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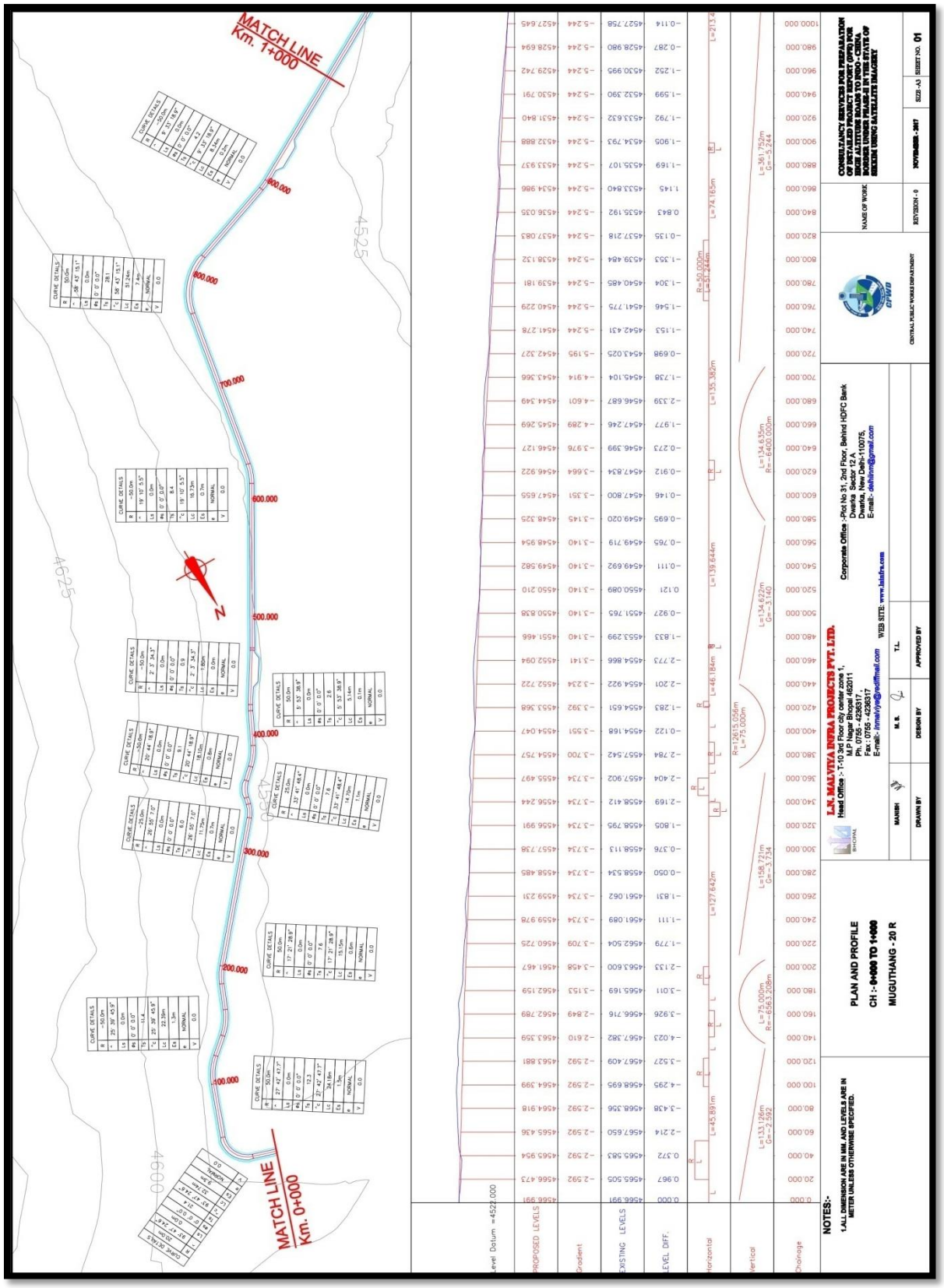

