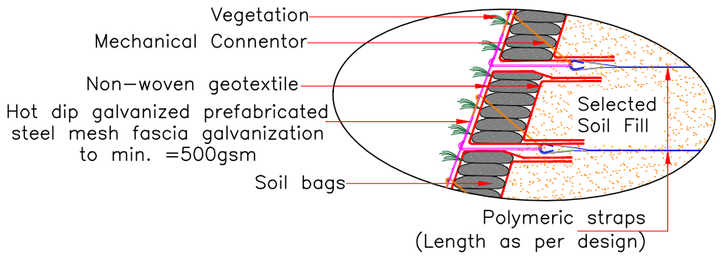


Detail -`A'

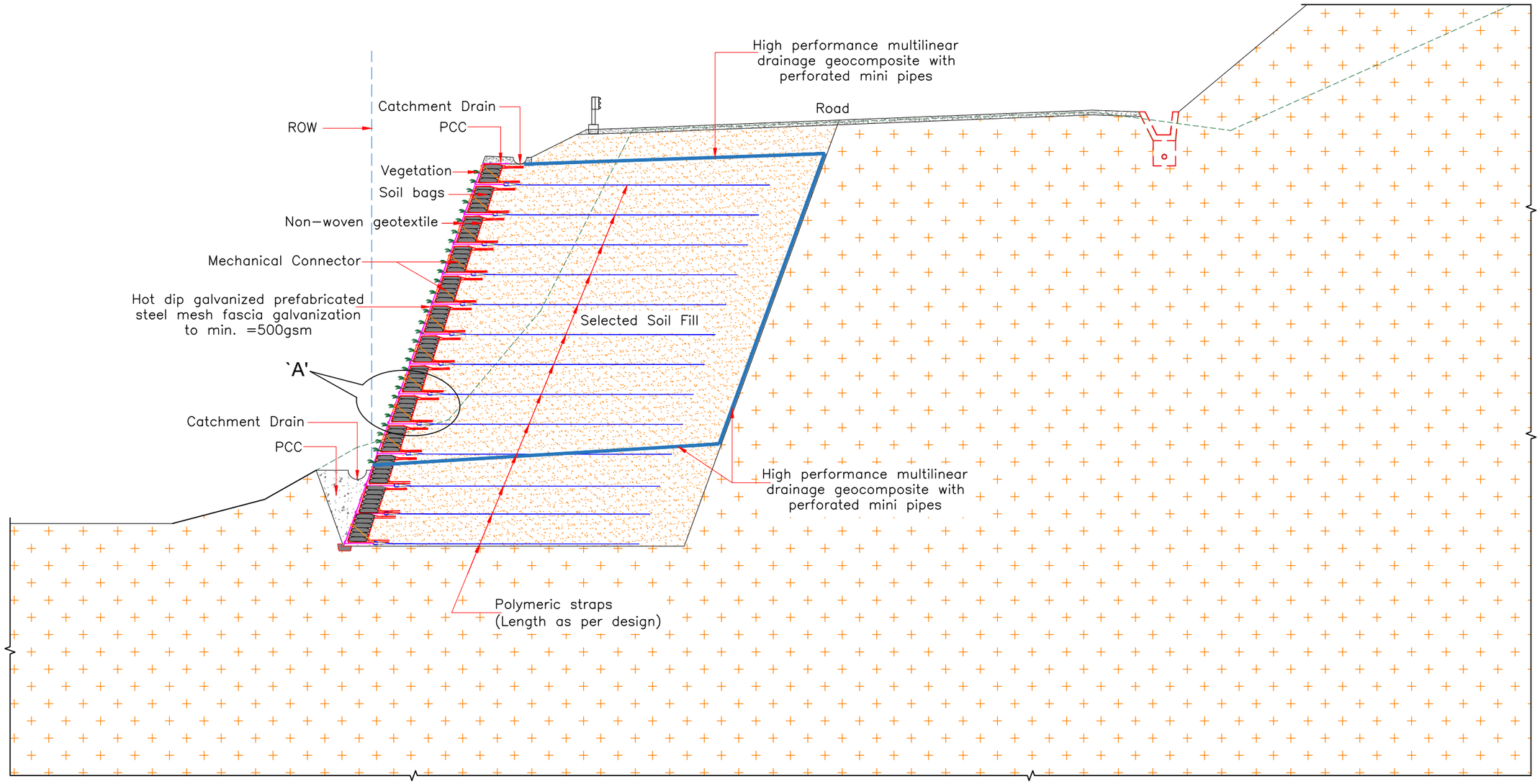
High performance multilinear drainage geocomposite with perforated mini pipes				
Characteristics	Standards	Reference	Value	Unit
Mass per unit area	NF EN 9864	Geotextile	550	g/sqm
	Mass per unit area total mass(geotextile+mini pipes)		612	
Thickness	NF EN 9863–1	Under 2 kPa	6.0	mm
		Under 20 kPa	5.0	
Tensile Strength	NF EN ISO 10319	Machine Direction	24	kN/m
		Cross Direction	24	

Polymeric Straps :– Polymeric Straps shall be 49.5±1 mm wide polymeric with smooth edges .It consists of discrete channels of closely packed high tenacity polyester tendons encased in a linear low –density polethylene sheath (LLDPE)

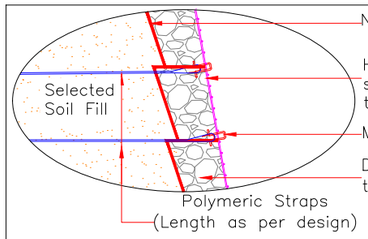
Polymeric Straps Specification											
Properties	Test Method	Unit	Minimum average roll value								
Ultimate Tensile Strength	Indian or International standard	kN	25	30	40	50	60	70	80	90	100
Width		mm	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5

Non–woven geotextile:
The Non–woven geotextile shall have a mass per unit Area of 200 g/m^2 (min.), satisfying the other minimum criteria as per section 700 of MoRTH specification.

Steel Mesh:–
(A) Steel used for mesh shall conform to grade b500b (or) b550c and hot dip galvanized to minimum 500gsm.
(B) Two consecutive units of steel mesh to be joined horizontally; using the tie bar which shall be connected using min.16 gauge wire.



Typical Cross Section with Mechanically Stabilazation Earth Slope



Detail -`A'

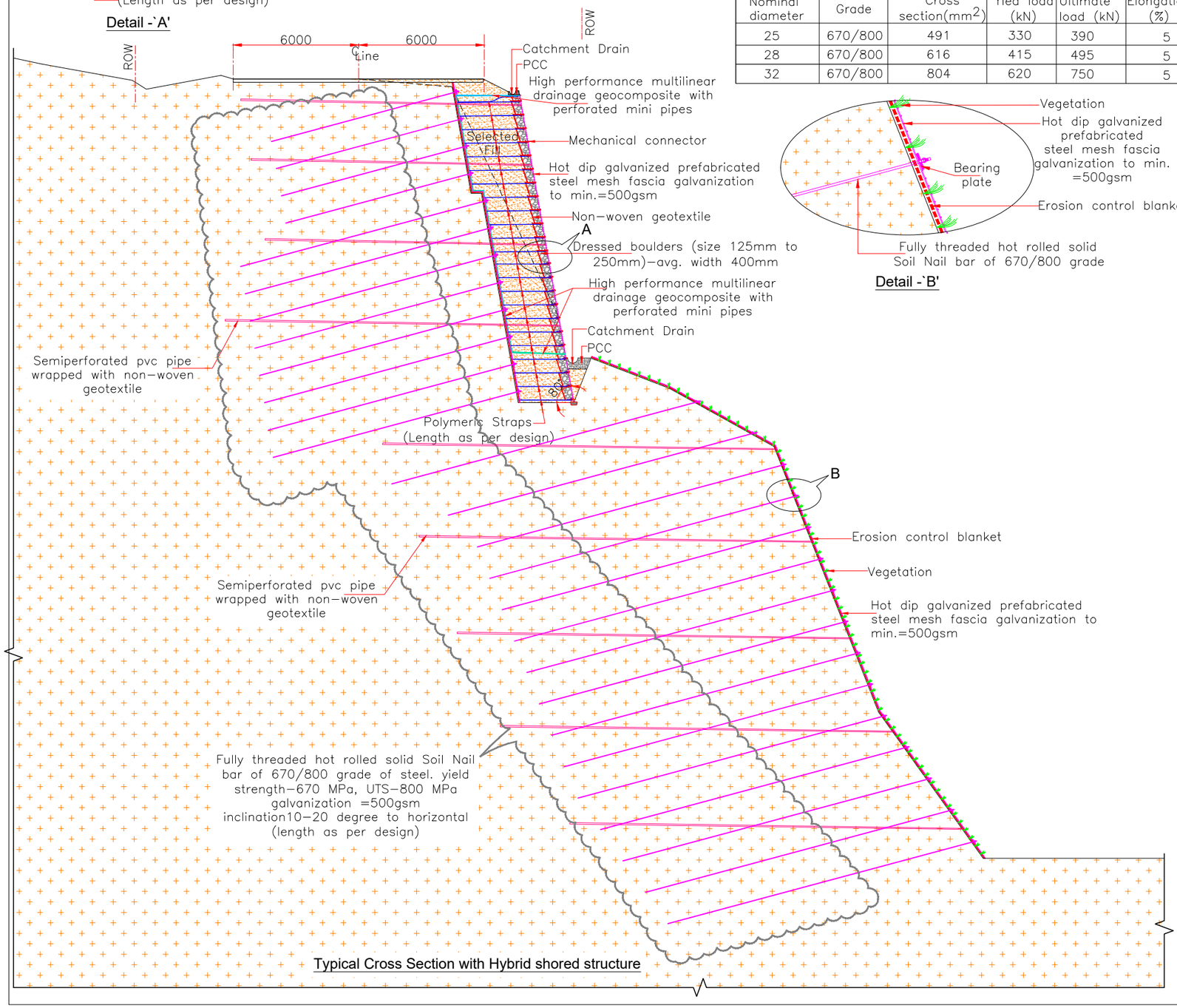
Erosion coir blanket –:
The coir mat shall have a mass per unit area of 600 g/m2 satisfying the other minimum criteria to morth section 700 .

