

INVASIVE PLANT MANAGEMENT

Site-specific environment stewardship plans enable our team of environmental professionals to identify invasive plants and protect against spread on to healthy topsoil that is set aside for redistribution later.

Surerus Murphy Joint Venture's focus on sustainability goes beyond energy efficient operations and limiting our physical footprint. It is how we protect and conserve natural resources and successfully return the right-of-way to a productive condition.

Uncontrolled invasive plant growth harms ecosystems and deteriorates soil quality. Invasive plants cause crop loss to landowners and negatively impact a forest's health. Surerus Murphy uses environmental management techniques and research to responsibly manage the spread of invasive plants on the right-of-way.

Stewardship:

Well before construction begins, environmental crews walk the proposed right-of-way and identify undesired invasive vegetation, marking its location using signage and flagging. Construction crews receive digital maps and tables that explain the project-specific environmental plans and specific mitigations and controls. This information supports reclamation and mitigates the risk of invasive plants from spreading to adjacent lands. The net result is to limit or reduce the spread of weeds and invasive species and protect the soil and native vegetation.

Equipment Cleaning:

All equipment used during the construction process is routinely cleaned when transporting from one area to another. It is transported back to the storage yard where it is carefully disinfected to remove traces of microscopic fungi, spores, infected soil, or waterborne diseases and stop the transfer of invasive plants or debris from one project to another.

On the right-of-way, we may occasionally encounter areas that have a soil fungus (i.e. clubroot), or outbreak of weeds. To mitigate the spread of these invasive plants, we set up cleaning stations near property boundaries or close to roads and clean our equipment as it passes from one section to the next. In some cases, there may be dozens of equipment cleaning locations along a linear pipeline project.

Disinfection:

When we disinfect our equipment, we apply a diluted bleach solution after the initial high-pressure water cleaning to remove soil and mud. The Canadian Association of Petroleum Producers (CAPP) protocol states that the bleach solution should remain on the equipment for 20 minutes (or until it freezes if doing winter construction) so any small spores, seeds, or live root material are neutralized. The Alberta protocol says to soak the equipment for 20 – 30 minutes.

Equipment cleaning



High-pressure water washing



Application of dilute bleach solution for disinfection





Our Commitment:

- Trained biologists and botanists conduct weed surveys on the project footprint during a project's pre-development stage to identify areas where invasive plants are present.
- When invasive plants are identified, their locations are recorded, and the area is surveyed and flagged off during construction.
- Topsoil containing invasive plant seeds is segregated. If invasive plants emerge from the topsoil pile during the growing season, control measures include hand-picking, mowing, and/or herbicide application.
- Basic equipment cleaning requires dirt and debris to be scraped from equipment and then the equipment washed using a high-pressure water spray. Following, the equipment is cleaned with a diluted concentration of bleach and water.

Stories from the Field

Surerus Murphy uses dedicated equipment for moving topsoil in weed infested areas. We also clean equipment as it moves between areas to prevent spreading spores and seeds. Where weeds are located near but not on the right-of-way, signage is used to indicate the presence of weeds to warn workers away from the area.

Vegetation identification specialists such as biologists or botanists use GPS technology to identify the location and spread of weeds. In the case of a large dispersal of weeds on the work area, they will take reference readings around the perimeter of the weed patch, so surveyors can return later to flag or rope off the area so construction can avoid the weed patch. If the area will be disturbed, the topsoil is segregated in a separate soil pile so the earth moving equipment doesn't spread the weed roots and seeds further than they originally were.

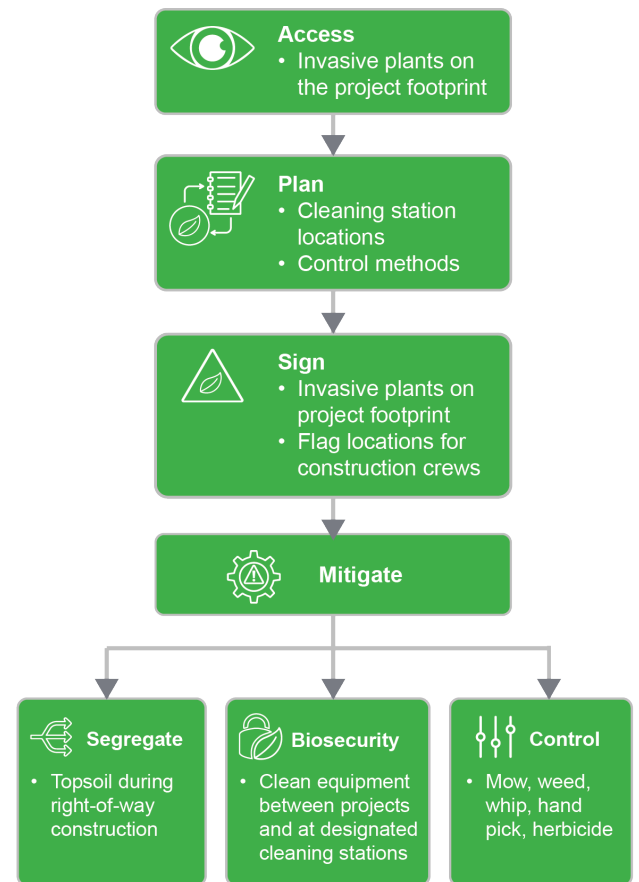
During reclamation, soil is returned to the same location from which it was collected. If weeds emerge at some point in the construction process and weed control becomes necessary, the weeds will be either hand-picked, mowed, or be controlled with an appropriate herbicide.

There are limitations to where herbicides can be applied. Herbicide applications are typically never permitted near a watercourse, or in a riparian zone. This is to keep the herbicide from seeping or migrating into the watercourse and affecting aquatic life. Weeds found in riparian areas or near water may have to be manually removed.

Did You Know?

- Jurisdictions have legislation and regulations regarding what species are considered invasive, which can vary from jurisdiction to jurisdiction.
- Basic equipment cleaning requires dirt and debris to be scraped from equipment and then the equipment washed using a high-pressure water spray. Following, the equipment is cleaned with a diluted concentration of bleach and water.
- The formula used for cleaning equipment may change depending on the severity of the invasive plant outbreak, the cleanliness of the equipment and the activity the equipment will be performing.
- Surerus Murphy has a state-of-the-art cleaning facility in Fort. St. John. The facility operates like an automatic car wash for heavy equipment. Water is recycled to reduce the use of water as a large piece of equipment may take several hours to thoroughly clean.

Noxious Weed Process



Supporting Canada's Energy Transition:

Surerus Murphy is supporting our clients who are constructing infrastructure for Canada's low-carbon economy. To meet our 2050 net-zero commitments, Canada's infrastructure requires new builds or retrofitted pipelines, facilities, and infrastructure. Building these assets is our wheelhouse.

We have a dedicated team of resources focusing solely on the energy transition who are researching current and developing technologies relating to hydrogen, hydrogen carriers (ammonia/methanol), carbon capture, bioenergy, as well as any other technologies that may be utilized for gas production, transportation, compression, or storage in a net-zero economy.

Whether it's the energy transition of a country or the transition of a product being moved through a pipeline, we build the infrastructure that delivers quality assets in a safe and timely manner and that adapt to the energy transition.

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