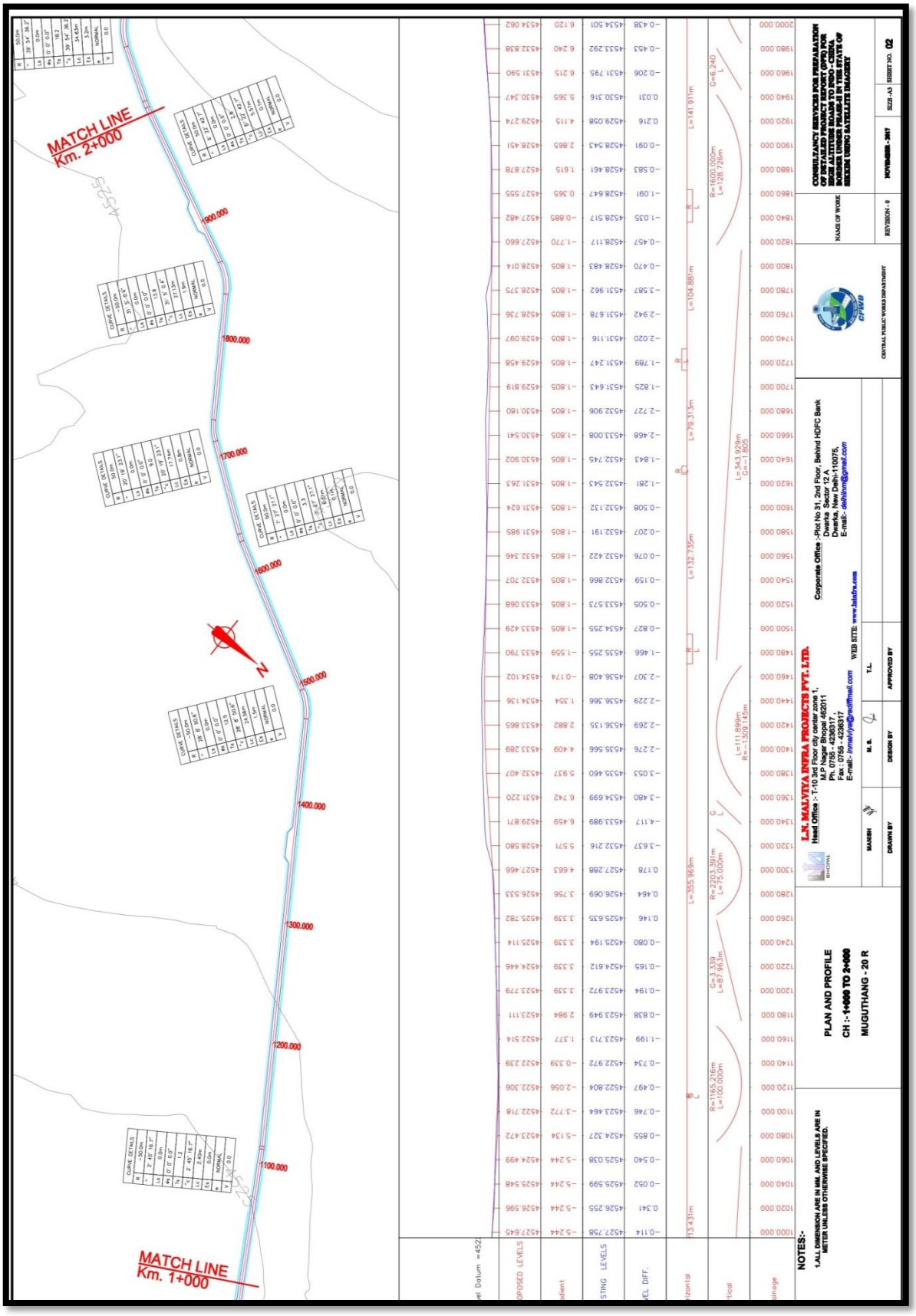
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N
L.N. MALVIYA INFRA PROJECTS PVT. LTD.
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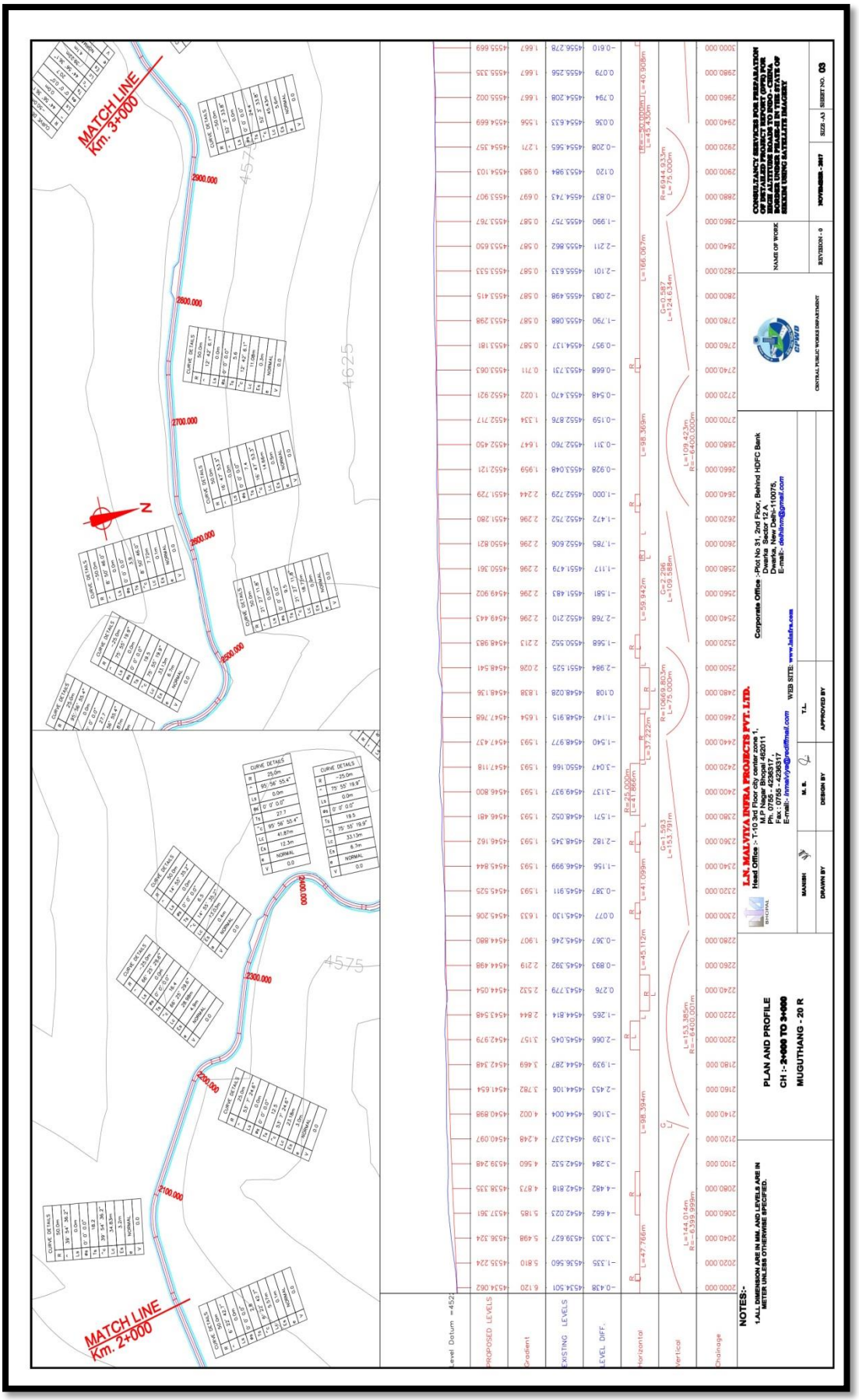
Ph. 0755 - 4236317 ; Fax : 0755 - 4236317
E-mail:- lnmalviya@rediffmail.com
Corporate Office :-Plot No 31, 2nd Floor, Behind HDFC Bank Dwarka Sector 12 A Dwarka, New Delhi-110075,
E-mail:- lalahre@gmail.com
WEB SITE: www.lalahre.com
PLAN AND PROFILE
CH :- 1+000 TO 2+000
MUGUTHANG - 20 R
NOTES:-
1.ALL DIMENSION ARE IN MM. AND LEVELS ARE IN METER UNLESS OTHERWISE SPECIFIED.
CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR BORDER LINK ROADS (BRPD-I) IN THE STATE OF SIKKIM USING SATELLITE IMAGERY
NOVEMBER - 2017
SIZE :A3
SHEET NO. 02
REVISION - 0
CENTRAL PUBLIC WORKS DEPARTMENT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PROPOSED LEVELS
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EXISTING LEVELS
LEVEL DIFF.
Horizontal
Vertical
Chainage
L.N. MALVIYA INFRA PROJECTS PVT. LTD.
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E-mail:- delhilnm@gmail.com
WEB SITE: www.lalaifra.com
PLAN AND PROFILE
CH :- 2+000 TO 3+000
MUGUTHANG - 20 R
NOTES:-
1.ALL DIMENSION ARE IN MM, AND LEVELS ARE IN METER UNLESS OTHERWISE SPECIFIED.
CONSULTANCY SERVICES FOR PREPARATION OF DPR FOR UPGRADATION OF 20 NOS. INTER ALTITUDE ROADS TO INDO - CHINA BORDER UNDER PMAR-II IN THE STATE OF SIKKIM USING GEOTEXTILES IMAGERY
CENTRAL PUBLIC WORKS DEPARTMENT
NAME OF WORK
REVISION - 0
NOVEMBER - 2017
SIZE -A3
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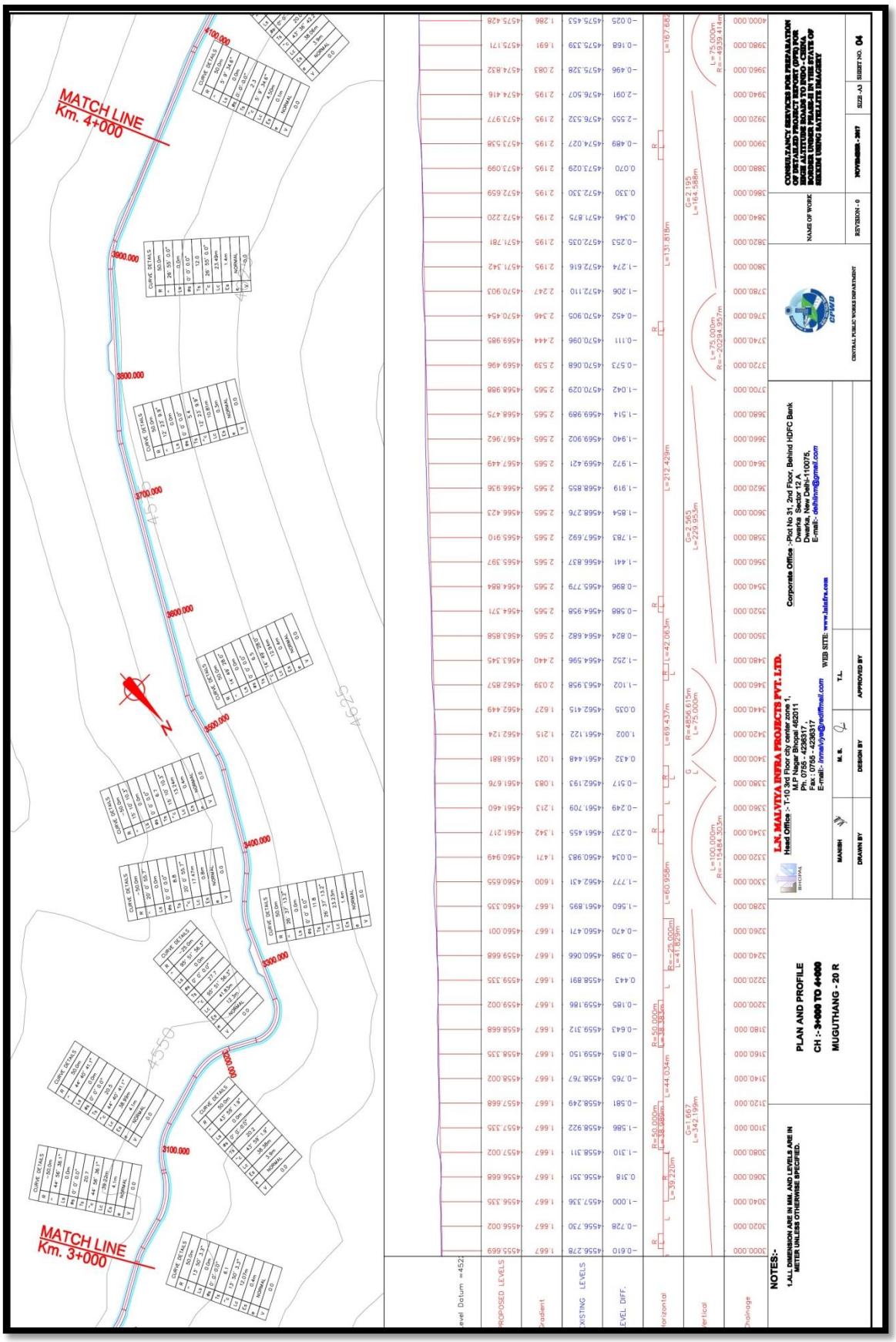
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L.N. MALVIYA INFRA PROJECTS PVT. LTD.
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Fax. 0755 - 4226317
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Corporate Office :-Plot No 31, 2nd Floor, Behind HDFC Bank Dwarka Sector 12 A, Dwarka, New Delhi-110075,
E-mail:- delhiinm@gmail.com
WEB SITE: www.lnisfra.com
DRAWN BY
DESIGN BY
APPROVED BY
PLAN AND PROFILE
CH :- 3+000 TO 4+000
MUGUTHANG - 20 R
CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR ROAD ALIGNMENT ROADS TO PHOO - CHINA BORDER TILL MACHAKI IN STATE OF SIKKIM USING SATELLITE IMAGERY
CENTRAL PUBLIC WORKS DEPARTMENT
REVISION - 0
NOVEMBER - 2017
SIZE -A3
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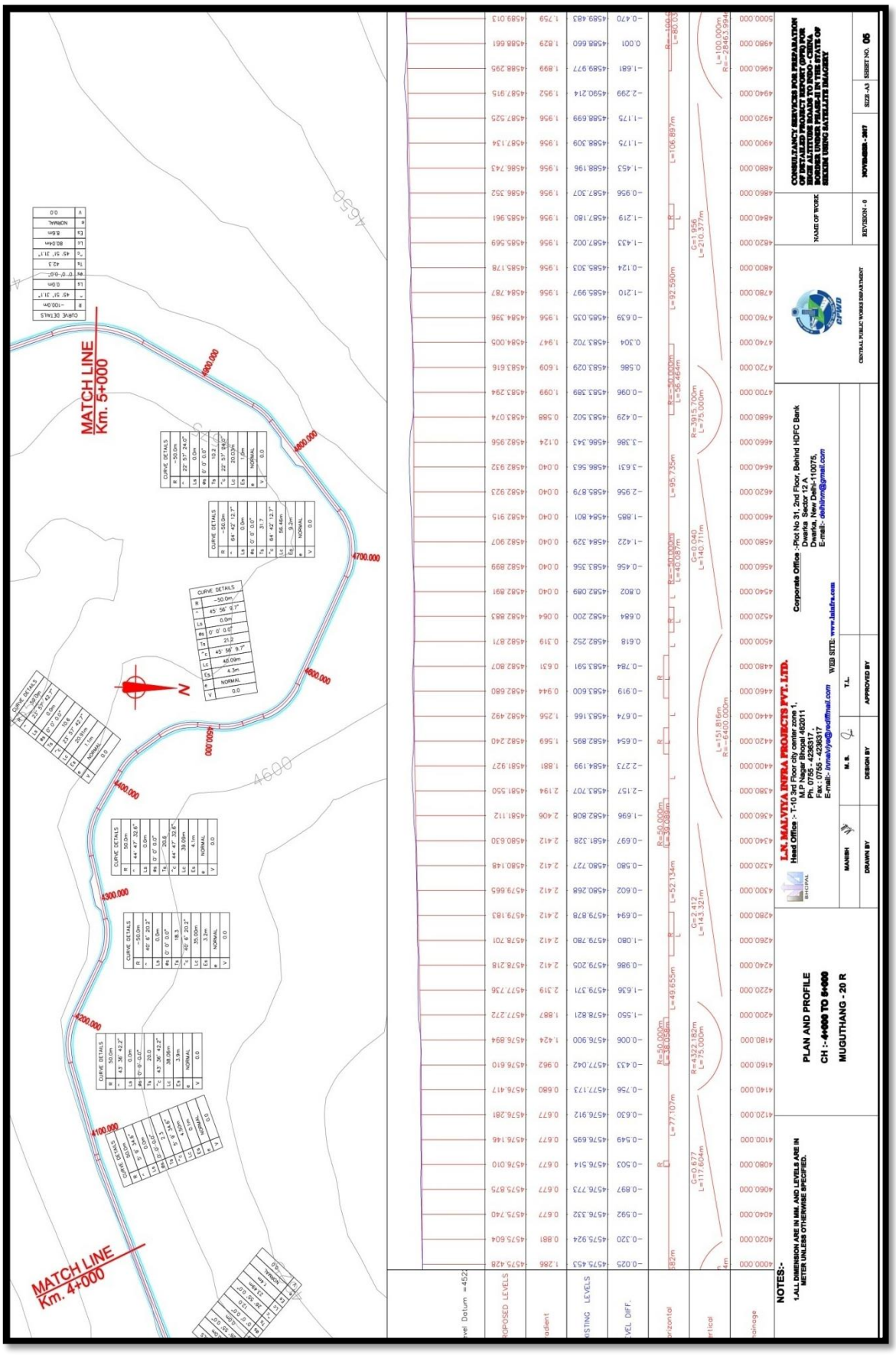
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CH :- 4+000 TO 5+000
MUGUTHANG - 20 R
L.N. MALVIYA INFRA PROJECTS PVT. LTD.
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Fax : 0755 - 4258317
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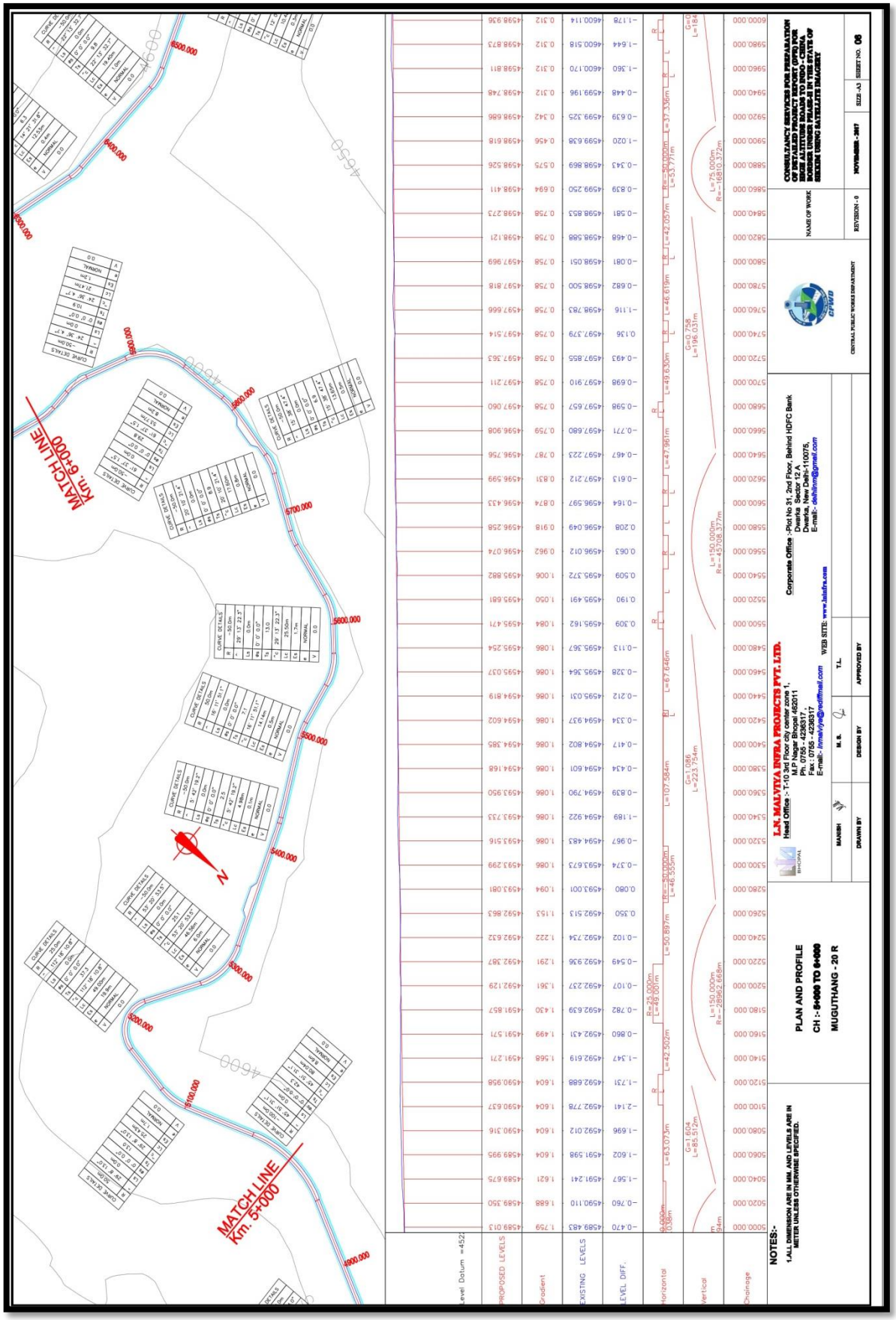
E-mail:- delhiinm@gmail.com
WEB SITE: www.lnisfra.com
MANISH
DRAWN BY
DESIGN BY
APPROVED BY
CENTRAL PUBLIC WORKS DEPARTMENT
NAME OF WORK:
CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR RISE ALIGNED ROADS FROM CHOWK TO BORDER, UNDER PRLAS-II IN THE STATE OF SIKKIM USING SATELLITE IMAGERY
REVISION : 0
NOVEMBER - 2017
SIZE -A3
SHEET NO. 05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NOTES:-
1.ALL DIMENSION ARE IN MM. AND LEVELS ARE IN METER UNLESS OTHERWISE SPECIFIED.
PROPOSED LEVELS
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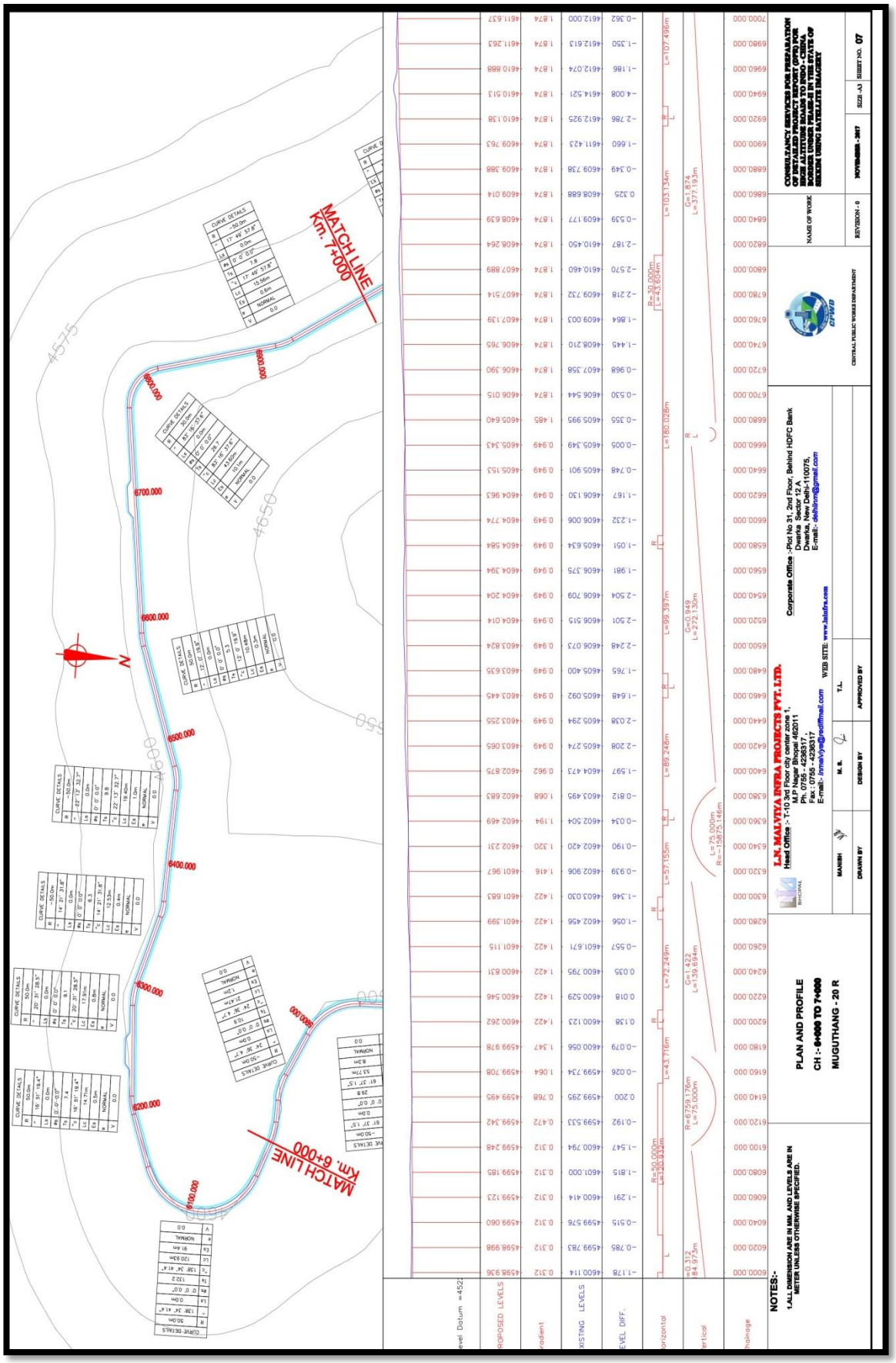
LEVEL DIFF.
Gradient
Horizontal
Vertical
Drainage
CONSULTANCY SERVICES FOR PREPARATION OF INSTALLED PROJECTS REPORT (DPR) FOR RISE ALL STATE ROADS TO INDO - CHINA BORDER UNDER (PMGSY-II IN THE STATE OF SIKKIM USING SATELLITE IMAGES
CENTRAL PUBLIC WORKS DEPARTMENT
NOVEMBER - 2017
SHEET NO. 06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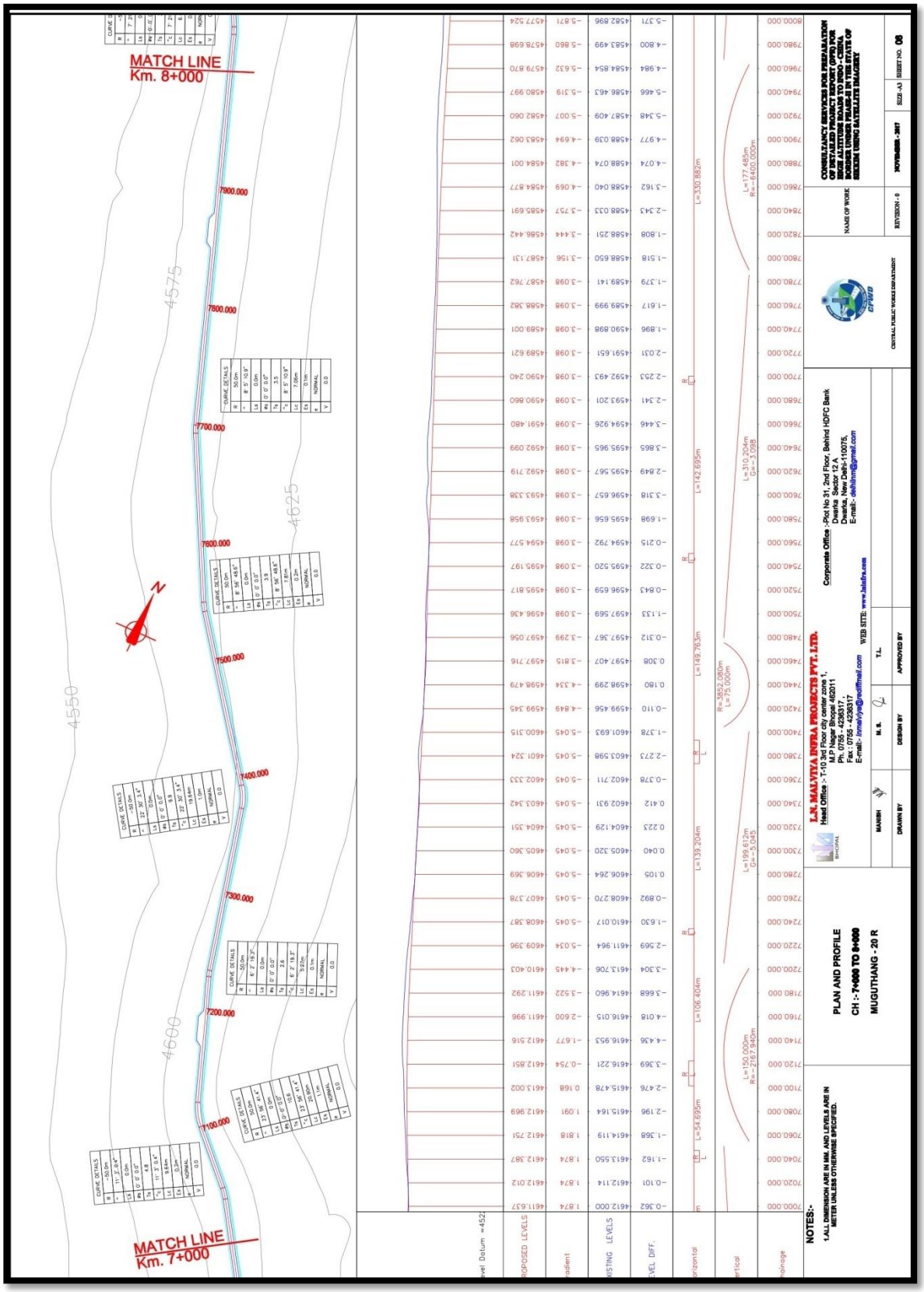
MUGUTHANG - 20 R
L.N. MALVIYA INFRA PROJECTS PVT. LTD.
NOTES:-
1.ALL DIMENSION ARE IN MM. AND LEVELS ARE IN METER UNLESS OTHERWISE SPECIFIED.
CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR 2KM ALIGNMENT FROM 0+000 - CHENA BORDER LINK ROAD AT THE ENTRANCE OF SIKKIM USING SATELLITE IMAGERY
NOVEMBER - 2017
SIZE - A3
SHEET NO. 07
REVISION - 0
CENTRAL PUBLIC WORKS DEPARTMENT
DRAWN BY
DESIGN BY
APPROVED BY
T.L.
M.S.
MANISH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PLAN AND PROFILE
CH :- 7+000 TO 8+000
MUGUTHANG - 20 R
L.N. MALVIYA INFRA PROJECTS PVT. LTD.
CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR NEW ALIGNMENT FROM KHAMDONG (NH-29) TO BOMDILA UNDER PHASE-II IN THE STATE OF ARUNACHAL PRADESH
NOVEMBER - 2017
REVISION - 0
SHEET NO. 08
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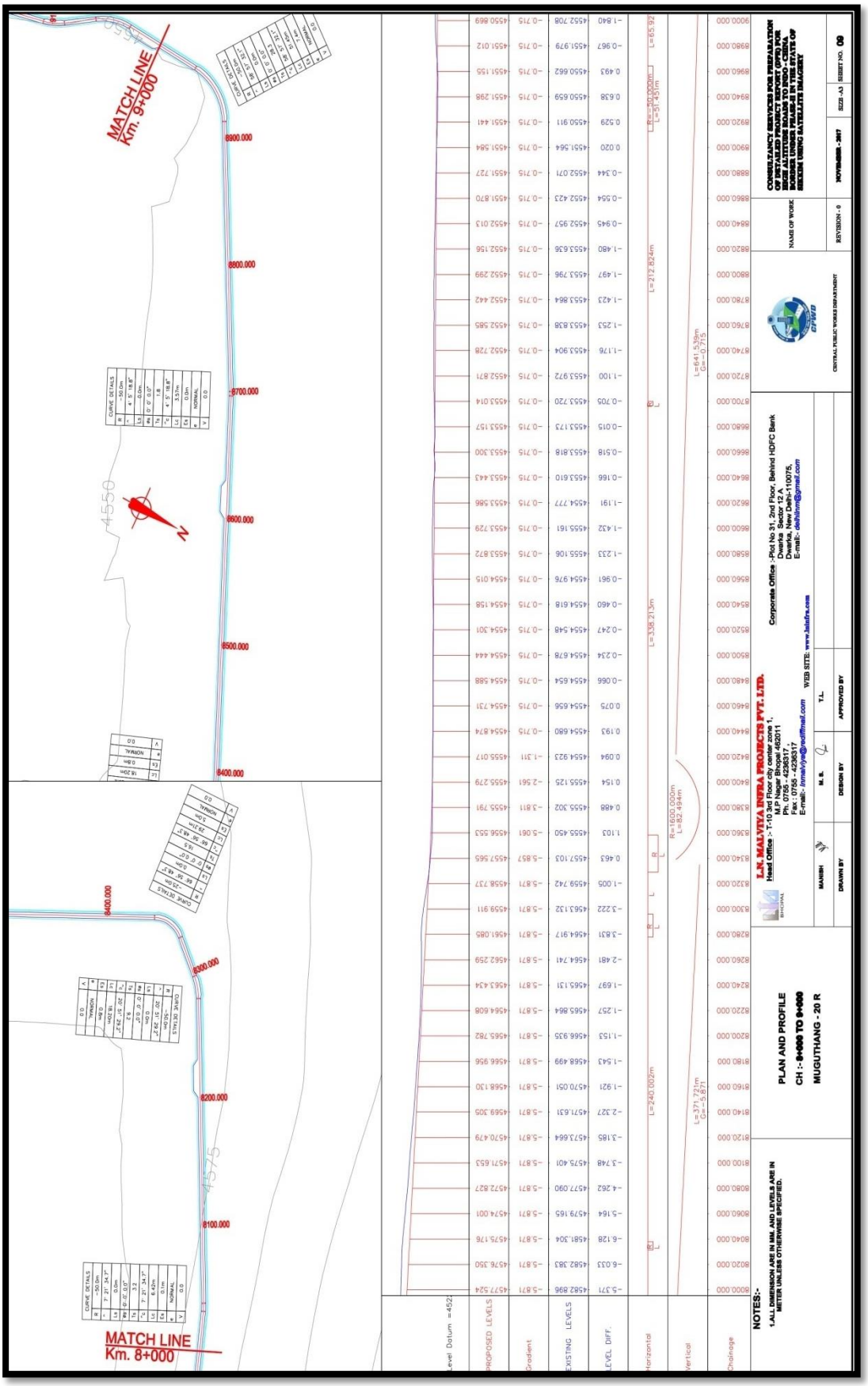
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MUGUTHANG - 20 R
L.N. MALVIYA INFRA PROJECTS PVT. LTD.
CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR RISE ALIGNED ROAD TO INDO - CHINA BORDER LINKING VALLEY ROADS AT PLACES OF BRICKS USING SATELLITE IMAGERY
CENTRAL PUBLIC WORKS DEPARTMENT
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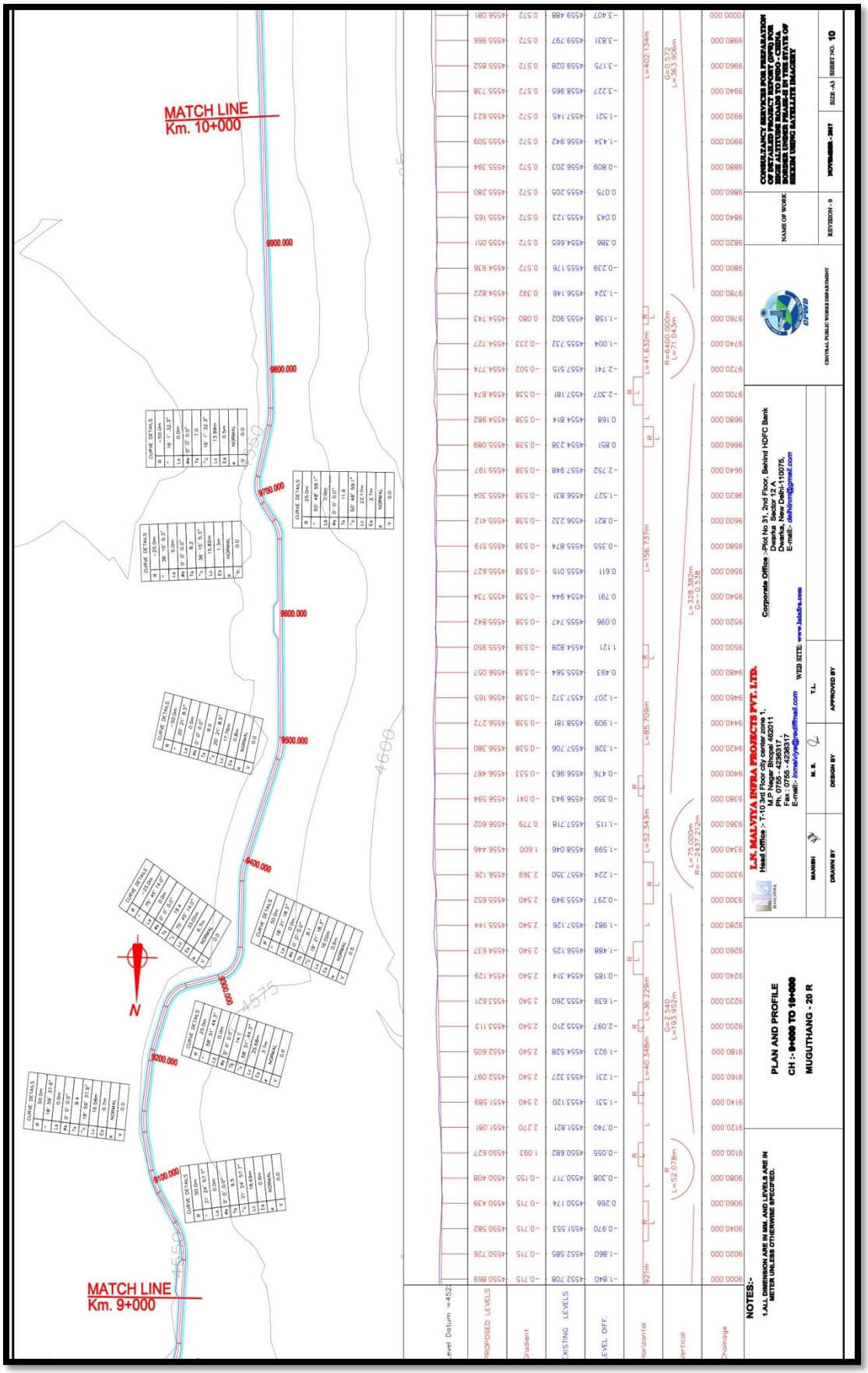
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WEB SITE: www.lnlsfra.com
Corporate Office :-Plot No 31, 2nd Floor, Behind HDFC Bank
Dwarka Sector 12 A
Delhi - New Delhi-110075.
E-mail:- delhifnm@gmail.com
CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT FOR WIDENING AND STRENGTHENING OF EXISTING ROADS TO INDO - CHINA BORDER (UNDER PHASE-2 IN THE STATE OF SIKKIM USING GATEWAYS MANUAL)
NAME OF WORK
CENTRAL PUBLIC WORKS DEPARTMENT
REVISION - 0
NOVEMBER - 2017
SIZE - A3
SHEET NO. 10
PLAN AND PROFILE
CH :- 9400 TO 10+000
MUGUTHANG - 20 R
DRAWN BY
DESIGN BY
APPROVED BY
NOTES:-
1.ALL DIMENSION ARE IN MM. AND LEVELS ARE IN METER UNLESS OTHERWISE SPECIFIED.
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Vertical
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EXISTING LEVELS
PROPOSED LEVELS
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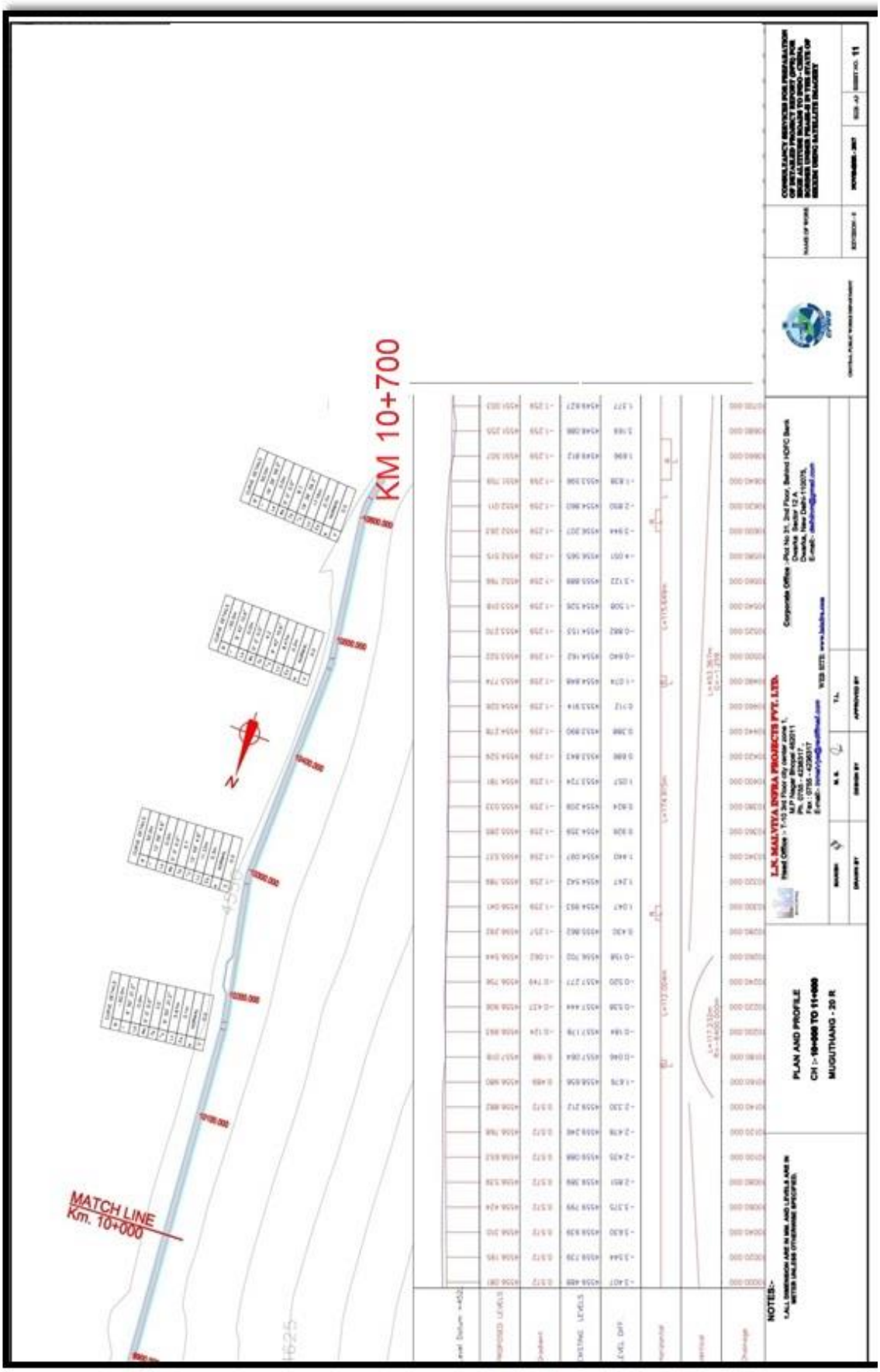
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PLAN AND PROFILE
MUGUTHANG - 20 R
NOTES:-

