doddridge	60.7	Temporary	1495	0.9	0.2	<0.1	0.6	<0.1	<0.1	<0.1	Existing Private Road - Major Upgrades
ARDO015.12	Doddridge	60.8	Temporary	912	0.5	0	0	0.5	0	0	0	Existing Private Road - Major Upgrades
ARDO016	Doddridge	61.7	Temporary	1999	1.2	0	<0.1	1.0	0.1	0	0	Existing Private Road - Major Upgrades
ARRI001.4	Ritchie	63.2	Temporary	6557	4.1	<0.1	<0.1	4.0	0.1	0	0	New Road
ARRI001.7	Ritchie	65.7	Temporary	4472	2.6	0	0.6	1.8	0.1	0	0	Existing Private Road - Minor Upgrades
ARRI001.71	Ritchie	65.7	Temporary	319	0.2	0	<0.1	0.2	0	0	0	Existing Private Road - Minor Upgrades
ARRI001.8	Ritchie	66.3	Temporary	938	0.5	0	0	0.5	0	0	0	Existing Private Road - Major Upgrades
ARRI002	Ritchie	67.5	Temporary	123	0.1	0	<0.1	<0.1	<0.1	0	0	New Road
ARRI003	Ritchie	67.6	Temporary	1025	0.6	0	0	0.6	0	<0.1	0	Existing Private Road - Major Upgrades
ARRI003.2	Ritchie	68.1	Temporary	254	0.2	0	<0.1	0.2	0	0	0	Existing Private Road - Major Upgrades
ARRI003.21	Ritchie	68.0	Permanent	27	<0.1	0	<0.1	0	<0.1	0	0	Existing Private Road - Minor Upgrades

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Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
ARRI003.22	Ritchie	68.1	Permanent	248	0.1	0	<0.1	0.1	0	0	0	Existing Private Road - Minor Upgrades
ARRI004	Ritchie	69.7	Temporary	223	0.1	0	0.1	<0.1	<0.1	0	0	Existing Private Road - Minor Upgrades
ARRI004.1	Ritchie	69.7	Temporary	669	0.4	0	0.4	<0.1	<0.1	0	0	Existing Private Road - Minor Upgrades
ARRI004.7	Ritchie	70.9	Temporary	1616	0.9	0.4	<0.1	0.3	0.2	<0.1	0	Existing Private Road - Minor Upgrades
ARRI005	Ritchie	71.3	Temporary	2564	1.5	0	<0.1	1.2	0.3	0	0	Existing Private Road - Major Upgrades
ARRI005.1	Ritchie	71.9	Temporary	82	0.1	0	<0.1	0.1	<0.1	0	0	New Road
ARRI006	Ritchie	71.5	Temporary	2591	1.5	0	0.9	0.6	<0.1	<0.1	0	Existing Private Road - Minor Upgrades
ARRI007	Ritchie	72.7	Temporary	231	0.1	<0.1	0.1	<0.1	0	<0.1	0	Existing Private Road - Minor Upgrades
ARRI007.5	Ritchie	74.0	Temporary	898	0.5	0.2	<0.1	0.3	<0.1	<0.1	0	Existing Private Road - Major Upgrades
ARRI008	Ritchie	75.0	Temporary	230	0.1	0	0.1	<0.1	0	<0.1	<0.1	Existing Private Road - Minor Upgrades
ARRI009	Ritchie	75.3	Temporary	842	0.5	<0.1	0.5	<0.1	<0.1	0	0	Existing Private Road - Minor Upgrades
ARRI010	Ritchie	75.7	Temporary	77	0.1	0	<0.1	<0.1	0	0	0	Existing Private Road - Minor Upgrades
ARRI011	Ritchie	76.0	Temporary	110	0.1	<0.1	0.1	<0.1	0	0	0	Existing Private Road - Minor Upgrades
ARRI012	Ritchie	76.3	Temporary	1182	0.7	0.2	<0.1	0.2	0.2	<0.1	0	Existing Private Road - Minor Upgrades
ARRI013	Ritchie	76.7	Temporary	1020	0.6	0.1	0.5	<0.1	<0.1	0	0	Existing Private Road - Minor Upgrades

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Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
ARRI014	Ritchie	77.4	Temporary	1861	1.1	0.1	0.8	<0.1	0.2	<0.1	0	Existing Private Road - Minor Upgrades
ARRI014.4	Ritchie	77.9	Temporary	725	0.4	0	0.4	<0.1	<0.1	<0.1	0	Existing Private Road - Major Upgrades
ARRI015	Ritchie	78.8	Temporary	743	0.4	0	0.4	<0.1	0	<0.1	0	Existing Private Road - Minor Upgrades
ARRI016	Ritchie	79.3	Temporary	3029	1.7	0	1.3	0.4	<0.1	<0.1	0	Existing Private Road - Major Upgrades
ARRI017	Ritchie	79.8	Temporary	2375	1.4	0	1.1	0.2	<0.1	<0.1	0	Existing Private Road - Major Upgrades
ARRI018	Ritchie	80.1	Temporary	7809	4.5	0	3.8	0.7	<0.1	<0.1	0	Existing Private Road - Major Upgrades
ARRI019	Ritchie	80.9	Temporary	238	0.1	0	0.1	<0.1	<0.1	0	0	Existing Private Road - Major Upgrades
ARRI020	Ritchie	81.0	Temporary	7404	4.3	0	3.8	0.5	<0.1	<0.1	0	Existing Private Road - Major Upgrades
ARCL001	Calhoun	83.2	Temporary	577	0.3	0	<0.1	<0.1	0.3	<0.1	<0.1	New Road
ARWI001	Wirt	84.4	Temporary	5785	3.3	0	2.5	0.8	<0.1	<0.1	0	Existing Private Road - Major Upgrades
ARWI003	Wirt	85.4	Temporary	4221	2.4	0	0.9	1.1	<0.1	0.4	<0.1	Existing Private Road - Major Upgrades
ARWI005	Wirt	85.6	Temporary	1127	0.6	0	<0.1	0.6	0.1	0	0	Existing Private Road - Major Upgrades
ARWI006	Wirt	85.9	Temporary	1117	0.6	0	<0.1	0.6	0	0	0	Existing Private Road - Major Upgrades
ARWI007	Wirt	86.2	Temporary	1301	0.8	0	<0.1	0.6	0.1	0	0	Existing Private Road - Major Upgrades
ARWI004	Wirt	86.6	Temporary	12162	7.0	0	6.2	0.7	0.1	<0.1	0	Existing Private Road - Major Upgrades

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Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
ARWI008	Wirt	88.3	Temporary	7169	4.1	<0.1	3.7	0.4	<0.1	<0.1	0	Existing Private Road - Major Upgrades
ARWI010	Wirt	88.6	Temporary	3584	2.1	0	1.9	0.1	0.1	0	0	Existing Private Road - Major Upgrades
ARWI011	Wirt	89.1	Temporary	10754	6.2	0	5.5	0.3	0.4	<0.1	0	Existing Private Road - Major Upgrades
ARWI011.1	Wirt	89.6	Temporary	2329	1.3	0	1.2	0.1	0.1	0	0	Existing Private Road - Major Upgrades
ARWI012	Wirt	90.1	Temporary	6047	3.5	0	3.1	0.1	0.2	<0.1	0	Existing Private Road - Major Upgrades
ARWI013	Wirt	90.4	Temporary	2935	1.7	0	<0.1	0.4	1.3	0	0	Existing Private Road - Major Upgrades
ARWI014.1	Wirt	90.8	Temporary	940	0.6	0	0.4	0.1	0	<0.1	0	Existing Private Road - Major Upgrades
ARWI014	Wirt	90.9	Temporary	3453	2.0	0	1.7	0.2	<0.1	<0.1	0	Existing Private Road - Major Upgrades
ARWI015	Wirt	92.3	Temporary	1510	0.9	0	0.2	0.6	0	<0.1	0	Existing Private Road - Major Upgrades
ARWI016	Wirt	92.6	Temporary	1498	0.9	0	0.5	0.4	0	0	0	Existing Private Road - Major Upgrades
ARWI019	Wirt	94.3	Temporary	62	<0.1	0	<0.1	<0.1	<0.1	0	0	Existing Private Road - Minor Upgrades
ARWI019.1	Wirt	94.3	Temporary	43	<0.1	0	<0.1	<0.1	<0.1	0	0	Existing Private Road - Minor Upgrades
ARWI019.2	Wirt	94.3	Temporary	358	0.2	<0.1	0.2	0	<0.1	0	0	Existing Private Road - Minor Upgrades
ARWI019.6	Wirt	94.9	Temporary	2970	1.7	0.1	0.7	0.4	0.4	<0.1	0	Existing Private Road - Major Upgrades
ARWI020	Wirt	95.2	Temporary	1405	0.8	0	0.3	0.5	<0.1	<0.1	0	Existing Private Road - Major Upgrades

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Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
ARWI020.1	Wirt	95.3	Temporary	4560	2.6	0.3	0.8	1.2	0.3	<0.1	0	Existing Private Road - Major Upgrades
ARWI022	Wirt	97.0	Temporary	1111	0.6	0	0.6	0.1	0	<0.1	0	Existing Private Road - Major Upgrades
ARRO001	Roane	101.1	Permanent	82	0.1	<0.1	<0.1	0	0	0	0	New Road
ARRO002	Roane	102.9	Temporary	226	0.1	<0.1	0.1	<0.1	0	<0.1	0	Existing Private Road - Major Upgrades
ARRO003	Roane	104.0	Temporary	667	0.4	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	Existing Private Road - Major Upgrades
ARRO003.7	Roane	108.7	Temporary	2011	1.2	0.3	0.8	0.1	<0.1	<0.1	<0.1	Existing Private Road - Major Upgrades
ARRO004.1	Roane	110.7	Temporary	651	0.4	<0.1	0.3	0	0	0	0	Existing Private Road - Minor Upgrades
ARRO004	Roane	110.7	Permanent	1971	1.1	0.1	1.0	<0.1	0	<0.1	0	Existing Private Road - Minor Upgrades
ARJA001	Jackson	112.0	Temporary	3816	2.2	0	1.7	0.4	<0.1	<0.1	0	Existing Private Road - Major Upgrades
ARJA002	Jackson	113.2	Temporary	1188	0.7	0	0	0.3	0.4	0	0	Existing Private Road - Major Upgrades
ARJA002.1	Jackson	113.3	Temporary	326	0.2	0	<0.1	0.1	0.1	<0.1	0	Existing Private Road - Major Upgrades
ARJA003.5	Jackson	116.6	Temporary	1762	1.0	0.4	0	0.3	0.4	0	0	New Road
ARJA003.6	Jackson	117.2	Temporary	2351	1.4	0.1	<0.1	1.2	<0.1	0	0	New Road
ARJA003.9	Jackson	118.6	Temporary	145	0.1	<0.1	0	0.1	0	<0.1	0	New Road
ARJA004	Jackson	119.5	Temporary	1681	1.0	0	<0.1	0.9	0.1	0	0	Existing Private Road - Major Upgrades
ARJA005	Jackson	121.2	Temporary	1866	1.1	0.3	<0.1	0.7	0	0	0	Existing Private Road - Major Upgrades
ARJA007	Jackson	126.9	Temporary	1021	0.6	<0.1	<0.1	0.4	0.1	0	0	Existing Private Road - Major Upgrades

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Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
ARJA008	Jackson	129.8	Temporary	3257	1.9	0.1	1.4	0.3	<0.1	0	0	Existing Private Road - Minor Upgrades
ARPU001	Putnam	132.6	Temporary	629	0.4	0	0.3	0.1	0	0	0	Existing Private Road - Minor Upgrades
ARPU002	Putnam	133.2	Temporary	765	0.4	<0.1	0.4	<0.1	<0.1	0	0	Existing Private Road - Minor Upgrades
ARPU003	Putnam	133.6	Temporary	1118	0.7	0.4	0.1	0.2	<0.1	<0.1	0	Existing Private Road - Minor Upgrades
ARPU006	Putnam	135.5	Temporary	2918	1.7	1.1	0.4	0.1	0	0	0	Existing Private Road - Minor Upgrades
ARPU007	Putnam	136.1	Temporary	2618	1.5	0	<0.1	1.3	0.2	<0.1	0	Existing Private Road - Major Upgrades
ARPU008	Putnam	136.8	Temporary	3238	1.9	<0.1	1.6	0.1	0.1	<0.1	0	Existing Private Road - Minor Upgrades
ARPU008.1	Putnam	137.2	Temporary	1978	1.1	<0.1	0.2	0.9	<0.1	<0.1	0	Existing Private Road - Major Upgrades
ARPU009	Putnam	138.5	Temporary	2026	1.2	0.2	0.7	0.2	0	<0.1	0	Existing Private Road - Major Upgrades
ARPU009.3	Putnam	139.4	Temporary	882	0.5	0	<0.1	0.5	0	<0.1	0	Existing Private Road - Major Upgrades
ARPU009.5	Putnam	139.8	Temporary	855	0.5	<0.1	0.4	0.1	<0.1	<0.1	0	Existing Private Road - Minor Upgrades
ARPU011	Putnam	141.3	Temporary	2091	1.2	0.2	<0.1	0.9	0	<0.1	0	Existing Private Road - Major Upgrades
ARPU011.2	Putnam	141.5	Temporary	2051	1.2	0.4	0.6	0.1	0	<0.1	0	Existing Private Road - Minor Upgrades
ARPU013	Putnam	143.0	Temporary	3262	1.9	0	<0.1	1.8	0	<0.1	0	Existing Private Road - Major Upgrades
ARPU013.5	Putnam	143.7	Temporary	284	0.1	0.1	<0.1	0	0	0	0	New Road

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Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
ARPU014	Putnam	144.1	Temporary	1613	0.9	<0.1	0.8	0.1	0.1	0	0	Existing Private Road - Minor Upgrades
ARPU014.1	Putnam	144.2	Temporary	9	<0.1	0	<0.1	0	0	0	0	New Road
ARPU015	Putnam	144.7	Temporary	1439	0.8	0	<0.1	0.7	0.1	<0.1	0	Existing Private Road - Major Upgrades
ARPU016	Putnam	145.0	Temporary	221	0.1	0	<0.1	<0.1	0.1	0	0	Existing Private Road - Major Upgrades
ARPU017	Putnam	145.2	Temporary	682	0.4	0	0.3	0.1	<0.1	0	0	Existing Private Road - Major Upgrades
ARPU018	Putnam	146.9	Temporary	156	0.1	0.1	<0.1	<0.1	0	0	0	Existing Private Road - Minor Upgrades
ARPU018.1	Putnam	147.0	Temporary	1277	0.7	0.5	<0.1	0.2	<0.1	<0.1	0	Existing Private Road - Minor Upgrades
ARPU019.6	Putnam	147.8	Temporary	1193	0.7	0.7	<0.1	0	0	0	0	Existing Private Road - Minor Upgrades
ARPU019.7	Putnam	148.2	Temporary	1106	0.6	0	<0.1	0	0.6	0	0	Existing Private Road - Minor Upgrades
ARPU022	Putnam	152.2	Temporary	2681	1.5	0	1.3	0.2	0.1	0	0	Existing Private Road - Major Upgrades
ARPU023	Putnam	152.9	Temporary	861	0.5	<0.1	0.5	<0.1	<0.1	0	0	Existing Private Road - Minor Upgrades
ARPU023.9	Putnam	154.9	Permanent	50	<0.1	0	<0.1	0	<0.1	0	0	Existing Private Road - Minor Upgrades
ARCB000.4	Cabell	156.6	Temporary	2532	1.5	0	0.4	0.5	0.6	<0.1	0	Existing Private Road - Major Upgrades
ARCB000.9	Cabell	158.0	Temporary	1639	0.9	0	<0.1	0.9	<0.1	0	0	Existing Private Road - Major Upgrades
ARCB001	Cabell	158.2	Temporary	3304	1.9	0	0.5	1.0	0.4	0	0	Existing Private Road - Major Upgrades

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Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
ARCB003	Cabell	160.6	Temporary	2247	1.3	<0.1	0.2	1.0	<0.1	<0.1	0	Existing Private Road - Major Upgrades
ARCB004	Cabell	160.9	Temporary	176	0.1	0	<0.1	0	0.1	0	0	Existing Private Road - Minor Upgrades
ARCB005	Cabell	161.2	Temporary	1378	0.8	0.7	<0.1	<0.1	0	<0.1	0	Existing Private Road - Major Upgrades
ARCB006	Cabell	162.0	Temporary	3464	2.0	0	<0.1	1.6	0.4	<0.1	0	Existing Private Road - Major Upgrades
ARCB006.2	Cabell	162.4	Temporary	717	0.4	0	<0.1	0.4	0	0	0	New Road
ARCB006.4	Cabell	163.1	Temporary	2534	1.5	0	0	1.4	0.1	0	0	Existing Private Road - Major Upgrades
ARCB006.5	Cabell	163.5	Temporary	4064	2.3	0	0.2	1.7	0.4	<0.1	0	Existing Private Road - Major Upgrades
<i>Subtotal Acres</i>												
					<b>259.9</b>	<b>12.3</b>	<b>82.5</b>	<b>132.5</b>	<b>31.1</b>	<b>1.4</b>	<b>0.1</b>	
					<b>1.6<sup>b</sup></b>	<b>0.2</b>	<b>1.1</b>	<b>0.2</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	<b>0</b>	
<b>MXP-200</b>												
ARDO008	Doddridge	1.1	Temporary	700	0.4	<0.1	0.4	<0.1	<0.1	0	0	New Road
ARDO200	Doddridge	1.8	Temporary	14204	8.2	0.3	0.9	6.3	0.7	0	0	Existing Private Road - Minor Upgrades
ARDO200.1	Doddridge	2.0	Temporary	723	0.4	0	0.3	0.1	0	0	0	Existing Private Road - Minor Upgrades
ARDO200.2	Doddridge	2.0	Temporary	452	0.3	0	0.2	0.1	0	0	0	New Road
ARDO200.3	Doddridge	2.4	Temporary	7161	4.1	0.2	1.6	2.0	0.2	<0.1	0	Existing Private Road - Major Upgrades
ARDO200.4	Doddridge	3.0	Temporary	1214	0.7	0	0.2	0.5	<0.1	0	0	Existing Private Road - Major Upgrades
ARDO201	Doddridge	3.1	Temporary	3488	2.0	0	1.7	0.1	0.1	0.1	<0.1	Existing Private Road - Major Upgrades

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Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
ARDO201.1	Doddridge	3.1	Temporary	688	0.4	0	0.2	0.2	<0.1	0	0	Existing Private Road - Major Upgrades
ARDO201.3	Doddridge	3.3	Temporary	849	0.5	0	<0.1	0.4	<0.1	<0.1	0	Existing Private Road - Major Upgrades
ARDO201.2	Doddridge	3.4	Temporary	959	0.6	0	0	0.5	<0.1	<0.1	0	Existing Private Road - Major Upgrades
ARDO201.4	Doddridge	3.4	Temporary	787	0.5	0	0	0.4	<0.1	0	0	Existing Private Road - Major Upgrades
ARDO201.5	Doddridge	3.6	Temporary	118	0.1	<0.1	<0.1	<0.1	0	0	0	New Road
ARDO201.54	Doddridge	4.2	Temporary	3745	2.4	<0.1	0.1	2.2	<0.1	<0.1	0	Existing Private Road - No Upgrades
ARDO201.55	Doddridge	4.7	Temporary	1123	0.7	0	0.1	0.5	0.1	0	0	Existing Private Road - Minor Upgrades
ARDO201.6	Doddridge	5.6	Temporary	9285	5.3	0.4	1.4	2.5	0.9	0	0	Existing Private Road - Major Upgrades
<b>Subtotal Acres</b>												
<i>Temporary</i>					<b>26.3</b>	<b>1.1</b>	<b>7.1</b>	<b>16.0</b>	<b>2.1</b>	<b>0.2</b>	<b>&lt;0.1</b>	
<i>Permanent</i>					<b>0 <u>b/</u></b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
<b>Total Acres for New Pipeline Facilities</b>												
<i>Temporary</i>					<b>286.3</b>	<b>13.3</b>	<b>89.6</b>	<b>148.5</b>	<b>33.1</b>	<b>1.6</b>	<b>0.2</b>	
<i>Permanent</i>					<b>1.6 <sup>b</sup></b>	<b>0.2</b>	<b>1.1</b>	<b>0.2</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	<b>0</b>	
<b>REPLACEMENT PIPELINE FACILITIES</b>												
<b>SM80 Line</b>												
ARCB010	Cabell	21.0	Permanent	471	0.3	0	<0.1	0.1	0.2	<0.1	0	Existing Private Road – Major Upgrades
<i>Subtotal Acres</i>												
<i>Temporary</i>					<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
<i>Permanent</i>					<b>0.3</b>	<b>0</b>	<b>&lt;0.1</b>	<b>0.1</b>	<b>0.2</b>	<b>&lt;0.1</b>	<b>0</b>	

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Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
<b>SM80 Loop Line</b>												
ARCB011	Cabell	20.8	Temporary	434	0.3	0	<0.1	0.1	0.1	0	0	New Road
ARCB012	Cabell	20.6	Permanent	3174	1.8	0	0.1	0.8	0.9	<0.1	0	Existing Private Road – Major Upgrades
<i>Subtotal Acres</i>												
<i>Temporary</i>					<i>0.3</i>	<i>0</i>	<i>&lt;0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0</i>	<i>0</i>	
<i>Permanent <u>b/</u></i>					<i>1.8 <u>b/</u></i>	<i>0</i>	<i>0.1</i>	<i>0.8</i>	<i>0.9</i>	<i>&lt;0.1</i>	<i>0</i>	
<b>Total Acres for Replacement Pipeline Facilities</b>												
<b>Temporary</b>					<b>0.3</b>	<b>0</b>	<b>&lt;0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0</b>	<b>0</b>	
<b>Permanent</b>					<b>2.1</b>	<b>0</b>	<b>0.1</b>	<b>0.9</b>	<b>1.1</b>	<b>&lt;0.1</b>	<b>0</b>	
<b>CONTRACTOR/PIPE YARDS</b>												
Yard 16												
ARPY016.1	Putnam	NA	Temporary	629	0.4	<0.1	0.2	0	0.1	0	0	Existing Private Road - Minor Upgrades
Yard 17												
ARJA003.8	Jackson	NA	Temporary	448	0.3	0.1	<0.1	0.1	0.1	0	<0.1	New Road
Yard 18												
ARPY018.1	Putnam	NA	Temporary	8	<0.1	0	<0.1	0	<0.1	0	0	Existing Private Road - Minor Upgrades
Yard 20												
ARPY020.1	Wetzel	NA	Temporary	75	0.1	<0.1	<0.1	<0.1	<0.1	0	0	New Road
ARPY020.2	Wetzel	NA	Temporary	29	<0.1	<0.1	<0.1	0	0	0	0	New Road
Yard 23												
ARPY023.2	Wetzel	NA	Temporary	5	<0.1	<0.1	<0.1	0	0	0	0	New Road
ARPY023.1	Wetzel	NA	Temporary	5	<0.1	<0.1	<0.1	0	0	0	0	New Road
Yard 25												

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Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
ARPY025.1 Yard 43	Wetzel	NA	Temporary	45	<0.1	0	<0.1	<0.1	0	0	0	New Road
ARPY043.1 Yard 45	Doddridge	NA	Temporary	512	0.3	0.1	0.2	0	<0.1	<0.1	0	New Road
ARPY045.1 Yard 47	Doddridge	NA	Temporary	5	<0.1	<0.1	<0.1	0	0	0	0	New Road
ARPY047.1 Yard 49	Doddridge	NA	Temporary	5	<0.1	<0.1	<0.1	0	0	0	0	Existing Private Road - Minor Upgrades
ARPY047.2 Yard 49	Doddridge	NA	Temporary	5	<0.1	<0.1	<0.1	0	0	0	0	New Road
ARPY049.1 Yard 50	Doddridge	NA	Temporary	32	<0.1	0	<0.1	0	0	0	0	Existing Private Road - Minor Upgrades
ARPY050.1 Yard 59	Doddridge	NA	Temporary	58	<0.1	0	<0.1	<0.1	0	0	0	New Road
ARPY059.1 Yard 69	Doddridge	NA	Temporary	16	<0.1	0	<0.1	<0.1	0	0	0	Existing Private Road - No Upgrades
ARPY069.1 Yard 73	Jackson	NA	Temporary	13	<0.1	0	<0.1	0	<0.1	0	0	Existing Private Road - No Upgrades
ARPY073.1 Yard 99	Jackson	NA	Temporary	5	<0.1	0	<0.1	<0.1	0	0	0	Existing Private Road - Minor Upgrades
ARPY099.1	Marshall	NA	Temporary	5	<0.1	<0.1	<0.1	0	0	0	0	New Road
ARPY099.2 Yard 109	Marshall	NA	Temporary	5	<0.1	<0.1	<0.1	0	0	0	0	New Road

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Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
ARPY109.1 Yard 116	Cabell	NA	Temporary	15	<0.1	<0.1	<0.1	0	0	0	0	New Road
ARPY116.1 Yard 118	Marshall	NA	Temporary	134	0.1	0	0.1	0	0	0	0	Existing Private Road - No Upgrades
ARPY118.1 Yard 122	Wetzel	NA	Temporary	5	<0.1	0	<0.1	0	<0.1	0	0	Existing Private Road - Minor Upgrades
ARPY122.1 Yard 123	Pleasants	NA	Temporary	17	<0.1	0	<0.1	0	<0.1	0	0	Existing Private Road - No Upgrades
ARPY122.2 Yard 124	Pleasants	NA	Temporary	17	<0.1	0	<0.1	<0.1	<0.1	0	0	Existing Private Road - No Upgrades
ARPY123.1 Yard 125	Wood	NA	Temporary	12	<0.1	<0.1	<0.1	0	0	0	0	Existing Private Road - No Upgrades
ARPY123.2 Yard 128	Wood	NA	Temporary	29	<0.1	0	<0.1	0	0	0	0	Existing Private Road - No Upgrades
ARPY124.1	Wood	NA	Temporary	111	0.2	0	0.1	0	0.1	0	0	Existing Private Road - Major Upgrades
ARPY125.1	Wirt	NA	Temporary	21	<0.1	0	<0.1	0	0	0	0	Existing Private Road - No Upgrades
ARPY125.2	Wirt	NA	Temporary	18	<0.1	0	<0.1	<0.1	0	0	0	Existing Private Road - No Upgrades
ARPY128.1	Jackson	NA	Temporary	11	<0.1	0	<0.1	0	<0.1	0	0	Existing Private Road - No Upgrades

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Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
Yard 129												
ARPY129.1	Putnam	NA	Temporary	324	0.2	0	0.2	<0.1	<0.1	0	0	Existing Private Road - No Upgrades
Yard 130												
ARPY130.1	Jackson	NA	Temporary	13	<0.1	0	<0.1	0	0	0	0	Existing Private Road - No Upgrades
Yard 137												
ARPY137.1	Wood	NA	Temporary	1574	1.0	0	0.9	<0.1	<0.1	0	0	Existing Private Road - No Upgrades
Yard 141												
ARPY141.1	Doddridge	NA	Temporary	10	<0.1	<0.1	<0.1	0	0	0	0	Existing Private Road - No Upgrades
Yard 143												
ARPY143.1	Marshall	NA	Temporary	28	<0.1	0	<0.1	0	<0.1	0	0	Existing Private Road - No Upgrades
ARPY143.2	Marshall	NA	Temporary	21	<0.1	0	<0.1	0	<0.1	0	0	Existing Private Road - No Upgrades
Yard 149												
ARPY149.1	Wetzel	NA	Temporary	10	<0.1	<0.1	<0.1	0	0	0	0	New Road
ARPY149.2	Wetzel	NA	Temporary	17	<0.1	<0.1	<0.1	0	0	0	0	New Road
Yard 153												
ARPY153.1	Ritchie	NA	Temporary	145	0.1	0	<0.1	<0.1	0.1	0	0	New Road
Yard 155												
ARPY155.1	Ritchie	NA	Temporary	2607	1.5	0	0.1	1.3	0.1	0	0	Existing Private Road - No Upgrades
Yard 157												
ARPY157.1	Cabell	NA	Temporary	46	<0.1	0	<0.1	0	<0.1	0	0	Existing Private Road - No Upgrades

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Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
Yard 159												
ARPy159.1	Putnam	NA	Temporary	532	0.3	0	<0.1	0.3	<0.1	0	0	New Road
<i>Subtotal Acres</i>												
<i>Temporary</i>					4.9	0.3	2.3	1.8	0.6	<0.1	0.1	
<i>Permanent</i>					0	0	0	0	0	0	0	
<b>STAGING AREAS</b>												
Staging Area 19												
ARPY019.1	Wetzel	18.4	Temporary	18	<0.1	0	<0.1	0	0	0	0	New Road
Staging Area 26												
ARTY003	Tyler	35.7	Temporary	221	0.1	0.1	<0.1	<0.1	0	<0.1	0	Existing Private Road - Major Upgrades
Staging Area 30												
ARMA004	Marshall	4.1	Temporary	466	0.3	0.1	0.2	0	0	0	0	Existing Private Road - Minor Upgrades
Staging Area 32B												
ARPY032.1	Marshall	8.9	Temporary	184	0.1	0.1	<0.1	<0.1	0	0	0	New Road
Staging Area 38A												
ARWZ007	Wetzel	19.4	Temporary	3602	2.1	0.3	1.5	0.2	0	0	0	Existing Private Road - Minor Upgrades
Staging Area 39												
ARWZ010.1	Wetzel	20.7	Temporary	95	0.1	0	<0.1	<0.1	<0.1	0	0	Existing Private Road - Major Upgrades
Staging Area 53												
ARPY053.1	Richie	73.0	Temporary	12	<0.1	0	<0.1	<0.1	0	0	0	New Road
Staging Area 65												
ARRI007.41	Ritchie	73.7	Temporary	7	<0.1	<0.1	<0.1	<0.1	0	0	0	Existing Private Road - Minor Upgrades

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						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
Staging Area 71 ARJA007.9	Jackson	129.4	Temporary	121	0.1	0	<0.1	0.1	0	<0.1	0	Existing Private Road - Major Upgrades
Staging Area 85 ARPU013.3	Putnam	143.3	Temporary	976	0.6	0.3	0.2	0	0.1	0	0	Existing Private Road - Minor Upgrades
Staging Area 87 ARPU009.6	Putnam	140.1	Temporary	72	<0.1	<0.1	<0.1	0	0	0	0	Existing Private Road - Minor Upgrades
Staging Area 92 ARRI001.5	Ritchie	63.9	Temporary	367	0.2	0	0	0.2	<0.1	0	0	Existing Private Road - Major Upgrades
Staging Area 95 ARMA003	Marshall	2.9	Temporary	844	0.5	<0.1	<0.1	0.4	0.1	0	0	Existing Private Road - Major Upgrades
Staging Area 101 ARWI009	Wirt	88.1	Temporary	552	0.3	<0.1	0.3	<0.1	<0.1	0	0	Existing Private Road - Major Upgrades
Staging Area 110 ARPY110.1	Doddridge	50.5	Temporary	7	<0.1	0	<0.1	0	<0.1	0	0	Existing Private Road - Minor Upgrades
Staging Area 111 ARPY111.1	Jackson	124.3	Temporary	1022	0.2	0	<0.1	0.2	0	0	0	Existing Private Road - Major Upgrades
Staging Area 112 ARPU009.4	Putnam	139.5	Temporary	1053	0.6	0.5	0.1	0.1	0	<0.1	0	Existing Private Road - Major Upgrades

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Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
Staging Area 142												
ARPY142.1	Tyler	34.9	Temporary	8	<0.1	0	<0.1	0	0	0	0	Existing Private Road – Minor Upgrades
Staging Area 144												
ARWZ004.4	Wetzel	15.4	Temporary	452	0.3	0.1	0.2	0	<0.1	0	0	New Road
Staging Area 148												
ARCB002	Cabell	160.3	Temporary	1799	1.0	0.9	<0.1	0.1	0	<0.1	0	Existing Private Road - Major Upgrades
<i>Subtotal acres</i>												
<b>Temporary</b>					<b>6.6</b>	<b>2.5</b>	<b>2.7</b>	<b>1.2</b>	<b>0.2</b>	<b>&lt;0.1</b>	<b>0</b>	
<b>Permanent</b>					<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
<b>Total Acres for Contractor/Pipe Yards And Staging Areas</b>												
<b>Temporary</b>					<b>11.5</b>	<b>2.7</b>	<b>5.0</b>	<b>3.0</b>	<b>0.8</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	
<b>Permanent</b>					<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
<b>NEW ABOVEGROUND FACILITIES <u>b/</u></b>												
Sherwood Compressor Station												
ARDO007.8	Doddridge	50.5	Permanent	205	0.1	<0.1	0.1	0	<0.1	<0.1	0	Existing Private Road - Minor Upgrades
White Oak Compressor Station												
ARRI021.1	Ritchie, Calhoun	82.2	Permanent	386	0.2	0.1	<0.1	0.1	0	0	0	New Road
Mount Olive Compressor Station												
ARJA006.4 <u>c/</u>	Jackson	124.5	Permanent	695	0.3	0	0.1	0.2	<0.1	0	0	New Road
ARJA006.3 <u>c/</u>	Jackson	124.4	Permanent	296	0.1	0	0	0.1	<0.1	<0.1	0	New Road
ARJA006.2 <u>c/</u>	Jackson	124.4	Permanent	508	0.2	0	0	0.2	0	0	0	New Road
ARJA006.1 <u>c/</u>	Jackson	124.4	Permanent	453	0.2	0	0	0.2	0	0	0	New Road

APPENDIX F

Mountaineer XPress Project  
Access Roads a/

Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type	
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland		
Ripley Regulator Station <u>d/</u>													
ARJA006.5	Jackson	124.8	Permanent	456	0.4	0	0.2	<0.1	0.1	<0.1	0	Existing Private Road - Minor Upgrades	
Ripley Station Road <u>e/</u>	Jackson	124.6	Permanent	1164	0.3	0.1	<0.1	0.1	0.1	<0.1	0	New Road	
Saunders Creek Regulator Station													
ARCB007	Cabell	164.5	Permanent	2374	3.1	0.2	0	1.9	1.1	0	0	New Road	
MXP-200 Tie-in with Line 1983													
ARDO202	Doddridge	6.0	Permanent	225	0.1	0	<0.1	0.1	0	0	0	New Road	
Mainline Valve 01													
ARMA008.2	Marshall	10.2	Permanent	1444	1.5	0	0.3	0.3	1.0	0	0	New Road	
Mainline Valve 02													
ARWZ009	Wetzel	20.4	Permanent	518	0.2	0.1	<0.1	<0.1	<0.1	0	0	New Road	
Mainline Valve 03													
ARWZ019	Wetzel	29.5	Permanent	66	0.1	0	<0.1	<0.1	<0.1	0	0	New Road	
Mainline Valve 04													
MLV 4 Road <u>e/</u>	Doddridge	38.3	Permanent	86	0.1	0.1	<0.1	<0.1	0	0	0	New Road	
Mainline Valve 05													
MLV 5 Road <u>e/</u>	Doddridge	60.5	Permanent	153	0.1	0	<0.1	0.1	<0.1	0	0	New Road	
Mainline Valve 06													
ARRI006.6	Ritchie	72.3	Permanent	156	0.1	0	<0.1	0	0.1	0	0	New Road	
Mainline Valve 07													
MLV 7 Road <u>e/</u>	Wirt	96.5	Permanent	55	<0.1	0	<0.1	<0.1	0	0	0	New Road	
Mainline Valve 08													
MLV 8 Road <u>e/</u>	Jackson	113.3	Permanent	62	0.1	0	<0.1	0	0.1	0	0	New Road	

APPENDIX F

**Mountaineer XPress Project  
Access Roads a/**

Facility/Access Road Name	County	Milepost	Type <u>b/</u>	Length (feet)	Areas Affected by Construction (acres)	Existing Land Use (acres)						Existing Road Type
						Agriculture	Developed	Forested	Open Land	Open Water	Wetland	
Mainline Valve 09												
ARPU005	Putnam	134.9	Permanent	36	<0.1	<0.1	<0.1	0	0	0	0	New Road
Mainline Valve 10 d/												
ARPU020	Putnam	148.4	Permanent	370	0.2	0	0.1	<0.1	0.1	0	0	Existing Private Road - Minor Upgrades
MLV 10 Road	Putnam	148.4	Permanent	394	0.2	0	0	<0.1	0.1	0	0	New Road
<i>Total Acres for New Aboveground Facilities</i>												
<i>Temporary</i>					<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	
<i>Permanent</i>					<i>7.9</i>	<i>0.6</i>	<i>0.8</i>	<i>3.6</i>	<i>2.8</i>	<i>&lt;0.1</i>	<i>0</i>	
<b>Total Access Roads Impacts</b>					<b>309.6 <sup>b</sup></b>	<b>16.9</b>	<b>96.6</b>	<b>156.4</b>	<b>37.9</b>	<b>1.6</b>	<b>0.2</b>	
<b>Temporary</b>					<b>298.0</b>	<b>16.0</b>	<b>94.6</b>	<b>151.6</b>	<b>34.0</b>	<b>1.6</b>	<b>0.</b>	
<b>Permanent <u>b/</u></b>					<b>11.6 <sup>b</sup></b>	<b>0.9</b>	<b>2.0</b>	<b>4.8</b>	<b>3.9</b>	<b>&lt;0.1</b>	<b>0</b>	

a The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the exact sum of the addends in all cases.

b For the purposes of this table, acreages associated with roads to access permanent aboveground facilities have been separated from the facility. Acreage associated with these roads have been grouped or combined with facility acreages in other tables.

c At the Mount Olive Compressor Station, the permanent road comprised of ARJA006.2, ARJA006.3, and ARJA006.4 will be a continuous, graveled, permanent road. It has been accounted for as three segments to present accurate acreage impacts and avoids double counting the permanent impact where it crosses the MXP-100 right-of-way at two separate locations.

d Ripley Regulator Station and Mainline Valve (MLV) 10 each have a proposed permanent road to the facility that is continuous, but accounted for as two segments to present accurate acreage impacts and avoids double counting the permanent impact in other tables where the continuous road intersects with the permanent facility site.

eRipley Regulator Station and Mainline Valve (MLV) 04, MLV 05, MLV 07, and MLV 08 each have a proposed permanent road to the facility that is located entirely within the MXP-100 permanent right-of-way.

**APPENDIX G**  
**Columbia Gas' HDD Inadvertent Return Contingency Plan for**  
**the Kanawha River HDD Crossing**



**COLUMBIA GAS TRANSMISSION, LLC**

**Mountaineer XPress Project**

**Horizontal Directional Drilling  
Inadvertent Release Contingency Plan**

**Kanawha River HDD Crossing**

**April 2017**

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## 1.0 INTRODUCTION

Columbia Gas Transmission, LLC (Columbia) has prepared this Horizontal Directional Drilling Inadvertent Release Contingency Plan (HDD Contingency Plan) for the proposed crossing of the Kanawha River in Putnam County, West Virginia. The proposed crossing of the Kanawha River is associated with the Mountaineer XPress Project (MXP or Project).

This crossing-specific HDD Contingency Plan provides guidance to monitor for the potential inadvertent release of drilling fluids during drilling operations and identifies measures to limit releases such as rapidly responding to such incidents, implementing release recovery and disposal procedures, and documenting activities associated with drilling operation releases. This document will be kept on-site at the Kanawha River crossing and available to all construction, inspection, and regulatory personnel during all phases of the HDD operation.

