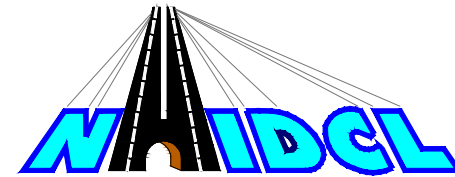


CLIENT:-



BUILDING INFRASTRUCTURE BUILDING THE NATION

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED

(Ministry of Road Transport & Highways)

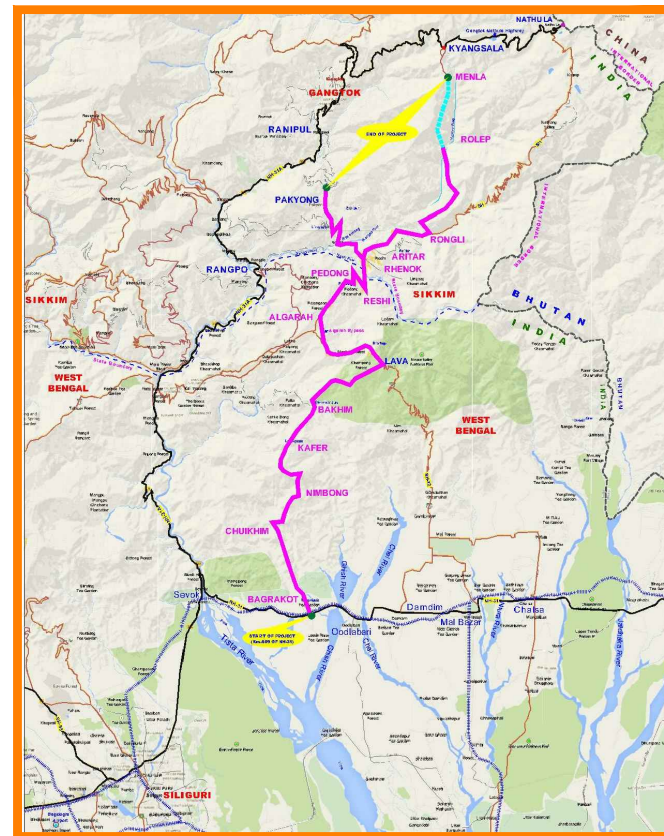
Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenock in the State of West Bengal and From Rhencok-Rorathang-Pakyong along with Spur From Aritar-Relop-Menla in the State of Sikkim.

FINAL DETAILED PROJECT REPORT

HIGHWAY DRAWINGS

PACKAGE-IV (Ch.0+000 To 13+000)

BAGRAKOT TO KAFER



JANUARY.- 2018

CONSULTANT :-



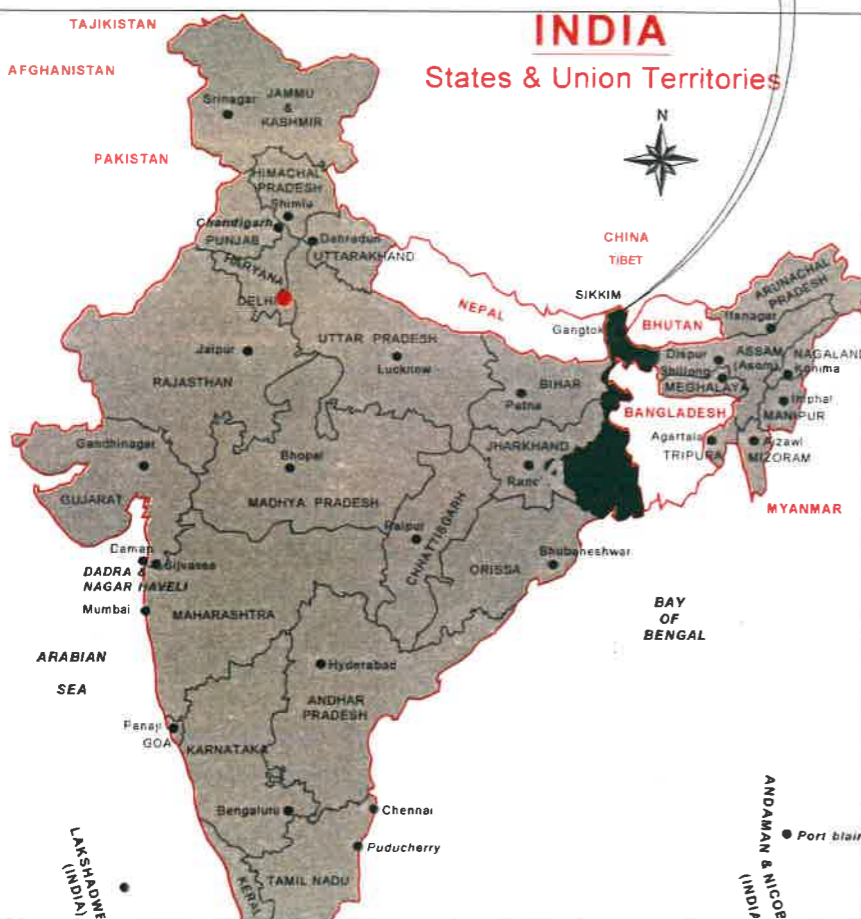
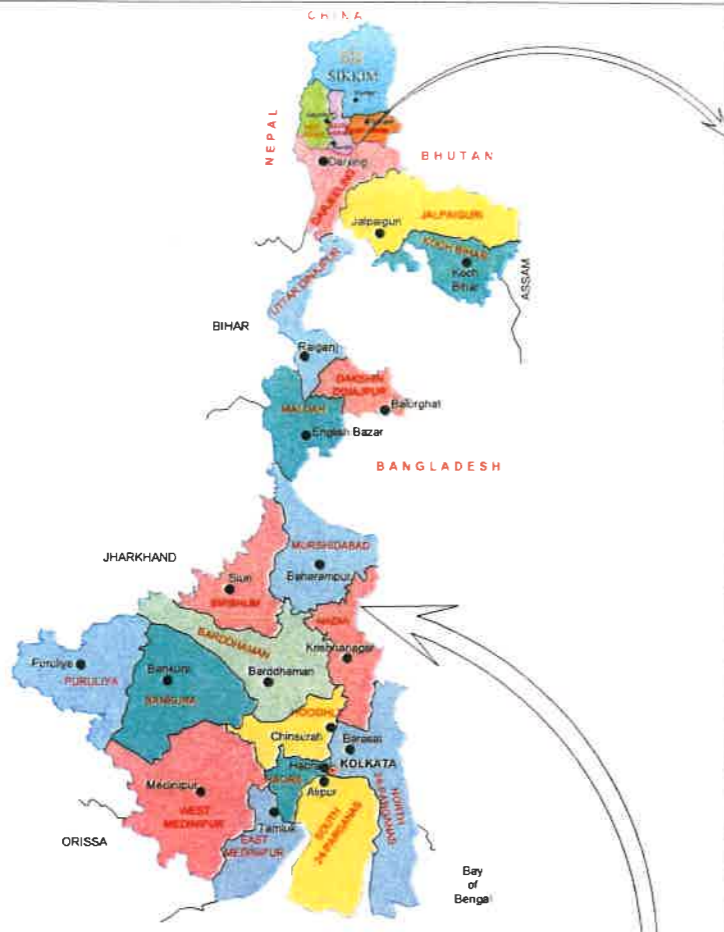
SA INFRASTRUCTURE CONSULTANTS PVT. LTD.

In Association with

Specialized Engineering Service Pvt. Ltd.

1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142, Noida 201301, Uttar Pradesh.

GENERAL DRAWING



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan 2018	Due to Vertical Profile Revised	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT LTD
 Specialized Engineering Service Pvt. Ltd
 1101A 11th Floor Tower A-4, Corporate Park
 Plot No. 7A/1 Sector-142
 Newt 201301, Uttar Pradesh

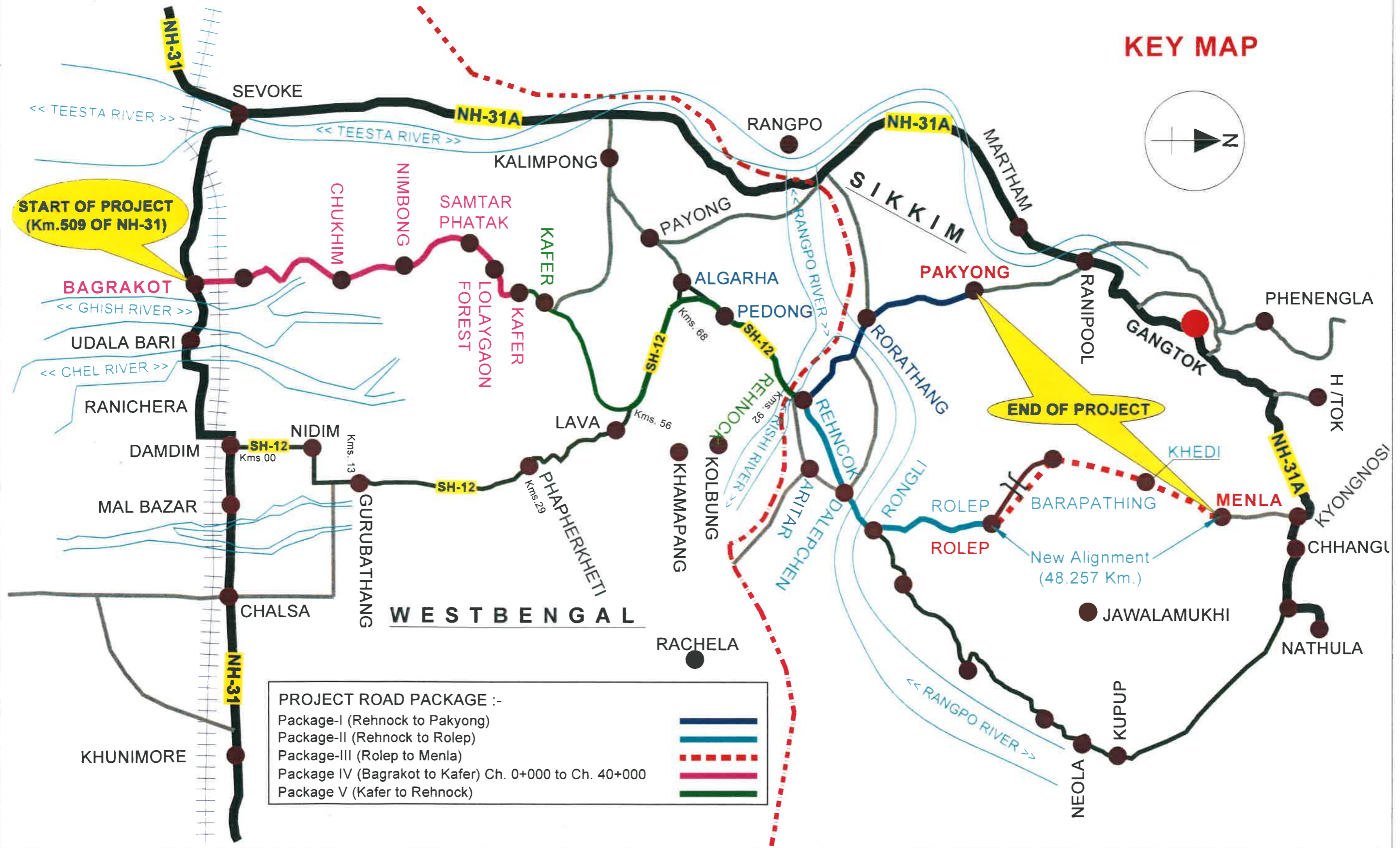
Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim

DATE : Jan-2018	Revision R0
DESIGNED BY F.S.	DRAWN BY Noresh
CHECKED BY F.S.	APPROVED BY L.A.Z.
SCALE:- NTS	

PACKAGE-IVa
 PART OF BAGRAKOT TO KAFER
 LOCATION MAP

Dwg No - SAICPL-SESPL/NHIDC/WB-SKM/ LM/ 01

KEY MAP



PROJECT ROAD PACKAGE :-

- Package-I (Rehnock to Pakyong)
- Package-II (Rehnock to Rolep)
- Package-III (Rolep to Menla)
- Package IV (Bagrakot to Kafer) Ch. 0+000 to Ch. 40+000
- Package V (Kafer to Rehnock)

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)		Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Antar-Rolep-Menla in the State of Sikkim		DATE : Jan-2018		Revision R0		PACKAGE-IVa PART OF BAGRAKOT To KAFER KEY PLAN	
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT LTD Specialized Engineering Service Pvt Ltd 110/1A, 11th Floor, Tower A, Corporate Park, Plot No. 7A/1, Sector-142 Noida 201301, Uttar Pradesh		DESIGNED BY : P.S. DRAWN BY : Naresh CHECKED BY : P.S. APPROVED BY : L.A.Z.		SCALE:- NTS		Dwg No - SAICPL-SESPL/NHDC/WB-SKM/ Gen/01			
REV	DATE	DESCRIPTION OF REVISIONS	INITIALS						
01	Jan 2018	Due to Vertical Profile Revised							

Package-4 Bagrakot to Kafer TBM List							
S. No	St Id	Easting	Northing	Elevation	Location	Chainage	Land Mark
1	T-1	657167.472	2972835.184	176.215	Center	0+000	NH-31
2	T-2	657134.957	2972957.558	177.542	RHS	0+113	
3	T-3	657069.166	2973163.387	178.298	LHS	0+330	
4	T-4	657014.884	2973364.199	180.368	RHS	0+540	
5	BM-M1	656971.695	2973473.378	182.455	LHS	0+660	Side Culvert
6	T-5	656955.424	2973541.366	182.996	LHS	0+723	
7	T-6	656895.031	2973758.997	185.468	RHS	0+951	
8	T-7	656851.109	2973888.299	187.517	RHS	1+080	
9	T-8	656796.345	2974073.014	189.606	LHS	1+502	
10	T-9	656698.939	2974268.478	192.172	LHS	1+502	
11	BM-M2	656573.993	2974520.806	195.659	LHS	1+782	House Gate
12	T-11	656486.305	2974693.045	198.300	RHS	1+970	
13	T-12	656416.408	2974735.721	198.860	RHS	2+054	
14	T-14	656118.294	2974765.632	203.304	LHS	2+353	
15	T-15	656036.798	2974826.816	204.837	LHS	2+460	
16	BM-M3	655897.208	2974961.801	207.803	LHS	2+657	Ex Culvert
17	T-16	655878.989	2974982.720	207.725	LHS	2+675	
18	T-17	655785.846	2975076.166	208.722	LHS	2+812	
19	T-18	655859.300	2975149.207	210.722	RHS	2+910	
20	T-19	655986.426	2975277.511	210.796	RHS	3+092	
21	T-20	655950.740	2975351.040	212.087	RHS	3+167	
22	T-21	655889.757	2975491.316	213.984	LHS	3+315	
23	T-22	655875.678	2975595.803	215.105	RHS	3+435	
24	T-23	655822.076	2975682.570	217.197	RHS	3+542	
25	T-25	655669.097	2975721.041	224.854	LHS	3+692	
26	T-27	655597.662	2975729.181	234.962	RHS	3+845	
27	T-28	655620.127	2975785.064	238.820	LHS	3+885	
28	BM-K-6	655776.491	2975868.105	252.623	RHS	4+055	ON Stone
29	BM-K-5	655720.665	2975886.765	270.199	LHS	4+252	Retaining Wall
30	BM-K-4	655704.308	2975906.227	272.615	LHS	4+302	Retaining Wall
31	T-36	655816.749	2975949.639	285.200	RHS	4+500	
32	T-39	655628.107	2975927.811	301.304	LHS	4+690	
33	T-40	655524.430	2975965.968	308.896	LHS	4+810	
34	T-41	655401.599	2976055.216	318.020	LHS	4+960	
35	D-137	655474.872	2976115.733	356.037	LHS	5+452	
36	D-136	655567.738	2976101.386	358.991	RHS	5+540	
37	D-133	655635.972	2976199.752	373.900	RHS	5+750	
38	D-132	655643.481	2976225.447	376.661	RHS	5+780	
39	D-129	655571.546	2976341.125	390.227	RHS	5+930	
40	D-128	655581.294	2976232.991	396.993	LHS	6+070	
41	D-127	655586.712	2976162.537	401.856	LHS	6+140	
42	D-126	655506.982	2976188.537	407.901	LHS	6+222	
43	D-125	655464.599	2976215.601	412.745	LHS	6+280	
44	D-124	655435.493	2976269.118	415.763	LHS	6+330	
45	D-123	655462.307	2976267.295	430.333	LHS	6+510	
46	D-121	655517.045	2976256.102	435.923	RHS	6+577	
47	D-120	655513.077	2976311.862	442.506	RHS	6+635	
48	D-119	655483.260	2976296.529	446.737	RHS	6+675	
49	D-118	655431.679	2976426.542	461.548	LHS	6+785	
50	D-117	655457.241	2976412.979	464.035	LHS	6+810	
51	D-116	655449.338	2976474.735	473.145	RHS	6+890	
52	D-115	655475.575	2976597.736	492.360	RHS	7+000	
53	D-114	655524.329	2976673.528	504.182	RHS	7+105	
54	D-113	655440.083	2976752.372	519.899	RHS	7+210	
55	D-112	655439.105	2976789.859	524.888	RHS	7+260	
56	D-111	655378.506	2976833.346	530.327	RHS	7+325	
57	D-110	655334.115	2976887.236	533.840	RHS	7+400	
58	D-109	655256.241	2976947.843	542.480	RHS	7+500	
59	D-108	655259.811	2977003.455	549.123	LHS	7+560	
60	D-107	655288.388	2977071.029	557.776	RHS	7+630	

61	D-106	655323.609	2977175.453	568.339	RHS	7+732	
62	D-105	655358.445	2977180.139	569.469	RHS	7+800	
63	D-104	655414.875	2977231.641	572.867	RHS	7+870	
64	D-100	655248.714	2977300.390	585.585	RHS	8+045	
65	D-99	655198.698	2977344.621	587.365	RHS	8+125	
66	D-98	655196.705	2977371.650	587.280	RHS	8+155	
67	D-97	655182.437	2977473.383	587.972	RHS	8+280	
68	D-96	655141.324	2977578.110	591.026	RHS	8+430	
69	D-95	655133.794	2977652.180	594.258	RHS	8+510	
70	D-94	655123.031	2977721.766	595.496	LHS	8+590	
71	D-93	655121.714	2977784.864	598.254	RHS	8+650	
72	D-91	655200.458	2977878.834	601.215	RHS	8+785	
73	D-90	655232.900	2977905.456	602.188	RHS	8+30	
74	D-88	655169.780	2977982.192	609.345	LHS	8+950	
75	D-86	655146.820	2978078.982	615.872	RHS	9+057	
76	D-85	655184.821	2978116.584	619.006	RHS	9+110	
77	D-84	655187.940	2978154.512	622.186	LHS	9+152	
78	D-83	655164.352	2978193.387	627.039	RHS	9+202	
79	D-81	655033.538	2978221.254	635.618	RHS	9+360	
80	D-77	654974.059	2978345.397	642.694	RHS	9+520	
81	D-76	655006.967	2978391.777	650.305	RHS	9+583	
82	D-75	655005.255	2978449.129	653.872	RHS	9+638	
83	D-74	654875.005	2978428.041	654.870	RHS	9+765	
84	D-72	654847.121	2978490.286	658.348	RHS	9+835	
85	D-71	654804.338	2978496.435	657.786	LHS	9+880	
86	D-70	654764.686	2978562.710	660.959	LHS	9+970	
87	D-69	654759.898	2978610.796	664.456	RHS	10+020	
88	D-68	654734.959	2978619.655	663.027	RHS	10+046	
89	D-67	654724.340	2978667.015	664.032	RHS	10+100	
90	D-65	654726.320	2978788.116	665.186	RHS	10+219	
91	D-64	654715.859	2978858.351	668.711	RHS	10+300	
92	D-63	654734.272	2978894.797	670.518	RHS	10+334	
93	D-61	654707.809	2978965.389	672.310	LHS	10+420	
94	D-60	654721.586	2979009.765	670.502	RHS	10+470	
95	D-59	654723.449	2979071.274	666.813	RHS	10+530	
96	D-58	654757.825	2979127.474	663.093	LHS	10+600	
97	D-57	654898.405	2979202.915	651.169	LHS	10+745	
98	D-56	654998.717	2979243.305	643.790	LHS	10+855	
99	D-55	655089.711	2979274.611	634.884	RHS	10+963	
100	D-54	654967.659	2979268.596	627.221	RHS	11+064	
101	D-53	654917.962	2979276.152	621.911	RHS	11+130	
102	D-52	654900.208	2979325.958	618.321	LHS	11+180	
103	D-51	654924.459	2979403.917	610.343	RHS	11+270	
104	D-50	654987.051	2979458.108	607.226	RHS	11+349	
105	D-49	654975.059	2979496.336	603.441	RHS	11+383	
106	D-48	654919.711	2979549.540	597.445	RHS	11+467	
107	D-47	654854.777	2979557.037	591.304	RHS	11+504	
108	D-46	654832.164	2979651.162	589.348	RHS	11+620	
109	D-45	654800.182	2979752.630	594.951	RHS	11+720	
110	D-43	654848.183	2979816.949	597.181	RHS	11+847	
111	D-42	654880.595	2979842.590	599.088	RHS	11+895	
112	D-41	654960.574	2979820.816	603.524	RHS	12+980	
113	D-40	654968.745	2979865.739	606.080	RHS	12+027	
114	D-39	654892.910	2979912.014	609.577	RHS	12+112	
115	D-36	654887.344	2980005.013	615.836	RHS	12+242	
116	D-34	654890.573	2980086.118	621.211	RHS	12+351	
117	D-32	654814.037	2980165.238	630.859	RHS	12+560	
118	D-31	654755.314	2980179.020	634.114	RHS	12+622	
119	D-30	654728.420	2980240.483	637.802	RHS	12+680	
120	D-29	654656.691	2980232.777	639.871	RHS	12+762	
121	D-28	654651.606	2980271.428	642.096	RHS	12+806	
122	D-27	654555.062	2980252.435	647.476	RHS	12+910	
123	D-26	654510.591	2980267.116	648.467	RHS	12+970	

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Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT LTD
Specialized Engineering Service Pvt Ltd
110/GA 11th Floor Tower A/II Corporate Park
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DATE : Jan-2018 Revision R0

DESIGNED BY P.S.	DRAWN BY Naresh	CHECKED BY P.S.	APPROVED BY L.A.Z.
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SCALE:- NTS

PACKAGE-IV
PART OF BAGRAKOT To KAFER
TBM LIST (Sh- 1 of 4)

