

BASELINE SOIL ANALYSIS PLAN

Grayson Mill Operating, LLC Missouri River Crossing Pipeline Reinstatement Project

January 2025



15650 36TH AVENUE N, SUITE 110
PLYMOUTH, MN 55446

TEL 952.346.3900
FAX 952.346.3901

CARLSONMCCAIN.COM

ENGINEERING \ LAND SURVEYING \ ENVIRONMENTAL

1.0 Introduction

Grayson Mill Operating, LLC (“Grayson Mill”) is proposing to return to service 14.72 miles of existing Hazardous Liquid Pipeline (HLP or the Pipeline) and its associated facilities. This Baseline Soil Analysis Plan (the Plan) outlines the methods that will be used to determine topsoil depth along the route of the Pipeline.

Surficial geology along the Pipeline route is documented as mainly silty clays west of the Missouri River and loamy soils east of it. Silt loams are mapped on the eastern banks and up the river gullies as well (Surficial geology of North Dakota, Iowa State University, 2020). Topsoil is differentiated by its typically darker color (due to accumulation of organic material), otherwise known as the “A” (or “O” in areas of heavy plant life such as wetlands or forests) horizon.

2.0 Sampling

This Section provides a brief description of the steps required to determine topsoil depth along the route of the Pipeline.

- A health and safety plan will be prepared, prior to the start of fieldwork.
- All public utilities will then be cleared through the North Dakota One Call System prior to the start of work, a private utility locator should not be required.
- Manually advance hand auger soil borings until subsoil (a “B” or “E” horizon) is encountered, below the topsoil.
 - The subsoil will be identified by a color change (from dark to light), reduced proportion of organic material (and thus increased mineral content), and/or the terminus of plant roots.
 - Hand auger locations will be placed approximately every 0.5 miles, with the understanding that they may be moved slightly to avoid obstructions such as roads, trees, wetlands, the Missouri River, etc.
- After completion, hand auger locations will be surveyed using a Global Positioning System (GPS) for future reference and restored using the disturbed soil.

3.0 Reporting

A soil profile (including color, texture, depths, etc.) for each hand auger boring will be logged by the technician completing the work. These logs will be digitized and included in the final report. In addition, the report will include overall results and conclusions, figures depicting the hand auger locations, a table of hand auger location coordinates, and any other pertinent information collected during the fieldwork.