

# **(ALIGNMENT REPORT)**



## HORIZONTAL ALIGNMENT DESIGN REPORT

Sr. No.	HIP Chainage	Easting	Northing	Arc Start Chainage	Arc End Chainage	Radiums	Hand of Arc (Right/Left)	Length of Arc (m)	Start Of Transition			Endt Of Transition			Design Speed (kmph)	Superelevation (%)	Deflection Angle			Extra Curve Widening
									Transition Start Chainage	Transition End Chainage	Transition Length (m)	Transition Start Chainage	Transition End Chainage	Transition Length (m)						
1	513+081.657	660425.377	2987130.141	513+056.588	513+106.725	5000	Right	50.137							100	NR	0	34	28.318	NIL
2	513+328.656	660669.496	2987167.757	513+250.479	513+406.819	5000	Left	156.340							100	NR	1	47	29.495	NIL
3	513+724.687	661059.846	2987233.411	513+683.281	513+765.905	500	Right	82.624	513+588.281	513+683.281	95	513+765.905	513+860.905	95	100	5.000	9	28	4.986	NIL
4	514+142.400	661472.557	2987169.137	514+084.720	514+200.048	2000	Left	115.328							100	NR	3	18	14.045	NIL
5	514+342.368	661671.272	2987146.499	514+298.275	514+386.446	2000	Right	88.172							100	NR	2	31	33.360	NIL
6	515+801.487	663115.029	2986937.321	515+379.284	516+143.927	725	Left	764.643	515+314.284	515+379.284	65	516+143.927	516+208.927	65	100	5.000	60	25	43.310	NIL
7	516+445.539	663530.457	2987529.851	516+416.136	516+474.940	3000	Right	58.804							100	NR	1	7	23.077	NIL
8	516+562.820	663597.027	2987626.411	516+528.664	516+596.970	2000	Left	68.306							100	NR	1	57	24.519	NIL
9	516+694.338	663667.938	2987737.182	516+613.825	516+774.764	2000	Right	160.939							100	NR	4	36	38.072	NIL
10	517+083.329	663908.734	2988042.434	517+072.883	517+093.769	400	Right	20.886	516+957.883	517+072.883	115	517+093.769	517+208.769	115	100	5.000	2	59	30.235	NIL
11	517+323.784	664102.319	2988184.591	517+304.406	517+343.109	300	Left	38.703	517+229.406	517+304.406	75	517+343.109	517+418.109	75	80	7.000	7	23	30.169	0.6
12	517+620.221	664276.699	2988424.112	517+616.238	517+624.205	5000	Right	7.968							100	NR	0	5	28.686	NIL
13	517+821.918	664392.607	2988589.178	517+813.894	517+829.942	5000	Right	16.047							100	NR	0	11	2.006	NIL
14	518+151.182	664582.689	2988858.035	518+148.134	518+154.231	5000	Right	6.097							100	NR	0	4	11.512	NIL
15	518+369.990	664709.222	2989036.546	518+358.803	518+381.178	5000	Left	22.374							100	NR	0	15	23.010	NIL
16	518+800.025	664956.333	2989388.493	518+701.472	518+898.476	2500	Right	197.004							100	NR	4	30	53.979	NIL
17	519+212.628	665219.338	2989706.539	519+198.300	519+226.955	5000	Left	28.656							100	NR	0	19	42.129	NIL
18	519+536.572	665414.526	2989964.708	519+439.110	519+631.620	500	Left	192.509	519+344.110	519+439.110	95	519+631.620	519+726.620	95	100	5.000	22	3	35.855	NIL
19	520+332.105	665514.404	2990755.946	520+324.987	520+339.223	10000	Right	14.236							100	NR	0	4	53.643	NIL
20	520+533.131	665536.797	2990955.720	520+530.247	520+536.014	10000	Left	5.767							100	NR	0	1	58.957	NIL
21	520+907.953	665581.743	2991327.813	520+787.273	521+027.471	1000	Right	240.198	520+737.273	520+787.273	50	521+027.471	521+077.471	50	100	4.400	13	45	44.368	NIL
22	521+307.702	665735.149	2991698.184	521+295.773	521+319.631	10000	Left	23.858							100	NR	0	8	12.105	NIL
23	521+822.180	665934.957	2992172.277	521+795.083	521+849.277	5000	Left	54.194							100	NR	0	37	15.651	NIL
24	522+123.350	666048.907	2992451.058	522+091.012	522+155.687	5000	Right	64.675							100	NR	0	44	28.026	NIL
25	522+523.414	666205.053	2992819.393	522+505.001	522+541.827	5000	Right	36.826							100	NR	0	25	19.198	NIL
26	522+762.656	666304.173	2993037.009	522+746.260	522+779.041	500	Right	32.782	522+651.260	522+746.260	95	522+779.041	522+874.041	95	100	5.000	3	45	23.382	NIL
27	523+039.708	666461.008	2993264.700	523+006.817	523+072.223	250	Left	65.407	522+911.817	523+006.817	95	523+072.223	523+167.223	95	80	7.000	14	59	24.524	0.6
28	523+524.570	666497.824	2993747.515	523+438.536	523+606.106	300	Right	167.570	523+363.536	523+438.536	75	523+606.106	523+681.106	75	80	7.000	32	0	12.374	0.6
29	524+025.024	666855.279	2994103.266	523+973.955	524+075.740	500	Left	101.785	523+878.955	523+973.955	95	524+075.740	524+170.740	95	100	5.000	11	39	49.191	NIL
30	524+262.382	666962.917	2994315.002	524+231.211	524+293.553	5000	Left	62.342							100	NR	0	42	51.783	NIL
31	524+503.295	667062.204	2994534.505	524+466.382	524+540.207	5000	Right	73.824							100	NR	0	50	45.479	NIL
32	524+622.867	667113.086	2994642.713	524+616.222	524+629.513	10000	Left	13.291							100	NR	0	4	34.155	NIL
33	524+947.213	667250.716	2994936.409	524+925.712	524+968.712	2250	Left	43.000							100	NR	1	5	41.985	NIL
34	525+252.272	667374.860	2995215.067	525+174.853	525+329.666	3550	Right	154.813							100	NR	2	29	55.088	NIL
35	525+547.388	667506.606	2995479.171	525+510.229	525+584.539	2250	Left	74.310							100	NR	1	53	32.258	NIL

