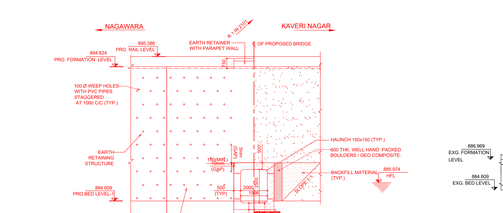
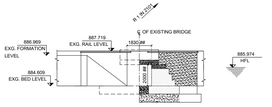
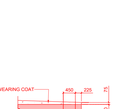


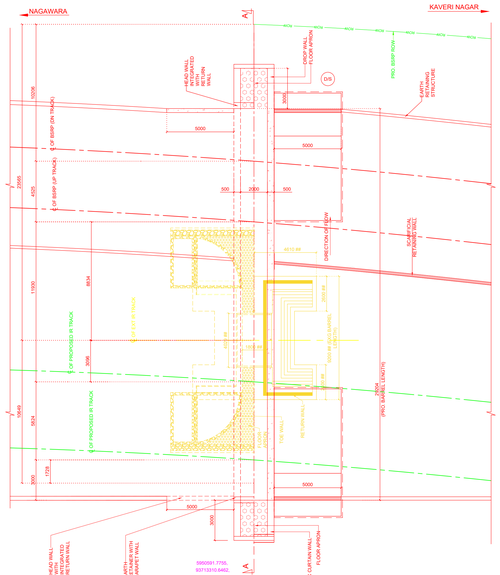
HALF ELEVATION HALF SECTION



EXISTING BRIDGE ELEVATION



DETAIL "X"

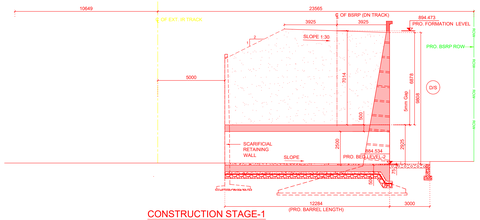


HALF PLAN AT TOP HALF PLAN AT BOTTOM

PCC CURTAIN / DROP WALL DETAILS ON BSRP SIDE

TOE WALL DETAILS ON IR SIDE

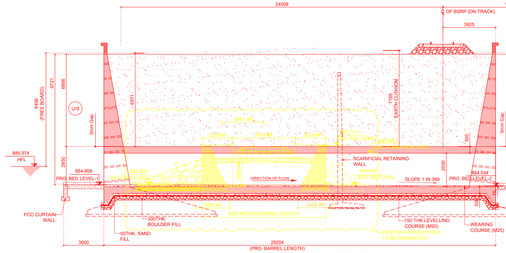
HFL	FREE BOARD (mm)	BED LEVEL-1	BED LEVEL-2
885.974	8456	884.609	884.534



CONSTRUCTION STAGE-1

CONSTRUCTION STAGE - 2

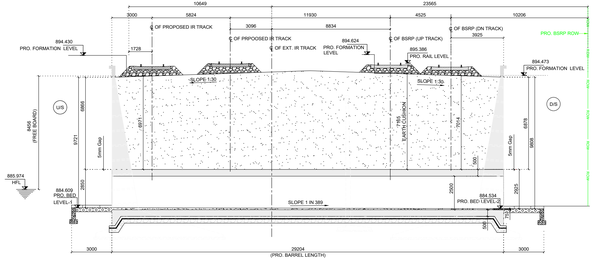
CONSTRUCTION STAGE - 3



CONSTRUCTION STAGE - 4

CONSTRUCTION STAGE - 5

CONSTRUCTION STAGE - 6



CONSTRUCTION STAGE - 7

BASE PRESSURE AT FOUNDATION LEVEL

STRUCTURE	MAX	MIN
RCC BOX (KN/M²)	210.13	-
RETURN WALL (KN/M²) U/S	385.533	-
RETURN WALL (KN/M²) D/S	385.533	-

TRACK DETAILS (PRO.BRIDGE)

LOADING	25 T AXLE LOAD 2008-STD
ALIGNMENT	CURVE (R 453 m)
GRADE	R 1 IN2101
RAIL LEVEL	895.386 m
FORMATION LEVEL	894.624 m

TRACK DETAILS (EXG.BRIDGE)

LOADING	: MBG-1987
ALIGNMENT	: CURVE (R 453m)
GRADE	: R 1 IN 2101
RAIL LEVEL	: 887.719 m
FORMATION LEVEL	: 886.969 m

DEPTH OF CONSTRUCTION FOR 1 x 3.00 X2.50 m RCC BOX

RAL 60 kg	:	172 mm
GR PAD	:	6 mm
PSC SLEEPER	:	210 mm
BALLAST CUSHION	:	400 mm
EARTH CUSHION	:	7785 mm
TOP SLAB	:	500 mm
TOTAL	=	8493 mm

