

Democratic Socialist Republic of Sri Lanka

Ministry of Defence



National Building Research Organization (NBRO)



**Reduction of Landslide Vulnerability by Mitigation Measures Project (RLVMMP) funded by
Asian Infrastructure Investment Bank (AIIB)**

(Loan No: L0124A)

DRAWINGS

Landslide Mitigation Measures at 05 Locations in Kegalle and Rathnapura Districts.

(Site No. 48,50,97,122,124) under Package 6B of

Reduction of Landslide Vulnerability by Mitigation Measures Project (RLVMMP)

Contract No: RLVMMP/WORKS/06B

March. 2024

DESIGN DRAWINGS

REVAMP

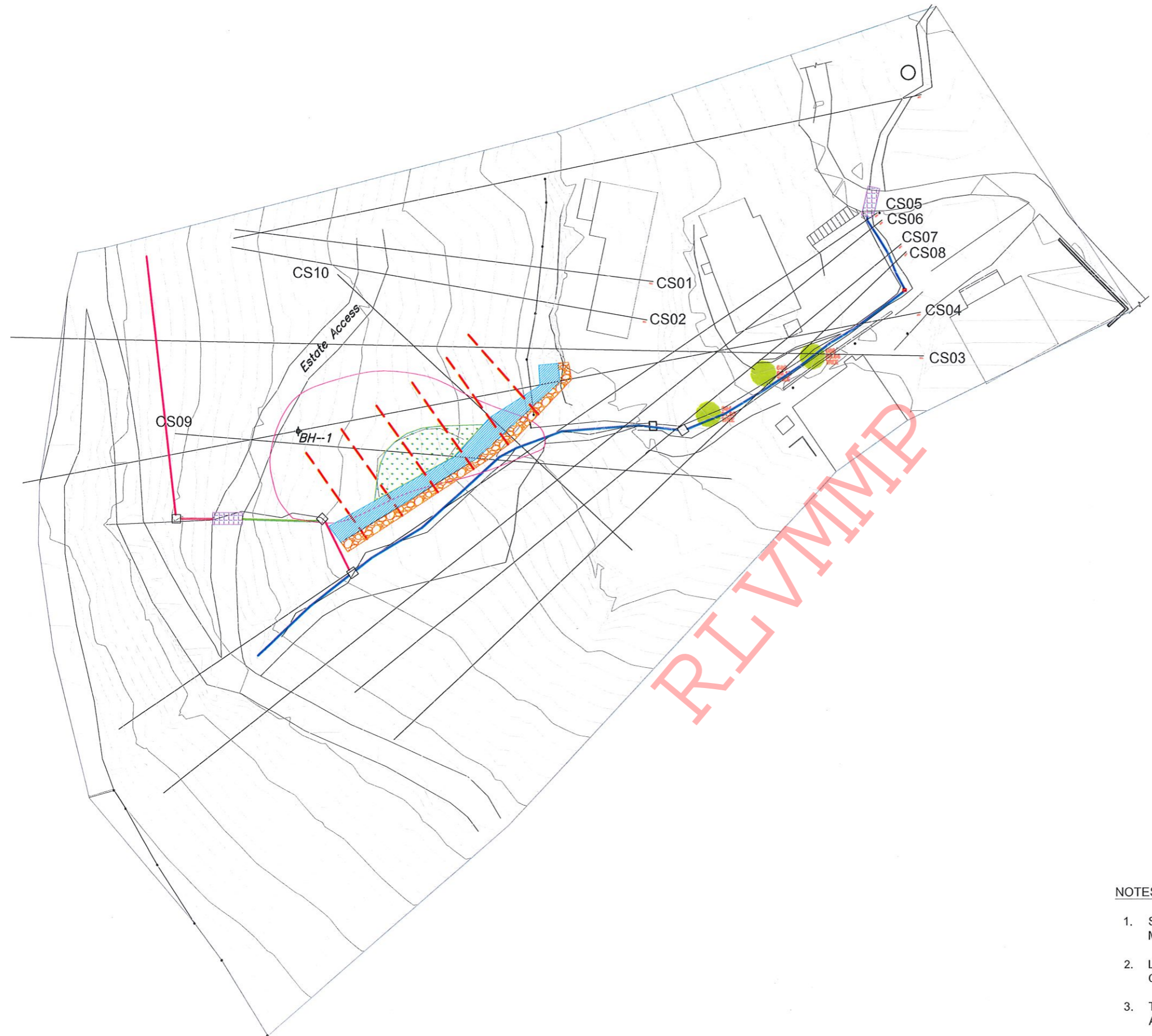


REFERENCE

- P - PERMANENT BUILDING
- B(B) - BOTTOM OF BANK
- B(T) - TOP OF BANK
- EP - ELECTRICITY POL
- E - CONCRETE DRAIN
- CDN - EARTH DRAIN
- EDN - MASONRY WELL
- MW - SEPTIC TANK
- ST - WATER CLOSET
- WC - RETAINING WALL
- RW - CULVERT
- CUL. - BOLDER
- BO -

DESIGN NOTATION

- DS (M) - B
- DS (C) - A
- DS (L) - A
- GABION WALL (TYPE II)
- PIPE CULVERT
- BACK FILLING AND TURFING AREA
- RESHAPING AND TURFING AREA
- - - HORIZONTAL LONG DRAIN (15m ,DIA . 90mm)



RLVMMP

NOTES

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.
3. THE NUMBER OF NAILS, NAILS LENGTH AND NAIL LOCATION MAY BE VARIED ACCORDING TO THE ACTUAL SITE CONDITIONS.

EMPLOYER

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

DESIGNER

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

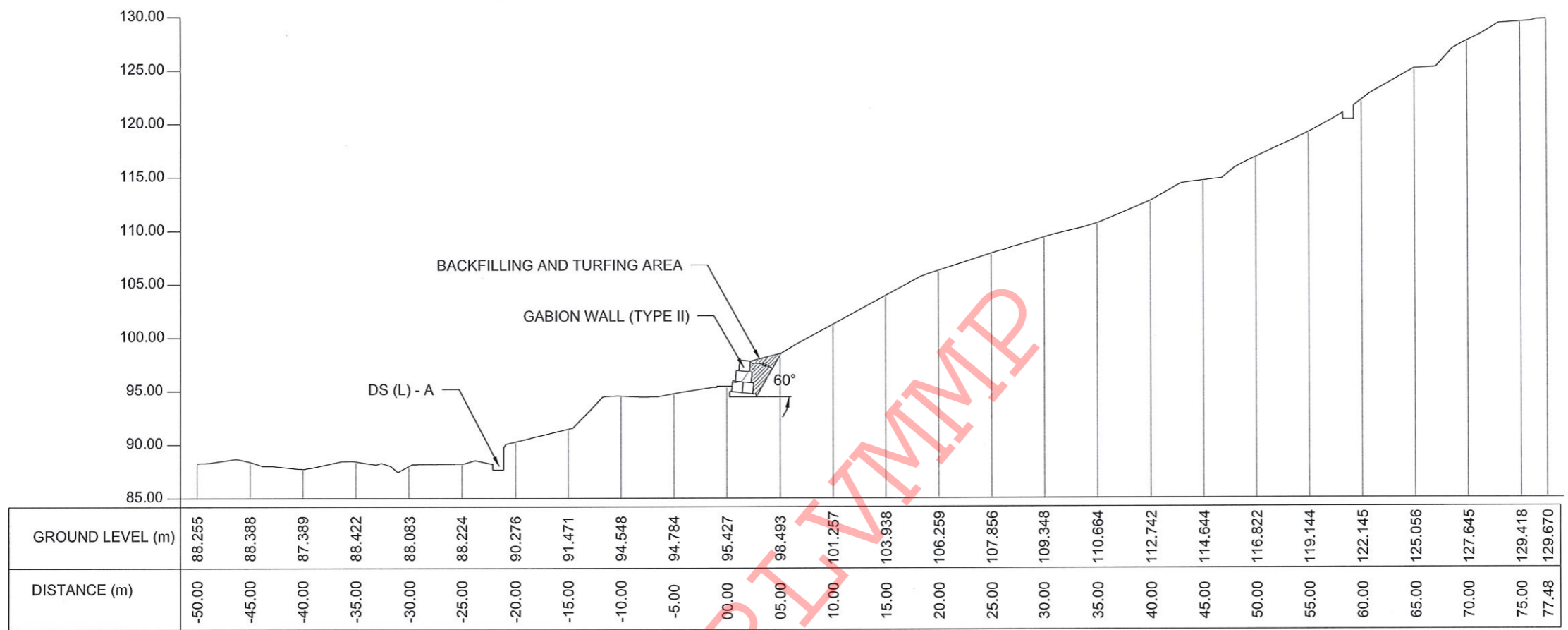
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
DERANIYAGALA KOLPING CENTER


TITLE
 DESIGN PLAN VIEW

SCALE 1:600 DATE 27.06.2022
 PROJECT / DRAWING No. REVISION
 RLVMP/WORKS/NCB/PH11/048-DC/DR-03 00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	M.P. AMARASINGHE	
CHECKED	B.I. KUMARAGE	
RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	



CS04


DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
 STATE MINISTRY OF NATIONAL SECURITY AND DISASTER MANAGEMENT
 NATIONAL BUILDING RESEARCH ORGANISATION
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 COLOMBO - 05


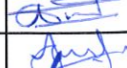



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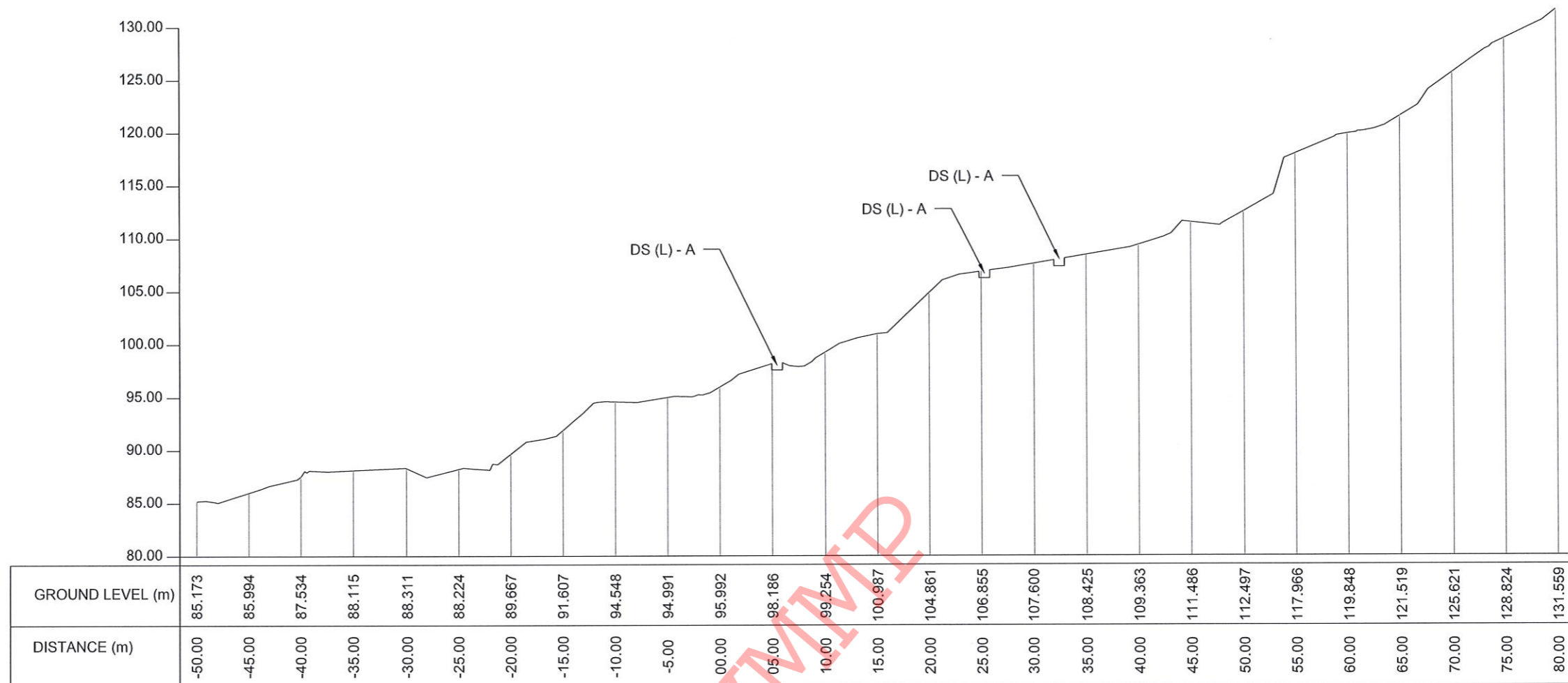
DESIGN UNIT
 NATIONAL BUILDING RESEARCH ORGANIZATION
 No. 99/1, JAWATTA ROAD,
 COLOMBO - 05

REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 DERANIYAGALA KOLPING CENTER

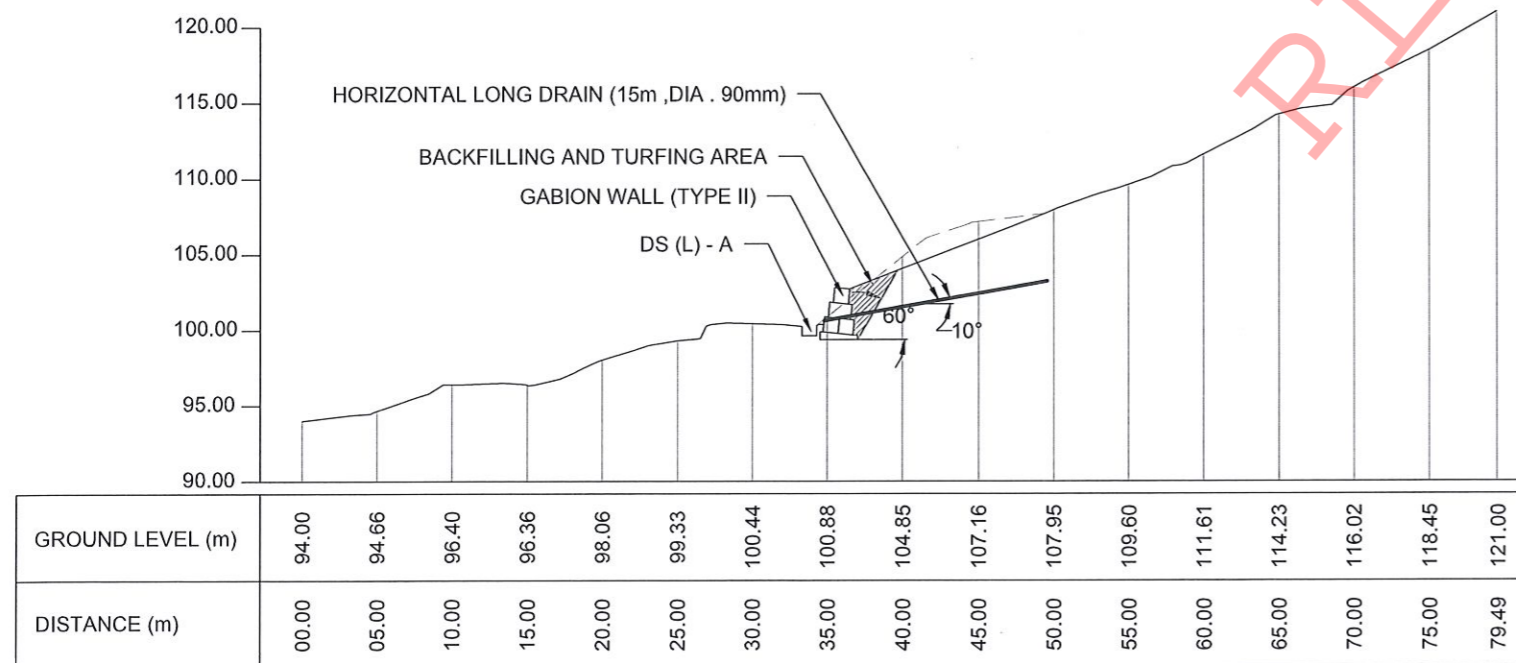
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 SCALE 1:600
 DATE 27.06.2022
 PROJECT / DRAWING No. RLVMMP/WORKS/NCB/PHII/048-DC/DR-04a
 REVISION 00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	M.P. AMARASINGHE	
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RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	

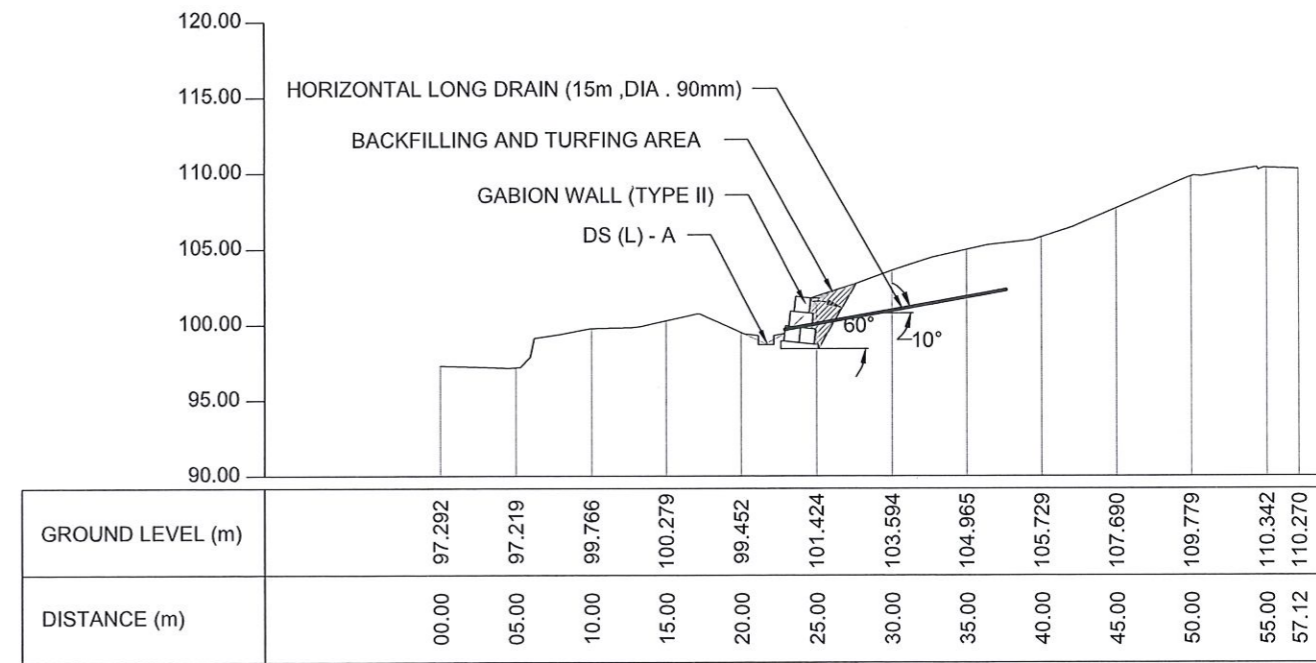


CS05


RLMMP



CS09



CS10

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

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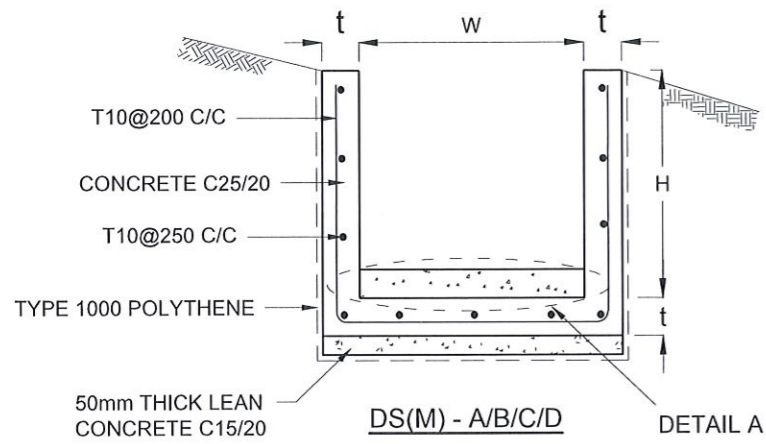
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PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 DERANIYAGALA KOLPING CENTER

TITLE
 DESIGN CROSS SECTION

SCALE	1:600	DATE	27.06.2022
PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/PHII/048-DC/DR-04b	REVISION	00

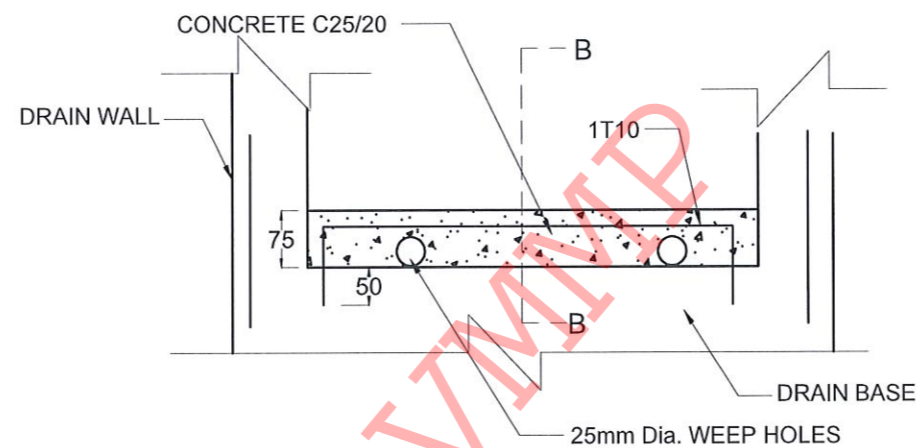
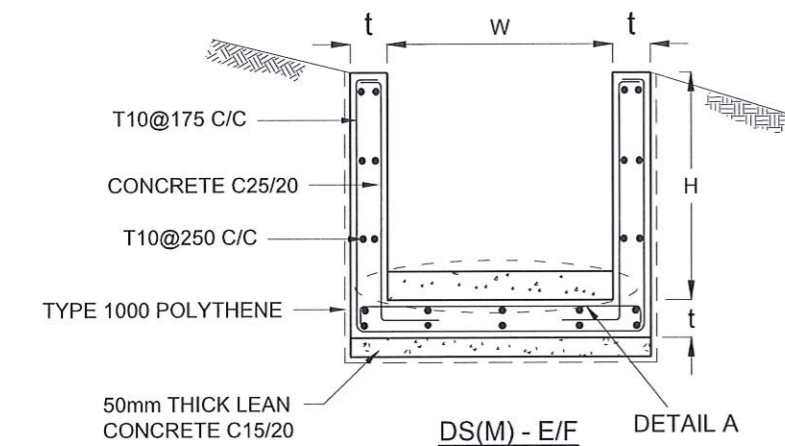
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DESIGNER	M.P. AMARASINGHE	
CHECKED	B.I. KUMARAGE	
RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	



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

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



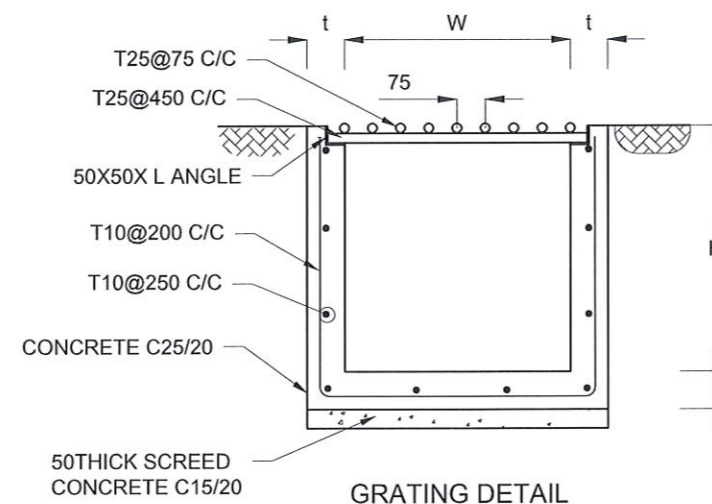
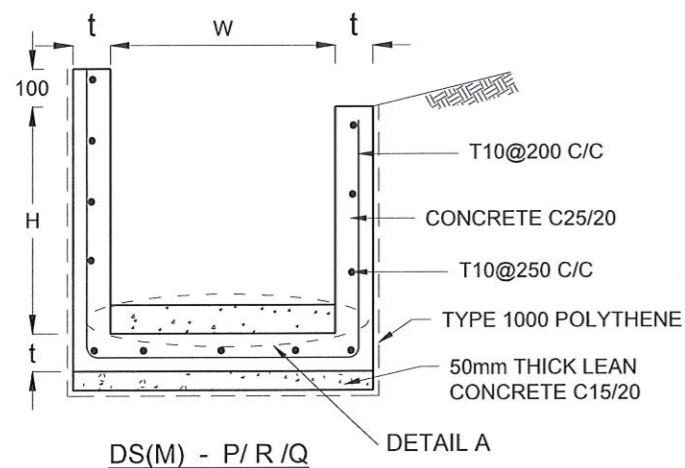
DETAIL A - (ENERGY BREAKER AT 3M)

CONCRETE

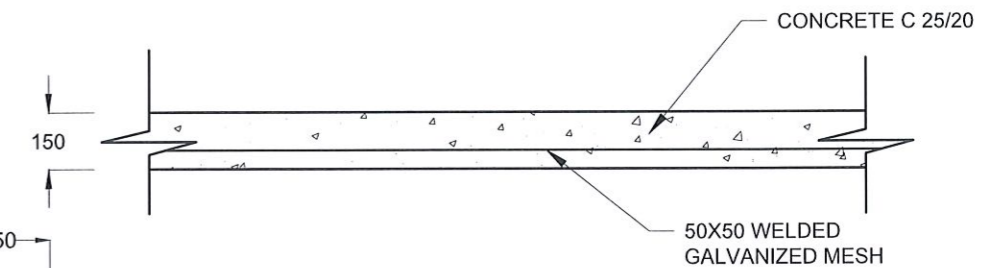
- USE FOLLOWING CONCRETE GRADES FOR STRUCTURE
 - [a] SCREED - C. 15/20
 - [b] WALLS / BASE / ENERGY BREAKERS - C. 25/20

REINFORCEMENT

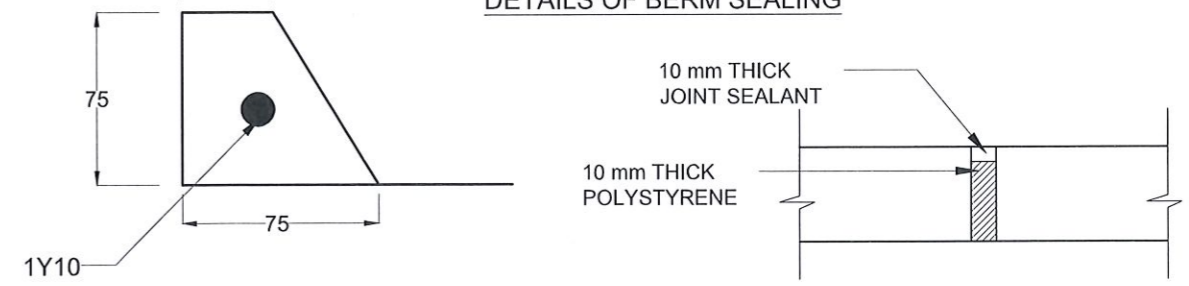
- ALL BARS MARKED "T" SHALL BE HIGH YIELD DEFORMED BARS OF YIELD STRENGTH NOT LESS THAN 460N/mm².
- BARS OF CUT LENGTH LARGER THAN THE SUPPLIED LENGTH TO BE LAPPED FOR A LENGTH OF 50 x BAR DIA. AND LAPPING SHOULD BE STAGGERED.
- ANCHORAGE LENGTH SHOULD BE 40X BAR DIA.
- REINFORCEMENT BARS SHALL BE BENT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



GRATING DETAIL



DETAILS OF BERM SEALING



EXPANSION JOINT DETAIL

SECTION B-B

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

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

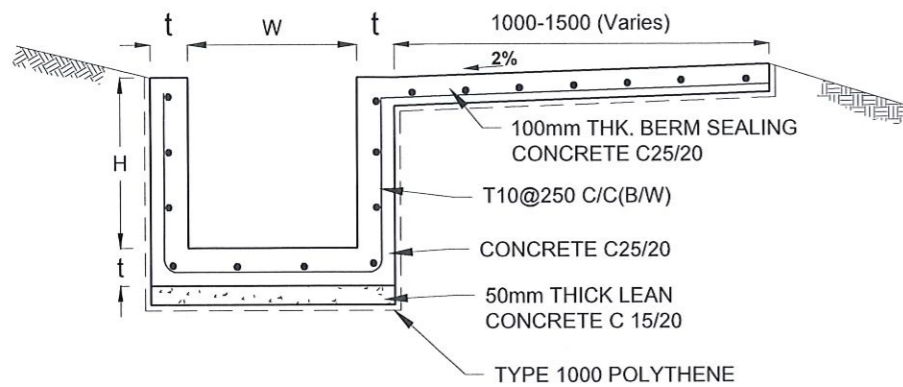
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 DERANIYAGALA KOLPING CENTER

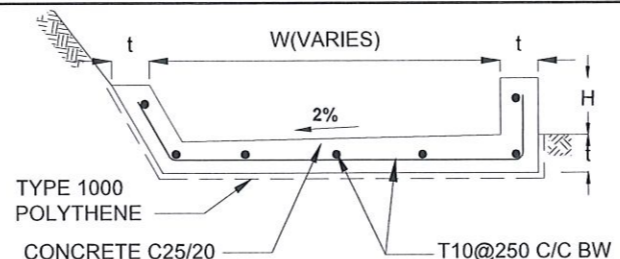
TITLE
 DETAILS OF DRAINS
 (SURFACE DRAIN -1 OF 2)

SCALE | N.T.S. | DATE | 27.06.2022
 PROJECT / DRAWING No. | RLVMMP/WORKS/NCB/PHII/048-DC/DR-05a | REVISION | 00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	M.P. AMARASINGHE	
CHECKED	B.I. KUMARAGE	
RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	

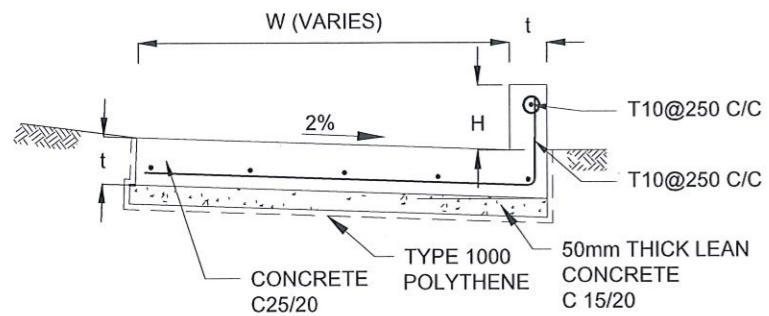


DS (B) - (TYPE I)

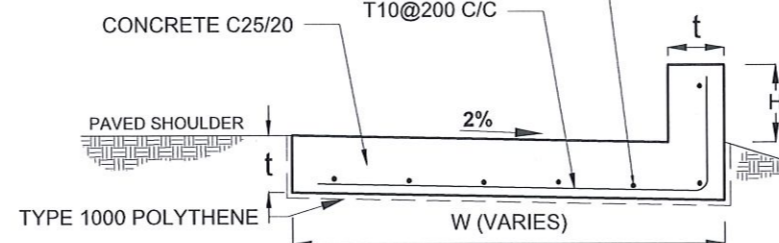


DS (B) - (TYPE II)

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 (B) - D	1500	150	100
DS (B) - E	2000	150	100



DS (K) - TYPE I

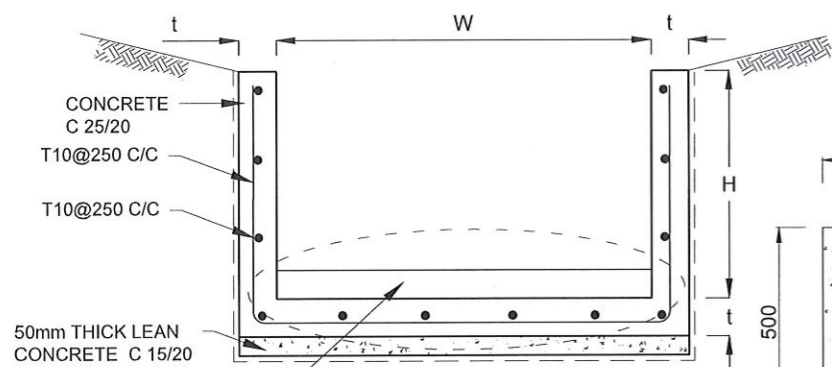


DS (K) - TYPE II

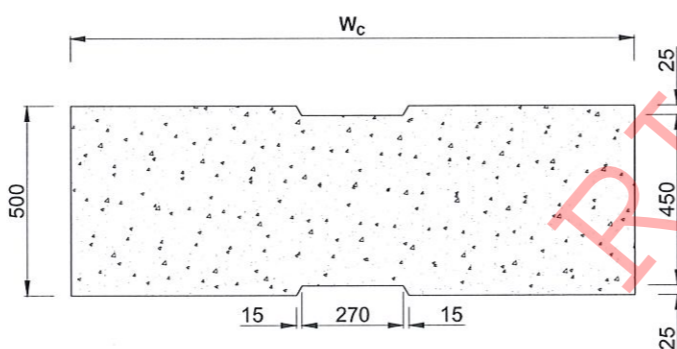
DRAIN TYPE	W (mm)	H (mm)	t (mm)
DS (K) - A	1000	200	100
DS (K) - B	1000	300	100
DS (K) - C	1150	200	200

NOTES

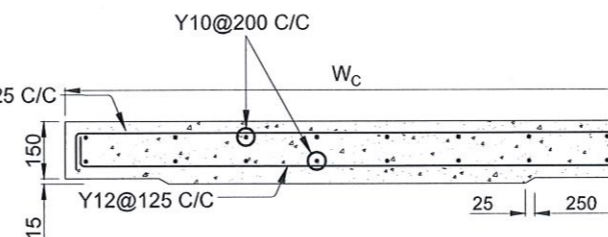
- DEPTH OF EXCAVATION MAY VARY ACCORDING TO SITE CONDITIONS.
- STEPS SHALL BE CONSTRUCTED AT SURFACE DRAIN ON SLOPING GROUND ACCORDING TO THE SITE CONDITIONS AS INSTRUCTED BY THE ENGINEER.
- ENERGY BREAKERS SHALL BE CONSTRUCTED AT THE STEEP DRAIN SEGMENTS AS PER THE INSTRUCTIONS OF THE ENGINEER.
- DOWELS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



DS (L) - A/B



PLAN VIEW OF COVER SLAB



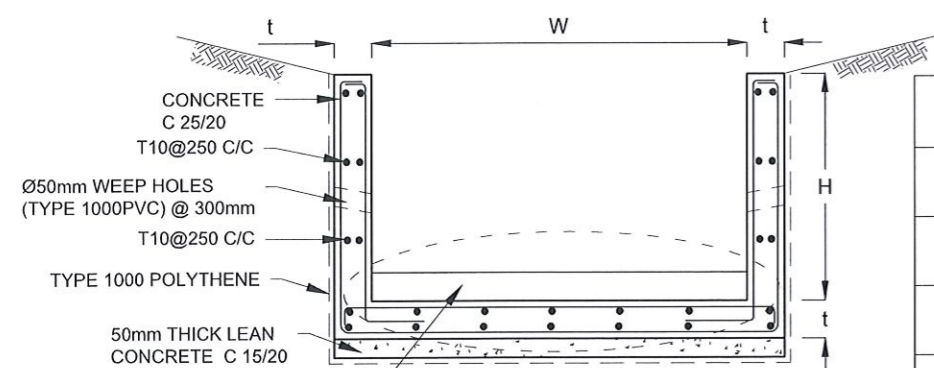
ACCESS & HEAVY DUTY COVER SLAB
SECTION OF ($W_c \times 500 \times 150$ mm)

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



DS (L) - C/D

DRAIN TYPE	W (mm)	H (mm)	t (mm)
DS (L) - A	1000	600	100
DS (L) - B	1000	800	125
DS (L) - C	1000	1000	125
DS (L) - D	2000	2000	150

EMPLOYER

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

DESIGNER

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 NATIONAL BUILDING RESEARCH ORGANIZATION
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 COLOMBO - 05

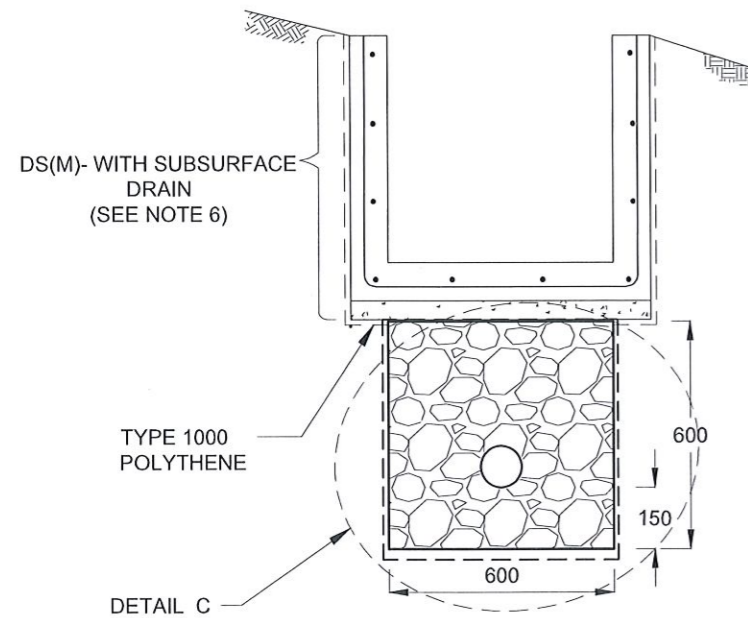
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 DERANIYAGALA KOLPING CENTER

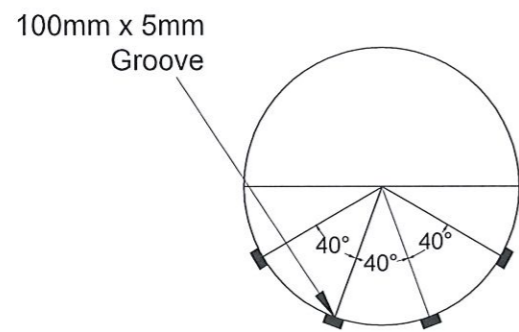
TITLE
 DETAILS OF DRAINS
 (SURFACE DRAIN -2 OF 2)

SCALE N.T.S. DATE 27.06.2022
 PROJECT / DRAWING No. RLVMMP/WORKS/NCB/PH11/048-DC/DR-05b REVISION 00

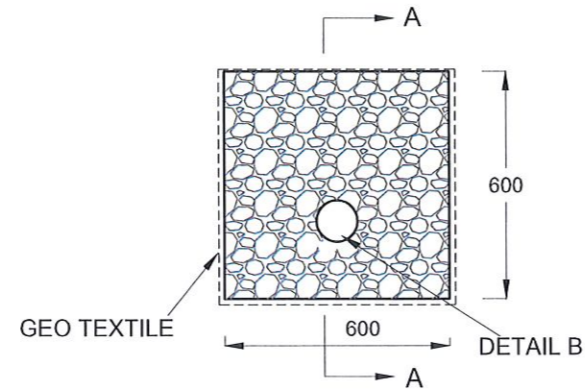
DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	M.P. AMARASINGHE	
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RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	



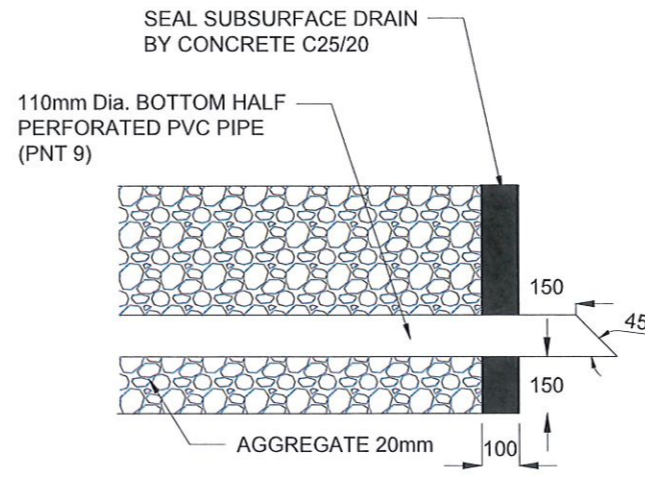
SUBSURFACE DRAIN [DS (S) -A]



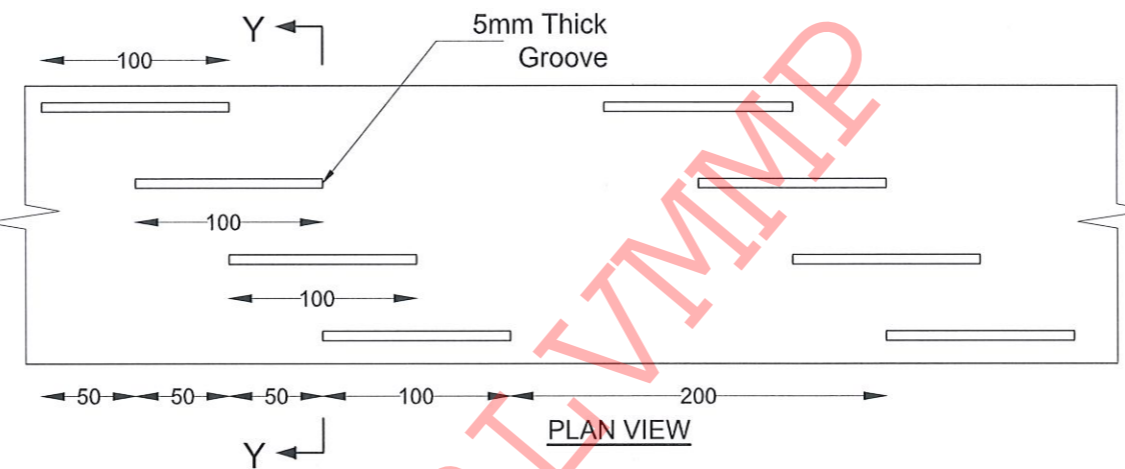
SECTION Y - Y



DETAIL C / DS (S) -A

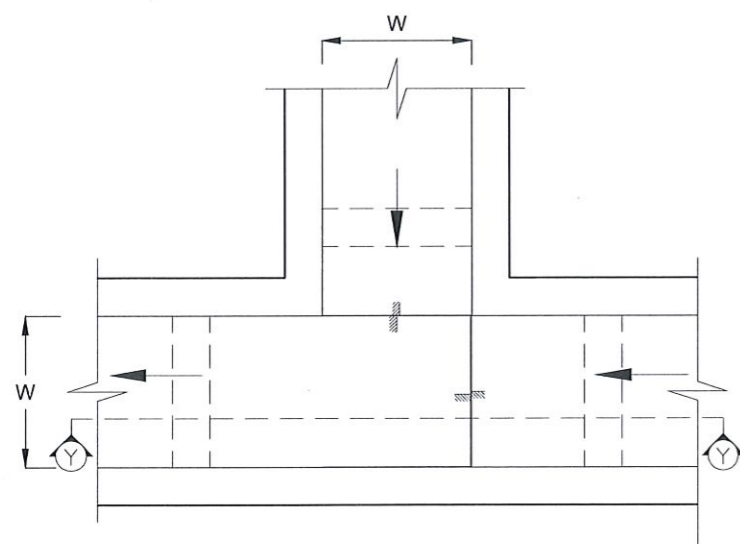


SECTION A-A (OUTLET DETAIL SUBSURFACE DRAIN)

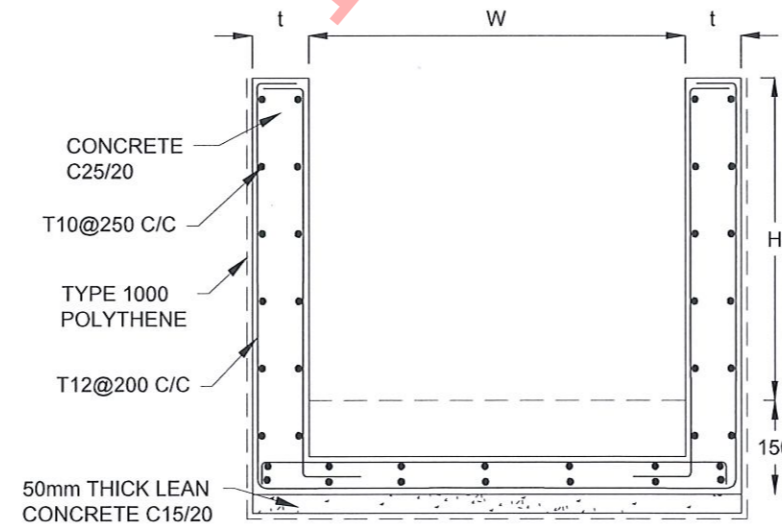


PLAN VIEW

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



PLAN VIEW OF CATCH PIT (CP)



SECTION Y-Y (CP - R)

NOTES

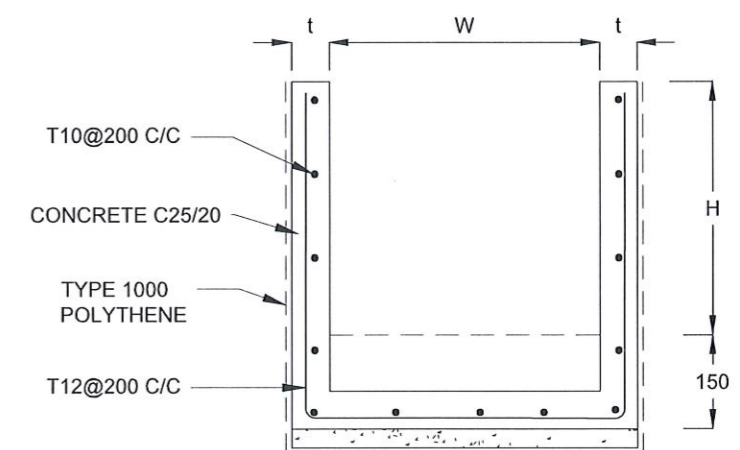
1. W,H,t ; SHALL BE THE SAME AS RESPECTIVE DRAIN SECTION.
2. CP - R SHALL BE USED WHERE H > = 900mm
3. DEPTH OF EXCAVATION MAY VARY ACCORDING TO SITE CONDITIONS.
4. DOWELS SHALL BE INSTALLED ACCORDING TO THE GROUND CONDITIONS AS INSTRUCTED BY THE ENGINEER.
5. 10 mm THICK EXPANSION JOINT SHALL BE INTRODUCED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

CONCRETE

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

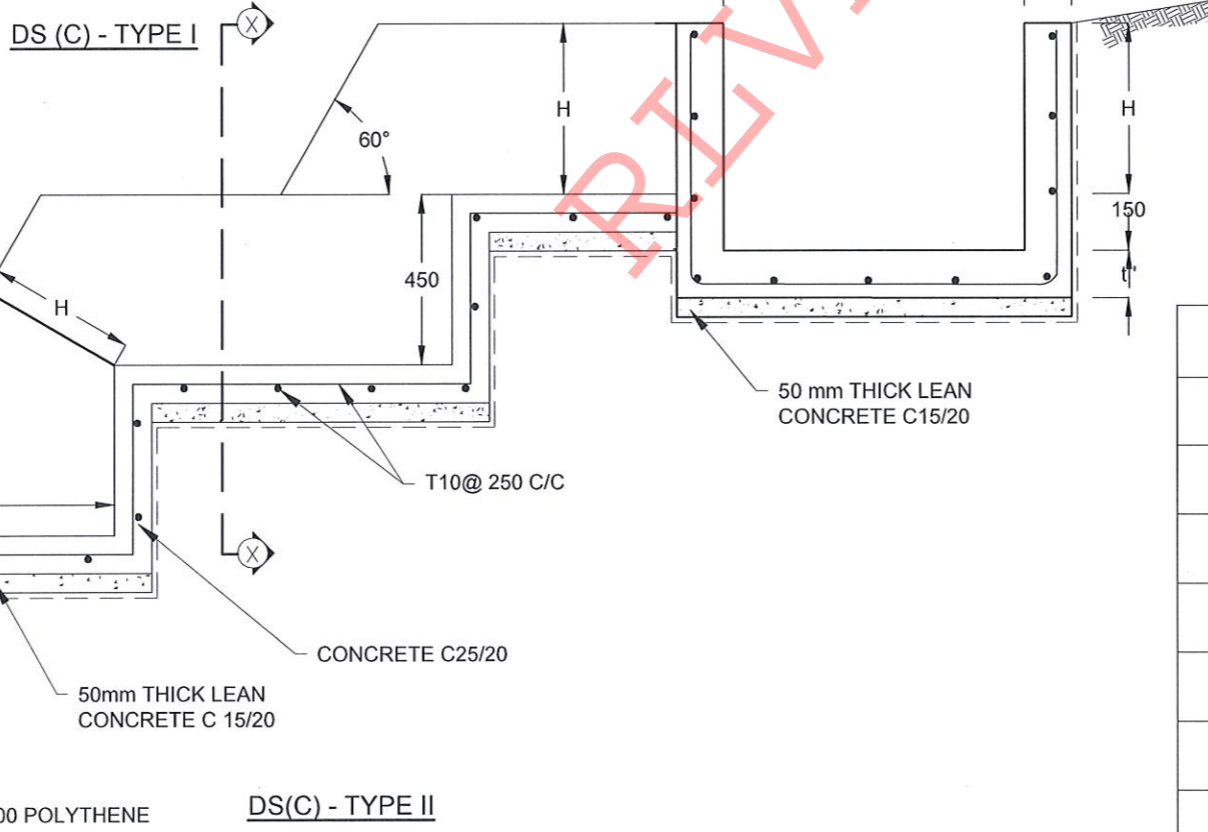
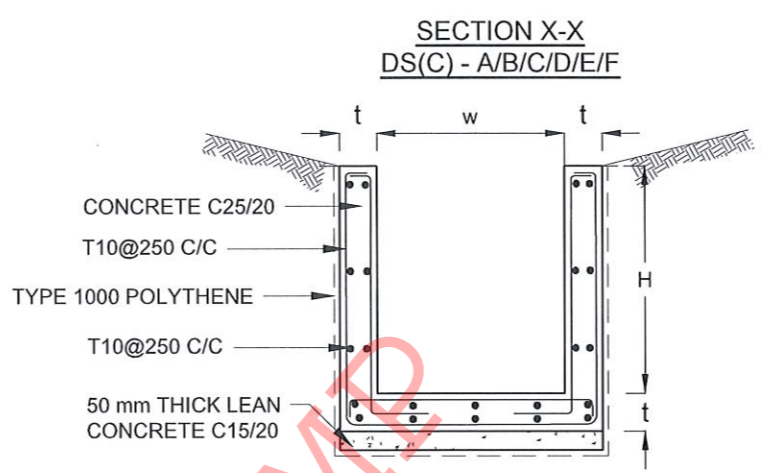
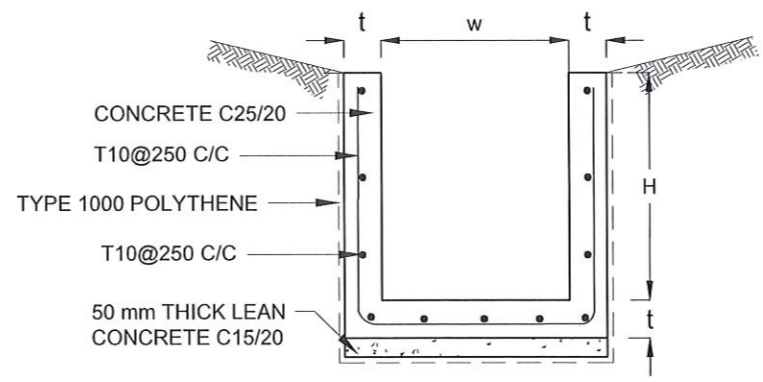
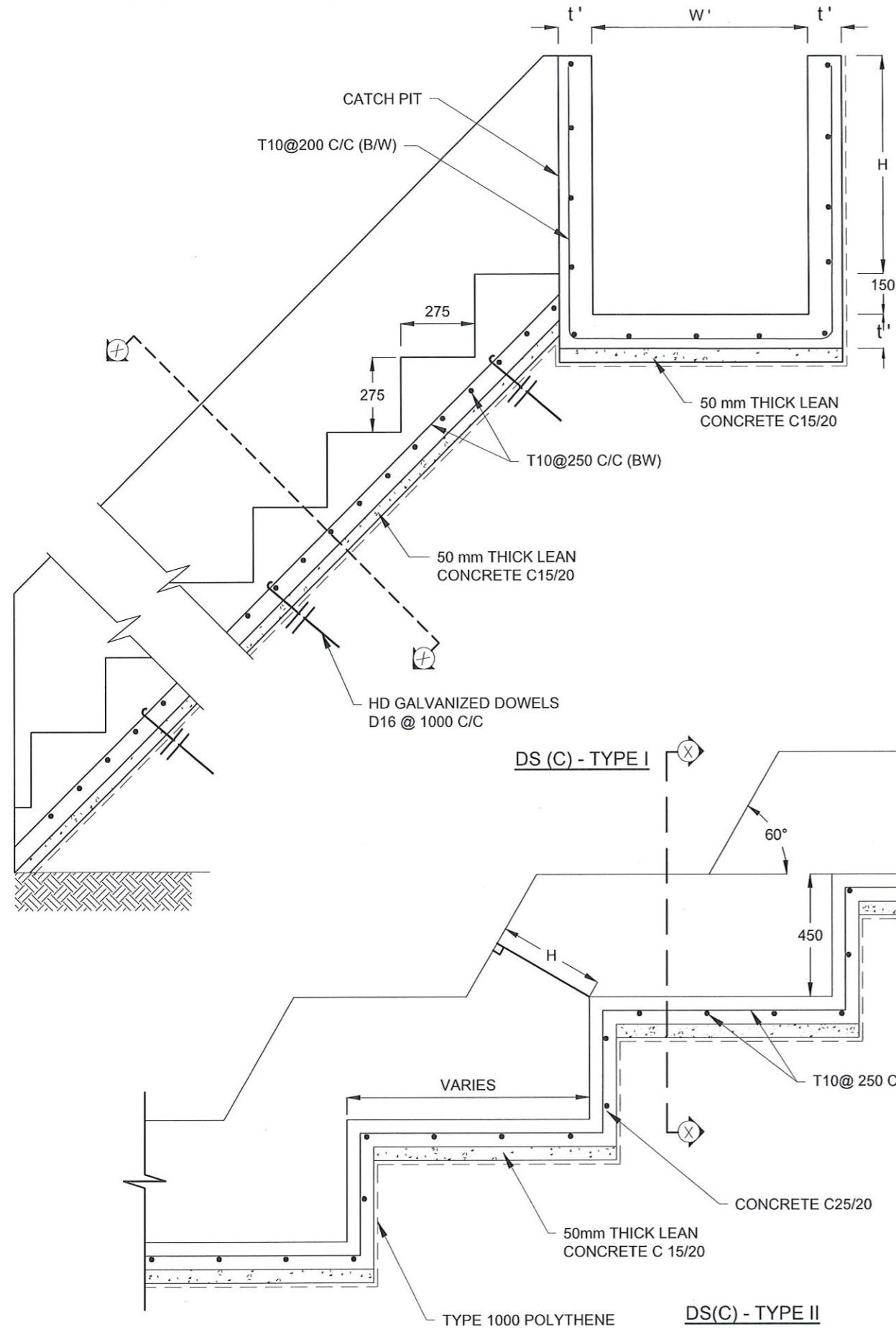
REINFORCEMENT

