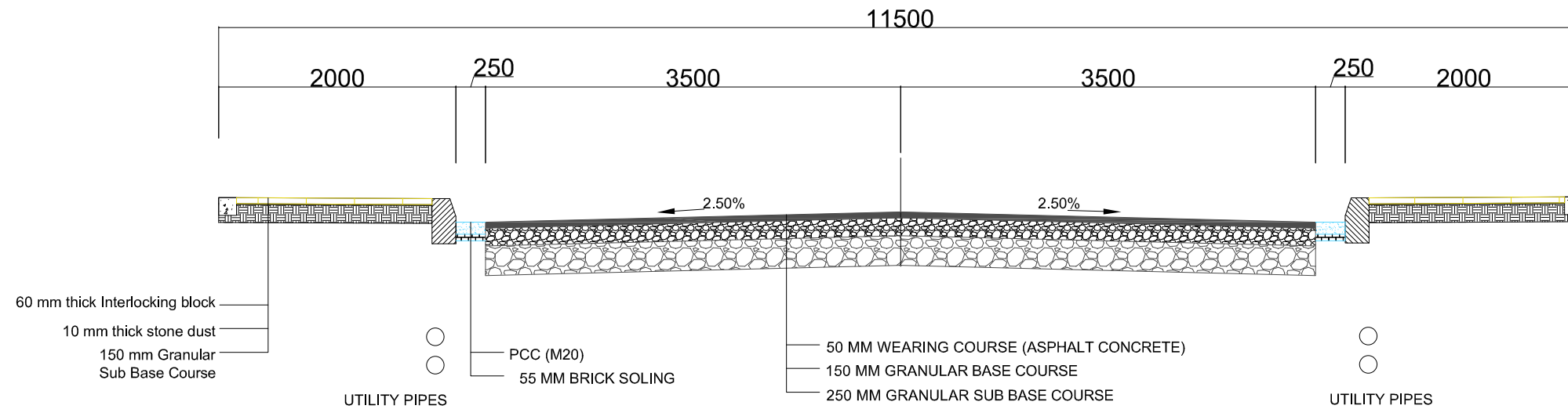
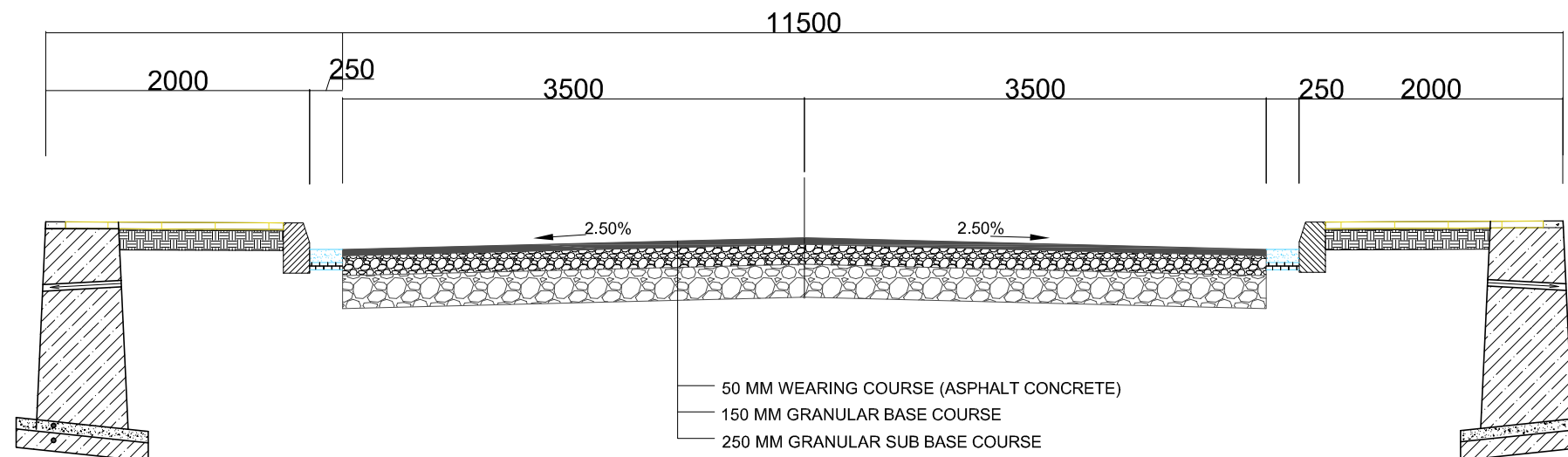




Typical Cross Section of Road (Total width -11.5 m)
Scale - 1:50



Typical Cross Section of Road with Retaining Wall
Scale - 1:50



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Tel: 01- 4589393

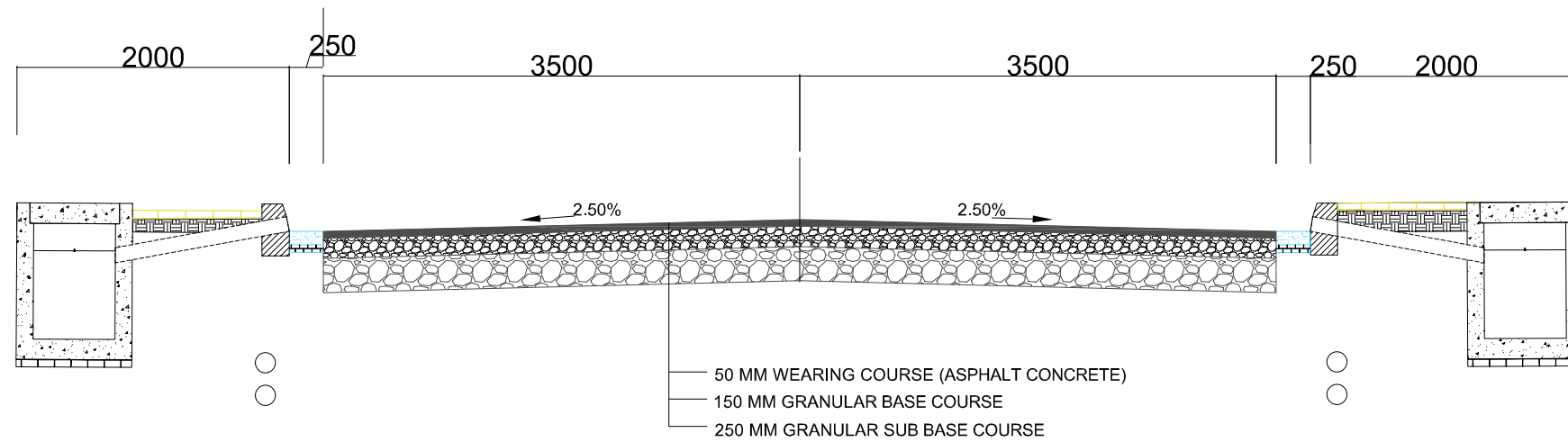
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

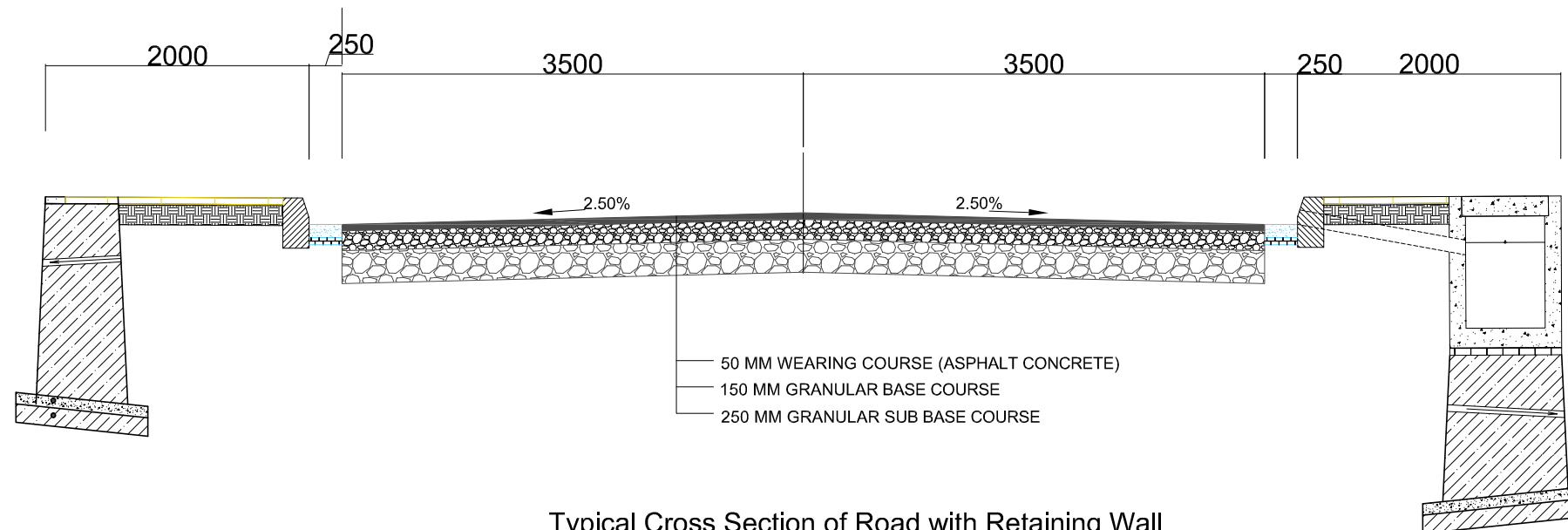
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As Shown

TYPICAL CROSS SECTION OF ROAD
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

REV : MAY 2024
TITLE : TYPICAL DRAWINGS
DRG NO : DM/RD/TD/01
SHEET NO : 01



Typical Cross Section of Road with RCC Covered Drain
Scale - 1:50



Typical Cross Section of Road with Retaining Wall
Scale - 1:50



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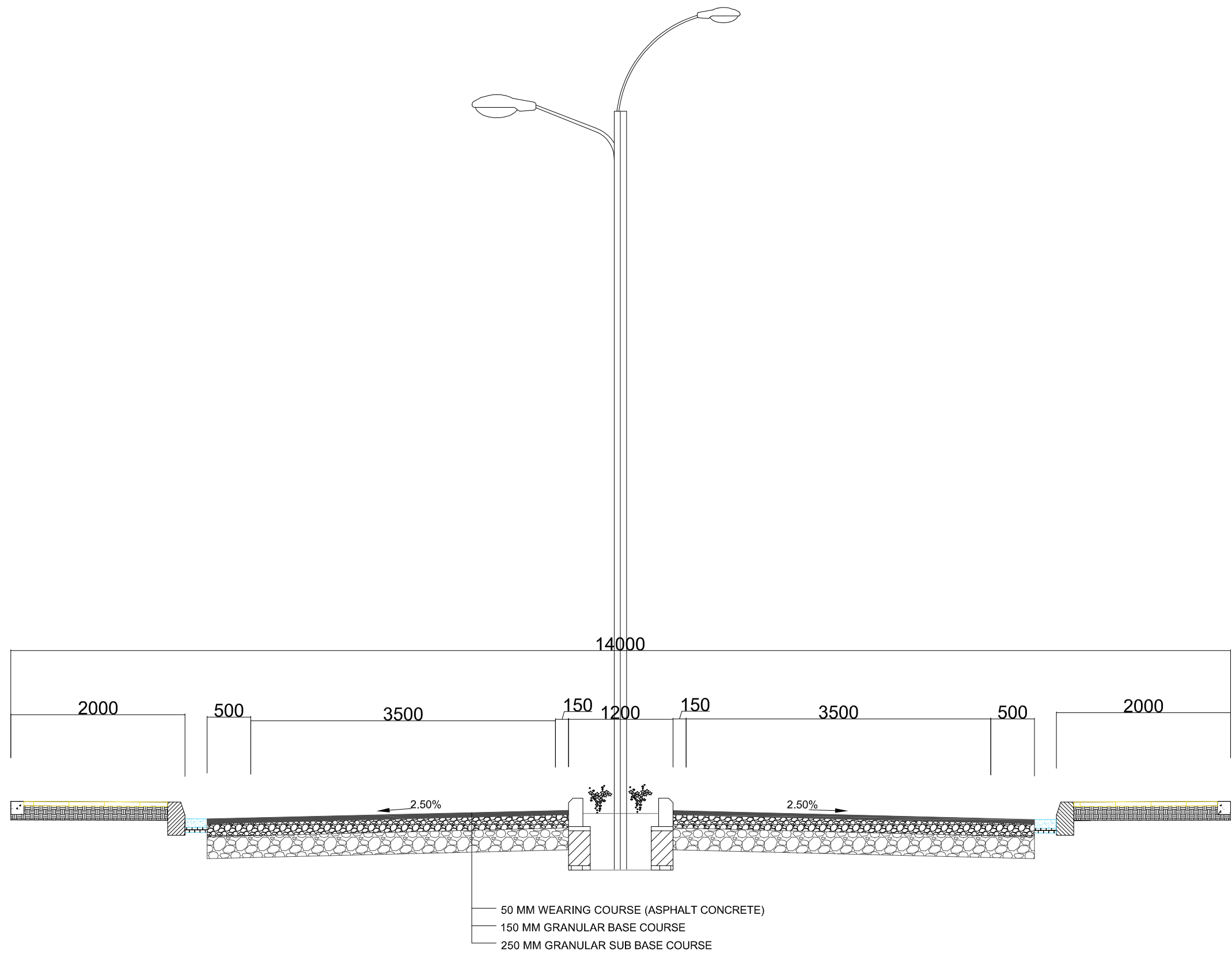
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

Scale
As Shown

TYPICAL CROSS SECTION OF ROAD
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

REV : MAY 2024
TITLE : TYPICAL DRAWINGS
DRG NO : DM/RD/TD/02
SHEET NO : 02



Typical Cross Section of Road (Total width -14 m)
Scale - 1:50



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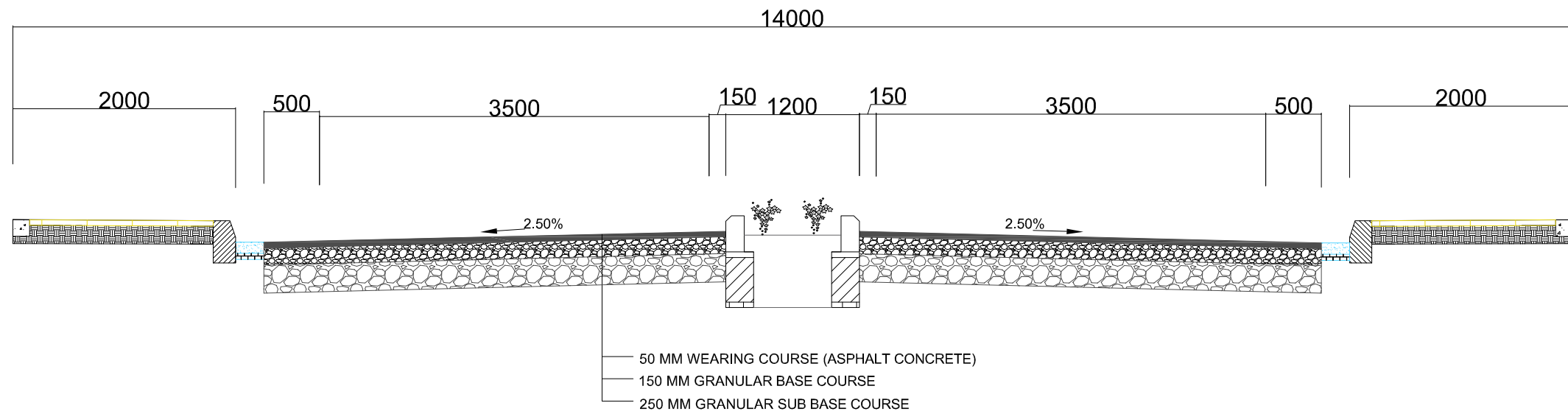
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

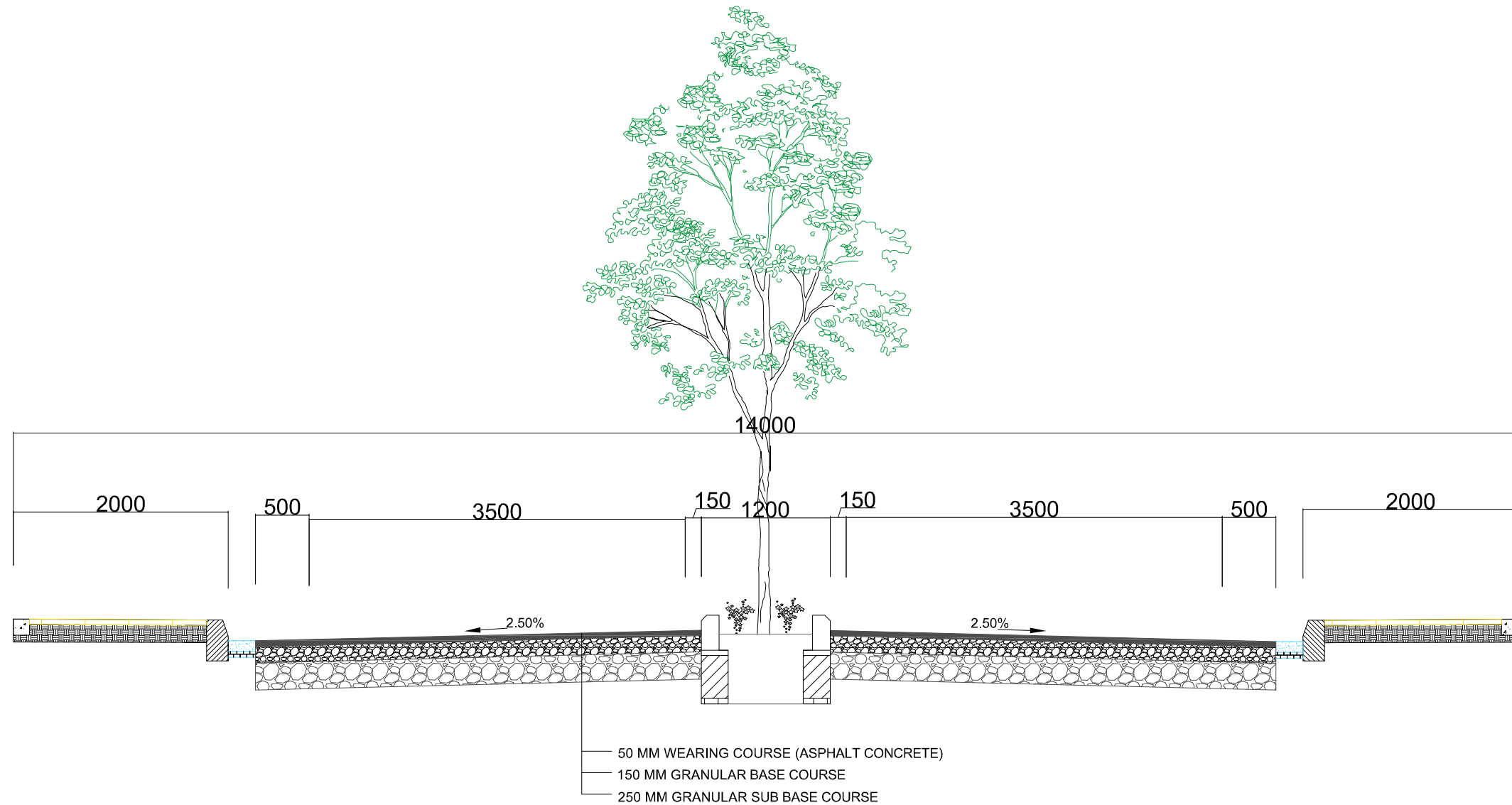
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TYPICAL CROSS SECTION OF ROAD
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

REV	: MAY 2024
TITLE	: TYPICAL DRAWINGS
DRG NO	: DM/RD/TD/03
SHEET NO	: 03



Typical Cross Section of Road (Total width -14 m)
Scale - 1:50



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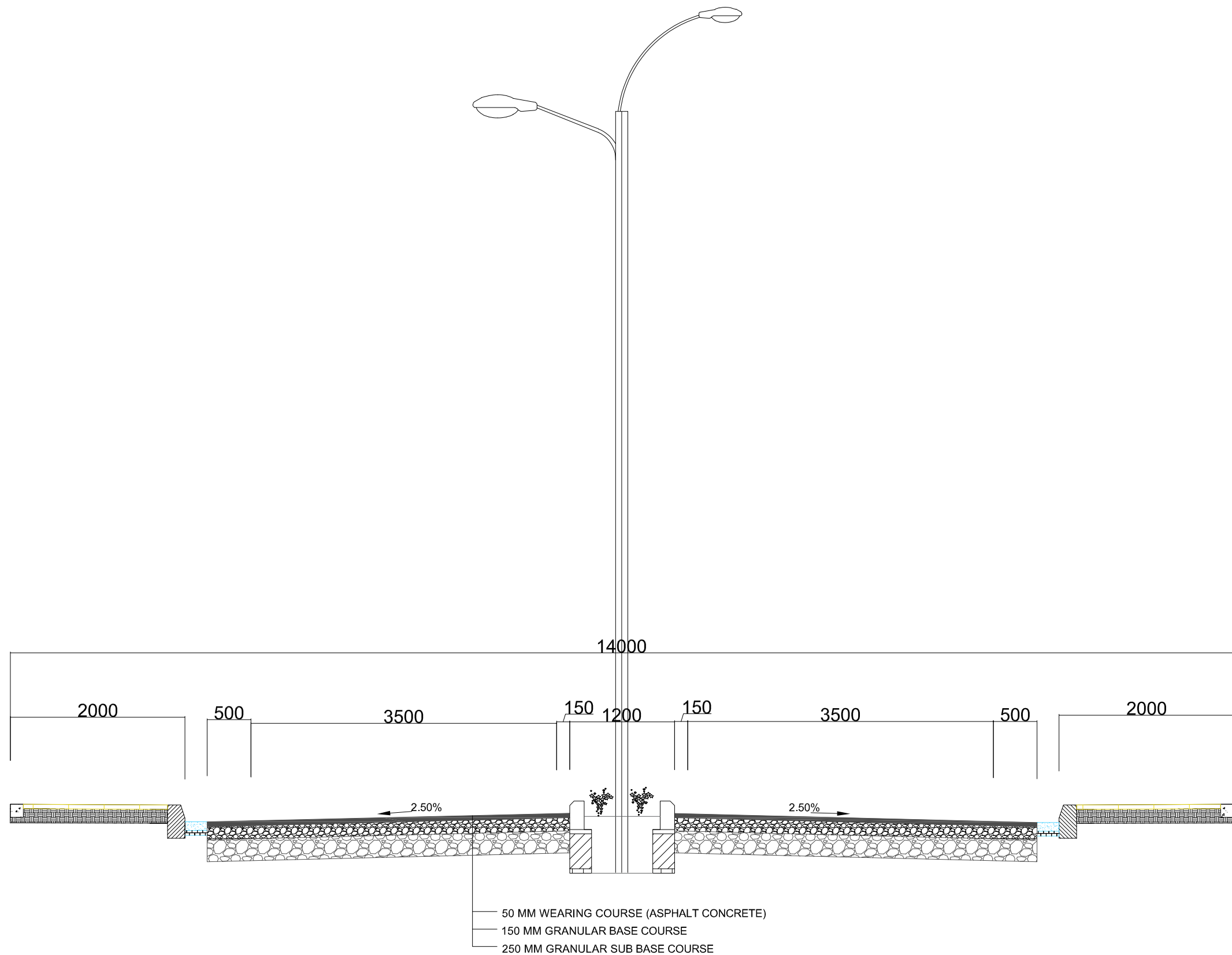
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

Scale
As Shown

TYPICAL CROSS SECTION OF ROAD
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

