

Government of India
Ministry of Road Transport & Highway



NAME OF THE WORK :-SPECIALISED CONSULTANCY SERVICES FOR 'GOOD FOR TENDER' DESIGN BASED ON DETAILED INVESTIGATIONS, ESTIMATION, SURVEY, COSTING AND PREPARATION OF TECHNICAL SCHEDULES OF EPC DOCUMENTS FOR CONSTRUCTION OF MOREH BYPASS ON NH-39 NEAR INDO-MYANMAR BORDER IN THE STATE OF MANIPUR.

Detailed Project Report

Volume III

Drawing 0

Consultants:-

M/s Choice Consultancy Services Pvt. Ltd.

December 2018



Shree Shakambhari Corporate Park, 156-158 Chakravarti Ashok Society,
J B Nagar, Andheri (E), Mumbai - 99, India
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DRAWINGS

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EXISTING FEATURES

CEMENT/BRICK/MUD ROAD

DRAIN

ELECTRIC LINE/ELECTRIC POLE

GAS LINE

COMPOUND WALL

FENCE

HIGH TENSION LINE

TRANSFORMER

BENCH MARK

ROW PILLAR

BORE WELL

TUBE WELL

NAME BOARD

HANDPUMP

PYLON

TREE

SUMP

HOUSE

POND/RIVER



National Highways & Infrastructure
Development Corporation Limited

REV	DATE	DETAILS OF REVISION	DRA.	CHE.	APPR.
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CONSULTANT



M/s Choice Consultancy Services Pvt. Ltd.
Shree Shakambhari Corporate Park,
Plot No. 156-158, J B Nagar,
Andheri East-400099

NAME OF WORK

"Specialised Consultancy Services for 'Good for Tender' design based on detailed investigations, estimation, survey, costing, preparation of Technical Schedules of EPC documents and Land Acquisition Survey for Construction of Moreh Bypass from NH-39 near Indo-Myanmar Border to Land Custom Port of India to bypass the Moreh Town in the State of Manipur".

DRG NO.	-	IM/MNP-LG-01	R	0
SCALE	AS SHOWN			
TITLE	LEGEND			

PROPOSED FEATURES

CENTRE LINE

CARRIAGEWAY EDGE/
EARTHEN SHOULDER

ROW AS PER
BID DOCUMENT

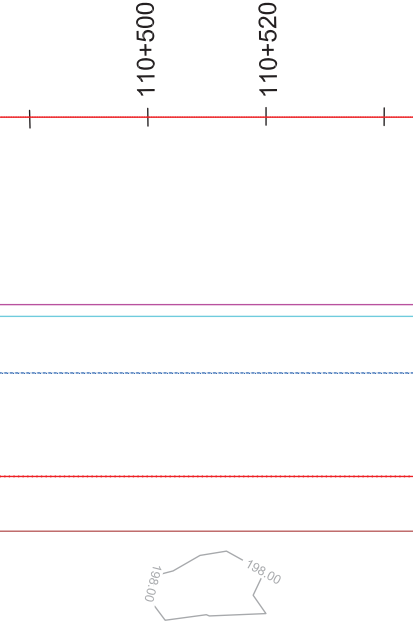
FENCE

TOE LINE

CONTOUR

ABBREVIATION USED

STA	:	STATION
CH	:	CHAINAGE
ELEV	:	ELEVATION
BVCS	:	VERTICAL CURVE BEGINNING STATION
BVCE	:	VERTICAL CURVE BEGINNING ELEVATION
EVCS	:	VERTICAL CURVE ENDING STATION
EVCE	:	VERTICAL CURVE ENDING ELEVATION
PVI	:	POINT OF VERTICAL INTERSECTION
K	:	CURVE COEFFICIENT
LVC	:	LENGTH OF VERTICAL CURVE
A.D.	:	ALGEBRAIC DIFFERENCE
TS	:	TANGENT TO SPIRAL POINT
SC	:	SPIRAL TO CURVE POINT
CS	:	CURVE TO SPIRAL POINT
ST	:	SPIRAL TO TANGENT POINT
PC	:	TANGENT TO CURVE POINT
PT	:	CURVE TO TANGENT POINT
LHS	:	LEFT HAND SIDE
RHS	:	RIGHT HAND SIDE
Lc	:	LENGTH OF CURVE
Ls	:	LENGTH OF SPIRAL
L	:	LENGTH
PI	:	HORIZONTAL INTERSECTION POINT
N	:	NORTHING
E	:	EASTING



DESIGN ALIGNMENT

	PROPOSED CENTER LINE
	CARRIAGEWAY
	SHOULDER
	FOOTPATH
	PROPOSED ROW
	PIPE CULVERT
	BOX / SLAB CULVERT
	MINOR BRIDGE

VERTICAL PROFILE

	FINISHED ROAD LEVELS (FRL)
	GROUND LEVELS BELOW PCL
	SUPER ELEVATION LHS
	SUPER ELEVATION RHS
	HORIZONTAL ALIGNMENT
	VERTICAL ALIGNMENT
	PIPE CULVERT
	BOX / SLAB CULVERT
	MINOR BRIDGE

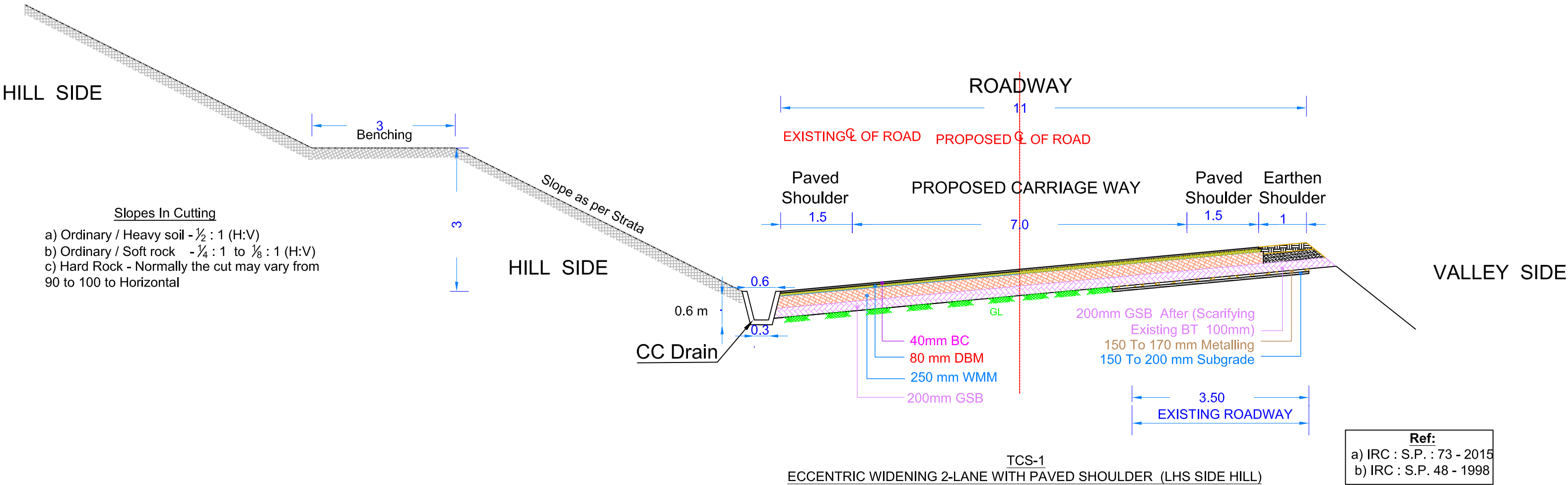
CURVE DETAIL

CURVE No. 7 (RHC)		CH. 0+838	
R	80 m	Es	1.90 m
Δ	22.497 °	Lc	6.41 m
Δ _c	4.591 °	s	0.326 m
Ls	25 m	V	50 kmph
Ts	28.48 m	e	10.00 % %
HIP	631363.926 (E)		
	2682581.795 (N)		

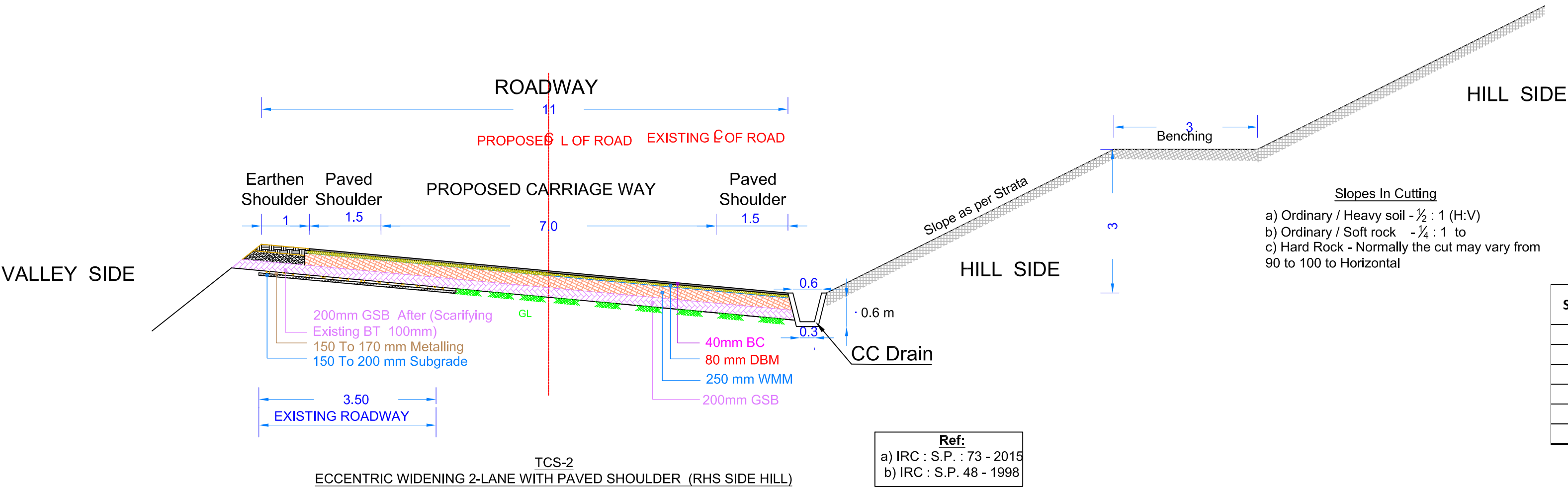
Sl. No.	Chainage		Length	TCS Type	Description
	From	To			
1	0	200	200	Type1	Concentric Widening 2 Lane with Paved Shoulder (LHS Hill)
2	200	250	50	Type3	New Alignment for 2 Lane with Paved Shoulder (Both Side Hill)
3	250	300	50	Type1	Concentric Widening 2 Lane with Paved Shoulder (LHS Hill)
4	300	350	50	Type5	New Alignment for 2 Lane with Paved Shoulder (Both Side Fill)
5	350	380	30	Type1	Concentric Widening 2 Lane with Paved Shoulder (LHS Hill)
6	380	410	30	Type5	New Alignment for 2 Lane with Paved Shoulder (Both Side Fill)
7	410	490	80	Type1	Concentric Widening 2 Lane with Paved Shoulder (LHS Hill)
8	490	520	30	Type5	New Alignment for 2 Lane with Paved Shoulder (Both Side Fill)
9	520	650	130	Type1	Concentric Widening 2 Lane with Paved Shoulder (LHS Hill)
10	650	1150	500	Type3	New Alignment for 2 Lane with Paved Shoulder (Both Side Hill)
11	1150	1480	330	Type2	Concentric Widening 2 Lane with Paved Shoulder (RHS Hill)
12	1480	1560	80	Type5	New Alignment for 2 Lane with Paved Shoulder (Both Side Fill)
13	1560	1590	30	Type2	Concentric Widening 2 Lane with Paved Shoulder (RHS Hill)
14	1590	1630	40	Type5	New Alignment for 2 Lane with Paved Shoulder (Both Side Fill)
15	1630	1730	100	Type3	New Alignment for 2 Lane with Paved Shoulder (Both Side Hill)
16	1730	1910	180	Type2	Concentric Widening 2 Lane with Paved Shoulder (RHS Hill)
17	1910	1950	40	Type3	New Alignment for 2 Lane with Paved Shoulder (Both Side Hill)
18	1950	2060	110	Type2	Concentric Widening 2 Lane with Paved Shoulder (RHS Hill)
19	2060	2150	90	Type5	New Alignment for 2 Lane with Paved Shoulder (Both Side Fill)
20	2150	2170	20	Type2	Concentric Widening 2 Lane with Paved Shoulder (RHS Hill)
21	2170	2390	220	Type3	New Alignment for 2 Lane with Paved Shoulder (Both Side Hill)
22	2390	2510	120	Type5	New Alignment for 2 Lane with Paved Shoulder (Both Side Fill)
23	2510	2520	10	Type1	Concentric Widening 2 Lane with Paved Shoulder (LHS Hill)

 National Highways & Infrastructure Development Corporation Limited							CONSULTANT  M/s Choice Consultancy Services Pvt. Ltd. Shree Shakambhari Corporate Park, Plot No. 156-158, J B Nagar, Andheri East-400099	NAME OF WORK "Specialised Consultancy Services for 'Good for Tender' design based on detailed investigations, estimation, survey, costing, preparation of Technical Schedules of EPC documents and Land Acquisition Survey for Construction of Moreh Bypass from NH-39 near Indo-Myanmar Border to Land Custom Port of India to bypass the Moreh Town (Length=less than 5 Km approx) in the State of Manipur".	DRG NO.	- IM/MNP-TCS- Schedule 01	R	0
	SCALE	AS SHOWN										
	TITLE											
	Typical Cross Sections Schedule											
	REV	DATE	DETAILS OF REVISION	DRA.	CHE.	APPR.						

TYPICAL CROSS SECTIONS



Sl. No.	Chainage		Length
	From	To	
1	0	200	200
2	250	300	50
3	350	380	30
4	410	490	80
5	520	650	130
6	2510	2520	10
Total			500



Sl. No.	Chainage		Length
	From	To	
1	1150	1480	330
2	1560	1590	30
3	1730	1910	180
4	1950	2060	110
5	2150	2170	20
Total			670

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Development Corporation Limited

REV	DATE	DETAILS OF REVISION	DRA.	CHE.	APPR.

CONSULTANT



M/s Choice Consultancy Services Pvt. Ltd.
Shree Shakambhari Corporate Park,
Plot No. 156-158, J B Nagar,
Andheri East-400099

NAME OF WORK

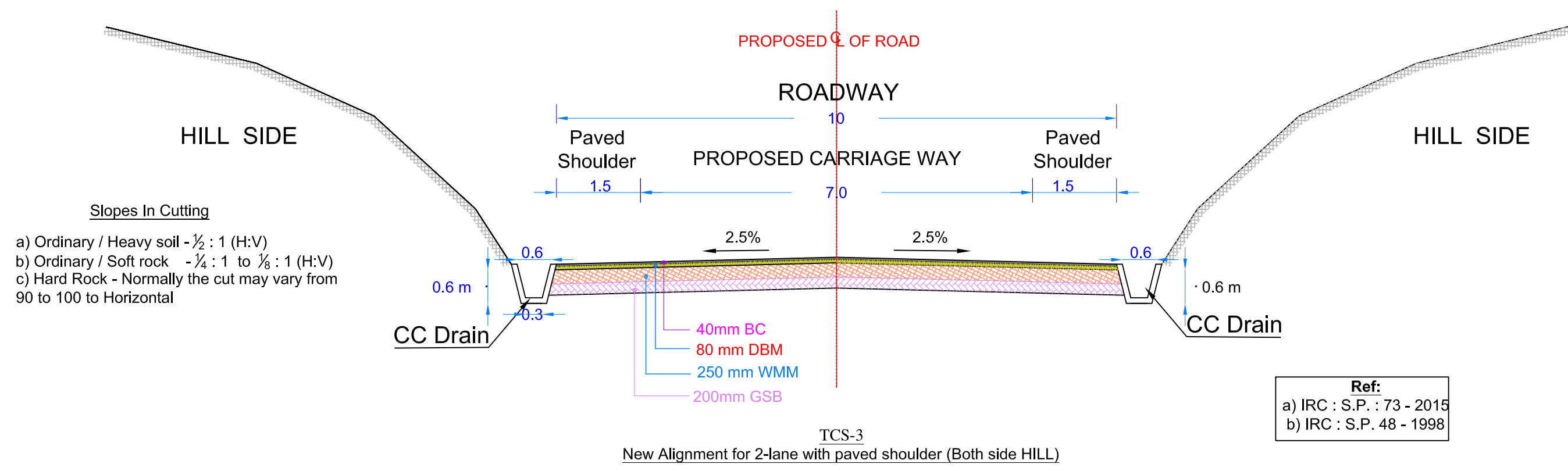
"Specialised Consultancy Services for 'Good for Tender' design based on detailed investigations, estimation, survey, costing, preparation of Technical Schedules of EPC documents and Land Acquisition Survey for Construction of Moreh Bypass from NH-39 near Indo-Myanmar Border to Land Custom Port of India to bypass the Moreh Town (Length=less than 5 Km approx) in the State of Manipur".

DRG NO. - IM/MNP-TCS-01 R 0

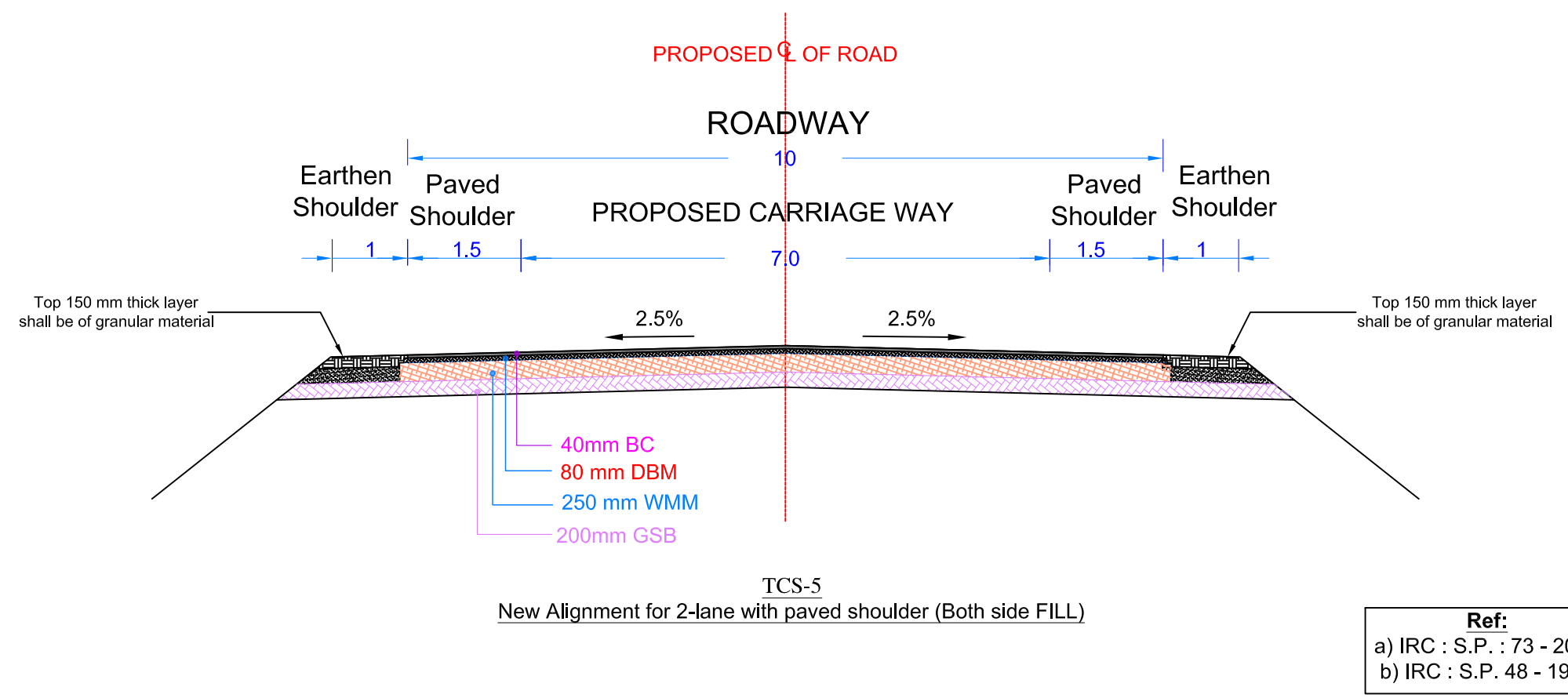
SCALE AS SHOWN

TITLE

Typical Cross Sections
TCS 1 & 2



Sl. No.	Chainage		Length
	From	To	
1	200	250	50
2	650	1150	500
3	1630	1730	100
4	1910	1950	40
5	2170	2390	220
Total			910



Sl. No.	Chainage		Length
	From	To	
1	300	350	50
2	380	410	30
3	490	520	30
4	1480	1560	80
5	1590	1630	40
6	2060	2150	90
7	2390	2510	120
Total			440

