



**COMMITTED TO BEING YOUR PROFESSIONAL
HORIZONTAL DIRECTIONAL DRILLING
SPECIALISTS**



A leader among horizontal drilling companies in Canada, CCD Energy Services has been involved in the Canadian trenchless industry since 1986. Now based in Whitecourt and serving Alberta, British Columbia, Saskatchewan and Manitoba CCD's highly skilled and dedicated personnel provide accurate and affordable horizontal directional drilling (HDD) (pre-job consulting and drilling) to a diverse group of stakeholders such as:

- Energy companies
- Engineering groups
- Pipeline companies
- Environmental groups
- Utility companies
- Regulatory agencies

Whether your project scope is large or small, CCD has the expertise and technology to be your horizontal directional drilling company. We will work closely with you to maintain the highest levels of precision drilling, personnel safety, and environmental responsibility.

CCD Energy Services takes the initiative in either keeping the pace or setting the standard with new HDD technologies. We are the trusted leader of non-invasive horizontal directional drilling and the pioneers in the **highly specialized** area of environmental air drilling designed for high risk river crossings, aquatic monitoring and bore profiling.

OUR COMMITMENT TO SAFETY

CCD believes the most important asset we have is our employees, and our goal is to provide a safe and efficient workplace for each and every employee.

CCD Energy Services has a strong belief that safety is a planned event and not something that happens by accident. As a result of this belief, CCD Energy Services is committed to a strong safety program that protects its employees and property publicly or privately owned. CCD strives to have an incident free work place and will meet or exceed any hiring company's safety standards.

Employees at every level, including management, are responsible and accountable for the company's overall safety initiatives.

Our staff is trained in the following:

1. Company Safety Orientation
2. W.H.M.I.S
3. H2S Alive
4. First Aid
5. Ground Disturbance

SAFETY AND RELIABILITY

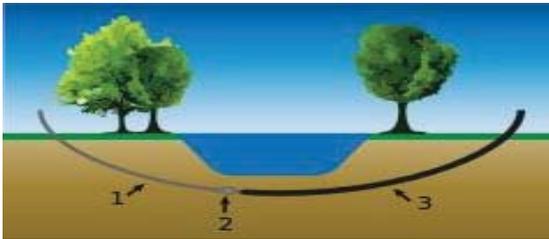
Safety is a core value of CCD Energy Services, which is exemplified with a strong safety program to protect our employees, the environment, and property. CCD is COR certified, as well as, has been audited and approved as a preferred vendor for British Petroleum (BP).





WHAT IS HORIZONTAL DIRECTIONAL DRILLING

Horizontal Directional Drilling (HDD) is a steerable, trenchless method of installing underground pipes, conduits and cables in an arc along a pre-determined bore path. This is accomplished with a surface launched drilling rig, which creates minimal impact on the surrounding area. Horizontal Directional Drilling is a precise and efficient method of underground product installation.



TYPICAL APPLICATIONS

RIVER—STREAM—LAKE

HIGHWAY—ROAD—RAILWAY—

SWAMPS—MUSKEG—WETLANDS

ENVIROMENTALLY SENTIVE AREAS

CONGESTED PIPELINE & UTILITY AREAS

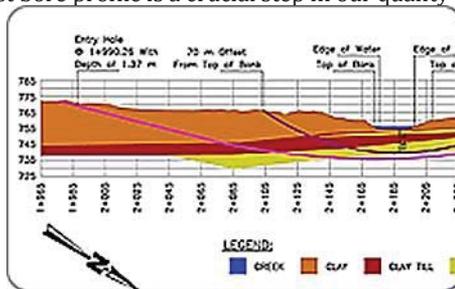
LANDSCAPED AREAS



PRE BORE PROFILE

A **pre bore** profile and post bore profile ensure your project will be a success.

CCD Energy Services, a leader among horizontal directional drilling companies in Canada, carefully plans each drilling project to ensure success. Our **pre bore** profile and post bore profile is a crucial step in our quality control process.



Borehole drilling to create a pre-bore profile; your directional drilling roadmap

Our highly-trained and experienced professionals consider all elements of your project from underground utilities, geotechnical information, no-drill zones and all other site conditions. Once all the information has been gathered from the initial drilling, we create a detailed pre-bore profile (example shown above.) Your pre-bore profile is the roadmap that considers all the physical limitations, environmental and safety concerns of your project.