## 2.0 PROJECT DESCRIPTION

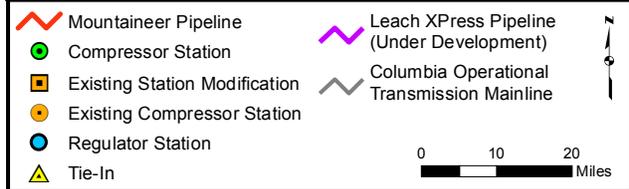
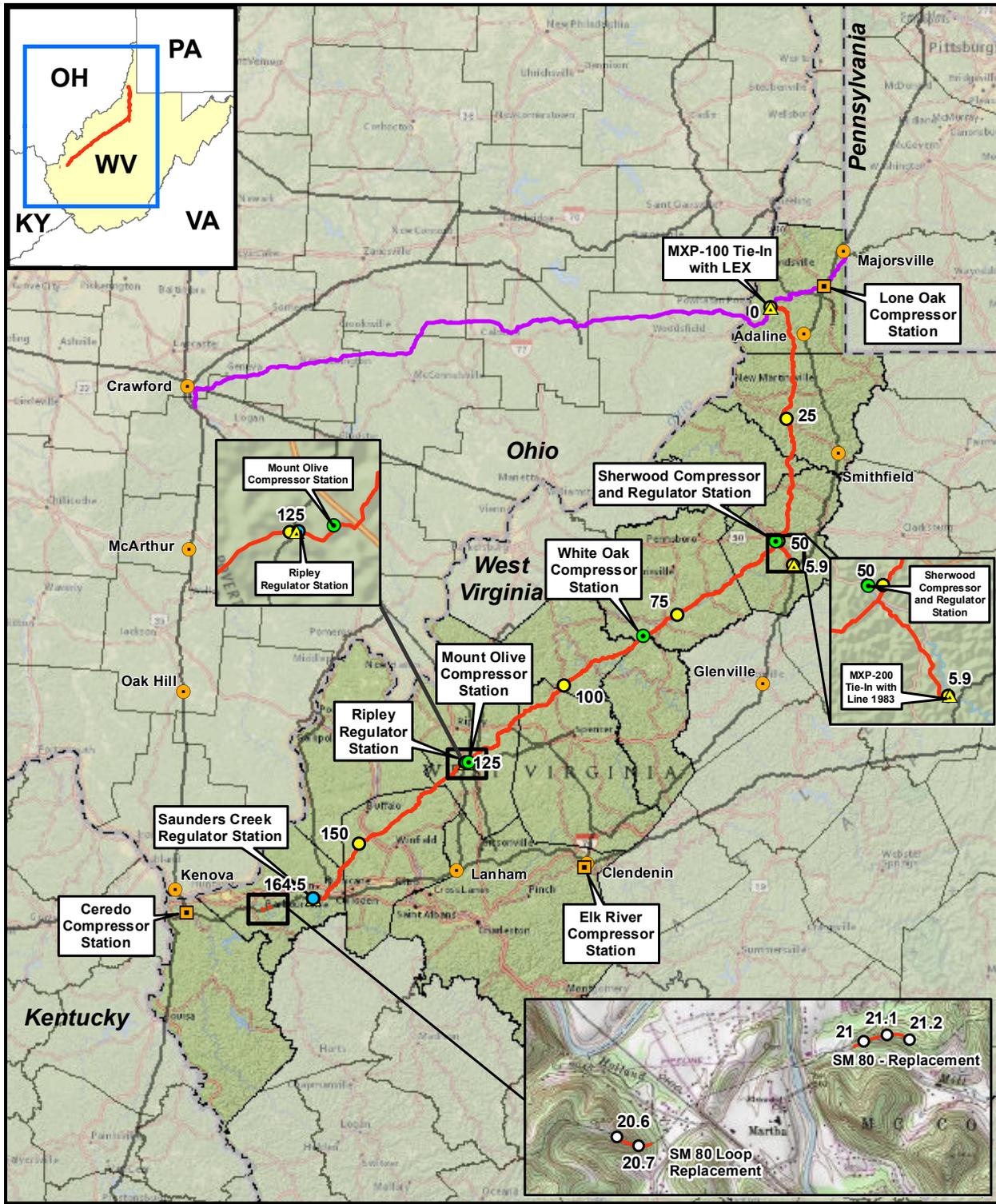
Columbia proposes to: construct and operate approximately 170.9 miles of various diameter natural gas pipelines; modify one existing compressor station and two new compressor stations proposed under separate proceedings; and, construct three new compressor stations, three new regulating stations, and other modifications at a number of aboveground facility sites. The Project will be constructed in Marshall, Wetzel, Tyler, Doddridge, Ritchie, Calhoun, Wirt, Roane, Jackson, Mason, Putnam, Kanawha, Cabell and Wayne Counties, West Virginia. The Project is under multiple federal, state and local regulatory agency jurisdictions. The Federal Energy Regulatory Commission (FERC) is the lead federal agency through which Columbia is seeking authorization to construct MXP, under FERC Docket No. CP16-357. Figure 1 provides a Project Location Map.

As part of MXP, Columbia will install a new 36-inch-diameter, X-70 grade steel pipe with a wall thickness of 0.75 inches beneath the Kanawha River in Putnam County. No new aboveground facilities will be installed at the Kanawha River (i.e., mainline valves or other appurtenances).

### 2.1 CROSSING LOCATION DESCRIPTION

The site is located at about Project milepost 147 near the town of Fraziers Bottom, West Virginia. At the crossing location, the Kanawha River flows in a north-northwesterly direction. Land use at the crossing location is characterized by mixed light industrial and open land. West Virginia State Route 817 parallels the Kanawha River on the west; a railroad line operated by Norfolk Southern Railroad and State Route 62 parallel the river on the east. Several residences are located on the east side of the river. The river is approximately 750 feet wide (water's edge to water's edge) at the proposed HDD crossing location. Figure 2 provides a detailed crossing plan.

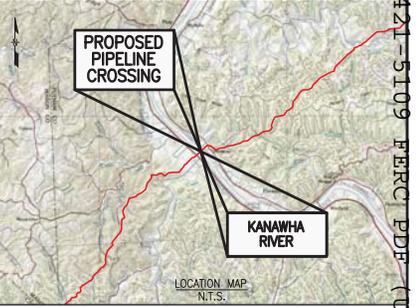
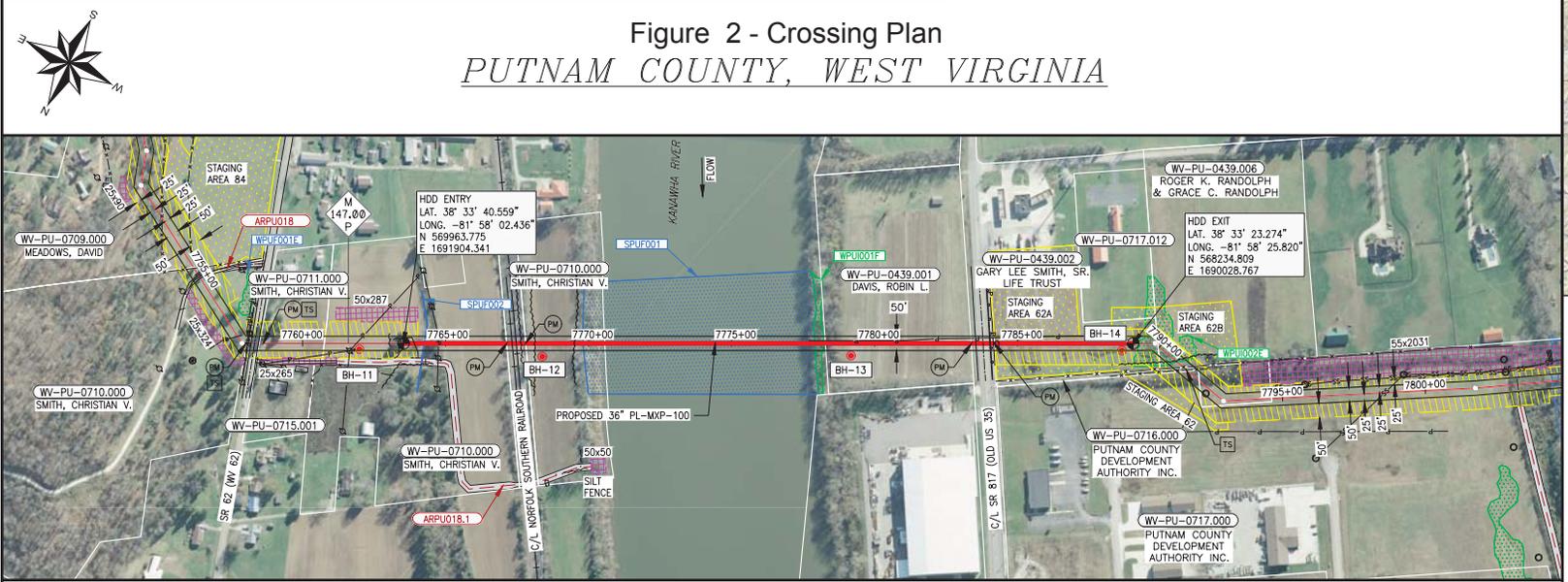
HDD operations will be conducted on both sides of the river crossing, as described in section 3.0, below. As depicted on figure 2, the Project includes temporary and additional temporary workspaces and staging areas located on both sides of the river.



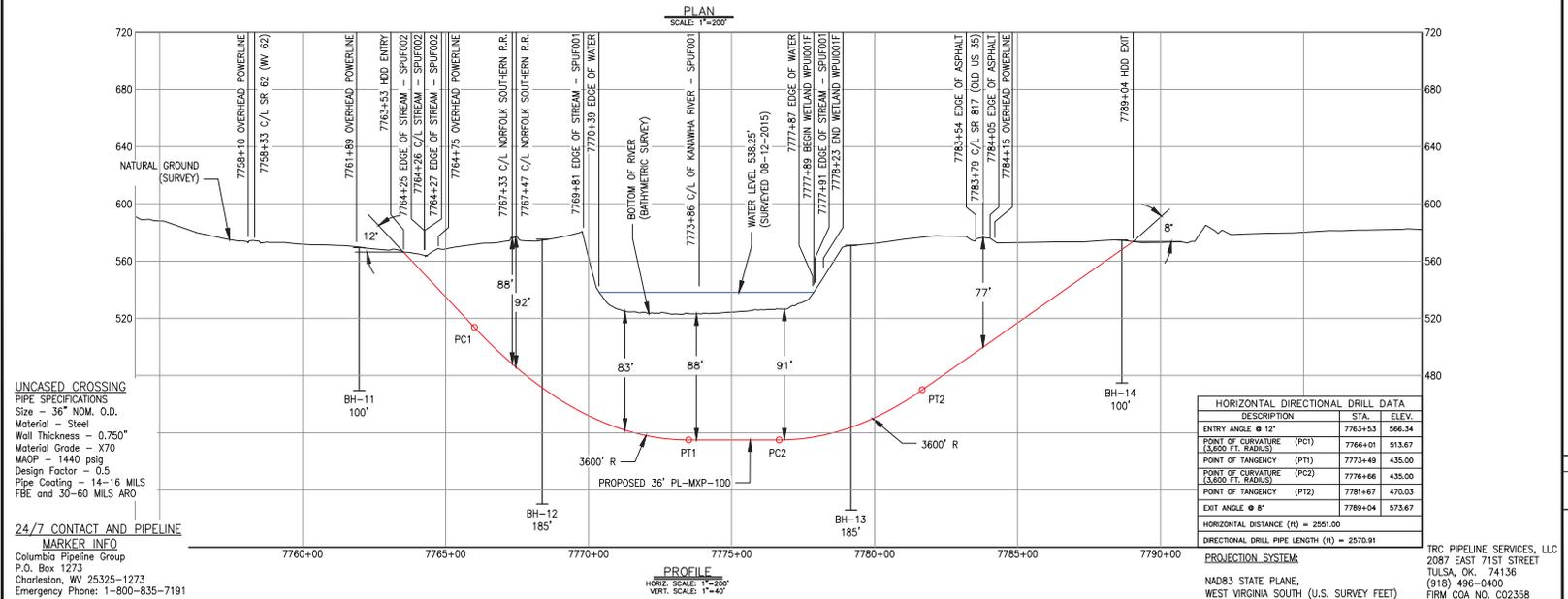
**Figure 1**  
**Project Location Map**  
**Mountaineer Xpress Project**  
**Columbia Gas Transmission**

## Figure 2 - Crossing Plan

### PUTNAM COUNTY, WEST VIRGINIA



- DIRECTIONAL DRILL CONSTRUCTION NOTES:**
- ALL EQUIPMENT MUST ACCESS THE SITE ALONG THE CONSTRUCTION RIGHT-OF-WAY OR FROM APPROVED ACCESS ROADS.
  - 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 ENVIRONMENTAL INSPECTOR AND IS LIMITED TO THE AMOUNT NECESSARY TO STRING SURVEY WIRES AND INSTALL PUMPS AND PIPING TO OBTAIN WATER (WHERE APPROVED).
  - WATER SOURCE: DRILL WATER AND HYDROSTATIC TEST WATER SHALL BE OBTAINED FROM AN APPROVED SOURCE.
  - HYDROSTATIC TEST PIPE-INSTALLATION AND POST-INSTALLATION HYDROSTATIC TESTS SHALL BE CONDUCTED IN ACCORDANCE WITH THE HYDROSTATIC TEST PLAN. TEST WATER SHALL BE SAMPLED AND TESTED IN ACCORDANCE WITH PERMIT REQUIREMENTS. THE TEST WATER SHALL BE DISCHARGED IN AN UPLAND AREA INTO AN EROSION CONTROL STRUCTURE AND/OR SILT FENCES GEOTEXTILE FILTER BAG, OR COLLECTED IN A TRUCK AND HAULED TO AN APPROVED DISPOSAL SITE. UPON COMPLETION OF DOWATERING AND DRYING, CALIPER PIG SURVEY SHALL BE COMPLETED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
  - SPILL-PREVENTION: REFUELING OF ALL EQUIPMENT SHALL BE COMPLETED IN ACCORDANCE WITH THE SPOC PLAN.
  - EROSION AND SEDIMENT CONTROL: CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN SEDIMENT CONTROL STRUCTURES IN ACCORDANCE WITH CONTRACT DOCUMENTS.
  - INSTALLATION: THE PIPE SECTION FOR THE DRILLED CROSSING SHALL BE MADE UP WITHIN THE APPROVED CONSTRUCTION RIGHT-OF-WAY AT THE DRILL EXIT AS SHOWN AFTER THE PILOT HOLE IS COMPLETE. CONTRACTOR'S ACTUAL DRILL PROFILE SHALL BE SUBMITTED TO COLUMBIA FOR APPROVAL. CONTRACTOR SHALL ASSESS THE NEED FOR AND SUPPLY APPROPRIATE BALLAST DURING PULLBACK.
  - DRILLING FLUID DISPOSAL: CONTRACTOR SHALL DISPOSE OF EXCESS DRILLING FLUID AS DIRECTED BY COLUMBIA'S REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS. UNDER NO CIRCUMSTANCES SHALL DRILLING FLUID BE DISPOSED OF IN WATER BODIES OR WETLANDS. ANY DRILLING FLUID WHICH INADVERTENTLY SURFACES AT POINTS OTHER THAN THE ENTRY OR EXIT POINTS SHALL BE CONTAINED AND COLLECTED TO THE EXTENT PRACTICABLE AND DISPOSED OF AS DIRECTED BY COLUMBIA'S REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS.
  - CLEANUP/STABILIZATION/RESTORATION: ALL DISTURBED AREAS SHALL BE RETURNED TO THE ORIGINAL CONTOURS. DISTURBED AREAS SHALL BE SEEDED AS SPECIFIED IN THE CLEAN-UP AND RESTORATION REQUIREMENTS. IF THE TERRAIN ALLOWS AND CLEAN-UP IS PERMITTED, CONTRACTOR SHALL UTILIZE LOW GROUND PRESSURE EQUIPMENT OR OTHER EQUIPMENT APPROVED BY COLUMBIA TO FACILITATE CONTAINMENT AND CLEAN-UP OF ANY INADVERTENT RETURNING THAT OCCUR DURING THE HDD INSTALLATION PROCESS.
  - CONTRACTOR IS RESPONSIBLE FOR CALLING WEST VIRGINIA 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 COLUMBIA PRIOR TO INITIATING HDD OPERATIONS.
  - IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY AND PROTECT ANY FOREIGN UTILITY THAT MAY BE AFFECTED BY THE HDD OPERATIONS.
  - CONTRACTOR SHALL ADHERE TO THE SPECIFICATIONS AND REQUIREMENTS PER COLUMBIA'S SPECIFICATIONS, CONTRACT DOCUMENT AND SPECIAL PERMIT CONDITIONS, EXCEPT AS NOTED ON THIS DRAWING.
  - WETLAND AREAS AT HDD EXIT WILL NEED TO BE MATTED.
  - REFER TO PSI GEOTECHNICAL REPORT DATED APRIL 15, 2016 FOR B-11 AND B-14, AND SUPPLEMENTAL REPORT DATED NOVEMBER 14, 2016 FOR B-12 AND B-13.



**UNCASED CROSSING**  
 PIPE SPECIFICATIONS  
 Size = 36" NOM. O.D.  
 Material - Steel  
 Wall Thickness = 0.750"  
 Material Grade = X70  
 MAOP = 1440 psig  
 Design Factor = 0.5  
 Pipe Coating = 14-16 MILS  
 FBE and 30-60 MILS ARO

**24/7 CONTACT AND PIPELINE MARKER INFO**  
 Columbia Pipeline Group  
 P.O. Box 1273  
 Charleston, WV 25325-1273  
 Emergency Phone: 1-800-835-7191

DESCRIPTION	STA.	ELEV.
ENTRY ANGLE @ 12'	7763+53	566.34
POINT OF CURVATURE (PC1) (3,600 FT. RADIUS)	7766+01	513.67
POINT OF TANGENCY (PT1)	7773+49	435.00
POINT OF CURVATURE (PC2) (3,600 FT. RADIUS)	7776+66	435.00
POINT OF TANGENCY (PT2)	7781+67	470.03
EXIT ANGLE @ 8'	7789+04	573.67
HORIZONTAL DISTANCE (H) =	2501.00	
DIRECTIONAL DRILL PIPE LENGTH (L) =	2570.91	

<b>LEGEND</b>	<ul style="list-style-type: none"> <li><span style="color: red;">—</span> EXISTING COLUMBIA PIPELINE</li> <li><span style="color: blue;">—</span> FORESK PIPELINE</li> <li><span style="color: green;">—</span> PERMANENT FLOW</li> <li><span style="color: black;">—</span> FENCE</li> <li><span style="color: red;">—</span> ROUTE</li> <li><span style="color: yellow;">—</span> TEMPORARY WORKSPACE</li> <li><span style="color: orange;">—</span> ADDITIONAL TEMPORARY WORKSPACE</li> <li><span style="color: purple;">—</span> ACCESS ROAD</li> <li><span style="color: brown;">—</span> CONTRACTOR / PIPE VARD</li> <li><span style="color: blue;">—</span> UNDERGROUND CABLE</li> <li><span style="color: green;">—</span> WATERLINE</li> <li><span style="color: black;">—</span> COUNTY BORDER</li> <li><span style="color: red;">—</span> ACCESS ROAD NUMBER</li> <li><span style="color: blue;">—</span> WETLAND</li> <li><span style="color: green;">—</span> WATERBODY</li> <li><span style="color: black;">—</span> SANITARY SEWER</li> </ul>	<b>SCALE:</b> 1" = 200'	<b>PROJECT DELIVERY PROJECT ENGINEERING</b>
<b>ISSUED FOR FERC REVIEW</b>	SJD 3/31/16	<b>ISSUED FOR PERMIT</b>	JTU 01/17/17
<b>ISSUED FOR FERC FILING</b>	SJD 4/29/16	<b>ISSUED FOR FERC SUPPL FILING</b>	SJD 02/17/17
<b>NO.</b>	<b>REVISIONS</b>	<b>NO.</b>	<b>REVISIONS</b>

ISSUED FOR FERC SUPPL  
02/17/2017

<b>PROJECT INFORMATION</b>	<b>PROJECT DELIVERY PROJECT ENGINEERING</b>
PROJECT TITLE: PL-MXP-100 - RIVER CROSSING KANAWHA RIVER MP 147.2 - PUTNAM CO, WV DRAWING NUMBER: 20432 SHEET: 1 OF 1	PROJECT NUMBER: 06987-SWD-006 DATE: 3/07/16 DRAWING NUMBER: 20432 SHEET: 1 OF 1

The workspaces for the river crossing will be set back from the river's edge approximately 625 feet on the west side and approximately 680 feet on the east side of the Kanawha River. Access to the work site will be obtained via existing public roads and one new access road located on the east side of the river crossing (access road ARPU018.1, figure 2). A 50 foot by 50 foot additional temporary workspace located on the east side of the river will be created near the water's edge at the end of access road ARPU018.1 to be used for access to water for drilling operations.

All areas of disturbance have been surveyed for the presence of environmental resources such as wetlands, waterbodies, and cultural resources. Where such resources are present, appropriate exclusion measures will be implemented to minimize disturbance to these resources. Typically, this includes avoiding the placement of workspaces in such a manner as to impact the resource, the installation of construction exclusion fencing, or the use of temporary equipment mats. Erosion controls will be installed to limit the movement of sediment-laden water off of approved construction work areas. Exclusion fencing and erosion controls will be installed as described in the Project's Environmental Construction Standards (ECS). Figure 3 depicts the general locations where erosion controls will be installed at the crossing location.

## **2.2 FIELD INVESTIGATIONS**

In March 2016, Columbia conducted geotechnical investigations at four locations along the onshore portions of the drill path for the Kanawha River crossing to determine the optimal location and depth for the drill. Bore holes were advanced to a depth of between approximately 100 and 185 feet below the ground surface at two locations on both sides of the river. Bedrock was encountered at depths between 43 and 56 feet.

Based on geotechnical data, the HDD design was developed to achieve at least 83 feet of cover between the HDD drill path and the bottom of the river. The pipeline drill path is over 100 feet below the edge of the streambank on both sides of the crossing. The depth of the HDD profile beneath the Kanawha River and workspace setbacks from the river banks substantially reduce the potential risk of an inadvertent release of drilling fluid into the Kanawha River.

As noted, staging areas including the entry and exit points of the drill are located over 600 feet from the water's edge. On both sides of the crossing, a transportation feature (SR 817 on the west side and a railroad on the east side) lie between the drill entry/exit points and the river. Soil borings taken near the entry and exit points indicate the presence of lean clay and silt underlain by silty/fine and medium sands to bedrock depth. The cohesive nature of these soils, particularly near the ground surface, provide a confining layer that will minimize the potential for migration of drilling fluids to the surface near the drill entry/exit points.



### **3.0 CONSTRUCTION AND RESTORATION PROCEDURES**

The HDD method is a process that allows for trenchless construction by drilling a hole below the depth of a conventional lay that extends from a predetermined entry to an exit point beyond the feature being avoided and then pulling a prefabricated section of pipe through the hole. The method minimizes disturbance to the surface of the right-of-way between the entry and exit points of the drill and is used to avoid direct impacts on sensitive environmental features or areas that otherwise present difficulties for standard pipeline construction. The HDD method provides certain advantages over typical construction methods, such as avoidance of surface disturbance, riparian tree clearing, or in-stream construction where appropriate subsurface conditions exist.

#### **3.1 HORIZONTAL DIRECTIONAL DRILL METHOD**

A drill rig will be placed on the entry side of the HDD crossing (east side of the river) and a small-diameter (approximately 8-inch diameter) pilot hole will be drilled along a predetermined path beneath the waterbody. As drilling progresses, additional segments of drill pipe will be inserted into the pilot hole to extend the length of the drill. The drill bit will be steered and monitored throughout the process to maintain the designated path of the pilot hole. Once the pilot hole is complete, the hole will be enlarged using a series of reaming tools. The first reaming tool will be installed at the end of the drill string on the exit side of the pilot hole, and then drawn back to the drill rig to enlarge the hole. Drill pipe sections will be added to the rear of the reamer as it advanced toward the rig, allowing a string of drill pipe to remain in the hole at all times. Several passes with progressively larger reaming tools will be required to enlarge the hole to a sufficient diameter to accommodate the pipeline. The final hole will be about 48 inches in diameter; approximately 12 inches larger than the pipeline diameter to be installed.

During this process, drilling fluid consisting of bentonite clay, benign polymers, and water will be pumped through the drill pipe and circulated through the hole to power and lubricate the cutting bit, remove cuttings to the surface, and maintain the integrity of the hole. Water for the mixture will be pumped from the waterbody to the drill site through a hose or temporary network of irrigation-type piping or trucked in from another source. The pump intake will be appropriately screened to prevent entrainment of aquatic species. Small pits will be dug at or near the entry and exit points for the HDD to temporarily store the drilling fluid and cuttings. A dike or berm will be constructed around the pits to contain all drilling fluids and prevent inadvertent releases of drilling fluids in the event of excessive precipitation during construction. The fluid and cuttings will be pumped from the pits to an on-site recycling unit where the fluid will be processed for reuse. Prior to reuse, suspended materials are removed from the fluids using a mechanical system of shakers, desanders and desilters. The cleaned fluids are then reused and the cuttings are disposed of at an approved disposal site in accordance with applicable regulations.

The pipeline segment (also called a pull section) to be installed beneath the Kanawha River will be fabricated on the right-of-way or in approved workspace on the exit side of the crossing while the drill hole is being established. Once assembled, the welds on the pull section will be inspected for defects and then coated with fusion-bonded epoxy (FBE). A sacrificial abrasion resistant overlay will be applied over the FBE coating for protection from abrasive materials that may be encountered as the pull section is installed. Prior to installation, the pull section will be hydrostatically tested to confirm the integrity of the pull section. A steel bullhead

will be welded onto the front end of the pull section to aid in pulling the pipe through the drill hole. After the hole is completed, the pull section will be attached to the drill string on the exit side of the hole and pulled back through the hole toward the drill rig. The pipe segment will be hydrostatically tested a second time following installation with the remainder of the pipeline system.

As the pipeline is being installed, excess drilling fluid will be collected and disposed of at an appropriate facility. If water is left over from the drilling process, it will be discharged into a well-vegetated upland area or an energy dissipation/sediment filtration device, such as a geotextile filter bag or straw bale (weed-free) dewatering structure, at the site.

### **3.2 INADVERTENT RELEASE MONITORING AND PREVENTION**

Columbia's Project specifications require that the drilling contractor be fully qualified and experienced with HDD construction. The HDD contractor will be responsible for monitoring down-hole drilling fluid pressures and drilling fluid flows, keeping these parameters within safe limits. The contractor will also be responsible for complying with all permit requirements, technical specifications, and this contingency plan. The HDD contractor will also be required to submit a detailed preconstruction contingency plan that supplements this plan.

Although the HDD method typically avoids impacts on water quality by precluding disturbance of the waterbody bed and banks, an inadvertent release of drilling mud could occur if drilling fluid escapes the drill hole and is forced through the substrate to the ground surface. If an HDD crossing is successful, there are little to no impacts on the surface feature being crossed. If a natural fracture or weak area in the ground is encountered during drilling, an inadvertent release of drilling fluid to the environment could occur. Substrate consisting of unconsolidated gravel, coarse sand, or fractured bedrock could present circumstances that increase the likelihood of an inadvertent release; however, based on the soil profiles at the site, encountering unconsolidated materials is not expected. Depending on the orientation of the natural fracture or substrate, the drilling fluid may move laterally or vertically from the drill hole. If the drilling fluid moves laterally, the release may not be evident on the ground. For an inadvertent release to be evident on the surface there must be a preferential pathway extending vertically from the drill hole to the surface of the ground. The volume of fluid released in an inadvertent release is dependent on a number of factors, including the size of the pathway, the permeability of the geologic material, the viscosity of the fluid, and the pressure of the hydraulic drilling system.

Bentonite drill mud and cuttings from the HDD process will be collected and disposed of at an appropriate facility in accordance with applicable regulations.

In most cases, horizontal directional drilling can continue during an inadvertent release. In some situations, however, the HDD may fail due to refusal of the drill bit or collapse of the hole in non-cohesive, unstable substrate. In cases where drilling fails, the hole will be abandoned and will be filled with cuttings and drilling fluid. Once the abandoned hole is filled, a second attempt will be made to complete the drill. The second attempt must be performed within the confines of the approved construction work limits as shown on the Environmental Construction Drawings. The second attempt will generally be offset slightly from the original entry-hole location.

HDD activities will be conducted consistent with the FERC Upland Erosion Control, Revegetation and Maintenance Plan (Plan) and Wetland and Waterbody Construction and Mitigation Procedures (Procedures) as well as Columbia's ECS.

### 3.3 MONITORING PROTOCOLS

At the beginning of the pilot bore and the first pre-ream bore, the drill operator will advance the drill head with minimum drilling fluid pressure to minimize potential for inadvertent releases in the relatively shallow depths of the drill. The drill operator will advance the drill head at a pace such that soils cuttings have sufficient time to be flushed from the borehole by the drilling fluids and will attempt to keep down-hole pressures to the minimum level necessary to successfully complete the drilling activities.

During drilling operations, the on-site Environmental Inspector (EI) will monitor for any drilling fluid seepage or spill and report and record the incident as required by authorizations for this Project. If adverse environmental conditions (major precipitation, flooding) are significant enough to compromise boring or to prevent the discovery of a potential inadvertent release, the EI will consult with the Chief Inspector and Construction Superintendent to determine if additional mitigation or modified drilling operations are warranted.

The Contractor will provide a trained operator with experience in HDD techniques to monitor drilling fluid returns at the drilling mud return pits. Drilling logs will be maintained and updated throughout drilling operations documenting visual inspections, pressure gauge readings, and drilling fluid return. The HDD contractor will be required to report any sudden loss in fluid pressure, loss of fluid returns or sudden change in flow rates to the EI. If the drill team detects any decrease in pressure, the EI will immediately inspect the route for visible signs of an inadvertent release. As noted, field personnel will be trained regarding their responsibility to promptly report inadvertent releases to the EI on-site.

Night drilling may be required to prevent potential seizure of the pipe and collapse of the drill path. Night operations monitoring will be undertaken using the same three-aspect approach utilized during day drilling. The three aspect approach includes: visual, pressure gauge determination, and low return. Additional lighting will be provided if necessary.

Details regarding the agency alert protocol in the event of a sudden loss of drilling fluid pressure or inadvertent release are outlined below:

- If pressure gauge monitoring indicates a loss of drilling fluid pressure, but there is no visible surface expression of drilling fluids, no agency notification will be completed.
- If the inadvertent release reaches the Kanawha River, active advancement of the borehead will cease immediately. Appropriate mitigation measures will be deployed and the inadvertent release contained. Circulation of drilling fluids within the borehole may continue for several minutes in order to maintain borehole integrity and prevent plugging. The lead EI and the Contractor will notify the appropriate regulatory agencies.

### 3.4 RESPONSE AND RECOVERY

Upon the detection of an inadvertent release, the drilling crew will take immediate corrective action. The only pressure causing the inadvertent release to occur is the pressure from the drilling fluid pumps. Therefore, the most immediate direct corrective action is:

- To stop the drilling fluid pumps or decrease the pressure (by stopping the pumps or decreasing the pressure, the pressure in the hole will quickly bleed off. With no/reduced pressure in the hole, the inadvertent release will stop or decrease significantly).
- As soon as an inadvertent release is detected, the circulation of mud will only be stopped or reduced temporarily until the response process has been initiated. Once the response/containment process has been initiated and is under control, the drilling activities will resume.

There is typically a greater potential for an inadvertent release to occur near the entry and exit locations. In the contingency planning for the pipeline crossing, inadvertent releases at the entry and exit locations have been considered and the following response actions have been developed:

- The entry and exit locations have dry (upland) land segments where an inadvertent release can be easily detected, contained, and remediated (refer to figures 2 and 3). Any streams or wetlands will be isolated from the entry and exit points with appropriate controls to avoid/minimize any potential impacts to those resources.
- To isolate and contain a potential inadvertent release at the drill site, a berm must be constructed around the downslope side of the drilling rig set-up area. Hay bales or silt fence must be installed between the berm and the river side of the drilling area.

Typically, drilling activities will not be suspended unless the inadvertent release creates a threat to public health and safety or unless suspended by Columbia's Chief Inspector or EI. The EI has been given stop activity authority by Columbia and his/her instructions must be followed. If drilling operations are suspended, they may not resume until a plan forward is developed by the contractor and approved by Columbia.

#### 3.4.1 Upland release

In the event of an inadvertent release in an upland area, the following corrective actions will be taken immediately and the EI and Contractor must make the appropriate contacts described in section 3.6 below:

- Source/pumps will be stopped temporarily or pressure decreased.
- The inadvertent release will be contained immediately by installing silt fence and/or constructing dikes or pits at the release site to contain the spread of the fluid, and a pump will be used to transfer the fluid from the pit into a containment vessel.
- The drilling fluid will be removed from the ground surface to the extent practicable and removed from the site using manual equipment such as shovels and wheel barrows or

earth-moving equipment such as backhoes or small bulldozers, portable pumps and/or vacuum trucks.

- If necessary, the affected area will be diluted with water down to further dissipate drilling fluids that remain after removal.
- Once excess drilling fluid is moved and the HDD is complete, the site will be restored according to applicable Project plans.
- Documentation must be made and maintained by the Contractor and provided to Columbia.
- The Contractor must follow any special instructions from Columbia's EIs and/or Columbia Project Management.

### **3.4.2 Release within the Kanawha River**

If an inadvertent release occurs in the Kanawha River, it will be more difficult to contain because the drilling fluid will be dispersed into the water and carried downstream. The containment and corrective actions described below must be taken immediately and the Contractor must make the appropriate contacts in accordance with section 3.6 below:

- Source/pumps will be stopped temporarily or the pressure will be decreased.
- If reducing drilling fluid pressure is ineffective in controlling an inadvertent release, additives may be used to thicken the drilling fluid, including additional bentonite, cottonseed hulls, or other non-hazardous materials.
- Where water flows allow, the Contractor will contain the drilling muds using available items including sandbags, clean heavy poly-vinyl chloride (PVC) pipe, clean culvert piping, etc. Do not enter the stream to construct containment structures. Materials and equipment may be transported to the edge of the riparian area using mechanical equipment; however, mechanical equipment must not enter into the river or the adjacent riparian area.
- Documentation must be made and maintained by the Contractor and provided to Columbia.
- The Contractor must follow any special instructions from Columbia's EIs and/or Columbia Project Management.

After an inadvertent release is stabilized and any required removal is completed, document post- cleanup conditions with photographs and prepare inadvertent release incident report in narrative sequence describing time, place, actions taken to remediate inadvertent release, and measures implemented to prevent recurrence. The EI will notify appropriate Columbia personnel who will report an incident to agency personnel in compliance with applicable permits issued for the Project.

### 3.5 ON-SITE RESPONSE PROVISIONS

The Contractor will be required to have all necessary containment or cleanup equipment on-site or readily available to respond in the event of an inadvertent release. Prior to drilling, a potential upland disposal site for removed drilling fluids will be located. Construction will not commence without on-site spill prevention and containment equipment. The Contractor will include a list of such equipment in their detailed preconstruction contingency plan. Spill response equipment may include the following:

- Spill kits on each side of the Kanawha River crossing.
- Sorbent pads at both the entry and exit points.
- Straw bales (certified weed-free) each side of river.
- Appropriately sized containers (drums, roll-off containers, frac tanks, etc.) to store drilling muds and other materials generated during response to an inadvertent release.
- Silt fences and other erosion controls as specified in the site-specific Kanawah River Crossing Erosion Control Plan (figure 3).
- Plastic sheeting, plywood, wood stakes, sand bags.
- Hand tools, including flat blade shovels and push brooms.
- A hose and sump pump for cleanup.
- A 3,000-gallon or larger vacuum truck available in case a spill or seep occurs.

### **3.6 CONTACTS**

In the event of an inadvertent release, the EI, Chief Inspector, Construction Superintendent and HDD drilling contractor will coordinate to notify regulatory agencies as appropriate for the situation and in compliance with permit requirements. Contact information for the agencies is provided below.

[pending]

#### **4.0 REFERENCE DOCUMENTS**

Environmental Construction Standards West Virginia Projects. January 2016. Columbia Pipeline Group.

Sub-Surface Exploration Report of Proposed MXP Pipeline – Kanawha Crossing, Putnam County, West Virginia. May 2016. Professional Service Industries, Inc.

Federal Energy Regulatory Commission. May 2013. Upland Erosion Control, Re-vegetation, and Maintenance Plan.

Federal Energy Regulatory Commission. May 2013. Wetland and Waterbody Construction and Mitigation Procedures.

West Virginia Erosion and Sediment Control Best Management Practice Manual

**APPENDIX H**  
**Unexpected Contamination Discovery Plan**

## **ENVIRONMENTAL GUIDANCE DOCUMENT: UNEXPECTED CONTAMINATION DISCOVERY PLAN**

The following environmental guidance applies in the event unexpected contamination (drums, debris, stained soils, contaminated groundwater, etc.) is encountered during construction or maintenance activities at Company facilities and Company Rights of Ways (ROW). This guidance document applies to all employees, contractors, and third party personnel working on behalf of any Columbia Pipeline Group (CPG) company, hereafter referred to as Company. This guidance document should be used in conjunction with the following plans:

### Environmental Plans

- 120.02.01 Spill and Release Reporting
- 120.02.02 Spill Cleanup-Remediation Coordination
- 120.03.01 Waste Characterization and Classification
- 120.03.04 Container Management
- 120.03.05 Waste Sampling and Analysis

### Construction Standards

- CSC-101 Compressor Station Construction Specification
- CS 220.001 Pipeline Construction Standard

### **When contamination is encountered:**

STOP work, leave the contaminated area and move upwind of the contaminated area. The Chief and Environmental Inspectors and the Project Manager or Team Leader must be notified immediately.

*Qualified Responder:* The Chief and/or the Environmental Inspector or other qualified responders (Environmental Coordinators, Health and Safety Coordinators, Team Leaders, qualified contractors and consultants) will determine if it is safe to approach the contamination area and conduct the following tasks:

- Mark or rope off the area to prevent unauthorized entry
- Safely gather information regarding the contamination:
  - Determine possible source (Company, third party, or unknown source)
  - Description of the contamination (color, odor, liquid, debris, drums, etc.)
  - Monitor air quality to determine if there is a toxic or explosive atmosphere (if monitoring equipment is available).
  - Provide containment to prevent contaminated liquids and/or solids migrating from the excavation or work area and reaching waterways. Refer to section 3.2 of plan 120.02.02 for additional containment information.

*The Project Manager or Team Leader* will contact the regional Health & Safety Representative, the Regional Environmental Coordinator and the appropriate Monitoring Center:

- CPG 800-835-7191
- Columbia Gulf 866-485-3427
- Midstream 855-511-4942

Refer to plan 120.02.01 for additional spill and release reporting guidance.

*The Environmental Department* will conduct the following:

- Notify outside agencies if warranted
- Engage the Legal Department if the contamination is determined to be a third party or unknown source.
- Provide sampling requirements to determine the type of contamination, disposal options, and to aid the Safety Department in determining health & safety concerns.
- Determine remedial response actions and determine if a qualified environmental remediation contractor is required.
- Manage disposal of contaminated material if required.

- Contact the Natural Resources Permitting Group (NRP) to determine if environmental permits associated with the remedial action is required.

*The Health & Safety Department will conduct the following:*

- Arrange for a safety representative or safety contractor to inspect the work area if warranted.
- Communicate safety requirements to the project team
- Determine if onsite air quality monitoring is required.

*The Legal Department in conjunction with the Land Department will notify the third party if the source is suspected or known to be the responsibility of a third party.*

**Hazard Determination:**

*The Environmental Department in conjunction with the Safety Department will determine if the contamination presents a hazardous and/or unsafe working condition;*

- If the material is non-hazardous and the working environment is not a toxic or explosive atmosphere, then site personnel or contractors can excavate the material for waste disposal.

Note: Site personnel and/or contractors cannot re-enter the contamination area until the following conditions are met:

- Contamination type and its hazards have been identified
- Approval from the Environmental and Safety Departments have been obtained
- The appropriate personal protection equipment (PPE) has been donned.

**Waste Containment and Disposal:**

If the contamination is from company material, then store the material in waste containers in accordance with Plan 120.03.04 and determine disposal requirements in accordance with Plan 120.03.01.

If the material is from a third Party or unknown source, stockpile the material if possible on plastic sheeting. Place the material in waste containers in accordance with Plan 120.03.04 if stockpiling is not feasible.

**Project Records:**

All departments will assist as necessary with any follow-up notification/reporting to outside agencies and to complete records for the project file. Refer to section 3.9 of Plan 120.02.02 for the list of information that the record of cleanup should contain.

**APPENDIX I**  
**Core Forest Area Mapping for the Mountaineer XPress Project**

**Mountaineer XPress Project**  
**Core Forest Maps – 1" = 10,000'**

The focus of these maps is on the MXP pipelines. Aboveground and other facilities away from the pipeline may not be shown due to scale. A separate series of maps is provided at a smaller scale that includes the entire MXP.

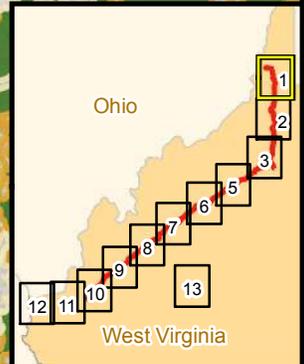
Lone Oak CS

MXP-100 Tie-in with LEX

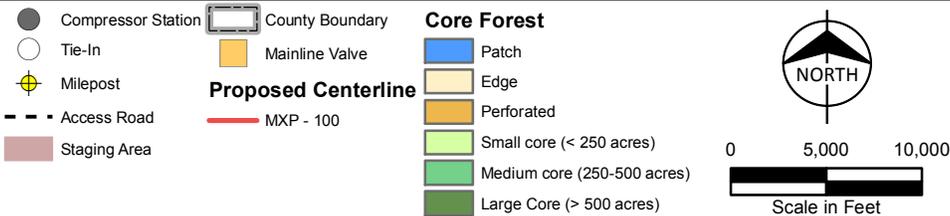
Marshall Co.

MLV 01

Wetzel Co.