WATERWAY PARTICULARS

CATCHMENT AREA	0.097 SQKM
LATITUDE	13° 0' 0.940" N
LONGITUDE	77° 31' 13.750" E
TOPOSHEET NO	D43 /H 13
GEO DISCHARGE	2.44 CUM/SEC
HWL	1.69 M/S
DEPTH OF FLOW	0.724 M
OHFL	885.974 M
GSHFL (DESIGN HFL)	885.974 M

	REQUIRED	PROVIDED
WATERWAY AREA, Sqm	1.448	4.70
FREE BOARD, m	1.000	8.456
VERTICAL CLEARANCE, m	-	0.985
SCOUR DEPTH		
From GI HFL, m	2.105	
Scour Level	883.869	
From B.L, m	0.660	1:2

EXISTING WATERWAY PARTICULARS

	PROVIDED
WATERWAY AREA, Sqm	3.66
FREE BOARD, m	0.995
VERTICAL CLEARANCE, m	0.635

GRADE OF CONCRETE

	GRADE
i. RCC BOX	M35
ii. WEARING COURSE	M25
iii. LEVELLING COURSE (PCC)	M20
iv. RETAINING/RETURN WALL	M35
v. DROP/CURTAIN WALL	M25

ABBREVIATIONS :

℄	:	CENTER LINE
TYP.	:	TYPICAL
THK	:	THICKNESS
U/S	:	UP STREAM SIDE
D/S	:	DOWN STREAM SIDE
DN	:	DOWN
BR	:	BRIDGE
FBL	:	FORMATION LEVEL
PRO	:	PROPOSED
EXG	:	EXISTING

BRIDGE DETAILS

DESCRIPTION	EXISTING IR BRIDGE : 549	PROPOSED BSRP BRIDGE : 549
CHAINAGE AT CENTER OF BRIDGE (km)	212/569.647	69/18.212
RAIL LEVEL AT CENTER OF BRIDGE (m)	887.719	895.386
FORMATION LEVEL AT CENTRE OF BRIDGE (m)	886.969	894.624
DIMENSIONS (Nos x SPAN(m) x HEIGHT(m))	1 x1.83 x 2.0 #¢	1 x 2.0 x 2.50 RCC BOX
STRUCTURE CONFIGURATION	RCC SLAB	RCC BOX (RECONSTRUCTION)

IR TRACK	
SKEW	NIL
GRADIENT	R 1 in 2101
CURVE	R 453m

BSRP TRACK	
SKEW	NIL
GRADIENT	R 1 in 2101
CURVE	R 453 m

BOREHOLE ID 549(BH-199)

STRATA DESCRIPTION	DEPTH IN METERS	REMARKS (N-VALUE)	SBC (t/m²)(safe)
GROUND LEVEL- 887.360	0.00		
	0.50		
	1.00		
MEDIUM DENSE CLAYEY SAND (SC)	1.50	N = 12 (4/5/7)	375.18 (BOX)
	2.00	N = 14 (4/6/8)	
	2.50		472.22 (RW U/S)
	3.00		
	3.50		441.699 (RW D/S)
	4.00	N = 6 (3/2/4)	
LOOSE CLAYEY GRAVELS WITH SAND (GC)	4.50		
	5.00		
	5.50	N = 8 (3/3/5)	
	6.00		
	6.50		
LOOSE CLAYEY SAND (SC)	7.00	N = 12 (3/5/7)	
	7.50		
STIFF CLAY OF MEDIUM PLASTICITY (CI)	8.00		
	8.50		
STIFF CLAY OF LOW PLASTICITY (CL)	9.00	N = 31 (8/14/17)	
	9.50		
	10.00		
MEDIUM DENSE CLAYEY SAND (SC)	10.50	N = 28 (5/10/18)	
	11.00		
	11.50		
	12.00	N = 28 (12/13/15)	
MEDIUM DENSE TO VERY DENSE SILTY SAND (SM)	12.50		
	13.00		
	13.50	N = 87 (22/37/50)	
	14.00		
	14.50		
	15.00	R/29/50 FOR 110 mm)	
	15.50	R /30 FOR 90 mm)	
	16.00		
END OF BOREHOLE AT 16.00m			

MODUS OPERANDI:

FOR RCC BOX AND RETURN WALLS :