Taking the time to construct a proper and detailed pre-bore profile may save you time, energy, and money later on. Your well-planned bore profile is an important step in the success of your horizontal directional drilling project.

The post-bore profile: as-built drawings that hit the mark
Upon completion of the drilling, our technical design team provides you with a rod-by-rod chart of the bore profile for your QC department. We track all discrepancies or changes to the project in our final drawings. As part of our QC process, we then send these finalized drawings back to our clients. The similarity between our pre-bore profile and our final as-built profile is an indicator of our expertise.



2017 DRILLING RATES

SOIL PRICES

2-4 inch	\$50.00 per meter
6 inch	\$65.00 per meter
8 inch	\$80.00 per meter
10 inch	\$105.00 per meter
12 inch	\$120.00 per meter

TRI- HAWK BIT

When Tri-Hawk is required, \$75.00 per meter will be added to the soil price.

*When Tri-Hawk is required, Rock Reams may be required at an additional cost based on per meter/ream.

ROCK PRICING

Rock Ream	\$100.00 per meter/ream
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MUD MOTOR PRICING

Mud Motor	\$1,500.00 or Cost plus 15%
Mud Reclaimer	\$2,000.00 per day
Wireline Steering and/or Annular Pressure Monitoring	Cost plus 15%

*In some cases, when Mud Motors is required, Drill Day Rate will apply.

AIR HAMMER PRICING

Air Hammer	\$2,750.00 per day
Air Compressor XHP 1170	\$2,000.00 per day
Air Hammer Tip Replacement	\$ Cost plus 15%

*In most cases, when Air Hammer is required, Drill Day Rate will apply.

DRILL DAY RATE

Ditch Witch JT 8020	\$10,500.00 per day
Ditch Witch JT 30	\$8,750.00 per day
Ditch Witch JT 2020 Mach 1	\$6,500.00 per day

TRAVEL

Ditch Witch JT 8020	\$775.00 per hour
Ditch Witch JT 30	\$400.00 per hour
Ditch Witch JT 2020 Mach 1	\$300.00 per hour
Mob & Demob of Extra Support Equipment	\$250.00 per hour (each unit)/ Cost plus
15%Man Subsistence	\$200.00 per man/per day

STAND-BY RATE

Ditch Witch JT 8020	\$1,200.00 per hour
Ditch Witch JT 30	\$875.00 per hour
DitchWitchJT2020	\$650.00 per hour

**Standby rates will apply if equipment & crew are unable to demobilize from location or if any equipment or crew are required to wait due to conditions beyond their control.*

Extras

Frac Control & Containment Unit(Stand-By)	\$750.00 per day
Frac Control & Containment Unit(Utilized)	\$1,000.00 per day plus Consumables
Drilling Mud -Bentonite	\$1,050.00 per pallet
Other Drilling Fluid Additives	Cost plus 15%
Extra Support Equipment/Tooling	Cost plus 15%
Third Party Charges/Invoices	Cost plus 15%
UTV (Side x Side)	\$200.00 per day
ATV (Quad)	\$150.00 per day
Back Hoe	\$2,000.00 per day or Cost plus 15%
Water Truck	\$185.00 per hour or Cost plus 15%
Extra De- Watering Pump	\$25.00 per day
Extra Hose	\$15.00 per day
Tensi Trax (Pull Force Monitoring)	\$500.00 per day (Unit only)

***PRICES ARE SUBJECT TO CHANGE WITH LARGE QUANTITIES AND SOIL CONDITIONS. PLEASE CONTACT US WITH ANY INQUIRIES OR FOR A QUOTATION.**





PRE-JOB CONSULTING SERVICES

Assessing Your Needs

CCD Energy Services has a long history of assessing the needs of a wide variety of projects. Numerous pipeline and construction firms rely on us as a major resource when they require advice about **directional drilling services**. Engineering firms consult us when they need an expert opinion before drilling in an environmentally sensitive area.

Professional advice from a top HDD company

No matter what the size and scope of your project, you need a professional assessment. The team at CCD Energy Services has years of practical industry experience and can advise you of the various methods available for your project.

Depending on the conditions, environment, and cost we can suggest a solution that works for you. Working closely with you, we will ensure that you are fully informed of all the requirements needed to make your directional drilling project a success.

