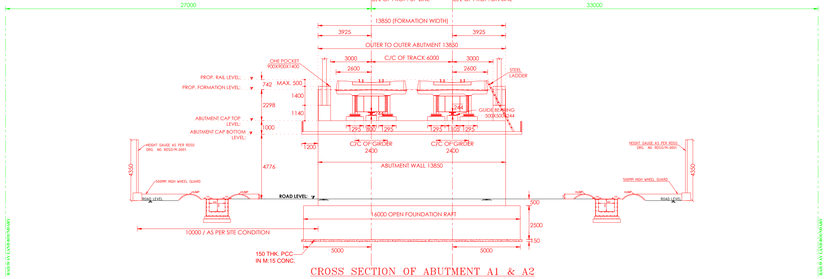
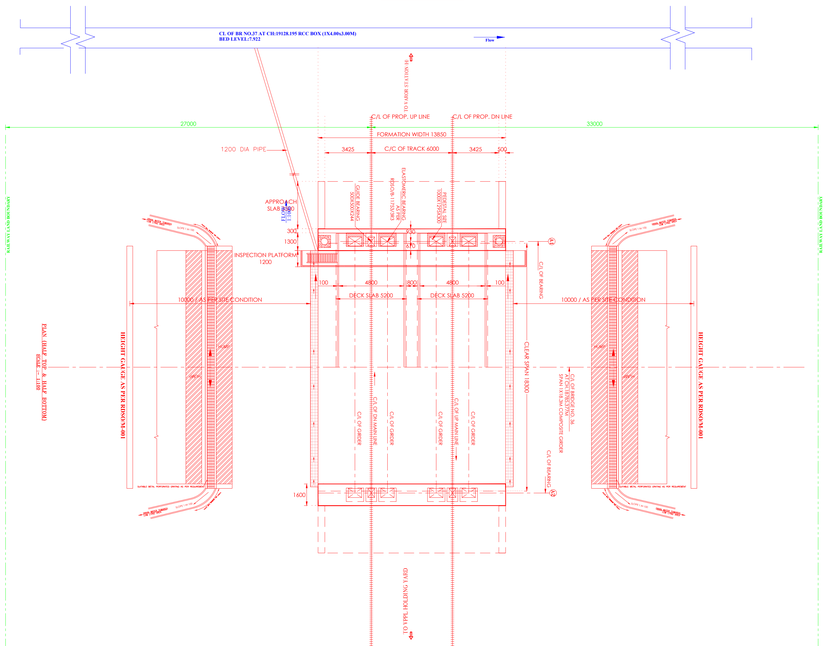
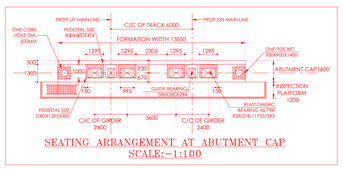


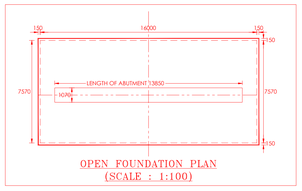
CROSS SECTION OF ABUTMENT A1 & A2
(PERPENDICULAR TO TRACK)
SCALE – 1:100



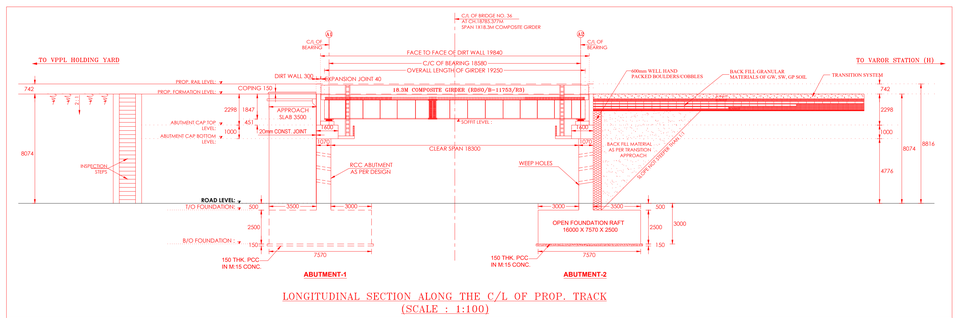
PLAN
(SCALE 1:100)