Dwg No. :- SAICPL-SESPL/NHIDC/WB-SKM/01

124	D-25	654477.147	2980368.751	653.491	RHS	13+080	
125	D-24	654464.591	2980419.366	654.362	RHS	13+132	
126	D-23	654421.427	2980461.208	653.042	RHS	13+200	
127	D-22	654477.133	2980501.031	649.236	RHS	13+305	
128	D-20	654527.577	2980488.988	660.499	RHS	13+520	
129	D-17	654599.025	2980481.137	671.282	RHS	13+605	
130	D-16	654653.934	2980528.895	675.078	RHS	13+685	
131	D-15	654656.606	2980639.464	680.075	RHS	13+753	
132	D-14	654626.043	2980622.944	687.954	LHS	13+864	
133	D-13	654604.736	2980679.382	690.693	RHS	13+993	
134	D-12	654560.935	2980720.415	693.853	LHS	14+053	
135	D-6	654453.865	2980569.924	707.538	LHS	14+490	
136	D-5	654392.924	2980630.003	714.179	LHS	14+570	
137	D-4	654343.004	2980651.769	718.151	LHS	14+626	
138	D-3	654289.053	2980637.647	720.573	LHS	14+690	
139	D-2	654239.286	2980646.650	724.964	LHS	14+743	
140	D-1	654211.885	2980681.955	728.244	LHS	14+783	
141	N-1	654130.488	2980635.227	735.068	LHS	14+885	
142	N-2	654078.257	2980627.645	737.341	RHS	14+935	
143	N-3	654132.057	2980580.360	740.329	LHS	15+007	
144	N-4	654151.715	2980526.919	743.308	RHS	15+065	
145	N-5	654192.535	2980490.523	747.525	LHS	15+120	
146	N-6	654253.516	2980446.243	752.060	LHS	15+203	
147	N-7	654293.408	2980386.380	756.258	LHS	15+271	
148	N-8	654316.274	2980349.150	758.352	LHS	15+316	
149	N-9	654314.390	2980298.260	761.362	LHS	15+370	
150	N-10	654285.607	2980312.017	763.629	LHS	15+400	
151	N-11	654294.842	2980349.768	763.998	RHS	15+435	
152	N-13	654147.951	2980459.905	772.122	RHS	15+615	
153	N-14	654106.302	2980476.745	774.512	LHS	15+665	
154	N-15	654078.001	2980517.439	778.468	RHS	15+720	
155	N-17	653925.525	2980643.419	790.395	LHS	15+922	
156	N-18	654085.916	2980758.915	804.131	RHS	16+120	
157	N-19	654022.158	2980759.494	815.889	RHS	16+260	
158	N-20	654038.621	2980779.272	817.683	LHS	16+290	
159	N-21	654113.002	2980794.955	823.080	RHS	16+370	
160	N-22	654173.681	2980833.144	828.196	LHS	16+440	
161	N-23	654236.437	2980824.281	832.785	RHS	16+504	
162	N-24	654295.318	2980803.389	836.566	RHS	16+560	
163	N-25	654302.300	2980829.341	838.525	RHS	16+590	
164	N-26	654316.216	2980936.615	847.144	RHS	16+699	
165	N-27	654285.791	2980965.446	850.333	RHS	16+740	
166	N-30	654253.587	2981053.930	859.295	LHS	16+875	
167	BM-R4	654261.776	2981086.192	862.796	LHS	16+911	EX CULVERT
168	N-32	654325.250	2981045.827	866.036	RHS	16+980	
169	N-33	654334.832	2981063.847	867.257	RHS	17+003	
170	N-34	654332.114	2981092.001	869.952	LHS	17+035	
171	N-36	654348.784	2981170.968	878.848	RHS	17+120	
172	BM-R5	654364.736	2981262.750	887.133	RHS	17+213	RETAINING WALL
173	N-38	654344.994	2981242.721	891.777	LHS	17+254	
174	N-39	654329.105	2981214.183	894.490	RHS	17+285	
175	N-41	654316.683	2981147.937	899.262	LHS	17+358	
176	N-42	654307.453	2981120.046	901.970	LHS	17+385	
177	N-48	654163.783	2981109.568	917.946	RHS	17+655	
178	N-49	654159.255	2981176.126	925.307	LHS	17+720	
179	N-50	654141.083	2981237.666	926.433	LHS	17+785	
180	BM-R6	654090.324	2981405.544	941.117	LHS	17+985	RETAINING WALL
181	N-51	653984.849	2981441.440	944.367	LHS	18+100	
182	N-52	653917.035	2981450.156	944.700	LHS	18+170	
183	N-53	653793.556	2981518.675	953.803	LHS	18+352	
184	N-54	653620.443	2981544.324	970.864	LHS	18+575	
185	N-55	653605.073	2981572.369	974.700	LHS	18+605	
186	N-56	653602.913	2981631.896	978.536	LHS	18+665	

187	N-57	653647.448	2981697.877	984.894	RHS	18+750	
188	N-58	653638.646	2981760.948	988.412	LHS	18+810	
189	N-61	653783.764	2981811.266	1018.158	LHS	19+260	GPS-B06A
190	N-62	653839.059	2981833.863	1023.132	RHS	19+320	
191	N-63	653900.764	2981913.275	1031.339	LHS	19+425	
192	N-64	653971.294	2981915.375	1035.783	LHS	19+495	
193	N-65	654030.563	2981894.435	1040.514	LHS	19+557	
194	N-66	654046.573	2981872.228	1044.713	LHS	19+585	
195	N-69	653949.014	2981859.747	1045.632	RHS	19+695	
196	N-70	653942.735	2981803.521	1046.573	RHS	19+755	
197	N-72	653920.345	2981735.591	1049.629	RHS	19+837	
198	N-74	653953.334	2981649.174	1053.740	RHS	19+939	
199	N-75	654015.928	2981638.670	1056.710	LHS	20+003	
200	N-76	654093.514	2981597.017	1063.726	LHS	20+090	
201	N-77	654102.124	2981537.816	1068.259	RHS	20+150	
202	N-78	654188.893	2981510.638	1074.760	RHS	20+240	
203	N-79	654234.336	2981538.556	1077.788	RHS	20+295	
204	N-80	654222.210	2981581.200	1081.113	RHS	20+335	
205	N-82	654265.151	2981657.428	1087.796	RHS	20+445	
206	N-83	654321.754	2981764.490	1095.903	LHS	20+565	
207	N-84	654432.930	2981836.978	1109.837	LHS	20+715	
208	N-85	654437.683	2981866.048	1113.041	LHS	20+745	
209	BM-R9	654529.402	2981923.065	1118.584	LHS	20+860	EX CULVERT
210	N-86	654519.651	2981975.422	1118.941	LHS	20+915	
211	N-87	654545.996	2982024.570	1120.647	RHS	20+970	
212	N-88	654592.306	2982114.684	1116.420	LHS	21+074	
213	N-89	654623.673	2982149.682	1113.031	RHS	21+125	
214	N-91	654608.807	2982220.805	1107.981	LHS	21+192	
215	N-92	654639.448	2982222.740	1105.546	LHS	21+225	
216	N-93	654714.865	2982305.514	1098.121	LHS	21+360	
217	BM-R10	654824.285	2982401.020	1086.754	RHS	21+525	EX CULVERT
218	N-95	654807.900	2982555.314	1078.234	LHS	21+695	
219	BM-R11	654853.659	2982724.643	1063.522	RHS	21+860	BASE OF HAND PUMP
220	N-96	654858.607	2982743.865	1062.121	RHS	21+995	
221	N-97	654912.732	2982825.538	1066.450	RHS	21+990	
222	N-98	654890.026	2982899.761	1072.702	LHS	22+065	
223	N-99	654910.812	2983000.546	1081.162	LHS	22+170	
224	N-100	654956.811	2983035.053	1086.438	LHS	22+230	
225	N-101	654998.986	2983023.110	1090.993	RHS	22+270	
226	N-102	654974.237	2983176.130	1102.920	RHS	22+430	
227	N-103	655014.845	2983220.252	1104.768	RHS	22+491	
228	N-104	655038.401	2983282.184	1107.788	RHS	22+560	
229	BM-R12	655039.357	2983313.647	1110.376	RHS	22+592	EX CULVERT
230	N-106	655111.811	2983350.048	1113.440	RHS	22+676	
231	N-107	655130.901	2983387.349	1122.801	LHS	22+778	
232	N-108	655097.044	2983362.249	1125.822	LHS	22+820	
233	N-110	655012.131	2983334.613	1132.623	RHS	22+913	
234	N-111	654989.781	2983289.551	1139.416	RHS	22+990	
235	N-112	655143.765	2983434.942	1152.775	RHS	23+220	
236	BM-R13	655140.209	2983480.642	1152.841	LHS	23+268	EX CULVERT
237	N-113	655150.375	2983518.431	1154.929	LHS	23+304	
238	N-114	655124.461	2983596.864	1158.073	RHS	23+388	
239	BM-R14	655054.018	2983768.104	1167.036	LHS	23+635	DRAIN TOP
240	N-115	655149.614	2983864.739	1172.018	RHS	23+765	
241	N-116	655203.557	2983883.269	1174.025	RHS	23+823	
242	N-117	655310.025	2983970.771	1182.157	LHS	23+960	
243	N-118	655375.300	2984003.992	1183.047	RHS	24+020	
244	N-119	655417.303	2984050.711	1182.451	LHS	24+098	
245	N-120	655465.292	2984056.458	1180.261	LHS	24+144	
246	N121	655611.094	2984085.481	1179.209	LHS	24+295	
247	N128	656163.126	2984029.766	1201.119	LHS	24+908	
248	N137	656328.473	2984174.651	1250.300	RHS	25+735	
249	N138	656326.506	2984213.630	1249.942	RHS	25+774	

01	Jan 2018	Due to Vertical Profile Revised	
REV	DATE	DESCRIPTION OF REVISIONS	INITIALS

Client
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

Consultant
SA INFRASTRUCTURE CONSULTANTS PVT LTD
Specialized Engineering Service Pvt. Ltd
1101A 11th Floor Tower A II Corporate Park
Plot No. 7A/1 Sector-142
Gurgaon 122001, Haryana

Project :
Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chukhim-Nimbung-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Antar-Rolep-Menla in the State of Sikkim

DATE : Jan-2018

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
P.S.	Nareish	P.S.	L.A.Z.

Revision R0

PACKAGE-IV
PART OF BAGRAKOT To KAFER
TBM LIST (Sh- 2 of 4)

Dwg. No. :-
SAICPL-SESPL/NHIDC/WB-SKM/ 02

Package-4 Bagrakot to Kafer TBM List							
S. No	St Id	Easting	Northing	Elevation	Location	Chainage	Land Mark
1	T-1	657167.472	2972835.184	176.215	Center	0+000	NH-31
2	T-2	657134.957	2972957.558	177.542	RHS	0+113	
3	T-3	657069.166	2973163.387	178.298	LHS	0+330	
4	T-4	657014.884	2973364.199	180.368	RHS	0+540	
5	BM-M1	656971.695	2973473.378	182.455	LHS	0+660	Side Culvert
6	T-5	656955.424	2973541.366	182.996	LHS	0+723	
7	T-6	656895.031	2973758.997	185.468	RHS	0+951	
8	T-7	656851.109	2973888.299	187.517	RHS	1+080	
9	T-8	656796.345	2974073.014	189.606	LHS	1+502	
10	T-9	656698.939	2974268.478	192.172	LHS	1+502	
11	BM-M2	656573.993	2974520.806	195.659	LHS	1+782	House Gate
12	T-11	656486.305	2974693.045	198.300	RHS	1+970	
13	T-12	656416.408	2974735.721	198.860	RHS	2+054	
14	T-14	656118.294	2974765.632	203.304	LHS	2+353	
15	T-15	656036.798	2974826.816	204.837	LHS	2+460	
16	BM-M3	655897.208	2974961.801	207.803	LHS	2+657	Ex Culvert
17	T-16	655878.989	2974982.720	207.725	LHS	2+675	
18	T-17	655785.846	2975076.166	208.722	LHS	2+812	
19	T-18	655859.300	2975149.207	210.722	RHS	2+910	
20	T-19	655986.426	2975277.511	210.796	RHS	3+092	
21	T-20	655950.740	2975351.040	212.087	RHS	3+167	
22	T-21	655889.757	2975491.316	213.984	LHS	3+315	
23	T-22	655875.678	2975595.803	215.105	RHS	3+435	
24	T-23	655822.076	2975682.570	217.197	RHS	3+542	
25	T-25	655669.097	2975721.041	224.854	LHS	3+692	
26	T-27	655597.662	2975729.181	234.962	RHS	3+845	
27	T-28	655620.127	2975785.064	238.820	LHS	3+885	
28	BM-K-6	655776.491	2975868.105	252.623	RHS	4+055	ON Stone
29	BM-K-5	655720.665	2975886.765	270.199	LHS	4+252	Retaining Wall
30	BM-K-4	655704.308	2975906.227	272.615	LHS	4+302	Retaining Wall
31	T-36	655816.749	2975949.639	285.200	RHS	4+500	
32	T-39	655628.107	2975927.811	301.304	LHS	4+690	
33	T-40	655524.430	2975965.968	308.896	LHS	4+810	
34	T-41	655401.599	2976055.216	318.020	LHS	4+960	
35	D-137	655474.872	2976115.733	356.037	LHS	5+452	
36	D-136	655567.738	2976101.386	358.991	RHS	5+540	
37	D-133	655635.972	2976199.752	373.900	RHS	5+750	
38	D-132	655643.481	2976225.447	376.661	RHS	5+780	
39	D-129	655571.546	2976341.125	390.227	RHS	5+930	
40	D-128	655581.294	2976232.991	396.993	LHS	6+070	
41	D-127	655586.712	2976162.537	401.856	LHS	6+140	
42	D-126	655506.982	2976188.537	407.901	LHS	6+222	
43	D-125	655464.599	2976215.601	412.745	LHS	6+280	
44	D-124	655435.493	2976269.118	415.763	LHS	6+330	
45	D-123	655462.307	2976267.295	430.333	LHS	6+510	
46	D-121	655517.045	2976256.102	435.923	RHS	6+577	
47	D-120	655513.077	2976311.862	442.506	RHS	6+635	
48	D-119	655483.260	2976296.529	446.737	RHS	6+675	
49	D-118	655431.679	2976426.542	461.548	LHS	6+785	
50	D-117	655457.241	2976412.979	464.035	LHS	6+810	
51	D-116	655449.338	2976474.735	473.145	RHS	6+890	
52	D-115	655475.575	2976597.736	492.360	RHS	7+000	
53	D-114	655524.329	2976673.528	504.182	RHS	7+105	
54	D-113	655440.083	2976752.372	519.899	RHS	7+210	
55	D-112	655439.105	2976789.859	524.888	RHS	7+260	
56	D-111	655378.506	2976833.346	530.327	RHS	7+325	
57	D-110	655334.115	2976887.236	533.840	RHS	7+400	
58	D-109	655256.241	2976947.843	542.480	RHS	7+500	
59	D-108	655259.811	2977003.455	549.123	LHS	7+560	
60	D-107	655288.388	2977071.029	557.776	RHS	7+630	

Package-4 Bagrakot to Kafer TBM List							
S. No	St Id	Easting	Northing	Elevation	Location	Chainage	Land Mark
1	T-1	657167.472	2972835.184	176.215	Center	0+000	NH-31
2	T-2	657134.957	2972957.558	177.542	RHS	0+113	
3	T-3	657069.166	2973163.387	178.298	LHS	0+330	
4	T-4	657014.884	2973364.199	180.368	RHS	0+540	
5	BM-M1	656971.695	2973473.378	182.455	LHS	0+660	Side Culvert
6	T-5	656955.424	2973541.366	182.996	LHS	0+723	
7	T-6	656895.031	2973758.997	185.468	RHS	0+951	
8	T-7	656851.109	2973888.299	187.517	RHS	1+080	
9	T-8	656796.345	2974073.014	189.606	LHS	1+502	
10	T-9	656698.939	2974268.478	192.172	LHS	1+502	
11	BM-M2	656573.993	2974520.806	195.659	LHS	1+782	House Gate
12	T-11	656486.305	2974693.045	198.300	RHS	1+970	
13	T-12	656416.408	2974735.721	198.860	RHS	2+054	
14	T-14	656118.294	2974765.632	203.304	LHS	2+353	
15	T-15	656036.798	2974826.816	204.837	LHS	2+460	
16	BM-M3	655897.208	2974961.801	207.803	LHS	2+657	Ex Culvert
17	T-16	655878.989	2974982.720	207.725	LHS	2+675	
18	T-17	655785.846	2975076.166	208.722	LHS	2+812	
19	T-18	655859.300	2975149.207	210.722	RHS	2+910	
20	T-19	655986.426	2975277.511	210.796	RHS	3+092	
21	T-20	655950.740	2975351.040	212.087	RHS	3+167	
22	T-21	655889.757	2975491.316	213.984	LHS	3+315	
23	T-22	655875.678	2975595.803	215.105	RHS	3+435	
24	T-23	655822.076	2975682.570	217.197	RHS	3+542	
25	T-25	655669.097	2975721.041	224.854	LHS	3+692	
26	T-27	655597.662	2975729.181	234.962	RHS	3+845	
27	T-28	655620.127	2975785.064	238.820	LHS	3+885	
28	BM-K-6	655776.491	2975868.105	252.623	RHS	4+055	ON Stone
29	BM-K-5	655720.665	2975886.765	270.199	LHS	4+252	Retaining Wall
30	BM-K-4	655704.308	2975906.227	272.615	LHS	4+302	Retaining Wall
31	T-36	655816.749	2975949.639	285.200	RHS	4+500	
32	T-39	655628.107	2975927.811	301.304	LHS	4+690	
33	T-40	655524.430	2975965.968	308.896	LHS	4+810	
34	T-41	655401.599	2976055.216	318.020	LHS	4+960	
35	D-137	655474.872	2976115.733	356.037	LHS	5+452	
36	D-136	655567.738	2976101.386	358.991	RHS	5+540	
37	D-133	655635.972	2976199.752	373.900	RHS	5+750	
38	D-132	655643.481	2976225.447	376.661	RHS	5+780	
39	D-129	655571.546	2976341.125	390.227	RHS	5+930	
40	D-128	655581.294	2976232.991	396.993	LHS	6+070	
41	D-127	655586.712	2976162.537	401.856	LHS	6+140	
42	D-126	655506.982	2976188.537	407.901	LHS	6+222	
43	D-125	655464.599	2976215.601	412.745	LHS	6+280	
44	D-124	655435.493	2976269.118	415.763	LHS	6+330	
45	D-123	655462.307	2976267.295	430.333	LHS	6+510	
46	D-121	655517.045	2976256.102	435.923	RHS	6+577	
47	D-120	655513.077	2976311.862	442.506	RHS	6+635	
48	D-119	655483.260	2976296.529	446.737	RHS	6+675	
49	D-118	655431.679	2976426.542	461.548	LHS	6+785	
50	D-117	655457.241	2976412.979	464.035	LHS	6+810	
51	D-116	655449.338	2976474.735	473.145	RHS	6+890	
52	D-115	655475.575	2976597.736	492.360	RHS	7+000	
53	D-114	655524.329	2976673.528	504.182	RHS	7+105	
54	D-113	655440.083	2976752.372	519.899	RHS	7+210	
55	D-112	655439.105	2976789.859	524.888	RHS	7+260	
56	D-111	655378.506	2976833.346	530.327	RHS	7+325	
57	D-110	655334.115	2976887.236	533.840	RHS	7+400	
58	D-109	655256.241	2976947.843	542.480	RHS	7+500	
59	D-108	655259.811	2977003.455	549.123	LHS	7+560	
60	D-107	655288.388	2977071.029	557.776	RHS	7+630	

Client :	NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)
Consultant :	SA INFRASTRUCTURE CONSULTANTS PVT LTD Specialized Engineering Service Pvt. Ltd 1101A, 11B, Floor, Tower A-I, Corporate Park Plot No. 7A/1, Sector-142 Kolkata-700165, West Bengal
DATE :	Jan-2018
Revision :	RO
DESIGNED BY :	DRAWN BY :
CHECKED BY :	APPROVED BY :
SCALE :-	N.T.S
Dwg No. :	SAICPL-SESPL/PHIDC/WB-SKM/ 03

Project :	Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chulkhim-Nimbong-Kafer-Bakrim-Algarahi-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menia in the State of Sikkim.
DATE :	Jan-2018
Revision :	RO
DESIGNED BY :	DRAWN BY :
CHECKED BY :	APPROVED BY :
SCALE :-	N.T.S
Dwg No. :	SAICPL-SESPL/PHIDC/WB-SKM/ 03


REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
G1	Jan 2018	Due to Vertical Profile Revised	

PACKAGE-IV
PART OF BAGRAKOT TO KAFER
TBM LIST (Sh- 3 of 4)





Package-4 Bagrakot to Kafer TBM List							
S. No	St Id	Easting	Northing	Elevation	Location	Chainage	Land Mark
1	T-1	657167.472	2972835.184	176.215	Center	0+000	NH-31
2	T-2	657134.957	2972957.558	177.542	RHS	0+113	
3	T-3	657069.166	2973163.387	178.298	LHS	0+330	
4	T-4	657014.884	2973364.199	180.368	RHS	0+540	
5	BM-M1	656971.695	2973473.378	182.455	LHS	0+660	Side Culvert
6	T-5	656955.424	2973541.366	182.996	LHS	0+723	
7	T-6	656895.031	2973758.997	185.468	RHS	0+951	
8	T-7	656851.109	2973888.299	187.517	RHS	1+080	
9	T-8	656796.345	2974073.014	189.606	LHS	1+502	
10	T-9	656698.939	2974268.478	192.172	LHS	1+502	
11	BM-M2	656573.993	2974520.806	195.659	LHS	1+782	House Gate
12	T-11	656486.305	2974693.045	198.300	RHS	1+970	
13	T-12	656416.408	2974735.721	198.860	RHS	2+054	
14	T-14	656118.294	2974765.632	203.304	LHS	2+353	
15	T-15	656036.798	2974826.816	204.837	LHS	2+460	
16	BM-M3	655897.208	2974961.801	207.803	LHS	2+657	Ex Culvert
17	T-16	655878.989	2974982.720	207.725	LHS	2+675	
18	T-17	655785.846	2975076.166	208.722	LHS	2+812	
19	T-18	655859.300	2975149.207	210.722	RHS	2+910	
20	T-19	655986.426	2975277.511	210.796	RHS	3+092	
21	T-20	655950.740	2975351.040	212.087	RHS	3+167	
22	T-21	655889.757	2975491.316	213.984	LHS	3+315	
23	T-22	655875.678	2975595.803	215.105	RHS	3+435	
24	T-23	655822.076	2975682.570	217.197	RHS	3+542	
25	T-25	655669.097	2975721.041	224.854	LHS	3+692	
26	T-27	655597.662	2975729.181	234.962	RHS	3+845	
27	T-28	655620.127	2975785.064	238.820	LHS	3+885	
28	BM-K-6	655776.491	2975868.105	252.623	RHS	4+055	ON Stone
29	BM-K-5	655720.665	2975886.765	270.199	LHS	4+252	Retaining Wall
30	BM-K-4	655704.308	2975906.227	272.615	LHS	4+302	Retaining Wall
31	T-36	655816.749	2975949.639	285.200	RHS	4+500	
32	T-39	655628.107	2975927.811	301.304	LHS	4+690	
33	T-40	655524.430	2975965.968	308.896	LHS	4+810	
34	T-41	655401.599	2976055.216	318.020	LHS	4+960	
35	D-137	655474.872	2976115.733	356.037	LHS	5+452	
36	D-136	655567.738	2976101.386	358.991	RHS	5+540	
37	D-133	655635.972	2976199.752	373.900	RHS	5+750	
38	D-132	655643.481	2976225.447	376.661	RHS	5+780	
39	D-129	655571.546	2976341.125	390.227	RHS	5+930	
40	D-128	655581.294	2976232.991	396.993	LHS	6+070	
41	D-127	655586.712	2976162.537	401.856	LHS	6+140	
42	D-126	655506.982	2976188.537	407.901	LHS	6+222	
43	D-125	655464.599	2976215.601	412.745	LHS	6+280	
44	D-124	655435.493	2976269.118	415.763	LHS	6+330	
45	D-123	655462.307	2976267.295	430.333	LHS	6+510	
46	D-121	655517.045	2976256.102	435.923	RHS	6+577	
47	D-120	655513.077	2976311.862	442.506	RHS	6+635	
48	D-119	655483.260	2976296.529	446.737	RHS	6+675	
49	D-118	655431.679	2976426.542	461.548	LHS	6+785	
50	D-117	655457.241	2976412.979	464.035	LHS	6+810	
51	D-116	655449.338	2976474.735	473.145	RHS	6+890	
52	D-115	655475.575	2976597.736	492.360	RHS	7+000	
53	D-114	655524.329	2976673.528	504.182	RHS	7+105	
54	D-113	655440.083	2976752.372	519.899	RHS	7+210	
55	D-112	655439.105	2976789.859	524.888	RHS	7+260	
56	D-111	655378.506	2976833.346	530.327	RHS	7+325	

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
G1	Jan 2018	Due to Vertical Profile Revised	

Client :
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

Consultant :

SAI INFRASTRUCTURE CONSULTANTS PVT. LTD.
Specialized Engineering Services Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park
Plot No. 7A/1, Sector-142
Roza, Gurgaon, Haryana

Project :
Consultancy for Preparation of Feasibility Report
cum Preliminary Design for Alternative Highway to
Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-
Kafer-Bakhim-Algarah-Rhenok in the State of
West Bengal and From Rhenok-Rorathang-Pakyong
along with Spur From Aritar-Rolep-Menia in the State of Sikkim

DATE : Jan-2018	Revision	R0	
DESIGNED BY  P.S.	DRAWN BY  Noresn.	CHECKED BY  P.S.	APPROVED BY  L.A.Z.
SCALE:- NTS			

PACKAGE-IV
PART OF BAGRAKOT To KAFER
TBM LIST (Sh- 4 of 4)

