



ATTACHMENT K
Steep Slope Construction Plan



Spire STL Pipeline Project

Steep Slope and Landslide Hazard Assessment Plan

FERC Docket Nos. CP17-40-000 and CP17-40-001

January 2018

Public



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Acronyms and Abbreviations

ECDs	erosion control devices
Project	Spire STL Pipeline Project
Spire	Spire STL Pipeline LLC



Steep Slope and Landslide Hazard Assessment Plan

The following discussions describe procedures to employ for slopes steeper than 30 degrees to minimize the risk for landslides on Spire STL Pipeline LLC's ("Spire") proposed Spire STL Pipeline Project ("Project") located in Scott, Greene, and Jersey Counties, Illinois, and St. Charles and St. Louis Counties, Missouri. The Project crosses an area of high landslide potential near the bluffs north of the Mississippi River crossing.

1.1 Preparation

Spire will utilize industry-accepted steep slope construction methods and will develop, in conjunction with the field contractor, a site-specific steep slope plan for ROW with greater than 30 degrees of slope. The site-specific plan will include but will not be limited to the following activities. The right-of-way will be cleared and graded to facilitate installation. Areas where steep slopes parallel the construction right-of-way will involve cutting the uphill side of the construction right-of-way during grading. Material removed from the cut will be used to fill the downhill side of the construction right-of-way to provide a safe and level surface for the operation of heavy equipment. Erosion control devices ("ECDs") will be installed along the steep slope pipeline installation right-of-way. ECDs such as slope and trench breakers will be used in areas where the steep slope is perpendicular to the construction right-of-way.

1.2 Installation

The pipeline trench will be excavated and the trench bottom will be prepared by installing earth-filled bags in the bottom of the trench to protect the pipe from engaging any rocks or debris lying in the bottom of the trench. The pipeline trench will be excavated at the appropriate depth beneath original grade.

The slope pipe section will be staged and prepared in one single continuous section, beside the excavated trench. The pipe section will be secured with sub-grade cable anchors to ensure the section will remain in place prior to lowering in. Pipe lowering-in operations will be completed and the trench breakers will be installed with trench water conveyance measures.

Spire will avoid performing tie-ins on areas with steep slope. If necessary, winch tractors with 1-¼ inch or larger winch cables will be utilized to enhance equipment stability. Mobile equipment operators will wear a seat belt at all times during any steep slope construction operations. Temporary water bars and slope breakers will be graded smooth prior to any equipment or vehicles traveling up or down steep slope, but replaced at the end of each workday.

1.3 Restoration

Permanent water bars will be installed and the final grade and restoration of the pipeline right-of-way will be completed. This will involve placing excavated material back in the cut, compacting, and restoring to approximate original contours. Stabilization measures such as seeding and installation of erosion control matting or fabric will be utilized to minimize surface erosion until revegetation is successful. Restoration will be monitored and steep slopes and corrective action will be implemented as needed.