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



SECTION Y - Y

EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF NATIONAL SECURITY AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION 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 DERANIYAGALA KOLPING CENTER	TITLE DETAILS OF DRAINS (SUBSURFACE DRAIN AND CATCHPIT)	DESCRIPTION	NAME	SIGNATURE			
									SCALE	N.T.S.	DATE	27.06.2022	REVISION
							PROJECT / DRAWING No.	RLVMMMP/WORKS/NCB/PHII/048-DC/DR-05c	APPROVED	K.N. BANDARA			



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
 - [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
DS (C) - G	1200	1000	125	1300	125

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

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

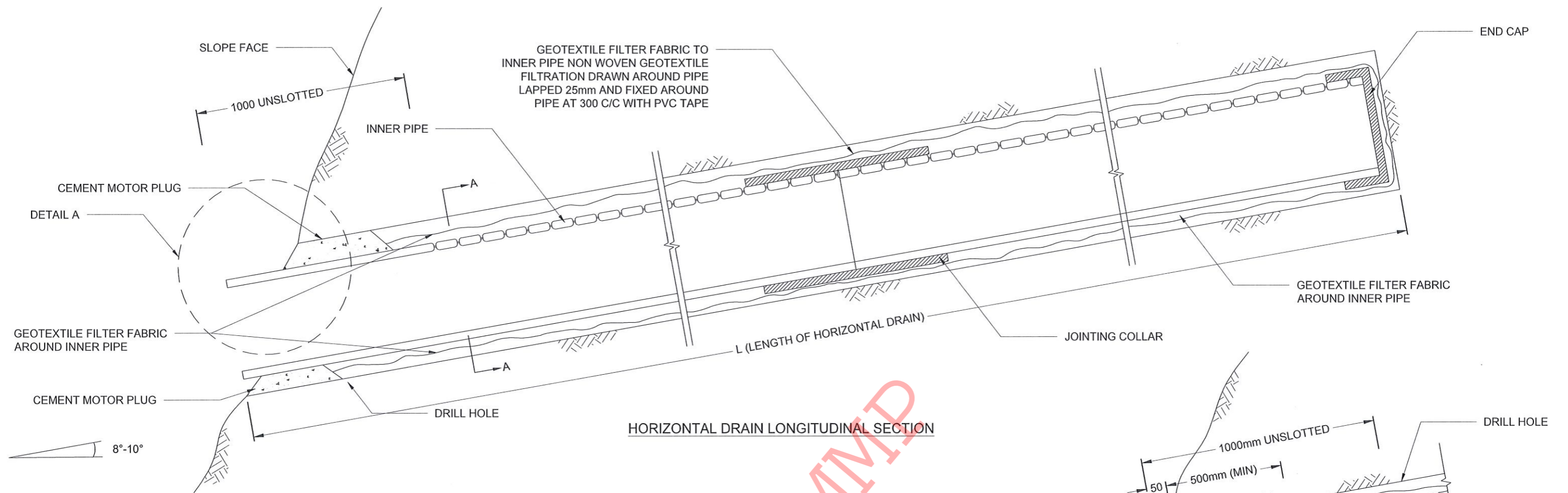
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 DERANIYAGALA KOLPING CENTER

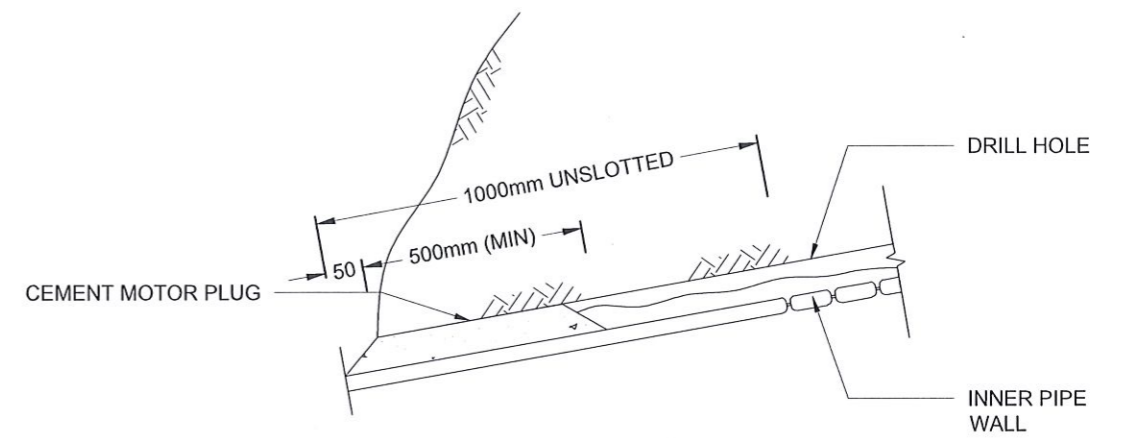
TITLE
 DETAILS OF DRAINS
 (CASCADE DRAIN)

SCALE N.T.S. DATE 27.06.2022
 PROJECT / DRAWING No. RLVMM/WORKS/NCB/PHII/048-DC/DR-05d REVISION 00

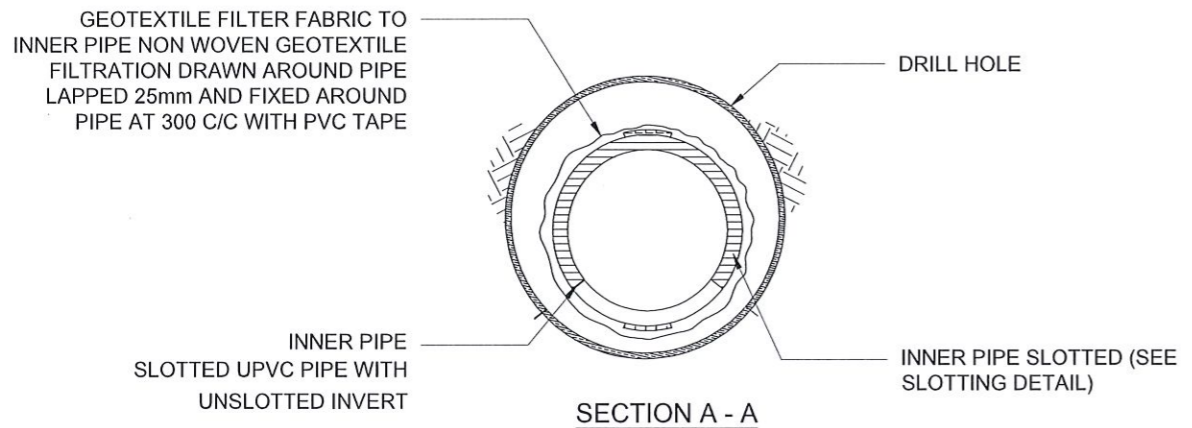
DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	M.P. AMARASINGHE	
CHECKED	B.I. KUMARAGE	
RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	



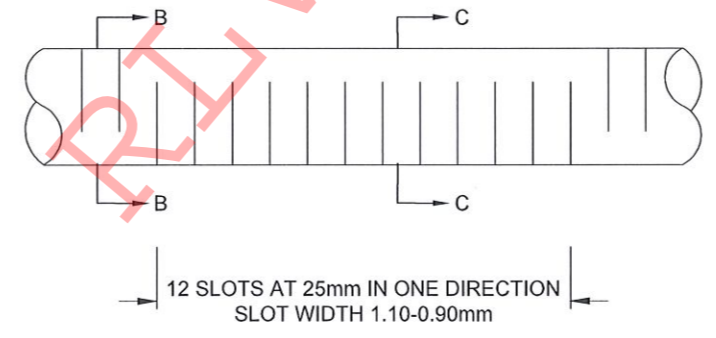
HORIZONTAL DRAIN LONGITUDINAL SECTION



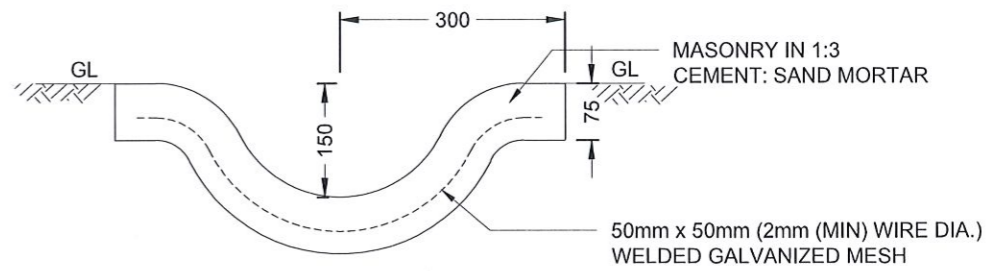
DETAIL A



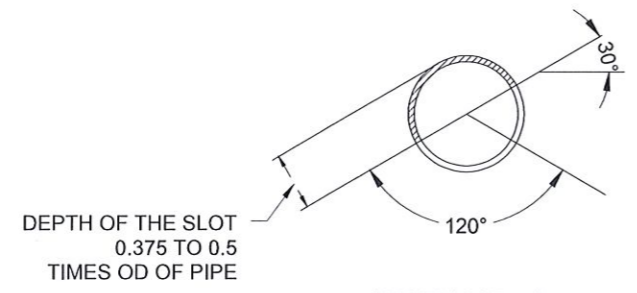
SECTION A - A



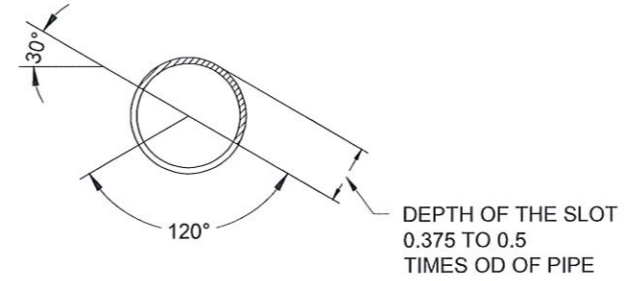
INNER AND OUTER PIPE SLOTTING DETAIL (TOP VIEW)



DETAIL OF GUIDE DRAIN




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

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 No. 99/1, JAWATTA ROAD,
 COLOMBO - 05

DESIGNER






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

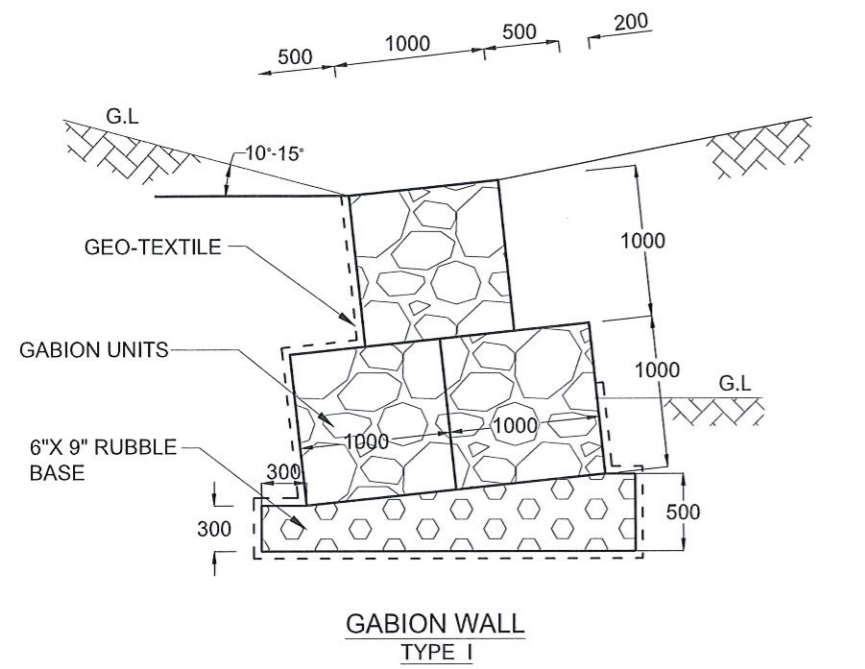
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 DERANIYAGALA KOLPING CENTER

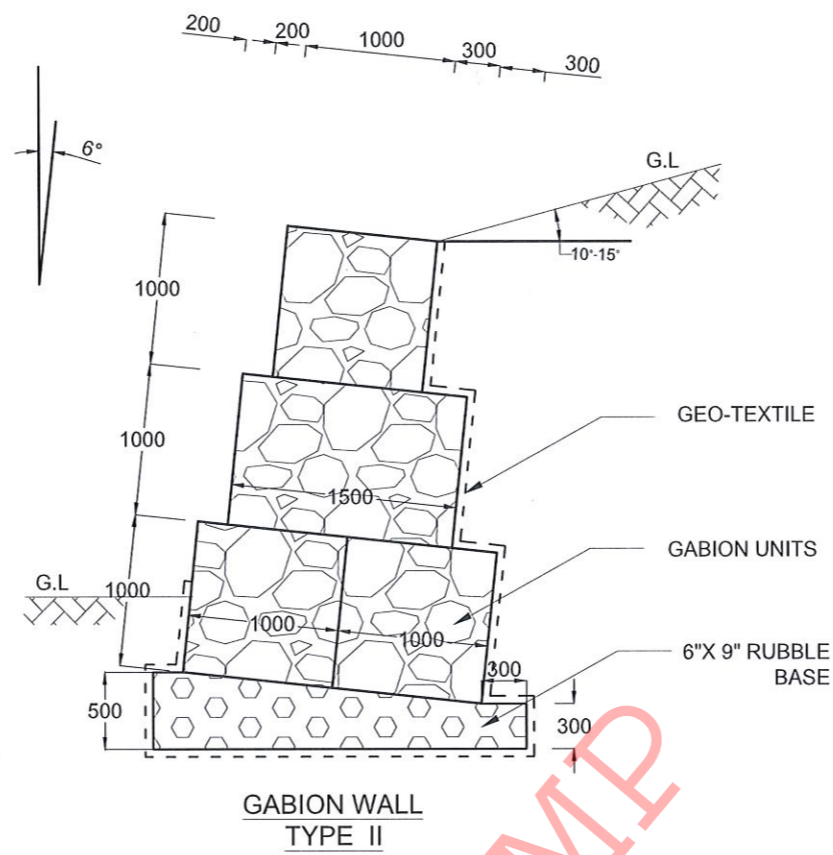
TITLE
 DETAILS OF HORIZONTAL DRAIN
 SECTIONS

SCALE	N.T.S	DATE	27.06.2022
PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/PHII/048-DC/DR-06	REVISION	00

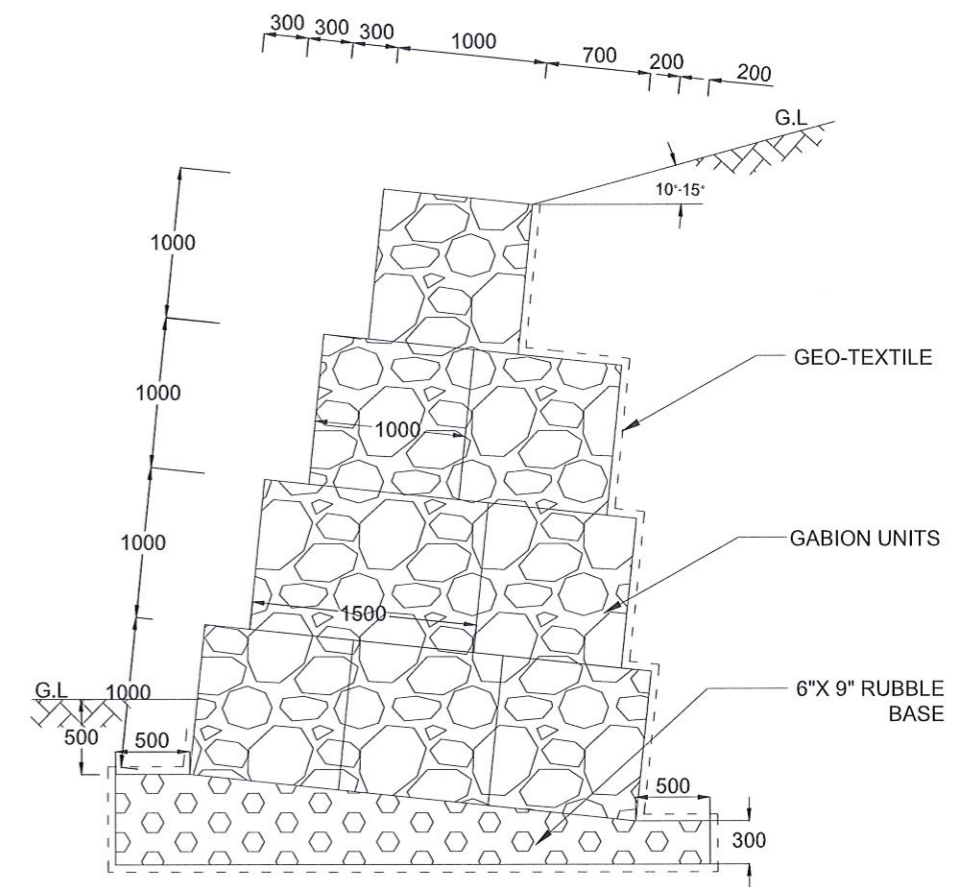
DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	M.P. AMARASINGHE	
CHECKED	B.I. KUMARAGE	
RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	



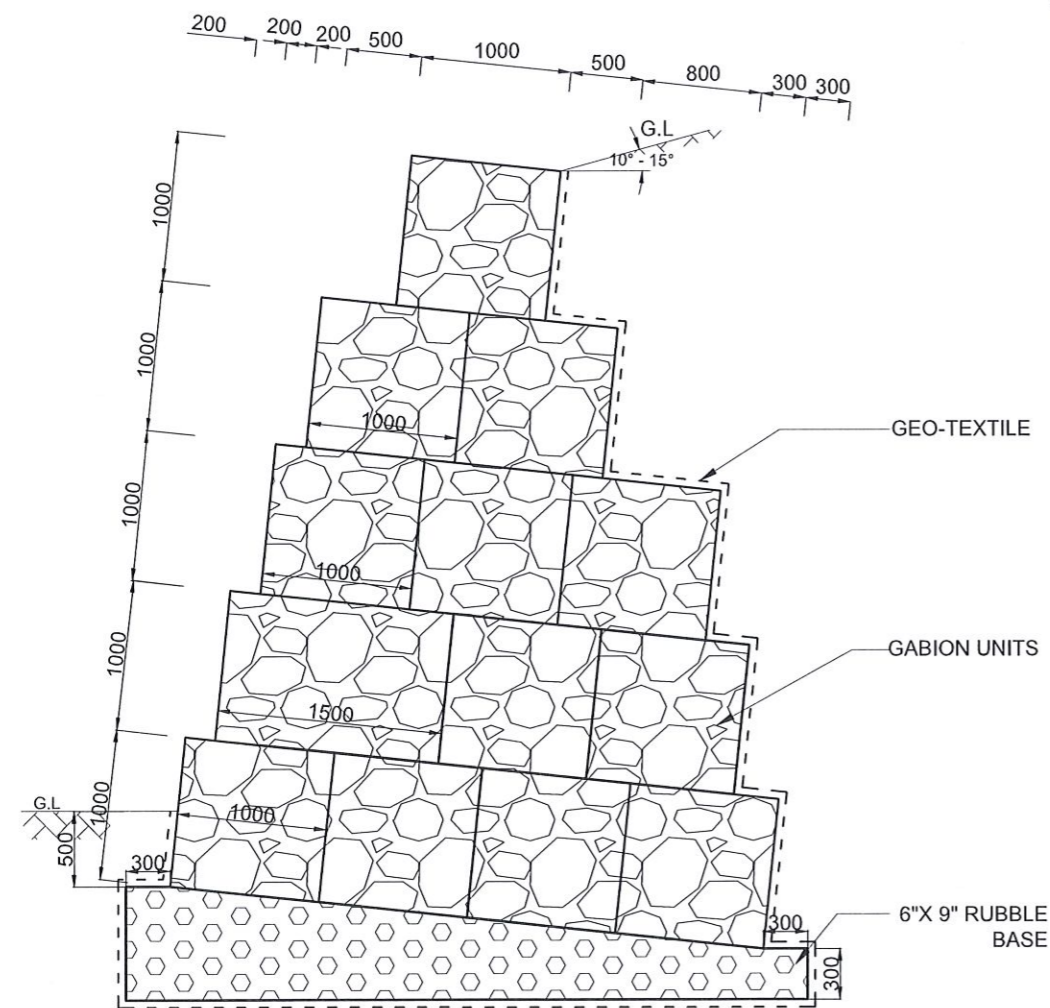
GABION WALL
TYPE I



GABION WALL
TYPE II



GABION WALL
TYPE III




GABION WALL
TYPE IV

RLVMMP

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. BACKSLOPE ANGLE , LEVEL AND FORM MAY VARY AS PER THE DESIGN AT EACH SITE.

EMPLOYER

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

DESIGNER

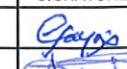




DESIGN UNIT
 NATIONAL BUILDING RESEARCH ORGANIZATION
 No. 99/1, JAWATTA ROAD,
 COLOMBO - 05

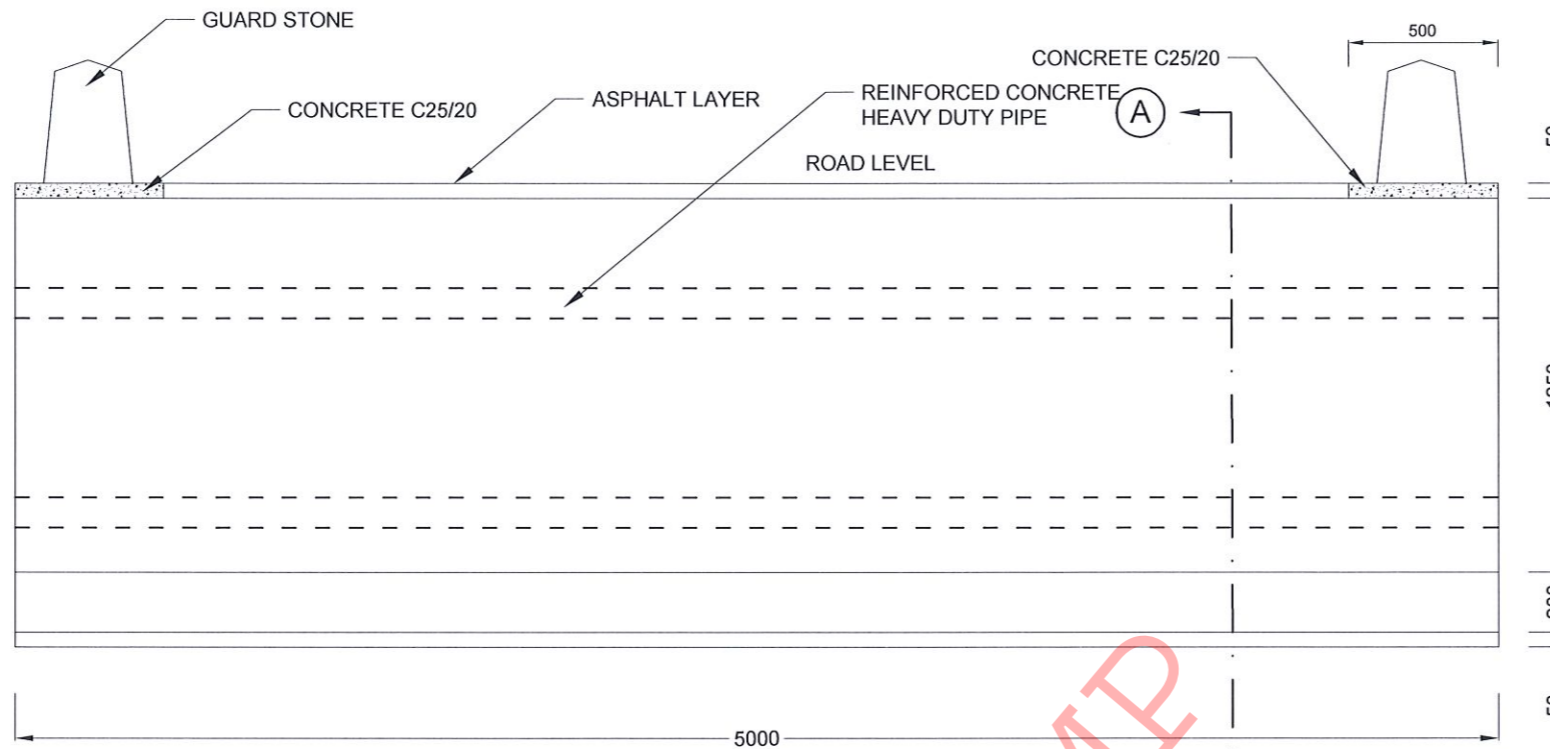
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 DERANIYAGALA KOLPING CENTER

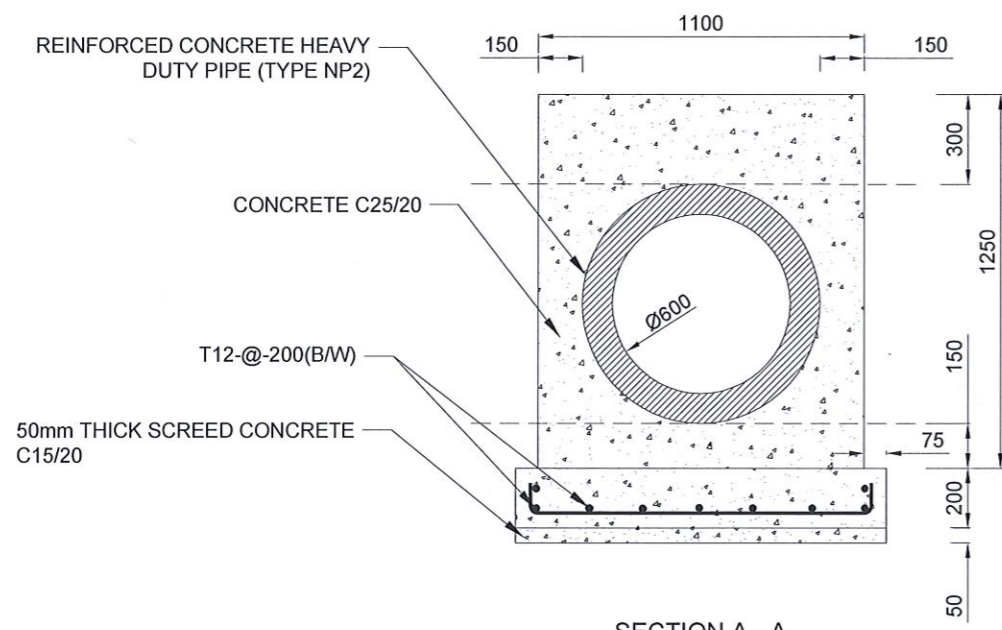
TITLE
 DETAILS OF GABION WALL

SCALE	N.T.S	DATE	27.06.2022
PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/PHI/048-DC/DR-07	REVISION	00

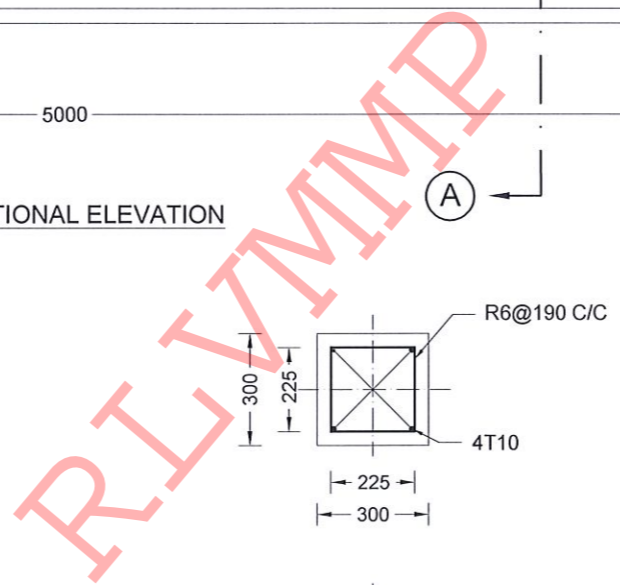
DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	M.P. AMARASINGHE	
CHECKED	B.I. KUMARAGE	
RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	



SECTIONAL ELEVATION



SECTION A - A






DETAILS OF GUARD STONE

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. REINFORCED CONCRETE HEAVY DUTY PIPE SHALL BE IN ACCORDANCE WITH REQUIREMENTS GIVEN IN SLS 452; "SRI LANKA STANDARD SPECIFICATION FOR CONCRETE NON REINFORCEMENT PRESSURE PIPE" CONDITIONS.
3. DEPTH OF EXCAVATION SHALL BE VARIED ACCORDING TO SITE CONDITIONS.

REINFORCEMENT

4. ALL BARS MARKED "T" SHALL BE HIGH YIELD DEFORMED BARS OF YIELD STRENGTH NOT LESS THAN 460N/mm².
5. 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.
6. ANCHORAGE LENGTH SHOULD BE 40X BAR DIA.
7. REINFORCEMENT BARS SHALL BE BENT ACCORDANCE WITH STANDARD SPECIFICATIONS.
8. CLEAR CONCRETE COVER FOR ALL FOUNDATION REINFORCEMENT BELOW GROUND LEVEL TO BE 40 mm.
9. 10 mm THICK EXPANSION JOINT SHALL BE INTRODUCE IN EVERY 5m INTERVAL.

EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF PUBLIC ADMINISTRATION & 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 DERANIYAGALA KOLPING CENTER	TITLE		DESCRIPTION	NAME	SIGNATURE		
								SCALE	N.T.S	DATE	27.06.2022	RECOMMENDED	Prof. S.A.S. KULATHILAKA
							PROJECT / DRAWING No.	RLVMP/WORKS/NCB/PHII/048-DC/DR-08	REVISION	00	APPROVED	K.N. BANDARA	



REFERENCE

- P - PERMENENT BUILDING
- CDN - CONCRETE DRAIN
- RDA - RDA BOUNDARY MARK
- WF - WIRE FENCE
- BT - BANK TOP
- BB - BOTTOM OF BANK
- BW - BOUNDARY WALL
- RW - RETAINING WALL
- EP - ELECTRIC POST
- WC - WATER CLOSET
- CUL - CULVERT
- G - GATE
- ST - SEPTIC TANK

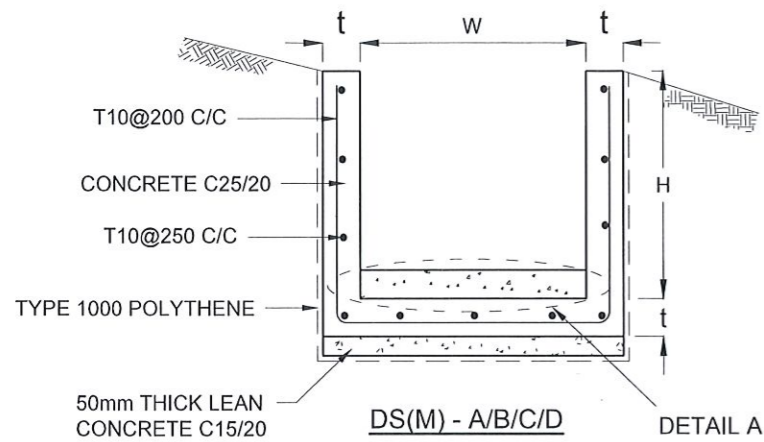
DESIGN NOTATION

- - DS (M) - A
- - DS (T) - B
- - DS (C) - A
- - - - HORIZONTAL LONG DRAIN (10m , DIA. 90 mm)
- - CATCH PIT

NOTES

1. SURFACE AND CASCADE DRAIN LOCATIONS (PATH) & LENGTHS MIGHT BE VARIED ACCORDING TO ACTUAL SITE CONDITION.
2. LOCATION OF THE HORIZONTAL DRAINS MIGHT VARY ACCORDING TO THE ACTUAL SITE CONDITION.

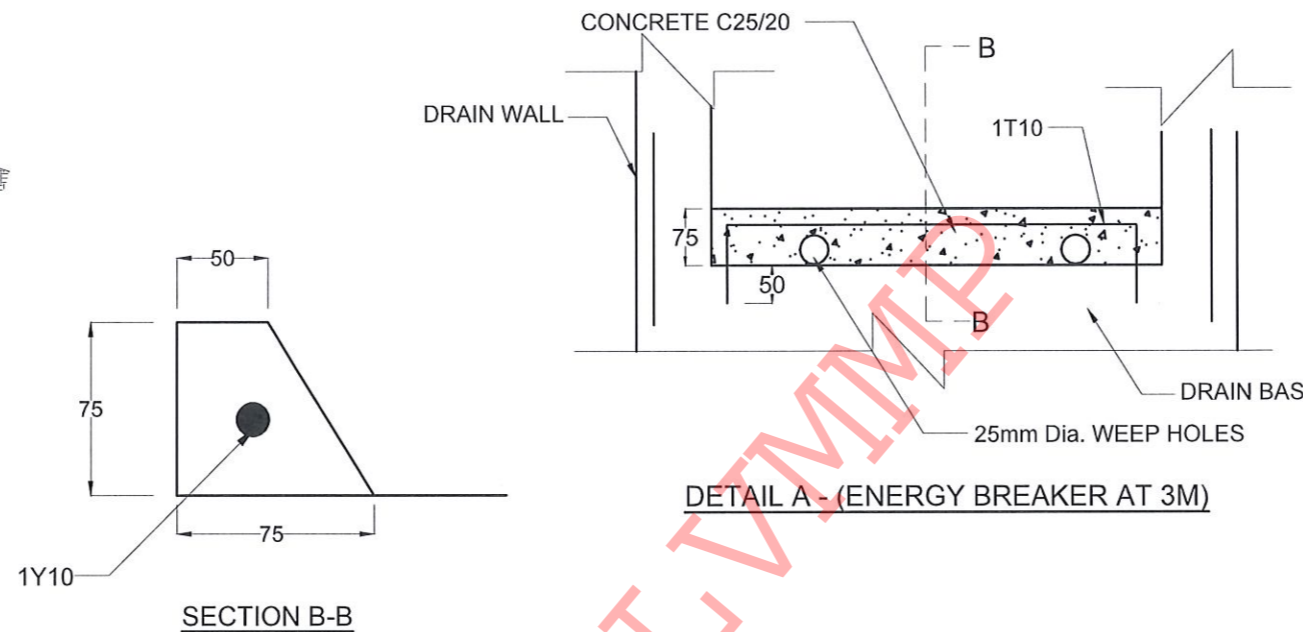
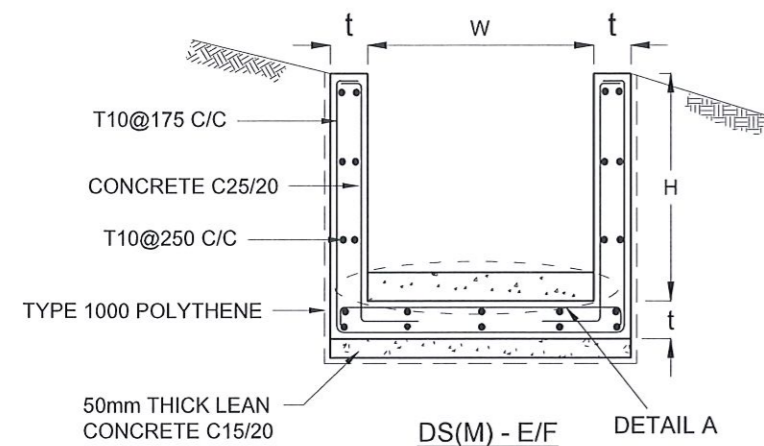
EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF NATIONAL SECURITY AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD, COLOMBO - 05	DESIGNER DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES MIYANAWITA - WIRUGAMMANAYA DERANIYAGALA	TITLE DESIGN PLAN VIEW	DESCRIPTION	NAME	SIGNATURE
									SCALE	DATE
							1:400	03.05.2022	00	
							PROJECT / DRAWING No. RLVMMP/WORKS/NCB/PH11/050-WR/DR-02		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.

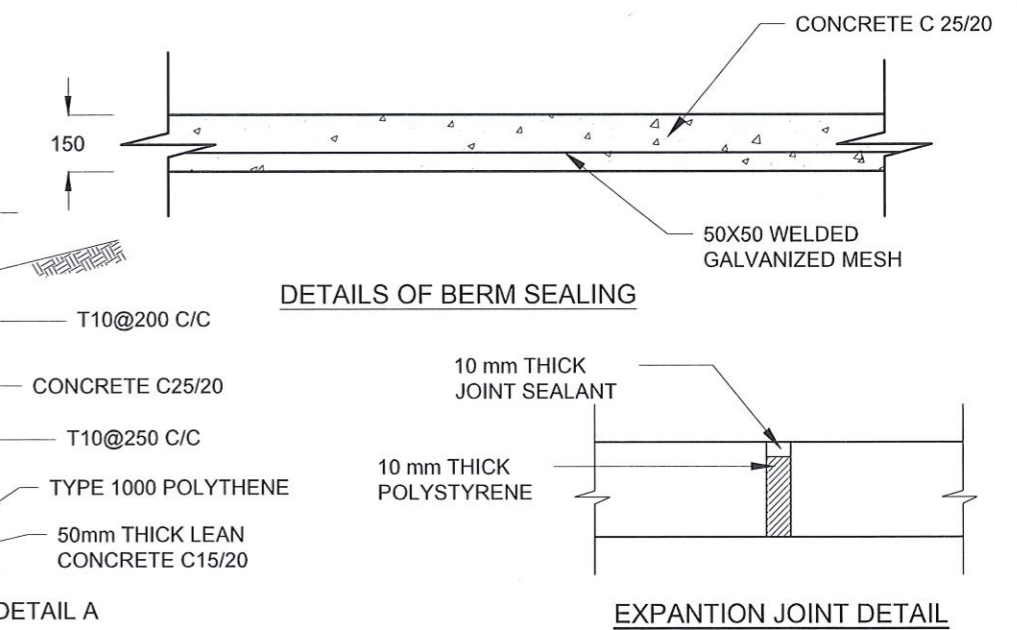
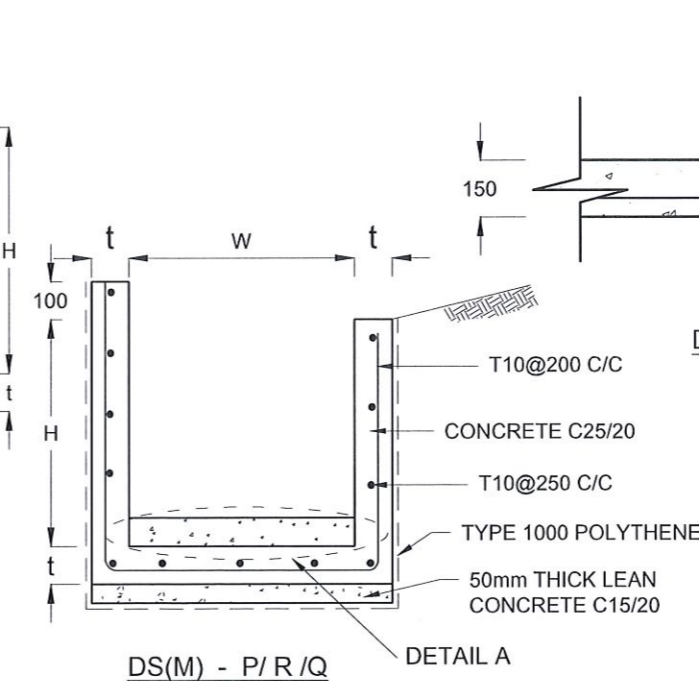
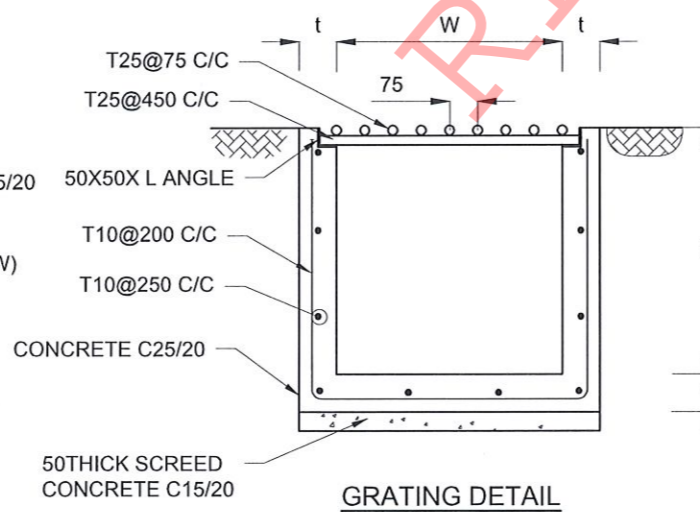
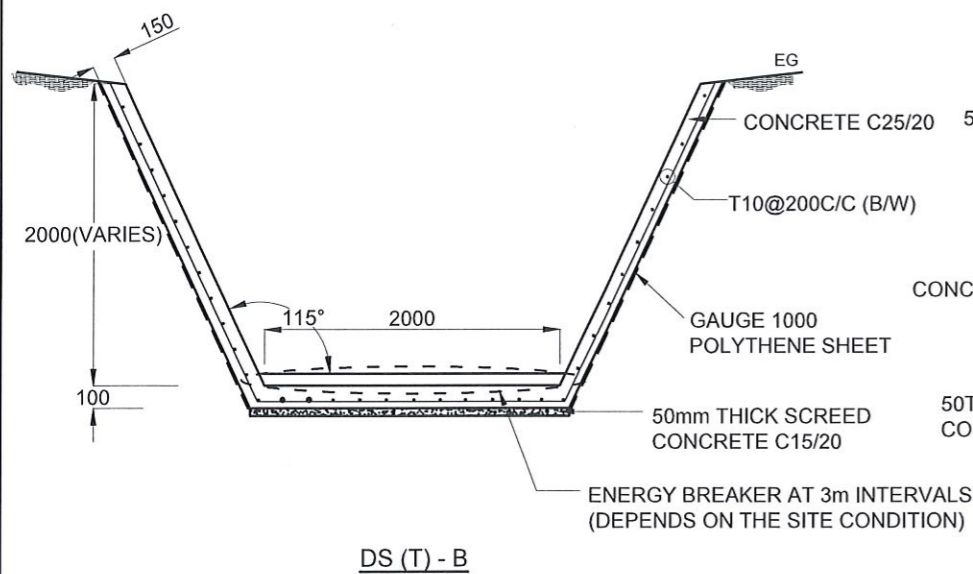


CONCRETE

- 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



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 COLOMBO - 05

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 COLOMBO - 05

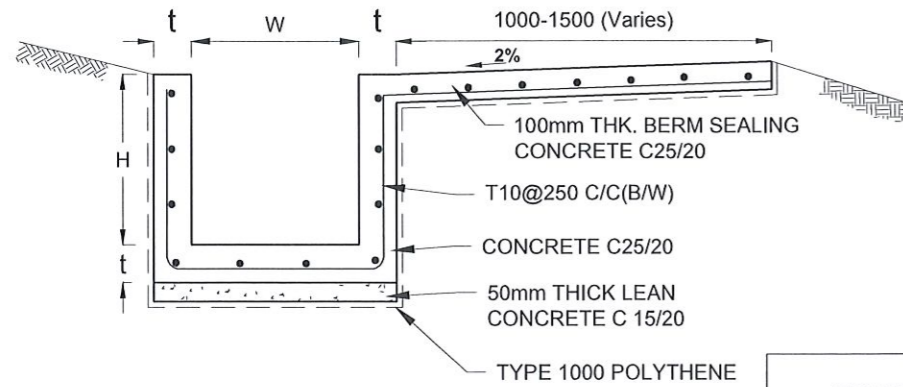
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 MIYANAWITA - WIRUGAMMANAYA
 DERANIYAGALA

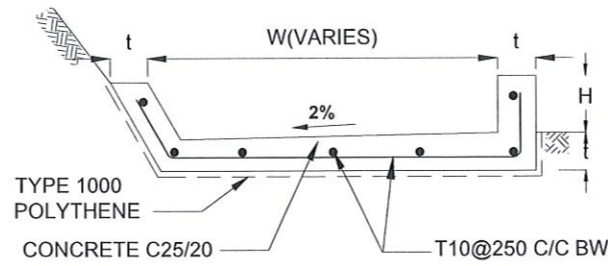
TITLE
 DETAILS OF DRAINS
 (SURFACE DRAIN -1 OF 2)

SCALE: N.T.S. DATE: 03.05.2022
 PROJECT / DRAWING No. RLVMM/WORKS/NCB/PH11/050-WR/DR-03a REVISION: 00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	<i>[Signature]</i>
DESIGNER	C. T. MAMPITIYAARACHCHI	<i>[Signature]</i>
CHECKED	B.I. KUMARAGE	<i>[Signature]</i>
RECOMMENDED	Prof. S.A.S. KULATHILAKA	<i>[Signature]</i>
APPROVED	K.N. BANDARA	<i>[Signature]</i>



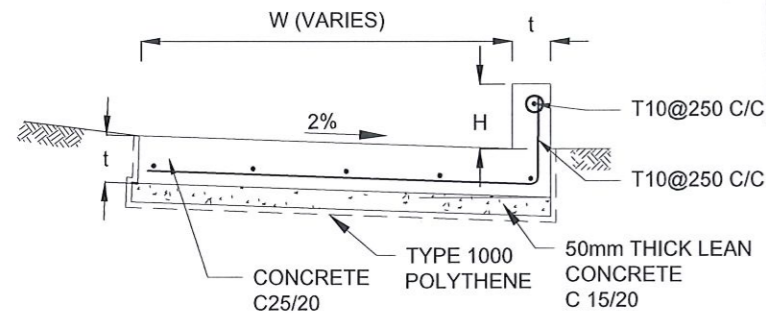
DS (B) - (TYPE I)



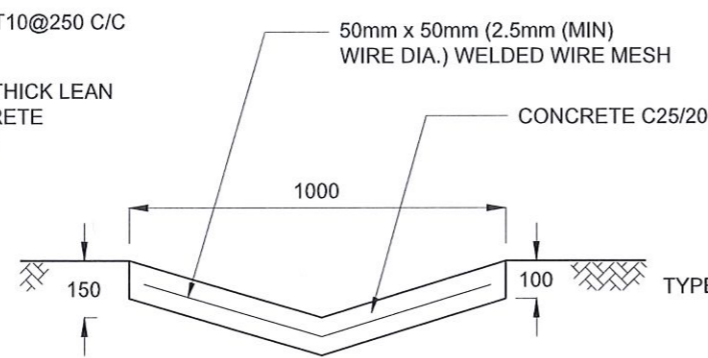
DS (B) - (TYPE II)

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 (B) - D	1500	150	100
DS (B) - E	2000	150	100

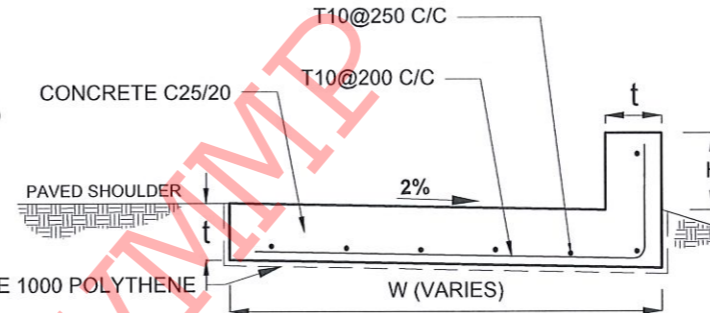
DRAIN TYPE	W (mm)	H (mm)	t (mm)
DS (K) - A	1000	200	100
DS (K) - B	1000	300	100
DS (K) - C	1150	200	200



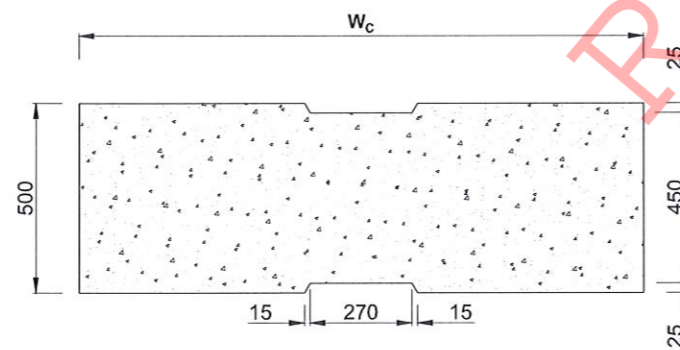
DS (K) - TYPE I



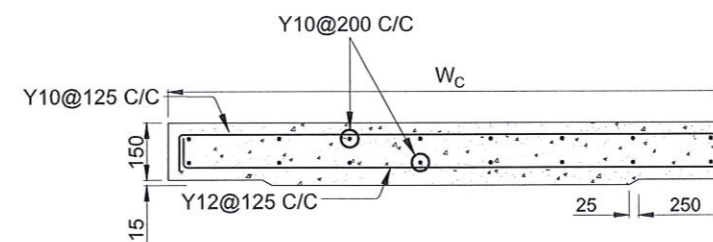
DS (D) - A (DISH DRAIN)



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	600	150
TYPE II	800	800	150

NOTES

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

CONCRETE

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

REINFORCEMENT

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

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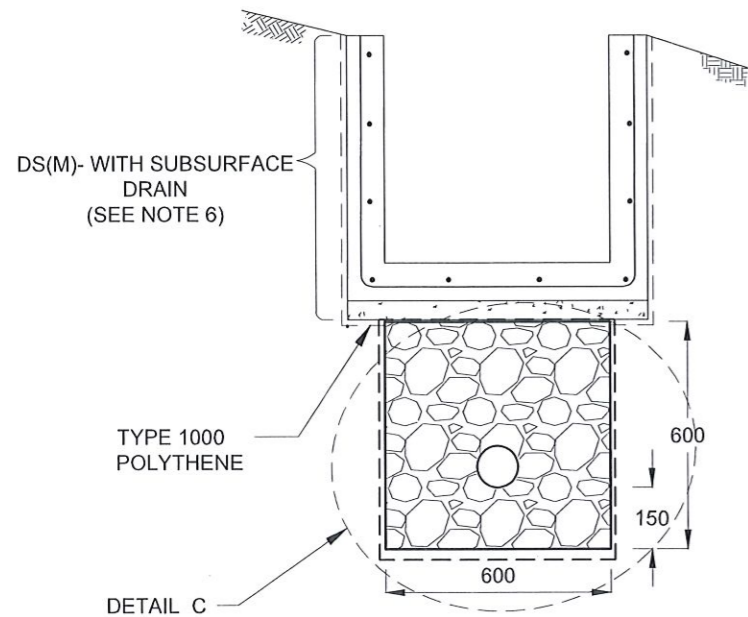
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
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 DERANIYAGALA

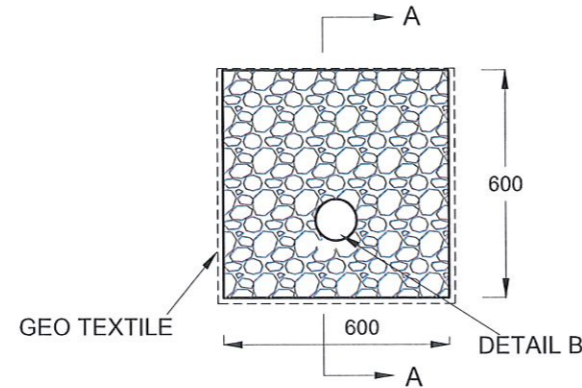
TITLE
 DETAILS OF DRAINS
 (SURFACE DRAIN - 2 OF 2)