1. MAKE SPEED RESTRICTIONS FOR EXISTING MAIN LINE AT BRIDGE LOCATION BY INSTALLING NECESSARY TEMPORARY ENGINEERING SPEED INDICATOR AS PER IRPWM AND ALLOW TRAINS AT RESTRICTED SPEED.
2. EXCAVATE THE EARTH TO THE REQUIRED DEPTH AT THE BSRP SIDE PORTION PREPARE THE GROUND WELL BY SHAPING ETC AS NECESSARY AS PER REQUIREMENT.
3. LEVEL THE GROUND SURFACE.
4. PROVIDE PCC (M20) BED.
5. FOUNDATION WORK FOR THE RETURN WALLS WILL BE EXECUTED WITH ALL SAFETY MEASURES EXCEPT AT STRUCTURE PORTION.
6. CONSTRUCTION OF PROPOSED STAGE 1 BOX, RETAINING WALL IS WILL BE DONE EXCEPT AT IR STRUCTURE SIDE
7. LAY THE BACKFILL MATERIAL.
8. BACKFILLING WILL BE DONE AROUND THE BOX.
9. CARRYOUT THE EARTH FILLING AND BLANKET MATERIAL IN BSRP LINE 2 AT STRUCTURE LOCATION.

STAGE 2 : LAYING OF TRACKS FOR BSRP LINE- 2 BY KRIDE

(1 TRACK WILL BE LAID FOR BSRP LINE-2 FROM POINT 'A' TO POINT 'B'

(FOR A LENGTH OF 5.0 KM).

STAGE 3 : CUT AND CONNECTION DURING TRAFFIC BLOCK BY KRIDE

12. CUT & CONNECTION OPERATION WILL BE CARRIED OUT AND POINT 'A1' WILL BE CONNECTED TO POINT 'A' WITH A LENGTH OF 58.5M.
13. AFTER DIVERTING INDIAN RAILWAY TRAFFIC TO BSRP LINE-2, CUT & CONNECTION OPERATION WILL BE CARRIED OUT AND POINT 'B1' WILL BE CONNECTED TO POINT 'B' WITH
   A. LENGTH OF 58.5M
   B. AFTER CUT & CONNECTION, INDIAN RAILWAY TRAFFIC WILL BE DIVERTED TO PROPOSED BSRP LINE-2.
15. EXISTING TRACK (REDUNDANT LINE IN BETWEEN POINT 'A1' & POINT 'B1',) WILL BE CLEARED FROM THE SITE INCLUDING REMOVAL OF EXISTING ONE OTHER UTILITY INSTALLATIONS.

STAGE 4 : CONSTRUCTION OF REMAINING BOX PORTIONS.

SE: AFTER DIVERTING INDIAN RAILWAY TRAFFIC TO BSRP LINE-2, EXISTING IR BOX TO BE DISMANTLED EXCEPT IR RETURN WALL.

17. EXCAVATE THE EARTH TO THE REQUIRED DEPTH AT THE BOX PORTION PREPARE THE GROUND WELL BY SHAPING ETC AS NECESSARY AS PER REQUIREMENT.
18. LEVEL THE GROUND SURFACE.
19. BASE COURSE OF 350 mm.
20. FOUNDATION WORK FOR THE RETAINING WALLS WILL BE EXECUTED WITH ALL SAFETY MEASURES EXCEPT AT IR&B PORTION.
21. CONSTRUCT THE REMAINING RCC BOX PORTION.
22. LAY THE BACKFILL MATERIAL.
23. BACKFILLING WILL BE DONE AROUND THE BOX.
24. BLANKETING WILL BE DONE FOR BSRP LINE-1 & UP & DOWN MAIN LINE.

STAGE 5 : LAYING OF TRACKS FOR BSRP LINE -1,UP & DOWN MAIN LINE BY KRIDE.

25.TRACK WILL BE LAID FOR BSRP LINE -1,UP & DOWN MAIN LINE FROM POINT "C" TO POINT 'D' (FOR A LENGTH OF 5.01 KM).

STAGE 6: CUT AND CONNECTION DURING TRAFFIC BLOCK BY KRIDE

26.DURING TRAFFIC BLOCK CUT & CONNECTION OPERATION WILL BE CARRIED OUT AND POINT 'C1' WILL BE CONNECTED TO POINT 'C' WITH A LENGTH OF 55.0M

27.SIMULTANEOUSLY CUT & CONNECTION OPERATION WILL BE CARRIED OUT AND POINT 'D' WILL BE CONNECTED TO POINT 'D1' WITH A LENGTH OF 55.0M

28.FINALLY EXISTING INDIAN RAILWAY TRAFFIC WILL BE DIVERTED TO UP MAIN LINE.