Whether you are considering **horizontal directional drilling (HDD)** in British Columbia, Alberta, or elsewhere in Canada, we are ready to assess the needs of your project. CCD's Energy Services' environmental air drilling or horizontal directional drilling, please contact us today.

ADVANTAGES OF HDD



■ MORE EFFICIENT WITH MINIMAL SITE IMPACT

HDD significantly reduces construction time with no trenching, excavating, costly restoration or clean-up.

■ ENVIROMENTALLY FRIENDLY

HDD maintains the integrity of natural features, wildlife, wetlands and natural conservators. All drilling mud used is environmentally friendly.

■ SAFER

HDD has no open trenches, thus eliminating cave-ins, clearing of right of ways, traffic obstructions which in turn cause less accidents.





CCD: ENVIRONMENTALLY-FRIENDLY HORIZONTAL DIRECTIONAL DRILLING LEADERS



CCD Energy Services has taken the positive initiative to make horizontal directional drilling a more environmentally responsible process. Our new technologically advanced environmental air drilling technique drills faster and is also much more environmentally friendly than previous methods of HDD

CCD Energy Services is committed to protecting our precious environmental resources. By using our new environmental **Air Hammer Drilling** methods with aquatic monitoring and working closely with the Department of Fisheries and Oceans, we lessen the potential risk of damage to waterways and fish habitats.

CCD Energy Services offers a **Frac Control & Containment** unit which is available on any jobsite. This unit is equipped with all the necessities to clean and contain any type of spill preventing and/or minimizing the harm done to the environment.

We also offer a **Mud Reclamation** unit which recycles drilling fluids by cleaning and reusing them. This in turn reduces the amount of water/drilling fluid used and released while drilling.

CCD Energy Services will help you balance cost-effective drilling solutions with environmental responsibility. Our highly skilled and socially-responsible HDD experts offer many types of horizontal directional drilling services and products.



EQUIPMENT & CAPABILITIES
LEADING-EDGE EQUIPMENT AND EXPERIENCE TO GET THE JOB DONE
RIGHT.

DITCH WITCH JT 8020

THRUST FORCE--80,000 LB
PULLBACK FORCE--80,000 LB
ROTARY TORQUE--10,000 FT/LB
MAX. DRILLING FLUID PRESSURE--1,100 PSIMAX.
DRILLING FLUID FLOW--160 GPM
LENGTH OF DRILL PIPE--177 INCH
DIAMETER OF DRILL PIPE TOOL JOINT END--4 INCH
MINIMUM BEND RADIUS--230 FEET



DITCH WITCH JT 30

THRUST FORCE--24,800 LB
PULLBACK FORCE--30,000 LB
ROTARY TORQUE--4,000 FT/LB
MAX. DRILLING FLUID PRESSURE--1500 PSI
MAX. DRILLING FLUID FLOW--50 GPM
LENGTH OF DRILL PIPE--118 INCH
DIAMETER OF DRILL PIPE TOOL JOINT END--3 INCH
MINIMUM BEND RADIUS--155 FEET



DITCH WITCH JT 2020

THRUST FORCE--20,000 LB
PULLBACK FORCE--20,000 LB
ROTARY TORQUE--2,200 FT/LB
MAX. DRILLING FLUID PRESSURE--1500 PSI
MAX. DRILLING FLUID FLOW--32 GPM
LENGTH OF DRILL PIPE--120 INCH
DIAMETER OF DRILL PIPE TOOL JOINT END--2.63 INCH
MINIMUM BEND RADIUS--135 FEET



AIR HAMMERS

HDD 50 HAMMER
HDD 60 HAMMER
476 PSI AIR COMPRESSOR



All our equipment is operated by trained and skilled professionals.

New equipment and regular maintenance ensures our equipment to be in perfect operating condition so that no delays will arise on your jobsite.

CCD ENERGY SERVICES

Whether your project scope is large or small, CCD has the expertise and technology to be your **horizontal directional drilling company**. We will work closely with you to maintain the highest levels of precision drilling, personal safety, and environmental responsibility.

Our **horizontal directional drilling services** are economical, efficient, and environmentally responsible. When you work with CCD, you are partnering with a highly skilled team of **HDD experts**. We promise you that we will be the best at what we do.

Contact CCD Energy:

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