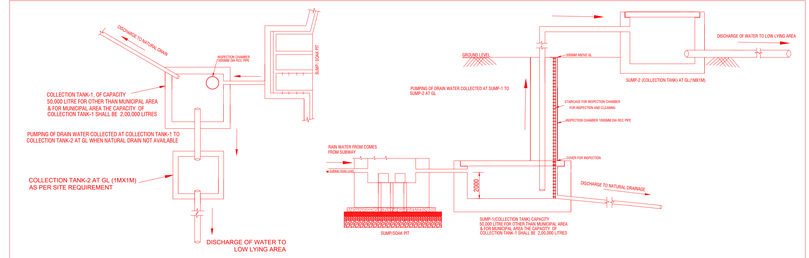
SEATING ARRANGEMENT AT ABUTMENT CAP
SCALE:-1:100



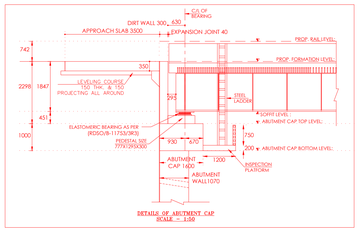
OPEN FOUNDATION PLAN
(SCALE : 1:100)



LONGITUDINAL SECTION ALONG THE C/L OF PROP. TRACK
(SCALE : 1:100)