PLAN & PROFILE

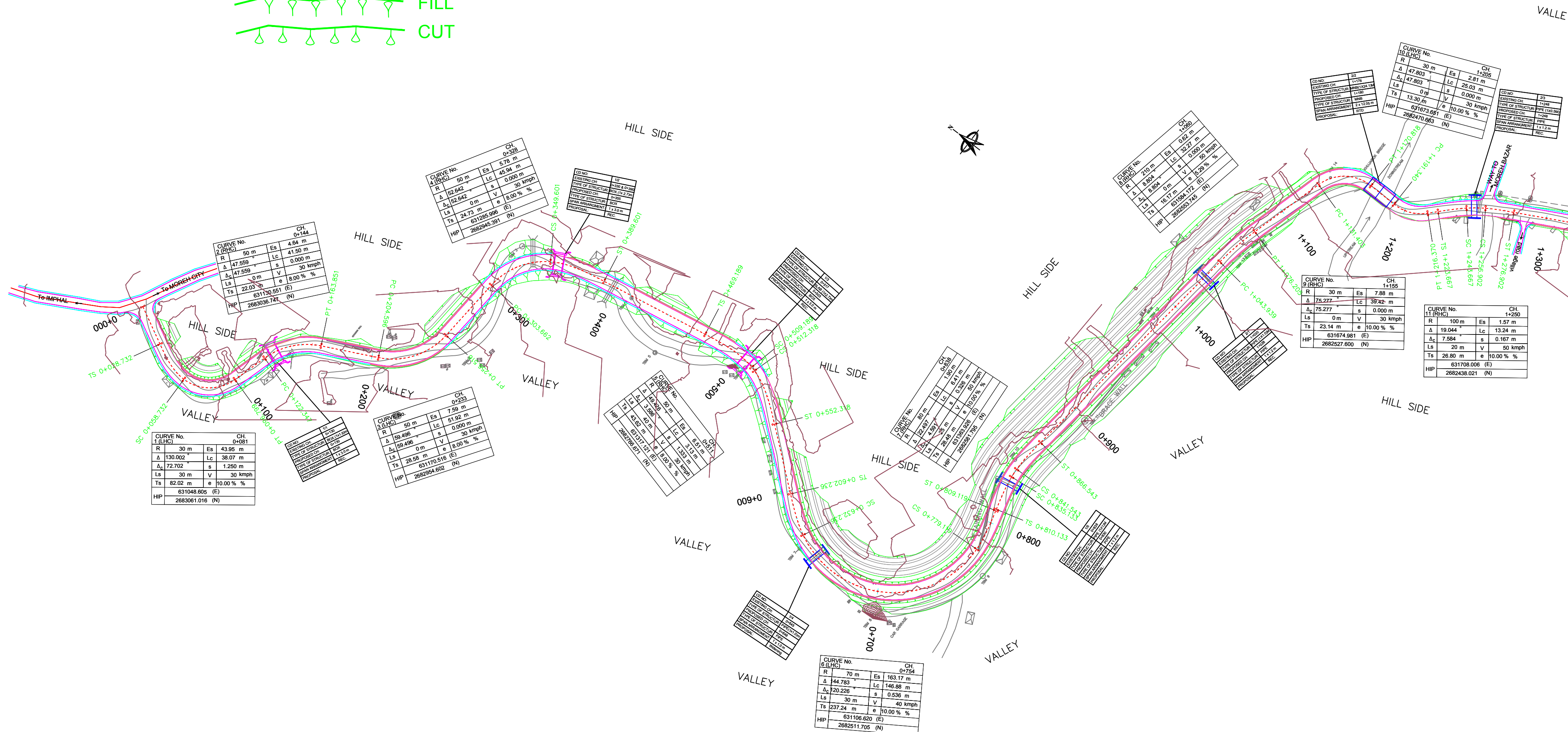


TO IMPHAL

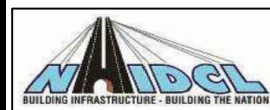
- PROPOSED CENTRE LINE
- PROPOSED CARRIAGEWAY EDGE
- EARTHEN SHOULDER
- LINED DRAIN
- BENCHING
- FILL
- CUT

CONTOUR

TO MYANMAR



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National Highways & Infrastructure Development Corporation Limited

CONSULTANT

M/s Choice Consultancy Services Pvt. Ltd.
Shree Shakambhari Corporate Park,
Plot No. 156-158, J B Nagar,
Andheri East-400099

NAME OF WORK

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DRG NO. - IM/MNP-PP-01

SCALE AS SHOWN

TITLE

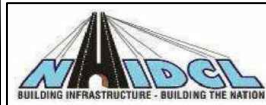
ALIGNMENT PLAN
KM 0+000 TO KM 1+000

← TO IMPHAL

TO MYANMAR →



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Development Corporation Limited

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DRG NO. - IM/MNP-PP-02

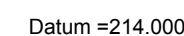
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SCALE AS SHOWN

TITLE
PROFILE
KM 0+000 TO KM 0+500

TO IMPHAL

TO MYANMAR



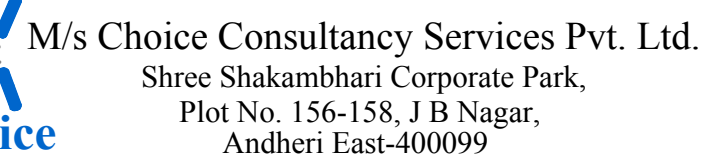
FINISHED ROAD LEVELS (FRL)	249.659	249.659	248.399	247.150	245.920	244.710	243.510	242.310	241.110	239.910	238.710	237.510	236.310	235.110	233.910	232.710	231.510	230.310	229.110	227.910	226.710	225.510	224.310	223.110	221.910	220.710	219.510	
GROUND LEVELS BELOW PCL	246.120	245.246	244.254	243.400	242.689	242.139	241.820	241.59	241.110	240.801	240.069	237.336	236.590	235.480	233.583	232.744	231.660	230.876	230.491	230.172	229.898	229.631	229.390	229.171	228.986	228.826	228.684	
GROUND @ 6M ON LHS	249.309	245.533	248.793	246.037	242.904	242.117	241.355	240.735	240.958	240.622	240.921	244.276	243.328	242.708	241.530	240.272	239.532	238.813	238.491	238.045	237.645	237.286	236.955	236.654	236.386	236.141	235.910	
GROUND @ 6M ON RHS	246.523	245.286	244.280	243.542	242.904	242.117	241.355	240.735	240.958	240.622	240.921	244.276	243.328	242.708	241.530	240.272	239.532	238.813	238.491	238.045	237.645	237.286	236.955	236.654	236.386	236.141	235.910	
HORIZONTAL ALIGNMENT																												
VERTICAL ALIGNMENT																												
SUPER ELEVATION																												
CHAINAGE	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	0+780	0+800	0+820	0+840	0+860	0+880	0+900	0+920	0+940	0+960	0+980	1+000		

CLIENT



REV	DATE	DETAILS OF REVISION	DRA.	CHE.	APPR.

CONSULTANT



NAME OF WORK

"Specialised Consultancy Services for 'Good for Tender' design based on detailed investigations, estimation, survey, costing, preparation of Technical Schedules of EPC documents and Land Acquisition Survey for Construction of Moreh Bypass from NH 39 near Indo-Myanmar Border to Land Custom Port of India to bypass the Moreh Town (Length=less than 5 Km approx) in the State of Manipur".

DRG NO.	-	IM/MNP-PP-03	R	C
SCALE	AS SHOWN			
TITLE	PROFILE KM 0+500 TO KM 1+000			

[illegible]

Y Y Y Y Y Y

VALLEY

VALLEY

VALLEY

HILL SIDE

~~HILL SIDE~~

HILL SIDE

HILL SIDE

REV	DATE	DETAILS OF REVISION	DRA.	CHE.	APPR.

 M/s Choice Consultancy Services Pvt. Ltd.
Shree Shakambhari Corporate Park,
Plot No. 156-158, J B Nagar,
Andheri East-400099

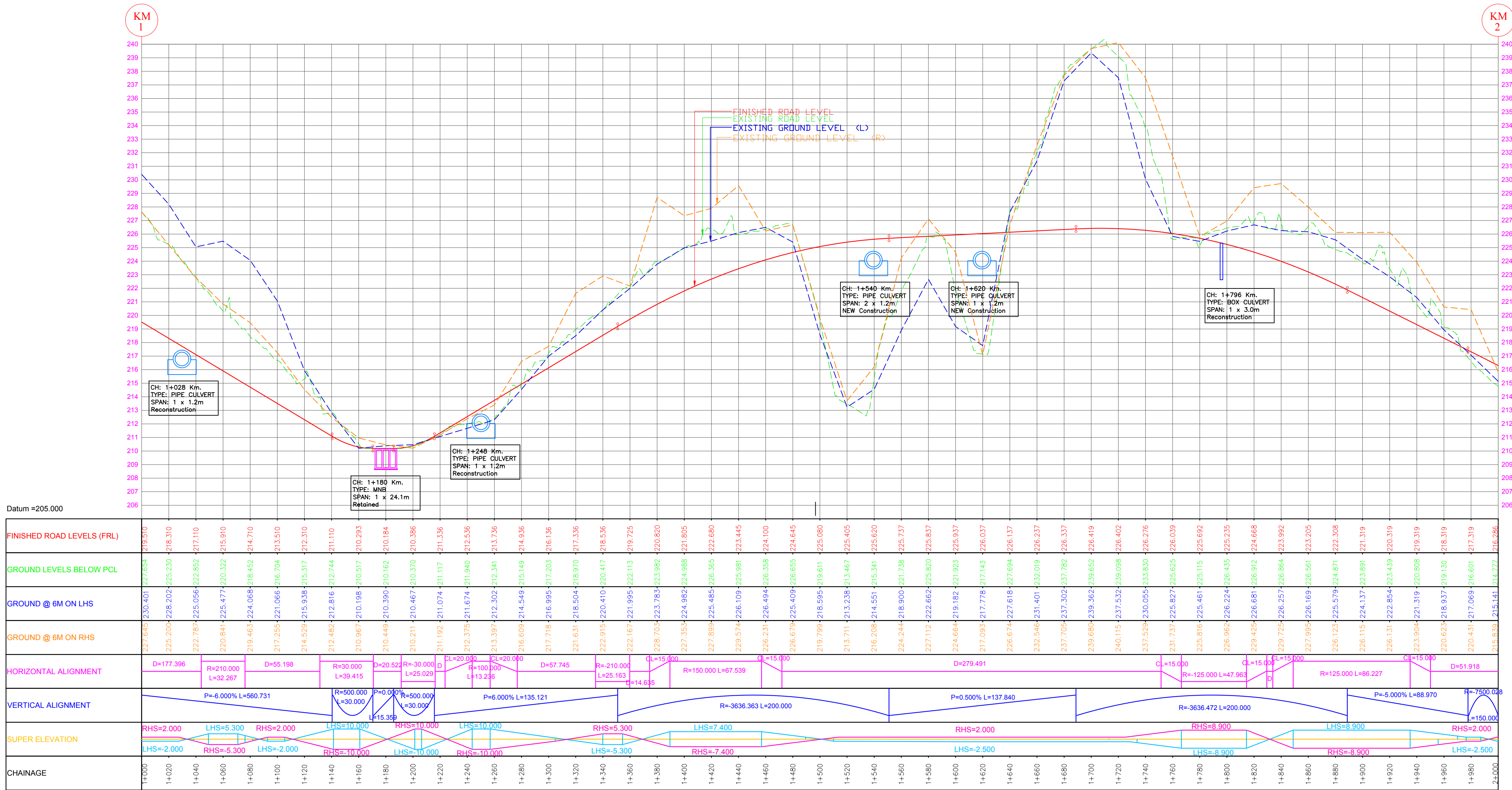
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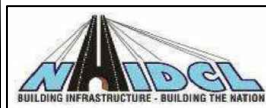


TO IMPHAL

TO MYANMAR



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National Highways & Infrastructure
Development Corporation Limited

CONSULTANT



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DRG NO.

- IM/MNP-PP-05

R

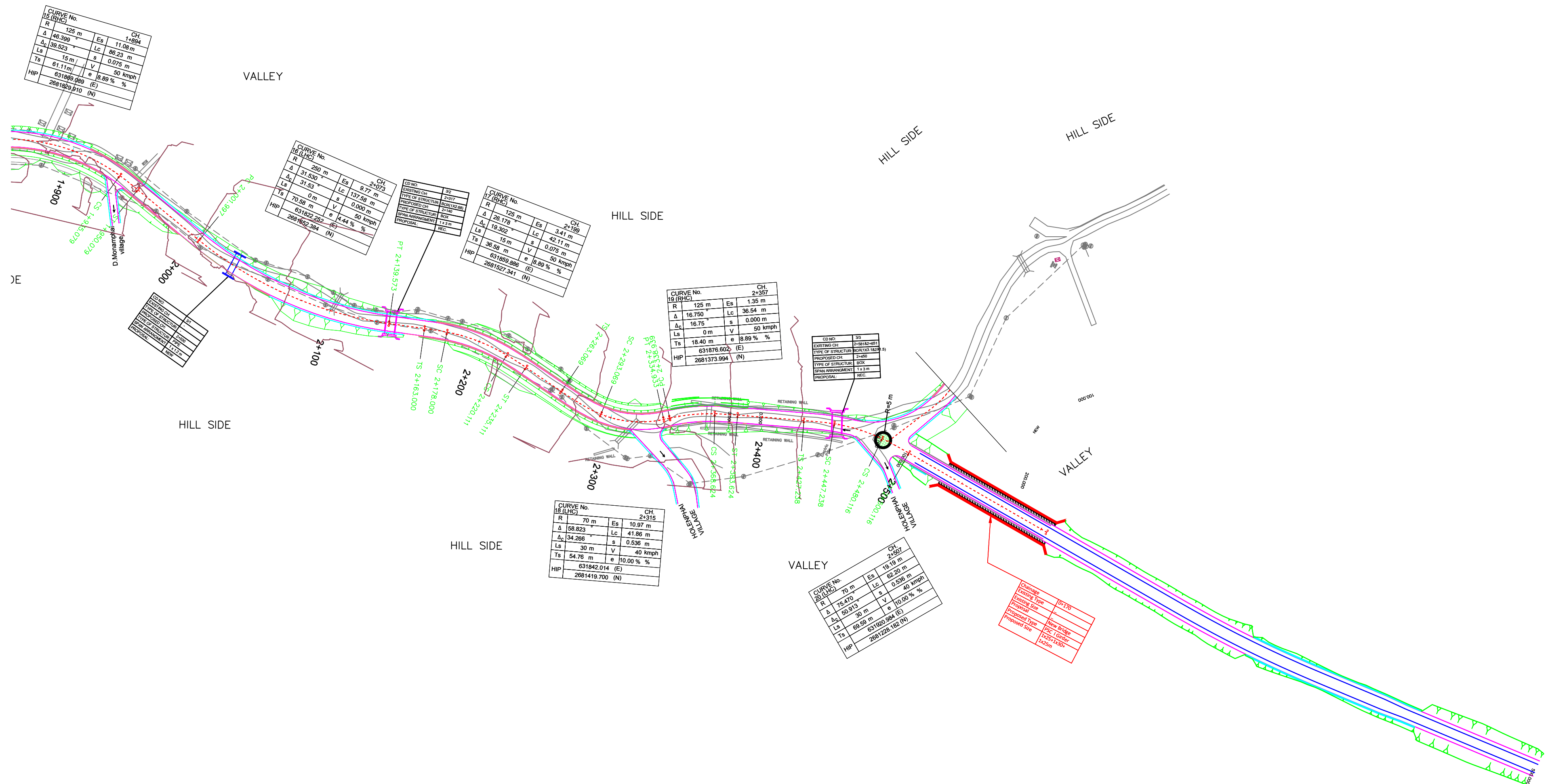
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SCALE

AS SHOWN

TITLE

PROFILE
KM 1+000 TO KM 2+000



REV	DATE	DETAILS OF REVISION	DRA.	CHE.	APPR



Choice
Engineering Excellence



Choice
Engineering Excellence

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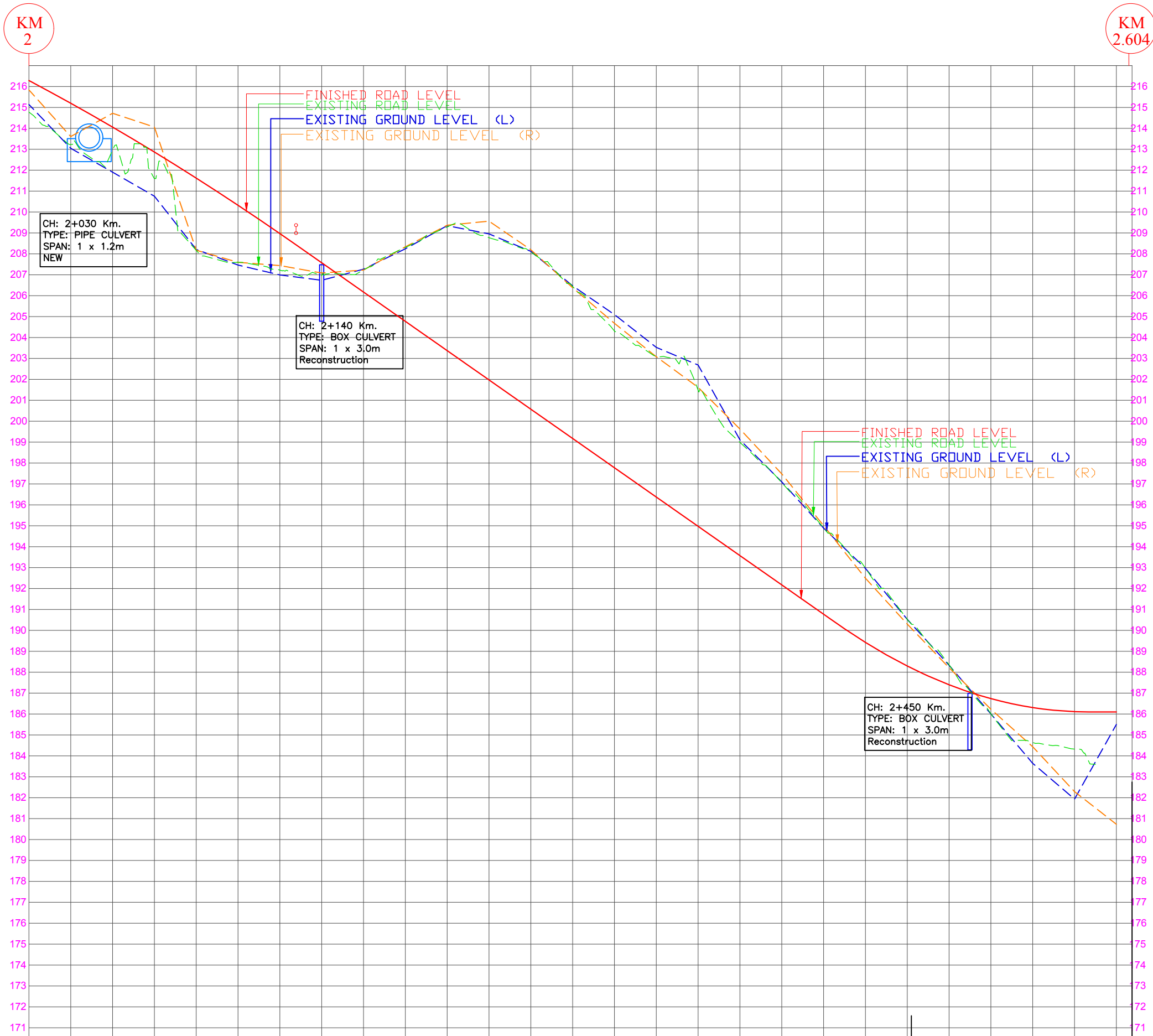
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TITLE	ALIGNMENT PLAN KM 2+000 TO KM 2+735
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TO IMPHAL

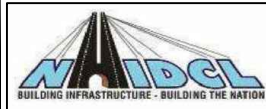
TO MYANMAR



Datum =170.000

FINISHED ROAD LEVELS (FRL)	216.286	215.200	214.060	212.868	211.622	210.322	208.970	207.574	206.174	204.774	203.374	201.974	200.574	199.174	197.774	196.374	194.974	193.574	192.174	190.774	189.425	188.296	187.400	186.738	186.309	186.113	186.100
GROUND LEVELS BELOW PCL	214.777	213.227	212.961	211.598	208.170	207.595	207.223	206.956	207.236	208.307	209.283	208.773	208.090	206.438	204.308	203.112	201.481	198.986	197.063	194.898	192.974	190.525	188.353	186.016	184.637	184.324	
GROUND @ 6M ON LHS	215.141	213.047	211.905	210.757	208.212	207.465	206.992	206.736	207.267	208.241	209.348	208.954	208.122	206.469	205.097	203.529	202.685	199.110	197.097	194.890	192.963	190.527	188.331	186.006	183.643	181.934	185.503
GROUND @ 6M ON RHS	215.839	213.607	214.721	214.063	208.175	207.596	207.440	207.083	207.227	208.336	209.369	209.563	208.196	206.382	204.679	203.081	201.619	199.624	197.481	195.009	192.493	190.301	188.215	186.231	184.436	182.291	180.731
HORIZONTAL ALIGNMENT																											
VERTICAL ALIGNMENT																											
SUPER ELEVATION																											
CHAINAGE	2+000	2+020	2+040	2+060	2+080	2+100	2+120	2+140	2+160	2+180	2+200	2+220	2+240	2+260	2+280	2+300	2+320	2+340	2+360	2+380	2+400	2+420	2+440	2+460	2+480	2+500	2+520

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DRG NO.