Non–woven geotextile:
The Non–woven geotextile shall have a mass per unit Area of 200 g/m^2 (min.), satisfying the other minimum criteria as per section 700 of MoRTH specification.

Material specification of Soil Nail

Nominal diameter	Grade	Cross section(mm^2)	Yied load (kN)	Ultimate load (kN)	Elongation (%)
25	670/800	491	330	390	5
28	670/800	616	415	495	5
32	670/800	804	620	750	5

Detail -`B'



Typical Cross Section with Hybrid shored structure

Polymeric Straps :– Polymeric Straps shall be 49.5±1 mm wide polymeric with smooth edges .It consists of discrete channels of closely packed high tenacity polyester tendons encased in a linear low –density polethylene sheath (LLDPE)

Polymeric Straps Specification

Properties	Test Method	Unit	Minimum average roll value								
Ultimate Tensile Strength	Indian or International standard	kN	25	30	40	50	60	70	80	90	100
Width		mm	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5

Steel Mesh:–
(A) Steel used for mesh shall conform to grade b500b (or) b550c and hot dip galvanized to minimum 500gsm.
(B) Two consecutive units of steel mesh to be joined horizontally; using the tie bar which shall be connected using min.16 gauge wire.

High performance Multilinear drainage geocomposite with perforated mini pipes is comprised of two filter layers and a drainage mat made of polypropylene geotextile, and a series of perforated polypropylene mini–pipes arranged across the width. These components are securely bonded using a unique needle–punching technique.

High performance Multilinear drainage geocomposite with perforated mini pipes

Characteristics	Standards	Reference	Value	Unit
Mechanical Characteristics(Geocomposite)				
Thickness	EN ISO 9863–1	Under 2kPa	4.0	mm
		Under 20kPa	3.2	
Tensile strength	EN ISO 10319	Machine Direction	14	kN/m
		Cross Direction	14	
Tensile elongation		Machine Direction	60	%
		Cross Direction	60	
Mechanical Characteristics(Mini–pipe)				
Mini–pipe Diameter	EN 61386–1	External Diameter	24.5	mm
Mini–pipe stiffness at 5% deflection	ASTM D 2412	–	3000	kPa
Spacing of Mini–pipes	1 Mini–pipes every one meter widthways			

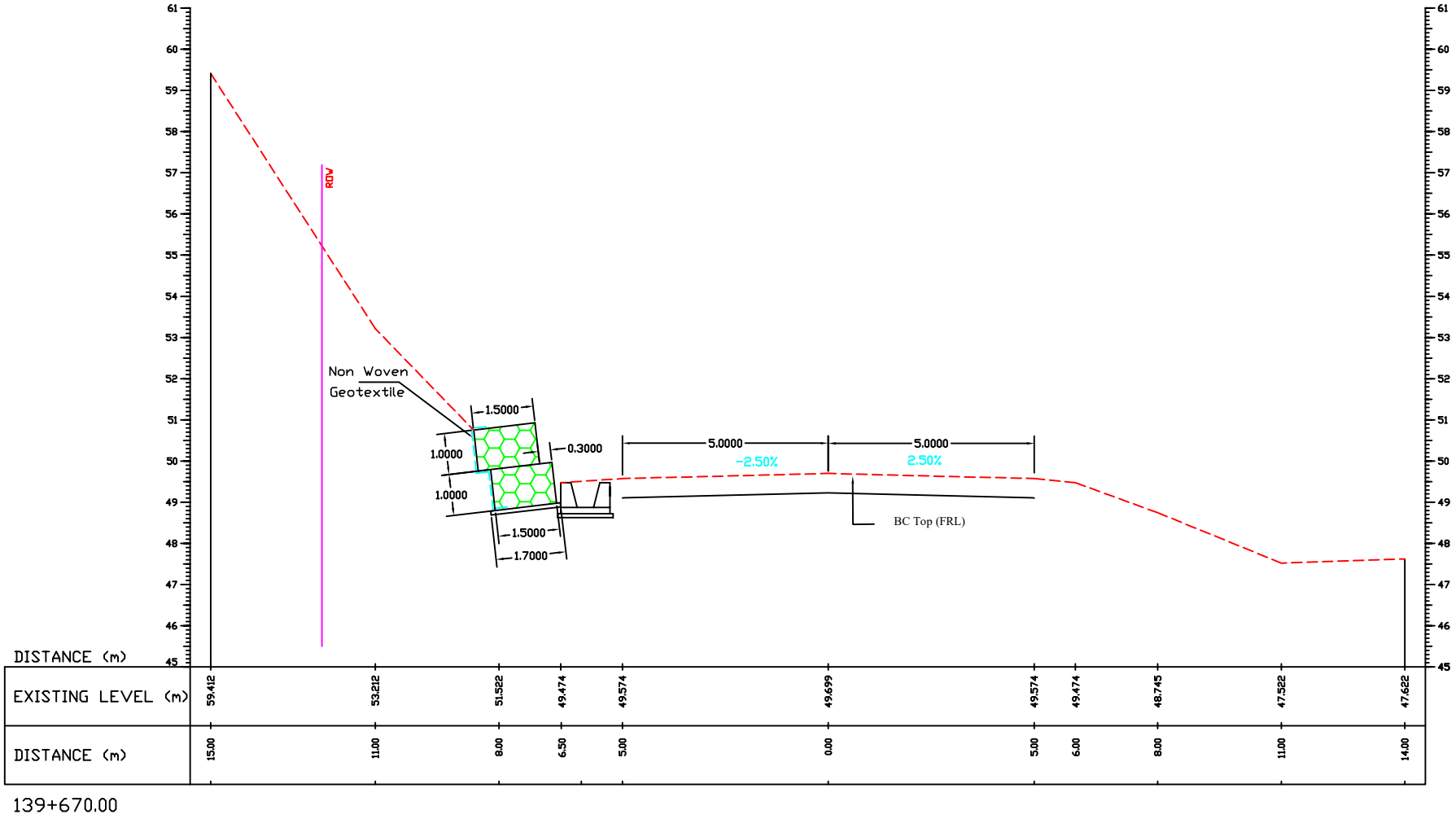
High performance Multilinear drainage geocomposite with membrane and perforated mini pipes is comprised of filter layer, a drainage mat made of polypropylene geotextile, a PE film of 110μ thick and a series of perforated polypropylene mini– pipes arranged across the width. These components are securely bonded using a unique needle–punching technique.

High performance Multilinear drainage geocomposite with membrane and perforated mini pipes

Characteristics	Standards	Reference	Value	Unit
Mechanical Characteristics(Geocomposite)				
Thickness	EN ISO 9863–1	Under 2kPa	3.2	mm
		Under 20kPa	2.4	
Tensile strength	EN ISO 10319	Machine Direction	14	kN/m
		Cross Direction	14	
Tensile elongation		Machine Direction	60	%
		Cross Direction	60	
Mechanical characteristics(Mini–pipe)				
Mini–pipe Diameter	EN 61386–1	External Diameter	24.5	mm
Mini–pipe stiffness at 5% deflection	ASTM D 2412	–	3000	kPa
Spacing of Mini–pipe	1 Mini–pipes every one meter widthways			

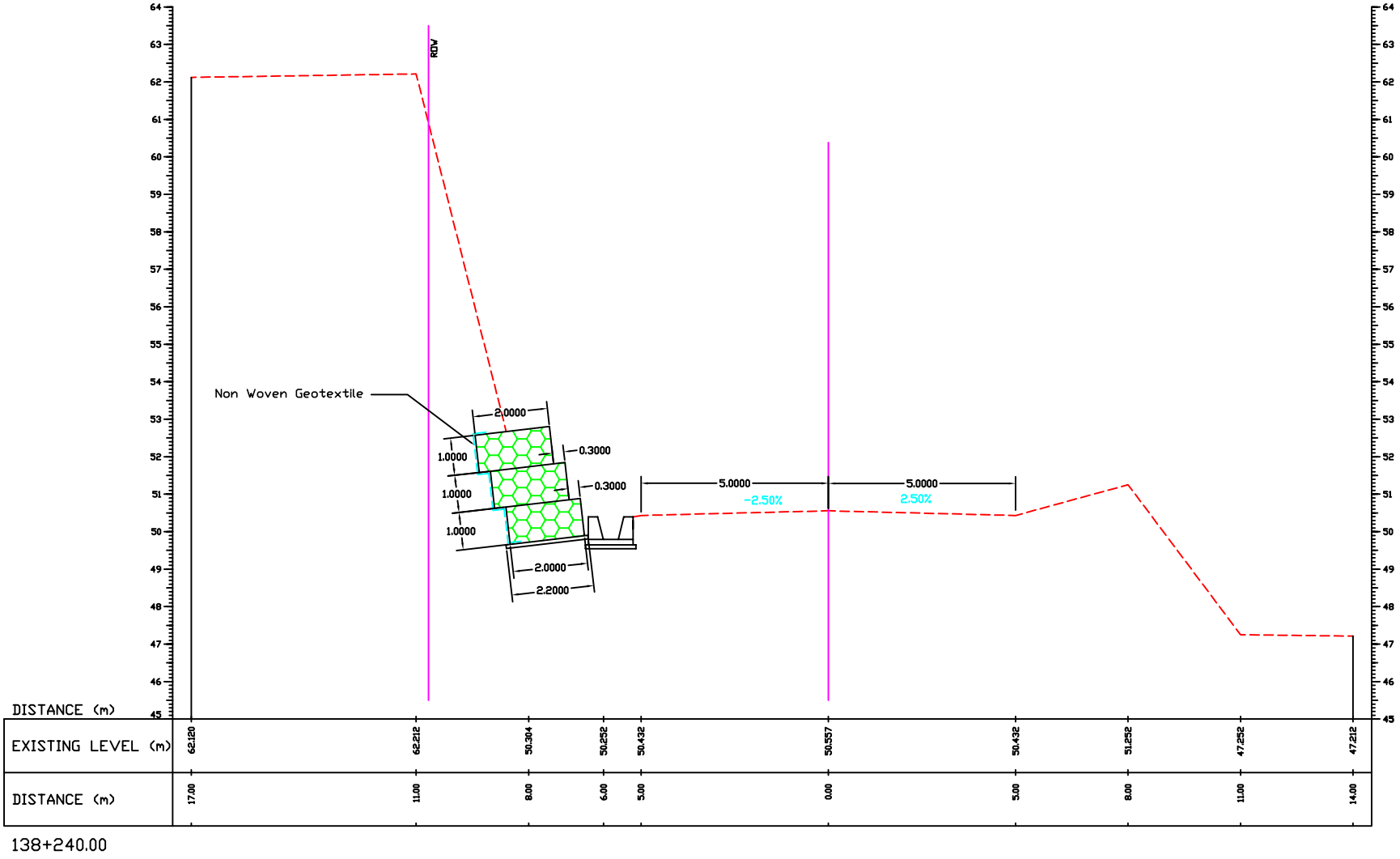
Project	Tura-Dalu Road
Date	23.05.2025
Revision	00