REV : MAY 2024
TITLE : TYPICAL DRAWINGS
DRG NO : DM/RD/TD/04
SHEET NO : 04



Typical Cross Section of Road (Total width -14 m)
Scale - 1:50



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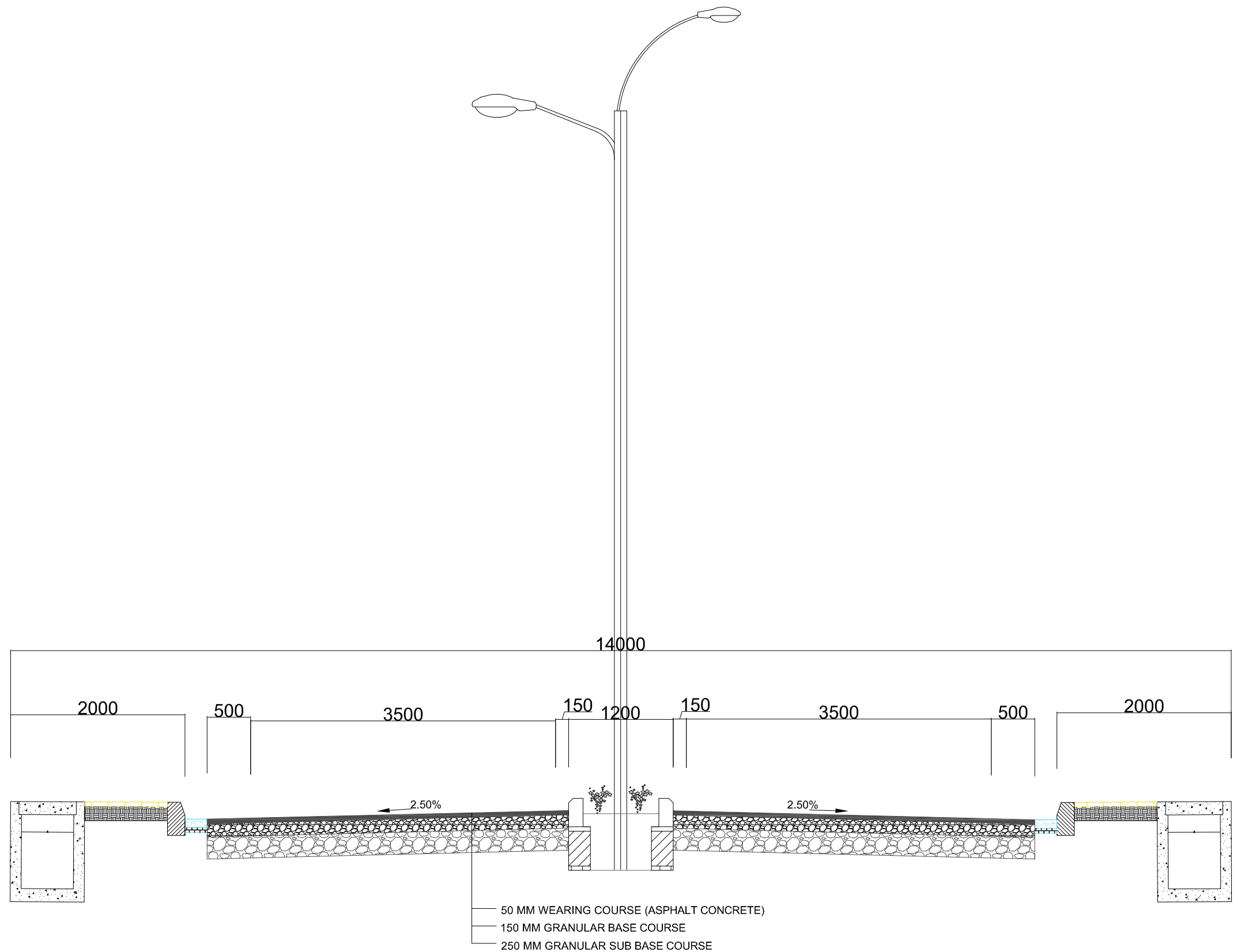
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

Scale
As Shown

TYPICAL CROSS SECTION OF ROAD
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

REV : MAY 2024
TITLE : TYPICAL DRAWINGS
DRG NO : DM/RD/TD/05
SHEET NO : 05



Typical Cross Section of Road with Drain (Total width -14 m)
Scale - 1:50



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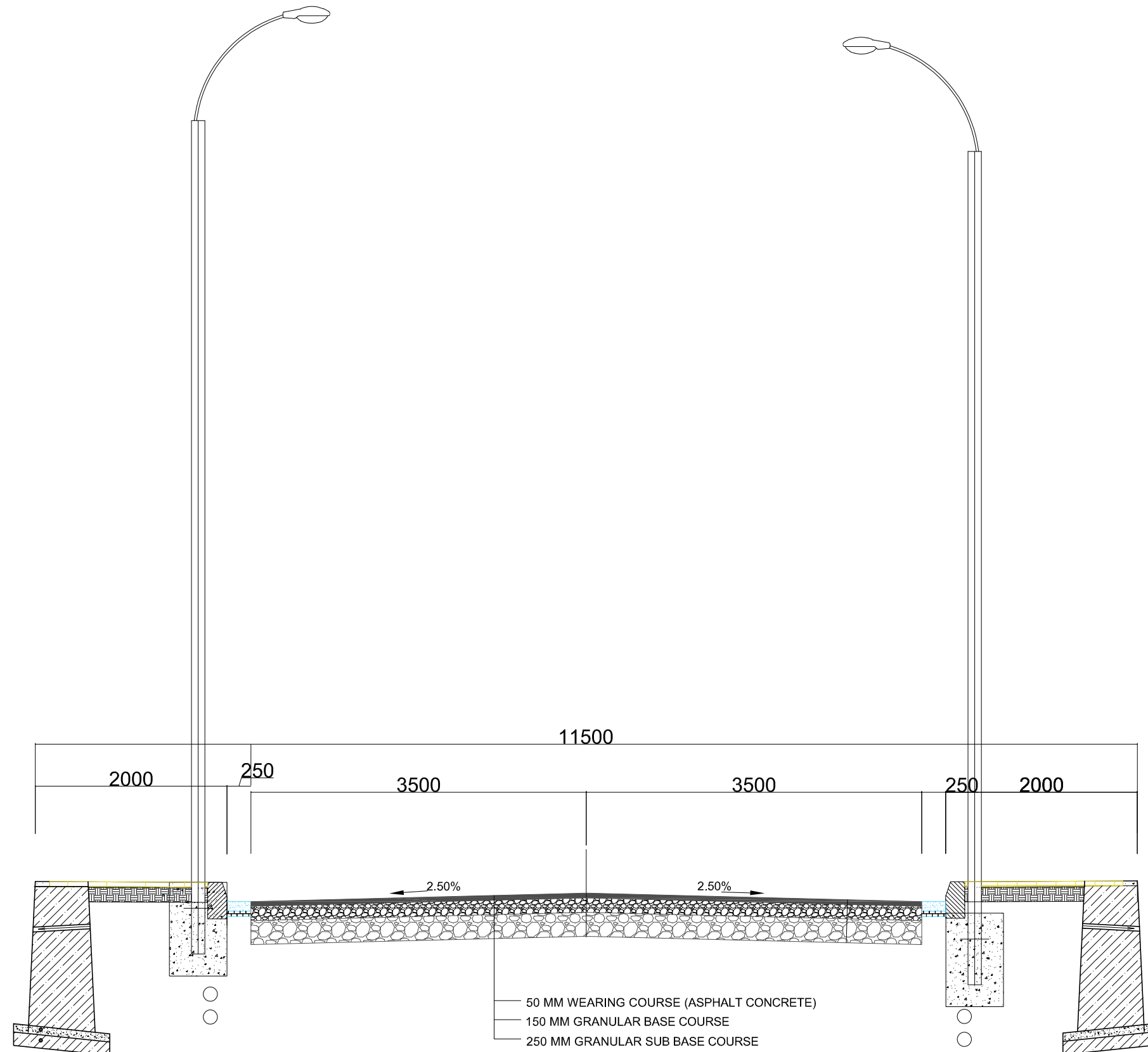
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

Scale
As Shown

TYPICAL CROSS SECTION OF ROAD
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

REV	: MAY 2024
TITLE	: TYPICAL DRAWINGS
DRG NO	: DM/RD/TD/06
SHEET NO	: 06



Typical Road Section (11.5 m) with Street Light and Retaining Wall



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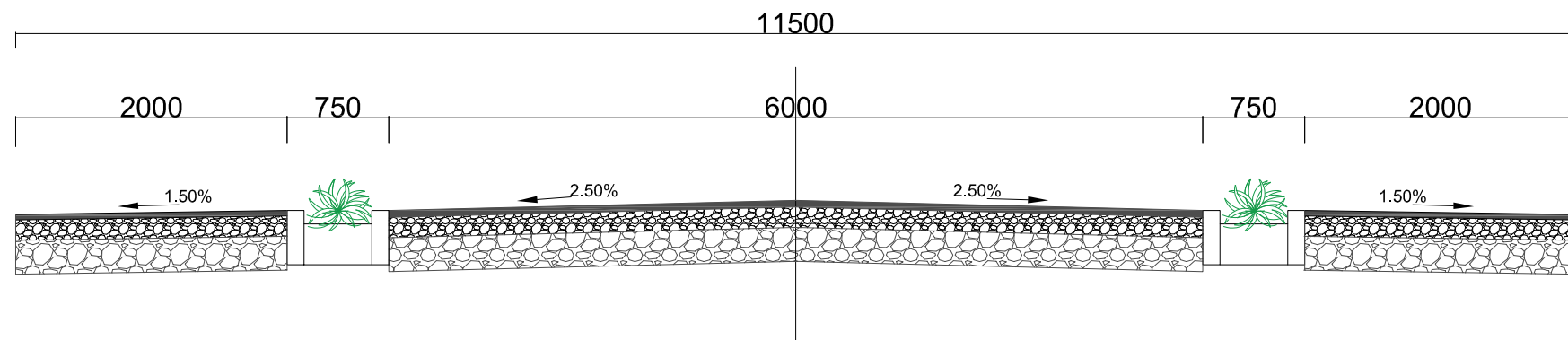
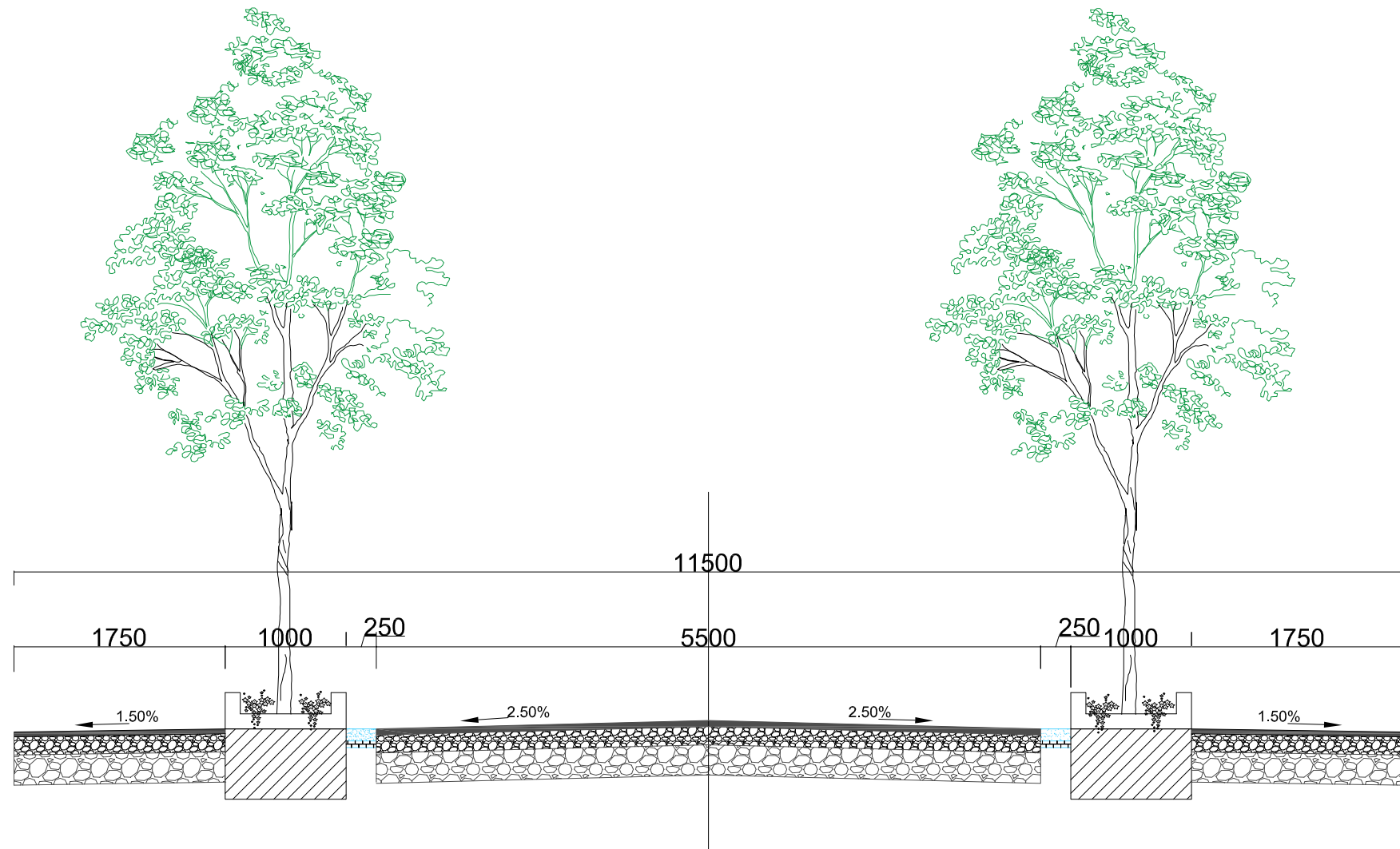
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

Scale
As Shown

TYPICAL CROSS SECTION OF ROAD
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

REV : MAY 2024
TITLE : TYPICAL DRAWINGS
DRG NO : DM/RD/TD/07
SHEET NO : 07



Typical Cross Sections of Road with Verge & Cycle Track
Scale - 1:50



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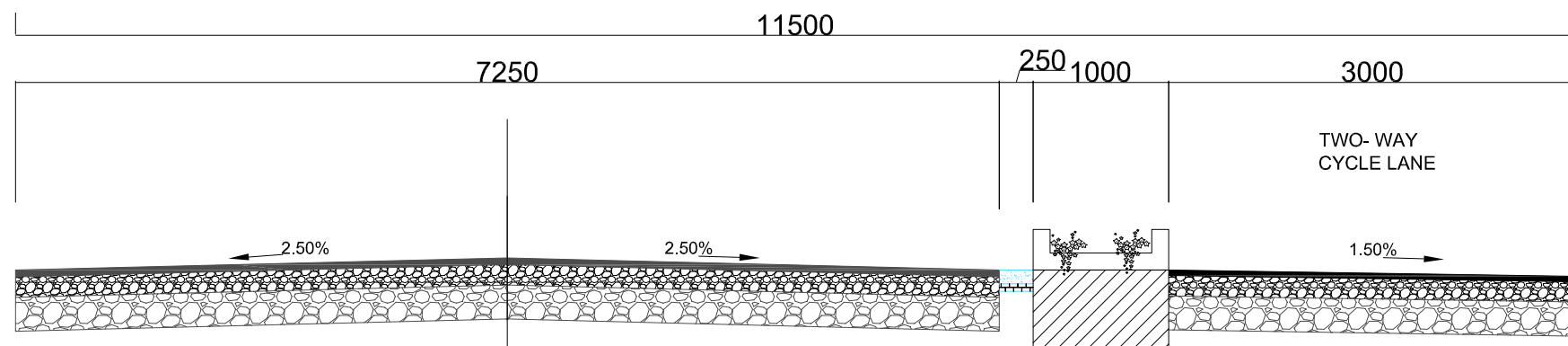
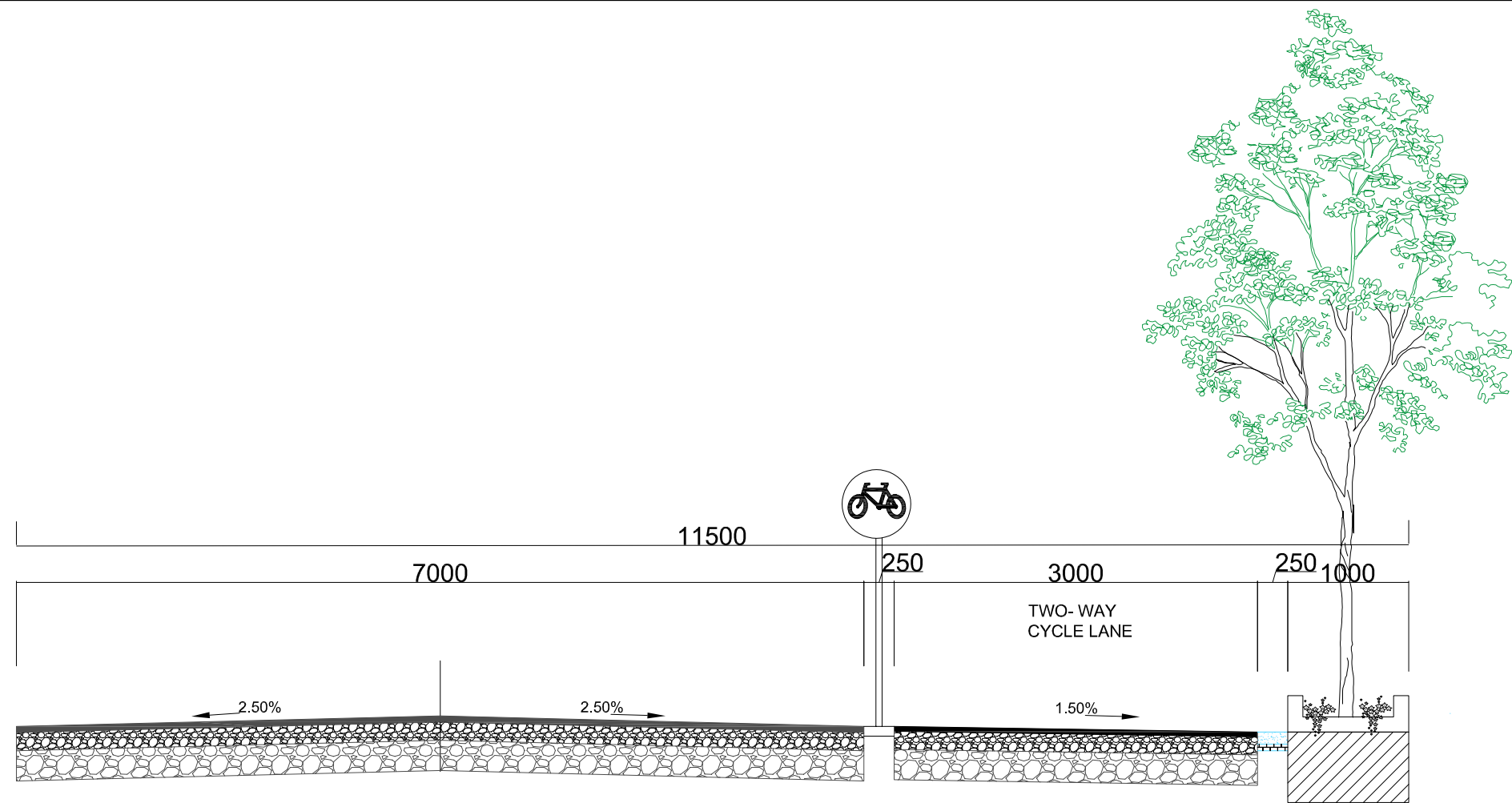
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

Scale
As Shown

TYPICAL CROSS SECTION OF ROAD
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

REV : MAY 2024
TITLE : TYPICAL DRAWINGS
DRG NO : DM/RD/TD/08
SHEET NO : 08



Typical Cross Sections of Road with Verge & Cycle Track
Scale - 1:50



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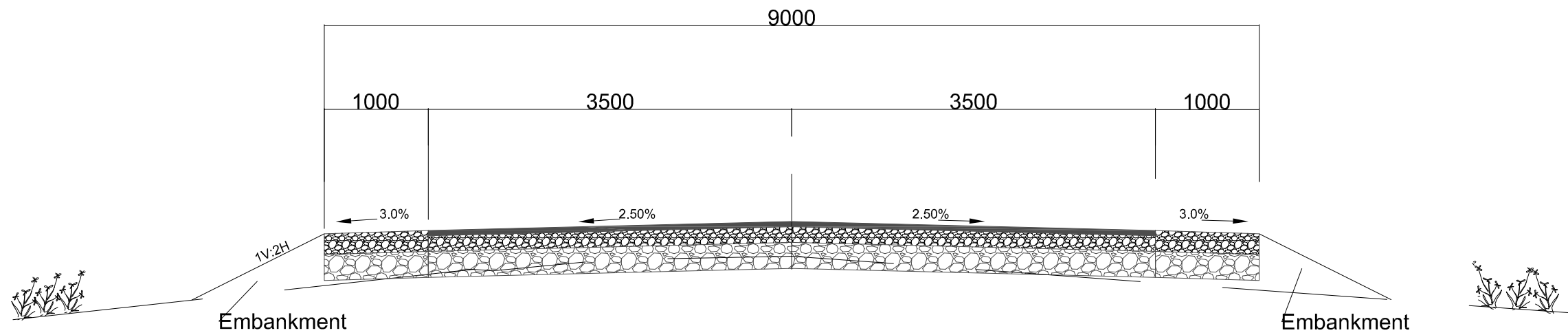
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

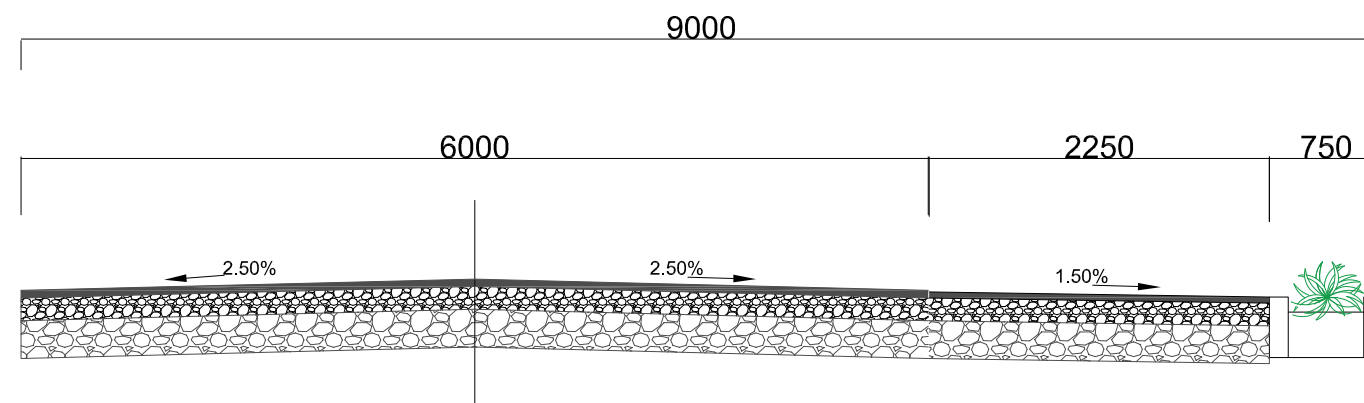
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TYPICAL CROSS SECTION OF ROAD
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

REV : MAY 2024
TITLE : TYPICAL DRAWINGS
DRG NO : DM/RD/TD/09
SHEET NO : 09



Typical Road Section With Shoulder and Embankment



Typical Cross Sections of Road with Verge & Cycle Track
Scale - 1:50



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Consultant
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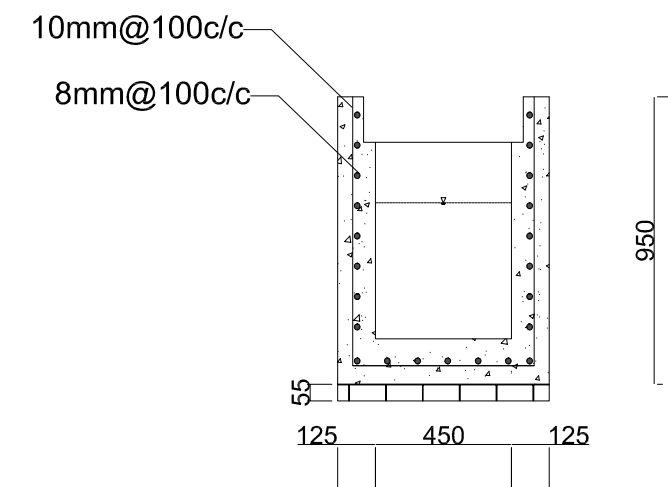
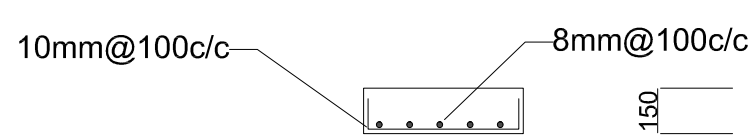
Client
Approved By :
Checked By :

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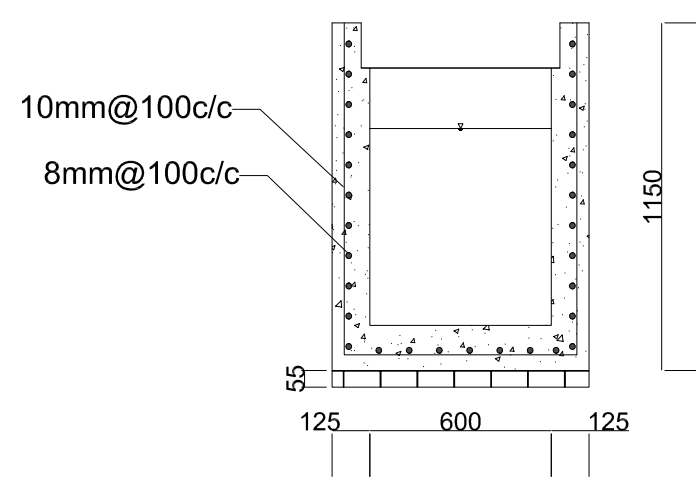
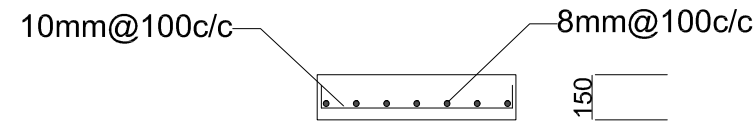
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TYPICAL CROSS SECTION OF ROAD
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

