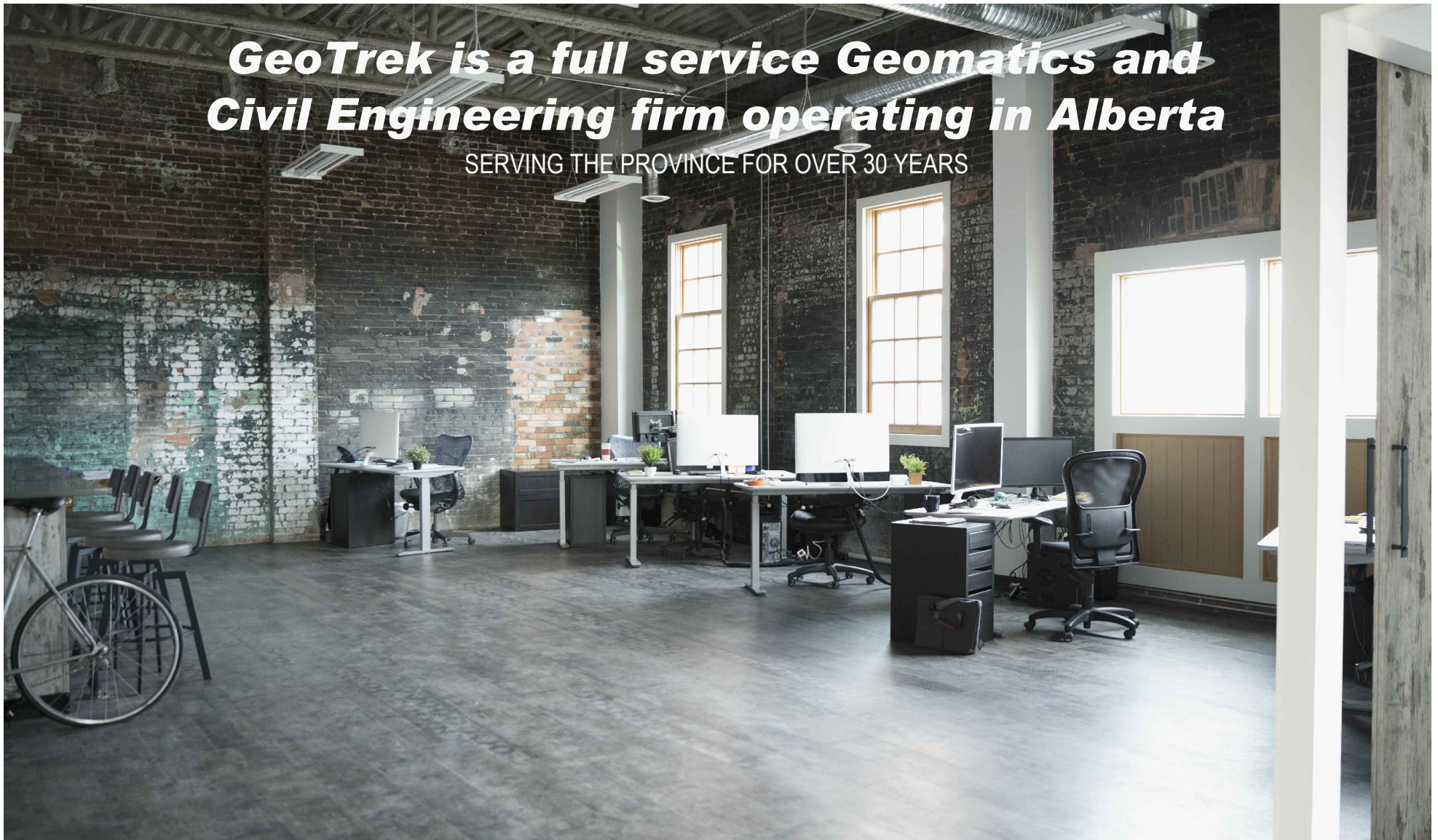


# ***GeoTrek is a full service Geomatics and Civil Engineering firm operating in Alberta***

SERVING THE PROVINCE FOR OVER 30 YEARS



## **ABOUT US**

GeoTrek is a leading Geomatics and Civil Engineering firm operating in the province of Alberta. With a young and talented expertise we make sure that the services are best in the industry with high quality and less turnaround time. By combining multiple services GeoTrek can reduce the time and costs required to completed a project on time and on budget.

## **MISSION**

Our approach is built on a foundation of collaboration and technological innovative solutions to exceed our clients' expectations. We view our clients as partners and have a team of knowledgeable and dedicated professionals committed to providing the highest level of customer service.

