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Your solution provider

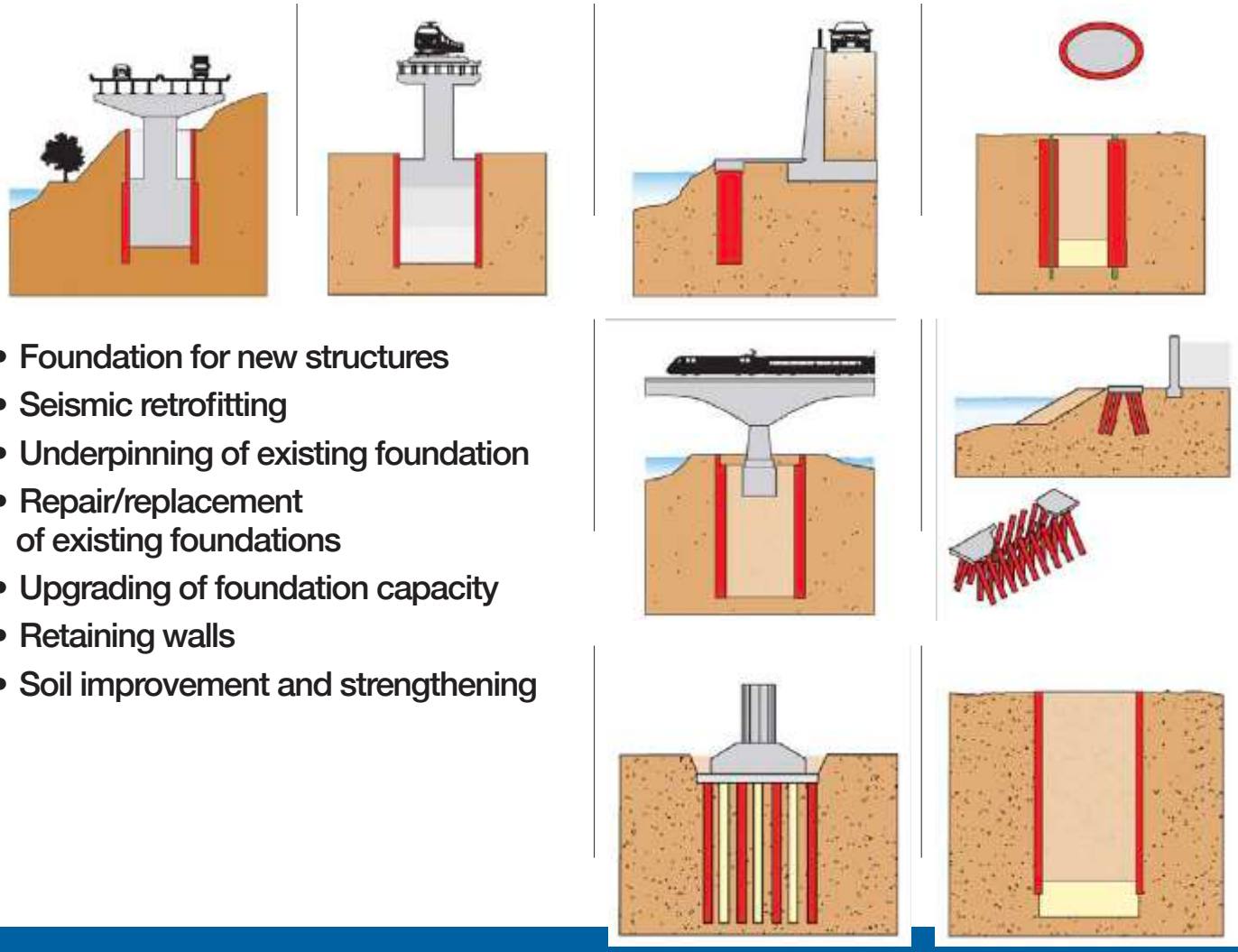
MP/TB micropiles tiebacks - anchors

Micropiles are structural reinforced elements of diameter smaller than 300 mm.

Tiebacks are structural elements undergoing traction and suitable for conveying loads to soil depths.

