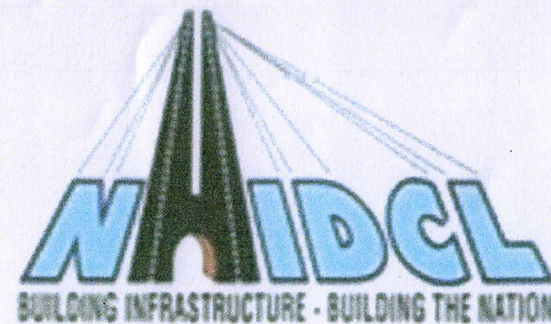




National Highways & Infrastructure Development Corporation Ltd

(MINISTRY OF ROAD TRANSPORT & HIGHWAYS, GOVT. OF INDIA)

**“WIDENING AND UPGRADATION TO 2 LANE WITH PAVED SHOULDER CONFIGURATION
& GEOMETRIC IMPROVEMENT FROM KM 0.000 TO KM 16.990 ON CHENANI - SUDHMAHADEV
SECTION OF NH-244 IN THE STATE OF JAMMU & KASHMIR.”**

Plan & Profile

Re-Alignment for Major Bridge No.-2

January-2020

Authority Engineer:



TPF GETINSA EUROESTUDIOS, S.L.

in association with



SEGMENTAL CONSULTING & INFRASTRUCTURE ADVISORY (P) Ltd (SCIA)

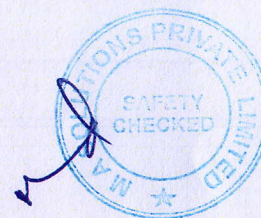
Submitted By

ECI - SRM PROJECTS

1A, HILL VIEW NEAR GOVT. HIGHER SECONDARY SCHOOL, BAHU FORT, JAMMU - 180006

Index

S. No.	Drawing Title	Sheet Description	Sheet Number	Revision Number	Remarks
1	Cover Page				
2	Index		NH-244/Chnn-Sdhmdv/HW/Index-1		
3	Legends		NH-244/Chnn-Sdhmdv/HW/P&P/Legends		
4	Plan	Km 1+500 to 2+100	NH-244/Chnn-Sdhmdv/HW/P&P/ Km 1+500 to 2+100	R-1.0	
5	Profile	Km 1+500 to 2+100	NH-244/Chnn-Sdhmdv/HW/P&P/ Km 1+500 to 2+100	R-1.0	
6	Plan	Km 2+100 to 2+800	NH-244/Chnn-Sdhmdv/HW/P&P/ Km 2+100 to 2+800	R-1.0	
7	Profile	Km 2+100 to 2+800	NH-244/Chnn-Sdhmdv/HW/P&P/ Km 2+100 to 2+800	R-1.0	
8	Plan	Km 2+800 to 3+472	NH-244/Chnn-Sdhmdv/HW/P&P/ Km 2+800 to 34+.51	R-1.0	Station Equation @ Km 2+900 / Back Sta 3471.51
9	Profile	Km 2+800 to 3+472	NH-244/Chnn-Sdhmdv/HW/P&P/ Km 2+800 to 34+.51	R-1.0	

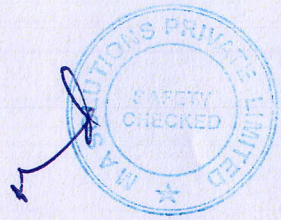


ECI-SRM PROJECTS
(A K Sharma)
Design Director

Client :  NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD (Ministry of Road Transport & Highways)	Project Title : Widening and upgradation to 2 lane with paved shoulder configuration and geometric improvement from km 0.000 to km 16.990 on Chenani-Sudhmahadev section of NH-244 in the State of Jammu & Kashmir	Proof Consultant :  BERNARD Ingenieure ZT GmbH Safety Consultant :  M A Solutions Pvt. Ltd.	Authority Engineer : TPF GETINSA EUROESTUDIOS, S.L. Segmental Consulting & Infrastructure Advisory (P) Ltd (SCIA) EPC Contractor : ECI-SRM Projects	Drawing Title Index Drg No. NH-244/Chnn-Sdhmdv/HW/P&P/ Index	Design Director Col. (retd.) A K Sharma STATUS: FOR APPROVAL SCALE: NA Checked By: RU Design By: SP Drawn By: MR	REVISIONS			
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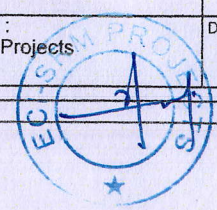


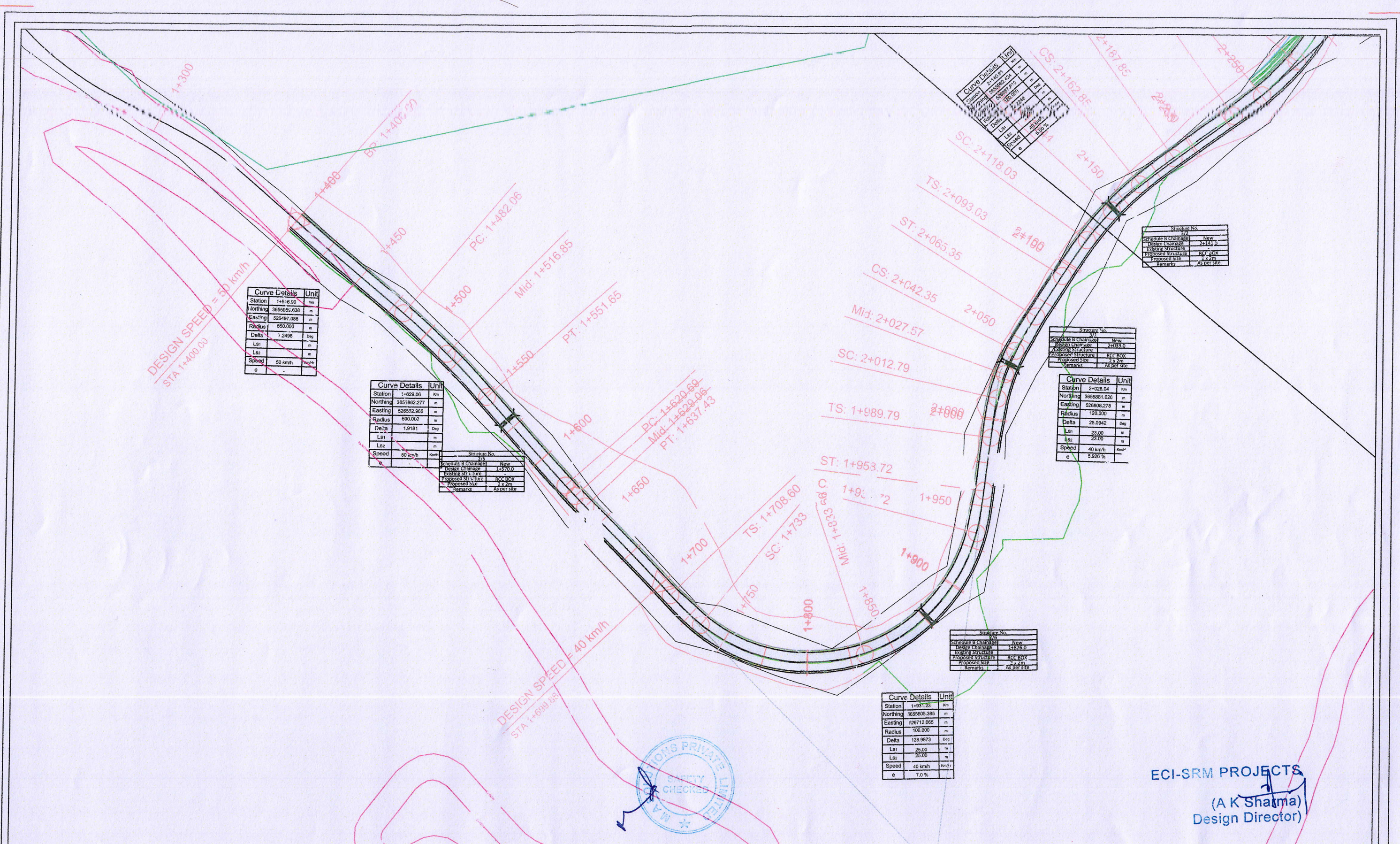
Legend			
	Existing Road		Edge Line marking
	Proposed ROW		Center Line marking
	Proposed CL		Guard rail
	Carriageway Edge (Proposed)		Toe wall
	Bench Cuts		Cut toe line
	Proposed Retaining Wall		Fill Toe Line
	Proposed Drain		Junction
	Proposed Culverts	0+000	Center Chainage
	Proposed Minor Bridge		
	Proposed Major Bridge		