## **AFFILIATIONS**



## **CONTACT**

***GeoTrek***

Website: [www.GeoTrek.ca](http://www.GeoTrek.ca)  
Email: [Survey@GeoTrek.ca](mailto:Survey@GeoTrek.ca)  
Phone: 403.238.4002

## **OUR SERVICES**

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We provide wide range of services for the Oil and Gas, Mining and Construction industries.

**Services we offer:**

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**MAPPING AND GIS SERVICES**

**GEOMATICS**

**CIVIL ENGINEERING**

**GEOTECHNICAL**

**LINE LOCATING**

**CONSTRUCTION**

**GeoTrek**



Using LiDAR (light detection and ranging) digital terrain model and aerial photo, we can produce a detailed 3d model of an area and compute instant information for terrain analysis, scouting, survey and construction. Combined multiple data sets gives information only available from an office atmosphere with the illusion of being in a helicopter, at a fraction of the cost.

- Pre site planning, facilities and site layouts
- 3-D desktop LiDAR scouting
- Group desktop planning sessions
- Aerial, LiDAR Full Feature and Bare Earth Imagery
- Route selection and slope studies
- Cut Fill Diagrams and material volumes
- Watershed and storm event analysis
- Georeferenced PDF maps for mobile devices
- Customized online Mapping and Goggle Maps integration
- Google earth kmz basemaps. Smart layer attributes (dispositions, licensing information etc.)
- Constraints Mapping
- Vegetation Height and Timber Salvage Areas





# GEOMATICS

GeoTrek is a full service Professional Land Survey company operating in Province of Alberta and is a member of the Alberta Land Surveyors Associations.

Our survey team of professionals has been providing accurate, timely and on budget survey services for over 30 years. Experienced in various industrial, commercial and residential surveys, our team has seen it all.

## Services we provide in Geomatics:

### Heavy Oil & Oil Sands

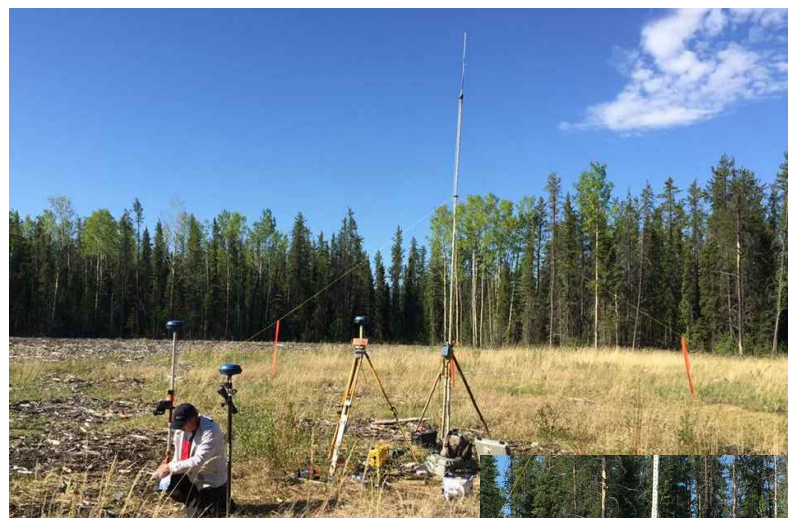
- OSE programs
- SAGD licensing and notification plans
- As-Builting
- Pipeline Licensing (above and below ground)
- Locating Vintage wells and coreholes

### Pipelines

- Desktop scouting, mapping and route selection
- Flagging and construction support
- Individual ownership plans, crossing and access plans
- Alignment sheets
- Construction Plans
- As-built surveys
- High precision control networks
- Construction and pile layouts
- Facility surveys
- Topography surveys
- Project and Data Management

### Conventional Oil & Gas

- Wellsite, Access Road and Pipeline surveys
- Crown Disposition plans
- Lidar and Hybrid Surveys
- Disposition Renewals



# CIVIL ENGINEERING AND GEOTECHNICAL

GeoTrek provides Civil engineering and Geotechnical services to Oil and Gas clients in northern Alberta. Utilizing a small and experienced team of multiple disciplines projects can be completed in a fraction of the time and costs of our competitors.

Our approach is to work with the client and provide a product that is tailored to their project and deliverable needs.