SCALE | N.T.S | DATE | 03.05.2022
 PROJECT / DRAWING No. | RLVMMP/WORKS/NCB/PHII/050-WR/DR-03b | REVISION | 00

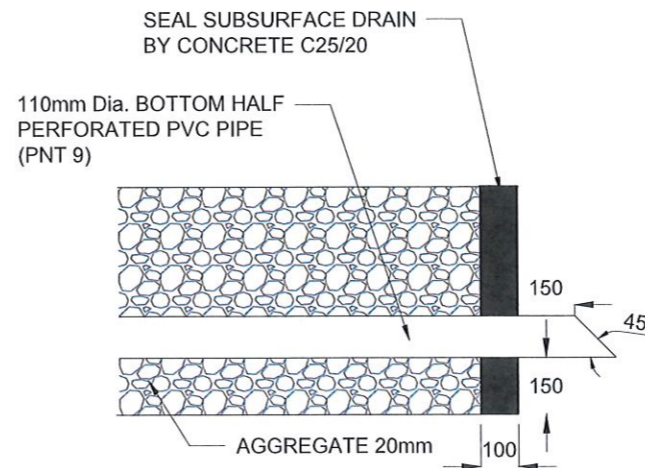
DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	C. T. MAMPITIYAARACHCHI	
CHECKED	B.I. KUMARAGE	
RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	



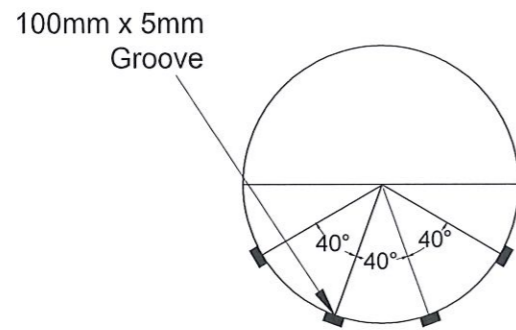
SUBSURFACE DRAIN [DS (S) -A]



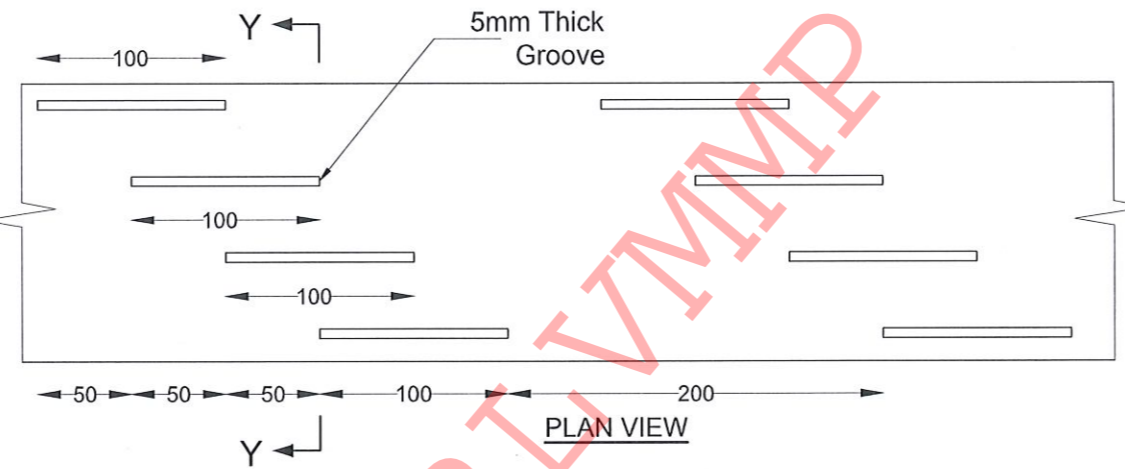
DETAIL C / DS (S) -A



SECTION A-A (OUTLET DETAIL SUBSURFACE DRAIN)

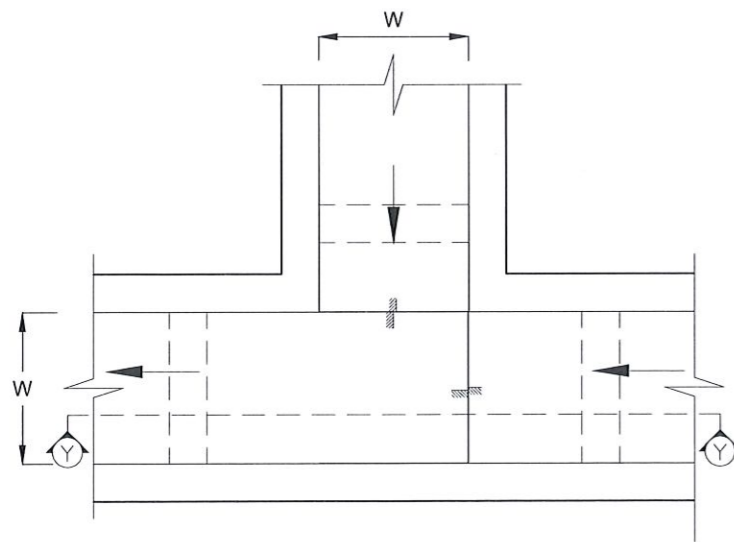


SECTION Y - Y

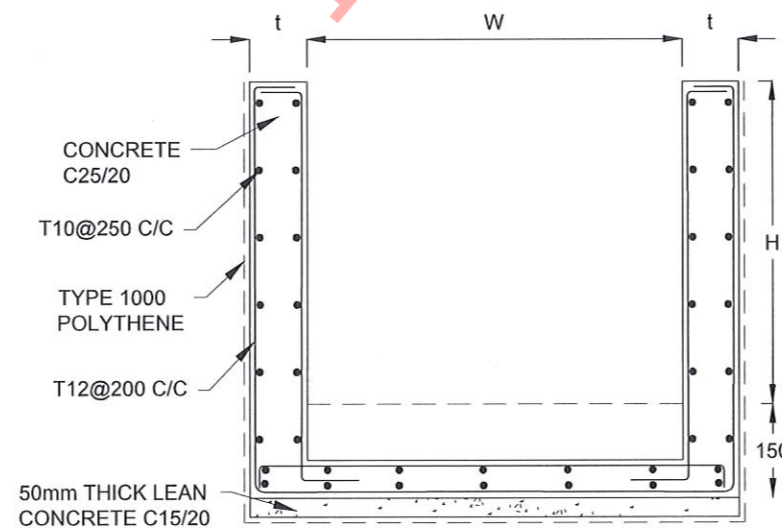


PLAN VIEW

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



PLAN VIEW OF CATCH PIT (CP)



SECTION Y-Y (CP- R)

NOTES

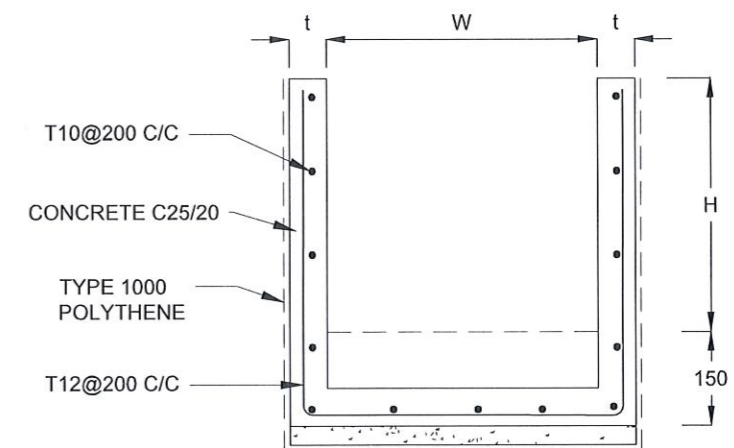
1. W,H,t ; SHALL BE THE SAME AS RESPECTIVE DRAIN SECTION.
2. CP - R SHALL BE USED WHERE H > = 900mm
3. DEPTH OF EXCAVATION MAY VARY ACCORDING TO SITE CONDITIONS.
4. DOWELS SHALL BE INSTALLED ACCORDING TO THE GROUND CONDITIONS AS INSTRUCTED BY THE ENGINEER.
5. 10 mm THICK EXPANSION JOINT SHALL BE INTRODUCED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

CONCRETE

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

REINFORCEMENT

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



SECTION Y - Y

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

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

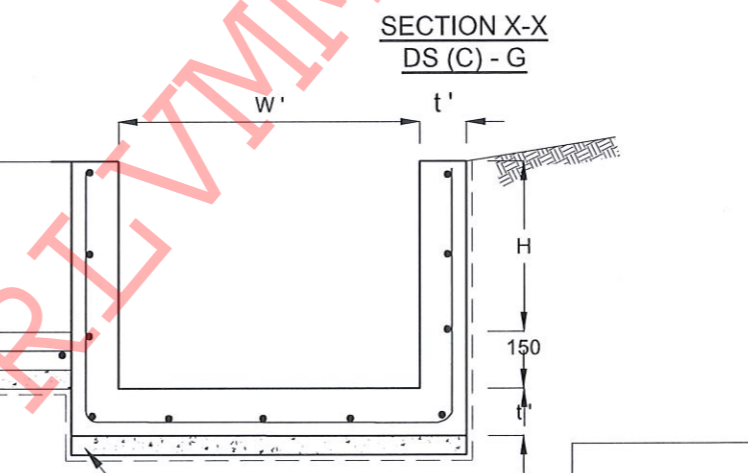
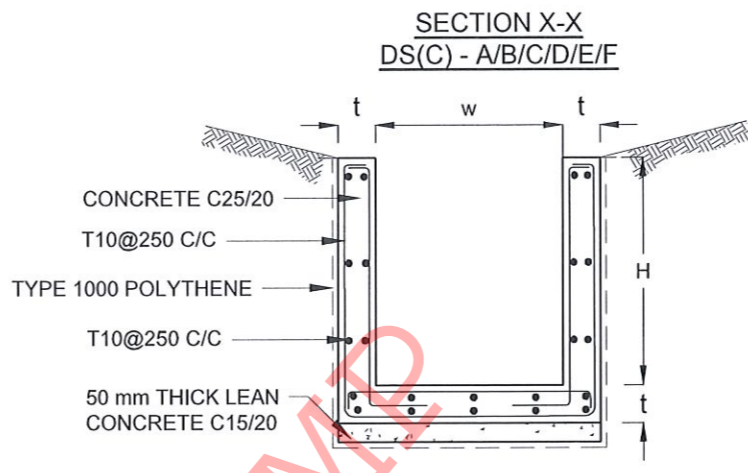
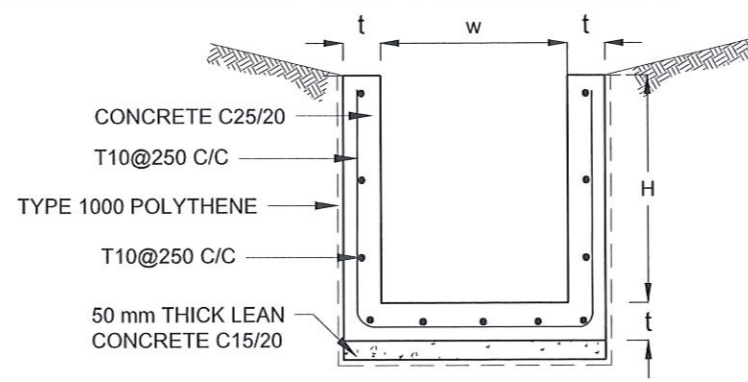
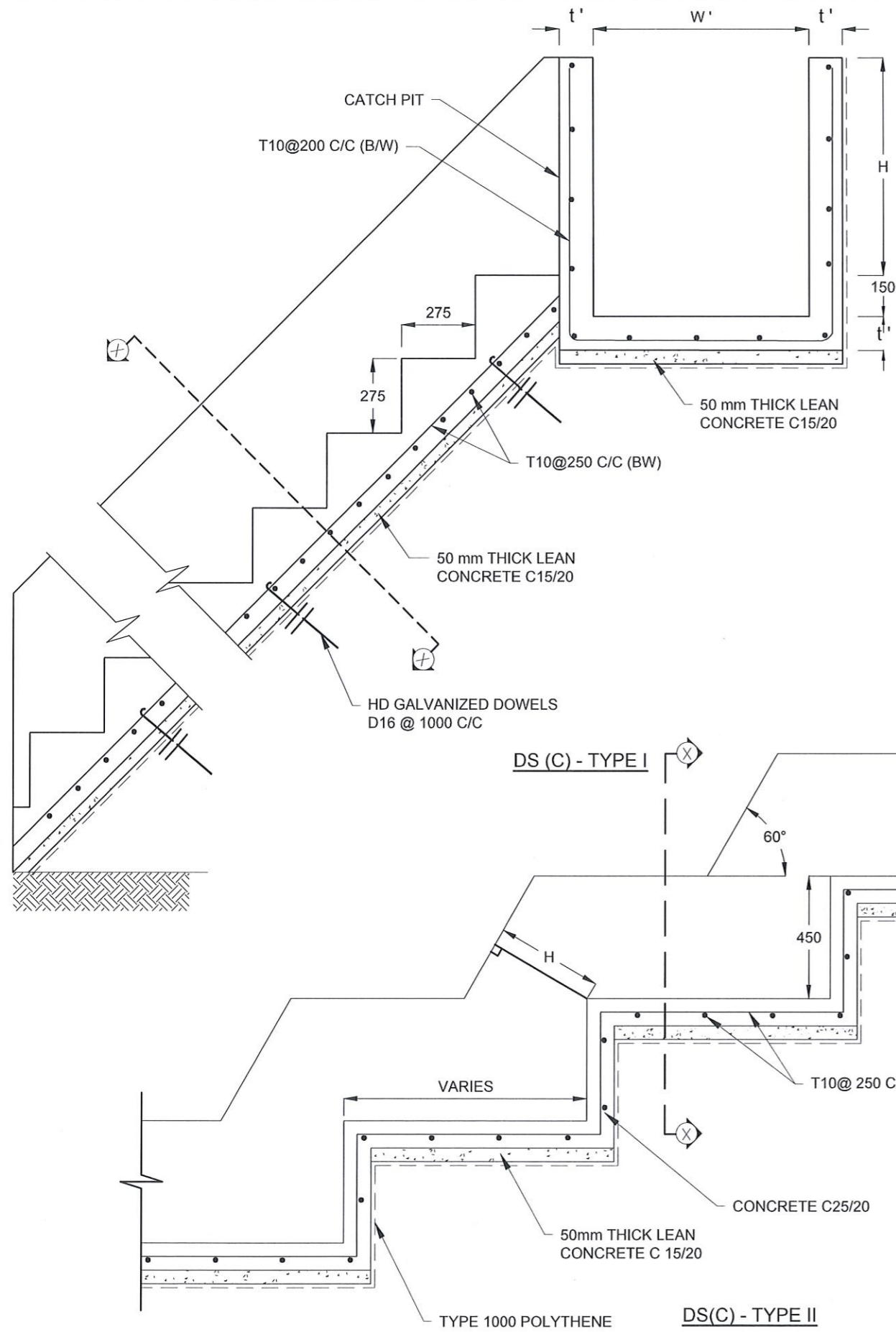
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 MIYANAWITA - WIRUGAMMANAYA
 DERANIYAGALA

TITLE
 DETAILS OF DRAINS
 (SUBSURFACE DRAIN AND CATCHPIT)

SCALE | N.T.S | DATE | 03.05.2022
 PROJECT / DRAWING No. | RLVMP/WORKS/NCB/PHII/050-WR/DR-03c | REVISION | 00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	<i>[Signature]</i>
DESIGNER	C. T. MAMPITIYAARACHCHI	<i>[Signature]</i>
CHECKED	B.I. KUMARAGE	<i>[Signature]</i>
RECOMMENDED	Prof. S.A.S. KULATHILAKA	<i>[Signature]</i>
APPROVED	K.N. BANDARA	<i>[Signature]</i>



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
DS (C) - G	1200	1000	125	1300	125

EMPLOYER

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

DESIGNER

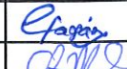




 DESIGN UNIT
 NATIONAL BUILDING RESEARCH ORGANIZATION
 No. 99/1, JAWATTA ROAD,
 COLOMBO - 05

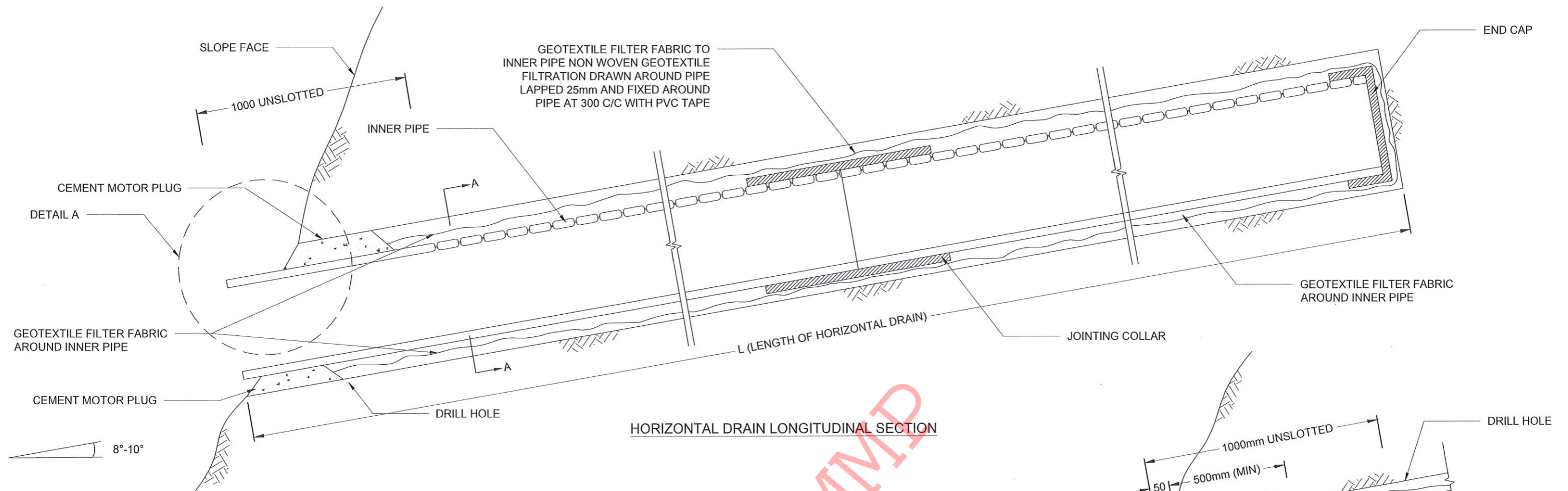
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 MIYANAWITA - WIRUGAMMANAYA
 DERANIYAGALA

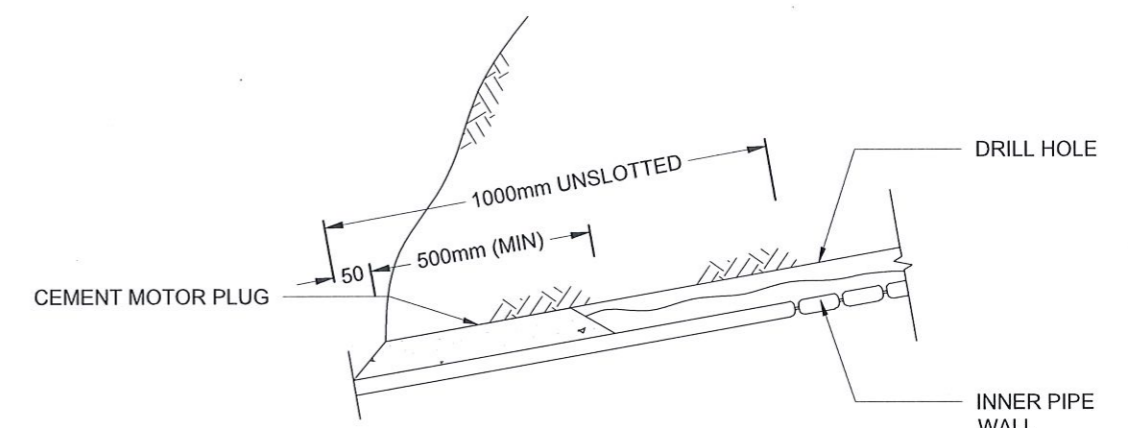
TITLE
 DETAILS OF DRAINS
 (CASCADE DRAIN)

SCALE	N.T.S	DATE	03.05.2022
PROJECT / DRAWING No.	RLVMP/WORKS/NCB/PHI/050-WR/DR-03d	REVISION	00

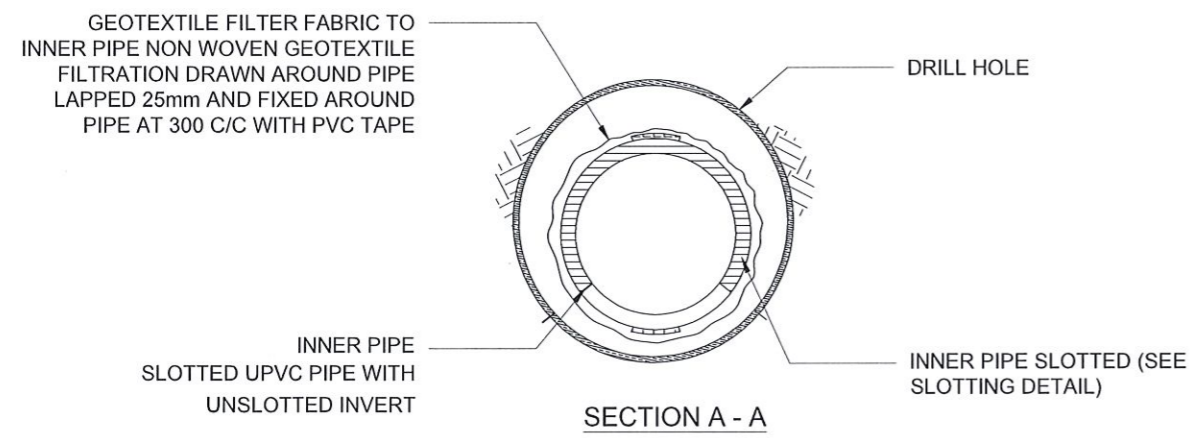
DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	C. T. MAMPITIYAARACHCHI	
CHECKED	B.I. KUMARAGE	
RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	



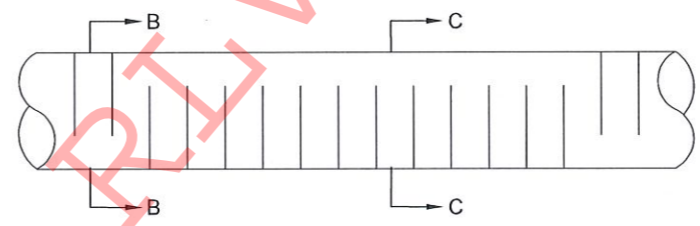
HORIZONTAL DRAIN LONGITUDINAL SECTION



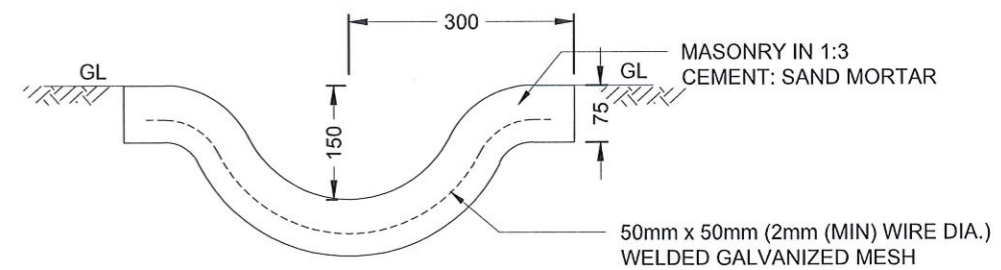
DETAIL A



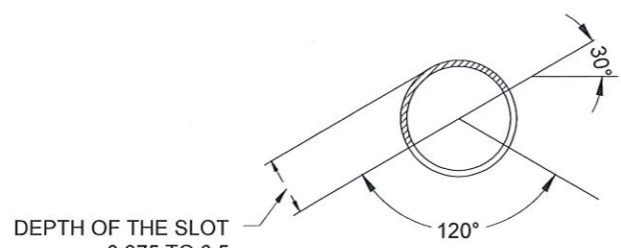
SECTION A - A



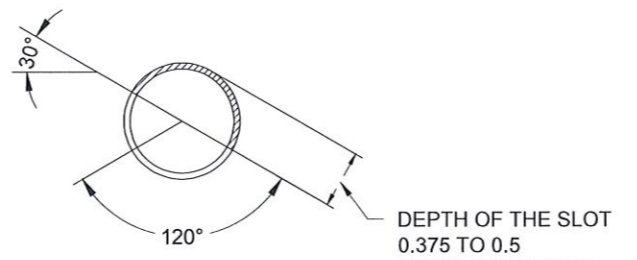
INNER AND OUTER PIPE SLOTTING DETAIL (TOP VIEW)



DETAIL OF GUIDE DRAIN




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

DESIGNER

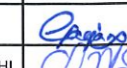
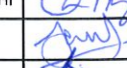

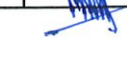
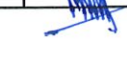
DESIGN UNIT
 NATIONAL BUILDING RESEARCH ORGANIZATION
 No. 99/1, JAWATTA ROAD,
 COLOMBO - 05

REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 MIYANAWITA - WIRUGAMMANAYA
 DERANIYAGALA

TITLE
 DETAILS OF HORIZONTAL DRAIN
 SECTIONS

SCALE	N.T.S	DATE	03.05.2022
PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/PH11/050-WR/DR-04	REVISION	00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	C. T. MAMPITIYAARACHCHI	
CHECKED	B.I. KUMARAGE	
RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	

REFERENCE

- P - PERMENT BUILDING
- CDN - CONCRETE DRAIN
- RDA - RDA BOUNDARY MARK
- BO - BOULDER
- WF - WIRE FENCE
- MW - MASONRY WALL
- BT - BANK TOP
- BB - BOTTOM OF BANK
- BW - BOUNDARY WALL
- RW - RETAINING WALL
- EP - ELECTRIC POST
- WC - WATER CLOSET
- CUL - CULVERT
- G - GATE
- ST - SEPTIC TANK



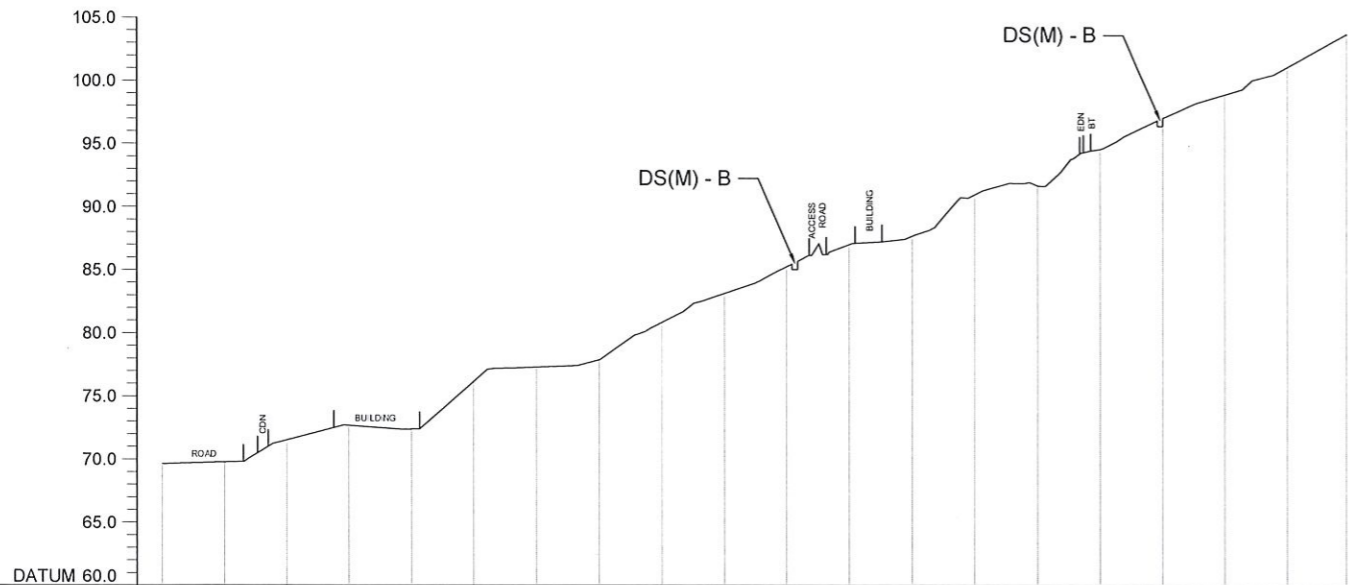
DESIGN NOTATION

- DS (M) - B
- DS (M) - C
- BERM SEALING
- DS (C) - B
- CATCH PIT
- PROPOSED CULVERT
- RESTING TYPE RETAINING WALL (4m)

NOTES

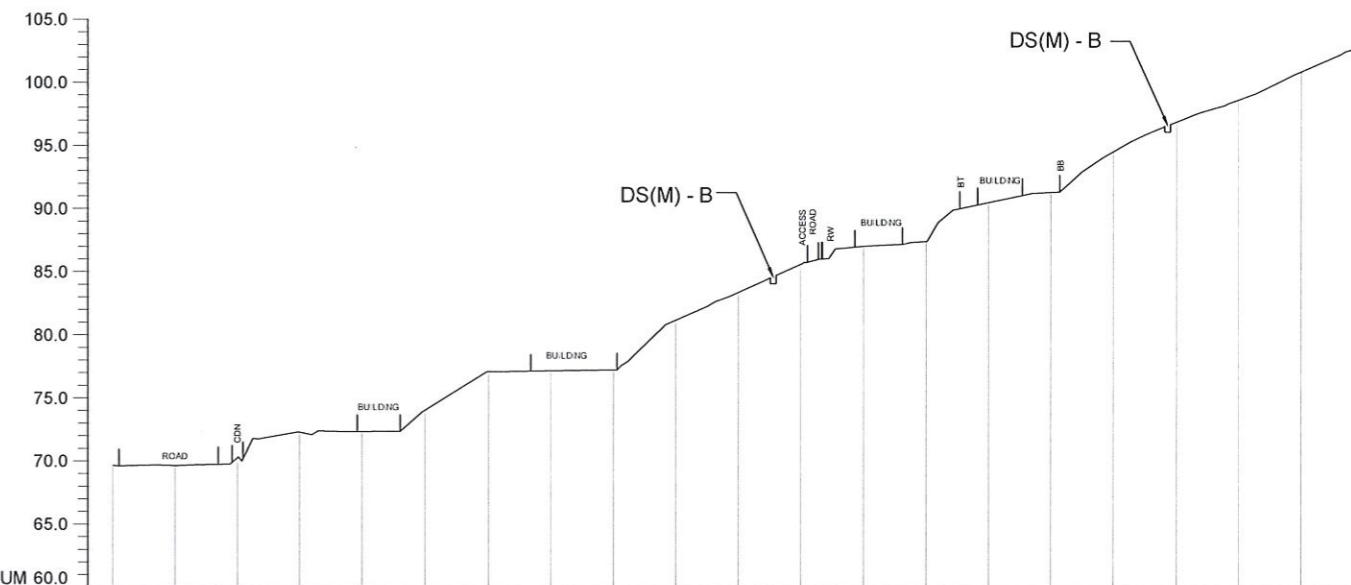
1. SURFACE AND CASCADE DRAIN LOCATIONS (PATH) & LENGTHS MIGHT BE VARIED ACCORDING TO ACTUAL SITE CONDITION.
2. LOCATION OF THE CATCHPITS MIGHT BE VARIED ACCORDING TO THE ACTUAL SITE CONDITION.

EMPLOYER DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF NATIONAL SECURITY AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION 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 JATHIKA NIWASA SITE DEHIOWITA	TITLE DESIGN PLAN VIEW	DESCRIPTION	NAME	SIGNATURE
										DRAWN
								DESIGNER	M.P. AMARASINGHE	
								CHECKED	B.I. KUMARAGE	
								RECOMMENDED	Prof. S.A.S. KULATHILAKA	
								APPROVED	K.N. BANDARA	



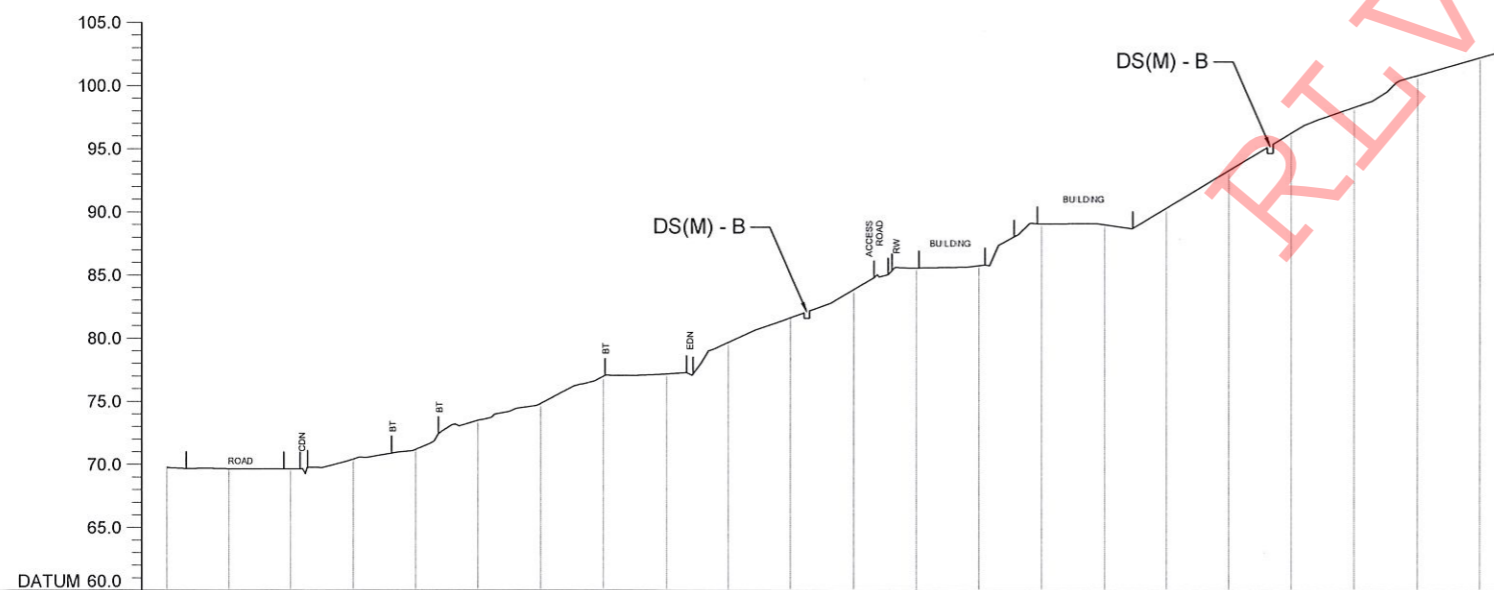
GROUND LEVEL (m)	69.642	69.763	71.512	72.664	72.387	76.159	77.303	77.900	80.846	83.150	85.270	87.058	87.722	90.995	91.686	94.591	97.053	98.927	101.117	103.721
DISTANCE (m)		5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	100.00

CS01



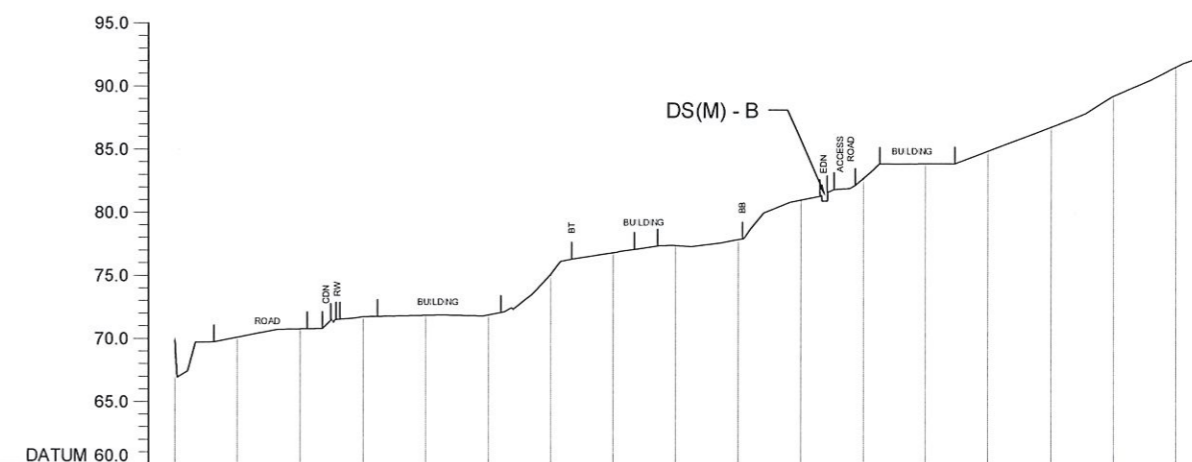
GROUND LEVEL (m)	69.646	70.275	72.321	72.374	74.057	77.144	77.199	77.293	81.255	83.444	85.684	87.115	87.485	90.591	91.397	94.633	96.990	98.735	100.979	99.36	
DISTANCE (m)	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00	99.36

CS02




GROUND LEVEL (m)	69.754	69.667	69.665	70.440	71.218	73.500	74.835	77.004	77.195	79.704	81.669	83.898	85.620	85.804	89.112	89.043	90.356	93.341	96.326	98.377	100.891	102.317	102.955	
DISTANCE (m)		5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00	100.00	105.00		

CS03



GROUND LEVEL (m)	70.096	70.772	71.739	71.863	71.912	75.143	76.859	77.409	77.890	81.043	82.753	83.913	84.931	86.843	88.300	91.593	92.438
DISTANCE (m)	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00

CS04

EMPLOYER

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





DESIGNER

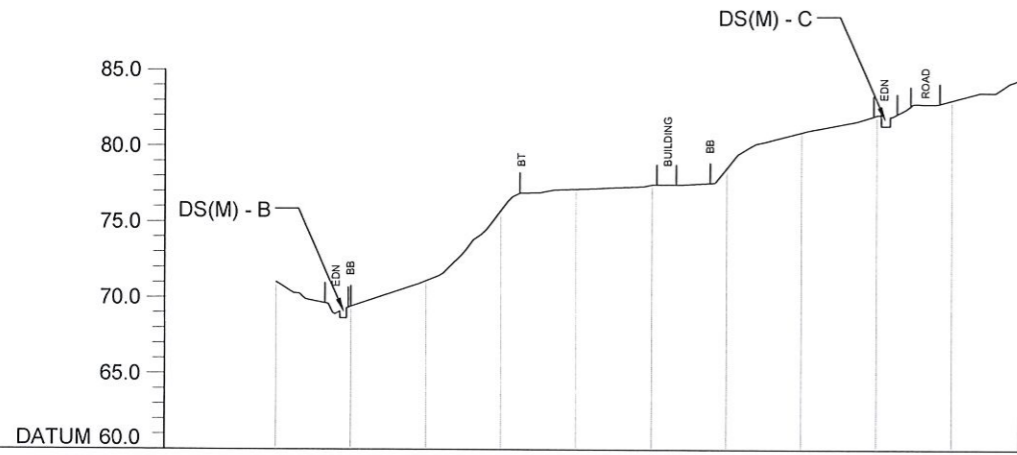
 DESIGN UNIT
 NATIONAL BUILDING RESEARCH ORGANIZATION
 No. 99/1, JAWATTA ROAD,
 COLOMBO - 05

REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 JATHIKA NIWASA SITE
 DEHIOWITA

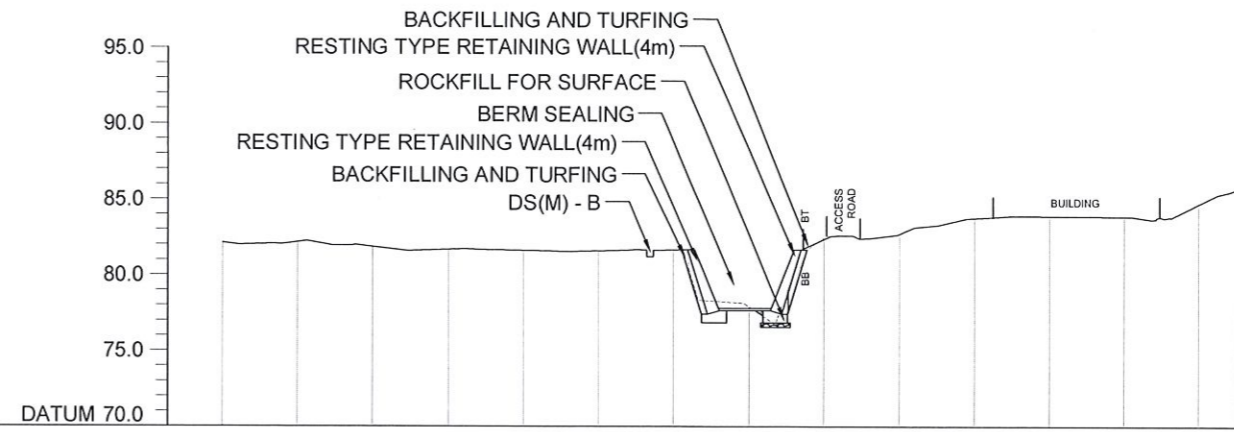
TITLE
 DESIGN CROSS SECTION
 SCALE 1:600
 DATE 27.04.2022
 PROJECT / DRAWING No. RLVMMP/WORKS/NCB/PHII/097-JN/DR-04a
 REVISION 00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	M.P. AMARASINGHE	
CHECKED	B.I. KUMARAGE	
RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	



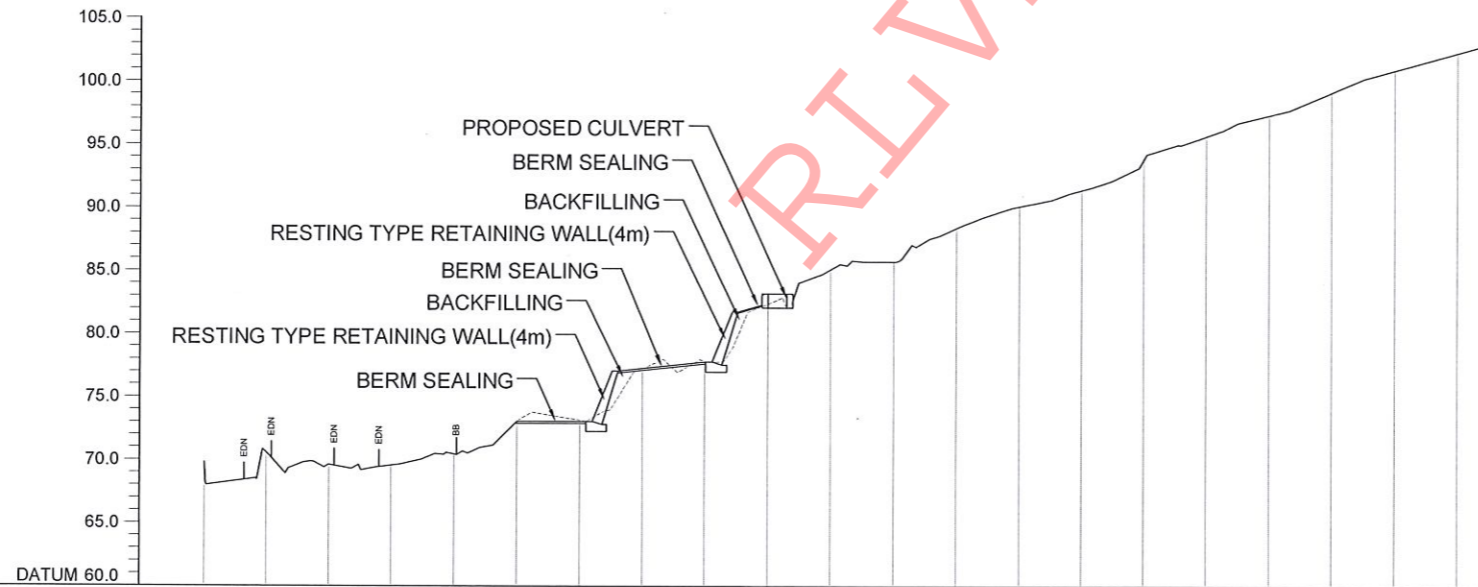
GROUND LEVEL (m)	71.009	69.440	71.124	75.778	77.172	77.482	78.581	80.954	82.088	83.087	
DISTANCE (m)		5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	49.47

CS05



GROUND LEVEL (m)	82.111	82.163	81.845	81.679	81.616	81.581	81.661	77.909	82.451	82.722	83.779	83.901	83.868	84.722	
DISTANCE (m)		5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	67.67

CS06




GROUND LEVEL (m)	69.781	70.540	69.605	69.554	70.433	73.033	73.141	77.227	77.829	82.374	85.107	85.727	88.415	90.136	91.426	93.883	95.719	97.373	99.203	100.960	102.346	103.008	
DISTANCE (m)		5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00	100.00		

CS07

NOTES

- ROCKFILL THICKNESS MAY VARY AS REQUIRED FOR FILLING

EMPLOYER

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

DESIGNER

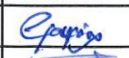




 DESIGN UNIT
 NATIONAL BUILDING RESEARCH ORGANIZATION
 No. 99/1, JAWATTA ROAD,
 COLOMBO - 05

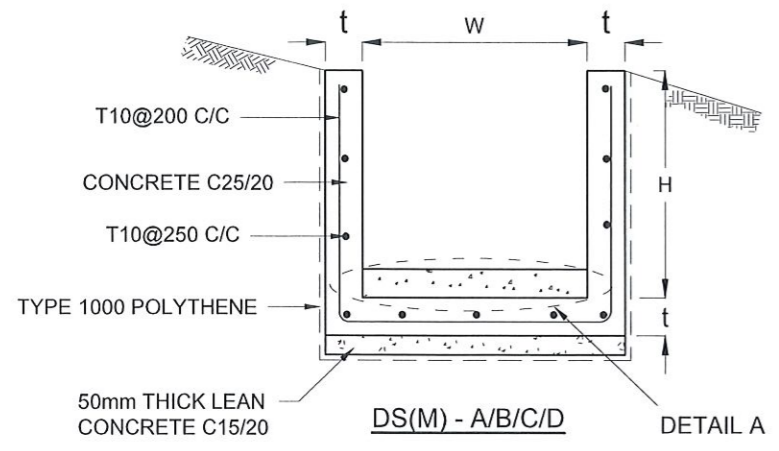
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 JATHIKA NIWASA SITE
 DEHIOWITA

TITLE
 DESIGN CROSS SECTION

SCALE	1:500, 1:600	DATE	27.04.2022
PROJECT / DRAWING No.	RLVMP/WORKS/NCB/PH11/097-JN/DR-04b	REVISION	00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	M.P. AMARASINGHE	
CHECKED	B.I. KUMARAGE	
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

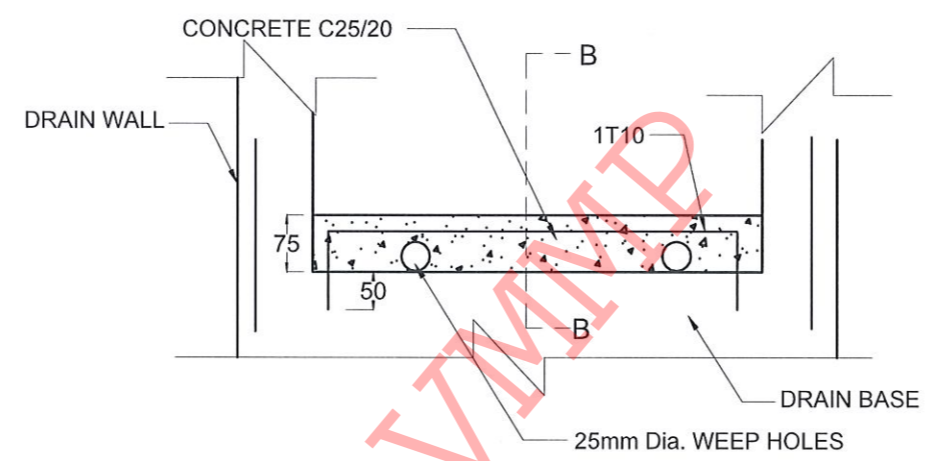
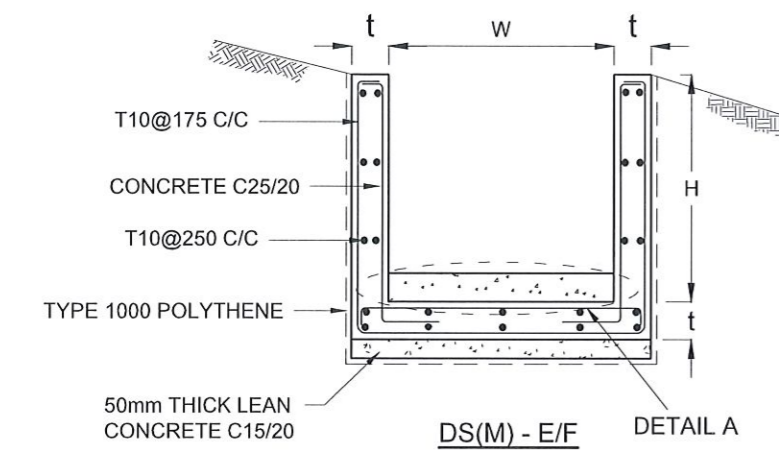
- DEPTH OF EXCAVATION MAY VARY ACCORDING TO SITE CONDITIONS.
- STEPS SHALL BE CONSTRUCTED AT SURFACE DRAIN ON SLOPING GROUND ACCORDING TO THE SITE CONDITIONS AS INSTRUCTED BY THE ENGINEER.
- ENERGY BREAKERS SHALL BE CONSTRUCTED AT THE STEEP DRAIN SEGMENTS AS PER THE INSTRUCTIONS OF THE ENGINEER.
- DOWELS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

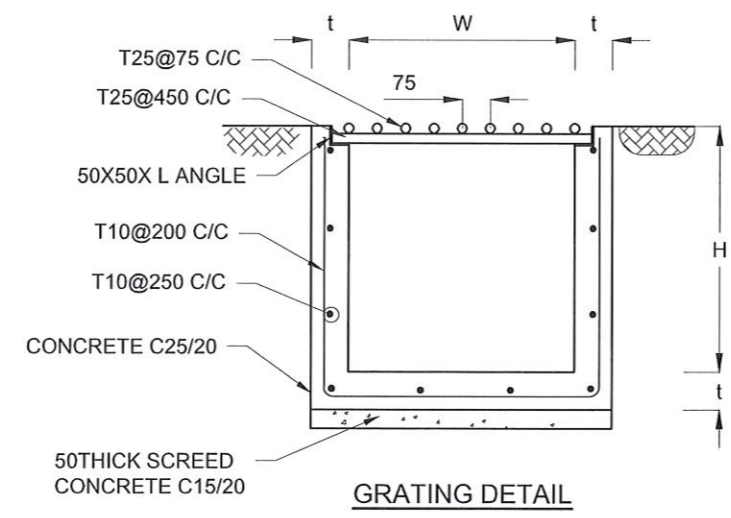
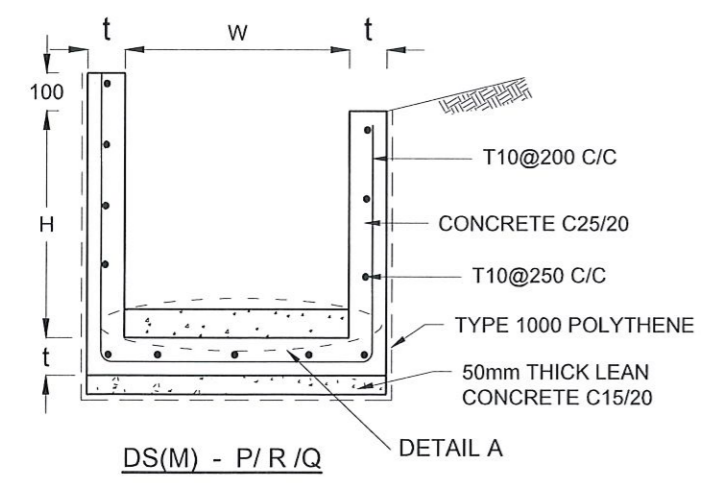
- USE FOLLOWING CONCRETE GRADES FOR STRUCTURE
 - [a] SCREED - C. 15/20
 - [b] WALLS / BASE / ENERGY BREAKERS - C. 25/20

REINFORCEMENT

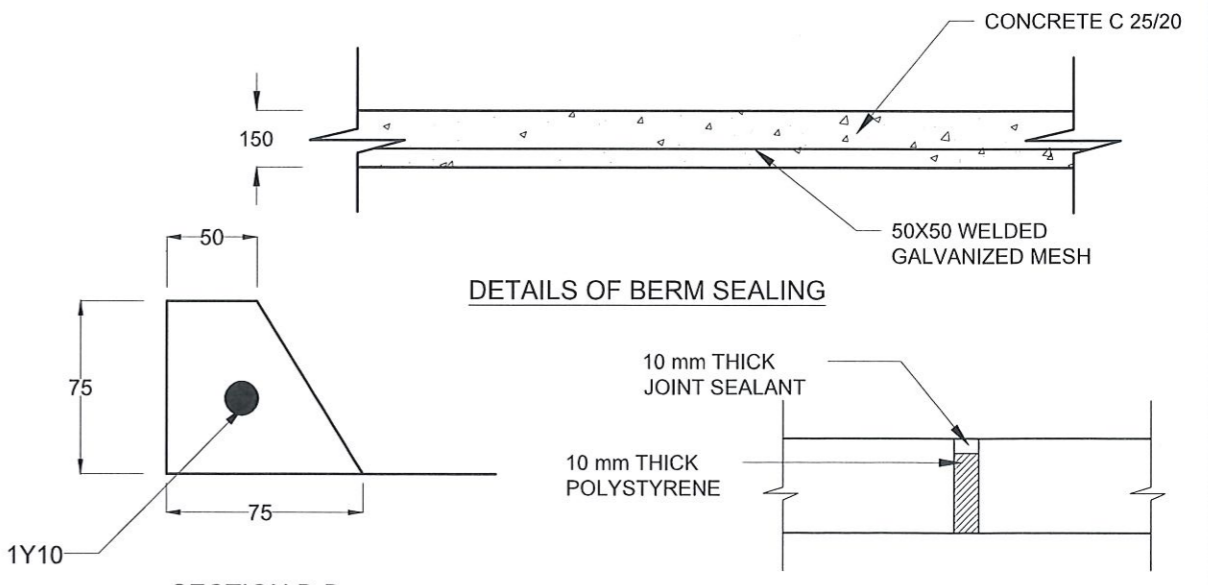
- ALL BARS MARKED "T" SHALL BE HIGH YIELD DEFORMED BARS OF YIELD STRENGTH NOT LESS THAN 460N/mm².
- BARS OF CUT LENGTH LARGER THAN THE SUPPLIED LENGTH TO BE LAPPED FOR A LENGTH OF 50 x BAR DIA. AND LAPPING SHOULD BE STAGGERED.
- ANCHORAGE LENGTH SHOULD BE 40X BAR DIA.
- REINFORCEMENT BARS SHALL BE BENT 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)