Dwg No :-
SAICPL-SESPL/NHDC/WB-SKM/ 04

HORIZONTAL & VERTICAL DETAILS

ID	PI DISTANCE(M)	(Y)	(X)	PC	(Y)	(X)	PI	(Y)	(X)	PT	DELTA	R (m)	Lc	Tc	External	e%	Desig Speed	Extra Widening (m)	
1	681.405 m				2973512.336	658824.759	0+000.000												
2	1853.237 m	2973660.427	658741.415	0+169.933	2974106.159	658490.562	0+681.405	2974323.728	658027.672	1+160.025	35°27'18.16"	-1600.000 m	990.092 m	511.472 m	79.763	NC	80 Km/hr	0	
3	447.601 m	2974761.704	657095.856	2+189.638	2974894.486	656813.354	2+501.789	2975148.096	656631.363	2+800.405	29°09'43.16"	1200.000 m	610.767 m	312.152 m	39.935	NC	80 Km/hr	0	
4	464.820 m	2975180.681	656607.98	2+840.513	2975258.142	656552.394	2+935.854	2975329.964	656489.691	3+031.052	5°27'30.74"	-2000.000 m	190.539 m	95.342 m	2.271	NC	80 Km/hr	0	
5	377.650 m	2975524.489	656319.865	3+289.278	2975608.297	656246.698	3+400.530	2975610.043	656135.46	3+498.625	47°58'43.65"	-250.000 m	209.347 m	111.252 m	23.637	3.80%	80 Km/hr	0	
6	119.095 m	2975612.999	655947.104	3+687.005	2975614.224	655869.095	3+765.024	2975678.798	655825.309	3+830.890	54°57'37.10"	150.000 m	143.886 m	78.019 m	19.077	5.56%	60 Km/hr	0.6	
7	161.661 m	2975681.443	655823.515	3+834.086	2975712.794	655802.256	3+871.966	2975714.292	655764.406	3+904.240	53°35'35.41"	-75.000 m	70.153 m	37.880 m	9.023	7.00%	50 Km/hr	0.9	
8	428.330 m	2975718.842	655649.443	4+019.293	2975719.187	655640.722	4+028.021	2975717.521	655632.155	4+036.670	13°16'30.75"	-75.000 m	17.377 m	8.728 m	0.506	7.00%	50 Km/hr	0.9	
9	358.728 m	2975695.251	655517.678	4+153.293	2975637.394	655520.274	4+456.272	2975735.727	655506.853	4+216.360	172°04'12.56"	21.000 m	63.067 m	302.979 m	282.706	7.00%	25 Km/hr	1.5	
10	50.579 m	2975750.048	655548.588	4+260.484	2975753.821	655559.583	4+272.108	2975760.745	655568.92	4+283.548	17°37'12.71"	-75.000 m	23.065 m	11.624 m	0.895	7.00%	50 Km/hr	0.9	
11	72.379 m	2975769.025	655580.087	4+297.451	2975783.948	655600.211	4+322.504	2975783.78	655625.263	4+345.809	36°56'34.70"	75.000 m	48.358 m	25.053 m	4.074	7.00%	50 Km/hr	0.9	
12	66.107 m	2975783.704	655636.667	4+357.213	2975783.463	655672.588	4+393.134	2975811.3	655695.291	4+424.213	51°11'04.09"	-75.000 m	67.000 m	35.921 m	8.159	7.00%	50 Km/hr	0.9	
13	62.494 m	2975825.675	655707.015	4+442.763	2975834.692	655714.369	4+454.398	2975841.057	655724.109	4+465.849	17°38'12.56"	75.000 m	23.087 m	11.635 m	0.897	7.00%	50 Km/hr	0.9	
14	86.440 m	2975852.143	655741.074	4+486.116	2975868.878	655766.683	4+516.708	2975862.927	655796.691	4+544.210	44°22'50.82"	75.000 m	58.094 m	30.592 m	5.999	7.00%	50 Km/hr	0.9	
15	50.185 m	2975857.815	655822.47	4+570.491	2975852.063	655851.471	4+600.058	2975881.341	655847.35	4+610.526	109°13'48.15"	-21.000 m	40.035 m	29.566 m	15.265	7.00%	25 Km/hr	1.5	
16	89.214 m	2975881.863	655847.277	4+611.054	2975901.758	655844.476	4+631.144	2975899.84	655824.477	4+643.111	87°27'55.60"	-21.000 m	32.058 m	20.091 m	8.063	7.00%	25 Km/hr	1.5	
17	86.791 m	2975894.789	655771.808	4+696.022	2975893.241	655755.67	4+712.234	2975885.166	655741.612	4+727.955	24°23'41.54"	-75.000 m	31.933 m	16.212 m	1.732	7.00%	50 Km/hr	0.9	
18	51.815 m	2975862.817	655702.703	4+772.826	2975850.012	655680.411	4+798.533	2975874.411	655672.312	4+810.031	101°30'40.65"	21.000 m	37.206 m	25.708 m	12.195	7.00%	25 Km/hr	1.5	
19	75.078 m	2975875.184	655672.056	4+810.846	2975899.189	655664.088	4+836.139	2975902.607	655689.149	4+847.716	100°35'44.65"	21.000 m	36.870 m	25.293 m	11.874	7.00%	25 Km/hr	1.5	
20	29.571 m	2975908.34	655731.183	4+890.139	2975909.335	655738.478	4+897.502	2975911.729	655745.441	4+904.818	11°12'50.11"	-75.000 m	14.679 m	7.363 m	0.361	7.00%	50 Km/hr	0.9	
21	49.617 m	2975913.282	655749.955	4+909.592	2975918.952	655766.441	4+927.025	2975916.769	655783.737	4+943.851	26°10'19.06"	75.000 m	34.259 m	17.434 m	2	7.00%	50 Km/hr	0.9	
22	56.428 m	2975916.029	655789.604	4+949.763	2975912.74	655815.668	4+976.034	2975938.889	655813.135	4+987.414	102°43'30.40"	-21.000 m	37.651 m	26.271 m	12.633	7.00%	25 Km/hr	1.5	
23	64.763 m	2975938.892	655813.135	4+987.417	2975968.905	655810.227	5+017.571	2975955.77	655783.084	5+027.841	110°17'29.94"	-21.000 m	40.424 m	30.154 m	15.746	7.00%	25 Km/hr	1.5	
24	71.917 m	2975950.702	655772.612	5+039.475	2975940.693	655751.932	5+062.450	2975943.985	655729.194	5+084.063	34°03'46.77"	75.000 m	44.588 m	22.975 m	3.44	7.00%	50 Km/hr	0.9	
25	67.009 m	2975948.464	655698.262	5+115.318	2975950.998	655680.757	5+133.006	2975945.444	655663.964	5+150.059	26°32'23.92"	-75.000 m	34.741 m	17.688 m	2.057	7.00%	50 Km/hr	0.9	
26	59.471 m	2975941.148	655650.976	5+163.738	2975929.956	655617.137	5+199.380	2975949.125	655587.088	5+230.283	50°50'12.77"	75.000 m	66.545 m	35.642 m	8.038	7.00%	50 Km/hr	0.9	
27	52.396 m	2975954.262	655579.036	5+239.835	2975961.94	655567	5+254.112	2975964.659	655552.984	5+268.051	21°33'21.19"	-75.000 m	28.217 m	14.277 m	1.347	7.00%	50 Km/hr	0.9	
28	147.811 m	2975968.222	655534.619	5+286.759	2975971.919	655515.562	5+306.170	2975984.397	655500.693	5+324.748	29°01'19.01"	75.000 m	37.990 m	19.412 m	2.471	7.00%	50 Km/hr	0.9	
29	124.638 m	2976031.588	655444.455	5+398.163	2976066.933	655402.335	5+453.148	2976037.397	655355.957	5+493.055	72°29'32.70"	-75.000 m	94.892 m	54.985 m	17.996	7.00%	50 Km/hr	0.9	
30	108.533 m	2976035.289	655352.647	5+496.979	2975999.981	655297.205	5+562.709	2976050.312	655254.93	5+604.922	82°27'45.35"	75.000 m	107.943 m	65.730 m	24.727	7.00%	50 Km/hr	0.9	
31	37.496 m	2976073.081	655235.805	5+634.658	2976083.087	655227.4	5+647.725	2976095.047	655232.664	5+658.036	63°46'58.88"	21.000 m	23.378 m	13.067 m	3.734	7.00%	25 Km/hr	1.5	
32	81.040 m	2976095.5	655232.863	5+658.532	2976117.406	655242.504	5+682.465	2976104.999	655262.971	5+694.256	97°28'14.71"	21.000 m	35.725 m	23.934 m	10.84	7.00%	25 Km/hr	1.5	
33	98.409 m	2976101.5	655268.743	5+701.006	2976075.395	655311.805	5+751.363	2976105.371	655352.268	5+789.700	67°45'25.09"	-75.000 m	88.694 m	50.357 m	15.337	7.00%	50 Km/hr	0.9	
34	69.530 m	2976109.663	655358.062	5+796.910	2976133.974	655390.879	5+837.751	2976119.598	655429.106	5+871.708	57°08'27.69"	75.000 m	74.797 m	40.841 m	10.399	7.00%	50 Km/hr	0.9	
35	116.669 m	2976119.45	655429.501	5+872.130	2976109.5	655455.959	5+900.396	2976109.663	655484.223	5+928.007	21°20'36.46"	-150.000 m	55.877 m	28.266 m	2.64	5.56%	50 Km/hr	0.6	
36	80.107 m	2976110.504	655534.298	5+978.086	2976110.995	655572.618	6+016.409	2976080.23	655595.468	6+048.945	54°07'55.46"	75.000 m	70.859 m	38.323 m	9.224	7.00%	50 Km/hr	0.9	
37	114.284 m	2976078.819	655596.516	6+050.702	2976046.686	655620.382	6+090.728	2976084.585	655633.258	6+096.382	124°37'56.18"	-21.000 m	45.680 m	40.026 m	24.201	7.00%	25 Km/hr	1.5	
38	110.401 m	2976129.061	655648.369	6+143.355	2976154.896	655657.147	6+170.640	2976180.331	655647.273	6+195.692	39°58'56.72"	-75.000 m	52.337 m	27.285 m	4.809	7.00%	50 Km/hr	0.9	
39	85.388 m	2976233.235	655626.735	6+252.442	2976257.813	655617.193	6+278.808	2976284.172	655616.605	6+304.640	19°56'17.52"	150.000 m	52.198 m	26.366 m	2.3	5.56%	50 Km/hr	0.6	
40	62.341 m	2976317.079	655615.87	6+337.556	2976343.18	655615.287	6+363.663	2976367.549	655605.921	6+389.253	19°44'48.26"	-150.000 m	51.697 m	26.107 m	2.255	5.56%	50 Km/hr	0.6	
41	38.313 m	2976383.563	655599.765	6+406.409	2976401.37	655592.921	6+425.486	2976396.262	655574.54	6+437.382	84°30'24.34"	-21.000 m	30.973 m	19.077 m	7.372	7.00%	25 Km/hr	1.5	
42	132.136 m	2976396.023	655573.682	6+438.273	2976391.111	655556.007	6+456.618	2976372.936	655558.5	6+468.430	82°16'46.89"	-21.000 m	30.157 m	18.345 m	6.885	7.00%	25 Km/hr	1.5	
43	154.455 m	2976291.472	655569.676	6+550.657	2976260.201	655573.967	6+582.221	2976230.978	655585.894	6+613.452	14°23'29.82"	-250.000 m	62.795 m	31.564 m	1.985	3.80%	50 Km/hr	0	
44	99.480 m	2976200.453	655598.354	6+646.422	2976117.199	655632.335	6+736.344	2976132.265	655543.684	6+752.755	121°50'54.00"	50.000 m	106.333 m	89.922 m	52.888	7.00%	50 Km/hr	1.5	
45	102.228 m	2976133.733	655535.043	6+761.520	2976133.866	655534.261	6+762.313	2976133.993	655533.478	6+763.106	0°27'15.84"	-200.000 m	1.586 m	0.793 m	0.002	4.55%	50 Km/hr	0.6	
46	53.613 m	2976145.539	655462.111	6+835.450	2976150.193	655433.345	6+864.541	2976176.009	655446.86	6+875.148	108°26'30.10"	21.000 m	39.746 m	29.140 m	14.918	7.00%	25 Km/hr	1.5	
47	75.201 m	2976177.124	655447.444	6+876.406	2976197.691	655458.211	6+899.621	2976184.923	655477.599	6+911.495	95°44'08.36"	21.000 m	35.089 m	23.215 m	10.304	7.00%	25 Km/hr	1.5	
48	201.435 m	2976169.905	655500.402	6+938.799	2976156.33	655521.016	6+963.481	2976157.649	655545.663	6+986.489	36°25'57.87"	-75.000 m	47.690 m	24.682 m	3.957	7.00%	50 Km/hr	0.9	
49	260.057 m	2976158.164	655555.275	6+996.115	2976167.1	655722.162	7+163.241	2976199.73	655558.253	7+056.839	165°40'34.33"	-21.000 m	60.724 m	167.126 m	147.44	7.00%	25 Km/hr	1.5	
50	82.397 m	2976211.117	655501.054	7+115.160	2976217.874	655467.11	7+149.770	2976248.087	655450.226	7+180.013	49°32'36.86"	75.000 m	64.852 m	34.610 m	7				

70	173.008	m	2976467.713	655451.056	8+291.644	2976528.491	655431.886	8+355.373	2976584.48	655462.326	8+412.169	46°02'14.63"	150.000	m	120.526	m	63.729	m	12.977	5.56%	50	Km/hr	0.6
71	100.348	m	2976626.206	655485.011	8+459.663	2976680.488	655514.522	8+521.448	2976719.845	655466.893	8+563.026	78°57'49.66"	-75.000	m	103.363	m	61.785	m	22.172	7.00%	50	Km/hr	0.9
72	69.596	m	2976729.329	655455.415	8+577.916	2976744.408	655437.167	8+601.588	2976767.231	655430.881	8+623.777	35°02'06.57"	75.000	m	45.861	m	23.673	m	3.647	7.00%	50	Km/hr	0.9
73	65.727	m	2976778.587	655427.754	8+635.555	2976811.506	655418.688	8+669.700	2976826.285	655387.907	8+699.639	48°57'22.54"	-75.000	m	64.084	m	34.145	m	7.407	7.00%	50	Km/hr	0.9
74	61.309	m	2976830.127	655379.904	8+708.517	2976839.954	655359.437	8+731.221	2976859.482	655347.856	8+752.609	33°41'02.88"	75.000	m	44.092	m	22.704	m	3.361	7.00%	50	Km/hr	0.9
75	103.503	m	2976875.716	655338.229	8+771.483	2976892.688	655328.164	8+791.215	2976902.509	655311.05	8+810.072	29°28'47.27"	-75.000	m	38.589	m	19.732	m	2.552	7.00%	50	Km/hr	0.9
76	81.335	m	2976914.893	655289.471	8+834.952	2976944.206	655238.393	8+893.843	2977000.778	655254.754	8+934.801	76°16'43.54"	75.000	m	99.849	m	58.891	m	20.358	7.00%	50	Km/hr	0.9
77	48.455	m	2977013.565	655258.452	8+948.112	2977022.339	655260.989	8+957.244	2977030.247	655265.558	8+966.288	13°53'07.27"	75.000	m	18.176	m	9.133	m	0.554	7.00%	50	Km/hr	0.9
78	104.786	m	2977042.514	655272.644	8+980.455	2977064.295	655285.227	9+005.610	2977089.259	655282.133	9+028.996	37°04'56.69"	-75.000	m	48.541	m	25.155	m	4.106	7.00%	50	Km/hr	0.9
79	92.336	m	2977098.452	655280.993	9+038.260	2977168.285	655272.335	9+108.627	2977181.372	655341.474	9+151.291	86°20'57.14"	75.000	m	113.031	m	70.367	m	27.842	7.00%	50	Km/hr	0.9
80	70.315	m	2977182.158	655345.63	9+155.520	2977185.458	655363.06	9+173.260	2977196.216	655377.166	9+190.359	26°36'55.64"	-75.000	m	34.840	m	17.740	m	2.069	7.00%	50	Km/hr	0.9
81	39.732	m	2977211.789	655397.583	9+216.038	2977228.1	655418.969	9+242.934	2977244.891	655397.958	9+254.169	104°02'05.67"	-21.000	m	38.131	m	26.896	m	13.123	7.00%	25	Km/hr	1.5
82	105.646	m	2977245.587	655397.088	9+255.284	2977252.905	655387.931	9+267.005	2977248.952	655376.896	9+276.666	58°20'20.27"	-21.000	m	21.382	m	11.722	m	3.05	7.00%	25	Km/hr	1.5
83	152.396	m	2977235.052	655338.089	9+317.887	2977217.279	655288.473	9+370.590	2977257.937	655254.939	9+409.768	70°11'32.22"	75.000	m	91.881	m	52.703	m	16.666	7.00%	50	Km/hr	0.9
84	74.898	m	2977314.479	655208.304	9+483.060	2977334.846	655191.506	9+509.461	2977361.244	655191.169	9+533.829	38°47'05.00"	75.000	m	50.769	m	26.400	m	4.511	7.00%	50	Km/hr	0.9
85	39.701	m	2977396.727	655190.717	9+569.316	2977409.737	655190.551	9+582.327	2977421.931	655186.013	9+595.081	19°41'00.14"	-75.000	m	25.765	m	13.011	m	1.12	7.00%	50	Km/hr	0.9
86	36.282	m	2977432.85	655181.949	9+606.732	2977446.945	655176.704	9+621.771	2977461.972	655177.297	9+636.416	22°40'36.50"	75.000	m	29.684	m	15.039	m	1.493	7.00%	50	Km/hr	0.9
87	116.334	m	2977465.711	655177.445	9+640.158	2977483.198	655178.136	9+657.659	2977499.185	655171.016	9+674.544	26°16'09.61"	-75.000	m	34.386	m	17.501	m	2.015	7.00%	50	Km/hr	0.9
88	88.168	m	2977552.534	655147.256	9+732.946	2977589.469	655130.807	9+773.377	2977629.892	655129.996	9+812.734	22°51'27.22"	200.000	m	79.788	m	40.432	m	4.046	4.55%	50	Km/hr	0.6
89	114.899	m	2977660.179	655129.389	9+843.027	2977677.619	655129.039	9+860.470	2977694.735	655125.675	9+877.825	9°58'08.70"	-200.000	m	34.799	m	17.443	m	0.759	4.55%	50	Km/hr	0.6
90	224.828	m	2977732.648	655118.225	9+916.463	2977790.362	655106.883	9+975.281	2977828.32	655151.814	10+022.800	60°55'35.47"	100.000	m	106.337	m	58.818	m	16.015	6.60%	50	Km/hr	0.9
91	175.296	m	2977864.304	655194.408	10+078.559	2977935.463	655278.627	10+188.809	2977987.656	655181.519	10+224.574	111°32'50.54"	-75.000	m	146.015	m	110.250	m	58.342	7.00%	50	Km/hr	0.9
92	156.246	m	2977988.199	655180.509	10+225.721	2978018.454	655124.227	10+289.620	2978078.827	655145.159	10+331.567	80°51'38.15"	75.000	m	105.846	m	63.898	m	23.529	7.00%	50	Km/hr	0.9
93	191.351	m	2978093.681	655150.309	10+347.289	2978166.079	655175.409	10+423.915	2978189.622	655102.491	10+466.707	91°13'41.74"	-75.000	m	119.418	m	76.625	m	32.221	7.00%	50	Km/hr	0.9
94	250.890	m	2978203.746	655058.744	10+512.677	2978224.871	654993.314	10+581.433	2978291.886	655008.686	10+623.975	85°01'32.17"	75.000	m	111.298	m	68.756	m	26.746	7.00%	50	Km/hr	0.9
95	219.962	m	2978350.254	655022.075	10+683.859	2978469.41	655049.407	10+806.110	2978439.787	654930.8	10+836.936	116°56'32.03"	-75.000	m	153.077	m	122.250	m	68.423	7.00%	50	Km/hr	0.9
96	112.496	m	2978432.025	654899.722	10+868.968	2978416.11	654836.001	10+934.647	2978477.175	654811.818	10+976.854	82°25'06.69"	75.000	m	107.886	m	65.679	m	24.693	7.00%	50	Km/hr	0.9
97	140.371	m	2978506.541	654800.188	11+008.439	2978520.704	654794.58	11+023.671	2978533.45	654786.238	11+038.800	11°35'49.32"	-150.000	m	30.361	m	15.233	m	0.771	5.56%	50	Km/hr	0.6
98	88.357	m	2978600.507	654742.354	11+118.941	2978638.159	654717.714	11+163.938	2978681.572	654729.551	11+203.508	48°27'12.07"	100.000	m	84.567	m	44.998	m	9.658	6.60%	50	Km/hr	0.9
99	132.132	m	2978688.602	654731.468	11+210.794	2978723.404	654740.957	11+246.867	2978758.715	654733.585	11+281.595	27°02'37.91"	-150.000	m	70.801	m	36.073	m	4.276	5.56%	50	Km/hr	0.6
100	61.147	m	2978830.487	654718.602	11+354.914	2978852.747	654713.955	11+377.654	2978873.839	654722.452	11+399.072	33°44'02.54"	75.000	m	44.158	m	22.740	m	3.371	7.00%	50	Km/hr	0.9
101	67.698	m	2978881.677	654725.609	11+407.522	2978909.464	654736.803	11+437.479	2978937.316	654725.773	11+464.524	43°32'44.67"	-75.000	m	57.001	m	29.957	m	5.761	7.00%	50	Km/hr	0.9
102	141.540	m	2978955.243	654718.674	11+483.805	2978972.406	654711.877	11+502.265	2978990.764	654713.823	11+520.005	27°39'18.63"	75.000	m	36.201	m	18.460	m	2.238	7.00%	50	Km/hr	0.9
103	225.174	m	2979060.371	654721.203	11+590.003	2979113.158	654726.799	11+643.086	2979138.102	654773.656	11+687.604	55°55'15.75"	100.000	m	97.601	m	53.083	m	13.216	6.60%	50	Km/hr	0.9
104	114.011	m	2979208.012	654904.985	11+836.382	2979218.967	654925.565	11+859.696	2979224.895	654948.112	11+882.800	13°17'52.04"	200.000	m	46.418	m	23.314	m	1.354	4.55%	50	Km/hr	0.6
105	63.486	m	2979240.272	655006.602	11+943.277	2979247.956	655035.829	11+973.498	2979233.229	655062.219	12+000.733	43°53'35.14"	75.000	m	57.456	m	30.221	m	5.86	7.00%	50	Km/hr	0.9
106	57.153	m	2979231.247	655065.771	12+004.801	2979217.019	655091.267	12+033.998	2979245.717	655096.645	12+044.586	108°32'57.21"	-21.000	m	39.785	m	29.197	m	14.965	7.00%	25	Km/hr	1.5
107	296.964	m	2979247.13	655096.91	12+046.024	2979273.195	655101.794	12+072.542	2979271.976	655075.305	12+083.866	103°14'50.06"	-21.000	m	37.842	m	26.518	m	12.826	7.00%	25	Km/hr	1.5
108	190.024	m	2979267.72	654982.758	12+176.511	2979259.551	654805.144	12+354.312	2979392.46	654923.249	12+352.254	134°15'29.36"	75.000	m	175.744	m	177.802	m	117.973	7.00%	50	Km/hr	0.9
109	155.015	m	2979393.359	654924.049	12+353.458	2979401.596	654931.368	12+364.477	2979411.59	654936.009	12+375.339	16°42'58.45"	-75.000	m	21.882	m	11.019	m	0.805	7.00%	50	Km/hr	0.9
110	150.754	m	2979451.978	654954.764	12+419.869	2979542.192	654996.656	12+519.335	2979557.654	654898.4	12+558.578	105°57'55.54"	-75.000	m	138.708	m	99.466	m	49.573	7.00%	50	Km/hr	0.9
111	285.277	m	2979557.93	654896.649	12+560.350	2979565.627	654847.735	12+609.866	2979613.633	654835.597	12+647.878	66°52'01.04"	75.000	m	87.529	m	49.516	m	14.871	7.00%	50	Km/hr	0.9
112	295.830	m	2979738.175	654804.107	12+776.340	2979842.2	654777.804	12+883.639	2979831.162	654884.534	12+920.453	110°05'40.39"	75.000	m	144.113	m	107.299	m	55.913	7.00%	50	Km/hr	0.9
113	318.140	m	2979824.98	654944.304	12+980.542	2979811.767	655072.064	13+108.983	2979871.935	654958.587	13+049.470	157°58'16.29"	-25.000	m	68.928	m	128.441	m	105.852	7.00%	25	Km/hr	1.5
114	189.587	m	2979897.942	654909.538	13+104.987	2979960.799	654790.99	13+239.168	2980028.844	654906.638	13+264.154	121°35'40.12"	75.000	m	159.167	m	134.182	m	78.719	7.00%	50	Km/hr	0.9
115	76.283	m	2980032.028	654912.05	13+270.432	2980056.941	654954.391	13+319.559	2980076.507	65490													


