SOP Number **003**

SOP Title **Ground Disturbance**

	NAME	TITLE	SIGNATURE	DATE
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Effective Date	Significant Changes	Revision #	Revision Date
		1	**11/15/2017**
3/19/18	**Excavating Around Live Lines**	**2**	**3/19/18**

1. PURPOSE

- This Procedure will be used as a guideline when any Ground Disturbance is performed. Employees at BBGCI will use this as a guide to help in the performance of their duties in a safe and productive manner.
- In addition to the procedures set forth in this document, BBGCI shall comply with all government/state regulations as well as the policies set forth by our clients.

2. INTRODUCTION

- BBGCI understands that all jobs are different. This SOP is to be used as a general framework to help employees better understand their roles and responsibilities when it comes to Ground Disturbance.

3. SCOPE

- This Procedure/Policy shall be utilized by all employees and subcontractors that are involved in Ground Disturbance Activities on BBGCI Projects.

4. DEFINITIONS

- ***Ground Disturbance -*** refers to any mechanical digging, excavating and trenching that goes further than the One Call requirements per state. (i.e. Texas=16")
- ***Buffer Zone*** - The area where operation occurs, that is deemed not safe for unauthorized personnel or equipment.
- ***Tolerance Zone*** – 2 Feet in all directions of the exposed line. No mechanical operations are to be performed within this zone. If excavation is required to further expose a line, Hydro or Hand excavation are the only permissible operations.
- ***Clearance Zone*** – 3 Feet in all directions of the exposed line. The Hydro Excavator Operator is to full expose 3 feet of all directions of the line.
- ***Boring method*** – Minimal impact trenchless method of installing underground **pipe**, conduit, or cables in a relatively shallow arc or radius along a prescribed underground bore path.
- ***Window hole*** – Hole dug on each side of existing line, approximately 4' from line, to allow for viewing proper depth of bore.
- ***Bell Hole***- An enlarged hole other than a continuous trench, dug over and along the side of buried pipelines or in a trench to allow room for persons to perform maintenance-related work on the pipeline

5. RESPONSIBILITIES

Superintendents/General Foremen

- Submit Line Locating requests via email or physical submission to the Line Locating Department 3 days prior (not including holidays & weekends) to any Ground Disturbance Activity. Schedule Hydro-excavation of all identified or suspected utilities and line/road crossings.

- Ensure overall compliance with this Ground Disturbance Procedure and all applicable laws and regulations regarding Ground Disturbance and Excavation/Trenching activities.

Foremen

- Ensure that a One Call is completed 48 hours prior to any Ground Disturbance and that the One Call is updated throughout the duration of the project. One Calls shall be updated every 14 working days, excluding holidays and weekends. The Line Locator is responsible for the initial One Call as well as the updates so please check with the Line Locator to make sure that the One Call is up-to-date.
- Shall notify utility owners 48 hours prior to any day-lighting or excavating activities that will occur within 20 feet of their respective utility.
- Ensure that you have the latest copy of the Line Locating Map along with the *Day-Lighting Assurance Form* which will be provided to you by the Line Locator. The Line Locating Map will show all utilities/lines located by the Line Locator and will have a number assigned to each for easy identification.

  Initially, the *Day-Lighting Assurance Form* provided to you will only have each found line numbered on the form. Once the hydro-excavation or "day-lighting" of each underground utility is complete, you and the Line Locator will meet, visually inspect each "day-lighting" together, and each of you will sign off that you have verified same.

  There will be times when not all underground utilities on the Plot Plan/*Day-Lighting Assurance Form* will be verified at the same time. Therefore, it is the responsibility of the Foreman to ensure that Ground Disturbance activities will only be conducted on numbered utilities that have been verified and signed-off on by yourself and the Line Locator.

  The *Day-Lighting Assurance Form* will have a section where the owner/company representative of the exposed line will be required to sign off verifying that he/she was present for the day lighting of their existing line. In the event where the company representative gave a verbal command that it is okay to day-light the line, you will be required to mark this section with the time the company representative gave you the verbal.

  In the event that the owner/company representative is a no call/no show. BBGCI will follow state and federal recommendations pertaining to hydro excavation procedures.

- Plot Plans may need to be revised to reflect the location of any new utilities that were discovered or placed by BBGCI. Therefore, Foremen shall be responsible to make sure that the latest copies of the Plot Plan and the *Day-Lighting Assurance Form* are distributed to the Operators, Spotters and Leads prior to any Ground Disturbance Activities.
- Shall be responsible for completing the *X-Pattern Verification Form.* A separate form will be required for each Road Crossing. Please also note that there shall be

no Ground Disturbance within 20 feet of a road crossing prior to hydro-excavating X-Pattern.

- Shall ensure that all day-lighting holes and bell holes are properly barricaded.
- Shall ensure that all Work Control Certificates (Permits) are completed, valid and up-to-date for Ground Disturbance.
- Shall conduct tailgate meetings and review Plot Plans with all crewmembers to make sure that everyone knows where all utilities are located.
- Examine all live line crossings and determine safest method for excavating. Hydro-excavation, excavator, or boring.