- IM/MNP-PP-07

R

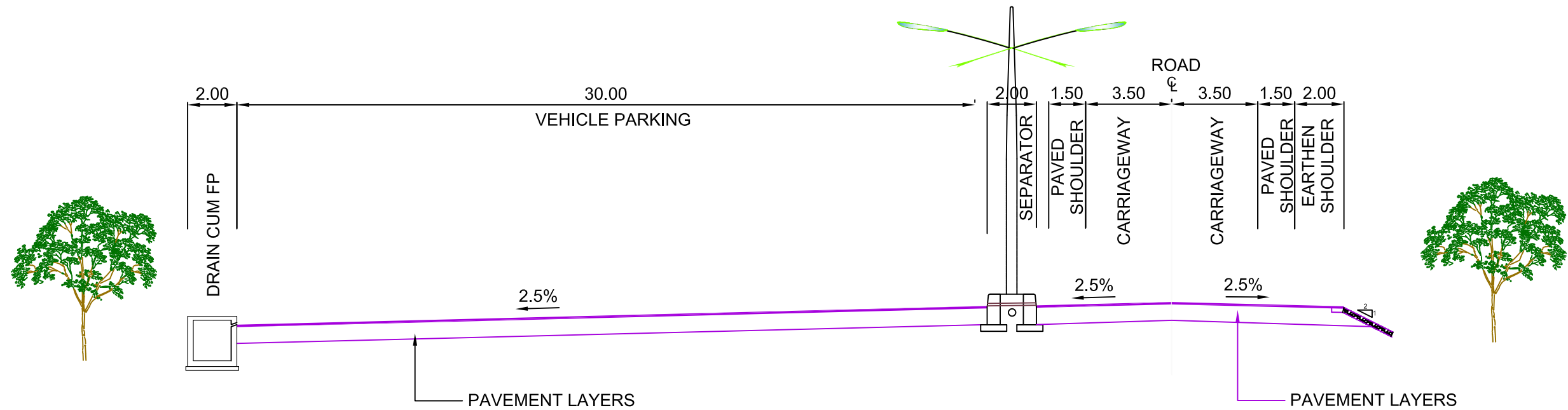
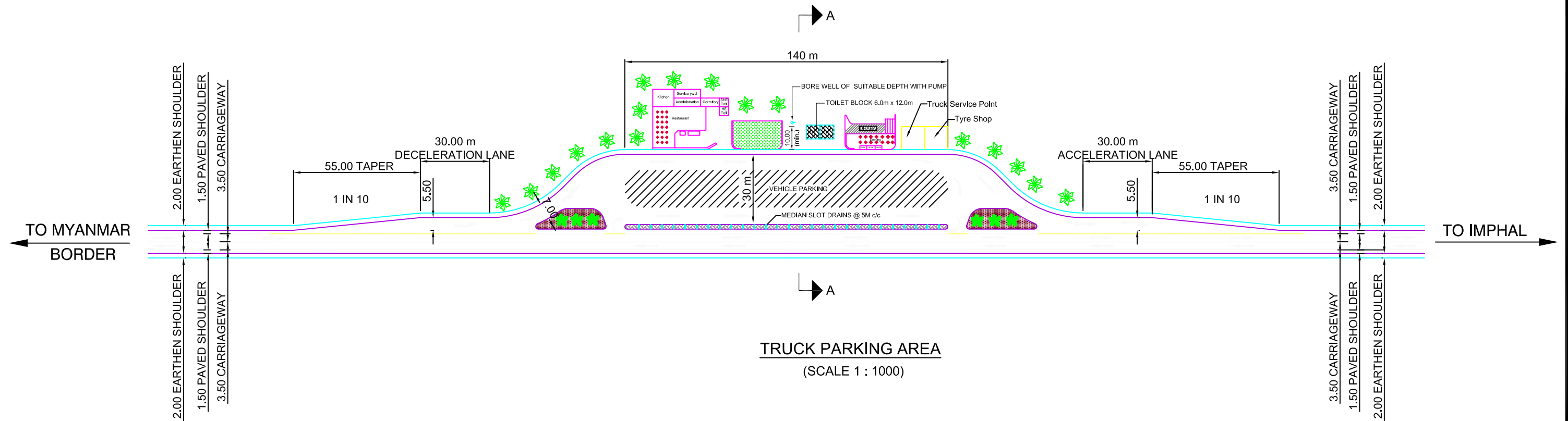
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SCALE

AS SHOWN

TITLE

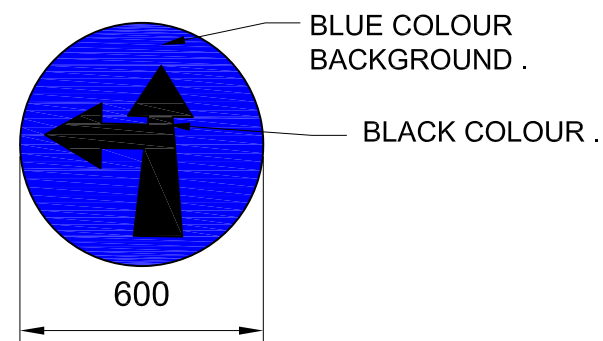
PROFILE
KM 2+000 TO KM 2+520



- NOTES:**
- ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 - FLEXIBLE PAVEMENT HAS BEEN CONSIDERED AT TRUCK PARKING AREA.
 - STREET LIGHTING SHALL BE PROVIDED AFTER DISCUSSION WITH AUTHORITY.

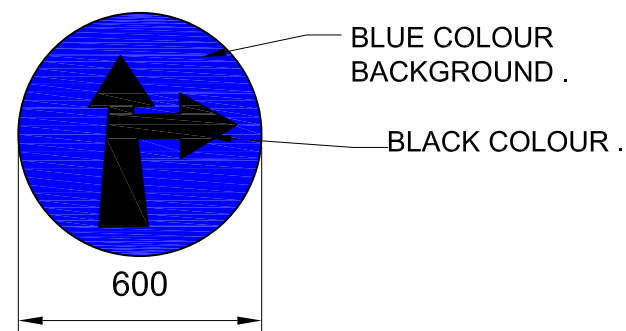
 National Highways & Infrastructure Development Corporation Limited							CONSULTANT  M/s Choice Consultancy Services Pvt. Ltd. Shree Shakambhari Corporate Park, Plot No. 156-158, J B Nagar, Andheri East-400099	NAME OF WORK "Specialised Consultancy Services for 'Good for Tender' design based on detailed investigations, estimation, survey, costing, preparation of Technical Schedules of EPC documents and Land Acquisition Survey for Construction of Moreh Bypass from NH-39 near Indo-Myanmar Border to Land Custom Port of India to bypass the Moreh Town in the State of Manipur".	DRG NO.	-	IM/MNP-TLB-01	R	0
	SCALE	AS SHOWN											
	TITLE												
	TYPICAL LAYOUT FOR TRUCK LAY BAY												
	REV	DATE	DETAILS OF REVISION	DRA.	CHE.	APPR.							

SIGNAGE DETAILS



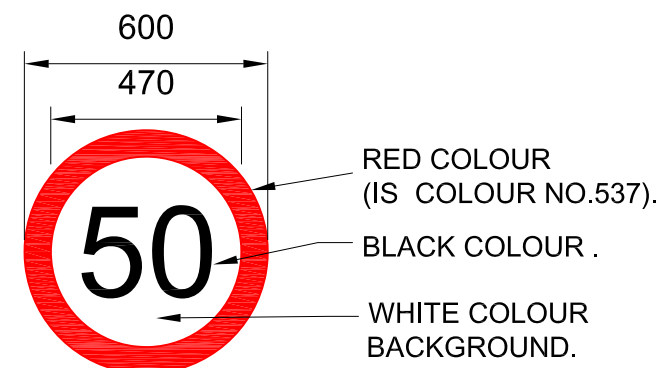
COMPULSARY AHEAD
OR TURN RIGHT

S-1



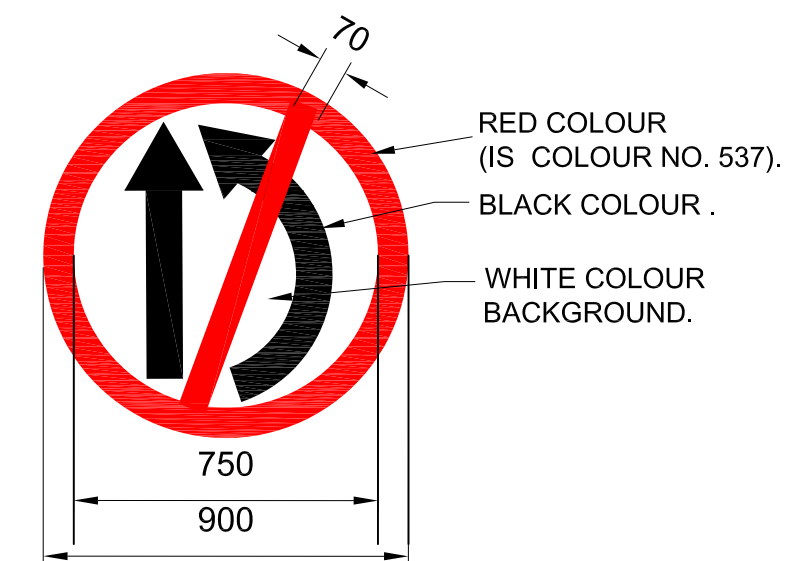
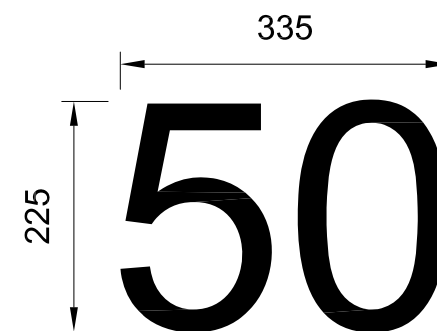
COMPULSARY AHEAD
OR TURN LEFT

S-2



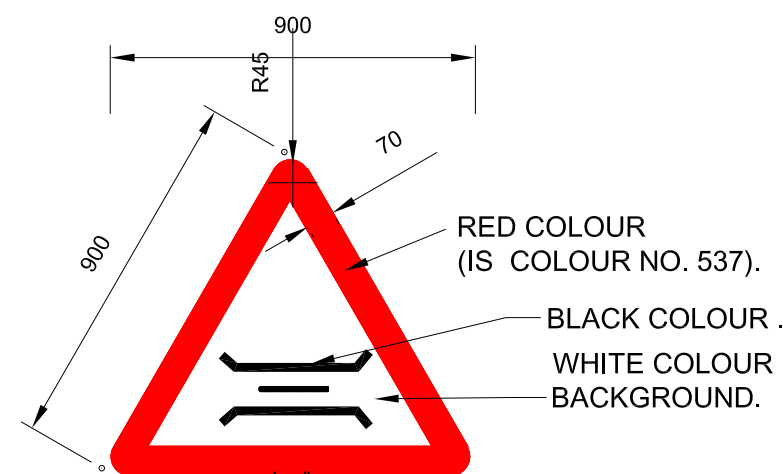
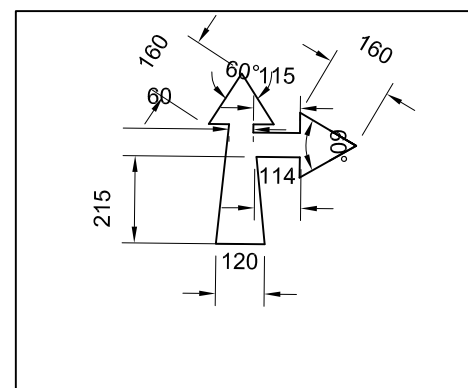
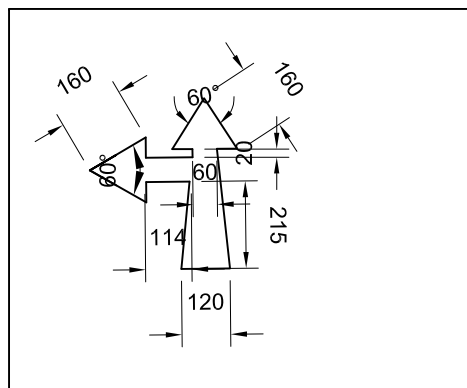
SPEED LIMIT.

S-3



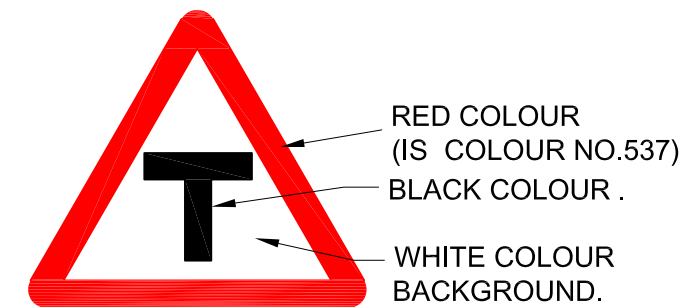
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S-4



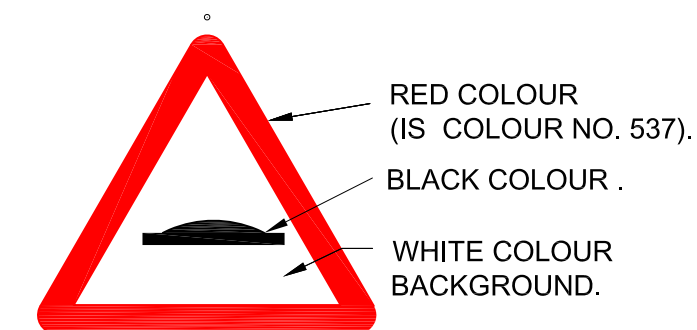
BRIDGE SING

S-7



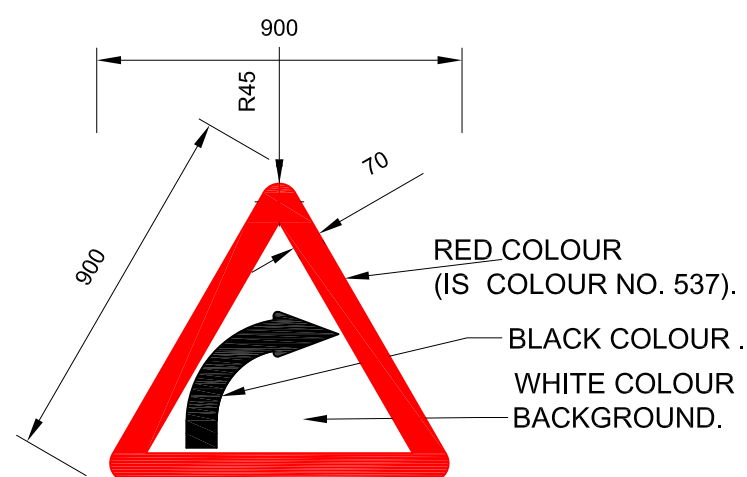
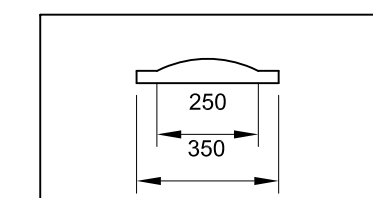
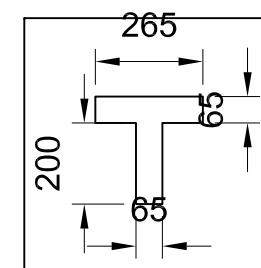
T- INTERSECTION.

S-8



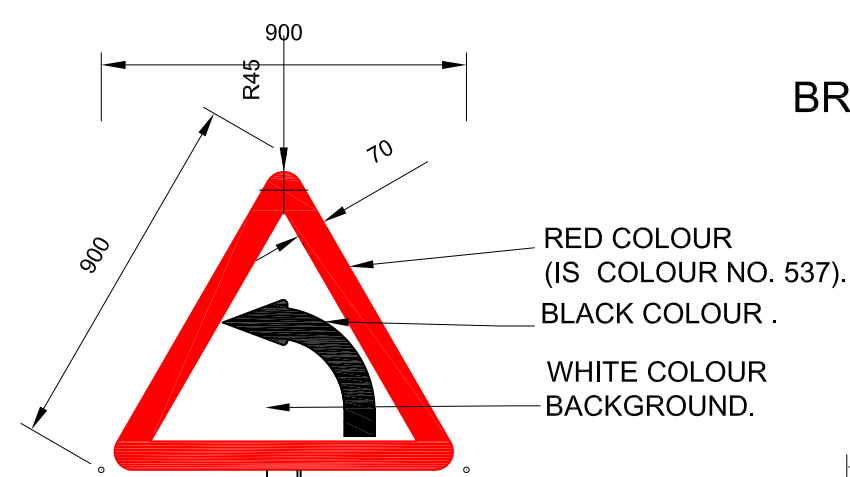
SPEED BUMP.

S-9



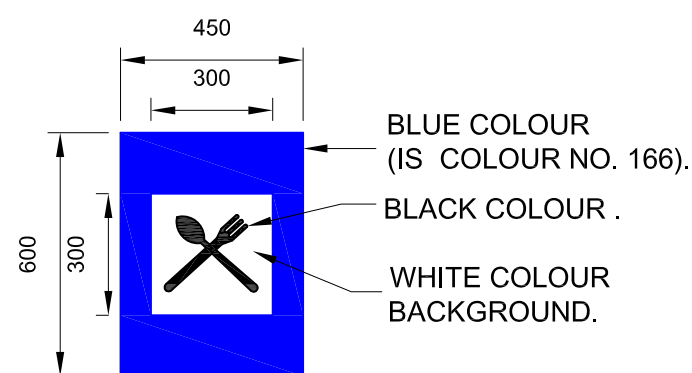
RIGHT HAND SIDE CURVE.

S-5



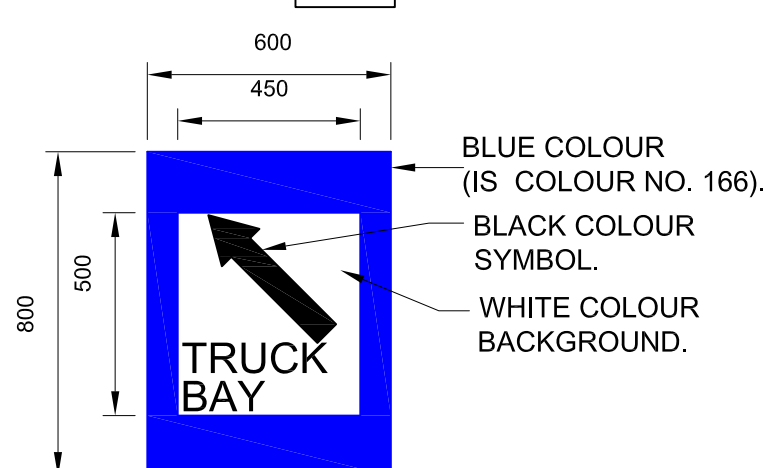
LEFT HAND SIDE CURVE.

S-6



RESTAURENT.

S-10

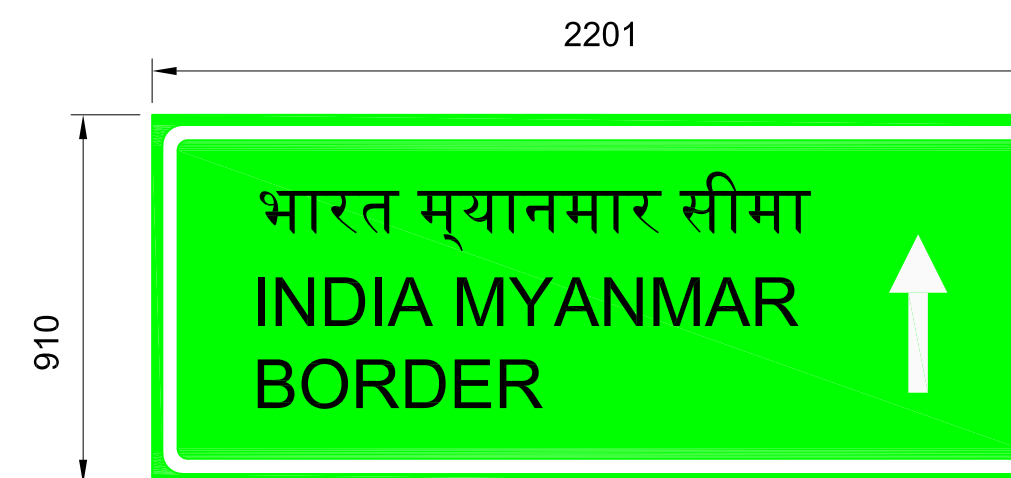


TRUCK LAY BAY SIGN

S-11



S-12

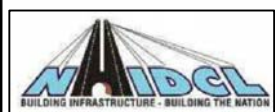


S-13

NOTES

1. ALL DIMENSIONS ARE IN mm UNLESS SPECIFIED.
2. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

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National Highways & Infrastructure
Development Corporation Limited

CONSULTANT



M/s Choice Consultancy Services Pvt. Ltd.
Shree Shakambhari Corporate Park,
Plot No. 156-158, J B Nagar,
Andheri East-400099

NAME OF WORK

"Specialised Consultancy Services for 'Good for Tender' design based on detailed investigations, estimation, survey, costing, preparation of Technical Schedules of EPC documents and Land Acquisition Survey for Construction of Morch Bypass from NH-39 near Indo-Myanmar Border to Land Custom Port of India to bypass the Morch Town in the State of Manipur".

