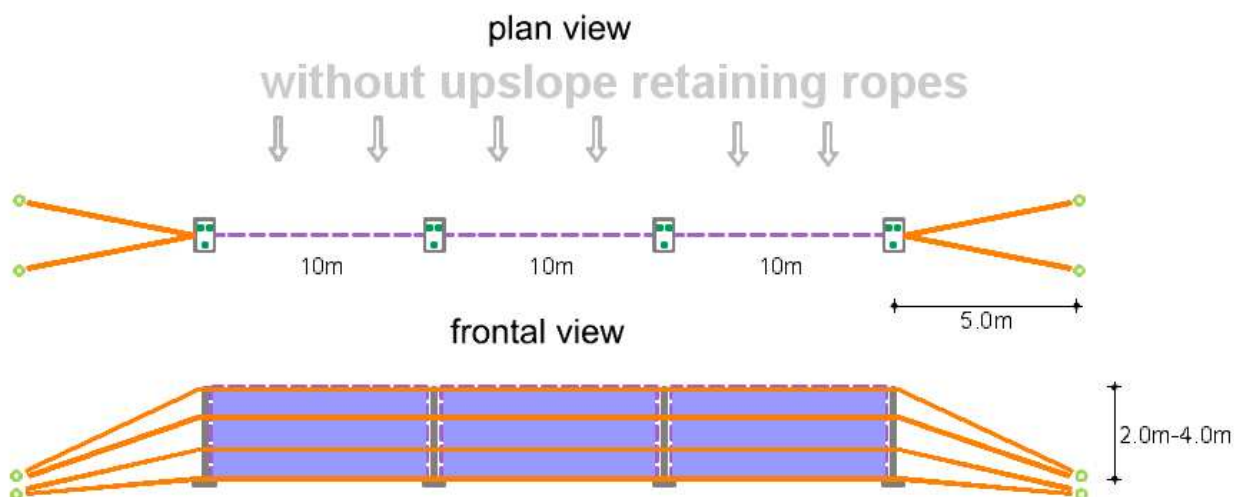


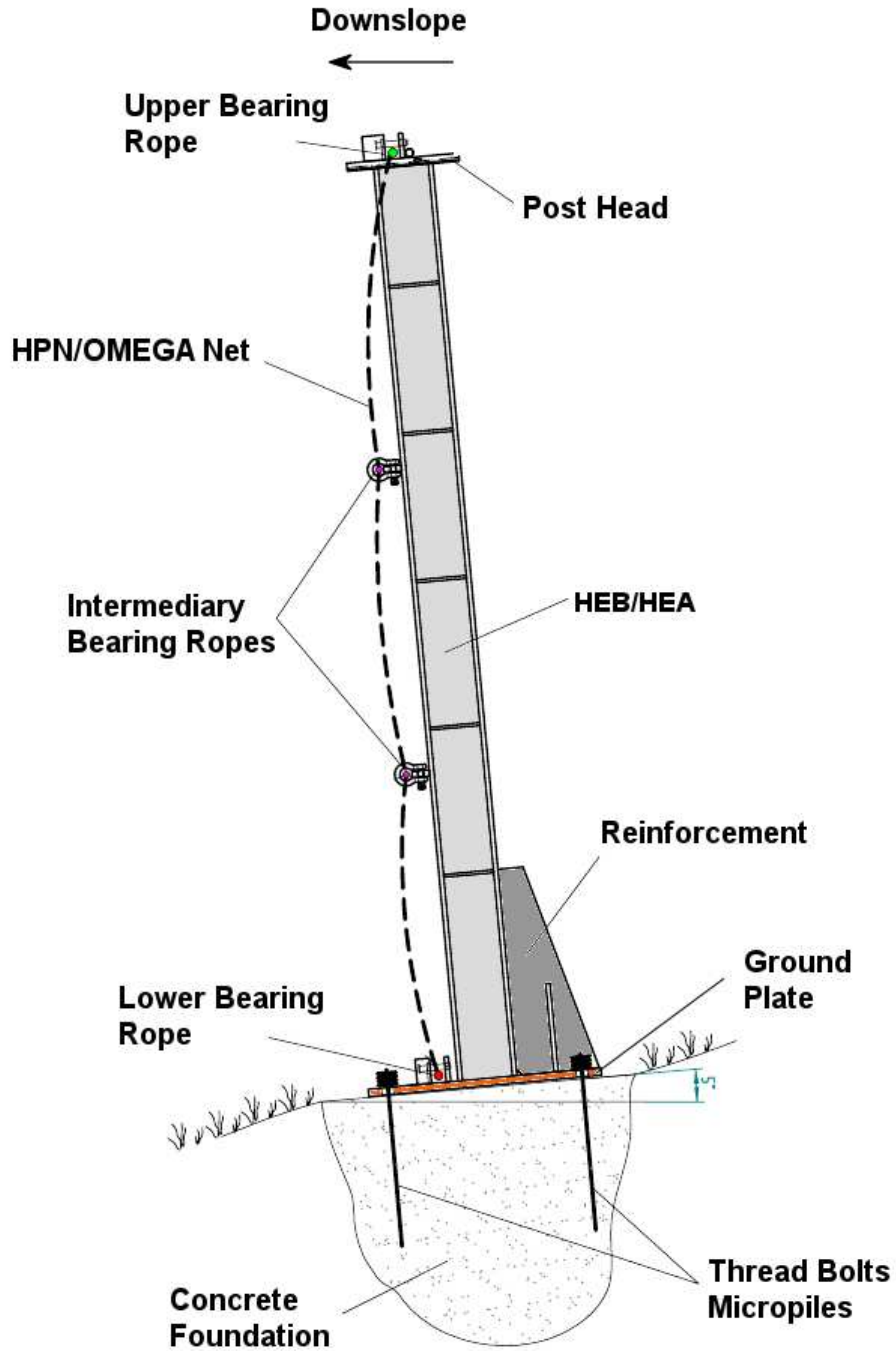
Rockfall Barriers Without Upslope Anchors - Technical Specifications				
Type	TS-100-oA	TS-500-oA	TS-1000-oA	TS-2000-oA
Energy Class	0 (100kJ)	2 (500kJ)	3 (1000kJ)	5 (2000kJ)
Nominal Heights	2 m	3 m	3 m	4 m
Post Spacing	10 m	10 m	10 m	10 m
<b>Interception structure</b>				
Net Type	HPN Net	Omega Net	Omega Net	Omega Net
Weight	5,6 kg/m <sup>2</sup>	5,6 kg/m <sup>2</sup>	5,6 kg/m <sup>2</sup>	6.0 kg/m <sup>2</sup>
Ø wire	4,6 mm	7,5 mm	7,5 mm	9,0 mm
Wire strenght	400-500 N/mm <sup>2</sup>	1600 N/mm <sup>2</sup>	1600 N/mm <sup>2</sup>	1530 N/mm <sup>2</sup>
Zinc coating	EN 10264-2 / A	EN 10264-2 / A	EN 10264-2 / A	EN 10264-2 / A
Ø mesh	~45 mm	~120 mm	~120 mm	~170 mm
<b>Posts</b>				
Type	HEA 140	HEB 200	HEB 240	HEB 280
Material	Steel S235JR	Steel S235JR	Steel S235JR	Steel S235JR
Weight	24,7 kg/m	61,3 kg/m	83,2 kg/m	103,0 kg/m