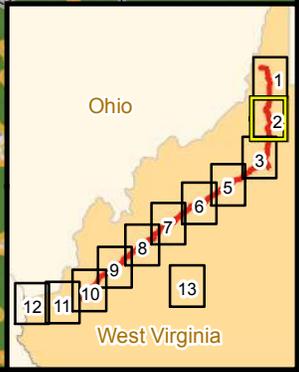
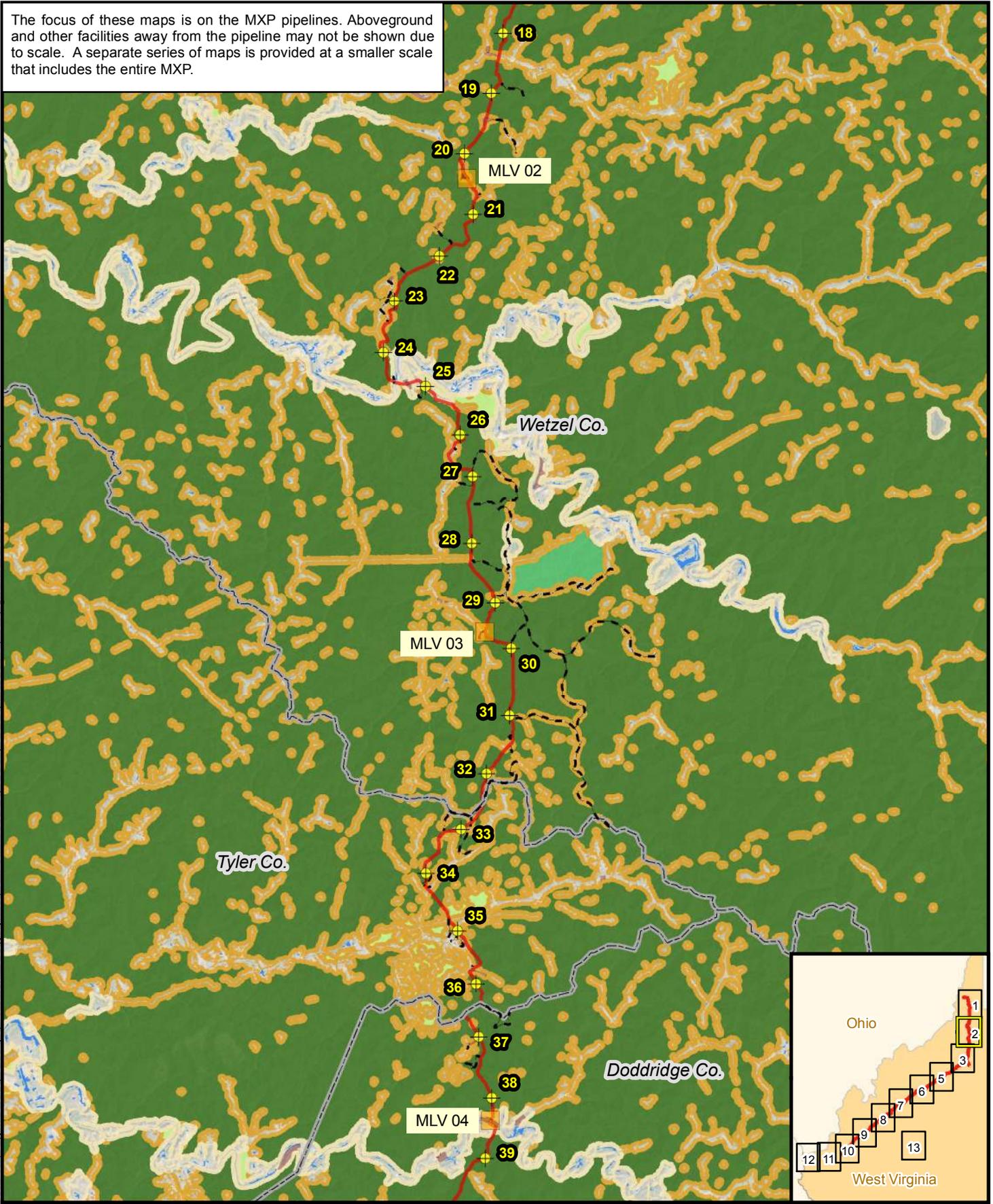
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## Appendix I Mountaineer XPress Project Core Forest Map

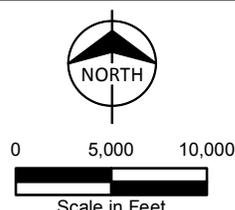
The focus of these maps is on the MXP pipelines. Aboveground and other facilities away from the pipeline may not be shown due to scale. A separate series of maps is provided at a smaller scale that includes the entire MXP.

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- Milepost
- Access Road
- Staging Area
- County Boundary
- Mainline Valve
- Proposed Centerline**
- MXP - 100

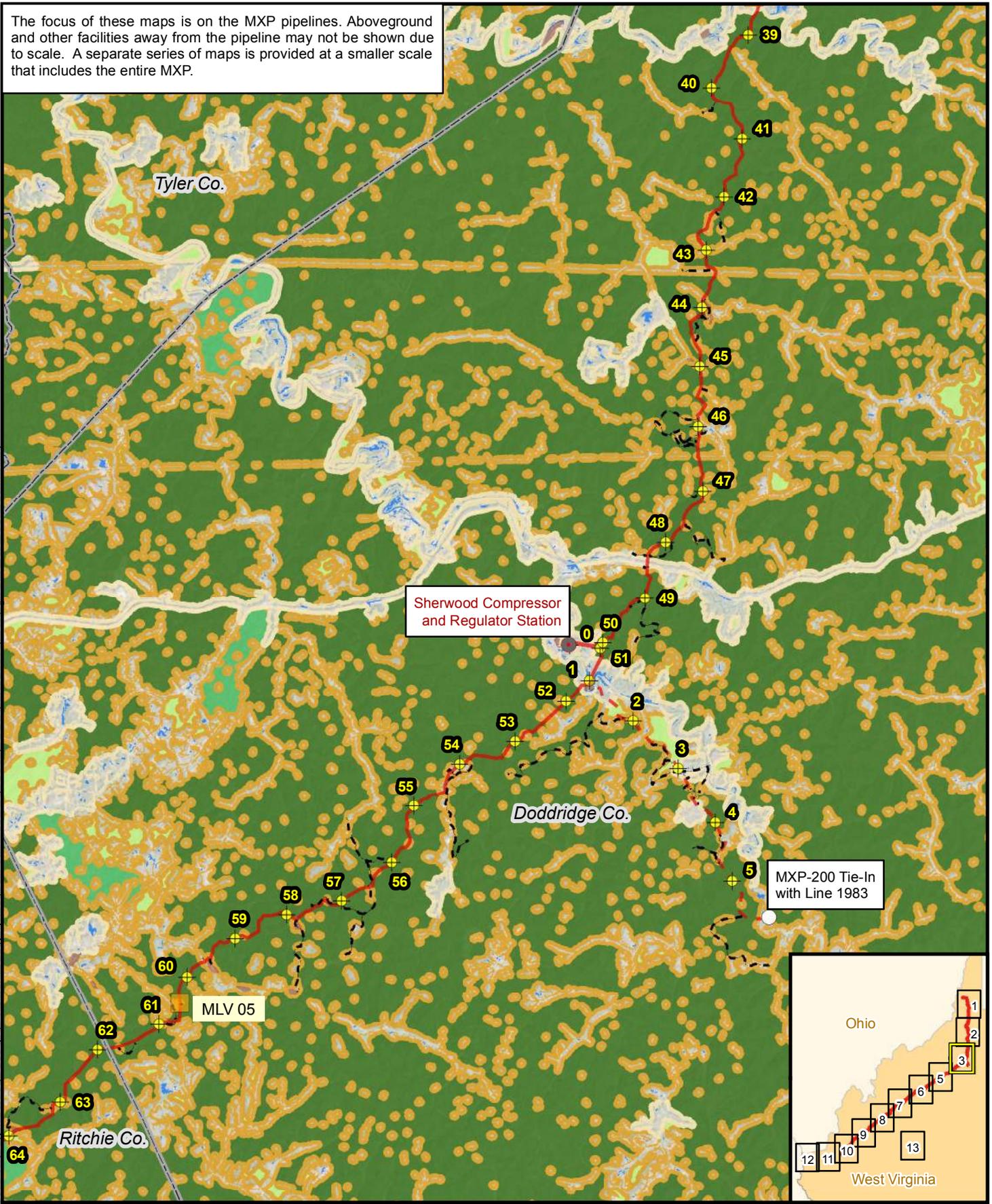
- Core Forest**
- Patch
- Edge
- Perforated
- Small core (< 250 acres)
- Medium core (250-500 acres)
- Large Core (> 500 acres)



Appendix I  
 Mountaineer XPress Project  
 Core Forest Map

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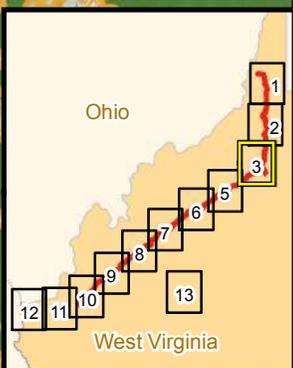
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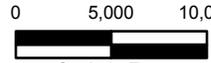


Sherwood Compressor and Regulator Station

MLV 05

MXP-200 Tie-In with Line 1983



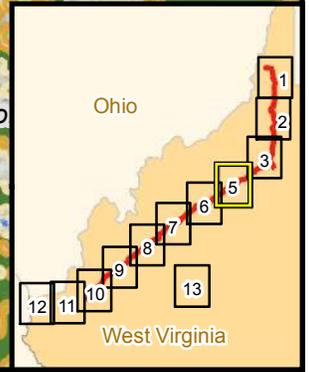
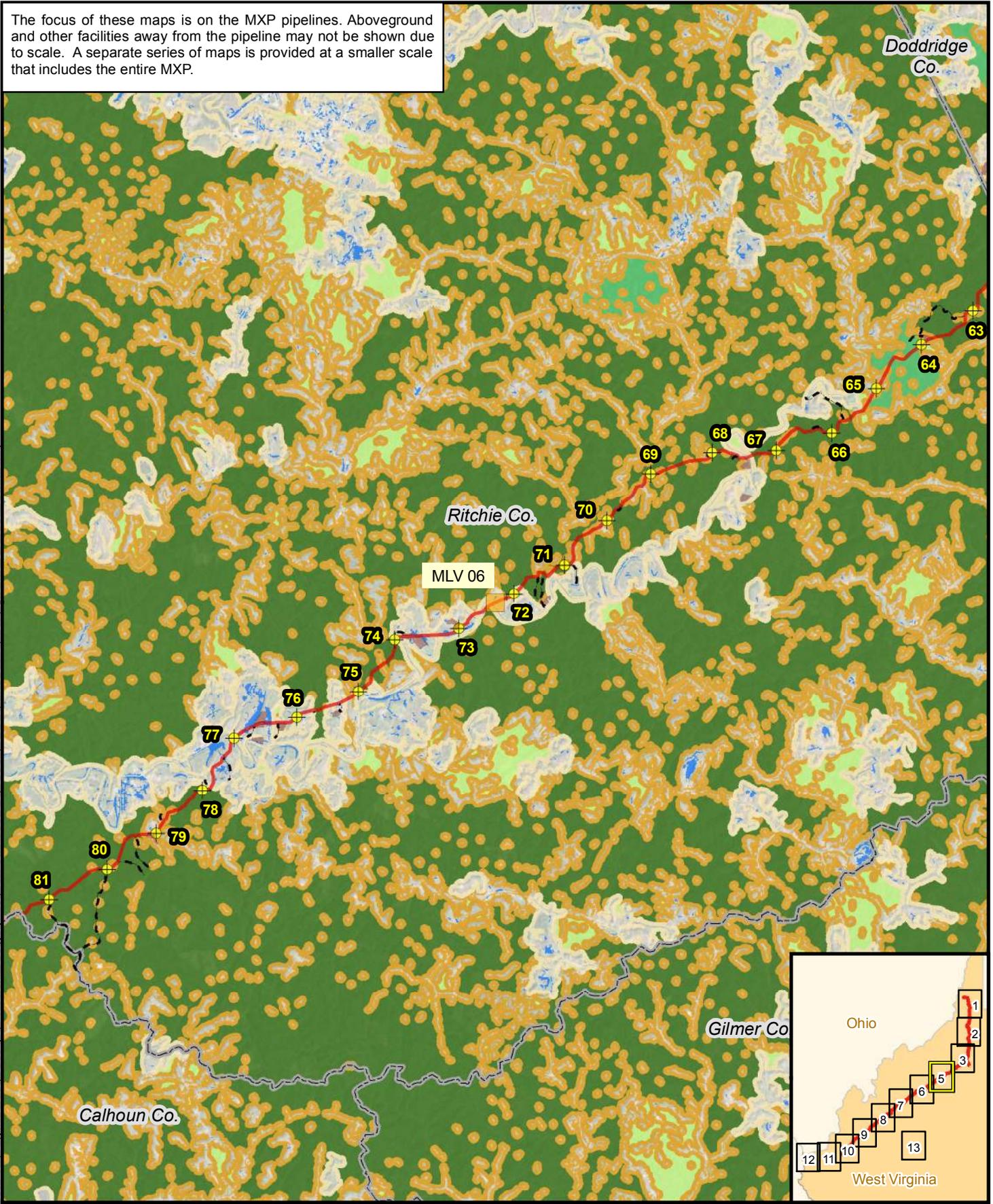
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Appendix I  
 Mountainer XPress Project  
 Core Forest Map

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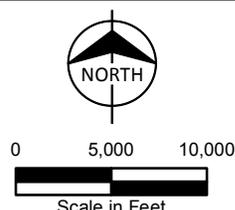
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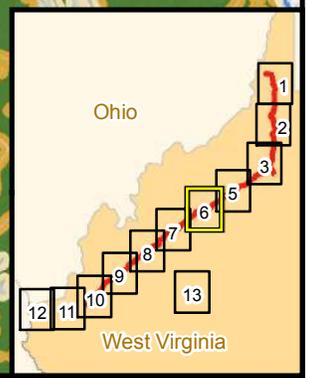
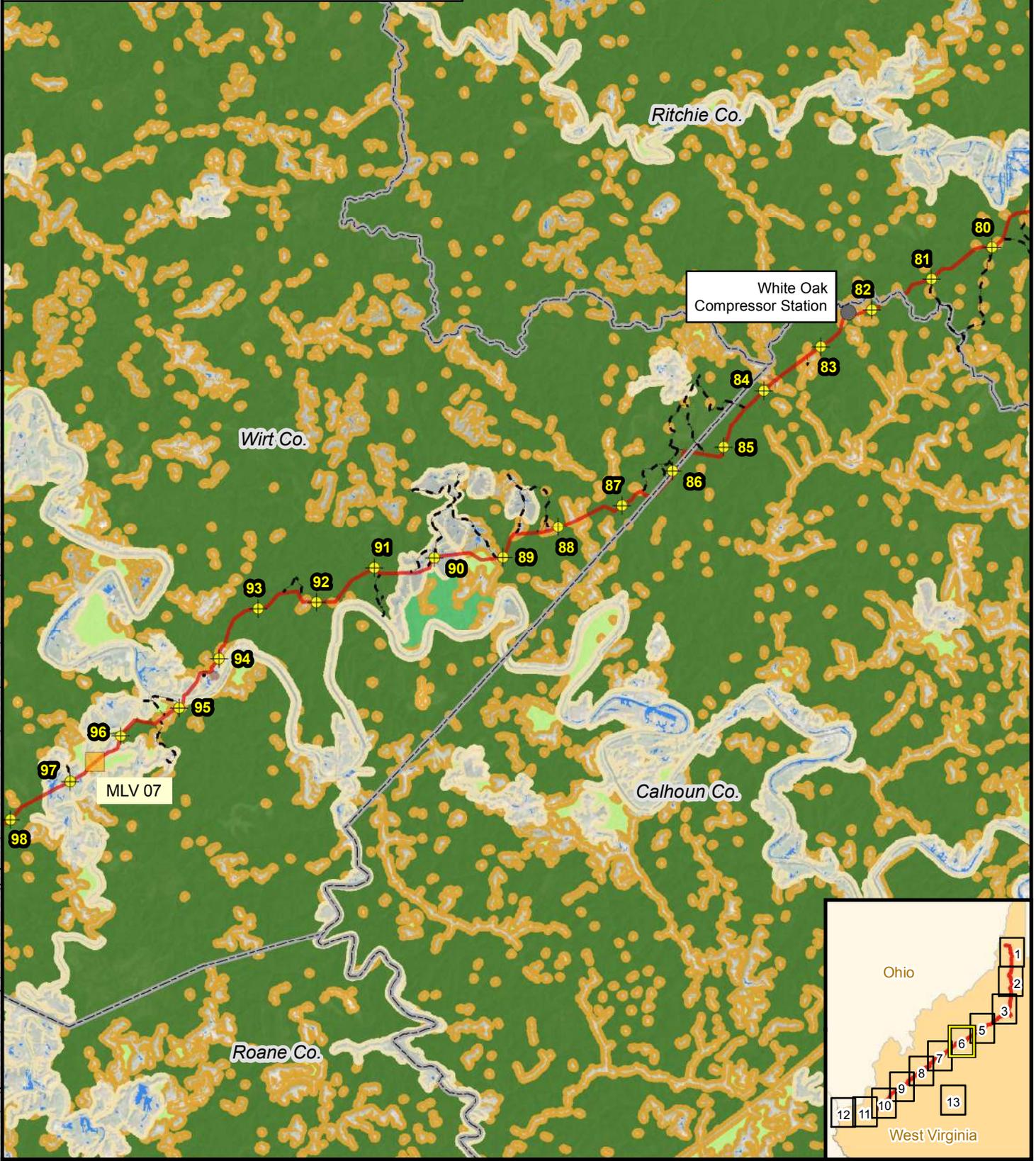
- Milepost
- Access Road
- Staging Area
- County Boundary
- Mainline Valve
- Proposed Centerline**
- MXP - 100

- Core Forest**
- Patch
  - Edge
  - Perforated
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  - Large Core (> 500 acres)



Appendix I  
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 Core Forest Map  
 Page 4 of 12

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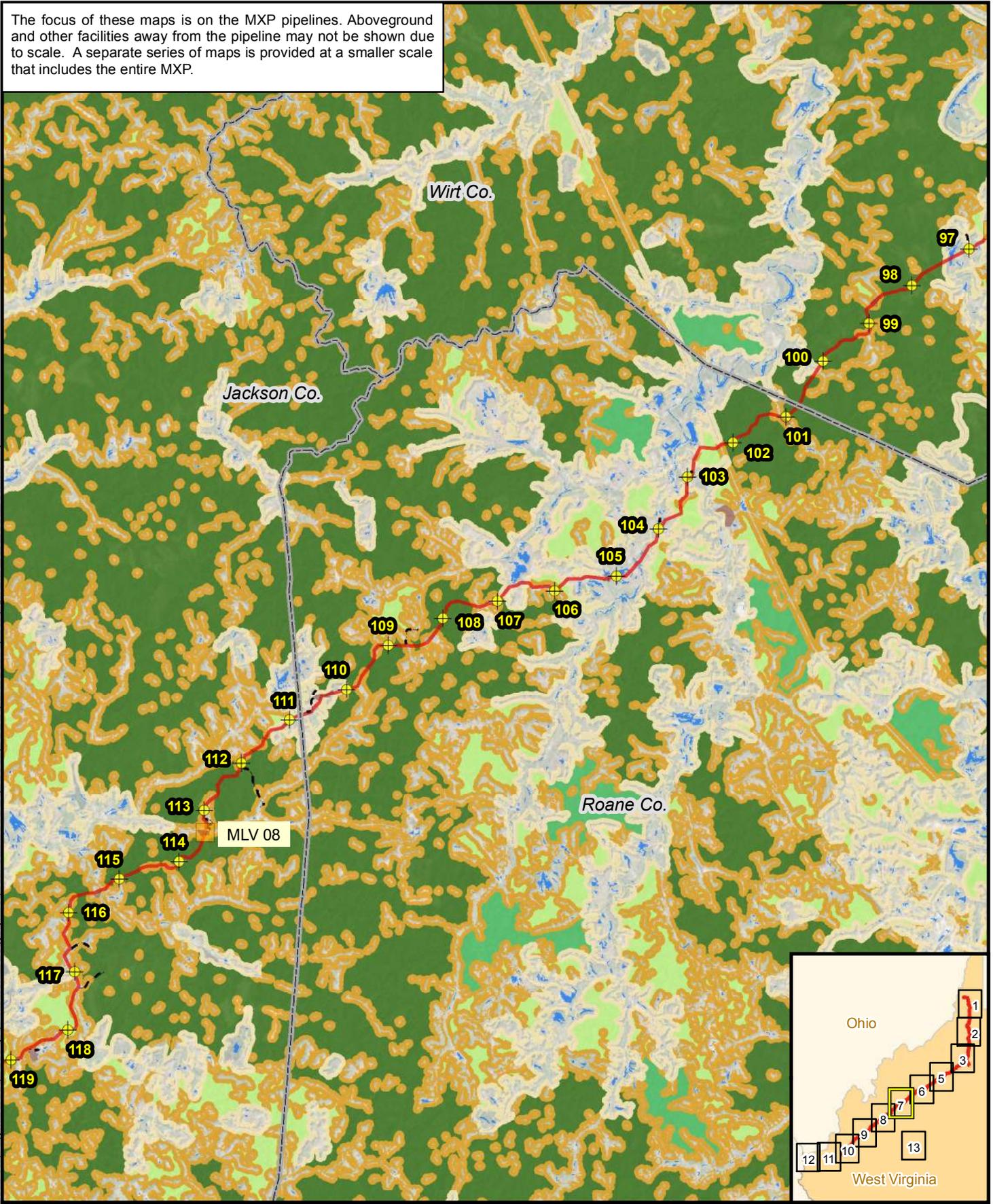
Appendix I  
 Mountaineer XPress Project  
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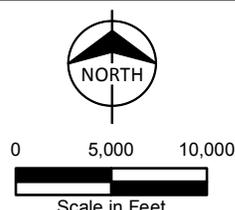
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- Proposed Centerline**
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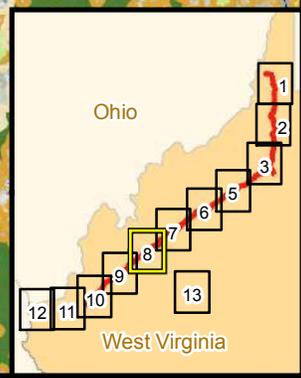
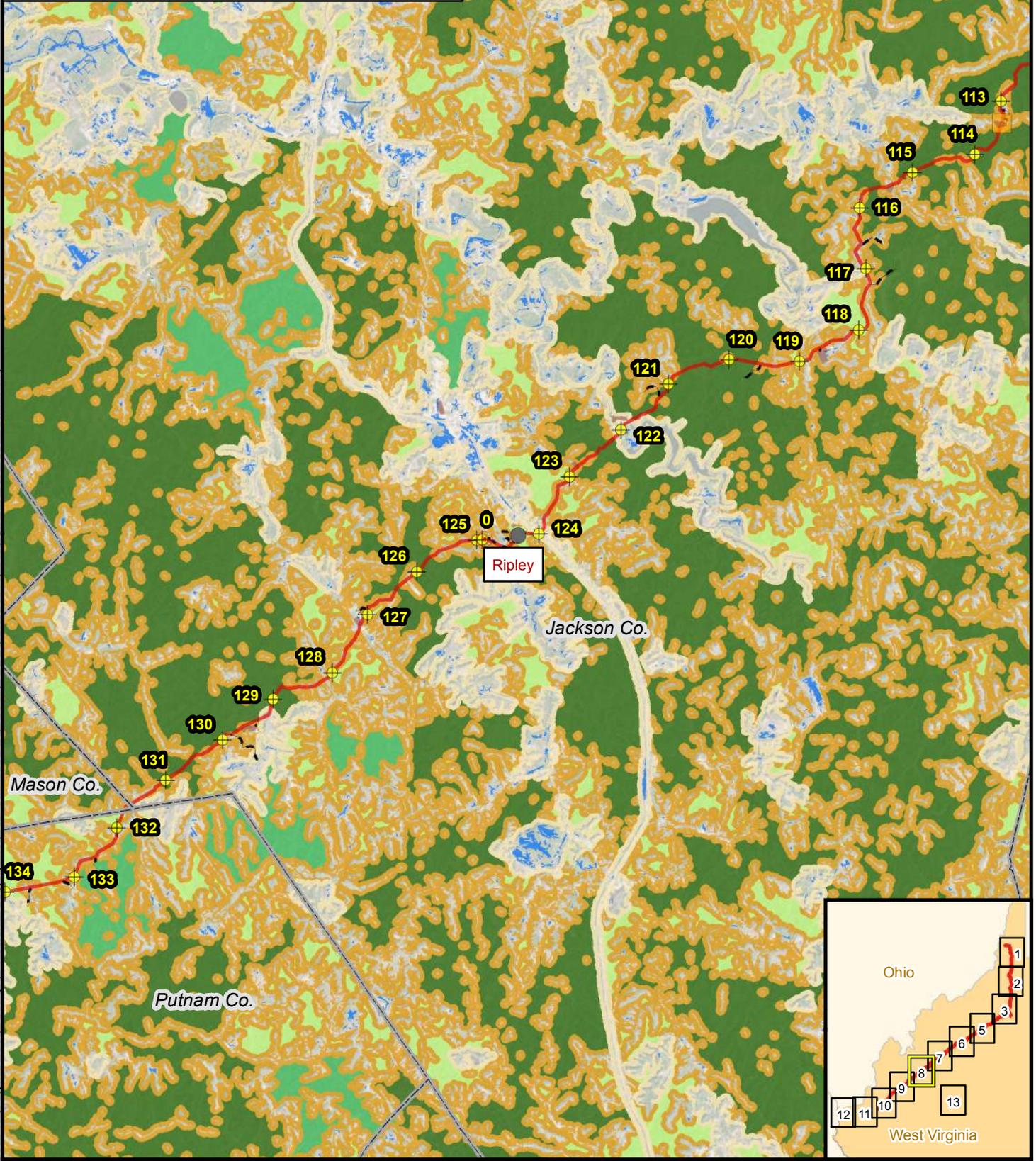
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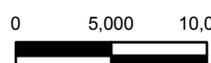


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 Page 6 of 12

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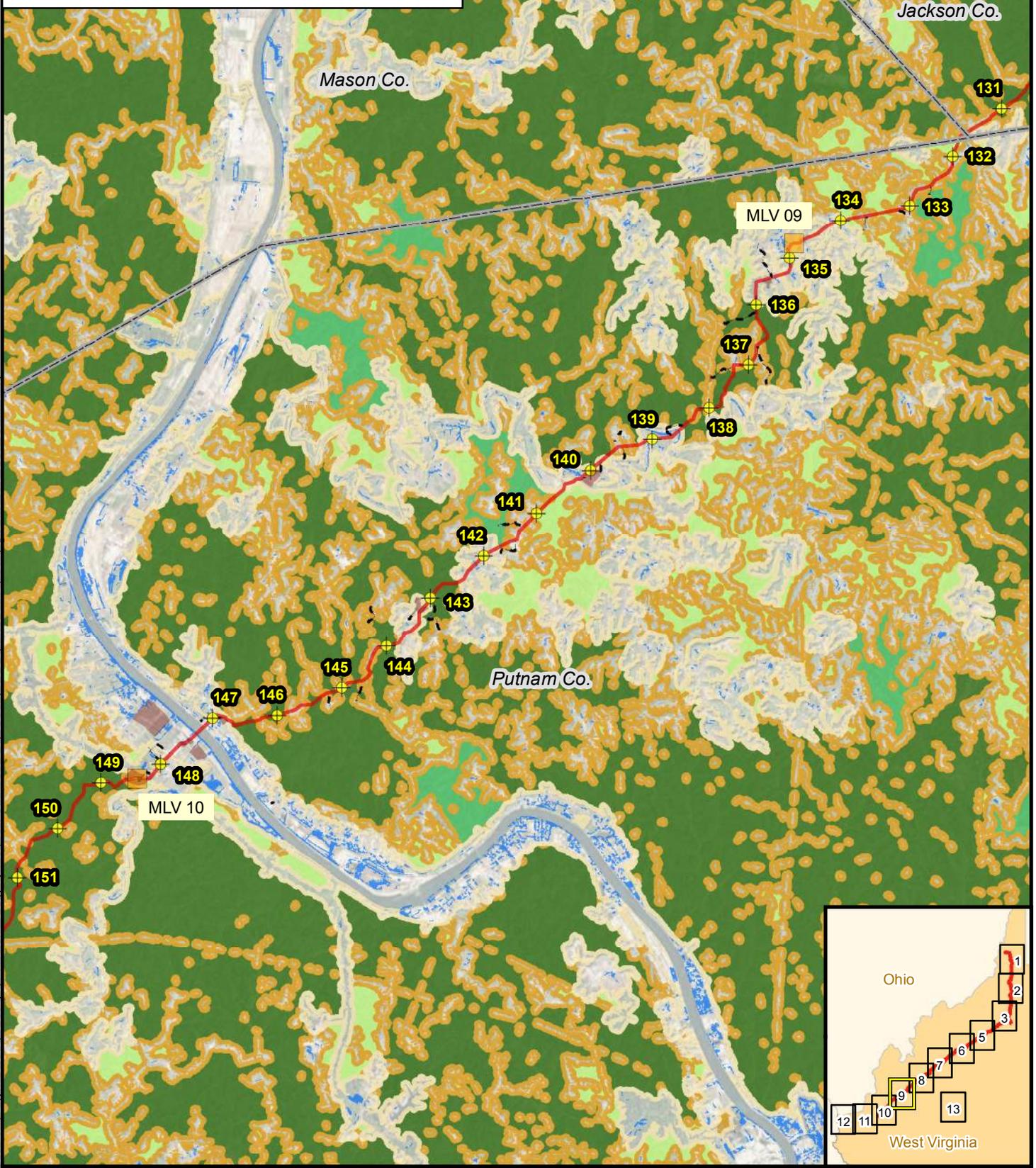
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<ul style="list-style-type: none"> <li><span style="color: red;">●</span> Regulator</li> <li><span style="color: grey;">●</span> Compressor Station</li> <li><span style="color: yellow;">⊕</span> Milepost</li> <li>- - - Access Road</li> <li><span style="background-color: #c0c0c0; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Staging Area</li> </ul>	<ul style="list-style-type: none"> <li><span style="border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> County Boundary</li> <li><span style="background-color: #ffcc00; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Mainline Valve</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li><span style="color: red;">—</span> MXP - 100</li> <li><span style="color: cyan;">—</span> X59M1</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li><span style="background-color: #0000ff; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Patch</li> <li><span style="background-color: #ffff00; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Edge</li> <li><span style="background-color: #ffcc00; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Perforated</li> <li><span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Small core (&lt; 250 acres)</li> <li><span style="background-color: #32cd32; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Medium core (250-500 acres)</li> <li><span style="background-color: #008000; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Large Core (&gt; 500 acres)</li> </ul>	<div style="text-align: center;">  <p>NORTH</p> </div> <div style="text-align: center;"> <p>0      5,000      10,000</p>  <p>Scale in Feet</p> </div>
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## Appendix I Mountaineer XPress Project Core Forest Map

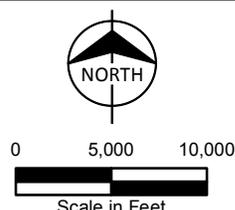
The focus of these maps is on the MXP pipelines. Aboveground and other facilities away from the pipeline may not be shown due to scale. A separate series of maps is provided at a smaller scale that includes the entire MXP.



Path: Z:\Clients\ENS\Columbia\Pipe\87879\_CPG\MXP\GIS\Studies\Geospatial\DataFiles\ArcDocs\Veg\Wildlife\Appl\_MXP\_CoreForest\_Book2.mxd kboatrigh 5/3/2017  
 COPYRIGHT © 2017 BURNS & McDONNELL ENGINEERING COMPANY, INC.  
 Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

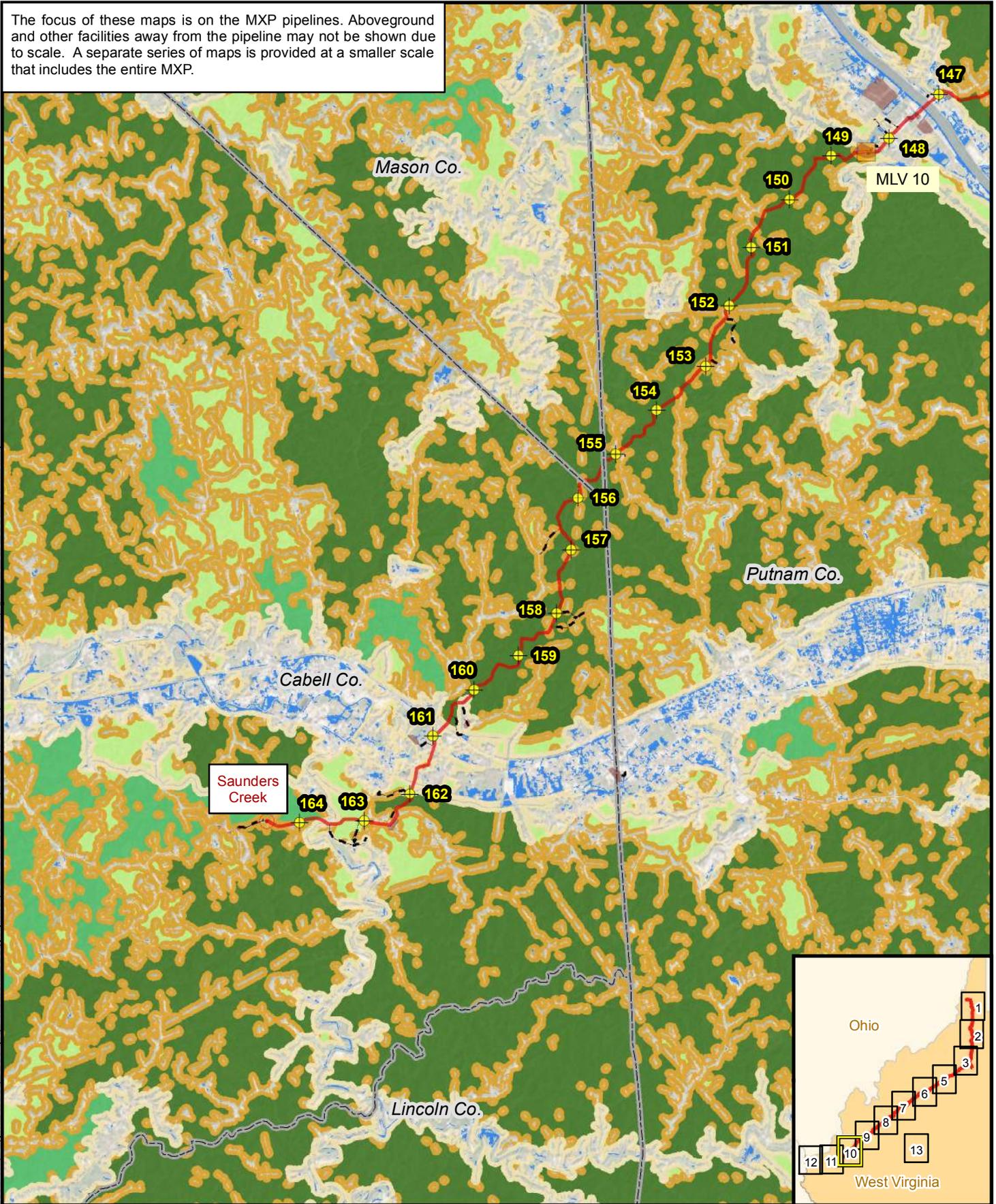
- ⊕ Milepost
- Access Road
- Staging Area
- ▭ County Boundary
- Mainline Valve
- Proposed Centerline
- MXP - 100

- Core Forest**
- Patch
  - Edge
  - Perforated
  - Small core (< 250 acres)
  - Medium core (250-500 acres)
  - Large Core (> 500 acres)



Appendix I  
 Mountaineer XPress Project  
 Core Forest Map  
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The focus of these maps is on the MXP pipelines. Aboveground and other facilities away from the pipeline may not be shown due to scale. A separate series of maps is provided at a smaller scale that includes the entire MXP.



- Regulator
- Milepost
- Access Road
- Staging Area
- County Boundary
- Mainline Valve
- Proposed Centerline
- MXP - 100

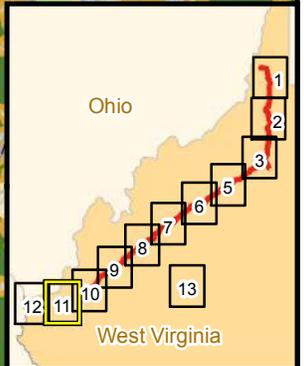
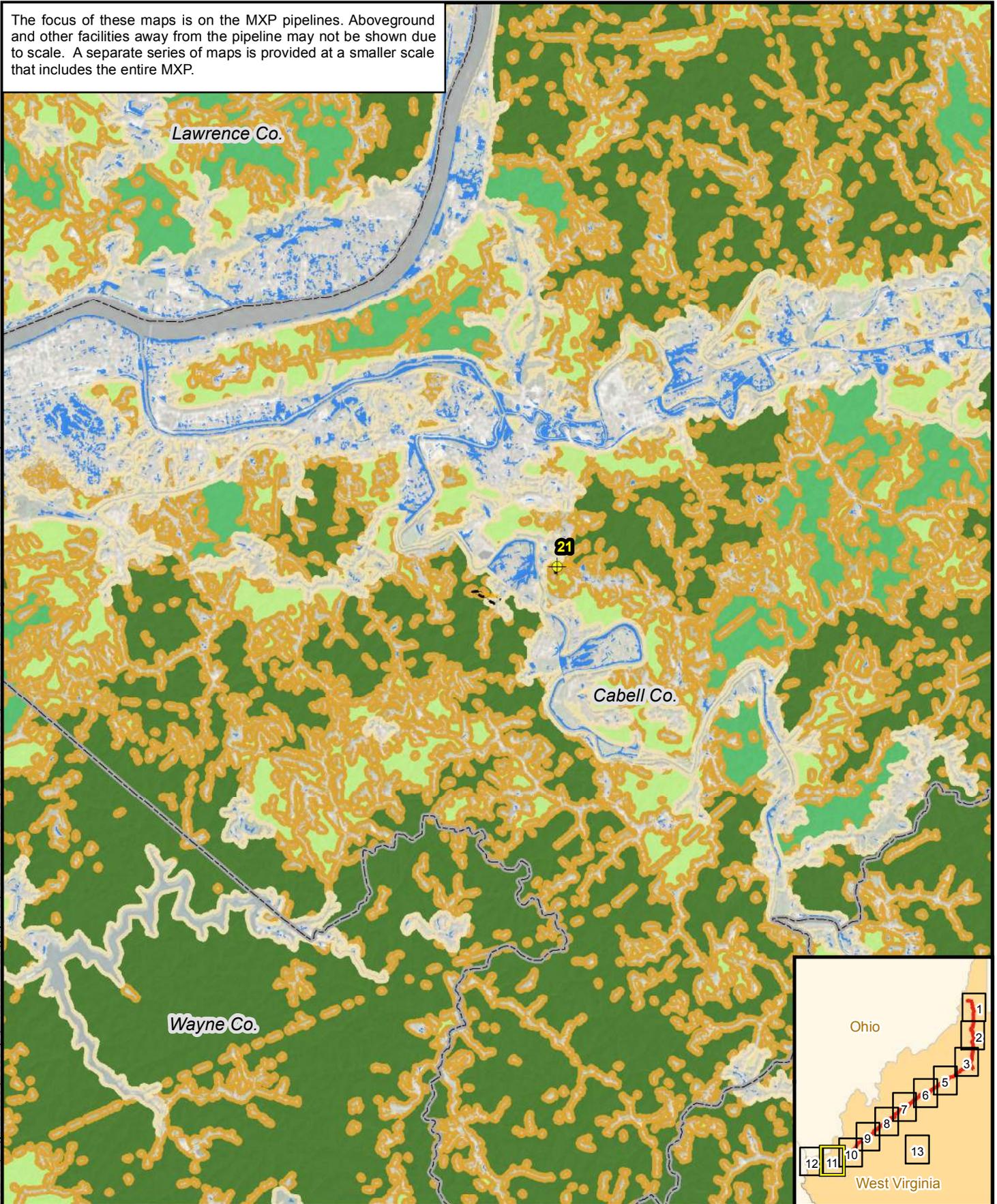
- Core Forest**
- Patch
  - Edge
  - Perforated
  - Small core (< 250 acres)
  - Medium core (250-500 acres)
  - Large Core (> 500 acres)



## Appendix I Mountaineer XPress Project Core Forest Map

The focus of these maps is on the MXP pipelines. Aboveground and other facilities away from the pipeline may not be shown due to scale. A separate series of maps is provided at a smaller scale that includes the entire MXP.