DRAINAGE ARRANGEMENT OF PUMP & SUMP WHEN NATURAL DRAIN IS NOT WORKING/NOT AVAILABLE



DETAILS OF ABUTMENT CAP
SCALE – 1:50

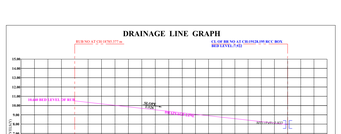
NOTES:-
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS AND LEVELS SHOULD BE VERIFIED AT SITE & RECONCILED BEFORE EXECUTION.
3. DESIGN CRITERIA:
   i) IRS BRIDGE SUBSTRUCTURE AND FOUNDATION CODE,LATEST REVISION
   ii) IRS CONCRETE BRIDGE CODE, LATEST REVISION
   iii) IRS BRIDGE RULES, LATEST REVISION
   iv) EXPOSURE CONDITION :- MODERATE
   V) STANDARD OF LOADING -BG-2008(25T LOADING)
   Vi) SEISMIC ZONE :-III.
   Vii) DESIGN CRACK WIDTH = 0.25MM
4. MIX DESIGN SHALL BE APPROVED BY ENGINEER-IN-CHARGE.
5. FOR DETAIL OF COMPOSITE GIRDER REFER DRAWING NO. RDSO/B-11753/R3.
6. BED SLOPE 1 IN 1000 SHOULD BE PROVIDED TOWARDS EITHER SIDES ON WHICH DRAINAGE OF STORM WATER IS FEASIBLE.
7. TEMPORARY ENGINEERING INDICATOR WILL BE PROVIDED AS PER 15:09 (i) (d) OF GR.
8. TEMPORARY SPEED RESTRICTION BOARD AND CAUTION INDICATOR BOARD WILL BE PROVIDED.
9. HEIGHT GAUGE SHALL BE PROVIDED AT EITHER OF SUB WAY AT SUITABLE DISTANCE BASED ON RDSO DRG. NO.RDSO/M-0001.
10. PRIOR INFORMATION WILL BE GIVEN TO SSE (SIG)/(TEL) FOR THE PROTECTION OF THE CABLES.
11. 100MM DIA. OF A.C. PIPE AS WEEP HOLES TO BE PROVIDED IN WING WALLS.
12. SUITABLE DRAINAGE ARRANGEMENT PROVIDED WHICH HAS BEEN CHECKED BY FIELD ENGINEERS AND FEASIBLE AT SITE.
13. PROVIDE SHORING HEIGHT OF MINIMUM 2000 MM AND ALSO KEEP READY ADDITIONAL 500 BAGS FILLED UP WITH SAND FOR PROVIDING SHORING TO AVOID THE ROLLING DOWN OF FORMATION SOIL.
14. SIDE SLOPE ALONG APPROACH ROAD TO BE PROTECTED BY STONE PITCHING / TURFING IF REQUIRED ACCORDING TO SOIL STRATA.
15. SR. DEN DEN TO ENSURE THAT THE APPROVAL OF CONCERN ROAD AUTHORITY SHOULD BE OBTAINED ON GAD BEFORE COMMENCING OF THE WORK.
16. ROAD TRAFFIC SHOULD BE DIVERTED SUITABLY AT SUITABLE LOCATION IN CONSULTATION WITH ROAD AUTHORITY.
17. FOR TEMPORARY DIVERSION REFER SEPERATE DRAWING.
18. SAFETY OF THE TRACK SHALL BE ENSURED BY SR. DEN/DEN FOR ALL THE TIME WHILE EXECUTION OF THE WORK.
19. FOR DETAILS OF ABUTMENT WALL AS PER DESIGN .
20. SR.DEN/DEN TO ENSURE THAT THE SOIL CONDITION HAS BEEN ASCERTAINED BEFORE TAKING THE WORK IN HAND AND EXECUTION DONE EITHER WITH ADEQUATE SLOPE OR WITH SLOPE PROTECTION MEASURE IN PLACE.
21. PCE SANCTION SHALL BE OBTAINED FOR THE PROPOSED WORK.
22. ROAD ELEMENTS SHOULD BE PLANNED IN ACCORDANCE WITH IRC CODE AS FAR AS POSSIBLE.
23. SPEED RESTRICTION BOARDS SHALL BE PROVIDED ON ROAD PERMITTED BY IRC CODES.
24. CONCERNED SR.DEN/DEN IS FULLY RESPONSIBLE FOR PLANNING & DESIGNING, ONE OR MORE SUITABLE DRAINAGE ARRANGEMENTS SUCH AS CONNECTING TO NEARBY LOW LYING AREA, BRIDGE, SOAK PIT, RECHARGE BORE WELL, SUMP WITH/WITHOUT PUMPING ARRANGEMENT, PROVIDING COVERING SHED ETC.
25. PRIOR COMMENCING THE WORK, FEASIBILITY OF DRAINAGE ARRANGEMENT SHOULD BE ENSURED BY CONCERNED SR.DEN/DEN/DY.CE IN TERMS OF RAILWAY BOARD S LETTER NO.2017/CE-IV /RUB/88 DATED 22.01.2020.
