

STANDARD OPERATING PROCEDURE

Pipeline

SOP No: 009-PL

Title: Hydro Excavations 4' or
greater in depth

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	NAME	TITLE	SIGNATURE	DATE
Author				
Reviewer				
Authorizer				

Effective Date	Significant Changes	Revision #	Revision Date
3/19/18	Tolerance Zone specifications	1	3/19/18

1. PURPOSE

- This procedure is a guideline on the proper way to safely perform hydro excavation activities greater than 4' in depth. Employees at BBGCI will use this as a guide to help them perform their duty in a safe and productive manner.
- BBGCI will be in compliance with all government regulations as well as the regulations set forth by our clients.

2. INTRODUCTION

- BBGCI understands that all jobs are different. This SOP is set in place as a guideline to help employees understand the proper procedure to follow when performing hydro excavation activities.

3. SCOPE

- This procedure has been set in place for BBGCI equipment operators, spotters, and support personnel who will be conducting hydro excavation activities.

4. DEFINITIONS

- Hydro Excavation (Hydro Vac) - a non-mechanical, non-destructive process that uses pressurized water and industrial strength vacuum to simultaneously excavate and evacuate soil.
- Ground Disturbance- Would include the cutting, digging, scooping or moving of dirt in any fashion. It would also include mulching, auguring, drilling, and hydro-excavating and the tracking of equipment that have steel tracks.
- Line of Fire- The path of a moving object that can potentially injure or the potential path of an object that may move.
- 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.
- DOT-Department of Transportation
- Safety Platform- A metal platform with standard handrails surrounding a 6' X 6' open hole designed to protect employees from fall hazards. (See Appendix 1)

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. It is highly recommended that you utilize the *Line Locating Request Form* when submitting your request.

- 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.

- 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 the completion of the *Notice of Excavation Form*. This form is to be completed for utilities that were noted on the Plot Plan but were not on the One Call. One Call Services may not contact all facility owners. Therefore, it is your responsibility to ensure that all facility owners are notified. This form is filled out once per project and will be turned over at the end of the project.
- Shall be responsible for the *Ground Disturbance Check List Form*.

- This form shall be completed once per project and shall be turned in at the end of the job.
- Shall be responsible for completing *Crossing Inspection Record Form* that will be initiated and provided by the Line Locator. This form will be completed once for the Project and will be turn in at the completion of the job.
- 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.
- Ensure that all operators are certified on the equipment that they will be using and issued an operator's card specific to the model that will be used.

Hydro Excavator Operators

- 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.
- Ensure that you have the latest, up-to-date Plot Plan with attached *Day-Light Assurance Form* prior to Ground Disturbance.
- Shall review, sign and date all Work Control Certificates.
- 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.
- 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.
- Shall participate in tailgate meeting and assist in completing JSEA with particular attention paid to risks pertaining to Ground Disturbance Activities.
- Ensure that your equipment is at a safe working distance from all personnel, equipment, facilities, utilities or other infrastructure or other obstructions.
- 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.
- Know who is the Designated Spotter and follow his/her, and only his/her direction.
- Before any Ground Disturbance, "Green-Stick" the proposed area to be excavated immediately prior to commencing work.
- When approaching any above or below ground utilities including power lines, operators will stop and wait on the spotter to give signals for safe crossing.

Spotters

- Spotters are to wear a High-Vis Vest to differentiate themselves from others.
- Shall establish a clear method of communication with operator prior to the commencement of work.
- Shall maintain and keep others at a safe distance away from the operating equipment while work is being performed.
- Shall have documented spotter training prior to performing work as a spotter.
- Shall alert operator when equipment/vehicles or personnel are approaching.
- Will signal operator while crossing over or under any utilities including power lines.
- Shall ensure that "green-sticking" will take place immediately prior to any area of Ground Disturbance prior to commencement of work.
- Shall ensure that a current, up-to-date One Call is in place prior to excavation.
- Shall ensure that he/she and his/her operator has the latest Plot Plan and *Day-Light Assurance Form*.