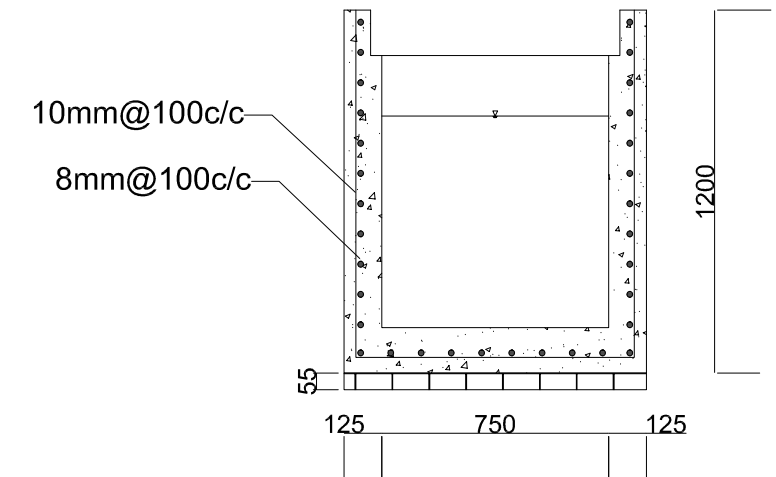
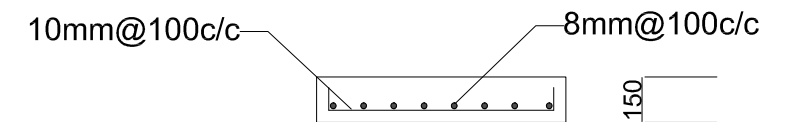
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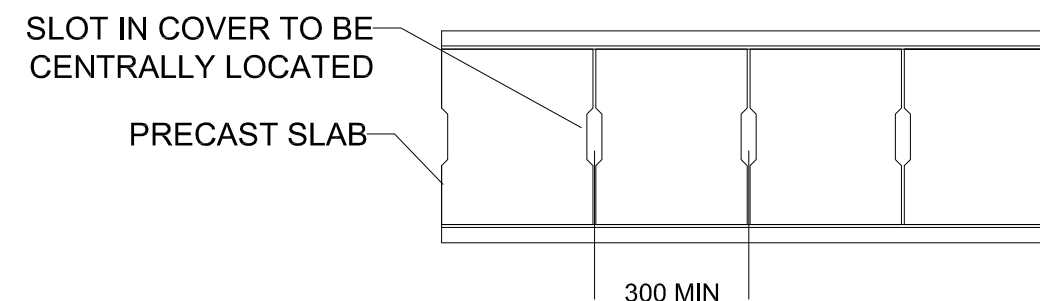
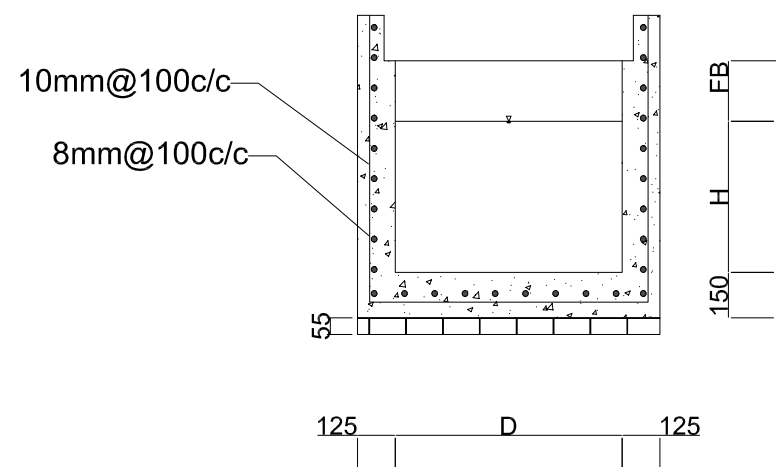
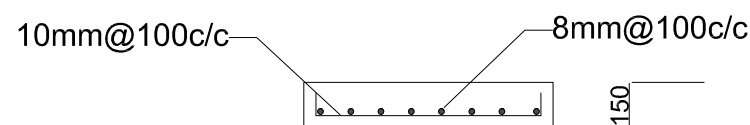
RCC DRAIN - TYPE A
Scale - 1:25



RCC DRAIN - TYPE B
Scale - 1:25



RCC DRAIN - TYPE C
Scale - 1:25



PLAN OF RCC DRAIN WITH PRECAST DRAIN COVER

DRAIN SIZES			
Type	D (mm)	H (mm)	FB (mm)
A	450	450	200
B	600	600	200
C	750	750	200



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Mid- Baneshwor, Kathmandu
Tel: 01- 4589393

Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

Scale
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TYPICAL DRAIN SECTIONS
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

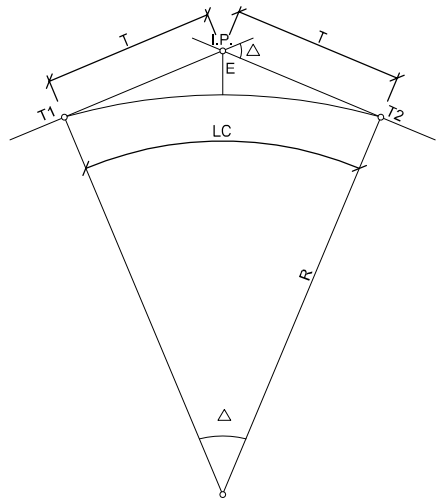
REV : MAY 2024
TITLE : TYPICAL DRAWINGS
DRG NO : DM/RD/TD/11
SHEET NO : 11

Transition Curve Detail

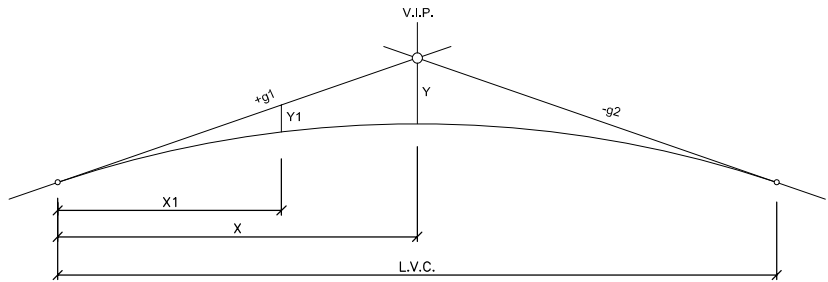
Transition Length

Mountainous and Steep Terrain

Curve Radius (Meters)	Design Speed in km/h				
	50	40	30	25	20
	Transition Length in Meters				
14				NA	30
20				35	20
25			NA	25	20
30			30	25	15
40		NA	25	20	15
50		40	20	15	15
55		40	20	15	15
70	NA	30	15	15	15
80	55	25	15	15	NR
90	45	25	15	15	
100	45	20	15	15	
125	35	15	15	NR	
150	30	15	15		
170	25	15	NR		
200	20	15			
250	15	15			
300	15	NR			
400	15				
500	NR				



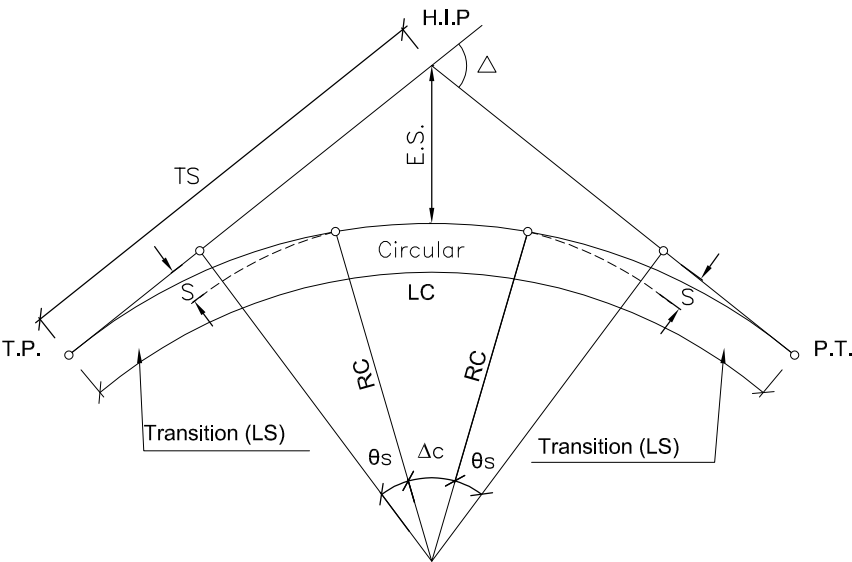
Circular Curve
For Horizontal Alignment



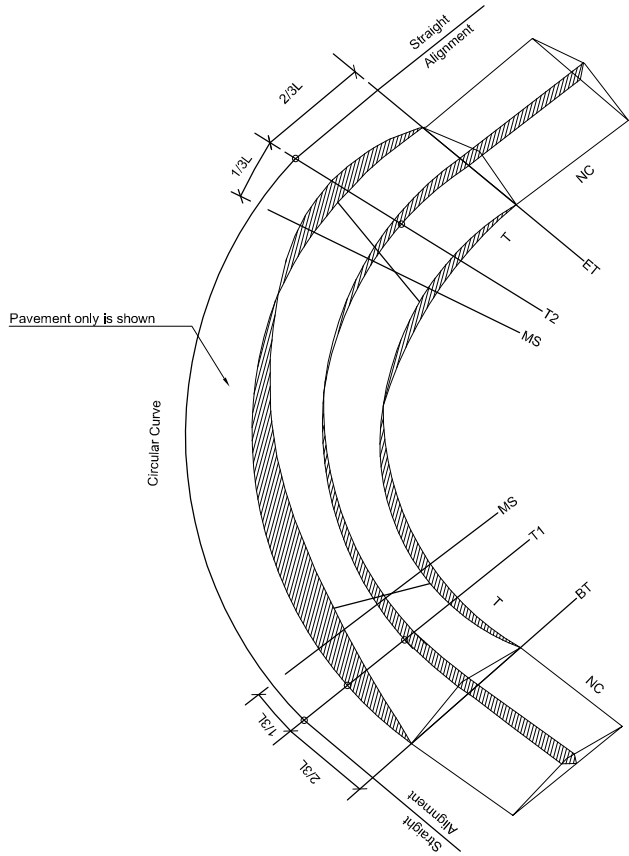
Parabolic Curve
For Vertical Alignment

- T.P.,P.T = Tangent Point.
H.I.P = Horizontal Intersection Point.
Δ = Total Deviation Angle.
Δc = Deviation and Central Angle of Circular arc.
TS = Deviation Angle of Transition Curve.
RC = Radius of Circular Curve.
S = Shift.
θs = Tangent Distance.
ES = Apex Distance.
LS = Length of Transition.
LC = Length of Circular Curve.

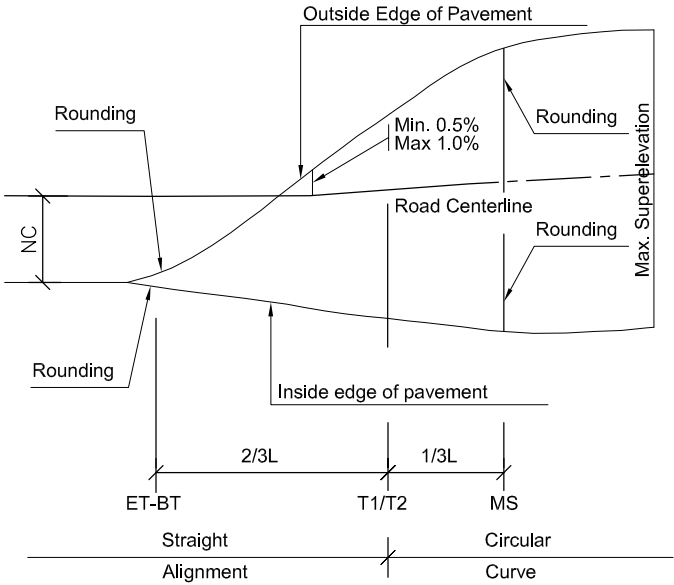
- I.P. = Intersection Point
Δ = Deflection Angle
R = Radius of Curvature
T = Tangent length
E = Distance from I.P. to Circular Curve Measured on the Bisectors
LC = Length of Circular Curve
T1 = Beginning of Circular Curve
T2 = End of Circular Curve
 $T = R \cdot \tan \frac{\Delta}{2}$
 $E = R \cdot \left(\frac{1}{\cos \frac{\Delta}{2}} - 1 \right)$
 $LC = R \cdot \frac{\pi}{200} \cdot \Delta$



Elements of Combined Circular and
Transition Curve

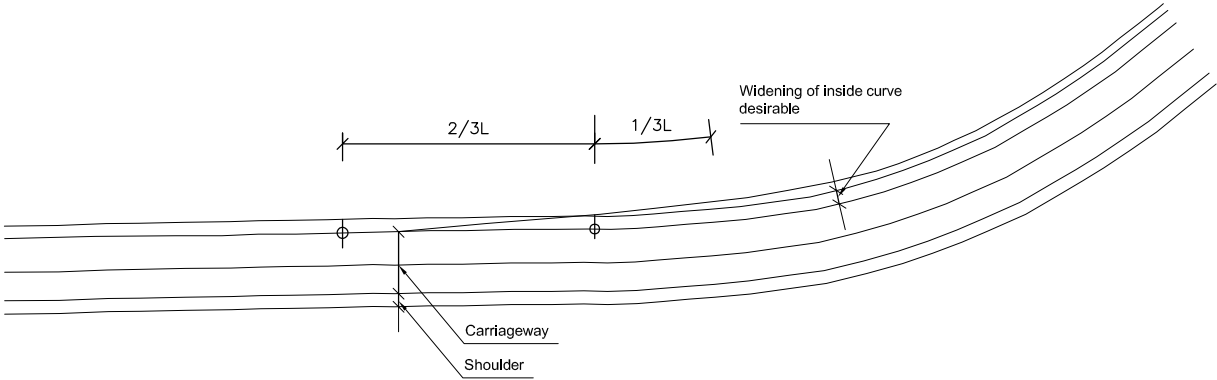


Typical Superelevation



Cross Slope in Curves

Note:
For Circular horizontal curves the length L of superelevation run-off is based on maximum relative slope between profile of center line and pavement edge of 1.0%.



Pavement Widening on Curves

- V.I.P. = Vertical Intersection Point.
L.V.C. = Length of Vertical Curve.
±g1, g2 = Gradients.
Y, Y1 = Abscissa of the Vertical Curve.
X, X1 = Ordinate of the Vertical Curve.
$$Y = X^2 \frac{\pm g_1 - (\pm g_2)}{2LVC}$$



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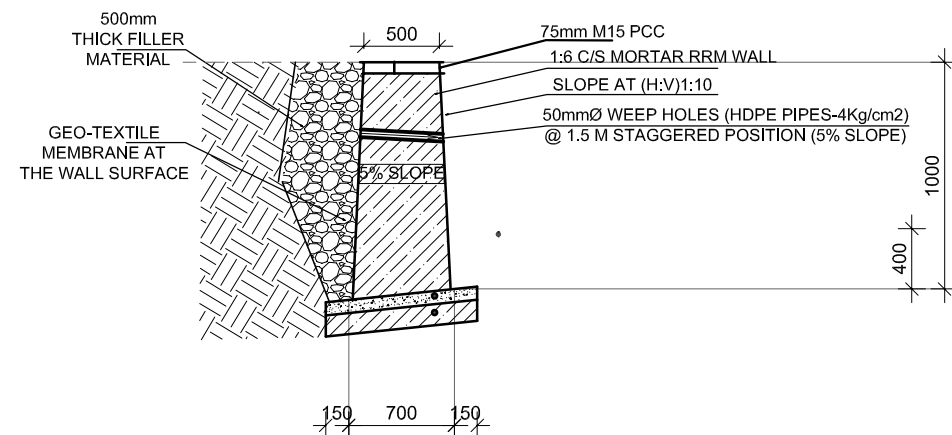
Consultant
Team Leader : **YOO CHANGMIN**
Reviewed By : **YAGYA BAHADUR MALLA**
Drawn By : **SHRIJANA SHRESTHA**

Client
Approved By :
Checked By :

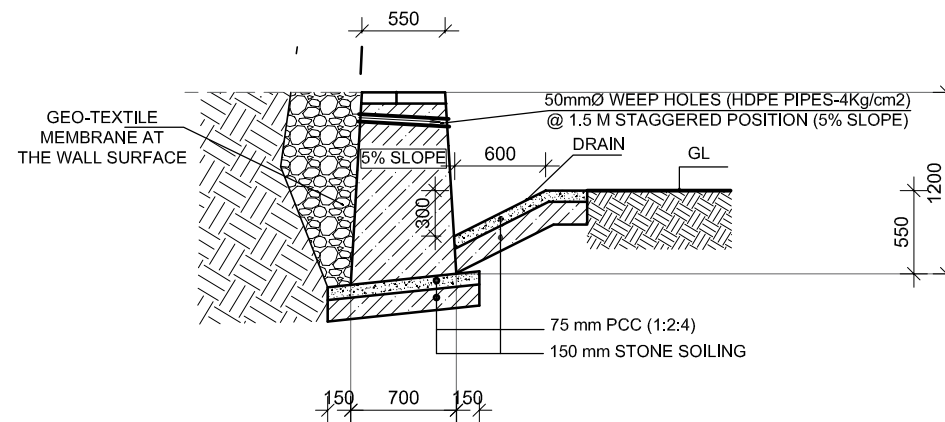
Scale
As Shown

DETAILS OF ELEMENTS OF CURVES
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

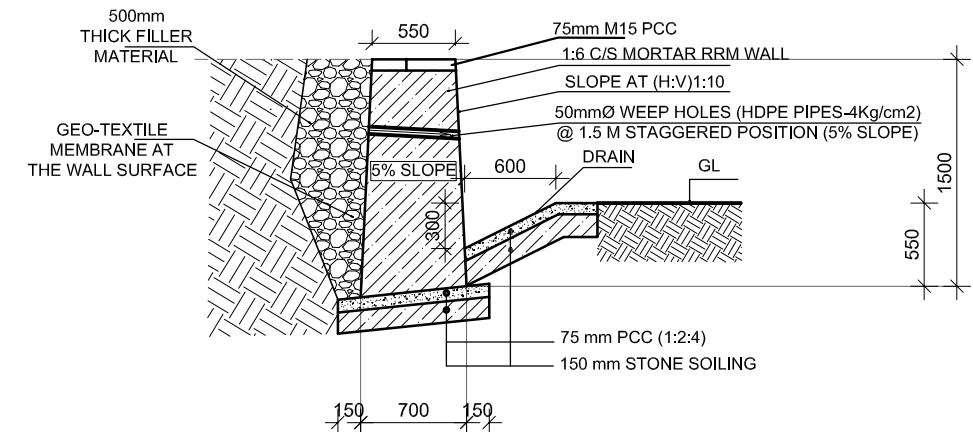
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TITLE : **TYPICAL DRAWINGS**
DRG NO : **DM/RD/TD/12**
SHEET NO : **12**



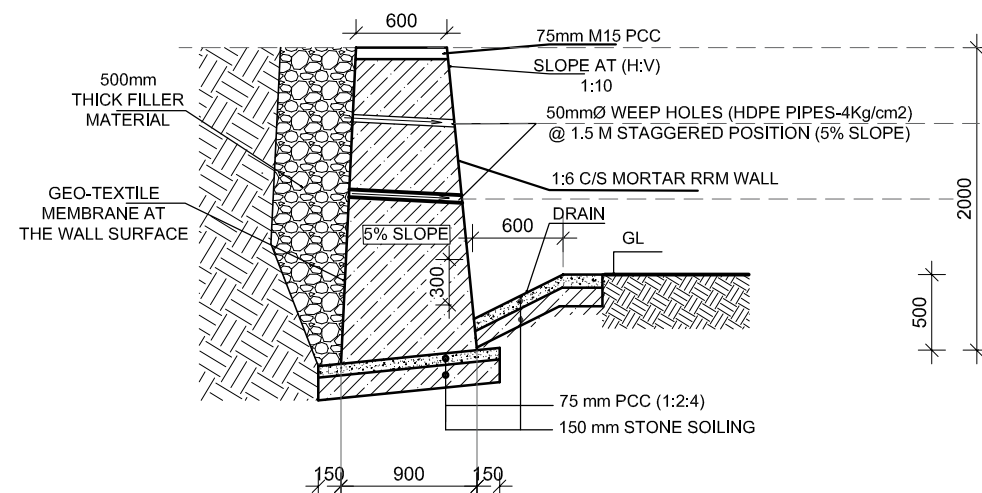
RETAINING WALL DETAIL (HEIGHT - 1.0 m)
NOTE: EXPANSION JOINT @10M-15M
SCALE:1:50



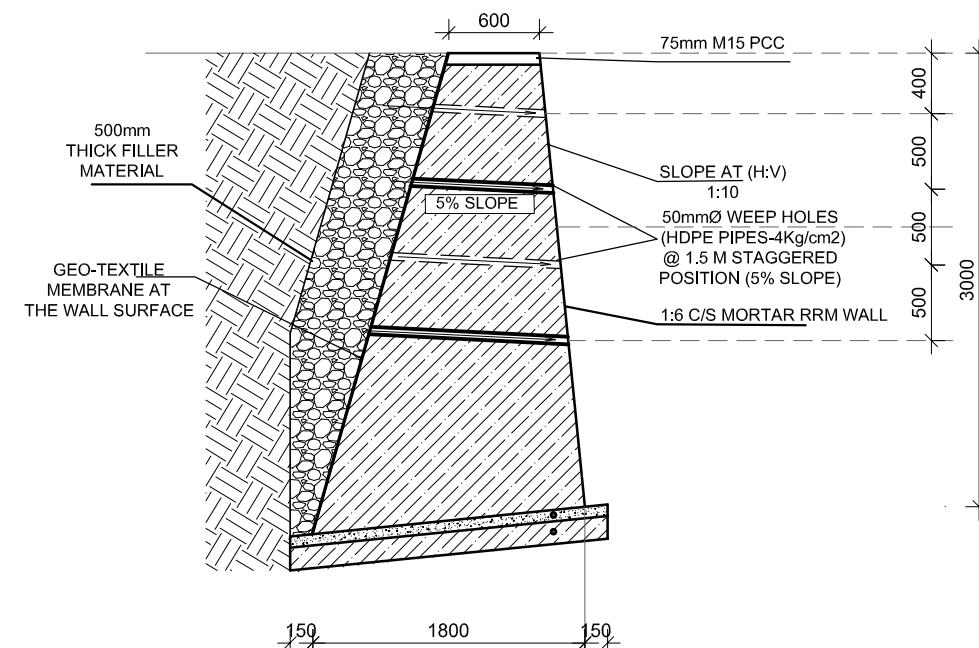
RETAINING WALL DETAIL (HEIGHT - 1.2 m)
NOTE: EXPANSION JOINT @10M-15M
SCALE:1:50