Zinc coating	EN ISO 1461	EN ISO 1461	EN ISO 1461	EN ISO 1461
<b>Ground Plates</b>				
Type	Three-bores plate	Three-bores plate	Three-bores plate	Three-bores plate
Dimensions	Steel S235JR	Steel S235JR	Steel S235JR	Steel S235JR
Material	644 x 300 x 15 mm	780 x 300 x 25 mm	1135 x 345 x 30 mm	1155 x 345 x 40 mm
Zinc coating	EN ISO 1461	EN ISO 1461	EN ISO 1461 </tr	



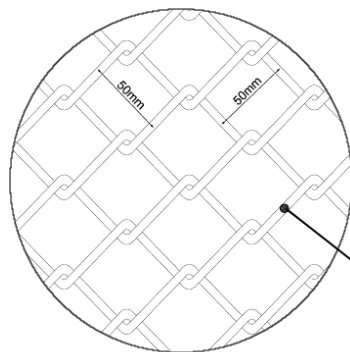
**Legend**

- Bottom lateral anchors
- Top lateral anchors
- Thread Bolt
- Zinc coated steel base plate S235JR
- Zinc coated steel post
- ropes
- omega net

Certified Performance				
MEL Energy	123 kJ	606kJ	1151 kJ	2290 kJ
Residual Height	1,80 m	1,65 m	1,59 m	2,44 m
Maximum Elongation	2,22 m	4,42 m	6,03 m	7,10 m
<b>Forces acting on foundations (characteristic values)</b>				
Bending Moment $M_k$	198 kNm	289 kNm	671 kNm	773 kNm
Horizontal Load $F_k$	186 kN	205 kN	378 kN	505 kN
Lateral Anchors $F_k$	201 kN	113 kN	172 / 231kN	205 / 324 kN

