

Health and Safety Standard

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Table of contents

Health and Safety Standard	1
1 Purpose	3
2 Application	3
3 Intended audience and roles	4
4 Requirements	6
4.1 Ground disturbance defined.....	6
4.2 Ground disturbance pre-planning requirements.....	6
4.3 Obtaining third party approvals.....	7
4.4 Preparing ground disturbance document package.....	7
4.5 Providing notification to one-call centers.....	7
4.6 Conducting pre-ground disturbance search.....	8
4.7 Line locating and marking of buried facilities.....	8
4.8 Pre-job ground disturbance meeting and authorization.....	8
4.9 Supervise and perform ground disturbance.....	8
4.10 Non-mechanical exposure.....	9
4.11 Mechanical excavation.....	9
4.12 Buried facility backfill.....	10
4.13 Post job documentation review and update.....	10
4.14 Lessons learned.....	10
5 Training	11
6 Related information	11
6.1 Glossary of terms.....	11
6.2 References.....	12

Figures

Figure 1: Cenovus ground disturbance process map.....	6
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Tables

Table 1: Intended audience and roles.....	4
Table 2: Training requirements.....	11
Table 3: Terms and abbreviations.....	11
Table 4: Internal governing references.....	12
Table 5: External governing / normative references.....	12
Table 6: Other references.....	12

1 Purpose

This standard established the formal requirements (the “what”) for ground disturbance activities to meet regulatory and internal requirements, and for work to be completed safely, without occupational or process safety incidents, or adverse environmental impact.

Details on “how” to execute the ground disturbance requirements are provided in the corporate ground disturbance procedure and Entity specific procedures.

2 Application

This standard applies to all business units and departments accountable and responsible for ground disturbance damage prevention within Cenovus’ operation in Western Canada. This includes, but is not limited to: Conventional, Thermal, Downstream, and Marketing (Retail).

3 Intended audience and roles

Table 1: Intended audience and roles

Role	Assignment considerations	Possible positions
Functional Group Manager/Project Representative	Accountable individuals providing support where necessary for the correct execution of ground disturbance expectations.	Construction Manager Engineering Manager Liability Program Manager Facility & Pipeline Construction Manager Civil Construction & Reclamation Manager Support Group Manager Project Lead Project Manager Project Engineers Exploration Engineers Operations Engineers

Role	Assignment considerations	Possible positions
Field Supervisor	Individuals accountable and or/ responsible with ensuring correct execution of all aspects of ground disturbance damage prevention.	Field Manager Construction Coordinator Group Team Lead Area Operations Superintendent Construction Superintendent Field Superintendent
Ground Disturbance Supervisor	The primary responsible individual, competent in the execution of Cenovus and industry ground disturbance expectations.	Site Supervisor Operations Personnel Work Site Leader (WSL) Front Line Supervisor (FLS) Construction Site Representative (CSR) Cenovus Representative
Contractor	Companies and or individuals competent in the execution of the designated responsibilities.	General Contractor Line Locator Contractor Excavation Contractor Hydrovac Contractor Excavation Equipment Owners/Operators Involved Personnel
Sub-Contractor	All personnel or organizations that are sub-contracted to a Cenovus approved vendor.	