GRATING DETAIL



DETAILS OF BERM SEALING

SECTION B-B

EXPANSION JOINT DETAIL

EMPLOYER

DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
STATE MINISTRY OF NATIONAL SECURITY AND DISASTER MANAGEMENT
NATIONAL BUILDING RESEARCH ORGANISATION
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

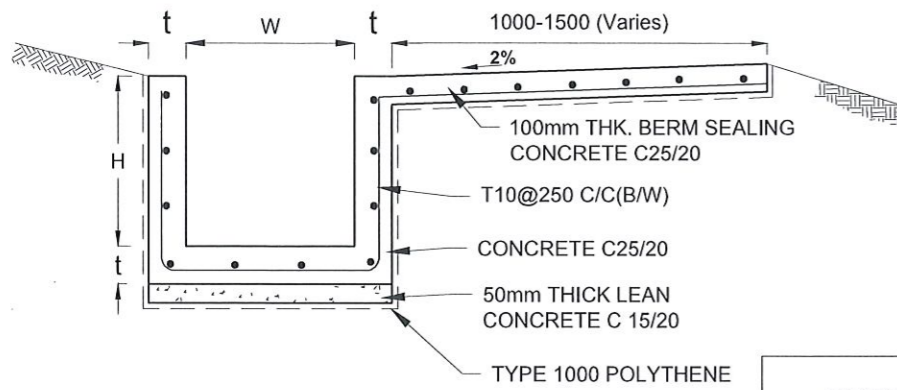
REDUCTION OF LANDSLIDE
VULNERABILITY BY MITIGATION MEASURES
JATHIKA NIWASA SITE
DEHIOWITA

TITLE

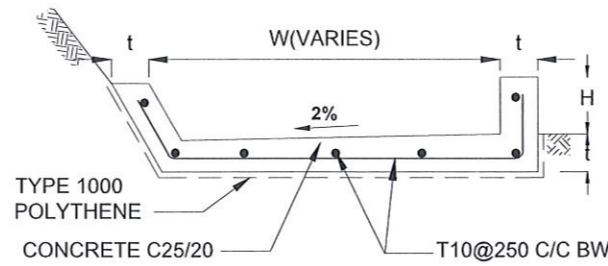
DETAILS OF DRAINS
(SURFACE DRAIN - 1 OF 2)

SCALE N.T.S. DATE 27.04.2022
PROJECT / DRAWING No. RLVMP/WORKS/NCB/PH11/097-JN/DR-05a REVISION 00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	M.P. AMARASINGHE	
CHECKED	B.I. KUMARAGE	
RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	



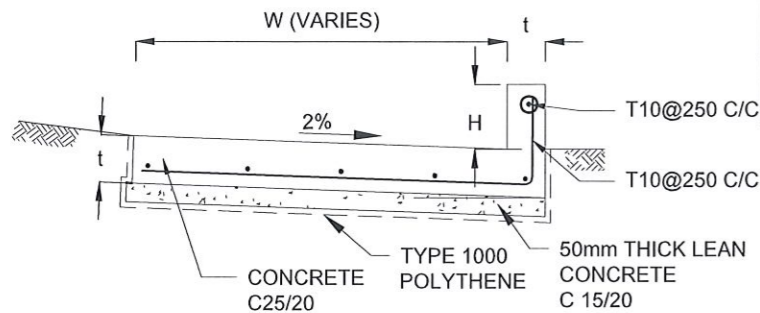
DS (B) - (TYPE I)



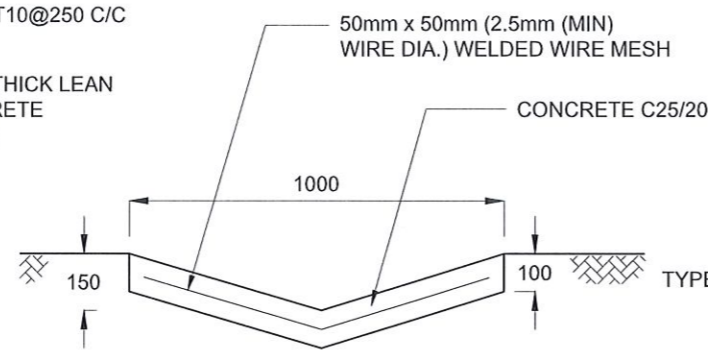
DS (B) - (TYPE II)

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

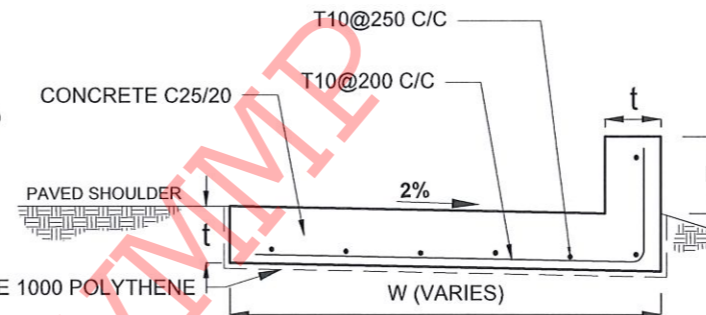
DRAIN TYPE	W (mm)	H (mm)	t (mm)
DS (B) - A	300	300	100
DS (B) - B	450	450	100
DS (B) - C	1000	150	100
DS (B) - D	1500	150	100
DS (B) - E	2000	150	100



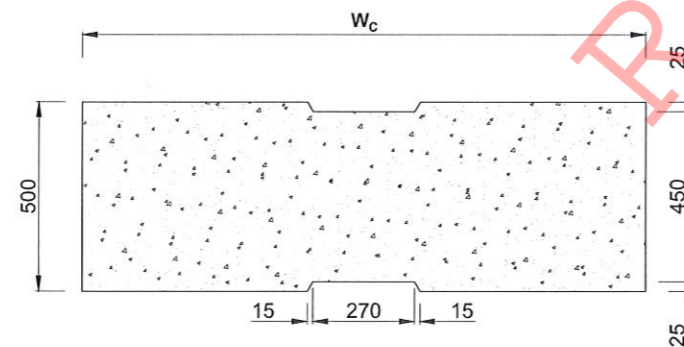
DS (K) - TYPE I



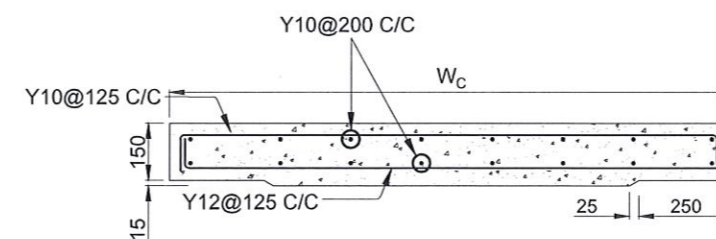
DS (D) - A (DISH DRAIN)



DS (K) - TYPE II



PLAN VIEW OF COVER SLAB



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

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

NOTES

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

CONCRETE

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

REINFORCEMENT

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

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

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

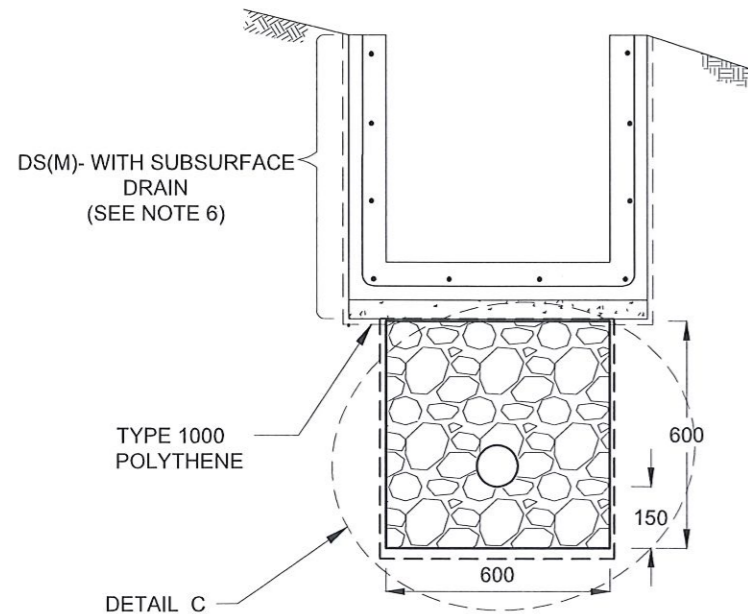
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 JATHIKA NIWASA SITE
 DEHIOWITA

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

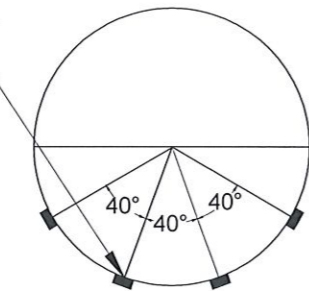
SCALE N.T.S. DATE 27.04.2022
 PROJECT / DRAWING No. RLVMP/WORKS/NCB/PHII/097-JN/DR-05b REVISION 00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	M.P. AMARASINGHE	
CHECKED	B.I. KUMARAGE	
RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	

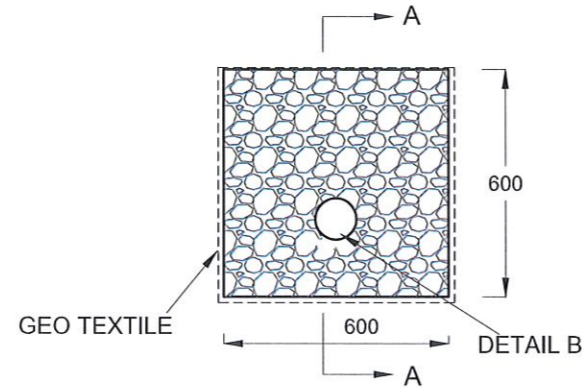


**SUBSURFACE DRAIN
[DS (S) -A]**

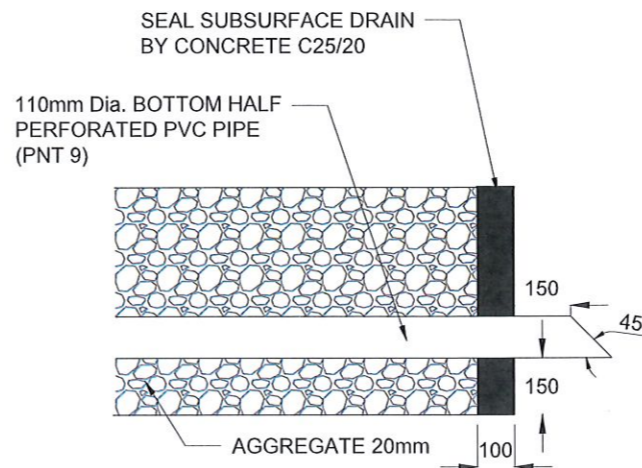
100mm x 5mm Groove



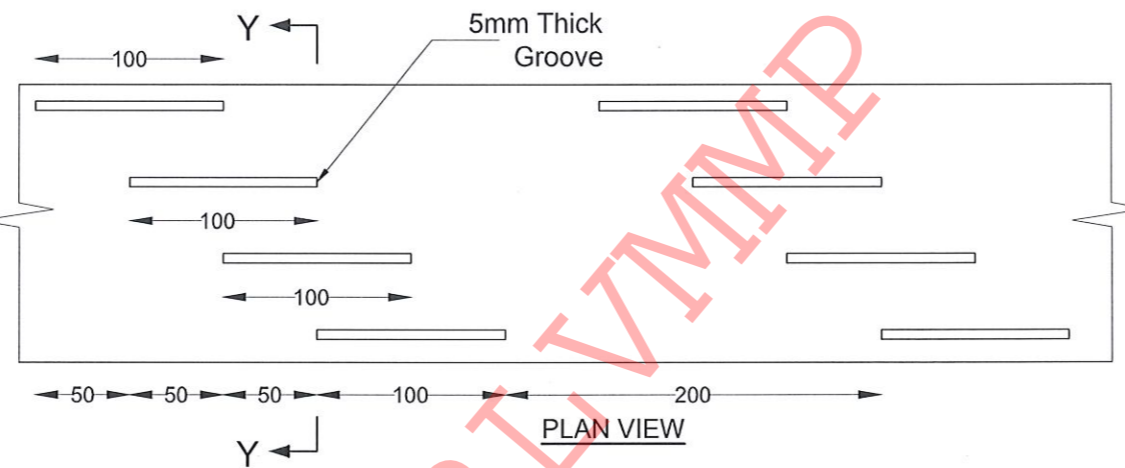
SECTION Y - Y



DETAIL C / DS (S) -A

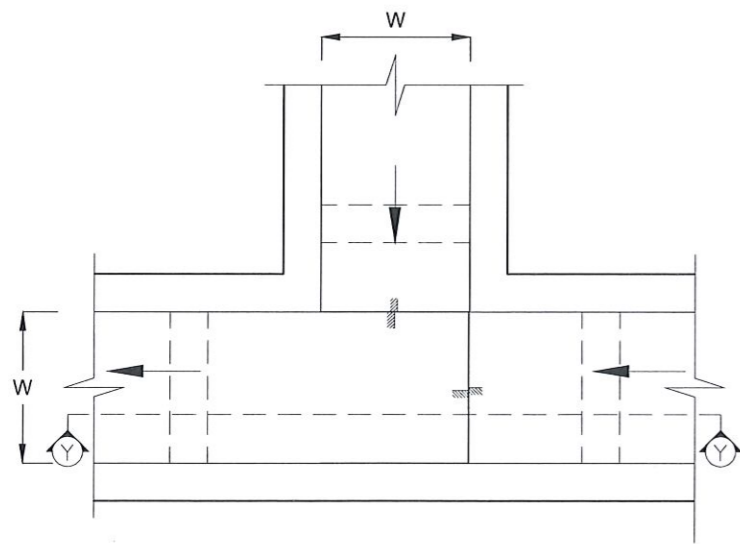


**SECTION A-A
(OUTLET DETAIL SUBSURFACE DRAIN)**

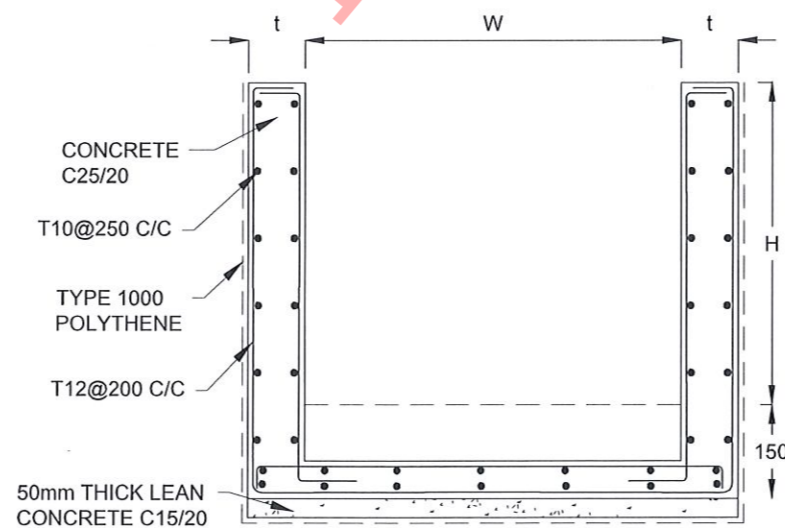


PLAN VIEW

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



PLAN VIEW OF CATCH PIT (CP)



SECTION Y-Y (CP- R)

NOTES

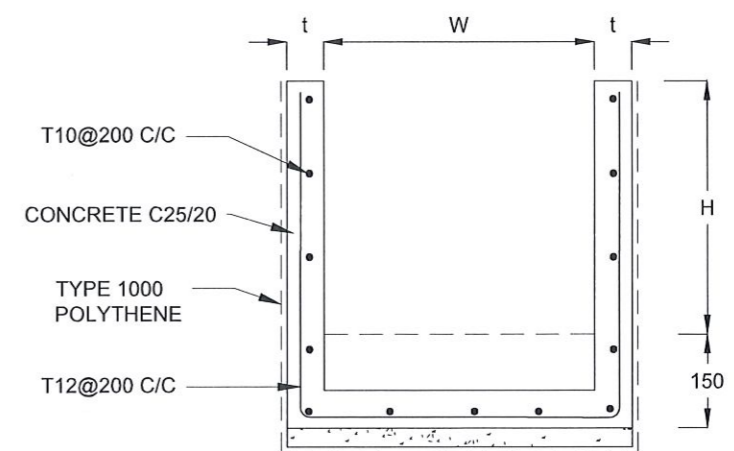
1. W,H,t ; SHALL BE THE SAME AS RESPECTIVE DRAIN SECTION.
2. CP - R SHALL BE USED WHERE H > = 900mm
3. DEPTH OF EXCAVATION MAY VARY ACCORDING TO SITE CONDITIONS.
4. DOWELS SHALL BE INSTALLED ACCORDING TO THE GROUND CONDITIONS AS INSTRUCTED BY THE ENGINEER.
5. 10 mm THICK EXPANSION JOINT SHALL BE INTRODUCED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

CONCRETE


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

REINFORCEMENT

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



SECTION Y - Y






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 STATE MINISTRY OF NATIONAL SECURITY AND DISASTER MANAGEMENT
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 COLOMBO - 05

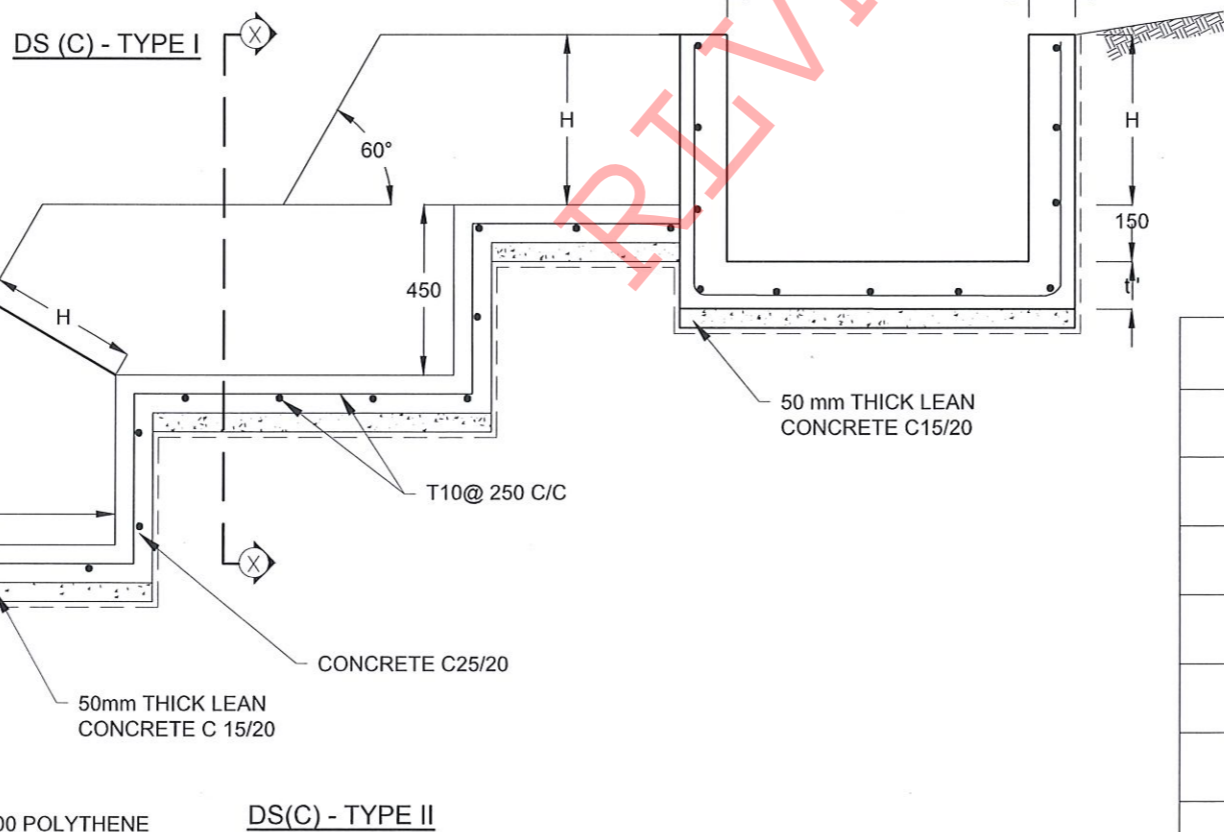
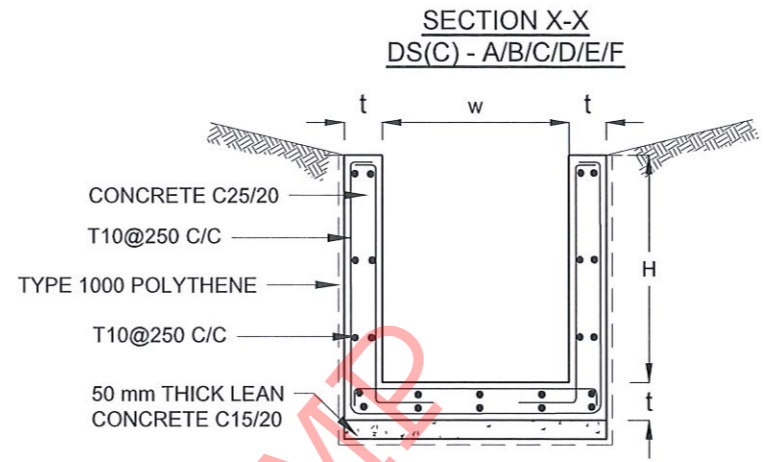
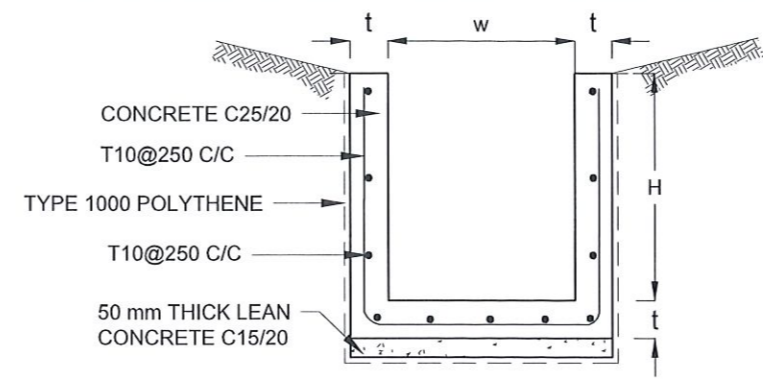
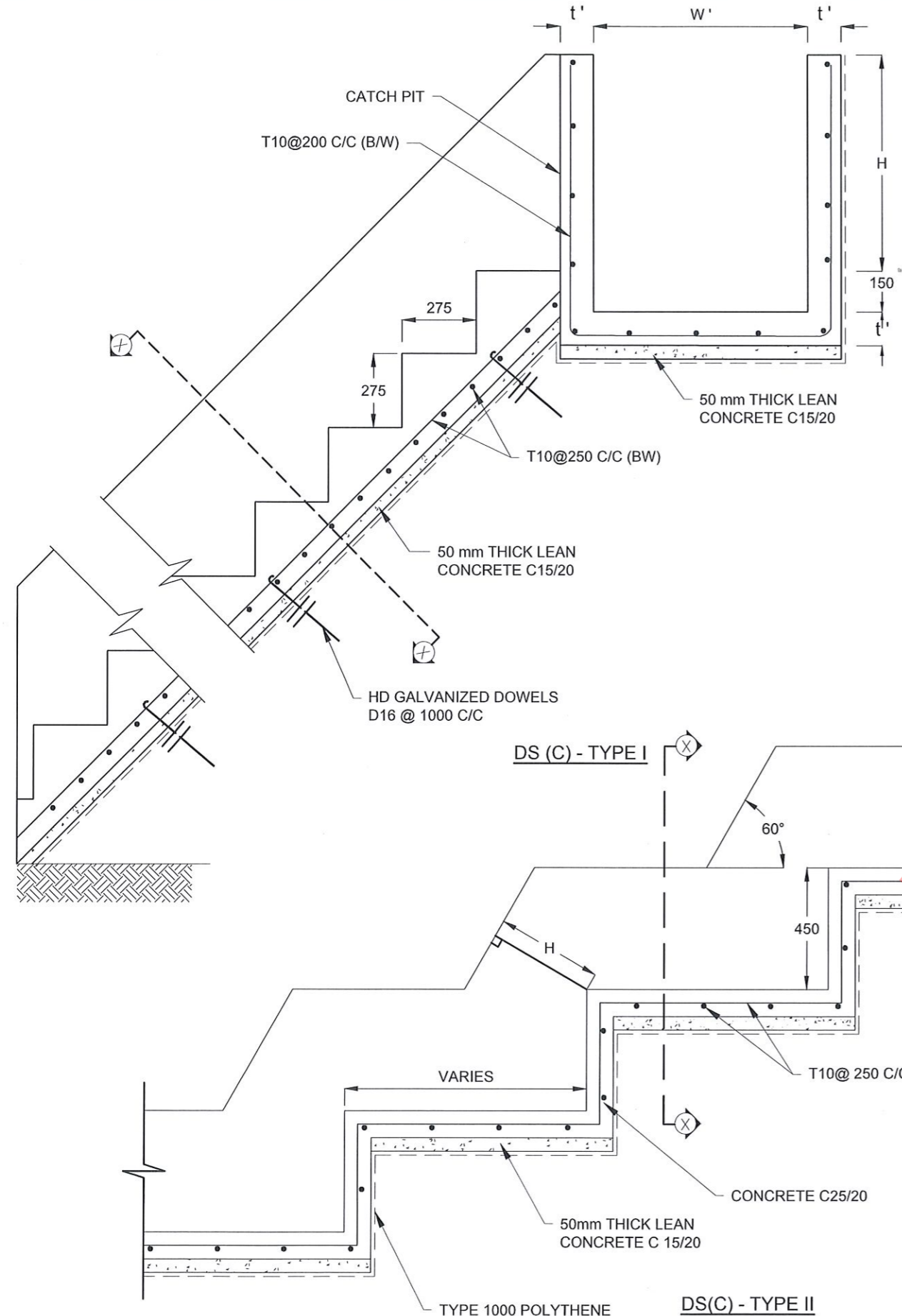
DESIGNER

 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
 JATHIKA NIWASA SITE
 DEHIOWITA

TITLE	DESCRIPTION	NAME	SIGNATURE
DETAILS OF DRAINS (SUBSURFACE DRAIN AND CATCHPIT)	DRAWN	S.A.G.D. SENANAYAKA	
	DESIGNER	M.P. AMARASINGHE	
	CHECKED	B.I. KUMARAGE	
	RECOMMENDED	Prof. S.A.S. KULATHILAKA	
	APPROVED	K.N. BANDARA	
SCALE	N.T.S	DATE	27.04.2022
PROJECT / DRAWING No.	RLVMP/WORKS/NCB/PH11/097-JN/DR-05c	REVISION	00



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

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
DS (C) - G	1200	1000	125	1300	125

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

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

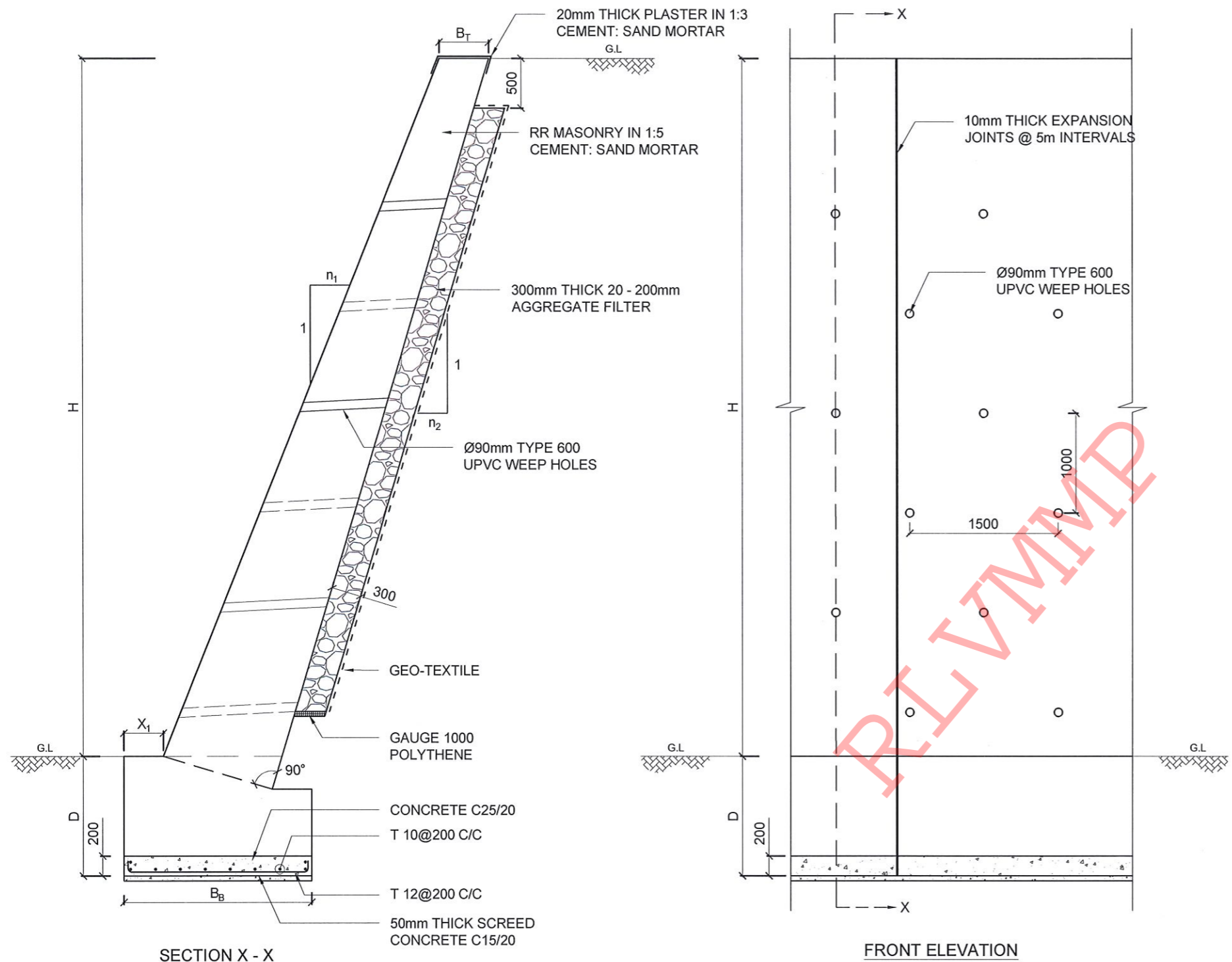
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 JATHIKA NIWASA SITE
 DEHIOWITA

TITLE
 DETAILS OF DRAINS
 (CASCADE DRAIN)

SCALE N.T.S
 PROJECT / DRAWING No. RLVMM/WORKS/NCB/PH11/097-JN/DR-05d
 DATE 27.04.2022
 REVISION 00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	M.P. AMARASINGHE	
CHECKED	B.I. KUMARAGE	
RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	



H / (m)	B _T / (mm)	B _B / (mm)	X ₁ / (mm)	D / (mm)	n ₁	n ₂
4.0	450	1650	500	800	0.4	0.3

NOTES

- a. 10mm THICK EXPANSION JOINTS SHOULD BE PROVIDED @ EVERY 5m INTERVALS.
- b. DOWELS SHALL BE INSTALLED IF HARD ROCK IS ENCOUNTERED AS PER THE ENGINEERS INSTRUCTIONS
- c. WHERE THE EARTH CUT HEIGHT IS LESS THAN THAT OF THE APPLICABLE TYPICAL WALL, THE WALL HEIGHT SHOULD BE REDUCED TO FIT THE CUT HEIGHT, FROM ITS BOTTOM END WHILE MAINTAINING THE GIVEN TOP WIDTH.
- d. MINIMUM EMBEDMENT DEPTH (D), SHALL NOT BE LESS THAN 0.2 TIMES OF THE WALL HEIGHT (0.2H).
- e. SOIL SURFACE CAN STAND ON ITS OWN UNTIL WALL IS MADE. THIS TYPE WALL IS NOT SUITABLE FOR COLLAPSING SOILS.


CONCRETE

USE FOLLOWING CONCRETE GRADES FOR STRUCTURE

- a. SCREED - GR. 15/20
- b. BASE - GR. 25/20

REINFORCEMENT

- a. ALL BARS MARKED "T" SHALL BE HIGH YIELD DEFORMED BARS OF YIELD STRENGTH NOT LESS THAN 460N/mm².
- b. BARS OF CUT LENGTH LARGER THAN THE SUPPLIED LENGTH TO BE LAPPED WITH LENGTH OF 50Ø, WHERE Ø IS THE DIAMETER AND LAPPING SHOULD BE STAGGERED.
- c. ANCHORAGE LENGTH SHOULD BE 40 x BAR DIA.
- d. CLEAR CONCRETE COVER FOR ALL FOUNDATION REINFORCEMENT BELLOW GROUND LEVEL TO BE 50 mm.

EMPLOYER

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

DESIGNER

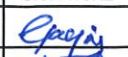




 DESIGN UNIT
 NATIONAL BUILDING RESEARCH ORGANIZATION
 No. 99/1, JAWATTA ROAD,
 COLOMBO - 05

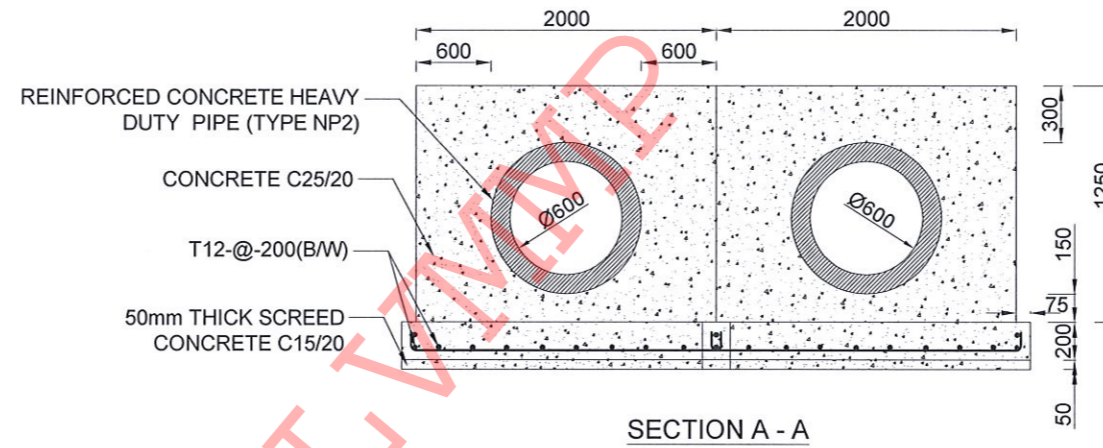
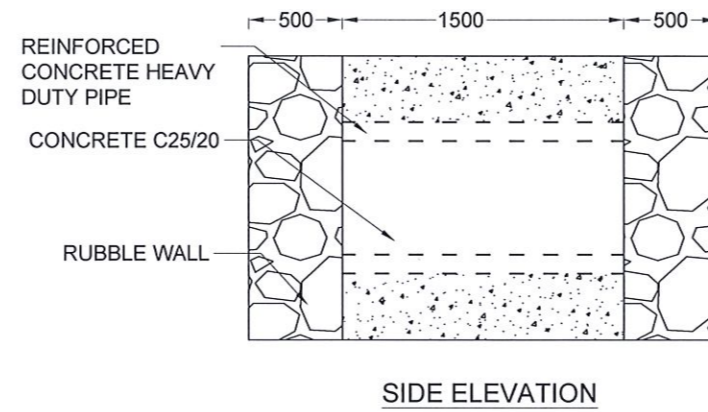
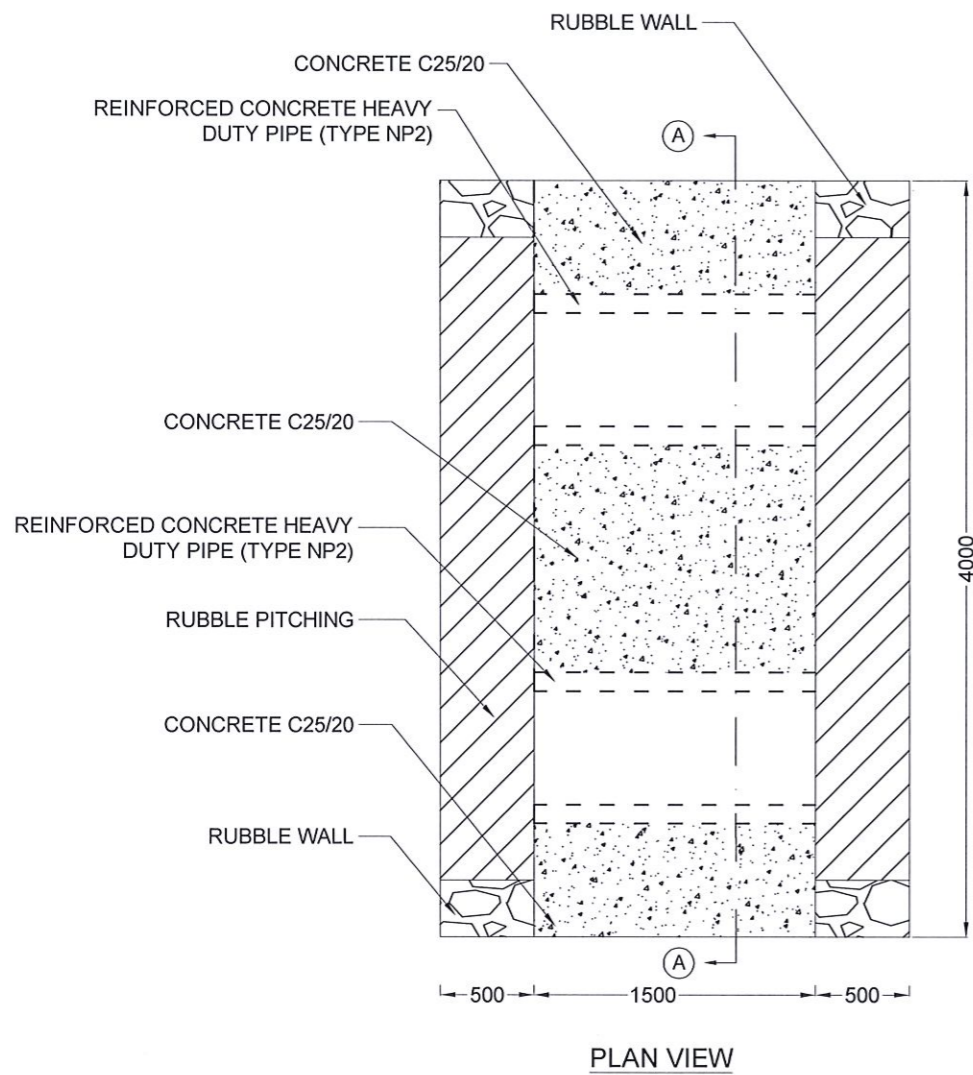
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 JATHIKA NIWASA SITE
 DEHIOWITA

TITLE
 DETAILS OF TYPICAL LEANING TYPE
 RETAINING WALLS

SCALE	N.T.S	DATE	27.04.2022
PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/PH11/097-JN/DR-06	REVISION	00

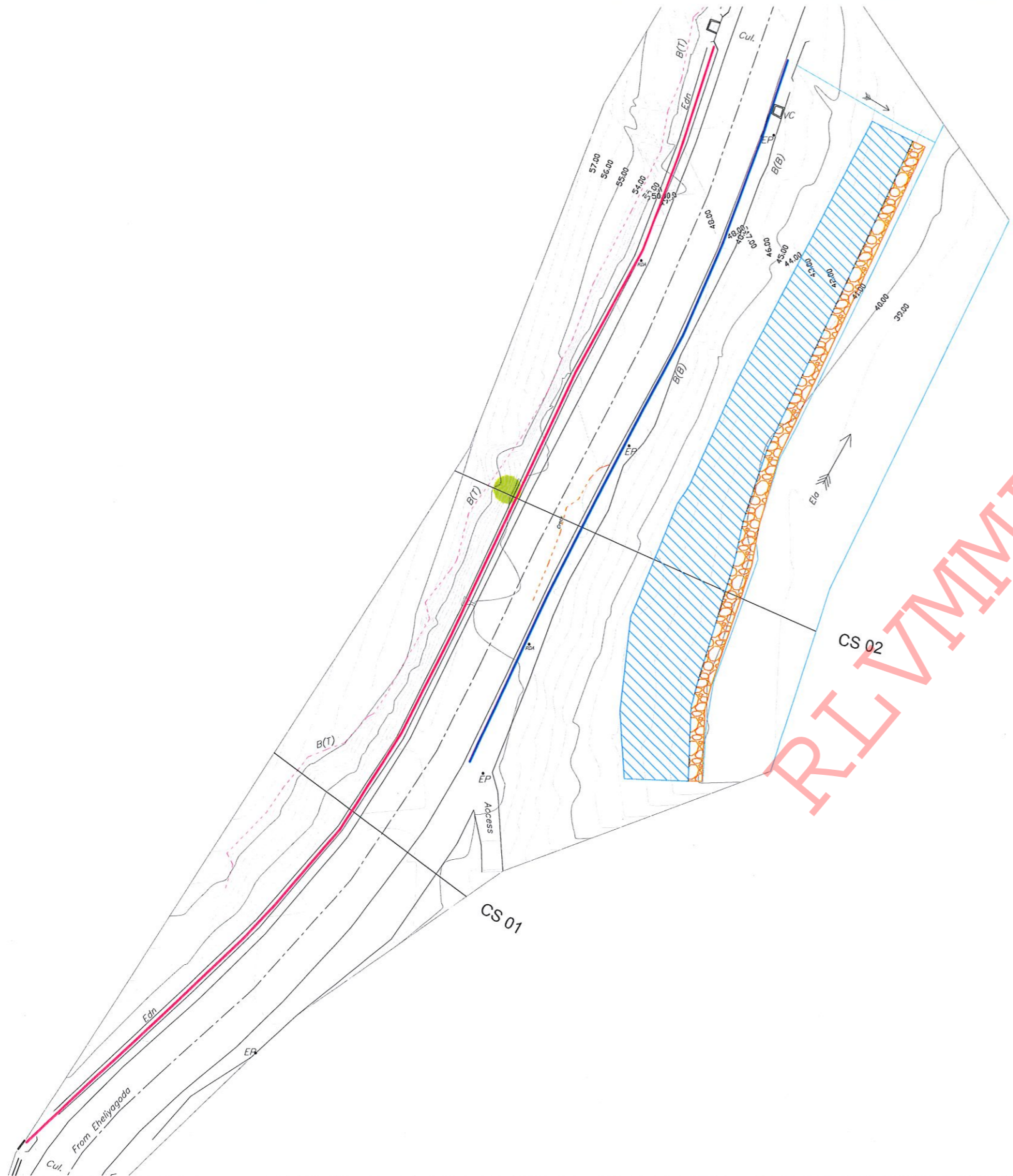
DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	M.P. AMARASINGHE	
CHECKED	B.J. KUMARAGE	
RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	



NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. REINFORCED CONCRETE HEAVY DUTY PIPE SHALL BE IN ACCORDANCE WITH REQUIREMENTS GIVEN IN SLS 452; "SRI LANKA STANDARD SPECIFICATION FOR CONCRETE NON REINFORCEMENT PRESSURE PIPE" CONDITIONS.
 3. DEPTH OF EXCAVATION SHALL BE VARIED ACCORDING TO SITE CONDITIONS.
- REINFORCEMENT
4. ALL BARS MARKED "T" SHALL BE HIGH YIELD DEFORMED BARS OF YIELD STRENGTH NOT LESS THAN 460N/mm².
 5. 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.
 6. ANCHORAGE LENGTH SHOULD BE 40X BAR DIA.
 7. REINFORCEMENT BARS SHALL BE BENT ACCORDANCE WITH STANDARD SPECIFICATIONS.
 8. CLEAR CONCRETE COVER FOR ALL FOUNDATION REINFORCEMENT BELOW GROUND LEVEL TO BE 40 mm.
 9. 10 mm THICK EXPANSION JOINT SHALL BE INTRODUCE IN EVERY 5m INTERVAL .

<p>DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF NATIONAL SECURITY AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION 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	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES JATHIKA NIWASA SITE DEHIOVITA	TITLE SECTIONAL DETAILS OF PIPE CULVERT	DESCRIPTION	NAME	SIGNATURE			
									SCALE	N.T.S.	DATE	27.04.2022	REVISION
								PROJECT / DRAWING No.	RLVMP/WORKS/NCB/PH11/097-JN/DR-07	APPROVED	K.N. BANDARA		



REFERENCE

- P - PERMANENT BUILDING
- CDN - CONCRETE DRAIN
- RDA - RDA BOUNDARY MARK
- BO - BOULDER
- WF - WIRE FENCE
- MW - MASONRY WALL
- BT - BANK TOP
- BB - BOTTOM OF BANK
- BW - BOUNDARY WALL
- RW - RETAINING WALL
- EP - ELECTRIC POST
- WC - WATER CLOSET
- CUL - CULVERT
- G - GATE
- ST - SEPTIC TANK
- IF - IRON FENCE



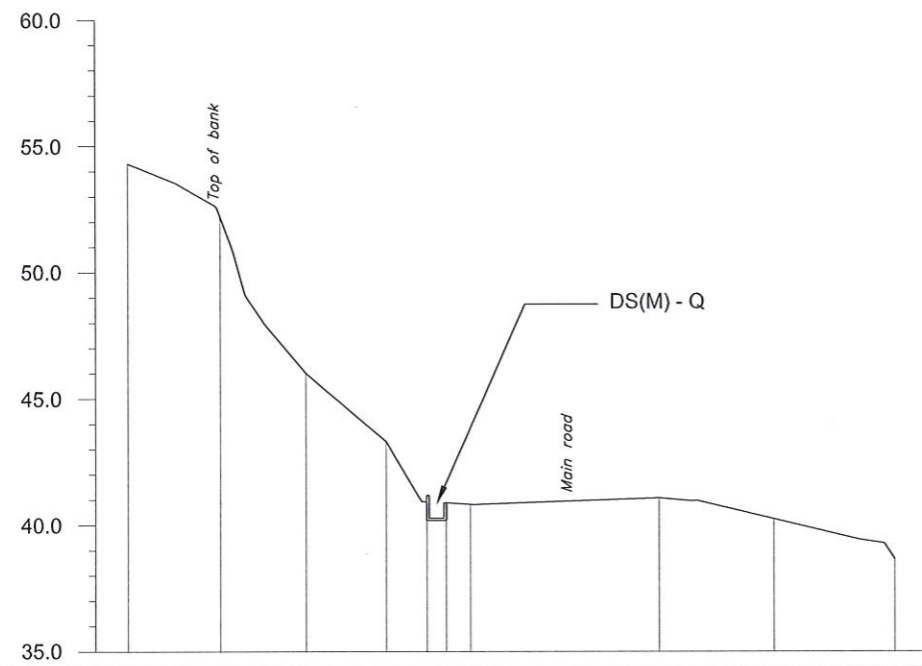
DESIGN NOTATION

- - DS(M) - Q
- - DS(K) - B (TYPE I)
- GABION WALL (TYPE II)
- BACKFILLING AND TURFING

NOTES

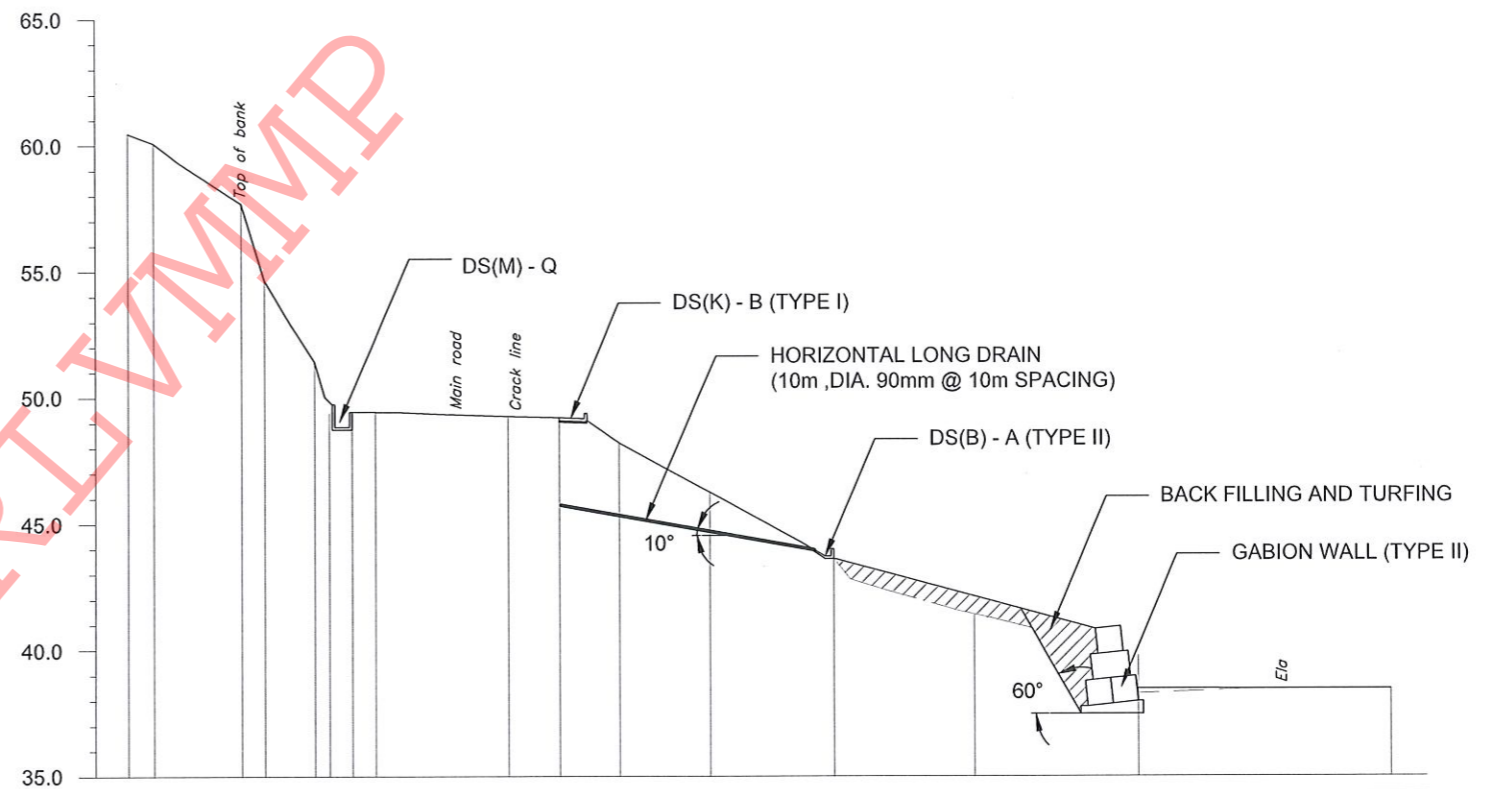
1. SURFACE DRAIN LOCATIONS (PATH) & LENGTHS MIGHT BE VARIED ACCORDING TO ACTUAL SITE CONDITION.
2. BACKFILLING AND TURFING AREA BEHIND THE GABION WALL MIGHT BE VARIED ACCORDING TO THE ACTUAL GROUND CONDITION .