RETAINING WALL DETAIL (HEIGHT - 1.5 m)
NOTE: EXPANSION JOINT @10M-15M
SCALE:1:50



RETAINING WALL DETAIL (HEIGHT - 2.0 m)
NOTE: EXPANSION JOINT @10M-15M
SCALE:1:50



RETAINING WALL DETAIL (HEIGHT - 3.0 m)
NOTE: EXPANSION JOINT @10M-15M
SCALE:1:50



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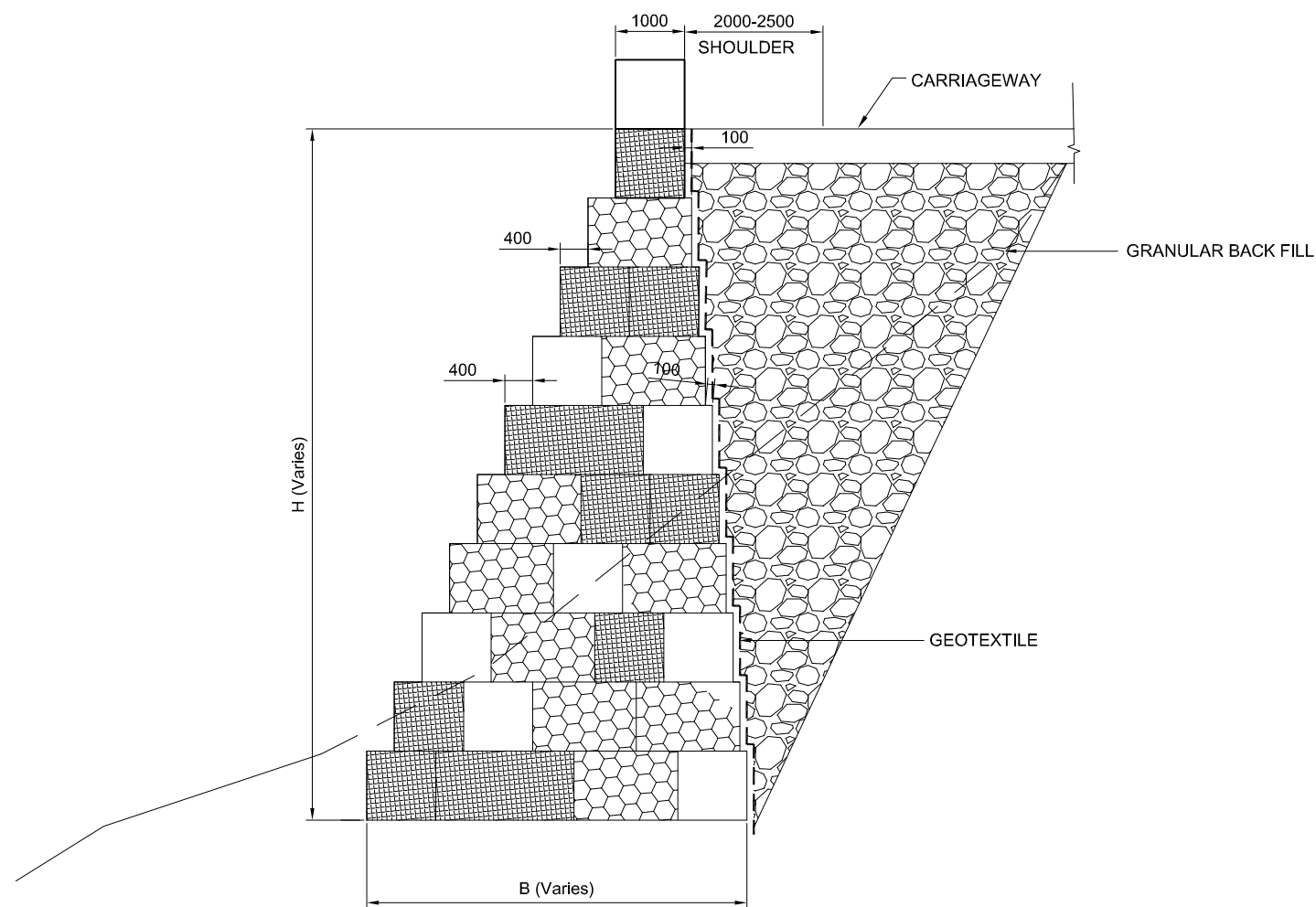
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
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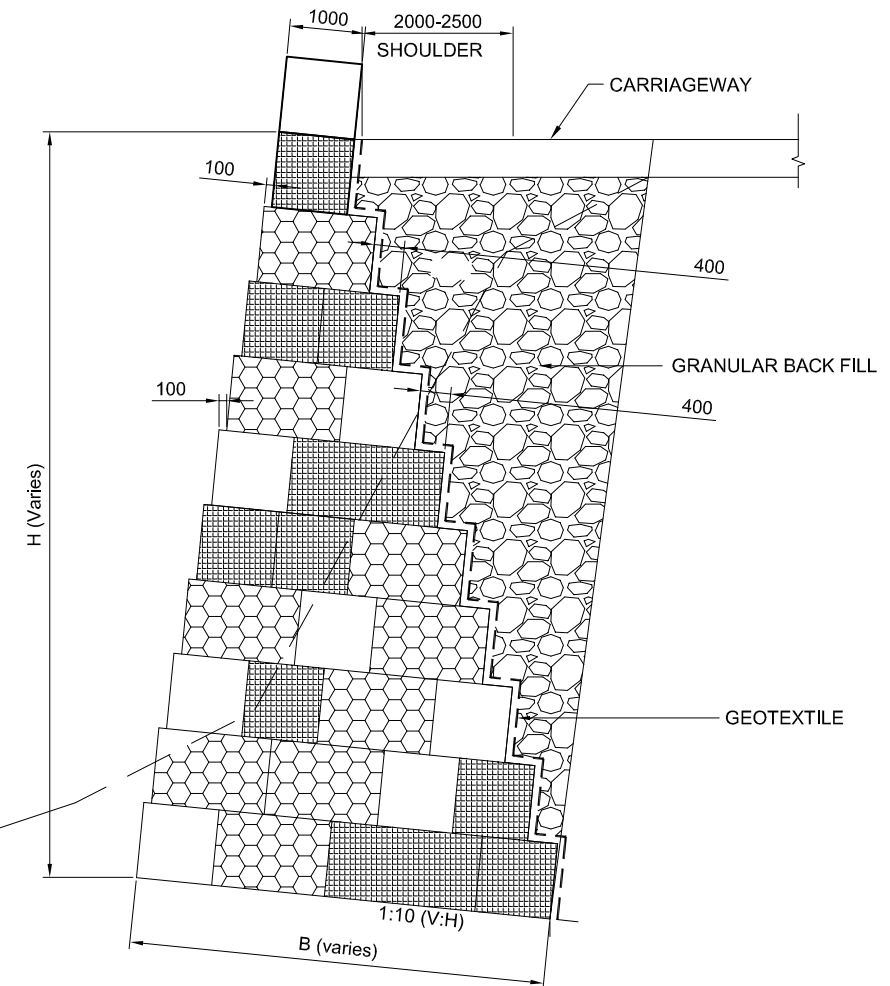
Scale
As Shown

TYPICAL RETAINING WALL
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

REV : MAY 2024
TITLE : TYPICAL DRAWINGS
DRG NO : DM/RD/TD/13
SHEET NO : 13



GRAVITY GABION WALL (FRONT BATTER)
SCALE:-1:100



GRAVITY GABION WALL (BACK BATTER)
SCALE:-1:100

Detail for Gravity Gabion walls (FB-BB)

BASE WIDTHS AND TYPICAL GROUND PRESSURES ((T/m ²))								
Wall Height (H),m		2	3	4	6	8	10	12
Front Batter	Base Width, (B)	1.5	2.0	2.5	3.5	4.5	5.5	6.5
	Ground pressure (T/m ²)	50	70	90	120	150	190	230
Back Batter	Base Width, (B)	1.5	2.0	2.55	3.5	4.5	5.5	6.5
	Ground pressure (T/m ²)	70	110	150	220	290	360	420

NOTES:

1. All dimensions are in mm except in the table mentioned.
2. For wall height more than 6.0 m, and backfill slope angle greater than 20 degree.
Detailed design with Soil investigation is to be done as directed by the Engineer.
3. If space is available, slopping outside is preferred for valley side of the road.



Department of Urban Development & Building
Construction (DUDBC)
Regional Urban Development Project (RUDP)
Project Coordination Office
Babarmahal, Kathmandu, Nepal

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in Association with
ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and
DIGICON (P.) Ltd.
Mid- Baneshwor, Kathmandu
Tel: 01- 4589393

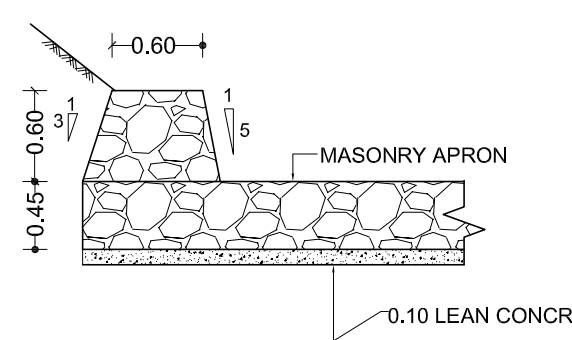
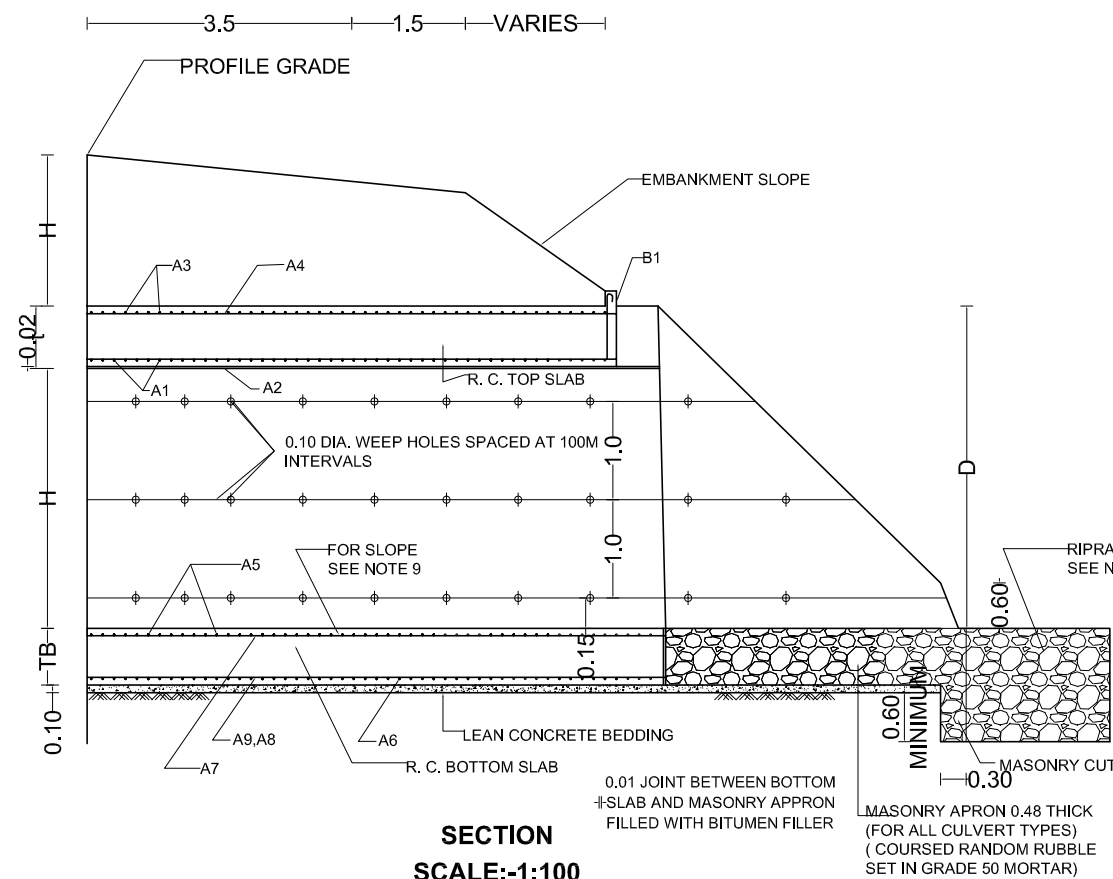
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

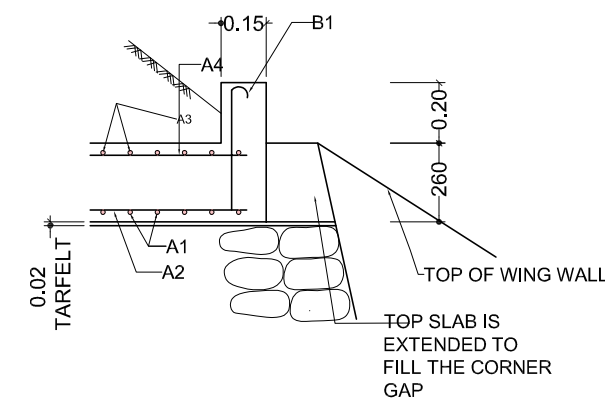
Scale
As Shown

TYPICAL GABION RETAINING WALL
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

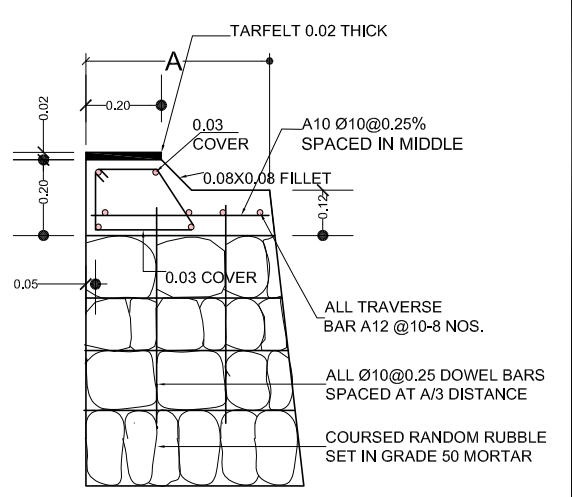
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TITLE : TYPICAL DRAWINGS
DRG NO : DM/RD/TD/14
SHEET NO : 14



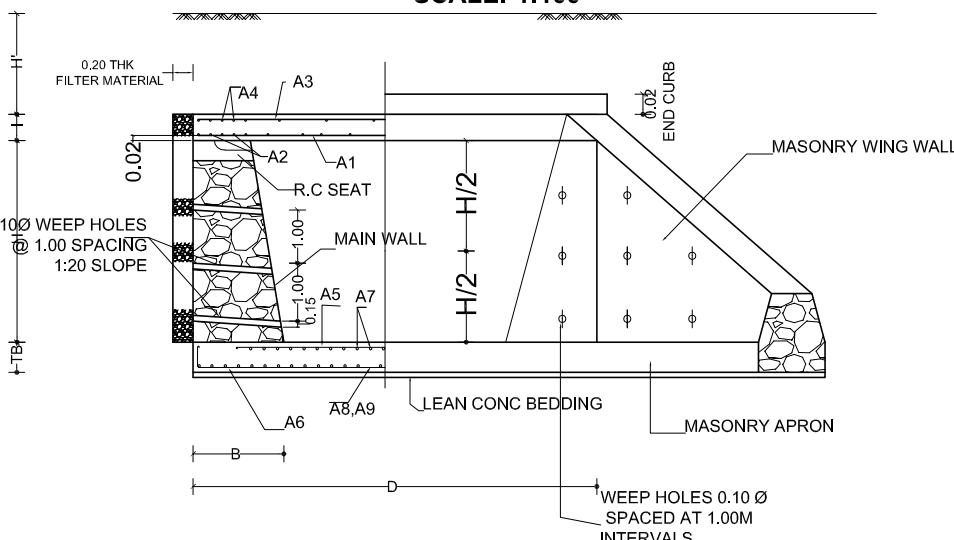
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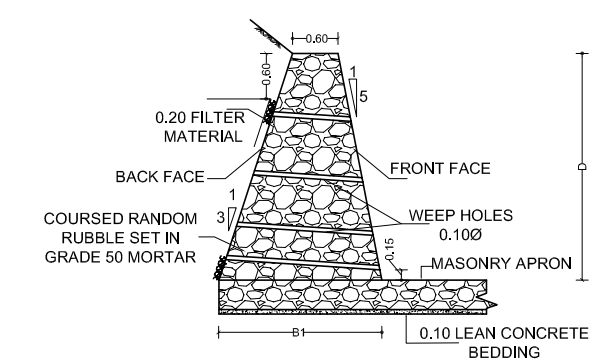
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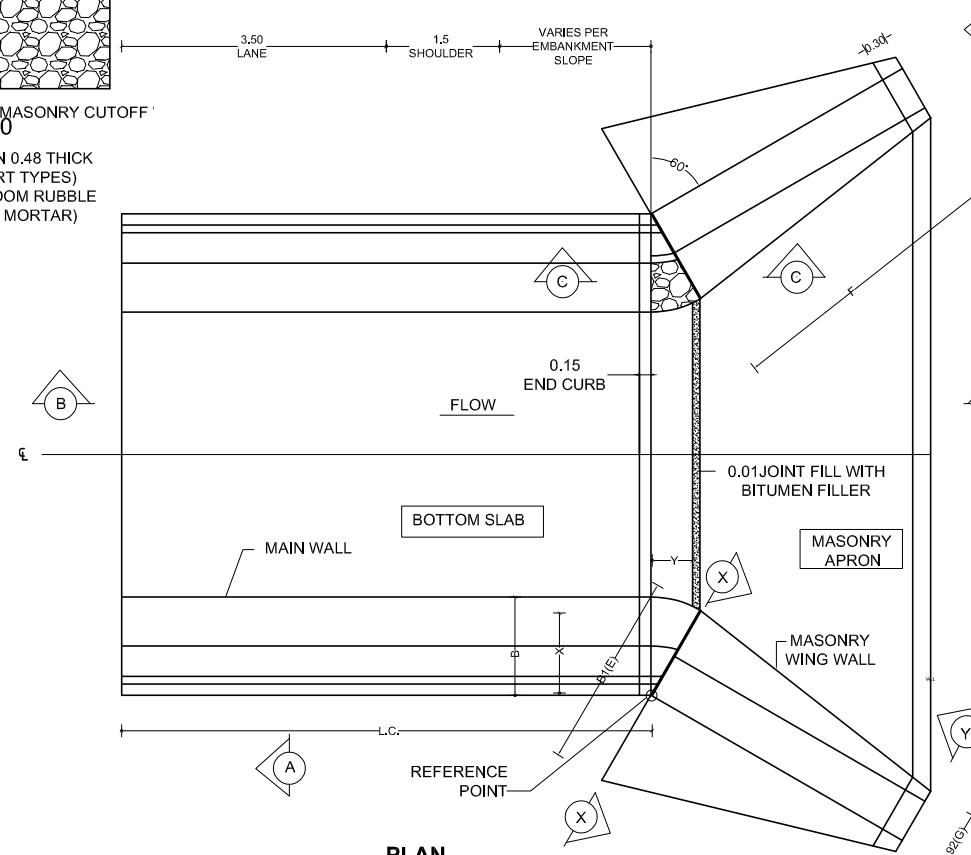
DETAIL AT R.C SEAT
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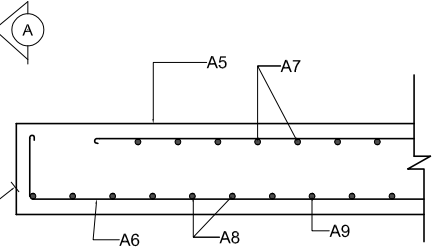
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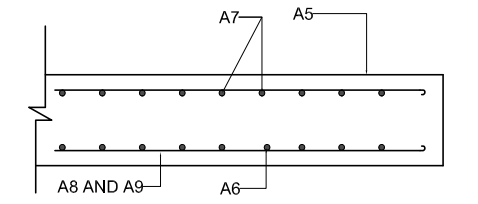
SECTION X-X
SCALE:-1:100



PLAN
SCALE:-1:100



DETAIL-A
SCALE:-1:50



DETAIL-B
SCALE:-1:50

- NOTES:
1. FOR GENERAL NOTES SEE DWG NO.001
 2. FOR BAR BENDING SCHEDULE SEE DWG NO.013
 3. CALCULATED DIMENSIONS AND APPROXIMATE QUANTITIES ARE FOR GUIDANCE ONLY
 4. CONCRETE COVER SHALL BE 0.05 EXCEPT STATED OTHERWISE
 5. ORD CONCRETE PRESCRIBED MIX 250/ 40 SHALL BE USED
 6. ALL DIMENSION ARE IN METER UNLESS OTHERWISE STATED
 7. ALL EXPOSED CORNER TO HAVE 25MM CHAMFER
 8. BACK FILLING IS TO BE DONE ONLY AFTER THE TOP SLAB HAS BEEN CAST AND ALL FORM OF PROPS REMOVED
 9. THE ENGINEER SHALL CHECK AND APPROVED BEFORE CONSTRUCTION BEGINS
 10. CLEAR VERTICAL JOINT IS PROVIDED BETWEEN WING WALL AND MAIN WALL
 11. RIPRAP APRONS AT OUTLET AND INLET SHALL BE PROVIDED AS PER DWG NO.
 12. LENGTH OF CULVERT LC SHALL BE AS PER HIGHWAY DWGS OR AS DIRECTED BY ENGINEERS
 13. CULVERT CONSTRUCTION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE SPECIFICATIONS

CULVERT TYPES	CULVERT SIZES		MAIN WALL										WING WALL									
			QUANTITIES FOR ONE LIN. METER OF CULVERT INCLUDING R.C. EXCLUDING WING WALL, APRONS AND ENCLOSURE										QUANTITIES FOR WING WALL, APRON AND CUT OFF WALL AT ONE END									
			DIMENSIONS										DIMENSIONS									
			LEARN CONCS.										MASONRY									
S	H	H'	T	TB	A	B	D	M3	M3	M3	H'=0.6	H'=0.6-1.0	H'=1.0-1.5	H'=1.5-2.0	M3	B I	D	F	MASONRY	LEARN CONC.	FILTER MATERIAL	
1	1.0	2.0	0.20	0.26	0.30	0.520	0.900	2.40	0.31	1.51	2.53	94.00	96.00	99.00	101.00	1.00	1.80	2.26	3.84	20.00	1.50	1.80
2	1.5	2.5	0.20	0.31	0.30	0.645	1.125	3.25	0.40	2.18	4.04	172.00	177.00	184.00	191.00	1.20	2.10	2.81	5.10	35.00	2.60	2.90
*2A	1.7	1.5	0.20	0.31	0.30	0.645	0.925	3.25	0.40	2.18	2.20	172.00	177.00	184.00	190.00	0.80	1.56	1.81	2.80	13.00	1.20	1.10
3	2.0	2.0	0.20	0.35	0.30	0.520	0.900	3.40	0.41	2.37	2.53	210.00	217.00	224.00	234.00	1.00	1.85	2.35	4.05	24.00	2.00	1.90
4	2.0	2.5	0.20	0.35	0.30	0.645	1.125	3.75	0.48	2.63	4.04	250.00	259.00	266.00	277.00	1.20	2.11	2.85	5.23	38.00	2.90	3.00
5	2.5	2.5	0.20	0.42	0.45	0.645	1.125	4.25	0.50	3.90	4.04	255.00	265.00	272.00	280.00	1.20	2.15	2.92	5.36	41.00	3.30	3.20
6	3.0	3.0	0.20	0.48	0.45	0.770	1.380	5.10	0.58	4.97	5.90	378.00	395.00	414.00	430.00	1.40	2.45	3.48	6.65	63.00	4.90	4.70
7	4.0	3.0	0.20	0.56	0.45	0.770	1.380	6.10	0.68	6.40	5.90	574.00	595.00	615.00	640.00	1.50	2.49	3.56	6.84	69.00	5.70	4.90



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Mid- Baneshwor, Kathmandu
Tel: 01- 4589393

Consultant
Team Leader : YOO CHANGMIN
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Drawn By : SHRIJANA SHRESTHA

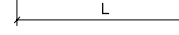
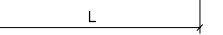
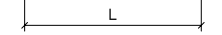
Client
Approved By :
Checked By :

Scale
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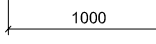
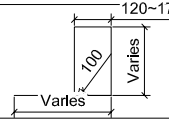
SINGLE CELL SLAB CULVERT
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

REV : MAY 2024
TITLE : TYPICAL DRAWINGS
DRG NO : DM/RD/TD/16
SHEET NO : 16



BAR BENDING SCHEDULE PER ONE LINEAR METRE OF CULVERT (EXCLUDING CURB & ABUTMENT SEAT)																				
CULVERT TYPE																				
	MARK a1					MARK a2				MARK a3				MARK a4				MARK a5		
	DIA (mm)	SPACING	NO. REQD./ PER METRE	L	Remarks	DIA	SPACING	NO. REQD./ PER METRE	L	DIA	SPACING	NO. REQD./ PER METRE	L	DIA	SPACING	NO. REQD./ PER METRE	L	DIA	NO. REQD./ PER METRE	L
I	12	140	7.14	1.54	Every third bar to be bent up	10	150	6.67	5.10	10	300	3.33	1.54	10	300	3.33	5.10	12	2	5.10
II	12	120	8.33	2.80	Every third bar to be bent up	10	150	6.67	5.10	10	300	3.33	2.80	10	300	3.33	5.10	12	2	5.10
III	16	140	7.14	4.04	Every third bar to be bent up	10	150	6.67	5.10	10	300	3.33	4.04	10	300	3.33	5.10	12	2	5.10
IV	16	110	9.09	5.04	Every third bar to be bent up	10	150	6.67	5.10	10	200	5.00	6.04	10	200	2.00	5.10	12	2	5.10
V	20	140	7.14	6.04	Alternate bar to be bent up	12	170	5.88	5.10	12	300	3.33	6.50	12	300	3.33	5.10	12	2	5.10
VI	20	130	7.69	7.04	Alternate bar to be bent up	12	150	6.67	5.10	12	200	5.00	7.80	12	200	5.00	5.10	12	2	5.10

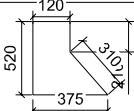


BAR BENDING SCHEDULE OF ABUTMENT SEAT PER LINEAR METRE												
CULVERT TYPE												
	MARK s1				MARK s2				MARK s3			
	DIA (mm)	NO.	LENGTH	TOTAL LENGTH	DIA (mm)	NO.	LENGTH	TOTAL LENGTH	DIA (mm)	NO.	LENGTH	TOTAL LENGTH
I	10	9	1.00	9.00	10	5	1.25	6.25	10	8	0.60	4.80
II	10	9	1.00	9.00	10	5	1.26	6.32	10	8	0.60	4.80
III	10	9	1.00	9.00	10	5	1.58	7.90	10	8	0.60	4.80
IV	10	9	1.00	9.00	10	5	1.94	9.69	10	8	0.60	4.80
V	10	9	1.00	9.00	10	5	2.23	11.15	10	8	0.60	4.80
V	10	9	1.00	9.00	10	5	2.27	11.35	10	8	0.60	4.80

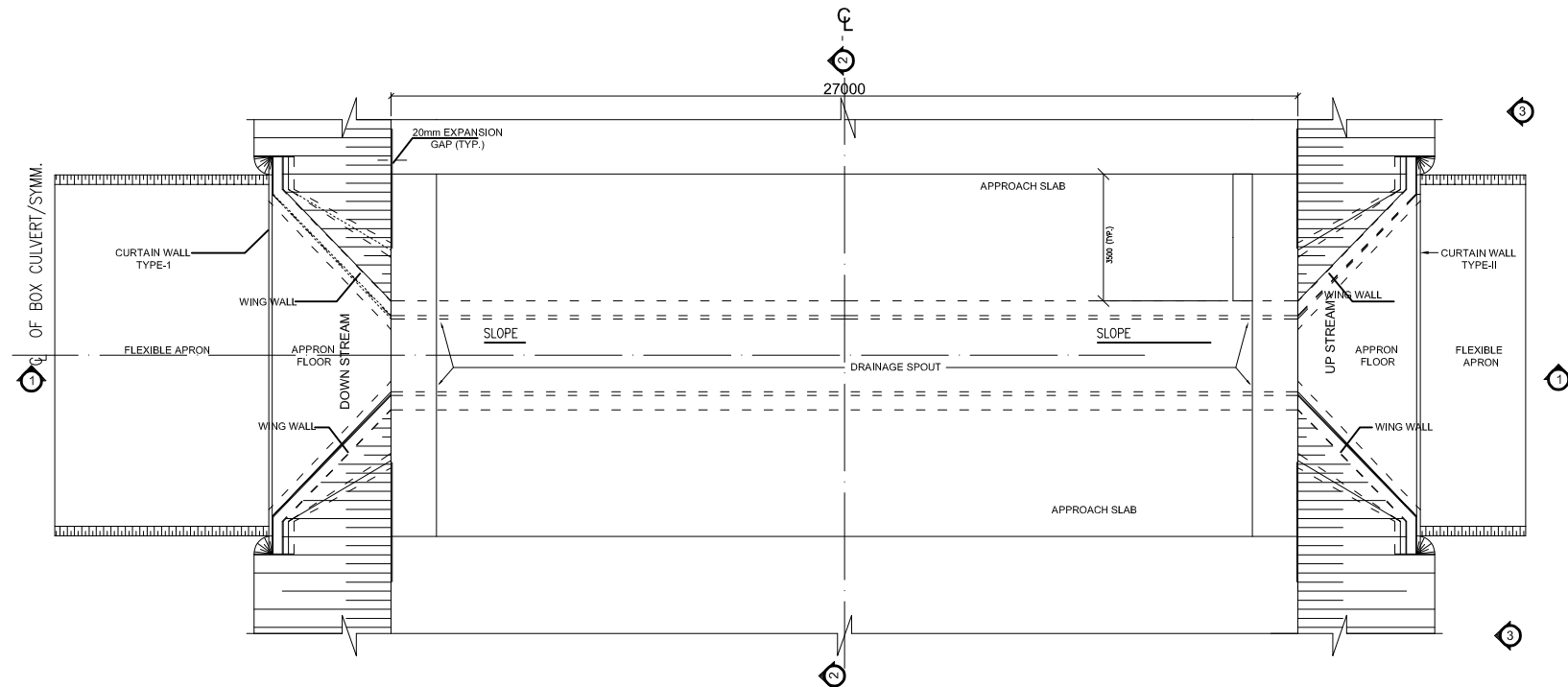


1. TMT BARS having characteristic strength 500 N/mm should be used.
2. All the dimensions are in millimetres except the dimensions in table.