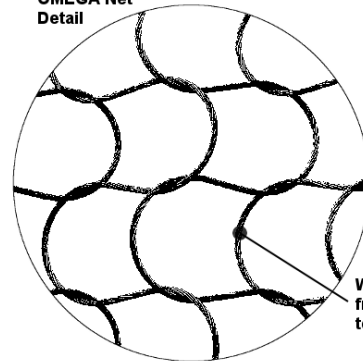


HPN Net - Detail



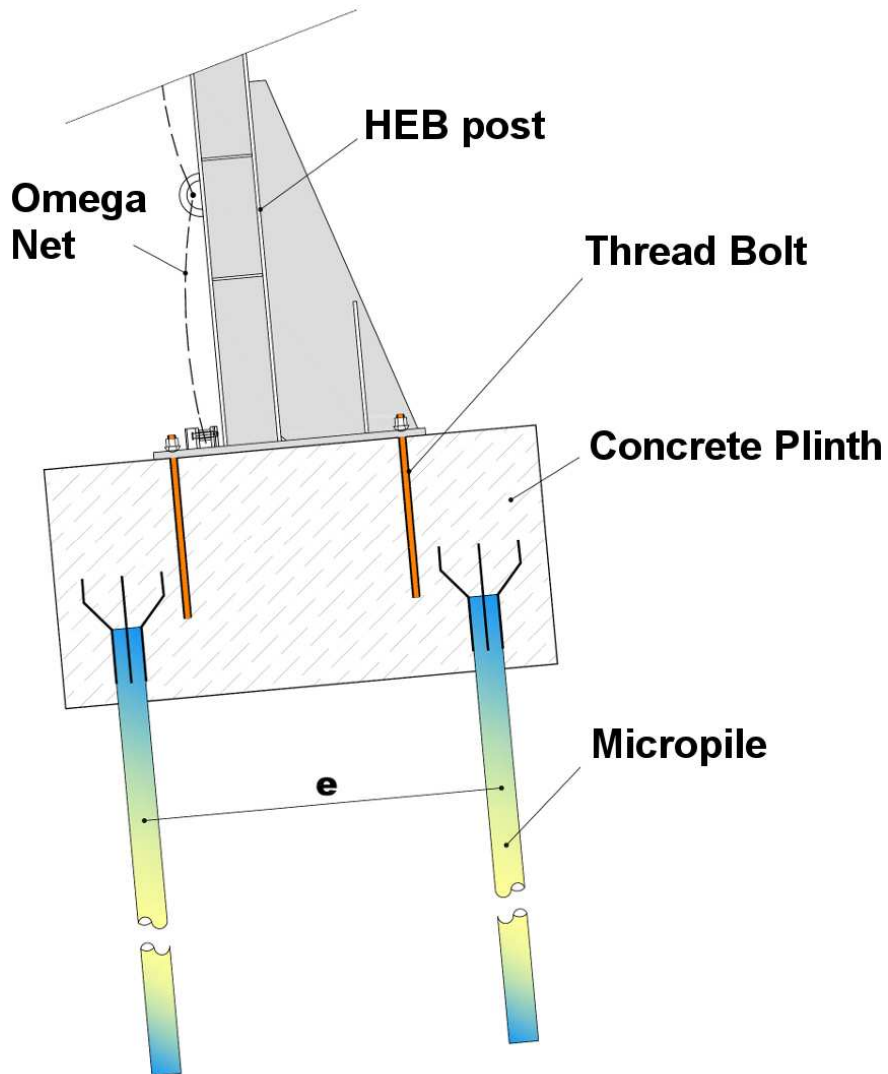
Wire Ø 4.6 mm  
Tensile strength  
150 kN x 150 kN