4 Requirements

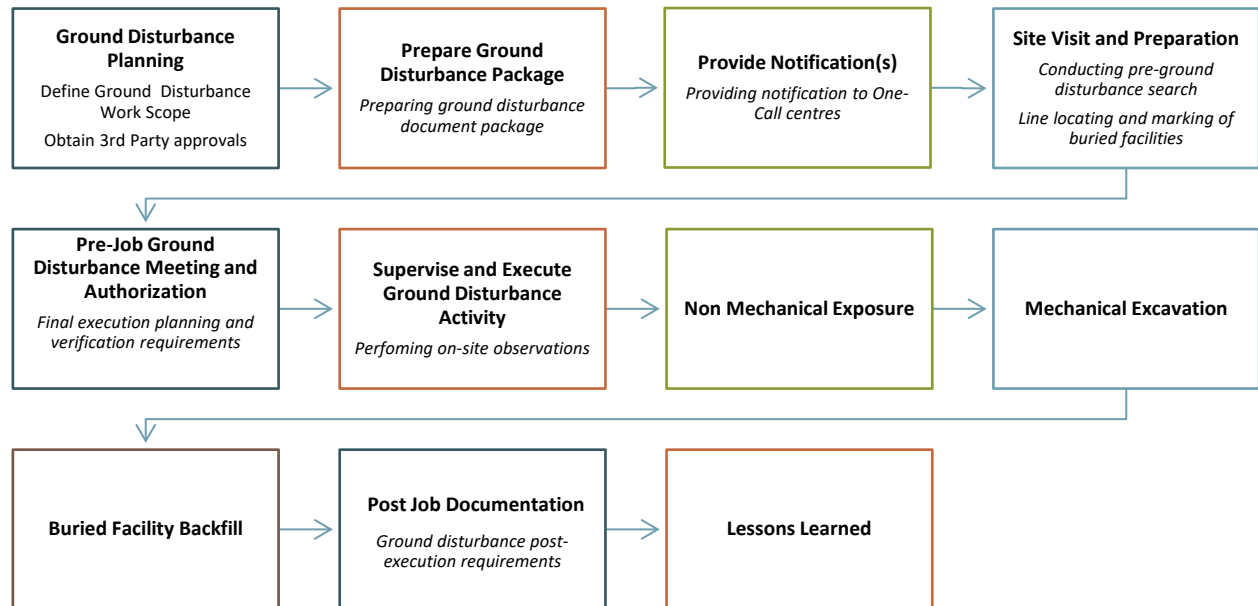


Figure 1: Cenovus ground disturbance process map

4.1 Ground disturbance defined

Ground disturbance activity is considered any work, operation, or activity (intentional or unintentional) that results in a disturbance of the earth, except for:

- routine, minor road maintenance, such as patching, street sweeping and the grading of gravel roads
- agricultural cultivation to a depth of less than 450 millimetres (18 inches) below the ground surface over a pipeline
- minor surface work to a depth of no more than 300 millimetres (12 inches) below the ground surface, so long as it does not permanently remove cover over a buried facility

Minor surface work activities can include but is not limited to: hand digging (to a depth less than 300 mm), grass seeding, and minor spill clean-up.

All mechanical excavation, regardless of depth or worksite location, and hand-digging to a depth greater than 300 millimetres are considered ground disturbance and shall be conducted in accordance with this standard.

4.2 Ground disturbance pre-planning requirements

The Area Manager or Functional Supervisor shall designate a competent Ground Disturbance Supervisor to coordinate and supervise ground disturbance activities within the work, search, controlled, or prescribed area of any buried facility.

4.3 Obtaining third party approvals

All necessary approvals shall be obtained in writing, as per the applicable jurisdictional requirements. Copies of the approvals shall be provided to all parties involved and be available on site.

4.4 Preparing ground disturbance document package

A ground disturbance package shall be prepared and be readily available at the worksite.

The document package shall include (when available), but not limited to:

- applicable approvals
- notification records
- completed field locate records
- AER Pipeline WebMaps OneStop (aer.ca)
- aerial photography
- Cenovus records related to the task, including as-builts, plot plans, facility maps, engineering drawings, and well or pipeline file records
- clearly defined scope of work
- search area
- work area:
 - non-mechanical excavation areas
 - mechanical excavation areas
- single point excavation areas:
 - the reference location of newly installed/proposed facilities
 - reference distances from above ground infrastructure and buried facilities
- confirmation of third party, pipeline owner, or co-op records

Note: Site-specific or business unit requirements may also be added: including but not limited to, procedures, emergency documents, rescue plans.

All workers involved in the ground disturbance activity shall be made aware of the on-site location of the copies of the ground disturbance standard or have a current digital copy on a device.

The Ground Disturbance Supervisor shall review the document package prior to the start of the ground disturbance.

4.5 Providing notification to one-call centers

Regional specific one-call centres shall be notified of the proposed ground disturbance.

If the buried facilities are not registered with the one-call centres, the Ground Disturbance Supervisor shall identify and contact the owners of those facilities directly with a request for locates.