- **Possibility to use with adjacent structures limited access (low headroom)**
- **Capability to overpass pre-existing foundations**
- **High bearing capacity**

Technology and fields of application



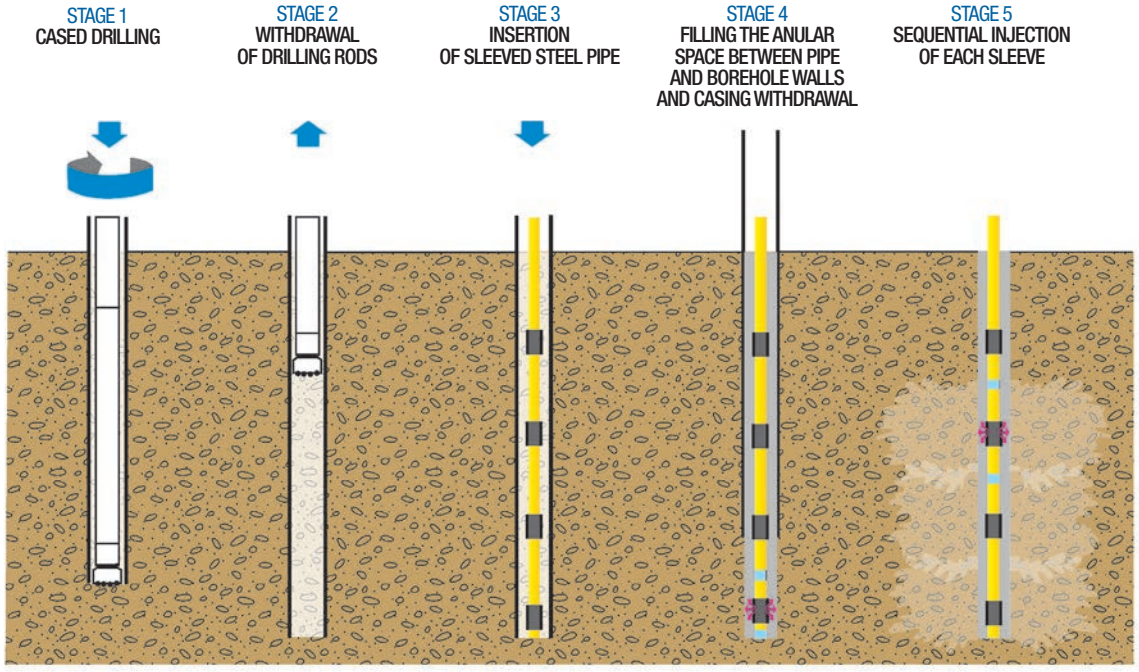
- Foundation for new structures
- Seismic retrofitting
- Underpinning of existing foundation
- Repair/replacement of existing foundations
- Upgrading of foundation capacity
- Retaining walls
- Soil improvement and strengthening

Micropiles can be used as single load bearing elements, or in groups. In this case, micropiles can be used to form retaining structures *(berlin-walls, for example).*

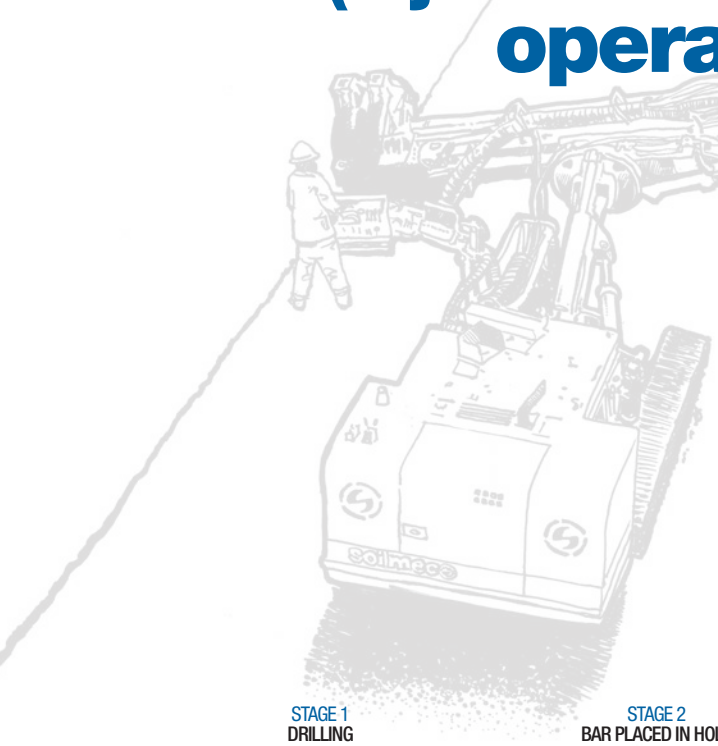
Micropiles can be installed by using self-drilling pipes, or in a pre-formed hole. Among the drilling techniques, the most used are rotary and roto-percussion, with or without the aid of casing. Other suitable methods for installation of micropiles are auger and coring.

