

# **COLUMBIA GAS TRANSMISSION, LLC WB XPRESS PROJECT**

## **Attachment A**

### **General Pipeline Construction Procedures**

#### **From FERC Environmental Assessment, March 2017 Excerpted from Sections A.7. 1. and A.7.2. of FERC EA**

Construction of the proposed pipelines would follow industry-standard practices and procedures, which involve a series of discrete activities conducted in a linear sequence. Prior to construction, the survey contractor would stake the pipeline centerline and the limits of construction work areas. The pipeline centerline would be marked at 200-foot intervals, at known crossings of foreign lines by the proposed pipeline, and at points of intersection. Wetland and waterbody boundaries, cultural resource areas, and sensitive species habitat also would be marked at this time. A clearing crew would then clear the construction work areas of trees, stumps, logs, brush, and rocks. Crops and other non-woody vegetation may be mowed while other vegetation may be left in place to limit soil erosion. A fence crew would work alongside the clearing crew to remove and brace fencing. Temporary gates would be installed where necessary to control livestock or limit public access. Columbia has stated it would only remove timber where necessary for construction. Non-merchantable lumber and cleared vegetation would be, chipped, or hauled offsite to a commercial disposal facility. If burning is required, Columbia would obtain the required burn permits, adhere to all local and state regulations, and conduct necessary burning in a manner to minimize fire hazard and damage to other vegetation.

Following clearing, the work areas would be graded where necessary to provide a level work surface. In areas disturbed by grading, temporary erosion and sediment controls would be installed, in accordance with Columbia's ECSs and site-specific E&SC Plans, to minimize erosion and sedimentation. These erosion and sediment controls would be inspected and maintained throughout the construction and restoration phases of the Project. To prevent mixing of the soil horizons, a maximum of 12 inches of topsoil would be segregated in residential areas, non-saturated wetlands, croplands, improved pastures, and where requested by the landowner or land manager. If the contractor determines the topsoil layer is less than 12 inches, the contractor would remove the actual topsoil depth. Topsoil would be stockpiled separately from subsoil, typically on the spoil side of the construction right-of-way.

Trenching would be conducted with rotary trenching machines, backhoes, or rippers. Columbia has stated that it would meet or exceed DOT requirements for the depth of trench. The trench would be deep enough to provide for approximately 3 feet of cover over the pipeline as required by 49 CFR Part 192 in areas that do not contain shallow bedrock. In areas containing shallow bedrock, the pipeline would be placed in a trench providing a minimum of 18 inches of cover over the pipeline in class I areas and 24 inches of cover in class II and III areas. At least 24 inches of separation would be maintained where the Project pipeline crosses foreign pipelines.

Pipeline sections would be transported by rail or truck and placed either in staging areas for later use or strung on the right-of-way. On the right-of-way, the pipe would be bent by track-mounted hydraulic pipe-bending machines, where necessary, to allow for a uniform fit with the contours at the bottom of the trench. After the pipe sections are bent, they would be welded together into long sections and placed on temporary supports. All bending, welding, and coating in the field would comply with 49 CFR 192 and

with the latest edition of American Petroleum Institute Standard 1104 Welding of Pipelines and Related Facilities. Completed welds would be visually and radiographically inspected, and all pipe welds would be coated in accordance with required specifications to prevent corrosion. Except for a small area at the end of the pipe joint, coating is applied at the pipe mill before shipment to the site. Coating would be inspected for defects, and repaired, if necessary, before lowering the pipe into the trench. Columbia would use set-on concrete weights, concrete coating, pipe sacks, and/or soil anchors to provide negative buoyancy where necessary.

After lowering the pipe into the trench, the trench would be backfilled with previously excavated materials using a bulldozer or other suitable equipment. Occasionally, other sources of backfill would be used to fill in the trench. In areas where topsoil has been segregated, the subsoil would be placed in the trench first and the topsoil would then be placed over the subsoil. Columbia would restore the natural contour of the ground, and restore surface drainage patterns as close to pre-construction conditions as practical.