ECI-SRM PROJECTS
(A.K. Sharma)
Design

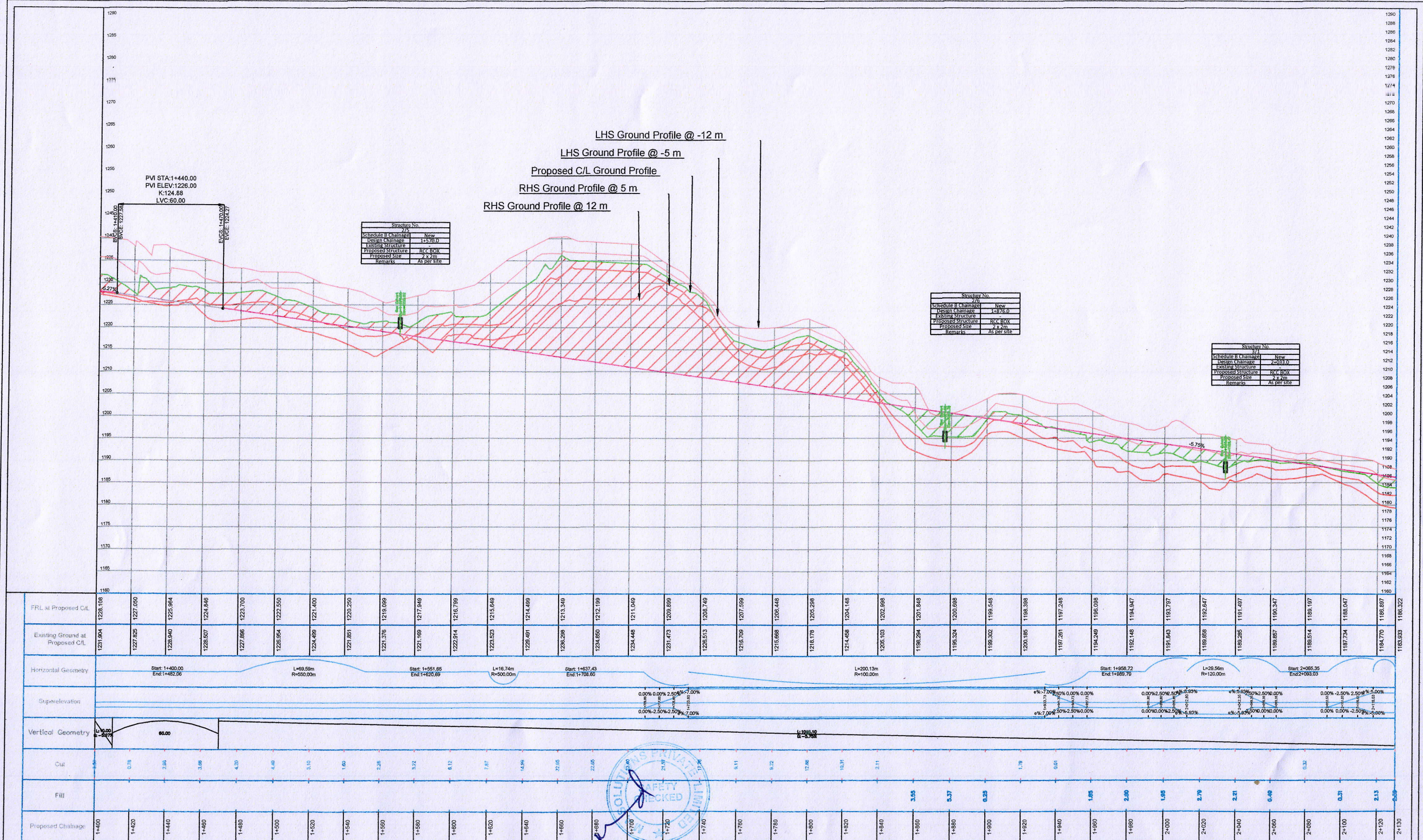
Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD (Ministry of Road Transport & Highways)	Project Title : Widening and upgradation to 2 lane with paved shoulder configuration and geometric improvement from km 0.000 to km 16.990 on Chenani -Sudhmahadev section of NH-244 in the State of Jammu & Kashmir	Proof Consultant : BERNARD Ingenieure ZT GmbH Safety Consultant : M A Solutions Pvt. Ltd. 	Authority Engineer : TPF GETINSA EUROESTUDIOS, S.L. in association with Segmental Consulting & Infrastructure Advisory (P) Ltd (SCIA) 	Drawing Title MAIN CARRIAGEWAY LEGENDS	Design Director Col. (retd.) A.K. Sharma STATUS: FOR APPROVAL SCALE :- NA Checked By: RU Design By: SP Drawn By: MR	REVISIONS			
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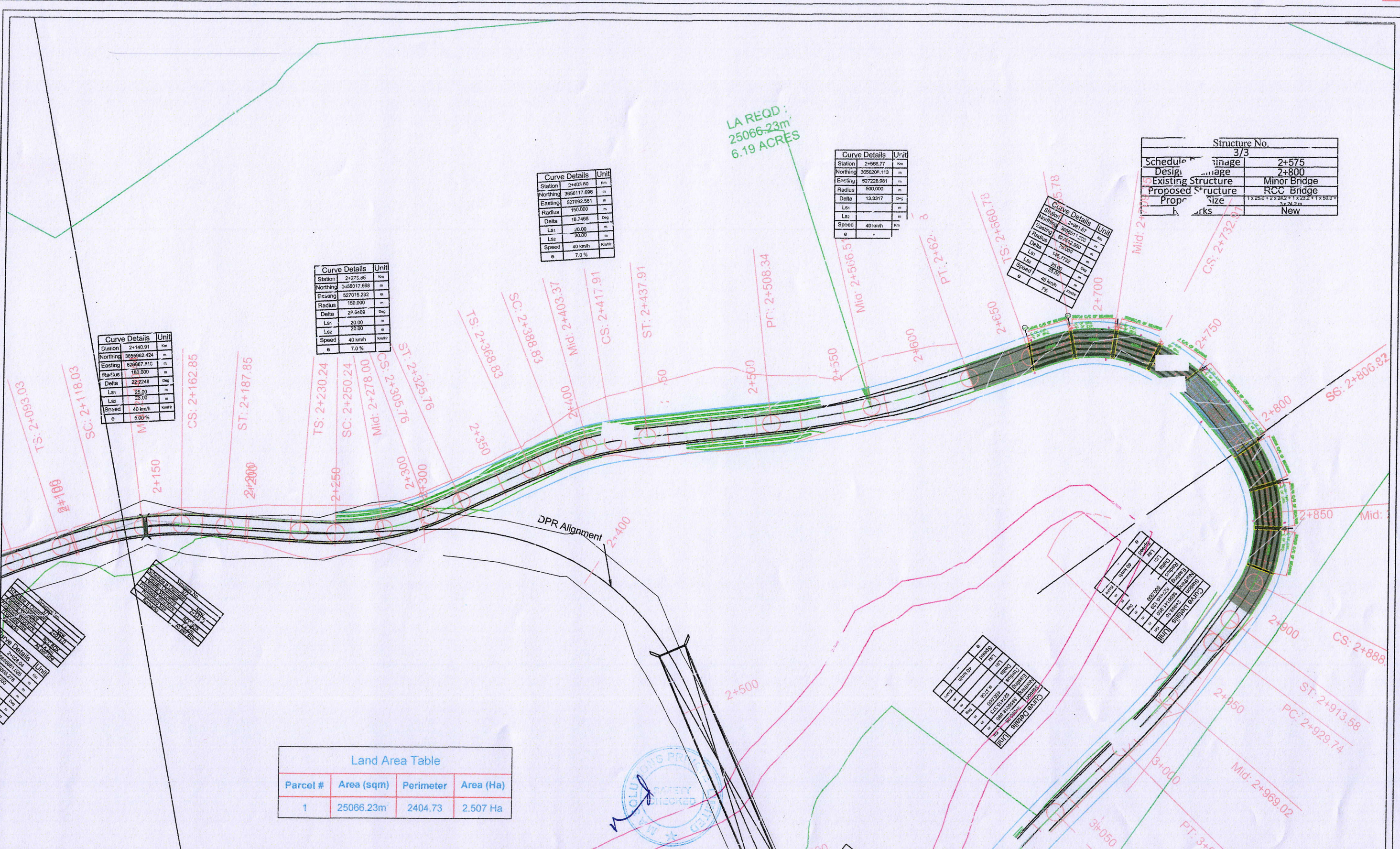