141	76.298 m	2980685.5	654587.514	15+177.503	2980710.402	654565.364	15+210.817	2980743.516	654565.025	15+240.204	47°54'00.51"	75.000 m	62.701 m	33.314 m	7.066	7.00%	50 Km/hr	0.9
142	37.142 m	2980773.058	654572.273	15+269.924	2980786.242	654573.722	15+283.188	2980793.216	654562.44	15+293.584	64°33'10.46"	-21.000 m	23.660 m	13.264 m	3.838	7.00%	25 Km/hr	1.5
143	144.599 m	2980795.127	654559.348	15+297.219	2980805.771	654542.129	15+317.462	2980788.954	654530.861	15+329.435	87°53'45.24"	-21.000 m	32.216 m	20.243 m	8.168	7.00%	25 Km/hr	1.5
144	87.877 m	2980717.024	654482.662	15+416.021	2980685.646	654461.636	15+453.792	2980650.072	654474.329	15+486.000	53°27'37.44"	-75.000 m	69.980 m	37.771 m	8.974	7.00%	50 Km/hr	0.9
145	50.036 m	2980616.595	654486.272	15+521.544	2980602.88	654491.166	15+536.106	2980593.489	654480.036	15+547.009	69°28'39.49"	21.000 m	25.465 m	14.562 m	4.555	7.00%	25 Km/hr	1.5
146	130.286 m	2980583.226	654467.874	15+562.923	2980570.612	654452.925	15+582.483	2980584.628	654439.282	15+594.419	85°55'58.26"	21.000 m	31.496 m	19.560 m	7.698	7.00%	25 Km/hr	1.5
147	89.373 m	2980629.28	654395.822	15+656.729	2980663.976	654362.053	15+705.146	2980647.485	654316.531	15+742.716	65°41'20.34"	-75.000 m	85.987 m	48.417 m	14.27	7.00%	50 Km/hr	0.9
148	52.459 m	2980644.977	654309.61	15+750.077	2980633.534	654278.024	15+783.672	2980649.485	654248.456	15+813.247	48°15'31.14"	75.000 m	63.170 m	33.595 m	7.181	7.00%	50 Km/hr	0.9
149	41.526 m	2980650.626	654246.341	15+815.651	2980658.441	654231.854	15+832.112	2980671.604	654221.971	15+848.058	24°45'26.62"	75.000 m	32.407 m	16.461 m	1.785	7.00%	50 Km/hr	0.9
150	42.425 m	2980672.603	654221.221	15+849.307	2980691.649	654206.922	15+873.124	2980675.078	654189.816	15+884.930	97°11'30.03"	-21.000 m	35.623 m	23.816 m	10.752	7.00%	25 Km/hr	1.5
151	58.454 m	2980670.817	654185.417	15+891.055	2980662.131	654176.45	15+903.539	2980655.916	654165.623	15+915.894	14°13'55.05"	-100.000 m	24.839 m	12.484 m	0.776	6.60%	50 Km/hr	0.9
152	110.148 m	2980643.617	654144.198	15+940.598	2980633.03	654125.755	15+961.864	2980633.699	654104.499	15+982.043	31°39'40.08"	75.000 m	41.444 m	21.266 m	2.957	7.00%	50 Km/hr	0.9
153	142.909 m	2980633.912	654097.739	15+988.807	2980636.496	654015.662	16+070.924	2980594.827	654086.422	16+044.265	151°18'37.25"	-21.000 m	55.458 m	82.118 m	63.76	7.00%	25 Km/hr	1.5
154	78.049 m	2980575.088	654119.94	16+083.163	2980563.979	654138.805	16+105.056	2980544.466	654148.731	16+125.765	32°32'43.56"	75.000 m	42.602 m	21.893 m	3.13	7.00%	50 Km/hr	0.9
155	79.790 m	2980515.657	654163.385	16+158.087	2980494.413	654174.191	16+181.921	2980483.305	654195.279	16+204.242	35°15'36.84"	-75.000 m	46.156 m	23.835 m	3.696	7.00%	50 Km/hr	0.9
156	70.756 m	2980466.396	654227.379	16+240.523	2980457.226	654244.786	16+260.198	2980440.693	654255.451	16+279.005	29°23'53.63"	75.000 m	38.482 m	19.675 m	2.538	7.00%	50 Km/hr	0.9
157	49.974 m	2980403.051	654279.731	16+323.798	2980397.767	654283.14	16+330.087	2980393.123	654287.381	16+336.346	9°35'09.74"	-75.000 m	12.548 m	6.289 m	0.263	7.00%	50 Km/hr	0.9
158	85.939 m	2980384.258	654295.479	16+348.353	2980360.868	654316.844	16+380.032	2980329.244	654314.972	16+408.301	45°47'50.30"	75.000 m	59.949 m	31.679 m	6.416	7.00%	50 Km/hr	0.9
159	49.165 m	2980296.962	654313.061	16+440.640	2980275.079	654311.765	16+462.561	2980277.312	654289.958	16+474.528	92°27'30.81"	21.000 m	33.888 m	21.921 m	9.357	7.00%	25 Km/hr	1.5
160	84.298 m	2980277.455	654288.567	16+475.926	2980280.088	654262.855	16+501.772	2980304.716	654270.696	16+513.242	101°48'43.99"	21.000 m	37.316 m	25.846 m	12.302	7.00%	25 Km/hr	1.5
161	112.643 m	2980307.182	654271.481	16+515.830	2980360.413	654288.427	16+571.694	2980391.892	654242.277	16+611.860	73°21'39.65"	-75.000 m	96.029 m	55.864 m	18.519	7.00%	50 Km/hr	0.9
162	34.485 m	2980417.111	654205.304	16+656.614	2980423.887	654195.37	16+668.639	2980432.159	654186.642	16+680.613	9°10'01.11"	150.000 m	23.999 m	12.025 m	0.481	5.56%	50 Km/hr	0.6
163	56.109 m	2980435.703	654182.903	16+685.765	2980447.609	654170.341	16+703.073	2980452.807	654153.831	16+719.785	25°59'24.07"	-75.000 m	34.021 m	17.308 m	1.971	7.00%	50 Km/hr	0.9
164	60.460 m	2980457.504	654138.909	16+735.430	2980464.458	654116.822	16+758.586	2980482.652	654102.499	16+780.349	34°18'55.01"	75.000 m	44.919 m	23.156 m	3.493	7.00%	50 Km/hr	0.9
165	197.643 m	2980502.274	654087.052	16+805.321	2980511.964	654079.424	16+817.654	2980518.702	654069.094	16+829.768	18°40'32.83"	-75.000 m	24.447 m	12.333 m	1.007	7.00%	50 Km/hr	0.9
166	188.039 m	2980564.948	653998.191	16+914.419	2980619.938	653913.882	17+015.078	2980684.996	653990.69	17+053.986	106°37'14.78"	75.000 m	139.566 m	100.658 m	50.527	7.00%	50 Km/hr	0.9
167	88.483 m	2980722.299	654034.73	17+111.700	2980741.473	654057.367	17+141.366	2980739.973	654086.995	17+168.199	43°09'44.26"	75.000 m	56.499 m	29.666 m	5.654	7.00%	50 Km/hr	0.9
168	57.106 m	2980737.781	654130.303	17+211.563	2980707.37	654145.737	17+227.017	2980751.504	654151.073	17+238.208	72°41'56.16"	-21.000 m	26.646 m	15.454 m	5.073	7.00%	25 Km/hr	1.5
169	124.995 m	2980753.786	654151.913	17+240.640	2980790.595	654165.454	17+279.861	2980781.459	654127.313	17+285.967	123°40'04.18"	-21.000 m	45.327 m	39.221 m	23.489	7.00%	25 Km/hr	1.5
170	112.419 m	2980765.534	654060.825	17+354.335	2980761.48	654043.897	17+371.741	2980750.384	654030.486	17+388.542	26°07'54.79"	-75.000 m	34.207 m	17.406 m	1.993	7.00%	50 Km/hr	0.9
171	57.376 m	2980716.055	653988.991	17+442.397	2980689.819	653957.279	17+483.555	2980730.892	653954.647	17+488.555	125°56'08.82"	21.000 m	46.158 m	41.158 m	25.206	7.00%	25 Km/hr	1.5
172	88.680 m	2980732.673	653954.533	17+490.339	2980747.078	653953.611	17+504.773	2980753.101	653966.728	17+515.631	69°00'15.28"	21.000 m	25.291 m	14.434 m	4.482	7.00%	25 Km/hr	1.5
173	78.117 m	2980777.981	654020.919	17+575.260	2980784.08	654034.202	17+589.876	2980786.122	654048.674	17+604.287	16°37'51.64"	100.000 m	29.027 m	14.616 m	1.063	6.60%	50 Km/hr	0.9
174	71.385 m	2980790.15	654077.226	17+633.121	2980794.993	654111.552	17+667.787	2980814.406	654140.273	17+701.257	26°01'34.65"	-150.000 m	68.137 m	34.666 m	3.954	5.56%	50 Km/hr	0.6
175	121.865 m	2980818.984	654147.044	17+709.431	2980834.969	654170.693	17+737.976	2980831.186	654198.986	17+763.981	41°40'23.75"	75.000 m	54.550 m	28.545 m	5.248	7.00%	50 Km/hr	0.9
176	115.794 m	2980826.362	654235.06	17+800.376	2980818.817	654291.483	17+857.301	2980871.131	654313.926	17+897.762	74°23'48.94"	-75.000 m	97.385 m	56.925 m	19.157	7.00%	50 Km/hr	0.9
177	177.035 m	2980871.492	654314.081	17+898.155	2980925.232	654337.135	17+956.631	2980960.695	654290.641	17+997.489	75°53'07.70"	-75.000 m	99.334 m	58.476 m	20.102	7.00%	50 Km/hr	0.9
178	185.478 m	2980961.817	654289.169	17+999.339	2981032.597	654196.373	18+116.048	2981087.599	654299.308	18+149.283	114°32'54.31"	75.000 m	149.944 m	116.709 m	63.73	7.00%	50 Km/hr	0.9
179	105.932 m	2981097.064	654317.02	18+169.365	2981120.009	654359.962	18+218.052	2981168.572	654356.483	18+255.733	65°58'48.94"	-75.000 m	86.368 m	48.687 m	14.417	7.00%	50 Km/hr	0.9
180	80.376 m	2981218.537	654352.903	18+305.826	2981225.67	654352.392	18+312.978	2981232.771	654353.238	18+320.086	10°53'36.70"	75.000 m	14.260 m	7.151 m	0.34	7.00%	50 Km/hr	0.9
181	52.388 m	2981280.668	654358.946	18+368.321	2981305.481	654361.903	18+393.310	2981304.122	654336.951	18+404.942	99°54'53.34"	-21.000 m	36.621 m	24.989 m	11.641	7.00%	25 Km/hr	1.5
182	96.732 m	2981303.988	654334.5	18+407.397	2981302.631	654309.593	18+432.341	2981278.319	654315.176	18+443.980	99°48'51.32"	-21.000 m	36.584 m	24.945 m	11.607	7.00%	25 Km/hr	1.5
183	70.556 m	2981250.519	654321.56	18+472.504	2981208.352	654331.243	18+515.768	2981165.954	654322.633	18+557.719	24°24'44.35"	200.000 m	85.215 m	43.264 m	4.626	4.55%	50 Km/hr	0.6
184	40.699 m	2981146.855	654318.755	18+577.207	2981139.208	654317.202	18+585.011	2981134.43	654311.032	18+592.150	40°46'10.86"	21.000 m	14.943 m	7.804 m	1.403	7.00%	25 Km/hr	1.5
185	61.557 m	2981132.204	654308.156	18+595.787	2981114.291	654285.022	18+625.046	2981141.94	654275.454	18+635.614	108°39'46.33"	21.000 m	39.827 m	29.258 m	15.015	7.00%	25 Km/hr	1.5
186	88.068 m	2981149.971	654272.675	18+644.112	2981172.463	654264.891	18+667.913	2981176.352	654241.41	18+687.052	61°30'24.65"	-40.000 m	42.940 m	23.801 m	6.545	7.00%	50 Km/hr	1.5
187	143.611 m	2981177.26	654235.925	18+692.612	2981186.854	654178.007	18+751.319	2981128.147	654177.755	18+779.144	99°09'31.20"	-50.000 m	86.532 m	58.707 m	27.114	7.00%	50 Km/hr	1.5
188	85.985 m	2981113.097	654177.69	18+794.195	2981043.244	654177.39	18+864.048	2981101.683	654139.122	18+847.903	146°32'07.26"	21.000 m	53.708 m	69.853 m	51.942	7.00%	25 Km/hr	1.5
189	73.603 m	2981105.426	654136.671	18+852.376	2981115.179	654130.284	18+864.035	2981125.757	654135.185	18+873.661	58°04'24.48"	21.000 m	21.285 m	11.658 m	3.019	7.00%	25 Km/hr	1.5
190	56.822 m	2981155.976																

212	66.846 m	2981878.22	654003.998	20+964.435	2981894.321	653983.729	21+010.321	2981894.492	653957.843	21+034.286	38°05'01.17"	-75.000 m	49.851 m	25.886 m	4.342	7.00%	50 Km/hr	0.9
213	47.922 m	2981894.656	653933.103	21+059.028	2981894.763	653916.884	21+075.247	2981879.098	653912.681	21+086.649	75°21'36.33"	-21.000 m	27.621 m	16.219 m	5.534	7.00%	25 Km/hr	1.5
214	83.393 m	2981878.659	653912.563	21+087.103	2981848.478	653904.465	21+118.352	2981852.382	653935.469	21+128.225	112°11'46.56"	-21.000 m	41.122 m	31.249 m	16.65	7.00%	25 Km/hr	1.5
215	38.659 m	2981856.657	653969.421	21+162.445	2981858.897	653987.205	21+180.370	2981841.685	653992.209	21+192.120	80°57'55.41"	21.000 m	29.675 m	17.925 m	6.61	7.00%	25 Km/hr	1.5
216	113.403 m	2981840.189	653992.644	21+193.678	2981821.774	653997.998	21+212.855	2981814.775	653980.144	21+224.760	84°48'17.54"	21.000 m	31.083 m	19.177 m	7.439	7.00%	25 Km/hr	1.5
217	133.195 m	2981809.607	653966.961	21+238.920	2981780.384	653892.418	21+318.986	2981707.907	653926.445	21+361.629	93°44'34.55"	-75.000 m	122.709 m	80.067 m	34.707	7.00%	50 Km/hr	0.9
218	114.628 m	2981685.823	653936.814	21+386.025	2981659.816	653949.024	21+414.757	2981648.623	653975.486	21+440.901	41°55'20.03"	-75.000 m	54.876 m	28.731 m	5.315	7.00%	50 Km/hr	0.9
219	37.684 m	2981618.427	654046.871	21+518.410	2981615.159	654054.596	21+526.798	2981613.679	654062.852	21+535.117	12°45'45.51"	-75.000 m	16.706 m	8.388 m	0.468	7.00%	50 Km/hr	0.9
220	77.108 m	2981611.974	654072.36	21+544.776	2981608.508	654091.689	21+564.413	2981588.908	654092.9	21+578.068	76°17'55.51"	25.000 m	33.292 m	19.637 m	6.79	7.00%	25 Km/hr	1.5
221	95.957 m	2981586.653	654093.039	21+580.327	2981531.548	654096.444	21+635.538	2981518.427	654150.074	21+675.513	72°43'00.61"	-75.000 m	95.186 m	55.211 m	18.13	7.00%	50 Km/hr	0.9
222	68.187 m	2981515.55	654161.836	21+687.623	2981508.744	654189.652	21+716.259	2981522.21	654214.925	21+742.333	41°47'44.28"	-75.000 m	54.710 m	28.636 m	5.281	7.00%	50 Km/hr	0.9
223	84.763 m	2981527.317	654224.51	21+753.194	2981540.807	654249.831	21+781.884	2981564.044	654233.003	21+795.895	97°51'48.21"	-25.000 m	42.701 m	28.690 m	13.054	7.00%	25 Km/hr	1.5
224	76.823 m	2981589.388	654214.649	21+827.187	2981609.459	654200.114	21+851.968	2981624.17	654220.056	21+866.237	89°29'42.13"	25.000 m	39.050 m	24.781 m	10.201	7.00%	25 Km/hr	1.5
225	129.221 m	2981626.762	654223.569	21+870.603	2981655.065	654261.936	21+918.279	2981697.632	654283.408	21+964.209	26°48'57.83"	-200.000 m	93.606 m	47.676 m	5.604	4.55%	50 Km/hr	0.6
226	94.193 m	2981738.072	654303.806	22+009.502	2981770.439	654320.133	22+045.753	2981777.752	654355.639	22+077.038	51°35'38.10"	75.000 m	67.536 m	36.252 m	8.302	7.00%	50 Km/hr	0.9
227	82.647 m	2981780.538	654369.161	22+090.844	2981789.442	654412.389	22+134.980	2981831.555	654425.595	22+170.629	60°57'04.53"	-75.000 m	79.785 m	44.135 m	12.023	7.00%	50 Km/hr	0.9
228	101.641 m	2981837.536	654427.47	22+176.897	2981868.303	654437.118	22+209.141	2981882.659	654466.083	22+237.802	46°31'38.80"	75.000 m	60.904 m	32.244 m	6.637	7.00%	50 Km/hr	0.9
229	79.666 m	2981891.601	654484.753	22+258.585	2981912.959	654528.423	22+307.199	2981961.544	654526.757	22+344.850	65°54'03.87"	-75.000 m	86.264 m	48.614 m	14.377	7.00%	50 Km/hr	0.9
230	72.514 m	2981968.672	654526.513	22+351.982	2981992.579	654525.693	22+375.902	2982012.545	654538.866	22+398.293	35°22'44.26"	75.000 m	46.311 m	23.920 m	3.722	7.00%	50 Km/hr	0.9
231	42.038 m	2982038.155	654555.763	22+428.974	2982053.106	654565.627	22+446.886	2982069.959	654571.693	22+464.629	13°37'09.70"	-150.000 m	35.655 m	17.912 m	1.066	5.56%	50 Km/hr	0.6
232	53.905 m	2982075.8	654573.795	22+470.837	2982092.659	654579.864	22+488.755	2982104.955	654592.898	22+506.014	26°52'24.55"	75.000 m	35.177 m	17.918 m	2.111	7.00%	50 Km/hr	0.9
233	73.086 m	2982108.378	654598.526	22+511.002	2982129.649	654619.075	22+542.001	2982160.634	654620.025	22+569.792	44°54'44.77"	-75.000 m	58.790 m	30.999 m	6.154	7.00%	50 Km/hr	0.9
234	103.520 m	2982162.987	654620.097	22+572.146	2982202.701	654621.315	22+611.879	2982224	654654.857	22+645.223	55°49'36.97"	75.000 m	73.077 m	39.733 m	8.875	7.00%	50 Km/hr	0.9
235	64.013 m	2982244.433	654687.034	22+683.340	2982258.194	654708.704	22+709.010	2982282.348	654717.398	22+732.806	37°47'21.38"	-75.000 m	49.466 m	25.670 m	4.271	7.00%	50 Km/hr	0.9
236	67.260 m	2982284.445	654718.152	22+735.034	2982318.425	654730.382	22+771.148	2982330.052	654764.573	22+802.347	51°25'23.64"	75.000 m	67.313 m	36.114 m	8.242	7.00%	50 Km/hr	0.9
237	122.649 m	2982330.877	654767	22+804.910	2982340.08	654794.061	22+833.494	2982364.96	654808.133	22+859.528	41°43'29.39"	-75.000 m	54.618 m	28.583 m	5.262	7.00%	50 Km/hr	0.9
238	97.763 m	2982407.33	654832.098	22+908.207	2982446.836	654854.443	22+953.594	2982484.958	654829.811	22+989.838	62°21'42.10"	-75.000 m	81.631 m	45.387 m	12.664	7.00%	50 Km/hr	0.9
239	81.895 m	2982496.822	654822.145	23+003.963	2982528.949	654801.386	23+042.214	2982565.278	654813.358	23+075.323	51°06'28.54"	80.000 m	71.360 m	38.251 m	8.674	7.00%	50 Km/hr	0.9
240	144.439 m	2982598.433	654824.284	23+110.232	2982606.73	654827.018	23+118.968	2982615.288	654828.77	23+127.684	6°39'57.97"	-150.000 m	17.452 m	8.736 m	0.254	5.56%	50 Km/hr	0.6
241	88.480 m	2982718.116	654849.828	23+232.646	2982748.233	654855.995	23+263.387	2982771.674	654875.882	23+292.834	28°44'15.43"	120.000 m	60.188 m	30.741 m	3.875	6.20%	50 Km/hr	0.9
242	86.142 m	2982784.454	654886.725	23+309.593	2982815.703	654913.236	23+350.573	2982854.894	654901.259	23+384.605	57°18'15.81"	-75.000 m	75.011 m	40.980 m	10.466	7.00%	50 Km/hr	0.9
243	105.537 m	2982874.88	654895.151	23+405.503	2982898.084	654888.06	23+429.767	2982921.958	654892.391	23+453.110	27°16'36.24"	100.000 m	47.607 m	24.263 m	2.901	6.60%	50 Km/hr	0.9
244	125.217 m	2982959.64	654899.227	23+491.408	2983001.926	654906.899	23+534.384	2983016.688	654947.261	23+569.459	59°37'37.05"	75.000 m	78.052 m	42.976 m	11.441	7.00%	50 Km/hr	0.9
245	121.498 m	2983018.123	654951.182	23+573.635	2983044.937	655024.497	23+651.700	2983117.12	654994.769	23+694.448	92°17'39.16"	-75.000 m	120.813 m	78.065 m	33.255	7.00%	50 Km/hr	0.9
246	57.035 m	2983123.865	654991.992	23+701.742	2983157.281	654978.229	23+737.881	2983188.867	654995.789	23+769.096	51°27'16.65"	75.000 m	67.354 m	36.139 m	8.253	7.00%	50 Km/hr	0.9
247	48.971 m	2983206.23	655005.441	23+788.962	2983207.13	655005.942	23+789.992	2983208.044	655006.417	23+791.021	1°34'23.47"	-75.000 m	2.059 m	1.030 m	0.007	7.00%	50 Km/hr	0.9
248	60.841 m	2983245.963	655026.154	23+833.769	2983250.569	655028.552	23+838.983	2983255.463	655030.292	23+844.139	7°55'20.36"	-75.000 m	10.370 m	5.193 m	0.18	7.00%	50 Km/hr	0.9
249	57.599 m	2983288.154	655041.917	23+878.836	2983307.894	655048.936	23+899.787	2983321.138	655065.17	23+919.696	31°12'54.55"	75.000 m	40.861 m	20.951 m	2.871	7.00%	50 Km/hr	0.9
250	86.418 m	2983336.398	655083.874	23+943.836	2983344.306	655093.566	23+956.344	2983348.64	655105.299	23+968.624	18°56'12.48"	75.000 m	24.788 m	12.508 m	1.036	7.00%	50 Km/hr	0.9
251	51.554 m	2983367.68	655156.848	24+023.577	2983374.249	655174.631	24+042.534	2983392.609	655169.91	24+054.419	84°08'51.26"	-21.000 m	30.842 m	18.958 m	7.291	7.00%	25 Km/hr	1.5
252	127.344 m	2983393.27	655169.74	24+055.101	2983424.179	655161.792	24+087.015	2983404.65	655136.551	24+096.631	113°18'31.02"	-21.000 m	41.530 m	31.914 m	17.203	7.00%	25 Km/hr	1.5
253	43.197 m	2983352.943	655069.721	24+181.128	2983346.253	655061.074	24+192.061	2983342.31	655050.877	24+202.841	16°35'15.23"	75.000 m	21.713 m	10.933 m	0.793	7.00%	50 Km/hr	0.9
254	57.523 m	2983340.661	655046.614	24+207.412	2983330.673	655020.784	24+235.105	2983306.295	655007.644	24+260.470	40°31'59.77"	-75.000 m	53.058 m	27.694 m	4.95	7.00%	50 Km/hr	0.9
255	47.729 m	2983297.23	655002.758	24+270.768	2983280.037	654993.491	24+290.299	2983288.036	654975.672	24+302.233	85°51'00.37"	21.000 m	31.466 m	19.532 m	7.679	7.00%	25 Km/hr	1.5
256	76.452 m	2983288.156	654975.404	24+302.528	2983299.584	654949.948	24+330.431	2983320.882	654967.975	24+341.404	106°04'10.38"	21.000 m	38.877 m	27.903 m	13.923	7.00%	25 Km/hr	1.5
257	77.487 m	2983335.543	654980.384	24+360.612	2983357.938	654999.339	24+389.953	2983366.542	655027.391	24+417.691	32°42'15.24"	100.000 m	57.080 m	29.341 m	4.216	6.60%	50 Km/hr	0.9
258	84.580 m	2983366.911	655028.595	24+418.952	2983380.66	655073.421	24+465.838	2983412.898	655107.466	24+511.061	26°23'14.73"	-200.000 m	92.109 m	46.886 m	5.422	4.55%	50 Km/hr	0.6
259	70.678 m	2983422.818	655117.942	24+525.489	2983438.814	655134.835	24+548.754	2983461.563	655139.709	24+570.607	34°28'03.62"	-75.000 m	45.118 m	23.265 m	3.526	7.00%	50 Km/hr	0.9
260	94.111 m	2983485.834	655144.91	24+595.429	2983507.923	655149.643	24+618.020	2983528.952	655141.388	24+639.315	33°31'34.37"	-75.000 m	43.886 m	22.591 m	3.329	7.00%	50 Km/hr	0.9
261	81.883 m	2983585.641	655119.135	24+700.21														