CLIENT:		EPC CONTRACTOR:		DESIGN CONSULTANT:		PROOF CONSULTANT:		SAFETY CONSULTANT:		AUTHORITY ENGINEER:		PROJECT:		DRAWN BY:		STATUS:	
NATIONAL HIGHWAY AND INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED		M/s Gannon Dunkerley & Company Ltd.		M/s Kasiatic Engineering Consultants Pvt. Ltd.		M/s Technocrats Private Limited.		G-Engineering Advisory Services Pvt. Ltd.		Voyants Solutions Pvt. Ltd.		FOUR LANE OF JHANJI TO DEMOW SECTION FROM KM. 491+050 TO 536+250 (DESIGN KM. 490+800 TO KM. 534+800) OF NH-37 IN THE STATE OF ASSAM UNDER SARDP ON ENGINEERING PROCUREMENT & CONSTRUCTION (EPC) MODE.		Mr. K.K.		DETAILED DESIGN	
AS PER SITE OBSERVATION		8/A, Toposa Road (Sector-55) Huda Street, 7th Floor, Kolkata - 700046		SCO-105, 2nd Floor, HUDA Shopping Center, Sector-55, Gurugram-122011 (Hr.) INDIA		Dividing Road Opp. Devi Lal Park, Bahadurgarh, Haryana-124507		SCO-102, HUDA Shopping Center, Sector-55 Gurugram-122011 (Hr.) INDIA		Block A, Jal Vayu Vihar, Sector 30, Gurugram, Haryana 122001				Mr. T.P.		TITLE :	
DESCRIPTION OF REVISIONS		REV DATE		SCO-105, 2nd Floor, HUDA Shopping Center, Sector-55 Gurugram-122011 (Hr.) INDIA		Tel.: +91-1276-645290 E-mail: mcl_rk@rediffmail.com		Tel.: +91-124-4295802, 03 Fax.: 124-339706 E-mail: info@g-eng.in web: www.g-eng.in		E-mail: info@g-eng.in web: www.g-eng.in				Sh. S.A.		HORIZONTAL REPORT	
														Sh. A.G.		DRG. NO.:	
																NHIDCL/GDCL/G-ENG/19038/HR/45A	