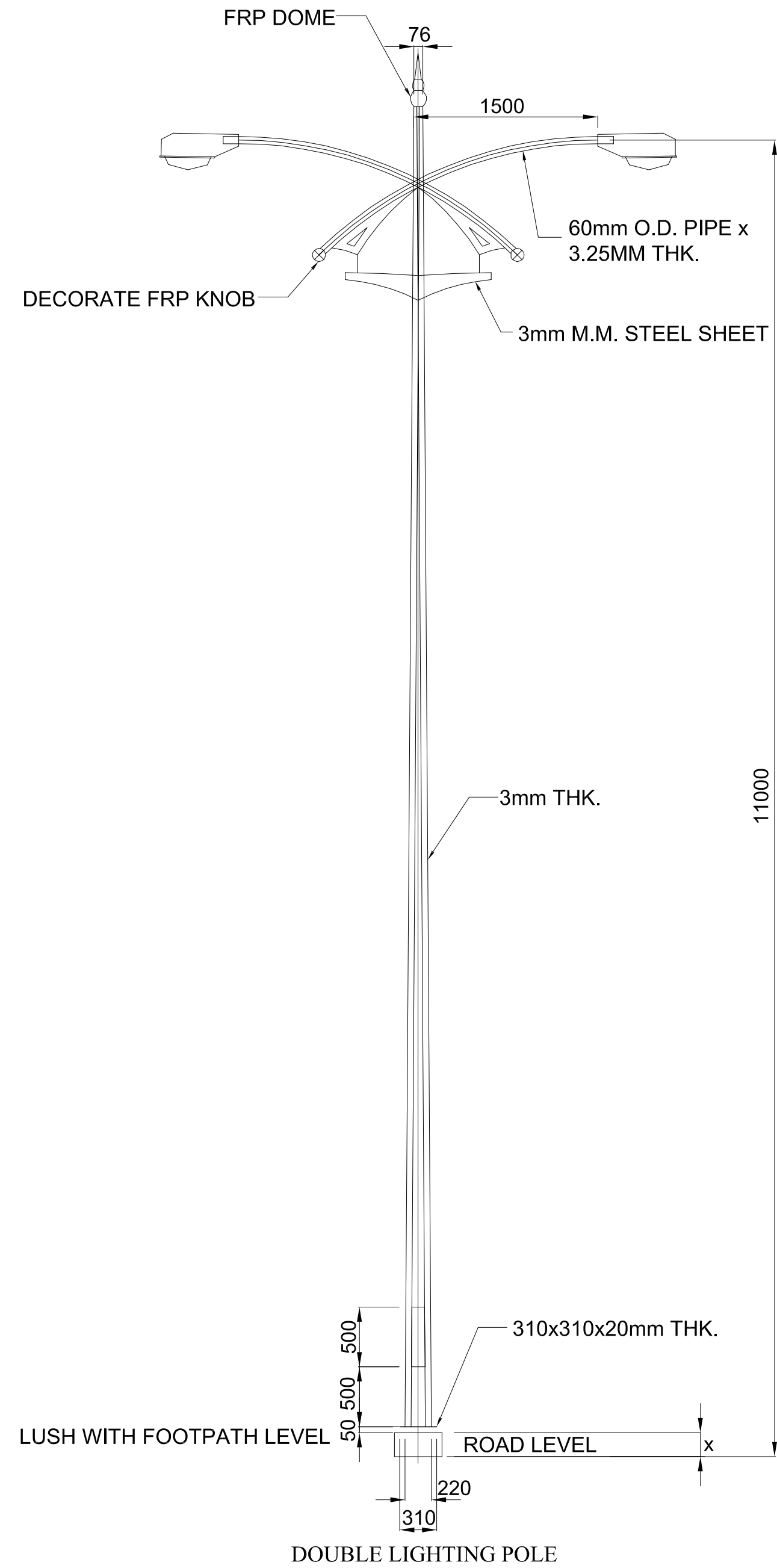
DRG NO. IM/MNP/SD/01 R 0

SCALE AS SHOWN

TITLE SIGNAGE DETAILS

REV	DATE	DETAILS OF REVISION	DRA.	CHE.	APPR.
R0	12.01.17	SIGNAGE DETAILS	VZ	SK	PN

TYPICAL DETAILS OF STREET LIGHT



NOTES

1. DO NOT SCALE THE DRAWING FOLLOW ONLY WRITTEN DIMENSIONS.
2. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METRES.
3. THE ALIGNMENT SHOWN IS BASED ON SITE ENQUIRY ONLY AND SUBJECT TO CONFIRMATION FROM THE REVENUE AUTHORITY.

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R0	12.01.17	TYPICAL DETAILS OF STREET LIGHT	VZ	SK	PN
REV	DATE	DETAILS OF REVISION	DRA.	CHE.	APPR.

CONSULTANT



M/s Choice Consultancy Services Pvt. Ltd.
Shree Shakambhari Corporate Park,
Plot No. 156-158, J B Nagar,
Andheri East-400099

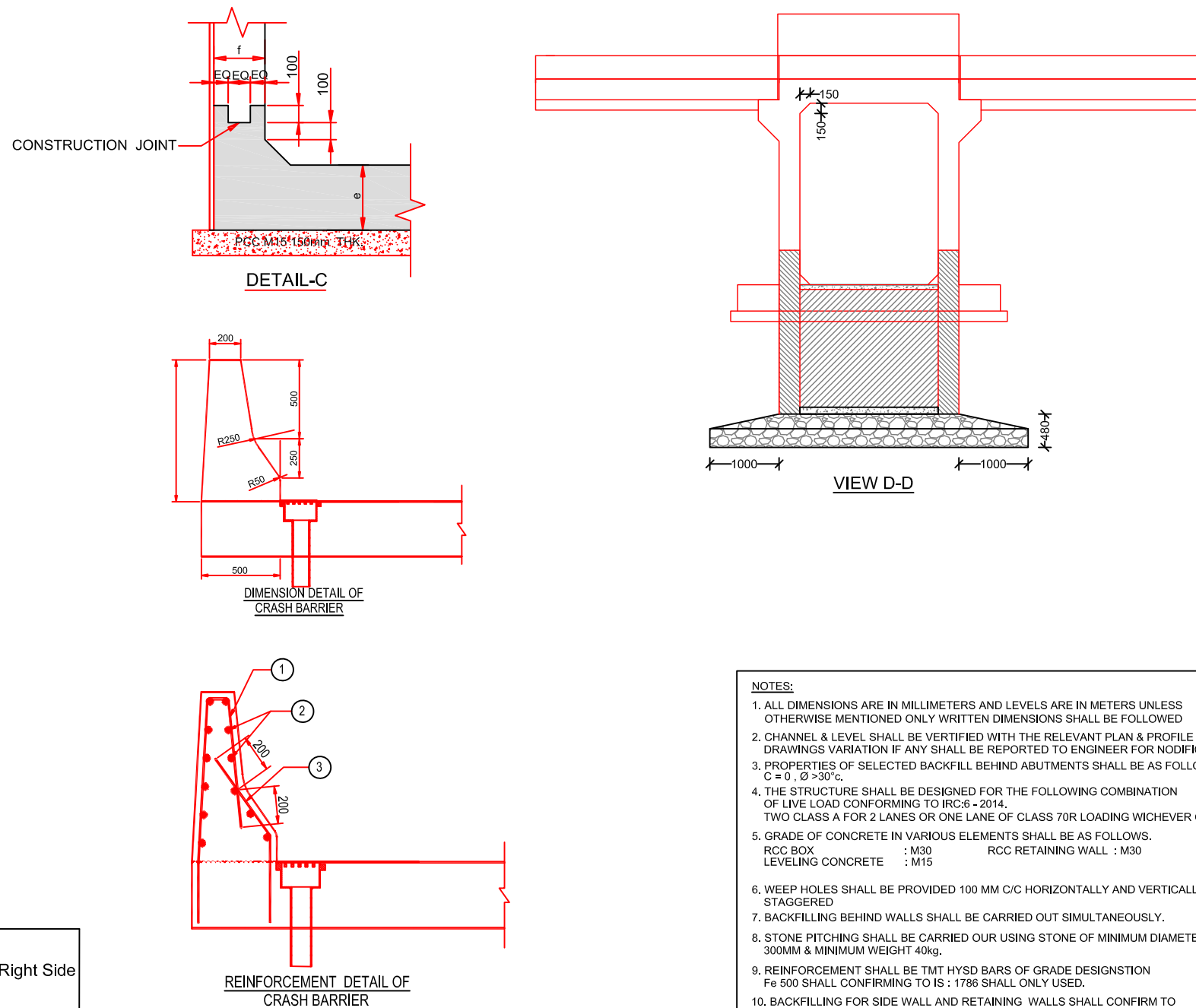
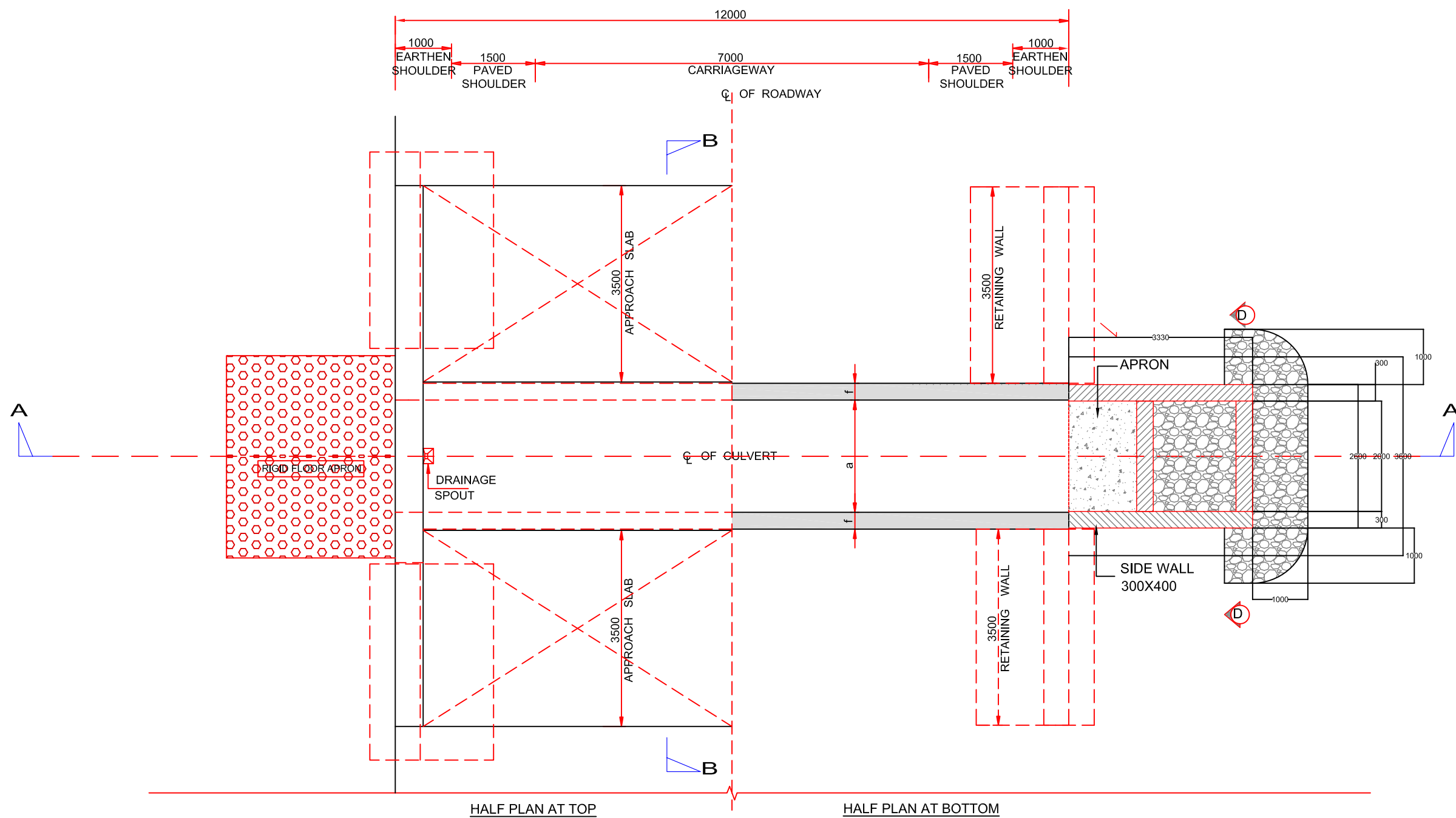
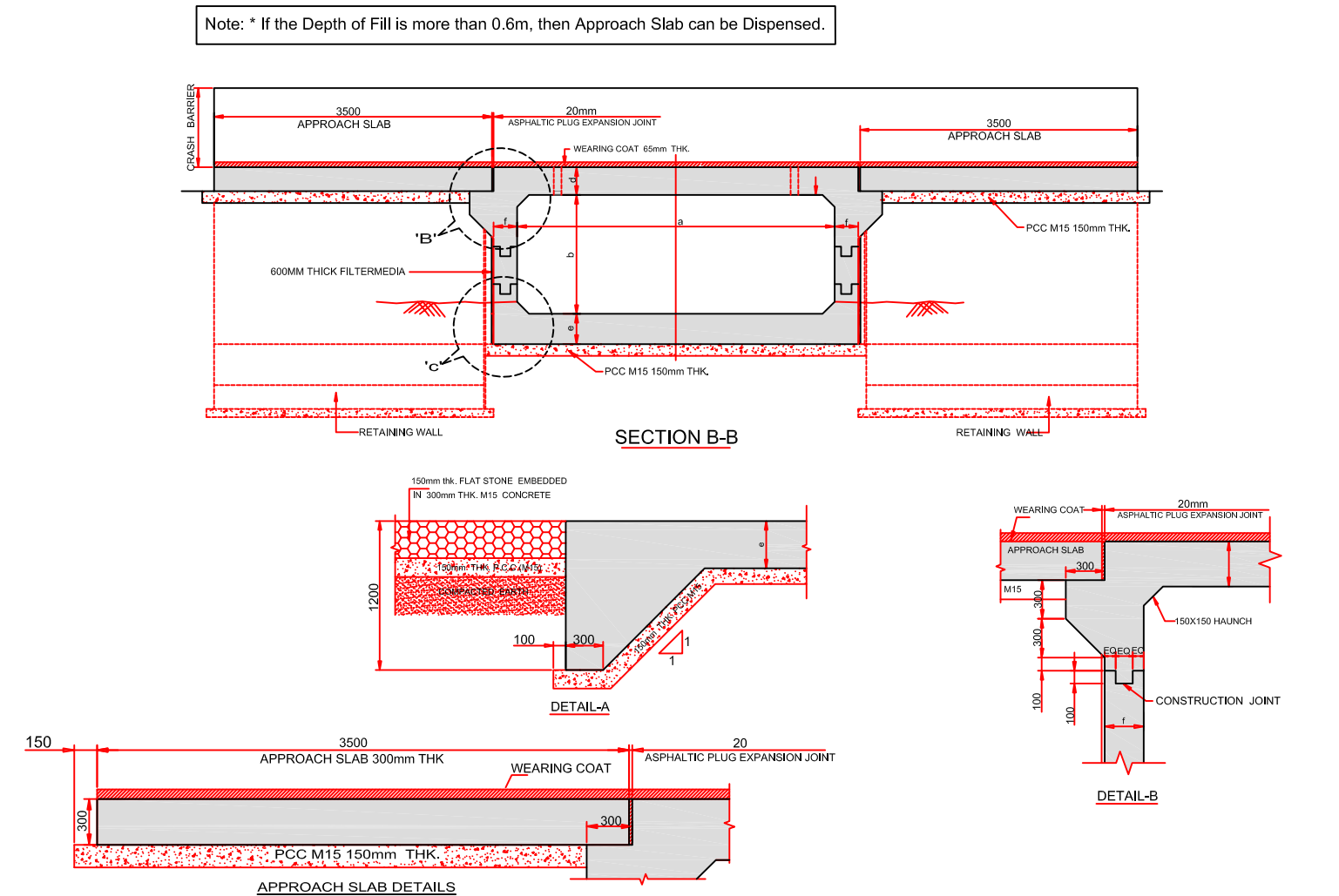
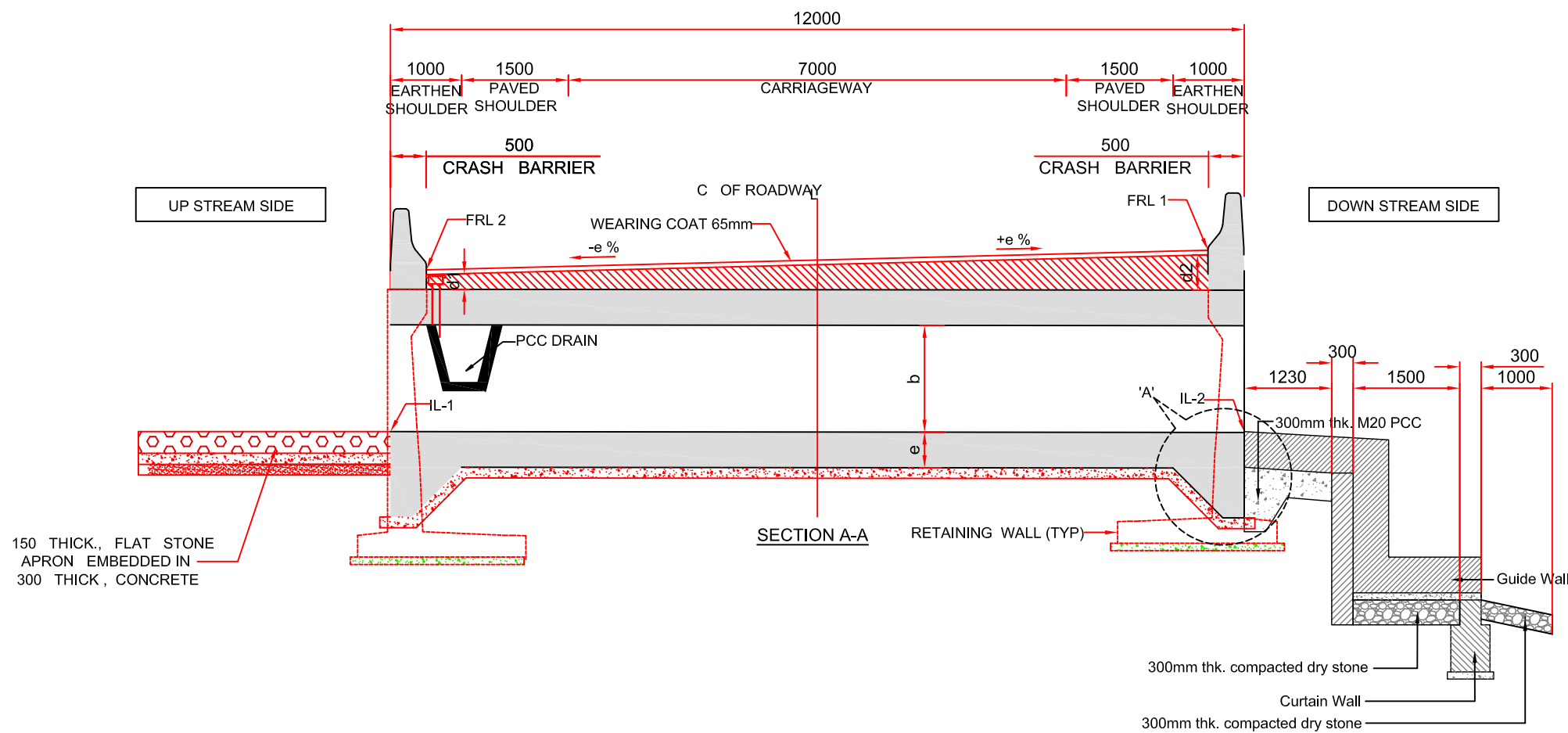
NAME OF WORK

"Specialised Consultancy Services for 'Good for Tender' design based on detailed investigations, estimation, survey, costing, preparation of Technical Schedules of EPC documents and Land Acquisition Survey for Construction of Morch Bypass from NH-39 near Indo-Myanmar Border to Land Custom Port of India to bypass the Morch Town in the State of Manipur".