STAGE 7:

29.COMPLETE THE WORK IN ALL RESPECTS SUCH AS CONSTRUCTION OF RETURN WALL, PARAPET WALLS, SIDE DRAIN ETC,ON BOTH SIDES OF RCC BOX.

30.AFTER COMPLETION OF ALL WORKS, TRAINS WILL BE RUN AT NORMAL SPEED (IN STAGES GRADUALLY AS PER PARA 23(ii)) OF IRPWM. RAILWAY ELECTRIFICATION INSTALLATIONS WILL BE SHIFTED AS PER REQUIREMENT AT SITE, FOR WHICH NECESSARY POWER BLOCK TO BE PROVIDED.

SPECIFICATION:

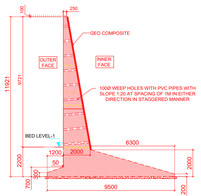
1. ALL WORKS ARE TO BE CARRIED OUT AS PER THE FOLLOWING.
   a. RDSO/B-30359-1(NIP)/E STANDARD SPECIFICATIONS FOR WORKS AND MATERIALS 2019.
   b. IRS CONCRETE BRIDGE CODE 2014(REPRINT) & RELEVANT IS SPECIFICATIONS.
   c. IRS BRIDGE SUB – STRUCTURE CODE 2013(c) (REVISED).
   d. IRS BRIDGE RULES 2014(REPRINT).
2. RETURN WALL(RETURN WALL) – REINFORCED CEMENT CONCRETE OF GRADE M35 WITH DESIGN MIX.
3. PITCHING – DRY STONE PITCHING 230MM THICK OVER 150MM THICK SAND BASED WITH STONE.
4. RCC BOX – REINFORCED CEMENT CONCRETE M35 GRADE USING 20MM MAXIMUM SIZE GRADED HARD STONE AGGREGATE OF APPROVED QUALITY.
5. LEVELLING COURSE – 150 MM THICK M20 DESIGN MIX.
6. WEEP HOLES – WEEP HOLES TO BE PROVIDED AS PER IRS CONCRETE BRIDGE CODE & WEEP HOLES SHALL BE OF 100 MM DIA PVC PIPES AT 1500 C/C STAGGERED AT 1000 C/C ABOVE LOW WATER LEVEL IN BOTH WING WALL/RETURN WALL & EARTH RETAINER OF BOX.
7. LOADING STANDARD – 25 T – 2008 AXLE LOAD.
8. TOE WALL – GRADE M20 WITH DESIGN MIX.
9. GRADE OF STEEL FOR RCC IS TMT-500D CONFORMING TO IS 1786:2008.
10. WEARING COURSE – 150 MM THICK M25 DESIGN MIX CONCRETE AS APPROPRIATE FOR WEARING COURSE.
11. CONCRETE SHALL BE MECHANICALLY MIXED,VIBRATED & THOROUGHLY CURED.
12. BAR BENDING SHALL CONFORM TO IS 2502.
13. FLOORING – ROUGH STONE FLOORING 300MM THICK GROUTED WITH CM 1:3
14. DROP WALL / CURTAIN WALL – GRADE M25 WITH DESIGN MIX.
15. CUTTING OF EXISTING BRIDGE – WHEREVER NECESSARY AS PER RDSO DRAWING IMPROVE THE DBC OF SOIL TWO LAYERS OF 50MM SAND & BOULDER FILLING OF 300MM THICKNESS EACH TO BE LAID & COMPACTED BEFORE LEVELING COURSE FOR RCC BOX, RETURN WALL FOUNDATION & APRON FLOORING
16. CUTTING – CC M25 GRADE USING 20MM SIZE GRADED STONE AGGREGATE OD APP QUALITY.
17. GROUND IMPROVED SOIL SHALL BE OF SOIL QUALITY CLASS SG2 AND SG3 AS PER RDSO GUIDELINES.
18. THE DIMENSION OF EXISTING BRIDGE SHALL BE VERIFIED AT SITE.
   IF IS NEEDED TO ENSURE SAFETY OF RUNNING LINE.
19. SUITABLE PROTECTIVE MEASURES SHOULD BE PUT IN PLACE WHILE CARRYING OUT THE WORK IN CONSULTATION WITH KRIDE & GENERAL CONSULTANT THIS SHALL INCLUDE NECESSARY SHORING ARRANGEMENTS TO BE PROVIDED FOR THE PROTECTION OF EXG.TRACK & FORMATION.
17. SPECIAL PRECAUTIONS SHALL BE TAKEN WHILE CARRYING OUT EXCAVATION FOR THE WORK DISRUPTURE AT SITE" AND AS PER PCE CIRCULAR NO.01/2021 DATED: 22.06.2021 REGARDING "ENSURING QUALITY OF WORK AND MAINTAINING SITE RECORDS IN WORKS CONTRACTS" TO BE STRICTLY FOLLOWED.
18. ZOMM THK MANUAL SHEETS TO BE PROVIDED BETWEEN FACE WALL OF EXG.BRIDGE & PRO.RCC BOX & IF REQUIRED DOWEL BARS TO BE FIXED.
19. RETURN WALL SHALL BE CONSTRUCTED AFTER THE CONSTRUCTION OF DROP WALL, CURTAIN WALL AND RETURN WALL SHALL BE SUPPORTED ON INNER SIDE TILL IT ATTAINS 75% OF THE REQUIRED CALCULATED SCOUR LEVEL.
20.THIS DRAWING IS PREPARED BASED ON BSRD STANDARD DRG NO. RDSO/B-10155 & 10155/B A3 FR BOX SIZE 1st 042.50m