Operators

1. Ensure that a current, up-to-date One Call is in place prior to Ground Disturbance. Please check with Foreman or Line Locator if you don't have the latest copy.
2. Ensure that you have the latest, up-to-date Plot Plan with attached *Day-Light Assurance Form* prior to Ground Disturbance.
3. Shall review, sign and date all Work Control Certificates.
4. Shall complete the *Equipment Operator Pre-Excavation Form* before any Ground Disturbance activity. This form is to be turned into your Foreman on a daily basis.
5. Ensure that you can see the utility at all times during excavating/trenching or other Ground Disturbance activity. If at any time you lose sight of the utility…STOP!!! Then get with Foreman/Superintendent to determine best method to re-establish visual verification of utility. Under no circumstances shall visual verification be executed with excavating equipment other than a hydro-excavator.
6. Shall participate in tailgate meeting and assist in completing JSEA with particular attention paid to risks inherent in Ground Disturbance Activities.
7. Ensure that your equipment is at a safe working distance from all personnel, equipment, facilities, utilities or other infrastructure or other obstructions.
8. Make sure equipment is in safe operating condition before commencing work and complete *Equipment Inspection Forms* daily for every piece of equipment that you operate. These inspection forms are to be turned in daily to your foreman.
9. Know who is the Designated Spotter and follow his/her, and only his/her direction.
10. Before any Ground Disturbance, "Green-Stick" any area of Ground Disturbance immediately prior to commencing work.
11. When approaching any above or below ground utility including power lines, operator will stop and wait on spotter to signal across same.
12. Ensure that he or she is certified on the equipment that will be used and issued an operator's card specific to the model that will be used.

Spotters

1. Spotters are to wear a High-Vis Vest to differentiate themselves from others.
2. Shall establish a clear method of communication with operator prior to the commencement of work.
3. Shall maintain and keep others at a safe distance away from the operating equipment while work is being performed.
4. Shall have documented spotter training prior to performing work as a spotter.
5. Shall alert operator when equipment/vehicles or personnel are approaching.

6. Will signal operator while crossing over or under any utilities including power lines.
7. Shall ensure that "green-sticking" will take place immediately prior to any area of Ground Disturbance prior to commencement of work.
8. Shall ensure that a current, up-to-date One Call is in place prior to excavation.
9. Will ensure he/she is in the best possible position to do his/her job efficiently.
10. Shall ensure that he/she and his/her operator has the latest Plot Plan and *Day-Light Assurance Form.*

Line Locators

1. Shall conduct One Call process and ensure a response from all members of reported utility owners.
2. Shall perform Line Locates of proposed Ground Disturbance Area and create a Plot Plan that lists and numbers all located utilities on the appropriate documentation.
3. Shall list all located utilities on the *Day-Light Assurance Form* and attach to Plot Plan and detail what "substance" is in the line.
4. All above mentioned documentation shall be turned over to the Foreman before start of project and not before the One Call is cleared with all responses in place.
5. Prior to any Ground Disturbance, Line Locator will verify day-lighting of all utilities and sign the *Day-Light Assurance Form* along with the Foreman to ensure the pot hole is in accordance with PL-009 Hydro Excavations. Line Locators will ensure that prior to signing off on the day light assurance form, all lines are clearly exposed and there is a Clearance zone of 3 feet on all sides.
6. Shall ensure that the line locating equipment is in good working order and properly calibrated.
7. Shall be responsible for updating One Calls and updating Plot Plan with newly identified or installed utilities.

Competent Person (one per location)

1. Shall complete *Bell Hole Inspection Form* anytime an employee enters a bell hole and may be required to perform atmospheric monitoring of bell hole as well. The *Bell Hole Inspection Form* shall be turned into the Foreman daily.
2. Must be present when any excavation/trenching work is being performed.
3. Shall be certified as an Excavation and Trenching Competent Person, and is capable of identifying existing and predictable hazards, and has authorization to take prompt corrective measures to eliminate them.

6. SPECIFIC PROCEDURES

Clearing the Right-Of-Way

1. Before work can commence, ensure the One-Call is up to date and all required forms are properly filled out.
2. Establish good communication between operator and spotter.
3. Check work area for any unforeseen hazards not covered in the JSEA.

4. Install goal post markers around above ground powerlines.
5. Perform a documented inspection on the equipment being utilized.
6. Using the bulldozer, the operator will begin clearing the right of way, while the spotter maintains good attentiveness to the equipment and surrounding areas.
7. There shall be no ground disturbance within 20 feet of a road crossing prior to hydro excavating for underground utilities.
8. Pothole existing utilities using hydro excavators. ***See Hydro Excavations SOP***

NOTE: Any specific client requirement should be followed.

Trenching Operations

1. Before work can commence, ensure the One-Call is up to date and all required forms are properly filled out.
2. Make sure all involved employees have a clear understanding of the scope of work.
3. Establish good communication between operator and spotter.
4. Perform a documented inspection on equipment being utilized
5. Check work area for any unforeseen hazards not covered in the JSEA.
6. Begin trenching operations with spotter located a safe distance from the buffer zone monitoring the area for unauthorized personnel and obstructions.