DRG NO.	IM/MNP/SL/01	R	0
SCALE	AS SHOWN		
TITLE	TYPICAL DETAILS OF STREET LIGHT		

STRUCTURE DRAWING

TYPICAL GENERAL ARRANGEMENT DRAWINGS

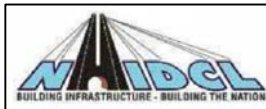


SCHEDULE OF SINGLE VENT BOX CULVERT FOR NEW AND RE-CONSTRUCTION																			Left Side	Right Side		
Sl. No.	Existing Chainage	Design Chainage	No. of vents	DIMENSIONS					Required Bearing Capacity kN/m ²	Type of Cross Section	Proposed Width of Box mm	e % LHS	e % RHS	FRL1 'm'	FRL2 'm'	Invert Level 'm'		EARTH CUSHION d1 'm'			EARTH CUSHION d2 'm'	Flow Direction
				Span a (mm)	Height b (mm)	d (mm)	e (mm)	f (mm)								IL-1	IL-2					
1	2+651	2+450	1	3000	3000	350	400	350	100	TYPE-5	12000	-6.0	+6.0	189.486	190.206	185.548	185.536	0.600	1.320	LHS TO RHS	Valley	Valley
2	NEW	2+520	1	3000	3000	350	400	350	100	TYPE-1	12000	-10.0	+10.0	185.046	186.246	180.443	180.431	1.265	2.465	LHS TO RHS	Hill	Valley
3	0+645	0+648	1	2000	2000	250	300	250	100	TYPE-1	12000	-10.0	+10.0	241.23	240.03	237.792	237.78	0.60	1.20	LHS TO RHS	Hill	Valley
4	1+030	1+028	1	2000	2000	250	300	250	100	TYPE-3	12000	-1.28	+1.28	217.907	217.753	215.515	215.503	0.0	0.154	LHS TO RHS	Hill	Hill
5	NEW	1+470	1	2000	2000	250	300	250	100	TYPE-5	12000	-2.0	+2.0	225.74	225.50	214.312	214.30	8.95	9.190	LHS TO RHS	Valley	Valley

SCHEDULE FOR REINFORCEMENT FOR APPROACH SLAB & RCC CRASH BARRIER			
BAR NOTATION	PATTERN OF BONDING (NOT TO SCALE)	BAR DIA In mm	BAR SPACING In mm
①		16	150
②		12	200
③		16	150

- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED
 - CHANNEL & LEVEL SHALL BE VERIFIED WITH THE RELEVANT PLAN & PROFILE. DRAWINGS VARIATION IF ANY SHALL BE REPORTED TO ENGINEER FOR MODIFICATION
 - PROPERTIES OF SELECTED BACKFILL BEHIND ABUTMENTS SHALL BE AS FOLLOWS C & D, Ø > 30°C.
 - THE STRUCTURE SHALL BE DESIGNED FOR THE FOLLOWING COMBINATION OF LIVE LOAD CONFORMING TO IRC-6 - 2014. TWO CLASS A FOR 2 LANES OR ONE LANE OF CLASS 70R LOADING WHICHEVER GOVERNS.
 - GRADE OF CONCRETE IN VARIOUS ELEMENTS SHALL BE AS FOLLOWS.
RCC BOX : M30
LEVELING CONCRETE : M15
 - WEEP HOLES SHALL BE PROVIDED 100 MM C/C HORIZONTALLY AND VERTICALLY STAGGERED
 - BACKFILLING BEHIND WALLS SHALL BE CARRIED OUT SIMULTANEOUSLY.
 - STONE PITCHING SHALL BE CARRIED OUT USING STONE OF MINIMUM DIAMETER 300MM & MINIMUM WEIGHT 40kg.
 - REINFORCEMENT SHALL BE TMT HYSD BARS OF GRADE DESIGNATION Fe 500 SHALL CONFORMING TO IS : 1786 SHALL ONLY USED.
 - BACKFILLING FOR SIDE WALL AND RETAINING WALLS SHALL CONFORM TO SPECIFICATIONS APPENDIX - 6 OF IRC : 78 - 2014
 - COMPRESSIVE FILLER BOARD SHALL BE PROVIDED IN EXPANSION GAP BETWEEN BOX AND SOFT AND LOOSE PATCHES IN THE BEARING AREA ARE TO BE REPLACED BY COMBINED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
 - RETAINING WALL & APPROACH SLAB AND SIDE WALL.
 - RIVER TRAINING AND PROTECTION WORKS SHOULD BE DONE AS PER SITE CONDITION AND AS PER INSTRUCTIONS OF ENGINEER IN CHARGE.
 - ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN CONSULTANT IMMEDIATELY.
 - THE BOX CULVERT IS DESIGNED FOR MINIMUM BEARING CAPACITY OF THE SOIL OF 10.0 t/Sq.m THE SAME THE SOIL HAS TO BE ENSURED BY THE SITE INCHARGE (GOVERNMENT) BEFORE EXECUTION OF WORK & REPORT WITH THE SBC CALCULATION HAS TO BE SUBMITTED.
 - ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN AND PROFILE DRAWINGS BEFORE STARTING UP EXECUTION.

CLIENT



National Highways & Infrastructure Development Corporation Limited

CONSULTANT

M/s Choice Consultancy Services Pvt. Ltd.
Shree Shakambhari Corporate Park,
Plot No. 156-158, J B Nagar,
Andheri East-400099

NAME OF WORK

"Specialised Consultancy Services for 'Good for Tender' design based on detailed investigations, estimation, survey, costing, preparation of Technical Schedules of EPC documents and Land Acquisition Survey for Construction of Morch Bypass from NH-39 near Indo-Myanmar Border to Land Custom Port of India to bypass the Morch Town in the State of Manipur".

DRG NO.

- IM/MNP-BC-GA-02

R

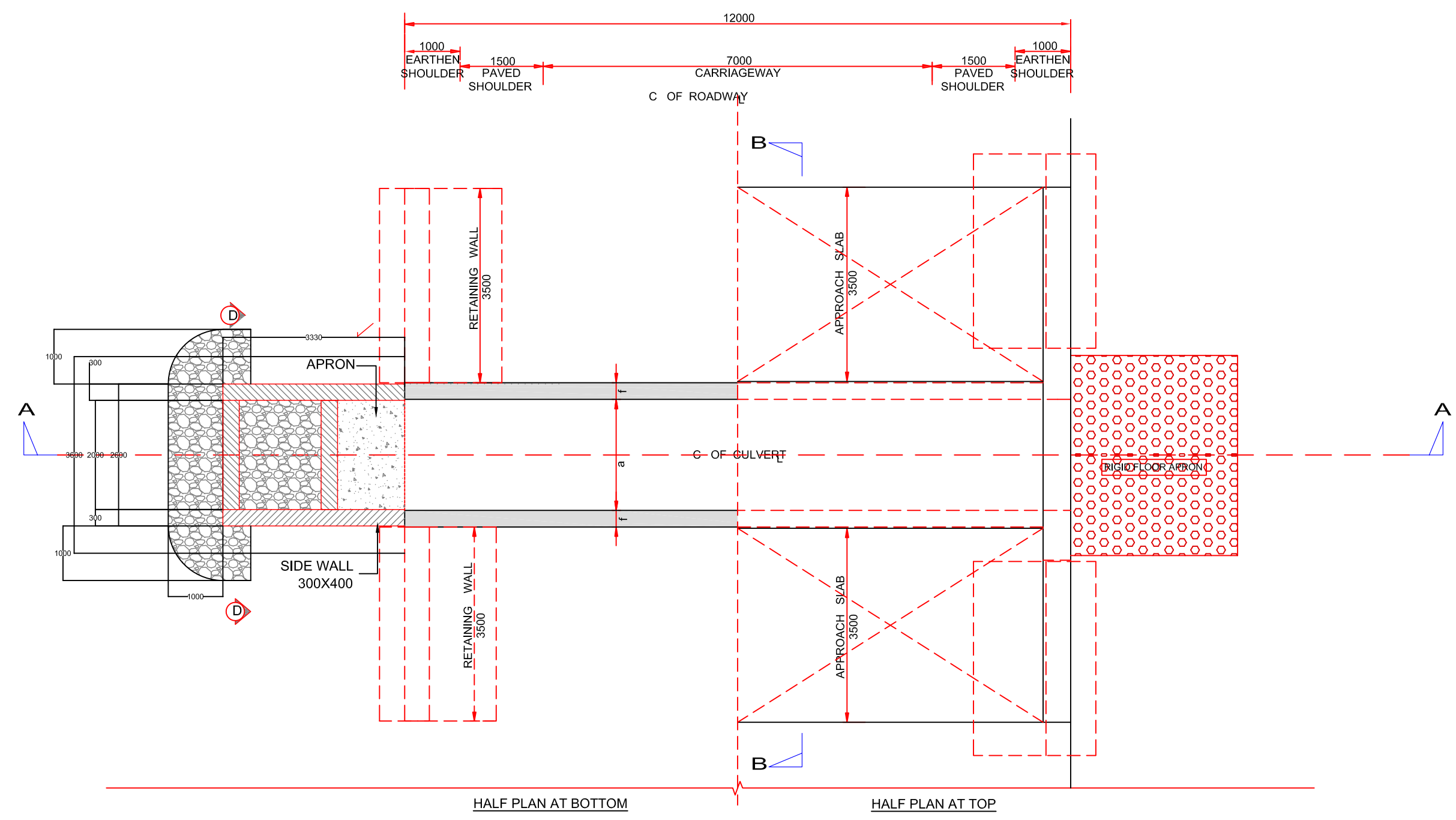
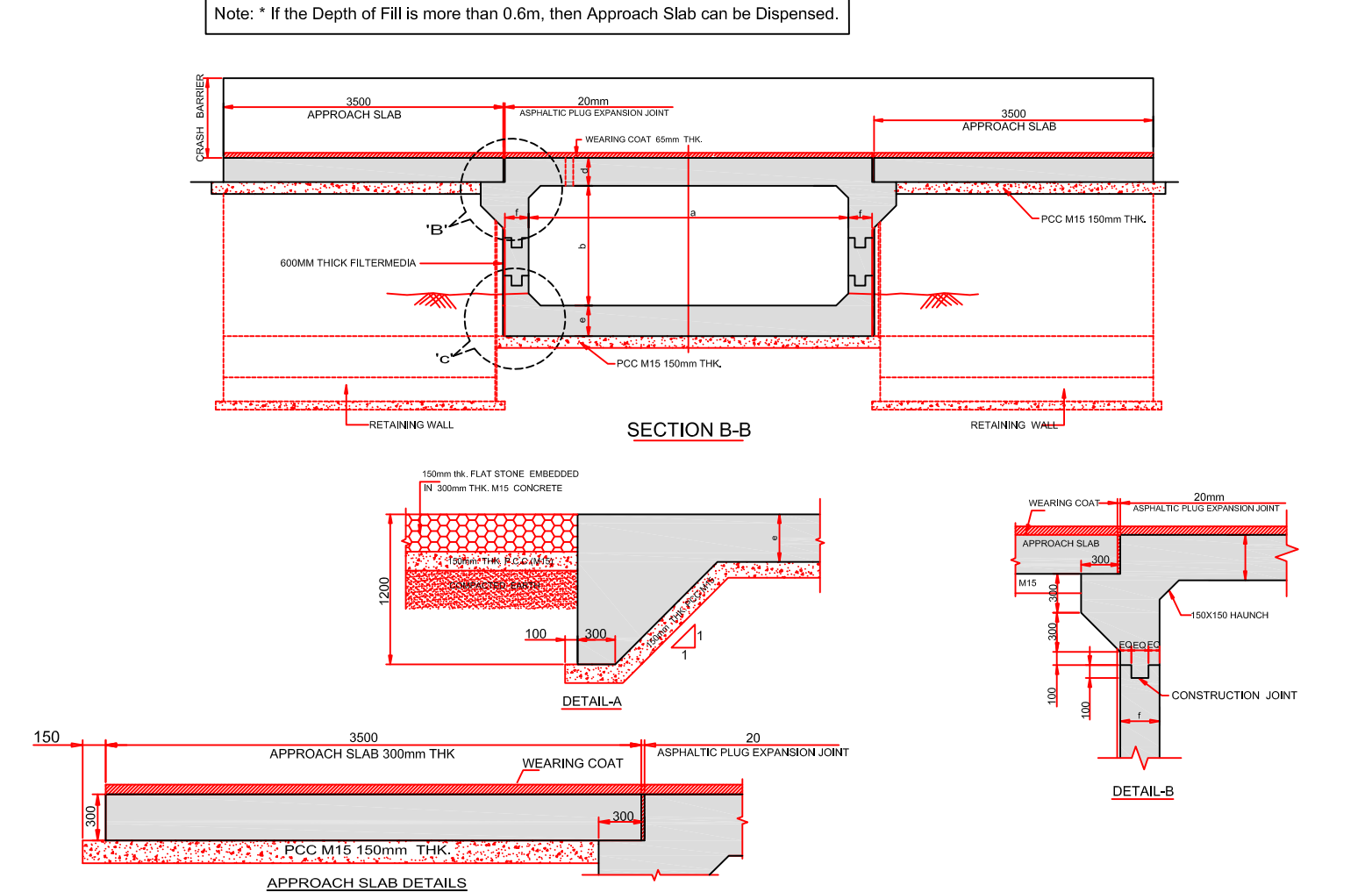
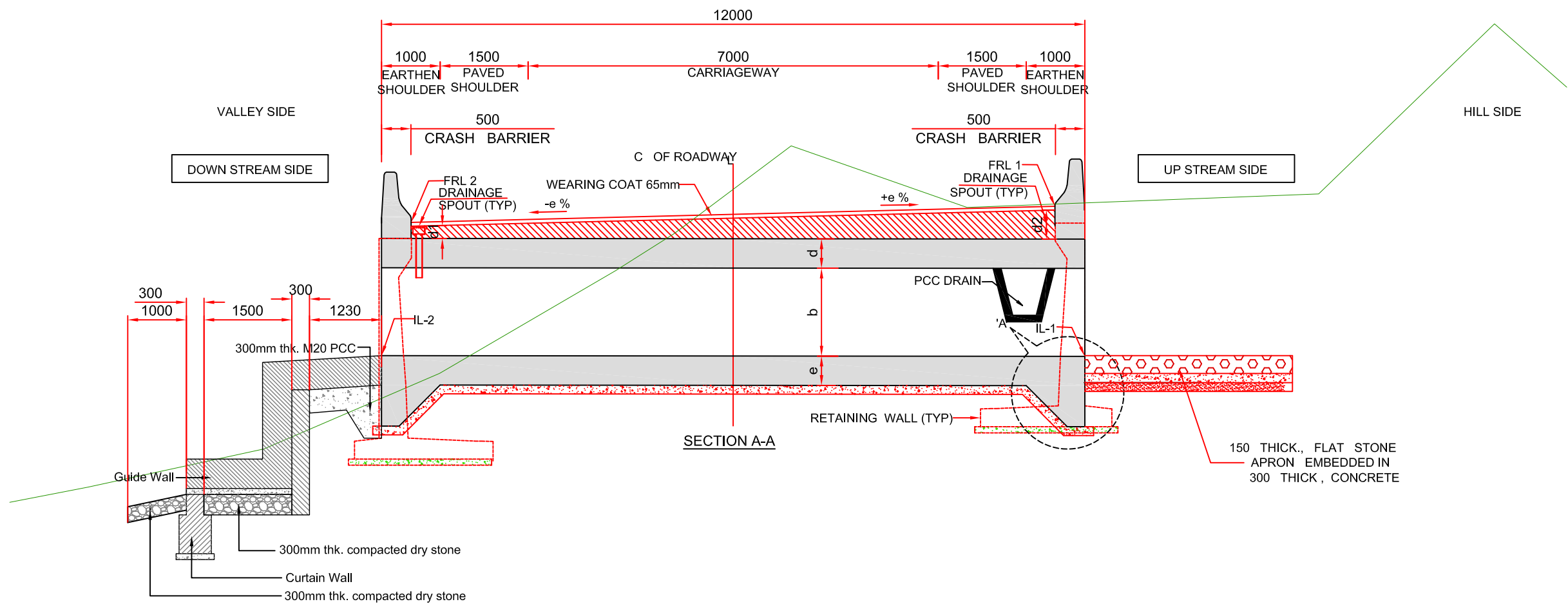
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SCALE

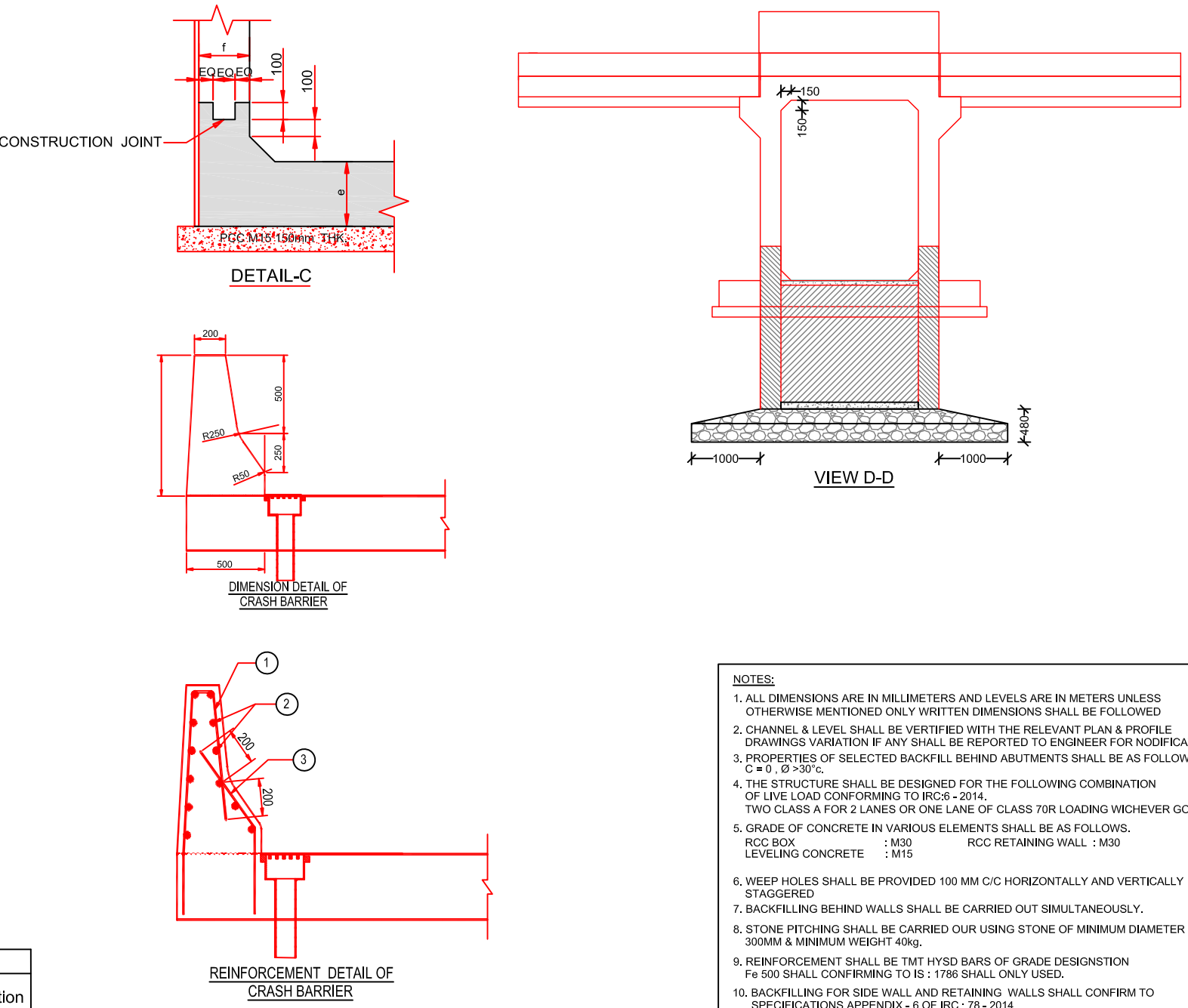
AS SHOWN

TITLE

TYPICAL GENERAL ARRANGEMENT OF SINGLE CELL BOX CULVERT RECONSTRUCTION/NEW



SCHEDULE OF SINGLE VENT BOX CULVERT FOR RE-CONSTRUCTION																				
Sl. No.	Existing Chainage	Design Chainage	No. of vents	DIMENSIONS					Required Bearing Capacity kN/m ²	Type of Cross Section	Proposed Width of Box mm	e % LHS	e % RHS	FRL1 'm'	FRL2 'm'	Invert Level 'm'		EARTH CUSHION d1' m'	EARTH CUSHION d2' m'	Flow Direction
				Span a (mm)	Height b (mm)	d (mm)	e (mm)	f (mm)								IL-1	IL-2			
1	2+013	1+796	1	3000	3000	350	400	350	100	TYPE-2	12000	-8.9	+8.9	224.792	225.860	221.988	221.976	0.000	1.068	RHS TO LHS
2	2+317	2+140	1	3000	3000	350	400	350	100	TYPE-5	12000	-2.9	+2.9	208.272	208.620	205.108	205.096	0.000	0.348	RHS TO LHS
3	New	2+030	1	2000	2000	250	300	250	100	TYPE-2	12000	-4.4	+4.4	214.989	214.461	211.617	211.605	0.606	1.134	RHS TO LHS