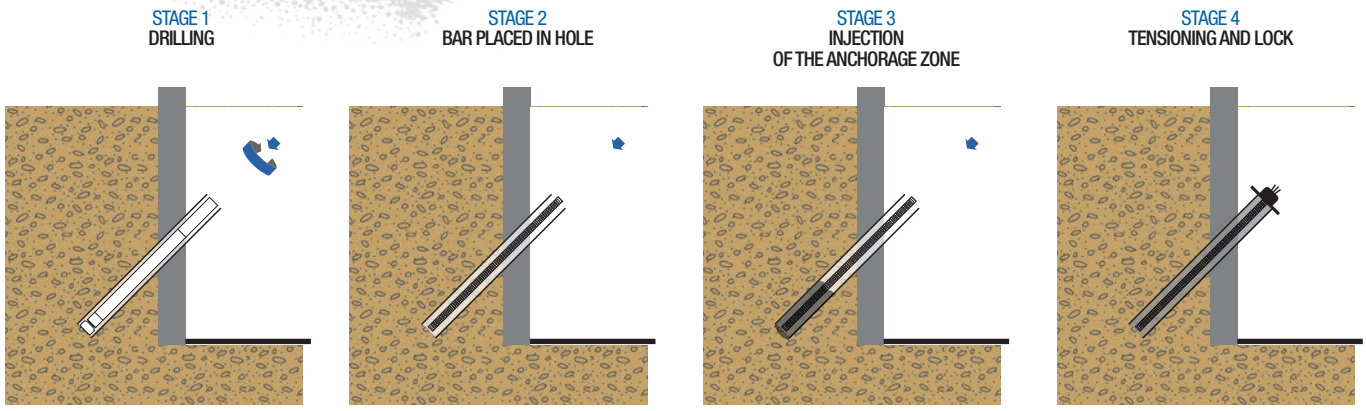
Tiebacks are made of an active part, the bond length, and a passive part, that transfers the stresses from the anchoring head placed on the anchor wall to the soil.

Tiebacks can be grouted either by low pressure or by high pressure, while, with reference to their duration in time, they can be divided into temporary and permanent tiebacks.