<p>DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF NATIONAL SECURITY AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION 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	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES B110 - EHELIYAGODA - DEHIOVITA ROAD CULVERT NO. 5/6	TITLE DESIGN PLAN VIEW			DESCRIPTION	NAME	SIGNATURE
										DRAWN	S.A.G.D. SENANAYAKA	
										DESIGNER	V. G. D. GANGANI	
								CHECKED	B.I. KUMARAGE			
							SCALE 1:600	DATE	17.05.2022	RECOMMENDED	Prof. S.A.S. KULATHILAKA	
							PROJECT / DRAWING No. RLVMMP/WORKS/NCB/PH11/122-ED/DR-03	REVISION	00	APPROVED	K.N. BANDARA	




GROUND LEVEL (m)	54.293	52.195	46.015	43.311	40.927	40.828		41.074	40.239	38.655
DISTANCE (m)	30.650	26.968	23.540	20.349	17.945	16.978		9.437	4.836	0.00


CS01



GROUND LEVEL (m)	60.464	60.076	57.696	54.651	49.439	49.430		49.268	49.208	48.209	46.251	43.612	41.413	39.782	38.464
DISTANCE (m)	50.384	44.360	45.854	44.925	42.942	40.525		35.216	33.149	30.773	27.181	22.232	16.644	10.079	0.00

CS02

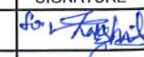

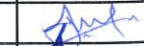



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 NATIONAL BUILDING RESEARCH ORGANIZATION
 No. 99/1, JAWATTA ROAD,
 COLOMBO - 05

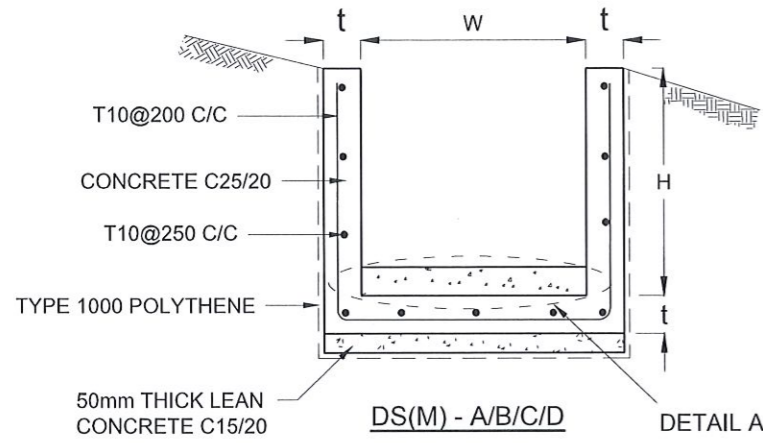
DESIGNER

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
B110 - EHELIYAGODA - DEHIOVITA ROAD
 CULVERT NO. 5/6

TITLE
 DESIGN CROSS SECTION
 SCALE 1:300 DATE 17.05.2022
 PROJECT / DRAWING No. RLVMP/WORKS/NCB/PHII/122-ED/DR-04 REVISION 00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	V. G. D. GANGANI	
CHECKED	B.I. KUMARAGE	
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

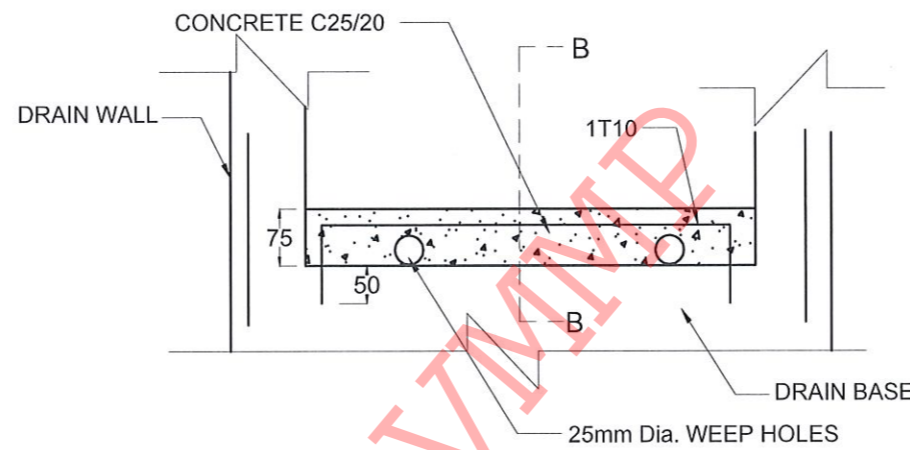
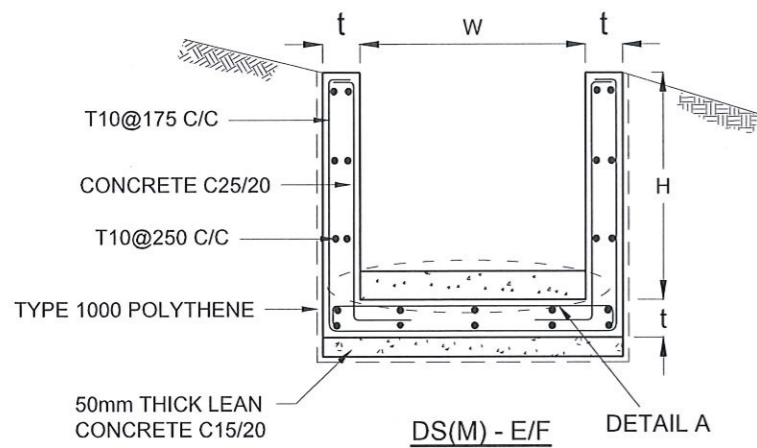
- DEPTH OF EXCAVATION MAY VARY ACCORDING TO SITE CONDITIONS.
- STEPS SHALL BE CONSTRUCTED AT SURFACE DRAIN ON SLOPING GROUND ACCORDING TO THE SITE CONDITIONS AS INSTRUCTED BY THE ENGINEER.
- ENERGY BREAKERS SHALL BE CONSTRUCTED AT THE STEEP DRAIN SEGMENTS AS PER THE INSTRUCTIONS OF THE ENGINEER.
- DOWELS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

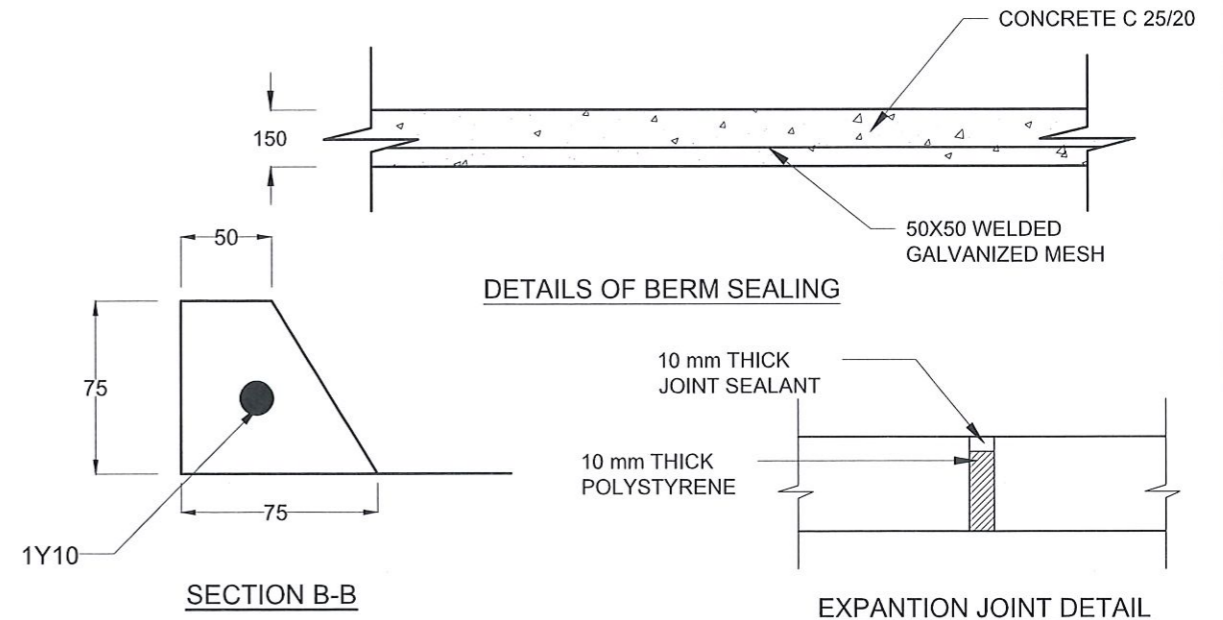
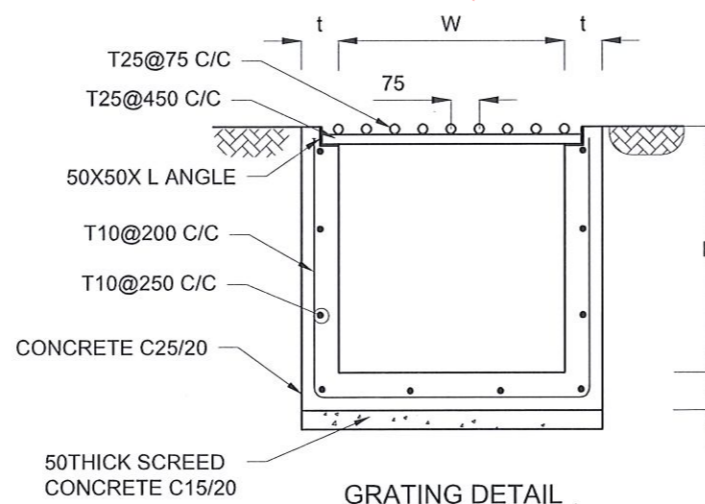
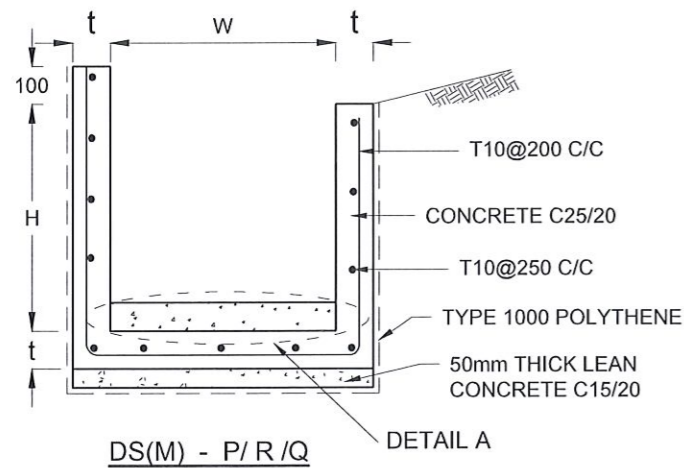
- USE FOLLOWING CONCRETE GRADES FOR STRUCTURE
 - [a] SCREED - C. 15/20
 - [b] WALLS / BASE / ENERGY BREAKERS - C. 25/20

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)



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 STATE MINISTRY OF NATIONAL SECURITY AND DISASTER MANAGEMENT
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 No. 99/1, JAWATTA ROAD,
 COLOMBO - 05

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

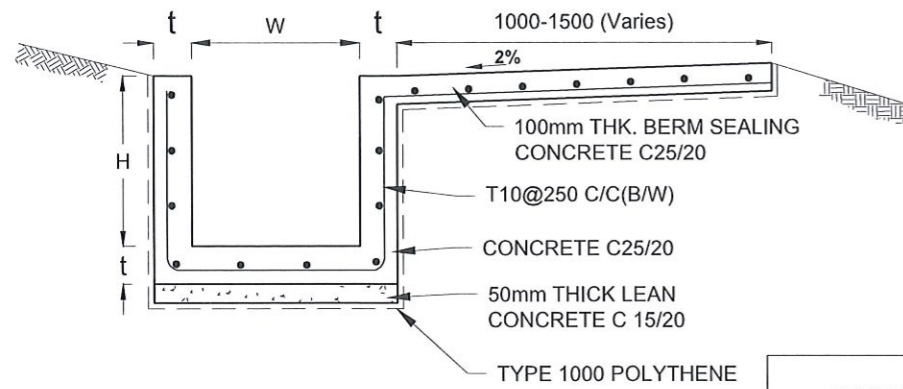
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
B110 - EHELIYAGODA - DEHIOVITA ROAD
 CULVERT NO. 5/6

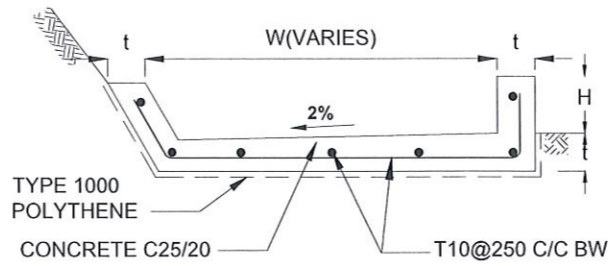
TITLE
 DETAILS OF DRAINS
 (SURFACE DRAIN - 1 OF 2)

SCALE | N.T.S | DATE | 17.05.2022
 PROJECT / DRAWING No. | RLVMP/WORKS/NCB/PHII/122-ED/DR-05a | REVISION | 00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	<i>S.A.G.D. Senanayaka</i>
DESIGNER	V. G. D. GANGANI	<i>V.G.D. Gangani</i>
CHECKED	B.I. KUMARAGE	<i>B.I. Kumara</i>
RECOMMENDED	Prof. S.A.S. KULATHILAKA	<i>S.A.S. Kulathilaka</i>
APPROVED	K.N. BANDARA	<i>K.N. Bandara</i>



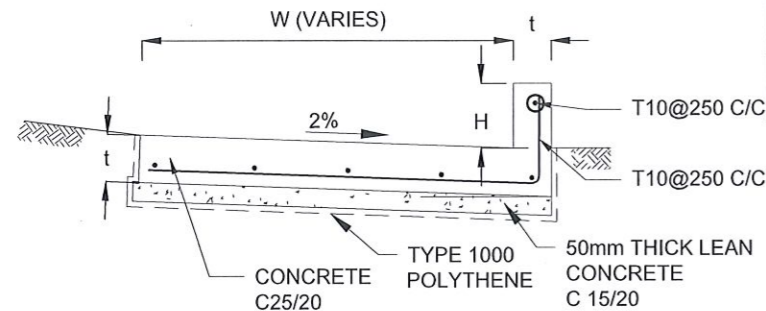
DS (B) - (TYPE I)



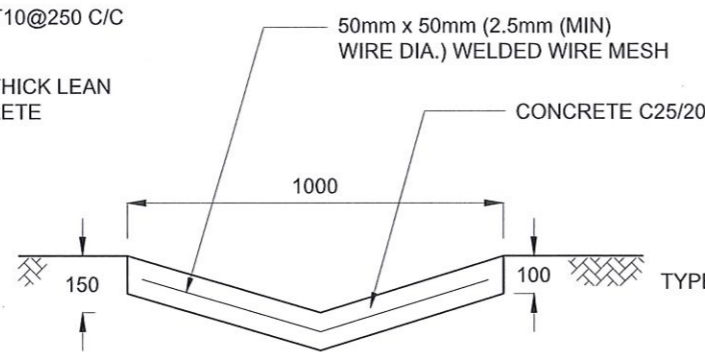
DS (B) - (TYPE II)

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 (B) - D	1500	150	100
DS (B) - E	2000	150	100

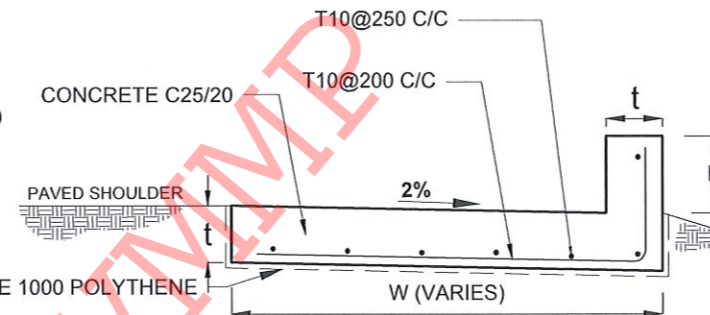
DRAIN TYPE	W (mm)	H (mm)	t (mm)
DS (K) - A	1000	200	100
DS (K) - B	1000	300	100
DS (K) - C	1150	200	200



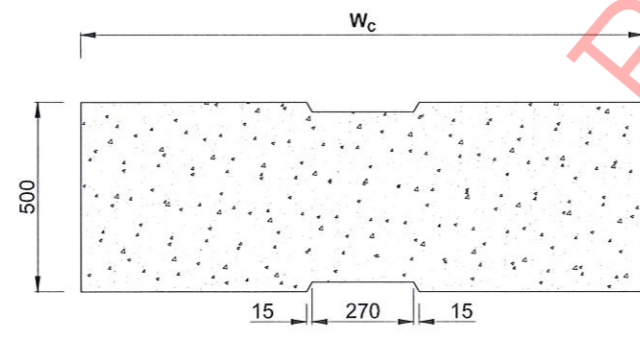
DS (K) - TYPE I



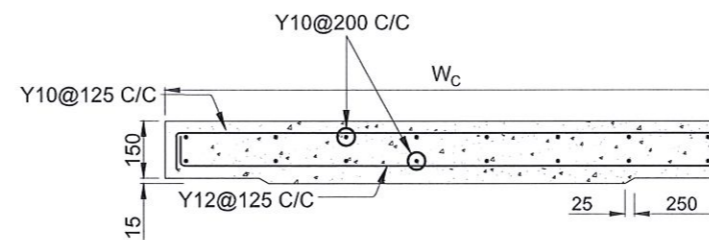
DS (D) - A (DISH DRAIN)



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	600	150
TYPE II	800	800	150

NOTES

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

CONCRETE

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

REINFORCEMENT

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

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

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

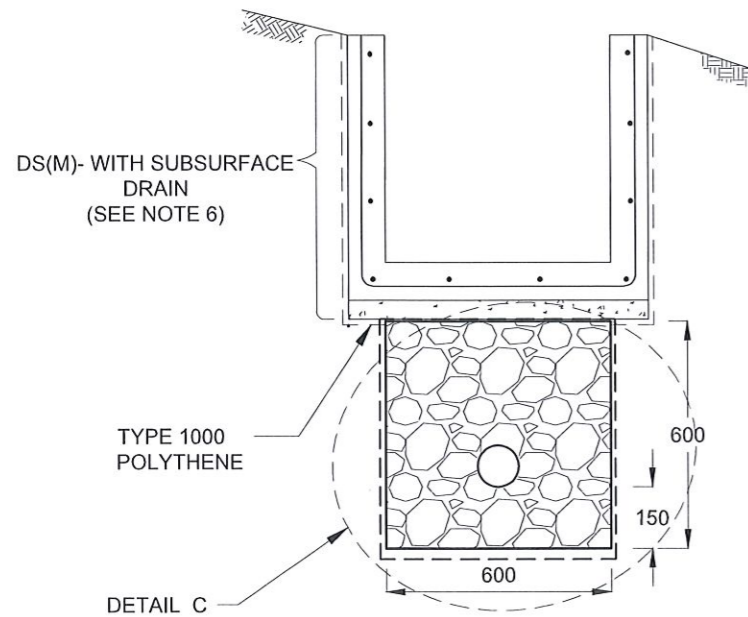
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 B110 - EHELIYAGODA - DEHIOVITA ROAD
 CULVERT NO. 5/6

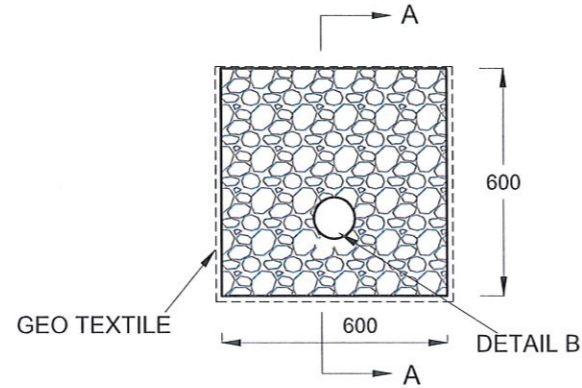
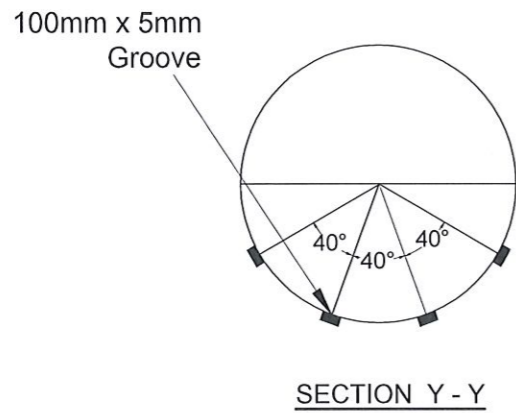
TITLE
 DETAILS OF DRAINS
 (SURFACE DRAIN - 2 OF 2)

SCALE | N.T.S | DATE | 17.05.2022
 PROJECT / DRAWING No. | RLVMMMP/WORKS/NCB/PHII/122-ED/DR-05b | REVISION | 00

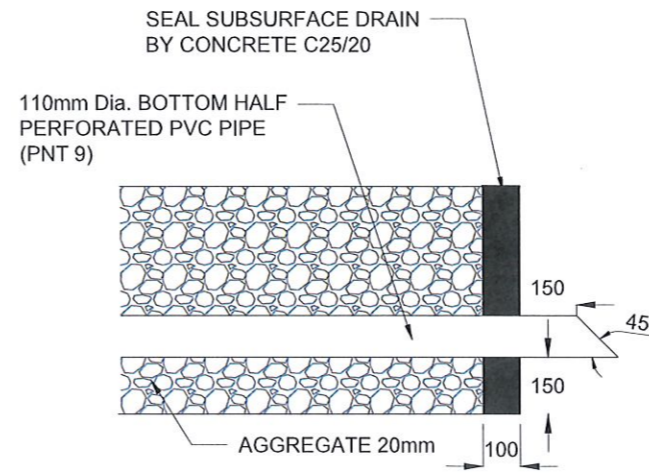
DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	<i>[Signature]</i>
DESIGNER	V. G. D. GANGANI	<i>[Signature]</i>
CHECKED	B.I. KUMARAGE	<i>[Signature]</i>
RECOMMENDED	Prof. S.A.S. KULATHILAKA	<i>[Signature]</i>
APPROVED	K.N. BANDARA	<i>[Signature]</i>



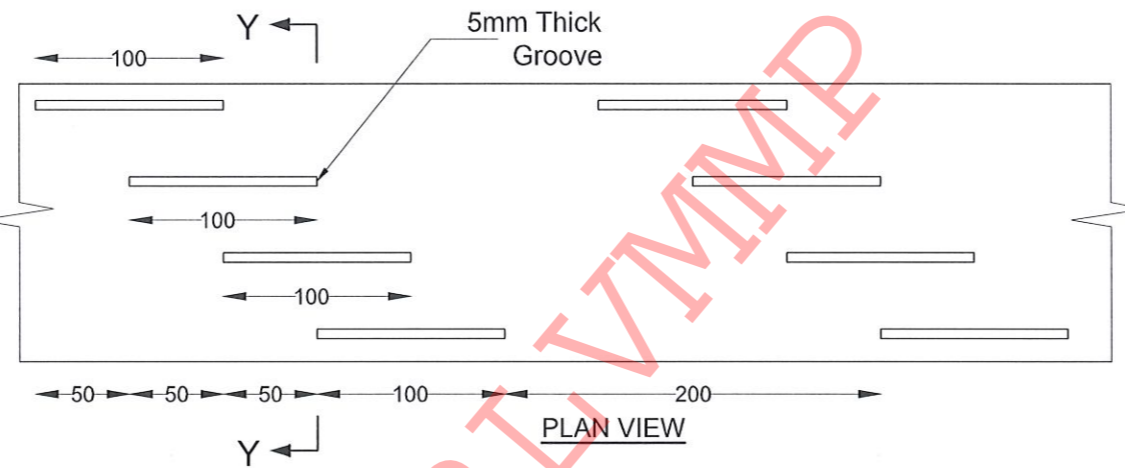
**SUBSURFACE DRAIN
[DS (S) -A]**



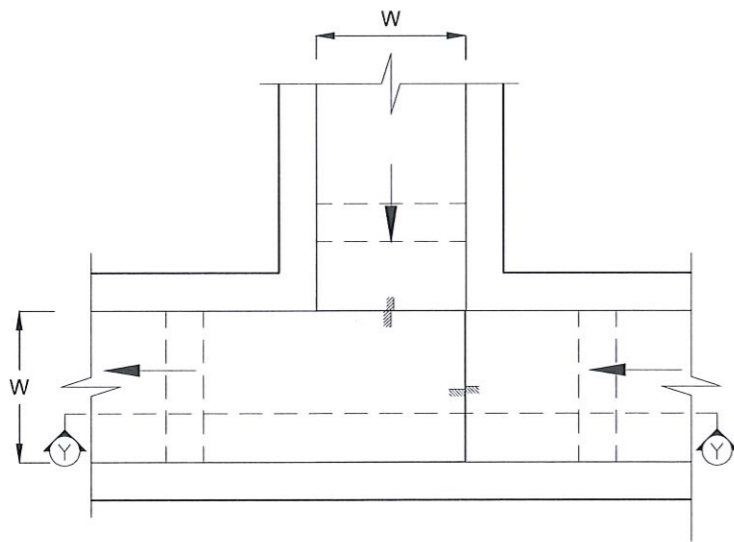
DETAIL C / DS (S) -A



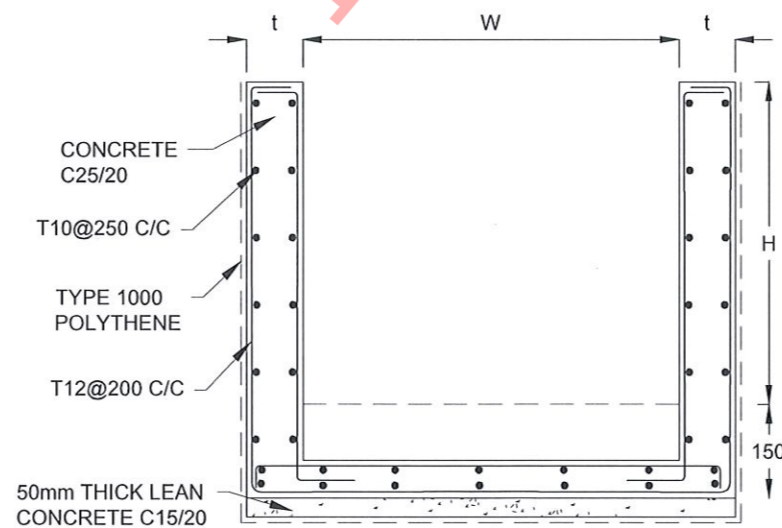
**SECTION A-A
(OUTLET DETAIL SUBSURFACE DRAIN)**



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



PLAN VIEW OF CATCH PIT (CP)



SECTION Y-Y (CP - R)

NOTES

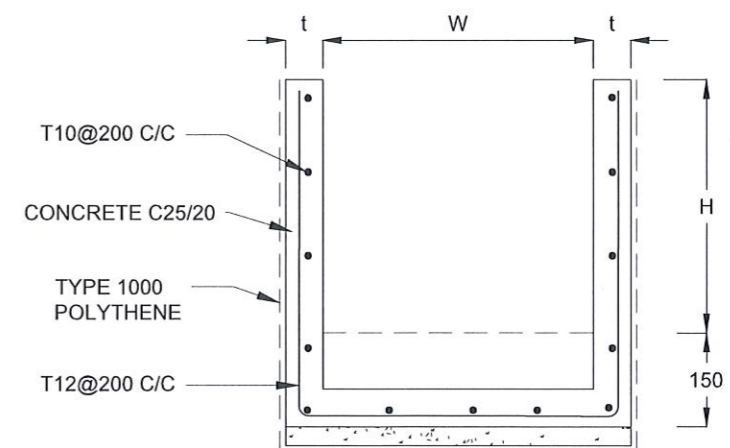
1. W,H,t ; SHALL BE THE SAME AS RESPECTIVE DRAIN SECTION.
2. CP - R SHALL BE USED WHERE H > = 900mm
3. DEPTH OF EXCAVATION MAY VARY ACCORDING TO SITE CONDITIONS.
4. DOWELS SHALL BE INSTALLED ACCORDING TO THE GROUND CONDITIONS AS INSTRUCTED BY THE ENGINEER.
5. 10 mm THICK EXPANSION JOINT SHALL BE INTRODUCED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

CONCRETE


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

REINFORCEMENT

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



SECTION Y - Y

EMPLOYER

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

DESIGNER

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

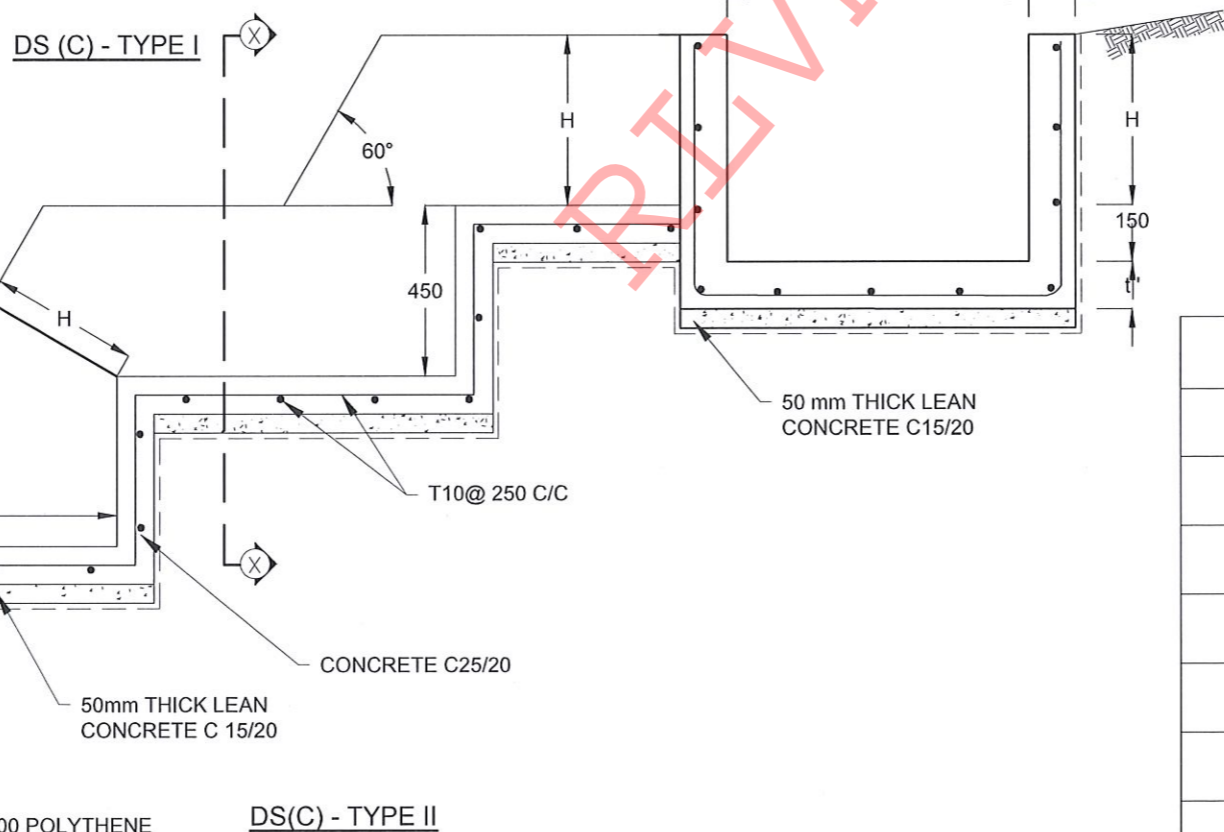
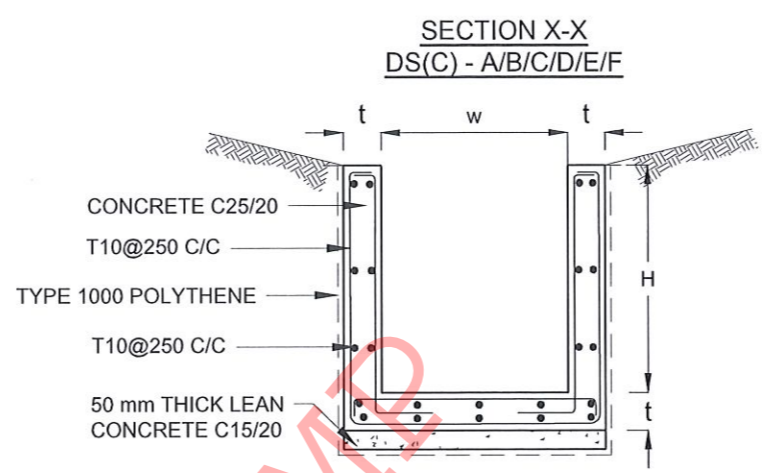
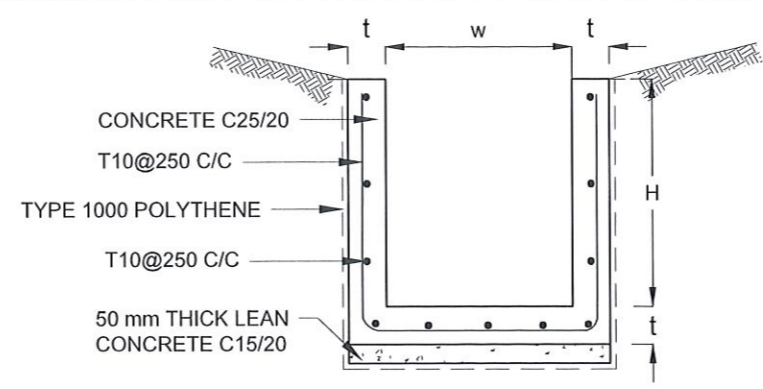
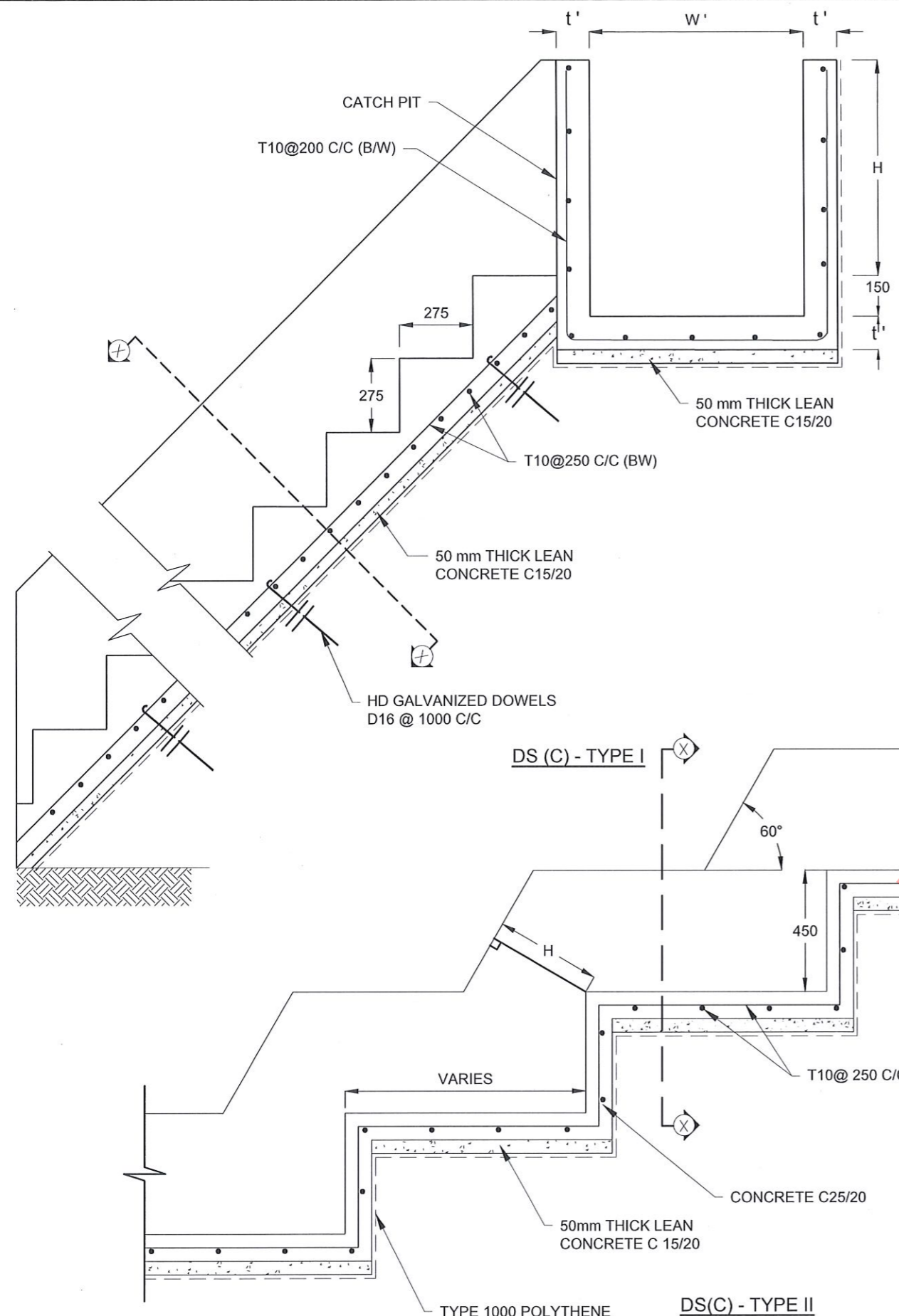
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
B110 - EHELIYAGODA - DEHIOVITA ROAD
 CULVERT NO. 5/6

TITLE
**DETAILS OF DRAINS
(SUBSURFACE DRAIN AND CATCHPIT)**

SCALE: N.T.S. DATE: 17.05.2022
 PROJECT / DRAWING No. REVISION: 00
 RLVMP/WORKS/NCB/PHII/122-ED/DR-05c

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	V. G. D. GANGANI	
CHECKED	B.I. KUMARAGE	
RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	



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

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
DS (C) - G	1200	1000	125	1300	125

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

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

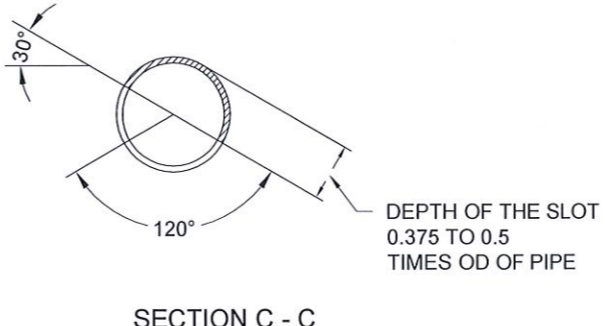
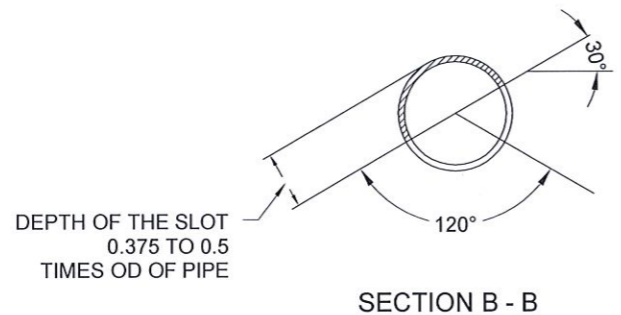
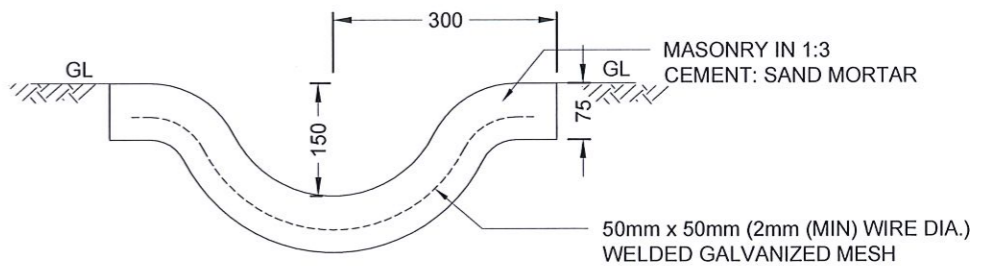
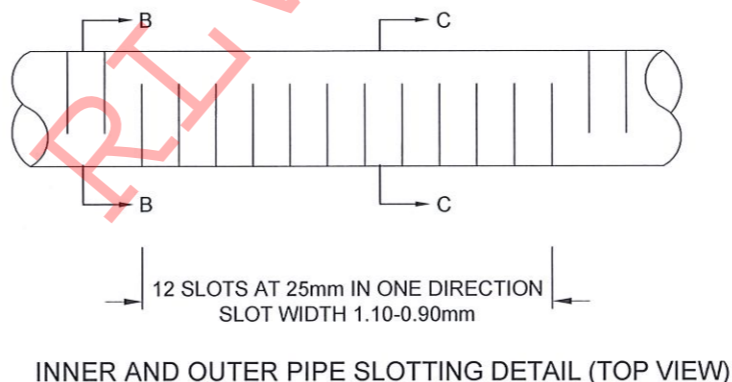
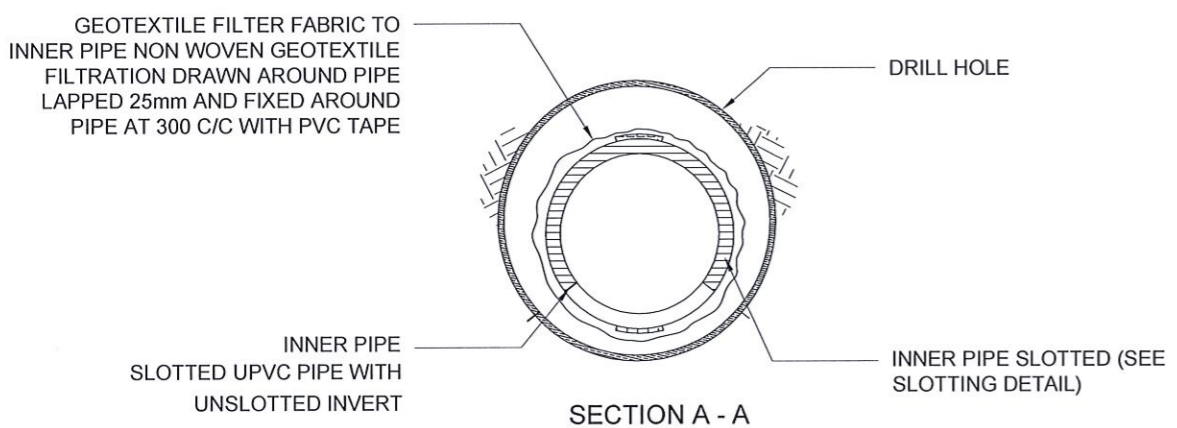
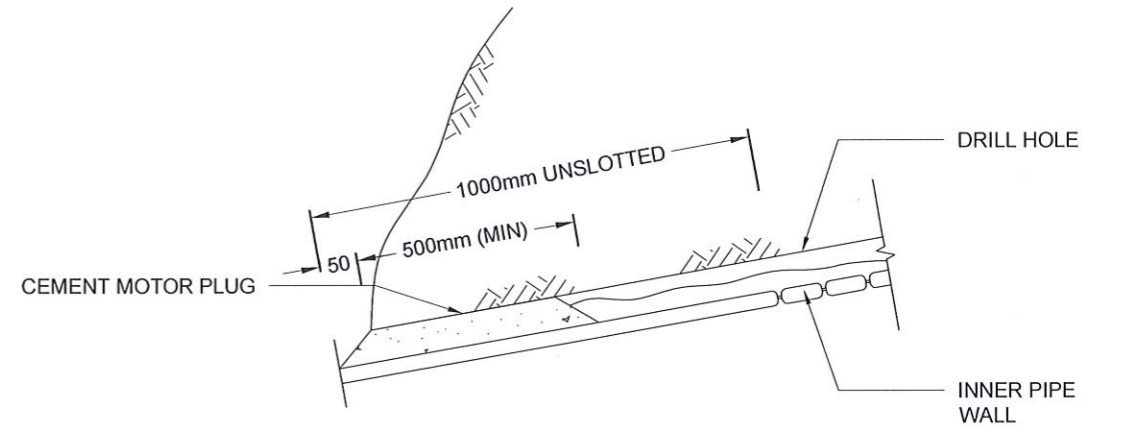
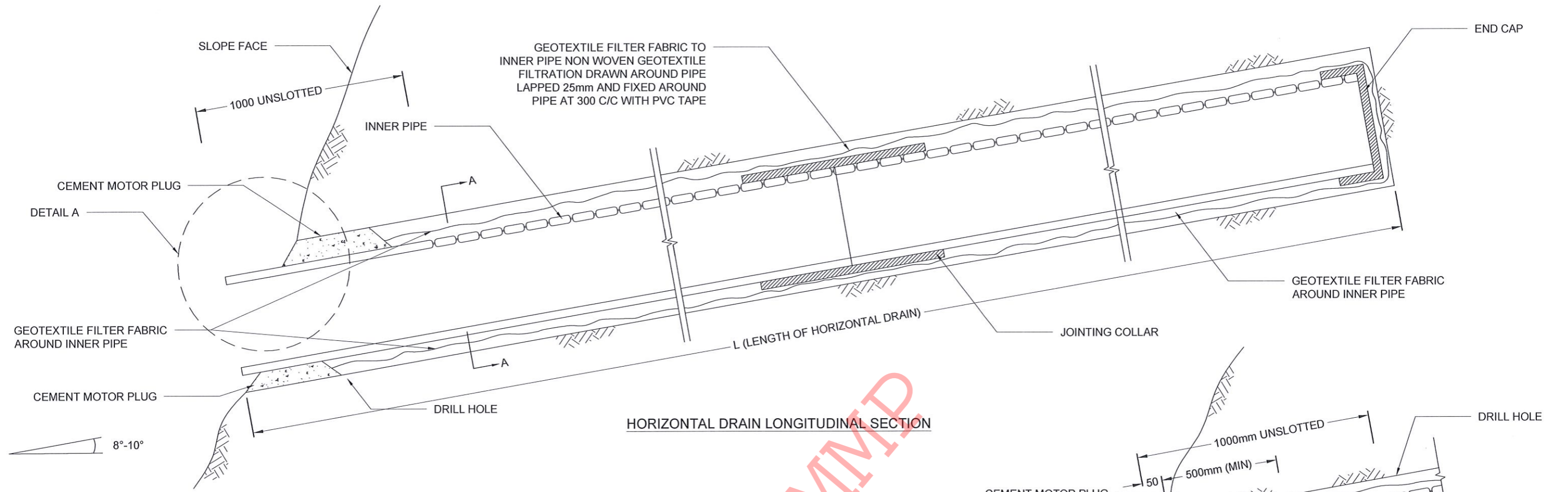
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 B110 - EHELIYAGODA - DEHIOVITA ROAD
 CULVERT NO. 5/6

TITLE
 DETAILS OF DRAINS
 (CASCADE DRAIN)

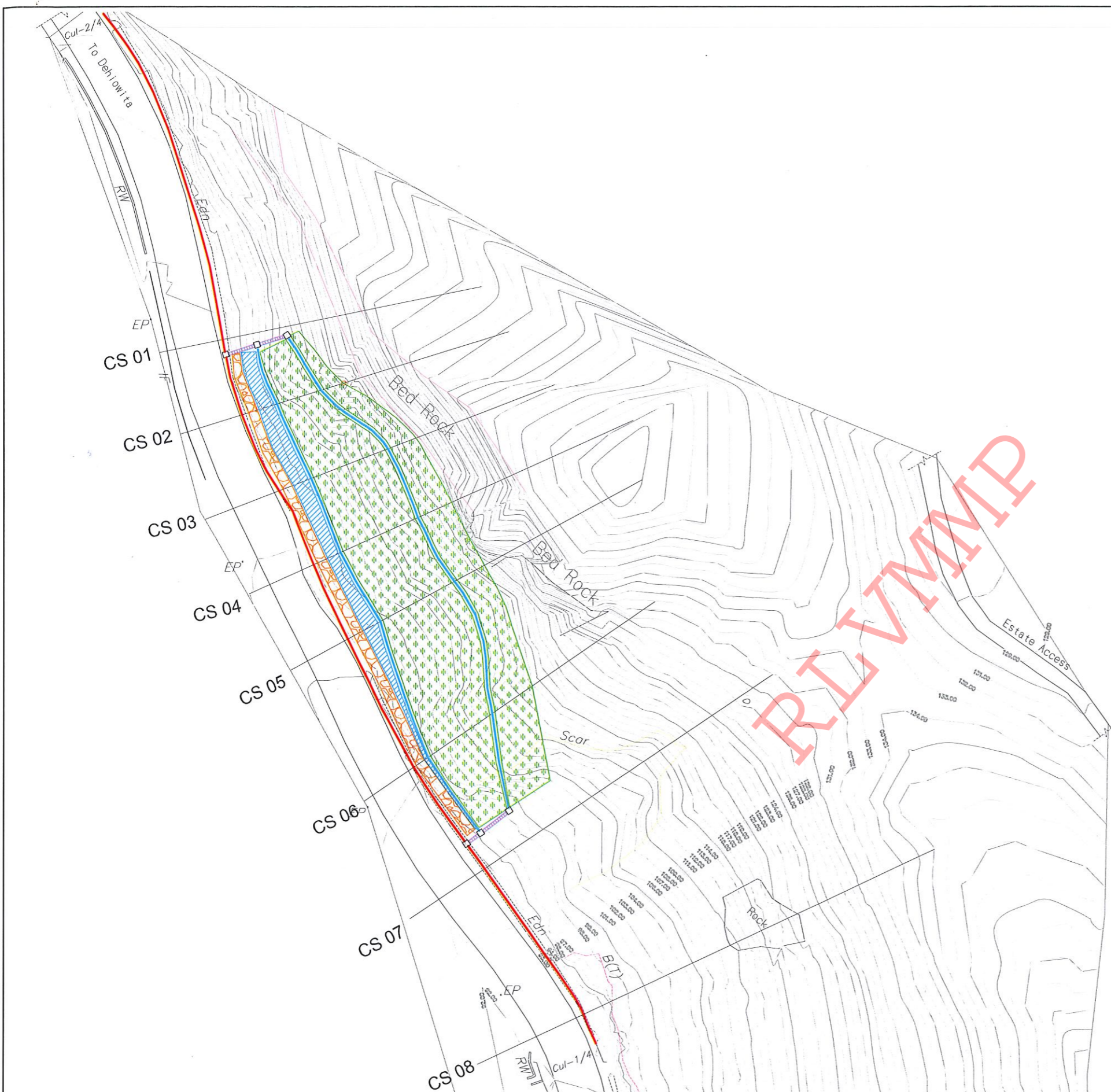
SCALE	N.T.S	DATE	17.05.2022
PROJECT / DRAWING No.	RLVMM/WORKS/NCB/PHII/122-ED/DR-05d	REVISION	00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	<i>[Signature]</i>
DESIGNER	V. G. D. GANGANI	<i>[Signature]</i>
CHECKED	B.I. KUMARAGE	<i>[Signature]</i>
RECOMMENDED	Prof. S.A.S. KULATHILAKA	<i>[Signature]</i>
APPROVED	K.N. BANDARA	<i>[Signature]</i>



- 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 NATIONAL SECURITY AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION 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 B110 - EHELIYAGODA - DEHIOVITA ROAD CULVERT NO. 5/6	TITLE DETAILS OF HORIZONTAL DRAIN SECTIONS	DESCRIPTION	NAME	SIGNATURE
									SCALE 1:600	DATE 17.05.2022
							PROJECT / DRAWING No. RLVMP/WORKS/NCB/PHII/122-ED/DR-06	REVISION 00	DESIGNER V. G. D. GANGANI	
									CHECKED B.I. KUMARAGE	
									RECOMMENDED Prof. S.A.S. KULATHILAKA	
									APPROVED K.N. BANDARA	



REFERENCE


- P - PERMANENT BUILDING
- CDN - CONCRETE DRAIN
- RDA - RDA BOUNDARY MARK
- BO - BOULDER
- WF - WIRE FENCE
- MW - MASONRY WALL
- BT - BANK TOP
- BB - BOTTOM OF BANK
- BW - BOUNDARY WALL
- RW - RETAINING WALL
- EP - ELECTRIC POST
- WC - WATER CLOSET
- CUL - CULVERT
- G - GATE
- ST - SEPTIC TANK
- IF - IRON FENCE


DESIGN NOTATION

- - DS(M) - C
- - DS(B) - C (TYPE II)
- |||| - DS(C) - B
- ▨ - GABION WALL (TYPE II)
- ▨ - BACKFILLING AND TURFING
- ▨ - EXCAVATION AND TURFING AREA
- - CATCH PIT

NOTES

1. SURFACE AND CASCADE DRAIN LOCATIONS (PATH) & LENGTHS MIGHT BE VARIED ACCORDING TO ACTUAL SITE CONDITION.
2. LOCATION OF THE CATCHPITS MIGHT BE VARIED ACCORDING TO THE ACTUAL SITE CONDITION.
3. THE EXCAVATION AREA OF THE TOP PART MAY VARY ACCORDING TO THE POSITION OF ACTUAL BEDROCK LEVEL ENCOUNTERED AT SITE.