Annex - IV
(Schedule-A)

Environment & Forest Clearances

The required environment and forest clearances have been obtained, beforehand. Forest diversion is obtained for land width of 18m along with extra land for disposal of excess mug/cutting and establishment of plant & machineries etc. The detail of approval is given as under:

Approval is to be attached

SCHEDULE - B
(See Clause 2.1)

Development of the Project Highway

1 Development of the Project Highway

Development of the Project Highway shall include design and construction of the Project Highway as described in this Schedule-B and in Schedule-C.

~~**2 Rehabilitation and augmentation**~~

~~Rehabilitation and augmentation shall include Single Laning and strengthening of the Project Highway as described in Annex-I of this Schedule-B and in Schedule-C.~~

3 Specifications and Standards

The Project Highway shall be designed and constructed in conformity with the Specifications and Standards specified in Annex-I of Schedule-D.

Annex - I
(Schedule-B)

Description of Single-Laning Configuration

1 NEW HIGHWAY

1.1 The Project Highway shall follow the alignment plans specified in Annex III of Schedule-A. Geometric deficiencies, if any, in the proposed ~~existing~~ horizontal and vertical profiles as per DPR shall be corrected as per the prescribed standards for particularterrain to the extent land is available.

1.2 WIDTH OF CARRIAGEWAY

1.2.1 The paved carriageway shall be 3.75 m wide and with shoulderwidth of 1.25m on both sidesin accordance with the typical cross sections drawings.

S. No.	Design Chainage		Length	Width	Manual Reference
	From	To	(km)	(m)	
1	0.000	10.70	10.70	6.25	Table 6.5 of IRC SP 48 - 1998 for National Highways Single Lane

The passing places shall be provided along alignment as per provision of IRC SP 48 – 1998.

1.2.2 Except as otherwise provided in this Agreement, the width of the paved carriageway and cross-sectional features shall conform to paragraph 1.2.1 above.

2 GEOMETRIC DESIGN AND GENERAL FEATURES

2.1 General

Geometric design and general features of the Project Highway shall be in accordance with Section 6 of the manual**.**

2.2 Design speed

The design speed shall be as per the provisions stipulated in the manual for National Highway Single lane specifications.

2.3 Improvement of the existing road geometrics

DELETED

2.4 Right of Way

The Right of Way shall be 18 meter for the entire alignment.

2.5 Type of shoulders

The shoulder of 1.25 m width shall be of full thickness compacted layer of granular material having minimum CBR value of 30 (Thirty). Grading of granular material shall confirm to the requirement as specified in MoRTH specification 5th Edition.

2.6 Lateral and vertical clearances at ~~underpasses/~~cliffs

2.6.1 The minimumvertical clearances at cliffs / overhang sections / C cuts / half tunnel sections shall be 5 meter from the top most level of the proposed carriageway. ~~Required allowance must be kept for future upgradation works~~. Such sections shall be adopted only after proper investigation of the hill face and conducting required tests for the stability of the overhang sections.

2.7 Lateral and vertical clearances at overpasses

DELETED

2.8 Service roads

DELETED

2.9 Grade separated structures

DELETED

2.10 Cattle and pedestrian underpass /overpass

DELETED

2.11 Typical cross-sections of the Project Highway

The typical cross sections of the project highway shall be as under:

S. No.	Design Chainage		Length (km)	TCS
	From	To		
1	0.000	10.70	10.70	TCS – 1 to 6 in Annexure-II of Schedule B

3 INTERSECTIONS AND GRADE SEPARATORS

Minor Junctions

S.no.	Design Chainage (km)	Side (Left/Right)		Destination	Type of Junction
		Left	Right		
1	0.000			Muguthang	T

4 ROAD EMBANKMENT AND CUT SECTION

4.1 The entire alignment shall be designed and constructed in such a manner that no portion of the formation width is in filling and only the cut sections shall be adopted, unless otherwise the terrain demands for an embankment construction.

5 PAVEMENT DESIGN

5.1 Pavement design shall be carried out in accordance with Section 10 of the Hill road Manual (IRC: SP 48-1998), IRC :37 – 2012and IRC SP :101 - 2014.

5.2 Type of pavement

Flexible pavement shall only be constructed on this new construction.

5.3 Design requirements

5.3.1 *Design Period and strategy*

Flexible pavement for new pavement shall be designed for a minimum design period of 15 years. Stage construction shall not be permitted.

5.3.2 *Design Traffic*

Notwithstanding anything to the contrary contained in this Agreement or the Manual, the Contractor shall design the pavement for design traffic of 5 million standard axles.

5.4 Reconstruction of stretches

DELETED

5.5 Widening of stretches

DELETED

5.6 New Construction of Bypasses and Realignment

DELETED

6 ROADSIDE DRAINAGE

Drainage system including surface and subsurface drains for the Project Highway shall be provided as per Section 8 of the Hill road Manual.

S.No.	Design Chainage		Length (km)	TCS	Remarks
	From	To			
1	0.000	11.70	10.70	TCS-13 in Annexure-II of Schedule B	Entire Hill Side length

7 DESIGN OF STRUCTURES

7.1 General

7.1.1 All bridges, culverts and structures shall be designed and constructed in accordance with section 8 of the Manual and shall conform to the cross-sectional features and other details specified thereinbut culverts wherever provided shall be slab culverts only. Typical drawing of slab culvert is given at TCS 17, 17A to B in Annexure-II of Schedule-B.

7.1.2 Width of the carriageway of new bridges and structures shall be in accordance with Section 8 of the Hill Road Manual.

7.1.3 DELETED

7.1.4 All bridges / culverts shall be of high-level.

7.1.5 DELETED

7.1.6 Cross-section of the new culverts ~~and bridges at deck level~~for the Project Highway shall conform to the typical cross-sections given in section 8 of the Manual.