CONSTRUCTION OF LANDSLIDE PROTECTION WORKS AND REMEDIAL MEASURES AT SINKING / SUBSIDENCE LOCATIONS BETWEEN KM 85+000 TO 95+000 & KM 101+000 TO 143+450 OF TURA-DALU ROAD SECTION ON NH-217 (OLD NH-51) IN THE STATE OF MEGHALAYA



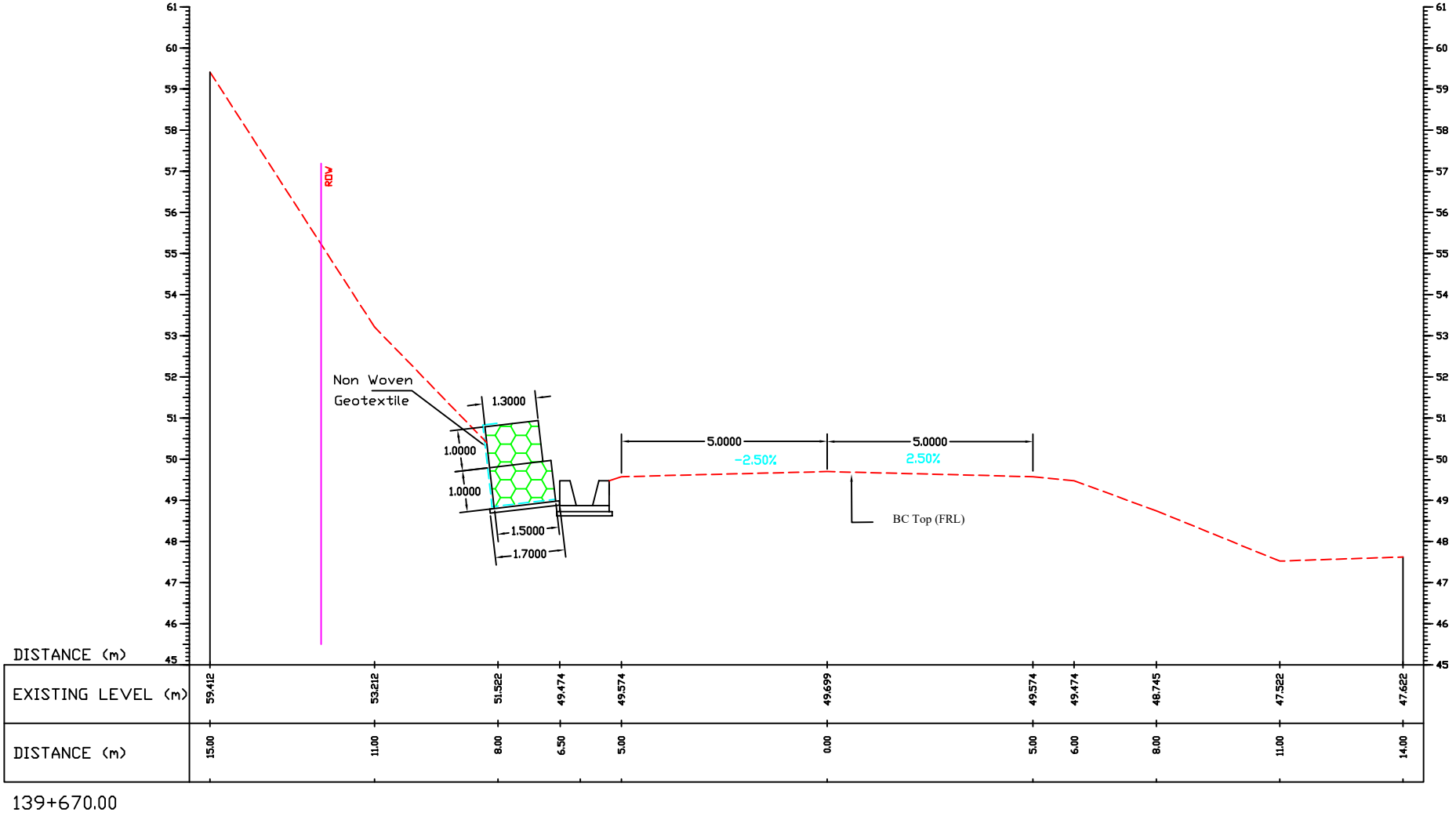
TYPICAL CROSS SECTION (TCS -LS-1)

CONSTRUCTION OF LANDSLIDE PROTECTION WORKS AND REMEDIAL MEASURES AT SINKING / SUBSIDENCE LOCATIONS BETWEEN KM 85+000 TO 95+000 & KM 101+000 TO 143+450 OF TURA-DALU ROAD SECTION ON NH-217 (OLD NH-51) IN THE STATE OF MEGHALAYA



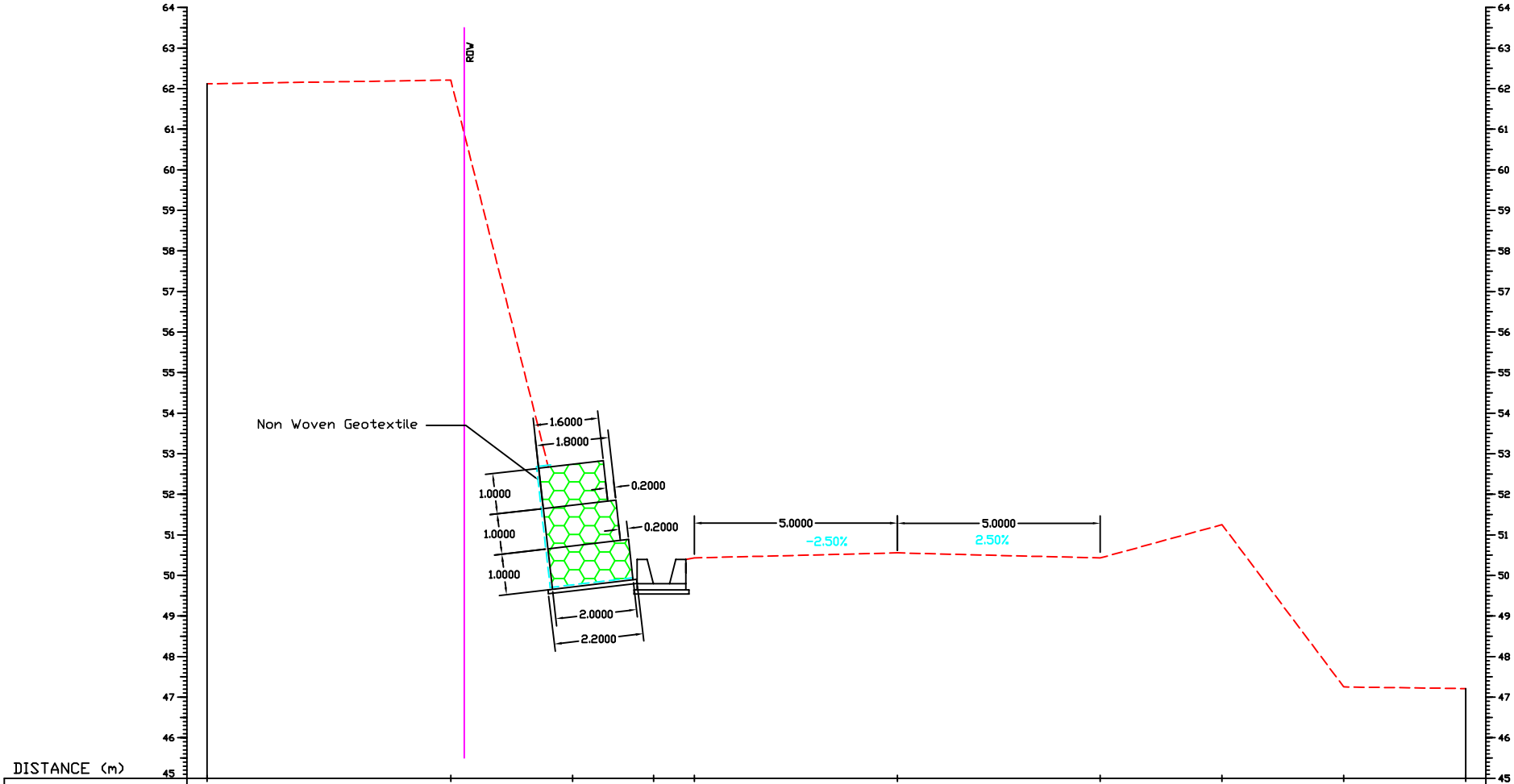
TYPICAL CROSS SECTION (TCS -LS-3)

CONSTRUCTION OF LANDSLIDE PROTECTION WORKS AND REMEDIAL MEASURES AT SINKING / SUBSIDENCE LOCATIONS BETWEEN KM 85+000 TO 95+000 & KM 101+000 TO 143+450 OF TURA-DALU ROAD SECTION ON NH-217 (OLD NH-51) IN THE STATE OF MEGHALAYA



TYPICAL CROSS SECTION (TCS -LS-4)