Path: Z:\Clients\ENS\Columbia\Pipe\87879\_CPG\MXP\GIS\Studies\Geospatial\DataFiles\ArcDocs\Veg\Wildlife\Appl\_MXP\_CoreForest\_Book2.mxd kboatoight 5/3/2017  
 COPYRIGHT © 2017 BURNS & McDONNELL ENGINEERING COMPANY, INC.  
 Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

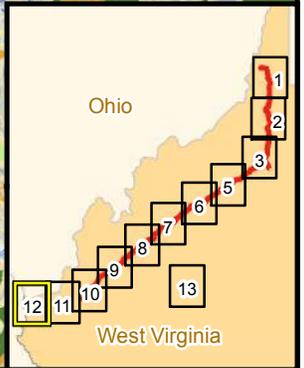
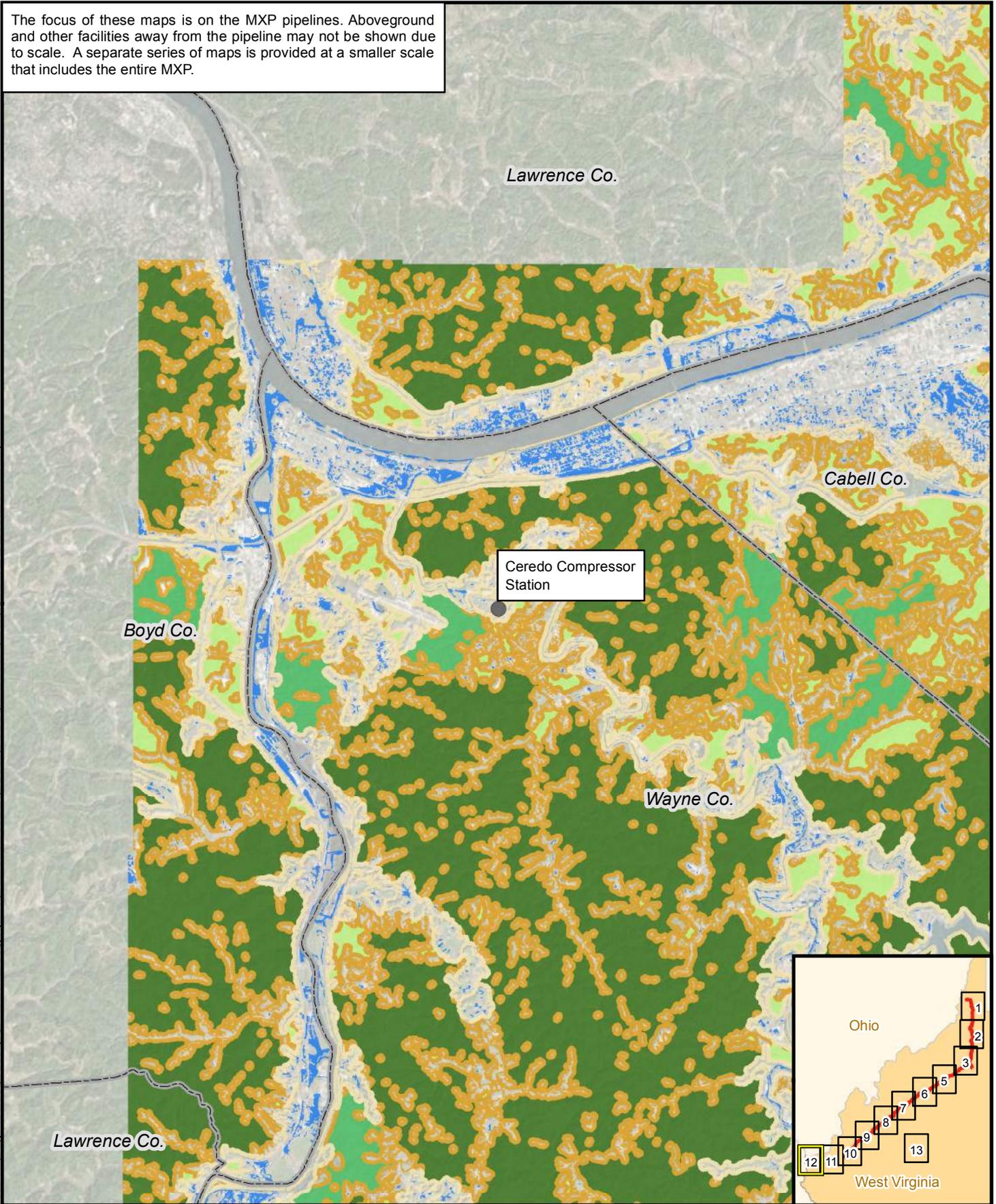


Milepost Access Road County Boundary Proposed Centerline SM - 80	<b>Core Forest</b> Patch Edge Perforated Small core (< 250 acres) Medium core (250-500 acres) Large Core (> 500 acres)	  0 5,000 10,000 Scale in Feet
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**Appendix I**  
**Mountaineer XPress Project**  
**Core Forest Map**  
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The focus of these maps is on the MXP pipelines. Aboveground and other facilities away from the pipeline may not be shown due to scale. A separate series of maps is provided at a smaller scale that includes the entire MXP.

Path: Z:\Clients\ENS\Columbia\Pipe\87879\_CPG\MXP\GIS\Studies\Geospatial\DataFiles\ArcDocs\Veg\Wildlife\Appl\_MXP\_CoreForest\_Book2.mxd kboatoight 5/3/2017  
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 Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



● Compressor Station    □ County Boundary

**Core Forest**

- Patch
- Edge
- Perforated
- Small core (< 250 acres)
- Medium core (250-500 acres)
- Large Core (> 500 acres)

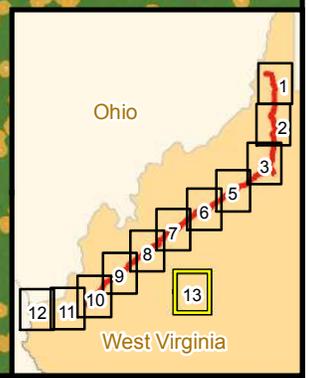
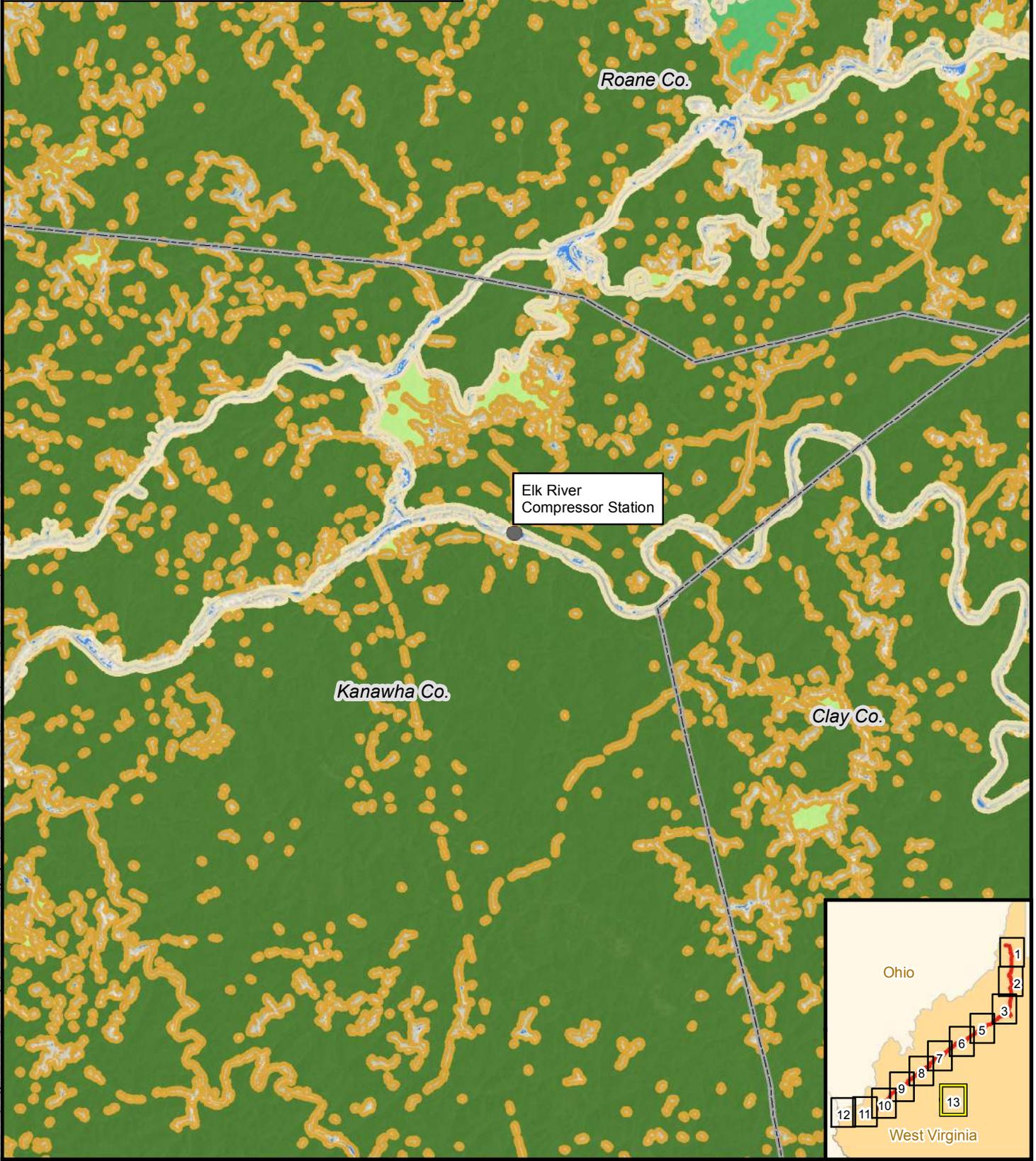
NORTH

0      5,000      10,000

Scale in Feet

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 Mountaineer XPress Project  
 Core Forest Map  
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The focus of these maps is on the MXP pipelines. Aboveground and other facilities away from the pipeline may not be shown due to scale. A separate series of maps is provided at a smaller scale that includes the entire MXP.



● Compressor Station    □ County Boundary

**Core Forest**

- Patch
- Edge
- Perforated
- Small core (< 250 acres)
- Medium core (250-500 acres)
- Large Core (> 500 acres)

NORTH

0      5,000      10,000

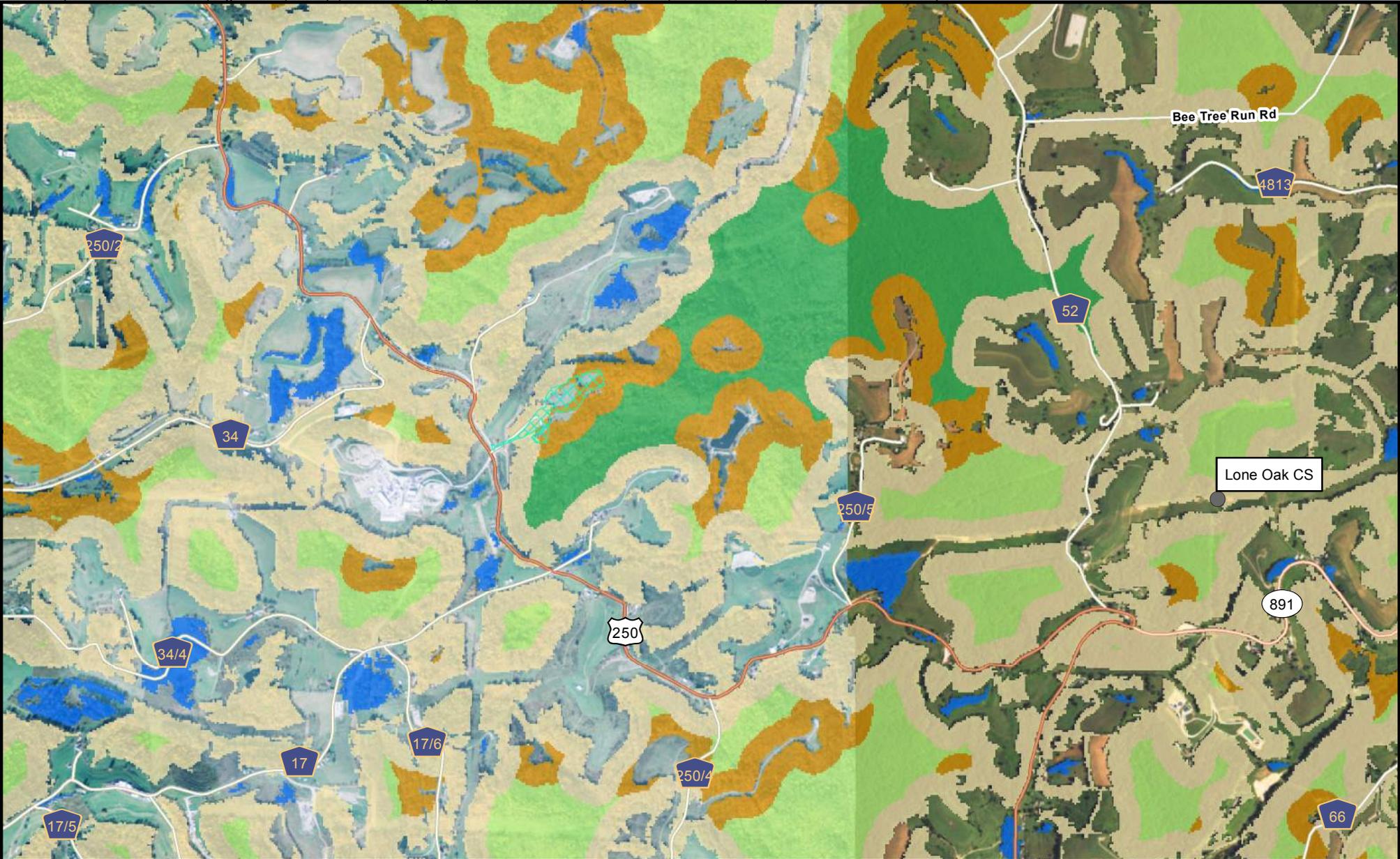
Scale in Feet

Appendix I  
 Mountaineer XPress Project  
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Path: Z:\Clients\ENS\Columbia\Pipe\87879\_CPG\MXP\GIS\Studies\Geospatial\DataFiles\ArcDocs\Veg\Wildlife\Appl\_MXP\_CoreForest\_Book2.mxd kboeatright 5/3/2017  
 COPYRIGHT © 2017 BURNS & McDONNELL ENGINEERING COMPANY, INC.  
 Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

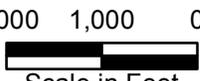
**Mountaineer XPress Project**  
**Core Forest Maps – 1" = 2,000'**



● Compressor Station	<b>Core Forest</b>	<b>Workspace</b>
	■ Patch	⊠ Temporary
	■ Edge	
	■ Perforated	
	■ Small core (< 250 acres)	
	■ Medium core (250-500 acres)	



2,000 1,000 0



Scale in Feet



Appendix I  
 Mountaineer XPress Project  
 Core Forest Map

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<ul style="list-style-type: none"> <li>--- Access Road</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: blue; border: 1px solid black;"></span> Patch</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #f0e68c; border: 1px solid black;"></span> Edge</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #e69a00; border: 1px solid black;"></span> Perforated</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #90ee90; border: 1px solid black;"></span> Small core (&lt; 250 acres)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #32cd32; border: 1px solid black;"></span> Medium core (250-500 acres)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #006400; border: 1px solid black;"></span> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; border: 1px dashed cyan;"></span> Temporary</li> </ul>
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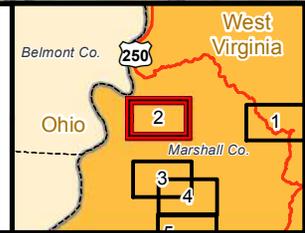


NORTH

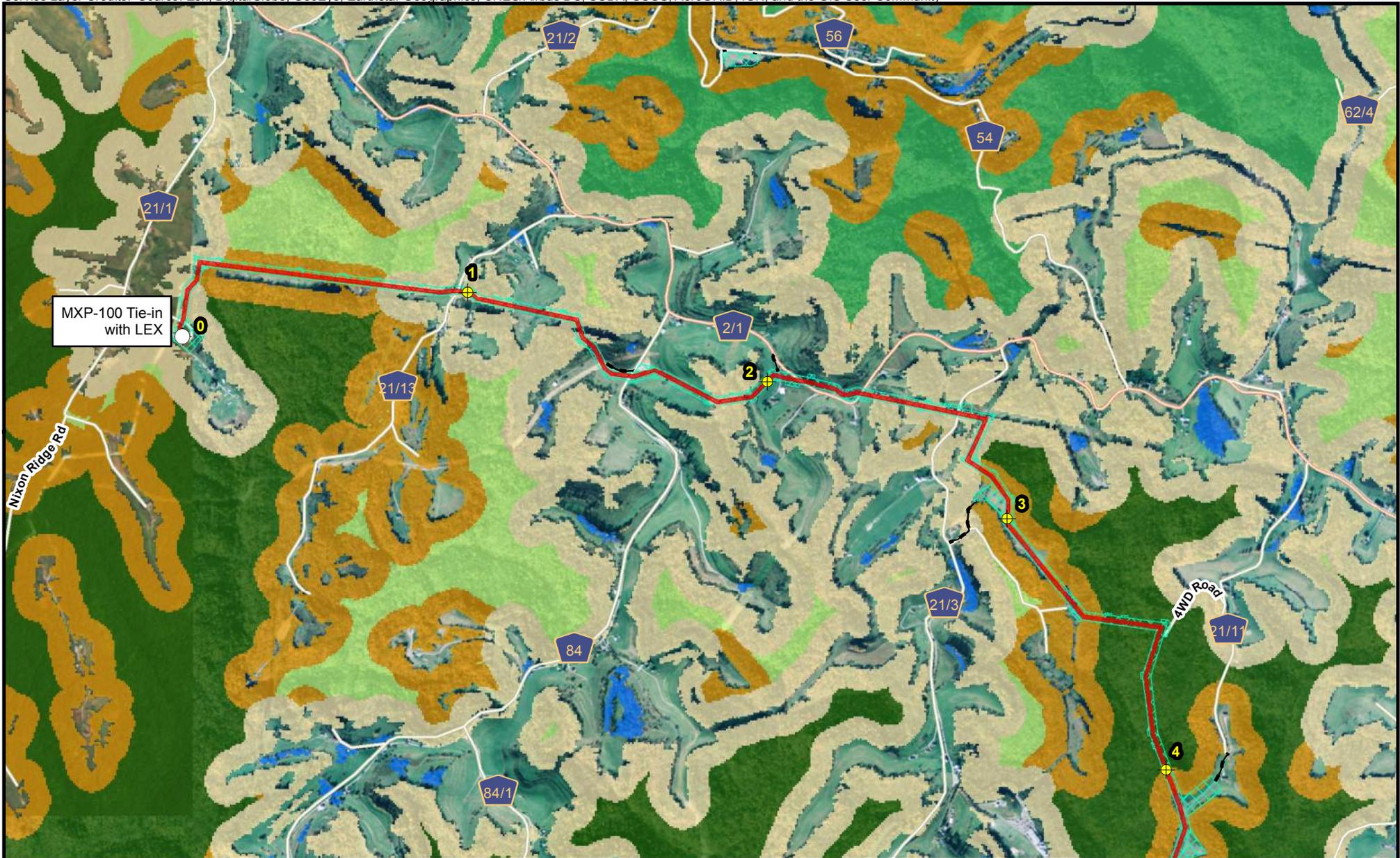
2,000 1,000 0



Scale in Feet



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**Mountaineer XPress Project**  
**Core Forest Map**  
  
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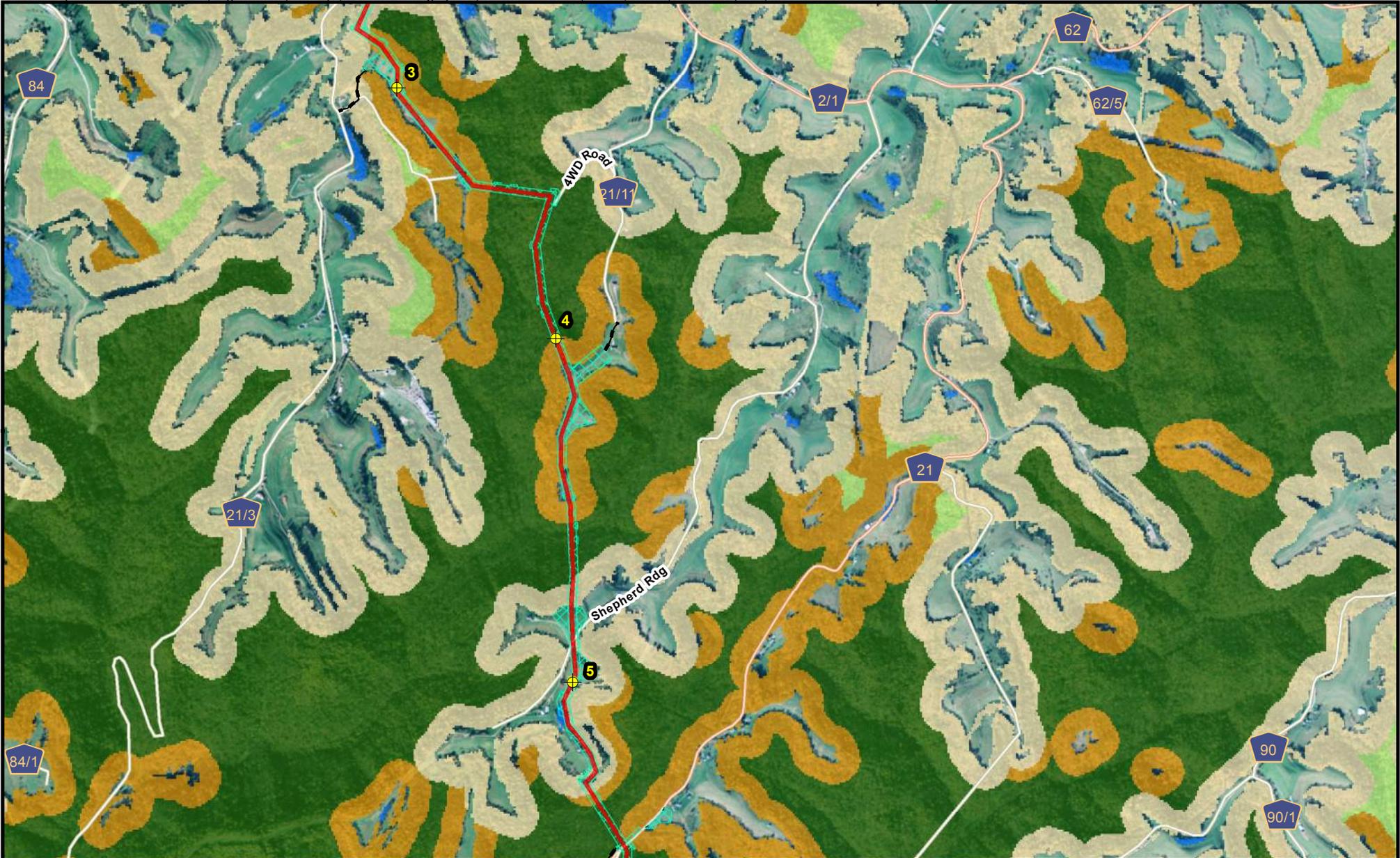


○ Tie-In	<b>Proposed Centerline</b>	<b>Core Forest</b>	<b>Workspace</b>
⊕ Milepost	— MXP - 100	■ Patch	⊗ Operation
--- Access Road		■ Edge	⊗ Temporary
		■ Perforated	
		■ Small core (< 250 acres)	
		■ Medium core (250-500 acres)	
		■ Large core (>500 acres)	

2,000 1,000 0

Scale in Feet

## Appendix I Mountaineer XPress Project Core Forest Map



<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH	 Scale in Feet	
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## Appendix I Mountaineer XPress Project Core Forest Map



<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Medium core (250-500 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH	<p style="text-align: center;">2,000 1,000 0</p> Scale in Feet	
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## Appendix I Montaineer Xpress Project Core Forest Map



<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> <li> Mainline Valve</li> </ul>	<p><b>Proposed Centerline Core Forest</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Medium core (250-500 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> <li> Valve Operation</li> </ul>	 NORTH 2,000 1,000 0  Scale in Feet	
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**Montaineer XPress Project**  
**Core Forest Map**  
  
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline Core Forest</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul> <div style="text-align: center;">               2,000 1,000 0              Scale in Feet         </div>		<p>Appendix I              Mountaineer XPress Project              Core Forest Map</p> <p>Page 7 of 63</p>
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH	2,000 1,000 0  Scale in Feet	
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Appendix I  
 Mountaineer XPress Project  
 Core Forest Map



Milepost	<b>Proposed Centerline</b> MXP - 100	<b>Core Forest</b> Patch Edge Perforated Small core (< 250 acres) Large core (>500 acres)	<b>Workspace</b> Operation Temporary	NORTH	
Access Road				 Scale in Feet	

**Appendix I**  
**Montaineer XPress Project**  
**Core Forest Map**  
  
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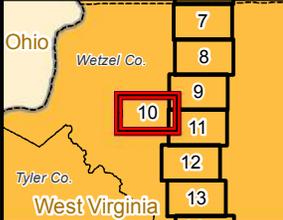
<ul style="list-style-type: none"> <li>--- Access Road</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: blue; border: 1px solid black;"></span> Patch</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #f5deb3; border: 1px solid black;"></span> Edge</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: orange; border: 1px solid black;"></span> Perforated</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #90ee90; border: 1px solid black;"></span> Small core (&lt; 250 acres)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #38a838; border: 1px solid black;"></span> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; border: 1px dashed green; border-style: cross;"></span> Temporary</li> </ul>
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NORTH

2,000 1,000 0

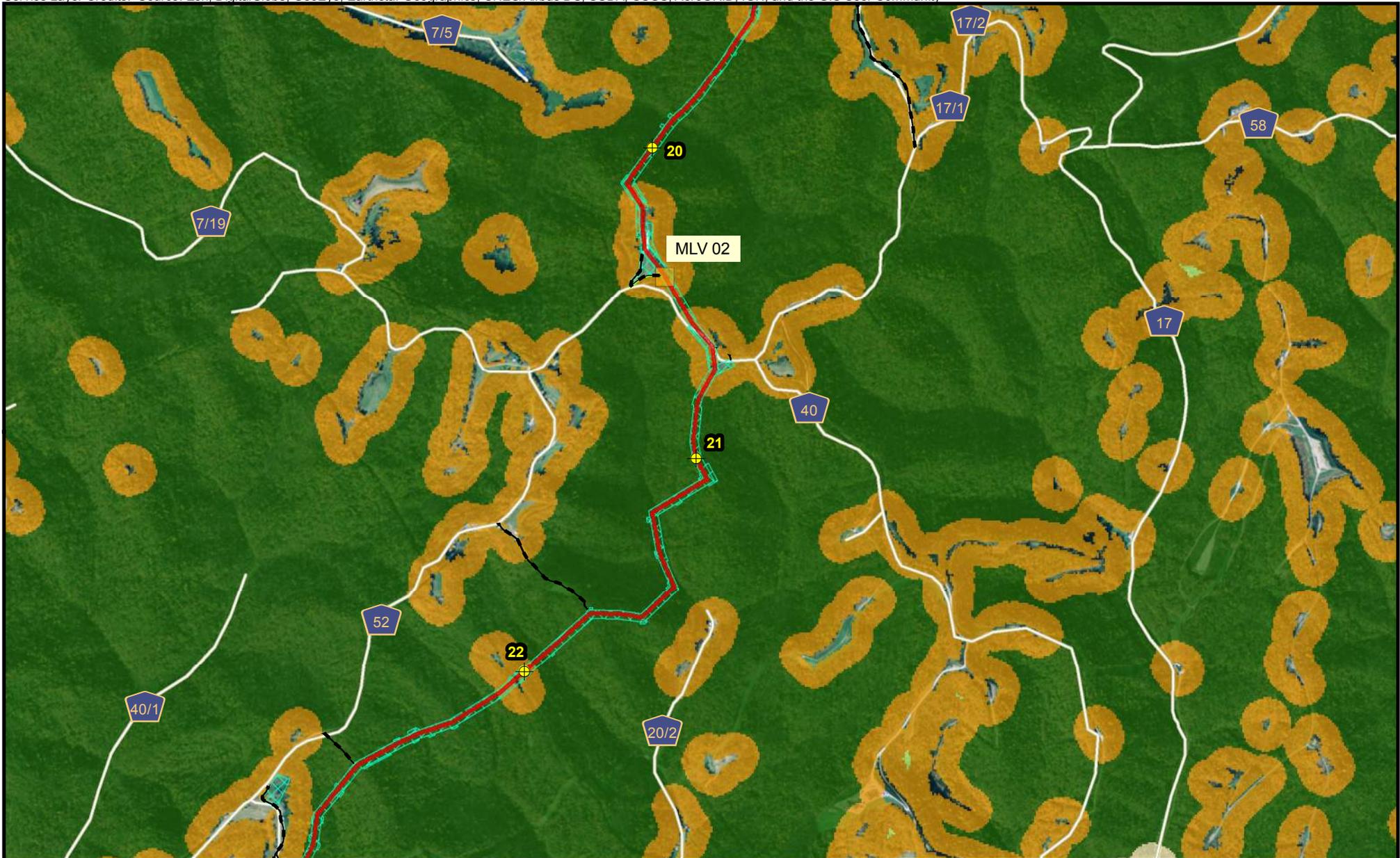
Scale in Feet



Ohio  
Wetzel Co.  
Tyler Co.  
West Virginia

7
8
9
10
11
12
13

Appendix I  
 Mountaineer XPress Project  
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> <li> Mainline Valve</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> <li> Valve Operation</li> </ul>	 NORTH	<p>2,000 1,000 0</p> Scale in Feet	
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Appendix I  
 Mountaineer XPress Project  
 Core Forest Map



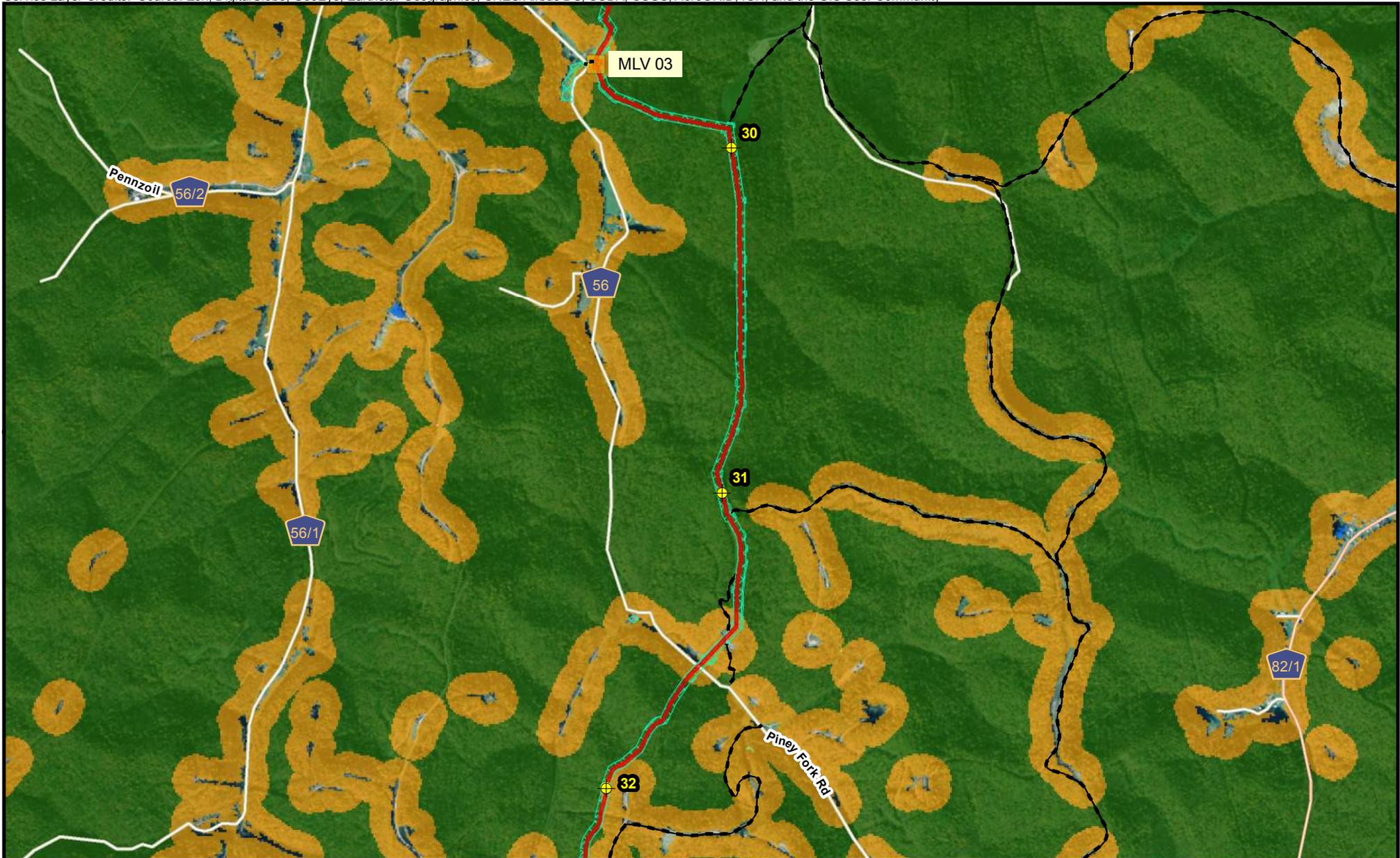
<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH 2,000 1,000 0  Scale in Feet	
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**Appendix I**  
**Mountaineer XPress Project**  
**Core Forest Map**  
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Medium core (250-500 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH	2,000 1,000 0  Scale in Feet	
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**Appendix I**  
**Mountaineer XPress Project**  
**Core Forest Map**  
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> <li> Mainline Valve</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> <li> Valve Operation</li> </ul>	 NORTH	 Scale in Feet	
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Appendix I  
 Mountaineer XPress Project  
 Core Forest Map



<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH	2,000 1,000 0  Scale in Feet	 Tyler Co. Wetzel Co. Putnam Co. West Virginia
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**Appendix I**  
**Mountaineer XPress Project**  
**Core Forest Map**  
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	<p>NORTH</p>	<p>2,000 1,000 0</p> <p>Scale in Feet</p>		<p><b>Appendix I</b>  <b>Mountaineer XPress Project</b>  <b>Core Forest Map</b></p> <p>Page 16 of 63</p>
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> <li> Mainline Valve</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul> <p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH	 2,000 1,000 0 Scale in Feet		<p>Appendix I                  Mountaineer XPress Project                  Core Forest Map</p> <p>Page 17 of 63</p>
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	<p>NORTH</p>	
<p>2,000 1,000 0</p> <p>Scale in Feet</p>					

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 Montaineer XPress Project  
 Core Forest Map  
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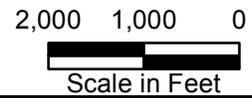


<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	<p>NORTH</p>	<p>2,000 1,000 0 Scale in Feet</p>	
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**Appendix I**  
**Mountaineer XPress Project**  
**Core Forest Map**  
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Core Forest	Workspace
Patch	Temporary
Edge	
Perforated	
Small core (< 250 acres)	
Large core (>500 acres)	



## Appendix I Mountaineer XPress Project Core Forest Map



<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	<p>NORTH</p>	<p>2,000 1,000 0 Scale in Feet</p>	
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**Appendix I**  
**Mountaineer XPress Project**  
**Core Forest Map**  
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<ul style="list-style-type: none"> <li><span style="color: red;">○</span> Regulator</li> <li><span style="color: grey;">●</span> Compressor Station</li> <li><span style="color: yellow;">⊕</span> Milepost</li> <li><span style="border-bottom: 1px dashed black; width: 20px; display: inline-block;"></span> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li><span style="border-bottom: 2px solid red; width: 20px; display: inline-block;"></span> MXP - 100</li> <li><span style="border-bottom: 2px dashed red; width: 20px; display: inline-block;"></span> MXP - 200</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li><span style="background-color: blue; width: 15px; height: 10px; display: inline-block;"></span> Patch</li> <li><span style="background-color: #f0e68c; width: 15px; height: 10px; display: inline-block;"></span> Edge</li> <li><span style="background-color: #e69a00; width: 15px; height: 10px; display: inline-block;"></span> Perforated</li> <li><span style="background-color: #90ee90; width: 15px; height: 10px; display: inline-block;"></span> Small core (&lt; 250 acres)</li> <li><span style="background-color: #008000; width: 15px; height: 10px; display: inline-block;"></span> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li><span style="border: 1px solid red; width: 15px; height: 10px; display: inline-block;"></span> Operation</li> <li><span style="border: 1px solid cyan; width: 15px; height: 10px; display: inline-block;"></span> Temporary</li> </ul>	<p>NORTH</p> <p>2,000 1,000 0</p> <p>Scale in Feet</p>	
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Appendix I  
 Mountaineer XPress Project  
 Core Forest Map

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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> <li> MXP - 200</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH	
2,000 1,000 0 Scale in Feet					

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 Mountaineer Xpress Project  
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○ Tie-In	<b>Proposed Centerline</b>	<b>Core Forest</b>	<b>Workspace</b>
⊕ Milepost	--- MXP - 200	■ Patch	⊠ Operation
--- Access Road		■ Edge	⊠ Temporary
		■ Perforated	
		■ Small core (< 250 acres)	
		■ Large core (>500 acres)	

Scale in Feet

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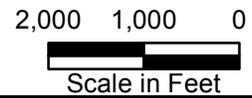
<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH	<p style="text-align: center;">2,000 1,000 0</p> Scale in Feet	
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Appendix I  
 Mountaineer XPress Project  
 Core Forest Map

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<ul style="list-style-type: none"> <li>--- Access Road</li> <li><span style="color: blue;">■</span> Patch</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Edge</li> <li><span style="background-color: orange; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Perforated</li> <li><span style="background-color: lightgreen; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Small core (&lt; 250 acres)</li> <li><span style="background-color: green; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Medium core (250-500 acres)</li> <li><span style="background-color: darkgreen; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Large core (&gt;500 acres)</li> </ul>	<ul style="list-style-type: none"> <li><span style="border: 1px dashed black; display: inline-block; width: 10px; height: 10px;"></span> Temporary</li> </ul>
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## Appendix I Mountaineer XPress Project Core Forest Map



<ul style="list-style-type: none"> <li>--- Access Road</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: blue; border: 1px solid black;"></span> Patch</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #f0e68c; border: 1px solid black;"></span> Edge</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #d2691e; border: 1px solid black;"></span> Perforated</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #90ee90; border: 1px solid black;"></span> Small core (&lt; 250 acres)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #32cd32; border: 1px solid black;"></span> Medium core (250-500 acres)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #006400; border: 1px solid black;"></span> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; border: 1px dashed black; background: repeating-linear-gradient(45deg, transparent, transparent 2px, green 2px, green 4px);"></span> Temporary</li> </ul>
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NORTH

2,000 1,000 0

Scale in Feet



## Appendix I Mountaineer XPress Project Core Forest Map



<p>--- Access Road</p> <p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: blue; border: 1px solid black;"></span> Patch</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #f0e68c; border: 1px solid black;"></span> Edge</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #e69a00; border: 1px solid black;"></span> Perforated</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #90ee90; border: 1px solid black;"></span> Small core (&lt; 250 acres)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #32cd32; border: 1px solid black;"></span> Medium core (250-500 acres)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #006400; border: 1px solid black;"></span> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; border: 1px dashed black; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px);"></span> Temporary</li> </ul>	<p>NORTH</p> <p>2,000 1,000 0</p> <p>Scale in Feet</p>	<p>West Virginia</p> <p>Ritchie Co.</p>
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 Core Forest Map  
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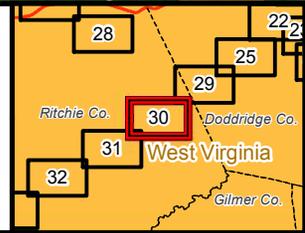


<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> <li> Mainline Valve</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	<p>NORTH</p>	<p>2,000 1,000 0</p> <p>Scale in Feet</p>