After backfilling, the entire pipeline would be hydrostatically tested in accordance with 49 CFR 192 and applicable permit conditions to ensure that the system is free from leaks and provides the required margin of safety at operating pressures. This testing involves filling the pipeline with water and then pressurizing the water for eight hours. Any considerable loss of pressure indicates that a leak may have occurred and would require further inspection. If a leak is discovered, the pipeline would be repaired and the segment retested. Test water would be withdrawn from Columbia-approved municipal supplies or other agency-approved sources. The sources and discharge locations for hydrostatic testing of the proposed pipelines are discussed in section B.2.2.

Final cleanup would begin after backfilling and as soon as weather and site conditions permit. Construction debris and organic refuse that is not suitable for distribution over the right-of-way would be collected and taken to a disposal facility, and erosion control measures would be put in place. Contours along the right-of-way would be restored to pre-existing conditions as closely as possible using acceptable soil from construction or agency-approved borrow pits. Segregated topsoil would be returned to the stripped area and permanent erosion controls would be installed. Revegetation measures would be implemented in accordance with Columbia's ECS or based on specific landowner requests.

In accordance with 49 CFR 192, pipeline markers would be put in place along the right-of-way. Each marker would identify Columbia as the operator and provide telephone numbers for emergencies and inquiries. Columbia would conduct periodic inspections of the right-of-way and would implement further restoration measures if necessary.

### **Horizontal Directional Drilling (HDD)**

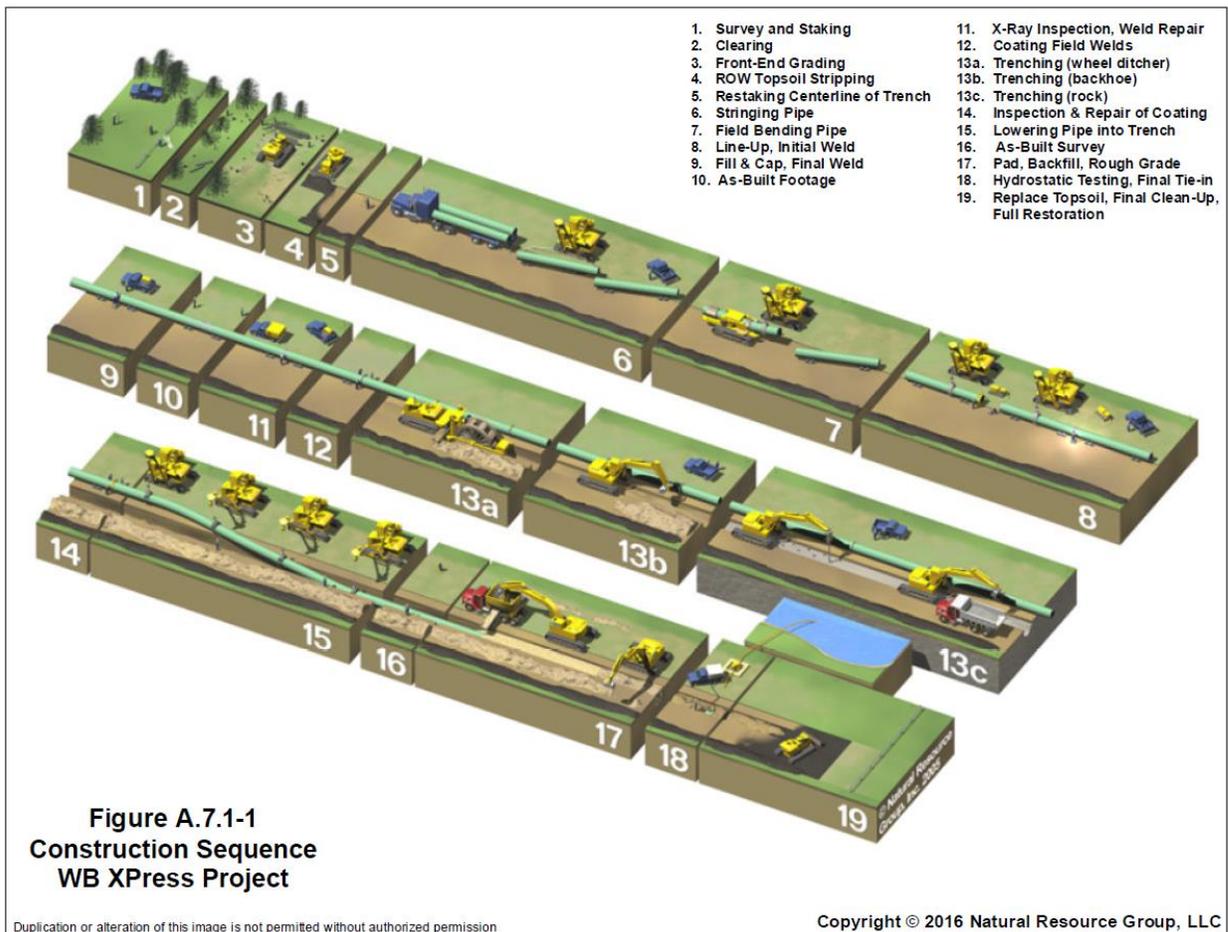
The HDD method is a trenchless construction method that involves drilling a borehole below the depth of a conventional lay, enlarging the borehole to the appropriate size, and then pulling a prefabricated section of the pipe through the borehole. The HDD method generally reduces the workspace required along with the length of the HDD (between the HDD entry and exit) when compared to traditional pipeline construction, but requires additional workspace at both the HDD entry and exit locations. A drill rig would be positioned at the drill entry location to drill the pilot hole. This rig and other equipment would subsequently be used to enlarge the diameter of the drilled hole to a size adequate for installing the pipeline. During drilling, the pipe section to be installed in the HDD hole would be fabricated within the proposed workspace north of the HDD exit hole. When this pipe section is assembled and the hole is complete, the pipe section would be pulled into the hole from the HDD entry location. Drilling fluid, consisting of water, bentonite clay and other nontoxic materials, is critical to the HDD operation and would be used to aid in the drilling and to carry drill cuttings back to the HDD entry and exit points, where they can be removed.

