

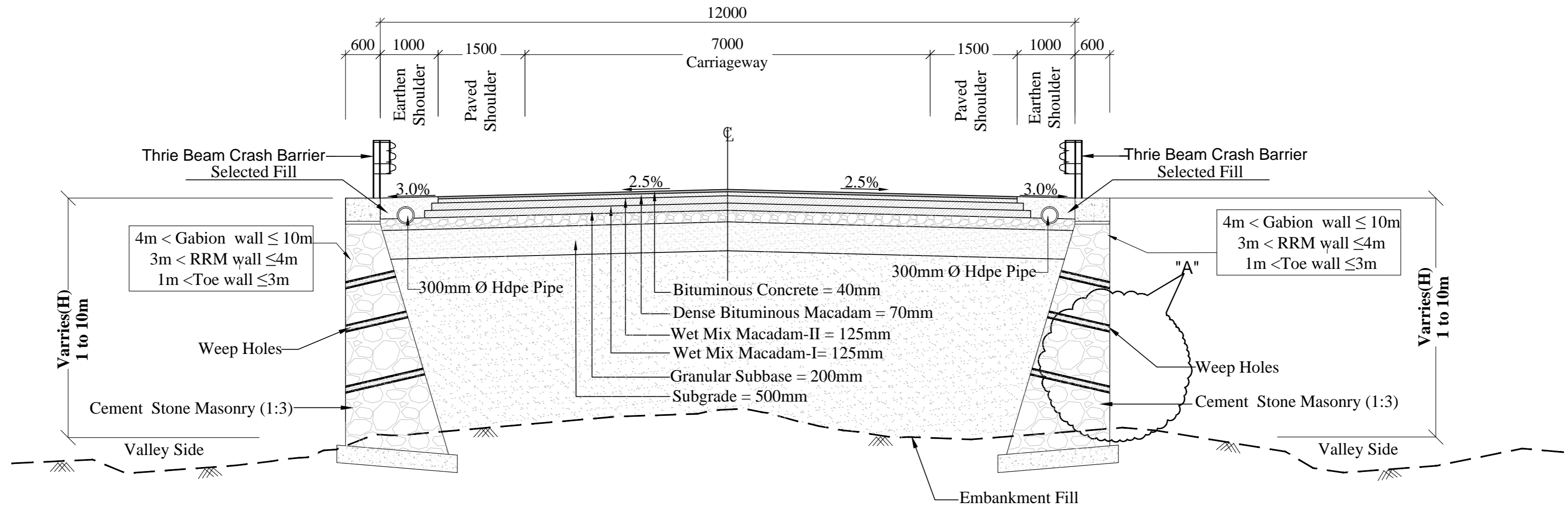
**Annex-III  
(schedule-A)**

**Construction & Up-gradation To 2 Lane With Paved Shoulder From Design Km 80+675 To Km 95+550 Of Length 14.875 & Link Road From 0+000 To 1+871 Of Length = 1.871 Km Total Length = 16+746 Km (including Link Road) On Khellani - Kishtwar - Chattroo - Khanabal Section Of Nh 244 In The Union Territory Of Jammu And Kashmir**

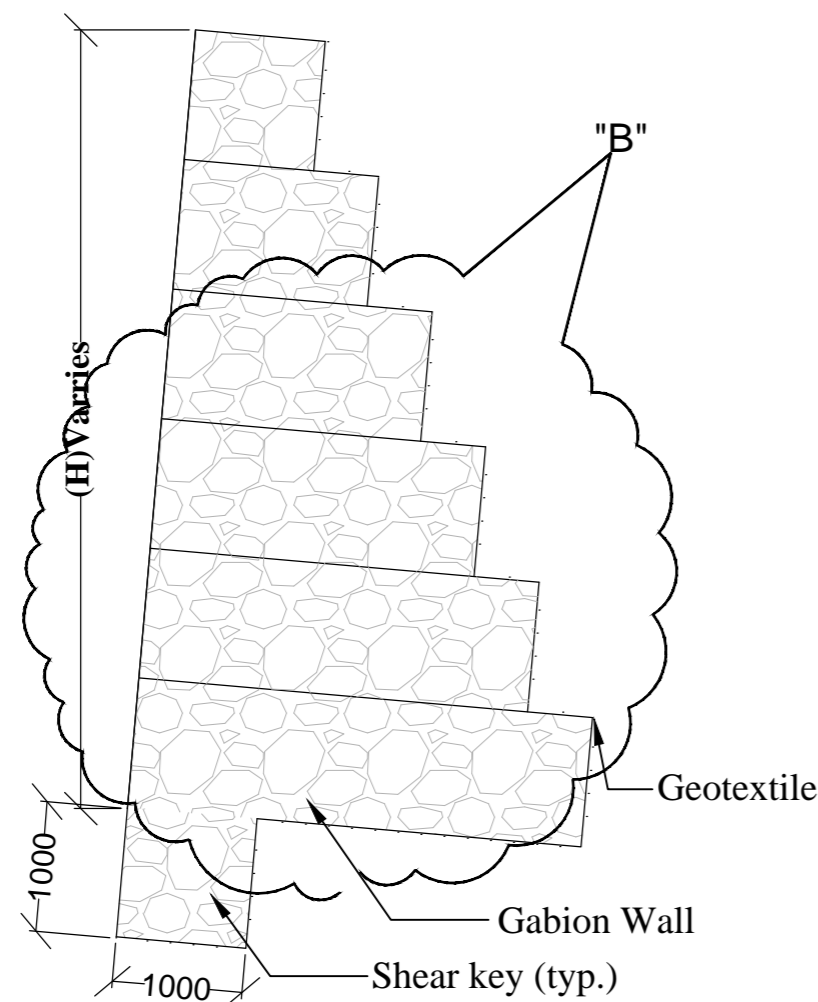
**(Alignment Plan)**

# HIGHWAYS

# **TYPICAL CROSS SECTION**



**Type - 1 - Typical Cross-Section For Two Lane Carriageway With Paved Shoulder  
In Mountainous Terrain With Both Side Fill & Protection As Applicable .  
(New Construction)**

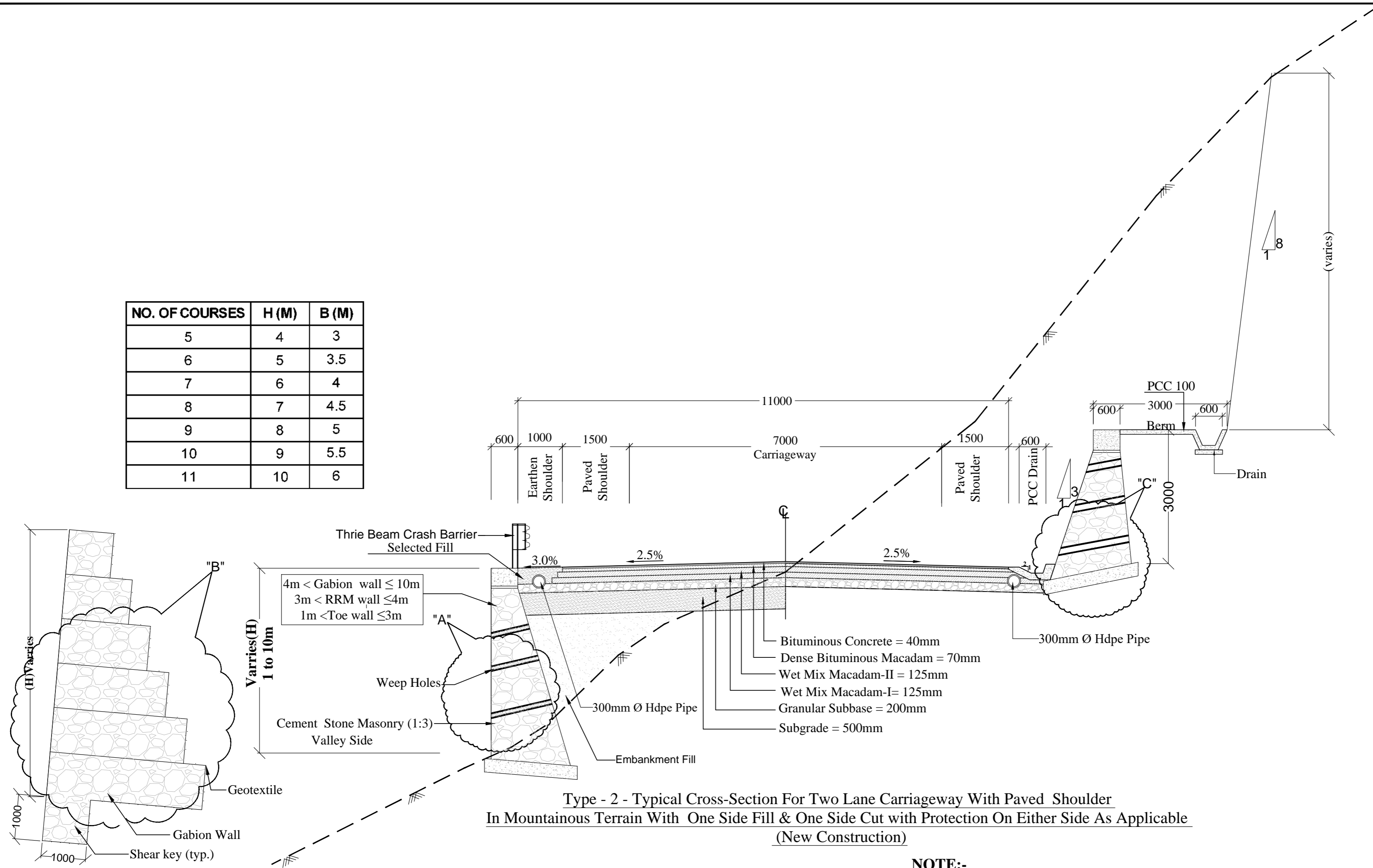


**NOTE:-**

1. All dimensions are in millimeters except otherwise specified
2. Extra widening will be provided where radius of horizontal curve is less than 300m.
3. Toe wall shall be provided where height of embankment is less than 3m & greater than 1m.
4. Retaining wall shall be provided where height of embankment is greater than 3m & less than 4m.
5. Gabion wall shall be provided where height of embankment is greater than 4m.
6. Breast wall shall be provided where height of cut is greater than 3m.
7. No protection is required when height of fill is less than 1m and height of cut is less than 3m.
8. Refer standard drawing for details of Section - A" B"C"D"E"F"
9. Wire mesh shall be provided in presence of unstable strata
10. Shear key will be adopted where height of gabion wall is more than 5m.

REVISION	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	Project	Sheet size: A2	Drawing Title
R0	Oct.-2020		<b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	<b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA)  <b>In Association with</b> <b>Monarch Surveyors and Engineering</b> <b>Consultants Pvt. Ltd.,</b>	From Design Km.80+675 to Km.95+550	TENDER DRAWING	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHITWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R1	Dec.-2020						
						Scale: N.T.S.	Drawing No. NHIDCL/NH244/KHELLANI - CHATTROO/TCS/ 01/R0
							Drawing Title: TYPICAL CROSS SECTION Annex III

NO. OF COURSES	H (M)	B (M)
5	4	3
6	5	3.5
7	6	4
8	7	4.5
9	8	5
10	9	5.5
11	10	6



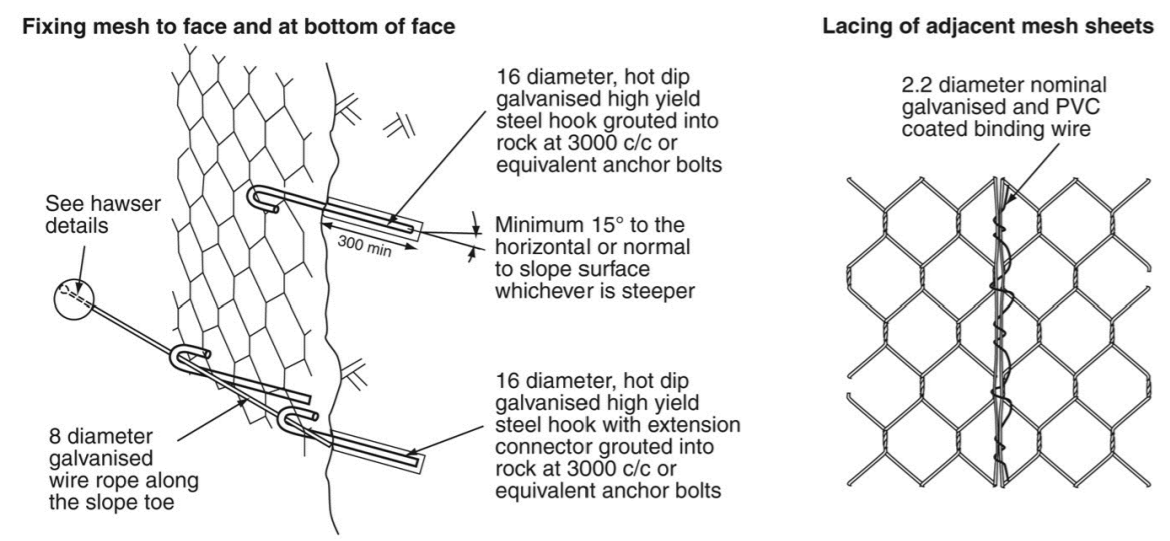
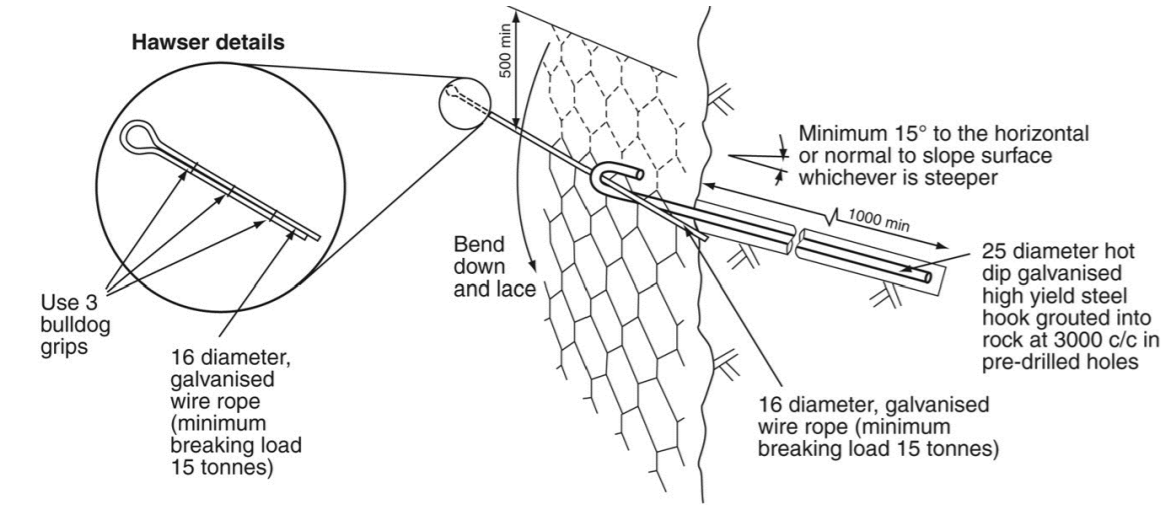
**Type - 2 - Typical Cross-Section For Two Lane Carriageway With Paved Shoulder  
In Mountainous Terrain With One Side Fill & One Side Cut with Protection On Either Side As Applicable  
(New Construction)**

**NOTE:-**

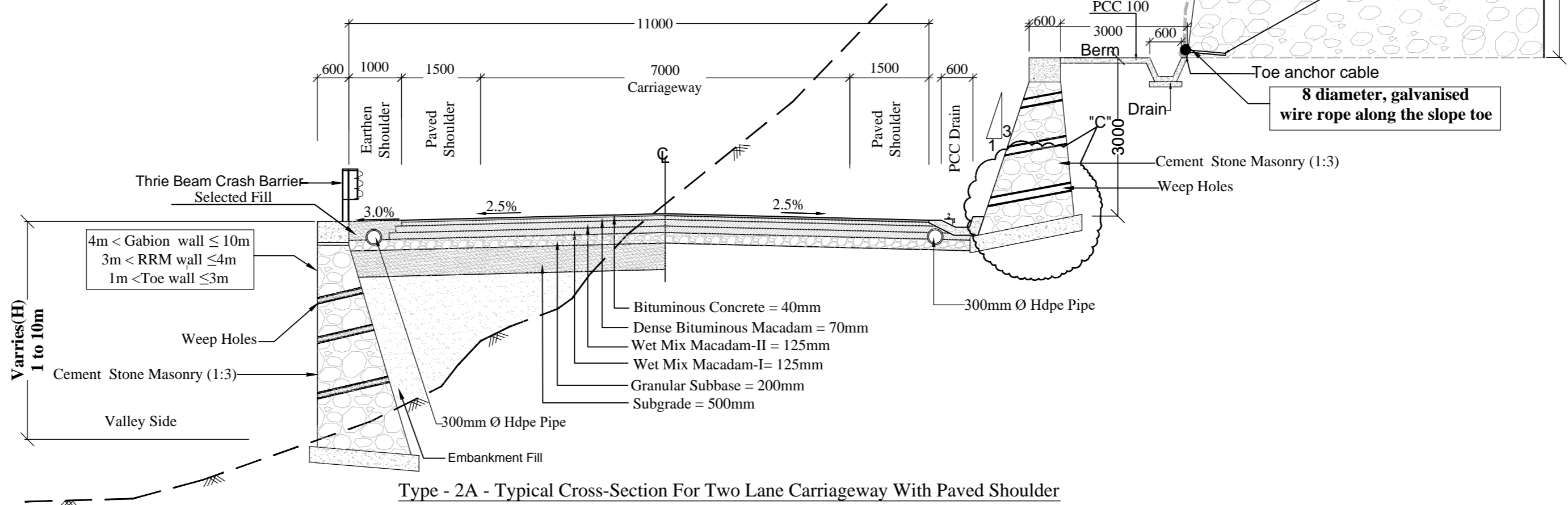
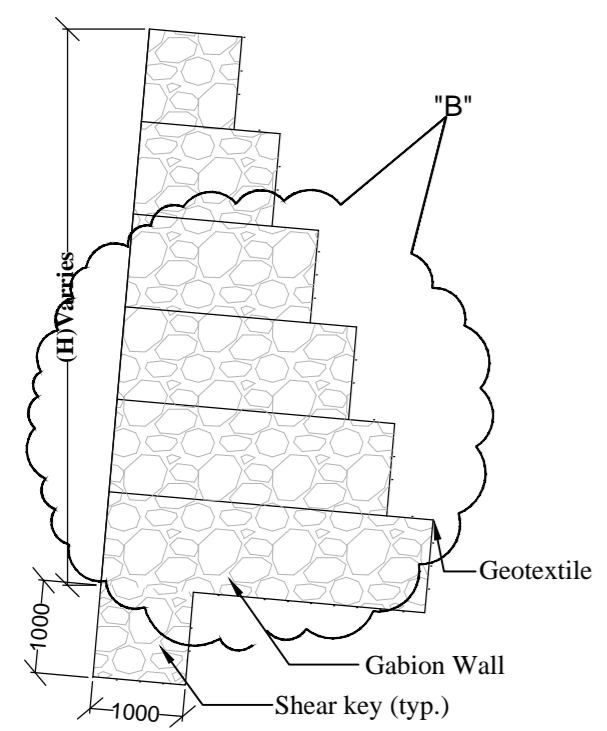
1. All dimensions are in millimeters except otherwise specified
2. Extra widening will be provided where radius of horizontal curve is less than 300m.
3. Toe wall shall be provided where height of embankment is less than 3m & greater than 1m.
4. Retaining wall shall be provided where height of embankment is greater than 3m & less than 4m.
5. Gabion wall shall be provided where height of embankment is greater than 4m.
6. Breast wall shall be provided where height of cut is greater than 3m.
7. No protection is required when height of fill is less than 1m and height of cut is less than 3m.
8. Refer standard drawing for details of Section - A" B"C"D"E" F"
9. Wire mesh shall be provided in presence of unstable strata
10. Shear key will be adopted where height of gabion wall is more than 5m.

REVISION	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	Project	Sheet size: A2	Drawing Title
R0	Oct.-2020		<b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	<b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) <b>In Association with</b> <b>Monarch Surveyors and Engineering</b> <b>Consultants Pvt. Ltd.,</b>	From Design Km.80+675 to Km.95+550	TENDER DRAWING	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R1	Dec.-2020						
						N.T.S.	TYPICAL CROSS SECTION
							Annex III
							Drawing No. NHIDCL/NH244/KHELLANI - CHATTROO/TCS/ 02/R0

Section "D" Detail of Wire Mesh/Cable Net Slope Protection



All dimensions in mm



Type - 2A - Typical Cross-Section For Two Lane Carriageway With Paved Shoulder In Mountainous Terrain With One Side Fill & One Side Cut with Protection On Either Side As Applicable and additional Wire Mesh/Cable Net Slope Protection on Hill Side (New Construction)

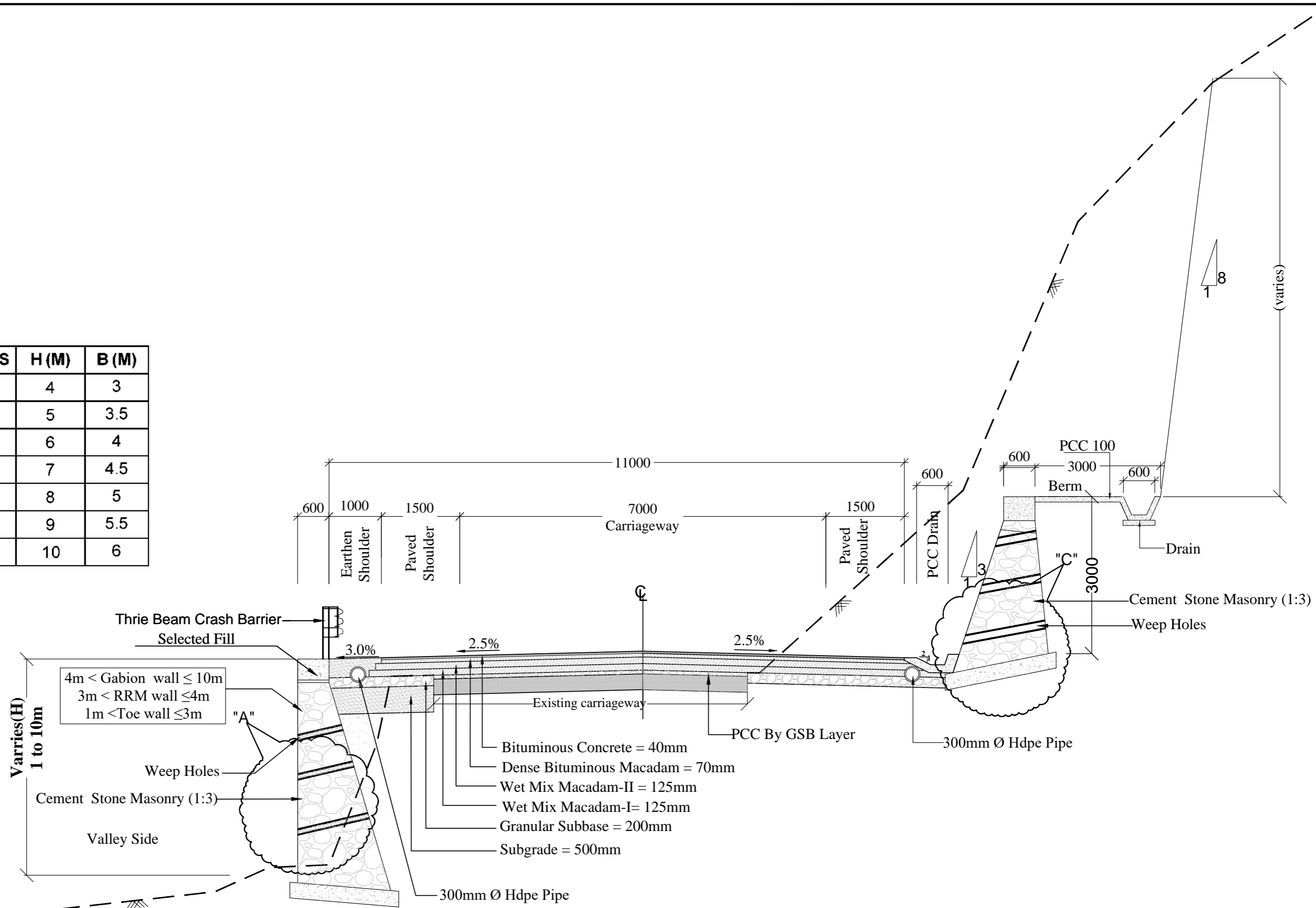
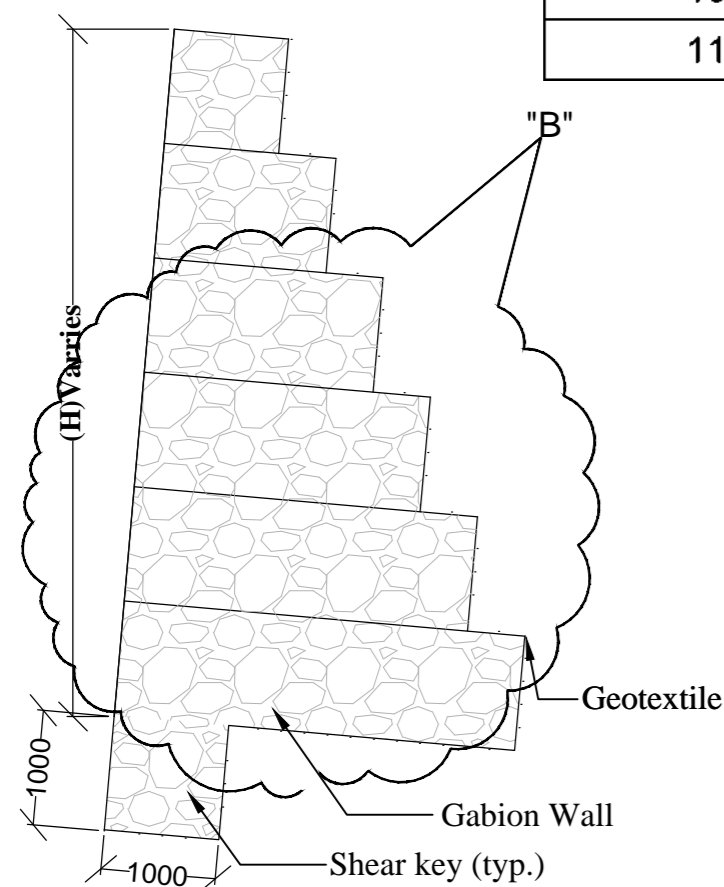
NO. OF COURSES	H (M)	B (M)
5	4	3
6	5	3.5
7	6	4
8	7	4.5
9	8	5
10	9	5.5
11	10	6

**NOTE:-**

- 1.All Dimension are in millimeters except otherwise specified
- 2.Extra widening will be provided where radius of horizontal curve is less than 300m.
- 3.Toe wall Shall be provided where height of embankment is less than 3m.& greater than 1m.
- 4.Retaining wall Shall be provided where height of embankment is greater than 3m. & less than 4m.
- 5.Gabion wall shall be provided where height of embankment is greater than 4 m.
- 6.Breast wall Shall be provided where height of cut is greater than 3m.
- 7.No protection is required when height of fill is less than 1 m and height of cut is less than 3 m.
- 8.Refer Standard drawing for Details of Section - A" B"C"D"E"F"
9. Wire mesh shall be provided in presence of unstable of strata
- 10.Shear key will be adopedted where ht.of gabion wall is more than 5m.

REVISION	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	Project	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R0	Oct.-2020		NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	RODIC CONSULTANTS PVT. LTD. 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with Monarch Surveyors and Engineering Consultants Pvt. Ltd.,	From Design Km.80+675 to Km.95+550	TENDER DRAWING
R1	Dec.-2020					
					Scale	N.T.S.
					Designed:	B D
					Drawn:	S S
					Checked:	T M
					Approved:	A M
					Drawing Title	TYPICAL CROSS SECTION
					Sheet size:	A2
					Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/TCS/ 03/R0
						Annex III

NO. OF COURSES	H (M)	B (M)
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6	5	3.5
7	6	4
8	7	4.5
9	8	5
10	9	5.5
11	10	6



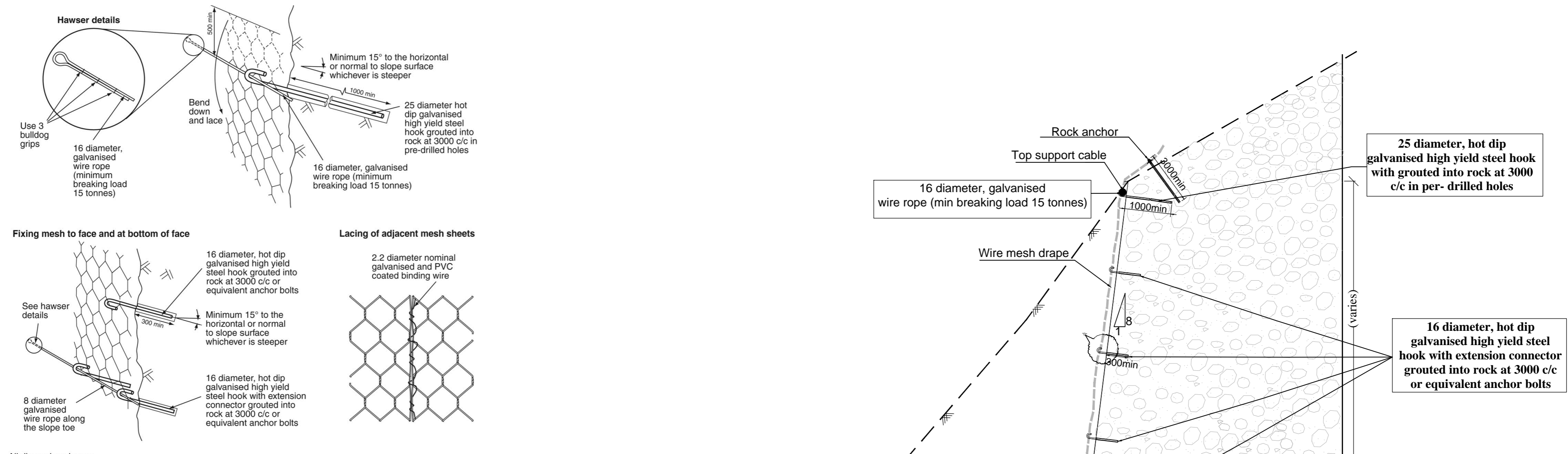
**Type - 3 - Typical Cross-Section For Two Lane Carriageway With Paved Shoulder  
In Mountainous Terrain With One Side Fill & One Side Cut with Protection On Either Side As Applicable  
(Reconstruction)**

**NOTE:-**

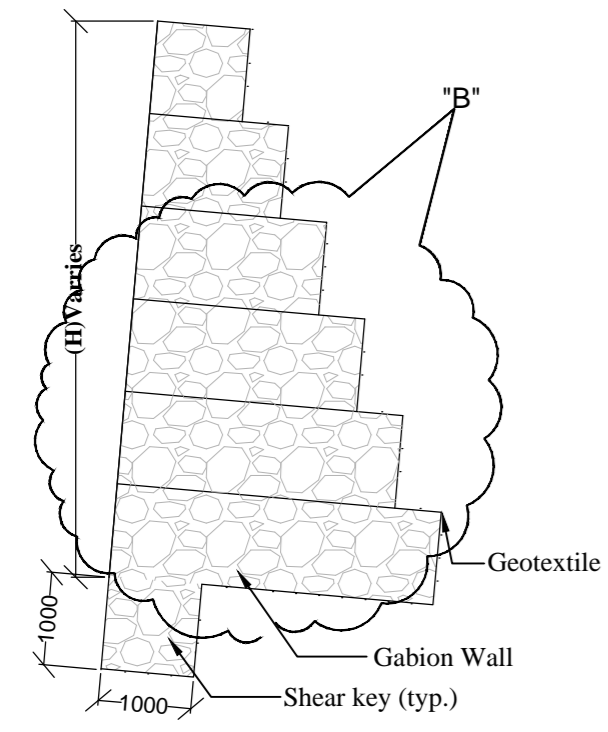
1. All Dimension are in millimeters except otherwise specified
2. Extra widening will be provided where radius of horizontal curve is less than 300m.
3. Toe wall Shall be provided where height of embankment is less than 3m. & greater than 1m.
4. Retaining wall Shall be provided where height of embankment is greater than 3m. & less than 4m.
5. Gabion wall shall be provided where height of embankment is greater than 4 m.
6. Breast wall Shall be provided where height of cut is greater than 3m.
7. No protection is required when height of fill is less than 1 m and height of cut is less than 3 m.
8. Refer Standard drawing for Details of Section - A" B"C"D"E"F"
9. Wire mesh shall be provided in presence of unstable of strata
10. Shear key will be adopedted where ht.of gabion wall is more than 5m.

REVISION	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	Project	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR				
R0	Oct.-2020		<b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	<b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA)  <b>In Association with</b> <b>Monarch Surveyors and Engineering Consultants Pvt. Ltd.,</b>	From Design Km.80+675 to Km.95+550	TENDER DRAWING	Project	Drawing Title Sheet size: A2	TYPICAL CROSS SECTION	Annex III
R1	Dec.-2020									
					Scale N.T.S.	Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/TCS/04/R0			

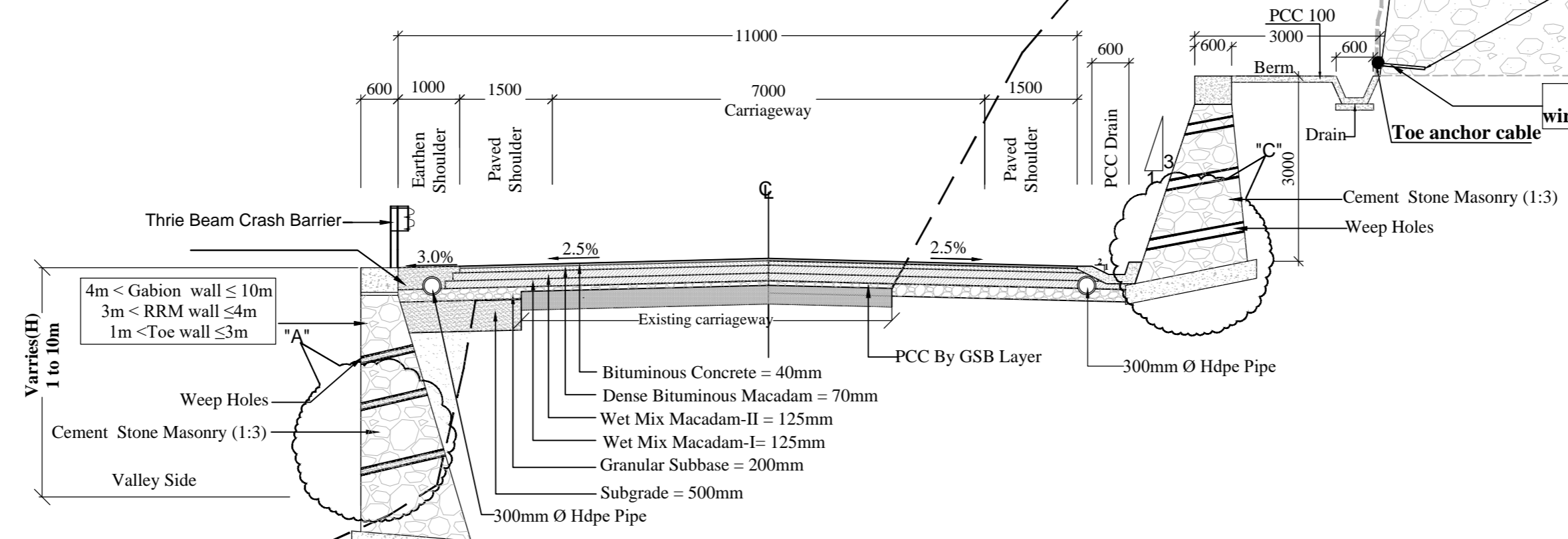
Section "D" Detail of Wire Mesh/Cable Net Slope Protection



All dimensions in mm



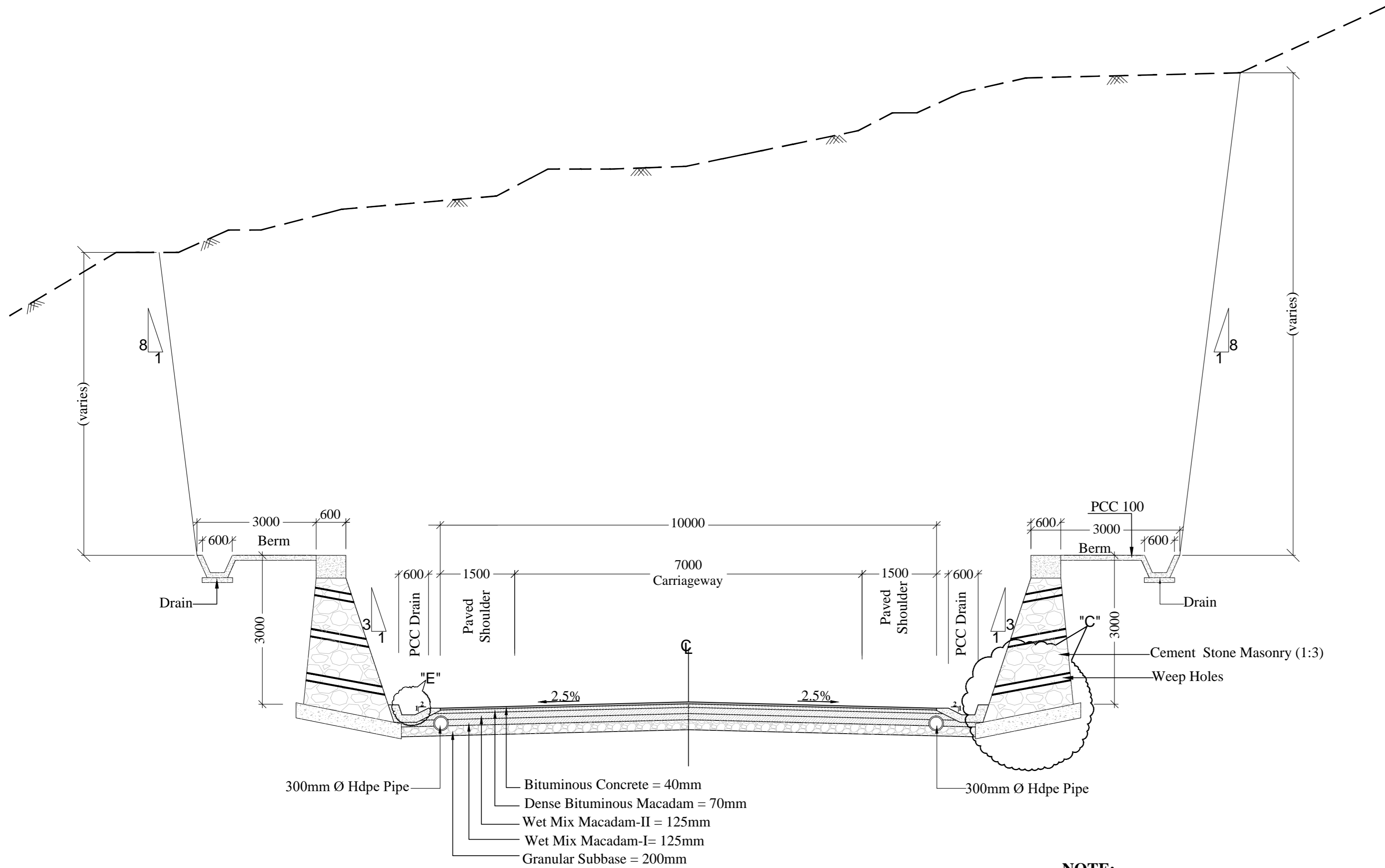
NO. OF COURSES	H (M)	B (M)
5	4	3
6	5	3.5
7	6	4
8	7	4.5
9	8	5
10	9	5.5
11	10	6



Type - 3A - Typical Cross-Section For Two Lane Carriageway With Paved Shoulder In Mountainous Terrain With One Side Fill & One Side Cut with Protection On Either Side As Applicable and additional Wire Mesh/Cable Net Slope Protection on Hill Side (Reconstruction)

- NOTE:-**
- 1.All Dimension are in millimeters except otherwise specified
  - 2.Extra widening will be provided where radius of horizontal curve is less than 300m.
  - 3.Toe wall Shall be provided where height of embankment is less than 3m.& greater than 1m.
  - 4.Retaining wall Shall be provided where height of embankment is greater than 3m. & less than 4m.
  - 5.Gabion wall shall be provided where height of embankment is greater than 4 m.
  - 6.Breast wall Shall be provided where height of cut is greater than 3m.
  - 7.No protection is required when height of fill is less than 1 m and height of cut is less than 3 m.
  - 8.Refer Standard drawing for Details of Section - A" B"C"D"E"F"
  9. Wire mesh shall be provided in presence of unstable of strata
  - 10.Shear key will be adopedted where ht.of gabion wall is more than 5m.




REVISION	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT	Project	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR		
R0	Oct.-2020		<b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	<b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with Monarch Surveyors and Engineering Consultants Pvt. Ltd.,	From Design Km.80+675 to Km.95+550	TENDER DRAWING	Project	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R1	Dec.-2020							
					Scale N.T.S.	Drawing Title Sheet size: A2 Drawing No.	TYPICAL CROSS SECTION NHIDCL/NH244/KHELLANI - CHATTROO/TCS/ 05/R0	Annex III



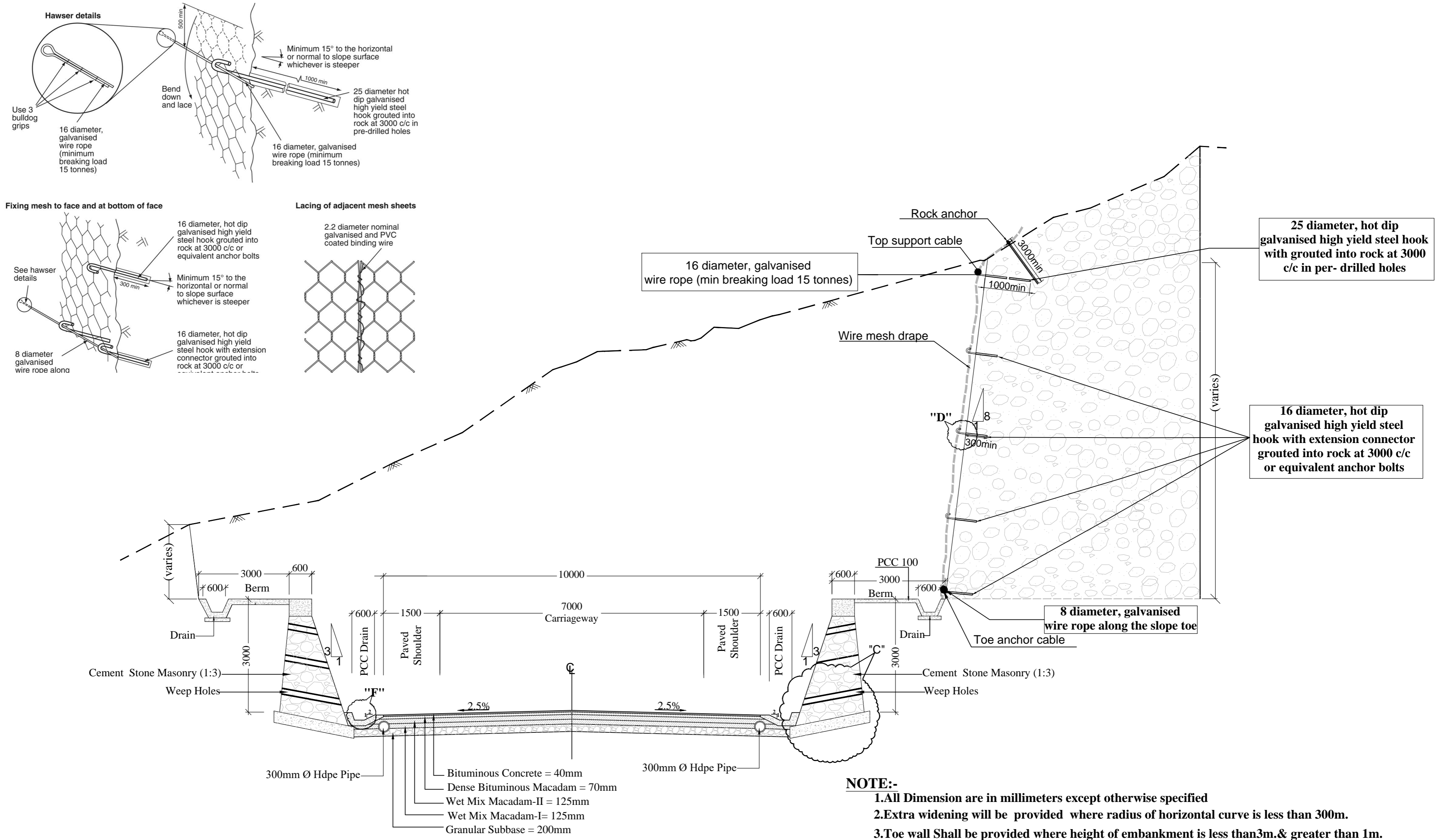
**Type - 4- Typical Cross-Section For Two Lane Carriageway With Paved Shoulder  
In Mountainous Terrain With Both Side Cut With Protection On Either Side As Applicable  
(New Construction)**

**NOTE:-**

1. All Dimension are in millimeters except otherwise specified
2. Extra widening will be provided where radius of horizontal curve is less than 300m.
3. Toe wall Shall be provided where height of embankment is less than 3m. & greater than 1m.
4. Retaining wall Shall be provided where height of embankment is greater than 3m. & less than 4m.
5. Gabion wall shall be provided where height of embankment is greater than 4 m.
6. Breast wall Shall be provided where height of cut is greater than 3m.
7. No protection is required when height of fill is less than 1 m and height of cut is less than 3 m.
8. Refer Standard drawing for Details of Section - A" B"C"D"E" F"
9. Wire mesh shall be provided in presence of unstable of strata
10. Shear key will be adopedted where ht. of gabion wall is more than 5m.

REVISION	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	Project	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR		
R0	Oct.-2020		<b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	<b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA)  <b>In Association with</b> <b>Monarch Surveyors and Engineering Consultants Pvt. Ltd.,</b>	From Design Km.80+675 to Km.95+550	TENDER DRAWING		
R1	Dec.-2020							Scale
						N.T.S.	Sheet size: A2	TYPICAL CROSS SECTION
							Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/TCS/06/R0

Section "D" Detail of Wire Mesh/Cable Net Slope Protection

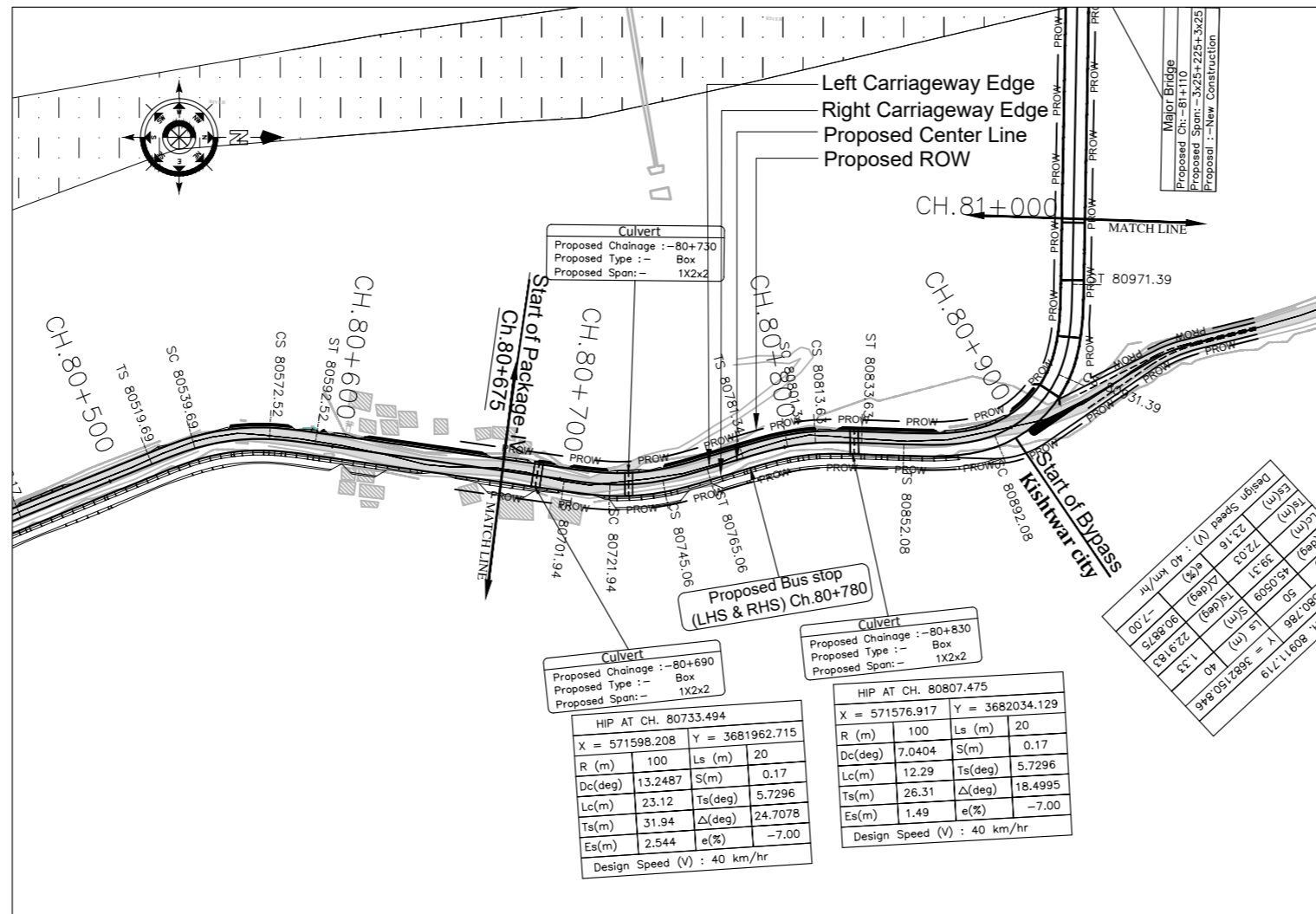


Type - 4A- Typical Cross-Section For Two Lane Carriageway With Paved Shoulder In Mountainous Terrain, With Both Side Cut & Protection As Applicable With Wire Mesh/Cable Net Slope Protection on One Side of Hill (New Construction)

- NOTE:-**
1. All Dimension are in millimeters except otherwise specified
  2. Extra widening will be provided where radius of horizontal curve is less than 300m.
  3. Toe wall Shall be provided where height of embankment is less than 3m. & greater than 1m.
  4. Retaining wall Shall be provided where height of embankment is greater than 3m. & less than 4m.
  5. Gabion wall shall be provided where height of embankment is greater than 4 m.
  6. Breast wall Shall be provided where height of cut is greater than 3m.
  7. No protection is required when height of fill is less than 1 m and height of cut is less than 3 m.
  8. Refer Standard drawing for Details of Section - A" B"C"D"E" F"
  9. Wire mesh shall be provided in presence of unstable of strata
  10. Shear key will be adopedted where ht. of gabion wall is more than 5m.

REVISION	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	Project	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR	
R0	Oct.-2020		NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	RODIC CONSULTANTS PVT. LTD. 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA)  In Association with Monarch Surveyors and Engineering Consultants Pvt. Ltd.,	From Design Km.80+675 to Km.95+550	TENDER DRAWING	Drawing Title
R1	Dec.-2020				Scale	N.T.S.	Sheet size: A2
					Designed: B D	Scale	Drawing No.
					Drawn: S S		NHIDCL/NH244/KHELLANI - CHATTROO/TCS/07/R0
					Checked: T M		
					Approved: A M		

# **PLAN & PROFILE**



**LEGEND**

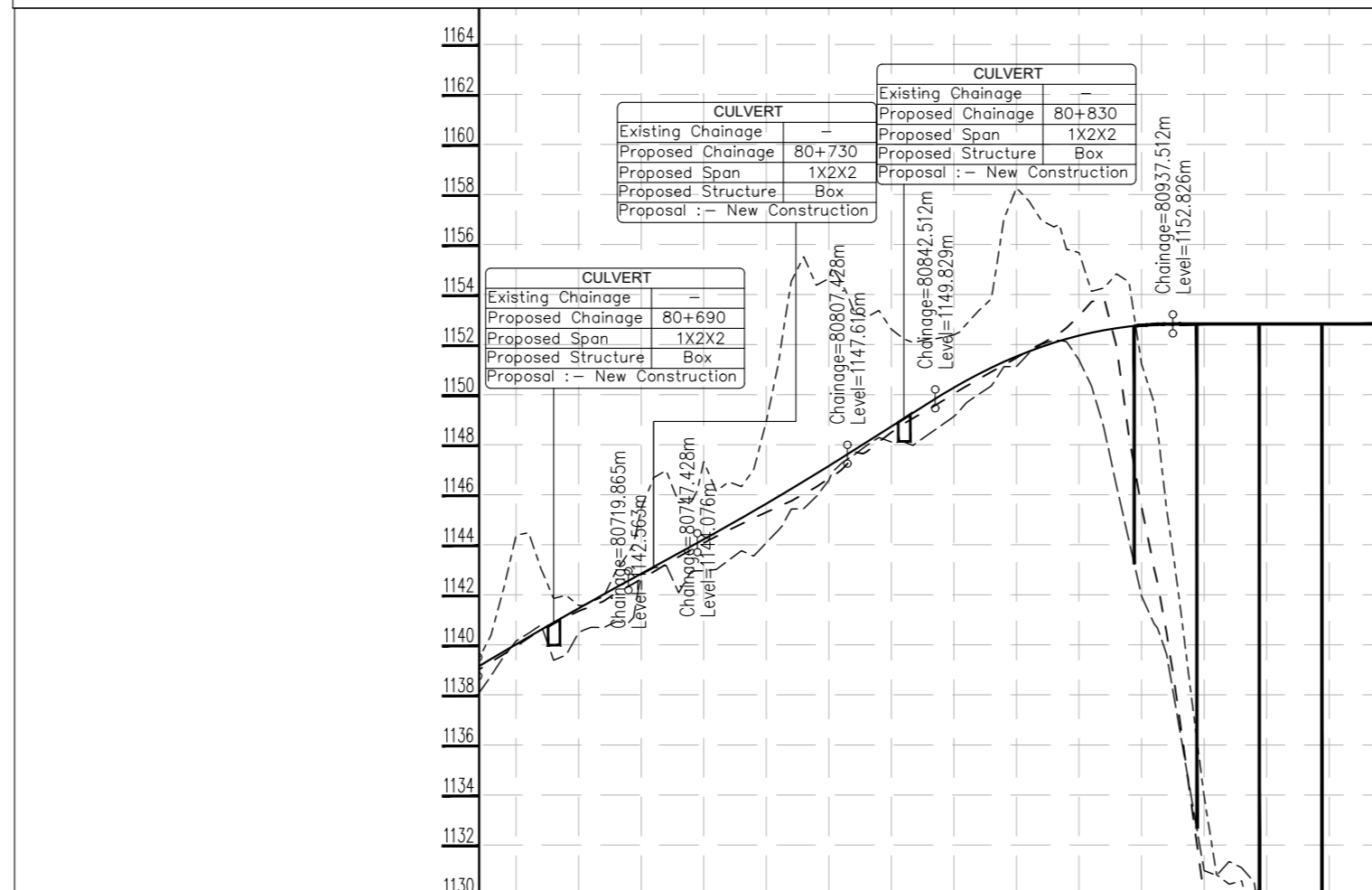
- Proposed Center Line
- Proposed Median
- Proposed Carriageway Edge
- Proposed Toe Line
- Existing Right of Way
- Proposed Box Culvert
- Proposed HP Culvert
- Proposed Slab Culvert
- Proposed Vehicular Underpass
- Proposed Cattle Underpass
- Proposed Bridge/ROB
- Toe Wall
- Retaining Wall / Breast Wall
- Gate Temporary/Permanents
- GPS
- Temporary Bench Mark
- Religious Structures
- Telephone Box
- Transformer Points
- Pylon
- Lamp Post
- Tree-T1, T2, T3, T4, T5, T6
- Tube Well, Well
- Hand Pump
- Kilometer Stone
- OFC Pillar
- Petrol Pump
- North Symbol
- Railway Track
- Existing Paved Road
- Existing Unpaved Road
- Telephone Line
- High Tension Lines
- Low Tension Line
- Drain
- HFL Line
- Water Pipe Line
- Building

**PLAN**

- R - Radius of Curve
- Dc - Degree of Curvature
- Lc - Length of Circular Curve
- Ts - Tangent Length
- Es - Apex Distance
- LS - Length of Spiral Curve
- S - Shift
- Δ - Deflection Angle
- V - Design Speed Km/Hr
- e% - Superelevation
- PC - Point of Curvature
- PT - Point of Tangent
- HIP - Horizontal Intersection Point

**L-PROFILE**

- G - Gradient %
- Lv - Length of Vertical Curve
- L - Length of Grade(m)
- K - Ratio Between vertical curve Length & Change of Gradient (Lc/(G2-G1))
- e - Superelevation (%)
- D - Straight Length of Horizontal Alignment
- Lc - Length of Circular Curve

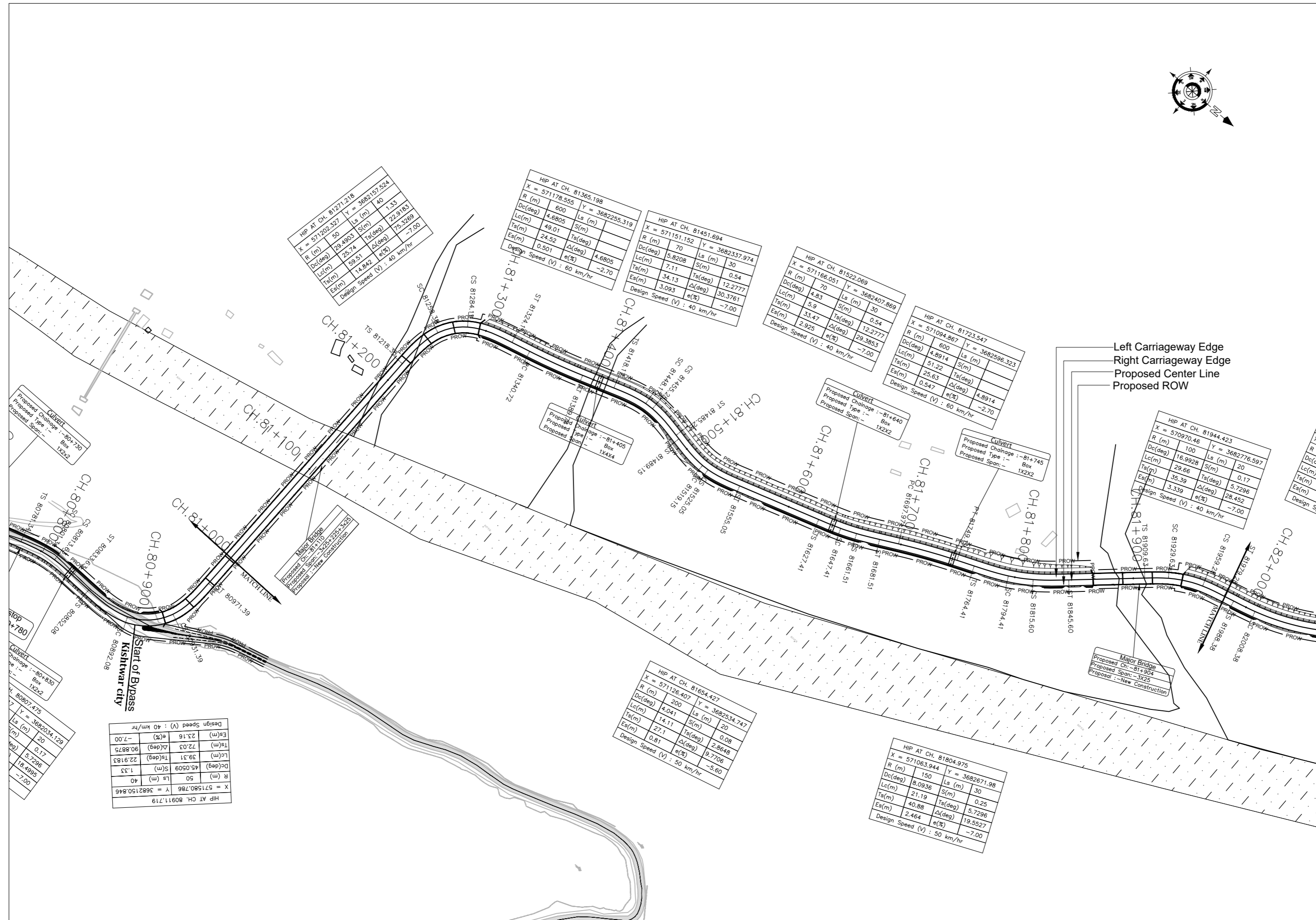


Proposed Road Level at Centerline (m)	1140.021	1141.456	1142.845	1144.218	1145.642	1147.151	1148.724	1150.283	1151.828	1153.359	1154.874	1156.374	1157.856	1159.326	1160.786
Existing Ground/Road Level at Centerline (m)	1139.945	1141.349	1142.625	1144.085	1145.297	1146.647	1148.491	1150.037	1151.471	1153.144	1154.502	1156.294	1157.826	1159.082	1160.892
Ground/Road Level at Proposed C/W Edge Left Side (m)	1140.149	1141.484	1142.807	1144.365	1145.077	1146.575	1148.106	1149.125	1151.121	1151.390	1152.947	1154.979	1156.467	1158.082	1159.892
Ground/Road Level at Proposed C/W Edge Right Side (m)	1144.372	1145.575	1146.454	1147.323	1148.206	1149.140	1150.124	1151.149	1152.214	1153.319	1154.464	1155.649	1156.874	1158.139	1159.544
Proposed Vertical Alignment Schematic	<p>Lv=60.00m, K=-129.20, G=5.49%, L=27.56m, K=73.40, Lv=60.00m, L=35.08, G=6.31%, Lv=95.00m, K=-15.06</p>														
Proposed Horizontal Alignment Schematic	<p>R=100.0m, Lc=23.12m, R=50.0m, Lc=12.28m, R=50.0m, Lc=40.0m, R=-50.0m, Ls=40.0m</p>														
Superelevation/Crossfall (%)	e=7.0%	e=-2.5%	e=7.0%	e=-2.5%	e=7.0%	e=-2.5%	e=7.0%	e=-2.5%	e=7.0%	e=-2.5%	e=7.0%	e=-2.5%	e=7.0%	e=-2.5%	e=7.0%
Chainage (Km)	80+675	80+700	80+725	80+750	80+775	80+800	80+825	80+850	80+875	80+900	80+925	80+950	80+975	81+000	

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R0	Oct.-2020		NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	RODIC CONSULTANTS PVT. LTD. 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with Monarch Surveyors and Engineering Consultants Pvt. Ltd.,	From Design Km. 80+675 to Km. 95+550	TENDER DRAWING
R1	Dec.-2020					
					Scale :- H=-1:2500 V=-1:250	Drawing Title: PLAN & PROFILE (Km.80+675 to Km.81+000) Sheet size: A2 Drawing No. NHIDCL/NH244/KHELLANI - CHATTROO/P&P/01R0
					Designed: B D Drawn: S S Checked: T M Approved: A M	Annex III

KHELLANI

CHATTROO



LEGEND

- Proposed Center Line
- Proposed Median
- Proposed Carriageway Edge
- Proposed Toe Line
- Proposed Right of Way
- Existing Right of Way
- Proposed Box Culvert
- Proposed HP Culvert
- Proposed Slab Culvert
- Proposed Vehicular Underpass
- Proposed Cattle Underpass
- Proposed Bridge/ROB
- Toe Wall
- Retaining Wall / Breast Wall
- Gate Temporary/Permanents
- GPS
- Temporary Bench Mark
- Religious Structures
- Telephone Box
- Transformer Points
- Pylon
- Lamp Post
- Tree-T1, T2, T3, T4, T5, T6
- Tube Well, Well
- Hand Pump
- Kilometer Stone
- OFC Pillar
- Petrol Pump
- North Symbol
- Railway Track
- Existing Paved Road
- Existing Unpaved Road
- Telephone Line
- High Tension Lines
- Low Tension Lines
- Drain
- HFL Line
- Water Pipe Line
- Building
- PLAN**
- R - Radius of Curve
- Dc - Degree of Curvature
- Lc - Length of Circular Curve
- Ts - Tangent Length
- Es - Apex Distance
- LS - Length of Spiral Curve
- S - Shift
- Δ - Deflection Angle
- V - Design Speed Km/Hr
- e% - Superelevation
- PC - Point of Curvature
- PT - Point of Tangent
- HIP - Horizontal Intersection Point
- L - PROFILE**
- G - Gradient %
- Lv - Length of Vertical Curve
- L - Length of Grade(m)
- K - Ratio Between vertical curve Length & Change of Gradient (Lc(G2-G1))
- o - Superelevation (%)
- D - Straight Length of Horizontal Alignment
- Lc - Length of Circular Curve

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct.-2020	
R1	Dec.-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
 (MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
 GOVERNMENT OF INDIA

CONSULTANT:  
**RODIC CONSULTANTS PVT. LTD.**  
 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
 NEW DELHI - 110001 (INDIA)  
 In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550

Designed:	<b>B D</b>
Drawn:	<b>S S</b>
Designed:	<b>T M</b>
Approved:	<b>A M</b>

**TENDER DRAWING**

Scale :-  
 H:-1:2500  
 V:-1:250

Drawing Title  
 Sheet size: A2

Drawing No.

Project:-  
**CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHITWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR**

PLAN & PROFILE  
 (Km.81+000 to Km.82+000)

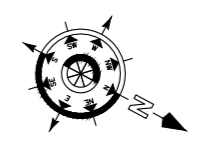
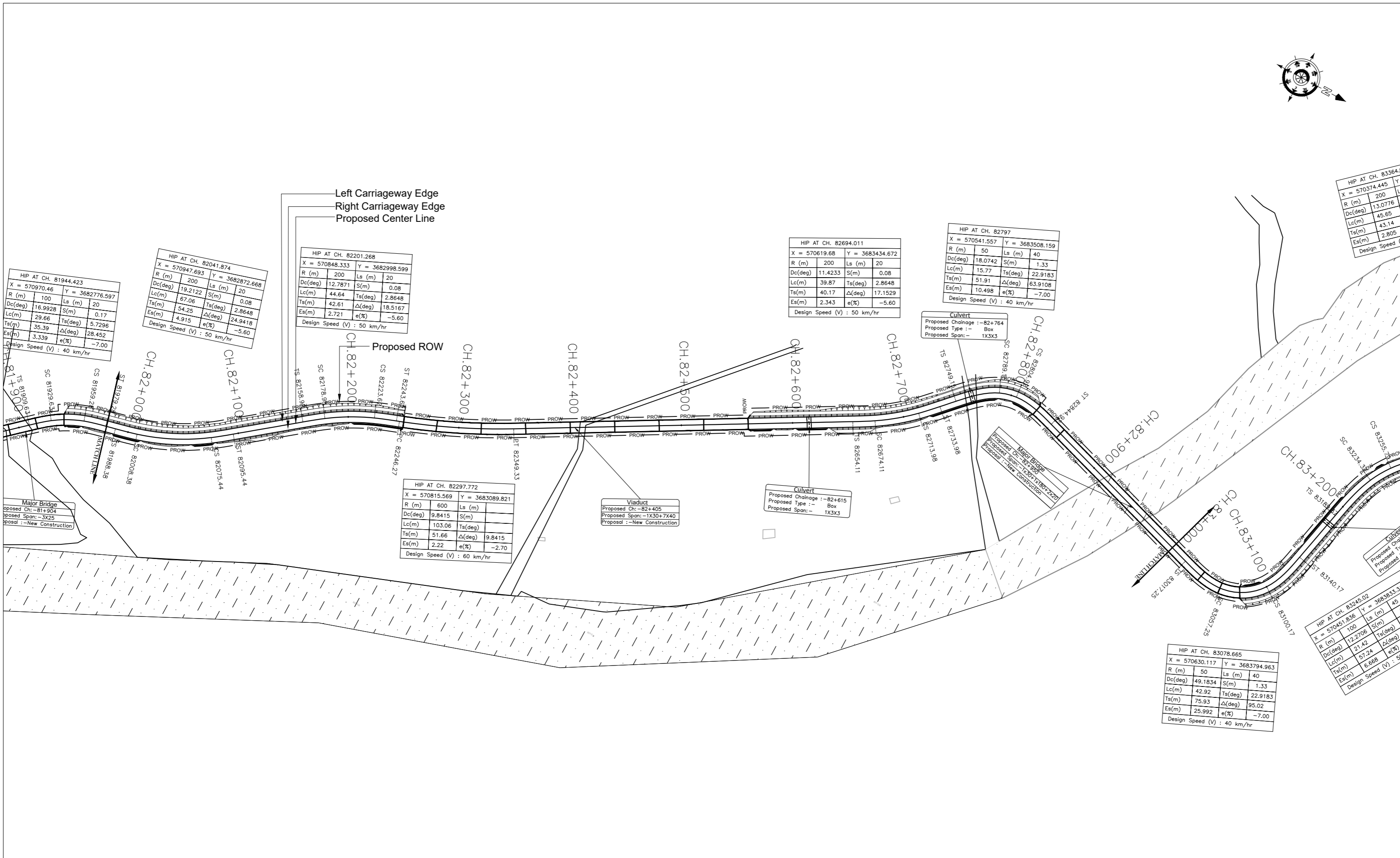
Annex III

NHIDCL/NH244/KHELLANI - CHATTROO/P&P/02/R0



KHELLANI

CHATTROO



**LEGEND**

- Proposed Center Line
- Proposed Median
- Proposed Carriageway Edge
- Proposed Toe Line
- Proposed Right of Way
- Existing Right of Way
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- High Tension Lines
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- Water Pipe Line
- Building

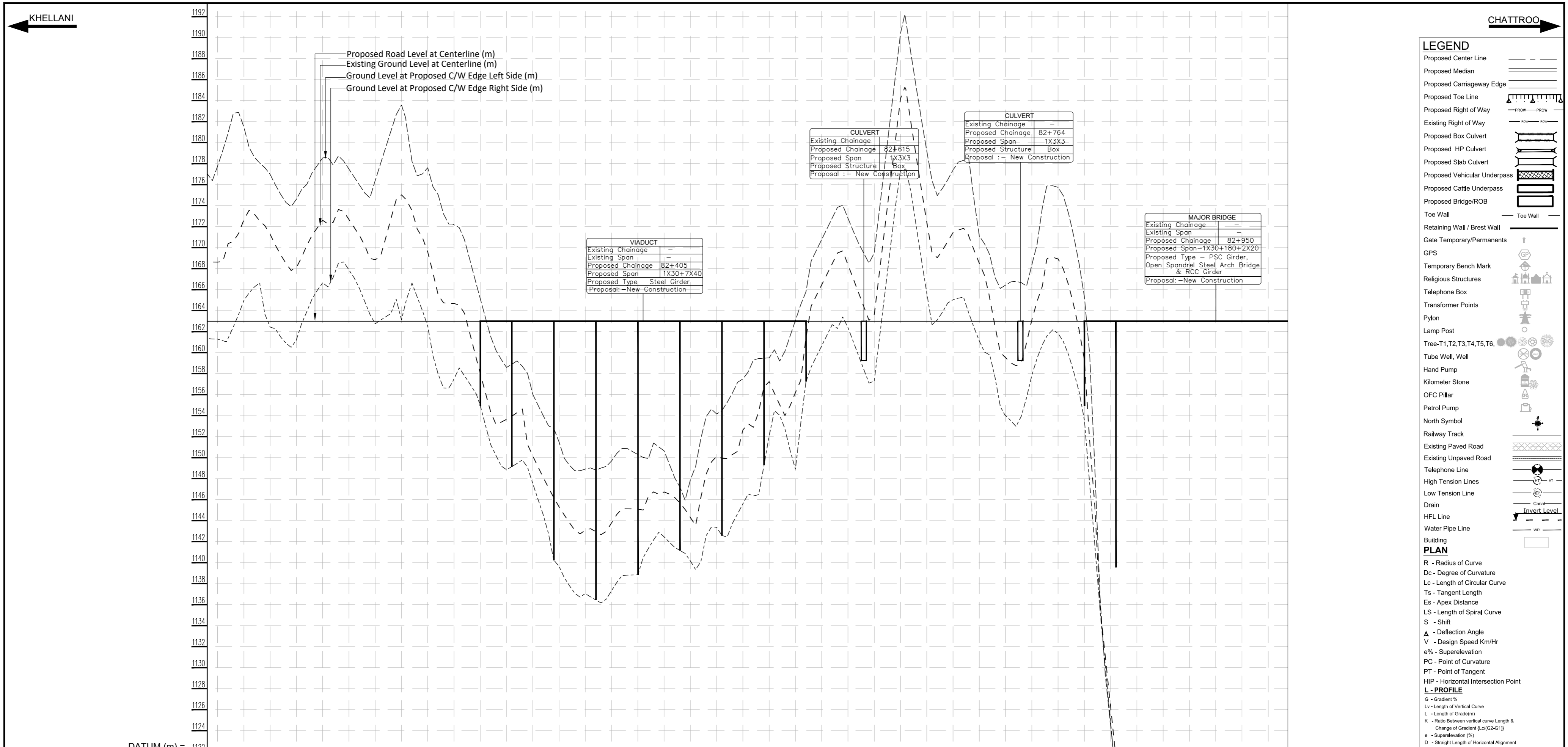
**PLAN**

- R - Radius of Curve
- Dc - Degree of Curvature
- Lc - Length of Circular Curve
- Ts - Tangent Length
- Es - Apex Distance
- LS - Length of Spiral Curve
- S - Shift
- Δ - Deflection Angle
- V - Design Speed Km/Hr
- e% - Superelevation
- PC - Point of Curvature
- PT - Point of Tangent
- HIP - Horizontal Intersection Point

**L-PROFILE**

- G - Gradient %
- Lv - Length of Vertical Curve
- L - Length of Grade(m)
- K - Ratio Between vertical curve Length & Change of Gradient (Lc(G2-G1))
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ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R0	Oct.-:2020		NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	Rodic	From Design Km. 80+675 to Km. 95+550	TENDER DRAWING
R1	Dec.-:2020			Monarch	Designed: <b>B D</b> Drawn: <b>S S</b> Designed: <b>T M</b> Approved: <b>A M</b>	Scale :- H:-1:2500 V:-1:250
					Drawing Title	PLAN & PROFILE (Km.82+000 to Km.83+000)
					Sheet size: A2	Annex III
					Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/P&P03/R0



### LEGEND

- Proposed Center Line
- Proposed Median
- Proposed Carriageway Edge
- Proposed Toe Line
- Proposed Right of Way
- Existing Right of Way
- Proposed Box Culvert
- Proposed HP Culvert
- Proposed Slab Culvert
- Proposed Vehicular Underpass
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- Proposed Bridge/ROB
- Toe Wall
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- Gate Temporary/Permanents
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- Religious Structures
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- Transformer Points
- Pylon
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- Tree-T1, T2, T3, T4, T5, T6
- Tube Well, Well
- Hand Pump
- Kilometer Stone
- OFC Pillar
- Petrol Pump
- North Symbol
- Railway Track
- Existing Paved Road
- Existing Unpaved Road
- Telephone Line
- High Tension Lines
- Low Tension Line
- Drain
- HFL Line
- Water Pipe Line
- Building

### PLAN

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- Dc - Degree of Curvature
- Lc - Length of Circular Curve
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- V - Design Speed Km/Hr
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- PC - Point of Curvature
- PT - Point of Tangent
- HIP - Horizontal Intersection Point

### L - PROFILE

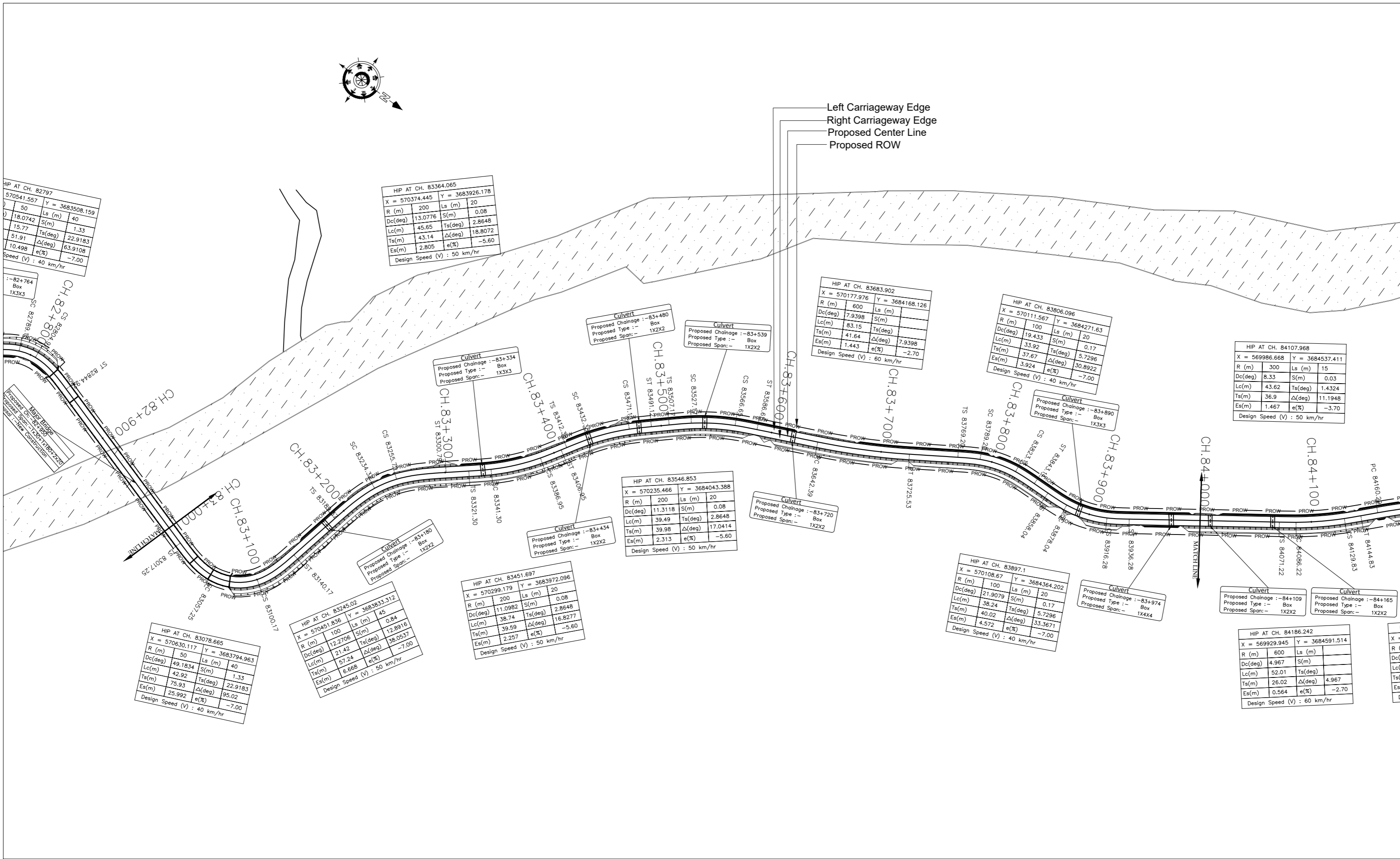
- G - Gradient %
- Lv - Length of Vertical Curve
- L - Length of Grade(m)
- K - Ratio Between vertical curve Length & Change of Gradient (Lc(G2-G1))
- e - Superelevation (%)
- D - Straight Length of Horizontal Alignment
- Lc - Length of Circular Curve

Chainage (Km)	Proposed Road Level at Centerline (m)	Existing Ground/Road Level at Centerline (m)	Ground/Road Level at Proposed C/W Edge Left Side (m)	Ground/Road Level at Proposed C/W Edge Right Side (m)	Proposed Vertical Alignment Schematic	Proposed Horizontal Alignment Schematic	Superelevation/Crossfall (%)
82+000	1163.000	1163.000	1162.997	1163.000	L=1232.35m	Lc=67.1m, R=-200.0m, D=63.5m, Lc=44.6m, R=200.0m, D=304.8m, Lc=103.1m, R=-600.0m	5.6%
82+025	1163.000	1163.000	1164.980	1163.000			5.6%
82+050	1163.000	1163.000	1162.442	1163.000			5.6%
82+075	1163.000	1163.000	1161.206	1163.000			2.5%
82+100	1163.000	1163.000	1166.652	1163.000			5.6%
82+125	1163.000	1163.000	1167.884	1163.000			5.6%
82+150	1163.000	1163.000	1162.758	1163.000			5.6%
82+175	1163.000	1163.000	1163.121	1163.000			5.6%
82+200	1163.000	1163.000	1162.525	1163.000			2.5%
82+225	1163.000	1163.000	1157.509	1163.000			2.5%
82+250	1163.000	1163.000	1154.966	1163.000	e=-2.5%		
82+275	1163.000	1163.000	1148.863	1163.000			
82+300	1163.000	1163.000	1147.536	1163.000			
82+325	1163.000	1163.000	1139.650	1163.000			
82+350	1163.000	1163.000	1137.052	1163.000			
82+375	1163.000	1163.000	1137.346	1163.000			
82+400	1163.000	1163.000	1138.842	1163.000			
82+425	1163.000	1163.000	1142.466	1163.000			
82+450	1163.000	1163.000	1140.167	1163.000			
82+475	1163.000	1163.000	1143.370	1163.000			
82+500	1163.000	1163.000	1145.606	1163.000	Lc=39.9m, R=-200.0m, D=172.3m, Lc=15.8m, R=-50.0m		
82+525	1163.000	1163.000	1152.090	1163.000			
82+550	1163.000	1163.000	1148.904	1163.000			
82+575	1163.000	1163.000	1160.658	1163.000			
82+600	1163.000	1163.000	1162.388	1163.000			
82+625	1163.000	1163.000	1157.307	1163.000			
82+650	1163.000	1163.000	1177.301	1163.000			
82+675	1163.000	1163.000	1165.671	1163.000			
82+700	1163.000	1163.000	1165.042	1163.000			
82+725	1163.000	1163.000	1161.128	1163.000			
82+750	1163.000	1163.000	1154.022	1163.000	e=-2.5%		
82+775	1163.000	1163.000	1157.854	1163.000			
82+800	1163.000	1163.000	1161.835	1163.000			
82+825	1163.000	1163.000	1153.591	1163.000			
82+850	1163.000	1163.000	1124.791	1163.000			
82+875	1163.000	1163.000	1094.483	1163.000			
82+900	1163.000	1163.000	1062.699	1163.000			
82+925	1163.000	1163.000	1047.906	1163.000			
82+950	1163.000	1163.000	1049.123	1163.000			
82+975	1163.000	1163.000	1056.831	1163.000			
83+000	1163.000	1163.000	1077.705	1163.000			

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R0	Oct.-2020		NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	RODIC CONSULTANTS PVT. LTD. 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with Monarch Surveyors and Engineering Consultants Pvt. Ltd.,	From Design Km. 80+675 to Km. 95+550	TENDER DRAWING
R1	Dec.-2020				Designed: B D Drawn: S S Designed: T M Approved: A M	Scale :- H=-1:2500 V=-1:250
					Drawing Title Sheet size: A2	Drawing No. NHIDCL/NH244/KHELLANI - CHATTROO/P&P/03A/R0
						Annex III

KHELLANI

CHATTROO



LEGEND	
Proposed Center Line	---
Proposed Median	====
Proposed Carriageway Edge	----
Proposed Toe Line	-----
Proposed Right of Way	-----
Existing Right of Way	-----
Proposed Box Culvert	-----
Proposed HP Culvert	-----
Proposed Slab Culvert	-----
Proposed Vehicular Underpass	-----
Proposed Cattle Underpass	-----
Proposed Bridge/ROB	-----
Toe Wall	-----
Retaining Wall / Breast Wall	-----
Gate Temporary/Permanents	-----
GPS	-----
Temporary Bench Mark	-----
Religious Structures	-----
Telephone Box	-----
Transformer Points	-----
Pylon	-----
Lamp Post	-----
Tree-T1, T2, T3, T4, T5, T6	-----
Tube Well, Well	-----
Hand Pump	-----
Kilometer Stone	-----
OFC Pillar	-----
Petrol Pump	-----
North Symbol	-----
Railway Track	-----
Existing Paved Road	-----
Existing Unpaved Road	-----
Telephone Line	-----
High Tension Lines	-----
Low Tension Line	-----
Drain	-----
HFL Line	-----
Water Pipe Line	-----
Building	-----
<b>PLAN</b>	
R - Radius of Curve	
Dc - Degree of Curvature	
Lc - Length of Circular Curve	
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Es - Apex Distance	
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HP - Horizontal Intersection Point	
<b>L - PROFILE</b>	
G - Gradient %	
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ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct.-2020	
R1	Dec.-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
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 GOVERNMENT OF INDIA

CONSULTANT:  
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 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
 NEW DELHI - 110001 (INDIA)  
 In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550

TENDER DRAWING

Project:-

CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR

Scale :-  
 H=-:1:2500  
 V=-:1:250

Designed: **B D**  
 Drawn: **S S**  
 Checked: **T M**  
 Approved: **A M**

Project:-

CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR

Drawing Title  
 Sheet size: A2

Drawing No.

PLAN & PROFILE  
 (Km.83+000 to Km.84+000)

Annex III

NHIDCL/NH244/KHELLANI - CHATTROO/P&P/04R0

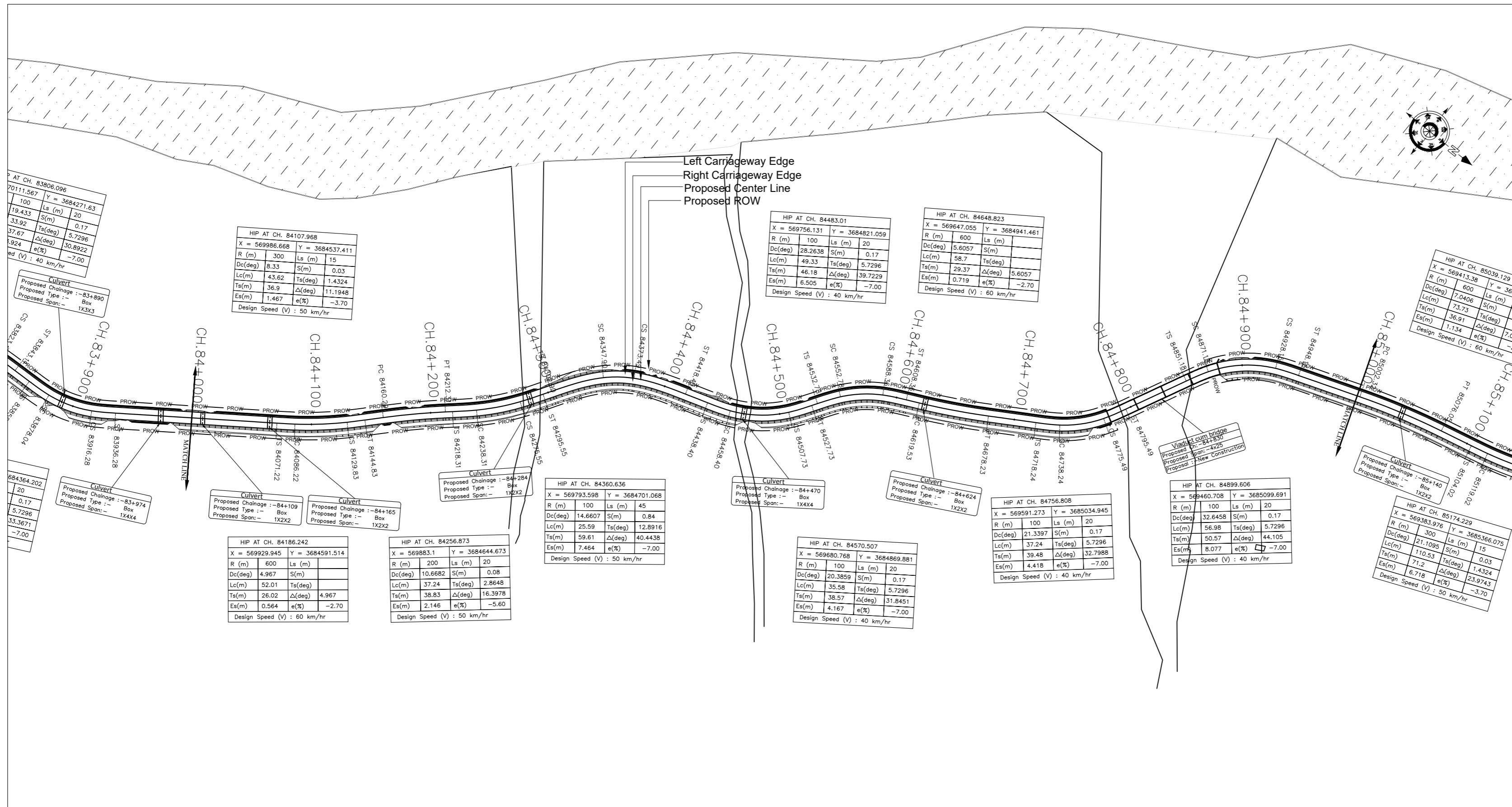


KHELLANI

CHATTROO

LEGEND

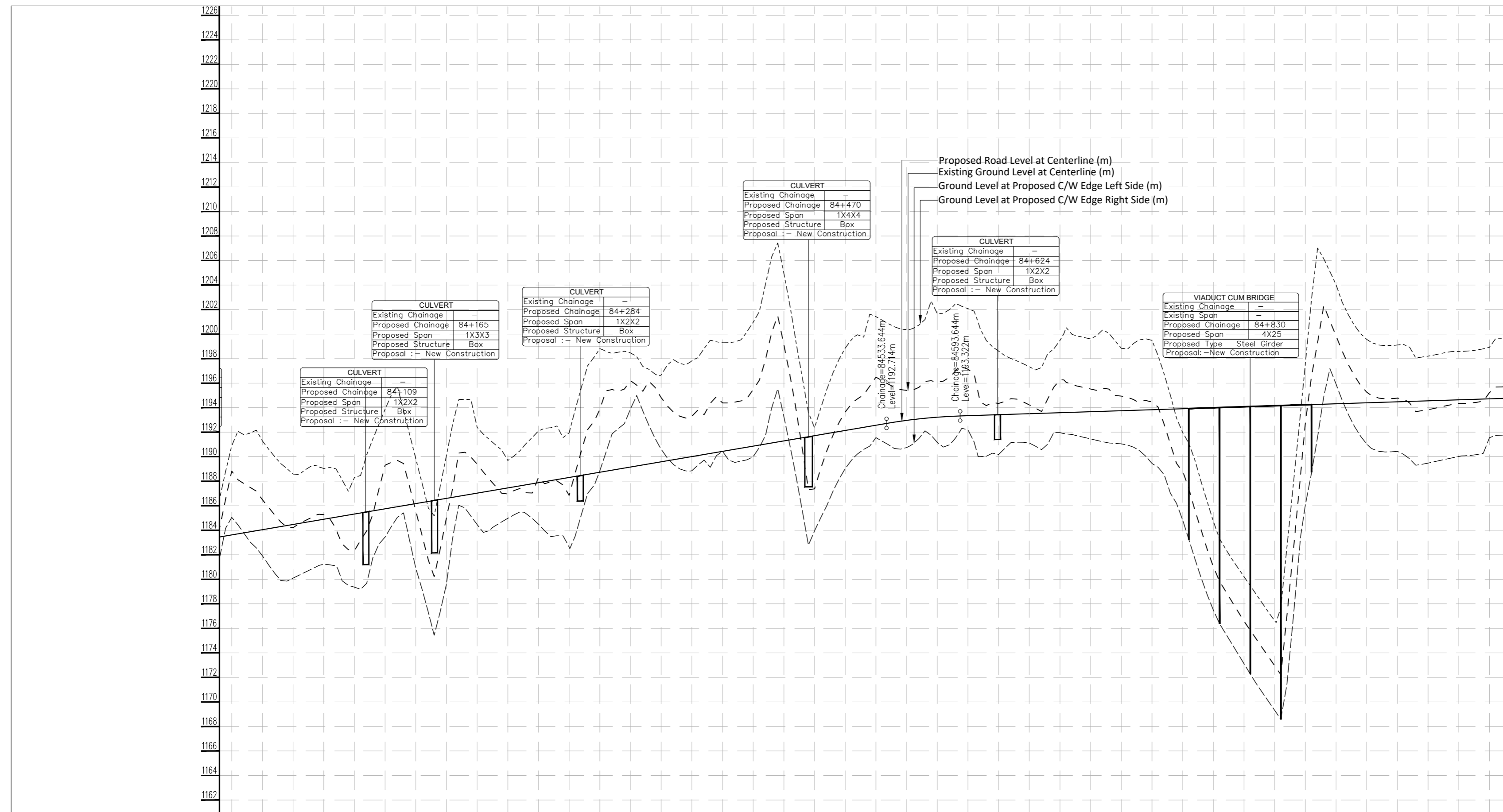
- Proposed Center Line
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ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR			
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R1	Dec.-2020						Drawn: <b>B D</b> S S Designed: <b>T M</b> Approved: <b>A M</b>	Scale :- H=-1:2500 V=-1:250	Drawing Title Sheet size: A2 Drawing No.
NHIDCL/NH244/KHELLANI - CHATTROO/P&P/05/R0									

KHELLANI

CHATTROO



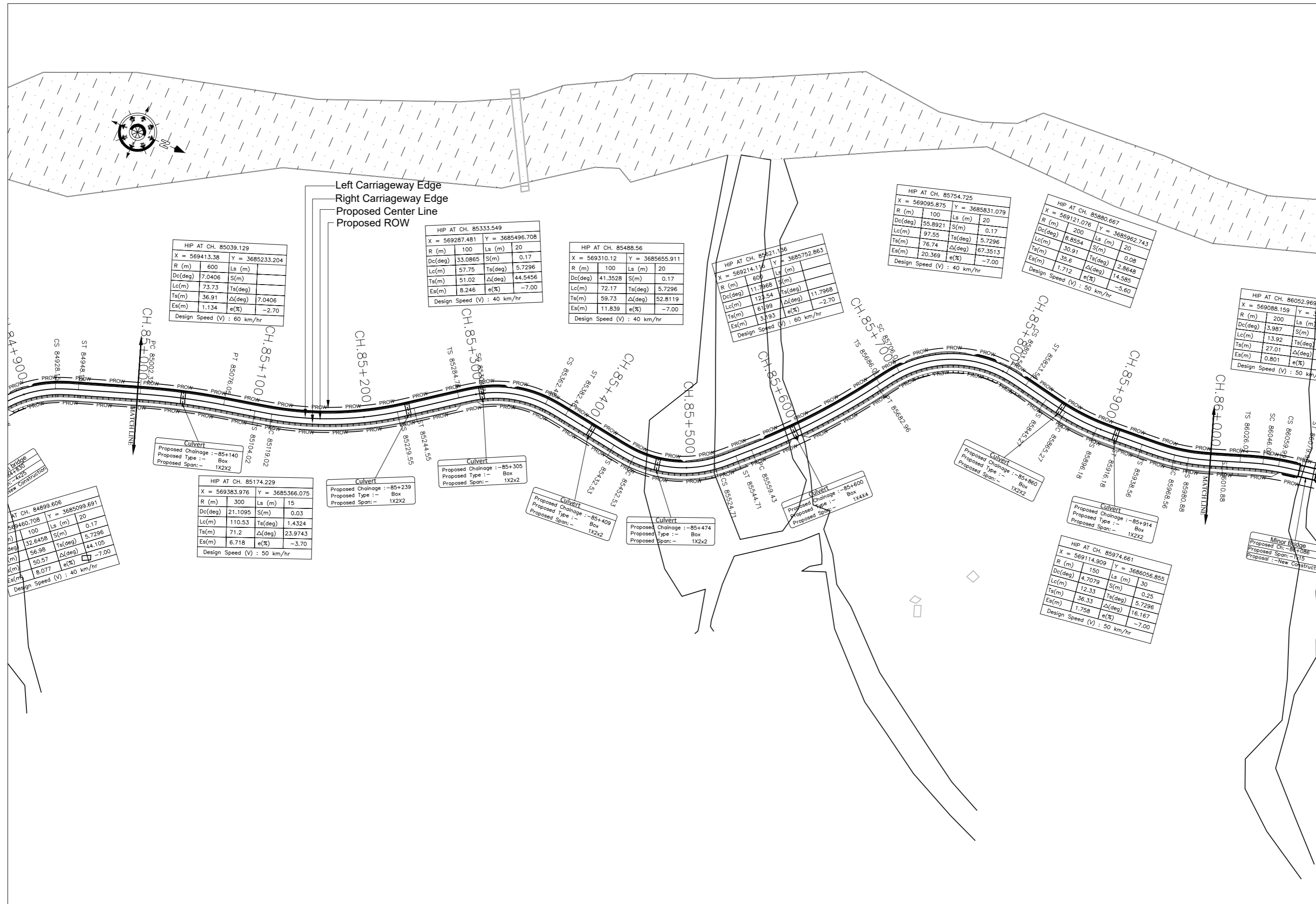
- LEGEND**
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  - Lc - Length of Circular Curve

DATUM (m) = 1160

Proposed Road Level at Centerline (m)	-1163.623	-1168.831	-1184.049	-1194.475	-1204.901	-1215.326	-1225.752	-1236.178	-1246.604	-1257.030	-1267.456	-1277.882	-1288.308	-1298.734	-1309.160	-1319.585	-1330.011	-1340.437	-1350.863	-1361.289	-1371.715	-1382.141	-1392.567	-1402.992	-1413.418	-1423.844	-1434.270	-1444.696	-1455.122	-1465.548	-1475.974	-1486.400	-1496.826	-1507.252	-1517.678	-1528.104	-1538.530	-1548.956	-1559.382	-1569.808	-1580.234	-1590.660	-1601.086	-1611.512	-1621.938	-1632.364	-1642.790	-1653.216	-1663.642	-1674.068	-1684.494	-1694.920	-1705.346	-1715.772	-1726.198	-1736.624	-1747.050	-1757.476	-1767.902	-1778.328	-1788.754	-1799.180	-1809.606	-1820.032	-1830.458	-1840.884	-1851.310	-1861.736	-1872.162	-1882.588	-1893.014	-1903.440	-1913.866	-1924.292	-1934.718	-1945.144	-1955.570	-1965.996	-1976.422	-1986.848	-1997.274	-2007.700	-2018.126	-2028.552	-2038.978	-2049.404	-2059.830	-2070.256	-2080.682	-2091.108	-2101.534	-2111.960	-2122.386	-2132.812	-2143.238	-2153.664	-2164.090	-2174.516	-2184.942	-2195.368	-2205.794	-2216.220	-2226.646	-2237.072	-2247.498	-2257.924	-2268.350	-2278.776	-2289.202	-2299.628	-2310.054	-2320.480	-2330.906	-2341.332	-2351.758	-2362.184	-2372.610	-2383.036	-2393.462	-2403.888	-2414.314	-2424.740	-2435.166	-2445.592	-2456.018	-2466.444	-2476.870	-2487.296	-2497.722	-2508.148	-2518.574	-2529.000	-2539.426	-2549.852	-2560.278	-2570.704	-2581.130	-2591.556	-2601.982	-2612.408	-2622.834	-2633.260	-2643.686	-2654.112	-2664.538	-2674.964	-2685.390	-2695.816	-2706.242	-2716.668	-2727.094	-2737.520	-2747.946	-2758.372	-2768.798	-2779.224	-2789.650	-2800.076	-2810.502	-2820.928	-2831.354	-2841.780	-2852.206	-2862.632	-2873.058	-2883.484	-2893.910	-2904.336	-2914.762	-2925.188	-2935.614	-2946.040	-2956.466	-2966.892	-2977.318	-2987.744	-2998.170	-3008.596	-3019.022	-3029.448	-3039.874	-3050.300	-3060.726	-3071.152	-3081.578	-3092.004	-3102.430	-3112.856	-3123.282	-3133.708	-3144.134	-3154.560	-3164.986	-3175.412	-3185.838	-3196.264	-3206.690	-3217.116	-3227.542	-3237.968	-3248.394	-3258.820	-3269.246	-3279.672	-3290.098	-3300.524	-3310.950	-3321.376	-3331.802	-3342.228	-3352.654	-3363.080	-3373.506	-3383.932	-3394.358	-3404.784	-3415.210	-3425.636	-3436.062	-3446.488	-3456.914	-3467.340	-3477.766	-3488.192	-3498.618	-3509.044	-3519.470	-3529.896	-3540.322	-3550.748	-3561.174	-3571.600	-3582.026	-3592.452	-3602.878	-3613.304	-3623.730	-3634.156	-3644.582	-3655.008	-3665.434	-3675.860	-3686.286	-3696.712	-3707.138	-3717.564	-3727.990	-3738.416	-3748.842	-3759.268	-3769.694	-3780.120	-3790.546	-3800.972	-3811.398	-3821.824	-3832.250	-3842.676	-3853.102	-3863.528	-3873.954	-3884.380	-3894.806	-3905.232	-3915.658	-3926.084	-3936.510	-3946.936	-3957.362	-3967.788	-3978.214	-3988.640	-3999.066	-4009.492	-4019.918	-4030.344	-4040.770	-4051.196	-4061.622	-4072.048	-4082.474	-4092.900	-4103.326	-4113.752	-4124.178	-4134.604	-4145.030	-4155.456	-4165.882	-4176.308	-4186.734	-4197.160	-4207.586	-4218.012	-4228.438	-4238.864	-4249.290	-4259.716	-4270.142	-4280.568	-4290.994	-4301.420	-4311.846	-4322.272	-4332.698	-4343.124	-4353.550	-4363.976	-4374.402	-4384.828	-4395.254	-4405.680	-4416.106	-4426.532	-4436.958	-4447.384	-4457.810	-4468.236	-4478.662	-4489.088	-4499.514	-4509.940	-4520.366	-4530.792	-4541.218	-4551.644	-4562.070	-4572.496	-4582.922	-4593.348	-4603.774	-4614.200	-4624.626	-4635.052	-4645.478	-4655.904	-4666.330	-4676.756	-4687.182	-4697.608	-4708.034	-4718.460	-4728.886	-4739.312	-4749.738	-4760.164	-4770.590	-4781.016	-4791.442	-4801.868	-4812.294	-4822.720	-4833.146	-4843.572	-4854.000	-4864.426	-4874.852	-4885.278	-4895.704	-4906.130	-4916.556	-4926.982	-4937.408	-4947.834	-4958.260	-4968.686	-4979.112	-4989.538	-5000.000
Existing Ground/Road Level at Centerline (m)	-1188.831	-1186.487	-1184.475	-1184.901	-1185.326	-1185.752	-1186.178	-1186.604	-1187.030	-1187.456	-1187.882	-1188.308	-1188.734	-1189.160	-1189.585	-1190.011	-1190.437	-1190.863	-1191.289	-1191.715	-1192.141	-1192.567	-1192.992	-1193.418	-1193.844	-1194.270	-1194.696	-1195.122	-1195.548	-1195.974	-1196.400	-1196.826	-1197.252	-1197.678	-1198.104	-1198.530	-1198.956	-1199.382	-1199.808	-1200.234	-1200.660	-1201.086	-1201.512	-1201.938	-1202.364	-1202.790	-1203.216	-1203.642	-1204.068	-1204.494	-1204.920	-1205.346	-1205.772	-1206.198	-1206.624	-1207.050	-1207.476	-1207.902	-1208.328	-1208.754	-1209.180	-1209.606	-1210.032	-1210.458	-1210.884	-1211.310	-1211.736	-1212.162	-1212.588	-1213.014	-1213.440	-1213.866	-1214.292	-1214.718	-1215.144	-1215.570	-1215.996	-1216.422	-1216.848	-1217.274	-1217.700	-1218.126	-1218.552	-1218.978	-1219.404	-1219.830	-1220.256	-1220.682	-1221.108	-1221.534	-1221.960	-1222.386	-1222.812	-1223.238	-1223.664	-1224.090	-1224.516	-1224.942	-1225.368	-1225.794	-1226.220	-1226.646	-1227.072	-1227.498	-1227.924	-1228.350	-1228.776	-1229.202	-1229.628	-1230.054	-1230.480	-1230.906	-1231.332	-1231.758	-1232.184	-1232.610	-1233.036	-1233.462	-1233.888	-1234.314	-1234.740	-1235.166	-1235.592	-1236.018	-1236.444	-1236.870	-1237.296	-1237.722	-1238.148	-1238.574	-1239.000	-1239.426	-1239.852	-1240.278	-1240.704	-1241.130	-1241.556	-1241.982	-1242.408	-1242.834	-1243.260	-1243.686	-1244.112	-1244.538	-1244.964	-1245.390	-1245.816	-1246.242	-1246.668	-1247.094	-1247.520	-1247.946	-1248.372	-1248.798	-1249.224	-1249.650	-1250.076	-1250.502	-1250.928	-1251.354	-1251.780	-1252.206	-1252.632	-1253.058	-1253.484	-1253.910	-1254.336	-1254.762	-1255.188	-1255.614	-1256.040	-1256.466	-1256.892	-1257.318	-1257.744	-1258.170	-1258.596	-1259.022	-1259.448	-1259.874	-1260.300	-1260.726	-1261.152	-1261.578	-1262.004	-1262.430	-1262.856	-1263.282	-1263.708	-1264.134	-1264.560	-1264.986	-1265.412	-1265.838	-1266.264	-1266.690	-1267.116	-1267.542	-1267.968	-1268.394	-1268.820	-1269.246	-1269.672	-1270.098	-1270.524	-1270.950	-1271.376	-1271.802	-1272.228	-1272.654	-1273.080	-1273.506	-1273.932	-1274.358	-1274.784	-1275.210	-1275.636	-1276.062	-1276.488	-1276.914	-1277.340	-1277.766	-1278.192	-1278.618	-1279.044	-1279.470	-1279.896	-1280.322	-1280.748	-1281.174	-1281.600	-1282.026	-1282.452	-1282.878	-1283.304	-1283.730	-1284.156	-1284.582	-1285.008	-1285.434	-1285.860	-1286.286	-1286.712	-1287.138	-1287.564	-1287.990	-1288.416	-1288.842	-1289.268	-1289.694	-1290.120	-1290.546	-1290.972	-1291.398	-1291.824	-1292.250	-1292.676	-1293.102	-1293.528	-1293.954	-1294.380	-1294.806	-1295.232	-1295.658	-1296.084	-1296.510	-1296.936	-1297.362	-1297.788	-1298.214	-1298.640	-1299.066	-1299.492	-1300.000																																																																																															
Ground/Road Level at Proposed CW Edge Left Side (m)	-1185.050	-1181.911	-1180.096	-1181.236	-1182.341	-1183.445	-1184.549	-1185.653	-1186.757	-1187.861	-1188.965	-1190.069	-1191.173	-1192.277	-1193.381	-1194.485	-1195.589	-1196.693	-1197.797	-1198.901	-1199.905	-1200.909	-1201.913	-1202.917	-1203.921	-1204.925	-1205.929	-1206.933	-1207.937	-1208.941	-1209.945	-1210.949	-1211.953	-1212.957	-1213.961	-1214.965	-1215.969	-1216.973	-1217.977	-1218.981	-1219.985	-1220.989	-1221.993	-1222.997	-1223.999	-1225.003	-1226.007	-1227.011	-1228.015	-1229.019	-1230.023	-1231.027	-1232.031	-1233.035	-1234.039	-1235.043	-1236.047	-1237.051	-1238.055	-1239.059	-1240.063	-1241.067	-1242.071	-1243.075	-1244.079	-1245.083	-1246.087	-1247.091	-1248.095	-1249.099	-1250.103	-1251.107	-1252.111	-1253.115	-1254.119	-1255.123	-1256.127	-1257.131	-1258.135	-1259.139	-1260.143	-1261.147	-1262.151	-1263.155	-1264.159	-1265.163	-1266.167	-1267.171	-1268.175	-1269.179	-1270.183	-1271.187	-1272.191	-1273.195	-1274.199	-1275.203	-1276.207	-1277.211	-1278.215	-1279.219	-1280.223	-1281.227	-1282.231	-1283.235	-1284.239	-1285.243	-1286.247	-1287.251	-1288.255	-1289.259	-1290.263	-1291.267	-1292.271	-1293.275	-1294.279	-1295.283	-1296.287	-1297.291	-1298.295	-1299.299	-1300.303	-1301.307	-1302.311	-1303.315	-1304.319	-1305.323	-1306.327	-1307.331	-1308.335	-1309.339	-1310.343	-1311.347	-1312.351	-1313.355	-1314.359	-1315.363	-1316.367	-1317.371	-1318.375	-1319.379	-1320.383	-1321.387	-1322.391	-1323.395	-1324.399	-1325.403	-1326.407	-1327.411	-1328.415	-1329.419	-1330.423	-1331.427	-1332.431	-1333.435	-1334.439	-1335.443	-1336.447	-1337.451	-1338.455	-1339.459	-1340.463	-1341.467	-1342.471	-1343.475	-1																																																																																																																																																																																																												

KHELLANI

CHATTROO



LEGEND

- Proposed Center Line
- Proposed Median
- Proposed Carriageway Edge
- Proposed Toe Line
- Proposed Right of Way
- Existing Right of Way
- Proposed Box Culvert
- Proposed HP Culvert
- Proposed Slab Culvert
- Proposed Vehicular Underpass
- Proposed Cattle Underpass
- Proposed Bridge/ROB
- Toe Wall
- Retaining Wall / Breast Wall
- Gate Temporary/Permanents
- GPS
- Temporary Bench Mark
- Religious Structures
- Telephone Box
- Transformer Points
- Pylon
- Lamp Post
- Tree-T1,T2,T3,T4,T5,T6
- Tube Well, Well
- Hand Pump
- Kilometer Stone
- OFC Pillar
- Petrol Pump
- North Symbol
- Railway Track
- Existing Paved Road
- Existing Unpaved Road
- Telephone Line
- High Tension Lines
- Low Tension Line
- Drain
- HFL Line
- Water Pipe Line
- Building
- PLAN**
- R - Radius of Curve
- Dc - Degree of Curvature
- Lc - Length of Circular Curve
- Ts - Tangent Length
- Es - Apex Distance
- LS - Length of Spiral Curve
- S - Shift
- Δ - Deflection Angle
- V - Design Speed Km/Hr
- e% - Superelevation
- PC - Point of Curvature
- PT - Point of Tangent
- HIP - Horizontal Intersection Point
- L - PROFILE**
- G - Gradient %
- Lv - Length of Vertical Curve
- L - Length of Grade(m)
- K - Ratio Between vertical curve Length & Change of Gradient (Lc(G2-G1))
- e - Superelevation (%)
- D - Straight Length of Horizontal Alignment
- Lc - Length of Circular Curve

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct.-2020	
R1	Dec.-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
 (MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
 GOVERNMENT OF INDIA

CONSULTANT:  
**RODIC CONSULTANTS PVT. LTD.**  
 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
 NEW DELHI - 110001 (INDIA)  
 In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550

Designed:	<b>B D</b>
Drawn:	<b>S S</b>
Designed:	<b>T M</b>
Approved:	<b>A M</b>

**TENDER DRAWING**

Scale :-  
 H:-1:2500  
 V:-1:250

Project:-  
**CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR**

Drawing Title	PLAN & PROFILE (Km.85+000 to Km.86+000)	Annex III
Sheet size:	A2	
Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/P&P/06/R0	

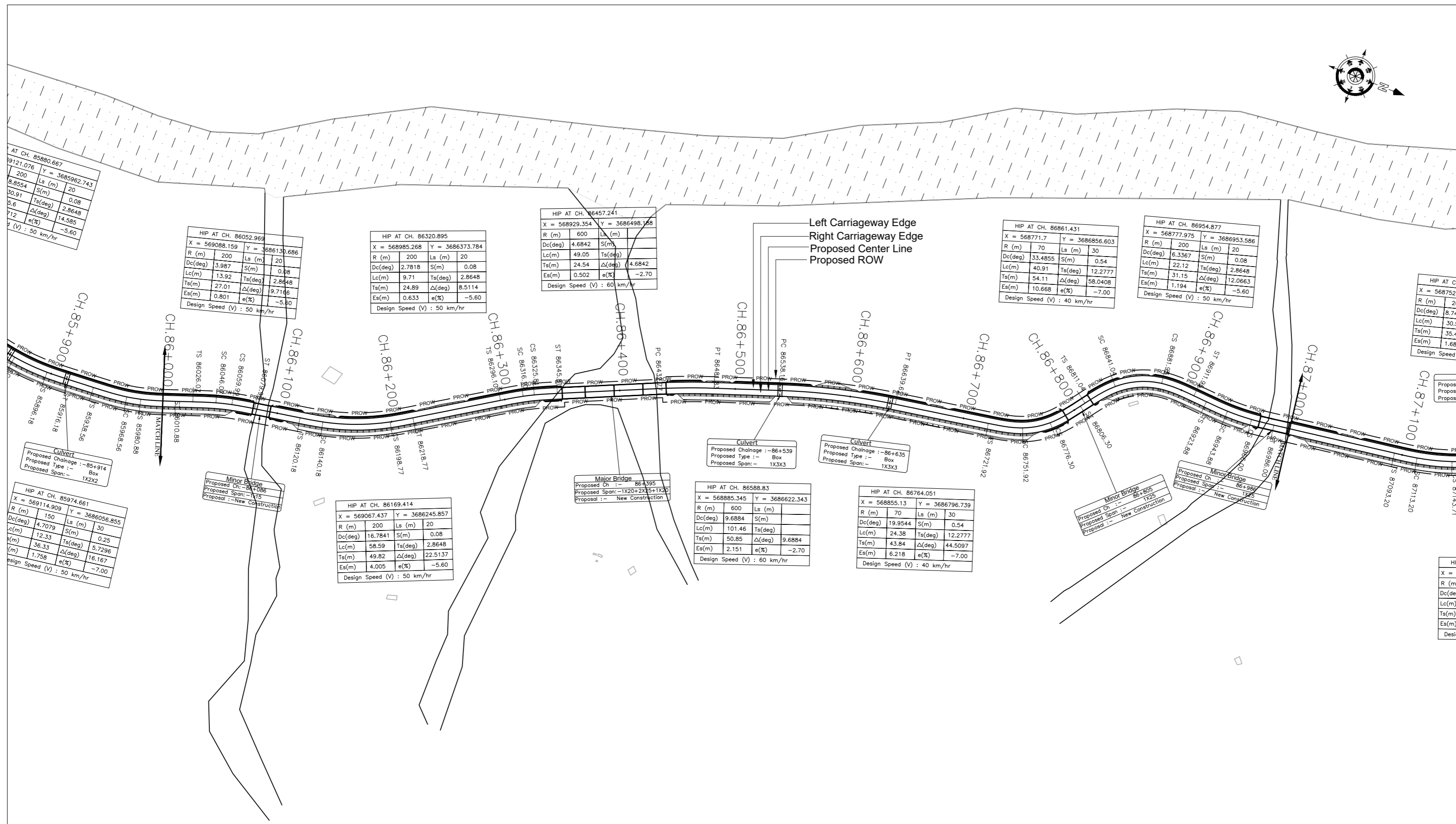


KHELLANI

CHATTROO

LEGEND

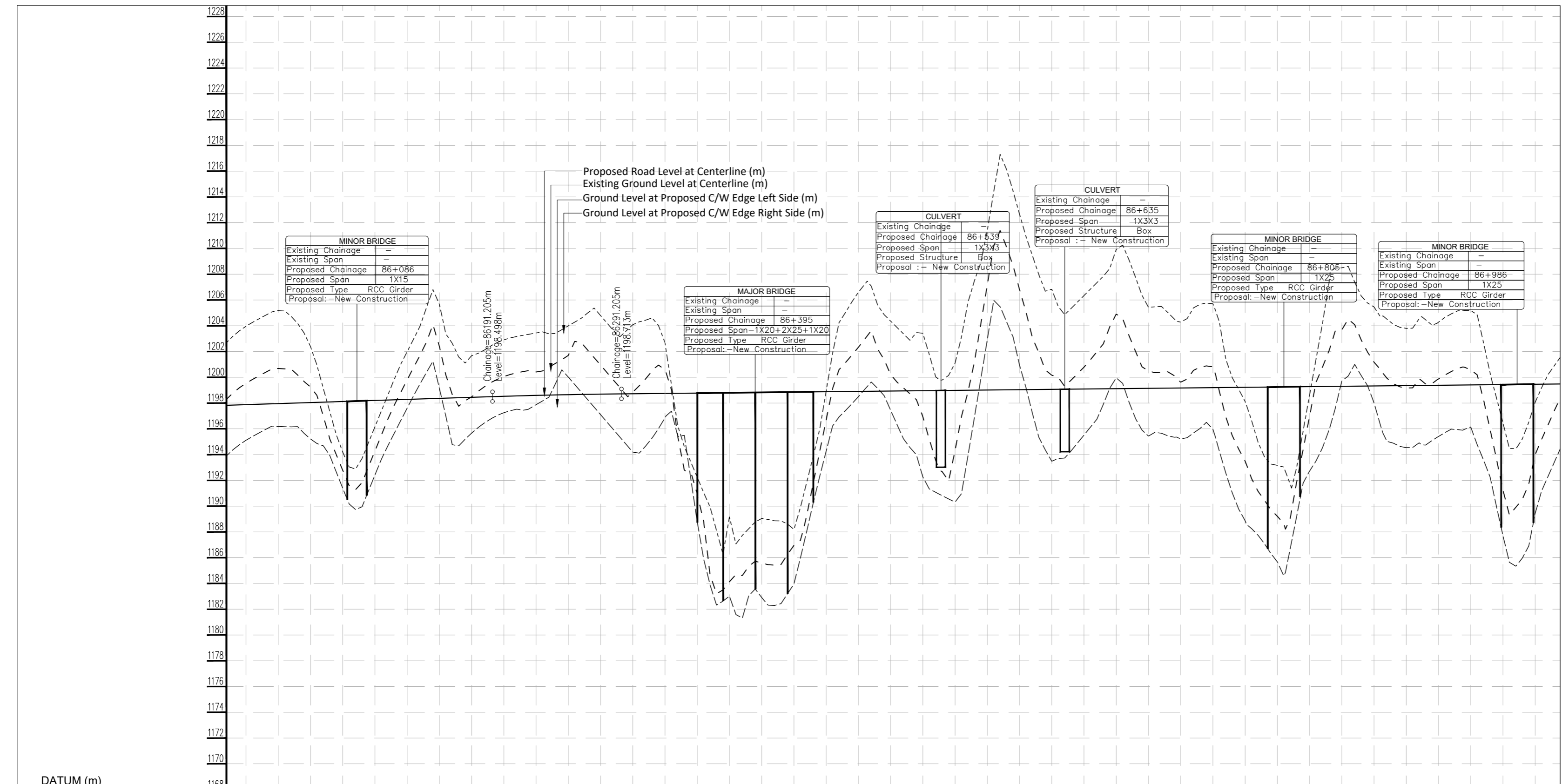
- Proposed Center Line
- Proposed Median
- Proposed Carriageway Edge
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- High Tension Lines
- Low Tension Line
- Drain
- HFL Line
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- G - Gradient %
- Lv - Length of Vertical Curve
- L - Length of Grade(m)
- K - Ratio Between vertical curve Length & Change of Gradient (L=100G^2/K)
- e - Superelevation (%)
- D - Straight Length of Horizontal Alignment
- Lc - Length of Circular Curve



ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R0	Oct.-2020		NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	RODIC CONSULTANTS PVT. LTD. 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with Monarch Surveyors and Engineering Consultants Pvt. Ltd.,	From Design Km. 80+675 to Km. 95+550	TENDER DRAWING
R1	Dec.-2020					
					Scale :- H=-:1:2500 V=-:1:250	Drawing Title Sheet size: A2 Drawing No.
						PLAN & PROFILE (Km.86+000 to Km.87+000) NHIDCL/NH244/KHELLANI - CHATTROO/P&P/07/R0
						Annex III