## Appendix I Mountaineer XPress Project Core Forest Map

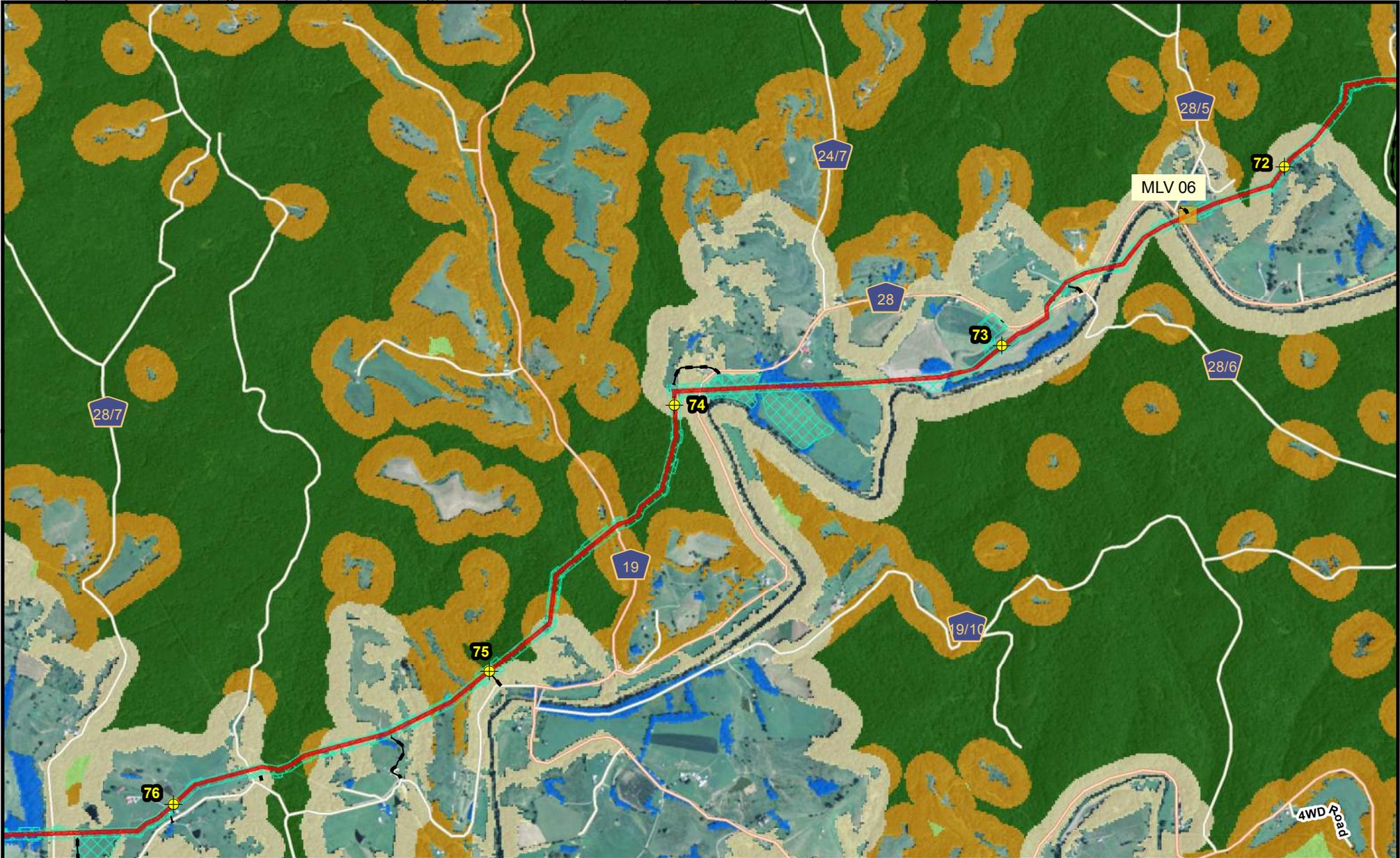


<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Medium core (250-500 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH	2,000 1,000 0  Scale in Feet
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH	
2,000 1,000 0 Scale in Feet		<p>Appendix I                  Mountaineer XPress Project                  Core Forest Map</p> <p>Page 31 of 63</p>			



<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> <li> Mainline Valve</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> <li> Valve Operation</li> </ul>	 NORTH	 Scale in Feet	
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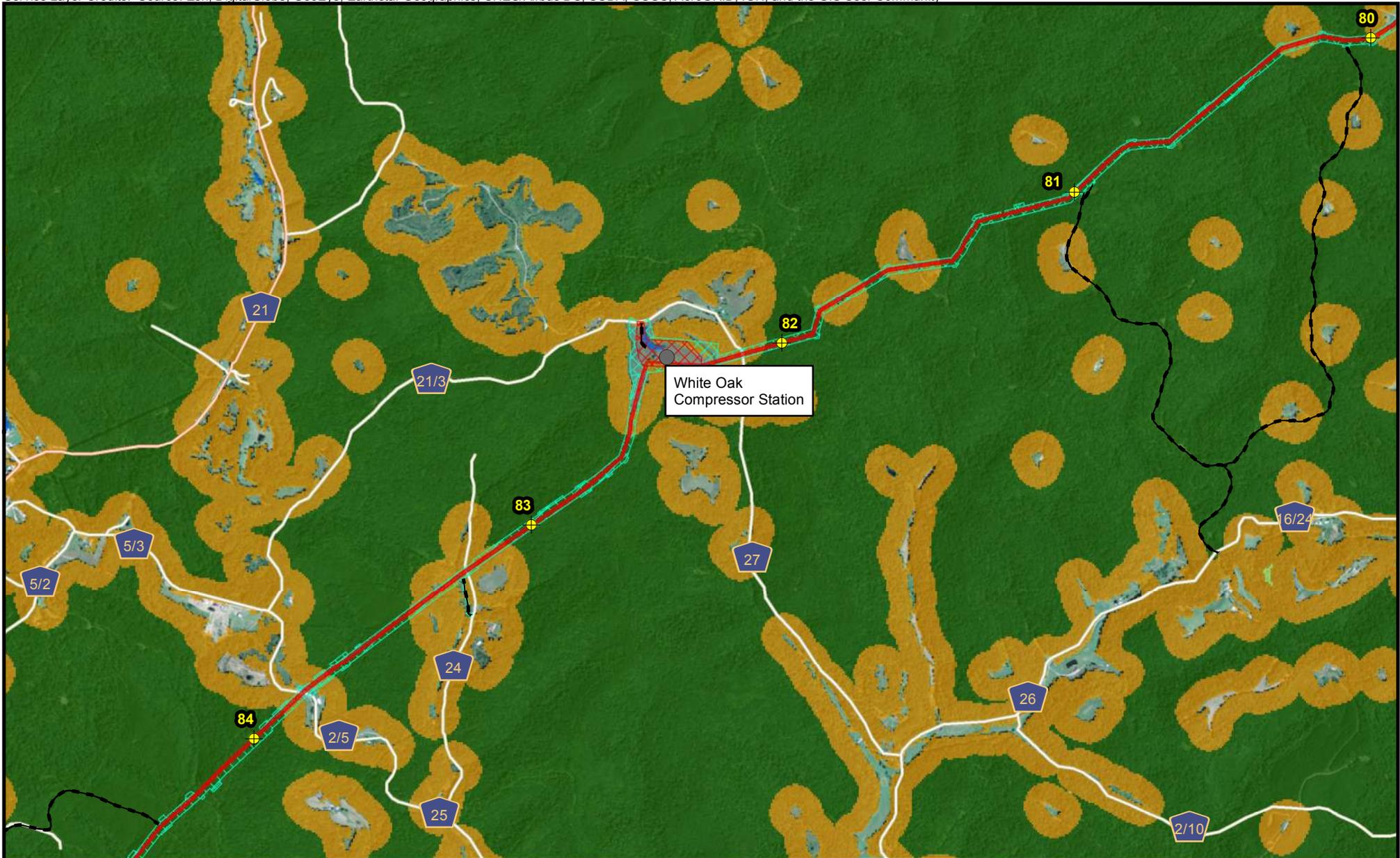
Appendix I  
 Mountaineer XPress Project  
 Core Forest Map

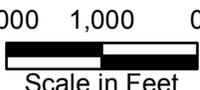
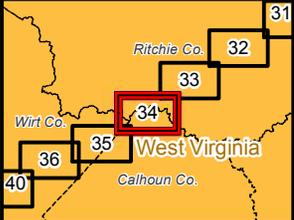
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH	2,000 1,000 0  Scale in Feet	
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**Appendix I**  
**Mountaineer XPress Project**  
**Core Forest Map**  
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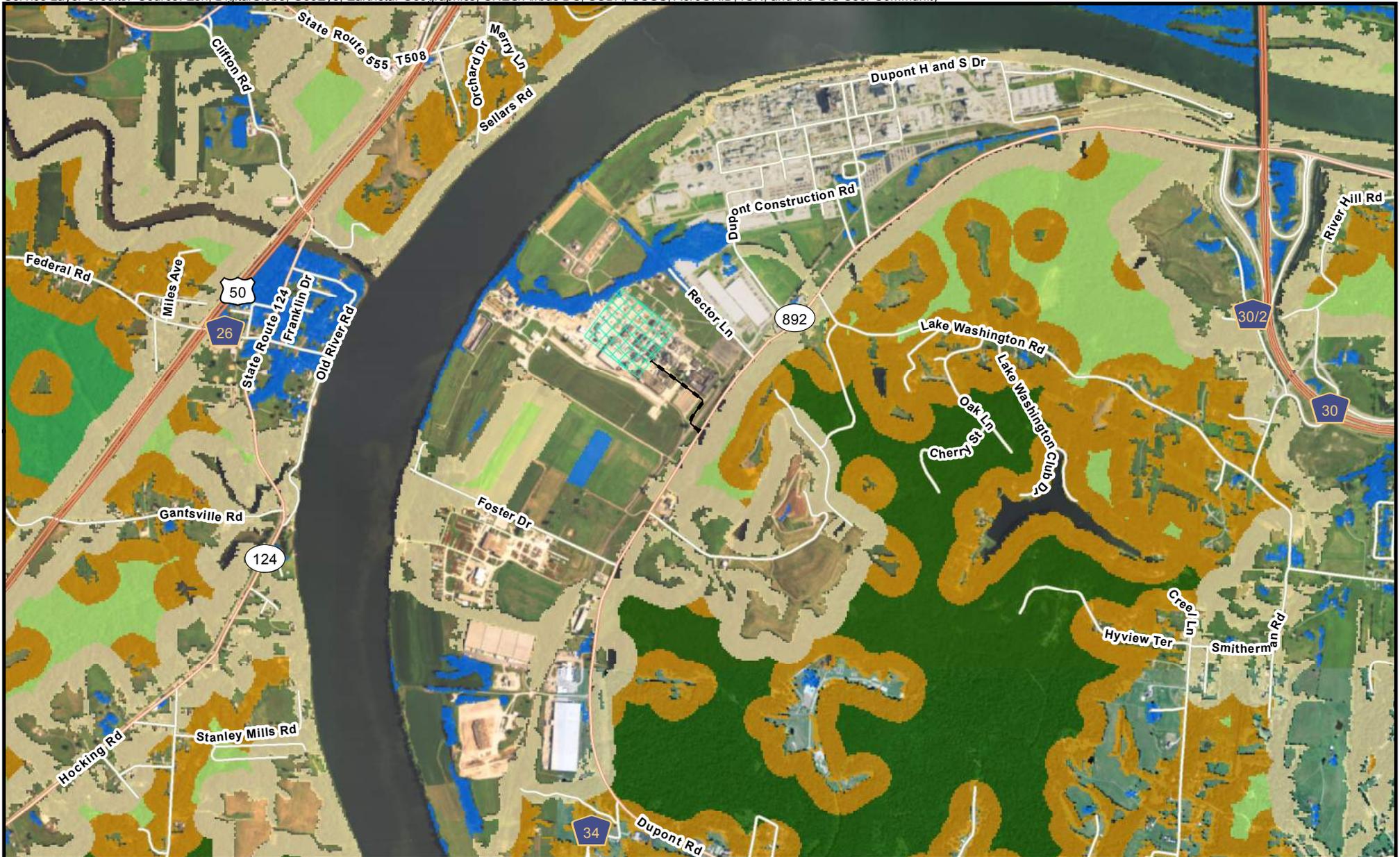
<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: grey; border-radius: 50%;"></span> Compressor Station</li> <li><span style="display: inline-block; width: 10px; height: 10px; border: 1px solid black; border-radius: 50%;"></span> Milepost</li> <li><span style="display: inline-block; width: 10px; border-bottom: 1px dashed black;"></span> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: red; border: 1px solid black;"></span> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: blue;"></span> Patch</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: orange; border: 1px dashed black;"></span> Perforated</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: lightgreen;"></span> Small core (&lt; 250 acres)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: darkgreen;"></span> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; border: 1px solid red; border-style: dashed;"></span> Operation</li> <li><span style="display: inline-block; width: 10px; height: 10px; border: 1px solid cyan; border-style: dashed;"></span> Temporary</li> </ul>	 <p>NORTH</p>	 <p>2,000 1,000 0 Scale in Feet</p>	 <p>Ritchie Co. 32 Wirt Co. 33 West Virginia 34 Calhoun Co. 35 40 36 35</p>	<p>Appendix I Mountaineer XPress Project Core Forest Map</p> <p>Page 34 of 63</p>
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH		<h2 style="margin: 0;">Appendix I</h2> <h3 style="margin: 0;">Mountaineer XPress Project</h3> <h3 style="margin: 0;">Core Forest Map</h3> <p style="margin: 10px 0 0 0;">Page 35 of 63</p>
 Scale in Feet						



<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Medium core (250-500 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	<p>2,000 1,000 0</p> <p>Scale in Feet</p>		<p>Appendix I              Mountaineer XPress Project              Core Forest Map</p> <p>Page 36 of 63</p>
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<ul style="list-style-type: none"> <li>--- Access Road</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: blue; border: 1px solid black;"></span> Patch</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #f0e68c; border: 1px solid black;"></span> Edge</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #e69d00; border: 1px solid black;"></span> Perforated</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #90ee90; border: 1px solid black;"></span> Small core (&lt; 250 acres)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #32cd32; border: 1px solid black;"></span> Medium core (250-500 acres)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #006400; border: 1px solid black;"></span> Large core (&gt;500 acres)</li> </ul>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; border: 1px dashed black;"></span> Temporary</li> </ul>	 NORTH  2,000 1,000 0 Scale in Feet	
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## Appendix I Mountaineer XPress Project Core Forest Map



<ul style="list-style-type: none"> <li>--- Access Road</li> </ul>	<b>Core Forest</b> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: blue; border: 1px solid black;"></span> Patch</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: lightgreen; border: 1px solid black;"></span> Edge</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: orange; border: 1px solid black;"></span> Perforated</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: lightgreen; border: 1px solid black;"></span> Small core (&lt; 250 acres)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: green; border: 1px solid black;"></span> Medium core (250-500 acres)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: darkgreen; border: 1px solid black;"></span> Large core (&gt;500 acres)</li> </ul>	<b>Workspace</b> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; border: 1px dashed green; background-color: white;"></span> Temporary</li> </ul>
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NORTH

2,000 1,000 0

Scale in Feet



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<p>--- Access Road</p> <p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: blue; border: 1px solid black;"></span> Patch</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #f4a460; border: 1px solid black;"></span> Edge</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #e69a00; border: 1px solid black;"></span> Perforated</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #90ee90; border: 1px solid black;"></span> Small core (&lt; 250 acres)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #3cb371; border: 1px solid black;"></span> Medium core (250-500 acres)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #006400; border: 1px solid black;"></span> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; border: 1px dashed black; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px);"></span> Temporary</li> </ul>	<p>NORTH</p>  <p>2,000 1,000 0</p>  <p>Scale in Feet</p>	 <p>Wood Co. 77 Wirt Co. 39 West Virginia 36 40</p>
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Appendix I  
 Mountaineer XPress Project  
 Core Forest Map



<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> <li> Mainline Valve</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	<p>Scale in Feet</p>		<p>Appendix I              Mountaineer Xpress Project              Core Forest Map</p> <p>Page 40 of 63</p>
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Milepost	<b>Proposed Centerline</b> MXP - 100	<b>Core Forest</b> Patch Edge Perforated Small core (< 250 acres) Medium core (250-500 acres) Large core (>500 acres)	<b>Workspace</b> Operation Temporary	 2,000 1,000 0  Scale in Feet		<h2>Appendix I</h2> <h3>Mountaineer XPress Project</h3> <h3>Core Forest Map</h3> <p>Page 41 of 63</p>
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Medium core (250-500 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 2,000 1,000 0 Scale in Feet	
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Appendix I  
 Mountaineer XPress Project  
 Core Forest Map  
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH	2,000 1,000 0  Scale in Feet	
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Appendix I  
 Mountaineer XPress Project  
 Core Forest Map

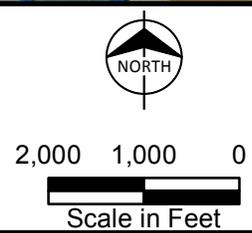
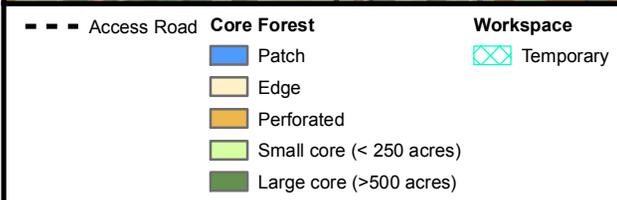


<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> <li> Mainline Valve</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH	
2,000 1,000 0  Scale in Feet					

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 Mountaineer XPress Project  
 Core Forest Map  
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> <li> Mainline Valve</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	<p>NORTH</p>	
<p>2,000 1,000 0</p> <p>Scale in Feet</p>				<p><b>Appendix I</b></p> <p><b>Montaineer XPress Project</b></p> <p><b>Core Forest Map</b></p> <p>Page 45 of 63</p>	

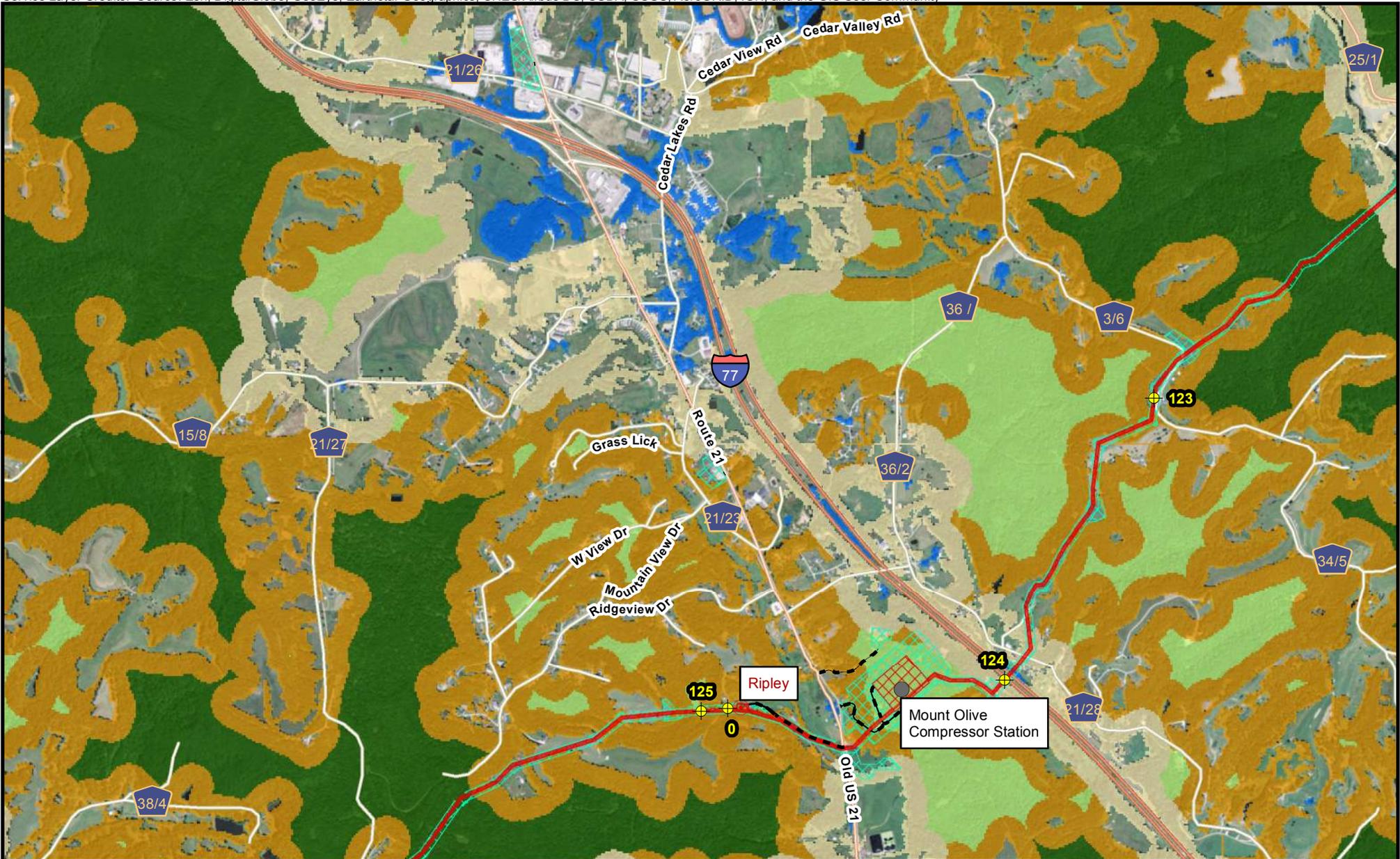


**Appendix I**  
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**Core Forest Map**  
  
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH  2,000 1,000 0 Scale in Feet	
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 Core Forest Map  
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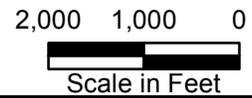


<ul style="list-style-type: none"> <li><span style="color: red;">●</span> Regulator</li> <li><span style="color: grey;">●</span> Compressor Station</li> <li><span style="color: yellow;">⊕</span> Milepost</li> <li><span style="border-bottom: 1px dashed black; width: 20px; display: inline-block;"></span> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li><span style="color: red; border-bottom: 2px solid red; width: 20px; display: inline-block;"></span> MXP - 100</li> <li><span style="color: cyan; border-bottom: 2px solid cyan; width: 20px; display: inline-block;"></span> X59M1</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li><span style="color: blue; border: 1px solid blue; width: 15px; height: 10px; display: inline-block;"></span> Patch</li> <li><span style="border: 1px solid black; width: 15px; height: 10px; display: inline-block;"></span> Edge</li> <li><span style="background-color: orange; width: 15px; height: 10px; display: inline-block;"></span> Perforated</li> <li><span style="background-color: lightgreen; width: 15px; height: 10px; display: inline-block;"></span> Small core (&lt; 250 acres)</li> <li><span style="background-color: darkgreen; width: 15px; height: 10px; display: inline-block;"></span> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li><span style="border: 1px dashed red; width: 15px; height: 10px; display: inline-block;"></span> Operation</li> <li><span style="border: 1px dashed cyan; width: 15px; height: 10px; display: inline-block;"></span> Temporary</li> </ul>	 <p>NORTH</p> <p>2,000 1,000 0</p> <p>Scale in Feet</p>	
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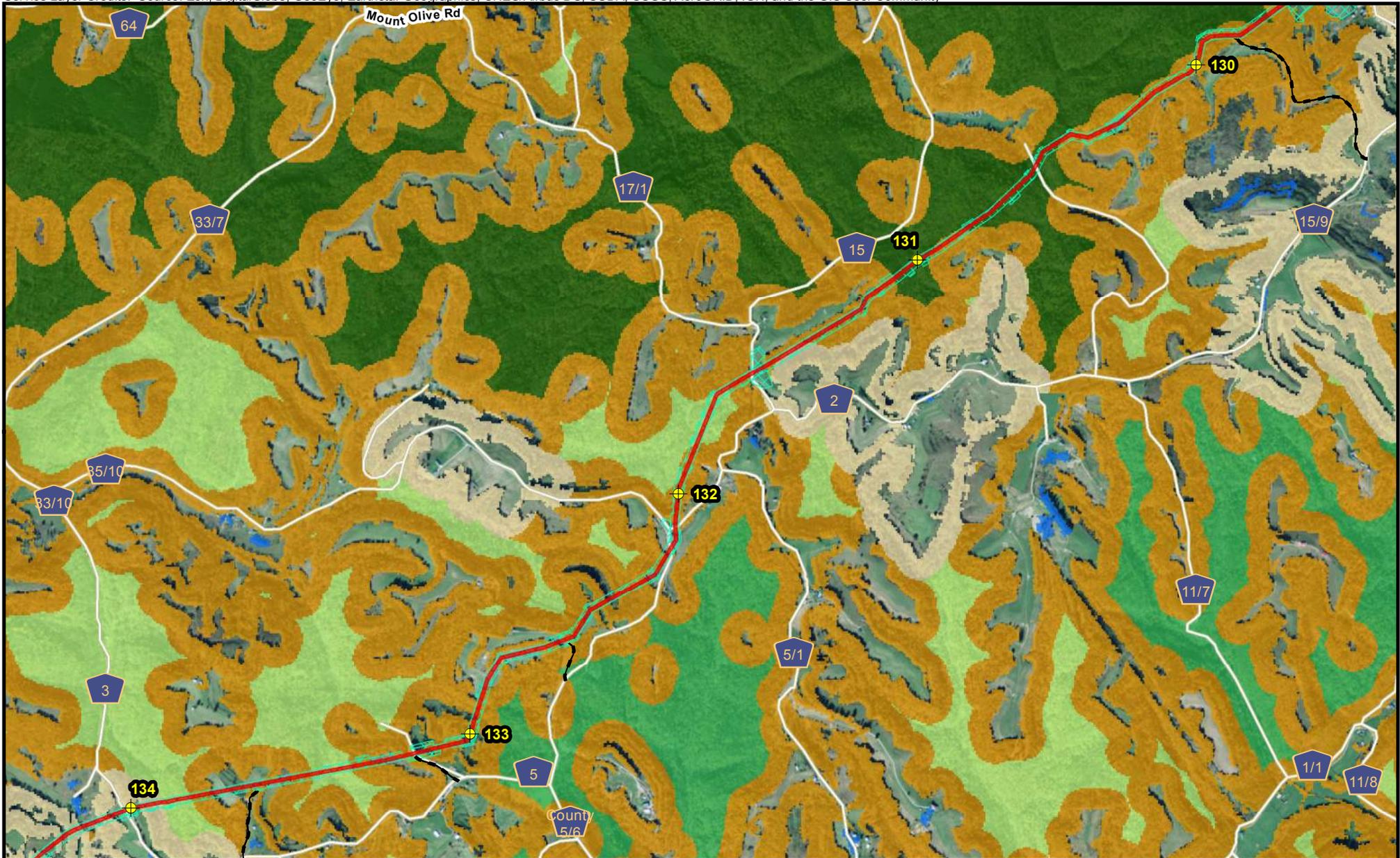
## Appendix I Mountaineer XPress Project Core Forest Map



⊕ Milepost     
 **Proposed Centerline**     
 **Core Forest**     
 **Workspace**  
--- Access Road     
 — MXP - 100     
 ■ Patch     
 ▨ Operation  
■ Edge     
 ■ Perforated     
 ▨ Temporary  
■ Small core (< 250 acres)  
■ Medium core (250-500 acres)  
■ Large core (>500 acres)



## Appendix I Mountaineer Xpress Project Core Forest Map



<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Medium core (250-500 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	<p>2,000 1,000 0</p> <p>Scale in Feet</p>		<p>Appendix I              Mountaineer XPress Project              Core Forest Map</p> <p>Page 50 of 63</p>
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> <li> Mainline Valve</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> <li> Valve Operation</li> </ul>	 NORTH	<p>2,000 1,000 0</p> Scale in Feet	
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**Appendix I**  
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**Core Forest Map**  
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Medium core (250-500 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH	<p style="text-align: center;">2,000 1,000 0</p> Scale in Feet	
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Appendix I  
 Mountaineer XPress Project  
 Core Forest Map  
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH	 Scale in Feet	
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**Appendix I**  
**Mountaineer XPress Project**  
**Core Forest Map**  
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> <li> Mainline Valve</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH  2,000 1,000 0 Scale in Feet	
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Appendix I  
 Mountaineer XPress Project  
 Core Forest Map  
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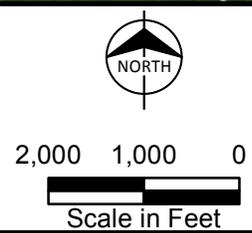


<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	<p>2,000 1,000 0</p> <p>Scale in Feet</p>	
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 Mountaineer XPress Project  
 Core Forest Map  
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● Compressor Station	<b>Core Forest</b>	<b>Workspace</b>
	■ Patch	□ Temporary
	■ Edge	
	■ Perforated	
	■ Small core (< 250 acres)	
	■ Large core (>500 acres)	



## Appendix I Mountaineer XPress Project Core Forest Map



Milepost	Proposed Centerline	<b>Core Forest</b>	<b>Workspace</b>
Access Road	MXP - 100	Patch	Operation
		Edge	Temporary
		Perforated	
		Small core (< 250 acres)	
		Large core (>500 acres)	

2,000 1,000 0

Scale in Feet

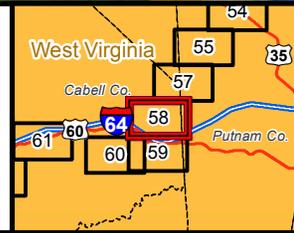
Appendix I  
 Mountaineer XPress Project  
 Core Forest Map  
 Page 57 of 63



<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Medium core (250-500 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>
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2,000 1,000 0

Scale in Feet



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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH 2,000 1,000 0  Scale in Feet	
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 Mountaineer XPress Project  
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<ul style="list-style-type: none"> <li> Regulator</li> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> MXP - 100</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Medium core (250-500 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	 NORTH 2,000 1,000 0  Scale in Feet	
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Appendix I  
 Mountaineer XPress Project  
 Core Forest Map  
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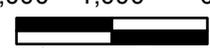


<ul style="list-style-type: none"> <li>--- Access Road</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: blue; border: 1px solid black;"></span> Patch</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: yellow; border: 1px solid black;"></span> Edge</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: orange; border: 1px solid black;"></span> Perforated</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: lightgreen; border: 1px solid black;"></span> Small core (&lt; 250 acres)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: green; border: 1px solid black;"></span> Medium core (250-500 acres)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: darkgreen; border: 1px solid black;"></span> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; border: 1px dashed black;"></span> Temporary</li> </ul>
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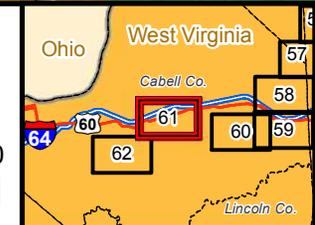


NORTH

2,000 1,000 0



Scale in Feet

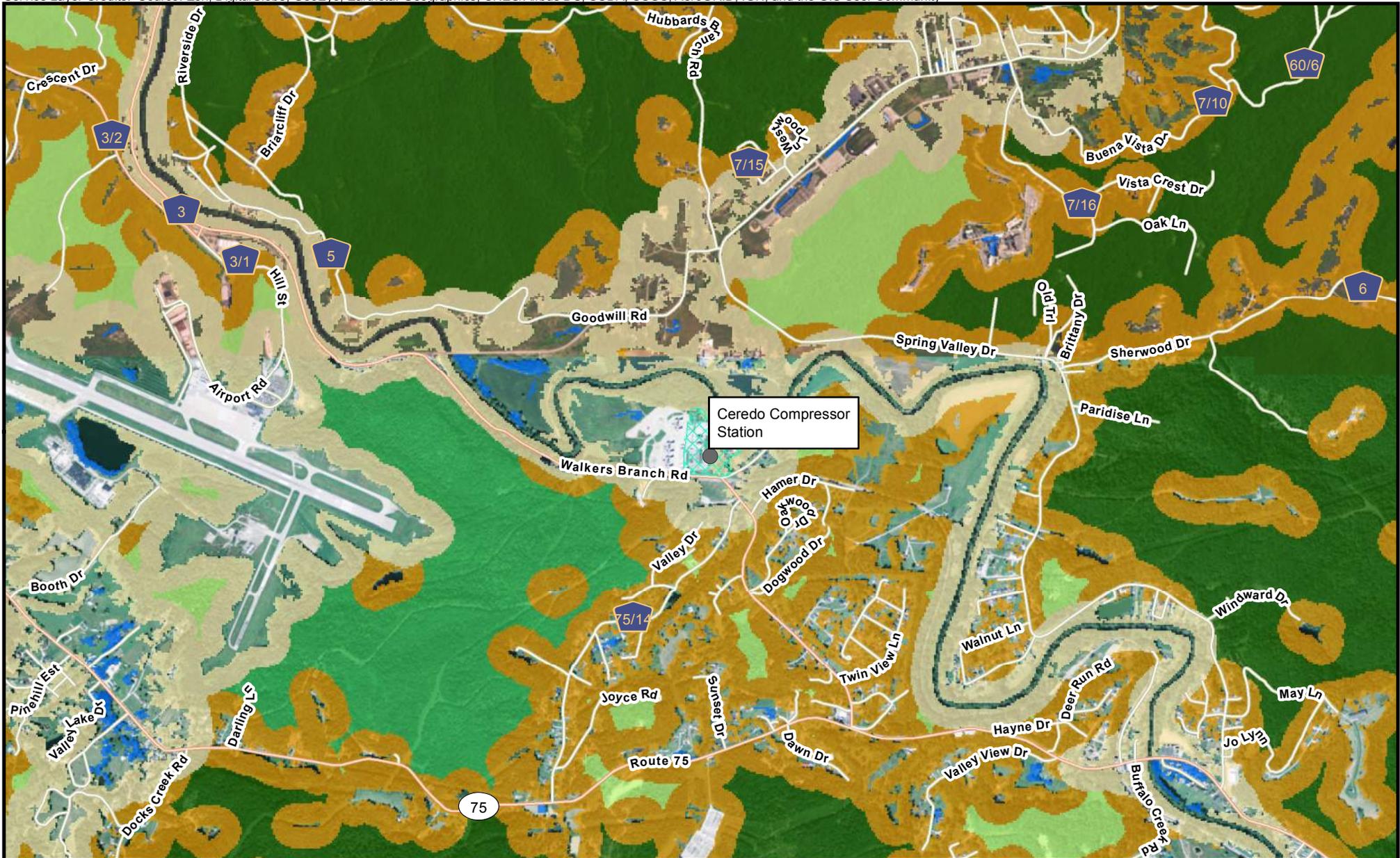


**Appendix I**  
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**Core Forest Map**  
  
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<ul style="list-style-type: none"> <li> Milepost</li> <li> Access Road</li> </ul>	<p><b>Proposed Centerline</b></p> <ul style="list-style-type: none"> <li> SM - 80</li> </ul>	<p><b>Core Forest</b></p> <ul style="list-style-type: none"> <li> Patch</li> <li> Edge</li> <li> Perforated</li> <li> Small core (&lt; 250 acres)</li> <li> Large core (&gt;500 acres)</li> </ul>	<p><b>Workspace</b></p> <ul style="list-style-type: none"> <li> Operation</li> <li> Temporary</li> </ul>	<p>NORTH</p> <p>2,000 1,000 0</p> <p>Scale in Feet</p>	
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## Appendix I Montaineer XPress Project Core Forest Map



<ul style="list-style-type: none"> <li>● Compressor Station</li> </ul>	<b>Core Forest</b> <ul style="list-style-type: none"> <li>■ Patch</li> <li>■ Edge</li> <li>■ Perforated</li> <li>■ Small core (&lt; 250 acres)</li> <li>■ Medium core (250-500 acres)</li> <li>■ Large core (&gt;500 acres)</li> </ul>	<b>Workspace</b> <ul style="list-style-type: none"> <li>□ Temporary</li> </ul>	<p>NORTH</p>	<p>2,000 1,000 0 Scale in Feet</p>		<h2 style="text-align: center;">Appendix I</h2> <h3 style="text-align: center;">Mountaineer XPress Project Core Forest Map</h3> <p style="text-align: center;">Page 63 of 63</p>
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**APPENDIX J-1**  
**MSHCP Interagency ESA Consultation Checklists for the**  
**Mountaineer XPress Project**

# INTERAGENCY ENDANGERED SPECIES ACT CONSULTATION CHECKLIST FOR THE NiSOURCE MULTI-SPECIES HABITAT CONSERVATION PLAN

## APPLICANT SECTION

ACTION AGENCY (Recipient): Federal Energy Regulatory Agency

OTHER INVOLVED FEDERAL AGENCIES: US Army Corps and US Fish and Wildlife Service

PROJECT NAME: Mountaineer Xpress Project

PROJECT I.D. NO. (if applicable): PF15-31-000

NiSource and Columbia Pipeline Group (Columbia) has provided the attached documentation to involved federal agencies in accordance with "Project Review and Documentation Protocols" of the NiSource/Columbia Pipeline MSHCP Consultation Implementation Guidance<sup>4</sup>. This documentation describes if and how the project is covered by the NiSource Multi-Species Habitat Conservation Plan (MSHCP), programmatic biological opinion (BO), and/or programmatic concurrence letters. In addition, the action agency could refer to the following sections and/or pages of the MSHCP, BO, and/or concurrence letters to verify that the activity is covered by the MSHCP and associated Section 7 consultation under the Endangered Species Act (ESA):

Reference:

- NiSource MSHCP Chapter 2.3 Covered Lands (pp 2-11)
- NiSource MSHCP Chapter 2.4 Covered Activities (pp 11- 25)
- NiSource/Columbia Pipeline MSHCP Consultation Implementation Guidance Quick Reference for Species Consultation Categories (pp 5-6)
- NiSource/Columbia Pipeline Group's, "Habitat Conservation Program Best Management Practices Guidebook", v.1.0, March 12, 2014 (specific pages for each species are referenced in the attached application material)

By signing below, Columbia certifies that its proposed activity, as outlined in the accompanying application or notification, is consistent with the MSHCP, BO, and/or concurrence letters.

Erik Duncan

Columbia Pipeline representative

4-20-2016

Date

By checking the box, Columbia is notifying the involved federal agencies that the proposed activity will require additional ESA Section 7 consultation because part of the activity may include: (1) any of the 10 Likely to Adversely Affect (LAA) species that are not included in the MSHCP<sup>5</sup>, (2) species not addressed in the MSHCP, BO, or concurrence letters<sup>5</sup>, (3) non-covered activities, (4) activities outside of the covered lands, or (5) activities otherwise deviating from the MSHCP, BO, and/or concurrence letters. Additional biological information about the species, habitat, or effects of the action may be required. The federal agencies can contact the U.S. Fish and Wildlife Service's NiSource/Columbia MSHCP Implementation Coordinator (Karen Herrington, 850.348.6495, [karen\\_herrington@fws.gov](mailto:karen_herrington@fws.gov)) for more information.

<sup>4</sup> See NiSource/Columbia Pipeline MSHCP Consultation Implementation Guidance. May 8, 2014. Pg 11.

<sup>5</sup> See NiSource/Columbia Pipeline MSHCP Consultation Implementation Guidance. May 8, 2014. Pg. 5.

## FEDERAL AGENCY SECTION

This checklist serves as the official documentation that each action agency involved has completed its Section 7 responsibilities under the ESA for NiSource and Columbia Pipeline Group (Columbia) projects conducted as described in the MSHCP, BO, and/or concurrence letters. Every agency that receives a copy of this checklist should fill it out. The MSHCP, BO, and concurrence letters can be found on the U.S. Fish and Wildlife Service (FWS) NiSource website:

<http://www.fws.gov/midwest/endangered/permits/hcp/nisource/index.html>

Quick access to the required Avoidance and Minimization Measures (AMMs) and Best Management Practices (BMP) can be found in the Columbia BMP Guidebook, which is also posted on the above website.

1. Does the federal action occur entirely within the covered lands as described in the MSHCP?  
 Yes. Go to #2.  
 No. Additional consultation is required because the action is not consistent with the MSHCP, BO, and/or concurrence letters. If the project may affect listed species, contact your local FWS Field Office.
2. Is the proposed action as described in the MSHCP, programmatic BO, and/or concurrence letter?  
 Yes. Go to #3.  
 No. Additional consultation is required because the action is not consistent with the MSHCP, BO, and/or concurrence letters. If the project may affect listed species, contact your local FWS Field Office.
3. Does the proposed action pose any effects on species not included in the MSHCP, BO or concurrence letters<sup>6</sup>?  
 Yes. Additional consultation is required because the species was not included in the MSHCP, BO, and/or concurrence letters. If the project may affect listed species not included in the consultation, contact your local FWS Field Office.  
 No. Go to #4.
4. Does the proposed action include MSHCP species<sup>6</sup> only?  
 Yes. Go to #6.  
 No. Go to #5.
5. Does the proposed action include any of the 10 Likely to Adversely Affect (LAA) species that are not included in the MSHCP (i.e., LAA non-MSHCP species) as addressed in the BO?  
 Yes. Additional consultation is required. Enter into tiered consultation with your local FWS office for any LAA non-MSHCP species.  
 No. Go to #6.
6. Are all mandatory AMMs and/or BMPs for each species included in the action?<sup>7</sup>  
 Yes. Go to #7.  
 No. Additional consultation is required because the proposed action is not consistent with the MSHCP, BO, and/or concurrence letter. Request additional information from Columbia about AMMs.

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<sup>6</sup> See NiSource/Columbia Pipeline MSHCP Consultation Implementation Guidance. May 8, 2014. Pg. 5

7. Are all non-mandatory AMMs and/or BMPs for each species included in the action?  
 Yes. Consultation is complete because the proposed action is consistent with the MSHCP, BO, and/or concurrence letter.  
 No. Go to #8.
8. Are reasons provided for not including non-mandatory AMMs for each species?<sup>8</sup>  
 Yes. Consultation is complete.  
 No. Request justification from Columbia, and attach documentation here. Once justification is provided, consultation is complete.