## Services we provide in Civil Engineering and Geotechnical:

- Civil Design
- Route scouting and site selection
- GPS Grading and Mulching support
- Project and Contractor Management
- Geotechnical Investigations
- Compaction Testing
- Ground Penetrating Radar
- Ice thickness Mapping (GPR)
- Corehole / Borehole Logging
- Ground Water Sampling and Modeling
- Soil Testing Program
- Sub surface mapping (GPR)

### Areas of Expertise:

#### SAGD Pad and Access Road

- Site layout and sizing
- Detailed IFC Drawings
- Determine survey boundary based on site design and material storage requirements
- Muskeg Settlement tracking and estimating
- Culvert sizing and drainage study
- GPS Grading and Mulching support

#### Facility Sites

- Site layout and sizing
- Site containment requirements
- Drainage and ditching design

#### Water Reservoirs

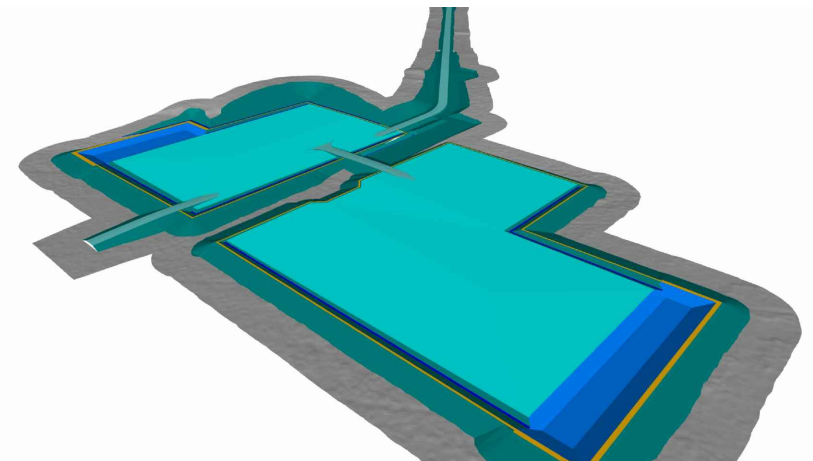
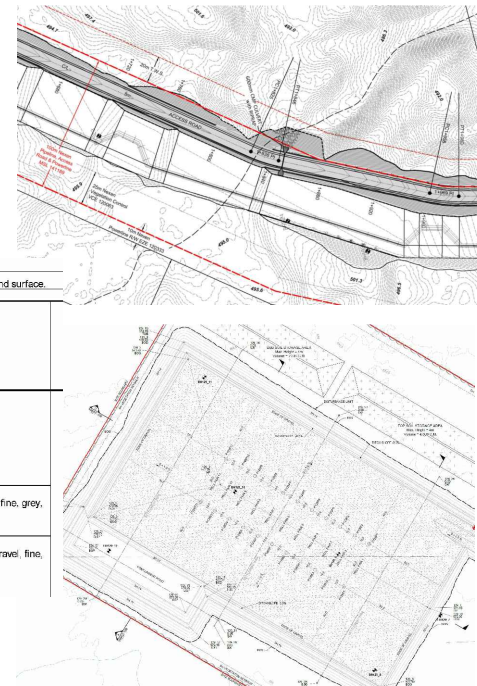
- Pond sizing and volume calculations
- Open water season calculations
- Synthetic Liner or Clay Liner Requirements

#### Construction Material and Aggregates Exploration

- Desktop background studies
- Site selection and access
- Test hole spacing and depths
- Soil testing and reporting

GROUND ELEVATION 589 m  
GROUND WATER LEVEL(S): Encountered at ground surface

DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		PEAT amorphous, black-brown, wet
1.0		SAND: SM fine grained, compact, silty, trace gravel, fine, grey, wet
2.0		CLAY (TILL): CL and SAND low plastic, very soft to firm, silty, trace gravel, fine, subangular, dark grey, moist to wet