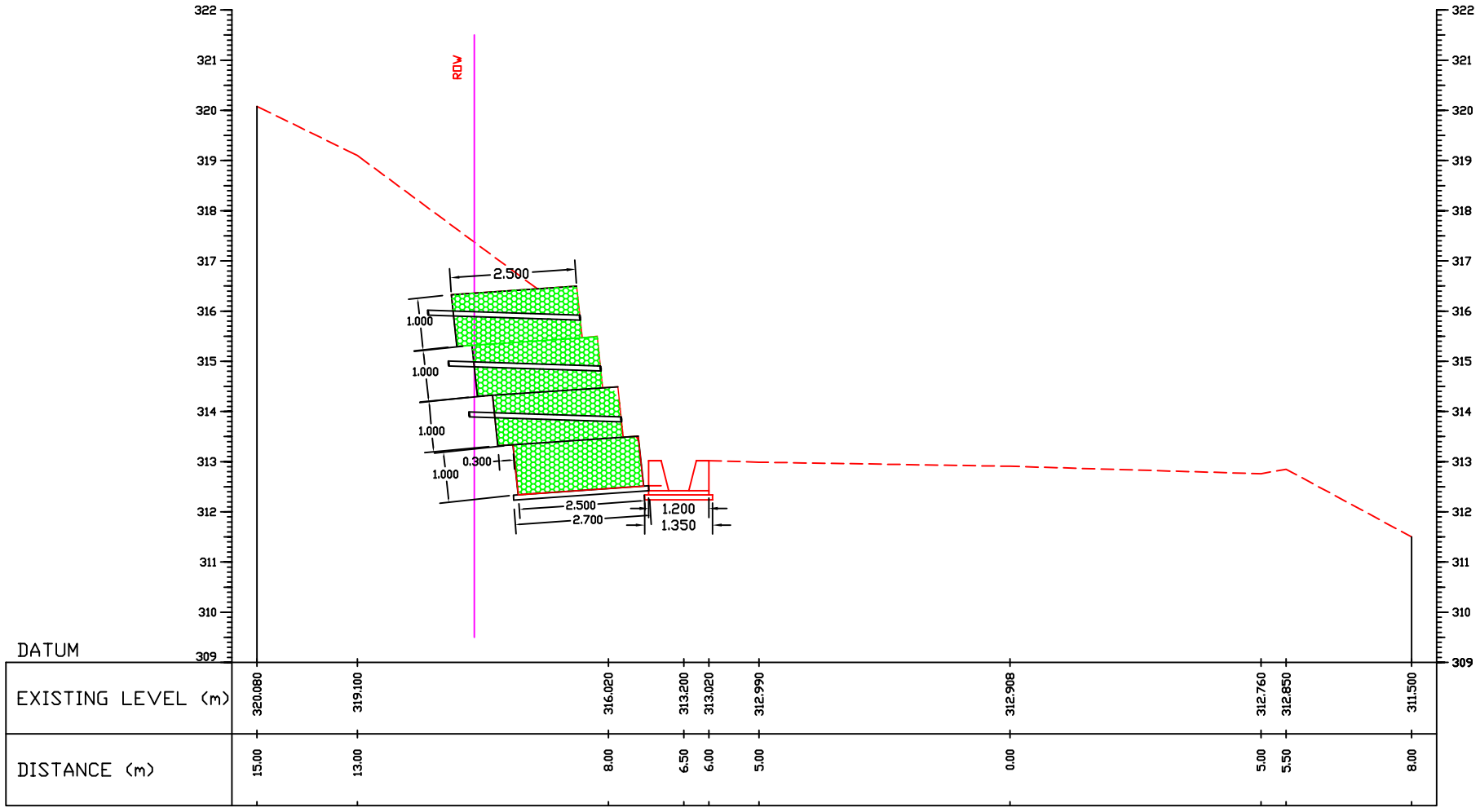
CONSTRUCTION OF LANDSLIDE PROTECTION WORKS AND REMEDIAL MEASURES AT SINKING / SUBSIDENCE LOCATIONS BETWEEN KM 85+000 TO 95+000 & KM 101+000 TO 143+450 OF TURA-DALU ROAD SECTION ON NH-217 (OLD NH-51) IN THE STATE OF MEGHALAYA



138+240.00

TYPICAL CROSS SECTION (TCS -LS-5)

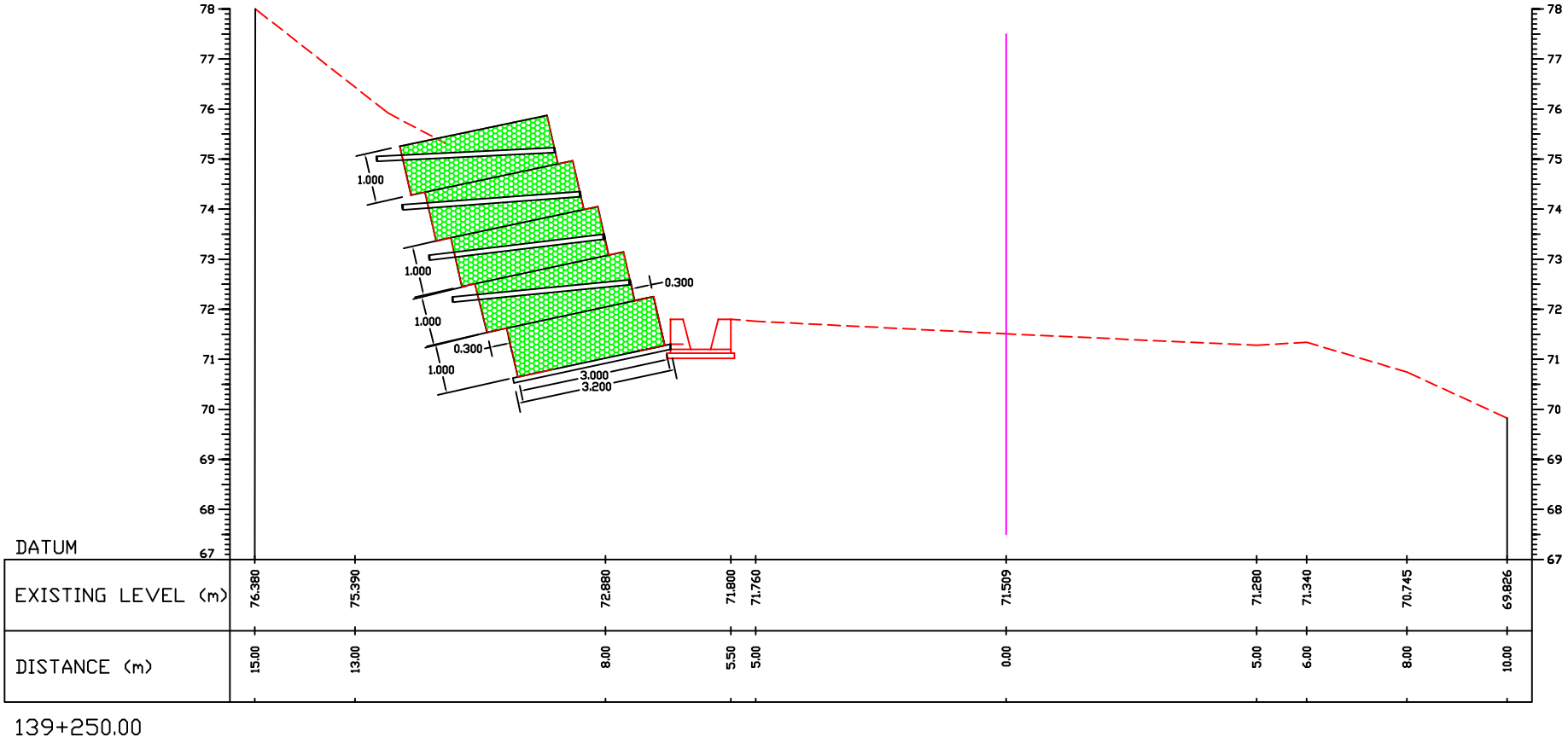
CONSTRUCTION OF LANDSLIDE PROTECTION WORKS AND REMEDIAL MEASURES AT SINKING / SUBSIDENCE LOCATIONS BETWEEN KM 85+000 TO 95+000 & KM 101+000 TO 143+450 OF TURA-DALU ROAD SECTION ON NH-217 (OLD NH-51) IN THE STATE OF MEGHALAYA



103+450.00

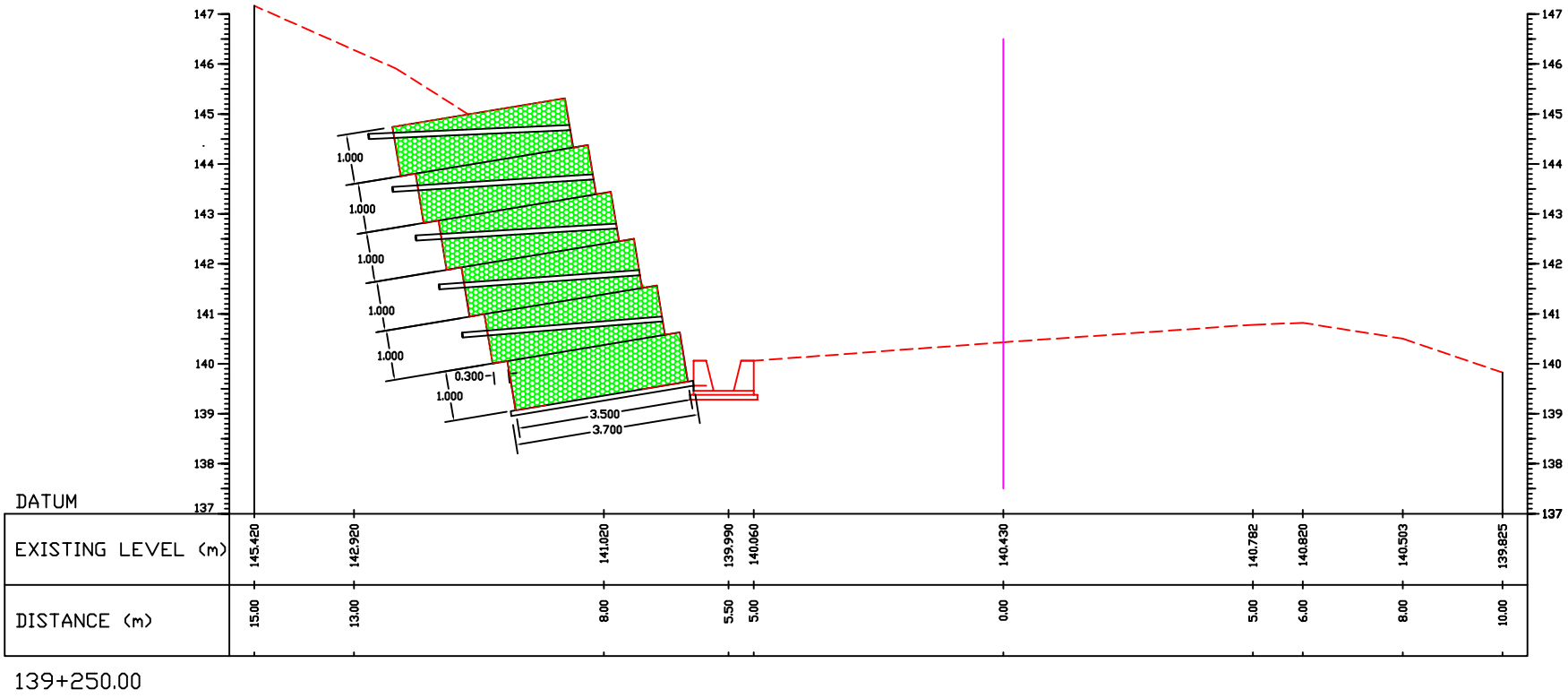
TYPICAL CROSS SECTION (TCS -LS-6)