It is the federal agency's responsibility to comply with ESA Section 7 requirements for this project. The programmatic BO and/or the concurrence letters cover most of Columbia's activities implemented under the MSHCP within the covered lands. By signing below, the federal agency verifies that the proposed action within the agency's authority complies with the programmatic BO, and/or concurrence letters. If additional Section 7 consultation is required, the U.S. Fish and Wildlife Service's supplemental concurrence letter or biological opinion will be attached to this documentation.

COLUMBIA COMMENTS:

The project is in on-going consultations with the USFWS and will provide documentation as it becomes available. Species surveys being conducted are for Indiana Bat, Northern Long Eared Bat and multiple species of mussels. In addition, specific surveys are being conducted for the greenfield facilities but a portion of the project falls within the MSHCP, including the project components in Marshall, Wetzel and Jackson Counties, as well as multiple existing Columbia infrastructure crossings or tie-in locations. For these areas the HCP will be used to provide guidance and specific Avoidance and Minimization Measures for the potential affected species.

AGENCY COMMENTS:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

  
 Federal Agency representative

6/27/17  
 Date

<sup>7</sup> See NiSource/Columbia Pipeline Group's, "Habitat Conservation Program Best Management Practices Guidebook", v.1.0, March 12, 2014.

<sup>8</sup> Per the MSHCP, explanation for non-mandatory AMM use is not required for the Indiana Bat.

**APPENDIX J-2**  
**MSHCP Interagency ESA Consultation Checklists for the**  
**Gulf XPress Project**

# INTERAGENCY ENDANGERED SPECIES ACT CONSULTATION CHECKLIST FOR THE NiSOURCE MULTI-SPECIES HABITAT CONSERVATION PLAN

## APPLICANT SECTION

ACTION AGENCY (Recipient): Federal Energy Regulatory Commission

OTHER INVOLVED FEDERAL AGENCIES: Army Corps of Engineers, U.S. Fish and Wildlife Service

PROJECT NAME: Columbia Pipeline Group Gulf XPress Project

PROJECT I.D. NO. (if applicable): CP16-361

NiSource and Columbia Pipeline Group (Columbia) has provided the attached documentation to involved federal agencies in accordance with "Project Review and Documentation Protocols" of the NiSource/Columbia Pipeline MSHCP Consultation Implementation Guidance<sup>4</sup>. This documentation describes if and how the project is covered by the NiSource Multi-Species Habitat Conservation Plan (MSHCP), programmatic biological opinion (BO), and/or programmatic concurrence letters. In addition, the action agency could refer to the following sections and/or pages of the MSHCP, BO, and/or concurrence letters to verify that the activity is covered by the MSHCP and associated Section 7 consultation under the Endangered Species Act (ESA):

### Reference:

- NiSource MSHCP Chapter 2.3 Covered Lands (pp 2-11)
- NiSource MSHCP Chapter 2.4 Covered Activities (pp 11- 25)
- NiSource/Columbia Pipeline MSHCP Consultation Implementation Guidance Quick Reference for Species Consultation Categories (pp 5-6)
- NiSource/Columbia Pipeline Group's, "Habitat Conservation Program Best Management Practices Guidebook", v.1.0, March 12, 2014 (specific pages for each species are referenced in the attached application material)

By signing below, Columbia certifies that its proposed activity, as outlined in the accompanying application or notification, is consistent with the MSHCP, BO, and/or concurrence letters.



July 28, 2016

\_\_\_\_\_  
Columbia Pipeline representative

\_\_\_\_\_  
Date

By checking the box, Columbia is notifying the involved federal agencies that the proposed activity will require additional ESA Section 7 consultation because part of the activity may include: (1) any of the 10 Likely to Adversely Affect (LAA) species that are not included in the MSHCP<sup>5</sup>, (2) species not addressed in the MSHCP, BO, or concurrence letters<sup>5</sup>, (3) non-covered activities, (4) activities outside of the covered lands, or (5) activities otherwise deviating from the MSHCP, BO, and/or concurrence letters. Additional biological information about the species, habitat, or effects of the action may be required. The federal agencies can contact the U.S. Fish and

<sup>4</sup> See NiSource/Columbia Pipeline MSHCP Consultation Implementation Guidance. February 13, 2014. Pg 11.

<sup>5</sup> See NiSource/Columbia Pipeline MSHCP Consultation Implementation Guidance. February 13, 2014. Pg. 5.

Wildlife Service's NiSource/Columbia MSHCP Implementation Coordinator (Karen Herrington, 850.348.6495, karen\_herrington@fws.gov) for more information.

## FEDERAL AGENCY SECTION

This checklist serves as the official documentation that each action agency involved has completed its Section 7 responsibilities under the ESA for NiSource and Columbia Pipeline Group (Columbia) projects conducted as described in the MSHCP, BO, and/or concurrence letters. Every agency that receives a copy of this checklist should fill it out. The MSHCP, BO, and concurrence letters can be found on the U.S. Fish and Wildlife Service (FWS) NiSource website:

<http://www.fws.gov/midwest/endangered/permits/hcp/nisource/index.html>

Quick access to the required Avoidance and Minimization Measures (AMMs) and Best Management Practices (BMP) can be found in the Columbia BMP Guidebook, which is also posted on the above website.

1. Does the federal action occur entirely within the covered lands as described in the MSHCP?  
 Yes. Go to #2.  
 No. Additional consultation is required because the action is not consistent with the MSHCP, BO, and/or concurrence letters. If the project may affect listed species, contact your local FWS Field Office.
  
2. Is the proposed action as described in the MSHCP, programmatic BO, and/or concurrence letter?  
 Yes. Go to #3.  
 No. Additional consultation is required because the action is not consistent with the MSHCP, BO, and/or concurrence letters. If the project may affect listed species, contact your local FWS Field Office.
  
3. Does the proposed action pose any effects on species not included in the MSHCP, BO or concurrence letters<sup>55</sup>?  
 Yes. Additional consultation is required because the species was not included in the MSHCP, BO, and/or concurrence letters. If the project may affect listed species not included in the consultation, contact your local FWS Field Office  
*Several non-HCP species have the potential to occur in the project area. These non-MSHCP species were evaluated outside the context of the MSHCP and consultations with local Field Offices occurred to verify that impacts to these species are not likely to occur. Please see attached consultation letters and concurrence letters received from the local Field Offices.*  
 No. Go to #4.
  
4. Does the proposed action include MSHCP species<sup>65</sup> only?  
 Yes. Go to #6.  
 No. Go to #5.
  
5. Does the proposed action include any of the 10 Likely to Adversely Affect (LAA) species that are not included in the MSHCP (i.e., LAA non-MSHCP species) as addressed in the BO?  
 Yes. Additional consultation is required. Enter into tiered consultation with your local FWS office for any LAA non-MSHCP species.  
*See note under #3*  
 No Go to #6

<sup>6</sup> See NiSource/Columbia Pipeline MSHCP Consultation Implementation Guidance. February 13, 2014. Pg. 5

6. Are all mandatory AMMs and/or BMPs for each species included in the action?<sup>7</sup>  
 Yes. Go to #7.  
 No. Additional consultation is required because the proposed action is not consistent with the MSHCP, BO, and/or concurrence letter. Request additional information from Columbia about AMMs.
7. Are all non-mandatory AMMs and/or BMPs for each species included in the action?  
 Yes. Consultation is complete because the proposed action is consistent with the MSHCP, BO, and/or concurrence letter.  
 No. Go to #8.
8. Are reasons provided for not including non-mandatory AMMs for each species?<sup>8</sup>  
 Yes. Consultation is complete.  
 No. Request justification from Columbia, and attach documentation here. Once justification is provided, consultation is complete.

It is the federal agency's responsibility to comply with ESA Section 7 requirements for this project. The programmatic BO and/or the concurrence letters cover most of Columbia's activities implemented under the MSHCP within the covered lands. By signing below, the federal agency verifies that the proposed action within the agency's authority complies with the programmatic BO, and/or concurrence letters. If additional Section 7 consultation is required, the U.S. Fish and Wildlife Service's supplemental concurrence letter or biological opinion will be attached to this documentation.

AGENCY COMMENTS:

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 Federal Agency representative

6/27/17  
 Date

<sup>7</sup> See NiSource/Columbia Pipeline Group's, "Habitat Conservation Program Best Management Practices Guidebook", v.1.0, March 12, 2014.

<sup>8</sup> Per the MSHCP, explanation for non-mandatory AMM use is not required for the Indiana Bat.

**APPENDIX K**  
**State Protected Species List for the Gulf XPress Project**

**Appendix K  
State-Listed Threatened and Endangered Species with the Potential to Occur in the Columbia Gulf XPress Project Areas**

Common Name ( <i>Scientific name</i> )	State-Listed Status <u>a/</u>	Federal Status	Habitats	Aboveground Facilities <u>b/</u>									Habitat Present within Project Area (yes/no)
				Kentucky					Tennessee		Mississippi		
				Morehead CS - Rowan County	Paint Lick CS - Garrard County	Grayson CS - Carter County	Leach C MS - Boyd County	Good Luck CS - Metcalfe County	Cane Ridge CS - Davidson County	Clifton Junction CS - Wayne County	New Albany CS - Union County	Holcomb CS - Grenada County	
<b>Amphibian</b>													
Eastern Hellbender ( <i>Cryptobranchus alleganiensis alleganiensis</i> )	E	--	Creeks and small to medium rivers with high gradient riffles characterized by large, irregularly shaped rocks	X		X							No
<b>Bird</b>													
American Coot ( <i>Fulica americana</i> )	E	--	Marshes, reservoirs, edges of lakes.	X			X						No
Bachman's Sparrow ( <i>Aimophila aestivalis</i> )	E	--	Dry open pine or oak woods; nests on the ground in dense cover						X				No
Bald Eagle ( <i>Haliaeetus leucocephalus</i> )	T	D	Near lakes, reservoirs, rivers, marshes, and coasts.	X			X						No
Bewick's Wren ( <i>Thryomanes bewickii</i> )	E	--	Brushy areas, thickets and scrub in open country, open and riparian woodland.						X		X		No
Black-crowned Night-heron ( <i>Nycticorax nycticorax</i> )	T	--	Fresh, salt, and brackish wetlands. Breed in colonies of stick nests usually built over water.	X									No
Blackburnian Warbler ( <i>Setophaga fusca</i> )	T	--	Breeds in mature coniferous and mixed coniferous/deciduous forests and winters in montane forests.	X									No
Blue-winged Teal ( <i>Anas discors</i> )	T	--	Calm bodies of water from marshes to small lakes; prairie potholes.	X									No

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Brown Creeper ( <i>Certhia americana</i> )	E	--	Breed primarily in mature evergreen or mixed evergreen-deciduous forests; winter in more varied woodlands, including deciduous forests.	X			X	X					No
Common Gallinule ( <i>Gallinula galeata</i> )	T	--	Marshes and ponds.	X									No
Common Raven ( <i>Corvus corax</i> )	T	--	Boreal and mountain forests, coastal cliffs, tundra, desert.			X							No
Double-crested Cormorant ( <i>Phalacrocorax auritus</i> )	T	--	Coastal areas; large inland lakes.	X		X	X	X					No
Golden-winged Warbler ( <i>Vermivora chrysoptera</i> )	T	C	Open woodlands, brushy clearings, undergrowth.			X							No
Great Egret ( <i>Ardea alba</i> )	T	--	Freshwater and saltwater habitats.	X									No
Hooded Merganser ( <i>Lophodytes cucullatus</i> )	T	--	Forested wetlands	X		X							No
Least Bittern ( <i>Ixobrychus exilis</i> )	T	--	Freshwater marshes with tall grasses, cattails, and reeds	X									No
Least Flycatcher ( <i>Epidonax minimus</i> )	E	--	Open woods, aspen groves, orchards, shade trees. Breeds in deciduous or mixed woodlands, seldom in purely coniferous groves. Usually around clearings or edges, but sometimes in the interior of dry woods.	X									No
Little Blue Heron ( <i>Egretta caerulea</i> )	E	--	Marshes and estuaries.	X									No

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Northern Harrier ( <i>Circus cyaneus</i> )	T	--	Marshes, fields, prairies. Found in many kinds of open terrain, both wet and dry habitats, where there is good ground cover.	X			X							No
Northern Shoveler ( <i>Anas clypeata</i> )	E	--	Open, shallow wetlands.	X										No
Peregrine Falcon ( <i>Falco peregrinus</i> )	E	--	Varied habitats including farmlands, marshes, river mouths, and cities; often nests on ledges	X					X					No
Pied-billed Grebe ( <i>Podilymbus podiceps</i> )	E	--	Sluggish rivers, freshwater marshes, lakes, and estuaries.	X										No
Short-eared Owl ( <i>Asio flammeus</i> )	E	--	Found in open country (tundra, prairie, marshes, dunes) supporting high numbers of small rodents.				X							No
Snowy Egret ( <i>Egretta thula</i> )	E	--	Mudflats, beaches, wetlands. Rarely inland.	X										No
Spotted sandpiper ( <i>Actitis macularius</i> )	E	--	Streambanks, rivers, ponds, lakes, and beaches, particularly on rocky shores.	X										No
Wood Stork ( <i>Mycteria americana</i> )	E	T	Primarily freshwater wetlands including ponds, bayheads, flooded pastures, oxbow lakes, and ditches									X		No

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<b>Crustacean</b>													
An Amphipod ( <i>Crangonyx caecus</i> )	T	--	Pools within caves			X							No
Nashville Crayfish ( <i>Orconectes shoupi</i> )	E	E	1st-order & larger streams, generally with bedrock bottom, under slabrock; endemic to Mill Creek watershed						X				No
<b>Fish</b>													
American Brook Lamprey ( <i>Lampetra appendix</i> )	T	--	Pools and backwater areas during larval stage and fast moving riffles of high- to medium-gradient streams over rocky substrate during adult stage			X	X						No
Blue Sucker ( <i>Cycleptus elongatus</i> )	T	--	Swift waters over firm substrates in big rivers						X				No
Northern Brook Lamprey ( <i>Ichthyomyzon fossor</i> )	T	--	Soft-bottomed areas of upland streams during larval stage and small gravelly areas during adult stage				X						No
Lake Sturgeon ( <i>Acipenser fulvescens</i> )	E	--	Bottoms of large, clean rivers and lakes.						X				No
Redspotted Sunfish ( <i>Lepomis miniatus</i> )	T	--	Shallow and highly vegetative slow moving water	X									No
Spotted Darter ( <i>Etheostoma maculatum</i> )	T	--	Fast-flowing rocky riffles of medium-sized and smaller rivers					X					No
<b>Insects</b>													

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Common Name ( <i>Scientific name</i> )	State-Listed Status <u>a/</u>	Federal Status	Habitats	Aboveground Facilities <u>b/</u>									Habitat Present within Project Area (yes/no)
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A Cave Obligate Mite ( <i>Macrocheles stygius</i> )	T	--	Subterranean areas				X						No
An Olethreutine Moth ( <i>Hystrichophora loricana</i> )	T	--	Appears to be strongly tied to the presence of French-grass ( <i>Orbexilum onobrychis</i> )		X								No
Early Hairstreak ( <i>Erora laeta</i> )	T	--	Mature beech forests					X					No
Frosted Elfin ( <i>Callophrys irus</i> )	E	--	Oak savannah and pine barren habitats and open woods and forest edges with wild blue lupine		X								No
Karst Snowfly ( <i>Allocaupnia cunninghami</i> )	T	C	Spring-fed streams in karst habitats					X					No
Kentucky Stonefly ( <i>Acroneuria hitchcocki</i> )	T	--	Streams	X									No
Pygmy Snaketail ( <i>Ophiogomphus howei</i> )	T	--	High quality, clear, fast flowing, large or medium-sized rivers with gravel or sand substrate in largely forested watersheds				X						No
Silphium Borer Moth ( <i>Papaipema silphii</i> )	E	--	Wet to dry-mesic prairie	X									No
Sparkling Jewelwing ( <i>Calopteryx dimidiata</i> )	E	--	Forest streams with moderate to swift currents, sandy soil, and aquatic vegetation				X						No
<b>Mammals</b>													

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Eastern Small-footed Myotis ( <i>Myotis leibii</i> )	T	--	Roosts in rock bluffs, buildings, and turnpike tunnels as well as rocky cliffs, talus slopes and shale fields	X		X								No
Gray Bat ( <i>Myotis grisescens</i> )	T	E	Roost almost exclusively in caves		X		X	X						No
Indiana Bat ( <i>Myotis sodalists</i> )	E	E	Roosts singly or in colonies underneath bark and in crevices of dead or dying trees	X			X							Yes
Northern Long-Eared Bat ( <i>Myotis septentrionalis</i> )	E	T	Roosts singly or in colonies underneath bark, in crevices, and in cavities of live and dead trees				X	X						Yes
Virginia Big-eared Bat ( <i>Corynorhinus townsendii virginianus</i> )	E	E	Roosts singly or in colonies in caves typically in limestone karst regions dominated by mature hardwood forests of hickory, beech, maple, and hemlock	X										No
<b>Mussels</b>														
Clubshell ( <i>Pleurobema clava</i> )	E	E	Small to medium-sized rivers with swift currents and sand substrates		X									No
Creek Heelsplitter ( <i>Lasmigona compressa</i> )	E	--	Small to medium streams. Within Kentucky, found only in Tygart's Creek.				X							No
Cumberlandian Combshell ( <i>Epioblasma brevidens</i> )	E	E	Large creeks to large rivers, in coarse sand or mixtures of gravel, cobble, or rocks; Tennessee & Cumberland river systems						X					No

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Elktoe ( <i>Alasmidonta marginata</i> )	T	--	Generally a large river species, preferring sand and gravel substrates with mod-strong currents	X										No
Fanshell ( <i>Cyprogenia stegaria</i> )	E	E	Medium to large rivers with gravel substrate and strong current			X	X							No
Northern Riffleshell ( <i>Epioblasma torulosa rangiana</i> )	E	E	Creeks and small to medium rivers with high gradient riffles	X										No
Orangefoot Pimpleback ( <i>Plethobasus cooperianus</i> )	E	E	Large rivers in sand-gravel-cobble substrates in riffles and shoals in deep flowing water; Cumberland & Tennessee river systems.							X				No
Pink Mucket ( <i>Lampsilis abrupta</i> )	E	E	Generally a large river species, preferring sand-gravel or rocky substrates with mod-strong currents	X						X				No
Salamander Mussel ( <i>Simpsonaias ambigua</i> )	T	C	Sand or silt under large, flat rocks in shallow areas with swift currents			X	X	X						No
Sheepnose ( <i>Plethobasus cyphus</i> )	E	E	Generally a large river species, preferring sand-gravel or rocky substrates with mod-strong currents	X	X									No
Snuffbox ( <i>Epioblasma triquetra</i> )	E	E	Small to medium-sized creeks with swift currents	X			X							No
Tan Riffleshell ( <i>Epioblasma florentina walker</i> )	E	E	Found in river headwaters, in riffles and shoals in sand and gravel substrates; Tennessee & Cumberland river systems.							X				No

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<b>Plants</b>														
A Hair Cap Moss ( <i>Polytrichum pallidisetum</i> )	T	--	Spray cliffs and ravines	X										No
American Cow-wheat ( <i>Melampyrum lineare var. latifolium</i> )	T	--	Calcareous barrens	X										No
American Golden-saxifrage ( <i>Chrysosplenium americanum</i> )	T	--	Wet shady woods, seeps, shallow streams	X										No
American Water-pennywort ( <i>Hydrocotyle americana</i> )	E	--	Wet Soils And Pools						X					No
Bent Reedgrass ( <i>Calamagrostis porteri ssp. Insuperata</i> )	E	--	Dry, rocky ridges	X										No
Braun's Rockcress ( <i>Boechera perstellata</i> )	E	E	Limestone Bluffs						X					No
Butternut ( <i>Juglans cinerea</i> )	T	--	Rich Woods And Hollows			X			X	X				No
Canadian Yew ( <i>Taxus canadensis</i> )	T	--	Cool, acidic, moist soils	X		X								No
Canby's Mountain-lover ( <i>Paxistima canbyi</i> )	T	--	Calcareous rocks and slopes, rocky woods in the mountains, usually above major streams.			X								No
Carolina Anemone ( <i>Anemone caroliniana</i> )	E	--	Glades And Cedar Woodlands						X					No

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Carolina Anglepod ( <i>Matelea carolinensis</i> )	E	--	Open deciduous woods and stream banks					X					No
Cutleaf Meadow-parsnip ( <i>Thaspium pinnatifidum</i> )	T	--	Limestone cedar glades	X		X							No
Downy Arrowwood ( <i>Viburnum rafinesquianum</i> var. <i>rafinesquianum</i> )	T	--	Dry banks of streams		X	X							No
Eastern Featherbells ( <i>Stenanthium gramineum</i> )	T	--	Moist woodlands	X									No
Eastern Yampah ( <i>Perideridia americana</i> )	E	--	Cedar Barrens						X	X			No
Eggert's Sunflower ( <i>Helianthus eggertii</i> )	T	D	Barrens					X					No
Feathered Neckera ( <i>Neckera pennata</i> )	T	--	Base of trees or rocks with abundant moisture	X									No
Filmy Angelica ( <i>Angelica triquinata</i> )	E	--	Open areas in forests	X									No
Glade Cleft Phlox ( <i>Phlox bifida</i> ssp. <i>stellaria</i> )	T	--	Glades						X				No
Glade Onion ( <i>Allium stellatum</i> )	E	--	Glades						X				No
Globe Bladderpod ( <i>Physaria globosa</i> )	E	--	South to west facing dry, open limestone ledges on river bluffs, talus of lower bluff slopes, and shale at cliff bases		X								No
Grape Honeysuckle ( <i>Lonicera reticulata</i> )	T	--	Rocky woods and banks		X								No

**Appendix K  
State-Listed Threatened and Endangered Species with the Potential to Occur in the Columbia Gulf XPress Project Areas**

Common Name ( <i>Scientific name</i> )	State-Listed Status <u>a/</u>	Federal Status	Habitats	Aboveground Facilities <u>b/</u>									Habitat Present within Project Area (yes/no)	
				Kentucky					Tennessee		Mississippi			
				Morehead CS - Rowan County	Paint Lick CS - Garrard County	Grayson CS - Carter County	Leach C MS - Boyd County	Good Luck CS - Metcalfe County	Cane Ridge CS - Davidson County	Clifton Junction CS - Wayne County	New Albany CS - Union County	Holcomb CS - Grenada County		
Grassleaf Arrowhead ( <i>Sagittaria graminea</i> )	T	--	Freshwater marshes	X										No
Grass Pink ( <i>Calopogon tuberosus</i> )	E	--	Bogs, meadows, ditches and fens	X										No
Great Plains Ladies'-tresses ( <i>Spiranthes magnicamporum</i> )	T	--	Limestone grasslands		X									No
Hairy False Gromwell ( <i>Onosmodium hispidissimum</i> )	E	--	Calcareous barrens		X									No
Harbison's Hawthorn ( <i>Crataegus harbisonii</i> )	E	--	Dry Rocky Calcareous Woods						X					No
Hispid Falsemallow ( <i>Malvastrum hispidum</i> )	T	--	Glades, edges of bluffs, and barrens		X									No
Kentucky Lady's-slipper ( <i>Cypripedium kentuckiense</i> )	E	--	Mesophytic woods, calcareous forests	X		X								No
Leafy Prairie-clover ( <i>Dalea foliosa</i> )	E	E	Rocky Washes In Glades						X	X				No
Mountain Maple ( <i>Acer spicatum</i> )	E	--	Cool, moist, mesic woods.			X								No
No common name ( <i>Bryum cyclophyllum</i> )	E	--	Wet seepage areas near tree roots	X										No
Northern Fox Grape ( <i>Vitis labrusca</i> )	T	--	Edges of mature forests or young stands of woods		X									No
Pale Umbrella-wort ( <i>Mirabilis albida</i> )	T	--	Glades						X					No
Plains Muhly ( <i>Muhlenbergia cuspidate</i> )	T	--	Cedar glades		X									No

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				Kentucky					Tennessee		Mississippi			
				Morehead CS - Rowan County	Paint Lick CS - Garrard County	Grayson CS - Carter County	Leach C MS - Boyd County	Good Luck CS - Metcalfe County	Cane Ridge CS - Davidson County	Clifton Junction CS - Wayne County	New Albany CS - Union County	Holcomb CS - Grenada County		
Poison Sumac ( <i>Toxicodendron vernix</i> )	E	--	Wet forests or thickets such as bottomland hardwood forests; peaty seepage areas.			X								No
Pope's Sand-parsley ( <i>Ammoselinum popei</i> )	T	--	Glades							X				No
Porter's Reedgrass ( <i>Calamagrostis porteri</i> ssp. <i>porteri</i> )	T	--	Dry, rocky ridges	X										No
Prairie Parsley ( <i>Polytaenia nuttallii</i> )	T	--	Prairies And Open Dry Areas							X				No
Price's Potato-bean ( <i>Apios priceana</i> )	E	T	Openings In Rich Woods							X	X			No
Purple Oat ( <i>Schizachne purpurascens</i> )	T	--	Poor sandy pastures and savannahs		X									No
Purple Prairie-clover ( <i>Dalea purpurea</i> )	E	--	Barrens							X				No
Pyne's Ground-plum ( <i>Astragalus bibullatus</i> )	E	E	Ordovician Limestone Glades							X				No
Rafinesque's seedbox ( <i>Ludwigia hirtella</i> )	E	--	Savannahs, ditches, bogs					X						No
Roan Mountain Goldenrod ( <i>Solidago roanensis</i> )	T	--	Balds	X										No
Rock Skullcap ( <i>Scutellaria saxatilis</i> )	T	--	Rich woodlands	X										No
Rose Pogonia ( <i>Pogonia ophioglossoides</i> )	E	--	Bogs, meadows, ditches and fens	X										No
Rosy Twisted-stalk ( <i>Streptopus lanceolatus</i> )	E	--	Rich woodlands	X										No

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Sand Grape ( <i>Vitis rupestris</i> )	E	--	Sandy, Rocky Riverbanks						X			No
Scarlet Indian Paintbrush ( <i>Castilleja coccinea</i> )	E	--	Damp, open sandy or rocky soil in meadows and woodland edges; also fens, barrens rock outcrops, wet pastures, and grassy openings.			X						No
Shaggy False Gromwell ( <i>Onosmodium hispidissimum</i> )	E	--	Dry Woods						X			No
Short's Bladderpod ( <i>Physaria globosa</i> )	E	E	Limestone Talus Slopes And Cliffs						X			No
Slender Marsh Pink ( <i>Sabatia campanulata</i> )	E	--	Sandy or peaty shores and marshes	X								No
Small Yellow Lady's-slipper ( <i>Cypripedium parviflorum</i> )	T	--	Shady, damp forest understory of mixed deciduous and coniferous forests to open meadows	X		X						No
Spoon-leaved Sundew ( <i>Drosera intermedia</i> )	E	--	Bogs, meadows, ditches and fens	X								No
Spotted Pondweed ( <i>Potamogeton pulcher</i> )	T	--	Stagnant to slow-moving waters of lakes, ponds, and streams					X				No
Starflower False Solomon's-seal ( <i>Maianthemum stellatum</i> )	E	--	Moist meadows and edges of woods	X		X						No
Starry-cleft Phlox ( <i>Phlox bifida</i> ssp. <i>Stellaria</i> )	E	--	Glades		X							No

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Straw Sedge ( <i>Carex straminea</i> )	T	--	Open freshwater swamps, grassy marshes	X										No
Svenson's Wild-rye ( <i>Elymus svensonii</i> )	T	--	Rocky Bluffs							X				No
Tall Hairy Groovebur ( <i>Agrimonia gryposepala</i> )	T	--	Moderately to very moist forest		X									No
Tennessee Coneflower ( <i>Echinacea tennesseensis</i> )	T	D	Ordovician Limestone Glades							X				No
Tufted Hairgrass ( <i>Deschampsia cespitosa</i> )	E	--	Fields, roadsides and disturbed sites		X									No
Umbel-like Sedge ( <i>Carex tonsa</i> var. <i>rugosperma</i> )	T	--	Dry, mesic woodland, prairie.			X								No
Vetchling Peavine ( <i>Lathyrus palustris</i> )	T	--	Wet meadows, swamps, wet woods; cobble bars along creeks and rivers.			X								No
Virginia Mallow ( <i>Sida hermaphrodita</i> )	T	--	Loose sandy or rocky soil in open areas resulting from flooding along riverbanks, floodplains			X	X							No
Walter's Violet ( <i>Viola walteri</i> )	T	--	Dry-mesic upland forests, often with thin canopies.			X								No
Weak Stellate Sedge ( <i>Carex seorsa</i> )	T	--	Forest understory	X										No
Western Wallflower ( <i>Erysimum capitatum</i> )	E	E	Rocky Bluffs							X				No
Wire Fern Moss ( <i>Abietinella abietina</i> )	T	--	Unimproved grassland overlying chalk or limestone	X										No

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Wild Honeysuckle ( <i>Lonicera dioica var. orientalis</i> )	E	--	Moist woods and thickets, associated with limestone derived soils.			X								No
Wild Sarsaparilla ( <i>Aralia nudicaulis</i> )	E	--	Open areas in forests	X										No
Willow Aster ( <i>Symphotrichum praealtum</i> )	E	--	Moist Prairies And Marshes							X				No
White Prairie-clover ( <i>Dalea candida</i> )	T	--	Barrens							X				No
White Water-buttercup ( <i>Ranunculus aquatilis var. diffuses</i> )	E	--	Ponds And Streams							X				No
White Rattlesnake-root ( <i>Prenanthes alba</i> )	E	--	Rich woodlands	X										No
Wood Lily ( <i>Lilium philadelphicum</i> )	T	--	Dry woods, meadows, prairies	X		X								No
Woodland Beakrush ( <i>Scirpus expansus</i> )	E	--	Marshes, wet meadows, and swales	X										No
Yellow Gentian ( <i>Gentiana flavida</i> )	E	--	Open woods and meadows	X										No
Yellow Honeysuckle ( <i>Lonicera flava</i> )	T	--	Rocky Woods And Thickets							X				No
Yellow Nodding Ladies'-tresses ( <i>Spiranthes ochroleuca</i> )	T	--	Damp (seasonally) acid soil of open woods and grassy openings.			X								No
Yellow Screwstem ( <i>Bartonia virginica</i> )	T	--	Sandy bogs	X										No
Yellow Sunnybell ( <i>Schoenolirion croceum</i> )	T	--	Wet Areas In Glades							X				No

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Common Name ( <i>Scientific name</i> )	State-Listed Status <sup>a</sup> /	Federal Status	Habitats	Aboveground Facilities <sup>b</sup> /									Habitat Present within Project Area (yes/no)
				Kentucky					Tennessee		Mississippi		
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<b>Reptile</b>													
Coal Skink ( <i>Eumeces anthracinus</i> )	T	--	Moist forested areas near swamps and other wetlands		X								No
Sources: KDFWR Species Information: ( <a href="http://app.fw.ky.gov/speciesinfo/speciesinfo.asp">http://app.fw.ky.gov/speciesinfo/speciesinfo.asp</a> ); Kentucky State Nature Preserves Commission ( <a href="http://eppcapp.ky.gov/nprareplants">http://eppcapp.ky.gov/nprareplants</a> ); MDWFP's Mississippi Endangered Species Packet; and TDEC's Natural Heritage Inventory Program data. a Status is indicated for the state where species may occur at GXP facilities. E=Endangered, T=Threatened, C=Candidate, D=Delisted due to recovery. b CS=Compressor Station.													

**APPENDIX L**  
**List of ATWS for the Mountaineer XPress Project**

**APPENDIX L**  
**Mountaineer XPress Project**  
**Additional Temporary Workspaces <sup>a, b</sup>**

Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
<b>NEW PIPELINE FACILITIES</b>										
MXP-100										
ATWS #1	431	200	0.00	2.0	0.1	0.2	0.0	0.0	0.0	Pipeline tie-in location
ATWS #2	249	59	0.01	0.2	<0.1	0.1	<0.1	0.0	0.0	Pipeline tie-in location
ATWS #3	25	99	0.11	0.0	0.0	<0.1	0.1	0.0	0.0	Waterbody crossing
ATWS #4	25	79	0.23	0.0	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #4A	25	124	0.24	0.0	0.0	0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #4B	25	99	0.28	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #5	25	100	0.51	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #5A	25	99	0.64	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #5B	25	99	0.74	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #6	25	100	1.08	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #7	25	99	1.12	<0.1	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #7A	25	100	1.28	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #7B	25	55	1.32	0.0	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #7C	25	107	1.38	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #7D	25	100	1.50	0.1	0.0	0.0	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #7E	25	210	1.51	0.1	<0.1	0.0	0.0	0.0	0.0	Access road access to right of way
ATWS #7F	25	148	1.58	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #10	150	126	1.61	0.4	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #10A	25	110	1.63	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #10B	25	100	1.80	0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #10C	25	100	1.81	0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #10D	50	100	1.89	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #10E	25	108	1.93	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #10F	25	108	1.94	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #10G	25	135	2.03	0.1	<0.1	0.0	0.0	0.0	0.0	Pipe bend location

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #10H	25	113	2.03	0.1	<0.1	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #11	50	213	2.08	0.2	0.0	0.0	0.0	0.0	0.0	Road crossing
ATWS #12	50	100	2.13	0.0	0.0	0.0	0.1	0.0	0.0	Road crossing
ATWS #13	56	157	2.25	0.0	<0.1	0.0	0.2	0.0	0.0	Road crossing
ATWS #14	50	158	2.30	0.2	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #15	25	99	2.46	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #16	25	99	2.48	<0.1	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #17	50	217	2.55	0.0	<0.1	<0.1	0.2	0.0	0.0	Road crossing
ATWS #18	100	153	2.59	0.0	<0.1	<0.1	0.3	0.0	0.0	Road crossing
ATWS #19	25	131	2.65	0.0	0.0	<0.1	0.1	0.0	0.0	Pipe bend location
ATWS #20	50	44	2.78	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #21	25	119	2.76	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #22	25	104	2.86	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #24	25	108	2.95	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #25	25	109	3.00	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #25A	50	249	3.34	0.0	0.0	<0.1	0.3	0.0	0.0	Top of steep slopes
ATWS #29	25	99	3.43	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #30	25	99	3.47	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #31	50	334	3.58	0.0	0.0	0.4	0.0	0.0	0.0	Top of steep slopes
ATWS #32	25	105	3.72	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #33	25	103	3.88	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #34	23	99	3.92	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #36	25	107	4.17	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #39	25	100	4.46	0.0	0.0	0.0	0.1	0.0	0.0	Top of steep slopes
ATWS #40	25	99	4.47	0.0	0.0	<0.1	<0.1	0.0	0.0	Top of steep slopes
ATWS #41	25	99	4.55	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #42	25	100	4.59	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #45	25	113	4.89	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #47	50	371	5.06	0.2	0.0	0.2	0.0	0.0	0.0	Side slope
ATWS #48	50	257	5.32	0.1	0.0	0.2	0.0	0.0	0.0	Top of steep slopes
ATWS #51	25	100	5.38	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #51A	50	294	5.53	0.0	0.1	0.3	0.0	0.0	0.0	Top of steep slopes
ATWS #52	50	59	5.54	0.0	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #53	50	119	5.56	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #54	15	75	5.56	0.0	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #55	25	109	5.62	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #56	25	99	5.88	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #57	50	130	5.98	0.0	0.0	0.2	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #58	25	69	6.07	0.0	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #59	25	74	6.24	0.0	0.0	<0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #60	50	285	6.37	0.0	0.0	0.3	0.0	0.0	0.0	Top of steep slopes
ATWS #60A	25	100	6.40	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #60B	25	100	6.44	0.0	0.0	0.1	0.0	0.0	0.0	Wetland crossing
ATWS #60C	25	100	6.51	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #60D	25	100	6.54	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #60E	25	100	6.59	0.0	0.0	0.1	0.0	0.0	0.0	Wetland crossing
ATWS #60F	50	299	6.87	0.0	0.0	0.3	0.0	0.0	0.0	Top of steep slopes
ATWS #61	25	100	6.95	<0.1	0.0	<0.1	0.0	0.0	0.0	Road crossing
ATWS #65	25	135	7.12	0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #66	25	100	7.19	0.0	0.0	0.1	0.0	0.0	0.0	Bottom of steep slopes
ATWS #66A	75	275	W of 7.4	0.4	<0.1	0.0	0.0	0.0	0.0	Truck Turnaround Area
ATWS #66B	66	275	7.41	0.0	<0.1	0.2	0.0	0.0	0.0	Top of steep slopes
ATWS #67	25	111	7.54	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #68	25	1108	7.74	0.0	0.0	0.6	0.0	0.0	0.0	Side slope
ATWS #69	25	100	7.79	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #70	25	63	7.90	0.0	<0.1	<0.1	0.0	0.0	0.0	Road crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #71	25	103	8.06	0.0	<0.1	<0.1	<0.1	0.0	0.0	Road crossing
ATWS #72	25	118	8.21	0.0	<0.1	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #72A	25	118	8.19	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #73	25	108	8.31	0.0	<0.1	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #80	25	100	9.06	<0.1	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #81	25	117	9.34	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #82	25	117	9.47	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #83	25	121	9.60	0.0	0.0	0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #84	49	50	9.91	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #85	50	50	9.94	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #91A	50	321	10.61	0.0	0.0	0.3	<0.1	0.0	0.0	Pipe bend location
ATWS #91B	25	111	10.72	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #91C	50	405	10.86	0.0	0.0	0.5	0.0	0.0	0.0	Top of steep slopes
ATWS #92	50	131	11.17	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #93	50	99	11.21	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #94	50	50	11.29	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #95	50	50	11.35	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #96	25	492	11.44	0.0	0.0	0.3	0.0	0.0	0.0	Side slope
ATWS #97	106	76	11.51	0.1	<0.1	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #98	25	200	11.63	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #99	25	230	11.87	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #100	25	784	12.04	0.0	<0.1	0.4	0.0	0.0	0.0	Side slope
ATWS #101	25	100	12.21	0.0	<0.1	<0.1	0.0	0.0	0.0	Equipment passing
ATWS #102	25	311	12.22	0.0	0.0	0.2	0.0	0.0	0.0	Side slope
ATWS #103	25	102	12.24	0.0	<0.1	<0.1	0.0	0.0	0.0	Equipment passing
ATWS #104	25	103	12.33	0.0	<0.1	<0.1	<0.1	0.0	0.0	Truck turnaround area
ATWS #105	25	1185	12.49	0.0	<0.1	0.6	0.0	0.0	0.0	Side slope
ATWS #106	25	100	12.38	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #108	50	303	12.75	0.0	0.0	0.3	<0.1	0.0	0.0	Top of steep slopes
ATWS #109	47	50	12.94	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #110	49	50	12.97	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #110A	25	100	13.07	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #111	25	126	13.17	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #112	25	125	13.19	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #113	49	50	13.25	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #114	49	50	13.30	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #115	25	120	13.36	0.0	0.0	<0.1	0.1	0.0	0.0	Pipe bend location
ATWS #116	25	121	13.38	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #117	25	250	13.45	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #118	49	50	13.59	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #119	50	50	13.63	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #120	50	50	13.75	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #121	25	215	13.86	0.1	<0.1	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #122	25	192	13.87	<0.1	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #123	25	602	14.15	0.0	0.0	0.3	0.0	0.0	0.0	Side slope
ATWS #124	25	111	14.20	0.0	<0.1	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #125	25	220	14.27	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #126	25	152	14.36	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #126A	50	304	14.38	0.1	0.0	0.0	0.0	0.0	0.0	Top of steep slopes
ATWS #126B	50	50	14.47	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #126C	49	50	14.52	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #126D	25	173	14.76	0.0	0.0	0.1	<0.1	0.0	0.0	Bottom of steep slopes
ATWS #126E	50	325	14.84	0.0	0.1	0.2	<0.1	0.0	0.0	Pipe bend location
ATWS #126F	25	99	14.69	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #138	25	58	14.88	0.0	0.0	<0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #139	50	99	14.92	0.0	0.0	<0.1	0.1	0.0	0.0	Top of steep slopes

