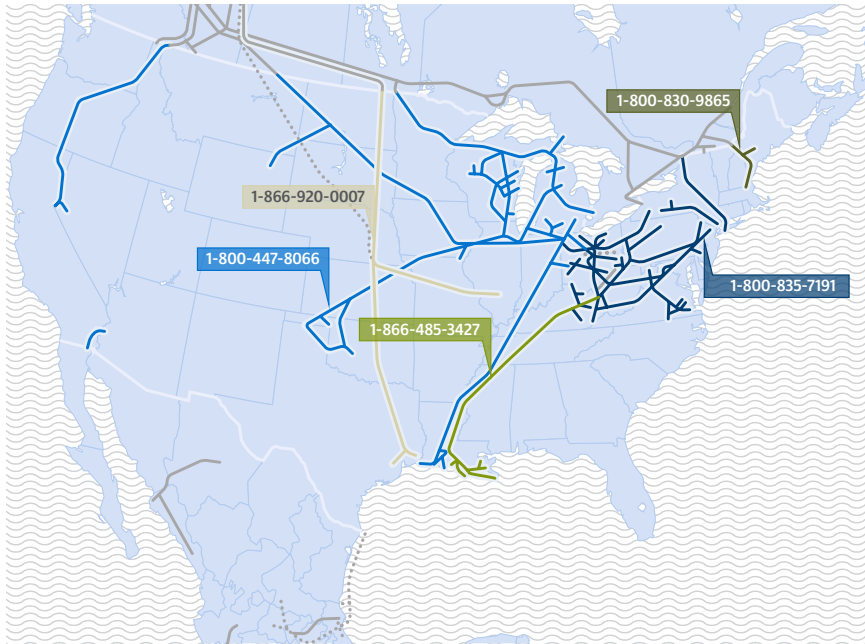


Minimum guidelines for construction near pipeline facilities.

These guidelines are intended for individuals whose proposed construction activities will impact TC Energy's rights-of-way. TC Energy's primary concern is for public safety and to help ensure the continuous safe flow of the nation's energy supplies. For complete details and requirements for the design and construction of facilities on TC Energy's rights-of-way please call our US Crossings team at **1-800-562-8931**.

This document provides for the design and construction of facilities on rights-of-way owned and/or operated by TC Energy companies, including Columbia Gas Transmission, Columbia Gulf Transmission, Crossroads Pipeline, Millennium Pipeline Company, Hardy Storage Company, ANR Pipeline Company, Bison Pipeline System, Gas Transmission Northwest, Great Lakes Gas, Iroquois Transmission System, North Baja, Northern Border, and Tuscarora Gas Transmission.





For US residents

US One Call Center 811
 Online Requests www.call811.com

General inquiries

Public Awareness 1-855-458-6715
 Landowner Inquiries 1-877-287-1782
 Crossing Requests 1-800-562-8931
 Crossing Email us_crossings@tcenergy.com

Emergency numbers

Use the map above to find the emergency number for pipelines in your area. In the case of an emergency, if you dial the wrong number, your call will be directed to the appropriate operator.

TC Energy Natural Gas 1-800-447-8066
 Keystone Pipeline System 1-866-920-0007
 Portland Natural Gas Transmission System (PNGTS) 1-800-830-9865
 Columbia Gas Transmission, Crossroads Pipeline,
 Hardy Storage Company & Millennium Pipeline 1-800-835-7191
 Columbia Gulf Transmission 1-866-485-3427

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Before starting any project involving digging, grading, brushing, ditching or any other activity that involves changing the amount of cover or driving any type of equipment or vehicle over a right-of-way that has not been expressly approved by the pipeline company, you **MUST** call 811 prior to beginning any activity. This will ensure your safety, along with the safety of your family, property, community and any critical infrastructure that may be in the area



Consult TC Energy early in your planning

TC Energy must review and approve all plans for proposed construction impacting a TC Energy right-of-way. To expedite construction or excavation, submit your plans to TC Energy for review in the design phase of the project before applying for permits or committing to construction. TC Energy requires a minimum of 60 days to review design plans.

