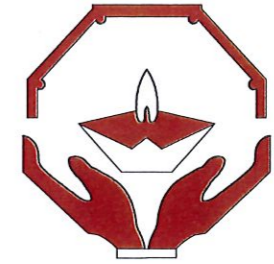


DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
STATE MINISTRY OF NATIONAL SECURITY, HOME AFFAIRS & DISASTER MANAGEMENT



NATIONAL BUILDING RESEARCH ORGANISATION

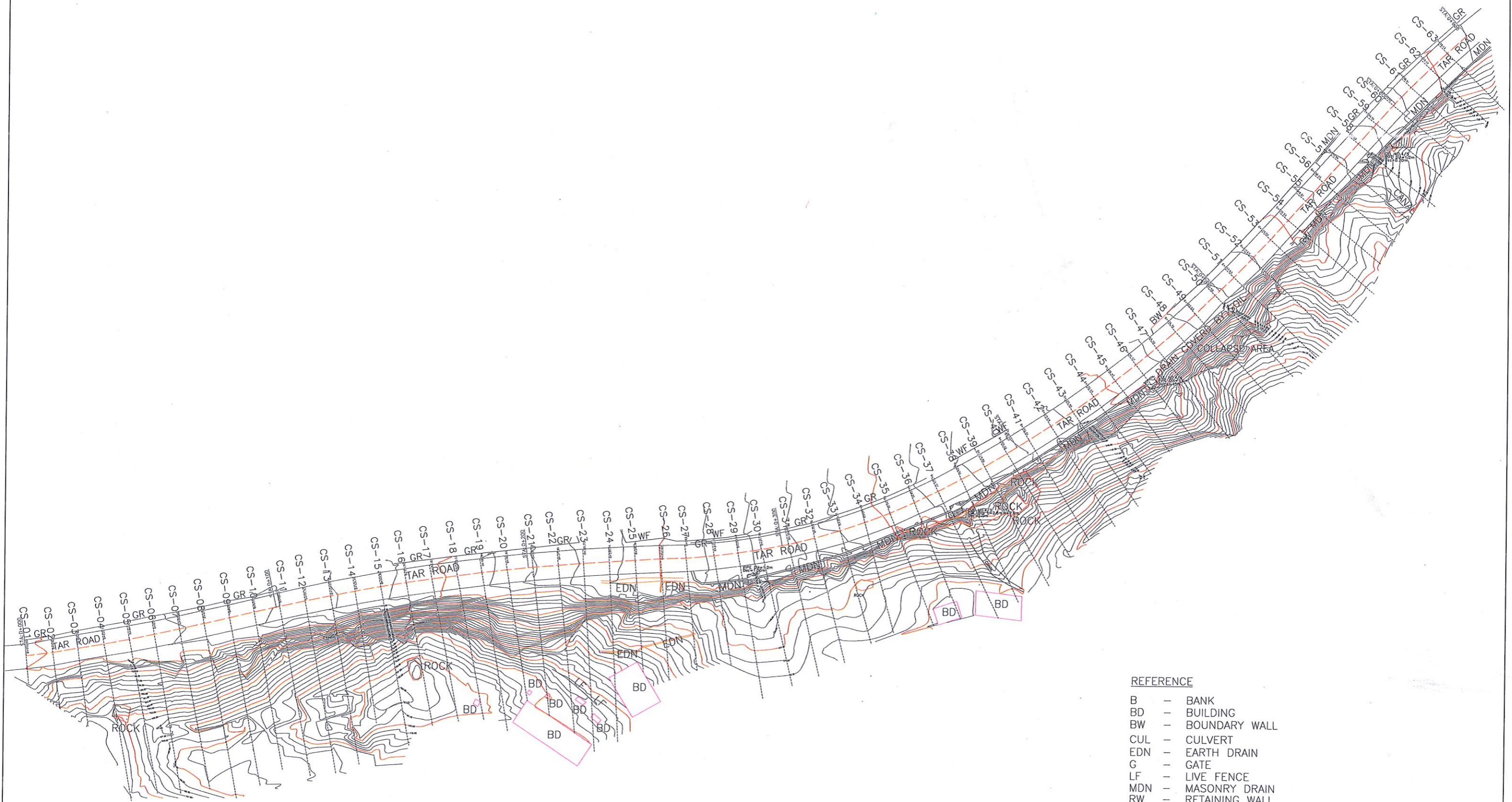


**REDUCTION OF LANDSLIDE VULNERABILITY
BY MITIGATION MEASURES
RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS**

PACKAGE NO: RLVMMMP/WORKS/NCB/04C

DETAILED DESIGN DRAWINGS

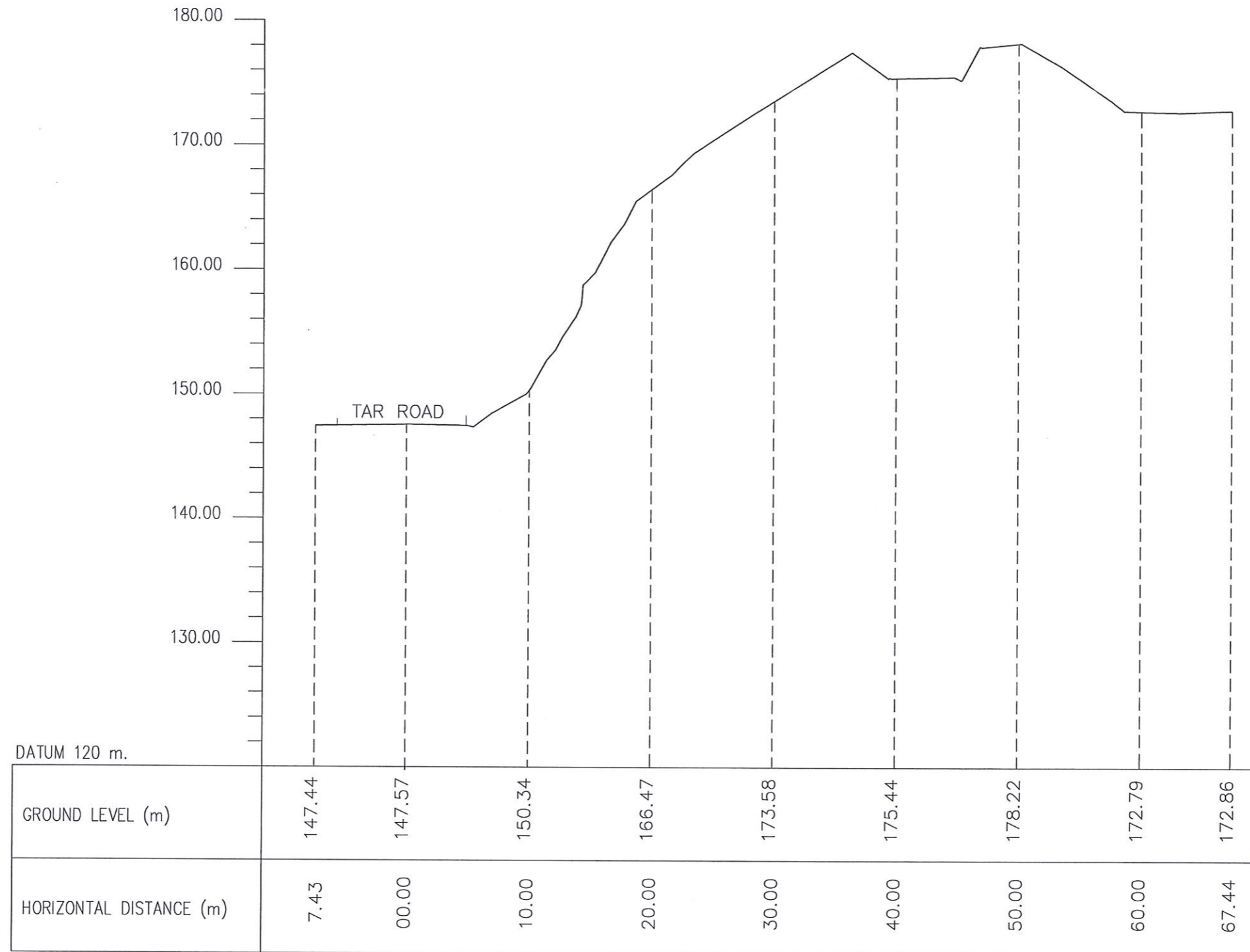
2021





REFERENCE

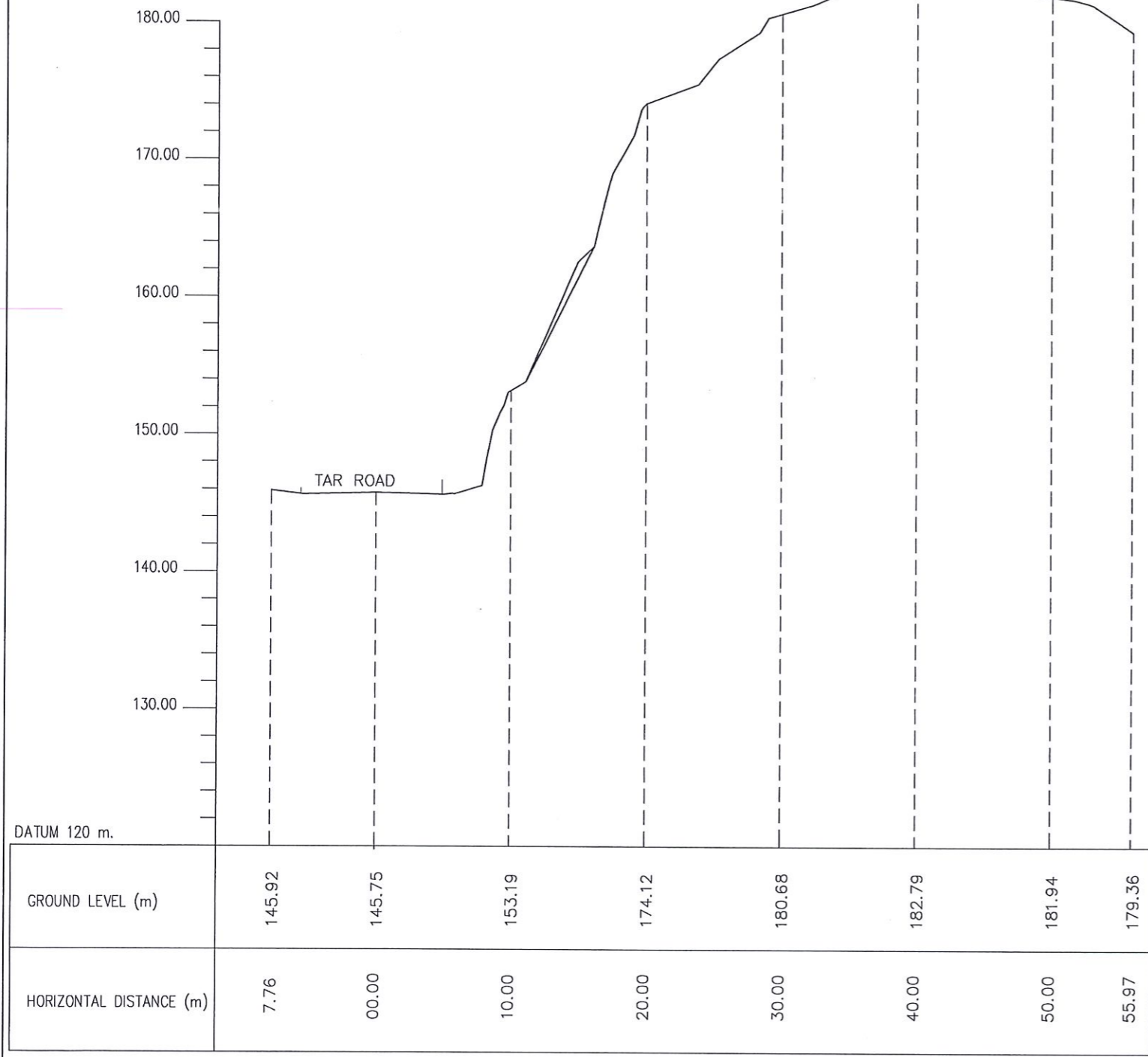
- B - BANK
- BD - BUILDING
- BW - BOUNDARY WALL
- CUL - CULVERT
- EDN - EARTH DRAIN
- G - GATE
- LF - LIVE FENCE
- MDN - MASONRY DRAIN
- RW - RETAINING WALL
- TOI - TOILET
- WF - WIRE FENCE

<p>EMPLOYER</p> <p>DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05</p>	<p>DESIGNER</p> <p>DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>REV</th> <th>DATE</th> <th>REVISION DESCRIPTION</th> <th>APPROVAL</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	REV	DATE	REVISION DESCRIPTION	APPROVAL													<p>PROJECT TITLE</p> <p>REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS</p>	<p>TITLE</p> <p>SURVEY CONTOUR PLAN</p>			<p>DESCRIPTION</p> <p>SURVEYED</p> <p>CHECKED</p>	<p>NAME</p> <p>LANKA G.P.S. (PVT) LTD</p> <p>B.I. KUMARAGE</p>	<p>SIGNATURE</p>
			REV	DATE	REVISION DESCRIPTION	APPROVAL																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>SCALE</td> <td>N.T.S.</td> <td>DATE</td> <td>06.01.2021</td> </tr> <tr> <td>PROJECT / DRAWING No.</td> <td>RLVMP/WORKS/NCB/04c/11-BR/DR- 01</td> <td>REVISION</td> <td>00</td> </tr> </table>			SCALE	N.T.S.	DATE	06.01.2021	PROJECT / DRAWING No.	RLVMP/WORKS/NCB/04c/11-BR/DR- 01	REVISION	00															
SCALE	N.T.S.	DATE	06.01.2021																						
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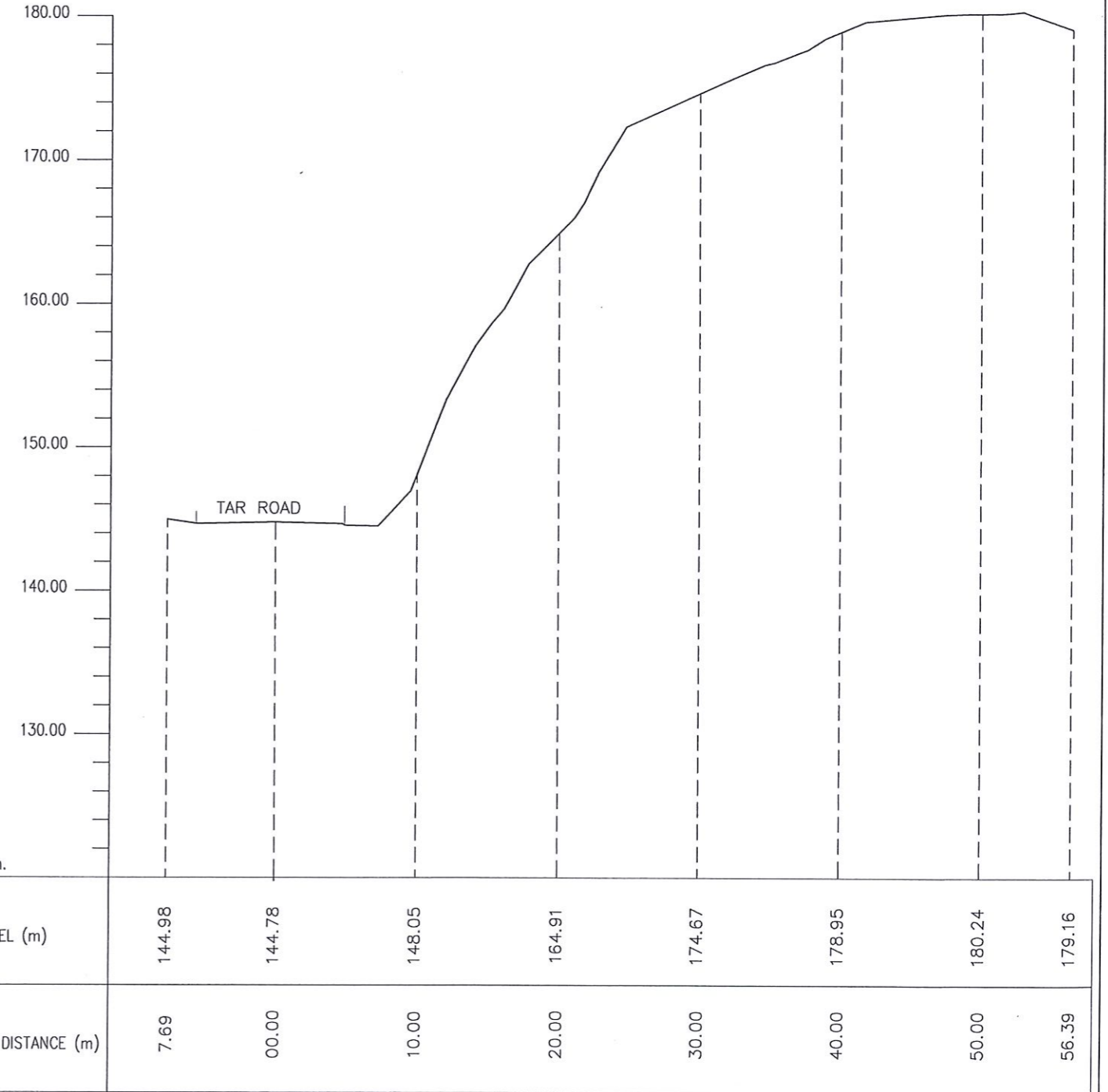


CROSS SECTION - 12

 <p>EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05</p>	 <p>DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05</p>	REV	DATE	REVISION DESCRIPTION	APPROVAL	<p>PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS</p>	TITLE KEGALLE BY PASS CROSS SECTION			DESCRIPTION	NAME	SIGNATURE
								SCALE 1:400	DATE 06.01.2021	REVISION 00	SURVEYED	LANKA G.P.S. (PVT) LTD
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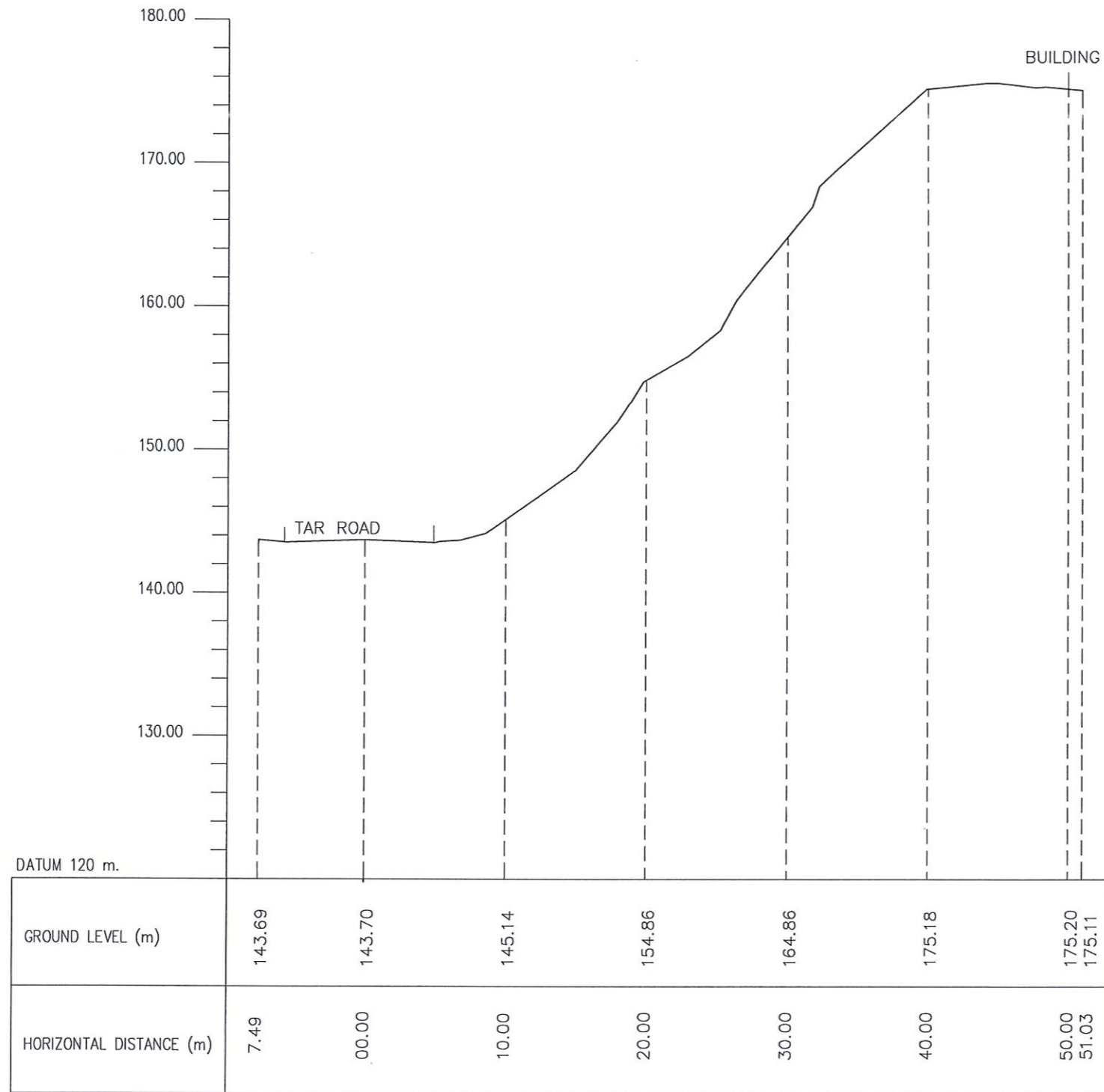


CROSS SECTION - 16





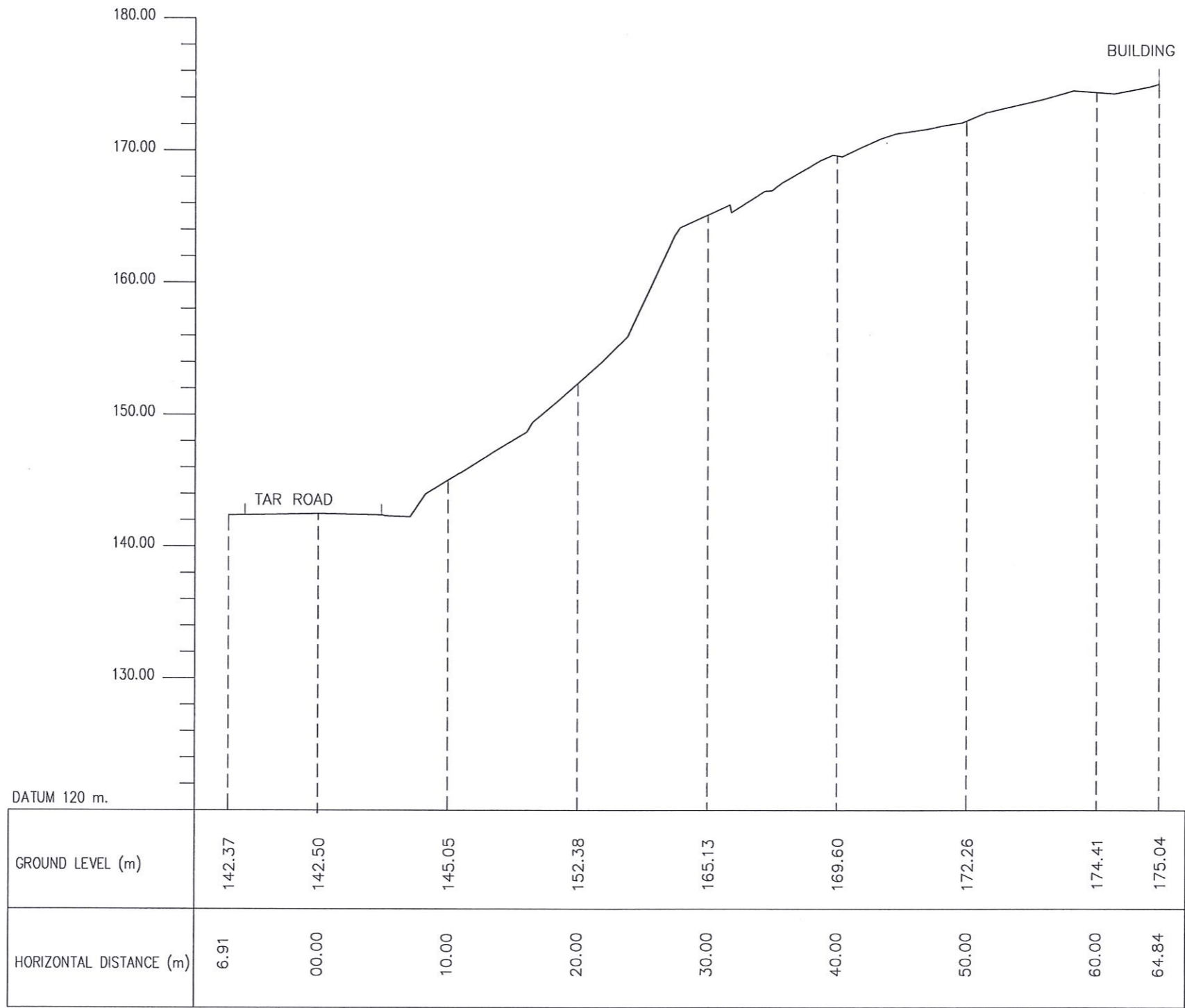
CROSS SECTION - 18

<p>EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05</p>	<p>DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05</p>	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS	TITLE KEGALLE BY PASS CROSS SECTION	DESCRIPTION	NAME	SIGNATURE	
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							PROJECT / DRAWING No.	RLVMMPP/WORKS/NCB/04c/11-BR/DR- 02c	REVISION	00	





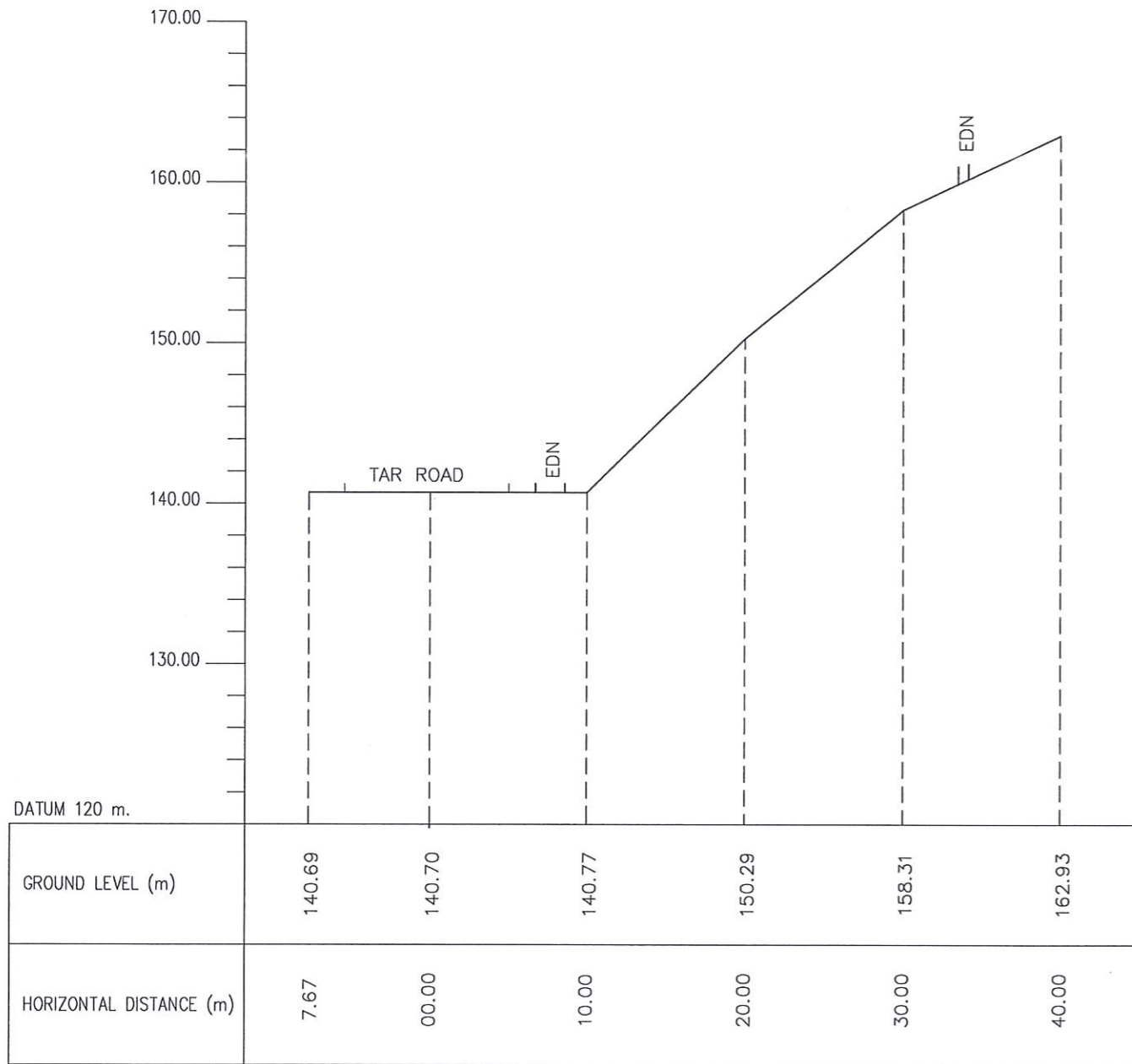
CROSS SECTION - 20

 DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	 DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS	TITLE KEGALLE BY PASS CROSS SECTION		DESCRIPTION	NAME	SIGNATURE	
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							RLVMMP/WORKS/NCB/04c/11-BR/DR- 02d		00			

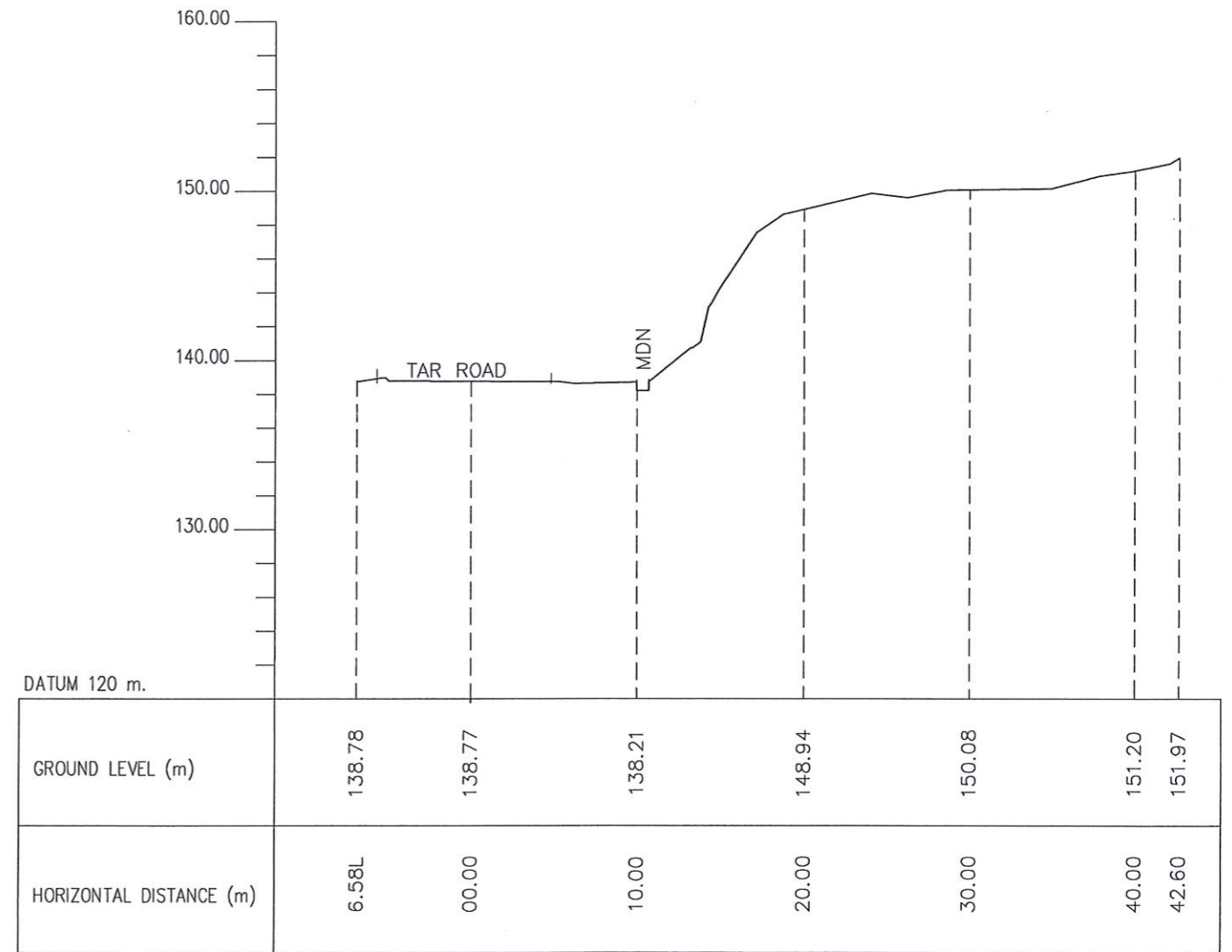


CROSS SECTION - 22



 DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	 DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS	TITLE KEGALLE BY PASS CROSS SECTION		DESCRIPTION	NAME	SIGNATURE
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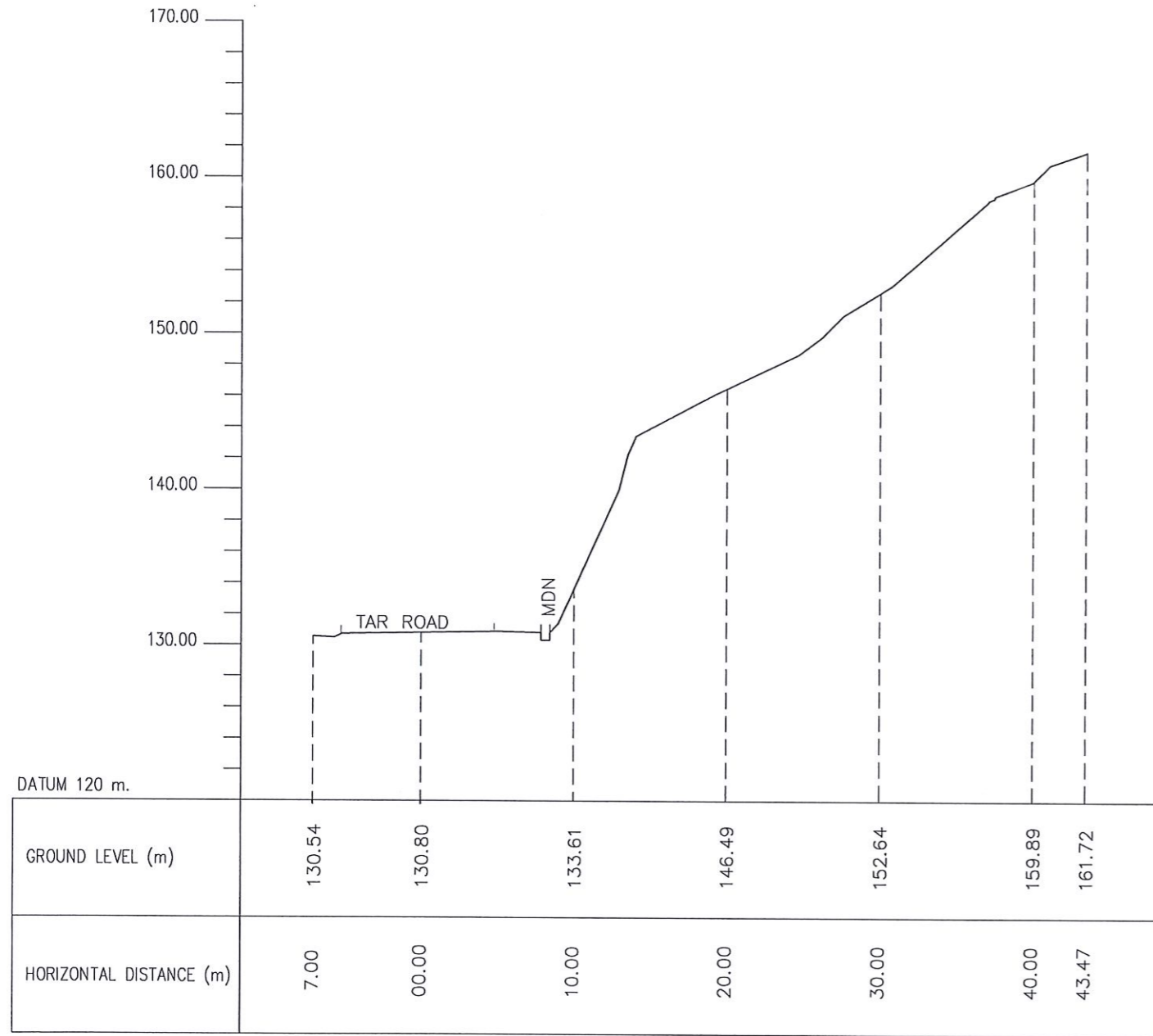


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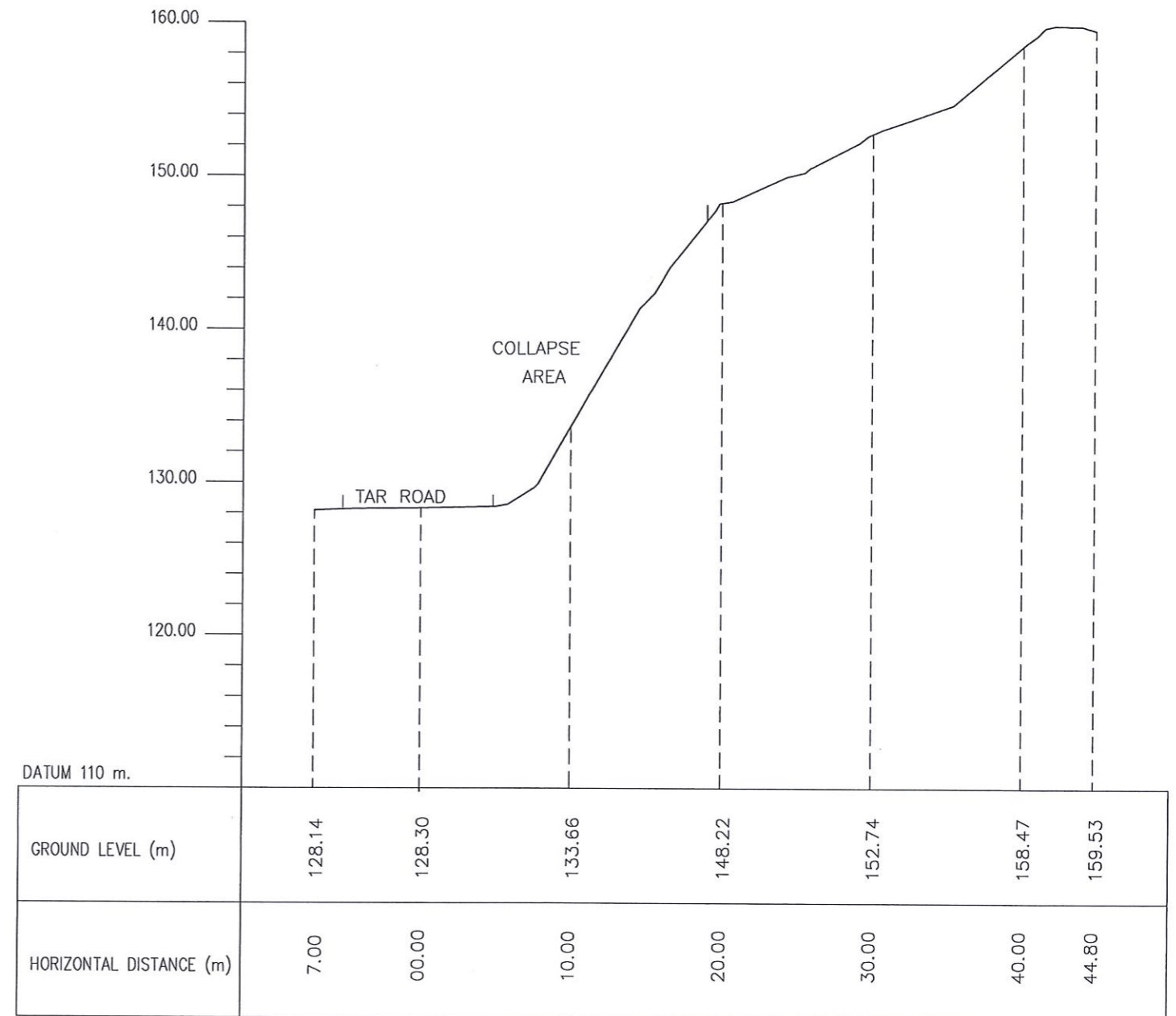


CROSS SECTION - 28



EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER  DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS	TITLE KEGALLE BY PASS CROSS SECTION		DESCRIPTION	NAME	SIGNATURE
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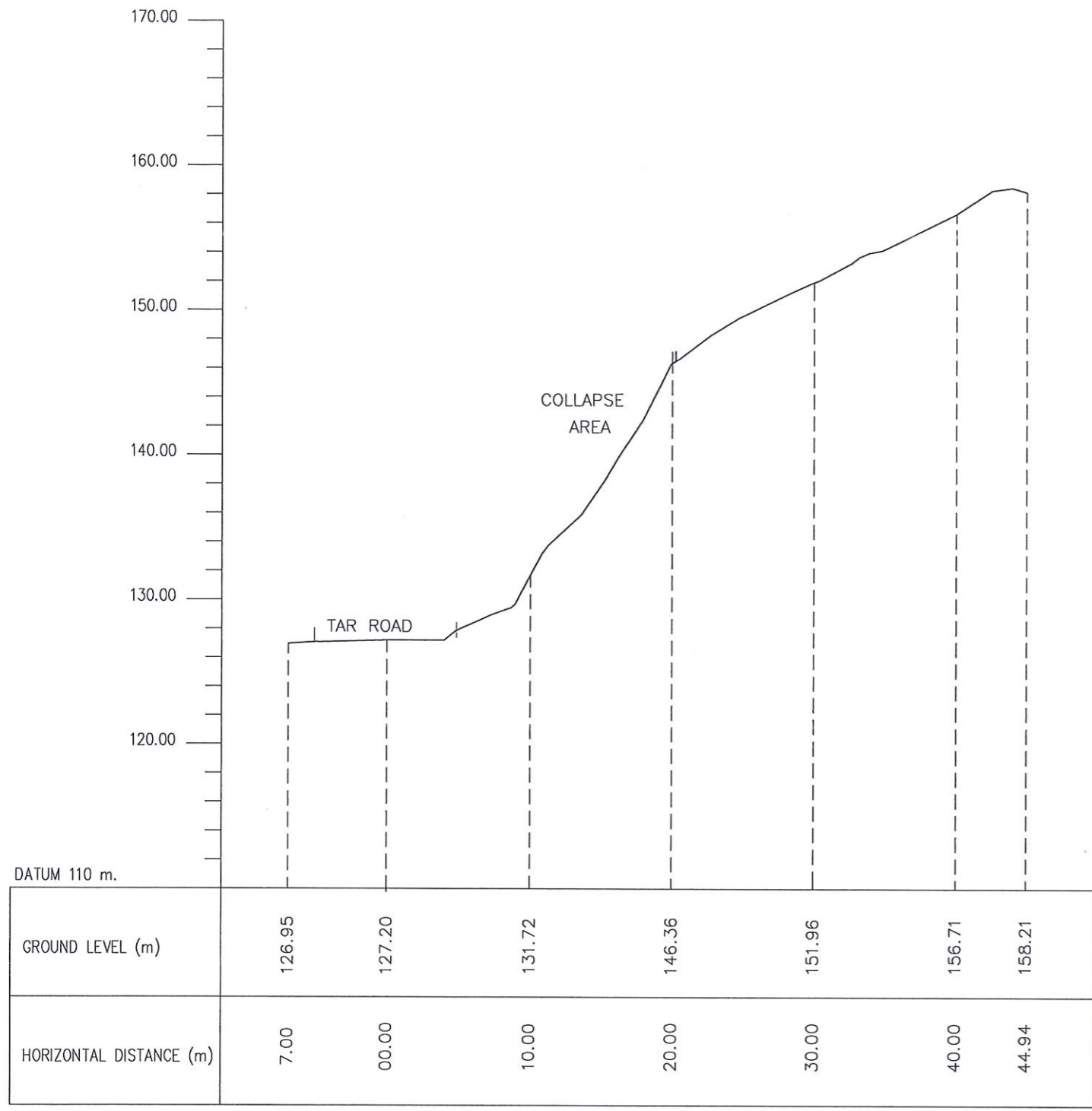


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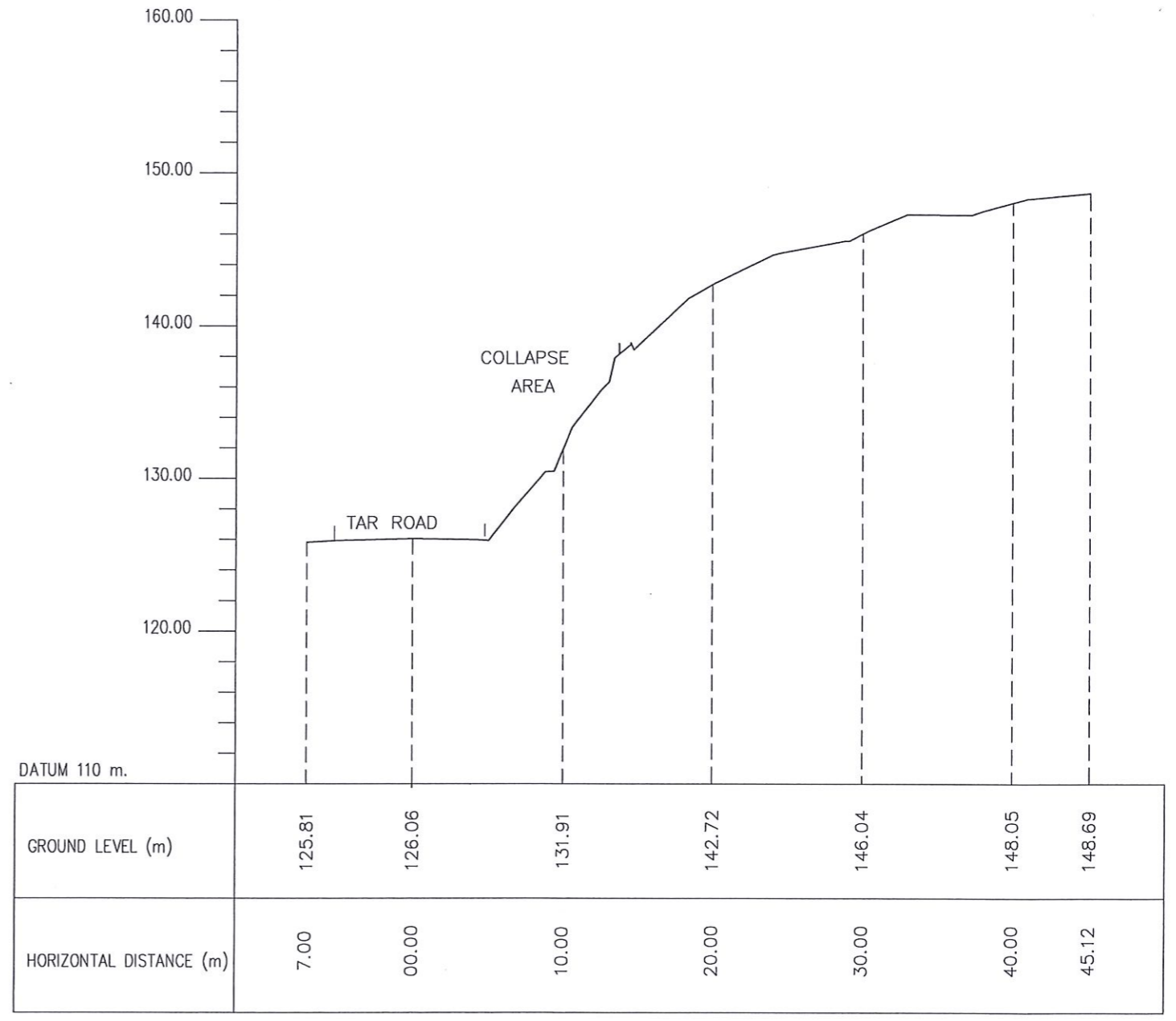


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EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER  DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS	TITLE KEGALLE BY PASS CROSS SECTION	DESCRIPTION	NAME	SIGNATURE
									SURVEYED LANKA G.P.S. (PVT) LTD CHECKED B.I. KUMARAGE	
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							PROJECT / DRAWING No.	RLVMP/WORKS/NCB/04c/11-BR/DR- 02g	REVISION	00

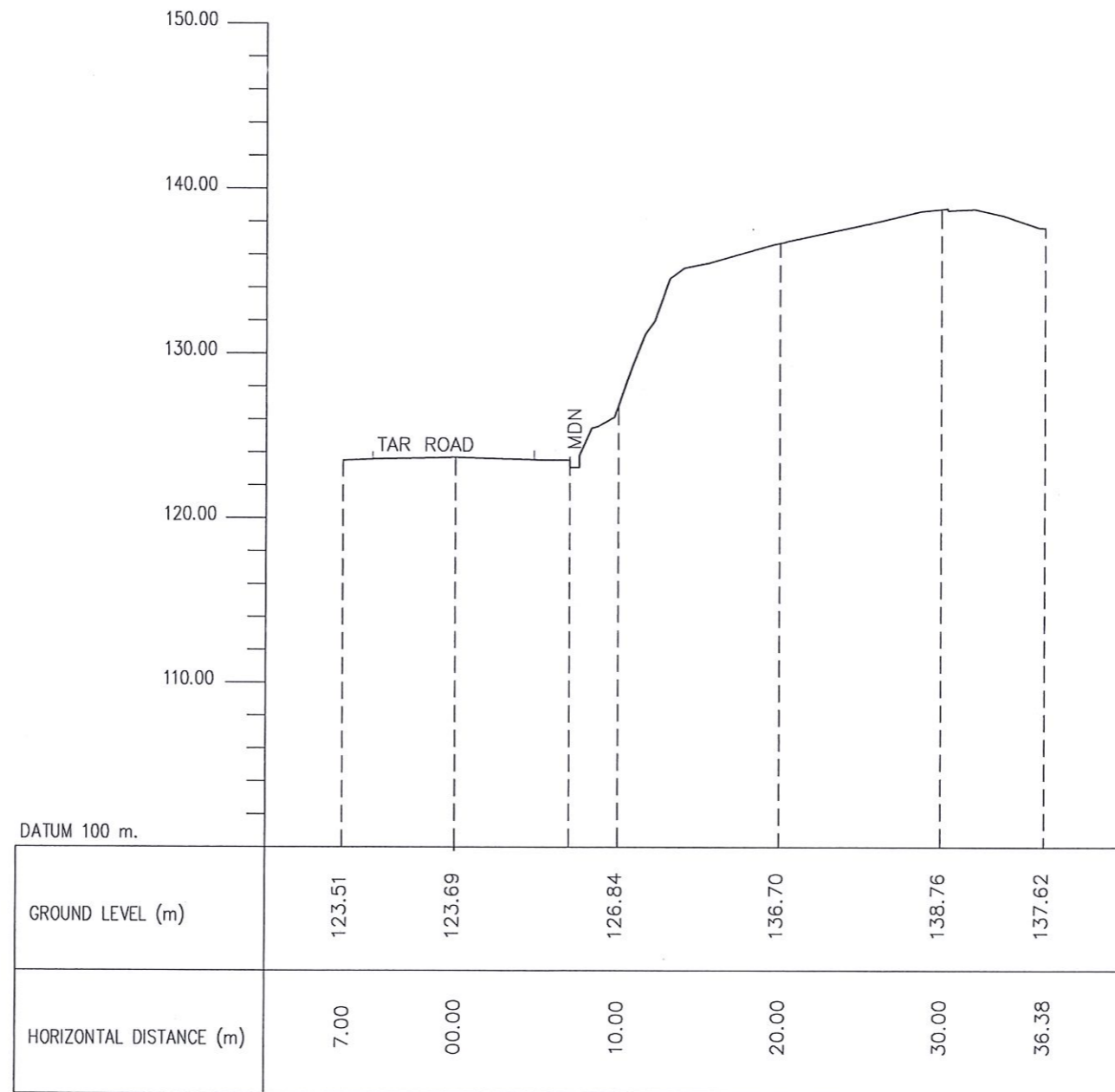


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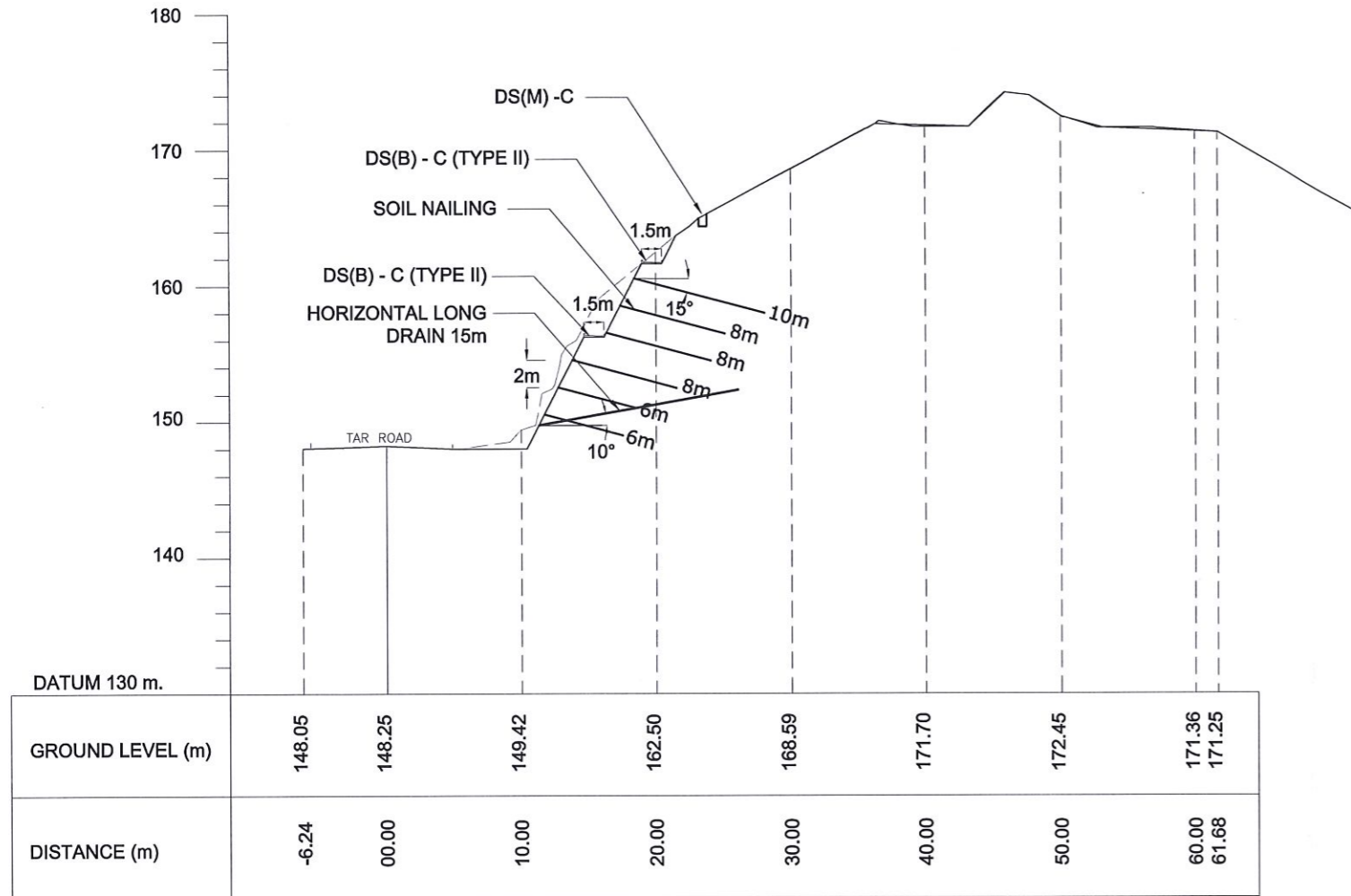
CROSS SECTION - 52

EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER  DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV DATE REVISION DESCRIPTION APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS	TITLE KEGALLE BY PASS CROSS SECTION	DESCRIPTION NAME SIGNATURE																																																	
		<table border="1"> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </table>																																			<table border="1"> <tr> <td>SCALE</td> <td>1:400</td> <td>DATE</td> <td>06.01.2021</td> </tr> <tr> <td>PROJECT / DRAWING No.</td> <td>RLVMMP/WORKS/NCB/04c/11-BR/DR- 02h</td> <td>REVISION</td> <td>00</td> </tr> </table>	SCALE	1:400	DATE	06.01.2021	PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/04c/11-BR/DR- 02h	REVISION	00	<table border="1"> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>								
SCALE	1:400	DATE	06.01.2021																																																			
PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/04c/11-BR/DR- 02h	REVISION	00																																																			



CROSS SECTION - 56

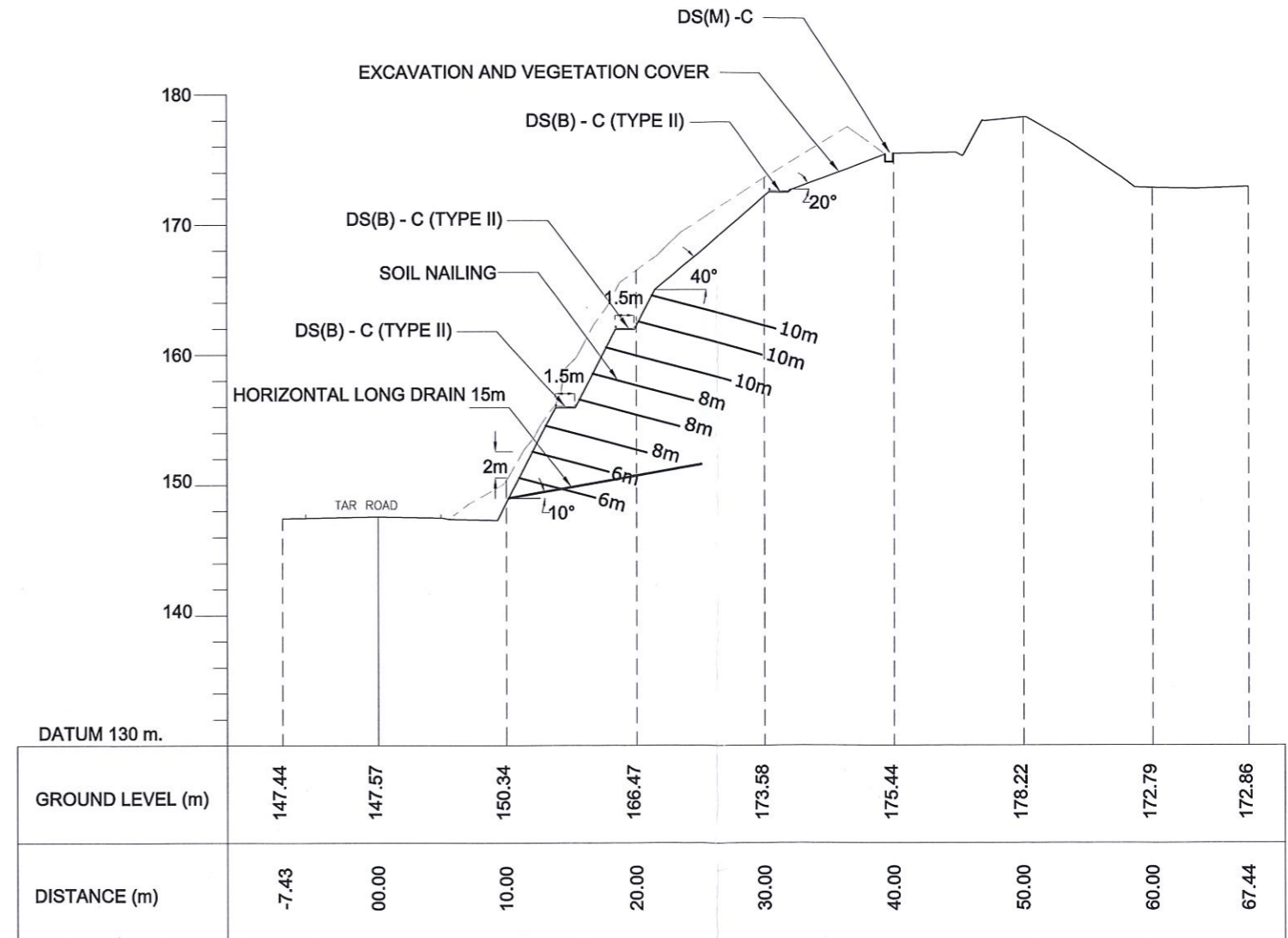
 DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	 DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS	TITLE		DESCRIPTION	NAME	SIGNATURE
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							SCALE	1:400	DATE	06.01.2021	
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							RLVMP/WORKS/NCB/04/11-BR/DR- 02I				









CROSS SECTION - 10

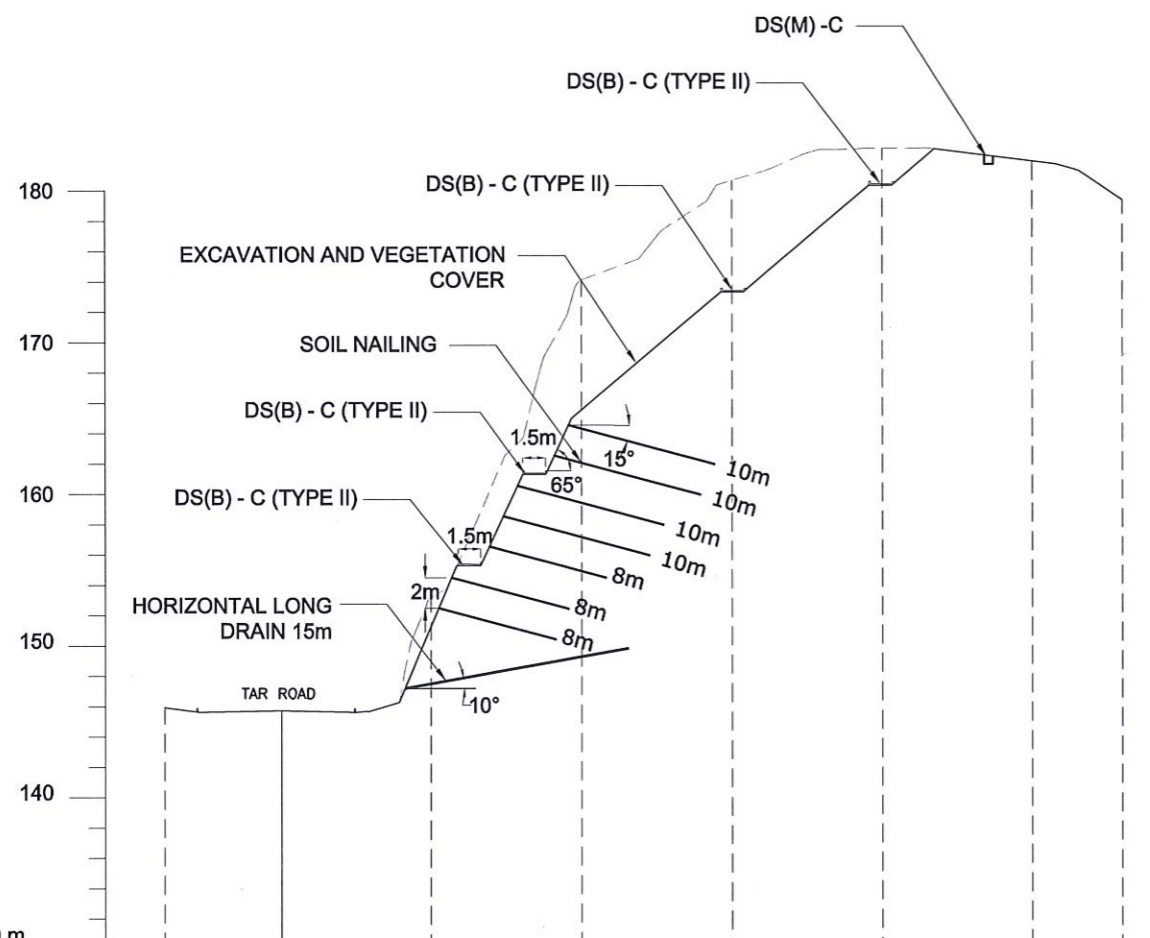
NOTES

1. LOCATION, LENGTH AND NUMBER OF SOIL NAILS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.
2. ANGLE, LOCATION, LENGTH AND NUMBER OF HORIZONTAL DRAINS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.



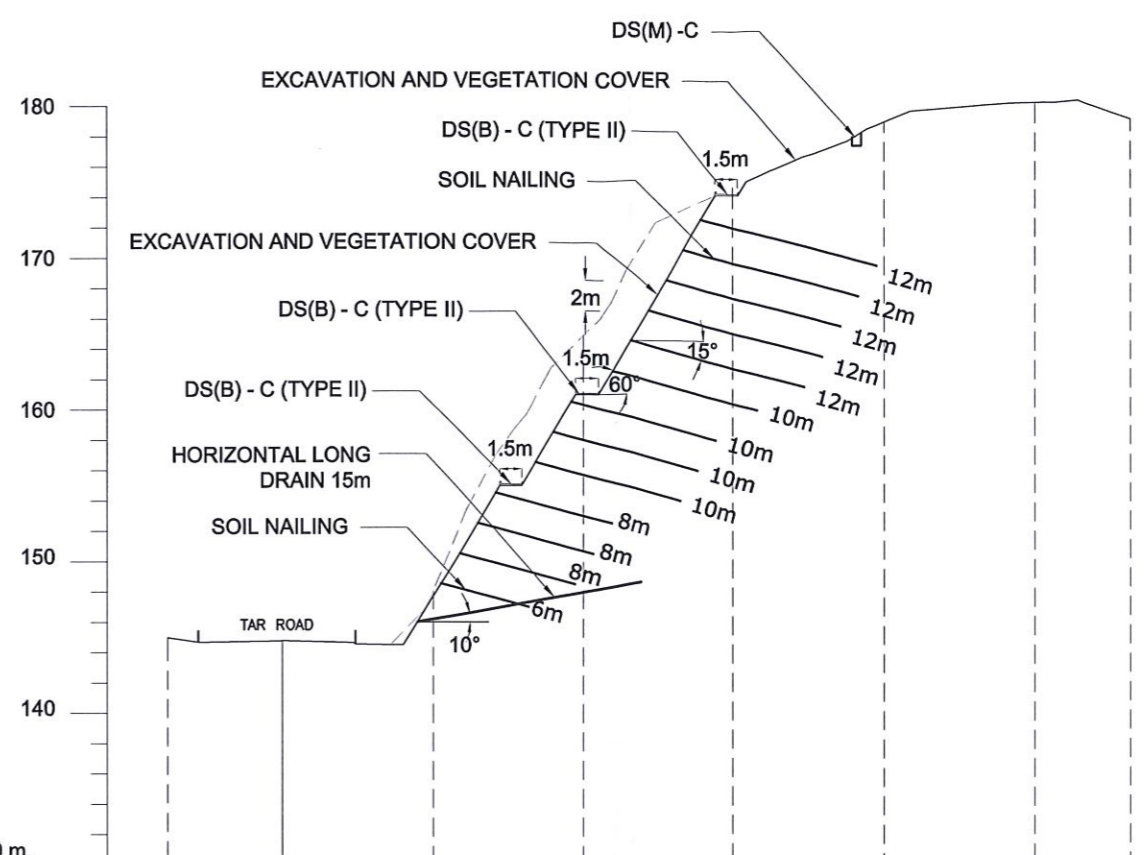
CROSS SECTION - 12

EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER  DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS	TITLE DESIGN CROSS SECTION OF PROPOSED MITIGATION MEASURES	DESCRIPTION	NAME	SIGNATURE
									SCALE 1:500	DATE 06.01.2021
							PROJECT / DRAWING No.	DESIGNER	B.I. KUMARAGE	
							RLVMP/WORKS/NCB/04c/11-BR/DR-04a	CHECKED	J.P. SAMARANAYAKE	
								RECOMMENDED	PROF. S.A.S. KULATHILAKA	
								APPROVED	K.N. BANDARA	



DATUM 130 m.	
GROUND LEVEL (m)	145.92 145.75 153.19 174.12 180.68 182.79 181.94 179.36
DISTANCE (m)	-7.76 00.00 10.00 20.00 30.00 40.00 50.00 55.97

CROSS SECTION - 16



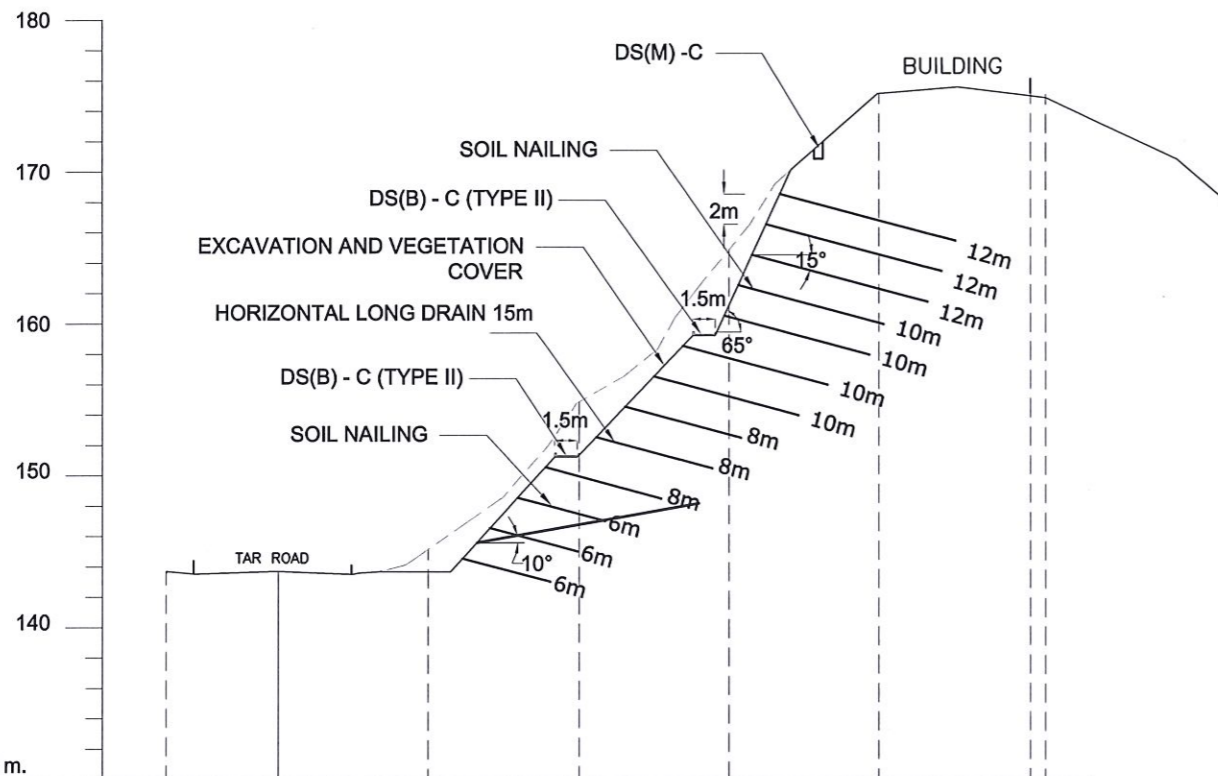
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GROUND LEVEL (m)	144.98 144.78 148.05 164.91 174.67 178.95 180.24 179.16
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CROSS SECTION - 18

NOTES

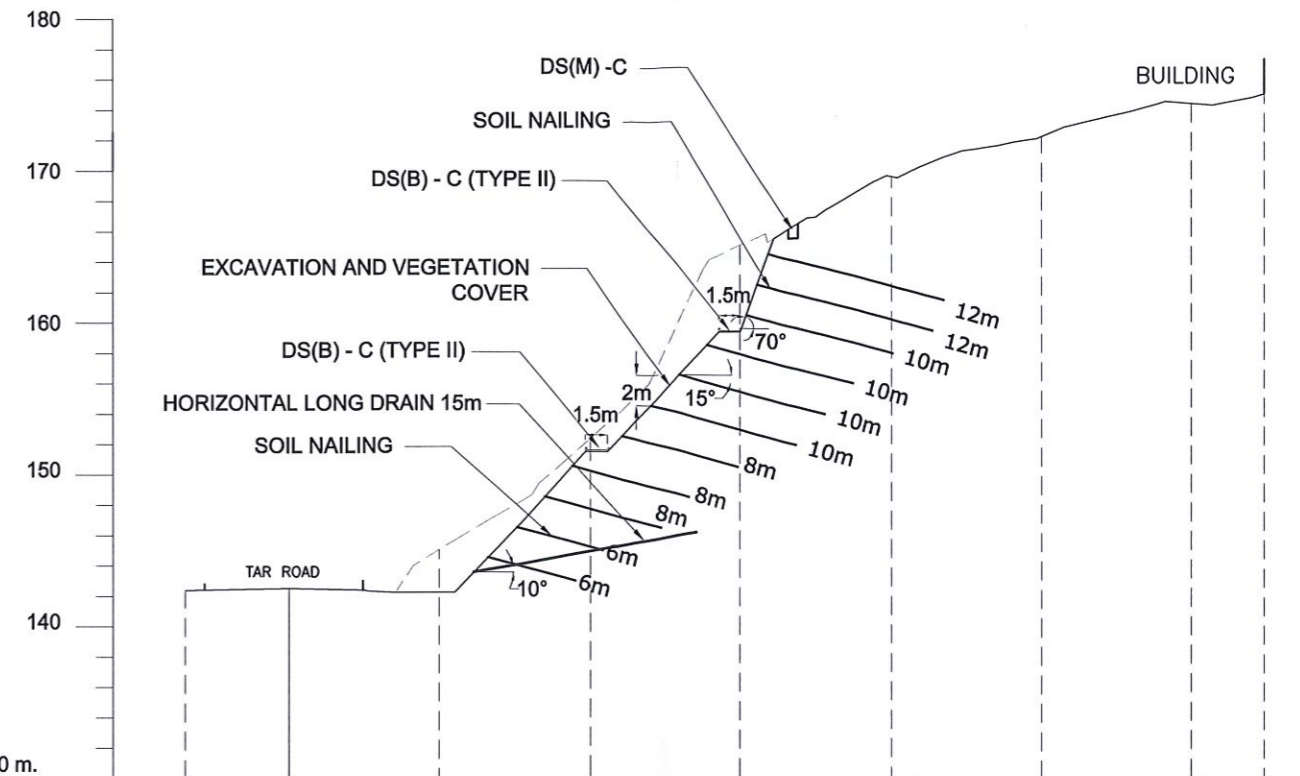
1. LOCATION, LENGTH AND NUMBER OF SOIL NAILS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.
2. ANGLE, LOCATION, LENGTH AND NUMBER OF HORIZONTAL DRAINS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.

<p>DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05</p>	<p>DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05</p>	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS	TITLE DESIGN CROSS SECTION OF PROPOSED MITIGATION MEASURES	DESCRIPTION	NAME	SIGNATURE
									SCALE 1:500	DATE 06.01.2021
							PROJECT / DRAWING No. RLVMMP/WORKS/NCB/04c/11-BR/DR- 04b	REVISION 00	CHECKED J.P. SAMARANAYAKE	
								RECOMMENDED PROF. S.A.S. KULATHILAKA	APPROVED K.N. BANDARA	



DATUM 130 m.	
GROUND LEVEL (m)	143.69 143.70 145.14 154.86 164.86 175.18 175.20 175.11
DISTANCE (m)	-7.49 00.00 10.00 20.00 30.00 40.00 50.00 51.03

CROSS SECTION - 20



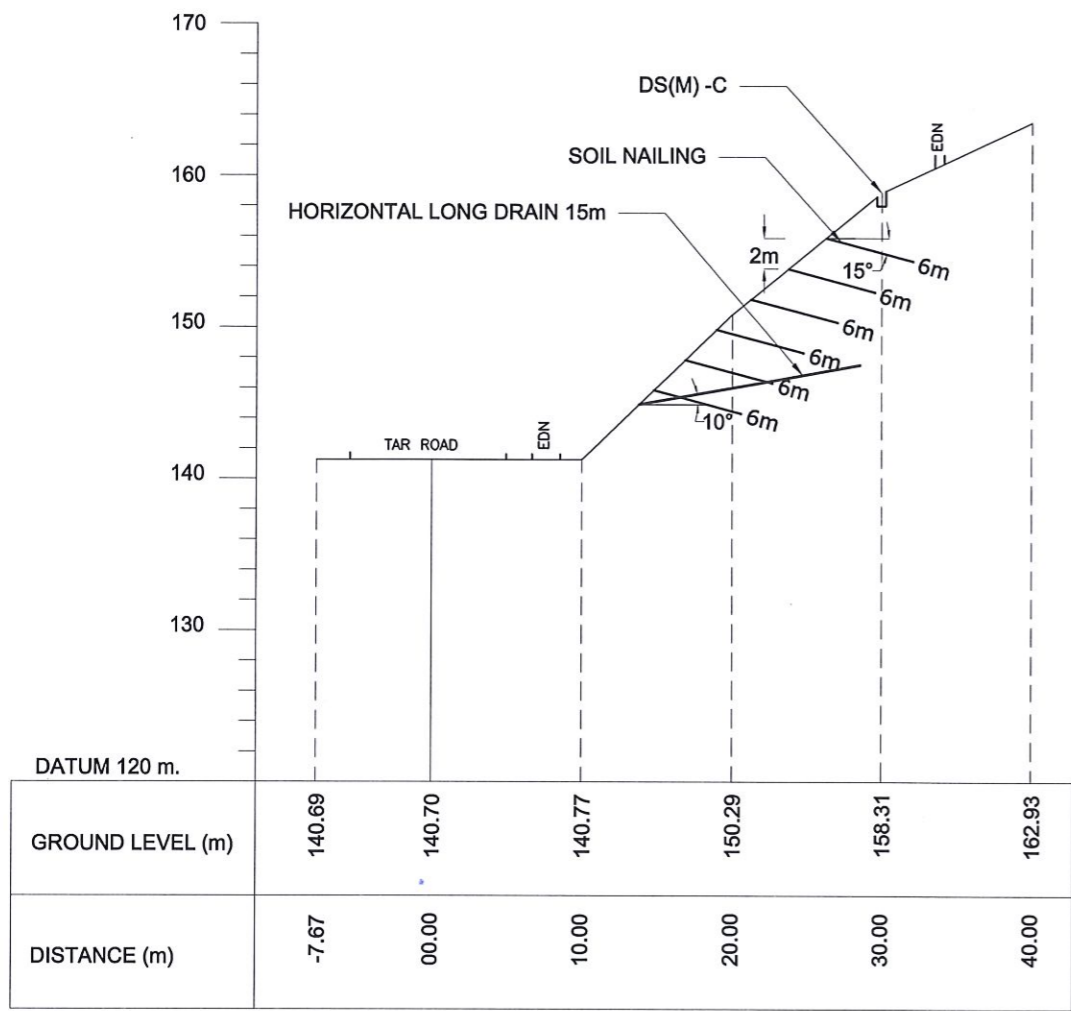
DATUM 130 m.	
GROUND LEVEL (m)	142.37 142.50 145.05 152.38 165.13 169.60 172.26 174.41 175.04
DISTANCE (m)	-6.91 00.00 10.00 20.00 30.00 40.00 50.00 60.00 64.84

CROSS SECTION - 22

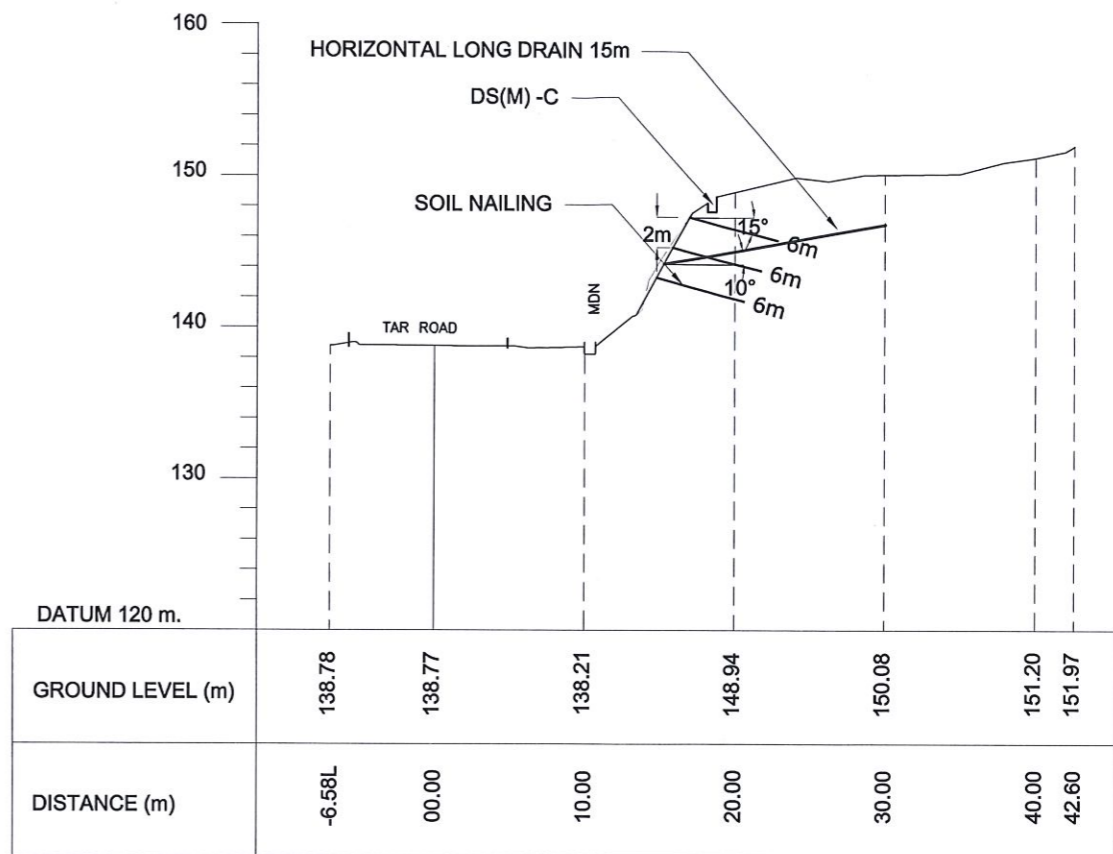
NOTES

1. LOCATION, LENGTH AND NUMBER OF SOIL NAILS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.
2. ANGLE , LOCATION , LENGTH AND NUMBER OF HORIZONTAL DRAINS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.

EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1 ,JAWATTA ROAD COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1 ,JAWATTA ROAD COLOMBO - 05	REV 	DATE 	REVISION DESCRIPTION 	APPROVAL 	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS	TITLE DESIGN CROSS SECTION OF PROPOSED MITIGATION MEASURES	DESCRIPTION DRAWN DESIGNER CHECKED RECOMMENDED APPROVED	NAME B.V.S. PATTRISHIYA B.I. KUMARAGE J.P. SAMARANAYAKE PROF. S.A.S. KULATHILAKA K.N. BANDARA	SIGNATURE
		SCALE 1:500 DATE 06.01.2021 PROJECT / DRAWING No. RLVMMPP/WORKS/NCB/04c/11-BR/DR- 04c REVISION 00								



CROSS SECTION - 25



CROSS SECTION - 28

NOTES

1. LOCATION, LENGTH AND NUMBER OF SOIL NAILS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.
2. ANGLE, LOCATION, LENGTH AND NUMBER OF HORIZONTAL DRAINS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.

EMPLOYER

DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS
AND DISASTER MANAGEMENT
NATIONAL BUILDING RESEARCH ORGANISATION
No. 99/1, JAWATTA ROAD
COLOMBO - 05

DESIGNER

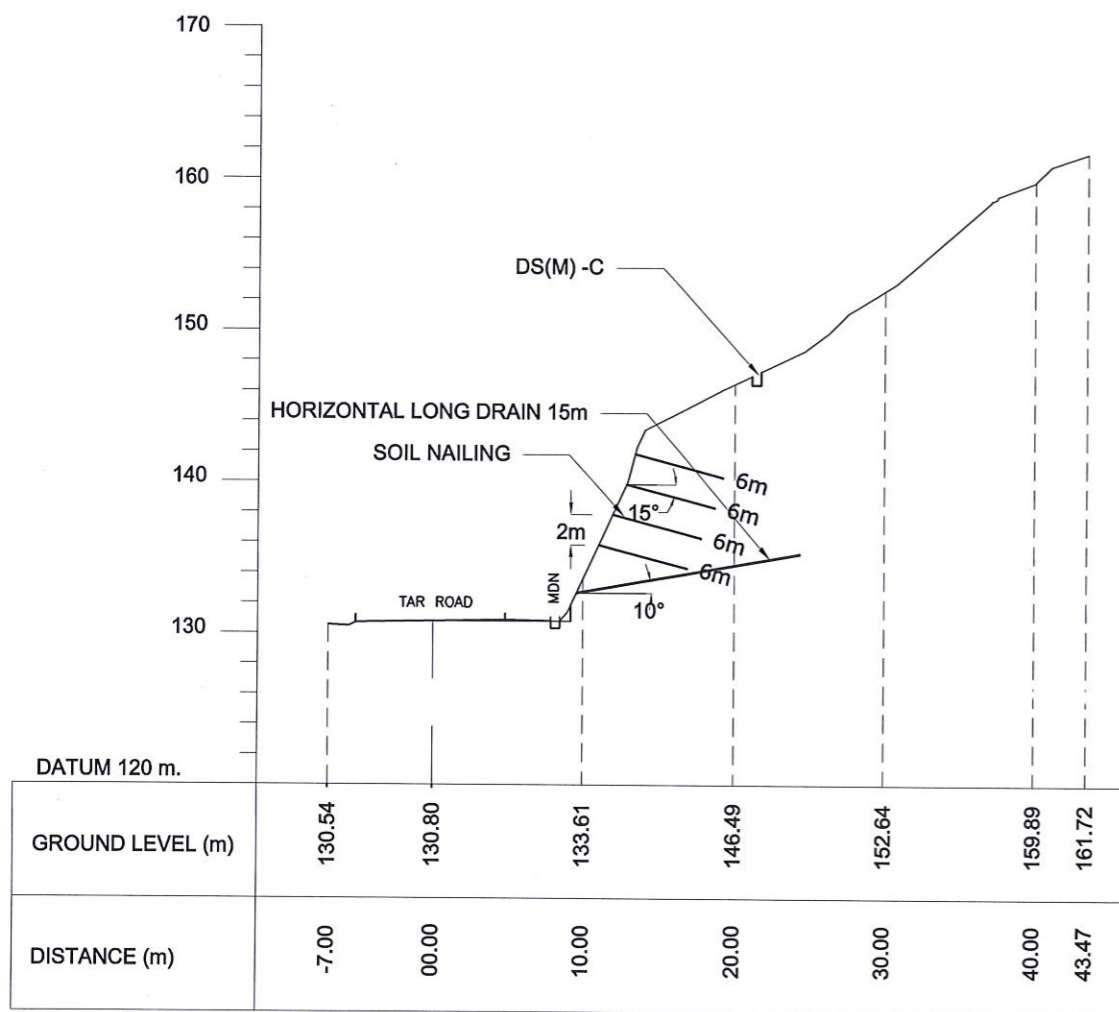
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NATIONAL BUILDING RESEARCH ORGANISATION
No. 99/1, JAWATTA ROAD
COLOMBO - 05

REV	DATE	REVISION DESCRIPTION	APPROVAL

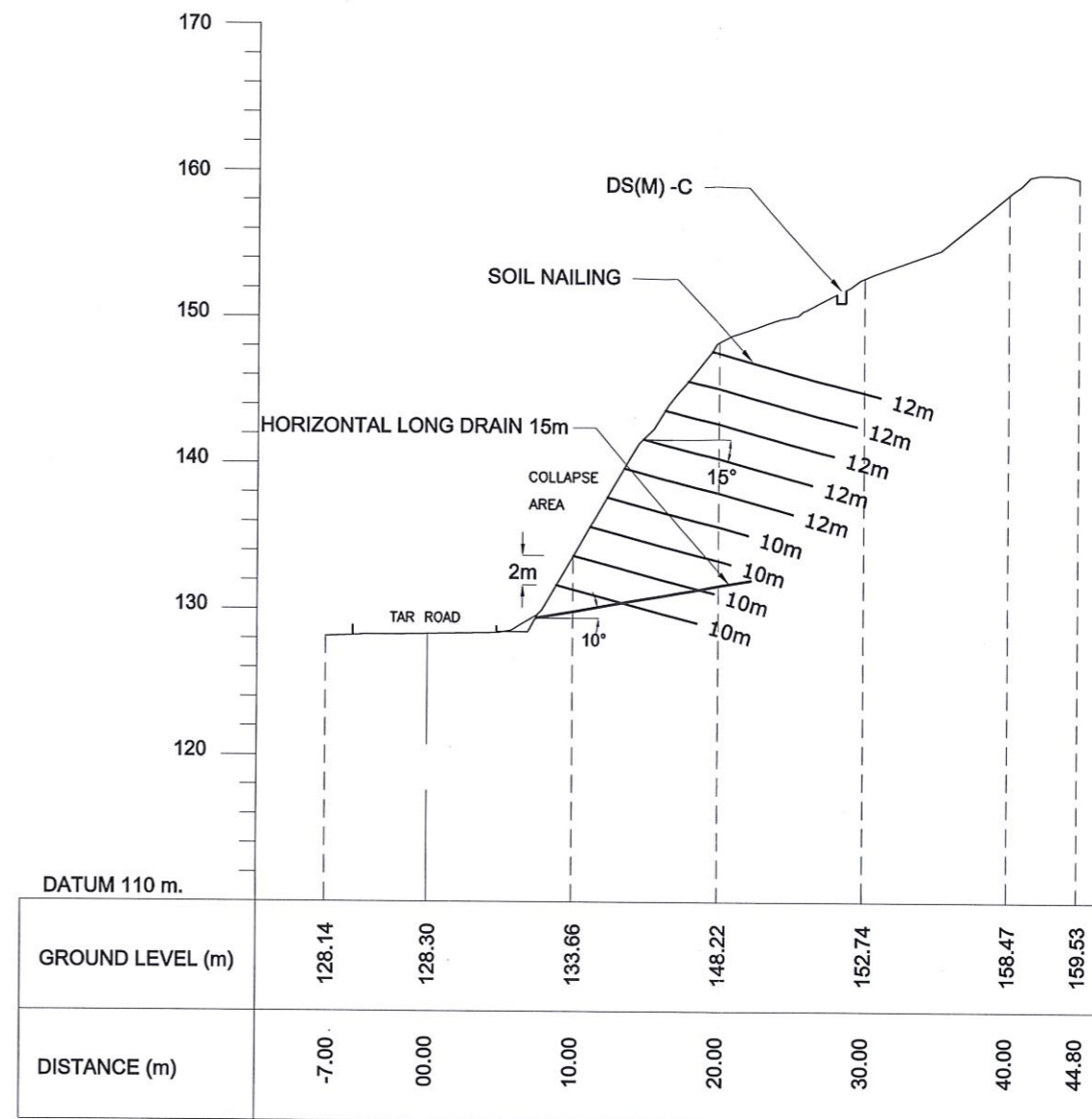
PROJECT TITLE

REDUCTION OF LANDSLIDE
VULNERABILITY BY MITIGATION MEASURES
RECTIFICATION OF LANDSLIDE IN
KEGALLE BY PASS

TITLE		DESCRIPTION	NAME	SIGNATURE
DESIGN CROSS SECTION OF PROPOSED MITIGATION MEASURES		DRAWN	B.V.S. PATTRISHIYA	
		DESIGNER	B.I. KUMARAGE	
		CHECKED	J.P. SAMARANAYAKE	
		RECOMMENDED	PROF. S.A.S. KULATHILAKA	
		APPROVED	K.N. BANDARA	
SCALE	1:500	DATE	06.01.2021	
PROJECT / DRAWING No.		REVISION	00	
RLVMMP/WORKS/NCB/04c/11-BR/DR-04d				



CROSS SECTION - 43

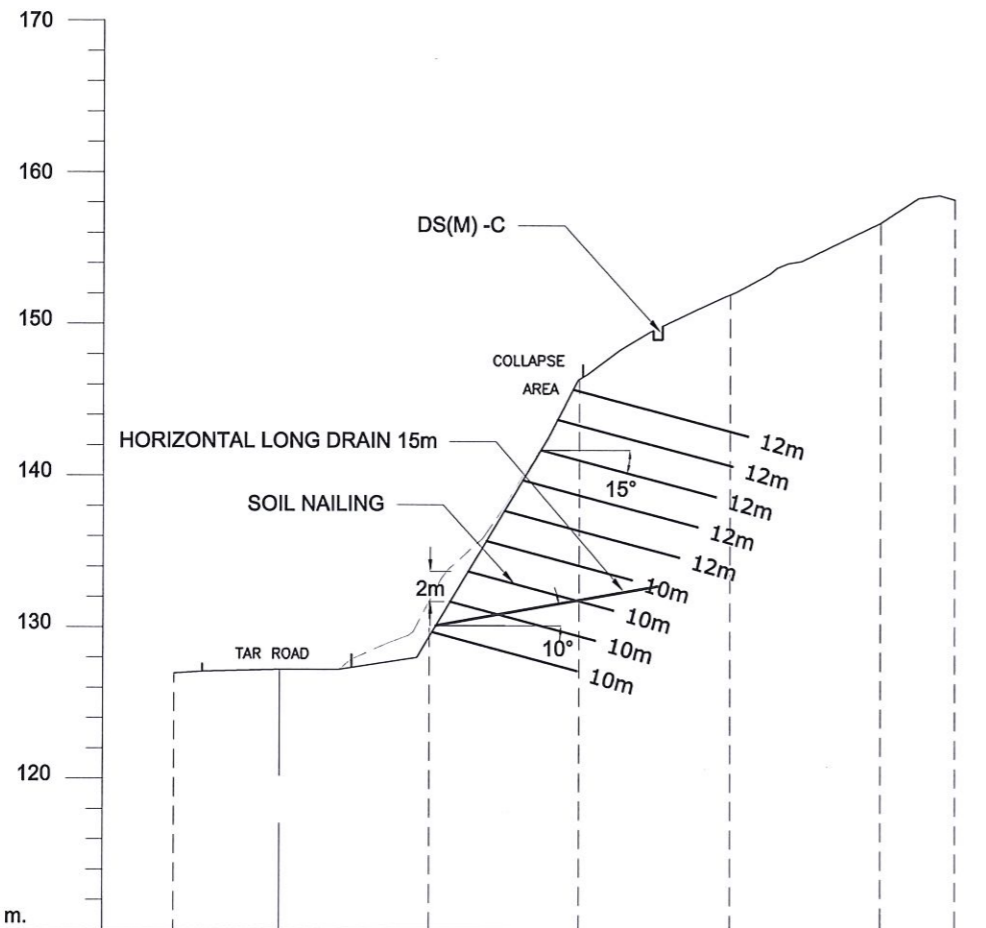


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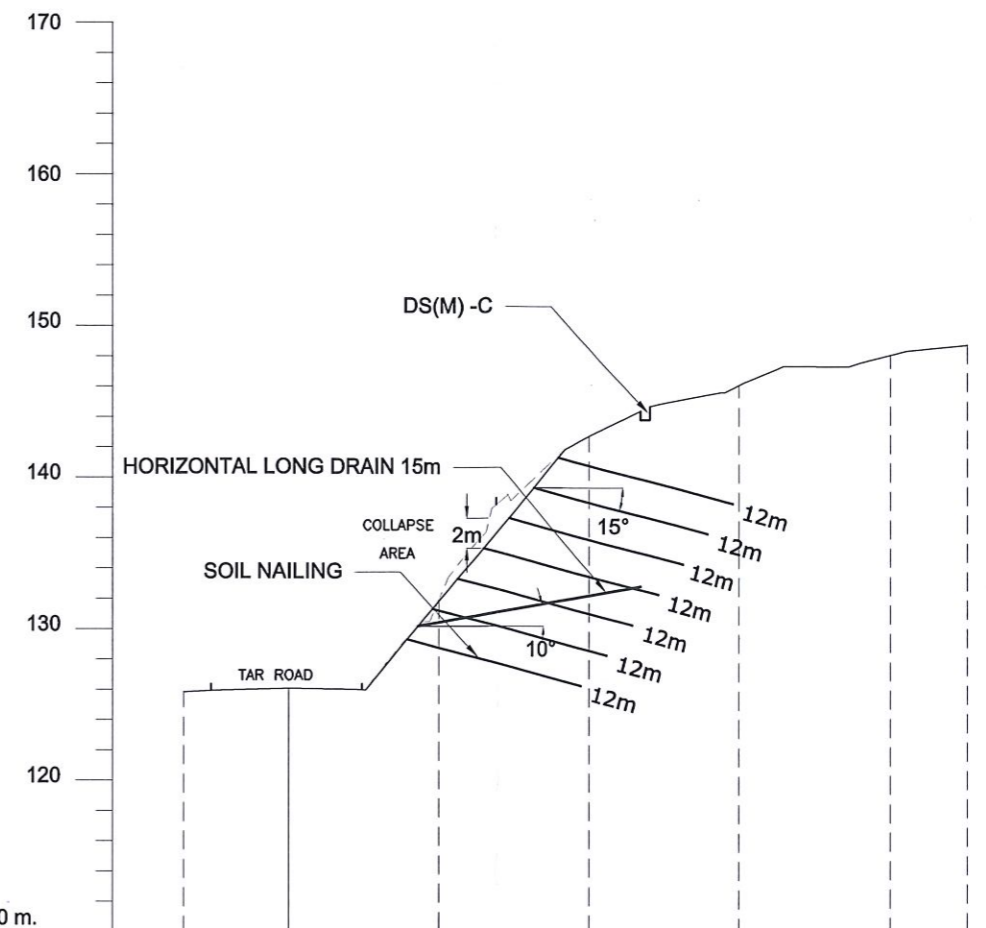
NOTES

1. LOCATION, LENGTH AND NUMBER OF SOIL NAILS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.
2. ANGLE, LOCATION, LENGTH AND NUMBER OF HORIZONTAL DRAINS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.

EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV DATE REVISION DESCRIPTION APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS	TITLE DESIGN CROSS SECTION OF PROPOSED MITIGATION MEASURES	DESCRIPTION NAME SIGNATURE
		SCALE 1:500 DATE 06.01.2021 PROJECT / DRAWING No. RLVMP/WORKS/NCB/04c/11-BR/DR- 04e REVISION 00			DRAWN B.V.S. PATTRISHIYA DESIGNER B.I. KUMARAGE CHECKED J.P. SAMARANAYAKE RECOMMENDED PROF. S.A.S. KULATHILAKA APPROVED K.N. BANDARA



CROSS SECTION - 50

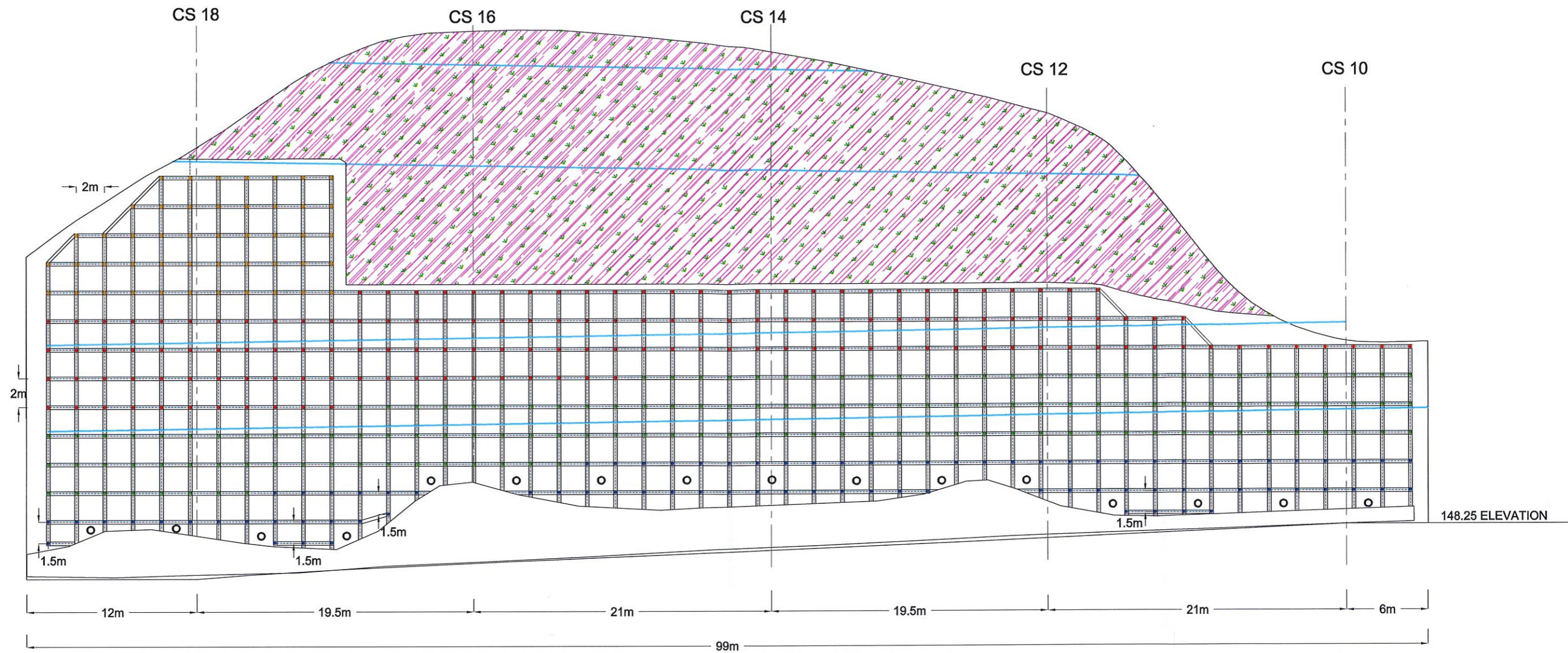


CROSS SECTION - 52

NOTES

1. LOCATION, LENGTH AND NUMBER OF SOIL NAILS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.
2. ANGLE, LOCATION, LENGTH AND NUMBER OF HORIZONTAL DRAINS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.

EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS	TITLE DESIGN CROSS SECTION OF PROPOSED MITIGATION MEASURES		DESCRIPTION	NAME	SIGNATURE		
								SCALE	1:500	DATE	06.01.2021	DRAWN	B.V.S. PATTRISHIYA
							PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/04c/11-BR/DR-04f	REVISION	00	CHECKED	J.P. SAMARANAYAKE	
									RECOMMENDED	PROF. S.A.S. KULATHILAKA			
									APPROVED	K.N. BANDARA			



FRONT ELEVATION OF PROPOSED SOIL NAILING PATTERN AREA - 01

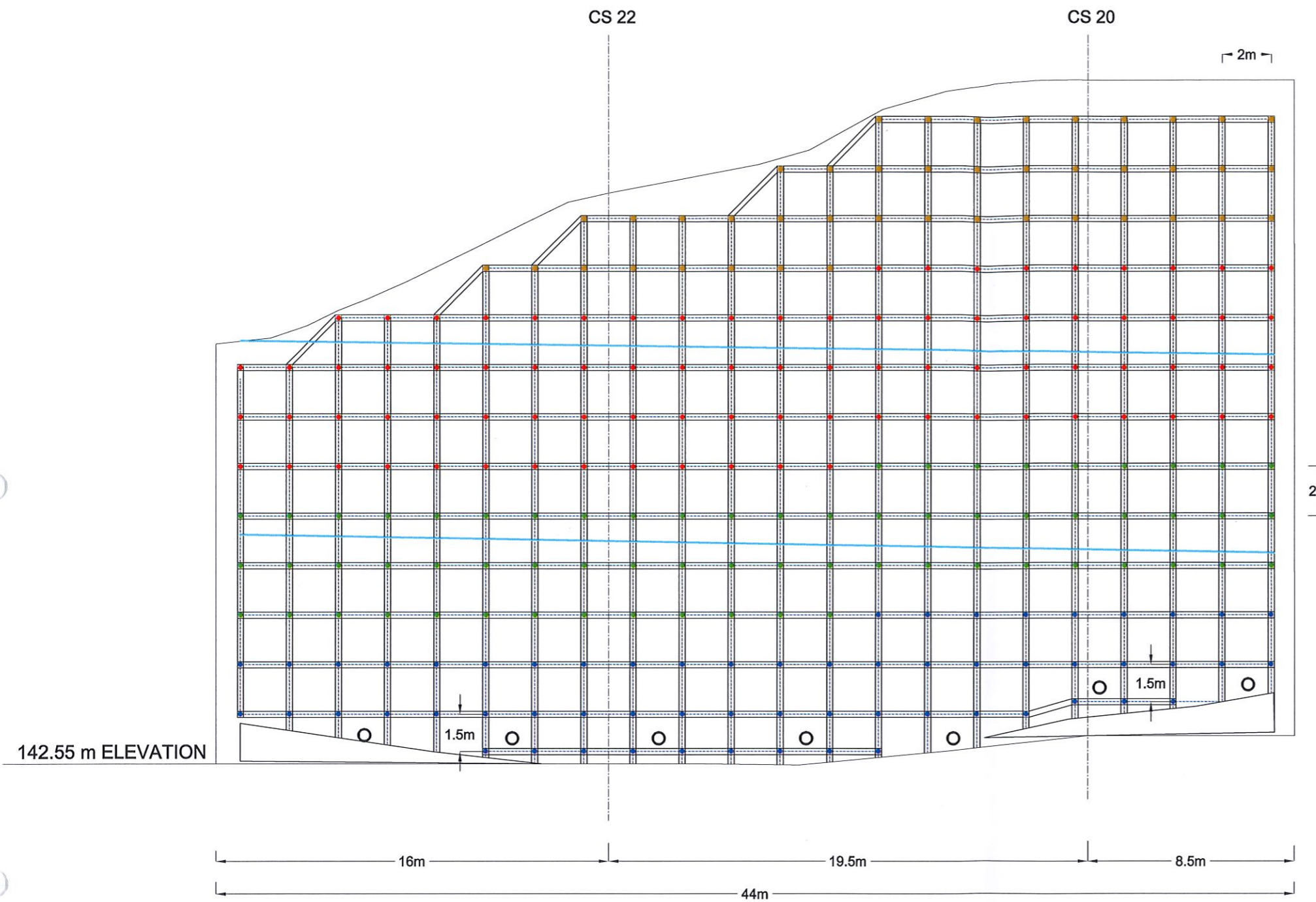
LEGEND

- SOIL NAILING - TOTAL SOIL NAIL LENGTH = 6 m
 NO OF SOIL NAIL = 87
 REINFORCEMENT DIAMETER = 32 mm
 DIAMETER OF DRILLED HOLE = 125 mm
 NAIL SPACING = 2m(B/W)
- SOIL NAILING - TOTAL SOIL NAIL LENGTH = 8 m
 NO OF SOIL NAIL = 146
 REINFORCEMENT DIAMETER = 32 mm
 DIAMETER OF DRILLED HOLE = 125 mm
 NAIL SPACING = 2m(B/W)
- SOIL NAILING - TOTAL SOIL NAIL LENGTH = 10 m
 NO OF SOIL NAIL = 151
 REINFORCEMENT DIAMETER = 32 mm
 DIAMETER OF DRILLED HOLE = 125 mm
 NAIL SPACING = 2m(B/W)
- SOIL NAILING - TOTAL SOIL NAIL LENGTH = 12 m
 NO OF SOIL NAIL = 47
 REINFORCEMENT DIAMETER = 32 mm
 DIAMETER OF DRILLED HOLE = 125 mm
 NAIL SPACING = 2m(B/W)
- HORIZONTAL LONG DRAIN - HORIZONTAL LONG DRAIN LENGTH = 15 m
 NO OF LONG DRAIN = 16
 DIAMETER = 90 mm
- DS(B) - C (TYPE II)
- EXCAVATION AND VEGETATION COVER

NOTES

1. LOCATION, LENGTH AND NUMBER OF SOIL NAILS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.
2. ANGLE, LOCATION, LENGTH AND NUMBER OF HORIZONTAL DRAINS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.
3. BERM DRAIN SHALL HAVE A MINIMUM INCLINATION OF 1° ALONG THE BERM
4. GRID BEAMS SHALL BE STRUCTURALLY CONNECTED TO THE BERM DRAINS AT THE SOIL NAILING AREA
5. COATED METALLIC MESH SHALL BE TUCKED UNDER THE BERM DRAIN BEFORE CASTING

 DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	 DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE	TITLE	DESCRIPTION	NAME	SIGNATURE	
		REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS	FRONT ELEVATION OF PROPOSED MITIGATION MEASURES	DRAWN	B.V.S. PATTRISHIYA	DESIGNER	B.I. KUMARAGE	CHECKED	J.P. SAMARANAYAKE	RECOMMENDED	PROF. S.A.S. KULATHILAKA
						SCALE N.T.S. DATE 06.11.2020 PROJECT / DRAWING No. RLVMP/WORKS/NCB/04c/11-BR/DR-05a REVISION 00					



LEGEND

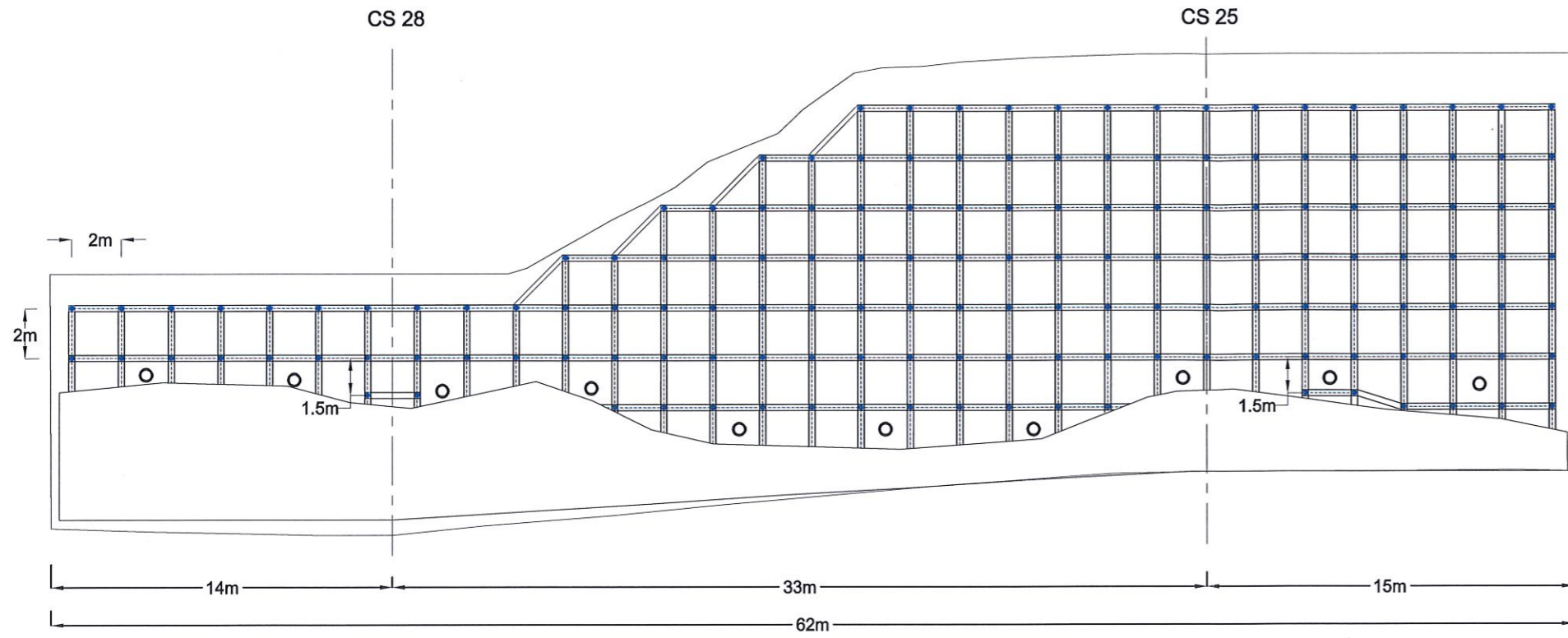
- SOIL NAILING - TOTAL SOIL NAIL LENGTH = 6 m
 NO OF SOIL NAIL = 60
 REINFORCEMENT DIAMETER = 32 mm
 DIAMETER OF DRILLED HOLE = 125 mm
 NAIL SPACING = 2m(B/W)
- SOIL NAILING - TOTAL SOIL NAIL LENGTH = 8 m
 NO OF SOIL NAIL = 66
 REINFORCEMENT DIAMETER = 32 mm
 DIAMETER OF DRILLED HOLE = 125 mm
 NAIL SPACING = 2m(B/W)
- SOIL NAILING - TOTAL SOIL NAIL LENGTH = 10 m
 NO OF SOIL NAIL = 86
 REINFORCEMENT DIAMETER = 32 mm
 DIAMETER OF DRILLED HOLE = 125 mm
 NAIL SPACING = 2m(B/W)
- SOIL NAILING - TOTAL SOIL NAIL LENGTH = 12 m
 NO OF SOIL NAIL = 43
 REINFORCEMENT DIAMETER = 32 mm
 DIAMETER OF DRILLED HOLE = 125 mm
 NAIL SPACING = 2m (B/W)
- HORIZONTAL LONG DRAIN - HORIZONTAL LONG DRAIN LENGTH = 15 m
 NO OF LONG DRAIN = 07
 DIAMETER = 90 mm
- DS(B) - C (TYPE II)

FRONT ELEVATION OF PROPOSED SOIL NAILING PATTERN AREA - 02

NOTES

1. LOCATION, LENGTH AND NUMBER OF SOIL NAILS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.
2. ANGLE, LOCATION, LENGTH AND NUMBER OF HORIZONTAL DRAINS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.
3. BERM DRAIN SHALL HAVE A MINIMUM INCLINATION OF 1° ALONG THE BERM
4. GRID BEAMS SHALL BE STRUCTURALLY CONNECTED TO THE BERM DRAINS AT THE SOIL NAILING AREA
5. COATED METALLIC MESH SHALL BE TUCKED UNDER THE BERM DRAIN BEFORE CASTING

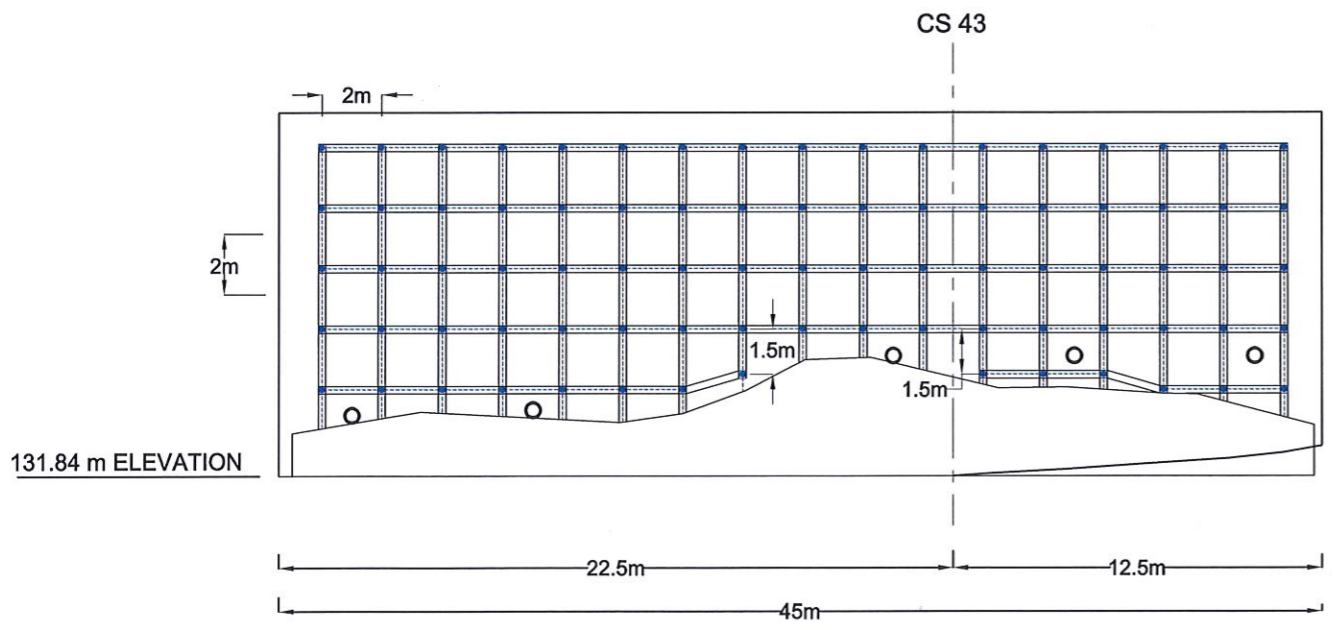
<p>EMPLOYER</p> <p>DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05</p>	<p>DESIGNER</p> <p>DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>REVISION DESCRIPTION</th> <th>APPROVAL</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	REV	DATE	REVISION DESCRIPTION	APPROVAL																					<p>PROJECT TITLE</p> <p style="text-align: center;">REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS</p>	<p>TITLE</p> <p style="text-align: center;">FRONT ELEVATION OF PROPOSED MITIGATION MEASURES</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>DESCRIPTION</th> <th>NAME</th> <th>SIGNATURE</th> </tr> </thead> <tbody> <tr> <td>DRAWN</td> <td>B.V.S. PATTRISHIYA</td> <td></td> </tr> <tr> <td>DESIGNER</td> <td>B.I. KUMARAGE</td> <td></td> </tr> <tr> <td>CHECKED</td> <td>J.P. SAMARANAYAKE</td> <td></td> </tr> <tr> <td>RECOMMENDED</td> <td>PROF. S.A.S. KULATHILAKA</td> <td></td> </tr> <tr> <td>APPROVED</td> <td>K.N. BANDARA</td> <td></td> </tr> </tbody> </table>	DESCRIPTION	NAME	SIGNATURE	DRAWN	B.V.S. PATTRISHIYA		DESIGNER	B.I. KUMARAGE		CHECKED	J.P. SAMARANAYAKE		RECOMMENDED	PROF. S.A.S. KULATHILAKA		APPROVED	K.N. BANDARA	
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				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>SCALE</td> <td>N.T.S.</td> <td>DATE</td> <td>06.11.2020</td> </tr> <tr> <td>PROJECT / DRAWING No.</td> <td>RLVMP/WORKS/NCB/04c/11-BR/DR-05b</td> <td>REVISION</td> <td>00</td> </tr> </table>	SCALE	N.T.S.	DATE	06.11.2020	PROJECT / DRAWING No.	RLVMP/WORKS/NCB/04c/11-BR/DR-05b	REVISION	00																																			
SCALE	N.T.S.	DATE	06.11.2020																																												
PROJECT / DRAWING No.	RLVMP/WORKS/NCB/04c/11-BR/DR-05b	REVISION	00																																												



FRONT ELEVATION OF PROPOSED SOIL NAILING PATTERN AREA - 03

- LEGEND**
- SOIL NAILING**
 - TOTAL SOIL NAIL LENGTH = 06 m
 - NO OF SOIL NAIL = 153
 - REINFORCEMENT DIAMETER = 32 mm
 - DIAMETER OF DRILLED HOLE = 125 mm
 - NAIL SPACING = 2m (B/W)

 - HORIZONTAL LONG DRAIN**
 - HORIZONTAL LONG DRAIN LENGTH = 15 m
 - NO OF LONG DRAIN = 10
 - DIAMETER = 90 mm



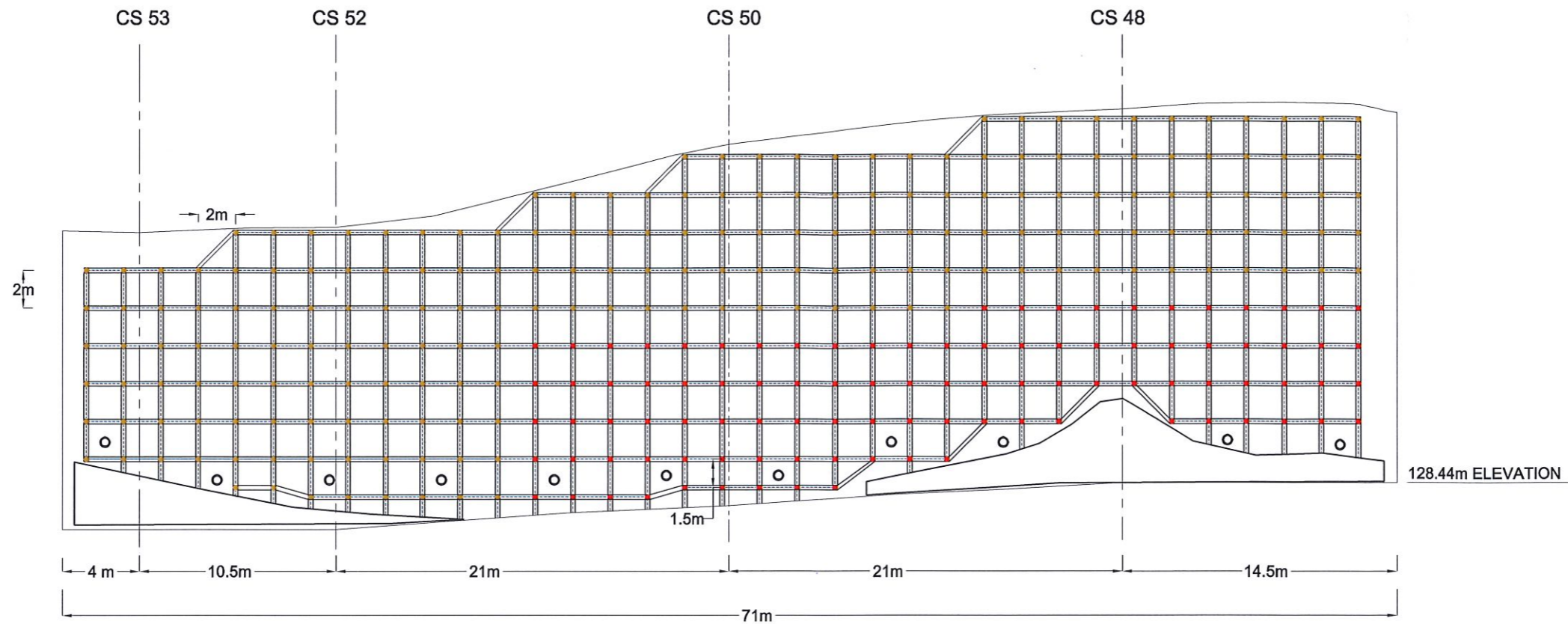
FRONT ELEVATION OF PROPOSED SOIL NAILING PATTERN AREA - 04

- LEGEND**
- SOIL NAILING**
 - TOTAL SOIL NAIL LENGTH = 06 m
 - NO OF SOIL NAIL = 82
 - REINFORCEMENT DIAMETER = 32 mm
 - DIAMETER OF DRILLED HOLE = 125 mm
 - NAIL SPACING = 2m (B/W)

 - HORIZONTAL LONG DRAIN**
 - HORIZONTAL LONG DRAIN LENGTH = 15 m
 - NO OF LONG DRAIN = 05
 - DIAMETER = 90 mm

- NOTES**
1. LOCATION, LENGTH AND NUMBER OF SOIL NAILS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.
 2. ANGLE, LOCATION, LENGTH AND NUMBER OF HORIZONTAL DRAINS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.

 DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	 DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE	TITLE	DESCRIPTION	NAME	SIGNATURE
									DRAWN	B.V.S. PATTRISHIYA
REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS							FRONT ELEVATION OF PROPOSED MITIGATION MEASURES	DESIGNER	B.I. KUMARAGE	
							SCALE 1:250 DATE 06.01.2021 PROJECT / DRAWING No. RLVMMMP/WORKS/NCB/04c/11-BR/DR-05c REVISION 00	CHECKED	J.P. SAMARANAYAKE	
								RECOMMENDED	PROF. S.A.S. KULATHILAKA	
								APPROVED	K.N. BANDARA	



FRONT ELEVATION OF PROPOSED SOIL NAILING PATTERN AREA - 05

LEGEND


- SOIL NAILING** - TOTAL SOIL NAIL LENGTH = 12 m
 NO OF SOIL NAIL = 199
 REINFORCEMENT DIAMETER = 32 mm
 DIAMETER OF DRILLED HOLE = 125 mm
 NAIL SPACING = 2m
 NAIL SPACING = 1.5m

- SOIL NAILING** - TOTAL SOIL NAIL LENGTH = 10 m
 NO OF SOIL NAIL = 99
 REINFORCEMENT DIAMETER = 32 mm
 DIAMETER OF DRILLED HOLE = 125 mm
 NAIL SPACING = 2m (B/W)

- HORIZONTAL LONG DRAIN** - HORIZONTAL LONG DRAIN LENGTH = 15 m
 NO OF LONG DRAIN = 11
 DIAMETER = 90 mm

NOTES

1. LOCATION, LENGTH AND NUMBER OF SOIL NAILS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.
2. ANGLE, LOCATION, LENGTH AND NUMBER OF HORIZONTAL DRAINS MIGHT BE VARIED ACCORDING TO THE SITE CONDITION ENCOUNTERED DURING CONSTRUCTION.


 DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
 STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS
 AND DISASTER MANAGEMENT
 NATIONAL BUILDING RESEARCH ORGANISATION
 No. 99/1, JAWATTA ROAD
 COLOMBO - 05







DESIGNER

 DESIGN UNIT
 NATIONAL BUILDING RESEARCH ORGANISATION
 No. 99/1, JAWATTA ROAD
 COLOMBO - 05

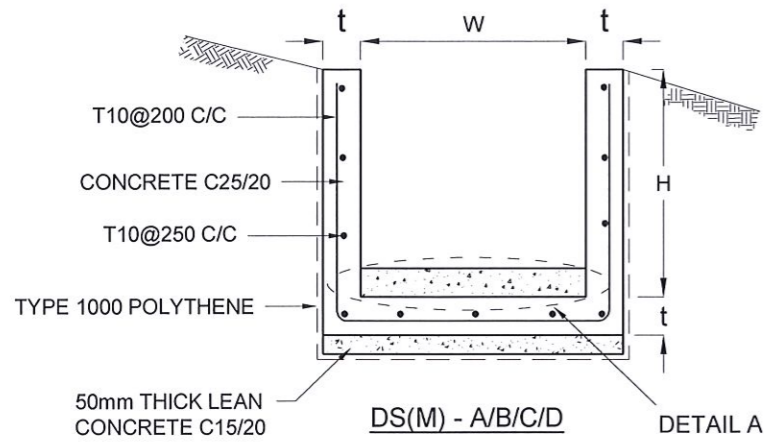
REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE

REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
**RECTIFICATION OF LANDSLIDE IN
 KEGALLE BY PASS**

TITLE
 FRONT ELEVATION OF
 PROPOSED MITIGATION MEASURES

DESCRIPTION	NAME	SIGNATURE
DRAWN	B.V.S. PATTRISHIYA	
DESIGNER	B.I. KUMARAGE	
CHECKED	J.P. SAMARANAYAKE	
RECOMMENDED	PROF. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	

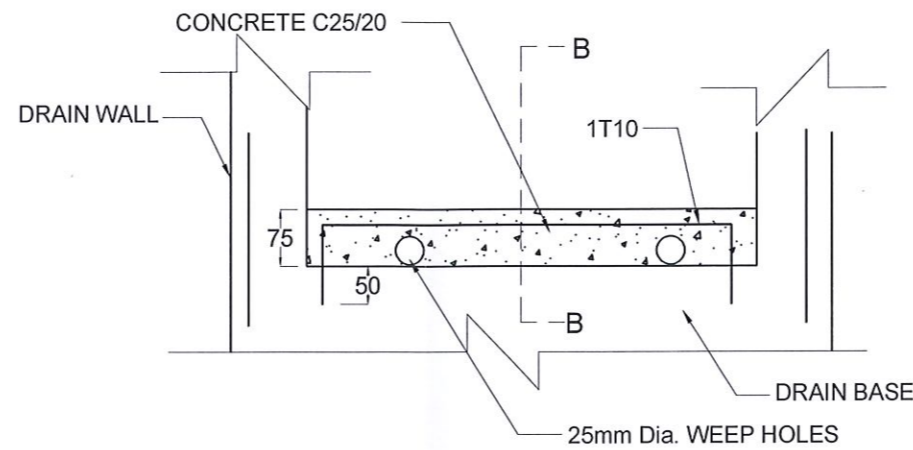
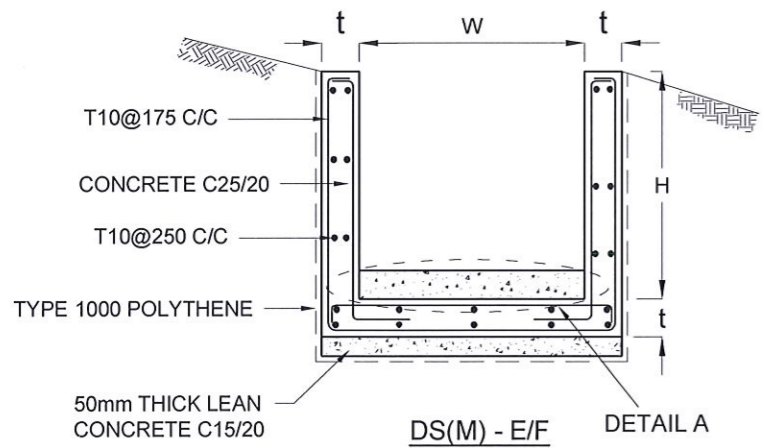
SCALE	1:300	DATE	06.01.2021
PROJECT / DRAWING No.	RLVMP/WORKS/NCB/04c/11-BR/DR-05d	REVISION	00



DRAIN TYPE	W (mm)	H (mm)	t (mm)
DS (M) - A /P	300	300	100
DS (M) - B/R	450	450	100
DS (M) - C/Q	600	600	100
DS (M) - D	750	750	125
DS (M) - E	900	900	150
DS (M) - F	1000	1000	150

NOTES

- DEPTH OF EXCAVATION MAY VARY ACCORDING TO SITE CONDITIONS.
- STEPS SHALL BE CONSTRUCTED AT SURFACE DRAIN ON SLOPING GROUND ACCORDING TO THE SITE CONDITIONS AS INSTRUCTED BY THE ENGINEER.
- ENERGY BREAKERS SHALL BE CONSTRUCTED AT THE STEEP DRAIN SEGMENTS AS PER THE INSTRUCTIONS OF THE ENGINEER.
- DOWELS SHALL BE INSTALLED ACCORDING TO THE GROUND CONDITIONS AS INSTRUCTED BY THE ENGINEER.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
- 10 mm THICK EXPANSION JOINT SHALL BE INTRODUCED IN EVERY 5m INTERVAL.



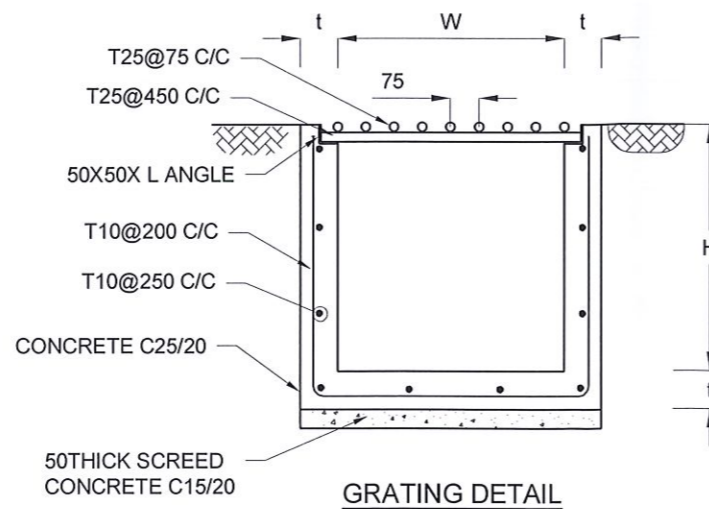
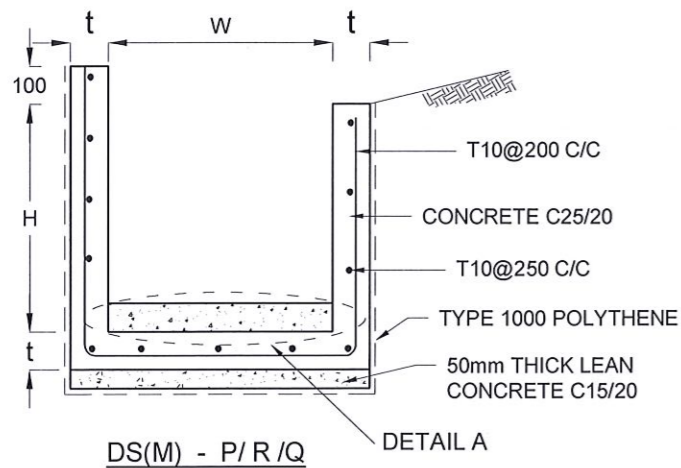
DETAIL A - (ENERGY BREAKER AT 3M)

CONCRETE

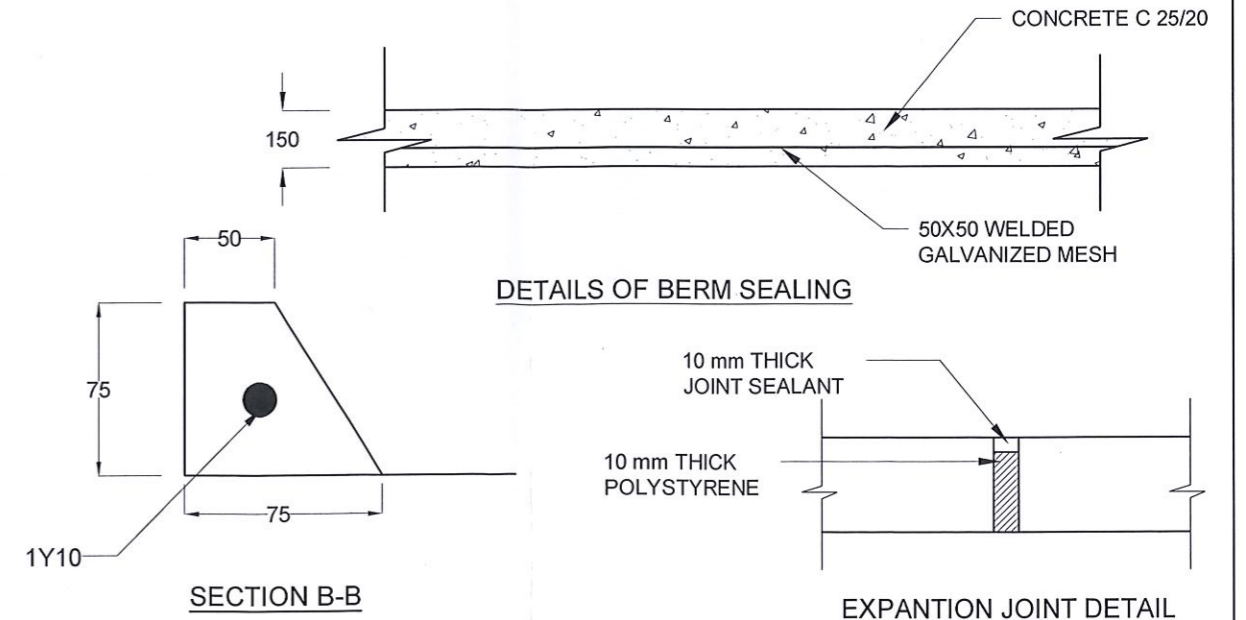
- USE FOLLOWING CONCRETE GRADES FOR STRUCTURE
 - [a] SCREED - C. 15/20
 - [b] WALLS / BASE / ENERGY BREAKERS - C. 25/20

REINFORCEMENT

- ALL BARS MARKED "T" SHALL BE HIGH YIELD DEFORMED BARS OF YIELD STRENGTH NOT LESS THAN 460N/mm².
- BARS OF CUT LENGTH LARGER THAN THE SUPPLIED LENGTH TO BE LAPPED FOR A LENGTH OF 50 x BAR DIA. AND LAPPING SHOULD BE STAGGERED.
- ANCHORAGE LENGTH SHOULD BE 40X BAR DIA.
- REINFORCEMENT BARS SHALL BE BENT IN ACCORDANCE WITH STANDARD SPECIFICATIONS.
- COVER TO REINFORCEMENT
 - [a] BURIED FACES AND DRAIN INVERTS - 40 mm
 - [b] ALL OTHER FACES - 25 mm



GRATING DETAIL



DETAILS OF BERM SEALING

SECTION B-B

EXPANSION JOINT DETAIL

EMPLOYER
 DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
 STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS
 AND DISASTER MANAGEMENT
 NATIONAL BUILDING RESEARCH ORGANISATION
 No. 99/1, JAWATTA ROAD
 COLOMBO - 05

DESIGNER
 DESIGN UNIT
 NATIONAL BUILDING RESEARCH ORGANISATION
 No. 99/1, JAWATTA ROAD
 COLOMBO - 05

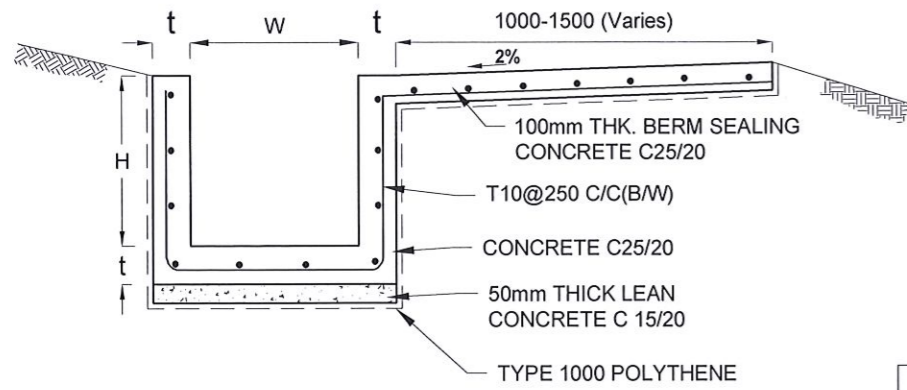
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 RECTIFICATION OF LANDSLIDE IN
 KEGALLE BY PASS

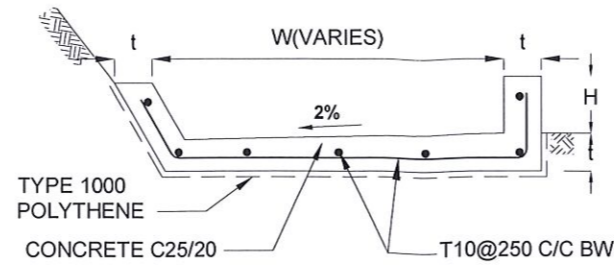
TITLE
 DETAILS OF DRAINS
 (SURFACE DRAIN -1 OF 2)

DESCRIPTION	NAME	SIGNATURE
DRAWN	B.V.S. PATTRISHIYA	
DESIGNER	B.I. KUMARAGE	
CHECKED	J.P. SAMARANAYAKE	
RECOMMENDED	PROF. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	

SCALE | N.T.S. | DATE | 06.01.2021
 PROJECT / DRAWING No. | RLVMP/WORKS/NCB/04c/11-BR/DR-06a | REVISION | 00

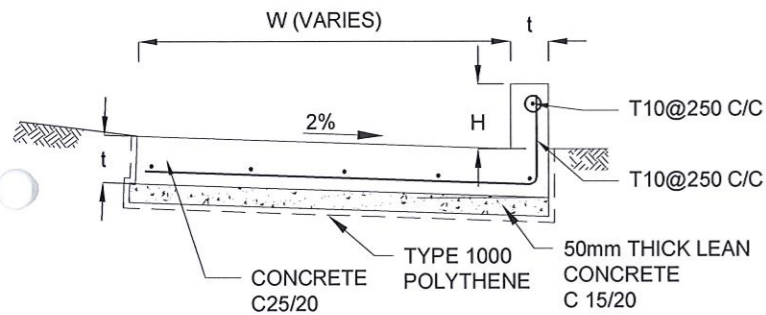


DS (B) - (TYPE I)



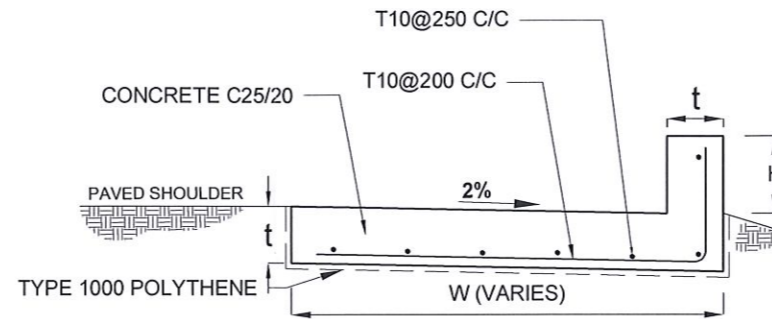
DS (B) - (TYPE II)

DRAIN TYPE	W (mm)	H (mm)	t (mm)
DS (B) - A	300	300	100
DS (B) - B	450	450	100
DS (B) - C	1000	150	100

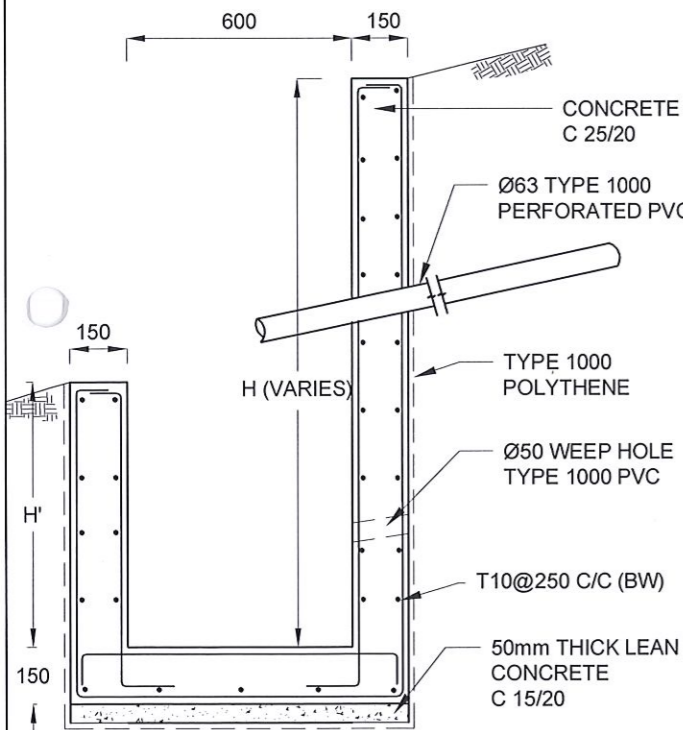


DS (K) - TYPE I

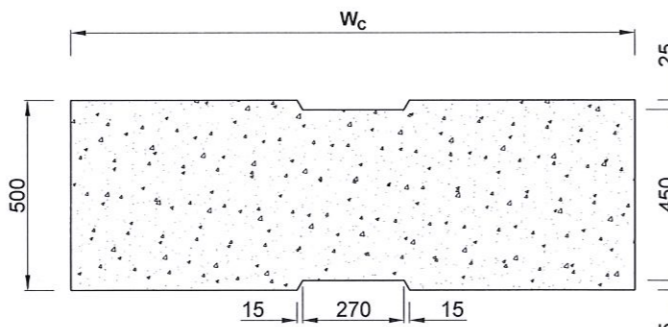
DRAIN TYPE	W (mm)	H (mm)	t (mm)
DS (K) - A	1000	200	100
DS (K) - B	1000	300	100
DS (K) - C	1150	200	200



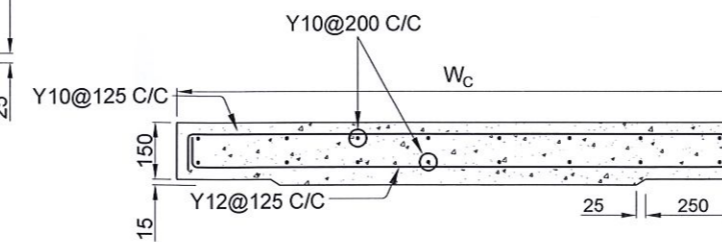
DS (K) - TYPE II



DS (M) - L



PLAN VIEW OF COVER SLAB



ACCESS & HEAVY DUTY COVER SLAB
SECTION OF (W_c x 500 x 150mm)

DS(M) - L	W (mm)	H' (mm)	t (mm)
TYPE I	600	600	150
TYPE II	800	800	150

NOTES

- DEPTH OF EXCAVATION MAY VARY ACCORDING TO SITE CONDITIONS.
- STEPS SHALL BE CONSTRUCTED AT SURFACE DRAIN ON SLOPING GROUND ACCORDING TO THE SITE CONDITIONS AS INSTRUCTED BY THE ENGINEER.
- ENERGY BREAKERS SHALL BE CONSTRUCTED AT THE STEEP DRAIN SEGMENTS AS PER THE INSTRUCTIONS OF THE ENGINEER.
- DOWELS SHALL BE INSTALLED ACCORDING TO THE GROUND CONDITIONS AS INSTRUCTED BY THE ENGINEER.
- COVER SLABS NEED TO BE PROVIDED ONLY FOR THE REGIONS AS INSTRUCTED BY THE ENGINEER.
- COVER SLAB WIDTH (W_c) SHOULD BE TAKEN AS THE SUM OF DRAIN WIDTH AND 2x DRAIN WALL THICKNESS. [W_c = W+2xt]
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
- 10 mm THICK EXPANSION JOINT SHALL BE INTRODUCED IN EVERY 5m INTERVAL.

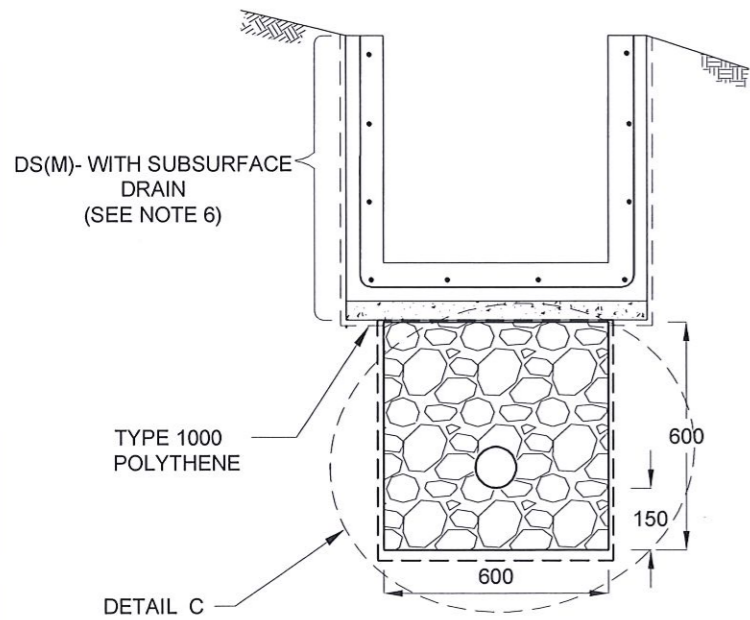
CONCRETE

- USE FOLLOWING CONCRETE GRADES FOR STRUCTURE
 - [a] SCREED - C. 15/20
 - [b] WALLS / BASE / ENERGY BREAKERS - C. 25/20

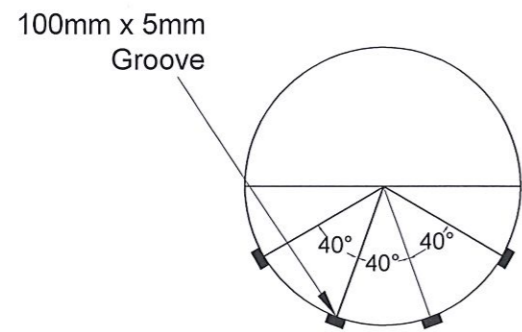
REINFORCEMENT

- ALL BARS MARKED "T" SHALL BE HIGH YIELD DEFORMED BARS OF YIELD STRENGTH NOT LESS THAN 460N/mm².
- BARS OF CUT LENGTH LARGER THAN THE SUPPLIED LENGTH TO BE LAPPED FOR A LENGTH OF 50 x BAR DIA. AND LAPPING SHOULD BE STAGGERED.
- ANCHORAGE LENGTH SHOULD BE 40X BAR DIA.
- REINFORCEMENT BARS SHALL BE BENT IN ACCORDANCE WITH STANDARD SPECIFICATIONS.
- COVER TO REINFORCEMENT
 - [a] BURIED FACES AND DRAIN INVERTS - 40 mm
 - [b] ALL OTHER FACES - 25 mm

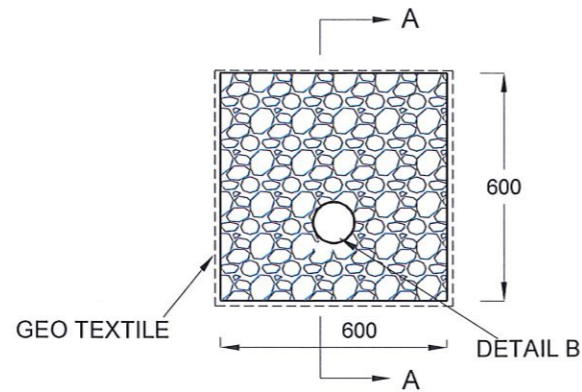
<p>EMPLOYER</p> <p>DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05</p>	<p>DESIGNER</p> <p>DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>REVISION DESCRIPTION</th> <th>APPROVAL</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	REV	DATE	REVISION DESCRIPTION	APPROVAL																									<p>PROJECT TITLE</p> <p style="text-align: center;">REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS</p>	<p>TITLE</p> <p style="text-align: center;">DETAILS OF DRAINS (SURFACE DRAIN - 2 OF 2)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>SCALE</th> <th>N.T.S.</th> <th>DATE</th> <th>06.01.2021</th> </tr> </thead> <tbody> <tr> <td>PROJECT / DRAWING No.</td> <td>RLVMP/WORKS/NCB/04c/11-BR/DR- 06b</td> <td>REVISION</td> <td>00</td> </tr> </tbody> </table>	SCALE	N.T.S.	DATE	06.01.2021	PROJECT / DRAWING No.	RLVMP/WORKS/NCB/04c/11-BR/DR- 06b	REVISION	00	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>DESCRIPTION</th> <th>NAME</th> <th>SIGNATURE</th> </tr> </thead> <tbody> <tr> <td>DRAWN</td> <td>B.V.S. PATTRISHIYA</td> <td></td> </tr> <tr> <td>DESIGNER</td> <td>B.I. KUMARAGE</td> <td></td> </tr> <tr> <td>CHECKED</td> <td>J.P. SAMARANAYAKE</td> <td></td> </tr> <tr> <td>RECOMMENDED</td> <td>PROF. S.A.S. KULATHILAKA</td> <td></td> </tr> <tr> <td>APPROVED</td> <td>K.N. BANDARA</td> <td></td> </tr> </tbody> </table>	DESCRIPTION	NAME	SIGNATURE	DRAWN	B.V.S. PATTRISHIYA		DESIGNER	B.I. KUMARAGE		CHECKED	J.P. SAMARANAYAKE		RECOMMENDED	PROF. S.A.S. KULATHILAKA		APPROVED	K.N. BANDARA	
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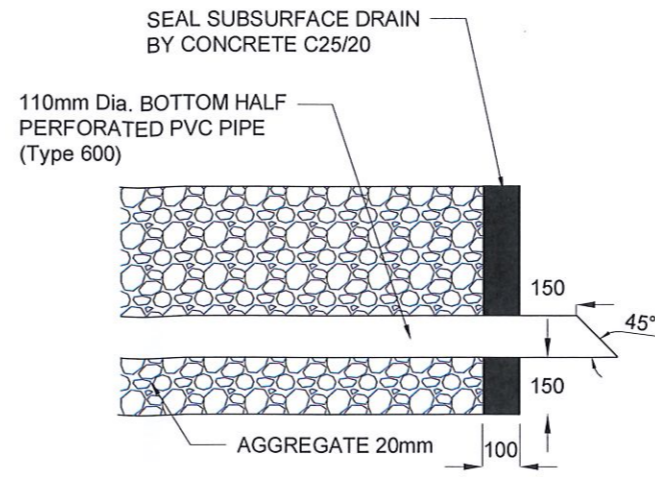
SUBSURFACE DRAIN [DS (S) -A]



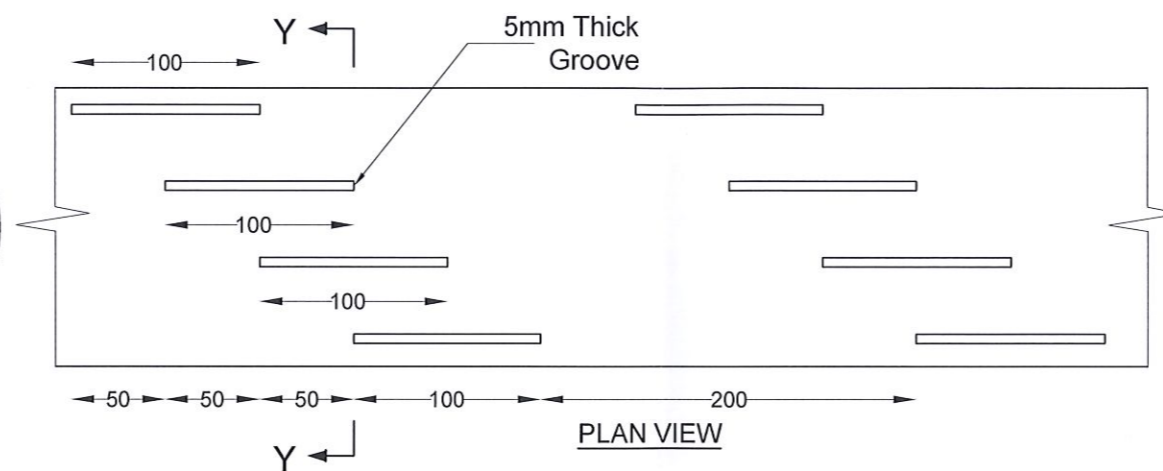
SECTION Y - Y



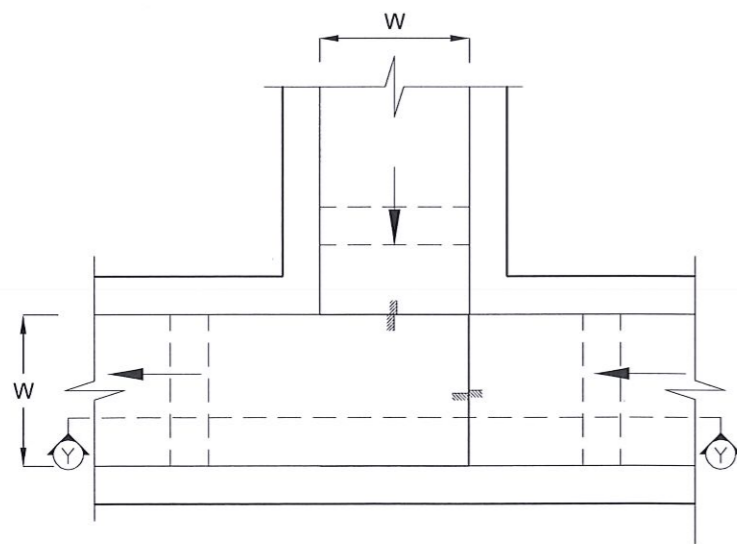
DETAIL C / DS (S) -A



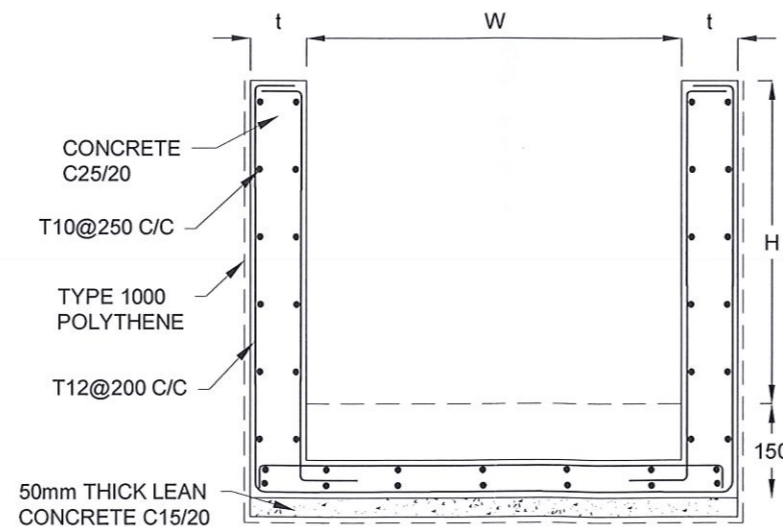
SECTION A-A (OUTLET DETAIL SUBSURFACE DRAIN)



DETAIL - B (PERFORATED PIPE FOR SUB-SURFACE DRAINS)



PLAN VIEW OF CATCH PIT (CP)



SECTION Y-Y (CP - R)

NOTES

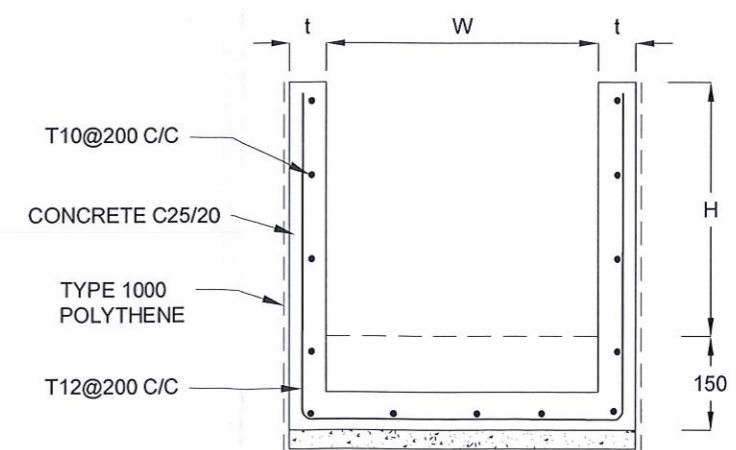
1. W,H,t ; SHALL BE THE SAME AS RESPECTIVE DRAIN SECTION.
2. CP - R SHALL BE USED WHERE H >= 900mm
3. DEPTH OF EXCAVATION MAY VARY ACCORDING TO SITE CONDITIONS.
4. DOWELS SHALL BE INSTALLED ACCORDING TO THE GROUND CONDITIONS AS INSTRUCTED BY THE ENGINEER.
5. 10 mm THICK EXPANSION JOINT SHALL BE INTRODUCED IN EVERY 5m INTERVAL.
6. DETAILS OF SURFACE DRAIN PORTION OF THE SUBSURFACE DRAINS SHALL BE AS PER DS(M), DS(B), DS(K) OR DS(C) SECTIONS ACCORDINGLY.
7. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.

CONCRETE

8. USE FOLLOWING CONCRETE GRADES FOR STRUCTURE
 - [a] SCREED - C. 15/20
 - [b] WALLS / BASE / ENERGY BREAKERS - C. 25/20

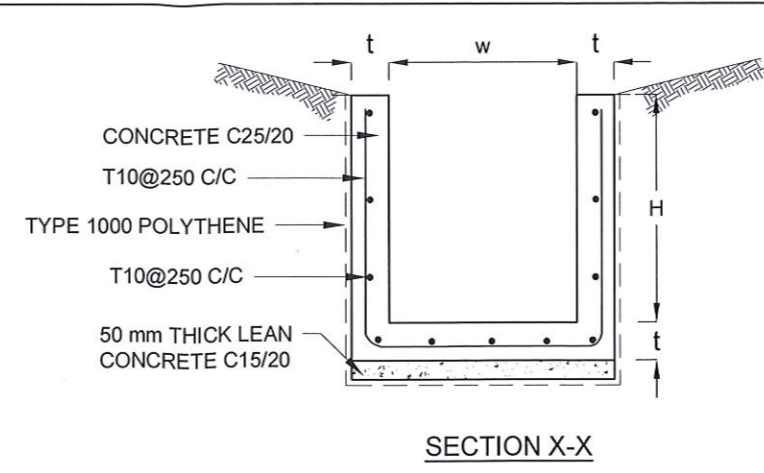
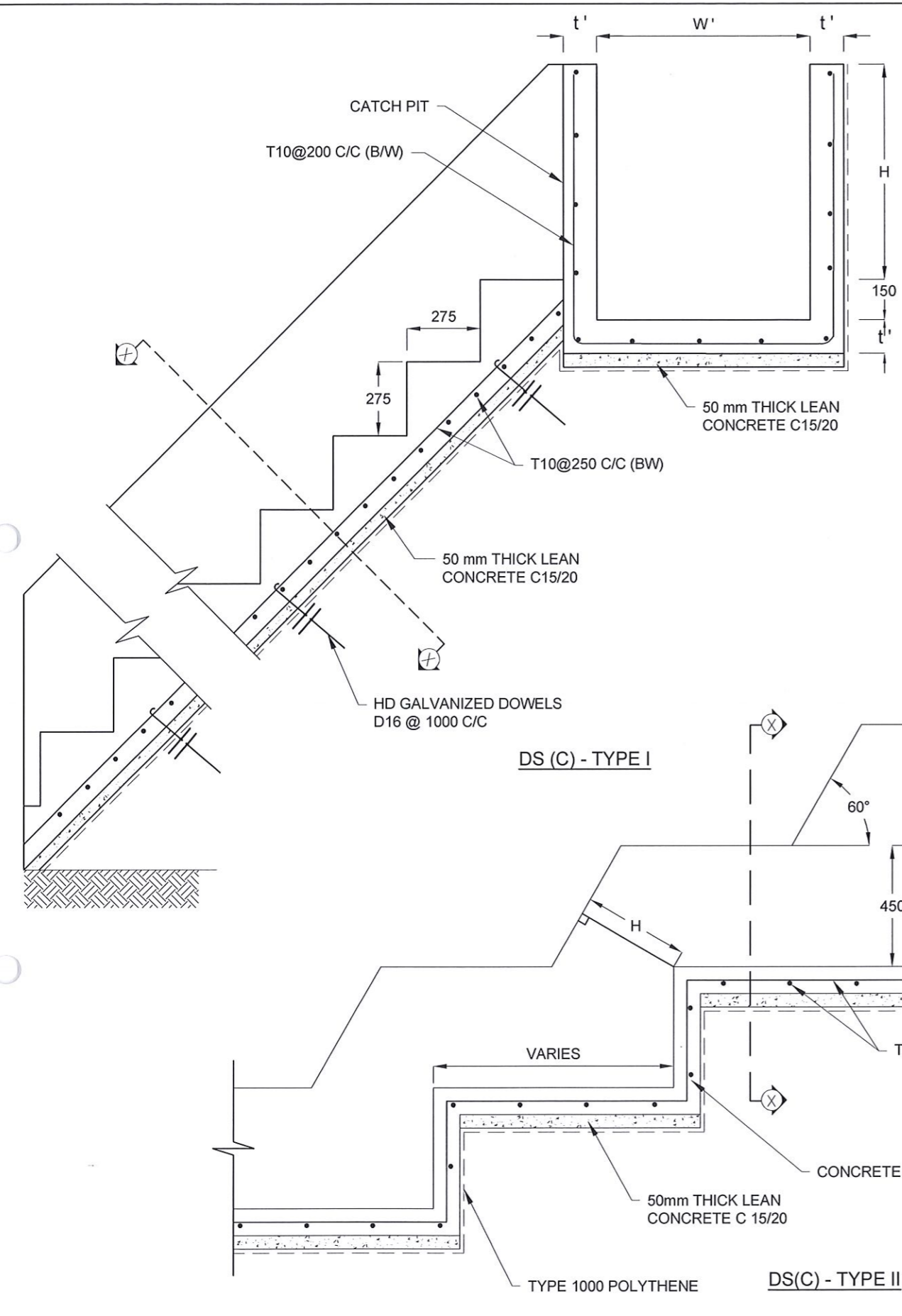
REINFORCEMENT

9. ALL BARS MARKED "T" SHALL BE HIGH YIELD DEFORMED BARS OF YIELD STRENGTH NOT LESS THAN 460N/mm².
10. BARS OF CUT LENGTH LARGER THAN THE SUPPLIED LENGTH TO BE LAPPED FOR A LENGTH OF 50 x BAR DIA. AND LAPPING SHOULD BE STAGGERED.
11. ANCHORAGE LENGTH SHOULD BE 40X BAR DIA.
12. REINFORCEMENT BARS SHALL BE BENT IN ACCORDANCE WITH STANDARD SPECIFICATIONS.
13. COVER TO REINFORCEMENT
 - [a] BURIED FACES AND DRAIN INVERTS - 40 mm
 - [b] ALL OTHER FACES - 25 mm



SECTION Y - Y

EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV DATE REVISION DESCRIPTION APPROVAL PROJECT TITLE	TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN KEGALLE BY PASS	DESCRIPTION NAME SIGNATURE																																																																	
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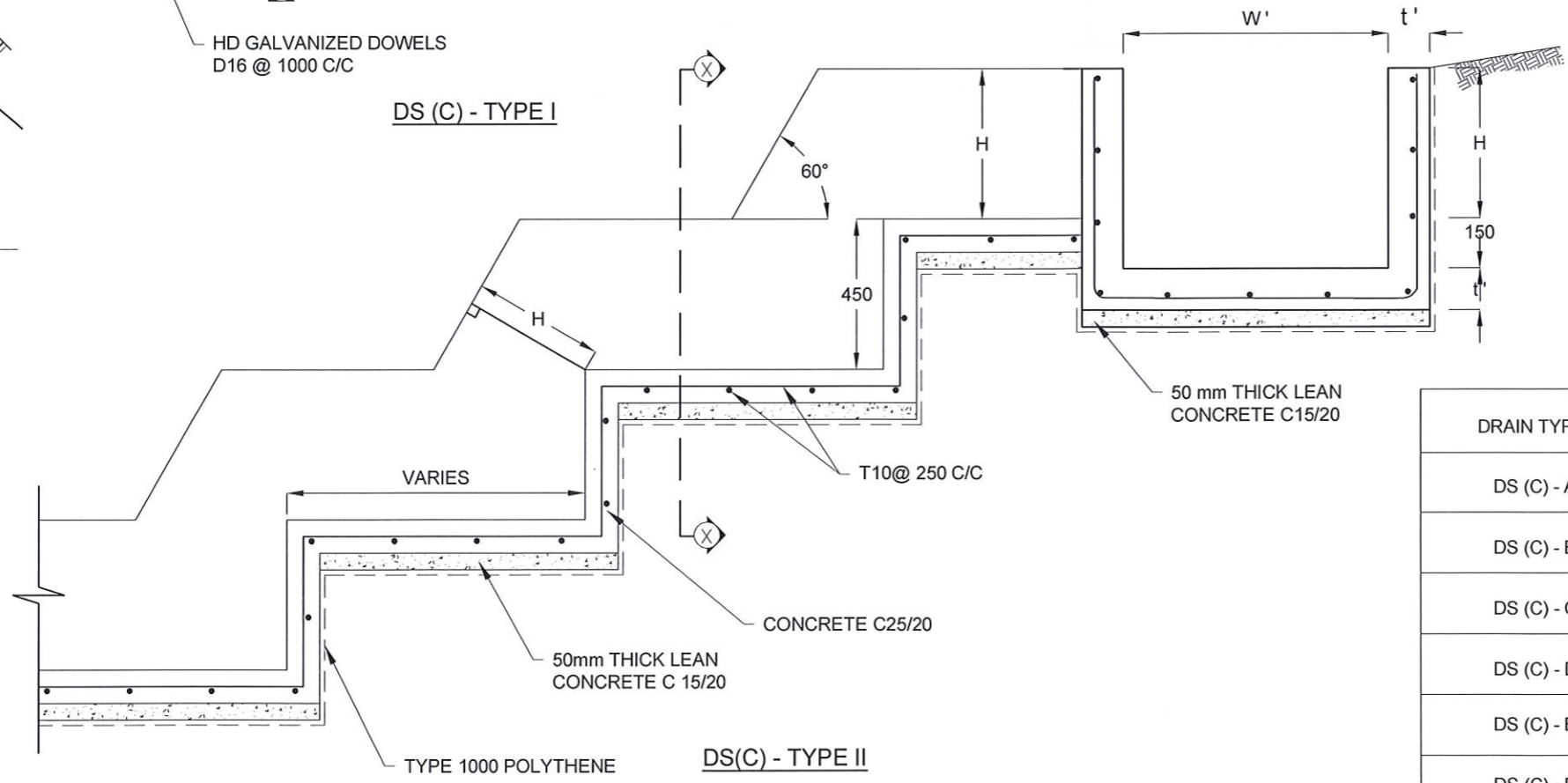
1. USE EITHER TYPE I OR TYPE II CASCADE DRAIN ACCORDING TO THE ACTUAL GROUND CONDITION AS INSTRUCTED BY THE ENGINEER.
2. LENGTH OF THE STEPS OF CASCADE WILL BE VARIED ACCORDING TO THE SITE CONDITIONS.
3. DEPTH OF EXCAVATION SHALL BE VARIED ACCORDING TO SITE CONDITIONS.
4. DOWELS SHALL BE INSTALLED ACCORDING TO THE GROUND CONDITIONS AS INSTRUCTED BY THE ENGINEER.
5. 10 mm THICK EXPANSION JOINT SHALL BE INTRODUCED IN EVERY 5m INTERVAL.
6. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.

CONCRETE

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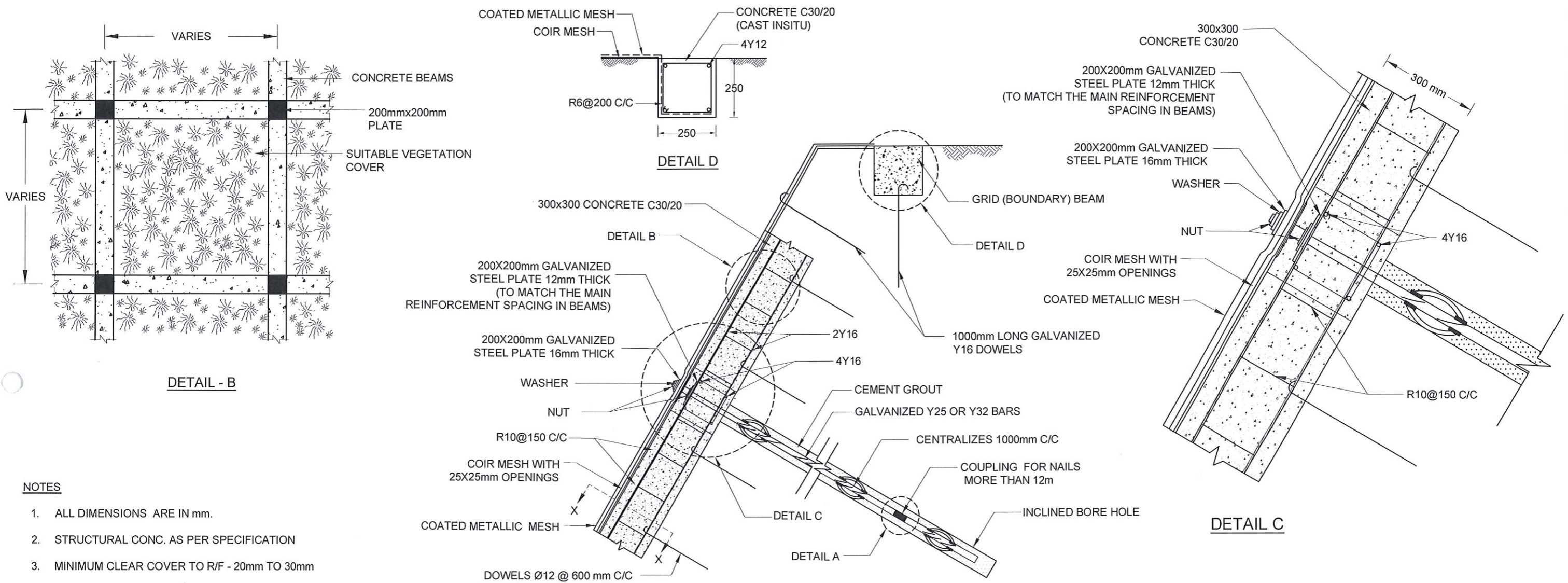
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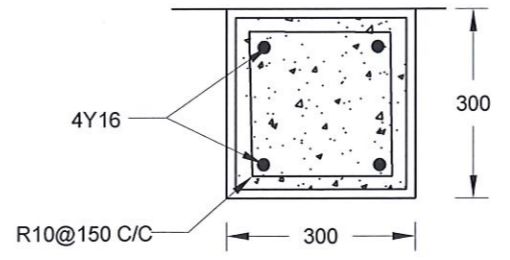
DRAIN TYPE	W (mm)	H (mm)	t (mm)	W' (mm)	t' (mm)
DS (C) - A	450	450	100	600	100
DS (C) - B	450	600	100	750	100
DS (C) - C	600	600	100	800	100
DS (C) - D	750	750	100	800	100
DS (C) - E	800	800	125	1000	125
DS (C) - F	1000	750	125	1200	125

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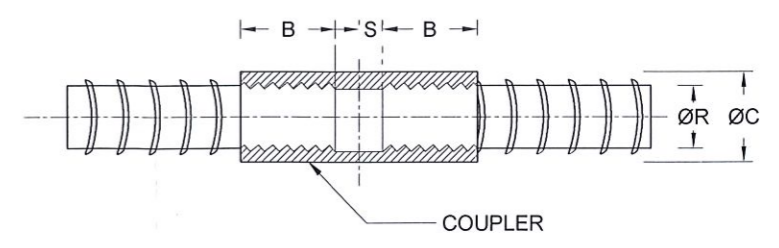


- NOTES**
1. ALL DIMENSIONS ARE IN mm.
 2. STRUCTURAL CONC. AS PER SPECIFICATION
 3. MINIMUM CLEAR COVER TO R/F - 20mm TO 30mm
 4. STRUCTURAL MEMBERS AS PER SPECIFICATION
 5. LAP LENGTH FOR R/F BARS 40 x BAR DIA.
 6. TWO SETS OF 4Y12 BARS PLACED PERPENDICULAR TO EACH OTHERS BY CONNECTING NAIL HEADS VERTICALLY AND HORIZONTALLY ON SLOPE FACE
 7. TURFING / SODDING / SEEDING / PLANTING USED FOR VEGETATION COVER
 8. THE BAR COUPLER SHALL ONLY BE USE FOR SOIL NAILING OF MORE THAN 12m LONG
 9. THE TENSILE STRENGTH OF THE BAR COUPLER SHALL BE CAPABLE TO DEVELOP AT LEAST 95% OF TENSILE STRENGTH OF THE REBAR AS TESTED AND CERTIFIED BY THE MANUFACTURE
 10. SPACING BETWEEN NAIL HEAD ARE VARIED ACCORDING TO THE GROUND CONDITION
 11. DOWEL SPACING FOR BOUNDARY BEAM SHALL BE 2m
 12. BOUNDARY BEAM SHALL BE STRUCTURALLY CONNECTED TO ALREADY CONSTRUCTED GRID BEAMS AT EACH JUNCTION
 13. MINIMUM OF 2 DOWELS SHALL BE TYPICALLY USED TO FIX THE HIGH TENSILE WIRE MESH AGAINST THE SLOPE AT EACH SLOPE SPACE IN BETWEEN THE GRID BEAMS, AS SHOWN IN THE DRAWING
 14. SPACING AND LOCATIONS OF DOWELS INSTALLED TO FIX THE HIGH TENSILE WIRE MESH AGAINST THE SLOPE SHALL BE VARIED ACCORDING TO THE SITE CONDITION

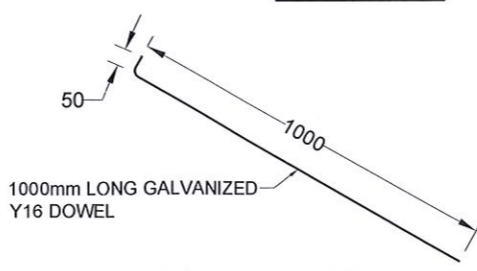
DETAIL OF SOIL NAIL



SECTION X-X



COUPLER DETAILS - A (NAIL LENGTH >12m)



DETAILS OF DOWELS

REINFORCEMENT BAR DIAMETER (ØR)	COUPLER OUTER BAR DIAMETER (ØC)	MIN - THREADED LENGTH OF COUPLER (B)	NON - THREADED LENGTH OF COUPLER (S)
25 mm	36 mm	50 mm	2.5 mm
32 mm	46 mm	64 mm	2.5 mm

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