REFERENCE:

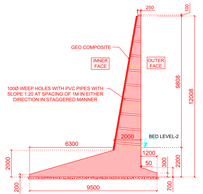
1. RCC BOX (CAST-IN-SITU) : DRG NO. RDSO/B-10155 & 10155/B
2. BOX DESIGN DOCUMENT NO DOC-BSRP-CR2-AG-DGN-BR-20-1522.
3. SUBSTRUCTURE BOX : CG2077-BSRP-CR2-CNB-0-20-1065.
4. GENERAL ARRANGEMENT DRAWING NO.
   DOCUMENT NO: DOC-BSRP-CR2-AG-DGN-GB-20-1123/C
5. WEEP HOLES AS PER PARA 7.6 OF SUB-STRUCTURE CODE
6. CURTAIN WALL AND TOE WALL AS PER DESIGN.
7. BACKFILL MATERIALS BEHIND RCC BOX TO PROVIDE AS PER PARA 5
8. BACKFILLING WILL BE DONE AROUND THE BOX.
9. SHORING ARRANGEMENTS AS PER DESIGN.
10. GR DOCUMENT NO.
    FOR BOX: DOC-BSRP-CR2-AG-DGN-GB-20-1121
    FOR RETURN WALL :DOC-BSRP-CR2-AG-DGN-GBRW-20-1121

MODUS OPERANDI

1. IMPOSE 20KM/PH SPEED RESTRICTIONS DURING EXCAVATION WORKS.IF REQUIRED AS PER SITE CONDITION.
2. DIVERT OR RESTRICT THE WATER FLOW BY PROVIDING BUND/TEMPORARY PIPES ON UPSTREAM SIDE OF THE BRIDGE.
3. PORTION OF RETURN WALL, PITCHING TO BE DISMANTLED TO ACCOMMODATE RCC BOX WITH SUITABLE SHORING CONDITION AS PER SITE CONDITION.
4. EARTH WORK EXCAVATION TO BE DONE FOR PROPOSED BARREL LENGTH WITH 350MM BASE COURSE PULL BENEATH THE BOX BOTTOM RAFT.
5. RETURNS & BRIDGE PROTECTION WORKS TO BE DONE ON IR SIDE.



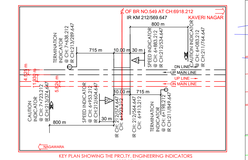
RETURN WALL SECTION U/S ON IR SIDE



RETURN WALL SECTION D/S ON BSRP SIDE

LEGENDS:

Total Barrel length of MIB 549 = 29.204M
Completed Barrel length = 8.5m(BSRP Side).
Remaining Barrel length 37.667m is yet to be Constructed.


OF BR NO 549 AT CH:69/18.212
IR KM 212/569.647
KAVERI NAGAR
800 m
715 m
20.00 m
36 m
TERMINATION
CH:212/569.647
BEG.OF BOX
CH:212/569.647
END OF BOX
CH:212/569.647
TERMINATION
CH:212/569.647
ON LINE
CH:212/569.647
40 MASS LINE
UP MAIN LINE
DN MAIN LINE
UP LOOP LINE
DN LOOP LINE
UP SIDING
DN SIDING
UP SIDING
DN SIDING
UP LOOP LINE
DN LOOP LINE
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DN MAIN LINE
CH:212/569.647
CH:212/569.647
CH:212/569.647