

DRAWING PORTFOLIO

SAMPLE - Mainline alignment

Plan and longitudinal profile

PROJECT DELIVERY / RAIL INFRASTRUCTURE

PREPARED FOR

Demonstration inputs - preliminary design

PREPARED BY

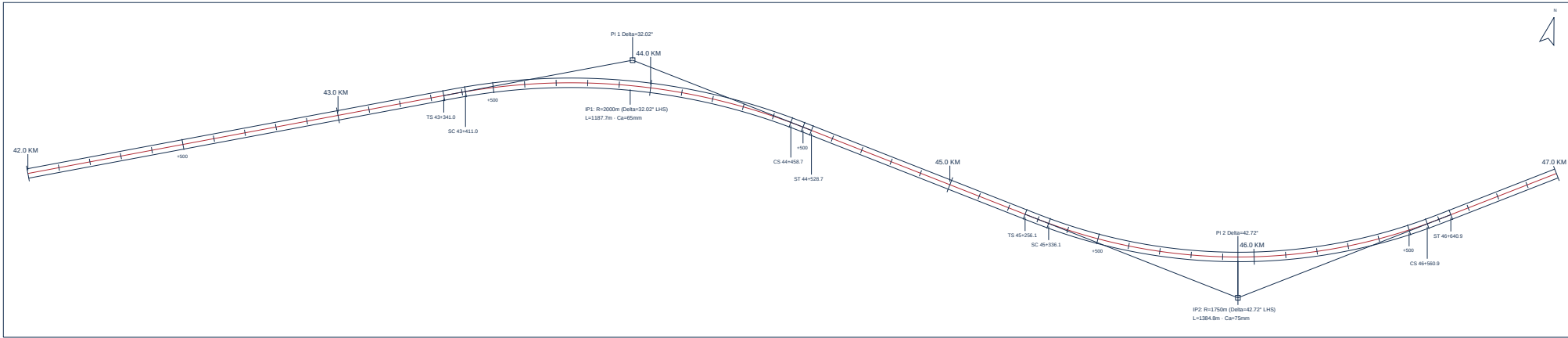
Railway Alignment Designer

DOCUMENT RAD / DRAWINGS | REVISION 01

ISSUED 2026-10-03 | SAMPLE - DRAFT FOR REVIEW

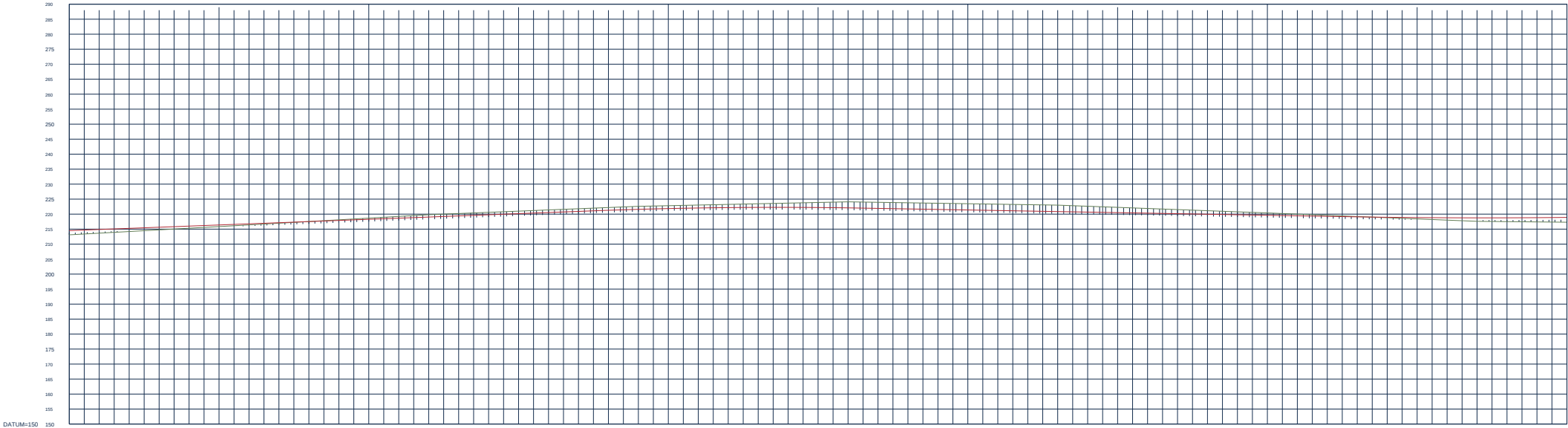
1. GAUGE = 1750mm

DEMONSTRATION INPUTS - PRELIMINARY DESIGN
SAMPLE - MAINLINE ALIGNMENT
FROM KM 42.000 TO KM 47.000 = 5.000 KM
SOURCE SCALE: HORIZONTAL:- 1cm=50m
VERTICAL :- 1cm=5m