Columbia proposes to use an HDD to install a 3,508-foot segment of the Line VA-1 pipeline between mileposts (MP) 1.5 and 2.2 to minimize impacts on residences adjacent to the south side of the proposed

right-of-way and existing Dominion electric transmission corridor. Although not proposed specifically for wetland or waterbody reasons, the proposed HDD would also avoid or minimize wetland and waterbody impacts. Columbia has developed a HDD Contingency Plan 11 to mitigate adverse effects associated with and potential inadvertent return.

### Residential Areas

Columbia would implement the construction and restoration measures described in its ECSs and detailed on the site-specific residential plans it developed for residences within 50 feet of construction work areas (provided in Appendix F) to minimize impacts on residents. Where residences are within 50 feet of construction work areas, Columbia would notify landowners 2 weeks prior to construction, minimize removal of mature trees and landscaping, install temporary safety fences, and maintain access for residents. The trench would be secured with safety fence each day as construction activities come to a close. In dry conditions, the construction work area would be sprayed with water to minimize fugitive dust. Columbia would attempt to prevent utility interruptions and repair any disturbed utilities immediately. Topsoil would be segregated in residential areas unless specifically requested otherwise by a landowner or if topsoil is imported. Following the completion of construction activities, Columbia would complete final grading in residential areas **within 10 days** of backfilling, weather and soil conditions permitting, and lawn and landscaping such as walkways, fences, etc., would be restored.