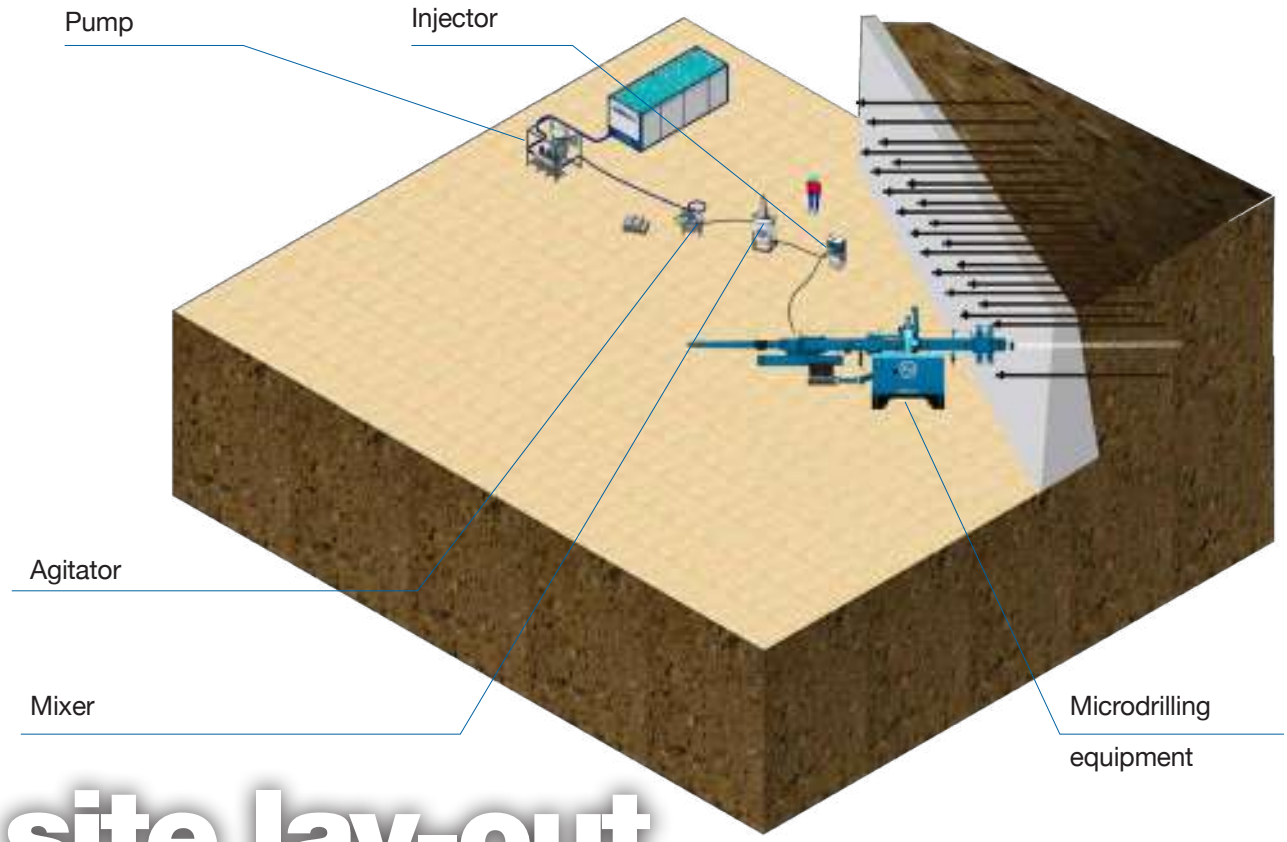


MP (injection method) operating sequence



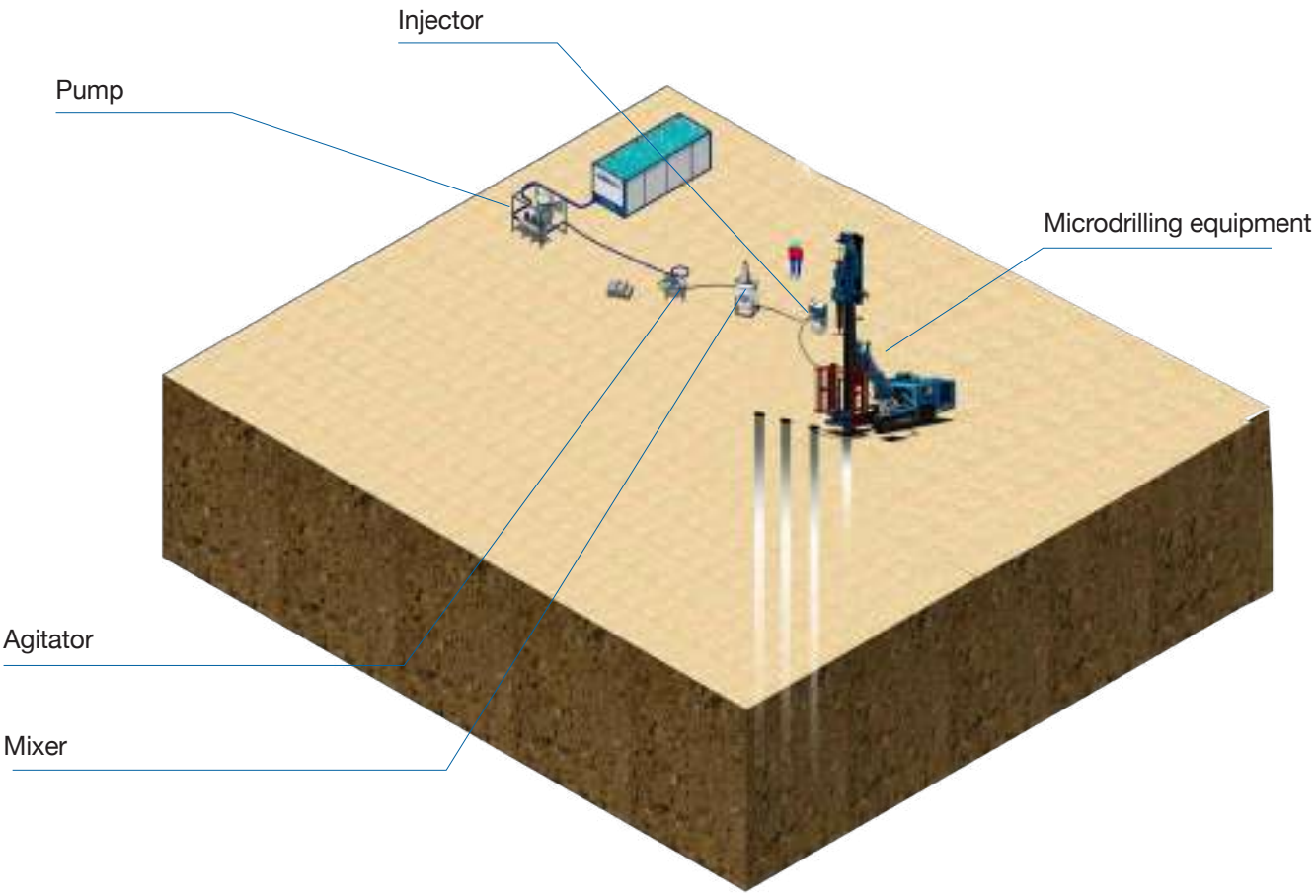


TB (tie-back method) operating sequence



job site lay-out

The standard layout of a jobsite for the construction of micropiles and tiebacks includes a drilling rig, ancillary equipment and logistics structures. The figure shows a jobsite that includes an injection plant built on site:the injection system can either be already assembled on a frame.



performance

Drilling rig performance




	SM-4	SM-6	SM-11	SM-15
kg	5800 kg	7000 kg	11000 kg	16000 kg
	115 kW	100 kW	115 kW	123-142 kW
	70 kN	52 kN	96 kN	121 kN
	700-3348 daNm	575-3400 daNm	892-3200 daNm	1207-3390 daNm



	SM-15HD	SM-18	SM-22
kg	19000 kg	19000 kg	22000 kg
	186/179 kW	176 kW	194 kW
	121 kN	113 kN	140 kN