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #140	100	74	15.00	<0.1	0.0	0.2	0.0	0.0	0.0	Road crossing
ATWS #141	25	307	15.17	0.0	0.0	0.2	0.0	0.0	0.0	Pipe bend location
ATWS #142	25	149	15.28	0.1	0.0	<0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #143	25	118	15.40	<0.1	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #144	25	118	15.43	0.0	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #145	25	106	15.44	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #145A	50	178	16.05	0.0	0.0	0.1	0.1	0.0	0.0	Road crossing
ATWS #145B	25	114	16.65	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #155	25	247	16.70	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #156	25	86	16.64	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #157	25	99	16.92	<0.1	0.0	<0.1	0.0	0.0	0.0	Road crossing
ATWS #158	50	127	16.92	0.1	0.0	<0.1	0.0	0.0	0.0	Road crossing
ATWS #159	25	99	16.96	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #160	25	114	17.10	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #160A	50	322	17.09	0.0	0.0	0.4	0.0	0.0	0.0	Top of steep slopes
ATWS #161	50	322	17.41	0.0	0.0	0.4	0.0	0.0	0.0	Pipe bend location
ATWS #162	25	250	17.50	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #163	25	59	17.52	0.0	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #164	25	100	17.59	0.0	0.0	0.1	0.0	0.0	0.0	Equipment passing
ATWS #165	25	380	17.62	0.0	0.0	0.2	0.0	0.0	0.0	Side slope
ATWS #166	25	99	17.66	0.0	0.0	0.1	0.0	0.0	0.0	Equipment passing
ATWS #167	25	106	17.73	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #168	25	110	17.82	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #169	25	107	17.99	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #171	25	199	18.01	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #172	25	116	18.09	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #173	25	300	18.10	0.0	0.0	0.2	0.0	0.0	0.0	Pipe bend location
ATWS #174	25	75	18.14	0.0	0.0	<0.1	0.0	0.0	0.0	Top of steep slopes

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #175	25	100	18.15	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #176	25	85	18.26	0.0	0.0	<0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #177	25	85	18.26	0.0	0.0	<0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #177A	75	84	18.36	0.0	<0.1	0.1	0.1	0.0	0.0	Road crossing
ATWS #179	24	943	18.45	0.0	0.0	0.5	0.0	0.0	0.0	Waterbody crossing
ATWS #180	25	119	18.62	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #181	25	119	18.63	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #182	25	49	18.67	0.0	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #183	25	105	18.72	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #185	25	234	18.79	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #186	25	95	18.99	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #187	25	100	19.11	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #188	25	75	19.18	0.0	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #189	25	49	19.22	0.0	0.0	<0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #192	25	150	19.52	<0.1	0.0	0.1	0.0	0.0	0.0	Equipment staging area
ATWS #193	25	50	19.64	0.0	0.0	<0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #194	50	55	19.90	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #195	50	50	19.93	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #196	25	441	20.13	0.0	0.0	0.3	0.0	0.0	0.0	Pipe bend location
ATWS #198	25	357	20.17	0.0	0.0	0.2	0.0	0.0	0.0	Side slope
ATWS #202	25	716	20.65	0.0	0.0	0.4	<0.1	0.0	0.0	Side slope
ATWS #204	50	355	21.07	0.0	0.0	0.4	0.0	0.0	0.0	Pipe bend location
ATWS #205	25	124	21.05	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #206	25	100	21.17	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #207	50	75	21.27	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #208	25	103	21.37	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #209	25	117	21.46	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #210	25	112	21.60	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #211	25	110	21.75	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #212	25	49	21.91	0.0	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #213	25	49	22.00	0.0	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #214	25	50	22.02	0.0	0.0	<0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #215	25	99	22.02	0.0	0.0	0.1	<0.1	0.0	0.0	Top of steep slopes
ATWS #216	25	50	22.04	0.0	0.0	<0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #217	25	101	22.25	0.0	0.0	0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #218	25	100	22.32	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #219	179	46	22.36	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #220	25	94	22.37	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #221	25	100	22.42	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #222	25	466	22.49	0.0	0.0	0.3	0.0	0.0	0.0	Side slope
ATWS #223	25	49	22.63	0.0	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #224	25	100	22.64	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #225	25	100	22.75	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #226	25	100	22.75	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #227	25	88	22.80	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #228	25	104	22.82	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #229	25	100	22.89	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #230	50	56	22.93	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #231	25	105	23.00	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #232	25	100	23.03	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #233	25	99	23.11	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #234	25	49	23.14	0.0	0.0	<0.1	0.0	0.0	0.0	Side slope
ATWS #235	25	100	23.24	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #236	25	100	23.29	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #237	25	100	23.31	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #238	50	100	23.32	0.0	0.0	<0.1	0.1	0.0	0.0	Waterbody crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #239	25	99	23.44	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #240	25	99	23.48	0.0	0.0	<0.1	<0.1	0.0	0.0	Side slope
ATWS #241	25	99	23.51	0.0	0.0	<0.1	0.1	0.0	0.0	Side slope
ATWS #242	25	145	23.59	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #243	25	145	23.59	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #244	25	100	23.69	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #245	25	100	23.69	0.0	0.0	0.1	0.0	0.0	0.0	Wetland crossing
ATWS #246	25	99	23.72	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #247	25	106	23.74	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #248	25	75	23.82	0.0	0.0	<0.1	<0.1	0.0	0.0	Top of steep slopes
ATWS #249	25	118	23.83	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #250	25	109	23.89	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #251	25	65	23.98	0.0	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #252	25	100	24.12	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #253	25	99	24.17	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #254	25	100	24.21	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #255	25	100	24.33	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #256	25	57	24.40	0.0	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #256A	80	184	24.44	0.0	0.0	0.3	0.0	0.0	0.0	Road crossing
ATWS #257	25	75	24.51	0.0	0.0	<0.1	<0.1	0.0	0.0	Road crossing
ATWS #258	50	283	24.61	0.0	0.0	0.2	0.0	0.0	0.0	Railroad crossing
ATWS #258A	74	75	24.58	0.0	0.0	0.1	<0.1	0.0	0.0	Waterbody crossing
ATWS #261A	29	2285	24.85	0.0	0.1	0.0	0.1	0.0	0.0	Top of steep slopes
ATWS #262	25	112	25.27	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #264	25	126	26.11	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #265	25	100	26.09	0.0	0.0	0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #266	25	99	26.14	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #267	25	99	26.19	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #268	25	104	26.21	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #269	25	104	26.33	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #270	25	100	26.38	<0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #271	25	99	26.42	0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #272	25	102	26.49	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #273	25	97	26.49	0.1	0.0	0.0	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #274	25	99	26.55	0.1	0.0	0.0	0.0	0.0	0.0	Equipment passing
ATWS #275	25	196	26.67	0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #276	50	379	26.90	0.0	0.0	0.4	0.0	0.0	0.0	Pipe bend location
ATWS #277	25	121	26.91	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #278	25	96	27.07	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #278A	25	100	27.11	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #278B	25	100	27.11	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #278C	25	100	27.15	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #278D	25	100	27.17	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #278E	25	100	27.33	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #278F	50	300	27.38	0.0	0.0	0.3	0.0	0.0	0.0	Top of steep slopes
ATWS #280	25	77	27.43	0.0	0.0	<0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #281	25	101	27.43	0.0	0.0	0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #281A	50	300	27.89	0.0	0.0	0.3	0.0	0.0	0.0	Top of steep slopes
ATWS #282	25	102	28.01	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #283	25	49	28.23	0.0	0.0	<0.1	<0.1	0.0	0.0	Truck turnaround area
ATWS #284	25	109	28.31	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #285	25	98	28.39	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #286	25	101	28.39	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #288	25	98	28.45	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #289	25	99	28.54	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #290	25	99	28.57	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #290A	75	149	E of 28.6	0.0	0.2	<0.1	0.1	0.0	0.0	Truck turnaround area
ATWS #291	25	98	28.90	0.0	0.0	0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #293	25	87	29.35	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #294	25	114	29.39	0.0	0.0	0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #296	25	74	29.44	0.0	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #297	25	49	29.46	0.0	0.0	<0.1	<0.1	0.0	0.0	Waterbody crossing
ATWS #298	25	381	29.59	0.0	0.0	0.2	0.0	0.0	0.0	Pipe bend location
ATWS #299	25	96	29.74	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #300	25	157	29.94	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #301	25	117	29.93	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #302	25	98	30.15	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #303	25	99	30.32	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #304	25	100	30.34	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #305	25	100	30.42	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #306	25	99	30.51	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #307	25	100	30.59	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #308	25	100	30.67	0.0	0.0	0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #309	25	103	30.73	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #310	25	101	30.81	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #311	25	91	30.94	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #313	25	126	31.05	0.0	0.0	0.1	<0.1	0.0	0.0	Pipeline or foreign utility crossover
ATWS #314	25	94	31.07	0.0	0.0	0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #315	25	104	31.13	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #316	25	101	31.17	0.0	0.0	0.1	0.0	0.0	0.0	Side slope

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #317	25	100	31.29	0.0	0.0	0.1	0.0	0.0	0.0	Equipment passing
ATWS #318	25	1043	31.33	0.0	0.0	0.6	0.0	0.0	0.0	Side slope
ATWS #319	25	90	31.40	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #321	25	49	31.44	0.0	0.0	<0.1	<0.1	0.0	0.0	Top of steep slopes
ATWS #322	50	146	31.51	0.0	<0.1	0.2	0.0	0.0	0.0	Road crossing
ATWS #323	25	47	31.52	0.0	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #323A	72	100	W of 31.4	0.0	<0.1	<0.1	0.1	0.0	0.0	Truck turnaround area
ATWS #324	25	97	31.59	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #325	25	49	32.47	0.0	0.0	<0.1	0.0	0.0	0.0	Road crossing
ATWS #326	25	98	32.55	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #327	25	49	32.71	0.0	0.0	<0.1	0.0	0.0	0.0	Side slope
ATWS #328	25	456	32.82	0.0	0.0	0.3	0.0	0.0	0.0	Truck turnaround area
ATWS #329	25	99	33.11	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #330	25	99	33.11	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #332	31	74	33.25	0.0	0.0	0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #333	25	3212	33.67	0.0	0.0	1.7	0.1	0.0	0.0	Side slope
ATWS #334	25	100	33.63	0.0	0.0	<0.1	<0.1	0.0	0.0	Equipment passing
ATWS #335	25	99	33.70	0.0	0.0	<0.1	<0.1	0.0	0.0	Equipment passing
ATWS #336	25	108	33.84	0.0	0.0	<0.1	0.1	0.0	0.0	Pipe bend location
ATWS #337	50	108	34.01	0.1	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #338	25	49	34.28	0.0	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #339	25	50	34.55	0.0	0.0	<0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #340	25	100	34.59	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #341	25	100	34.60	0.0	0.0	0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #341A	50	159	34.89	0.0	0.0	0.2	0.0	0.0	0.0	Top of steep slopes
ATWS #342	25	52	34.93	0.0	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #343	25	53	34.94	0.0	<0.1	<0.1	0.0	0.0	0.0	Road crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #344	25	100	34.99	0.0	0.0	<0.1	0.1	0.0	0.0	Waterbody crossing
ATWS #345	25	99	35.00	0.0	0.0	<0.1	0.1	0.0	0.0	Waterbody crossing
ATWS #346	25	191	35.17	<0.1	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #348	25	50	35.19	0.0	0.0	<0.1	0.0	0.0	0.0	Road crossing
ATWS #349	25	50	35.26	0.0	0.0	0.0	<0.1	0.0	0.0	Top of steep slopes
ATWS #350	25	50	35.31	0.0	0.0	<0.1	0.0	0.0	0.0	Bottom of steep slopes
ATWS #351	25	49	35.31	0.0	0.0	<0.1	<0.1	0.0	0.0	Bottom of steep slopes
ATWS #352	25	201	35.60	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #354	25	87	35.67	0.0	0.0	<0.1	0.0	0.0	0.0	Road crossing
ATWS #355	25	99	35.69	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #357	25	121	35.82	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #358	25	111	36.16	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #359	25	112	36.32	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #360	25	111	36.59	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #362	25	111	36.62	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #364	25	99	37.31	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #365	25	117	37.45	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #366	25	99	37.45	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #368	25	58	37.57	0.0	0.0	<0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #369	25	134	37.74	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #370	25	105	38.01	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #371	25	99	38.18	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #372	25	172	38.28	<0.1	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #373	25	105	38.29	<0.1	0.0	<0.1	0.0	0.0	0.0	Road crossing
ATWS #373A	25	200	38.56	0.0	0.0	0.1	0.0	<0.1	0.0	Waterbody crossing
ATWS #373B	25	275	38.69	0.0	0.0	0.2	0.0	0.0	0.0	Top of steep slopes
ATWS #376	25	107	38.77	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #379	25	131	38.97	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #380	25	120	38.96	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #381	25	91	39.18	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #382	25	51	39.31	0.0	0.0	<0.1	0.0	0.0	0.0	Road crossing
ATWS #382A	50	150	39.28	0.0	<0.1	0.2	0.0	0.0	0.0	Road crossing
ATWS #383	25	62	39.32	0.0	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #384	25	46	39.34	0.0	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #385	25	50	39.40	0.0	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #386	25	50	39.40	0.0	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #387	25	97	39.51	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #388	50	285	39.53	0.0	0.0	0.3	0.0	0.0	0.0	Top of steep slopes
ATWS #390	25	50	39.57	0.0	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #391	25	49	39.63	0.0	0.0	<0.1	0.0	0.0	0.0	Side slope
ATWS #392	25	50	39.64	0.0	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #393	25	100	39.75	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #393A	50	100	40.21	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #394	25	104	40.34	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #396	25	345	40.40	0.0	0.0	0.2	0.0	0.0	0.0	Side slope
ATWS #397	25	105	40.71	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #398	25	148	40.781	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #399	131	35	40.82	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #400	25	114	41.08	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #401	25	166	41.57	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #402	25	336	41.92	0.0	0.0	0.2	0.0	0.0	0.0	Top of steep slopes
ATWS #405	25	100	42.11	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #406	25	100	42.11	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #406A	50	300	42.17	0.0	0.0	0.3	0.0	0.0	0.0	Top of steep slopes
ATWS #406B	25	100	42.28	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #407	25	145	42.37	0.0	0.0	0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #408	25	74	42.39	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipeline or foreign utility crossover
ATWS #409	25	112	42.57	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #410	50	85	43.02	0.0	<0.1	<0.1	<0.1	0.0	0.0	Road crossing
ATWS #411	25	100	43.26	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #412	25	100	43.25	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #412A	50	296	43.65	0.0	0.0	0.3	0.0	0.0	0.0	Top of steep slopes
ATWS #412B	52	122	43.85	0.1	0.0	<0.1	0.0	0.0	0.0	Road crossing
ATWS #412C	50	300	44.11	0.0	0.0	0.3	0.0	0.0	0.0	Top of steep slopes
ATWS #412D	25	114	44.31	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #412E	25	302	44.69	0.0	0.0	0.1	0.1	0.0	0.0	Side slope
ATWS #412F	50	300	44.84	0.0	0.0	0.3	0.0	0.0	0.0	Top of steep slopes
ATWS #423	50	153	45.19	0.0	0.0	0.2	0.0	0.0	0.0	Top of steep slopes
ATWS #424	25	640	45.39	0.0	0.0	0.4	0.0	0.0	0.0	Side slope
ATWS #425	25	125	45.46	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #425A	25	120	45.63	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #425B	25	120	45.64	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #425C	93	106	45.81	0.2	0.0	<0.1	0.0	0.0	0.0	Bottom of steep slopes
ATWS #425D	25	276	46.05	0.1	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #425E	25	121	46.07	<0.1	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #425F	25	100	46.14	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #425G	25	100	46.19	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #428A	25	100	47.03	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #428B	25	164	47.61	0.0	0.0	0.1	<0.1	0.0	0.0	Truck turnaround area
ATWS #428C	25	100	47.91	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #428D	25	279	48.17	0.0	0.0	0.2	0.0	0.0	0.0	Pipe bend location
ATWS #431	25	230	48.35	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #431A	25	60	48.47	0.0	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #431B	25	75	48.49	0.0	<0.1	<0.1	0.0	0.0	0.0	Road crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #432	100	86	48.51	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #433	25	117	48.68	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #434	25	1432	49.12	0.0	0.0	0.8	0.0	0.0	0.0	Side slope
ATWS #435	25	542	49.47	0.0	0.0	0.3	0.0	0.0	0.0	Side slope
ATWS #436	25	122	49.85	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #437	25	99	50.24	0.0	0.0	<0.1	0.1	0.0	0.0	Road crossing
ATWS #440	25	96	51.38	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #441	25	102	51.41	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #443	50	50	51.85	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #444	50	50	51.90	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #445	50	50	51.94	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #446	25	199	52.16	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #447	50	50	52.24	0.0	0.0	0.1	<0.1	0.0	0.0	Waterbody crossing
ATWS #448	49	50	52.37	0.0	0.0	0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #449	49	50	52.39	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipeline or foreign utility crossover
ATWS #450	25	200	52.44	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #451	25	199	52.57	0.0	0.0	0.1	<0.1	0.0	0.0	Waterbody crossing
ATWS #452	25	114	52.66	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #452A	25	113	52.81	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #452B	25	113	52.80	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #452C	25	116	52.92	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #452D	25	115	52.95	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #452E	25	299	53.42	0.0	0.0	0.2	0.0	0.0	0.0	Side slope
ATWS #452F	50	277	53.51	0.0	0.1	0.2	0.0	0.0	0.0	Top of steep slopes
ATWS #452G	80	112	53.81	0.0	0.1	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #452H	25	116	53.95	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #452I	25	100	54.01	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #452j	25	100	54.03	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #477	25	100	54.40	0.1	0.0	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #478	25	100	54.45	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #479	25	99	54.50	0.0	0.0	0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #480	25	251	55.19	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #481	25	93	55.53	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #482	25	99	55.98	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #483	25	99	56.54	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #484	25	99	57.05	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #485	25	226	57.31	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #486	25	126	57.33	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #486A	22	165	57.52	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #487	25	100	57.59	0.0	0.0	0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #488	25	100	57.85	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #489	50	199	58.04	0.0	0.0	0.2	0.0	0.0	0.0	Side slope
ATWS #490	25	99	58.36	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #491	25	113	58.38	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #492	25	99	58.62	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #492A	25	203	59.18	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #492B	25	110	59.24	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #492C	25	275	59.36	0.0	0.0	0.2	0.0	0.0	0.0	Pipe bend location
ATWS #495	25	92	59.47	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #496	25	134	59.53	0.0	0.0	0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #496A	50	99	59.59	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #496B	25	100	59.59	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #497	25	104	59.64	<0.1	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #498	25	148	59.66	0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #498A	110	307	59.66	0.5	<0.1	0.2	<0.1	0.0	0.0	Bridge assembly
ATWS #498B	50	300	59.80	0.0	0.0	0.3	0.0	0.0	0.0	Top of steep slopes
ATWS #502	25	308	60.09	0.0	0.0	0.2	0.0	0.0	0.0	Side slope
ATWS #503	25	148	60.28	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #504	25	100	60.32	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #505	50	50	60.44	0.0	0.0	<0.1	0.1	0.0	0.0	Road crossing
ATWS #506	75	75	60.50	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #507	49	50	60.55	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #508	25	498	60.66	0.0	0.0	0.3	0.0	0.0	0.0	Side slope
ATWS #509	25	120	60.68	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #510	25	100	60.75	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #511	25	299	60.93	0.1	0.0	<0.1	0.0	0.0	0.0	Side slope
ATWS #512	25	99	60.99	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #512A	25	98	61.40	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #512B	50	99	61.46	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #512C	25	99	61.48	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #513	25	99	61.58	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #514	25	100	61.64	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #515	25	99	61.71	0.0	0.0	0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #516	25	99	61.73	0.0	0.0	0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #517	25	450	61.81	0.0	0.0	0.3	0.0	0.0	0.0	Waterbody crossing
ATWS #518	25	109	62.01	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #519	50	324	62.13	0.0	0.0	0.4	0.0	0.0	0.0	Side slope
ATWS #519A	25	99	62.29	0.0	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #520	50	100	62.34	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #521	50	124	62.45	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #522	25	247	62.55	0.0	0.0	0.1	0.0	0.0	0.0	Side slope

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #523	25	111	62.69	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #524	25	168	62.93	<0.1	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #525	25	650	63.12	<0.1	0.0	0.4	0.0	0.0	0.0	Side slope
ATWS #525A	25	50	63.26	0.0	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #525B	25	50	63.28	0.0	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #530	70	65	63.53	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #531	69	70	63.74	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #534	25	204	64.04	0.0	0.0	0.1	<0.1	0.0	0.0	Side slope
ATWS #535	25	107	64.33	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #536	25	165	64.47	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #536A	75	200	64.96	0.3	0.0	<0.1	0.0	0.0	0.0	Top of ridge turnaround
ATWS #536B	50	175	65.30	0.0	0.0	0.2	<0.1	0.0	0.0	Top of steep slopes
ATWS #537	50	210	65.46	0.2	0.0	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #538	25	110	65.68	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #540A	25	106	66.21	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #540B	25	108	66.38	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #541	25	150	66.72	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #542	25	111	67.01	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #543	25	106	67.10	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #544	25	660	67.37	0.0	0.0	0.4	0.0	0.0	0.0	Top of steep slopes
ATWS #547	37	152	67.48	0.0	<0.1	0.1	0.1	0.0	0.0	Road crossing
ATWS #548	49	50	67.54	0.0	0.0	0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #549	25	95	67.58	0.0	0.0	0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #549A	22	80	67.64	0.0	0.0	<0.1	0.0	0.0	0.0	Access road access to right of way
ATWS #550	25	102	67.71	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #552	25	100	67.86	0.0	0.0	0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #553	25	100	67.87	0.0	0.0	0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #553A	50	83	68.08	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #553B	75	75	68.08	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #553C	58	273	68.17	0.0	0.3	<0.1	0.0	0.0	0.0	Road crossing
ATWS #554	49	50	68.35	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #555	50	100	68.42	0.0	0.0	<0.1	0.1	0.0	0.0	Waterbody crossing
ATWS #556	25	124	68.47	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #557	25	69	68.50	0.0	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #558	25	98	68.57	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #559	25	99	68.70	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #560	25	1326	68.82	0.1	0.0	0.7	0.0	0.0	0.0	Side slope
ATWS #561	25	61	68.94	0.0	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #562	25	115	69.07	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #563	25	238	69.16	0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #564	25	87	69.24	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #565	25	100	69.26	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #566	25	106	69.29	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #568	25	108	69.33	0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #570	48	50	69.39	<0.1	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #571	25	132	69.49	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #572	25	99	69.79	0.0	<0.1	<0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #573	25	103	69.90	0.0	0.0	0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #574	25	200	70.13	0.0	0.0	0.0	0.1	0.0	0.0	Pipeline or foreign utility crossover
ATWS #575	25	96	70.34	0.0	<0.1	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #576	25	107	70.65	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #578	61	272	70.89	0.0	0.0	0.2	0.1	0.0	0.0	Truck turnaround area
ATWS #579	25	99	71.22	0.0	0.0	0.1	<0.1	0.0	0.0	Wetland crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #580	25	124	71.31	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #581	25	65	71.34	0.0	0.0	<0.1	0.0	0.0	0.0	Wetland crossing
ATWS #582	25	106	71.35	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #583	25	126	71.47	0.0	<0.1	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #584	49	50	71.56	0.0	0.0	0.1	0.0	0.0	0.0	Wetland crossing
ATWS #585	25	315	71.68	0.0	0.0	0.2	0.0	0.0	0.0	Side slope
ATWS #586	25	232	71.73	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #587	25	207	72.06	0.0	0.0	<0.1	0.1	0.0	0.0	Pipe bend location
ATWS #588	50	200	72.27	0.0	0.0	0.0	0.2	0.0	0.0	Wetland crossing
ATWS #589	50	355	72.28	0.0	0.0	0.0	0.4	0.0	0.0	Wetland crossing
ATWS #589A	50	246	72.40	0.0	0.0	0.3	0.0	0.0	0.0	Waterbody crossing
ATWS #591	25	363	72.53	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #592	25	213	72.56	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #593	25	225	72.66	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #594	25	137	72.75	0.1	<0.1	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #596	25	99	73.15	0.1	<0.1	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #597	459	79	73.22	0.5	0.4	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #601	24	1352	73.93	0.2	<0.1	0.5	0.0	0.0	0.0	Top of steep slopes
ATWS #602	25	225	73.94	<0.1	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #603	25	103	74.09	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #604	25	205	74.09	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #606	24	451	74.17	0.0	0.0	0.3	0.0	0.0	0.0	Side slope
ATWS #607	25	108	74.26	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #608	25	165	74.24	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #611	50	170	74.41	0.0	0.0	0.2	0.0	0.0	0.0	Road crossing
ATWS #612	50	570	74.50	0.0	0.0	0.6	0.0	0.0	0.0	Waterbody crossing
ATWS #613	25	689	74.69	0.0	0.0	0.4	0.0	0.0	0.0	Side slope
ATWS #614	25	546	74.71	0.0	0.0	0.3	<0.1	0.0	0.0	Top of steep slopes

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #615	25	110	74.77	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #616	25	320	74.78	0.0	0.0	0.2	<0.1	0.0	0.0	Top of steep slopes
ATWS #618	50	149	74.97	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #619	50	148	74.98	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #620	50	149	75.02	0.0	0.0	0.2	0.0	0.0	0.0	Wetland crossing
ATWS #621	50	143	75.03	0.0	0.0	0.2	0.0	0.0	0.0	Wetland crossing
ATWS #622	383	30	75.16	0.2	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #623	25	99	75.22	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #624	25	99	75.26	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #625	25	744	75.32	0.2	<0.1	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #626	25	99	75.38	0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #627	25	153	75.46	0.0	0.0	0.1	<0.1	0.0	0.0	Waterbody crossing
ATWS #628	25	197	75.46	<0.1	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #629	25	99	75.50	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #630	25	199	75.52	<0.1	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #631	144	18	75.58	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #632	50	141	75.67	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #633	50	173	75.74	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #634	25	277	75.92	0.2	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #635	25	99	76.03	<0.1	<0.1	0.0	0.0	0.0	0.0	Truck turnaround area
ATWS #636	25	92	76.08	0.1	0.0	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #637	25	109	76.13	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #639	50	156	76.35	0.0	<0.1	0.2	0.0	0.0	0.0	Road crossing
ATWS #639A	25	30	76.39	<0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #640	25	163	76.43	<0.1	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #641	50	311	76.44	0.0	0.0	0.4	0.0	0.0	0.0	Wetland crossing
ATWS #644	37	282	76.97	0.1	0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #644A	25	79	77.00	0.0	<0.1	<0.1	0.0	0.0	0.0	Road crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #645	50	148	76.98	0.1	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #646	50	169	77.05	0.2	0.0	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #647	50	116	77.07	0.1	0.0	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #648	25	100	77.20	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #649	25	76	77.33	<0.1	<0.1	<0.1	<0.1	0.0	0.0	Road crossing
ATWS #650	25	99	77.35	<0.1	<0.1	0.0	<0.1	0.0	0.0	Truck turnaround area
ATWS #651	25	142	77.36	<0.1	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #652	25	109	77.42	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #653	25	119	77.54	0.1	0.0	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #654	25	228	77.56	0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #655	25	162	77.62	0.1	0.0	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #656	25	150	77.62	0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #657	50	212	77.71	0.2	0.0	0.0	0.0	0.0	0.0	Road crossing
ATWS #659	320	32	77.71	0.2	0.0	<0.1	0.0	0.0	0.0	Road crossing
ATWS #659A	25	51	77.77	<0.1	0.0	<0.1	0.0	0.0	0.0	Road crossing
ATWS #660	25	138	77.80	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #661	25	250	77.89	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #661A	25	99	77.88	0.0	0.0	0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #662	25	100	77.94	0.0	<0.1	<0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #663	25	111	78.09	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #665	25	108	78.35	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #666	25	106	78.48	0.0	<0.1	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #667	25	88	78.53	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #669	25	115	78.56	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #670	25	105	78.59	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #672	25	111	78.64	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #674	25	263	78.64	0.0	0.0	0.1	0.1	0.0	0.0	Pipe bend location
ATWS #675	25	100	78.79	0.0	<0.1	<0.1	0.0	0.0	0.0	Truck turnaround area

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #676	25	74	78.97	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #679	25	100	79.32	0.0	<0.1	<0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #679A	50	201	79.34	0.0	<0.1	0.2	0.0	0.0	0.0	Top of steep slopes
ATWS #680	25	230	79.47	0.0	0.1	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #681	25	113	79.46	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #682	50	149	79.64	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #683	50	149	79.70	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #684	25	229	79.71	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #685	25	100	79.80	0.0	<0.1	<0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #686	25	106	80.00	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #687	25	102	80.07	0.0	<0.1	<0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #688	25	105	80.14	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #689	25	105	80.26	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #690	25	434	80.46	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #691	25	220	80.54	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #692	25	124	80.68	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #693	25	154	80.79	0.0	<0.1	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #694	25	99	80.95	0.0	<0.1	<0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #695	25	100	80.98	0.0	<0.1	<0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #696	25	106	81.03	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #698	50	150	81.17	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #699	50	183	81.29	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #700	25	109	81.42	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #701	25	105	81.61	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #702	25	109	81.84	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #703	25	105	81.91	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #706A	389	36	82.45	0.3	0.0	<0.1	0.0	0.0	0.0	Compressor Station
ATWS #706B	25	100	82.53	<0.1	0.0	<0.1	0.0	0.0	0.0	Equipment passing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #707	25	260	82.68	0.0	0.0	0.1	0.1	0.0	0.0	Pipe bend location
ATWS #707A	25	100	82.74	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #707B	25	200	82.82	0.0	0.0	0.1	0.0	0.0	0.0	Equipment passing
ATWS #707C	25	200	82.82	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #709	25	457	82.92	0.0	0.0	0.3	0.0	0.0	0.0	Side slope
ATWS #710	25	98	83.60	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #711	25	157	83.67	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #712	50	303	83.67	0.0	0.0	0.3	0.0	0.0	0.0	Waterbody crossing
ATWS #713	25	282	83.73	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #714	25	152	83.74	0.0	0.0	0.1	0.0	0.0	0.0	Wetland crossing
ATWS #718	25	136	83.87	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #719	25	136	83.90	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #720	50	150	83.95	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #721	50	179	84.17	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #722	33	55	84.22	0.0	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #723	50	135	84.25	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #724	50	99	84.35	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #725	25	99	84.35	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #726	25	99	84.37	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #727	50	149	84.48	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #728	50	85	84.52	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #729	30	115	84.59	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #730	25	282	85.12	0.0	0.0	0.2	0.0	0.0	0.0	Side slope
ATWS #731	25	198	85.14	0.0	0.0	0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #732	50	99	85.47	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #732A	50	100	85.35	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #732B	50	100	85.35	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #732C	25	100	85.41	0.0	0.0	0.1	0.0	0.0	0.0	Wetland crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #732D	25	100	85.41	0.0	0.0	0.1	0.0	0.0	0.0	Wetland crossing
ATWS #733	50	100	85.53	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #734	25	352	85.62	0.0	0.0	0.2	0.0	0.0	0.0	Side slope
ATWS #735	25	118	85.66	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #735A	25	105	85.87	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #736	25	100	85.90	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #736A	25	107	85.95	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #736B	25	115	86.00	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #737	25	111	86.11	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #737A	25	50	86.09	0.0	0.0	<0.1	0.0	0.0	0.0	Side slope
ATWS #737B	25	50	85.11	0.0	0.0	<0.1	0.0	0.0	0.0	Side slope
ATWS #737C	25	96	86.17	0.0	0.0	0.1	<0.1	0.0	0.0	Truck turnaround area
ATWS #738	25	112	86.46	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #739	25	112	86.45	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #741	149	39	86.57	0.0	<0.1	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #742	25	99	86.65	0.0	<0.1	<0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #743	25	128	86.66	0.0	<0.1	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #744	25	93	86.67	0.0	<0.1	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #745	25	105	86.69	0.0	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #746	25	178	86.79	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #747	25	99	86.80	0.0	<0.1	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #748	25	86	86.84	0.0	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #751	25	183	87.16	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #752	25	192	87.14	0.0	0.0	0.2	0.0	0.0	0.0	Side slope
ATWS #753	25	109	87.29	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #754	25	109	87.30	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #755	50	146	87.57	0.0	<0.1	0.2	0.0	0.0	0.0	Road crossing
ATWS #756	50	149	87.63	<0.1	0.0	0.1	0.0	0.0	0.0	Waterbody crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #757	100	356	87.77	0.8	0.0	0.0	0.0	0.0	0.0	Top of steep slopes
ATWS #759	174	34	87.85	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #760	50	112	87.91	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #761	50	222	87.99	0.0	0.0	0.3	0.0	0.0	0.0	Waterbody crossing
ATWS #762	50	150	88.09	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #764	50	193	88.33	0.0	0.1	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #765	151	315	88.35	0.0	<0.1	1.0	0.0	0.0	0.0	Top of steep slopes
ATWS #766	50	176	88.41	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #767	342	47	88.63	0.0	0.1	<0.1	0.3	0.0	0.0	Top of steep slopes
ATWS #768	25	332	88.63	0.0	<0.1	0.1	<0.1	0.0	0.0	Truck turnaround area
ATWS #769	25	99	88.88	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #770	25	100	88.88	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #771	25	99	88.93	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #772	25	341	88.95	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #773	25	184	88.99	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #774	50	100	89.05	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #775	25	99	89.11	0.0	0.0	<0.1	<0.1	0.0	0.0	Truck turnaround area
ATWS #776	50	118	89.21	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #777	50	112	89.25	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #778	25	108	89.31	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #779	25	108	89.31	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #781	50	152	89.40	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #782	50	150	89.45	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #783	25	91	89.51	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #784	25	146	89.51	0.0	0.0	<0.1	0.1	0.0	0.0	Pipe bend location
ATWS #786	50	167	89.57	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #787	50	217	89.64	0.0	0.0	0.2	<0.1	0.0	0.0	Waterbody crossing
ATWS #788	25	100	89.89	0.0	0.0	0.0	0.1	0.0	0.0	Equipment passing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #789	25	106	89.96	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #790	21	973	90.06	0.0	0.1	0.0	0.4	0.0	0.0	Access road access to right of way
ATWS #791	25	113	90.16	0.0	<0.1	<0.1	0.1	0.0	0.0	Pipe bend location
ATWS #792	25	129	90.18	0.0	<0.1	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #793	25	349	90.19	0.0	<0.1	0.2	<0.1	0.0	0.0	Waterbody crossing
ATWS #794	25	215	90.35	0.0	0.0	0.0	0.1	0.0	0.0	Pipe bend location
ATWS #795	25	109	90.35	0.0	0.0	0.0	0.1	0.0	0.0	Pipe bend location
ATWS #796	25	100	90.45	0.0	0.0	0.0	0.1	0.0	0.0	Truck turnaround area
ATWS #797	25	232	90.48	0.0	0.0	0.0	0.1	0.0	0.0	Top of steep slopes
ATWS #798	25	139	90.62	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #799	25	152	90.63	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #800	25	130	90.68	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #801	25	149	90.69	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #802	25	212	90.87	0.0	<0.1	0.1	<0.1	0.0	0.0	Truck turnaround area
ATWS #803	25	116	90.89	0.0	<0.1	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #804	25	126	91.00	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #805	25	126	90.98	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #806	25	100	91.15	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #807	25	103	91.16	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #808	25	103	91.21	0.0	0.0	0.1	0.0	0.0	0.0	Wetland crossing
ATWS #809	25	99	91.22	0.0	0.0	0.1	0.0	0.0	0.0	Wetland crossing
ATWS #810	25	105	91.37	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #811	25	105	91.37	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #813	25	144	91.51	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #814	25	149	91.52	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #815	25	149	91.58	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #816	25	162	91.60	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #817	25	112	91.74	0.0	0.0	0.1	<0.1	0.0	0.0	Pipe bend location

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	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #818	25	116	92.20	0.0	<0.1	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #819	25	116	92.19	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #820	25	118	92.39	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #821	25	118	92.37	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #822	25	99	92.45	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #823	25	365	92.51	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #824	25	127	92.64	0.0	<0.1	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #825	25	136	92.88	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #826	25	352	93.06	0.0	0.0	0.2	0.0	0.0	0.0	Side slope
ATWS #827	25	156	93.19	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #828	25	201	93.19	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #830	25	82	93.39	0.0	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #831	25	106	93.39	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #832	25	217	93.76	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #833	25	105	93.81	0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #834	25	152	93.82	<0.1	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #835	25	359	93.92	<0.1	0.0	0.2	0.0	0.0	0.0	Pipe bend location
ATWS #835A	25	157	93.92	0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #836	365	31	93.97	0.0	<0.1	0.2	<0.1	0.0	0.0	Pipe bend location
ATWS #837	25	196	94.18	0.0	<0.1	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #838	150	160	94.21	0.5	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #840	23	125	94.29	0.0	<0.1	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #841	26	143	94.32	0.0	<0.1	<0.1	<0.1	0.0	0.0	Road crossing
ATWS #842	25	104	94.33	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #843	32	86	94.35	0.0	<0.1	<0.1	<0.1	0.0	0.0	Waterbody crossing
ATWS #844	25	58	94.35	0.0	<0.1	0.0	<0.1	0.0	0.0	Waterbody crossing
ATWS #845	25	185	94.40	0.0	<0.1	0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #846	25	125	94.52	0.0	0.0	<0.1	0.1	0.0	0.0	Waterbody crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #847	25	99	94.56	<0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #848	25	100	94.58	<0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #849	25	149	94.65	0.1	0.0	0.0	0.0	0.0	0.0	Wetland crossing
ATWS #850	553	179	94.75	1.6	0.0	0.7	0.0	0.0	0.0	Waterbody crossing
ATWS #851	425	84	94.76	0.8	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #852	167	255	94.90	0.0	0.1	0.2	0.7	0.0	0.0	Waterbody crossing
ATWS #853	25	385	94.94	0.0	<0.1	0.1	0.1	0.0	0.0	Waterbody crossing
ATWS #854	25	95	95.08	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #856	25	99	95.28	0.0	0.0	<0.1	<0.1	0.0	0.0	Topsoil segregation
ATWS #856A	25	100	95.32	0.0	<0.1	0.0	0.1	0.0	0.0	Truck turnaround area
ATWS #857	25	111	95.42	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #858	25	111	95.41	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #860	25	99	95.62	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #861	25	99	95.62	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #862	25	114	95.70	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #863	25	114	95.69	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #864	25	155	95.92	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #865	25	106	96.18	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #866	25	99	96.21	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #867	50	263	96.556	0.2	<0.1	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #868	50	312	96.57	0.3	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #869	25	368	96.66	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #870	25	372	96.66	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #871	25	105	96.77	0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #872	25	105	96.77	0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #874	102	207	96.92	0.3	0.1	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #875	100	271	96.93	0.6	<0.1	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #876	100	200	97.03	0.4	0.0	0.1	0.0	0.0	0.0	Waterbody crossing