26. ACTUAL DEPTH OF FOUNDATION SHALL BE DECIDED BY ENGINEER-IN-CHARGE TO SUIT THE SOIL STRATA MET WITH AT THE SITE. ENGINEER-IN-CHARGE SHOULD ENSURE THAT SBC OF SOIL AT FOUNDING LEVEL IS MORE THAN BEARING PRESSURE AT THAT LEVEL.
27. EARTH FILL BEHIND ABUMENT AND EXCAVATED PART OF EMBANKMENT FOR BEARING SUPPORT SHALL BE DONE WITH GRANULAR MATERIAL/ QUARRY DUST.
28. EXECUTIVE IN-CHARGE SHOULD ENSURE THAT, THE SAFE BEARING CAPACITY AT FOUNDING LEVEL SITE IS MORE THAN THE MAXIMUM FOUNDATION PRESSURE SHOWN IN STRUCTURAL DESIGNS BEFORE STARTING THE WORK.
29. (a) PRIOR COMMENCING THE WORK ENGINEER IN-CHARGE/ SITE ENGINEER TO ENSURE THAT THE SBC OF SOIL IS HIGHER THAN THE ACTUAL FOUNDATION PRESSURE MENTIONED IN DETAILED DRAWING.
    (b) ANY DISCREPANCIES FOUND REGARDING DIMENSION AND FEASIBILITY OF THE PROPOSAL, BROUGHT TO THE NOTICE OF HQ OFFICE; PRIOR COMMENCING THE WORK.
    (c) PRIOR COMMENCING THE WORK, SR.DEN/DEN, TO ENSURE THE DRAINAGE ARRANGEMENT IS FEASIBLE AND SUITE AT SITE.
30. (a) PRIOR COMMENCING THE WORK, SR. DEN/DEN/SITE ENGINEER/ENGINEER IN CHARGE TO MUST CHECK THE BORE LOG DETAILS AND SHOULD MATCH THE SOIL PRESENT AT THE SITE WITH THE INFORMATION OF THE SOIL PROVIDED IN BORE LOG DETAILS IN GAD.
    (b) PRIOR COMMENCING THE WORK SR DEN/DEN WILL BE FULLY RESPONSIBLE FOR PLANNING AND DESIGNING OF DRAINAGE ARRANGEMENTS AND ENSURING THAT DRAIN WATER/RAIN WATER IN SUBWAY WILL BE DRAINED OUT TOWARDS LOW LYING AREA, BRIDGE, SOAK PIT, RECHARGE WELL, SUMP OR ANY OTHER SUITABLE LOCATION WITH PUMP OR ANY OTHER SUITABLE METHOD AND ENSURE THAT THERE SHOULD BE NO WATER LOGGING IN THE SUBWAY.
    (c) PRIOR COMMENCING THE WORK SR DEN/DEN/SITE ENGINEER/ENGINEER IN CHARGE MUST ENSURE THAT PROVISION OF ROOF COVERING FOR APPROACHES SHOULD BE MADE AS PER TABLE NO-6b OF RAILWAY BOARD LETTER NO.2017/CE-IV/RUB/88 DATED-22/04/2020.-(ROOF COVERING IS NOT REQUIRED AS PER TABLE-6)
    (d) PRIOR COMMENCING THE WORK SR DEN/DEN/SITE ENGINEER/ENGINEER IN CHARGE MUST ENSURE THAT THE SIGNATURE OF ROAD AUTHORITY HAS BEEN OBTAINED ON GAD.
38. (a) REINFORCEMENT IS TO BE CHECKED BY SECTIONAL ADEN BEFORE CONCRETE TO ENSURE THAT THE ARRANGEMENT OF BARS IS AS PER STRUCTURAL DRAWING.
    (b) IF SUFFICIENT TIME LAPS AFTER RECIPT OF REINFORCEMENT THEN SUITABLE ANTI CORROSIVE TREATMENT TO BE APPLIED.
    (c) NO CONCRETING TO BE DONE WITHOUT ADEN CERTIFICATE.
    (d) THE SHUTTERING/FORM WORK SHALL BE DESIGNED AND CONSTRUCTED SO AS TO REMAIN SUFFICIENTLY RIGID DURING PLACING AND COMPACTION OF CONCRETE AND SHALL BE SUCH AS TO PREVENT LOSS OF SLURRY FROM THE CONCRETE FOR FURTHER DETAIL REGARDING DESIGN, DETAILING ETC REFERENCE MAY BE MADE TO EACH 1640T. THE TOLERANCE ON THE SHAPES, LINES AND DIMENSIONS SHOWN IN THE DRAWING SHALL BE WITHIN THE LIMIT GIVEN BELOW:
    DEVIATION FROM SPECIFIED +12MM DIMENSION OF CROSS-SECTION OF COLUMN AND BEAMS -06MM
*AS FAR AS POSSIBLE COLD JOINT IS TO BE AVOIDED HOWEVER IF COLD JOINT IS COMING WHILE CASTING UP BIGGER STRUCTURE, NECESSARY STEPS AS PER IS456 CLAUSE 13.4 SHOULD BE TAKEN AND BEFORE INTRODUCING FRESH CONCRETE OVERSET CONCRETE, CHEMICAL BONDING AGENT AS APPROVED BY ENGINEER IN CHARGE SHOULD BE APPLIED.