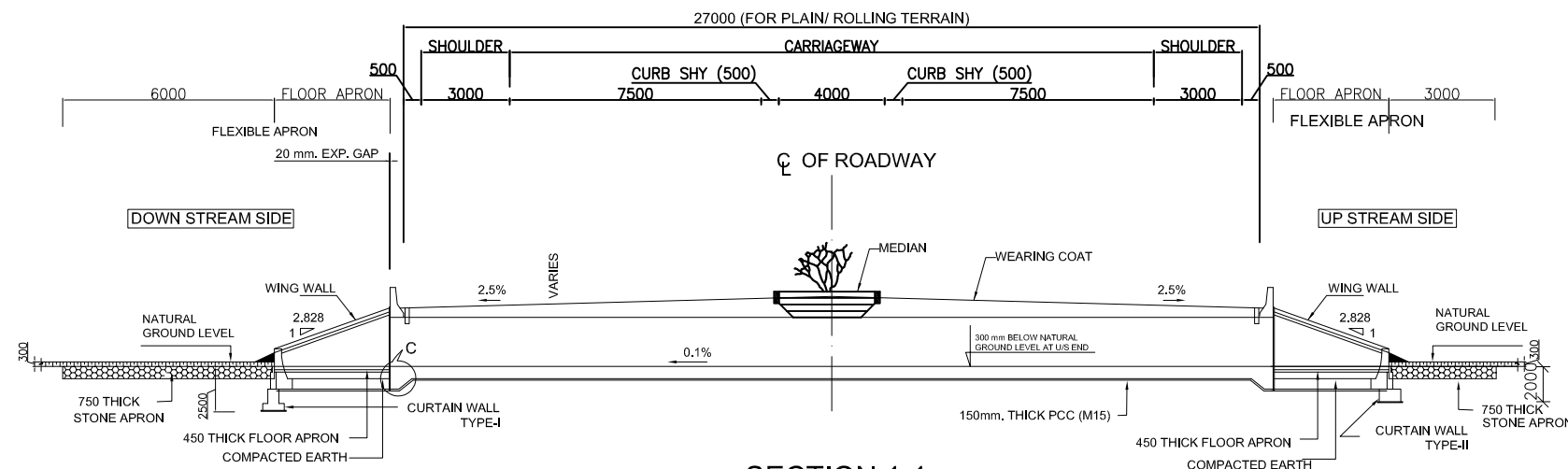


BAR BENDING SCHEDULE OF CURB								
CULVERT TYPE								
	MARK a6				MARK a7			
	DIA (mm)	NO.	LENGTH	TOTAL LENGTH	DIA (mm)	NO.	LENGTH	TOTAL LENGTH
I	10	22	1.74	38.17	10	12	1.96	23.52
II	10	36	1.74	62.46	10	12	3.22	38.64
III	10	48	1.74	83.28	10	12	4.46	53.52
IV	10	56	1.74	97.16	10	12	5.44	65.28
V	10	70	1.74	121.45	10	12	6.90	82.80
VI	10	80	1.74	39.20	10	12	7.70	92.40

SCALE (m)



PLAN AT ROAD LEVEL



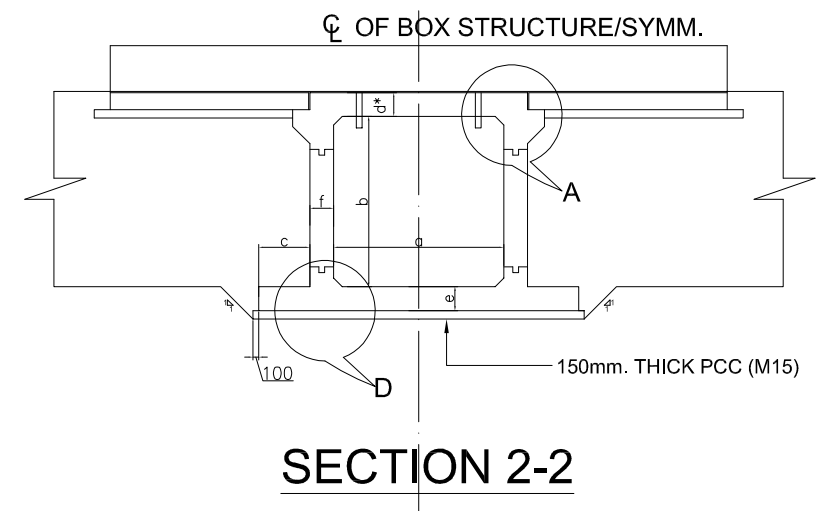
SECTION 1-1

TABLE SHOWING SALIENT DIMENSIONS

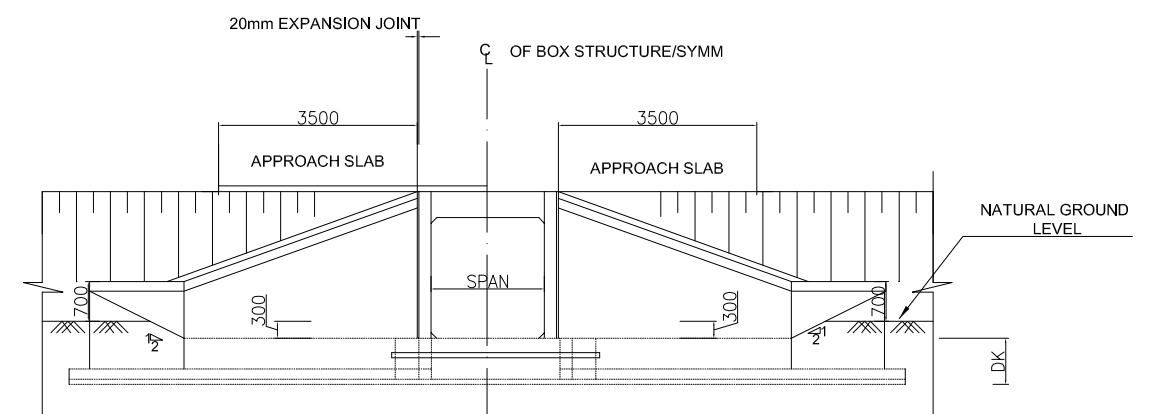
BOX CELL DESIGNATION	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	f (mm)
2m x 2m	2000	2000	500	350	380	300
3m x 3m	3000	3000	900	420	420	420
6m x 5m	6000	5000	1100	680	750	750

NOTES:

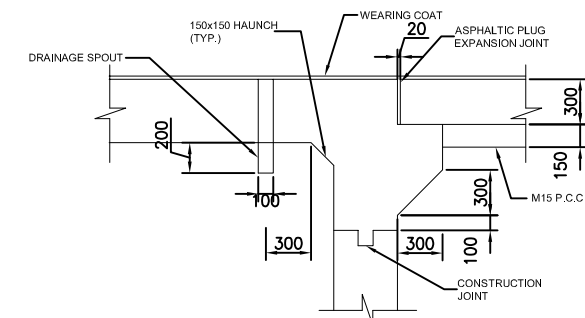
- All dimensions are in millimeters unless otherwise noted. Only written dimensions are to be followed.
- Soft and loose patches in the bearing area shall be replaced by compacted granular fills with layers not exceeding 300mm.
- Net bearing capacity for the soil shall not be less than 15 T/m².
- 'DK' is depth of key at base slab. 'DK' shall be 1200mm upto base slab thickness of 900mm. For base slab thickness greater than 900mm, 'DK' shall be e+300mm, where 'e' is the base slab thickness.
- Concrete shall be design mix and shall have minimum 28 days characteristics strength of M25 for box structure. Reinforcing steel shall be High Yield Strength Deformed bars of Fe500 conforming to IS:1786



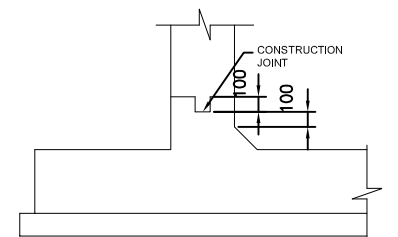
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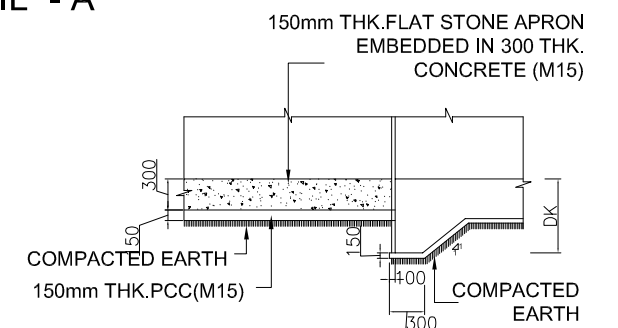
SECTION 3-3



DETAIL - A



DETAIL - D



DETAIL - C



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Regional Urban Development Project (RUDP)
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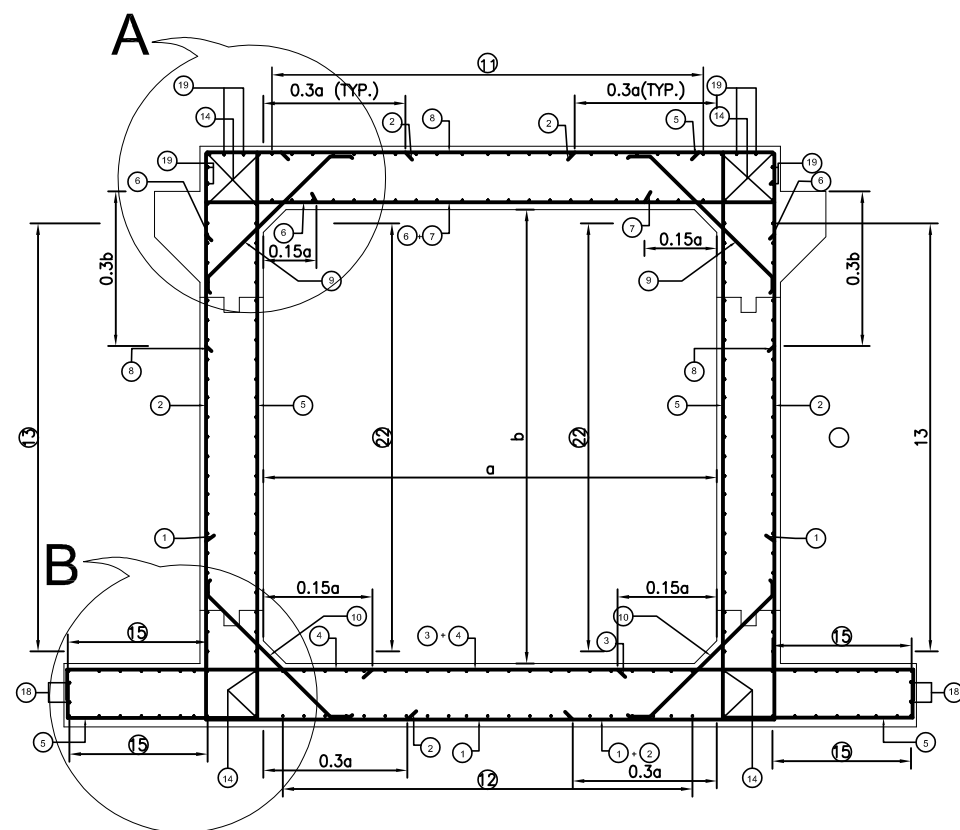
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

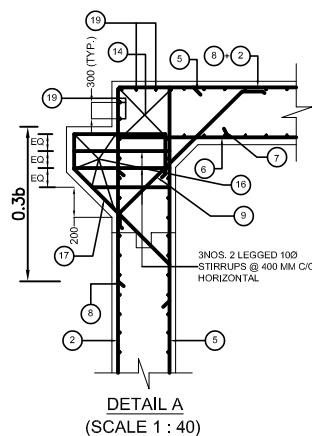
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As Shown

SINGLE CELL BOX CULVERT W/O CUSHION
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

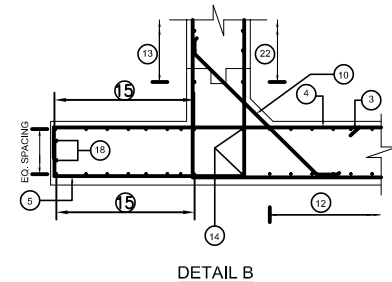
REV : MAY 2024
TITLE : TYPICAL DRAWINGS
DRG NO : DM/RD/TD/18
SHEET NO : 18



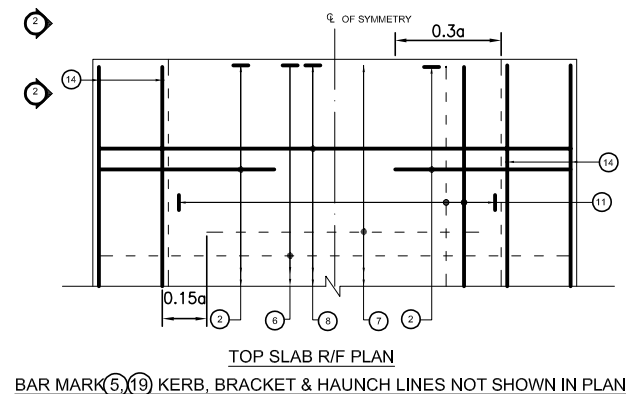
REINFORCEMENT DETAILS OF SINGLE CELL BOX CULVERT



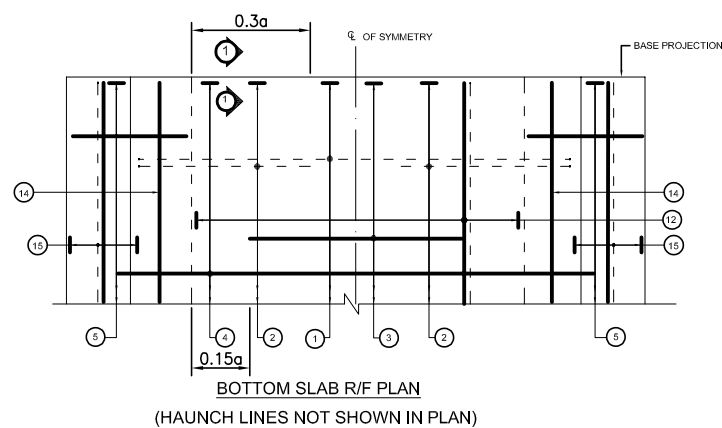
DETAIL A
(SCALE 1 : 40)



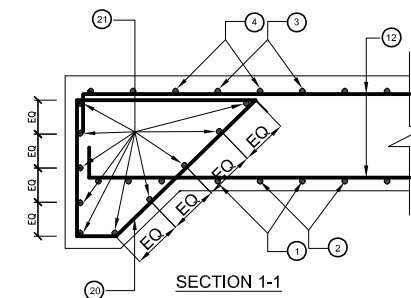
DETAIL B



TOP SLAB R/F PLAN
BAR MARK 5, 19 KERB, BRACKET & HAUNCH LINES NOT SHOWN IN PLAN

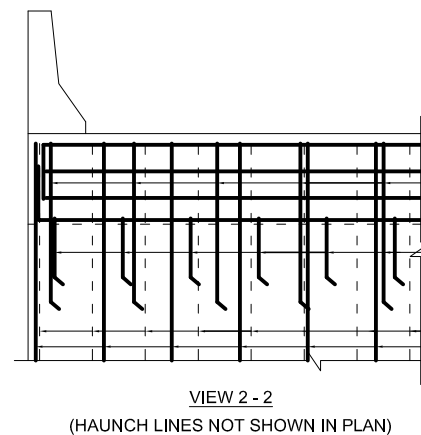


BOTTOM SLAB R/F PLAN
(HAUNCH LINES NOT SHOWN IN PLAN)



SECTION 1-1

LEGEND:
 — : TOP FACE BARS/
 OUTER FACE BARS
 - - - : BOTTOM FACE BARS/
 INNER FACE BARS



VIEW 2-2
(HAUNCH LINES NOT SHOWN IN PLAN)

NOTES:

1. Minimum clear cover to any reinforcing including stirrups shall be 50mm unless otherwise noted.
2. Construction Joints:
 - a. The location and provision of construction joint shall be approved by Engineer-in-charge. In the drawings the construction joints are shown parallel to the direction of water flow. The concreting operation shall be carried out continuous upto the construction joints.
 - b. The concrete surface at the joint shall be brushed with a stiff brush after casting while the concrete is still fresh, and it has only slightly hardened.
 - c. Before new concrete is poured the surface of old concrete shall be prepared as under:
 - For hardened concrete, the surface shall be thoroughly cleaned to remove debris/laitance and made rough so that ¼ of the size of the aggregate is exposed.
 - For partially hardened concrete, the surface shall be treated with wire brush followed by an air jet.
 - The old surface shall be soaked with water without leaving puddles immediately, before starting concreting to prevent the absorption of water for new concrete.
 - d. New concrete shall be thoroughly compacted in the region of the joints.
3. Welding of reinforcement bars shall not be permitted.
4. Minimum lap length of reinforcement shall be decided as per the reinforcement arrangement based on IRC:21-2000. Not more than 50% of reinforcement shall be lapped at any one location.
5. Bending of reinforcement bars shall be as per IS: 2502.



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Client
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Checked By :

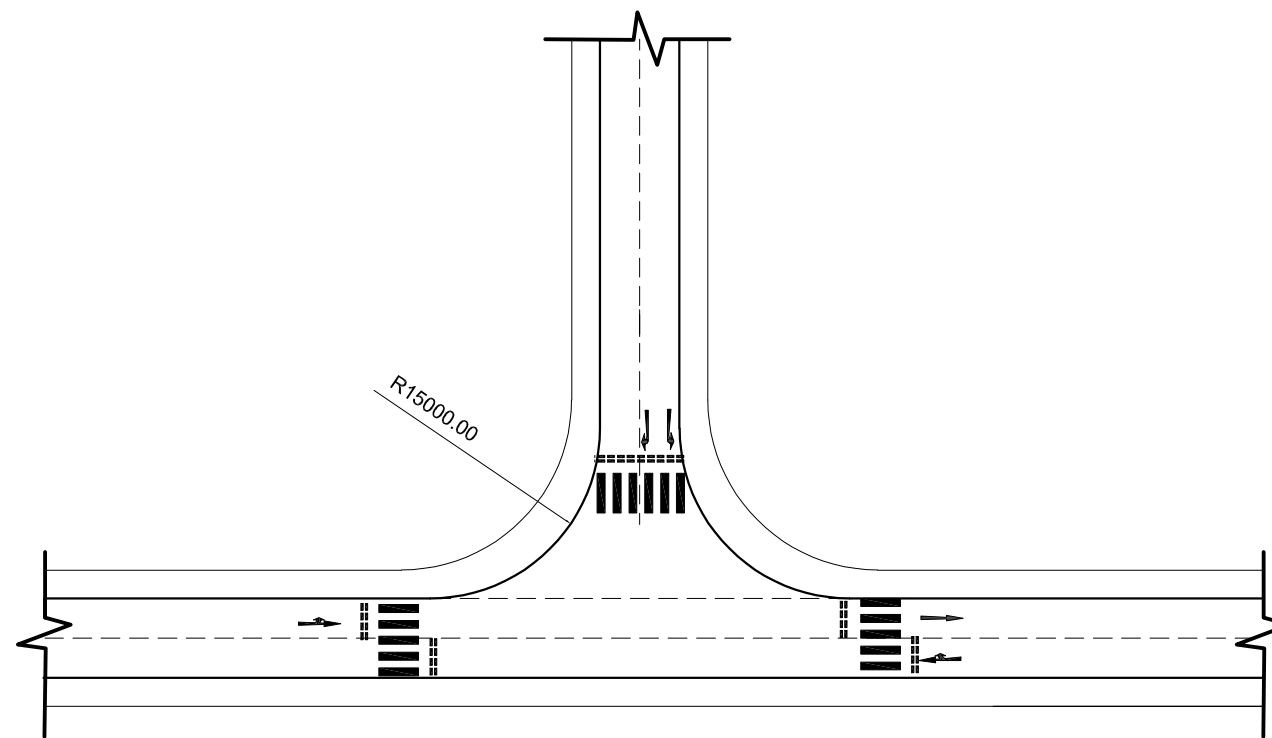
Scale
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SINGLE CELL BOX CULVERT W/O CUSHION
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

REV : MAY 2024
TITLE : TYPICAL DRAWINGS
DRG NO : DM/RD/TD/19
SHEET NO : 19

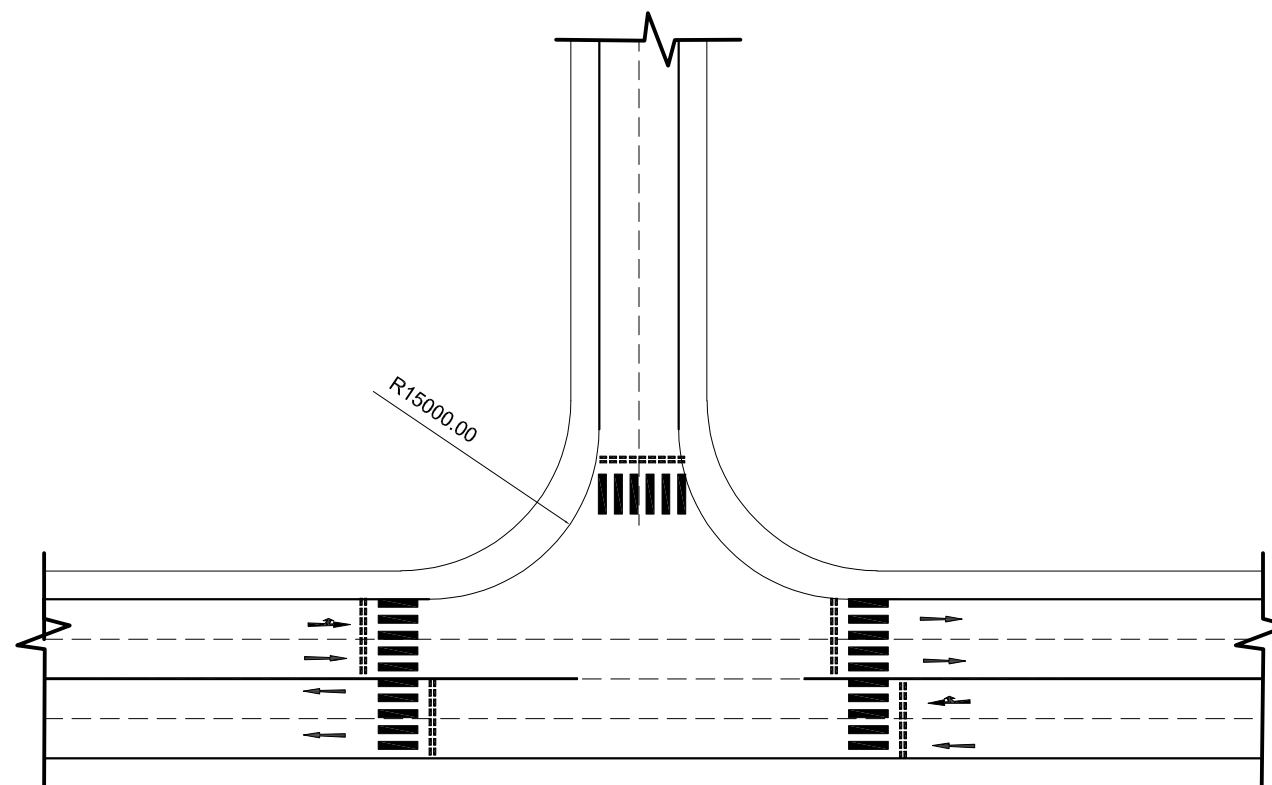
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1. Quantity of steel does not include 5% extra for wastage and laps.
2. Joint or lapping of bars shall be suitably staggered as per IRC:21-2000.
3. The bar list does not include the 10 ϕ stirrups on the notch where the approach slab rest on culvert.