KHELLANI

CHATTROO



Chainage (Km)	Proposed Road Level at Centerline (m)	Existing Ground/Road Level at Centerline (m)	Ground/Road Level at Proposed C/W Edge Left Side (m)	Ground/Road Level at Proposed C/W Edge Right Side (m)	Proposed Vertical Alignment Schematic	Proposed Horizontal Alignment Schematic	Superelevation/Crossfall (%)
86+000	1203.96	1195.11	1195.11	1195.11	L <sub>v</sub> =100.00m K=-458.29	Lc=12.3m R=150.0m	e=-2.5%
86+025	1205.17	1196.19	1195.218	1195.218			e=5.6%
86+050	1202.39	1196.252	1196.252	1196.252	Lc=28.6m R=200.0m	Lc=40.2m	e=-2.5%
86+075	1194.20	1191.388	1191.388	1191.388			e=5.6%
86+100	1196.155	1192.410	1192.410	1192.410	Lc=9.7m R=200.0m	D=77.3m	e=-2.5%
86+125	1201.887	1193.796	1193.796	1193.796			e=5.6%
86+150	1205.670	1198.153	1202.411	1198.364	Lc=49.1m R=600.0m	D=87.0m	e=-2.5%
86+175	1201.676	1195.669	1198.479	1198.445			e=5.6%
86+200	1202.908	1197.248	1200.058	1198.525	Lc=101.5m R=600.0m	D=56.3m	e=-2.5%
86+225	1203.437	1197.872	1200.412	1198.595			e=5.6%
86+250	1203.991	1200.016	1201.699	1198.650	Lc=24.4m R=70.0m	D=82.3m	e=-2.5%
86+275	1204.794	1197.106	1200.950	1198.693			e=5.6%
86+300	1204.078	1194.196	1198.845	1198.722	Lc=40.9m R=70.0m	Lc=22.1m	e=-2.5%
86+325	1202.678	1196.858	1200.570	1198.748			e=5.6%
86+350	1192.244	1188.793	1190.926	1198.775	Lc=22.1m	R=200.0m	e=-2.5%
86+375	1189.166	1183.016	1184.135	1198.801			e=5.6%
86+400	1189.041	1182.908	1185.596	1198.828	Lc=40.9m R=70.0m	Lc=22.1m	e=-2.5%
86+425	1188.190	1183.953	1186.950	1198.854			e=5.6%
86+450	1198.906	1194.257	1196.674	1198.880	Lc=22.1m	R=200.0m	e=-2.5%
86+475	1205.594	1196.491	1202.329	1198.907			e=5.6%
86+500	1204.354	1197.449	1200.219	1198.933	Lc=22.1m	R=200.0m	e=-2.5%
86+525	1203.423	1192.269	1198.946	1198.960			e=5.6%
86+550	1201.099	1190.316	1194.306	1198.986	Lc=22.1m	R=200.0m	e=-2.5%
86+575	1211.394	1202.917	1207.155	1199.013			e=5.6%
86+600	1212.666	1200.950	1206.810	1199.039	Lc=22.1m	R=200.0m	e=-2.5%
86+625	1206.833	1193.484	1200.163	1199.066			e=5.6%
86+650	1206.342	1195.514	1200.779	1199.092	Lc=22.1m	R=200.0m	e=-2.5%
86+675	1209.917	1199.952	1204.909	1199.118			e=5.6%
86+700	1205.434	1195.437	1200.489	1199.145	Lc=22.1m	R=200.0m	e=-2.5%
86+725	1204.288	1195.214	1199.620	1199.171			e=5.6%
86+750	1205.704	1195.972	1200.816	1199.198	Lc=22.1m	R=200.0m	e=-2.5%
86+775	1198.117	1188.860	1193.488	1199.224			e=5.6%
86+800	1193.163	1185.675	1188.216	1199.251	Lc=22.1m	R=200.0m	e=-2.5%
86+825	1198.629	1192.723	1196.974	1199.277			e=5.6%
86+850	1205.497	1199.710	1203.683	1199.304	Lc=22.1m	R=200.0m	e=-2.5%
86+875	1205.458	1198.015	1201.175	1199.330			e=5.6%
86+900	1203.798	1194.538	1199.188	1199.356	Lc=22.1m	R=200.0m	e=-2.5%
86+925	1204.283	1195.406	1199.874	1199.383			e=5.6%
86+950	1205.175	1196.146	1200.585	1199.409	Lc=22.1m	R=200.0m	e=-2.5%
86+975	1196.464	1187.710	1191.251	1199.436			e=5.6%
87+000	1198.051	1189.433	1194.001	1199.462			

**LEGEND**

- Proposed Center Line
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- Proposed Slab Culvert
- Proposed Vehicular Underpass
- Proposed Cattle Underpass
- Proposed Bridge/ROB
- Toe Wall
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- Gate Temporary/Permanents
- GPS
- Temporary Bench Mark
- Religious Structures
- Telephone Box
- Transformer Points
- Pylon
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- Tree-T1,T2,T3,T4,T5,T6
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- Low Tension Line
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- HFL Line
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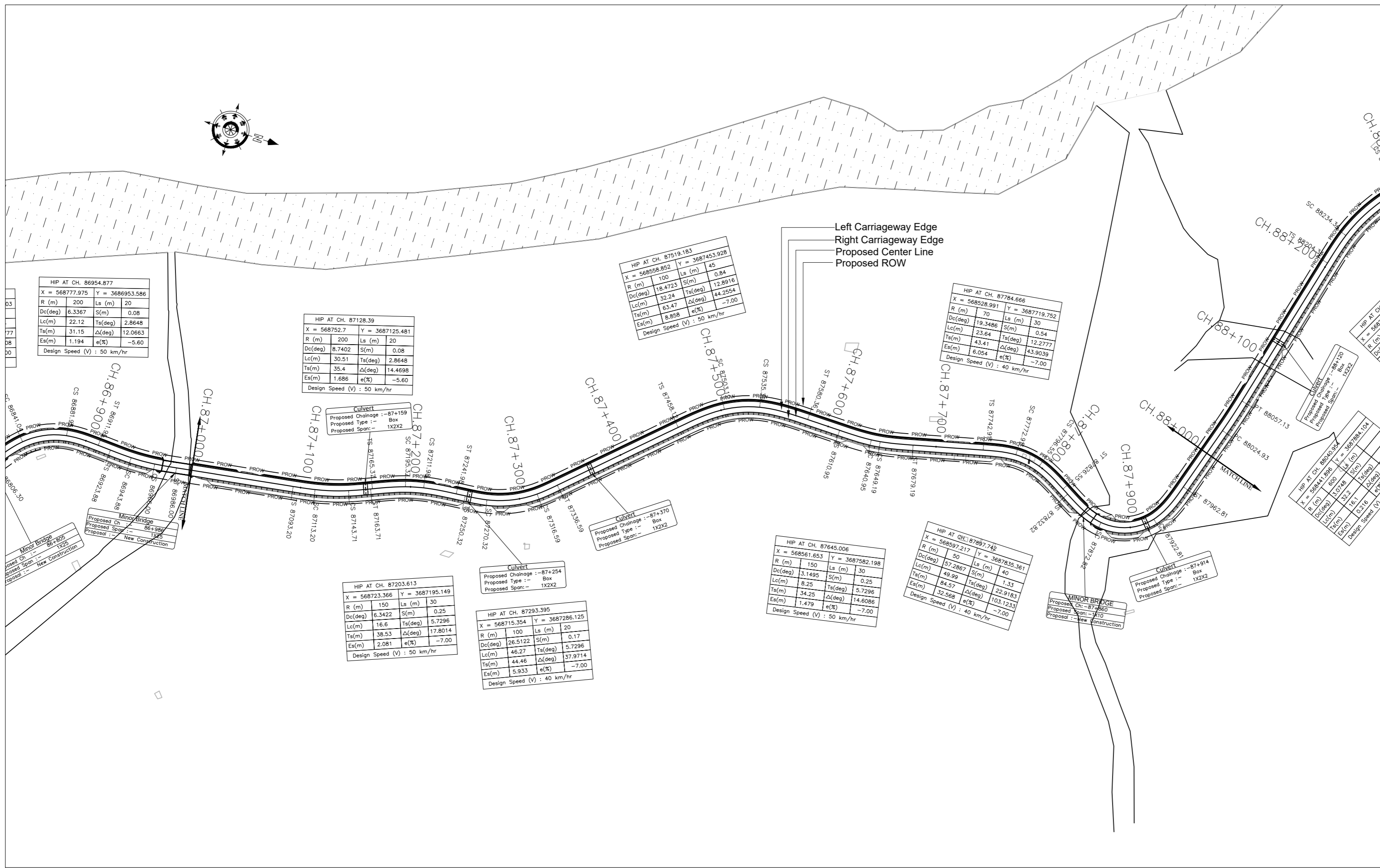
**PLAN**

- R - Radius of Curve
- Dc - Degree of Curvature
- Lc - Length of Circular Curve
- Ts - Tangent Length
- Es - Apex Distance
- LS - Length of Spiral Curve
- S - Shift
- Δ - Deflection Angle
- V - Design Speed Km/Hr
- e% - Superelevation
- PC - Point of Curvature
- PT - Point of Tangent
- HIP - Horizontal Intersection Point

**L - PROFILE**

- G - Gradient %
- Lv - Length of Vertical Curve
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ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R0	Oct.-:2020		<b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	<b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with <b>Monarch Surveyors and Engineering Consultants Pvt. Ltd.,</b>	From Design Km. 80+675 to Km. 95+550 <b>TENDER DRAWING</b>	Drawing Title Sheet size: A2 Drawing No.
R1	Dec.-:2020					
					Annex III	

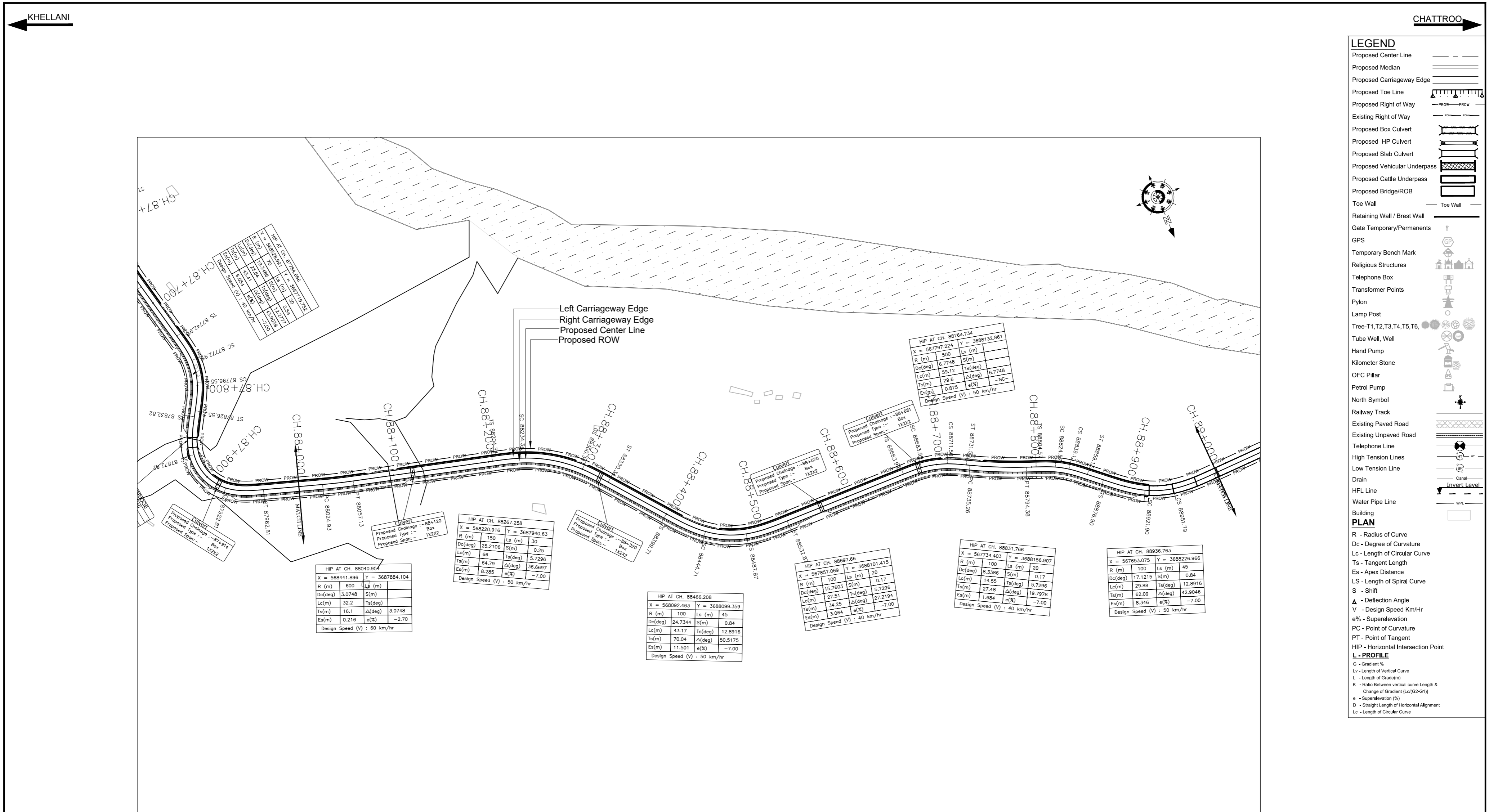


**LEGEND**

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R1	Dec.:-2020				Designed: <b>B D</b> Drawn: <b>S S</b> Designed: <b>T M</b> Approved: <b>A M</b>	Scale :- H=-1:2500 V=-1:250





**LEGEND**

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**Building**

**PLAN**

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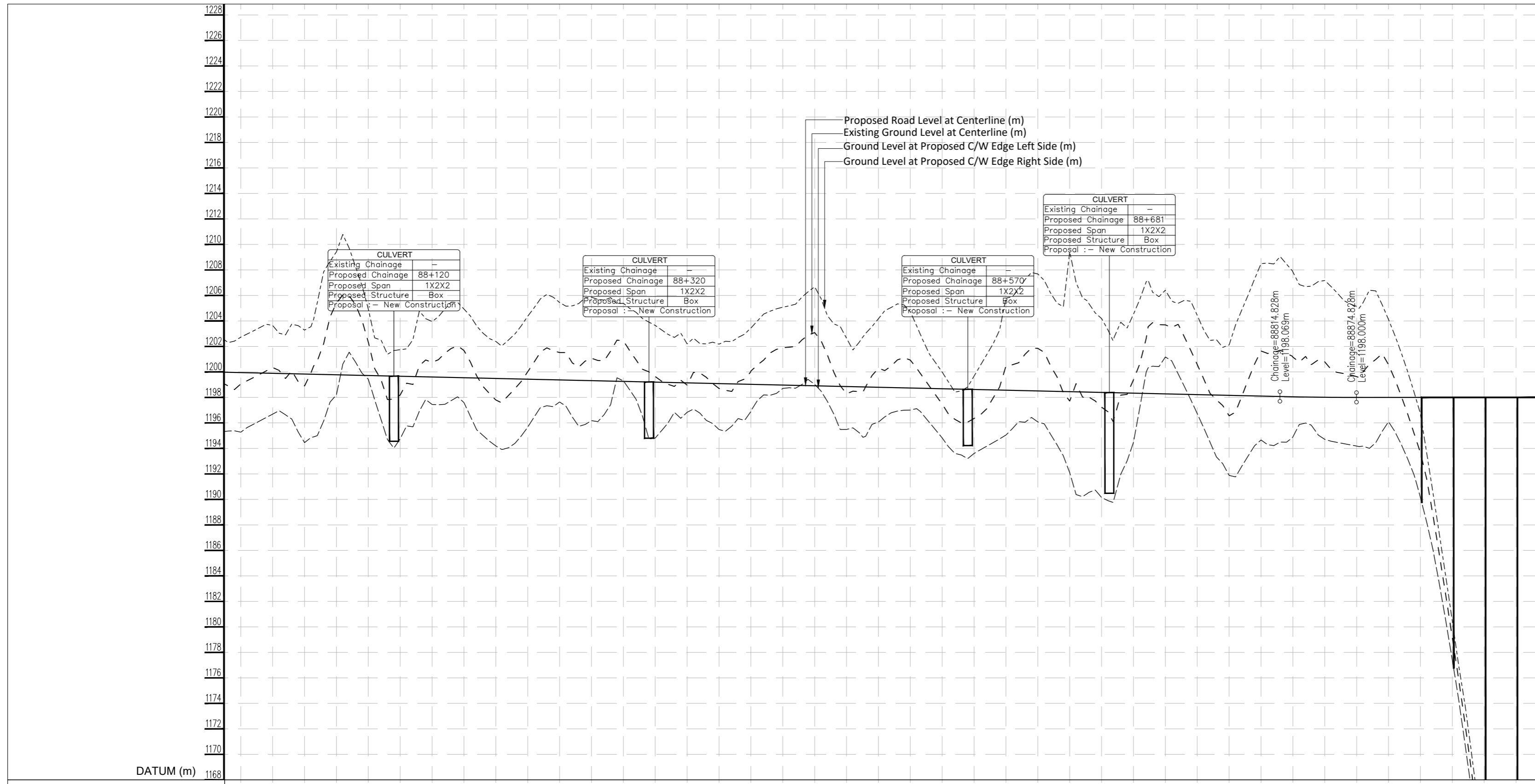
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R1	Dec.-2020				Drawn: <b>B D</b> S S Designed: <b>T M</b> Approved: <b>A M</b>	Scale :- H=-:1:2500 V=-:1:250
						Annex III

KHELLANI

CHATTROO

LEGEND

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  - Proposed Median
  - Proposed Carriageway Edge
  - Proposed Toe Line
  - Proposed Right of Way
  - Existing Right of Way
  - Proposed Box Culvert
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  - Low Tension Line
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- Building PLAN**
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- L - PROFILE**
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Proposed Road Level at Centerline (m)	1202.726	1203.642	1203.282	1205.420	1204.931	1201.743	1203.952	1204.933	1202.390	1204.370	1205.446	1205.800	1205.388	1203.644	1202.197	1202.177	1203.442	1205.077	1206.674	1202.646	1204.174	1204.741	1199.990	1199.672	1205.791	1207.683	1209.430	1204.187	1204.527	1206.408	1204.439	1202.116	1206.493	1207.846	1207.170	1205.140	1204.114	1196.731	1180.468	1162.367	1147.129							
Existing Ground/Road Level at Centerline (m)	1199.060	1200.347	1198.898	1205.006	1199.773	1198.193	1200.749	1201.683	1199.485	1200.019	1201.521	1202.076	1202.439	1199.633	1201.937	1199.965	1200.088	1201.891	1203.083	1198.280	1200.289	1200.928	1197.470	1198.679	1196.349	1200.466	1201.846	1197.711	1197.230	1198.391	1199.395	1198.276	1200.586	1198.218	1191.884	1196.558	1198.161	1201.642	1201.161	1198.048	1200.789	1198.012	1199.633	1198.000	1193.667	1179.172	1161.197	1144.899
Ground/Road Level at Proposed C/W Edge Left Side (m)	1195.273	1196.689	1194.455	1196.209	1194.423	1194.751	1197.446	1197.598	1194.192	1195.669	1197.645	1196.177	1199.301	1194.809	1196.832	1195.480	1196.940	1198.705	1199.026	1195.489	1196.070	1197.006	1194.826	1197.470	1193.607	1195.046	1196.076	1192.096	1190.151	1194.481	1201.173	1196.733	1191.884	1194.663	1194.900	1194.705	1194.184	1196.095	1190.149	1177.404	1160.027	1142.621						
Ground/Road Level at Proposed C/W Edge Right Side (m)	1202.726	1203.642	1203.282	1205.420	1204.931	1201.743	1203.952	1204.933	1202.390	1204.370	1205.446	1205.800	1205.388	1203.644	1202.197	1202.177	1203.442	1205.077	1206.674	1202.646	1204.174	1204.741	1199.990	1199.672	1205.791	1207.683	1209.430	1204.187	1204.527	1206.408	1204.439	1202.116	1206.493	1207.846	1207.170	1205.140	1204.114	1196.731	1180.468	1162.367	1147.129							
Proposed Vertical Alignment Schematic	G = -0.23%																																															
Proposed Horizontal Alignment Schematic	L=955.69m																																															
Superelevation/Crossfall (%)	e = -2.5%																																															
Chainage (Km)	88+000	88+025	88+050	88+075	88+100	88+125	88+150	88+175	88+200	88+225	88+250	88+275	88+300	88+325	88+350	88+375	88+400	88+425	88+450	88+475	88+500	88+525	88+550	88+575	88+600	88+625	88+650	88+675	88+700	88+725	88+750	88+775	88+800	88+825	88+850	88+875	88+900	88+925	88+950	88+975	89+000							

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct.-2020	
R1	Dec.-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
(MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
GOVERNMENT OF INDIA

CONSULTANT:  
**RODIC CONSULTANTS PVT. LTD.**  
1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
NEW DELHI - 110001 (INDIA)  
In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550

Designed:	<b>B D</b>
Drawn:	<b>S S</b>
Designed:	<b>T M</b>
Approved:	<b>A M</b>

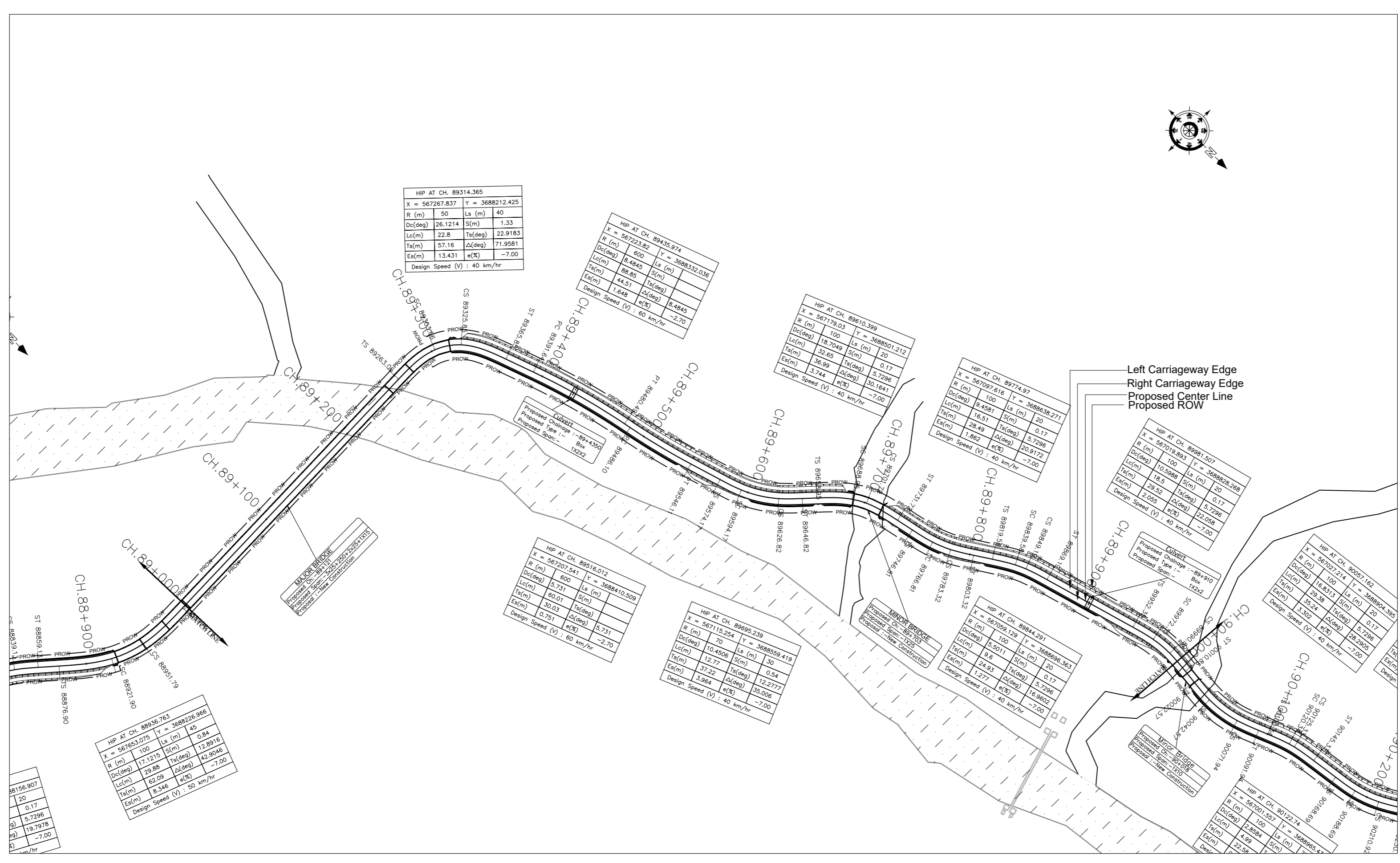
**TENDER DRAWING**

Scale :-  
H=-1:2500  
V=-1:250

Project:-  
**CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR**

Drawing Title	PLAN & PROFILE (Km.88+000 to Km.89+000)
Sheet size:	A2
Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/P&P/09A/R0

Annex III



**LEGEND**

- Proposed Center Line
- Proposed Median
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**L-PROFILE**

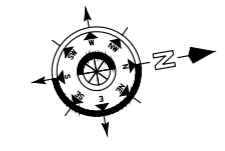
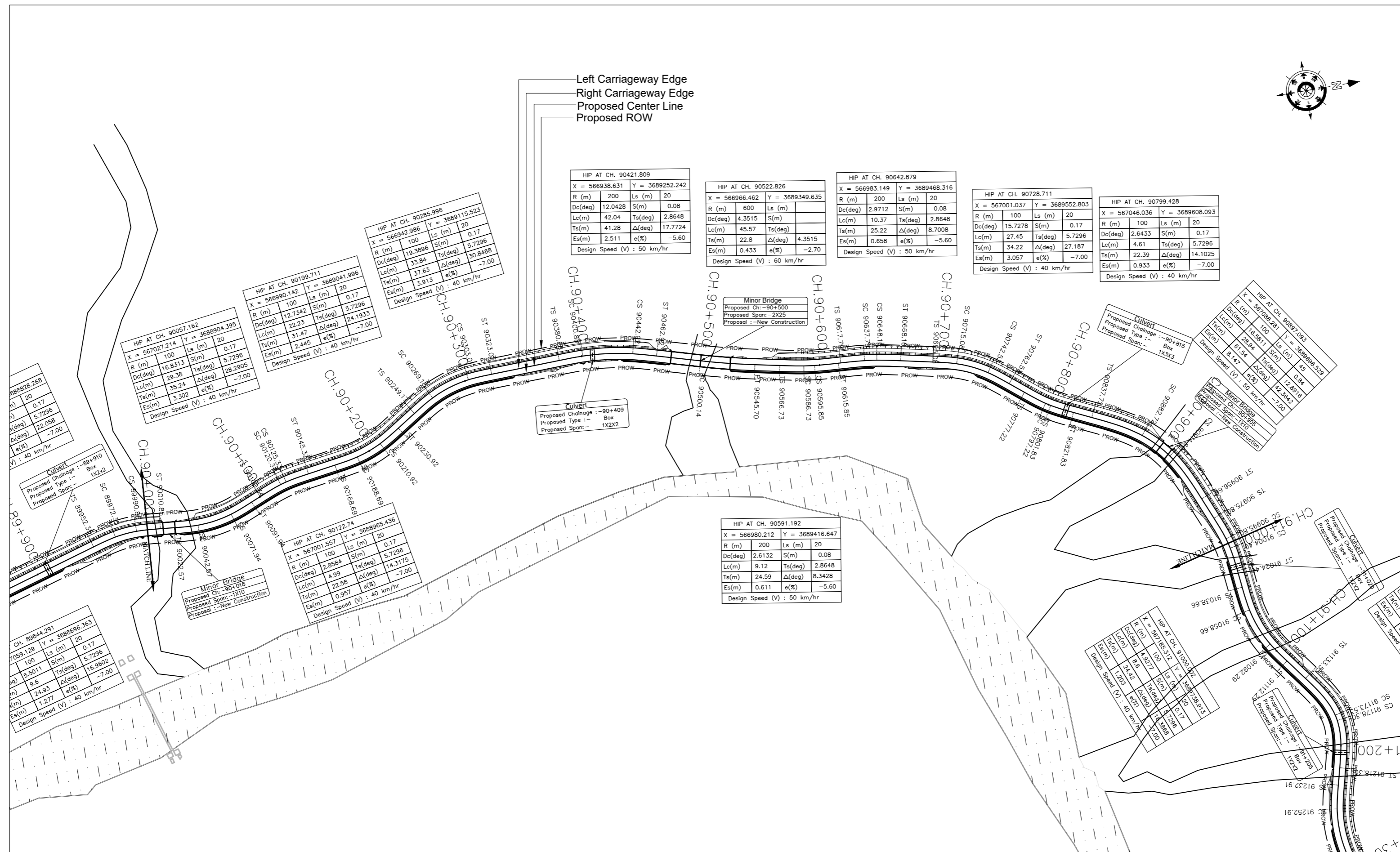
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					PLAN & PROFILE (Km.89+000 to Km.90+000)	
					NHIDCL/NH244/KHELLANI - CHATTROO/P&P/10/R0	
						Annex III



KHELLANI

CHATTROO



**LEGEND**

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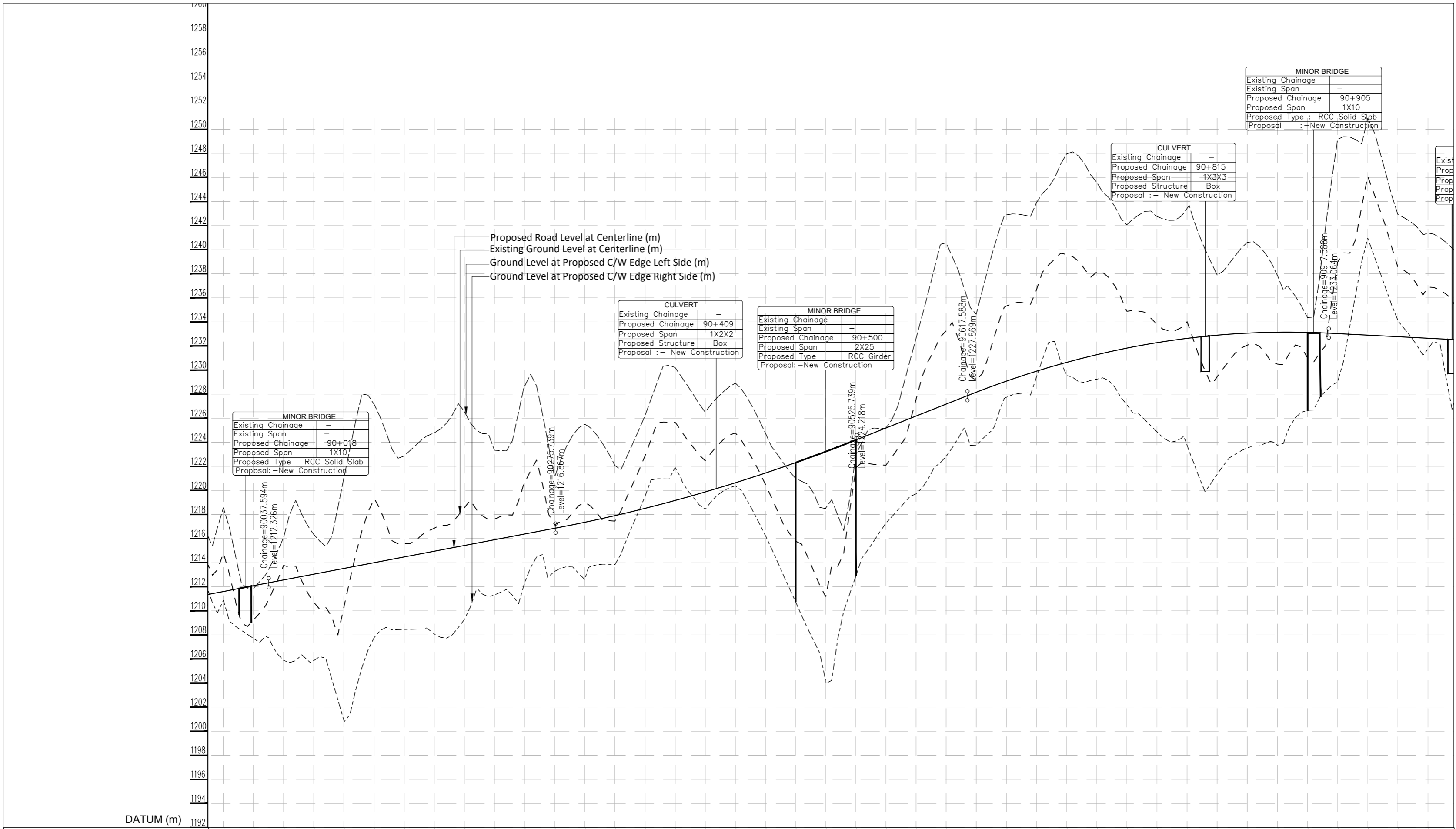
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ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR			
R0	Oct.-2020		<b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	 <b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with <b>Monarch Surveyors and Engineering Consultants Pvt. Ltd.,</b>	From Design Km. 80+675 to Km. 95+550	TENDER DRAWING			
R1	Dec.-2020				 <b>MADCL</b> BUILDING INFRASTRUCTURE - BUILDING THE BETTER	 <b>MONARCH</b>	Drawn: <b>B D</b> Drawn: <b>S S</b> Designed: <b>T M</b> Approved: <b>A M</b>	Scale :- H=-:1:2500 V=-:1:250	Drawing Title Sheet size: A2 Drawing No.



### LEGEND

- Proposed Center Line
- Proposed Median
- Proposed Carriageway Edge
- Proposed Toe Line
- Proposed Right of Way
- Existing Right of Way
- Proposed Box Culvert
- Proposed HP Culvert
- Proposed Slab Culvert
- Proposed Vehicular Underpass
- Proposed Cattle Underpass
- Proposed Bridge/ROB
- Toe Wall
- Retaining Wall / Breast Wall
- Gate Temporary/Permanents
- GPS
- Temporary Bench Mark
- Religious Structures
- Telephone Box
- Transformer Points
- Pylon
- Lamp Post
- Tree-T1,T2,T3,T4,T5,T6
- Tube Well, Well
- Hand Pump
- Kilometer Stone
- OFC Pillar
- Petrol Pump
- North Symbol
- Railway Track
- Existing Paved Road
- Existing Unpaved Road
- Telephone Line
- High Tension Lines
- Low Tension Line
- Drain
- HFL Line
- Water Pipe Line

### PLAN

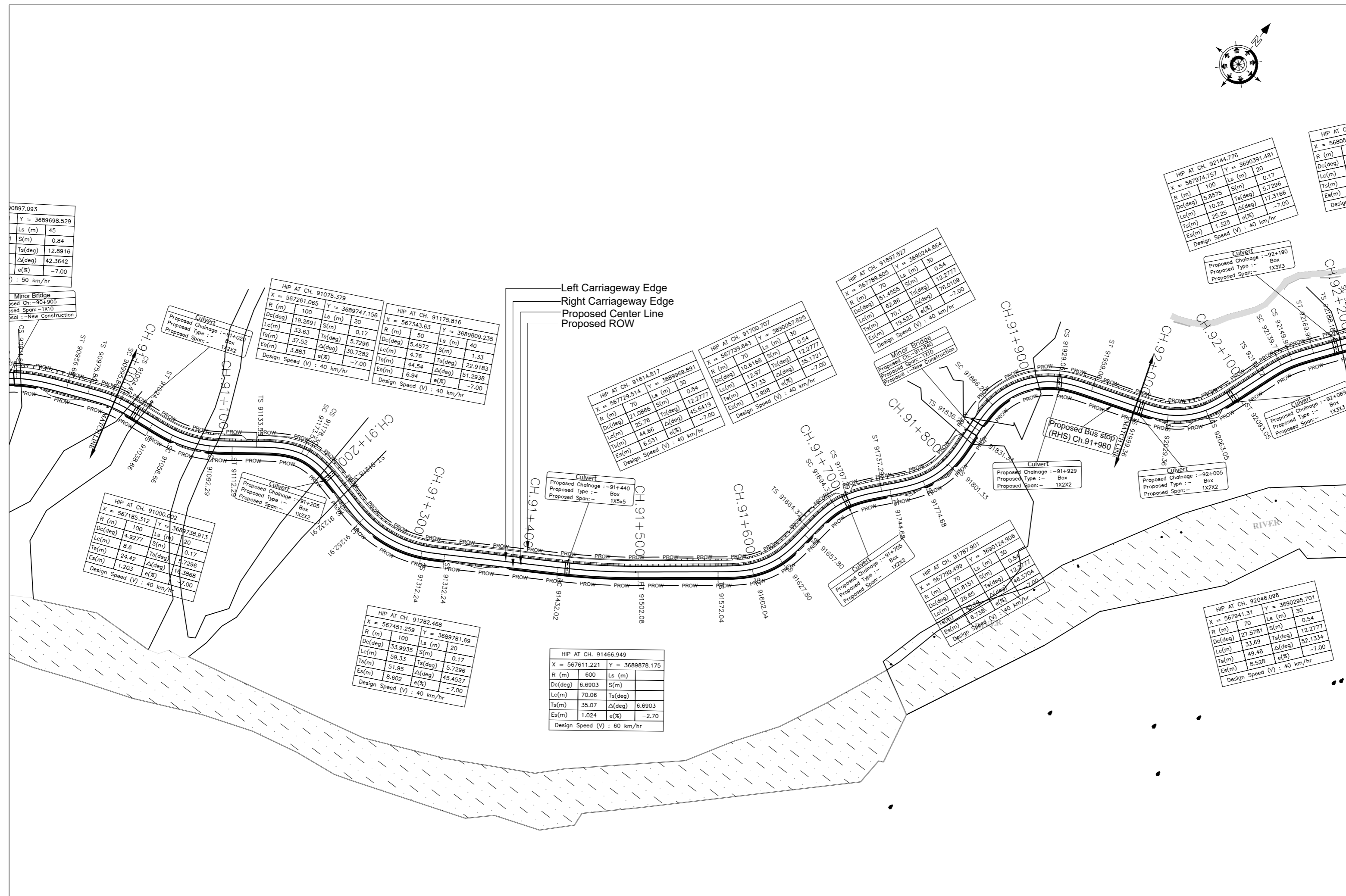
- R - Radius of Curve
- Dc - Degree of Curvature
- Lc - Length of Circular Curve
- Ts - Tangent Length
- Es - Apex Distance
- LS - Length of Spiral Curve
- S - Shift
- Δ - Deflection Angle
- V - Design Speed Km/Hr
- e% - Superelevation
- PC - Point of Curvature
- PT - Point of Tangent
- HIP - Horizontal Intersection Point

### L - PROFILE

- G - Gradient %
- Lv - Length of Vertical Curve
- L - Length of Grade(m)
- K - Ratio Between vertical curve length & Change of Gradient (Lc(G2-G1))
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Proposed Road Level at Centerline (m)	1210.602	1211.602	1212.602	1213.602	1214.602	1215.602	1216.602	1217.602	1218.602	1219.602	1220.602	1221.602	1222.602	1223.602	1224.602	1225.602	1226.602	1227.602	1228.602	1229.602	1230.602	1231.602	1232.602	1233.602	1234.602	1235.602	1236.602	1237.602	1238.602	1239.602	1240.602	1241.602	1242.602	1243.602	1244.602	1245.602	1246.602	1247.602	1248.602	1249.602	1250.602	1251.602	1252.602	1253.602	1254.602	1255.602	1256.602	1257.602	1258.602			
Existing Ground/Road Level at Centerline (m)	1210.870	1211.870	1212.870	1213.870	1214.870	1215.870	1216.870	1217.870	1218.870	1219.870	1220.870	1221.870	1222.870	1223.870	1224.870	1225.870	1226.870	1227.870	1228.870	1229.870	1230.870	1231.870	1232.870	1233.870	1234.870	1235.870	1236.870	1237.870	1238.870	1239.870	1240.870	1241.870	1242.870	1243.870	1244.870	1245.870	1246.870	1247.870	1248.870	1249.870	1250.870	1251.870	1252.870	1253.870	1254.870	1255.870	1256.870	1257.870	1258.870			
Ground/Road Level at Proposed C/W Edge Left Side (m)	1207.706	1208.706	1209.706	1210.706	1211.706	1212.706	1213.706	1214.706	1215.706	1216.706	1217.706	1218.706	1219.706	1220.706	1221.706	1222.706	1223.706	1224.706	1225.706	1226.706	1227.706	1228.706	1229.706	1230.706	1231.706	1232.706	1233.706	1234.706	1235.706	1236.706	1237.706	1238.706	1239.706	1240.706	1241.706	1242.706	1243.706	1244.706	1245.706	1246.706	1247.706	1248.706	1249.706	1250.706	1251.706	1252.706	1253.706	1254.706	1255.706	1256.706	1257.706	1258.706
Ground/Road Level at Proposed C/W Edge Right Side (m)	1207.706	1208.706	1209.706	1210.706	1211.706	1212.706	1213.706	1214.706	1215.706	1216.706	1217.706	1218.706	1219.706	1220.706	1221.706	1222.706	1223.706	1224.706	1225.706	1226.706	1227.706	1228.706	1229.706	1230.706	1231.706	1232.706	1233.706	1234.706	1235.706	1236.706	1237.706	1238.706	1239.706	1240.706	1241.706	1242.706	1243.706	1244.706	1245.706	1246.706	1247.706	1248.706	1249.706	1250.706	1251.706	1252.706	1253.706	1254.706	1255.706	1256.706	1257.706	1258.706
Proposed Vertical Alignment Schematic	L=238.14m, G=1.91%, K=120.86, Lv=250.00m, L=91.85m, G=3.97%, Lv=300.00m, K=-66.86																																																			
Proposed Horizontal Alignment Schematic	R=100.0m, Lc=29.4m, R=100.0m, Lc=5.0m, R=100.0m, Lc=22.2m, R=100.0m, Lc=33.8m, D=57.9m, Lc=42.0m, R=200.0m, D=37.2m, R=200.0m, Lc=45.6m, R=200.0m, Lc=9.1m, R=200.0m, Lc=10.4m, R=100.0m, Lc=27.5m, R=100.0m, Lc=4.6m, Ls=45.0m, Lc=28.9m, Ls=45.0m, R=100.0m, Lc=8.6m																																																			
Superelevation/Crossfall (%)	e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%																																																			
Chainage (Km)	90+000	90+025	90+050	90+075	90+100	90+125	90+150	90+175	90+200	90+225	90+250	90+275	90+300	90+325	90+350	90+375	90+400	90+425	90+450	90+475	90+500	90+525	90+550	90+575	90+600	90+625	90+650	90+675	90+700	90+725	90+750	90+775	90+800	90+825	90+850	90+875	90+900	90+925	90+950	90+975	91+000											

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R0	Oct.-2020		NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	RODIC CONSULTANTS PVT. LTD. 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with Monarch Surveyors and Engineering Consultants Pvt. Ltd.,	From Design Km. 80+675 to Km. 95+550	TENDER DRAWING
R1	Dec.-2020				Scale :- H=-1:2500 V=-1:250	Drawing Title Sheet size: A2 Drawing No.
						PLAN & PROFILE (Km.90+000 to Km.91+000)
						Annex III



**LEGEND**

- Proposed Center Line
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**PLAN**

- R - Radius of Curve
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- V - Design Speed Km/Hr
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**L - PROFILE**

- G - Gradient %
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CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
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 GOVERNMENT OF INDIA

CONSULTANT:  
  
**RODIC CONSULTANTS PVT. LTD.**  
 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
 NEW DELHI - 110001 (INDIA)  
 In Association with  
  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550

**TENDER DRAWING**

Project:-

CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHITWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR

Scale :-  
 H:-1:2500  
 V:-1:250

Drawing Title  
 Sheet size: A2

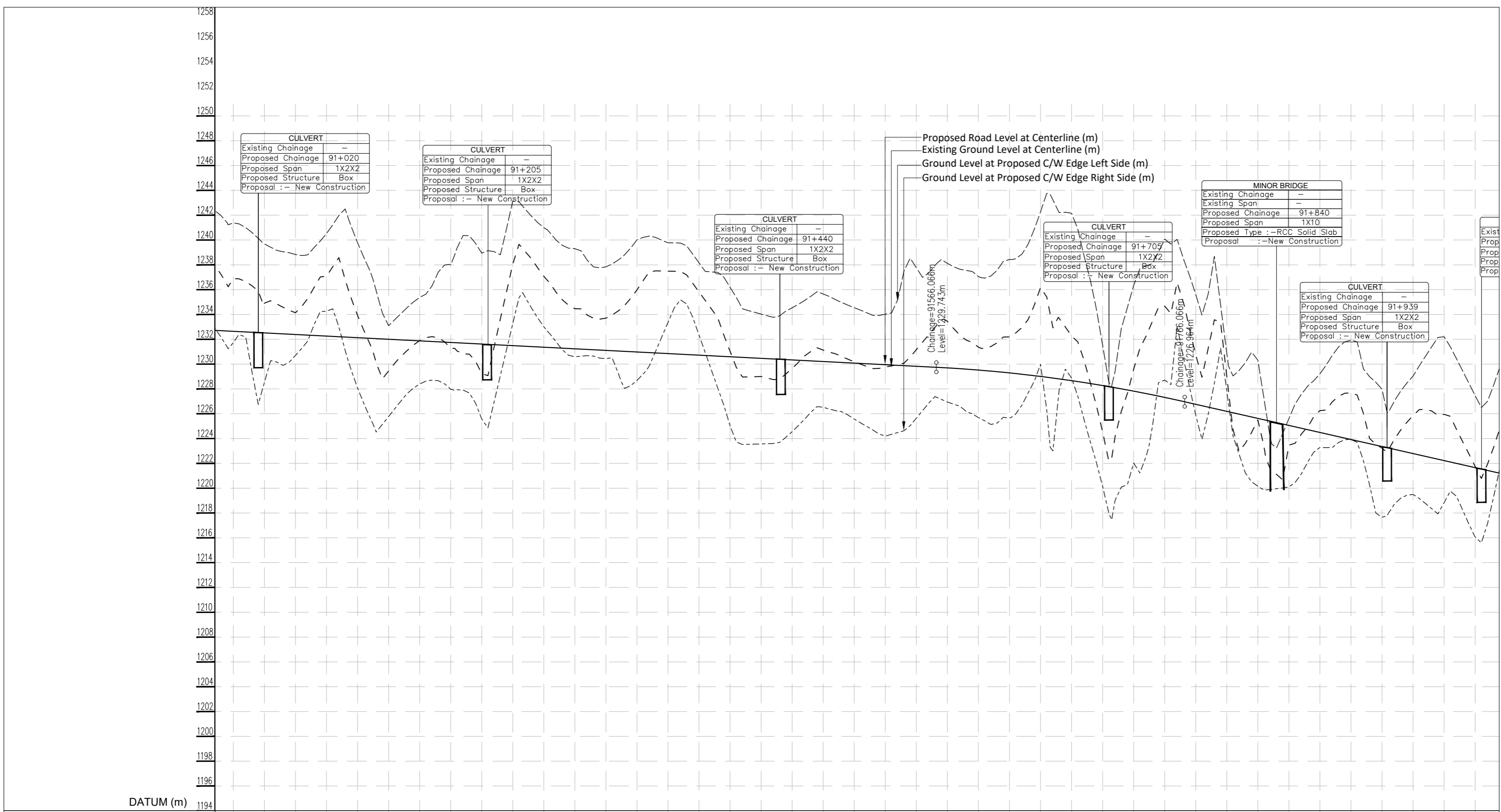
Drawing No.

Annex III

Designed: <b>B D</b>	Scale :- H:-1:2500 V:-1:250	Drawing Title Sheet size: A2	Drawing No.
Drawn: <b>S S</b>			
Designed: <b>T M</b>			
Approved: <b>A M</b>			

PLAN & PROFILE  
(Km.91+000 to Km.92+000)

NHIDCL/NH244/KHELLANI - CHATTROO/P&P/12/R0



**LEGEND**

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- Existing Unpaved Road
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**Building PLAN**

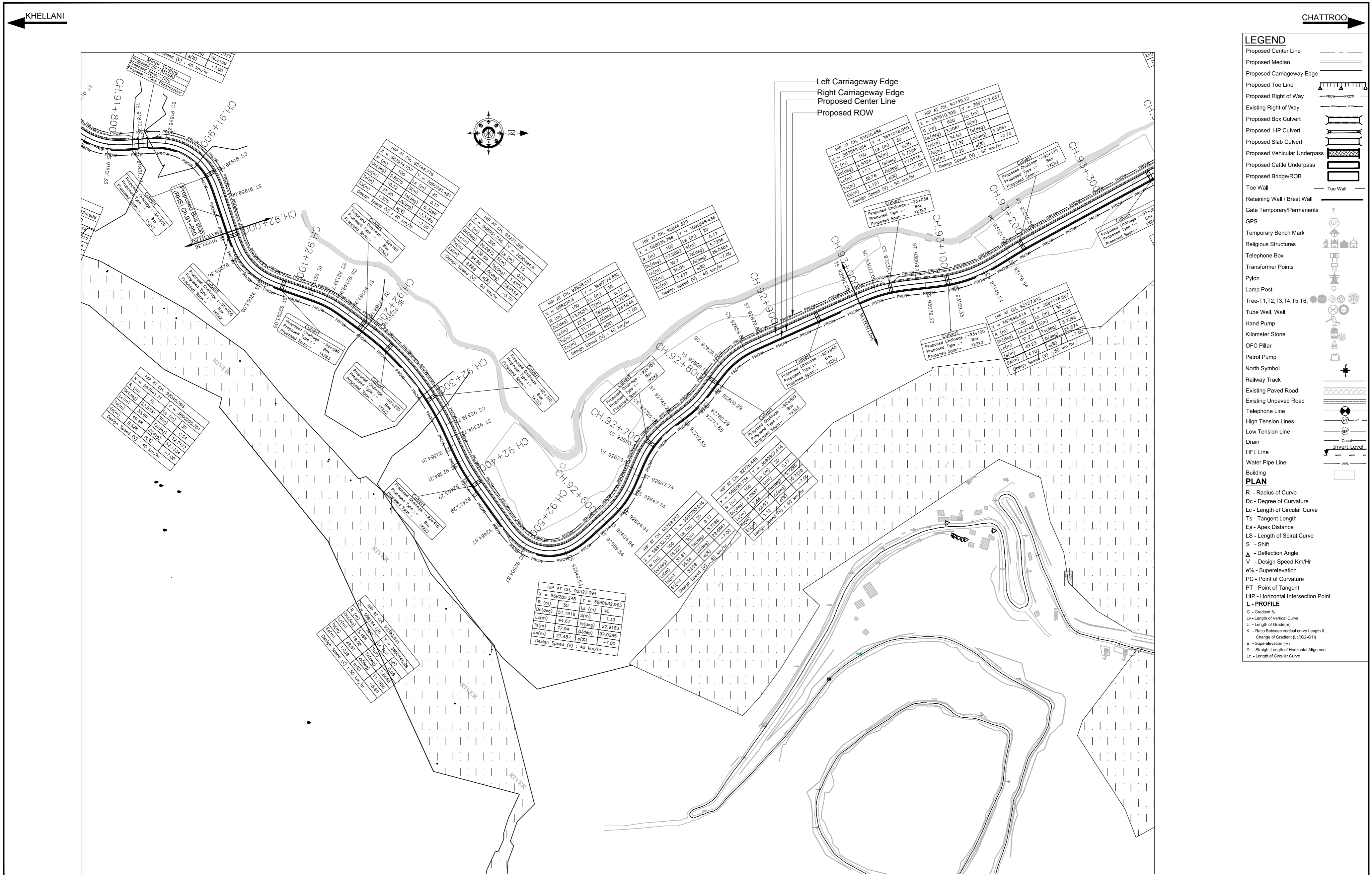
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	DATUM (m) 1194	
Proposed Road Level at Centerline (m)	1231.729	1219.658
Existing Ground/Road Level at Centerline (m)	1228.892	1222.932
Ground/Road Level at Proposed C/W Edge Left Side (m)	1231.729	1219.658
Ground/Road Level at Proposed C/W Edge Right Side (m)	1231.729	1219.658
Proposed Vertical Alignment Schematic	G = -0.51%      G = -2.27%	
Proposed Horizontal Alignment Schematic	Lc=8.6m, R=100.0m, Lc=33.6m, R=100.0m, Ls=40.0m, R=50.0m, Lc=59.3m, D=99.8m, Lc=70.1m, R=600.0m, D=70.0m, Lc=25.6m, R=70.0m, Lc=13.0m, R=70.0m, Lc=26.7m, R=70.0m, Lc=62.9m, D=40.3m	
Superelevation/Crossfall (%)	e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%, e=7.0%, e=-2.5%	
Chainage (Km)	91+000	92+000

<b>ISSUE</b>	<b>DATE</b>	<b>AMENDMENT \ ISSUE DESCRIPTION</b>	<b>CLIENT</b> NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	<b>CONSULTANT:</b>  <b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with <b>Monarch Surveyors and Engineering Consultants Pvt. Ltd.</b>	From Design Km. 80+675 to Km. 95+550	<b>TENDER DRAWING</b>	Project:- <b>CONSTRUCTION &amp; UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 &amp; LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR</b>	Drawing Title Sheet size: A2	Drawing No.	PLAN & PROFILE (Km.91+000 to Km.92+000)	Annex III
R0	Oct.-2020										
R1	Dec.-2020										




**LEGEND**

Proposed Center Line  
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 Proposed Carriageway Edge  
 Proposed Toe Line  
 Proposed Right of Way  
 Existing Right of Way  
 Proposed Box Culvert  
 Proposed HP Culvert  
 Proposed Slab Culvert  
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 Proposed Cattle Underpass  
 Proposed Bridge/ROB  
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 Gate Temporary/Permanents  
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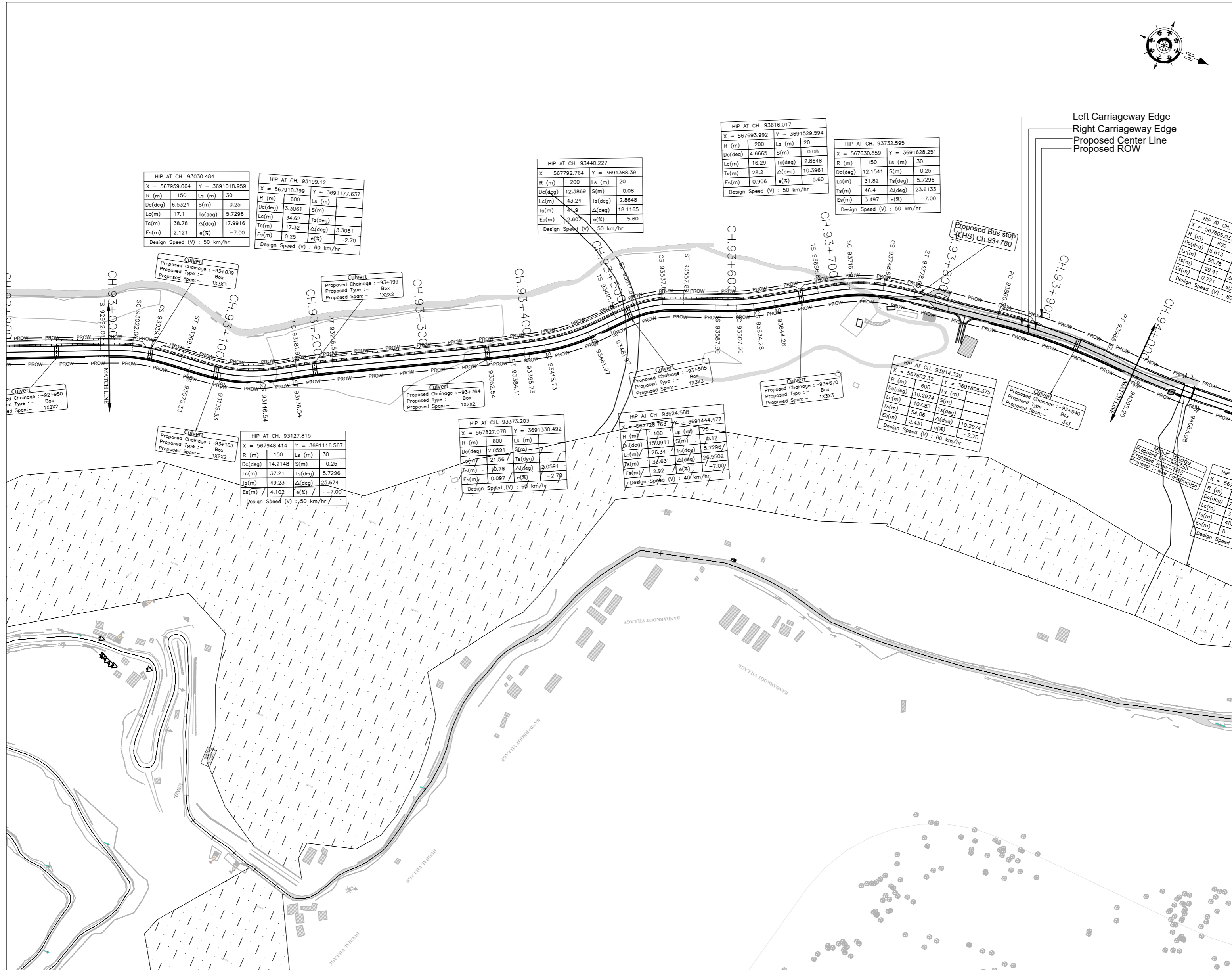
CONSULTANT:  
  
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From Design Km. 80+675 to Km. 95+550  
**TENDER DRAWING**  
 Project:-  
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Scale :-  
 H:-1:2500  
 V:-1:250  
 Drawing Title  
 Sheet size: A2  
 Drawing No.

ANNEX III  
 PLAN & PROFILE  
 (Km.92+000 to Km.93+000)  
 NHIDCL/NH244/KHELLANI - CHATTROO/P&P/13/R0





**LEGEND**

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 Proposed Median  
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 Proposed Toe Line  
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 Proposed Vehicle Underpass  
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 Kilometer Stone  
 OFC Pillar  
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 North Symbol  
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 HFL Line  
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TENDER DRAWING

Project:-

CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR

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 H=-:1:2500  
 V=-:1:250

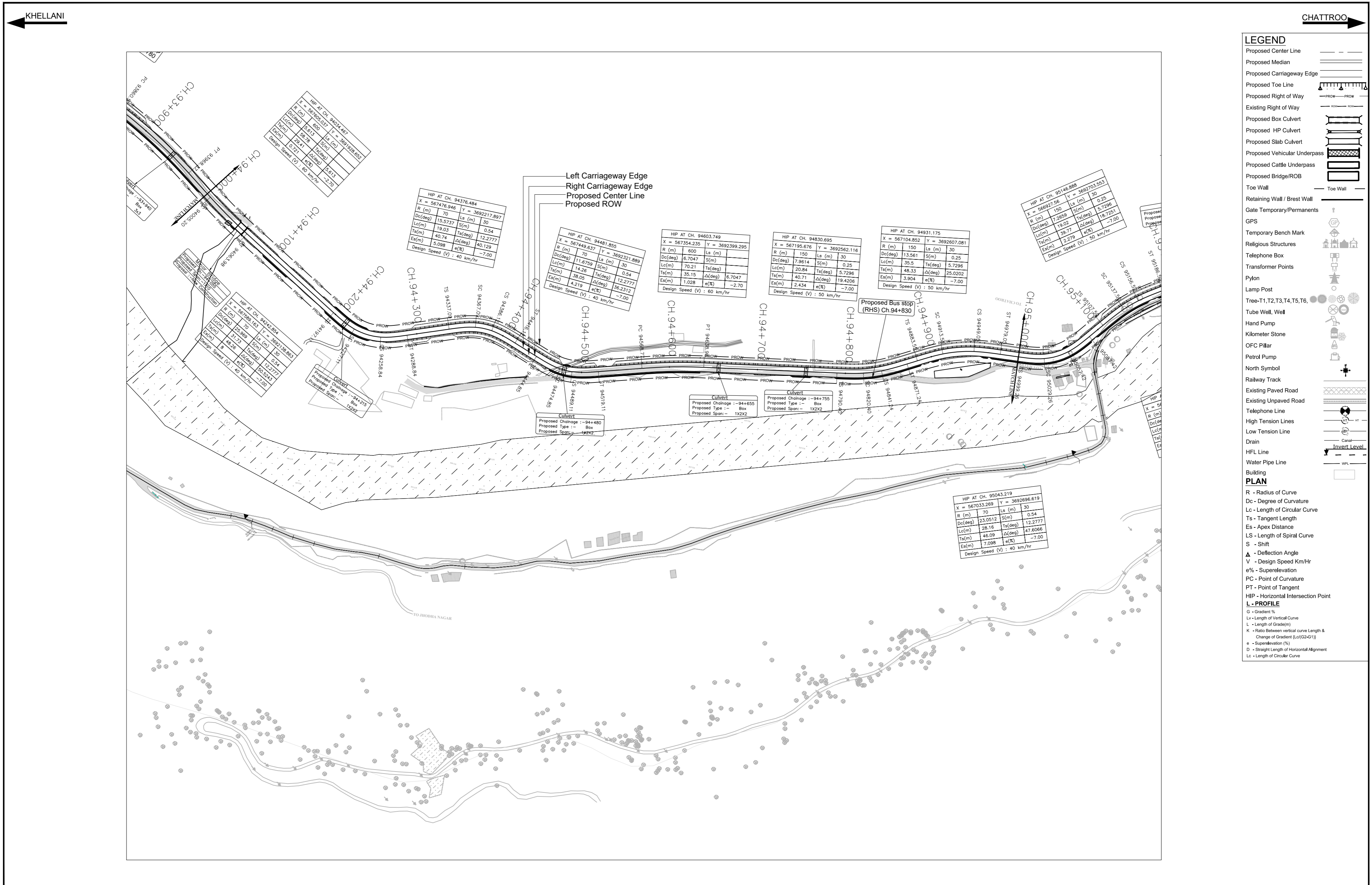
Drawing Title  
 Sheet size: A2

Drawing No.  
 NHIDCL/NH244/KHELLANI - CHATTROO/P&P/14/R0

Designed: **B D**  
 Drawn: **S S**  
 Designed: **T M**  
 Approved: **A M**

Annex III



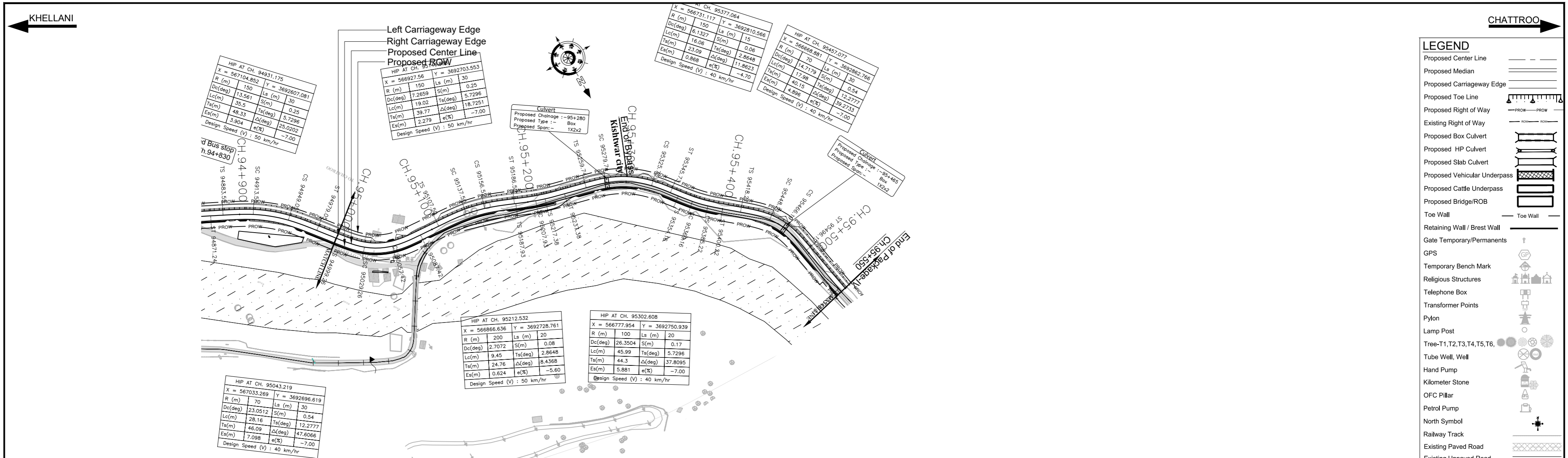


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- Existing Unpaved Road
- Telephone Line
- High Tension Lines
- Low Tension Line
- Drain
- HFL Line
- Water Pipe Line
- Building
- PLAN**
- R - Radius of Curve
- Dc - Degree of Curvature
- Lc - Length of Circular Curve
- Ts - Tangent Length
- Es - Apex Distance
- LS - Length of Spiral Curve
- S - Shift
- Δ - Deflection Angle
- V - Design Speed Km/Hr
- e% - Superelevation
- PC - Point of Curvature
- PT - Point of Tangent
- HIP - Horizontal Intersection Point
- L - PROFILE**
- G - Gradient %
- Lv - Length of Vertical Curve
- L - Length of Grade(m)
- K - Ratio Between vertical curve Length & Change of Gradient (Lc(G2-G1))
- e - Super-elevation (%)
- D - Straight Length of Horizontal Alignment
- Lc - Length of Circular Curve

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR			
R0	Oct.-:2020		<b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	 <b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with <b>Monarch Surveyors and Engineering Consultants Pvt. Ltd.,</b>	From Design Km. 80+675 to Km. 95+550	<b>TENDER DRAWING</b>			
R1	Dec.-:2020				 <b>MIDCL</b> BUILDING INFRASTRUCTURE - BUILDING THE BETTER	 <b>MONARCH</b>	Drawn: <b>B D</b> Drawn: <b>S S</b> Designed: <b>T M</b> Approved: <b>A M</b>	Scale :- H:-1:2500 V:-1:250	Drawing Title Sheet size: A2 Drawing No.
						NHIDCL/NH244/KHELLANI - CHATTROO/P&P/15/R0			





**LEGEND**

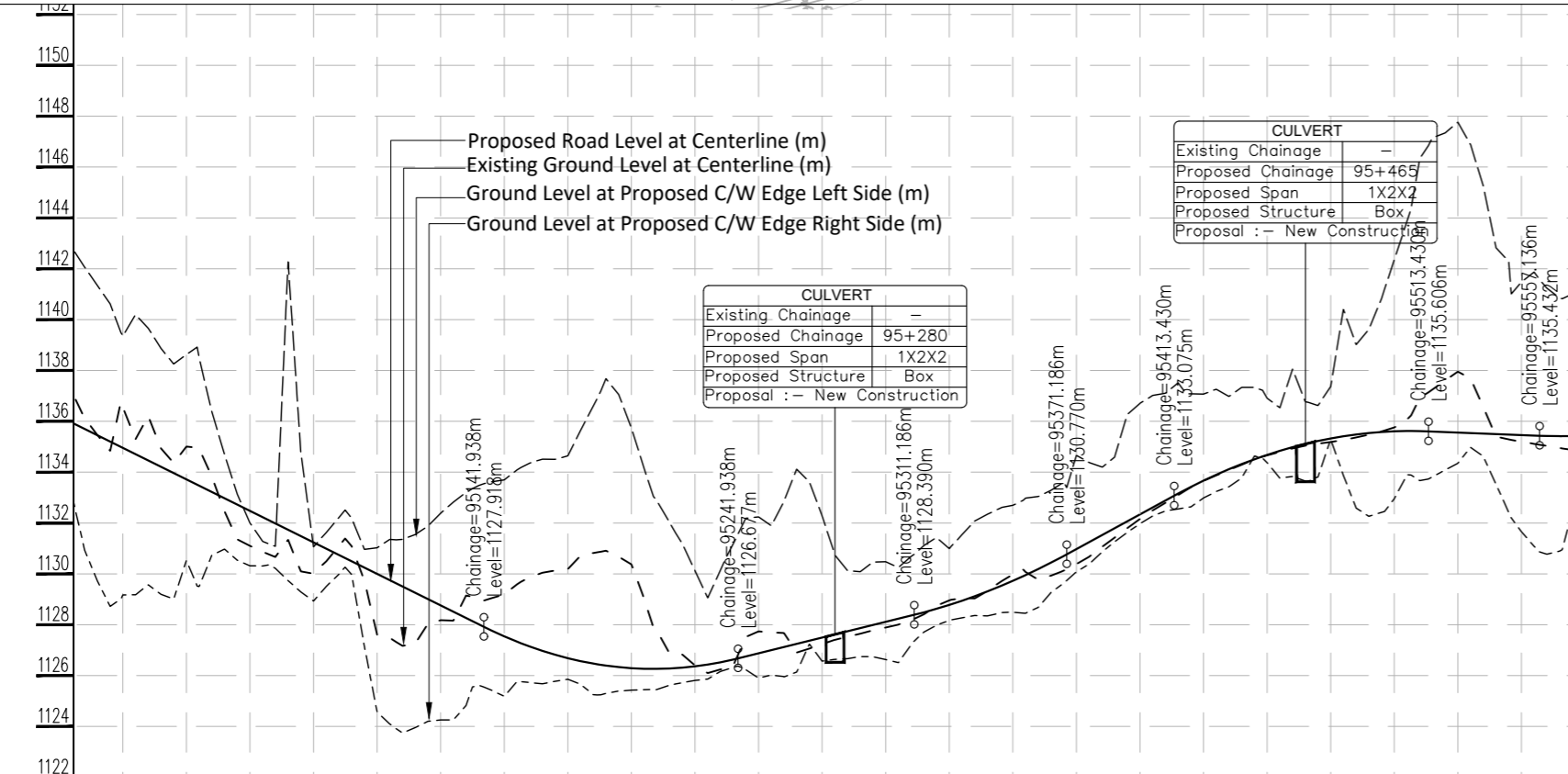
- Proposed Center Line
- Proposed Median
- Proposed Carriageway Edge
- Proposed Toe Line
- Proposed Right of Way
- Existing Right of Way
- Proposed Box Culvert
- Proposed HP Culvert
- Proposed Slab Culvert
- Proposed Vehicular Underpass
- Proposed Cattle Underpass
- Proposed Bridge/ROB
- Toe Wall
- Retaining Wall / Breast Wall
- Gate Temporary/Permanents
- GPS
- Temporary Bench Mark
- Religious Structures
- Telephone Box
- Transformer Points
- Pylon
- Lamp Post
- Tree-T1,T2,T3,T4,T5,T6
- Tube Well, Well
- Hand Pump
- Kilometer Stone
- OFC Pillar
- Petrol Pump
- North Symbol
- Railway Track
- Existing Paved Road
- Existing Unpaved Road
- Telephone Line
- High Tension Lines
- Low Tension Line
- Drain
- HFL Line
- Water Pipe Line

**PLAN**

- R - Radius of Curve
- Dc - Degree of Curvature
- Lc - Length of Circular Curve
- Ts - Tangent Length
- Es - Apex Distance
- LS - Length of Spiral Curve
- S - Shift
- Δ - Deflection Angle
- V - Design Speed Km/Hr
- e% - Superelevation
- PC - Point of Curvature
- PT - Point of Tangent
- HIP - Horizontal Intersection Point

**L-PROFILE**

- G - Gradient %
- Lv - Length of Vertical Curve
- L - Length of Grade(m)
- K - Ratio Between vertical curve Length & Change of Gradient (Lc/(G2-G1))
- e - Superelevation (%)
- D - Straight Length of Horizontal Alignment
- Lc - Length of Circular Curve



Proposed Road Level at Centerline (m)	1129.351	1130.351	1131.351	1132.351	1133.351	1134.351	1135.351	1136.351	1137.351	1138.351	1139.351	1140.351	1141.351	1142.351	1143.351	1144.351	1145.351	1146.351	1147.351	1148.351	1149.351	1150.351		
Existing Ground/Road Level at Centerline (m)	1128.552	1129.552	1130.552	1131.552	1132.552	1133.552	1134.552	1135.552	1136.552	1137.552	1138.552	1139.552	1140.552	1141.552	1142.552	1143.552	1144.552	1145.552	1146.552	1147.552	1148.552	1149.552	1150.552	
Ground/Road Level at Proposed C/W Edge Left Side (m)	1128.173	1129.173	1130.173	1131.173	1132.173	1133.173	1134.173	1135.173	1136.173	1137.173	1138.173	1139.173	1140.173	1141.173	1142.173	1143.173	1144.173	1145.173	1146.173	1147.173	1148.173	1149.173	1150.173	
Ground/Road Level at Proposed C/W Edge Right Side (m)	1129.173	1130.173	1131.173	1132.173	1133.173	1134.173	1135.173	1136.173	1137.173	1138.173	1139.173	1140.173	1141.173	1142.173	1143.173	1144.173	1145.173	1146.173	1147.173	1148.173	1149.173	1150.173	1151.173	
Proposed Vertical Alignment Schematic	G = -4.96% L = 177.53m K = 13.46 Lv = 100.00m L = 69.25m G = 2.47% K = 20.11 Lv = 60.00m L = 42.24m G = 5.46% Lv = 100.00m K = -17.08																							
Proposed Horizontal Alignment Schematic	D Lc = 28.2m R = 70.0m e = 7.0% D Lc = 19.0m R = 150.0m e = 7.0% D Lc = 9.4m R = 200.0m e = 5.6% D Lc = 46.0m R = 100.0m e = 7.0% D Lc = 16.1m R = 150.0m e = 4.7% D Lc = 18.0m R = 70.0m e = 7.0% D = 49.8m																							
Superelevation/Crossfall (%)	-2.5% e = 7.0% e = -2.5% e = 7.0% e = -2.5% e = 5.6% e = -2.5% e = 7.0% e = -2.5% e = 7.0% e = -2.5% e = 7.0% e = -2.5% e = 7.0% e = -2.5% e = 7.0% e = -2.5% e = 7.0% e = -2.5% e = 7.0% e = -2.5% e = 7.0% e = -2.5%																							
Chainage (Km)	95+000	95+025	95+050	95+075	95+100	95+125	95+150	95+175	95+200	95+225	95+250	95+275	95+300	95+325	95+350	95+375	95+400	95+425	95+450	95+475	95+500	95+525	95+550	

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R0	Oct.-2020		NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	RODIC CONSULTANTS PVT. LTD. 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with Monarch Surveyors and Engineering Consultants Pvt. Ltd.,	From Design Km. 80+675 to Km. 95+550	TENDER DRAWING
R1	Dec.-2020				Designed: B D Drawn: S S Designed: T M Approved: A M	Scale :- H=-1:2500 V=-1:250
						PLAN & PROFILE (Km.95+000 to Km.95+550) NHIDCL/NH244/KHELLANI - CHATTROO/P&P/16/R0

# **LINK ROAD HELMET TOP KISHTWAR BYPASS**

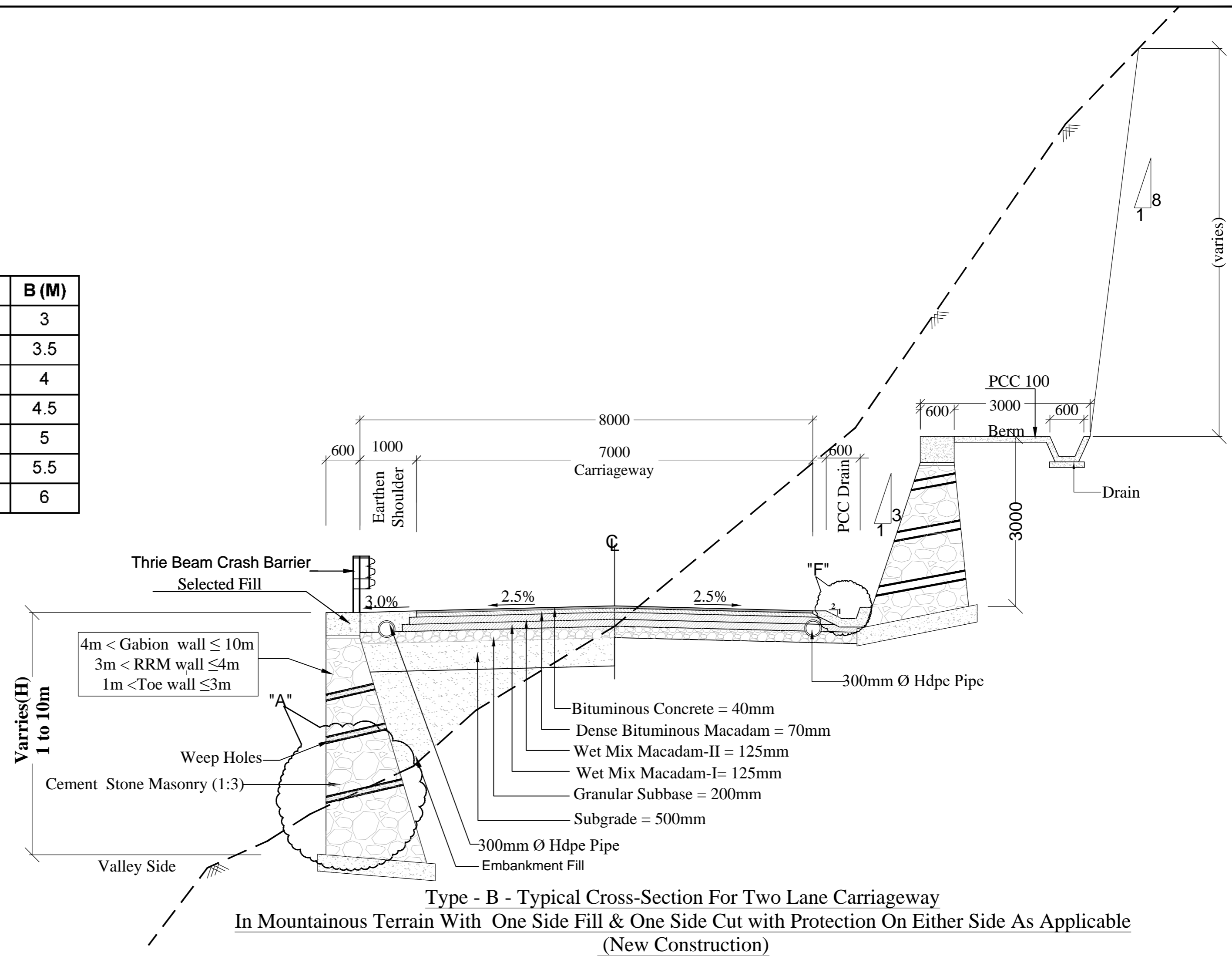
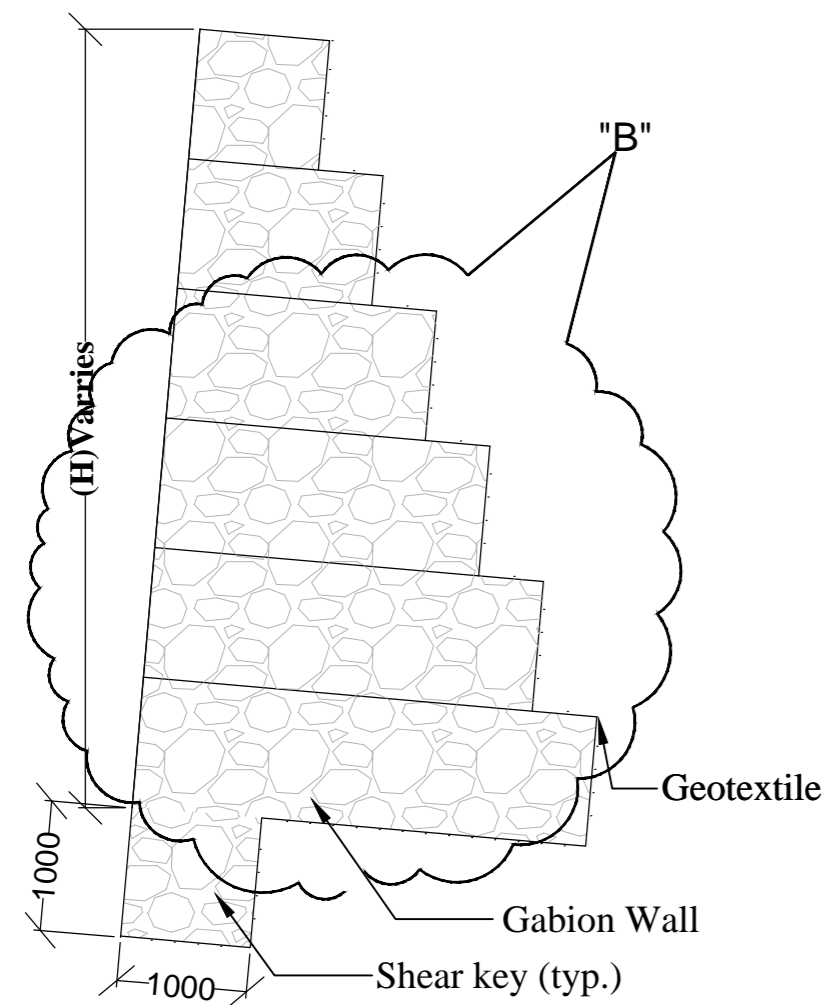
# **TYPICAL CROSS SECTION**

## **LINK ROAD**

**Km.0+000 to Km.1+871**



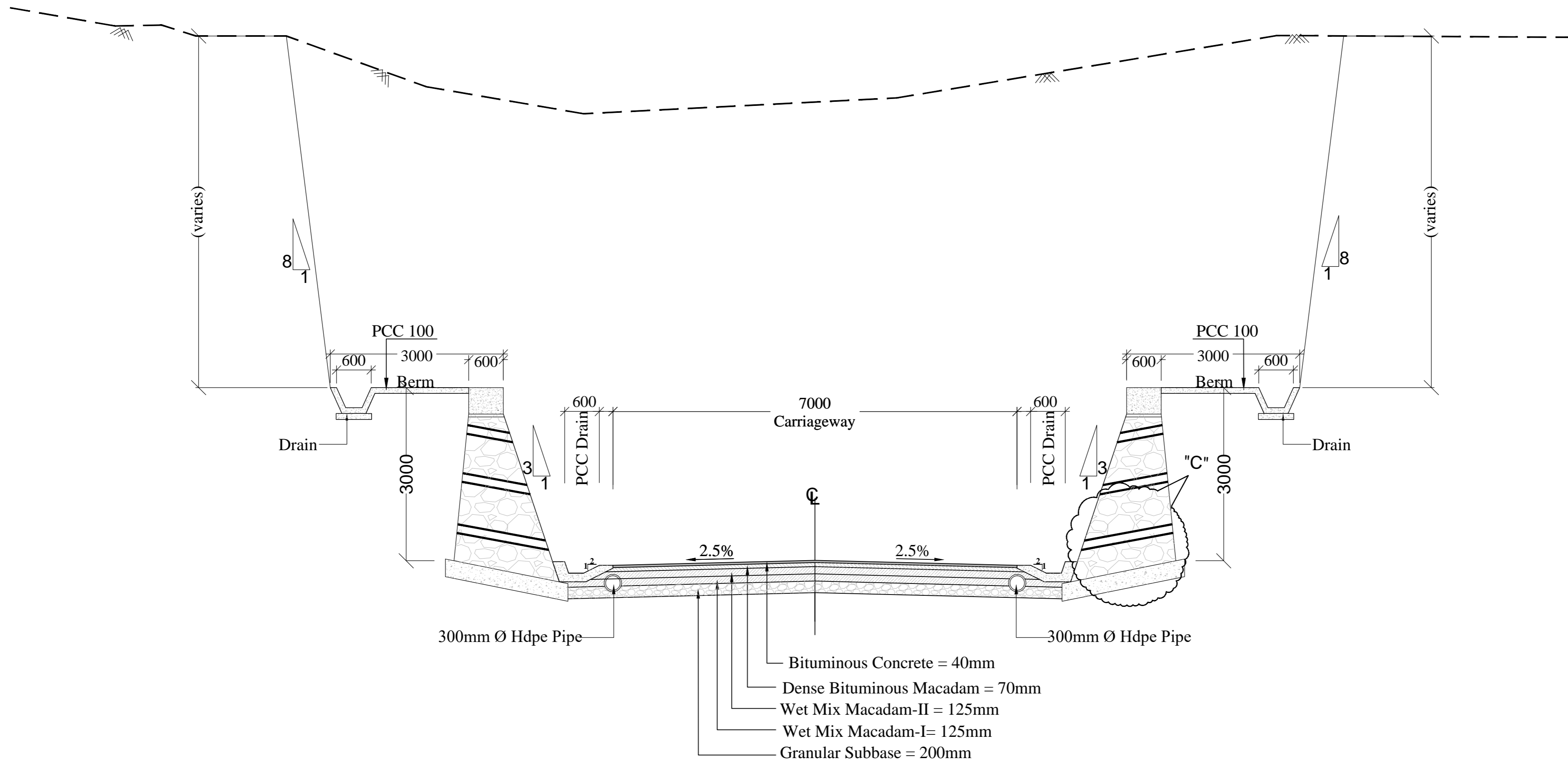
NO. OF COURSES	H (M)	B (M)
5	4	3
6	5	3.5
7	6	4
8	7	4.5
9	8	5
10	9	5.5
11	10	6



**NOTE:-**

1. All Dimension are in millimeters except otherwise specified
2. Extra widening will be provided where radius of horizontal curve is less than 300m.
3. Toe wall Shall be provided where height of embankment is less than 3m. & greater than 1m.
4. Retaining wall Shall be provided where height of embankment is greater than 3m. & less than 4m.
5. Gabion wall shall be provided where height of embankment is greater than 4 m.
6. Breast wall Shall be provided where height of cut is greater than 3m.
7. No protection is required when height of fill is less than 1 m and height of cut is less than 3 m.
8. Refer Standard drawing for Details of Section - A" B"C"D"E"F"
9. Wire mesh shall be provided in presence of unstable of strata
10. Shear key will be adopedted where ht.of gabion wall is more than 5m.




REVISION	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	Project	Sheet size: A2	Drawing Title	Drawing No.
R0	Oct.-2020		<b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	<b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) <b>In Association with</b> <b>Monarch Surveyors and Engineering</b> <b>Consultants Pvt. Ltd.,</b>	From Design Km.0+000 to Km.1+871	TENDER DRAWING	N.T.S.	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHITWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R1	Dec.-2020							
							TYPICAL CROSS SECTION	Annex III
								NHIDCL/NH244/KHELLANI - CHATTROO/TCS/02/R0



**Type - C- Typical Cross-Section For Two Lane Carriageway  
In Mountainous Terrain With Both Side Cut With Protection On Either Side As Applicable  
(New Construction)**

**NOTE:-**

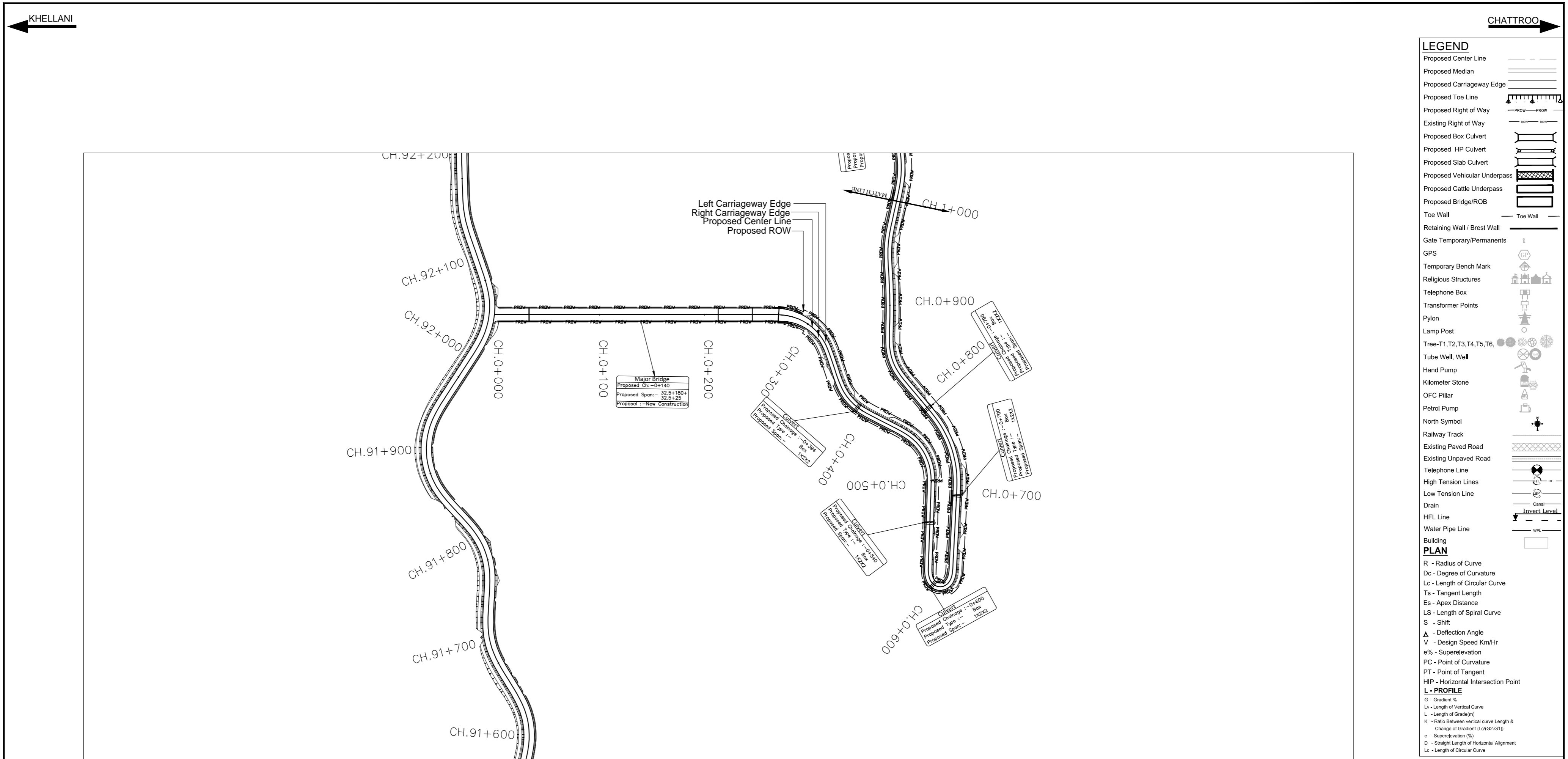
1. All dimensions are in millimeters except otherwise specified
2. Extra widening will be provided where radius of horizontal curve is less than 300m.
3. Toe wall shall be provided where height of embankment is less than 3m. & greater than 1m.
4. Retaining wall shall be provided where height of embankment is greater than 3m. & less than 4m.
5. Gabion wall shall be provided where height of embankment is greater than 4 m.
6. Breast wall shall be provided where height of cut is greater than 3m.
7. No protection is required when height of fill is less than 1 m and height of cut is less than 3 m.
8. Refer Standard drawing for Details of Section - A" B"C"D"E"F"
9. Wire mesh shall be provided in presence of unstable strata
10. Shear key will be adopted where ht. of gabion wall is more than 5m.

REVISION	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	Project	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR		
R0	Oct.-2020		<b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA 	 <b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) <b>In Association with</b>  <b>Monarch Surveyors and Engineering Consultants Pvt. Ltd.,</b>	From Design Km.0+000 to Km.1+871	TENDER DRAWING	Project	
R1	Dec.-2020				Designed: B D	Scale	Drawing Title	TYPICAL CROSS SECTION
					Drawn: S S	N.T.S.	Sheet size: A2	
					Checked: T M		Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/TCS/ 03/R0
					Approved: A M			

**PLAN & PROFILE**

**LINK ROAD**

**Km.0+000 to Km.1+871**



ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct.-:2020	
R1	Dec.-:2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
 (MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
 GOVERNMENT OF INDIA

CONSULTANT:  
  
**RODIC CONSULTANTS PVT. LTD.**  
 1, JAI SINGH MARG (FIRST FLOOR), YMCA  
 CULTURAL CENTRE BUILDING  
 NEW DELHI - 110001 (INDIA)  
 In Association with  
  
**Monarch Surveyors and Engineering  
 Consultants Pvt. Ltd.,**

From Design Km. 0+000 to Km. 1+871

Scale :-  
 H:-1:2500  
 V:-1:250

Designed:	<b>B D</b>
Drawn:	<b>S S</b>
Designed:	<b>T M</b>
Approved:	<b>A M</b>

**TENDER DRAWING**

Project:-  
**CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR**

Drawing Title  
**PLAN & PROFILE**  
 (Km.0+000 to Km.1+000)

Sheet size: A2

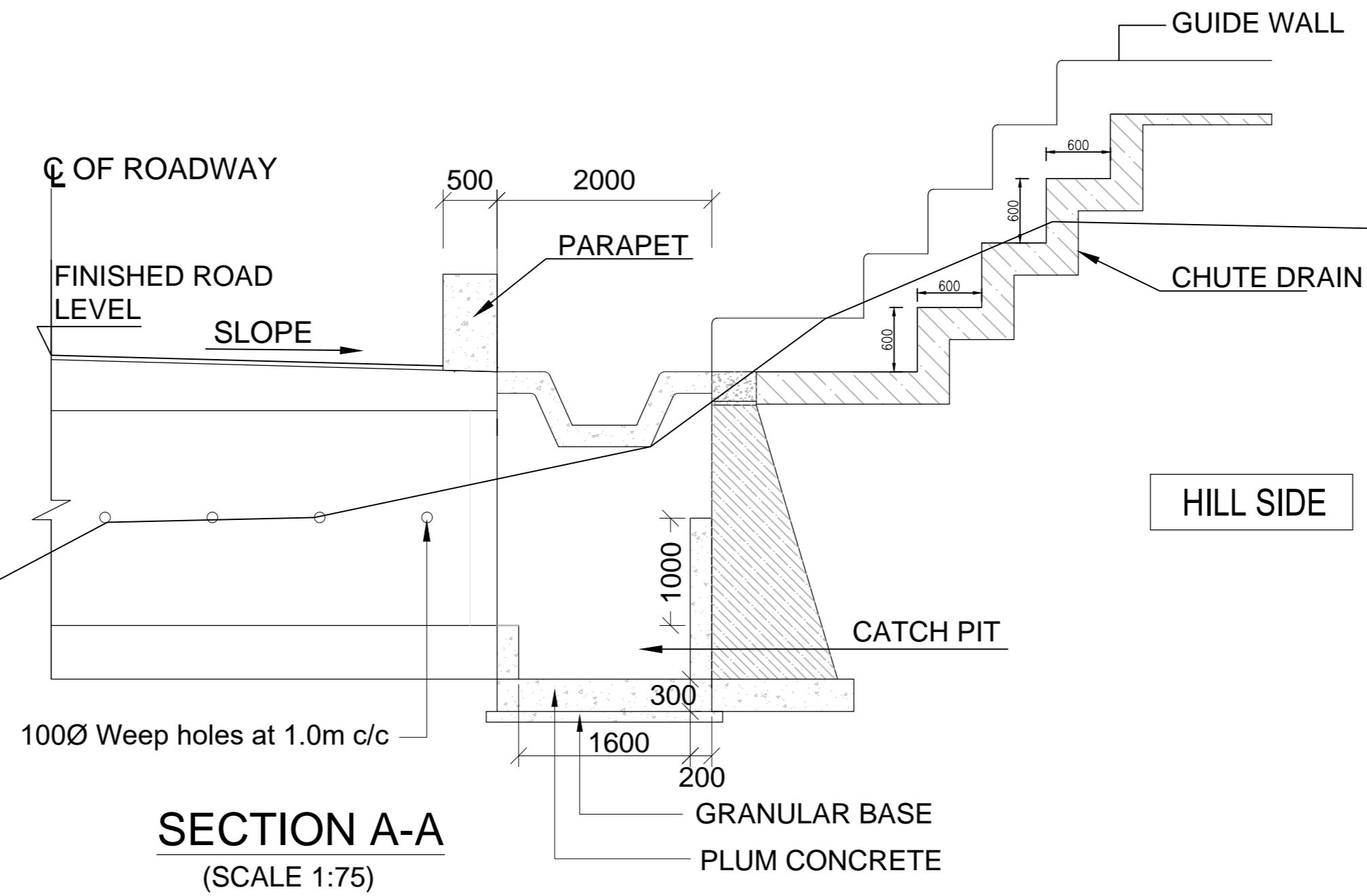
Drawing No. NHIDCL/NH244/KHELLANI - CHATTROO/P&P/ 01/R0

Annex III
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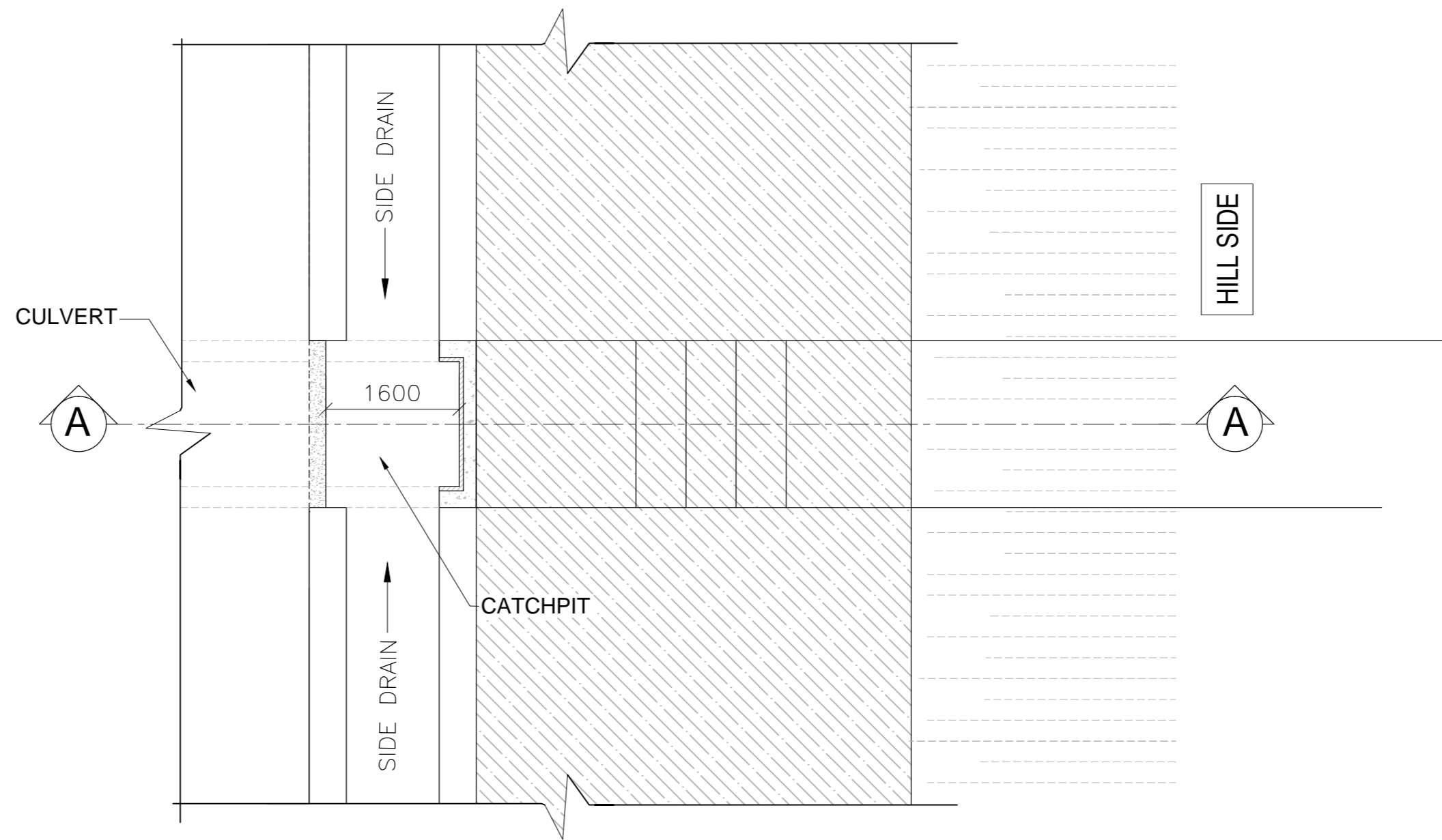




# **STANDARD DRAWING**




**SECTION A-A**  
(SCALE 1:75)





**PLAN AT ROAD LEVEL**  
(SCALE 1:75)

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Dec. -2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
 (MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
 GOVERNMENT OF INDIA



CONSULTANT:  
  
**RODIC CONSULTANTS PVT. LTD.**  
 1, JAI SINGH MARG (FIRST FLOOR), YMCA  
 CULTURAL CENTRE BUILDING  
 NEW DELHI - 110001 (INDIA)  
 In Association with  
  
**Monarch Surveyors and Engineering  
 Consultants Pvt. Ltd.,**

From Design Km.80+675 to Km.95+550

Designed:	BD
Drawn:	SS
Checked:	TM
Approved:	AM

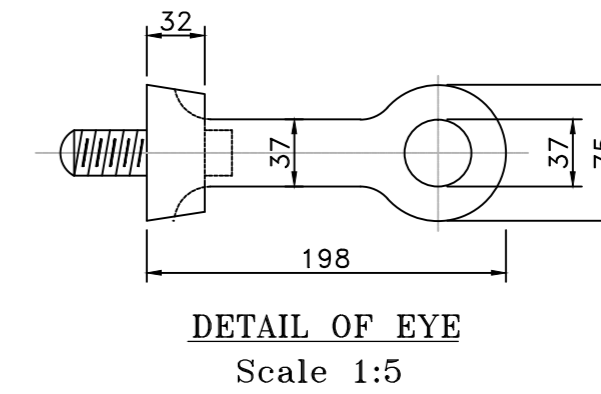
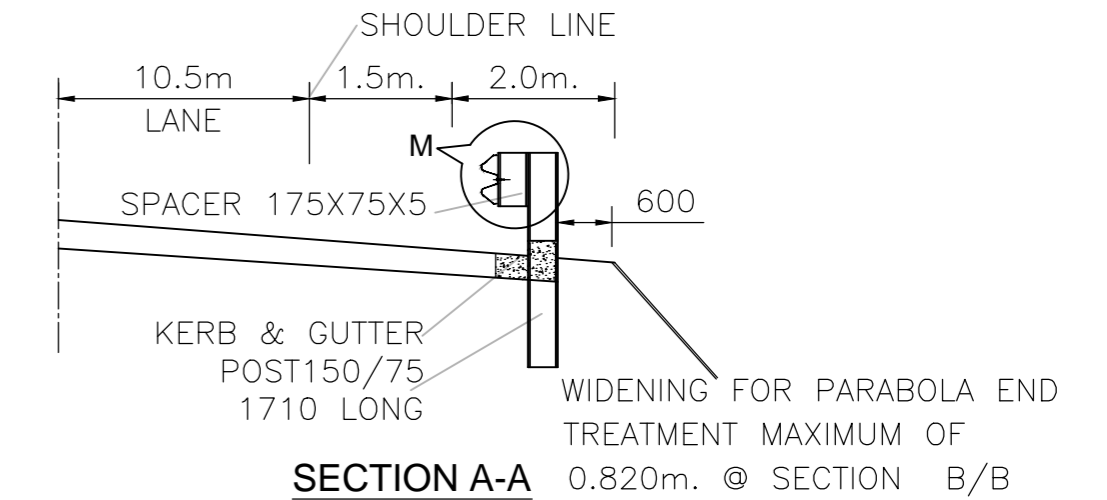
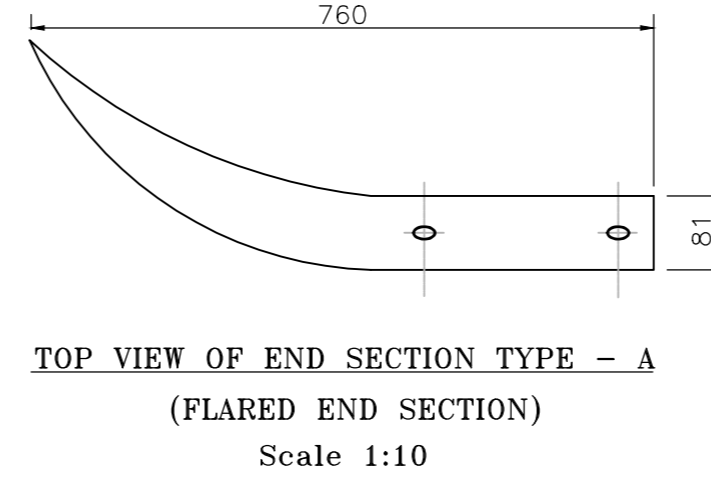
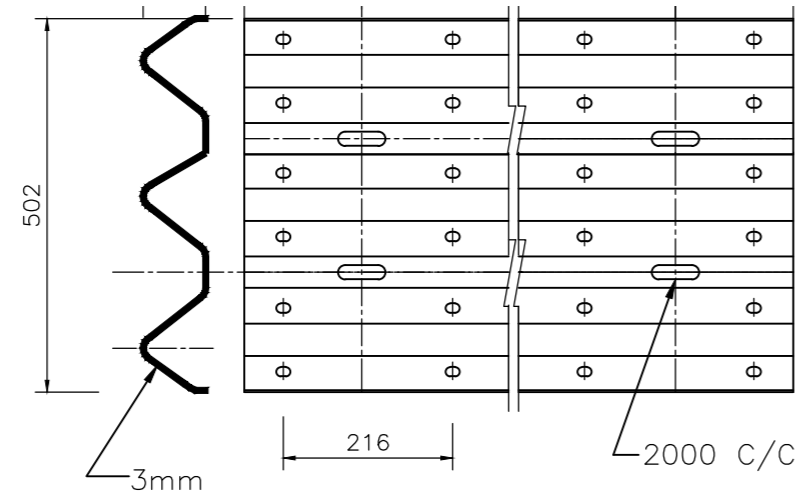
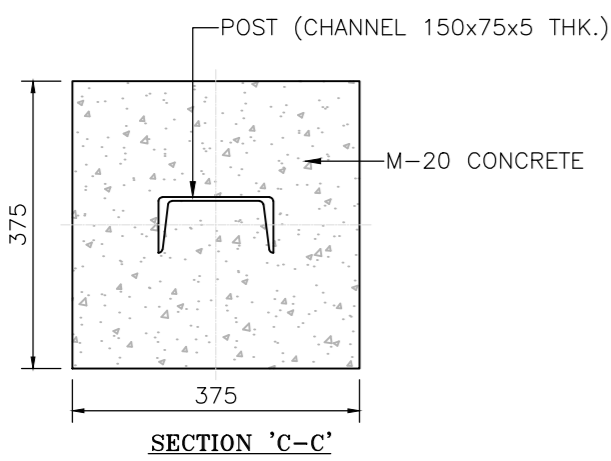
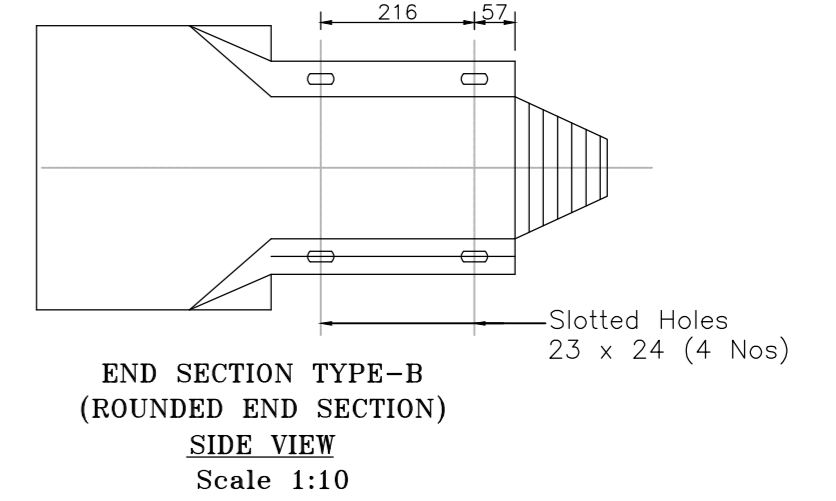
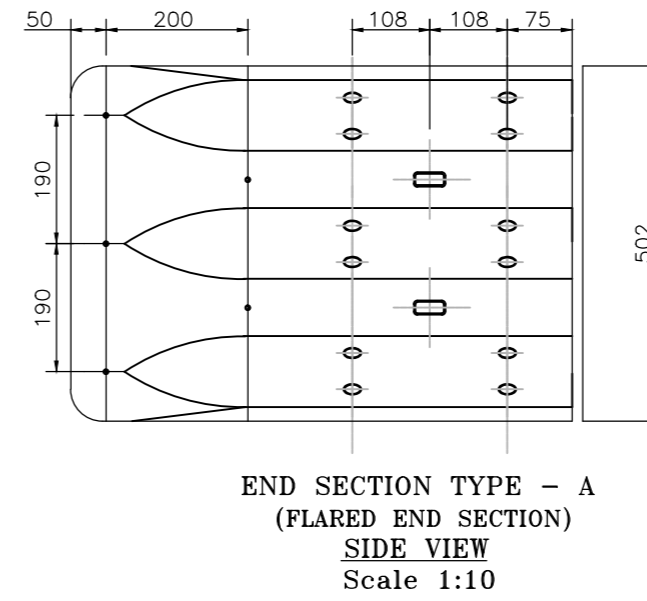
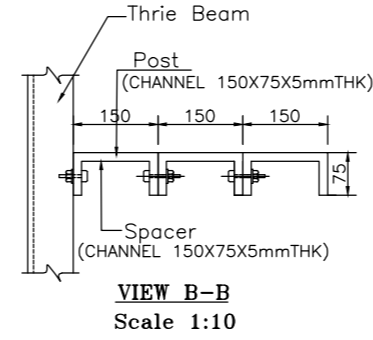
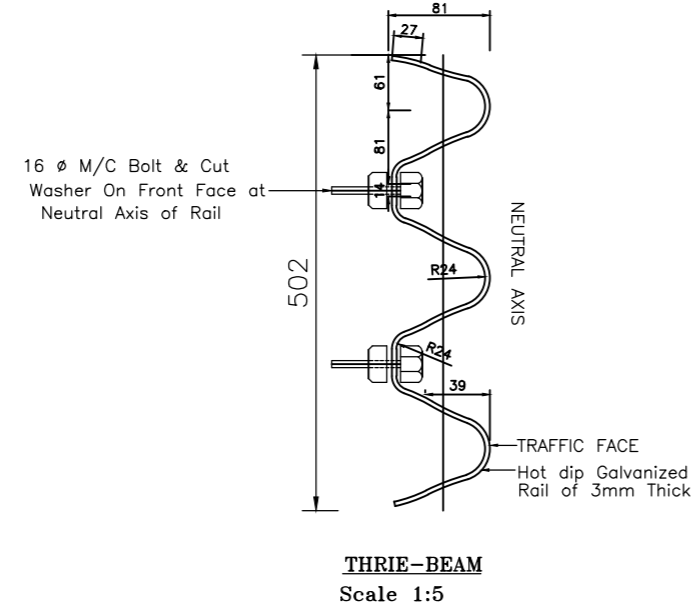
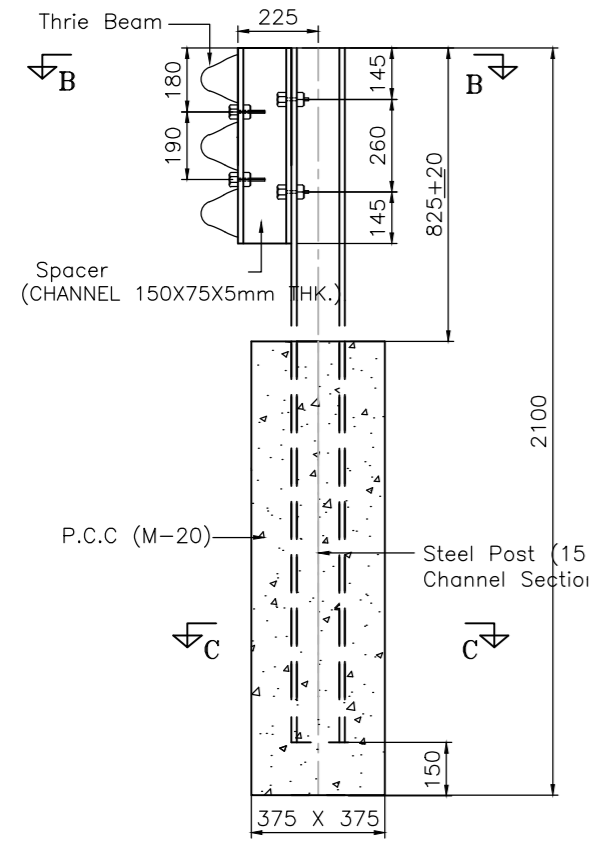
TENDER DRAWING  
 Scale :- NTS

Project  
 Drawing Title  
 Sheet size: A2

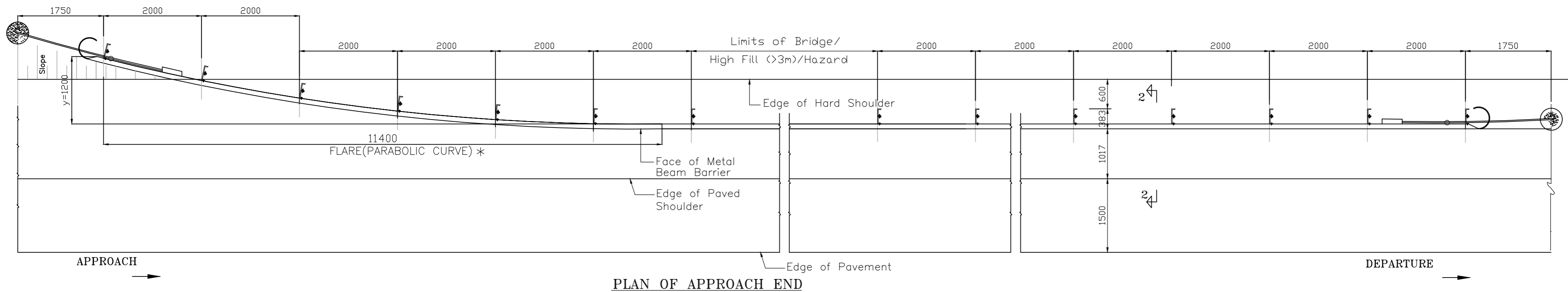
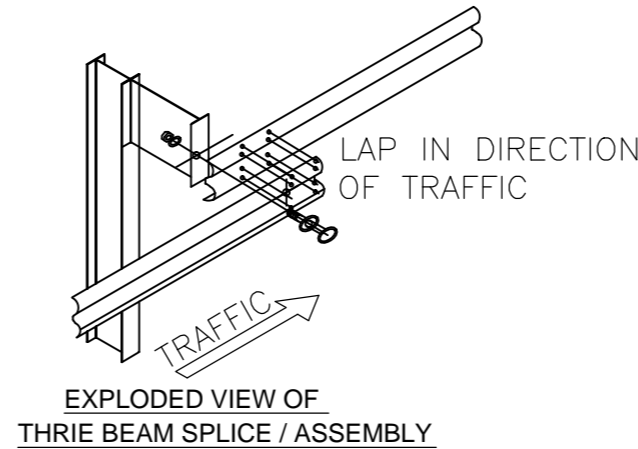
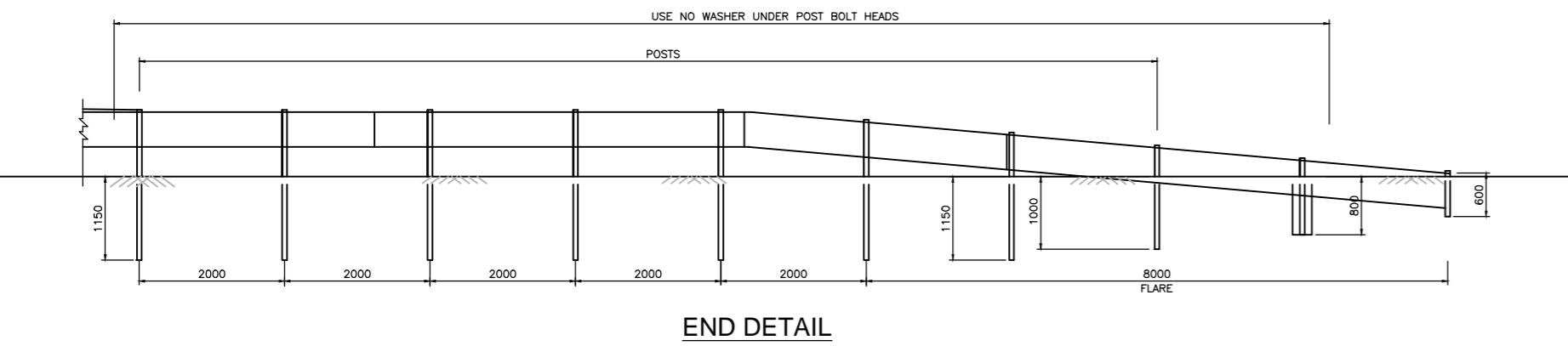
CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR

STANDAR DRAWING  
 CATCH PIT

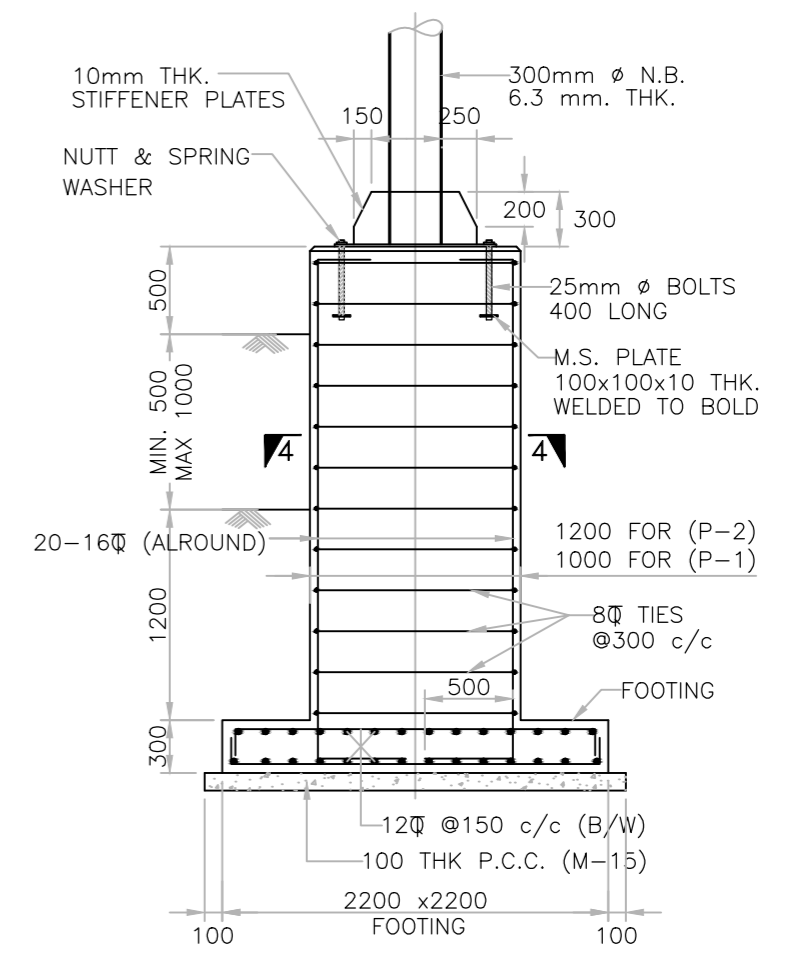
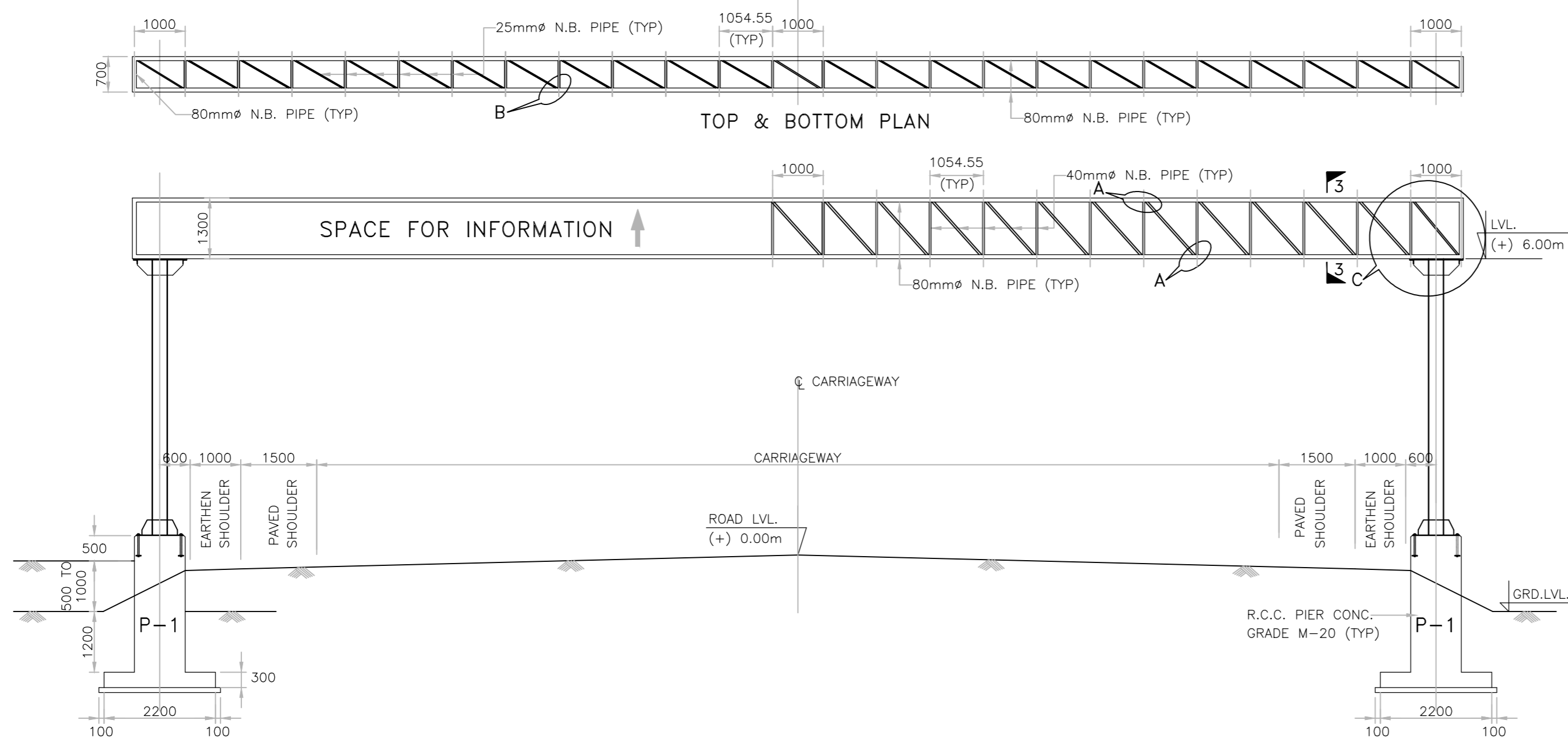
NHIDCL/NH244/KHELLANI - CHATTROO/CP/01/R0



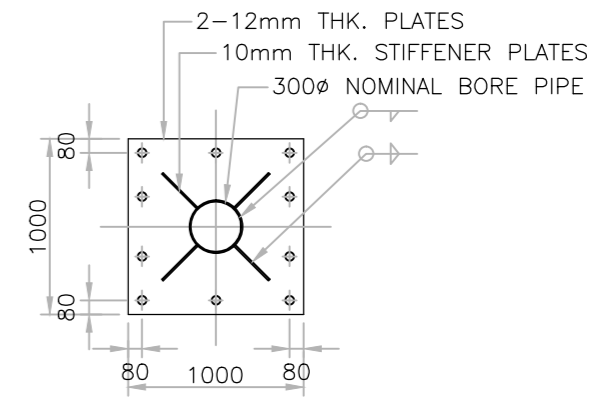
\* PARABOLIC CURVE  
 EQUATION:  $y = \frac{wx^2}{l^2}$   
 where  
 w = tangent offset at maximum flare (1200mm)  
 l = total length of flare (11400mm)  
 y = tangent offset at any point in guardrail flare  
 x = distance from point of tangent to any point of offset



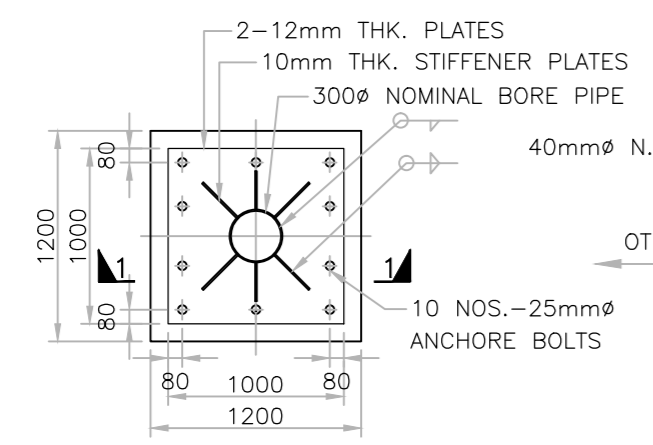
ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT	Project	From Design Km.80+675 to Km.95+550	TENDER DRAWING	Project	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R0	Dec.-2020		NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	RODIC CONSULTANTS PVT. LTD. 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with Monarch Surveyors and Engineering Consultants Pvt. Ltd.,	Scale :-	NTS	Drawing Title	STANDAR DRAWING TYPICAL DETAILS OF THRIE BEAM CRASH BARRIER	
							Sheet size: A2	NHIDCL/NH244/KHELLANI - CHATTROO/ MISC/03/R0	



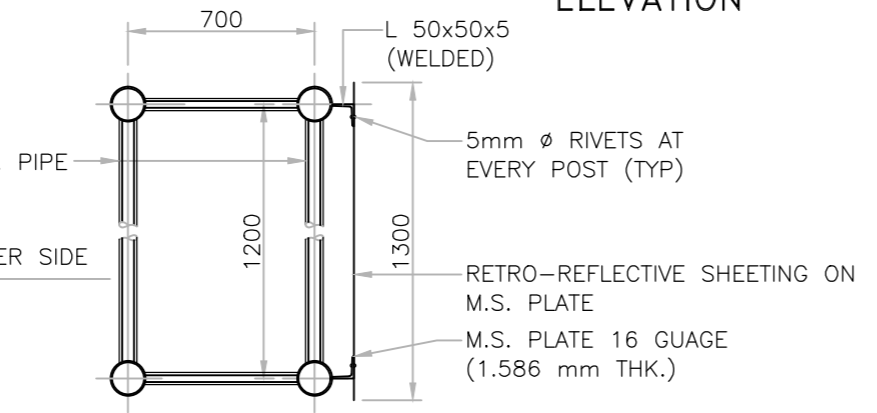
SECTION 1-1



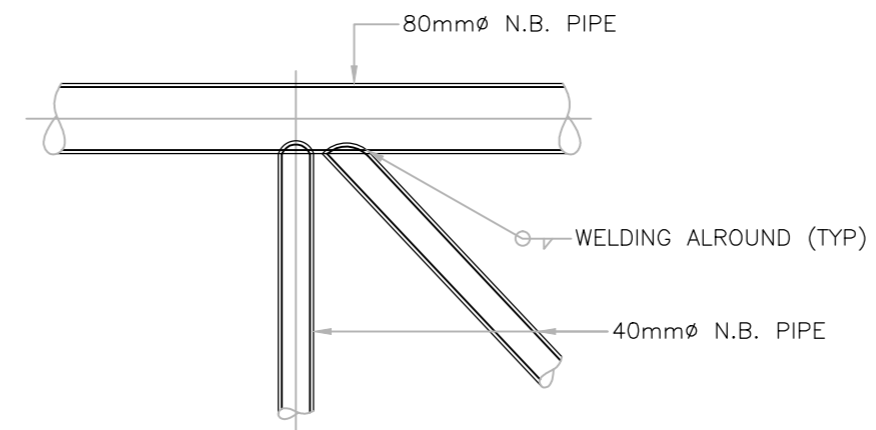
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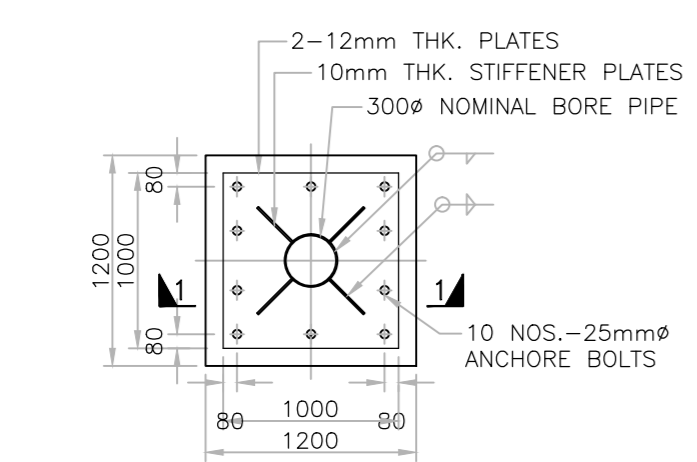
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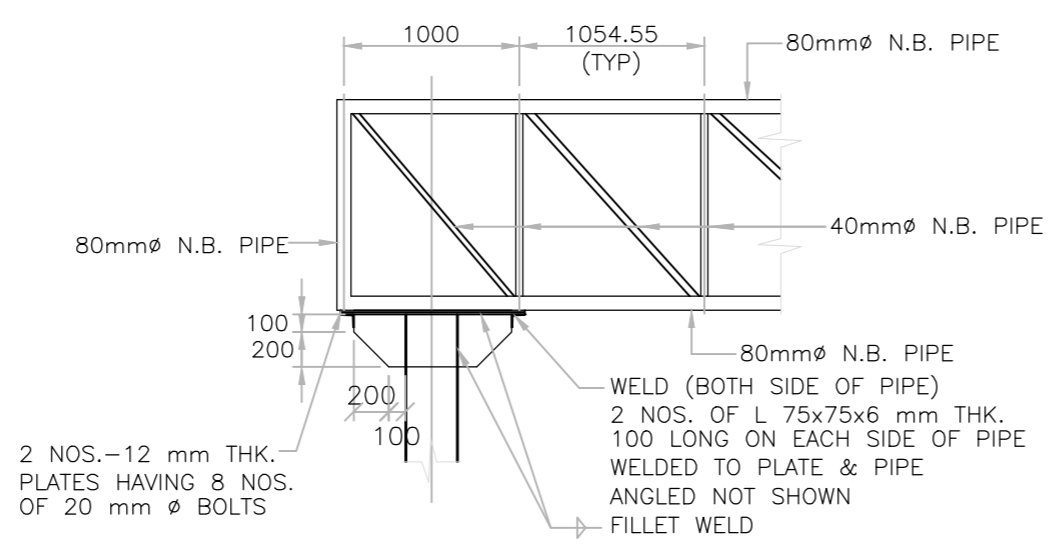
SECTION 3-3 (SIMILAR ARRANGEMENT SHALL BE ON THE OTHER SIDE)



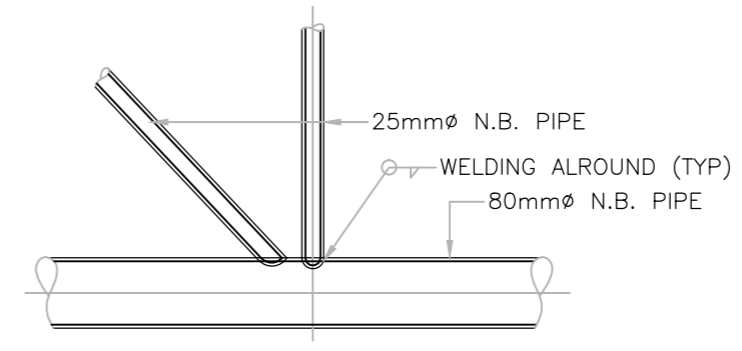
DETAIL-A



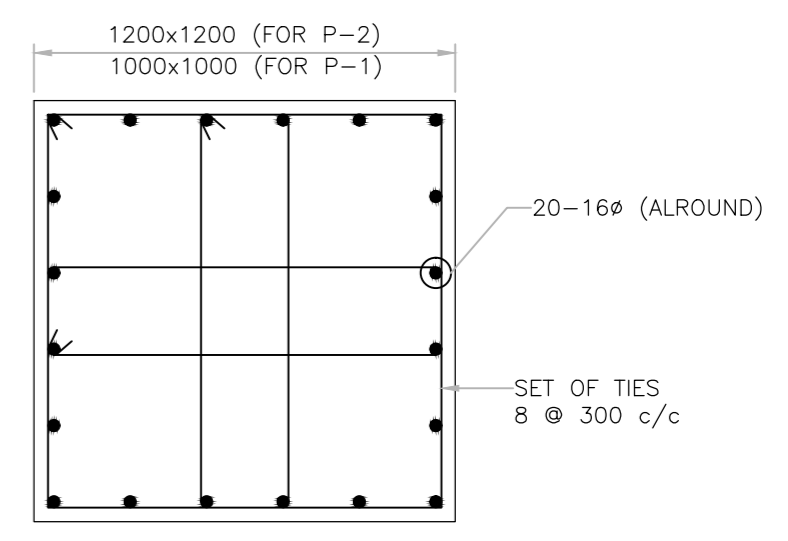
DETAILS COLUMN BASE FOR P-1



DETAIL-C



DETAIL-B



SECTION 4-4

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	Project	From Design Km.80+675 to Km.95+550	TENDER DRAWING	Project	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM DESIGN KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
RO	Dec. -2020		NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	RODIC CONSULTANTS PVT. LTD. 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with Monarch Surveyors and Engineering Consultants Pvt. Ltd.,	Scale :-	NTS	Drawing Title	STANDAR DRAWING OVER HEAD SIGN	
					Designed: BD		Sheet size: A2	NHIDCL/NH244/KHELLANI - CHATTROO/ OHG/02/R0	
					Drawn: SS				
					Checked: TM				
					Approved: AM				

# **STRUCTURES**

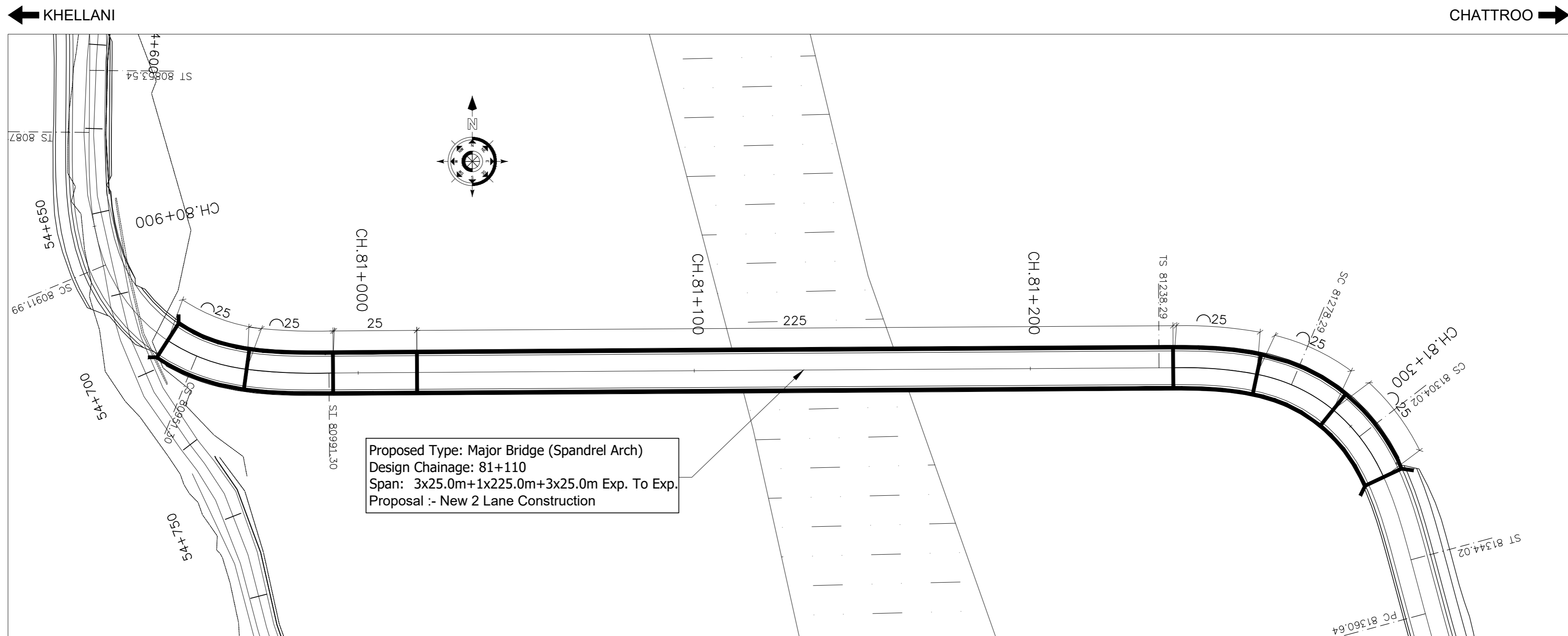
**DRAWING INDEX**

**CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR**




**DRAWING OF STRUCTURES (PACKAGE-IV) From Km 80+675 to Km 95+550**

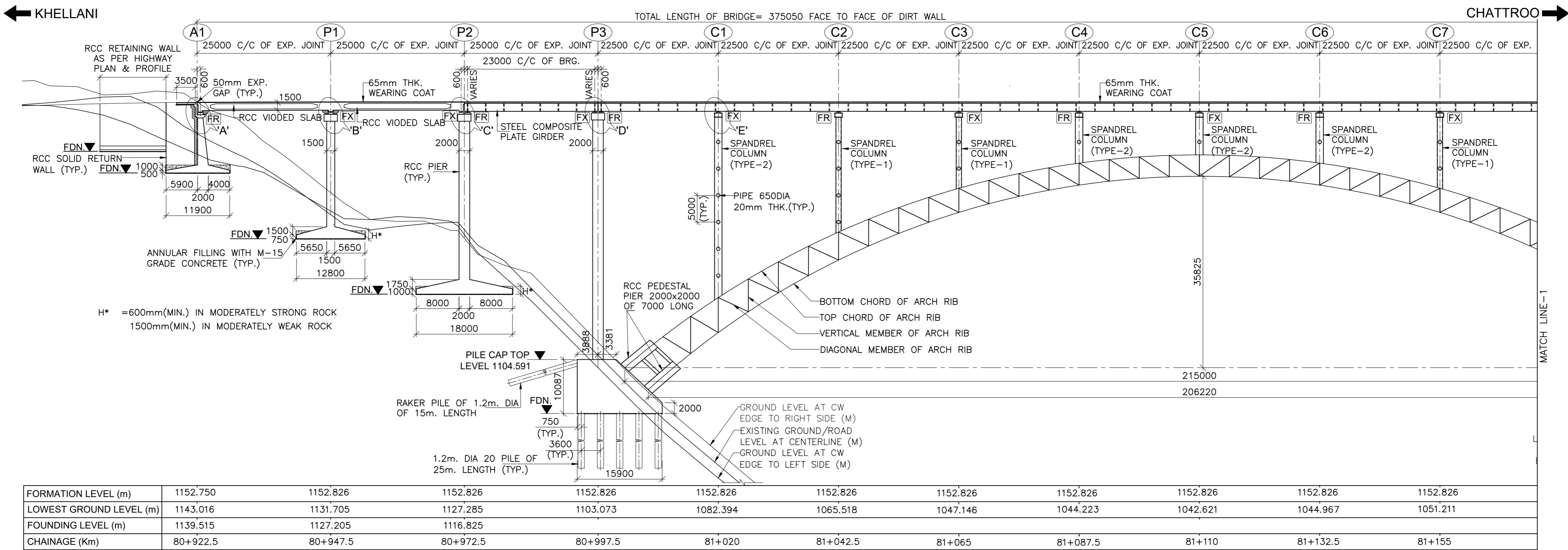
SL. No.	DRAWING TITLE	DRAWING NO.	DATE OF ISSUE OF DRAWINGS	REVISION STATUS & DATE
<b>A. MAJOR BRIDGES</b>				
1	GENERAL ARRANGEMENT DRAWING FOR MAJOR BRIDGE AT CH. 81+110	NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/81+110/01/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/81+110/02/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/81+110/03/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/81+110/04/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/81+110/05/R1	Dec-20	R1
2	GENERAL ARRANGEMENT DRAWING FOR MAJOR BRIDGE AT CH. 81+904	NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/81+904/01/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/81+904/02/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/81+904/03/R1	Dec-20	R1
3	GENERAL ARRANGEMENT DRAWING FOR MAJOR BRIDGE AT CH. 82+950	NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/82+950/01/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/82+950/02/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/82+950/03/R1	Dec-20	R1
4	GENERAL ARRANGEMENT DRAWING FOR MAJOR BRIDGE AT CH. 86+395	NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/86+395/01/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/86+395/02/R1	Dec-20	R1
5	GENERAL ARRANGEMENT DRAWING FOR MAJOR BRIDGE AT CH. 89+121	NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/89+121/01/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/89+121/02/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/89+121/03/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/89+121/04/R1	Dec-20	R1
5	GENERAL ARRANGEMENT DRAWING FOR MAJOR BRIDGE AT CH. 89+121	NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/89+121/05/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/89+121/06/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/89+121/07/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/89+121/08/R1	Dec-20	R1
<b>B. MINOR BRIDGES</b>				
1	GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT CH. 86+086	NHIDCL/NH-244/KHELLANI-CHATTROO/MNB/86+086/01/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MNB/86+086/02/R1	Dec-20	R1
2	GENERAL ARRANGEMENT DRAWING FOR (1X25m) MINOR BRIDGES (TYPE-1)	NHIDCL/NH-244/KHELLANI-CHATTROO/MNB/TYPE-1/01/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MNB/TYPE-1/02/R1	Dec-20	R1
3	GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT CH.87+860	NHIDCL/NH-244/KHELLANI-CHATTROO/MNB/87+860/01/R1	Dec-20	R1
4	GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT CH.89+703	NHIDCL/NH-244/KHELLANI-CHATTROO/MNB/89+703/01/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MNB/89+703/02/R1	Dec-20	R1
5	GENERAL ARRANGEMENT DRAWING FOR (1X10m) MINOR BRIDGES (TYPE-1)	NHIDCL/NH-244/KHELLANI-CHATTROO/MNB/TYPE-1/01/R1	Dec-20	R1
6	GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT CH.90+500	NHIDCL/NH-244/KHELLANI-CHATTROO/MNB/90+500/01/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MNB/90+500/02/R1	Dec-20	R1
7	GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT CH.90+905	NHIDCL/NH-244/KHELLANI-CHATTROO/MNB/90+905/01/R1	Dec-20	R1
<b>C. VIADUCT CUM BRIDGE</b>				
1	GENERAL ARRANGEMENT DRAWING FOR VIADUCT CUM BRIDGE AT CH. 84+830	NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/84+830/01/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/84+830/02/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/84+830/03/R1	Dec-20	R1
<b>D. VIADUCTS</b>				
1	GENERAL ARRANGEMENT DRAWING FOR VIADUCT AT CH. 82+405	NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/82+405/01/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/82+405/02/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/82+405/03/R1	Dec-20	R1
<b>E. CULVERTS</b>				
1	GENERAL ARRANGEMENT DRAWING FOR TYPICAL SINGLE CELL BOX CULVERT (TYPE-1)	NHIDCL/NH-244/KHELLANI-CHATTROO/CUL/TYPE-1/01/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/CUL/TYPE-1/02/R1	Dec-20	R1
2	GENERAL ARRANGEMENT DRAWING FOR TYPICAL SINGLE CELL BOX CULVERT (TYPE-2)	NHIDCL/NH-244/KHELLANI-CHATTROO/CUL/TYPE-2/01/R1	Dec-20	R1
<b>DRAWING OF STRUCTURES (LINK ROAD)</b>				
<b>A. MAJOR BRIDGES</b>				
1	GENERAL ARRANGEMENT DRAWING FOR MAJOR BRIDGE AT CH. 0+140	NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/0+140/01/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/0+140/02/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/0+140/03/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/MJB/0+140/04/R1	Dec-20	R1
<b>B. CULVERTS</b>				
1	GENERAL ARRANGEMENT DRAWING FOR TYPICAL SINGLE CELL BOX CULVERT (TYPE-1)	NHIDCL/NH-244/KHELLANI-CHATTROO/CUL/TYPE-1/01/R1	Dec-20	R1
		NHIDCL/NH-244/KHELLANI-CHATTROO/CUL/TYPE-1/02/R1	Dec-20	R1
<b>C. MISCELLANEOUS</b>				
1	DETAILS OF APPROACH SLAB	NHIDCL/NH-244/KHELLANI-CHATTROO/MISC/01/R1	Dec-20	R1
2	DETAILS OF DRAINAGE SPOUT & WEARING COAT	NHIDCL/NH-244/KHELLANI-CHATTROO/MISC/02/R1	Dec-20	R1
3	DIMENSIONAL & REINFORCEMENT DETAILS OF CRASH BARRIER	NHIDCL/NH-244/KHELLANI-CHATTROO/MISC/03/R1	Dec-20	R1
4	DETAILS OF FILLER TYPE EXPANSION JOINT	NHIDCL/NH-244/KHELLANI-CHATTROO/MISC/04/R1	Dec-20	R1
5	DIMENSIONAL AND REINFORCEMENT DETAILS OF RCC RETAINING WALL	NHIDCL/NH-244/KHELLANI-CHATTROO/MISC/05/R1	Dec-20	R1

# MAJOR BRIDGES

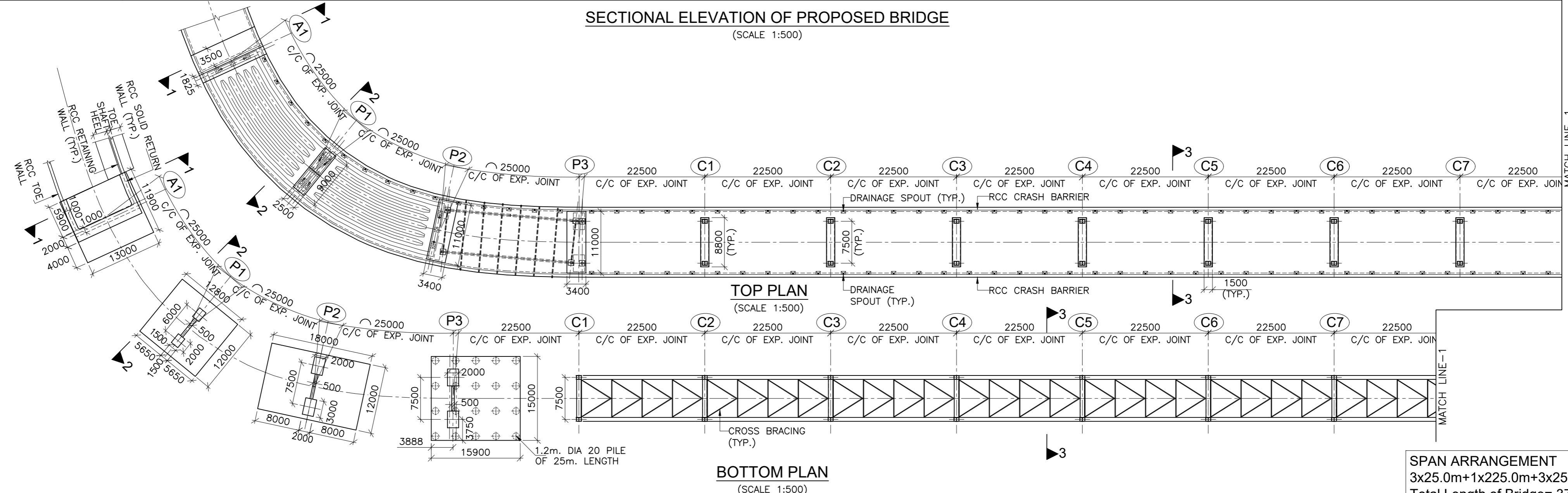


**SITE PLAN**

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	From Design Km. 80+675 to Km. 95+550	Project:-	
R0	Oct :-2020		<b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA 	 <b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with  <b>Monarch Surveyors and Engineering                      Consultants Pvt. Ltd.,</b>	<b>TENDER DRAWING</b>  Scale :- As Shown	Drawing Title Sheet size: A2 Drawing No.	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R1	Dec :-2020						GENERAL ARRANGEMENT DRAWING FOR MAJOR BRIDGE AT CH. 81+110 NHIDCL/NH244/KHELLANI - CHATTROO/ MJB/81+110/01/R1



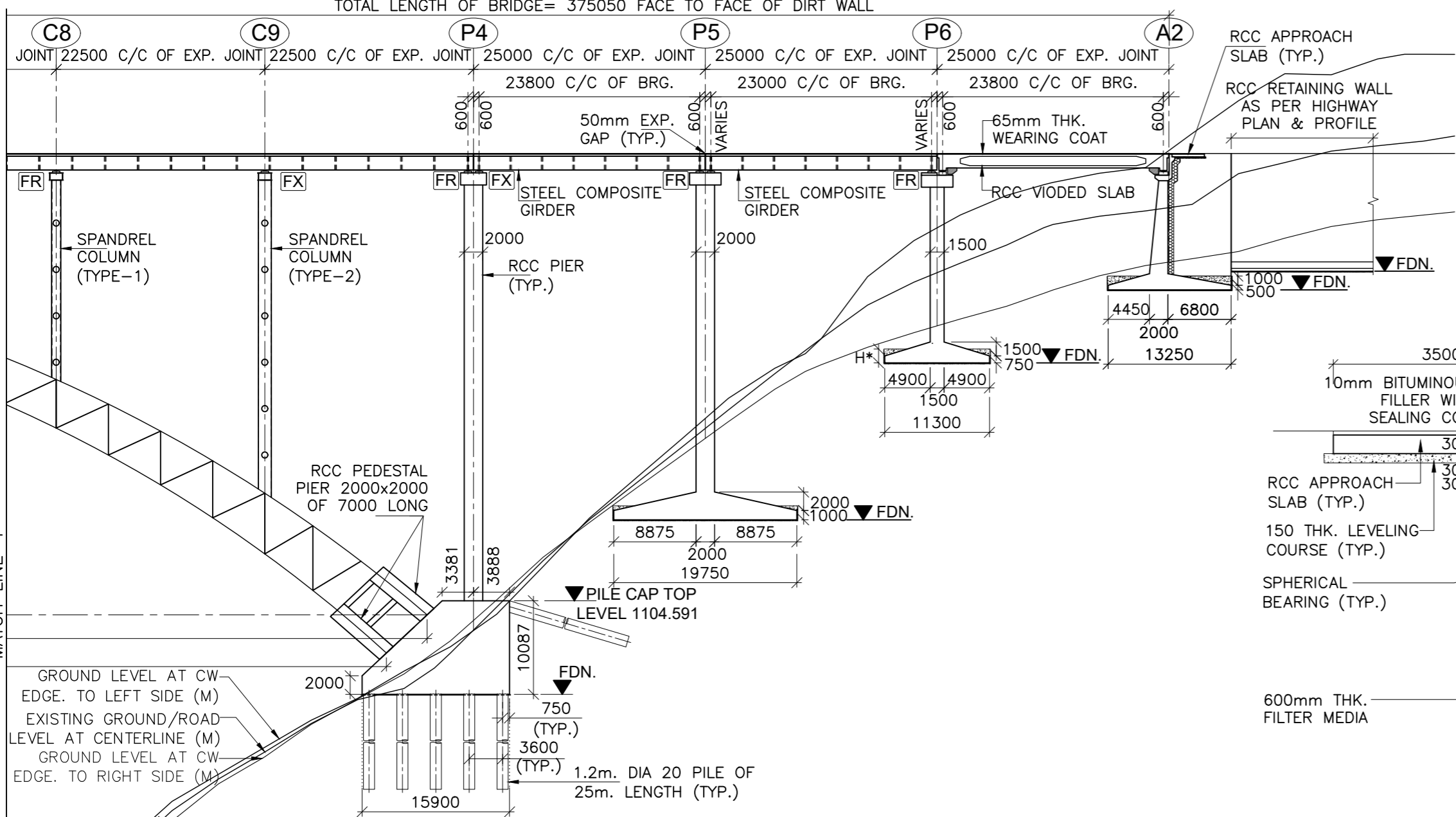
SECTIONAL ELEVATION OF PROPOSED BRIDGE  
(SCALE 1:500)



SPAN ARRANGEMENT  
3x25.0m+1x225.0m+3x25.0m  
Total Length of Bridge= 375.0m

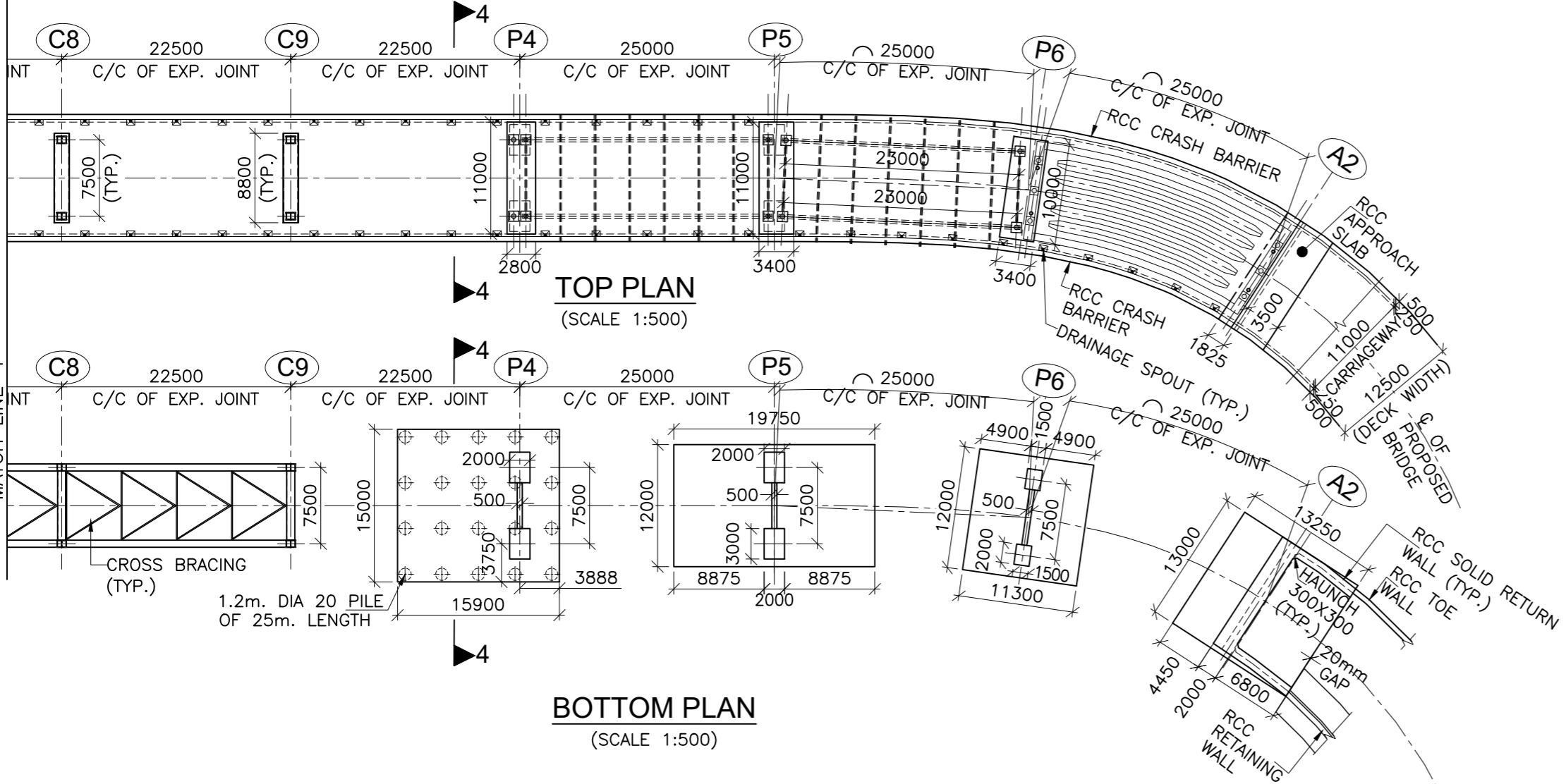
ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT	Project:-	Drawing Title
R0	Oct :-2020		<b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	<b>RODICA CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with <b>Monarch Surveyors and Engineering Consultants Pvt. Ltd.,</b>	From Design Km. 80+675 to Km. 95+550	TENDER DRAWING
R1	Dec :-2020					
					Scale :- As Shown	Project:- CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
						Drawing No. NHIDCL/NH244/KHELLANI - CHATTROO/ MJB/81+110/02/R1

← KHELLANI CHATTRAO →

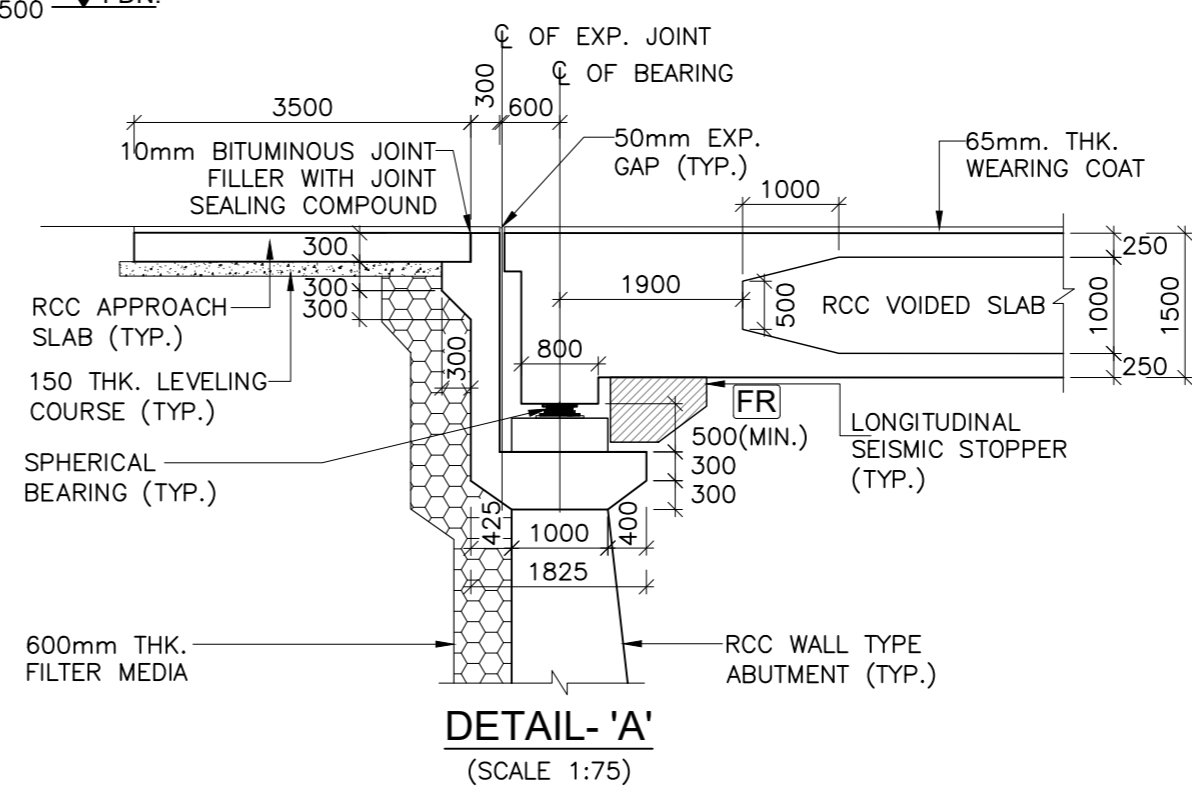


1152.826	1152.826	1152.826	1152.826	1152.826	1152.826	FORMATION LEVEL (m)
1070.446	1087.772	1101.384	1122.103	1134.244	1141.115	LOWEST GROUND LEVEL (m)
			1113.325	1130.245	1138.115	FOUNDING LEVEL (m)
81+177.5	81+200	81+222.5	81+247.5	81+272.5	81+297.5	CHAINAGE (Km)

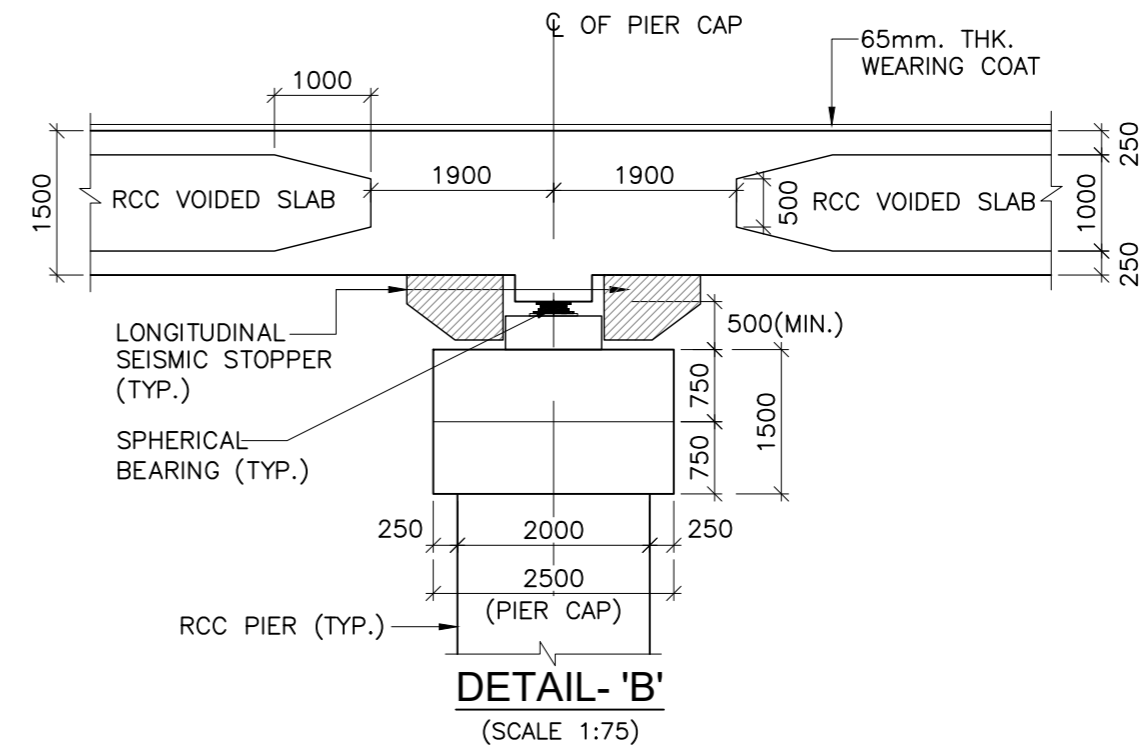
SECTIONAL ELEVATION OF PROPOSED BRIDGE (SCALE 1:500)



BOTTOM PLAN (SCALE 1:500)



DETAIL- 'A' (SCALE 1:75)



DETAIL- 'B' (SCALE 1:75)

- NOTE:-**
- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
  - THE BRIDGE IS DESIGNED FOR GOVERNING CASE OF FOLLOWING
    - ONE LANE OF IRC CLASS 70R + ONE LANE OF IRC CLASS A WITHOUT FOOTPATH
    - ONE LANE OF IRC CLASS 70R OR TWO LANE OF IRC CLASS A WITH FOOTPATH
    - IRC CLASS SV LOADING: SPECIAL MULTI AXLE HYDRAULIC TRAILER VEHICLE (PRIME MOVER WITH 20 AXLE TRAILER-GW=385 Tonnes)
  - CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS :-
 

RCC GIRDER & RCC CAST-IN-SITU DECK SLAB	-35 MPa
ABUTMENT, ABUTMENT CAP, DIRT WALL & FOUNDATION	-35 MPa
PIER, PIER FOUNDATION	-35 MPa
PEDESTAL PIER	-45 MPa
RCC CRASH BARRIER	-40 MPa
RCC APPROACH SLAB	-30 MPa
LEVELING COURSE UNDER APPROACH	-15 MPa
LEVELING COURSE UNDER FOUNDATION	-10 MPa
PEDESTAL & SEISMIC RESTRAINER	-45 MPa
  - THE REINFORCING BARS SHALL BE OF THERMO MECHANICAL TREATED HYSD (GRADE DESIGNATION Fe-500D) CONFORMING TO IS:1786 STANDARDS.
  - GRADE OF STRUCTURAL STEEL SHALL BE E450 FOR ARCH RIB, SPANDREL COLUMN LONGITUDINAL GIRDER OF SUPERSTRUCTURE AND FOR OTHER MEMBERS SHALL BE OF E350 CONFIRMING TO IS 2062.
  - CLEAR COVER TO OUTER MOST STEEL SHALL BE AS UNDER:-
    - FOR SUPER STRUCTURE -50mm
    - FOR FOUNDATION -75mm
    - FOR SUBSTRUCTURE:
      - EARTH FACE -75mm
      - NON EARTH FACE -50mm
  - 65mm THK. WEARING COURSE COMPRISING OF 40mm THK. ASPHALTIC CONCRETE OVER LAID WITH 25mm THK. MASTIC ASPHALT SHALL BE PROVIDED AS PER SECTION 500 OF MORTH SPECIFICATIONS.
  - SPHERICAL BEARINGS SHALL BE DESIGNED AS PER PROVISION OF IRC : 83 (PART-IV 2014).
  - STRIP SEAL TYPE EXPANSION JOINTS SHALL BE PROVIDED AS PER PROVISION OF SP-69.
  - BACK FILLING BEHIND ABUTMENT SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX-6 OF IRC:78-2014 HAVING PROPERTIES  $C=0$ ,  $\phi \geq 35^\circ$ ,  $\delta=22.5^\circ$  &  $y_d = 20 \text{ KN/m}^3$
  - 100mm DIA WEEP HOLES AT 1000mm C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER IN VERTICAL WALLS OF THE ABUTMENT SHAFT AND RETURN WALL FROM 150mm ABOVE G.L IN ONE OR TWO LAYERS AT A SLOPE OF 1 VERTICAL TO 20 HORIZONTAL TOWARDS THE DRAINING FACE.
  - WATER TO BE USED IN CONCRETING & CURING SHALL CONFORM TO CLAUSE 18.8.4(4) IRC : 112:2011.
  - SAFE BEARING CAPACITY ASSUMED IN DESIGN AT PROPOSED FOUNDING LEVEL IS 40 t/m<sup>2</sup>. THIS SHALL BE ASCERTAINED BEFORE EXECUTION OF WORK AT SITE.
  - SAFE LOAD CAPACITY OF PILE CONSIDERED IS 650 TON AND SAME SHALL BE CONFIRMED AT SITE PRIOR TO EXECUTION OF WORK.
  - INITIAL LOAD TEST ON TEST PILE SHALL BE CARRIED OUT TO RE-CONFIRM THE ACTUAL VERTICAL AND LATERAL CARRYING CAPACITY OF PILE.
  - THE BRIDGE IS DESIGNED FOR SEISMIC ZONE-V
  - MODERATE CONDITION OF EXPOSURE SHALL BE CONSIDERED IN DESIGN.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY DRAWING. FRL & CAMBER, SUPER ELEVATION AT PARTICULAR LOCATION SHALL BE VERIFIED WITH THE HIGHWAY DRAWINGS.
  - ALL STRUCTURAL STEEL AND BOLTS SHALL BE HOT DIP GALVANIZED.
  - MAXIMUM SOCKETING LENGTH OF THE PILE IN ROCK IS 7.0m, WHERE  $(CR+RQD)/2$  OF ROCK > 30%.
  - PERMANENT STEEL LINER IN PILE MAY BE PROVIDED BASED ON SOIL STRATA AT SITE.
  - THE MINIMUM EMBEDMENT OF THE FOUNDATIONS INTO THE ROCK BELOW SHALL BE AS FOLLOWS:
 

FOR ROCKS OF MODERATELY STRONG	- 0.6M
FOR ROCKS OF MODERATELY WEAK	- 1.5M

**SPAN ARRANGEMENT**  
3x25.0m+1x225.0m+3x25.0m  
Total Length of Bridge= 375.0m

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

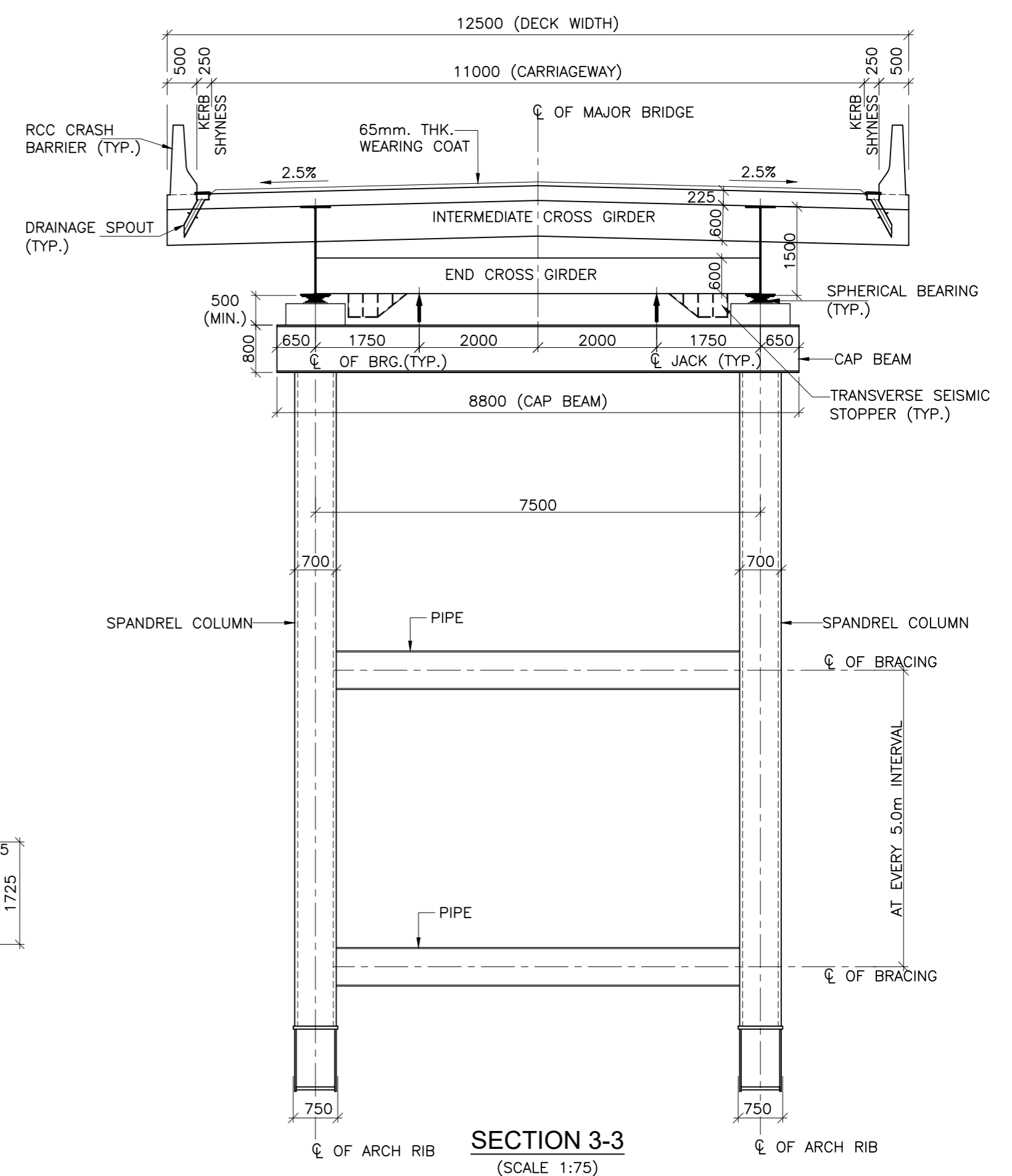
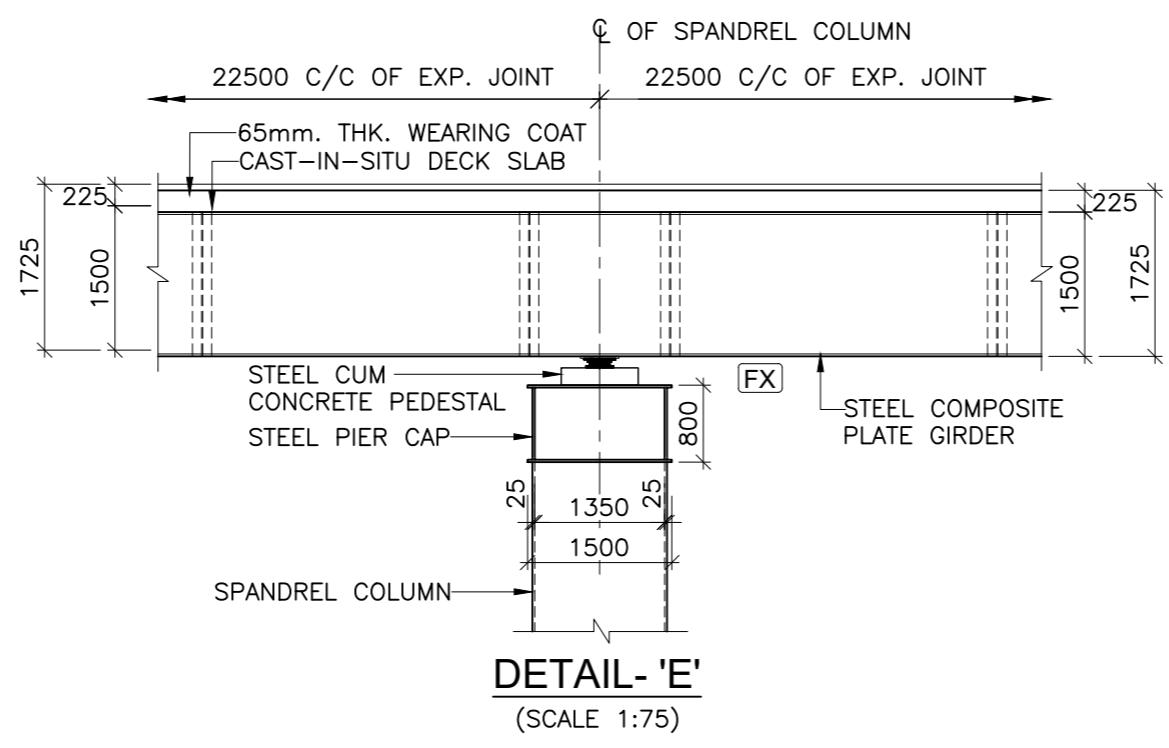
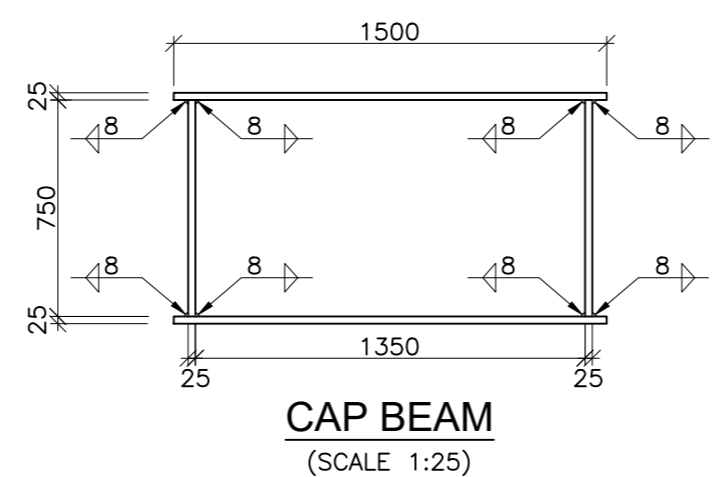
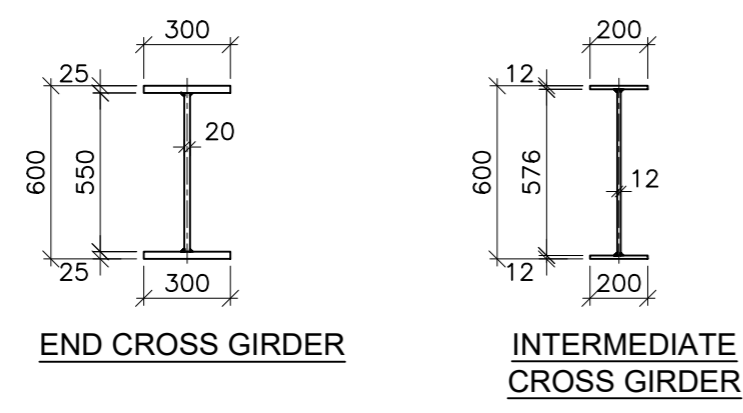
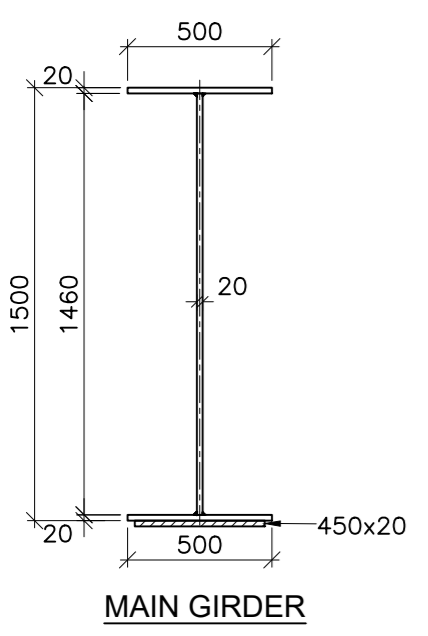
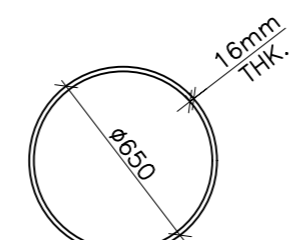
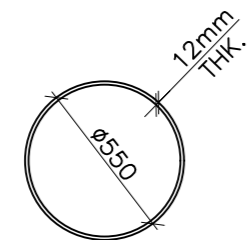
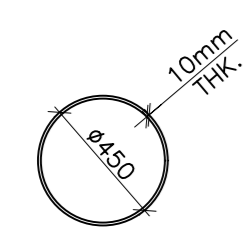
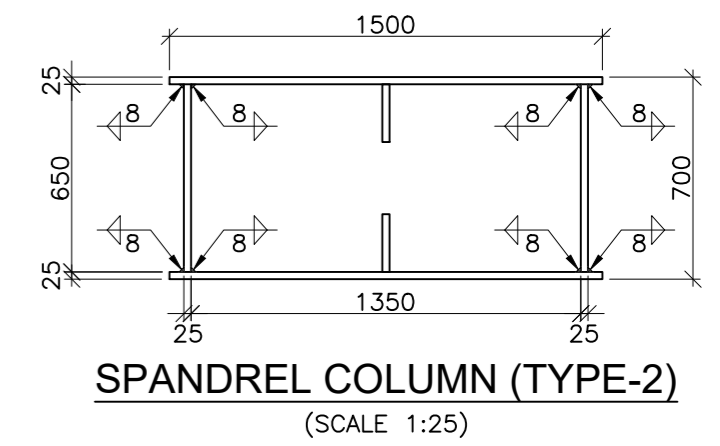
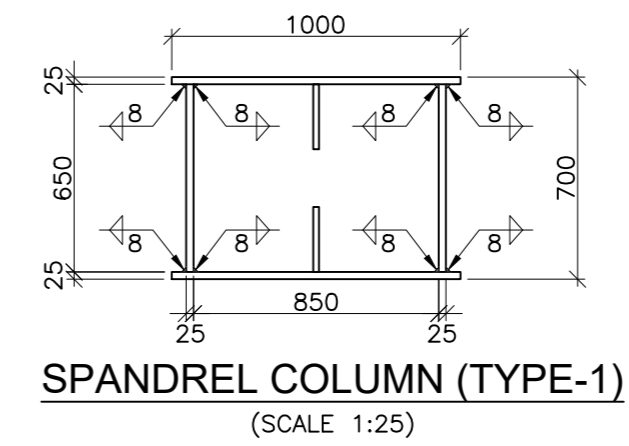
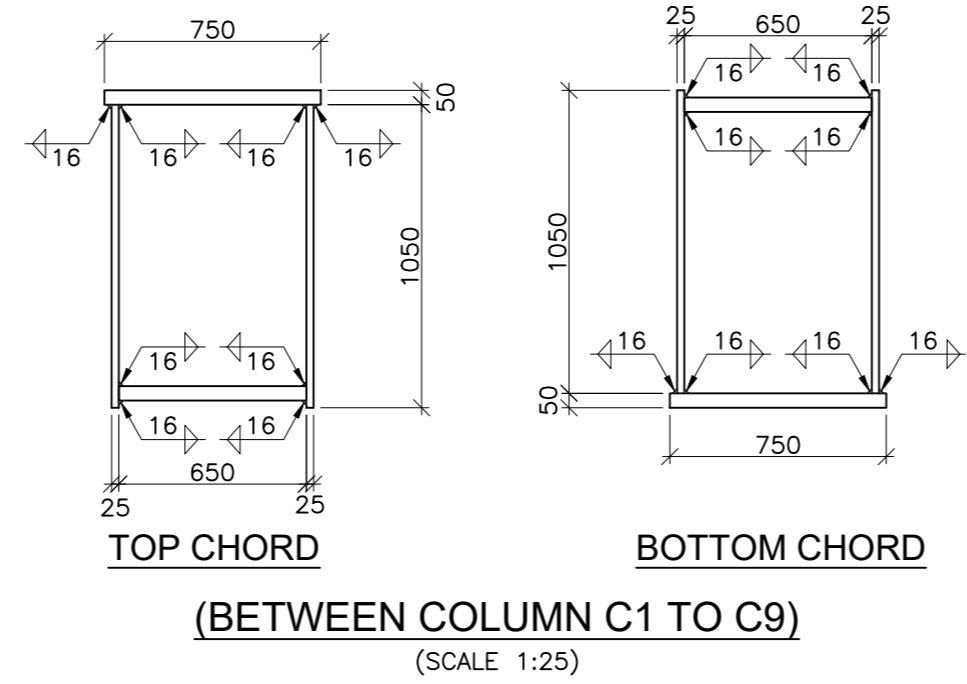
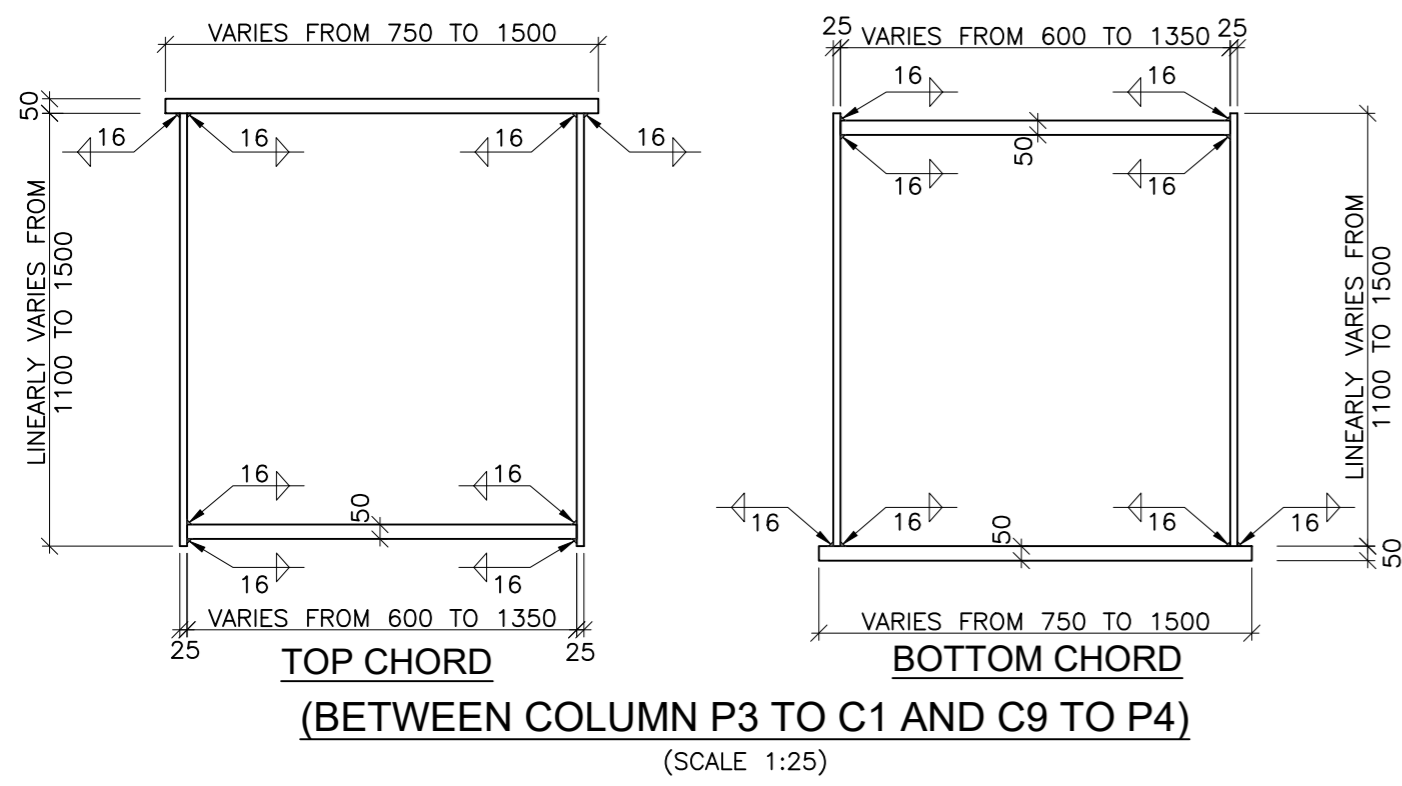
CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
(MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
GOVERNMENT OF INDIA

CONSULTANT:  
**RODIC CONSULTANTS PVT. LTD.**  
1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA)  
In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550  
Designed: AK  
Drawn: AH  
Designed: VT  
Approved: AM

**TENDER DRAWING**  
Scale :-  
As Shown

Project:-  
**CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTRAO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR**  
Drawing Title  
Sheet size: A2  
Drawing No. NHIDCL/NH244/KHELLANI - CHATTRAO/MJB/81+110/03/R1  
Annex III



**LEGENDS:-**

FRL.	: FORMATION LEVEL
CL	: CENTER LINE
EXP.	: EXPANSION
BRG.	: BEARING
FX	: FIXED BEARING
FR	: FREE BEARING
LVL.	: LEVEL
TYP.	: TYPICAL
THK.	: THICKNESS
L.B.L	: LOWEST BED LEVEL
FDN.	: FOUNDING LEVEL
GL.	: GROUND LEVEL
MM.	: MILLIMETERS

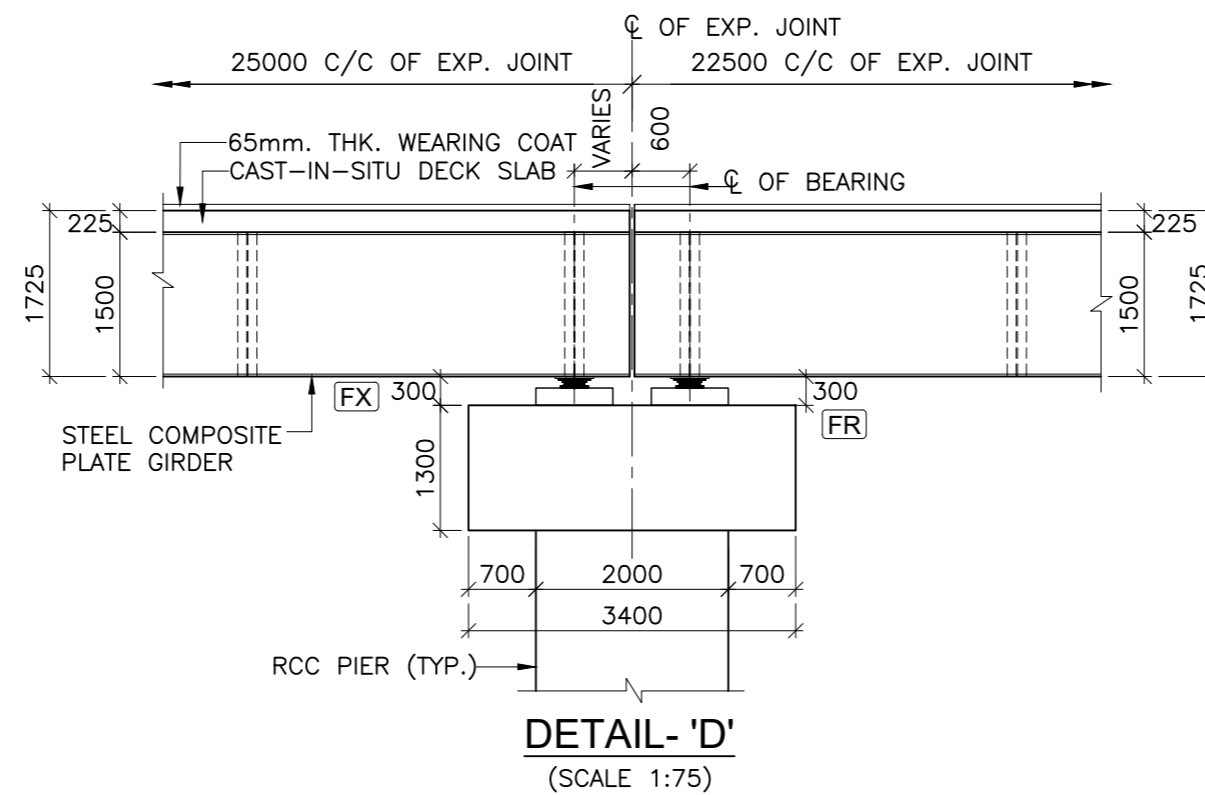
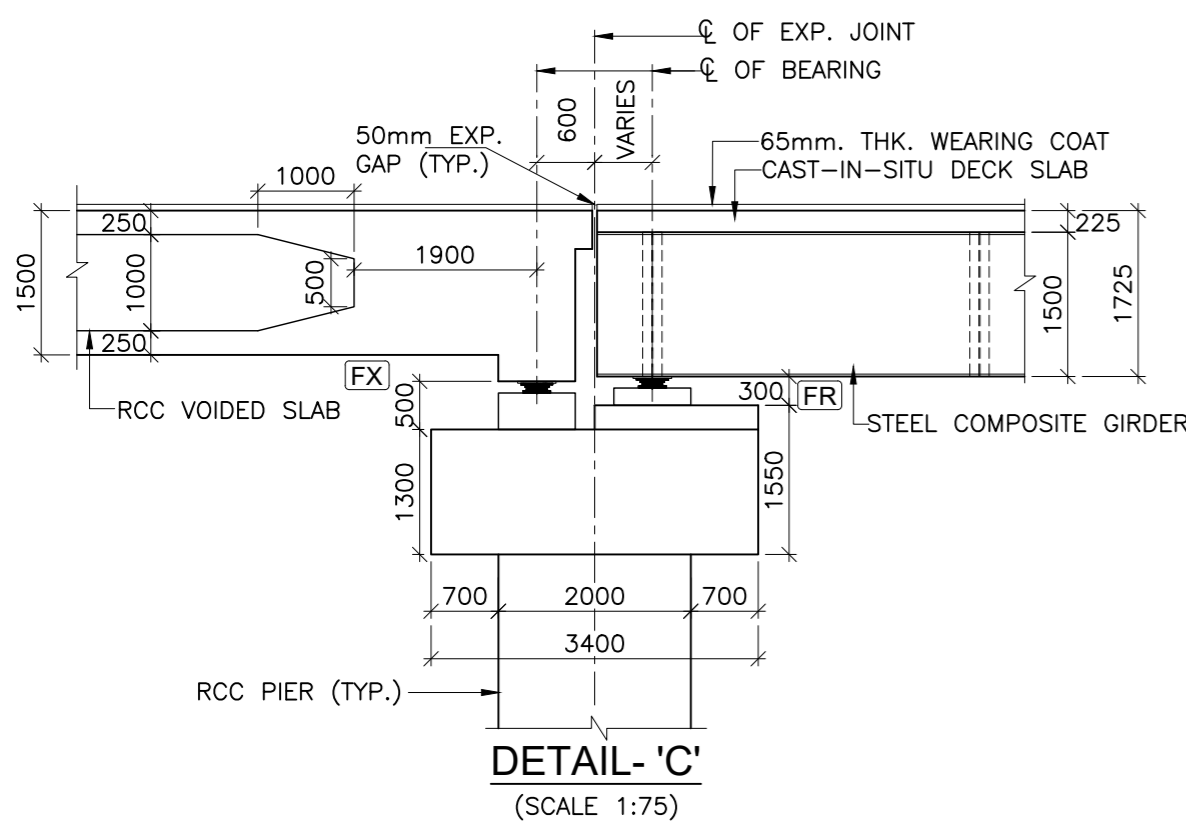
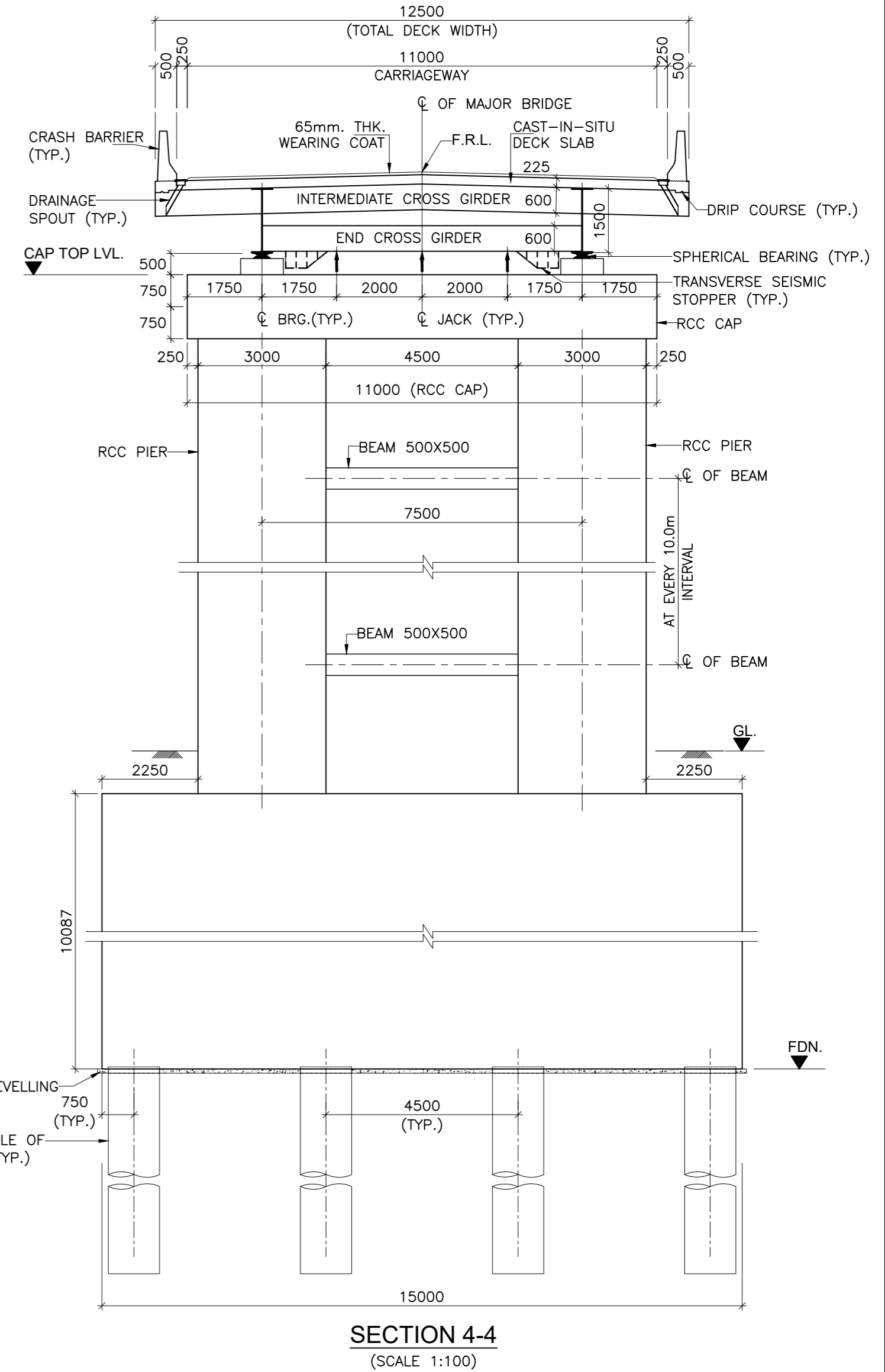
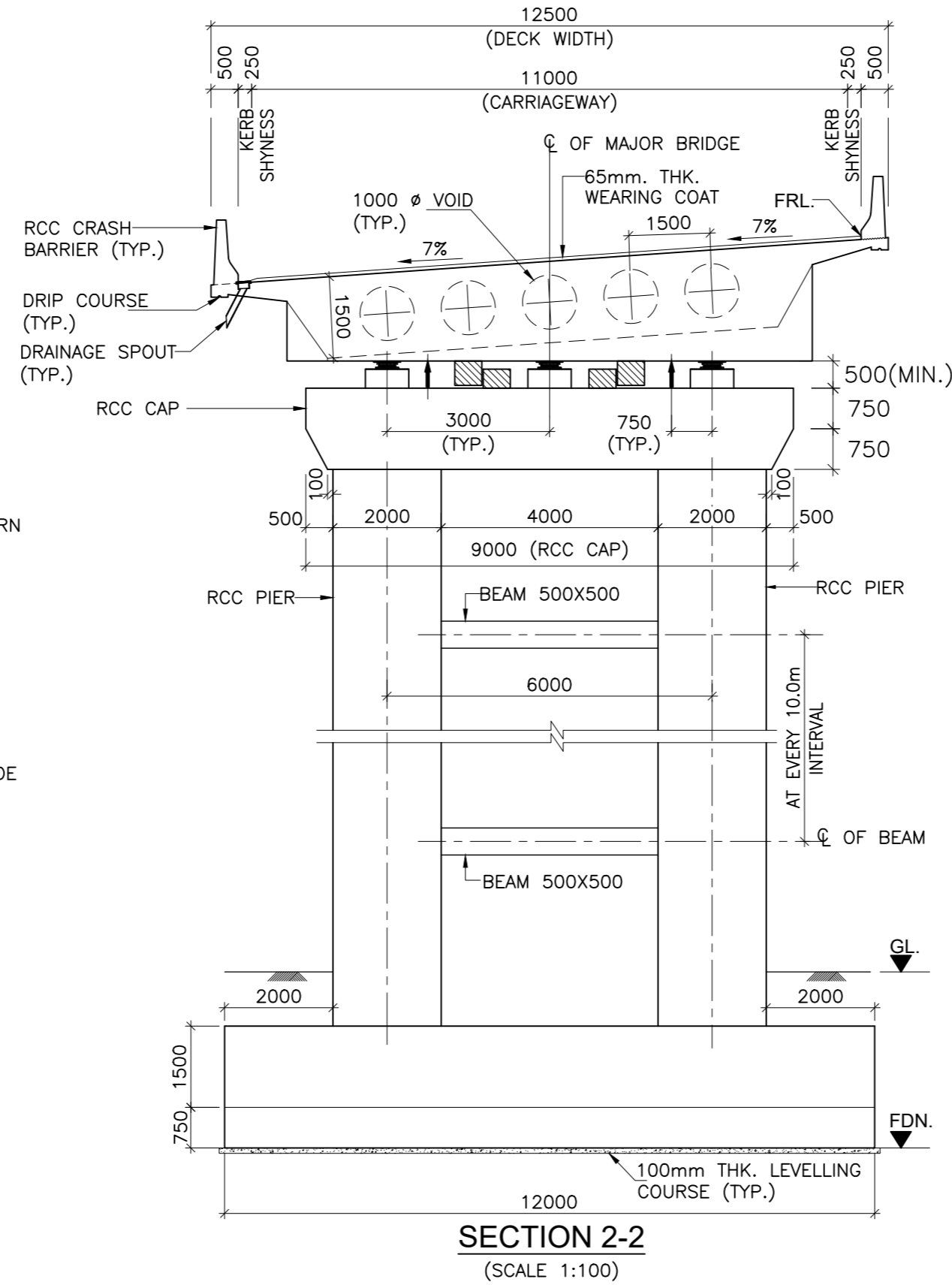
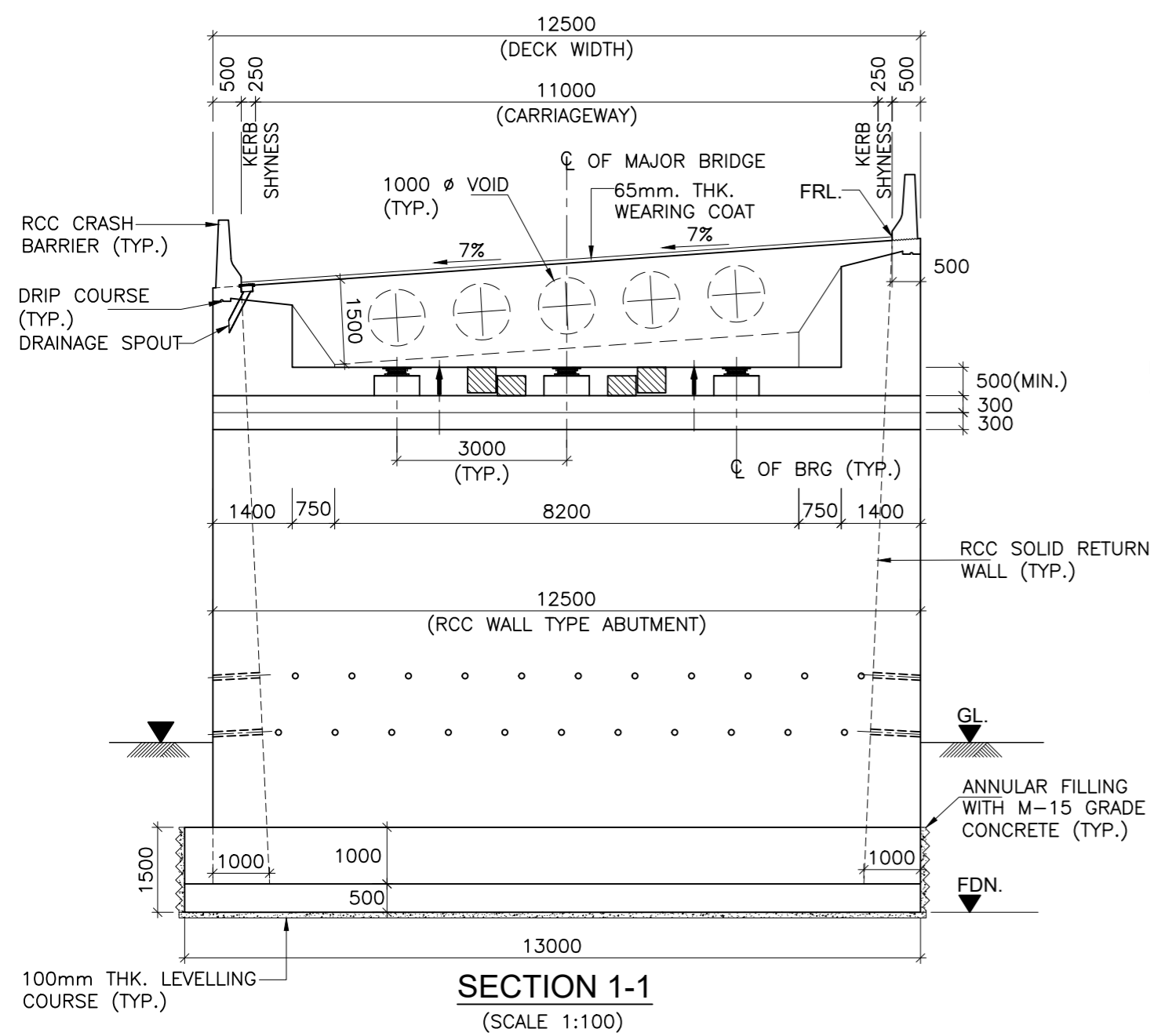
ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
(MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
GOVERNMENT OF INDIA

CONSULTANT:  
**RODIC CONSULTANTS PVT. LTD.**  
1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
NEW DELHI - 110001 (INDIA)  
In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550	<b>TENDER DRAWING</b>
Designed: AK	Scale :- As Shown
Drawn: AH	
Designed: VT	
Approved: AM	

Project:-	<b>CONSTRUCTION &amp; UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 &amp; LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR</b>	
Drawing Title	GENERAL ARRANGEMENT DRAWING FOR MAJOR BRIDGE AT CH. 81+110	Annex III
Sheet size: A2		
Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/ MJB/81+110/04/R1	



APPROXIMATE WEIGHT OF STRUCTURAL STEEL IN ARCH AND SUPPORTED SUPERSTRUCTURE ABOVE=5600MT (INCLUDING WEIGHT OF BOLT AND SPLICING PLATE)

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

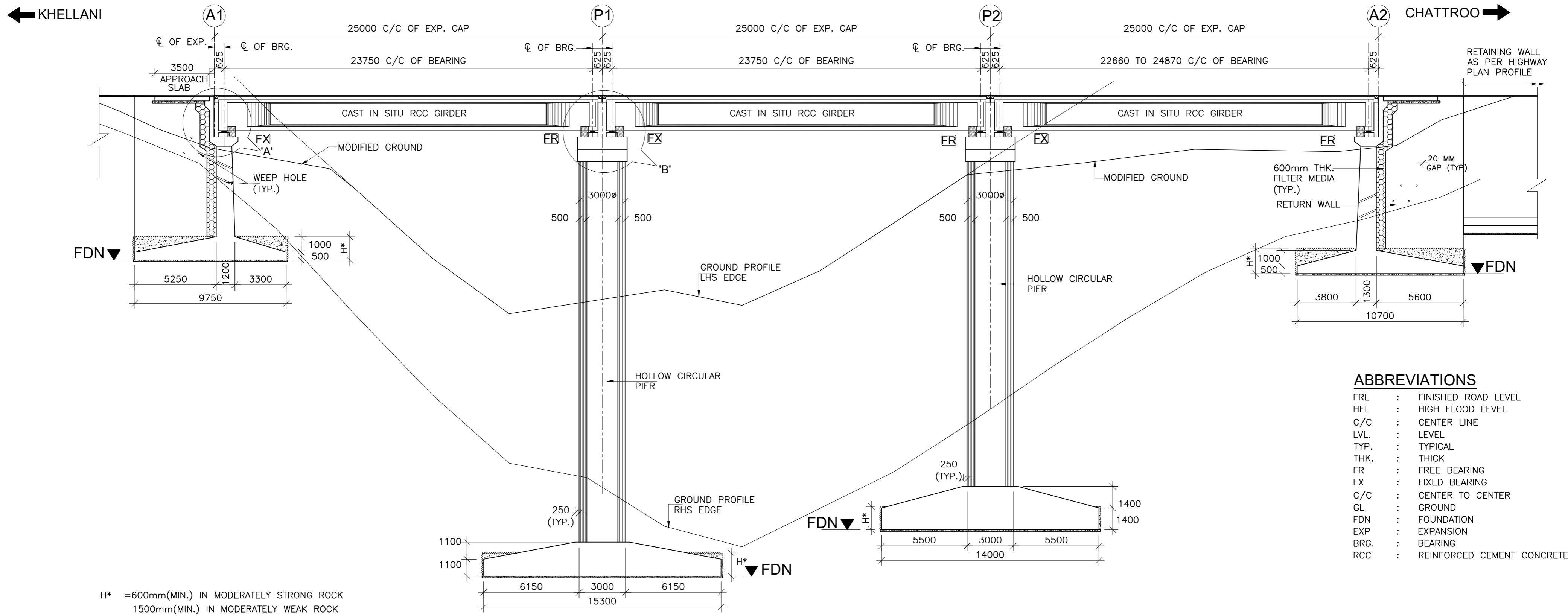
CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
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**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550  
Designed: AK  
Drawn: AH  
Designed: VT  
Approved: AM

**TENDER DRAWING**  
Scale :-  
As Shown

Project:-  
**CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR**  
Drawing Title  
Sheet size: A2  
Drawing No. NHIDCL/NH244/KHELLANI - CHATTROO/ MJB/81+110/05/R1  
Annex III



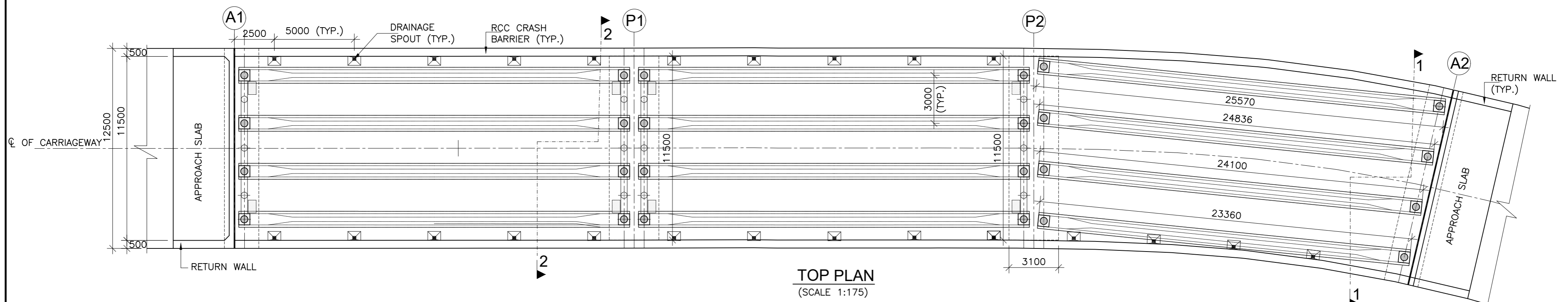
**ABBREVIATIONS**

FRL	:	FINISHED ROAD LEVEL
HFL	:	HIGH FLOOD LEVEL
C/C	:	CENTER LINE
LVL.	:	LEVEL
TYP.	:	TYPICAL
THK.	:	THICK
FR	:	FREE BEARING
FX	:	FIXED BEARING
C/C	:	CENTER TO CENTER
GL	:	GROUND
FDN	:	FOUNDATION
EXP	:	EXPANSION
BRG.	:	BEARING
RCC	:	REINFORCED CEMENT CONCRETE

H\* = 600mm(MIN.) IN MODERATELY STRONG ROCK  
1500mm(MIN.) IN MODERATELY WEAK ROCK

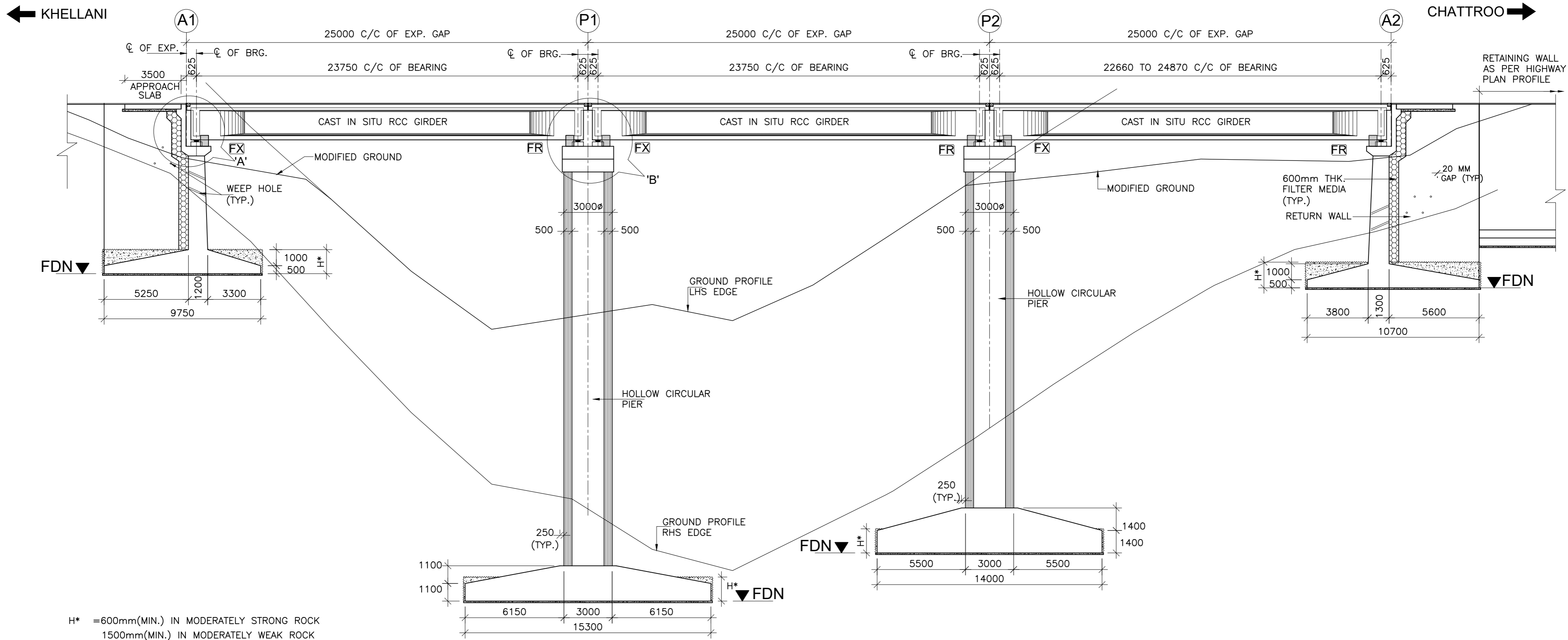
FORMATION LEVEL (m)	1163.000	1163.000	1163.000	1163.000
LOWEST GROUND LEVEL (m)	1157.357	1137.411	1143.105	1155.428
FOUNDING LEVEL (m)	1152.380	1132.000	1135.000	1151.500
CHAINAGE (Km)	81+866.5	81+891.5	81+916.5	81+941.5

**SECTIONAL ELEVATION OF PROPOSED BRIDGE**  
(SCALE 1:175)



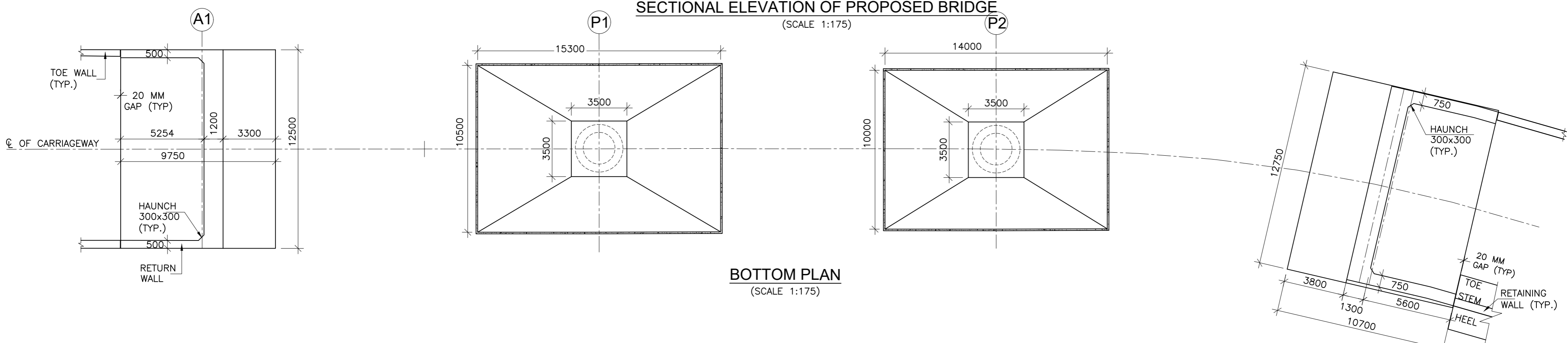
**TOP PLAN**  
(SCALE 1:175)

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R0	Oct :-2020		NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	 <b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with <b>Monarch Surveyors and Engineering Consultants Pvt. Ltd.,</b>	From Design Km. 80+675 to Km. 95+550	TENDER DRAWING
R1	Dec :-2020					
					Scale :- As Shown	Drawing Title Sheet size: A2 Drawing No.
						NHIDCL/NH244/KHELLANI - CHATTROO/MJB/81+904/01/R1 Annex III



FORMATION LEVEL (m)	1163.000	1163.000	1163.000	1163.000
LOWEST GROUND LEVEL (m)	1157.357	1137.411	1143.105	1155.428
FOUNDING LEVEL (m)	1152.380	1132.000	1135.000	1151.500
CHAINAGE (Km)	81+866.5	81+891.5	81+916.5	81+941.5

**SECTIONAL ELEVATION OF PROPOSED BRIDGE**  
(SCALE 1:175)



ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
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NEW DELHI - 110001 (INDIA)  
In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

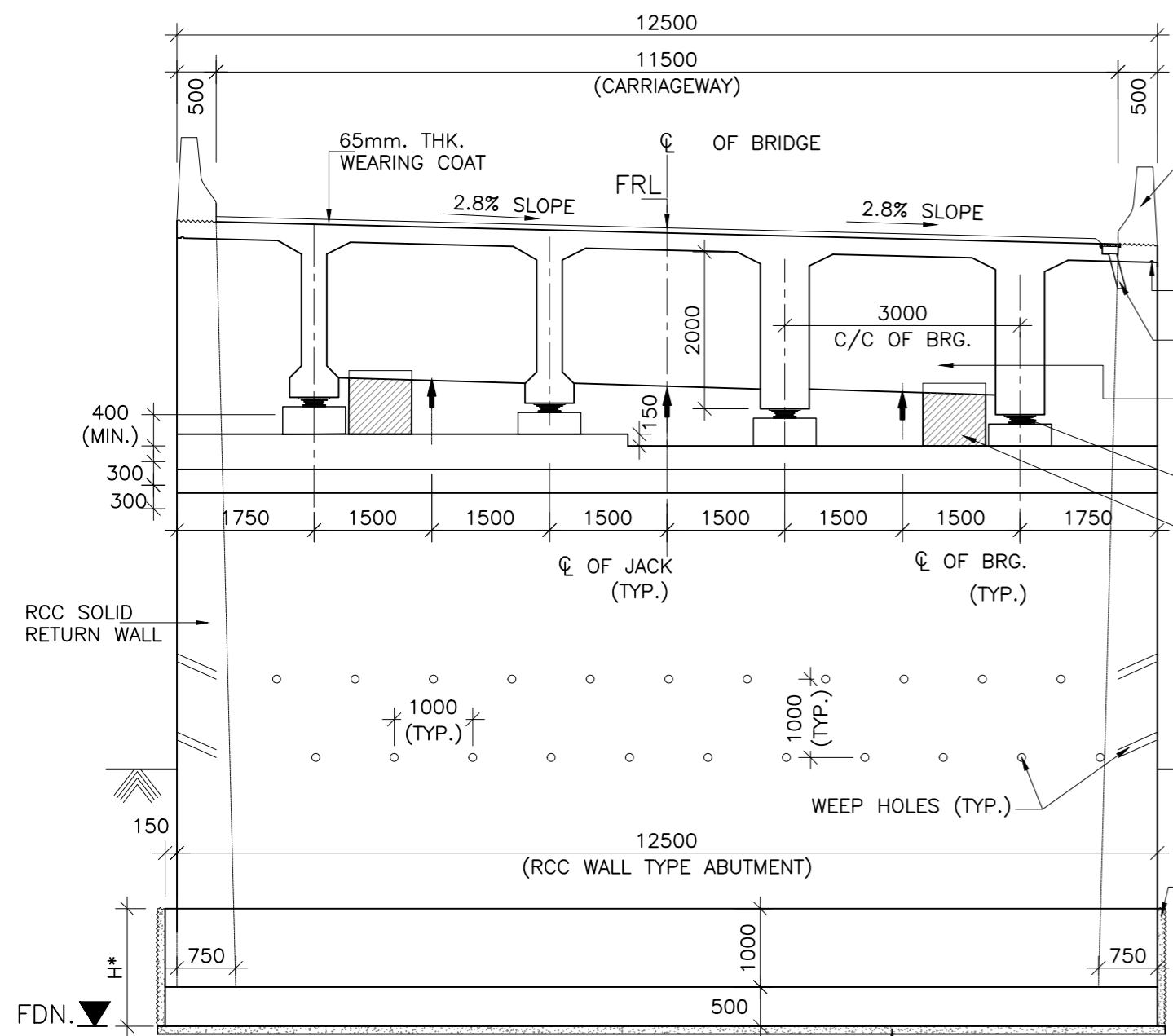
From Design Km. 80+675 to Km. 95+550  
Designed: HB  
Drawn: SB  
Designed: VT  
Approved: AM

**TENDER DRAWING**  
Scale :-  
As Shown

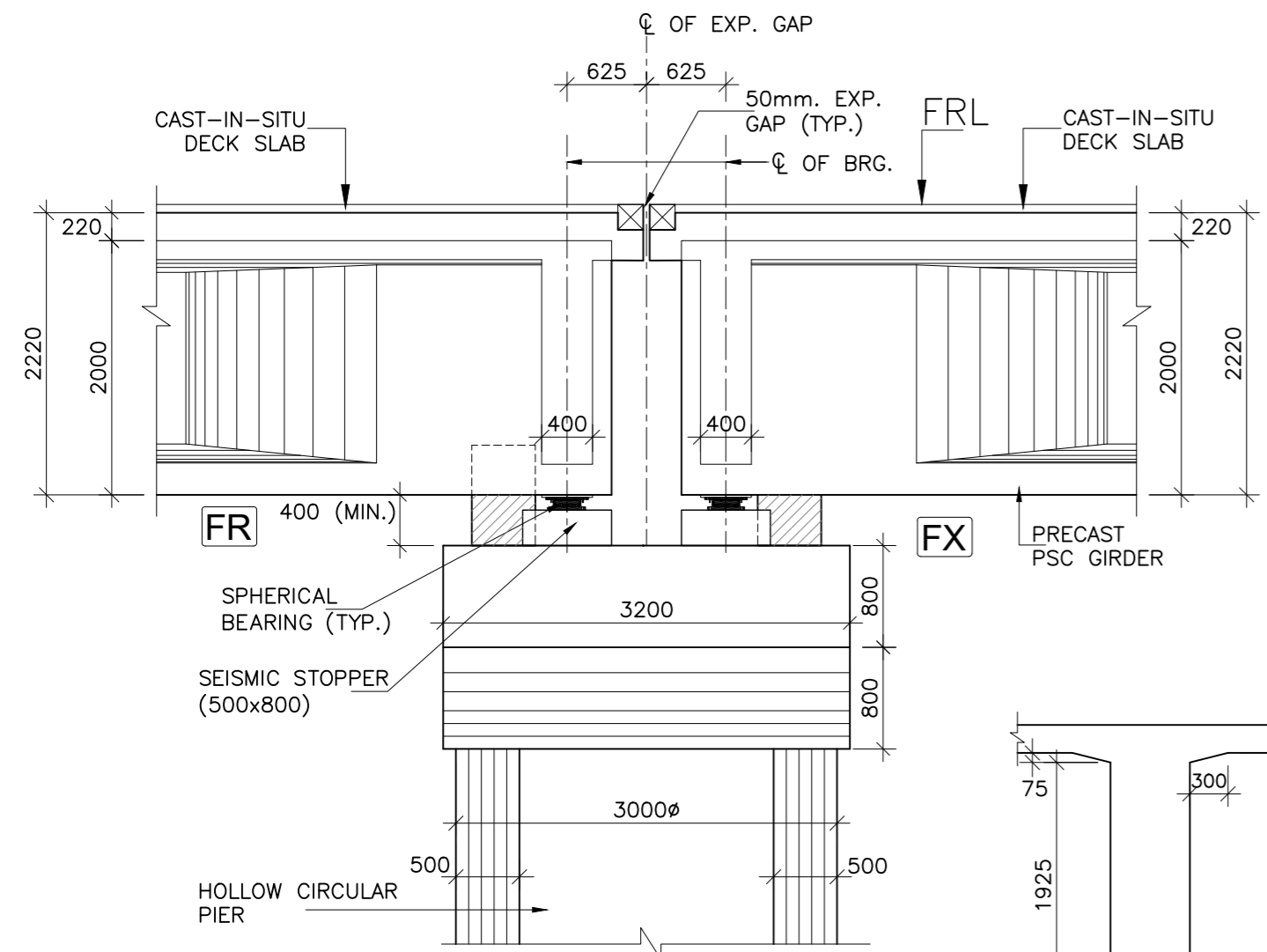
Project:-  
**CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR**

Drawing Title  
Sheet size: A2  
Drawing No. NHIDCL/NH244/KHELLANI - CHATTROO/MJB/81+904/02/R1

Annex III



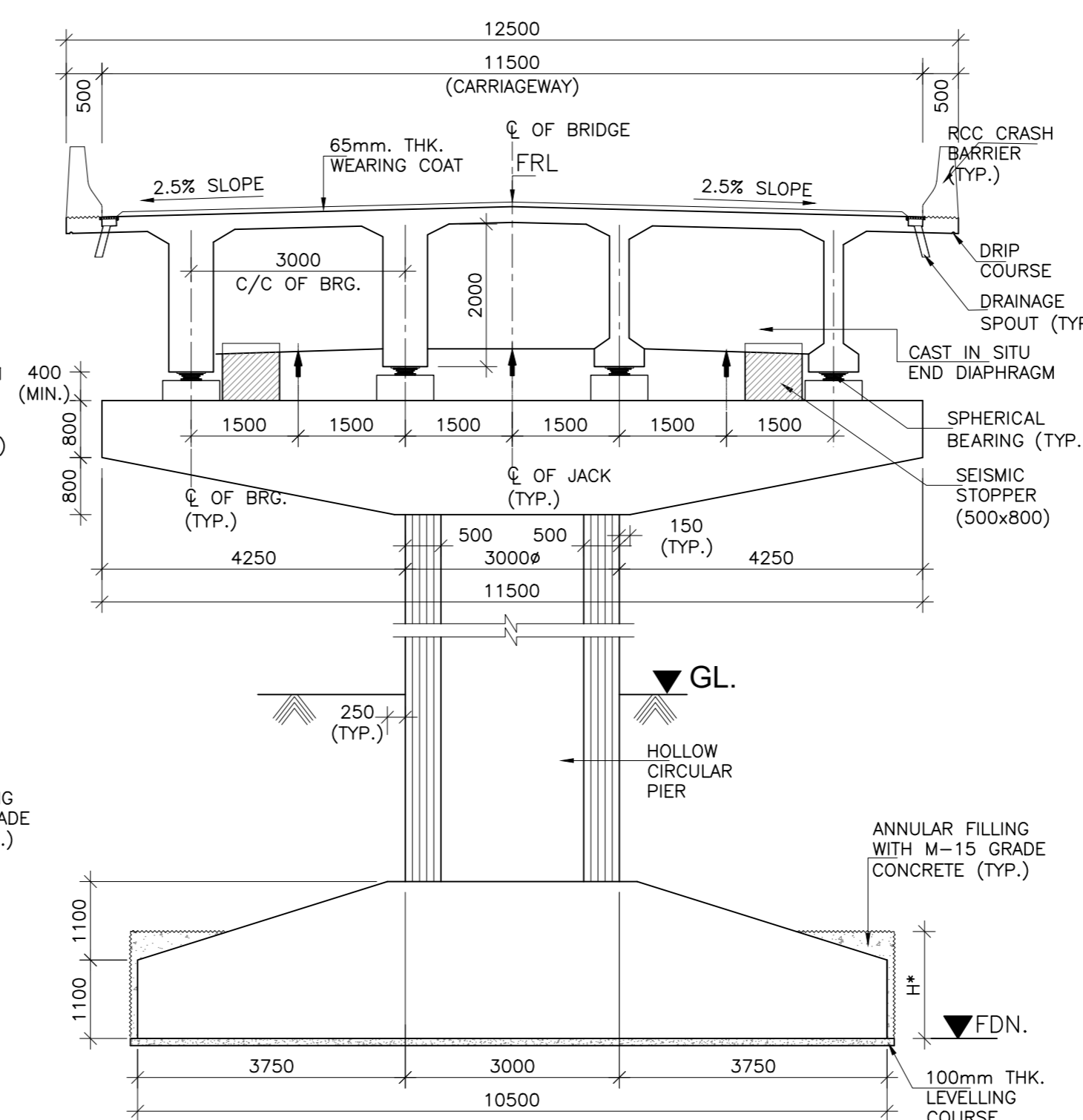
SECTION 1-1  
(SCALE 1:75)



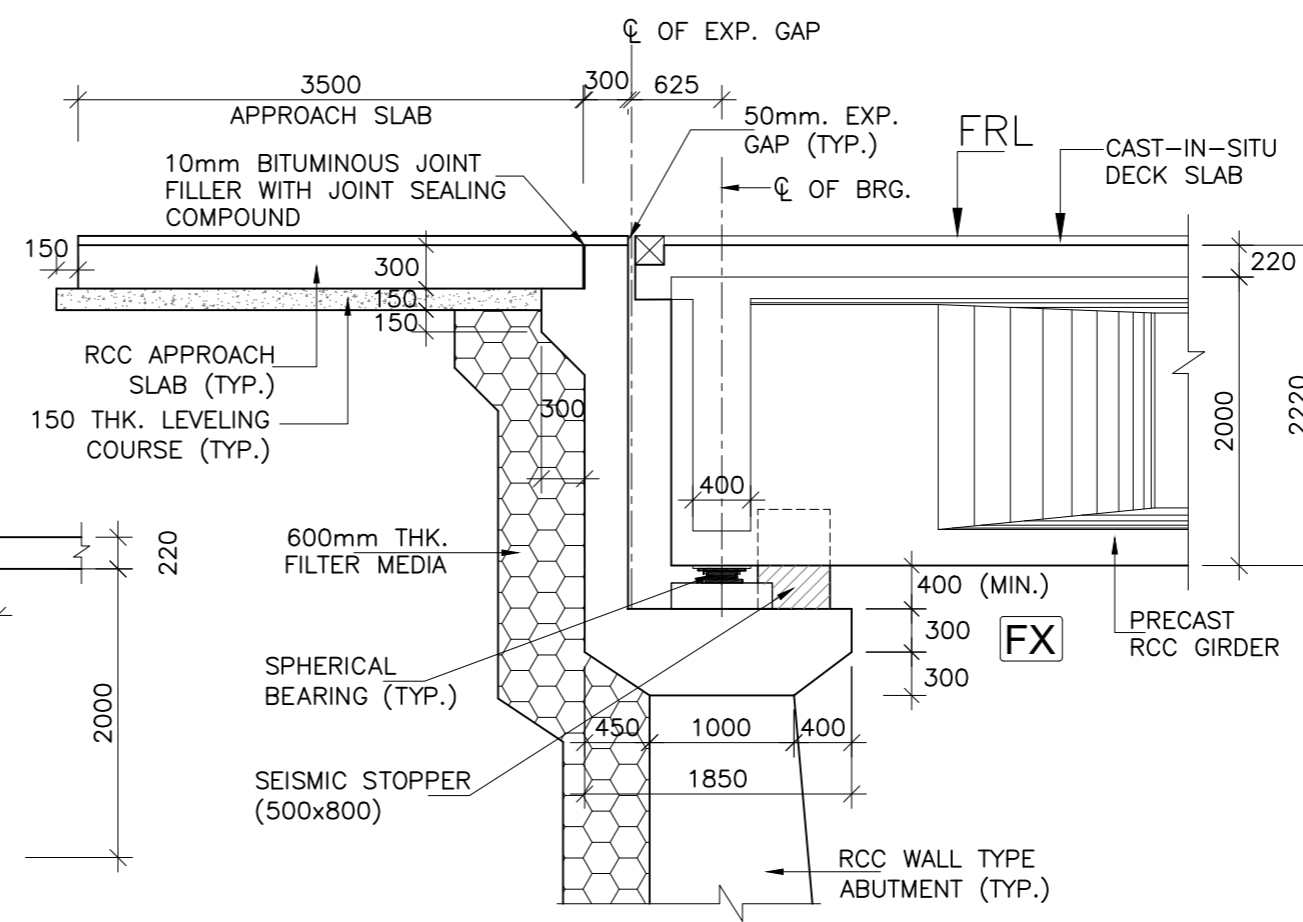
DETAIL-B  
(SCALE 1:50)

AT SUPPORT AT MID SPAN

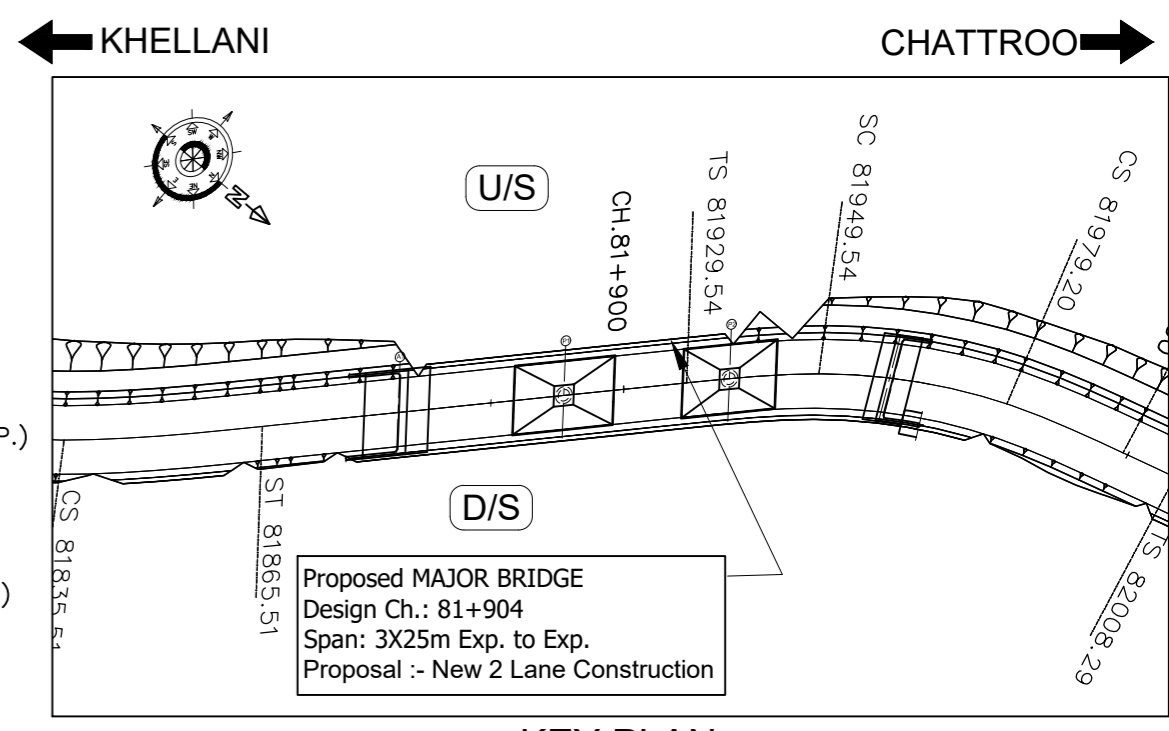
CROSS SECTION OF CAST IN SITU RCC GIRDER  
(SCALE 1:50)



SECTION 2-2  
(SCALE 1:75)



DETAIL-A  
(SCALE 1:50)



KEY PLAN  
(SCALE 1:1000)

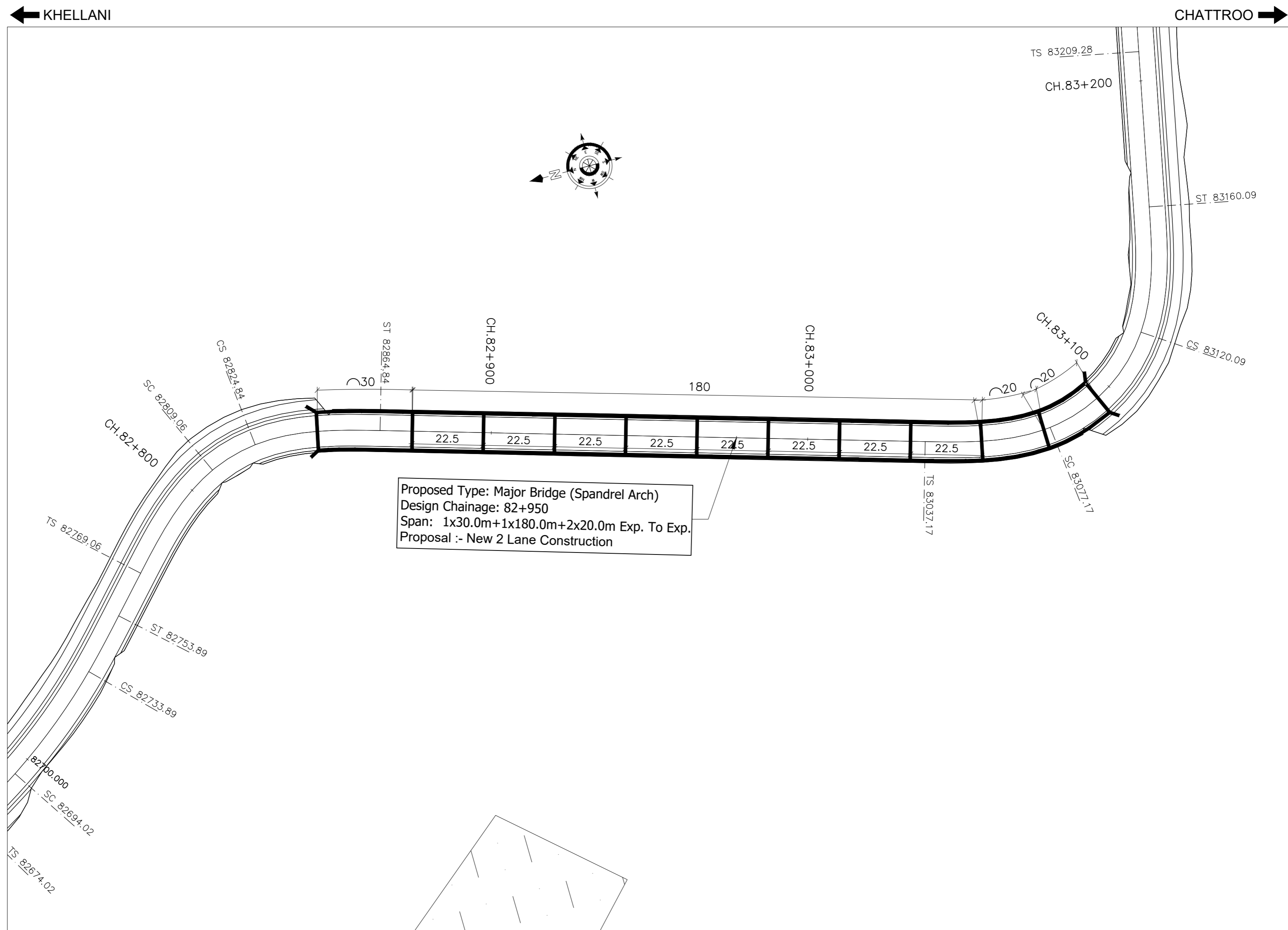
NOTE:-

- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
- THE BRIDGE IS DESIGNED FOR GOVERNING CASE OF FOLLOWING
  - ONE LANE OF IRC CLASS 70R + ONE LANE OF IRC CLASS A.
  - THREE LANE OF IRC CLASS A
  - IRC CLASS SV LOADING: SPECIAL MULTI AXLE HYDRAULIC TRAILER VEHICLE (PRIME MOVER WITH 20 AXLE TRAILER-GVW=385 Tonnes)
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS :-
 

RCC GIRDER	-35 MPa
RCC CAST-IN-SITU DECK SLAB	-35 MPa
ABUTMENT, ABUTMENT CAP, DIRT WALL & FOUNDATION	-35 MPa
RCC CRASH BARRIER	-40 MPa
RCC APPROACH SLAB	-30 MPa
LEVELLING COURSE UNDER APPROACH SLAB	-15 MPa
LEVELLING COURSE UNDER FOUNDATION	-10 MPa
PEDESTAL & SEISMIC RESTRAINER	-45 MPa
- THE REINFORCING BARS SHALL BE OF THERMO MECHANICAL TREATED HYSD (GRADE DESIGNATION Fe-500D) CONFORMING TO IS:1786 STANDARDS.
- CORRUGATED HDPE SHEATHING CONFORMING TO IS: 14268-1995.
- CLEAR COVER TO OUTER MOST STEEL SHALL BE AS UNDER:-
  - FOR SUPER STRUCTURE -50mm
  - FOR FOUNDATION -75mm
  - FOR SUBSTRUCTURE:
    - EARTH FACE -75mm
    - NON EARTH FACE -50mm
- 65mm THK. WEARING COURSE COMPRISING OF 40mm THK. ASPHALTIC CONCRETE OVER LAID WITH 25mm THK. MASTIC ASPHALT SHALL BE PROVIDED AS PER SECTION 500 OF MORTH SPECIFICATIONS.
- SPHERICAL BEARINGS SHALL BE DESIGNED AS PER PROVISION OF IRC : 83 (PART-IV 2014).
- STRIP SEAL TYPE EXPANSION JOINTS SHALL BE PROVIDED AS PER PROVISION OF SP-69.
- BACK FILLING BEHIND ABUTMENT SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX:6 OF IRC:78-2014 HAVING PROPERTIES  $C=0$ ,  $\phi=35^\circ$ ,  $\delta=22.5^\circ$  &  $\gamma_d=20$  KN/m<sup>3</sup>
- 100mm DIA WEEP HOLES AT 1000mm C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER IN VERTICAL WALLS OF THE ABUTMENT SHAFT AND RETURN WALL FROM 150mm ABOVE G.L. IN ONE OR TWO LAYERS AT A SLOPE OF 1 VERTICAL TO 20 HORIZONTAL TOWARDS THE DRAINING FACE.
- WATER TO BE USED IN CONCRETING & CURING SHALL CONFORM TO CLAUSE 18.8.4(4) IRC : 112:2011.
- SAFE BEARING CAPACITY ASSUMED IN DESIGN AT PROPOSED FOUNDING LEVEL IS 35 t/m<sup>2</sup>. THIS SHALL BE ASCERTAINED BEFORE EXECUTION OF WORK AT SITE.
- THE BRIDGE IS DESIGNED FOR SEISMIC ZONE-V
- MODERATE CONDITION OF EXPOSURE SHALL BE CONSIDERED IN DESIGN.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY DRAWING. FRL & CAMBER, SUPER ELEVATION AT PARTICULAR LOCATION SHALL BE VERIFIED WITH THE HIGHWAY DRAWINGS.
- THE MINIMUM EMBEDMENT OF THE FOUNDATIONS INTO THE ROCK BELOW SHALL BE AS FOLLOWS:
 




FOR ROCKS OF MODERATELY STRONG	- 0.6M
FOR ROCKS OF MODERATELY WEAK	- 1.5M
- RCC RETAINING WALL SHALL BE PROVIDED UPTO 2M HEIGHT ABOVE GROUND LEVEL. BELOW 2M HEIGHT, PCC TOE WALL SHALL BE PROVIDED.
- PEDESTAL BEARING SHALL BE PLACED BETWEEN TRUE HORIZONTAL SURFACES.

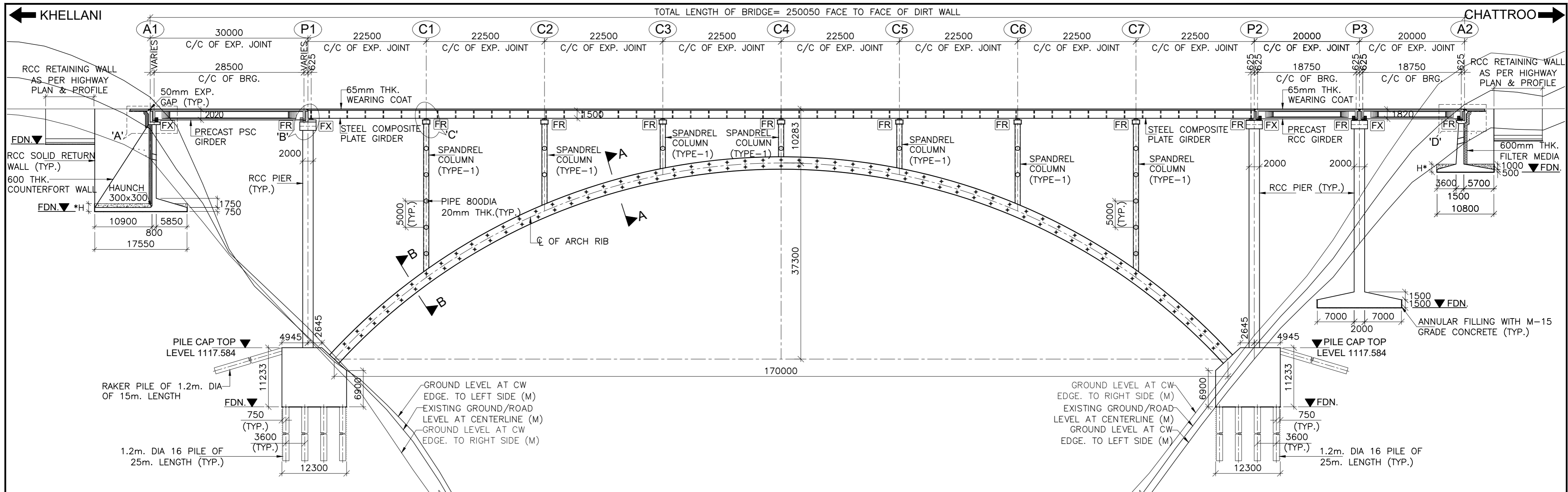
ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR																	
R0	Oct :-2020		NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	RODIC CONSULTANTS PVT. LTD. 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with Monarch Surveyors and Engineering Consultants Pvt. Ltd.,	From Design Km. 80+675 to Km. 95+550	TENDER DRAWING																	
R1	Dec :-2020																						
						<table border="1"> <tr><td>Designed:</td><td>HB</td></tr> <tr><td>Drawn:</td><td>SB</td></tr> <tr><td>Designed:</td><td>VT</td></tr> <tr><td>Approved:</td><td>AM</td></tr> </table>	Designed:	HB	Drawn:	SB	Designed:	VT	Approved:	AM	<table border="1"> <tr><td>Project:-</td><td>CONSTRUCTION &amp; UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 &amp; LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR</td></tr> <tr><td>Drawing Title</td><td>GENERAL ARRANGEMENT DRAWING FOR MAJOR BRIDGE AT CH. 81+904</td></tr> <tr><td>Sheet size:</td><td>A2</td></tr> <tr><td>Drawing No.</td><td>NHIDCL/NH244/KHELLANI - CHATTROO/MJB/81+904/03/R1</td></tr> </table>	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR	Drawing Title	GENERAL ARRANGEMENT DRAWING FOR MAJOR BRIDGE AT CH. 81+904	Sheet size:	A2	Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/MJB/81+904/03/R1
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Sheet size:	A2																						
Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/MJB/81+904/03/R1																						
						Annex III																	



Proposed Type: Major Bridge (Spandrel Arch)  
 Design Chainage: 82+950  
 Span: 1x30.0m+1x180.0m+2x20.0m Exp. To Exp.  
 Proposal :- New 2 Lane Construction

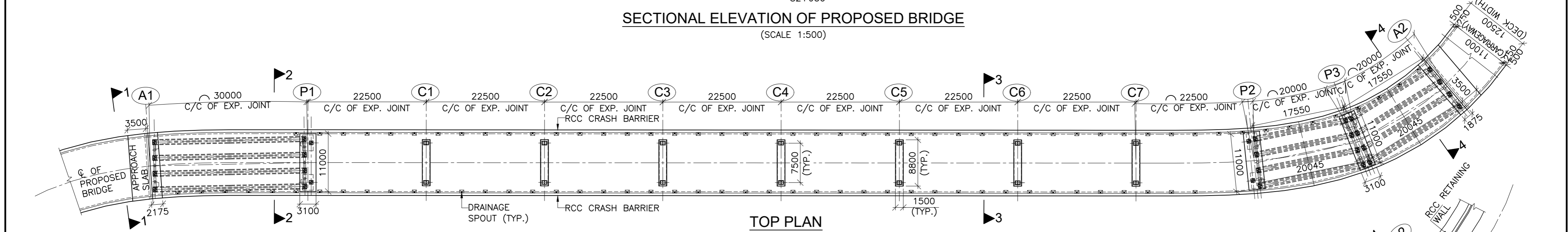
**SITE PLAN**

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	From Design Km. 80+675 to Km. 95+550	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR	
R0	Oct :-2020		<b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA 	 <b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with  <b>Monarch Surveyors and Engineering Consultants Pvt. Ltd.,</b>	<b>TENDER DRAWING</b>  Scale :- As Shown	Drawing Title	GENERAL ARRANGEMENT DRAWING FOR	Annex III
R1	Dec :-2020					Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/MJB/82+950/01/R1	

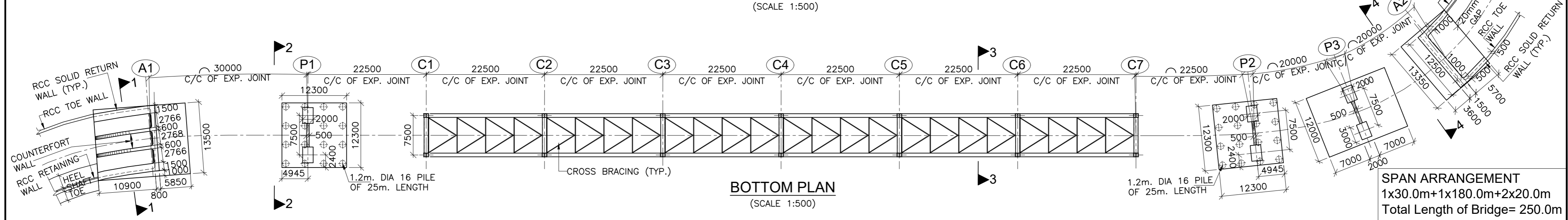


FORMATION LEVEL (m)	1163.000	1163.000	1163.000	1163.000	1163.000	1163.000	1163.000	1163.000	1163.000	1163.000	1163.000	
LOWEST GROUND LEVEL (m)	1153.536	1119.387	1090.862	1062.588	1042.622	1045.332	1047.005	1062.739	1086.000	1115.417	1137.383	1156.510
FOUNDING LEVEL (m)	1143.500	---	---	---	---	---	---	---	---	---	---	---
CHAINAGE (Km)	82+825	82+855	82+877.5	82+900	82+922.5	82+945	82+967.5	82+990	83+012.5	83+035	83+055	83+075

SECTIONAL ELEVATION OF PROPOSED BRIDGE  
(SCALE 1:500)



TOP PLAN  
(SCALE 1:500)



BOTTOM PLAN  
(SCALE 1:500)

SPAN ARRANGEMENT  
1x30.0m+1x180.0m+2x20.0m  
Total Length of Bridge= 250.0m

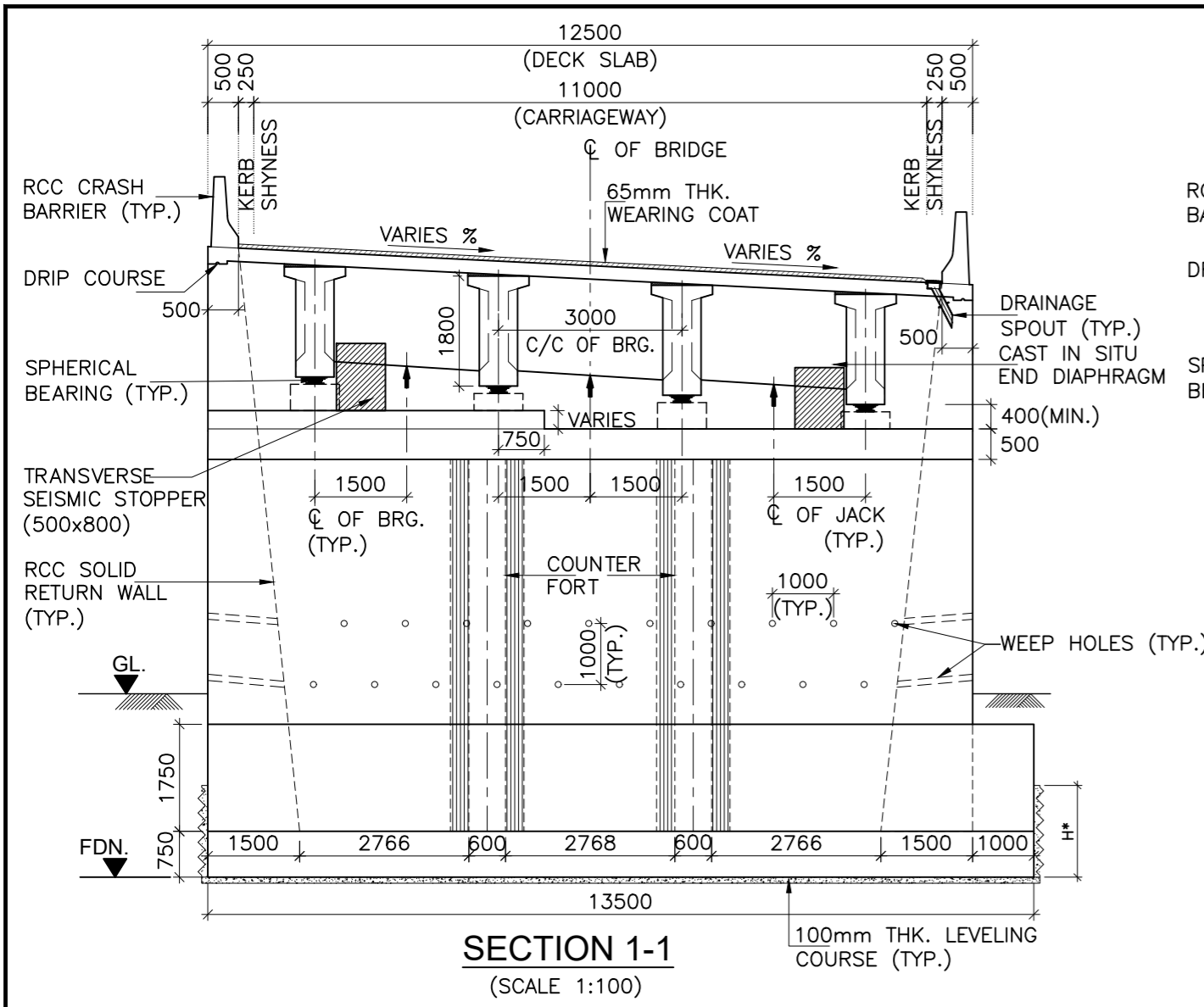
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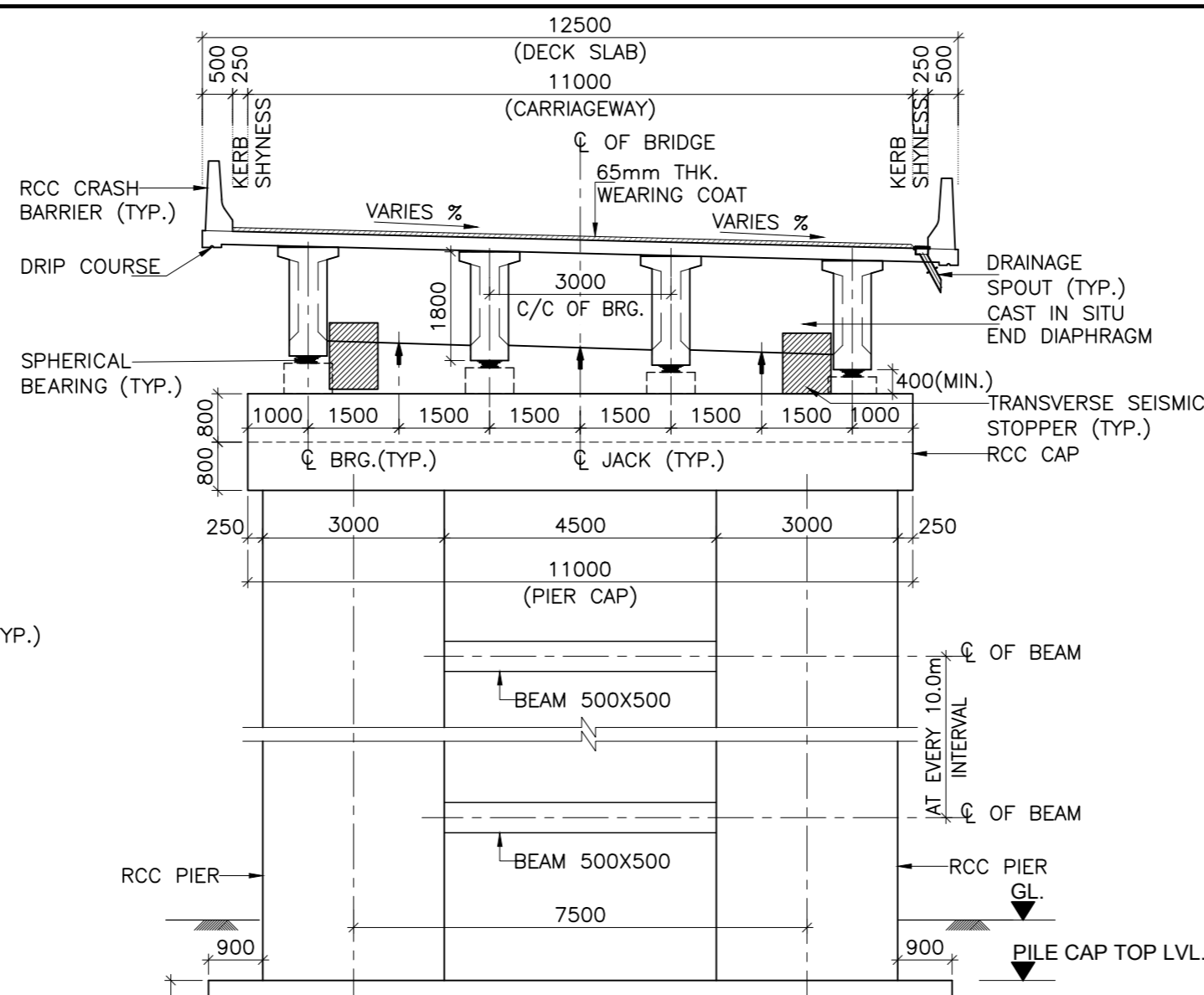
CONSULTANT:  
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1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
NEW DELHI - 110001 (INDIA)  
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From Design Km. 80+675 to Km. 95+550  
TENDER DRAWING  
Designed: AK  
Drawn: AH  
Designed: VT  
Approved: AM

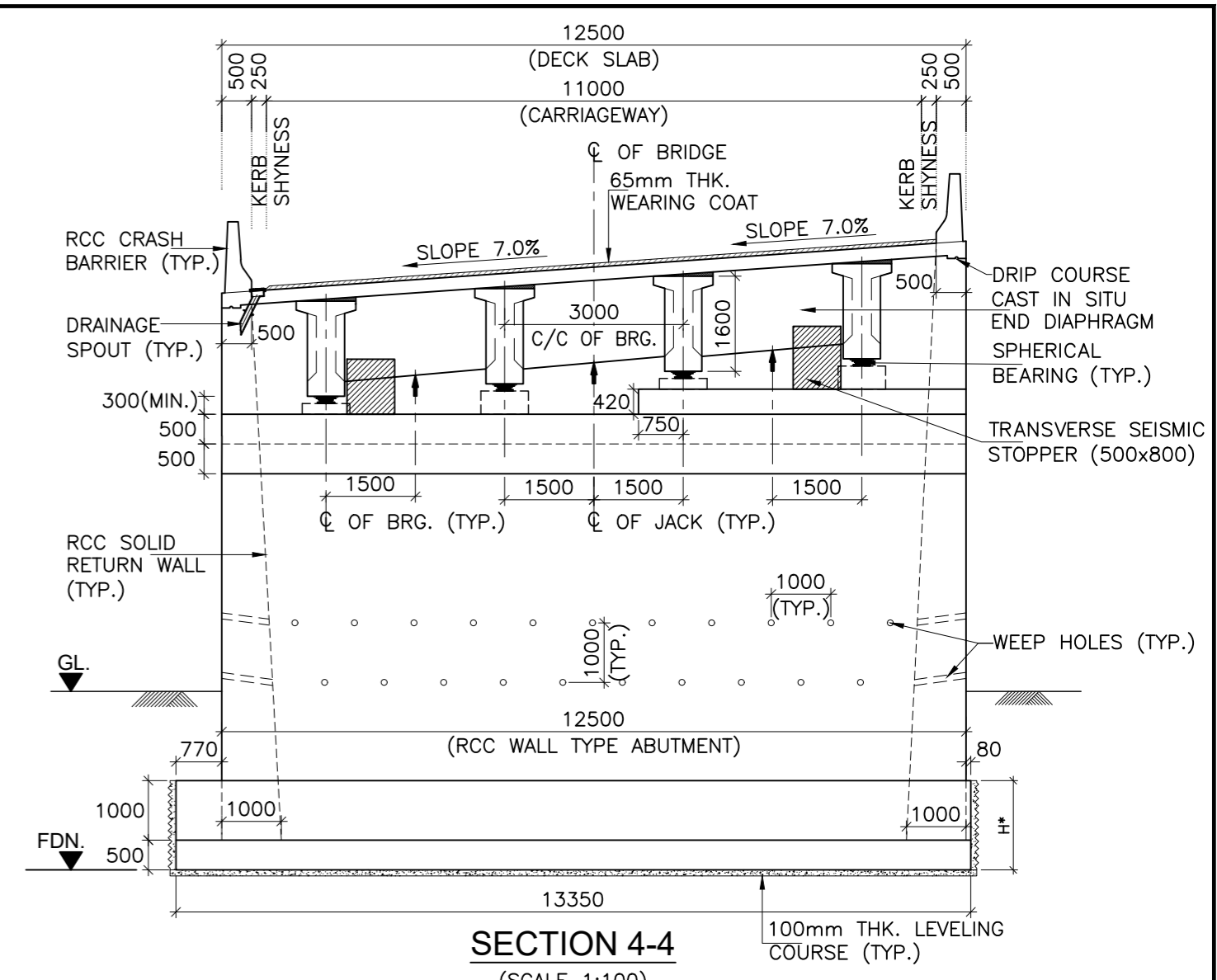
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Drawing Title  
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Annex III



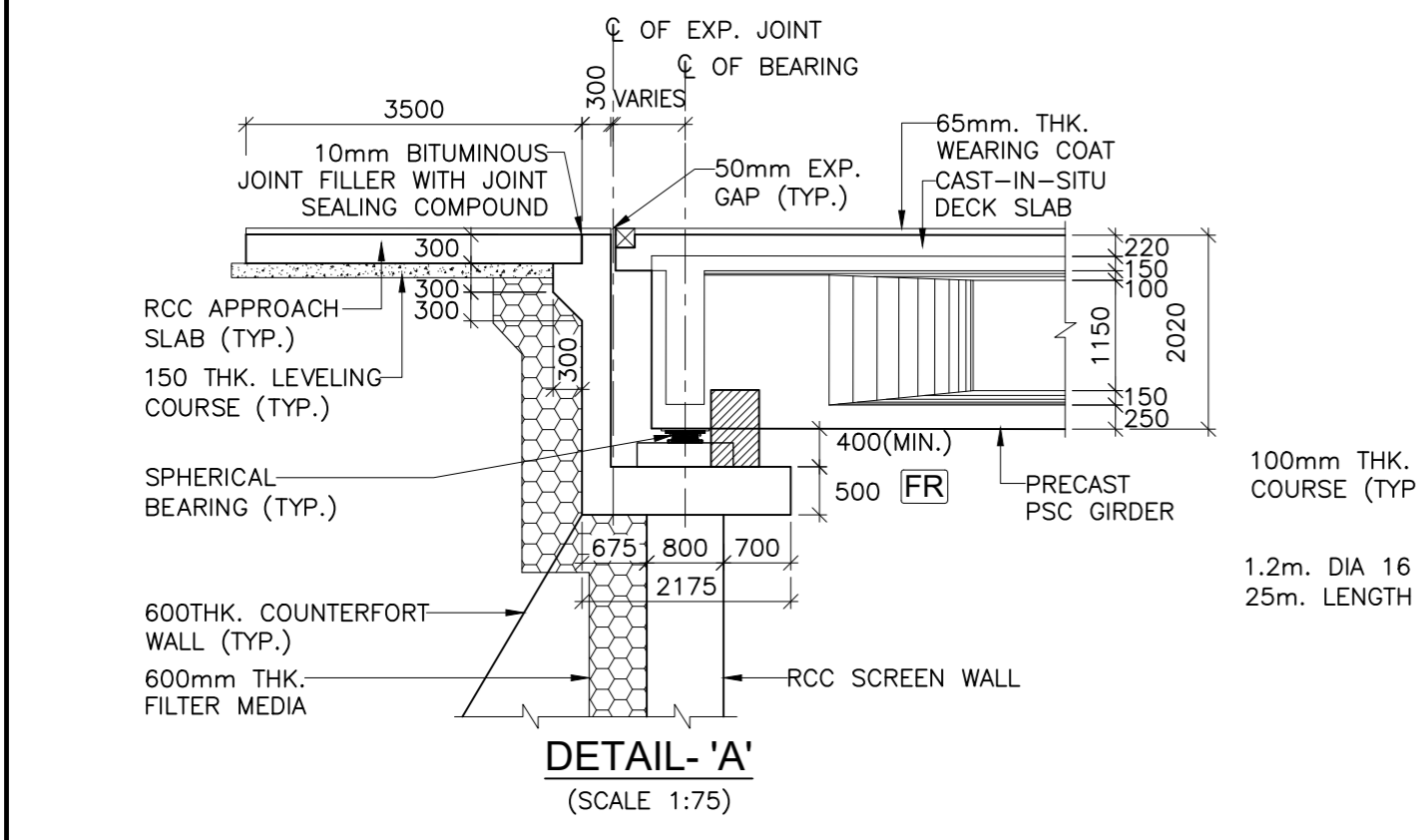
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(SCALE 1:100)



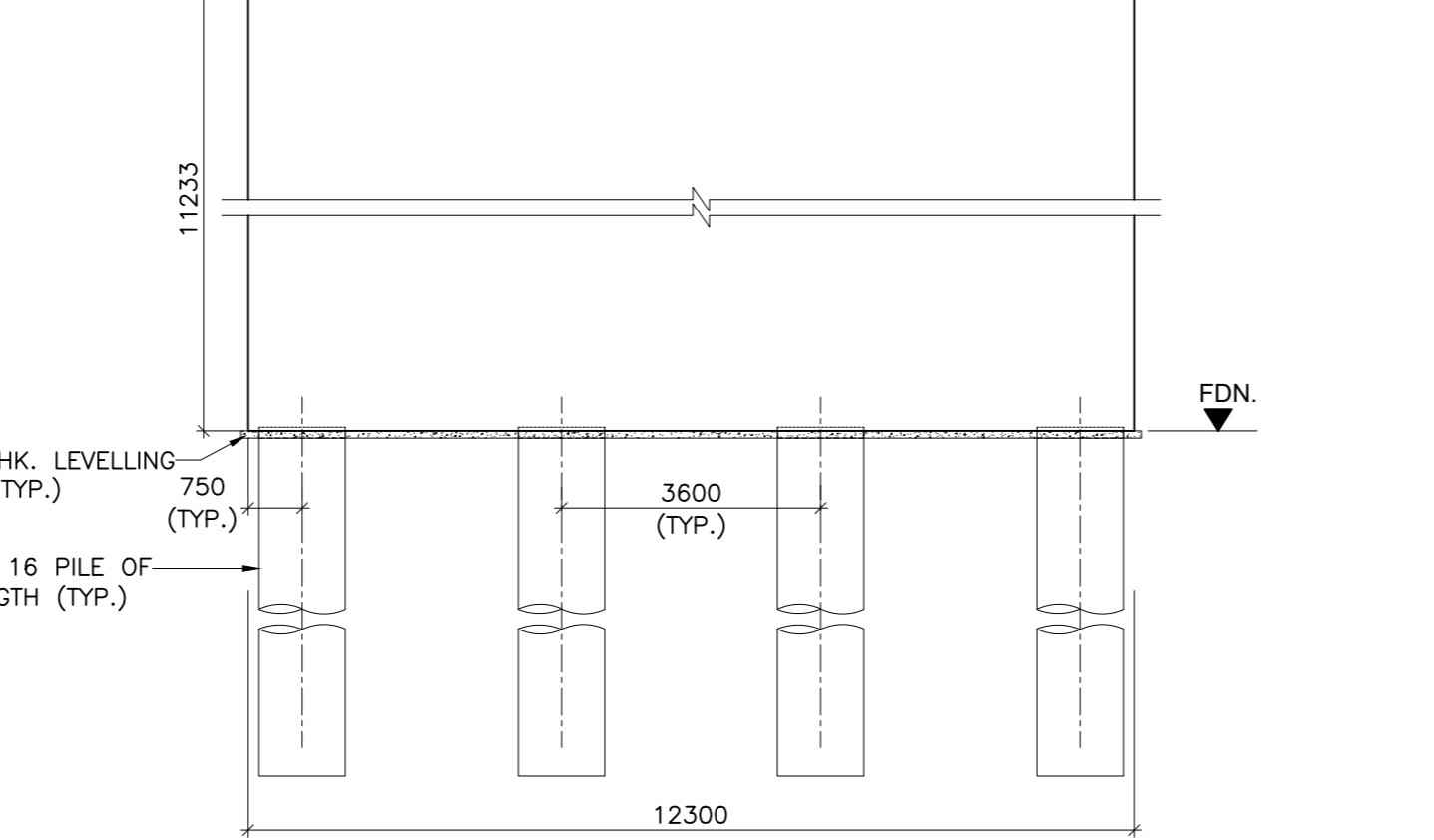
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(SCALE 1:100)



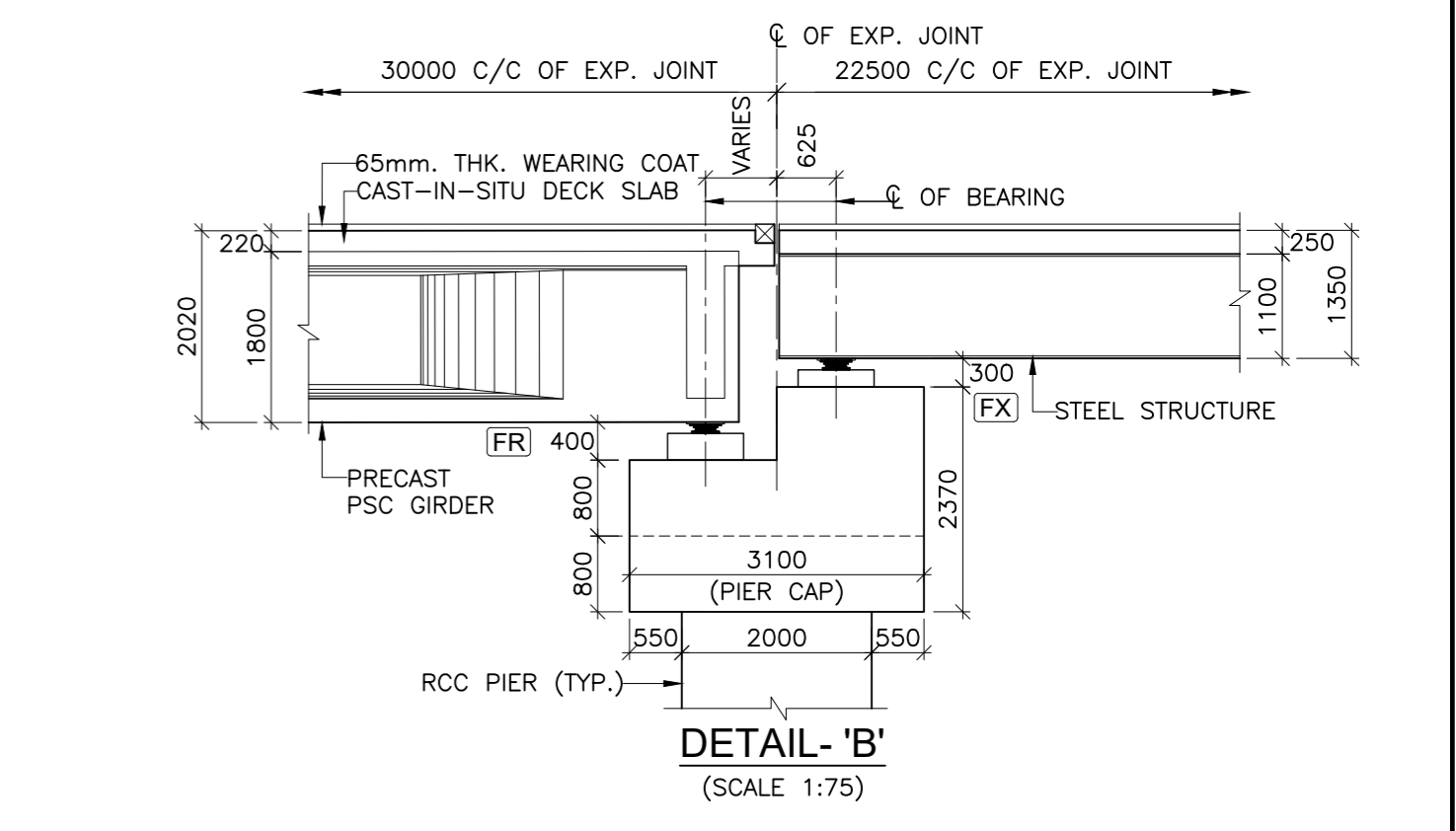
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(SCALE 1:100)



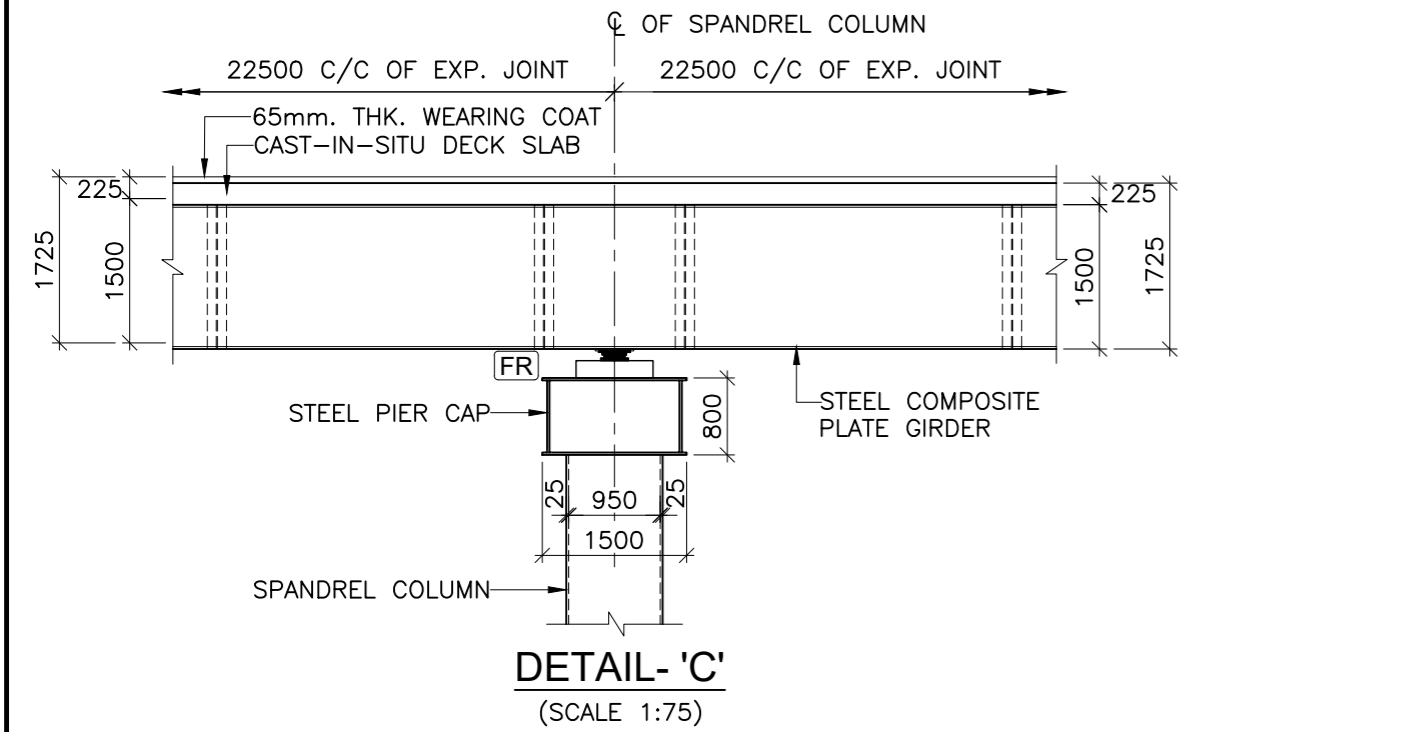
**DETAIL 'A'**  
(SCALE 1:75)



**DETAIL 'B'**  
(SCALE 1:75)



**DETAIL 'D'**  
(SCALE 1:75)



**DETAIL 'C'**  
(SCALE 1:75)



**LEGENDS:-**

FRL.	: FORMATION LEVEL
CL	: CENTER LINE
EXP.	: EXPANSION
BRG.	: BEARING
FX	: FIXED BEARING
FR	: FREE BEARING
LVL.	: LEVEL
TYP.	: TYPICAL
THK.	: THICKNESS
L.B.L.	: LOWEST BED LEVEL
FDN.	: FOUNDING LEVEL
GL.	: GROUND LEVEL
MM.	: MILLIMETERS

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

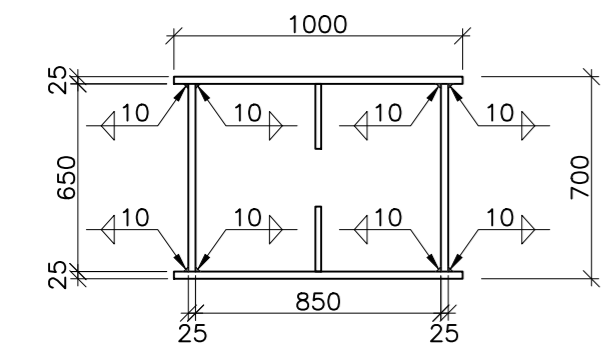
CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
(MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
GOVERNMENT OF INDIA



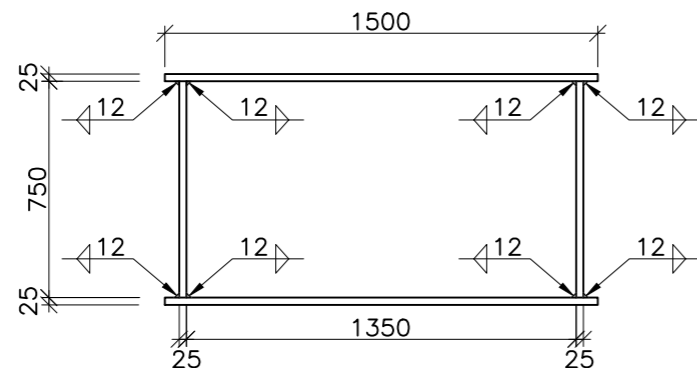
CONSULTANT:  
  
**RODIC CONSULTANTS PVT. LTD.**  
1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA)  
In Association with  
  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550  
TENDER DRAWING  
Scale :-  
As Shown

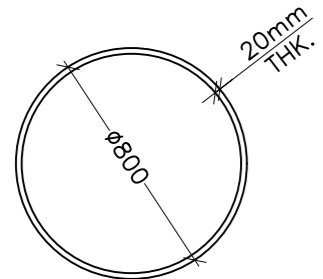
Project:-  
**CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR**  
Drawing Title  
Sheet size: A2  
Drawing No. NHIDCL/NH244/KHELLANI - CHATTROO/MJB/82+950/03/R1  
Annex III



**SPANDREL COLUMN (TYPE-1)**  
(SCALE 1:25)

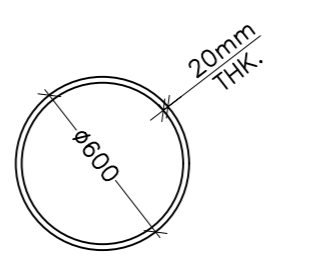


**CAP BEAM**  
(SCALE 1:25)



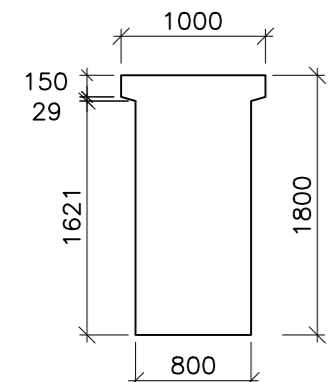
**800 DIA PIPE**

FOR TOP AND BOTTOM BRACING OF ARCH RIB  
(FOR MEMBER BETWEEN ARCH SUPPORT TO COLUMN C3 AND C7)  
(SCALE 1:25)

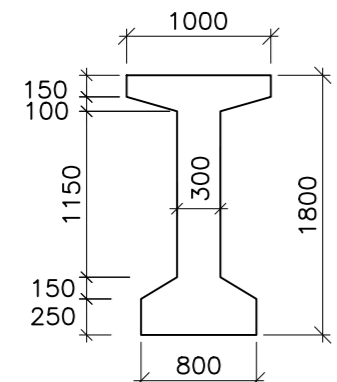


**600 DIA PIPE**

FOR TOP AND BOTTOM BRACING OF ARCH RIB  
(FOR MEMBER BETWEEN COLUMN C3 TO C7)  
(SCALE 1:25)

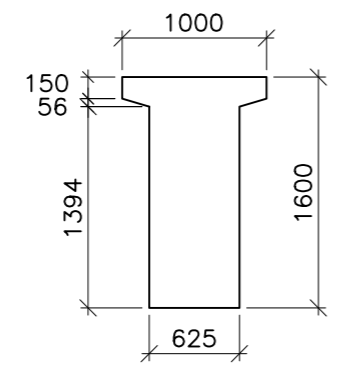


**AT SUPPORT**

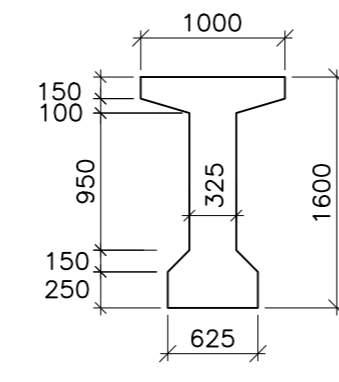


**AT MID SPAN**

**CROSS SECTION OF PRECAST PSC GIRDER (FOR 30M SPAN)**  
(SCALE 1:50)

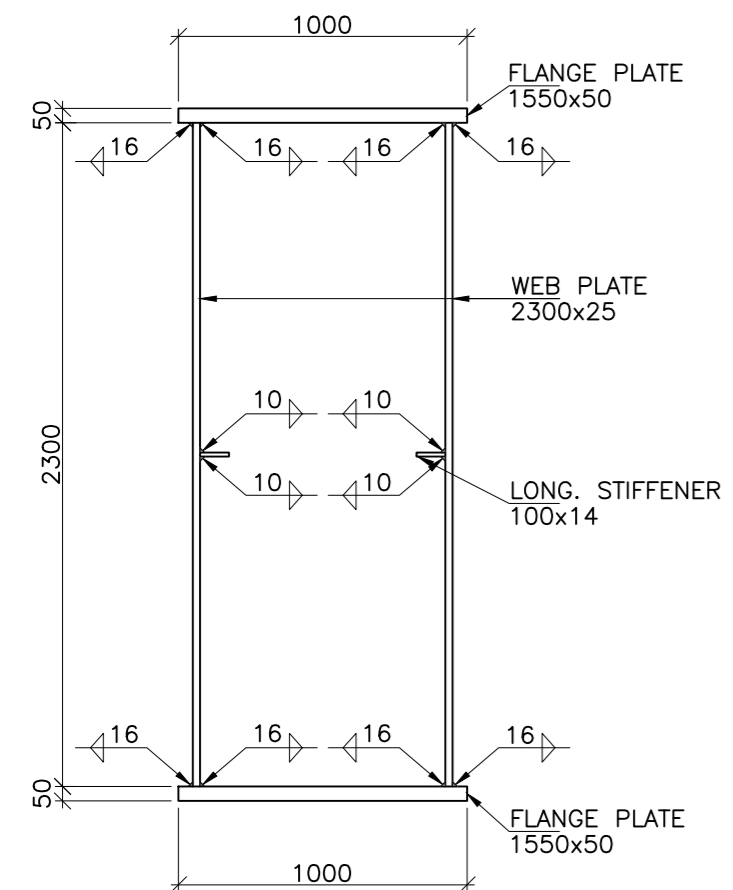


**AT SUPPORT**

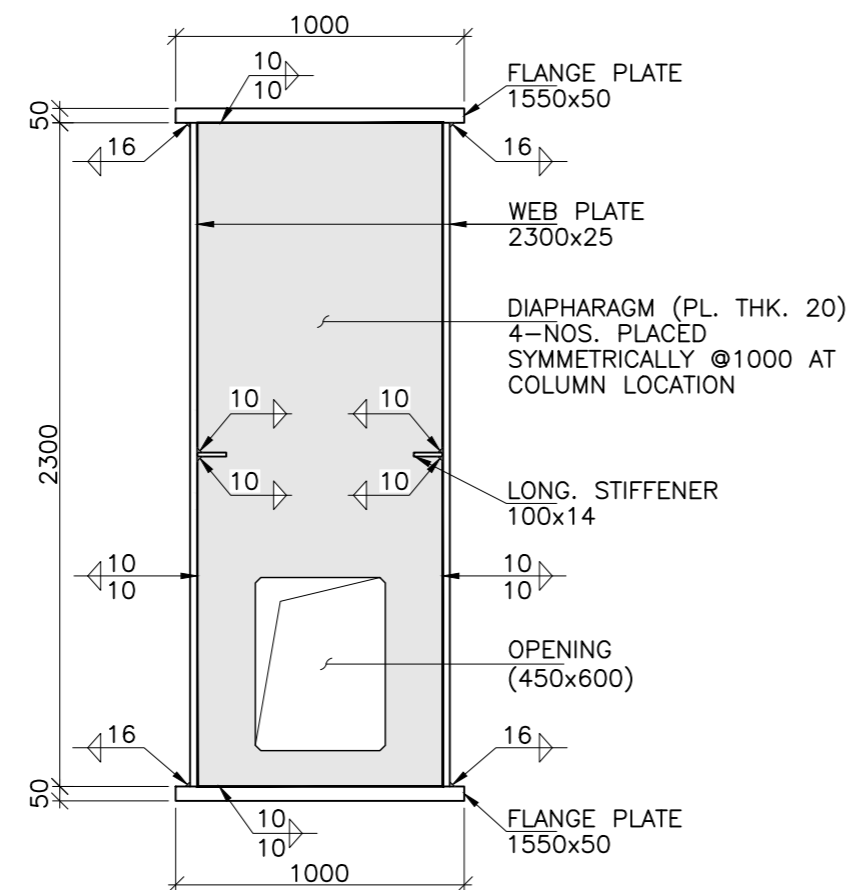


**AT MID SPAN**

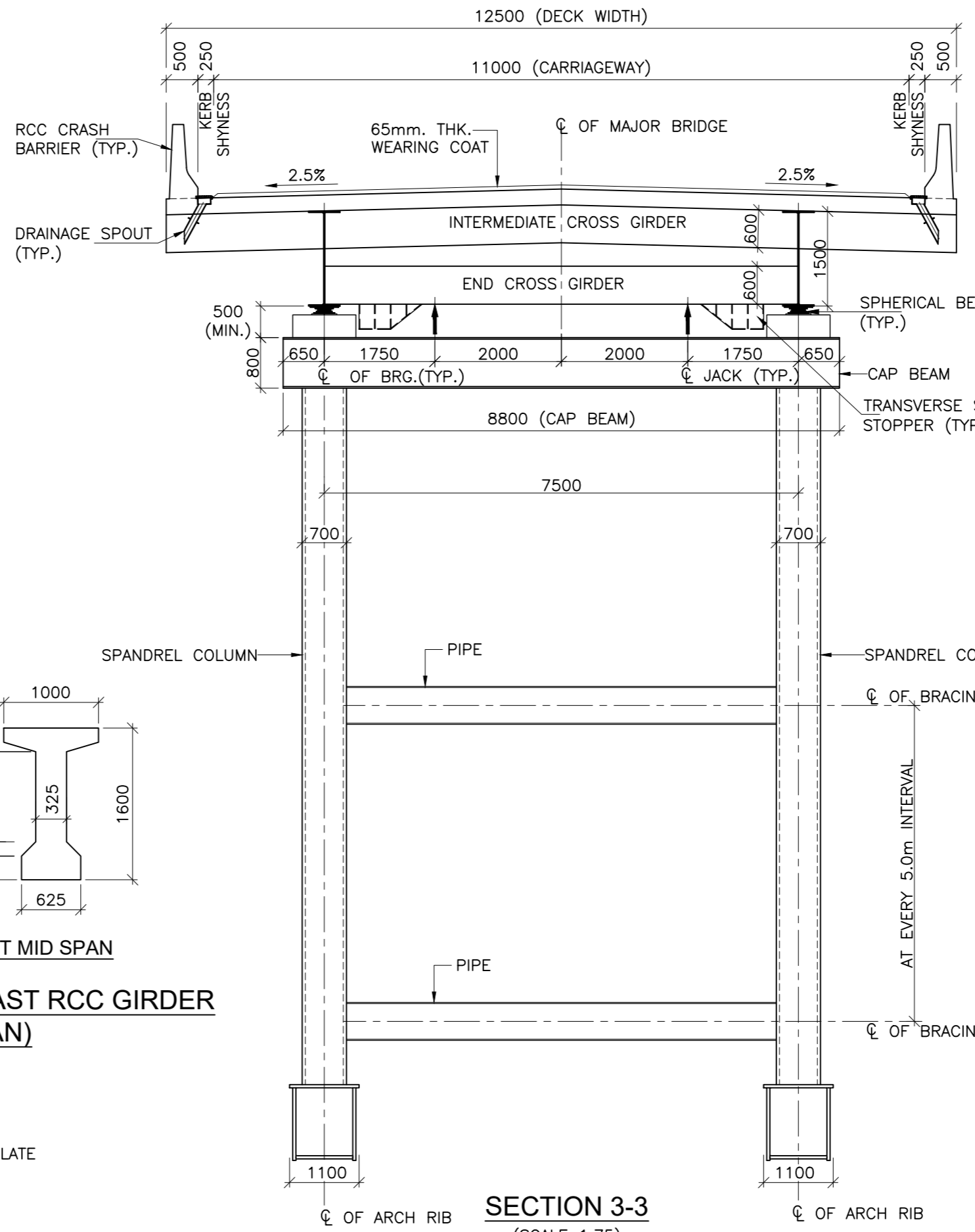
**CROSS SECTION OF PRECAST RCC GIRDER (FOR 20M SPAN)**  
(SCALE 1:50)



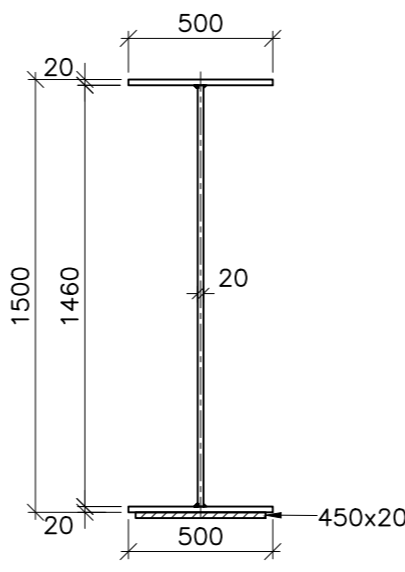
**SECTION A-A**  
SECTION DETAILS OF ARCH RIBS  
(RECTANGLE HOLLOW BOX SECTION)  
(WITHOUT DIAPHRAGM)  
(SCALE 1:25)



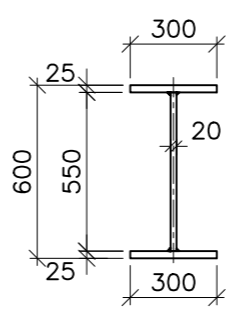
**SECTION B-B**  
SECTION DETAILS OF ARCH RIBS  
(RECTANGLE HOLLOW BOX SECTION)  
(WITH DIAPHRAGM AT COLUMN LOCATIONS)  
(SCALE 1:25)



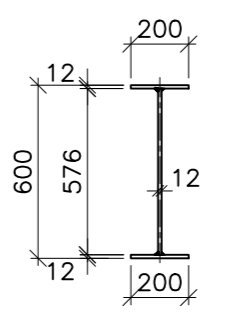
**SECTION 3-3**  
(SCALE 1:75)



**MAIN GIRDER**



**END CROSS GIRDER**



**INTERMEDIATE CROSS GIRDER**

**DETAIL OF STEEL COMPOSITE PLATE GIRDER (22.5M SPAN)**  
(SCALE 1:25)

- NOTE:-**
- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
  - THE BRIDGE IS DESIGNED FOR GOVERNING CASE OF FOLLOWING
    - ONE LANE OF IRC CLASS 70R + ONE LANE OF IRC CLASS A WITHOUT FOOTPATH
    - ONE LANE OF IRC CLASS 70R OR TWO LANE OF IRC CLASS A WITH FOOTPATH
    - IRC CLASS SV LOADING: SPECIAL MULTI AXLE HYDRAULIC TRAILER VEHICLE (PRIME MOVER WITH 20 AXLE TRAILER-GW=385 Tonnes)
  - CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS :-
 

RCC GIRDER & RCC CAST-IN-SITU DECK SLAB	-35 MPa
PSC GIRDER & RCC CAST-IN-SITU DECK SLAB	-45 MPa
ABUTMENT, ABUTMENT CAP, DIRT WALL & FOUNDATION	-35 MPa
PIER, PIER FOUNDATION	-35 MPa
RCC CRASH BARRIER	-40 MPa
RCC APPROACH SLAB	-30 MPa
LEVELING COURSE UNDER APPROACH SLAB	-15 MPa
LEVELING COURSE UNDER FOUNDATION	-10 MPa
PEDESTAL & SEISMIC RESTRAINER	-45 MPa
  - THE REINFORCING BARS SHALL BE OF THERMO MECHANICAL TREATED HYSD (GRADE DESIGNATION Fe-500D) CONFORMING TO IS:1786 STANDARDS.
  - GRADE OF STRUCTURAL STEEL SHALL BE E350 CONFORMING TO IS 2062.
  - CLEAR COVER TO OUTER MOST STEEL SHALL BE AS UNDER:-
 

a) FOR SUPER STRUCTURE	-50mm
b) FOR FOUNDATION	-75mm
c) FOR SUBSTRUCTURE:	
i) EARTH FACE	-75mm
ii) NON EARTH FACE	-50mm
  - 65mm THK. WEARING COURSE COMPRISING OF 40mm THK. ASPHALTIC CONCRETE OVER LAID WITH 25mm THK. MASTIC ASPHALT SHALL BE PROVIDED AS PER SECTION 500 OF MORTH SPECIFICATIONS.
  - SPHERICAL BEARINGS SHALL BE DESIGNED AS PER PROVISION OF IRC : 83 (PART-IV 2014).
  - STRIP SEAL TYPE EXPANSION JOINTS SHALL BE PROVIDED AS PER PROVISION OF SP-69.
  - BACK FILLING BEHIND ABUTMENT SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX:6 OF IRC:78-2014 HAVING PROPERTIES C=0,  $\phi \geq 35^\circ$ ,  $\delta = 22.5^\circ$  &  $\gamma_d = 20 \text{ KN/m}^3$
  - 100mm DIA WEEP HOLES AT 1000mm C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER IN VERTICAL WALLS OF THE ABUTMENT SHAFT AND RETURN WALL FROM 150mm ABOVE G.L IN ONE OR TWO LAYERS AT A SLOPE OF 1 VERTICAL TO 20 HORIZONTAL TOWARDS THE DRAINING FACE.
  - WATER TO BE USED IN CONCRETING & CURING SHALL CONFORM TO CLAUSE 18.8.4(4) IRC : 112:2011.
  - SAFE BEARING CAPACITY ASSUMED IN DESIGN AT PROPOSED FOUNDING LEVEL IS  $40 \text{ t/m}^2$ . THIS SHALL BE ASCERTAINED BEFORE EXECUTION OF WORK AT SITE.
  - SAFE LOAD CAPACITY OF PILE CONSIDERED IS 550 TON AND SAME SHALL BE CONFIRMED AT SITE PRIOR TO EXECUTION OF WORK.
  - INITIAL LOAD TEST ON TEST PILE SHALL BE CARRIED OUT TO RE-CONFIRM THE ACTUAL VERTICAL AND LATERAL CARRYING CAPACITY OF PILE.
  - THE BRIDGE IS DESIGNED FOR SEISMIC ZONE-V
  - MODERATE CONDITION OF EXPOSURE SHALL BE CONSIDERED IN DESIGN.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY DRAWING. FRL & CAMBER, SUPER ELEVATION AT PARTICULAR LOCATION SHALL BE VERIFIED WITH THE HIGHWAY DRAWINGS.
  - ALL STRUCTURAL STEEL AND BOLTS SHALL BE HOT DIP GALVANIZED.
  - MAXIMUM SOCKETING LENGTH OF THE PILE IN ROCK IS 7.0m, WHERE  $(CR+RQD)/2$  OF ROCK  $> 30\%$ .
  - PERMANENT STEEL LINER IN PILE MAY BE PROVIDED BASED ON SOIL STRATA AT SITE.
  - THE MINIMUM EMBEDMENT OF THE FOUNDATIONS INTO THE ROCK BELOW SHALL BE AS FOLLOWS:
 

FOR ROCKS OF MODERATELY STRONG	- 0.6M
FOR ROCKS OF MODERATELY WEAK	- 1.5M

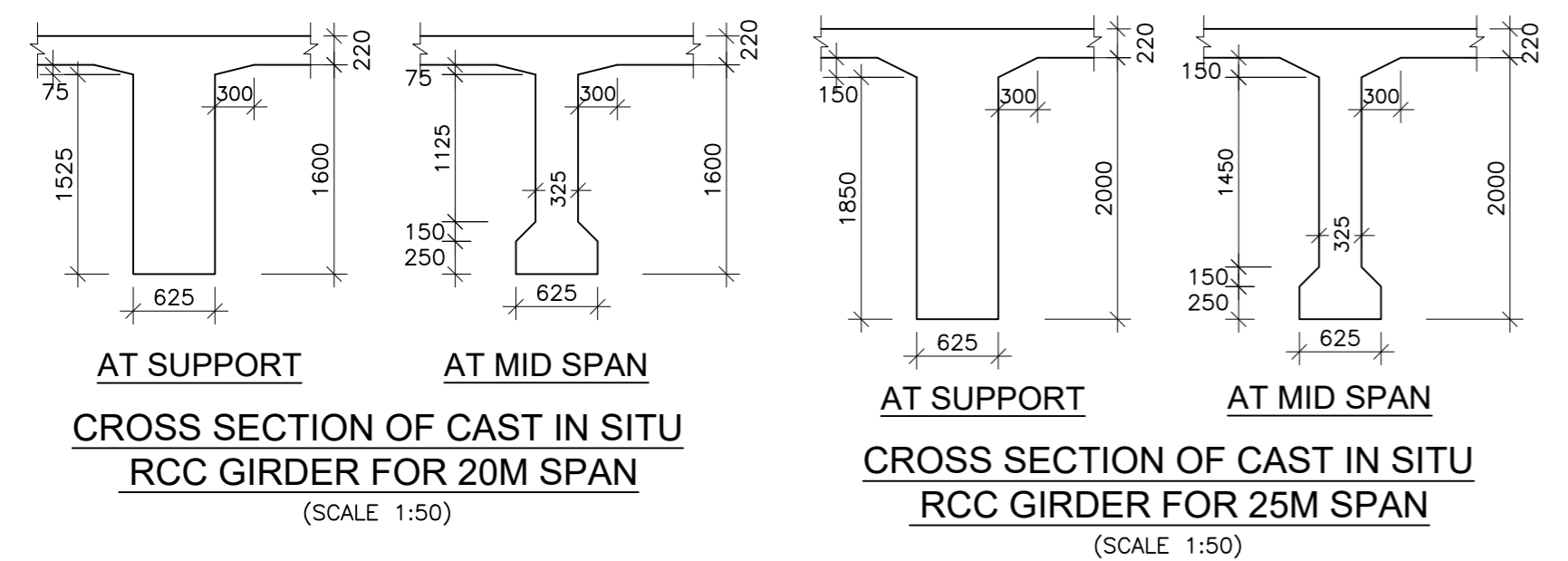
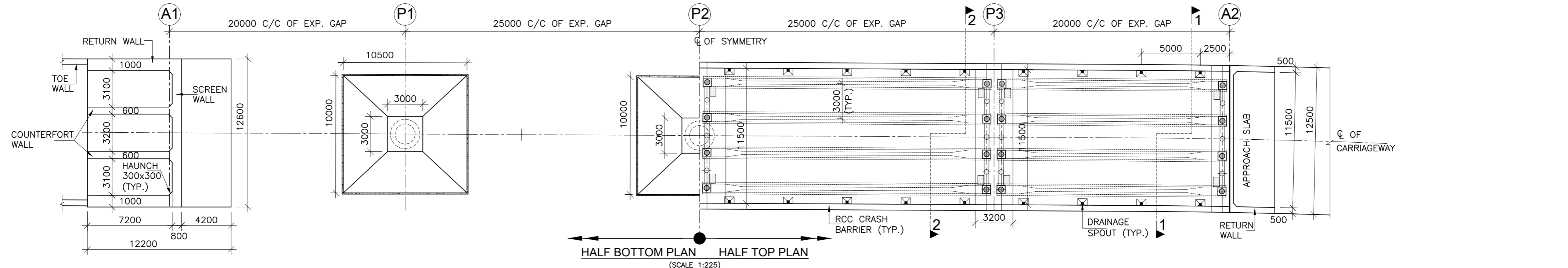
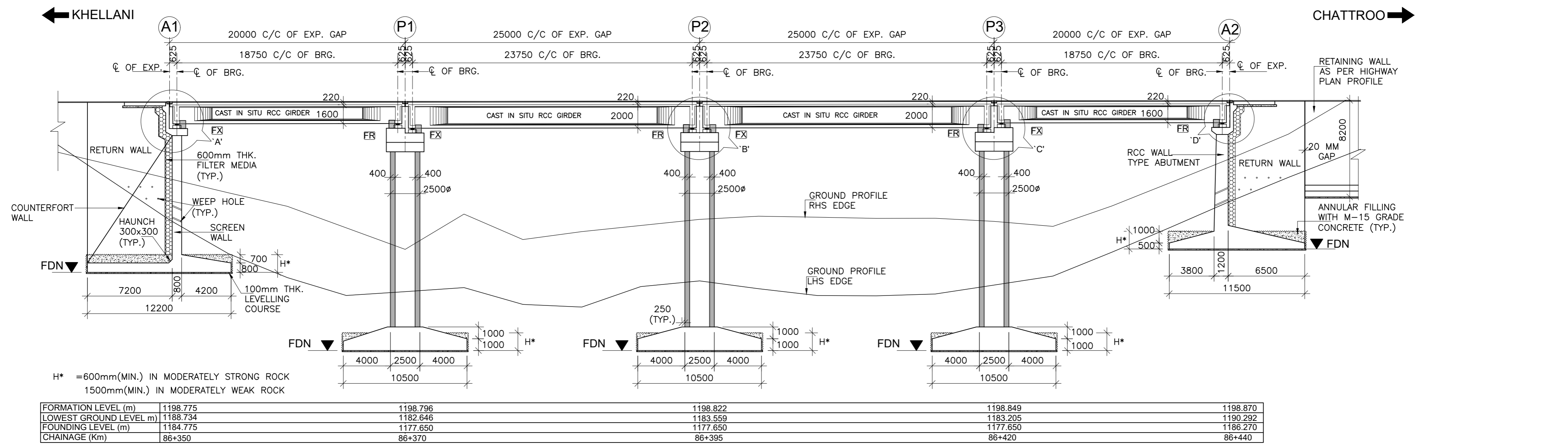
ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
(MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
GOVERNMENT OF INDIA

CONSULTANT:  
**RODIC CONSULTANTS PVT. LTD.**  
1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA)  
In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

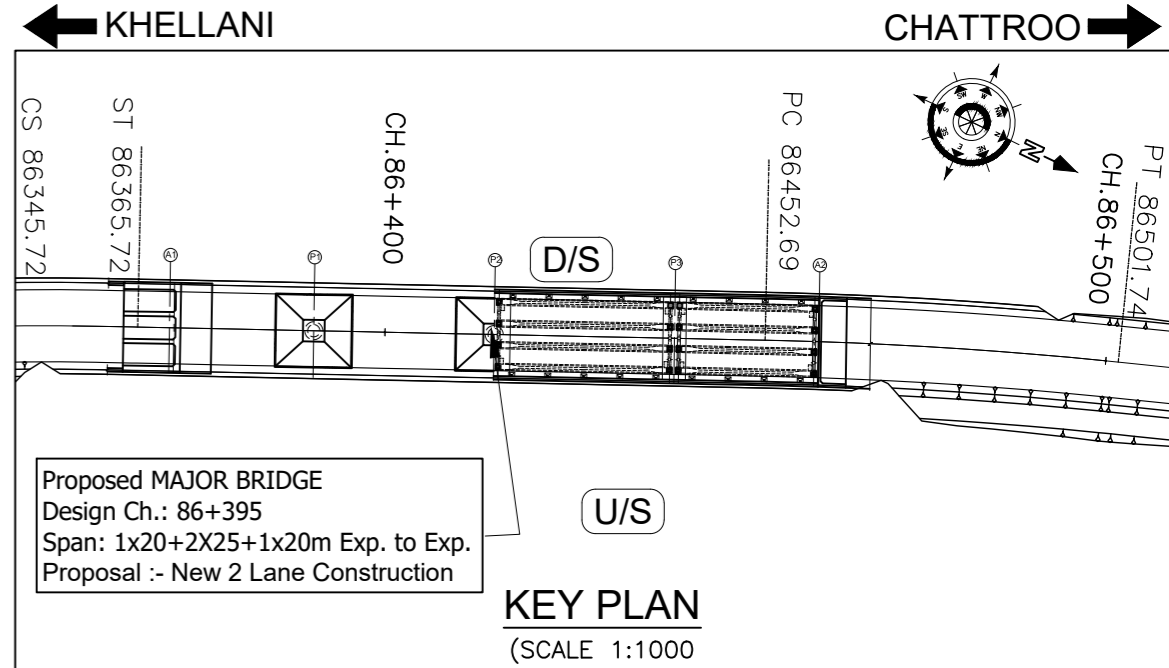
From Design Km. 80+675 to Km. 95+550  
TENDER DRAWING  
Scale :- As Shown

Project:-  
**CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR**  
Drawing Title  
Sheet size: A2  
Drawing No. NHIDCL/NH244/KHELLANI - CHATTROO/MJB/82+950/05/R1  
Annex III

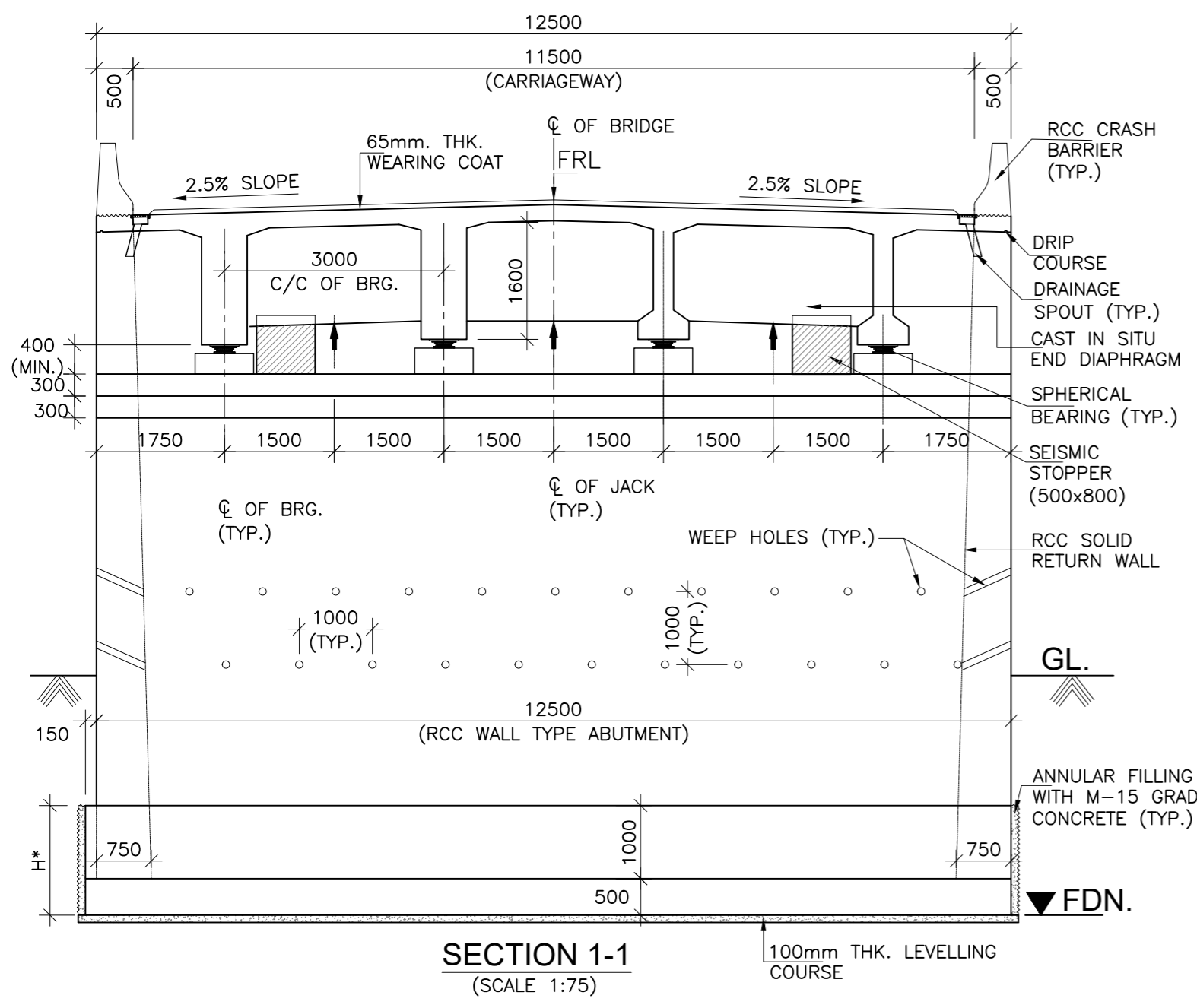


**ABBREVIATIONS**

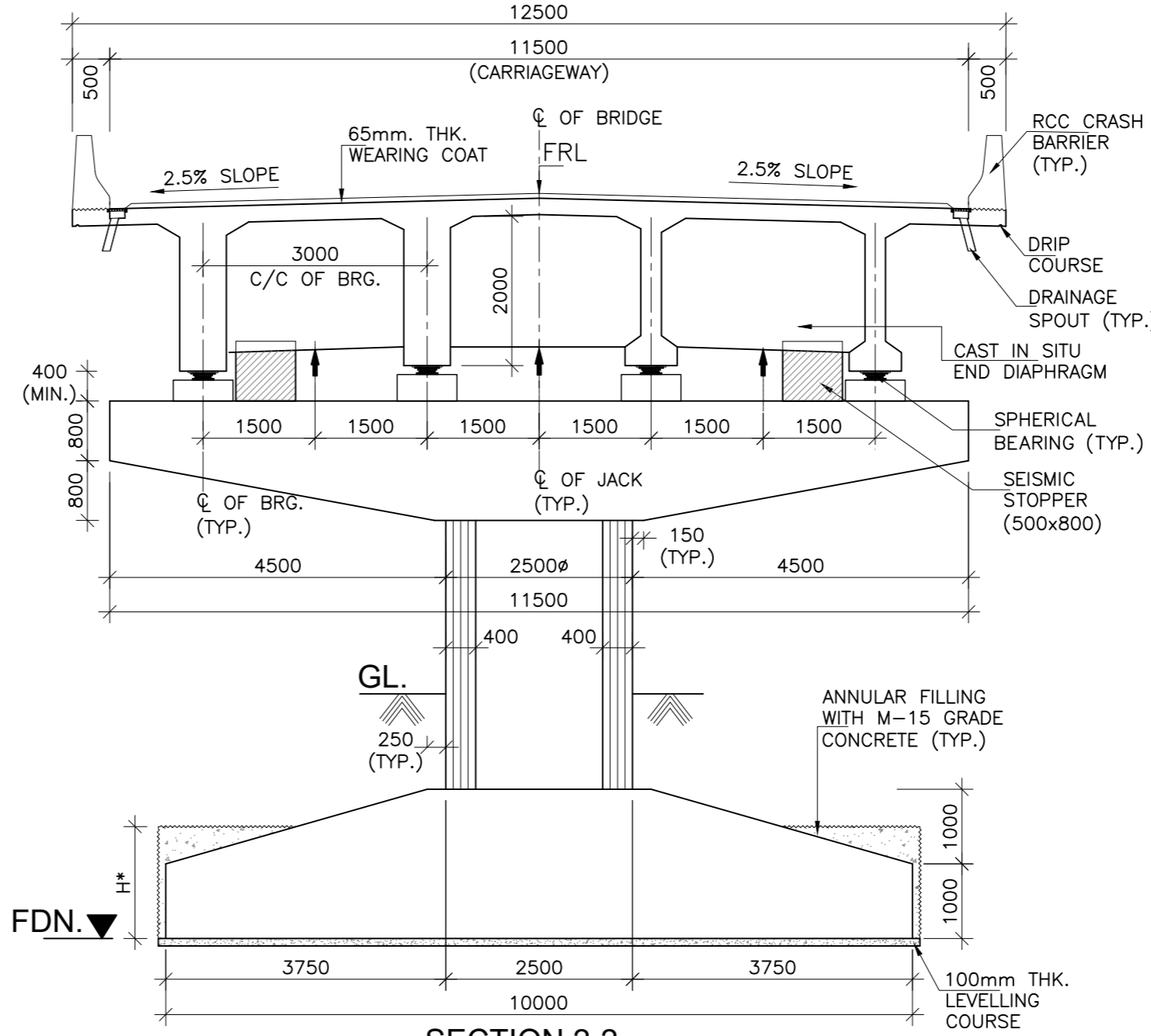
FRL	: FINISHED ROAD LEVEL
HFL	: HIGH FLOOD LEVEL
C/C	: CENTER LINE
LVL.	: LEVEL
TYP.	: TYPICAL
THK.	: THICK
FR	: FREE BEARING
FX	: FIXED BEARING
C/C	: CENTER TO CENTER
GL	: GROUND
FDN	: FOUNDATION
EXP	: EXPANSION
BRG.	: BEARING
RCC	: REINFORCED CEMENT CONCRETE



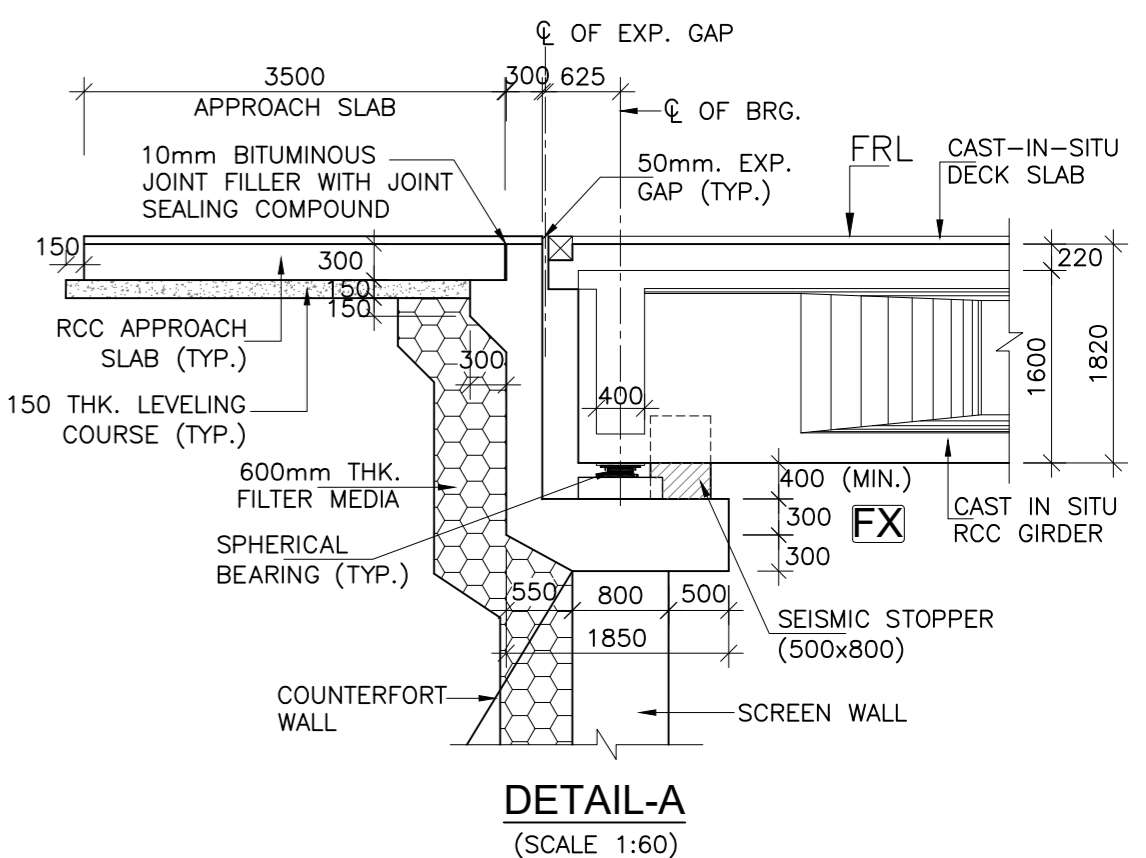
ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R0	Oct :-2020		NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	RODIC CONSULTANTS PVT. LTD. 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with Monarch Surveyors and Engineering Consultants Pvt. Ltd.,	From Design Km. 80+675 to Km. 95+550	TENDER DRAWING
R1	Dec :-2020				Designed: HB Drawn: SB Designed: VT Approved: AM	Scale :- As Shown



**SECTION 1-1**  
(SCALE 1:75)



**SECTION 2-2**  
(SCALE 1:75)



**DETAIL-A**  
(SCALE 1:60)

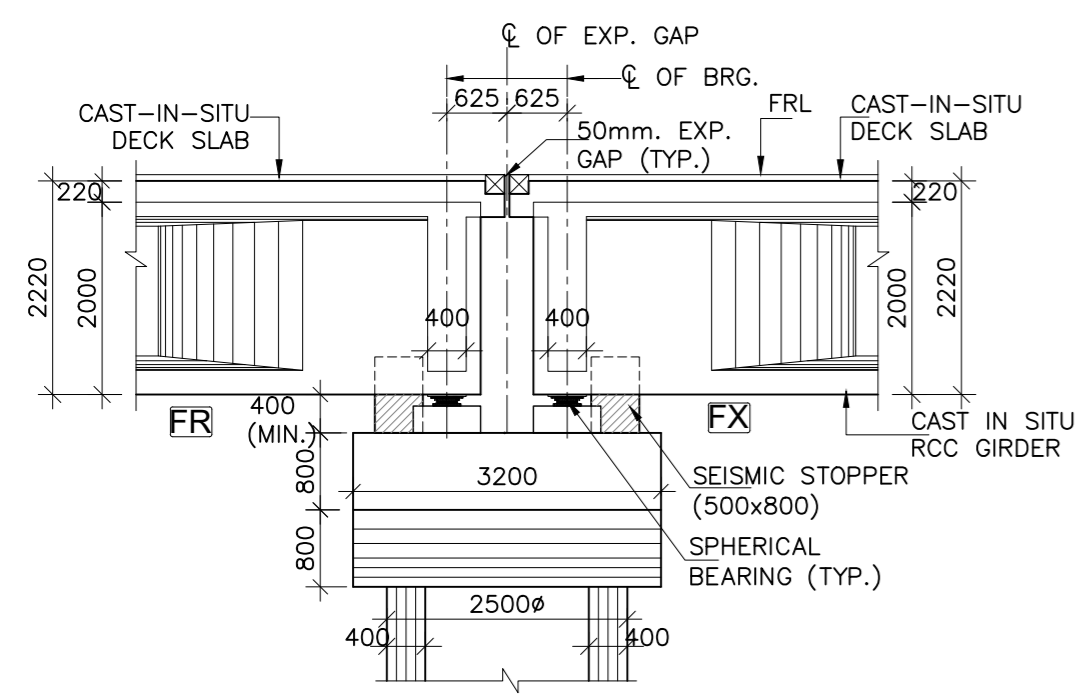
**NOTE:-**

- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
- THE BRIDGE IS DESIGNED FOR GOVERNING CASE OF FOLLOWING
  - ONE LANE OF IRC CLASS 70R + ONE LANE OF IRC CLASS A.
  - THREE LANE OF IRC CLASS A
  - IRC CLASS SV LOADING: SPECIAL MULTI AXLE HYDRAULIC TRAILER VEHICLE (PRIME MOVER WITH 20 AXLE TRAILER-GVW=385 Tonnes)
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS :-
 

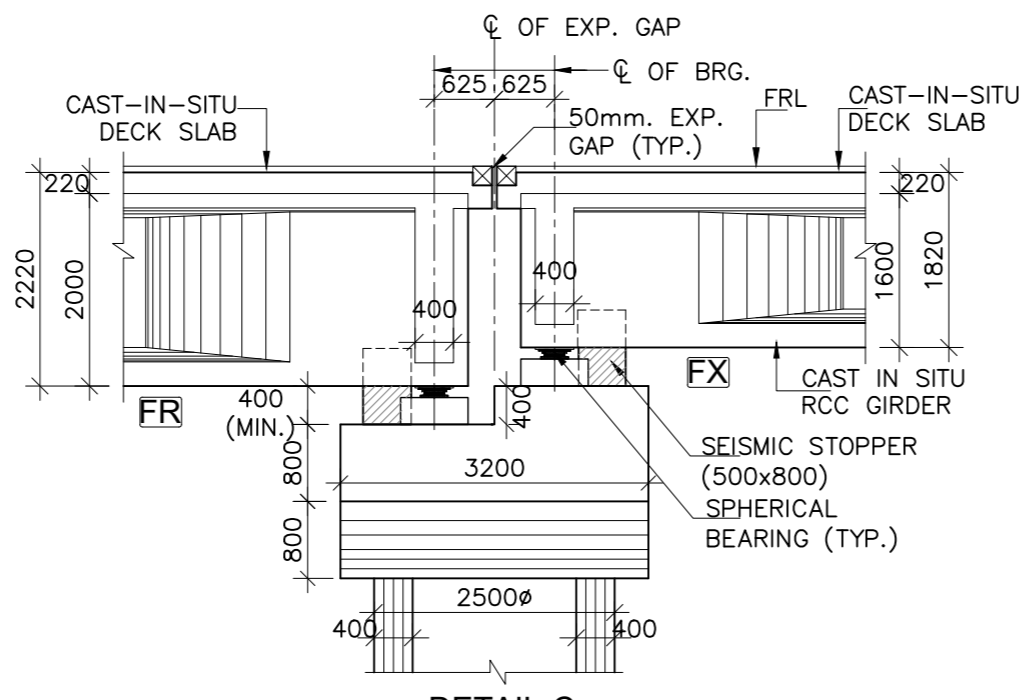
RCC GIRDER	-40 MPa
RCC CAST-IN-SITU DECK SLAB	-35 MPa
ABUTMENT, ABUTMENT CAP, DIRT WALL & FOUNDATION	-35 MPa
RCC CRASH BARRIER	-40 MPa
RCC APPROACH SLAB	-30 MPa
LEVELLING COURSE UNDER APPROACH SLAB	-15 MPa
LEVELLING COURSE UNDER FOUNDATION	-10 MPa
PEDESTAL & SEISMIC RESTRAINER	-45 MPa
- THE REINFORCING BARS SHALL BE OF THERMO MECHANICAL TREATED HYSD (GRADE DESIGNATION Fe-500D) CONFORMING TO IS:1786 STANDARDS.
- CORRUGATED HDPE SHEATHING CONFORMING TO IS: 14268-1995.
- CLEAR COVER TO OUTER MOST STEEL SHALL BE AS UNDER:-
 

a) FOR SUPER STRUCTURE	-50mm
b) FOR FOUNDATION	-75mm
c) FOR SUBSTRUCTURE:	
i) EARTH FACE	-75mm
ii) NON EARTH FACE	-50mm
- 65mm THK. WEARING COURSE COMPRISING OF 40mm THK. ASPHALTIC CONCRETE OVER LAID WITH 25mm THK. MASTIC ASPHALT SHALL BE PROVIDED AS PER SECTION 500 OF MORTH SPECIFICATIONS.
- SPHERICAL BEARINGS SHALL BE DESIGNED AS PER PROVISION OF IRC : 83 (PART-IV 2014).
- STRIP SEAL TYPE EXPANSION JOINTS SHALL BE PROVIDED AS PER PROVISION OF SP-69.
- BACK FILLING BEHIND ABUTMENT SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX:6 OF IRC:78-2014 HAVING PROPERTIES  $c=0$ ,  $\phi \geq 35^\circ$ ,  $\delta=22.5^\circ$  &  $y_d = 20 \text{ KN/m}^2$
- 100mm DIA WEEP HOLES AT 1000mm C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER IN VERTICAL WALLS OF THE ABUTMENT SHAFT AND RETURN WALL FROM 150mm ABOVE G.L. IN ONE OR TWO LAYERS AT A SLOPE OF 1 VERTICAL TO 20 HORIZONTAL TOWARDS THE DRAINING FACE.
- WATER TO BE USED IN CONCRETING & CURING SHALL CONFORM TO CLAUSE 18.8.4(4) IRC : 112:2011.
- SAFE BEARING CAPACITY ASSUMED IN DESIGN AT PROPOSED FOUNDING LEVEL IS 35 t/m<sup>2</sup>. THIS SHALL BE ASCERTAINED BEFORE EXECUTION OF WORK AT SITE.
- THE BRIDGE IS DESIGNED FOR SEISMIC ZONE-V
- MODERATE CONDITION OF EXPOSURE SHALL BE CONSIDERED IN DESIGN.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY DRAWING. FRL & CAMBER, SUPER ELEVATION AT PARTICULAR LOCATION SHALL BE VERIFIED WITH THE HIGHWAY DRAWINGS.
- THE MINIMUM EMBEDMENT OF THE FOUNDATIONS INTO THE ROCK BELOW SHALL BE AS FOLLOWS:
 

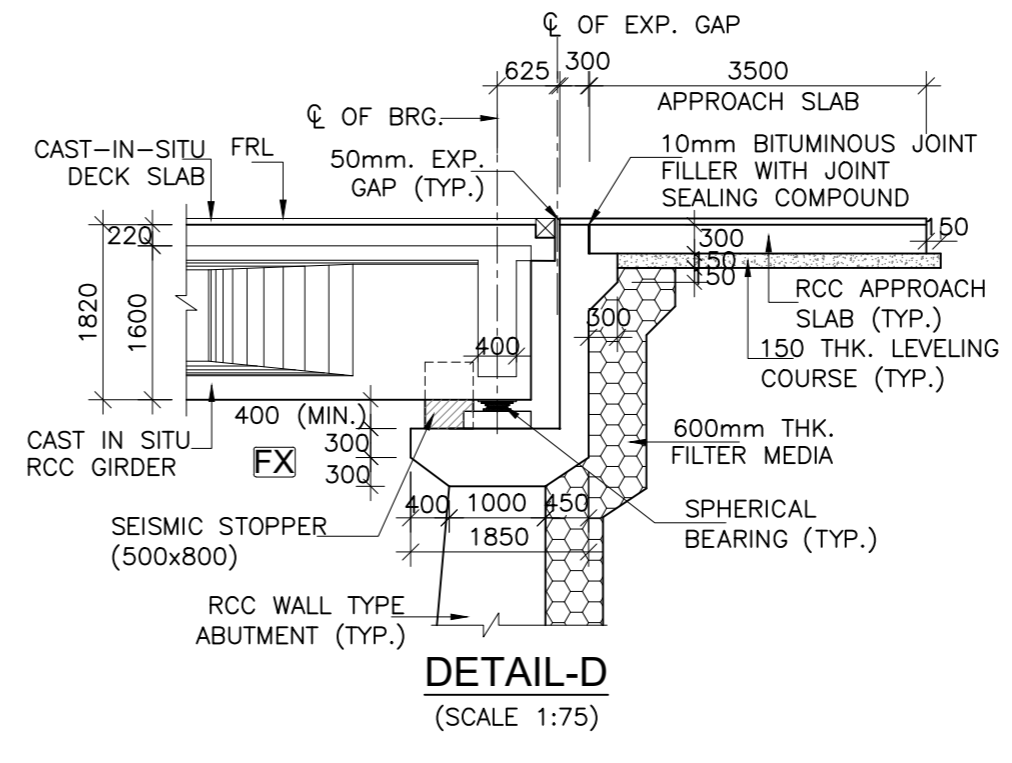
FOR ROCKS OF MODERATELY STRONG	- 0.6M
FOR ROCKS OF MODERATELY WEAK	- 1.5M
- RCC RETAINING WALL SHALL BE PROVIDED UPTO 2M HEIGHT ABOVE GROUND LEVEL. BELOW 2M HEIGHT, PCC TOE WALL SHALL BE PROVIDED.
- PEDESTAL BEARING SHALL BE PLACED BETWEEN TRUE HORIZONTAL SURFACES.




**DETAIL-B**  
(SCALE 1:75)



**DETAIL-C**  
(SCALE 1:75)

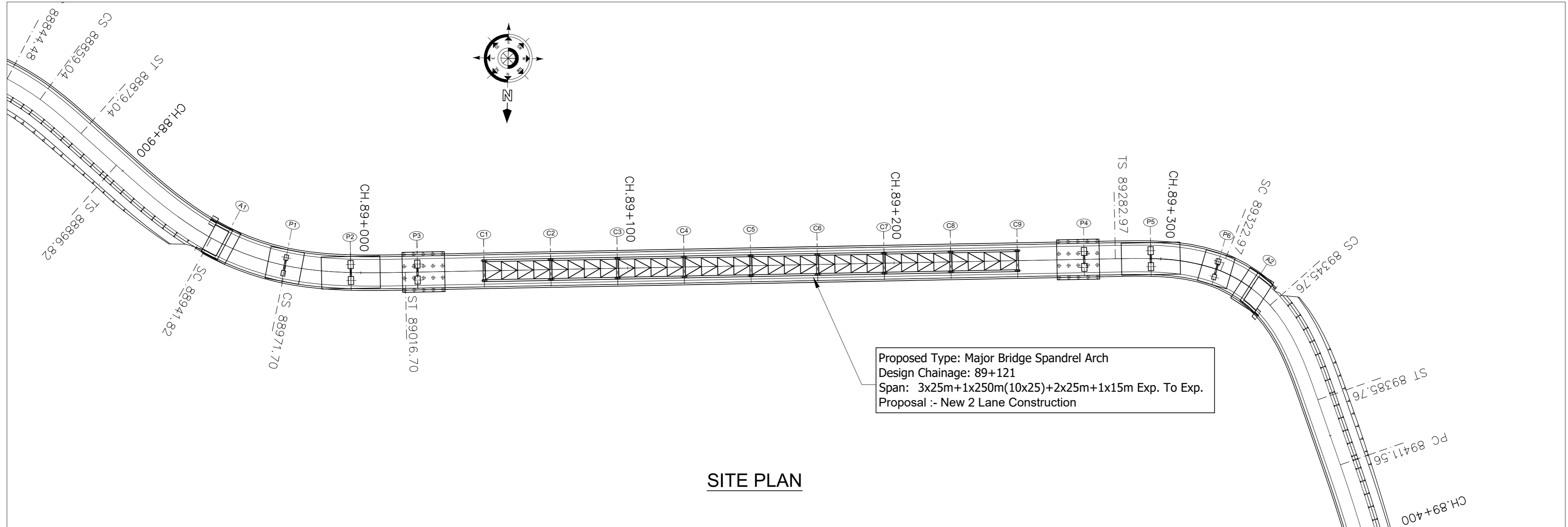
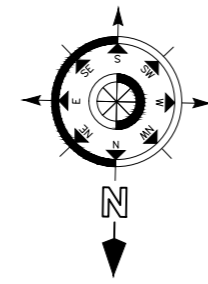


**DETAIL-D**  
(SCALE 1:75)

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	Project:-	From Design Km. 80+675 to Km. 95+550	
R0	Oct :-2020		<b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA 	 <b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with <b>Monarch Surveyors and Engineering Consultants Pvt. Ltd.,</b> 	<b>TENDER DRAWING</b>  Scale :- As Shown	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR	
R1	Dec :-2020					Drawing Title <b>GENERAL ARRANGEMENT DRAWING FOR MAJOR BRIDGE AT CH. 86+395</b>	Drawing No. <b>NHIDCL/NH244/KHELLANI - CHATTROO/MJB/86+395/02/R1</b>
						Drawing Title <b>GENERAL ARRANGEMENT DRAWING FOR MAJOR BRIDGE AT CH. 86+395</b>	Drawing No. <b>NHIDCL/NH244/KHELLANI - CHATTROO/MJB/86+395/02/R1</b>

← KHELLANI

CHATTROO →



Proposed Type: Major Bridge Spandrel Arch  
 Design Chainage: 89+121  
 Span: 3x25m+1x250m(10x25)+2x25m+1x15m Exp. To Exp.  
 Proposal :- New 2 Lane Construction


**SITE PLAN**

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
 (MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
 GOVERNMENT OF INDIA




CONSULTANT:



**RODIC CONSULTANTS PVT. LTD.**  
 1, JAI SINGH MARG (FIRST FLOOR), YMCA  
 CULTURAL CENTRE BUILDING  
 NEW DELHI - 110001 (INDIA)

In Association with  
**Monarch Surveyors and Engineering  
 Consultants Pvt. Ltd.,**



From Design Km. 80+675 to Km. 95+550
Designed: HB
Drawn: SB
Designed: VT
Approved: AM

**TENDER DRAWING**

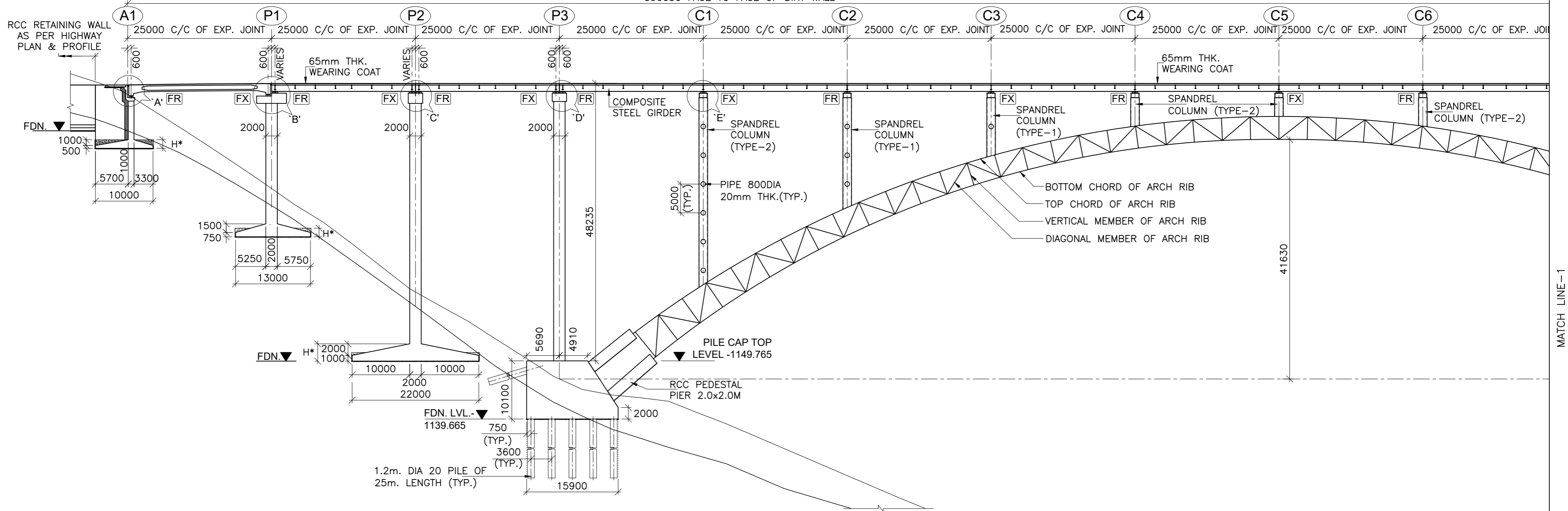
Scale :-  
 As Shown

Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR	
Drawing Title	GENERAL ARRANGEMENT DRAWING OF MAJOR BRIDGE AT CH. 89+121	Annex III
Sheet size: A2		
Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/ MJB/89+121/01/R1	

← KHELLANI

CHATTROO →

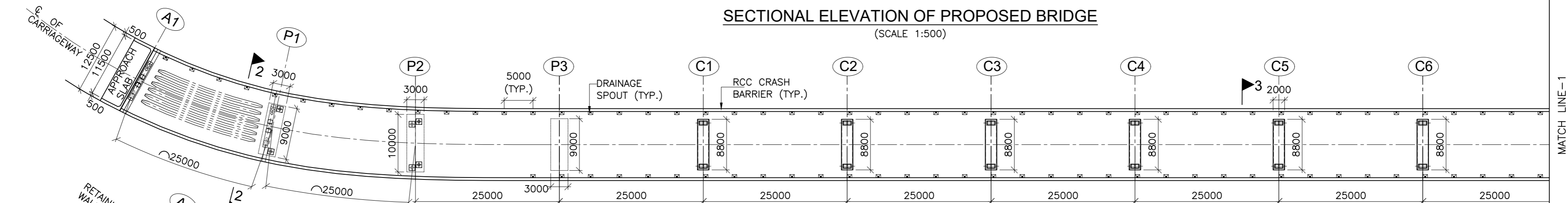
390050 FACE TO FACE OF DIRT WALL



FORMATION LEVEL (m)	1198.000	1198.000	1198.000	1198.000						
LOWEST GROUND LEVEL (m)	1189.725	1179.959	1159.223	1142.095						
FOUNDING LEVEL (m)	1186.700	1171.330	1149.720	1137.665						
CHAINAGE (Km)	88+926	88+951	88+976	89+001	89+026	89+051	89+076	89+101	89+126	89+151

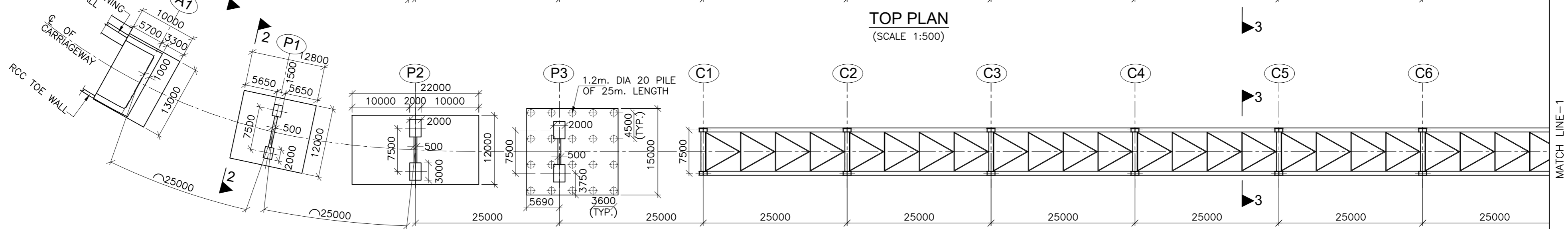
**SECTIONAL ELEVATION OF PROPOSED BRIDGE**

(SCALE 1:500)



**TOP PLAN**

(SCALE 1:500)





**BOTTOM PLAN**

(SCALE 1:500)

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

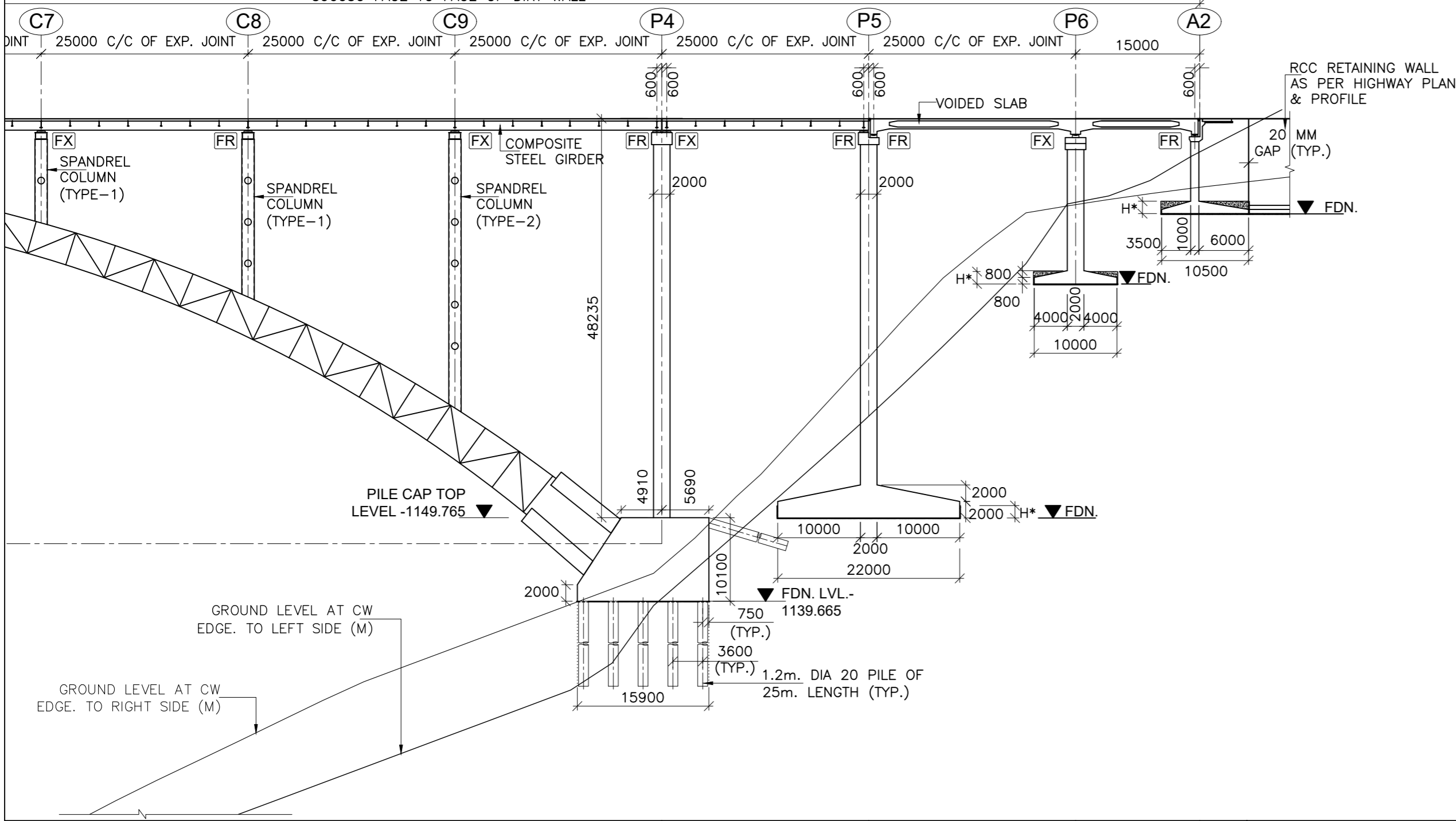
CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
 (MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
 GOVERNMENT OF INDIA

CONSULTANT:  
  
**RODIC CONSULTANTS PVT. LTD.**  
 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
 NEW DELHI - 110001 (INDIA)  
 In Association with  
  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550  
**TENDER DRAWING**  
 Scale :-  
 As Shown

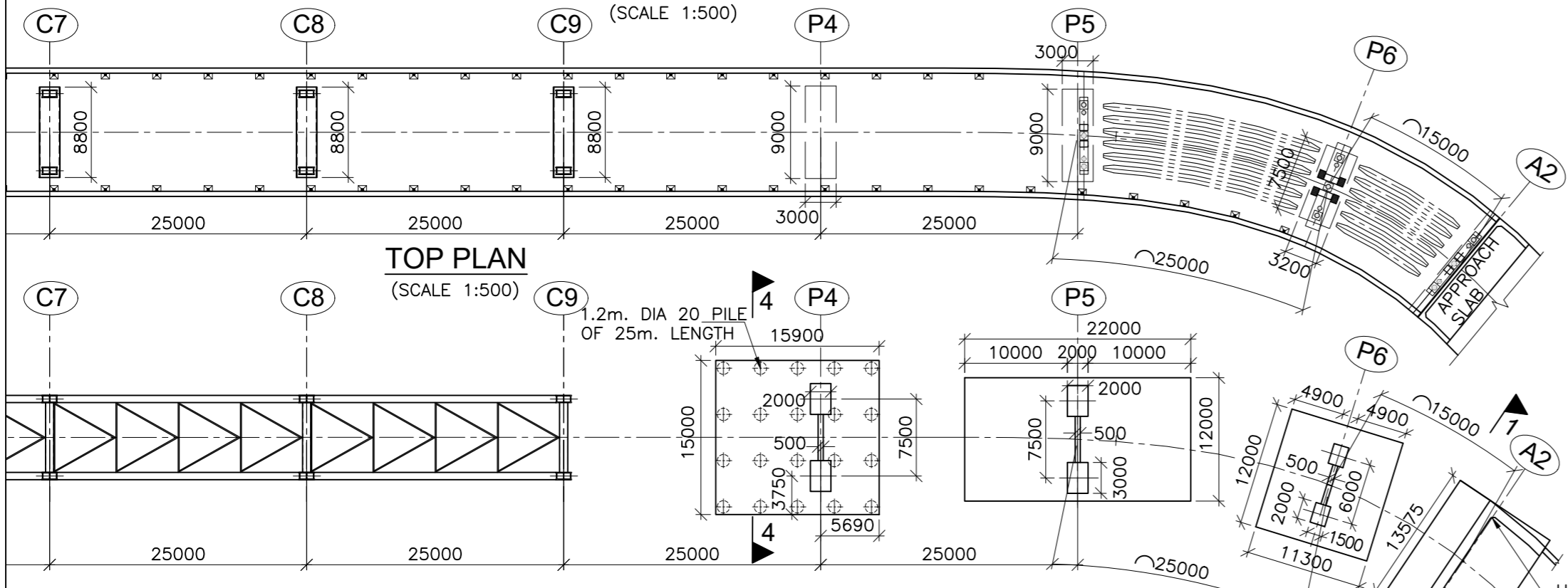
Project:-  
**CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR**  
 Drawing Title  
 Sheet size: A2  
 Drawing No. NHIDCL/NH244/KHELLANI - CHATTROO/ MJB/89+121/02/R1  
 Annex III

←KHELLANI 390050 FACE TO FACE OF DIRT WALL CHATTROO→

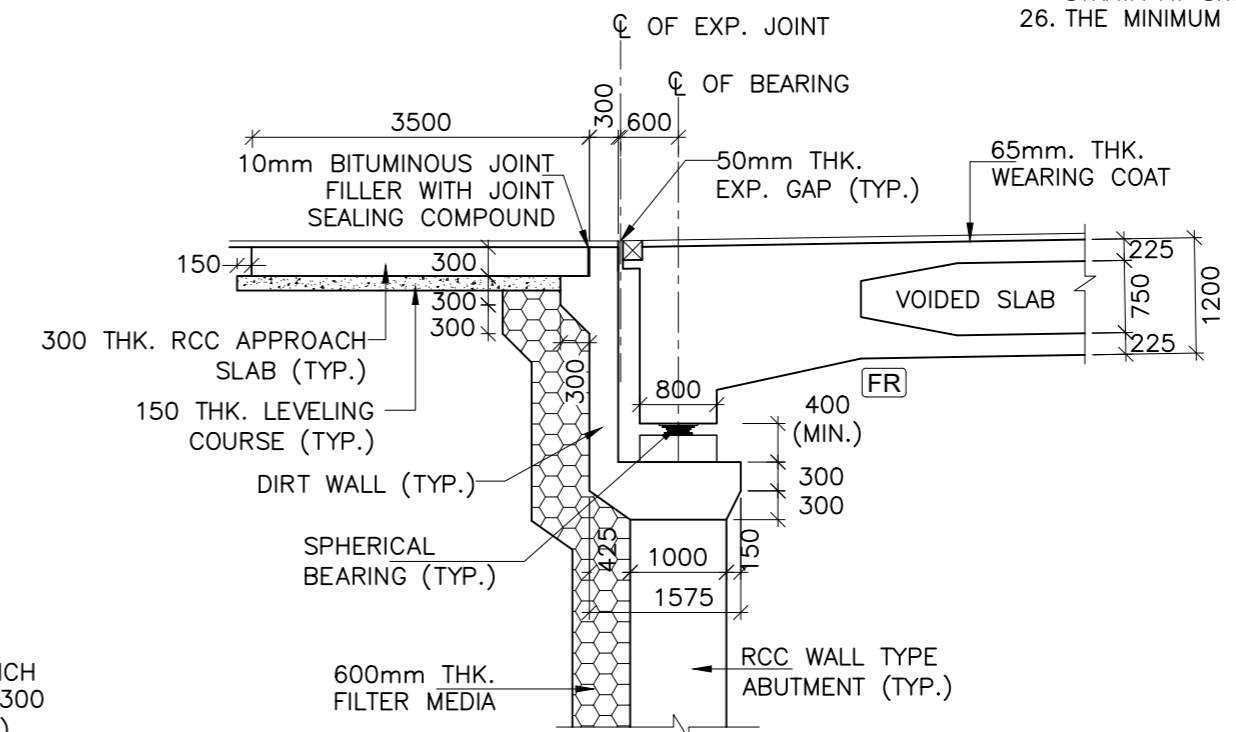


89+176	89+201	89+226	89+251	89+276	89+301	89+316	CHAINAGE (Km)
							FORMATION LEVEL (m)
							LOWEST GROUND LEVEL (m)
							FOUNDING LEVEL (m)

SECTIONAL ELEVATION OF PROPOSED BRIDGE



TOP PLAN (SCALE 1:500)  
BOTTOM PLAN (SCALE 1:500)



DETAIL- 'A' (SCALE 1:75)

- NOTE:-**
- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
  - THE BRIDGE IS DESIGNED FOR GOVERNING CASE OF FOLLOWING
    - ONE LANE OF IRC CLASS 70R + ONE LANE OF IRC CLASS A WITHOUT FOOTPATH
    - ONE LANE OF IRC CLASS 70R OR TWO LANE OF IRC CLASS A WITH FOOTPATH
    - IRC CLASS SV LOADING: SPECIAL MULTI AXLE HYDRAULIC TRAILER VEHICLE (PRIME MOVER WITH 20 AXLE TRAILER-GW=385 Tonnes)
  - CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS :-
 

RCC GIRDER & RCC CAST-IN-SITU DECK SLAB	-35 MPa
ABUTMENT, ABUTMENT CAP, DIRT WALL & FOUNDATION	-35 MPa
PIER, PIER FOUNDATION	-35 MPa
PEDESTAL PIER	-45 MPa
RCC CRASH BARRIER	-40 MPa
RCC APPROACH SLAB	-30 MPa
LEVELING COURSE UNDER APPROACH SLAB	-15 MPa
LEVELING COURSE UNDER FOUNDATION	-10 MPa
PEDESTAL & SEISMIC RESTRAINER	-45 MPa
  - THE REINFORCING BARS SHALL BE OF THERMO MECHANICAL TREATED HYSD (GRADE DESIGNATION Fe-500D) CONFORMING TO IS:1786 STANDARDS.
  - GRADE OF STRUCTURAL STEEL SHALL BE E450 FOR ARCH RIB, SPANDREL COLUMN, LONGITUDINAL GIRDER OF SUPERSTRUCTURE AND FOR OTHER MEMBERS SHALL BE OF E350 CONFORMING TO IS 2062.
  - CLEAR COVER TO OUTER MOST STEEL SHALL BE AS UNDER:-
    - FOR SUPER STRUCTURE -50mm
    - FOR FOUNDATION -75mm
    - FOR SUBSTRUCTURE:
      - EARTH FACE -75mm
      - NON EARTH FACE -50mm
  - 65mm THK. WEARING COURSE COMPRISING OF 40mm THK. ASPHALTIC CONCRETE OVER LAID WITH 25mm THK. MASTIC ASPHALT SHALL BE PROVIDED AS PER SECTION 500 OF MORTH SPECIFICATIONS.
  - SPHERICAL BEARINGS SHALL BE DESIGNED AS PER PROVISION OF IRC : 83 (PART-IV 2014).
  - STRIP SEAL TYPE EXPANSION JOINTS SHALL BE PROVIDED AS PER PROVISION OF SP-69.
  - BACK FILLING BEHIND ABUTMENT SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX:6 OF IRC:78-2014 HAVING PROPERTIES  $c=0$ ,  $\phi \geq 35^\circ$ ,  $\delta=22.5^\circ$  &  $y_d = 20 \text{ KN/m}^3$
  - 100mm DIA WEEP HOLES AT 1000mm C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER IN VERTICAL WALLS OF THE ABUTMENT SHAFT AND RETURN WALL FROM 150mm ABOVE G.L. IN ONE OR TWO LAYERS AT A SLOPE OF 1 VERTICAL TO 20 HORIZONTAL TOWARDS THE DRAINING FACE.
  - WATER TO BE USED IN CONCRETING & CURING SHALL CONFORM TO CLAUSE 18.8.4(4) IRC : 112:2011.
  - SAFE BEARING CAPACITY ASSUMED IN DESIGN AT PROPOSED FOUNDING LEVEL IS  $40 \text{ t/m}^2$ . THIS SHALL BE ASCERTAINED BEFORE EXECUTION OF WORK AT SITE.
  - SAFE LOAD CAPACITY OF PILE CONSIDERED IS 650 TON AND SAME SHALL BE CONFIRMED AT SITE PRIOR TO EXECUTION OF WORK.
  - INITIAL LOAD TEST ON TEST PILE SHALL BE CARRIED OUT TO RE-CONFIRM THE ACTUAL VERTICAL AND LATERAL CARRYING CAPACITY OF PILE.
  - THE BRIDGE IS DESIGNED FOR SEISMIC ZONE-V
  - MODERATE CONDITION OF EXPOSURE SHALL BE CONSIDERED IN DESIGN.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY DRAWING. FRL & CAMBER, SUPER ELEVATION AT PARTICULAR LOCATION SHALL BE VERIFIED WITH THE HIGHWAY DRAWINGS.
  - ALL STRUCTURAL STEEL AND BOLTS SHALL BE HOT DIP GALVANIZED.
  - MAXIMUM SOCKETING LENGTH OF THE PILE IN ROCK IS 7.0m, WHERE  $(CR+RD)/2$  OF ROCK > 30%.
  - PERMANENT STEEL LINER IN PILE MAY BE PROVIDED BASED ON SOIL STRATA AT SITE.
  - THE MINIMUM EMBEDMENT OF THE FOUNDATIONS INTO THE ROCK BELOW

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
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R1	Dec :-2020	

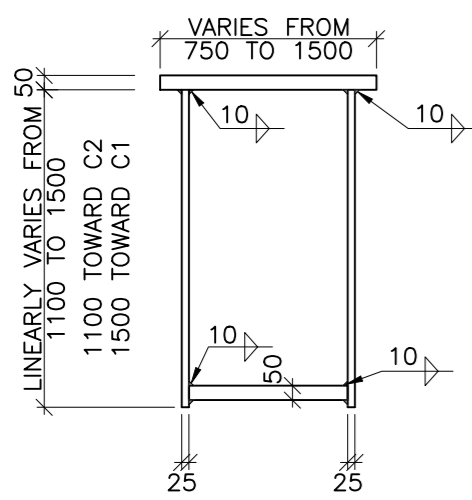
CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
 (MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
 GOVERNMENT OF INDIA

CONSULTANT:  
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 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA)  
 In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550  
 Design: HB  
 Drawn: SB  
 Designed: VT  
 Approved: AM

Project:- **CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR**

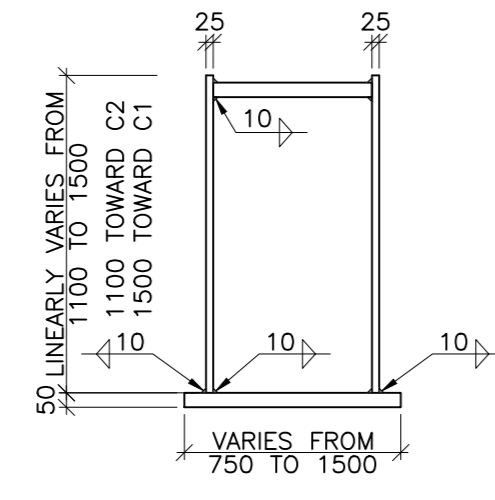
TENDER DRAWING  
 Scale :- As Shown  
 Drawing Title: GENERAL ARRANGEMENT DRAWING OF MAJOR BRIDGE AT CH. 89+121  
 Sheet size: A2  
 Drawing No.: NHIDCL/NH244/KHELLANI - CHATTROO/ MJB/89+121/03/R1  
 Annex III



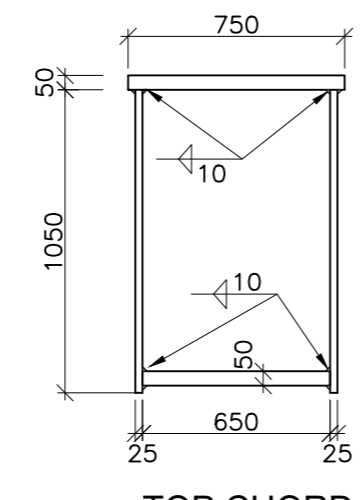
**TOP CHORD**

**(BETWEEN COLUMN P3 TO C1 AND C9 TO P4)**

(SCALE 1:25)



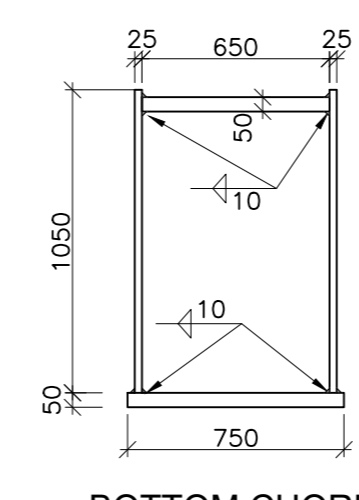
**BOTTOM CHORD**



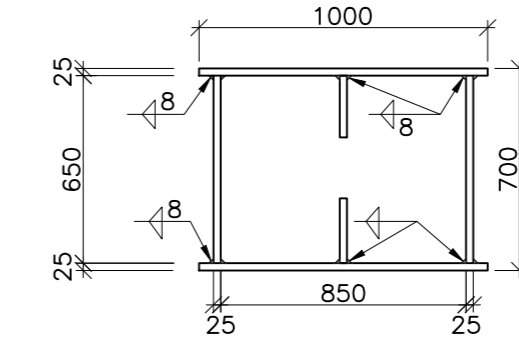
**TOP CHORD**

**(BETWEEN COLUMN C1 TO C9)**

(SCALE 1:25)

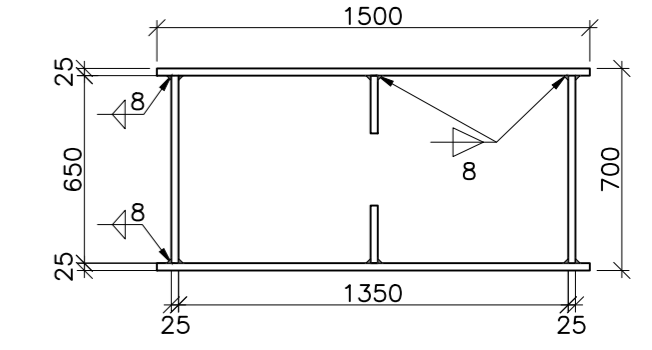


**BOTTOM CHORD**



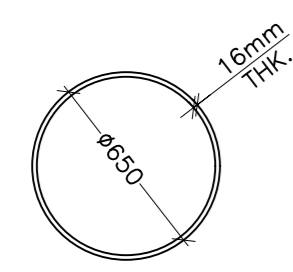
**SPANDREL COLUMN (TYPE-1)**

(SCALE 1:25)



**SPANDREL COLUMN (TYPE-2)**

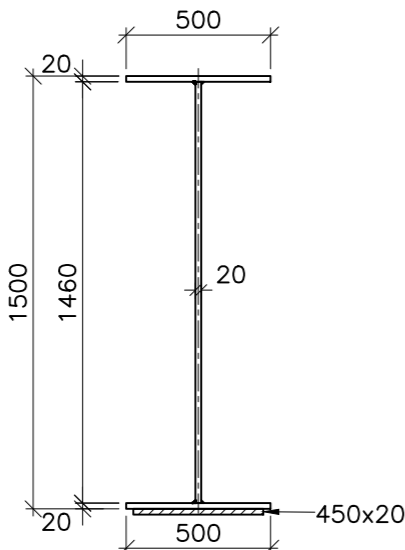
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**650 DIA PIPE**

**FOR TOP AND BOTTOM BRACING OF ARCH RIB**

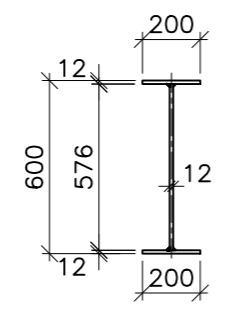
(SCALE 1:25)



**25.0m SPAN**

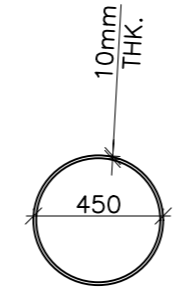
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**DETAILS OF MAIN GIRDER**



**INTERMEDIATE CROSS GIRDER**

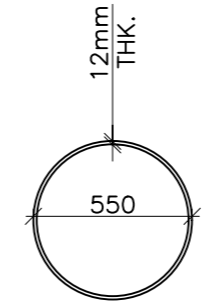
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**450 DIA PIPE**

**VERTICAL MEMBER**

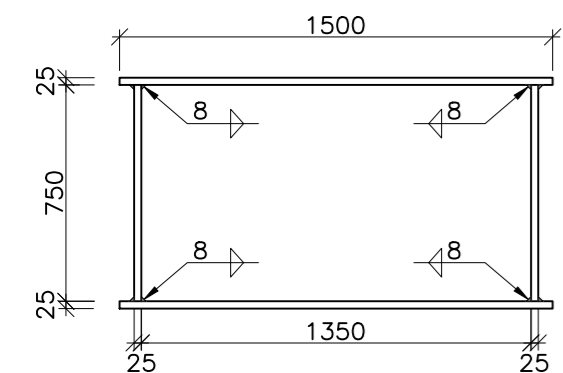
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**550 DIA PIPE**

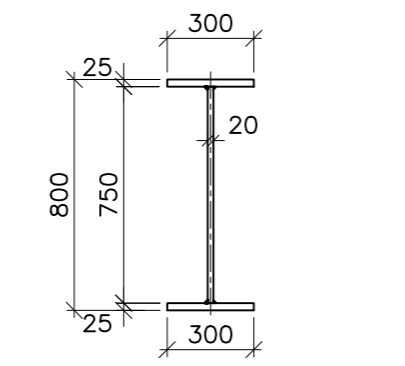
**DIAGONAL MEMBER**

(SCALE 1:25)



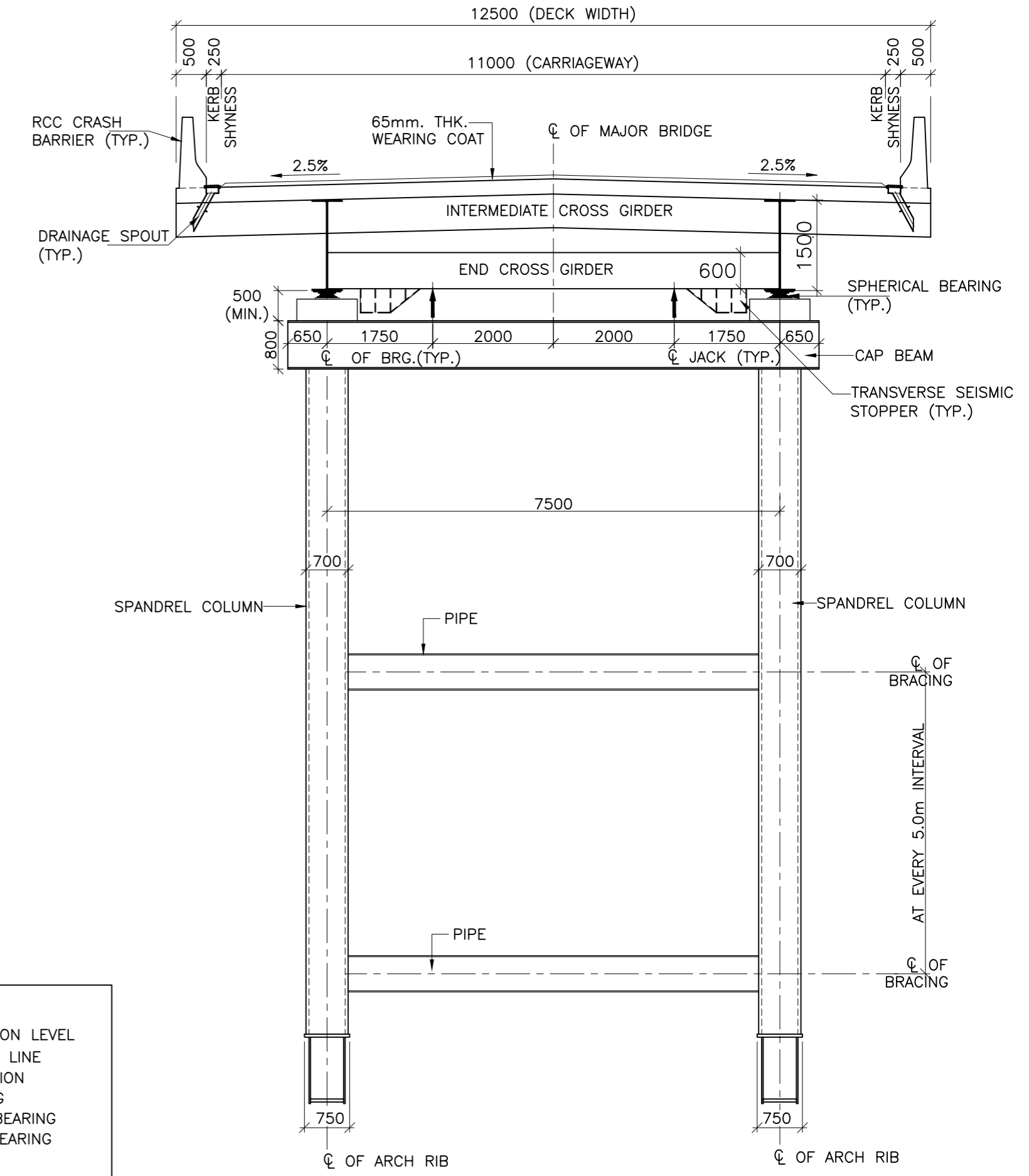
**CAP BEAM**

(SCALE 1:25)



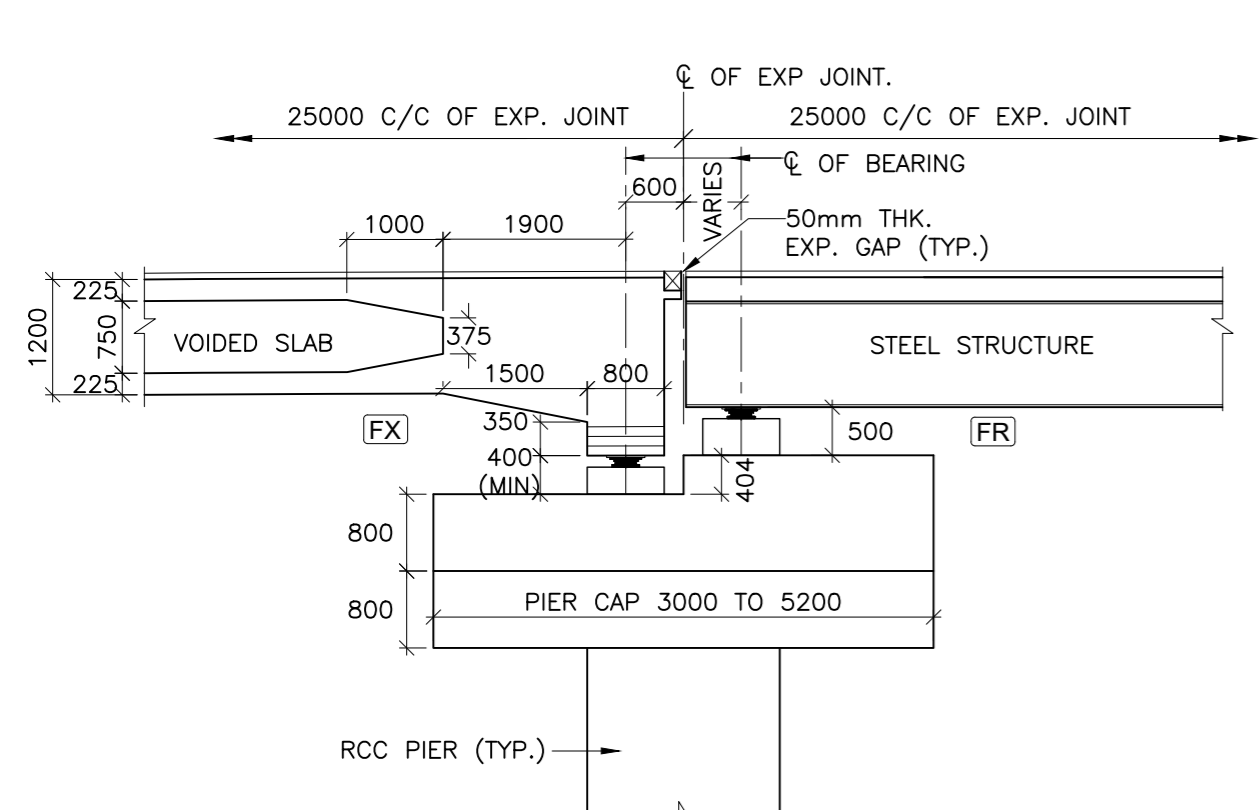
**END CROSS GIRDER**

(SCALE 1:25)



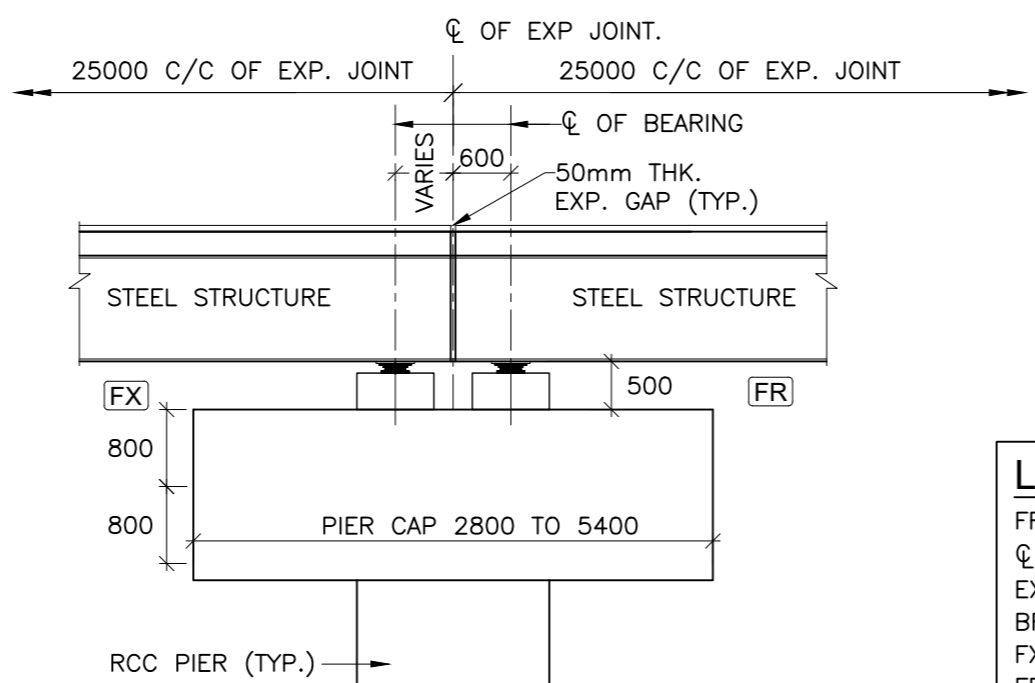
**SECTION 3-3**

(SCALE 1:75)



**DETAIL- 'B'**

(SCALE 1:75)



**DETAIL- 'C'**

(SCALE 1:75)

**LEGENDS:-**

- FRL. : FORMATION LEVEL
- CL : CENTER LINE
- EXP. : EXPANSION
- BRG. : BEARING
- FX : FIXED BEARING
- FR : FREE BEARING
- LVL. : LEVEL
- TYP. : TYPICAL
- THK. : THICKNESS
- L.B.L. : LOWEST BED LEVEL
- FDN. : FOUNDING LEVEL
- MM. : MILLIMETERS

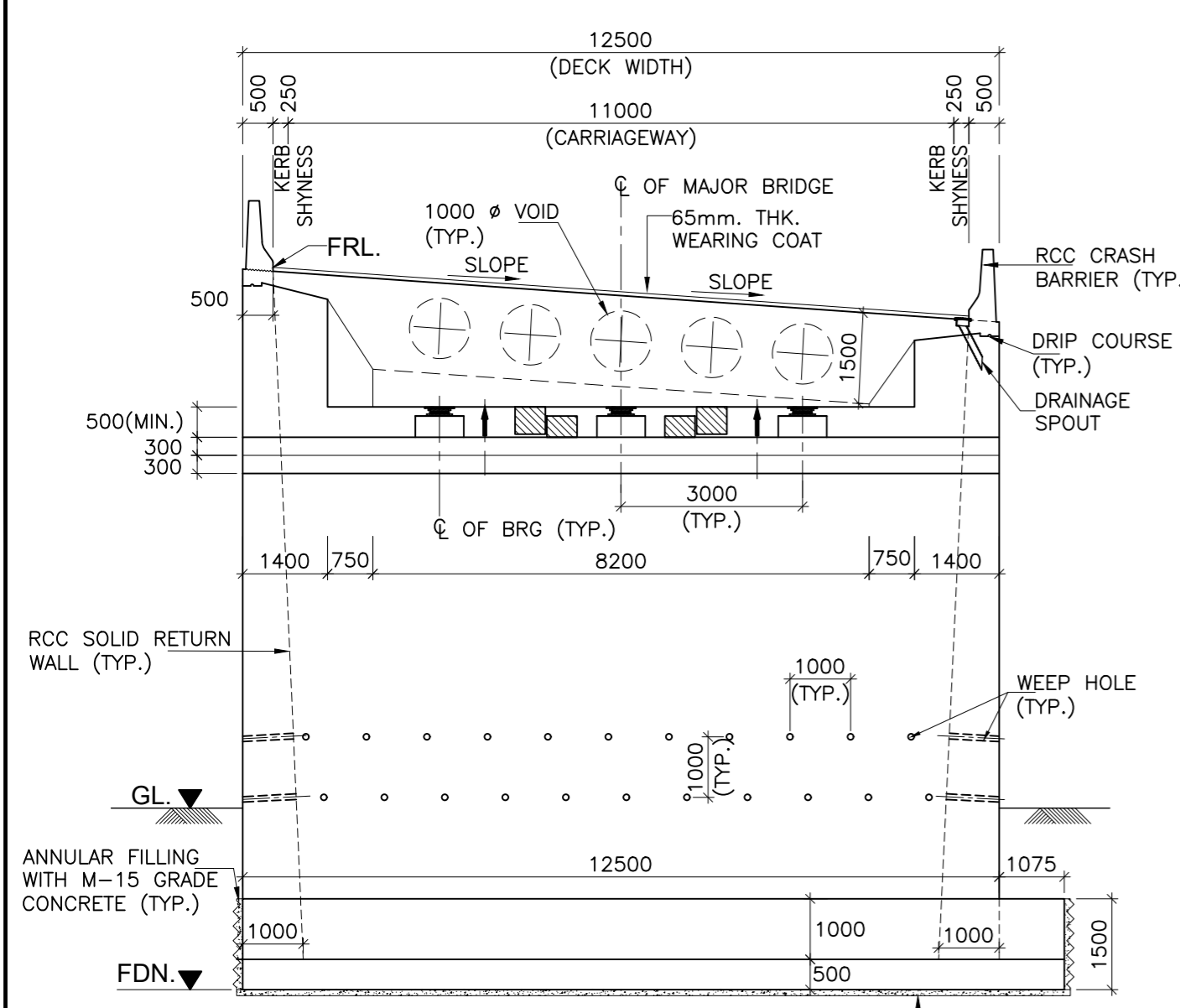
ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
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 GOVERNMENT OF INDIA

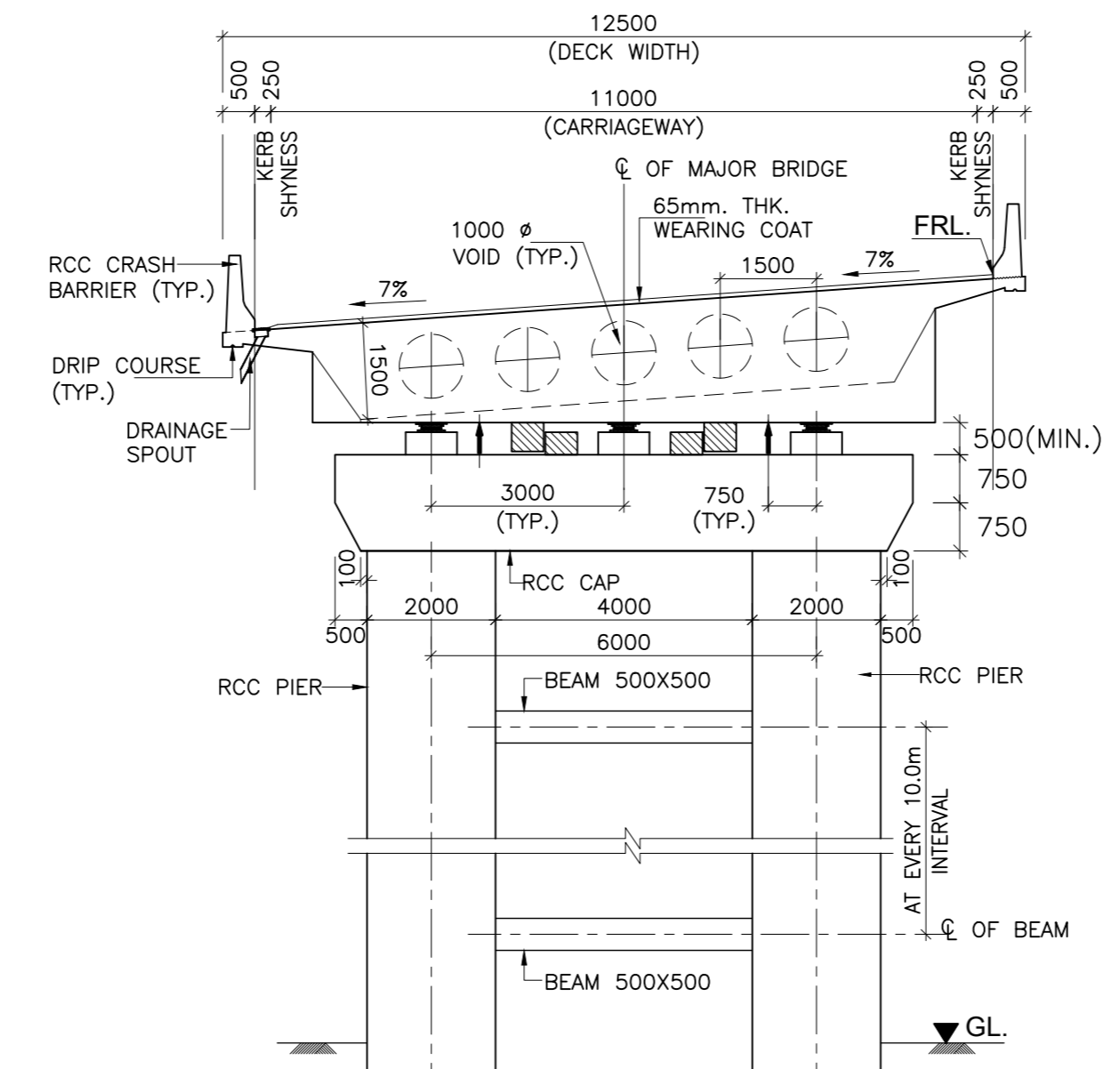
CONSULTANT:  
**RODIC CONSULTANTS PVT. LTD.**  
 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA)  
 In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550	<b>TENDER DRAWING</b>
Designed: HB	Scale :-
Drawn: SB	As Shown
Designed: VT	
Approved: AM	

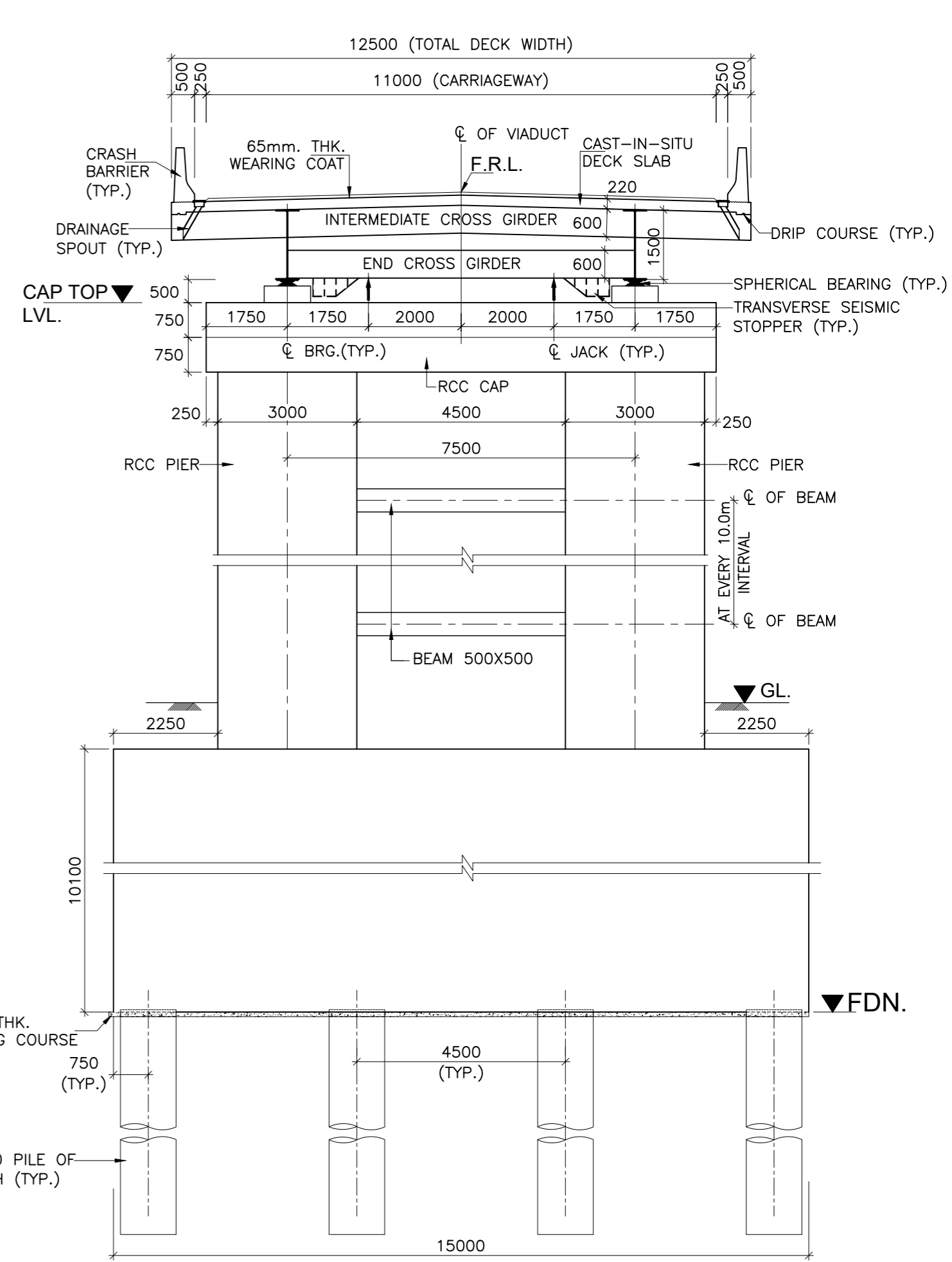
Project:-	<b>CONSTRUCTION &amp; UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 &amp; LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR</b>
Drawing Title	GENERAL ARRANGEMENT DRAWING OF MAJOR BRIDGE AT CH. 89+121
Sheet size: A2	Annex III
Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/ MJB/89+121/04/R1



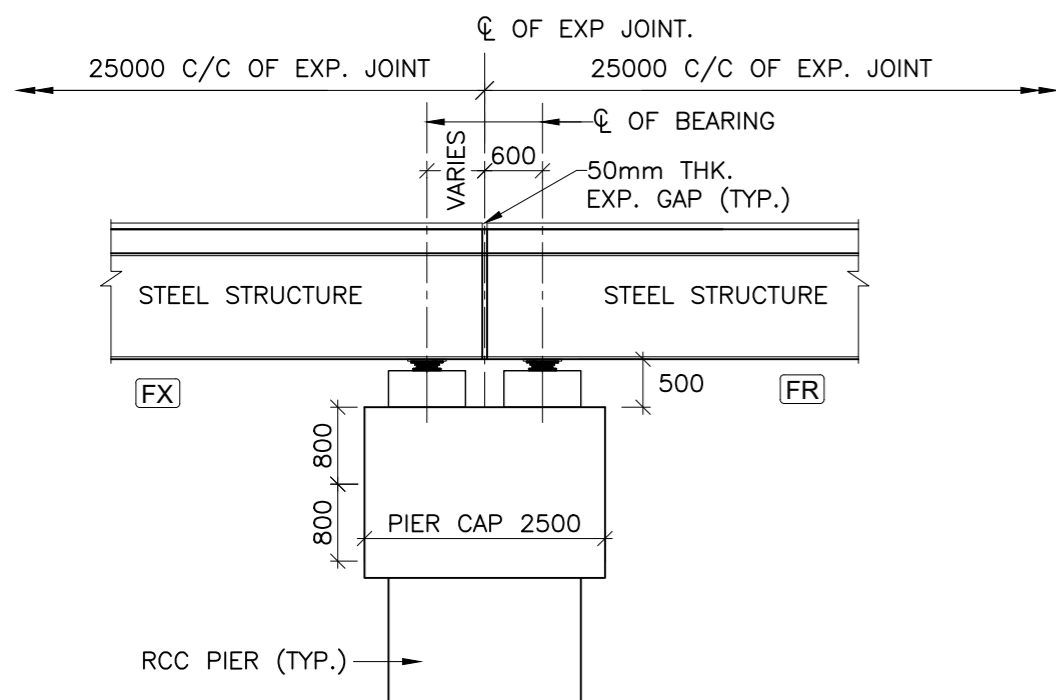
**SECTION 1-1**  
(SCALE 1:100)



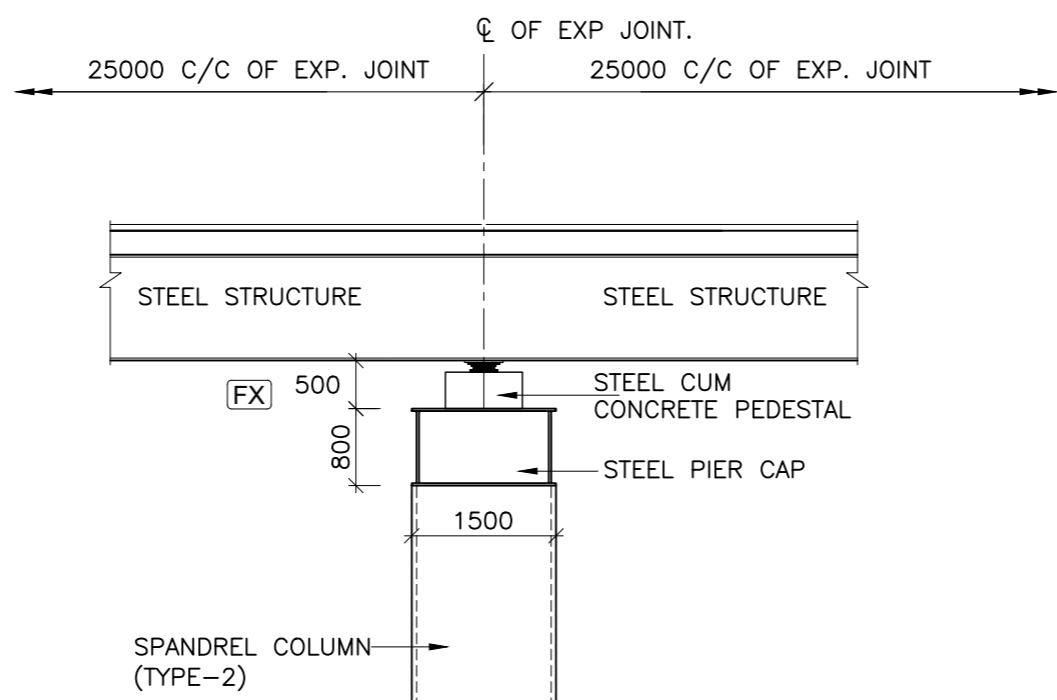
**SECTION 2-2**  
(SCALE 1:100)



**SECTION 4-4**  
(SCALE 1:100)



**DETAIL- 'D'**  
(SCALE 1:75)



**DETAIL- 'E'**  
(SCALE 1:75)

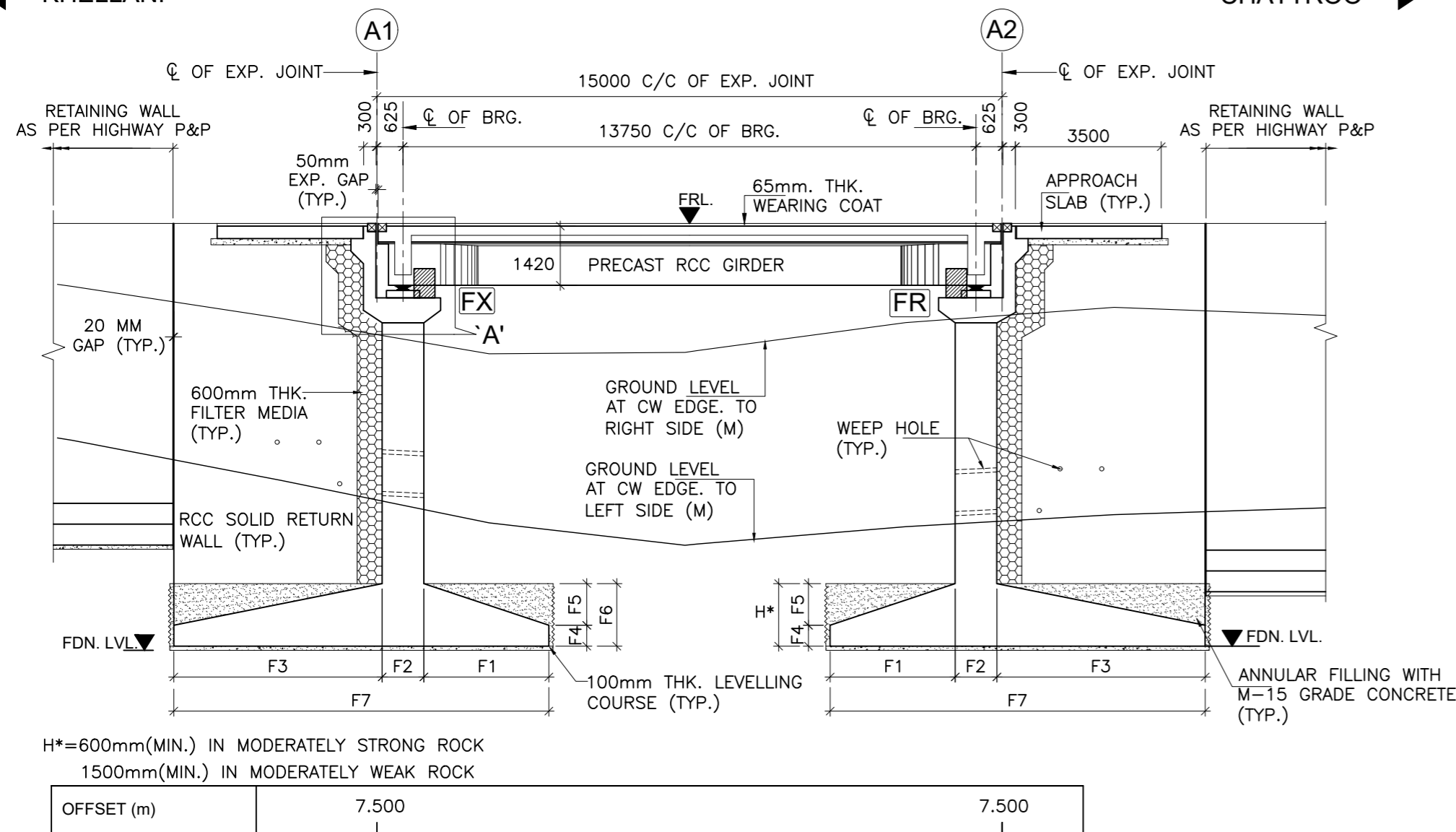
APPROXIMATE WEIGHT OF STRUCTURAL STEEL IN ARCH AND SUPPORTED SUPERSTRUCTURE ABOVE=5600MT (INCLUDING WEIGHT OF BOLT AND SPLICING PLATE)

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT	Project:-	Drawing Title
R0	Oct :-2020		<b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	<b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) <b>In Association with</b> <b>Monarch Surveyors and Engineering Consultants Pvt. Ltd.,</b>	From Design Km. 80+675 to Km. 95+550	<b>TENDER DRAWING</b>
R1	Dec :-2020				Scale :- As Shown	Drawing No. NHIDCL/NH244/KHELLANI - CHATTROO/ MJB/89+121/05/R1
					Project:- <b>CONSTRUCTION &amp; UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 &amp; LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR</b>	
					Drawing Title: <b>GENERAL ARRANGEMENT DRAWING OF MAJOR BRIDGE AT CH. 89+121</b> Sheet size: A2 Drawing No. NHIDCL/NH244/KHELLANI - CHATTROO/ MJB/89+121/05/R1	
					Annex III	

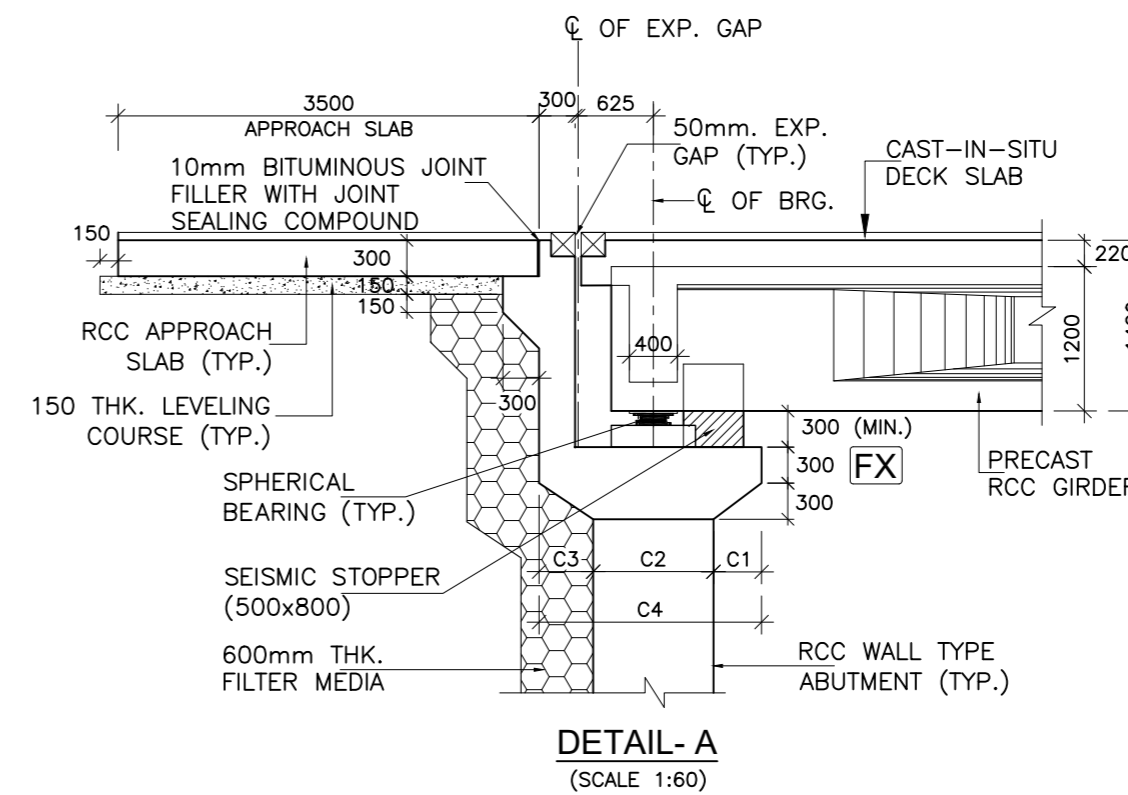
# **MINOR BRIDGES**

← KHELLANI

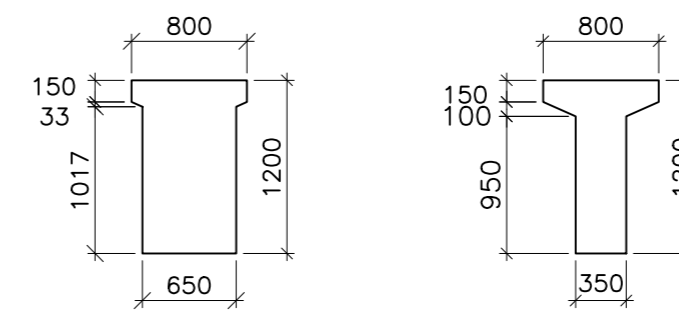
CHATTROO →



**SECTIONAL ELEVATION OF PROPOSED BRIDGE**  
(SCALE 1:125)



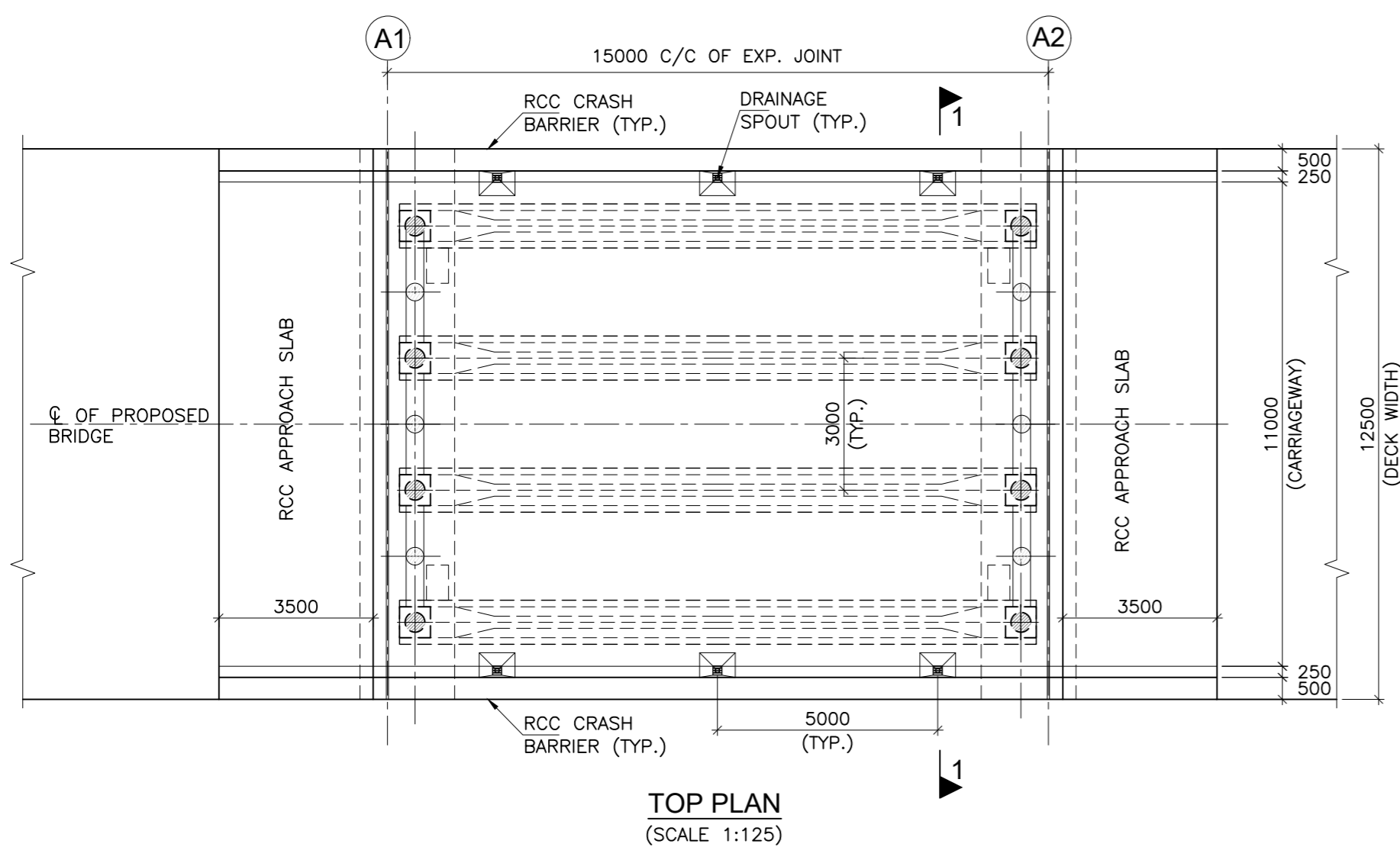
**DETAIL-A**  
(SCALE 1:60)



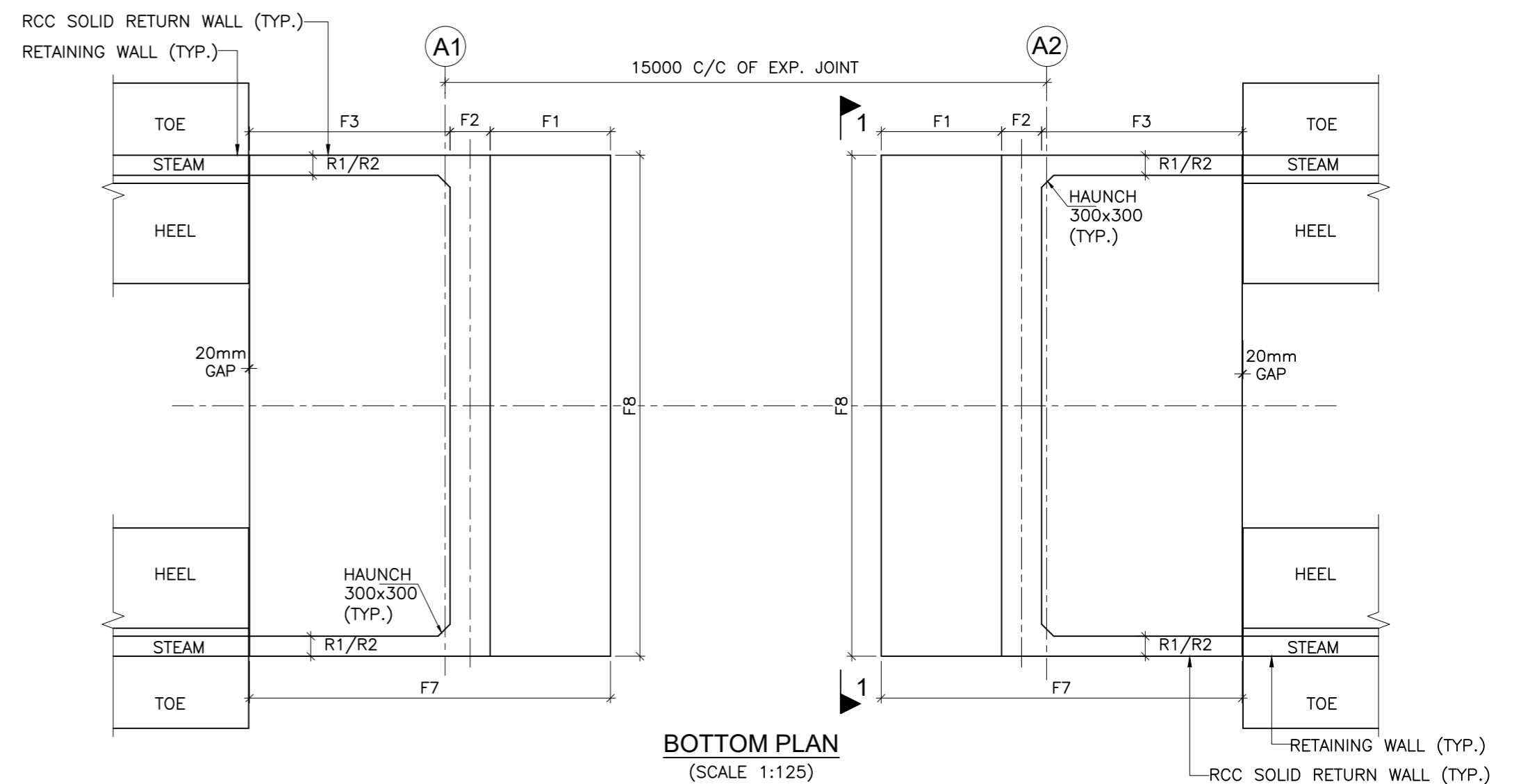
**CROSS SECTION OF PRECAST RCC GIRDER**  
(SCALE 1:50)

**ABBREVIATIONS**

- FRL : FINISHED ROAD LEVEL
- HFL : HIGH FLOOD LEVEL
- RL : REDUCED LEVEL
- LBL : LOWEST BED LEVEL
- CL : CENTER LINE
- LVL : LEVEL
- TYP. : TYPICAL
- THK. : THICK
- FR : FREE BEARING
- FX : FIXED BEARING
- D/S : DOWNSTREAM
- U/S : UPSTREAM
- C/C : CENTER TO CENTER
- GL : GROUND
- FDN : FOUNDATION
- EXP : EXPANSION
- BRG : BEARING
- RCC : REINFORCED CEMENT CONCRETE




**TOP PLAN**  
(SCALE 1:125)




**BOTTOM PLAN**  
(SCALE 1:125)

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
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**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
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GOVERNMENT OF INDIA

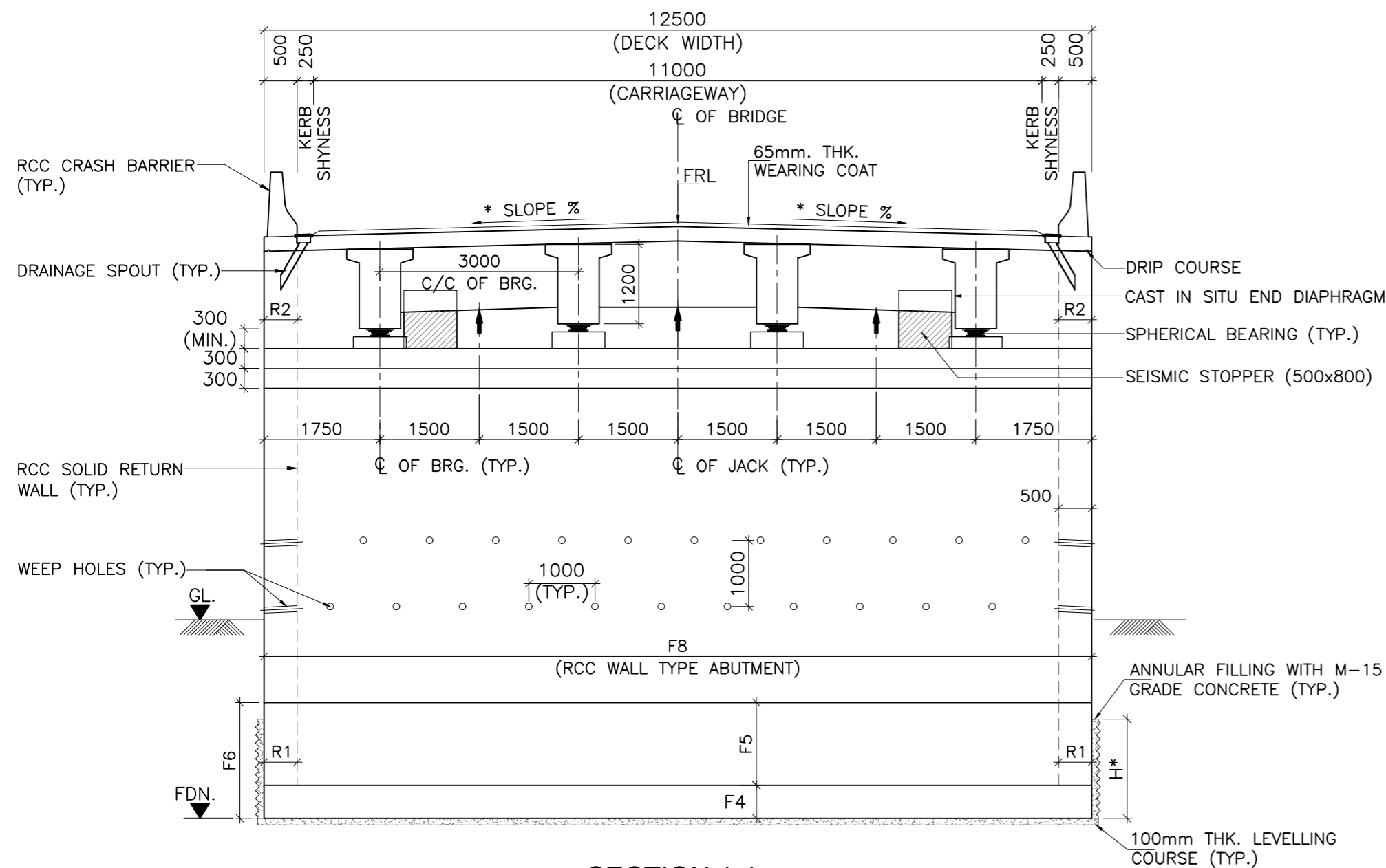


CONSULTANT:  
  
**RODIC CONSULTANTS PVT. LTD.**  
1, JAI SINGH MARG (FIRST FLOOR), YMCA  
CULTURAL CENTRE BUILDING  
NEW DELHI - 110001 (INDIA)  
In Association with  
  
**Monarch Surveyors and Engineering  
Consultants Pvt. Ltd.,**

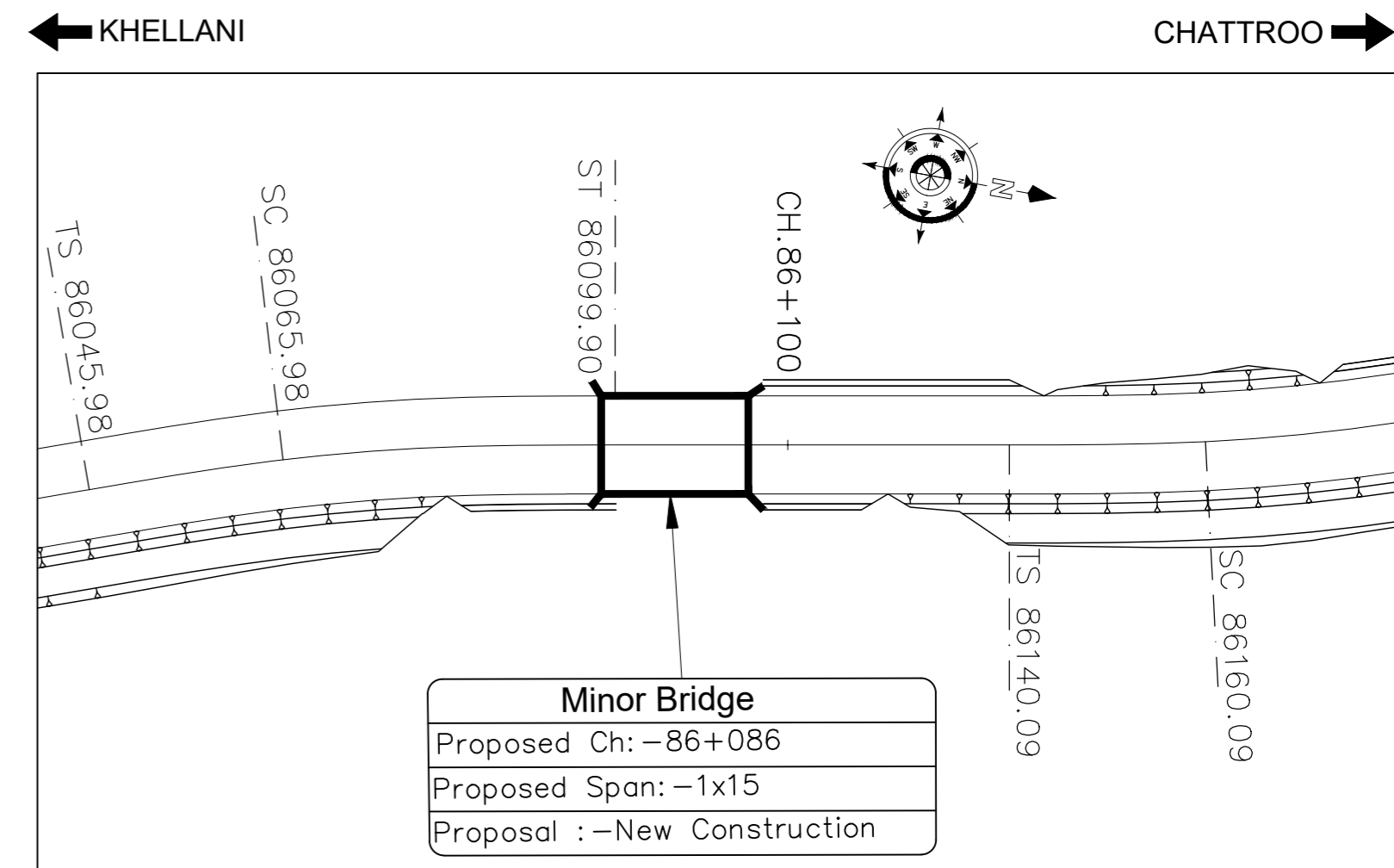
From Design Km. 80+675 to Km. 95+550	
Designed: AK	Scale :-
Drawn: KS	As Shown
Designed: VT	
Approved: AM	

<b>TENDER DRAWING</b>	Project:-
	Drawing Title
	Sheet size: A2
	Drawing No.

<b>CONSTRUCTION &amp; UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 &amp; LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR</b>	
GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT CH.86+086	
NHIDCL/NH244/KHELLANI - CHATTROO/MNB/86+086/01/R1	
Annex III	



**SECTION 1-1**  
(SCALE 1:75)



**Minor Bridge**  
Proposed Ch: -86+086  
Proposed Span: -1x15  
Proposal: -New Construction

**KEY PLAN**  
(SCALE 1:1000)

**SCHEDULE OF LEVELS & DIMENSIONS:-**

SL.No.	DESCRIPTION	LEVELS (m)			FOOTING DIMENSIONS								ABUTMENT CAP DIMENSIONS				RETURN WALL THICKNESS		REQUIRED SAFE BEARING CAPACITY (t/m <sup>2</sup> )	
		FINISHED ROAD LEVEL (m)	LOWEST GROUND LEVEL (m)	FOUNDING LEVEL (m)	F1(mm)	F2(mm)	F3(mm)	F4(mm)	F5(mm)	F6(mm)	F7(mm)	F8(mm)	C1(mm)	C2(mm)	C3(mm)	C4(mm)	R1(mm)	R2(mm)		
1	CH. 86+086	A1	1198.133	1190.514	1187.514	3300	1200	5400	500	700	1200	9900	12500	400	1000	450	1850	600	500	28
		A2	1198.182	1190.834	1187.514	3300	1200	5400	500	700	1200	9900	12500	400	1000	450	1850	600	500	

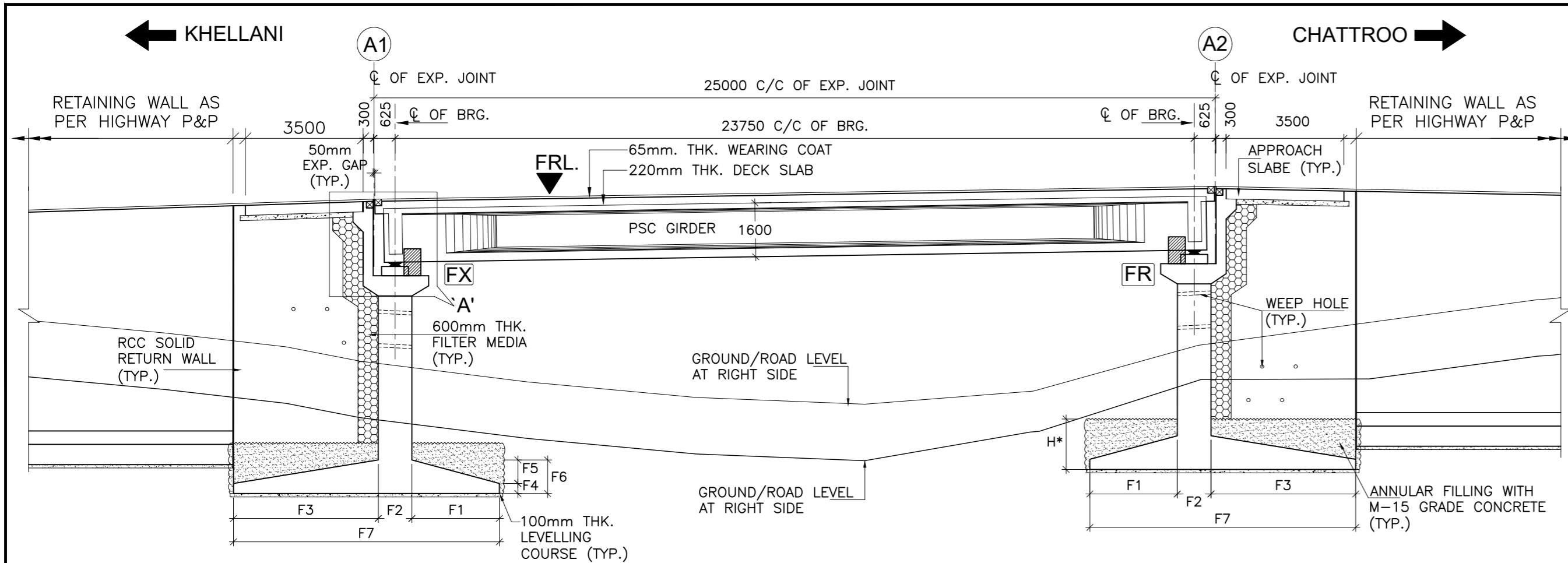
**NOTE:-**

- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
- THE BRIDGE IS DESIGNED FOR GOVERNING CASE OF FOLLOWING:
  - ONE LANE OF IRC CLASS 70R + ONE LANE OF IRC CLASS A.
  - THREE LANE OF IRC CLASS A
  - IRC CLASS SV LOADING: SPECIAL MULTI AXLE HYDRAULIC TRAILER VEHICLE (PRIME MOVER WITH 20 AXLE TRAILER-GW=385 Tonnes)
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS :-
 

RCC GIRDER	-35 MPa
RCC CAST-IN-SITU DECK SLAB	-35 MPa
ABUTMENT, ABUTMENT CAP, DIRT WALL & FOUNDATION	-35 MPa
RCC CRASH BARRIER	-40 MPa
RCC APPROACH SLAB	-30 MPa
LEVELING COURSE UNDER APPROACH SLAB	-15 MPa
LEVELING COURSE UNDER FOUNDATION	-10 MPa
PEDESTAL & SEISMIC RESTRAINER	-45 MPa
- THE REINFORCING BARS SHALL BE OF THERMO MECHANICAL TREATED HYSD (GRADE DESIGNATION Fe-500D) CONFORMING TO IS:1786 STANDARDS.
- CLEAR COVER TO OUTER MOST STEEL SHALL BE AS UNDER:-
  - FOR SUPER STRUCTURE - 50mm
  - FOR FOUNDATION - 75mm
  - FOR SUBSTRUCTURE:
    - EARTH FACE - 75mm
    - NON EARTH FACE - 50mm
- 65mm THK. WEARING COURSE COMPRISING OF 40mm THK. ASPHALTIC CONCRETE OVER LAID WITH 25mm THK. MASTIC ASPHALT SHALL BE PROVIDED AS PER SECTION 500 OF MORTH SPECIFICATIONS.
- SPHERICAL BEARINGS SHALL BE DESIGNED AS PER PROVISION OF IRC : 83 (PART-IV 2014).
- STRIP SEAL TYPE EXPANSION JOINTS SHALL BE PROVIDED AS PER PROVISION OF IRC SP-69.
- BACK FILLING BEHIND ABUTMENT SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX:6 OF IRC:78-2014 HAVING PROPERTIES C=0, φ=35°, δ=22.5° & γd =20 KN/m<sup>3</sup>
- 100mm DIA WEEP HOLES AT 1000mm C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER IN VERTICAL WALLS OF THE ABUTMENT SHAFT AND RETURN WALL FROM 150mm ABOVE G.L IN ONE OR TWO LAYERS AT A SLOPE OF 1 VERTICAL TO 20 HORIZONTAL TOWARDS THE DRAINING FACE.
- WATER TO BE USED IN CONCRETING & CURING SHALL CONFORM TO CLAUSE 18.8.4(4) IRC : 112:2011.
- REQUIRED SAFE BEARING CAPACITY IS MENTIONED IN THE TABLE & SHALL BE ASCERTAINED BEFORE EXECUTION OF WORK AT SITE.
- THE BRIDGE IS DESIGNED FOR SEISMIC ZONE-V
- MODERATE CONDITION OF EXPOSURE SHALL BE CONSIDERED IN DESIGN.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY DRAWING. FRL & CAMBER, SUPER ELEVATION AT PARTICULAR LOCATION SHALL BE VERIFIED WITH THE HIGHWAY DRAWINGS.
- THE MINIMUM EMBEDMENT OF THE FOUNDATIONS INTO THE ROCK BELOW SHALL BE AS FOLLOWS:
 

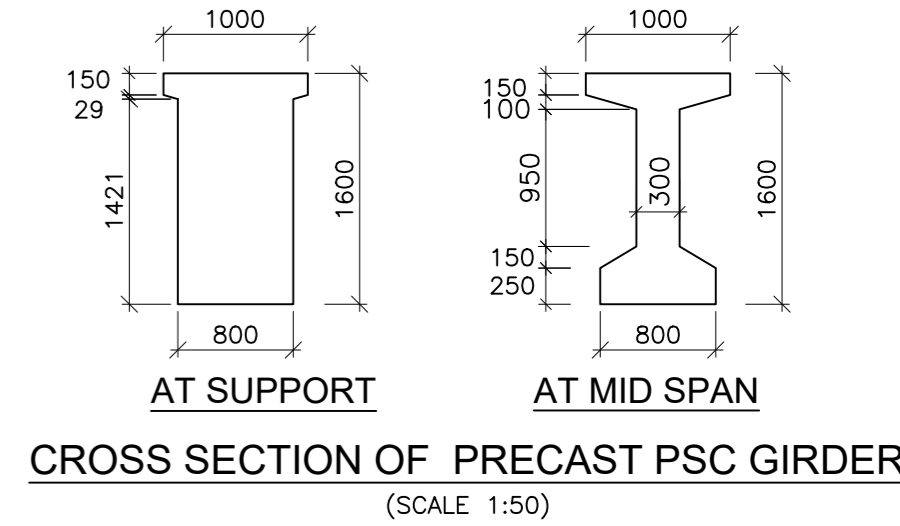
FOR ROCKS OF MODERATELY STRONG	- 0.6M
FOR ROCKS OF MODERATELY WEAK	- 1.5M
- RCC RETAINING WALL SHALL BE PROVIDED UPTO 2M HEIGHT ABOVE GROUND LEVEL. BELOW 2M HEIGHT, PCC TOE WALL SHALL BE PROVIDED.
- PEDESTAL BEARING SHALL BE PLACED BETWEEN TRUE HORIZONTAL SURFACES.

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT	From Design Km. 80+675 to Km. 95+550	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R0	Oct :-2020		NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	RODIC CONSULTANTS PVT. LTD. 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with Monarch Surveyors and Engineering Consultants Pvt. Ltd.,	TENDER DRAWING	Drawing Title GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT CH.86+086	Annex III
R1	Dec :-2020						Sheet size: A2
					Scale :- As Shown	Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/MNB/86+086/02/R1



**ABBREVIATIONS**

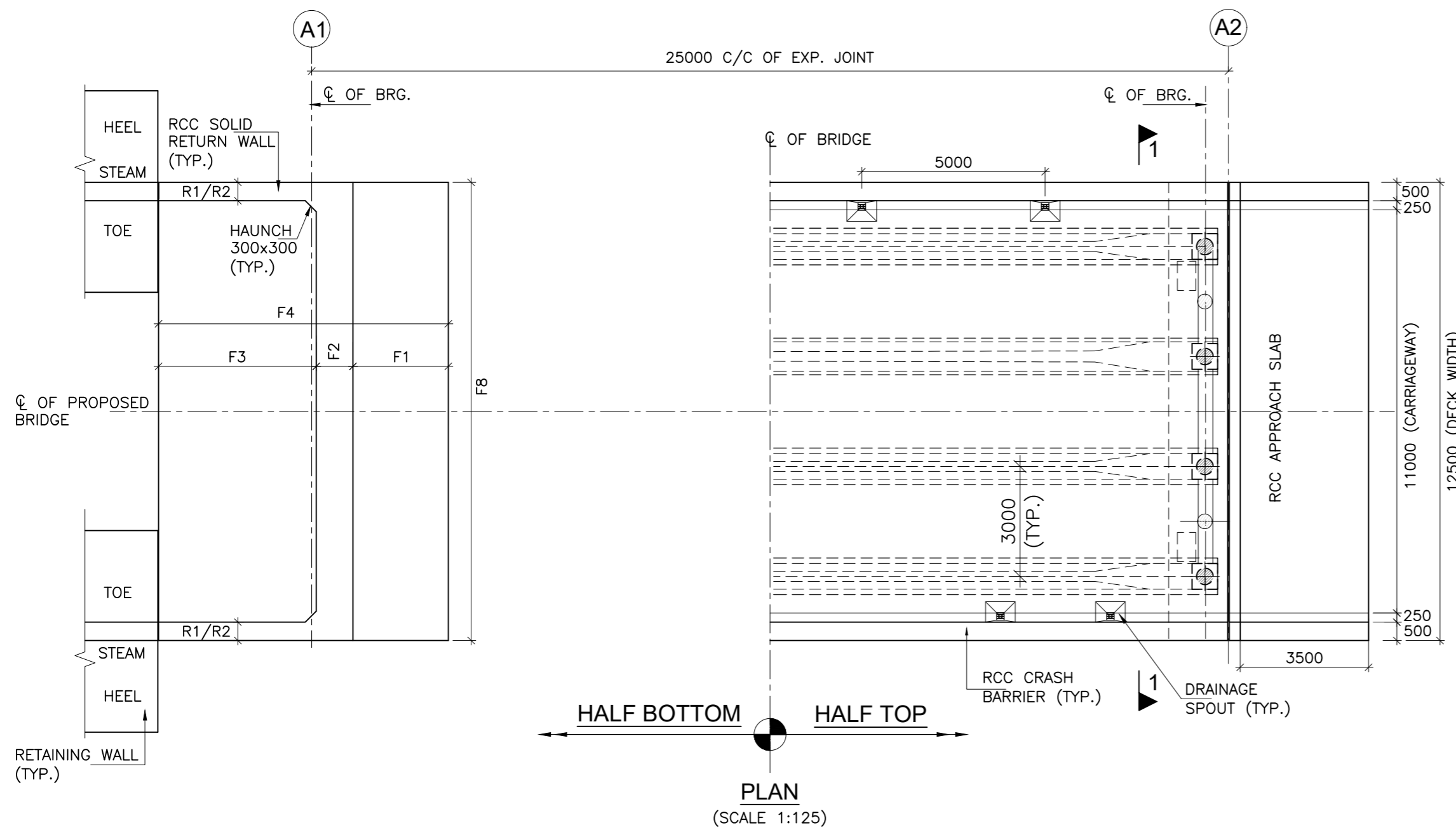
FRL	: FINISHED ROAD LEVEL
HFL	: HIGH FLOOD LEVEL
RL	: REDUCED LEVEL
LBL	: LOWEST BED LEVEL
CL	: CENTER LINE
LVL.	: LEVEL
TYP.	: TYPICAL
THK.	: THICK
FR	: FREE BEARING
FX	: FIXED BEARING
D/S	: DOWNSTREAM
U/S	: UPSTREAM
C/C	: CENTER TO CENTER
GL	: GROUND
FDN	: FOUNDATION
EXP	: EXPANSION
BRG.	: BEARING
RCC	: REINFORCED CEMENT CONCRETE



H\* = 600mm(MIN.) IN MODERATELY STRONG ROCK  
1500mm(MIN.) IN MODERATELY WEAK ROCK

OFFSET (m)	12.500	12.500
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**SECTIONAL ELEVATION OF PROPOSED BRIDGE**  
(SCALE 1:125)



**PLAN**  
(SCALE 1:125)

**NOTE:-**

- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
- THE BRIDGE IS DESIGNED FOR GOVERNING CASE OF FOLLOWING
  - ONE LANE OF IRC CLASS 70R + ONE LANE OF IRC CLASS A.
  - THREE LANE OF IRC CLASS A
  - IRC CLASS SV LOADING: SPECIAL MULTI AXLE HYDRAULIC TRAILER VEHICLE (PRIME MOVER WITH 20 AXLE TRAILER-GVW=385 Tonnes)
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS :-
 

PSC GIRDER	-50 MPa
RCC CAST-IN-SITU DECK SLAB	-40 MPa
ABUTMENT, ABUTMENT CAP, DIRT WALL & FOUNDATION	-35 MPa
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RCC APPROACH SLAB	-30 MPa
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- CLEAR COVER TO OUTER MOST STEEL SHALL BE AS UNDER:-
  - FOR SUPER STRUCTURE -50mm
  - FOR FOUNDATION -75mm
  - FOR SUBSTRUCTURE:
    - EARTH FACE -75mm
    - NON EARTH FACE -50mm
- 65mm THK. WEARING COURSE COMPRISING OF 40mm THK. ASPHALTIC CONCRETE OVER LAID WITH 25mm THK. MASTIC ASPHALT SHALL BE PROVIDED AS PER SECTION 500 OF MORTH SPECIFICATIONS.
- SPHERICAL BEARINGS SHALL BE DESIGNED AS PER PROVISION OF IRC : 83 (PART-IV 2014).
- STRIP SEAL TYPE EXPANSION JOINTS SHALL BE PROVIDED AS PER PROVISION OF IRC:SP-69.
- BACK FILLING BEHIND ABUTMENT SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX:6 OF IRC:78-2014 HAVING PROPERTIES C=0,  $\phi \geq 35^\circ$ ,  $\delta = 22.5^\circ$  &  $\gamma_d = 20 \text{ KN/m}^3$
- 100mm DIA WEEP HOLES AT 1000mm C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER IN VERTICAL WALLS OF THE ABUTMENT SHAFT AND RETURN WALL FROM 150mm ABOVE G.L IN ONE OR TWO LAYERS AT A SLOPE OF 1 VERTICAL TO 20 HORIZONTAL TOWARDS THE DRAINING FACE.
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- THE MINIMUM EMBEDMENT OF THE FOUNDATIONS INTO THE ROCK BELOW SHALL BE AS FOLLOWS:
 

FOR ROCKS OF MODERATELY STRONG	- 0.6M
FOR ROCKS OF MODERATELY WEAK	- 1.5M
- RCC RETAINING WALL SHALL BE PROVIDED UPTO 2M HEIGHT ABOVE GROUND LEVEL. BELOW 2M HEIGHT, PCC TOE WALL SHALL BE PROVIDED.
- PEDESTAL BEARING SHALL BE PLACED BETWEEN TRUE HORIZONTAL SURFACES.

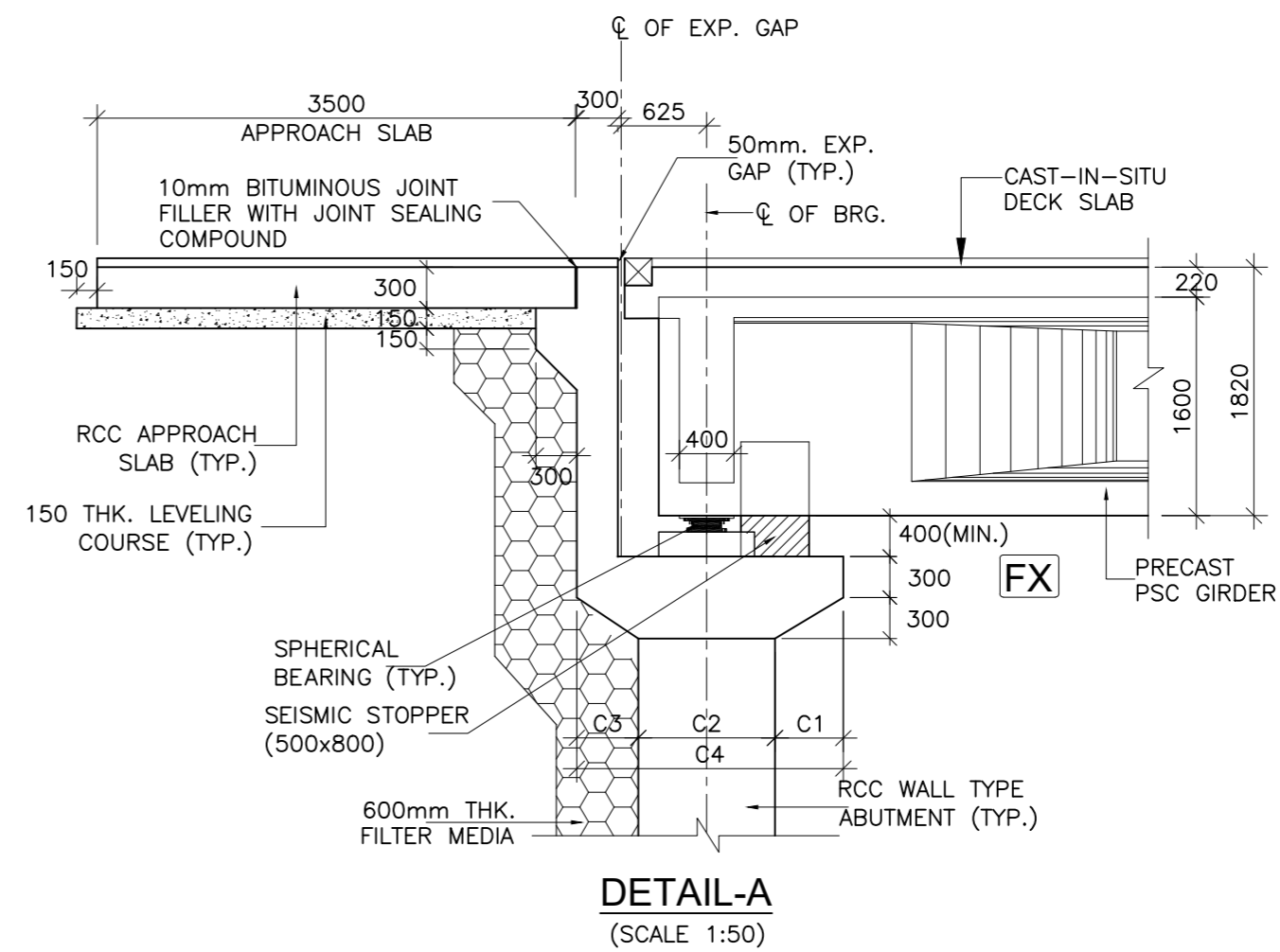
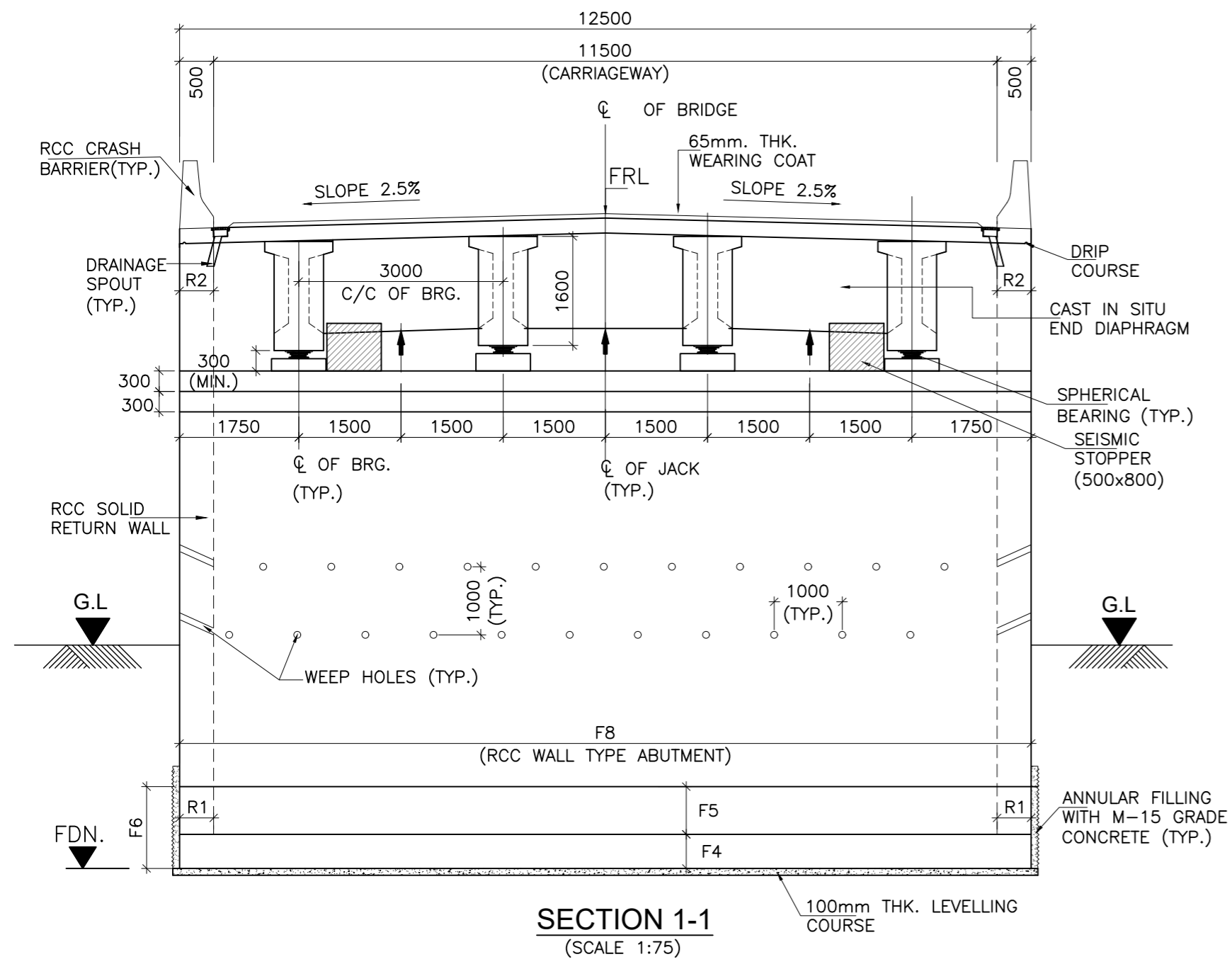
ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
(MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
GOVERNMENT OF INDIA

CONSULTANT:  
**RODIC CONSULTANTS PVT. LTD.**  
1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA)  
In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550	<b>TENDER DRAWING</b>
Designed: AK	Scale :- As Shown
Drawn: KS	
Designed: VT	
Approved: AM	

Project:-	<b>CONSTRUCTION &amp; UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 &amp; LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR</b>
Drawing Title	GENERAL ARRANGEMENT DRAWING FOR 1X25m MINOR BRIDGES (TYPE-1)
Sheet size: A2	Annex III
Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/MNB/TYPE-1/01/R1






**SCHEDULE OF LEVELS & DIMENSIONS:-**

SL.No.	DESCRIPTION	LEVELS (m)			FOOTING DIMENSIONS								ABUTMENT CAP DIMENSIONS				RETURN WALL THICKNESS		REQUIRED SAFE BEARING CAPACITY (t/m <sup>2</sup> )	
		FINISHED ROAD LEVEL (m)	LOWEST GROUND LEVEL (m)	FOUNDING LEVEL (m)	F1(mm)	F2(mm)	F3(mm)	F4(mm)	F5(mm)	F6(mm)	F7(mm)	F8(mm)	C1(mm)	C2(mm)	C3(mm)	C4(mm)	R1(mm)	R2(mm)		
1	CH. 86+805	A1	1199.243	1186.690	1183.690	4800	1750	7950	750	1250	2000	14500	12500	500	1000	450	1950	1300	500	45
		A2	1199.269	1190.548	1187.548	3600	1400	5800	500	1000	1500	10800	12500	500	1000	450	1950	600	500	
2	CH. 86+986	A1	1199.434	1188.351	1185.351	4300	1600	7100	750	1000	1750	13000	12500	500	1000	450	1950	1200	500	40
		A2	1199.461	1188.721	1185.351	4300	1600	7100	750	1000	1750	13000	12500	500	1000	450	1950	1200	500	

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
 (MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
 GOVERNMENT OF INDIA



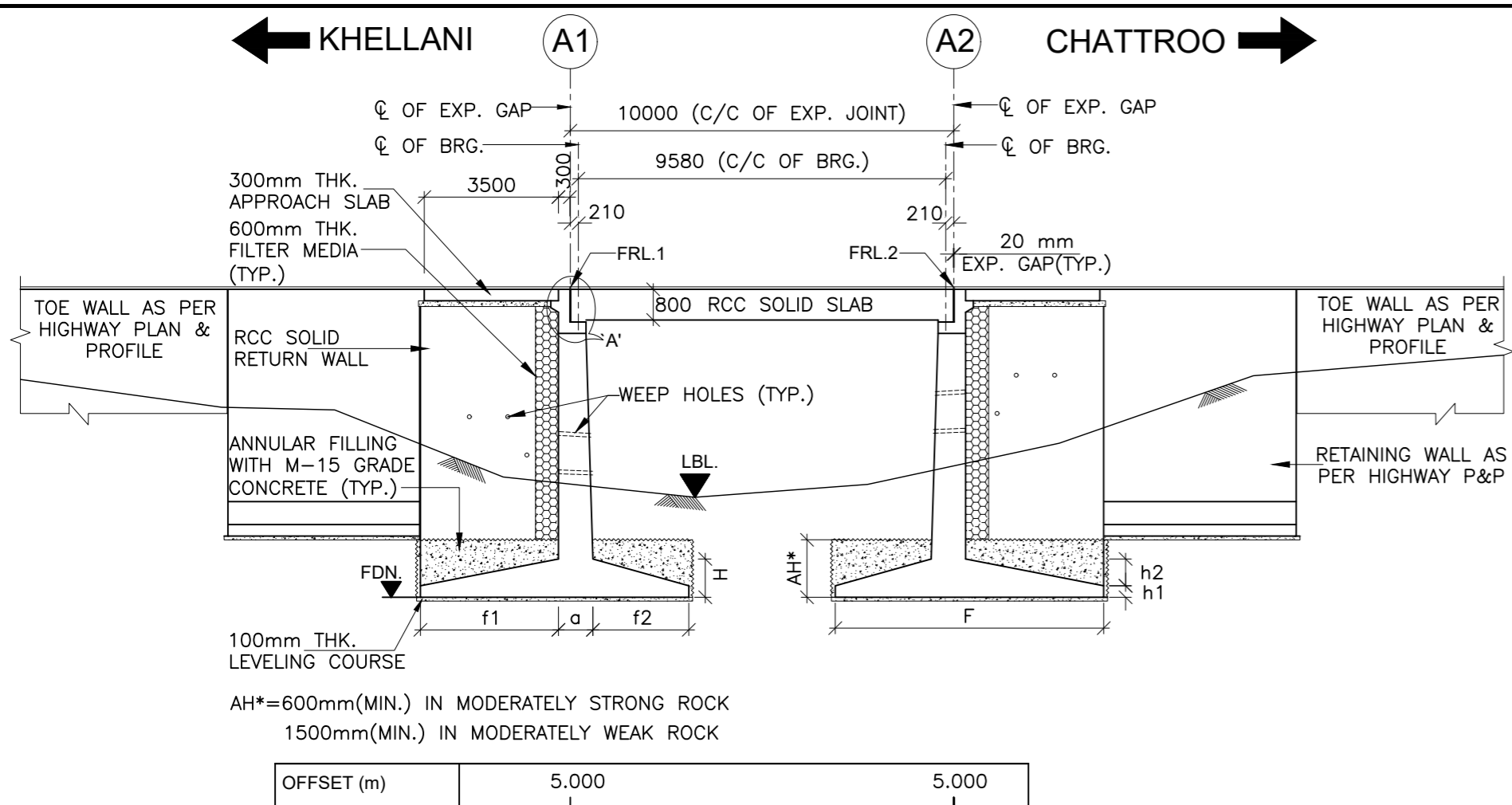
CONSULTANT:  
  
**RODIC CONSULTANTS PVT. LTD.**  
 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
 NEW DELHI - 110001 (INDIA)  
 In Association with  
  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550	
Designed:	AK
Drawn:	KS
Designed:	VT
Approved:	AM

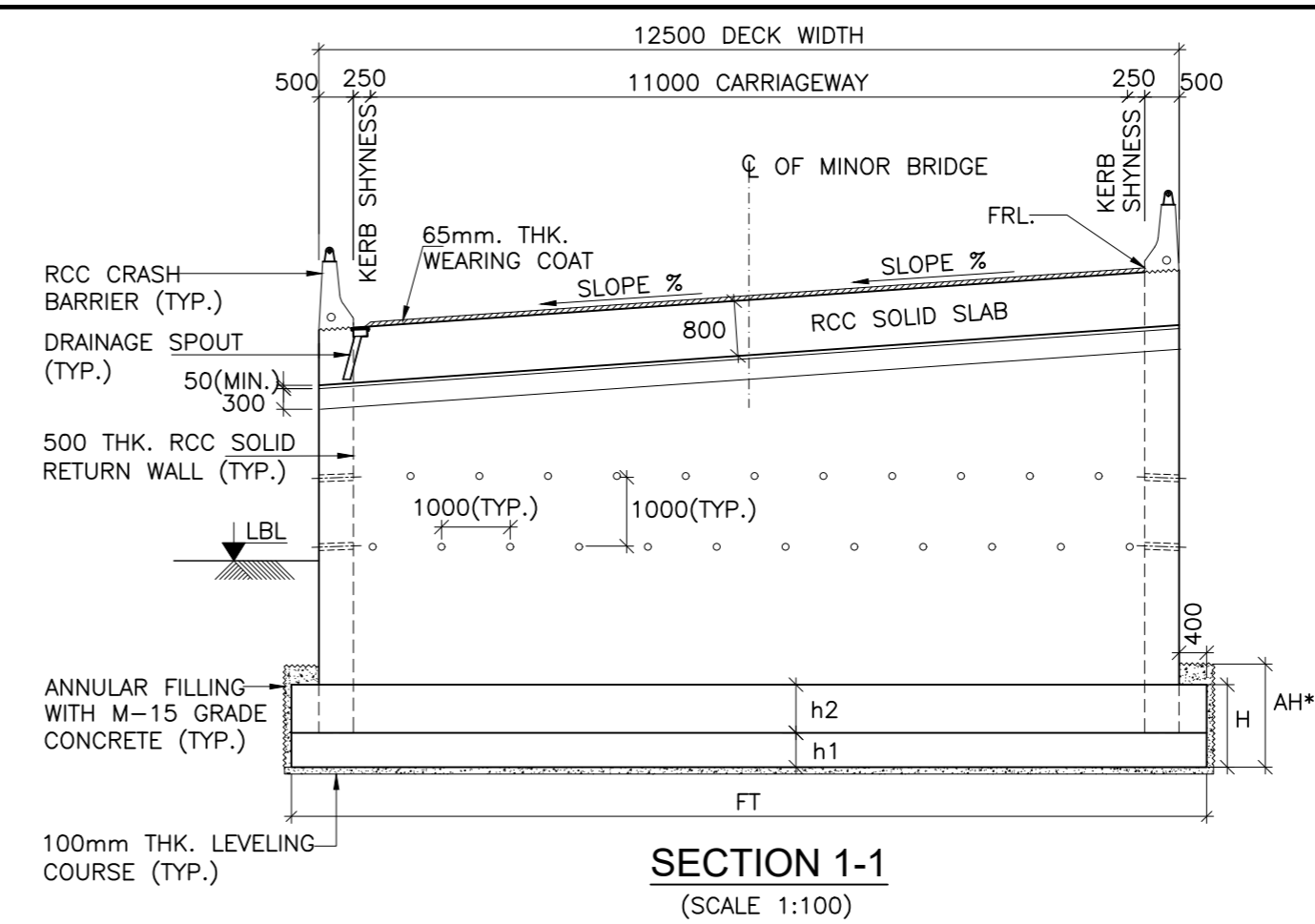
**TENDER DRAWING**

Scale :-  
As Shown

Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
Drawing Title	GENERAL ARRANGEMENT DRAWING FOR 1X25m MINOR BRIDGES (TYPE-1)
Sheet size:	A2
Drawing No.	NHIDL/NH244/KHELLANI - CHATTROO/MNB/TYPE-1/02/R1



**LONGITUDINAL ELEVATION OF PROPOSED BRIDGE**  
(SCALE 1:150)



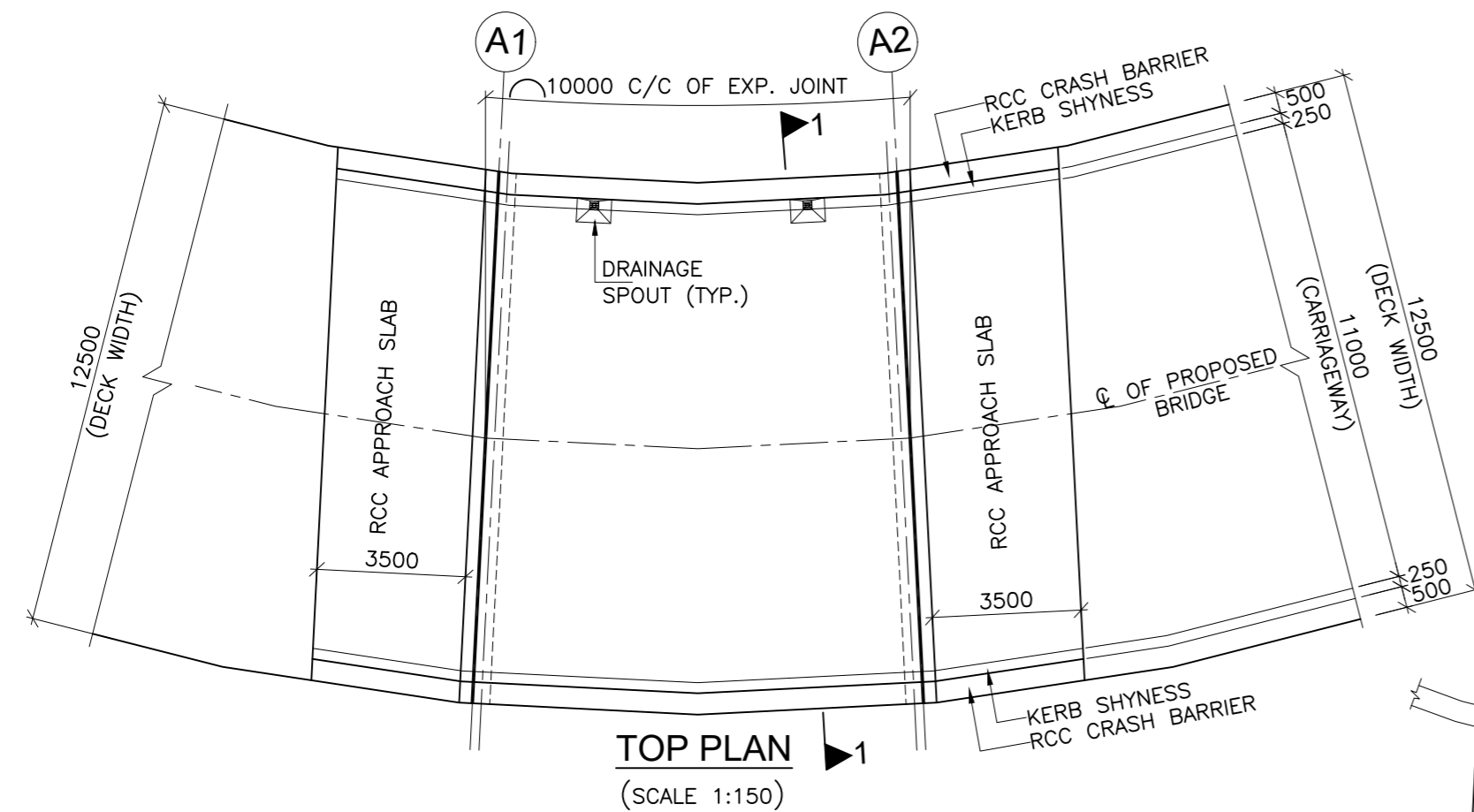
**LEGEND:**

F.R.L	: FINISHED ROAD LEVEL
H.F.L	: HIGH FLOOD LEVEL
CL	: CENTER LINE
LVL	: LEVEL
TYP.	: TYPICAL
THK.	: THICKNESS
D/S	: DOWNSTREAM
U/S	: UPSTREAM
C/C	: CENTER TO CENTER
G.L	: GROUND LEVEL
LBL	: LOWEST BED LEVEL
MIN.	: MINIMUM
FDN.	: FOUNDING LEVEL
EXP.	: EXPANSION
BRG.	: BEARING
M.S.L	: MAXIMUM SCOUR LEVEL
L.H.S	: LEFT HAND SIDE
R.H.S	: RIGHT HAND SIDE

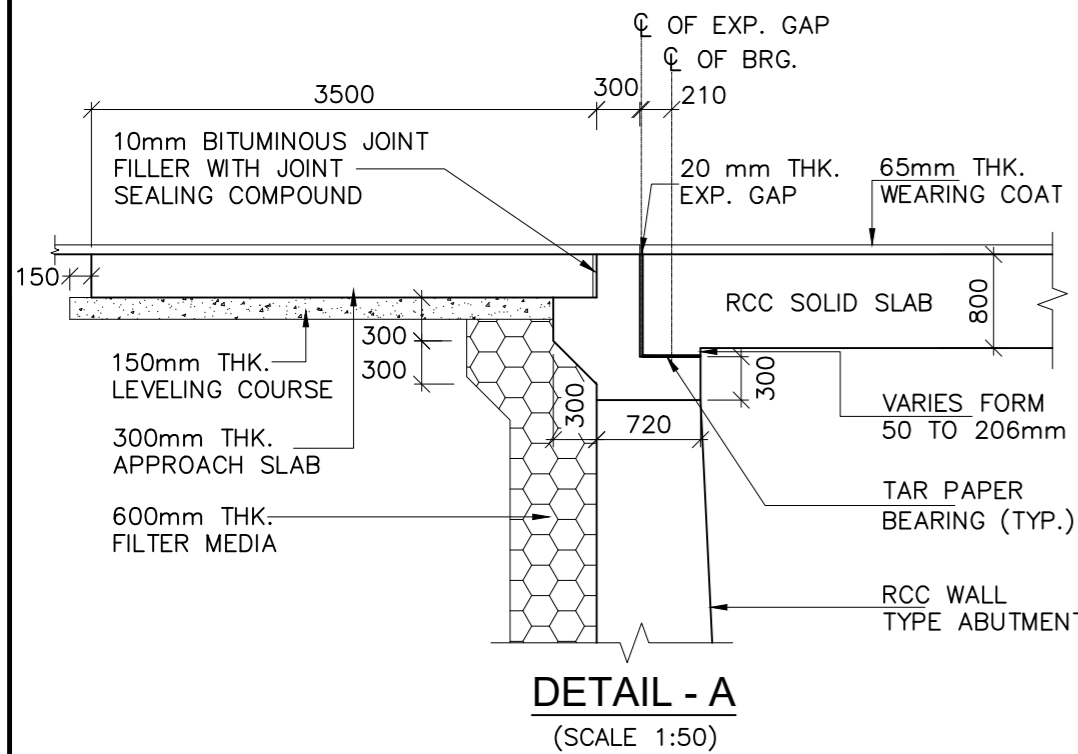
**SECTION 1-1**  
(SCALE 1:100)

**TABLE SHOWING DIMENSIONS, LEVELS AND OTHER DETAILS OF 1X10m MINOR BRIDGES**

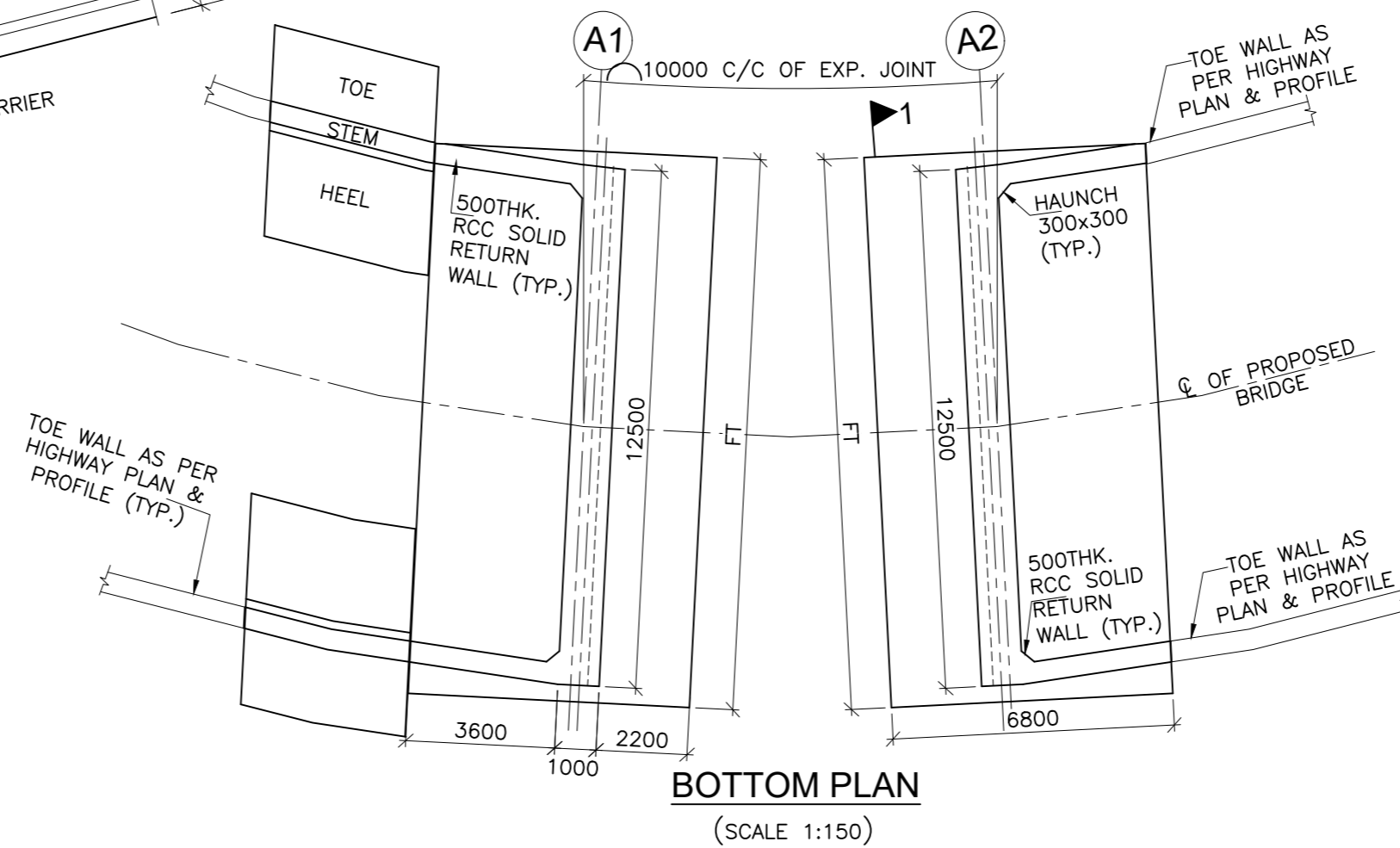
SL.No.	PROPOSED CHAINAGE (km)	LEVELS (m)				RETURN WALL THICKNESS (m)		FOOTING DIMENSIONS (m)							CURVE IN LEFT SIDE (m)	REQUIRED SAFE BEARING CAPACITY (t/m <sup>2</sup> )	
		FORMATION LEVEL (FRL1)	FORMATION LEVEL (FRL2)	LOWEST BED LEVEL (LBL)	FOUNDING LEVEL (FRL)	T1	T2	f1	a	f2	F (f1+a+f2)	FT	h1	h2			H (h1+h2)
1	87+860	1200.279	1200.505	1194.773	1191.773	0.500	0.500	4.400	1.000	2.700	8.100	13.000	0.500	0.500	1.000	R72	25



**TOP PLAN**  
(SCALE 1:150)



**DETAIL - A**  
(SCALE 1:50)



**BOTTOM PLAN**  
(SCALE 1:150)

**NOTES:-**

- ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
- DIMENSIONS ARE NOT TO BE SCALED ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- THE BRIDGE IS DESIGNED FOR GOVERNING CASE OF FOLLOWING:
  - ONE LANE OF IRC CLASS 70R + ONE LANE OF IRC CLASS A.
  - THREE LANE OF IRC CLASS A
  - IRC CLASS SV LOADING: SPECIAL MULTI AXLE HYDRAULIC TRAILER VEHICLE (a) (PRIME MOVER WITH 20 AXLE TRAILER-GVW=385 Tonnes)
- MODERATE CONDITION OF EXPOSURE HAS BEEN CONSIDERED IN DESIGN.
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBE AS FOLLOWS:
  - LEVELING COURSE (UNDER FOUNDATION) - M10
  - LEVELING COURSE (UNDER APPROACH SLAB) - M15
  - FOUNDATION - M35
  - SUBSTRUCTURE - M35
  - SUPERSTRUCTURE - M35
  - RETURN/RETAINING WALL - M35
  - CRASH BARRIER/RCC RAILING - M40
  - APPROACH SLAB - M30
- UNTENSIONED REINFORCEMENT SHALL BE THERMO MECHANICALLY TREATED, (TMT) HIGH YIELD STRENGTH DEFORMED BARS OF GRADE DESIGNATION Fe-500D CONFORMING TO IS: 1786.
- TAR PAPER BEARINGS SHALL BE PROVIDED AS PER MORT&H SPECIFICATION
- FILLER TYPE EXPANSION JOINTS SHALL BE PROVIDED AS PER PROVISION OF SP:-69
- 65mm THICK WEARING COAT COMPRISING OF 40mm THICK ASPHALTIC CONCRETE OVER LAID WITH 25mm THICK MASTIC ASPHALT SHALL BE PROVIDED AS PER SECTION 500 OF MORT&H.
- 100mm DIA WEEP HOLES AT 1000mm C/C HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN ONE OR TWO LAYERS ABOVE LOWEST WATER LEVEL IN VERTICAL WALLS OF ABUTMENT, RETURN/RETAINING WALLS.
- WATER TO BE USED IN CONCRETING AND CURING SHALL CONFIRM TO CLAUSE 18.4.5 OF IRC:112-2011.
- BACK FILLING BEHIND ABUTMENT SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX:6 OF IRC:78-2014 HAVING PROPERTIES C=0,  $\phi \geq 35^\circ$ ,  $\delta = 20^\circ$  &  $y_d = 20 \text{ KN/m}^3$ .
- MINIMUM CLEAR COVER TO OUTER MOST REINFORCEMENT SHALL BE AS UNDER:-
  - SUPERSTRUCTURE - 40mm
  - SUBSTRUCTURE (EARTH FACE) - 75mm
  - SUBSTRUCTURE (NOT EARTH FACE) - 50mm
  - FOUNDATION - 75mm
- THE BRIDGE IS DESIGNED FOR PROVISION OF SEISMIC ZONE-V AS PER CLAUSE 219 OF IRC:6:2017.
- REQUIRED SAFE BEARING CAPACITY IS MENTIONED IN THE TABLE & SHALL BE ASCERTAINED BEFORE EXECUTION OF WORK AT SITE.
- THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY PLAN AND PROFILE DRAWINGS.
- ALL CHAINAGES, FRL, GL SHALL BE CONFIRMED AT SITE PRIOR TO EXECUTION.

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

**CLIENT**  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
 (MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
 GOVERNMENT OF INDIA



**CONSULTANT:**



**RODIC CONSULTANTS PVT. LTD.**  
 1, JAI SINGH MARG (FIRST FLOOR), YMCA  
 CULTURAL CENTRE BUILDING  
 NEW DELHI - 110001 (INDIA)

In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**



From Design Km. 80+675 to Km. 95+550

**TENDER DRAWING**

Scale :-  
As Shown

Designed: HB  
 Drawn: KS  
 Designed: VT  
 Approved: AM

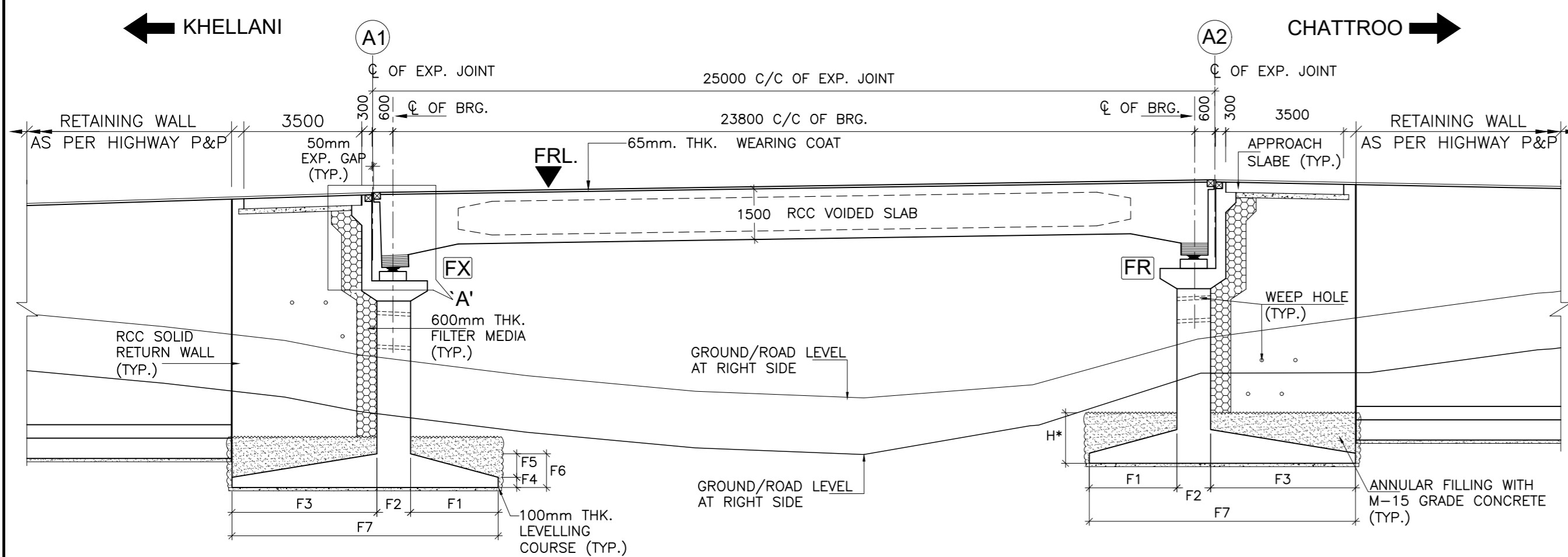
Project:-  
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Drawing Title:  
GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT CH. 87+860

Sheet size: A2

Drawing No.: NHIDCL/NH244/KHELLANI - CHATTROO/MNB/87+860/01/R1

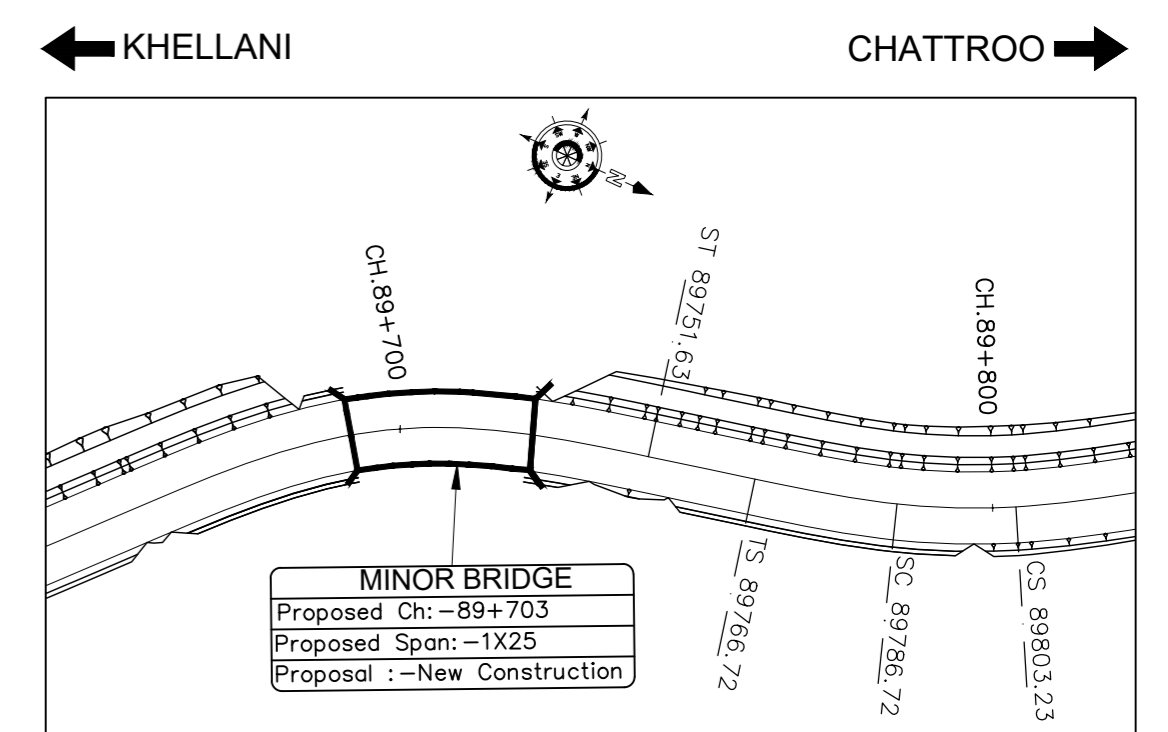
Annex III



H\* = 600mm(MIN.) IN MODERATELY STRONG ROCK  
1500mm(MIN.) IN MODERATELY WEAK ROCK

OFFSET (m)	12.500	12.500
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**SECTIONAL ELEVATION OF PROPOSED BRIDGE**  
(SCALE 1:125)



<b>MINOR BRIDGE</b>	
Proposed Ch: -89+703	
Proposed Span: -1X25	
Proposal: -New Construction	

**KEY PLAN**  
(SCALE 1:1000)

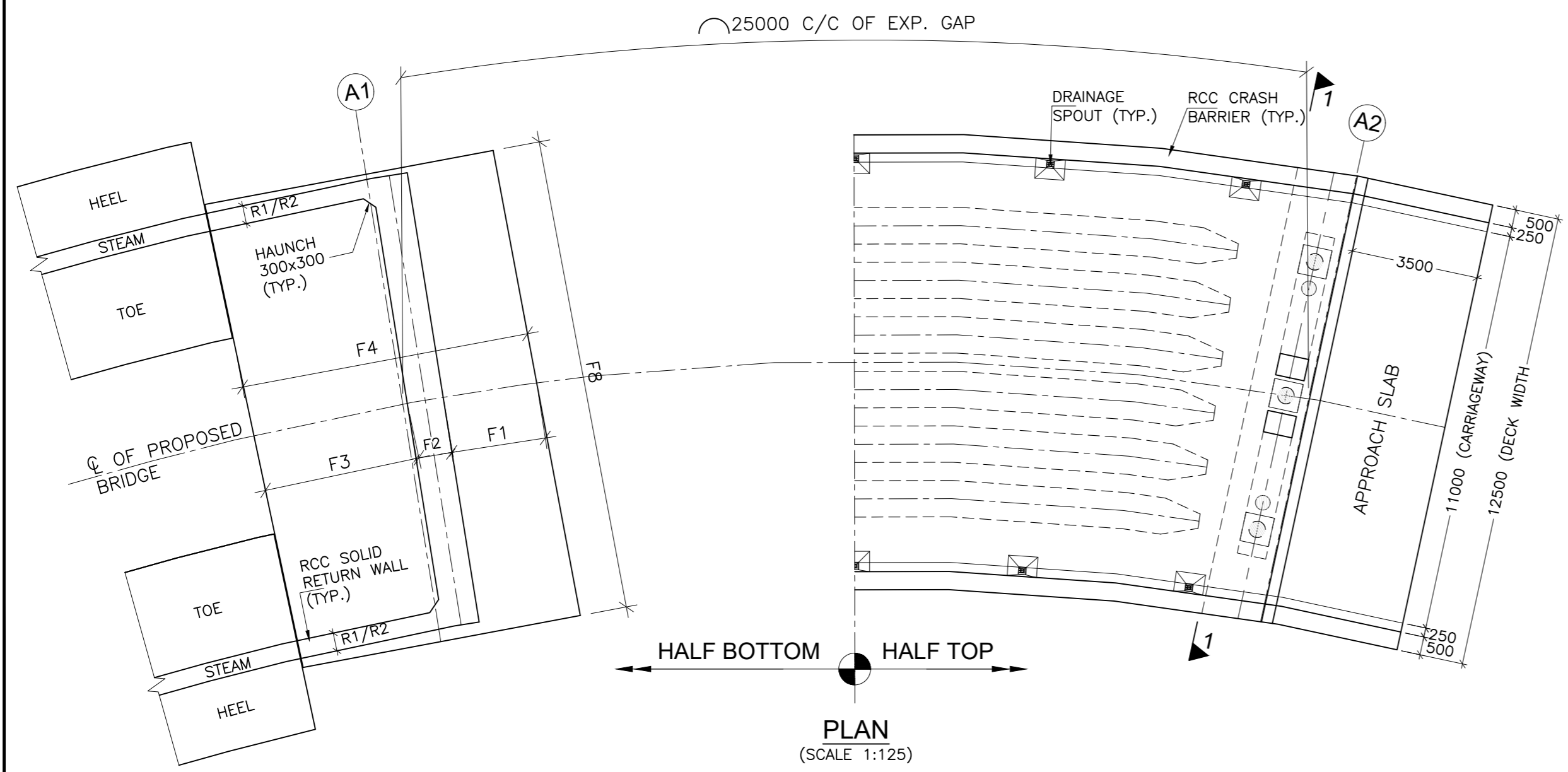
**ABBREVIATIONS**

FRL	: FINISHED ROAD LEVEL
HFL	: HIGH FLOOD LEVEL
RL	: REDUCED LEVEL
LBL	: LOWEST BED LEVEL
CL	: CENTER LINE
LVL	: LEVEL
TYP.	: TYPICAL
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D/S	: DOWNSTREAM
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- NOTE:-**
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    - THREE LANE OF IRC CLASS A
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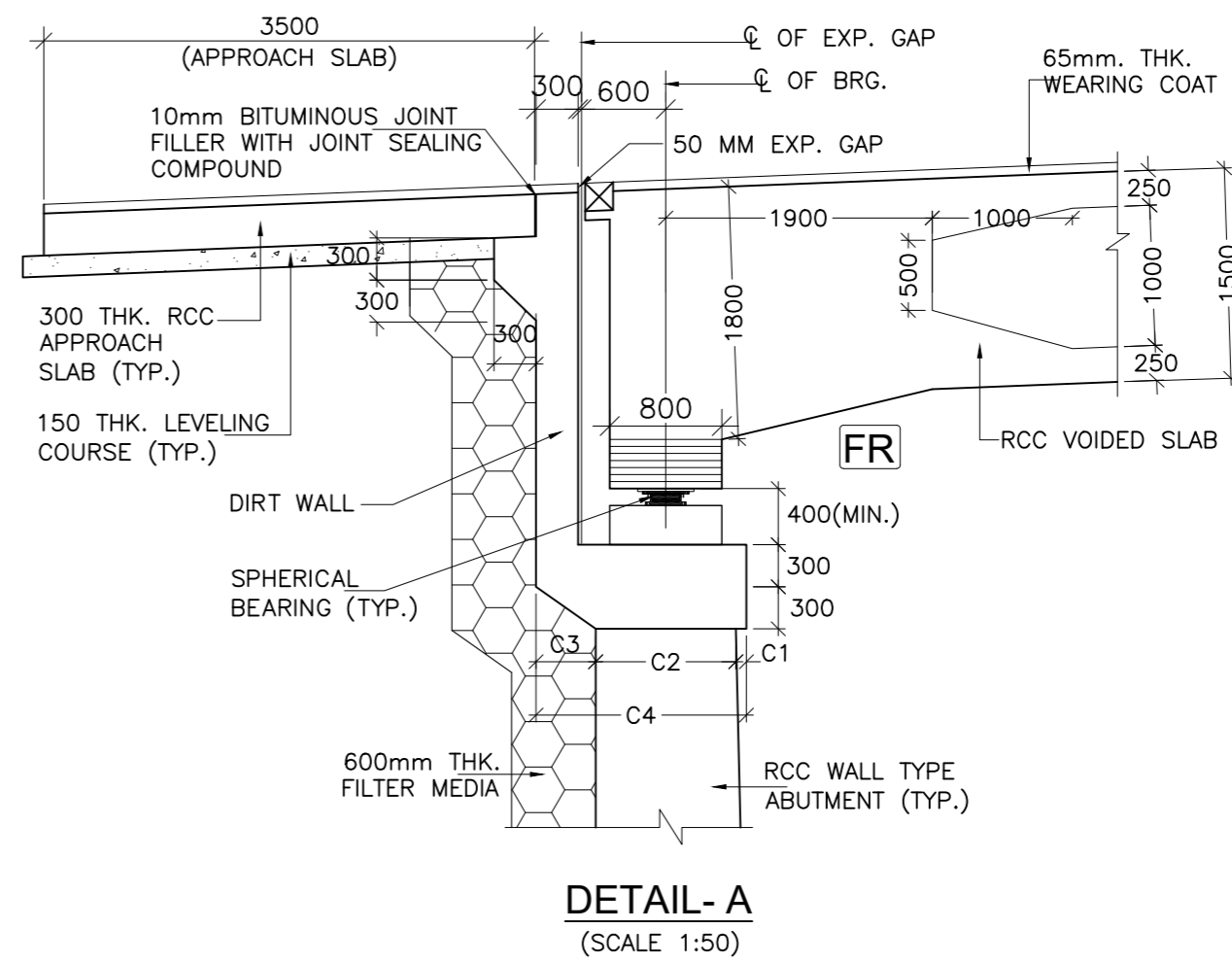
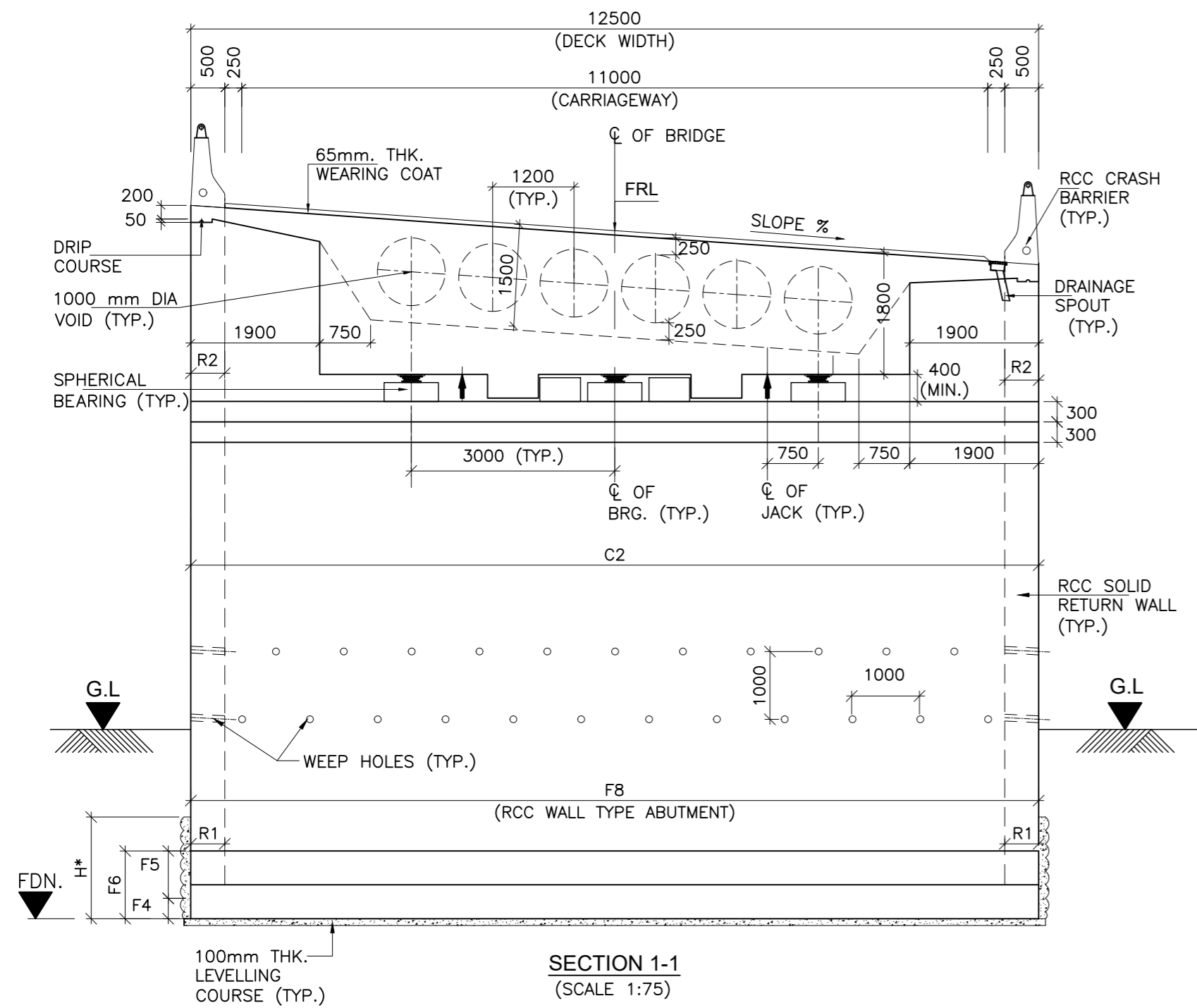
RCC VOIDED SLAB	-40 MPa
ABUTMENT, ABUTMENT CAP, DIRT WALL & FOUNDATION	-35 MPa
RCC CRASH BARRIER	-40 MPa
RCC APPROACH SLAB	-30 MPa
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LEVELLING COURSE UNDER FOUNDATION	-10 MPa
PEDESTAL & SEISMIC RESTRAINER	-45 MPa
  - THE REINFORCING BARS SHALL BE OF THERMO MECHANICAL TREATED HYSD (GRADE DESIGNATION Fe-500D) CONFORMING TO IS:1786 STANDARDS.
  - CLEAR COVER TO OUTER MOST STEEL SHALL BE AS UNDER:-
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    - FOR FOUNDATION -75mm
    - FOR SUBSTRUCTURE:
      - EARTH FACE -75mm
      - NON EARTH FACE -50mm
  - 65mm THK. WEARING COURSE COMPRISING OF 40mm THK. ASPHALTIC CONCRETE OVER LAID WITH 25mm THK. MASTIC ASPHALT SHALL BE PROVIDED AS PER SECTION 500 OF MORTH SPECIFICATIONS.
  - SPHERICAL BEARINGS SHALL BE DESIGNED AS PER PROVISION OF IRC : 83 (PART-IV 2014).
  - STRIP SEAL TYPE EXPANSION JOINTS SHALL BE PROVIDED AS PER PROVISION OF IRC:SP-69.
  - BACK FILLING BEHIND ABUTMENT SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX:6 OF IRC:78-2014 HAVING PROPERTIES  $c=0$ ,  $\phi \geq 35^\circ$ ,  $\delta=22.5^\circ$  &  $\gamma_d = 20 \text{ KN/m}^3$
  - 100mm DIA WEEP HOLES AT 1000mm C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER IN VERTICAL WALLS OF THE ABUTMENT SHAFT AND RETURN WALL FROM 150mm ABOVE G.L IN ONE OR TWO LAYERS AT A SLOPE OF 1 VERTICAL TO 20 HORIZONTAL TOWARDS THE DRAINING FACE.
  - WATER TO BE USED IN CONCRETING & CURING SHALL CONFORM TO CLAUSE 18.8.4(4) IRC : 112:2011.
  - REQUIRED SAFE BEARING CAPACITY IS MENTIONED IN THE TABLE & SHALL BE ASCERTAINED BEFORE EXECUTION OF WORK AT SITE.
  - THE BRIDGE IS DESIGNED FOR SEISMIC ZONE-V
  - MODERATE CONDITION OF EXPOSURE SHALL BE CONSIDERED IN DESIGN.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY DRAWING. FRL & CAMBER, SUPER ELEVATION AT PARTICULAR LOCATION SHALL BE VERIFIED WITH THE HIGHWAY DRAWINGS.
  - THE MINIMUM EMBEDMENT OF THE FOUNDATIONS INTO THE ROCK BELOW SHALL BE AS FOLLOWS:
 

FOR ROCKS OF MODERATELY STRONG	- 0.6M
FOR ROCKS OF MODERATELY WEAK	- 1.5M
  - RCC RETAINING WALL SHALL BE PROVIDED UPTO 2M HEIGHT ABOVE GROUND LEVEL. BELOW 2M HEIGHT, PCC TOE WALL SHALL BE PROVIDED.
  - PEDESTAL BEARING SHALL BE PLACED BETWEEN TRUE HORIZONTAL SURFACES.



**PLAN**  
(SCALE 1:125)

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT	From Design Km. 80+675 to Km. 95+550	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR	
R0	Oct :-2020		NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	RODIC CONSULTANTS PVT. LTD. 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with Monarch Surveyors and Engineering Consultants Pvt. Ltd.,	TENDER DRAWING	Drawing Title	GENERAL ARRANGEMENT DRAWING FOR	
R1	Dec :-2020						MINOR BRIDGE AT CH. 89+703	
							Scale :-	Annex III
							As Shown	Drawing No.
								NHIDCL/NH244/KHELLANI - CHATTROO/ MNB/89+703/01/R1

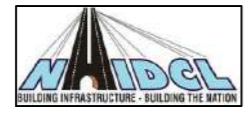




**SCHEDULE OF LEVELS & DIMENSIONS:-**

SL.No.	DESCRIPTION	LEVELS (m)			FOOTING DIMENSIONS								ABUTMENT CAP DIMENSIONS				RETURN WALL THICKNESS		CURVE IN RIGHT SIDE (m)	REQUIRED SAFE BEARING CAPACITY (t/m <sup>2</sup> )	
		FINISHED ROAD LEVEL (m)	LOWEST GROUND LEVEL (m)	FOUNDING LEVEL (m)	F1(mm)	F2(mm)	F3(mm)	F4(mm)	F5(mm)	F6(mm)	F7(mm)	F8(mm)	C1(mm)	C2(mm)	C3(mm)	C4(mm)	R1(mm)	R2(mm)			
1	CH. 89+703	A1	1205.094	1195.749	1192.749	3800	1400	6300	500	1000	1500	11500	13000	500	1000	450	1950	900	500	R78	34
		A2	1205.649	1198.858	1195.858	3000	1200	5000	500	750	1250	9200	13000	500	1000	450	1950	500	500		

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
 (MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
 GOVERNMENT OF INDIA

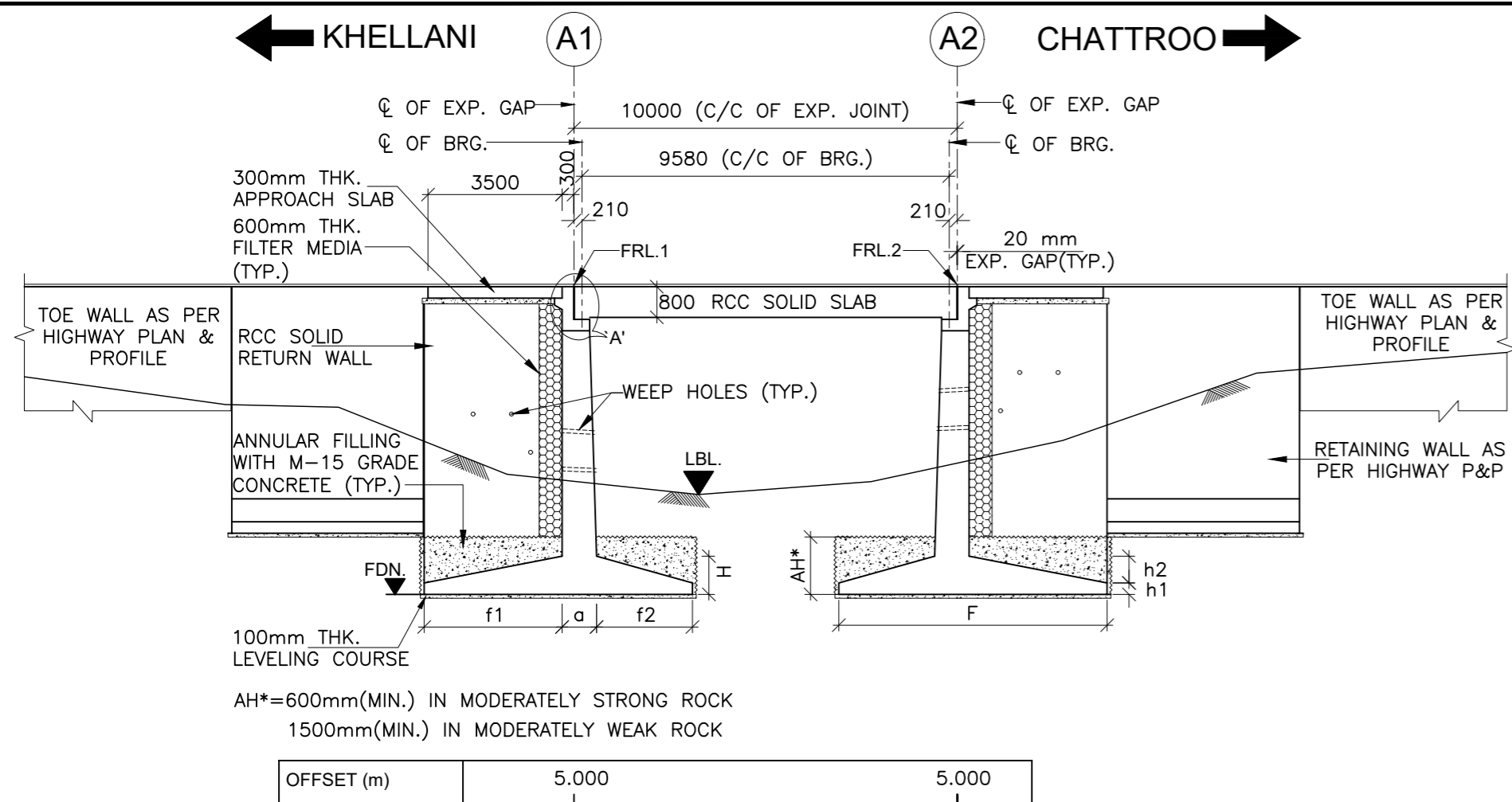


CONSULTANT:  
  
**RODIC CONSULTANTS PVT. LTD.**  
 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
 NEW DELHI - 110001 (INDIA)  
 In Association with  
  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

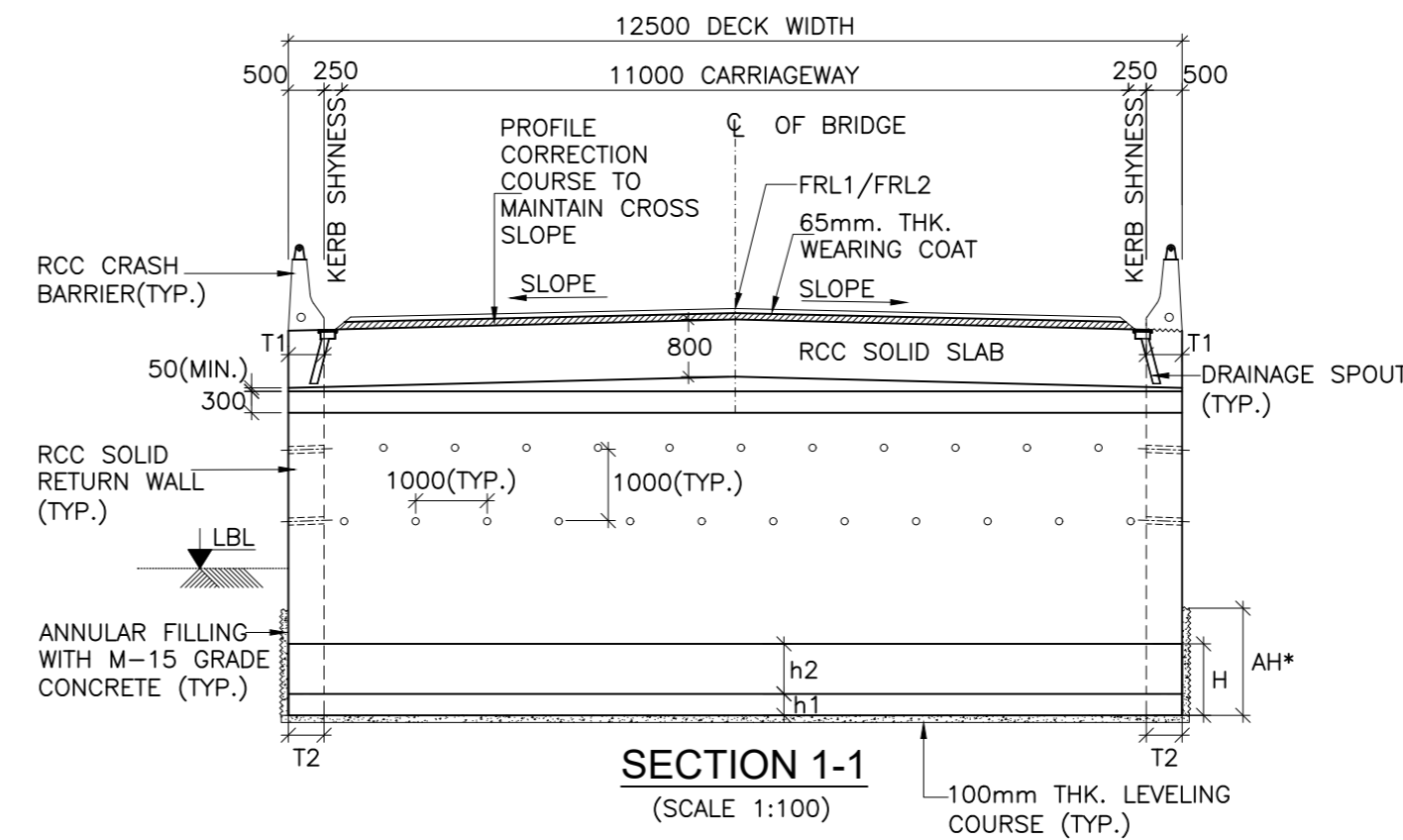
From Design Km. 80+675 to Km. 95+550	<b>TENDER DRAWING</b>
Designed: AK	Scale :- As Shown
Drawn: KS	
Designed: VT	
Approved: AM	

Project:-	<b>CONSTRUCTION &amp; UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 &amp; LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR</b>
Drawing Title	
Sheet size: A2	
Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/MNB/89+703/02/R1

Annex III
-----------



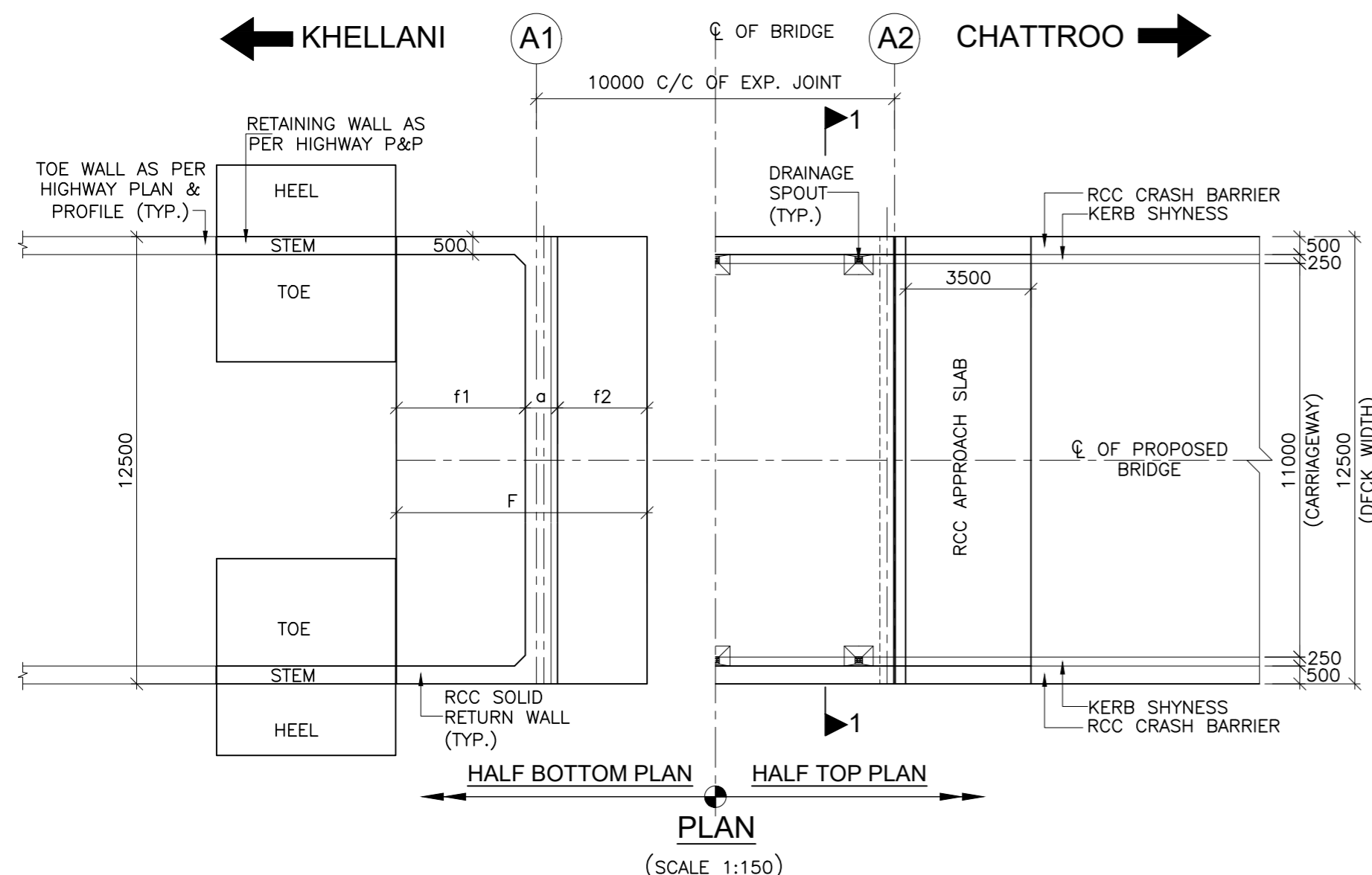
**LONGITUDINAL ELEVATION OF PROPOSED BRIDGE**  
(SCALE 1:150)



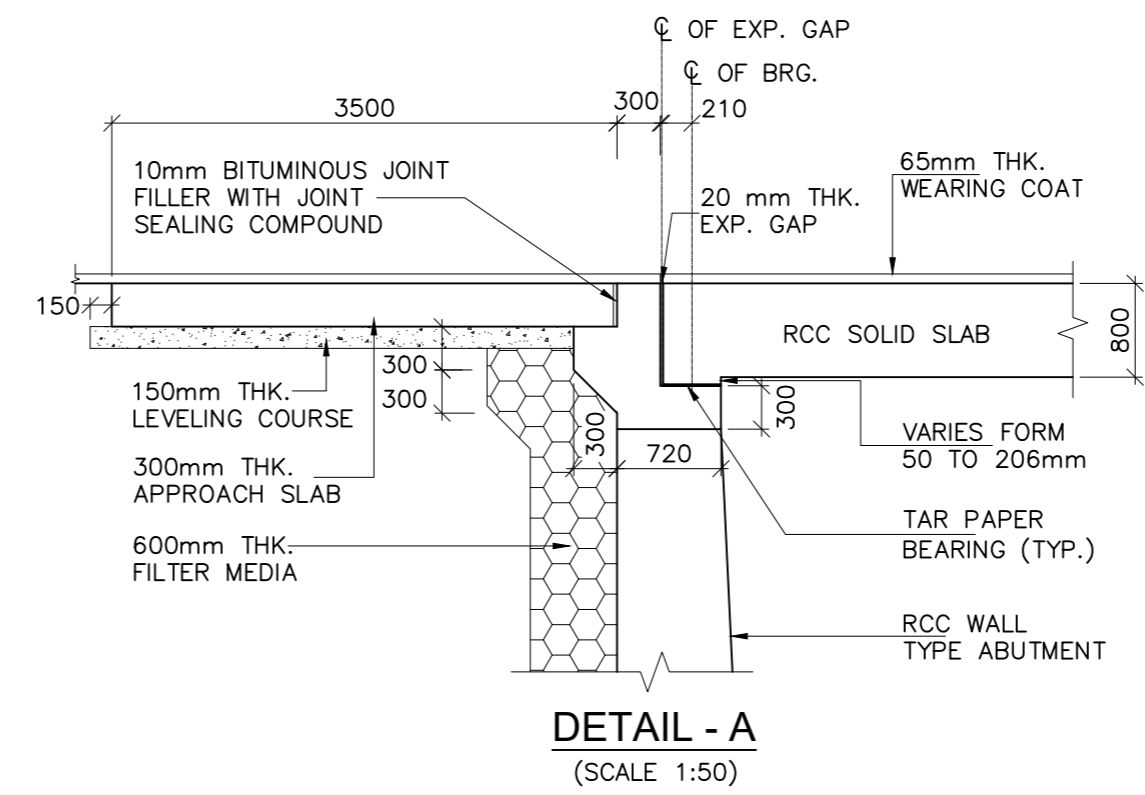
**SECTION 1-1**  
(SCALE 1:100)

**LEGEND:**

- F.R.L : FINISHED ROAD LEVEL
- H.F.L : HIGH FLOOD LEVEL
- CL : CENTER LINE
- LVL : LEVEL
- TYP. : TYPICAL
- THK. : THICKNESS
- D/S : DOWNSTREAM
- U/S : UPSTREAM
- C/C : CENTER TO CENTER
- G.L : GROUND LEVEL
- LBL. : LOWEST BED LEVEL
- MIN. : MINIMUM
- FDN. : FOUNDING LEVEL
- EXP. : EXPANSION
- BRG. : BEARING
- M.S.L : MAXIMUM SCOUR LEVEL
- L.H.S : LEFT HAND SIDE
- R.H.S : RIGHT HAND SIDE



**PLAN**  
(SCALE 1:150)



**DETAIL - A**  
(SCALE 1:50)

- NOTES:-**
- ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
  - DIMENSIONS ARE NOT TO BE SCALED ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
  - THE BRIDGE IS DESIGNED FOR GOVERNING CASE OF FOLLOWING
    - ONE LANE OF IRC CLASS 70R + ONE LANE OF IRC CLASS A.
    - THREE LANE OF IRC CLASS A
    - IRC CLASS SV LOADING: SPECIAL MULTI AXLE HYDRAULIC TRAILER VEHICLE (a) (PRIME MOVER WITH 20 AXLE TRAILER-GW=385 Tonnes)
  - MODERATE CONDITION OF EXPOSURE HAS BEEN CONSIDERED IN DESIGN.
  - CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBE AS FOLLOWS:
 

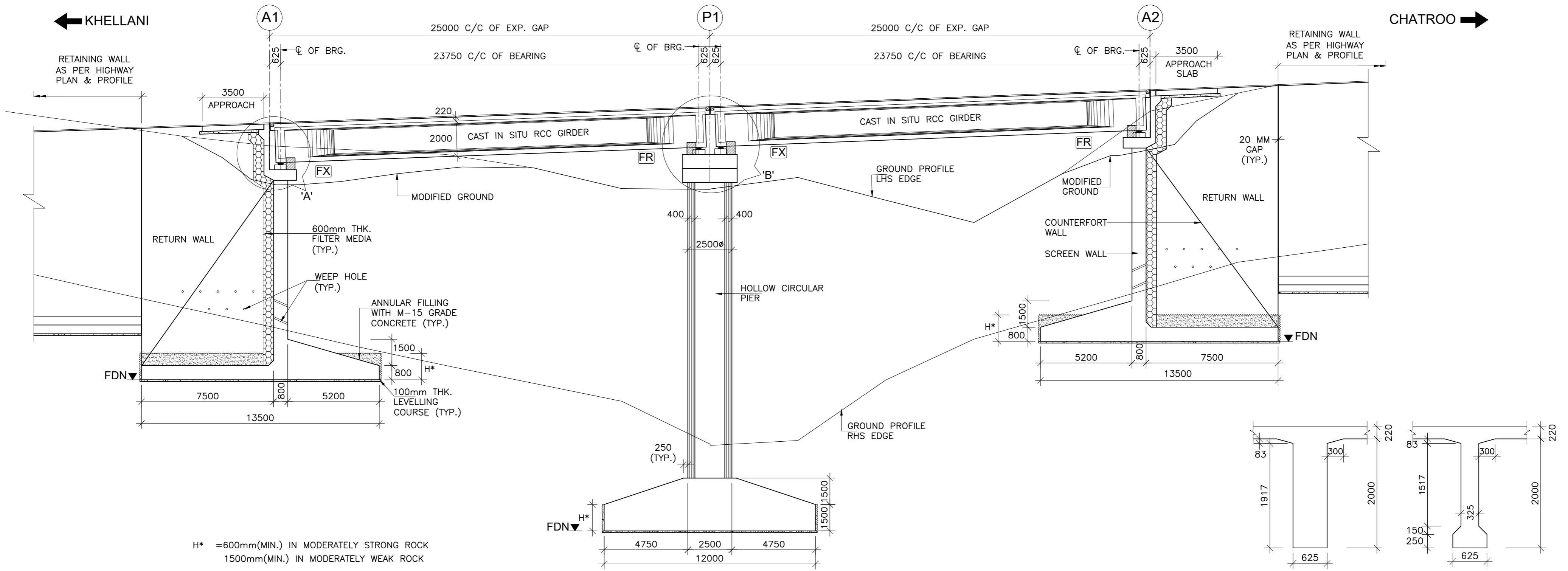
a. LEVELING COURSE (UNDER FOUNDATION)	- M10
b. LEVELING COURSE (UNDER APPROACH SLAB)	- M15
c. FOUNDATION	- M35
d. SUBSTRUCTURE	- M35
e. SUPERSTRUCTURE	- M35
f. RETURN/RETAINING WALL	- M35
g. CRASH BARRIER/RCC RAILING	- M40
h. APPROACH SLAB	- M30
  - UNTENSIONED REINFORCEMENT SHALL BE THERMO MECHANICALLY TREATED, (TMT) HIGH YIELD STRENGTH DEFORMED BARS OF GRADE DESIGNATION Fe-500D CONFORMING TO IS: 1786.
  - TAR PAPER BEARINGS SHALL BE PROVIDED AS PER MORT&H SPECIFICATION
  - FILLER TYPE EXPANSION JOINTS SHALL BE PROVIDED AS PER PROVISION OF SP:-69
  - 65mm THICK WEARING COAT COMPRISING OF 40mm THICK ASPHALTIC CONCRETE OVER LAID WITH 25mm THICK MASTIC ASPHALT SHALL BE PROVIDED AS PER SECTION 500 OF MORT&H.
  - 100mm DIA WEEP HOLES AT 1000mm C/C HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN ONE OR TWO LAYERS ABOVE LOWEST WATER LEVEL IN VERTICAL WALLS OF ABUTMENT, RETURN/RETAINING WALLS.
  - WATER TO BE USED IN CONCRETING AND CURING SHALL CONFIRM TO CLAUSE 18.4.5 OF IRC:112-2011.
  - BACK FILLING BEHIND ABUTMENT SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX:6 OF IRC:78-2014 HAVING PROPERTIES  $C=0$ ,  $\phi \geq 35^\circ$ ,  $\delta = 20^\circ$  &  $\gamma_d = 20 \text{ KN/m}^3$ .
  - MINIMUM CLEAR COVER TO OUTER MOST REINFORCEMENT SHALL BE AS UNDER:-
 

a. SUPERSTRUCTURE	- 40mm
b. SUBSTRUCTURE (EARTH FACE)	- 75mm
c. SUBSTRUCTURE (NOT EARTH FACE)	- 50mm
d. FOUNDATION	- 75mm
  - THE BRIDGE IS DESIGNED FOR PROVISION OF SEISMIC ZONE-V AS PER CLAUSE 219 OF IRC:6:2017.
  - REQUIRED SAFE BEARING CAPACITY IS MENTIONED IN THE TABLE & SHALL BE ASCERTAINED BEFORE EXECUTION OF WORK AT SITE.
  - THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY PLAN AND PROFILE DRAWINGS.
  - ALL CHAINAGES, FRL, GL SHALL BE CONFIRMED AT SITE PRIOR TO EXECUTION.

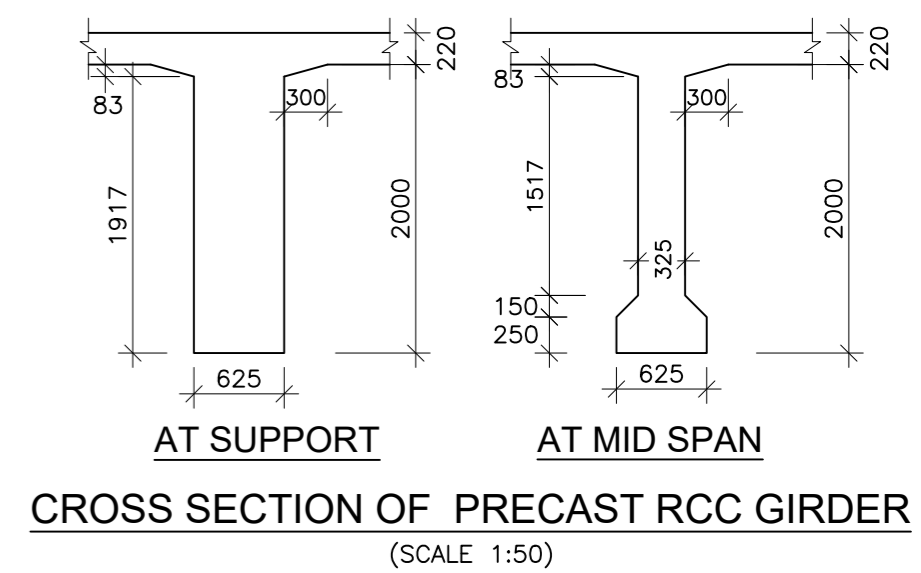
**TABLE SHOWING DIMENSIONS, LEVELS AND OTHER DETAILS OF 1X10m MINOR BRIDGES**

SL.No.	PROPOSED CHAINAGE (km)	LEVELS (m)				RETURN WALL THICKNESS (M)		FOOTING DIMENSIONS (m)						REQUIRED SAFE BEARING CAPACITY (t/m <sup>2</sup> )	
		FORMATION LEVEL (FRL1)	FORMATION LEVEL (FRL2)	LOWEST BED LEVEL (LBL)	FOUNDING LEVEL (FRL)	T1	T2	f1	a	f2	F (f1+a+f2)	h1	h2		H (h1+h2)
1	90+018	1211.856	1212.049	1208.169	1205.169	0.500	0.500	3.200	1.000	2.100	6.300	0.500	0.500	1.000	27
2	91+840	1225.399	1225.172	1219.903	1216.903	0.500	0.500	4.250	1.200	2.750	8.200	0.500	0.700	1.200	24
3	94+055	1163.889	1163.703	1160.919	1157.919	0.500	0.500	2.600	1.000	1.800	5.400	0.500	0.500	1.000	28

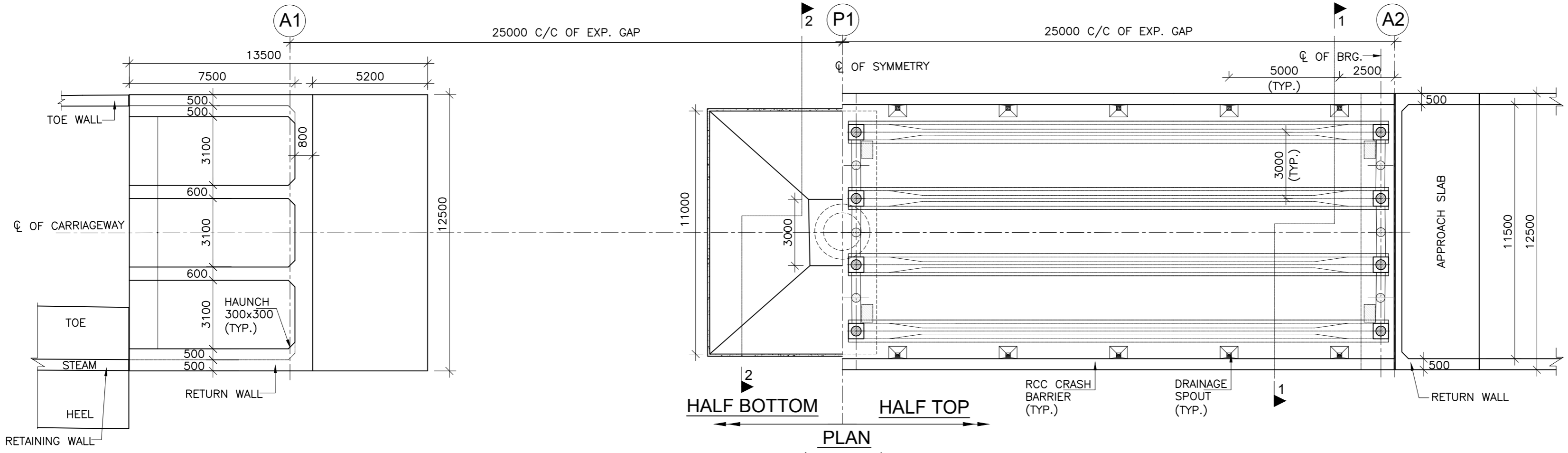
ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR		
R0	Oct :-2020		<b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	<b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with <b>Monarch Surveyors and Engineering Consultants Pvt. Ltd.,</b>	From Design Km. 80+675 to Km. 95+550	<b>TENDER DRAWING</b>		
R1	Dec :-2020				Designed: HB		Scale :- As Shown	Drawing Title
						Drawing No.	GENERAL ARRANGEMENT DRAWING FOR (1X10M) MINOR BRIDGES (TYPE-1)	Annex III
							NHIDCL/NH244/KHELLANI - CHATTROO/MNB/TYPE-1/R1	



FORMATION LEVEL (m)	1222.311	1223.226	1224.193
LOWEST GROUND LEVEL (m)	1210.738	1204.057	1212.893
FOUNDING LEVEL (m)	1207.711	1199.126	1209.893
CHAINAGE (Km)	90+475	90+500	90+525



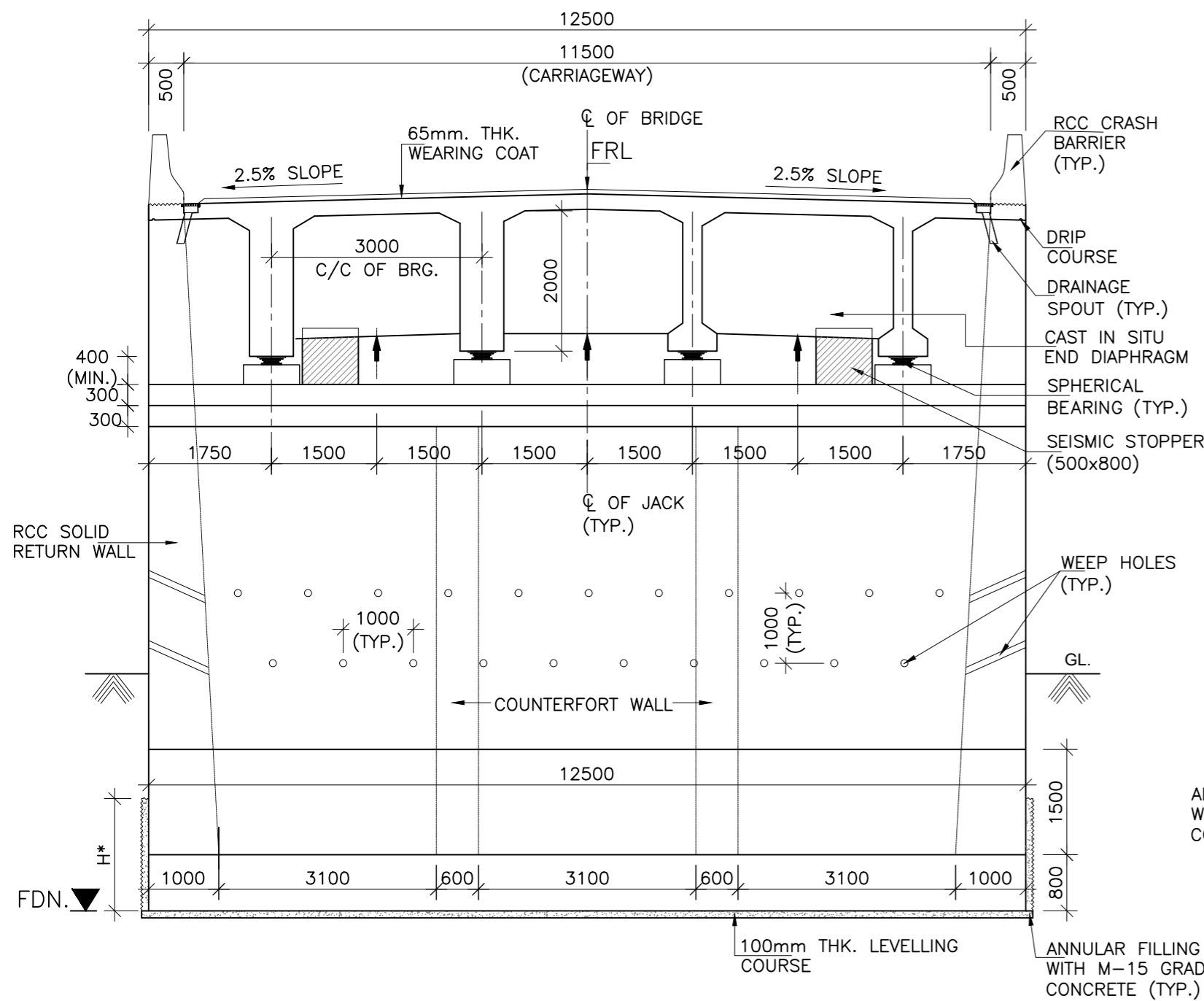
SECTIONAL ELEVATION OF PROPOSED BRIDGE  
(SCALE 1:150)



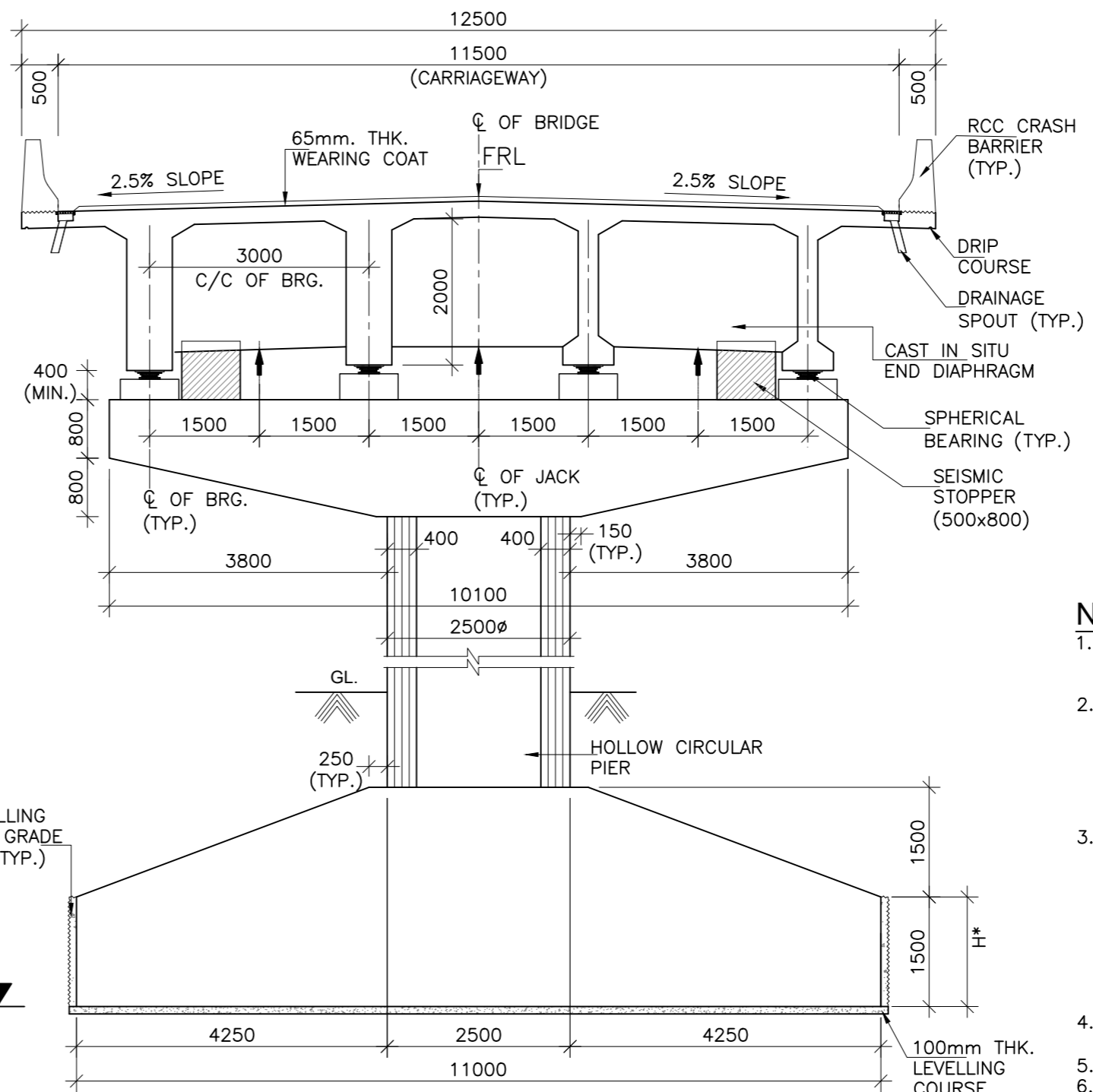
**ABBREVIATIONS**

- FRL : FINISHED ROAD LEVEL
- HFL : HIGH FLOOD LEVEL
- C/C : CENTER LINE
- LVL. : LEVEL
- TYP. : TYPICAL
- THK. : THICK
- FR : FREE BEARING
- FX : FIXED BEARING
- C/C : CENTER TO CENTER
- GL : GROUND
- FDN : FOUNDATION
- EXP : EXPANSION
- BRG. : BEARING
- RCC : REINFORCED CEMENT CONCRETE

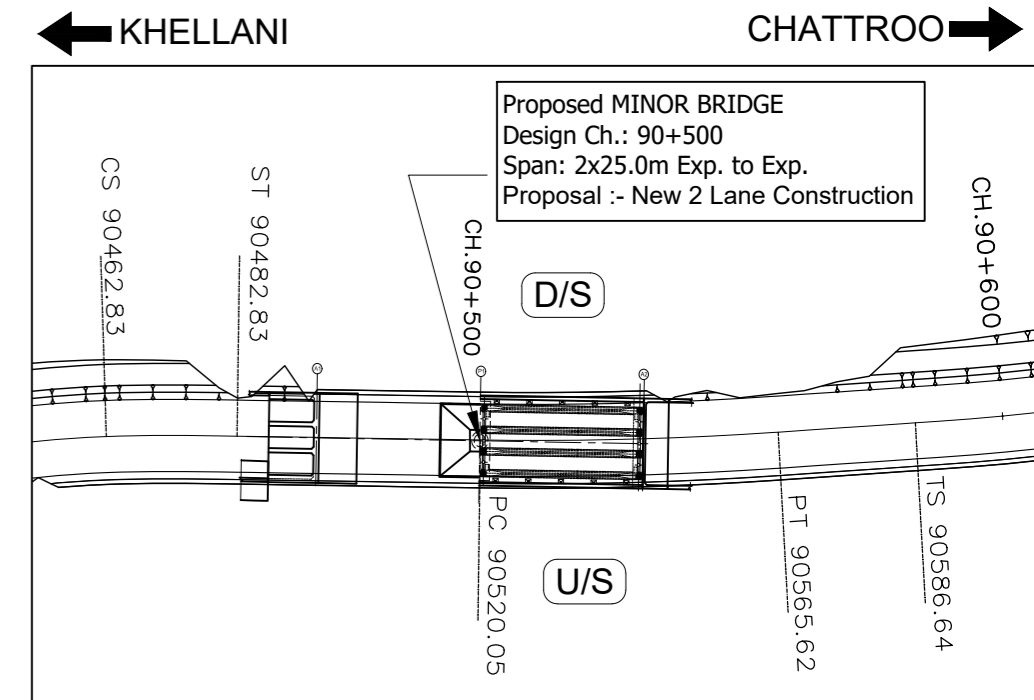
ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R0	Oct :-2020		NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	 <b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with <b>Monarch Surveyors and Engineering Consultants Pvt. Ltd.,</b>	From Design Km. 80+675 to Km. 95+550	TENDER DRAWING
R1	Dec :-2020					
						GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT CH. 90+500
						NHIDCL/NH244/KHELLANI - CHATTROO/MNB/90+500/01/R0
						Annex III



SECTION 1-1  
(SCALE 1:75)



SECTION 2-2  
(SCALE 1:75)



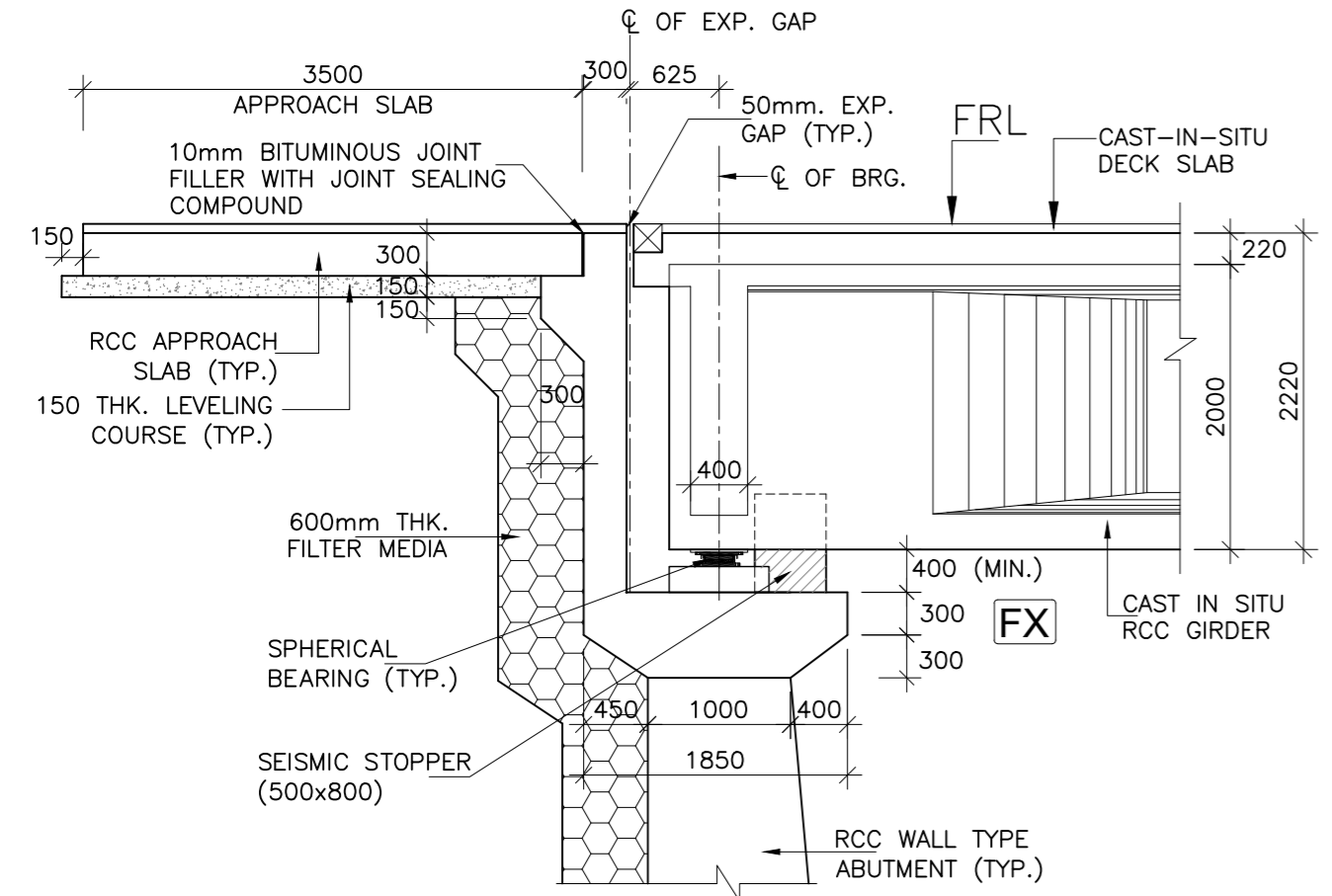
KEY PLAN  
(SCALE 1:1000)

NOTE:-

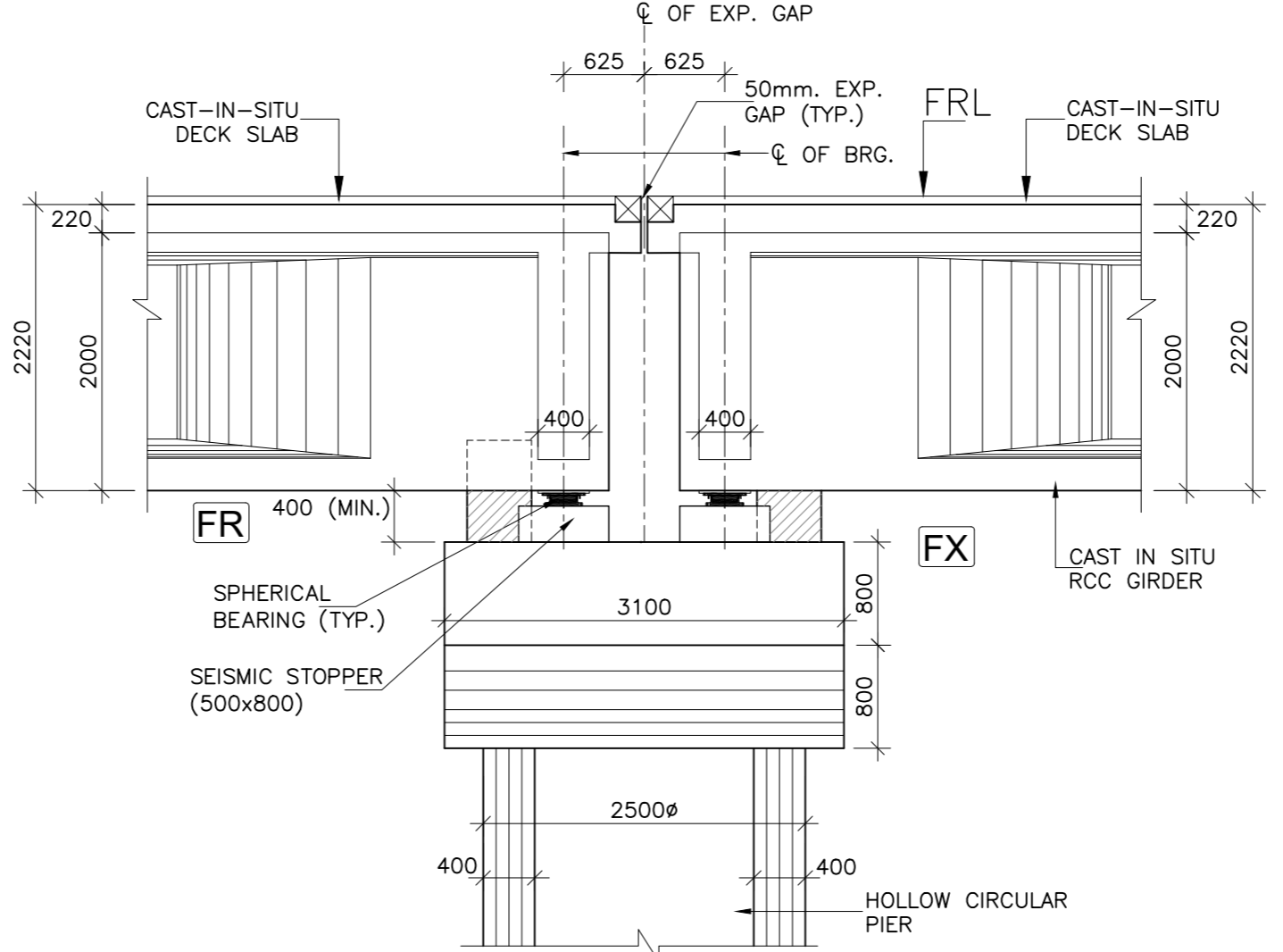
- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
- THE BRIDGE IS DESIGNED FOR GOVERNING CASE OF FOLLOWING
  - ONE LANE OF IRC CLASS 70R + ONE LANE OF IRC CLASS A.
  - THREE LANE OF IRC CLASS A
  - IRC CLASS SV LOADING: SPECIAL MULTI AXLE HYDRAULIC TRAILER VEHICLE (PRIME MOVER WITH 20 AXLE TRAILER-GVW=385 Tonnes)
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS :-
 

RCC CAST-IN-SITU GIRDER & DECK SLAB	-35 MPa
ABUTMENT, ABUTMENT CAP, DIRT WALL & FOUNDATION	-35 MPa
RCC CRASH BARRIER	-40 MPa
RCC APPROACH SLAB	-30 MPa
LEVELLING COURSE UNDER APPROACH SLAB	-15 MPa
LEVELLING COURSE UNDER FOUNDATION	-10 MPa
PEDESTAL & SEISMIC RESTRAINER	-45 MPa
- THE REINFORCING BARS SHALL BE OF THERMO MECHANICAL TREATED HYSD (GRADE DESIGNATION Fe-500D) CONFORMING TO IS:1786 STANDARDS.
- CORRUGATED HDPE SHEATHING CONFORMING TO IS: 14268-1995.
- CLEAR COVER TO OUTER MOST STEEL SHALL BE AS UNDER:-
  - FOR SUPER STRUCTURE -50mm
  - FOR FOUNDATION -75mm
  - FOR SUBSTRUCTURE:
    - EARTH FACE -75mm
    - NON EARTH FACE -50mm
- 65mm THK. WEARING COURSE COMPRISING OF 40mm THK. ASPHALTIC CONCRETE OVER LAID WITH 25mm THK. MASTIC ASPHALT SHALL BE PROVIDED AS PER SECTION 500 OF MORTH SPECIFICATIONS.
- SPHERICAL BEARINGS SHALL BE DESIGNED AS PER PROVISION OF IRC : 83 (PART-IV 2014).
- STRIP SEAL TYPE EXPANSION JOINTS SHALL BE PROVIDED AS PER PROVISION OF SP-69.
- BACK FILLING BEHIND ABUTMENT SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX:6 OF IRC:78-2014 HAVING PROPERTIES  $C=0$ ,  $\phi \geq 35^\circ$ ,  $\delta=22.5^\circ$  &  $\gamma_d = 20 \text{ KN/m}^3$
- 100mm DIA WEEP HOLES AT 1000mm C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER IN VERTICAL WALLS OF THE ABUTMENT SHAFT AND RETURN WALL FROM 150mm ABOVE G.L IN ONE OR TWO LAYERS AT A SLOPE OF 1 VERTICAL TO 20 HORIZONTAL TOWARDS THE DRAINING FACE.
- WATER TO BE USED IN CONCRETING & CURING SHALL CONFORM TO CLAUSE 18.8.4(4) IRC : 112:2011.
- SAFE BEARING CAPACITY ASSUMED IN DESIGN AT PROPOSED FOUNDING LEVEL IS 35 t/m<sup>2</sup>. THIS SHALL BE ASCERTAINED BEFORE EXECUTION OF WORK AT SITE.
- THE BRIDGE IS DESIGNED FOR SEISMIC ZONE-V
- MODERATE CONDITION OF EXPOSURE SHALL BE CONSIDERED IN DESIGN.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY DRAWING. FRL & CAMBER, SUPER ELEVATION AT PARTICULAR LOCATION SHALL BE VERIFIED WITH THE HIGHWAY DRAWINGS.
- THE MINIMUM EMBEDMENT OF THE FOUNDATIONS INTO THE ROCK BELOW SHALL BE AS FOLLOWS:
 

FOR ROCKS OF MODERATELY STRONG	- 0.6M
FOR ROCKS OF MODERATELY WEAK	- 1.5M
- RCC RETAINING WALL SHALL BE PROVIDED UPTO 2M HEIGHT ABOVE GROUND LEVEL. BELOW 2M HEIGHT, PCC TOE WALL SHALL BE PROVIDED.
- PEDESTAL BEARING SHALL BE PLACED BETWEEN TRUE HORIZONTAL SURFACES.



DETAIL-A  
(SCALE 1:50)



DETAIL-B  
(SCALE 1:50)

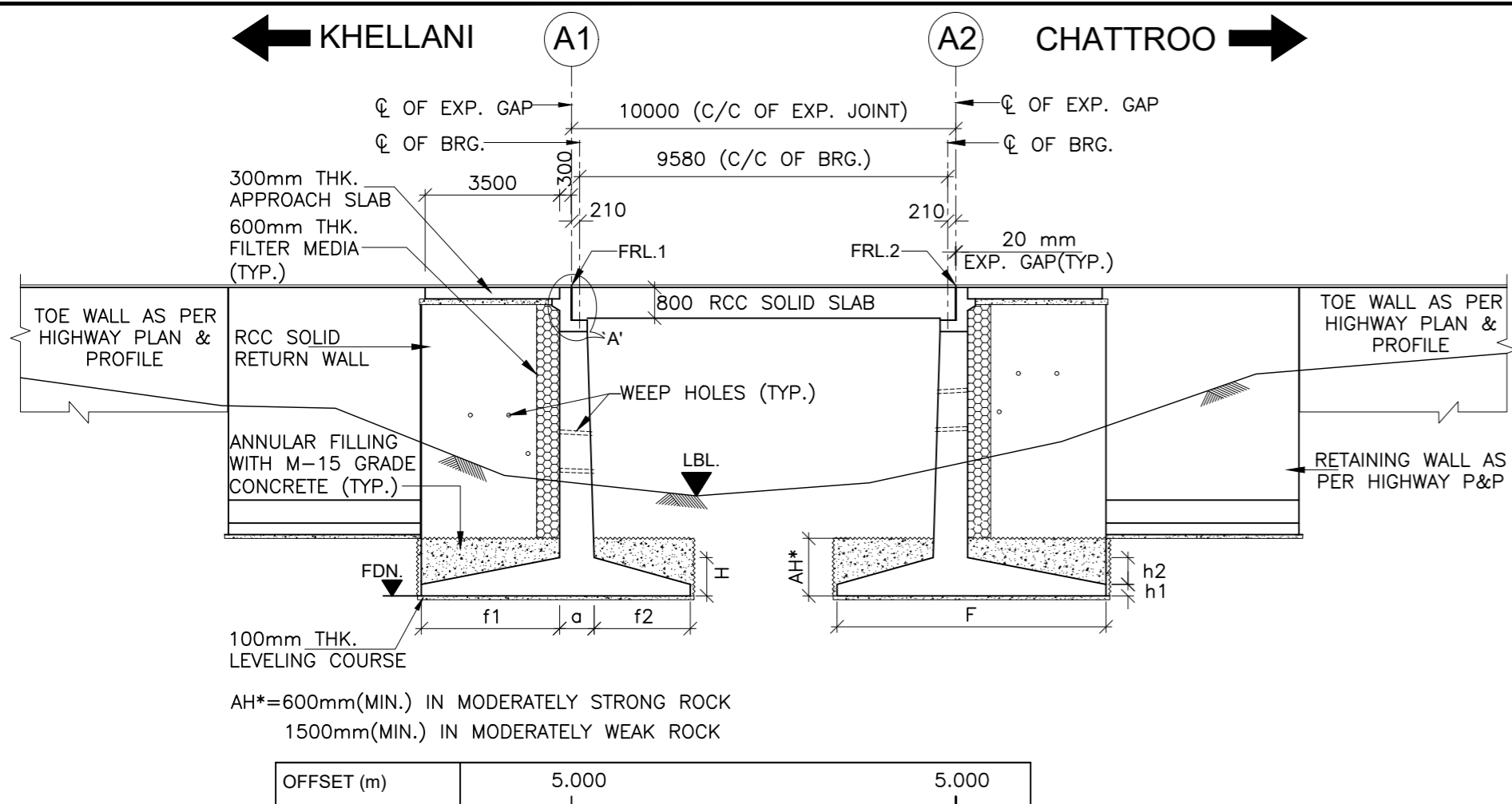
ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
(MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
GOVERNMENT OF INDIA

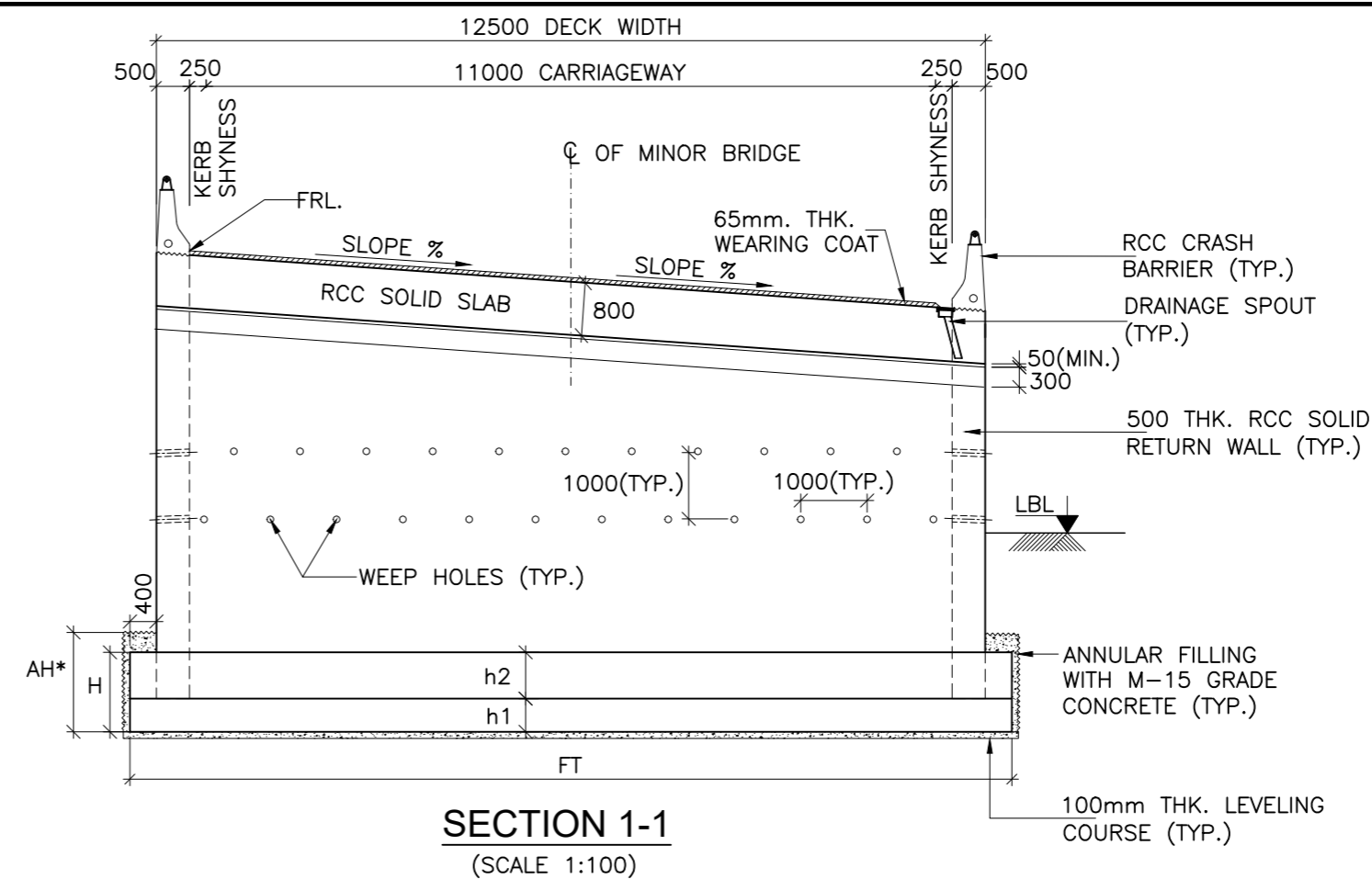
CONSULTANT:  
**RODIC CONSULTANTS PVT. LTD.**  
1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA)  
In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550  
TENDER DRAWING  
Scale :-  
As Shown

Project:-  
CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR  
Drawing Title  
Sheet size: A2  
Drawing No.  
GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT CH. 90+500  
Annex III  
NHIDCL/NH244/KHELLANI - CHATTROO/MNB/90+500/02/R0



**LONGITUDINAL ELEVATION OF PROPOSED BRIDGE**  
(SCALE 1:150)

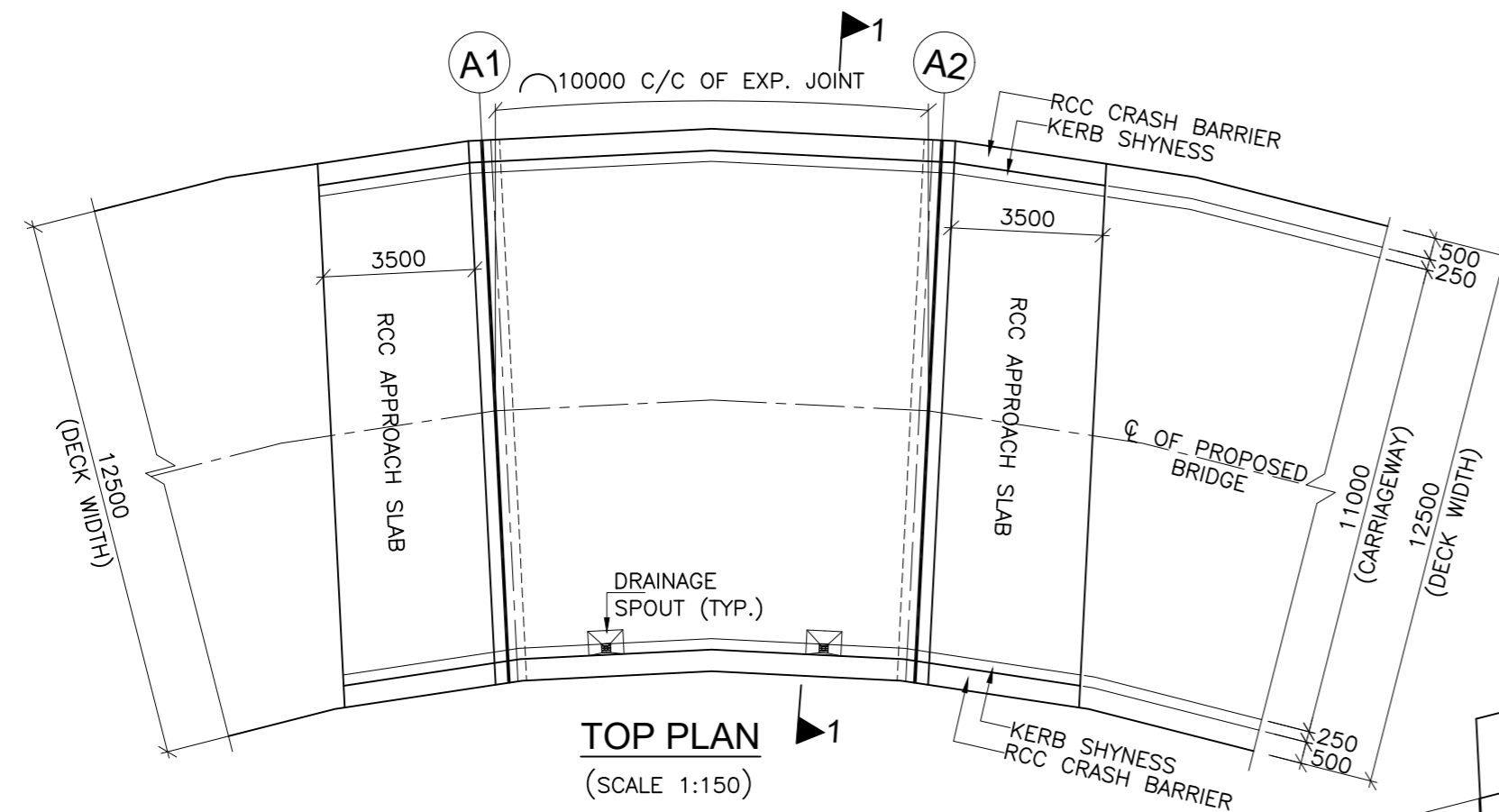


**LEGEND:**

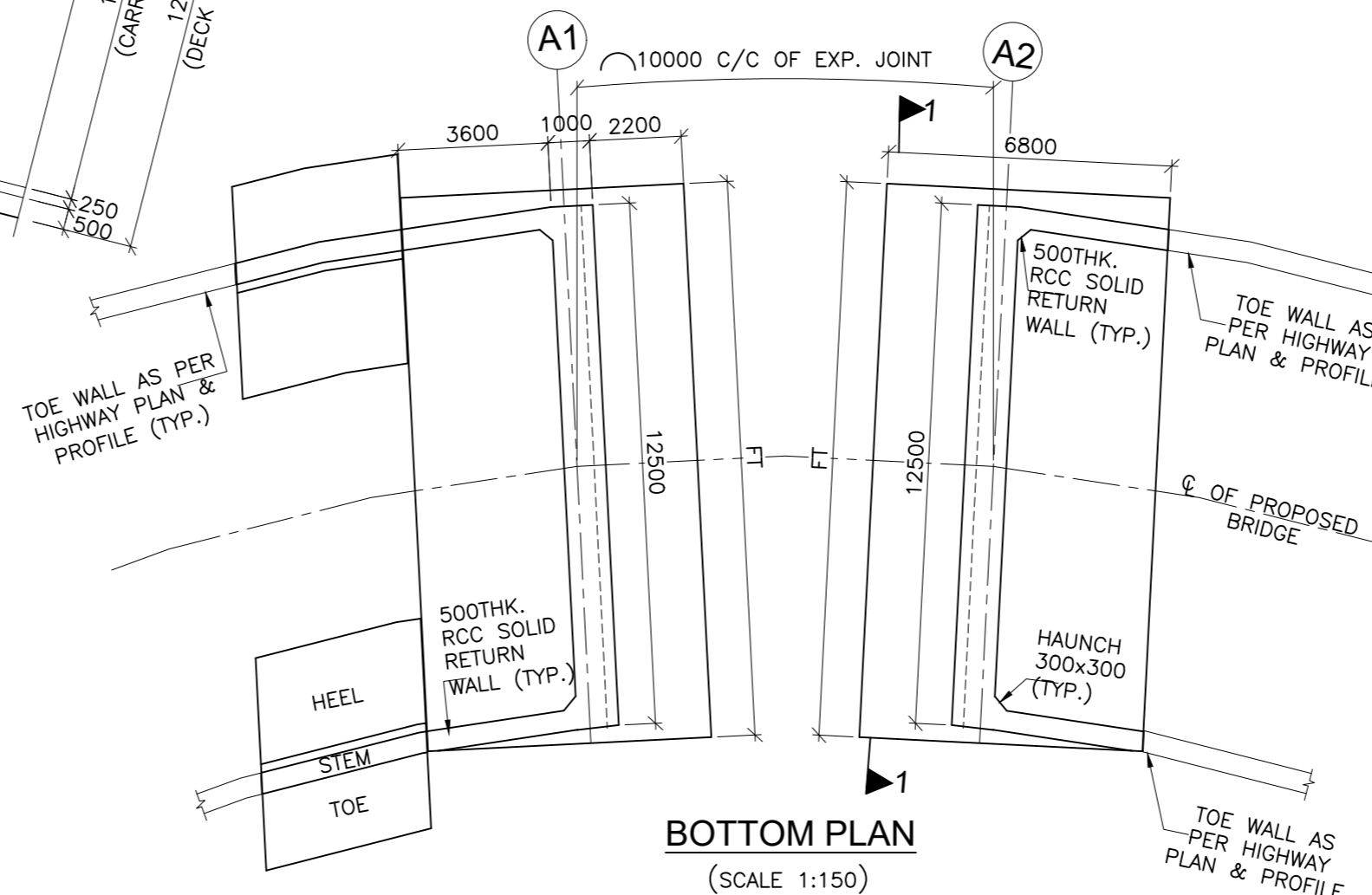
- F.R.L. : FINISHED ROAD LEVEL
- H.F.L. : HIGH FLOOD LEVEL
- CL : CENTER LINE
- LVL. : LEVEL
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- THK. : THICKNESS
- D/S : DOWNSTREAM
- U/S : UPSTREAM
- C/C : CENTER TO CENTER
- G.L. : GROUND LEVEL
- LBL. : LOWEST BED LEVEL
- MIN. : MINIMUM
- FDN. : FOUNDING LEVEL
- EXP. : EXPANSION
- BRG. : BEARING
- M.S.L. : MAXIMUM SCOUR LEVEL
- L.H.S. : LEFT HAND SIDE
- R.H.S. : RIGHT HAND SIDE

**TABLE SHOWING DIMENSIONS, LEVELS AND OTHER DETAILS OF 1X10m MINOR BRIDGE**

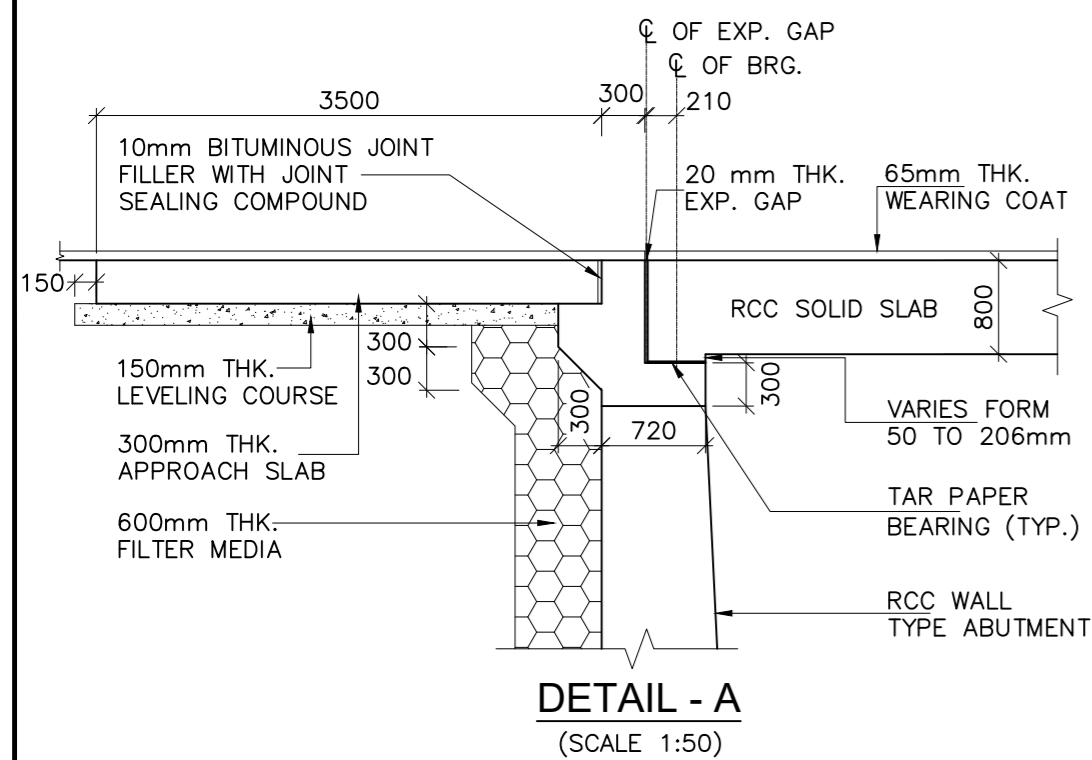
SL.No.	PROPOSED CHAINAGE (km)	LEVELS (m)				RETURN WALL THICKNESS (m)		FOOTING DIMENSIONS (m)							CURVE IN RIGHT SIDE (m)	REQUIRED SAFE BEARING CAPACITY (t/m <sup>2</sup> )	
		FORMATION LEVEL (FRL1)	FORMATION LEVEL (FRL2)	LOWEST BED LEVEL (LBL)	FOUNDING LEVEL (FRL)	T1	T2	f1	a	f2	F (f1+a+f2)	FT	h1	h2			H (h1+h2)
1	90+905	1233.116	1233.098	1226.660	1223.660	0.500	0.500	5.000	1.200	3.000	9.200	13.000	0.500	0.700	1.200	R100	24



**TOP PLAN**  
(SCALE 1:150)



**BOTTOM PLAN**  
(SCALE 1:150)



**DETAIL - A**  
(SCALE 1:50)

**NOTES:-**

- ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
- DIMENSIONS ARE NOT TO BE SCALED ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- THE BRIDGE IS DESIGNED FOR GOVERNING CASE OF FOLLOWING:
  - ONE LANE OF IRC CLASS 70R + ONE LANE OF IRC CLASS A.
  - THREE LANE OF IRC CLASS A.
  - IRC CLASS SV LOADING: SPECIAL MULTI AXLE HYDRAULIC TRAILER VEHICLE (a) (PRIME MOVER WITH 20 AXLE TRAILER-GVW=385 Tonnes)
- MODERATE CONDITION OF EXPOSURE HAS BEEN CONSIDERED IN DESIGN.
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBE AS FOLLOWS:
 

a. LEVELING COURSE (UNDER FOUNDATION)	- M10
b. LEVELING COURSE (UNDER APPROACH SLAB)	- M15
c. FOUNDATION	- M35
d. SUBSTRUCTURE	- M35
e. SUPERSTRUCTURE	- M35
f. RETURN/RETAINING WALL	- M35
g. CRASH BARRIER/RCC RAILING	- M40
h. APPROACH SLAB	- M30
- UNTENSIONED REINFORCEMENT SHALL BE THERMO MECHANICALLY TREATED, (TMT) HIGH YIELD STRENGTH DEFORMED BARS OF GRADE DESIGNATION Fe-500D CONFORMING TO IS: 1786.
- TAR PAPER BEARINGS SHALL BE PROVIDED AS PER MORT&H SPECIFICATION
- FILLER TYPE EXPANSION JOINTS SHALL BE PROVIDED AS PER PROVISION OF SP:-69
- 65mm THICK WEARING COAT COMPRISING OF 40mm THICK ASPHALTIC CONCRETE OVER LAID WITH 25mm THICK MASTIC ASPHALT SHALL BE PROVIDED AS PER SECTION 500 OF MORT&H.
- 100mm DIA WEEP HOLES AT 1000mm C/C HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN ONE OR TWO LAYERS ABOVE LOWEST WATER LEVEL IN VERTICAL WALLS OF ABUTMENT, RETURN/RETAINING WALLS.
- WATER TO BE USED IN CONCRETING AND CURING SHALL CONFIRM TO CLAUSE 18.4.5 OF IRC:112-2011.
- BACK FILLING BEHIND ABUTMENT SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX:6 OF IRC:78-2014 HAVING PROPERTIES C=0, φ≥35°, δ=20° & γd = 20 KN/m<sup>3</sup>.
- MINIMUM CLEAR COVER TO OUTER MOST REINFORCEMENT SHALL BE AS UNDER:-
 

a. SUPERSTRUCTURE	- 40mm
b. SUBSTRUCTURE (EARTH FACE)	- 75mm
c. SUBSTRUCTURE (NOT EARTH FACE)	- 50mm
d. FOUNDATION	- 75mm
- THE BRIDGE IS DESIGNED FOR PROVISION OF SEISMIC ZONE-V AS PER CLAUSE 219 OF IRC:6:2017.
- REQUIRED SAFE BEARING CAPACITY IS MENTIONED IN THE TABLE & SHALL BE ASCERTAINED BEFORE EXECUTION OF WORK AT SITE.
- THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY PLAN AND PROFILE DRAWINGS.
- ALL CHAINAGES, FRL, GL SHALL BE CONFIRMED AT SITE PRIOR TO EXECUTION.

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
(MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
GOVERNMENT OF INDIA

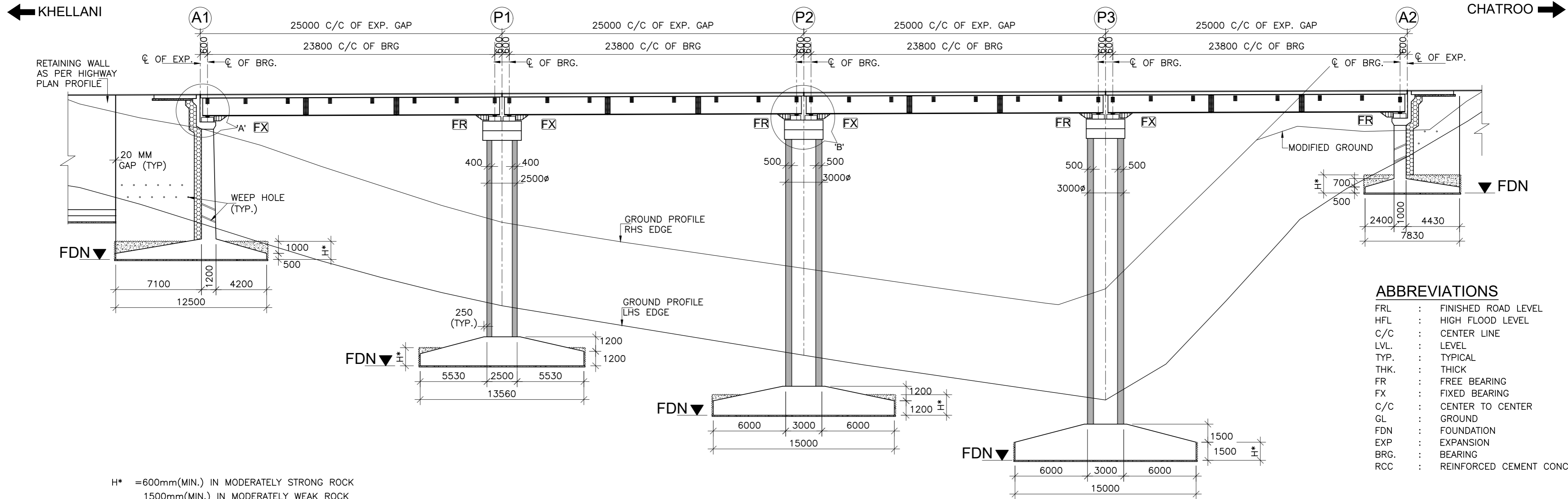
CONSULTANT:  
  
**RODIC CONSULTANTS PVT. LTD.**  
1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
NEW DELHI - 110001 (INDIA)  
In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550	<b>TENDER DRAWING</b>
Designed: HB	Scale :- As Shown
Drawn: KS	
Designed: VT	
Approved: AM	

Project:-	GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT CH. 90+905
Drawing Title	
Sheet size: A2	
Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/MNB/90+905/01/R1

CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR	Annex III
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# **VIADUCT CUM BRIDGE**



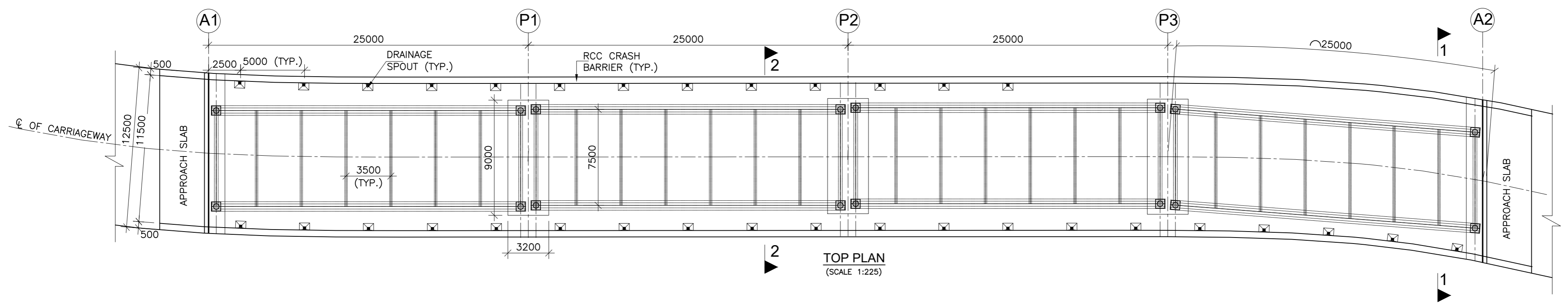
**ABBREVIATIONS**

- FRL : FINISHED ROAD LEVEL
- HFL : HIGH FLOOD LEVEL
- C/C : CENTER LINE
- LVL. : LEVEL
- TYP. : TYPICAL
- THK. : THICK
- FR : FREE BEARING
- FX : FIXED BEARING
- C/C : CENTER TO CENTER
- GL : GROUND
- FDN : FOUNDATION
- EXP : EXPANSION
- BRG. : BEARING
- RCC : REINFORCED CEMENT CONCRETE

H\* = 600mm(MIN.) IN MODERATELY STRONG ROCK  
 1500mm(MIN.) IN MODERATELY WEAK ROCK

FORMATION LEVEL (m)	1193.926	1194.007	1194.088	1194.169	1194.250
LOWEST GROUND LEVEL (m)	1183.222	1176.380	1172.281	1168.569	1188.729
FOUNDING LEVEL (m)	1180.226	1171.407	1167.308	1163.569	1185.730
CHAINAGE (Km)	84+780	84+805	84+830	84+855	84+880

SECTIONAL ELEVATION OF PROPOSED BRIDGE  
 (SCALE 1:225)





TOP PLAN  
 (SCALE 1:225)

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

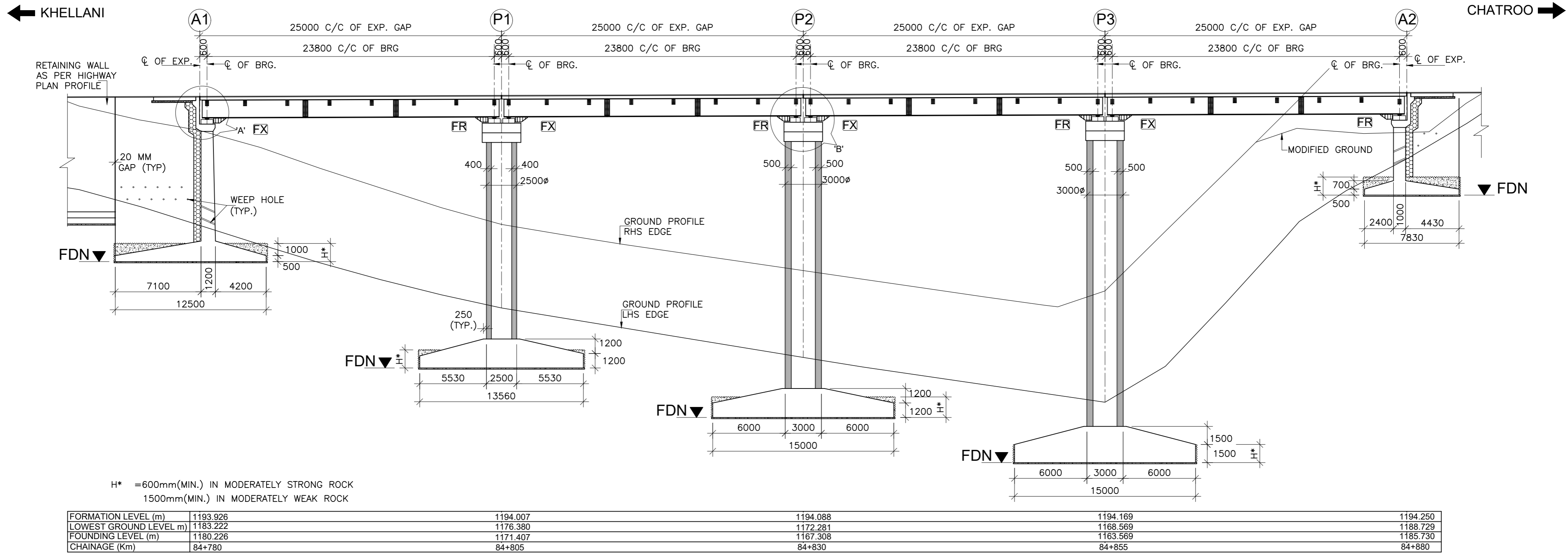
CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
 (MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
 GOVERNMENT OF INDIA



CONSULTANT:  
  
**RODIC CONSULTANTS PVT. LTD.**  
 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA)  
 In Association with  
  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550	<b>TENDER DRAWING</b>
Designed: HB	Scale :- As Shown
Drawn: SB	
Designed: VT	
Approved: AM	

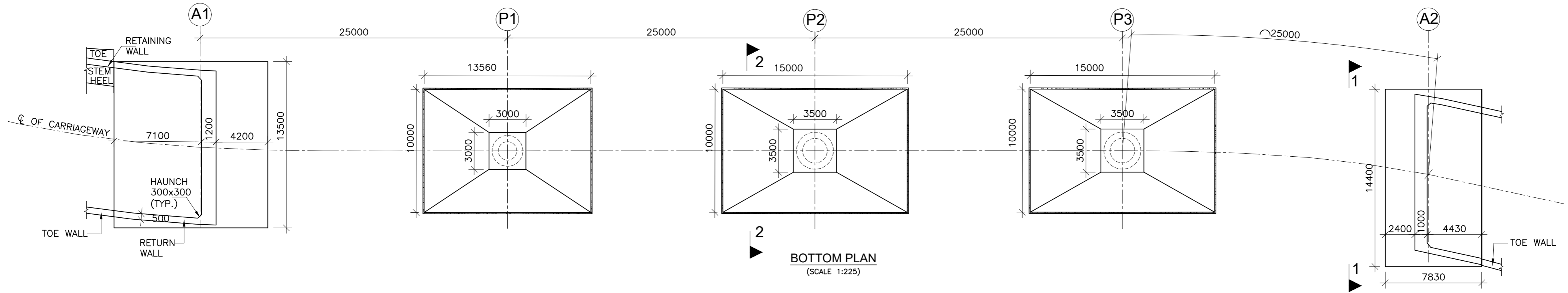
Project:-	<b>CONSTRUCTION &amp; UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 &amp; LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR</b>
Drawing Title	<b>GENERAL ARRANGEMENT DRAWING OF VIADUCT CUM BRIDGE AT CH. 84+830</b>
Sheet size: A2	Annex III
Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/ VIA-BRG/84+830/01/R1



H\* = 600mm(MIN.) IN MODERATELY STRONG ROCK  
 1500mm(MIN.) IN MODERATELY WEAK ROCK

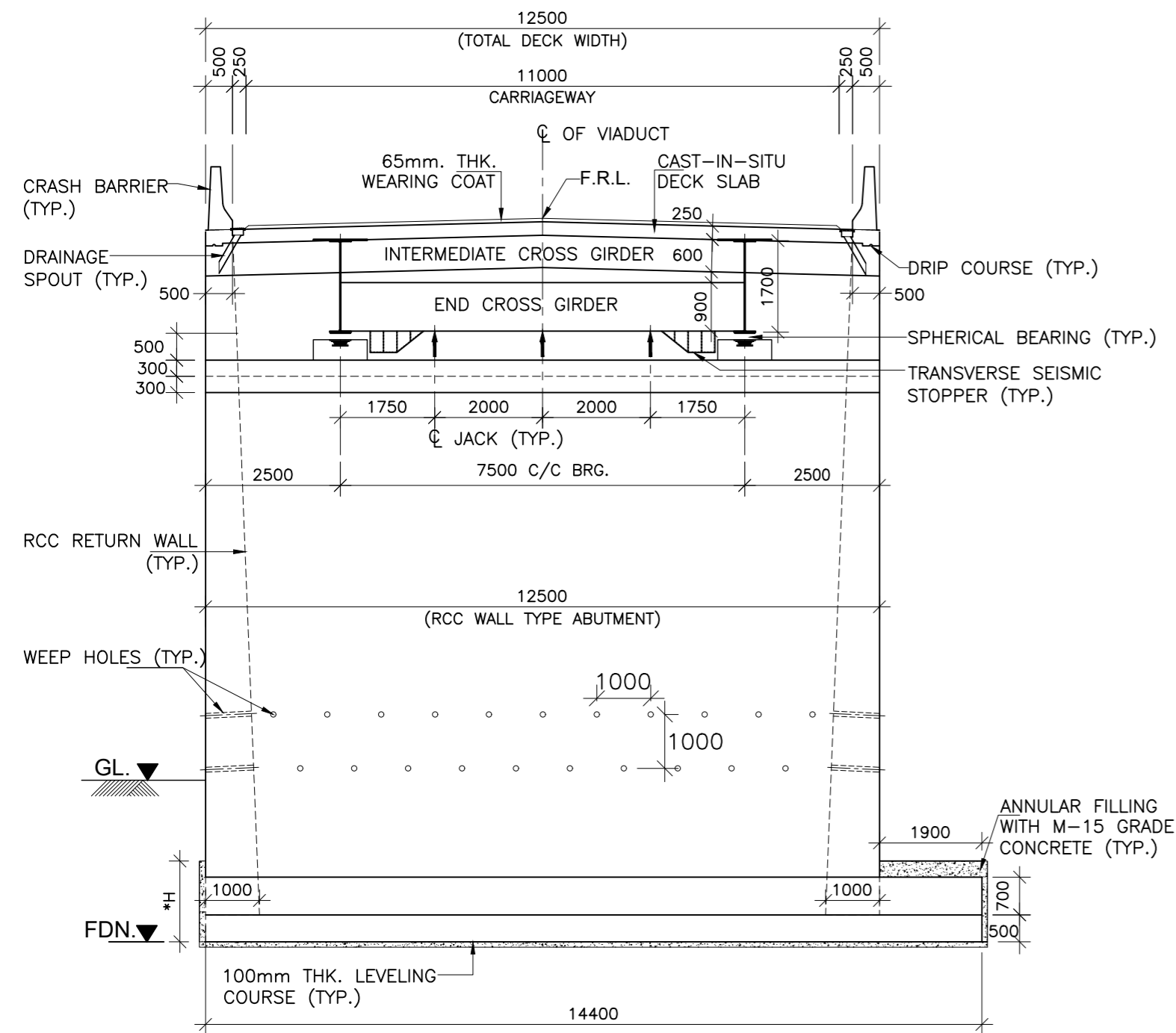
FORMATION LEVEL (m)	1193.926	1194.007	1194.088	1194.169	1194.250
LOWEST GROUND LEVEL (m)	1183.222	1176.380	1172.281	1168.569	1188.729
FOUNDING LEVEL (m)	1180.226	1171.407	1167.308	1163.569	1185.730
CHAINAGE (Km)	84+780	84+805	84+830	84+855	84+880

SECTIONAL ELEVATION OF PROPOSED BRIDGE  
 (SCALE 1:225)

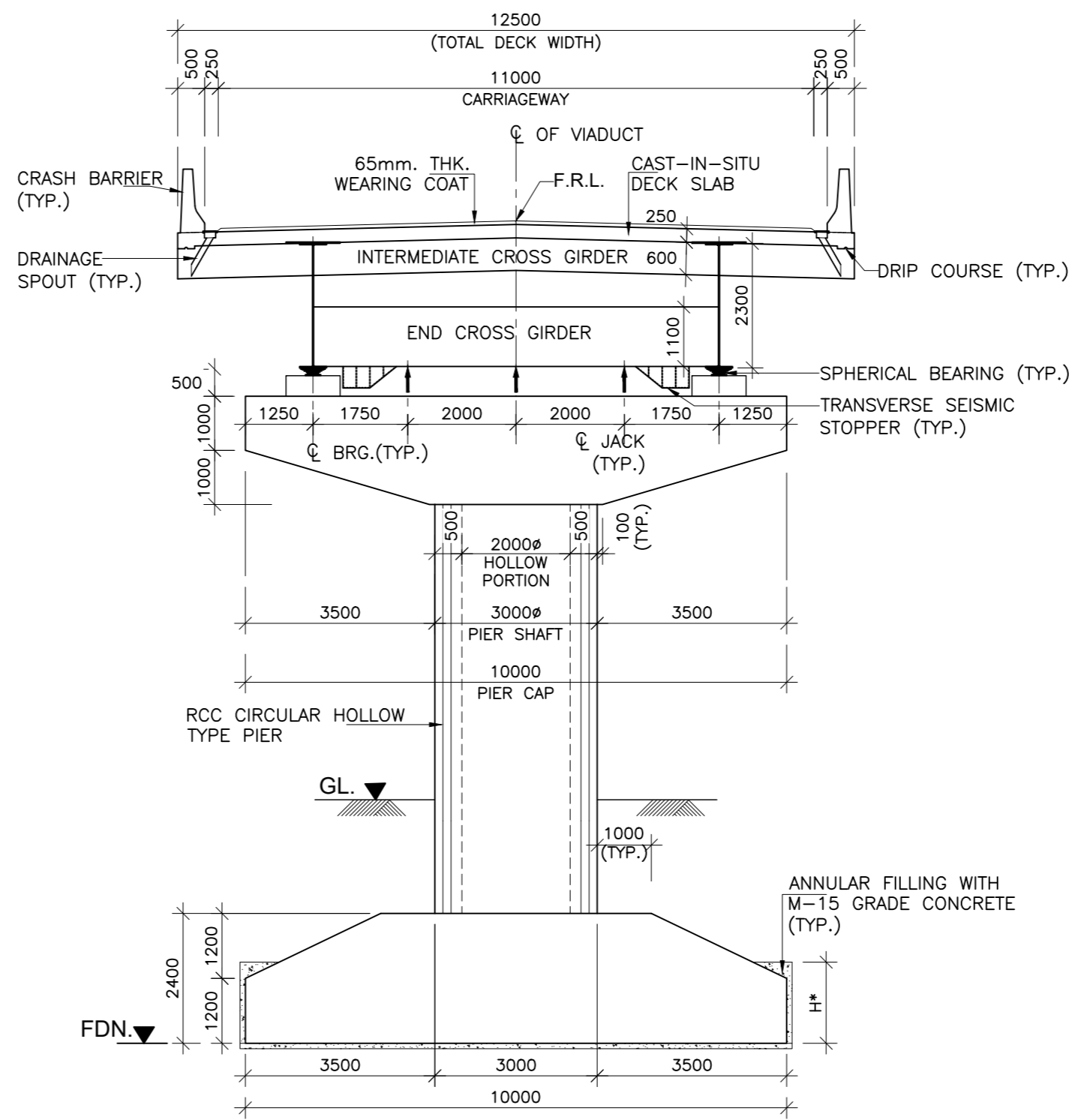


BOTTOM PLAN  
 (SCALE 1:225)

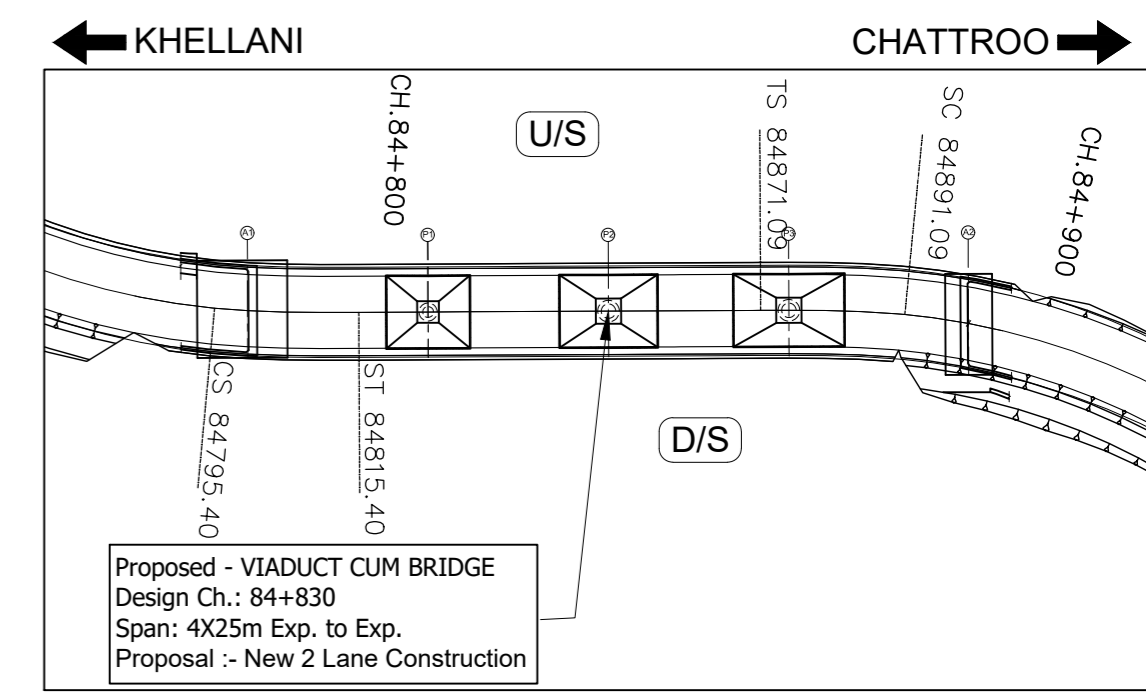
ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR		
R0	Oct :-2020		NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	 <b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with <b>Monarch Surveyors and Engineering Consultants Pvt. Ltd.,</b>	From Design Km. 80+675 to Km. 95+550	TENDER DRAWING		
R1	Dec :-2020							
					Scale :- As Shown	Drawing Title	GENERAL ARRANGEMENT DRAWING OF VIADUCT CUM BRIDGE AT CH. 84+830	Annex III
						Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/ VIA-BRG/84+830/02/R1	



**SECTION 1-1**  
(SCALE 1:100)



**SECTION 2-2**  
(SCALE 1:100)



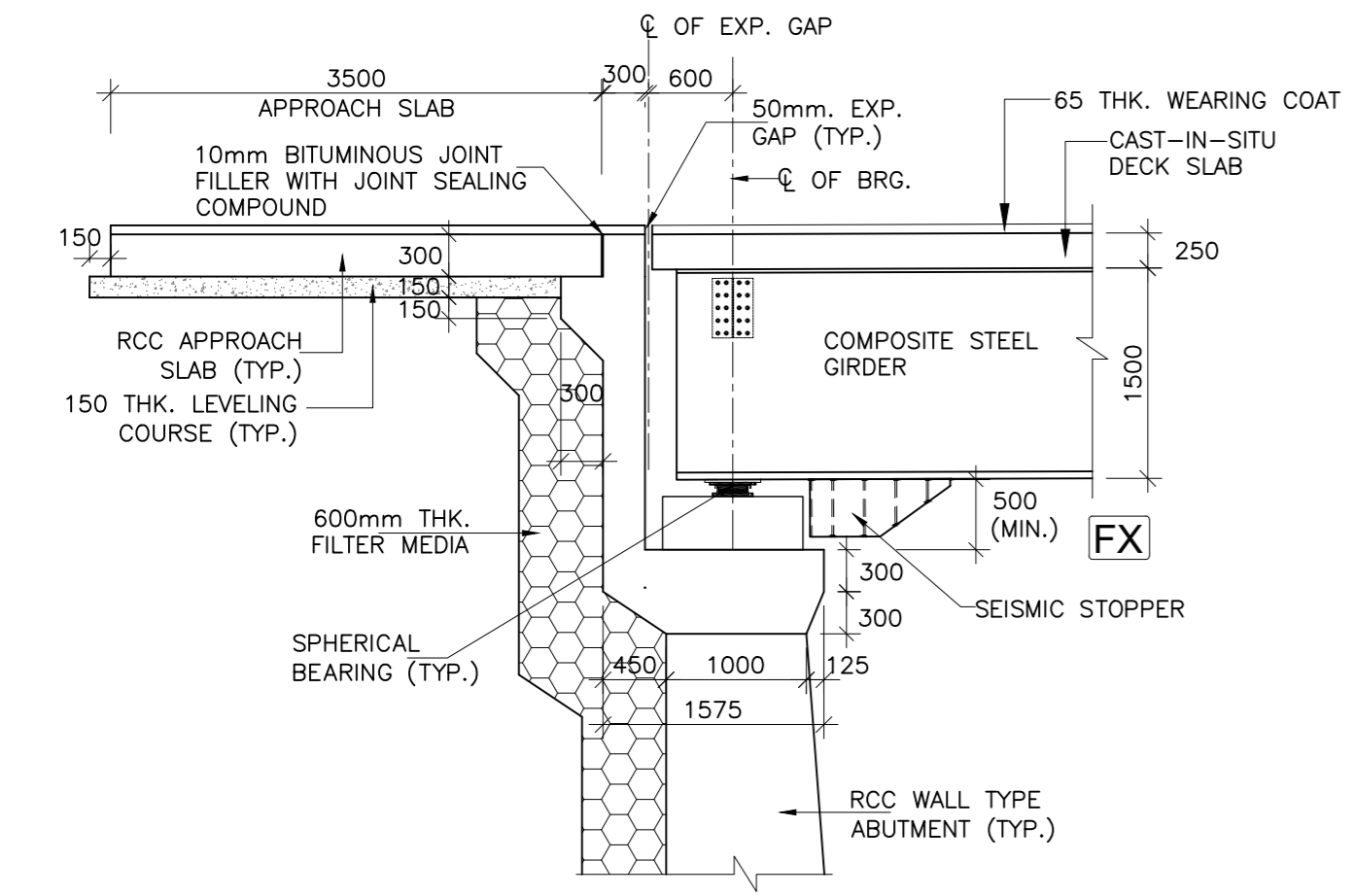
**KEY PLAN**  
(SCALE 1:1000)

**NOTE:-**

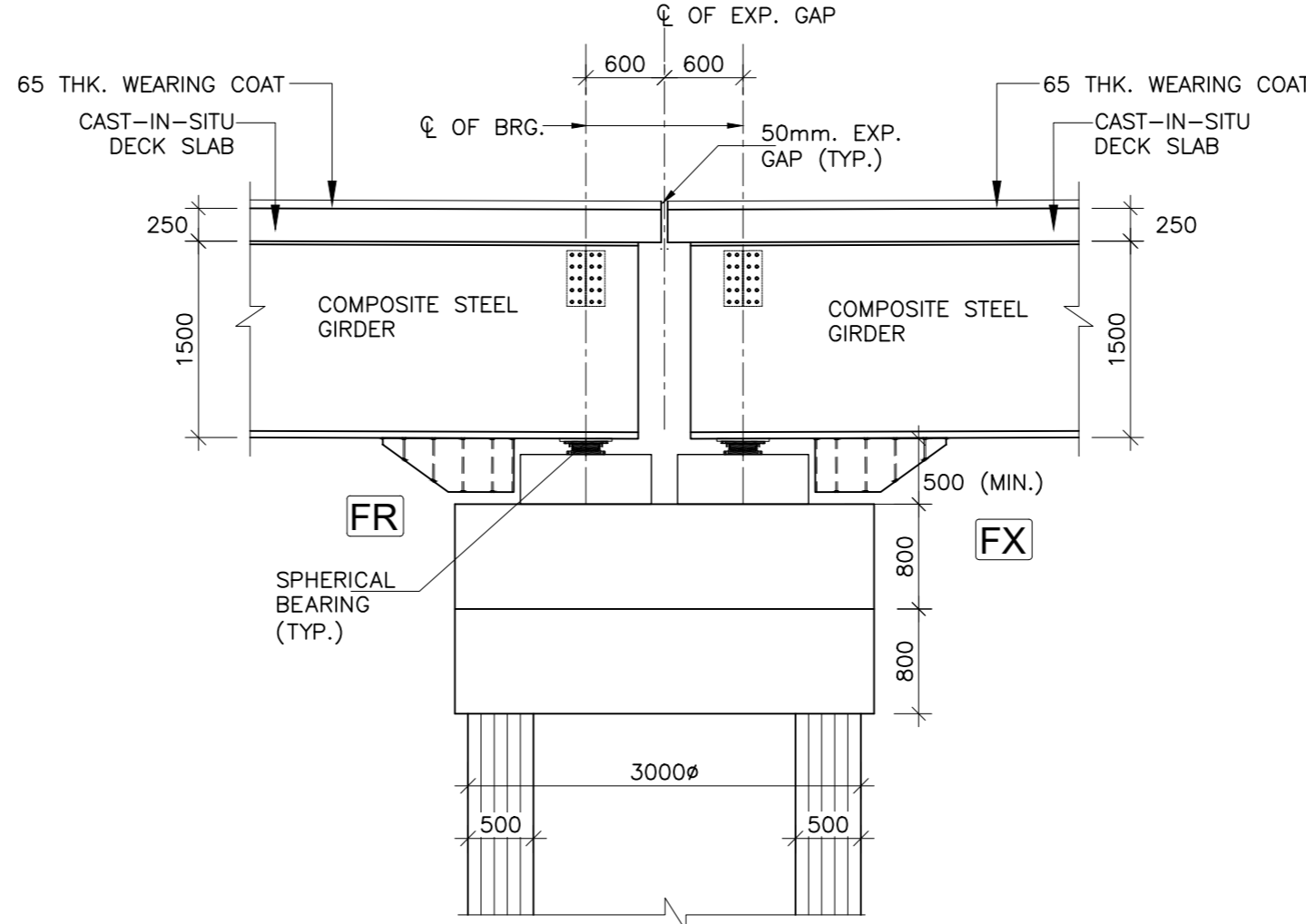
- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
- THE BRIDGE IS DESIGNED FOR GOVERNING CASE OF FOLLOWING
  - ONE LANE OF IRC CLASS 70R + ONE LANE OF IRC CLASS A.
  - THREE LANE OF IRC CLASS A
  - IRC CLASS SV LOADING: SPECIAL MULTI AXLE HYDRAULIC TRAILER VEHICLE (PRIME MOVER WITH 20 AXLE TRAILER-GVW=385 Tonnes)
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS :-
 

RCC CAST-IN-SITU DECK SLAB	-35 MPa
ABUTMENT, ABUTMENT CAP, DIRT WALL & FOUNDATION	-35 MPa
RCC CRASH BARRIER	-40 MPa
RCC APPROACH SLAB	-30 MPa
LEVELING COURSE UNDER APPROACH SLAB	-15 MPa
LEVELING COURSE UNDER FOUNDATION	-10 MPa
PEDESTAL & SEISMIC RESTRAINER	-45 MPa
- THE REINFORCING BARS SHALL BE OF THERMO MECHANICAL TREATED HYSD (GRADE DESIGNATION Fe-500D) CONFORMING TO IS:1786 STANDARDS.
- CORRUGATED HDPE SHEATHING CONFORMING TO IS: 14268-1995.
  - FOR SUPER STRUCTURE -50mm
  - FOR FOUNDATION -75mm
  - FOR SUBSTRUCTURE:
    - EARTH FACE -75mm
    - NON EARTH FACE -50mm
- 65mm THK. WEARING COURSE COMPRISING OF 40mm THK. ASPHALTIC CONCRETE OVER LAID WITH 25mm THK. MASTIC ASPHALT SHALL BE PROVIDED AS PER SECTION 500 OF MORTH SPECIFICATIONS.
- SPHERICAL BEARINGS SHALL BE DESIGNED AS PER PROVISION OF IRC : 83 (PART-IV 2014).
- STRIP SEAL TYPE EXPANSION JOINTS SHALL BE PROVIDED AS PER PROVISION OF SP-69.
- BACK FILLING BEHIND ABUTMENT SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX:6 OF IRC:78-2014 HAVING PROPERTIES C=0,  $\phi \geq 35^\circ$ ,  $\delta = 22.5^\circ$  &  $\gamma_d = 20 \text{ KN/m}^3$
- 100mm DIA WEEP HOLES AT 1000mm C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER IN VERTICAL WALLS OF THE ABUTMENT SHAFT AND RETURN WALL FROM 150mm ABOVE G.L. IN ONE OR TWO LAYERS AT A SLOPE OF 1 VERTICAL TO 20 HORIZONTAL TOWARDS THE DRAINING FACE.
- WATER TO BE USED IN CONCRETING & CURING SHALL CONFORM TO CLAUSE 18.8.4(4) IRC : 112:2011.
- SAFE BEARING CAPACITY ASSUMED IN DESIGN AT PROPOSED FOUNDING LEVEL IS 35 t/m<sup>2</sup>. THIS SHALL BE ASCERTAINED BEFORE EXECUTION OF WORK AT SITE.
- THE BRIDGE IS DESIGNED FOR SEISMIC ZONE-V
- MODERATE CONDITION OF EXPOSURE SHALL BE CONSIDERED IN DESIGN.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY DRAWING. FRL & CAMBER, SUPER ELEVATION AT PARTICULAR LOCATION SHALL BE VERIFIED WITH THE HIGHWAY DRAWINGS.
- THE MINIMUM EMBEDMENT OF THE FOUNDATIONS INTO THE ROCK BELOW SHALL BE AS FOLLOWS:
 

FOR ROCKS OF MODERATELY STRONG	- 0.6M
FOR ROCKS OF MODERATELY WEAK	- 1.5M
- RCC RETAINING WALL SHALL BE PROVIDED UPTO 2M HEIGHT ABOVE GROUND LEVEL. BELOW 2M HEIGHT, PCC TOE WALL SHALL BE PROVIDED.
- PEDESTAL BEARING SHALL BE PLACED BETWEEN TRUE HORIZONTAL SURFACES.



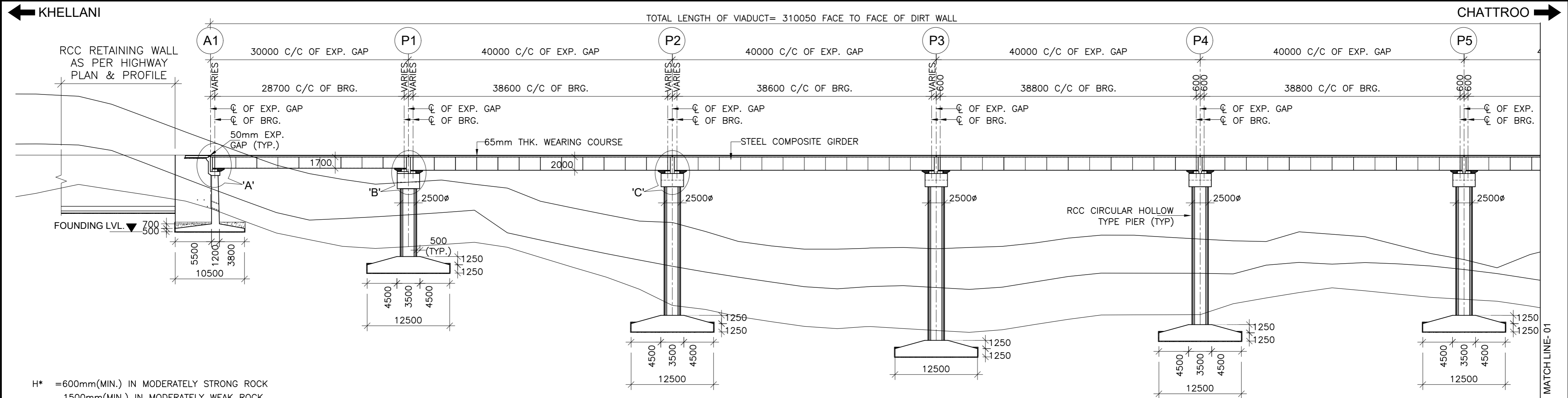
**DETAIL-A**  
(SCALE 1:50)



**DETAIL-B**  
(SCALE 1:50)

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R0	Oct :-2020		<b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	<b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with <b>Monarch Surveyors and Engineering Consultants Pvt. Ltd.,</b>	From Design Km. 80+675 to Km. 95+550	<b>TENDER DRAWING</b>
R1	Dec :-2020					
			<b>NHIDCL</b> BUILDING INFRASTRUCTURE - BUILDING THE NATION	<b>MONARCH</b>	Scale :- As Shown	Drawing Title <b>GENERAL ARRANGEMENT DRAWING OF VIADUCT CUM BRIDGE AT CH. 84+830</b>

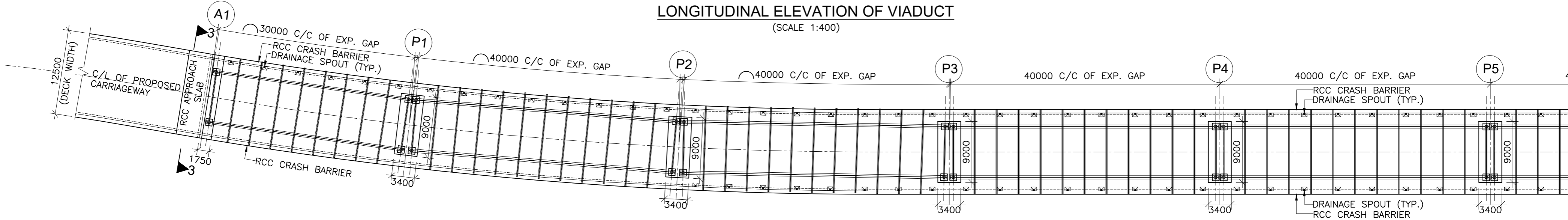
**VIADUCTS**



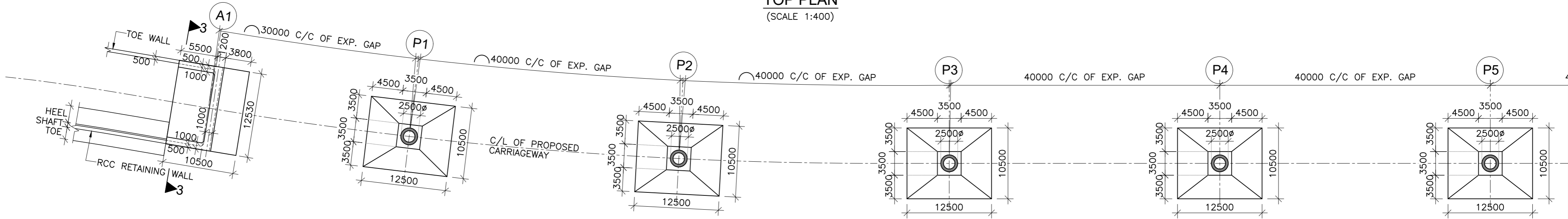
H\* = 600mm(MIN.) IN MODERATELY STRONG ROCK  
1500mm(MIN.) IN MODERATELY WEAK ROCK

FORMATION LEVEL (m)	1163.000	1163.000	1163.000	1163.000	1163.000	1163.000
LOWEST GROUND LEVEL (m)	1154.933	1149.146	1140.243	1136.445	1138.842	1141.167
FOUNDING LEVEL (m)	1151.400	1145.145	1136.240	1132.445	1134.840	1136.240
CHAINAGE (Km)	82+250	82+280	82+320	82+360	82+400 82+405	82+440

LONGITUDINAL ELEVATION OF VIADUCT  
(SCALE 1:400)



TOP PLAN  
(SCALE 1:400)





BOTTOM PLAN  
(SCALE 1:400)

SPAN ARRANGEMENT  
1x30.0m+7x40.0m  
Total Length of Bridge= 310.0m

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
(MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
GOVERNMENT OF INDIA



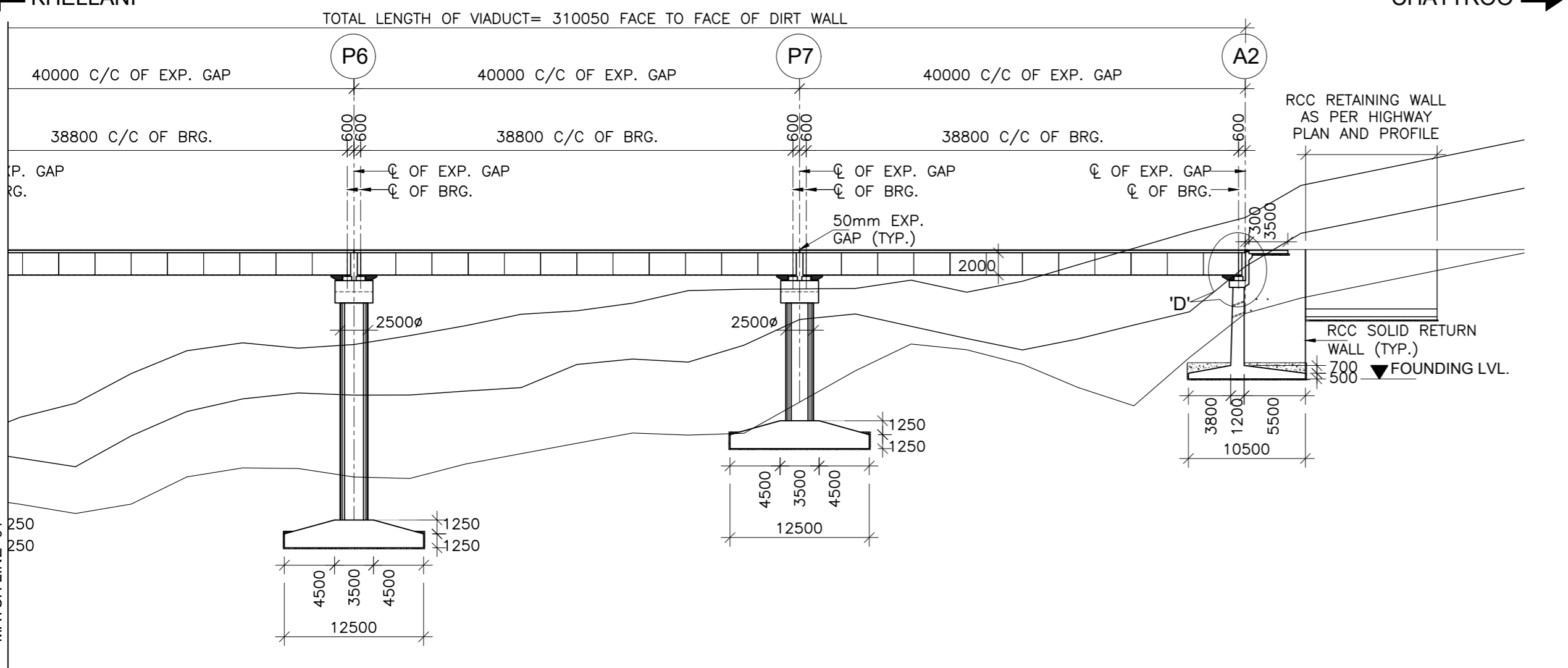
CONSULTANT:  
 **RODIC CONSULTANTS PVT. LTD.**  
1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
NEW DELHI - 110001 (INDIA)  
In Association with  
 **Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550	<b>TENDER DRAWING</b>
Designed: AV	Scale :- As Shown
Drawn: AH	
Designed: VT	
Approved: AM	

Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
Drawing Title	GENERAL ARRANGEMENT DRAWING FOR VIADUCT AT CH. 82+405
Sheet size: A2	Annex III
Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/VIA/82+405/01/R1

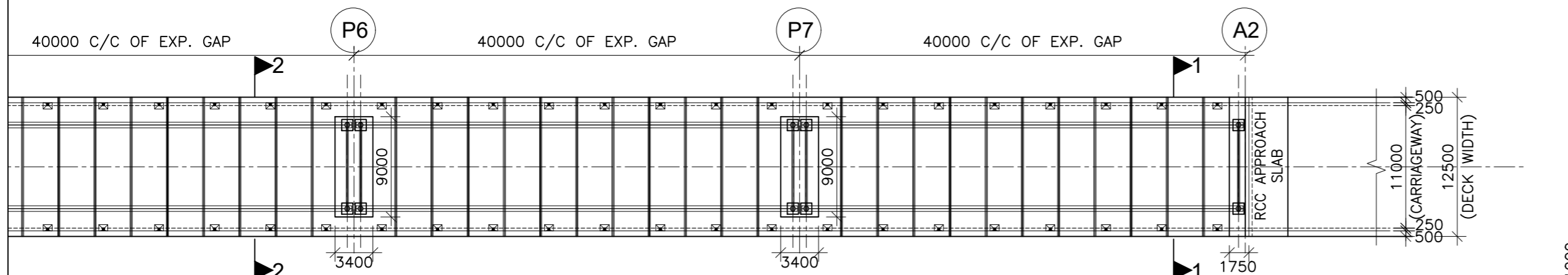
KHELLANI ←

→ CHATTROO

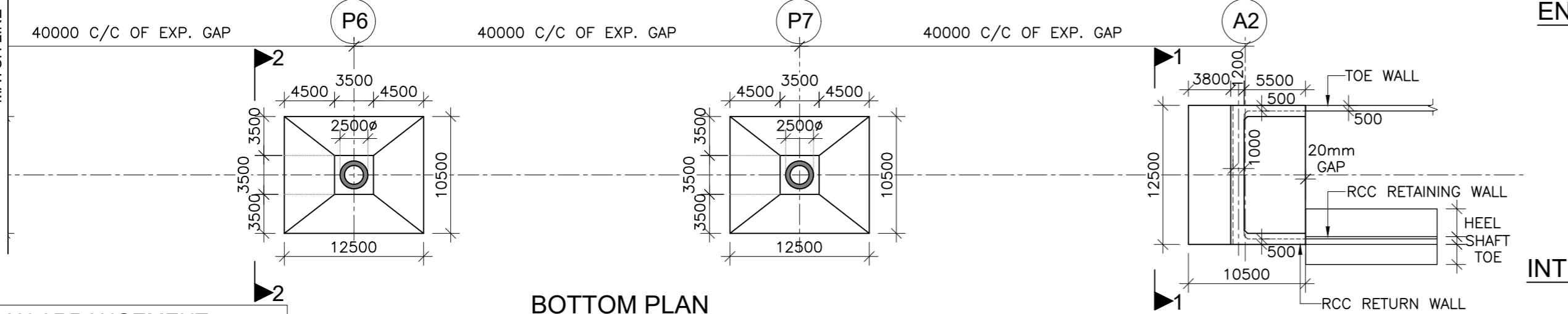


1163.000	1163.000	1163.000	FORMATION LEVEL (m)
1142.594	1149.309	1157.269	LOWEST GROUND LEVEL (m)
1136.240	1145.145	1151.400	FOUNDING LEVEL (m)
82+480	82+520	82+560	CHAINAGE (Km)

**LONGITUDINAL ELEVATION OF VIADUCT**  
(SCALE 1:400)

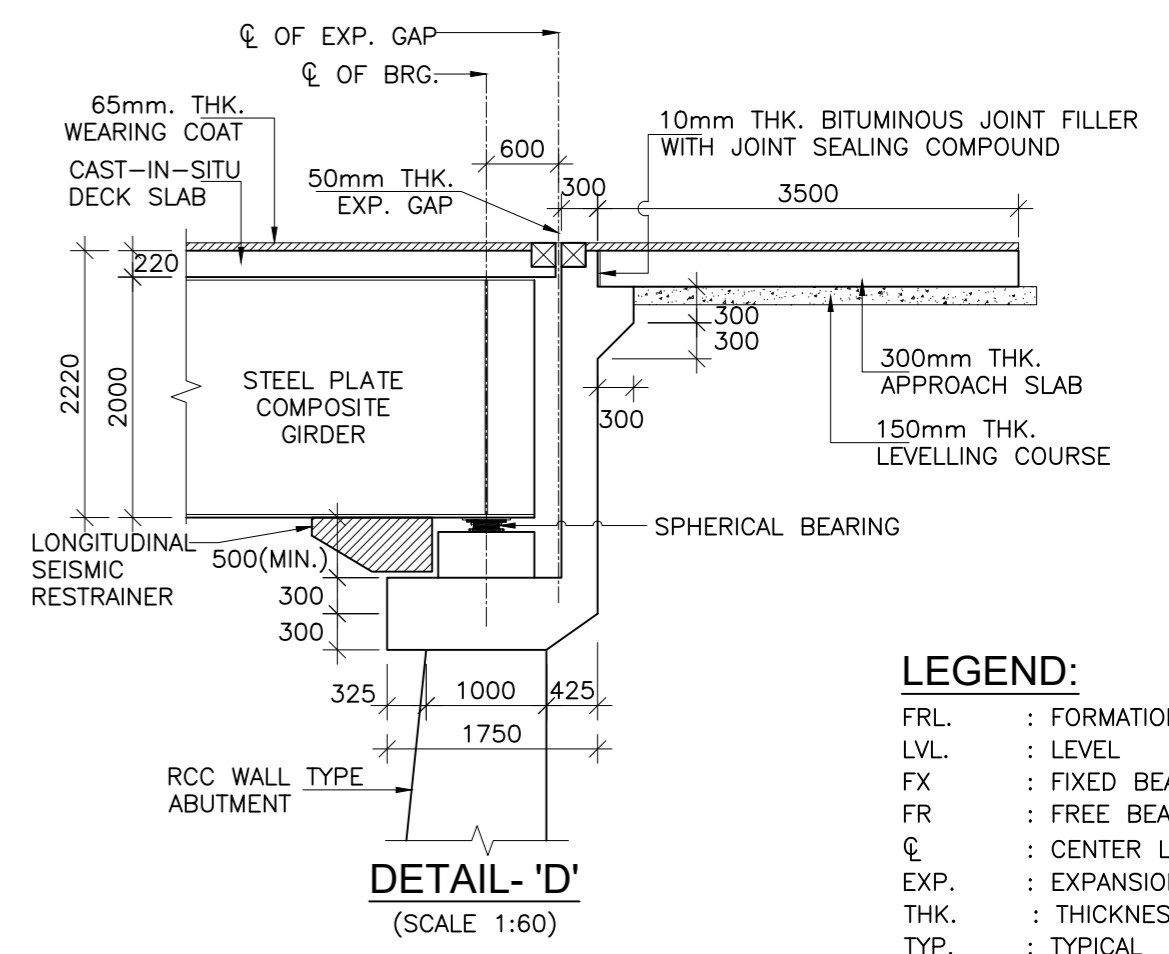
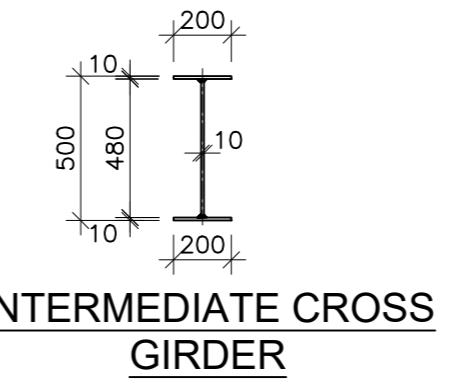
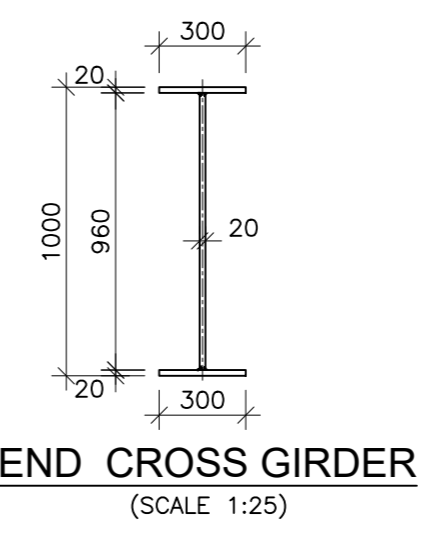
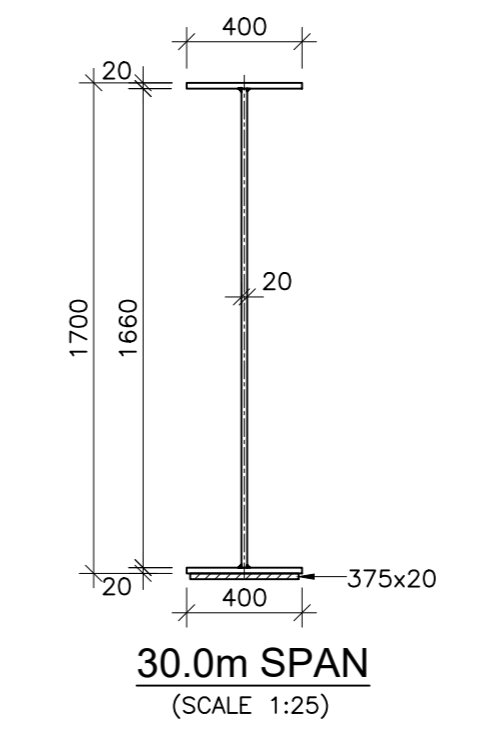
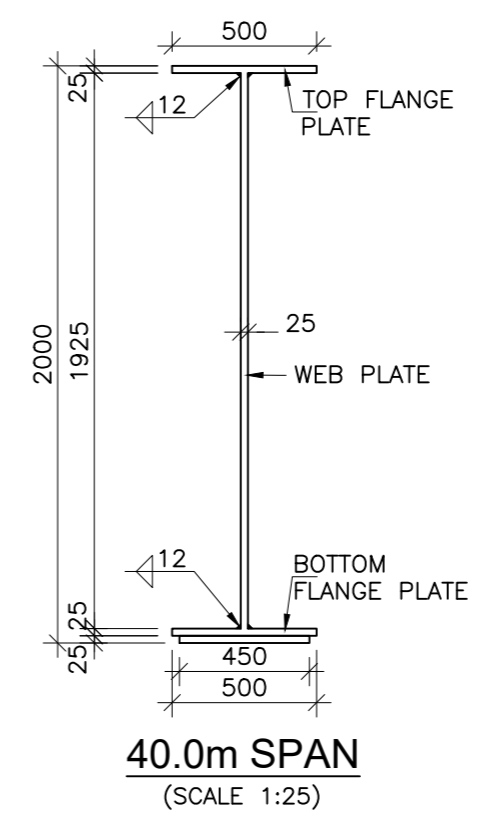


**TOP PLAN**  
(SCALE 1:400)



**BOTTOM PLAN**  
(SCALE 1:400)

**SPAN ARRANGEMENT**  
1x30.0m+7x40.0m  
Total Length of Bridge= 310.0m



- NOTES :-**
- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
  - EACH CARRIAGEWAY OF PROPOSED BRIDGE IS DESIGNED FOR ONE LANE OF IRC CLASS 70R + ONE LANE OF IRC CLASS A OR 3 LANES OF IRC CLASS A LOADING GOVERNS.
  - EACH CARRIAGEWAY OF PROPOSED BRIDGE IS ALSO DESIGNED FOR IRC CLASS SV LOADING: SPECIAL MULTI AXLE HYDRAULIC TRAILER VEHICLE (PRIME MOVER WITH 20 AXLE TRAILER-GW=385 Tonnes)
  - CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS :-  
RCC DECK SLAB OVER STEEL COMPOSITE GIRDER -35 MPa  
ABUTMENT, ABUTMENT CAP, DIRT WALL & FOUNDATION -35 MPa  
RCC CRASH BARRIER -40 MPa  
RCC APPROACH SLAB -30 MPa  
LEVELING COURSE UNDER APPROACH SLAB -15 MPa  
LEVELING COURSE UNDER FOUNDATION -10 MPa  
PEDESTAL & SEISMIC RESTRAINER -45 MPa
  - THE REINFORCING BARS SHALL BE OF THERMO MECHANICALLY TREATED/CORROSION RESISTANT STEEL (TMT/CRS) (GRADE DESIGNATION Fe-500D) CONFORMING TO IS:1786 STANDARDS.
  - ALL STRUCTURAL STEEL SHALL BE OF GRADE E350 (FY 330) MPA CONFORM TO IS:2062-1999.
  - CLEAR COVER TO OUTER MOST STEEL SHALL BE AS UNDER:-  
a) FOR SUPERSTRUCTURE -50mm  
b) FOR FOUNDATION -75mm  
c) FOR SUBSTRUCTURE:  
i) EARTH FACE -75mm ii) NON EARTH FACE -50mm
  - 65mm THK. WEARING COURSE COMPRISING OF 40mm THK. ASPHALTIC CONCRETE OVER LAID WITH 25mm THK. MASTIC ASPHALT SHALL BE PROVIDED AS PER SECTION 500 OF MORTH SPECIFICATIONS.
  - SPHERICAL BEARINGS SHALL BE DESIGNED AS PER PROVISION OF IRC : 83 (PART-IV 2014).
  - STRIP SEAL TYPE EXPANSION JOINTS SHALL BE PROVIDED AS PER PROVISION OF IRC: SP-69.
  - BACK FILLING BEHIND ABUTMENT SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX:6 OF IRC:78-2014 HAVING PROPERTIES C=0,  $\phi=35^\circ$ ,  $\delta=20'$  &  $\gamma_d = 20 \text{ KN/m}^3$
  - WATER TO BE USED IN CONCRETING & CURING SHALL CONFORM TO CLAUSE 18.8.4(4) IRC: 112:2019.
  - SAFE BEARING CAPACITY CONSIDERED IN DESIGN AT PROPOSED FOUNDING LEVEL IS  $40 \text{ t/m}^2$ . THIS SHALL BE ASCERTAINED BEFORE EXECUTION OF WORK AT SITE.
  - THE BRIDGE IS DESIGNED FOR SEISMIC ZONE-V
  - MODERATE CONDITION OF EXPOSURE SHALL BE CONSIDERED IN DESIGN.
  - THE STRUCTURAL STEEL SHALL BE ALUMINUM METALISED BEFORE LAUNCHING OF THE GIRDER.
  - FOR FABRICATION, WORKMANSHIP, INSPECTION & TESTING, PROTECTION AGAINST CORROSION ETC, RELEVANT PROVISIONS OF IRC 24-2010 SHALL BE FOLLOWED.
  - THE MINIMUM EMBEDMENT OF THE FOUNDATIONS INTO THE ROCK BELOW SHALL BE AS FOLLOWS:  
FOR ROCKS OF MODERATELY STRONG - 0.6M  
FOR ROCKS OF MODERATELY WEAK - 1.5M
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY DRAWING. FRL & CAMBER, SUPER ELEVATION AT PARTICULAR LOCATION SHALL BE VERIFIED WITH THE HIGHWAY DRAWINGS.

**LEGEND:**

FRL.	: FORMATION LEVEL
LVL.	: LEVEL
FX	: FIXED BEARING
FR	: FREE BEARING
CL	: CENTER LINE
EXP.	: EXPANSION
THK.	: THICKNESS
TYP.	: TYPICAL
BRG.	: BEARING
ABUT.	: ABUTMENT
GL.	: GROUND LEVEL
FDN.	: FOUNDING LEVEL

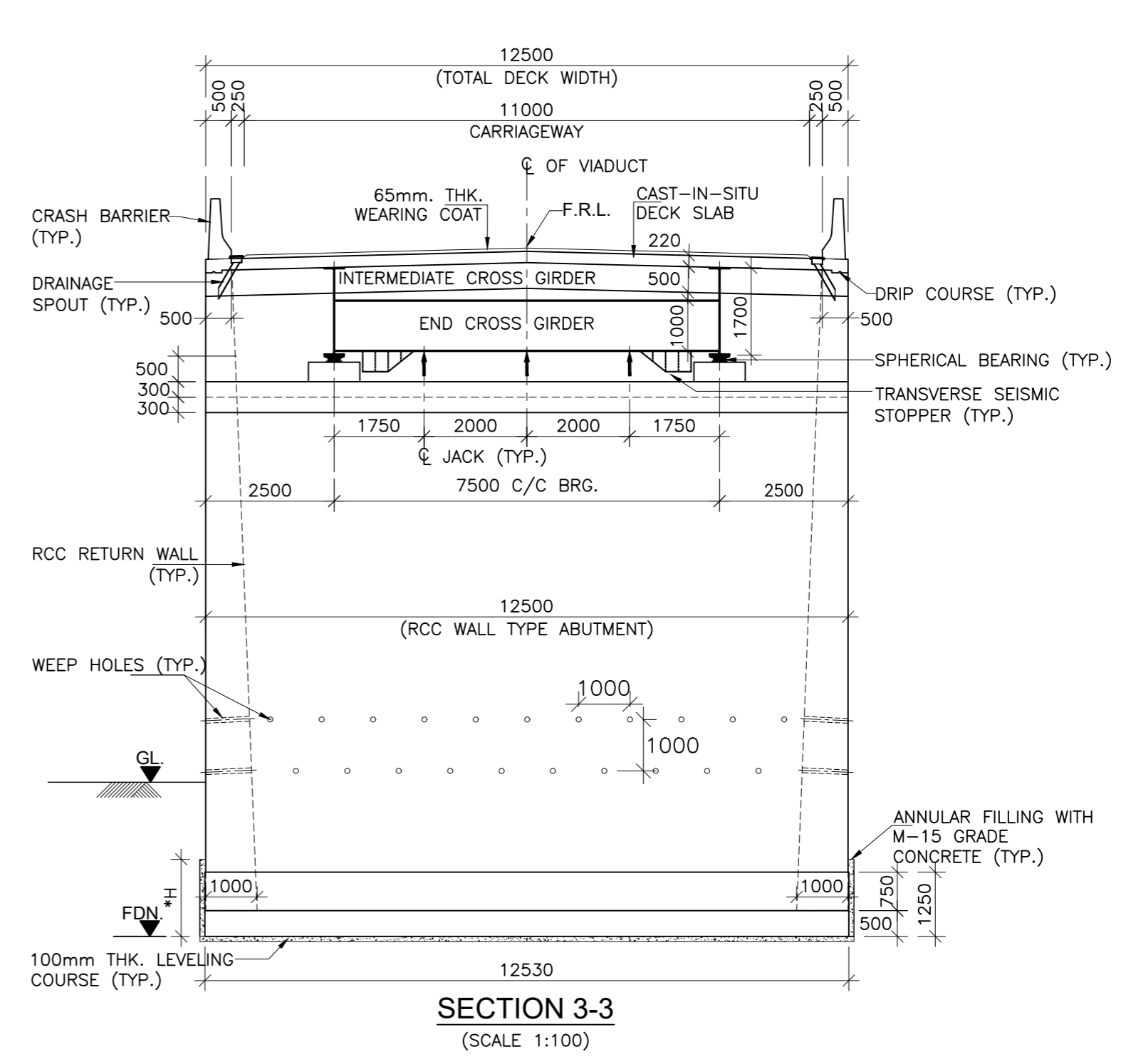
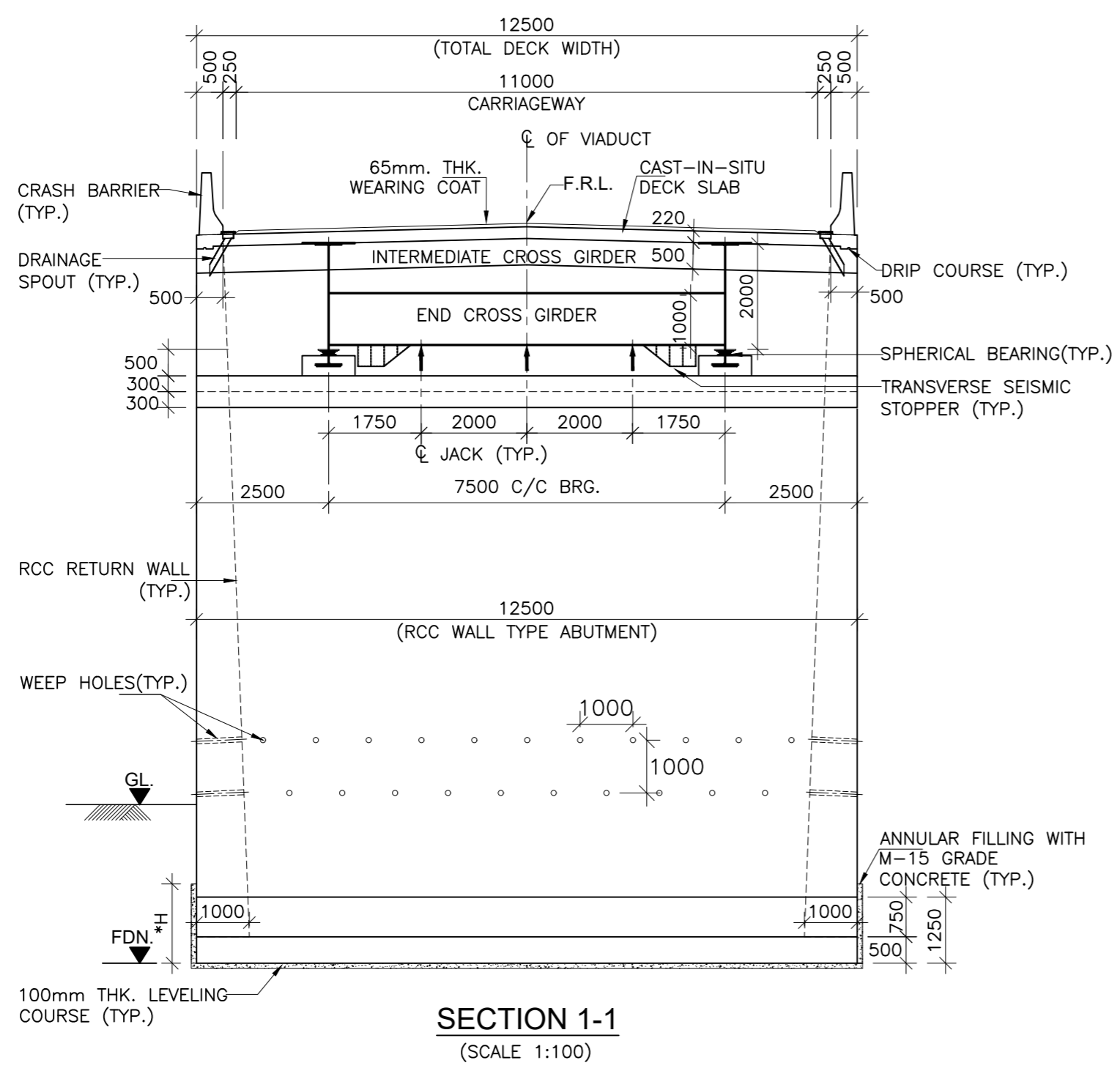
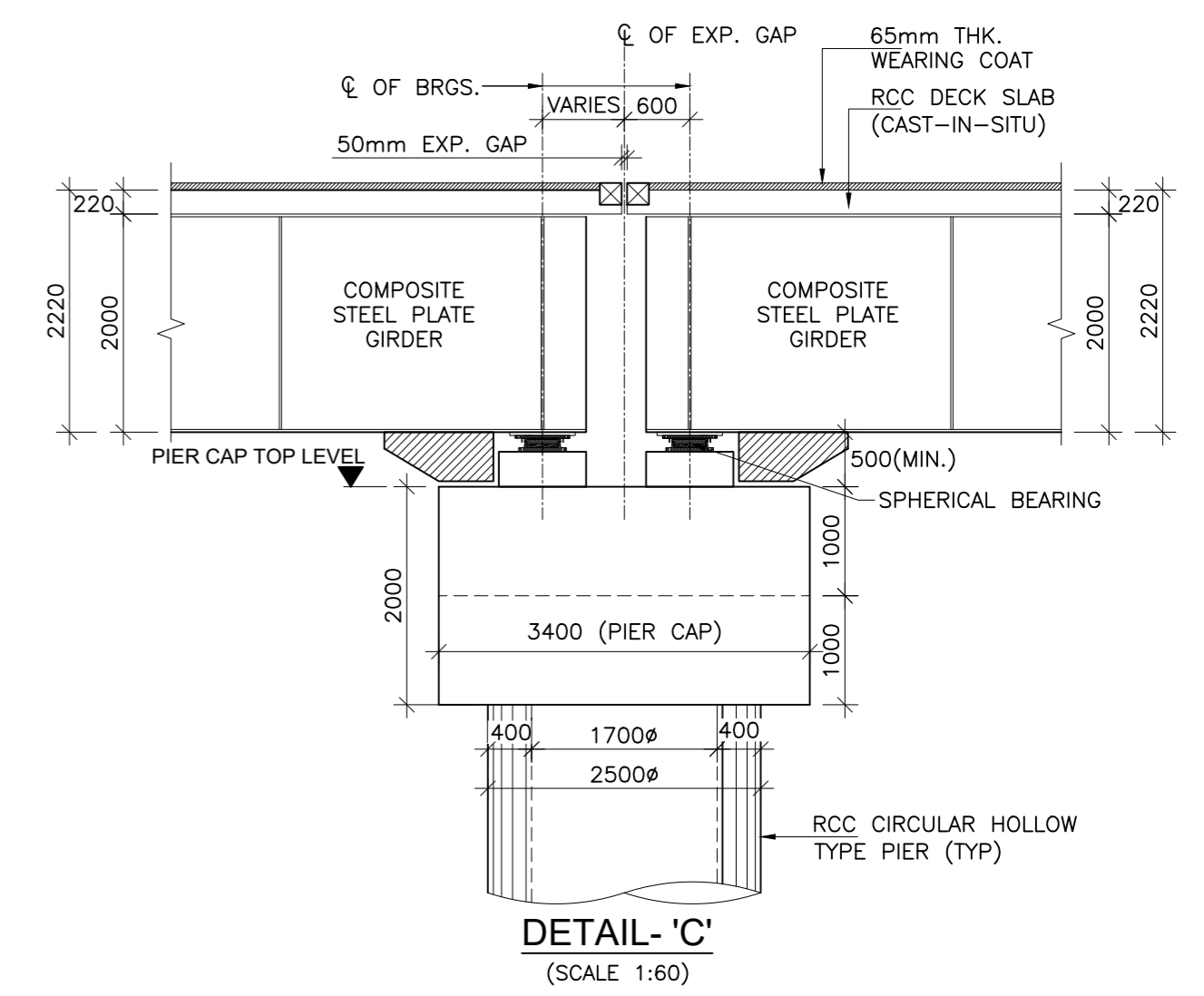
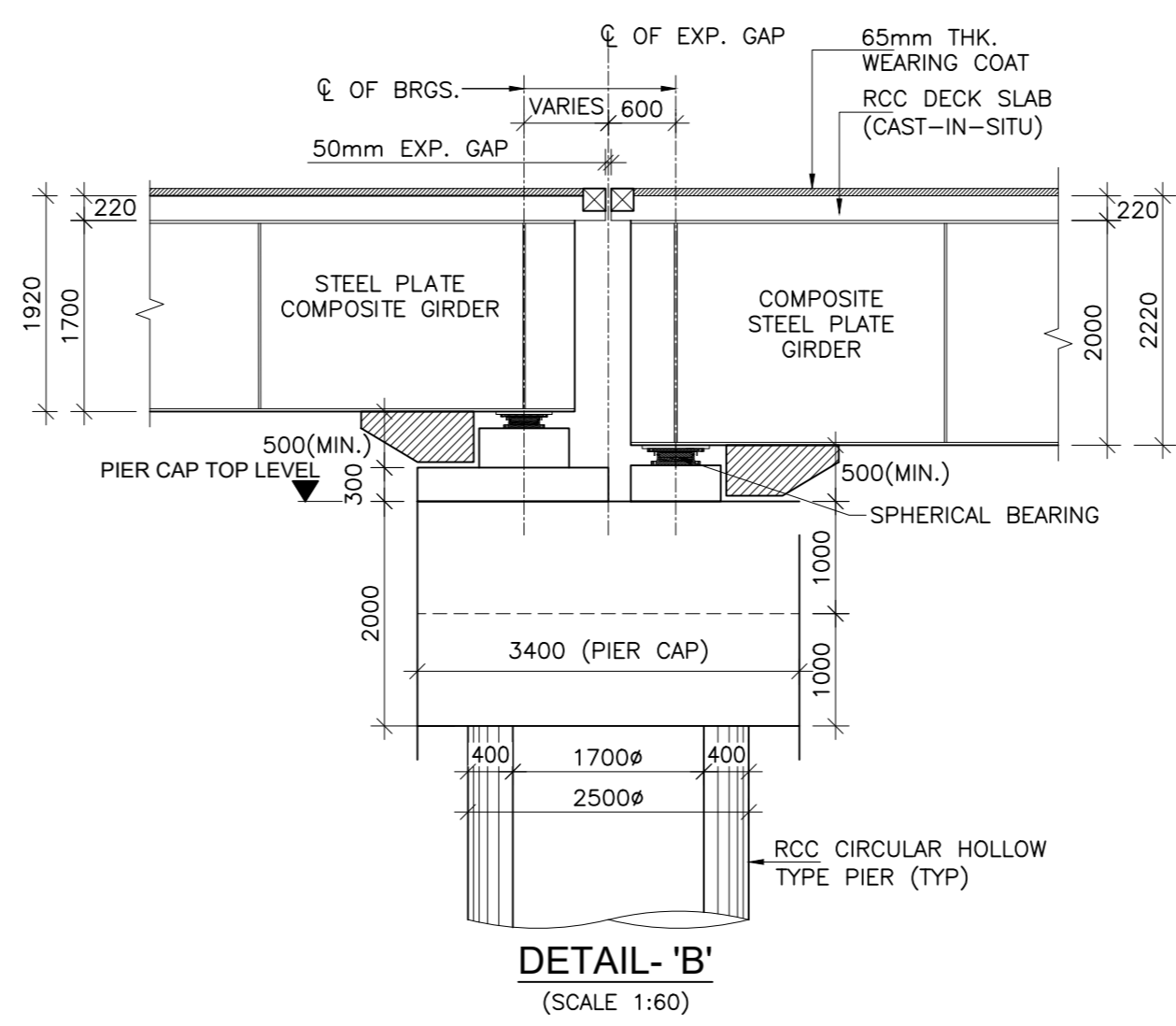
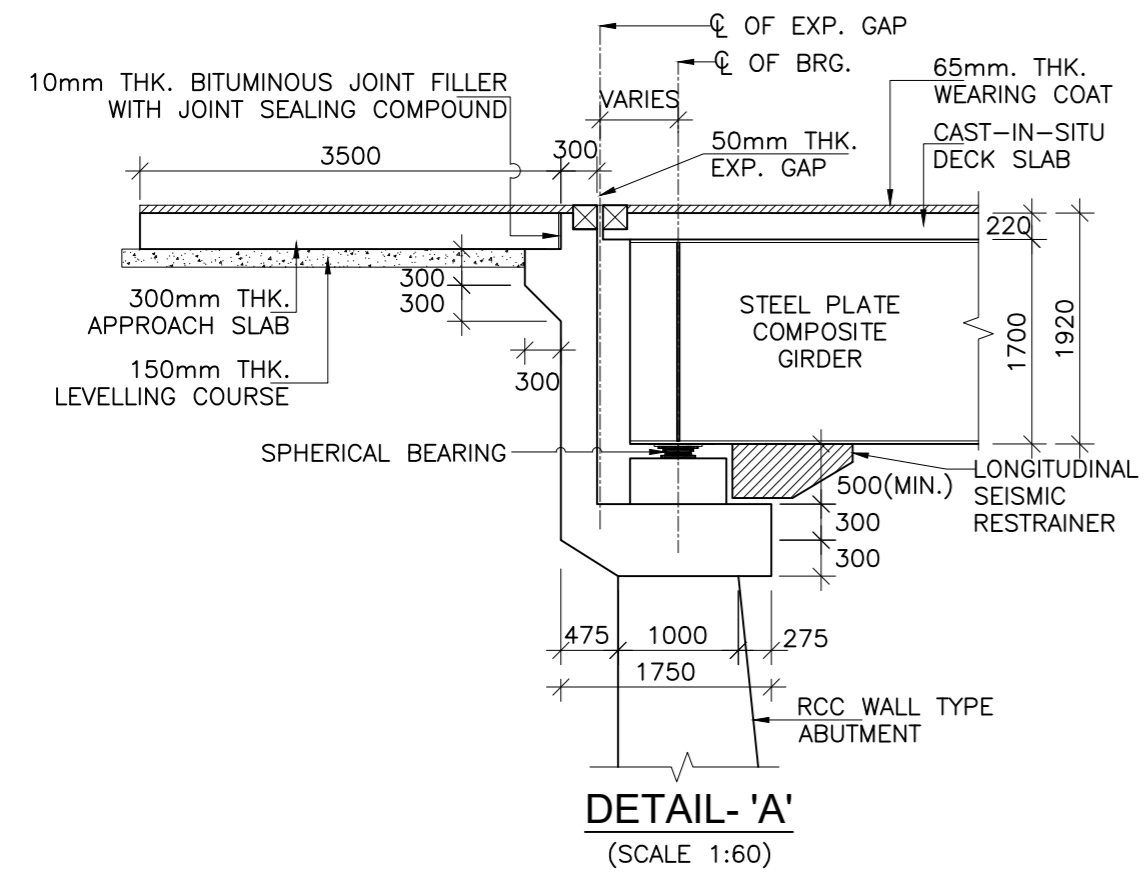
ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
(MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
GOVERNMENT OF INDIA

CONSULTANT:  
**RODIC CONSULTANTS PVT. LTD.**  
1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
NEW DELHI - 110001 (INDIA)  
In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**



From Design Km. 80+675 to Km. 95+550	<b>TENDER DRAWING</b>
Designed: AV	Scale :-
Drawn: AH	As Shown
Designed: VT	
Approved: AM	

Project:-	<b>CONSTRUCTION &amp; UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 &amp; LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR</b>
Drawing Title	<b>GENERAL ARRANGEMENT DRAWING FOR VIADUCT AT CH. 82+405</b>
Sheet size: A2	Annex III
Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/VIA/82+405/02/R1



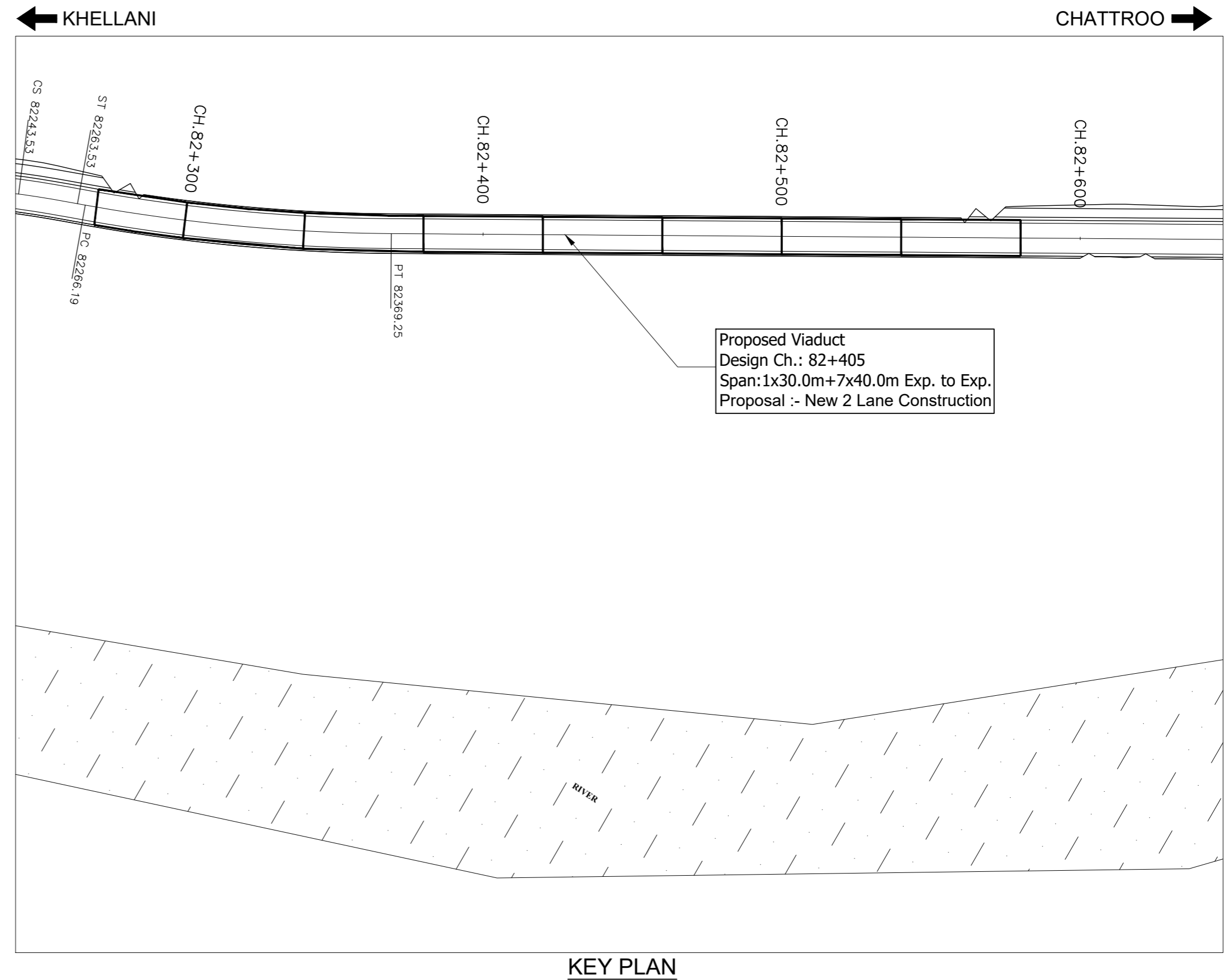
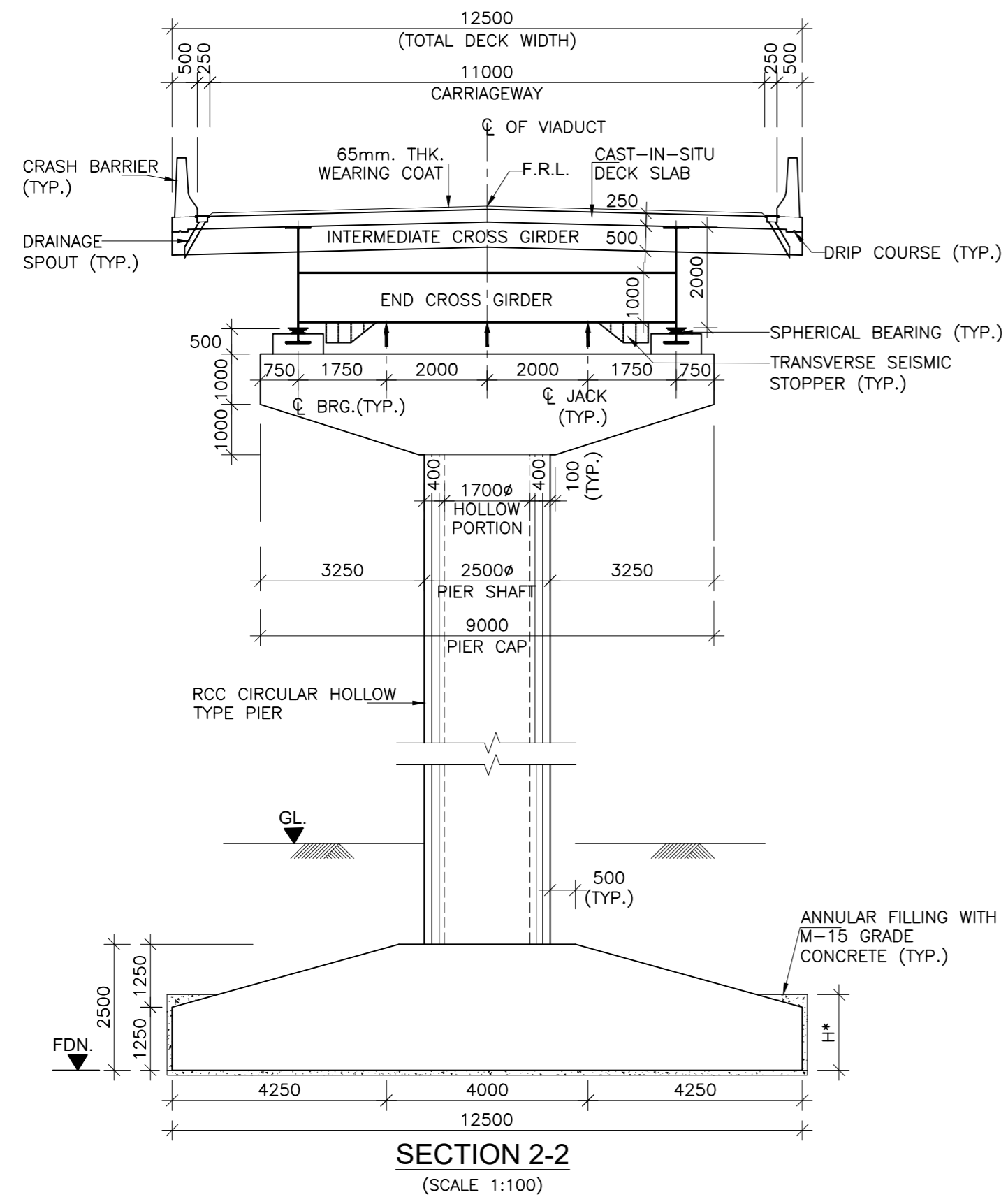
ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
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 GOVERNMENT OF INDIA

CONSULTANT:  
  
**RODIC CONSULTANTS PVT. LTD.**  
 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING, NEW DELHI - 110001 (INDIA)  
 In Association with  
  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

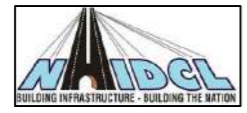
From Design Km. 80+675 to Km. 95+550  
**TENDER DRAWING**  
 Scale :-  
 As Shown

Project:-  
**CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR**  
 Drawing Title  
 Sheet size: A2  
 Drawing No. NHIDCL/NH244/KHELLANI - CHATTROO/VIA/82+405/03/R1  
 Annex III




ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

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**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
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 GOVERNMENT OF INDIA




CONSULTANT:



**RODIC CONSULTANTS PVT. LTD.**  
 1, JAI SINGH MARG (FIRST FLOOR), YMCA  
 CULTURAL CENTRE BUILDING  
 NEW DELHI - 110001 (INDIA)

In Association with  
**Monarch Surveyors and Engineering  
 Consultants Pvt. Ltd.,**



From Design Km. 80+675 to Km. 95+550	<b>TENDER DRAWING</b>
Designed: AV	Scale :-
Drawn: AH	As Shown
Designed: VT	
Approved: AM	

Project:-	<b>CONSTRUCTION &amp; UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 &amp; LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR</b>
Drawing Title	GENERAL ARRANGEMENT DRAWING FOR
Sheet size: A2	VIADUCT AT CH. 82+405
Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/VIA/82+405/04/R1

Annex III
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# CULVERTS

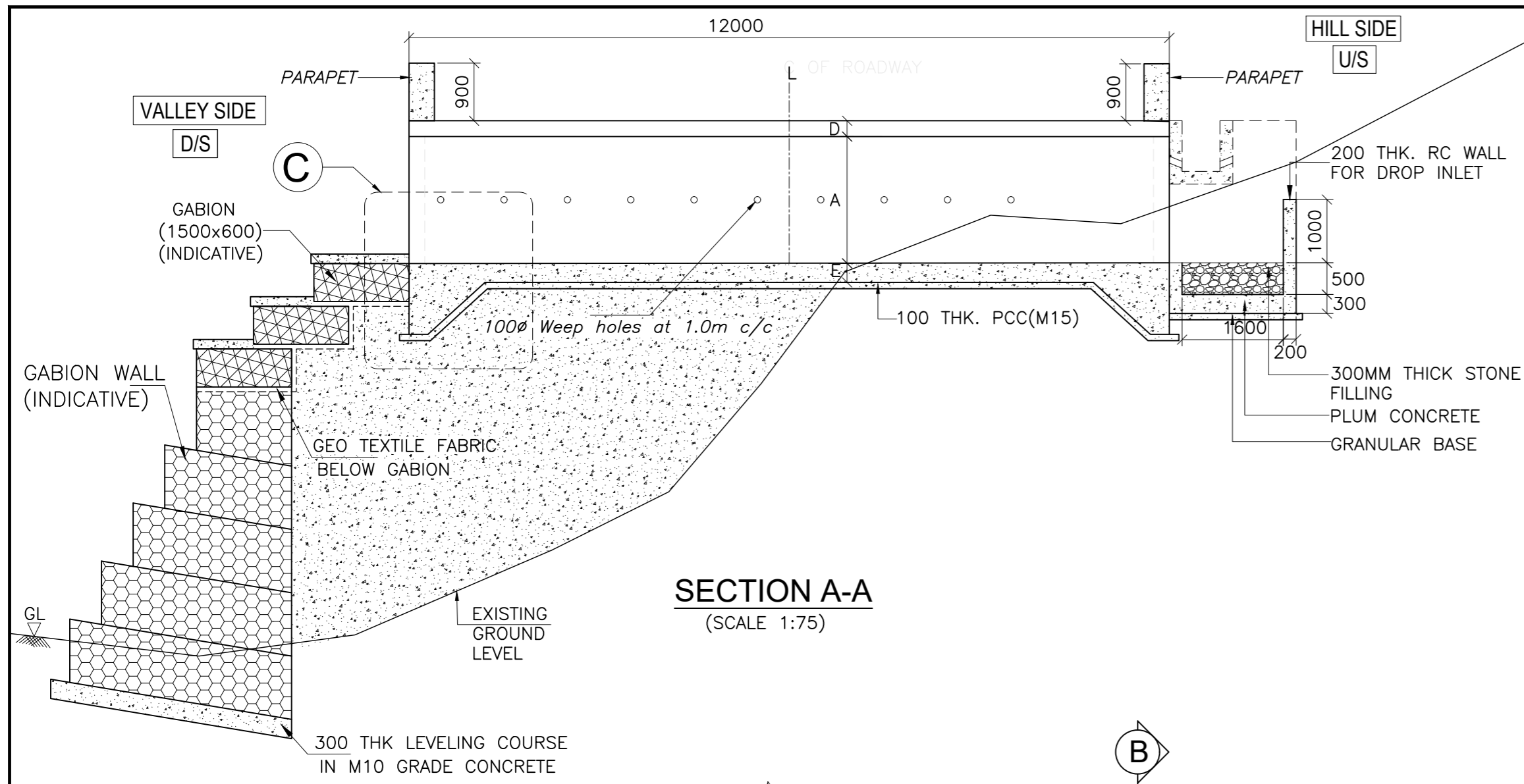
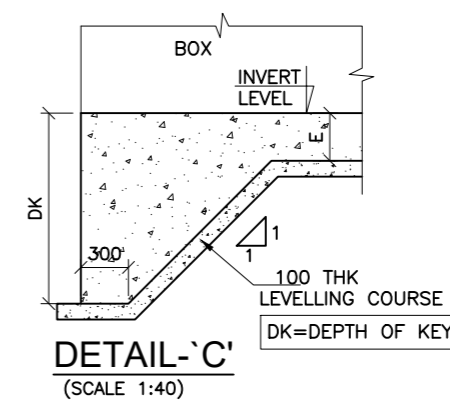
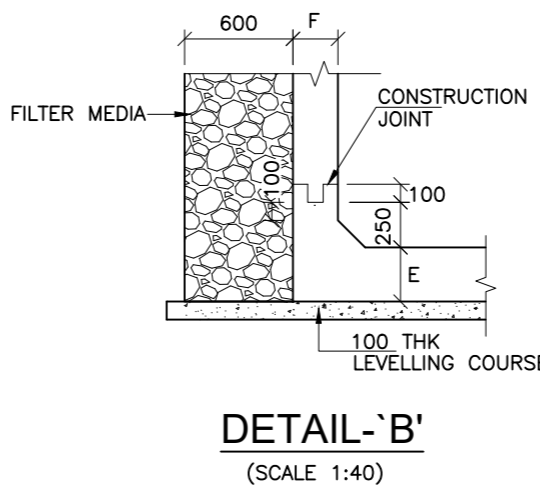
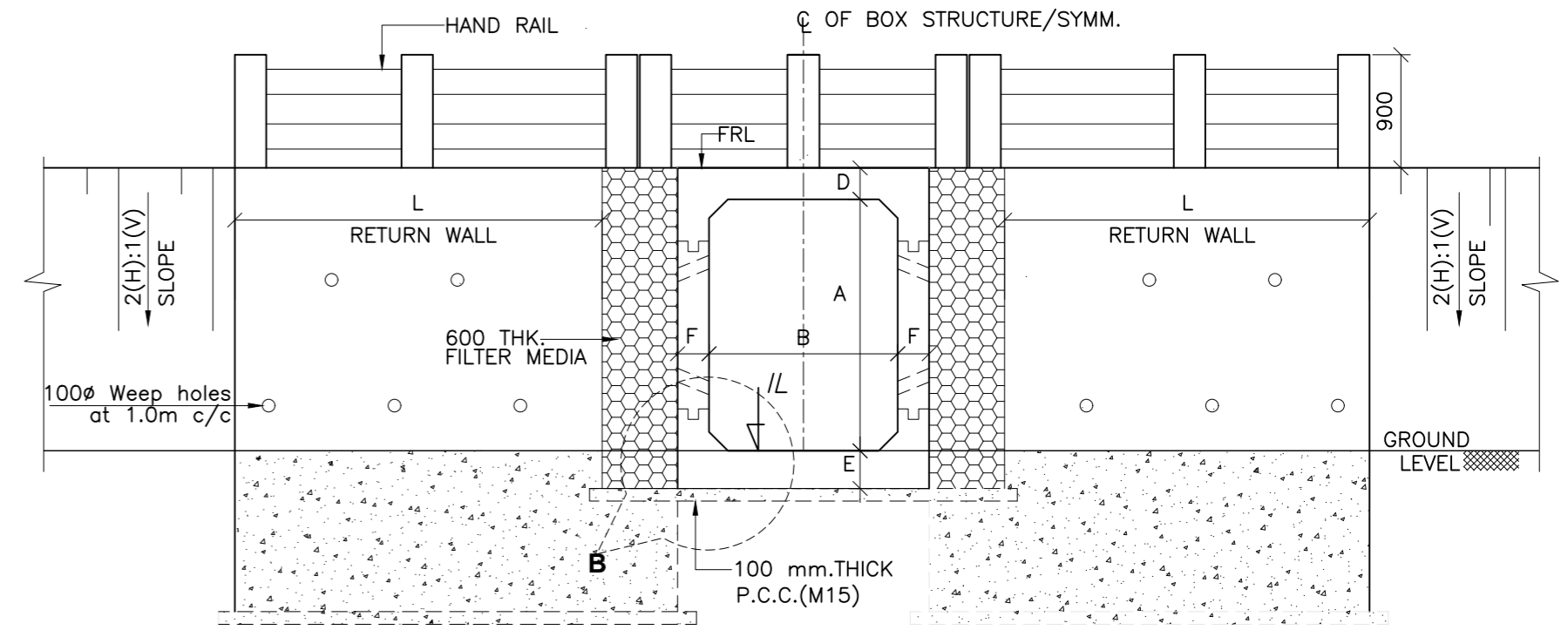
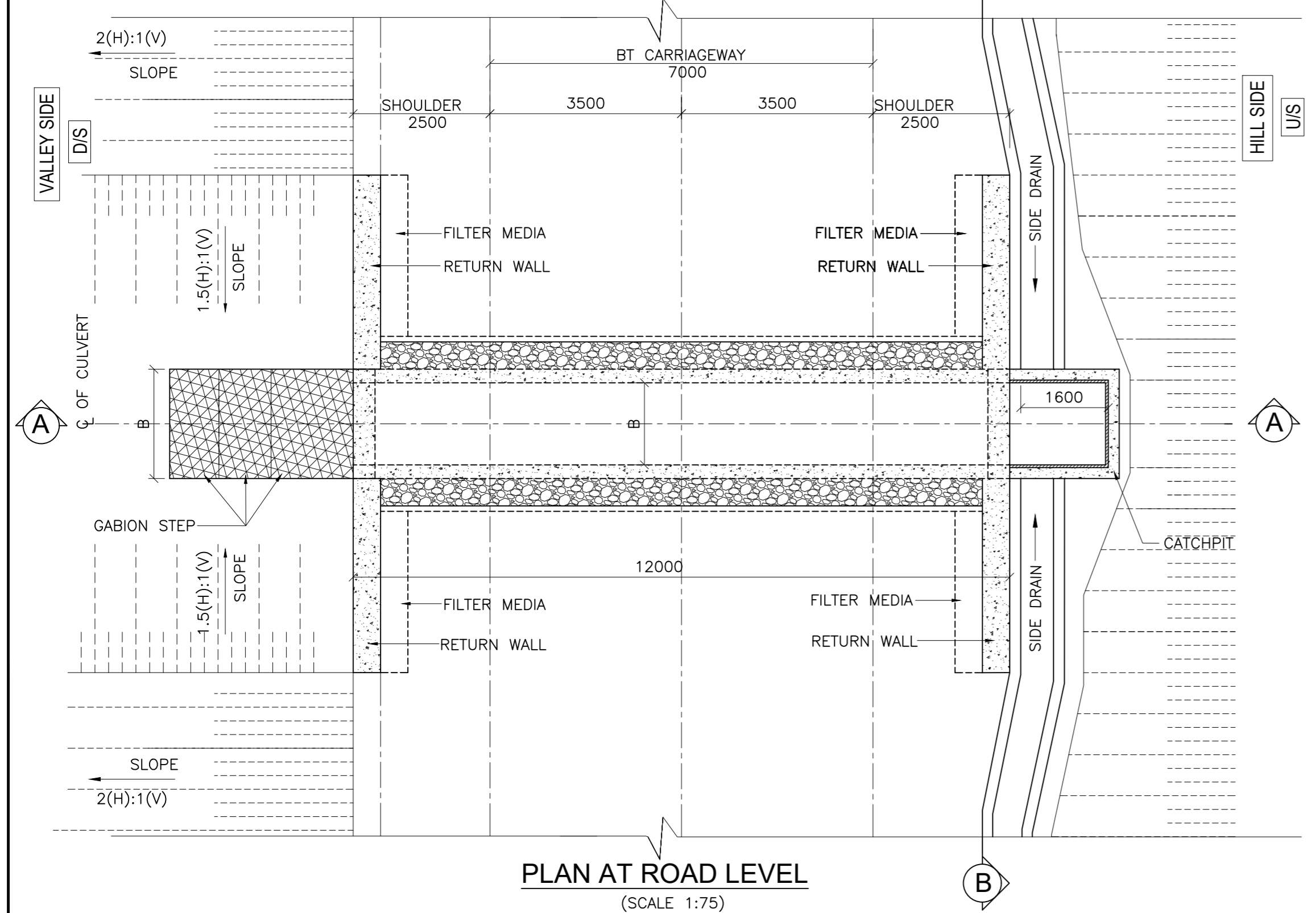


TABLE SHOWING SALIENT DIMENSIONS

PROPOSED CHAINAGE (km)	BOX CELL DESIGNATION Nc/ab/c*	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	L (mm)
81+405	1/44/0	4000	4000	-	350	400	375	6000
81+640	1/22/0	2000	2000	-	225	250	250	3500
83+334	1/33/0	3000	3000	-	275	300	275	4500
83+480	1/22/0	2000	2000	-	225	250	250	3500
83+890	1/33/0	3000	3000	-	275	300	275	4500
83+974	1/44/0	4000	4000	-	350	400	375	6000
84+165	1/33/0	3000	3000	-	275	300	275	4500
84+284	1/22/0	2000	2000	-	225	250	250	3500
85+140	1/22/0	2000	2000	-	225	250	250	3500
85+239	1/22/0	2000	2000	-	225	250	250	3500
86+539	1/33/0	3000	3000	-	275	300	275	4500
86+635	1/33/0	3000	3000	-	275	300	275	4500
88+320	1/22/0	2000	2000	-	225	250	250	3500
88+681	1/22/0	2000	2000	-	225	250	250	3500

PROPOSED CHAINAGE (km)	BOX CELL DESIGNATION Nc/ab/c*	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	L (mm)
91+205	1/22/0	2000	2000	-	225	250	250	3500
91+440	1/22/0	2000	2000	-	225	250	250	3500
91+705	1/22/0	2000	2000	-	225	250	250	3500
91+929	1/22/0	2000	2000	-	225	250	250	3500
92+005	1/22/0	2000	2000	-	225	250	250	3500
92+089	1/33/0	3000	3000	-	275	300	275	4500
92+415	1/22/0	2000	2000	-	225	250	250	3500
92+809	1/33/0	3000	3000	-	275	300	275	4500
92+950	1/22/0	2000	2000	-	225	250	250	3500
93+105	1/22/0	2000	2000	-	225	250	250	3500
93+199	1/22/0	2000	2000	-	225	250	250	3500
93+670	1/33/0	3000	3000	-	275	300	275	4500
93+940	1/33/0	3000	3000	-	275	300	275	4500



- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETERS, AND LEVELS ARE IN METERS, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DRAWING SHALL BE SCALED.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE PLAN & PROFILE AND OTHER RELEVANT DRAWINGS.
  - PROTECTION WORKS SHOWN ARE INDICATIVE ONLY. THESE SHALL BE VERIFIED AND NECESSARY MODIFICATIONS TO BE CARRIED OUT AS PER SITE CONDITION.
  - SOFT AND LOOSE PATCHES IN THE BEARING AREA ARE TO BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300MM DESIGN, DIMENSION AND REINFORCEMENT DETAILING TO BE FOLLOWED FROM MINISTRY PUBLICATION "STANDARD DRAWING FOR BOX CELL CULVERT".
  - GRADE OF CONCRETE FOR VARIOUS COMPONENTS ARE MENTIONED IN GENERAL NOTES.
  - MINIMUM NET BEARING CAPACITY REQUIRED FOR SOIL IS 15T/M<sup>2</sup>
  - RETURN WALL TYPE(CANTILEVER,PCC OR RCC) SHALL BE FINALISED ON SITE IN CONSULTATION WITH AUTHORITY ENGINEER.
  - c\* IS MAXIMUM HEIGHT OF FILL BELOW CULVERT

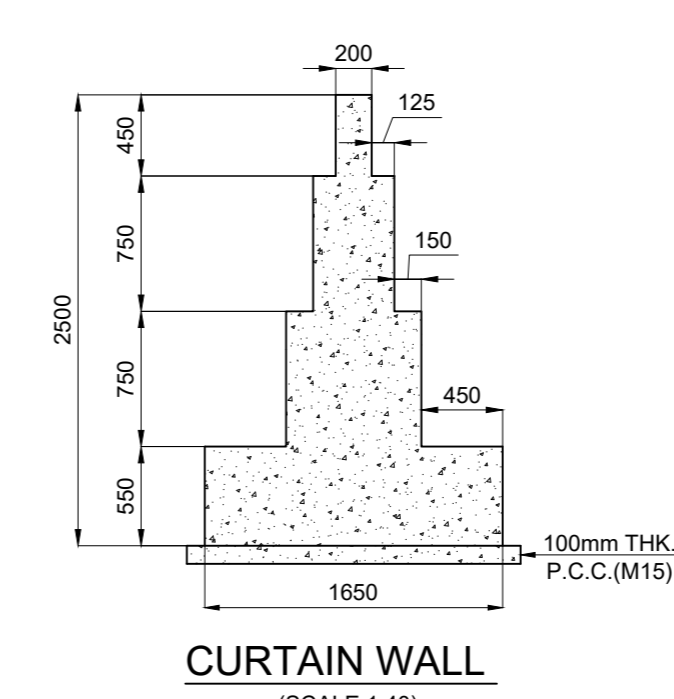
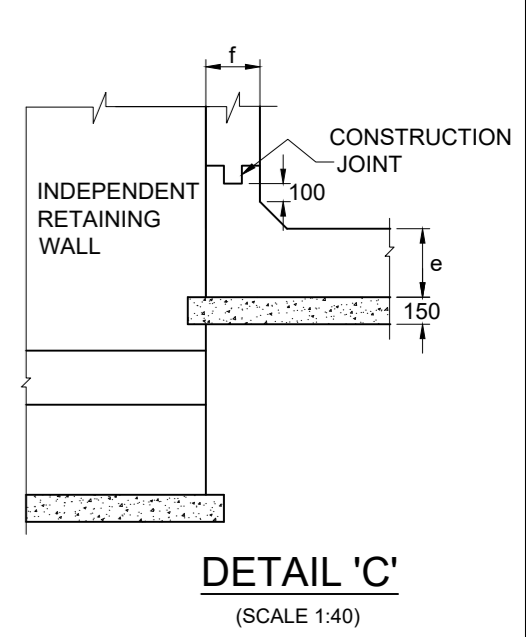
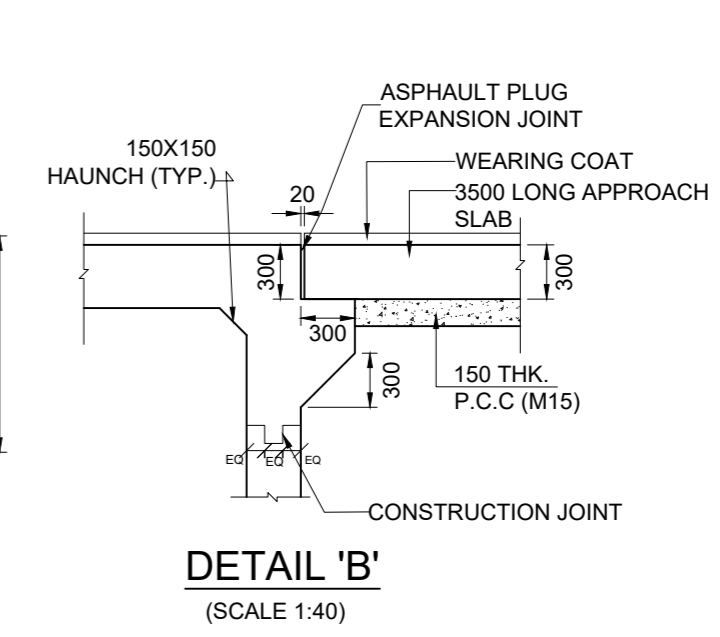
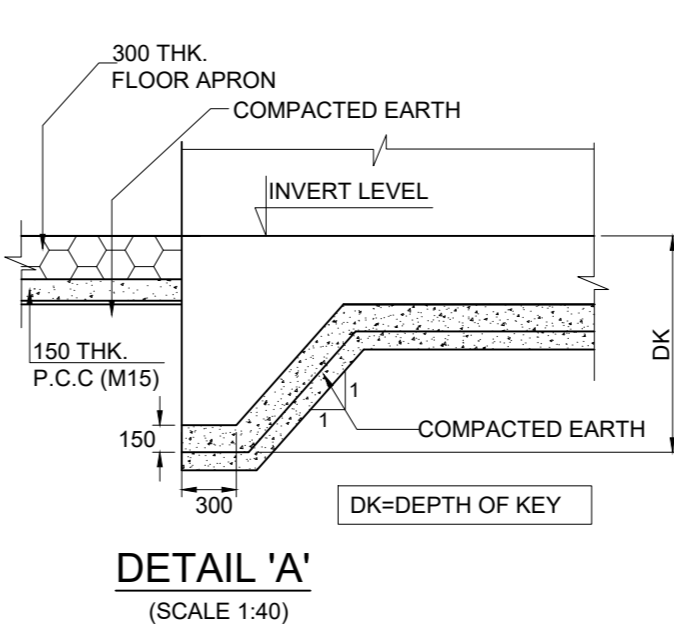
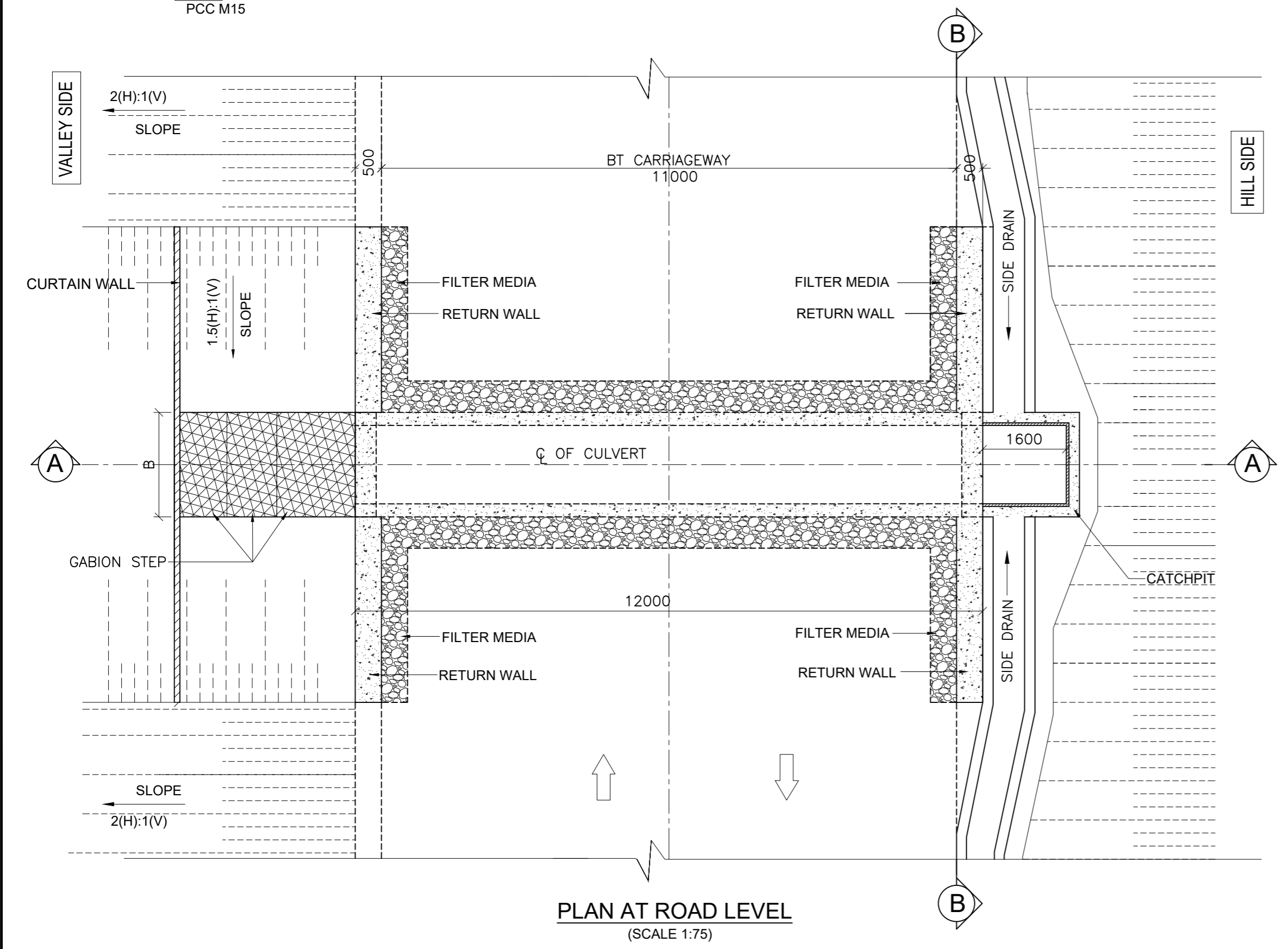
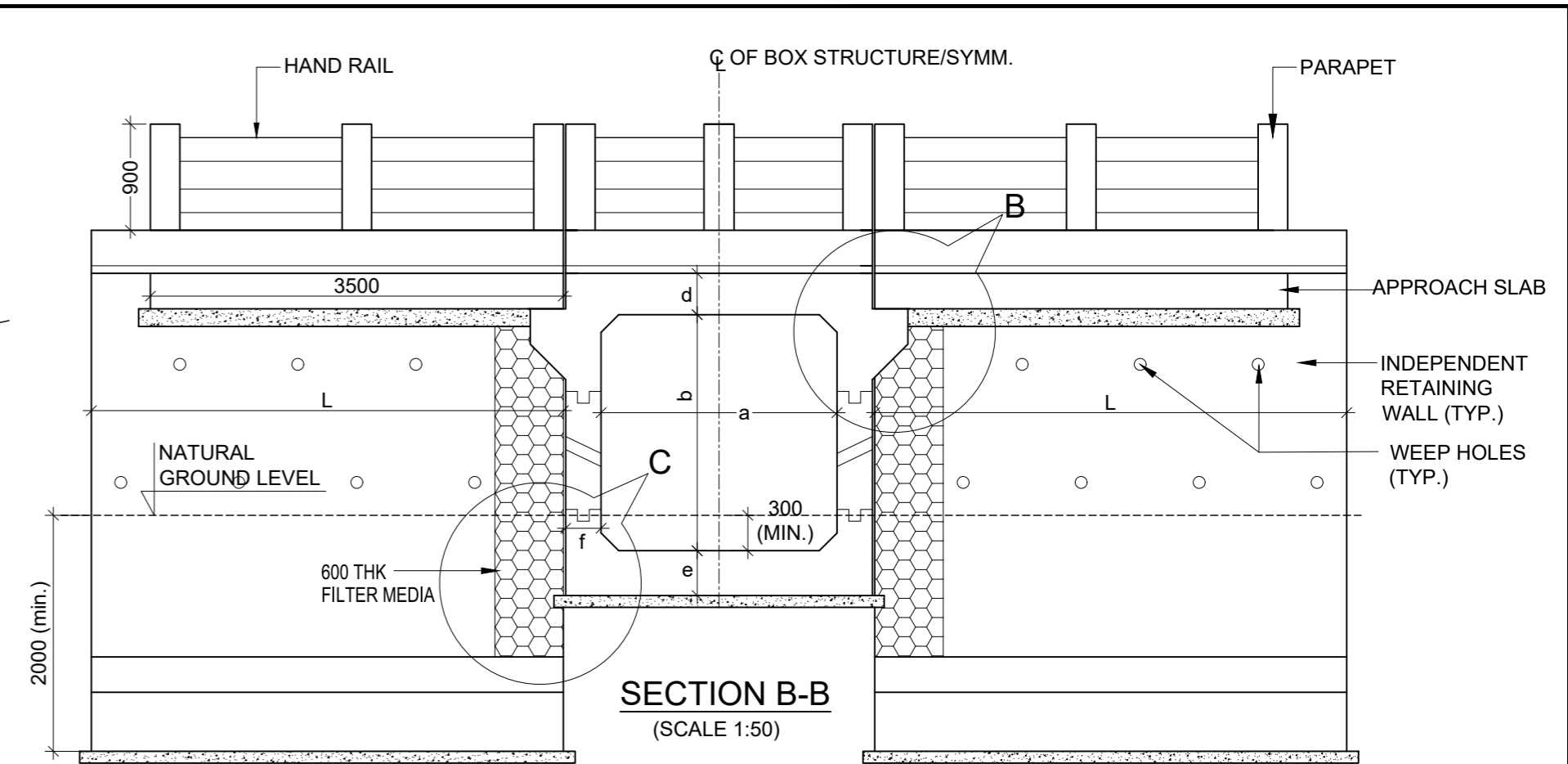
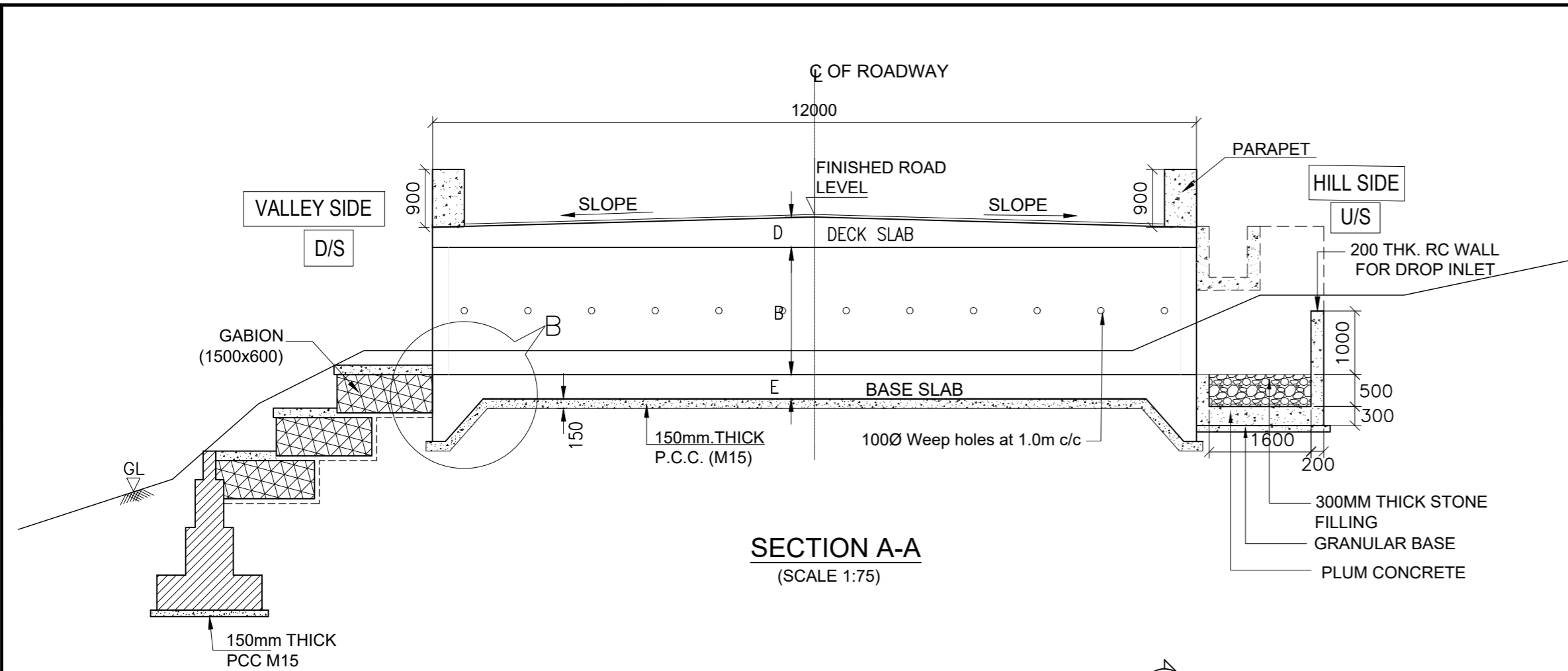
ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
 (MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
 GOVERNMENT OF INDIA

CONSULTANT:  
**RODIC CONSULTANTS PVT. LTD.**  
 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA)  
 In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550  
 TENDER DRAWING  
 Project:-  
 Scale :-  
 As Shown

CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR  
 Drawing Title  
 Sheet size: A2  
 Drawing No. NHIDCL/NH244/KHELLANI - CHATTROO/CUL/TYPE-2/01/R1  
 Annex III



- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETERS, AND LEVELS ARE IN METERS, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DRAWING SHALL BE SCALED.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE PLAN & PROFILE AND OTHER RELEVANT DRAWINGS.
  - PROTECTION WORKS SHOWN ARE INDICATIVE ONLY. THESE SHALL BE VERIFIED AND NECESSARY MODIFICATIONS TO BE CARRIED OUT AS PER SITE CONDITION.
  - SOFT AND LOOSE PATCHES IN THE BEARING AREA ARE TO BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300MM
  - GRADE OF CONCRETE FOR VARIOUS COMPONENTS ARE MENTIONED IN GENERAL NOTES.
  - MINIMUM NET BEARING CAPACITY REQUIRED FOR SOIL IS  $10T/M^2$
  - RETURN WALL TYPE (CANTILEVER, PCC OR RCC) SHALL BE FINALISED ON SITE IN CONSULTATION WITH AUTHORITY ENGINEER.
  - WEEP HOLES AND FILTER MEDIA SHALL NOT BE CONSIDERED UP TO 3M HEIGHT OF CULVERTS.
  - 'DK' IS DEPTH OF KEY AT BASE SLAB.
  - FOR BASE SLAB THICKNESS
 

FOR BASE SLAB THICKNESS	VALUE OF 'DK'
UPTO 900mm	1200mm.
GREATER THAN 900mm	e+300mm



 e = BASE SLAB THICKNESS

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R0	Oct :-2020		NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA	 <b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with <b>Monarch Surveyors and Engineering Consultants Pvt. Ltd.,</b>	From Design Km. 80+675 to Km. 95+550	TENDER DRAWING
R1	Dec :-2020					Designed: AK
					As Shown	Sheet size: A2
						Drawing No.
						NHIDCL/NH244/KHELLANI - CHATTROO/CUL/TYPE-1/01/R1
						Annex III

TABLE SHOWING SALIENT DIMENSIONS

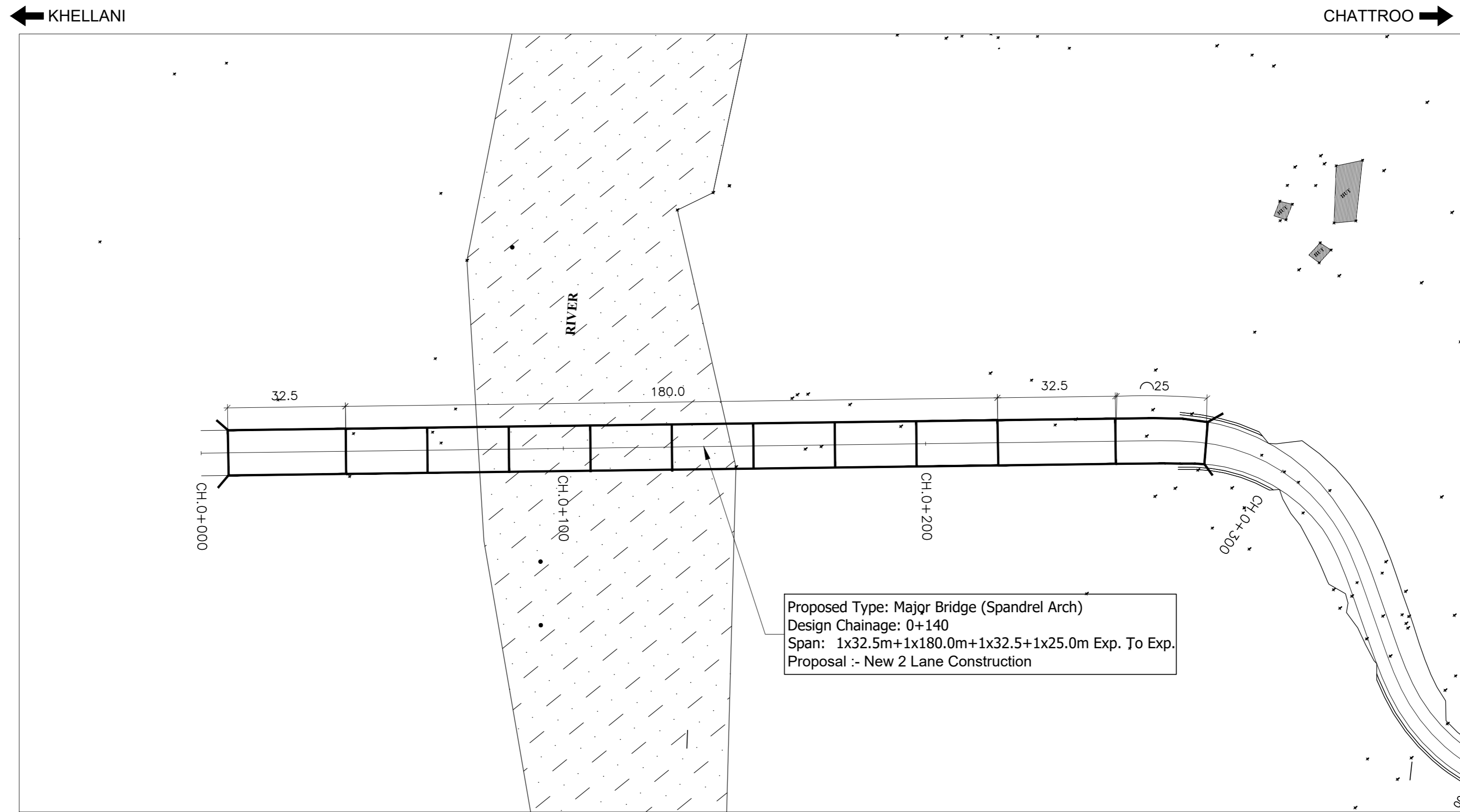
PROPOSED CHAINAGE	BOX CELL DESIGNATION Nc/ab/Ec	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	f (mm)	L (mm)
80+690	1/22/0	2000	2000	-	225	250	250	3500
80+730	1/22/0	2000	2000	-	225	250	250	3500
80+830	1/22/0	2000	2000	-	225	250	250	3500
81+745	1/22/0	2000	2000	-	225	250	250	3500
82+615	1/33/0	3000	3000	-	275	300	275	4500
82+764	1/33/0	3000	3000	-	275	300	275	4500
83+180	1/22/0	2000	2000	-	225	250	250	3500
83+434	1/22/0	2000	2000	-	225	250	250	3500
83+539	1/22/0	2000	2000	-	225	250	250	3500
83+720	1/22/0	2000	2000	-	225	250	250	3500
84+129	1/22/0	2000	2000	-	225	250	250	3500
84+470	1/44/0	4000	4000	-	350	400	375	6000
84+624	1/22/0	2000	2000	-	225	250	250	3500
85+305	1/22/0	2000	2000	-	225	250	250	3500
85+409	1/22/0	2000	2000	-	225	250	250	3500
85+474	1/22/0	2000	2000	-	225	250	250	3500
85+600	1/44/0	4000	4000	-	350	400	375	6000
85+860	1/22/0	2000	2000	-	225	250	250	3500
85+914	1/22/0	2000	2000	-	225	250	250	3500
87+159	1/22/0	2000	2000	-	225	250	250	3500
87+254	1/22/0	2000	2000	-	225	250	250	3500
87+370	1/22/0	2000	2000	-	225	250	250	3500

PROPOSED CHAINAGE	BOX CELL DESIGNATION Nc/ab/Ec	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	f (mm)	L (mm)
87+914	1/22/0	2000	2000	-	225	250	250	3500
88+120	1/22/0	2000	2000	-	225	250	250	3500
88+570	1/22/0	2000	2000	-	225	250	250	3500
89+430	1/22/0	2000	2000	-	225	250	250	3500
89+910	1/22/0	2000	2000	-	225	250	250	3500
90+409	1/22/0	2000	2000	-	225	250	250	3500
90+815	1/33/0	3000	3000	-	275	300	275	4500
91+020	1/22/0	2000	2000	-	225	250	250	3500
92+190	1/33/0	3000	3000	-	275	300	275	4500
92+230	1/22/0	2000	2000	-	225	250	250	3500
92+305	1/33/0	3000	3000	-	275	300	275	4500
92+709	1/22/0	2000	2000	-	225	250	250	3500
93+039	1/33/0	3000	3000	-	275	300	275	4500
93+364	1/22/0	2000	2000	-	225	250	250	3500
93+505	1/33/0	3000	3000	-	275	300	275	4500
94+215	1/22/0	2000	2000	-	225	250	250	3500
94+480	1/22/0	2000	2000	-	225	250	250	3500
94+655	1/22/0	2000	2000	-	225	250	250	3500
94+755	1/22/0	2000	2000	-	225	250	250	3500
95+280	1/22/0	2000	2000	-	225	250	250	3500
95+465	1/22/0	2000	2000	-	225	250	250	3500




ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT <b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA 	CONSULTANT:  <b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with  <b>Monarch Surveyors and Engineering Consultants Pvt. Ltd.,</b>	From Design Km. 80+675 to Km. 95+550	<b>TENDER DRAWING</b>  Scale :- As Shown	Project:-	<b>CONSTRUCTION &amp; UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 &amp; LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR</b>		
R0	Oct :-2020				Designed: AK		Drawing Title Sheet size: A2 Drawing No.		GENERAL ARRANGEMENT DRAWING FOR SINGLE CELL BOX CULVERT (TYPE-1) NHIDCL/NH244/KHELLANI - CHATTROO/CUL/TYPE-1/02/R1	Annex III
R1	Dec :-2020				Drawn: KS Designed: VT Approved: MKM					

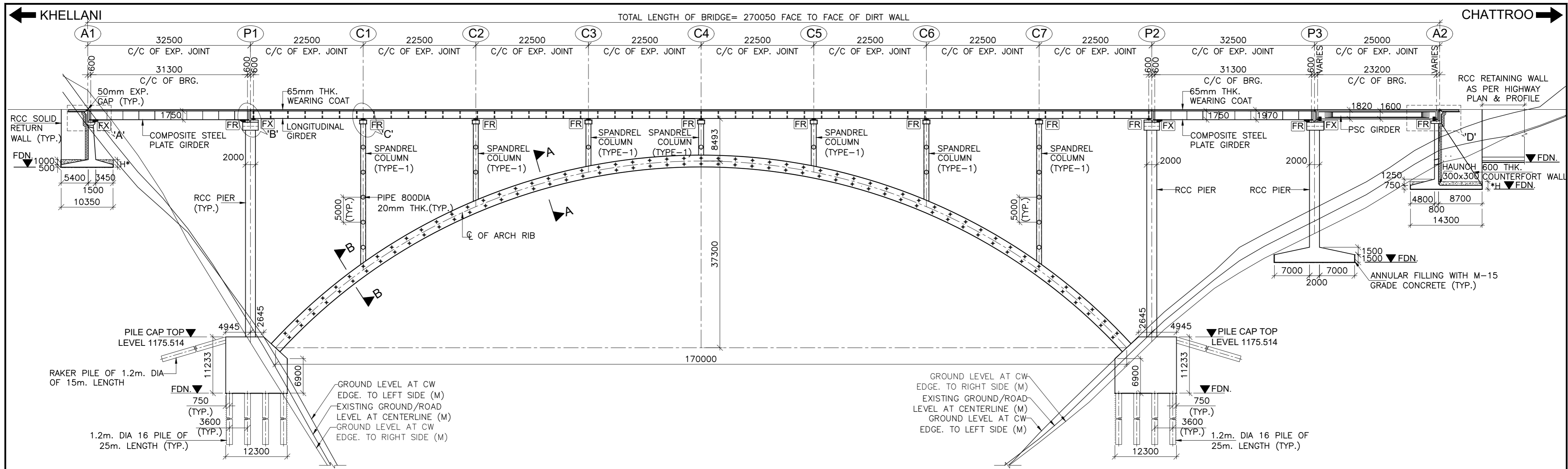
**LINK-ROAD**

# MAJOR BRIDGES



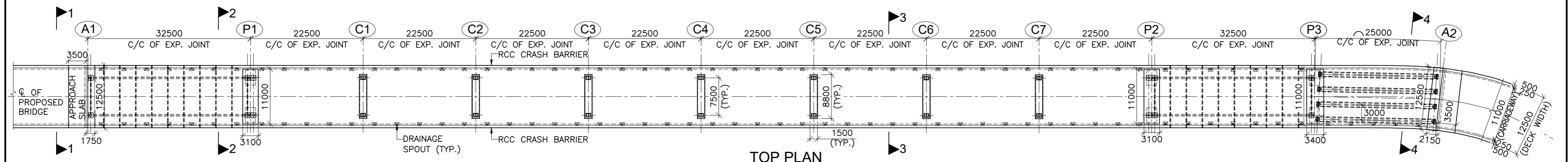
**SITE PLAN**

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION	CLIENT	CONSULTANT:	Project:-		
R0	Oct :-2020		<b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA 	 <b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with  <b>Monarch Surveyors and Engineering            Consultants Pvt. Ltd.,</b>	From Design Km. 0+000 to Km. 1+871	<b>TENDER DRAWING</b>	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
R1	Dec :-2020				Designed: AK Drawn: AH Designed: VT Approved: AM	Scale :- As Shown	Drawing Title Sheet size: A2 Drawing No.

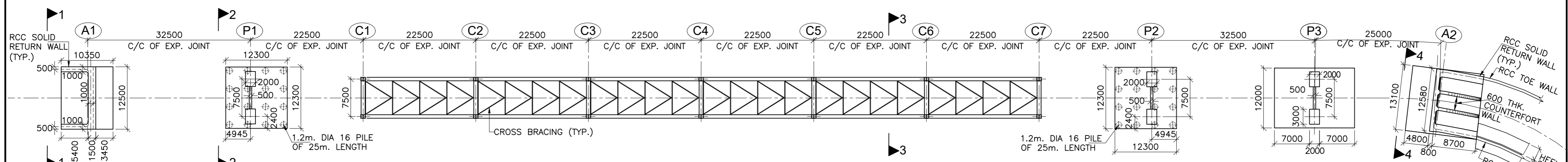


1220.930	1220.930	1220.930	1220.930	1220.930	1220.930	1220.930	1220.930	1220.930	1220.930	1220.930	1220.930	1220.930	FORMATION LEVEL (m)
1215.035	1174.374	1138.478	1110.000	1110.000	1110.000	1110.000	1112.168	1135.559	1154.410	1174.562	1196.157	1210.085	LOWEST GROUND LEVEL (m)
1209.430	---	---	---	---	---	---	---	---	---	---	---	---	FOUNDING LEVEL (m)
0+005	0+037.5	0+060	0+082.5	0+105	0+127.5	0+140	0+150	0+172.5	0+195	0+217.5	0+250	0+275	CHAINAGE (Km)

**SECTIONAL ELEVATION OF PROPOSED BRIDGE**  
(SCALE 1:500)



**TOP PLAN**  
(SCALE 1:500)



**BOTTOM PLAN**  
(SCALE 1:500)

**SPAN ARRANGEMENT**  
1x32.5m+1x180.0m+1x32.5+1x25.0m  
Total Length of Bridge= 270.0m

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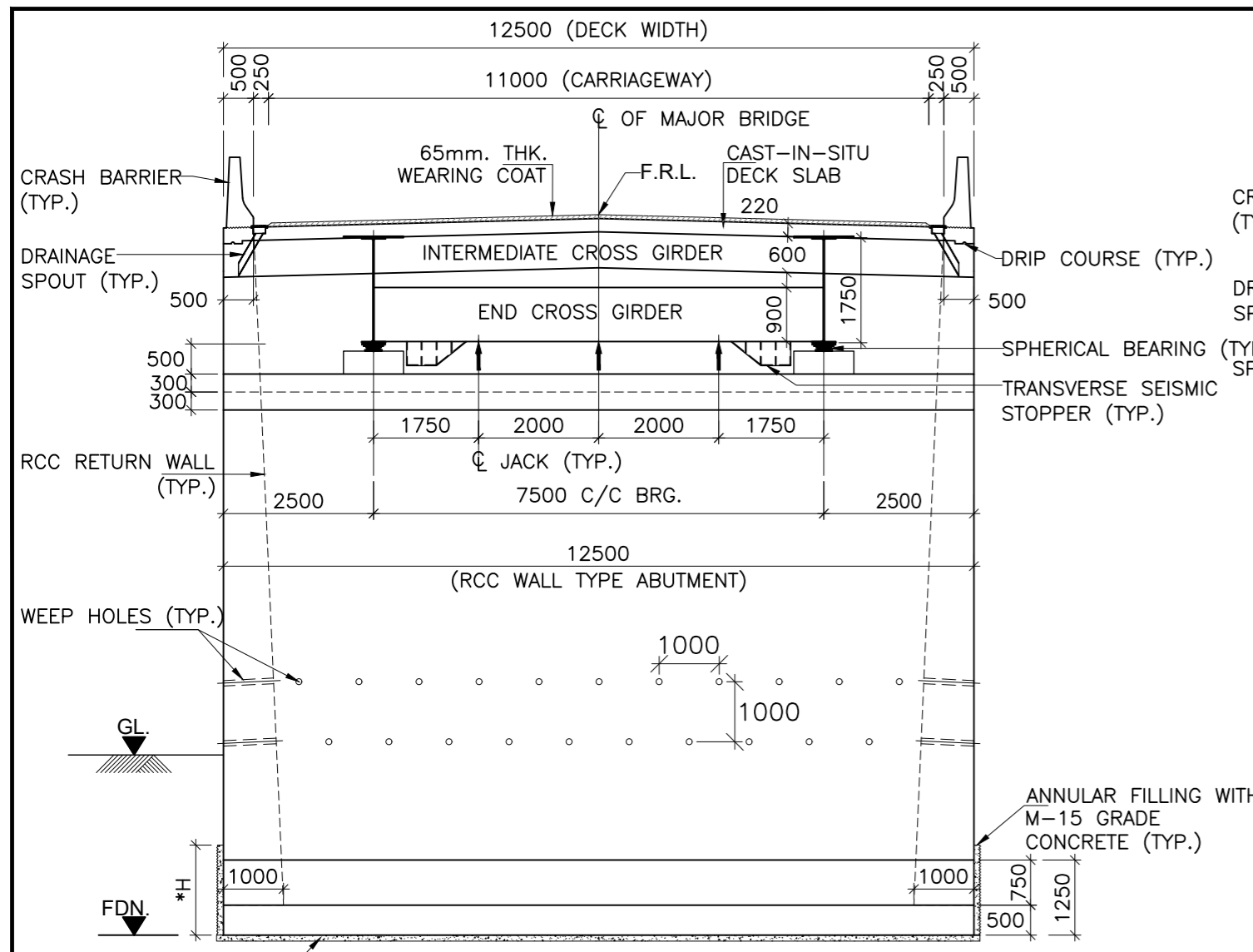
**CLIENT**  
NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.  
(MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
GOVERNMENT OF INDIA

**CONSULTANT:**  
**RODIC CONSULTANTS PVT. LTD.**  
1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
NEW DELHI - 110001 (INDIA)  
In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

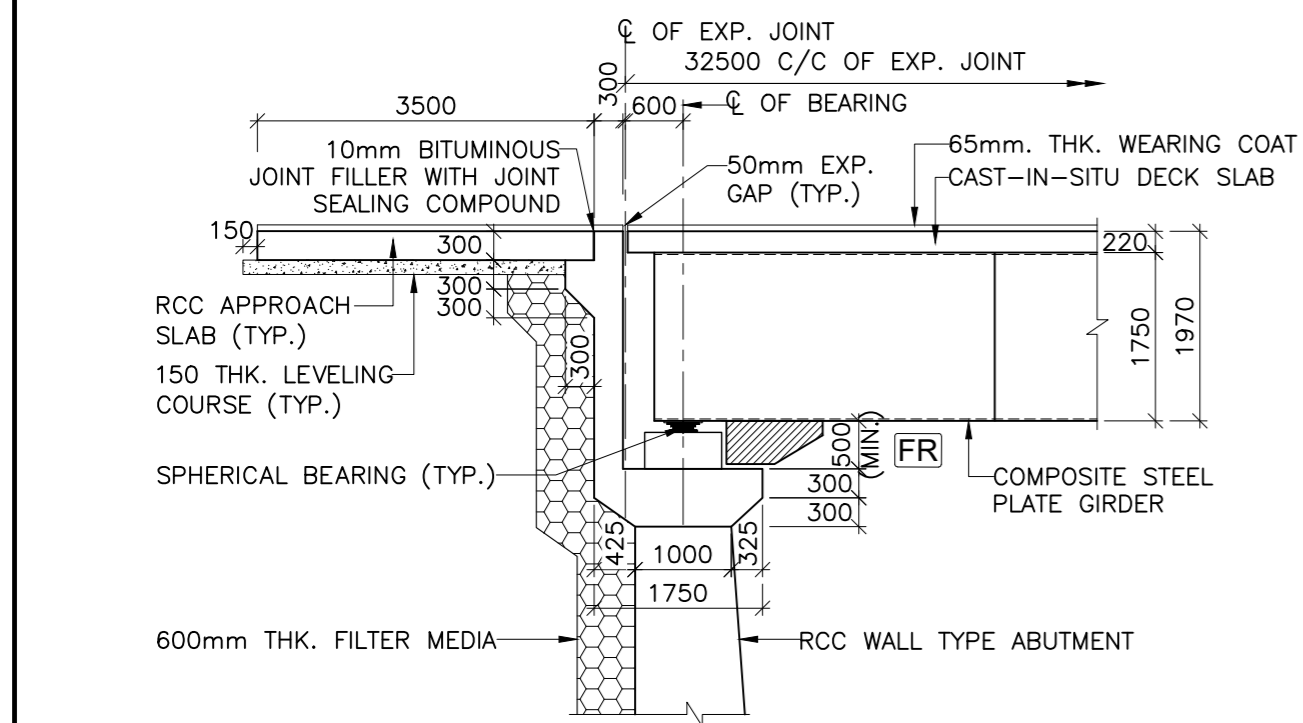
From Design Km. 0+000 to Km. 1+871  
**TENDER DRAWING**  
Designed: AK  
Drawn: AH  
Designed: VT  
Approved: AM

Project:-  
**TENDER DRAWING**  
Scale :-  
As Shown

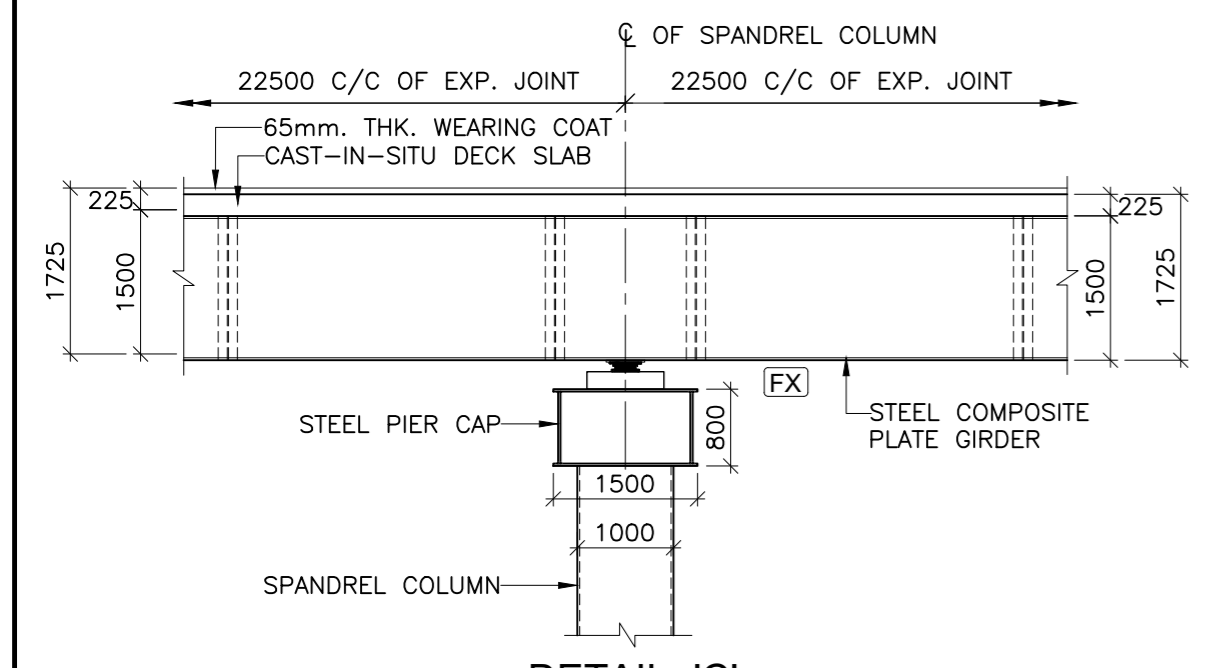
Drawing Title  
Sheet size: A2  
Drawing No. NHIDCL/NH244/KHELLANI - CHATTROO/MJB/0+140/02/R1  
CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR  
Annex III



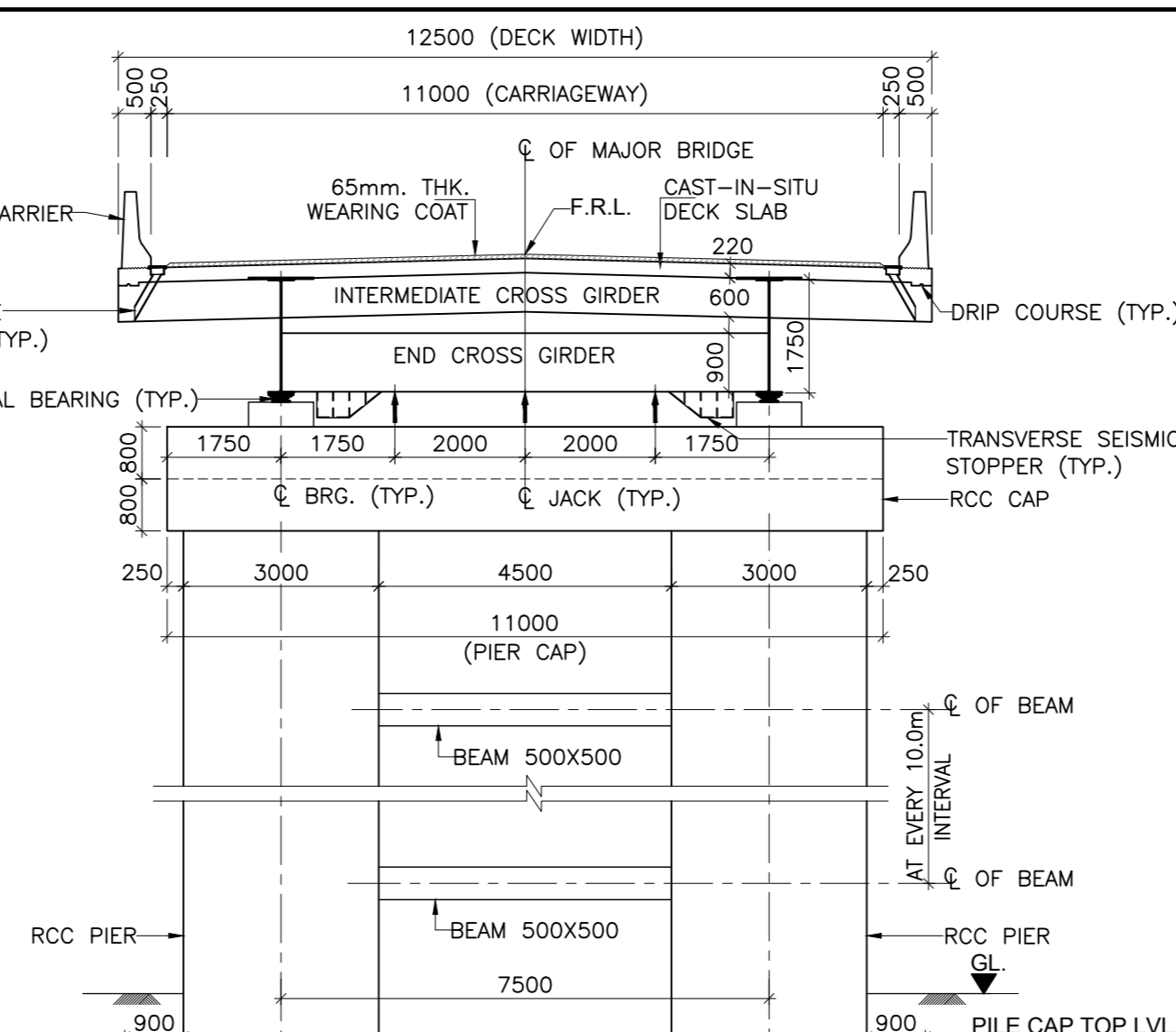
**SECTION 1-1**  
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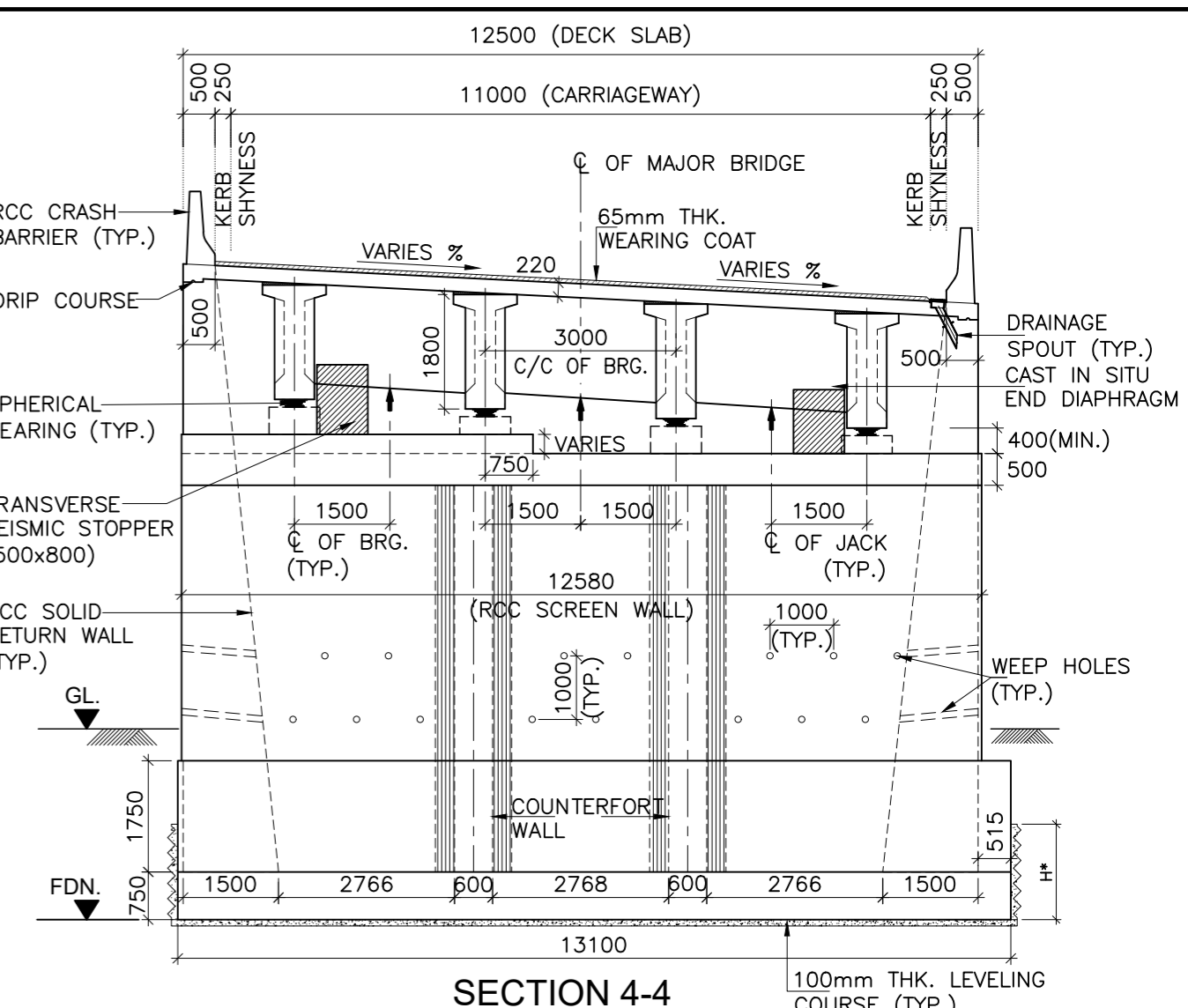
**DETAIL - 'A'**  
(SCALE 1:75)



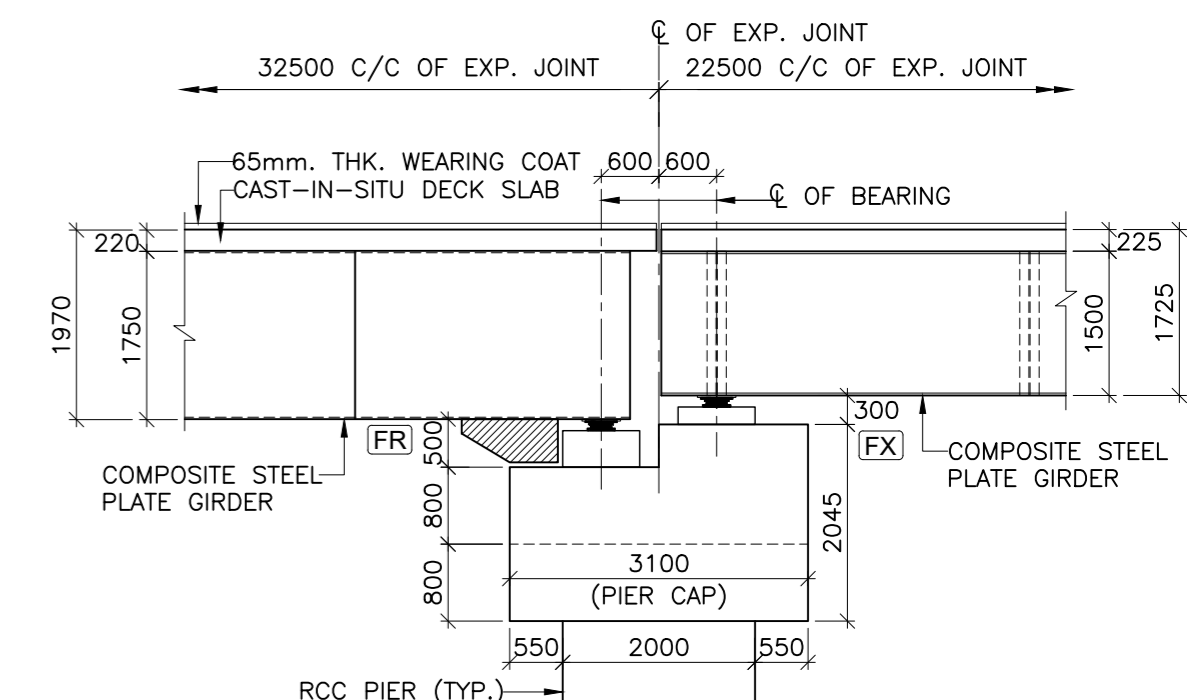
**DETAIL - 'C'**  
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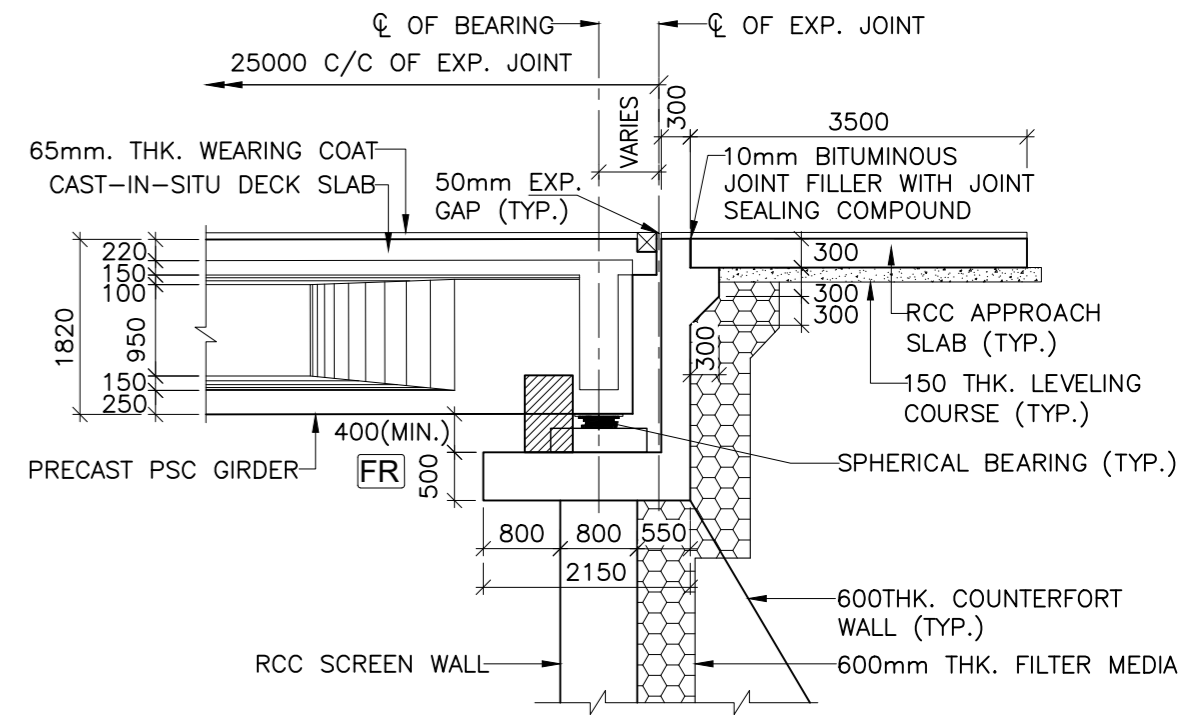
**SECTION 2-2**  
(SCALE 1:100)



**SECTION 4-4**  
(SCALE 1:100)



**DETAIL - 'B'**  
(SCALE 1:75)



**DETAIL - 'D'**  
(SCALE 1:75)


**LEGENDS:-**

F.R.L.	: FORMATION LEVEL
CL	: CENTER LINE
EXP.	: EXPANSION
BRG.	: BEARING
FX	: FIXED BEARING
FR	: FREE BEARING
LVL.	: LEVEL
TYP.	: TYPICAL
THK.	: THICKNESS
L.B.L.	: LOWEST BED LEVEL
FDN.	: FOUNDING LEVEL
GL.	: GROUND LEVEL
MM.	: MILLIMETERS

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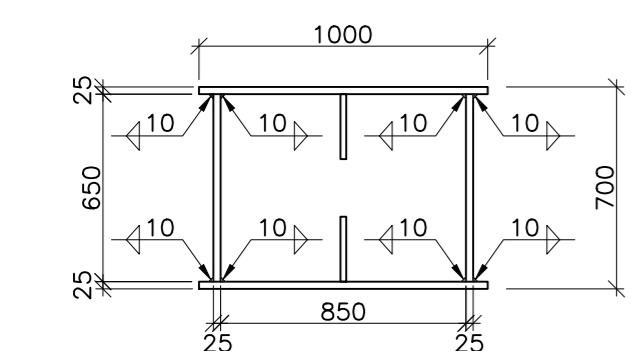
CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
(MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
GOVERNMENT OF INDIA



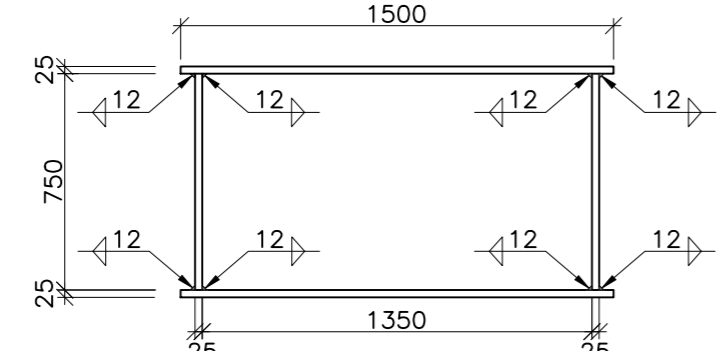
CONSULTANT:  
  
**RODIC CONSULTANTS PVT. LTD.**  
1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
NEW DELHI - 110001 (INDIA)  
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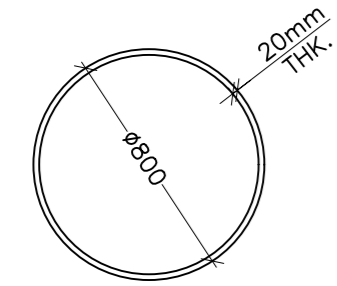
**TENDER DRAWING**  
Project:-  
**CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR**  
Drawing Title: GENERAL ARRANGEMENT DRAWING FOR MAJOR BRIDGE AT CH. 0+140  
Sheet size: A2  
Drawing No.: NHIDCL/NH244/KHELLANI - CHATTROO/ MJB/0+140/03/R1  
Annex III



**SPANDREL COLUMN (TYPE-1)**  
(SCALE 1:25)

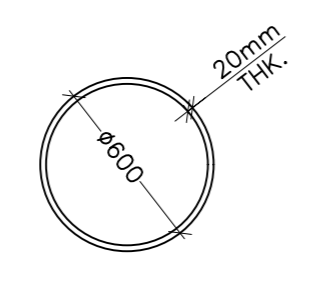


**CAP BEAM**  
(SCALE 1:25)



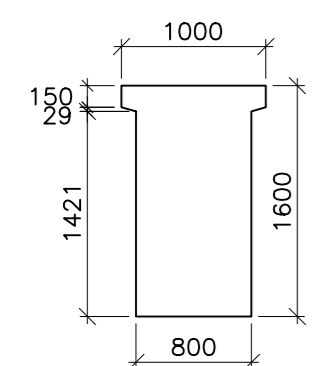
**800 DIA PIPE**

FOR TOP AND BOTTOM BRACING OF ARCH RIB  
(FOR MEMBER BETWEEN ARCH SUPPORT TO COLUMN C3 AND C7)  
(SCALE 1:25)

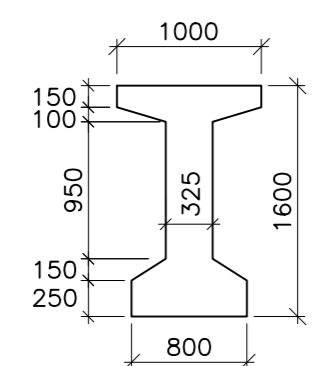


**600 DIA PIPE**

FOR TOP AND BOTTOM BRACING OF ARCH RIB  
(FOR MEMBER BETWEEN COLUMN C3 TO C7)  
(SCALE 1:25)

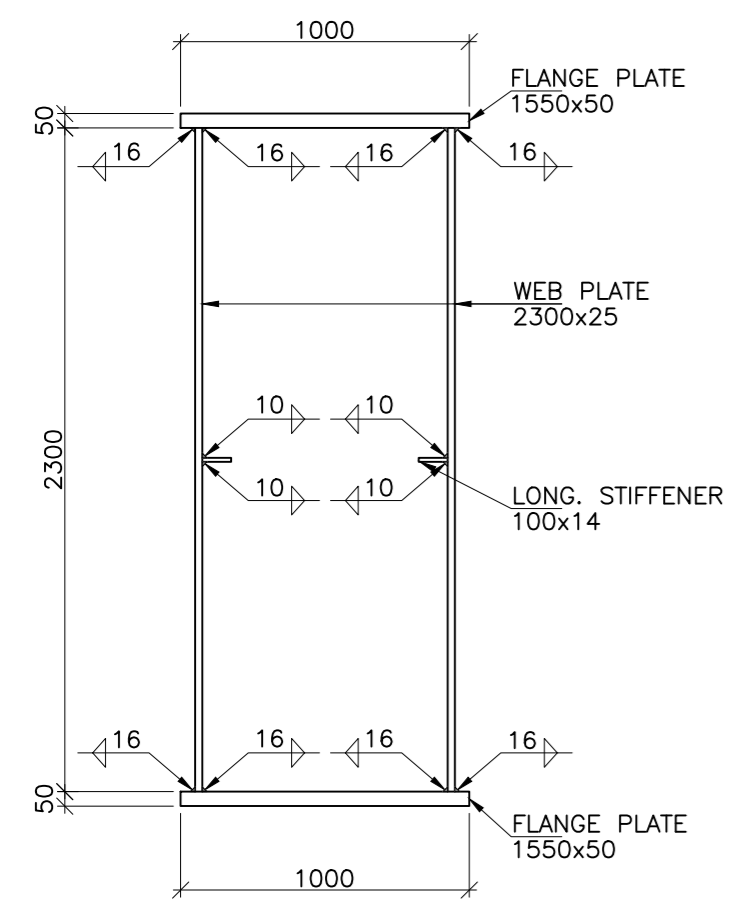


**AT SUPPORT**



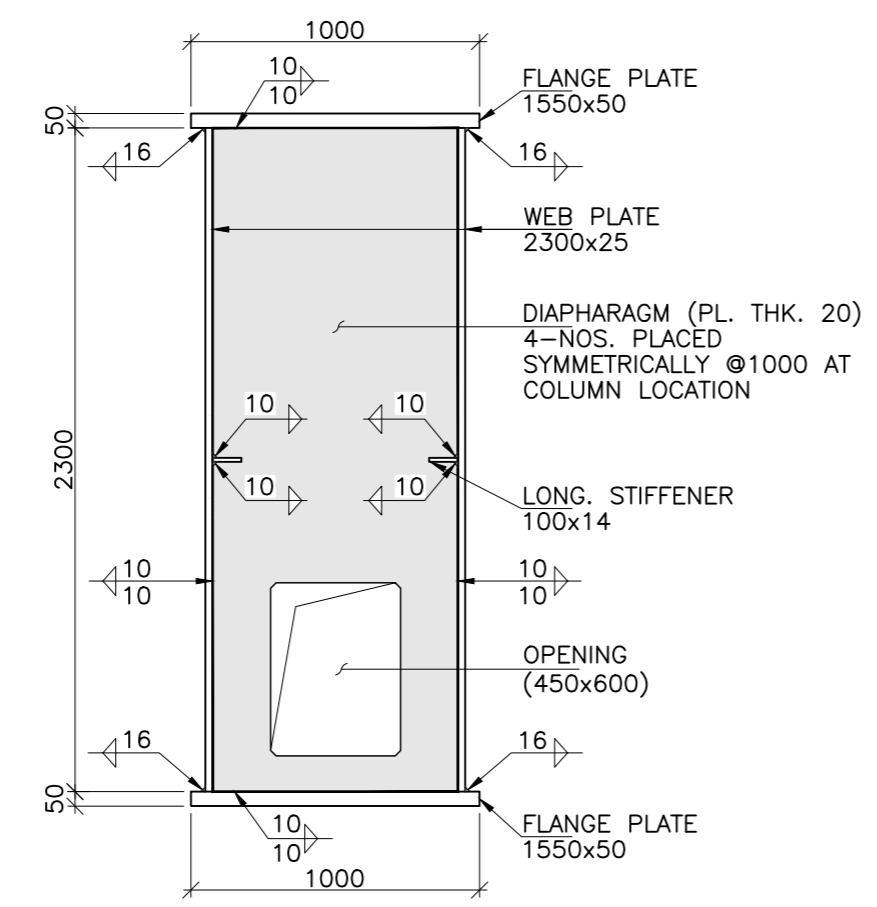
**AT MID SPAN**

**CROSS SECTION OF PRECAST PSC GIRDER (FOR 25M SPAN)**  
(SCALE 1:50)



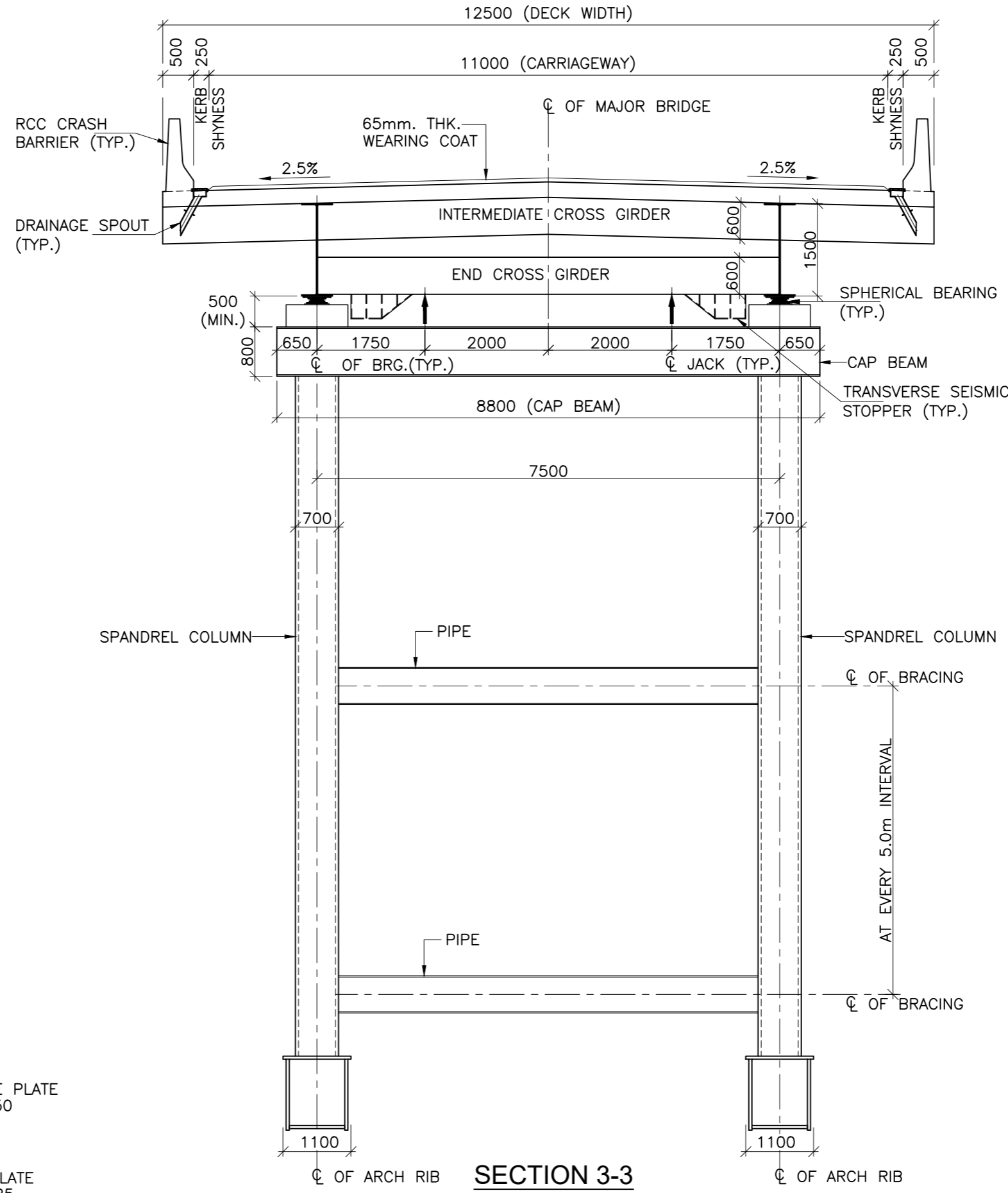
**SECTION A-A**

SECTION DETAILS OF ARCH RIBS  
(RECTANGLE HOLLOW BOX SECTION)  
(WITHOUT DIAPHRAGM)  
(SCALE 1:25)

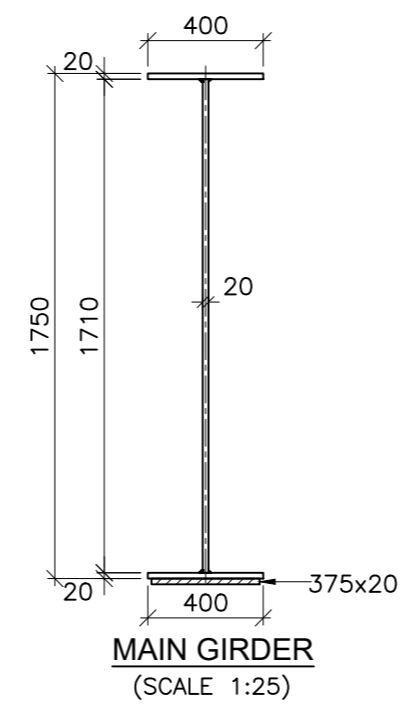


**SECTION B-B**

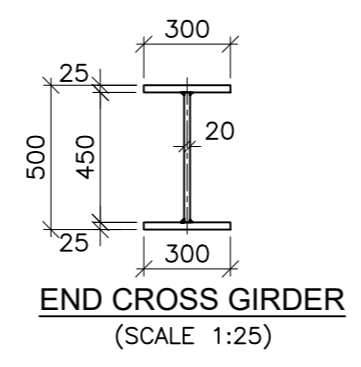
SECTION DETAILS OF ARCH RIBS  
(RECTANGLE HOLLOW BOX SECTION)  
(WITH DIAPHRAGM AT COLUMN LOCATIONS)  
(SCALE 1:25)



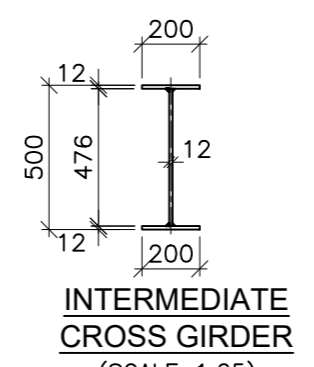
**SECTION 3-3**  
(SCALE 1:75)



**MAIN GIRDER**  
(SCALE 1:25)

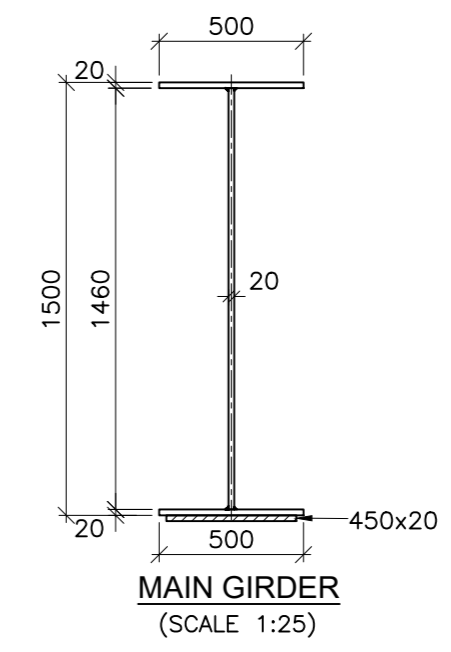


**END CROSS GIRDER**  
(SCALE 1:25)

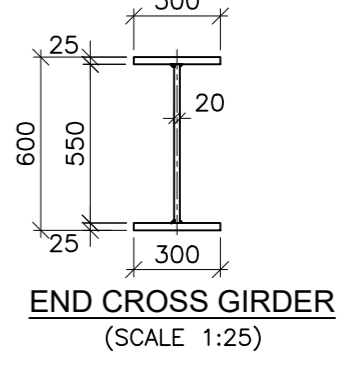


**INTERMEDIATE CROSS GIRDER**  
(SCALE 1:25)

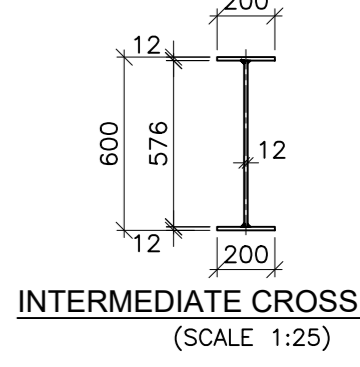
**DETAIL OF STEEL COMPOSITE PLATE GIRDER (32.5M SPAN)**



**MAIN GIRDER**  
(SCALE 1:25)



**END CROSS GIRDER**  
(SCALE 1:25)



**INTERMEDIATE CROSS GIRDER**  
(SCALE 1:25)

**DETAIL OF STEEL COMPOSITE PLATE GIRDER (22.5M SPAN)**

**NOTE:-**

- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
- THE BRIDGE IS DESIGNED FOR GOVERNING CASE OF FOLLOWING
  - ONE LANE OF IRC CLASS 70R + ONE LANE OF IRC CLASS A WITHOUT FOOTPATH
  - ONE LANE OF IRC CLASS 70R OR TWO LANE OF IRC CLASS A WITH FOOTPATH
  - IRC CLASS SV LOADING: SPECIAL MULTI AXLE HYDRAULIC TRAILER VEHICLE (PRIME MOVER WITH 20 AXLE TRAILER-GW=385 Tonnes)
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS :-
 

RCC GIRDER & RCC CAST-IN-SITU DECK SLAB	-45 MPa
PSC GIRDER & RCC CAST-IN-SITU DECK SLAB	-45 MPa
ABUTMENT, ABUTMENT CAP, DIRT WALL & FOUNDATION	-35 MPa
RCC CRASH BARRIER	-40 MPa
RCC APPROACH SLAB	-30 MPa
LEVELING COURSE UNDER APPROACH SLAB	-15 MPa
LEVELING COURSE UNDER FOUNDATION	-10 MPa
PEDESTAL & SEISMIC RESTRAINER	-45 MPa
- THE REINFORCING BARS SHALL BE OF THERMO MECHANICAL TREATED HYSD (GRADE DESIGNATION Fe-500D) CONFORMING TO IS:1786 STANDARDS.
- GRADE OF STRUCTURAL STEEL SHALL BE E350 CONFORMING TO IS 2062.
- CLEAR COVER TO OUTER MOST STEEL SHALL BE AS UNDER:-
  - FOR SUPER STRUCTURE -50mm
  - FOR FOUNDATION -75mm
- FOR SUBSTRUCTURE:
  - EARTH FACE -75mm
  - NON EARTH FACE -50mm
- 65mm THK. WEARING COURSE COMPRISING OF 40mm THK. ASPHALTIC CONCRETE OVER LAID WITH 25mm THK. MASTIC ASPHALT SHALL BE PROVIDED AS PER SECTION 500 OF MORTH SPECIFICATIONS.
- SPHERICAL BEARINGS SHALL BE DESIGNED AS PER PROVISION OF IRC : 83 (PART-IV 2014).
- STRIP SEAL TYPE EXPANSION JOINTS SHALL BE PROVIDED AS PER PROVISION OF SP-69.
- BACK FILLING BEHIND ABUTMENT SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX:6 OF IRC:78-2014 HAVING PROPERTIES C=0,  $\phi=35^\circ$ ,  $\delta=22.5^\circ$  &  $\gamma_d=20 \text{ KN/m}^3$
- 100mm DIA WEEP HOLES AT 1000mm C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER IN VERTICAL WALLS OF THE ABUTMENT SHAFT AND RETURN WALL FROM 150mm ABOVE G.L IN ONE OR TWO LAYERS AT A SLOPE OF 1 VERTICAL TO 20 HORIZONTAL TOWARDS THE DRAINING FACE.
- WATER TO BE USED IN CONCRETING & CURING SHALL CONFORM TO CLAUSE 18.8.4(4) IRC : 112:2011.
- SAFE BEARING CAPACITY ASSUMED IN DESIGN AT PROPOSED FOUNDING LEVEL IS  $40 \text{ t/m}^2$ . THIS SHALL BE ASCERTAINED BEFORE EXECUTION OF WORK AT SITE.
- SAFE LOAD CAPACITY OF PILE CONSIDERED IS 550 TON AND SAME SHALL BE CONFIRMED AT SITE PRIOR TO EXECUTION OF WORK.
- INITIAL LOAD TEST ON TEST PILE SHALL BE CARRIED OUT TO RE-CONFIRM THE ACTUAL VERTICAL AND LATERAL CARRYING CAPACITY OF PILE.
- THE BRIDGE IS DESIGNED FOR SEISMIC ZONE-V
- MODERATE CONDITION OF EXPOSURE SHALL BE CONSIDERED IN DESIGN.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY DRAWING. FRL & CAMBER, SUPER ELEVATION AT PARTICULAR LOCATION SHALL BE VERIFIED WITH THE HIGHWAY DRAWINGS.
- ALL STRUCTURAL STEEL AND BOLTS SHALL BE HOT DIP GALVANIZED.
- MAXIMUM SOCKETING LENGTH OF THE PILE IN ROCK IS 7.0m, WHERE  $(CR+RQD)/2$  OF ROCK > 30%.
- PERMANENT STEEL LINER IN PILE MAY BE PROVIDED BASED ON SOIL STRATA AT SITE.
- THE MINIMUM EMBEDMENT OF THE FOUNDATIONS INTO THE ROCK BELOW SHALL BE AS FOLLOWS:
 

FOR ROCKS OF MODERATELY STRONG	- 0.6M
FOR ROCKS OF MODERATELY WEAK	- 1.5M

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GOVERNMENT OF INDIA

CONSULTANT:  
 **RODIC CONSULTANTS PVT. LTD.**  
1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
NEW DELHI - 110001 (INDIA)  
In Association with  
 **Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 0+000 to Km. 1+871	<b>TENDER DRAWING</b>
Designed: AK	Scale :- As Shown
Drawn: AH	
Designed: VT	
Approved: AM	

Project:-	<b>CONSTRUCTION &amp; UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 &amp; LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR</b>
Drawing Title	GENERAL ARRANGEMENT DRAWING FOR MAJOR BRIDGE AT CH. 0+140
Sheet size: A2	Annex III
Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/ MJB/0+140/04/R1

# **CULVERTS**

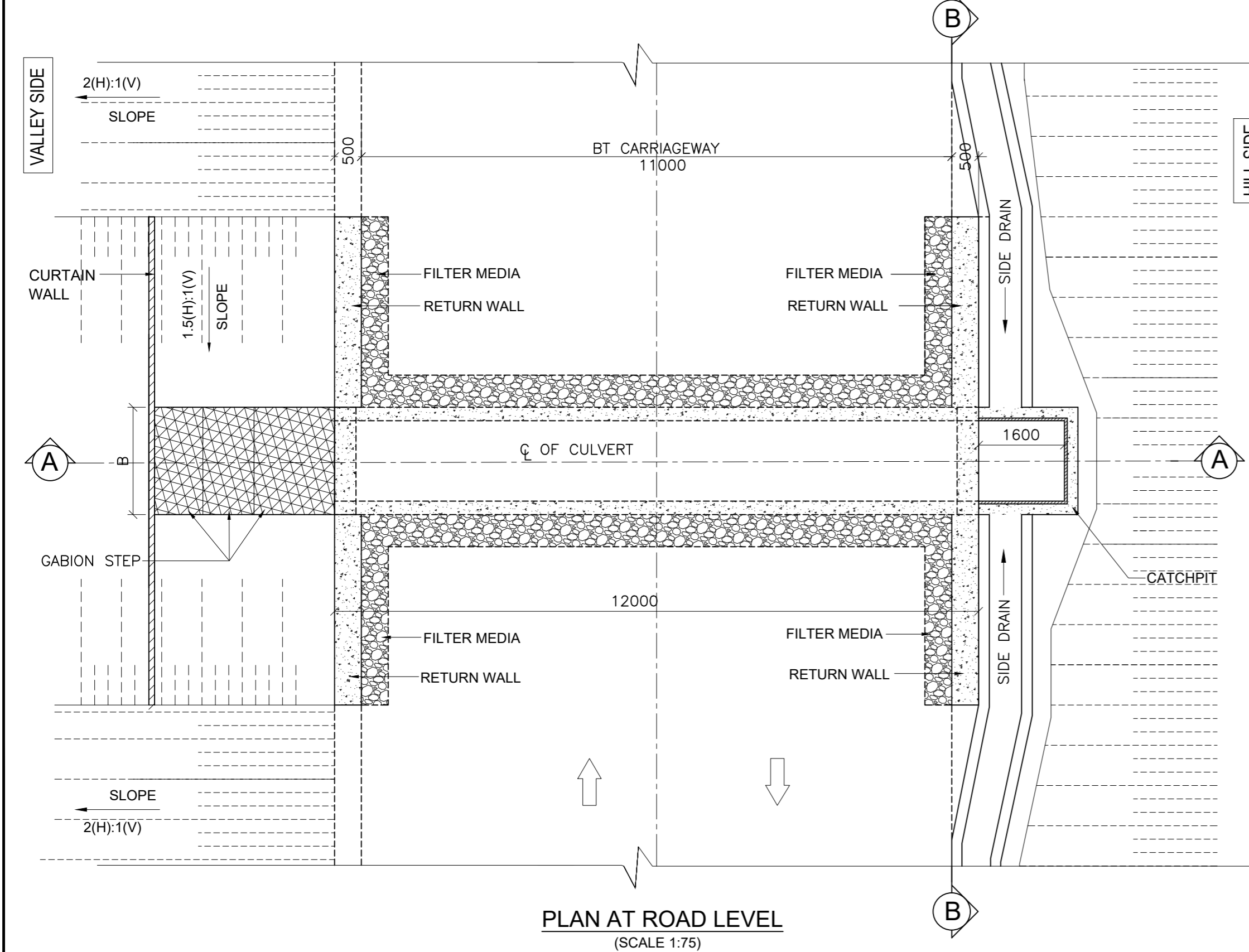
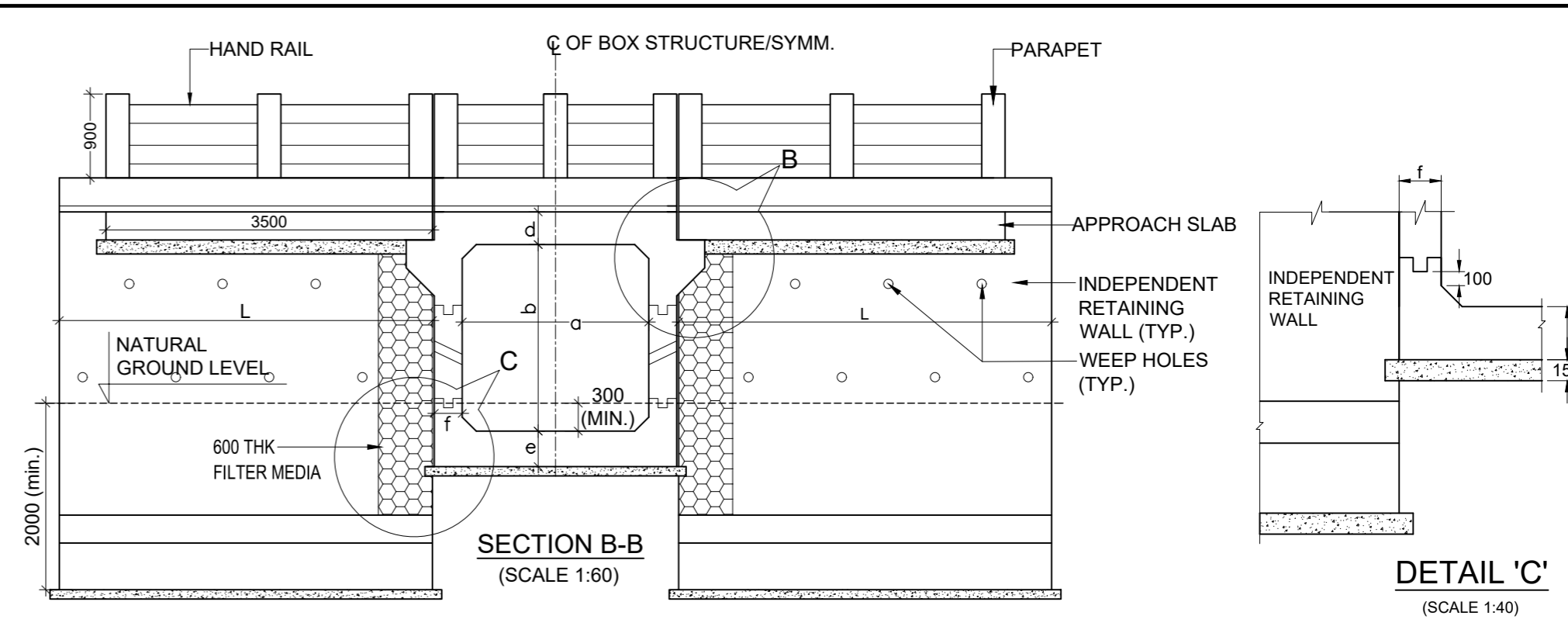
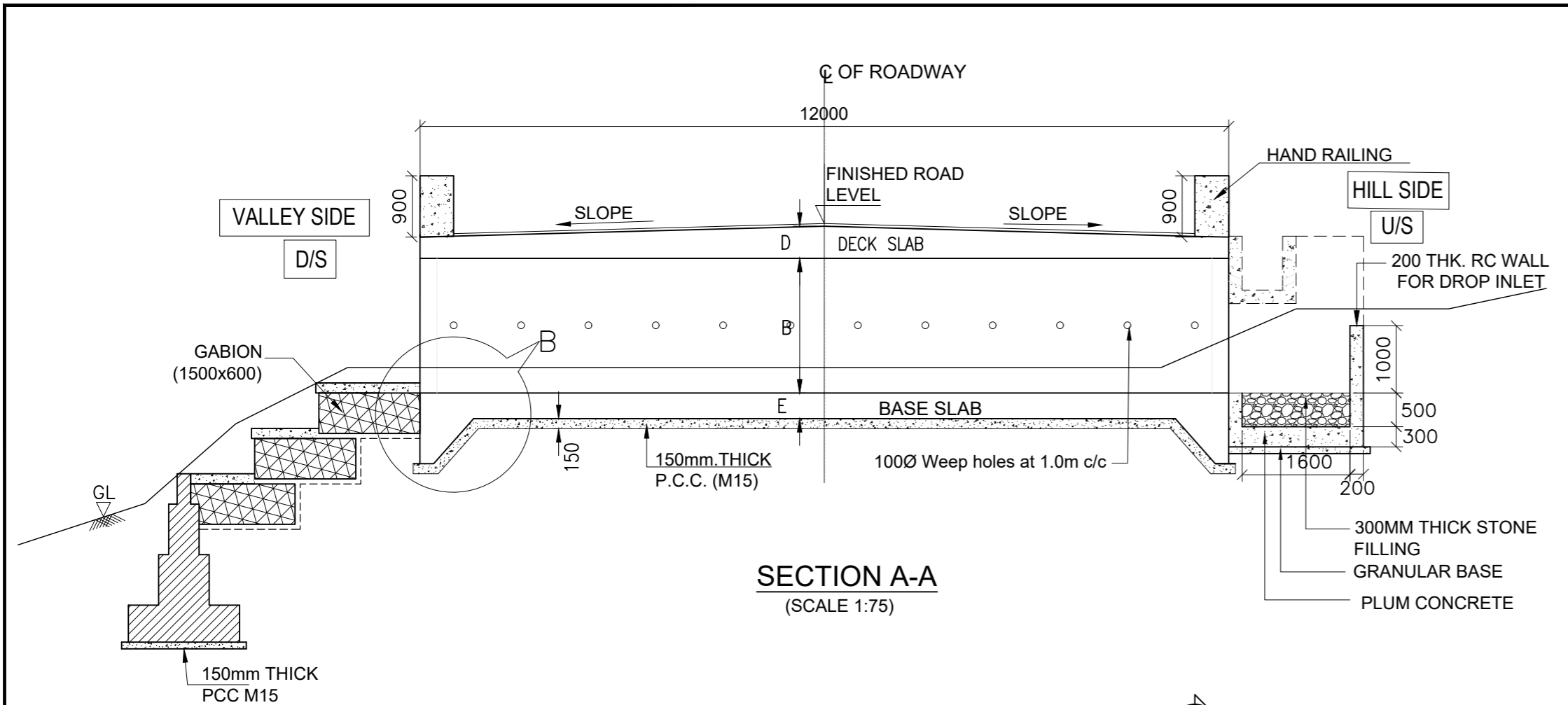
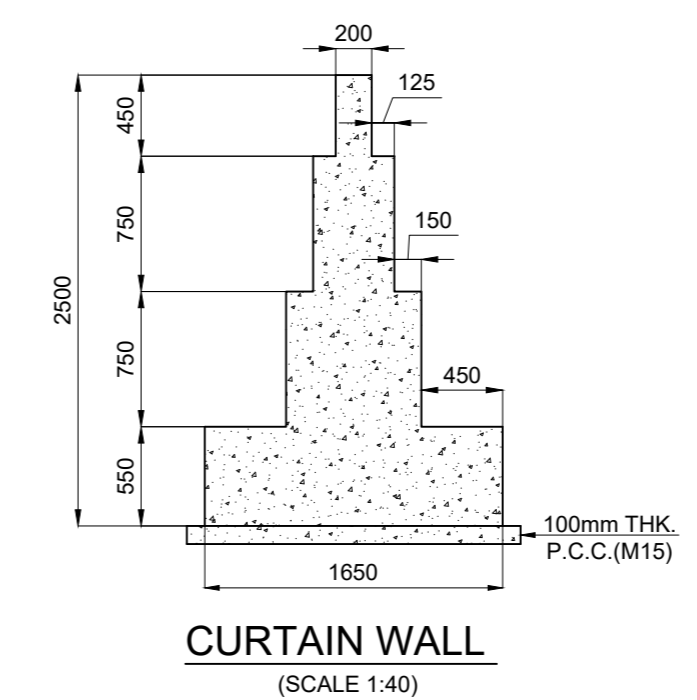
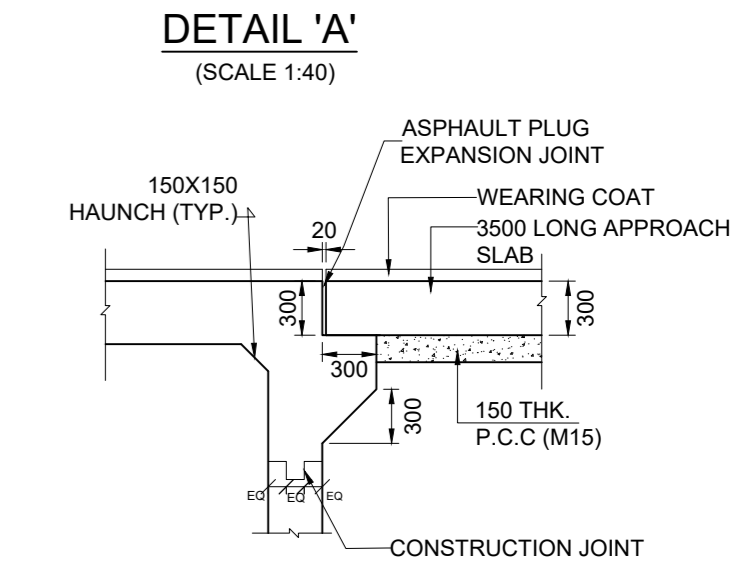
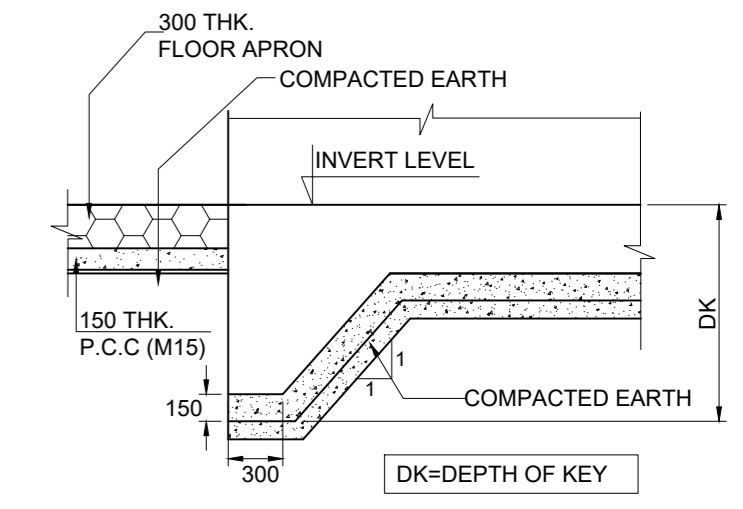


TABLE SHOWING SALIENT DIMENSIONS

PROPOSED CHAINAGE	BOX CELL DESIGNATION Nc/ab/Ec	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	f (mm)	L (mm)
0+394	1/22/0	2000	2000	-	225	250	250	3500
0+540	1/22/0	2000	2000	-	225	250	250	3500
0+600	1/22/0	2000	2000	-	225	250	250	3500
0+700	1/22/0	2000	2000	-	225	250	250	3500
0+790	1/22/0	2000	2000	-	225	250	250	3500
1+085	1/44/0	4000	4000	-	350	400	375	6000
1+185	1/22/0	2000	2000	-	225	250	250	3500
1+445	1/33/0	3000	3000	-	275	300	275	4500
1+525	1/22/0	2000	2000	-	225	250	250	3500
1+575	1/33/0	3000	3000	-	275	300	275	4500
1+775	1/22/0	2000	2000	-	225	250	250	3500
1+840	1/22/0	2000	2000	-	225	250	250	3500



- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETERS, AND LEVELS ARE IN METERS, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DRAWING SHALL BE SCALED.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE PLAN & PROFILE AND OTHER RELEVANT DRAWINGS.
  - PROTECTION WORKS SHOWN ARE INDICATIVE ONLY. THESE SHALL BE VERIFIED AND NECESSARY MODIFICATIONS TO BE CARRIED OUT AS PER SITE CONDITION.
  - SOFT AND LOOSE PATCHES IN THE BEARING AREA ARE TO BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300MM
  - GRADE OF CONCRETE FOR VARIOUS COMPONENTS ARE MENTIONED IN GENERAL NOTES.
  - MINIMUM NET BEARING CAPACITY REQUIRED FOR SOIL IS  $10T/M^2$
  - RETURN WALL TYPE (CANTILEVER, PCC OR RCC) SHALL BE FINALISED ON SITE IN CONSULTATION WITH AUTHORITY ENGINEER.
  - WEENP HOLES AND FLITTER MEDIA SHALL NOT BE CONSIDERED UP TO 3M HEIGHT OF CULVERTS.
  - 'DK' IS DEPTH OF KEY AT BASE SLAB.
  - FOR BASE SLAB THICKNESS VALUE OF 'DK'
 

UPTO 900mm	1200mm.
GREATER THAN 900mm	e+300mm

 e = BASE SLAB THICKNESS

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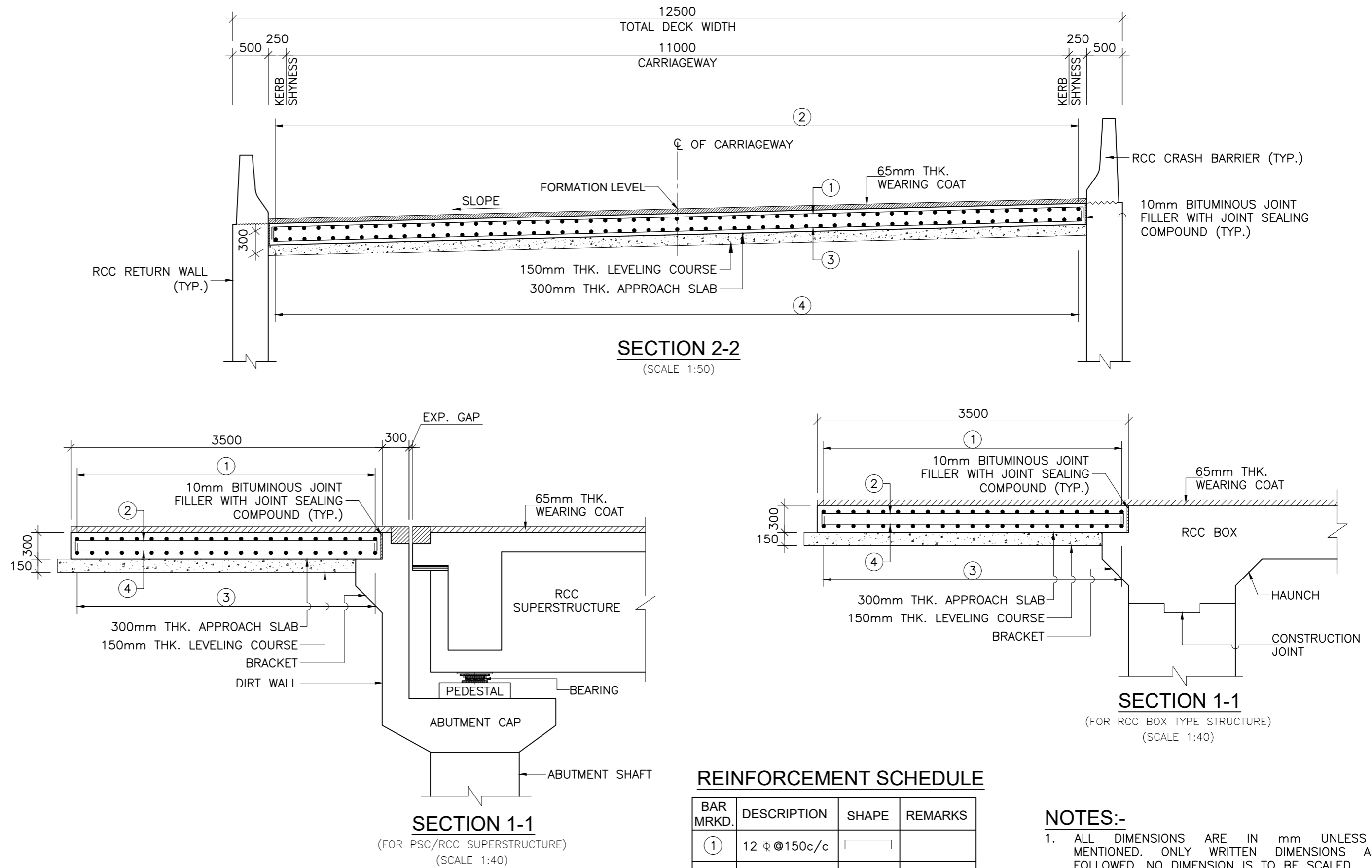
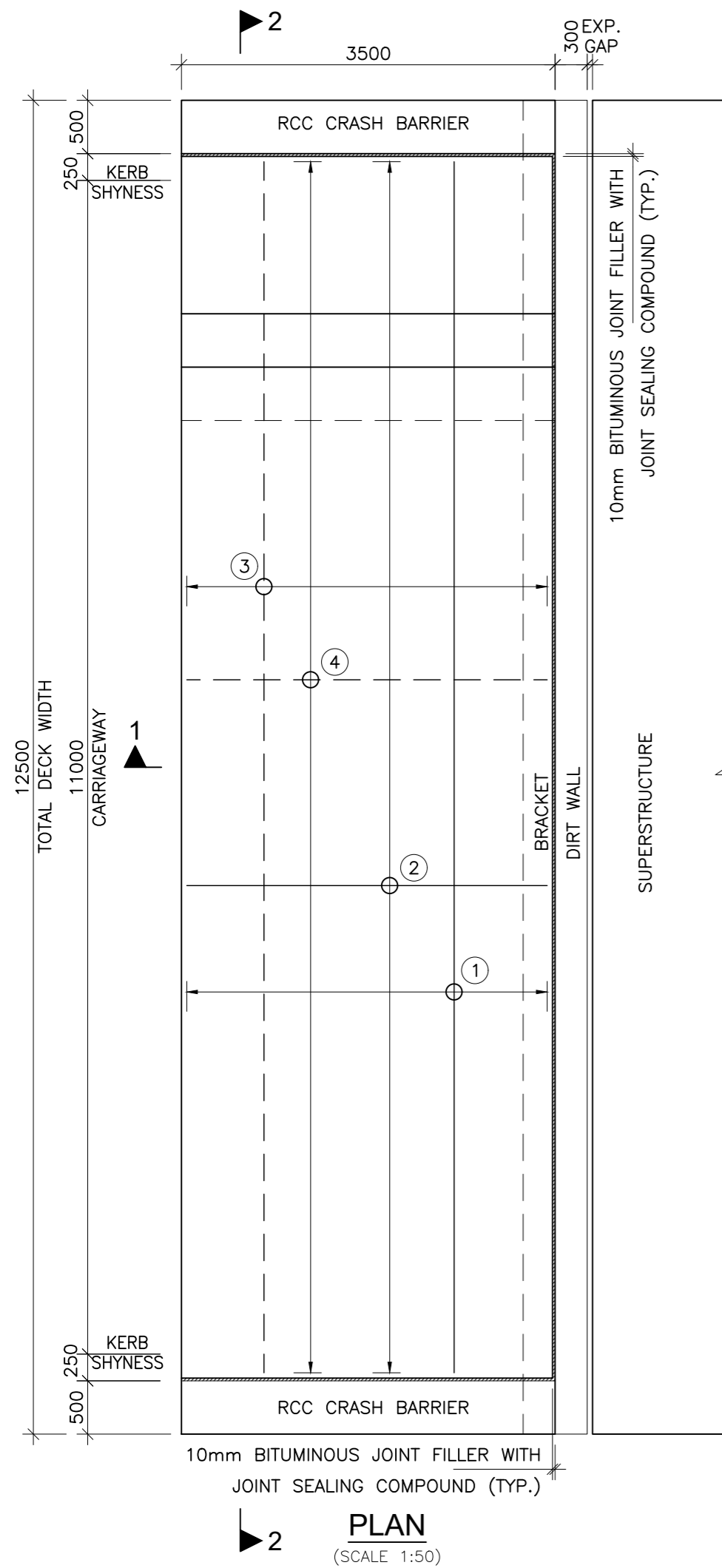
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From Design Km. 0+000 to Km. 1+871  
**TENDER DRAWING**  
 Scale :-  
 As Shown

Project:-  
**CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR**  
 Drawing Title  
**GENERAL ARRANGEMENT DRAWING FOR SINGLE CELL BOX CULVERT (TYPE-1)**  
 Drawing No.  
**NHIDCL/NH244/KHELLANI - CHATTROO/ CUL/TYPE-1/01/R1**

**MISCELLANEOUS**



**REINFORCEMENT SCHEDULE**

BAR MRKD.	DESCRIPTION	SHAPE	REMARKS
①	12 $\Phi$ 150c/c		
②	12 $\Phi$ 150c/c		
③	12 $\Phi$ 150c/c		
④	12 $\Phi$ 150c/c		

**NOTES:-**

- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
- CONCRETE GRADE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS :-  
a. APPROACH SLAB - 30 MPa  
b. LEVELING COURSE - 15 MPa
- THE REINFORCING BARS SHALL BE OF THERMO MECHANICALLY TREATED/CORROSION RESISTANT STEEL (TMT-CRS) (GRADE DESIGNATION Fe-500D) CONFORMING TO IS:1786 STANDARDS.
- CLEAR COVER TO OUTER MOST STEEL SHALL BE AS 50mm.
- 65mm THK. WEARING COURSE COMPRISING OF 40mm THK. ASPHALTIC CONCRETE OVER LAID WITH 25mm THK. MASTIC ASPHALT SHALL BE PROVIDED AS PER SECTION 500 OF MORTH SPECIFICATIONS.
- FILLING BEHIND THE ABUTMENT AND PROPER COMPACTION OF THE EMBANKMENT BELOW THE APPROACH SLAB SHOULD BE CARRIED OUT BY THE CONTRACTOR WITH SELECTED MATERIAL AS PER THE SPECIFICATIONS GIVEN IN APPENDIX:6 OF IRC:78 (2014), HAVING SOIL PARAMETERS AS MENTIONED IN RESPECTIVE GADS OF BRIDGES.
- FOR REINFORCEMENT DETAILS OF RCC BRACKET SUPPORTING APPROACH SLAB REFER SEPARATE ABUTMENT DRAWINGS.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE GENERAL ARRANGEMENT DRAWING OF THE RESPECTIVE BRIDGES.

**LEGEND:**

BOTTOM REINF. - - - - -  
TOP REINF. REINF. \_\_\_\_\_

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
(MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
GOVERNMENT OF INDIA

CONSULTANT:  
  
**RODIC CONSULTANTS PVT. LTD.**  
1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
NEW DELHI - 110001 (INDIA)  
In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550

Designed:	AV
Drawn:	KS
Designed:	VT
Approved:	AM

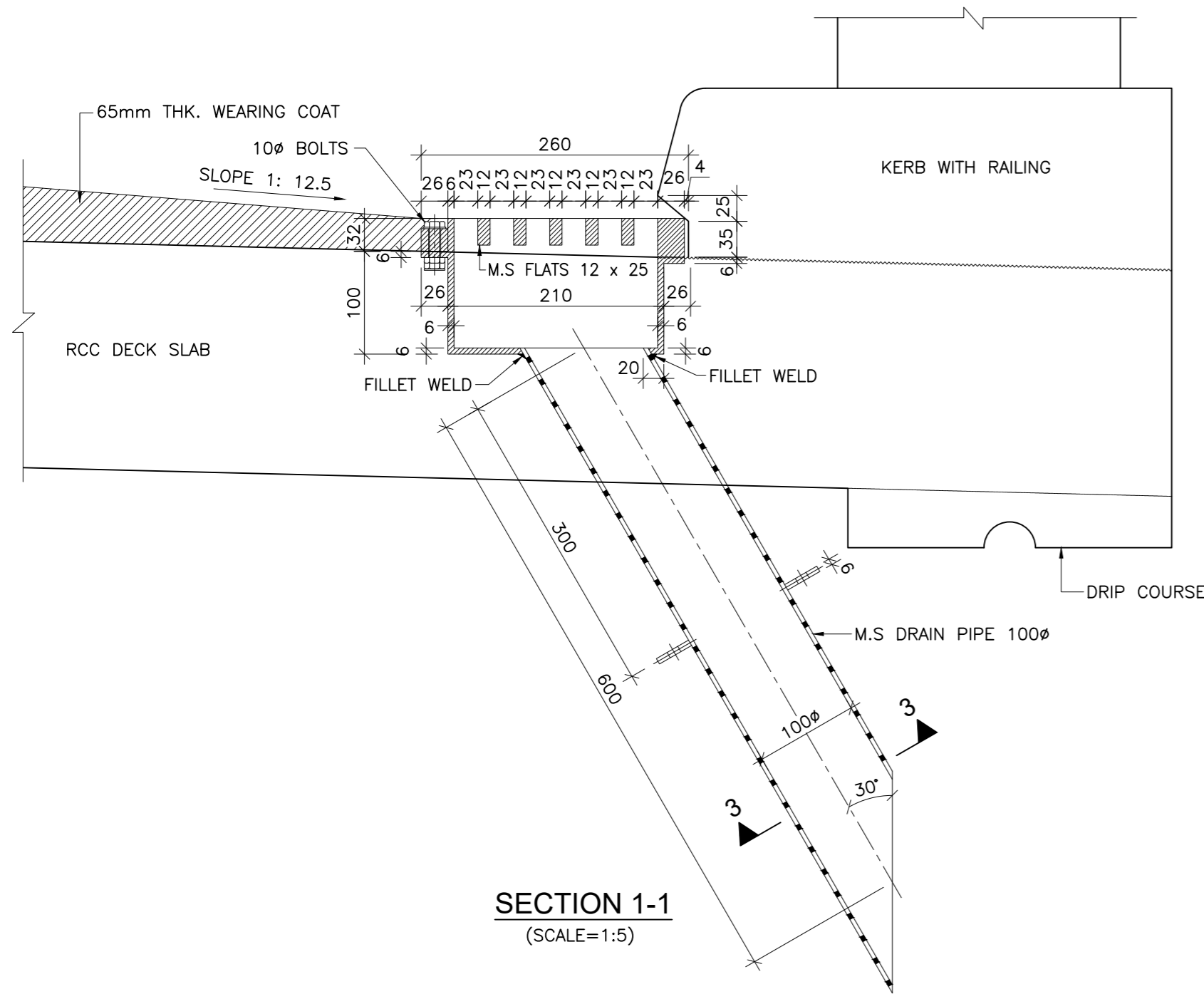
**TENDER DRAWING**

Scale :-  
As Shown

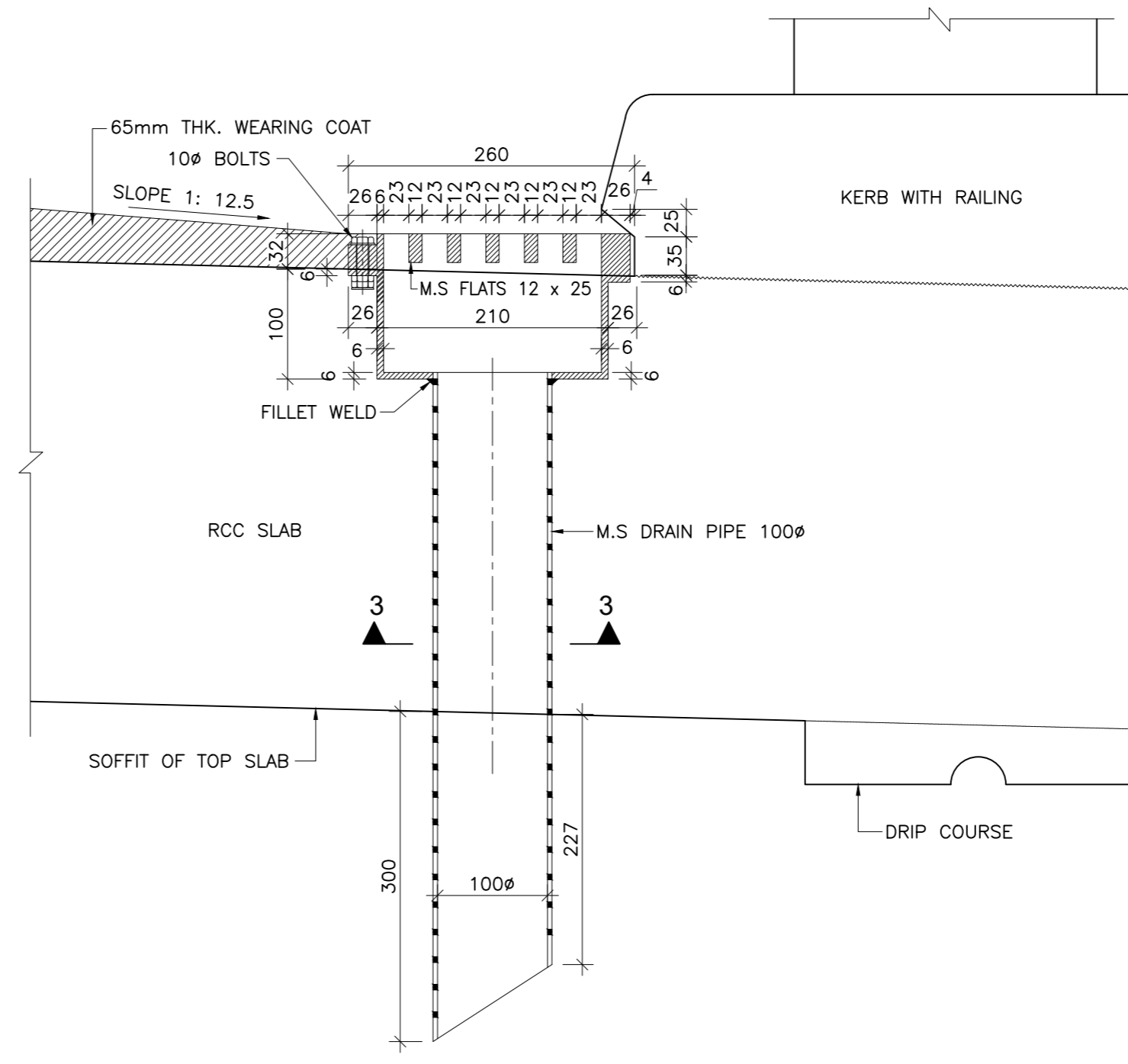
Project:-	<b>CONSTRUCTION &amp; UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 &amp; LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR</b>
Drawing Title	DETAILS OF APPROACH SLAB (FOR 12.5m DECK WIDTH)
Sheet size: A2	Annex III
Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/ MISC/01/R1

**NOTES:-**

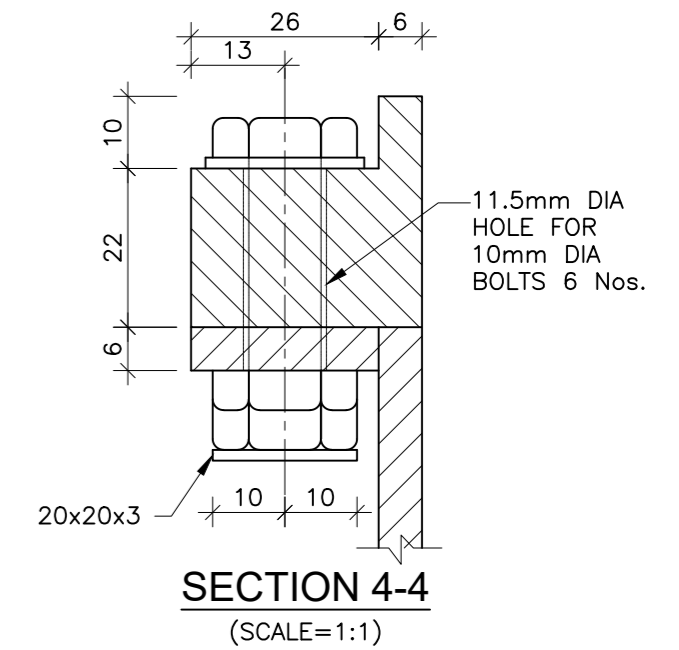
1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
2. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
3. SPACING OF DRAINAGE SPOUT SHALL NOT EXCEED 5.0m C/C.
4. 65mm THK. WEARING COAT COMPRISING OF 40mm THK. ASPHALTIC CONCRETE OVER LAID WITH 25mm THK. MASTIC ASPHALT SHALL BE PROVIDED AS PER SECTION 500 OF MORTH SPECIFICATIONS.
5. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE GENERAL ARRANGEMENT DRAWING OF THE RESPECTIVE BRIDGES.



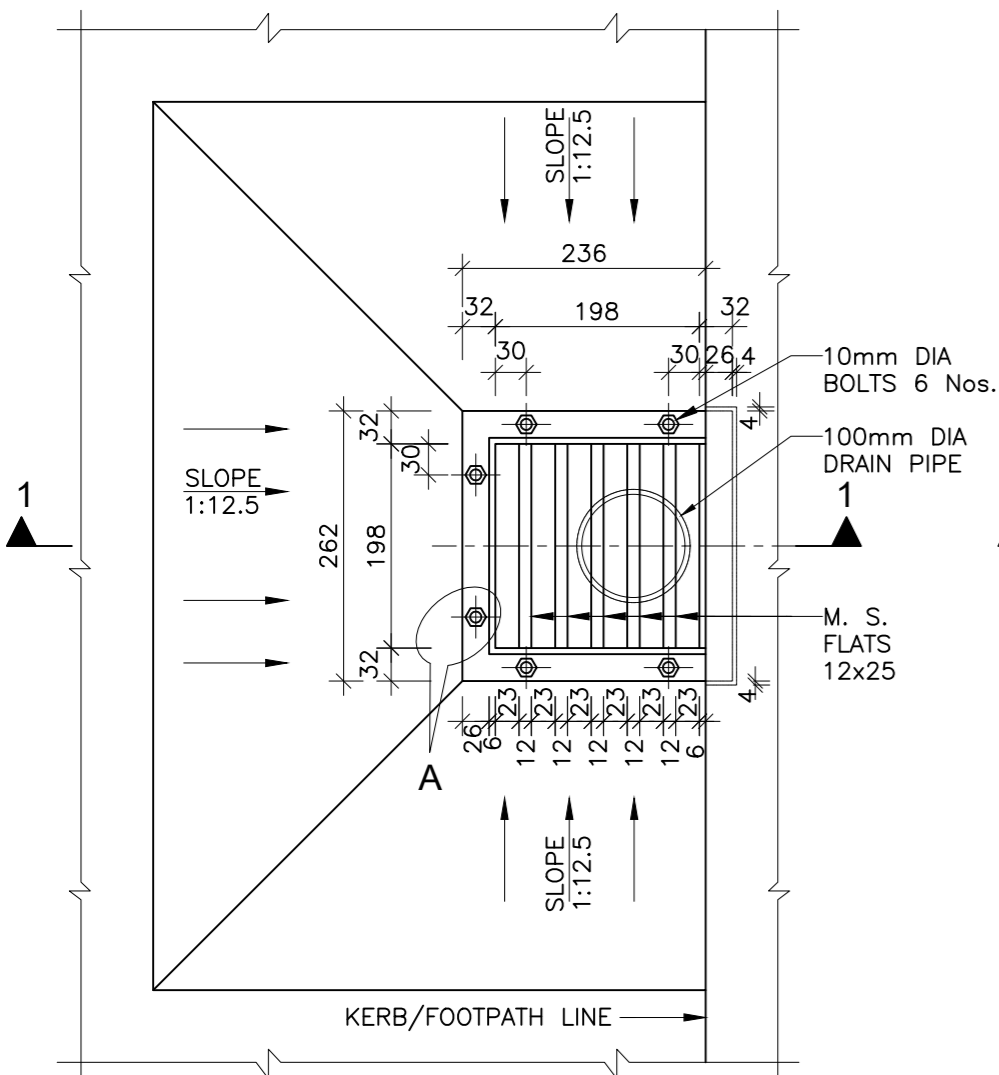
**SECTION 1-1**  
(SCALE=1:5)



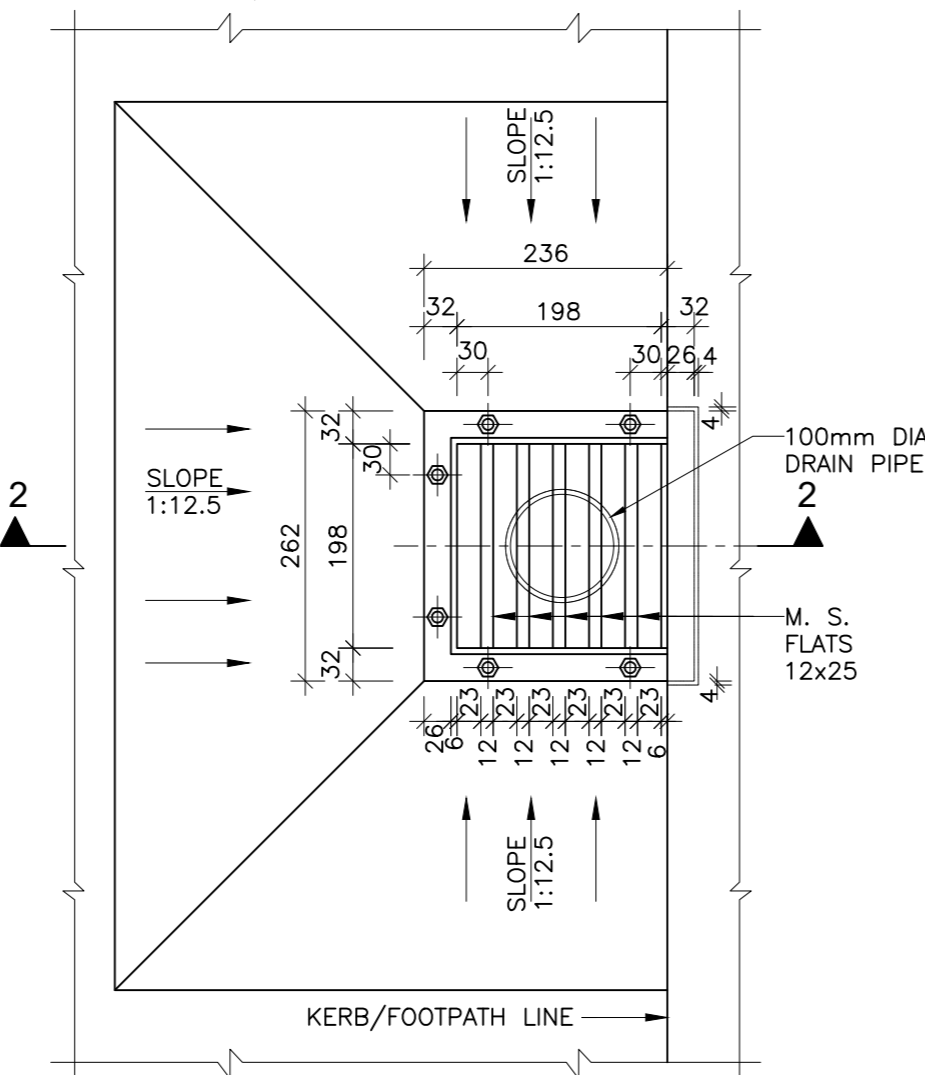
**SECTION 2-2**  
(SCALE=1:5)



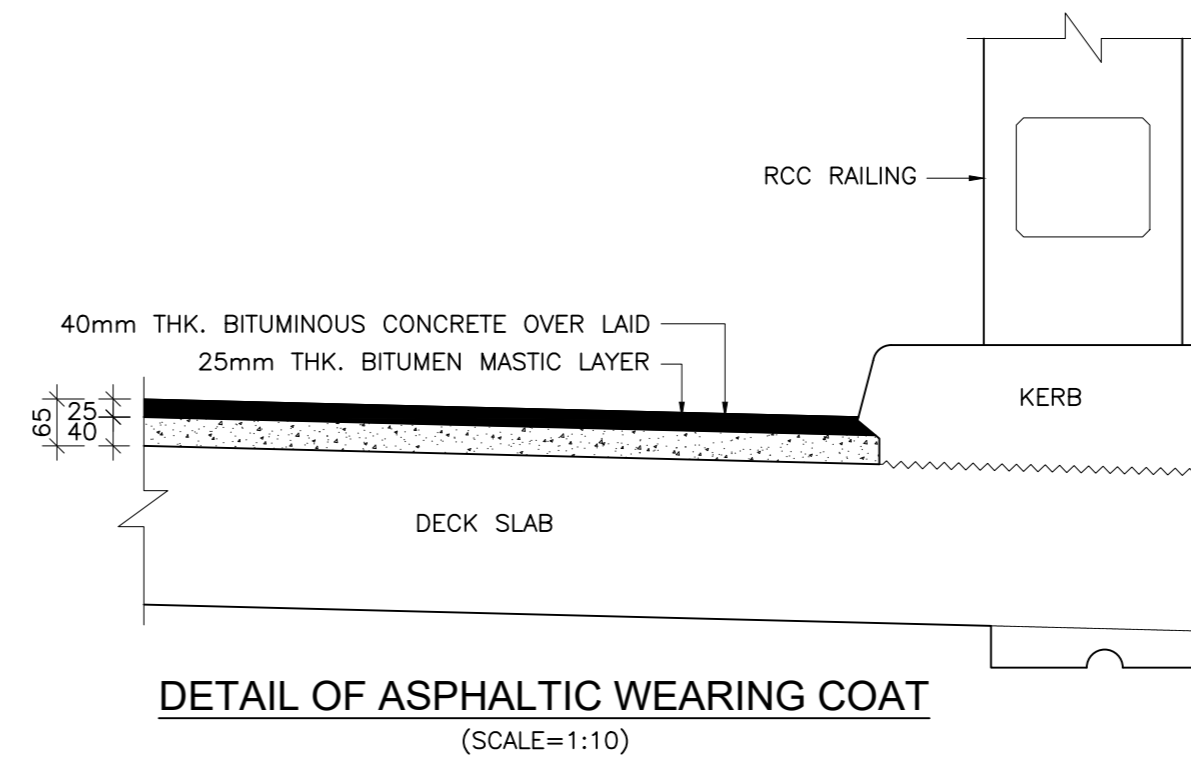
**SECTION 4-4**  
(SCALE=1:1)



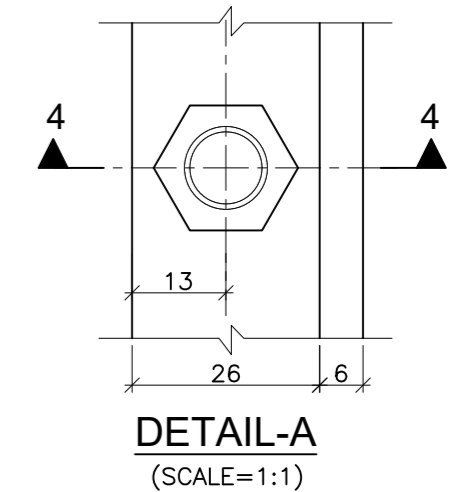
**PLAN**  
DETAIL OF DRAINAGE SPOUT AND COLLECTION PIT  
(FOR RCC AND PSC SUPERSTRUCTURE)  
(SCALE=1:7)



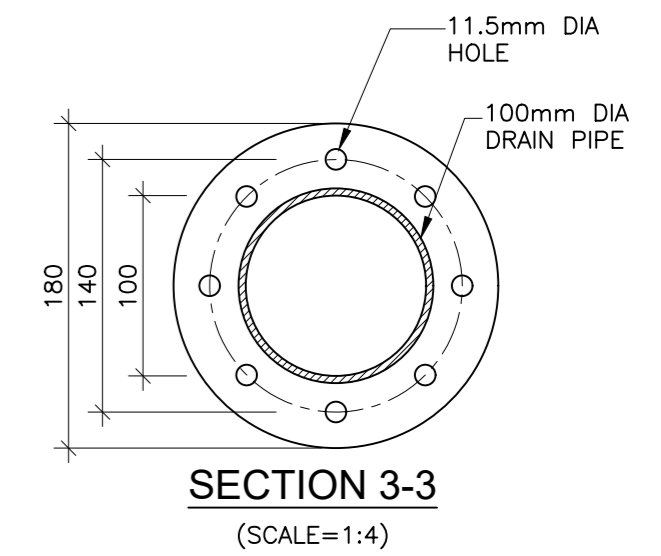
**PLAN**  
DETAIL OF DRAINAGE SPOUT AND COLLECTION PIT  
(FOR RCC SOLID SLAB AND BOX STRUCTURE)  
(SCALE=1:7)



**DETAIL OF ASPHALTIC WEARING COAT**  
(SCALE=1:10)



**DETAIL-A**  
(SCALE=1:1)



**SECTION 3-3**  
(SCALE=1:4)

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

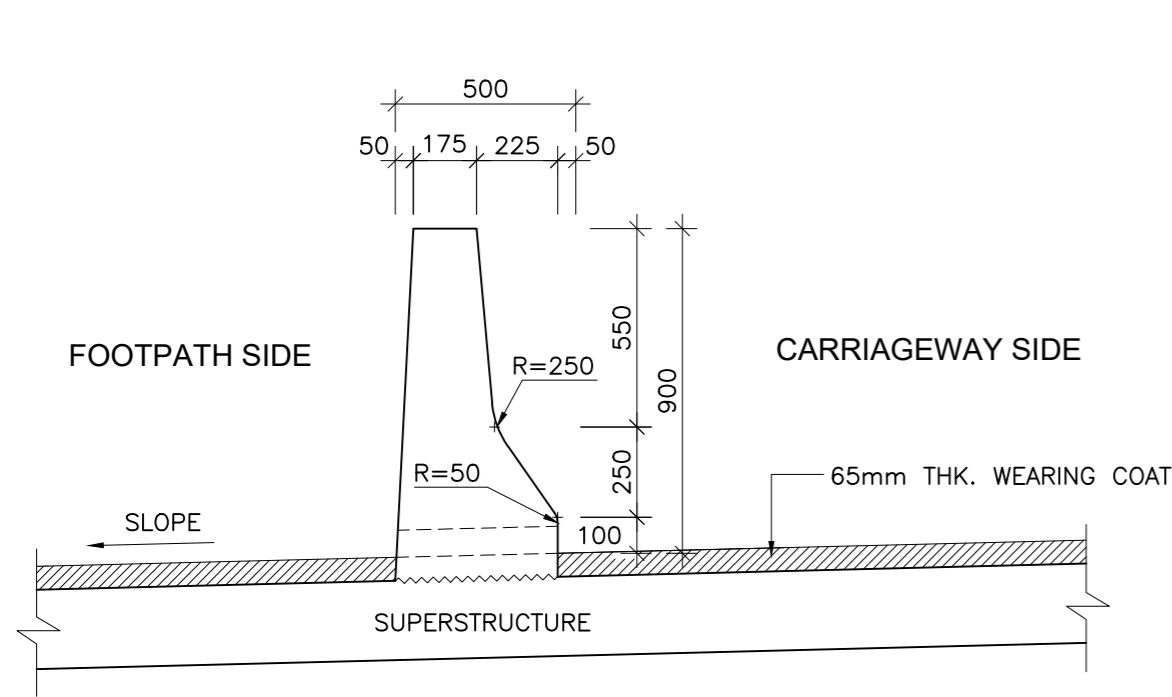
CLIENT	NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (MINISTRY OF ROAD TRANSPORT & HIGHWAY) GOVERNMENT OF INDIA
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CONSULTANT:	 <b>RODIC CONSULTANTS PVT. LTD.</b> 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING NEW DELHI - 110001 (INDIA) In Association with  <b>Monarch Surveyors and Engineering Consultants Pvt. Ltd.,</b>
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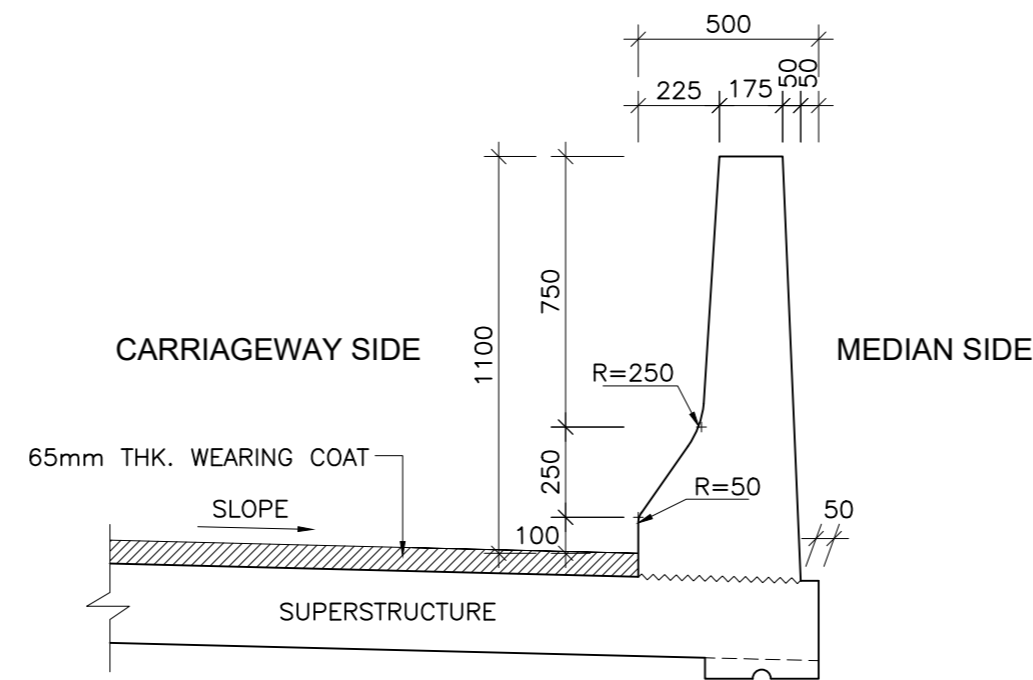
From Design Km. 80+675 to Km. 95+550	TENDER DRAWING
Designed: AV	Scale :- As Shown
Drawn: KS	
Designed: VT	
Approved: AM	

Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
Drawing Title	DETAILS OF DRAINAGE SPOUT AND WEARING COAT
Sheet size: A2	Annex III
Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/ MISC/02/R1

Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
Drawing Title	DETAILS OF DRAINAGE SPOUT AND WEARING COAT
Sheet size: A2	Annex III
Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/ MISC/02/R1



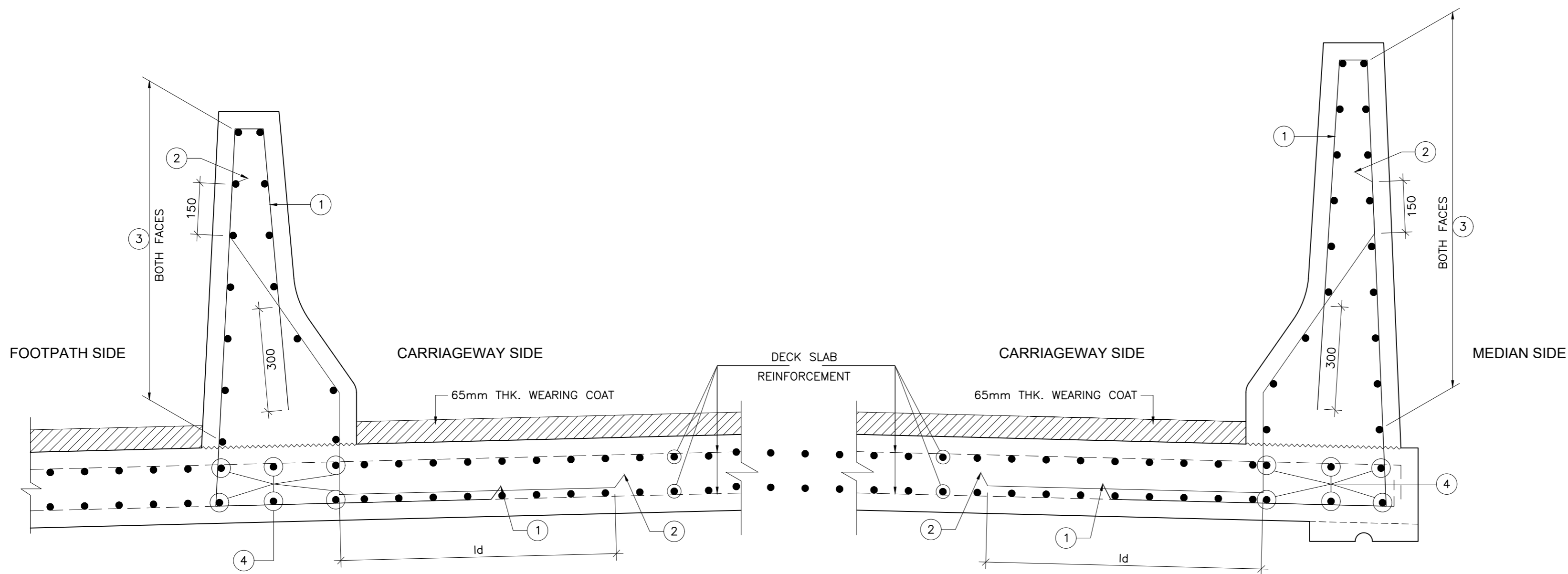
**DIMENSIONAL DETAILS OF INTERMEDIATE CRASH BARRIER**  
(SCALE 1:20)



**DIMENSIONAL DETAILS OF OUTER CRASH BARRIER**  
(SCALE 1:20)

**NOTES:-**

- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
  - THE CRASH BARRIER DESIGN HAS BEEN ADOPTED AS PER CLAUSE 115.4.1 OF IRC:5-1998.
  - THE CONCRETE GRADE SHALL BE M40.
  - THE REINFORCING BARS SHALL BE OF THERMO MECHANICALLY TREATED/CORROSION RESISTANT STEEL (TMT-CRS) (GRADE DESIGNATION Fe-500D) CONFORMING TO IS:1786 STANDARDS.
  - CLEAR COVER TO OUTERMOST STEEL IS 50mm.
  - DOWEL BARS OF THE CRASH BARRIER SHALL BE PROPERLY ANCHORED INTO THE DECK SLAB.
  - SUITABLE REFLECTIVE (LUMINOUS) DEVICES SHALL BE PROVIDED ON THE TRAFFIC FACE OF THE BARRIER AT SUITABLE INTERVAL TO ENSURE ADEQUATE VISIBILITY DURING NIGHT AND FOGGY CONDITIONS.
  - LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE. IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BARS SHALL BE CALCULATED AS FOLLOW WITH MAXIMUM ALLOWABLE LAPPING (p) OF 50% ONLY.  
(IRC:112-2011) (CLAUSE:15.2.5.1)  
LAP LENGTH  $l_s = \alpha_1 \cdot l_{bnet}$   
 $\alpha_1 = 1.0$  FOR  $p \leq 25\%$   
 $\alpha_1 = 1.15$  FOR  $25\% < p \leq 33\%$   
 $\alpha_1 = 1.4$  FOR  $33\% < p \leq 50\%$
- IN THE CASE OF BUNDLED BARS  
LAP LENGTH =  $1.3 \times l_s$  (CLAUSE:15.2.7.3)  
(IRC:112-2011) (CLAUSE:15.2.3.3)  
DEVELOPMENT LENGTH ( $l_{bnet}$ )  
 $l_{bnet} = \alpha \cdot l_b$  ( $\alpha = 1.0$ )  
 $l_b = k \phi$   
 $k = 40$  FOR M30 (Fe500D)  
 $k = 36$  FOR M35 (Fe500D)  
 $k = 34$  FOR M40 (Fe500D)
- FOR UNFAVORABLE BOND CONDITION THE  $l_b$  SHOULD BE MULTIPLIED BY FACTOR OF 1.43.  
FOR  $\phi > 32\text{mm}$   $l_b$  SHOULD BE INCREASED BY MULTIPLYING FACTOR  $(\frac{100}{132})$
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE GENERAL ARRANGEMENT DRAWING OF THE RESPECTIVE BRIDGES.



**REINFORCEMENT DETAILS OF INTERMEDIATE CRASH BARRIER**  
(SCALE 1:10)

**REINFORCEMENT DETAILS OF OUTER CRASH BARRIER**  
(SCALE 1:10)

**REINFORCEMENT SCHEDULE**

BAR MRKD.	DESCRIPTION	SHAPE	REMARKS
①	16 $\phi$ @ 150c/c		
②	16 $\phi$ @ 150c/c		
③	12 $\phi$ @ 150c/c		
④	16 $\phi$ - 3 Nos.		

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
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GOVERNMENT OF INDIA

CONSULTANT:  
  
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1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
NEW DELHI - 110001 (INDIA)  
In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550

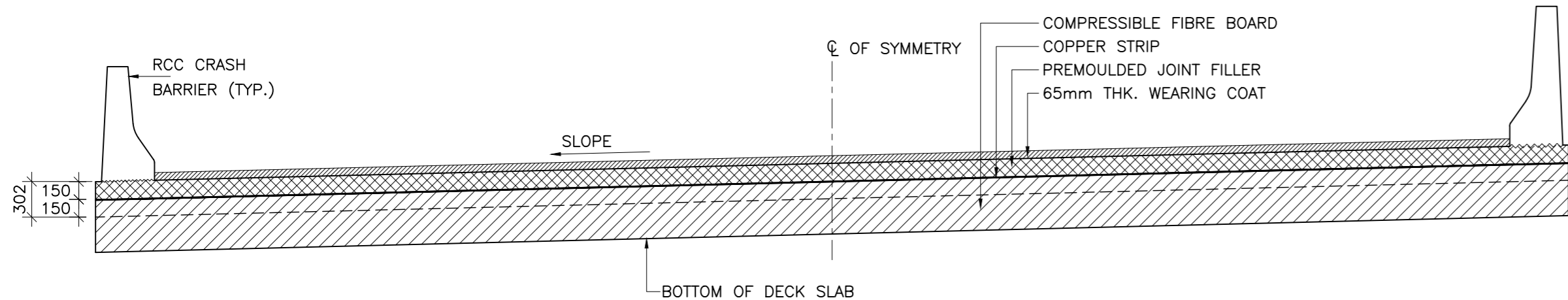
Designed:	AV
Drawn:	KS
Designed:	VT
Approved:	AM

**TENDER DRAWING**

Scale :-  
As Shown

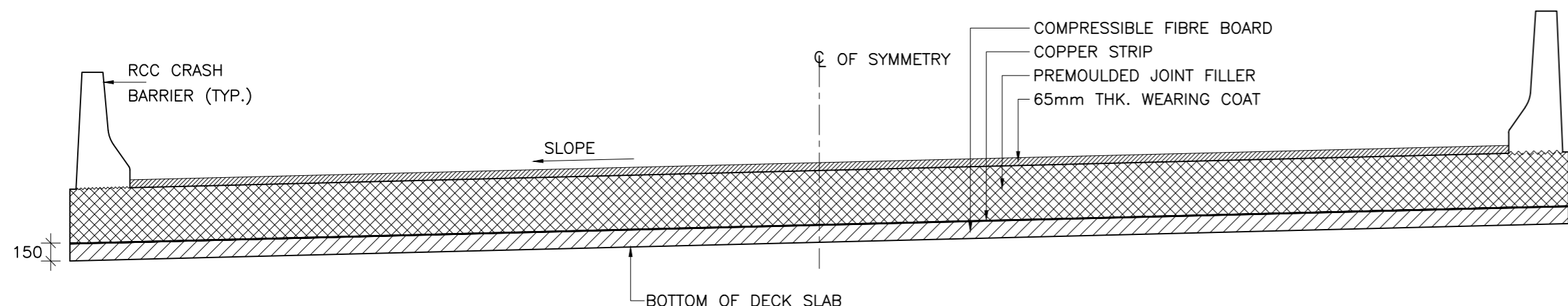
Project:-	CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR
Drawing Title	DIMENSIONAL AND REINFORCEMENT DETAILS OF CRASH BARRIER
Sheet size:	A2
Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/MISC/03/R1

Annex III



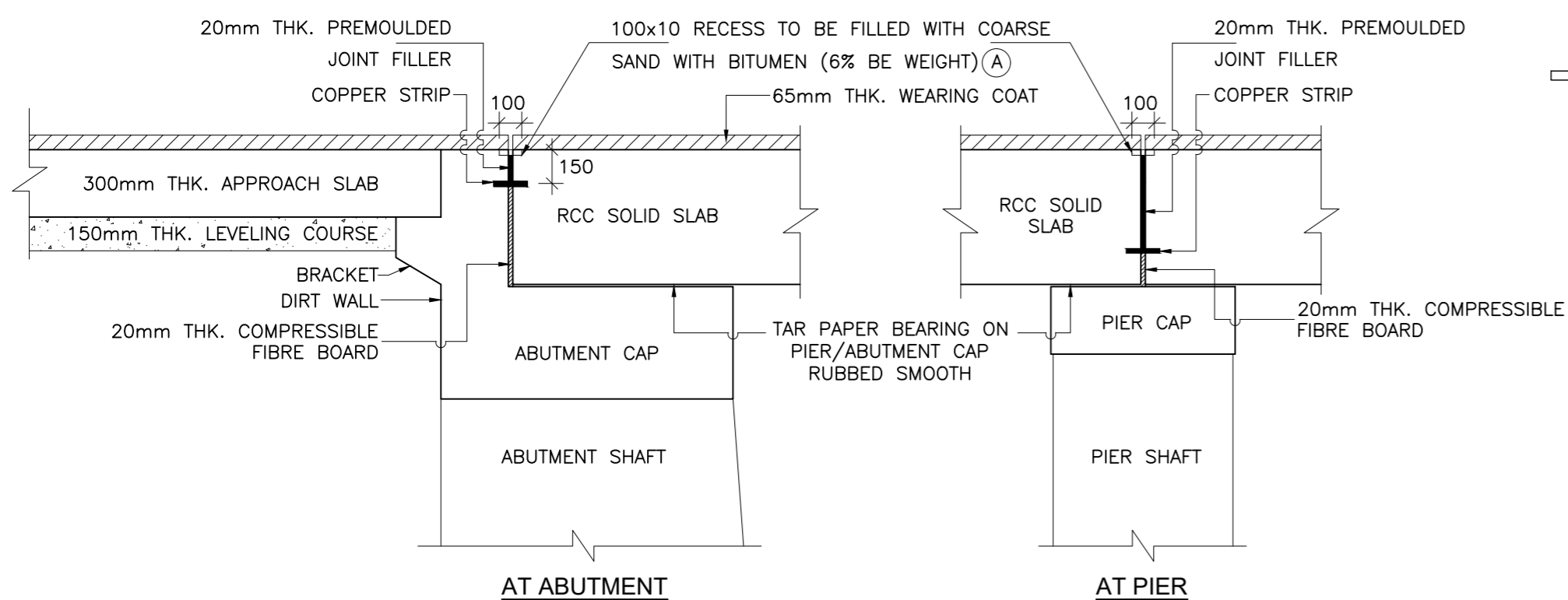
LAYOUT OF COPPER STRIP AT ABUTMENT LOCATION

(SCALE 1:40)



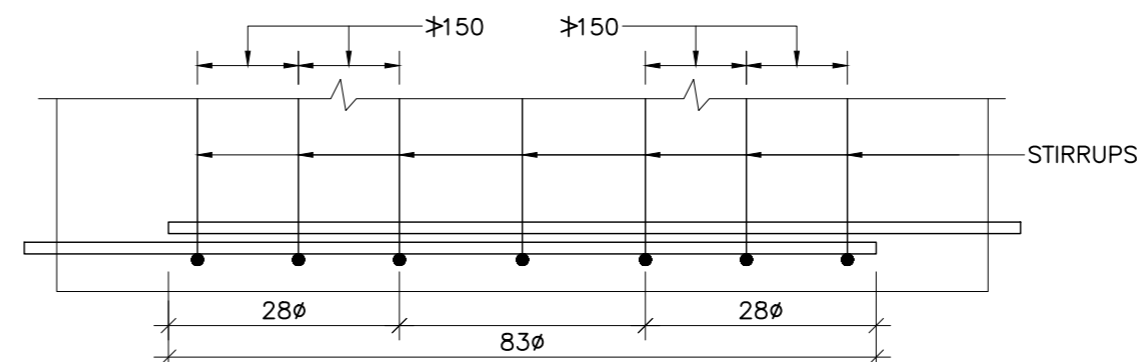
LAYOUT OF COPPER STRIP AT PIER LOCATION

(SCALE 1:40)



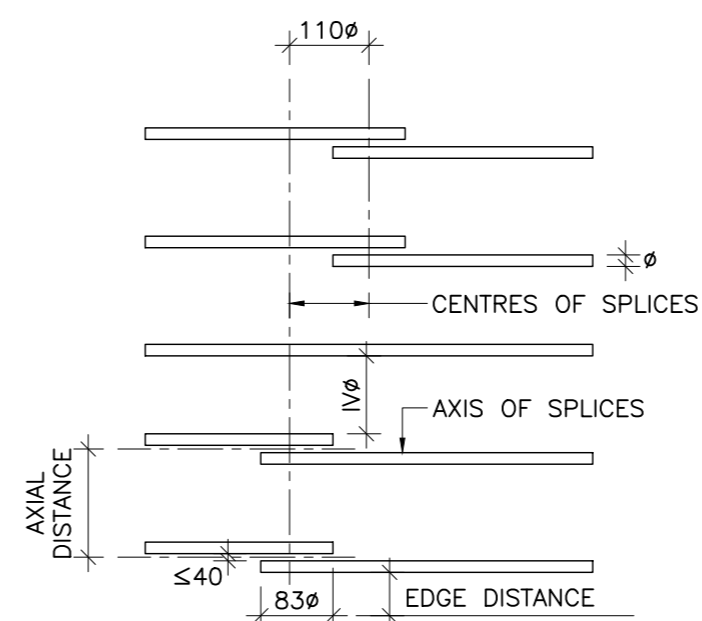
DETAILS OF EXPANSION JOINT

(SCALE 1:25)



TRANSVERSE REINFORCEMENT AT LAP SPLICES IN KERBS

(SCALE 1:25)

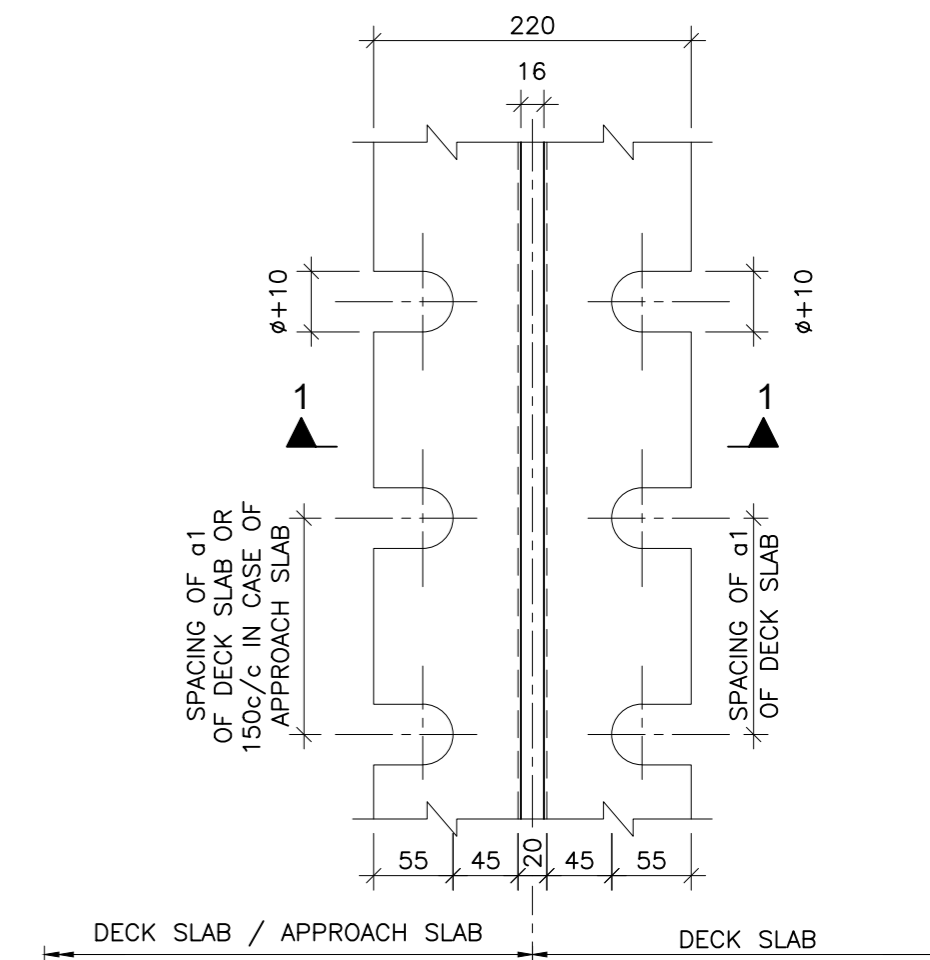


LAP SPLICES OF BARS IN TENSION

(SCALE 1:10)

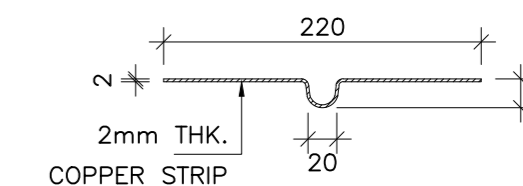
**NOTES:-**

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
2. SPLICING OF MAIN LONGITUDINAL BARS IN DECK SLAB SHALL BE AVOIDED AS FAR AS PRACTICABLE. IN CASE THE SPLICING OF BARS BECOMES UNAVOIDABLE, THE ARRANGEMENT SHALL BE AS SHOWN IN THE DRAWING.
3. AREA OF BARS SPLICED AT ANY SECTION SHALL NOT EXCEED 50% OF THE TOTAL AREA OF THE BARS PROVIDED AT THE SECTION..
4. JOINT FILLER SHALL CONFORM TO I.S.1838. PRODUCTS WITH I.S.I. CERTIFICATION MARK SHALL ONLY BE USED..
5. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE GENERAL ARRANGEMENT DRAWING OF THE RESPECTIVE BRIDGES.



DETAIL OF COPPER STRIP

(SCALE 1:5)

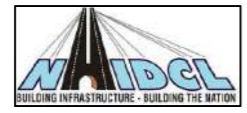




SECTION B-B

(SCALE 1:5)

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
 (MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
 GOVERNMENT OF INDIA



CONSULTANT:  

**RODIC CONSULTANTS PVT. LTD.**  
 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
 NEW DELHI - 110001 (INDIA)  
 In Association with  

**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550	<b>TENDER DRAWING</b>
Designed: AV	Scale :- As Shown
Drawn: KS	
Designed: VT	
Approved: AM	

Project:-	<b>CONSTRUCTION &amp; UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 &amp; LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHTWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR</b>
Drawing Title	DETAILS OF EXPANSION JOINT
Sheet size: A2	Annex III
Drawing No.	NHIDCL/NH244/KHELLANI - CHATTROO/MISC/04/R1

REINFORCEMENT SCHEDULE FOR S.B.C= 22T/m<sup>2</sup>

BAR MRKD.	SHAPE	TOTAL 6.0m HEIGHT	TOTAL 7.0m HEIGHT	TOTAL 8.0m HEIGHT	TOTAL 9.0m HEIGHT	TOTAL 10.0m HEIGHT	TOTAL 11.0m HEIGHT	TOTAL 12.0m HEIGHT	TOTAL 13.0m HEIGHT	TOTAL 14.0m HEIGHT
①		12 ϕ@200c/c	12 ϕ@200c/c	12 ϕ@200c/c	16 ϕ@200c/c	16 ϕ@200c/c	16 ϕ@200c/c	20 ϕ@190c/c	25 ϕ@190c/c	25 ϕ@160c/c
②		12 ϕ@200c/c	12 ϕ@200c/c	12 ϕ@200c/c	12 ϕ@200c/c	12 ϕ@200c/c	12 ϕ@200c/c	16 ϕ@190c/c	20 ϕ@190c/c	20 ϕ@160c/c
③		12 ϕ@200c/c	12 ϕ@200c/c	12 ϕ@200c/c	12 ϕ@150c/c	12 ϕ@200c/c	12 ϕ@150c/c	12 ϕ@125c/c	16 ϕ@100c/c	20 ϕ@150c/c
④		12 ϕ@200c/c	16 ϕ@180c/c	20 ϕ@200c/c	25 ϕ@200c/c	25 ϕ@200c/c	32 ϕ@200c/c	32 ϕ@190c/c	32 ϕ@190c/c	32 ϕ@160c/c
⑤		12 ϕ@200c/c	12 ϕ@180c/c	12 ϕ@200c/c	16 ϕ@200c/c	20 ϕ@200c/c	20 ϕ@200c/c	25 ϕ@190c/c	32 ϕ@190c/c	32 ϕ@160c/c
⑥		12 ϕ@200c/c	12 ϕ@200c/c	12 ϕ@200c/c	12 ϕ@150c/c	16 ϕ@200c/c	16 ϕ@150c/c	16 ϕ@125c/c	16 ϕ@100c/c	20 ϕ@150c/c
⑦		16 ϕ@200c/c	16 ϕ@200c/c	20 ϕ@200c/c	20 ϕ@200c/c	20 ϕ@200c/c	20 ϕ@200c/c	25 ϕ@200c/c	25 ϕ@190c/c	25 ϕ@170c/c
⑧		12 ϕ@200c/c	12 ϕ@150c/c	12 ϕ@150c/c	12 ϕ@125c/c	16 ϕ@150c/c	16 ϕ@150c/c	16 ϕ@150c/c	16 ϕ@140c/c	16 ϕ@125c/c
⑨		20 ϕ@200c/c	25 ϕ@200c/c	25 ϕ@200c/c	25 ϕ@200c/c	32 ϕ@200c/c	32 ϕ@200c/c	32 ϕ@200c/c	32 ϕ@190c/c	32 ϕ@170c/c
9a		16 ϕ@200c/c	16 ϕ@200c/c	20 ϕ@200c/c	25 ϕ@200c/c	20 ϕ@200c/c	25 ϕ@200c/c	32 ϕ@200c/c	32 ϕ@190c/c	32 ϕ@170c/c
⑩		8 ϕ@200c/c	8 ϕ@300c/c	8 ϕ@300c/c	8 ϕ@250c/c	8 ϕ@300c/c	8 ϕ@300c/c	8 ϕ@300c/c	8 ϕ@280c/c	8 ϕ@250c/c
⑪		16 ϕ@150c/c	16 ϕ@150c/c	16 ϕ@150c/c	16 ϕ@150c/c	16 ϕ@150c/c	16 ϕ@150c/c	16 ϕ@150c/c	16 ϕ@150c/c	16 ϕ@150c/c
s1		-	-	-	-	2L-12 ϕ@200c/c	2L-12 ϕ@150c/c	2L-12 ϕ@125c/c	2L-12 ϕ@100c/c	2L-12 ϕ@150c/c
s2		-	-	-	-	-	-	-	2L-12 ϕ@100c/c	2L-12 ϕ@150c/c

SCHEDULE OF SECTIONAL DIMENSIONS OF RETAINING WALLS OF DIFFERENT HEIGHTS

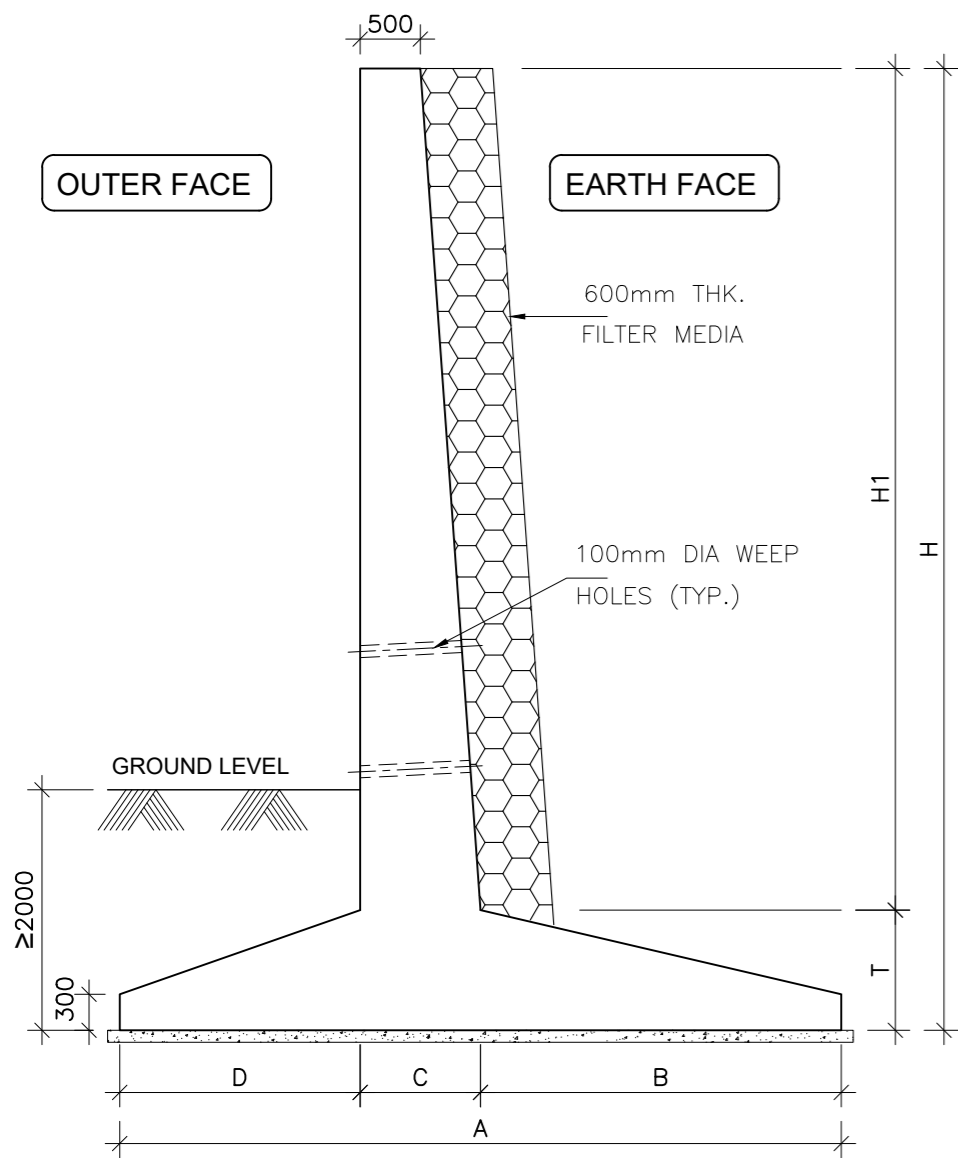
SR. NO.	TOTAL HEIGHT (H)	6.0m	7.0m	8.0m	9.0m	10.0m	11.0m	12.0m	13.0m	14.0m
1	BASE WIDTH A	4.4	5.3	6.3	7.25	8.1	9.0	10.0	11.1	12.45
2	HEEL B	2.4	2.8	3.2	3.5	4.0	4.3	4.7	5.1	5.5
3	WALL C	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.5	1.7
4	TOE D	1.4	1.8	2.2	2.75	3.0	3.5	4.0	4.5	5.25
5	BASE THK. T	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.5	1.7
6	MAX. BASE PRESSURE (kn/m) AS PER DESIGN	181.8	183.0	188.7	186.9	198.6	199.2	198.9	200.2	191.24

(DIMENSIONS GIVEN IN THE TABLE ARE IN METRES)

NOTES:-

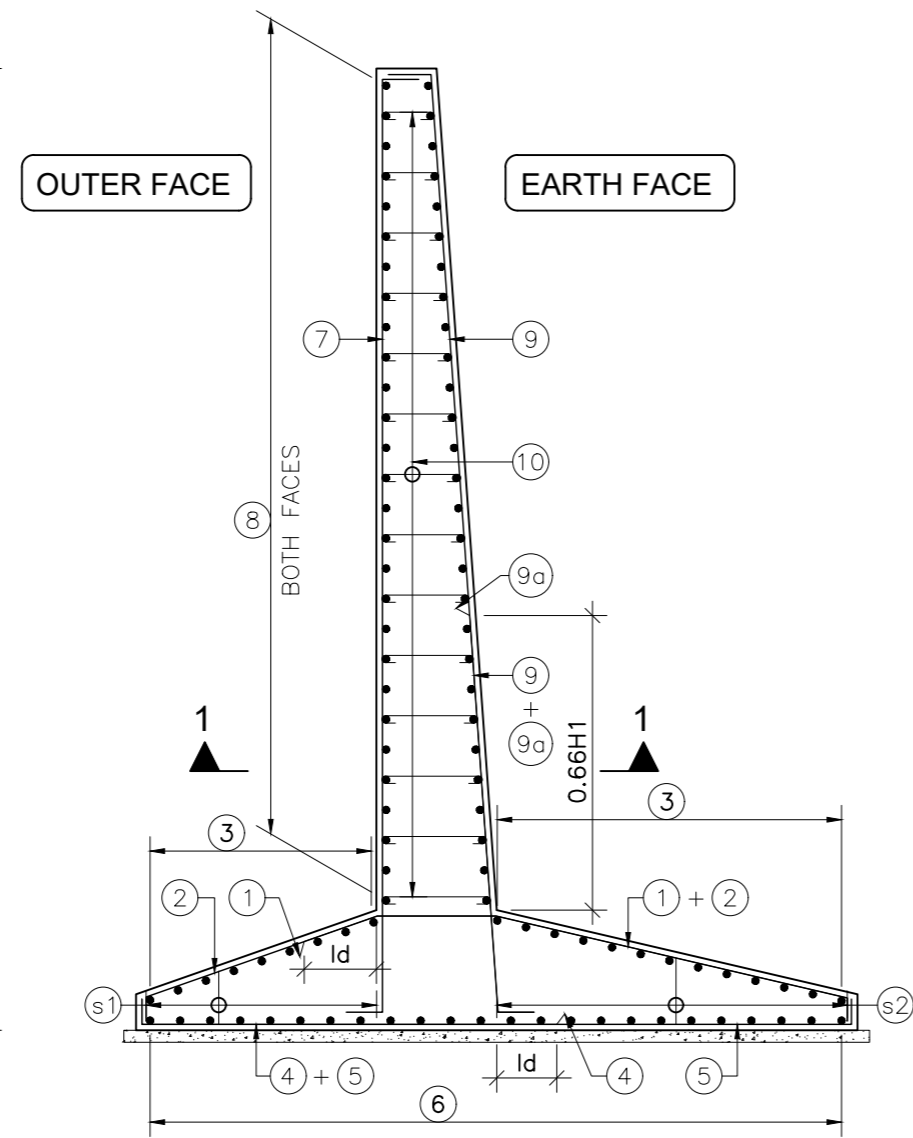
- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
- THE CONCRETE GRADE SHALL BE M35.
- THE REINFORCING BARS SHALL BE OF THERMO MECHANICALLY TREATED/CORROSION RESISTANT STEEL (TMT-CRS) (GRADE DESIGNATION Fe-500D) CONFORMING TO IS:1786 STANDARDS.
- CLEAR COVER TO OUTER MOST STEEL SHALL BE AS UNDER:-  
i) EARTH FACE -75mm.  
ii) NON EARTH FACE -50mm.
- 100mm DIA WEEP HOLES AT 1000mm C/C STAGGERED HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN TWO LAYERS ABOVE G.L IN VERTICAL WALLS OF RETAINING WALLS.
- LAYING, COMPACTION AND EXTENT OF BACKFILL BEHIND RETAINING WALLS SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX:6 OF IRC:78-2014 HAVING PROPERTIES C= 0, ϕ≥30° AND DENSITY= 20KN/m<sup>3</sup>.
- LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE. IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BARS SHALL BE CALCULATED AS eFOLLOW WITH MAXIMUM ALLOWABLE LAPPING (p) OF 50% ONLY.  
(IRC:112-2011) (CLAUSE:15.2.5.1)  
LAP LENGTH  $l_s = \alpha_1 l_{bnet}$   
 $\alpha_1 = 1.0$  FOR  $p \leq 25\%$   
 $\alpha_1 = 1.15$  FOR  $25\% \leq p \leq 33\%$   
 $\alpha_1 = 1.4$  FOR  $33\% \leq p \leq 50\%$   
IN THE CASE OF BUNDLED BARS  
LAP LENGTH =  $1.3 \times l_s$  (CLAUSE:15.2.7.3)  
(IRC:112-2011) (CLAUSE:15.2.3.3)  
DEVELOPMENT LENGTH ( $l_{bnet}$ )  
 $l_{bnet} = \alpha l_b$  ( $\alpha = 1.0$ )  
 $l_b = k \phi$   
 $k = 40$  FOR M30 (Fe500D)  
 $k = 36$  FOR M35 (Fe500D)  
 $k = 34$  FOR M40 (Fe500D)  
FOR UNFAVORABLE BOND CONDITION THE  $l_b$  SHOULD BE MULTIPLIED BY FACTOR OF 1.43.  
FOR  $\phi > 32mm$   $l_b$  SHOULD BE INCREASED BY MULTIPLYING FACTOR  $(\frac{100}{\phi})$
- SAFE BEARING CAPACITY OF SOIL AT FOUNDATION LEVEL SHALL NOT BE LESS THAN THAT GIVEN IN S.No. 6 OF THE TABLE SHOWING DIMENSIONAL DETAILS.
- TO COUNTER FOR THE DEFLECTION RETAINING WALL SHALL BE CONSTRUCTED TILTED BACK BY 1 IN 100.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE GENERAL ARRANGEMENT DRAWING OF THE RESPECTIVE BRIDGES.

SURFACE BAR SHALL BE PROVIDED IN FOOTING AT 12 ϕ @150c/c WHEREVER REQUIRED



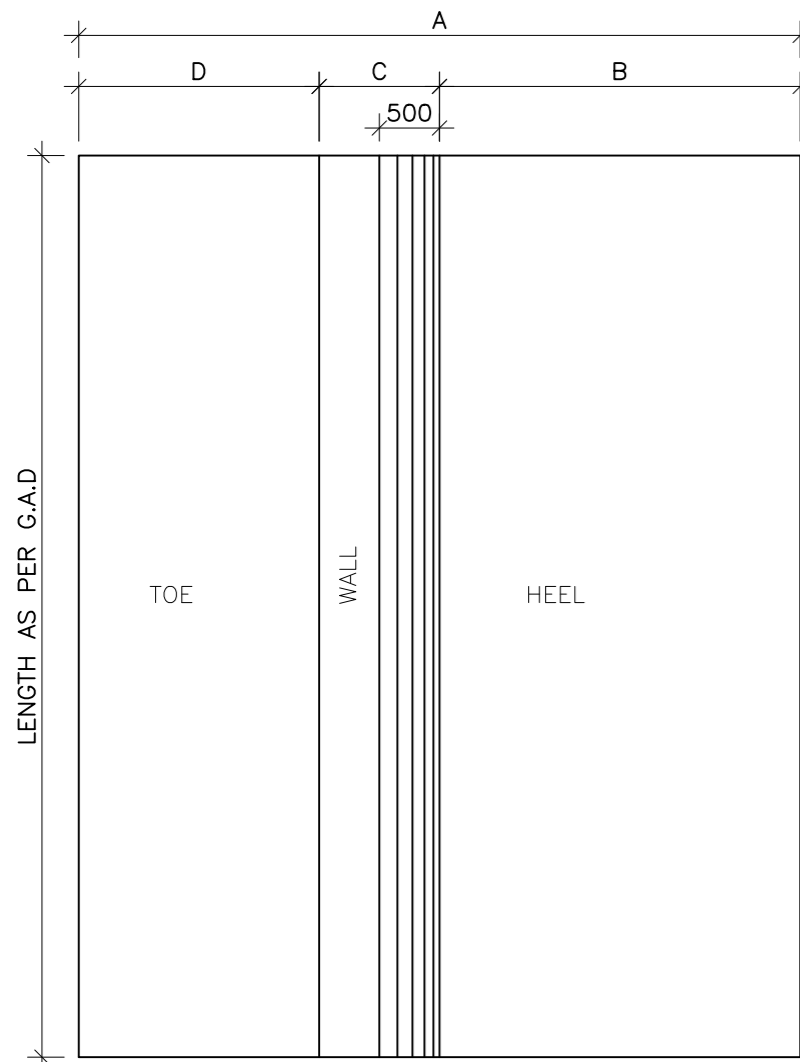
TYPICAL SECTION OF RETAINING WALL (DIMENSIONAL DETAILS)

(SCALE 1:60)



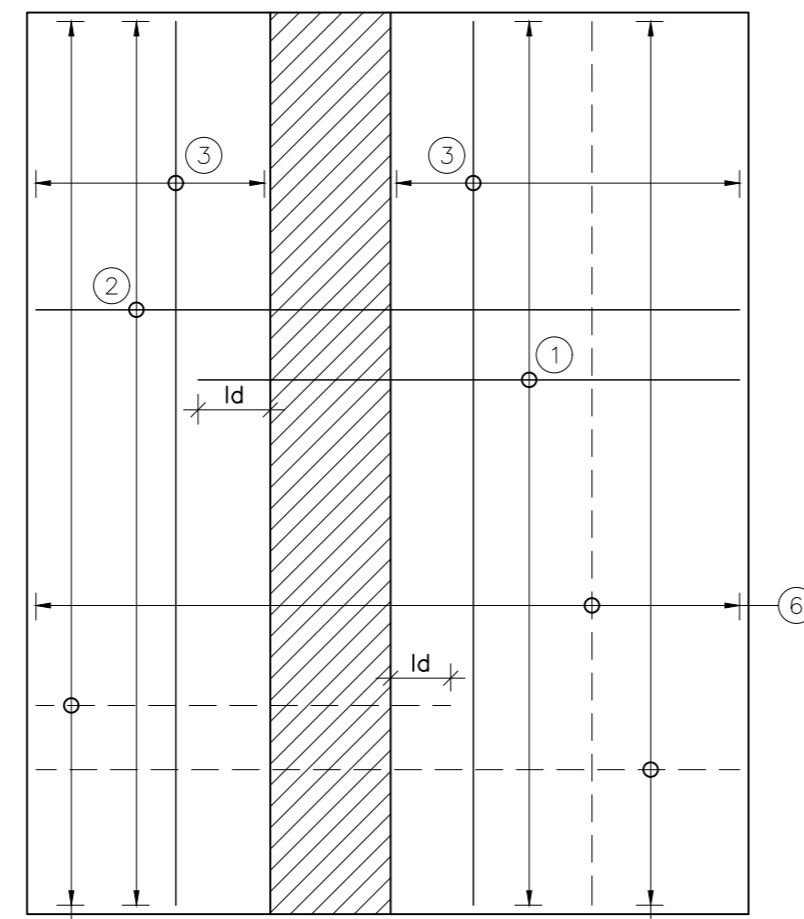
TYPICAL SECTION OF RETAINING WALL (REINFORCEMENT DETAILS)

(SCALE 1:60)



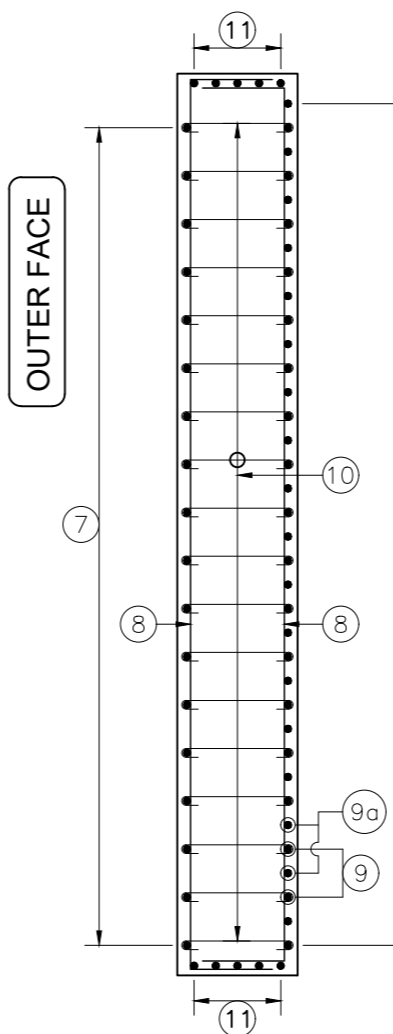
TYPICAL PLAN OF RETAINING WALL (DIMENSIONAL DETAILS)

(SCALE 1:60)



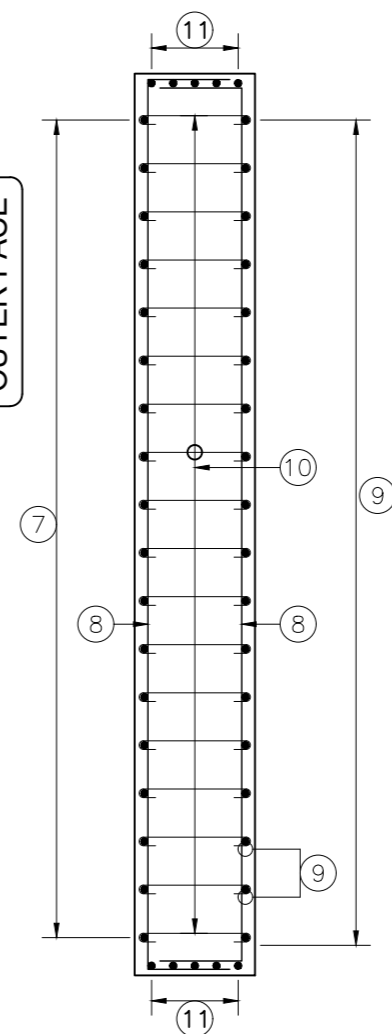
TYPICAL PLAN OF RETAINING WALL (REINFORCEMENT DETAILS)

(SCALE 1:60)



SECTION 1-1

(SCALE 1:60)



SECTION 2-2

(SCALE 1:60)

ISSUE	DATE	AMENDMENT \ ISSUE DESCRIPTION
R0	Oct :-2020	
R1	Dec :-2020	

CLIENT  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
 (MINISTRY OF ROAD TRANSPORT & HIGHWAY)  
 GOVERNMENT OF INDIA

CONSULTANT:  
**RODIC CONSULTANTS PVT. LTD.**  
 1, JAI SINGH MARG (FIRST FLOOR), YMCA CULTURAL CENTRE BUILDING  
 NEW DELHI - 110001 (INDIA)  
 In Association with  
**Monarch Surveyors and Engineering Consultants Pvt. Ltd.,**

From Design Km. 80+675 to Km. 95+550  
**TENDER DRAWING**  
 Scale :-  
 As Shown

Project:-  
**CONSTRUCTION & UP-GRADATION TO 2 LANE WITH PAVED SHOULDER FROM KM 80+675 TO KM 95+550 OF LENGTH 14.875 & LINK ROAD FROM 0+000 TO 1+871 OF LENGTH = 1.871 KM TOTAL LENGTH = 16+746 KM (Including Link Road) ON KHELLANI - KISHIWAR - CHATTROO - KHANABAL SECTION OF NH 244 IN THE UNION TERRITORY OF JAMMU AND KASHMIR**

Drawing Title: **DIMENSIONAL AND REINFORCEMENT DETAILS OF RCC RETAINING WALL**  
 Sheet size: A2  
 Drawing No.: NHIDCL/NH244/KHELLANI - CHATTROO/ MISC/05/R1

Annex III