7.2 Culverts

7.2.1 Overall width of all culverts shall be equal to the roadway width of the approaches.

7.2.2 DELETED

7.2.3 DELETED

7.2.4 New culverts shall be constructed at the required locations in such a manner that on an average,a minimum of four Slab culverts must be available in each km length of the project. The tentative list of the culverts to be provided is as per particulars given in the table below:

SR.NO	***Chainage***	***TYPE OF STRUCTURE***	***SPAN LENGTH***
1	0+000	Slab	1 x 3 m
2	0+250	Slab	1 x 3 m
3	0+500	Slab	1 x 3 m
4	0+750	HPC	1X1200 mm
5	1+000	Slab	1 x 3 m
6	1+250	Slab	1 x 3 m
7	1+500	Slab	1 x 3 m
8	1+750	HPC	1X1200 mm
9	2+000	Slab	1 x 3 m
10	2+250	Slab	1 x 3 m
11	2+500	Slab	1 x 3 m
12	2+750	HPC	1X1200 mm
13	3+000	Slab	1 x 3 m
14	3+250	Slab	1 x 3 m
15	3+500	Slab	1 x 3 m
16	3+750	HPC	1X1200 mm
17	4+000	Slab	1 x 3 m
18	4+250	Slab	1 x 3 m
19	4+500	Slab	1 x 3 m
20	4+750	HPC	1X1200 mm
21	5+000	Slab	1 x 3 m
22	5+250	Slab	1 x 3 m
23	5+500	Slab	1 x 3 m

SR.NO	*Chainage*	*TYPE OF STRUCTURE*	*SPAN LENGTH*
24	5+750	HPC	1X1200 mm
25	6+000	Slab	1 x 3 m
26	6+250	Slab	1 x 3 m
27	6+500	Slab	1 x 3 m
28	6+750	HPC	1X1200 mm
29	7+000	Slab	1 x 3 m
30	7+250	Slab	1 x 3 m
31	7+500	Slab	1 x 3 m
32	7+750	HPC	1X1200 mm
33	8+000	Slab	1 x 3 m
34	8+250	Slab	1 x 3 m
35	8+500	Slab	1 x 3 m
36	8+750	HPC	1X1200 mm
37	9+000	Slab	1 x 3 m
38	9+250	Slab	1 x 3 m
39	9+500	Slab	1 x 3 m
40	9+750	HPC	1X1200 mm
41	10+000	Slab	1 x 3 m
42	10+250	Slab	1 x 3 m
43	10+500	Slab	1 x 3 m
44	10+750	HPC	1X1200 mm
45	11+000	Slab	1 x 3 m
46	11+250	Slab	1 x 3 m
47	11+500	Slab	1 x 3 m

7.2.5 DELETED

7.2.6 Floor protection works shall be carried out as specified in the relevant IRC Codes and Specifications.

.

7.3 DELETED

7.4. DELETED

7.5 List of Minor Bridge

SR.NO	*Chainage*	*TYPE OF STRUCTURE*	*SPAN LENGTH*
1	1+125	Bridge	1 x 40 m
2	8+850	Bridge	1 x 40 m

7.6 Repairs and strengthening of bridges and structures

DELETED

7.7 List of Major Bridges

The following is the list of the Major Bridges:

Sl. No.	Location
Nil	

Note: Any bridge within 40 km of IB/LOC will have provision of demolition chamber and shall be got cleared from Chief Engineer of Eastern Command of Army.

8 TRAFFIC CONTROL DEVICES AND ROAD SAFETY WORKS

8.1 Traffic control devices and road safety works shall be provided in accordance with IRC 67 - 2012.

9 ROADSIDE FURNITURE

9.1 Roadside furniture shall be provided in accordance with the provisions of Section 10 and 11 of the Manual. The provisions of the road furniture are given in the applicable TCS drawings. Typical details given in TCS-14 & 15 in Annexure-II of Schedule-B.

9.2 *Overhead traffic signs: location and size*

Overhead traffic signs shall be provided based on design of sign boards as per IRC 67 - 2012.

S. No.	Location (Design Chainage)	Type	Size	Remark
1	0.000	Overhead gantry Sign	14000mmx2100mm	Start of Project Road

9.3 All Traffic Signs for Road Users would be provided as per IRC 67 - 2012.

10 COMPULSORY AFFORESTATION

DELETED

11 HAZARDOUS LOCATIONS

DELETED

12 SPECIAL REQUIREMENT FOR HILL ROADS

The special requirements for construction of project highways are as under:

i. The alignment shall be provided onto the sun face only to the extent possible.

ii. The alignment shall be design and constructed in such a manner that the entire formation width is in cutting section only unless otherwise there is a requirement of embankment section, except for the approaches of the cross drainage structures, where filling sections shall be allowed.

iii. For construction of culverts, provision of catch-pit and catch basin is mandatory.

iv. The cutting of slopes shall be in accordance with the provisions / angles specified in the Hill road Manual.

v. The entire cut face of the hill, except for hard rock, shall be protected through proper measures as per typical cross sections given in the documents. (Annexure-II of Schedule B).

vi. For the cut height more than 4 meters, except for hard rock, provision of benching is to be kept for better stability and avoidance of any felling of stones from up-hills.(Annexure-II of Schedule B).

vii. For the cut height, more than 8 meters, except for hard rock, the entire hill face shall be covered with proper land slide mitigation measures as per section 11 of the manual.

viii. The retaining walls of appropriate length and height shall be provided at the complete stretches where the type of strata is other than ordinary rock and hard rock. For guidance purpose, the typical drawings are attached. (TCS-12 in Annexure-II of Schedule B)

ix. Under clause v, vi, and vii above, the definition of hard rock shall be "the rock having no fractures or tendencytoslide / move towards the alignment". In case of fractured rock, the same shall NOT be considered as hard rock. In this connection, the decision of the Authority shall be final and binding.

13 CHANGE OF SCOPE

The length of Structures and bridges specified hereinabove shall be treated as an approximate assessment. The actual lengths as required on the basis of detailed investigations shall be determined by the Contractor in accordance with the Specifications and Standards. Any variations in the lengths specified in this Schedule-B shall not constitute a Change of Scope, save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

Annex – II
(Schedule-B)

Typical Cross Sections and Protection Measures

To minimize the occurrence of landslides from the excavated sloped portion of hills, following remedial measures shall be implemented:

1. Combination of Random Rubble Masonry and Dry Rubble Masonry breast walls in panels along full excavated hill slope length with composite drain for drainage on backing

2. Benching, where height of excavation is more than 4 meter.

3. Gabions structures where height of excavation is more than 4 meters and upto8 meter height

4. 100% Retaining walls on valley side at loops duly extended in tangent lengths in roads constructed to negotiate the height in particular hill & in pockets containing loose strata.

5. Drapery systems of protection for more than 15 meter height of excavation on hill slopes.

6. Rock fall protection measures in areas containing fractured rocks prone to falling.

7. RCC slab bridge over RRM abutments wherever required in locations carrying heavy discharge of rivers / rivulets instead of Bailey Bridge (largely termed as temporary structures) to cater for 70 R loading conditions as long term solutions.

8. To avoid loss / damage to the commuters, vehicles and human life due to major accidents, which is frequent in the hill roads following safety measures shall be adopted:

   (i) Parapet wall segments on valley side throughout the length along hill road

   (ii) Road marking along full length of the carriageway

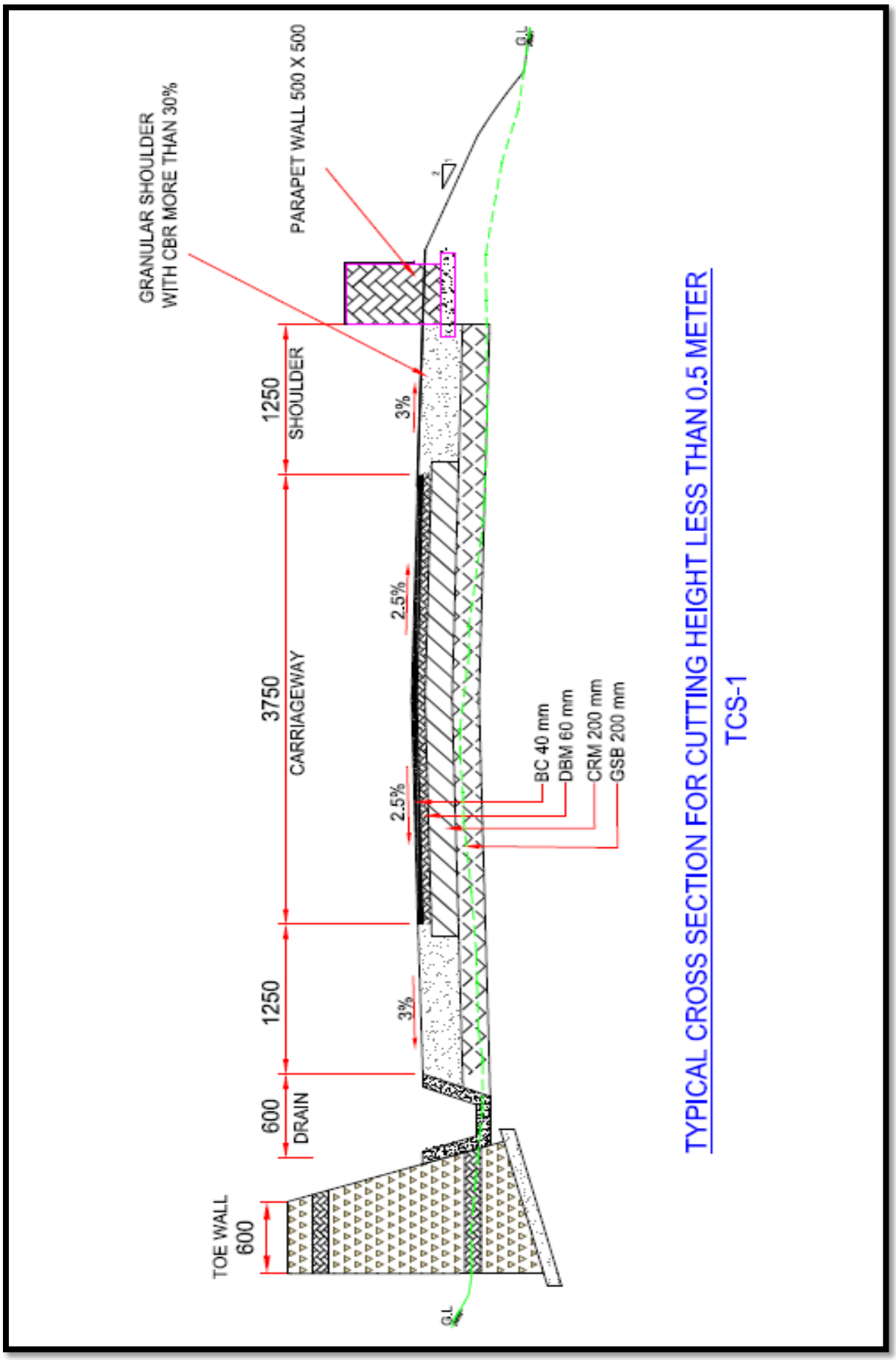
   (iii) Sign Boards as per IRC provisions

   (iv) Reflectors on hill face, parapet wall and sharp bends as per IRC provisions

   (v) Snow markers, Metal Beam Crash Barriers,

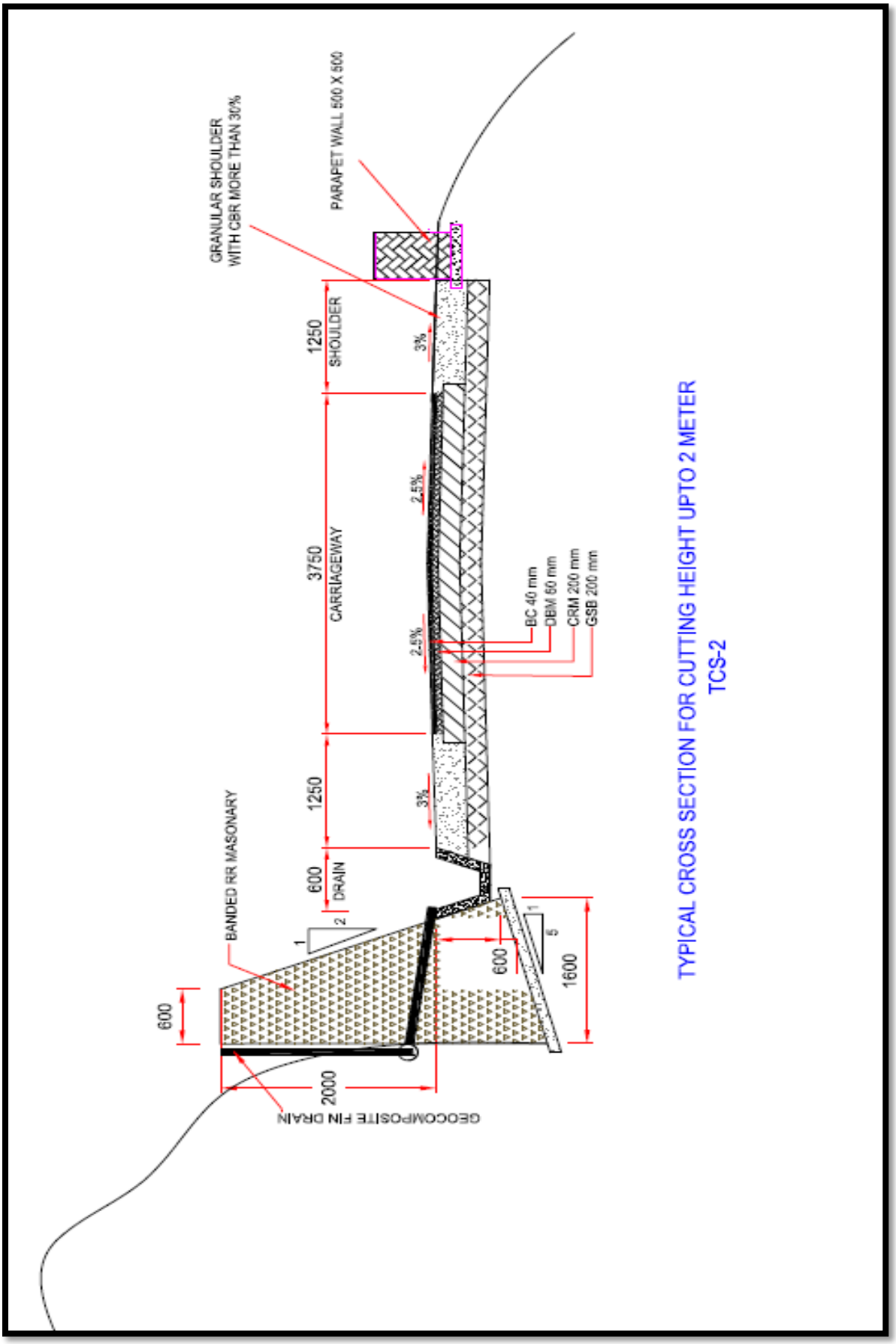
   (vi) Safety slogans at regular intervals

Typical drawings showing cross section, general arrangement of protection worksare given in this Annexure from TCS-1 to TCS-17(Total ------ nos.). These are typical general details given for the guidance of the contractor to show scope of work. Detailed drawings are to be developed by the contractor for execution and got approved from Authority Engineer. Contractor is to design each element for stability against overturn, sliding etc. Contractor can suggest better technical alternative which shall meet the requirement as specified above and IRC codal provisions. The decision of Authority in regard shall be final and binding on the contractor.