ECI-SRM PROJECTS
(A K Sharma)
Design Director

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						Issue Date	Description	Revision No.	Checked By
STATUS : FOR APPROVAL	SCALE : H=1:4000 V=1:400	Checked By : RU	Design By : SP	Drawn By : MR	Drg No. NH-244/Chnn-Sdhmdv/HWP&P/ KM-01+500 TO 02+100	20-01-2020	Re-alignment proposal for Major Bridge No. 2		





 NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD (Ministry of Road Transport & Highways)	Project Title : Widening and upgradation to 2 lane with paved shoulder configuration and geometric improvement from km 0.000 to km 16.990 on Chenani -Sudhmahadev section of NH-244 in the State of Jammu & Kashmir	Proof Consultant : For BERNARD Ingenieure ZT GmbH	Authority Engineer : TPF GETINSA EUROESTUDIOS, S.L. in association with Segmental Consulting & Infrastructure Advisory (P) Ltd (SCIA)	Drawing Title MAIN CARRIAGEWAY PLAN	Design Director Col. (retd.) A K Sharma	REVISIONS				
		Safety Consultant : M A Solutions Pvt. Ltd.	EPC Contractor : ECI- SRM Projects			Drg No. NH-244/Chnn-Sdhmdv/HWP&P/ KM-02+100 TO 02+800	Issue Date	Description	Revision No.	Checked By
							20-01-2020	Re-alignment proposal for Major Bridge No. 2		
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ECI-SPM PROJECTS

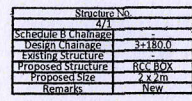
(A K Sharma)
Design Director

Structure No.	
3/3	
Schedule B Chainage	2+575
Design Chainage	2+800
Existing Structure	Minor Bridge
Proposed Structure	RCC Bridge
Proposed Size	1 x 25.0 + 2 x 20.2 + 1 x 25.2 + 1 x 50.0 3 x 78.2 m
Remarks	New



(A K Sharma)
Design Director)

LHS Ground Profile @ -12 m
LHS Ground Profile @ -5 m
Proposed C/L Ground Profile
RHS Ground Profile @ 5 m
RHS Ground Profile @ 12 m