HORIZONTAL ALIGNMENT DESIGN REPORT

Sr. No.	HIP Chainage	Easting	Northing	Arc Start Chainage	Arc End Chainage	Radious	Hand of Arc (Right/Left)	Length of Arc (m)	Start Of Transition			Endt Of Transition			Design Speed (kmph)	Superelevation (%)	Deflection Angle			Extra Curve Widening
									Transition Start Chainage	Transition End Chainage	Transition Length (m)	Transition Start Chainage	Transition End Chainage	Transition Length (m)						
36	526+009.966	667703.654	2995897.525	525+990.510	526+029.401	500	Right	38.890	525+895.510	525+990.510	95	526+029.401	526+124.401	95	100	5.000	4	27	23.470	NIL
37	526+659.724	668117.166	2996398.541	526+591.103	526+728.338	5000	Left	137.235							100	NR	1	34	21.349	NIL
38	526+877.560	668257.092	2996565.269	526+867.804	526+887.313	450	Right	19.509	526+752.804	526+867.804	115	526+887.313	527+002.313	115	100	5.000	2	29	2.173	NIL
39	527+181.220	668497.233	2996750.492	527+121.404	527+239.488	300	Left	118.084	527+046.404	527+121.404	75	527+239.488	527+314.488	75	80	7.000	22	33	8.718	0.6
40	527+477.777	668605.897	2997027.710	527+441.047	527+514.300	400	Right	73.253	527+386.047	527+441.047	55	527+514.300	527+569.300	55	80	5.000	10	29	33.698	NIL
41	527+800.297	668798.110	2997286.805	527+764.768	527+835.796	1000	Right	71.029	527+714.768	527+764.768	50	527+835.796	527+885.796	50	100	4.400	4	4	10.707	NIL
42	528+192.810	669069.572	2997570.334	528+181.811	528+203.808	10000	Right	21.997							100	NR	0	7	33.714	NIL
43	528+401.489	669214.719	2997720.266	528+368.152	528+434.826	5000	Right	66.674							100	NR	0	45	50.516	NIL
44	528+772.599	669474.198	2997985.551	528+667.785	528+876.650	1000	Left	208.866	528+617.785	528+667.785	50	528+876.650	528+926.650	50	100	4.400	11	58	1.619	NIL
45	529+095.092	669638.453	2998263.941	529+051.238	529+138.942	3500	Left	87.704							100	NR	1	26	8.643	NIL
46	529+213.841	669695.240	2998368.237	529+181.437	529+246.243	3500	Right	64.806							100	NR	1	3	39.204	NIL
47	529+618.229	669895.157	2998719.753	529+593.051	529+643.404	2200	Right	50.353							100	NR	1	18	40.886	NIL
48	529+691.777	669932.972	2998782.838	529+659.774	529+723.775	2200	Left	64.001							100	NR	1	40	0.523	NIL
49	530+077.908	670122.592	2999119.204	530+009.531	530+146.189	1500	Right	136.658	529+974.531	530+009.531	35	530+146.189	530+181.189	35	100	3.000	5	13	11.823	NIL
50	530+646.879	670454.950	2999581.123	530+640.112	530+653.646	10000	Left	13.534							100	NR	0	4	39.164	NIL
51	530+859.169	670578.986	2999753.407	530+787.255	530+931.021	2000	Left	143.765							100	NR	4	7	6.848	NIL
52	531+083.463	670696.658	2999944.429	531+007.019	531+159.833	2000	Right	152.814							100	NR	4	22	40.042	NIL
53	531+399.010	670882.225	3000199.735	531+380.505	531+417.515	5000	Left	37.010							100	NR	0	25	26.775	NIL
54	531+506.889	670945.005	3000287.466	531+467.411	531+546.366	5000	Left	78.956							100	NR	0	54	17.156	NIL
55	532+100.200	671287.507	3000771.845	531+956.589	532+240.893	815	Right	284.304	531+896.589	531+956.589	60	532+240.893	532+300.893	60	100	5.000	19	59	13.359	NIL
56	532+400.901	671543.500	3000935.045	532+360.508	532+441.250	1000	Left	80.742	532+310.508	532+360.508	50	532+441.250	532+491.250	50	100	4.400	4	37	34.187	NIL
57	532+568.275	671675.212	3001038.377	532+540.392	532+596.156	3000	Left	55.763							100	NR	1	3	54.015	NIL
58	532+883.319	671917.719	3001239.485	532+852.586	532+914.052	5000	Right	61.466							100	NR	0	42	15.646	NIL
59	533+365.342	672290.166	3001545.316	533+359.192	533+371.491	500	Left	12.299	533+264.192	533+359.192	95	533+371.491	533+466.491	95	100	5.000	1	24	33.639	NIL
60	533+649.982	672480.127	3001756.468	533+615.888	533+683.659	250	Right	67.771	533+520.888	533+615.888	95	533+683.659	533+778.659	95	80	7.000	15	31	54.973	0.6
61	533+837.033	672658.134	3001813.521	533+793.293	533+880.759	2000	Right	87.466							100	NR	2	30	20.562	NIL
62	534+227.361	673040.708	3001891.006	534+193.405	534+261.314	3000	Right	67.909							100	NR	1	17	49.066	NIL
63	534+633.567	673440.557	3001962.609	534+610.924	534+656.208	2000	Left	45.284							100	NR	1	17	50.237	NIL
64	534+880.481	673681.088	3002017.682	534+846.504	534+914.354	500	Left	67.851	534+751.504	534+846.504	95	534+914.354	535+009.354	95	100	5.000	7	46	30.357	NIL
65	535+131.763	673905.522	3002130.346	535+085.378	535+177.420	300	Right	92.042	535+010.378	535+085.378	75	535+177.420	535+252.420	75	80	7.000	17	34	43.170	0.6