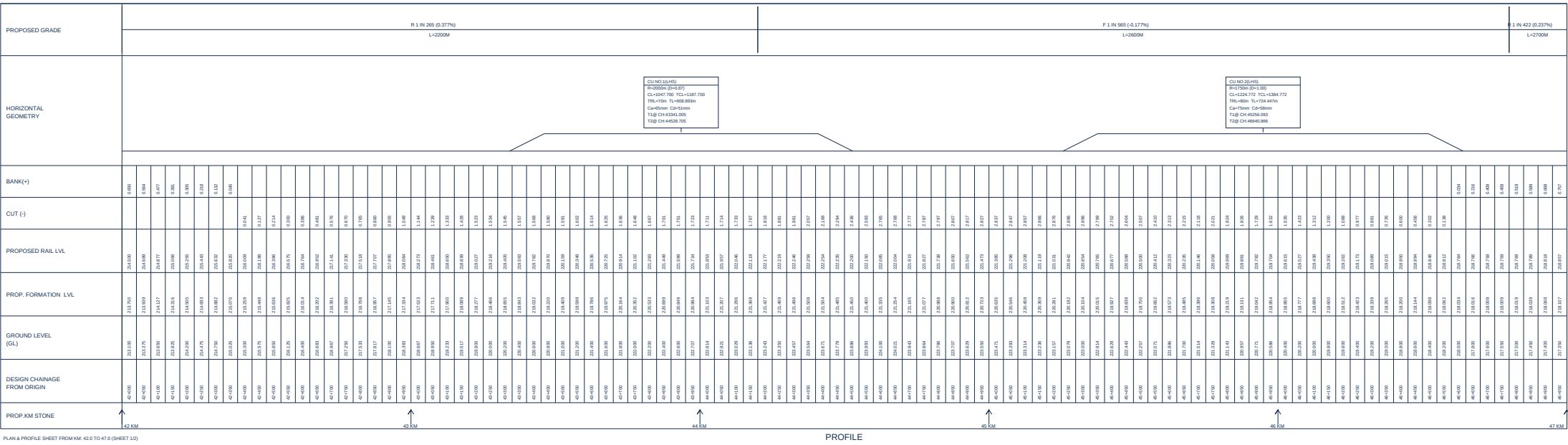


PLAN SCALE 1:5000

PLAN



DATUM:150



SHEET NO. 1 / 2

CURVES DETAILS:-42 TO 47

CU. No	Def. Angle	Radius R (m)	(Degrees)	TL (m)	TR (m)	T2 (m)	Road	TR (m)	CL (m)	TCL (m)	GR
1 LHS	0° 0'	2000	0.874	608.853	43341.805	44528.705	130	75	1347.703	1347.703	0.102
2 LHS	0° 0'	1750	0.999	724.447	45256.003	46440.866	130	80	1324.772	1384.772	0.102

GRADE DETAILS:-42 TO 47

CH FROM	CH TO	LEVEL FROM	LEVEL TO	DISTANCE	GRADE 1 IN	% GRADE
4200	4200	214.500	222.800	2200	R 1 IN 265	0.38
4200	4600	214.500	222.800	2000	F 1 IN 565	0.38
4600	4500	218.200	224.600	2700	R 1 IN 422	0.24