EMPLOYER

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


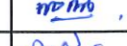



DESIGNER

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

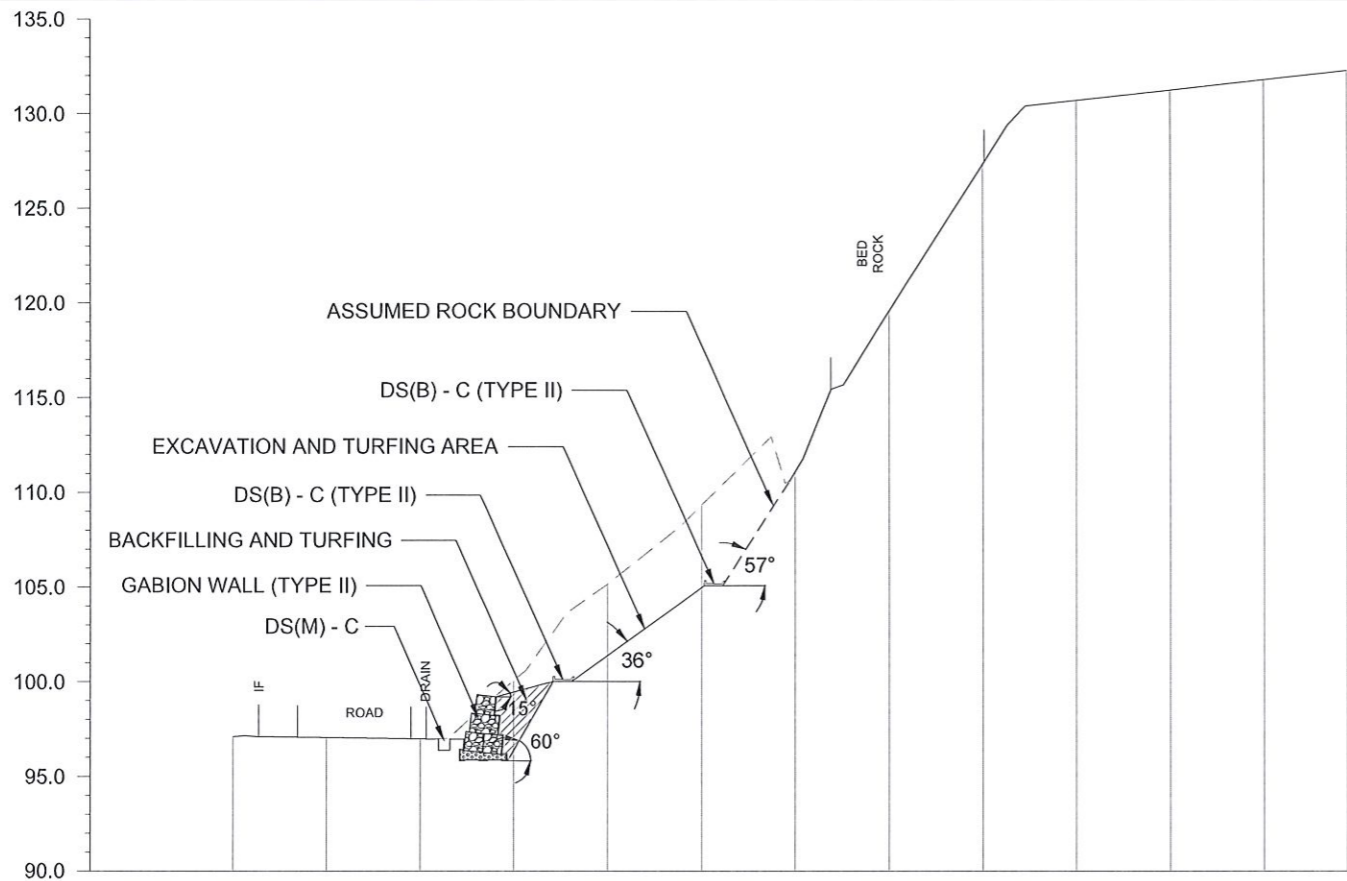
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 B -110 - EHELIYAGODA - DEHIWITA ROAD
 BETWEEN 3 - 3.2km

TITLE
 DESIGN PLAN VIEW

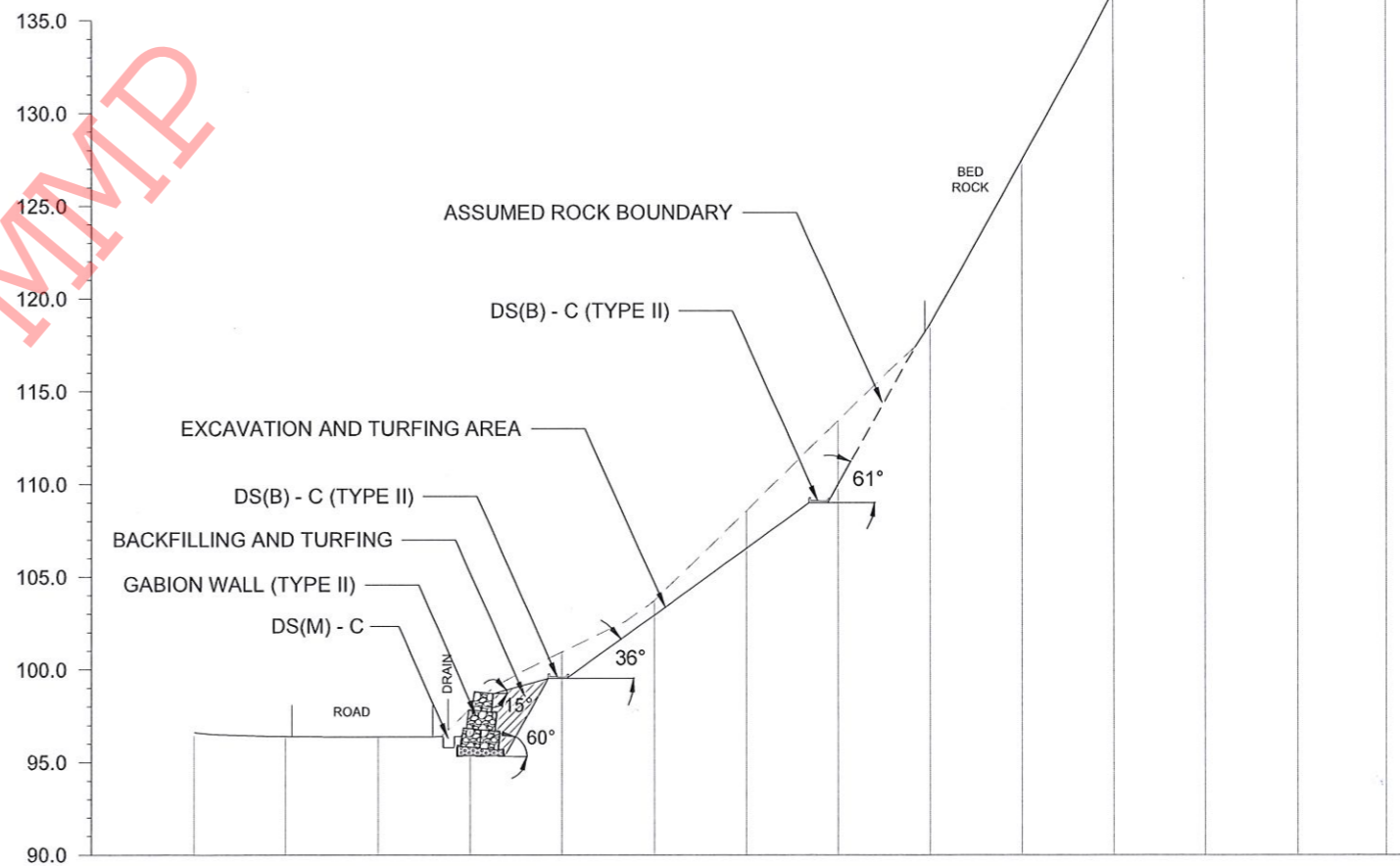
SCALE | 1:750 | DATE | 06.05.2022
 PROJECT / DRAWING No. | RLVMP/WORKS/NCB/PHII/124-ED/DR-03 | REVISION | 00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	V. G. D. GANGANI	
CHECKED	B.I. KUMARAGE	
RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	




GROUND LEVEL (m)	97.117	97.059	96.989	100.044	105.142	109.316	111.095	119.591	127.355	130.714	131.253	131.791	132.267
DISTANCE (m)		5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	


CS 2



GROUND LEVEL (m)		96.410	96.387	97.883	100.939	103.737	108.542	113.413	118.653	127.475	136.577	137.364	137.526	137.177
DISTANCE (m)	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	

CS 3

EMPLOYER

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



DESIGNER

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

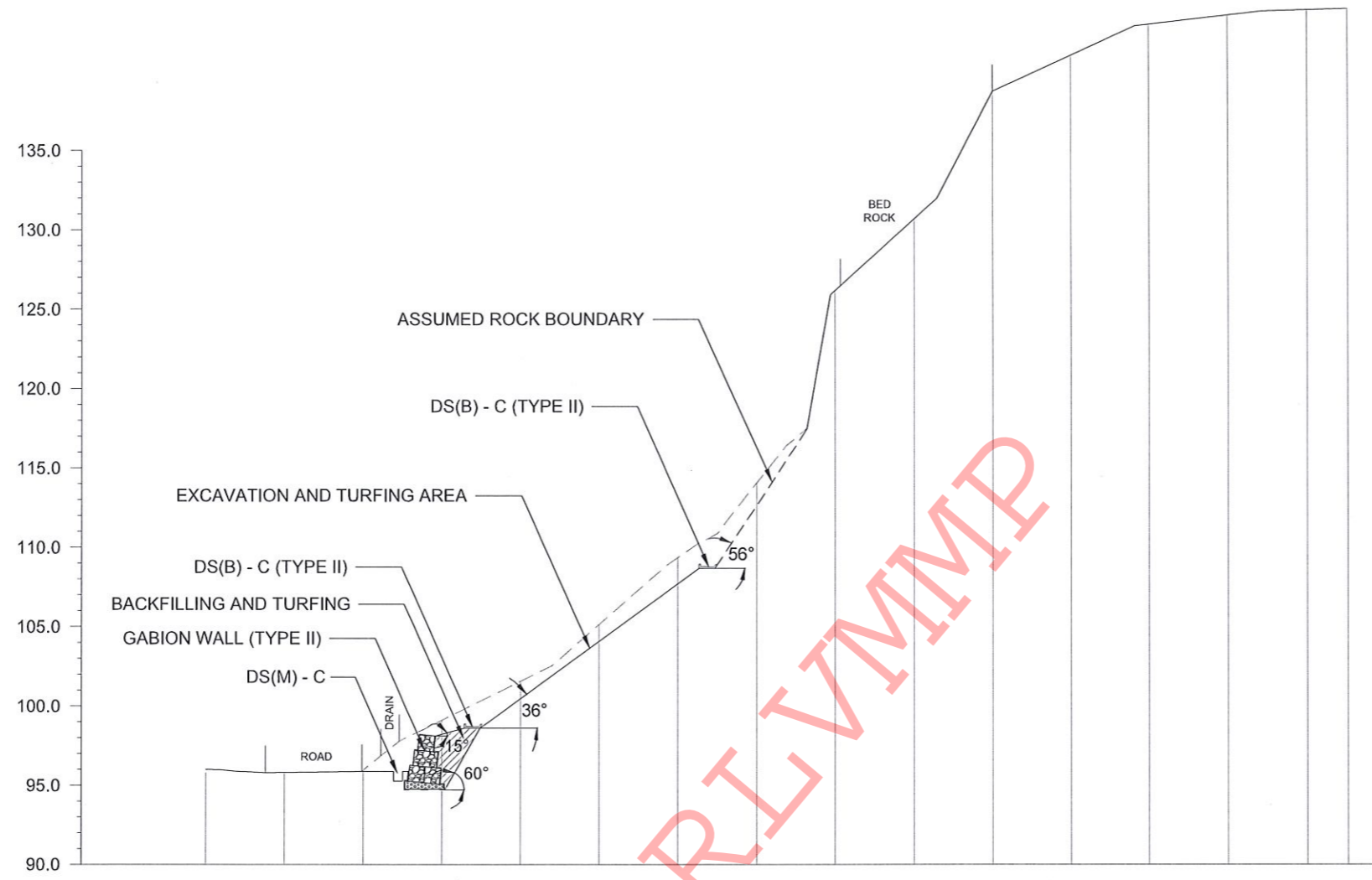
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 B -110 - EHELIYAGODA - DEHIOVITA ROAD
 BETWEEN 3 - 3.2km

TITLE
 DESIGN CROSS SECTION


SCALE	1:400	DATE	06.05.2022
PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/PHIII/124-ED/DR-04a	REVISION	00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	V. G. D. GANGANI	
CHECKED	B.I. KUMARAGE	
RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	



GROUND LEVEL (m)	96.000	95.819	95.939	99.092	101.548	105.136	109.335	114.073	126.183	130.678	138.707	140.988	142.944	143.510	143.839	143.912
DISTANCE (m)		5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	

CS 4


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



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

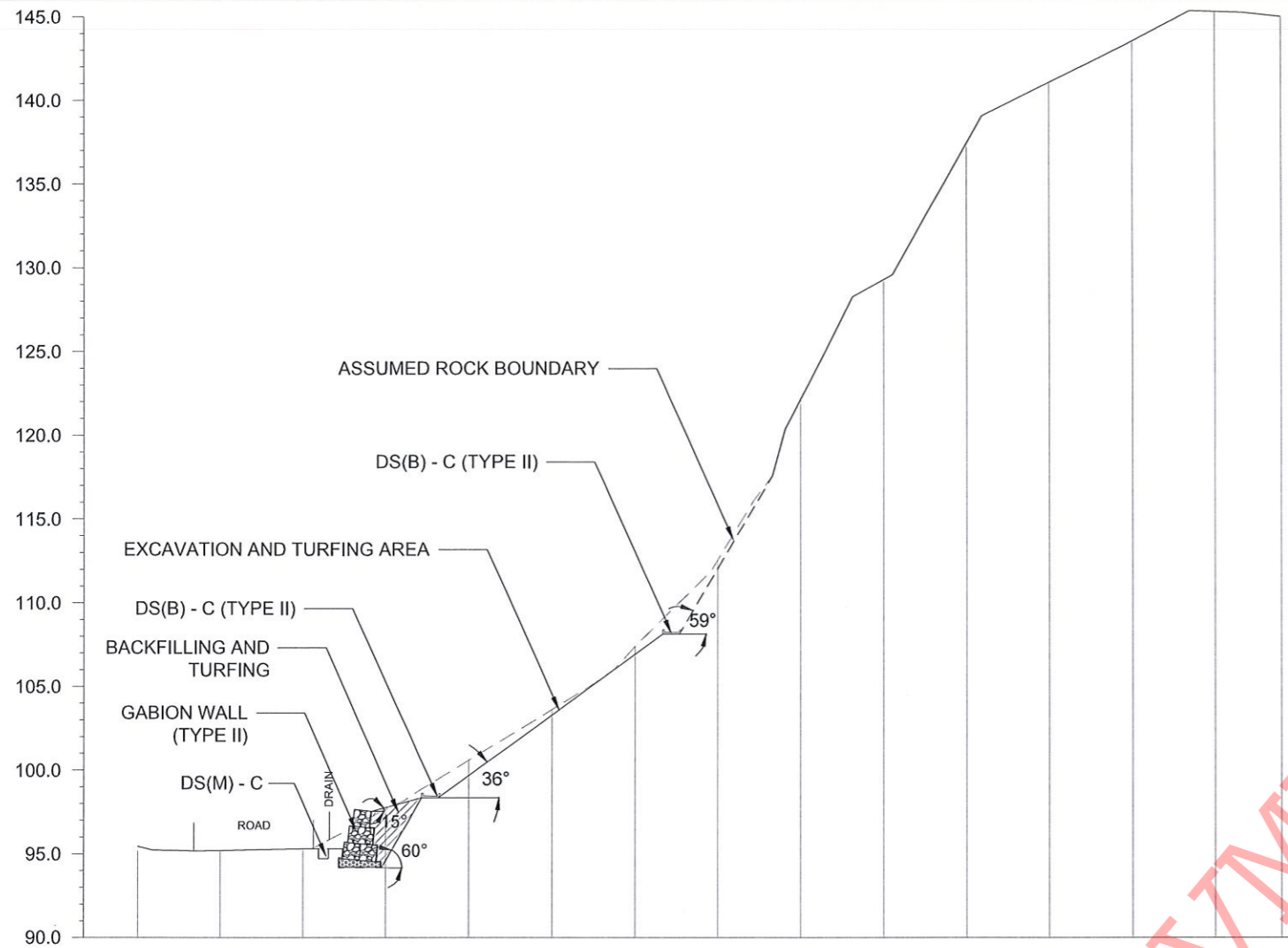
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
B -110 - EHELIYAGODA - DEHIOVITA ROAD
 BETWEEN 3 - 3.2km

TITLE
 DESIGN CROSS SECTION

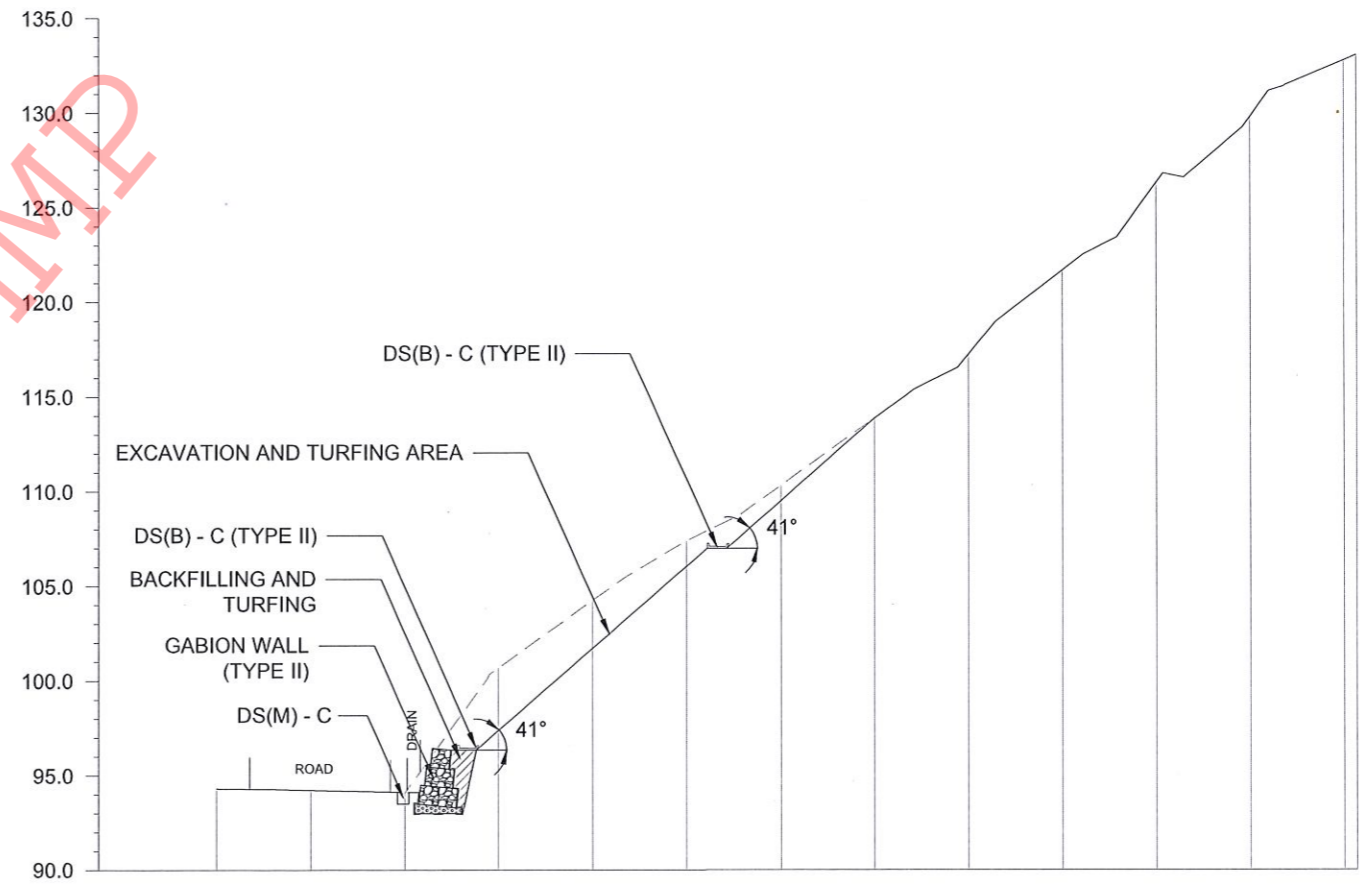
SCALE	1:400	DATE	06.05.2022
PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/PHII/124-ED/DR-04b	REVISION	00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	V. G. D. GANGANI	
CHECKED	B.I. KUMARAGE	
RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	




GROUND LEVEL (m)	95.444	95.197	95.305	97.670	100.573	103.611	107.364	112.540	122.148	129.278	137.447	141.074	143.548	145.292	144.983
DISTANCE (m)		5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	


CS 5



GROUND LEVEL (m)	94.312	94.220	94.084	100.671	104.234	107.369	110.314	113.867	117.240	121.675	126.302	129.761	133.642
DISTANCE (m)		5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00

CS 6

EMPLOYER

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

DESIGNER

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

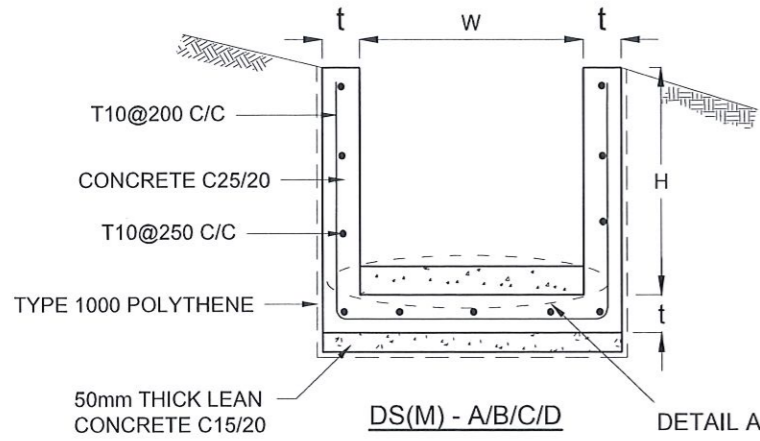
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
B -110 - EHELIYAGODA - DEHIOVITA ROAD
 BETWEEN 3 - 3.2km

TITLE
 DESIGN CROSS SECTION

SCALE	1:400	DATE	06.05.2022
PROJECT / DRAWING No.	RLVMP/WORKS/NCB/PHII/124-ED/DR-04c	REVISION	00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	V. G. D. GANGANI	
CHECKED	B.I. KUMARAGE	
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

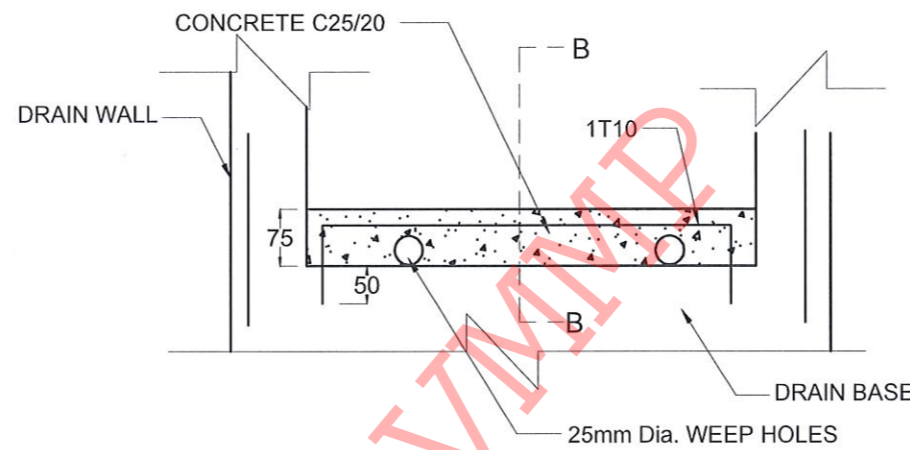
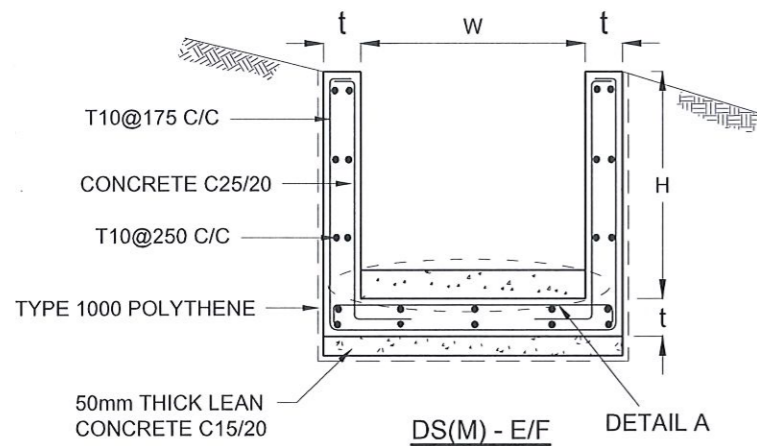
- DEPTH OF EXCAVATION MAY VARY ACCORDING TO SITE CONDITIONS.
- STEPS SHALL BE CONSTRUCTED AT SURFACE DRAIN ON SLOPING GROUND ACCORDING TO THE SITE CONDITIONS AS INSTRUCTED BY THE ENGINEER.
- ENERGY BREAKERS SHALL BE CONSTRUCTED AT THE STEEP DRAIN SEGMENTS AS PER THE INSTRUCTIONS OF THE ENGINEER.
- DOWELS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

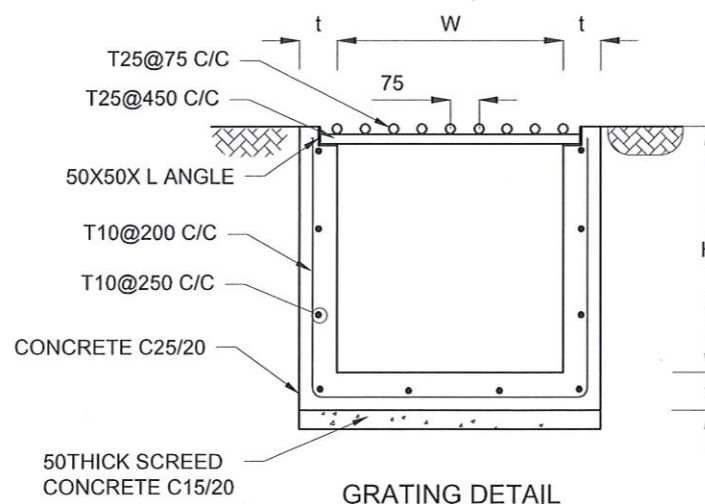
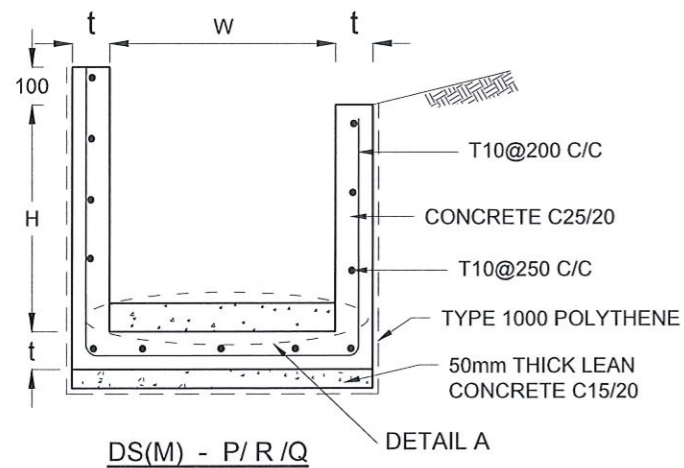
- USE FOLLOWING CONCRETE GRADES FOR STRUCTURE
 - [a] SCREED - C. 15/20
 - [b] WALLS / BASE / ENERGY BREAKERS - C. 25/20

REINFORCEMENT

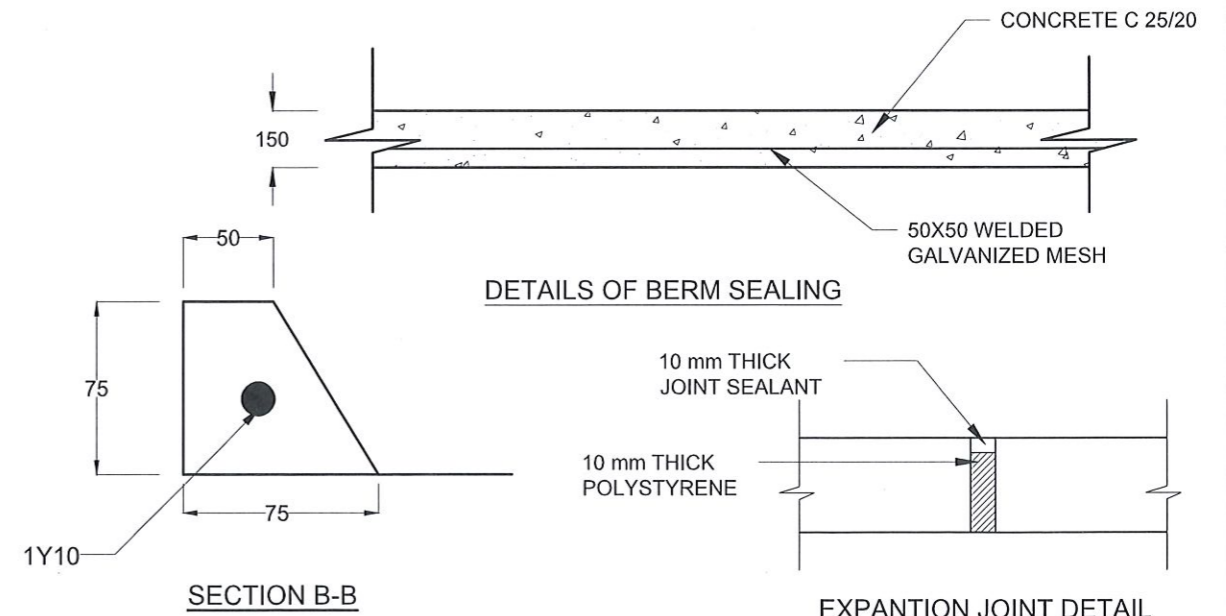
- ALL BARS MARKED "T" SHALL BE HIGH YIELD DEFORMED BARS OF YIELD STRENGTH NOT LESS THAN 460N/mm².
- BARS OF CUT LENGTH LARGER THAN THE SUPPLIED LENGTH TO BE LAPPED FOR A LENGTH OF 50 x BAR DIA. AND LAPPING SHOULD BE STAGGERED.
- ANCHORAGE LENGTH SHOULD BE 40X BAR DIA.
- REINFORCEMENT BARS SHALL BE BENT 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)



GRATING DETAIL



DETAILS OF BERM SEALING

SECTION B-B

EXPANSION JOINT DETAIL

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

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

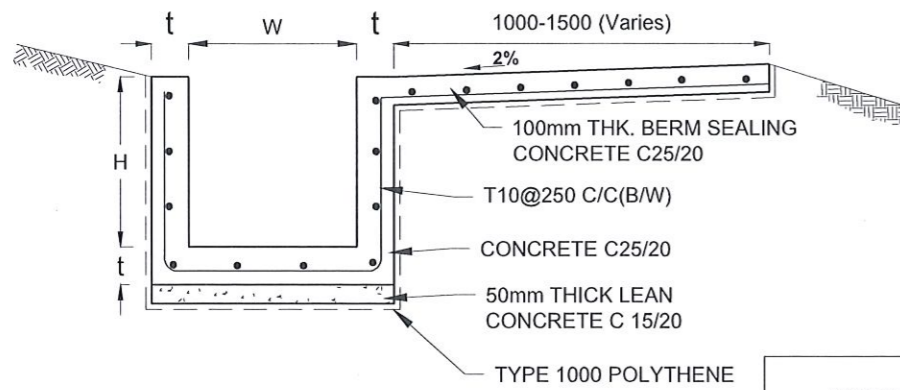
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 B -110 - EHELIYAGODA - DEHIOVITA ROAD
 BETWEEN 3 - 3.2km

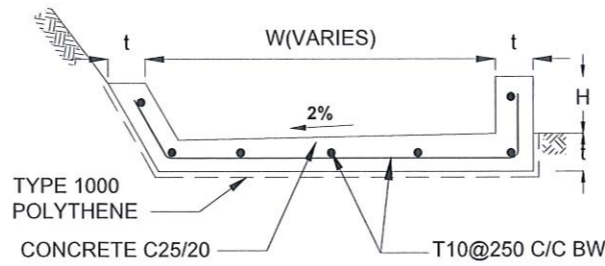
TITLE
 DETAILS OF DRAINS
 (SURFACE DRAIN - 1 OF 2)

SCALE	N.T.S	DATE	06.05.2022
PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/PHII/124-ED/DR-05a	REVISION	00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	<i>[Signature]</i>
DESIGNER	V. G. D. GANGANI	<i>[Signature]</i>
CHECKED	B.I. KUMARAGE	<i>[Signature]</i>
RECOMMENDED	Prof. S.A.S. KULATHILAKA	<i>[Signature]</i>
APPROVED	K.N. BANDARA	<i>[Signature]</i>



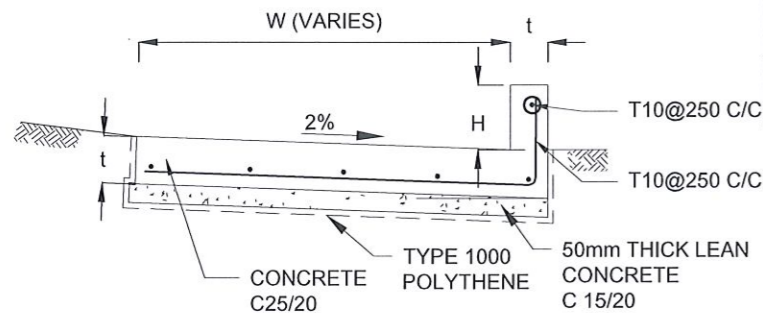
DS (B) - (TYPE I)



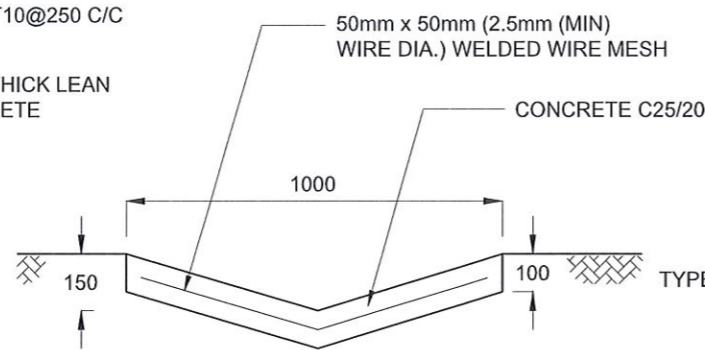
DS (B) - (TYPE II)

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 (B) - D	1500	150	100
DS (B) - E	2000	150	100

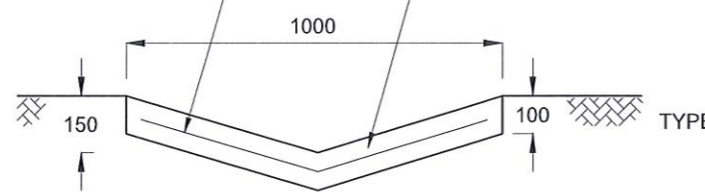
DRAIN TYPE	W (mm)	H (mm)	t (mm)
DS (K) - A	1000	200	100
DS (K) - B	1000	300	100
DS (K) - C	1150	200	200



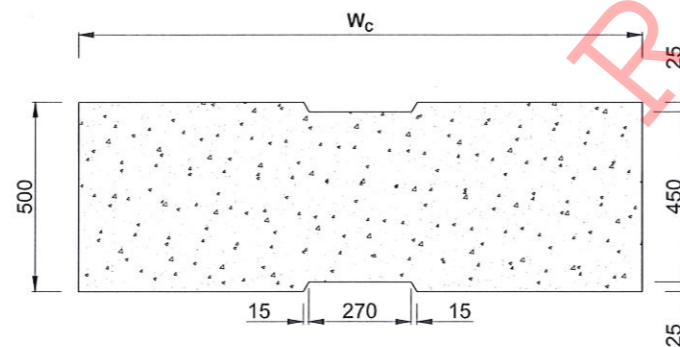
DS (K) - TYPE I



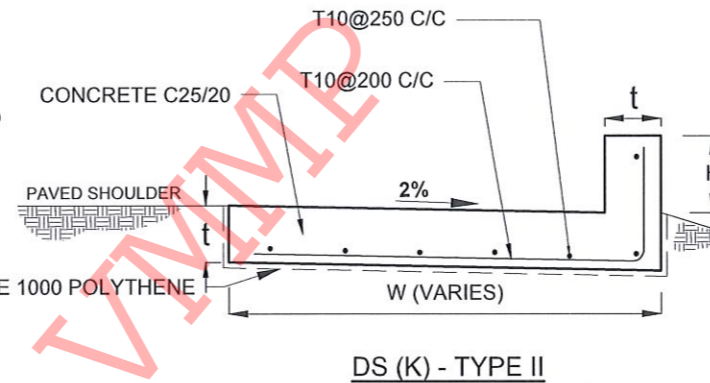
DS (K) - TYPE II



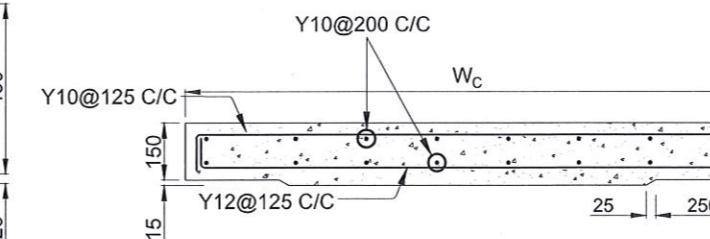
DS (D) - A (DISH DRAIN)



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

CONCRETE

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

REINFORCEMENT

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

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

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

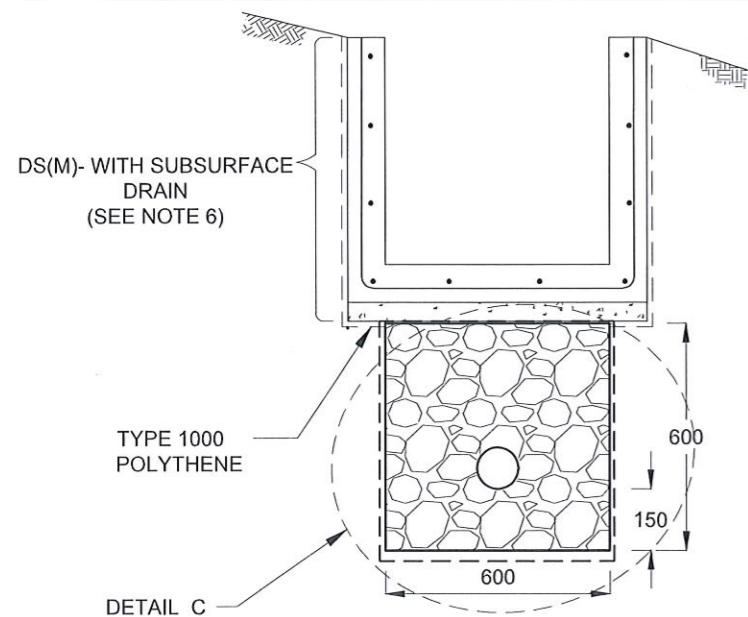
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 B -110 - EHELIYAGODA - DEHIOVITA ROAD
 BETWEEN 3 - 3.2km

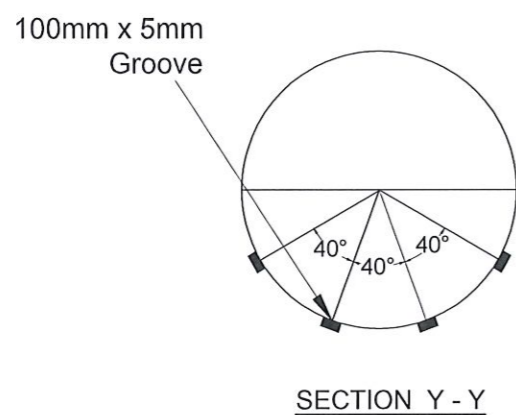
TITLE
 DETAILS OF DRAINS
 (SURFACE DRAIN - 2 OF 2)

SCALE: N.T.S. DATE: 06.05.2022
 PROJECT / DRAWING No. REVISION: 00
 RLVMP/WORKS/NCB/PHII/124-ED/DR-05b

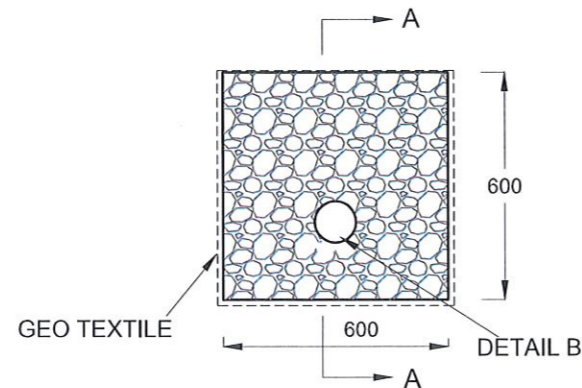
DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	<i>[Signature]</i>
DESIGNER	V. G. D. GANGANI	<i>[Signature]</i>
CHECKED	B.I. KUMARAGE	<i>[Signature]</i>
RECOMMENDED	Prof. S.A.S. KULATHILAKA	<i>[Signature]</i>
APPROVED	K.N. BANDARA	<i>[Signature]</i>



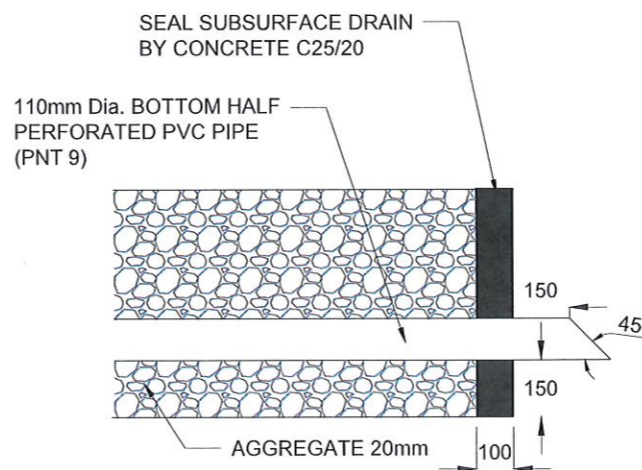
SUBSURFACE DRAIN [DS (S) -A]



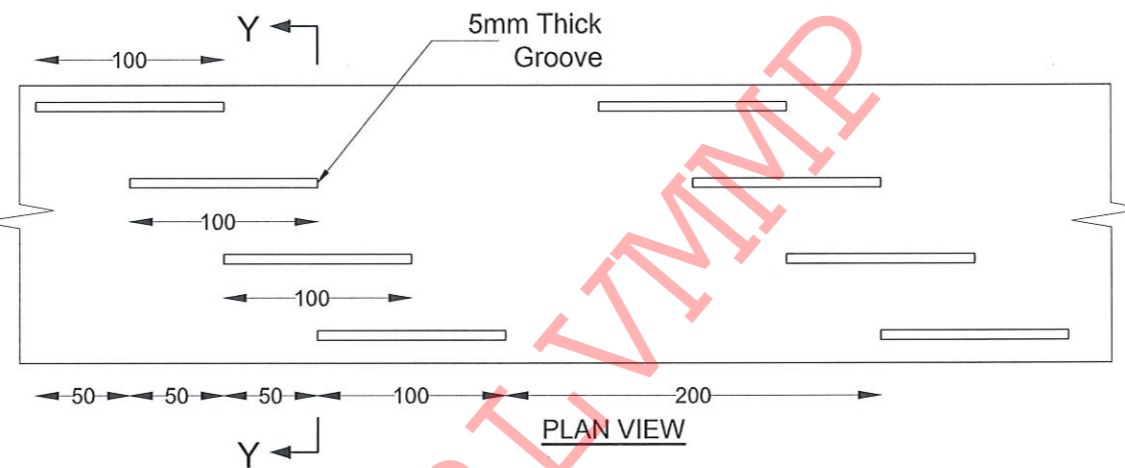
SECTION Y - Y



DETAIL C / DS (S) -A

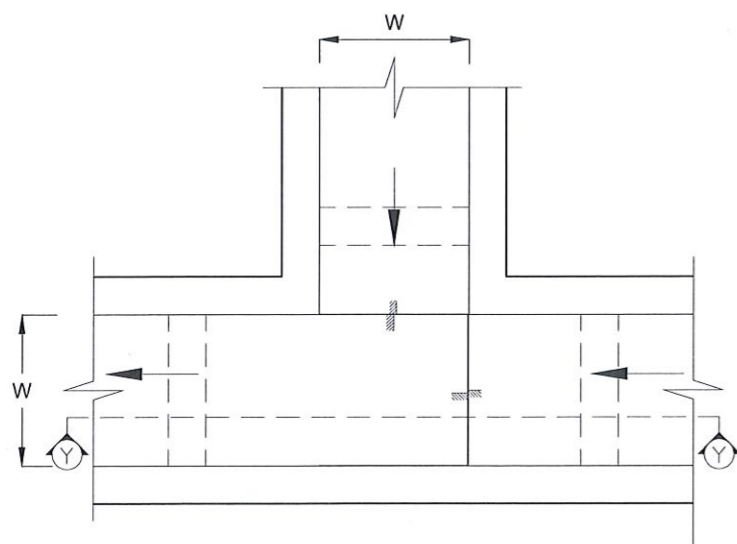


SECTION A-A (OUTLET DETAIL SUBSURFACE DRAIN)

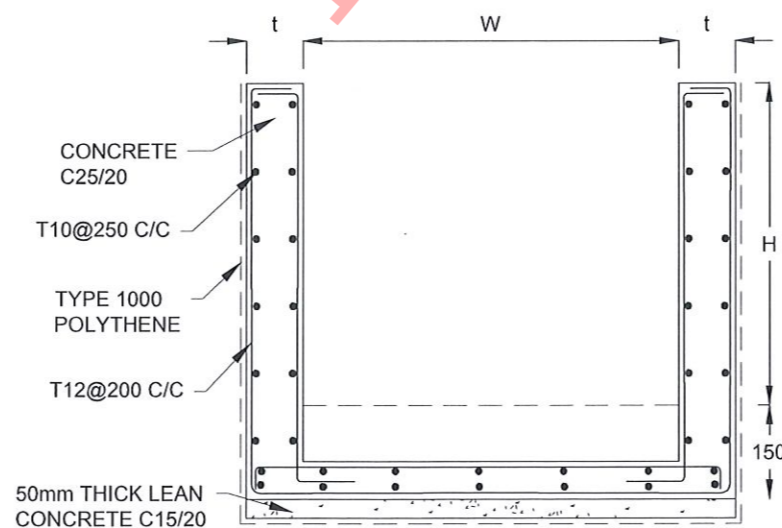


PLAN VIEW

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



PLAN VIEW OF CATCH PIT (CP)



SECTION Y-Y (CP- R)

NOTES

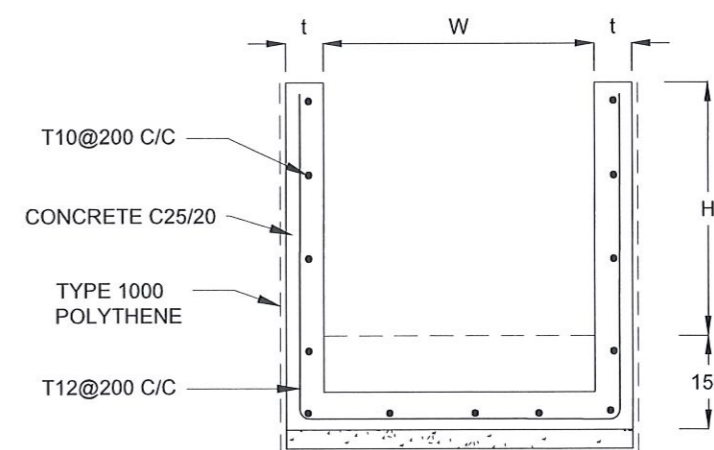
1. W,H,t ; SHALL BE THE SAME AS RESPECTIVE DRAIN SECTION.
2. CP - R SHALL BE USED WHERE H > = 900mm
3. DEPTH OF EXCAVATION MAY VARY ACCORDING TO SITE CONDITIONS.
4. DOWELS SHALL BE INSTALLED ACCORDING TO THE GROUND CONDITIONS AS INSTRUCTED BY THE ENGINEER.
5. 10 mm THICK EXPANSION JOINT SHALL BE INTRODUCED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

CONCRETE

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

REINFORCEMENT

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



SECTION Y - Y

EMPLOYER
 DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
 STATE MINISTRY OF NATIONAL SECURITY 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

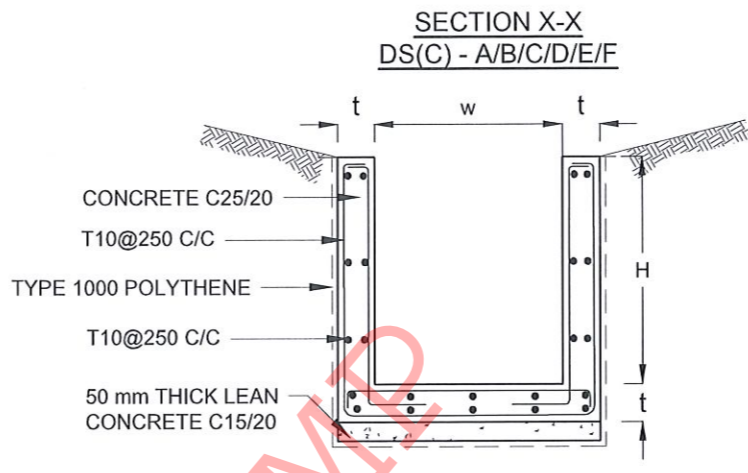
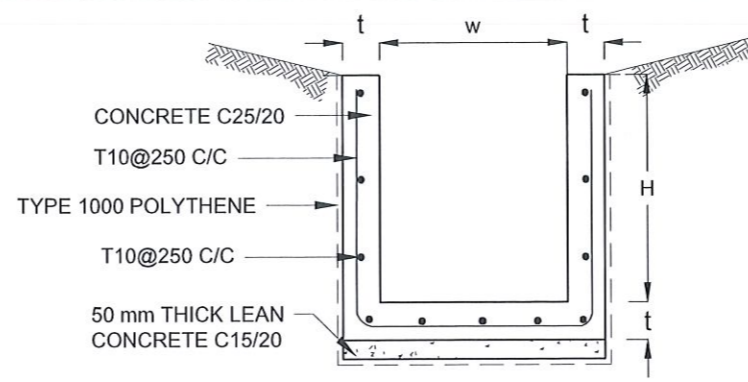
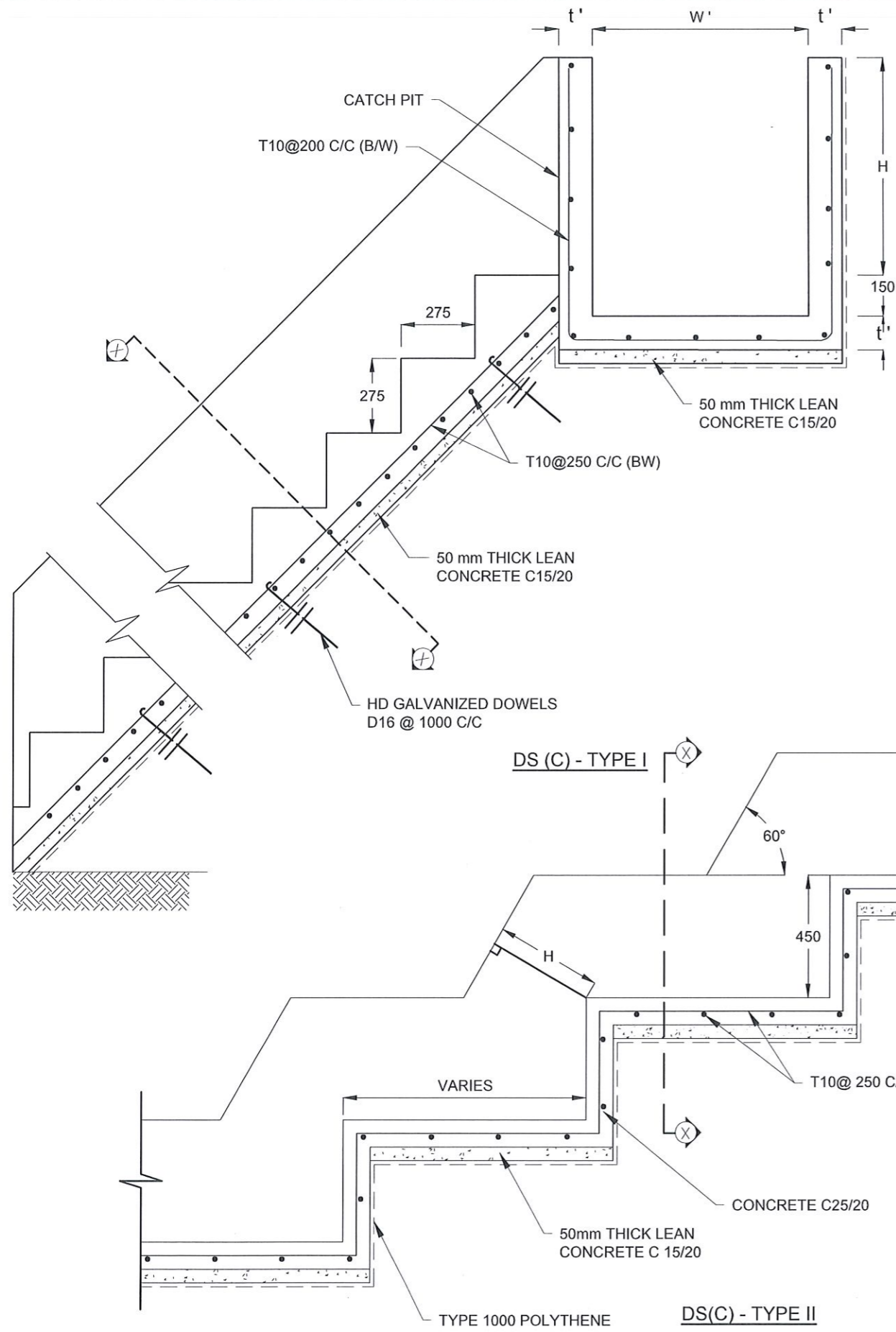
PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 B -110 - EHELIYAGODA - DEHIOVITA ROAD
 BETWEEN 3 - 3.2km

TITLE
 DETAILS OF DRAINS
 (SUBSURFACE DRAIN AND CATCHPIT)