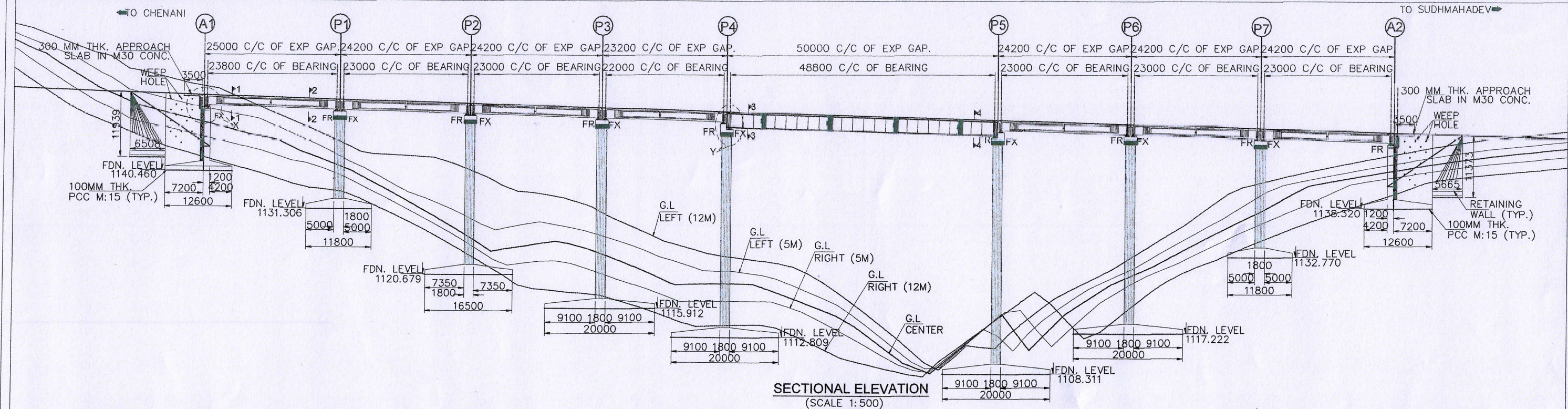
Structure No.	4/2
Schedule B Chainage	-
Design Chainage	3+250.0
Existing Structure	-
Proposed Structure	RCC BOX
Proposed Size	2 x 2m
Remarks	New

Structure No.	
473	
Schedule B Chainage	24880.0
Design Chainage	34391.0
Existing Structure	PIPE
Proposed Structure	RCC BOX
Proposed Size	2 x 2m
Remarks	Reconstruct

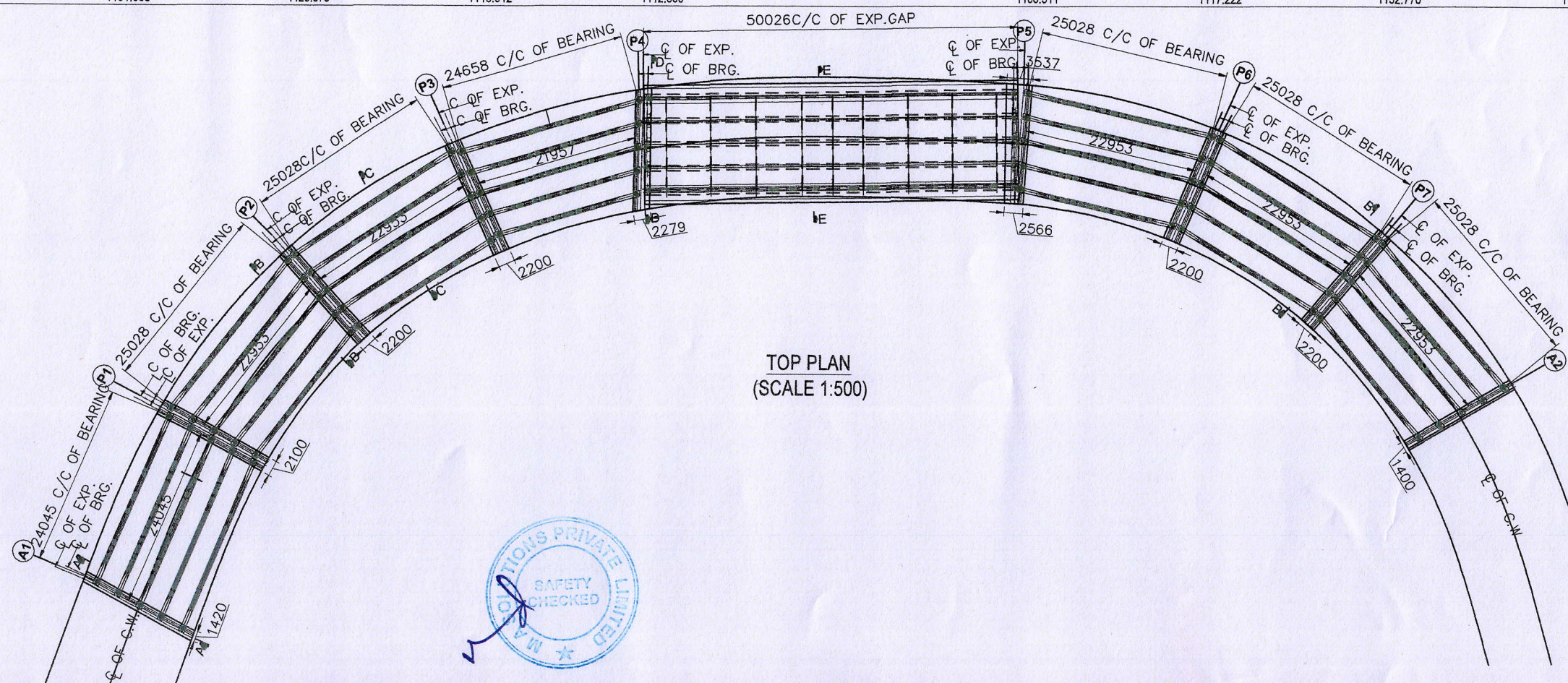
Structure No.	
4/4	
Schedule B Chainage	2+957.0
Design Chainage	2+980.0
Existing Structure	PIPE
Proposed Structure	RCC BOX
Proposed Size	2 x 2m
Remarks	Reconstruct

 NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD (Ministry of Road Transport & Highways)	Project Title : Widening and upgradation to 2 lane with paved shoulder configuration and geometric improvement from km 0.000 to km 16.990 on Chenani -Sudhmahadev section of NH-244 in the State of Jammu & Kashmir	Proof Consultant :  BERNHARD Ingenieure ZT GmbH	Authority Engineer : TPF GETINSA EUROESTUDIOS, S.L. In association with Segmental Consulting & Infrastructure Advisory (P) Ltd (SCIA)	Drawing Title MAIN CARRIAGEWAY PROFILE	Design Director Col. (retd.) A K Sharma	REVISIONS					
					Issue Date 20-01-2020	Description Re-alignment proposal for Major Bridge No. 2	Revision No.	Checked By			
		Safety Consultant :  M A Solutions Pvt. Ltd.	EPC Contractor : ECI- SRM Projects	Drg No. NH-244/Chnn-Sdhmdv/HW/P&P/ KM-02+800 TO 03+471.5	STATUS : FOR APPROVAL	SCALE :- H=1:4000 V=1:400					
					Checked By : RU	Design By : SP	Drawn By : MR				