283	247.745	m	2984126.052	656333.967	26+811.756	2984150.717	656326.488	26+837.530	2984176.473	656325.506	26+863.022	14°41'12.00"	200.000	m	51.266	m	25.774	m	1.654	4.55%	50	Km/hr	0.6
284	334.956	m	2984219.585	656323.863	26+906.166	2984398.282	656317.053	27+084.992	2984268.188	656194.356	27+082.218	134°29'36.64"	-75.000	m	176.052	m	178.826	m	118.917	7.00%	50	Km/hr	0.9
285	161.387	m	2984251.878	656178.973	27+104.637	2984154.606	656087.232	27+238.347	2984283.606	656052.054	27+263.579	121°25'21.39"	75.000	m	158.942	m	133.710	m	78.308	7.00%	50	Km/hr	0.9
286	70.701	m	2984287.577	656050.971	27+267.695	2984310.307	656044.773	27+291.255	2984325.41	656026.69	27+313.351	34°52'42.57"	-75.000	m	45.656	m	23.560	m	3.613	7.00%	50	Km/hr	0.9
287	63.160	m	2984340.026	656009.189	27+336.153	2984355.628	655990.508	27+360.492	2984366.294	655968.631	27+384.592	13°52'36.51"	-200.000	m	48.439	m	24.339	m	1.475	4.55%	50	Km/hr	0.6
288	94.272	m	2984373.823	655953.188	27+401.773	2984383.307	655933.737	27+423.413	2984389.9	655913.125	27+444.979	8°15'06.27"	-300.000	m	43.206	m	21.640	m	0.78	3.30%	50	Km/hr	0
289	117.331	m	2984402.087	655875.03	27+484.976	2984412.03	655843.947	27+517.611	2984396.064	655815.485	27+546.539	47°01'49.92"	-75.000	m	61.563	m	32.635	m	6.793	7.00%	50	Km/hr	0.9
290	129.049	m	2984395.838	655815.082	27+547.000	2984354.627	655741.617	27+631.235	2984432.363	655709.174	27+673.499	96°38'17.29"	75.000	m	126.499	m	84.235	m	37.785	7.00%	50	Km/hr	0.9
291	53.418	m	2984447.954	655702.667	27+690.394	2984473.72	655691.914	27+718.314	2984456.243	655670.142	27+729.282	106°06'07.21"	-21.000	m	38.888	m	27.920	m	13.936	7.00%	25	Km/hr	1.5
292	80.809	m	2984456.107	655669.972	27+729.499	2984440.281	655650.258	27+754.781	2984423.804	655669.431	27+766.360	100°34'10.81"	-21.000	m	36.861	m	25.281	m	11.865	7.00%	25	Km/hr	1.5
293	78.494	m	2984394.375	655703.675	27+811.512	2984387.612	655711.544	27+821.888	2984379.378	655717.857	27+832.190	11°50'51.50"	100.000	m	20.678	m	10.376	m	0.537	6.60%	50	Km/hr	0.9
294	99.239	m	2984376.41	655720.132	27+835.929	2984325.32	655759.303	27+900.308	2984356.296	655815.739	27+942.330	81°17'03.09"	-75.000	m	106.401	m	64.378	m	23.841	7.00%	50	Km/hr	0.9
295	56.407	m	2984359.425	655821.441	27+948.834	2984373.069	655846.299	27+977.191	2984345.313	655852.101	27+988.035	106°57'18.80"	21.000	m	39.201	m	28.357	m	14.286	7.00%	25	Km/hr	1.5
296	70.310	m	2984329.015	655855.508	28+004.685	2984317.856	655857.84	28+016.086	2984308.81	655864.78	28+027.103	25°41'22.63"	-50.000	m	22.418	m	11.401	m	1.283	7.00%	50	Km/hr	1.5
297	75.775	m	2984277.379	655888.894	28+066.719	2984262.072	655900.638	28+086.012	2984246.831	655888.807	28+099.582	75°19'03.75"	25.000	m	32.864	m	19.294	m	6.579	7.00%	25	Km/hr	1.5
298	116.573	m	2984246.535	655888.577	28+099.957	2984202.216	655854.172	28+156.064	2984257.433	655844.225	28+157.538	131°57'58.39"	25.000	m	57.581	m	56.106	m	36.424	7.00%	25	Km/hr	1.5
299	141.180	m	2984260.054	655843.753	28+160.201	2984316.942	655833.505	28+218.005	2984321.522	655775.883	28+258.695	75°14'39.20"	-75.000	m	98.944	m	57.804	m	19.69	7.00%	50	Km/hr	0.9
300	85.212	m	2984324.714	655735.718	28+298.987	2984328.127	655692.769	28+342.071	2984366.948	655674.082	28+377.201	59°45'03.25"	75.000	m	78.214	m	43.084	m	11.494	7.00%	50	Km/hr	0.9
301	83.614	m	2984373.002	655671.168	28+383.919	2984404.907	655655.81	28+419.329	2984413.323	655621.415	28+450.084	50°32'46.96"	-75.000	m	66.165	m	35.409	m	7.939	7.00%	50	Km/hr	0.9
302	64.588	m	2984413.751	655619.666	28+451.885	2984424.779	655574.591	28+498.290	2984470.037	655564.342	28+534.996	63°29'31.20"	75.000	m	83.111	m	46.404	m	13.195	7.00%	50	Km/hr	0.9
303	54.446	m	2984476.518	655562.875	28+541.640	2984487.772	655560.326	28+553.180	2984497.74	655554.513	28+564.539	17°29'36.78"	-75.000	m	22.899	m	11.539	m	0.883	7.00%	50	Km/hr	0.9
304	71.049	m	2984520.704	655541.119	28+591.124	2984534.803	655532.895	28+607.447	2984545.556	655520.615	28+623.484	18°32'27.53"	-100.000	m	32.360	m	16.323	m	1.323	6.60%	50	Km/hr	0.9
305	62.359	m	2984555.593	655509.153	28+638.719	2984581.608	655479.442	28+678.210	2984620.826	655484.08	28+711.418	55°32'16.09"	75.000	m	72.699	m	39.491	m	9.762	7.00%	50	Km/hr	0.9
306	93.402	m	2984626.385	655484.737	28+717.016	2984643.536	655486.765	28+734.286	2984660.374	655482.923	28+751.220	19°35'50.19"	-100.000	m	34.204	m	17.271	m	1.48	6.60%	50	Km/hr	0.9
307	75.694	m	2984724.12	655468.378	28+816.604	2984734.598	655465.987	28+827.351	2984745.326	655466.635	28+837.953	16°18'34.45"	75.000	m	21.349	m	10.747	m	0.766	7.00%	50	Km/hr	0.9
308	79.028	m	2984792.847	655469.505	28+885.561	2984810.155	655470.55	28+902.900	2984825.247	655479.086	28+919.641	26°02'05.83"	75.000	m	34.080	m	17.339	m	1.978	7.00%	50	Km/hr	0.9
309	104.900	m	2984831.868	655482.831	28+927.247	2984878.944	655509.455	28+981.330	2984933.022	655508.727	29+032.886	30°15'48.06"	-200.000	m	105.639	m	54.083	m	7.183	4.55%	50	Km/hr	0.6
310	94.912	m	2984936.835	655508.675	29+036.700	2984983.834	655508.042	29+083.703	2985004.895	655550.062	29+120.674	64°09'04.59"	75.000	m	83.974	m	47.003	m	13.511	7.00%	50	Km/hr	0.9
311	69.452	m	2985010.211	655560.667	29+132.537	2985026.363	655592.893	29+168.583	2985061.616	655600.411	29+199.741	51°20'23.61"	-75.000	m	67.204	m	36.047	m	8.213	7.00%	50	Km/hr	0.9
312	47.977	m	2985064.55	655601.037	29+202.741	2985094.287	655607.379	29+233.146	2985120.045	655591.223	29+260.514	44°08'08.40"	-75.000	m	57.773	m	30.405	m	5.929	7.00%	50	Km/hr	0.9
313	62.331	m	2985122.955	655589.398	29+263.949	2985134.931	655581.887	29+278.086	2985148.82	655579.25	29+291.895	21°20'55.02"	75.000	m	27.945	m	14.137	m	1.321	7.00%	50	Km/hr	0.9
314	62.589	m	2985176.159	655574.061	29+319.723	2985196.168	655570.263	29+340.089	2985216.069	655574.593	29+359.905	23°01'22.74"	100.000	m	40.183	m	20.366	m	2.053	6.60%	50	Km/hr	0.9
315	108.644	m	2985236.117	655578.955	29+380.422	2985257.326	655583.57	29+402.128	2985278.541	655578.976	29+423.171	24°29'35.62"	-100.000	m	42.749	m	21.706	m	2.329	6.60%	50	Km/hr	0.9
316	66.438	m	2985341.732	655565.292	29+487.827	2985363.51	655560.577	29+510.109	2985385.717	655562.395	29+532.068	16°53'55.31"	150.000	m	44.241	m	22.282	m	1.646	5.56%	50	Km/hr	0.6
317	63.568	m	2985402.269	655563.75	29+548.675	2985429.726	655565.998	29+576.224	2985466.768	655560.74	29+603.427	15°41'07.18"	-200.000	m	54.752	m	27.548	m	1.888	4.55%	50	Km/hr	0.6
318	37.442	m	2985471.228	655557.928	29+618.159	2985492.126	655553.864	29+639.448	2985507.772	655539.427	29+659.645	31°41'36.21"	-75.000	m	41.487	m	21.289	m	2.963	7.00%	50	Km/hr	0.9
319	65.481	m	2985514.386	655533.324	29+668.645	2985519.643	655528.473	29+675.798	2985525.723	655524.703	29+682.909	10°53'46.89"	75.000	m	14.263	m	7.153	m	0.34	7.00%	50	Km/hr	0.9
320	114.421	m	2985552.814	655507.905	29+714.785	2985575.294	655493.966	29+741.236	2985584.056	655469.009	29+765.644	38°51'11.13"	-75.000	m	50.859	m	26.451	m	4.528	7.00%	50	Km/hr	0.9
321	47.209	m	2985608.596	655399.108	29+839.727	2985613.196	655386.005	29+853.614	2985612.8	655372.124	29+867.189	20°58'47.50"	-75.000	m	27.463	m	13.887	m	1.275	7.00%	50	Km/hr	0.9
322	89.574	m	2985612.789	655371.737	29+867.577	2985611.85	655338.816	29+900.512	2985635.453	655315.847	29+929.643	47°24'54.01"	75.000	m	62.066	m	32.934	m	6.913	7.00%	50	Km/hr	0.9
323	95.801	m	2985648.135	655303.505	29+947.339	2985676.045	655276.346	29+986.283	2985669.885	655237.892	30+019.179	54°52'52.19"	-75.000	m	71.839	m	38.944	m	9.508	7.00%	50	Km/hr	0.9
324	53.312	m	2985665.862	655212.776	30+044.615	2985660.892	655181.751	30+076.036	2985691.459	655189.025	30+085.843	112°29'14.87"	21.000	m	41.229	m	31.421	m	16.793	7.00%	25	Km/hr	1.5
325	82.908	m	2985693.275	655189.457	30+087.710	2985712.755	655194.093	30+107.734	2985709.051	655213.772	30+119.697	87°16'28.79"	21.000	m	31.988	m	20.024	m	8.017	7.00%	25	Km/hr	1.5
326	44.005	m	2985699.652	655263.696	30+170.498	2985697.417	655275.57	30+182.581	2985691.565	655286.142	30+194.458	18°18'13.98"	75.000	m	23.960	m	12.083	m	0.967	7.00%	50	Km/hr	0.9
327	96.911	m	2985686.535	655295.23	30+204.846	2985676.106	655314.071	30+226.380	2985677.261	655335.574	30+246.786	32°02'22.74"	-75.000	m	41.940	m	21.534	m	3.03	7.00%	50	Km/hr	0.9
328	187.198	m	2985678.285	655354.645	30+265.885	2985681.304	655410																

354	44.266 m	2986226.26	656019.058	32+396.802	2986236.704	656021.62	32+409.507	2986249.609	656028.138	32+421.973	19°13'45.66"	75.000 m	25.171 m	12.705 m	1.069	7.00%	50 Km/hr	0.9
355	110.704 m	2986258.977	656033.737	32+432.886	2986276.701	656044.329	32+453.534	2986296.627	656049.739	32+473.924	15°40'30.18"	-150.000 m	41.037 m	20.648 m	1.414	5.56%	50 Km/hr	0.6
356	68.231 m	2986348.618	656063.855	32+527.797	2986383.538	656073.336	32+563.981	2986397.85	656106.569	32+595.223	51°30'36.67"	75.000 m	67.427 m	36.184 m	8.272	7.00%	50 Km/hr	0.9
357	52.952 m	2986401.99	656116.181	32+605.689	2986410.526	656136.002	32+627.270	2986430.107	656126.928	32+639.249	91°33'49.33"	-21.000 m	33.560 m	21.581 m	9.112	7.00%	25 Km/hr	1.5
358	86.030 m	2986431.18	656126.43	32+640.432	2986458.57	656113.738	32+670.620	2986437.144	656092.472	32+680.878	110°21'07.75"	-21.000 m	40.466 m	30.188 m	15.774	7.00%	25 Km/hr	1.5
359	132.149 m	2986416.63	656072.112	32+709.781	2986397.509	656053.135	32+736.720	2986374.049	656039.893	32+763.337	15°20'33.64"	-200.000 m	53.556 m	26.939 m	1.806	4.55%	50 Km/hr	0.6
360	63.172 m	2986318.252	656008.4	32+827.408	2986282.426	655988.179	32+868.546	2986257.49	655955.461	32+908.552	23°14'45.54"	200.000 m	81.144 m	41.138 m	4.187	4.55%	50 Km/hr	0.6
361	59.191 m	2986250.348	655946.089	32+920.335	2986244.134	655937.936	32+930.587	2986235.96	655931.75	32+940.711	15°33'58.32"	-75.000 m	20.376 m	10.251 m	0.697	7.00%	50 Km/hr	0.9
362	88.158 m	2986223.884	655922.609	32+955.857	2986196.937	655902.214	32+989.651	2986194.364	655868.518	33+019.359	48°30'44.11"	75.000 m	63.502 m	33.795 m	7.262	7.00%	50 Km/hr	0.9
363	64.624 m	2986191.335	655828.849	33+059.144	2986190.225	655814.312	33+073.723	2986194.642	655800.418	33+087.942	22°00'02.02"	75.000 m	28.799 m	14.579 m	1.404	7.00%	50 Km/hr	0.9
364	52.140 m	2986202.44	655775.886	33+113.684	2986209.802	655752.724	33+137.988	2986202.181	655729.647	33+160.690	35°54'34.74"	-75.000 m	47.006 m	24.304 m	3.839	7.00%	50 Km/hr	0.9
365	32.229 m	2986197.497	655715.464	33+175.626	2986193.451	655703.214	33+188.526	2986193.732	655690.316	33+201.177	19°31'11.13"	75.000 m	25.551 m	12.901 m	1.101	7.00%	50 Km/hr	0.9
366	61.954 m	2986193.955	655680.045	33+211.450	2986194.151	655670.993	33+220.505	2986192.188	655662.153	33+229.473	13°46'06.30"	-75.000 m	18.023 m	9.055 m	0.545	7.00%	50 Km/hr	0.9
367	56.064 m	2986184.172	655626.071	33+266.435	2986180.716	655610.513	33+282.372	2986171.232	655597.704	33+297.843	23°59'39.04"	-75.000 m	31.408 m	15.938 m	1.675	7.00%	50 Km/hr	0.9
368	127.873 m	2986155.382	655576.298	33+324.479	2986147.354	655565.456	33+337.969	2986143.607	655552.497	33+351.173	20°23'36.10"	75.000 m	26.695 m	13.490 m	1.204	7.00%	50 Km/hr	0.9
369	48.389 m	2986112.289	655444.172	33+463.935	2986111.839	655442.614	33+465.556	2986111.322	655441.077	33+467.177	2°28'36.45"	-75.000 m	3.242 m	1.621 m	0.018	7.00%	50 Km/hr	0.9
370	67.283 m	2986107.913	655430.949	33+477.864	2986096.403	655396.753	33+513.945	2986062.501	655384.404	33+545.123	51°22'57.37"	-75.000 m	67.260 m	36.081 m	8.228	7.00%	50 Km/hr	0.9
371	80.099 m	2986058.97	655383.117	33+548.882	2986033.184	655373.724	33+576.325	2986019.55	655349.906	33+601.499	40°11'47.96"	75.000 m	52.617 m	27.444 m	4.863	7.00%	50 Km/hr	0.9
372	58.629 m	2986003.446	655321.773	33+633.916	2985993.391	655304.208	33+654.155	2985975.865	655294.086	33+673.452	30°12'11.83"	-75.000 m	39.536 m	20.239 m	2.683	7.00%	50 Km/hr	0.9
373	63.622 m	2985961.467	655285.77	33+690.079	2985942.621	655274.885	33+711.843	2985954.171	655256.44	33+723.816	92°02'41.30"	21.000 m	33.736 m	21.763 m	9.243	7.00%	25 Km/hr	1.5
374	63.787 m	2985954.393	655256.086	33+724.233	2985976.387	655220.962	33+765.675	2985991.704	655259.469	33+770.502	126°15'15.23"	-21.000 m	46.275 m	41.442 m	25.459	7.00%	25 Km/hr	1.5
375	86.181 m	2985992.634	655261.806	33+773.022	2985999.963	655280.232	33+792.853	2986015.443	655292.628	33+811.796	29°37'14.93"	75.000 m	38.774 m	19.830 m	2.577	7.00%	50 Km/hr	0.9
376	122.445 m	2986034.815	655308.14	33+836.613	2986067.234	655334.101	33+878.147	2986106.441	655320.397	33+912.474	57°57'11.66"	-75.000 m	75.861 m	41.533 m	10.732	7.00%	50 Km/hr	0.9
377	57.006 m	2986164.544	655300.088	33+974.024	2986182.822	655293.699	33+993.386	2986201.908	655296.957	34+011.921	28°57'03.94"	75.000 m	37.897 m	19.362 m	2.459	7.00%	50 Km/hr	0.9
378	57.038 m	2986203.429	655297.216	34+013.464	2986239.016	655303.29	34+049.565	2986226.703	655269.353	34+057.309	119°37'35.92"	-21.000 m	43.845 m	36.101 m	20.765	7.00%	25 Km/hr	1.5
379	63.314 m	2986226.276	655268.175	34+058.563	2986219.562	655249.672	34+078.246	2986200.664	655255.175	34+090.191	86°17'32.10"	-21.000 m	31.628 m	19.683 m	7.782	7.00%	25 Km/hr	1.5
380	47.119 m	2986168.09	655264.659	34+124.118	2986158.773	655267.372	34+133.822	2986149.072	655267.624	34+143.418	14°44'40.56"	75.000 m	19.301 m	9.704 m	0.625	7.00%	50 Km/hr	0.9
381	49.599 m	2986120.417	655268.369	34+172.084	2986111.669	655268.597	34+180.834	2986103.21	655270.832	34+189.505	13°18'32.40"	-75.000 m	17.421 m	8.750 m	0.509	7.00%	50 Km/hr	0.9
382	52.385 m	2986101.747	655271.218	34+191.018	2986063.715	655281.265	34+230.354	2986033.828	655255.691	34+263.474	55°21'07.86"	75.000 m	72.456 m	39.336 m	9.69	7.00%	50 Km/hr	0.9
383	42.240 m	2986033.62	655255.512	34+263.748	2986023.914	655247.207	34+276.523	2986028.826	655234.769	34+286.701	62°37'25.73"	21.000 m	22.953 m	12.774 m	3.58	7.00%	25 Km/hr	1.5
384	52.137 m	2986027.562	655231.625	34+289.930	2986033.543	655206.079	34+316.167	2986057.159	655217.511	34+327.554	102°39'08.06"	21.000 m	37.624 m	26.237 m	12.606	7.00%	25 Km/hr	1.5
385	40.584 m	2986061.369	655219.549	34+332.231	2986080.471	655228.796	34+353.454	2986101.587	655226.662	34+373.596	31°36'00.31"	-75.000 m	41.364 m	21.223 m	2.945	7.00%	50 Km/hr	0.9
386	72.763 m	2986117.638	655225.04	34+389.729	2986120.85	655224.715	34+392.957	2986124.078	655224.668	34+396.181	4°55'46.77"	75.000 m	6.453 m	3.228 m	0.069	7.00%	50 Km/hr	0.9
387	90.706 m	2986169.255	655224.005	34+441.363	2986193.605	655223.648	34+465.716	2986216.592	655215.605	34+489.648	18°26'35.93"	-150.000 m	48.284 m	24.353 m	1.964	5.56%	50 Km/hr	0.6
388	54.214 m	2986251.913	655203.247	34+527.069	2986279.222	655193.692	34+556.001	2986293.039	655168.273	34+582.294	42°11'21.04"	-75.000 m	55.226 m	28.932 m	5.387	7.00%	50 Km/hr	0.9
389	43.663 m	2986298.686	655157.884	34+594.119	2986305.113	655146.061	34+607.576	2986315.249	655137.209	34+620.750	20°20'40.93"	75.000 m	26.631 m	13.457 m	1.198	7.00%	50 Km/hr	0.9
390	122.232 m	2986327.975	655126.097	34+637.644	2986338.001	655117.342	34+650.955	2986344.402	655105.671	34+663.992	20°07'42.79"	-75.000 m	26.348 m	13.311 m	1.172	7.00%	50 Km/hr	0.9
391	119.395 m	2986346.751	655101.389	34+668.875	2986396.78	655010.171	34+772.913	2986467.511	655086.466	34+810.803	108°25'28.55"	75.000 m	141.927 m	104.037 m	53.253	7.00%	50 Km/hr	0.9
392	51.113 m	2986467.906	655086.892	34+811.384	2986477.952	655097.729	34+826.161	2986491.358	655103.945	34+840.564	22°17'30.65"	-75.000 m	29.180 m	14.777 m	1.442	7.00%	50 Km/hr	0.9
393	58.951 m	2986511.577	655113.32	34+862.851	2986524.323	655119.23	34+876.900	2986534.065	655129.352	34+890.627	21°13'10.31"	75.000 m	27.776 m	14.049 m	1.305	7.00%	50 Km/hr	0.9
394	59.412 m	2986543.811	655139.478	34+904.682	2986565.202	655161.703	34+935.529	2986578.037	655133.653	34+945.551	11°30'28.76"	-21.000 m	40.870 m	30.847 m	16.317	7.00%	25 Km/hr	1.5
395	74.560 m	2986578.678	655132.253	34+947.091	2986589.923	655107.678	34+974.117	2986563.331	655102.853	34+985.320	104°18'12.46"	-21.000 m	38.229 m	27.026 m	13.226	7.00%	25 Km/hr	1.5
396	62.761 m	2986548.024	655100.076	35+000.877	2986516.561	655094.367	35+032.854	2986498.896	655067.712	35+061.330	46°10'58.04"	75.000 m	60.453 m	31.977 m	6.532	7.00%	50 Km/hr	0.9
397	81.178 m	2986490.982	655055.772	35+075.655	2986481.89	655042.052	35+092.114	2986468.881	655031.97	35+108.280	18°41'34.38"	-100.000 m	32.625 m	16.459 m	1.345	6.60%	50 Km/hr	0.9
398	112.229 m	2986433.791	655004.778	35+152.673	2986417.724	654992.327	35+172.999	2986410.143	654973.467	35+192.372	30°19'39.95"	75.000 m	39.699 m	20.326 m	2.706	7.00%	50 Km/hr	0.9
399	129.160 m	2986409.885	654972.823	35+193.066	2986375.867	654888.195	35+284.275	2986299.406	654937.922	35+325.458	101°08'22.54"	-75.000 m	132.391 m	91.208 m	43.085	7.00%	50 Km/hr	0.9
400	43.274 m	2986287.414	654945.721	35+339.763	2986267.591	654958.613	35+363.409	2986257.131	654937.405	35+375.236	96°47'05.78"	21.000 m	35.474 m	23.647 m	10.625	7.00%	25 Km/hr	1.5
401	153.291 m	2986256.702	654936.534	35+376.208	2986248.449	654919.802	35+394.864	2986264.093	654909.636	35+406.715	83°14'07.82"	21.000 m	30.507 m	18.656 m	7.09	7.00%	25 Km/hr	1.5
402	121.744 m	2986309.878	654879.883	35+461.319	2986376.984	654836.274	35+541.350	2986416.15	654906.067	35+583.995	93°43'01.94"	75.000 m	122.676 m	80.031 m	34.681	7.00%	50 Km/hr	0.9
403	78.335 m	2986419.982	654912.893															