SINKING / SUBSIDENCE LOCATIONS BETWEEN KM 85+000 TO 95+000 & KM 101+000 TO 143+450 OF TURA-DALU ROAD SECTION ON NH-217 (OLD NH-51) IN THE STATE OF MEGHALAYA



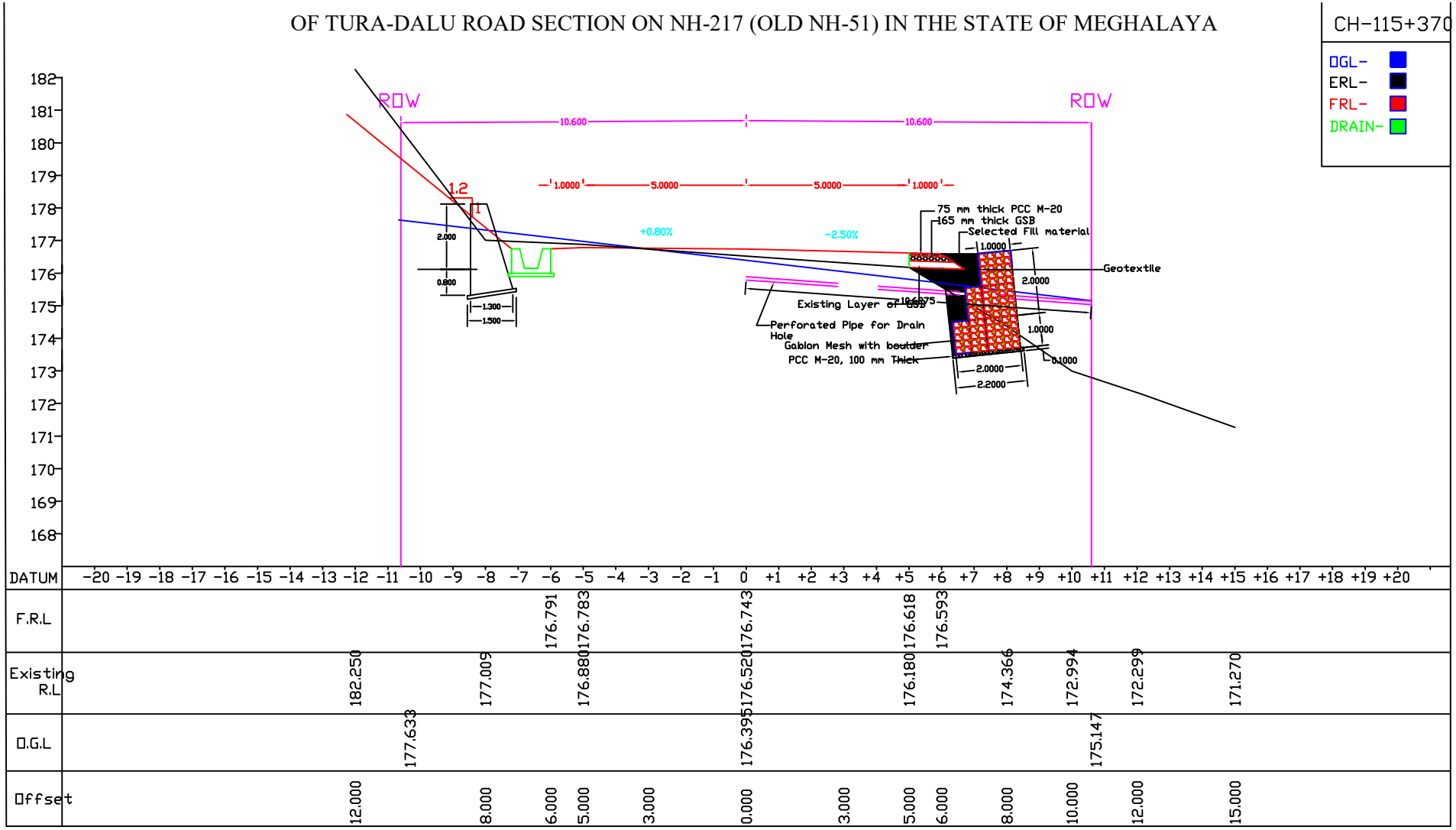
TYPICAL CROSS SECTION (TCS -LS-7)

CONSTRUCTION OF LANDSLIDE PROTECTION WORKS AND REMEDIAL MEASURES AT SINKING / SUBSIDENCE LOCATIONS BETWEEN KM 85+000 TO 95+000 & KM 101+000 TO 143+450 OF TURA-DALU ROAD SECTION ON NH-217 (OLD NH-51) IN THE STATE OF MEGHALAYA



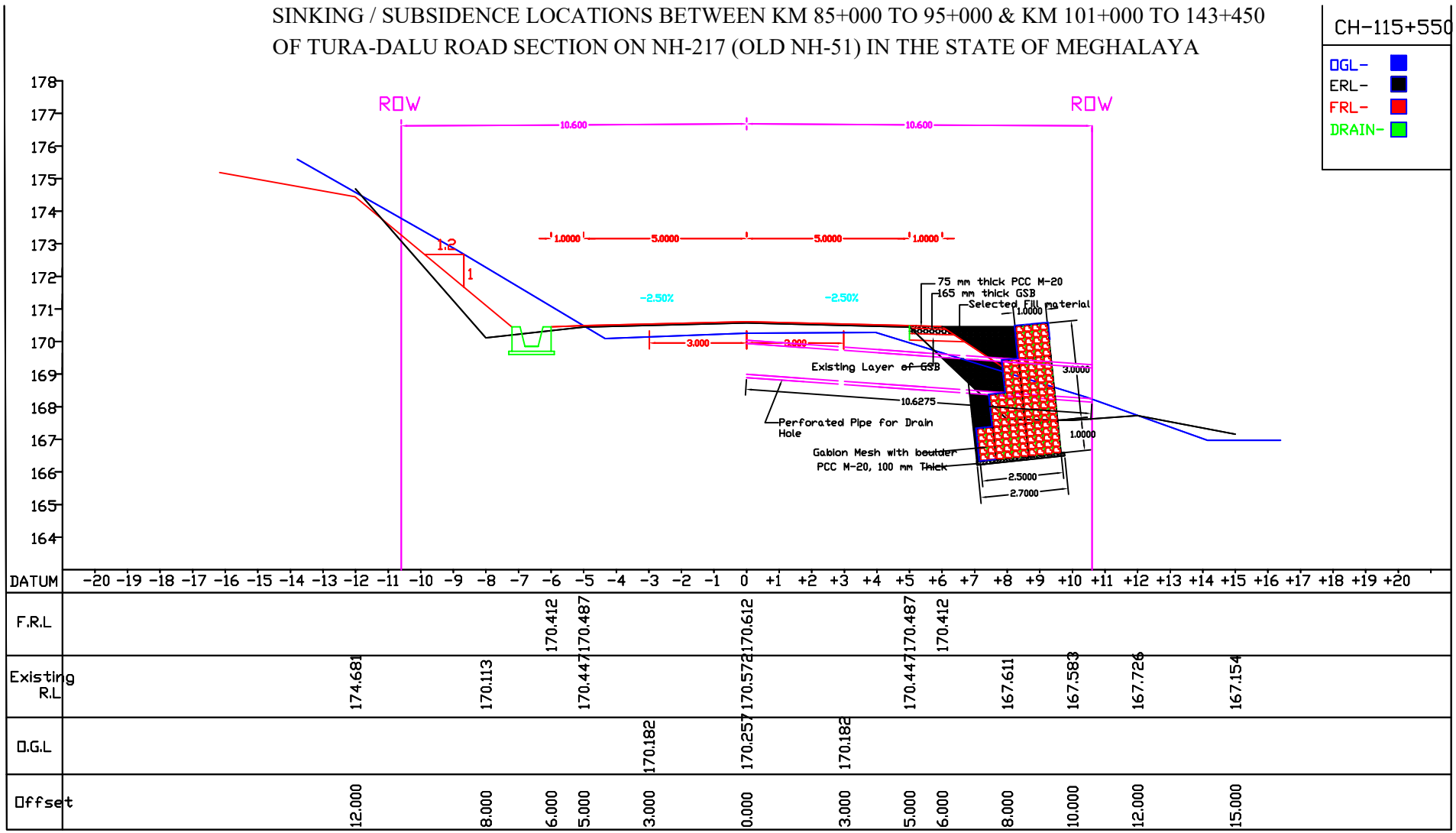
TYPICAL CROSS SECTION (TCS -LS-8)

CONSTRUCTION OF LANDSLIDE PROTECTION WORKS AND REMEDIAL MEASURES AT SINKING / SUBSIDENCE LOCATIONS BETWEEN KM 85+000 TO 95+000 & KM 101+000 TO 143+450 OF TURA-DALU ROAD SECTION ON NH-217 (OLD NH-51) IN THE STATE OF MEGHALAYA