# LINE LOCATING AND CONSTRUCTION

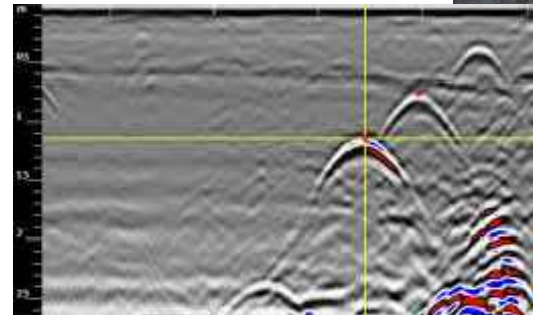
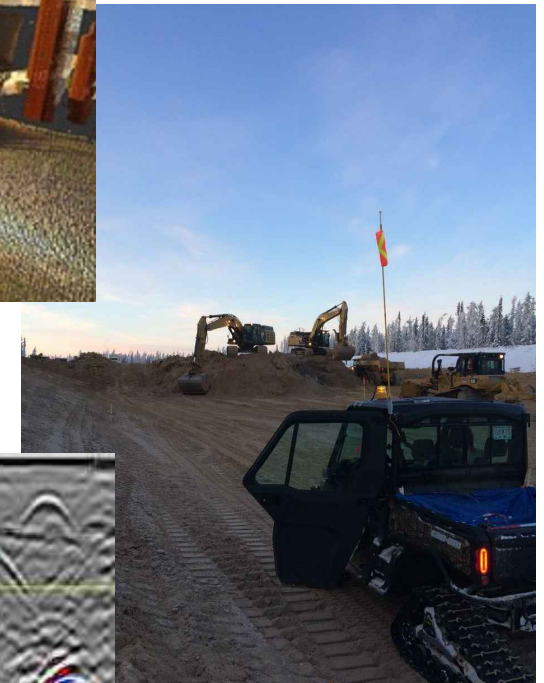
GeoTrek provides the right equipment and personnel to completed a project with high accuracy and dependability.

## Services we provide in Line Locating:

- 4 Way sweeps
- Alberta 1 Call Requests
- Ground Penetrating Radar and Utility Mapping
- Depth of Cover Surveys
- Existing Pipeline As-Builts
- Ground Disturbance Sweeps and Scanreports
- Underground Utility Database
- GPS Locates

## Services we provide in Construction:

- Direct upload of civil design surface files to field
- LiDAR verification and adjustment
- High precision control networks
- Quantity and Material Tracking
- GPS grading and mulching support
- Compaction testing
- Grade staking
- Soil testing for suitable construction materials
- Settlement and heave monument monitoring and reporting
- Project and Data Management
- Powerline surveys
- Pile and Facility layouts
- 3D Scanning



# PROJECTS AND EXPERIENCE



## SUNCOR ENERGY

### Firebag Oil Sands Project (2012-Present)

- Design, Survey, License and Construction Staking;
- 22 SAGD (20+ Multi Well Sites) and ACCESS ROADS;
- Long Term Muskeg settlement monitoring;
- Borrow pit reclamation plan. Multi year plan using LiDAR for future phases and determining usable material.

### Mackay River Oil Sands Project (2012-Present)

- Civil Engineering, Survey, License and Construction Staking;
- Design 7 SAGD Pads (20+ Multi Well Sites) and access roads;
- Campsite Design;
- Vintage well locating.

### Meadow Creek East / West Oil Sands Development (2012-Present)

- OSE Programs 2014-present;
- 3D Desktop scout and survey 300+ Corehole Locations;
- LiDAR scout Access routes & optimal locations for pads;
- Desktop Pad & Corridor routing and locations;
- Civil Engineering and construction staking for new construction.

### Lewis / Oslo Oil Sands Development (2013-Present)

- OSE Programs 2014-present;
- 3D Desktop scout and survey 300+ Corehole Locations;
- LiDAR scout Access routes & optimal locations for pads;
- Desktop Pad & Corridor routing and locations;
- Civil Engineering for new construction.

### Basemine Oil Sands Project (2014-Present)

- Planning, scouting and Licensing;
- Ground Disturbance Sweeps and as-building.

### SAVANNA SULLIVAN (2008)

- Planning, scouting of Wells and Access through difficult terrain;
- Survey and scout of 85km Pipeline.



## FORT HILLS ENERGY

- 2016-17 Winter Programs (1000+ Locations);
- 3D Desktop scout and survey 700+ Locations;
- Program Tracking and Mapping;
- Survey and As-Built Locations;
- Access Route Scouting;
- Crossings and Line Locating;
- As-built sites and well locations;
- Design Pads and Access Roads for locations in difficult terrain;
- Mapping and Surveying of Dispositions outside Mine Area.



## OBSIDIAN ENERGY (Formerly Penn West)

### ALBERTA CONVENTIONAL WELL SITES, ACCESS ROADS & PIPELINES (2010-Present)

- 500+ Wells Site, Access Road;
- Pipelines (Combined Length 300km+);
- Planning, scouting and Licensing.



## WOLF MIDSTREAM

### 240Km ACTL Pipeline Project (Completed in 8 weeks)

- 4 Way Sweep pipeline right of way and work space;
- Club Root Management Program;
- Generate 3rd Party Crossing and IOP Plans ;
- Generate Construction Drawings;
- Generate Environmental drawings.