 <p>NATIONAL HIGHWAY AND INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED</p>		<p>CLIENT :</p> <p>M/s Gannon Dunkerley &amp; Company Ltd.</p> <p>86A, Topia Road (South), 7th Floor, Kolkatta - 700046</p>	<p>EPC CONTRACTOR :</p> <p>M/s Gannon Dunkerley &amp; Company Ltd.</p> <p>86A, Topia Road (South), 7th Floor, Kolkatta - 700046</p>	<p>DESIGN CONSULTANT :</p> <p>M/s Gannon Dunkerley &amp; Company Ltd.</p> <p>SCO-103, 2nd Floor, HUDA Shopping Center, Sector-55, Gurugram-122011 (Hr.) INDIA</p>	<p>PROOF CONSULTANT :</p> <p>M/s Gannon Dunkerley &amp; Company Ltd.</p> <p>SCO-103, 2nd Floor, HUDA Shopping Center, Sector-55, Gurugram-122011 (Hr.) INDIA</p>	<p>SAFETY CONSULTANT :</p> <p>G-Engineering Advisory Services Pvt. Ltd.</p> <p>SCO-102, HUDA Shopping Center, Sector-55 Gurugram-122011 (Hr.) INDIA</p> <p>Tel.: +91-124-4295802, 03 Fax: 124-2392006</p> <p>E-mail: info@g-eng.in web: www.g-eng.in</p>	<p>AUTHORITY ENGINEER :</p> <p>Voyants Solutions Pvt. Ltd.</p> <p>Block A, Jai Vayu Vihar, Sector 30, Gurugram, Haryana 122001</p>	<p>PROJECT :</p> <p>FOUR LANE OF JHANJHI TO DEMOW SECTION FROM KM. 491+050 TO 535+250 DESIGN KM. 490+800 TO KM. 534+800 OF NH-37 IN THE STATE OF ASSAM UNDER SARDP ON ENGINEERING PROCUREMENT &amp; CONSTRUCTION (EPC) MODE.</p>	<p>DRAWN BY : Mr. K.K</p> <p>DESIGNED BY : Mr. T.P</p> <p>CHECKED BY : Sh. S.A</p> <p>APPROVED BY : Sh. A.G</p> <p>DATE:</p>	<p>STATUS :</p> <p>TITLE :</p> <p>DRG. NO. :</p>	<p>DETAILED DESIGN</p> <p>HORIZONTAL REPORT</p> <p>NHIDCL/GDCL/G-ENG/19038/HR/45B</p>
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VERTICAL CURVE TABLE (LHS)

Sr. No.	VIP Chainage	VIP LEVELS	LENGTH OF CURVE	TYPE OF CURVE	Grade IN %	Grade OUT %	Algebraic Difference	CHAINAGE START OF CURVE	CHAINAGE END OF CURVE	LEVEL START OF CURVE	LEVEL END OF CURVE	K VALUE	Design Speed (kmph)
1	513+356.157	91.772	120	Sag	0.064	2.500	2.436	513+296.157	513+416.157	91.734	93.272	49.254	100
2	513+710.083	100.620	375	Hog	2.500	-2.500	-5.000	513+522.583	513+897.583	95.933	95.933	75.000	100
3	514+074.048	91.521	120	Sag	-2.500	0.042	2.542	514+014.048	514+134.048	93.021	91.546	47.209	100
4	516+666.090	91.431	95	Sag	-0.007	1.773	1.780	516+618.590	516+713.590	91.434	92.273	53.365	100
5	516+861.737	94.900	135	Hog	1.773	0.000	-1.773	516+794.237	516+929.237	93.703	94.900	76.138	100
6	517+044.195	94.900	125	Hog	0.000	-1.634	-1.634	516+981.695	517+106.695	94.900	93.879	76.517	100
7	517+272.719	91.167	80	Sag	-1.634	-0.154	1.480	517+232.719	517+312.719	91.820	91.105	54.068	100
8	518+506.863	90.644	60	Sag	-0.191	0.180	0.371	518+476.863	518+536.863	90.701	90.698	161.722	100
9	520+421.988	92.184	100	Hog	0.105	-1.016	-1.122	520+371.988	520+471.988	92.131	91.676	89.149	100
10	520+578.292	90.595	150	Sag	-1.016	0.476	1.492	520+503.292	520+653.292	91.358	90.952	100.545	100
11	520+815.588	91.724	60	Hog	0.476	0.037	-0.439	520+785.588	520+845.588	91.581	91.735	136.784	100
12	520+969.976	91.781	60	Hog	0.037	-0.386	-0.423	520+939.976	520+999.976	91.770	91.665	141.755	100
13	521+770.877	91.187	120	Sag	-0.068	1.756	1.824	521+710.877	521+830.877	91.228	92.241	65.798	100
14	521+918.049	93.772	150	Hog	1.756	0.059	-1.697	521+843.049	521+993.049	92.455	93.816	88.402	100
15	522+939.954	94.165	100	Sag	-0.020	1.992	2.011	522+889.954	522+989.954	94.175	95.161	49.716	100
16	523+173.657	98.820	70	Hog	1.992	0.000	-1.992	523+138.657	523+208.657	98.123	98.820	35.142	80
17	523+383.592	98.820	70	Hog	0.000	-2.004	-2.004	523+348.592	523+418.592	98.820	98.119	34.936	80
18	523+601.454	94.455	150	Sag	-2.004	-0.294	1.710	523+526.454	523+676.454	95.958	94.234	87.731	100
19	524+093.189	93.587	60	Hog	0.051	-0.542	-0.593	524+063.189	524+123.189	93.572	93.424	101.214	100
20	524+272.348	92.616	60	Sag	-0.542	0.291	0.833	524+242.348	524+302.348	92.779	92.703	72.045	100
21	524+906.405	92.581	80	Sag	-0.038	0.413	0.452	524+866.405	524+946.405	92.596	92.746	177.089	100
22	525+615.922	93.196	60	Hog	-0.011	-0.495	-0.484	525+585.922	525+645.922	93.199	93.048	123.961	100
23	525+772.292	92.422	160	Sag	-0.495	0.498	0.993	525+692.292	525+852.292	92.818	92.821	161.085	100
24	526+010.899	93.611	60	Hog	0.498	-0.252	-0.750	525+980.899	526+040.899	93.462	93.536	80.019	100
25	527+654.473	93.741	70	Hog	0.135	-0.613	-0.748	527+619.473	527+689.473	93.693	93.526	93.564	100
26	527+767.727	93.046	65	Sag	-0.613	0.909	1.522	527+735.227	527+800.227	93.246	93.342	42.715	100
27	527+844.061	93.740	60	Hog	0.909	0.424	-0.484	527+814.061	527+874.061	93.467	93.867	123.891	100
28	528+209.799	94.523	60	Hog	-0.093	-0.455	-0.362	528+179.799	528+239.799	94.551	94.387	165.533	100
29	528+355.000	93.863	60	Sag	-0.455	0.346	0.801	528+325.000	528+385.000	93.999	93.967	74.876	100
30	528+538.171	94.497	60	Hog	0.346	-0.255	-0.601	528+508.171	528+568.171	94.393	94.420	99.757	100
31	528+710.464	94.057	60	Sag	-0.255	0.339	0.594	528+680.464	528+740.464	94.134	94.159	100.985	100
32	529+005.330	95.057	100	Hog	0.339	-0.218	-0.557	528+955.330	529+055.330	94.888	94.948	179.514	100
33	529+186.095	94.663	60	Sag	-0.218	-0.042	0.176	529+156.095	529+216.095	94.728	94.650	341.300	100
34	529+292.692	94.618	60	Hog	-0.042	-0.912	-0.870	529+262.692	529+322.692	94.631	94.344	68.999	80