Line Locators

- Shall conduct the One Call process and ensure a response from all members of reported utility owners.
- 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.
- Shall list all located utilities on the *Day-Light Assurance Form* and attach to Plot Plan.
- Will initiate *Crossing Inspection Record* and *Notice of Excavation Form*.
- 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.
- 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.
- Line Locators will ensure that the existing line has a 3 foot clearance distance of all debris.
- Shall ensure that the line locating equipment is in good working order and properly calibrated.
- Shall be responsible for updating One Calls and updating Plot Plans with newly identified or installed utilities.

Competent Person

- Shall complete *Bell Hole Inspection Form* prior to an employ entering 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.
- Must be present when any excavation/trenching work is being performed.
- 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.

SPECIFIC PROCEDUREHydro Excavation

(Personnel Involved: Hydro Excavator Operator, Pressurized Water Hose Operator, Qualified Forklift Operator, and Qualified Spotter)

1. Before work can commence, properly complete all JSEA's, work permits, safety tailgate meetings, and equipment inspections.
2. Establish the scope of work, and ensure everyone knows their specific job duty.
3. Spotters will ensure that the path for the forklift is clear of any hazards or personnel.
4. When Excavations are expected to reach a depth of 4' or greater, a certified forklift operator will pick up and secure the safety platform using the forklift forks, and will be guided to the designated location by the spotter.
5. Forklift operator will lower the platform and proceed to exit the area of work.
6. Hydro Excavator Operator will position the hydro vac truck in the proper location.
7. Hydro Excavator Operator and Supporting Personnel will begin to hook up the hydro vac hose onto the hydro vac truck according to the manufacturer recommendations.
8. The hydro vac hose will then be positioned over the desired location.
9. The Water Hose Operator will assure the safety platform is secured and get into position for hydro excavation operations.
10. Hydro excavation will begin.
11. At the end of the shift or if the hydro vac tank is filled, the hydro vac personnel will dump the muddy soil to a designated location.

Pot Hole Safe Work Practices

- *When Hydro Excavation Activities are used to identify the existence of an existing line, a Tolerance zone of 3 feet on all sides of the existing line must be enforced before any more digging can begin.*
 - o *** This must take into account the angle of the proposed line ***
- *The Line Locator will not sign off on the Day Lighting Assurance Form unless the pot hole meets the tolerance zone specification.*
- *The safety platform will be required when a trench will be 4 feet or greater in depth and the hole is big enough for an employee to fall into.*

6. JOB RELATED HAZARDS***Slips, Trips and Fall Hazards:***

- Inspecting Equipment
- Climbing on and off equipment

- Walking on uneven surface or rocks
- Working around hydro vac hoses
- Working near open holes/trenches

Pinch Points and Line of Fire Hazards:

- Moving Equipment
- Walking in unauthorized work areas/buffer zones
- Working with pressurized water
- Working with industrial vacuum
- Working near overhead powerlines
- Vehicles next to roadway

Noise Hazards:

- Working with and around hydro vac equipment

7. REQUIRED PPE

- Hard hat
- Safety Glasses
- Steel Toe Boots
- Gloves
- Face Shield
- Hearing Protection (Hydro Vac)
- Fire Resistant Clothing (FRC's)
- Reflective Vest (Spotter)
- Personal Gas Monitors (Site Specific)
- Goggles (while pressure washing)

8. FORMS/TEMPLATES TO BE USED

- Line Locating Request Form
- Line Locating Maps
- One-Call
- Day-lighting Assurance Form (if applicable)
- Notice of Excavation

- Ground Disturbance Checklist
- Crossing Inspection Record Form
- X-Pattern Verification Form
- Equipment Operator Pre-Excavation Form
- Equipment Inspection Forms
- Bell hole Inspection Form
- JSEA
- Work Permit

9. INTERNAL AND EXTERNAL REFERENCES

Appendix:

Appendix 1:

