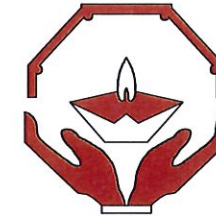


DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

STATE MINISTRY OF NATIONAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT



NATIONAL BUILDING RESEARCH ORGANISATION



REDUCTION OF LANDSLIDE VULNERABILITY

BY MITIGATION MEASURES

LAND SLIDE MITIGATION WORKS IN LANDSLIDE MITIGATION WORKS
IN BETWEEN CULVERT NO. 5/11 AND 5/13 DEHIOWITA- DERANIYAGALA
NOORI ROAD & LHS OF ARANAYAKA - HULANKAPOLLA ROAD IN
KEGALLE DISTRICT, DIGANA KUNDASALE & DANGOLLA LOWER
CIRCULAR ROAD IN KANDY DISTRICT

PACKAGE NO: RLVMMMP/WORKS/04B



DETAILED DESIGN DRAWINGS

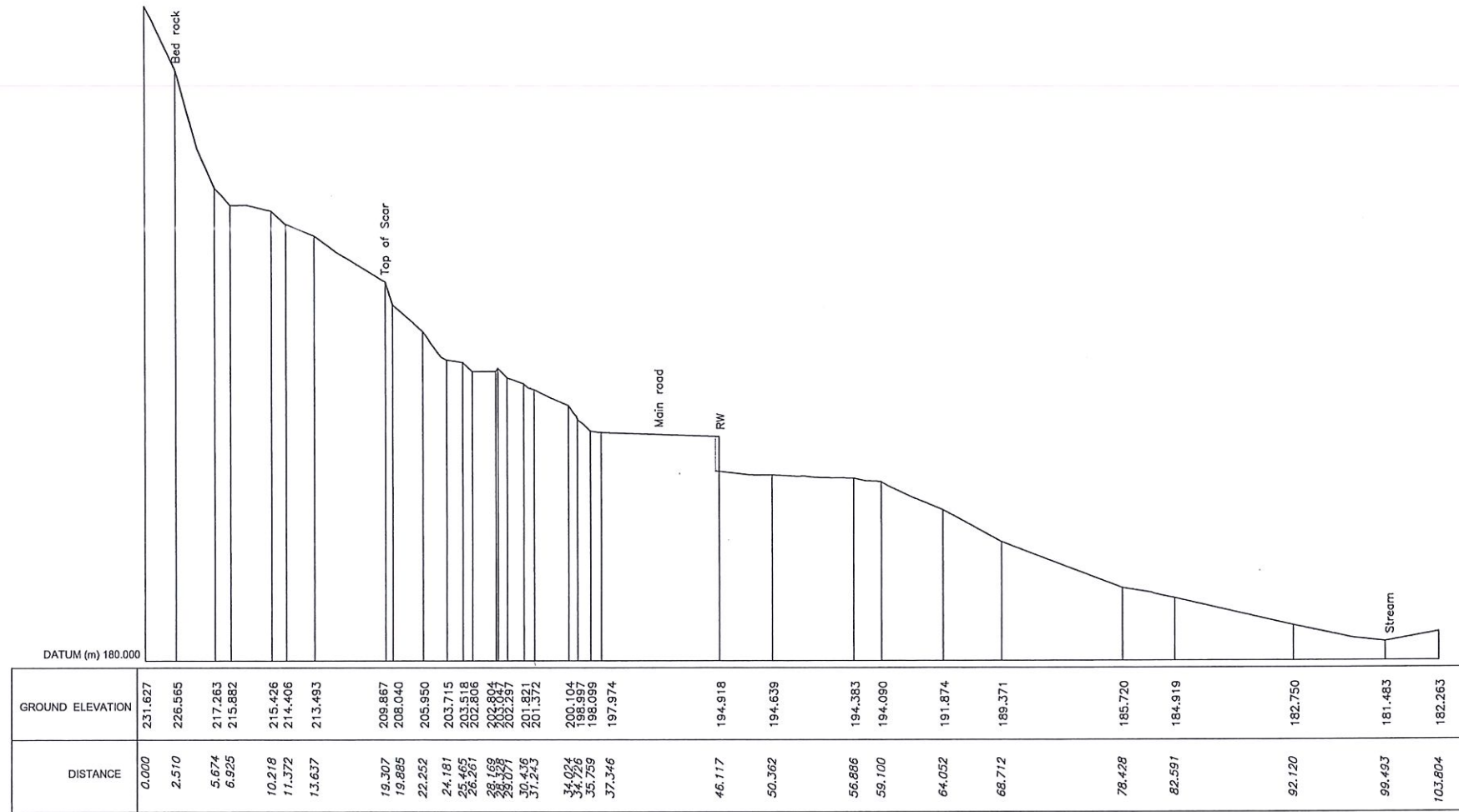
2021



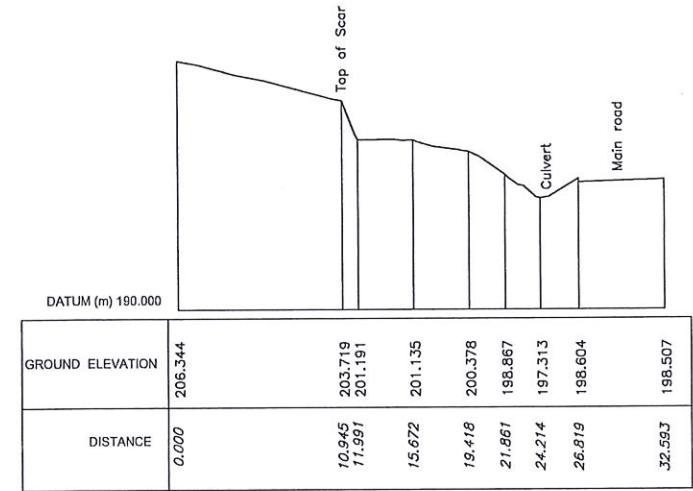
Reference

- RW - Retaining Wall
- Cdn - Concrete Drain
- Edn - Earth Drain
- P - Permanent building
- ST - Septic Tank
- WC - Water Closet
- MW - Masonry well
- Cul. - Culvert
- B(T) - Top of bank
- B(B) - Bottom of Bank
- Ty - Temporary Building

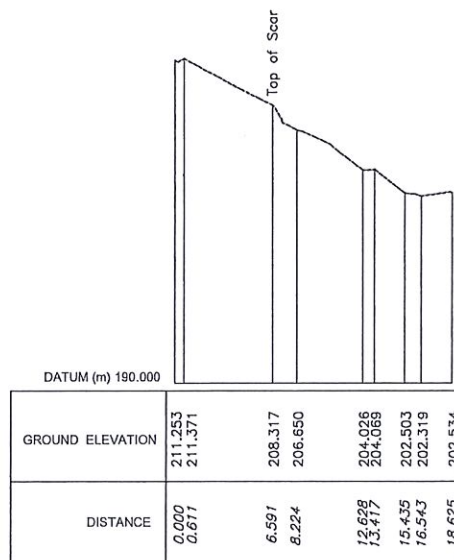
EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER  DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV DATE REVISION DESCRIPTION APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES BETWEEN CULVERT NO. 5/11 AND 5/13 DEHIOVITA - DERANIYAGALA - NOORI ROAD KEGALLE DISTRICT	TITLE CONTOUR SURVEY PLAN	DESCRIPTION DESIGNED CHECKED	NAME KAMAL DESHAPRIYA V. G. D. GANGANI	SIGNATURE
		SCALE 1:750 PROJECT / DRAWING No. RLVMMP/WORKS/NCB/04B/06-Do/DR - 01	DATE 16.12.2020 REVISION 00				



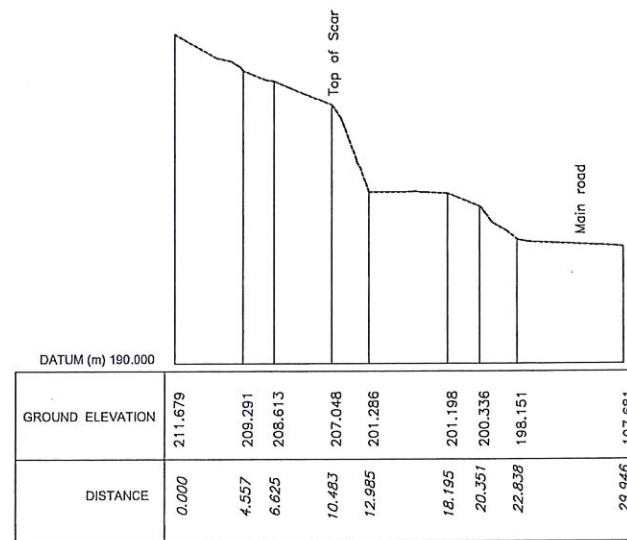
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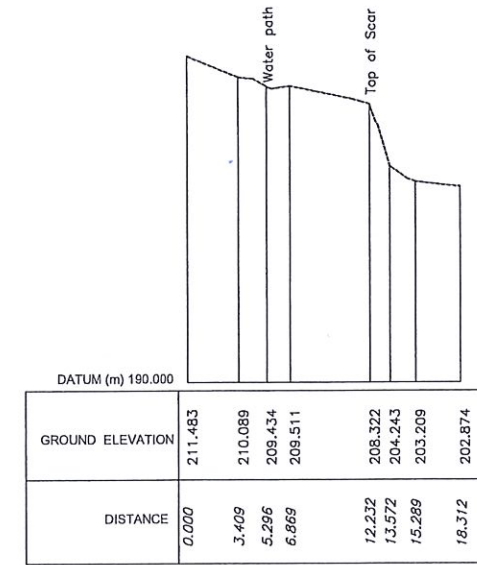
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SECTION-3

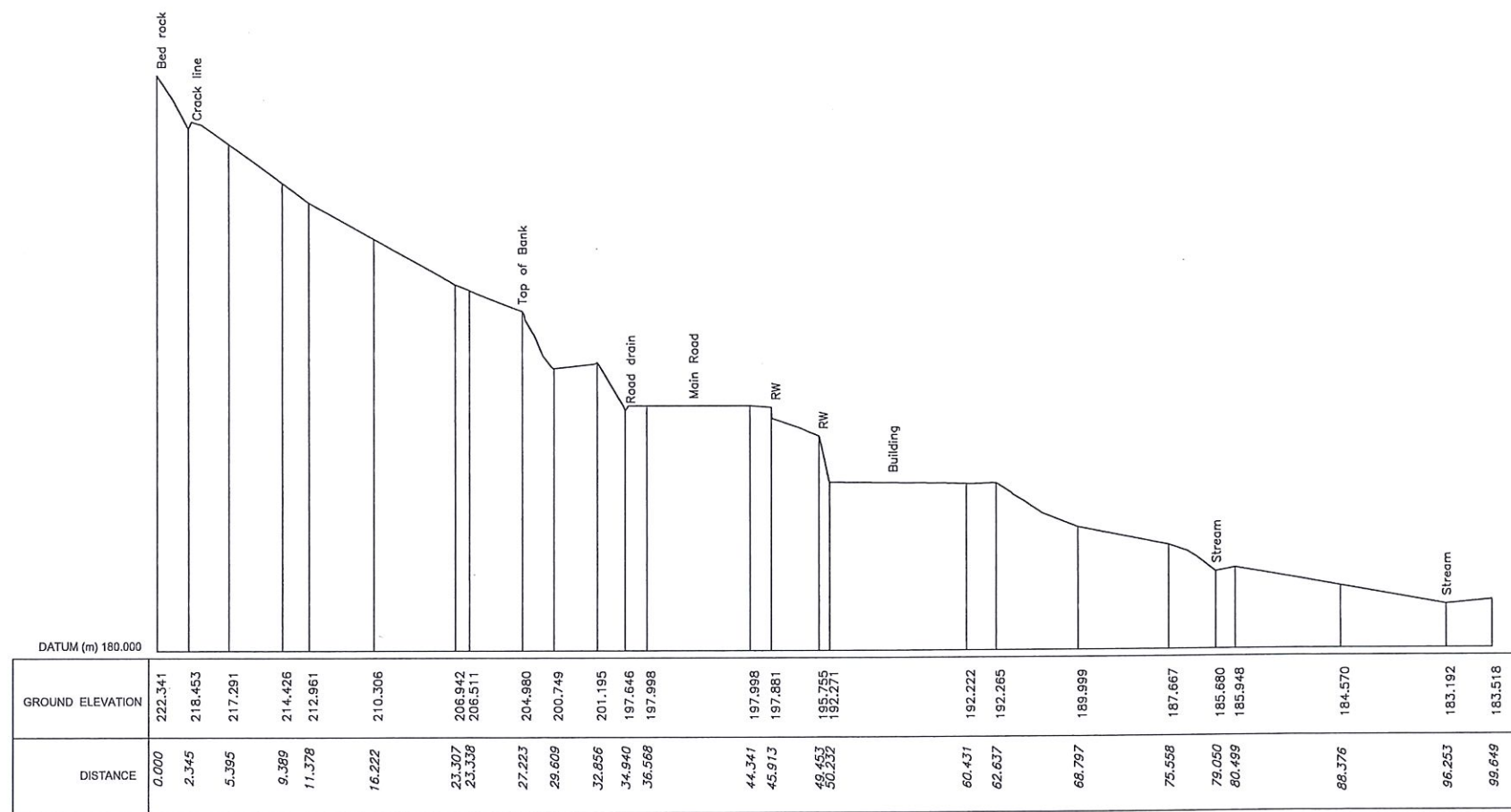


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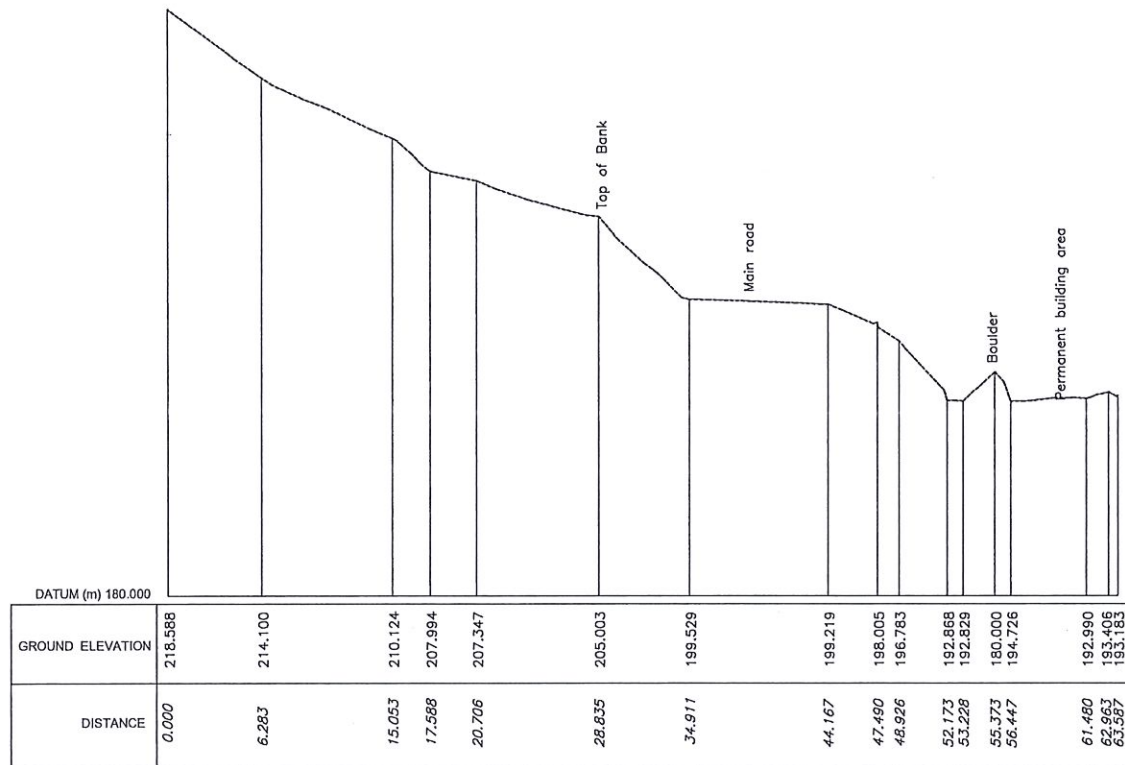
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EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER  DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV DATE REVISION DESCRIPTION APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES BETWEEN CULVERT NO. 5/11 AND 5/13 DEHIOVITA - DERANIYAGALA - NOORI ROAD KEGALLE DISTRICT	TITLE SURVEY CROSS SECTION	DESCRIPTION DESIGNED CHECKED	NAME KAMAL DESHAPRIYA V. G. D. GANGANI	SIGNATURE
		SCALE 1:500 PROJECT / DRAWING No. RLVMMP/WORKS/NCB/04B/06-Do/DR - 02a	DATE 16.12.2020 REVISION 00				

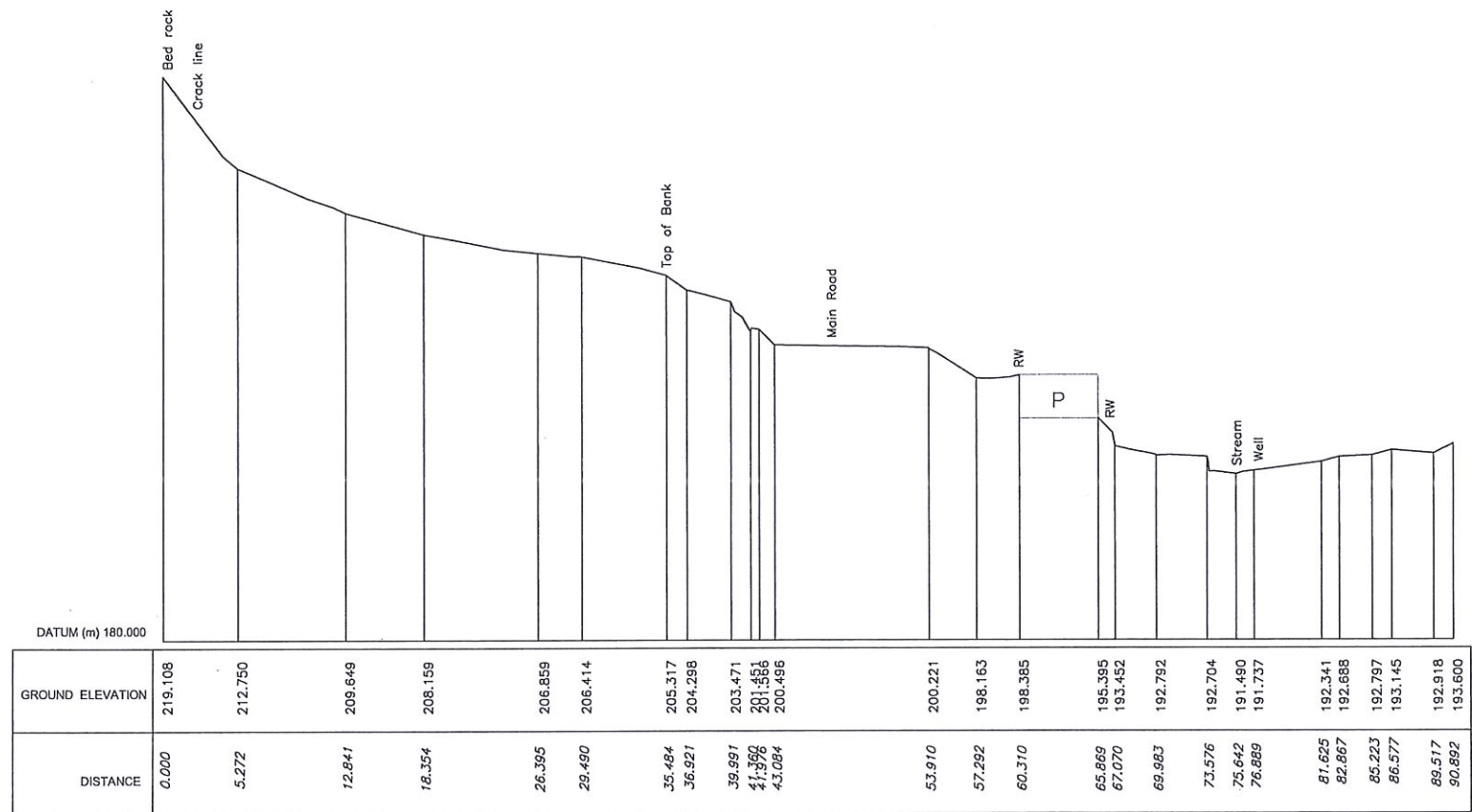


SECTION-6

 DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	 DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES BETWEEN CULVERT NO. 5/11 AND 5/13 DEHIOVITA - DERANIYAGALA - NOORI ROAD KEGALLE DISTRICT	TITLE SURVEY CROSS SECTION	DESCRIPTION	NAME	SIGNATURE
								DESIGNED	KAMAL DESHAPRIYA	
								CHECKED	V. G. D. GANGANI	
						SCALE	1:500	DATE	16.12.2020	
						PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/04B/06-Do/DR - 02b	REVISION	00	

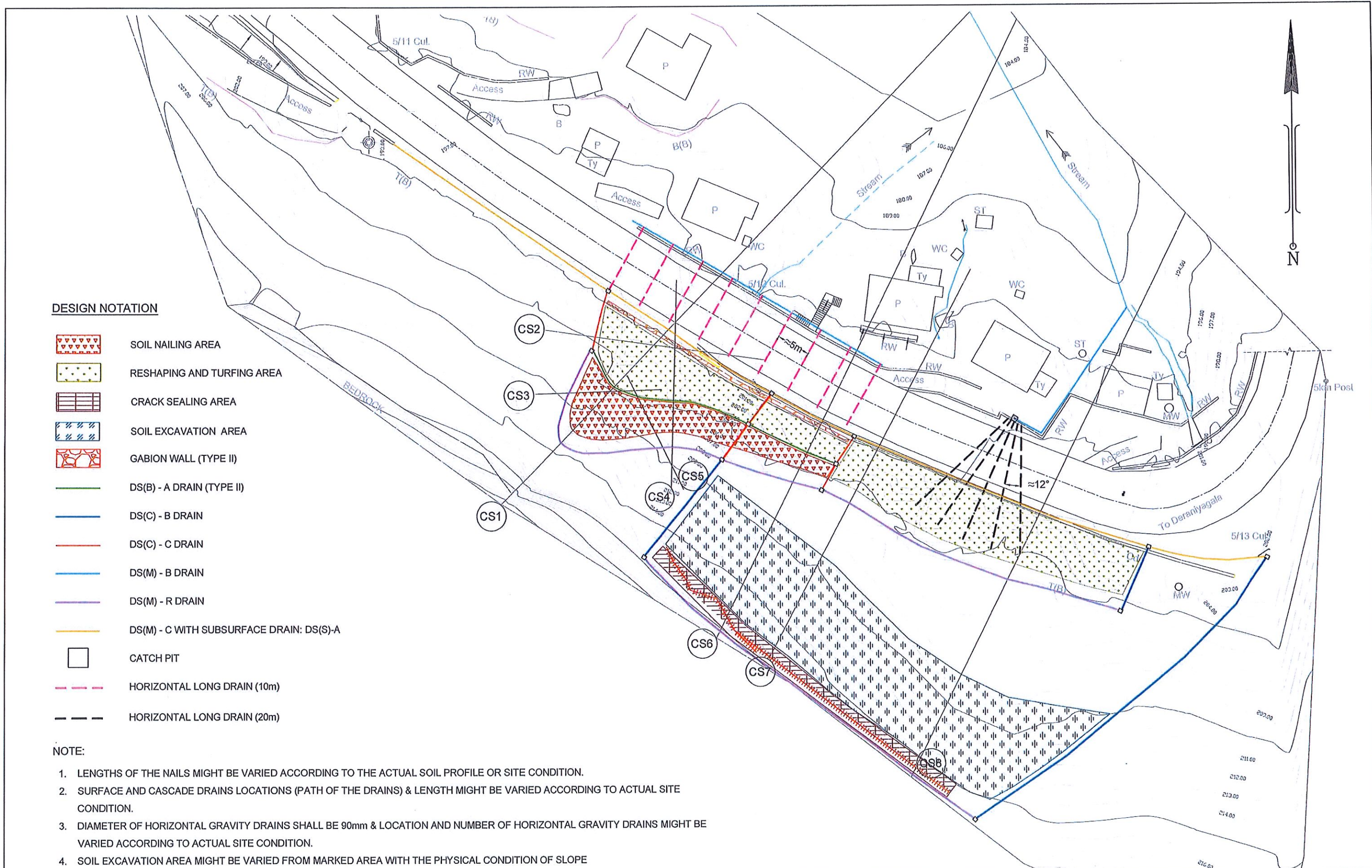


SECTION-7



SECTION-8

<p>DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05</p>	<p>DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05</p>	REV	DATE	REVISION DESCRIPTION	APPROVAL	<p>PROJECT TITLE</p> <p>REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES BETWEEN CULVERT NO. 5/11 AND 5/13 DEHIOVITA - DERANIYAGALA - NOORI ROAD KEGALLE DISTRICT</p>	<p>TITLE</p> <p>SURVEY CROSS SECTION</p>	DESCRIPTION	NAME	SIGNATURE
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						PROJECT / DRAWING No.		REVISION		
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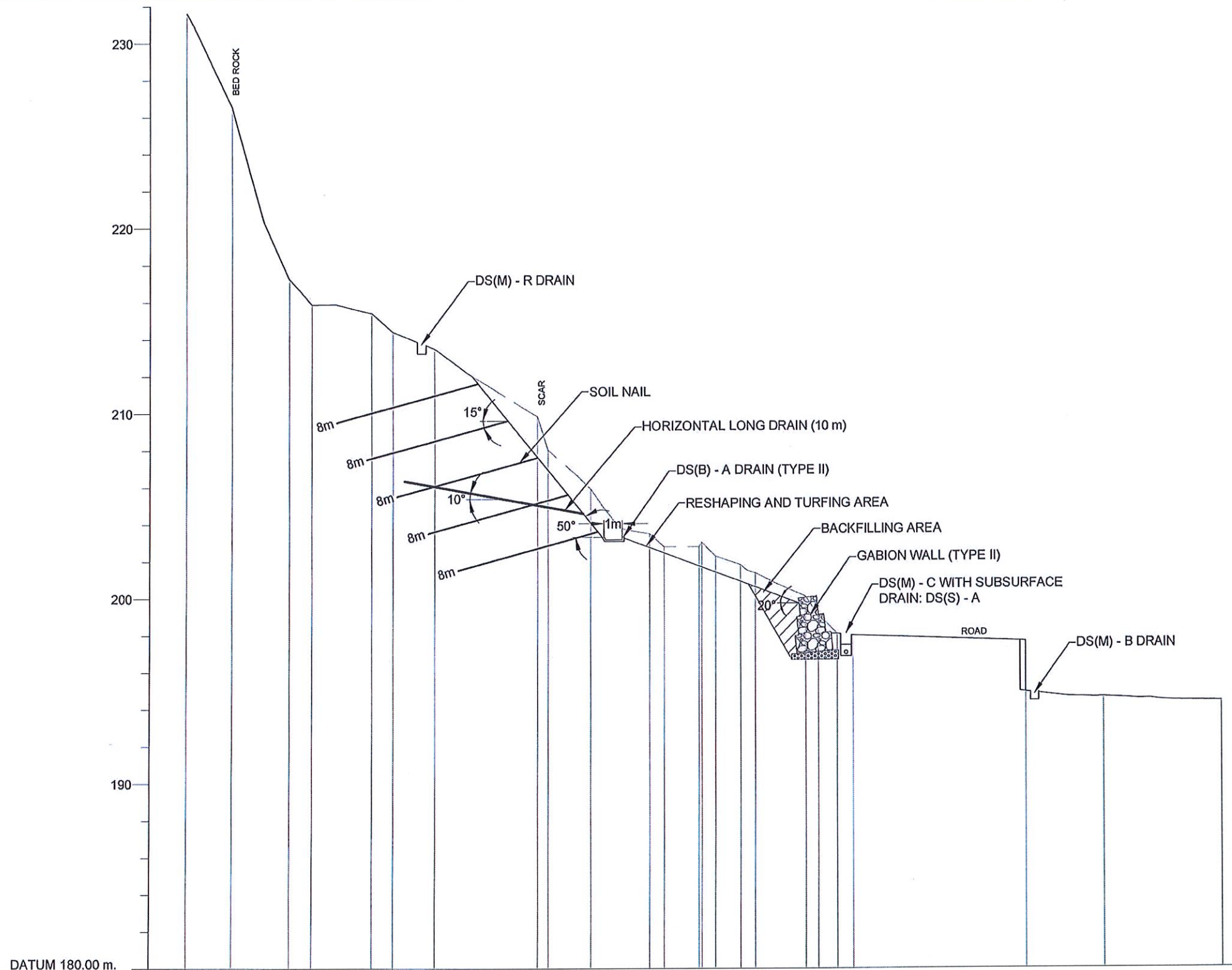
DESIGN NOTATION

- SOIL NAILING AREA
- RESHAPING AND TURFING AREA
- CRACK SEALING AREA
- SOIL EXCAVATION AREA
- GABION WALL (TYPE II)
- DS(B) - A DRAIN (TYPE II)
- DS(C) - B DRAIN
- DS(C) - C DRAIN
- DS(M) - B DRAIN
- DS(M) - R DRAIN
- DS(M) - C WITH SUBSURFACE DRAIN: DS(S)-A
- CATCH PIT
- HORIZONTAL LONG DRAIN (10m)
- HORIZONTAL LONG DRAIN (20m)

NOTE:

1. LENGTHS OF THE NAILS MIGHT BE VARIED ACCORDING TO THE ACTUAL SOIL PROFILE OR SITE CONDITION.
2. SURFACE AND CASCADE DRAINS LOCATIONS (PATH OF THE DRAINS) & LENGTH MIGHT BE VARIED ACCORDING TO ACTUAL SITE CONDITION.
3. DIAMETER OF HORIZONTAL GRAVITY DRAINS SHALL BE 90mm & LOCATION AND NUMBER OF HORIZONTAL GRAVITY DRAINS MIGHT BE VARIED ACCORDING TO ACTUAL SITE CONDITION.
4. SOIL EXCAVATION AREA MIGHT BE VARIED FROM MARKED AREA WITH THE PHYSICAL CONDITION OF SLOPE

DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES BETWEEN CULVERT NO. 5/11 AND 5/13 DEHIOVITA - DERANIYAGALA - NOORI ROAD KEGALLE DISTRICT	TITLE PLAN VIEW OF PROPOSED MITIGATION MEASURES	DESCRIPTION	NAME	SIGNATURE
		SCALE: 1:250	DATE: 16.12.2020	PROJECT / DRAWING No. RLVMP/WORKS/NCB/04B/06-Do/DR - 03	REVISION 00			RECOMMENDED	PROF. S.A.S. KULATHILAKA	APPROVED








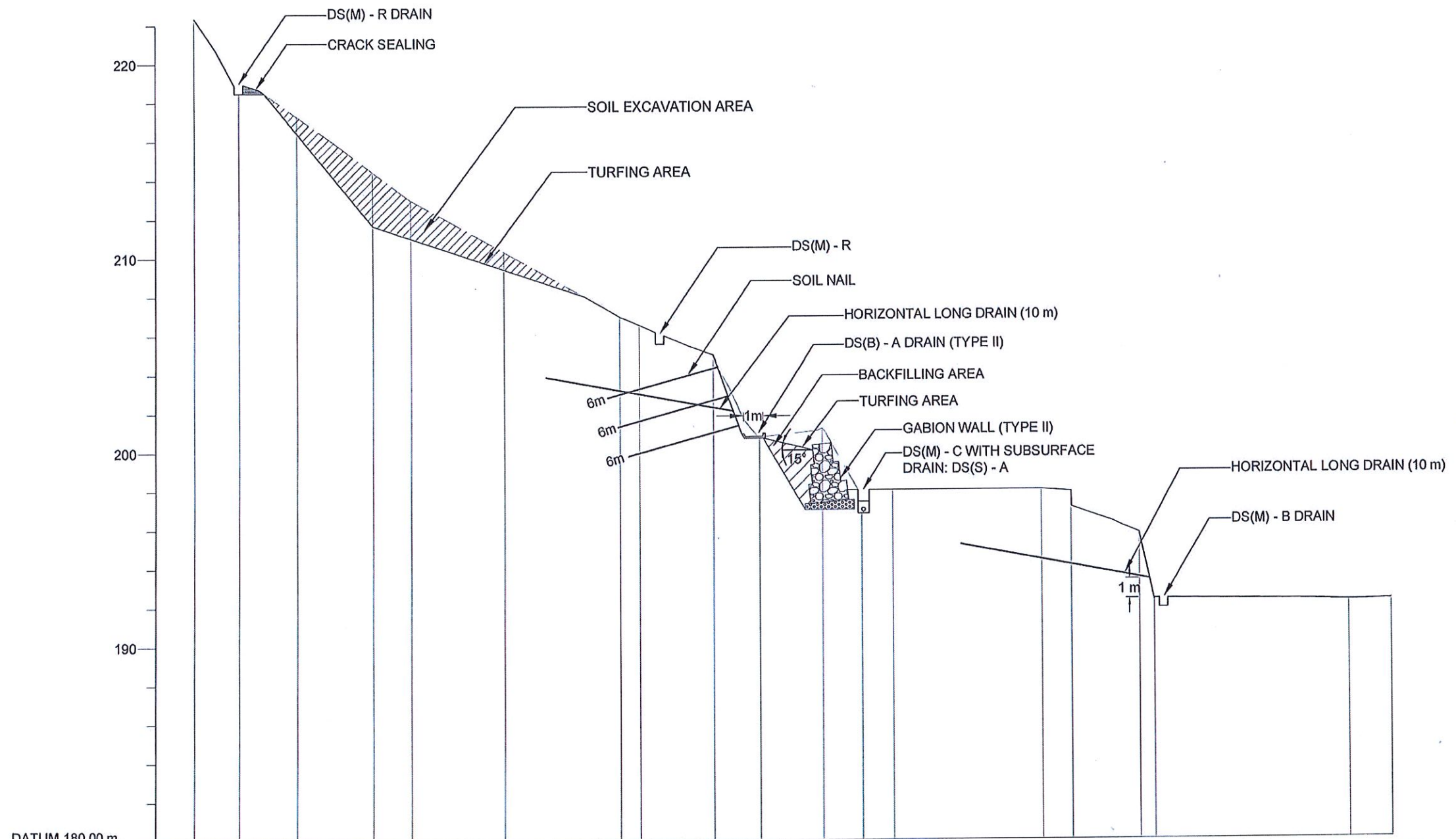
GROUND LEVEL (m)	231.627	226.565	217.263	215.882	215.426	214.406	213.493	209.867	208.040	205.950	203.518	202.806	202.804	203.047	202.297	201.821	201.372	200.104	198.997	198.099	197.974	194.918	194.639	194.383
DISTANCE (m)	0.000	2.510	5.674	6.925	10.218	11.372	13.637	19.307	19.885	22.252	25.465	26.261	28.159	28.323	29.071	30.436	31.243	34.024	34.726	35.759	37.346	46.117	50.362	56.886

CS1

NOTE:

1. LENGTHS OF THE NAILS MIGHT BE VARIED ACCORDING TO THE ACTUAL SOIL PROFILE OR SITE CONDITION.

EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER  DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES BETWEEN CULVERT NO. 5/11 AND 5/13 DEHIOVITA - DERANIYAGALA - NOORI ROAD KEGALLE DISTRICT	TITLE CROSS SECTIONS OF PROPOSED MITIGATION MEASURES			DESCRIPTION	NAME	SIGNATURE
								SCALE 1:250	DATE 16.12.2020	REVISION 00	DRAWN	S. A. G. D. SENANAYAKA
						PROJECT / DRAWING No. RLVMP/WORKS/NCB/04B/06-Do/DR - 04a		CHECKED	J.P. SAMARANAYAKE			
								RECOMMENDED	PROF. S.A.S. KULATHILAKA			
								APPROVED	K.N. BANDARA			








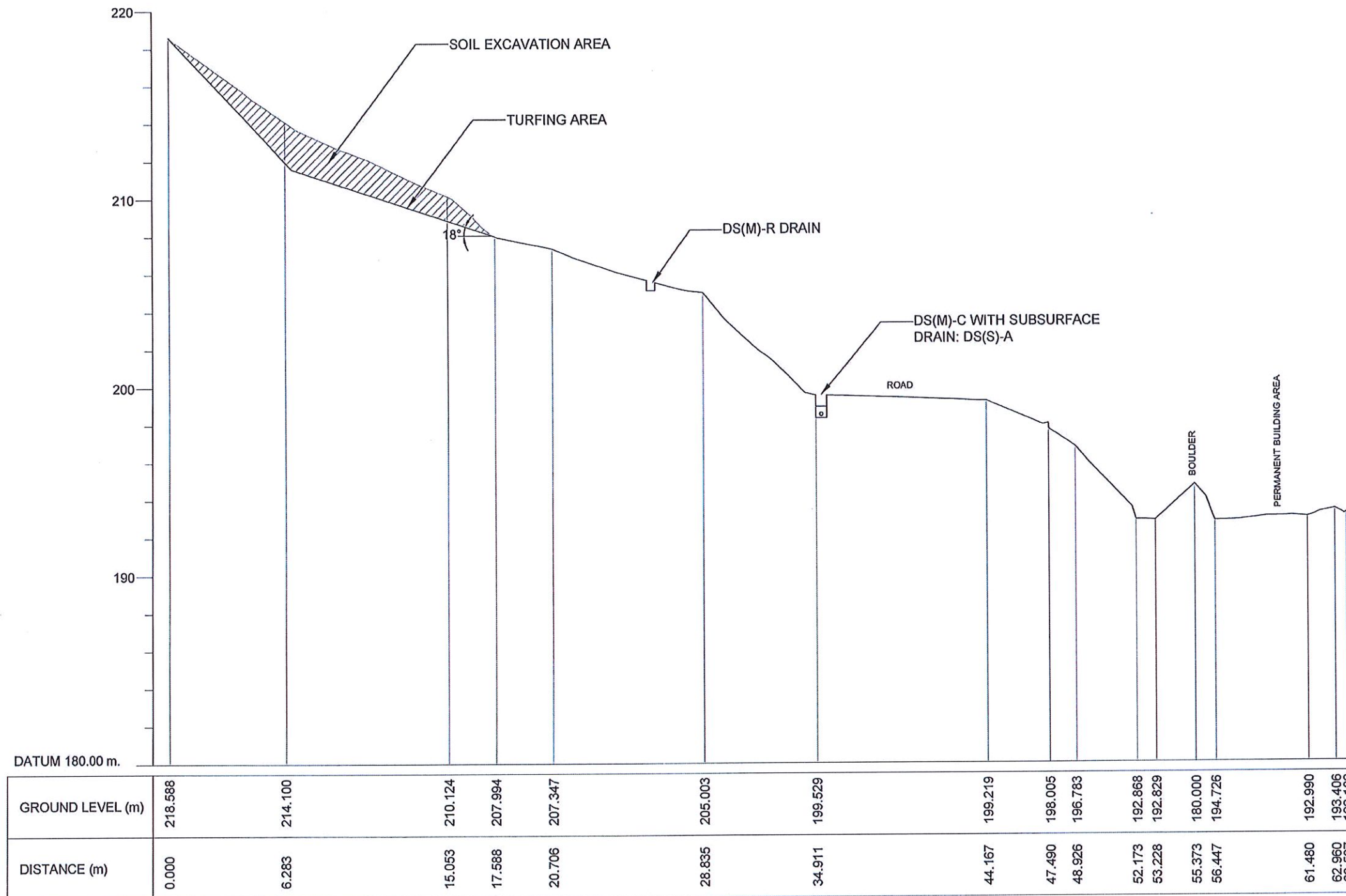
	0.000	2.345	5.395	3.389	11.378	16.222	23.307	23.338	27.223	29.609	32.856	34.940	36.568	44.341	45.913	49.453	50.232	192.222	192.265
GROUND LEVEL (m)	222.341	218.453	217.291	214.426	212.961	210.306	206.942	206.511	204.980	200.749	201.195	197.646	197.998	197.998	197.881	195.755	192.271	192.222	192.265
DISTANCE (m)	0.000	2.345	5.395	3.389	11.378	16.222	23.307	23.338	27.223	29.609	32.856	34.940	36.568	44.341	45.913	49.453	50.232	60.431	62.637

CS6

NOTE:

1. LENGTHS OF THE NAILS MIGHT BE VARIED ACCORDING TO THE ACTUAL SOIL PROFILE OR SITE CONDITION.
2. SOIL EXCAVATION AREA MIGHT BE VARIED FROM MARKED AREA WITH THE PHYSICAL CONDITION OF SLOPE.

EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER  DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES BETWEEN CULVERT NO. 5/11 AND 5/13 DEHIOVITA - DERANIYAGALA - NOORI ROAD KEGALLE DISTRICT	TITLE CROSS SECTIONS OF PROPOSED MITIGATION MEASURES			DESCRIPTION	NAME	SIGNATURE
								SCALE 1:250	DATE 16.12.2020	REVISION 00	DRAWN	S. A. G. D. SENANAYAKA
						PROJECT / DRAWING No. RLVMMP/WORKS/NCB/04B/06-Do/DR - 04B		CHECKED	J.P. SAMARANAYAKE			
								RECOMMENDED	PROF. S.A.S. KULATHILAKA			
								APPROVED	K.N. BANDARA			

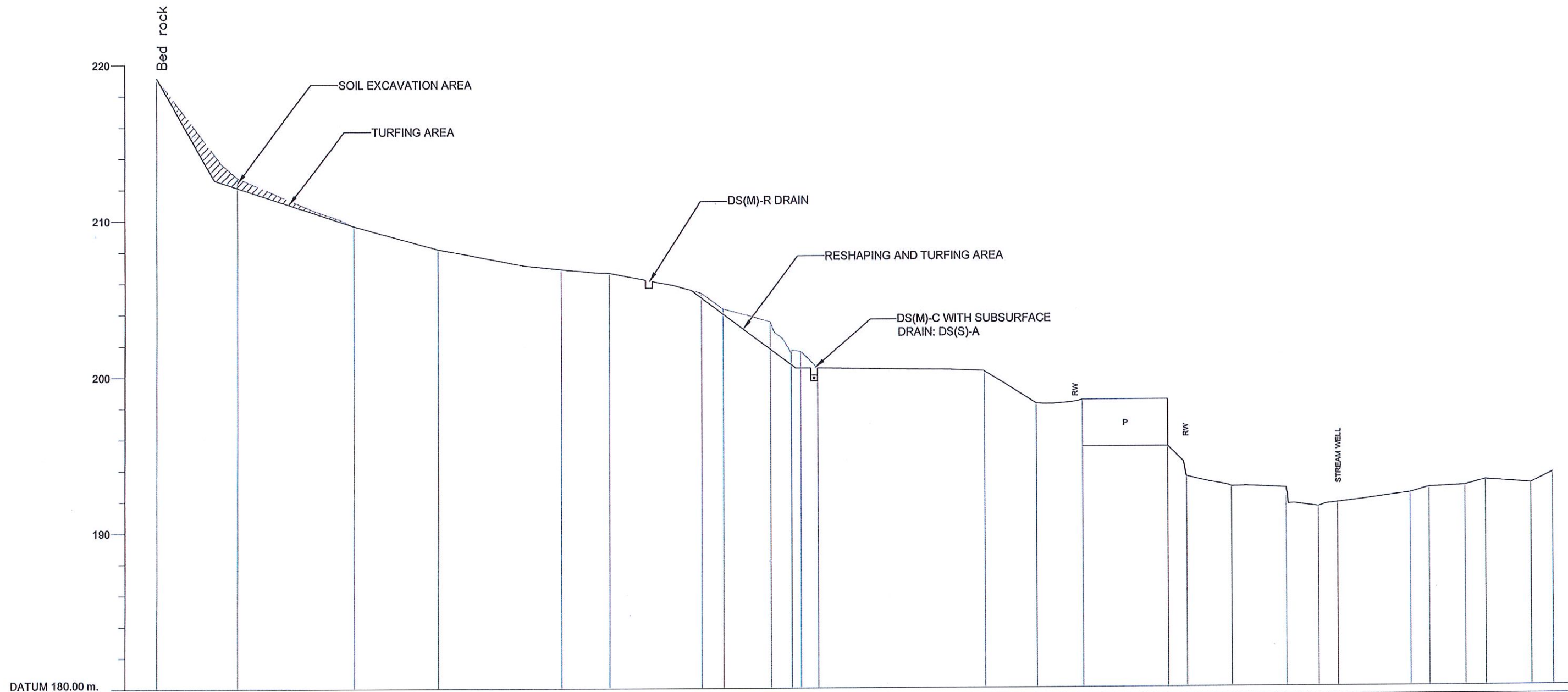


CS7

NOTE:

1. SOIL EXCAVATION AREA MIGHT BE VARIED FROM MARKED AREA WITH THE PHYSICAL CONDITION OF SLOPE.

EMPLOYER	DESIGNER	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE	TITLE	DESCRIPTION	NAME	SIGNATURE
<p>DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05</p>	<p>DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05</p>					<p>REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES BETWEEN CULVERT NO. 5/11 AND 5/13 DEHIOVITA - DERANIYAGALA - NOORI ROAD KEGALLE DISTRICT</p>	<p>CROSS SECTIONS OF PROPOSED MITIGATION MEASURES</p>	DRAWN	S. A. G. D. SENANAYAKA	
								DESIGNER	V. G. D. GANGANI	
								CHECKED	J.P. SAMARANAYAKE	
								RECOMMENDED	PROF. S.A.S. KULATHILAKA	
								APPROVED	K.N. BANDARA	
		SCALE		1:250	DATE		16.12.2020			
		PROJECT / DRAWING No.		RLVMMP/WORKS/NCB/04B/06-Do/DR - 04c	REVISION		00			








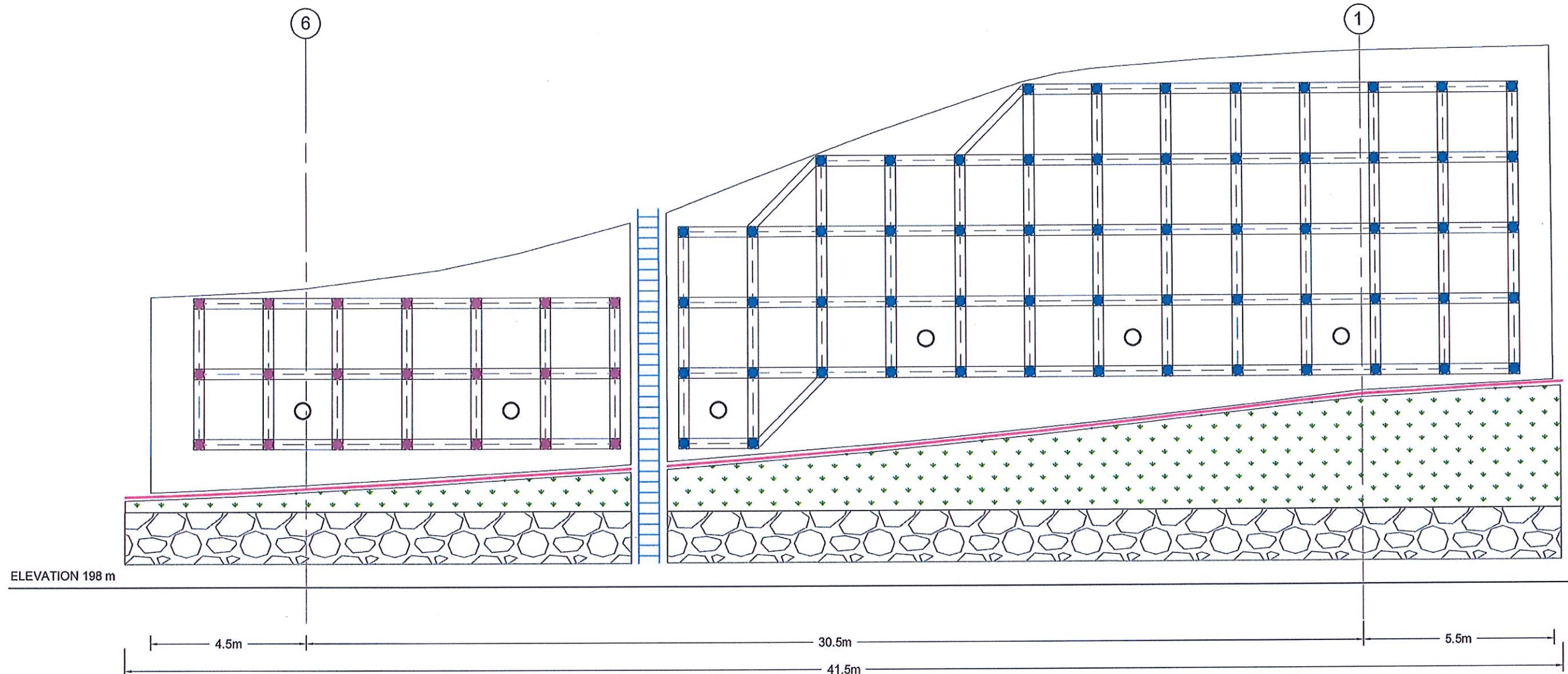
DISTANCE (m)	0.000	5.272	12.841	18.354	26.395	29.490	35.484	36.921	39.991	41.360	41.976	43.084	53.910	57.292	60.310	65.869	67.070	69.983	73.576	75.642	76.889	81.625	82.867	85.223	86.577	89.517	90.892
GROUND LEVEL (m)	219.108	212.750	209.649	208.159	206.859	206.414	205.317	204.298	203.471	201.451	201.566	200.496	200.221	198.163	196.385	195.395	193.452	192.792	192.704	191.490	191.737	192.341	192.688	192.797	193.145	192.918	193.600

CS8

NOTE:

- SOIL EXCAVATION AREA MIGHT BE VARIED FROM MARKED AREA WITH THE PHYSICAL CONDITION OF SLOPE.

EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER  DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES BETWEEN CULVERT NO. 5/11 AND 5/13 DEHIOVITA - DERANIYAGALA - NOORI ROAD KEGALLE DISTRICT	TITLE CROSS SECTIONS OF PROPOSED MITIGATION MEASURES		DESCRIPTION	NAME	SIGNATURE
								SCALE 1:250	DATE 16.12.2020	REVISION 00	DRAWN
						PROJECT / DRAWING No. RLVMMMP/WORKS/NCB/04B/06-Do/DR - 04d		CHECKED	J.P. SAMARANAYAKE		
								RECOMMENDED	PROF. S.A.S. KULATHILAKA		
								APPROVED	K.N. BANDARA		

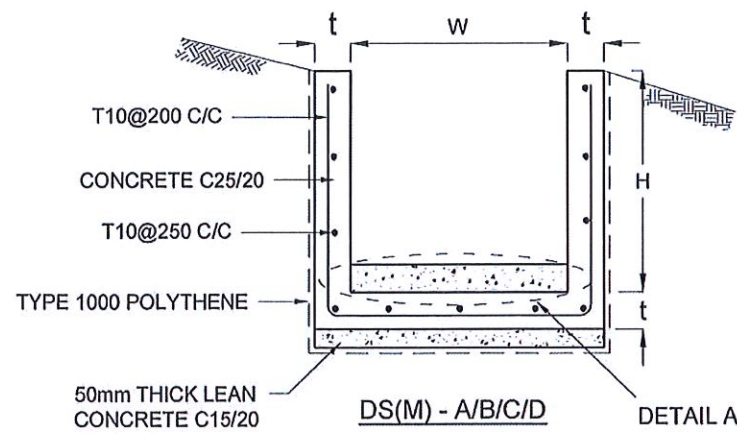


FRONT ELEVATION OF SOIL NAILING AREA

LEGEND

- SOIL NAILING - TOTAL NAIL LENGTH= 6 m
 NO'S OF NAIL = 21
 REINFORCEMENT DIAMETER = 32 mm
 DIAMETER OF THE BOREHOLE = 125 mm
- SOIL NAILING - TOTAL NAIL LENGTH= 8 m
 NO'S OF NAIL = 63
 REINFORCEMENT DIAMETER = 32 mm
 DIAMETER OF THE BOREHOLE = 125 mm
- HORIZONTAL LONG DRAIN - LENGTH = 10 m
 NO'S OF LONG DRAIN = 06
 DIAMETER = 90 mm
- TURFING AND RESHAPING AREA
- GABION WALL
- DS(B) - A DRAIN (TYPE II)
- DS(C) - C DRAIN

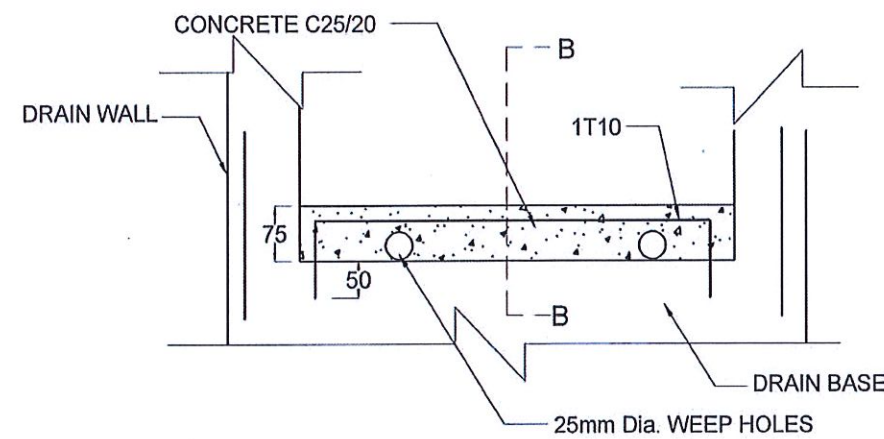
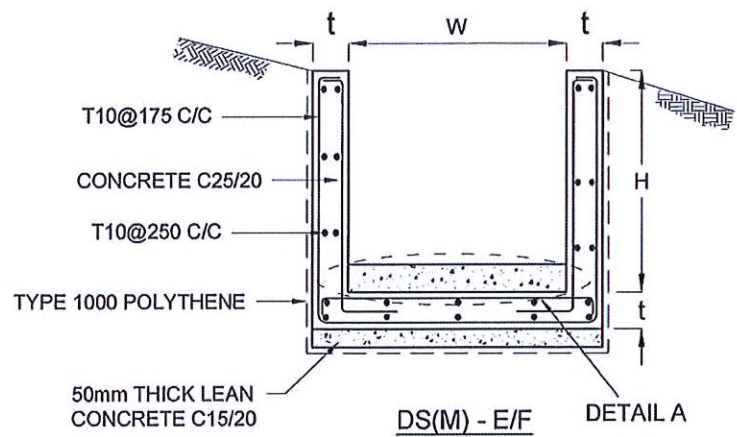
EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV DATE REVISION DESCRIPTION APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES BETWEEN CULVERT NO. 5/11 AND 5/13 DEHIOVITA - DERANIYAGALA - NOORI ROAD KEGALLE DISTRICT	TITLE FRONT ELEVATION OF PROPOSED MITIGATION MEASURES	DESCRIPTION DRAWN	NAME S. A. G. D. SENANAYAKA	SIGNATURE
					SCALE 1:125 PROJECT / DRAWING No. RLVMP/WORKS/NCB/04B/06-Do/DR - 05	DATE 16.12.2020 REVISION 00	CHECKED J.P. SAMARANAYAKE



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.



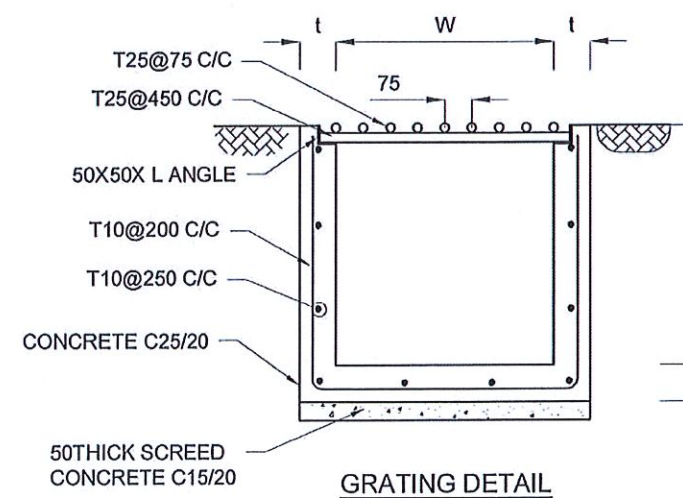
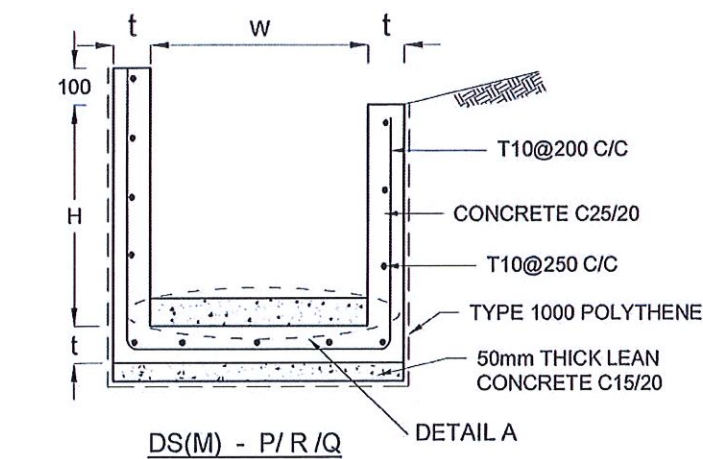
DETAIL A - (ENERGY BREAKER AT 3M)

CONCRETE

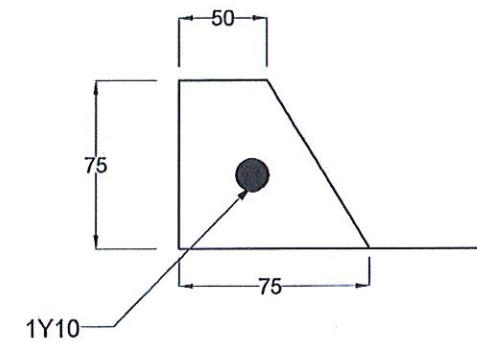
- USE FOLLOWING CONCRETE GRADES FOR STRUCTURE
 - [a] SCREED - C. 15/20
 - [b] WALLS / BASE / ENERGY BREAKERS - C. 25/20

REINFORCEMENT

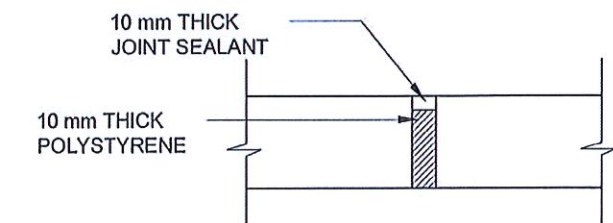
- ALL BARS MARKED "T" SHALL BE HIGH YIELD DEFORMED BARS OF YIELD STRENGTH NOT LESS THAN 460N/mm².
- BARS OF CUT LENGTH LARGER THAN THE SUPPLIED LENGTH TO BE LAPPED FOR A LENGTH OF 50 x BAR DIA. AND LAPPING SHOULD BE STAGGERED.
- ANCHORAGE LENGTH SHOULD BE 40X BAR DIA.
- REINFORCEMENT BARS SHALL BE BENT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



GRATING DETAIL

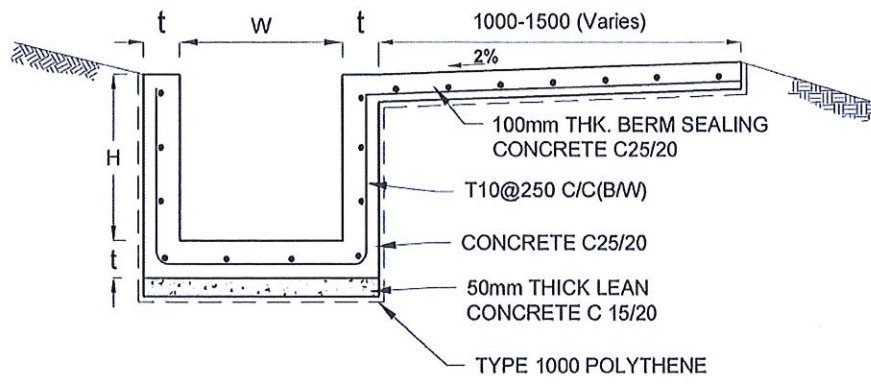


SECTION B-B

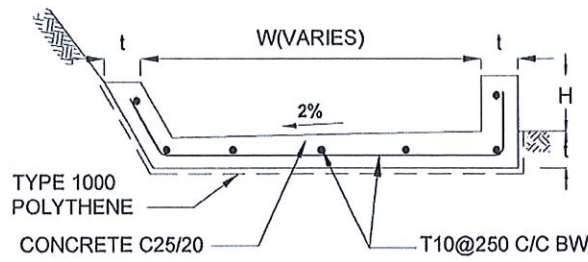


EXPANSION JOINT DETAIL

EMPLOYER	DESIGNER	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE	TITLE	DESCRIPTION	NAME	SIGNATURE	
<p>DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05</p>	<p>DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05</p>					<p>REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES BETWEEN CULVERT NO. 5/11 AND 5/13 DEHIOVITA - DERANIYAGALA - NOORI ROAD KEGALLE DISTRICT</p>	<p>DETAILS OF DRAINS (SURFACE DRAIN -1 OF 2)</p>	DRAWN	S.A.G.D. SENANAYAKA		
								DESIGNER	V. G. D. GANGANI		
								CHECKED	J.P. SAMARANAYAKE		
								RECOMMENDED	PROF. S.A.S. KULATHILAKA		
								APPROVED	K.N. BANDARA		
							SCALE	N.T.S	DATE	16.12.2020	
							PROJECT / DRAWING No.	RLVMP/WORKS/NCB/04B/06-Dr/DR - 06a	REVISION	00	

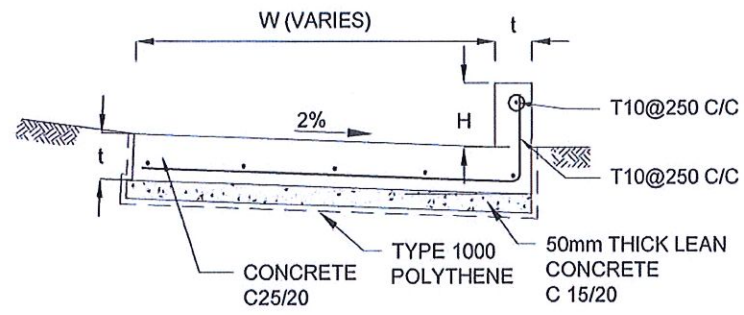


DS (B) - (TYPE I)



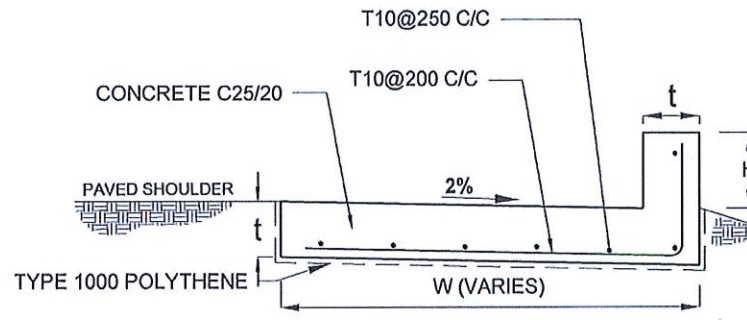
DS (B) - (TYPE II)

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

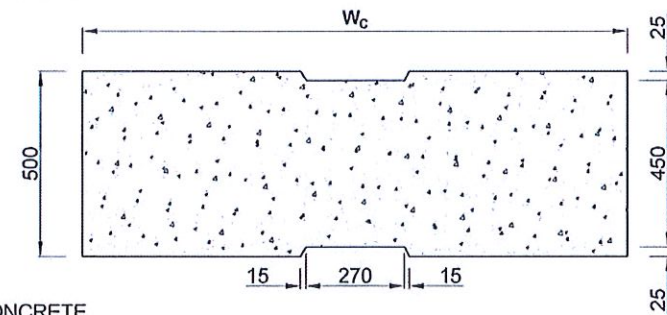


DS (K)

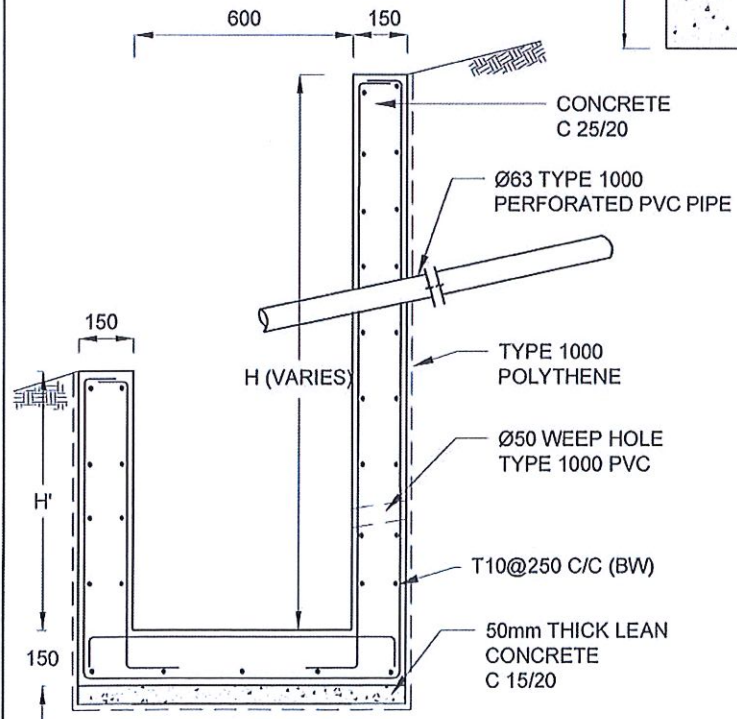
DRAIN TYPE	W (mm)	H (mm)	t (mm)
DS (K) - A	1000	200	100
DS (K) - B	1000	300	100
DS (K) - C	1150	200	200



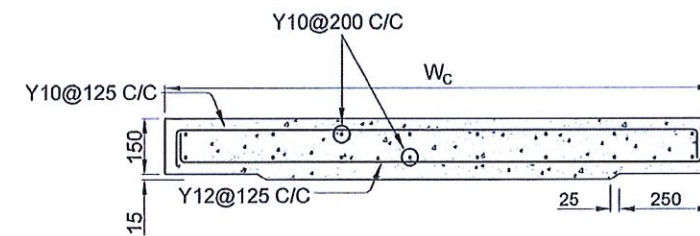
DS (K) - TYPE II



PLAN VIEW OF COVER SLAB



DS (M) - L



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+2x_t]
- 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

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

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

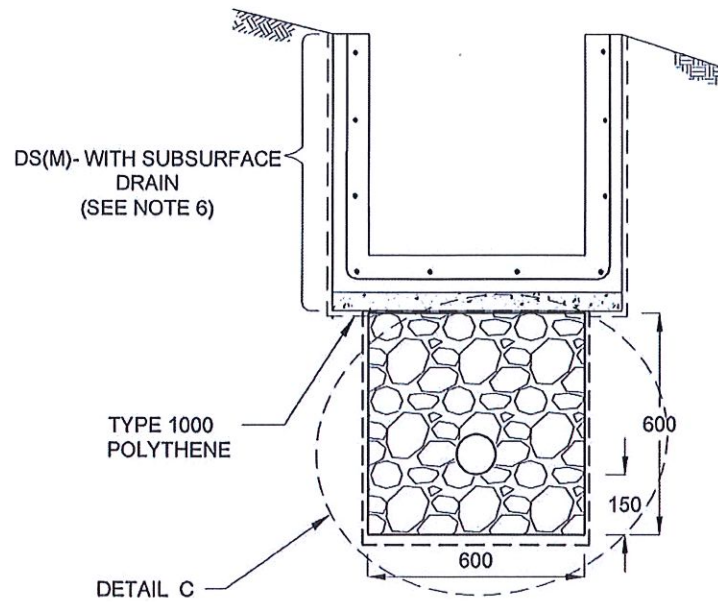
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 BETWEEN CULVERT NO. 5/11 AND 5/13
 DEHIOVITA - DERANIYAGALA - NOORI ROAD
 KEGALLE DISTRICT

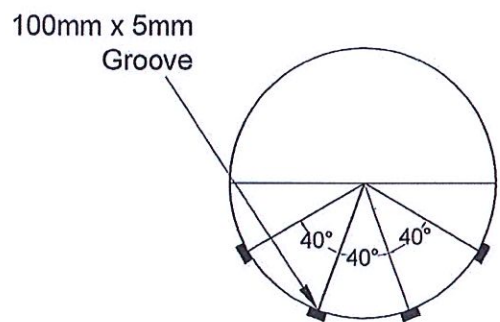
TITLE
 DETAILS OF DRAINS
 (SURFACE DRAIN -2 OF 2)

SCALE	N.T.S	DATE	16.12.2020
PROJECT / DRAWING No.		REVISION	
RLVMMPP/WORKS/NCB/04B/06-Da/DR - 06b		00	

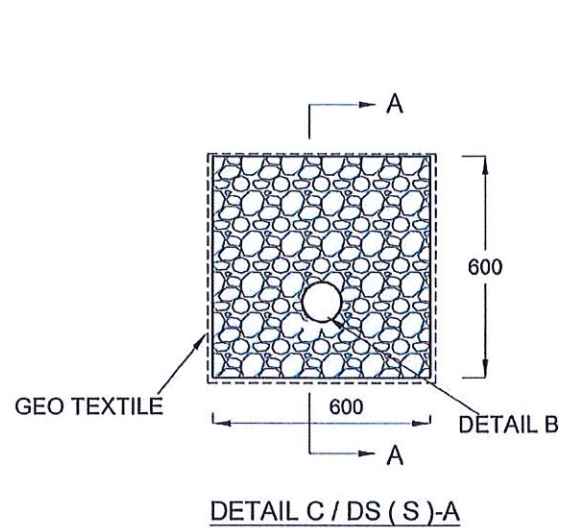
DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	<i>[Signature]</i>
DESIGNER	V. G. D. GANGANI	<i>[Signature]</i>
CHECKED	J.P. SAMARANAYAKE	<i>[Signature]</i>
RECOMMENDED	PROF. S.A.S. KULATHILAKA	<i>[Signature]</i>
APPROVED	K.N. BANDARA	<i>[Signature]</i>



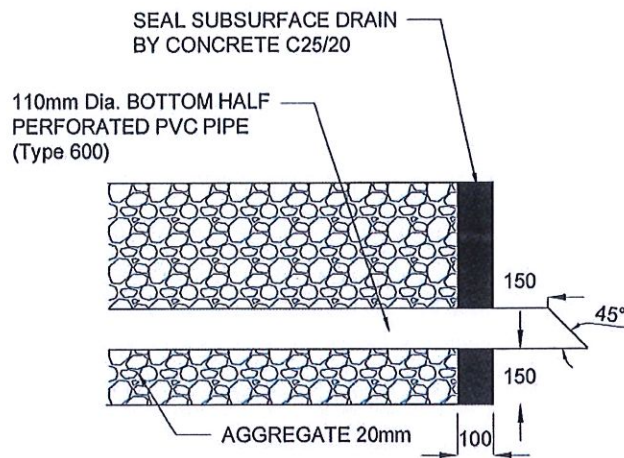
SUBSURFACE DRAIN [DS(S)-A]



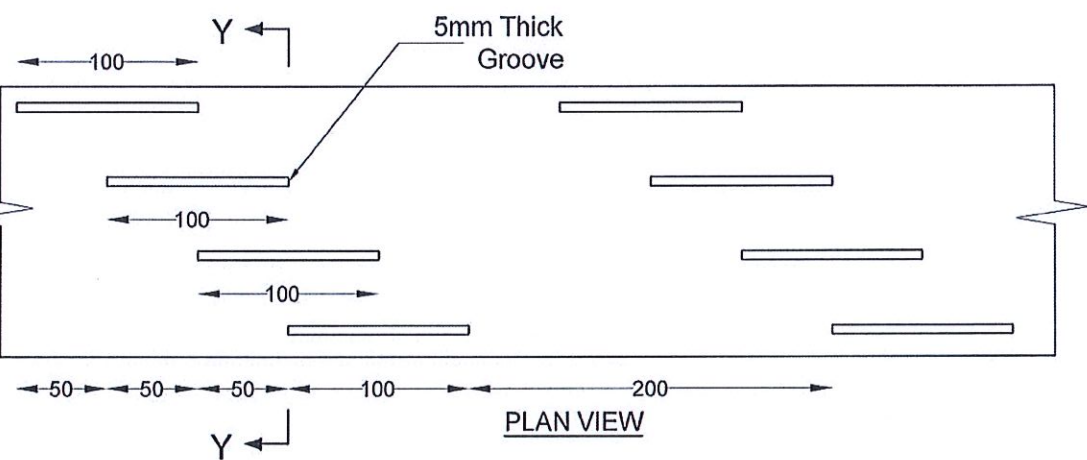
SECTION Y - Y



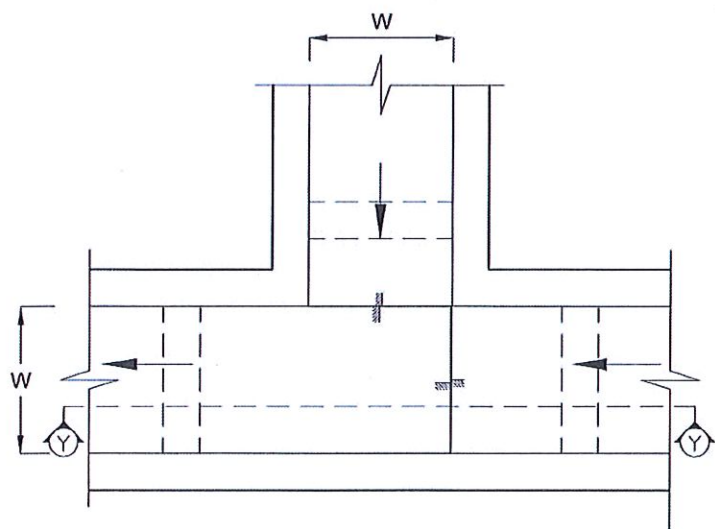
DETAIL C / DS(S)-A



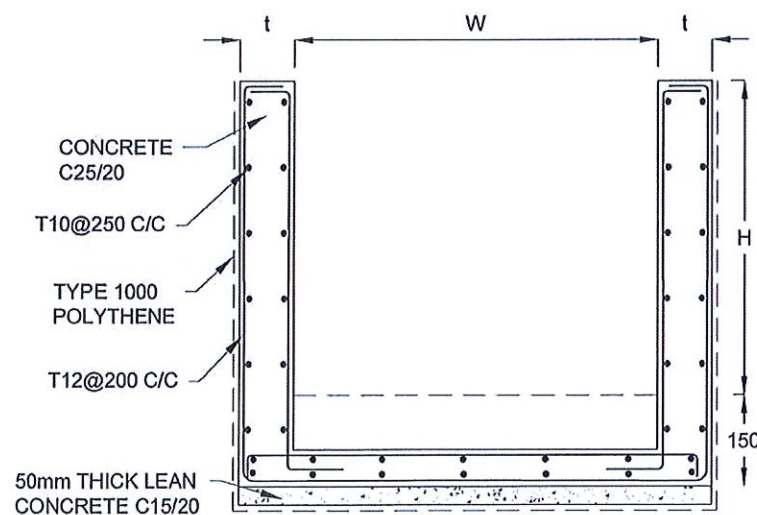
SECTION A-A (OUTLET DETAIL SUBSURFACE DRAIN)



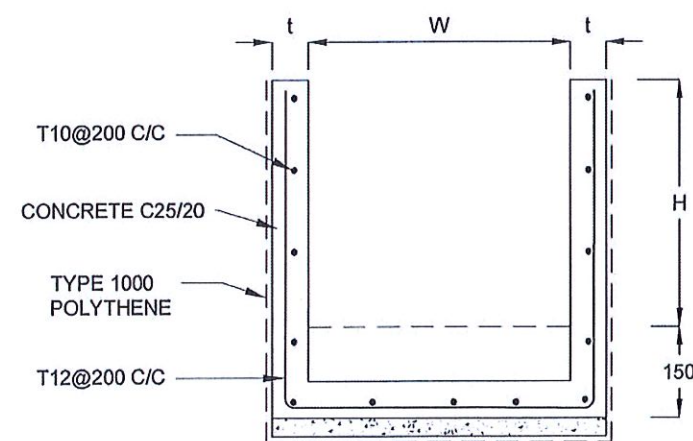
DETAIL - B (PERFORATED PIPE FOR SUB-SURFACE DRAINS)



PLAN VIEW OF CATCH PIT (CP)



SECTION Y-Y (CP-R)



SECTION Y - Y

NOTES

1. W,H,t ; SHALL BE THE SAME AS RESPECTIVE DRAIN SECTION.
2. CP - R SHALL BE USED WHERE $H \geq 900\text{mm}$
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

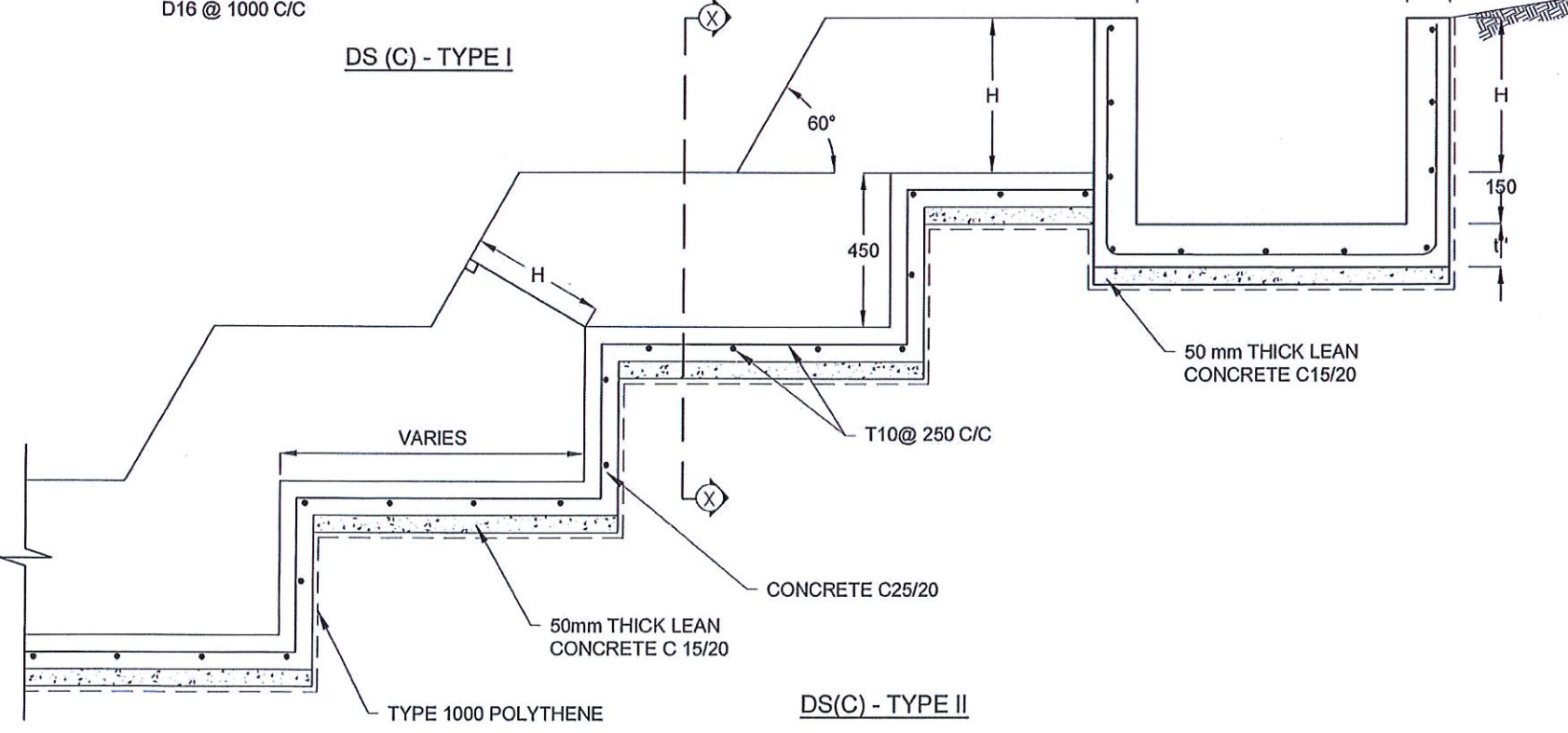
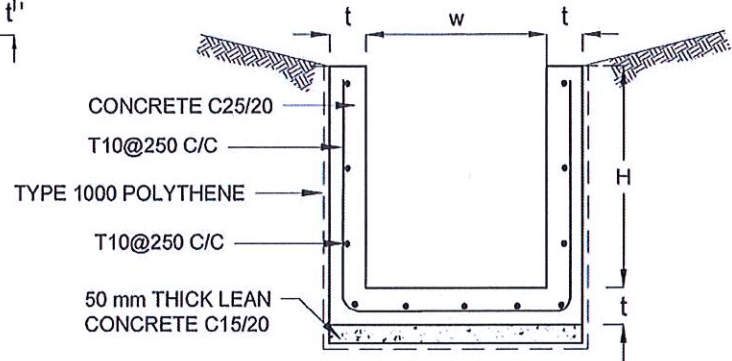
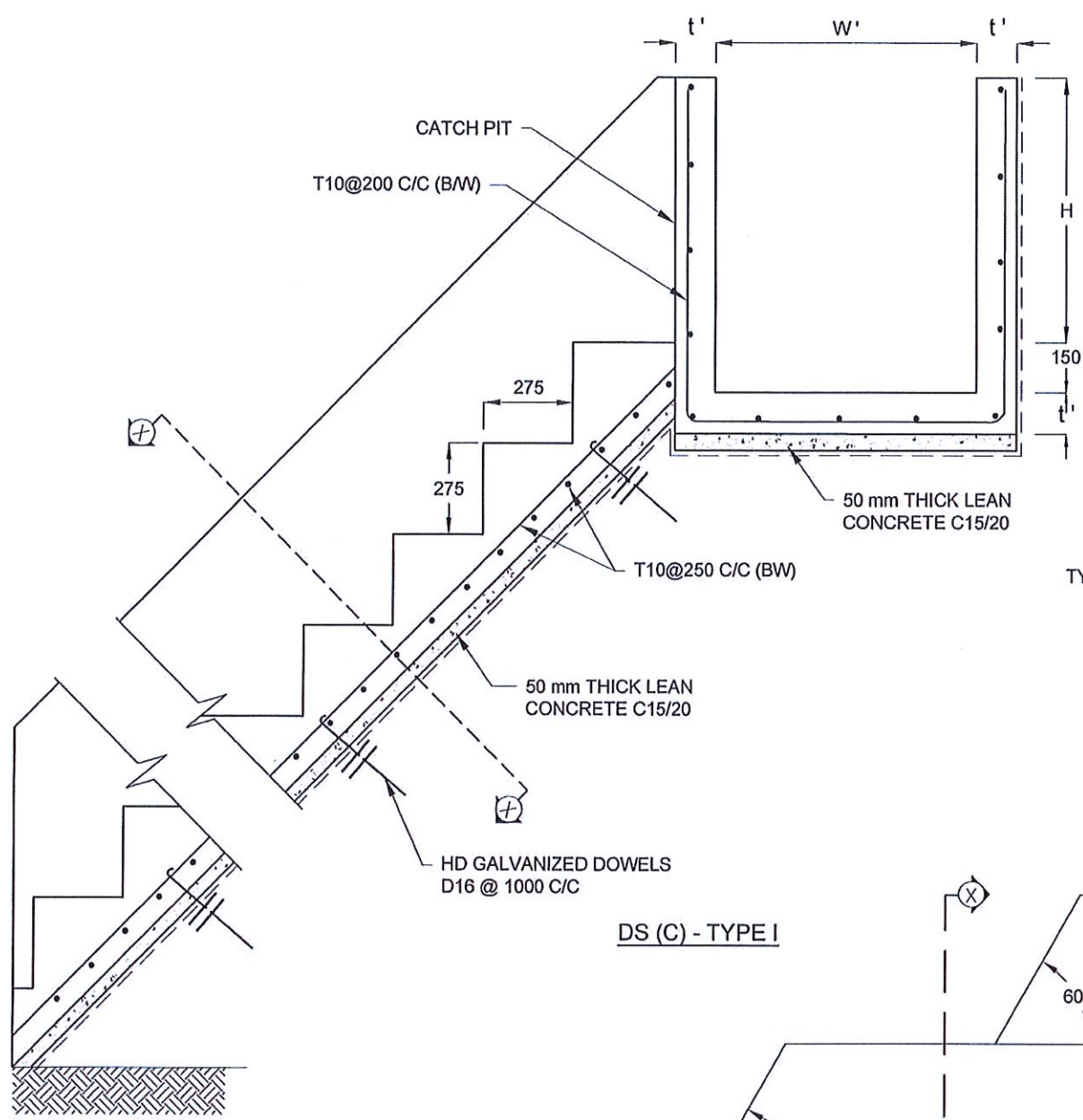
8. USE FOLLOWING CONCRETE GRADES FOR STRUCTURE
 - [a] SCREED - C. 15/20
 - [b] WALLS / BASE / ENERGY BREAKERS - C. 25/20

REINFORCEMENT

9. ALL BARS MARKED "T" SHALL BE HIGH YIELD DEFORMED BARS OF YIELD STRENGTH NOT LESS THAN 460N/mm^2 .
10. BARS OF CUT LENGTH LARGER THAN THE SUPPLIED LENGTH TO BE LAPPED FOR A LENGTH OF $50 \times \text{BAR DIA.}$ AND LAPPING SHOULD BE STAGGERED.
11. ANCHORAGE LENGTH SHOULD BE $40 \times \text{BAR DIA.}$
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

EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES BETWEEN CULVERT NO. 5/11 AND 5/13 DEHIOVITA - DERANIYAGALA - NOORI ROAD KEGALLE DISTRICT	TITLE DETAILS OF DRAINS (SUBSURFACE DRAIN AND CATCHPIT)	DESCRIPTION	NAME	SIGNATURE			
									SCALE	N.T.S	DATE	16.12.2020	RECOMMENDED
							PROJECT / DRAWING No.	RLVMP/WORKS/NCB/04B/06-Do/DR - 06c	REVISION	00	APPROVED	K.N. BANDARA	

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



NOTES

- USE EITHER TYPE I OR TYPE II CASCADE DRAIN ACCORDING TO THE ACTUAL GROUND CONDITION AS INSTRUCTED BY THE ENGINEER.
- LENGTH OF THE STEPS OF CASCADE WILL BE VARIED ACCORDING TO THE SITE CONDITIONS.
- DEPTH OF EXCAVATION SHALL BE VARIED ACCORDING TO SITE CONDITIONS.
- DOWELS SHALL BE INSTALLED ACCORDING TO THE GROUND CONDITIONS AS INSTRUCTED BY THE ENGINEER.
- 10 mm THICK EXPANSION JOINT SHALL BE INTRODUCED IN EVERY 5m INTERVAL.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.

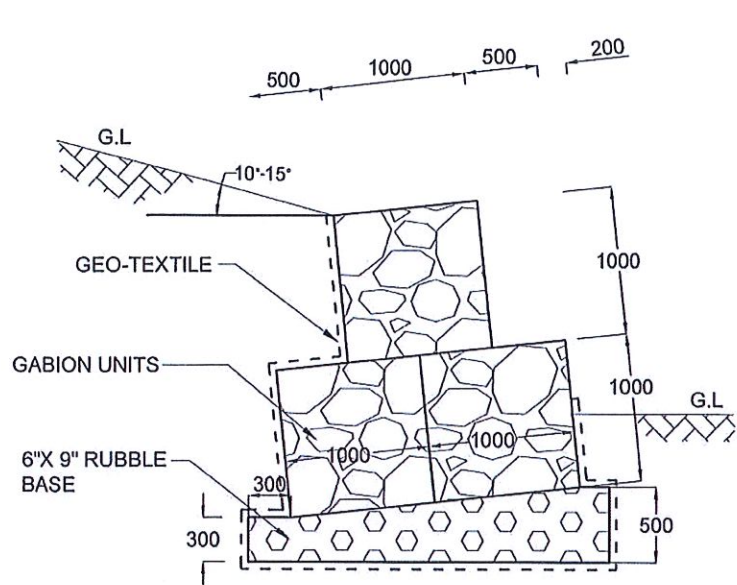
CONCRETE

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

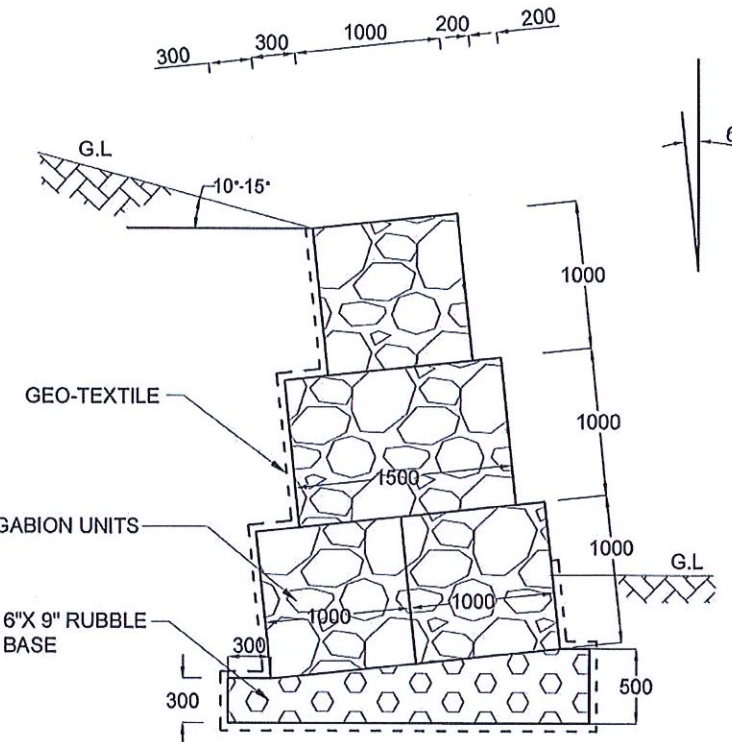
REINFORCEMENT

- 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.
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- COVER TO REINFORCEMENT
 - [a] BURIED FACES AND DRAIN INVERTS - 40 mm
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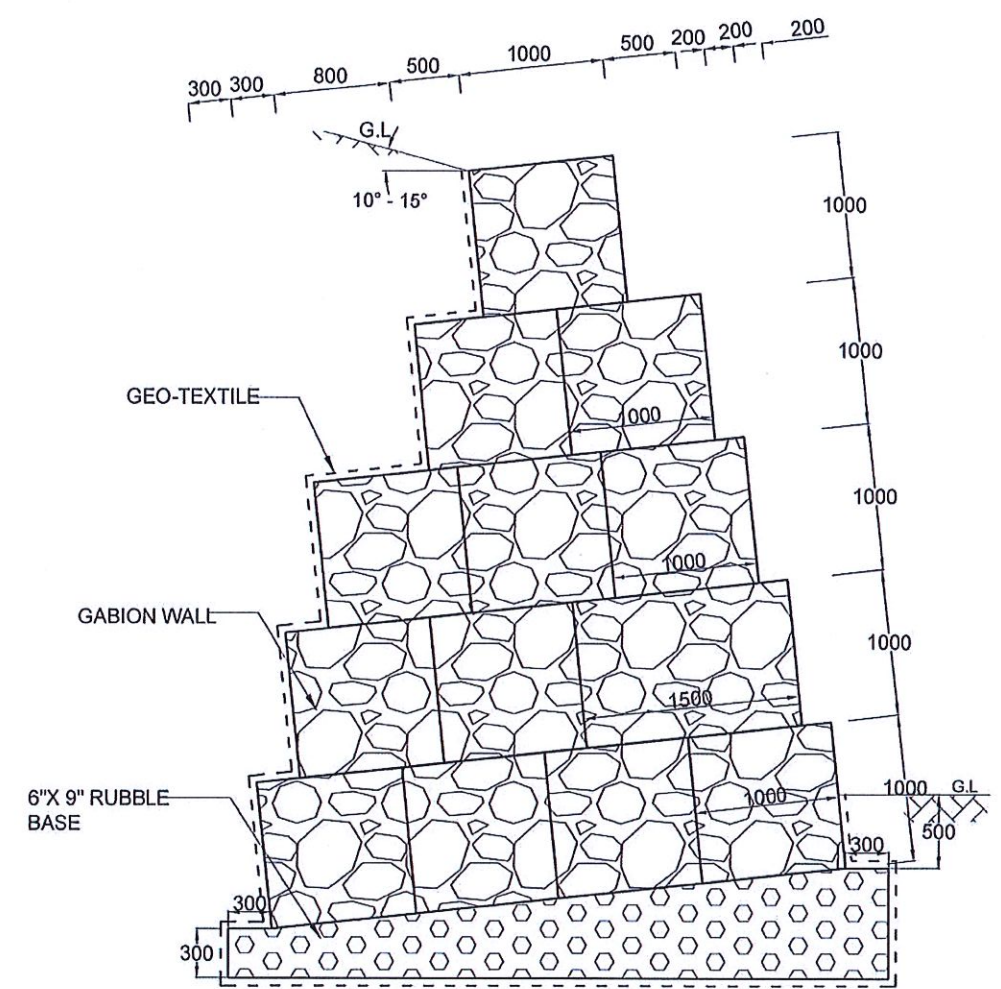
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									SCALE	N.T.S	DATE	16.12.2020	RECOMMENDED
							PROJECT / DRAWING No.	RLVMM/WORKS/NCB/04B/05-Do/DR - 06d	REVISION	00	APPROVED	K.N. BANDARA	



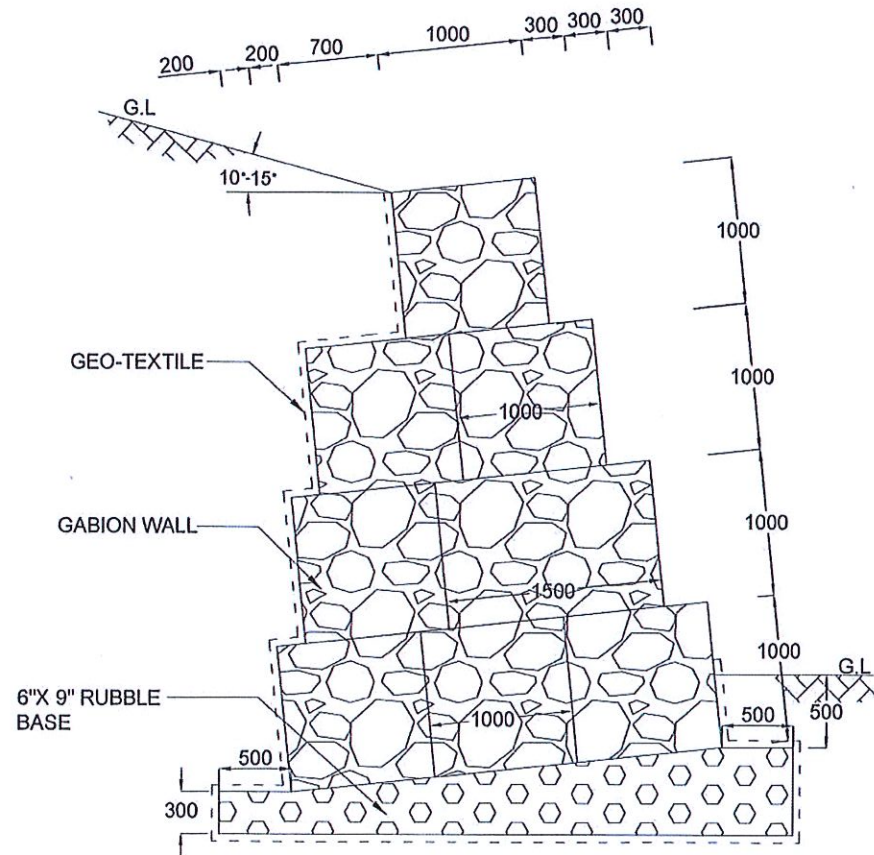
GABION WALL
TYPE I



GABION WALL
TYPE II




GABION WALL
TYPE IV



GABION WALL
TYPE III

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS.

EMPLOYER

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 AND DISASTER MANAGEMENT
 NATIONAL BUILDING RESEARCH ORGANIZATION
 No. 99/1, JAWATTA ROAD
 COLOMBO - 05

DESIGNER

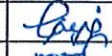




 DESIGN UNIT
 NATIONAL BUILDING RESEARCH ORGANIZATION
 No. 99/1, JAWATTA ROAD
 COLOMBO - 05

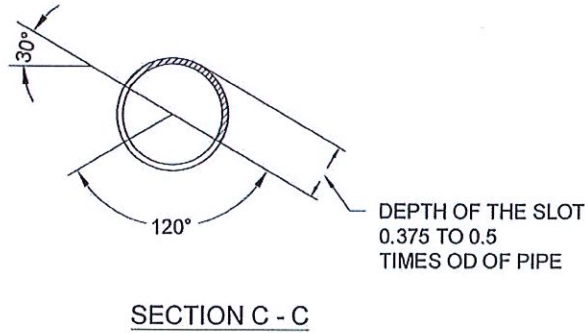
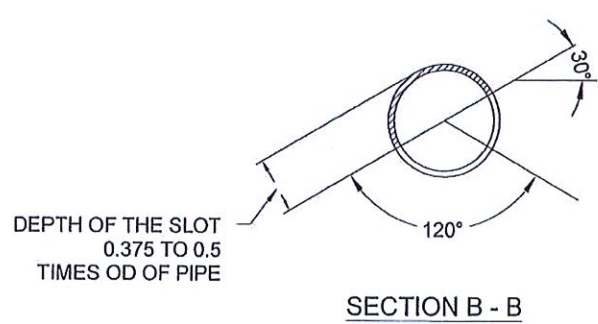
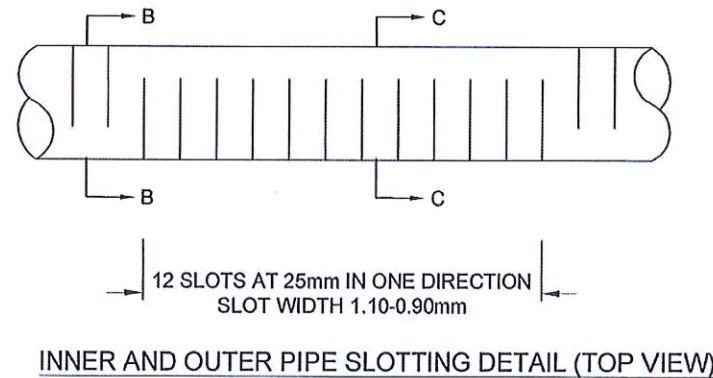
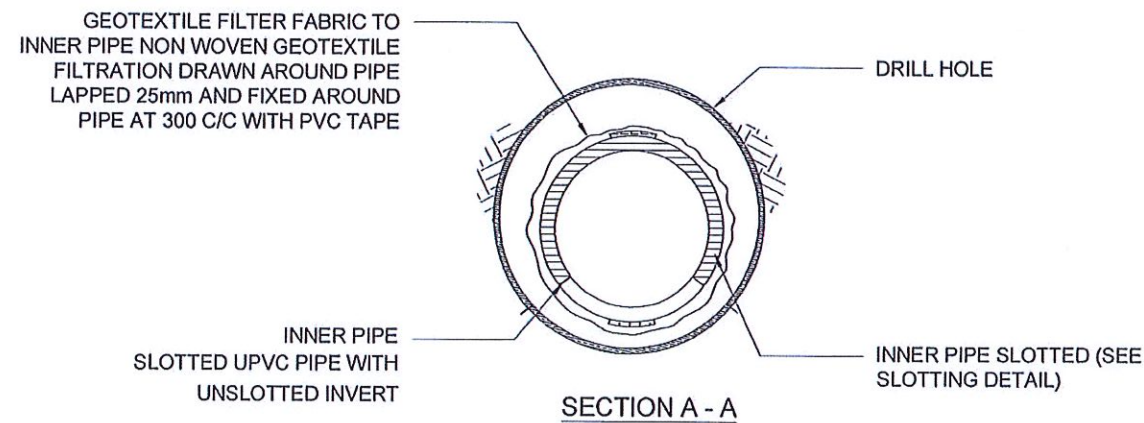
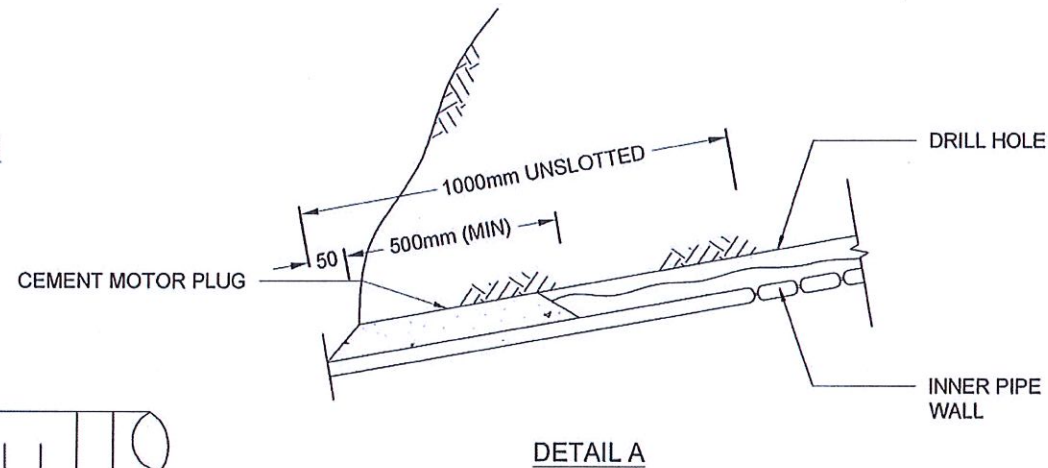
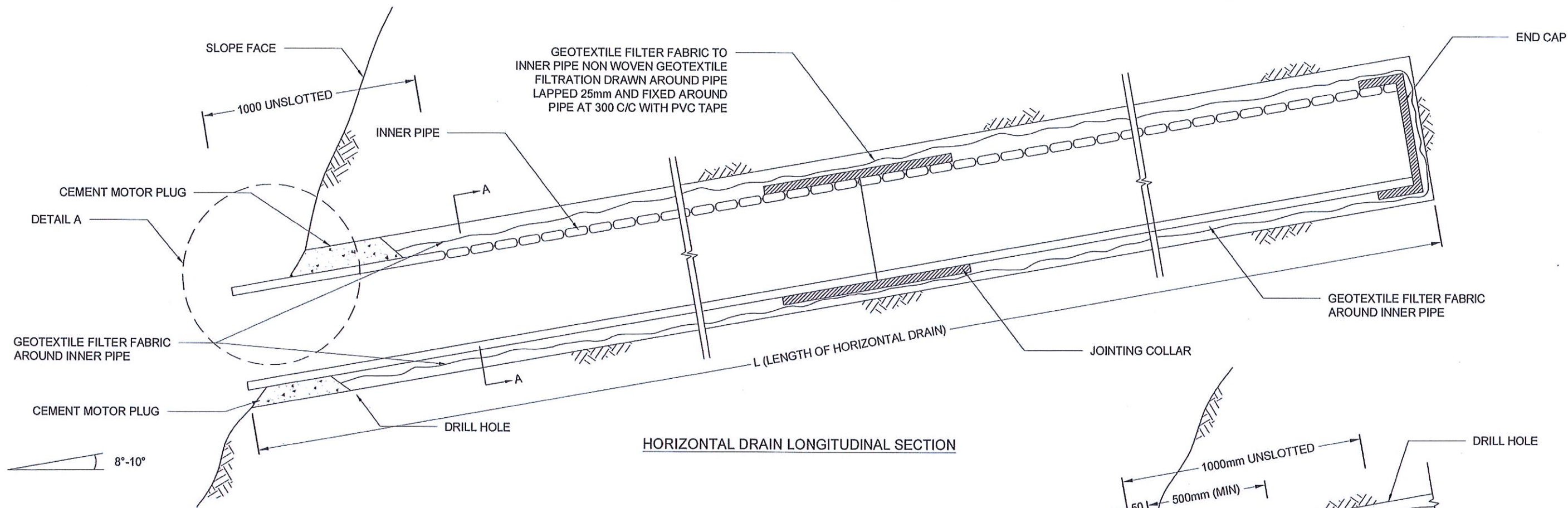
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 BETWEEN CULVERT NO. 5/11 AND 5/13
 DEHIOVITA - DERANIYAGALA - NOORI ROAD
 KEGALLE DISTRICT

TITLE
 DETAILS OF GABION WALL

SCALE	N.T.S	DATE	16.12.2020
PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/04B/06-Da/DR - 07	REVISION	00

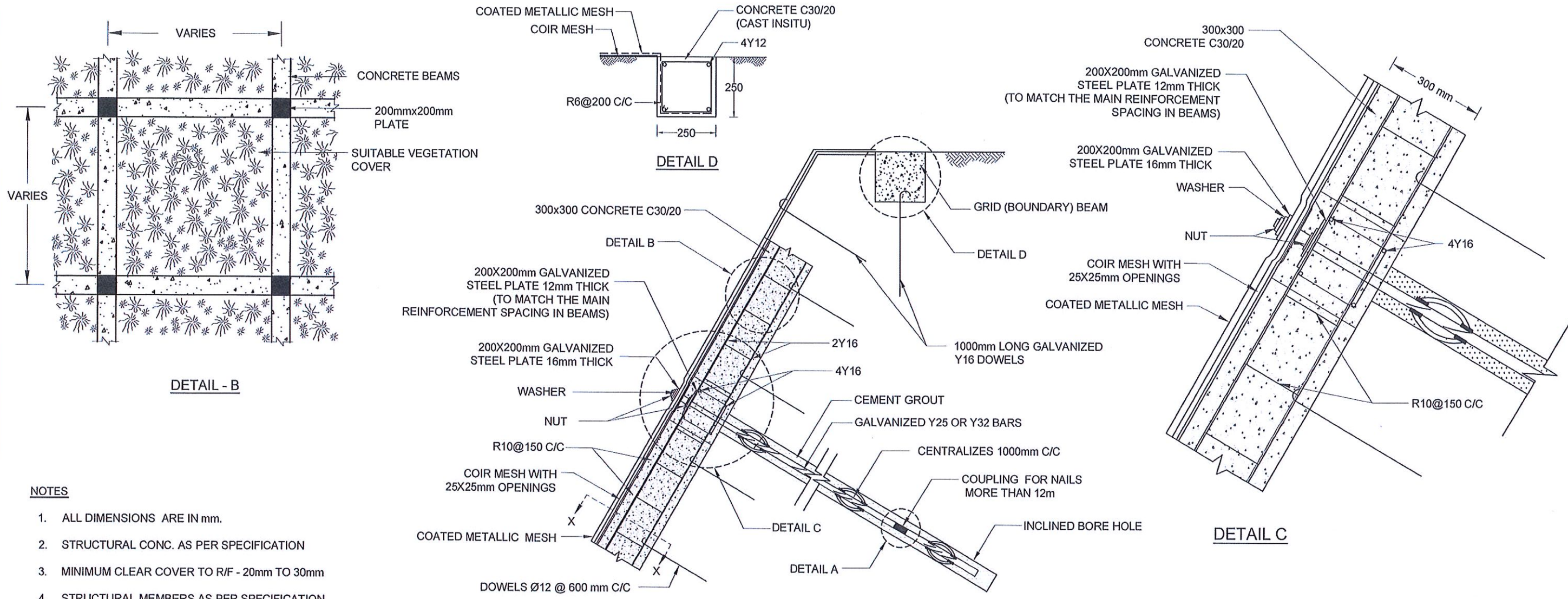
DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	V. G. D. GANGANI	
CHECKED	J.P. SAMARANAYAKE	
RECOMMENDED	PROF. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	



NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. PIPE DIAMETERS, ANGLE & LENGTHS AS SPECIFIED IN DRAWINGS.
3. ALL MATERIALS SHALL CONFORM TO PROJECT SPECIFICATION

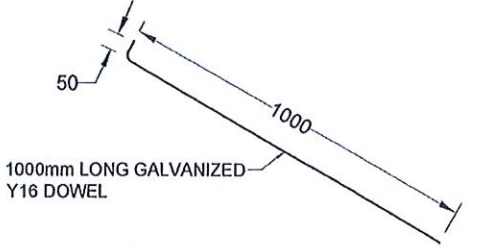
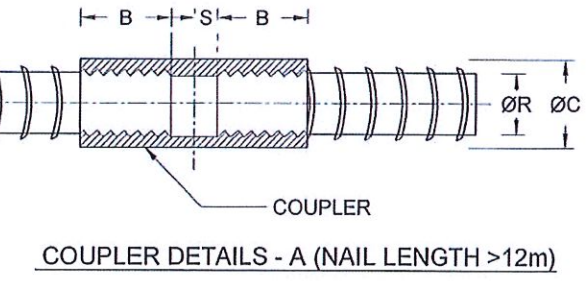
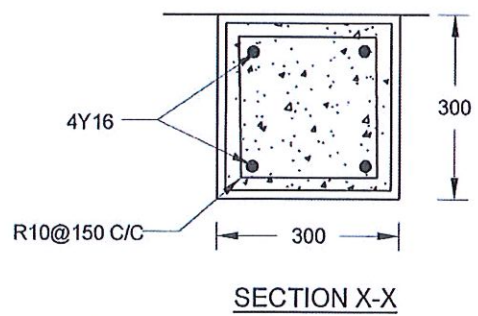
EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	<table border="1"> <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																					PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES BETWEEN CULVERT NO. 5/11 AND 5/13 DEHIOVITA - DERANIYAGALA - NOORI ROAD KEGALLE DISTRICT	TITLE DETAILS OF HORIZONTAL LONG DRAIN	DESCRIPTION DRAWN	NAME S.A.G.D. SENANAYAKA	SIGNATURE
			REV	DATE	REVISION DESCRIPTION	APPROVAL																									
DESCRIPTION DESIGNER	NAME V. G. D. GANGANI	SIGNATURE 																													
DESCRIPTION CHECKED	NAME J.P. SAMARANAYAKE	SIGNATURE 																													
DESCRIPTION RECOMMENDED	NAME PROF. S.A.S. KULATHILAKA	SIGNATURE 																													
DESCRIPTION APPROVED	NAME K.N. BANDARA	SIGNATURE 																													
SCALE N.T.S. DATE 16.12.2020		REVISION 00	PROJECT / DRAWING No. RLVMP/WORKS/NCB/04B/06-Do/DR - 08																												



NOTES

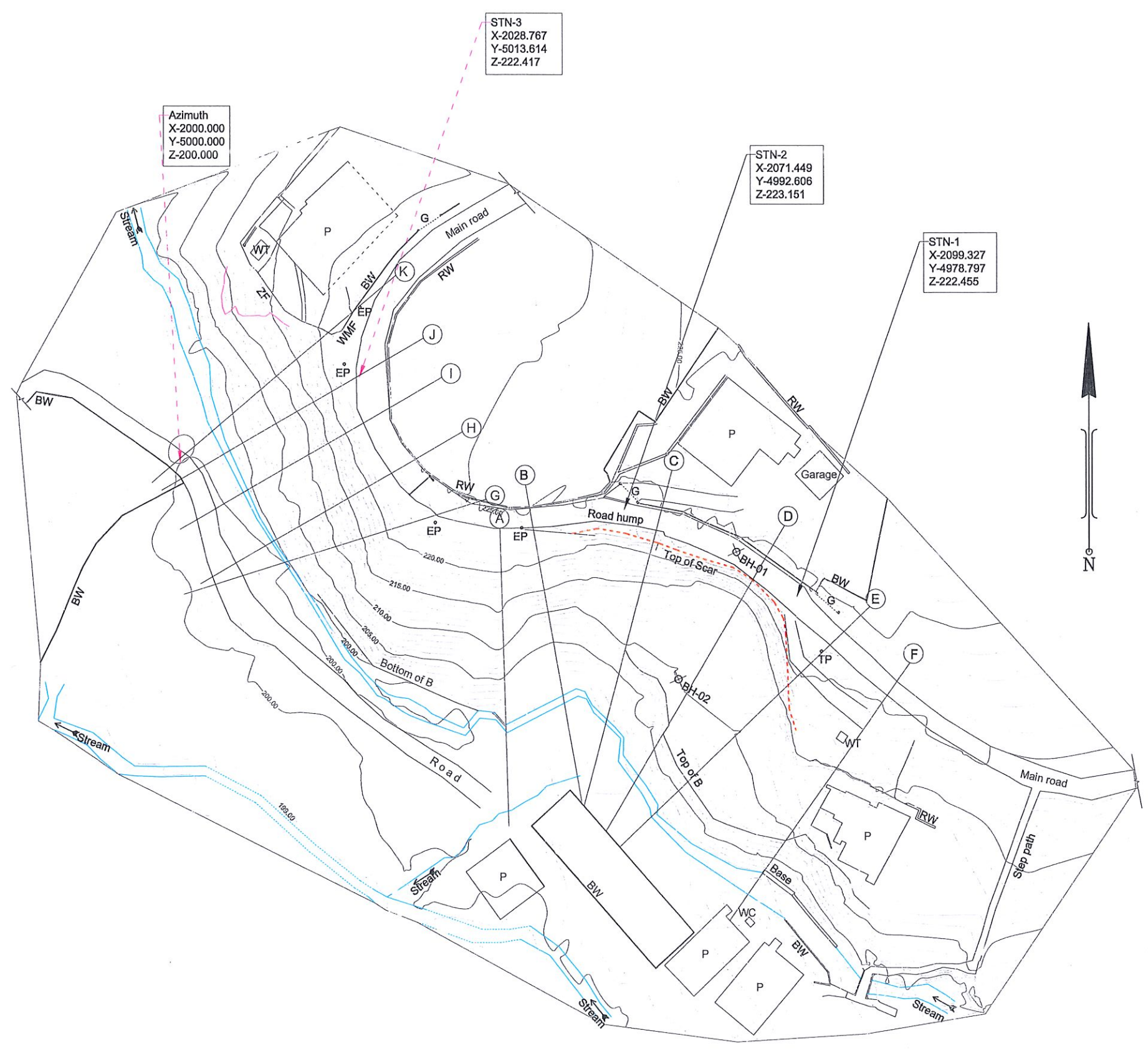
1. ALL DIMENSIONS ARE IN mm.
2. STRUCTURAL CONC. AS PER SPECIFICATION
3. MINIMUM CLEAR COVER TO R/F - 20mm TO 30mm
4. STRUCTURAL MEMBERS AS PER SPECIFICATION
5. LAP LENGTH FOR R/F BARS 40 x BAR DIA.
6. TWO SETS OF 4Y12 BARS PLACED PERPENDICULAR TO EACH OTHERS BY CONNECTING NAIL HEADS VERTICALLY AND HORIZONTALLY 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




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

EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV DATE REVISION DESCRIPTION APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES BETWEEN CULVERT NO. 5/11 AND 5/13 DEHIOVITA - DERANIYAGALA - NOORI ROAD KEGALLE DISTRICT	TITLE DETAILS OF SOIL NAILING WITH GRID BEAM	DESCRIPTION NAME SIGNATURE
		SCALE N.T.S. DATE 16.12.2020 PROJECT / DRAWING No. REVISION 00 RLVMP/WORKS/NCB/04B/06-Do/DR - 09			DRAWN S.A.G.D. SENANAYAKA DESIGNER V. G. D. GANGANI CHECKED J.P. SAMARANAYAKE RECOMMENDED PROF. S.A.S. KULATHILAKA APPROVED K.N. BANDARA



REFERENCE

- RW - RETAINING WALL
- BW - BOUNDARY WALL
- WMF - WIRE MESH FENCE
- ZF - ZINC FENCE
- TP - TELEGRAPH PLOE
- EP - ELECTRICITY PLOE
- WC - WATER CLOSET
- WT - WATER TANK
- BW - BOUNDARY WALL
- BH - BORE HOLE
- P - PERMANENT BUILDING
- G - GATE


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


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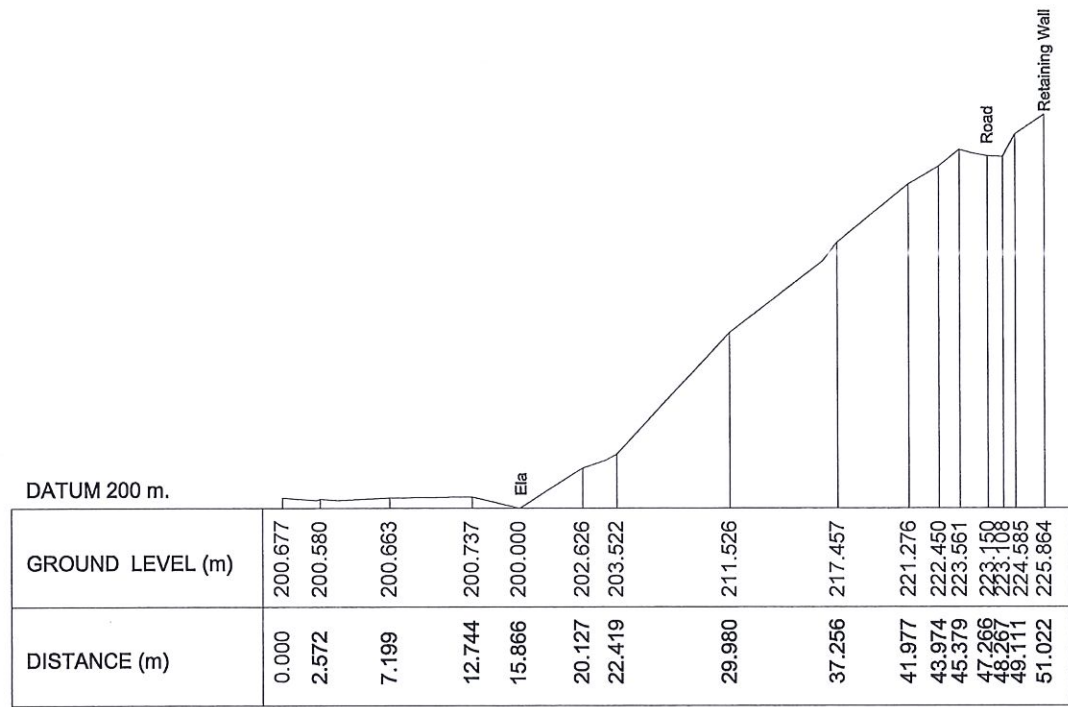
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
**REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 RECTIFICATION OF LANDSLIDE IN
 DANGOLLA LOWER CIRCULAR ROAD**

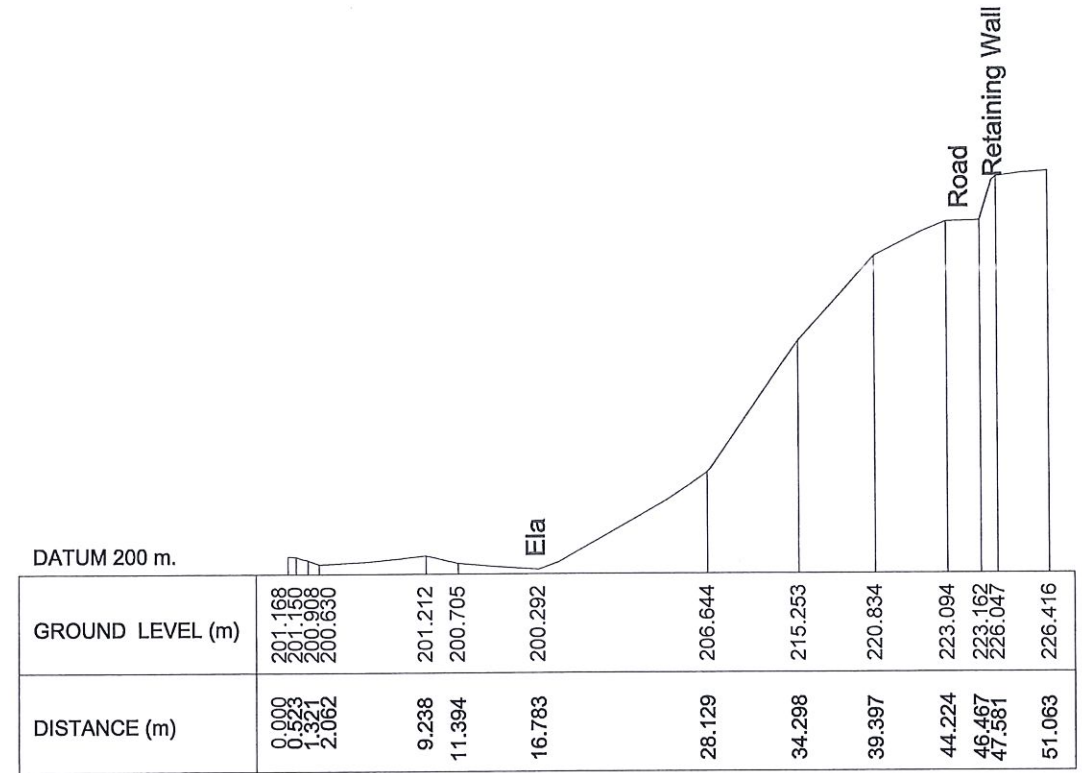
TITLE
CONTOUR SURVEY PLAN

SCALE	1:750	DATE	06.11.2020
PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/04B/01-Dan/DR- 01	REVISION	00

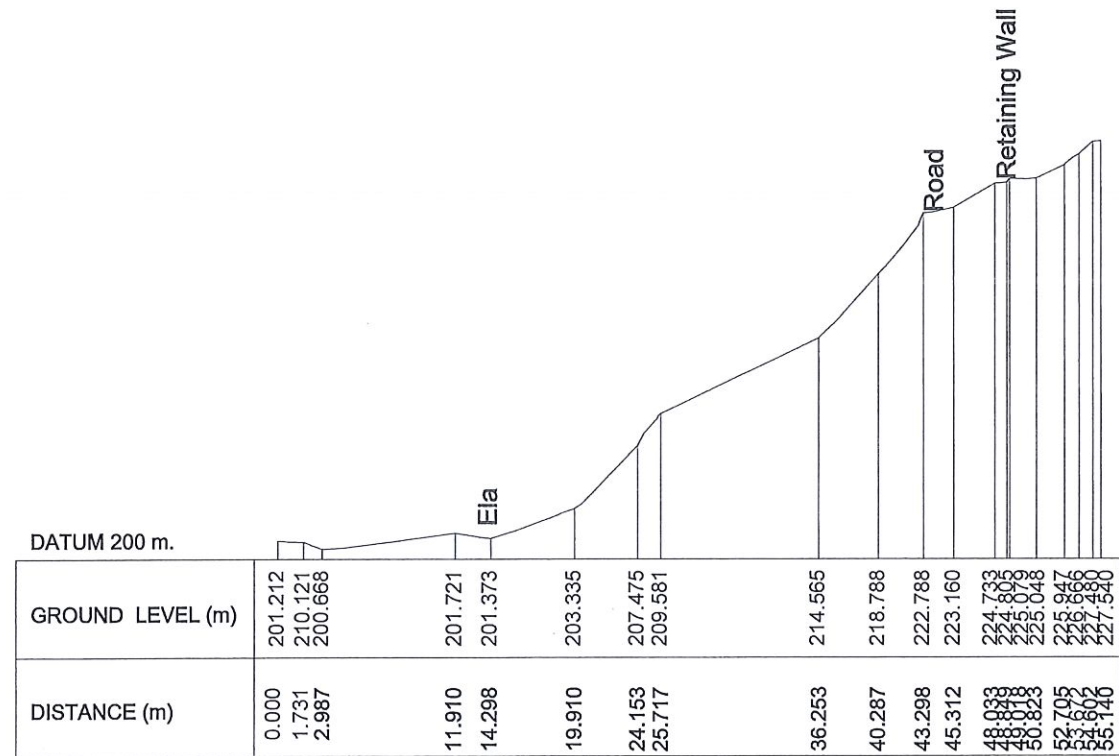
DESCRIPTION	NAME	SIGNATURE
SURVEYED	KAMAL DESHAPRIYA	
CHECKED	D.M.D.T. DASANAYAKA	



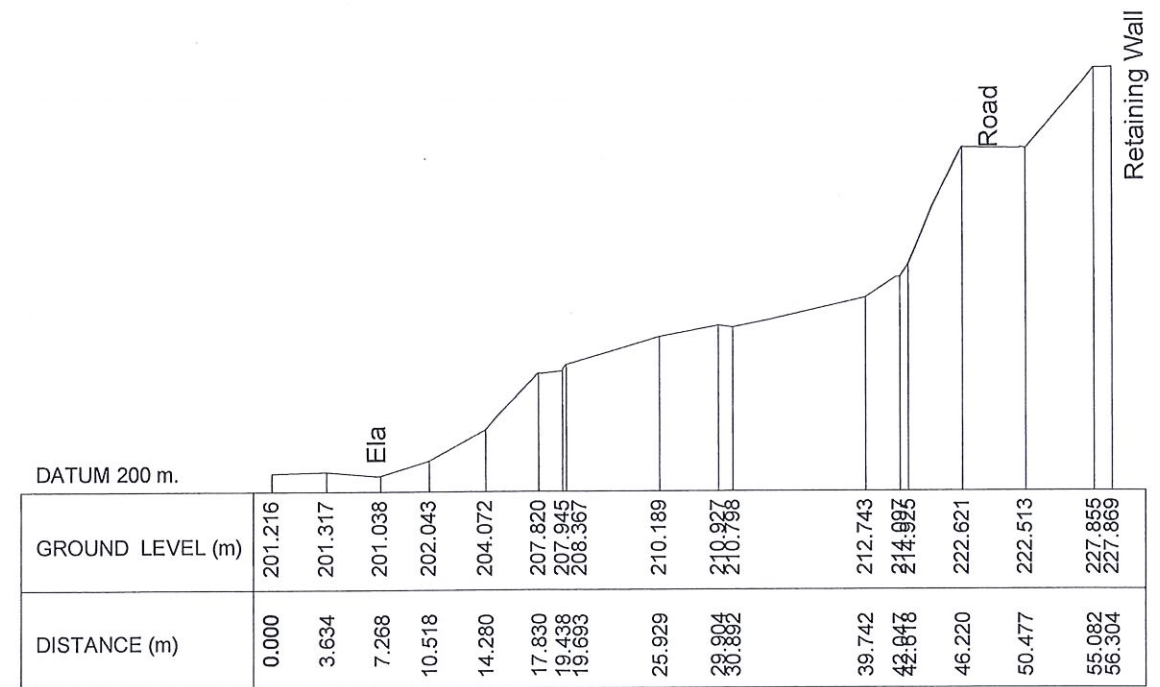
SECTION -A



SECTION -B

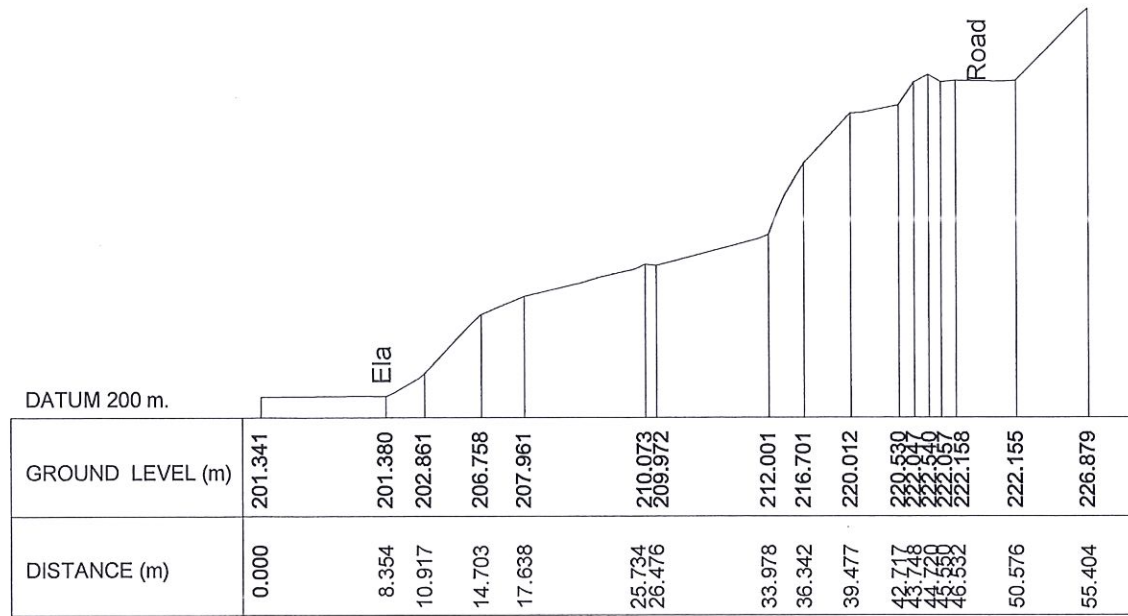


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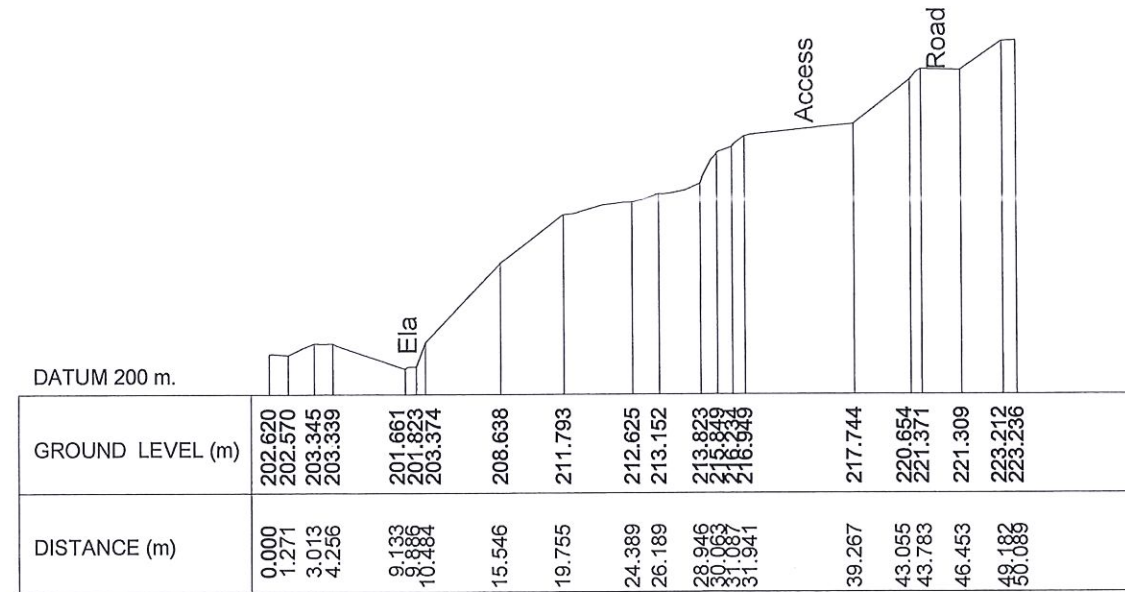


SECTION -D

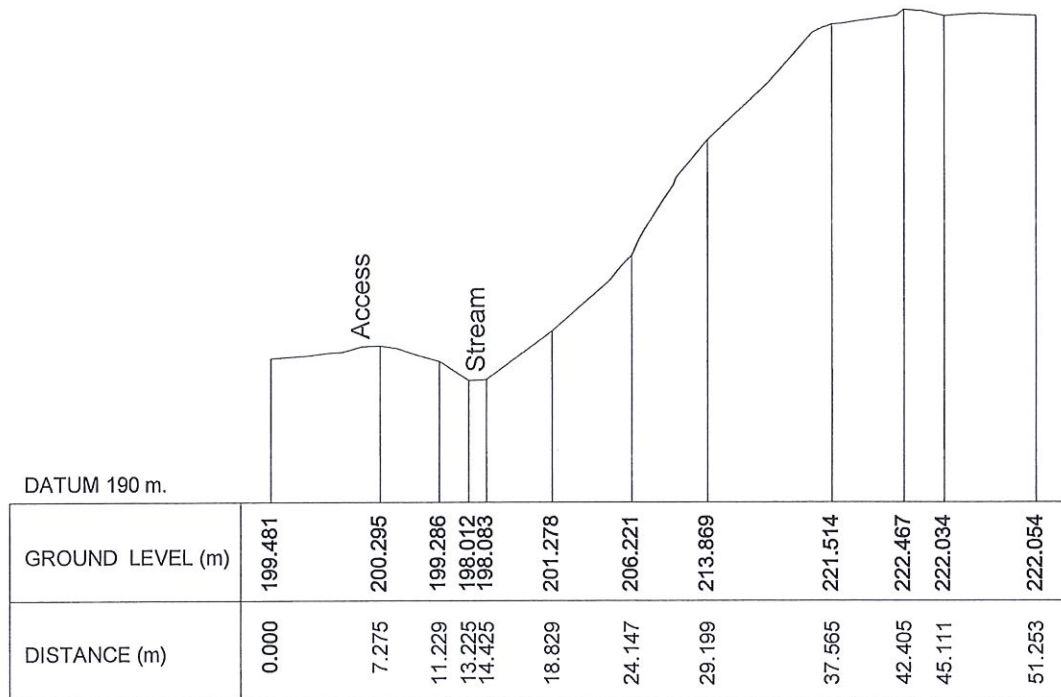
<p>EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05</p>	<p>DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05</p>	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN DANGOLLA LOWER CIRCULAR ROAD	TITLE SURVEY CROSS SECTIONS	DESCRIPTION	NAME	SIGNATURE
							SCALE 1:750	DATE 06.11.2020		
							PROJECT / DRAWING No. RLVMMP/WORKS/NCB/04B/01-Dan/DR-02a	REVISION 00		



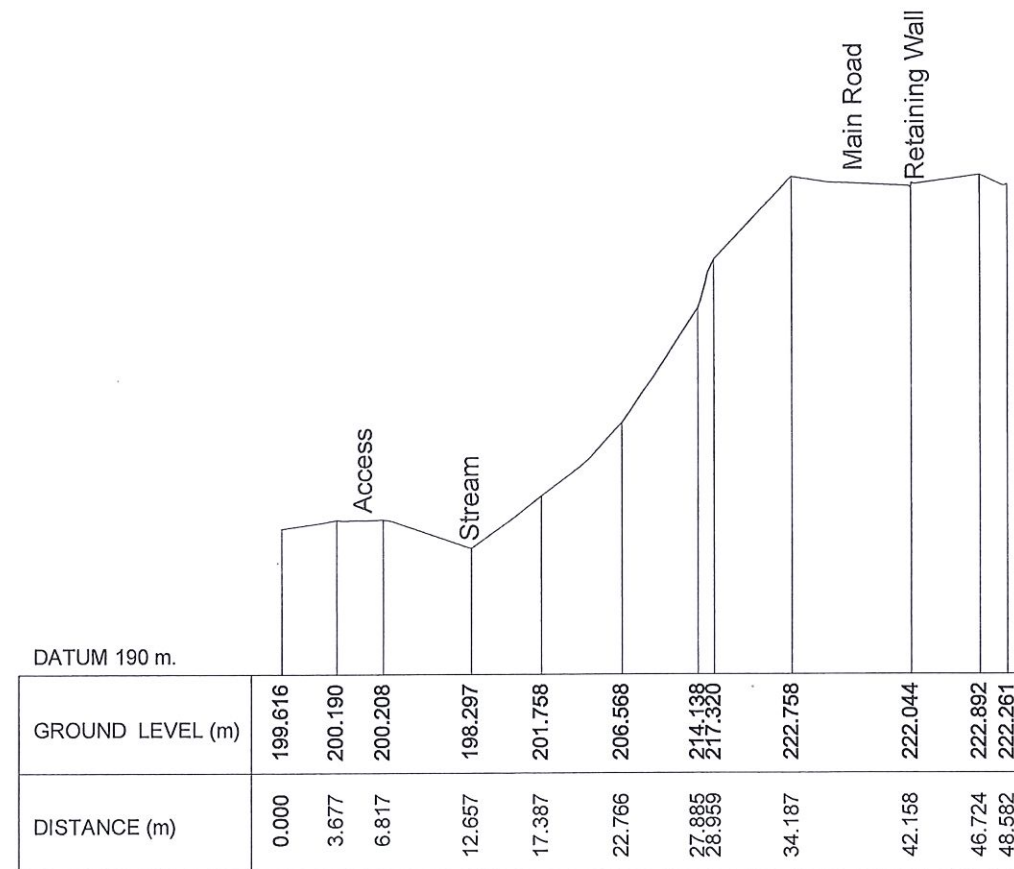
SECTION - E



SECTION - F

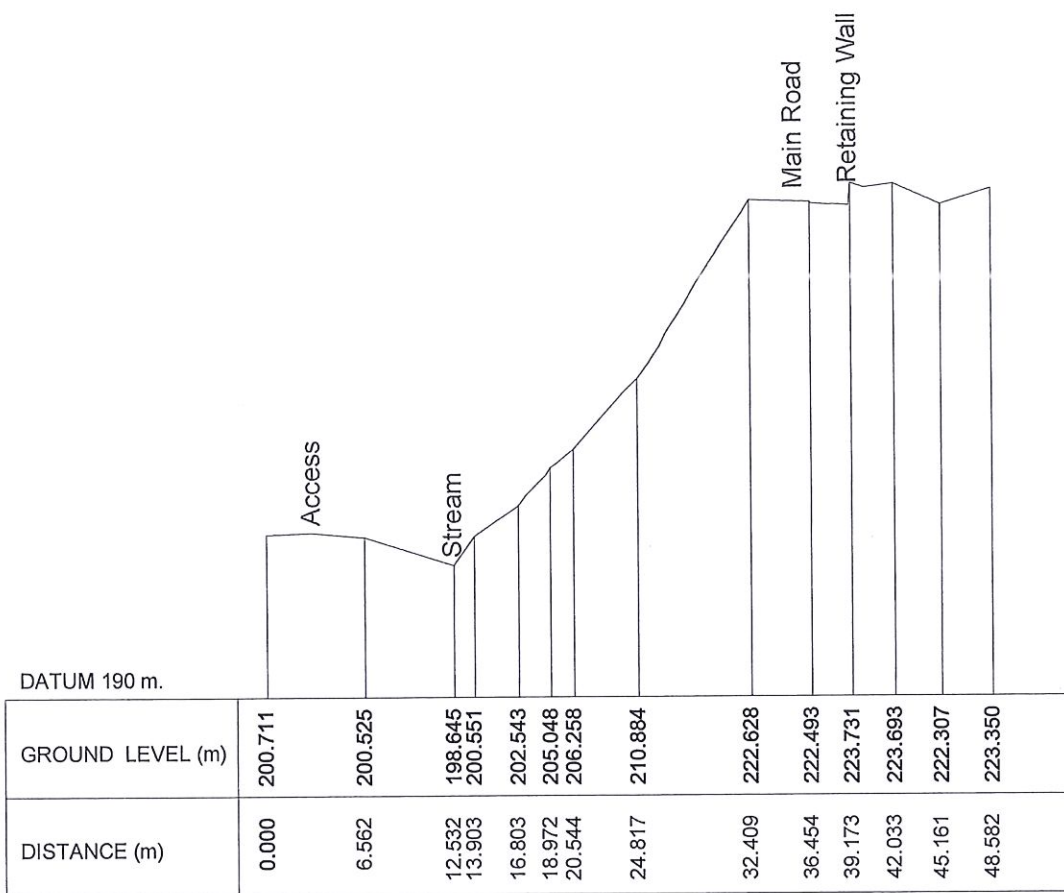


SECTION - G

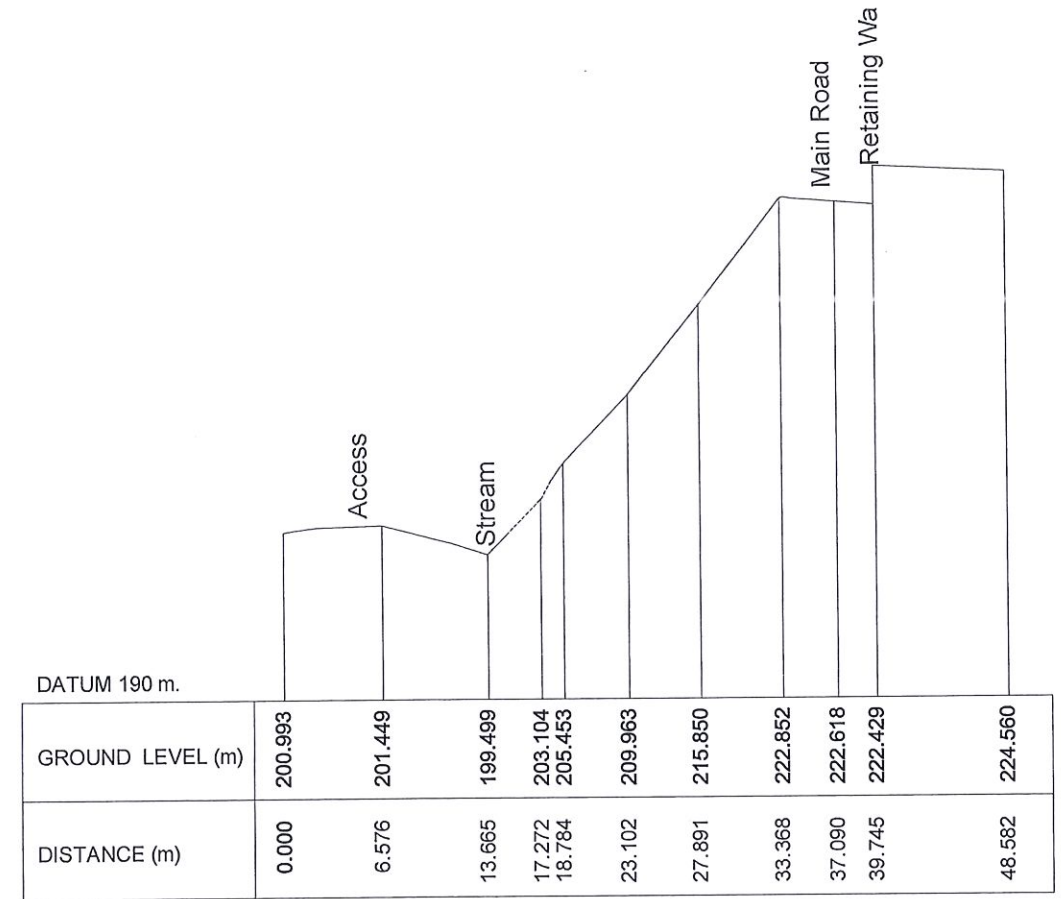


SECTION - H

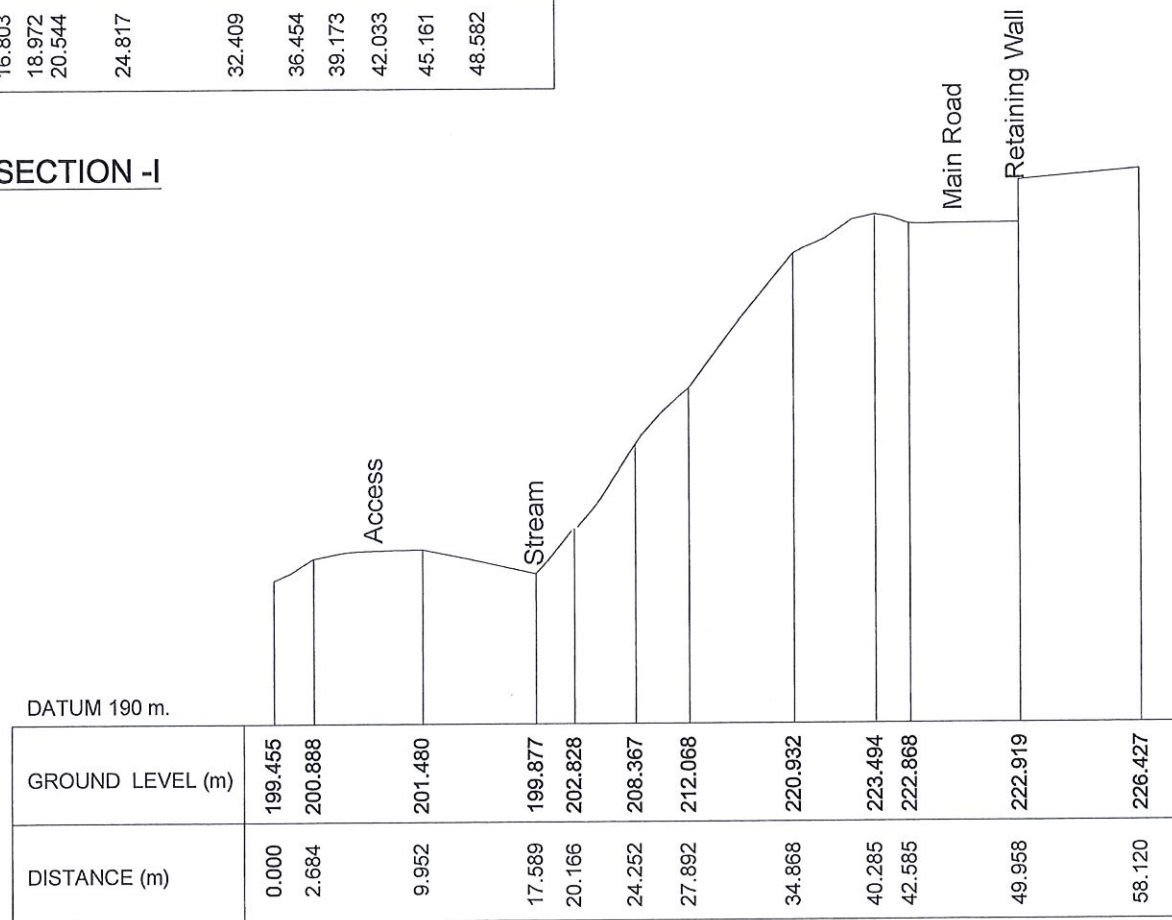
<p>EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05</p>	<p>DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05</p>	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN DANGOLLA LOWER CIRCULAR ROAD	TITLE SURVEY CROSS SECTIONS	DESCRIPTION	NAME	SIGNATURE
								SURVEYED	KAMAL DESHAPRIYA	
								CHECKED	D.M.D.T. DASANAYAKA	
							SCALE	1:750	DATE	06.11.2020
							PROJECT / DRAWING No.		REVISION	00
							RLVMM/WORKS/NCB/04B/01-Dan/DR-026			





SECTION -I

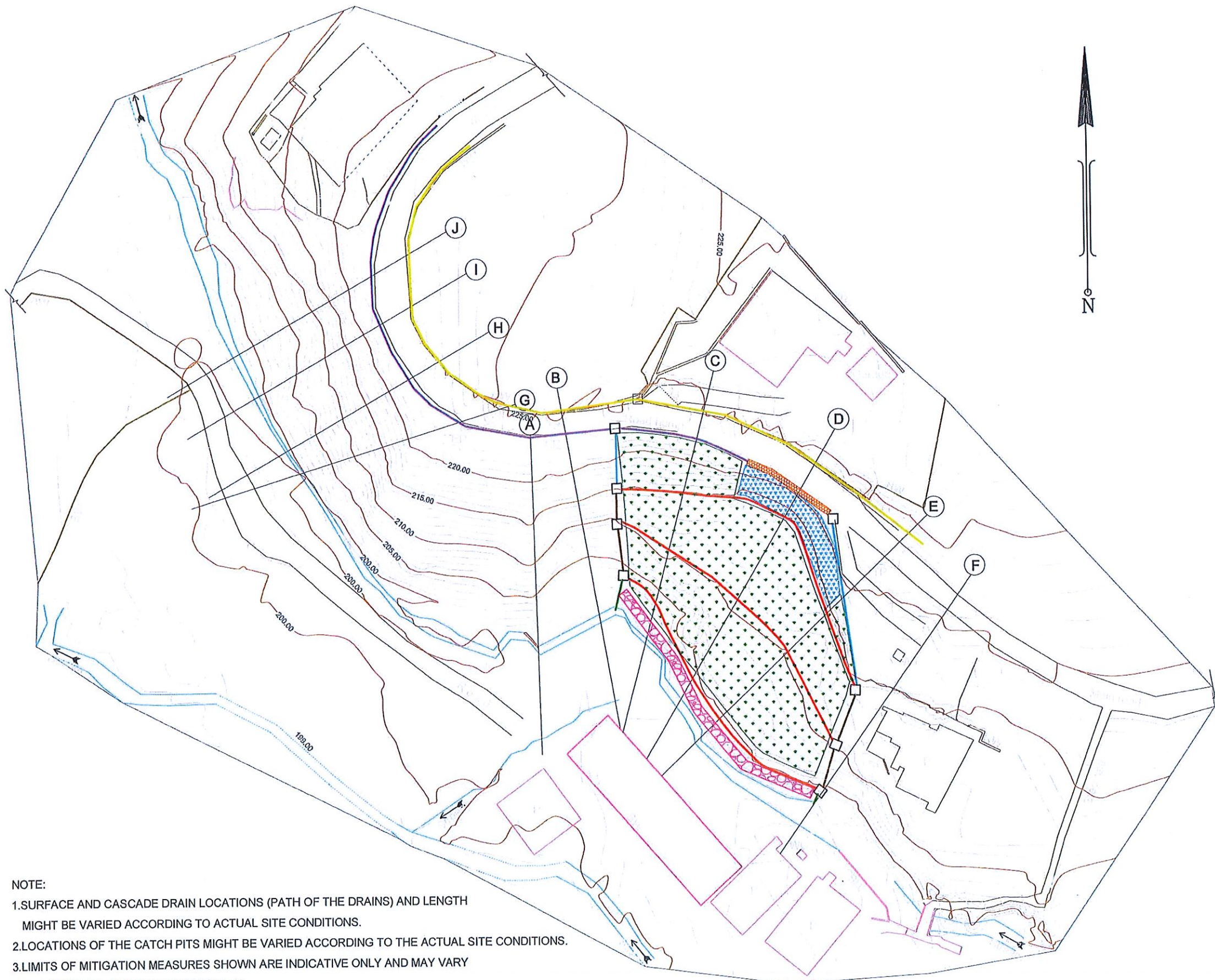


SECTION -J



SECTION -K

EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05	DESIGNER  DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION 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 DANGOLLA LOWER CIRCULAR ROAD	TITLE SURVEY CROSS SECTIONS	DESCRIPTION	NAME	SIGNATURE
									SURVEYED KAMAL DESHAPRIYA CHECKED D.M.D.T. DASANAYAKA	
						SCALE 1:750	DATE 06.11.2020	PROJECT / DRAWING No. RLVMMPP/WORKS/NCB/04B/01-Dan/DR- 02c	REVISION 00	



REFERENCE

- RW - RETAINING WALL
- BW - BOUNDARY WALL
- WMF - WIRE MESH FENCE
- ZF - ZINC FENCE
- TP - TELEGRAPH PLOE
- EP - ELECTRICITY PLOE
- WC - WATER CLOSET
- WT - WATER TANK
- BW - BOUNDARY WALL
- BH - BORE HOLE
- P - PERMANENT BUILDING
- G - GATE

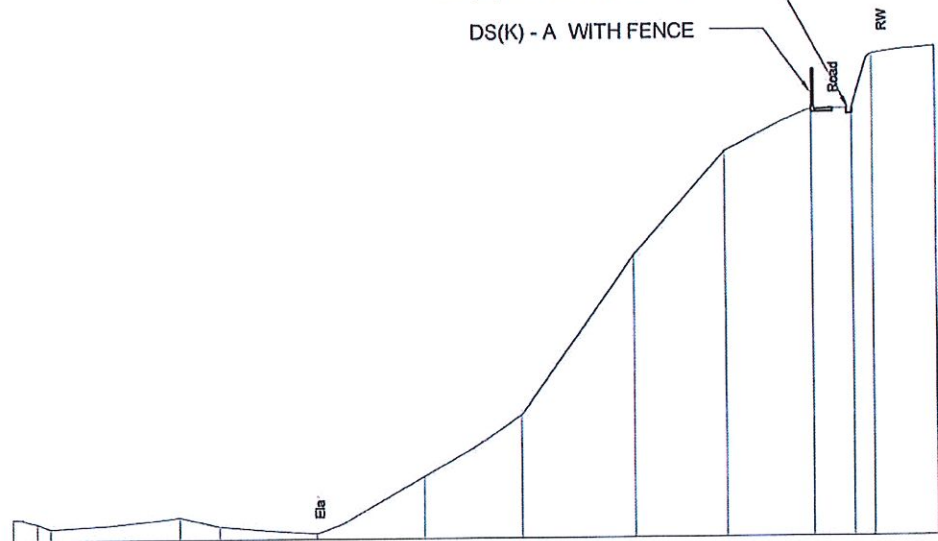
DESIGN NOTATION

- DS (C) - A
- DS (C) - C
- DS (C) - D
- DS (K) - A WITH FENCE
- DS (M) - A
- DS (M) - A WITH GRATING
- CANTILEVER WALL WITH NAILING
- RESHAPING AND TURFING AREA
- SOIL NAILING AREA
- GABION WALL (TYPE I)
- CATCH PIT

NOTE:
 1. SURFACE AND CASCADE DRAIN LOCATIONS (PATH OF THE DRAINS) AND LENGTH MIGHT BE VARIED ACCORDING TO ACTUAL SITE CONDITIONS.
 2. LOCATIONS OF THE CATCH PITS MIGHT BE VARIED ACCORDING TO THE ACTUAL SITE CONDITIONS.
 3. LIMITS OF MITIGATION MEASURES SHOWN ARE INDICATIVE ONLY AND MAY VARY DEPENDING ON ACTUAL SITE CONDITION.

EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION 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 DANGOLLA LOWER CIRCULAR ROAD	TITLE DESIGN PLAN OF PROPOSED MITIGATION MEASURES	DESCRIPTION	NAME	SIGNATURE
									SCALE 1:400	DATE 06.11.2020
							PROJECT / DRAWING No. RLVMP/WORKS/NCB/04B/01-Dan/DR-03	APPROVED	K.N. BANDARA	

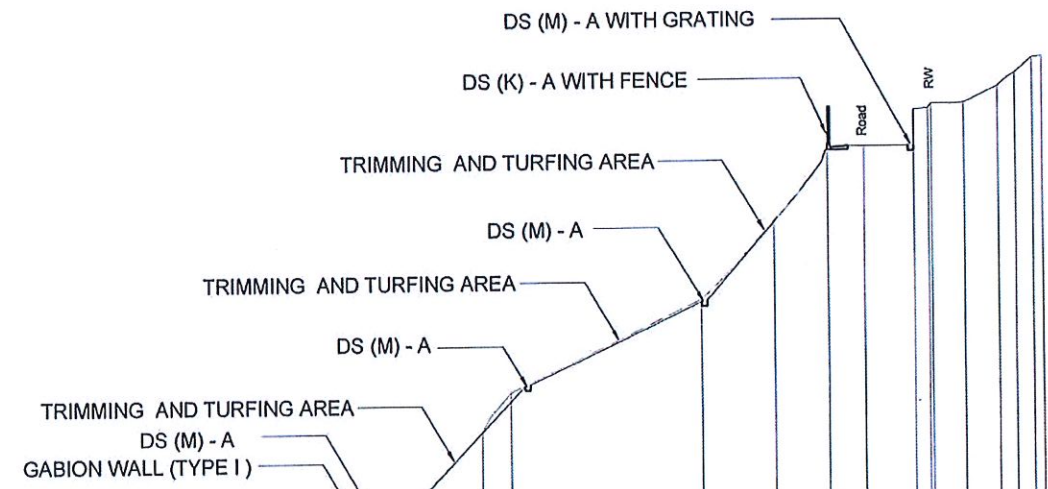
DS(M) - A WITH GRATING
 DS(K) - A WITH FENCE
 RW



DATUM 200 m.

GROUND LEVEL (m)	201.168	200.908	200.631	201.212	200.705	200.292	203.343	206.644	215.253	220.834	223.094	223.162	226.047	226.416
DISTANCE (m)	0.000	1.321	2.062	9.238	11.394	16.783	22.759	28.129	34.298	39.397	44.224	46.467	47.581	51.063

SECTION - B

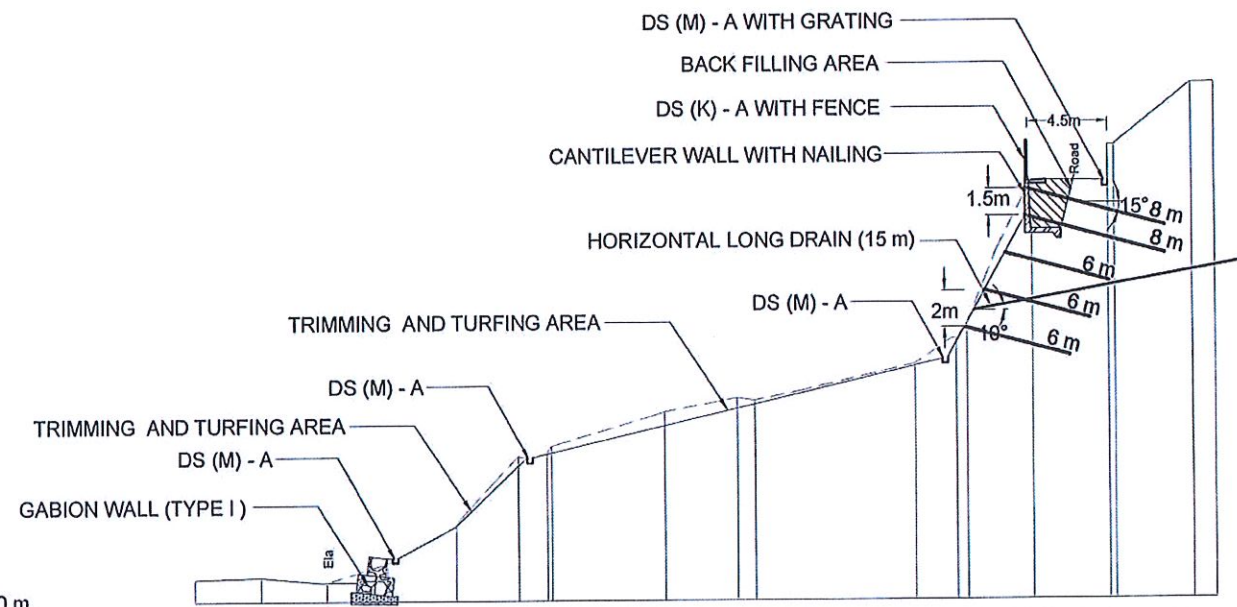


DATUM 200 m.

GROUND LEVEL (m)	201.212	201.121	200.668	201.721	201.373	203.668	207.475	209.581	214.565	218.788	222.788	222.788	222.806	224.805	225.048	225.079	225.947	226.666	227.480	227.540
DISTANCE (m)	0.000	1.731	2.987	11.910	14.298	20.403	24.153	25.717	36.253	40.287	43.298	45.312	48.033	48.849	49.018	50.823	52.705	53.672	54.602	55.140

SECTION - C

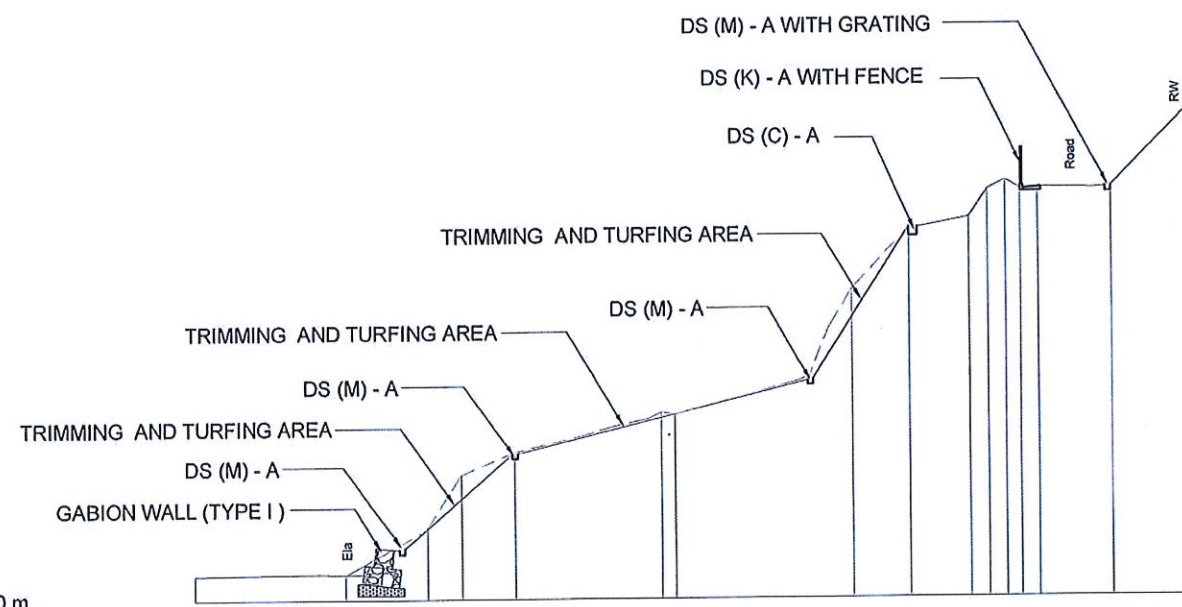
EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN DANGOLLA LOWER CIRCULAR ROAD	TITLE CROSS SECTION OF PROPOSED MITIGATION MEASURES	DESCRIPTION	NAME	SIGNATURE
							SCALE 1:400	DATE 06.11.2020		
							PROJECT / DRAWING No. RLVMMP/WORKS/NCB/04B/01-Dan/DR- 04a	REVISION 00	RECOMMENDED	PROF. S.A.S. KULATHILAKA
								APPROVED	K.N. BANDARA	



DATUM 200 m.

GROUND LEVEL (m)	201.216	201.317	201.038	202.043	204.156	207.820	207.945	208.367	210.189	210.927	210.796	212.743	214.992	222.621	222.513	227.855	227.869		
DISTANCE (m)	0.000	3.634	7.268	10.518	14.353	17.830	19.438	19.693	25.929	29.904	30.892	39.742	42.047	42.618	46.220	50.477	50.827	55.082	56.304

SECTION -D

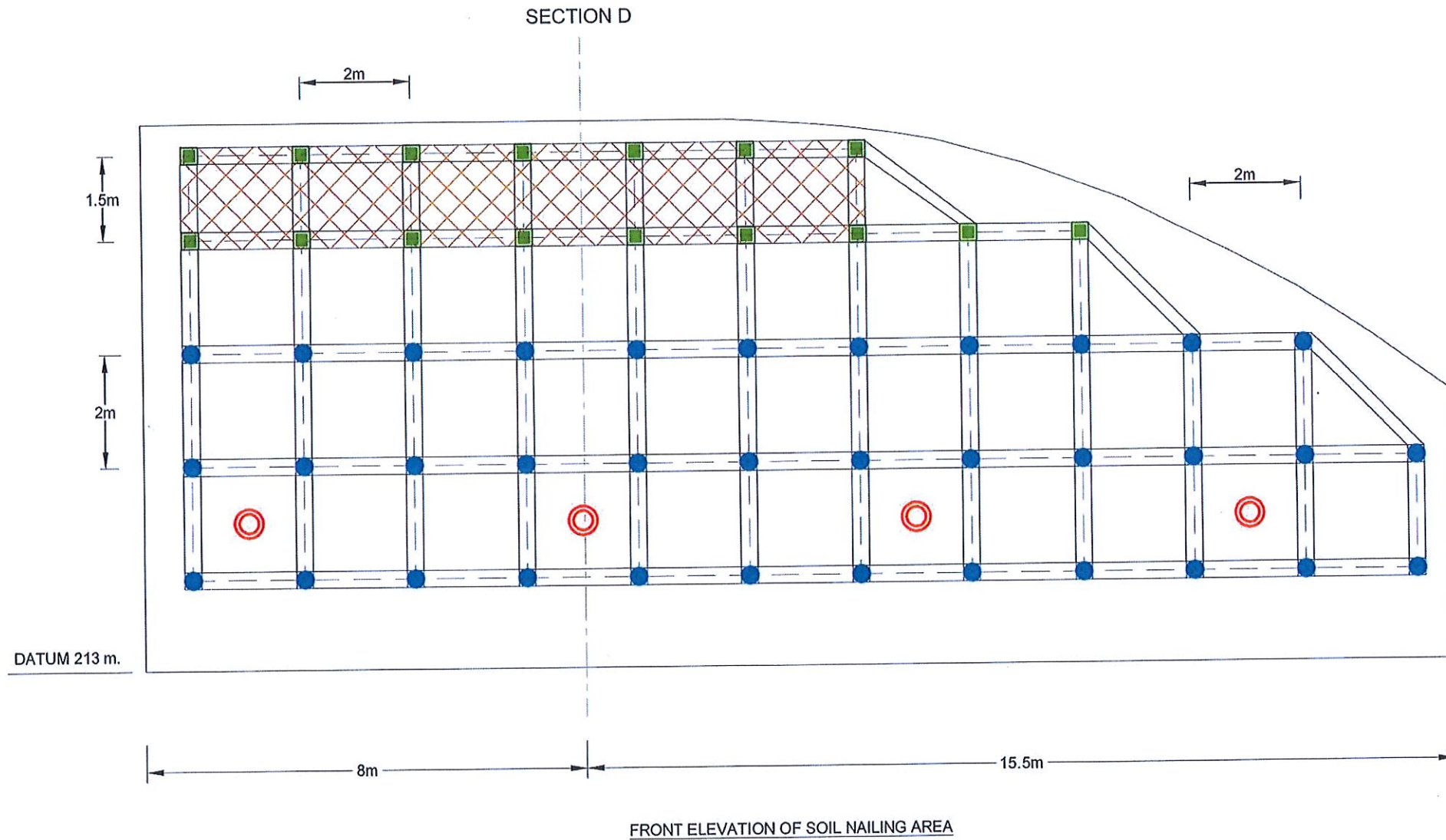


DATUM 200 m.

GROUND LEVEL (m)	201.343	201.380	203.892	206.756	207.961	210.073	209.972	212.001	216.701	220.012	220.530	222.047	222.540	222.057	222.158	222.155	226.879
DISTANCE (m)	0.000	8.354	12.831	14.703	17.638	25.734	26.476	33.978	36.342	39.477	42.717	43.748	44.720	45.650	46.532	50.576	55.404

SECTION -E

EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION 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 DANGOLLA LOWER CIRCULAR ROAD	TITLE		DESCRIPTION DRAWN S.A.G.D. SENANAYAKA DESIGNED D.M.D.T. DASANAYAKA CHECKED J.P. SAMARANAYAKE RECOMMENDED PROF. S.A.S. KULATHILAKA APPROVED K.N. BANDARA	NAME	SIGNATURE
		SCALE 1:400		DATE 06.11.2020	PROJECT / DRAWING No. RLVMP/WORKS/NCB/04B/01-Dan/DR-04b		REVISION 00				



LEGEND

● SOIL NAILING - TOTAL NAIL LENGTH = 06m
 NO'S OF SOIL NAILS = 35
 REINFORCEMENT DIAMETER = 32mm
 DIAMETER OF THE BOREHOLE = 125mm
 NAIL SPACING = 2m(B/W)

○ HORIZONTAL LONG DRAINAGE - HORIZONTAL LONG DRAIN LENGTH = 15 m
 NO' S OF LONG DRAIN = 04
 DIAMETER = 90 mm

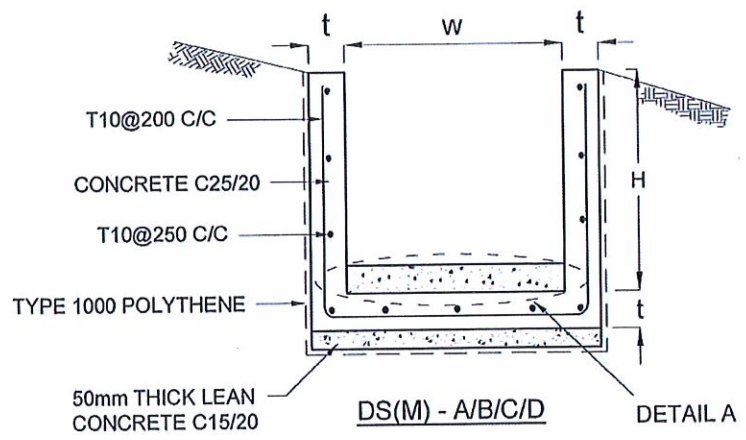
■ SOIL NAILING - TOTAL NAIL LENGTH = 08m
 NO'S OF SOIL NAILS = 16
 REINFORCEMENT DIAMETER = 32mm
 DIAMETER OF THE BOREHOLE = 125mm

▨ RETAINING WALL FACE

NOTES

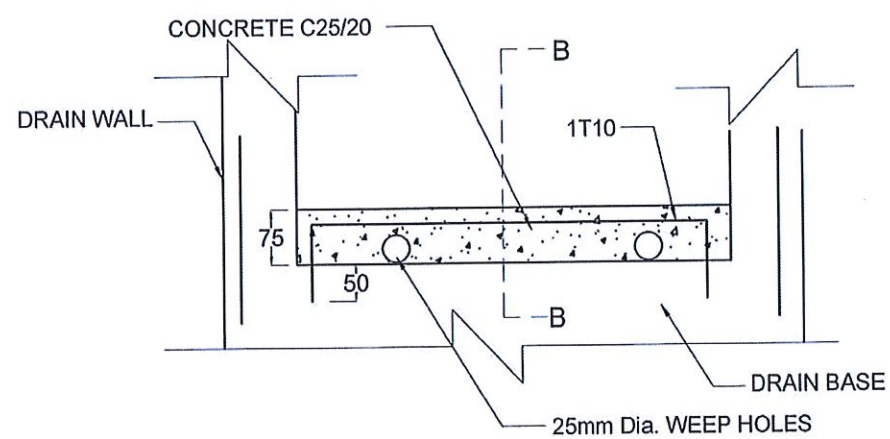
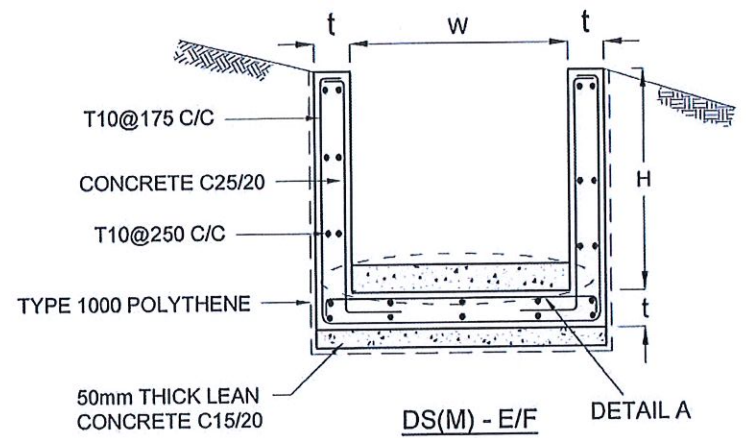
1. LENGTH OF THE SOIL NAILS, LENGTH & LOCATION OF HORIZONTAL DRAINS MIGHT BE VARIED ACCORDING TO THE ACTUAL SOIL PROFILE OR SITE CONDITION.
2. SOIL NAIL SLOPE NEAR SECTION E SHALL END WITH SMOOTH TRANSITION TO MATCH WITH EXISTING SLOPE.

EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION 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 DANGOLLA LOWER CIRCULAR ROAD	TITLE		DESCRIPTION	NAME	SIGNATURE		
								FRONT ELEVATION OF PROPOSED MITIGATION MEASURES		DRAWN	S.A.G.D. SENANAYAKA		
							SCALE	1:100	DATE	06.11.2020	DESIGNED	D.M.D.T. DASANAYAKA	
							PROJECT / DRAWING No.		REVISION	00	CHECKED	J.P. SAMARANAYAKE	
							RLVMMP/WORKS/NCB/04B/01-Dan/DR-05		APPROVED		RECOMMENDED	PROF. S.A.S. KULATHILAKA	
									APPROVED		APPROVED	K.N. BANDARA	



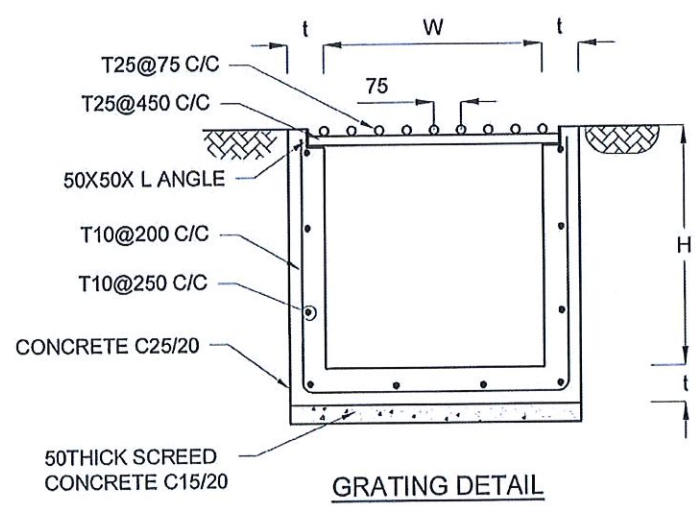
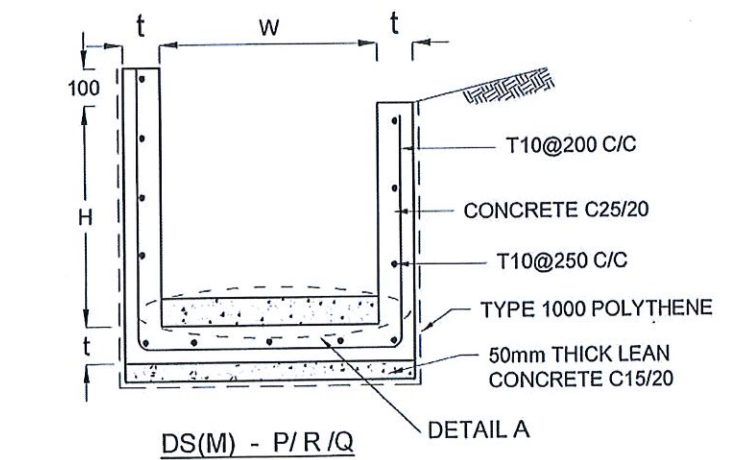
DRAIN TYPE	W (mm)	H (mm)	t (mm)
DS (M) - A/P	300	300	100
DS (M) - B/R	450	450	100
DS (M) - C/Q	600	600	100
DS (M) - D	750	750	125
DS (M) - E	900	900	150
DS (M) - F	1000	1000	150

- 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.

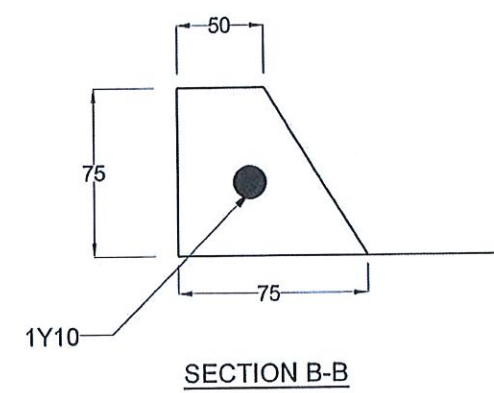


DETAIL A - (ENERGY BREAKER AT 3M)

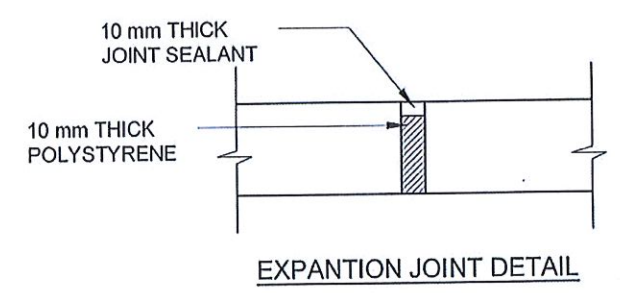
- CONCRETE**
- USE FOLLOWING CONCRETE GRADES FOR STRUCTURE
 - [a] SCREED - C. 15/20
 - [b] WALLS / BASE / ENERGY BREAKERS - C. 25/20
- REINFORCEMENT**
- ALL BARS MARKED "T" SHALL BE HIGH YIELD DEFORMED BARS OF YIELD STRENGTH NOT LESS THAN 460N/mm².
 - BARS OF CUT LENGTH LARGER THAN THE SUPPLIED LENGTH 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

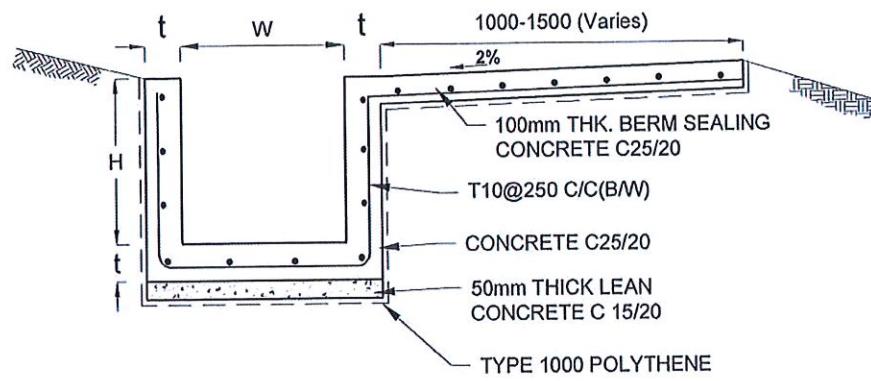


SECTION B-B

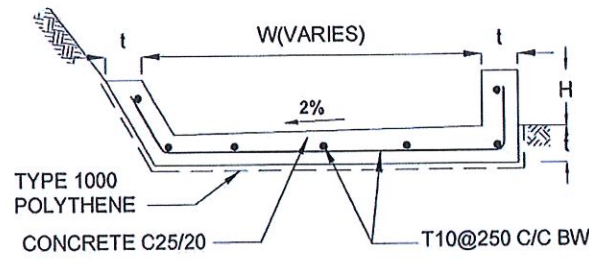


EXPANSION JOINT DETAIL

EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION 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 DANGOLLA LOWER CIRCULAR ROAD	TITLE DETAILS OF DRAINS (SURFACE DRAIN -1 OF 2)		DESCRIPTION	NAME	SIGNATURE		
								SCALE	N.T.S.	DATE	06.11.2020	DRAWN	S.A.G.D. SENANAYAKA
							PROJECT / DRAWING No.	RLVMM/WORKS/NCB/04B/01-Dan/DR-06a	REVISION	00	DESIGNED	D.M.D.T. DASANAYAKA	
											CHECKED	J.P. SAMARANAYAKE	
											RECOMMENDED	PROF. S.A.S. KULATHILAKA	
											APPROVED	K.N. BANDARA	

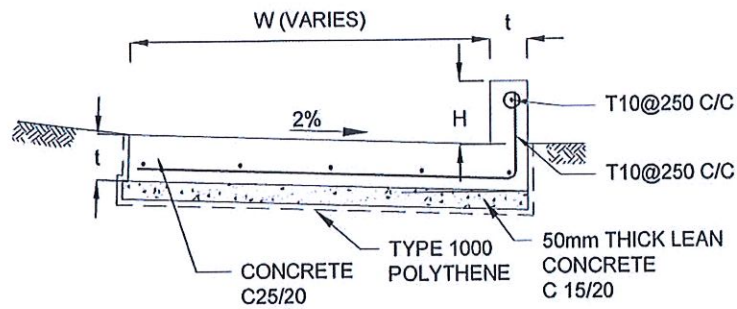


DS (B) - (TYPE I)



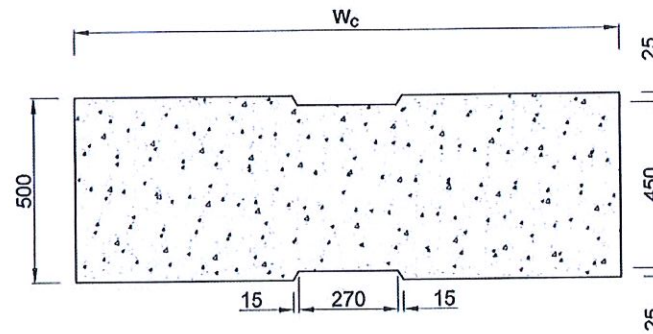
DS (B) - (TYPE II)

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

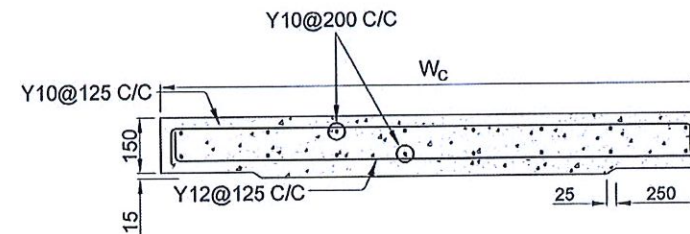


DS (K)

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

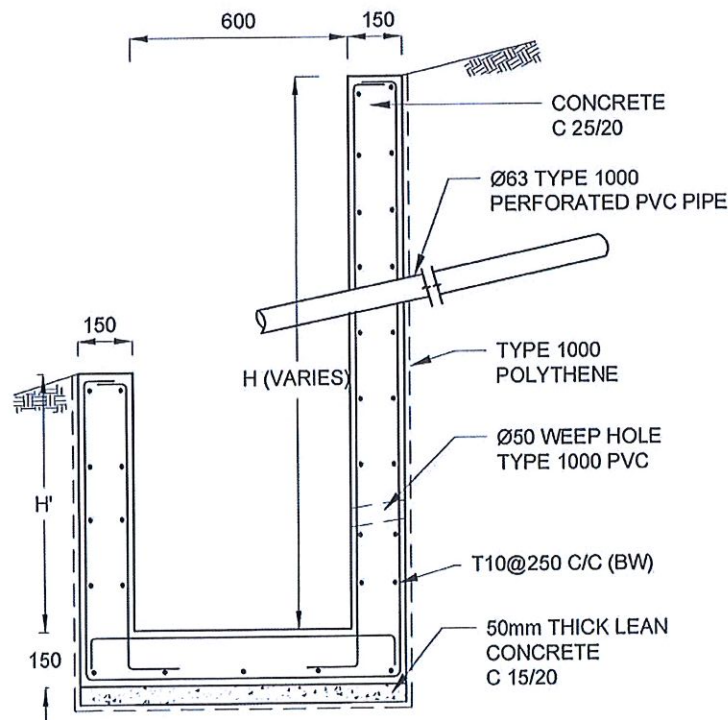


PLAN VIEW OF COVER SLAB



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



DS (M) - L

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+2x]
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
- 10 mm THICK EXPANSION JOINT SHALL BE INTRODUCED IN EVERY 5m INTERVAL.

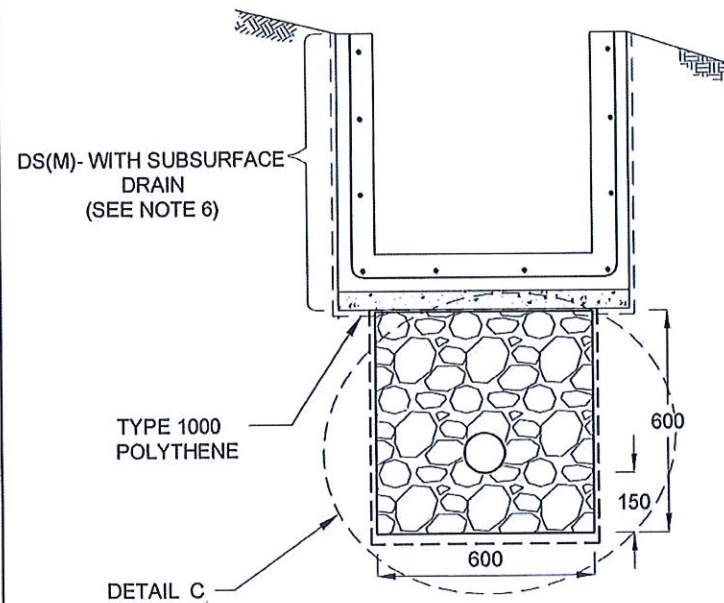
CONCRETE

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

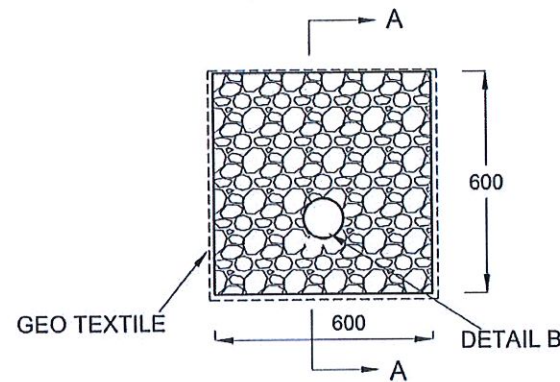
REINFORCEMENT

- 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
 - BURIED FACES AND DRAIN INVERTS - 40 mm
 - ALL OTHER FACES - 25 mm

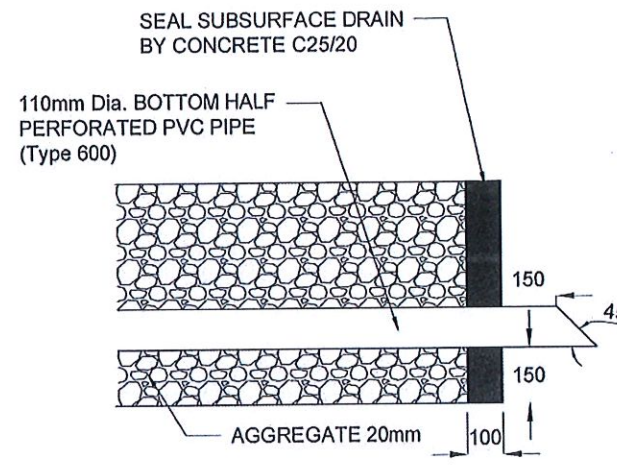
EMPLOYER	DESIGNER	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE	TITLE	DESCRIPTION	NAME	SIGNATURE	
DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05	DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05					REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN DANGOLLA LOWER CIRCULAR ROAD	DETAILS OF DRAINS (SURFACE DRAIN - 2 OF 2)	DRAWN DESIGNED CHECKED RECOMMENDED APPROVED	S.A.G.D. SENANAYAKA D.M.D.T. DASANAYAKA J.P. SAMARANAYAKE PROF. S.A.S. KULATHILAKA K.N. BANDARA	[Signatures]	
		SCALE	N.T.S.	DATE	06.11.2020	PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/04B/01-Dan/DR-06b	REVISION	00		



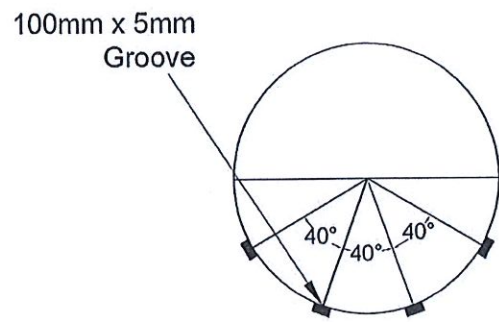
SUBSURFACE DRAIN [DS (S) -A]



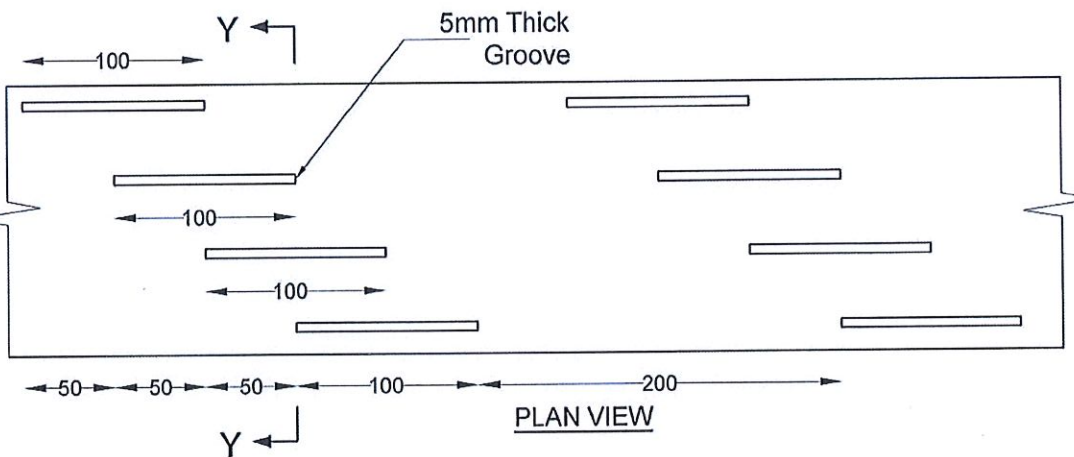
DETAIL C / DS (S) -A



SECTION A-A (OUTLET DETAIL SUBSURFACE DRAIN)

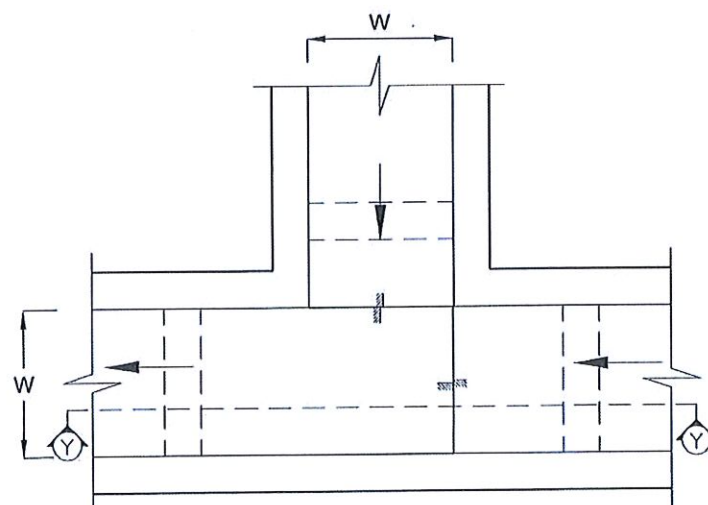


SECTION Y - Y

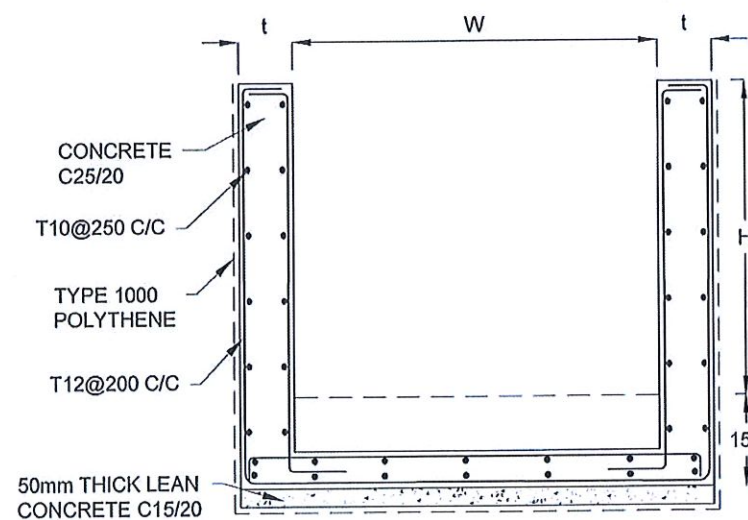


PLAN VIEW

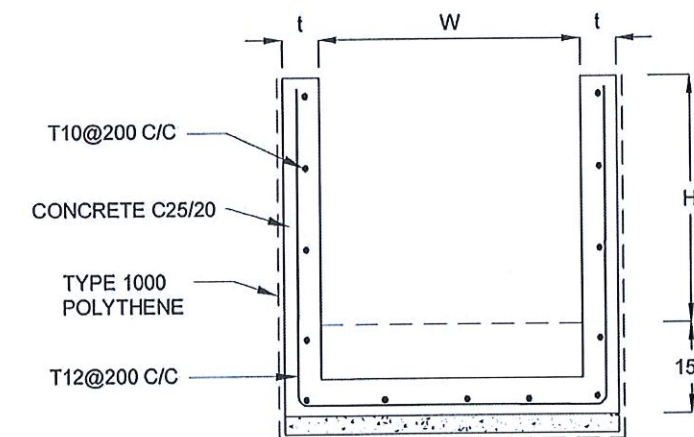
DETAIL - B (PERFORATED PIPE FOR SUB-SURFACE DRAINS)



PLAN VIEW OF CATCH PIT (CP)



SECTION Y-Y (CP-R)



SECTION Y - Y

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.

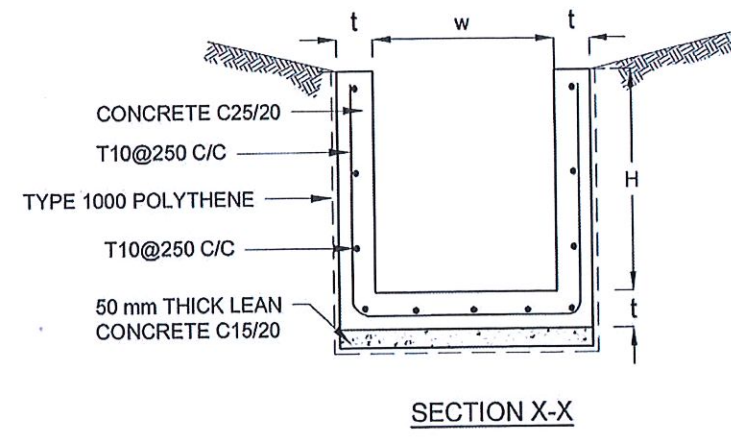
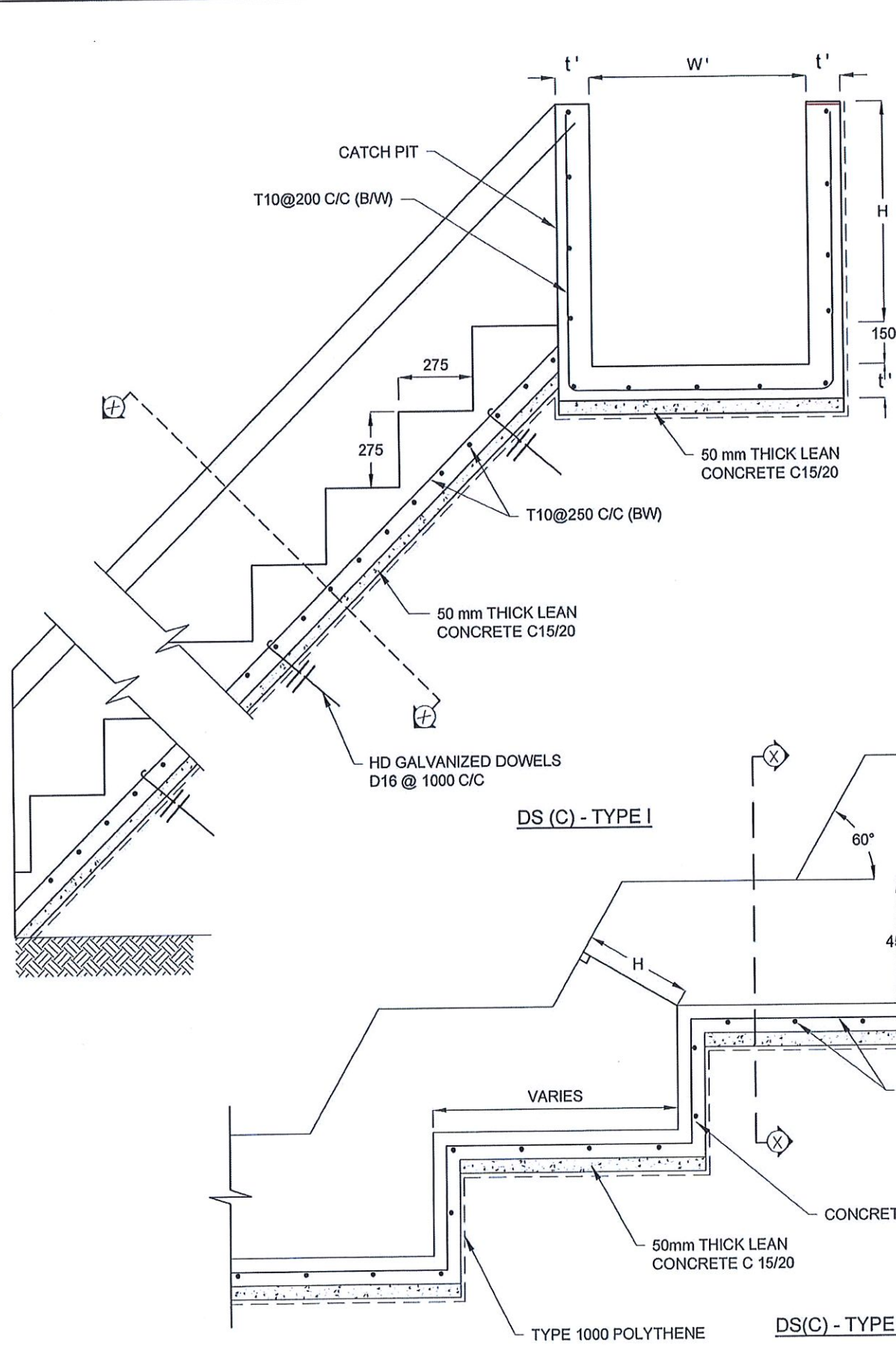
CONCRETE

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

EMPLOYER	DESIGNER	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE	TITLE	DESCRIPTION	NAME	SIGNATURE
DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05	DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05					REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN DANGOLLA LOWER CIRCULAR ROAD	DETAILS OF DRAINS (SUBSURFACE DRAIN AND CATCHPIT)	DRAWN	S.A.G.D. SENANAYAKA	
									DESIGNED	D.M.D.T. DASANAYAKA
								CHECKED	J.P. SAMARANAYAKE	
								RECOMMENDED	PROF. S.A.S. KULATHILAKA	
								APPROVED	K.N. BANDARA	
		SCALE	N.T.S.	DATE	06.11.2020	PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/04B/01-Dan/DR- 06c	REVISION	00	



NOTES

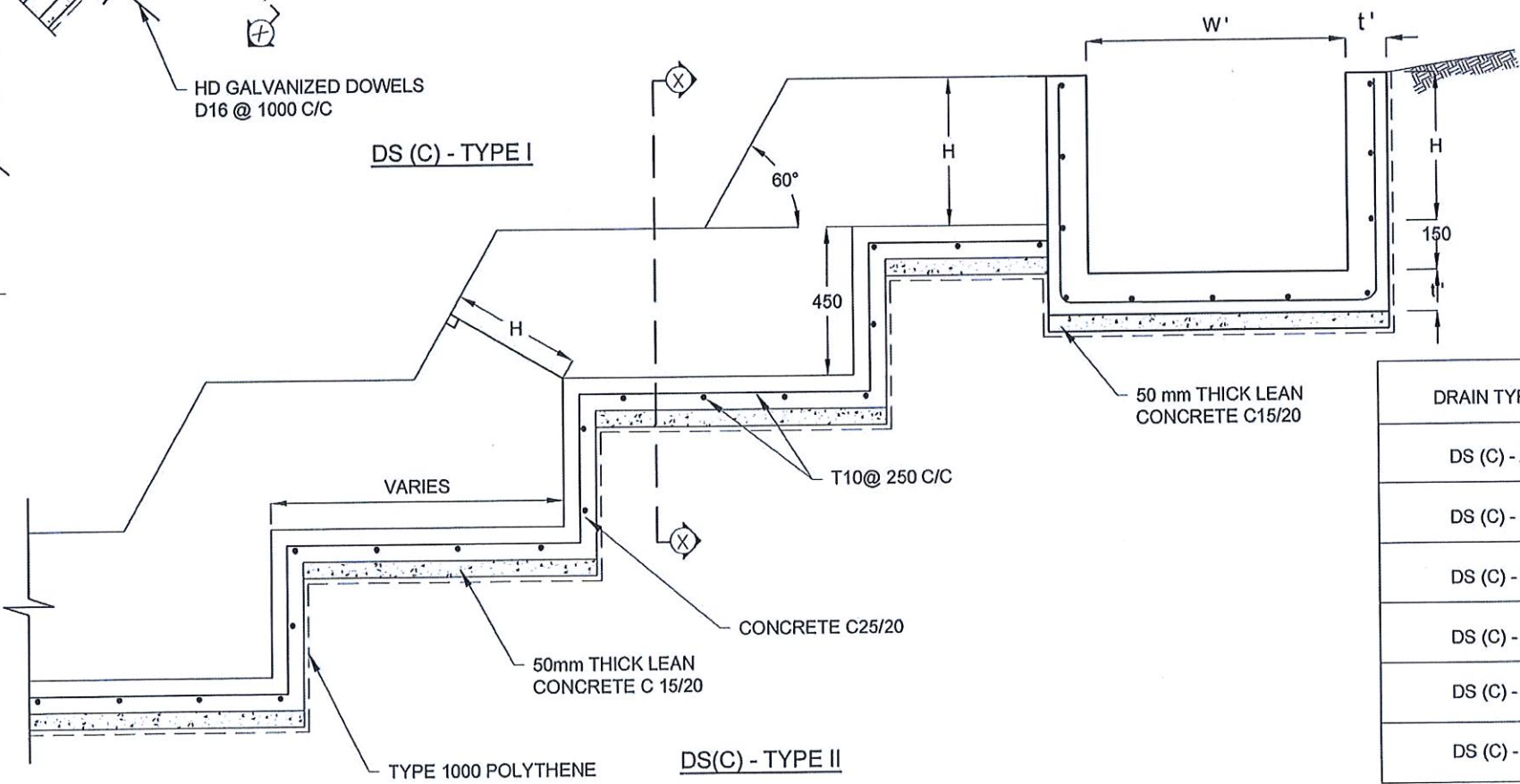
1. USE EITHER TYPE I OR TYPE II CASCADE DRAIN ACCORDING TO THE ACTUAL GROUND CONDITION AS INSTRUCTED BY THE ENGINEER.
2. LENGTH OF THE STEPS OF CASCADE WILL BE VARIED ACCORDING TO THE SITE CONDITIONS.
3. DEPTH OF EXCAVATION SHALL BE VARIED ACCORDING TO SITE CONDITIONS.
4. DOWELS SHALL BE INSTALLED ACCORDING 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

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

REINFORCEMENT

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



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

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

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

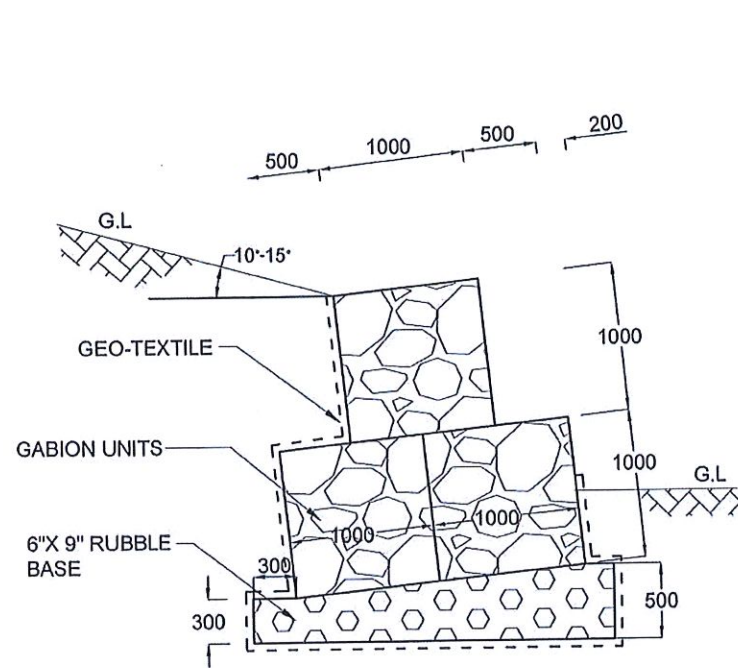
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 RECTIFICATION OF LANDSLIDE IN
 DANGOLLA LOWER CIRCULAR ROAD

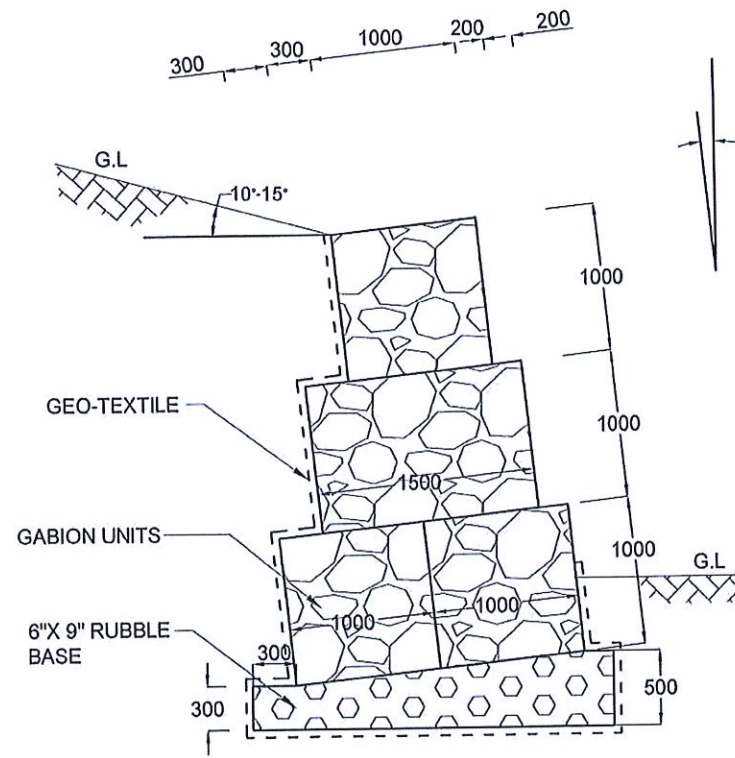
TITLE
 DETAILS OF DRAINS
 (CASCADE DRAIN)

SCALE | N.T.S. | DATE | 06.11.2020
 PROJECT / DRAWING No. | REVISION
 RLVMP/WORKS/NCB/04B/01-Dan/DR-06d | 00

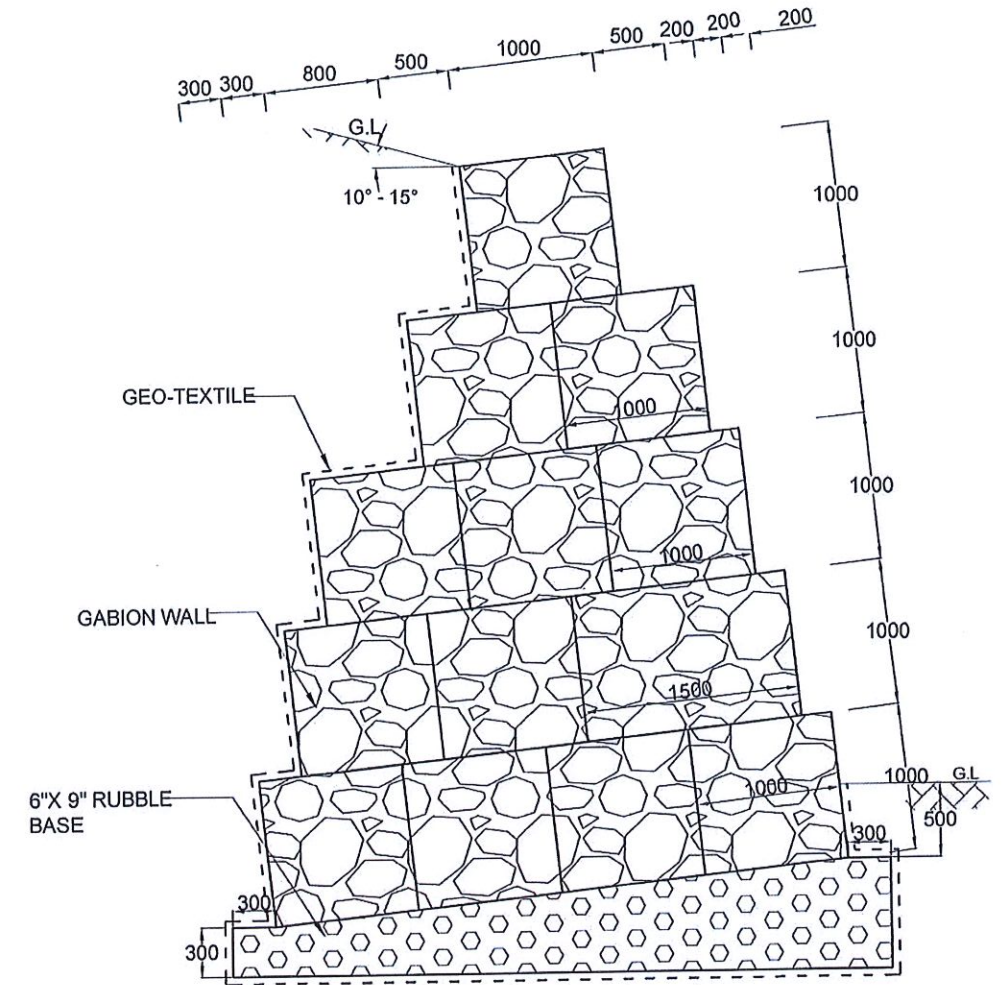
DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	<i>[Signature]</i>
DESIGNED	D.M.D.T. DASANAYAKA	<i>[Signature]</i>
CHECKED	J.P. SAMARANAYAKE	<i>[Signature]</i>
RECOMMENDED	PROF. S.A.S. KULATHILAKA	<i>[Signature]</i>
APPROVED	K.N. BANDARA	<i>[Signature]</i>



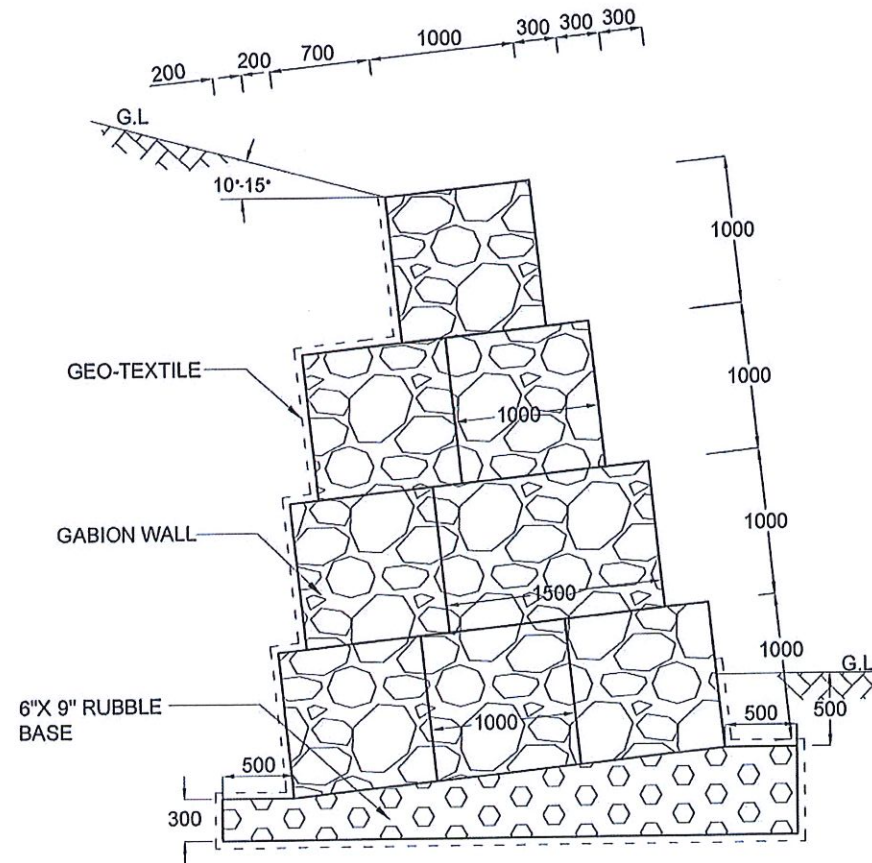
GABION WALL
TYPE I



GABION WALL
TYPE II




GABION WALL
TYPE IV



GABION WALL
TYPE III

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS.

EMPLOYER

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

DESIGNER

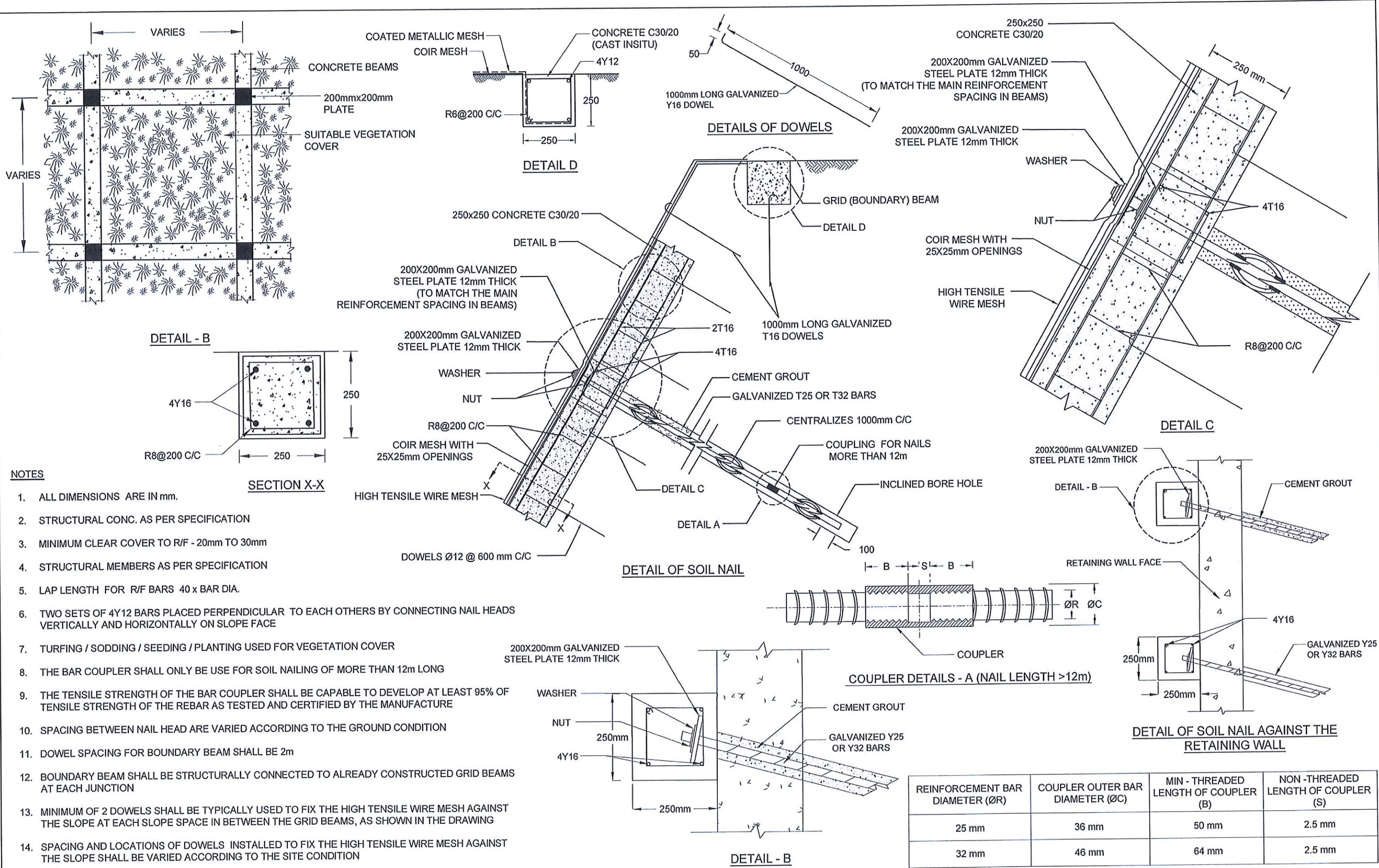
 DESIGN UNIT
 NATIONAL BUILDING RESEARCH ORGANIZATION
 No. 99/1, JAWATTA ROAD,
 COLOMBO - 05

REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 RECTIFICATION OF LANDSLIDE IN
 DANGOLLA LOWER CIRCULAR ROAD

TITLE		DATE	
DETAILS OF GABION WALL		06.11.2020	
SCALE	N.T.S.	REVISION	00
PROJECT / DRAWING No.		RLVMP/WORKS/NCB/04B/01-Dan/DR-07	


DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNED	D.M.D.T. DASANAYAKA	
CHECKED	J.P. SAMARANAYAKE	
RECOMMENDED	PROF. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	



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

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

EMPLOYER

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






DESIGNER

DESIGN UNIT
 NATIONAL BUILDING RESEARCH ORGANIZATION
 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 DANGOLLA LOWER CIRCULAR ROAD

TITLE
 DETAILS OF SOIL NAILING WITH GRID BEAM

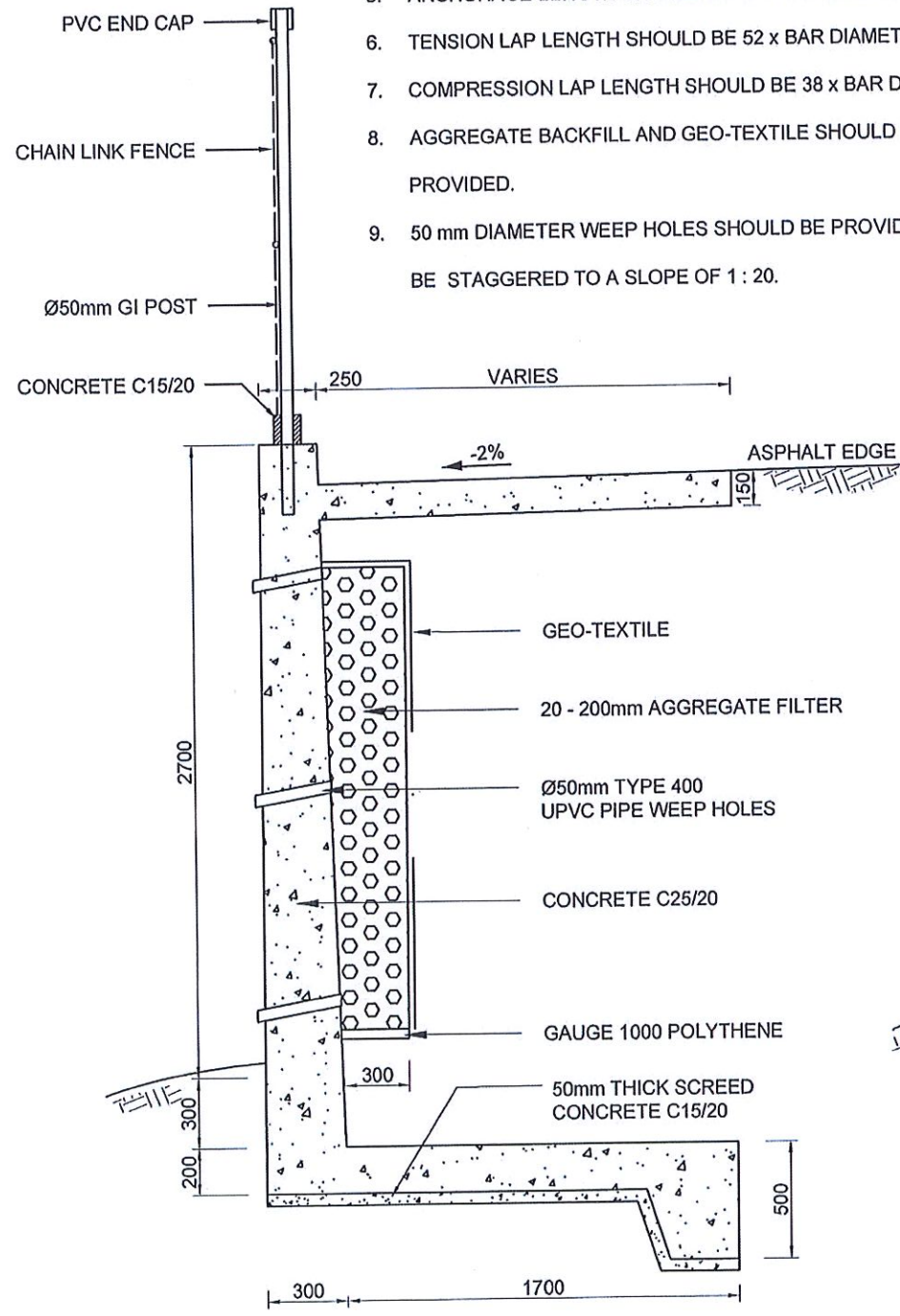
DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNED	D.M.D.T. DASANAYAKA	
CHECKED	J.P. SAMARANAYAKE	
RECOMMENDED	PROF. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	

SCALE | N.T.S. | DATE | 06.11.2020
 PROJECT / DRAWING No. | RLVMP/WORKS/NCB/04B/01-Dan/DR-08 | REVISION | 00

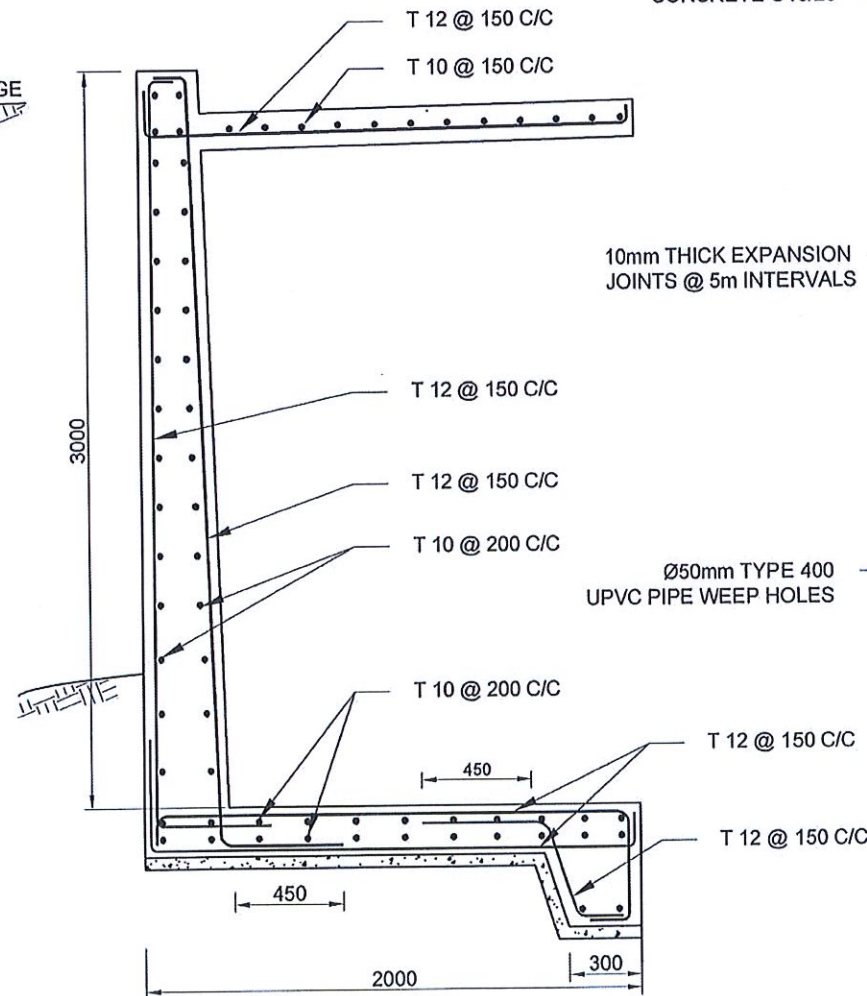
GENERAL NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. STRUCTURAL CONCRETE SHOULD BE GRADE 25 AND SCREED CONCRETE SHOULD BE GRADE 15.
3. MINIMUM COVER FOR THE REINFORCEMENT SHOULD BE 40 mm.
4. HIGH YIELD REINFORCEMENT BARS DENOTED BY 'T' SHALL CONFORM TO THE REQUIREMENTS OF TYPE 2 OF BS 4449 AND HAVE A CHARACTERISTIC TENSILE STRENGTH OF 460 MPa.
5. ANCHORAGE LENGTH SHOULD BE 38 x BAR DIAMETER.
6. TENSION LAP LENGTH SHOULD BE 52 x BAR DIAMETER.
7. COMPRESSION LAP LENGTH SHOULD BE 38 x BAR DIAMETER.
8. AGGREGATE BACKFILL AND GEO-TEXTILE SHOULD BE CONFORMED TO THE SPECIFICATIONS PROVIDED.
9. 50 mm DIAMETER WEEP HOLES SHOULD BE PROVIDED AS GIVEN IN THE DRAWING AND SHOULD BE STAGGERED TO A SLOPE OF 1 : 20.

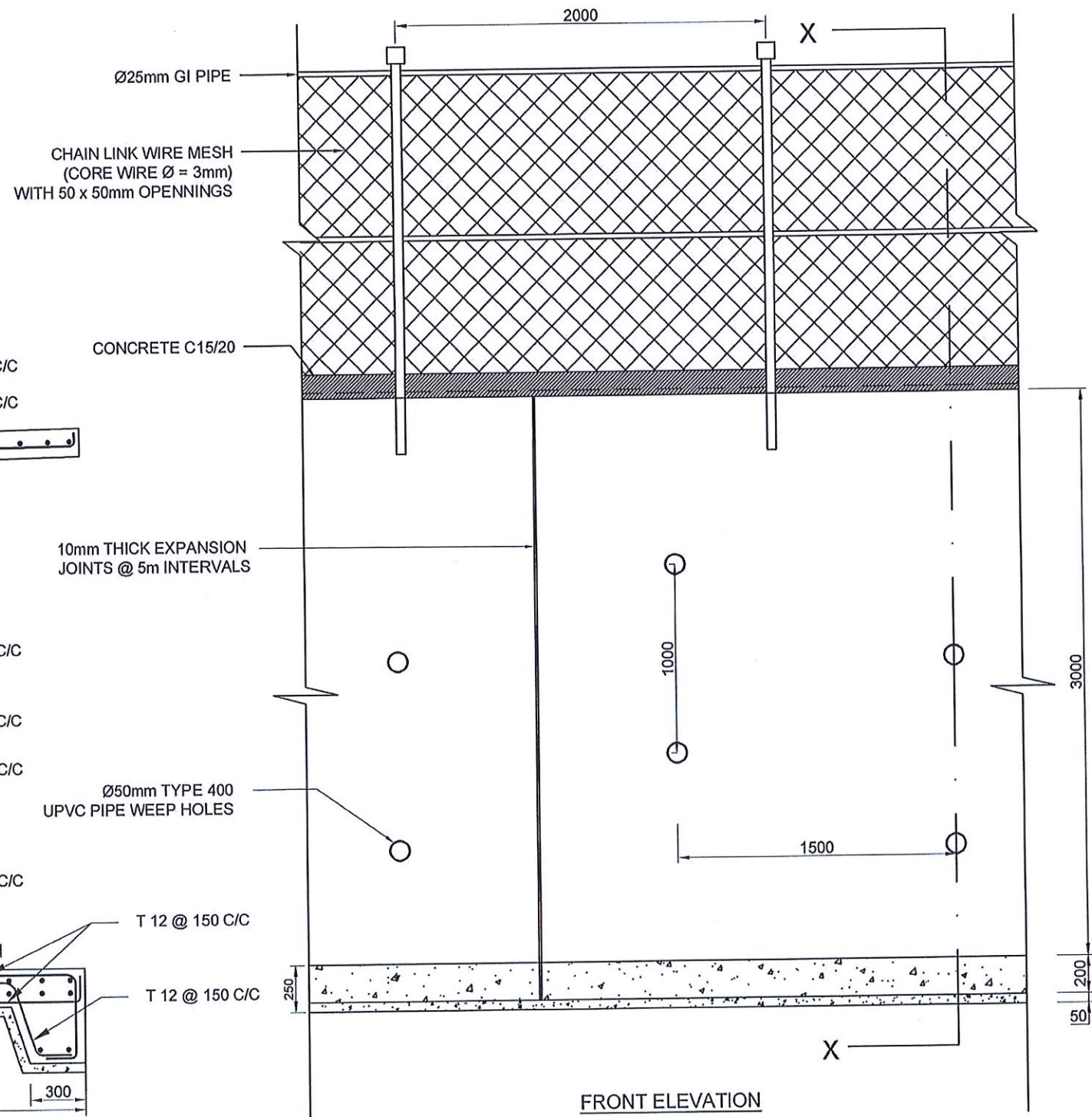
10. R16 DOWELS SHOULD BE PROVIDED AT 1000 mm SPACING IN LONGITUDINAL DIRECTION AND AT 600 mm SPACING IN TRANSVERSE DIRECTION.
11. EXPANSION JOINTS SHOULD BE PROVIDED AS GIVEN IN THE DRAWING AND TO BE EXTENDED IN THE SHOULDER.
12. WIDTH OF THE REINFORCED SHOULDER SHALL BE VARIED ACCORDING TO THE SITE CONDITION.



SECTION X - X

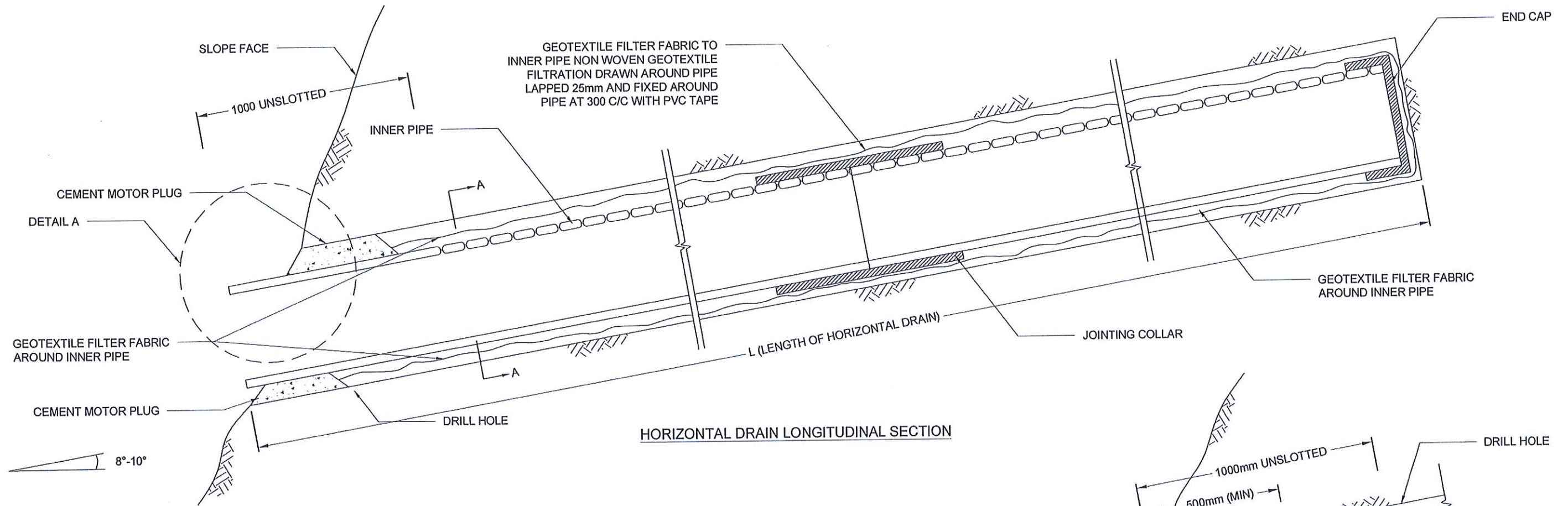


DETAIL OF REINFORCEMENT

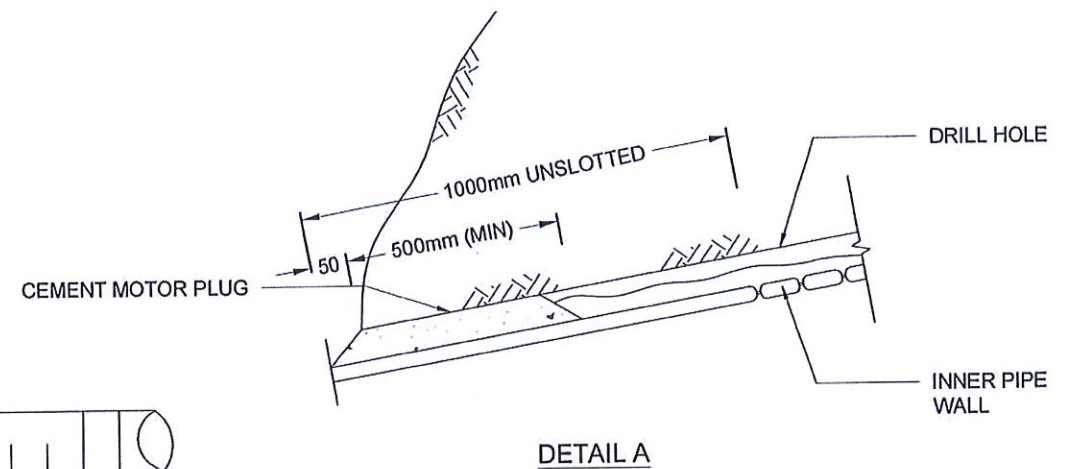


FRONT ELEVATION

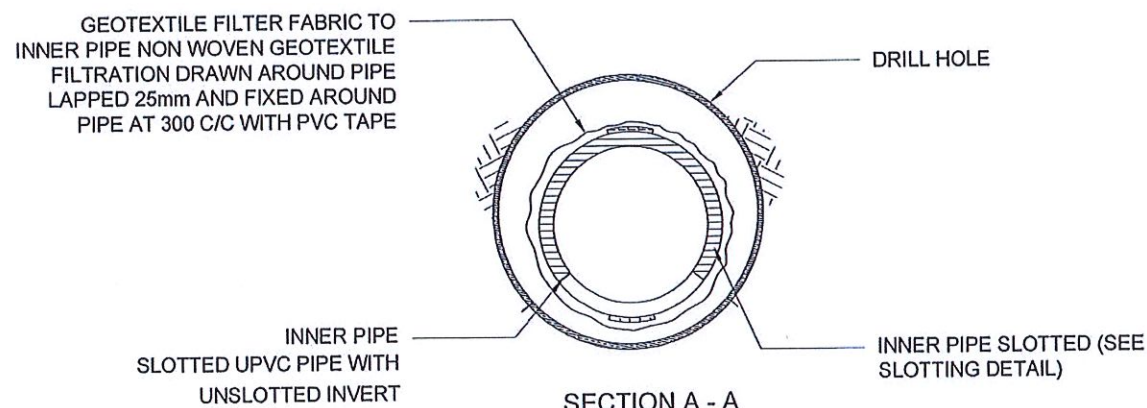
<p>EMPLOYER</p> <p>DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05</p>	<p>DESIGNER</p> <p>DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05</p>	REV	DATE	REVISION DESCRIPTION	APPROVAL	<p>PROJECT TITLE</p> <p>REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN DANGOLLA LOWER CIRCULAR ROAD</p>	TITLE		DESCRIPTION	NAME	SIGNATURE	
								DETAILS OF RETAINING WALL (CANTILEVER)		DRAWN	S.A.G.D. SENANAYAKA	
										DESIGNED	D.M.D.T. DASANAYAKA	
										CHECKED	J.P. SAMARANAYAKE	
										RECOMMENDED	PROF. S.A.S. KULATHILAKA	
							APPROVED	K.N. BANDARA				
						SCALE	N.T.S.	DATE	06.11.2020	REVISION	00	
						PROJECT / DRAWING No.		RLVMMP/WORKS/NCB/04B/01-Dan/DR-09				



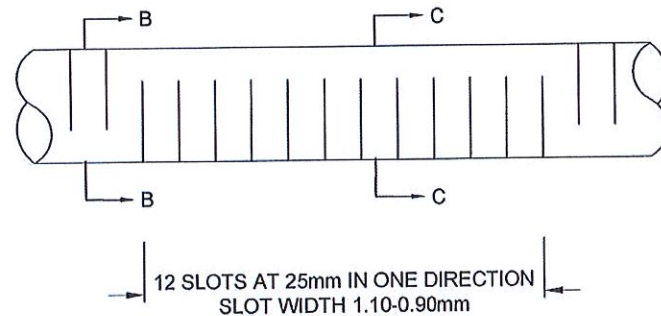
HORIZONTAL DRAIN LONGITUDINAL SECTION



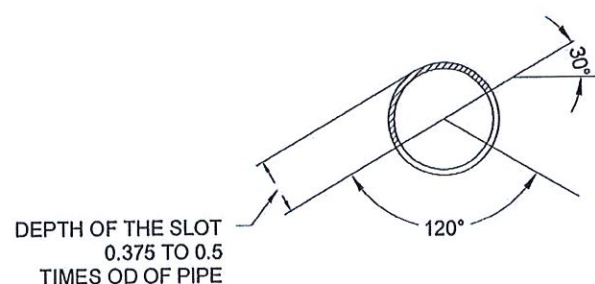
DETAIL A



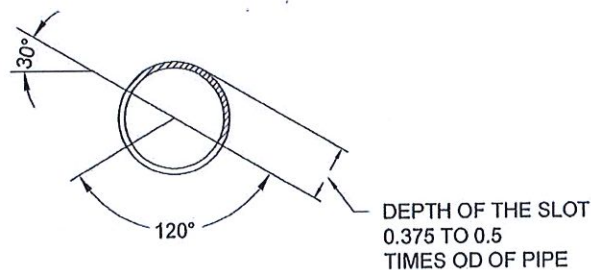
SECTION A - A



INNER AND OUTER PIPE SLOTTING DETAIL (TOP VIEW)





SECTION B - B

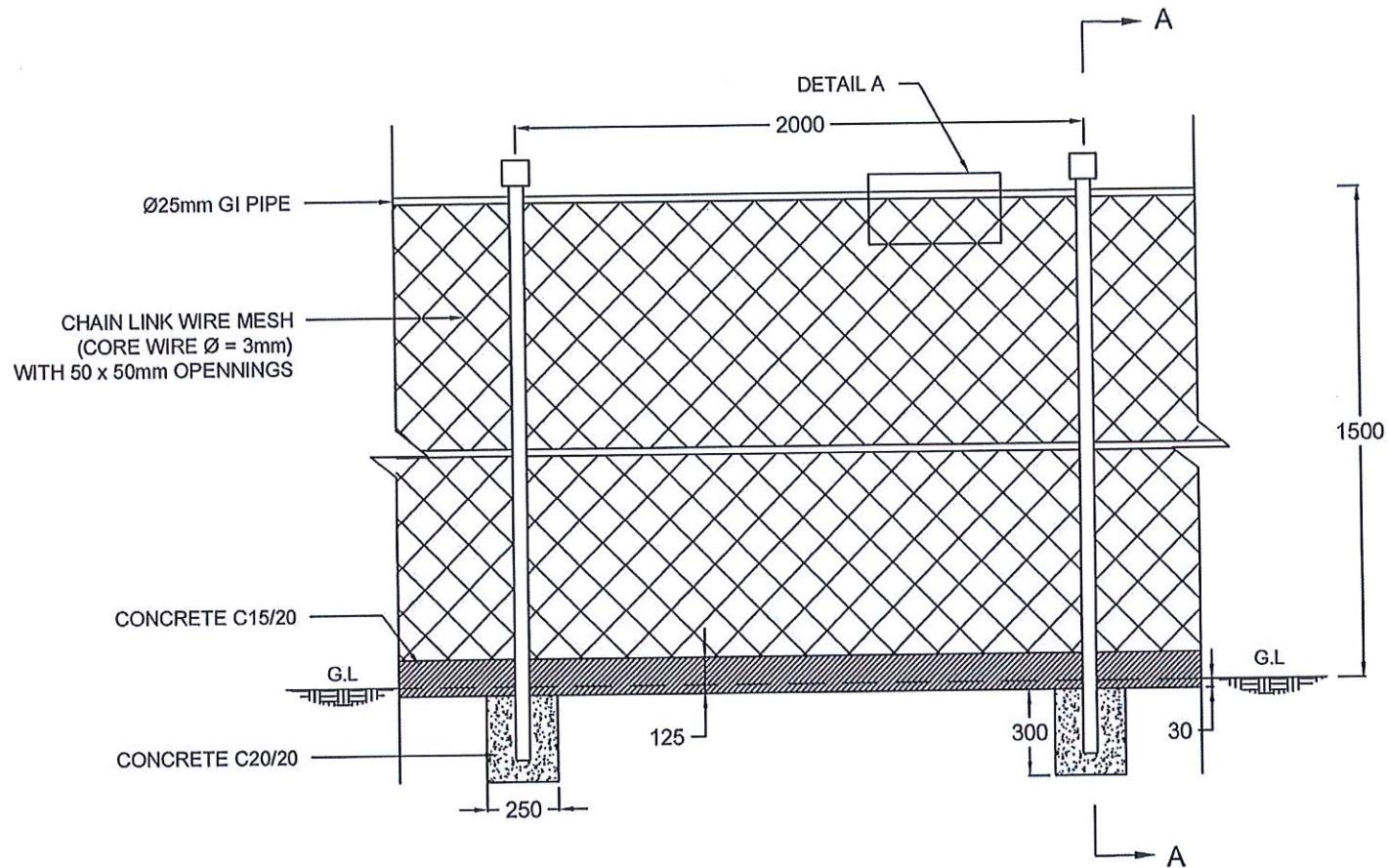


SECTION C - C

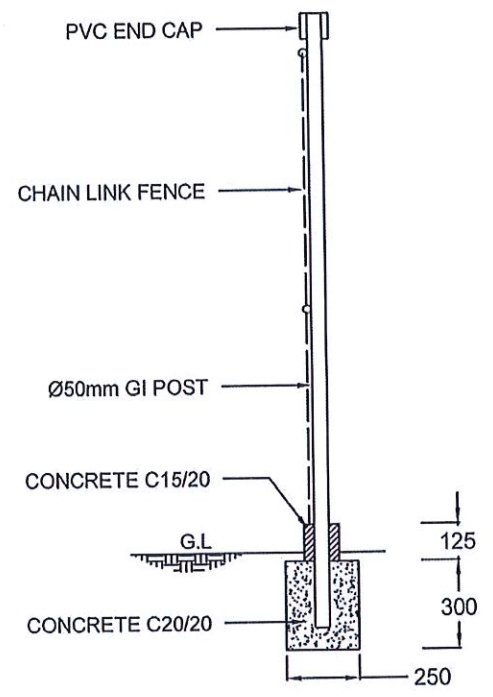
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. PIPE DIAMETERS, ANGLE & LENGTHS AS SPECIFIED IN DRAWINGS.
3. ALL MATERIALS SHALL CONFORM TO PROJECT SPECIFICATION

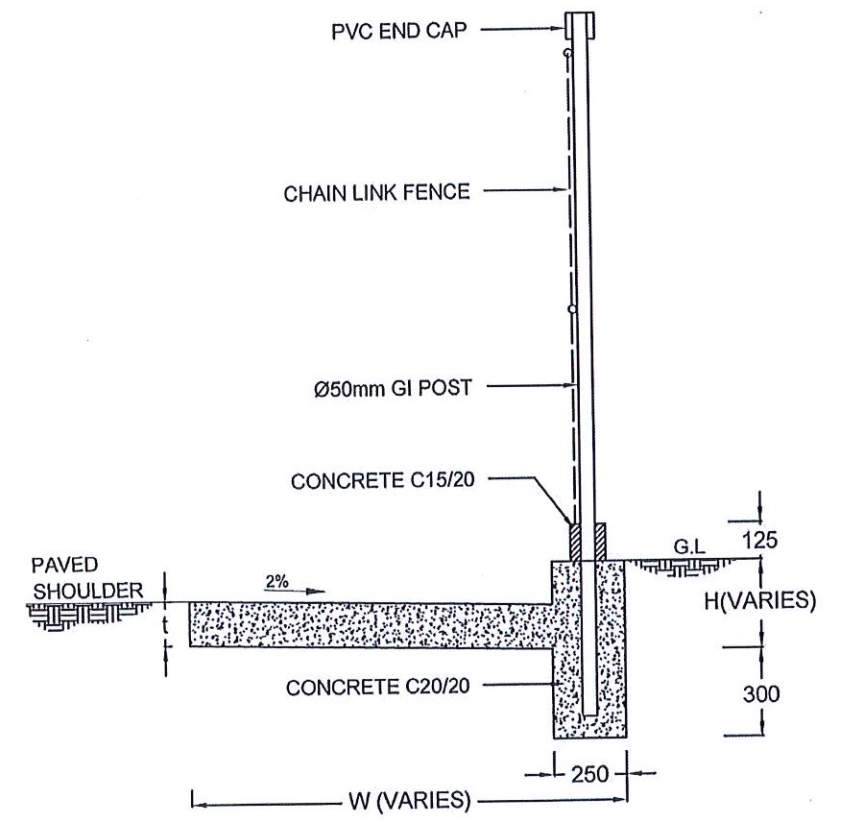
EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05	DESIGNER  DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN DANGOLLA LOWER CIRCULAR ROAD	TITLE		DESCRIPTION	NAME	SIGNATURE
								DETAILS OF HORIZONTAL DRAIN SECTIONS	SCALE N.T.S. PROJECT / DRAWING No. RLVMP/WORKS/NCB/04B/01-Dan/DR- 10	DATE 06.11.2020 REVISION 00	DRAWN S.A.G.D. SENANAYAKA DESIGNED D.M.D.T. DASANAYAKA CHECKED J.P. SAMARANAYAKE RECOMMENDED PROF. S.A.S. KULATHILAKA APPROVED K.N. BANDARA



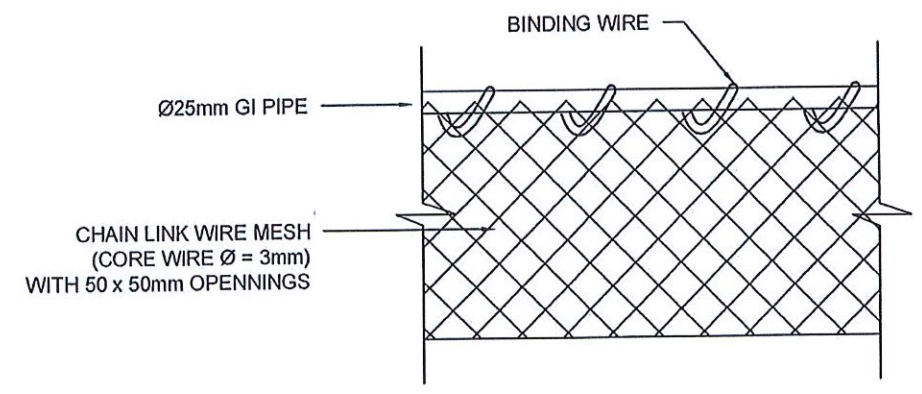
FRONT ELEVATION



SECTION A - A



DETAIL - FIXING OF FENCE TO DS(K) DRAIN



DETAIL A

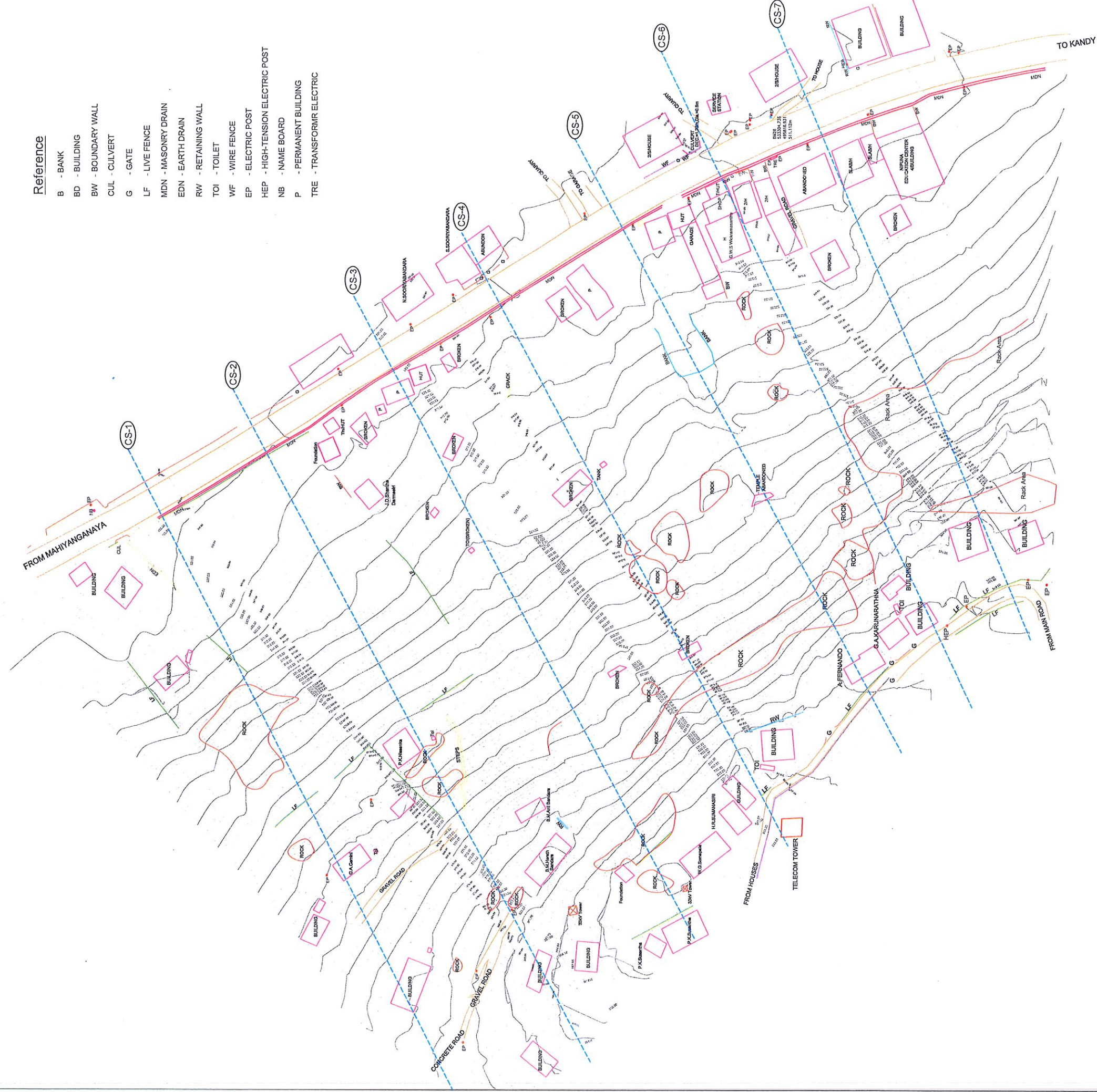
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. GI POST SHOULD BE COVERED WITH GREEN COLOUR ANTI-CORROSIVE PAINT.
3. PRIOR APPROVAL IS REQUIRED FOR CHAIN LINK WIRE MESH, GI POST AND PVC CAP.
4. FENCE FOOTING TO BE CAST TOGETHER WITH DRAIN WALL OF DS(K).

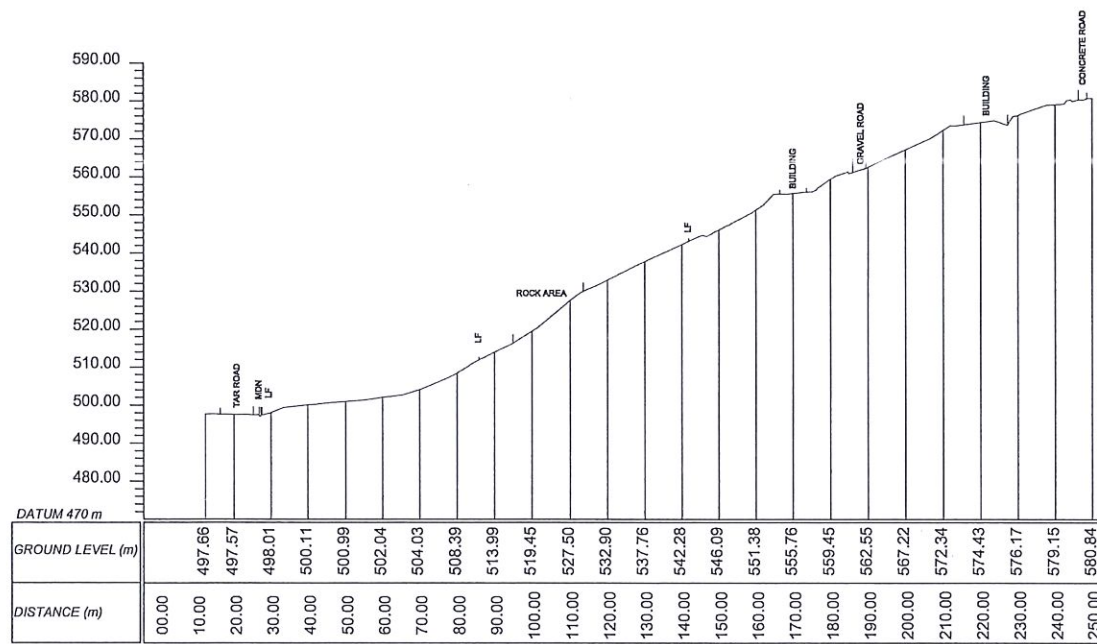
EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES RECTIFICATION OF LANDSLIDE IN DANGOLLA LOWER CIRCULAR ROAD	TITLE DETAILS OF CHAIN LINK FENCE	DESCRIPTION	NAME	SIGNATURE
								DRAWN	S.A.G.D. SENANAYAKA	
								DESIGNED	D.M.D.T. DASANAYAKA	
								CHECKED	J.P. SAMARANAYAKE	
								RECOMMENDED	PROF. S.A.S. KULATHILAKA	
				APPROVED	K.N. BANDARA					
		SCALE		N.T.S.	DATE	06.11.2020	REVISION	00		
		PROJECT / DRAWING No.		RLVMP/WORKS/NCB/04B/01-Dan/DR-11						



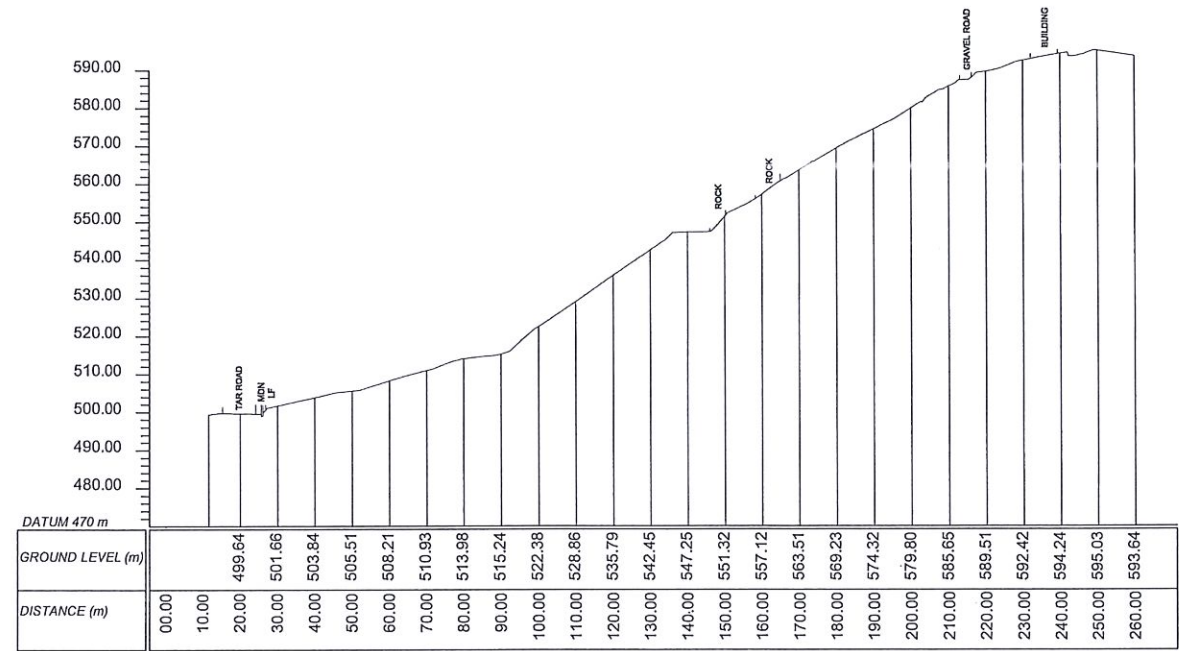
- Reference**
- B - BANK
 - BD - BUILDING
 - BW - BOUNDARY WALL
 - CUL - CULVERT
 - G - GATE
 - LF - LIVE FENCE
 - MDN - MASONRY DRAIN
 - EDN - EARTH DRAIN
 - RW - RETAINING WALL
 - TOI - TOILET
 - WF - WIRE FENCE
 - EP - ELECTRIC POST
 - HEP - HIGH-TENSION ELECTRIC POST
 - NB - NAME BOARD
 - P - PERMANENT BUILDING
 - TRE - TRANSFORMER ELECTRIC



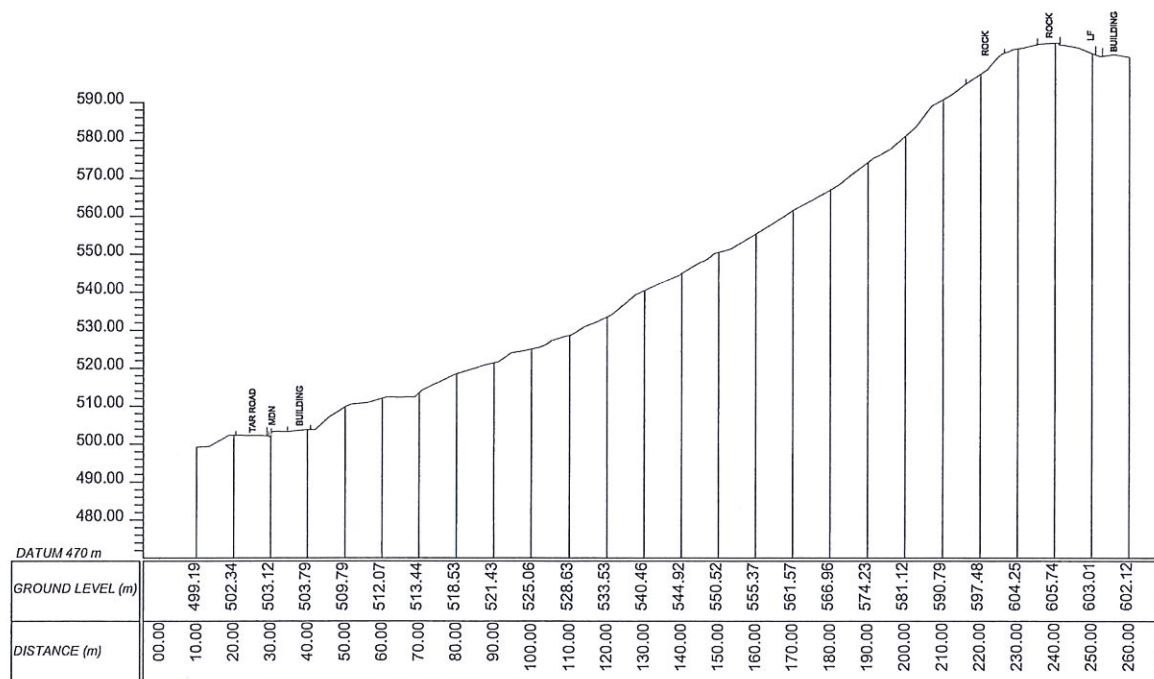
<p>EMPLOYER</p> <p>DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 98/1, JAWATTA ROAD COLOMBO - 05</p>	<p>DESIGNER</p> <p>DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 98/1, JAWATTA ROAD COLOMBO - 05</p>	<p>APPROVAL PROJECT TITLE</p> <p>REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES DIGANA - KUNDASALE</p>	<p>TITLE</p> <p>CONTOUR SURVEY PLAN</p>	<p>DESCRIPTION</p> <p>SURVEYED _____ CHECKED _____</p>	<p>NAME</p> <p>LANKA C.P.S. (PVT) LTD S.O.A.D.M. LAKRUWAN</p>	<p>SIGNATURE</p>					
<p>REV. DATE REVISION DESCRIPTION</p> <table border="1" style="width: 100%; height: 30px;"> <tr> <th style="width: 10%;">REV. DATE</th> <th>REVISION DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> </tr> </table>				REV. DATE	REVISION DESCRIPTION			<p>SCALE 1:400 PROJECT DRAWING NO. RLVAMP/WORKS/CS/19/08/02/DGR/01 DATE 21.12.2020 REVISION 00</p>			
REV. DATE	REVISION DESCRIPTION										



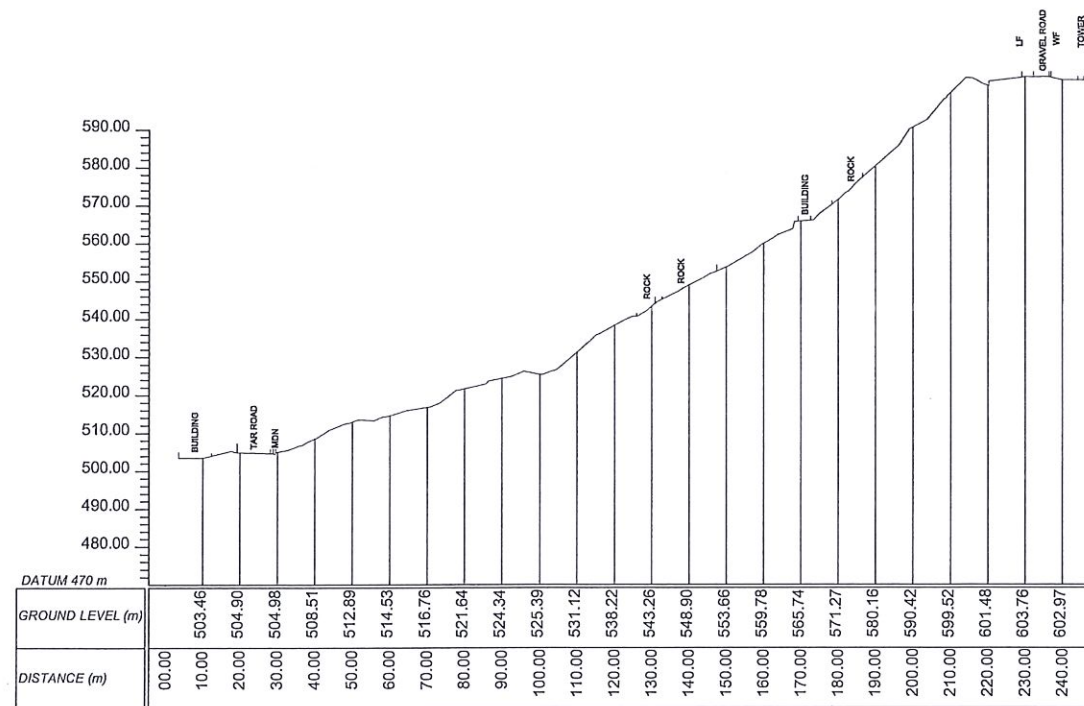
SECTION - 01




SECTION - 02



SECTION - 03



SECTION - 04

EMPLOYER

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

DESIGNER

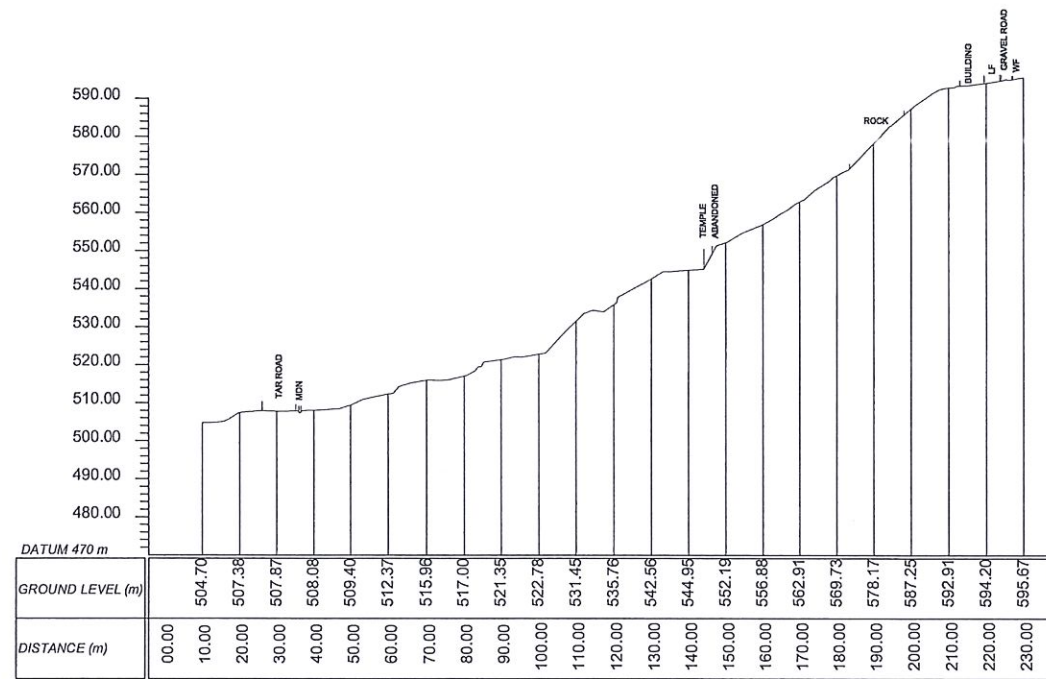
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 NATIONAL BUILDING RESEARCH ORGANIZATION
 No. 99/1, JAWATTA ROAD
 COLOMBO - 05

REV	DATE	REVISION DESCRIPTION	APPROVAL

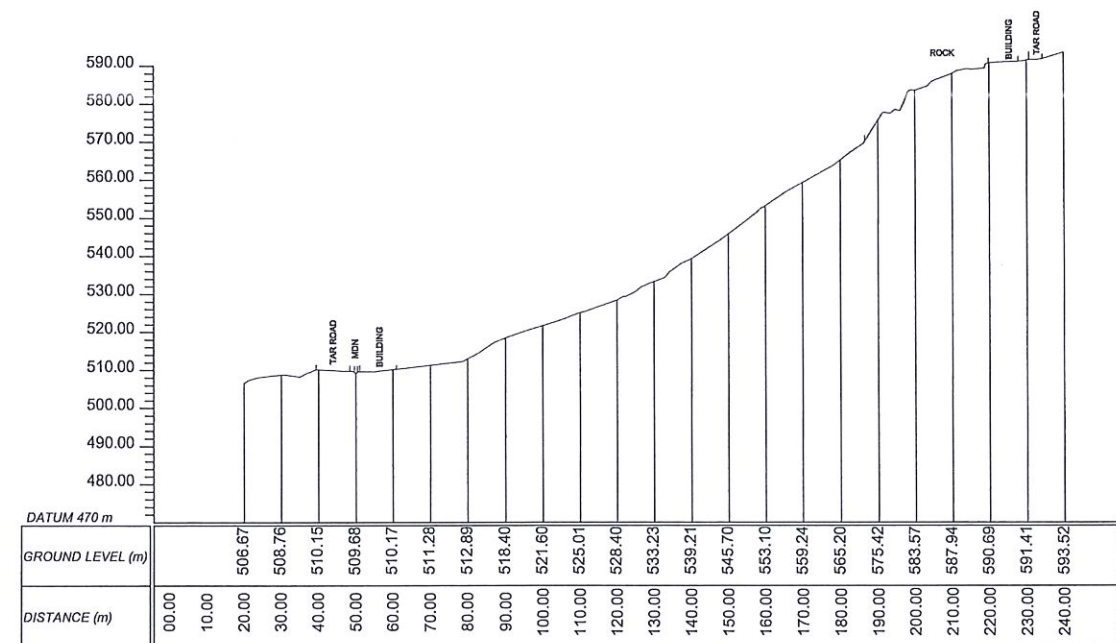
PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 DIGANA - KUNDASALE

TITLE
 SURVEY CROSS SECTIONS
 SCALE | N.T.S | DATE | 21.12.2020
 PROJECT / DRAWING No. | RLVMMP/WORKS/NCB/04B/02-Dig/DR-02a | REVISION | 00

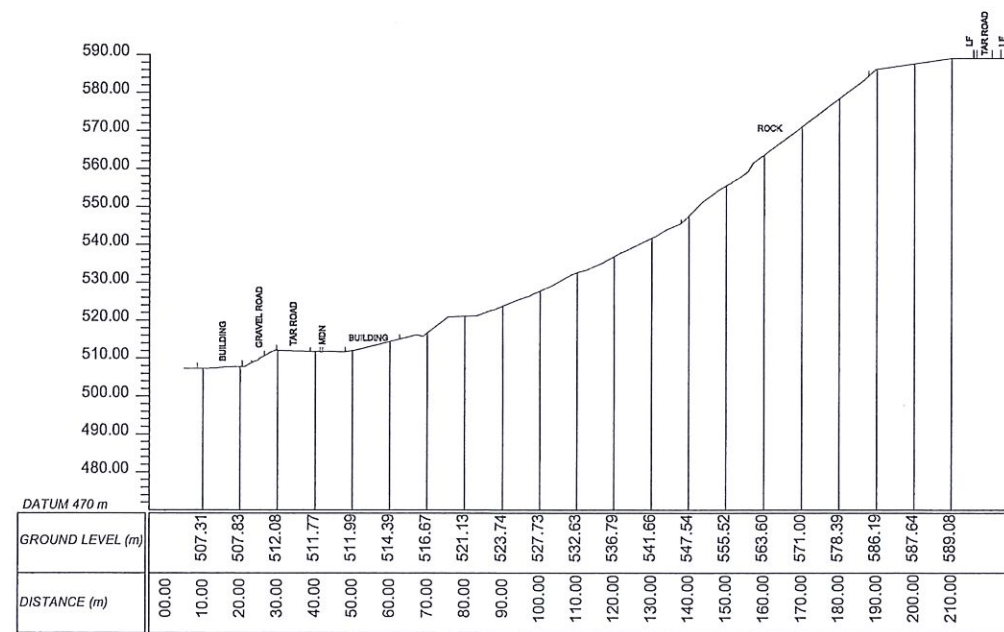
DESCRIPTION	NAME	SIGNATURE
SURVEYED	LANKA G.P.S. (PVT) LTD	
CHECKED	S.O.A.D.M. LAKRUWAN	




SECTION - 05



SECTION - 06



SECTION - 07


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

DESIGNER

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

REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 DIGANA - KUNDASALE

TITLE
 SURVEY CROSS SECTIONS
 SCALE | N.T.S | DATE | 21.12.2020
 PROJECT / DRAWING No. | RLVMM/WORKS/NCB/04B/02-Dig/DR-02b | REVISION | 00

DESCRIPTION	NAME	SIGNATURE
SURVEYED	LANKA G.P.S. (PVT) LTD	
CHECKED	S.O.A.D.M. LAKRUWAN	

NOTE:

1. SURFACE AND CASCADE DRAIN LOCATIONS (PATH OF THE DRAINS) AND LENGTH MIGHT BE VARIED ACCORDING TO ACTUAL SITE CONDITIONS.

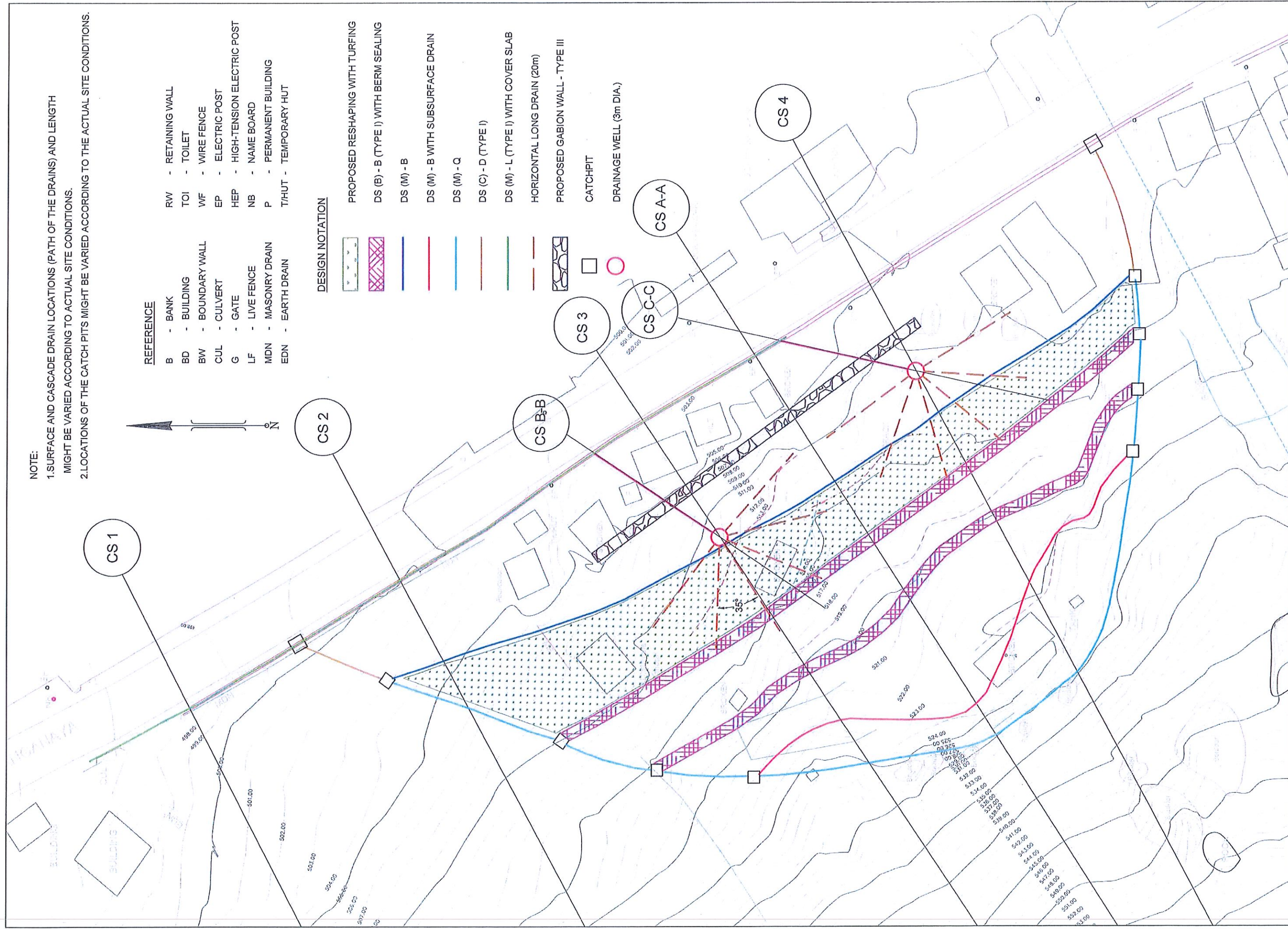
2. LOCATIONS OF THE CATCH PITS MIGHT BE VARIED ACCORDING TO THE ACTUAL SITE CONDITIONS.

REFERENCE

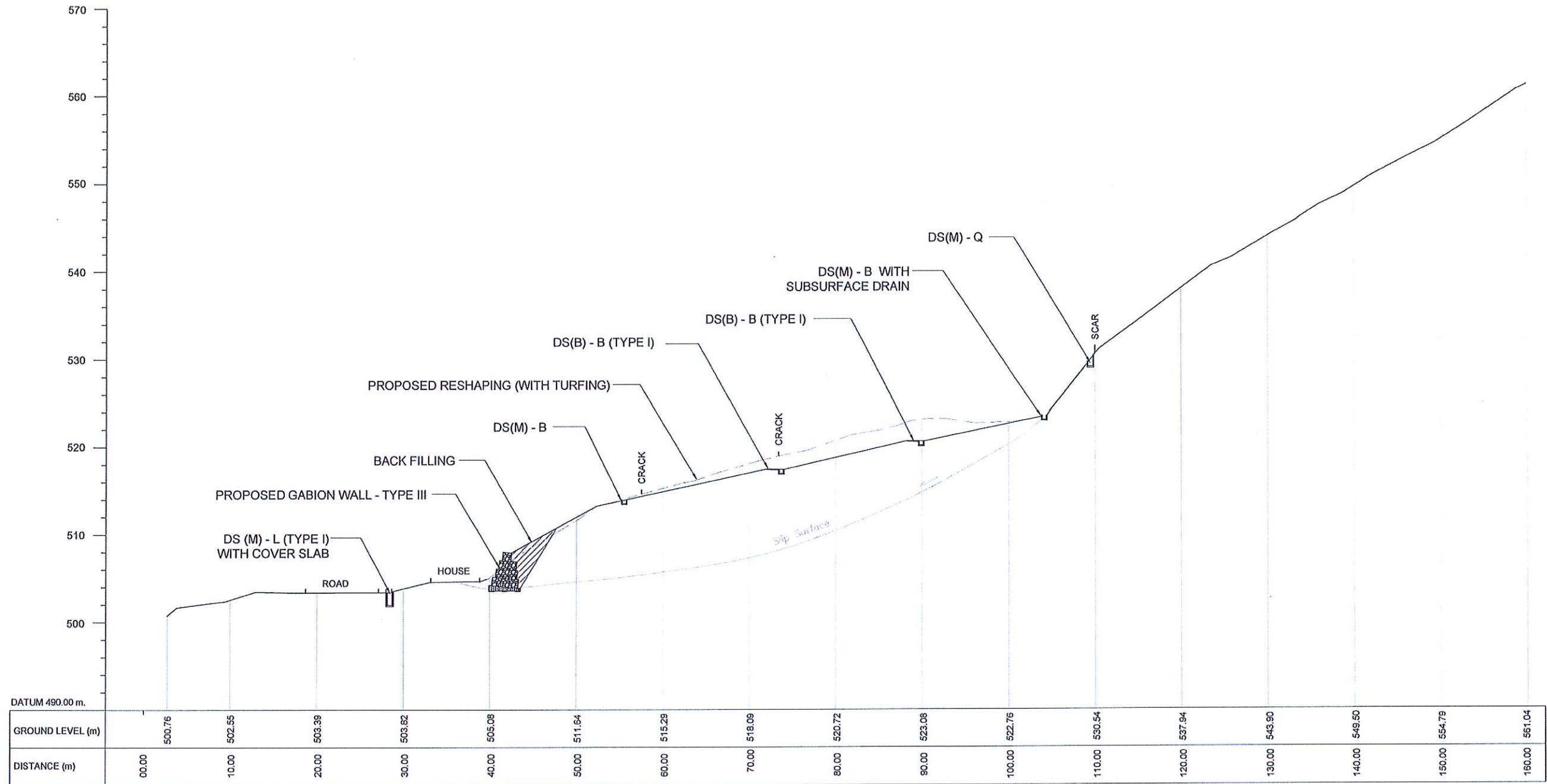
- B - BANK
- BD - BUILDING
- BW - BOUNDARY WALL
- CUL - CULVERT
- G - GATE
- LF - LIVE FENCE
- MDN - MASONRY DRAIN
- EDN - EARTH DRAIN
- RW - RETAINING WALL
- TOI - TOILET
- WF - WIRE FENCE
- EP - ELECTRIC POST
- HEP - HIGH-TENSION ELECTRIC POST
- NB - NAME BOARD
- P - PERMANENT BUILDING
- T/HUT - TEMPORARY HUT

DESIGN NOTATION

- PROPOSED RESHAPING WITH TURFING
- DS (B) - B (TYPE I) WITH BERM SEALING
- DS (M) - B
- DS (M) - B WITH SUBSURFACE DRAIN
- DS (M) - Q
- DS (C) - D (TYPE I)
- DS (M) - L (TYPE I) WITH COVER SLAB
- HORIZONTAL LONG DRAIN (20m)
- PROPOSED GABION WALL - TYPE III
- CATCHPIT
- DRAINAGE WELL (3m DIA.)









 NATIONAL BUILDING RESEARCH ORGANIZATION No. 971, JAWATTA ROAD COLOMBO - 05	 NATIONAL BUILDING RESEARCH ORGANIZATION No. 971, JAWATTA ROAD COLOMBO - 05	DESIGNER B.V.S. PATRISHRYA	APPROVAL K.N. BANDARA
		DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 971, JAWATTA ROAD COLOMBO - 05	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES DIGANA - KUNDASALE
REV. DATE REVISION DESCRIPTION APPROVAL		DESIGN PLAN OF PROPOSED MITIGATION MEASURES	
SCALE 1:1000 PROJECT / DRAWING No. RLWMP/WORKING/NS/BA/BQ/02/DR-03		DATE 21.12.2020	REVISION 00
EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 971, JAWATTA ROAD COLOMBO - 05		DRAWN B.V.S. PATRISHRYA	CHECKED J.P. SAMARAWAYAKE
NATIONAL BUILDING RESEARCH ORGANIZATION No. 971, JAWATTA ROAD COLOMBO - 05		DESIGNER S.O.A.D.J. LAKRUWAN	APPROVED K.N. BANDARA

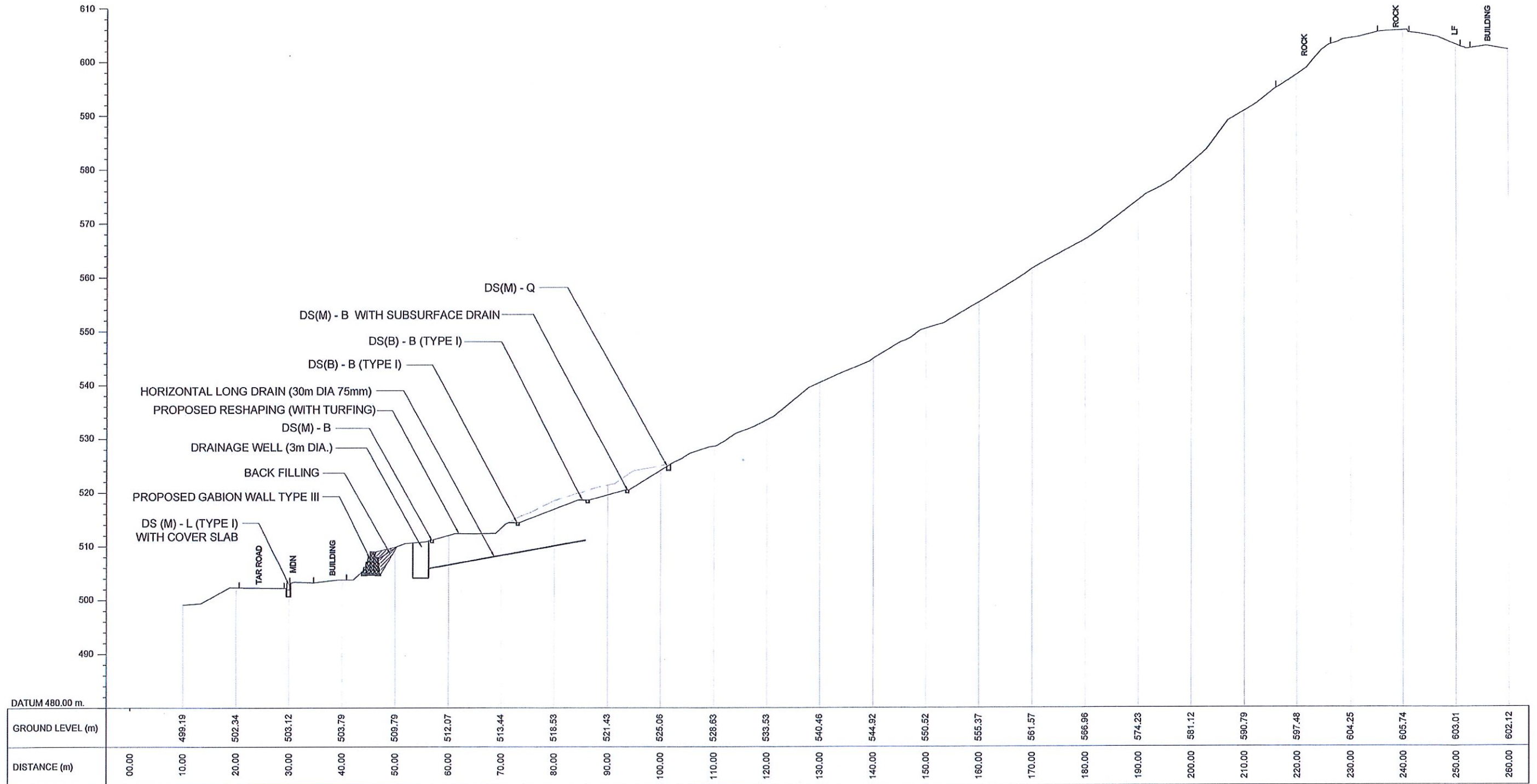


CS A-A

NOTES

1. LENGTH, ANGLE, LOCATION OF HORIZONTAL DRAINS MIGHT BE VARIED ACCORDING TO THE ACTUAL SOIL PROFILE OR SITE CONDITION.



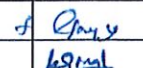



EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER  DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES DIGANA - KUNDASALE	TITLE DESIGN CROSS SECTIONS OF PROPOSED MITIGATION MEASURES		DESCRIPTION	NAME	SIGNATURE
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						PROJECT / DRAWING No. RLVMMP/WORKS/NCB/04B/02-Dig/DR-04a	REVISION 00	DESIGNER	S.O.A.D.M. LAKRUWAN		
								CHECKED	J.P. SAMARANAYAKE		
								RECOMMENDED	PROF. S. A. S. KULATHILAKA		
								APPROVED	K.N. BANDARA		

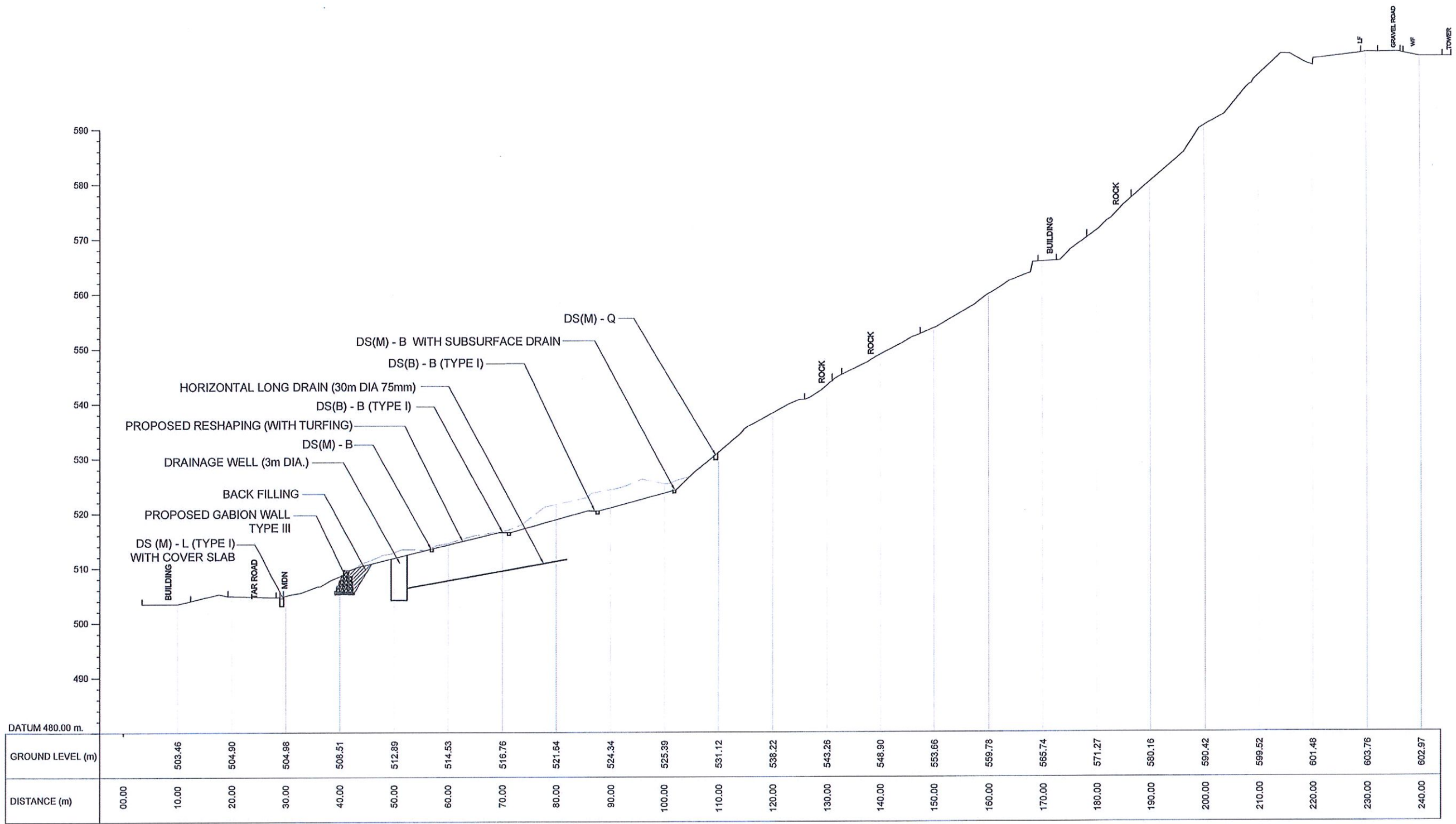


CS 3

NOTES

1. LENGTH, ANGLE, LOCATION OF HORIZONTAL DRAINS MIGHT BE VARIED ACCORDING TO THE ACTUAL SOIL PROFILE OR SITE CONDITION.



EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER  DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV []	DATE []	REVISION DESCRIPTION []	APPROVAL []	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES DIGANA - KUNDASALE	TITLE DESIGN CROSS SECTIONS OF PROPOSED MITIGATION MEASURES		DESCRIPTION DRAWN	NAME B.V.S. PATTRISHIYA	SIGNATURE 
		SCALE 1:750	DATE 21.12.2020	PROJECT / DRAWING No. RLVMMMP/WORKS/NCB/04B/02-Dig/DR-04b	REVISION 00		DESCRIPTION DESIGNER	S.O.A.D.M. LAKRUWAN		DESCRIPTION CHECKED	J.P. SAMARANAYAKE
							DESCRIPTION RECOMMENDED	PROF. S. A. S. KULATHILAKA			
							DESCRIPTION APPROVED	K.N. BANDARA			

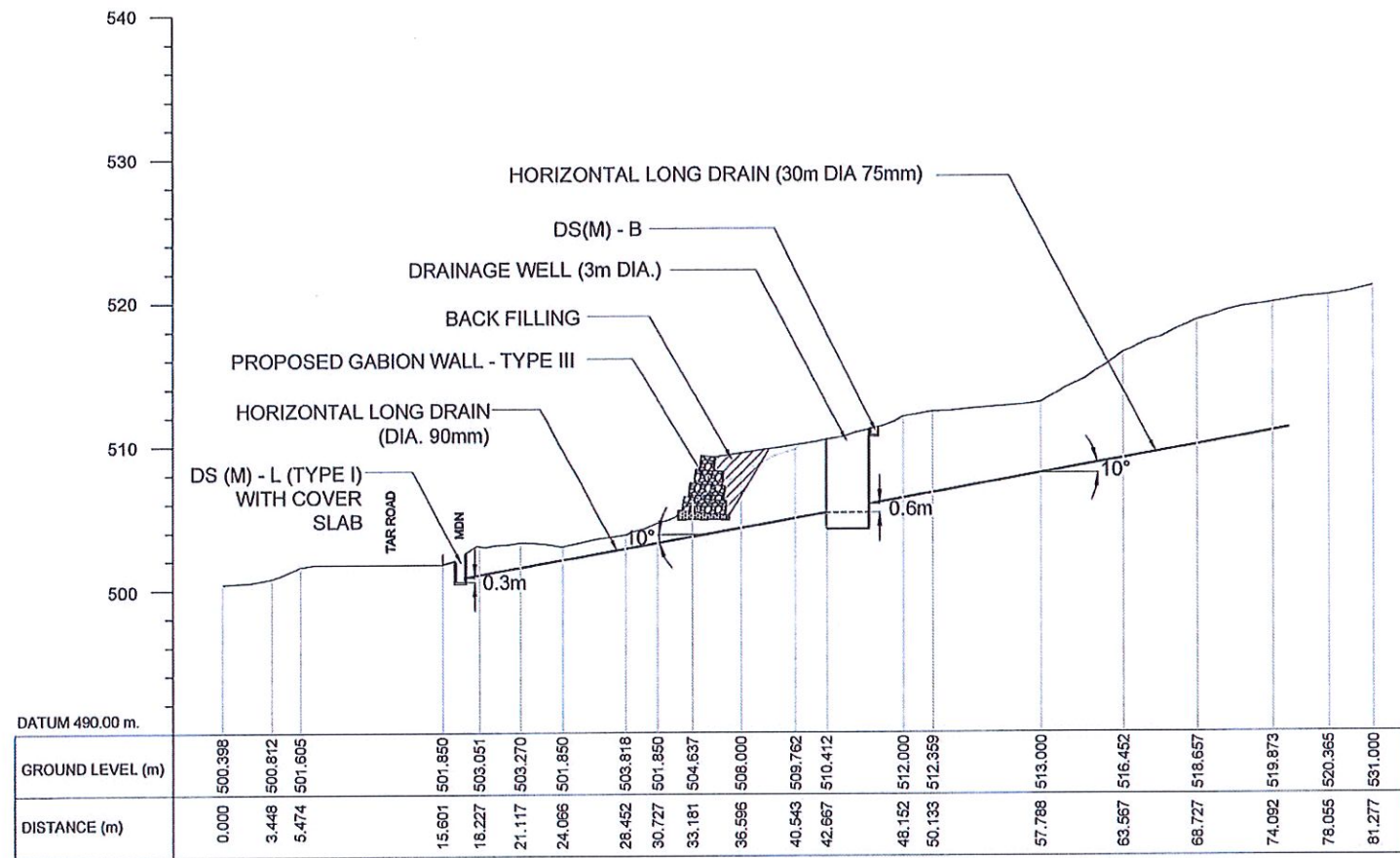


CS 4

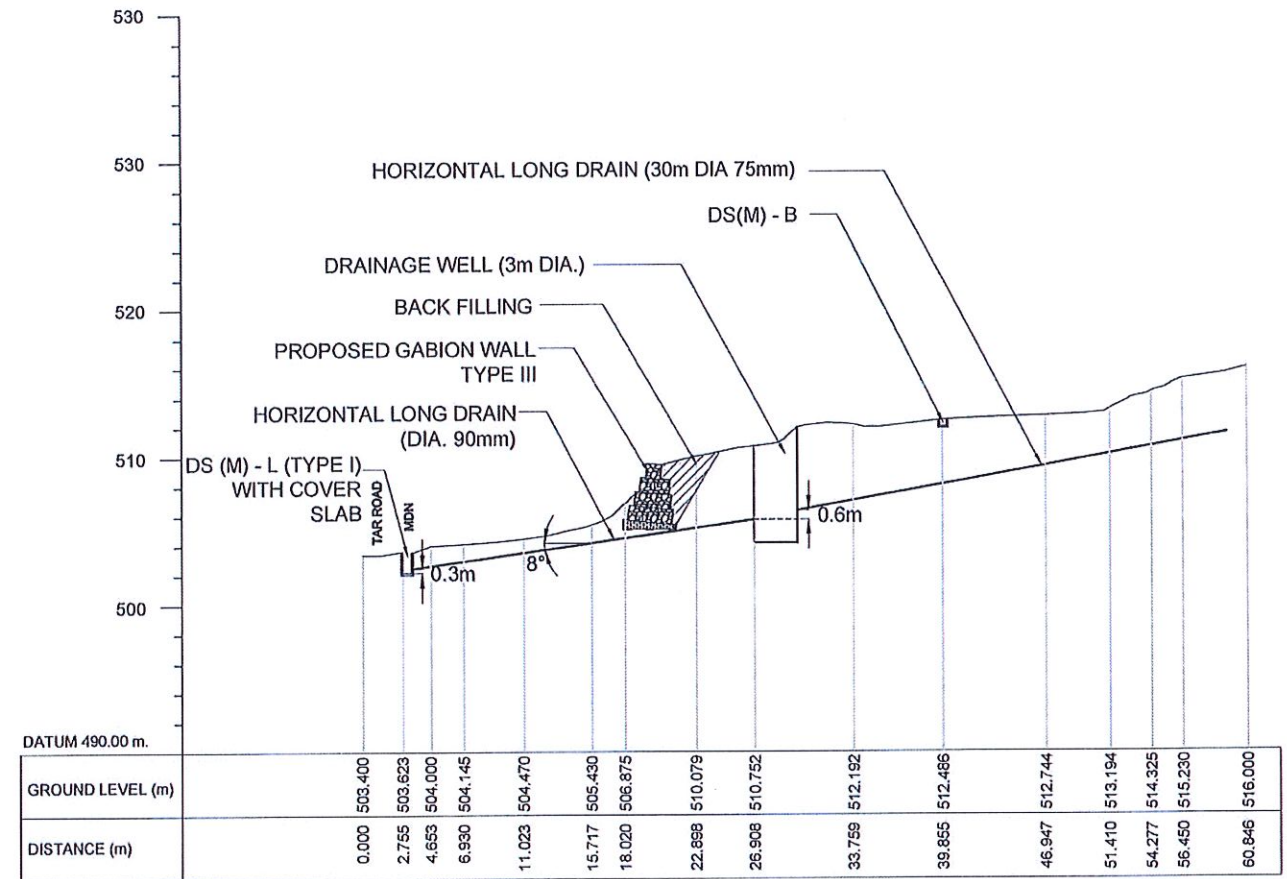
NOTES

1. LENGTH, ANGLE, LOCATION OF HORIZONTAL DRAINS MIGHT BE VARIED ACCORDING TO THE ACTUAL SOIL PROFILE OR SITE CONDITION.

 DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	 DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES DIGANA - KUNDASALE	TITLE DESIGN CROSS SECTIONS OF PROPOSED MITIGATION MEASURES	DESCRIPTION	NAME	SIGNATURE
									SCALE	DATE
							1:750	21.12.2020	00	
							PROJECT / DRAWING No. RLVMP/WORKS/NCB/04B/02-Dlg/DR-04c			
									RECOMMENDED	PROF. S. A. S. KULATHILAKA
									APPROVED	K.N. BANDARA



CS B-B

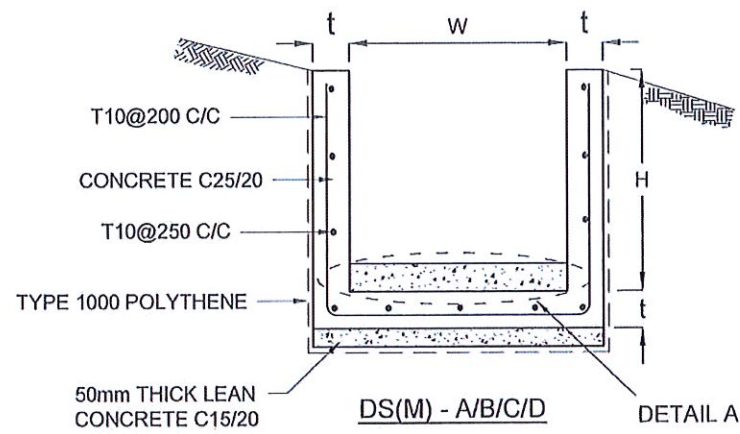


CS C-C

NOTES

1. LENGTH, ANGLE, LOCATION OF HORIZONTAL DRAINS MIGHT BE VARIED ACCORDING TO THE ACTUAL SOIL PROFILE OR SITE CONDITION.

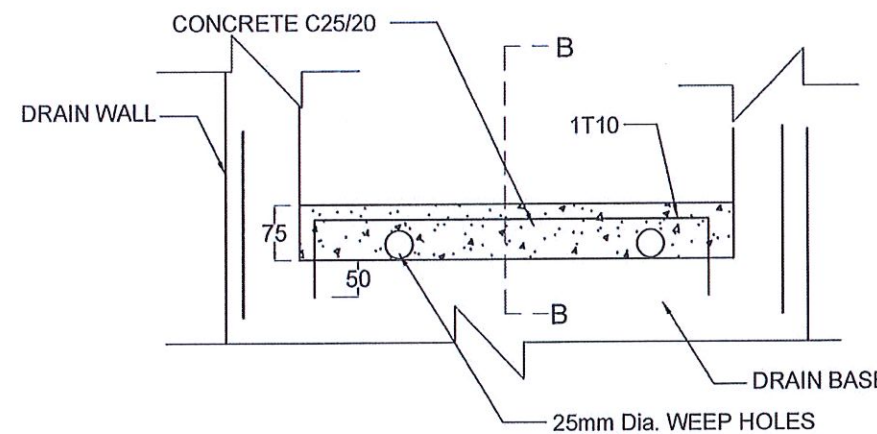
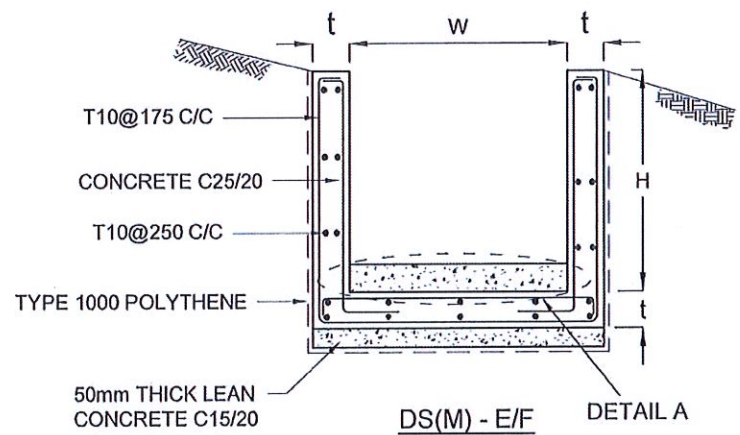
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		SCALE 1:750 PROJECT / DRAWING No. RLVMP/WORKS/NCB/04B/02-Dlg/DR-04d	DATE 21.12.2020 REVISION 00	CHECKED J.P. SAMARANAYAKE	RECOMMENDED PROF. S. A. S. KULATHILAKA			APPROVED K.N. BANDARA		



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

1. DEPTH OF EXCAVATION MAY VARY ACCORDING TO SITE CONDITIONS.
2. STEPS SHALL BE CONSTRUCTED AT SURFACE DRAIN ON SLOPING GROUND ACCORDING TO THE SITE CONDITIONS AS INSTRUCTED BY THE ENGINEER.
3. ENERGY BREAKERS SHALL BE CONSTRUCTED AT THE STEEP DRAIN SEGMENTS AS PER THE INSTRUCTIONS OF THE ENGINEER.
4. DOWELS SHALL BE INSTALLED ACCORDING TO THE GROUND CONDITIONS AS INSTRUCTED BY THE ENGINEER.
5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
6. 10 mm THICK EXPANSION JOINT SHALL BE INTRODUCED IN EVERY 5m INTERVAL.

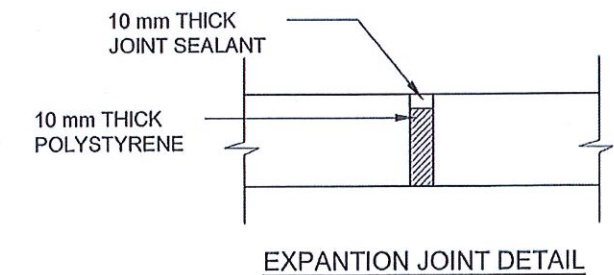
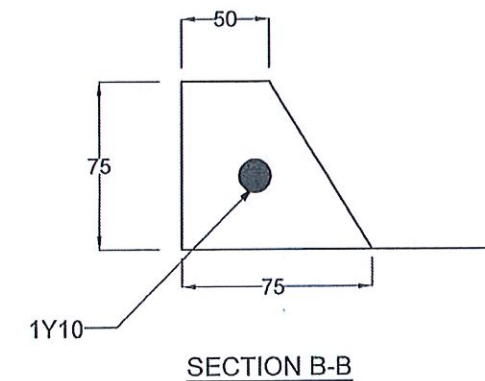
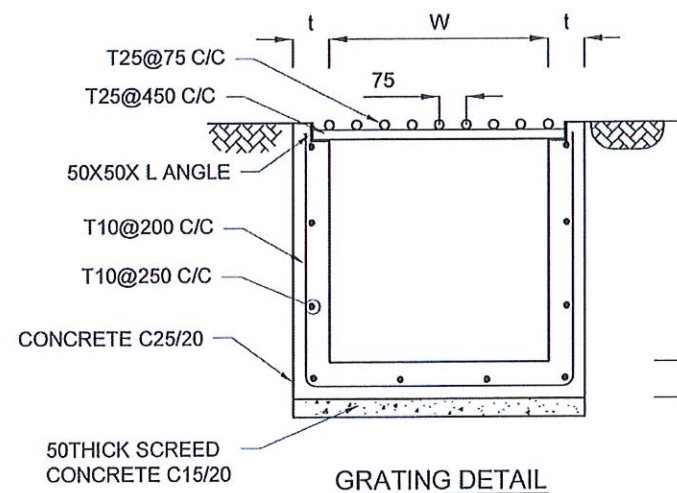
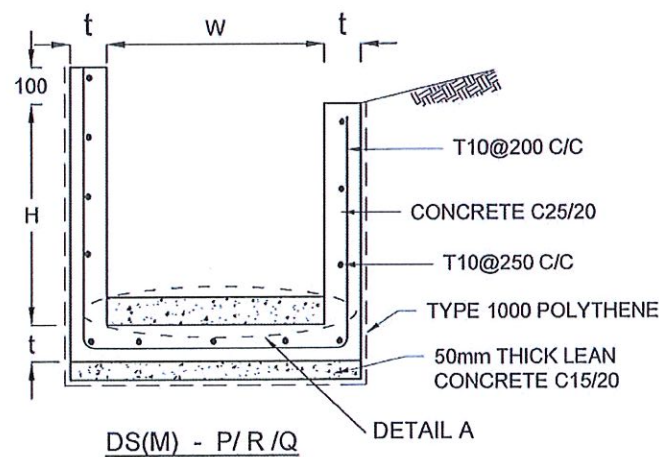


CONCRETE

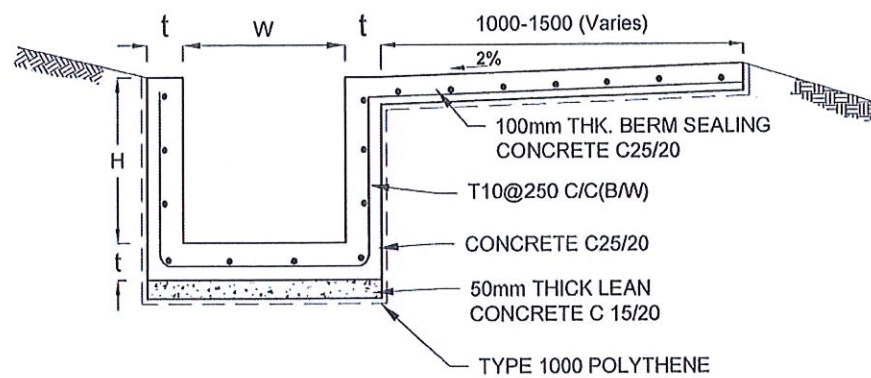
7. USE FOLLOWING CONCRETE GRADES FOR STRUCTURE
 - [a] SCREED - C. 15/20
 - [b] WALLS / BASE / ENERGY BREAKERS - C. 25/20

REINFORCEMENT

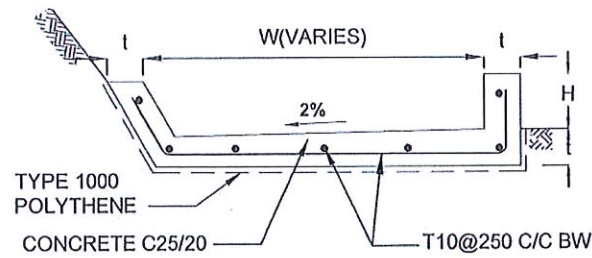
8. ALL BARS MARKED "T" SHALL BE HIGH YIELD DEFORMED BARS OF YIELD STRENGTH NOT LESS THAN 460N/mm².
9. BARS OF CUT LENGTH LARGER THAN THE SUPPLIED LENGTH TO BE LAPPED FOR A LENGTH OF 50 x BAR DIA. AND LAPPING SHOULD BE STAGGERED.
10. ANCHORAGE LENGTH SHOULD BE 40X BAR DIA.
11. REINFORCEMENT BARS SHALL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



EMPLOYER	DESIGNER	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE	TITLE	DESCRIPTION	NAME	SIGNATURE
DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05					REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES DIGANA - KUNDASALE	DETAILS OF DRAINS (SURFACE DRAIN - 1 OF 2)	DRAWN DESIGNED CHECKED RECOMMENDED APPROVED	B.V.S. PATTRISHIYA S.O.A.D.M. LAKRUWAN J.P. SAMARANAYAKE PROF. S. A. S. KULATHILAKA K.N. BANDARA	
							SCALE N.T.S. DATE 21.12.2020 PROJECT / DRAWING No. REVISION 00 RLVMP/WORKS/NCB/04B/02-Dig/DR-5a			



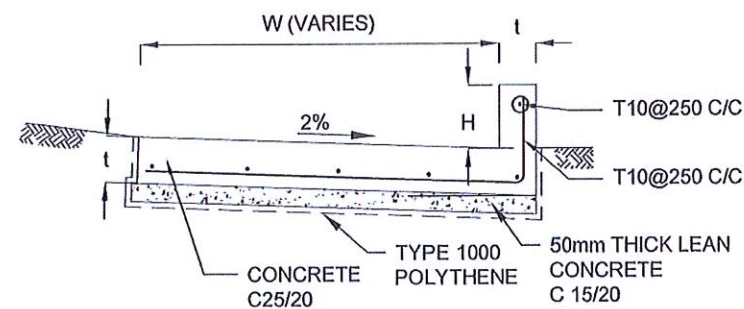
DS (B) - (TYPE I)



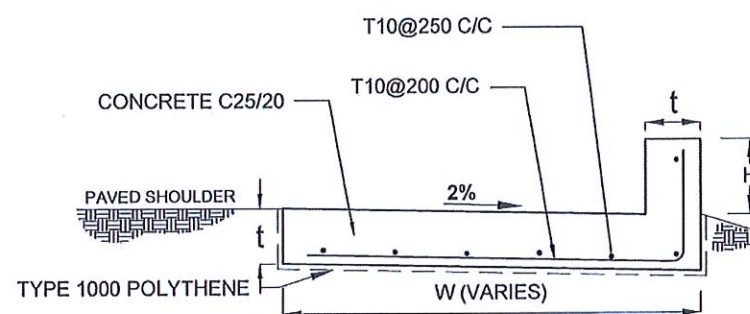
DS (B) - (TYPE II)

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

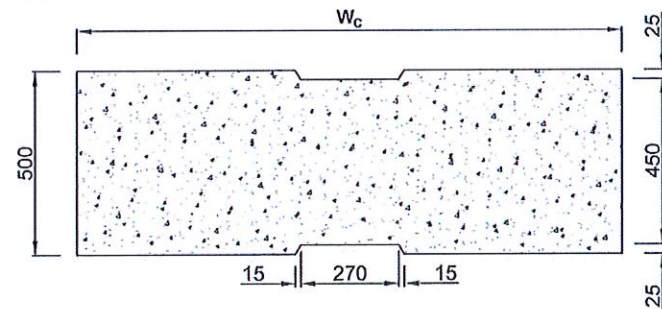
DRAIN TYPE	W (mm)	H (mm)	t (mm)
DS (K) - A	1000	200	100
DS (K) - B	1000	300	100
DS (K) - C	1150	200	200



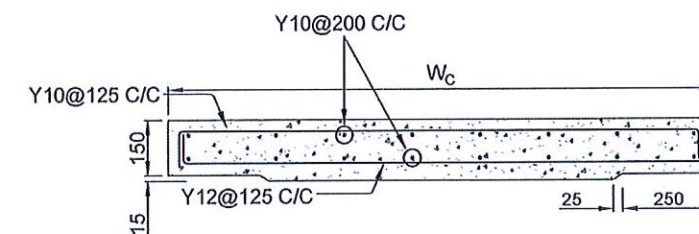
DS (K)



DS (K) - TYPE II

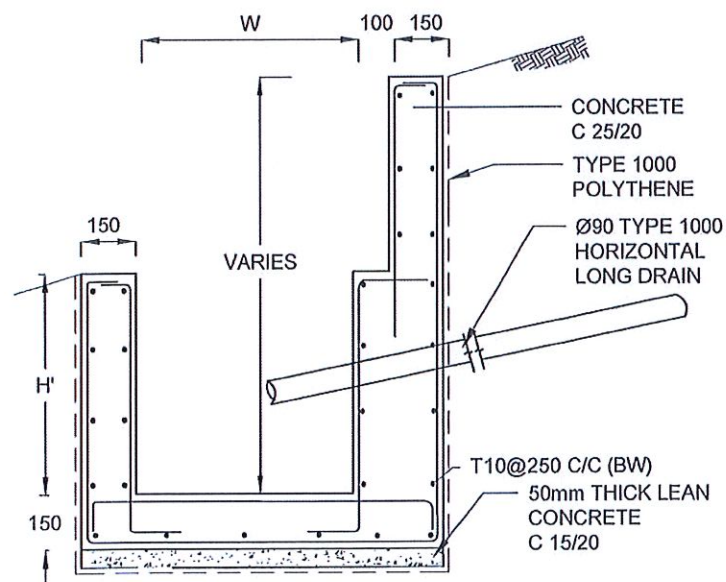


PLAN VIEW OF COVER SLAB



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	1500	150
TYPE II	800	800	150



DS (M) - L

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+2x t]
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
- 10 mm THICK EXPANSION JOINT SHALL BE INTRODUCED IN EVERY 5m INTERVAL.

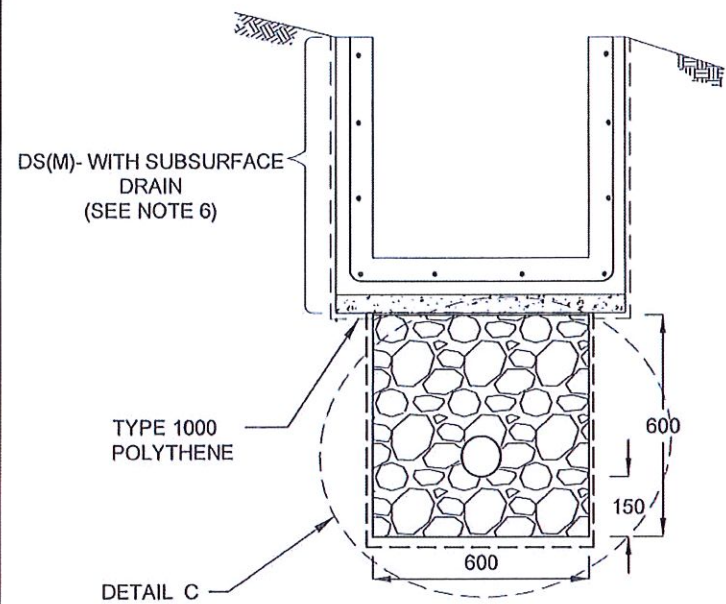
CONCRETE

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

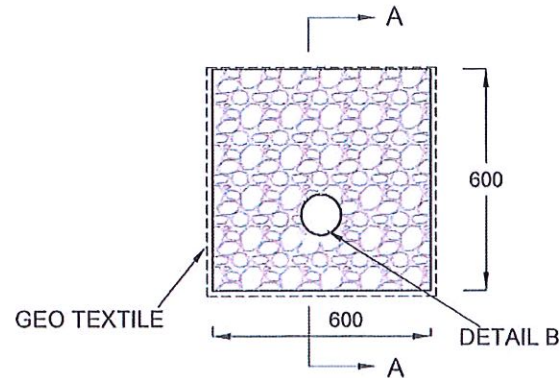
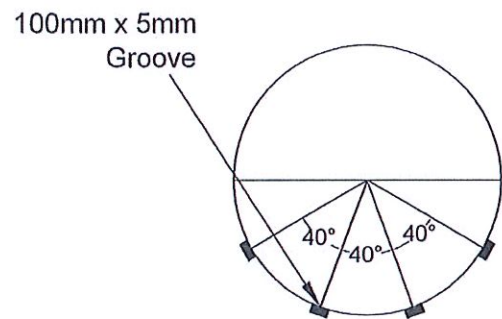
REINFORCEMENT

- 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

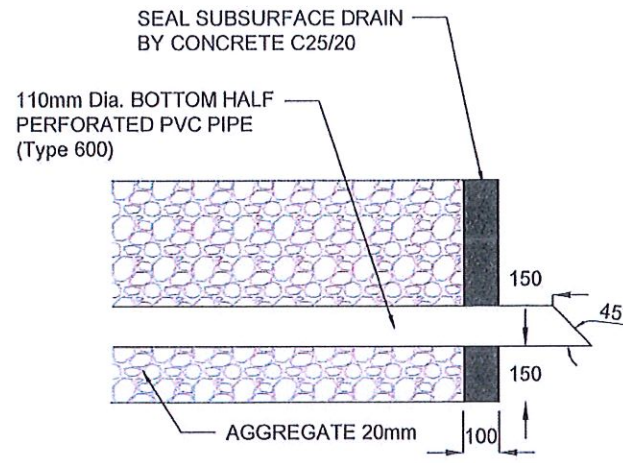
EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES DIGANA - KUNDASALE	TITLE DETAILS OF DRAINS (SURFACE DRAIN -2 OF 2)	DESCRIPTION	NAME	SIGNATURE	
		SCALE	N.T.S.	DATE	21.12.2020			RECOMMENDED	PROF. S. A. S. KULATHILAKA		
							PROJECT / DRAWING No.	REVISION	APPROVED	K.N. BANDARA	
							RLVMP/WORKS/NCB/04B/02-Dig/DR-5b	00			



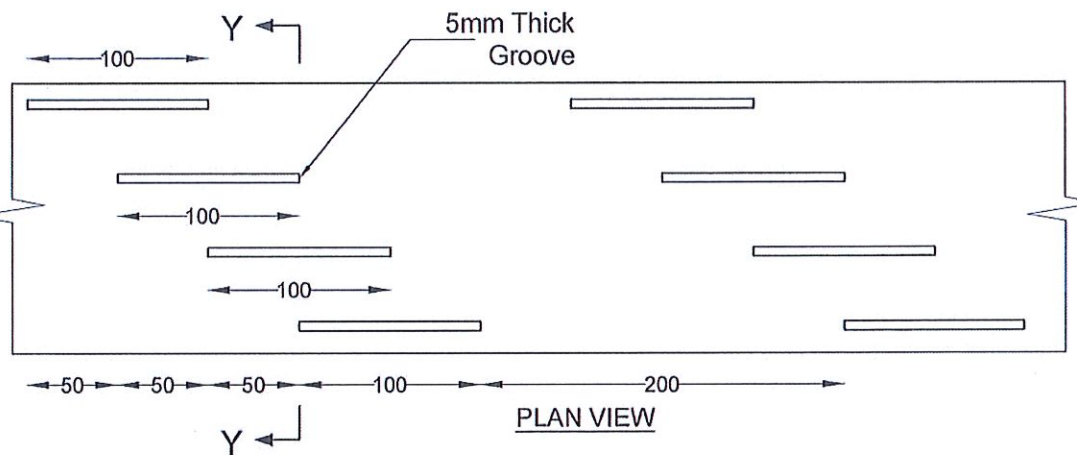
SUBSURFACE DRAIN [DS (S) -A]



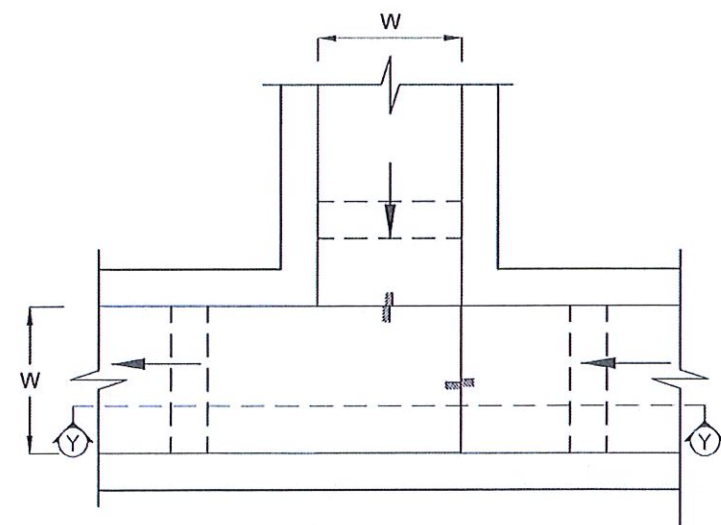
DETAIL C / DS (S) -A



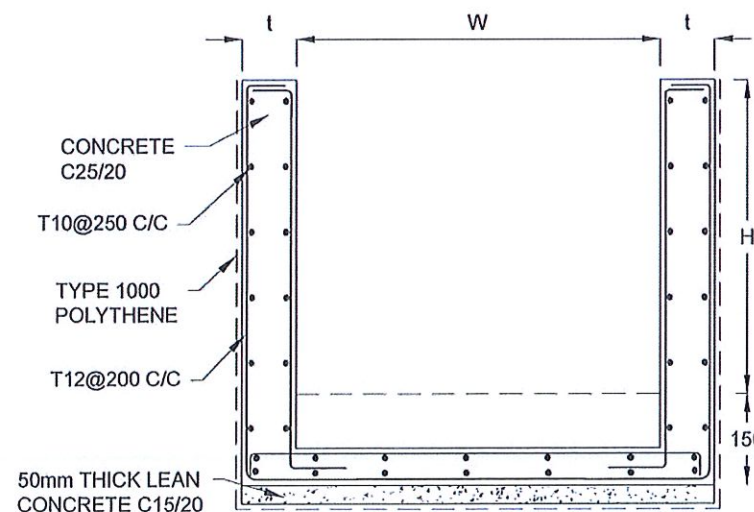
SECTION A-A (OUTLET DETAIL SUBSURFACE DRAIN)



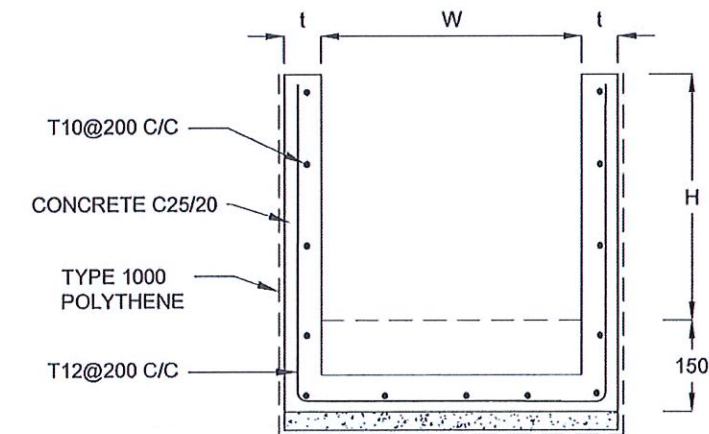
DETAIL - B (PERFORATED PIPE FOR SUB-SURFACE DRAINS)



PLAN VIEW OF CATCH PIT (CP)



SECTION Y-Y (CP - R)



SECTION Y - Y

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

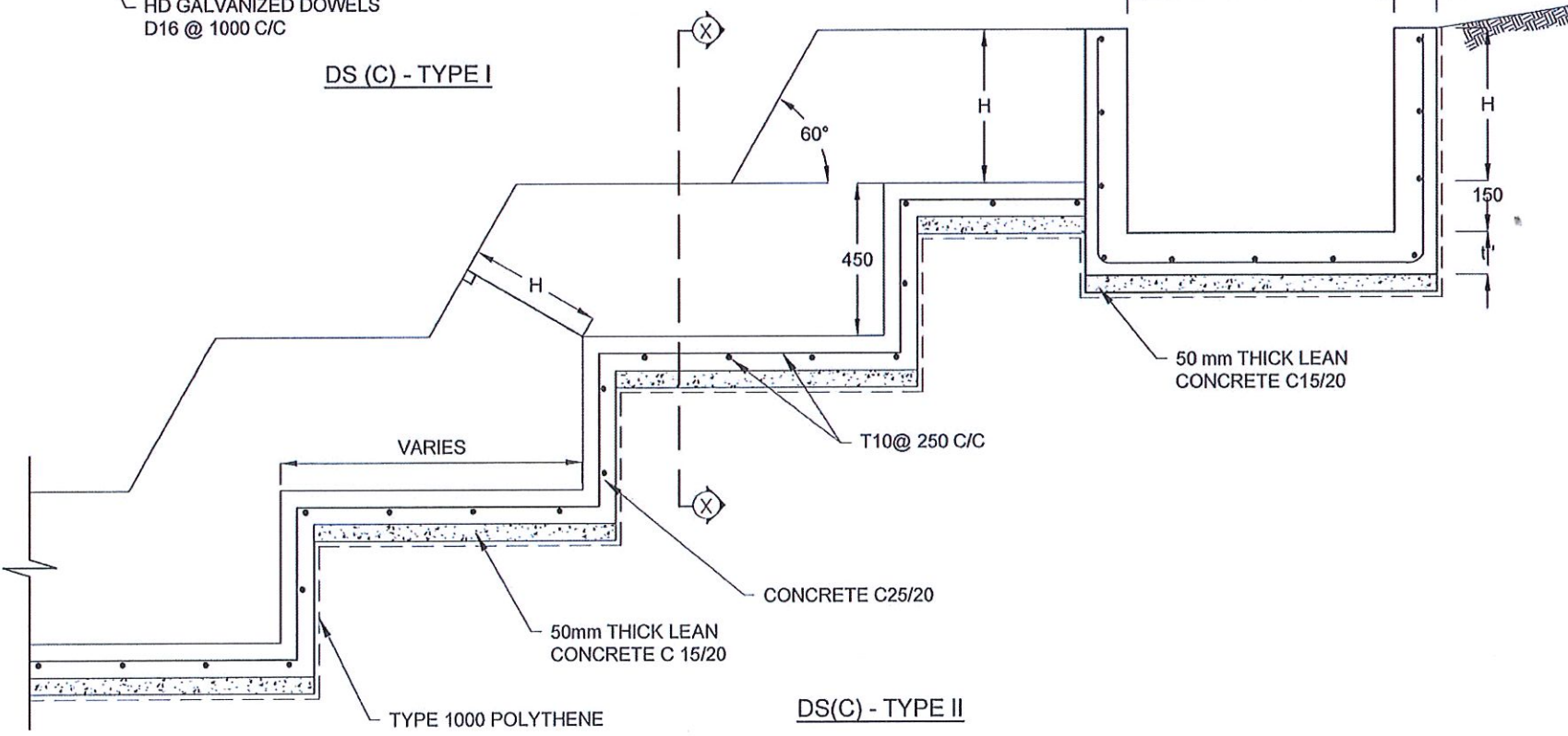
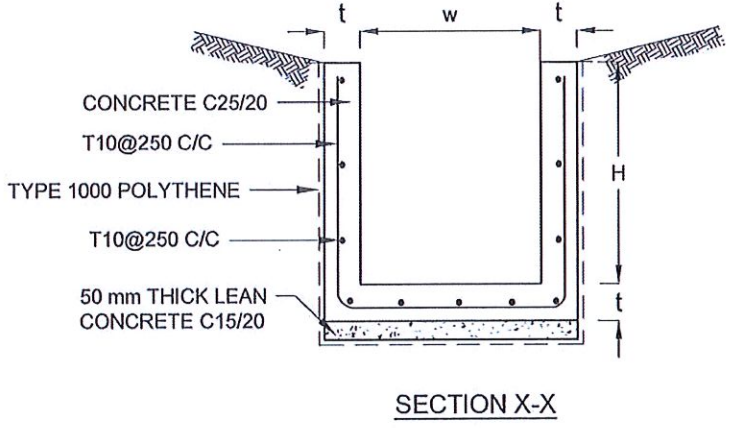
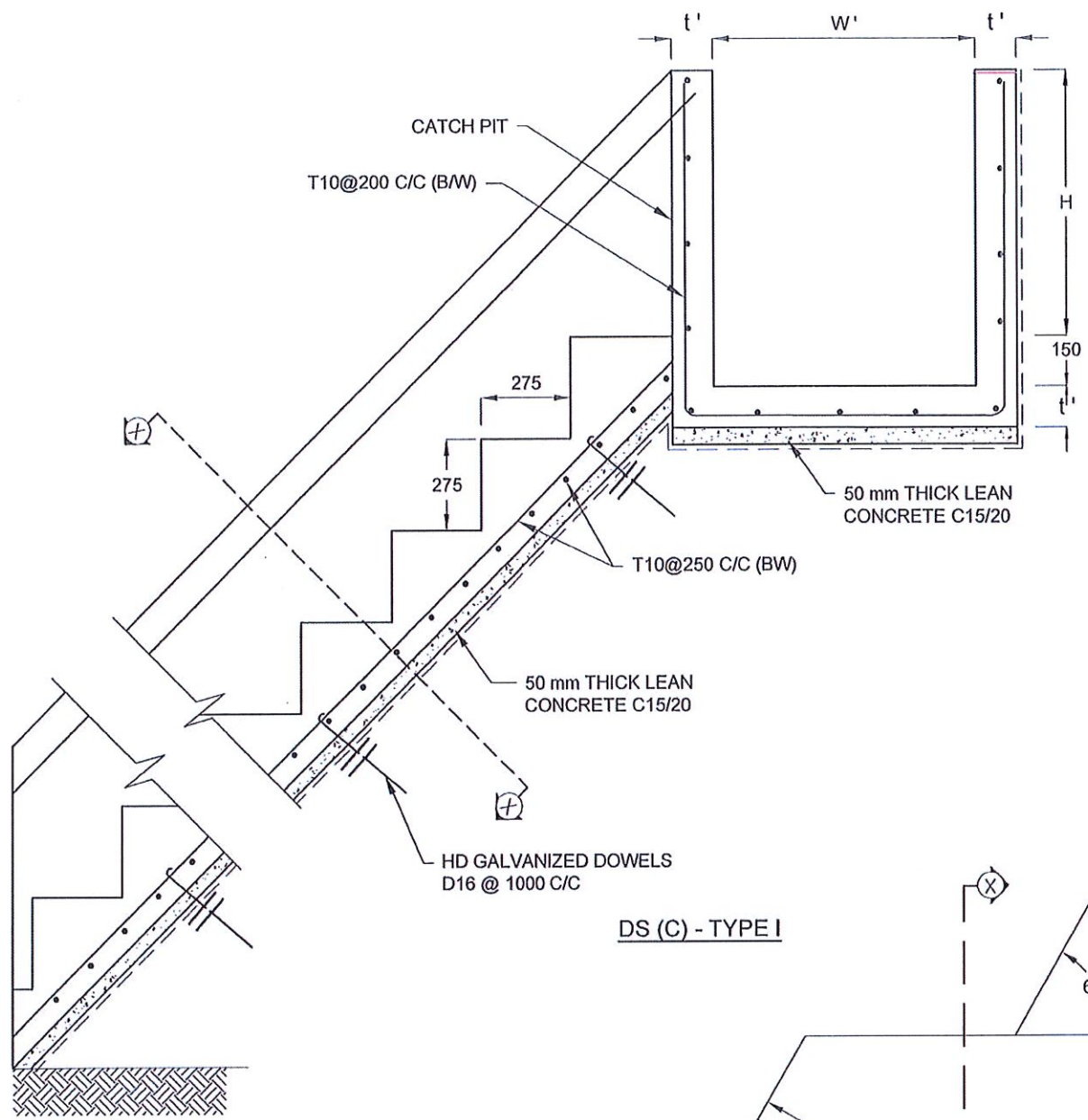
8. USE FOLLOWING CONCRETE GRADES FOR STRUCTURE
 - [a] SCREED - C. 15/20
 - [b] WALLS / BASE / ENERGY BREAKERS - C. 25/20

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

EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES DIGANA - KUNDASALE	TITLE DETAILS OF DRAINS (SUBSURFACE DRAIN AND CATCHPIT)	DESCRIPTION	NAME	SIGNATURE				
									SCALE	N.T.S.	DATE	21.12.2020	REVISION	00
							PROJECT / DRAWING No.					APPROVED	K.N. BANDARA	
							RLVMP/WORKS/NCB/04B/01/DR- 05c							

DRAIN TYPE	W (mm)	H (mm)	l (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



NOTES

- USE EITHER TYPE I OR TYPE II CASCADE DRAIN ACCORDING TO THE ACTUAL GROUND CONDITION AS INSTRUCTED BY THE ENGINEER.
- LENGTH OF THE STEPS OF CASCADE WILL BE VARIED ACCORDING TO THE SITE CONDITIONS.
- DEPTH OF EXCAVATION SHALL BE VARIED ACCORDING TO SITE CONDITIONS.
- DOWELS SHALL BE INSTALLED ACCORDING TO THE GROUND CONDITIONS AS INSTRUCTED BY THE ENGINEER.
- 10 mm THICK EXPANSION JOINT SHALL BE INTRODUCED IN EVERY 5m INTERVAL.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.

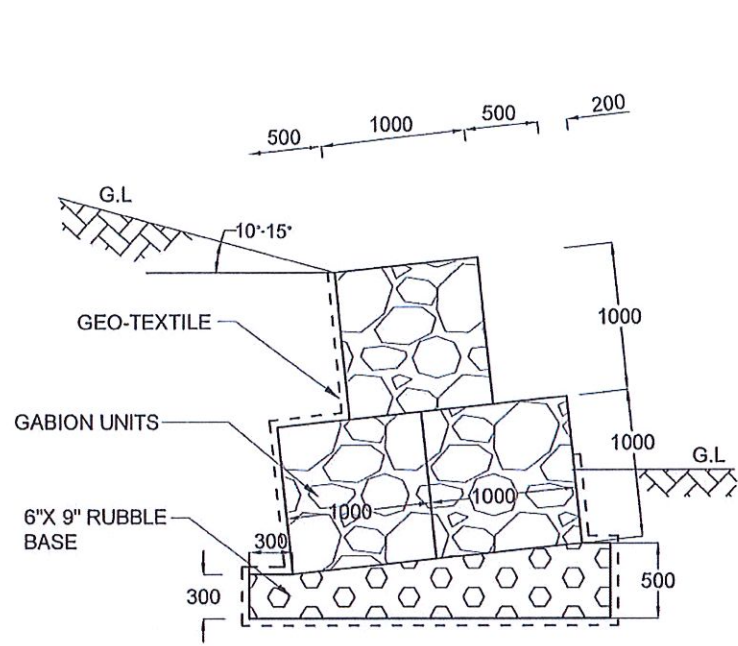
CONCRETE

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

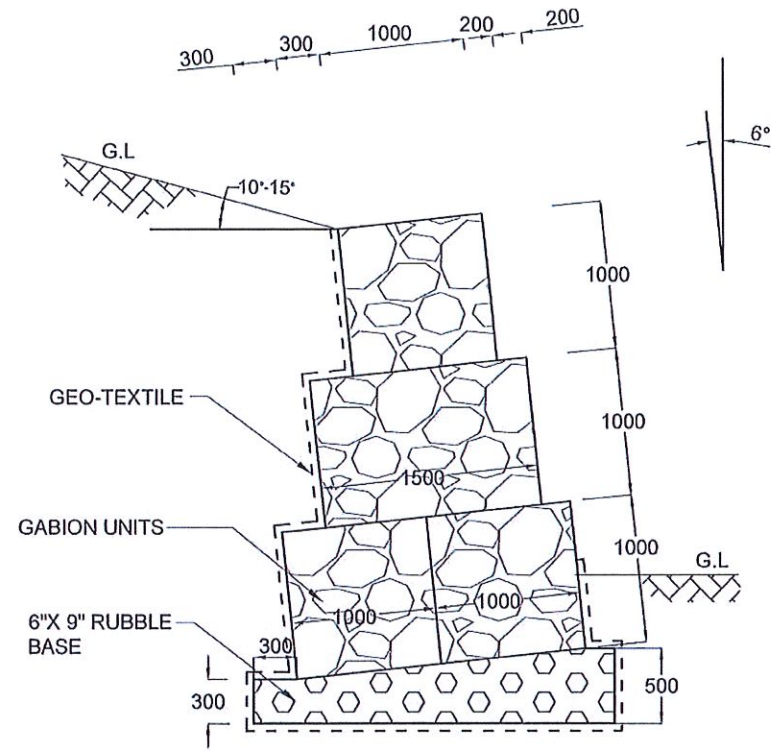
REINFORCEMENT

- 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

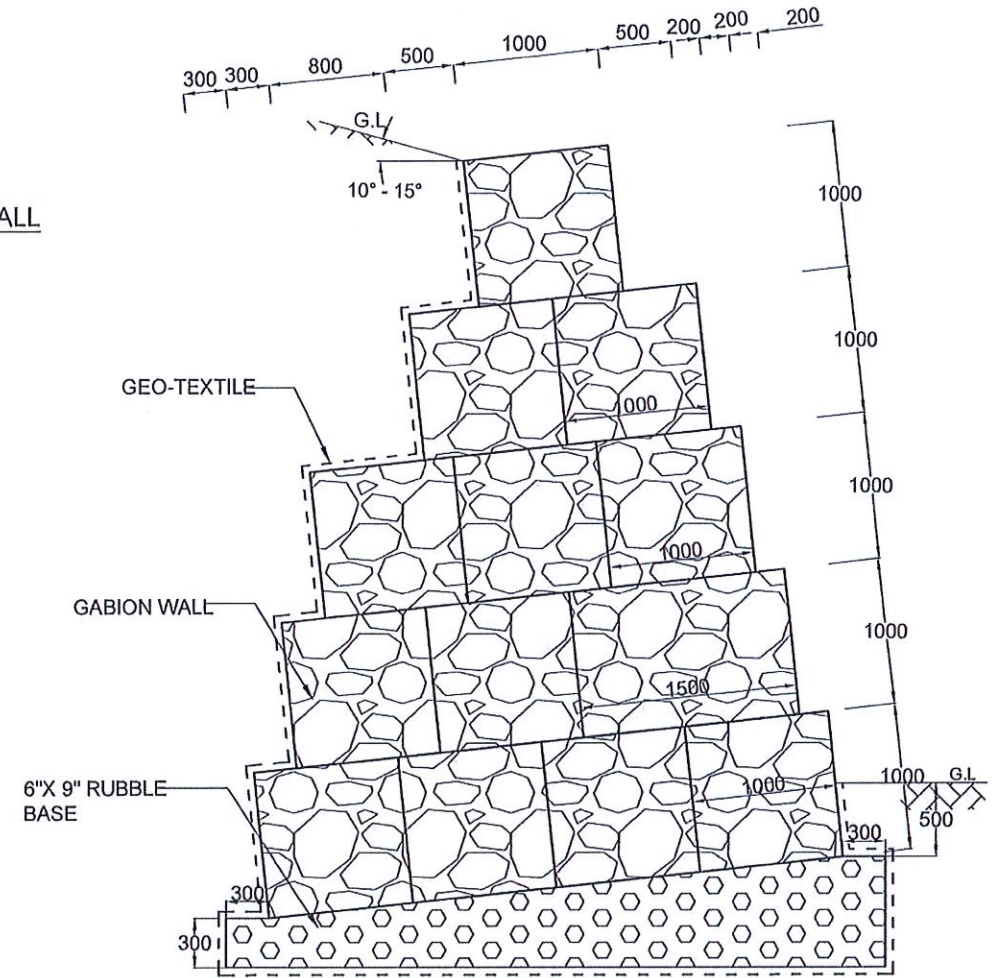
EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES DIGANA - KUNDASALE	TITLE DETAILS OF DRAINS (CASCADE DRSIN)	DESCRIPTION	NAME	SIGNATURE				
									SCALE	N.T.S.	DATE	21.12.2020	RECOMMENDED	PROF. S. A. S. KULATHILAKA
							PROJECT / DRAWING No.			REVISION	00	APPROVED	K.N. BANDARA	
							RLVMP/WORKS/NCB/04B/02-Dlg/DR-5d							



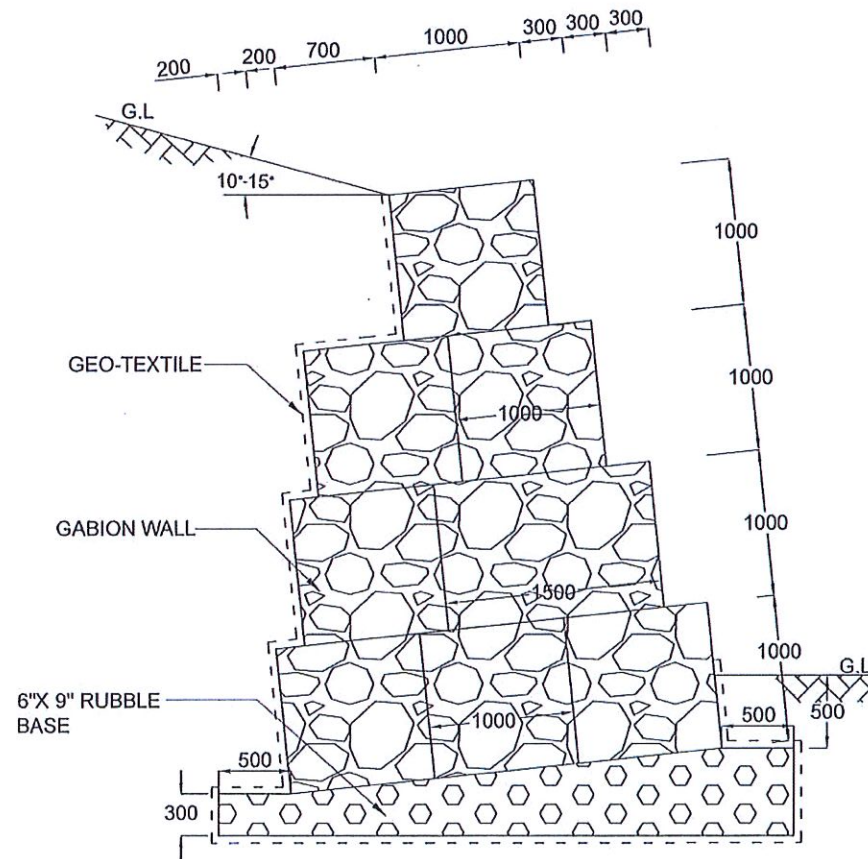
GABION WALL
TYPE I



GABION WALL
TYPE II






GABION WALL
TYPE IV

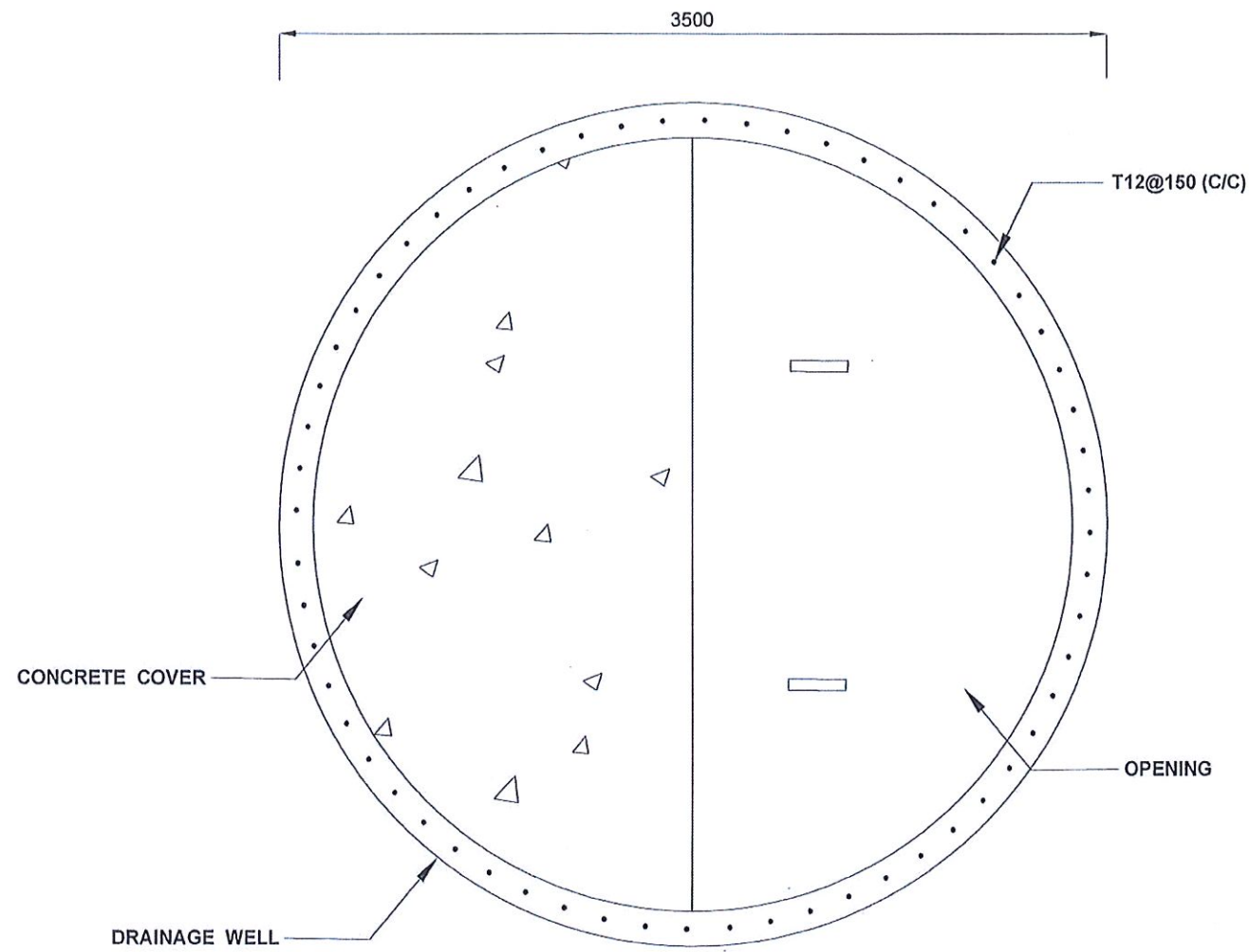


GABION WALL
TYPE III

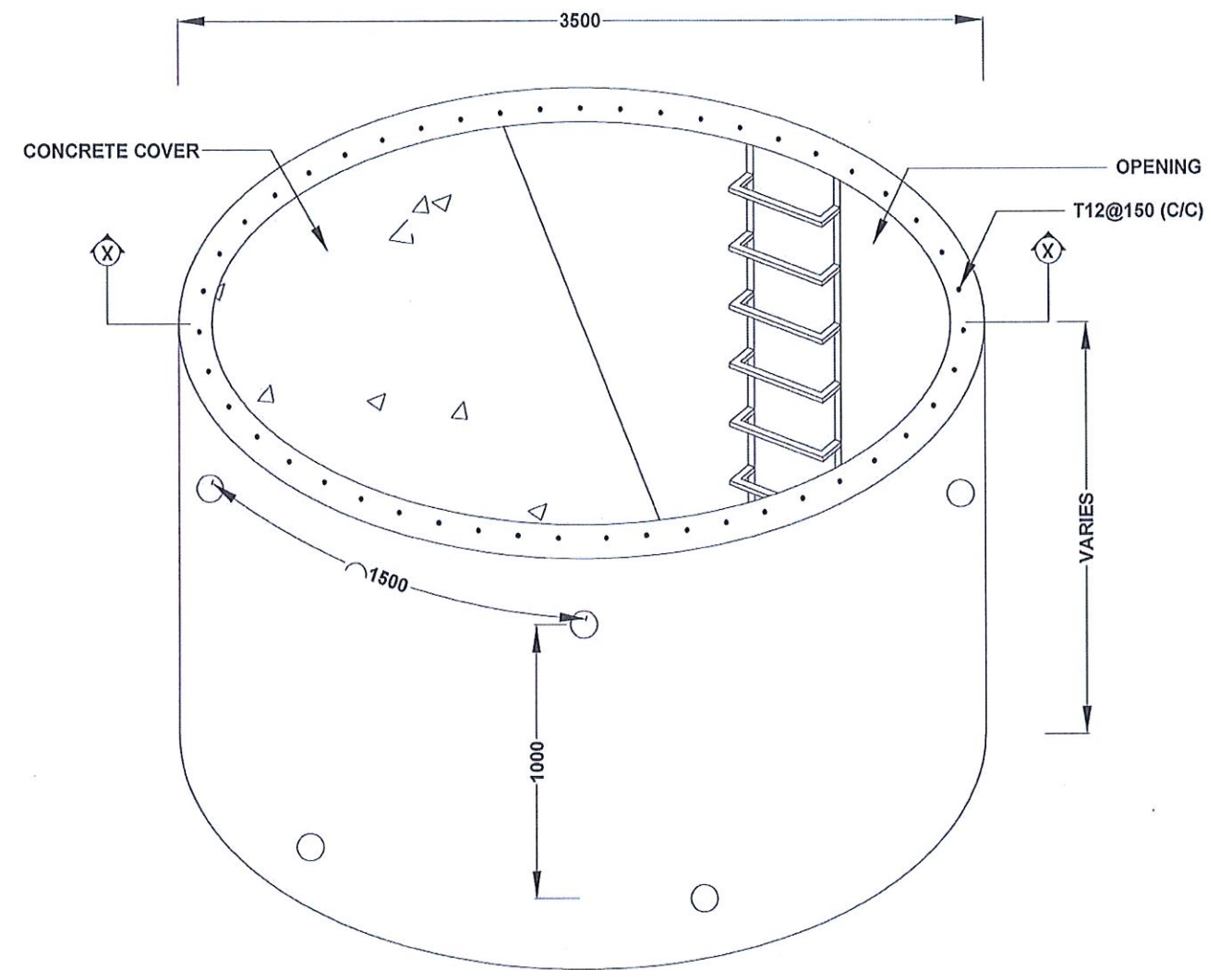
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS.

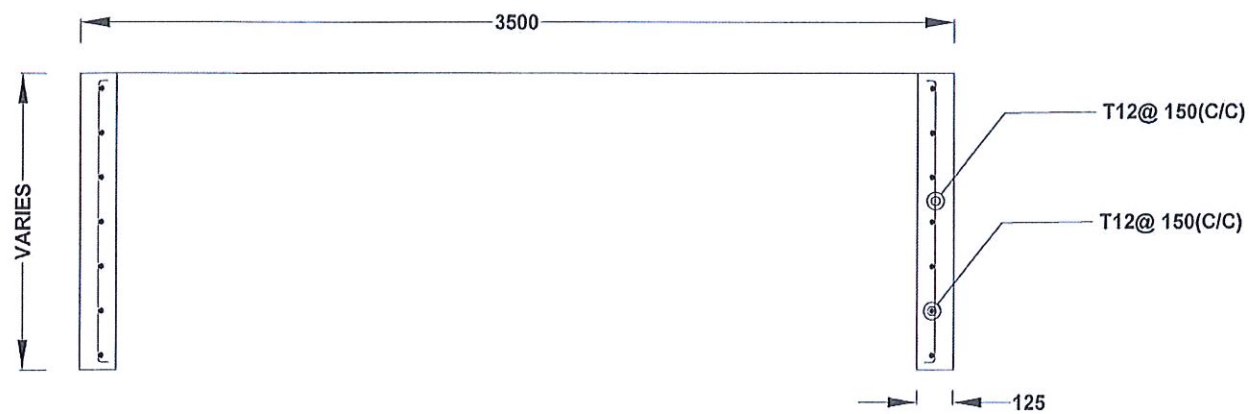
EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER  DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES DIGANA - KUNDASALE	TITLE DETAILS OF GABION WALL	DESCRIPTION	NAME	SIGNATURE			
									SCALE	N.T.S.	DATE	21.12.2020	REVISION
								PROJECT / DRAWING No.	RLVMP/WORKS/INCB/04B/02-Dig/DR-07	APPROVED	K.N. BANDARA		



PLAN VIEW OF DRAINAGE WELL



ELEVATION OF DRAINAGE WELL

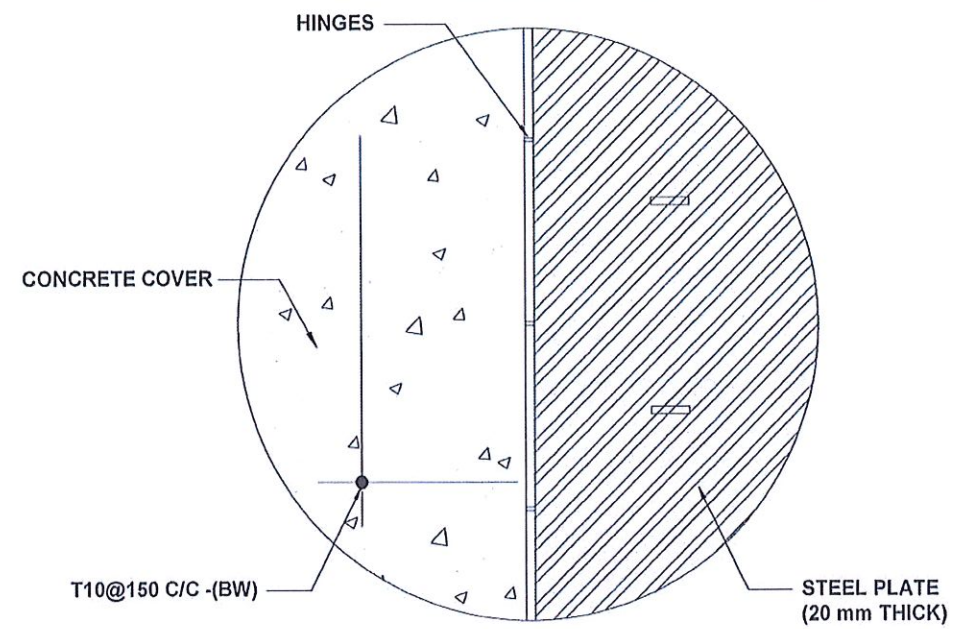
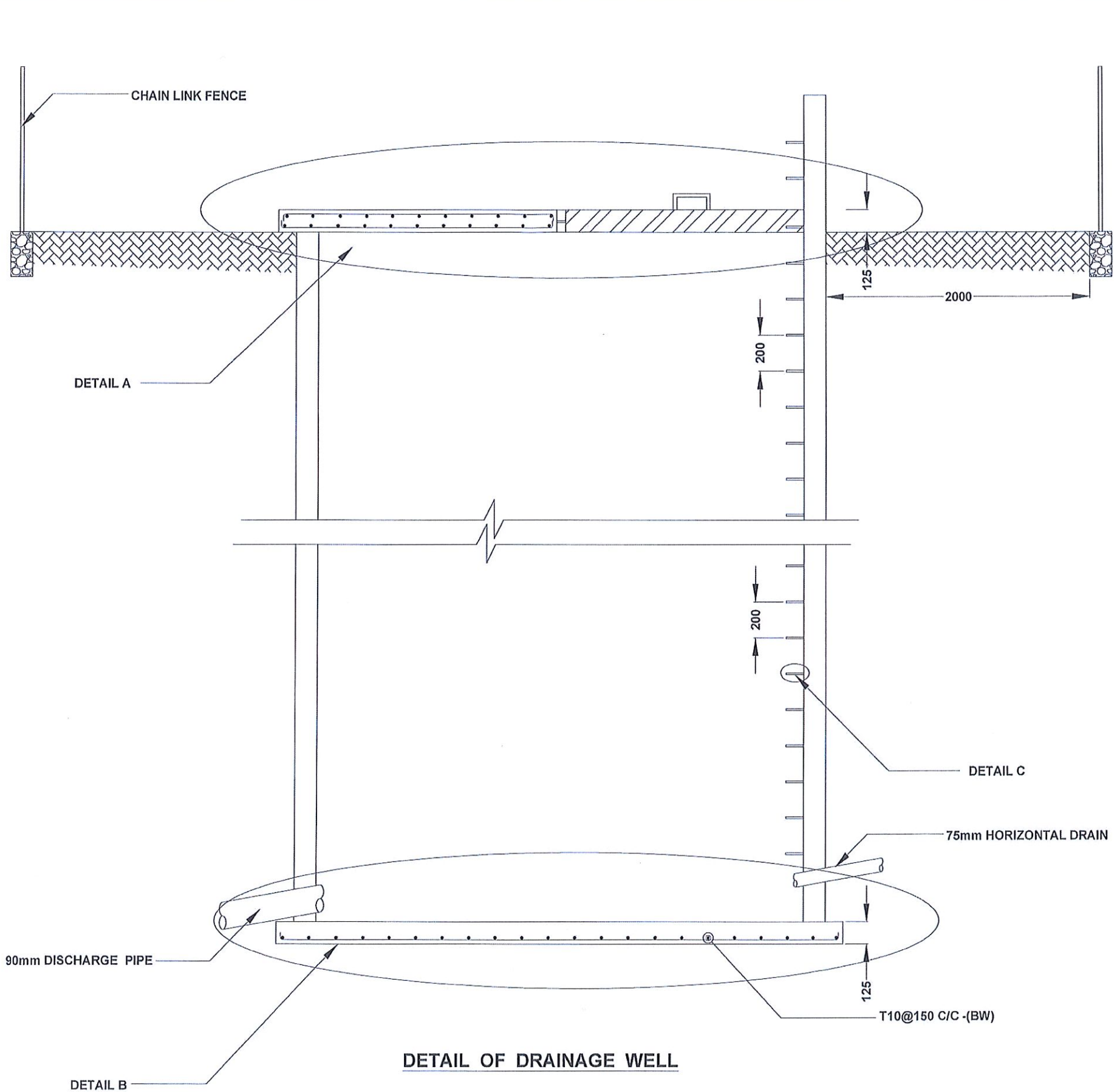


SECTION X - X

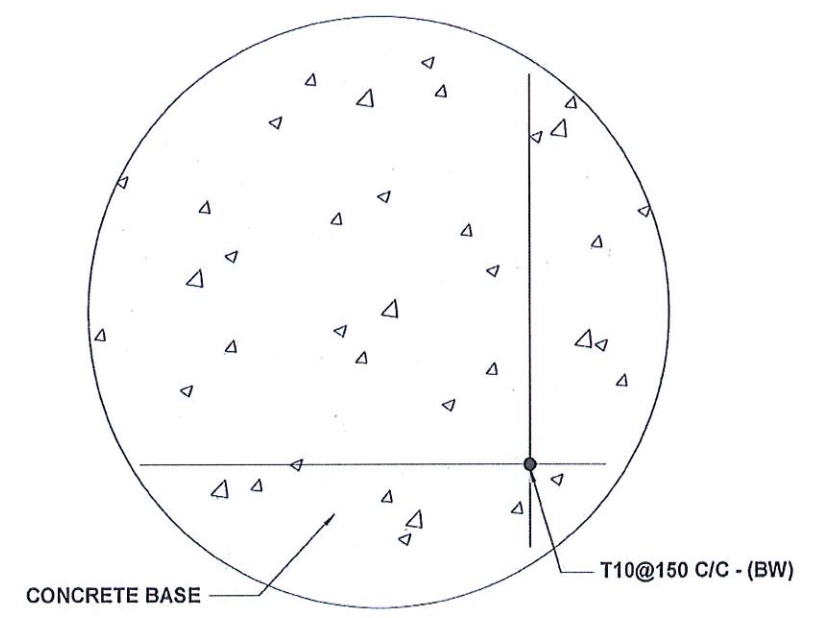
NOTES

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED
- USE FOLLOWING CONCRETE GRADES FOR STRUCTURE
 - [a] SCREED - C. 15/20
 - [b] WALLS / BASE / ENERGY BREAKERS - C. 25/20
- 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
- STEEL PLATE
 - 8. STEEL PLATE SHALL CONFORM TO S275JR STEEL TO EN1025
 - 9. PLATE SHALL BE COATED WITH AN APPROVED EPOXY COATING

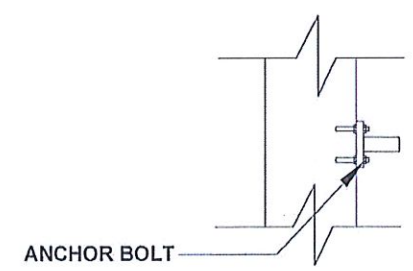
EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES DIGANA - KUNDASALE	TITLE		DESCRIPTION	NAME	SIGNATURE			
								DETAILS OF DRAINAGE WELL		DRAWN	B.V.S. PATTRISHIYA			
							SCALE	N.T.S.	DATE	21.12.2020	RECOMMENDED	PROF. S. A. S. KULATHILAKA		
							PROJECT / DRAWING No.		RLVMP/WORKS/NCB/04B/02-Dig/DR-08a	REVISION	00	APPROVED	K.N. BANDARA	



DETAIL A





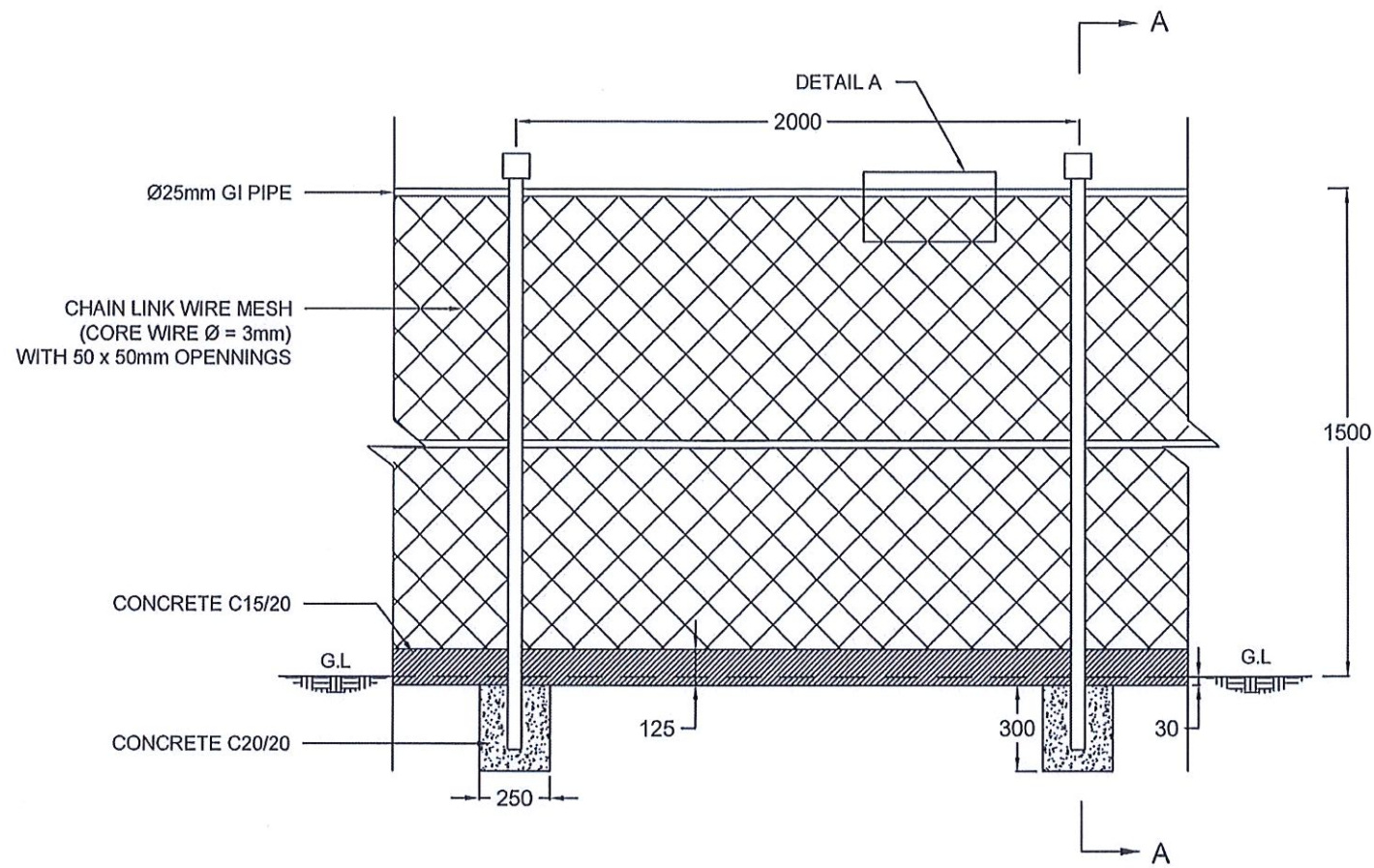
DETAIL B



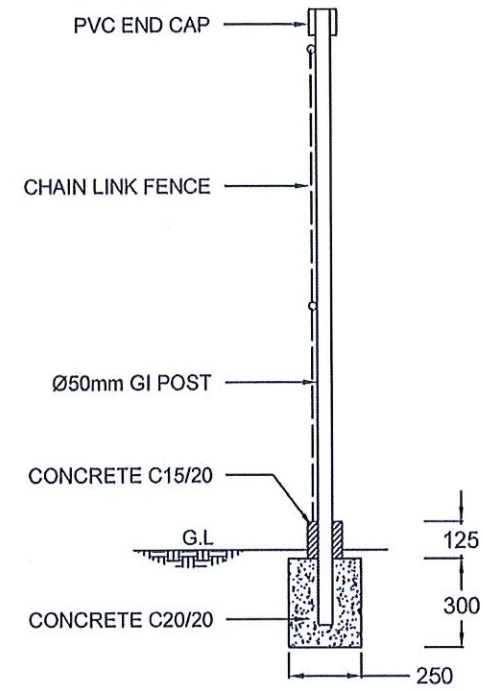
DETAIL C

DETAIL OF DRAINAGE WELL

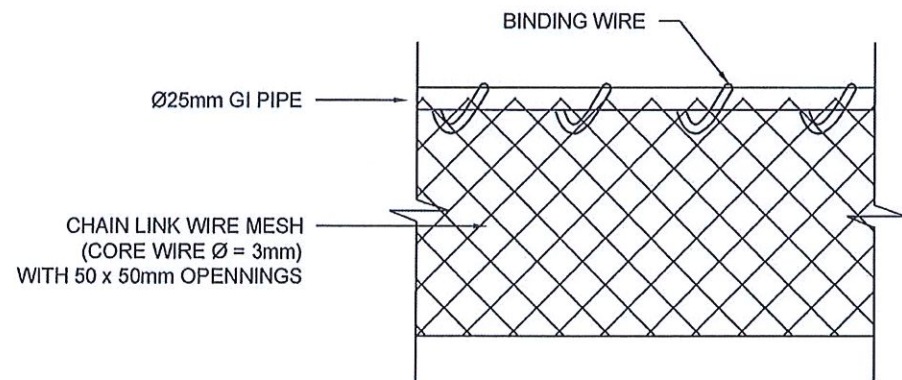
EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER  DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES DIGANA - KUNDASALE	TITLE DETAILS OF DRAINAGE WELL		DESCRIPTION	NAME	SIGNATURE	
										SCALE	N.T.S.	DATE
							PROJECT / DRAWING No.		REVISION	APPROVED	K.N. BANDARA	
							RLVMP/WORKS/NCB/04B/02-Dig/DR-08b		00			



FRONT ELEVATION









SECTION A - A

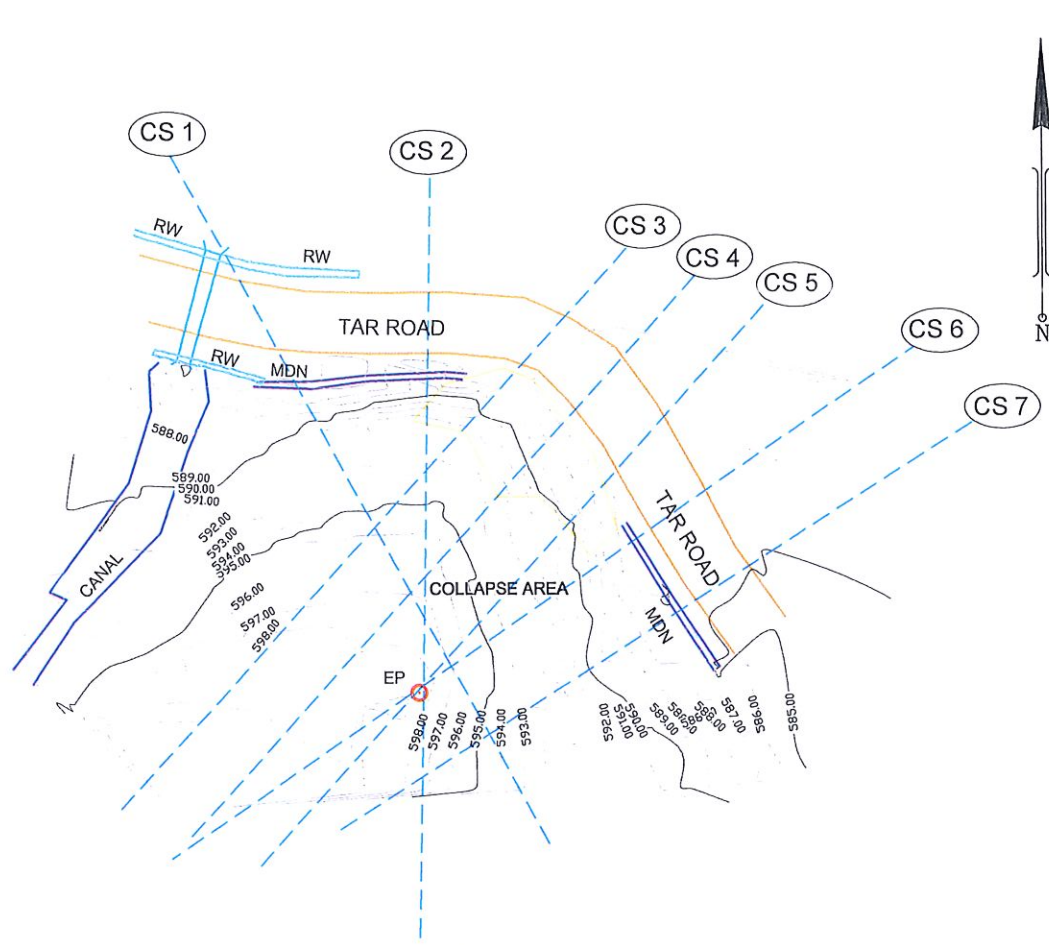


DETAIL A

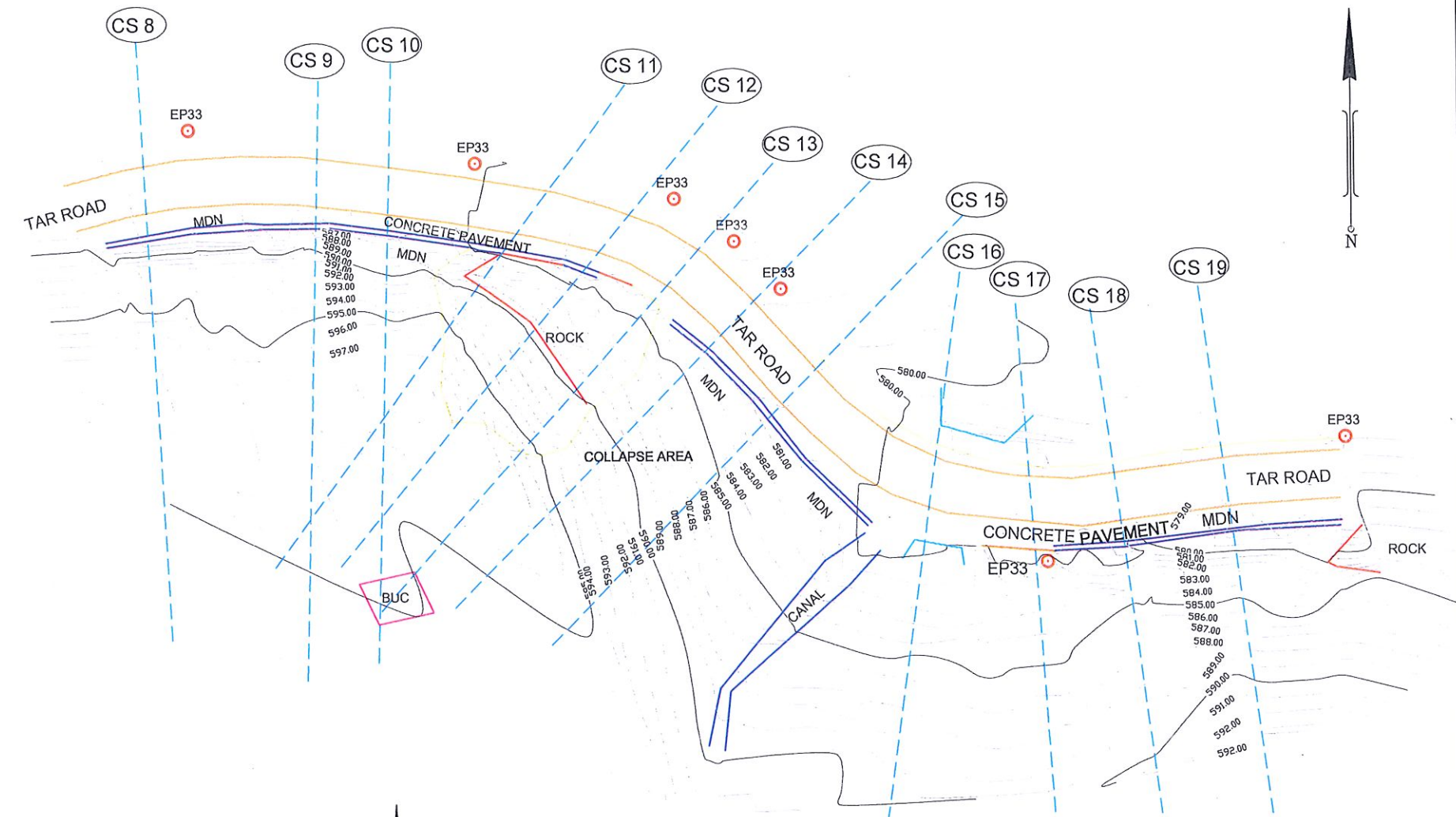
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. GI POST SHOULD BE COVERED WITH GREEN COLOUR ANTI-CORROSIVE PAINT.
3. PRIOR APPROVAL IS REQUIRED FOR CHAIN LINK WIRE MESH, GI POST AND PVC CAP.
4. FENCE FOOTING TO BE CAST TOGETHER WITH DRAIN WALL OF DS(K).

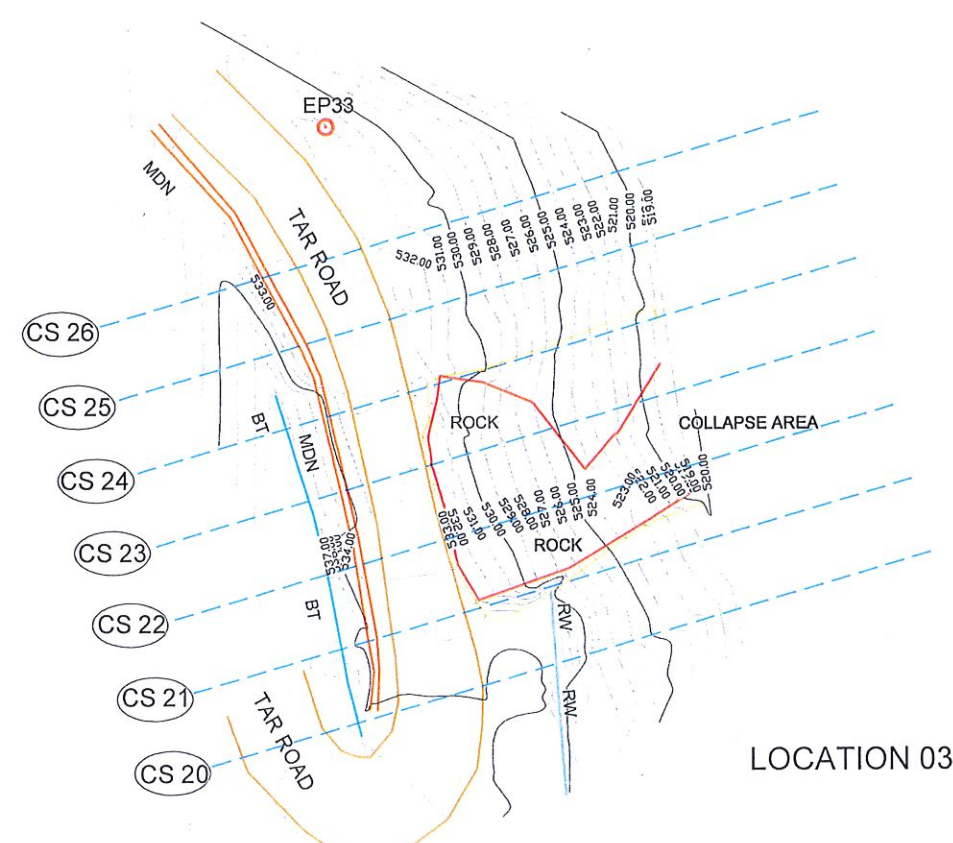
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 DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05	 DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD COLOMBO - 05					REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES DIGANA - KUNDASALE	DETAILS OF CHAIN LINK FENCE	DRAWN	B.V.S. PATTRISHIYA	   
								DESIGNED	S.O.A.D.M. LAKRUWAN	
								CHECKED	J.P. SAMARANAYAKE	
								RECOMMENDED	PROF. S. A. S. KULATHILAKA	
								APPROVED	K.N. BANDARA	
		SCALE	N.T.S.	DATE	21.12.2020			REVISION	00	
						PROJECT / DRAWING No. RLVMP/WORKS/NCB/04B/02-Dig/DR-09				



LOCATION 01




LOCATION 02



LOCATION 03

- REFERENCE
- CUL - CULVERT
 - MDN - MASONRY DRAIN
 - RW - RETAINING WALL
 - CNL - CANAL
 - TR - TAR ROAD
 - EP - ELECTRICITY POST
 - CONP - CONCRETE PAVEMENT
 - RK - ROCK
 - COLLA - COLLAPSE AREA
 - BT - BOTTOM OF BANK

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

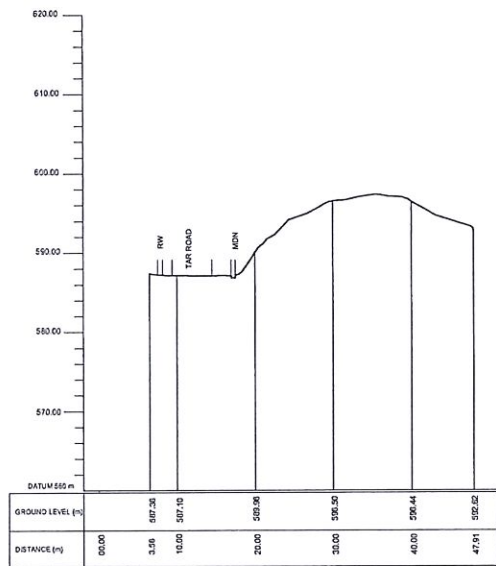
REDUCTION OF LANDSLIDE
VULNERABILITY BY MITIGATION MEASURES
KEGALLE DISTRICT
LHS OF ARANAYAKA-HULANKAPOLLA ROAD

TITLE

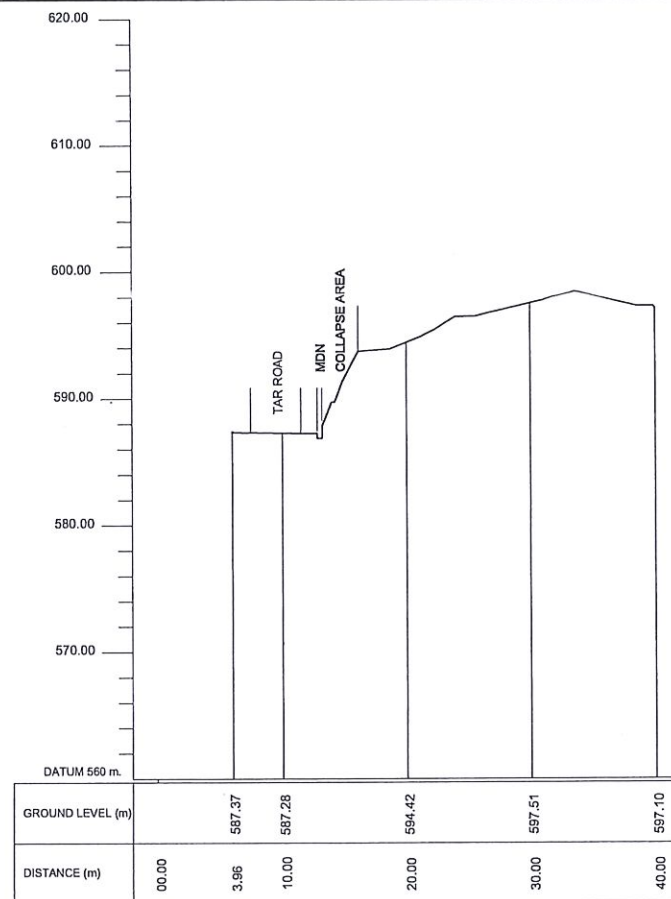
CONTOUR SURVEY PLAN

SCALE	1:500	DATE	12.11.2020
PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/04B/08-Hk/DR-01	REVISION	00

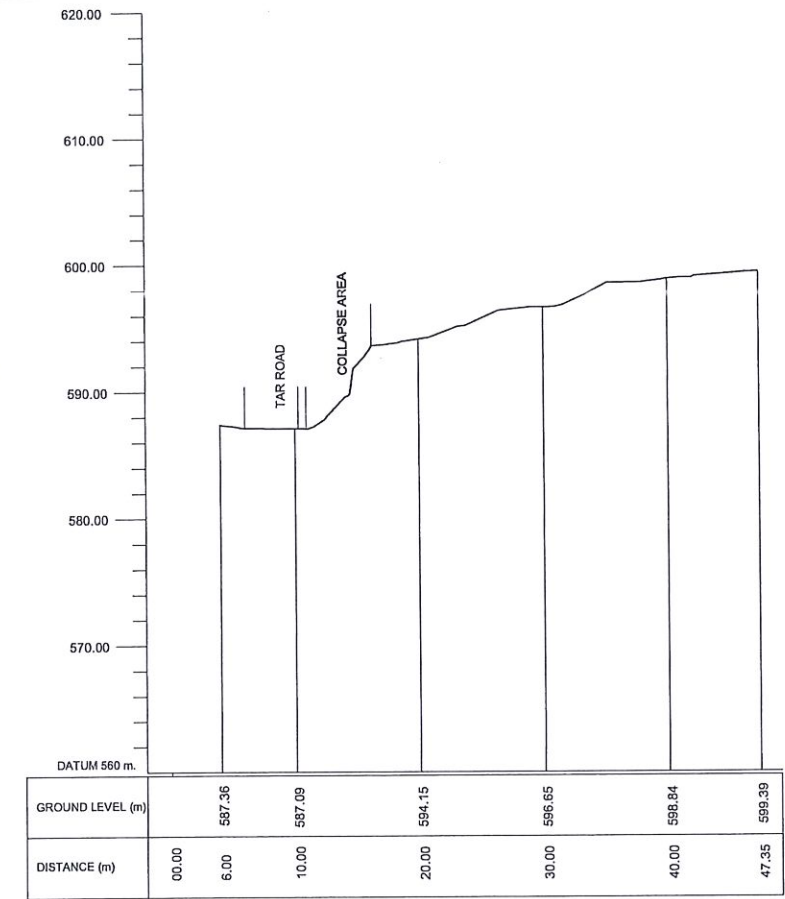
DESCRIPTION	NAME	SIGNATURE
SURVEYED	LANKA G.P.S. (PVT) LTD	
CHECKED	G.D.W.N.GALHENA	



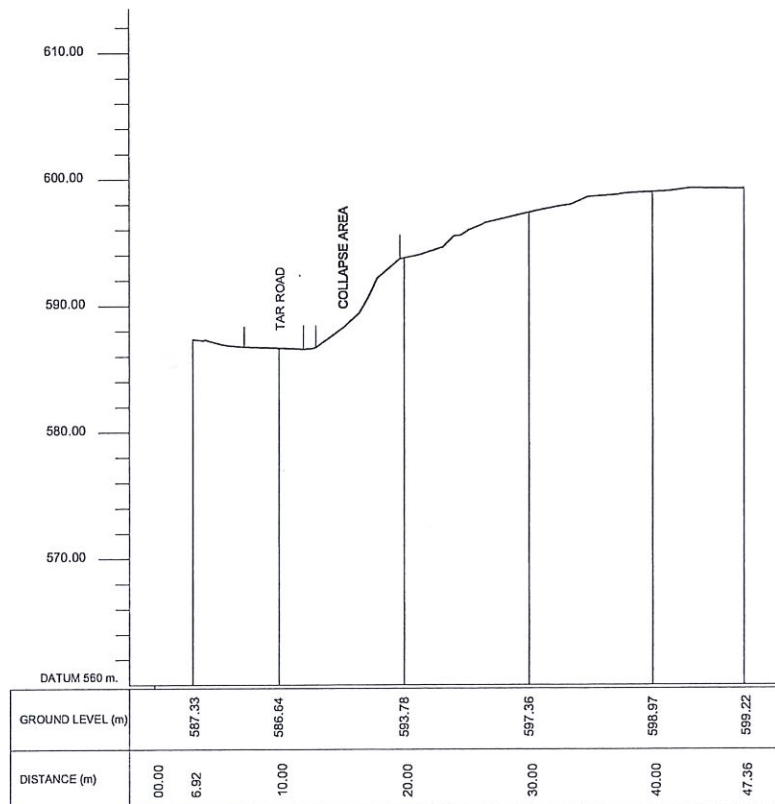
Location 01 - CS 01



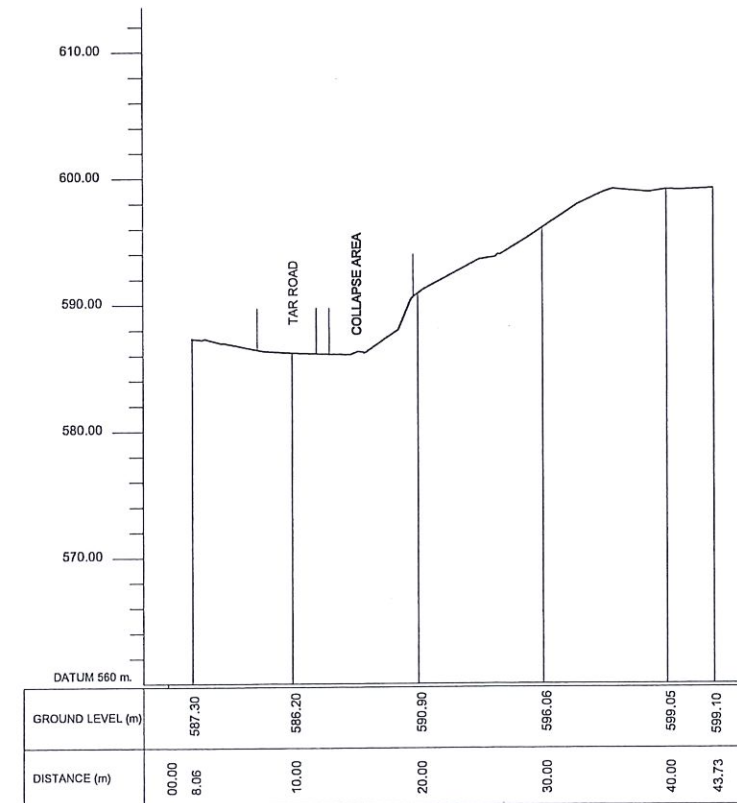
Location 01 - CS 02




Location 01 - CS 03



Location 01 - CS 04



Location 01 - CS 05

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

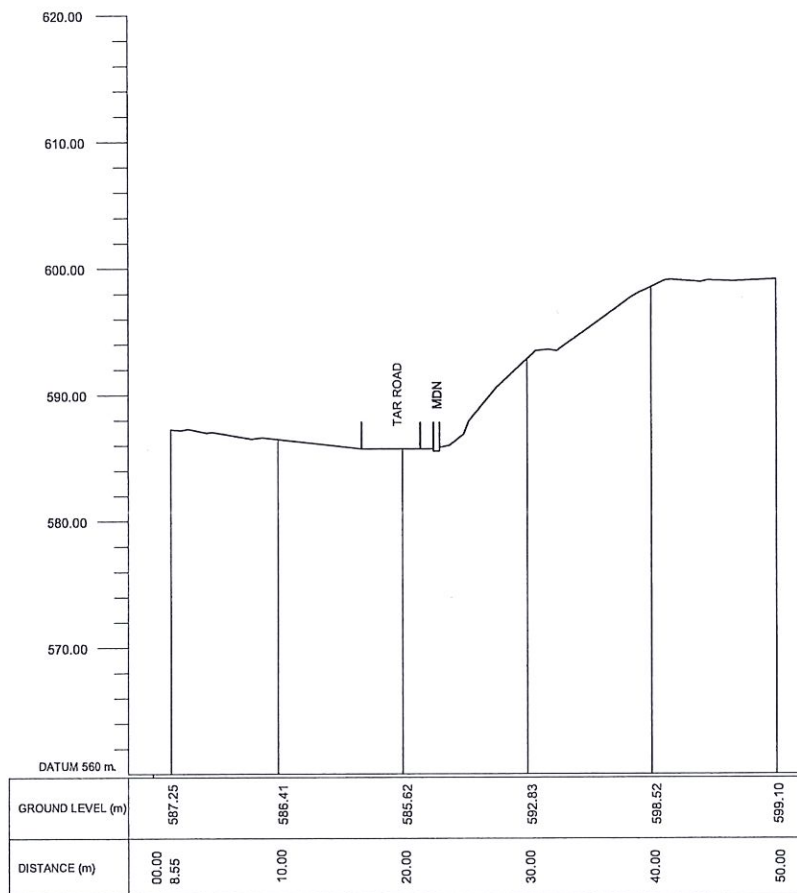
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 KEGALLE DISTRICT
 LHS OF ARANAYAKA-HULANKAPOLLA ROAD

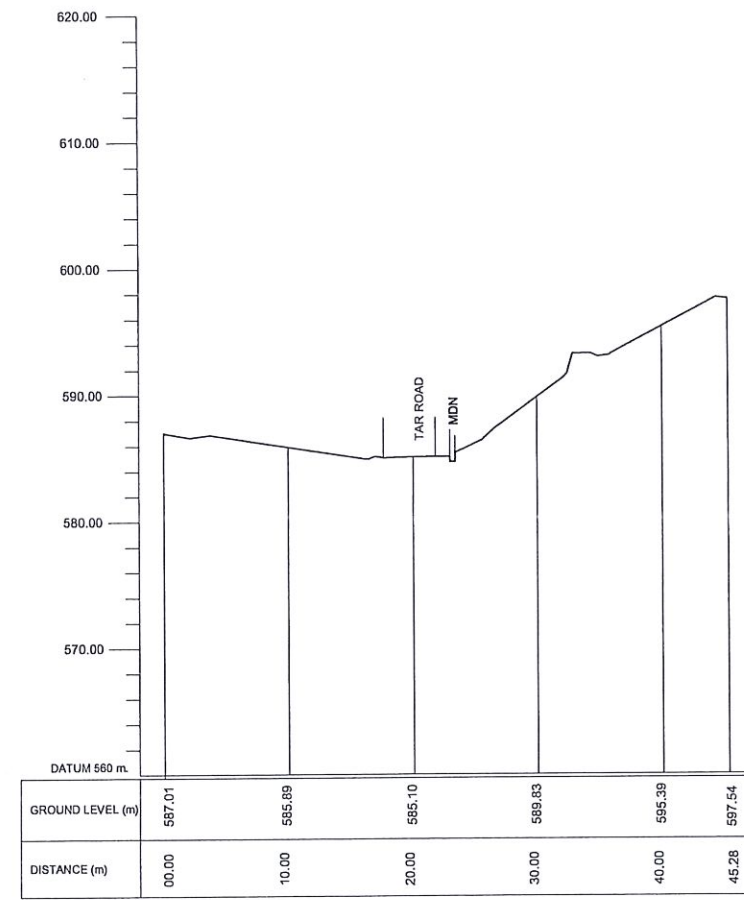
TITLE
 SURVEY CROSS SECTIONS

SCALE	N.T.S	DATE	12.11.2020
PROJECT / DRAWING No.		REVISION	
RLVMMP/WORKS/NCB/04B/08-HK/DR-02a-I		00	



DESCRIPTION	NAME	SIGNATURE
SURVEYED	LANKA G.P.S. (PVT) LTD	
CHECKED	G.D.W.N.GALHENA	

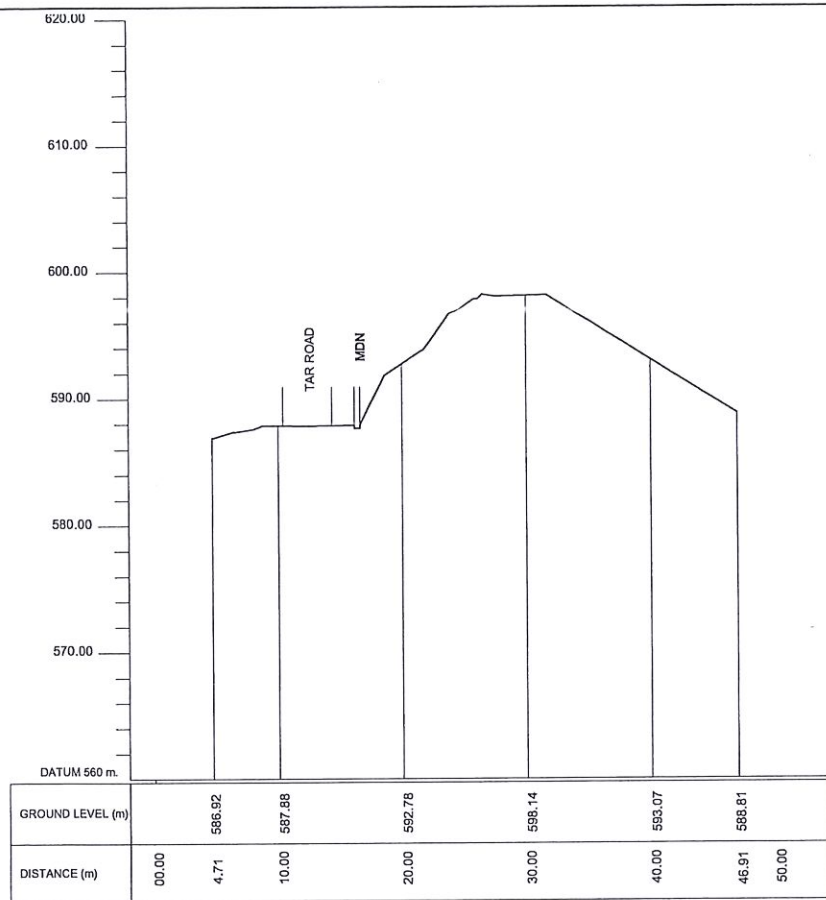


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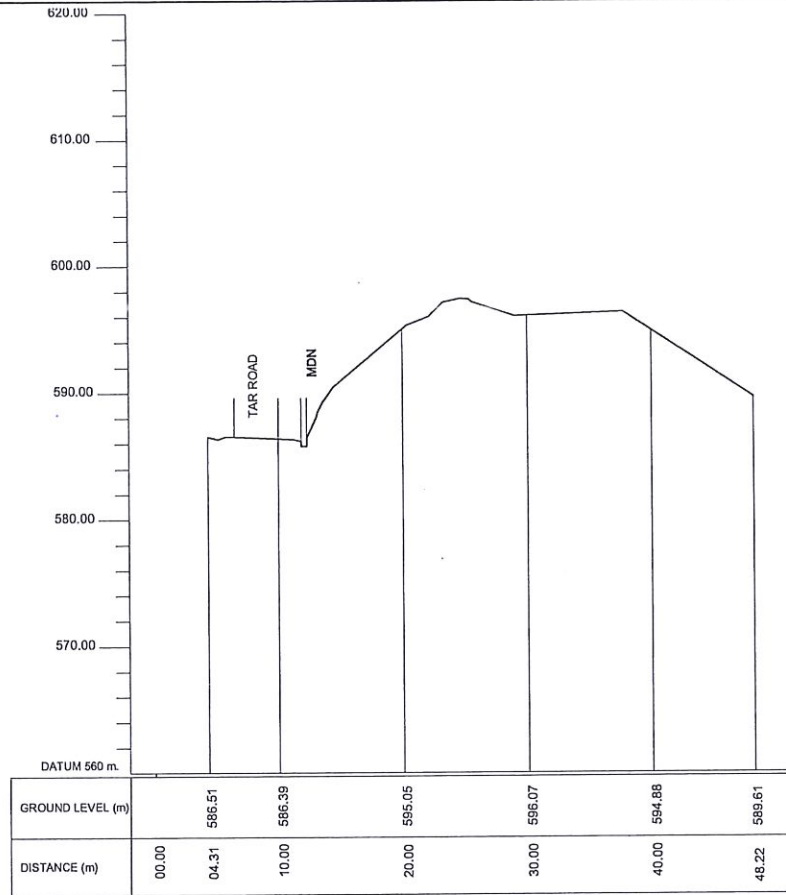


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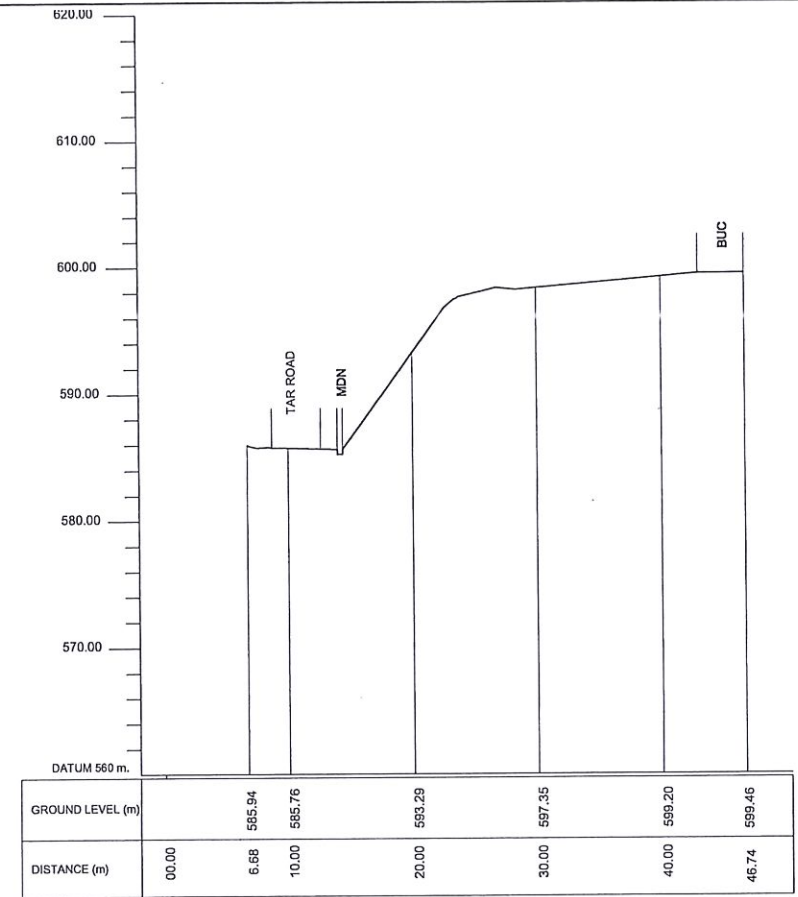
EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER  DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV []	DATE []	REVISION DESCRIPTION []	APPROVAL []	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD	TITLE SURVEY CROSS SECTION	DESCRIPTION SURVEYED	NAME LANKA G.P.S. (PVT) LTD	SIGNATURE []
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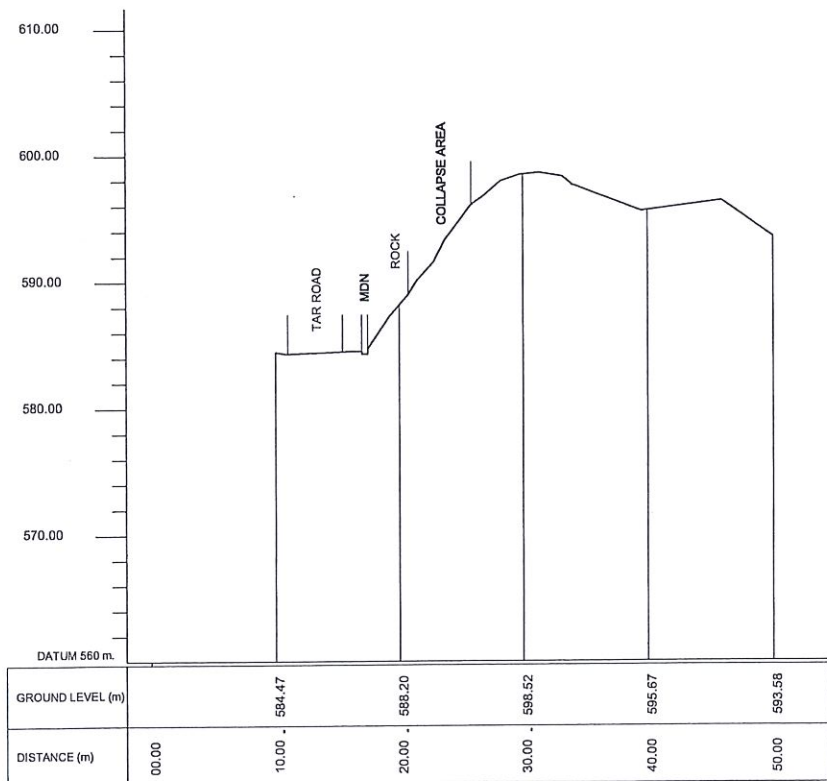
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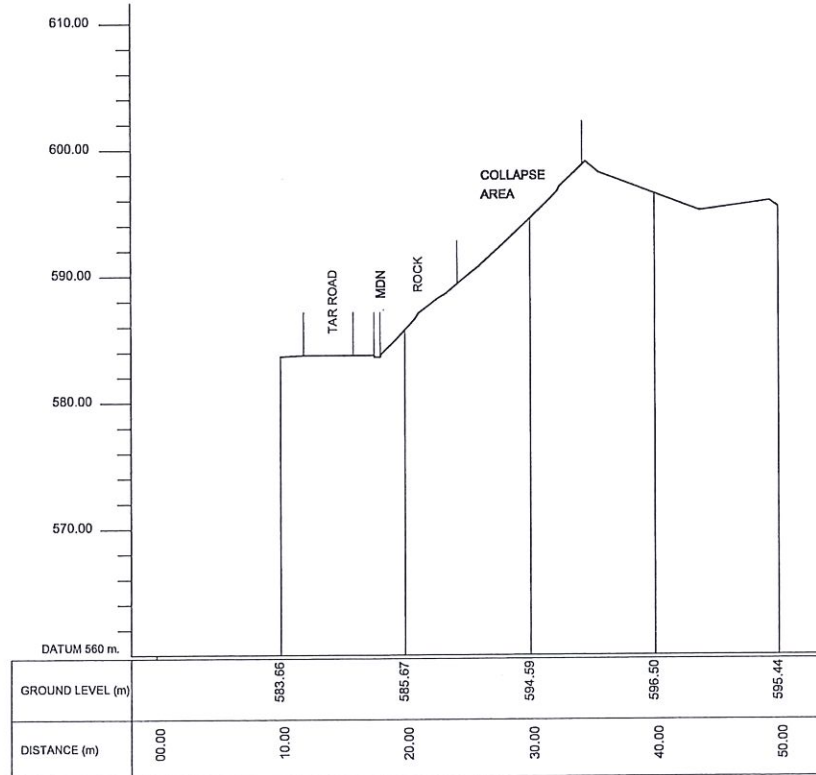
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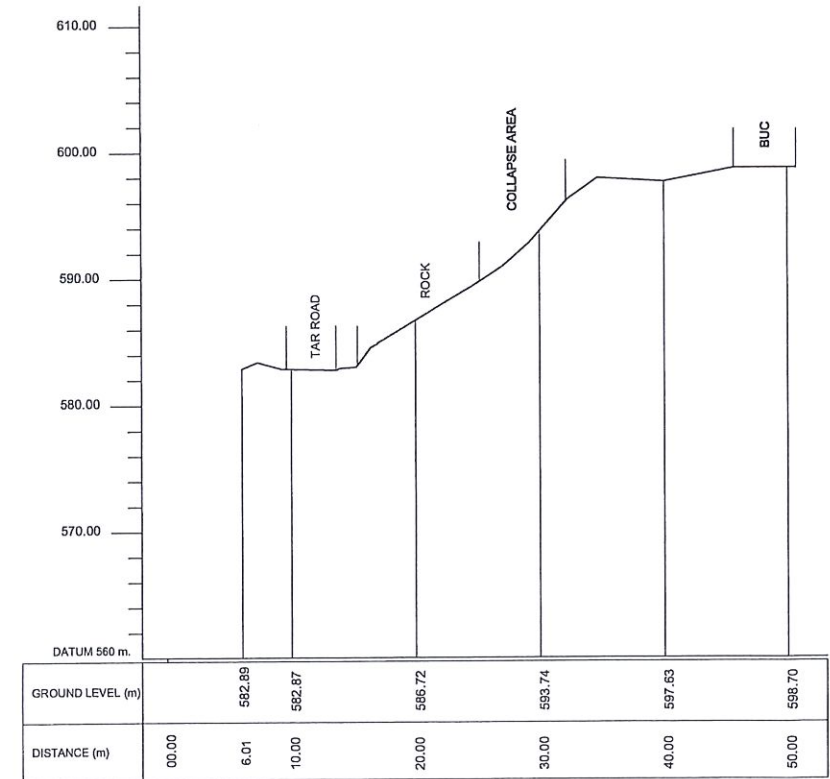
Location 02 - CS 10




Location 02 - CS 11



Location 02 - CS 12



Location 02 - CS 13

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

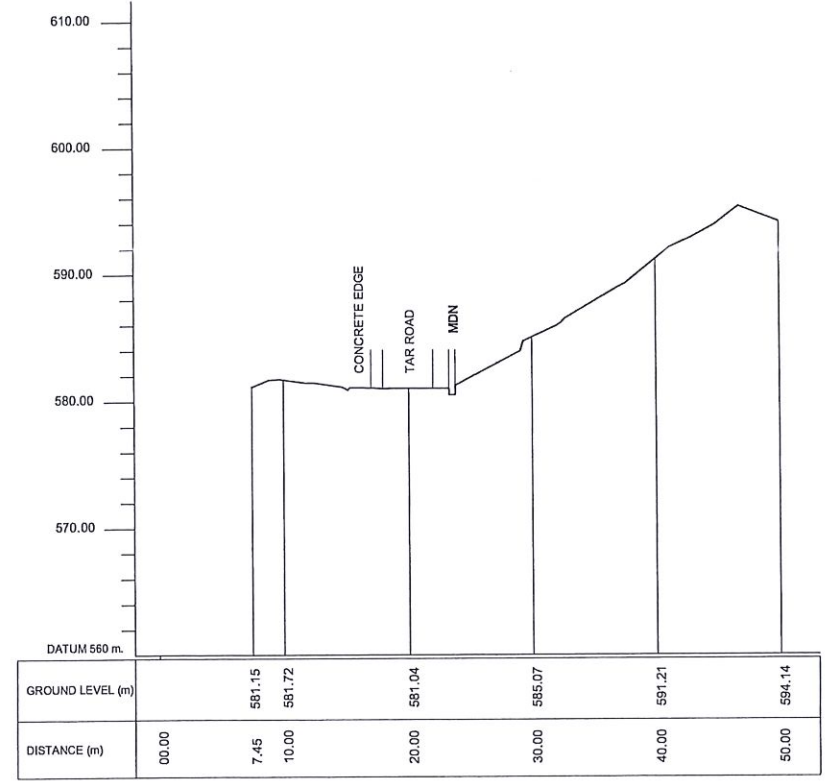
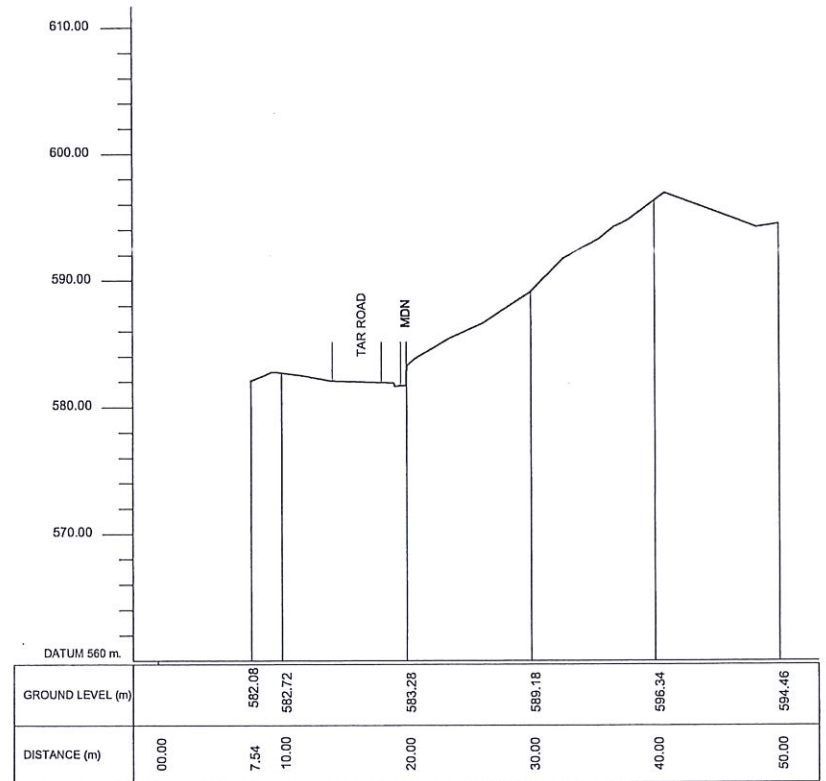
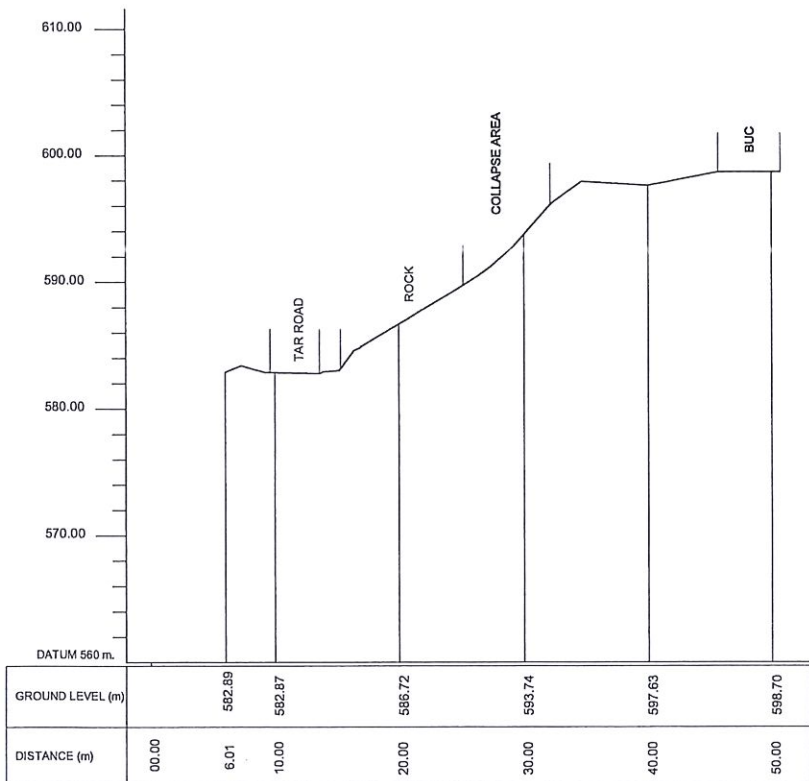
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 KEGALLE DISTRICT
 LHS OF ARANAYAKA-HULANKAPOLLA ROAD

TITLE
 SURVEY CROSS SECTION

SCALE	N.T.S	DATE	12.11.2020
PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/04B/08-Hk/DR-02b-I	REVISION	00

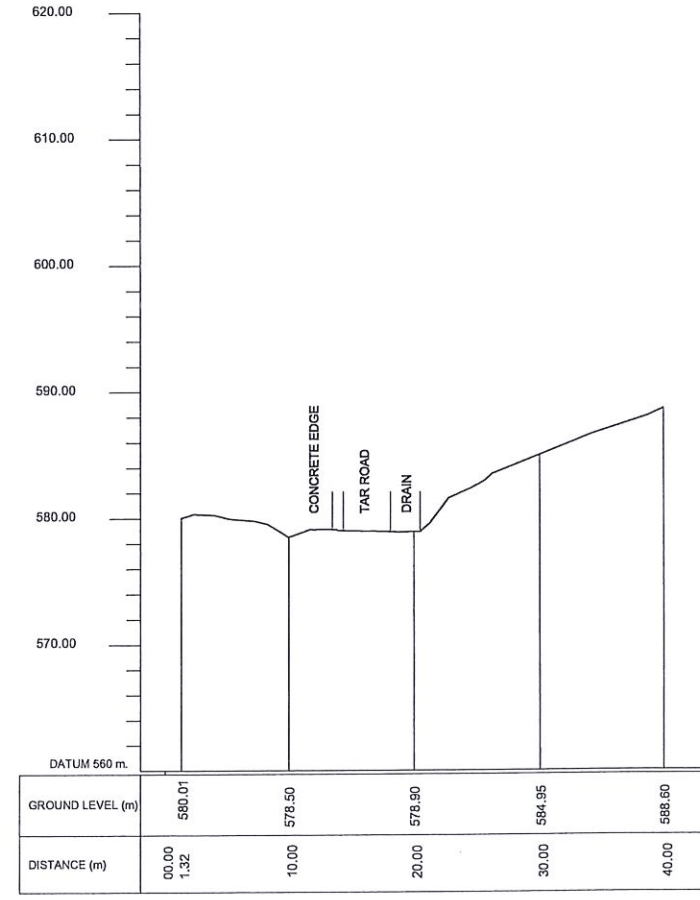
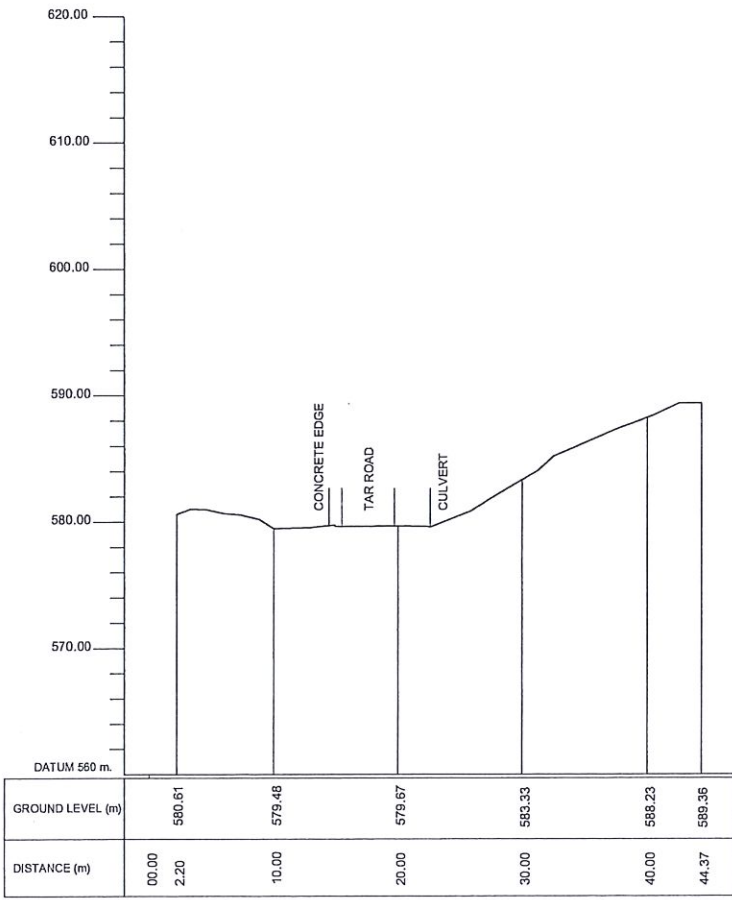
DESCRIPTION	NAME	SIGNATURE
SURVEYED	LANKA G.P.S. (PVT) LTD	
CHECKED	G.D.W.N.GALHENA	



Location 02 - CS 13



Location 02 - CS 14

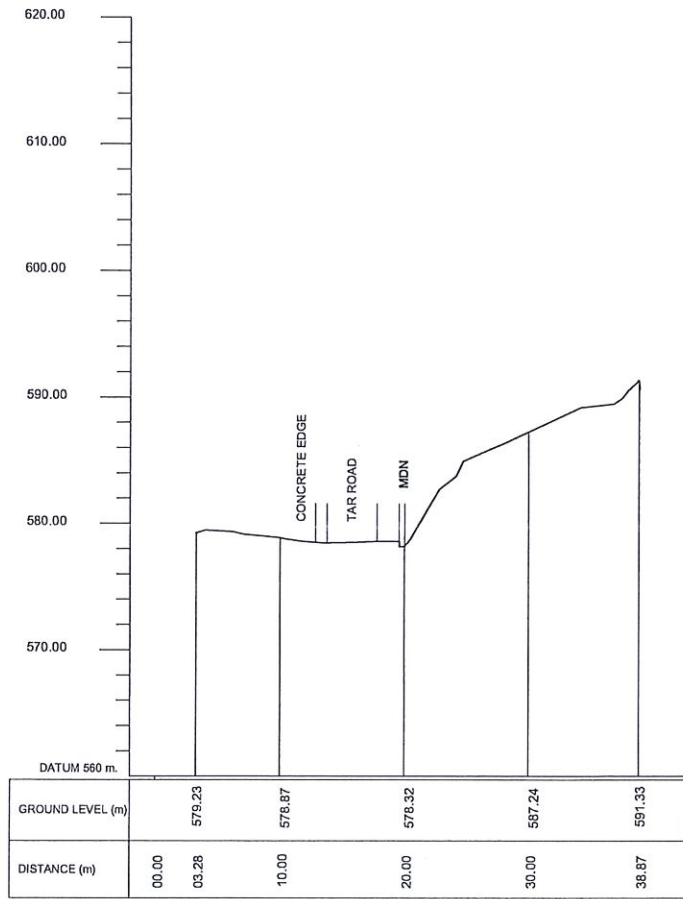
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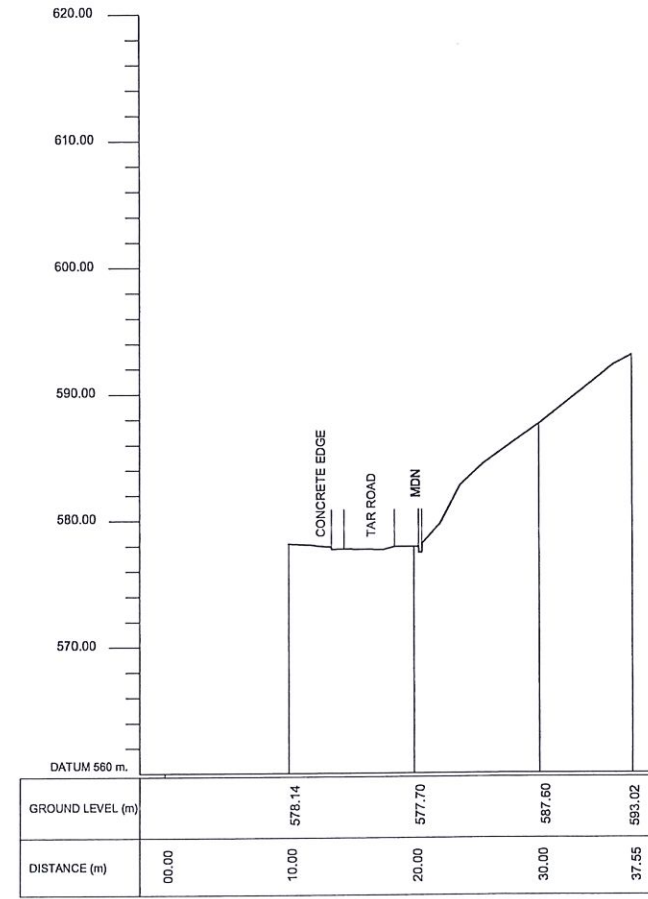
Location 02 - CS 16

Location 02 - CS 17



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 KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD	TITLE SURVEY CROSS SECTION	DESCRIPTION SURVEYED CHECKED	NAME LANKA G.P.S. (PVT) LTD G.D.W.N.GALHENA	SIGNATURE
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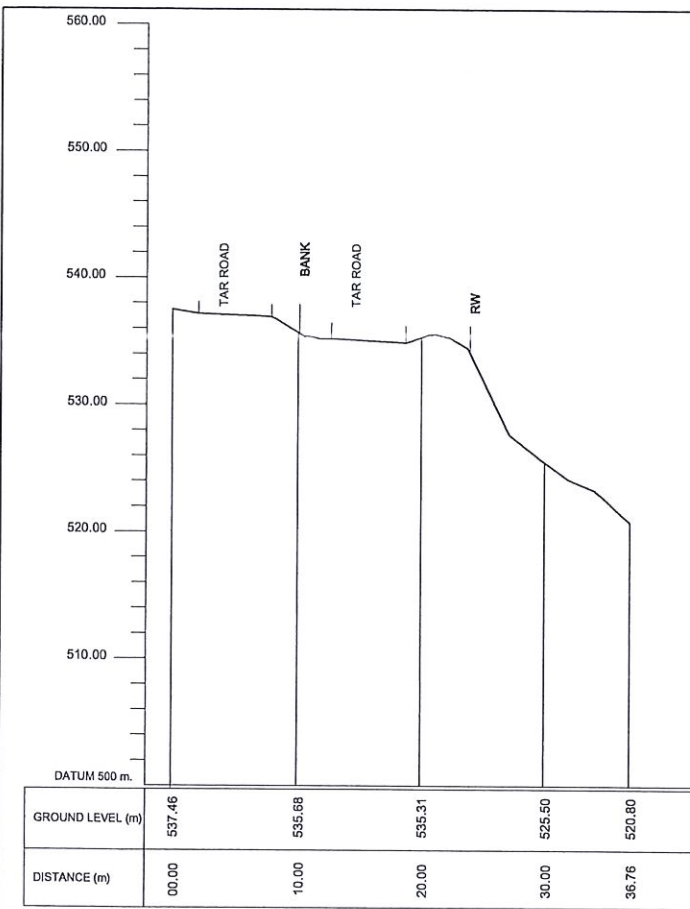


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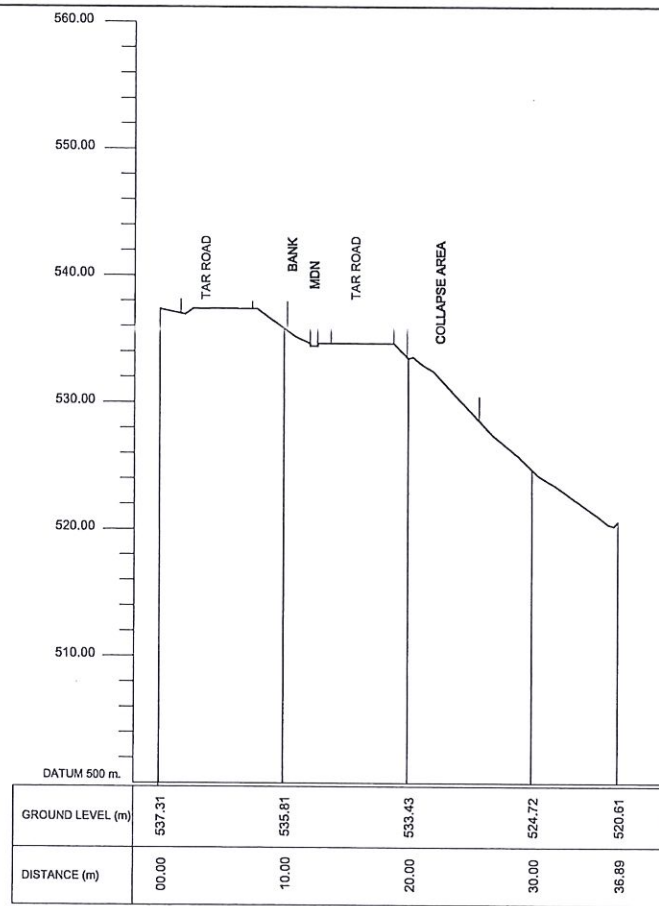


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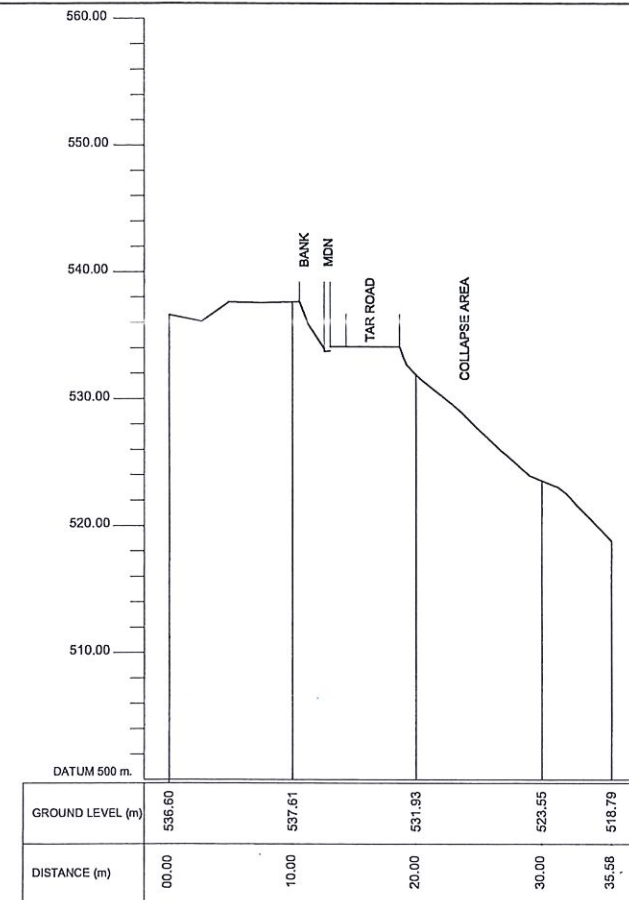
EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER  DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD	TITLE SURVEY CROSS SECTION		DESCRIPTION	NAME	SIGNATURE
							SCALE	N.T.S	DATE	12.11.2020	
							PROJECT / DRAWING No.	RLVMP/WORKS/NCB/04B/08-HK/DR-02b-III	REVISION	00	



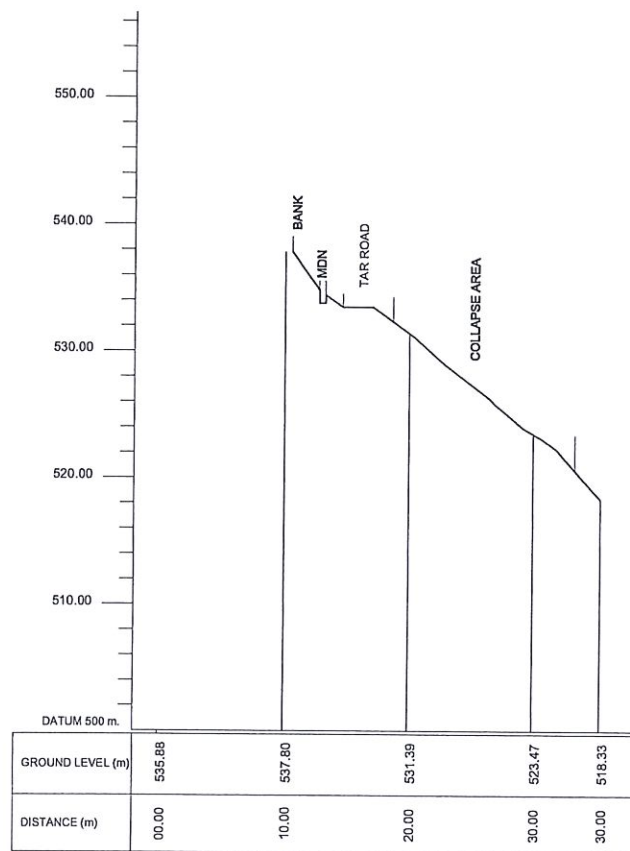
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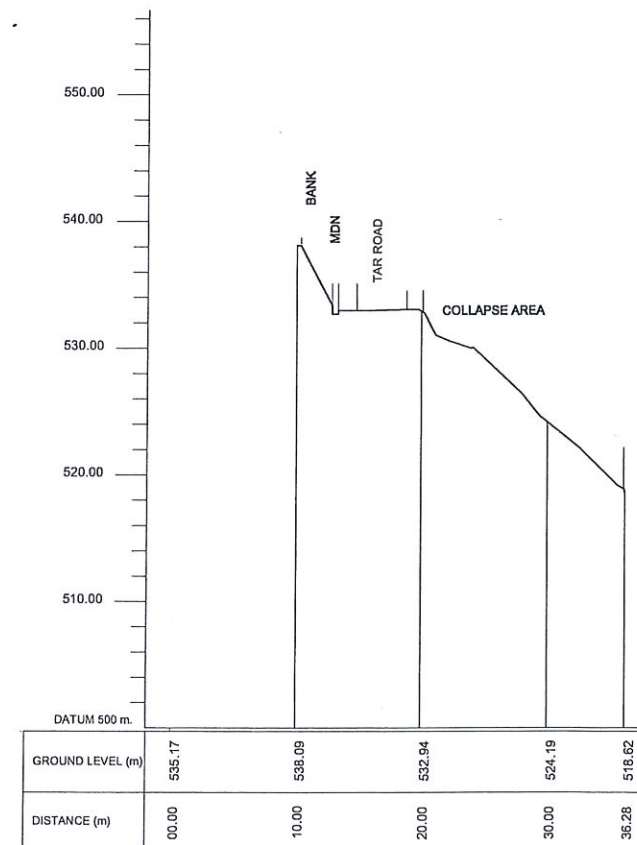
Location 03 - CS 21



Location 03 - CS 22

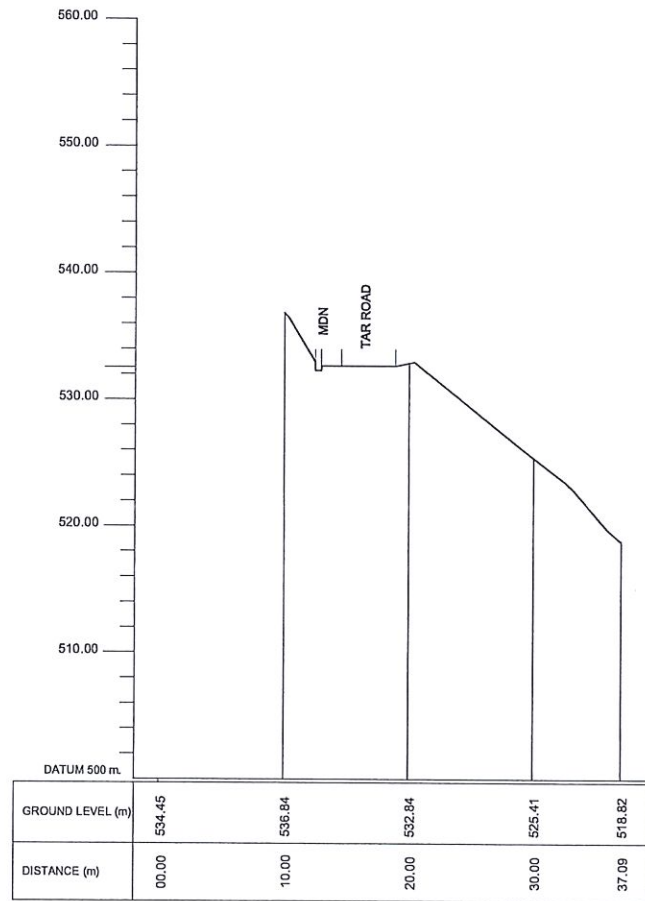


Location 03 - CS 23

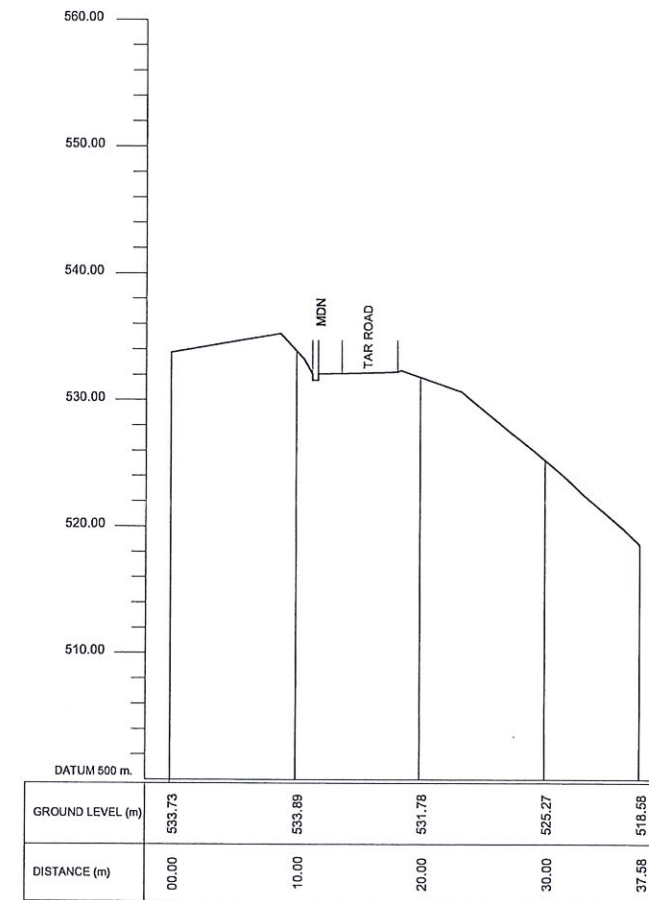


Location 03 - CS 24



<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 KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD	TITLE SURVEY CROSS SECTION	DESCRIPTION	NAME	SIGNATURE	
								SURVEYED	LANKA G.P.S. (PVT) LTD		
								CHECKED	G.D.W.N.GALHENA		
							SCALE	N.T.S	DATE	12.11.2020	
							PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/04B/08-HK/DR-03a-I	REVISION	00	

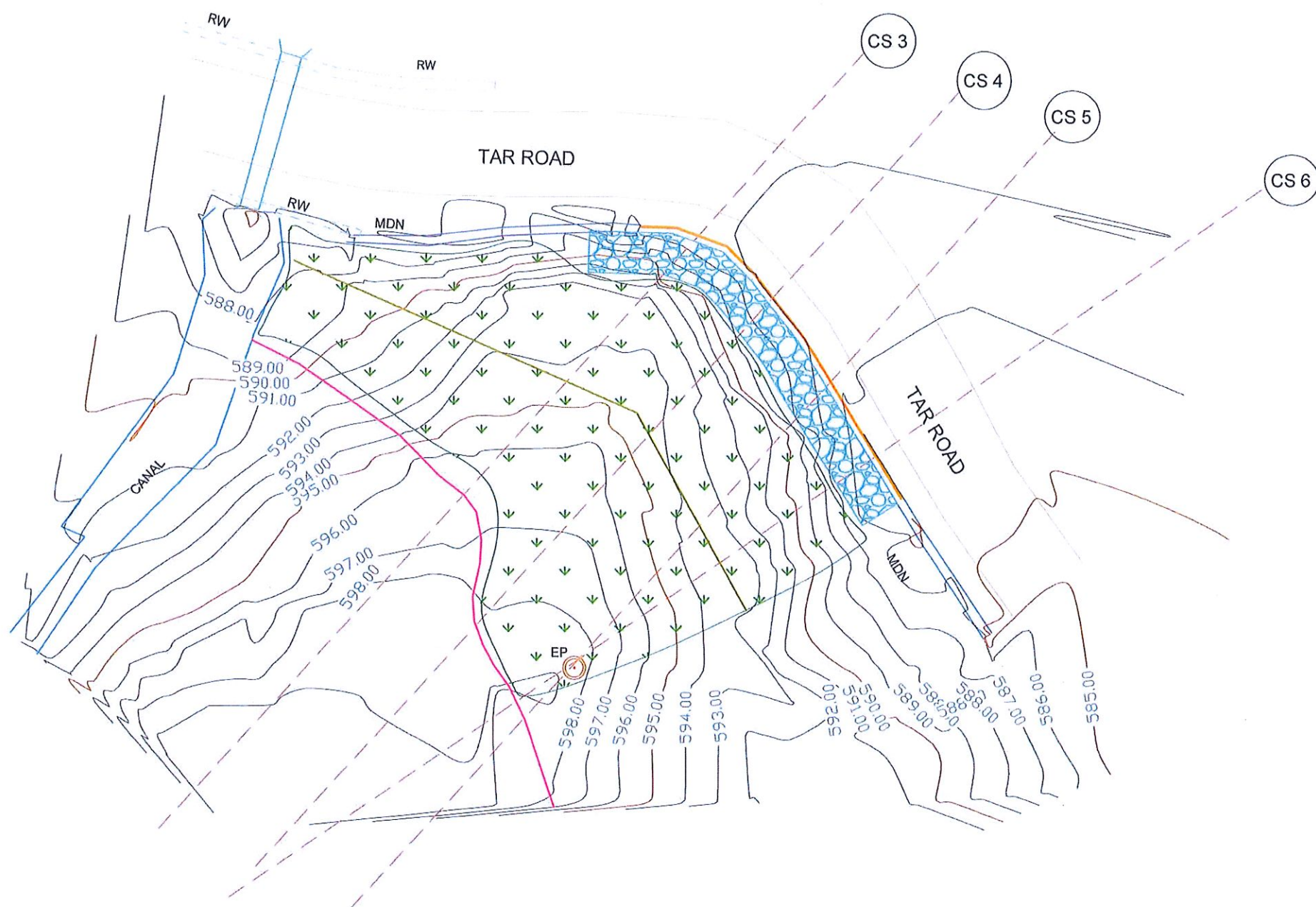


Location 03 - CS 25








Location 03 - CS 26

 <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>	<table border="1"> <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> <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>REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD</p>	<p>TITLE</p> <p>SURVEY CROSS SECTION</p> <table border="1"> <tr> <td>SCALE</td> <td>N.T.S</td> <td>DATE</td> <td>12.11.2020</td> </tr> <tr> <td>PROJECT / DRAWING No.</td> <td>RLVMMP/WORKS/NCB/04B/08-HK/DR-03b-II</td> <td>REVISION</td> <td>00</td> </tr> </table>	SCALE	N.T.S	DATE	12.11.2020	PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/04B/08-HK/DR-03b-II	REVISION	00	<table border="1"> <thead> <tr> <th>DESCRIPTION</th> <th>NAME</th> <th>SIGNATURE</th> </tr> </thead> <tbody> <tr> <td>SURVEYED</td> <td>LANKA G.P.S. (PVT) LTD</td> <td> </td> </tr> <tr> <td>CHECKED</td> <td>G.D.W.N.GALHENA</td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	DESCRIPTION	NAME	SIGNATURE	SURVEYED	LANKA G.P.S. (PVT) LTD		CHECKED	G.D.W.N.GALHENA							
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DESIGN NOTATION

-  RESHAPING (WITH TURFING)
-  PROPOSED GABION WALL -TYPE II
-  DS (M) - B
-  DS (M) - Q
-  DS (B) -A (TYPE I)



REFERENCE

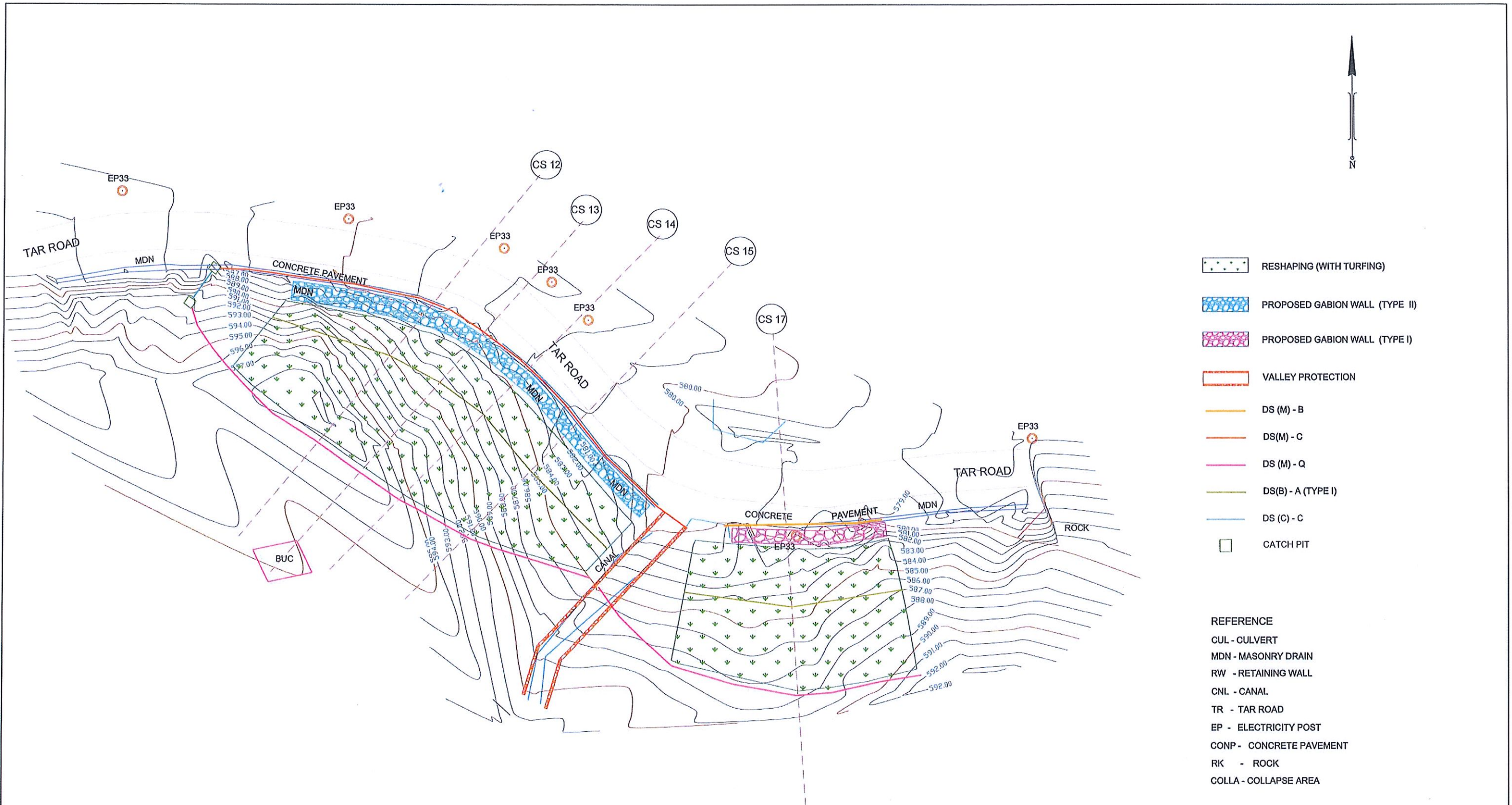
- CUL - CULVERT
- MDN - MASONRY DRAIN
- RW - RETAINING WALL
- CNL - CANAL
- TR - TAR ROAD
- EP - ELECTRICITY POST

Location 01

NOTE:

1. SURFACE AND CASCADE DRAINS LOCATIONS (PATH OF THE DRAINS) & LENGTH MIGHT BE VARIED ACCORDING TO ACTUAL SITE CONDITION.

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 KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD	TITLE PLAN VIEW OF PROPOSED MITIGATION MEASURES		DESCRIPTION	NAME	SIGNATURE	
										SCALE	1:250	DATE
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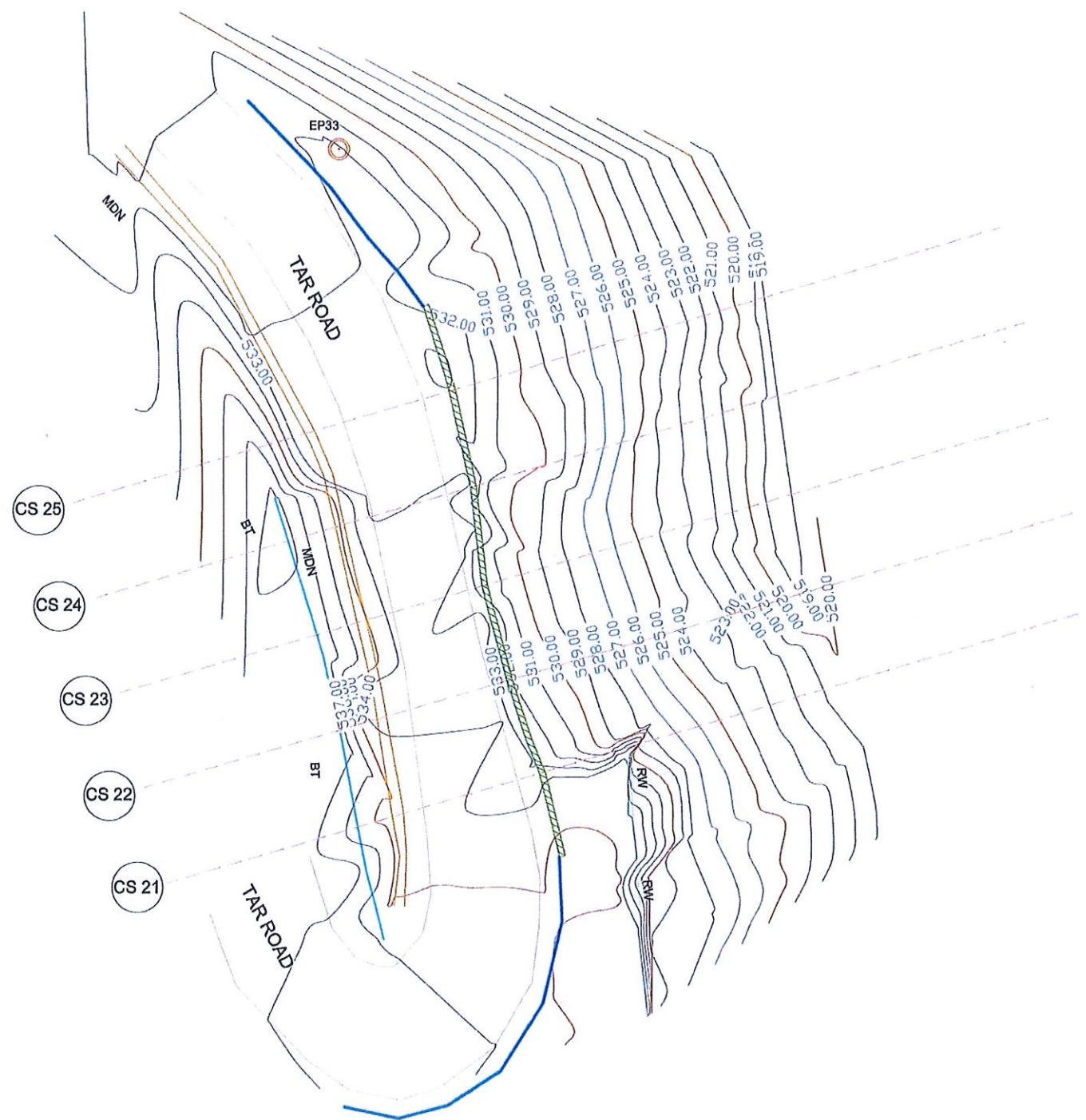
- RESHAPING (WITH TURFING)
- PROPOSED GABION WALL (TYPE II)
- PROPOSED GABION WALL (TYPE I)
- VALLEY PROTECTION
- DS (M) - B
- DS(M) - C
- DS (M) - Q
- DS(B) - A (TYPE I)
- DS (C) - C
- CATCH PIT

- REFERENCE**
- CUL - CULVERT
 - MDN - MASONRY DRAIN
 - RW - RETAINING WALL
 - CNL - CANAL
 - TR - TAR ROAD
 - EP - ELECTRICITY POST
 - CONP - CONCRETE PAVEMENT
 - RK - ROCK
 - COLLA - COLLAPSE AREA

Location 02

- NOTE:**
1. SURFACE AND CASCADE DRAINS LOCATIONS (PATH OF THE DRAINS) & LENGTH MIGHT BE VARIED ACCORDING TO ACTUAL SITE CONDITION.
 2. LOCATION OF THE CATCHPITS MIGHT BE VARIED ACCORDING TO THE ACTUAL SITE CONDITION.

<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> </tbody> </table>	REV	DATE	REVISION DESCRIPTION	APPROVAL																	<p>PROJECT TITLE</p> <p style="text-align: center;">REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD</p>	<p>TITLE</p> <p style="text-align: center;">PLAN VIEW OF PROPOSED MITIGATION MEASURES</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>SCALE</td> <td>1:400</td> <td>DATE</td> <td>12.11.2020</td> </tr> <tr> <td>PROJECT / DRAWING No.</td> <td>RLVMP/WORKS/NCB/04B/08-HK/DR-03b</td> <td>REVISION</td> <td>00</td> </tr> </table>	SCALE	1:400	DATE	12.11.2020	PROJECT / DRAWING No.	RLVMP/WORKS/NCB/04B/08-HK/DR-03b	REVISION	00	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>DESCRIPTION</th> <th>NAME</th> <th>SIGNATURE</th> </tr> <tr> <td>DRAWN</td> <td>B.V.S. PATTRISHIYA</td> <td></td> </tr> <tr> <td>DESIGNER</td> <td>G.D.W.N.GALHENA</td> <td></td> </tr> <tr> <td>CHECKED</td> <td>J.P. SAMARANAYAKA</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> </table>	DESCRIPTION	NAME	SIGNATURE	DRAWN	B.V.S. PATTRISHIYA		DESIGNER	G.D.W.N.GALHENA		CHECKED	J.P. SAMARANAYAKA		RECOMMENDED	PROF. S.A.S. KULATHILAKA		APPROVED	K.N. BANDARA	
			REV	DATE	REVISION DESCRIPTION	APPROVAL																																														
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DESIGNER	G.D.W.N.GALHENA																																																			
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RECOMMENDED	PROF. S.A.S. KULATHILAKA																																																			
APPROVED	K.N. BANDARA																																																			



DESIGN NOTATION

- PROPOSED CANTILEVER WALL (TYPE - D)
- DS (K) - A (TYPE II)

REFERENCE

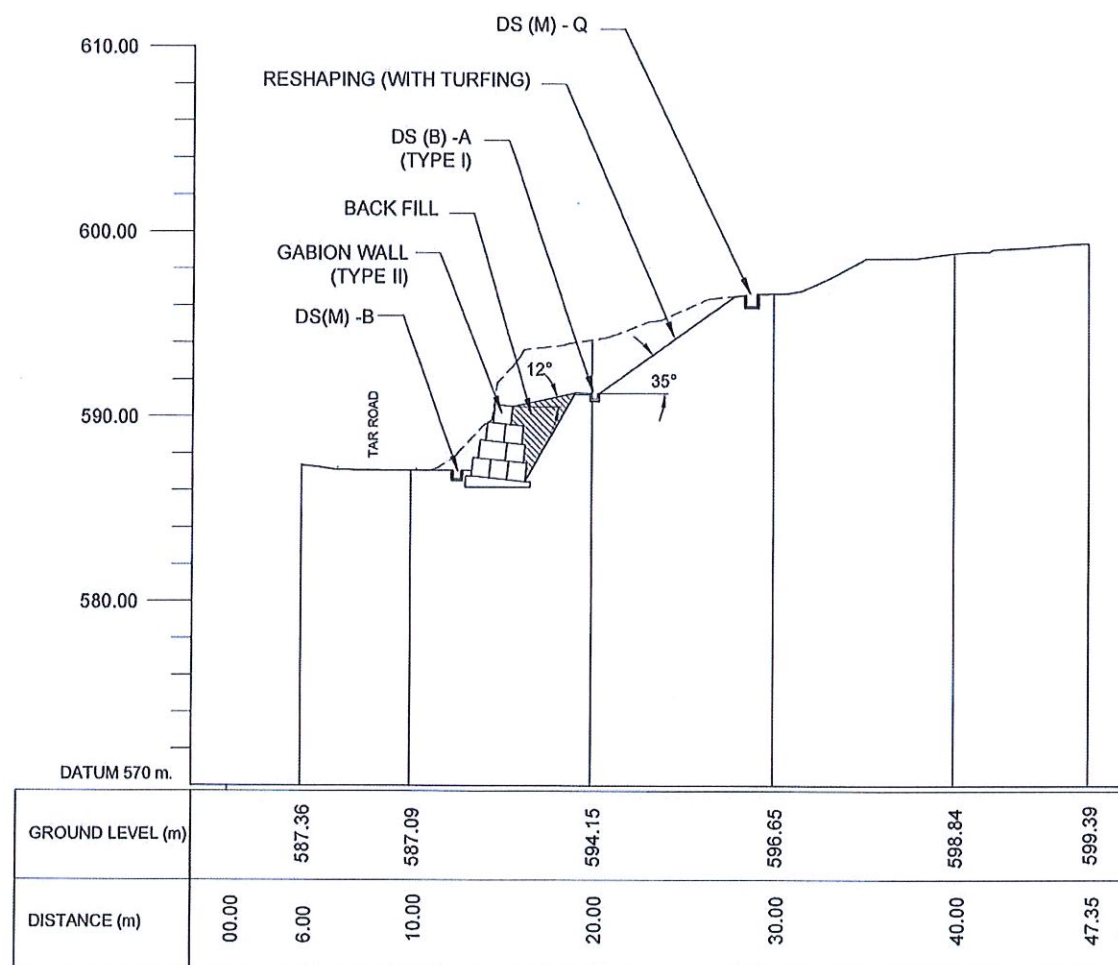
- CUL - CULVERT
- MDN - MASONRY DRAIN
- RW - RETAINING WALL
- TR - TAR ROAD
- EP - ELECTRICITY POST
- BT - BOTTOM OF BANK
- RK - ROCK
- COLLA - COLLAPSE AREA

Location 03

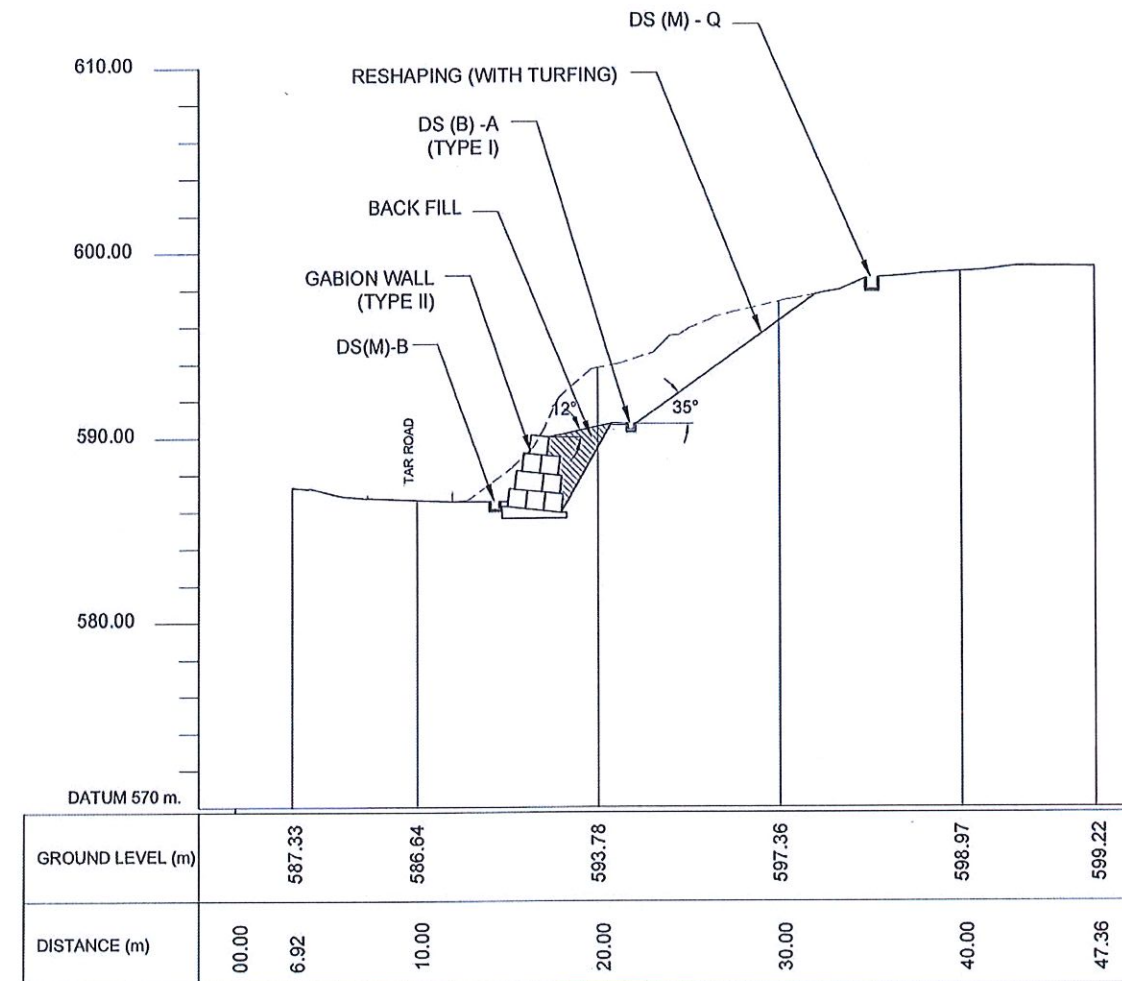
NOTE:

1. SURFACE AND CASCADE DRAINS LOCATIONS (PATH OF THE DRAINS) & LENGTH MIGHT BE VARIED ACCORDING TO ACTUAL SITE CONDITION.
2. LENGTHS OF THE NAILS MIGHT BE VARIED ACCORDING TO THE ACTUAL SOIL PROFILE OR SITE CONDITION.

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 KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD	TITLE PLAN VIEW OF PROPOSED MITIGATION MEASURES	DESCRIPTION	NAME	SIGNATURE
									SCALE 1:400	DATE 12.11.2020
						PROJECT / DRAWING No. RLVMMP/WORKS/NCB/04B/08-HK/DR-03c	REVISION 00	DESIGNER	G.D.W.N.GALHENA	
								CHECKED	J.P. SAMARANAYAKA	
								RECOMMENDED	PROF. S.A.S. KULATHILAKA	
								APPROVED	K.N. BANDARA	



Location 01 - CS 03



Location 01 - CS 04

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

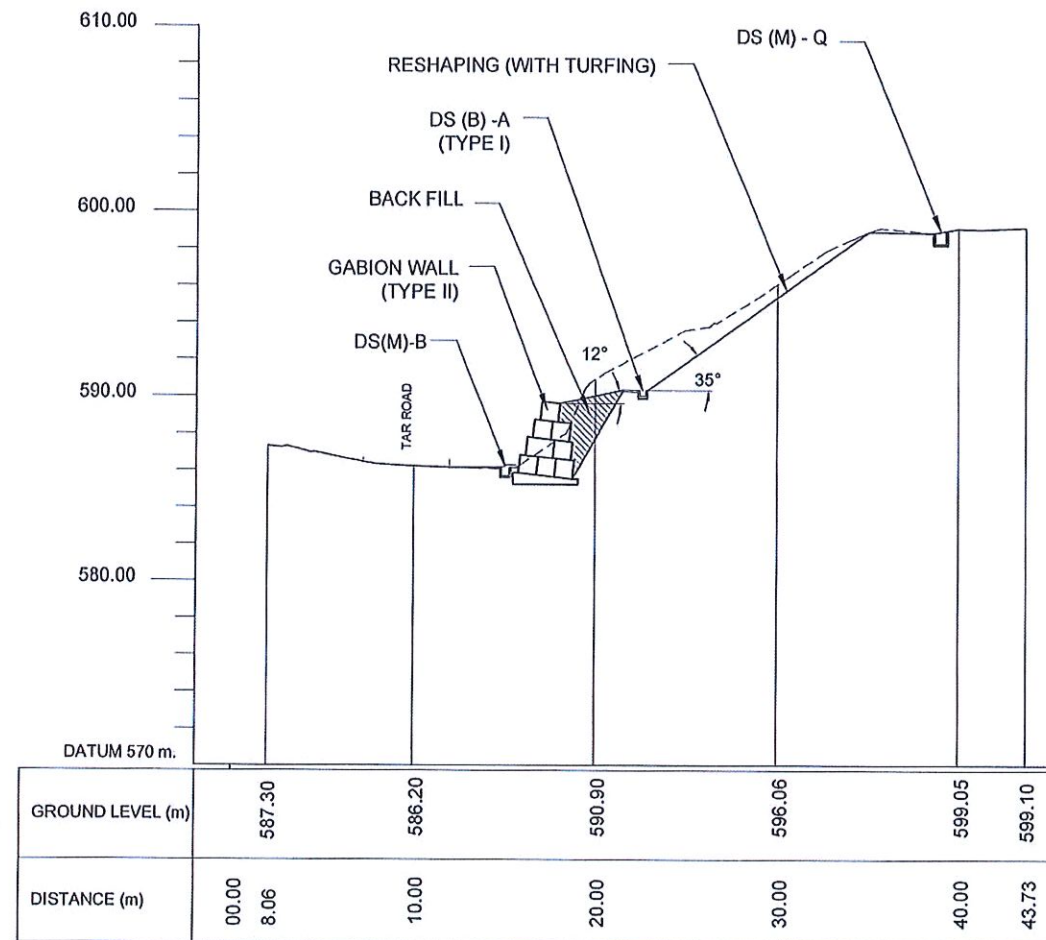
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 KEGALLE DISTRICT
 LHS OF ARANAYAKA-HULANKAPOLLA ROAD

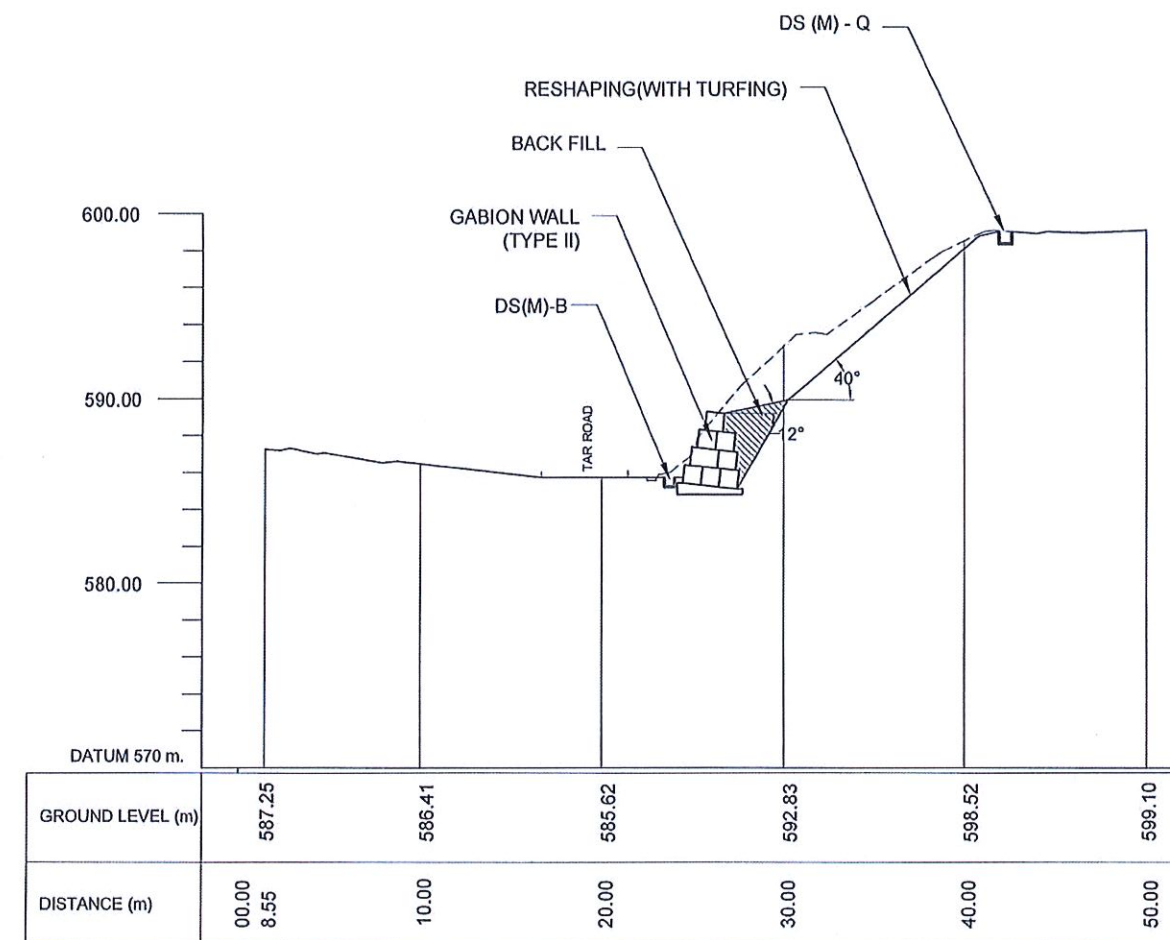
TITLE
 CROSS SECTIONS OF
 PROPOSED MITIGATION MEASURES

SCALE	1:400	DATE	12.11.2020
PROJECT / DRAWING No.	RLVMP/WORKS/NCB/04B/08-HK/DR-04a-I	REVISION	00

DESCRIPTION	NAME	SIGNATURE
DRAWN	B.V.S. PATTRISHIYA	<i>[Signature]</i>
DESIGNER	G.D.W.N.GALHENA	<i>[Signature]</i>
CHECKED	J.P. SAMARANAYAKA	<i>[Signature]</i>
RECOMMENDED	PROF. S.A.S. KULATHILAKA	<i>[Signature]</i>
APPROVED	K.N. BANDARA	<i>[Signature]</i>

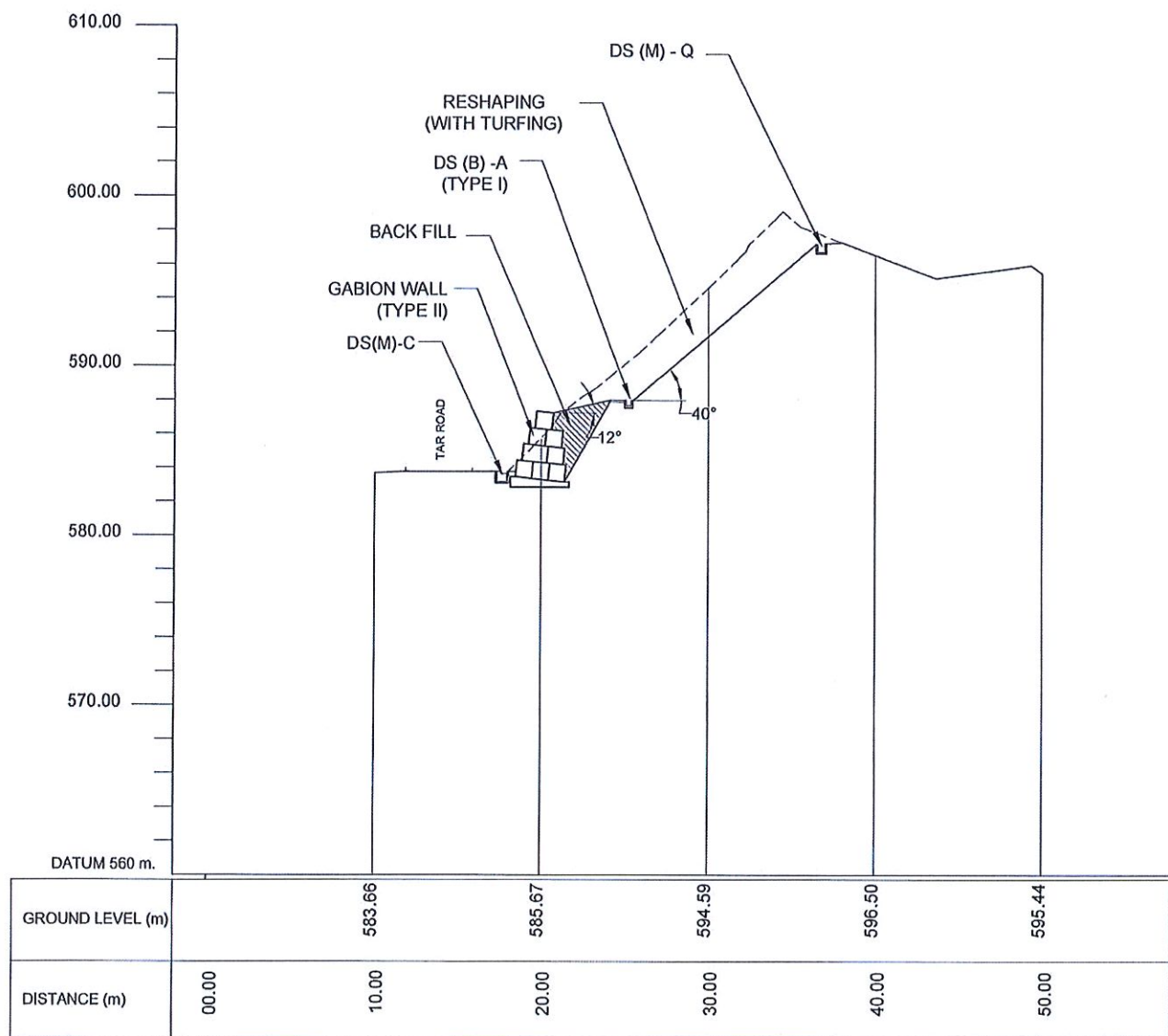


Location 01 - CS 05

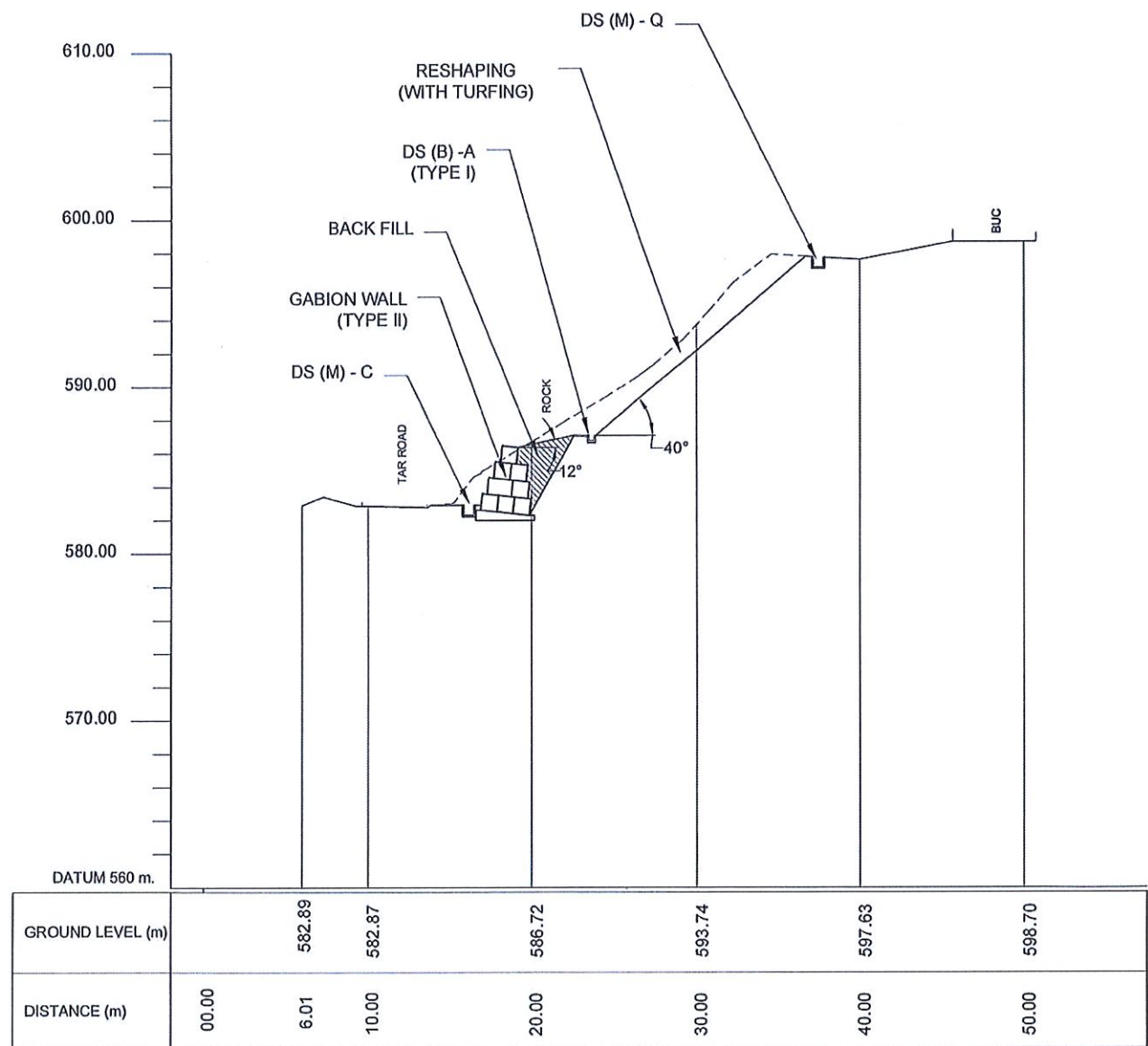


Location 01 - CS 06

<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 KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD	TITLE CROSS SECTIONS OF PROPOSED MITIGATION MEASURES	DESCRIPTION	NAME	SIGNATURE
								SCALE 1:400	DATE 12.11.2020	
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								RECOMMENDED	PROF. S.A.S. KULATHILAKA	
								APPROVED	K.N. BANDARA	

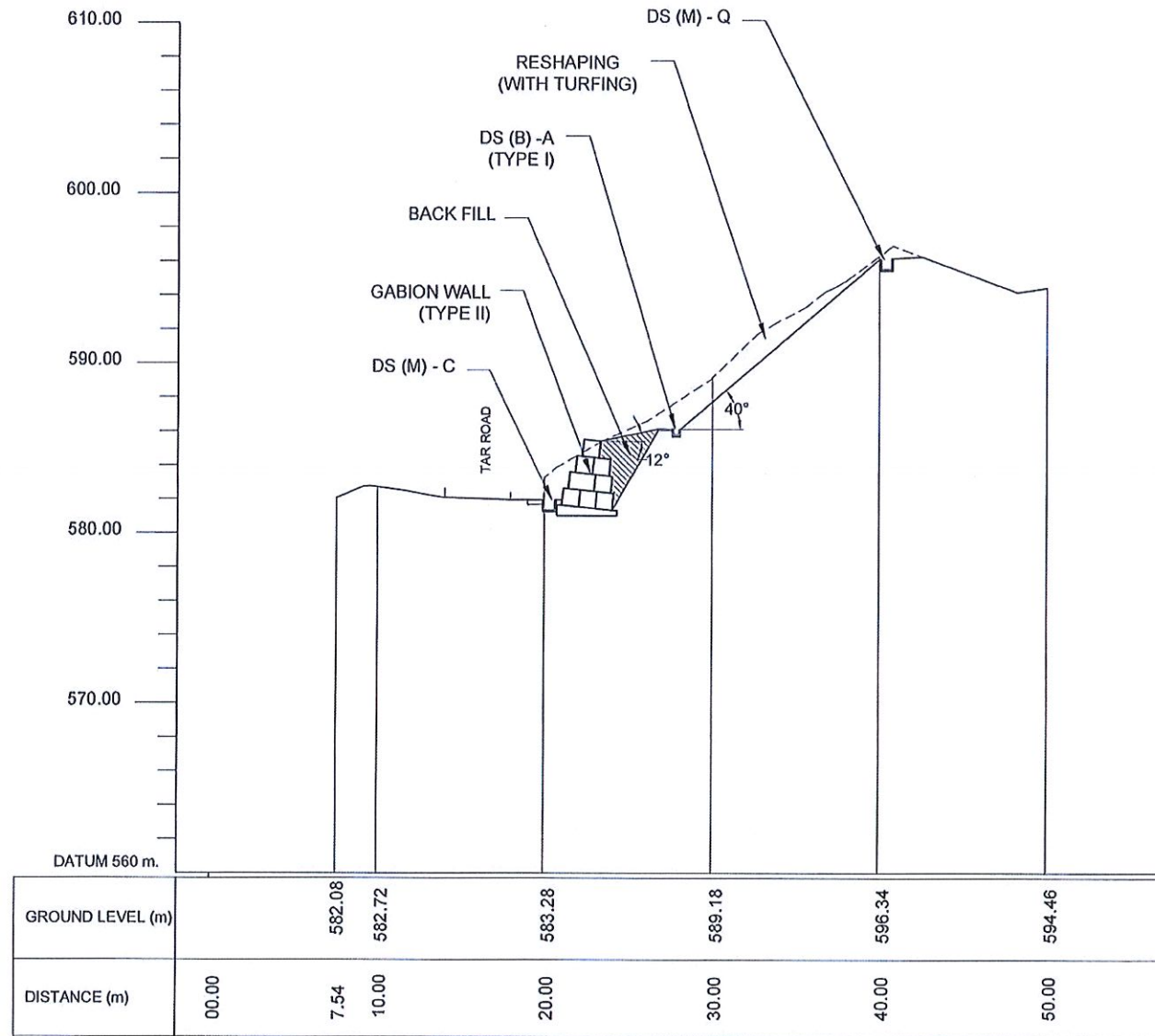


Location 02 - CS 12

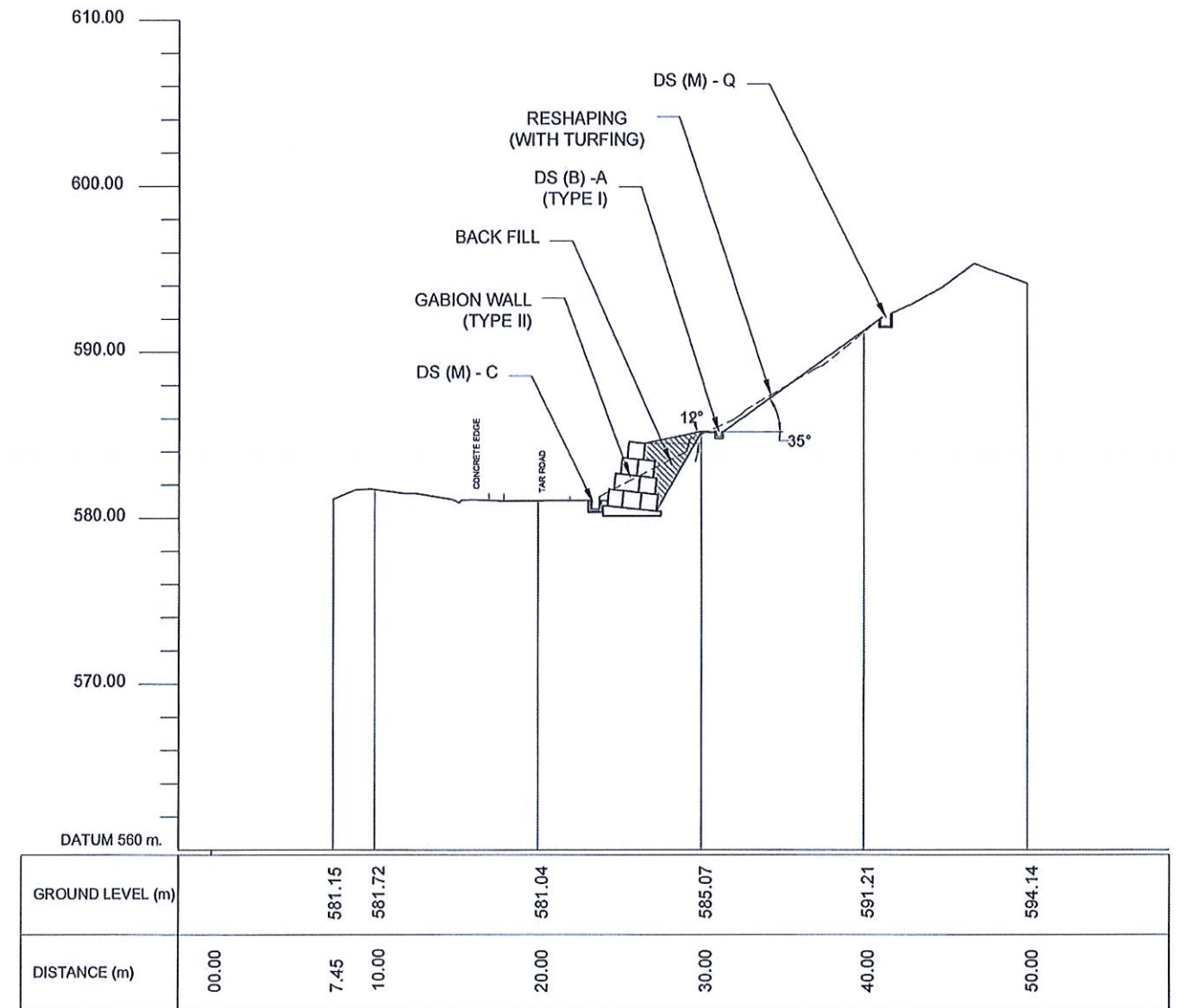


Location 02 - CS 13

EMPLOYER	DESIGNER	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE	TITLE	DESCRIPTION	NAME	SIGNATURE
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		DESIGNER	G.D.W.N. GALHENA							
		CHECKED	J.P. SAMARANAYAKA							
		RECOMMENDED	PROF. S.A.S. KULATHILAKA							
		APPROVED	K.N. BANDARA							
		SCALE	1:400	DATE	12.11.2020			REVISION	00	
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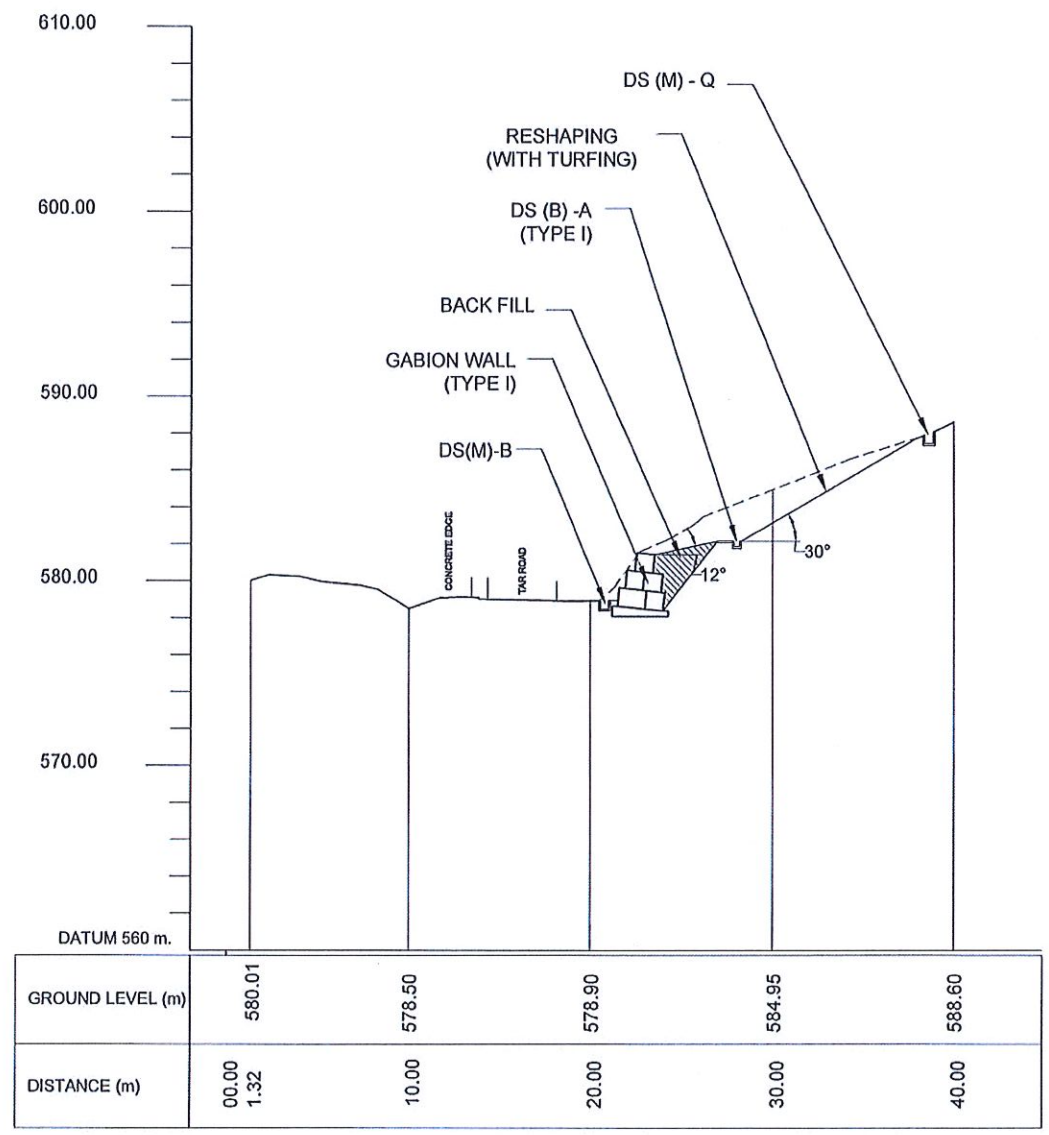


Location 02 - CS 14



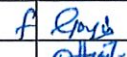
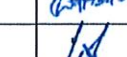




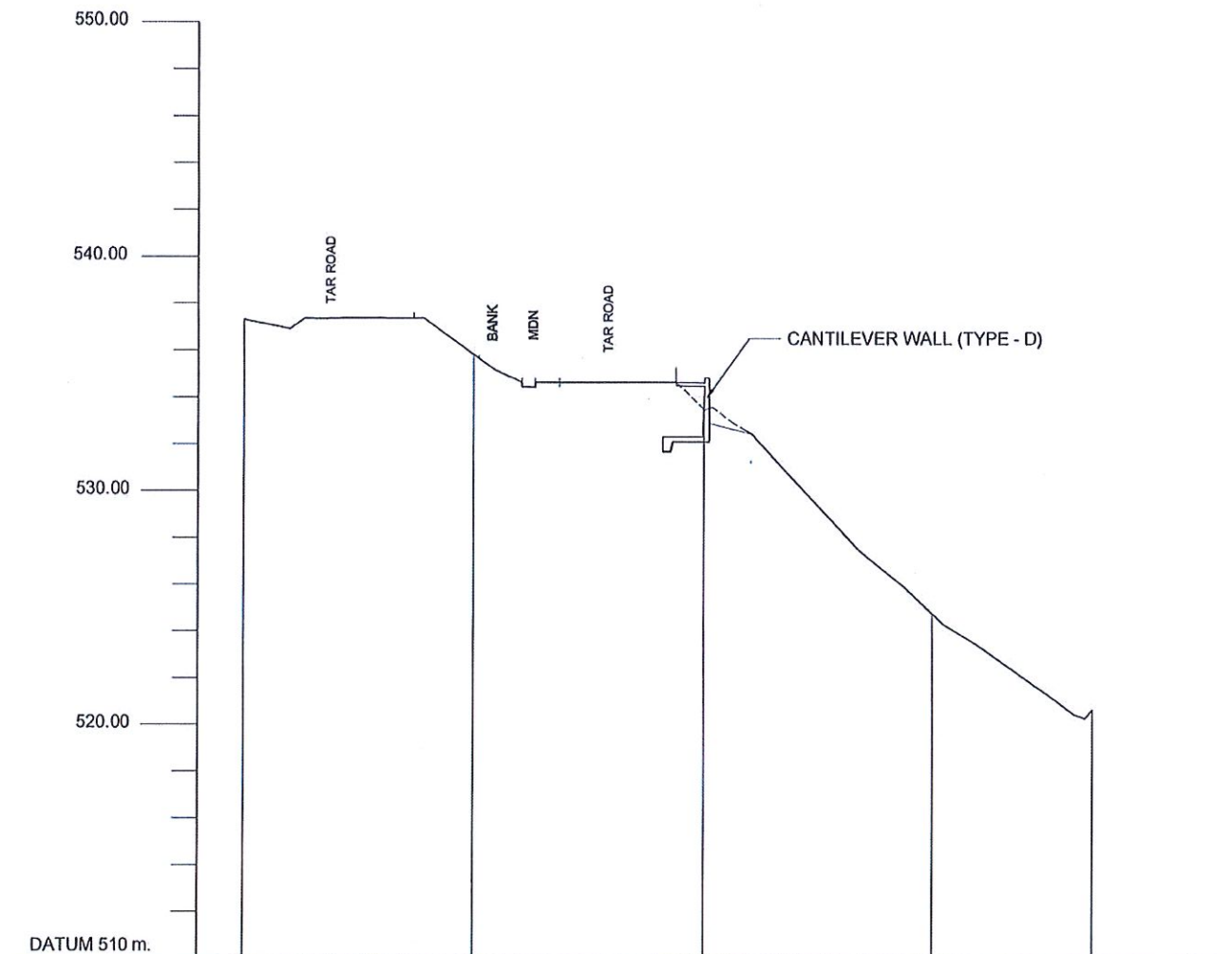
Location 02 - CS 15

<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 KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD	TITLE CROSS SECTIONS OF PROPOSED MITIGATION MEASURES			DESCRIPTION	NAME	SIGNATURE
								SCALE	1:400	DATE	12.11.2020	RECOMMENDED
						PROJECT / DRAWING No.	RLVMM/WORKS/NCB/04B/08-HK/DR-04b-II	REVISION	00	APPROVED	K.N. BANDARA	



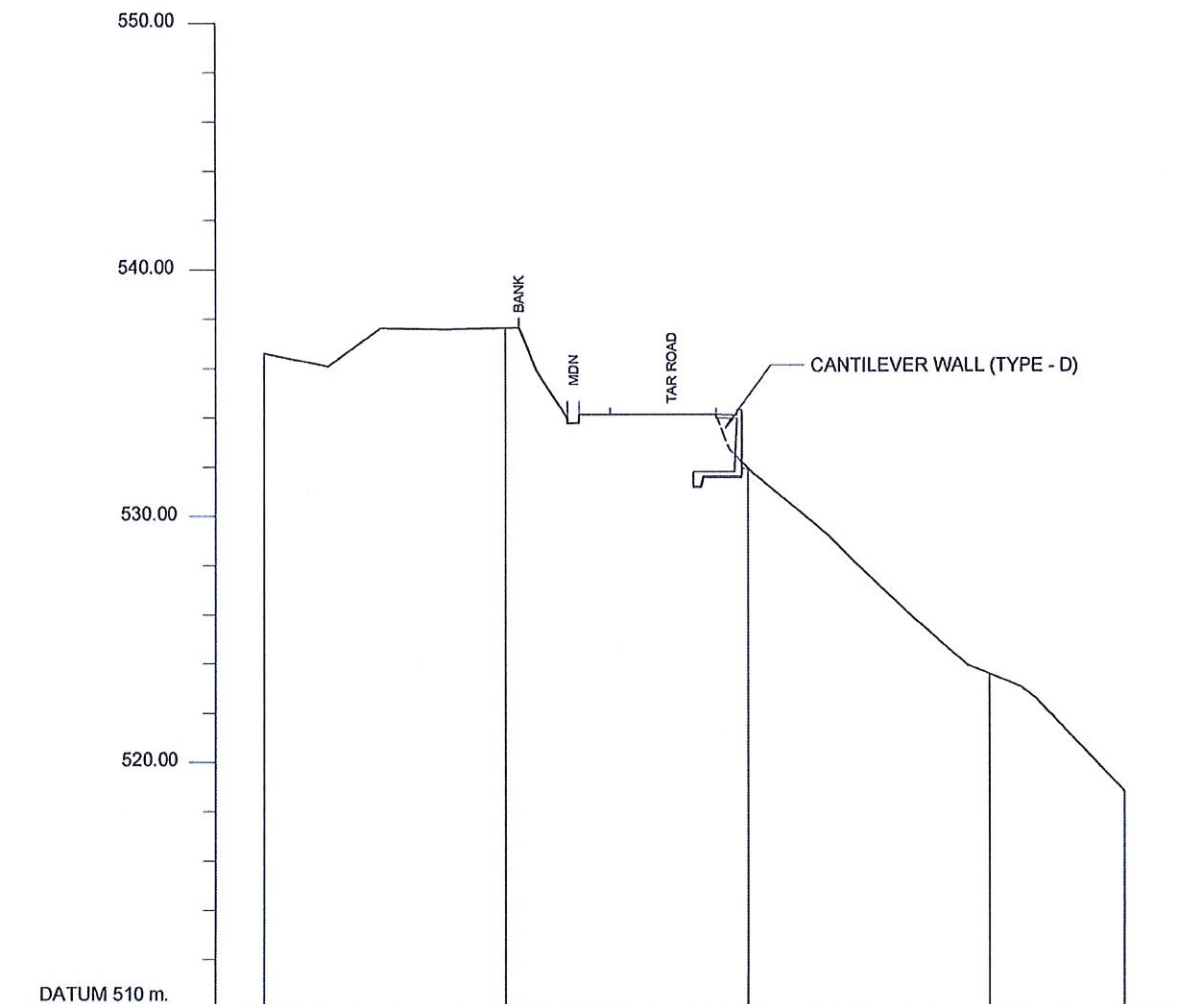
Location 02 - CS 17

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 KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD	TITLE CROSS SECTIONS OF PROPOSED MITIGATION MEASURES	DESCRIPTION DRAWN	NAME B.V.S. PATRISHIYA	SIGNATURE 
		SCALE 1:400	DATE 12.11.2020	REVISION 00	DESCRIPTION DESIGNER			G.D.W.N.GALHENA		DESCRIPTION CHECKED
						PROJECT / DRAWING No. RLVMP/WORKS/NCB/04B/08-HK/DR-04b-111	REVISION 00	DESCRIPTION RECOMMENDED	PROF. S.A.S. KULATHILAKA	
								DESCRIPTION APPROVED	K.N. BANDARA	









GROUND LEVEL (m)	537.31	535.81	533.43	524.72	520.61
DISTANCE (m)	00.00	10.00	20.00	30.00	36.89

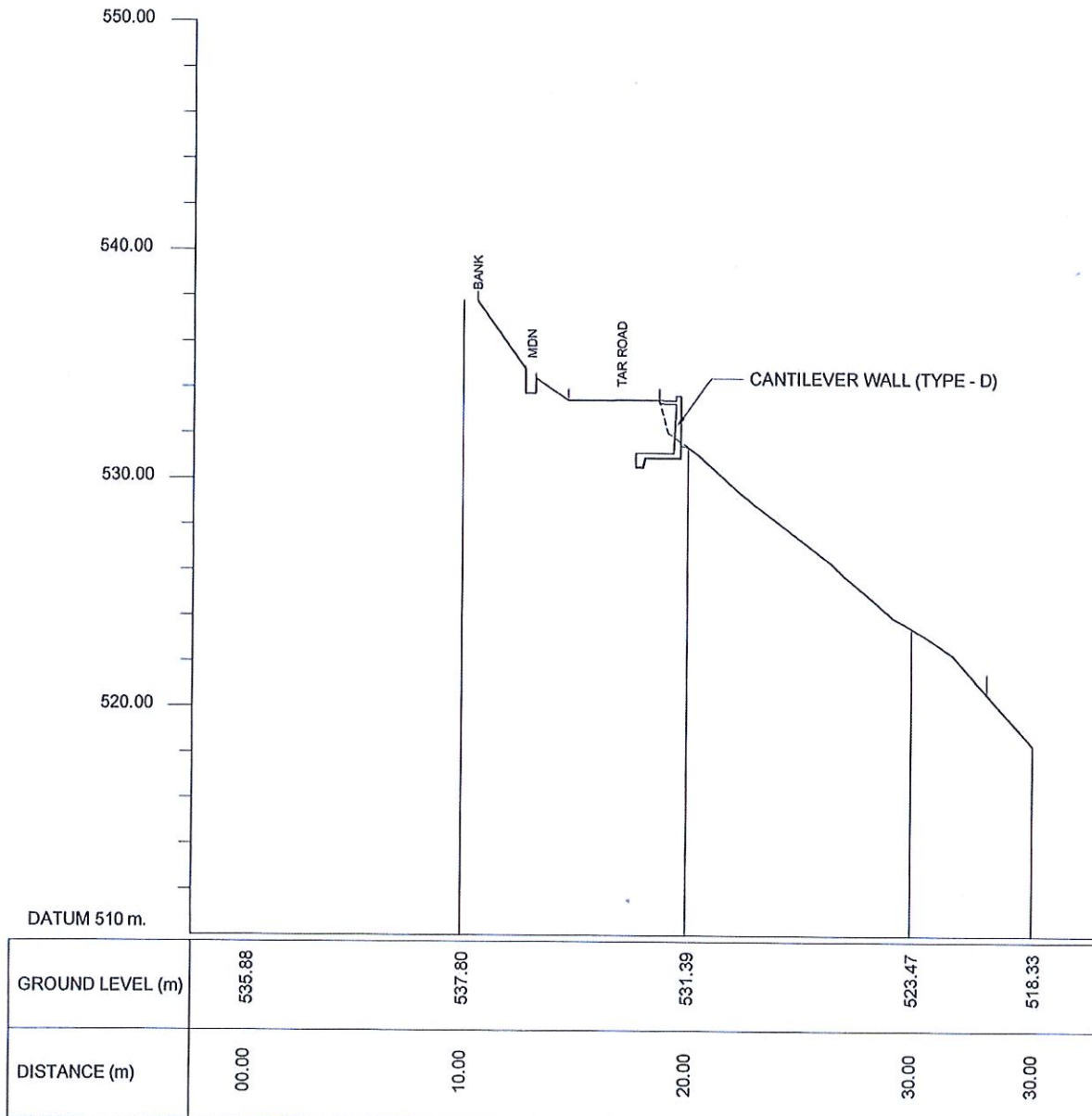
Location 03 - CS 21



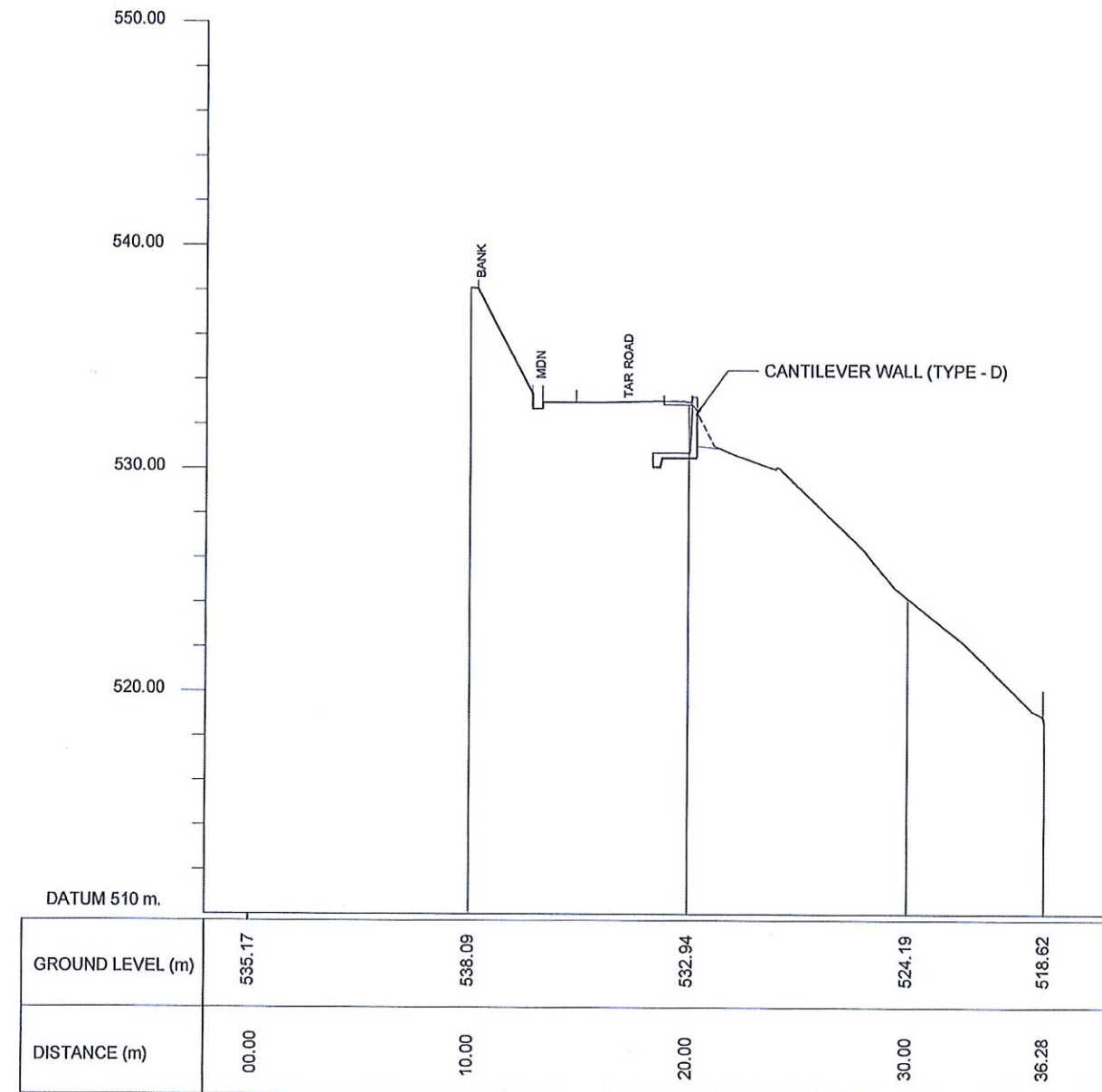
GROUND LEVEL (m)	536.60	537.61	531.93	523.55	518.79
DISTANCE (m)	00.00	10.00	20.00	30.00	35.58

Location 03 - CS 22



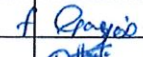




EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER  DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV []	DATE []	REVISION DESCRIPTION []	APPROVAL []	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD	TITLE CROSS SECTIONS OF PROPOSED MITIGATION MEASURES	DESCRIPTION DRAWN	NAME B.V.S. PATTRISHIYA	SIGNATURE 
		SCALE 1:300	DATE 12.11.2020	REVISION 00	DESCRIPTION DESIGNER			G.D.W.N.GALHENA		DESCRIPTION CHECKED
						PROJECT / DRAWING No. RLVMP/WORKS/NCB/04B/08-HK/DR-04c - I	REVISION 00	DESCRIPTION RECOMMENDED	PROF. S.A.S. KULATHILAKA	
								DESCRIPTION APPROVED	K.N. BANDARA	

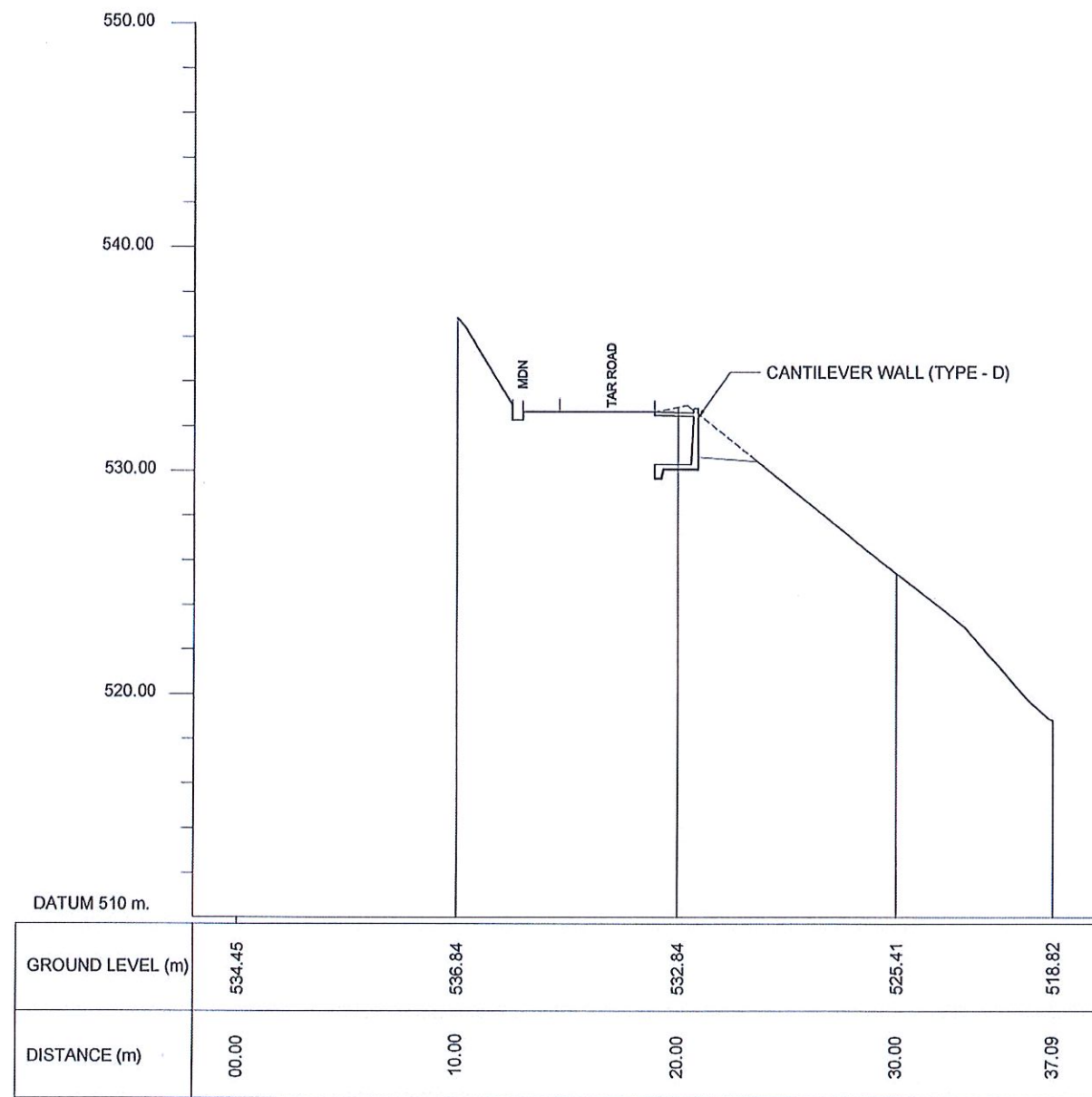


Location 03 - CS 23



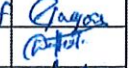




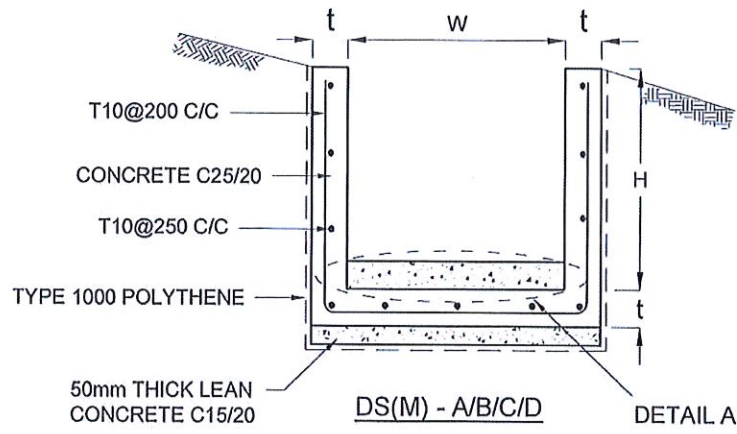
Location 03 - CS 24

 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 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 KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD	TITLE CROSS SECTIONS OF PROPOSED MITIGATION MEASURES	DESCRIPTION DRAWN DESIGNER CHECKED RECOMMENDED APPROVED	NAME B.V.S. PATTRISHIYA G.D.W.N.GALHENA J.P. SAMARANAYAKA PROF. S.A.S. KULATHILAKA K.N. BANDARA	SIGNATURE     
		SCALE 1:300 PROJECT / DRAWING No. RLVMMPP/WORKS/NCB/04B/08-HK/DR-04c - II			DATE 12.11.2020 REVISION 00		



Location 03 - CS 25

 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 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 KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD	TITLE		DESCRIPTION	NAME	SIGNATURE
		SCALE	1:300	DATE	12.11.2020		RECOMMENDED	PROF. S.A.S. KULATHILAKA	DESIGNER	G.D.W.N.GALHENA	
						PROJECT / DRAWING No.	REVISION	CHECKED	J.P. SAMARANAYAKA		
						RLVMMP/WORKS/NCB/04B/08-Hk/DR-04c - III	00	APPROVED	K.N. BANDARA		



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

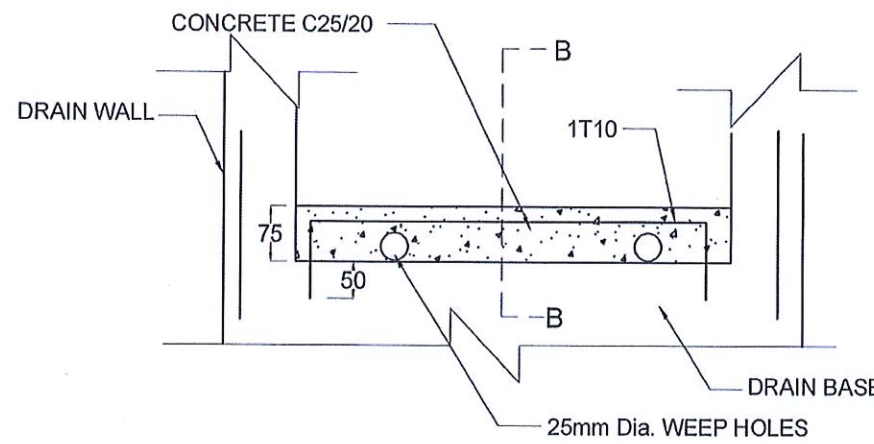
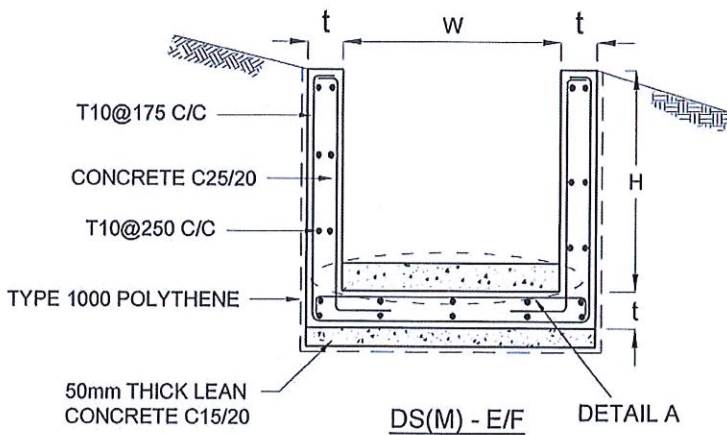
- DEPTH OF EXCAVATION MAY VARY ACCORDING TO SITE CONDITIONS.
- STEPS SHALL BE CONSTRUCTED AT SURFACE DRAIN ON SLOPING GROUND ACCORDING TO THE SITE CONDITIONS AS INSTRUCTED BY THE ENGINEER.
- ENERGY BREAKERS SHALL BE CONSTRUCTED AT THE STEEP DRAIN SEGMENTS AS PER THE INSTRUCTIONS OF THE ENGINEER.
- DOWELS 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.

CONCRETE

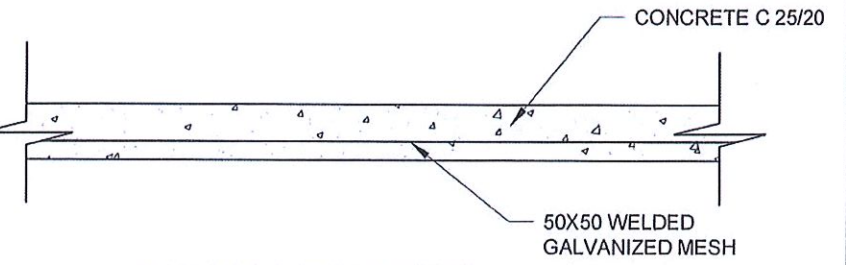
- USE FOLLOWING CONCRETE GRADES FOR STRUCTURE
 - [a] SCREED - C. 15/20
 - [b] WALLS / BASE / ENERGY BREAKERS - C. 25/20

REINFORCEMENT

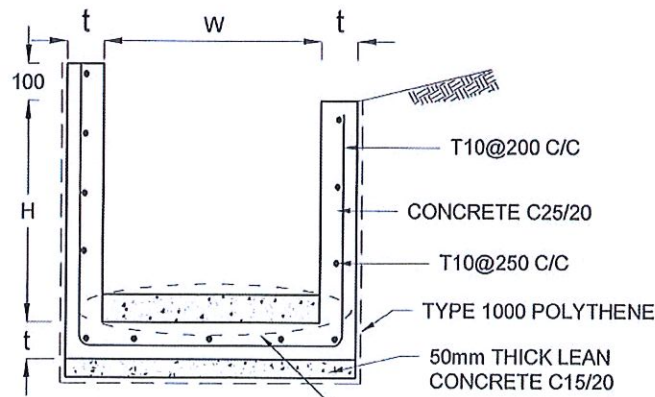
- ALL BARS MARKED "T" SHALL BE HIGH YIELD DEFORMED BARS OF YIELD STRENGTH NOT LESS THAN 460N/mm².
- BARS OF CUT LENGTH LARGER THAN THE SUPPLIED LENGTH TO BE LAPPED FOR A LENGTH OF 50 x BAR DIA. AND LAPPING SHOULD BE STAGGERED.
- ANCHORAGE LENGTH SHOULD BE 40X BAR DIA.
- REINFORCEMENT BARS SHALL BE BENT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



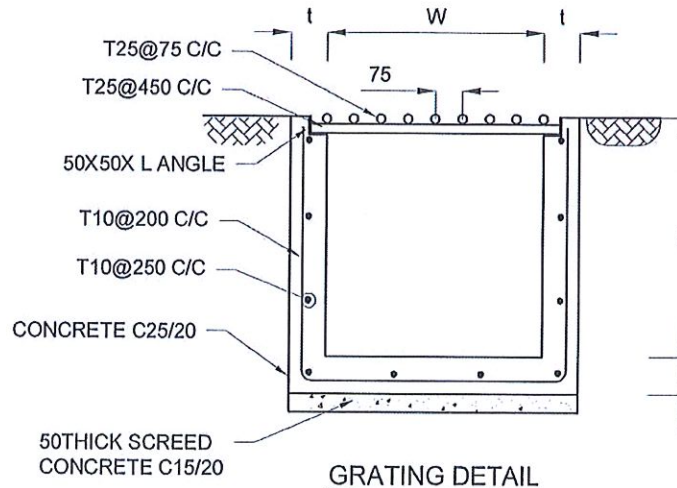
DETAIL A - (ENERGY BREAKER AT 3M)



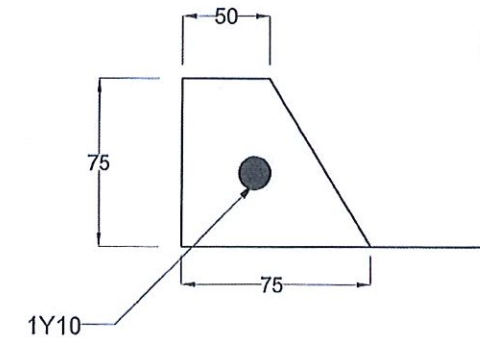
DETAILS OF BERM SEALING



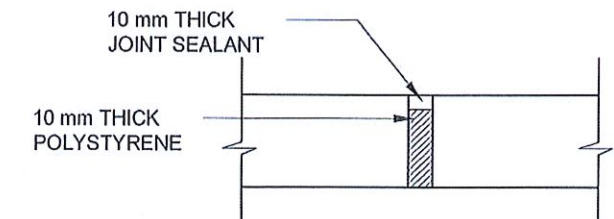
DS(M) - P/R/Q





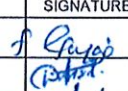
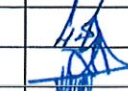


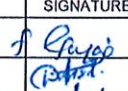
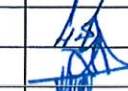


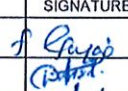
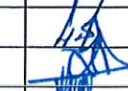


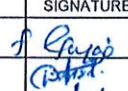
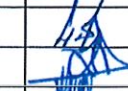


GRATING DETAIL

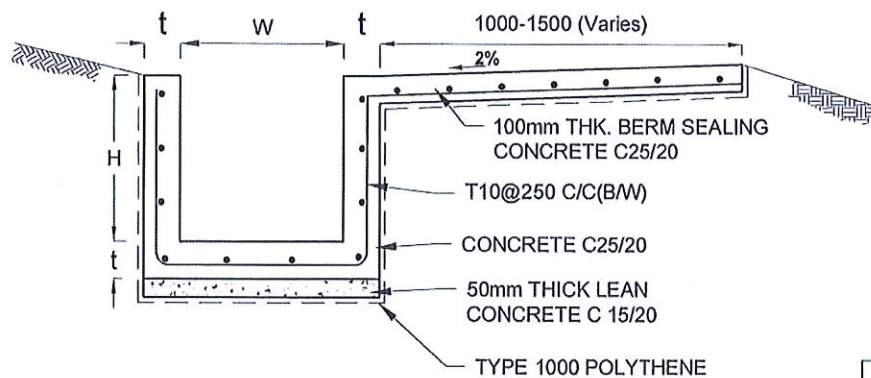


SECTION B-B

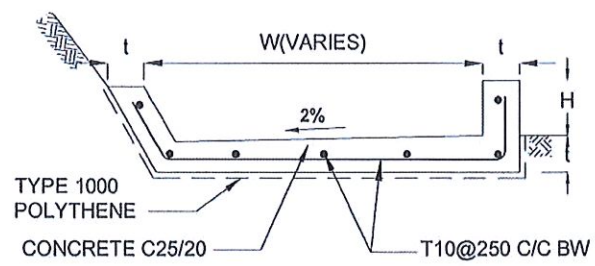


EXPANSION JOINT DETAIL

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 KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD	TITLE DETAILS OF DRAINS (SURFACE DRAIN -1 OF 2)	DESCRIPTION DRAWN DESIGNER CHECKED RECOMMENDED APPROVED	NAME B.V.S. PATTRISHIYA G.D.W.N. GALHENA J.P. SAMARANAYAKA PROF. S.A.S. KULATHILAKA K.N. BANDARA	SIGNATURE    	
		REV DATE REVISION DESCRIPTION APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD	SCALE N.T.S. PROJECT / DRAWING No. RLVMP/WORKS/NCB/04B/08-Hk/DR-06a	DATE 12.11.2020 REVISION 00	DESCRIPTION DRAWN DESIGNER CHECKED RECOMMENDED APPROVED	NAME B.V.S. PATTRISHIYA G.D.W.N. GALHENA J.P. SAMARANAYAKA PROF. S.A.S. KULATHILAKA K.N. BANDARA	SIGNATURE    
		REV DATE REVISION DESCRIPTION APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD	SCALE N.T.S. PROJECT / DRAWING No. RLVMP/WORKS/NCB/04B/08-Hk/DR-06a	DATE 12.11.2020 REVISION 00	DESCRIPTION DRAWN DESIGNER CHECKED RECOMMENDED APPROVED	NAME B.V.S. PATTRISHIYA G.D.W.N. GALHENA J.P. SAMARANAYAKA PROF. S.A.S. KULATHILAKA K.N. BANDARA	SIGNATURE    
		REV DATE REVISION DESCRIPTION APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD	SCALE N.T.S. PROJECT / DRAWING No. RLVMP/WORKS/NCB/04B/08-Hk/DR-06a	DATE 12.11.2020 REVISION 00	DESCRIPTION DRAWN DESIGNER CHECKED RECOMMENDED APPROVED	NAME B.V.S. PATTRISHIYA G.D.W.N. GALHENA J.P. SAMARANAYAKA PROF. S.A.S. KULATHILAKA K.N. BANDARA	SIGNATURE    



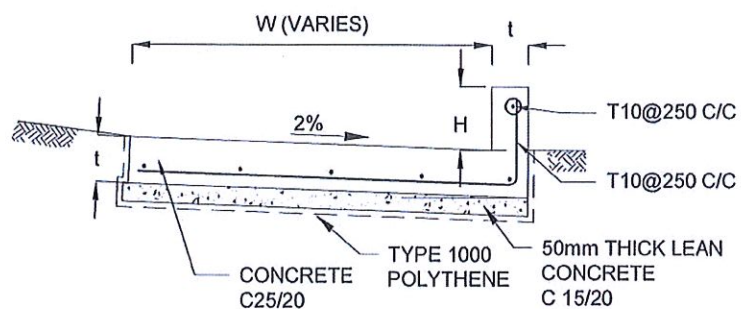
DS (B) - (TYPE I)



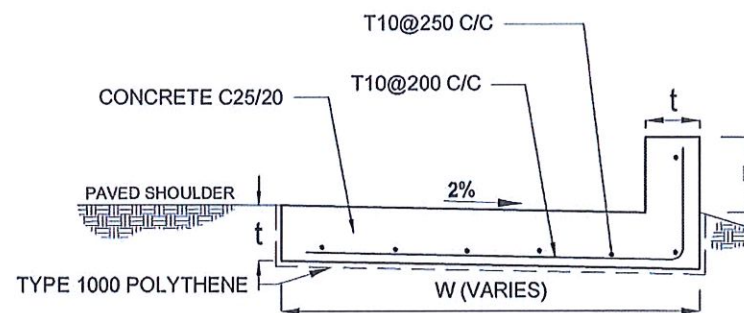
DS (B) - (TYPE II)

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

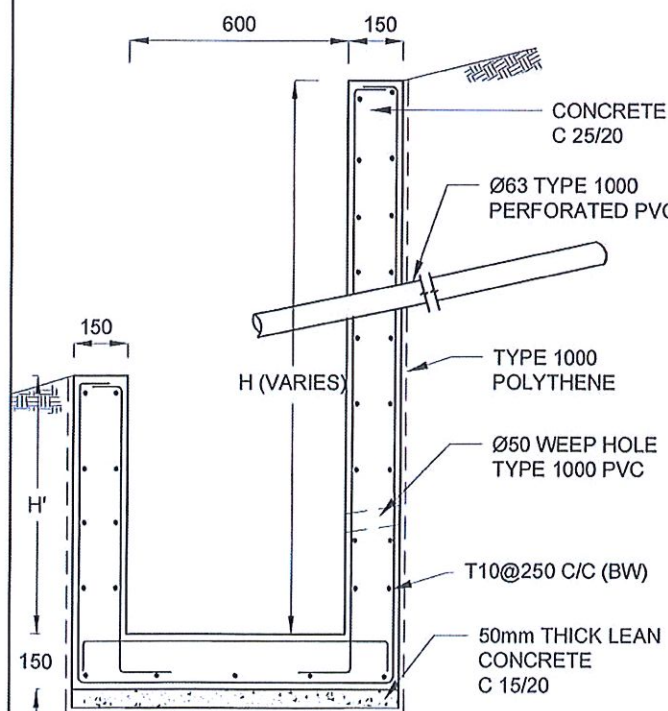
DRAIN TYPE	W (mm)	H (mm)	t (mm)
DS (K) - A	1000	200	100
DS (K) - B	1000	300	100
DS (K) - C	1150	200	200



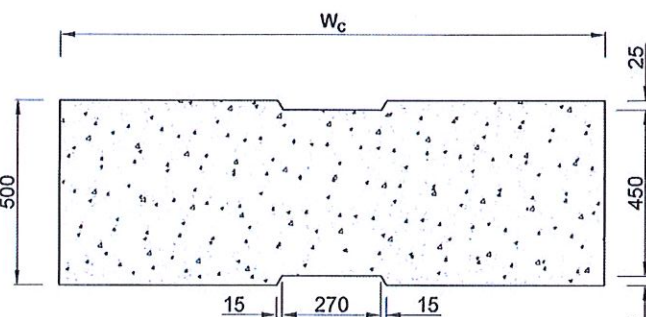
DS (K) - TYPE I



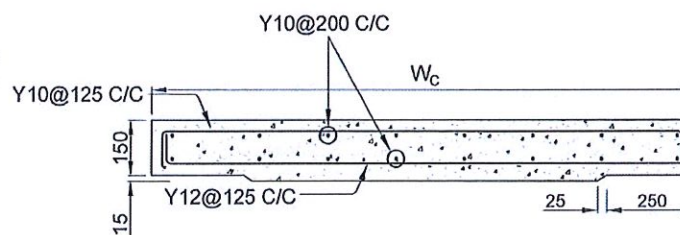
DS (K) - TYPE II



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+2x t]
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
- 10 mm THICK EXPANSION JOINT SHALL BE INTRODUCED IN EVERY 5m INTERVAL.

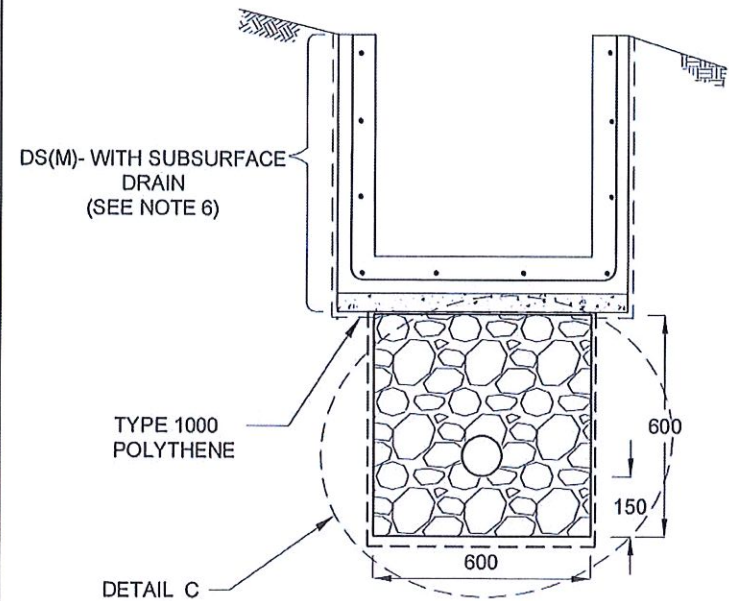
CONCRETE

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

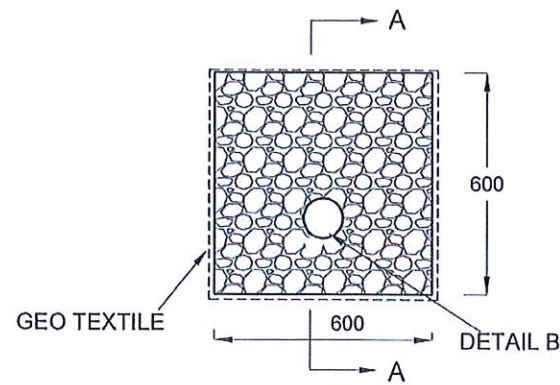
REINFORCEMENT

- 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

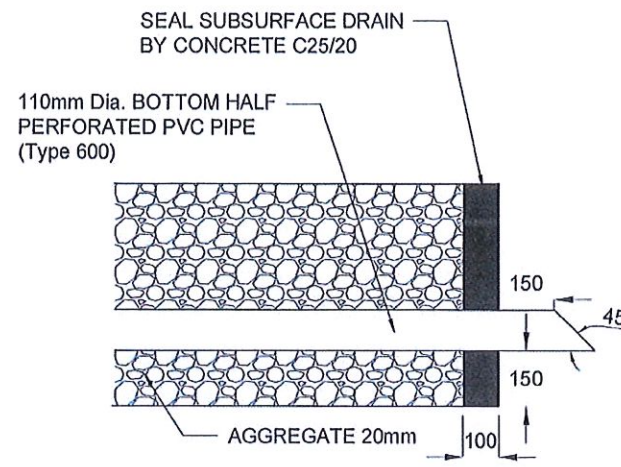
EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV DATE REVISION DESCRIPTION APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD	TITLE DETAILS OF DRAINS (SURFACE DRAIN -2 OF 2)	DESCRIPTION NAME SIGNATURE
		SCALE N.T.S. DATE 12.11.2020 PROJECT / DRAWING No. REVISION 00 RLVMP/WORKS/NCB/04B/08-Hk/DR-06b			DRAWN B.V.S. PATTRISHIYA DESIGNER G.D.W.N.GALHENA CHECKED J.P. SAMARANAYAKA RECOMMENDED PROF. S.A.S. KULATHILAKA APPROVED K.N. BANDARA



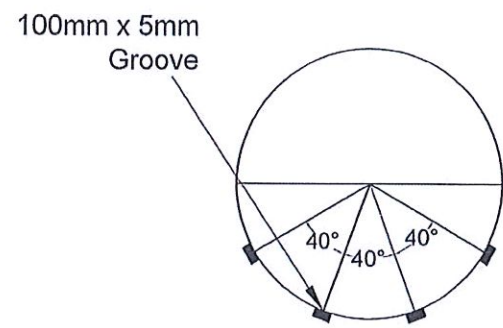
SUBSURFACE DRAIN [DS (S) -A]



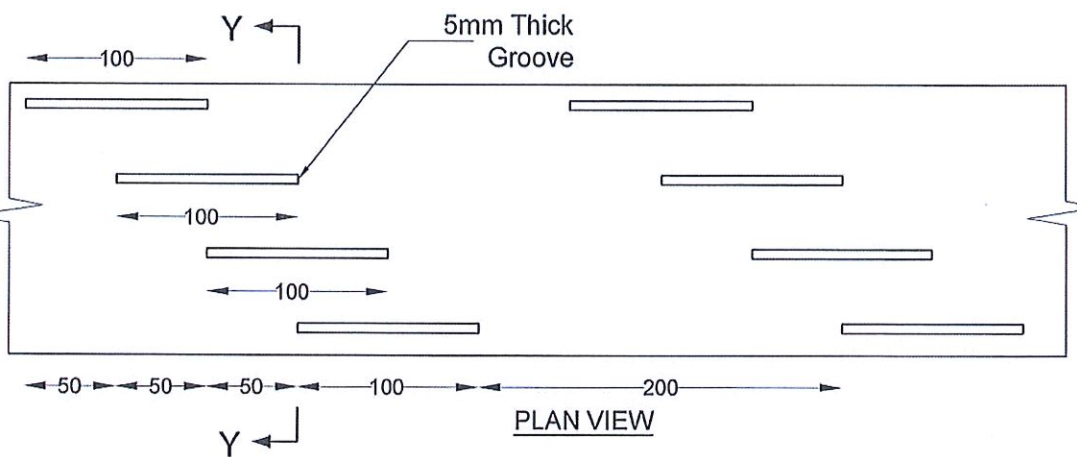
DETAIL C / DS (S) -A



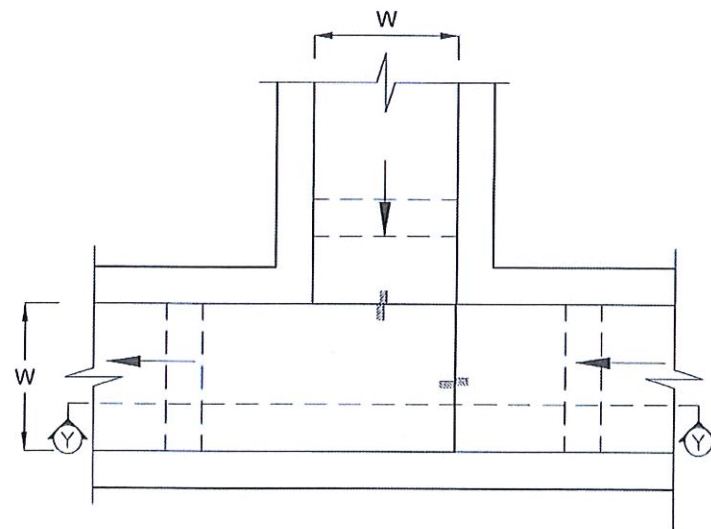
SECTION A-A (OUTLET DETAIL SUBSURFACE DRAIN)



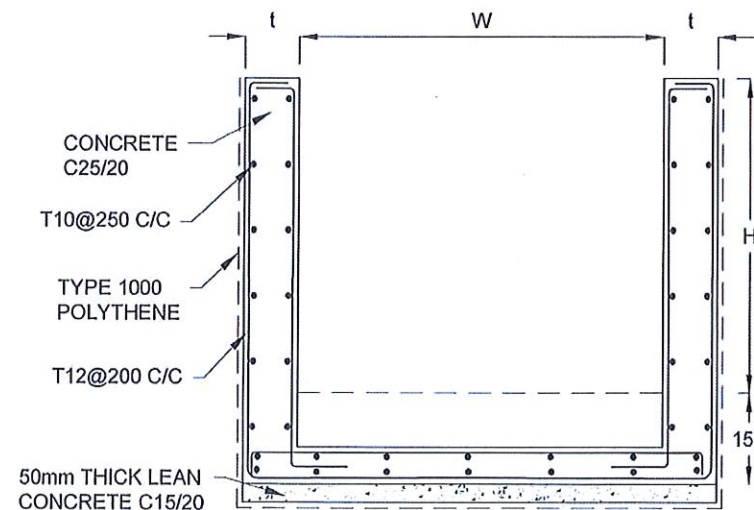
SECTION Y - Y



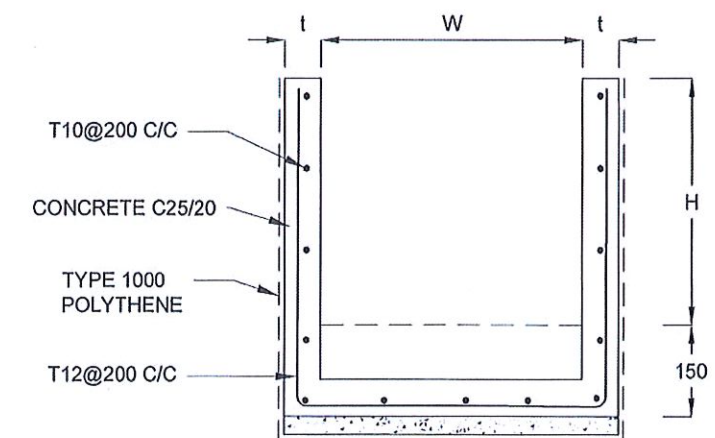
DETAIL - B (PERFORATED PIPE FOR SUB-SURFACE DRAINS)



PLAN VIEW OF CATCH PIT (CP)



SECTION Y-Y (CP-R)



SECTION Y - Y

NOTES

1. W,H,t; SHALL BE THE SAME AS RESPECTIVE DRAIN SECTION.
2. CP - R SHALL BE USED WHERE $H \geq 900\text{mm}$
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.

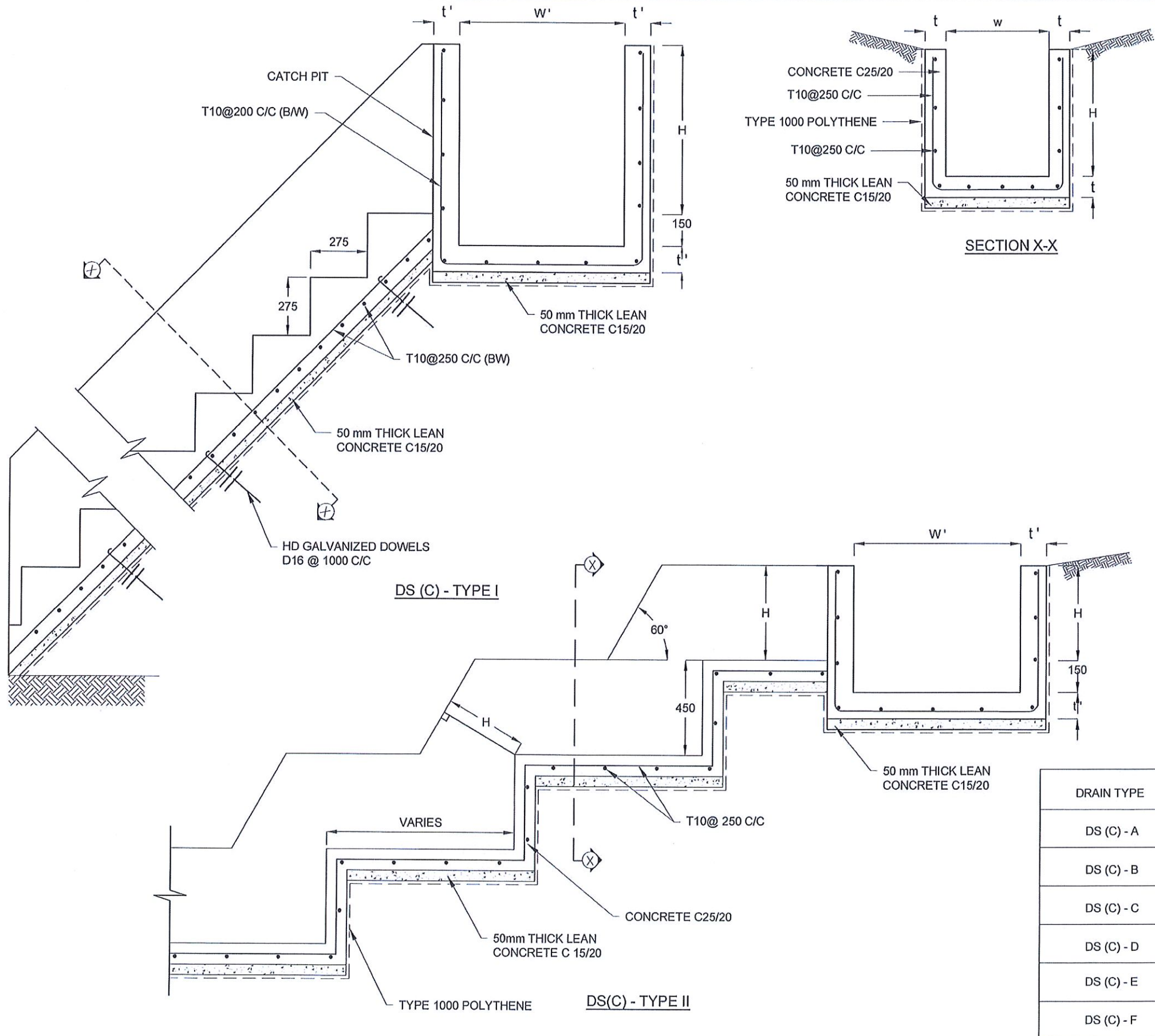
CONCRETE

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/mm^2 .
10. BARS OF CUT LENGTH LARGER THAN THE SUPPLIED LENGTH TO BE LAPPED FOR A LENGTH OF $50 \times \text{BAR DIA.}$ AND LAPPING SHOULD BE STAGGERED.
11. ANCHORAGE LENGTH SHOULD BE $40 \times \text{BAR DIA.}$
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

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 KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD	TITLE DETAILS OF DRAINS (SUBSURFACE DRAIN AND CATCHPIT)	DESCRIPTION	NAME	SIGNATURE	
							SCALE	N.T.S.	DATE	12.11.2020	
							PROJECT / DRAWING No.	RLVMP/WORKS/NCB/04B/08-HK/DR-06c	REVISION	00	
							APPROVED	K.N. BANDARA			



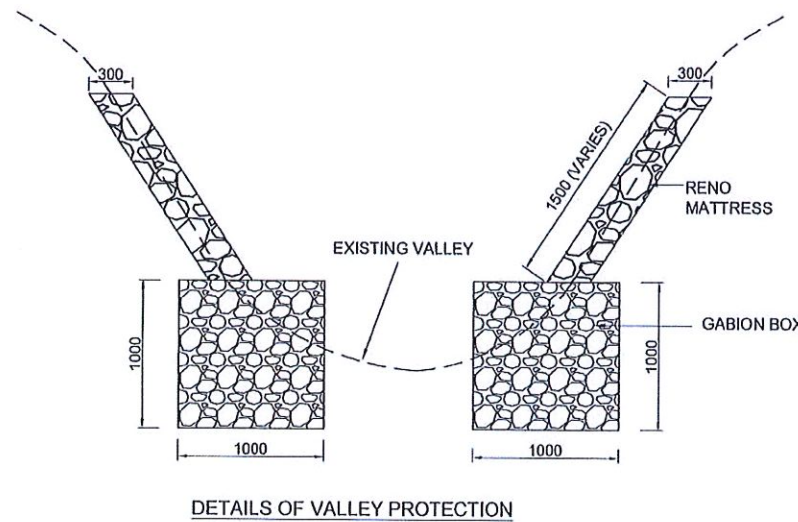
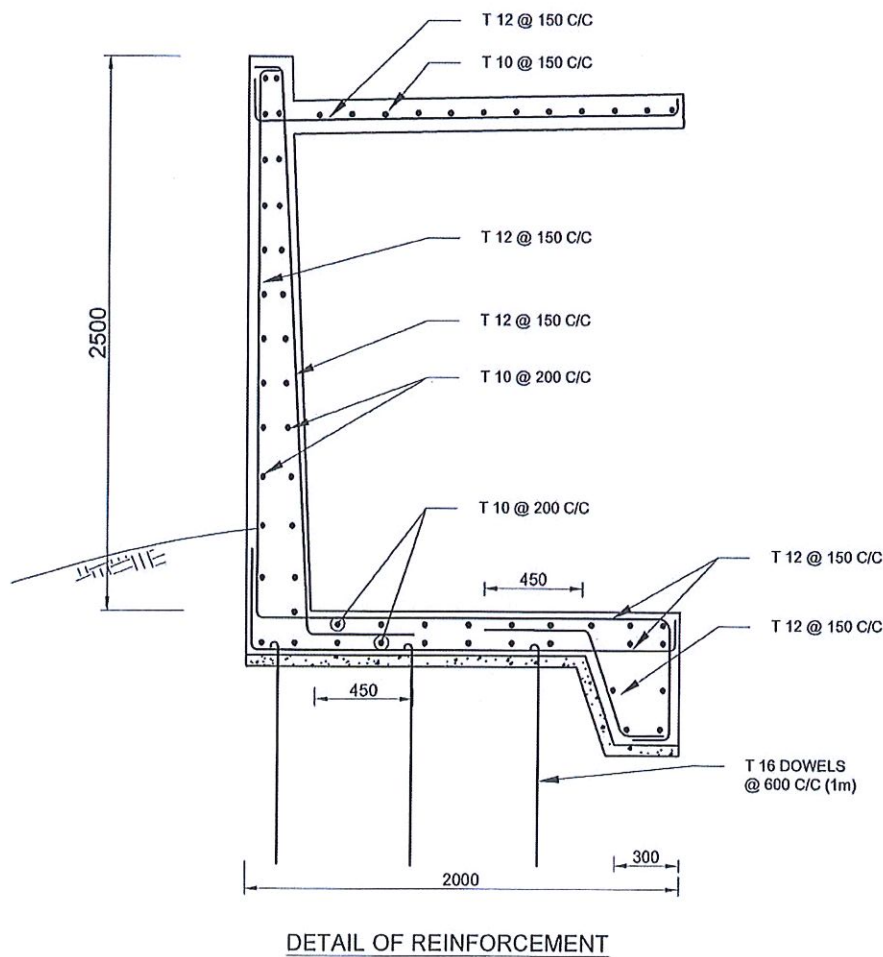
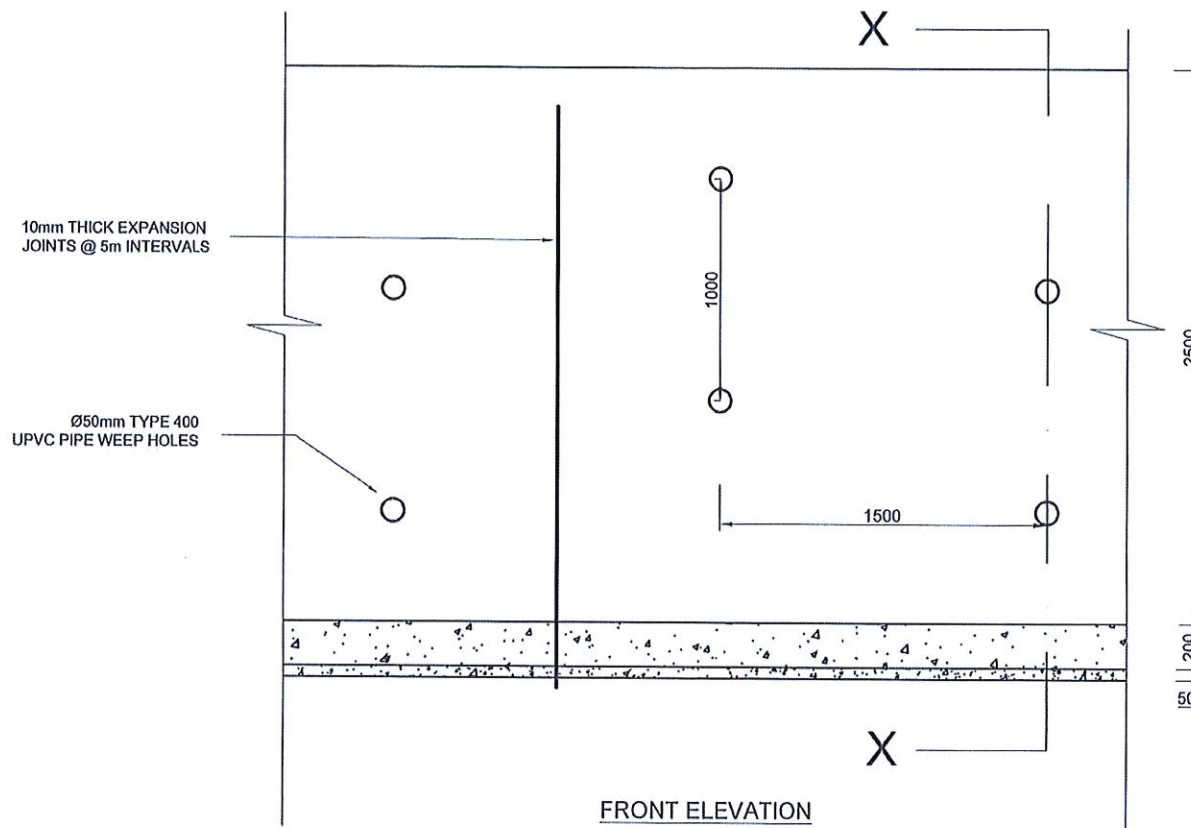
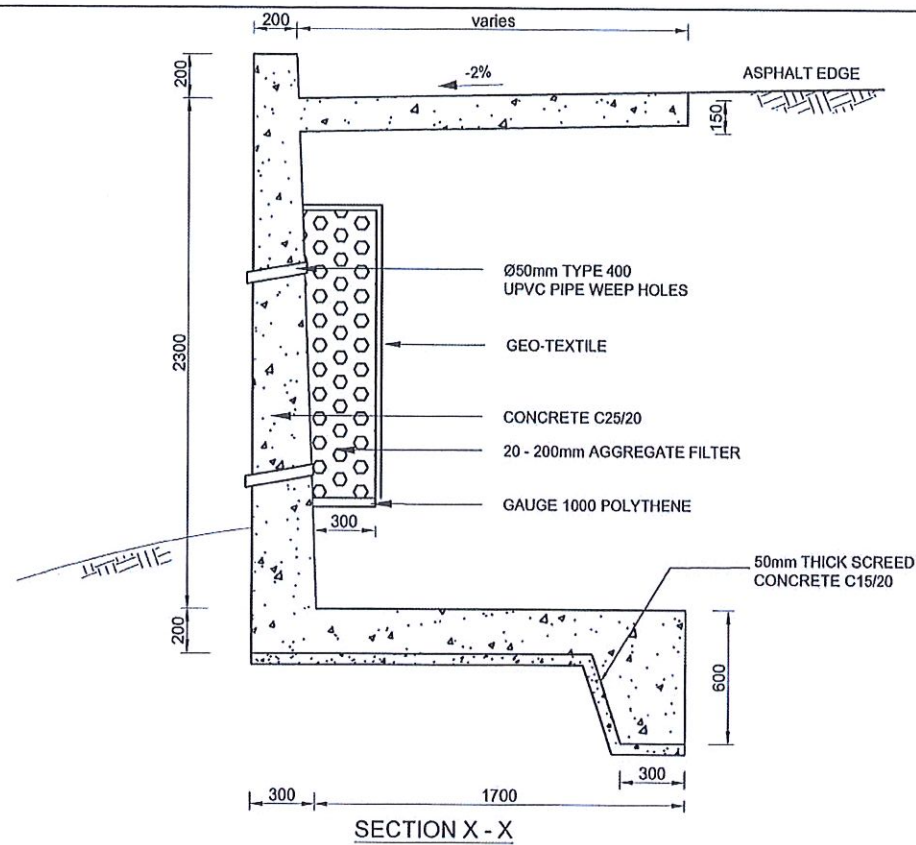
- NOTES**
1. USE EITHER TYPE I OR TYPE II CASCADE DRAIN ACCORDING TO THE ACTUAL GROUND CONDITION AS INSTRUCTED BY THE ENGINEER.
 2. LENGTH OF THE STEPS OF CASCADE WILL BE VARIED ACCORDING TO THE SITE CONDITIONS.
 3. DEPTH OF EXCAVATION SHALL BE VARIED ACCORDING TO SITE CONDITIONS.
 4. DOWELS SHALL BE 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**
7. USE FOLLOWING CONCRETE GRADES FOR STRUCTURE
 - [a] SCREED - C. 15/20
 - [b] WALLS / BASE / ENERGY BREAKERS - C. 25/20

- REINFORCEMENT**
8. ALL BARS MARKED "T" SHALL BE HIGH YIELD DEFORMED BARS OF YIELD STRENGTH NOT LESS THAN 460N/mm².
 9. 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.
 10. ANCHORAGE LENGTH SHOULD BE 40X BAR DIA.
 11. REINFORCEMENT BARS SHALL BE BENT IN ACCORDANCE WITH STANDARD SPECIFICATIONS.
 12. COVER TO REINFORCEMENT
 - [a] BURIED FACES AND DRAIN INVERTS - 40 mm
 - [b] ALL OTHER FACES - 25 mm

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

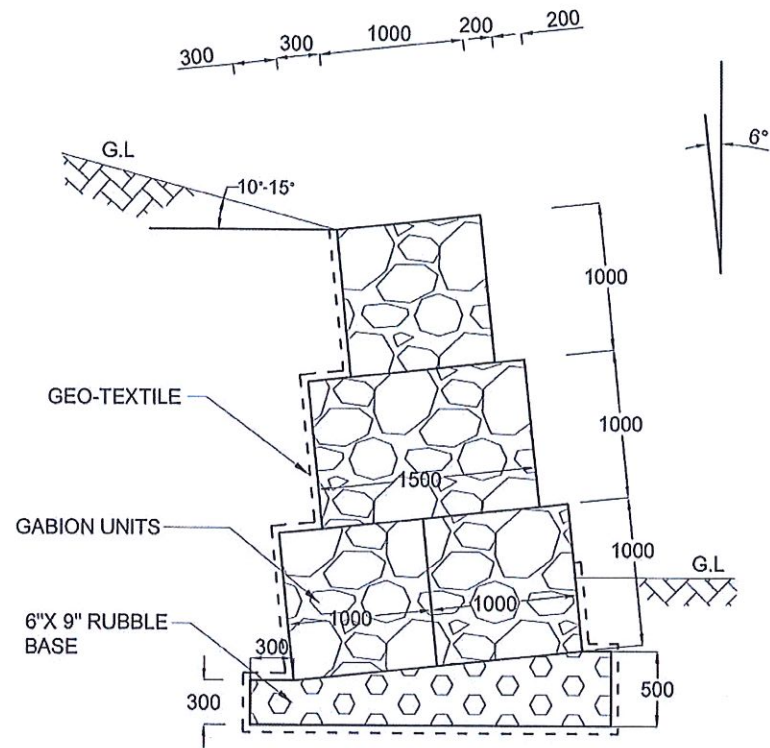
<p>EMPLOYER</p> <p>DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05</p>	<p>DESIGNER</p> <p>DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA 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> </tbody> </table>	REV	DATE	REVISION DESCRIPTION	APPROVAL																	<p>PROJECT TITLE</p> <p style="text-align: center;">REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD</p>	<p>TITLE</p> <p style="text-align: center;">DETAILS OF DRAINS (CASCADE DRAIN)</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>G.D.W.N. GALHENA</td> <td></td> </tr> <tr> <td>CHECKED</td> <td>J.P. SAMARANAYAKA</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	G.D.W.N. GALHENA		CHECKED	J.P. SAMARANAYAKA		RECOMMENDED	PROF. S.A.S. KULATHILAKA		APPROVED	K.N. BANDARA	
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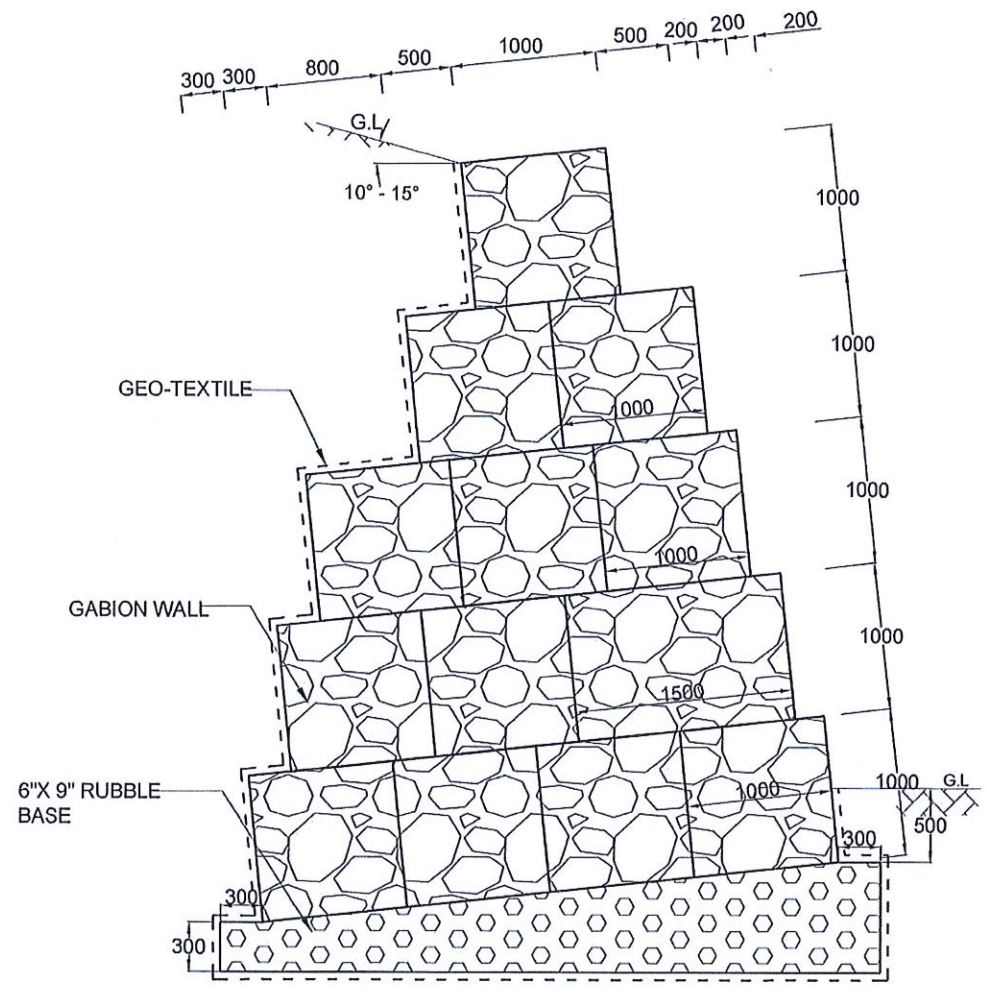
GENERAL NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. STRUCTURAL CONCRETE SHOULD BE GRADE 25 AND SCREED CONCRETE SHOULD BE GRADE 15.
3. MINIMUM COVER FOR THE REINFORCEMENT SHOULD BE 40 mm.
4. HIGH YIELD REINFORCEMENT BARS DENOTED BY ' T ' SHALL CONFORM TO THE REQUIREMENTS OF TYPE 2 OF BS 4449 AND HAVE A CHARACTERISTIC TENSILE STRENGTH OF 460 MPa.
5. ANCHORAGE LENGTH SHOULD BE 38 x BAR DIAMETER.
6. TENSION LAP LENGTH SHOULD BE 52 x BAR DIAMETER.
7. COMPRESSION LAP LENGTH SHOULD BE 38 x BAR DIAMETER.
8. AGGREGATE BACKFILL AND GEO-TEXTILE SHOULD BE CONFORMED TO THE SPECIFICATIONS PROVIDED.
9. 50 mm DIAMETER WEEP HOLES SHOULD BE PROVIDED AS GIVEN IN THE DRAWING AND SHOULD BE STAGGERED TO A SLOPE OF 1 : 20.
10. R16 DOWELS SHOULD BE PROVIDED AT 1000 mm SPACING IN LONGITUDINAL DIRECTION AND AT 600 mm SPACING IN TRANSVERSE DIRECTION.
11. EXPANSION JOINTS SHOULD BE PROVIDED AS GIVEN IN THE DRAWING AND TO BE EXTENDED IN THE SHOULDER.
12. WIDTH OF THE REINFORCED SHOULDER SHALL BE VARIED ACCORDING TO THE SITE CONDITION.

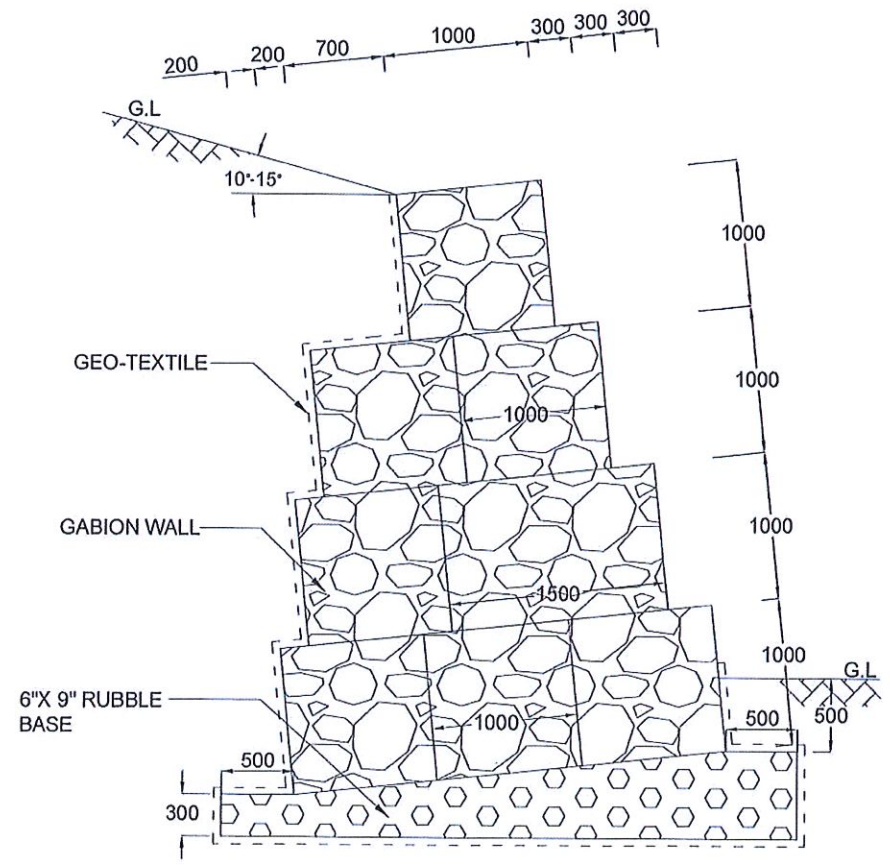
EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF INTERNAL SECURITY, HOME AFFAIRS AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES KEGALLE DISTRICT LHS OF ARANAYAKA-HULANKAPOLLA ROAD	TITLE DETAILS OF RETAINING WALL (CANTILEVER) TYPE D			DESCRIPTION	NAME	SIGNATURE	
								SCALE	N.T.S.	DATE	12.11.2020	RECOMMENDED	PROF. S.A.S. KULATHILAKA
							PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/04B/08-HK/DR-07	REVISION	00	APPROVED	K.N. BANDARA	



GABION WALL
TYPE I






GABION WALL
TYPE III



GABION WALL
TYPE II

NOTES

- 1. ALL DIMENSIONS ARE IN MILLIMETERS.

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