CLIENT :		EPC CONTRACTOR :-		DESIGN CONSULTANT :-		PROOF CONSULTANT :-		SAFETY CONSULTANT :-		AUTHORITY ENGINEER :-		PROJECT :		DRAWN BY		STATUS :		DETAILED DESIGN			
NATIONAL HIGHWAY AND INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED		M/s Gannon Dunkerley & Company Ltd. 80A, Topolia Road (South), Haute Sieges 7th Floor, Kolkata - 700046		M/s Estatic Engineering Consultants Pvt. Ltd. SCO-103, 2nd Floor, HUDA Shopping Center, Sector-55 Gurgaon-122001 (Haryana) INDIA		Mare Technocrats Private Limited. Comp. Office: Mare House, SCO-1, Sector-6-7, Dividing Road Opp. Devi Lal Park, Bahadurgarh, Haryana-124507 Tel.: +91-1276-645290 E-mail: met_rk@rediffmail.com		G-Engineering Advisory Services Pvt. Ltd. SCO-102, HUDA Shopping Center, Sector-55 Gurgaon-122001 (Haryana) INDIA G-ENG Tel.: +91-124-29580203 Fax: 124-2392006 E-mail: info@g-eng.in web: www.g-eng.in		Voyants Solutions Pvt. Ltd. BPTP Park Centre-403, 4th, Block A, Jai Vayu Vihar, Sector 30, Gurgaon, Haryana, 122001		FOUR LANE OF JHANJHI TO DEMOW SECTION FROM KM. 491+050 TO 535+250 (DESIGN KM. 490+800 TO KM. 534+800) OF NH-37 IN THE STATE OF ASSAM UNDER SARDP ON ENGINEERING PROCUREMENT & CONSTRUCTION (EPC) MODE.		DESIGNED BY		Mr. K.K		TITLE :		VERTICAL REPORT (LHS)	
R2		AS PER SITE OBSERVATION										CHECKED BY		Sh. S.A		DRG. NO. :		NHIDCL/GDCL/G-ENG/19038/VR/45C			
REV		DATE		DESCRIPTION OF REVISIONS								APPROVED BY		Sh. A.G							
												DATE:									



GOOD FOR CONSTRUCTION

VERTICAL CURVE TABLE (LHS)

Sr. No.	VIP Chainage	VIP LEVELS	LENGTH OF CURVE	TYPE OF CURVE	Grade IN %	Grade OUT %	Algebraic Difference	CHAINAGE START OF CURVE	CHAINAGE END OF CURVE	LEVEL START OF CURVE	LEVEL END OF CURVE	K VALUE	Design Speed (kmph)
35	529+439.421	93.280	100	Sag	-0.912	0.853	1.765	529+389.421	529+489.421	93.736	93.706	56.662	100
36	529+565.102	94.352	100	Hog	0.853	-0.186	-1.039	529+515.102	529+615.102	93.925	94.259	96.253	100
37	529+693.238	94.114	60	Sag	-0.186	0.194	0.380	529+663.238	529+723.238	94.170	94.172	158.052	100
38	530+264.597	94.154	60	Hog	-0.038	-0.567	-0.529	530+234.597	530+294.597	94.166	93.984	113.416	100
39	530+392.627	93.429	100	Sag	-0.567	0.026	0.593	530+342.627	530+442.627	93.712	93.442	168.599	100
40	533+286.961	94.021	120	Sag	0.083	2.500	2.417	533+226.961	533+346.961	93.971	95.521	49.648	100
41	533+654.270	103.203	370	Hog	2.500	-2.500	-5.000	533+469.270	533+839.270	98.578	98.578	74.000	100
42	534+022.600	93.995	120	Sag	-2.500	-0.298	2.202	533+962.600	534+082.600	95.495	93.816	54.494	100
43	534+190.000	93.496	120	Sag	-0.298	0.324	0.622	534+130.000	534+250.000	93.675	93.691	192.806	100

CLIENT :

  
**NATIONAL HIGHWAY AND  
 INFRASTRUCTURE DEVELOPMENT  
 CORPORATION LIMITED**




DESIGN CONSULTANT :

  
**M/s Estate Engineering  
 Consultants Pvt. Ltd.**  
 SCO-103, 2nd Floor BUDA  
 Shopping Center, Sector-55  
 Gurugram-122011 (Haryana) INDIA

PROOF CONSULTANT :

  
**Marc Technocrats Private Limited.**  
 Corp. Office: Marc House, SCO-1, Sector-6-7,  
 Dividing Road Opp. Devi Lal Park, Bahadurgarh,  
 Haryana-124507  
 Tel: +91-1276-645290 E-mail :  
 mct\_rki@rediffmail.com

SAFETY CONSULTANT :

  
**G-Engineering Advisory Services Pvt. Ltd.**  
 SCO-102, HUDA Shopping Center,  
 Sector-55 Gurugram-122011, Haryana INDIA  
 G-ENG Tel: +91-124-4295802/53 Fax: 124-2392006  
 E-mail : info@g-eng.in web : www.g-eng.in

AUTHORITY ENGINEER :

  
**Vojanis Solutions Pvt. Ltd.**  
 BPTP Park Centre, 403, 4th  
 Block A, Jai Vayu Vihar, Sector  
 30, Gurugram, Haryana 122001

PROJECT :

FOUR LANE OF JHANJHI TO  
 DEMOW SECTION FROM KM. 491+050  
 TO 535+250 (DESIGN KM. 490+800 TO  
 KM. 534+800) OF NH-37 IN THE STATE  
 OF ASSAM UNDER SARDP ON  
 ENGINEERING PROCUREMENT &  
 CONSTRUCTION (EPC) MODE.

DRAWN BY : Mr. K.K.  
 DESIGNED BY : Mr. T.P.  
 CHECKED BY : Sh. S.A.  
 APPROVED BY : Sh. A.G.  
 DATE :

STATUS :  
 TITLE :  
 DRG. NO. :

DETAILED DESIGN  
 VERTICAL REPORT (LHS)  
 NHIDCL/GDCL/G-ENG/19038/VR/45D

R2 AS PER SITE OBSERVATION  
 REV DATE DESCRIPTION OF REVISIONS



VERTICAL CURVE TABLE (RHS)