NOTE:

7. Employees will not enter trench unless a trench is less than 4 feet or engineering controls is set in place.
8. If trenching with the excavator, make sure the trench is the proper depth.
9. If employees are allowed into trench, an egress must be set every 25 feet.

Digging Bell Hole

1. Before work can commence, ensure the One-Call is up to date and all required forms are properly filled out.
2. Ensure an excavation/trenching competent person establishes the bell hole slope/benching of soil.
3. Make sure all involved employees have a clear understanding of the scope of work.
4. Establish good communication between operator and spotter.
5. Check work area for any unforeseen hazards not covered in the JSEA.
6. Perform a documented inspection on the equipment being utilized.
7. Excavator operator will commence work with the spotter standing a safe distance from the buffer zone.

8. Spotter will monitor the work area for unforeseen hazards and unauthorized personnel.
9. Excavation/trenching competent person will evaluate the slope/benching of the soil to ensure it is correct.

NOTE:

1. Before any employee can enter a bell hole, the atmosphere will be monitored and the employee who will be entering the bell hole must have a gas monitor on them.
2. Bell Hole Inspections must be conducted by a Competent Person on a daily basis
3. At the end of a shift, all bell holes will have fencing in place.

Excavating Around Live Lines

(Using excavator for excavating around live lines)

1. Ensure the excavated Pot Hole is in accordance with PL-009 Hydro Excavations and all required personnel have signed off on the daylighting assurance form.
2. Before any work can begin, ensure the One Call is up to date and all other required forms are properly filled out. (I.e. pre excavation operator clearance, JSEA, Permit, Day Lighting Assurance Form etc.)
3. Initial depth to live line shall be achieved by digging parallel. After depth is achieved perpendicular digging can be used to clear material from under line.
4. Ensure the live line are clearly exposed and there is a clearance zone of 3 feet on all sides of the live line.
   - In the event that the exposed line is covered and/or not clearly seen by the operator, the job must stop until the live line is exposed again.
   - Under no circumstances can mechanical digging be performed if the operator cannot see the live line once it has been exposed.
5. Make sure all involved employees have a clear understanding of the scope of work.
6. Establish a buffer zone and ensure only authorized personnel are inside the zone.
7. Establish good communication between spotter and operator and ensure both are in the best position for performing the task at hand.
8. Begin excavation around live line.

Excavating Around Live Lines

(Boring method for areas of solid rock)

1. Ensure the excavated Pot Hole is in accordance with PL-009 Hydro Excavations and all required personnel have signed off on the daylighting assurance form.
2. Before any work can begin, ensure the One Call is up to date and all other required forms are properly filled out. (I.e. pre-excavation operator clearance, JSEA, Permit, Day Lighting Assurance Form, equipment inspection, etc.)

3. Dig bell holes on each side of existing lines, large enough for bore machine or work activities.
4. Dig “window holes” on each side of existing lines, approximately 4’ away from line.

- Bore at a safe depth from one bell hole, under existing line, and into second bell hole, using “window holes” to verify depth.

5. Make sure all involved employees have a clear understanding of the scope of work.
6. Establish a buffer zone and ensure only authorized personnel are inside the zone.
7. Establish good communication between spotter and operator and ensure both are in the best position for performing the task at hand.
8. Begin excavation around live line.

Back-Filling

1. Before work can commence, ensure the One-Call is up to date and all required forms are properly filled out.
2. Make sure all involved employees have a clear understanding of the scope of work.
3. Establish good communication between operator and spotter.
4. Check work area for any unforeseen hazards not covered in the JSEA.
5. Perform a documented inspection on the equipment being utilized
6. Commence work with equipment.
7. Spotter will monitor area for any hazards and unauthorized personnel.

NOTE:

1. Depending on the soil, a sifter may be required.
2. Depending on client, reflective tape may need to be utilized.

7. JOB RELATED HAZARDS

Slips, Trips, and Falls while:

- Climbing on and off of equipment
- Walking on uneven surfaces or surfaces with rock.
- Walking near open holes and trenches.

Pinch Point/ Line of Fire while:

- Moving equipment
- Walking in unauthorized work areas/ buffer zone

Atmospheric Deficiencies while:

- Entering trench or bell hole

Line Strikes while:

- Digging with the excavator or pushing with dozer

Hitting Overhead Lines while:

- Utilizing heavy equipment.

8. REQUIRED PPE

- Hard Hat
- Steel Toes
- Safety Glasses
- Fire Resistant Clothing (FRC's)
- High Visibility Vest (Client Specific)
- H2S Monitor
- Gloves (If required)

9. FORMS/TEMPLATES TO BE USED

- Line Locating Request Form
- Line Locating Maps
- One-Call
- Day-lighting Assurance Form
- X-Pattern Verification Form
- Equipment Operator Pre-Excavation Form
- Equipment Inspection Forms
- Bell hole Inspection Form
- JSEA's
- Work Permit