VERTICAL CURVES DETAILS:-42 TO 47

CURVAGE	CURVE LENGTH	CURVE RADIUS	GRADE 1 IN BACKWARD	FORWARD
4200	500.00	162297.48	R 1 IN 265 (0.377%)	R 1 IN 565 (0.177%)
4600	1100.00	267726.06	F 1 IN 565 (0.177%)	R 1 IN 422 (0.237%)

TRACK STRUCTURE

1. RAILS	60 KG
2. SLEEPER TYPE	PSC
3. SLEEPER SPACING	1800
4. FASTENING	ELASTIC
5. BALLAST CUSHION	350 mm

LEGEND:

PROPOSED CENTER LINE	
PROPOSED LAND BOUNDARY	
PROPOSED BRIDGE	
EXISTING GROUND	
PROPOSED RAIL LEVEL	
BANK / FILLING	
CUTTING	
MATCH LINE	

KEY PLAN (ROUTE INDEX)



TOTAL 0.2 KM IN 2 SHEETS

SHEET 1

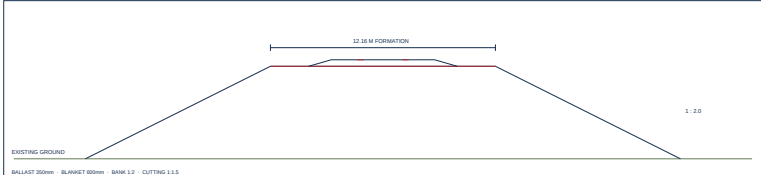
SHEET SUMMARY:-42 TO 47

ITEM	THIS SHEET
LENGTH COVERED	5.000 KM
CURVES / MIN. RADIUS	2 / 1750 M
MAX. CANT. APPLIED	75 MM
RAILS AND SLEEPERS ON SHEET	18/200
MAX. BANK / CUT HEIGHT	0.8 / 2.3 M
LENGTH IN BANK / CUT	786 / 4220 M
EARTHWORK FILL (APPROX.)	4.3 TCU/M
EARTHWORK CUT (APPROX.)	208.5 TCU/M
LAND REQUIRED (APPROX.)	15.00 HA
BRIDGES / CULVERTS ON SHEET	0
STATIONS ON SHEET	NIL

DESIGN BASIS

PARAMETER	ADOPTED
GAUGE	1676 MM (BG)
DESIGN SPEED	130 KMPH
BOOKED / GOODS SPEED	80 KMPH
STANDARD	IR-85
MAX. CANT. ALLOWED	105 MM
MAX. CANT. DEFICIENCY	100 MM
MIN. RADIUS ALLOWED	275 M
RAILING GRADIENT	R/L
FORMATION WIDTH	12.25 M

TYPICAL CROSS SECTION (BANK)



ABBREVIATIONS

TS / SC	TANGENT SPIRAL / SPIRAL CIRCLE	CL	CIRCULAR CURVE LENGTH
CS / ST	CIRCLE SPIRAL / SPIRAL TANGENT	TCL	TOTAL CURVE LENGTH
IP / PI	INTERSECTION POINT	TL	TANGENT LENGTH
CA / CS	CANT. CANT. DEFICIENCY	TRL	TRANSITION LENGTH
GL / FL	GROUND FORMATION LEVEL	RL	RAIL LEVEL
CSB	CENTRE OF STATION BUILDING	LWSHS	CURVE TURNING LEFT / RIGHT