Sr. No.	VIP Chainage	VIP LEVELS	LENGTH OF CURVE	TYPE OF CURVE	Grade IN %	Grade OUT %	Algebraic Difference	CHAINAGE START OF CURVE	CHAINAGE END OF CURVE	LEVEL START OF CURVE	LEVEL END OF CURVE	K VALUE	Design Speed (kmph)
1	513+153.165	91.816	110	Hog	0.018	-0.022	-0.040	513+098.165	513+208.165	91.807	91.804	2756.343	100
2	513+351.908	91.773	120	Sag	-0.022	2.500	2.522	513+291.908	513+411.908	91.786	93.273	47.583	100
3	513+705.848	100.621	375	Hog	2.500	-2.500	-5.000	513+518.348	513+893.348	95.934	95.934	75.000	100
4	514+062.321	91.710	120	Sag	-2.500	-0.039	2.461	514+002.321	514+122.321	93.210	91.686	48.757	100
5	516+674.234	91.657	100	Sag	0.010	1.782	1.772	516+624.234	516+724.234	91.653	92.548	56.442	100
6	516+856.238	94.900	135	Hog	1.782	0.000	-1.782	516+788.738	516+923.738	93.697	94.900	75.775	100
7	517+032.606	94.900	125	Hog	0.000	-1.631	-1.631	516+970.106	517+095.106	94.900	93.881	76.635	100
8	517+260.008	91.191	120	Sag	-1.631	-0.058	1.573	517+200.008	517+320.008	92.169	91.156	76.262	100
9	517+913.086	90.684	60	Sag	-0.175	0.060	0.235	517+883.086	517+943.086	90.737	90.702	254.691	100
10	518+501.939	90.861	60	Sag	-0.179	0.199	0.378	518+471.939	518+531.939	90.915	90.921	158.730	100
11	518+590.455	91.037	60	Hog	0.199	0.059	-0.140	518+560.455	518+620.455	90.977	91.054	428.836	100
12	518+667.118	91.082	60	Sag	0.059	0.351	0.292	518+637.118	518+697.118	91.064	91.187	204.960	100
13	518+773.070	91.454	60	Hog	0.351	-0.589	-0.940	518+743.070	518+803.070	91.349	91.277	63.802	80
14	518+858.971	90.948	60	Sag	-0.589	0.012	0.601	518+828.971	518+888.971	91.125	90.952	99.843	100
15	519+014.387	90.967	120	Sag	0.012	0.201	0.189	518+954.387	519+074.387	90.959	91.087	633.379	100
16	519+420.911	91.720	60	Hog	0.437	-0.258	-0.695	519+390.911	519+450.911	91.588	91.642	86.340	100
17	520+243.601	92.268	60	Hog	0.183	-0.093	-0.276	520+213.601	520+273.601	92.213	92.240	217.574	100
18	520+397.437	92.125	150	Hog	-0.093	-0.726	-0.633	520+322.437	520+472.437	92.195	91.581	237.001	100
19	520+564.093	90.915	100	Sag	-0.726	0.325	1.051	520+514.093	520+614.093	91.278	91.078	95.135	100
20	520+782.585	91.626	60	Hog	0.325	0.030	-0.295	520+752.585	520+812.585	91.528	91.635	202.977	100
21	521+098.667	91.426	60	Sag	-0.240	0.067	0.307	521+068.667	521+128.667	91.498	91.446	195.045	100
22	521+458.709	91.668	60	Hog	0.067	-0.196	-0.263	521+428.709	521+488.709	91.648	91.609	228.235	100
23	521+793.635	91.684	80	Sag	0.203	1.688	1.485	521+753.635	521+833.635	91.603	92.359	53.858	100
24	521+909.944	93.648	60	Hog	1.688	0.245	-1.443	521+879.944	521+939.944	93.141	93.721	41.567	80
25	522+057.975	94.010	150	Hog	0.245	-0.209	-0.454	521+982.975	522+132.975	93.826	93.854	330.891	100
26	522+412.031	94.435	60	Hog	0.450	-0.194	-0.644	522+382.031	522+442.031	94.300	94.376	93.167	100
27	522+931.572	94.144	150	Sag	-0.024	2.248	2.272	522+856.572	523+006.572	94.162	95.830	66.039	100
28	523+158.748	99.250	80	Hog	2.248	0.000	-2.248	523+118.748	523+198.748	98.351	99.250	35.593	80
29	523+386.473	99.250	70	Hog	0.000	-1.996	-1.996	523+351.473	523+421.473	99.250	98.552	35.078	80
30	523+633.334	94.324	180	Sag	-1.996	-0.265	1.731	523+543.334	523+723.334	96.120	94.085	104.003	100
31	524+506.553	92.764	60	Sag	-0.438	0.217	0.655	524+476.553	524+536.553	92.895	92.829	91.726	100
32	526+384.521	93.329	80	Sag	-0.371	0.182	0.553	526+344.521	526+424.521	93.478	93.402	144.672	100
33	528+029.114	94.261	80	Hog	0.248	-0.092	-0.340	527+989.113	528+069.113	94.161	94.224	235.532	100
34	528+994.679	95.097	100	Hog	0.321	-0.327	-0.648	528+944.679	529+044.679	94.937	94.934	154.168	100
35	529+740.522	93.492	150	Sag	-0.061	0.325	0.386	529+665.522	529+815.522	93.537	93.735	388.808	100

CLIENT :		EPC CONTRACTOR :		DESIGN CONSULTANT :		PROOF CONSULTANT :		SAFETY CONSULTANT :		AUTHORITY ENGINEER :		PROJECT :		DRAWN BY :		STATUS :		DETAILED DESIGN	
NATIONAL HIGHWAY AND INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED		M/s Ganon Dunderley & Company Ltd.		M/s Ecstatic Engineering Consultants Pvt. Ltd.		Marc Technocrats Private Limited.		G-Engineering Advisory Services Pvt. Ltd.		Voyants Solutions Pvt. Ltd.		FOUR LANE OF JHANUHI TO DEMOW SECTION FROM KM. 491+050 TO 536+250 (DESIGN KM. 490+800 TO KM. 534+800) OF NH-37 IN THE STATE OF ASSAM UNDER SARDP ON ENGINEERING PROCUREMENT & CONSTRUCTION (EPC) MODE.		Mr. K.K.		AS PER SITE OBSERVATION			
REV		DATE		DESCRIPTION OF REVISIONS		CORP. OFFICE: Marc House, SCO-1, Sector-6-7, Dividing Road Opp. Devi Lal Park, Bahadurgarh, Haryana-124507 Tel.: +91-1276-645290 E-mail: mct_rtk@rediffmail.com		SCO-102, HUDA Shopping Center, Sector-55, Gurgaon-122017 (Hr.) INDIA G-ENG Tel.: +91-124-4295802 Fax.: 124-2392006 E-mail: info@g-eng.in web: www.g-eng.in		BPTP Park, C-403, 4th Floor, Block A, Jai Vihar, Sector 30, Gurgaon, Haryana 122001		Mr. T.P.		CHECKED BY :		TITLE :		VERTICAL REPORT (RHS)	
												Sh. S.A.		APPROVED BY :		DRG. NO. :		NHIDCL/GDCL/G-ENG/19038/VR/45E	
														Sh. A.G.					
														DATE:					