TABLE NO-06 OF RAILWAY BOARD LETTER NO.2017/CE-IV/RUB/88 DATED-22/04/2020.

Height of embankment	Level of ground water table with respect to ground level			
	Low		High	
	Annual Rainfall <800mm	Annual Rainfall >800mm	Annual Rainfall <800mm	Annual Rainfall >800mm
Track on embankment and Road level inside the RCC box higher than the ground level	Minor works as per site requirement to be decided by Engineer in charge	Minor works as per site requirement to be decided by Engineer in charge	Minor works as per site requirement to be decided by Engineer in charge	Proper side drains and cross drains as per site requirement
	SCHEMATIC ARRANGEMENT SHOWN IN GROUP-I			SCHEMATIC ARRANGEMENT SHOWN IN GROUP-II
Track on embankment and Road level inside the RCC box lower than the ground level	Sump+Open drains/closed drains or combination of both	Cover over the approaches +Sump+Open drains/closed drains or combination of both (Pumping arrangement as standby)	Lining of the subway+Cover over the approaches +Sump+Pumping arrangement +Surface drainage and suitable cross drainage wherever required.	Lining of the subway+Cover over the approaches +Sump+Pumping arrangement +Surface drainage and suitable cross drainage wherever required. ROB preferable over RUB
	SCHEMATIC ARRANGEMENT SHOWN IN GROUP-III		SCHEMATIC ARRANGEMENT SHOWN IN GROUP-IV	

TRACK DETAILS OF BOTH SIDE 500 M FROM EXISTING LC:	
TYPE OF RAIL:	60KG/90UTS
TYPE OF SLEEPERS:	PSC-60KG
TYPE OF RAIL FITTINGS:	ELASTIC
ALIGNMENT OF TRACK:	STRAIGHT
BALLAST CUSHION :	CLEAN 150 TOTAL=250

DRAINAGE LINE GRAPH



REFERENCE DRAWINGS	
DETAILS OF PSC SLAB	RDSO/B-11753/R3
DETAILS OF DRAINAGE	AS PER DESIGN
DETAILS OF RETURN WALLS	AS PER DESIGN

CONSTRUCTION DEPTH	
60 KG RAIL HEIGHT	172mm
RUBBER PAD	10mm
HEIGHT OF PSC SLEEPER	210mm
BALLAST CUSHION	350mm
TOTAL	742mm

NOTES FOR S & T :
a. S&T STAFF i.e. ADSTE/NDB, SSE(SIG)/NDB, SSE(TELE,)NDB CONTROL NDB AND RCIL TO BE INFORMED WELL IN ADVANCE BEFORE EXCAVATION WORK.
b. NECESSARY PRECAUTIONS SPECIFIED IN GUIDELINES ISSUED BY RAILWAY SHOULD BE FOLLOWED.
c. AS PER RAILWAY BOARD LETTER NO. 2003/TELE/ROL/1PT.IX, DATED 24.06.2013, IF ANY S&T AND OFC CABLE IS DAMAGED, A FLAT PENALTY OF WILL BE IMPOSED ON CONTRACTOR.
d. CABLE TO BE PROTECTED BY EXECUTIVE DEPARTMENT DURING EXECUTION OF WORK BY PROVIDING SUITABLE MEANS.
e. MANUAL DIGGING SHOULD BE DONE FOR OPEN EXCAVATION.
f. PROVISION OF S&T SUB-ESTIMATE TO BE MADE IN MAIN ESTIMATE.

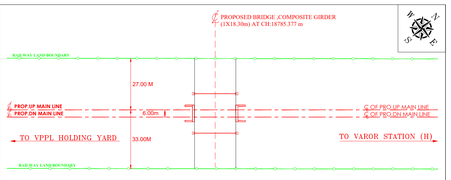
REMARKS :-
" SPEED RESTRICTION FOR FIRST TRAIN TO BE KEPT AS STOP DEAD END AND 10 KM/PH AND THEREAFTER SUBSEQUENT TRAINS MAY BE PERMITTED WITH 20KM/PH PROVIDED WITH THE FOLLOWING CONDITIONS-
1. BRIDGE TIMBER SLEEPER ARE PROVIDED OVER GIRDER WITH HOOK BOLTS AND FULL TRACK FITTINGS.
2. TRACK GEOMETRY IS RECORDED EVERYDAY AND IS MAINTAINED FOR 20 KM/PH S.R.
3. STABLE SLEEPER CRIB SUPPORT IS PROVIDED PACKING IN SLEEPER CRIB IS ATTENDED AS AND WHEN REQUIRED TO MAINTAINED LEVEL OF R.G..

DRAINAGE ARRANGEMENT SHOWN IN THE PLAN IS TENTATIVE :-
1. CONCERN SR.DEN, DEN WILL BE FULLY RESPONSIBLE FOR PLANNING AND DESIGNING ONE ARE MORE SUITABLE DRAINAGE ARRANGEMENTS SUCH AS CONNECTING TO NEARBY LOW AREA, BRIDGE, SOAK PIT, RECHARGE BORE WELL, SUMPS WITH/WITHOUT PUMPING ARRANGEMENTS ETC.
2. SUITABLE ROAD BUMPS SHOULD BE PROVIDED ON APPROACH ROADS TO AVOID INGRESS OF WATER IN TO THE RUB PORTION.
3. THE PROPOSED APPROACH ROAD AND DRAINAGE ARRANGEMENTS SHOULD BE DONE BY THE EXECUTING AUTHORITY AS PER FIELD CONDITIONS AND AS PER GUIDELINES OF CBE CCG VIDE LETTER NO. W/4200, VOL/II (W3) DTD. 18.09.2015.

OPR. NOTES
A)TRAFFIC BLOCK WILL BE GRANTED AS PER MARGIN & CONDITION PERMITS.
B) TWO WILL HAVE TO BE PLANNED FOR THIS WORK.

S&T NOTE-
1. BEFORE EXECUTING THE WORK S&T STAFF ADSTE/NDB, SSE(SIG)/NWU, SSE(TELE)/NDB, SU CONTROL & RCIL AUTHORITY TO BE INFORMED WELL IN ADVANCE BEFORE EXECUTION OF WORK.
2. AS PER RAILWAY BOARD LETTER NO. 2003/TELE/ROL/1/PT.IX, DATED 24.06.2013, IF ANY S&T AND OFC CABLE IS DAMAGED, A FLAT PENALTY OF WILL BE IMPOSED ON CONTRACTOR DURING EXECUTION OF WORK. A FLAT PENALTY WILL BE IMPOSED ON CONTRACTOR.
3. S&T & OFC CABLES ARE IN INFRINGEMENT AT PROPOSED SITE OF WORK, HENCE CABLE SHIFTING ARE REQUIRED BEFORE COMMENCEMENT OF WORK.

TRD NOTE-
1. TRD/ELEC SUB ESTIMATE TO BE INCLUDED IN MAIN ESTIMATE OF RUB.



NOTE :
1. **PROPOSALS ARE SHOWN IN RED.**
2. **RAILWAY BOINDARY ARE SHOWN IN GREEN.**
3. **TRACK IS STRAIGHT ON BRIDGE LOCATION.**

KEY PLAN
NOT TO SCALE

MATERIAL SPECIFICATION :-
1. EXPOSURE CONDITION :- MODERATE
2. SEISMIC ZONE:- ZONE III.
3. MINIMUM GRADE OF CONCRETE DESIGN MIX CONFORMING TO :
   A) M-35 (RCC) : ABUTMENT, OPEN FOUNDATION / PILE WORK (DESIGN MIX)
   B) M-35 (RCC) : PEDESTAL ETC. (DESIGN MIX)
   C) M-15 (PCC) : LEVELING COURSE.
4. GRADE OF STEEL :- FE 500 (CONFORMING TO IS:1786—2008.)
5. FINE / COARSE AGGREGATE :- CONFORMING TO IS:383.
6. CEMENT :- OPC CONFORMING TO IS :- 269. HIGH STRENGTH ORDINARY PORTLAND CEMENT CONFORMING TO IS : 8112 (GRADE 43) AND IS :- 12269 (GRADE 53) MAY ALSO BE USED WHERE REQUIRED FROM CONSIDERATION OF MIX DESIGN.
7. WATER :- POTABLE WATER CONFORMING TO IS :- 456 CONFORMING TO IS :- 10262.
8. READY MIX CONCRETE CONFORMING TO IS:4 456.
9. CLEAR COVER TO REINFORCEMENT IS 50MM FOR ALL MEMBERS & 75MM FOR FOOTING.
10. MIN. LAP LENGTH OF 50 DIA. SHALL BE PROVIDED AT ALL JOINTS AND LAPPING OF BARS SHOULD BE MINIMIZED & ALL STAGGERED WHEREVER NECESSARY.