GENERAL NOTES

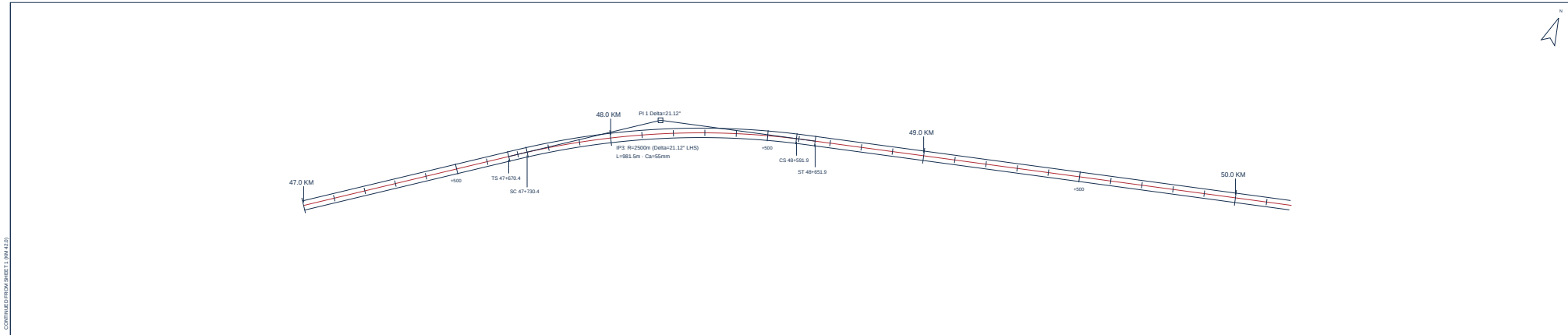
- ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
- CHANGES ARE REQUIRED ALONG THE PROPOSED CENTRE LINE FROM THE ORIGINAL.
- GROUND LEVELS ARE INTERPOLATED FROM THE SURVEY OF RECORDS AND ARE TO BE CONFIRMED BY DETAILED GROUND SURVEY BEFORE EXECUTION.
- EARTHWORK AND LAND FIGURES ON THIS SHEET ARE PRELIMINARY, FOR FEASIBILITY ONLY.
- SPIRAL FOUNDATIONS AND WATERWAYS ARE INDICATED AND SUBJECT TO DETAILED HYDROLOGICAL AND SITE INVESTIGATION.
- REFER TO THE CONCEPTUAL YARD PLANS FOR STATION LAYOUTS.
- DO NOT SCALE FROM THIS DRAWING. WORK TO FIGURED DIMENSIONS.

Rad RAILWAY ALIGNMENT DESIGNER

INDIAN RAILWAYS			
SAMPLE - MAINLINE ALIGNMENT			
PLAN & PROFILE (L-SECTION) SHEET FROM CH. 42.000 KM TO CH. 47.000 KM DATUM = 150.00 M (MSL) SOURCE SCALE : HORIZONTAL 1cm=50m VERTICAL 1cm=5m			
DRAWN	CHECKED	APPROVED	DATE
REV	DATE	DESCRIPTION	BY
A		ISSUED FOR REVIEW	
DRAWING NO.		SHEET	REV
SAMPLE APPROVAL		1 OF 2	A
		SIZE	150x540

