
















Standard Operating Procedure SOP-003	Revision 0
EXCAVATION AND BREAKING GROUND	

1. Activity	Excavation And Breaking Ground	
2. Associated Risk and Environmental Impact Assessment	RA-003 Excavation And Breaking Ground	
3. Control measures		
1) Ensure you have <u>ALL PPE in proper working condition</u>	5)	Excavations must be designed to protect against intrusion of storm water run-off. Workers must not enter an excavation with accumulated water. Excavations must be inspected by a competent person after a rainfall event
2) Temporary flagging and fencing to secure the site and equipment/materials storage area, site access/egress points, signs and barricades for onsite traffic control and warning tape for prohibited areas (i.e., the contaminated soil, excavation, treatment and stockpile areas)	6)	A supervisor is appointed to take responsibility for the whole operation, inform involved personnel and control SIMOPS (Simultaneous operations).
3) Employees exposed to vehicular traffic shall be provided with and shall wear warning vests or other suitable garments marked with or made of reflective and high visibility material	7)	All emergency response equipment to be on site
4) Establishment of equipment/personnel decontamination areas and work zones	8)	Where employees or equipment are required or permitted to cross over excavation, walkways or bridges with standing guardrails shall be provided

4. PPE							
							
✓			✓		✓		
Helmet, EN 397, EN50365	[specify type]	[specify type]	Particles face shield, EN 169, 175, 379	[specify type]	Selection of filters depends on the particles and vapors/smoke	[specify type]	[specify type]
							other
✓	✓	✓	✓	✓		✓	
Ear plugs EN 352	Long sleeves coverall EN 340	High Visibility vest EN 471	Impact resistant glove, EN 420	Safety boots, EN ISO 20345 S5, S3	[specify type]	Fall Protection Safety harness EN 341, 348	[specify type]

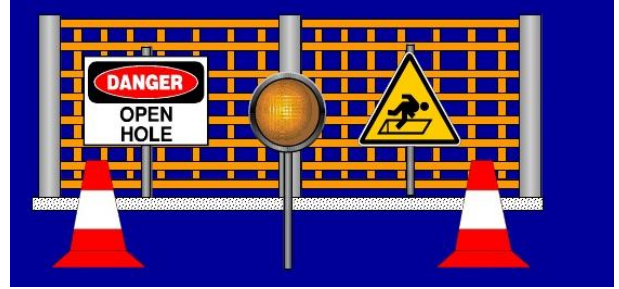
5. Forms & Attachments
None

6. Pre-job checks

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| <ol style="list-style-type: none"> 1) Verify flagging, isolation/fencing (traffic cones and barrier tape to delineate work area), site access control measures. 2) Vehicle / equipment have appropriate licenses and operable back-up warning systems 3) Check the excavation plan and toolbox-talk it with relevant personnel. | <ol style="list-style-type: none"> 4) Underground utilities' / public lines' (sewer, telephone, electrical, fuel, natural gas, water and other lines, and underground tanks) designs are available and respective parties have been informed accordingly. 5) Check installation of Emergency arrangements. |
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7. Execution

- 1) Flag, isolate/fence the work area and place site access control measures



- 2) Identify, flag and protect/support or remove/bypass all existing underground utilities / public lines accordingly



- 3) White spray paint on soil or other materials such as stakes, concrete nails, flagging, etc., to mark the excavation limits.

- 4) Clear the excavation area from obstructions against vehicles movements and equipment operations.

- 5) Perform breaking upper layers / excavation operations according to work plan under constant supervision by assigned personnel.



- 6) If excavations reach:

- more than 1 meter in depth, protection from fall equipment is required
- more than 7 meters in depth, they must be designed by a registered professional engineer



- 7) Vehicles and equipment must keep safe distance from the edge of the excavation (at least 1 meter) according to the type of soil and excavation side angles. Where necessary a competent engineer will provide directions / additional working plan.



- 8) No employee shall be permitted underneath loads handled by lifting or digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded.



- 9) **Position / stockpile** and **label** of excavated materials according to type:

- Debris and rubble (i.e., bricks, concrete, asphalt, cobbles, boulders, and timbers) suitable for disposal as non-hazardous waste
- Contaminated debris and rubble that is inappropriate for replacement should be stockpiled separately or put in holding bins for treatment and off-site disposal
- Excavated overburden and soils that test below project cleanup goals should be left in place, or used as backfill material



- 10) Collect samples at the base and perimeter of the excavation and analyze using appropriate analytical methods as described in the work plan.



- 11) Perform site restoration following confirmation sampling and analysis



8. After work checks

- 1) Make sure there are no soil collapse hazards / keep fencing or labels if necessary.
- 2) Remove support of adjacent facilities if any.
- 3) Confirm the working state of underground lines that were interrupted before works.
- 4) Retrieve tools.

Issued	Checked	Approved
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