MJB



FORMATION LEVEL (m) (PCL)	1150.810	1151.336	1139.881	1152.788	1154.288	1153.538	1154.984	1155.710	1156.436	1152.186
GROUND LEVEL CENTER	1145.690	1139.179	1127.508	1125.996	1122.656		1118.439	1127.715	1141.088	1145.196
RIGHT GROUND LEVEL (12M)	1142.973	1134.519	1124.210	1118.294	1114.994		1118.285	1121.816	1135.712	1140.869
LEFT GROUND LEVEL (12M)	1152.296	1143.668	1139.881	1133.664	1127.683		1113.192	1131.030	1146.406	1148.124
CHAINAGE (M)	2+661.000	2+686.000	2+734.400	2+757.600	2+807.600	2+782.600	2+831.800	2+856.000	2+856.000	2+880.200
FDN. LEVEL (M)	1140.460	1131.306	1120.679	1115.912	1112.809		1108.311	1117.222	1132.770	1138.320



(DRAFT COPY FOR PLANNING PURPOSE)

CLIENT:
NADCL
NATIONAL HIGHWAYS & INFRASTRUCTURE
DEVELOPMENT CORPORATION LTD
(MINISTRY OF ROAD TRANSPORT & HIGHWAYS)

PROJECT TITLE:
WIDENING AND UPGRADATION TO 2 LANE WITH
PAVED SHOULDER CONFIGURATION AND
GEOMETRIC IMPROVEMENT FROM Km 0.000 TO
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NH - 244 IN THE STATE OF JAMMU & KASHMIR

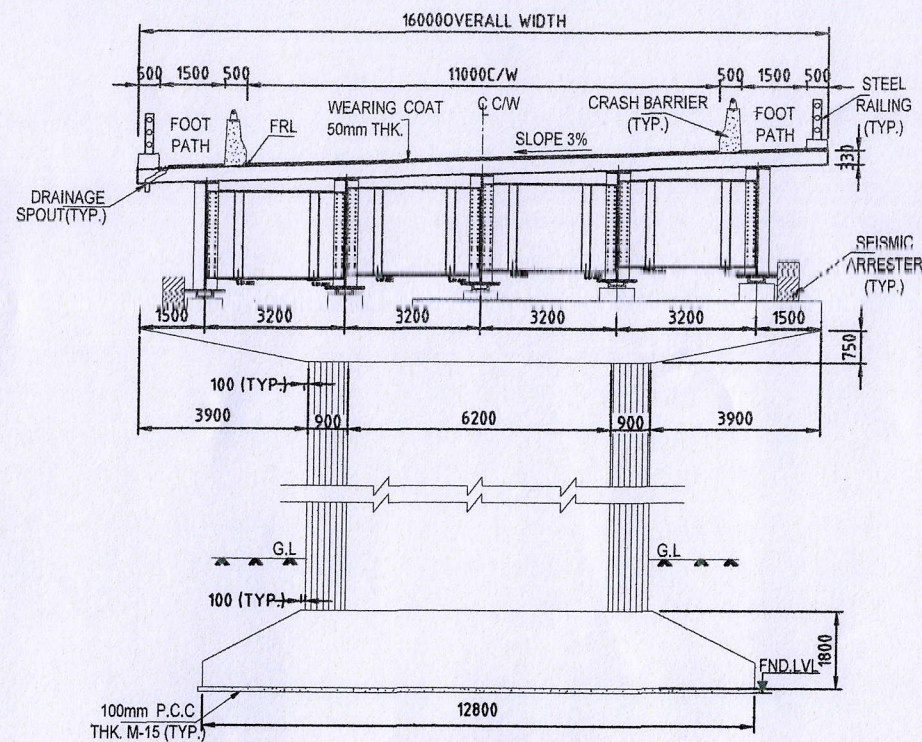
PROJECT CONSULTANT:
BERNARD Ingenieure ZT GmbH
SAFETY CONSULTANT:
M A Solutions Pvt. Ltd.

AUTHORITY ENGINEER:
TPF GETINSA EUROESTUDIOS, S.L.
In association with
SEGMENTAL CONSULTING & INFRASTRUCTURE
Advisory (P) Ltd (SCIA)
EPC CONTRACTOR:
ECI - SRM Projects

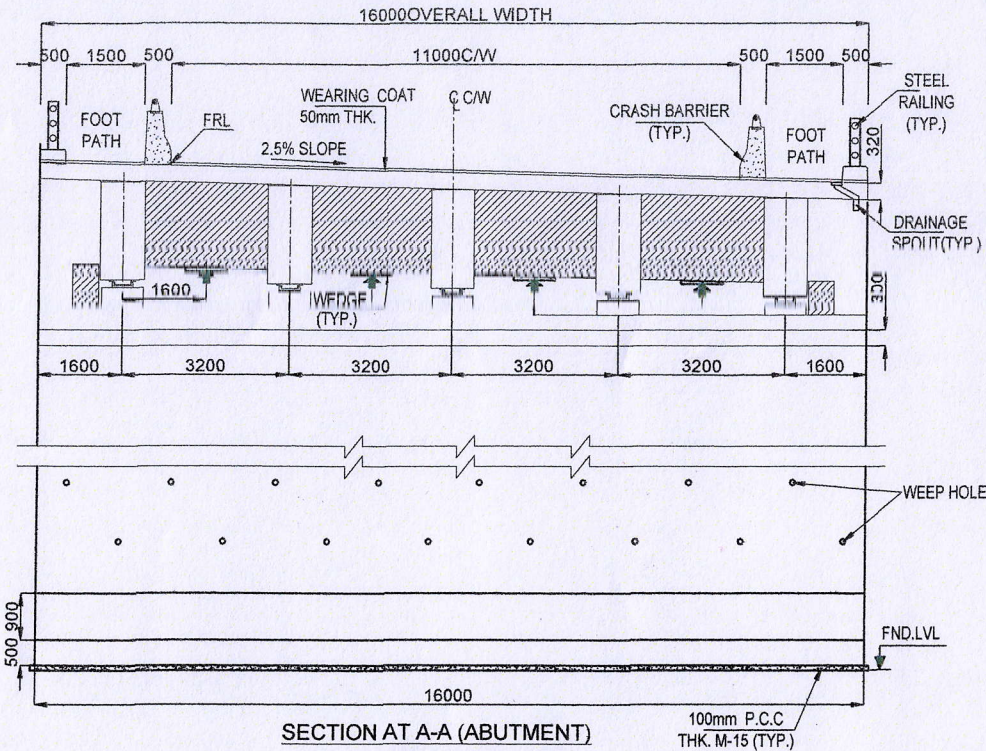
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GENERAL ARRANGEMENT DRAWING
(219.2m MJB CA CH-2+575)
DRAWING NO.:
ECI-SRM/NH-244/MJB/
CH-2+782.600/101

STATUS	FOR APPROVAL	DATE	JAN 2020						
SCALE	AS SHOWN	SHEET	01 OF 03						
CHK. BY	V.P.S	EX. CH.							
DES. BY	P.S	CA CH.	2+575	24-01-20	FOR APPROVAL	R0	V.P.S		
DRN. BY	N.R	PROP. CH.	2+782.6	DATE	DESCRIPTION	REV.	CHK. BY		

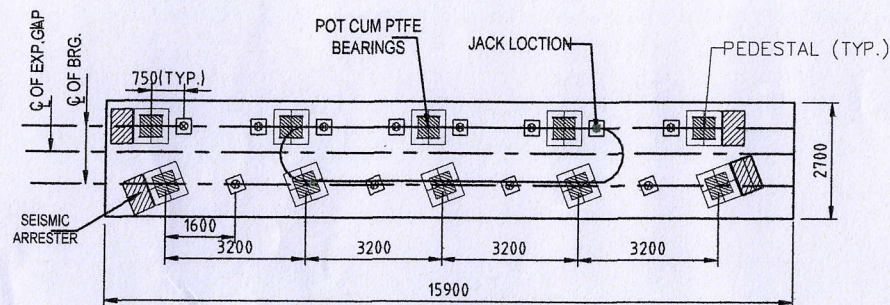
ECI-SRM PROJECTS
DESIGN DIRECTOR
(A K Sharma)
Design Director
COL. A K SHARMA



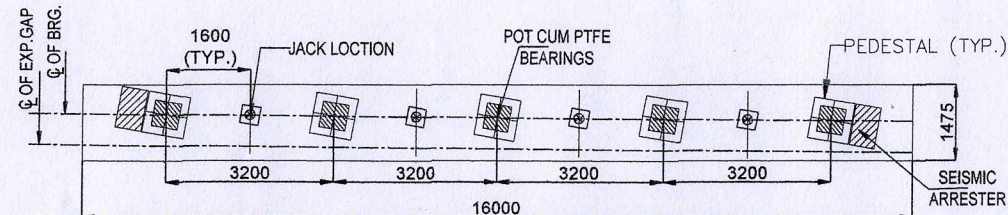
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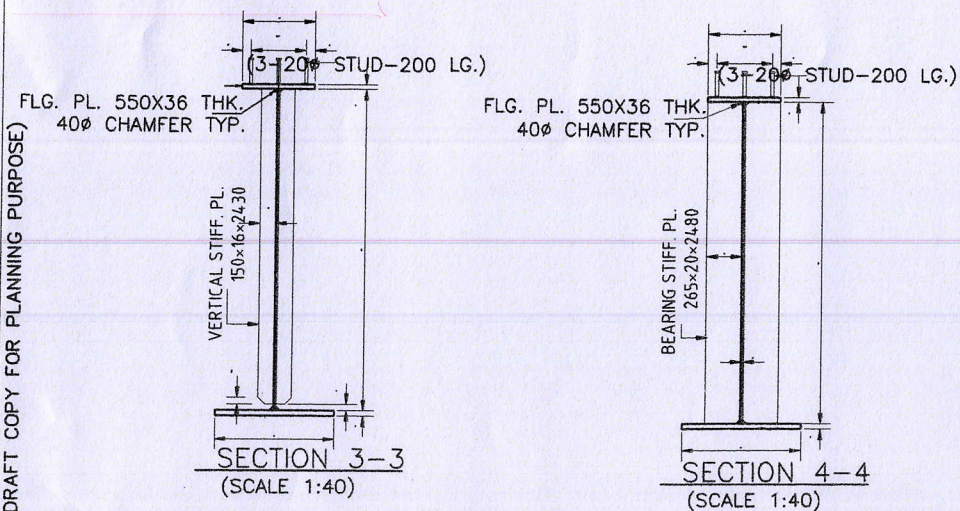
SECTION AT A-A (ABUTMENT)
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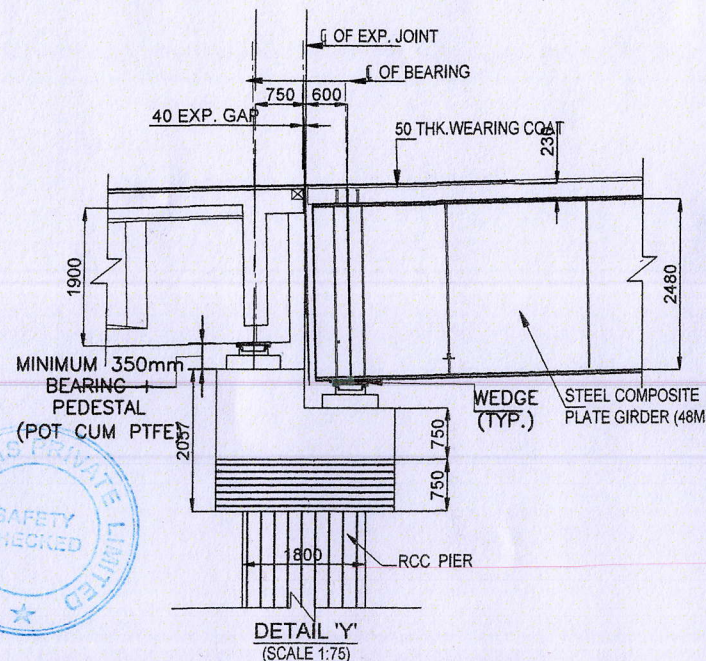
DETAIL OF PIER CAP PLAN
(SCALE 1:120)



DETAIL OF ABUTMENT PLAN
(SCALE 1:100)

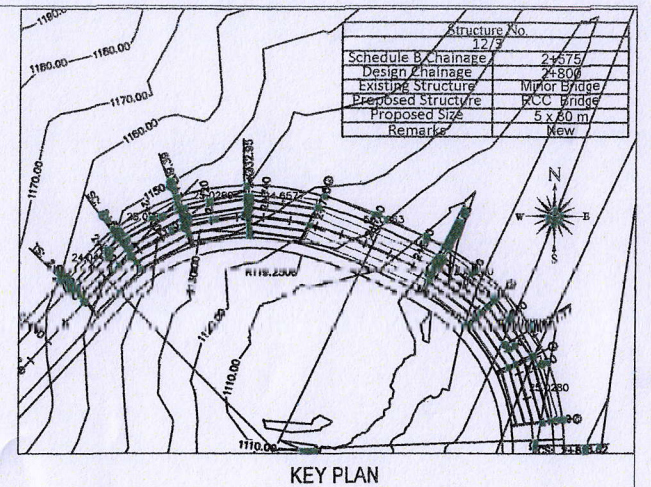


(DRAFT COPY FOR PLANNING PURPOSE)



LEGEND:-

F.R.L.	: FINISHED ROAD LEVEL
H.F.L.	: HIGH FLOOD LEVEL
C/L	: CENTER LINE
LVL.	: LEVEL
TYP.	: TYPICAL
THK.	: THICK
D/S	: DOWNSTREAM
U/S	: UPSTREAM
C/C	: CENTER TO CENTER
G.L.	: GROUND LEVEL
FDN.	: FOUNDATION LEVEL
EXP.	: EXPANSION
BRG.	: BEARING
LBL.	: LOWEST BED LEVEL
LWL.	: LOWEST WATER LEVEL
PCL	: PROPOSED CENTER LINE
C/W	: CARRIAGEWAY



KEY PLAN

NOTES:-

- ALL DIMENSIONS ARE IN mm AND LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED. NO DIMENSION SHALL BE SCALED.
- DO NOT SCALE THE DRAWING. FOLLOW WRITTEN DIMENSIONS ONLY.
- READ THE DRAWING WITH ROAD ALIGNMENT DRAWING.
- MODERATE CONDITION OF EXPOSURE HAS BEEN CONSIDERED IN DESIGN.
- THE PROPOSED FOUR LANE BRIDGE HAS BEEN DESIGNED FOR SINGLE LANE CLASS 70R + TWO LANE CLASS A LOADING OR FOUR LANES OF CLASS A OR TWO LANES CLASS 70R OR SPECIAL VEHICLE, WHICHEVER GOVERNS.
- BEFORE STARTING UP THE EXECUTION VERIFY THE DIMENSIONS. ANY DISCREPANCY SHALL BE BROUGHT TO THE NOTICE OF THE CONSULTANT.
- HYDRAULIC DATA

CATCHMENT AREA	Km ²	9.470
H.F.L. (AFFLUXED)	m	1407.930
DISCHARGE	CUMEC	159.630
LWL	m	1400.222
VELOCITY	m/sq	1.107
VC(MIN.)	m	0.900

8. GRADE OF CONCRETE & CLEAR COVER TO OUTERMOST STEEL

PSC GIRDER	M45	40mm
CAST IN SITU SLAB	M35	40mm
SUB STRUCTURE		
EARTH FACE	M35	75mm
OTHER FACE		40mm
FOUNDATION	M35	75mm
LEVELING COURSE(UNDER FOUNDATION)	PCC M15	-
LEVELING COURSE(UNDER APPROACH SLAB)	PCC M15	-
CRASH BARRIER	M40	40mm
APPROACH SLAB	M30	40mm

- WEARING COAT SHALL CONSIST OF 50MM THICK BITUMINOUS CONCRETE AS PER SECTION 2700 OF MORT&H SPECIFICATION.
- EXPANSION JOINT - STRIP SEAL TYPE (+20mm) AS PER IRC SP-69-2011.
- GRADE OF STEEL SHALL BE Fe-500D CONFORMING TO IS-1786.
- BACK FILL BEHIND ABUTMENT WALL PROPERTIES SHALL BE ANGLE OF INTERNAL FRICTION (φ) = 30°, DENSITY = 18KN/m DELTA = 20°
- LAYING COMPACTION AND EXTENT OF BACKFILL BEHIND ABUTMENT AND RETURN WALL SHALL CONFORM TO SPECIFICATIONS IN APPENDIX 6 OF IRC: 78-2014.
- WATER TO BE USED IN CONCRETING, GROUTING AND CURING SHALL CONFORM TO IRC-112-2011.
- THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY PLAN AND PROFILE DRAWINGS.
- FOR APPROACH SLAB, DRAINAGE SPOUTS, CRASH BARRIER AND RETAINING WALL DETAILS REFER SEPARATE DRAWINGS.

*ALL DIMENSION AND LEVELS ARE TENTATIVE SUBJECT TO CHANGE DURING ITS DETAILED DESIGN AND AFTER DETAILED GEOTECHNICAL INVESTIGATION.

DESIGN DIRECTOR
ECI-SRM PROJECTS
(A K Sharma)
COL. A K SHARMA
Design Director

CLIENT :
NADCL
NATIONAL HIGHWAYS & INFRASTRUCTURE
DEVELOPMENT CORPORATION LTD
(MINISTRY OF ROAD TRANSPORT & HIGHWAYS)

PROJECT TITLE :
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BERNARD Ingenieure ZT GmbH

SAFETY CONSULTANT :
MASP M A Solutions Pvt. Ltd.

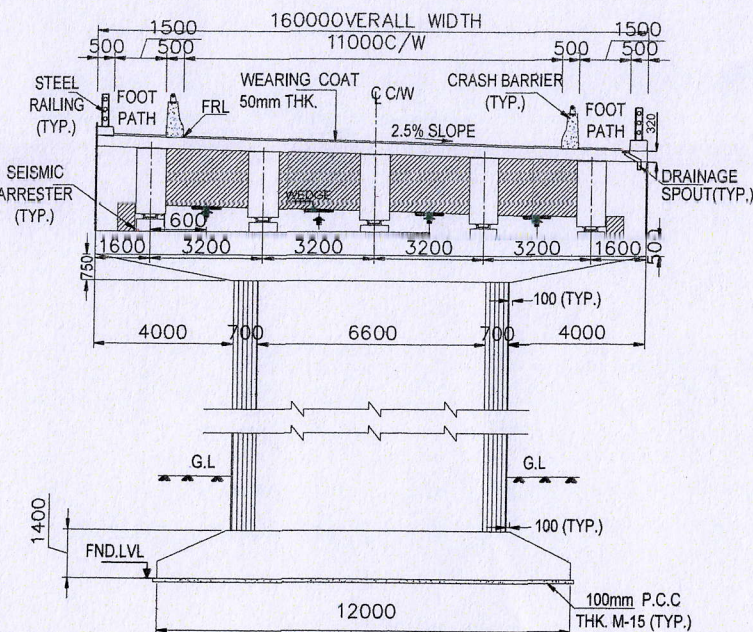
AUTHORITY ENGINEER :
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In association with
SEGMENTAL CONSULTING & INFRASTRUCTURE
Advisory (P) Ltd (SCIA)

EPC CONTRACTOR :
ECI-SRM Projects

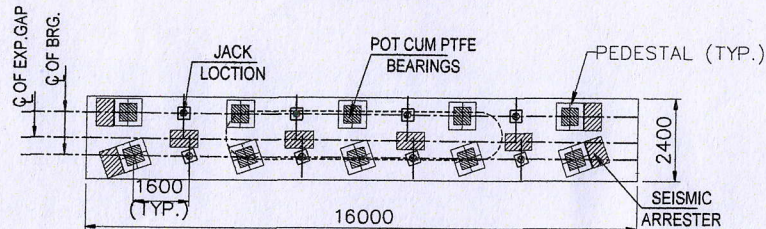
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GENERAL ARRANGEMENT DRAWING
(219.2m MJB CA CH-2+575)

DRAWING NO. :
ECI-SRM/NH-244/MJB/
CH-2+782.600/101

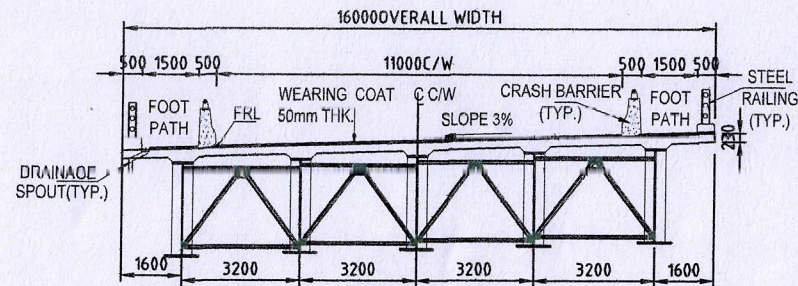
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DRN. BY	N.R	PROP. CH.	2+782.6	DATE	DESCRIPTION			REV.	CHK. BY



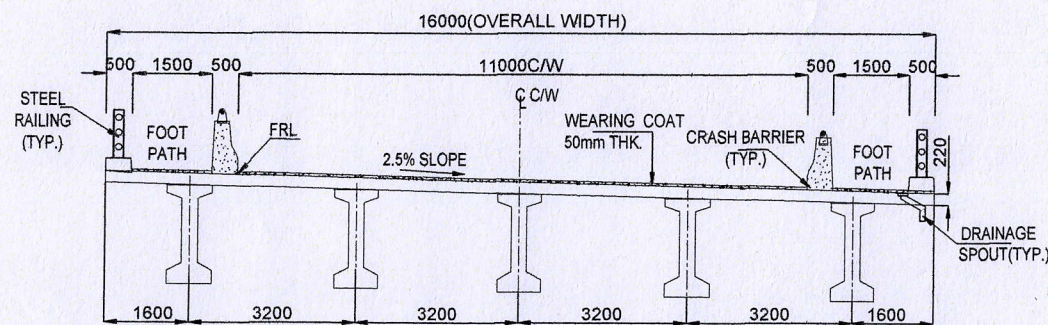
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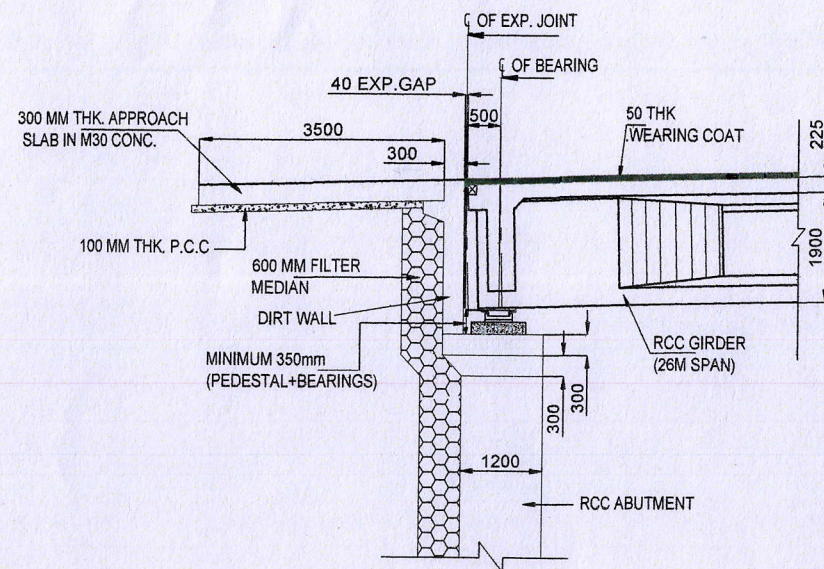
DETAIL OF PIER CAP PLAN
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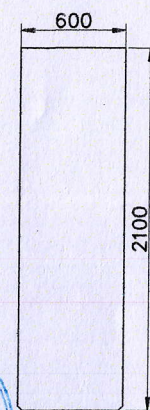
CENTRAL SPAN (CROSS SECTION P4-P5) SECTION (E-E)
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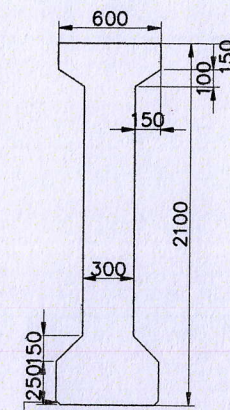
SECTION AT MID SECTION (C-C)
(SCALE 1:100)



DETAIL 'X'
(SCALE 1:75)



SECTION AT 2-2
(SCALE 1:30)



SECTION AT 1-1
(SCALE 1:30)

LEGEND:-

F.R.L	:	FINISHED ROAD LEVEL
H.F.L	:	HIGH FLOOD LEVEL
C/L	:	CENTER LINE
LVL	:	LEVEL
TYP.	:	TYPICAL
THK	:	THICK
D/S	:	DOWNSTREAM
U/D	:	UPSTREAM
C/C	:	CENTER TO CENTER
G.L	:	GROUND LEVEL
FDN.	:	FOUNDING LEVEL
EXP.	:	EXPANSION
BRG.	:	BEARING
LBL	:	LOWEST BED LEVEL
LWL	:	LOWEST WATER LEVEL
PCL	:	PROPOSED CENTER LINE
C/W	:	CARRIAGEWAY

(DRAFT COPY FOR PLANNING PURPOSE)

CLIENT :

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DEVELOPMENT CORPORATION LTD
(MINISTRY OF ROAD TRANSPORT & HIGHWAYS)

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PROOF CONSULTANT :
BERNARD Ingenieure ZT GmbH
For BERNARD Ingenieure ZT GmbH

SAFETY CONSULTANT :
M A Solutions Pvt. Ltd.

AUTHORITY ENGINEER :
TPF GETINSA EUROESTUDIOS, S.L.
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EPC CONTRACTOR :
ECI - SRM Projects

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(219.2m MJB CA CH-2+575)

DRAWING NO. :
ECI-SRM/NH-244/MJB/
CH-2+782.600/101

STATUS	FOR APPROVAL	DATE	JAN 2020						
SCALE	AS SHOWN	SHEET	03 OF 03						
CHK. BY	V.P.S	EX. CH.							
DES. BY	P.S	CA CH.	2+575	24-01-20	FOR APPROVAL	R0	V.P.S		
DRN. BY	N.R	PROP. CH.	2+782.6	DATE	DESCRIPTION	REV.	CHK. BY		

ECI-SRM PROJECTS

DESIGN DIRECTOR
(A K Sharma)
Design Director
COL. A K SHARMA