OMEGA Net  
Detail



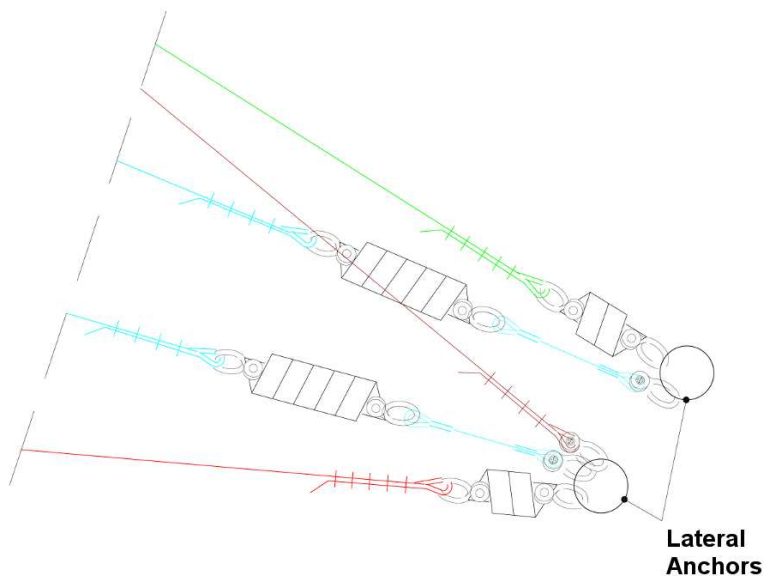
Wire strand Ø  
from 4.5 mm  
to 10.5 mm

## Foundation structure

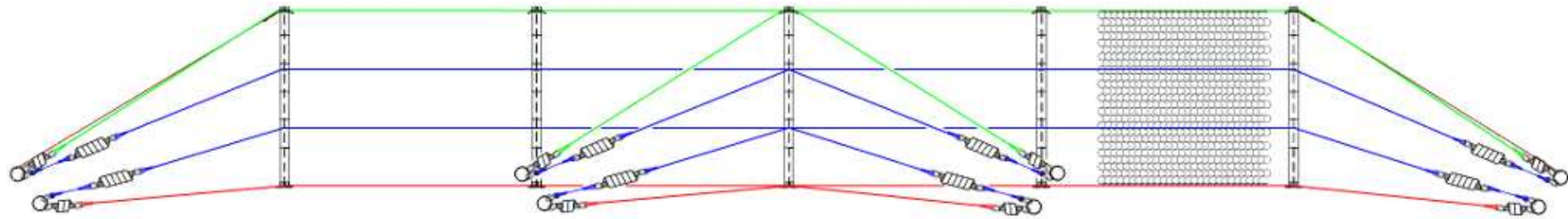
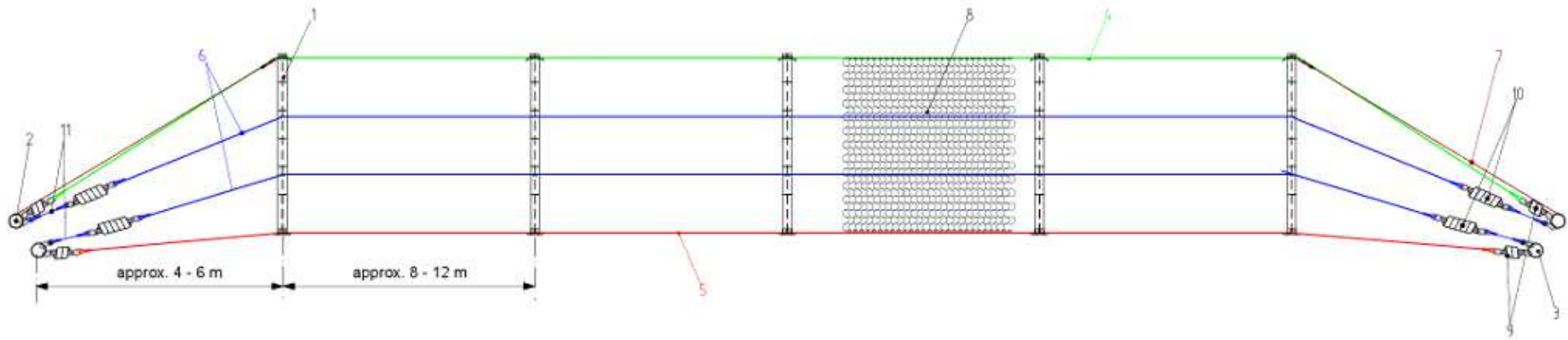


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## Dissipators details



### Rockfall Barrier without upslope anchors - Frontal View



Note: view towards back of fence (i.e. downslope)