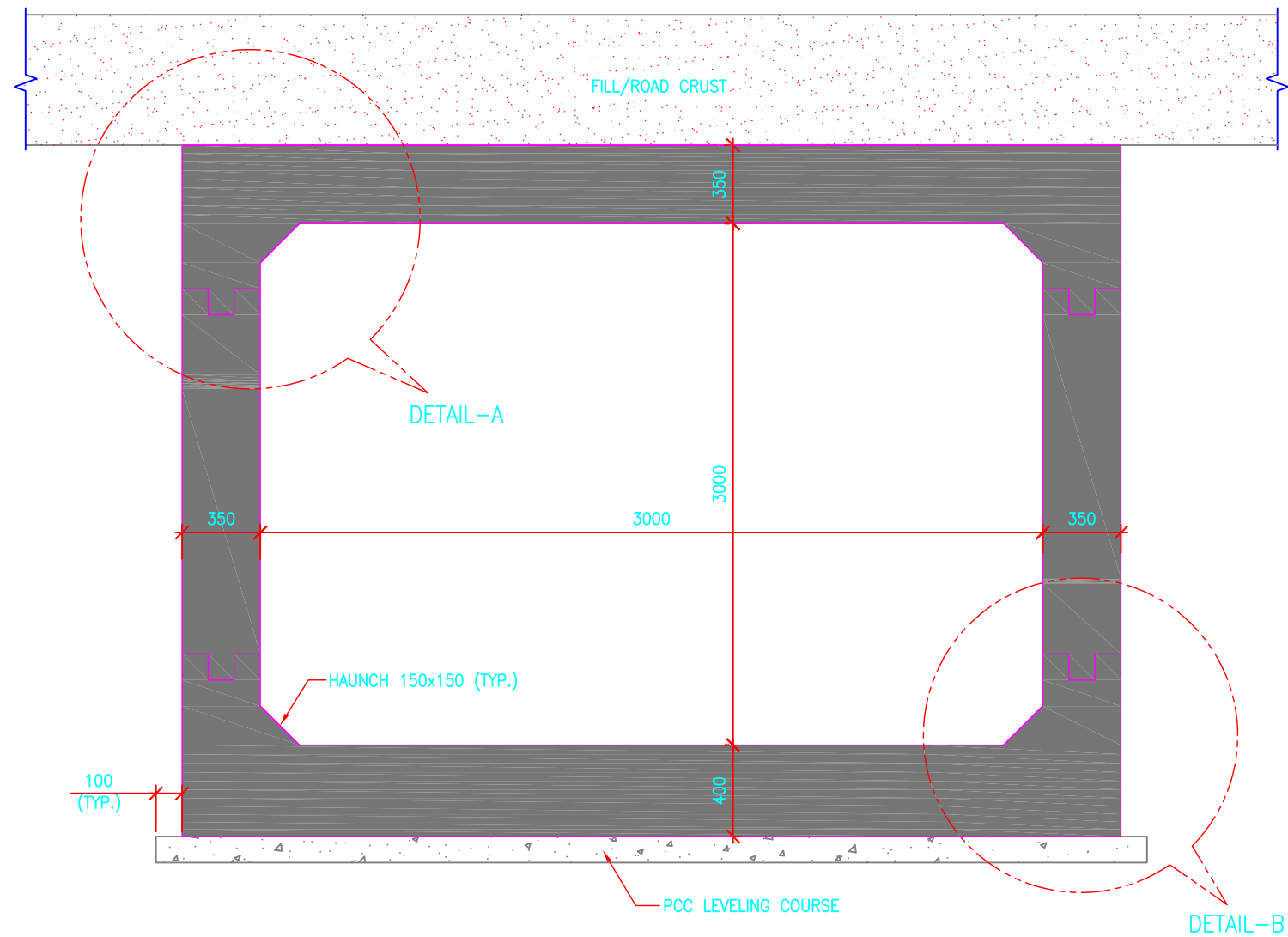


- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED
 - CHANNEL & LEVEL SHALL BE VERIFIED WITH THE RELEVANT PLAN & PROFILE. DRAWINGS VARIATION IF ANY SHALL BE REPORTED TO ENGINEER FOR MODIFICATION
 - PROPERTIES OF SELECTED BACKFILL BEHIND ABUTMENTS SHALL BE AS FOLLOWS C & D, 10-20%.
 - THE STRUCTURE SHALL BE DESIGNED FOR THE FOLLOWING COMBINATION OF LIVE LOAD CONFORMING TO IRC-6 - 2014. TWO CLASS A FOR 2 LANES OR ONE LANE OF CLASS 70R LOADING WHICHEVER GOVERNS.
 - GRADE OF CONCRETE IN VARIOUS ELEMENTS SHALL BE AS FOLLOWS.
RCC BOX : M30
LEVELING CONCRETE : M15
 - WEEP HOLES SHALL BE PROVIDED 100 MM C/C HORIZONTALLY AND VERTICALLY STAGGERED
 - BACKFILLING BEHIND WALLS SHALL BE CARRIED OUT SIMULTANEOUSLY.
 - STONE PITCHING SHALL BE CARRIED OUT USING STONE OF MINIMUM DIAMETER 300MM & MINIMUM WEIGHT 40kg.
 - REINFORCEMENT SHALL BE TMT HYSD BARS OF GRADE DESIGNATION Fe 500 SHALL CONFORMING TO IS : 1786 SHALL ONLY USED.
 - BACKFILLING FOR SIDE WALL AND RETAINING WALLS SHALL CONFIRM TO SPECIFICATIONS APPENDIX - 6 OF IRC : 78 - 2014
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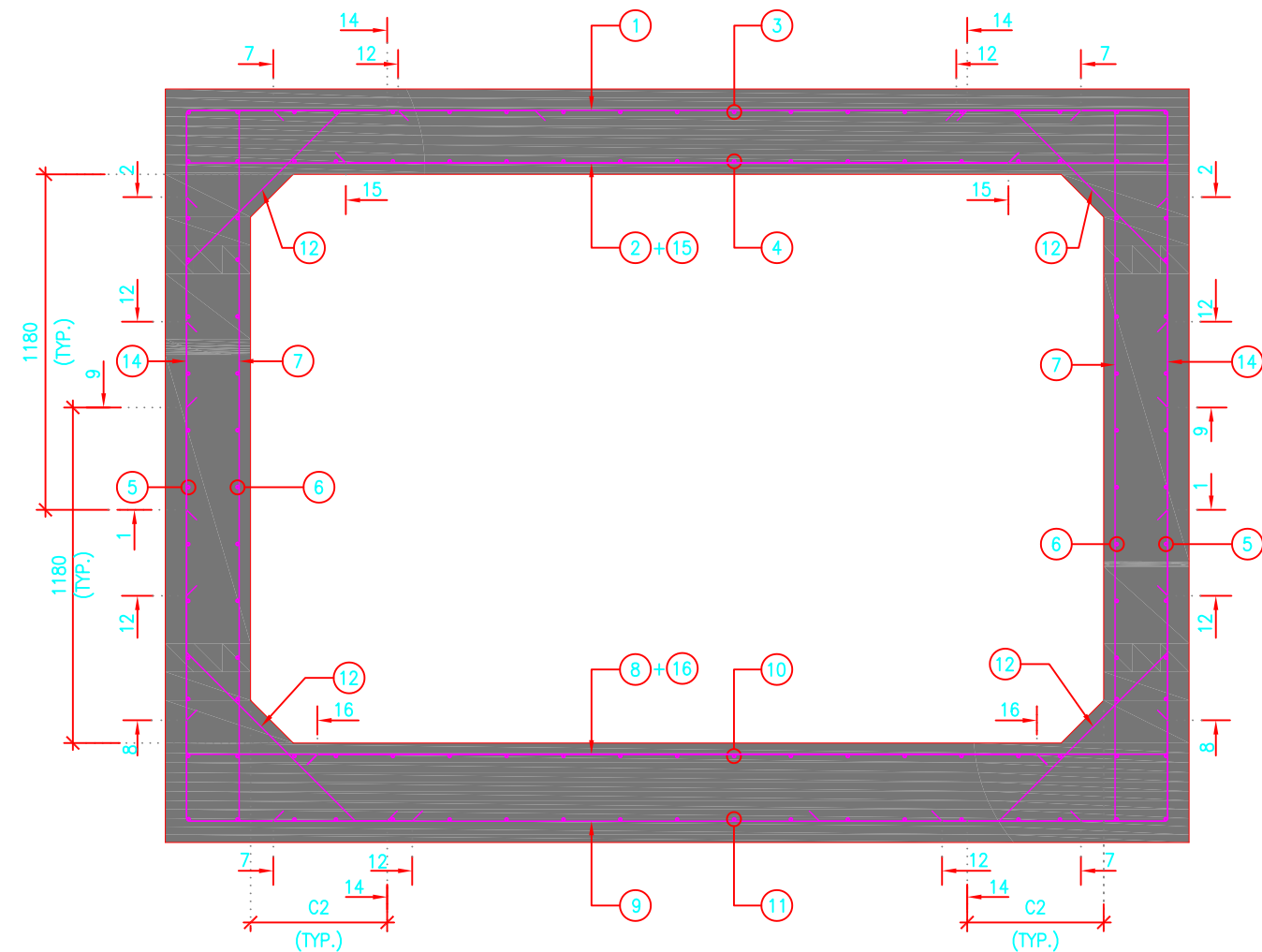
SCHEDULE FOR REINFORCEMENT FOR APPROACH SLAB & RCC CRASH BARRIER			
BAR NOTATION	PATTERN OF BENDING (NOT TO SCALE)	BAR DIA In mm	BAR SPACING In mm
①		16	150
②		12	200
③		16	150

CLIENT National Highways & Infrastructure Development Corporation Limited							CONSULTANT M/s Choice Consultancy Services Pvt. Ltd. Shree Shakambhari Corporate Park, Plot No. 156-158, J B Nagar, Andheri East-400099	NAME OF WORK "Specialised Consultancy Services for 'Good for Tender' design based on detailed investigations, estimation, survey, costing, preparation of Technical Schedules of EPC documents and Land Acquisition Survey for Construction of Moreh Bypass from NH-39 near Indo-Myanmar Border to Land Custom Port of India to bypass the Moreh Town in the State of Manipur".	DRG NO.	-	IM/MNP-BC-GA-03	R	0
	SCALE		AS SHOWN										
	TITLE												
	TYPICAL GENERAL ARRANGEMENT OF SINGLE CELL BOX CULVERT RECONSTRUCTION/NEW												

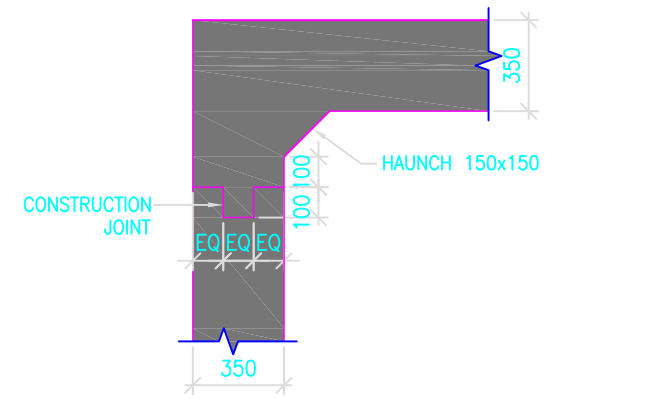
REINFORCEMENT DETAILS DRAWINGS



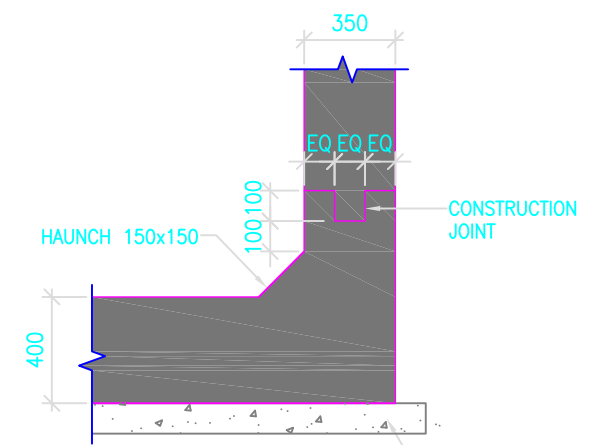
NUMERATION DETAIL OF BOX CULVERT
(SCALE 1:25)



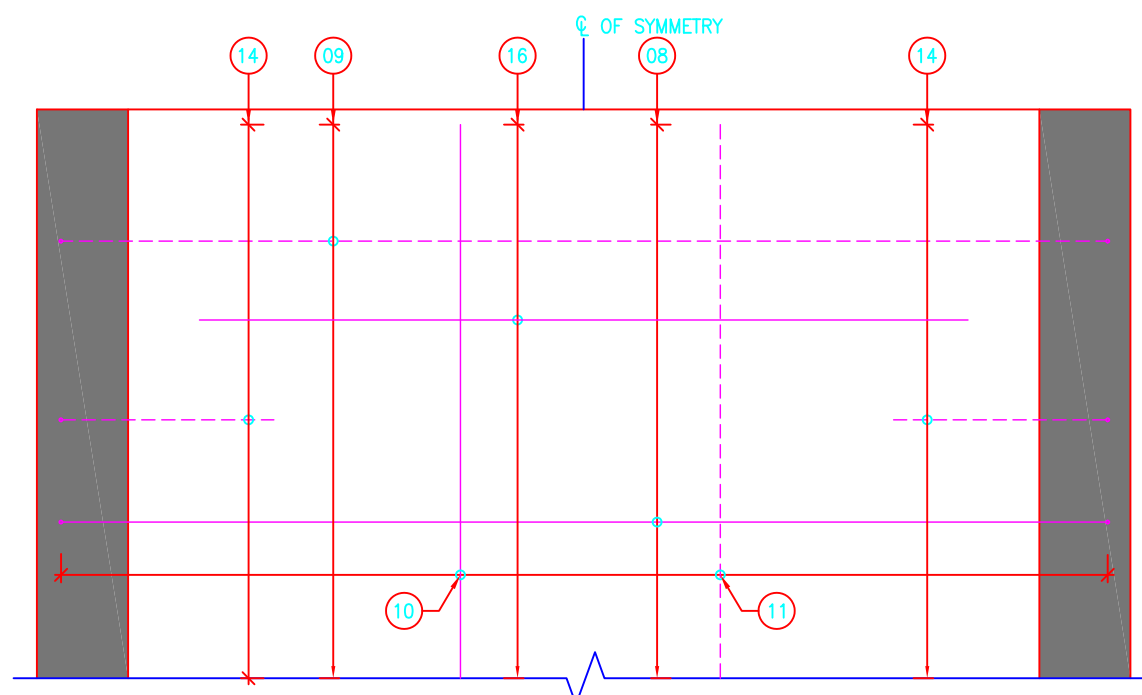
REINFORCEMENT DETAIL OF BOX CULVERT
(SCALE 1:25)



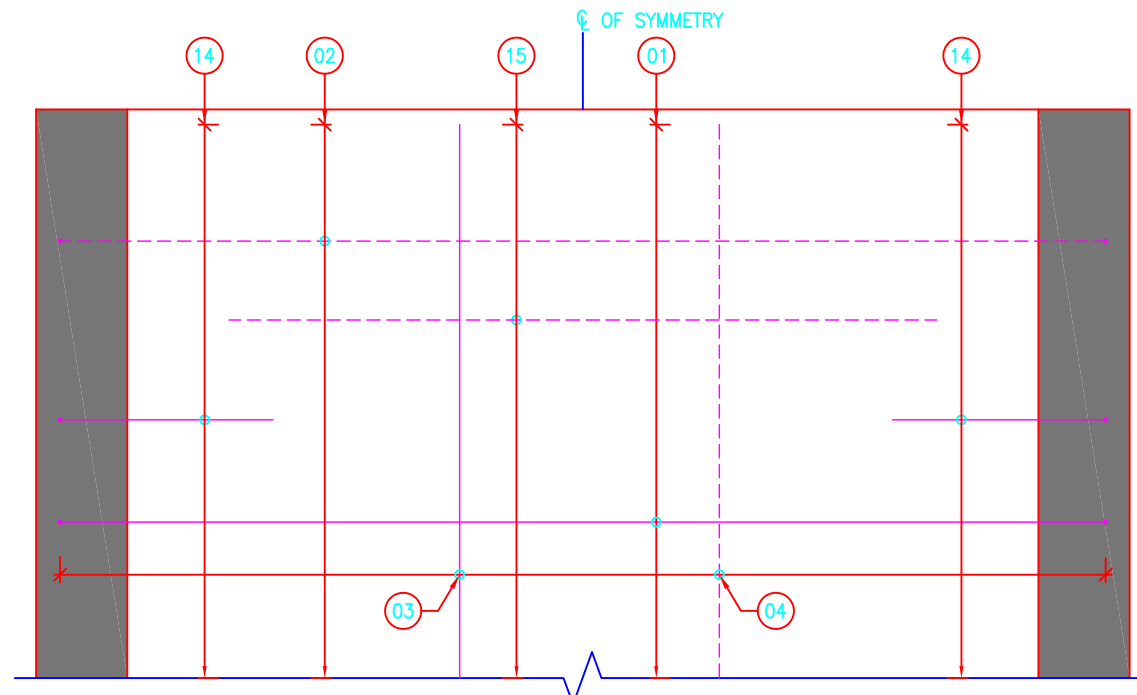
DETAIL-A
(SCALE 1:25)



DETAIL-B
(SCALE 1:25)



BOTTOM SLAB R/F PLAN
(HAUNCH LINES NOT SHOWN IN PLAN)
(SCALE 1:25)



TOP SLAB R/F PLAN
(HAUNCH LINES NOT SHOWN IN PLAN)
(SCALE 1:25)

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS MENTIONED OTHERWISE.
- DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- CLEAR COVER TO REINFORCEMENT IS 75mm ON EARTHEN SIDE AND 40mm ON INNER SIDE.
- GRADE OF CONCRETE SHALL BE M30 & STEEL SHALL BE TMT BARS OF GRADE Fe500.
- DEVELOPMENT LENGTH SHALL BE 40 TIMES THE DIA OF THE BAR AND THE LAP LENGTH SHALL BE 60 TIMES THE DIAMETER OF THE BAR.
- THE LAPS SHALL BE STAGGERED.
- THE SPACING OF BAR NOS 3, 4 AND 10, 11 ARE LOCALLY ADJUSTED TO THE SPACING OF SHEAR LINKS.
- BAR NOS 2 & 15, 8 & 16 AND 7 & 13 ARE PLACED ALTERNATIVELY.
- SBC CONSIDERED IN THE DESIGN IS 15t/m².

LEGEND:

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

SCHEDULE OF REINFORCEMENT

TYPE	CLEAR DIMENSION		THICKNESS			BAR TYPE/DIA/SPACING																		DISTANCE				HEIGHT OF FILL	ACTUAL SBC AS PER DESIGN (t/m ²)	
	L	H	T1	T2	T3	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲	①	②	③			④
1	3000	3000	350	400	350	12#Ø200C/C	12#Ø200C/C	8#Ø200C/C	8#Ø200C/C	8#Ø200C/C	8#Ø200C/C	12#Ø200C/C	12#Ø200C/C	12#Ø200C/C	8#Ø200C/C	8#Ø200C/C	10#Ø200C/C	NOT IN USE	12#Ø200C/C	10#Ø200C/C	10#Ø200C/C	NOT IN USE	NOT IN USE	NOT IN USE	1180	480	2330	2530	UP TO 2m	10
BAR SHAPE							120 	100 	100 	100 	100 	120 		100 	100	200	200	L		2330	2530									

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National Highways & Infrastructure
Development Corporation Limited

CONSULTANT



M/s Choice Consultancy Services Pvt. Ltd.
Shree Shakambhari Corporate Park,
Plot No. 156-158, J B Nagar,
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NAME OF WORK

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DRG NO.