	1207-3390 daNm	1175-3659 daNm	1953-3661 daNm

2013

SM107 - Multi-purpose mechanism for arm and mast movement.

This special kinematics includes 3 rotation axes between the machine body and the arm and 2 rotation axes between the arm and mast. The great versatility of this kinematics allows the mast to assume all the configurations necessary for the different drilling techniques.

2009

SM066 - Rod carousel mobile driving head.

This device includes a rod guide sliding along the mast. In this way can be used the upper working position when using the loader, and the lower position for minimum encumbrance during drilling. The system increases the safety of construction site personnel.

2009

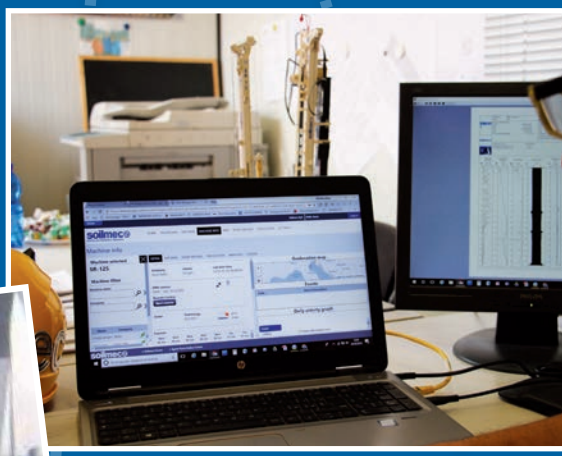
SM065 - Mechanical arm for drilling emergencies.