SCALE N.T.S
 PROJECT / DRAWING No. RLVMMP/WORKS/NCB/PHII/124-ED/DR-05c

DATE 06.05.2022
 REVISION 00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	<i>[Signature]</i>
DESIGNER	V. G. D. GANGANI	<i>[Signature]</i>
CHECKED	B.I. KUMARAGE	<i>[Signature]</i>
RECOMMENDED	Prof. S.A.S. KULATHILAKA	<i>[Signature]</i>
APPROVED	K.N. BANDARA	<i>[Signature]</i>



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
DS (C) - G	1200	1000	125	1300	125

EMPLOYER
 DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
 STATE MINISTRY OF NATIONAL SECURITY AND DISASTER MANAGEMENT
 NATIONAL BUILDING RESEARCH ORGANISATION
 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

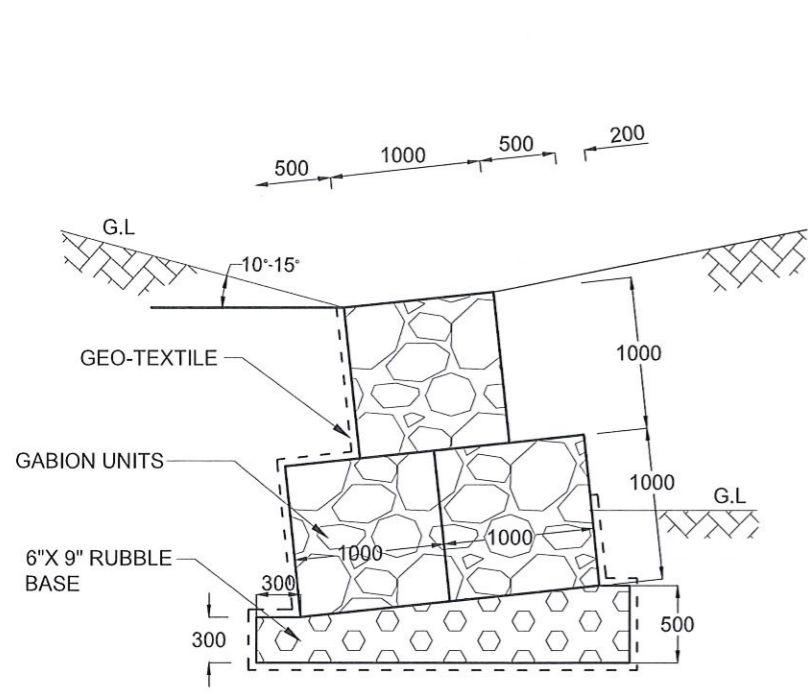
PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
 B - 110 - EHELIYAGODA - DEHIOVITA ROAD
 BETWEEN 3 - 3.2km

TITLE
 DETAILS OF DRAINS
 (CASCADE DRAIN)

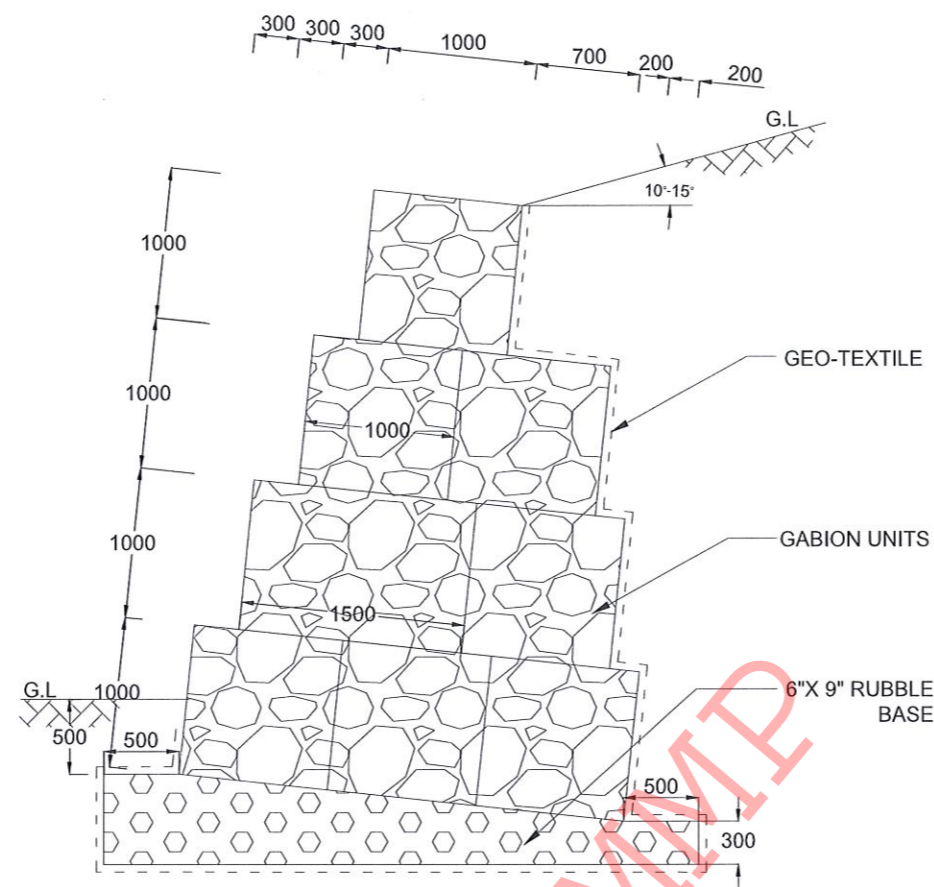
SCALE N.T.S
 PROJECT / DRAWING No.
 RLVMMP/WORKS/NCB/PHII/124-ED/DR-05d

DATE 06.05.2022
 REVISION 00

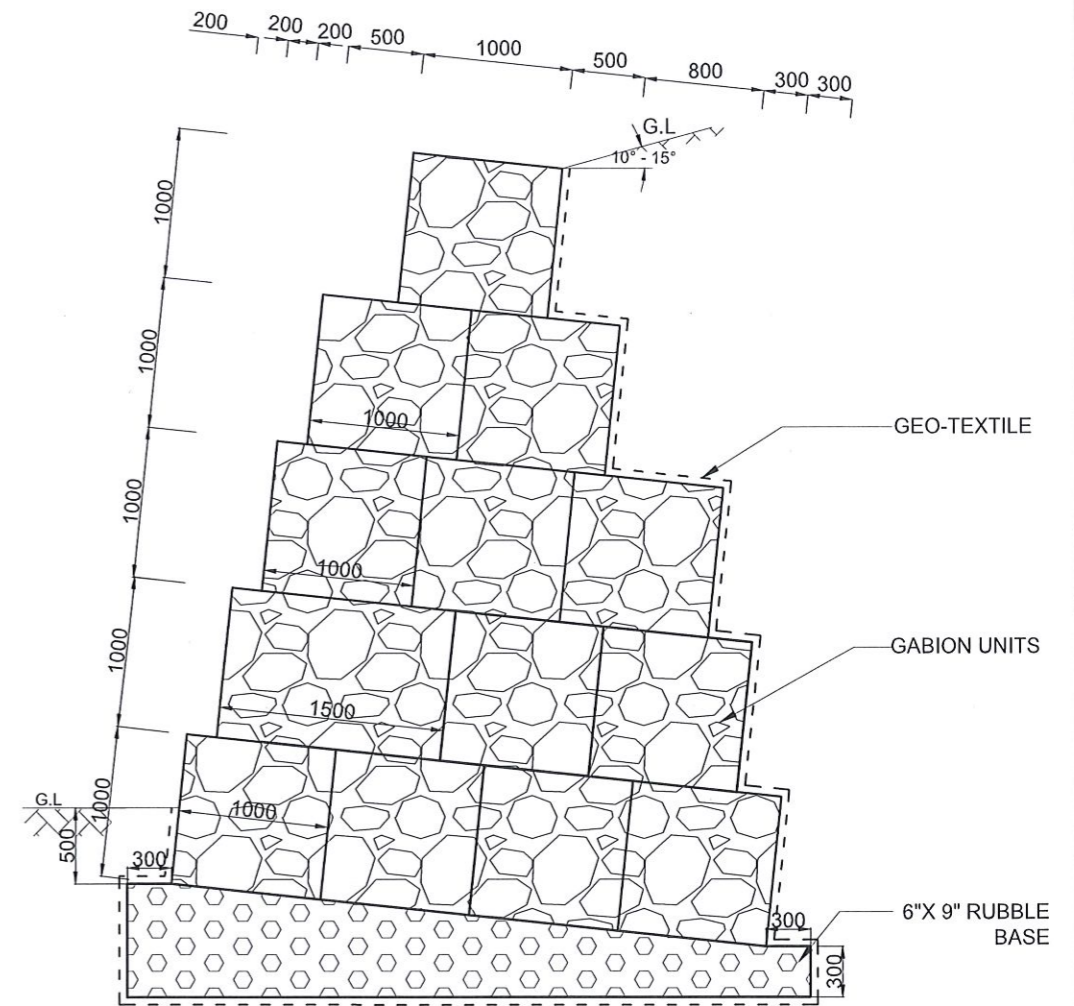
DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	<i>[Signature]</i>
DESIGNER	V. G. D. GANGANI	<i>[Signature]</i>
CHECKED	B.I. KUMARAGE	<i>[Signature]</i>
RECOMMENDED	Prof. S.A.S. KULATHILAKA	<i>[Signature]</i>
APPROVED	K.N. BANDARA	<i>[Signature]</i>



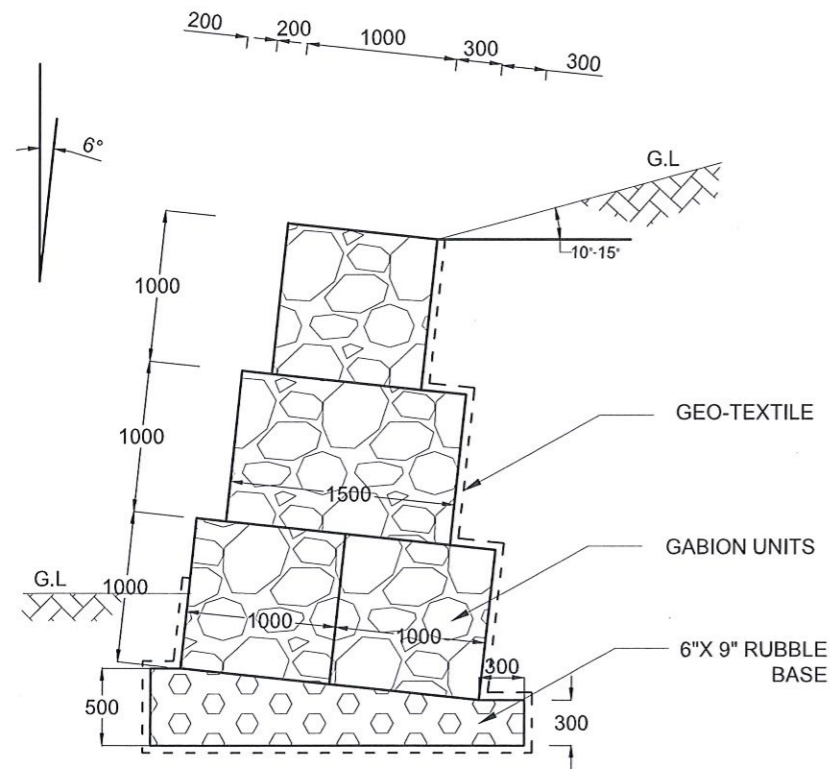
GABION WALL
TYPE I



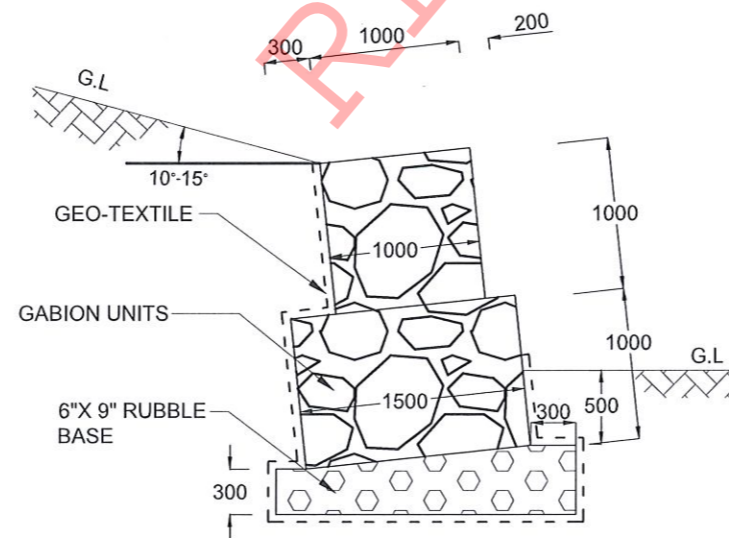
GABION WALL
TYPE III



GABION WALL
TYPE IV




GABION WALL
TYPE II




GABION WALL
TYPE V

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. BACKSLOPE ANGLE, LEVEL AND FORM MAY VARY AS PER THE DESIGN AT EACH SITE.

EMPLOYER

DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
 STATE MINISTRY OF NATIONAL SECURITY AND DISASTER MANAGEMENT
 NATIONAL BUILDING RESEARCH ORGANISATION
 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
 B -110 - EHELIYAGODA - DEHIOVITA ROAD
 BETWEEN 3 - 3.2km

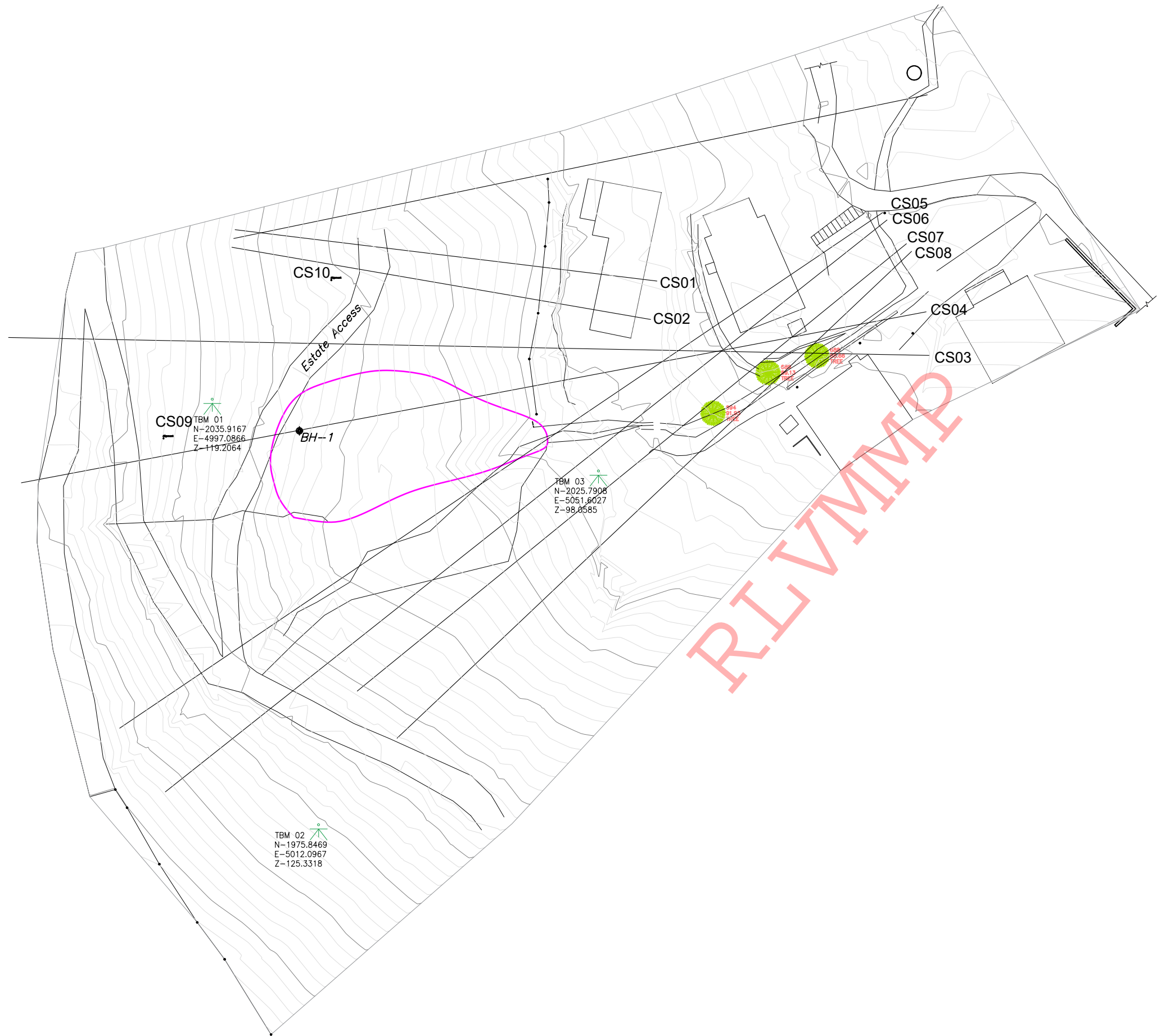
TITLE
 DETAILS OF GABION WALL

SCALE	N.T.S	DATE	06.05.2022
PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/PHII/124-ED/DR-06	REVISION	00

DESCRIPTION	NAME	SIGNATURE
DRAWN	S.A.G.D. SENANAYAKA	
DESIGNER	V. G. D. GANGANI	
CHECKED	B.I. KUMARAGE	
RECOMMENDED	Prof. S.A.S. KULATHILAKA	
APPROVED	K.N. BANDARA	

SURVEY DRAWINGS


RLVIMP



REFERENCE


- P - PERMANENT BUILDING
- B(B) - BOTTOM OF BANK
- B(T) - TOP OF BANK
- EP - ELECTRICITY POL
- E - CONCRETE DRAIN
- EDN - EARTH DRAIN
- MW - MASONRY WELL
- ST - SEPTIC TANK
- WC - WATER CLOSET
- RW - RETAINING WALL
- CUL. - CULVERT
- BO - BOLDER

EMPLOYER



DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
STATE MINISTRY OF NATIONAL SECURITY AND DISASTER MANAGEMENT
NATIONAL BUILDING RESEARCH ORGANISATION
 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

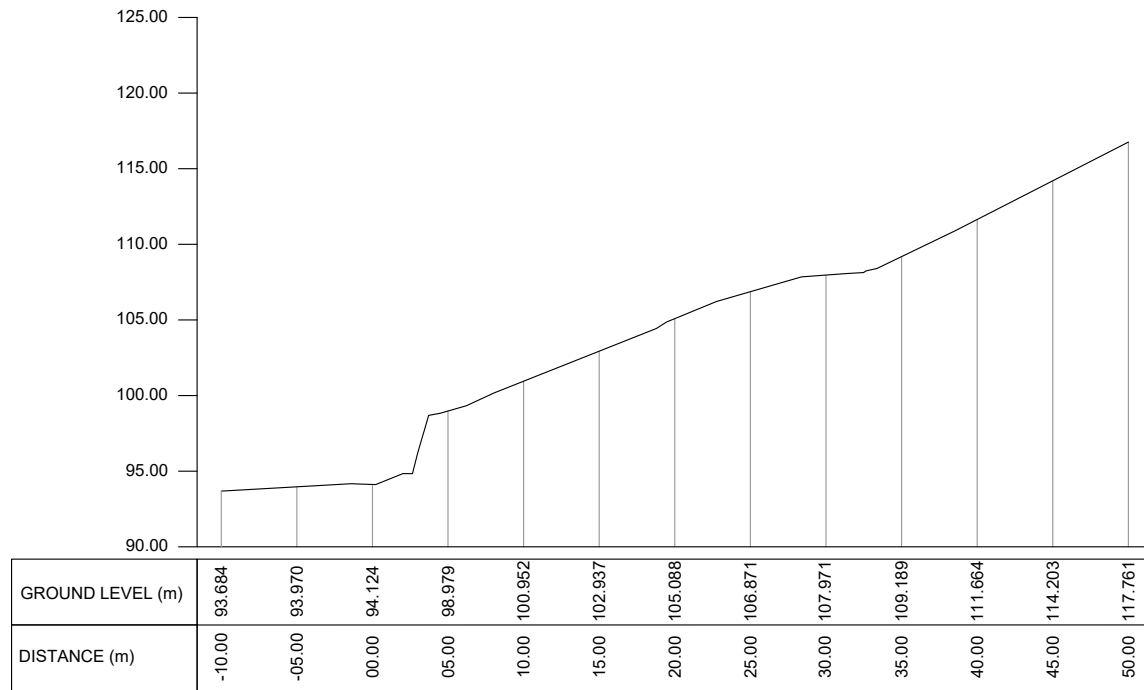
REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
DERANIYAGALA COLPING SITE

TITLE

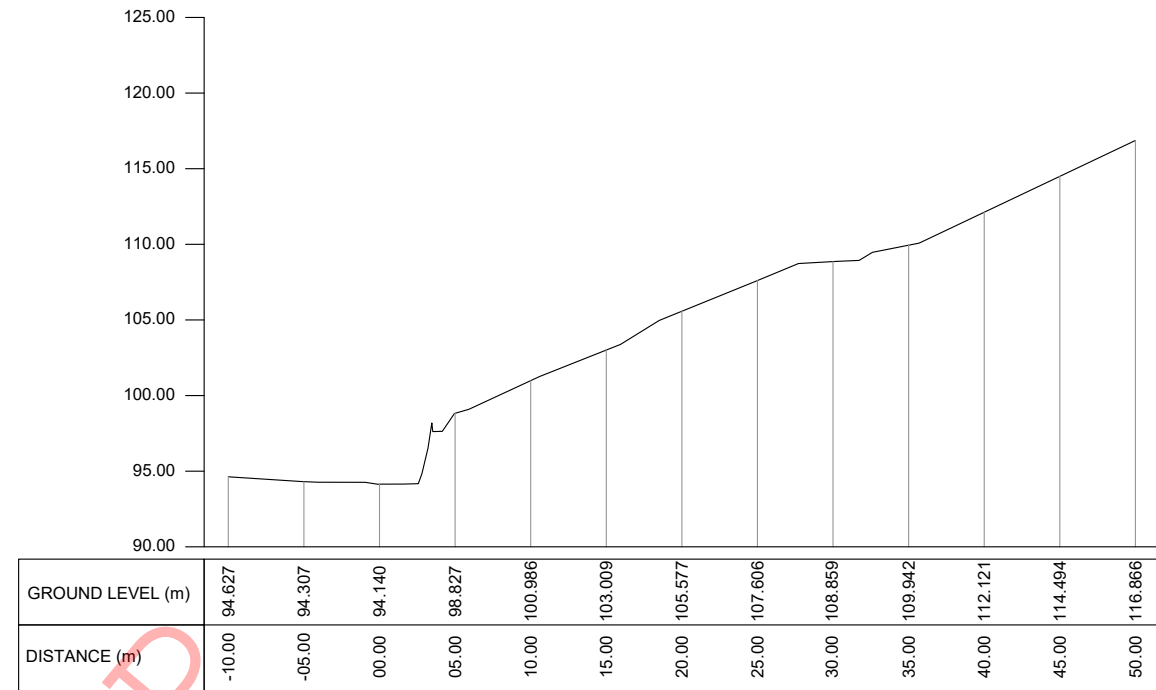
SURVEY PLAN VIEW

SCALE	1:600	DATE	22.09.2020
PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/PHII/048-DC/DR-01	REVISION	00

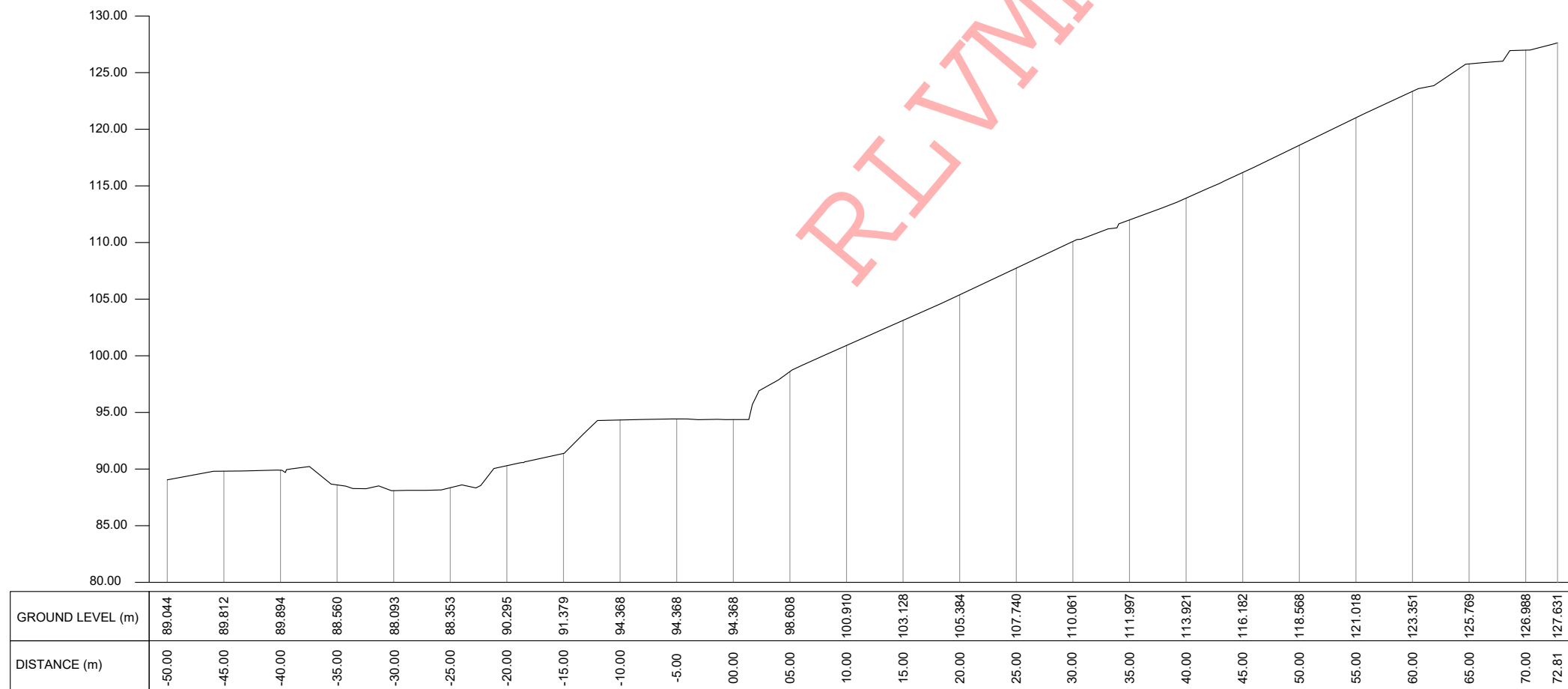
DESCRIPTION	NAME	SIGNATURE
SURVEYED	B.K.K.D.JAYASINGHE	
CHECKED	M.P. AMARASINGHE	




CS01



CS02



CS03

EMPLOYER

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

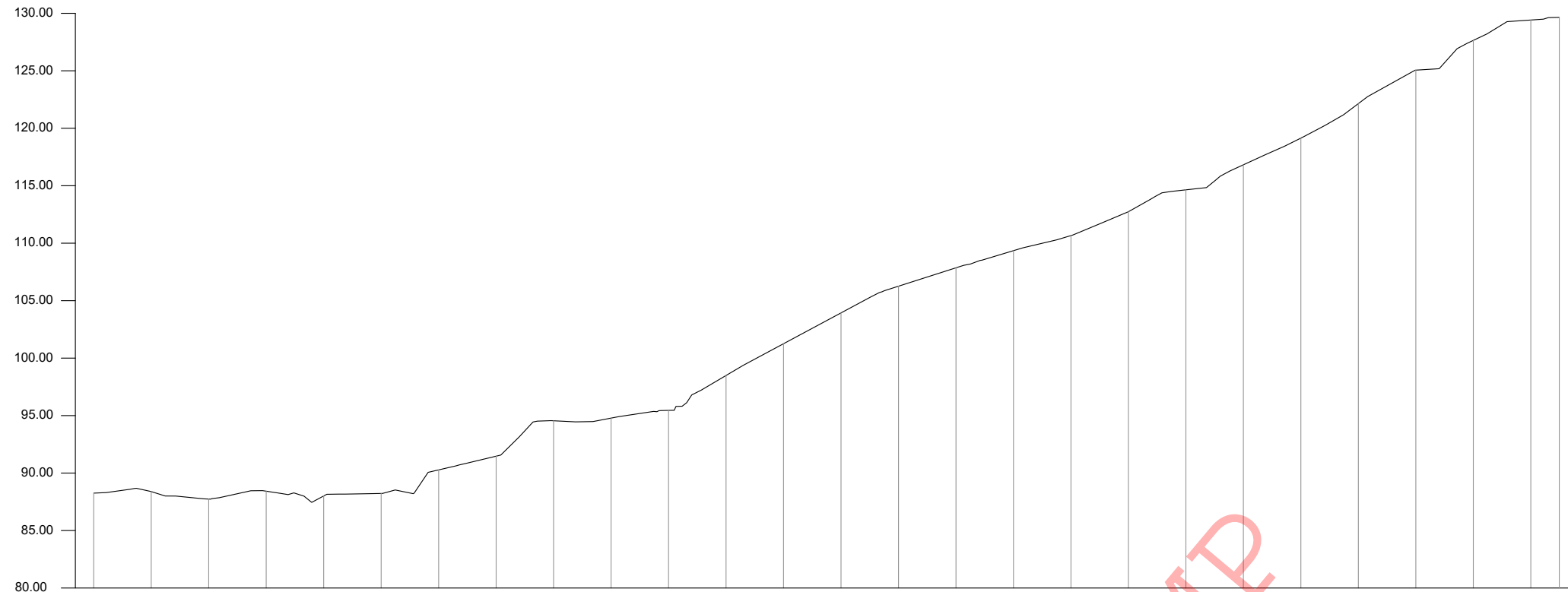
DESIGNER

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

REV	DATE	REVISION DESCRIPTION	APPROVAL

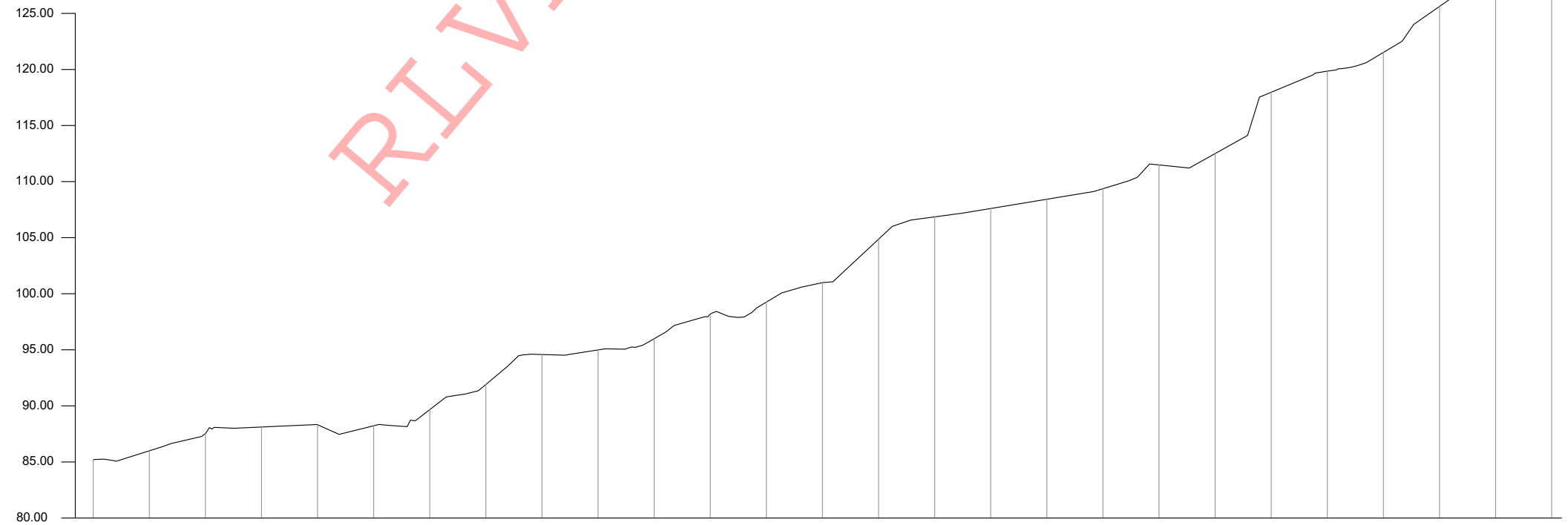
PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
DERANIYAGALA COLPING SITE

TITLE		DESCRIPTION	NAME	SIGNATURE
SURVEY CROSS SECTION		SURVEYED	B.K.K.D.JAYASINGHE	
		CHECKED	M.P. AMARASINGHE	
SCALE	1:600	DATE	22.09.2020	
PROJECT / DRAWING No.		REVISION	00	
RLVMMMP/WORKS/NCB/PHII/048-DC/DR-02a				





GROUND LEVEL (m)	88.255	88.388	87.389	88.422	88.083	88.224	90.276	91.471	94.548	94.784	95.427	98.493	101.257	103.938	106.259	107.856	109.348	110.664	112.742	114.644	116.822	119.144	122.145	125.056	127.645	129.418	129.670
DISTANCE (m)	-50.00	-45.00	-40.00	-35.00	-30.00	-25.00	-20.00	-15.00	-10.00	-5.00	00.00	05.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	77.48

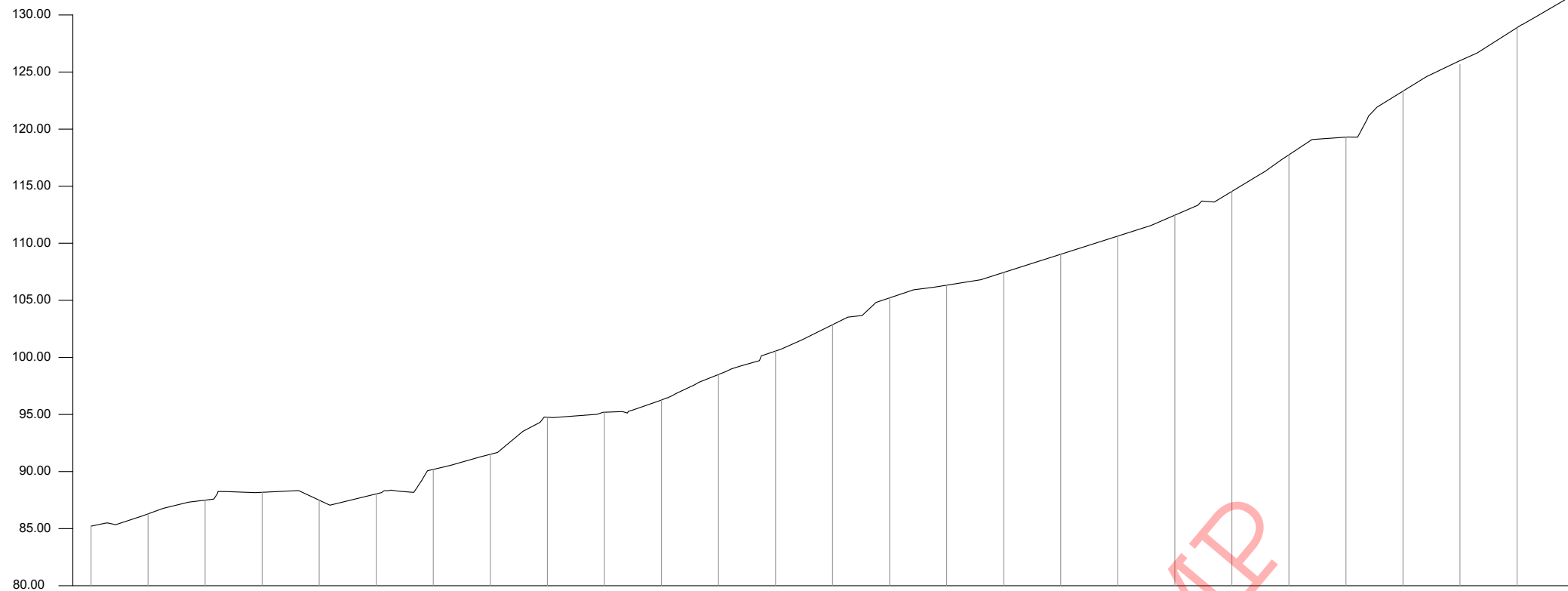
CS04



GROUND LEVEL (m)	85.173	85.994	87.534	88.115	88.311	88.224	89.667	91.607	94.548	94.991	95.992	98.186	99.254	100.987	104.861	106.855	107.600	108.425	109.363	111.486	112.497	117.966	119.848	121.519	125.621	128.824	131.559
DISTANCE (m)	-50.00	-45.00	-40.00	-35.00	-30.00	-25.00	-20.00	-15.00	-10.00	-5.00	00.00	05.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00

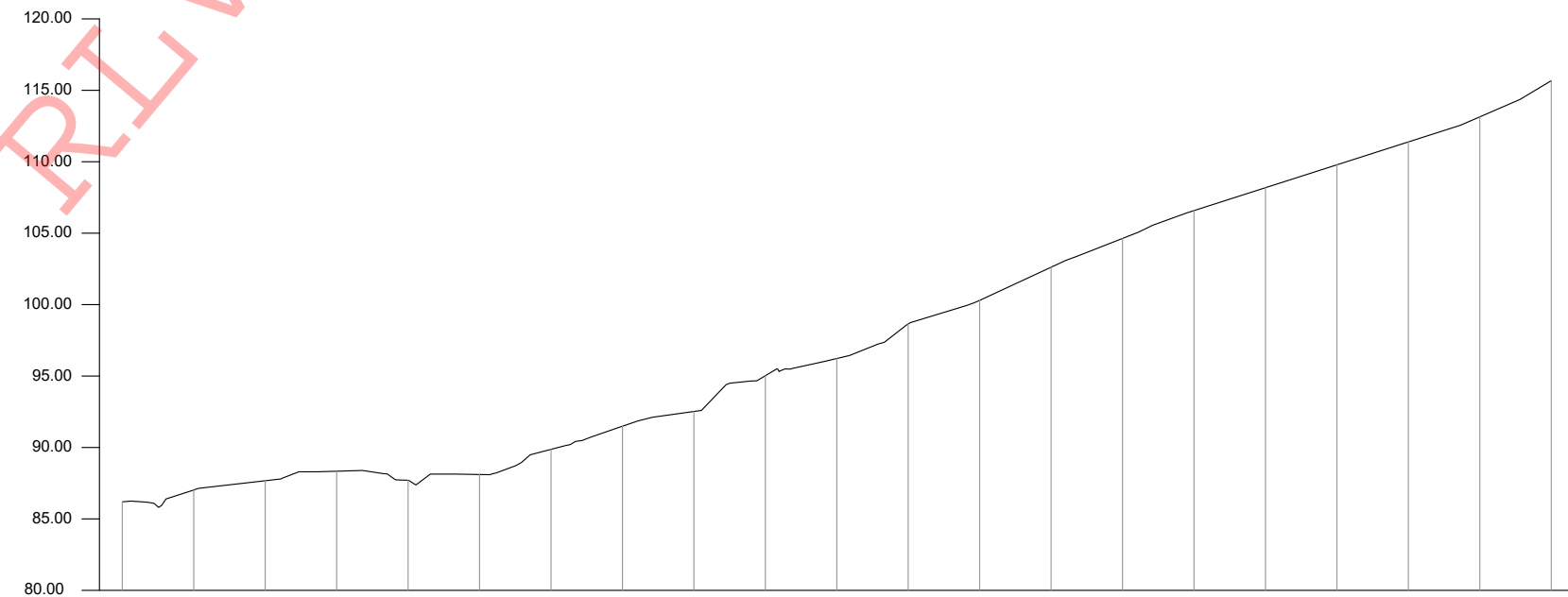
CS05

EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF NATIONAL SECURITY AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION 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 DERANIYAGALA COLPING SITE	TITLE		DESCRIPTION	NAME	SIGNATURE
							SURVEY CROSS SECTION		SURVEYED	B.K.K.D.JAYASINGHE	
									CHECKED	M.P. AMARASINGHE	
						SCALE	1:600	DATE	22.09.2020		
						PROJECT / DRAWING No.	RLVMMMP/WORKS/NCB/PHII/048-DC/DR-02b	REVISION	00		




GROUND LEVEL (m)	85.216	86.291	87.494	88.181	87.489	88.044	90.188	91.512	94.755	95.194	95.992	96.268	100.555	102.865	105.216	106.328	107.444	109.068	110.630	112.459	114.545	117.748	119.297	123.328	125.644	128.867	131.602
DISTANCE (m)	-50.00	-45.00	-40.00	-35.00	-30.00	-25.00	-20.00	-15.00	-10.00	-5.00	00.00	05.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00

CS06



GROUND LEVEL (m)	86.194	87.022	87.671	88.338	87.704	88.109	89.868	91.489	92.519	95.022	96.227	98.644	100.298	102.622	104.633	106.584	108.185	109.787	111.389	113.144	115.676
DISTANCE (m)	-50.00	-45.00	-40.00	-35.00	-30.00	-25.00	-20.00	-15.00	-10.00	-5.00	00.00	05.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00

CS07

EMPLOYER

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

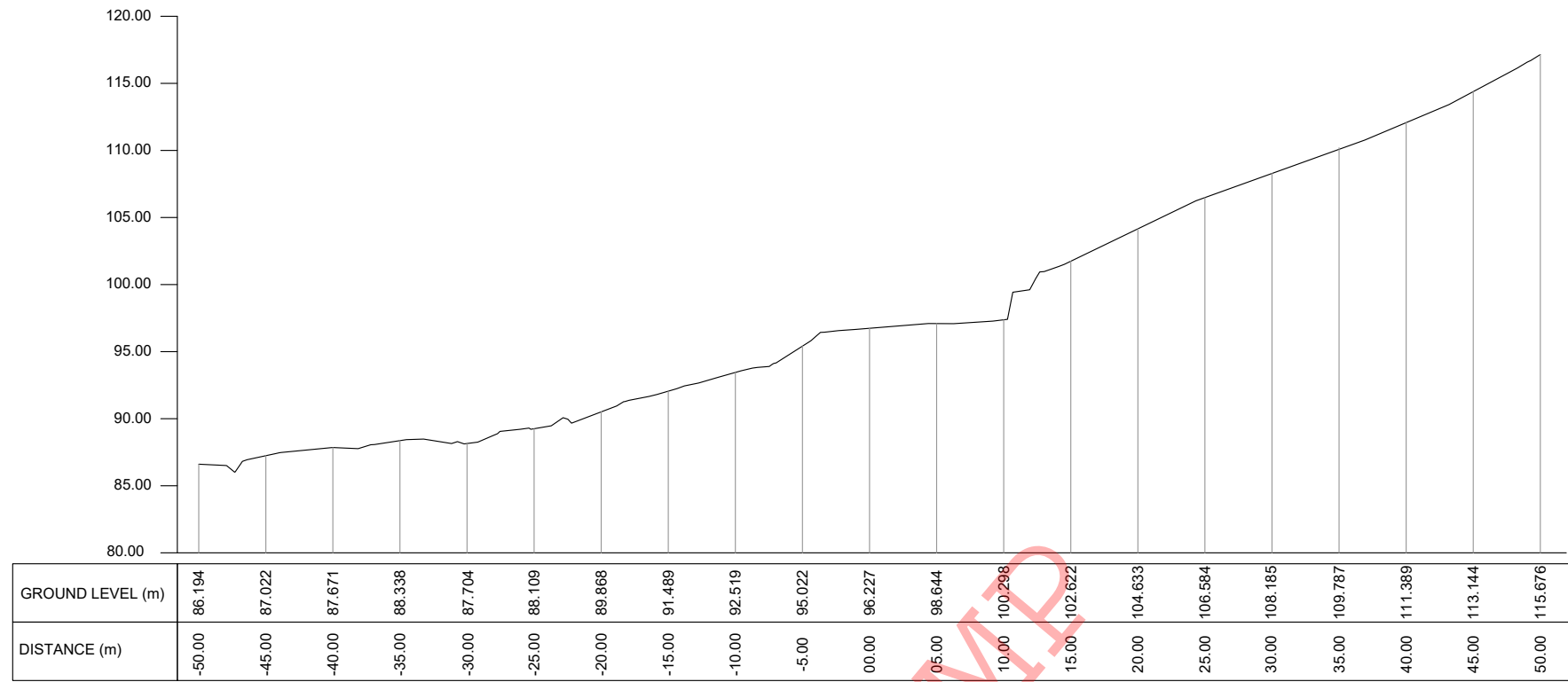
DESIGNER

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

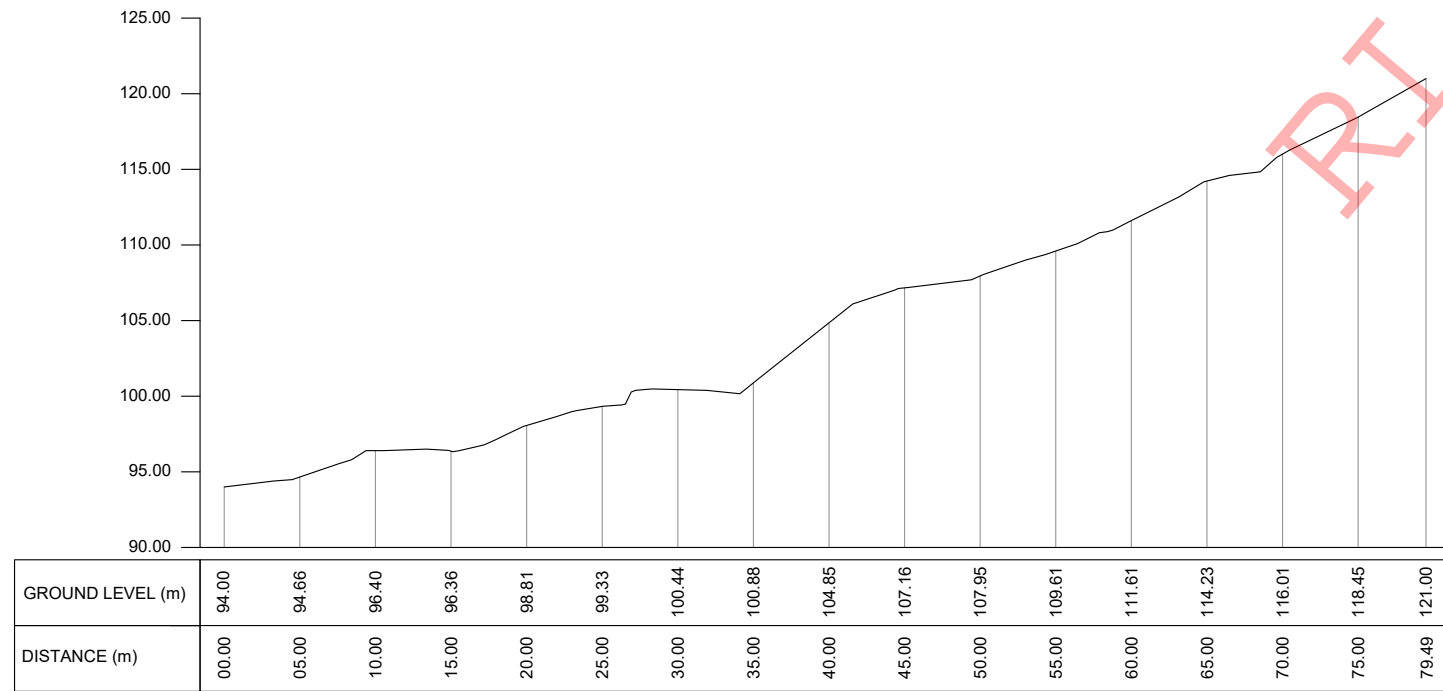
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
DERANIYAGALA COLPING SITE

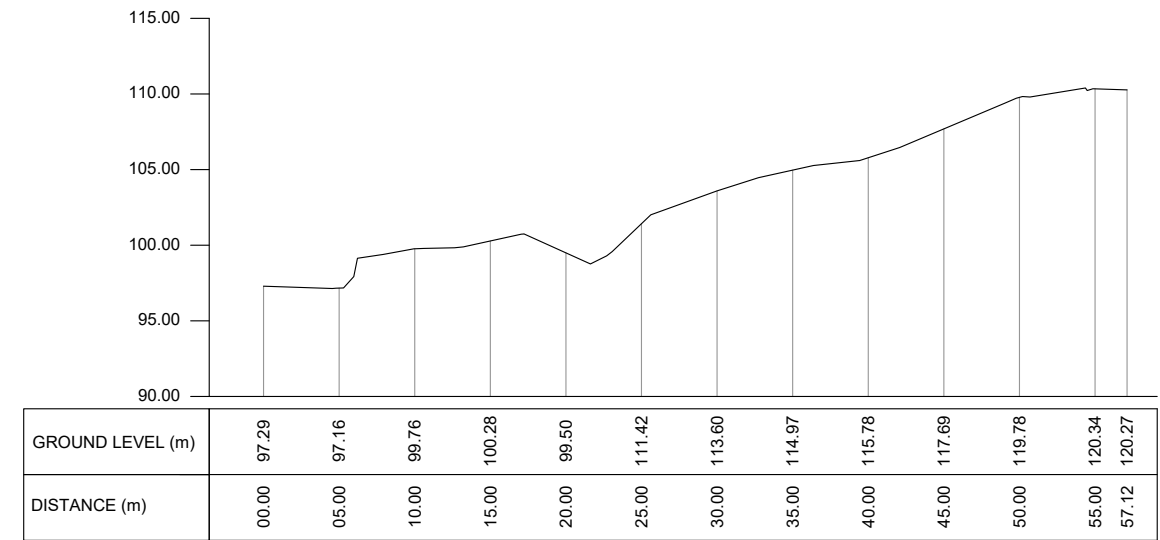
TITLE		DESCRIPTION	NAME	SIGNATURE
SURVEY CROSS SECTION		SURVEYED	B.K.K.D.JAYASINGHE	
		CHECKED	M.P. AMARASINGHE	
SCALE	1:600	DATE	22.09.2020	
PROJECT / DRAWING No.		REVISION		
RLVMMMP/WORKS/NCB/PHII/048-DC/DR-02b		00		




CS08



CS09



CS10

EMPLOYER

DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
STATE MINISTRY OF NATIONAL SECURITY AND DISASTER MANAGEMENT
NATIONAL BUILDING RESEARCH ORGANISATION
 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
DERANIYAGALA COLPING SITE

TITLE
 SURVEY CROSS SECTION

SCALE	1:600	DATE	22.09.2020
PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/PHII/048-DC/DR-02b	REVISION	00


DESCRIPTION	NAME	SIGNATURE
SURVEYED	B.K.K.D.JAYASINGHE	
CHECKED	M.P. AMARASINGHE	



REFERENCE

- P - PERMENT BUILDING
- CDN - CONCRETE DRAIN
- RDA - RDA BOUNDARY MARK
- WF - WIRE FENCE
- BT - BANK TOP
- BB - BOTTOM OF BANK
- BW - BOUNDARY WALL
- RW - RETAINING WALL
- EP - ELECTRIC POST
- WC - WATER CLOSET
- CUL - CULVERT
- G - GATE
- ST - SEPTIC TANK

EMPLOYER



DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
STATE MINISTRY OF NATIONAL SECURITY AND DISASTER MANAGEMENT
NATIONAL BUILDING RESEARCH ORGANISATION
 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
 MIYANAWITA - WIRUGAMMANAYA
 DERANIYAGALA**

