RECLAMATION

SURERUS MURPHY
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Site-specific environmental stewardship plans identify ways to reclaim areas disturbed by project activity. Each location is unique and may require site-specific reclamation methods.

There are many typical methods and strategies used for reclaiming watercourses and riparian areas, slopes, forested areas, and agricultural areas. Most reclamation strategies have been designed to control water movement on (or off) the disturbed area and encourage revegetation of the work area.

Surerus Murphy's focus on project completion excellence and sustainability goes beyond energy efficient operations and limiting our physical footprint, it is also about how we protect and conserve natural resources and successfully return the right-of-way to a productive condition.

Reclamation Tools:

A short list of often-used reclamation tools includes:

- Soil management – stockpiling and recontouring soil material to enhance subsoil and topsoil stability
- Creation of a site-specific Drainage, Erosion, and Sediment Control Plan
- Sediment fencing to reduce the transportion of sediment on-and-off the disturbed area
- Ditch plugs, subsurface drains, and surface drainage berms for maintaining stability on long slopes
- Biodegradable ground cover matting to stabilize the surface
- Biodegradable retaining walls around watercourses to rebuild and stabilize riparian slopes
- Rock armouring in the bed of watercourses to minimize scour/washout in reclaimed areas
- Rollback of waste vegetative matter to create microsites to enhance plant and animal life and enhance surface stability
- Slope texturing for added microsites and slope stability
- Reseeding with a native seed mix in erosion prone areas and agricultural areas
- Energy dissipators to reduce the speed and kinetic energy of flowing water

Erosion Risk Determination:

Elements that influence a reclamation strategy include:

- Geotechnical and soils data to determine soil texture and characteristics
- Soil erodibility based on soil data
- Sediment risk to an aquatic environment
- Extreme weather contingencies

This table is used to determine erosion risk. Erodibility refers to the likelihood of erosion. The Consequence Rating categorizes the risk to local natural resources from erosion, often referring to soil sediments entering a watercourse. Determining risk guides the type and level of effort required for successful erosion control and site reclamation.

Table: Site Sediment and Erosion Risk to the Environment

Risk Table	Erodibility		
Consequence Rating	Low	Medium	Severe
Low	L	L	M
Moderate	L	M	H
High	M	H	VH
	Risk Level		

Adapted from Forest Road Drainage Installation Practices (InfoFlip, 2022)

Dry watercourse and riparian area reclamation

Land Use

Local land use needs are reflected in the reclamation strategy. Forest, agricultural, and wetland land use areas require different reclamation strategies. Wetlands are self-healing if managed properly, so after a disturbance they require less effort to reclaim and return to full functionality.

Forested land is typically left to recover naturally and will successfully do so with proper reclamation, including redistributing any removed soil and the project footprint with upper surface soil material which contains seeds, plant root propagules, and organic matter required for reclamation success. In some cases, brush, shrub, and/or tree planting enhances stability and general reclamation.

Special attention is placed on the depths, quality and distribution of topsoil on agricultural land, so the landowner's use of the land proceeds without limitations associated with the project. Careful removal, stockpiling, and management of topsoil is necessary to preserve topsoil quantity and quality for the reclamation stage.

Watercourse reclamation

Clean-up

There are typically two stages to clean-up and reclamation on a pipeline project. Initial clean-up (or rough clean-up) begins immediately after pipeline hydrotesting is complete. The first step in initial clean-up and reclamation is to re-establish original surface topography and water drainage patterns. It is also a top priority to install drainage and sediment erosion control measures at all watercourse crossings when constructing near a watercourse. Temporary diversion berms on slopes are installed as soon as possible after trench backfill and compacted to eliminate slope subsidence and undermining by moving water.

Final clean-up is often the season following initial clean-up to allow time for subsoil settling on the right-of-way. In Alberta and B.C., this is usually the following summer after the winter snows and spring rains. After the subsoil has settled, any additional right-of-way recontouring is completed prior to final clean-up. During final clean-up, upper surface material (or topsoil) is replaced uniformly over the right-of-way subsoil. On agricultural land, it is critical that stored topsoil is evenly spread across the right-of-way so subsequent crop growth is not affected by insufficient topsoil.

In addition to topsoil replacement, coarse woody debris (stumps, roots, or logs) may be installed on the right-of-way to restrict public access to the reclaimed area or to help stabilize slopes. This technique enhances natural revegetation and wildlife habitat. During final clean-up, unnecessary temporary erosion controls, as well as those controls that have ceased to function effectively, are removed and replaced (if necessary) with permanent erosion control measures. Permanent measures are usually made of biodegradable natural materials.

During final reclamation, reseeding is done where required, such as on erosion prone areas, using approved seed mixes. Wetlands are usually left to recover naturally since they will recover quickly without assistance. Any property line or other types of fencing that is required will be installed.

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