## ARTIS EXPLORATION

### WATER RESERVOIRS - CENTRAL ALBERTA

- Desktop planning and site selection of 8 - 200,000 Cu.M Water Reservoirs;
- Geotechnical investigation;
- Civil Design and Engineering services;
- Soil Testing.



## CNOOC INTERNATIONAL

### Long Lake South West Oil Sands Project (2013-Present)

- LiDAR Verification;
- Construction support of 5 SAGD Pads (10+ Multi Well Sites) and multi use gathering corridors;
- Flow line corridor grading plans;
- Line locating and One Call support.

### KIB and Kinosis Oil Sands Project (2014-Present)

- Mapping;
- 6 SAGD Pads (10+ Multi Well Sites) access roads and flowline alignments;
- Multi building campsites;
- Oils Sands Constraints mapping and proposed locations;
- 2016-2017 Completions Winter Program.

### Long Lake Kinosis 2016-2017 Completions Program

- Mapping, Crossing agreements, Line Locating and GDA sweeps;
- Long Lake Kinosis 2016-2017 Pipeline Compliance Program
- Mapping, Crossing agreements, Line Locating and GDA sweeps.



## ASPENLEAF ENERGY

### ALBERTA CONVENTIONAL WELL SITES, ACCESS ROADS & PIPELINES (2015-Present)

- 50+ Wells Site, Access Road;
- Pipelines (Combined Length 100km+);
- Planning, LiDAR scouting and Licensing;
- Construction staking and flagging.



## SYNCRUDE CANADA

- Lease 29 OSE Program (2016-Present);
- 3D Desktop scout and survey 150+ Locations;
- Program Tracking and Mapping.



# Orphan Well and Reclamation Services

GeoTrek provides services for decommissioning and reclaiming for both conventional and unconventional oil and gas assets. With a wide variety of equipment and knowledge of historical data sets we can provide support for the most challenging of locations.

## Services we provide:

### Mapping and GIS Services:

- Vintage Imagery review of key years to determine disturbance and equipment/possible contamination areas
- Licensed data vs survey in the case of location discrepancies
- Drainage pattern analysis
- Grading and contour planning
- Georeferenced site mapping
- UAV

### Geomatics Services:

- Boundary surveys
- A-built and piezometer elevation surveys
- Temporary workspace plans

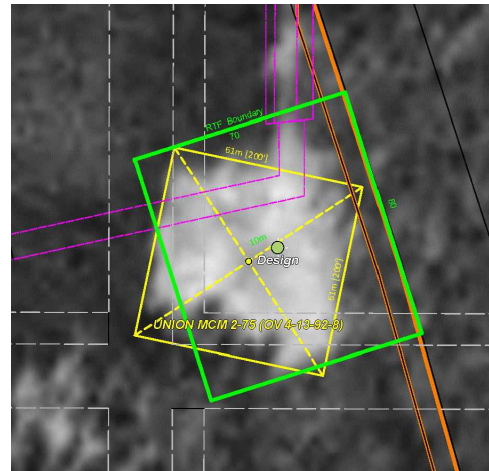
### Engineering and Geotechnical Services:

- Ground water sampling and modeling
- Soil Testing

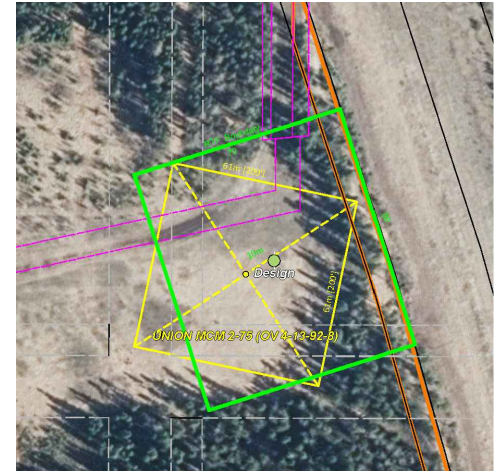
### Line Locating and Construction Services:

- Topography and grade staking
- Ground disturbance 4 way sweeps
- Ground penetrating radar and utility mapping
- Locating of coreholes (cased / not cased)
- Water dowsing (witching)
- Test hole Layouts
- Soil placement stake outs
- Material pile volumes

Locating of a corehole that had no casing installed. Historical Imagery utilized determine as-drilled location of site due to licensing location discrepancy.



1980 Vintage Imagery



2018 Vintage Imagery