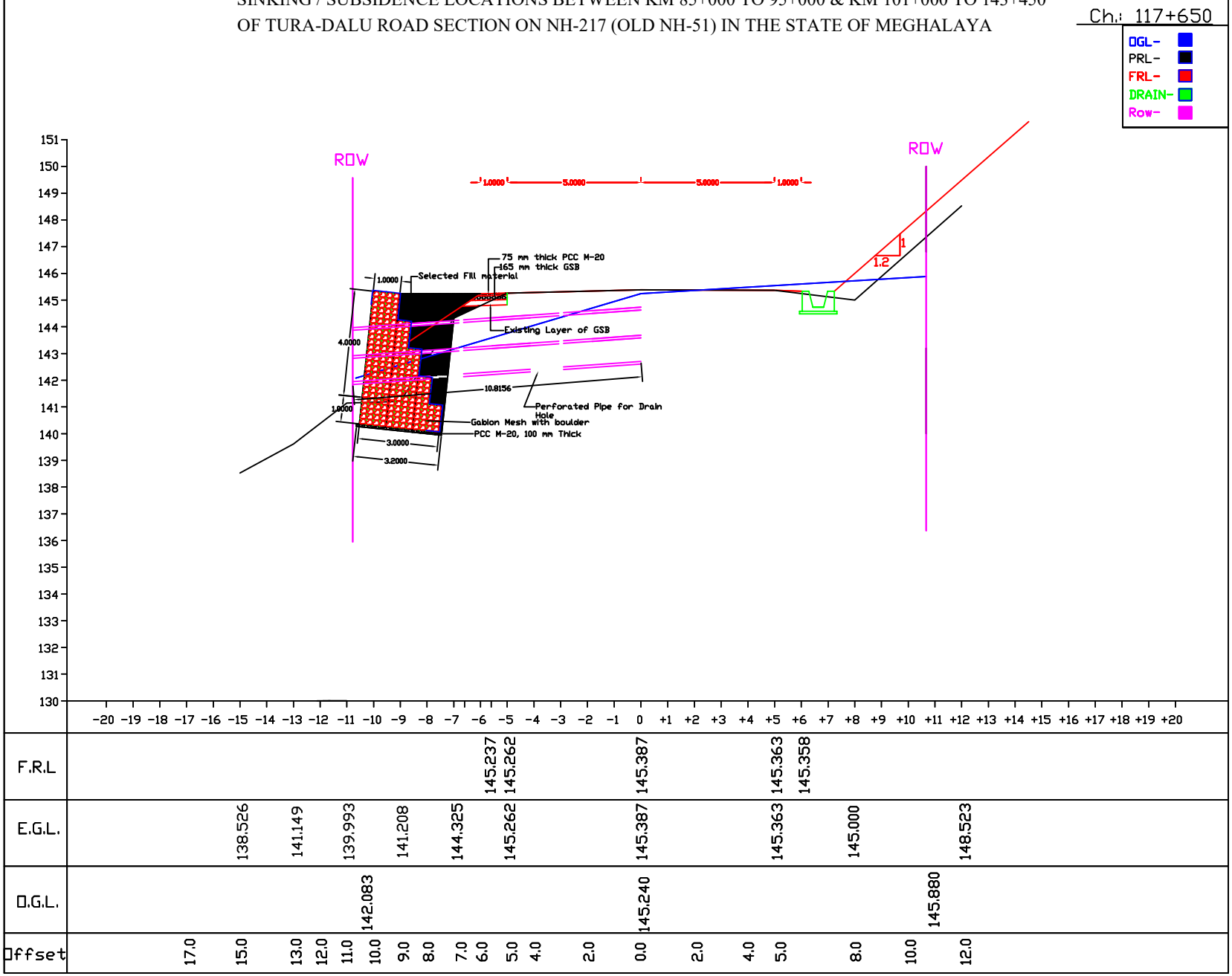
TYPICAL CROSS SECTION (TCS -SZ-9)

CONSTRUCTION OF LANDSLIDE PROTECTION WORKS AND REMEDIAL MEASURES AT SINKING / SUBSIDENCE LOCATIONS BETWEEN KM 85+000 TO 95+000 & KM 101+000 TO 143+450 OF TURA-DALU ROAD SECTION ON NH-217 (OLD NH-51) IN THE STATE OF MEGHALAYA



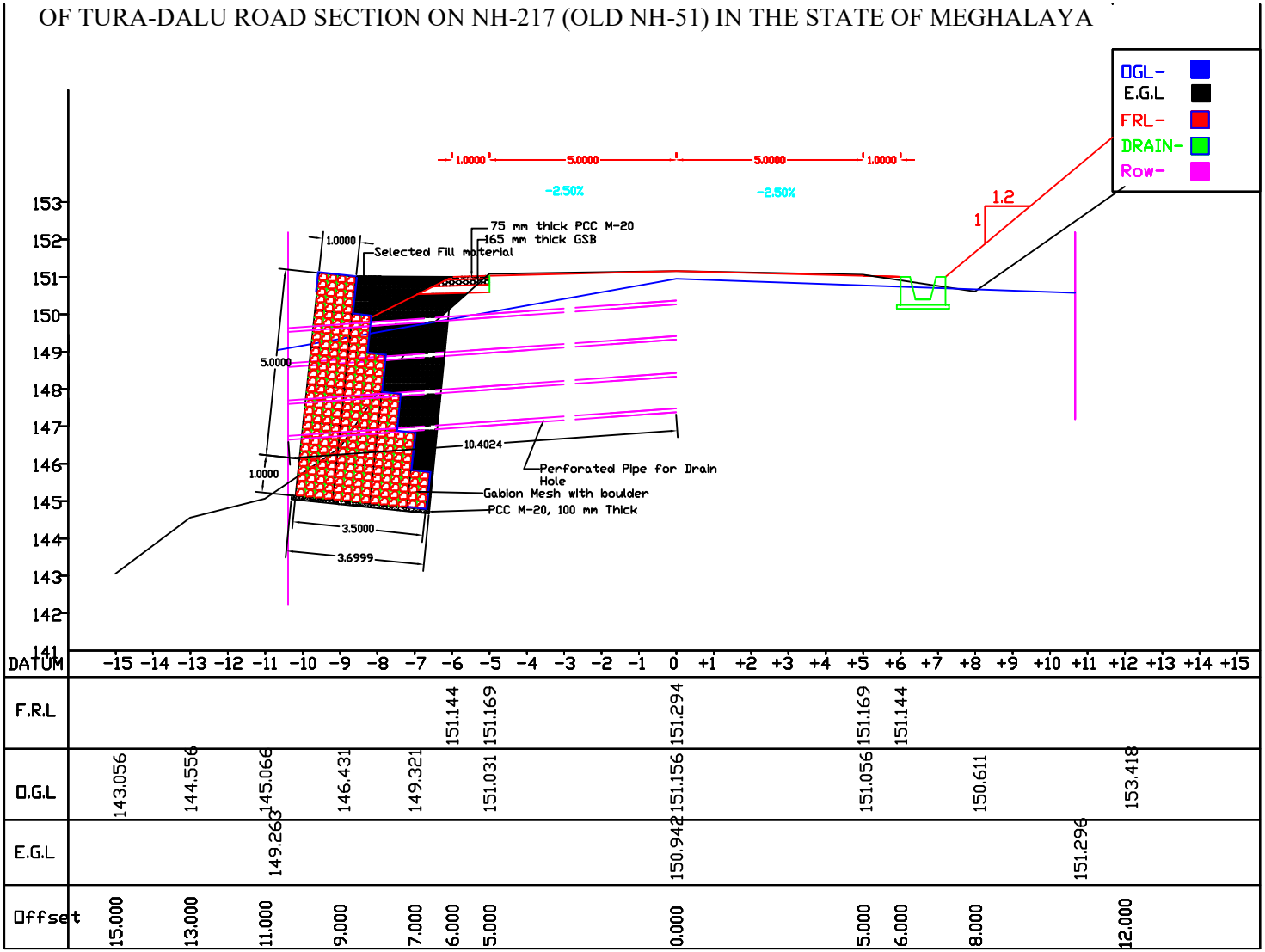
TYPICAL CROSS SECTION (TCS -SZ-10)

CONSTRUCTION OF LANDSLIDE PROTECTION WORKS AND REMEDIAL MEASURES AT SINKING / SUBSIDENCE LOCATIONS BETWEEN KM 85+000 TO 95+000 & KM 101+000 TO 143+450 OF TURA-DALU ROAD SECTION ON NH-217 (OLD NH-51) IN THE STATE OF MEGHALAYA



TYPICAL CROSS SECTION (TCS -SZ-11)