425	61.937 m	2987413.471	654457.263	37+171.588	2987442.225	654436.286	37+207.180	2987476.658	654445.296	37+238.052	50°46'30.18"	75.000 m	66.464 m	35.593 m	8.017	7.00%	50 Km/hr	0.9	
426	133.440 m	2987481.128	654446.465	37+242.672	2987502.144	654451.965	37+264.396	2987522.846	654445.38	37+284.963	32°18'28.20"	-75.000 m	42.291 m	21.724 m	3.083	7.00%	50 Km/hr	0.9	
427	119.880 m	2987606.786	654418.681	37+373.047	2987629.306	654411.518	37+396.679	2987643.652	654392.739	37+418.833	34°58'41.94"	-75.000 m	45.787 m	23.632 m	3.635	7.00%	50 Km/hr	0.9	
428	104.821 m	2987651.43	654382.557	37+431.646	2987702.081	654316.255	37+515.081	2987762.63	654373.659	37+557.434	96°05'43.15"	75.000 m	125.788 m	83.435 m	37.189	7.00%	50 Km/hr	0.9	
429	92.299 m	2987764.167	654375.116	37+559.552	2987778.15	654388.373	37+578.820	2987784.012	654406.728	37+597.272	28°48'58.36"	75.000 m	37.720 m	19.268 m	2.436	7.00%	50 Km/hr	0.9	
430	134.200 m	2987793.407	654436.148	37+628.156	2987806.229	654476.297	37+670.304	2987838.086	654503.893	37+710.332	31°23'19.86"	-150.000 m	82.176 m	42.147 m	5.809	5.56%	50 Km/hr	0.6	
431	117.125 m	2987886.998	654546.261	37+775.042	2987907.665	654564.164	37+802.385	2987934.566	654569.06	37+828.423	30°35'07.10"	-100.000 m	53.381 m	27.343 m	3.671	6.60%	50 Km/hr	0.9	
432	152.216 m	2987954.755	654572.734	37+848.944	2988022.897	654585.135	37+918.205	2988068.775	654637.022	37+982.295	38°12'08.49"	200.000 m	133.351 m	69.261 m	11.653	4.55%	50 Km/hr	0.6	
433	100.021 m	2988087.563	654658.271	38+010.659	2988123.724	654699.169	38+065.251	2988171.975	654724.705	38+118.661	20°37'36.80"	-300.000 m	108.002 m	54.592 m	4.927	3.30%	50 Km/hr	0	
434	74.792 m	2988193.341	654736.013	38+142.835	2988212.127	654745.956	38+164.090	2988233.337	654744.564	38+184.259	31°38'43.75"	-75.000 m	41.424 m	21.255 m	2.954	7.00%	50 Km/hr	0.9	
435	72.434 m	2988249.81	654743.483	38+200.768	2988286.758	654741.058	38+237.795	2988311.15	654768.916	38+269.557	52°33'05.46"	75.000 m	68.790 m	37.028 m	8.642	7.00%	50 Km/hr	0.9	
436	70.771 m	2988311.183	654768.954	38+269.608	2988334.473	654795.554	38+304.963	2988369.813	654794.516	38+335.684	50°28'43.52"	-75.000 m	66.077 m	35.355 m	7.916	7.00%	50 Km/hr	0.9	
437	201.330 m	2988391.532	654793.878	38+357.412	2988405.213	654793.476	38+371.100	2988418.155	654797.933	38+384.489	20°41'07.60"	75.000 m	27.077 m	13.688 m	1.239	7.00%	50 Km/hr	0.9	
438	152.030 m	2988518.03	654832.329	38+490.121	2988595.571	654859.033	38+572.132	2988675.914	654842.576	38+650.230	30°34'43.06"	-300.000 m	160.109 m	82.011 m	11.008	3.30%	50 Km/hr	0	
439	67.507 m	2988724.154	654832.695	38+699.472	2988744.509	654828.526	38+720.249	2988764.107	654835.424	38+740.010	30°58'05.22"	75.000 m	40.537 m	20.777 m	2.825	7.00%	50 Km/hr	0.9	
440	63.118 m	2988793.658	654845.826	38+771.338	2988808.186	654850.941	38+786.740	2988823.554	654849.915	38+801.720	23°12'37.16"	-75.000 m	30.382 m	15.402 m	1.565	7.00%	50 Km/hr	0.9	
441	97.212 m	2988852.422	654847.988	38+830.652	2988871.164	654846.738	38+849.436	2988888.283	654854.468	38+867.462	28°07'13.19"	75.000 m	36.809 m	18.783 m	2.316	7.00%	50 Km/hr	0.9	
442	47.350 m	2988943.142	654879.241	38+927.655	2988959.761	654886.745	38+945.890	2988971.08	654901.043	38+963.431	27°19'51.09"	75.000 m	35.776 m	18.235 m	2.185	7.00%	50 Km/hr	0.9	
443	48.491 m	2988976.088	654907.369	38+971.500	2988989.151	654923.87	38+992.546	2989008.891	654931.166	39+012.535	31°20'55.08"	-75.000 m	41.035 m	21.045 m	2.897	7.00%	50 Km/hr	0.9	
444	35.178 m	2989020.753	654935.55	39+025.182	2989034.635	654940.681	39+039.981	2989045.527	654950.7	39+054.405	22°19'29.50"	75.000 m	29.223 m	14.799 m	1.446	7.00%	50 Km/hr	0.9	
445	75.781 m	2989049.778	654954.61	39+060.181	2989060.526	654964.497	39+074.785	2989074.198	654969.628	39+089.027	22°02'12.67"	-75.000 m	28.846 m	14.604 m	1.409	7.00%	50 Km/hr	0.9	
446	59.607 m	2989106.078	654981.594	39+123.079	2989131.474	654991.126	39+150.205	2989144.897	655014.698	39+175.135	39°46'05.72"	75.000 m	52.057 m	27.126 m	4.755	7.00%	50 Km/hr	0.9	
447	72.053 m	2989148.695	655021.368	39+182.810	2989160.97	655042.923	39+207.616	2989183.676	655052.909	39+230.722	36°36'07.02"	-75.000 m	47.912 m	24.805 m	3.996	7.00%	50 Km/hr	0.9	
448	83.780 m	2989200.748	655060.417	39+249.372	2989226.927	655071.93	39+277.970	2989248.83	655090.318	39+306.184	16°16'31.65"	200.000 m	56.812 m	28.599 m	2.034	4.55%	50 Km/hr	0.6	
449	188.655 m	2989265.702	655104.483	39+328.214	2989291.093	655125.799	39+361.365	2989315.015	655148.749	39+394.493	3°47'50.96"	1000.000 m	66.279 m	33.151 m	0.549	NC	50 Km/hr	0	
450	108.375 m	2989403.259	655233.407	39+516.779	2989427.229	655256.403	39+549.996	2989460.366	655254.106	39+579.318	47°46'34.18"	-75.000 m	62.539 m	33.217 m	7.027	7.00%	50 Km/hr	0.9	
451	115.095 m	2989484.212	655252.454	39+603.221	2989535.344	655248.91	39+654.476	2989557.222	655295.262	39+693.146	68°41'52.40"	75.000 m	89.925 m	51.255 m	15.841	7.00%	50 Km/hr	0.9	
452	31.996 m	2989579.858	655343.222	39+746.179	2989584.47	655352.995	39+756.985	2989591.654	655361.067	39+767.644	16°23'52.73"	-75.000 m	21.465 m	10.806 m	0.775	7.00%	50 Km/hr	0.9	
453	40.166 m	2989598.723	655369.012	39+778.278	2989605.74	655376.898	39+788.834	2989610.308	655386.414	39+799.252	16°01'20.96"	75.000 m	20.973 m	10.556 m	0.739	7.00%	50 Km/hr	0.9	
454	71.843 m	2989619.405	655405.364	39+820.272	2989623.122	655413.108	39+828.863	2989628.495	655419.812	39+837.379	13°04'06.31"	-75.000 m	17.107 m	8.591 m	0.49	7.00%	50 Km/hr	0.9	
455	71.888 m	2989645.162	655440.608	39+864.030	2989668.052	655469.169	39+900.631	2989659.622	655504.786	39+932.132	52°01'34.41"	75.000 m	68.102 m	36.601 m	8.454	7.00%	50 Km/hr	0.9	
456	42.156 m	2989659.436	655505.57	39+932.939	2989651.494	655539.124	39+967.419	2989671.793	655566.997	39+997.577	49°22'49.60"	-75.000 m	64.639 m	34.481 m	7.546	7.00%	50 Km/hr	0.9	
457					2989676.312	655573.201	40+005.253												

01	Jan 2018	Due to Vertical Profile Revised																		
REV	DATE	DESCRIPTION OF REVISIONS	INITIALS	Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)		Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Roiep-Menia in the State of Sikkim		DATE : Jan-2018 DESIGNED BY : P.S. DRAWN BY : Noresh CHECKED BY : P.S. APPROVED BY : L.A.Z.	Revision : R0 SCALE :- NTS	PACKAGE-IV PART OF BAGRAKOT To KAFER HORIZONTAL CURVE DETAIL	Dwg No. :- SAICPL-SESPL/NHIDC/WB-SKM/HCD/07									
				Consultant :  SA INFRASTRUCTURE CONSULTANTS PVT. LTD. <small>Specialized Engineering Service Pvt. Ltd 11C1A, 11B, Floor Tower A, Corporate Park, Plot No. 7A1, Sector-142 Noida-201301, Uttar Pradesh</small>																

Vertical Alignment Details

Sl. No.	IP Chainage	IP Level		Curve End Gradient	Curve Length	M Value	K Value	Curve Start Chainage	Curve Start Level	Curve End Chainage	Curve End Level
1	0+000.000	180.600									
2	0+180.000	180.600	0.00%	-2.50%	190	-0.5940	76.000	0+085.000	180.600	0+275.000	178.225
3	0+345.533	176.462	-2.50%	1.63%	100	0.5160	24.238	0+295.533	177.712	0+395.533	177.275
4	0+687.778	182.026	1.63%	0.64%	200	-0.2480	202.010	0+587.778	180.400	0+787.778	182.662
5	1+592.967	187.781	0.64%	3.09%	100	0.3070	40.747	1+542.967	187.463	1+642.967	189.326
6	1+703.228	191.188	3.09%	-0.11%	100	-0.4010	31.207	1+653.228	189.643	1+753.228	191.131
7	2+181.887	190.640	-0.11%	5.00%	120	0.7670	23.463	2+121.887	190.709	2+241.887	193.640
8	2+405.707	201.831	5.00%	1.49%	120	-0.5270	34.184	2+345.707	198.831	2+465.707	202.725
9	2+748.358	206.935	1.49%	1.29%	200	-0.0490	1024.568	2+648.358	205.445	2+848.358	208.229
10	2+920.341	209.161	1.29%	5.00%	100	0.4630	26.986	2+870.341	208.514	2+970.341	211.661
11	3+168.916	221.590	5.00%	-4.36%	100	-1.1690	10.690	3+118.916	219.090	3+218.916	219.413
12	3+303.101	215.747	-4.36%	2.19%	100	0.8180	15.287	3+253.101	217.924	3+353.101	216.840
13	3+440.300	218.747	2.19%	0.00%	100	-0.2730	45.727	3+390.300	217.654	3+490.300	218.747
14	3+997.130	218.747	0.00%	7.00%	300	2.0250	42.857	3+847.130	218.747	4+147.130	229.247
15	5+080.592	294.589	7.00%	6.50%	200	-0.1250	400.000	4+980.592	287.589	5+180.592	301.089
16	6+578.892	391.979	6.50%	2.62%	300	-1.4550	77.321	6+428.892	382.229	6+728.892	395.909
17	7+237.477	409.234	2.62%	7.00%	300	1.6420	68.495	7+087.477	405.304	7+387.477	419.734
18	9+910.074	596.316	7.00%	6.00%	500	-0.6250	500.000	9+660.074	578.816	10+160.074	611.316
19	10+836.872	651.924	6.00%	3.10%	60	-0.2180	20.677	10+806.872	650.124	10+866.872	652.854
20	11+034.540	658.048	3.10%	3.10%	60	0	1056.795	11+004.540	657.119	11+064.540	658.979
21	11+274.067	665.482	3.10%	1.46%	60	-0.1230	36.547	11+244.067	664.551	11+304.067	665.921
22	11+369.413	666.876	1.46%	0.35%	100	-0.1400	89.599	11+319.413	666.145	11+419.413	667.049
23	11+551.097	667.505	0.35%	-7.00%	150	-1.3770	20.420	11+476.097	667.245	11+626.097	662.255
24	12+691.414	587.682	-7.00%	5.00%	300	4.5000	25.000	12+541.414	598.182	12+841.414	595.182
25	13+618.784	634.051	5.00%	5.00%	100	-0.0010	21439.457	13+568.784	631.551	13+668.784	636.549
26	14+080.712	657.126	5.00%	-4.07%	100	-1.1330	11.031	14+030.712	654.628	14+130.712	655.091
27	14+269.078	649.459	-4.07%	5.18%	100	1.1560	10.816	14+219.078	651.494	14+319.078	652.047
28	14+655.112	669.438	5.18%	4.85%	200	-0.0810	618.712	14+555.112	664.263	14+755.112	674.291
29	14+980.682	685.236	4.85%	3.19%	100	-0.2080	60.041	14+930.682	682.810	15+030.682	686.829
30	15+503.447	701.895	3.19%	7.00%	100	0.4770	26.224	15+453.447	700.301	15+553.447	705.395
31	15+936.860	732.234	7.00%	5.00%	200	-0.5000	100.000	15+836.860	725.234	16+036.860	737.234
32	16+361.559	753.468	5.00%	5.00%	200	-0.0010	45783.800	16+261.559	748.468	16+461.559	758.464
33	17+303.540	800.526	5.00%	7.00%	200	0.5010	99.782	17+203.540	795.531	17+403.540	807.526
34	19+157.316	930.291	7.00%	5.00%	200	-0.5000	100.000	19+057.316	923.291	19+257.316	935.291
35	19+618.896	953.370	5.00%	7.00%	200	0.5000	100.000	19+518.896	948.370	19+718.896	960.370
36	20+887.379	1042.164	7.00%	1.01%	150	-1.1220	25.058	20+812.379	1036.914	20+962.379	1042.924
37	21+295.235	1046.299	1.01%	7.00%	150	1.1220	25.058	21+220.235	1045.538	21+370.235	1051.549
38	22+403.928	1123.907	7.00%	-7.00%	300	-5.2500	21.429	22+253.928	1113.407	22+553.928	1113.407
39	23+259.199	1064.038	-7.00%	7.00%	200	3.5000	14.286	23+159.199	1071.038	23+359.199	1071.038
40	24+436.217	1146.429	7.00%	5.00%	100	-0.2500	50.000	24+386.217	1142.929	24+486.217	1148.929
41	25+183.352	1183.786	5.00%	-1.75%	200	-1.6870	29.642	25+083.352	1178.786	25+283.352	1182.039
42	25+447.881	1179.164	-1.75%	3.50%	300	1.9680	57.173	25+297.881	1181.785	25+597.881	1184.414
43	25+977.858	1197.713	3.50%	6.50%	200	0.7500	66.667	25+877.858	1194.213	26+077.858	1204.213
44	26+768.692	1249.118	6.50%	1.80%	100	-0.5870	21.294	26+718.692	1245.868	26+818.692	1250.020
45	26+960.578	1252.579	1.80%	6.48%	200	1.1700	42.744	26+860.578	1250.775	27+060.578	1259.062
46	27+948.743	1316.640	6.48%	5.76%	200	-0.1810	275.935	27+848.743	1310.157	28+048.743	1322.398
47	29+411.507	1400.866	5.76%	-3.55%	200	-2.3270	21.488	29+311.507	1395.108	29+511.507	1397.316
48	29+666.265	1391.823	-3.55%	7.00%	250	3.2970	23.697	29+541.265	1396.260	29+791.265	1400.573
49	32+263.992	1573.663	7.00%	-1.88%	100	-1.1110	11.256	32+213.992	1570.163	32+313.992	1572.721
50	32+367.864	1571.706	-1.88%	6.00%	100	0.9860	12.684	32+317.864	1572.648	32+417.864	1574.706
51	34+596.648	1705.433	6.00%	5.00%	200	-0.2500	200.000	34+496.648	1699.433	34+696.648	1710.433
52	34+829.999	1717.101	5.00%	7.00%	100	0.2500	50.000	34+779.999	1714.601	34+879.999	1720.601
53	35+834.885	1787.443	7.00%	5.28%	200	-0.4290	116.426	35+734.885	1780.443	35+934.885	1792.725
54	36+728.164	1834.627	5.28%	-6.50%	300	-4.4170	25.472	36+578.164	1826.704	36+878.164	1824.884
55	37+609.075	1777.408	-6.50%	-6.03%	200	0.1160	429.301	37+509.075	1783.904	37+709.075	1771.379
56	37+964.127	1756.000	-6.03%	3.16%	100	1.1490	10.878	37+914.127	1759.015	38+014.127	1757.582
57	38+084.905	1759.821	3.16%	-7.29%	100	-1.3060	9.568	38+034.905	1758.239	38+134.905	1756.177
58	38+330.487	1741.924	-7.29%	-0.82%	100	0.8080	15.461	38+280.487	1745.568	38+380.487	1741.514
59	38+881.020	1737.410	-0.82%	-6.51%	300	-2.1350	52.685	38+731.020	1738.640	39+031.020	1727.639
60	39+713.026	1683.213	-6.51%	1.50%	100	1.0020	12.478	39+663.026	1686.470	39+763.026	1683.963
61	39+834.471	1685.035	1.50%	-3.32%	100	-0.6020	20.765	39+784.471	1684.285	39+884.471	1683.377
62	40+004.925	1679.382									

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT LTD
 Specialized Engineering Service Pvt. Ltd
 110/A, 1st Floor, "Sanku" And Corporate Park
 Plot No. 7A/1, Sector 142
 Kolkata-700074, India

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chukim-Niubong-Kafer-Bakhim-Algaish-Rhetok in the State of West Bengal and From Rhenol-Rorainang-Pakyong along with Spur From Artar-Rolep-Media in the State of Sikkim

DATE : Jan-2018

Revision : R0

DESIGNED BY P.S.	DRAWN BY Suresh	CHECKED BY P.S.	APPROVED BY L.A.Z.
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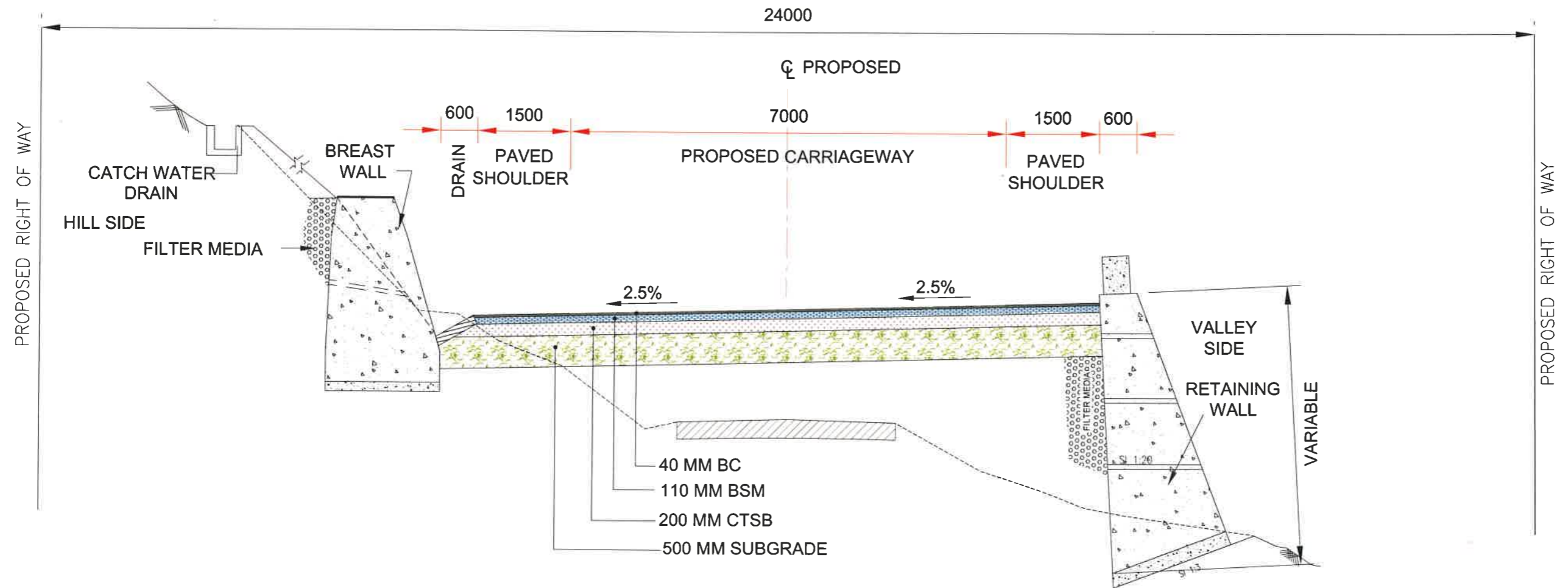
SCALE:- NTC

PACKAGE-IV
PART OF BAGRAKOT TO KAFER
VERTICAL CURVE DETAIL

Dwg No :- SA/CP/SESPL/NH/DC/WB-SKM/VCD/01

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan 2018	Due to Vertical Profile Revised	

TYPICAL CROSS SECTION



TCS 1
Two Lane With Paved Shoulder Raised Portion(Hill Section)

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan 2018	Due to Vertical Profile Revised	

Client :
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
 (Ministry of Road Transport & Highways)