**Legend**

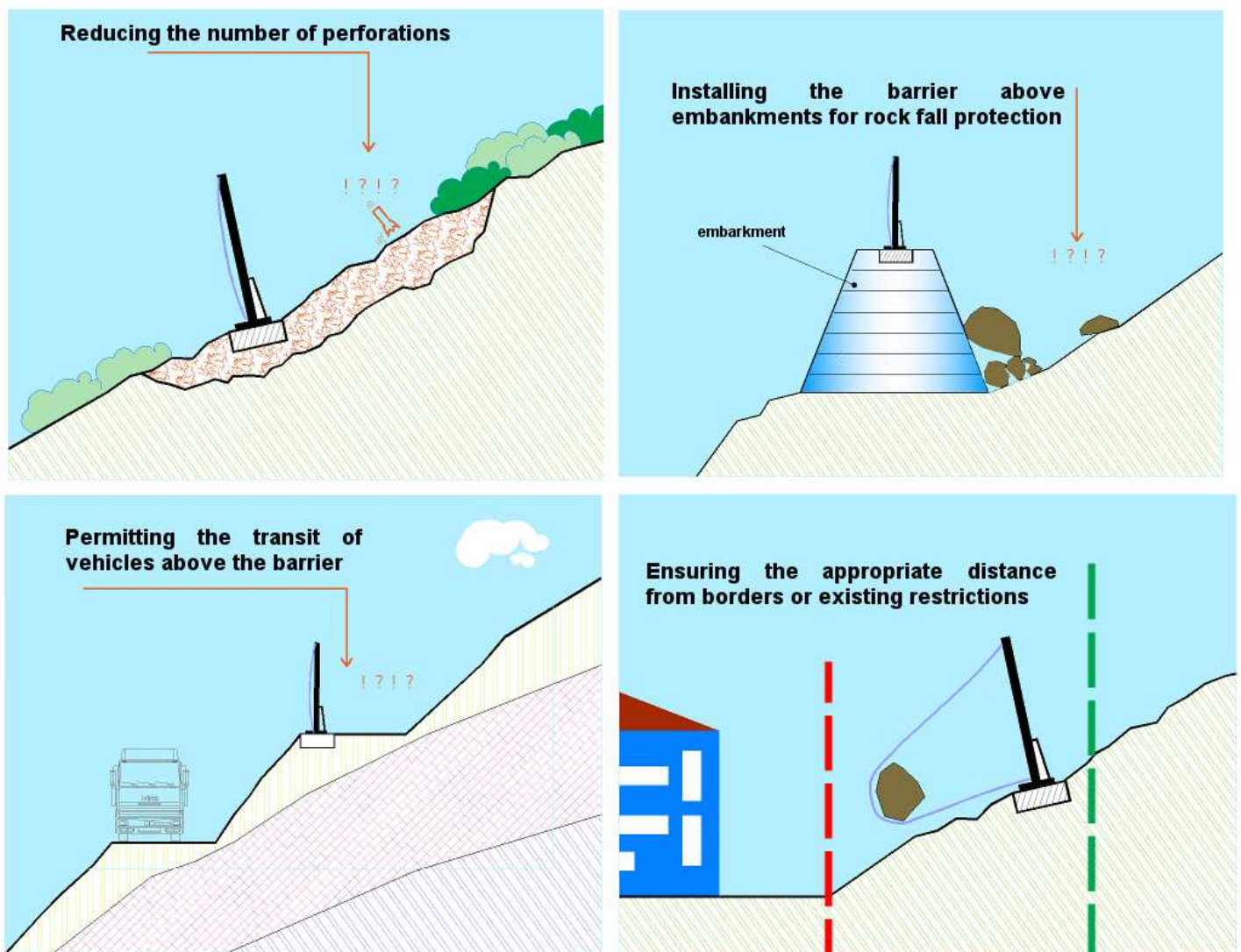
- 1. HEB post
- 2. Side anchor (upper and upper middle ropes)
- 3. Side anchor (lower and lower middle ropes)
- 4. Upper bearing rope
- 5. Lower bearing rope
- 6. Middle ropes
- 7. Side stabilisation rope

- 8. Omega-Net
- 9. Brake element AVT phx 60/30-2.5
- 10. Brake element AVT phx 60/25-5.5
- 11. Extension rope

The **rockfall barriers without upslope anchors** have been designed for protection from falling rocks in cases where the condition of the site or the area of the project requires an absence of ropes and upslope anchors of the structure :

- Reducing the number of perforations with the performance of a certified barrier
- Permitting the transit of vehicles above the barrier
- Installing the barrier above embankments for rock fall protection
- Allowing for easy maintenance above the barrier
- Ensuring the appropriate distance from borders or existing restrictions

## USE CASES





100kJ Rockfall Barrier without upslope anchors



500kJ Rockfall Barrier without upslope anchors positioned near a maintenance road



2000kJ Rockfall Barrier without upslope anchors - MEL Test

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