



## Why use vacuum excavation?

Vacuum excavation is rapidly becoming the preferred method within many sectors for exposing the threat from live underground services, vacuum excavation can also greatly increase productivity over hand dig methods. Vacuum excavation reduces the risk and disruption associated with striking utilities.

Will vacuum excavation work on your project and which system is best for you and your project?			
<b>Hydro Vacuum Excavation</b>		<b>Pneumatic Vacuum Excavation</b>	
- 100% safe to both utility and operator	✓	- 100% safe to both utility and operator	✓
- Industry best practice according to HS(G)47	✓	- Industry best practice according to HS(G)47	✓
- Minimum of 50% faster than hand digging	✓	- Minimum of 50% faster than hand digging	✓
- Fast, effective excavation in areas with access issues	✓	- Fast, effective excavation in areas with access issues	✓
- Keyhole surgery of trial pits	✓	- Keyhole surgery of trial pits	✓
- Safely remove contaminated materials	✓	- Safely remove contaminated materials	✓
- Excavated material left clean and dry	✗	- Excavated material left clean and dry	✓
- Excavated material suitable for backfilling	✗	- Excavated material suitable for backfilling	✓
- Excavation in all geology types	✓	- Excavation in all geology types	✗
- Working depths of up to 3m from ground level	✓	- Working depths of up to 3m from ground level	✗
 Hydro excavation is fast and effective in all geology types, however when excavated using the hydro system material is left as a slurry and is not ideal for backfilling with. The hydro system is more capable of working at depths over 2m than the pneumatic system.		 Pneumatic excavation is effective only in non-cohesive geology such as sands, gravels and soils. Pneumatic excavation is not effective in cohesive geology such as clay and PFA. Air Spade systems also aren't as effective or practical at depths over 1-2m.	

### Vacuum Excavation Process:

1A. Hydro jet is used to deliver high pressure water into the ground safely loosening the material by “washing” or “eroding” it into a slurry/wet mix for vacuum recovery. The pressures are enough to effectively excavate but not enough to damage anything.

1B. Air spade tools are used to safely excavate and de-compact the sub base. Pneumatic excavators work by injecting compressed air into the sub base at 1500mph, this jet of compressed air is very effective at breaking up non-cohesive materials whilst still being 100 % safe to any sensitive buried objects, utilities or tree roots.

2. After de-compactation of sub base material the loosened soil can be safely removed by high performance vacuum; if access is limited the vacuum excavation unit is capable of working at distances of up to 100m from the excavation.

3. After the excavation is complete the recovered material is safely contained in a water tight spoils tank or in-line interceptor, this can then be used for back fill or if contaminated can be transferred for removal where all relevant environmental registrations and waste transfer licences are in place.

