

# Water Jetting, Wash Boring and Rotary Boring

## WATER JETTING

Water under very high pressure

Casing

Hole advanced by brute jetting action of water and rotating and surging of casing

Return water outside of casing, making all related observations useless

Huge volume of soil below is disturbed, water ingress is very high and test volume is no longer intact. All tests/samples are bad.

**Hole advanced by jetting of high pressure water down wards into soil below casing and surging and rotating action of casing. Hole ed mainly by destructive forces of water under high pressure**

**Return water OUTSIDE of the casing**

Cheap adapted Machine Very fast, very cheap

*Test volume disturbed and altered  
Samples and testis not representative or bad*

**No skill required**

*Not in compliance with Specification requiring sampling and testing or Code of practice*

## WASH BORING

Water under pressure

Drill string

Return water inside of casing, making related observations possible

Casing

Hole advanced rotating and surging of bit attached to drill string

Cutting bit

Most flushing water discharged downwards, some water enters soils below. With care, only some tests/samples are possible.

**Hole advanced by rotating and surging action of cutting bit attached to drill string inside casing. Water discharged sideways and downwards into soils below**

**Return water INSIDE of the casing.**

Machine various including manual, more suited for water wells, boring for disturbed samples

*Test volume disturbed and altered  
Samples and tests not representative or reliable*

**Some skill**

*Doubtful compliance with Specification requiring sampling and testing or Code of practice*

## ROTARY BORING

Water under pressure

Compatible Drill string

Hole advanced by cutting action of rotating bit attached to drill string and hydraulic thrust

Return water inside of casing, making related observations possible

Compatible Casing

Cutting bit

All most all flushing water discharged sideways, very little ingress in to soil below. Very little disturbance to soil volume below. Good tests/samples are possible.

**Hole advanced by cutting bit attached to the bottom of drill string and hydraulic thrust with cuttings transported upwards by drilling fluid/water. Use compatible casings and rods, drag and cutting bits cutting bits varying with soil types. Almost all water discharged sideways**

**Return water INSIDE of casing**

Machine suited for quality sampling and testing  
High degree of observations possible eg return water, water losses, penetration rates etc. Rig very costly

*Test volume intact, samples acceptable, reliable*

**Skill essential**

*In compliance with Specification requiring sampling and testing and Code of practice*



Badly damaged Undisturbed sampling tube



Worn out SPT Spoon



Solid SPT Split Spoon with usual sample loss



Extruding Samples



Incompatible rods and casings



Packed Samples ready for transport



A\_Rod with adapters attached to NMLC core barrel about 30 meters down inducing fractures into cores due to whipping



SPT Samples from rotary bore

SPT Samples from waterjetting bore note the effect of water ingress on samples