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	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #877	100	255	97.22	0.5	0.0	<0.1	0.0	0.0	0.0	Road crossing
ATWS #878	85	304	97.24	0.6	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #879	123	129	97.31	0.3	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #880	235	132	97.35	0.7	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #880A	25	89	97.38	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #880C	25	159	97.41	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #881	25	190	97.48	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #882	25	379	97.47	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #883	25	199	97.67	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #884	25	199	97.67	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #885	25	99	97.72	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #886	25	100	97.72	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #887	25	187	97.77	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #888	25	187	97.77	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #889	25	145	97.83	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #890	25	149	97.84	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #891	25	543	98.14	0.0	0.0	0.3	0.0	0.0	0.0	Side slope
ATWS #892	25	92	98.46	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #893	25	302	98.47	0.0	<0.1	0.2	0.0	0.0	0.0	Road crossing
ATWS #897	25	108	98.78	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #898	25	112	98.82	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #899	25	334	98.85	0.0	<0.1	0.2	0.0	0.0	0.0	Pipe bend location
ATWS #900	25	152	98.86	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #901	25	112	98.90	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #902	25	94	99.05	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #903	25	105	98.08	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #904	25	107	99.15	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #905	25	107	99.20	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #906	25	112	99.29	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #907	25	112	99.30	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #909	25	103	99.43	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #910	25	94	99.55	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #911	25	93	99.61	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #912	25	90	99.90	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #913	25	195	99.91	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #915	25	93	99.98	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #916	25	106	99.99	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #916A	25	148	100.12	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #918	137	70	100.15	0.0	<0.1	0.1	0.1	0.0	0.0	Road crossing
ATWS #919	50	149	100.18	0.1	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #920	25	94	100.46	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #921	25	105	100.47	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #923	25	96	100.77	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #924	25	103	100.77	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #927	25	135	101.26	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #928	25	999	101.34	0.0	0.0	0.6	0.0	0.0	0.0	Side slope
ATWS #929	25	109	101.41	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #930	25	103	101.45	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #931	25	109	101.53	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #932	25	108	101.61	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #934	25	110	101.73	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #935	25	110	101.72	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #937	25	88	101.91	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #938	25	111	101.91	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #940	25	87	101.99	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #941	25	112	101.98	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #943	25	145	102.09	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #944	25	104	102.09	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #946	25	109	102.17	0.0	0.0	0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #947	25	108	102.17	0.0	0.0	0.1	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #949	25	109	102.29	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #950	25	109	102.28	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #952	25	116	102.51	0.0	0.0	0.0	0.1	0.0	0.0	Pipe bend location
ATWS #953	25	116	102.49	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #954	100	104	102.85	0.0	0.0	<0.1	0.2	0.0	0.0	Road crossing
ATWS #955	100	104	102.86	0.0	<0.1	0.1	0.1	0.0	0.0	Road crossing
ATWS #956	85	111	102.88	0.2	<0.1	0.0	FALSE	0.0	0.0	Waterbody crossing
ATWS #956A	17	75	102.88	<0.1	<0.1	0.0	0.0	0.0	0.0	Access road access to right of way
ATWS #958	25	109	103.27	0.0	0.0	0.0	0.1	0.0	0.0	Pipe bend location
ATWS #959	25	90	103.28	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #961	25	88	103.43	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #962	25	88	103.42	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #964	25	118	103.58	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #965	25	81	103.59	0.0	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #966	25	91	103.83	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #967	25	93	103.84	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #969	25	110	103.98	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #970	25	346	104.00	0.2	0.0	<0.1	0.0	0.0	0.0	Wetland crossing
ATWS #971	25	110	104.19	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #972	25	89	104.18	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #974	25	100	104.34	0.1	0.0	0.0	0.0	0.0	0.0	Wetland crossing
ATWS #975	25	68	104.55	<0.1	0.0	0.0	0.0	0.0	0.0	Waterbody crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #976	25	202	104.56	0.1	0.0	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #977	50	206	104.65	0.2	<0.1	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #978	25	99	104.66	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #979	340	64	104.71	0.0	<0.1	0.0	0.5	0.0	0.0	Road crossing
ATWS #980	25	111	104.88	0.0	0.0	0.0	0.1	0.0	0.0	Pipe bend location
ATWS #981	25	111	104.88	0.0	0.0	0.0	0.1	0.0	0.0	Pipe bend location
ATWS #983	25	108	105.05	0.0	0.0	0.0	0.1	0.0	0.0	Pipe bend location
ATWS #987	25	103	105.46	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #988	25	99	105.46	<0.1	<0.1	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #990	25	94	105.55	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #991	25	110	105.73	0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #992	25	89	105.74	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #994	25	150	105.85	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #995	50	100	105.86	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #996	50	94	105.91	0.0	0.0	0.1	0.0	0.0	0.0	Wetland crossing
ATWS #997	25	222	105.98	0.1	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #998	25	342	105.99	0.2	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #999	25	90	106.12	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1000	25	109	106.11	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1002	25	112	106.34	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1003	25	190	106.35	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1005	25	99	106.43	0.0	<0.1	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1006	25	100	106.46	<0.1	<0.1	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1007	25	99	106.46	<0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1008	25	105	106.55	<0.1	<0.1	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1010	25	108	106.72	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1011	25	91	106.73	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1013	25	110	107.06	0.0	0.0	0.0	0.1	0.0	0.0	Pipe bend location

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1015	25	104	107.09	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #1016	25	249	107.15	0.0	0.0	<0.1	0.1	0.0	0.0	Pipe bend location
ATWS #1017	25	106	107.21	0.0	0.0	0.0	0.1	0.0	0.0	Pipe bend location
ATWS #1018	387	149	107.30	0.0	0.0	0.2	1.2	0.0	0.0	Top of steep slopes
ATWS #1019	267	302	107.37	0.0	0.2	0.2	1.5	0.0	0.0	Top of steep slopes
ATWS #1020	50	108	107.47	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1021	50	112	107.47	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1022	25	149	107.52	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1023	25	150	107.52	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1024	25	94	107.63	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1025	25	614	107.68	0.0	0.0	0.4	0.0	0.0	0.0	Side slope
ATWS #1026	25	108	107.74	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1027	25	287	107.83	0.0	0.0	0.2	0.0	0.0	0.0	Pipe bend location
ATWS #1028	25	267	107.85	0.0	0.0	0.2	0.0	0.0	0.0	Pipe bend location
ATWS #1029	25	95	108.09	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1030	25	107	108.43	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1031	25	150	108.44	0.1	0.0	0.0	0.0	0.0	0.0	Top of steep slopes
ATWS #1032	50	150	108.48	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #1033	50	150	108.54	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #1034	50	150	108.62	0.0	0.0	0.2	0.0	0.0	0.0	Road crossing
ATWS #1035	192	162	108.70	0.7	0.0	<0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1036	50	226	108.72	0.2	0.0	<0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1037	25	100	108.82	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1038	25	100	108.89	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1039	25	99	108.89	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1040	25	111	109.14	0.0	0.0	0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #1041	25	111	109.15	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1041A	25	111	109.24	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1042A	25	99	109.39	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1043	25	100	109.44	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1044	25	100	109.59	0.0	0.0	0.1	<0.1	0.0	0.0	Waterbody crossing
ATWS #1045	25	112	109.84	<0.1	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1046	25	87	109.84	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1048	25	188	109.89	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1049	25	151	109.95	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1050	25	99	110.00	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1051	25	99	110.06	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1052	25	93	110.08	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1053	25	150	110.12	0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1058	50	100	110.54	<0.1	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1059A	25	148	110.67	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1060	25	100	110.81	<0.1	<0.1	0.0	0.0	0.0	0.0	Truck turnaround area
ATWS #1061	25	110	111.32	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1062	25	109	111.33	0.0	0.0	0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #1063	25	212	111.51	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #1064	25	99	111.58	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1065	25	109	111.58	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #1066	25	99	111.66	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1067	50	102	111.67	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1068	25	149	111.72	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1069	25	99	111.74	0.0	0.0	0.1	0.0	0.0	0.0	Wetland crossing
ATWS #1070	25	103	111.84	0.0	<0.1	0.0	<0.1	0.0	0.0	Road crossing
ATWS #1071	25	181	111.87	0.0	<0.1	<0.1	0.1	0.0	0.0	Road crossing
ATWS #1072	25	99	112.03	0.0	<0.1	<0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #1073	25	115	112.20	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1074	25	84	112.38	0.0	0.0	<0.1	0.0	0.0	0.0	Pipe bend location

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	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1076	25	111	112.38	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1077	25	88	112.38	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1079	25	111	112.55	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1080	25	111	112.54	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1082	25	119	112.62	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1084	25	107	112.69	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1086	25	124	112.84	0.0	0.0	<0.1	0.1	0.0	0.0	Pipe bend location
ATWS #1087	25	152	112.84	0.0	0.0	0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #1089	25	231	113.15	0.0	0.0	<0.1	0.1	0.0	0.0	Truck turnaround area
ATWS #1090	199	203	113.30	0.0	0.3	0.2	0.4	0.0	0.0	Road crossing
ATWS #1091	164	160	113.30	0.0	0.2	<0.1	0.4	0.0	0.0	Road crossing
ATWS #1091A	25	113	113.79	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1091B	25	119	113.91	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1091C	25	109	114.08	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1091D	25	112	114.28	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1100	25	107	114.97	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1101	25	108	115.09	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1102	25	98	115.10	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1103	25	175	115.24	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #1104	25	211	115.26	<0.1	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #1105	25	101	115.28	<0.1	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #1106	25	350	115.36	0.1	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1108	25	279	115.54	0.0	0.0	0.2	0.0	0.0	0.0	Top of steep slopes
ATWS #1109	25	91	115.74	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1110	25	89	115.75	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1112	25	626	115.86	0.3	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1113	25	131	115.82	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1114	50	162	116.02	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1115	25	150	116.03	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1116	134	249	116.12	0.0	<0.1	0.2	0.5	0.0	0.0	Road crossing
ATWS #1117	25	89	116.18	0.0	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #1118	25	103	116.36	0.0	0.0	<0.1	<0.1	0.0	0.0	Wetland crossing
ATWS #1118A	25	167	116.41	0.0	0.0	0.1	<0.1	0.0	0.0	Bottom of steep slopes
ATWS #1119	25	121	116.57	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1120	25	121	116.56	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1121	25	115	116.72	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1122	25	99	116.72	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1124	25	108	116.97	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #1125	25	107	117.03	0.0	0.0	<0.1	<0.1	0.0	0.0	Waterbody crossing
ATWS #1126	25	93	117.03	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1127	25	214	117.21	0.1	0.0	0.0	0.0	0.0	0.0	Truck turnaround area
ATWS #1127A	25	100	117.56	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1127B	25	100	117.83	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1127C	25	100	117.90	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1132	25	254	118.25	0.1	0.0	0.0	0.0	0.0	0.0	Road crossing
ATWS #1133	25	207	118.43	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1134	25	73	118.52	0.0	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #1135A	25	125	118.55	<0.1	<0.1	0.1	<0.1	0.0	0.0	Road crossing
ATWS #1136	25	133	118.5169	0.0	0.0	0.1	0.0	0.0	0.0	Wetland crossing
ATWS #1137	25	200	118.70	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1138	25	150	118.76	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1139	25	149	118.77	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1140	25	113	118.87	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1142	227	81	118.87	0.4	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1143	25	99	119.07	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1144	25	99	119.07	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1145	25	153	119.11	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1146	25	153	119.12	0.0	0.0	0.1	<0.1	0.0	0.0	Waterbody crossing
ATWS #1147	25	200	119.23	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1148	25	105	119.35	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1149	25	99	119.55	0.0	0.0	<0.1	<0.1	0.0	0.0	Truck turnaround area
ATWS #1150	25	177	119.68	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1151	25	267	119.69	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #1152	25	199	119.75	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1153	25	110	119.97	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #1154	25	110	119.99	0.1	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #1155	25	108	120.05	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1156	25	108	120.06	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1157	25	112	120.28	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1158	25	112	120.29	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1159	25	115	120.87	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1160	25	115	120.86	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1161	25	106	120.91	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1163	25	108	120.97	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1165	25	108	121.11	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1167	25	100	121.23	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #1168	50	328	121.25	0.0	0.0	0.4	0.0	0.0	0.0	Side slope
ATWS #1169	25	106	121.30	0.0	0.0	<0.1	0.1	0.0	0.0	Pipe bend location
ATWS #1170	25	49	121.35	0.0	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1170A	25	49	121.38	0.0	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1172	25	114	121.70	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1174	25	150	121.81	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #1175	25	150	121.81	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #1176	25	231	121.91	0.1	0.0	<0.1	0.0	0.0	0.0	Top of steep slopes

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	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1177	50	228	122.03	0.3	0.0	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #1178	25	174	122.04	0.1	0.0	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #1179	25	105	122.53	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1180	25	234	122.57	0.0	0.0	<0.1	0.1	0.0	0.0	Top of steep slopes
ATWS #1181	25	426	122.59	0.0	0.0	0.2	0.0	0.0	0.0	Top of steep slopes
ATWS #1181A	25	98	122.85	0.0	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #1184	25	93	122.97	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1185	25	85	123.06	0.0	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1186	25	95	123.08	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #1187	25	114	123.23	0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1188	25	97	123.24	0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1189	25	100	123.27	0.1	0.0	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #1190	25	143	123.42	0.0	0.0	<0.1	0.1	0.0	0.0	Pipe bend location
ATWS #1191	395	98	123.42	0.0	0.0	0.2	0.7	0.0	0.0	Equipment staging area
ATWS #1192	25	211	123.68	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1193	116	117	123.95	0.0	<0.1	0.1	0.2	0.0	0.0	Road crossing
ATWS #1193A	115	115	124.07	0.0	0.0	0.3	<0.1	0.0	0.0	Road crossing
ATWS #1194	25	226	124.05	0.0	0.0	0.1	0.1	0.0	0.0	Road crossing
ATWS #1197	216	50	124.57	0.2	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #1197A	29	308	124.84	0.0	<0.1	0.1	<0.1	0.0	0.0	Side slope
ATWS #1197B	125	144	125.09	0.0	0.0	0.2	0.2	0.0	0.0	Top of steep slopes
ATWS #1197C	29	308	125.08	0.0	<0.1	0.1	<0.0	0.0	0.0	Waterbody crossing
ATWS #1198	25	107	125.23	0.0	0.0	0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #1200	25	95	125.33	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1201	25	93	125.57	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1203	25	106	125.74	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1205	50	323	126.12	0.3	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1206	25	64	126.19	0.0	<0.1	<0.1	0.0	0.0	0.0	Road crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1207	25	107	126.21	0.0	<0.1	<0.1	<0.1	0.0	0.0	Road crossing
ATWS #1208	25	116	126.57	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1209	25	116	126.55	0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1210	25	109	126.71	0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1211	25	109	126.72	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1213	36	579	126.87	0.1	0.0	<0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1214	25	116	126.89	0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1216	25	113	127.01	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1219	25	63	127.15	0.0	<0.1	<0.1	<0.1	0.0	0.0	Road crossing
ATWS #1222	25	99	127.25	0.1	0.0	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #1223	25	100	127.27	0.1	0.0	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #1223A	25	210	127.56	0.0	0.0	0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #1223B	25	220	127.65	0.0	0.0	0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #1223C	25	96	127.72	0.1	0.0	0.0	0.0	0.0	0.0	Pipeline or foreign utility crossover
ATWS #1224	25	106	127.78	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1225	25	107	128.04	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #1226	25	96	128.15	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #1227	25	322	128.12	0.1	<0.1	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1227A	50	190	128.32	0.2	0.0	<0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1228	25	202	128.67	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1229	25	266	128.79	0.0	0.0	0.2	0.0	0.0	0.0	Pipe bend location
ATWS #1230	25	214	129.79	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1231	25	105	129.21	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1232	25	107	129.25	0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1233	25	100	129.30	0.1	0.0	<0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1234	50	50	129.42	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #1235	50	54	129.42	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #1236	50	111	129.45	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1237	50	95	129.45	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #1239	25	741	129.88	0.0	0.0	0.4	0.0	0.0	0.0	Side slope
ATWS #1242	25	90	130.01	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1243	25	301	130.29	0.0	0.0	0.2	<0.1	0.0	0.0	Top of steep slopes
ATWS #1244	25	421	130.31	0.0	0.0	0.1	0.1	0.0	0.0	Side slope
ATWS #1245	25	108	130.38	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1246	25	109	130.43	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1247	25	106	130.52	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1247A	25	100	130.54	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1247B	25	97	130.60	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1247C	50	200	130.67	0.0	0.0	0.2	0.0	0.0	0.0	Top of steep slopes
ATWS #1248	25	195	130.82	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1248A	50	100	130.98	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1248B	50	99	131.04	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1248C	50	190	131.10	0.0	0.0	0.2	0.0	0.0	0.0	Top of steep slopes
ATWS #1248D	25	100	131.14	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1248E	25	100	131.22	<0.1	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1248F	25	106	131.61	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #1248G	25	84	131.71	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1248H	25	193	131.70	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1248I	25	100	131.75	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1248J	25	100	131.76	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1248K	25	100	131.80	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1248L	25	100	131.84	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1248M	25	100	131.92	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1248N	25	100	131.94	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1248O	25	107	131.98	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1256	104	151	132.09	0.0	<0.1	0.1	0.3	0.0	0.0	Road crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1257	25	386	132.13	0.2	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #1258	26	148	132.12	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #1260	25	106	132.25	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1261	25	193	132.25	0.0	0.0	0.0	0.1	0.0	0.0	Pipe bend location
ATWS #1263	25	106	132.46	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1263A	25	100	132.48	<0.1	0.0	<0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1264	25	194	132.55	<0.1	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #1265	25	216	132.56	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #1266	25	95	132.58	<0.1	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #1267	50	221	132.60	0.2	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #1268	25	89	132.76	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1269	15	106	132.75	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1269A	50	199	132.87	0.2	0.0	<0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1270	25	447	133.00	0.1	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1271	25	350	133.05	<0.1	0.0	0.1	0.1	0.0	0.0	Wetland crossing
ATWS #1272	50	354	133.14	0.1	<0.1	0.2	<0.1	0.0	0.0	Road crossing
ATWS #1273	50	345	133.15	0.3	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #1274	50	117	133.19	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #1274A	50	200	133.32	0.0	0.0	0.2	0.0	0.0	0.0	Top of steep slopes
ATWS #1275	25	99	133.63	0.0	<0.1	<0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #1276	25	162	133.89	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1277	25	99	133.94	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1278	50	79	133.99	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #1279	50	148	134.02	0.2	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #1280	25	149	134.28	0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1281	25	146	134.33	<0.1	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1282	25	310	134.58	0.2	0.0	0.0	0.0	0.0	0.0	Wetland crossing
ATWS #1283	187	18	134.62	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1284	50	104	134.68	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #1285	304	26	134.72	0.1	0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #1287	25	119	134.81	0.1	0.0	<0.1	<0.1	0.0	0.0	Waterbody crossing
ATWS #1288	25	111	134.89	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1289	25	106	134.89	0.1	<0.1	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1290	25	106	135.11	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1291	25	112	135.21	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1291A	25	112	135.22	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1292	50	150	135.31	0.0	0.0	0.2	<0.1	0.0	0.0	Waterbody crossing
ATWS #1293	50	149	135.37	0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1294	50	150	135.37	0.2	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1296	50	429	135.56	0.3	0.0	0.2	0.0	0.0	0.0	Side slope
ATWS #1297	25	117	135.68	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1298	25	117	135.67	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1299	25	239	135.84	0.1	0.0	0.0	0.0	0.0	0.0	Top of steep slopes
ATWS #1300	25	180	136.06	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1301	25	100	136.12	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #1302	25	545	136.50	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #1303	25	100	136.58	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1304	25	100	136.63	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1305	25	100	136.69	<0.1	<0.1	<0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #1306	25	100	136.81	<0.1	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1307	25	338	136.92	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #1308	25	100	137.04	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1309	25	100	137.06	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1320	25	100	137.33	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #1321	25	113	137.36	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1322	25	100	137.39	0.0	0.0	0.1	0.0	0.0	0.0	Side slope

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1323	25	94	137.58	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1324	25	105	137.58	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1326	25	90	137.65	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1327	25	953	137.82	0.0	0.0	0.5	0.0	0.0	0.0	Side slope
ATWS #1328	25	113	137.87	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1330	50	129	137.96	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1331	25	145	138.00	0.0	0.0	<0.1	<0.1	0.0	0.0	Wetland crossing
ATWS #1331A	25	31	138.03	0.0	<0.1	<0.1	<0.1	0.0	0.0	Road crossing
ATWS #1332	25	113	138.02	<0.1	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #1333	24	25	138.04	0.0	<0.1	<0.1	<0.1	0.0	0.0	Road crossing
ATWS #1334	25	55	138.04	0.0	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #1335	25	95	138.06	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #1336	25	87	138.17	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1338	25	146	138.22	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #1339	25	95	138.29	<0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #1340	22	24	138.31	<0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #1341	25	170	138.32	0.0	<0.1	0.1	<0.1	0.0	0.0	Road crossing
ATWS #1342	737	24	138.40	0.0	0.1	0.3	0.0	0.0	0.0	Road crossing
ATWS #1343	25	123	138.49	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #1344	50	350	138.63	0.4	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1345	50	294	138.63	0.3	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1346	25	166	138.71	0.1	0.0	0.0	0.0	0.0	0.0	Truck turnaround area
ATWS #1347	25	109	138.72	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1348	50	149	138.80	0.2	0.0	0.0	0.0	0.0	0.0	Top soil segregation
ATWS #1349	25	104	139.03	0.1	0.0	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #1349A	50	422	139.00	0.4	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1350	50	240	139.11	0.2	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1351	50	107	139.35	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1352	50	96	139.36	0.1	0.0	<0.1	0.0	0.0	0.0	Road crossing
ATWS #1352A	50	189	139.39	0.0	<0.1	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #1353	25	99	139.44	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #1355	25	92	139.51	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1356	25	300	139.59	0.0	0.0	0.2	0.0	0.0	0.0	Waterbody crossing
ATWS #1356A	25	143	139.67	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1357	75	243	139.79	0.0	0.2	<0.1	0.2	0.0	0.0	Side slope
ATWS #1359	25	222	140.11	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #1360	25	65	140.15	<0.1	<0.1	<0.1	<0.1	0.0	0.0	Road crossing
ATWS #1362	25	109	140.19	0.1	0.0	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #1363	25	106	140.25	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1364	25	106	140.25	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1366	25	95	140.31	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1367	374	100	140.41	0.8	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1368	25	108	140.51	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1369	25	108	140.50	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1371	25	100	140.87	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1372	25	100	141.01	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1372A	50	150	141.20	0.2	0.0	0.0	0.0	0.0	0.0	Top of steep slopes
ATWS #1373	25	99	141.27	<0.1	0.0	<0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #1374	293	122	141.28	0.6	0.0	0.3	0.0	0.0	0.0	Top of steep slopes
ATWS #1375	25	49	141.35	<0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1376	25	233	141.49	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1378	25	89	141.71	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #1379	25	101	141.73	0.0	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #1380	214	113	141.82	0.4	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1381	25	215	141.82	0.1	0.0	<0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1382	50	150	142.01	0.1	0.0	0.1	0.0	0.0	0.0	Road crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1383	50	179	142.01	0.2	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #1383A	25	100	142.08	<0.1	0.0	<0.1	0.0	0.0	0.0	Wetland crossing
ATWS #1384	25	249	142.13	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #1385	25	143	142.17	<0.1	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #1386	25	115	142.30	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #1388	25	105	142.46	0.0	<0.1	<0.1	<0.1	0.0	0.0	Road crossing
ATWS #1389	25	106	142.57	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1390	25	108	142.73	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1391	25	300	142.82	0.0	0.0	0.2	0.0	0.0	0.0	Top of steep slopes
ATWS #1392	25	100	142.91	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1393	25	99	142.95	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1394	25	100	142.98	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #1395	25	98	143.11	<0.1	0.0	<0.1	0.0	0.0	0.0	Side slope
ATWS #1398	25	100	143.39	0.0	0.0	<0.1	<0.1	0.0	0.0	Waterbody crossing
ATWS #1399	25	110	143.41	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1400	25	110	143.42	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1402	171	41	143.46	<0.1	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1403	25	100	143.49	0.1	0.0	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #1404	25	98	143.58	<0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1405	25	100	143.64	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #1406	50	98	143.64	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #1407	25	114	143.67	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #1407A	50	130	143.66	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #1408	25	139	143.68	0.1	0.0	0.0	0.0	0.0	0.0	Road crossing
ATWS #1409	25	100	143.71	0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1409A	25	100	143.80	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1410	25	110	143.84	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1410A	25	100	143.87	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1411	50	151	143.97	0.0	0.0	0.2	0.0	0.0	0.0	Top of steep slopes
ATWS #1412	25	149	143.97	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1414	25	110	144.13	0.0	0.0	<0.1	0.1	0.0	0.0	Pipe bend location
ATWS #1414A	25	195	144.13	0.0	<0.1	0.1	<0.1	0.0	0.0	Access road access to right of way
ATWS #1416	23	149	144.21	0.0	0.0	0.0	0.1	0.0	0.0	Pipeline or foreign utility crossover
ATWS #1417	25	114	144.32	0.0	0.0	0.0	0.1	0.0	0.0	Top of steep slopes
ATWS #1418	386	48	144.38	0.0	0.0	0.1	0.3	0.0	0.0	Side slope
ATWS #1419	25	112	144.45	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1420	25	81	144.46	0.0	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1421	25	84	144.53	0.0	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1422	25	115	144.52	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1423	25	106	144.62	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1424	25	106	144.61	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #1426	25	243	144.69	0.0	0.0	0.1	<0.1	0.0	0.0	Truck turnaround area
ATWS #1426A	25	100	144.76	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1426B	25	100	144.80	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1426C	25	200	144.88	0.0	0.0	0.1	<0.1	0.0	0.0	Pipeline or foreign utility crossover
ATWS #1427	25	106	144.88	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1428	25	100	144.99	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1429	25	99	145.03	0.0	0.0	<0.1	<0.1	0.0	0.0	Truck turnaround area
ATWS #1430	25	105	145.07	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1431	25	105	145.06	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1433	25	100	145.21	0.0	<0.1	<0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #1434	25	103	145.23	0.0	<0.1	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1435	25	107	145.49	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1436	25	94	145.49	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1438	25	100	145.57	0.1	0.0	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #1439	25	322	145.62	0.2	0.0	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #1440	25	104	145.74	0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1441	25	104	145.74	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1442	25	100	145.77	<0.1	0.0	<0.1	0.0	0.0	0.0	Wetland crossing
ATWS #1443	25	124	145.81	0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1444	25	100	145.81	0.1	0.0	<0.1	0.0	0.0	0.0	Wetland crossing
ATWS #1445	25	139	145.87	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1446	25	140	145.87	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1447	50	173	145.97	0.0	0.0	0.2	0.0	0.0	0.0	Top of steep slopes
ATWS #1448	25	100	146.13	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1449	25	166	146.22	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #1450	171	116	146.25	0.4	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #1450A	25	100	146.30	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1451	25	100	146.37	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1452	25	103	146.43	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1454	75	199	146.53	0.0	0.0	0.3	0.1	0.0	0.0	Waterbody crossing
ATWS #1455	25	111	146.61	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1455A	25	111	146.60	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1456	25	120	146.71	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #1457	25	114	146.73	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #1458	25	102	146.74	0.0	<0.1	<0.1	<0.1	0.0	0.0	Road crossing
ATWS #1459	25	90	146.81	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1461	25	324	146.91	0.1	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #1462	25	265	146.97	0.1	<0.1	<0.1	0.0	0.0	0.0	Horizontal directional drill (HDD) locations
ATWS #1462A	50	50	147.17	0.0	0.0	0.1	0.0	0.0	0.0	Water appropriation location

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1462B	50	287	147.02	0.3	0.0	0.0	0.0	0.0	0.0	Horizontal directional drill (HDD) locations
ATWS #1462C	55	2031	147.73	1.4	0.0	1.0	0.1	<0.1	0.0	Horizontal directional drill (HDD) locations
ATWS #1467	50	104	148.19	0.0	0.0	0.1	0.1	0.0	0.0	Road crossing
ATWS #1469A	369	71	148.32	0.0	0.1	0.4	0.2	0.0	0.0	Road crossing
ATWS #1470	25	92	148.59	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1472	25	115	148.77	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1473	25	115	148.76	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1474	16	145	148.90	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1475	25	72	148.92	0.0	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1476	25	93	149.08	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1477	25	106	149.08	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1479	25	147	149.25	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1480	25	134	149.33	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1481	25	106	149.58	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1482	25	1002	150.02	0.0	0.0	0.6	0.0	0.0	0.0	Side slope
ATWS #1483	25	107	150.19	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1484	25	313	150.41	0.0	0.0	0.2	0.0	0.0	0.0	Pipe bend location
ATWS #1485	25	113	150.43	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1485A	50	99	150.48	0.1	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1485B	50	99	150.59	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1485C	25	69	150.72	<0.1	0.0	<0.1	0.0	0.0	0.0	Road crossing
ATWS #1487	25	131	150.76	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1488	25	90	150.77	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1490	25	107	150.89	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1491	25	113	151.12	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1492	25	113	151.11	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1494	25	106	151.15	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1495	25	106	151.15	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1495A	50	99	151.23	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1495B	50	149	151.34	0.0	0.0	0.2	0.0	0.0	0.0	Top of steep slopes
ATWS #1496	25	104	151.57	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1498	25	326	151.58	0.0	0.0	0.2	0.0	0.0	0.0	Side slope
ATWS #1499	25	112	152.11	0.0	0.0	<0.1	0.1	0.0	0.0	Pipe bend location
ATWS #1503	25	99	152.20	0.0	<0.1	<0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #1504	25	104	152.42	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #1505	25	200	152.48	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1505A	25	97	152.55	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1506	75	141	152.62	0.0	<0.1	0.2	0.0	0.0	0.0	Road crossing
ATWS #1507	25	100	152.88	0.0	<0.1	<0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #1508	25	107	152.92	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #1509	25	414	152.93	0.0	0.0	0.2	0.0	0.0	0.0	Pipe bend location
ATWS #1512	25	105	153.01	0.0	0.0	0.1	<0.1	0.0	0.0	Waterbody crossing
ATWS #1513	25	334	153.07	0.0	0.0	0.2	0.0	0.0	0.0	Side slope
ATWS #1514	25	99	153.25	0.0	0.0	<0.1	0.1	0.0	0.0	Top of steep slopes
ATWS #1515	25	50	153.28	0.0	0.0	<0.1	0.0	0.0	0.0	Side slope
ATWS #1516	25	254	153.32	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #1517	25	104	153.38	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #1518	25	110	153.54	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #1519	25	138	153.56	0.0	0.0	0.1	0.0	0.0	0.0	Road crossing
ATWS #1520	25	99	153.60	0.0	0.0	<0.1	<0.1	0.0	0.0	Road crossing
ATWS #1521	25	120	153.61	0.0	0.0	0.1	<0.1	0.0	0.0	Road crossing
ATWS #1521A	100	174	153.70	0.0	0.0	0.4	0.0	0.0	0.0	Top of steep slopes
ATWS #1522	25	113	153.98	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1523	25	103	154.03	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1524	25	103	154.03	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1525	25	117	154.08	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1526	25	117	154.10	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1526A	25	107	154.34	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1526B	25	110	154.38	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1526C	25	115	154.45	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1527	25	0	154.47	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1528	25	0	154.62	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1529	25	91	154.65	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1529A	25	139	154.83	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1529B	35	50	154.91	0.0	0.0	<0.1	<0.1	0.0	0.0	Road crossing
ATWS #1529C	25	199	155.08	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1529D	25	109	155.15	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1530	25	119	155.20	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1531	25	119	155.19	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1531A	25	199	155.25	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1532	25	107	155.68	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1532A	103	538	E of 155.5	0.0	0.1	0.1	1.0	0.0	0.0	Pipe bend location
ATWS #1533	25	92	155.67	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1533A	25	115	155.78	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1533B	25	115	155.80	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1533C	25	113	155.94	0.0	0.0	0.0	0.1	0.0	0.0	Pipe bend location
ATWS #1533D	25	99	156.09	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1533E	25	100	156.15	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1534	25	110	156.20	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1535	25	110	156.21	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1536	25	199	156.26	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1536A	25	125	156.36	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1537	25	110	156.45	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1538	25	110	156.45	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1538A	25	200	156.54	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1539	25	105	156.65	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1540	25	200	156.70	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1541	25	681	156.99	0.0	0.0	0.4	0.0	0.0	0.0	Side slope
ATWS #1542	25	115	156.92	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1543	25	103	157.27	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1544	25	105	157.30	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1545	25	90	157.36	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1546	25	92	157.35	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1547	25	99	157.60	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1547A	25	159	157.70	0.0	0.0	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #1548	25	108	157.78	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1549	25	108	157.79	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1549A	25	219	157.86	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #1550	25	100	157.89	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1551	25	99	157.97	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #1552	50	106	158.11	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1553	25	100	158.21	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #1554	25	113	158.31	0.0	0.0	0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #1555	25	113	158.33	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1556	25	111	158.46	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1557	25	111	158.45	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1558	25	115	158.58	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1559	25	115	158.57	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1560	25	269	158.74	0.0	0.0	0.2	0.0	0.0	0.0	Pipe bend location
ATWS #1561	25	123	158.73	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1562	25	106	158.90	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location

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**Additional Temporary Workspaces <sup>a, b</sup>**

Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1563	25	106	158.91	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1565	25	105	158.98	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1566	25	213	159.00	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #1567	25	103	159.01	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1568	25	107	159.08	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1569	25	107	159.09	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1571	25	114	159.17	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1572	25	114	158.16	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1574	25	107	159.28	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1575	25	107	159.28	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1577	25	101	159.35	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1578	25	101	159.35	0.0	0.0	0.1	0.0	0.0	0.0	Side slope
ATWS #1580	25	103	159.41	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1581	25	112	159.45	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1582	25	112	159.46	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1584	25	118	159.69	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1585	25	183	159.70	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1586	25	107	159.80	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1587	25	113	159.93	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1588	25	113	159.94	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1590	25	94	160.08	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1595	25	115	160.44	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1596	25	125	160.42	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1597	25	106	160.53	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1598	25	99	160.62	0.0	0.0	0.1	0.0	0.0	0.0	Truck turnaround area
ATWS #1599	54	290	160.72	0.0	0.0	0.4	<0.1	0.0	0.0	Road crossing
ATWS #1599A	75	107	160.73	0.0	0.0	0.2	0.0	0.0	0.0	Road crossing
ATWS #1600	86	186	160.83	0.4	0.0	0.0	0.0	0.0	0.0	Road crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1601	25	275	160.87	0.2	0.0	0.0	0.0	0.0	0.0	Road crossing
ATWS #1601A	50	165	160.93	0.0	0.0	<0.1	0.1	0.0	0.0	Road crossing
ATWS #1602	200	315	160.98	1.4	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1604	25	220	161.16	0.1	0.0	0.0	0.0	0.0	0.0	Truck turnaround area
ATWS #1605	50	302	161.26	0.3	0.0	0.0	0.0	0.0	0.0	Wetland crossing
ATWS #1606	25	250	161.33	0.0	0.0	<0.1	0.1	0.0	0.0	Pipe bend location
ATWS #1607	25	168	161.44	0.0	0.0	0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #1608	25	114	161.45	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #1608A	50	371	161.51	0.0	0.0	0.3	0.1	0.0	0.0	Waterbody crossing
ATWS #1609	50	99	161.52	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #1610	50	257	161.57	0.0	<0.1	0.3	<0.1	0.0	0.0	Road crossing
ATWS #1610A	41	50	161.61	0.0	<0.1	0.0	<0.1	0.0	0.0	Road crossing
ATWS #1611	50	149	161.80	0.0	0.0	0.2	0.0	0.0	0.0	Railroad crossing
ATWS #1612	50	192	161.86	0.0	<0.1	0.2	0.0	0.0	0.0	Railroad crossing
ATWS #1613	25	223	162.00	0.0	0.0	0.1	<0.1	0.0	0.0	Side slope
ATWS #1614	25	99	162.00	0.0	0.0	<0.1	<0.1	0.0	0.0	Truck turnaround area
ATWS #1615	25	117	162.08	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1616	25	117	162.09	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1617	25	345	162.34	0.0	0.0	0.2	0.0	0.0	0.0	Top of steep slopes
ATWS #1618	25	540	162.30	0.0	0.0	0.3	0.0	0.0	0.0	Side slope
ATWS #1619	238	40	162.51	0.0	<0.1	0.2	0.0	0.0	0.0	Road crossing
ATWS #1621	25	120	162.62	0.1	<0.1	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #1622	50	255	162.82	0.0	<0.1	<0.1	0.1	0.0	0.2	Road crossing
ATWS #1622A	50	107	162.86	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #1623	25	162	163.30	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #1624	25	278	163.30	0.0	0.0	0.2	0.0	0.0	0.0	Pipe bend location
ATWS #1625	100	319	163.56	0.0	0.0	0.5	0.2	0.0	0.0	Waterbody crossing
ATWS #1627	50	300	163.66	0.0	<0.1	0.2	0.2	0.0	0.0	Road crossing

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #1628	30	394	163.96	0.0	0.0	0.3	0.1	0.0	0.0	Pipeline or foreign utility crossover
<b>Subtotal <sup>a</sup></b>				<b>40.3</b>	<b>5.9</b>	<b>123.1</b>	<b>19.2</b>	<b>0.1</b>	<b>0.2</b>	
<b>MXP-200</b>										
ATWS #SL 1	501	86	0.45	0.0	0.0	1.0	0.0	0.0	0.0	Top of steep slopes
ATWS #SL 2	25	100	0.81	0.1	0.0	0.0	0.0	0.0	0.0	Bottom of steep slopes
ATWS #SL 3	25	100	0.86	0.1	<0.1	0.0	0.0	0.0	0.0	Road crossing
ATWS #SL 3A	25	154	1.09	<0.1	<0.1	<0.1	0.1	0.0	0.0	Waterbody crossing
ATWS #SL 3B	25	125	1.15	0.1	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #SL 5	25	108	1.21	<0.1	0.0	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #SL 6	25	113	1.37	0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #SL 8	25	124	1.65	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #SL 9	25	230	1.82	0.0	<0.1	0.1	0.0	0.0	0.0	Top of steep slopes
ATWS #SL 10	25	108	1.97	0.0	0.1	<0.1	0.0	0.0	0.0	Pipe bend location
ATWS #SL 11	25	93	2.21	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #SL 12	25	149	2.26	0.1	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #SL 13	25	101	2.29	0.0	<0.1	0.1	0.0	0.0	0.0	Road crossing
ATWS #SL 14	25	109	2.42	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #SL 16	25	109	2.61	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #SL 17	25	215	2.64	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #SL 17A	25	100	2.96	0.0	<0.1	0.0	<0.1	0.0	0.0	Truck turnaround area
ATWS #SL 17B	25	100	3.19	0.0	0.0	<0.1	<0.1	0.0	0.0	Truck turnaround area
ATWS #SL 18	25	100	3.03	0.0	0.0	<0.1	0.1	0.0	0.0	Pipeline or foreign utility crossover
ATWS #SL 19	25	100	3.07	0.0	<0.1	<0.1	<0.1	0.0	0.0	Waterbody crossing
ATWS #SL 20	25	66	3.23	0.0	0.0	<0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #SL 21	25	269	3.32	0.0	0.0	0.1	<0.1	0.0	0.0	Waterbody crossing
ATWS #SL 22	25	100	3.43	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #SL 22A	50	251	3.47	0.0	0.0	0.3	<0.1	0.0	0.0	Top of steep slopes

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS #SL 23	42	201	3.61	0.2	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #SL 24	25	109	3.61	<0.1	<0.1	<0.1	0.0	0.0	0.0	Road crossing
ATWS #SL 25	25	99	3.70	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #SL 26	25	100	4.31	<0.1	0.0	0.0	0.0	0.0	0.0	Pipe bend location
ATWS #SL 28	25	114	4.57	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipe bend location
ATWS #SL 30	25	99	4.84	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #SL 31	25	100	4.88	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #SL 32	25	103	5.19	0.0	0.0	0.1	0.0	0.0	0.0	Waterbody crossing
ATWS #SL 33	25	97	5.24	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #SL 33A	50	100	5.58	0.0	0.0	0.1	<0.1	0.0	0.0	Truck turnaround area
ATWS #SL 33B	25	100	5.64	0.0	0.0	0.1	0.0	0.0	0.0	Pipe bend location
ATWS #SL 33C	25	300	5.68	0.0	0.0	0.2	0.0	0.0	0.0	Top of steep slopes
ATWS #SL 35	50	50	5.89	0.1	0.0	0.0	0.0	0.0	0.0	Waterbody crossing
ATWS #SL 36	25	86	5.89	<0.1	0.0	0.0	0.0	0.0	0.0	Wetland Crossing
<b>Subtotal <sup>a</sup></b>				<b>0.7</b>	<b>0.2</b>	<b>2.8</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	
<b>REPLACEMENT PIPELINE FACILITIES</b>										
SM80 Line										
ATWS #SM80 1	25	1,300	21.12 <sup>b</sup>	0.0	0.0	0.7	<0.1	0.0	0.0	Pipeline Replacement
ATWS #SM80 2	66	249	20.95 <sup>b</sup>	0.0	0.0	<0.1	0.4	0.0	0.0	Pipeline Replacement
<b>Subtotal <sup>a</sup></b>				<b>0.0</b>	<b>0.0</b>	<b>0.7</b>	<b>0.4</b>	<b>0.0</b>	<b>0.0</b>	
SM80 Loop										
ATWS #SM80 3	25	1,270	20.66 <sup>b</sup>	0.0	0.0	0.6	0.1	0.0	0.0	Pipeline Replacement
ATWS #SM80 4	25	81	20.59 <sup>b</sup>	0.0	0.0	<0.1	<0.1	0.0	0.0	Pipeline Replacement
<b>Subtotal <sup>a</sup></b>				<b>0.0</b>	<b>0.0</b>	<b>0.7</b>	<b>0.1</b>	<b>0.0</b>	<b>0.0</b>	

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Facility/ATWS ID	Dimensions (feet)		Milepost	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
<b>NEW ABOVEGROUND FACILITIES</b>										
MXP – 100 Tie-In with LEX										
ATWS #1	270	360	0.00	2.0	0.1	0.2	0.0	0.0	0.0	Pipeline tie-in location
ATWS #2	249	59	0.01	0.2	<0.1	0.1	<0.1	0.0	0.0	Pipeline tie-in location
Ripley Regulator Station										
ATWS #R 1	306	13	0.01	0.0	<0.1	0.0	<0.1	<0.1	0.0	Regulator station
Saunders Creek Regulator Station										
ATWS #1629	456	248	164.50	0.0	0.0	1.5	1.1	0.0	0.0	Regulator station
ATWS #1631	28	148	164.50	0.0	0.0	<0.10	0.1	0.0	0.0	Truck turnaround area
<b>Subtotal <sup>a</sup></b>				<b>2.2</b>	<b>0.2</b>	<b>1.9</b>	<b>1.3</b>	<b>&lt;0.1</b>	<b>0.0</b>	
<b>TOTAL <sup>a</sup></b>				<b>43.2</b>	<b>6.3</b>	<b>129.2</b>	<b>21.3</b>	<b>0.1</b>	<b>0.2</b>	

<sup>a</sup> The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the exact sum of the addends in all cases.

<sup>b</sup> Mileposts for pipeline replacement segments are associated with the respective existing pipeline system.