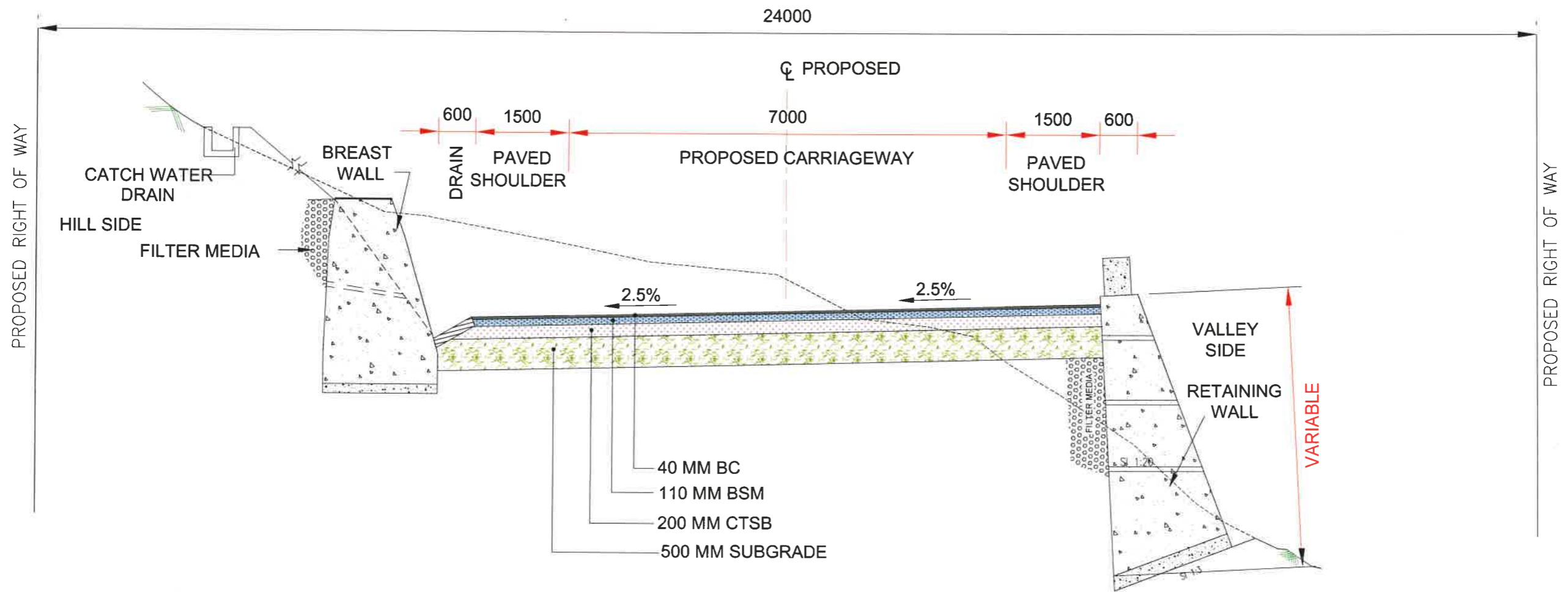
Consultant :
SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
 In Association with
 Specialized Engineering Service Pvt. Ltd
 1101A, 11th Floor, Tower A-II, Corporate Park,
 Plot No. 7A/1, Sector-142,
 Noida-201301, Uttar Pradesh

Project :
 Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim

DATE : Jan-2018	Revision	R0	
DESIGNED BY <i>P.S.</i>	DRAWN BY <i>Naresh</i>	CHECKED BY <i>P.S.</i>	APPROVED BY <i>L.A.Z.</i>
SCALE:- NTS			

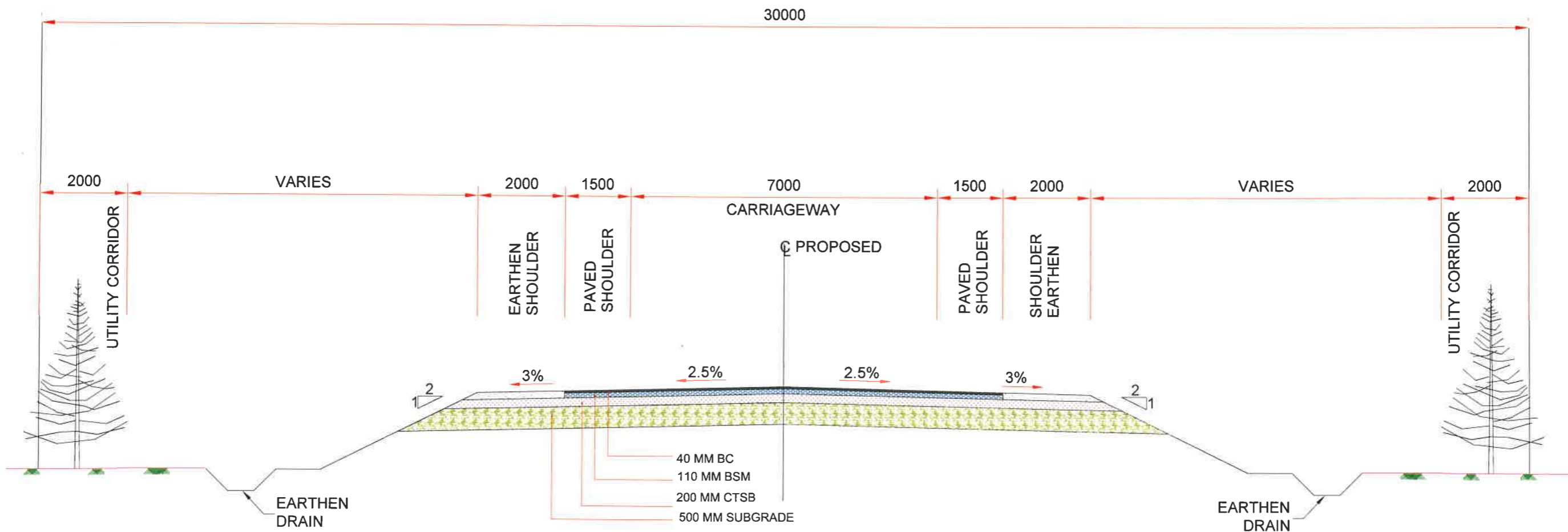
PACKAGE-IV
PART OF BAGRAKOT To KAFER
TYPICAL CROSS SECTION

Dwg. No. :-
 SAICPL-SESPL/NHIDC/WB-SKM/ 01



TCS 2
Two Lane With Paved Shoulder Raised Portion(Hill Section)
(New Alignment)

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS	Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)	Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim	DATE : Jan-2018	Revision	R0	PACKAGE-IV PART OF BAGRAKOT To KAFER TYPICAL CROSS SECTION
						DESIGNED BY P.S.	DRAWN BY Naresh	CHECKED BY P.S.	
				Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. <small>In Association with</small> Specialized Engineering Service Pvt Ltd 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida-201301, U.P. (India)	SCALE:- NTS				



TCS 3
Two Lane with Paved Shoulder (Open Country-Plain/Rolling Terrain)

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan 2018	Due to Vertical Profile Revised	

Client : **NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED**
 (Ministry of Road Transport & Highways)

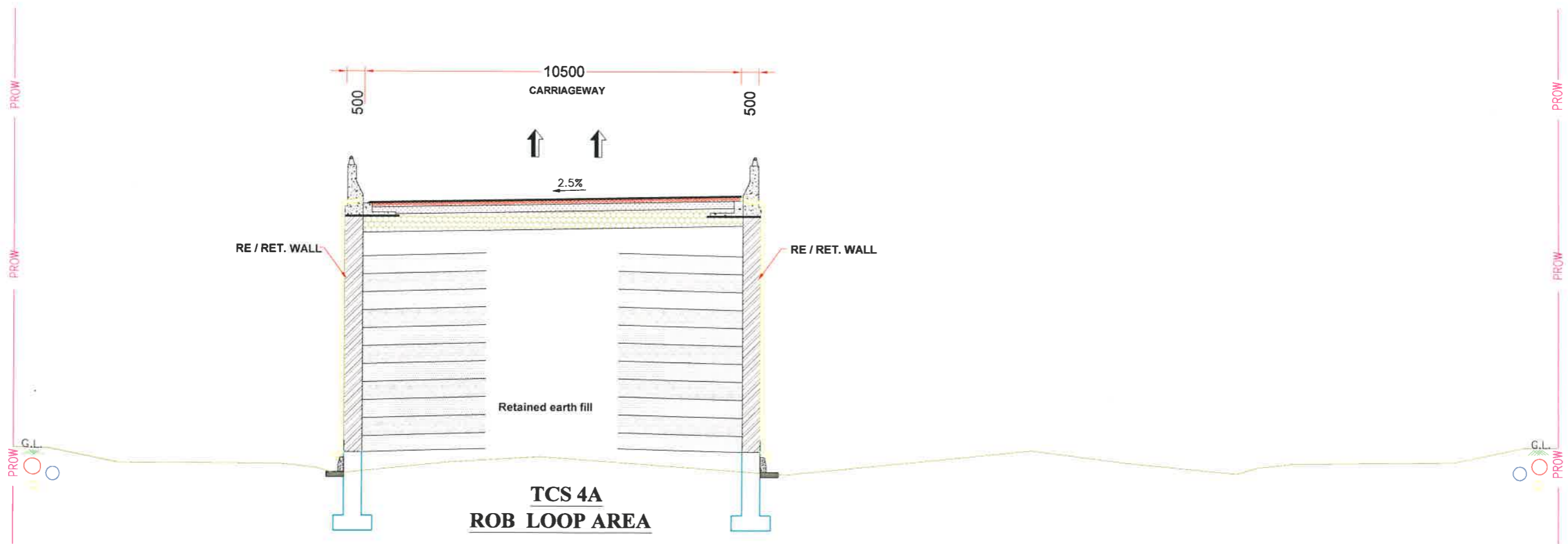
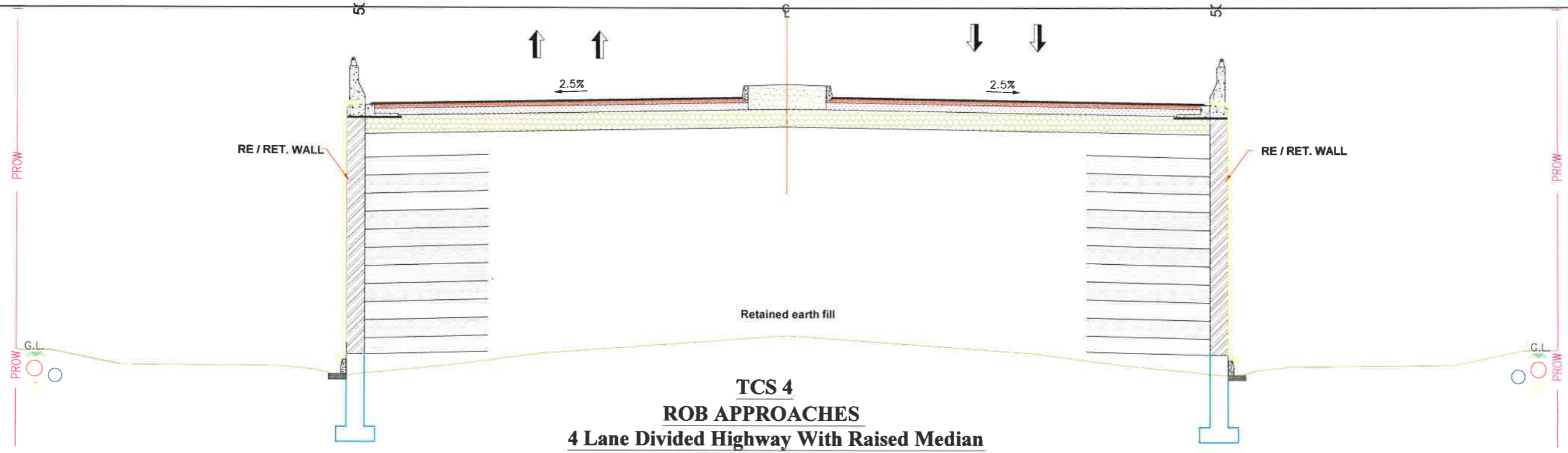
Consultant : **SA INFRASTRUCTURE CONSULTANTS PVT. LTD.**
 In Association with
 Specialized Engineering Service Pvt Ltd
 1101A, 11th Floor Tower A-II, Corporate Park,
 Plot No. 7A/1, Sector-142,
 Gurgaon-201301, Haryana

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim

DATE : Jan-2018	Revision	R0	
DESIGNED BY P.S.	DRAWN BY Nagresh	CHECKED BY P.S.	APPROVED BY L.A.Z.
SCALE:- NTS			

PACKAGE-IV
PART OF BAGRAKOT To KAFER
TYPICAL CROSS SECTION

Dwg. No. :-
 SAICPL-SESPL/NHIDC/WB-SKM/ 03



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan 2018	Due to Vertical Profile Revised	

Client : **NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED**
(Ministry of Road Transport & Highways)

Consultant : **SA INFRASTRUCTURE CONSULTANTS PVT. LTD.**
Specialized Engineering Service Pvt. Ltd
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301, Uttar Pradesh

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menia in the State of Sikkim

DATE : Jan-2018	Revision	R0	
DESIGNED BY P.S.	DRAWN BY Noresh	CHECKED BY P.S.	APPROVED BY L.A.Z.
SCALE:- NTS			

**PACKAGE-IV
PART OF BAGRAKOT To KAFER
TYPICAL CROSS SECTION**

Dwg. No. :- SAICPL-SESPL/NHIDC/WB-SKM/ 04

PLAN AND PROFILE

LEGEND				ABBREVIATION	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
LEGEND FOR PLAN					
	BUILDING (P, SP, K, UC)		COVERED DRAIN	Δ	TOTAL DEVIATION ANGLE OF CURVE
	CULVERT, BRIDGE		11KV ELECTRIC LINE	R	RADIUS OF CIRCULAR CURVE
	GATE		33KV ELECTRIC LINE	Ts	TANGENT LENGTH
	TELEPHONE POLE		TOILET	Es	APEX DISTANCE
	ELECTRIC POLE		EXISTING CARRIAGEWAY	Lc	LENGTH OF CIRCULAR CURVE
	TEMPORARY BENCH MARK		REFFREENCE PILLAR	e	SUPER ELEVATION
	SIDE ROAD		GPS PILLAR	Ls	LENGTH OF TRANSITION CURVE
	NALA & RIVER		PIPE CULVERT	Δ_s	DEVIATION ANGLE OF TRANSITION CURVE
	TRANSFORMER		PROPOSED CARRIAGEWAY EDGE	Δ_c	DEVIATION OR CENTRAL ANGLE OF CIRCULAR CURVE
	KILOMETER POST		PROPOSED SERVICE ROAD	L	TOTAL LENGTH OF CURVE
	TREE		PROPOSED CENTER LINE	S	SHIFT
	ZIRAKPUR VILLAGE NAME		PROPOSED SHOULDER EDGE	PC	POINT OF CURVATURE
	BOUNDARY WALL		PROPOSED RIGHT - OF - WAY	PT	POINT OF TANGENCY
	S41 SURVEY STATION		CONTOUR LINE	TS	POINT OF CHANGE FROM TANGENT TO SPIRAL
	FENCING		PROPOSED TOE LINE	SC	POINT OF CHANGE FROM SPIRAL TO CIRCULAR CURVE
	AGRICULTRAL FIELD		HOR. TANGENT POINT	CS	POINT OF CHANGE FROM CIRCULAR CURVE TO SPIRAL
	LAMP POST		VER. TANGENT POINT	ST	POINT OF CHANGE FROM SPIRAL TO TANGENT
	RETANING WALL		PROP. CULVERT	IL	INVERT LEVEL OF STRUCTURE
	GARDEN			PVI	POINT OF VERTICAL INTERSECTION
	WALL			Lvs	LENGTH OF VALLEY CURVE
	TEMPLE			Lsc	LENGTH OF SUMMIT CURVE
				HIP	HORIZONTAL INTERSECTION POINT

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
C1	Jan 2018	Due to Vertical Profile Revised	

Client :
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

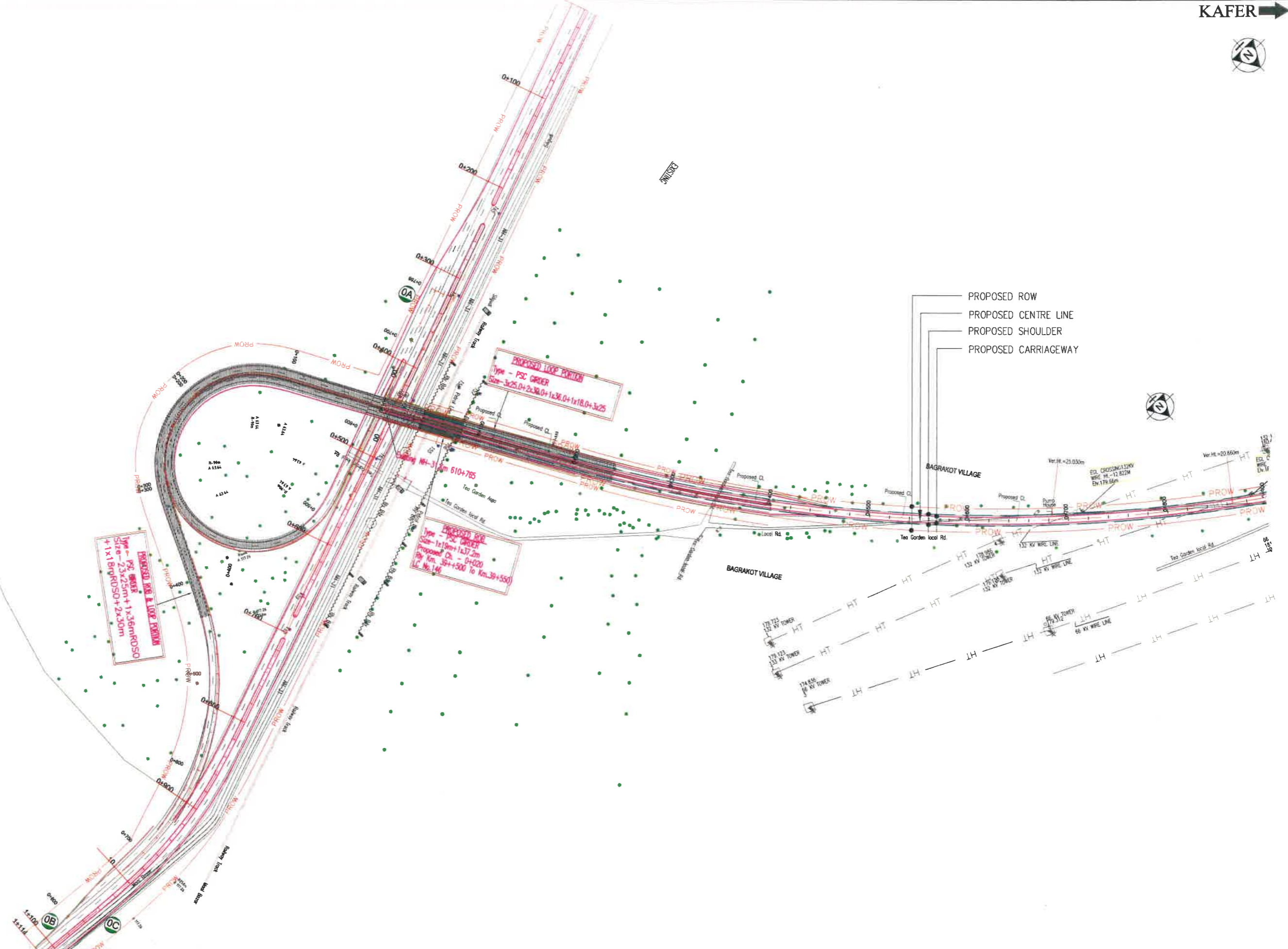
Consultant :
SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
In Association with
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301, Uttar Pradesh

Project :
Consultancy for Preparation of Feasibility Report
cum Preliminary Design for Alternative Highway to
Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-
Kafer-Bakhim-Algarah-Rhenok in the State of
West Bengal and From Rhenok-Rorathang-Pakyong
along with Spur From Artar-Rolep-Menia in the State of Sikkim

DATE : Jan-2018	Revision	R0	
DESIGNED BY 	DRAWN BY 	CHECKED BY 	APPROVED BY
SCALE:- NTS			

PACKAGE-IVa
PART OF BAGRAKOT To KAFER
TYPICAL DRAWING LEGEND

Dwg. No. :-
SAICPL-SESPL/NHIDC/WB-SKM/Gen/02



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan 2018	Due to Vertical Profile Revised	

Client :
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
 (Ministry of Road Transport & Highways)

Consultant :

SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
 Specialized Engineering Service Pvt. Ltd.
 1101A, 11th Floor, Tower A-II, Corporate Park,
 Plot No. 7A/1, Sector-142,
 Noida 201301, Uttar Pradesh.

Project :
 Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menia in the State of Sikkim

DATE : Jan-2018

DESIGNED BY: P.S. DRAWN BY: Neresh CHECKED BY: P.S. APPROVED BY: L.A.Z.

Revision: RO

SCALE:- H :- 1:2000
 V :- 1:200 } For A2 Paper Size

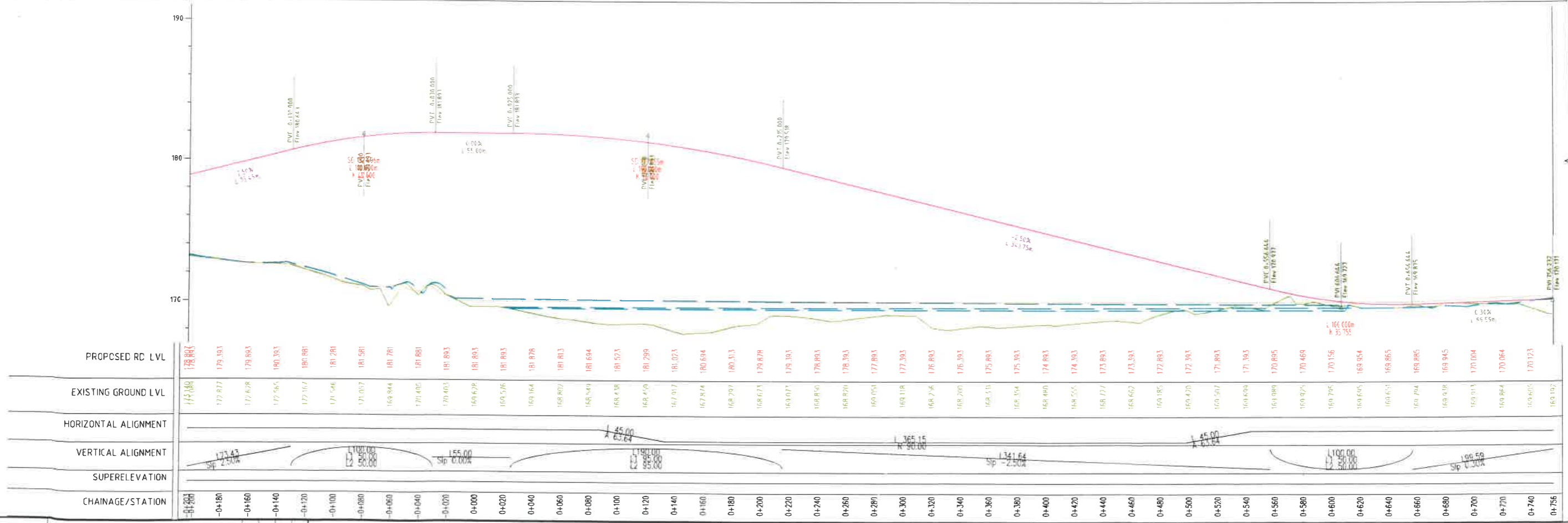
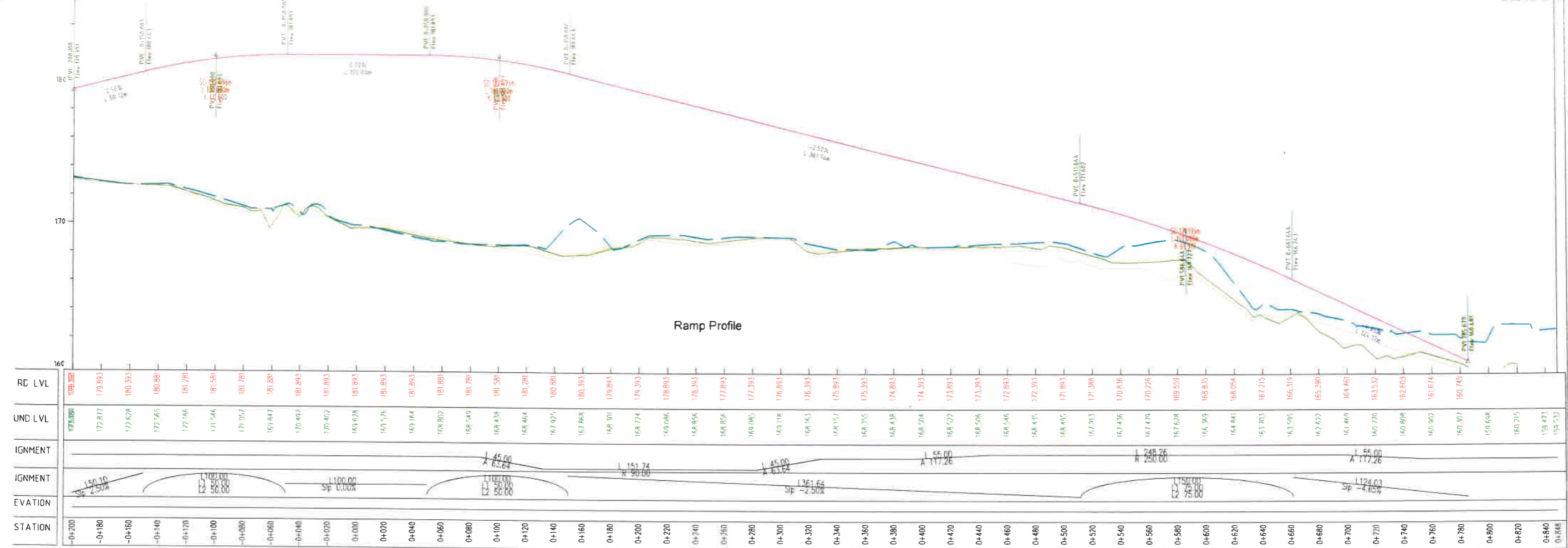
PACKAGE-IVa
 PART OF BAGRAKOT To KAFER
 PLAN & PROFILE
 (INTERCHANGE)