T-INTERSECTION WITH BASIC RIGHT TURN TREATMENT

SCALE:-1:1500



T-INTERSECTION WITH MULTIPLE LANE DIVIDED WITH NO SPECIFIC RIGHT TURN TREATMENT

SCALE:-1:1500

Notes:
1) All Dimension are in mm unless stated.



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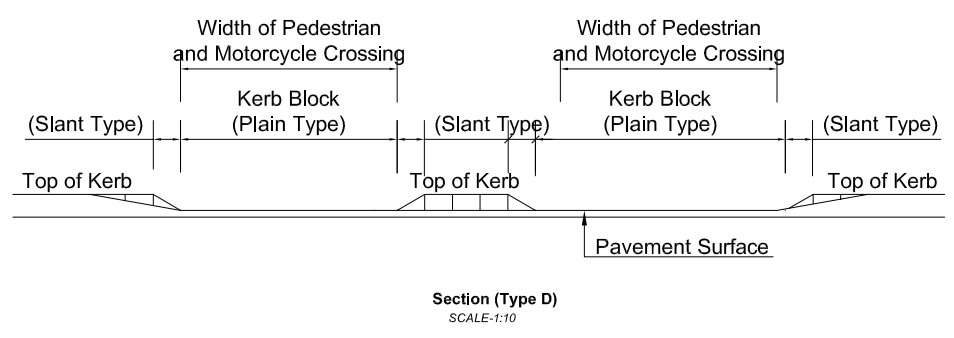
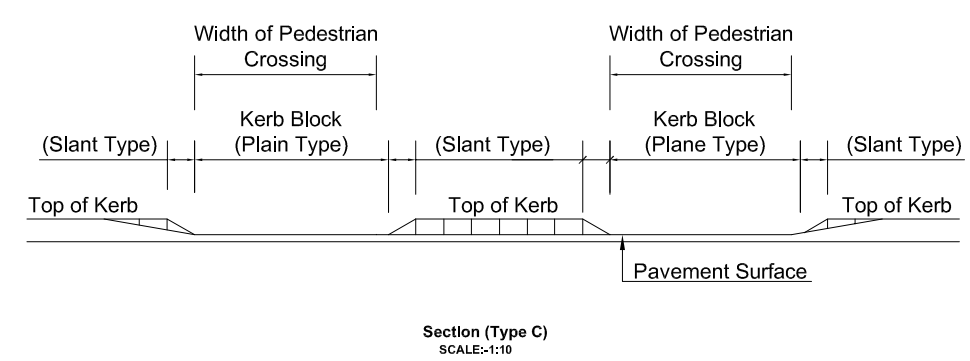
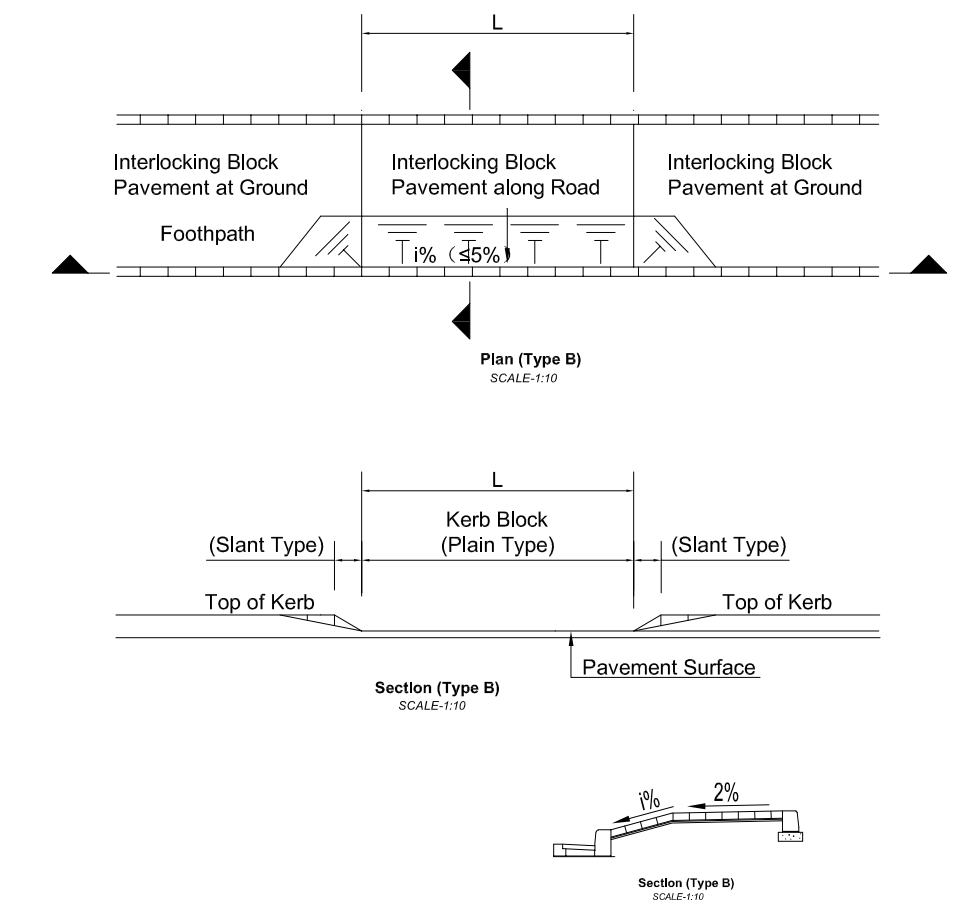
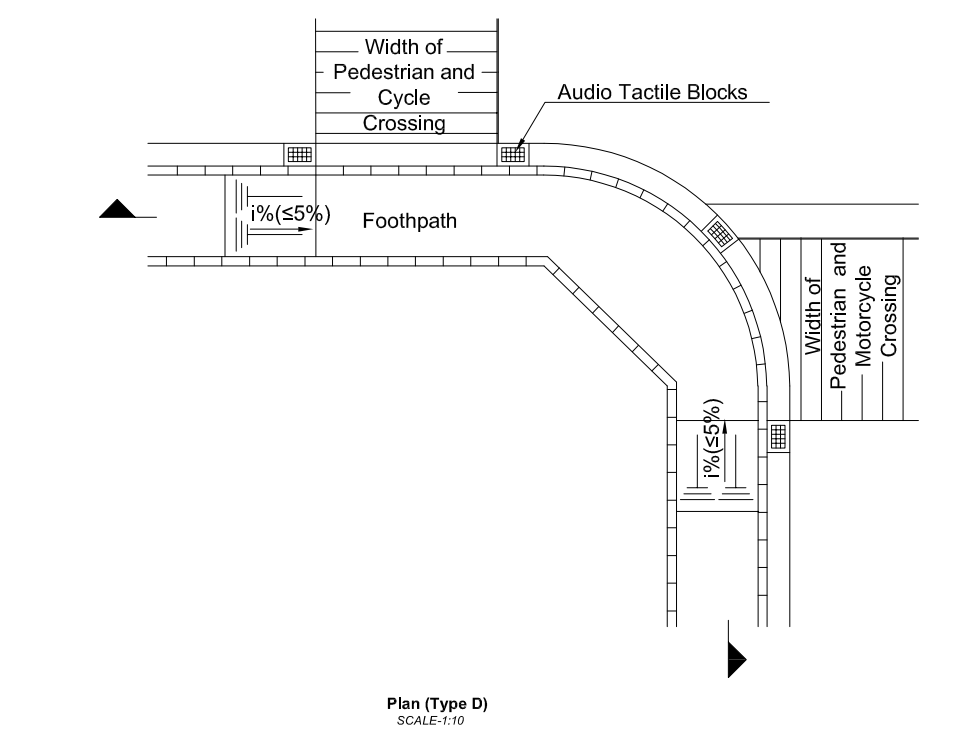
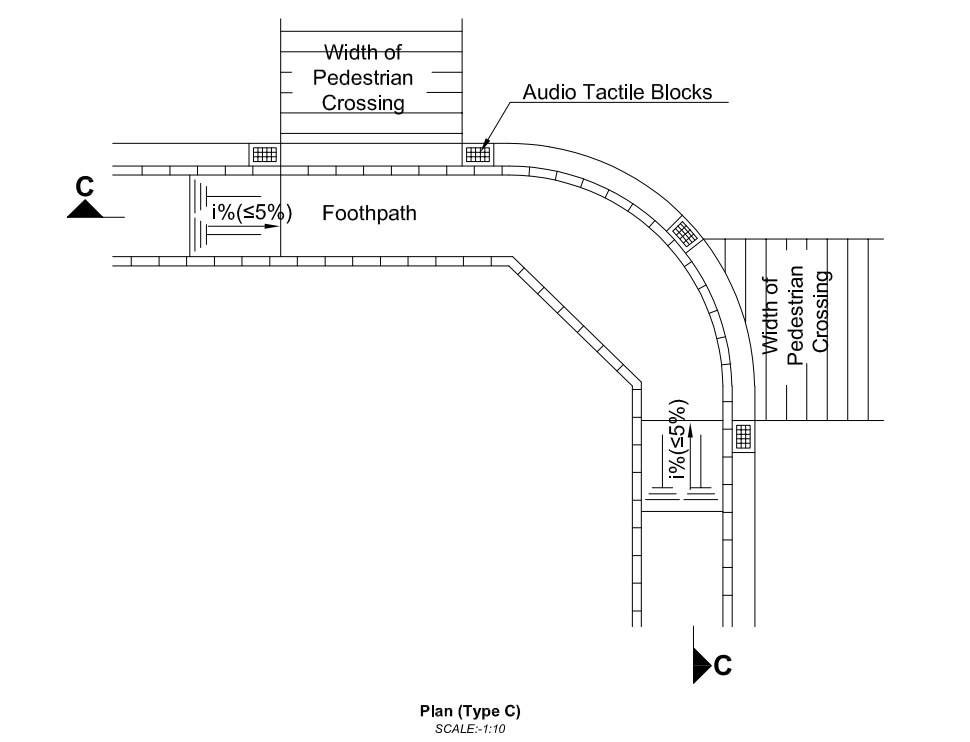
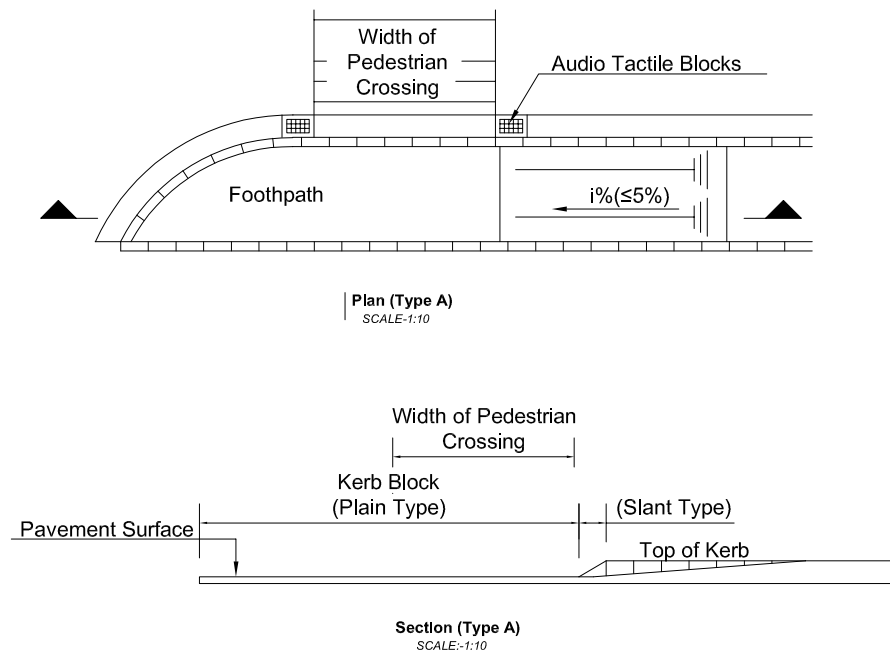
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

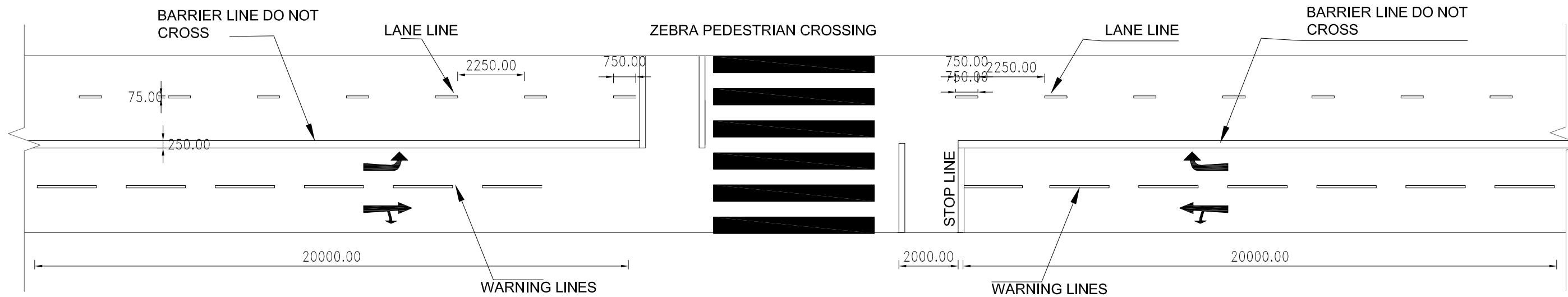
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Approved By :
Checked By :

Scale
As Shown

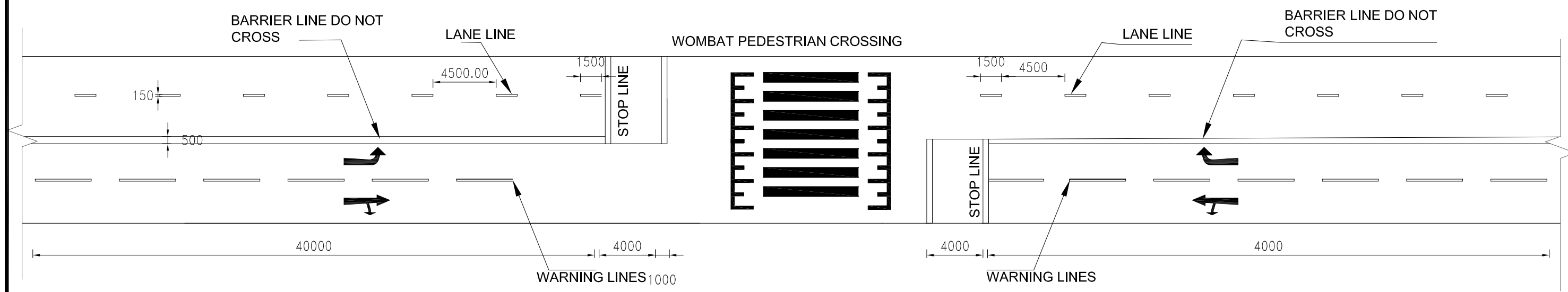
JUNCTION IMPROVEMENTS
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

REV	: MAY 2024
TITLE	: TYPICAL DRAWINGS
DRG NO	: DM/RD/TD/21
SHEET NO	: 21





MID-BLOCK ZEBRA CROSSING
NOT TO SCALE



MID-BLOCK WOMBAT CROSSING
NOT TO SCALE



Department of Urban Development & Building
Construction (DUDBC)
Regional Urban Development Project (RUDP)
Project Coordination Office
Babarmahal, Kathmandu, Nepal

Reviewed & Designed By :
DOHWA Engineering Co. Ltd.
in Association with
ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and
DIGICON (P.) Ltd.
Mid- Baneshwor, Kathmandu
Tel: 01- 4589393

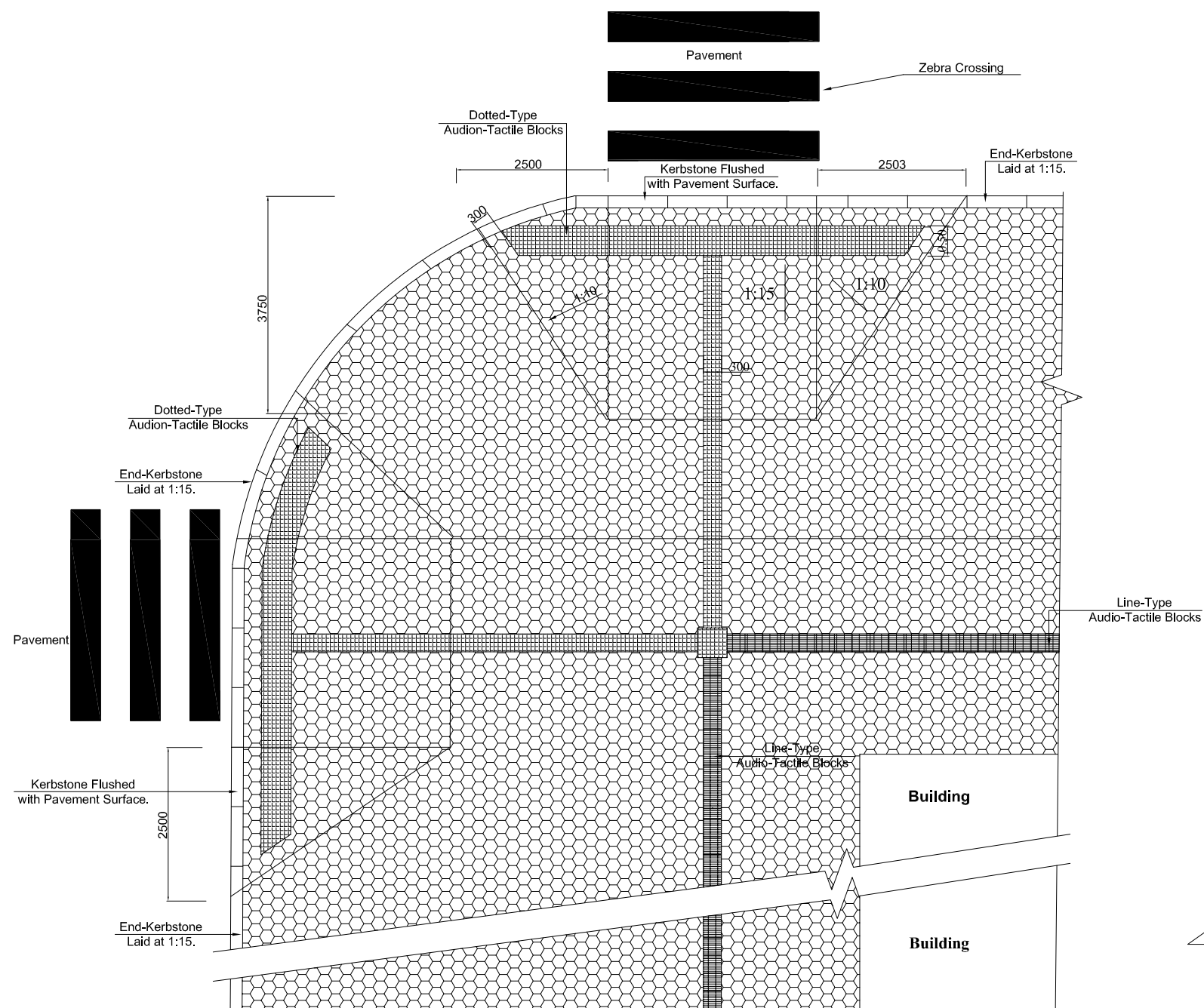
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

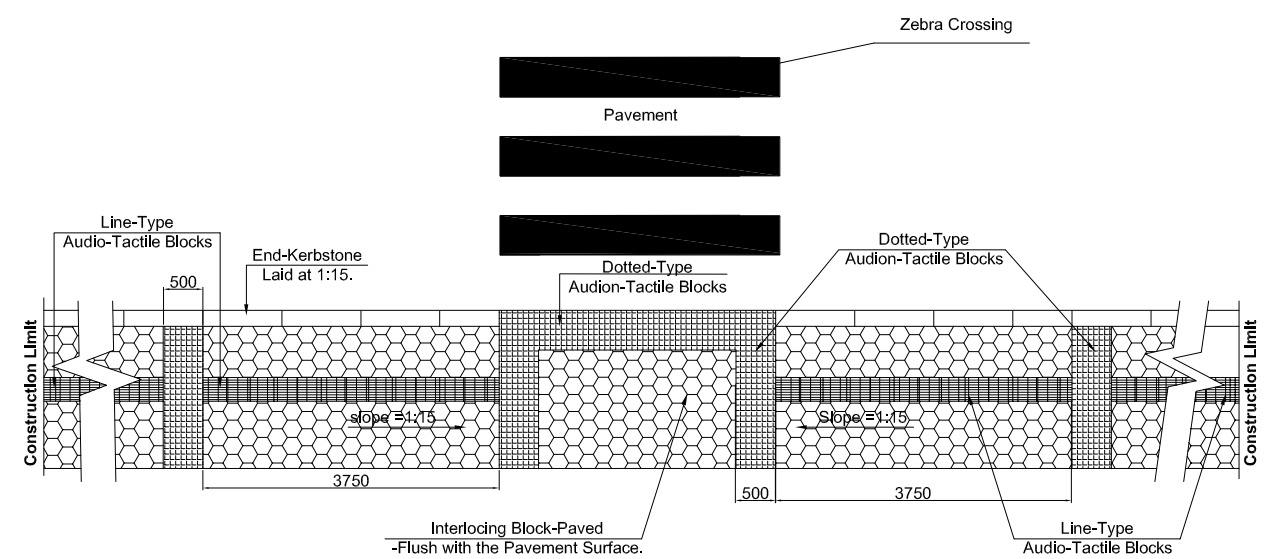
Scale
As Shown

PEDESTRIAN CROSSINGS & LANE MARKINGS
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

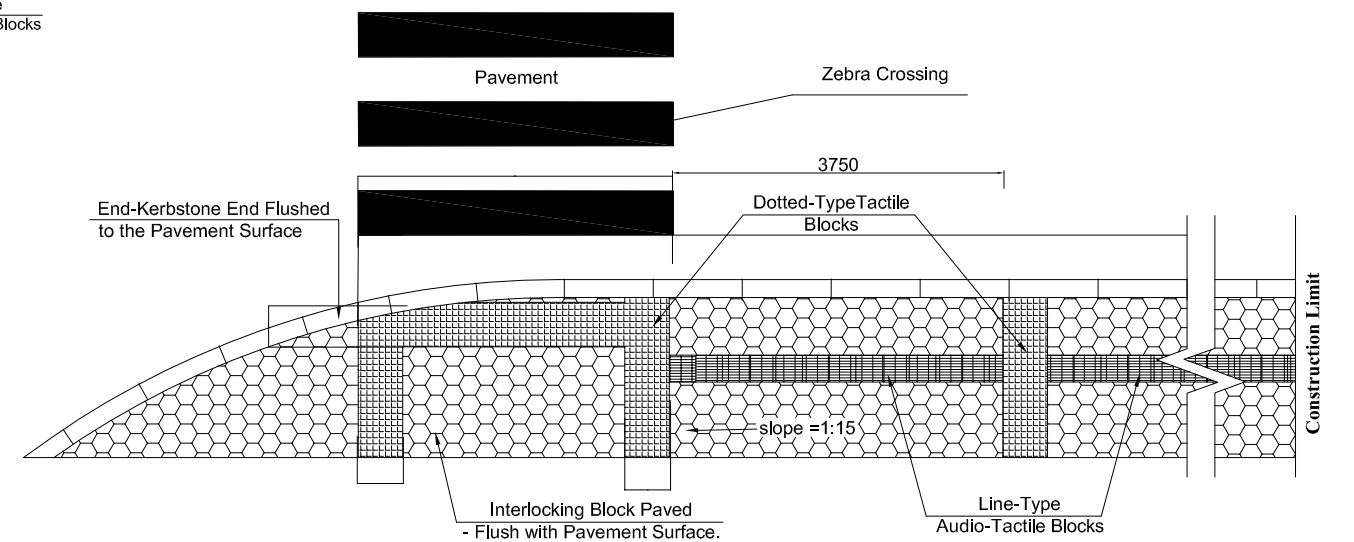
REV	: MAY 2024
TITLE	: TYPICAL DRAWINGS
DRG NO	: DM/RD/TD/23
SHEET NO	: 23



FLARED KERB RAMP WITH AUDIO-TACTILE BLOCKS



KERB-RAMP AT MID-BLOCK WITH AUDIO-TACTILE BLOCKS



KERB-RAMP AT INTERSECTION WITH AUDIO-TACTILE BLOCKS



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Regional Urban Development Project (RUDP)
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Mid- Baneshwor, Kathmandu
Tel: 01- 4589393

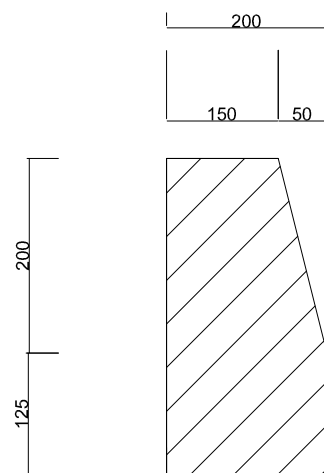
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