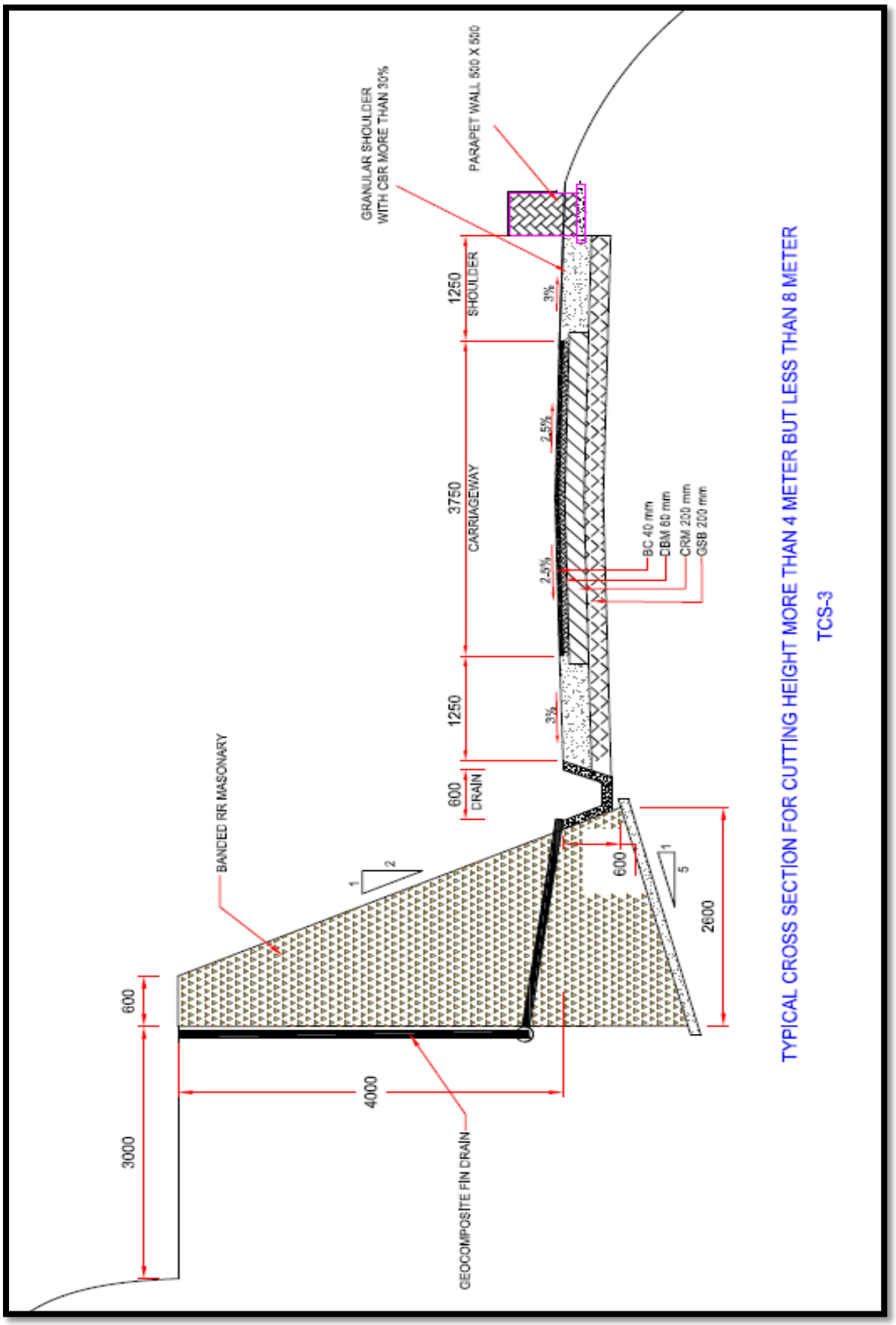


TYPICAL CROSS SECTION FOR CUTTING HEIGHT LESS THAN 0.5 METER

TCS-1

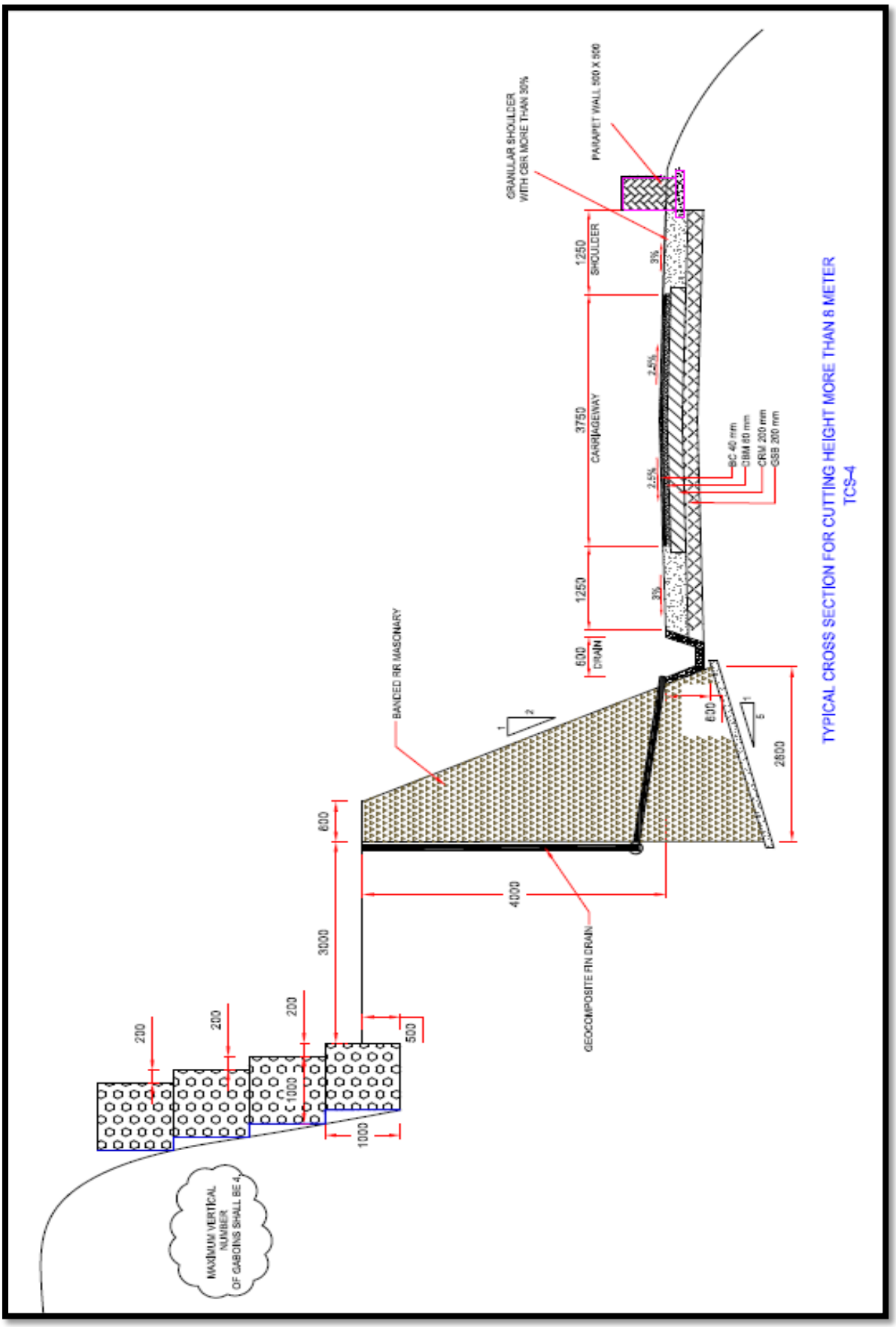


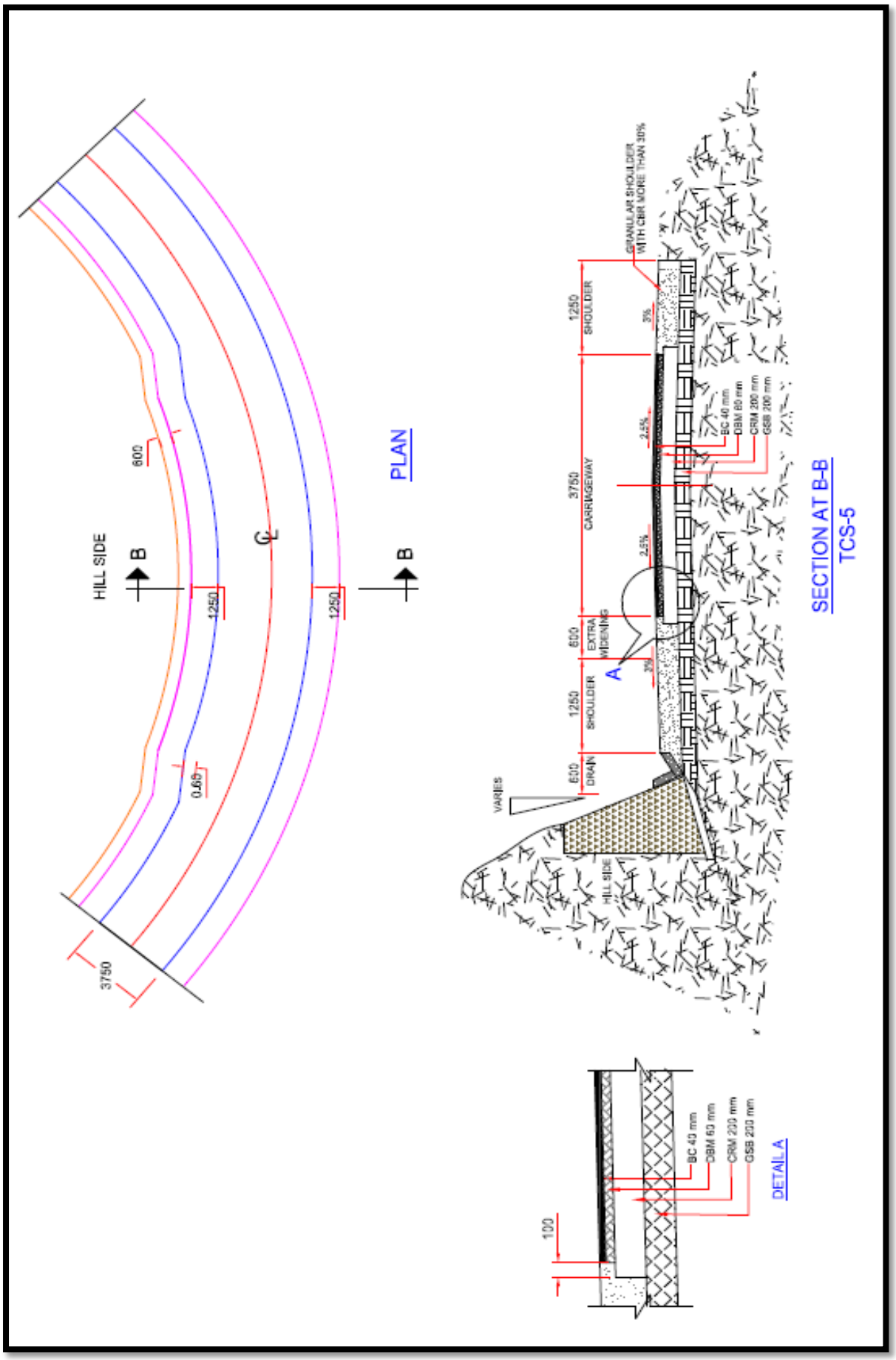
TYPICAL CROSS SECTION FOR CUTTING HEIGHT UPTO 2 METER
TCS-2

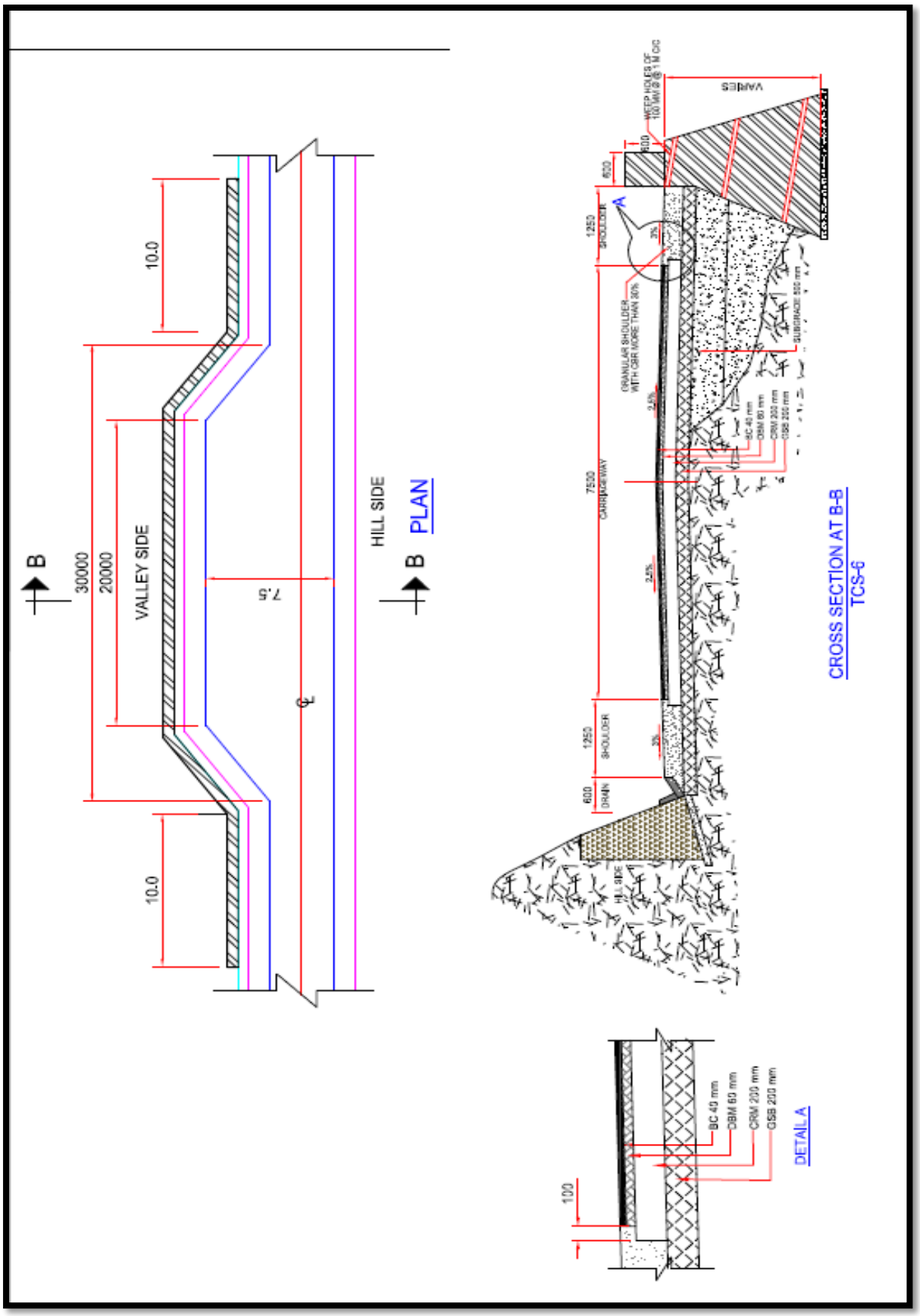


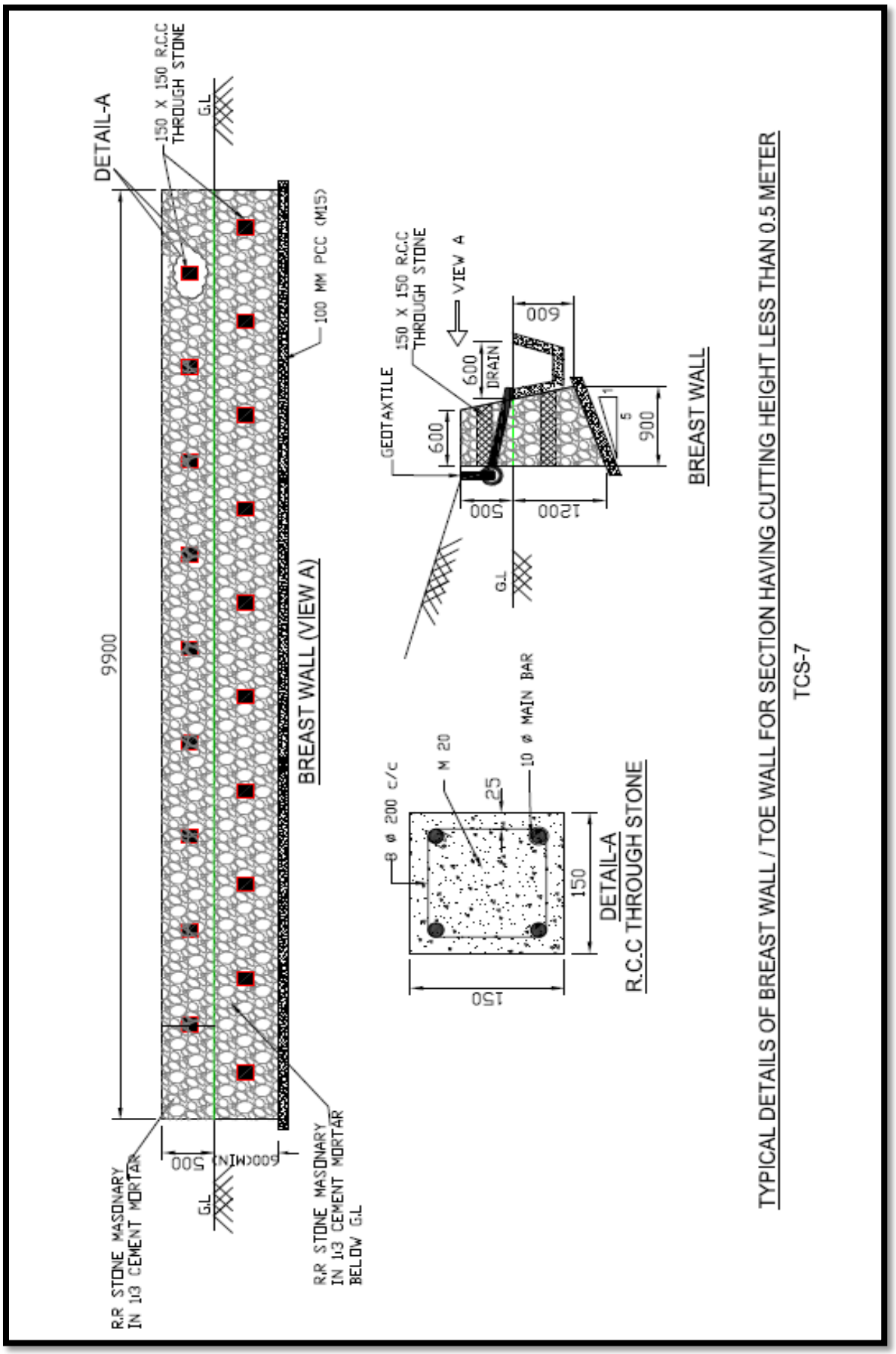
TYPICAL CROSS SECTION FOR CUTTING HEIGHT MORE THAN 4 METER BUT LESS THAN 8 METER

TCS-3


TYPICAL CROSS SECTION FOR CUTTING HEIGHT MORE THAN 6 METER
TCS-4
GRANULAR SHOULDER WITH CBR MORE THAN 30%
PARAPET WALL 500 X 900
1250
SHOULDER
3%
3750
CARRIAGEWAY
2.5%
2.5%
BC 40 mm
DBM 60 mm
CRM 200 mm
GSB 200 mm
1250
3%
600
DRAIN
BANDED RR MASONARY
1
2
1
1
600
2800
600
3000
4000
GEOCOMPOSITE RN DRAIN
200
200
200
500
1000
1000
MAXIMUM VERTICAL NUMBER OF GABIONS SHALL BE 4