GOOD FOR CONSTRUCTION

VERTICAL CURVE TABLE (RHS)

Sr. No.	VIP Chainage	VIP LEVELS	LENGTH OF CURVE	TYPE OF CURVE	Grade IN %	Grade OUT %	Algebraic Difference	CHAINAGE START OF CURVE	CHAINAGE END OF CURVE	LEVEL START OF CURVE	LEVEL END OF CURVE	K VALUE	Design Speed (kmph)
36	530+467.482	92.741	135	Sag	-0.389	0.286	0.675	530+399.982	530+534.982	93.003	92.934	199.964	100
37	531+388.061	93.893	60	Hog	0.280	-0.156	-0.436	531+358.061	531+418.061	93.809	93.846	137.469	100
38	531+800.812	93.941	65	Hog	0.290	-0.493	-0.783	531+768.312	531+833.312	93.847	93.781	82.959	100
39	531+882.508	93.539	60	Sag	-0.493	0.191	0.684	531+852.508	531+912.508	93.686	93.596	87.706	100
40	532+009.670	93.781	60	Hog	0.191	-0.279	-0.470	531+979.670	532+039.670	93.724	93.698	127.798	100
41	532+227.845	93.631	150	Hog	0.149	-0.263	-0.412	532+152.845	532+302.845	93.519	93.433	363.443	100
42	532+427.457	93.105	60	Sag	-0.263	0.293	0.556	532+397.457	532+457.457	93.184	93.193	107.859	100
43	533+280.960	94.016	120	Sag	0.083	2.500	2.417	533+220.960	533+340.960	93.966	95.516	49.648	100
44	533+648.666	103.208	370	Hog	2.500	-2.500	-5.000	533+463.666	533+833.666	98.583	98.583	74.000	100
45	534+016.879	94.003	120	Sag	-2.500	-0.309	2.191	533+956.879	534+076.879	95.503	93.818	54.767	100
46	534+179.914	93.499	120	Sag	-0.309	0.316	0.625	534+119.914	534+239.914	93.685	93.689	192.092	100
47	534+640.639	94.186	150	Sag	-0.036	0.496	0.532	534+565.639	534+715.639	94.213	94.558	281.866	100
48	534+761.485	94.785	60	Hog	0.496	-0.001	-0.497	534+731.485	534+791.485	94.636	94.785	120.839	100

CLIENT :



NATIONAL HIGHWAY AND  
INFRASTRUCTURE DEVELOPMENT  
CORPORATION LIMITED

EPC CONTRACTOR :

M/s Gannon Dunkerley &  
Company Ltd.  
86A, Pipra Road (South)  
Haute Street, 7th Floor  
Kolkata - 700046

DESIGN CONSULTANT :

M/s Ecstatic Engineering  
Consultants Pvt. Ltd.  
SCO-103, 2nd Floor HUDA  
Shopping Center, Sector-55  
Gurgaon-122011 (Hr.) INDIA

PROOF CONSULTANT :

Marc Technocrats Private Limited.  
Corp. Office: Marc House, SCO-1, Sector-6-7,  
Dividing Road Opp. Devi Lal Park, Bahadurgarh,  
Haryana-124507  
Tel.: +91-1276-645290 E-mail :  
mct\_rnk@rediffmail.com

SAFETY CONSULTANT :

G-Engineering Advisory Services Pvt. Ltd.  
SCO-102, HUDA Shopping Center,  
Sector-55 Gurgaon-122011 (Hr.) INDIA  
Tel.: +91-124-4293802/03 Fax : 124-2392006  
E-mail : info@g-eng.in web : www.g-eng.in

AUTHORITY ENGINEER :

Vayants Solutions Pvt. Ltd.  
BPTF Plot Centre, 403, 4th  
Block A, Jai Vayu Vihar, Sector  
30, Gurugram, Haryana 122001

PROJECT :

FOUR LANE OF JHANJHI TO  
DEMOW SECTION FROM KM. 491+050  
TO 535+250 (DESIGN KM. 490+800 TO  
KM. 534+800) OF NH-37 IN THE STATE  
OF ASSAM UNDER SARDP ON  
ENGINEERING PROCUREMENT &  
CONSTRUCTION (EPC) MODE.

DRAWN BY

Mr. K.K.

STATUS :

DETAILED DESIGN

DESIGNED BY

Mr. T.P.

CHECKED BY

Sh. S.A.

TITLE :

VERTICAL REPORT (RHS)

APPROVED BY

Sh. A.G.

DATE:

FEB-2022

DRG. NO. :

NHIDCL/GDCL/G-ENG/19038/VR/45F

R3	FEB-2022	AS PER SITE OBSERVATION
R2	DEC-2020	AS PER SITE OBSERVATION
REV	DATE	DESCRIPTION OF REVISIONS