- IM/MNP-BC-RC-01

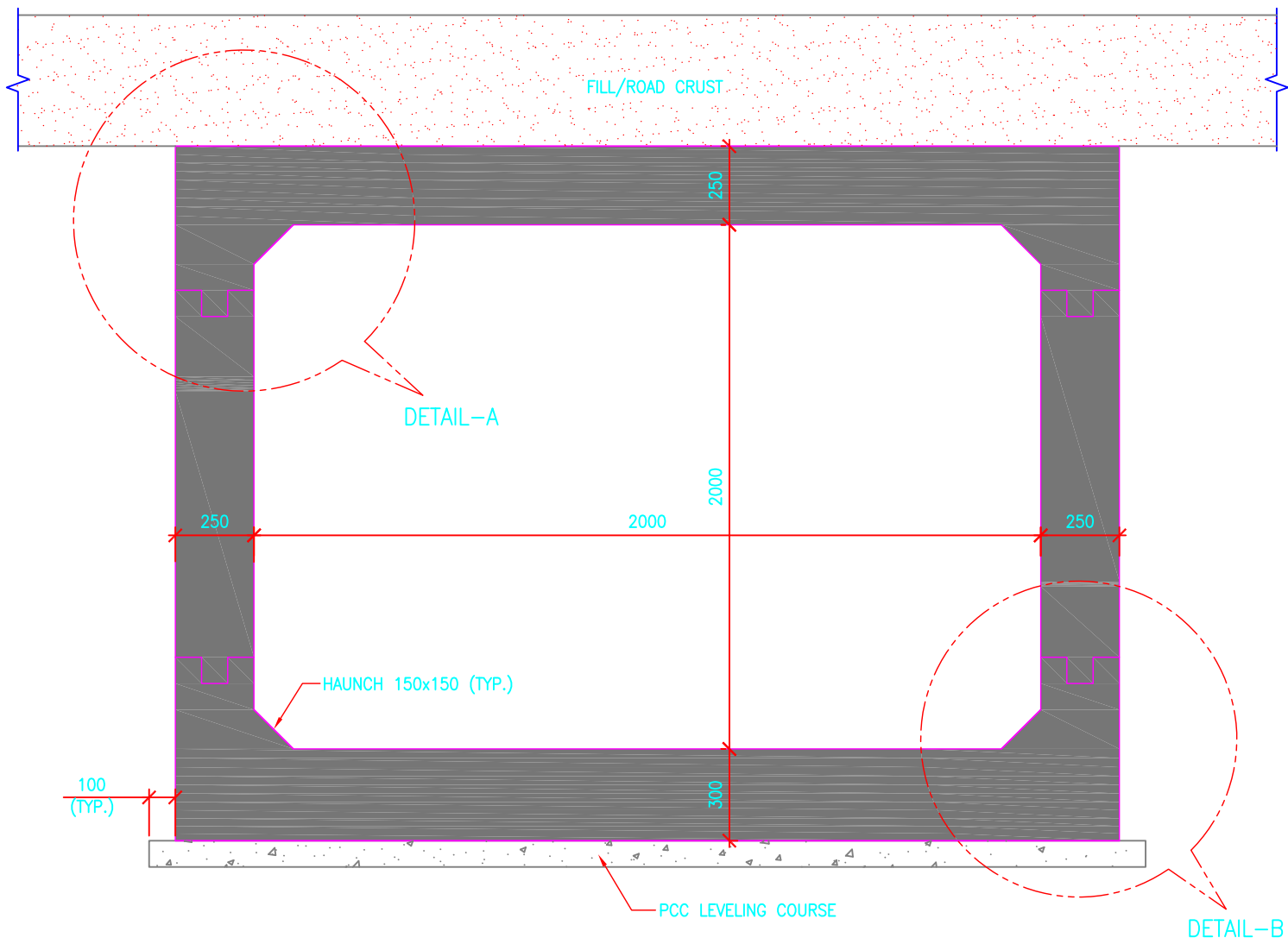
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AS SHOWN

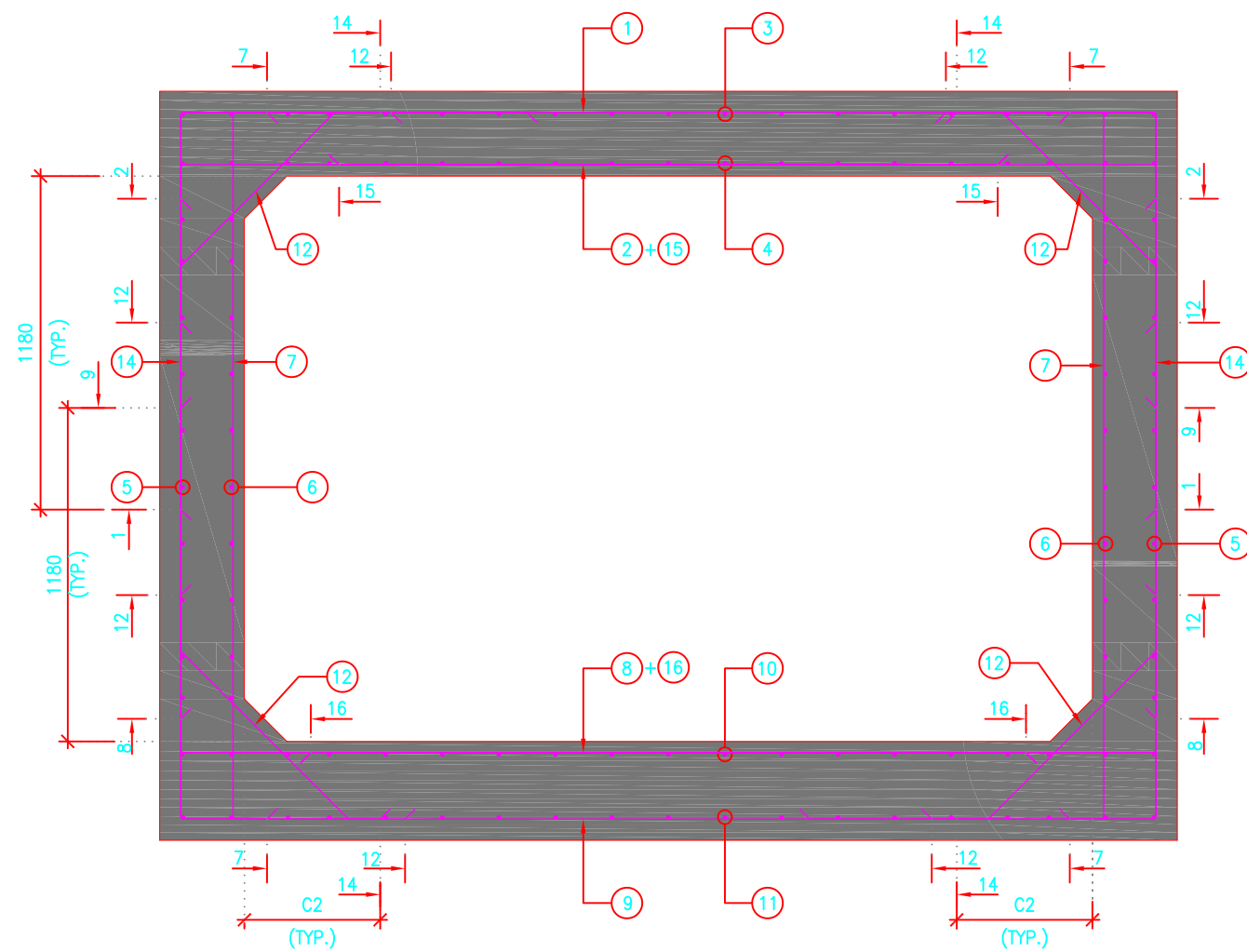
TITLE

REINFORCEMENT DETAILS OF 1x3x3 m BOX CULVERT UP TO EARTH FILL 2m

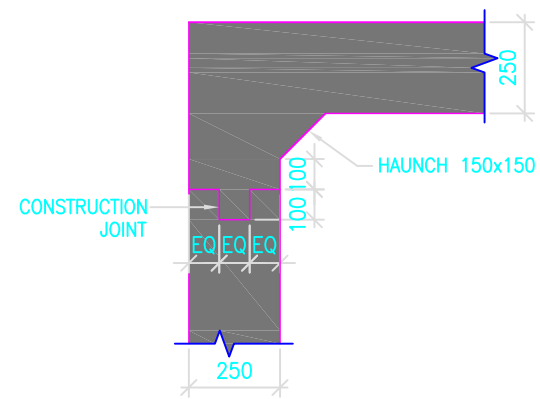
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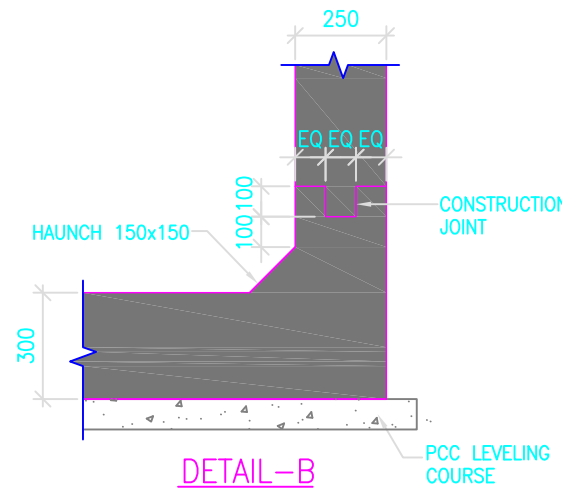
NUMERATION DETAIL OF BOX CULVERT
(SCALE 1:25)



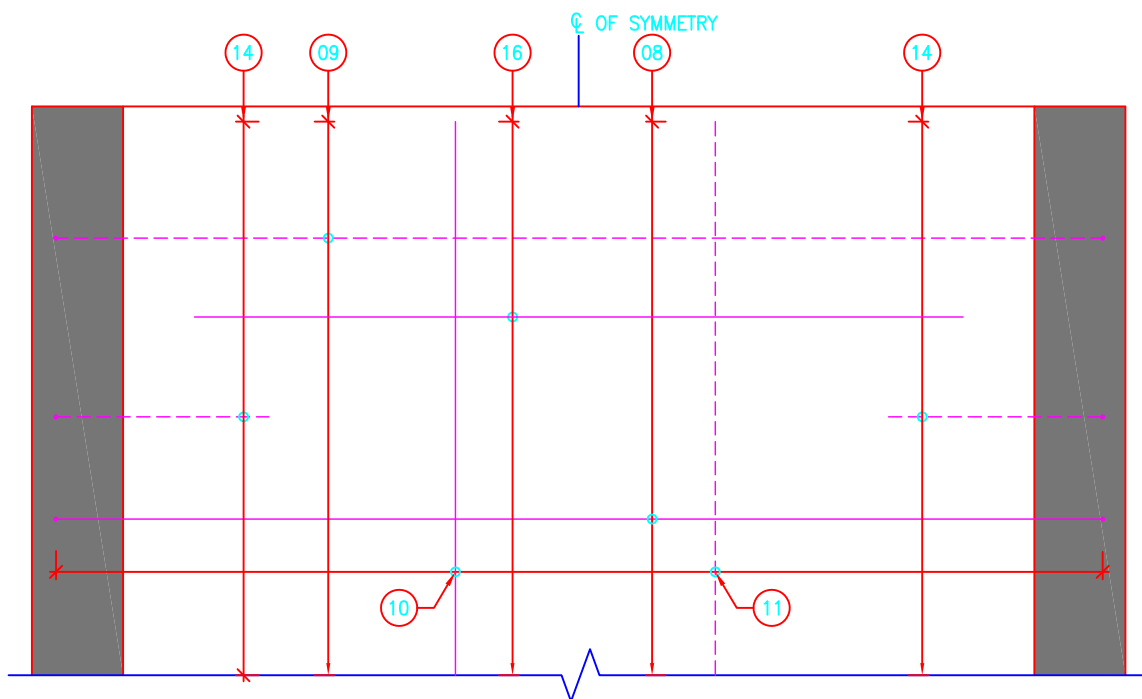
REINFORCEMENT DETAIL OF BOX CULVERT
(SCALE 1:25)



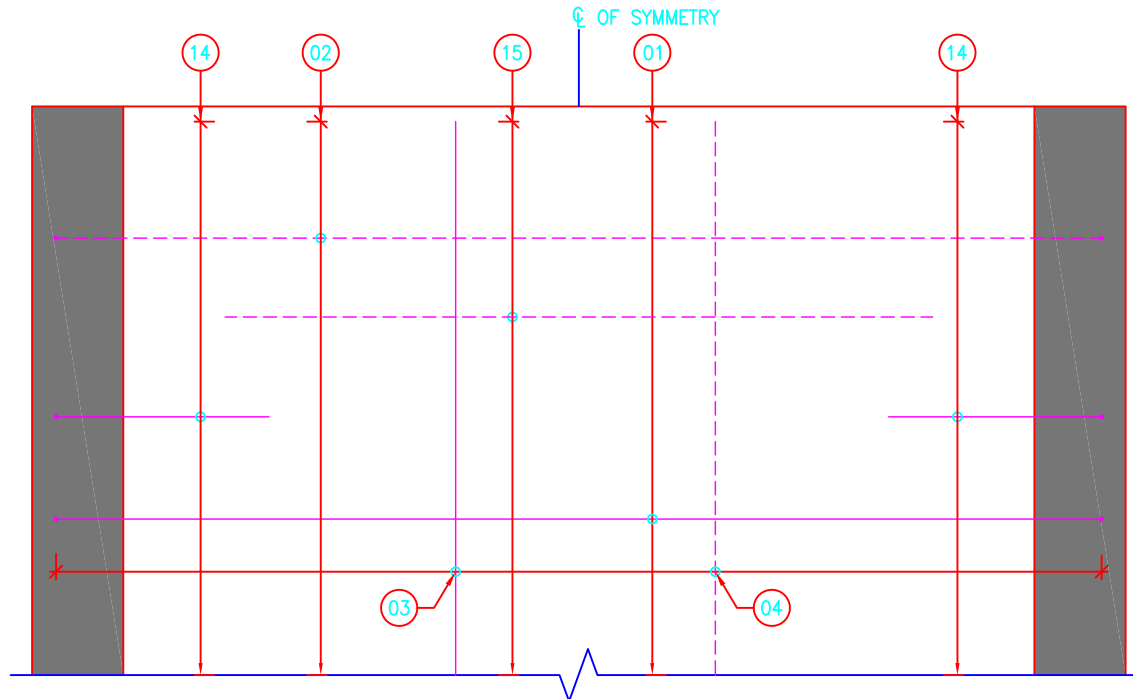
DETAIL-A
(SCALE 1:25)



DETAIL-B
(SCALE 1:25)



BOTTOM SLAB R/F PLAN
(HAUNCH LINES NOT SHOWN IN PLAN)
(SCALE 1:25)



TOP SLAB R/F PLAN
(HAUNCH LINES NOT SHOWN IN PLAN)
(SCALE 1:25)

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS MENTIONED OTHERWISE.
- DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- CLEAR COVER TO REINFORCEMENT IS 75mm ON EARTHEN SIDE AND 40mm ON INNER SIDE.
- GRADE OF CONCRETE SHALL BE M30 & STEEL SHALL BE TMT BARS OF GRADE Fe500.
- DEVELOPMENT LENGTH SHALL BE 40 TIMES THE DIA OF THE BAR AND THE LAP LENGTH SHALL BE 60 TIMES THE DIAMETER OF THE BAR.
- THE LAPS SHALL BE STAGGERED.
- THE SPACING OF BAR NOS 3, 4 AND 10, 11 ARE LOCALLY ADJUSTED TO THE SPACING OF SHEAR LINKS.
- BAR NOS 2 & 15, 8 & 16 AND 7 & 13 ARE PLACED ALTERNATIVELY.
- SBC CONSIDERED IN THE DESIGN IS 15t/m².

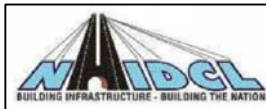
LEGEND:

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

SCHEDULE OF REINFORCEMENT

TYPE	CLEAR DIMENSION		THICKNESS			BAR TYPE/DIA/SPACING																			DISTANCE				HEIGHT OF FILL	ACTUAL SBC AS PER DESIGN (t/m ²)	
	L	H	T1	T2	T3	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲	①	②	③	④			
1	2000	2000	250	300	250	12#@200C/C	12#@200C/C	8#@200C/C	8#@200C/C	8#@200C/C	8#@200C/C	12#@200C/C	12#@200C/C	12#@200C/C	8#@200C/C	8#@200C/C	10#@200C/C	NOT IN USE	12#@200C/C	10#@200C/C	10#@200C/C	10#@200C/C	NOT IN USE	NOT IN USE	NOT IN USE	1180	480	2330	2530	UP TO 2m	10
BAR SHAPE							120	100	100		100	120		100	100	200	200	2330	2530												

CLIENT



National Highways & Infrastructure
Development Corporation Limited

CONSULTANT



M/s Choice Consultancy Services Pvt. Ltd.
Shree Shakambhari Corporate Park,
Plot No. 156-158, J B Nagar,
Andheri East-400099

NAME OF WORK

"Specialised Consultancy Services for 'Good for Tender' design based on detailed investigations, estimation, survey, costing, preparation of Technical Schedules of EPC documents and Land Acquisition Survey for Construction of Morch Bypass from NH-39 near Indo-Myanmar Border to Land Custom Port of India to bypass the Morch Town in the State of Manipur".

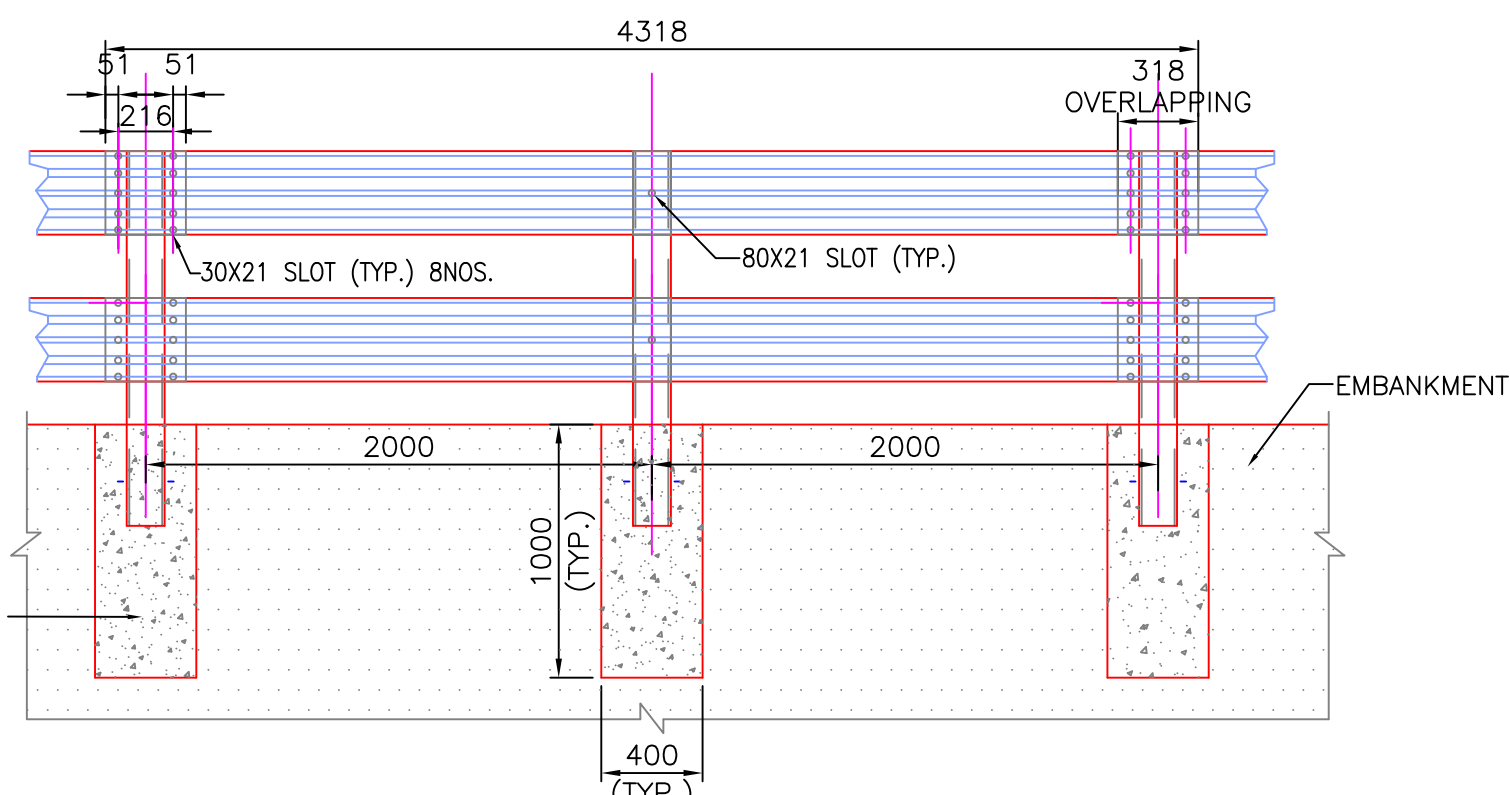
DRG NO. - IM/MNP-BC-RC-02 R 0

SCALE AS SHOWN

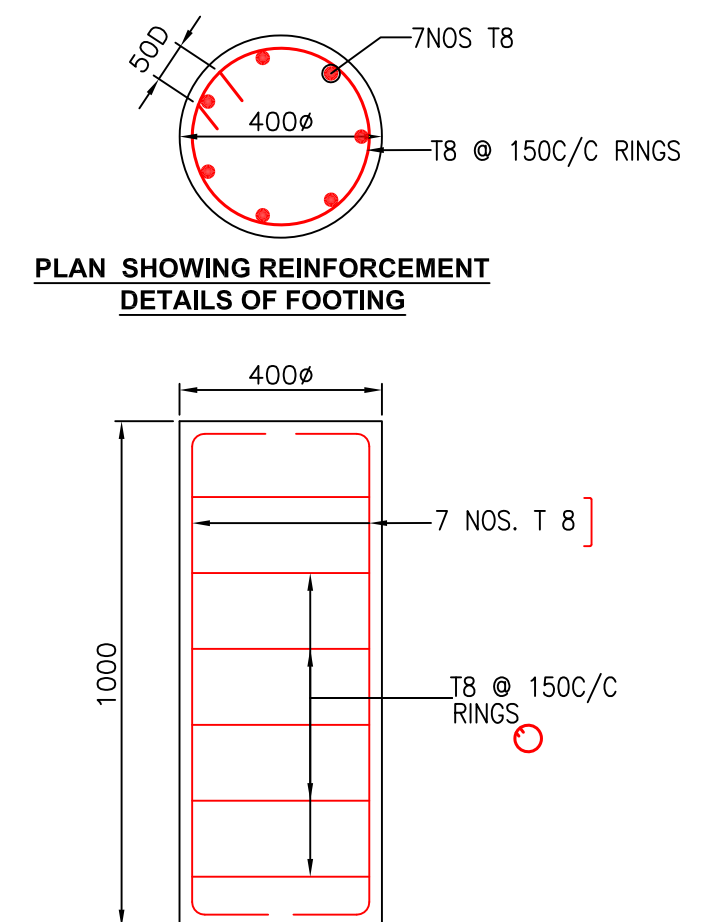
TITLE

REINFORCEMENT DETAILS OF 1x2x2 m BOX CULVERT UP TO EARTH FILL 2m

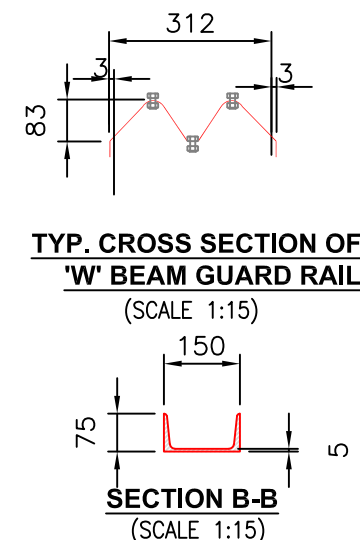
MISCELLANEOUS DRAWING



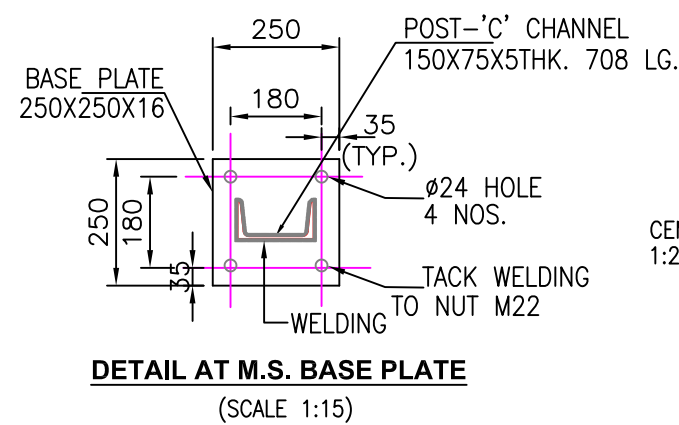
(11F.7)
ELEVATION SHOWING SINGLE SIDED, DOUBLE GUARD RAIL SYSTEM
(ALT-II) POST DIRECTLY EMBEDDED IN CONCRETE
(SCALE 1:30)