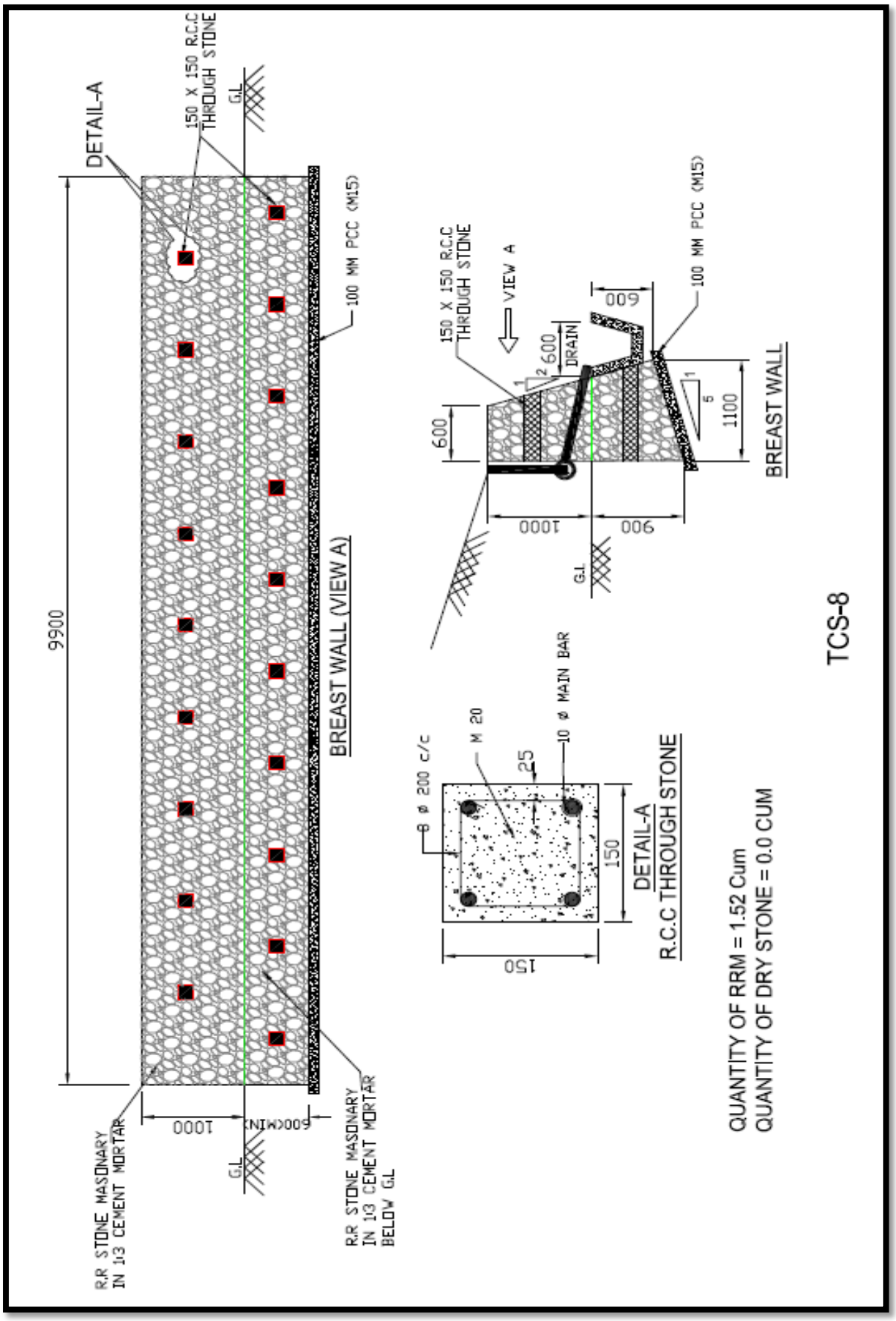

PLAN
HILL SIDE
B
B
600
1250
1250
0.65
3750
SECTION AT B-B
TCS-5
GRANULAR SHOULDER WITH CBR MORE THAN 30%
1250
SHOULDER
3%
3750
CARRIAGEWAY
2.5%
BC 40 mm
DBM 80 mm
CRM 200 mm
GSB 200 mm
2.5%
600
EXTRA WIDENING
A
3%
1250
SHOULDER
600
DRAIN
VARIES
HILL SIDE
DETAIL A
100
BC 40 mm
DBM 80 mm
CRM 200 mm
GSB 200 mm

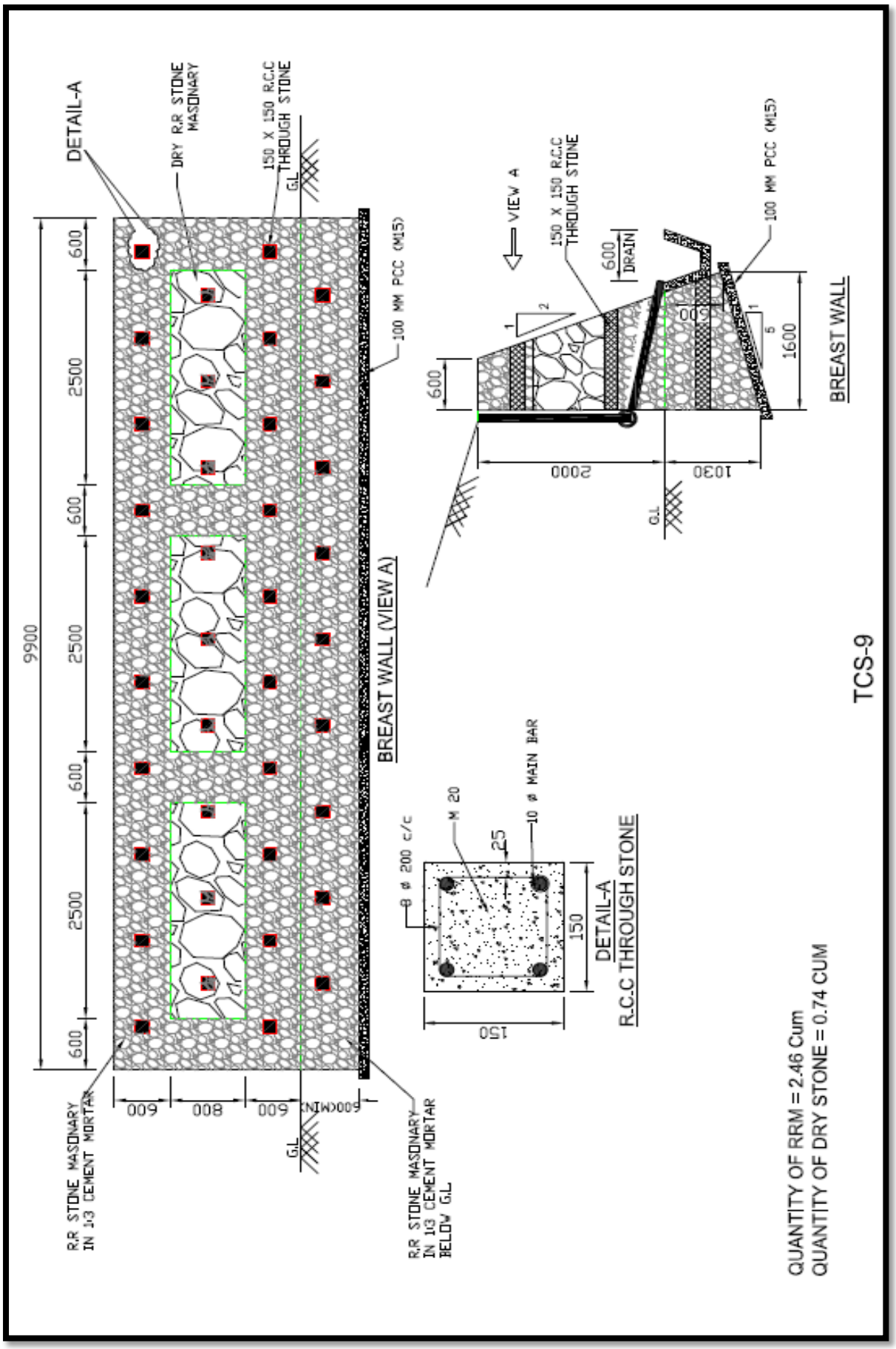

B
30000
20000
VALLEY SIDE
10.0
7.5
10.0
HILL SIDE
B
PLAN
CROSS SECTION AT B-B
TCS-6
DETAIL A
BC 40 mm
DBM 60 mm
CRM 200 mm
GSB 200 mm
100

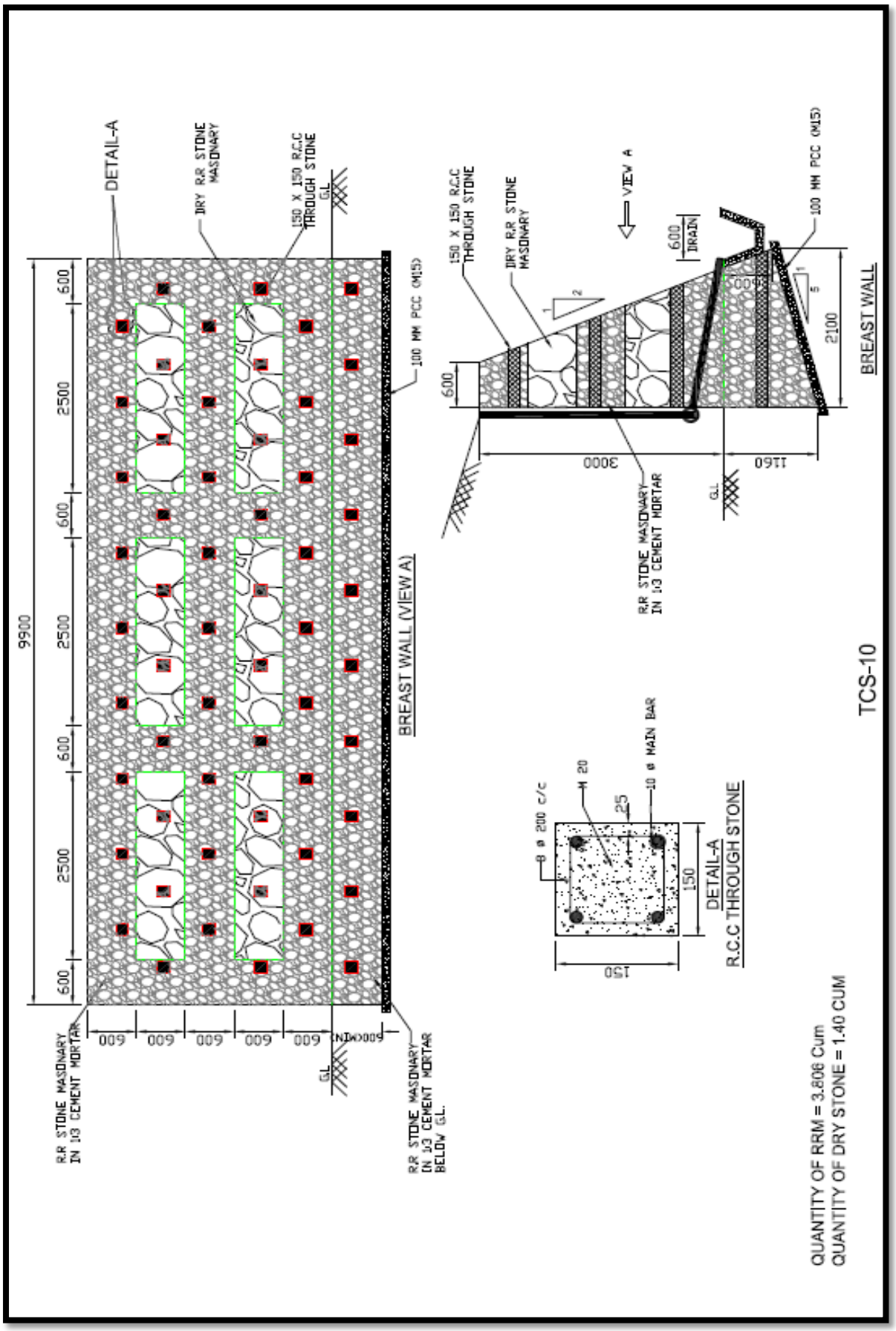


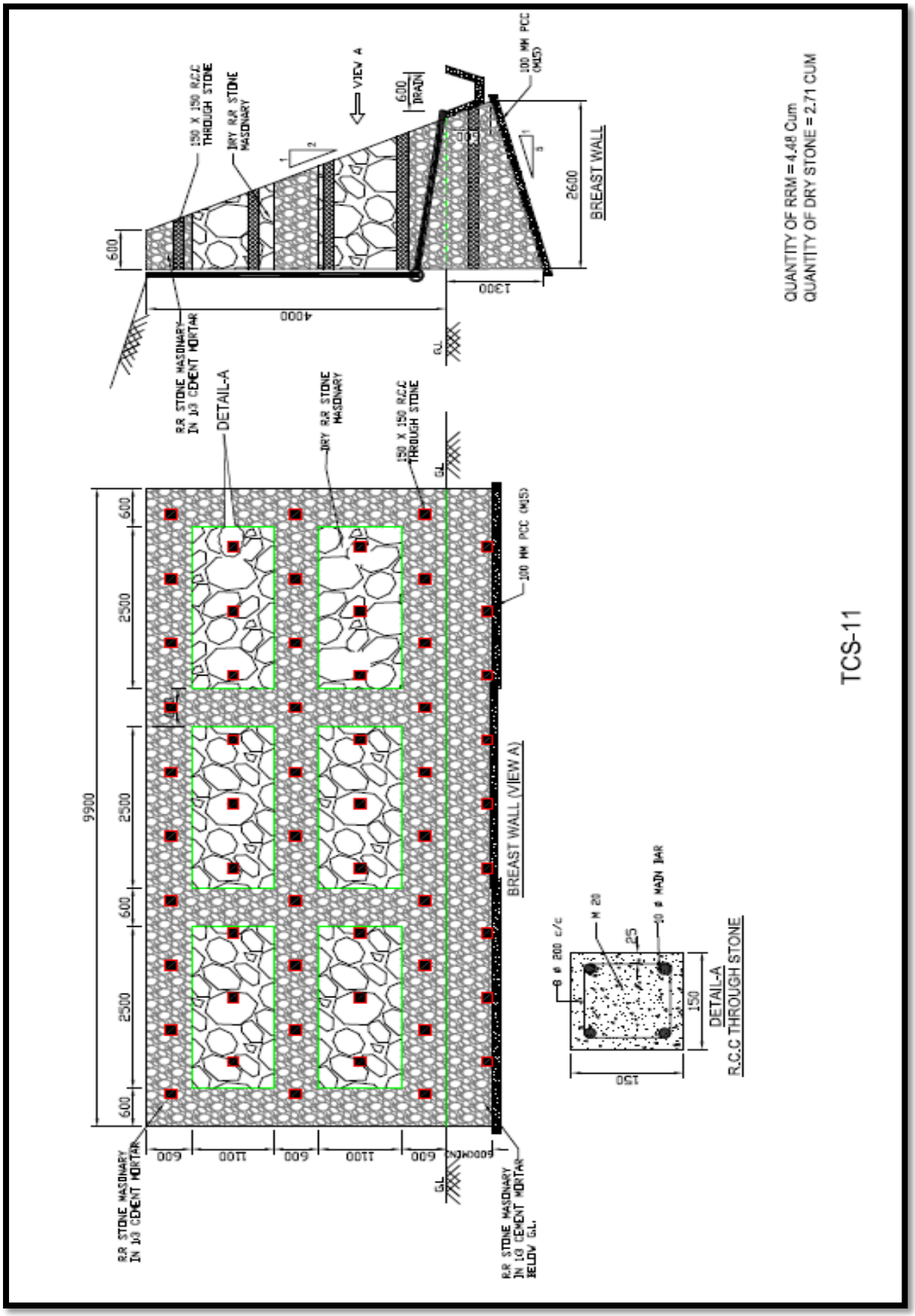
TYPICAL DETAILS OF BREAST WALL / TOE WALL FOR SECTION HAVING CUTTING HEIGHT LESS THAN 0.5 METER