4.6 Conducting pre-ground disturbance search

A pre-ground disturbance search shall be conducted to determine whether buried facilities exist within the proposed work, search, controlled, and prescribed areas.

Ground disturbance search includes a combination of a desktop and a site visit/field-based review. It shall consist of an analysis using an appropriate set of data sources including, but not limited to:

- one-call centres
- easements and caveats registered against certificates of title
- regulatory agency maps
- commercial data and mapping services
- municipal and rural utility companies
- as-builts, facility plot-plan, and pipeline maps
- survey plans
- landowners and residents
- visual indicators

4.7 Line locating and marking of buried facilities

Ground disturbance work shall not proceed within the work, search, controlled, or prescribed area until the locating and marking of all buried facilities and rights-of-way is complete.

4.8 Pre-job ground disturbance meeting and authorization

A ground disturbance meeting shall be held and clearly communicate:

- a detailed project scope and contain all ground disturbance activity that is being undertaken
- details of the ground disturbance activity and shall include:
 - description of the task
 - search area
 - work area
 - prescribed area (CER pipelines only)
 - mechanical excavation area
 - non-mechanical excavation area
 - single point excavation area
 - reference distances in relation to buried facilities and above ground infrastructure
- issuance of the ground disturbance authorization
 - ground disturbance authorization is accomplished through:
 - ground disturbance checklist in addition to the appropriate safe work permit
 - ground disturbance authorization form
 - POST (used in retail)
- roles and responsibilities of everyone involved in the ground disturbance activity

4.9 Supervise and perform ground disturbance

The Ground Disturbance Supervisor shall attend the site to:

- have a discussion with the area operations field personnel

- lead hazard assessment discussion and ensure hazard assessment is completed and reviewed by all involved in the ground disturbance activity.
- ensure workers have minimum training for ground disturbance activity, and verify training tickets
- meet with the area landowner. NOTE: not required for Crown Land
- verify that all stakes, locates, and powerline signage are in place
- check for visible indicators
- complete the ground disturbance checklist
- issue ground disturbance authorization
- supervision for any ground disturbance activity
- monitor and manage site conditions
- supervise 3rd party ground disturbance activities when any mechanical equipment is operated within 1.5 meters (horizontally) of a buried facility

4.10 Non-mechanical exposure

When a mechanical excavation is planned within five (5) metres of a buried facility, the facility shall be hand exposed for depth, orientation, and visual confirmation.

Where a proposed ground disturbance will be parallel to an existing buried facility and within the hand exposure zone, the buried facility shall be exposed at sufficient intervals to confirm the alignment and depth throughout the planned work, search, controlled, and prescribed areas, or at intervals as set out by the facility owner in the crossing or proximity agreement.

Only hand-digging excavation techniques acceptable to the buried facility owner shall be used during the hand exposure process. Picks, wrecking bars, and probes are not permitted when hand exposing.

The minimum exposure requirement for crossing under existing buried facilities is one (1) metre on each side of a buried facility and to a depth of 300 millimetres below the buried facility.

Hydrovac exposure is acceptable when it's confirmed by the buried facility owner and includes the operating pressure and temperature that shall be used to avoid damaging the buried facility. Hydrovac in the vicinity of buried facilities without locates constitutes a ground disturbance with mechanical excavation equipment.

4.11 Mechanical excavation

Ground disturbance work with mechanical excavation equipment is not permitted within the hand expose zone of a buried facility until the facility has been exposed to sight for visible inspection.

No mechanical equipment is allowed within one (1) metre of an exposed facility, except under the direct on-site supervision of the Ground Disturbance Supervisor or if applicable, under the direct supervision of the owner representative for the buried facility.

Mechanical equipment shall not be operated, at any time, within 30 centimetres of any buried facility.

For Canadian Energy Regulator (CER)-regulated pipelines:

- No mechanical excavation may take place within three (3) metres of the pipelines or facility, unless the location of the pipeline has been determined by hand exposure, or if the facility owner has confirmed the exact location of the pipe and has informed the person carrying out the excavation of that location.
- Facility owner's representative shall be present during all ground disturbance activities within one and one half (1.5) metres of the buried facility/pipe.
 - If a greater distance is stipulated in the crossing agreement, it shall be followed.