Safety device to limit access to a dangerous area of the machine. The system consists of a protective frame or guard complete with rotating arms linked on the mast. The arms are fitted with safety microswitches capable of generating an alarm and control signal during opening.

patent controls

DMS suite for MP and TB

- Job planning and progress tracking in real time
- Reporting, data analytics and quality assessment
- Condition monitoring and maintenance management software
- Worldwide remote assistance

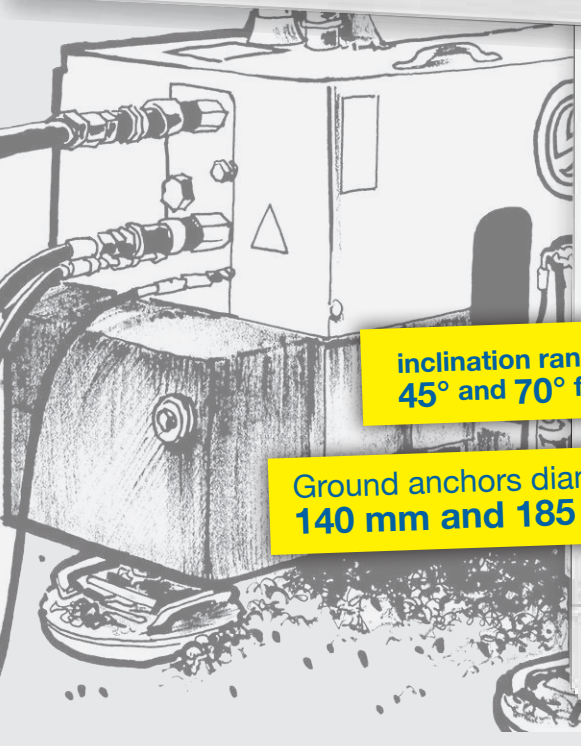


Rig in action

130 mm diameter
13 m length

Johannesburg *South Africa*
FNB Palace project

Livigno *Italy*
New cable car Carosello 3000

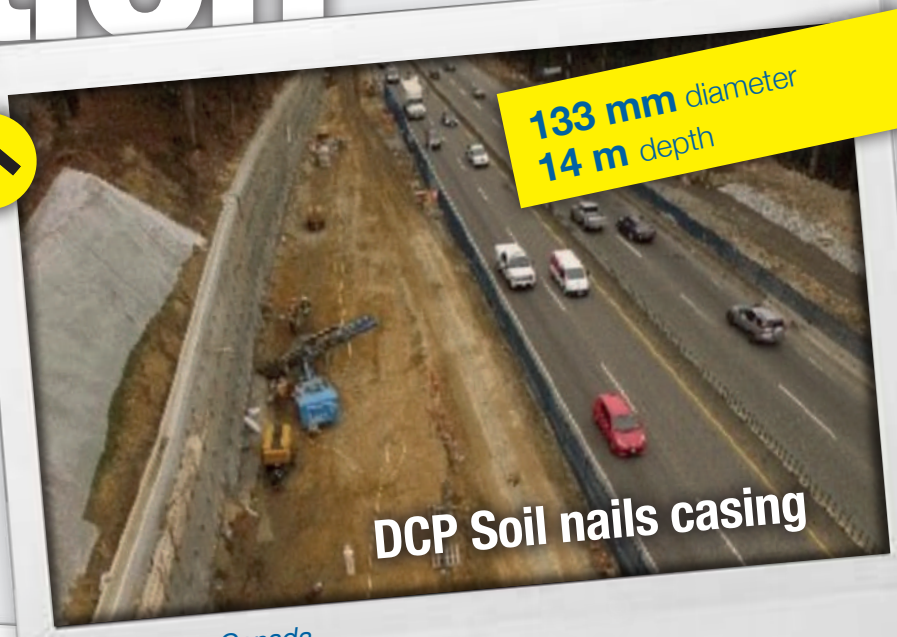


inclination ranging between 45° and 70° from horizontal

Ground anchors diam
140 mm and 185 mm

Kowloon *Hong Kong*
Residential development project

Rig in action



133 mm diameter
14 m depth

DCP Soil nails casing

Vancouver *Canada*
Highway 1 widening
for Mountain Highway Interchange

Micropiles

200 mm diameter
9 m depth

La Spezia *Italy*
Molo Pagliari

SFA piles

400-450 mm diameter
8-11.8 m depth

Hazelmere, West Sussex *England*

MP and TB_09/2022