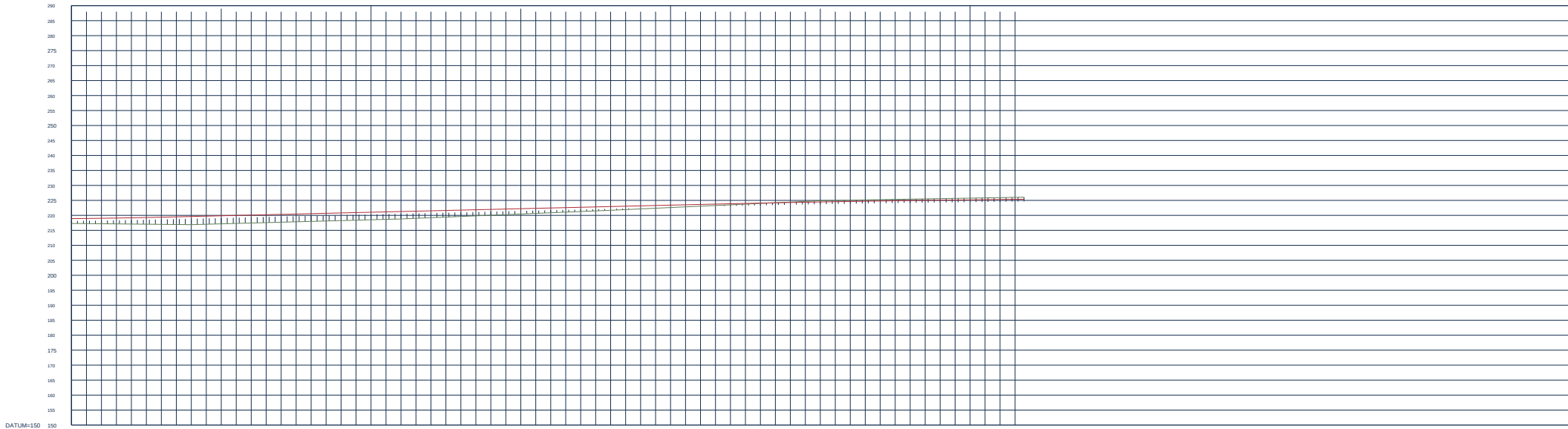
1. GAUGE = 1750mm

DEMONSTRATION INPUTS - PRELIMINARY DESIGN
SAMPLE - MAINLINE ALIGNMENT
FROM KM 47.000 TO KM 50.182 = 3.182 KM
SOURCE SCALE: HORIZONTAL:- 1cm=50m
VERTICAL :- 1cm=5m



PLAN SCALE 1:5000

PLAN



DATUM:150

PROPOSED GRADE		R 1 IN 422 (0.237%) L=7000M		R 1 IN 870 (0.115%) L=7000M	
HORIZONTAL GEOMETRY		CU NO. 354MS R=2000M (D=70.7) CL=481.478 TOL=485.478 TCL=481.478 TOL=485.478 C=55mm C=55mm T=120 CH 47+728.4 T=120 CH 48+651.9			
BANK(+)		0.000		0.000	
CUT (-)		0.000		0.000	
PROPOSED RAIL LVL		208.905		208.905	
PROP. FORMATION LVL		208.905		208.905	
GROUND LEVEL (GL)		208.905		208.905	
DESIGN CHARGE FROM ORIGIN		47.000		47.000	
PROP KM STONE		47.000		47.000	

PLAN & PROFILE SHEET FROM KM: 47.0 TO 56.2 (SHEET 20)

47 KM

48 KM

49 KM

50 KM

PROFILE

PLAN & PROFILE SHEET FROM KM 47.0 TO 50.2 (SHEET 20)

PROFILE

SHEET NO. 2 / 2

CURVES DETAILS:-47 TO 50

CU No	Def. Angle	Radius R (m)	(Degrees)	T1(m)	T2 (m)	T3 (m)	Road	TRL (m)	CL (m)	TCL (m)	GR
1 LHS	2° 0'	2500	0.696	456.038	47670.381	48651.859	130	45	481.478	481.478	0.00

GRADE DETAILS:-47 TO 50

CH FROM	CH TO	LEVEL FROM	LEVEL TO	DISTANCE	GRADE 1 IN	% GRADE
46800	49500	218.200	224.800	2700	R 1 IN 422	0.24
49500	51500	224.800	226.900	2000	R 1 IN 870	0.22

VERTICAL CURVES DETAILS:-47 TO 50

CHARGE	CURVE LENGTH	CURVE RADIUS	GRADE 1 IN BACKWARD	FORWARD
46500	800.00	65538.49	R 1 IN 422(0.237%)	R 1 IN 870(0.115%)

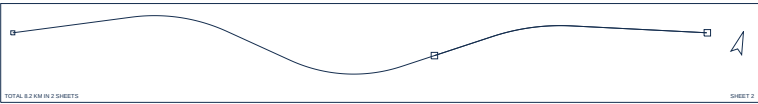
TRACK STRUCTURE

1. RAILS	60 KG
2. SLEEPER TYPE	PSC
3. SLEEPER DENSITY	1660
4. FASTENING	ELASTIC
5. BALLAST CUSHION	250 mm

LEGEND:

PROPOSED CENTER LINE	
PROPOSED LAND BOUNDARY	
PROPOSED BRIDGE	
EXISTING GROUND	
PROPOSED RAIL LEVEL	
BANK FILLING	
CUTTING	
MATCH LINE	

KEY PLAN (ROUTE INDEX)



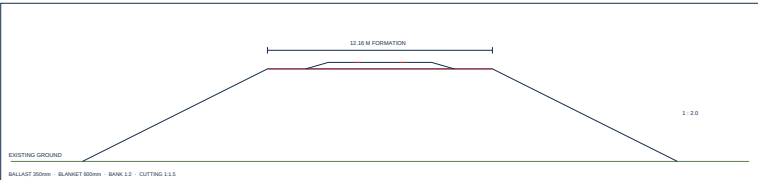
SHEET SUMMARY:-47 TO 50

ITEM	THIS SHEET
LENGTH COVERED	3.182 KM
CURVES MIN. RADIUS	1:2000 M
MAX. CANT APPLIED	55 MM
RULING GRADE ON SHEET	1 IN 422
MAX. BANK / CUT HEIGHT	2.8 / 1.4 M
LENGTH IN BANK / CUT	2000 / 1180 M
EARTHWORK FILL (APPROX.)	45.9 TCU/M
EARTHWORK CUT (APPROX.)	15.7 TCU/M
LAND REQUIRED (APPROX.)	3.55 HA
BROOKS / CULVERTS ON SHEET	
STATIONS ON SHEET	NL

DESIGN BASIS

PARAMETER	ADOPTED
GAUGE	1675 MM (BG)
DESIGN SPEED	130 KMPH
BOOKED / GOODS SPEED	65 KMPH
STANDARD	IR BG
MAX. CANT ALLOWED	140 MM
MAX. CANT DEFICIENCY	100 MM
MIN. RADIUS ALLOWED	175 M
RULING GRADIENT	1 IN 350
FORMATION WIDTH	12.35 M

TYPICAL CROSS SECTION (BANK)



ABBREVIATIONS

TS / SC	TANGENT SPIRAL / SPIRAL CIRCLE	CL	CIRCULAR CURVE LENGTH
CS / ST	CIRCLE SPIRAL / SPIRAL TANGENT	TCL	TOTAL CURVE LENGTH
IP / PN	INTERSECTION POINT	TS	TANGENT LENGTH
CA / CD	CANT / CANT DEFICIENCY	TRL	TRANSITION LENGTH
GL / FL	GROUND / FORMATION LEVEL	RL	RAIL LEVEL
CSE	CENTRE OF STATION BUILDING	CHSRHS	CURVE TURNING LEFT / RIGHT

GENERAL NOTES

- ALL DIMENSIONS ARE IN METRES AND LEVELS IN METRES ABOVE MSL, UNLESS NOTED OTHERWISE.
- CHARGES ARE MEASURED ALONG THE PROPOSED CENTRE LINE FROM THE ORIGIN.
- GROUND LEVELS ARE INTERPOLATED FROM THE SURVEY OF RECORDS AND ARE TO BE CONFIRMED BY DETAILED GROUND SURVEY BEFORE EXECUTION.
- EARTHWORK AND LAND FIGURES ON THIS SHEET ARE PRELIMINARY.
- FOR FEASIBILITY ONLY.
- SPANS, FORMATIONS AND WATERWAY OF STRUCTURES ARE INDICATIVE AND SUBJECT TO DETAILED HYDROLOGY AND SITE INVESTIGATION.
- REFER TO THE CONCEPTUAL YARD PLANS FOR STATION LAYOUTS.
- DO NOT SCALE FROM THE DRAWING, WORK TO FOLLOWED DIMENSIONS.

rad RAILWAY ALIGNMENT DESIGNER

INDIAN RAILWAYS			
SAMPLE - MAINLINE ALIGNMENT			
PLAN & PROFILE (L-SECTION) SHEET			
FROM CH. 47.000 KM TO CH. 50.182 KM			
DATUM = 150.00 M (MSL)			
SOURCE SCALE : HORIZONTAL 1cm=50m VERTICAL 1cm=5m			
DRAWN	CHECKED	APPROVED	DATE
REV	DATE	DESCRIPTION	BY
A		ISSUED FOR REVIEW	
DRAWING NO.		SHEET	REV
SAMPLEAPP002		2 OF 2	A
		SIZE	1500x940