4.12 Buried facility backfill

Prior to backfilling, the Ground Disturbance Supervisor shall confirm that a field mark-up drawing, or equivalent, is prepared and shows the location of the newly installed facilities and all encountered pre-existing buried facilities.

In situations where a third-party pipeline was exposed, the owner shall be notified a minimum of 24 hours prior to backfilling.

Backfill procedures shall be followed for the specific type of buried facility, according to the manufacturer, vendor, and/or engineering specifications. This shall include completion of a backfill inspection report.

4.13 Post job documentation review and update

Upon completion of the ground disturbance activity, the Ground Disturbance Supervisor shall ensure that all buried facility changes and/or discrepancies are identified and communicated to the appropriate Field Supervisor.

Upon receipt of the identified changes and/or discrepancies, the Field Supervisor shall review the submitted changes and update the existing engineering records to include all relevant information.

Upon completion of the ground disturbance activity, the Engineering Team, Project Construction, or Surveying company shall provide the facility owner as-builts drawings capturing additions, changes, or removal of buried utility, equipment, and buildings.

4.14 Lessons learned

The process of regularly conducting a post job review regarding the planning and execution of the ground disturbance activity is a key component for continuous improvement of the ground disturbance damage prevention program. Lessons Learned shall be discussed and applied to future ground disturbance activities.

5 Training

All Cenovus and contract staff who are involved in any ground disturbance activities are required to possess and be readily available to provide proof of valid training certification from a course provider that is endorsed by the Utility Safety Partners (formally Alberta Common Ground Alliance- ABCGA). All other training certificates for ground disturbance are not recognized on a Cenovus worksite.

Training requirements for the standard are as follows:

Table 2: Training requirements

Role or description of role	Requirement
Workers involved in any type of ground disturbance activity, excluding supervision. Workers with this level of training shall always be working under the direct supervision and guidance of a supervisor who has a valid ground disturbance supervisory (Level 2) certificate.	Ground disturbance 101 (Level 1)
Anyone who is involved in the supervision of a ground disturbance activity.	Ground disturbance 201 (Level 2)

6 Related information

6.1 Glossary of terms

Table 3: Terms and abbreviations

Term or abbreviation	Details
controlled area	Area that extends 30 meters on each side from the center of the pipeline, or from the pipe centerline to the edge of the right-of-way (ROW), whichever is wider.
line locating	The use of industry acceptable methods and principles to identify buried facilities.
line locate information	Information provided by the locator in the form of ground surface markings and underground infrastructure location documentation, such as drawings, mapping, numeric descriptions or other written documentation.
mechanical excavation	Any movement of earth using mechanized tools or equipment, regardless of size, depth, or distance.

non-mechanical excavation	The use of non-mechanical equipment to create an excavation. This is not the same as an excavation for the purpose of exposure to verify a buried facility.
prescribed area	(CER-regulated pipelines only) - Area that extends 30 meters perpendicularly on each side from the centerline of a pipe.
project scope	A fully encompassing register of all information, and tasks associated to the ground disturbance activity.
search area	Area that extends 30 meters in all directions surrounding the work area.
work area	Physical surface location where the ground disturbance activity is taking place.

6.2 References

Table 4: Internal governing references

Document name	Description
COIMS Framework	Element 9 Safe Control of Work
Ground Disturbance Damage Prevention Procedure	Corporate Ground Disturbance Procedure

Table 5: External governing / normative references

Document name	Description
Alberta Energy Regulator (AER)	Alberta Pipeline Act
Alberta OHS Act, Regulation, and Code	Part 32 Excavating and Tunneling
Canadian Energy Regulator (CER)	Pipeline Damage Prevention Regulations
WorkSafe BC	Part 20 Construction, Excavation, and Demolition

Table 6: Other references

Document or tool name	Description
Utility Safety Partners	Damage Prevention Process
Canadian Common Ground Alliance	Underground Infrastructure Damage Prevention
Energy Safety Canada	Ground Disturbance and Damage Prevention: A Program Development Guide