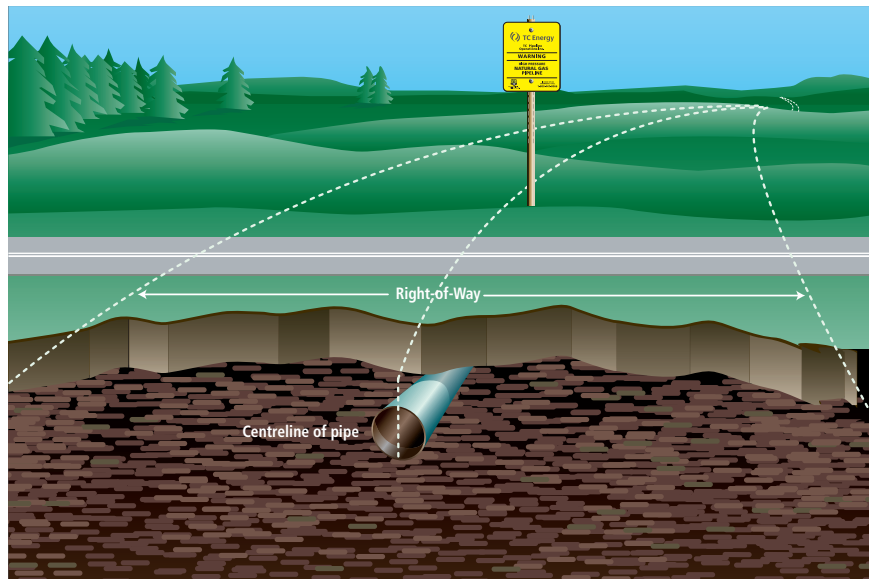
Notify TC Energy before construction begins

No construction or excavation activities of any kind shall be performed on or near TC Energy's rights-of-way. This includes crossing with heavy equipment, or blasting within 325 feet of the pipeline until TC Energy personnel have reviewed the location of all affected facilities and the limits of the right-of-way and provided an approved Agreement.

Start by calling 811 before you dig or using your state's One Call notification service. Request that both the location and approximate depth of the pipeline be determined.

Rights-of-way

TC Energy rights-of-way generally extend 25 feet or more on each side of the center line of the pipeline and include all areas between multiple pipelines, unless otherwise defined in the applicable land rights document. Certain states may outline more detailed specifications for a right-of-way or "tolerance zone".



Excavation near pipelines/buried facilities

No excavation, including hand digging, is permitted on TC Energy pipeline rights-of-way without prior approval from TC Energy. TC Energy personnel must be present during any construction or excavation activities on or around its facilities or rights-of-way unless otherwise permitted by TC Energy. Excavation on TC Energy's right-of-way is strictly forbidden without a TC Energy representative on site. Within 36 inches of the outer edge of the pipe (on all sides), only hand excavation, air cutting, vacuum excavation, or potholing techniques are permitted.

Crossing pipelines with heavy equipment

TC Energy may require heavy equipment operators to install mats, steel plates, dirt pads or other approved protective measures to adequately protect TC Energy pipelines from potential damage by heavy equipment crossing the right-of-way before crossing can begin or during crossing activity. All proposed crossings of buried facilities must be evaluated by TC Energy. Any approved overburden or materials installed for crossing the pipeline must be removed after construction, unless otherwise directed by TC Energy.



A completed crossing structure distributes the weight properly, protecting the pipeline.

Construction requirements within a TC Energy right-of-way

TC Energy may allow certain property improvements within its rights-of-way. However, TC Energy will not assume responsibility, financial or otherwise, for any such improvements directly or indirectly damaged because of its operation and maintenance of its facilities. Upon review of individual plans and property rights, TC Energy may identify additional restrictions or requirements including, but not limited to:

Ground disturbance

The existing cover over pipelines and rights-of-way shall not be modified without TC Energy's written permission.

TC Energy will perform external load evaluations as necessary. Protective measures may be required before construction activity can begin or during construction activity.

Structures

Above-ground or below-ground structures or obstructions of any type shall not be placed within the pipeline right-of-way without prior approval from TC Energy. Permanent structures with embedded footings or foundations are not permitted within the pipeline right-of-way.