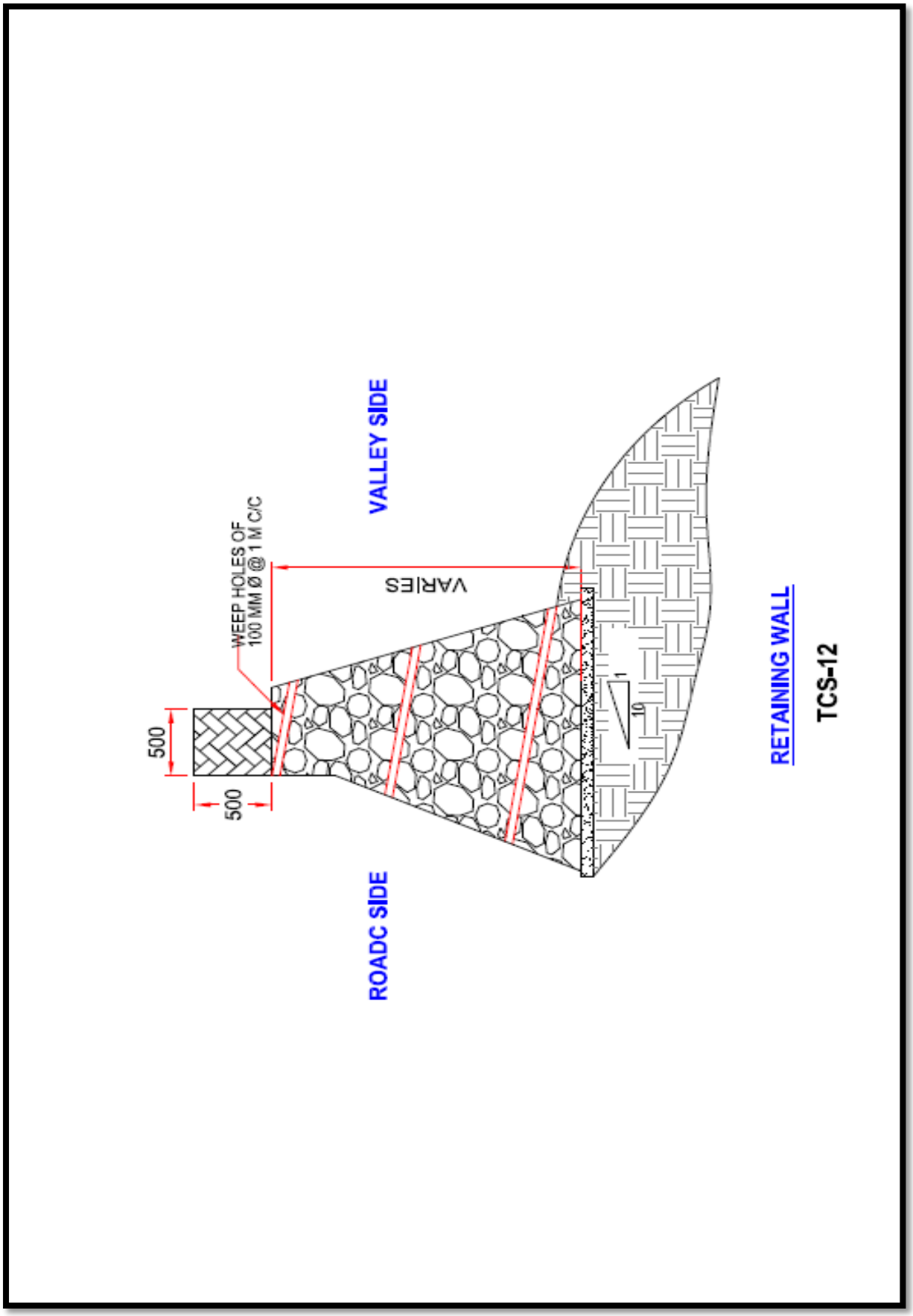
TCS-7

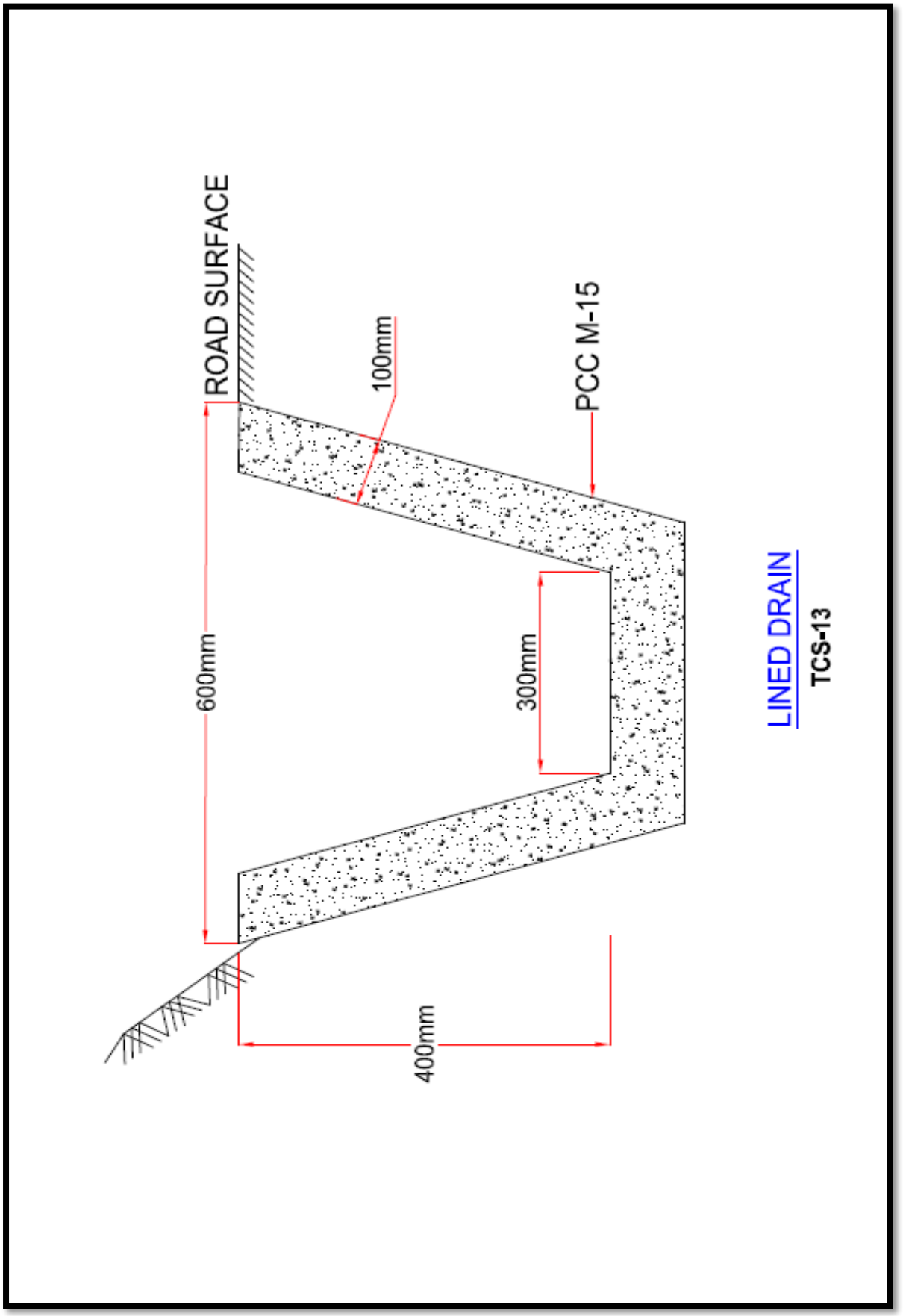

DETAIL-A
150 X 150 R.C.C THROUGH STONE
G.L
100 MM PCC (M15)
9900
BREAST WALL (VIEW A)
1000
600(MIN)
G.L
R.R STONE MASONARY IN 1/3 CEMENT MORTAR
R.R STONE MASONARY IN 1/3 CEMENT MORTAR BELOW G.L
150 X 150 R.C.C THROUGH STONE
VIEW A
600
DRAIN
600
100 MM PCC (M15)
1100
1000
900
G.L
BREAST WALL
8 ø 200 c/c
M 20
10 ø MAIN BAR
25
150
150
DETAIL-A
R.C.C THROUGH STONE
QUANTITY OF RRM = 1.52 Cum
QUANTITY OF DRY STONE = 0.0 CUM
TCS-8

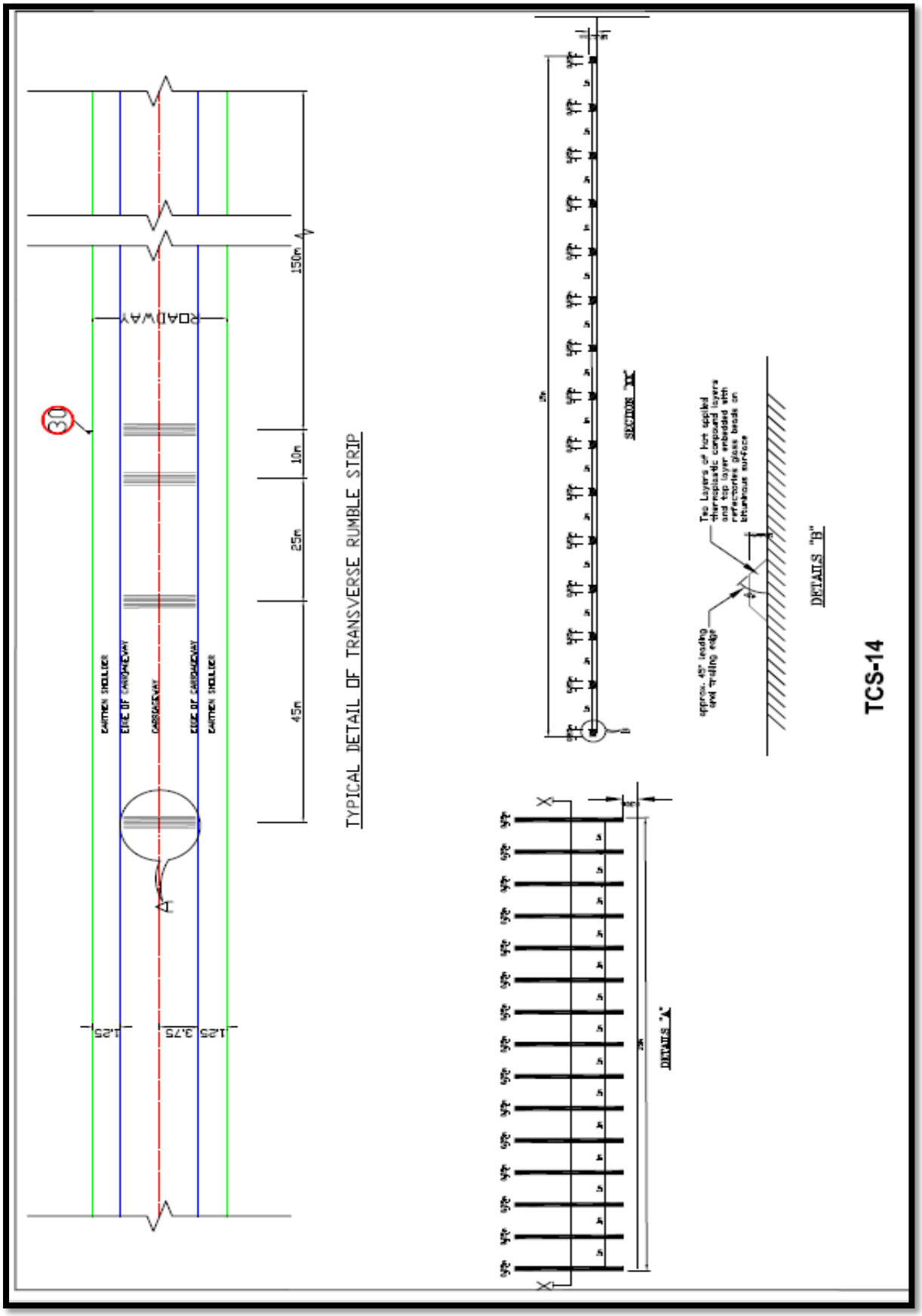

DETAIL-A
DRY R.R STONE MASONARY
150 X 150 R.C.C THROUGH STONE
G.L
100 MM PCC (M15)
9900
600
2500
600
2500
600
2500
600
600
800
600
600MIN
R.R STONE MASONARY IN 1:3 CEMENT MORTAR
R.R STONE MASONARY IN 1:3 CEMENT MORTAR BELOW G.L
BREAST WALL (VIEW A)
VIEW A
150 X 150 R.C.C THROUGH STONE
600 DRAIN
100 MM PCC (M15)
600
2000
1030
1600
G.L
BREAST WALL
8 ø 200 c/c
M 20
25
10 ø MAIN BAR
150
150
DETAIL-A
R.C.C THROUGH STONE
TCS-9
QUANTITY OF RRM = 2.46 Cum
QUANTITY OF DRY STONE = 0.74 CUM

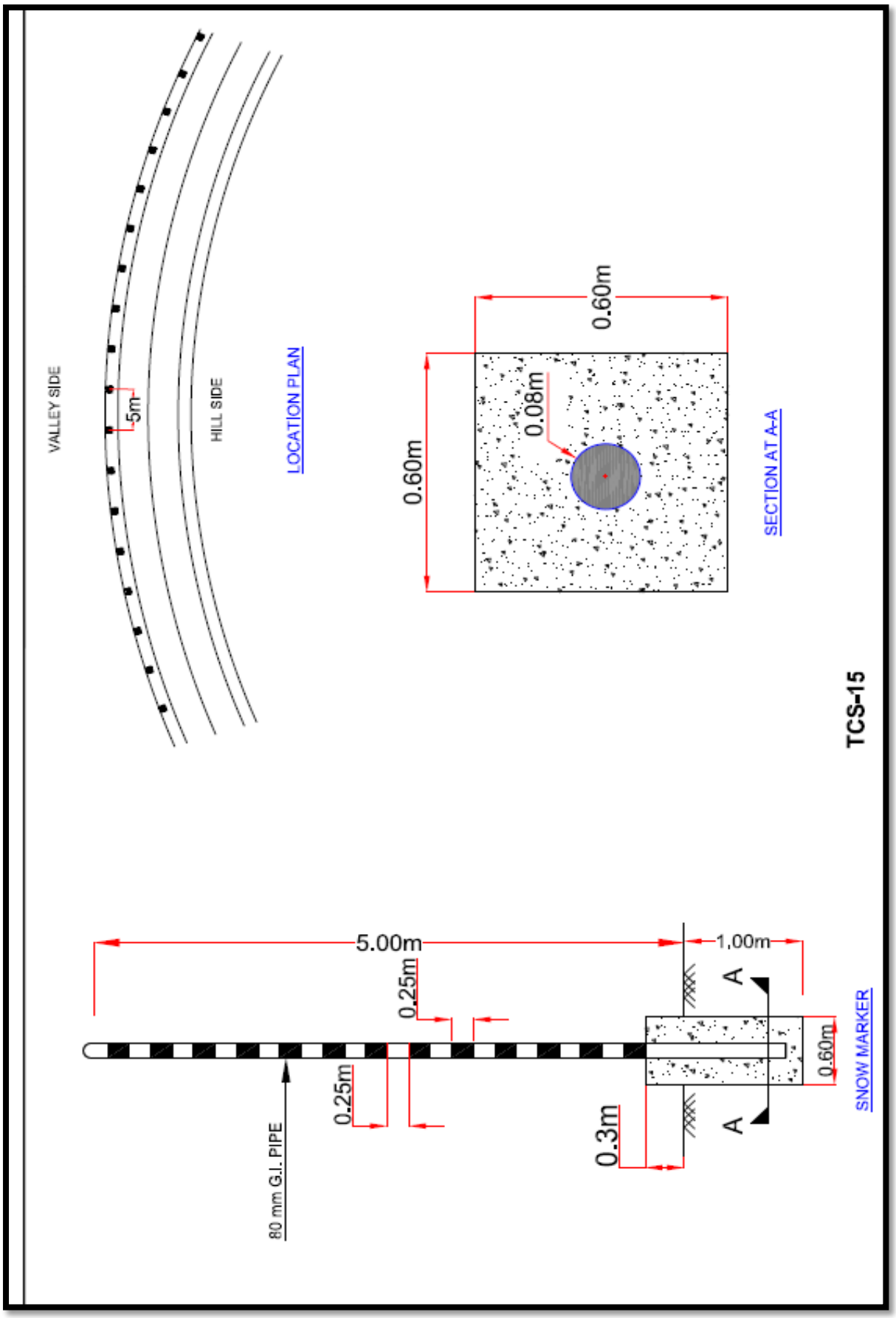

DETAIL-A
DRY R.R STONE MASONARY
150 X 150 R.C.C THROUGH STONE
G.L
100 MM PCC (M15)
9900
600
2500
600
2500
600
2500
600
600
600
600
600
600
600MIN
R.R STONE MASONARY IN 1:3 CEMENT MORTAR
R.R STONE MASONARY IN 1:3 CEMENT MORTAR BELOW G.L.
BREAST WALL (VIEW A)
VIEW A
600
DRAIN
2100
3000
1160
R.R STONE MASONARY IN 1:3 CEMENT MORTAR
8 ø 200 c/c
H 20
25
10 ø MAIN BAR
150
150
DETAIL-A
R.C.C THROUGH STONE
BREAST WALL
TCS-10
QUANTITY OF RRM = 3.606 Cum
QUANTITY OF DRY STONE = 1.40 CUM

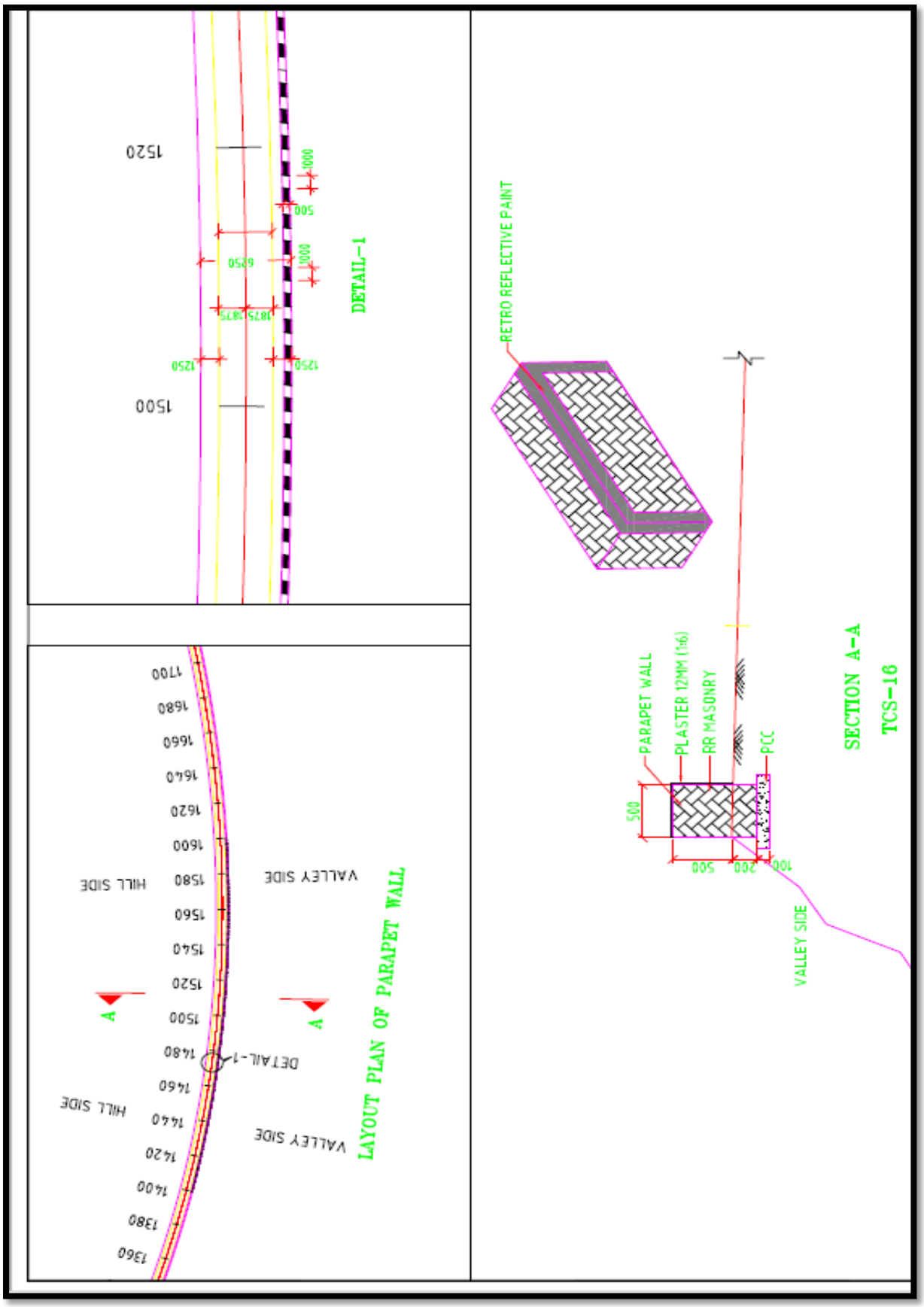

150 X 150 R.C.C THROUGH STONE
DRY R/R STONE MASONARY
VIEW A
600 DRAIN
100 MM PCC (M15)
2600
BREAST WALL
600
4000
1300
GL
R/R STONE MASONARY IN 1:3 CEMENT MORTAR
DETAIL-A
DRY R/R STONE MASONARY
150 X 150 R.C.C THROUGH STONE
100 MM PCC (M15)
9900
2500
600
1100
BREAST WALL (VIEW A)
R/R STONE MASONARY IN 1:3 CEMENT MORTAR
R/R STONE MASONARY IN 1:3 CEMENT MORTAR BELOW G.L.
M 20
8 ø 200 c/c
10 ø MAIN BAR
25
150
DETAIL-A
R.C.C THROUGH STONE
QUANTITY OF RRM = 4.48 Cum
QUANTITY OF DRY STONE = 2.71 CUM
TCS-11