# **COLUMBIA GAS TRANSMISSION, LLC WB XPRESS PROJECT**

## **Attachment B General Residential Mitigation Measures Columbia's Application to FERC, December 2015**

### **Excerpt Section 8.3.2 of Resource Report 8 of Columbia's Application to FERC, December 2015**

For residents within 50 feet of the construction work area, Columbia will implement the following general mitigation measures:

- Landowners will receive a two-week notification prior to construction on their respective property.
- 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.
- Safety fencing will be installed along the construction work area in residential areas to discourage non-workers from entering the area. At a minimum, fencing will be installed adjacent to residences for a distance of 100 feet on either side of the residence on the residence side of the construction work area.
- Access will be maintained for residences during construction.
- Trench will be secured with safety fencing each day as construction activities conclude within residential areas.
- Flaggers will be stationed on either side of road crossings to direct traffic during construction across roadways.
- Roadways will be maintained safe and accessible, which includes the removal of soil and/or gravel spilled or tracked onto roadways daily or more frequently as necessary.
- Unless specified by the landowner, or replacement topsoil is imported, topsoil will be segregated from either the full work area or from the trench and subsoil storage in order to prevent the mixing of topsoil and subsoil.
- After backfilling the trench, all lawn and landscaping will be restored to final restoration conditions, or temporarily restored pending weather and soil conditions or as specified in landowner agreements. If seasonal or other weather conditions prevent compliance within these time frames, then temporary erosion controls (sediment barriers and mulch) will be maintained and monitored until conditions allow restoration.
- Attempts will be made to prevent the disruption of utilities. In the event utilities are disturbed, efforts will be made to repair them immediately.
- During extremely dry conditions, the construction work area will be sprayed with water to reduce potential fugitive dust in residential areas.
- If any damages to residential property result from construction, Columbia will repair the damaged property or provide appropriate compensation to the landowner. All TWS and ATWS on residential land will be restored to its pre-construction condition, or as negotiated with the landowner during right-of-way easement discussions.
- After construction, the sites will be restored to preconstruction conditions as soon as practicable.

# **COLUMBIA GAS TRANSMISSION, LLC WB XPRESS PROJECT**

## **Attachment C**

### **General Residential Mitigation Measures**

#### **Supplement No. 4 of Columbia's Application to FERC, August 2016**

Columbia previously reported that the Project would include workspace within 50 feet of 10 residences along Line VA-1. The shift in the alignment of the pipeline, along with the inclusion of the HDD method reduces the total number of residences within 50 feet of workspaces along Line VA-1 to eight. Combined with the additional residence within 50 feet (located at MP 7.1 along Line WB Replacement) not along Line VA-1, the new total of residences within 50 feet is nine for the Project.

As described in more detail in section 10 of this Supplement, if HDD were not employed between MP 1.5 and MP 2.2, additional residences would be within 50 feet of the Project. Revised residential construction plans are included as a separate e-mail to show the areas that would be disturbed near these homes and the mitigation measures Columbia would implement if conventional construction methods were employed. The general mitigation measures Columbia would implement if conventional construction methods were employed are the following:

- Contractor shall erect and maintain a safety fence between the construction zone and the adjacent residences extending 100' on either side of the residence to ensure that equipment, materials and spoil remain within the construction work area.
- A minimum of 25' will be maintained between the residence and construction work area for a distance of 100' on either side of the residence. If the facility must be within 25' of a residence, it must be installed such that the trench does not remain open overnight.
- 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.
- Other existing physical features that need to be protected will be enclosed in safety fence to avoid disturbance during construction.
- All open ditches shall be barricaded/fenced off or plated when construction activities are not in progress.
- After backfilling the trench, all lawn and landscaping will be restored to final restoration, or temporary restoration pending weather and soil conditions, 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.
- Contractor shall utilize water trucks as necessary to minimize fugitive dust from construction activities near residences/businesses. Refer to CPG Fugitive Dust Plan.
- Access to residences will be maintained at all times, or other accommodations will be made with each respective landowner.
- Contractor shall maintain agreed upon access to the impacted area during construction.
- Contractor shall limit work in this area to daylight hours, unless otherwise agreed upon with landowner/occupant.

- Landowner/occupant shall be notified of proposed construction activities prior to construction work.