Utility installation

The pipeline right-of-way shall not be shared longitudinally with other pipelines or utilities. All water valves, curb boxes, manholes, etc. must be outside the right-of-way. All utility crossings must be approved by TC Energy before installation begins and must meet the following criteria:

- Crossing is kept as close to 90 degrees as possible, but in no case less than a 45 degree angle.
- Pipeline maintains at least two-foot vertical clearance for open cut, three-feet for trenchless installations.
- Must cross below TC Energy's pipeline, unless prior written consent is granted.
- Except for trenchless excavation, warning tape in accordance with APWA Uniform Color Code shall be placed above the utility, 12 inches below ground, across the entire TC Energy right-of-way. Underground electric lines of less than 600 volts and fiber optic lines shall also be surrounded with a minimum of six inches of colored 2,000 psi concrete (red for electric, orange for fiber) or four-inch minimum diameter, standard wall thickness, coated steel pipe across the entire right-of-way. For trenchless installations or where the top of the conduit used for the crossing is at least 36 in. below the Company pipeline, concrete is not required.
- Metallic utilities shall be coated with a non-conductive coating for the entire width of the TC Energy right-of-way. Corrosion protection materials shall be installed at the expense of the Permittee where necessary, at TC Energy's sole determination.

- Non-metallic utilities shall be installed with tracer wire for the full width of the TC Energy right-of-way, unless otherwise permitted by TC Energy.
- Non-metallic natural gas (or other industrial gases) line permitted by the Company to cross below the pipeline must either be encased in a 6 in. envelope of yellow 2,000 psi concrete or encased in 4 in. minimum diameter, standard inch wall thickness, coated steel pipe across the entire width of the ROW.
- All crossings shall be marked with above-ground markers installed on either side of TC Energy's right-of-way boundaries.

Field tile/drain tile

A "Crossing Agreement" is required prior to any field tile installations that occur within the TC Energy right-of-way.

Roads

Consent shall be granted for roads provided the entity constructing the road pay for any measures required by TC Energy to inspect and protect its pipeline(s). Such protective measures shall be designed and/or approved by TC Energy personnel.

Pathways

Walking/bicycling paths require TC Energy's written permission prior to construction. TC Energy shall have sole determination of number of path crossings to be permitted. No motorized vehicles of any type, other than power-driven wheelchairs, are permitted to utilize paths that run longitudinally inside the right-of-way. Landowner shall be responsible for maintaining the path to prevent right-of-way damage, including erosion, illegal dumping, etc.

Parking

Parking areas require written permission from TC Energy. In no case shall parking lots be designed such that vehicles are allowed to park directly over or within 10 feet of a pipeline. Paving for parking lots shall be limited to asphalt or gravel and must meet all requirements set forth by TC Energy.

Paving

Paving within a TC Energy right-of-way must be submitted and approved by TC Energy before paving can begin. Concrete or paving is permitted for sidewalks, curbs and residential driveways. Continuously poured, steel reinforced concrete is prohibited within TC Energy's right-of-way. Residential or commercial driveways may be permitted provided that the design and installation meet TC Energy requirements.

Water storage

Detention ponds, lakes or any type of water impoundment is prohibited within the right-of-way. Septic tanks and leach fields should be placed so they drain away from the pipeline where practical. Entire leach field must be outside of the TC Energy right-of-way.

Planting

Shrubs or ornamental plantings must not be permitted within 10 feet of the pipeline. Plantings outside of 10 feet of the pipeline must be maintained at 5 feet in height or less. Raised beds greater than 10 ft from the pipeline are permissible provided they are not installed or anchored below grade.

TC Energy shall not be responsible for replacement of or reimbursement for any plantings within the right-of-way, unless otherwise stated in applicable land rights document.

Fences

Fences or continuous hedges that block visual inspection, interfere with access to TC Energy facilities, or are installed longitudinally to the pipeline shall not be permitted within the right-of-way. If gates are to be locked, TC Energy must be allowed to install its own locks on the gates. Locks will be installed in such a manner as to allow both the landowner and TC Energy unimpeded access to the property.