TITLE

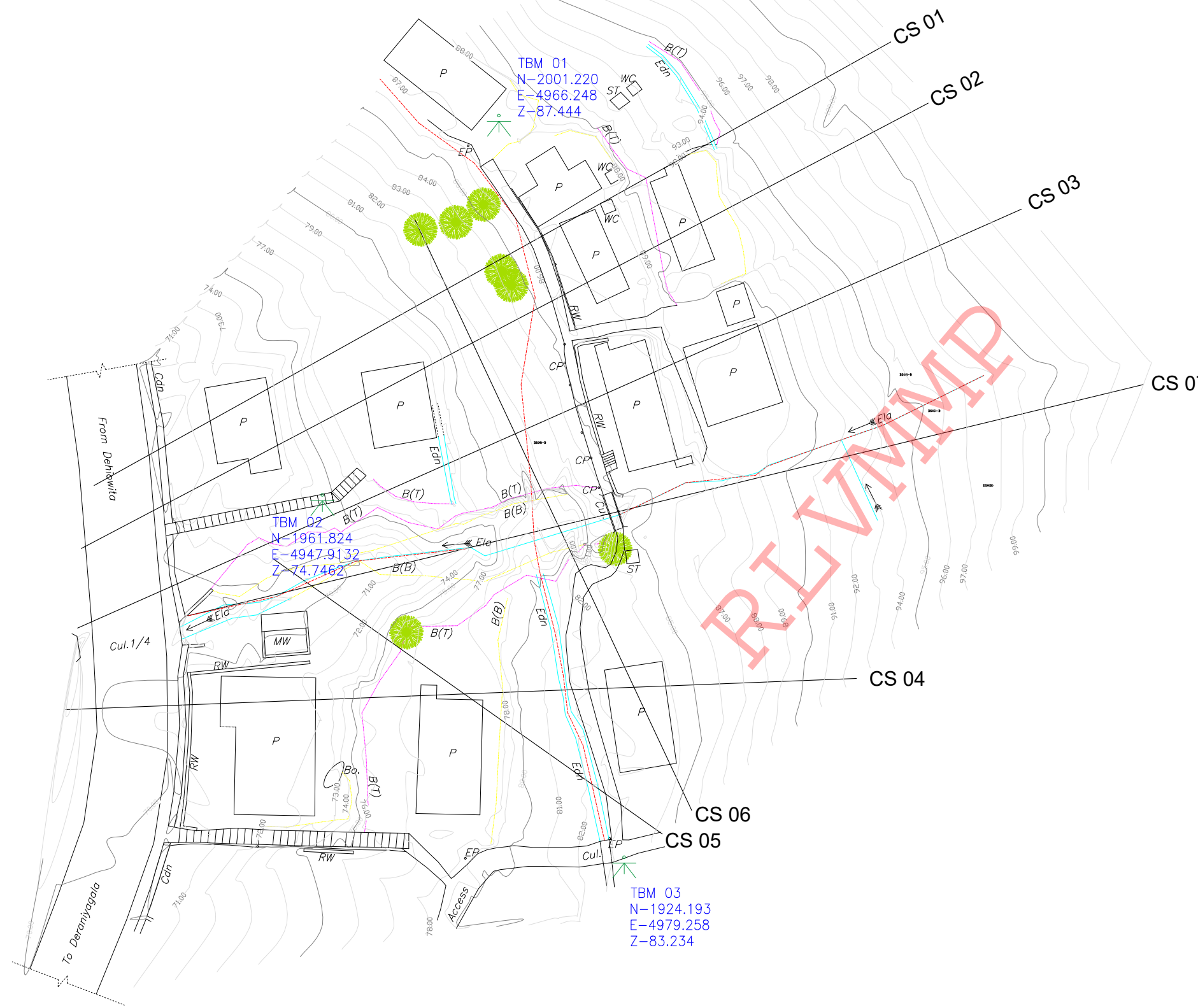
DESIGN PLAN VIEW

SCALE | 1:400 | DATE | 03.05.2022
 PROJECT / DRAWING No. | REVISION
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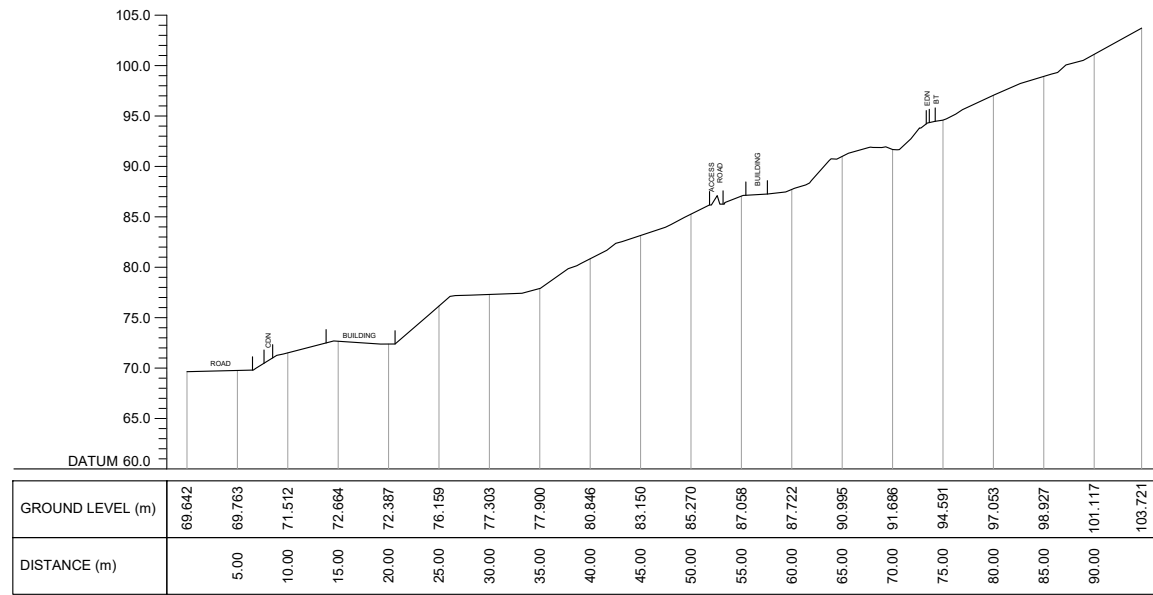
DESCRIPTION	NAME	SIGNATURE
SURVEYED	B.K.K.D.JAYASINGHE	
CHECKED	C. T. MAMPITIYAARACHCHI	

REFERENC

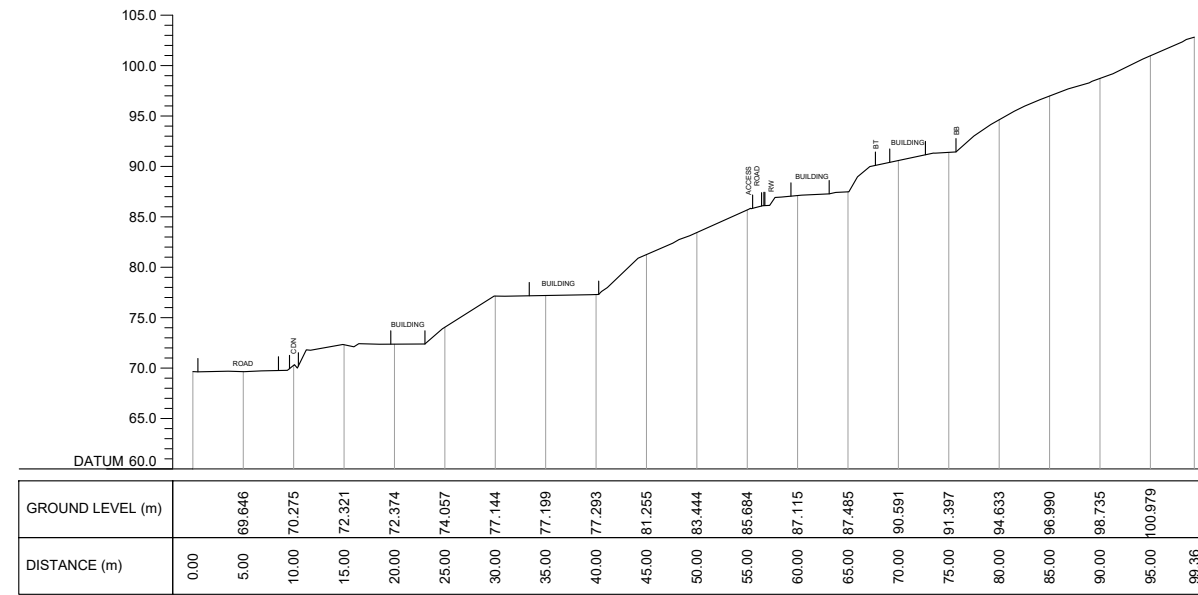
- P - PERMENENT BUILDING
- CDN - CONCRETE DRAIN
- RDA - RDA BOUNDARY MARK
- BO - BOULDER
- WF - WIRE FENCE
- MW - MASONRY WALL
- BT - BANK TOP
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- BW - BOUNDARY WALL
- RW - RETAINING WALL
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- WC - WATER CLOSET
- CUL - CULVERT
- G - GATE
- ST - SEPTIC TANK



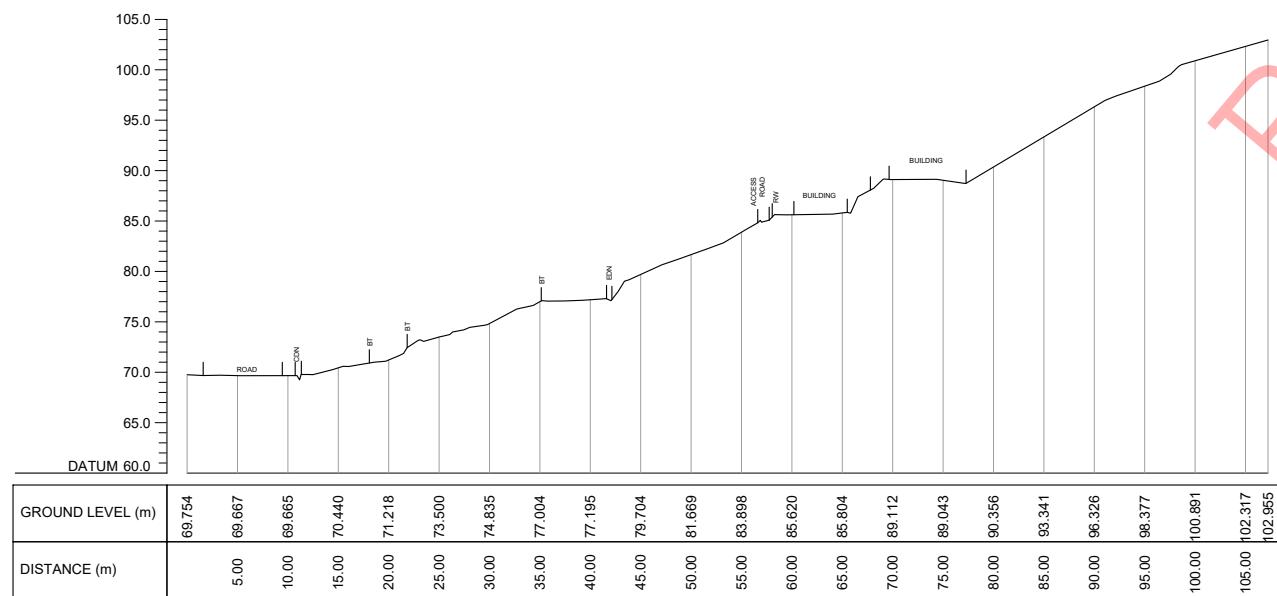
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						SCALE 1:600 DATE 10.09.2020		PROJECT / DRAWING No. RLVMMMP/WORKS/NCB/PHII/097-JN/DR-01 REVISION 00					



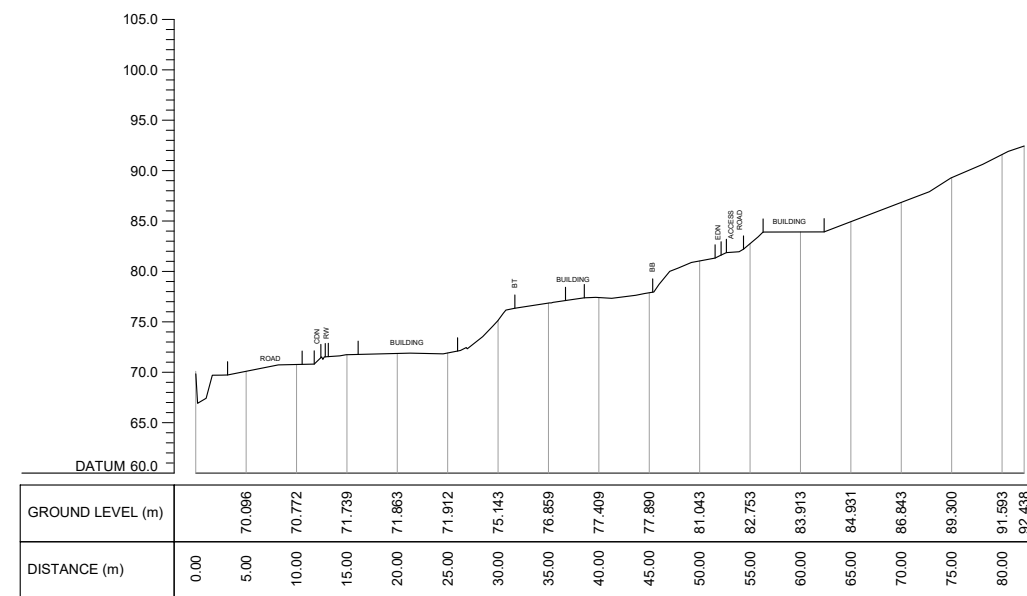
CS01



CS02




CS03



CS04

RLVMMP

EMPLOYER

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

DESIGNER

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

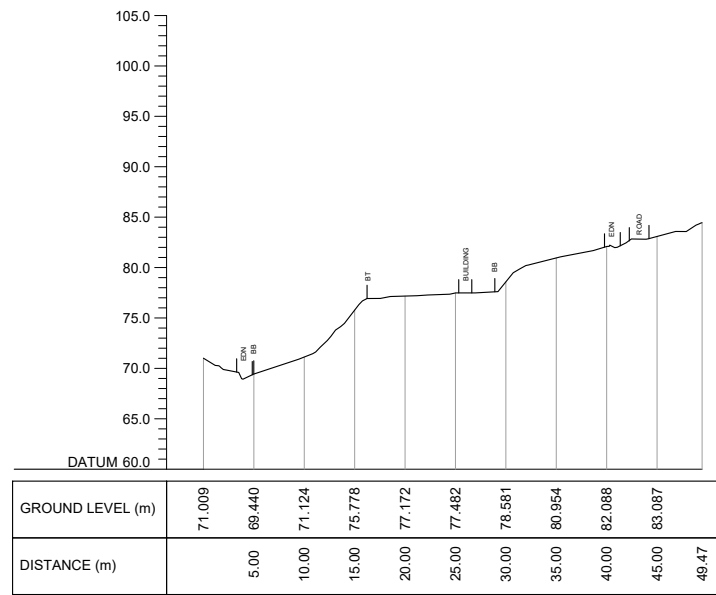
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
JATHIKA NIWASA SITE
DEHIOWITA

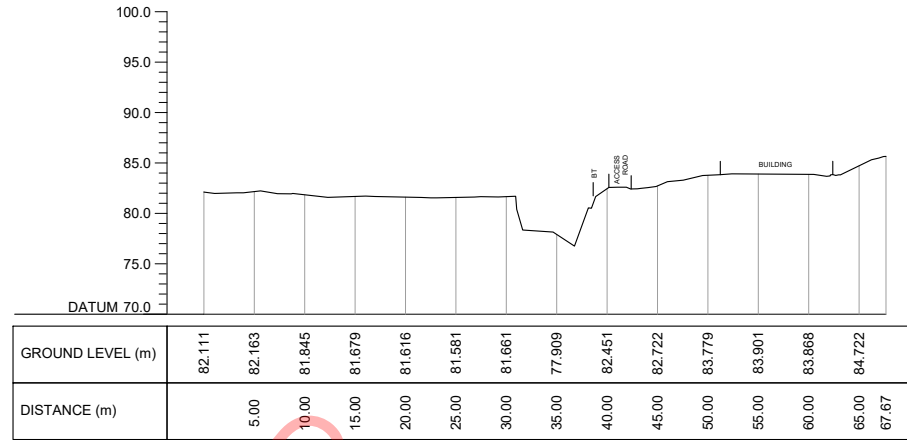
TITLE
 SURVEY CROSS SECTION

SCALE: 1:750 DATE: 10.09.2020
 PROJECT / DRAWING No. REVISION
 RLVMMP/WORKS/NCB/PHII/097-JN/DR-02a 00

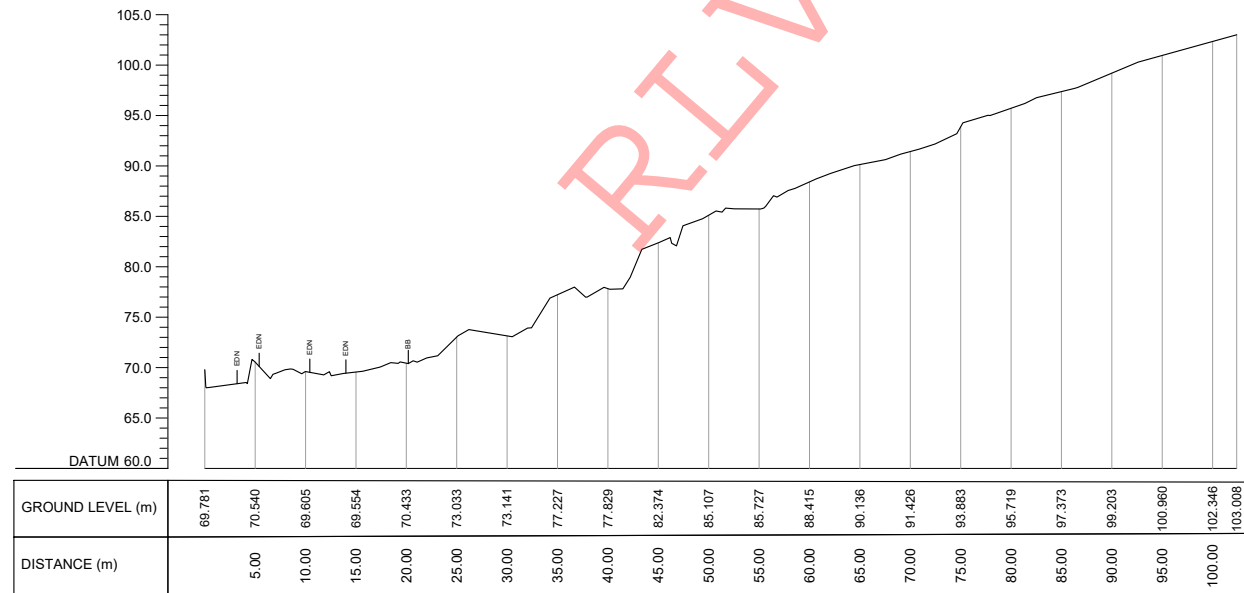
DESCRIPTION	NAME	SIGNATURE
DRAWN	B.K.K.D.JAYASINGHE	
CHECKED	M.P. AMARASINGHE	




CS05



CS06



CS07

EMPLOYER

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

DESIGNER

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

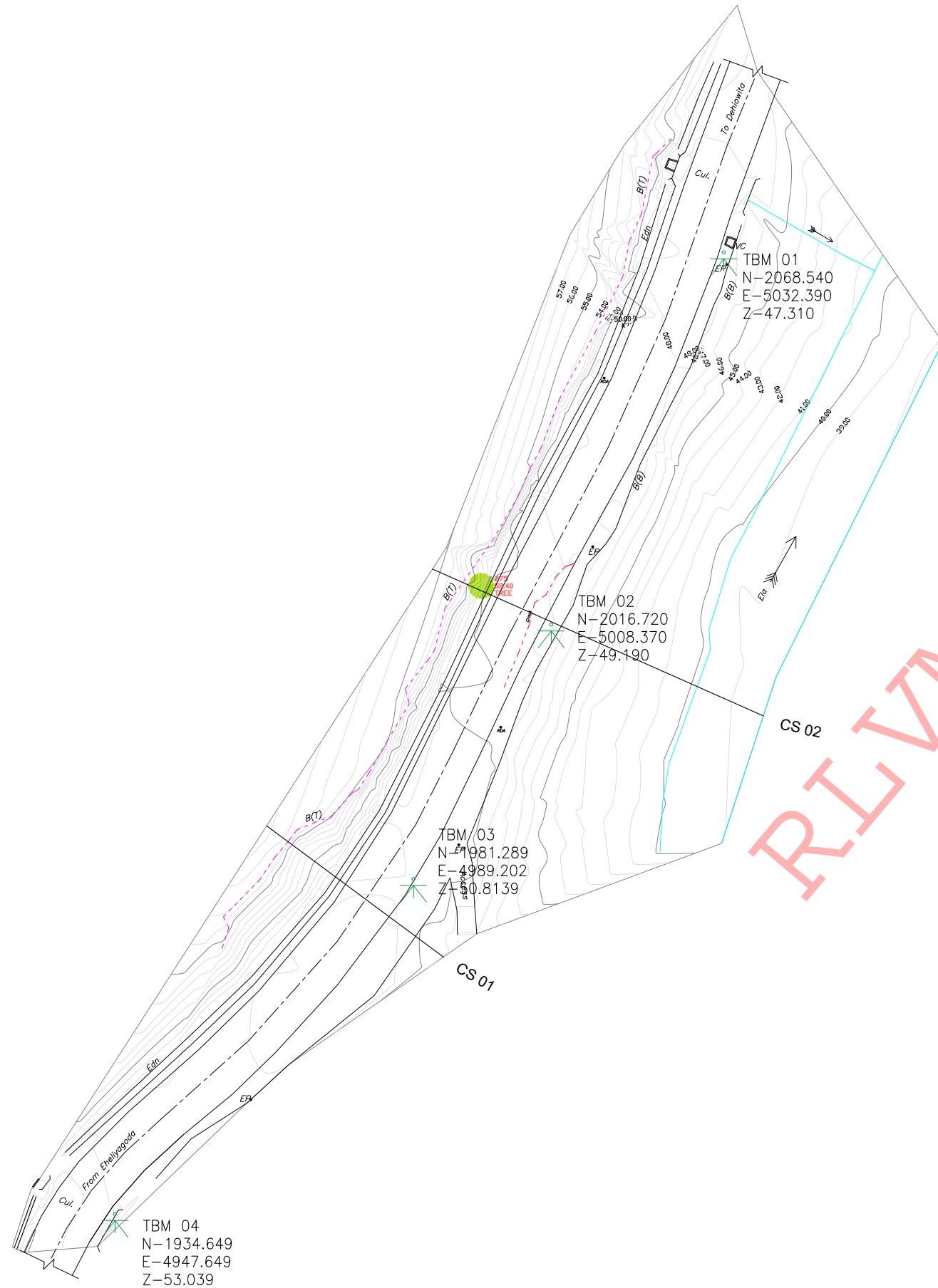
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
JATHIKA NIWASA SITE
DEHIOWITA

TITLE
 SURVEY CROSS SECTION


SCALE	1:750	DATE	10.09.2020
PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/PHII/097-JN/DR-02b	REVISION	00

DESCRIPTION	NAME	SIGNATURE
DRAWN	B.K.K.D.JAYASINGHE	
CHECKED	M.P. AMARASINGHE	



REFERENCE

- P - PERMANENT BUILDING
- CDN - CONCRETE DRAIN
- RDA - RDA BOUNDARY MARK
- BO - BOULDER
- WF - WIRE FENCE
- MW - MASONRY WALL
- BT - BANK TOP
- BB - BOTTOM OF BANK
- BW - BOUNDARY WALL
- RW - RETAINING WALL
- EP - ELECTRIC POST
- WC - WATER CLOSET
- CUL - CULVERT
- G - GATE
- ST - SEPTIC TANK
- IF - IRON FENCE

EMPLOYER

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

DESIGNER

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

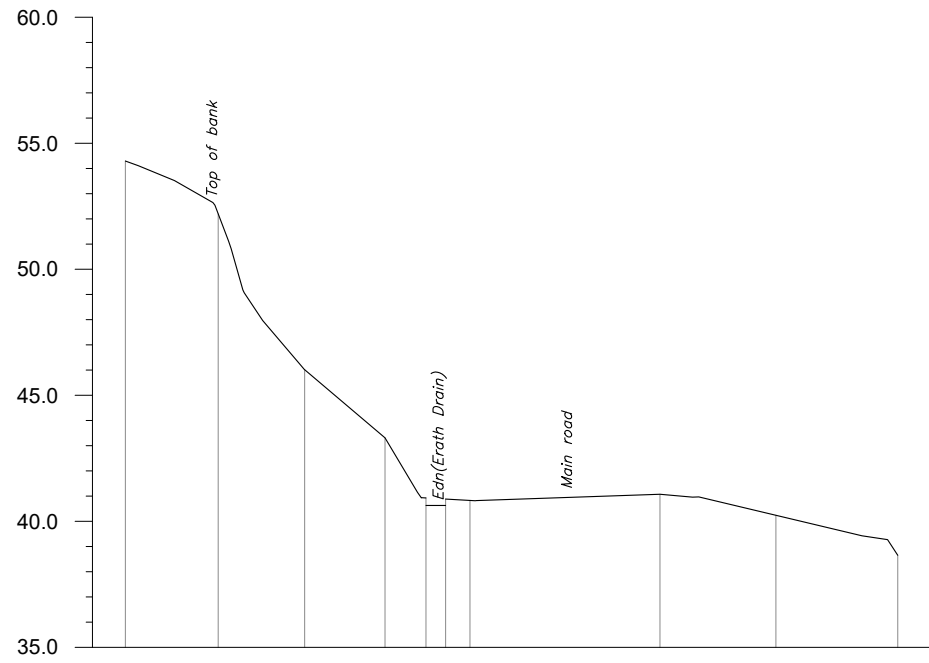
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
B110 - EHELIYAGODA - DEHIOVITA ROAD
 CULVERT NO. 5/6

TITLE
 SURVEY PLAN VIEW

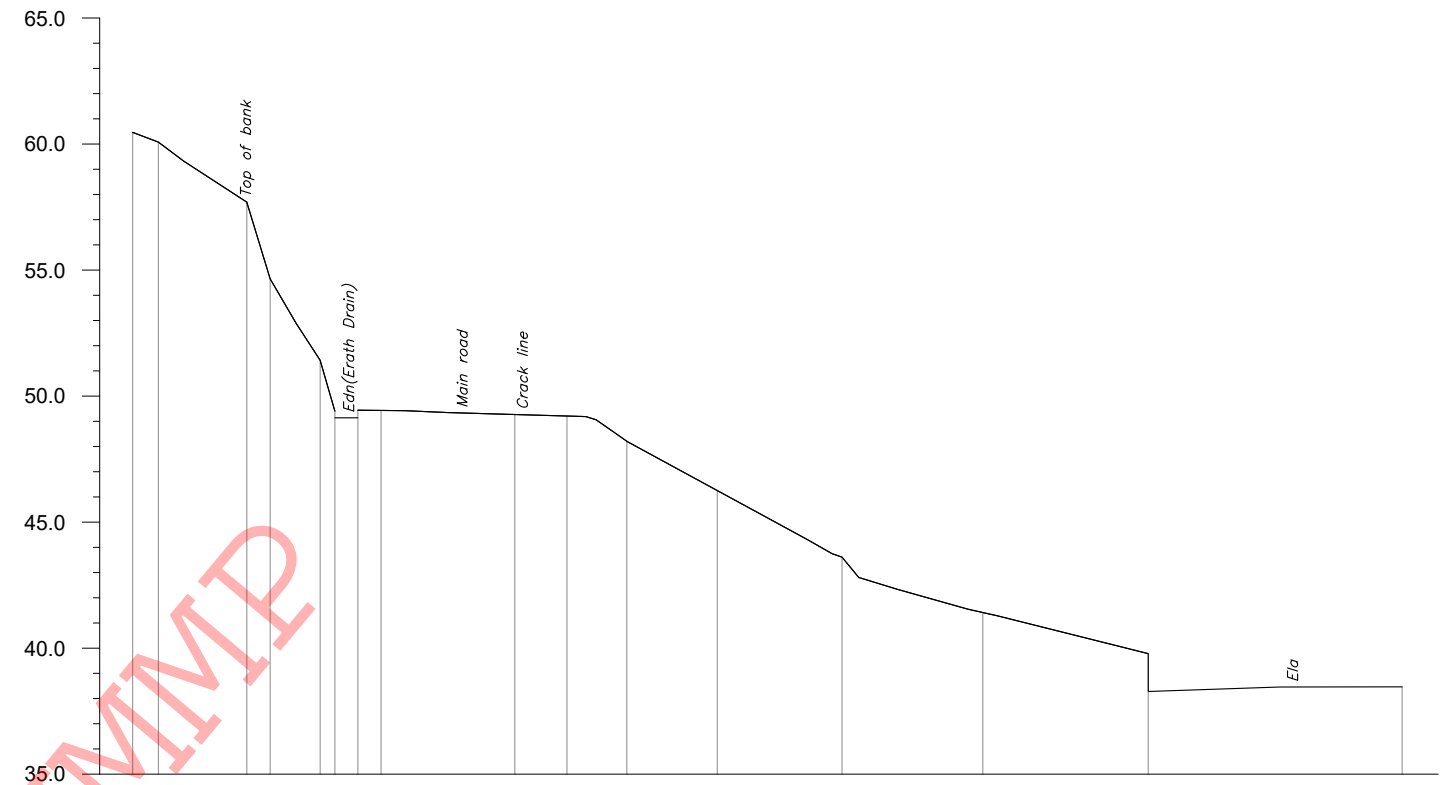
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PROJECT / DRAWING No.	RLVMMP/WORKS/NCB/PHII/122-ED/DR-01	REVISION	00

DESCRIPTION	NAME	SIGNATURE
SURVEYED	B.K.K.D.JAYASINGHE	
CHECKED	V. G. D. GANGANI	




GROUND LEVEL (m)	54.293	52.195	46.015	43.311	40.927	40.828		41.074	40.239	38.655
DISTANCE (m)	30.650	26.968	23.540	20.349	17.945	16.978		9.437	4.836	0.00

CS01



GROUND LEVEL (m)	60.464	60.076	57.696	54.651	49.439	49.430		49.268	49.208	48.209	46.251	43.612	41.413	39.782	38.464
DISTANCE (m)	50.384	44.360	45.854	44.925	42.942	40.525		35.216	33.149	30.773	27.181	22.232	16.644	10.079	0.00

CS02

EMPLOYER

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

DESIGNER

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

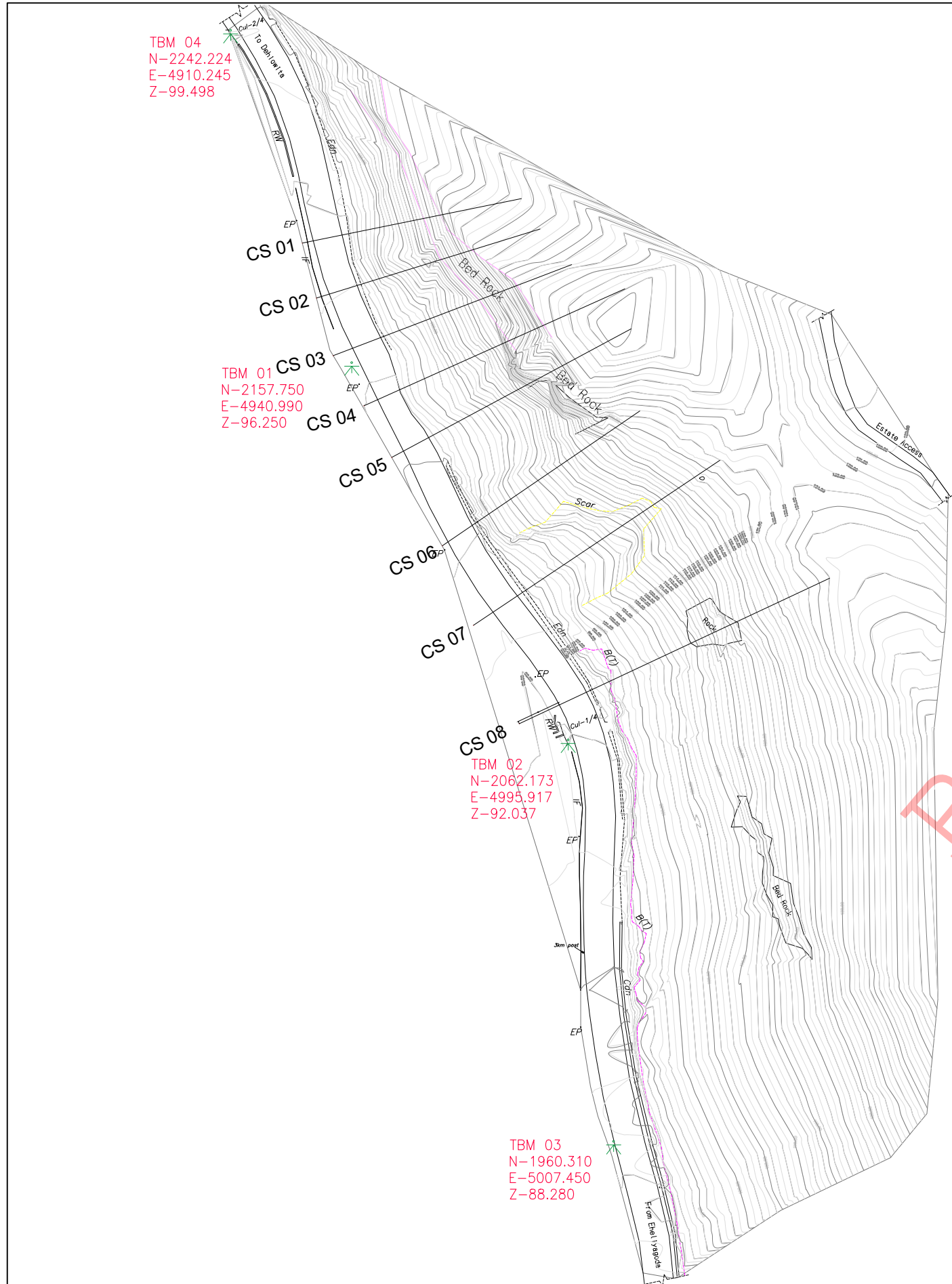
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
B110 - EHELIYAGODA - DEHIOVITA ROAD
CULVERT NO. 5/6

TITLE
 SURVEY CROSS SECTION

SCALE	1:300	DATE	17.05.2022
PROJECT / DRAWING No.	RLVMP/WORKS/NCB/PHI/122-ED/DR-02	REVISION	00



DESCRIPTION	NAME	SIGNATURE
SURVEYED	B.K.K.D.JAYASINGHE	
CHECKED	V. G. D. GANGANI	

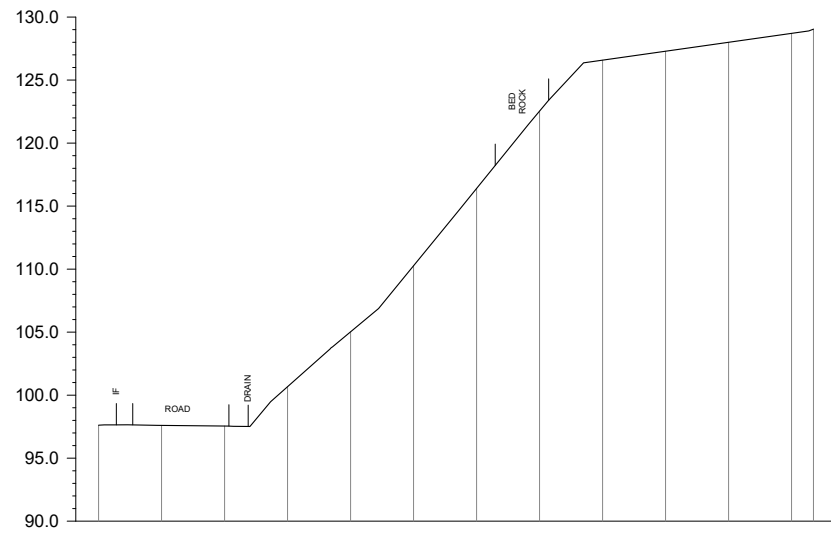


REFERENCE

- P - PERMENT BUILDING
- CDN - CONCRETE DRAIN
- RDA - RDA BOUNDARY MARK
- BO - BOULDER
- WF - WIRE FENCE
- MW - MASONRY WALL
- BT - BANK TOP
- BB - BOTTOM OF BANK
- BW - BOUNDARY WALL
- RW - RETAINING WALL
- EP - ELECTRIC POST
- WC - WATER CLOSET
- CUL - CULVERT
- G - GATE
- ST - SEPTIC TANK
- IF - IRON FENCE

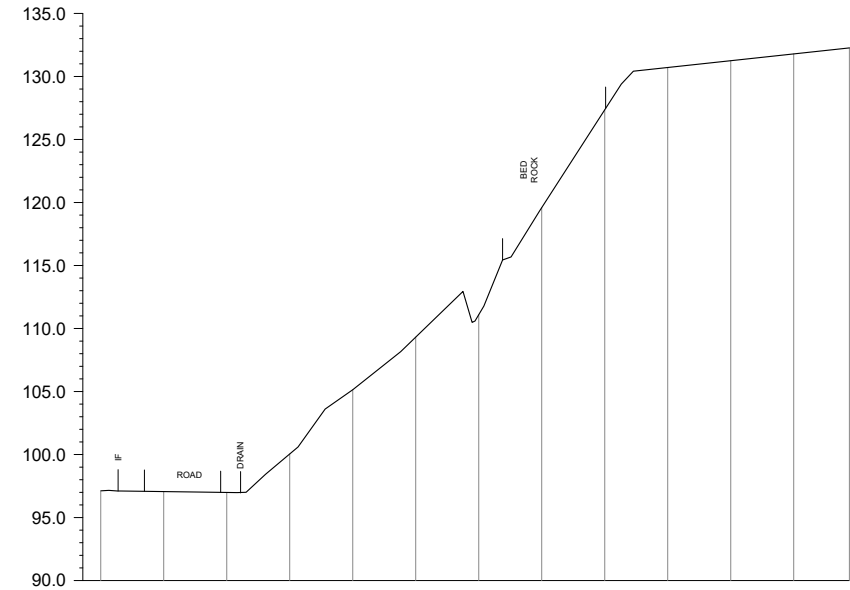


EMPLOYER  DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA STATE MINISTRY OF NATIONAL SECURITY AND DISASTER MANAGEMENT NATIONAL BUILDING RESEARCH ORGANISATION No. 99/1, JAWATTA ROAD, COLOMBO - 05	DESIGNER  DESIGN UNIT NATIONAL BUILDING RESEARCH ORGANIZATION No. 99/1, JAWATTA ROAD, COLOMBO - 05	REV	DATE	REVISION DESCRIPTION	APPROVAL	PROJECT TITLE REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES B -110 - EHELIYAGODA - DEHIOVITA ROAD BETWEEN 3 - 3.2km	TITLE SURVEY PLAN VIEW	DESCRIPTION	NAME	SIGNATURE
								SURVEYED	B.K.K.D.JAYASINGHE	
								CHECKED	V. G. D. GANGANI	
		SCALE 1:1200		DATE 13.11.2020						
		PROJECT / DRAWING No. RLVMP/WORKS/NCB/PHII/124-ED/DR-01		REVISION 00						



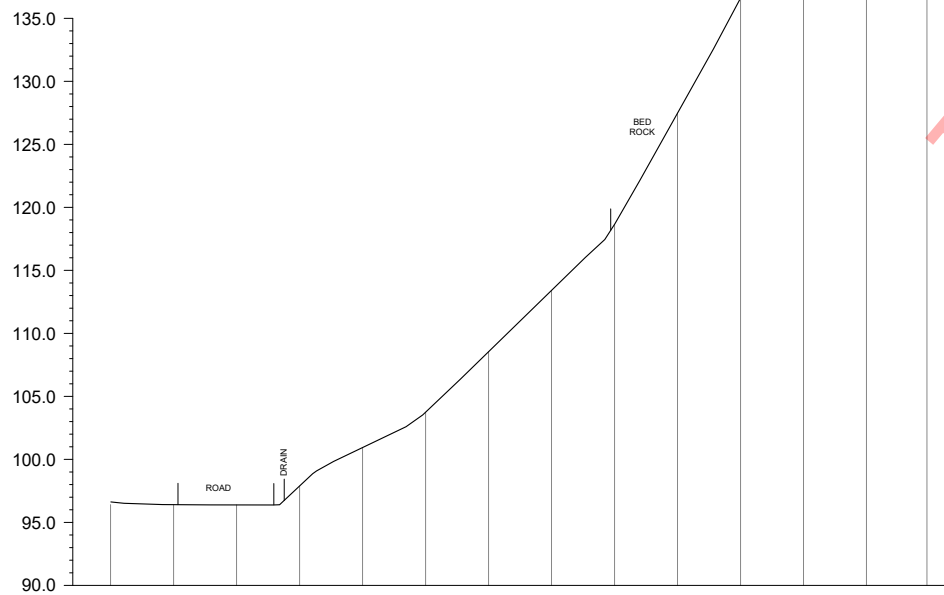
GROUND LEVEL (m)	97.615	97.601	97.552	100.672	105.024	110.268	116.399	122.540	126.580	127.289	127.998	128.708	129.043
DISTANCE (m)		5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	

CS 1



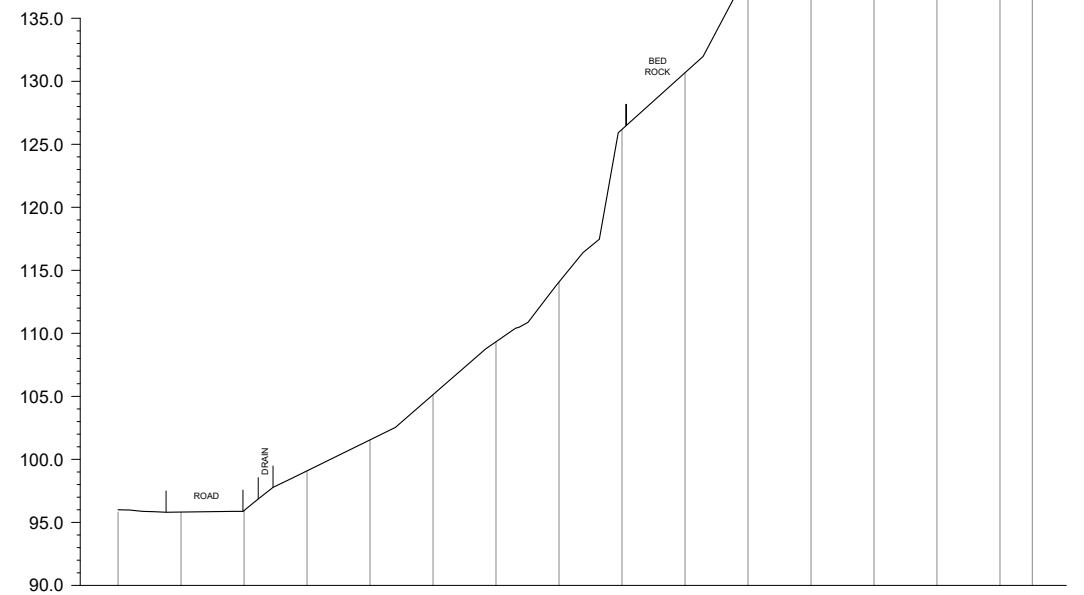
GROUND LEVEL (m)	97.117	97.059	96.989	100.044	105.142	109.316	111.095	119.591	127.355	130.714	131.253	131.791	132.267
DISTANCE (m)		5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	

CS 2




GROUND LEVEL (m)		96.410	96.387	97.883	100.939	103.737	108.542	113.413	118.653	127.475	136.577	137.364	137.526	137.177
DISTANCE (m)	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	

CS 3



GROUND LEVEL (m)	96.000	95.819	95.939	99.092	101.548	105.136	109.335	114.073	126.183	130.678	138.707	140.988	142.944	143.510	143.839	143.912
DISTANCE (m)		5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	

CS 4

EMPLOYER

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

DESIGNER

DESIGN UNIT
 NATIONAL BUILDING RESEARCH ORGANIZATION
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 COLOMBO - 05

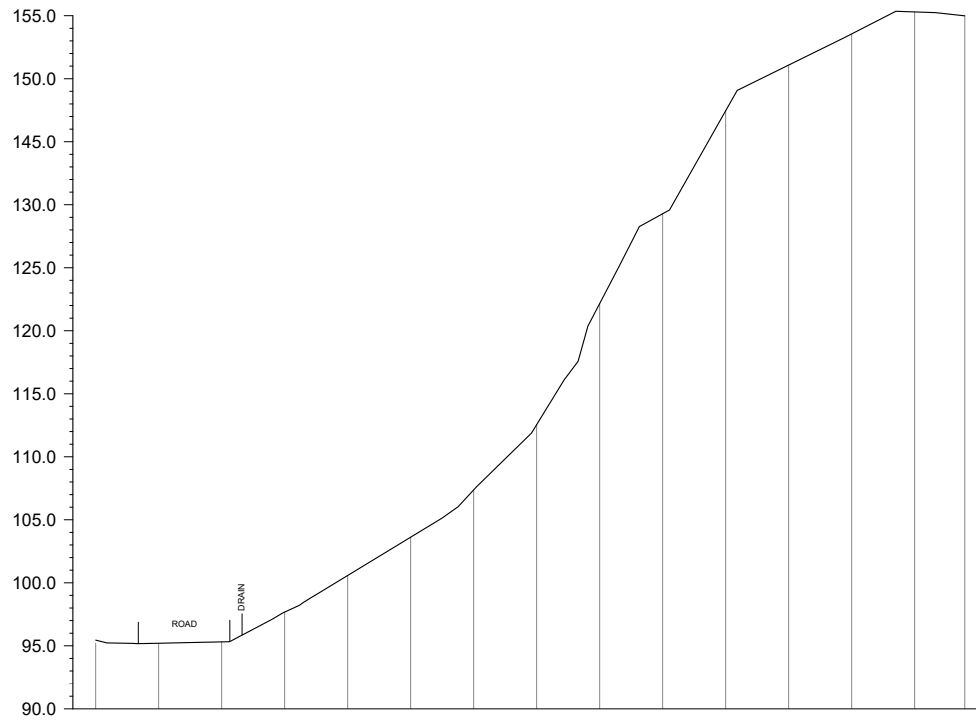
REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
B -110 - EHELIYAGODA - DEHIOVITA ROAD
 BETWEEN 3 - 3.2km

TITLE
 SURVEY CROSS SECTION

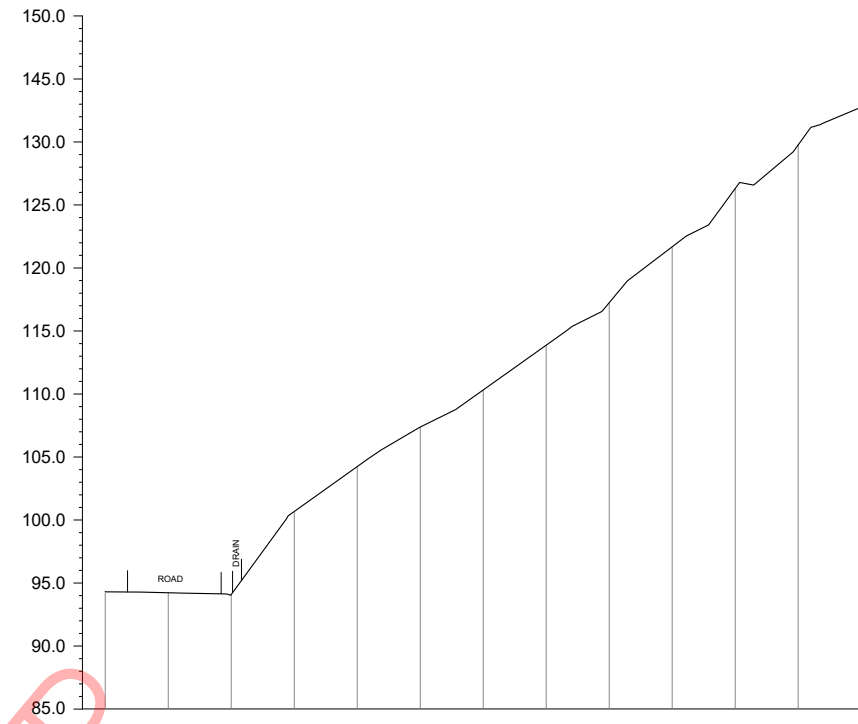
SCALE	1:600	DATE	13.11.2020
PROJECT / DRAWING No.		REVISION	00
RLVMMMP/WORKS/NCB/PHII/124-ED/DR-02a			

DESCRIPTION	NAME	SIGNATURE
SURVEYED	B.K.K.D.JAYASINGHE	
CHECKED	V. G. D. GANGANI	



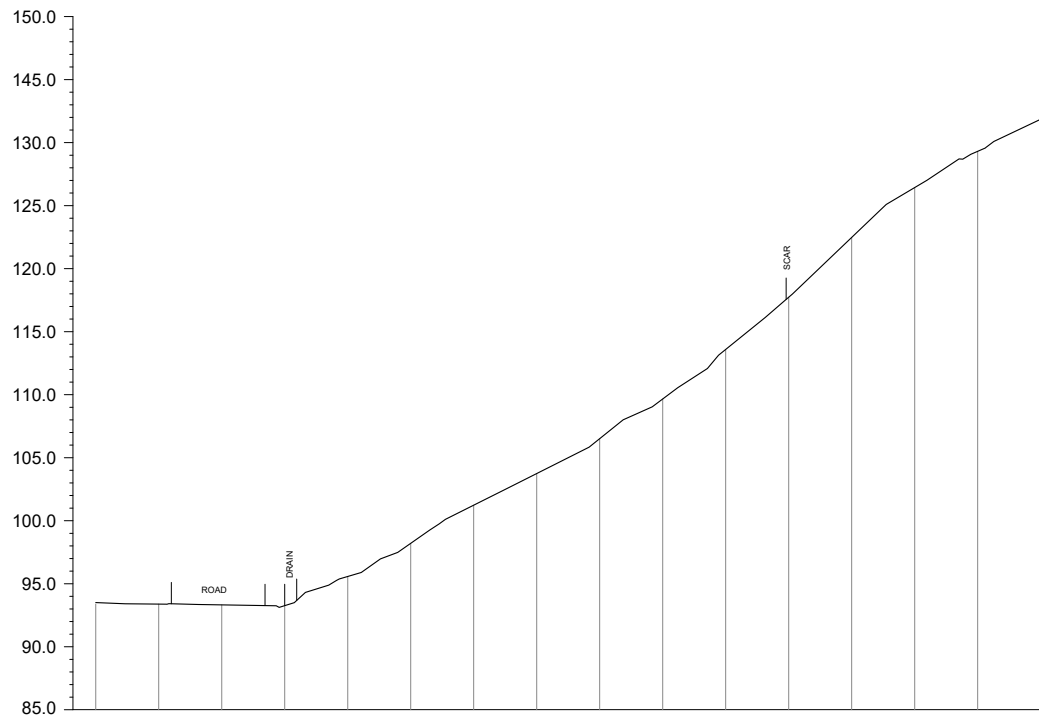
GROUND LEVEL (m)	95.444	95.197	95.305	97.670	100.573	103.611	107.364	112.540	122.148	129.278	137.447	141.074	143.548	145.292	144.983
DISTANCE (m)		5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	

CS 5



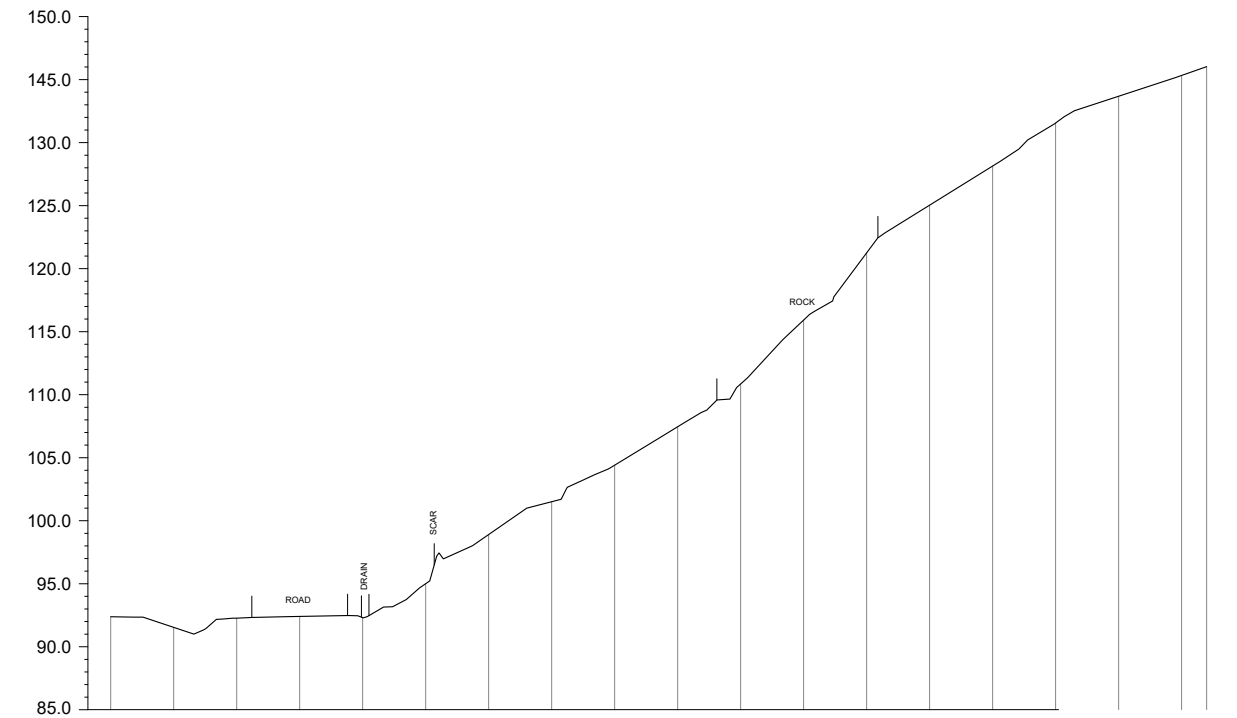
GROUND LEVEL (m)	94.312	94.220	94.084	100.671	104.234	107.369	110.314	113.867	117.240	121.675	126.302	129.761	132.753	133.042
DISTANCE (m)		5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	

CS 6




GROUND LEVEL (m)	93.494	93.377	93.315	93.255	95.569	98.196	101.225	103.733	106.502	109.649	113.581	117.725	122.469	126.428	129.302	131.845
DISTANCE (m)		5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00

CS 7



GROUND LEVEL (m)	92.374	91.534	92.257	92.399	92.302	94.994	98.895	101.500	104.400	107.445	110.842	115.914	121.242	125.028	128.133	131.549	133.670	135.320	136.022
DISTANCE (m)		5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	

CS 8

EMPLOYER

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

DESIGNER

DESIGN UNIT
NATIONAL BUILDING RESEARCH ORGANIZATION
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 COLOMBO - 05

REV	DATE	REVISION DESCRIPTION	APPROVAL

PROJECT TITLE
 REDUCTION OF LANDSLIDE
 VULNERABILITY BY MITIGATION MEASURES
B - 110 - EHELIYAGODA - DEHIOVITA ROAD
 BETWEEN 3 - 3.2km

TITLE
 SURVEY CROSS SECTION

SCALE	1:600	DATE	13.11.2020
PROJECT / DRAWING No.		REVISION	00
RLVMMP/WORKS/NCB/PHII/124-ED/DR-02b			

DESCRIPTION	NAME	SIGNATURE
SURVEYED	B.K.K.D.JAYASINGHE	
CHECKED	V. G. D. GANGANI	