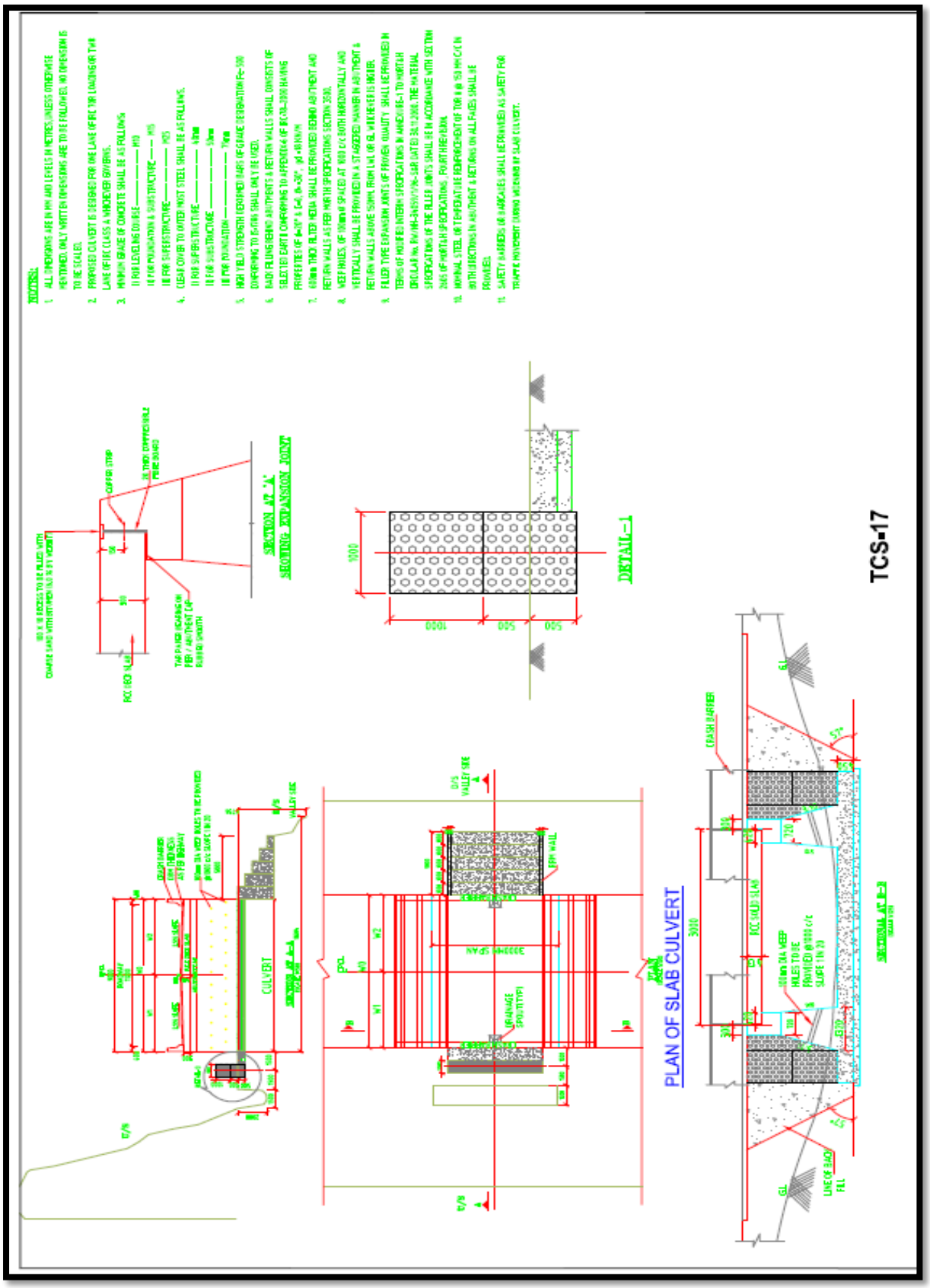

VALLEY SIDE
WEEP HOLES OF
100 MM Ø @ 1 M C/C
VARIES
500
500
1
10
ROADC SIDE
RETAINING WALL
TCS-12

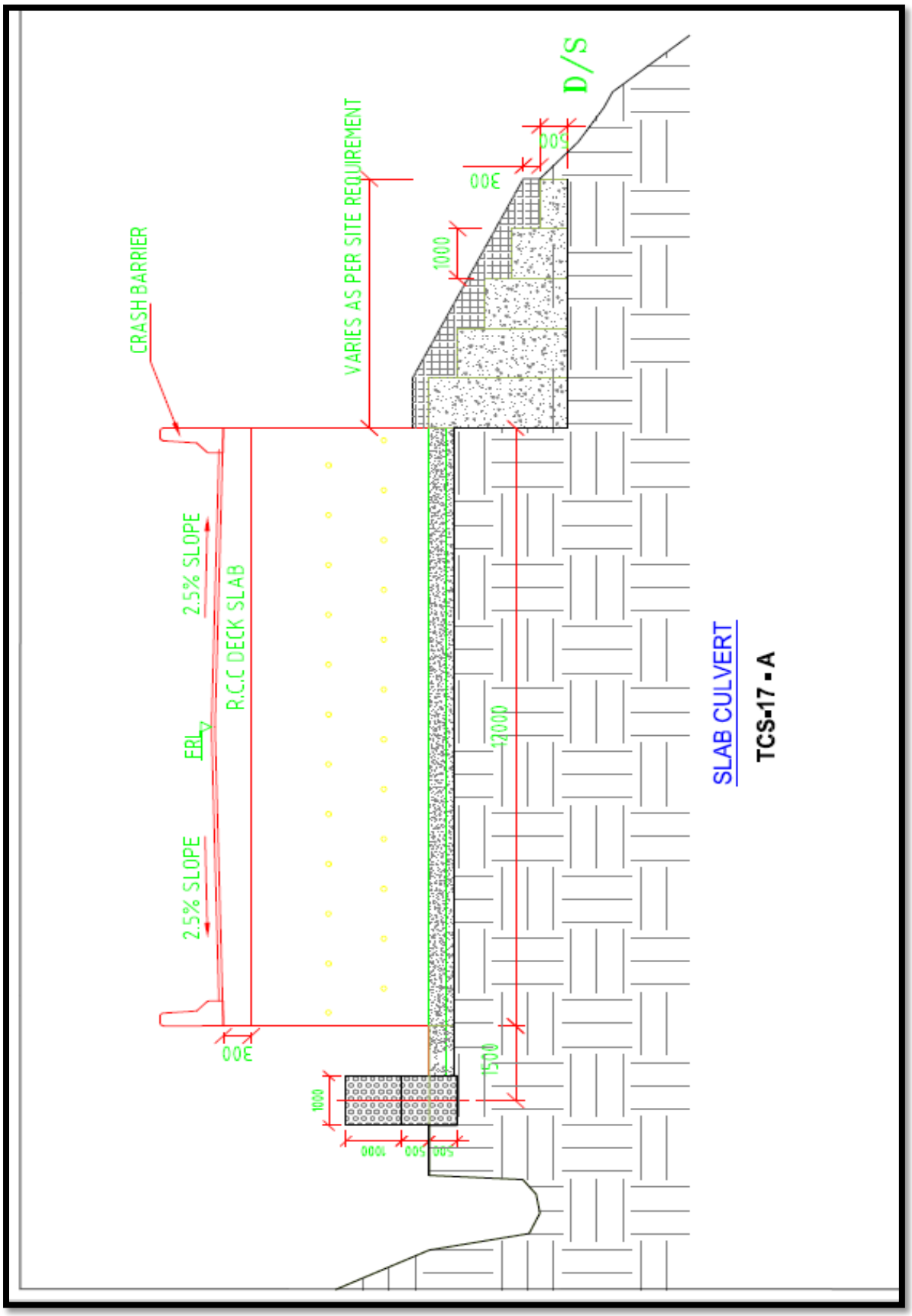

ROAD SURFACE
100mm
PCC M-15
600mm
300mm
400mm
LINED DRAIN
TCS-13

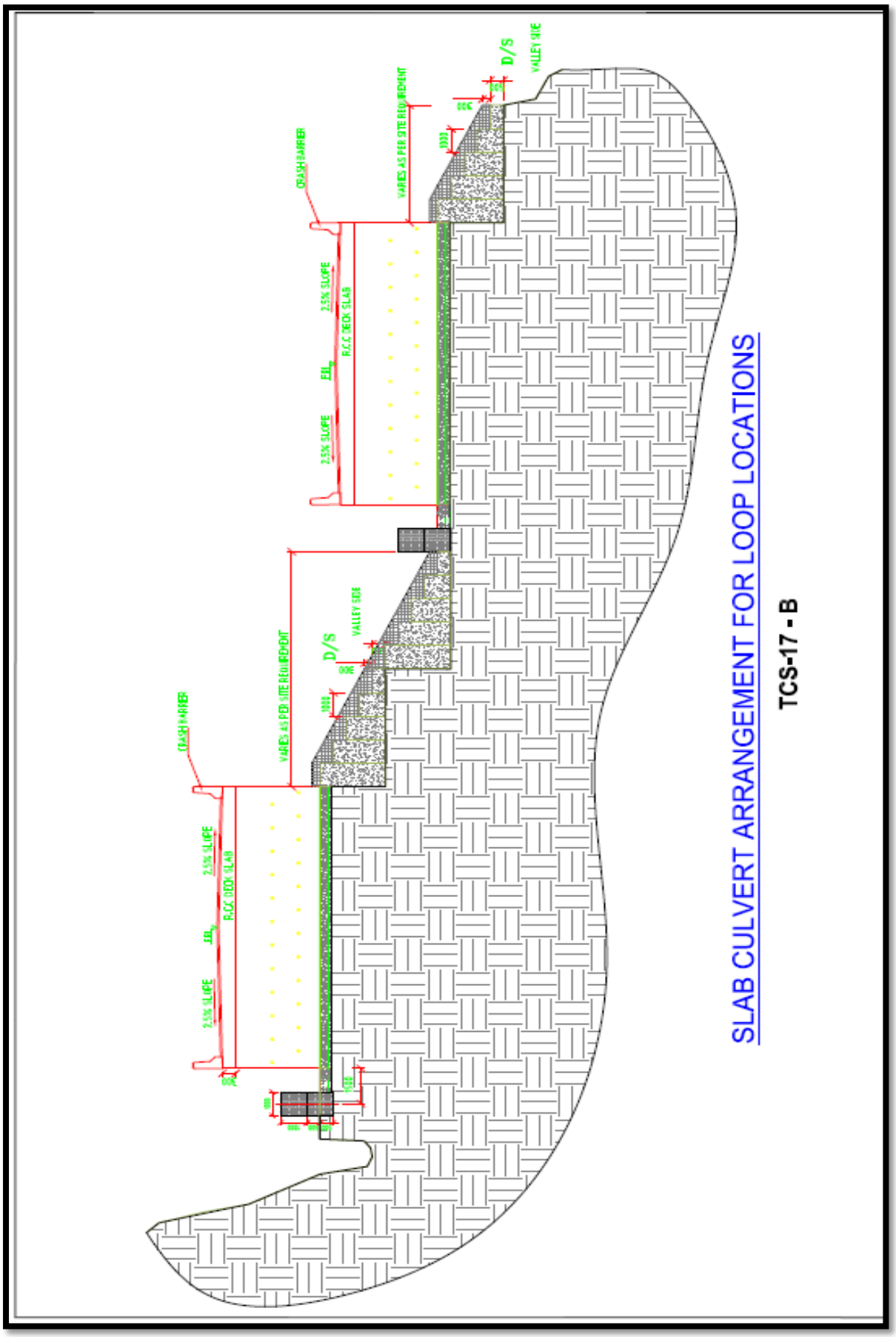

TYPICAL DETAIL OF TRANSVERSE RUMBLE STRIP
150m
10m
25m
45n
CARRIAGEWAY
EDGE OF CARRIAGEWAY
EDGE OF CARRIAGEWAY
CARMEN SHOULDER
CARMEN SHOULDER
1.25
3.75
1.25
30
SECTION "X"
DETAILS "A"
DETAILS "B"
TCS-14

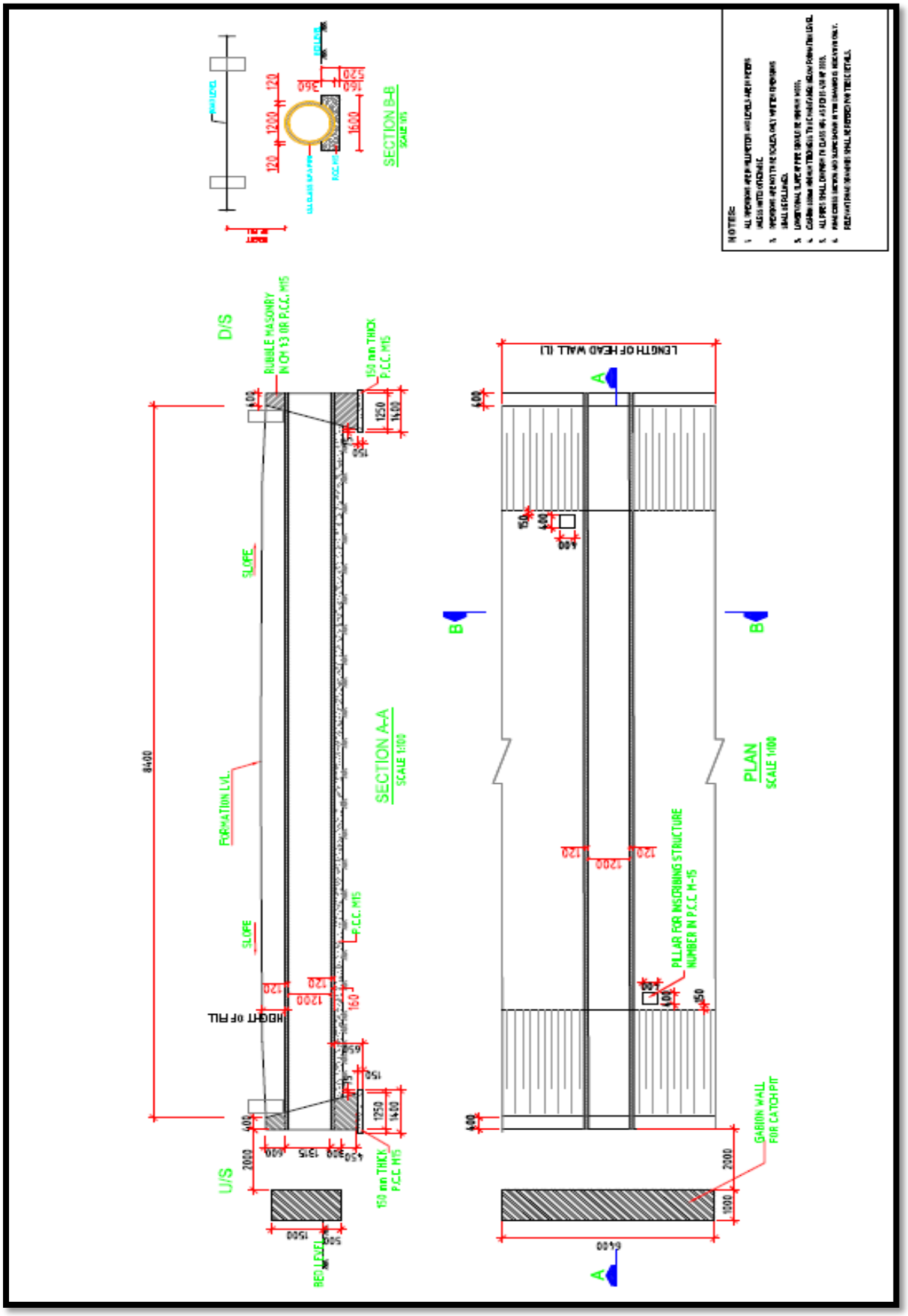

VALLEY SIDE
5m
HILL SIDE
LOCATION PLAN
0.60m
0.60m
0.08m
SECTION AT A-A
TCS-15
5.00m
1.00m
0.25m
0.25m
A
A
0.60m
0.3m
80 mm G.I. PIPE
SNOW MARKER


1520
1000
500
6250
1000
1875
1875
1250
1250
1500
DETAIL-1
RETRO REFLECTIVE PAINT
PARAPET WALL
PLASTER 12MM (1:6)
RR MASONRY
PCC
500
500
200
100
VALLEY SIDE
SECTION A-A
TCS-16
1700
1680
1660
1640
1620
1600
1580
1560
1540
1520
1500
1480
1460
1440
1420
1400
1380
1360
HILL SIDE
VALLEY SIDE
A
A
DETAIL-1
HILL SIDE
VALLEY SIDE
LAYOUT PLAN OF PARAPET WALL


TCS-17
PLAN OF SLAB CULVERT
SECTION AT 'A'
SHOWING EXPANSION JOINT
DETAIL-1
CULVERT
GL
LINE OF BACK FILL


D/S
VARIES AS PER SITE REQUIREMENT
CRASH BARRIER
2.5% SLOPE
R.C.C DECK SLAB
FRL
2.5% SLOPE
300
1000
12000
1500
1000
500
500
1000
SLAB CULVERT
TCS-17 - A


SLAB CULVERT ARRANGEMENT FOR LOOP LOCATIONS
TCS-17 - B
D/S
VALLEY SIDE
CRASH BARRIER
VARIES AS PER SITE REQUIREMENT
2.5% SLOPE
R.C.C. DECK SLAB
FSL


SECTION B-B
SCALE 1:10
D/S
RUBBLE MASONRY IN CM 1:3 OR P.C.C. M15
150 mm THICK P.C.C. M15
SLOPE
FORMATION LVL.
HEIGHT OF FILL
SECTION A-A
SCALE 1:100
U/S
150 mm THICK P.C.C M15
BED LEVEL
8400
LENGTH OF HEAD WALL (L)
PLAN
SCALE 1:100
PILLAR FOR INSCRIBING STRUCTURE NUMBER IN P.C.C M-15
GABION WALL FOR CATCH PIT