REFERENCE:-
1. 18.30M COMPOSITE GIRDER (WELDED TYPE) SUPERSTRUCTURE BASED ON RDSO STANDARD DRAWING NO.
   A) RDSO/B-11753/R3 – GENERAL ARRANGEMENT DRAWING.
   B) RDSO/B-11753/1R3 – DETAILS OF SPLICE JOINT & STUD SHEAR CONNECTOR.
   C) RDSO/B-11753/2R4 – DETAILS OF X-FRAME AND END DIAPHRAGM.
   D) RDSO/B-11753/3R3 – DETAILS OF BEARING.
   E) RDSO/B-11753/4R3 – ASSEMBLY DRAWING AND PART & SHIPPING LIST.
   F) RDSO/B-11753/5R3 – WELDING SEQUENCE & PRC CHAMBER DRAWING.
   G) RDSO/B-11753/6/R2 – DETAILS OF DECK SLAB (M-40).
   H) RDSO/B-11753/7 – DETAILS OF LONGITUDINAL SEISMIC RESTRAINER.
   I) RDSO/B-11760/R1 – NOTES FOR USE OF HSFG BOLTS.

SIGNATURE BLOCK

CE-C-I-CCG	
DYCE-C-CCG	
AXEN-C-CCG	Mahendra Kumar Digitally signed by Mahendra Kumar Date: 2026.05.25 17:50:38 +05'30'
SSE-C-W-BVI	PRAMOD KUMAR RANA Digitally signed by PRAMOD KUMAR RANA Date: 2026.05.25 17:02:40 +05'30'

TITLE : **GENERAL ARRANGEMENT DRAWING**

CONNECTING RAILWAY : WESTERN RAILWAY

DIVISION : MUMBAI SECTION : VR - ST SECTION

PROJECT : NEW DOUBLE LINE BETWEEN VADHAVAN PORT AND NEW PALGHAR STATION (22.23 KM)

TYPICAL GAD FOR PROPOSAL FOR CONSTRUCTION OF ROAD UNDER BRIDGE NO.36(RUB) AT CH:18785.377m &BR NO. 51 AT CH:21939.205m AS 1 X 18.30 m COMPOSITE GIRDER
IN BETWEEN VPPL HOLDING YARD AND VARAR STATION.

PINK BOOK ITEM NO: **31 OF PB 2024-25/NR**

RAIL LOADING STANDARD : 25 T AXLE LOADING IRS (2008) FOR SUPER STRUCTURE & 32.5 T DFCC LOADING FOR SUB STRUCTURE

CONSULTANT :
SATRA Services and Solutions Private Limited
#401, Capital Park,Image Garden Lane,Hi-Tech City, Madhapur, Hyderabad, Telangana - 500081, India.
Ph(O):+91 4027840040, e-mail:info@satragroup.in.

SHEET NO : **SHEET 1** SHEET SIZE : **A0 (1189 X 841)**

SCALE : **1:160 (UNLESS OTHERWISE SPECIFIED)** ISSUE DATE : **10.05.2026**

Signature Not Verified
Digitally signed by RAVINDER MAHKONDEY MEHMULA
Date: 2026.05.25 11:50:37 +05'30'
Reason: RDSO-CRIS
Location: Lucknow