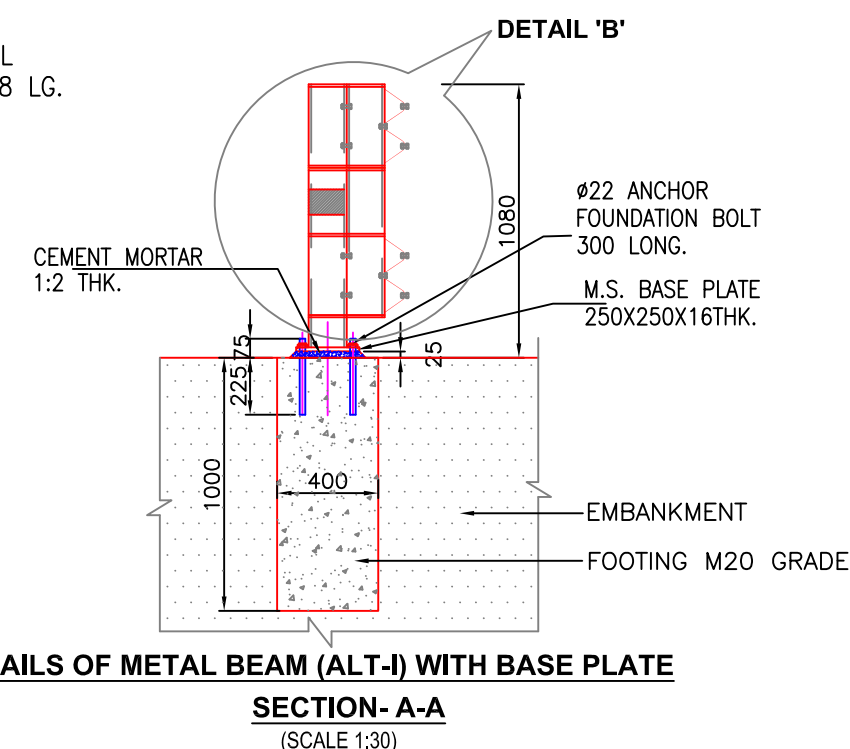
ELEVATION SHOWING REINFORCEMENT
DETAILS OF FOOTING
(SCALE 1:15)



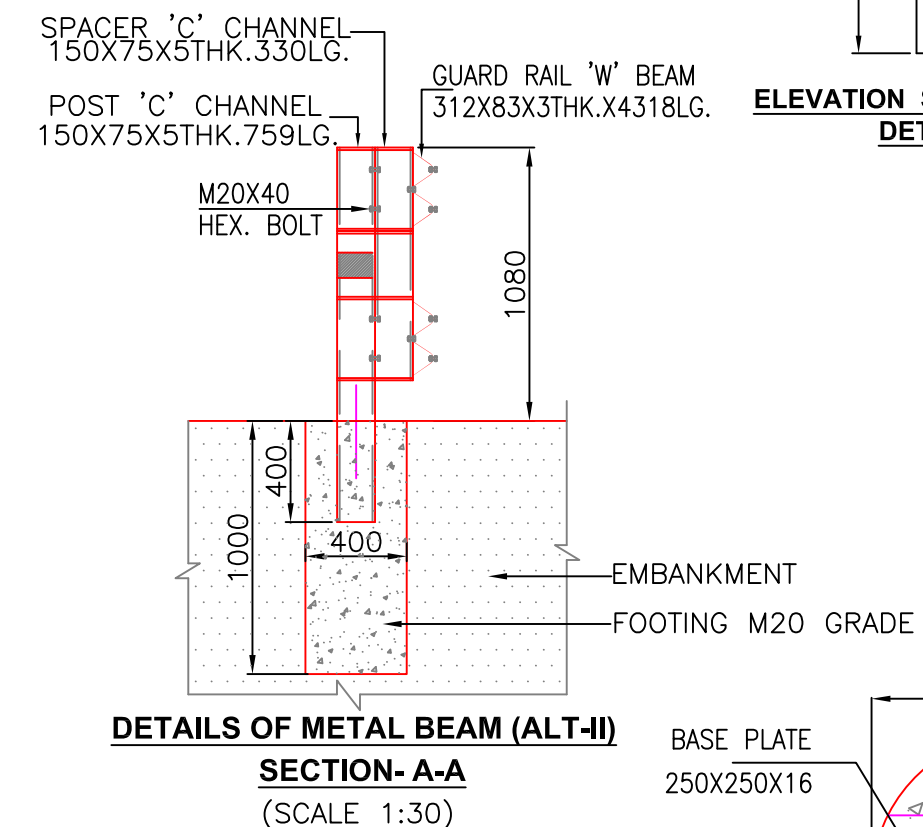
SECTION B-B
(SCALE 1:15)



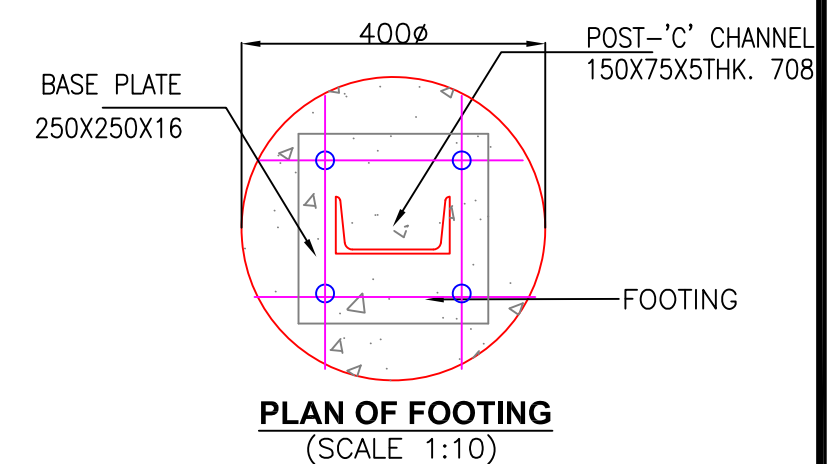
DETAIL AT M.S. BASE PLATE
(SCALE 1:15)



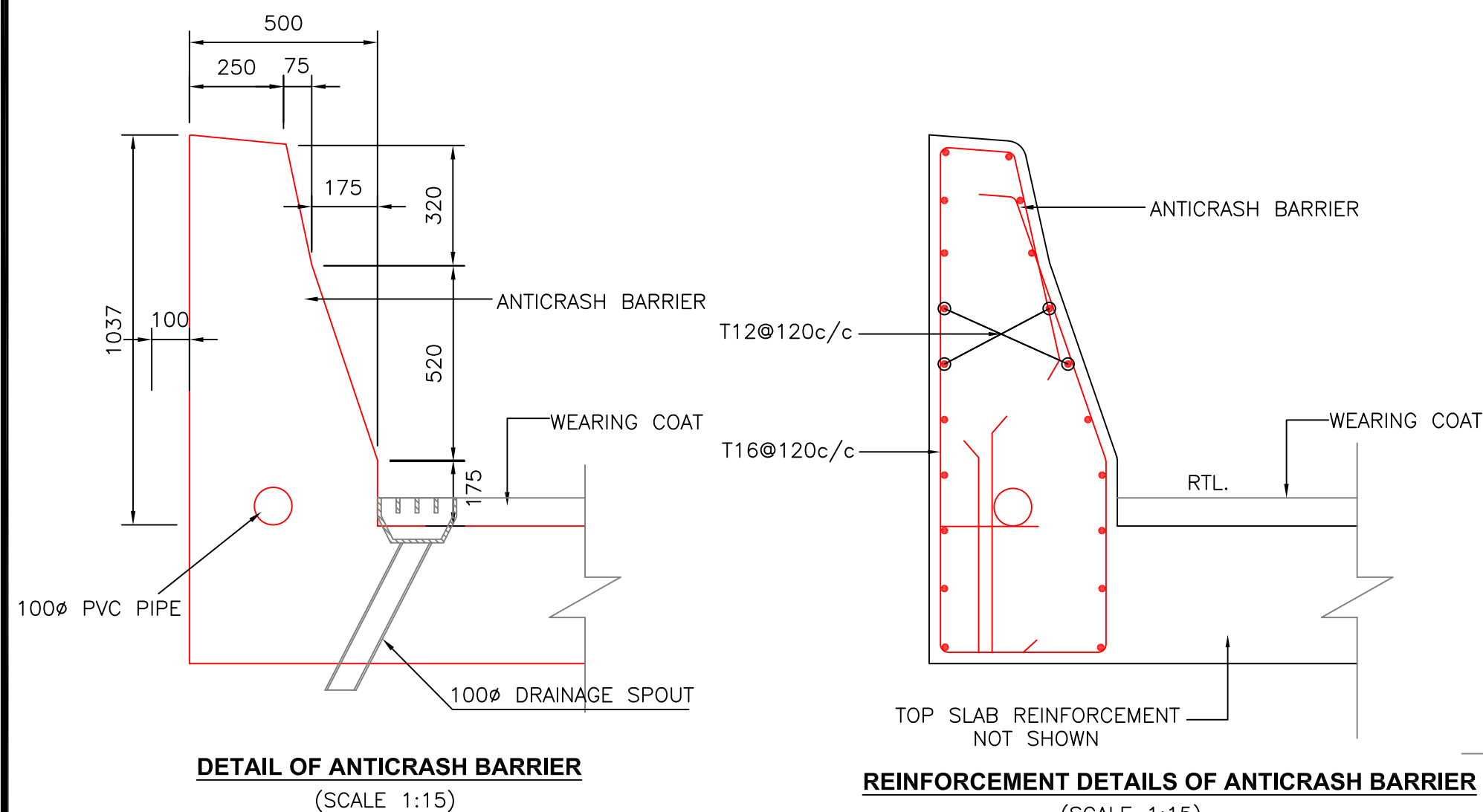
DETAILS OF METAL BEAM (ALT-I) WITH BASE PLATE
SECTION- A-A
(SCALE 1:30)



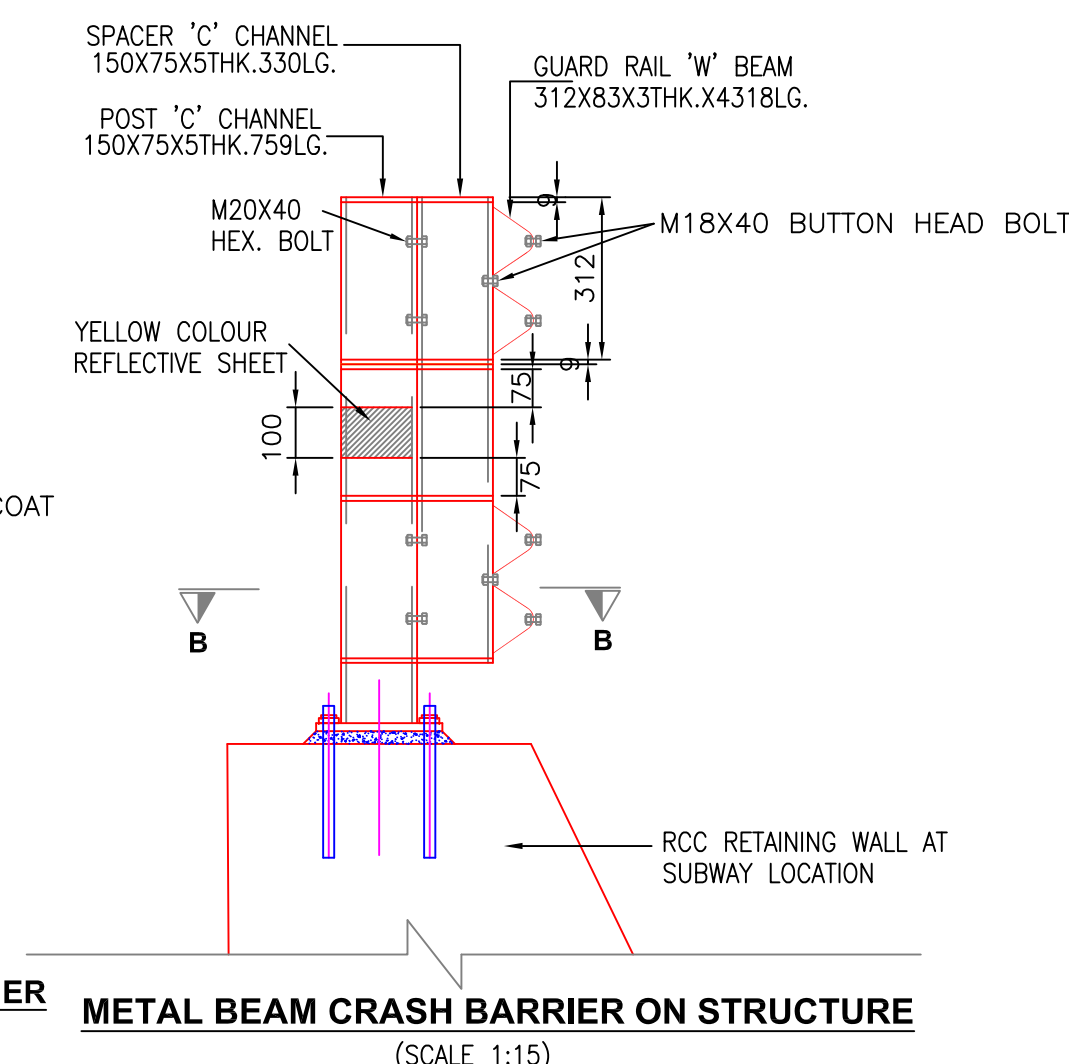
DETAILS OF METAL BEAM (ALT-II)
SECTION- A-A
(SCALE 1:30)



PLAN OF FOOTING
(SCALE 1:10)



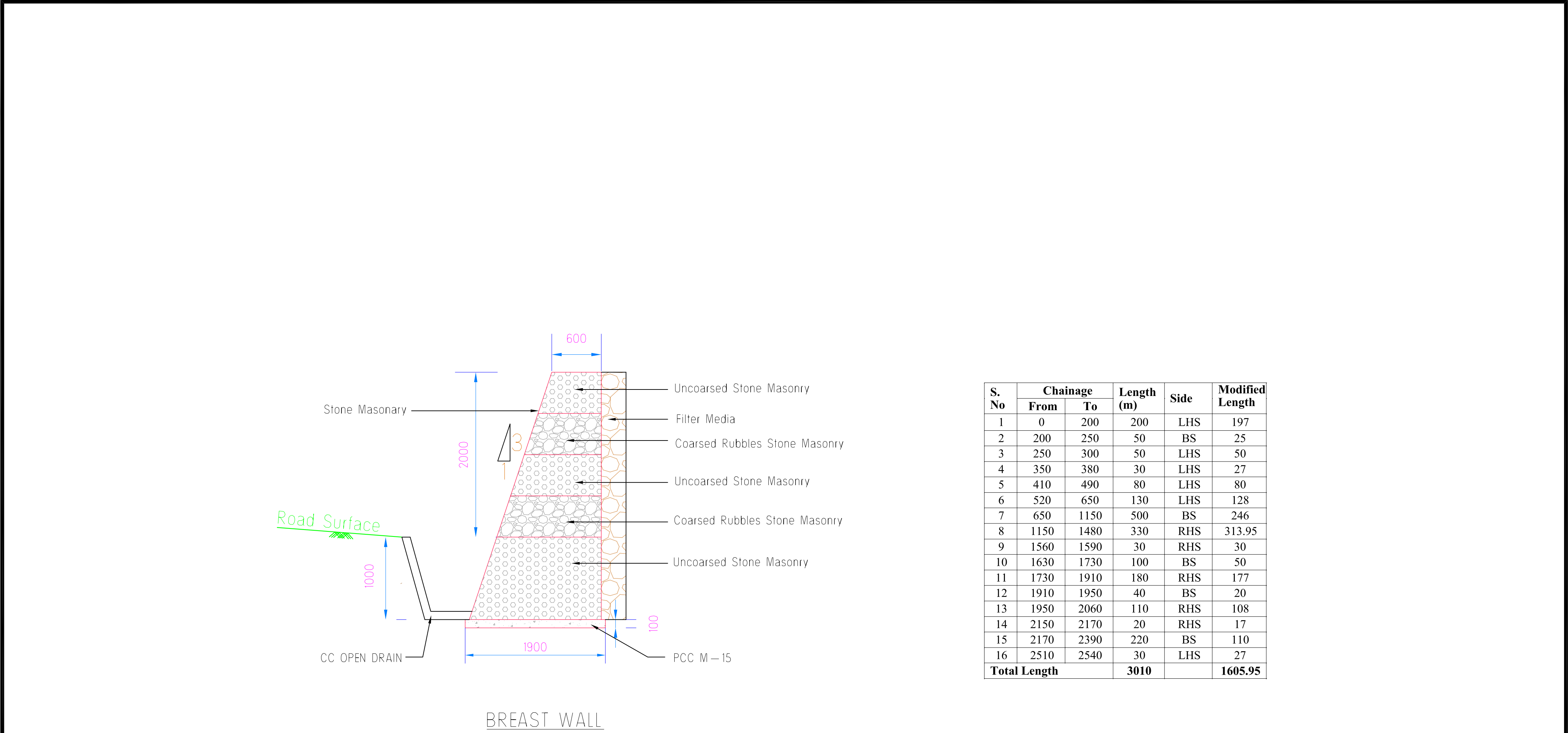
REINFORCEMENT DETAILS OF ANTICRASH BARRIER
(SCALE 1:15)



METAL BEAM CRASH BARRIER ON STRUCTURE
(SCALE 1:15)

1. UNLESS SPECIFIED OTHERWISE ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS.
2. DIMENSIONS SHALL NOT BE SCALED FROM THE DRAWING. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
3. MATERIAL FOR GUARD RAIL 'W' BEAM, POSTS & SPACER 'C' CHANNELS SHALL CONFIRM TO IS:5956, GRADE Fe410.
4. MATERIAL FOR M.S.BASE PLATE IT SHALL CONFIRM TO IS:2082, GRADE A.
5. ALL HEXAGONAL BOLTS & NUTS SHALL BE CONFIRMED TO IS:1364 & IS:1367 GRADE 4.6 & SHALL BE COATED AS PER N.I.T.
6. ALL BUTTON HEAD BOLTS SHALL BE CONFIRM TO N.I.T. AND SHALL BE COATED AS PER N.I.T.
7. GUARD RAIL 'W' BEAMS, POST & SPACERS SHALL BE COATED AS PER N.I.T.
8. T INDICATES H.Y.S.D. BARS & SHALL CONFORM TO IS : 1786-1985 GRADE FE : 415.
9. CLEAR COVER TO REINFORCEMENT SHALL BE 25MM

BREAST WALL



S. No	Chainage		Length (m)	Side	Modified Length
	From	To			
1	0	200	200	LHS	197
2	200	250	50	BS	25
3	250	300	50	LHS	50
4	350	380	30	LHS	27
5	410	490	80	LHS	80
6	520	650	130	LHS	128
7	650	1150	500	BS	246
8	1150	1480	330	RHS	313.95
9	1560	1590	30	RHS	30
10	1630	1730	100	BS	50
11	1730	1910	180	RHS	177
12	1910	1950	40	BS	20
13	1950	2060	110	RHS	108
14	2150	2170	20	RHS	17
15	2170	2390	220	BS	110
16	2510	2540	30	LHS	27
Total Length			3010		1605.95

CLIENT								CONSULTANT		NAME OF WORK		DRG NO.		- IM-MNP-BW-01		R	0		
 National Highways & Infrastructure Development Corporation Limited								 M/s Choice Consultancy Services Pvt. Ltd. Shree Shakambhari Corporate Park, Plot No. 156-158, J B Nagar, Andheri East-400099		"Specialised Consultancy Services for 'Good for Tender' design based on detailed investigations, estimation, survey, costing, preparation of Technical Schedules of EPC documents and Land Acquisition Survey for Construction of Moreh Bypass from NH-39 near Indo-Myanmar Border to Land Custom Port of India to bypass the Moreh Town (Length=less than 5 Km approx) in the State of Manipur".		SCALE		AS SHOWN					
		TITLE																	
		TYPICAL BREAST WALL DETAILS																	
		REV	DATE	DETAILS OF REVISION								DRA.	CHE.	APPR.					