Blasting plans must be approved

Any blasting proposed within 325 feet of TC Energy's facilities must be submitted to TC Energy 10 business days in advance, along with a blasting plan outlining such proposed activity. No blasting may begin unless and until TC Energy provides prior written confirmation that it does not object to such blasting.

Allow adequate clearance for trenchless installations

Any directional drilling or boring proposed under TC Energy's buried facilities must be submitted to TC Energy for review and approval.



Maintain up to 330-foot clear area around storage wellheads

Property owners or developers must notify TC Energy of any proposed construction or excavation within 330 feet in any direction of a natural gas storage well. A minimum of 60 feet from the wellhead must be kept free of trees, brush, and crops. A minimum distance of 1.320 ft should be maintained between a storage well and surface mining, quarrying, or pit operations

Agriculture activities

Activities related to the growing of crops or the raising of animals do not require consent, provided the activity **does not involve deep tilling practices**, installation of permanent structures or an increase or decrease in the cover over the pipeline. Facilities such as underground and overhead irrigation systems must be reviewed for compatibility.

Pipeline markers

- Pipeline marker signs contain important information, including the owner of the pipeline, the product shipped in the pipeline and emergency contact numbers.
- TC Energy uses a variety of markers and signs along right-of-ways to alert people to the general location of its pipelines. Markers are typically placed where the pipeline intersects streets, railroads, rivers, fence rows and in heavily congested areas.
- **Do not rely on pipeline markers or signs to show you the pipeline's location, path or depth.** Instead call 811. TC Energy and other utilities will send a representative to the proposed excavation site to mark buried utilities at no cost to you.
- It is against the law to willfully and knowingly deface, damage, remove or destroy any pipeline sign. If these signs are missing, damaged or otherwise unreadable, please contact TC Energy to replace them.



Warning sign



Warning sign



Vent marker



Aerial marker

What to do if you strike a pipeline

A “strike” is any unauthorized contact with a pipeline and can include mechanical equipment like a backhoe or hand tools, such as a shovel. Whether or not the pipe appears to be damaged, if you strike a pipeline, it is important that you follow these steps:

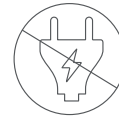
1. Stop all excavation and construction. Shut off all machinery and move away from the area on foot – warn others to do the same.
2. Do not attempt to repair the pipe or operate any valves.
3. Call ‘911’ as soon as you are in a safe location. Describe the situation and inform the operator of any injuries, leaking product or fire.
4. Call the appropriate TC Energy emergency number from the beginning of this booklet and explain the incident. This number is available on all pipeline marker signs.
5. Do not continue your project until authorized by a TC Energy representative.

The safety of the surrounding population dramatically decreases when a pipeline is damaged. Contact TC Energy as soon as possible so we can make any necessary repairs.



An example of one type of pipeline marker.

Consequences of unsafe digging



Interrupted services such as electricity, gas and water.

Underground utilities are damaged every two minutes in the United States due to unsafe excavation work*.



Fines and repair costs to fix the underground utility line(s).

Enforcement guidelines are state-specific.



Risk of serious injuries and death.

Since 2008, the Pipeline and Hazardous Materials Safety Administration (PHMSA) has reported 715 injured workers and 79 fatalities due to damages done to underground infrastructures during excavation work**.

**2017, Common Ground Alliance, DIRT Report*

***2018, PHMSA, Serious Pipeline Incidents*

Note: “Minimum guidelines for construction near pipeline facilities” addresses the most common issues concerning land use on/near TC Energy rights-of-way. “Right-of-way use” procedures provide additional technical information, as well as guidance on various areas not covered here, and should be consulted as needed.

In the event that the provisions of an applicable land rights document conflicts with the requirements set forth herein, the land rights document shall supersede these requirements.

Contact us

1-877-287-1782
us_land@tcenergy.com

TCEnergy.com

TC Energy is regulated by US Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) in the United States.

National Pipeline Mapping System (N.P.M.S.)

Further information regarding pipelines located in your community can be accessed through the National Pipeline Mapping System at www.npms.phmsa.dot.gov

Interactive maps are available at
TCEnergy.com