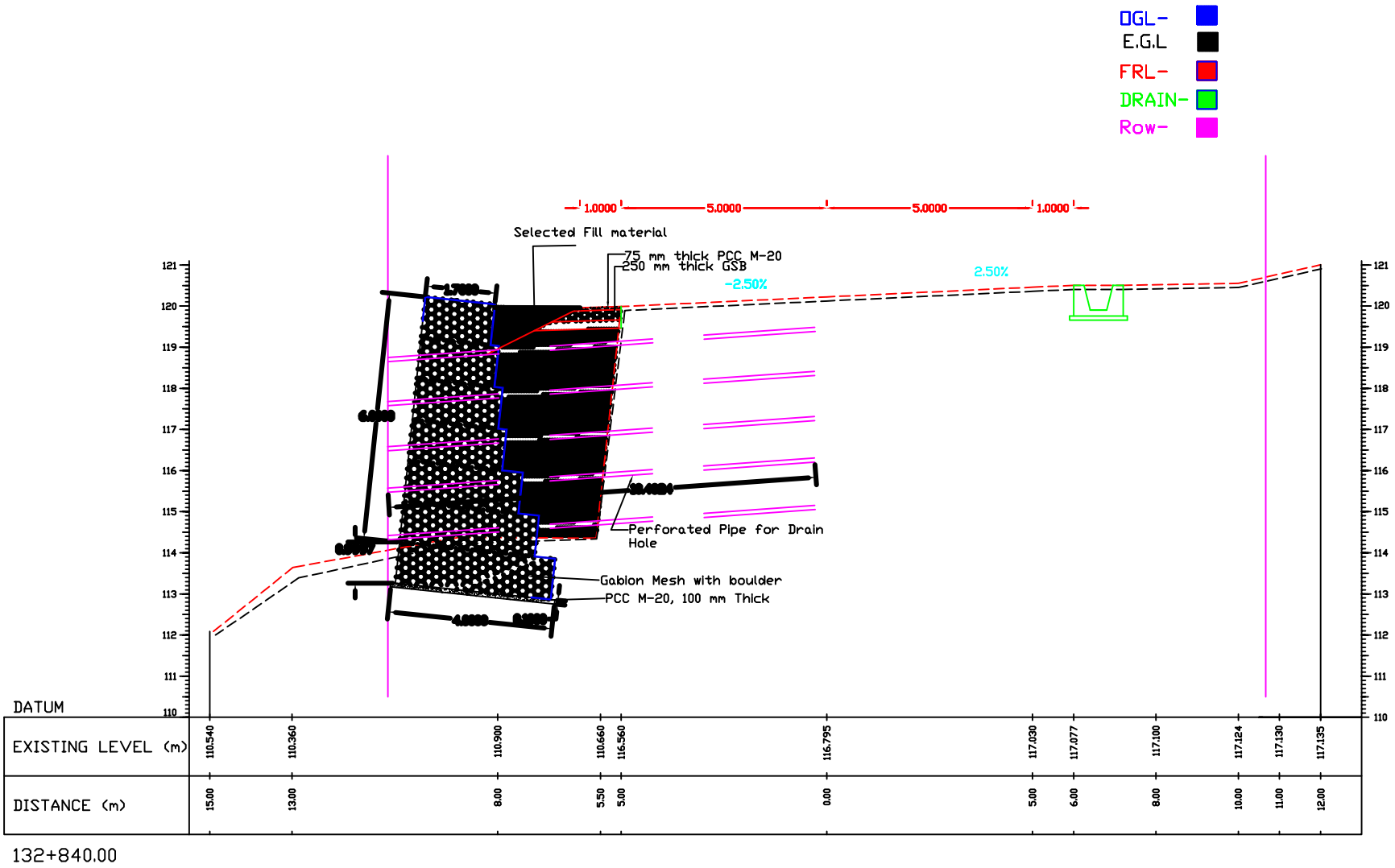
CONSTRUCTION OF LANDSLIDE PROTECTION WORKS AND REMEDIAL MEASURES AT SINKING / SUBSIDENCE LOCATIONS BETWEEN KM 85+000 TO 95+000 & KM 101+000 TO 143+450 OF TURA-DALU ROAD SECTION ON NH-217 (OLD NH-51) IN THE STATE OF MEGHALAYA



CH-119+160

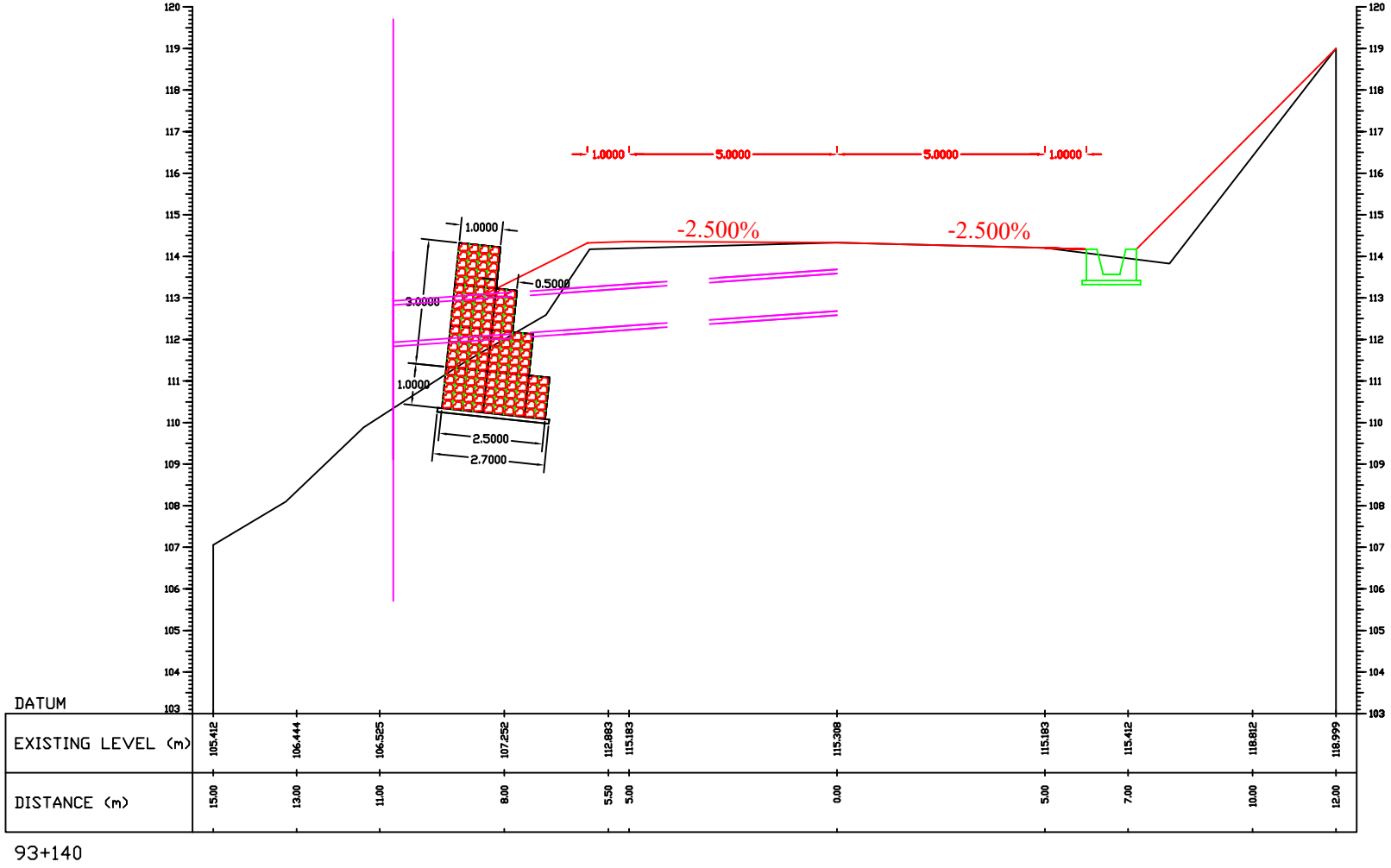
TYPICAL CROSS SECTION (TCS -SZ-12)

CONSTRUCTION OF LANDSLIDE PROTECTION WORKS AND REMEDIAL MEASURES AT SINKING / SUBSIDENCE LOCATIONS BETWEEN KM 85+000 TO 95+000 & KM 101+000 TO 143+450 OF TURA-DALU ROAD SECTION ON NH-217 (OLD NH-51) IN THE STATE OF MEGHALAYA



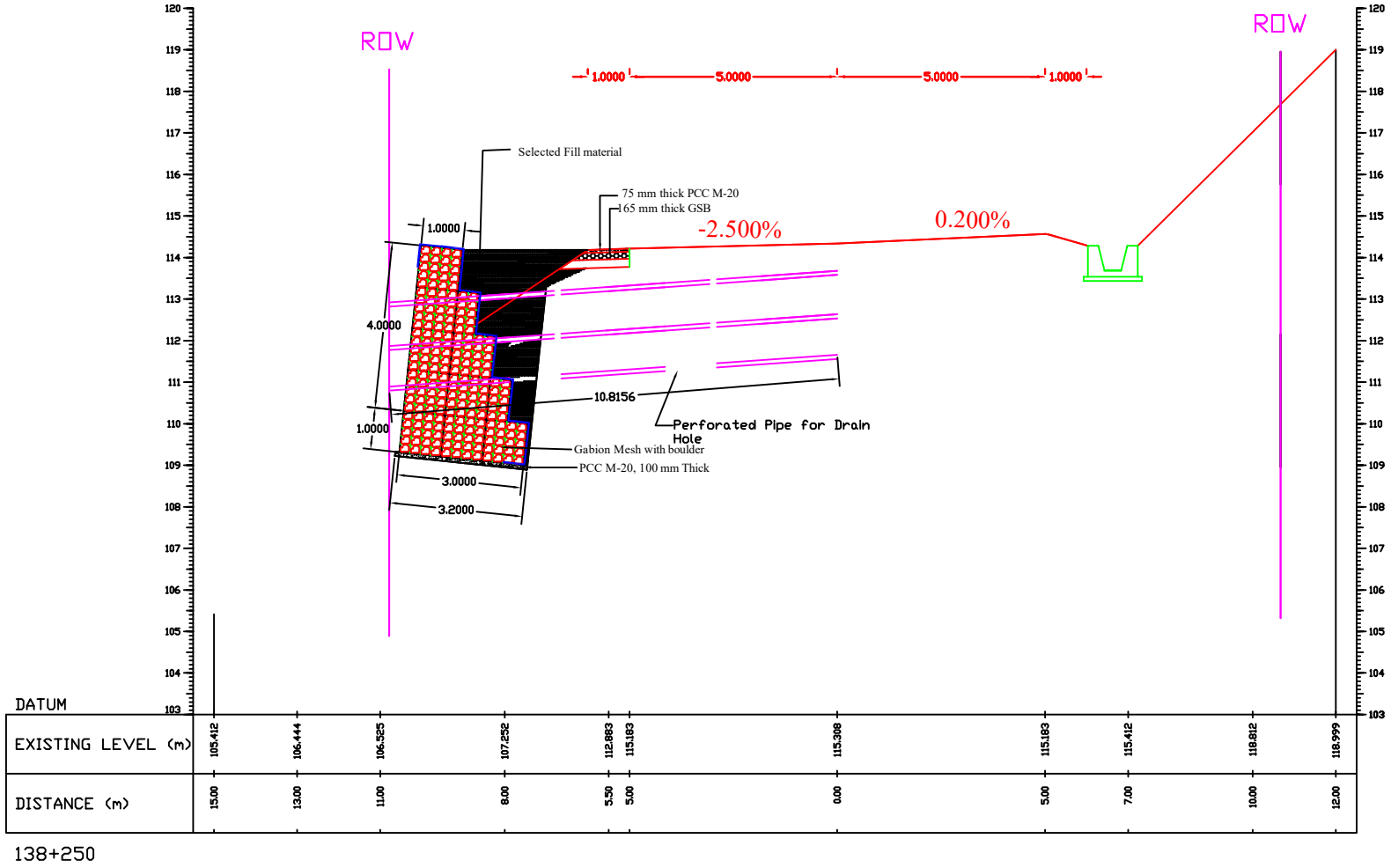
TYPICAL CROSS SECTION (TCS -SZ-13)