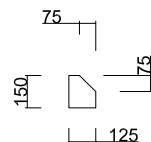
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As Shown

TACTILE PAVEMENTS
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

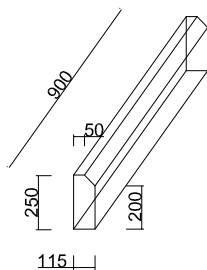
REV : MAY 2024
TITLE : TYPICAL DRAWINGS
DRG NO : DM/RD/TD/24
SHEET NO : 24



KERB STONE DETAIL
Scale 1:35



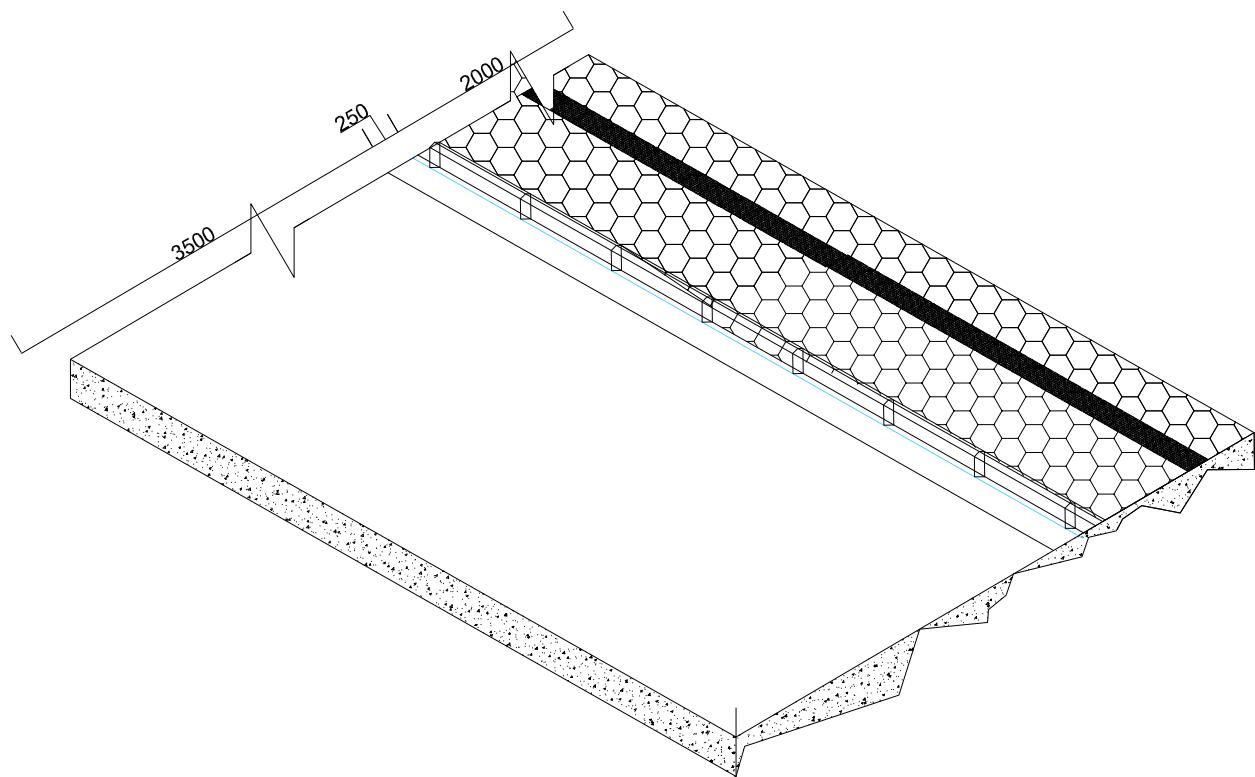
SPLAYED KERB
Scale 1:35



PRECAST KERB
Scale 1:35

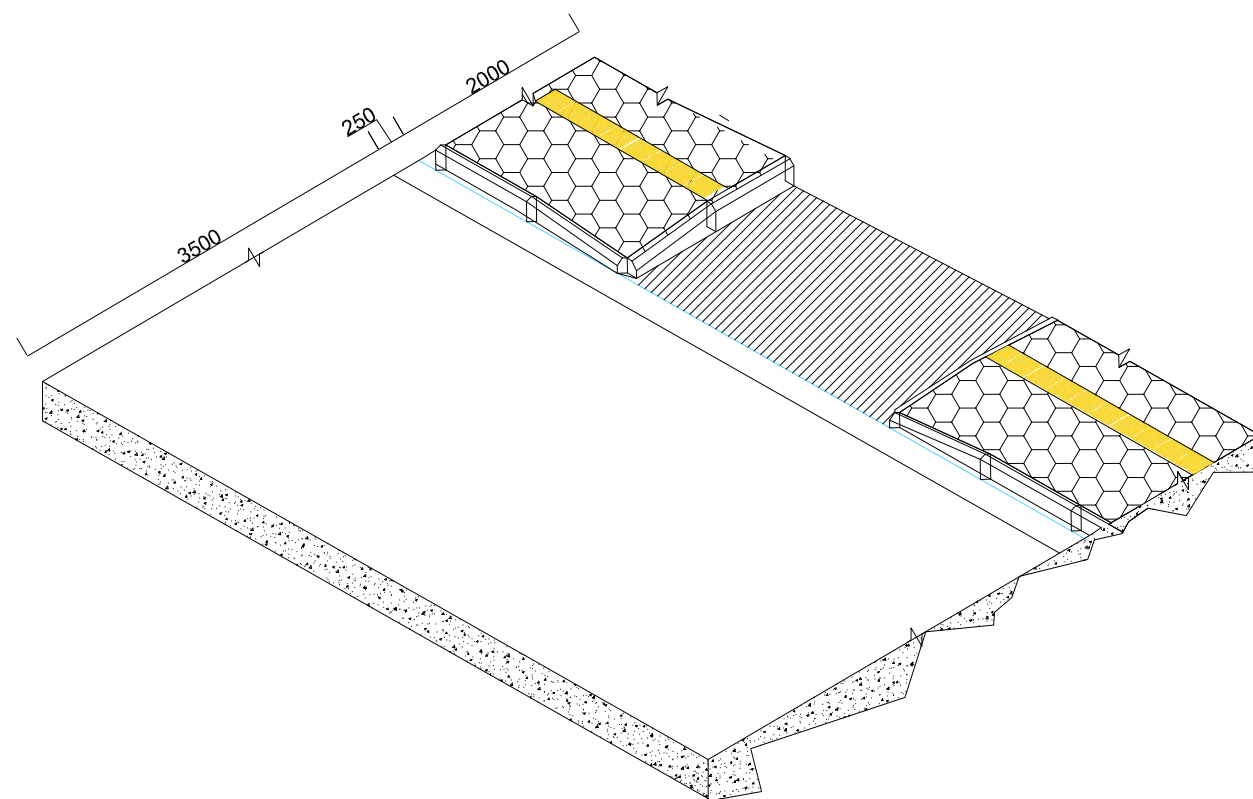


BULL NOSED KERB
Scale 1:35

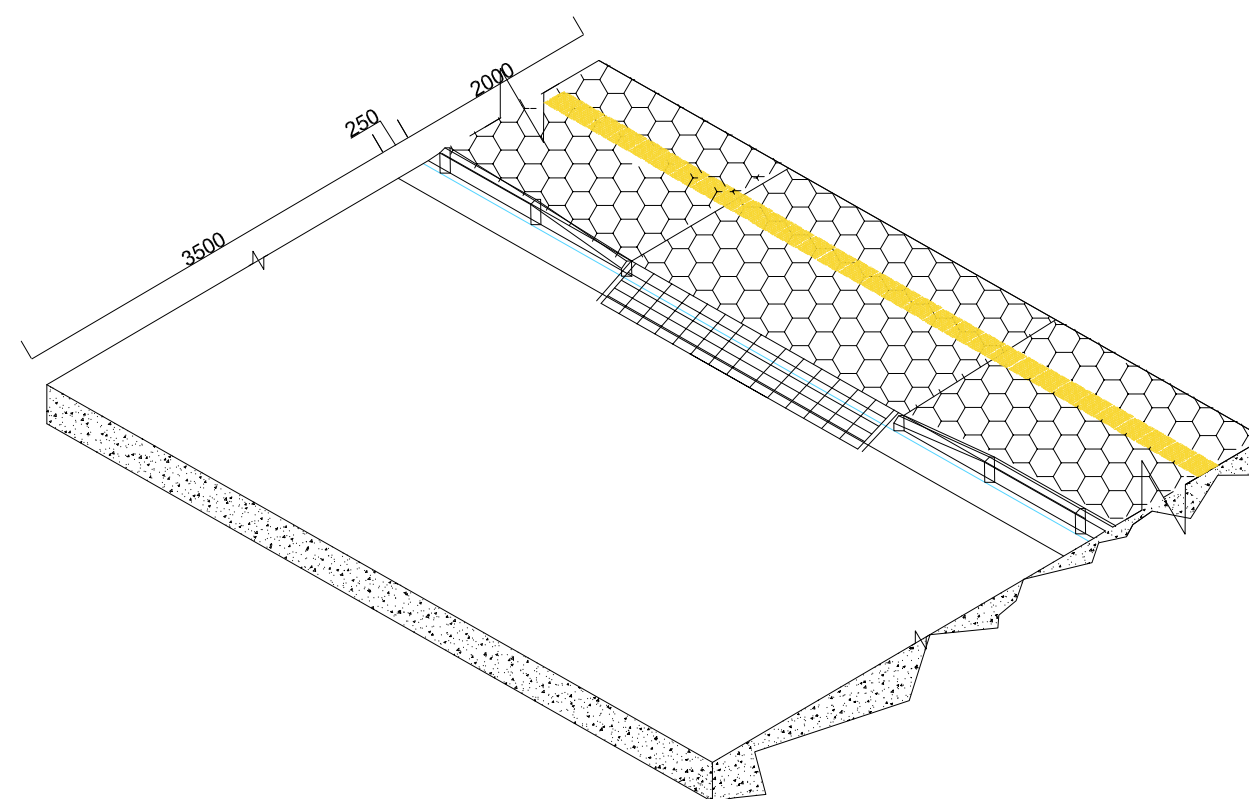


Isometric view of Raised cross walk & Kerb Detail

	Department of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Project Coordination Office Babarmahal, Kathmandu, Nepal	Reviewed & Designed By : DOHWA Engineering Co. Ltd. in Association with ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd. Mkd- Baneshwor, Kathmandu Tel: 01- 4589393	Consultant	Client	Scale As Shown	ISOMETRIC VIEW OF FOOTPATH & KERBS DEVDAHA URBAN ROADS DEVDAHA MUNICIPALITY CH: 0+000 - 20+717.67 Km	REV : MAY 2024
			Team Leader : YOO CHANGMIN	Approved By :			TITLE : TYPICAL DRAWINGS
			Reviewed By : YAGYA BAHADUR MALLA	Checked By :			DRG NO : DM/RD/TD/25
			Drawn By : SHRIJANA SHRESTHA				SHEET NO : 25



Isometric view of Main Road and Side Road Junction



Isometric view of Ramp with Footpath



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Construction (DUDBC)
Regional Urban Development Project (RUDP)
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DIGICON (P.) Ltd.
Mkt- Baneshwor, Kathmandu
Tel: 01- 4589393

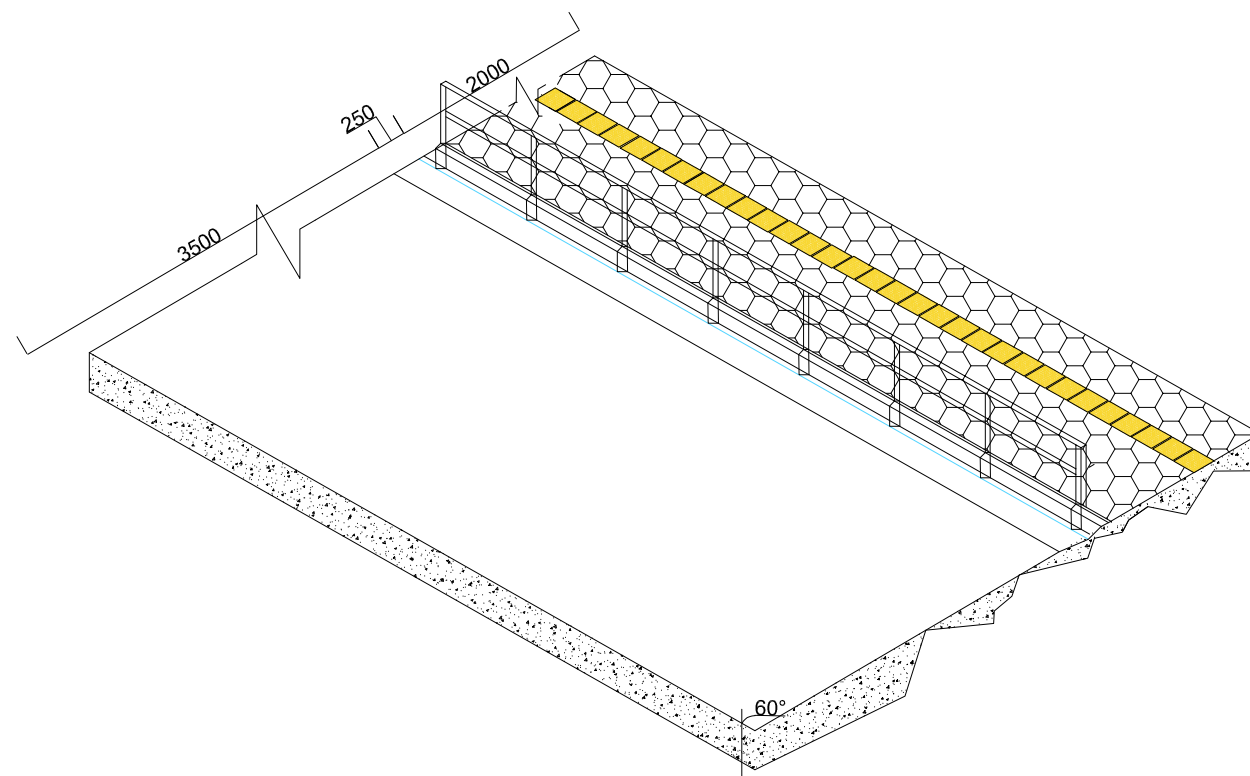
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

Scale
As Shown

Isometric View of Footpaths and Kerbs
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

REV	: MAY 2024
TITLE	: TYPICAL DRAWINGS
DRG NO	: DM/RD/TD/26
SHEET NO	: 26



Isometric view of Railing with Footpath



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Tel: 01- 4589393

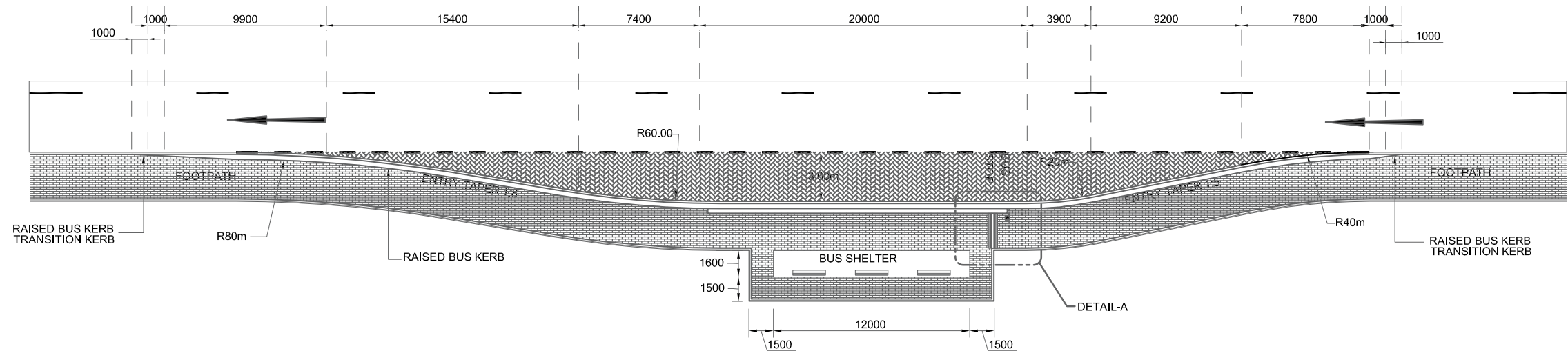
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

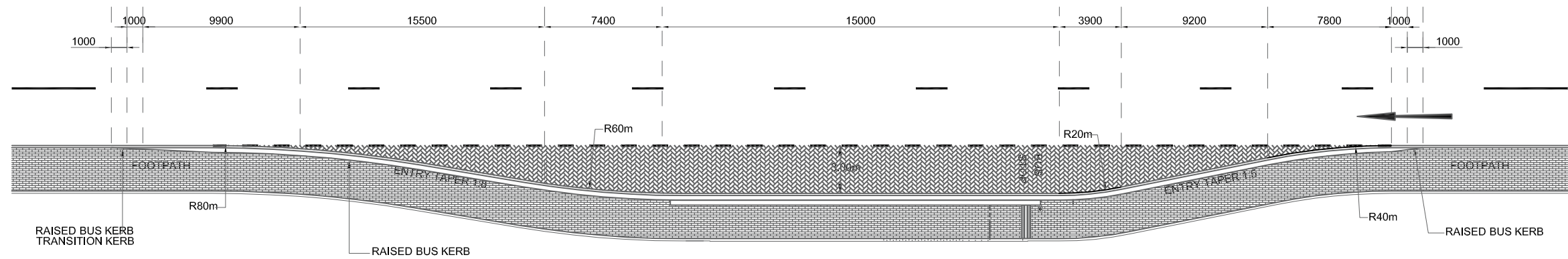
Scale
As Shown

Isometric View of Footpaths and Kerbs
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

REV	: MAY 2024
TITLE	: TYPICAL DRAWINGS
DRG NO	: DM/RD/TD/27
SHEET NO	: 27



Typical Layout for a standard Bus Stop Layby
Not to Scale



Typical Layout for a Standard Bus Stop Layby
Not to Scale

NOTES:
 All dimensions are in millimeter unless otherwise stated.
 All materials and workmanship shall be in accordance with the current N.C.S unless otherwise agreed with the engineer.
 Production and siting of traffic signs and road marking shall be as per current version of the Nepal traffic control manual.



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Regional Urban Development Project (RUDP)
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 Tel: 01- 4589393

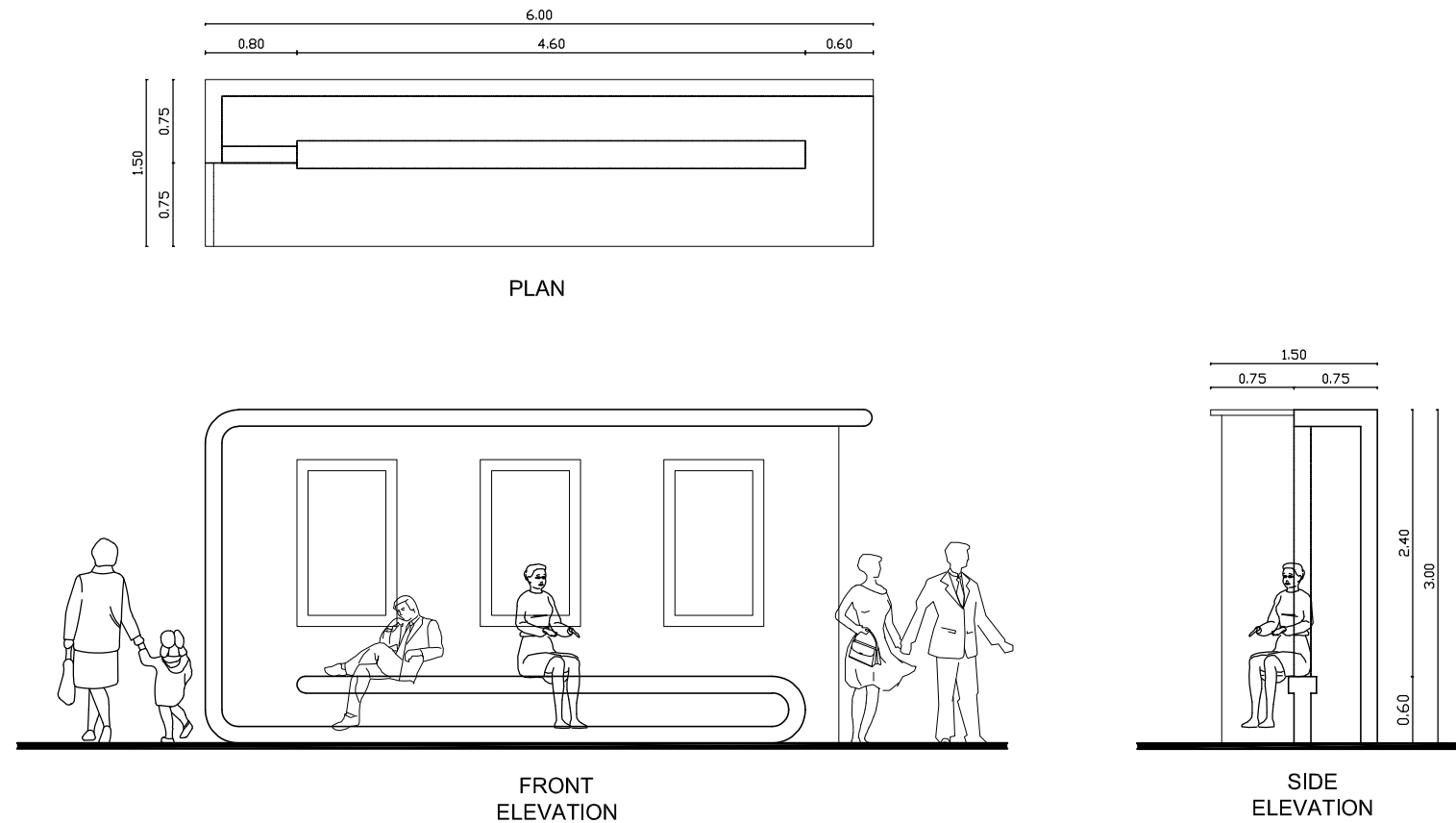
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

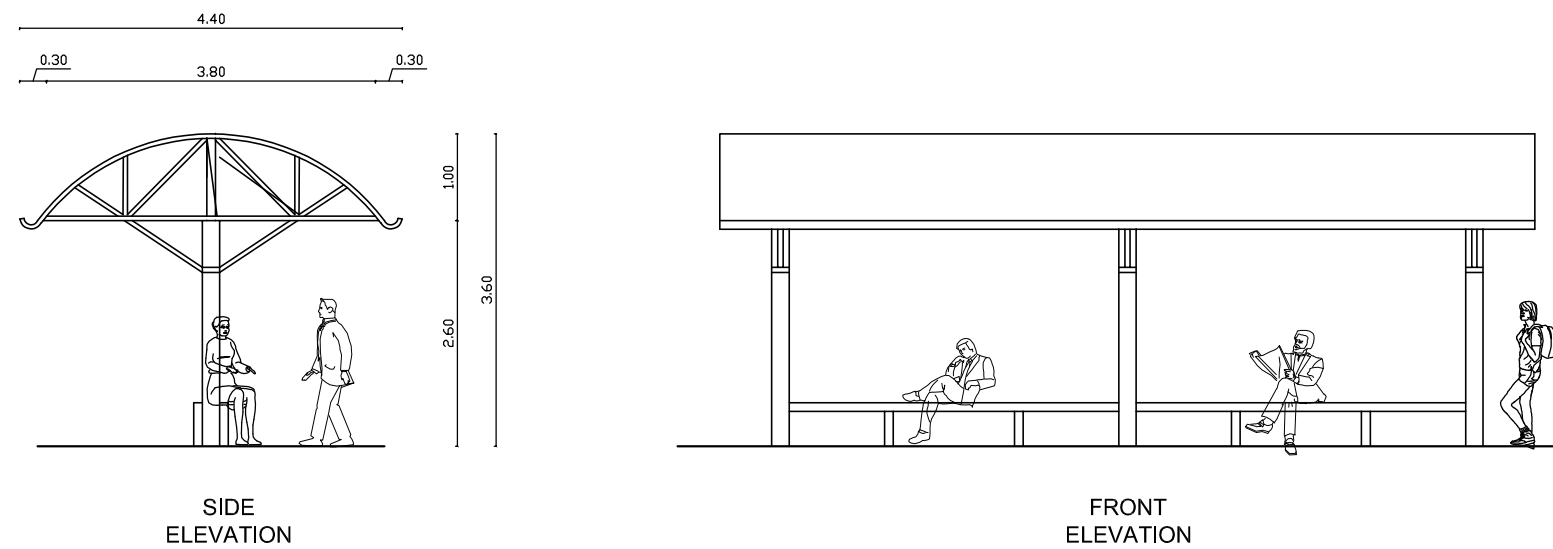
Scale
As Shown

TYPICAL BUS LAYBYS
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

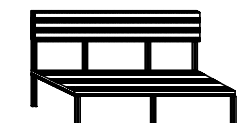
REV : MAY 2024
TITLE : TYPICAL DRAWINGS
DRG NO : DM/RD/TD/28
SHEET NO : 28



BUS STAND



REST/WAITING STATIONS WITH SHEDS



WOODEN RESTING BENCH



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Regional Urban Development Project (RUDP)
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Mkt- Baneshwor, Kathmandu
Tel: 01- 4589393