CONSTRUCTION OF LANDSLIDE PROTECTION WORKS AND REMEDIAL MEASURES AT SINKING / SUBSIDENCE LOCATIONS BETWEEN KM 85+000 TO 95+000 & KM 101+000 TO 143+450 OF TURA-DALU ROAD SECTION ON NH-217 (OLD NH-51) IN THE STATE OF MEGHALAYA



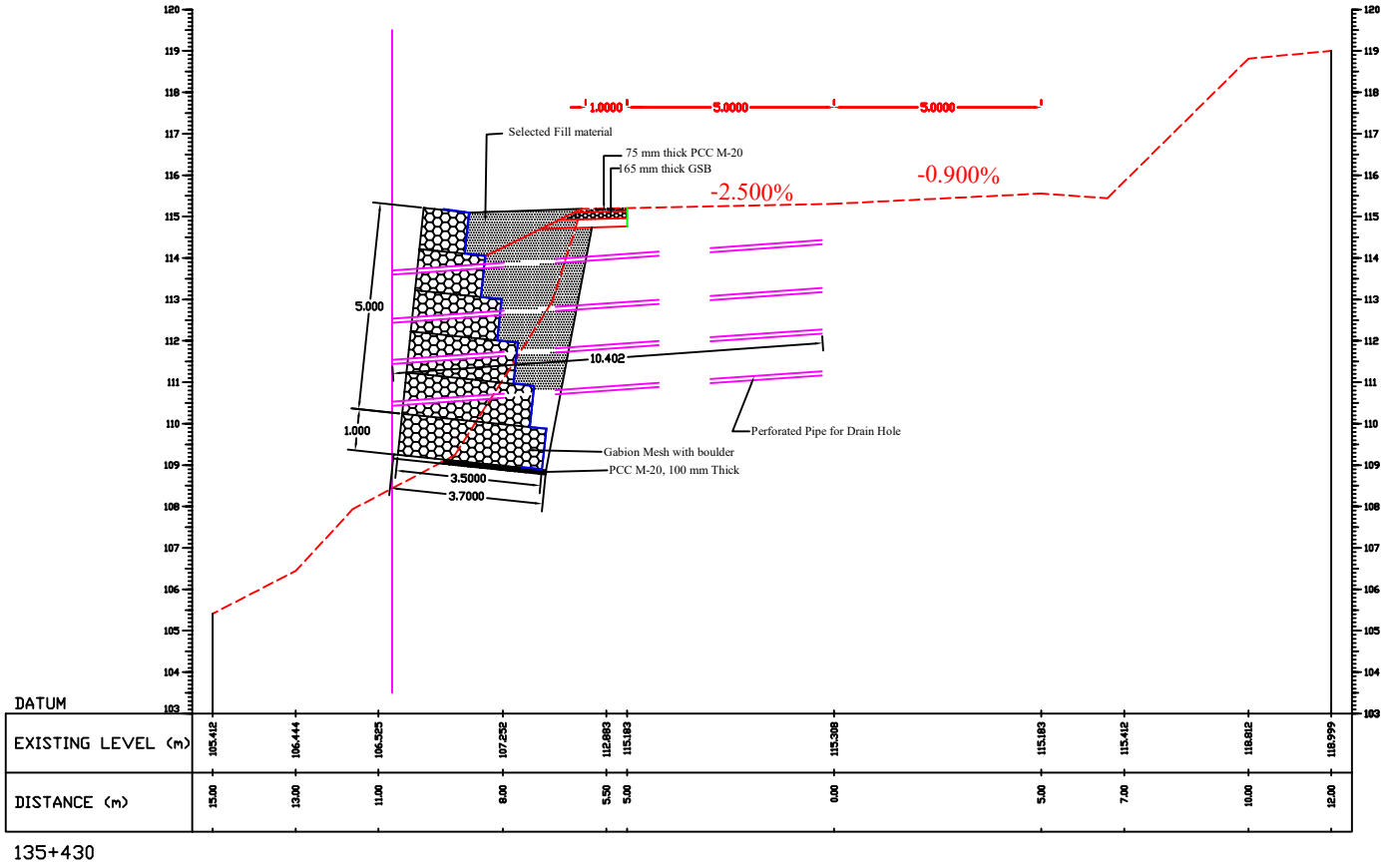
TYPICAL CROSS SECTION (TCS -SZ-14)

CONSTRUCTION OF LANDSLIDE PROTECTION WORKS AND REMEDIAL MEASURES AT SINKING / SUBSIDENCE LOCATIONS BETWEEN KM 85+000 TO 95+000 & KM 101+000 TO 143+450 OF TURA-DALU ROAD SECTION ON NH-217 (OLD NH-51) IN THE STATE OF MEGHALAYA



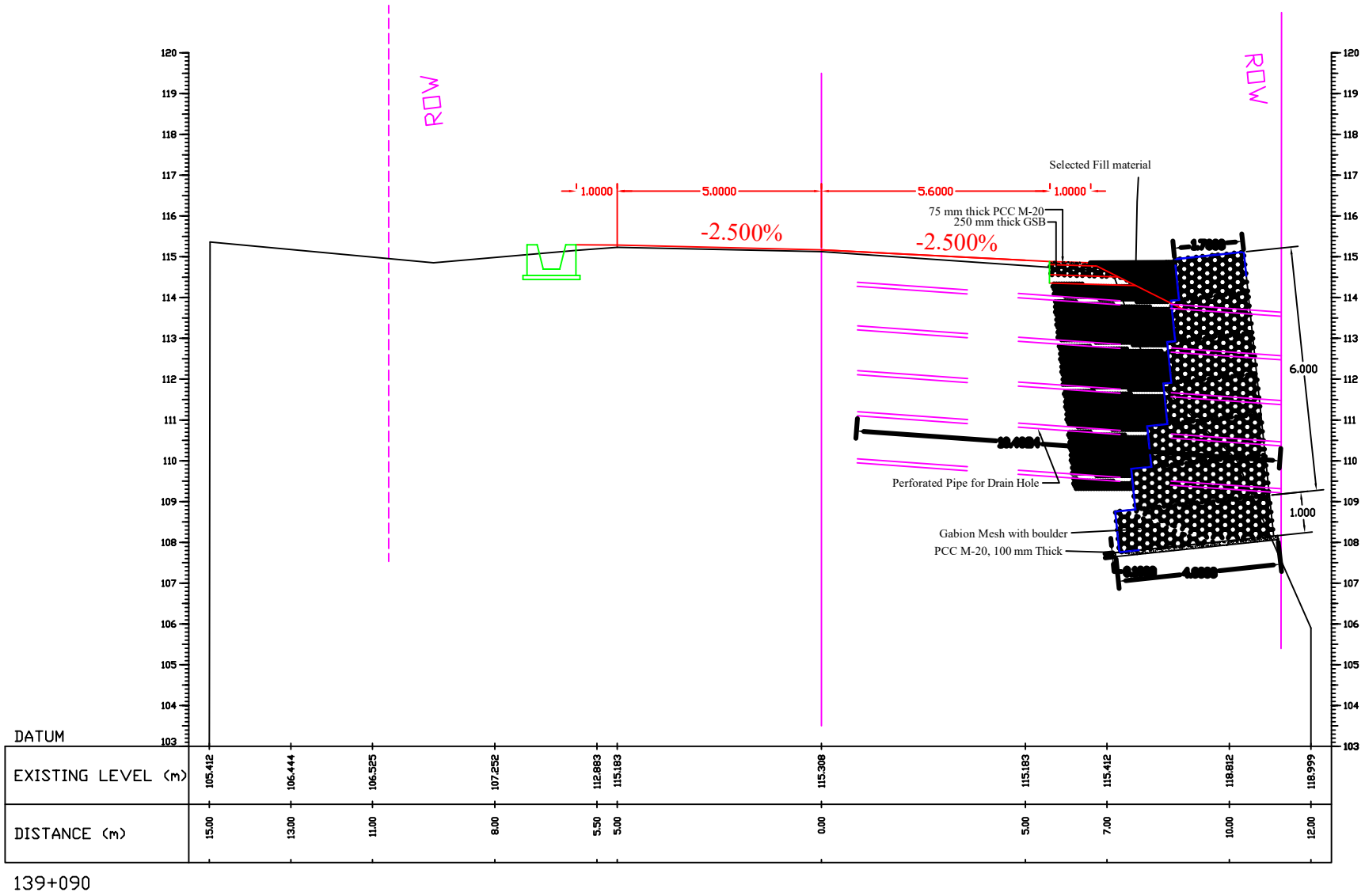
TYPICAL CROSS SECTION (TCS -SZ-15)

CONSTRUCTION OF LANDSLIDE PROTECTION WORKS AND REMEDIAL MEASURES AT SINKING / SUBSIDENCE LOCATIONS BETWEEN KM 85+000 TO 95+000 & KM 101+000 TO 143+450 OF TURA-DALU ROAD SECTION ON NH-217 (OLD NH-51) IN THE STATE OF MEGHALAYA



TYPICAL CROSS SECTION (TCS -SZ-16)

CONSTRUCTION OF LANDSLIDE PROTECTION WORKS AND REMEDIAL MEASURES AT SINKING / SUBSIDENCE LOCATIONS BETWEEN KM 85+000 TO 95+000 & KM 101+000 TO 143+450 OF TURA-DALU ROAD SECTION ON NH-217 (OLD NH-51) IN THE STATE OF MEGHALAYA



TYPICAL CROSS SECTION (TCS -SZ-17)