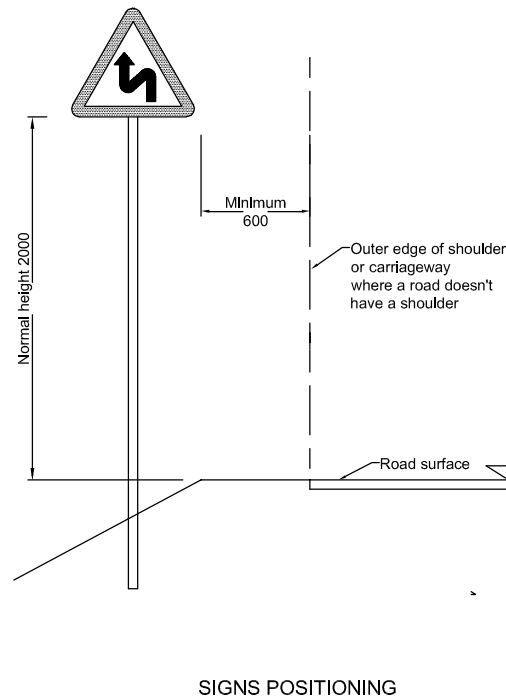
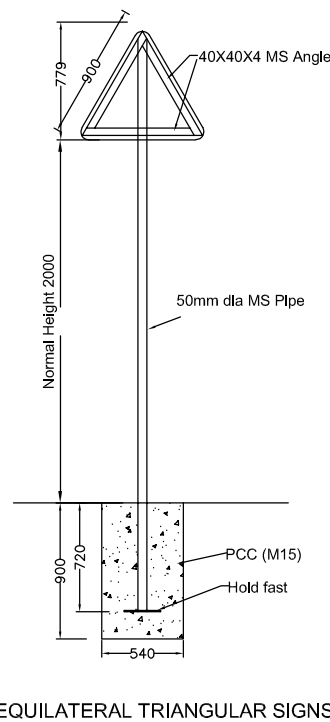
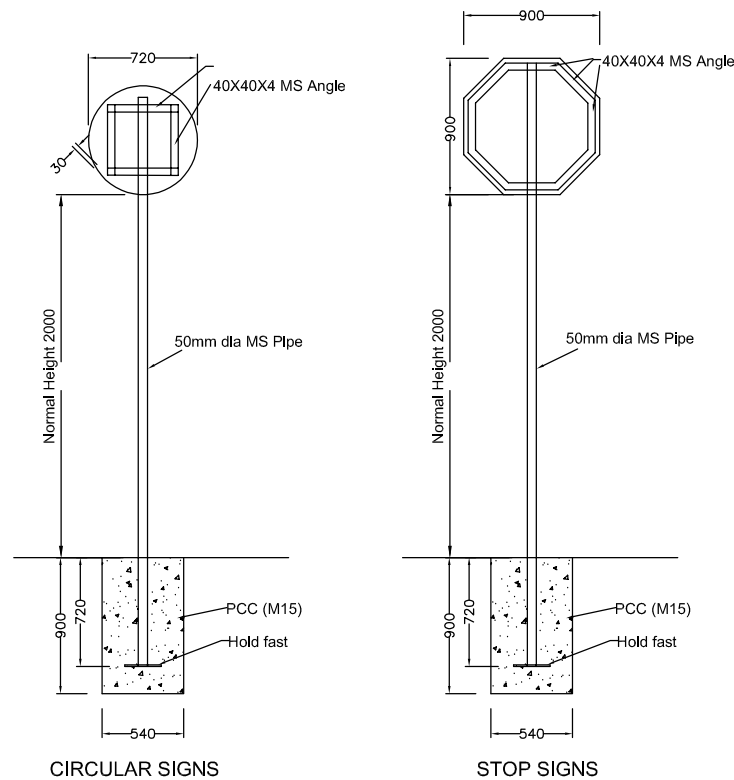
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

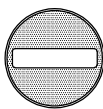
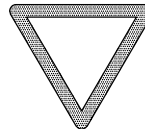
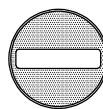
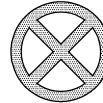
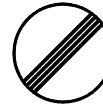
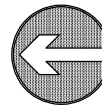
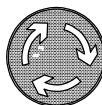
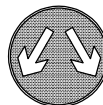
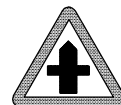
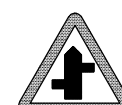
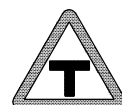
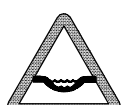
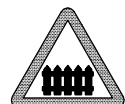
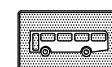
Client
Approved By :
Checked By :

Scale
As Shown

TYPICAL BUS AND WAITING STANDS
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

REV : MAY 2024
TITLE : TYPICAL DRAWINGS
DRG NO : DM/RD/TD/29
SHEET NO : 29



										
R-1 NO ENTRY FOR VEHICLE	R-2 GIVE WAY TO TRAFFIC ON MAJOR ROAD/ROUNDBOUT	R-3 NO ENTRY FOR VEHICLE	R-4 NO MOTOR VEHICLE	R-5 NO TRUCKS	R-6 NO HANDCARTS	R-7 NO ANIMAL DRAWN VEHICLES	R-8 NO PEDESTRAINS	R-9 NO VEHICLES OVER LENGTH SHOWN	R-10 NO VEHICLES OVER HEIGHT SHOWN	
										
R-11 NO VEHICLE OVER WIDTH SHOWN	R-12 NO VEHICLE OVER MAXIMUM GROSS WEIGHT SHOWN	R-13 AXLE WEIGHT LIMIT	R-14 NO PARKING	R-15 NO STOPPING	R-16 NO OVERTAKING	R-17 NO PASSING WITHOUT STOPPING	R-18 NO RIGHT TURN	R-19 NO LEFT TURN	R-20 NO U-TURNS	
										
R-21 NO USE OF HORN	R-22 MAXIMUM SPEED	R-23 END OF SPEED RESTRICTION	R-24 TEMPORARY 'STOP' SIGN	R-25 TEMPORARY 'GO' SIGN	R-26 RESTRICTION ENDS	R-27 AHEAD ONLY	R-28 TURN LEFT (RIGHT IF SYMBOL IS REVERSED)	R-29 KEEP LEFT (RIGHT IF SYMBOL IS REVERSED)	R-30 TURN LEFT AHEAD (RIGHT IF SYMBOL IS REVERSED)	
										
R-31 SMALL ROUNDBOUT (GIVE WAY TO THE RIGHT)	R-32 PASS EITHER SIDE	R-33 ONE-WAY TRAFFIC	W-1 CROSS ROADS	W-2 MAJOR ROAD AHEAD (CROSSROADS)	W-3 SIDE ROAD RIGHT (LEFT IF SYMBOL IS REVERSED)	W-4 STAGGERED JUNCTION (SYMBOL MAY BE REVERSED)	W-5 T - JUNCTION	W-6 Y - JUNCTION	W-7 TRAFFIC MERGES FROM LEFT	
										
W-8 TRAFFIC MERGES FROM RIGHT	W-9 ROUNDBOUT	W-10 BEND TO RIGHT (LEFT IF SYMBOL IS REVERSED)	W-11 HAIRPIN BEND TO RIGHT (LEFT IF SYMBOL IS REVERSED)	W-12 DOUBLE BEND LEFT FIRST (RIGHT IF SYMBOL IS REVERSED)	W-14 ROAD NARROWS ON BOTH SIDES	W-15 ROAD NARROWS ON RIGHT (LEFT IF SIGN REVERSED)	W-16 DUAL CARRIAGEWAY ENDS	W-17 TRAFFIC SIGNALS	W-18 STEEP HILL DOWNWARDS	
										
W-19 STEEP HILL UPWARDS	W-20 HEIGHT LIMIT AHEAD	W-21 TWO-WAY TRAFFIC STRAIGHT AHEAD	W-22 TWO-WAY TRAFFIC CROSSES ONE-WAY ROAD	W-23 PEDESTRAIN CROSSING	W-24 PEDESTRAIN IN ROAD AHEAD	W-25 CHILDREN	W-26 CATTLE	W-27 WILD ANIMALS	W-28 RIVER BANK	
										
W-29 UNEVEN ROAD	W-30 SLIPPERY ROAD	W-31 ROAD HUMP	W-32 LOW FLYING AIRCRAFT	W-33 FALLING ROCKS (SYMBOL MAY BE REVERSED)	W-34 DANGEROUS DIP	W-35 NARROW BRIDGE	W-36 OTHER DANGER	W-37 CHECKPOINT	W-38 ROAD WORKS	
										
W-39 LOOSE CHIPPINGS	W-40 RAILWAY LEVEL CROSSING WITHOUT GATE OR BARRIER	W-41 RAILWAY LEVEL CROSSING WITH GATE OR BARRIER	I-1 NO THROUGH ROAD	I-2 PEDESTRAIN CROSSING	I-3 PARKING PLACE	I-4 OVERTAKING SECTION	I-5 FILLING STATION	I-6 BREAKDOWN SERVICE	I-7 TELEPHONE	
										
I-8 OVERNIGHT ACCOMMODATION	I-9 HOSPITAL	I-10 REFRESHMENTS	I-11 RESTAURANT	I-12 PICNIC SITE	I-13 RECOMMENDED ROUTE FOR PEDESTRIAN AND CYCLISTS	I-14 RECOMMENDED ROUTE FOR PEDESTRIANS	I-15 RECOMMENDED ROUTE FOR CYCLISTS	I-16 BUS STOP	I-17 TAXI PARK	I-18 ONE-WAY STREET

Note:

For the dimensions of board signs and letter,
Please Refer Traffic Signs Manual Vol 1 & 2.



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Regional Urban Development Project (RUDP)
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Mkt- Baneshwor, Kathmandu
Tel: 01- 4589393

Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

Scale
Not to Scale

TRAFFIC CONTROL MEASURES
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

REV : MAY 2024
TITLE : TYPICAL DRAWINGS
DRG NO : DM/RD/TD/30
SHEET NO : 30

A1 	A2 	A3 	A14 	A15 	A18
Stop And Give Way	Giveaway	No Entry	No Parking	No Stopping	No Right Turn
A19 	A22 	A27 	A28 	A29 	A30
No Left Turn	Maximum Speed	Ahead Only	Turn Left	Keep Left	Turn Left Ahead
A32 	A33 	B23 	C2 	C3 	C17
Pass Either Side	One Way Traffic	Pedestrian Crossing	Pedestrian Crossing	Parking Place	Bus Stop

SIGN TYPE	A	B	C	D	E	F	G
a	750	864	750	600	865	300	600
b	750	750		450	600	300	375
REMARKS							
	A1	A2	A3-A32	A33	B1-B12	C2.C3	C17

Refer Nepal Traffic Sign Manual by D.O.R.

DETAILS OF FEW RECTO-REFLECTIVE SIGN TYPICAL

B1: Cross Roads
Scale:-1:25

B3: Side Road Right
(left if symbol reversed)

B4: Staggered Junction
(symbol may be reversed)

B5: T Junction

B6: Y Junction

B10: Bend to Right

B12: Double Bend
(right if symbol reversed)

B14: No Parking
(right if symbol reversed)

B25: Children

A15: No Stopping

A17: No Passing Without Stopping

A18: No Right Turn

A19: No Left Turn

A22: Maximum Speed

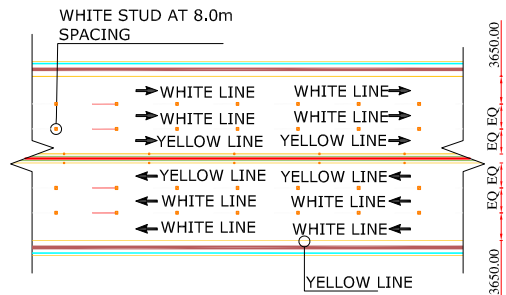


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 Tel: 01- 4589393

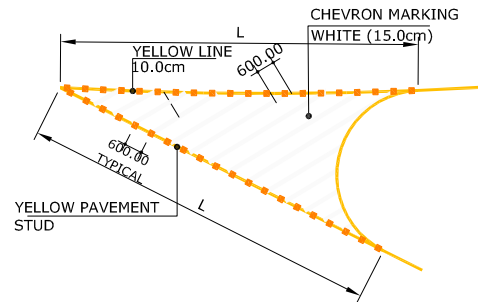
Client
Approved By :
Checked By :

TRAFFIC CONTROL MEASURES 02
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

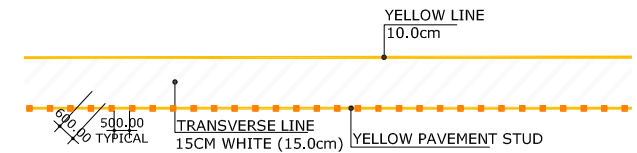
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TITLE	: TYPICAL DRAWINGS
DRG NO	: DM/RD/TD/31
SHEET NO	: 31



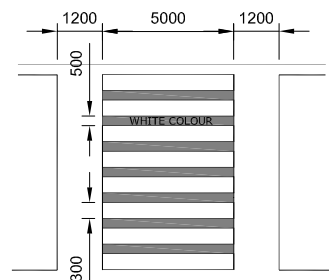
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Not in scale



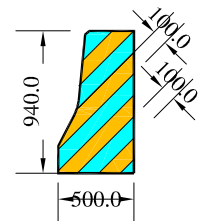
CHEVRON MARKING
Not in scale



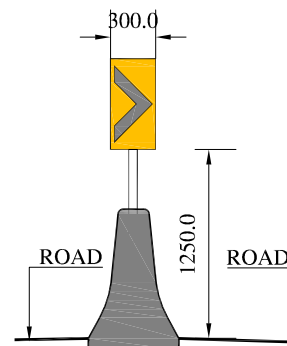
DETAIL OF TRAVERSE LINE MARKING
SCALE:-1:250



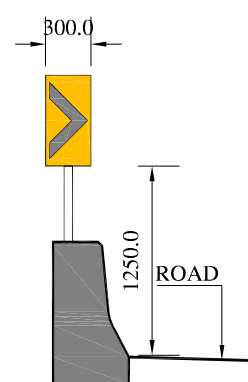
PEDESTRIAN CROSSING
SCALE:-1:100



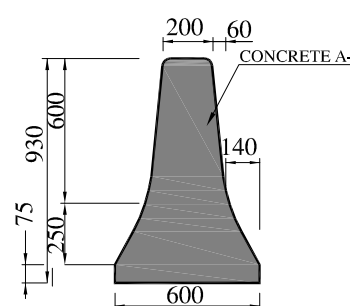
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SCALE:-1:50



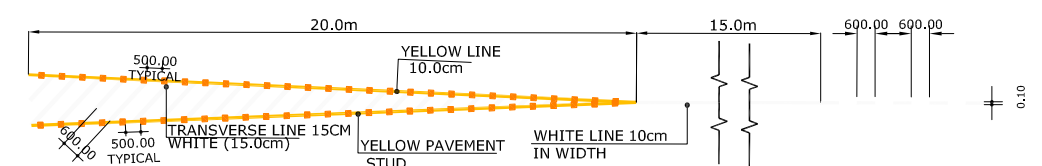
TYPE 1: BARRIER
SCALE:-1:50



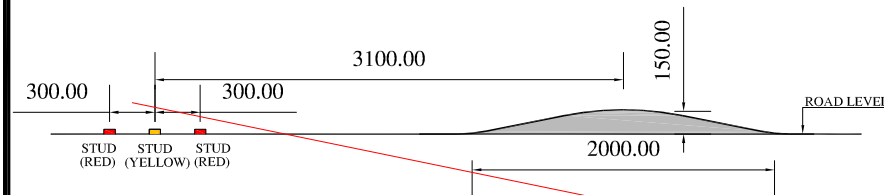
TYPE 2: BARRIER
SCALE:-1:50



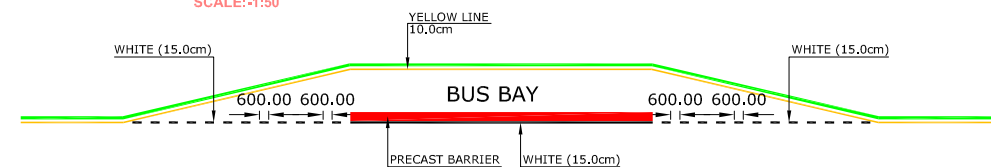
BARRIER USED AT BUS-BAYS
NOT IN SCALE



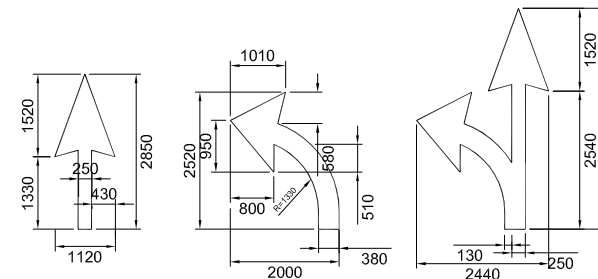
TRAVERSE LINE MARKING
SCALE:-1:250



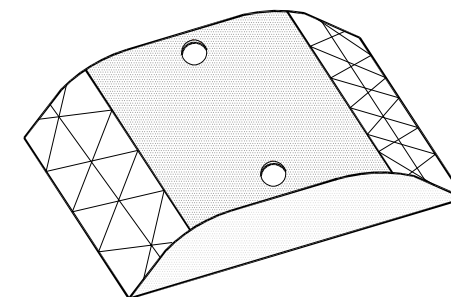
DETAIL X-X
SCALE:-1:50



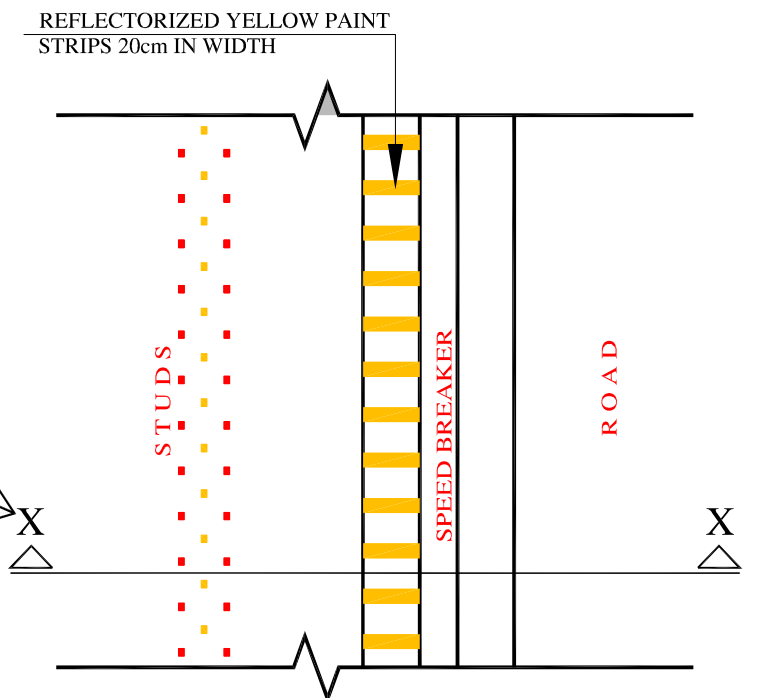
TYPICAL MARKING IN BUS-BAYS
SCALE:-1:500



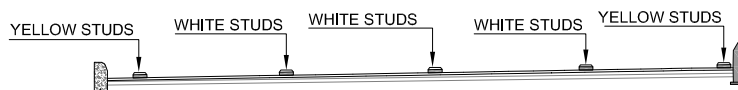
TYPICAL ARROWS
Not in scale



STUD
SCALE:-1:100



PLAN OF SPEED BREAKER
SCALE:-1:100



DETAIL OF STUDS
SCALE:-1:100



Department of Urban Development & Building
Construction (DUDBC)
Regional Urban Development Project (RUDP)
Project Coordination Office
Babarmahal, Kathmandu, Nepal

Reviewed & Designed By :
DOHWA Engineering Co. Ltd.
in Association with
ERMIC (P.) Ltd., SILT Consultants (P.) Ltd., and
DIGICON (P.) Ltd.
Mkt- Baneshwor, Kathmandu
Tel: 01- 4589393

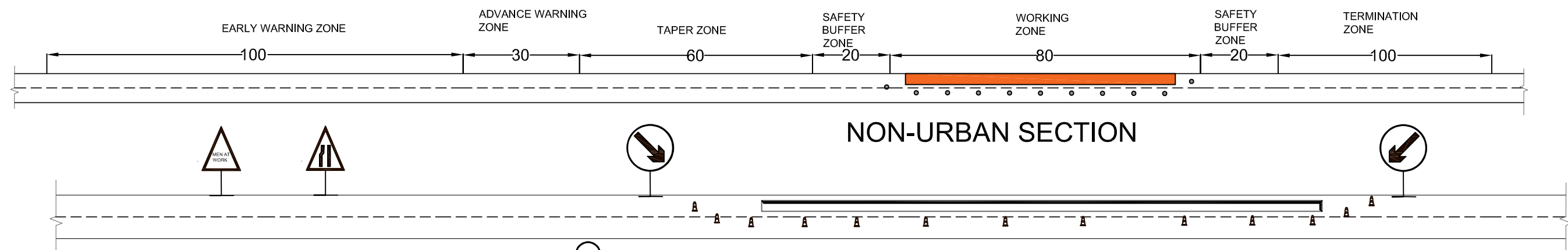
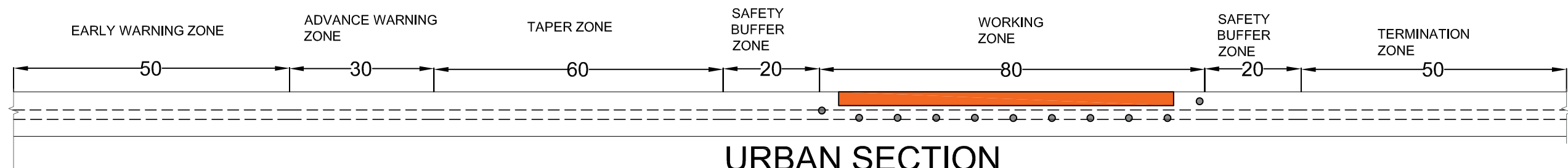
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

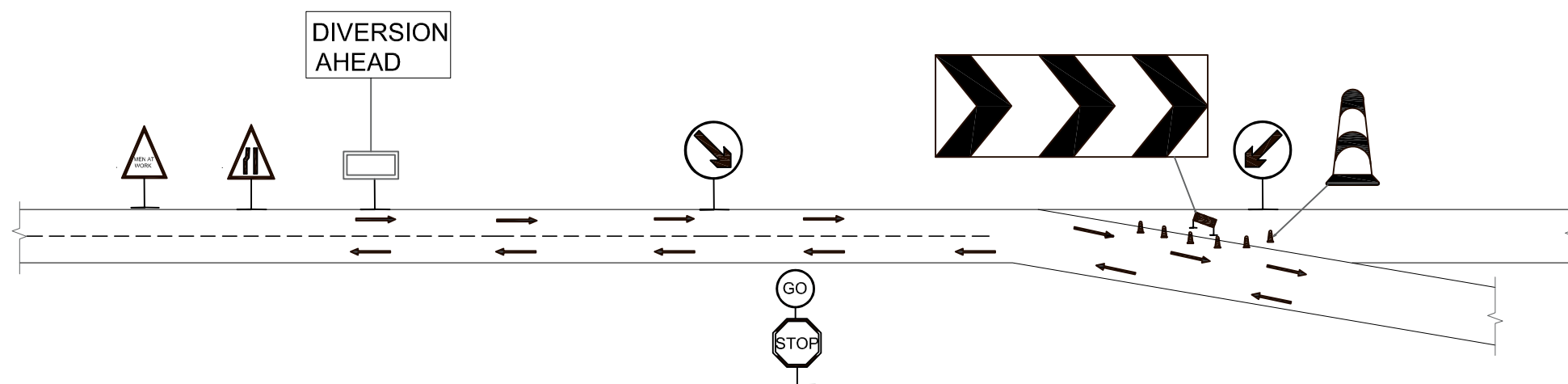
Scale
As Shown

SPECIAL TRAFFIC CONTROL MEASURES
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

REV : MAY 2024
TITLE : TYPICAL DRAWINGS
DRG NO : DM/RD/TD/32
SHEET NO : 32



TRAFFIC MANAGEMENT PLAN FOR PARTIAL ROAD CLOSURE (ONE LANE CLOSED) DURING CONSTRUCTION WORK



TRAFFIC MANAGEMENT PLAN FOR FULL ROAD CLOSURE (TRAFFIC DIVERSION) DURING CONSTRUCTION WORK



Department of Urban Development & Building
Construction (DUDBC)
Regional Urban Development Project (RUDP)
Project Coordination Office
Babarmahal, Kathmandu, Nepal

Reviewed & Designed By :
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in Association with
ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and
DIGICON (P.) Ltd.
Mid- Baneshwor, Kathmandu
Tel: 01- 4589393

Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

Scale
As Shown

TRAFFIC MANAGEMENT PLAN
DEVDAHA URBAN ROADS
DEVDAHA MUNICIPALITY
CH: 0+000 - 20+717.67 Km

REV : MAY 2024
TITLE : TYPICAL DRAWINGS
DRG NO : DM/RD/TD/33
SHEET NO : 33