Dwg. No. :-
 SAICPL-SESPL/NHIDC/WB-SKM/ P&P/ 0

← BAGRAKOT

KAFER →

Ramp Profile



Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. In Association with Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 74/V1, Sector-142, Noida-201301 | India. Email: saicpl@saicpl.com

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menia in the State of Sikkim

DATE : Jan-2018

DESIGNED BY : P.S. DRAWN BY : Noresh CHECKED BY : P.S. APPROVED BY : LAZ

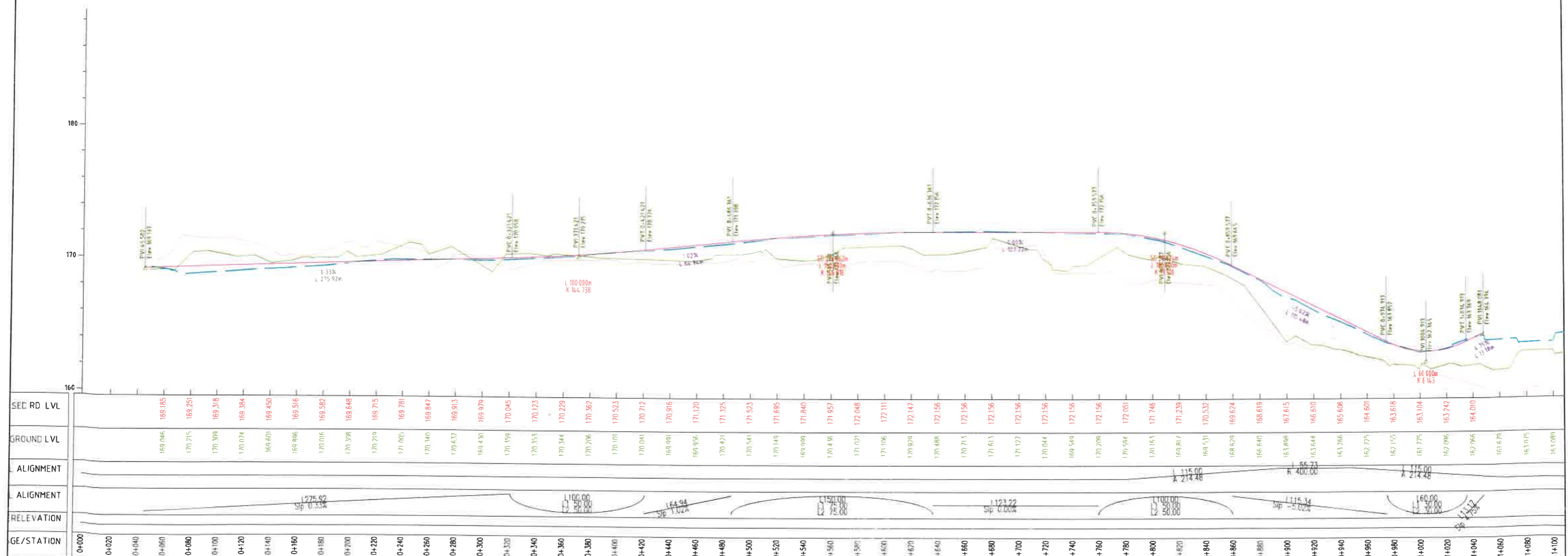
Revision : R0

PACKAGE-IVa PART OF BAGRAKOT To KAFER PLAN & PROFILE Loop Profile

Dwg. No. :- SAICPL-SESPL/NHIDC/WB-SKMP&P 01a

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan 2018	Due to Vertical Profile Revised	

SCALE:- H :- 1:2000 V :- 1:200 For A2 Paper Size



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan 2016	Due to Vertical Profile Revised	

Client :
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
 (Ministry of Road Transport & Highways)

Consultant :
SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
 In Association with
 Specialized Engineering Service Pvt. Ltd.
 1101A, 11th Floor, Tower A-II, Corporate Park,
 Plot No. 7A/1, Sector-142,
 Noida-201301, India

Project :
 Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rulep-Menia in the State of Sikkim

DATE : Jan-2018		Revision RO	
DESIGNED BY PS	DRAWN BY Noresh	CHECKED BY PS	APPROVED BY L.A.Z

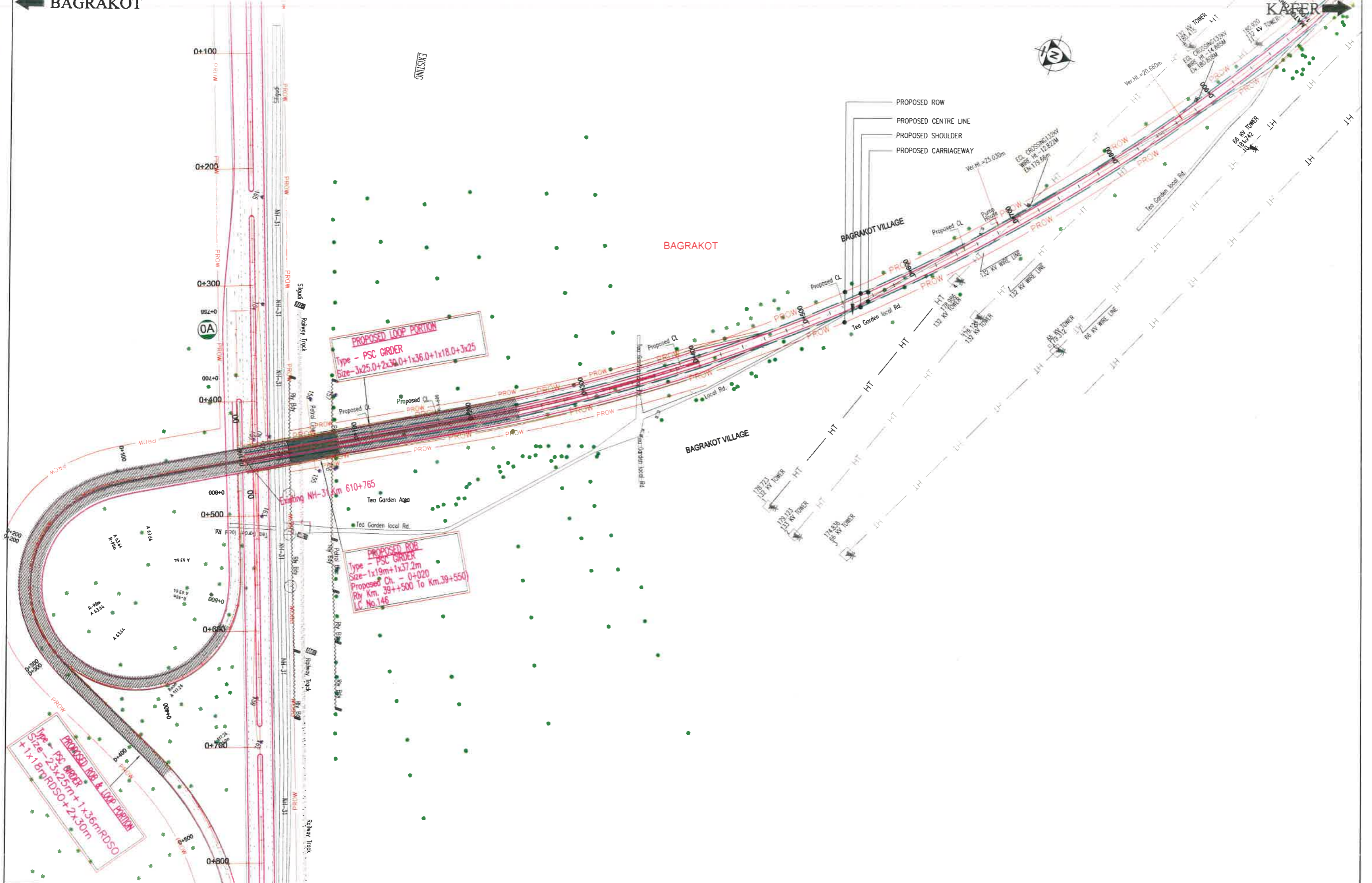
PACKAGE-IVa
PART OF BAGRAKOT To KAFER
PLAN & PROFILE
NH-31 Profile

Dwg. No. :- SAICPL-SESPL/NHDC/WB-SKMP&P 01a

SCALE:- H :- 1:2000
 V :- 1:200 } For A2 Paper Size

BAGRAKOT

KAFER



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
C1	Jan 2018	Due to Vertical Profile Revised	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
 In Association with Specialized Engineering Service Pvt. Ltd.
 1101A, 11th Floor, Tower A-4, Corporate Park, Plot No. 7A/1, Sector-142, Noida 201301, Uttar Pradesh

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chulkhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Roathang-Pakyong along with Spur From Artar-Rolep-Mena in the State of Sikkim

DATE : Jan-2018

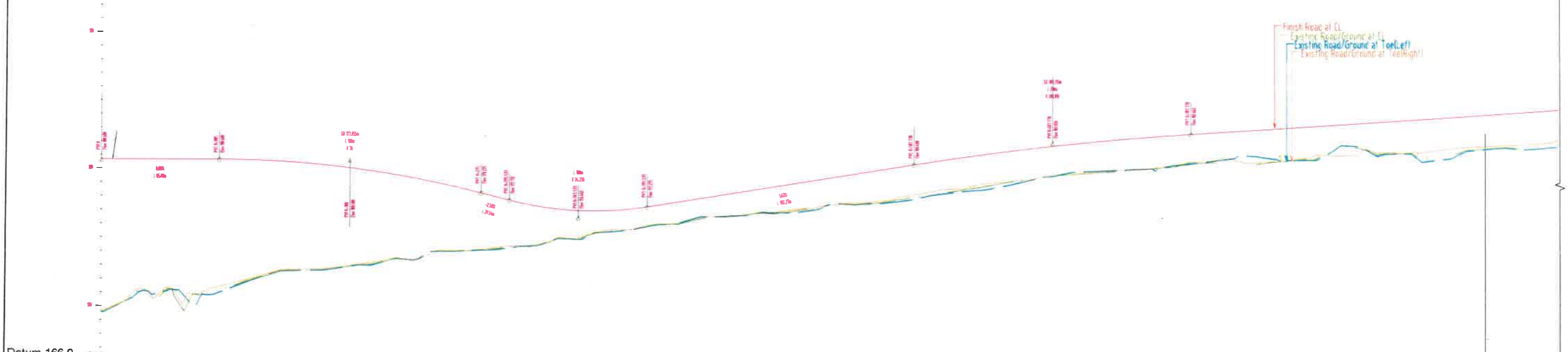
Revision RO

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
P.S	Ncresh	PS	L.A.Z.

SCALE:- H :- 1:2000
 V :- 1:200 } For A2 Paper Size

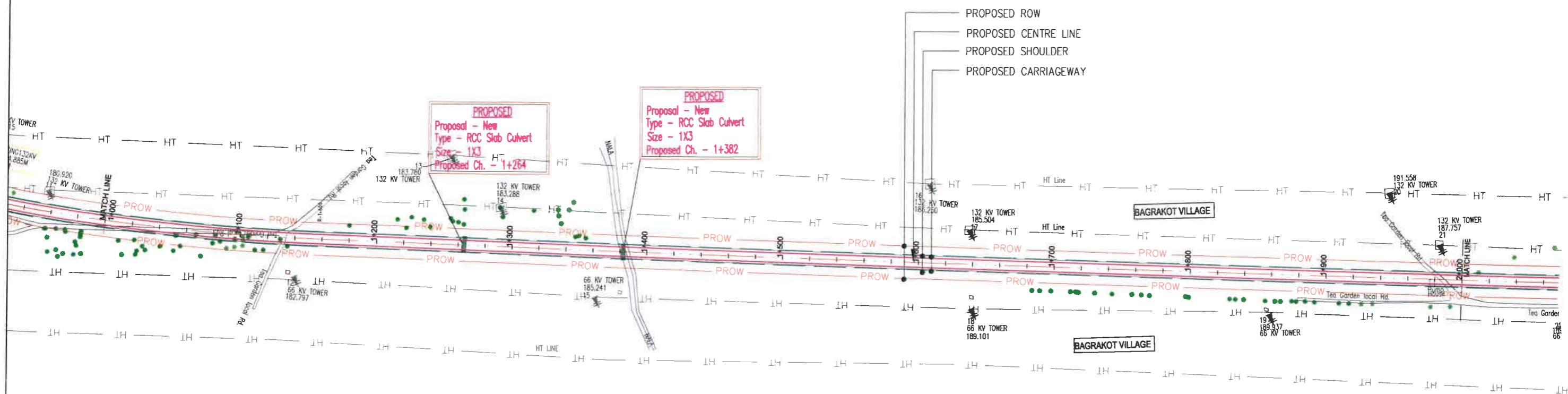
PACKAGE-IVa
 PART OF BAGRAKOT TO KAFER
 PLAN & PROFILE
 (PLAN-Km 0+000 To Km 1+000)

Dwg. No. :- SAICPL-SESPL/NHIDC/WB-SKM/ P&P 01



Datum 166.0	
PROPOSED RL LVL	180.600, 180.600, 180.600, 180.600, 180.585, 180.519, 180.401, 180.230, 180.006, 179.730, 179.401, 179.019, 178.585, 178.100, 177.604, 177.223, 177.008, 176.957, 176.672, 176.998, 176.323, 176.648, 176.973, 177.298, 177.623, 177.949, 180.274, 180.595, 180.898, 181.182, 181.445, 181.689, 181.913, 182.117, 182.307, 182.466, 182.611, 182.739, 182.867, 182.984, 183.121, 183.248, 183.375, 183.502, 183.630, 183.757, 183.884, 184.011, 184.138, 184.265
EXISTING GROUND LVL	169.678, 170.480, 170.478, 169.663, 171.084, 171.604, 172.210, 172.570, 172.634, 172.898, 173.108, 173.384, 173.859, 174.024, 174.136, 174.378, 174.591, 174.933, 175.417, 175.648, 175.993, 176.126, 176.605, 176.666, 176.803, 177.007, 177.338, 177.538, 177.627, 177.929, 178.235, 178.557, 178.881, 179.270, 179.533, 179.740, 179.812, 180.037, 180.187, 180.436, 180.627, 180.536, 180.574, 180.768, 180.980, 181.029, 181.367, 181.278, 181.011, 181.255, 181.584, 181.658, 181.800
HORIZONTAL ALIGNMENT	
VERTICAL ALIGNMENT	
SUPERELEVATION	
CHAINAGE STATION	0+000, 0+020, 0+040, 0+060, 0+080, 0+100, 0+120, 0+140, 0+160, 0+180, 0+200, 0+220, 0+240, 0+260, 0+280, 0+300, 0+320, 0+340, 0+360, 0+380, 0+400, 0+420, 0+440, 0+460, 0+480, 0+500, 0+520, 0+540, 0+560, 0+580, 0+600, 0+620, 0+640, 0+660, 0+680, 0+700, 0+720, 0+740, 0+760, 0+780, 0+800, 0+820, 0+840, 0+860, 0+880, 0+900, 0+920, 0+940, 0+960, 0+980, 14+000, 14+020, 14+040

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)	Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chulkhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Artar-Rolep-Menia in the State of Sikkim	DATE : Jan-2018	Revision R0	PACKAGE-IVa PART OF BAGRAKOT To KAFER PLAN & PROFILE (PLAN-Km 0+000 To Km 1+000)
		DESIGNED BY: P.S.	DRAWN BY: Noresh	
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. In Association with Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida-201301 (Uttar Pradesh)		SCALE:- H :- 1:2000 V :- 1:200		Dwg. No. :- SAICPL-SESPL/NHIDC/WB-SKMP/P 01a
01 Jan 2018 Due to Vertical Profile Revised				
REV DATE DESCRIPTION OF REVISIONS INITIALS				



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan 2018	Due to Vertical Profile Revised	

Client : **NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED**
(Ministry of Road Transport & Highways)

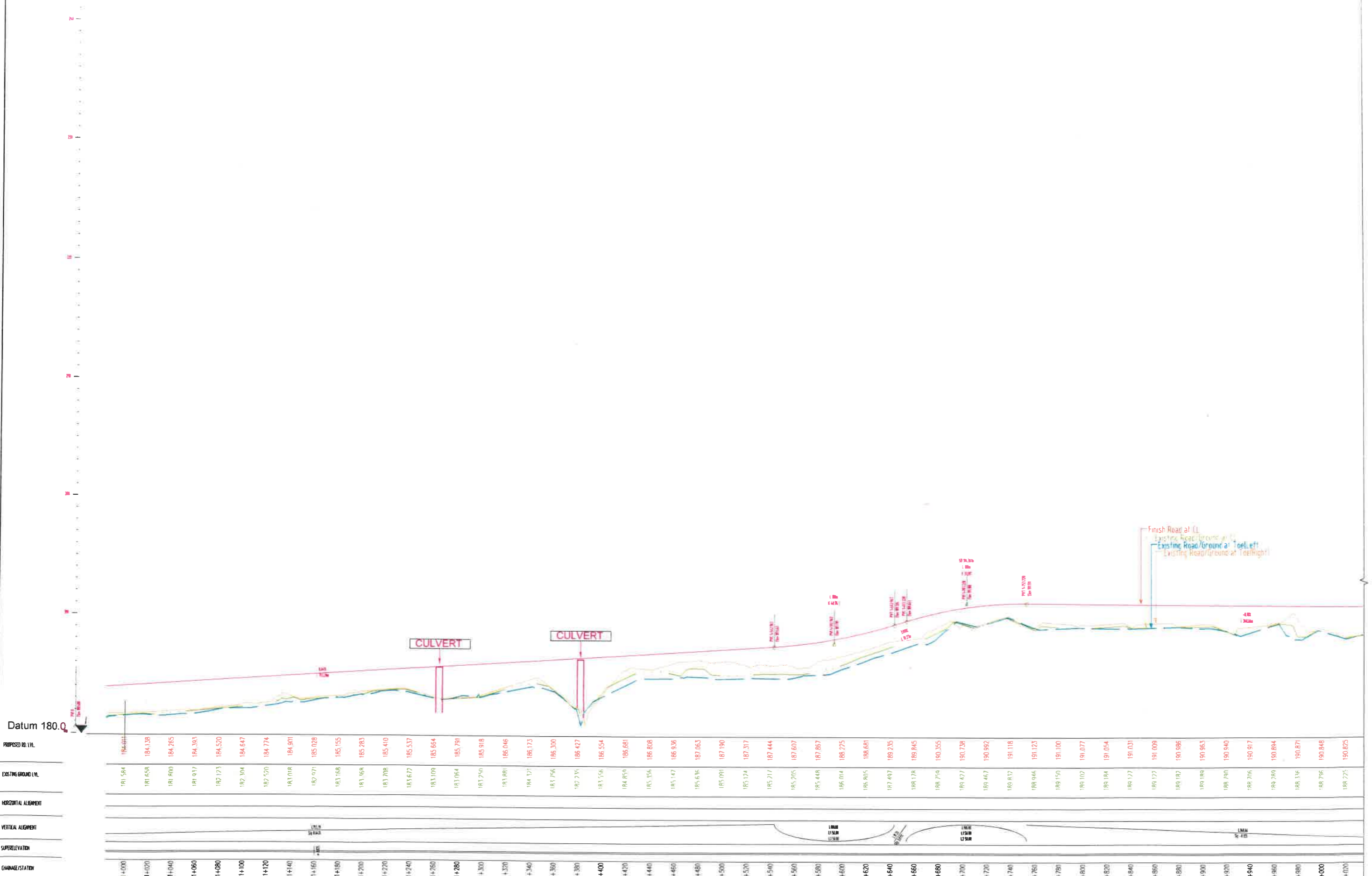
Consultant : **SA INFRASTRUCTURE CONSULTANTS PVT. LTD.**
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301, Uttar Pradesh

Project : **Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chulkhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menia in the State of Sikkim**

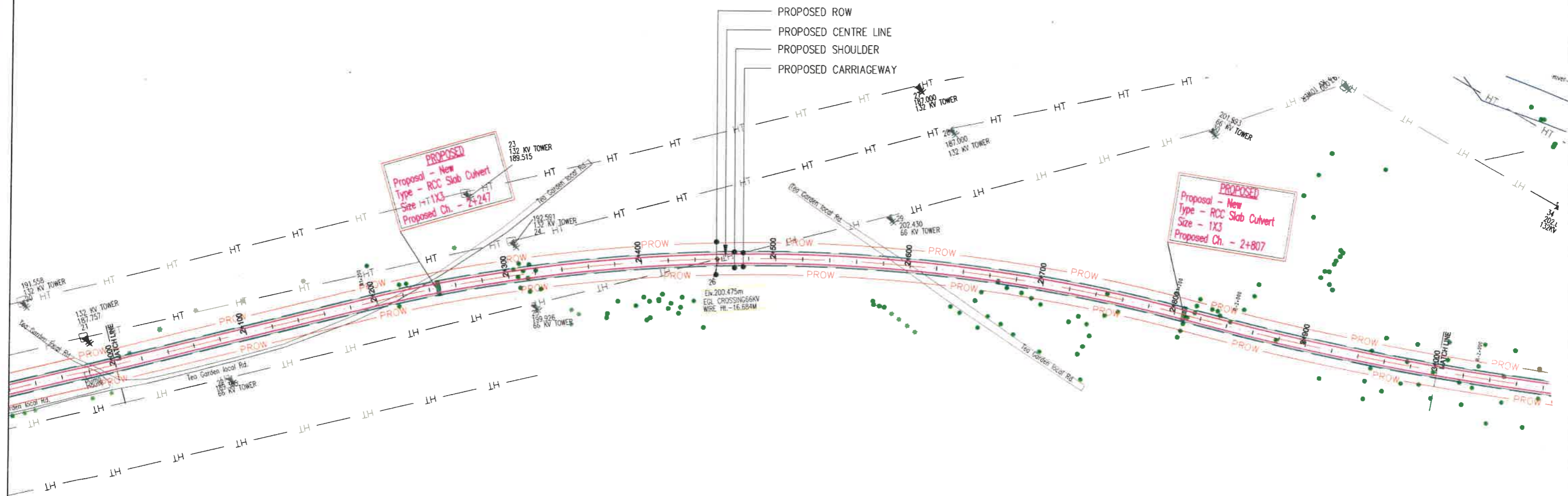
DATE : Jan-2018	Revision	RO
DESIGNED BY P.S.	DRAWN BY Noresh	CHECKED BY P.S.
APPROVED BY L.A.Z.		
SCALE:- H :- 1:2000 V :- 1:200 } For A2 Paper Size		

PACKAGE-IVa
PART OF BAGRAKOT To KAFER
PLAN & PROFILE
(PLAN-Km 1+000 To Km 2+000)

Dwg. No. :- SAICPL-SESPL/NHIDC/WB-SKM/ P&P/02



Client :	NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)	Project :	Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chulkhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menia in the State of Sikkim	DATE :	Jan-2018	Revision	R0	PACKAGE-IVa PART OF BAGRAKOT To KAFER PLAN & PROFILE (PROFILE Km 1+000 To Km 2+000)
Consultant :	SA INFRASTRUCTURE CONSULTANTS PVT. LTD. Specialized Engineering Services Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Gurgaon 201301, Haryana	DESIGNED BY	PS	DRAWN BY	Norest	CHECKED BY	PS	
APPROVED BY	LAZ	SCALE:-	H :- 1:2000 V :- 1:200	For A2 Paper Size		Dwg. No. :-	SAICPL-SESPL/NHIDC/WB-SKM/ P&P 02a	
REV	DATE	DESCRIPTION OF REVISIONS	INITIALS					
01	Jan 2018	Due to Vertical Profile Revised						



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan 2018	Due to Vertical Profile Revised	

Client : **NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED**
(Ministry of Road Transport & Highways)

Consultant : **SA INFRASTRUCTURE CONSULTANTS PVT. LTD.**
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida 201301, Uttar Pradesh.

Project : **Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Baklim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Palyong along with Spur From Aritar-Rolep-Menia in the State of Sikkim**

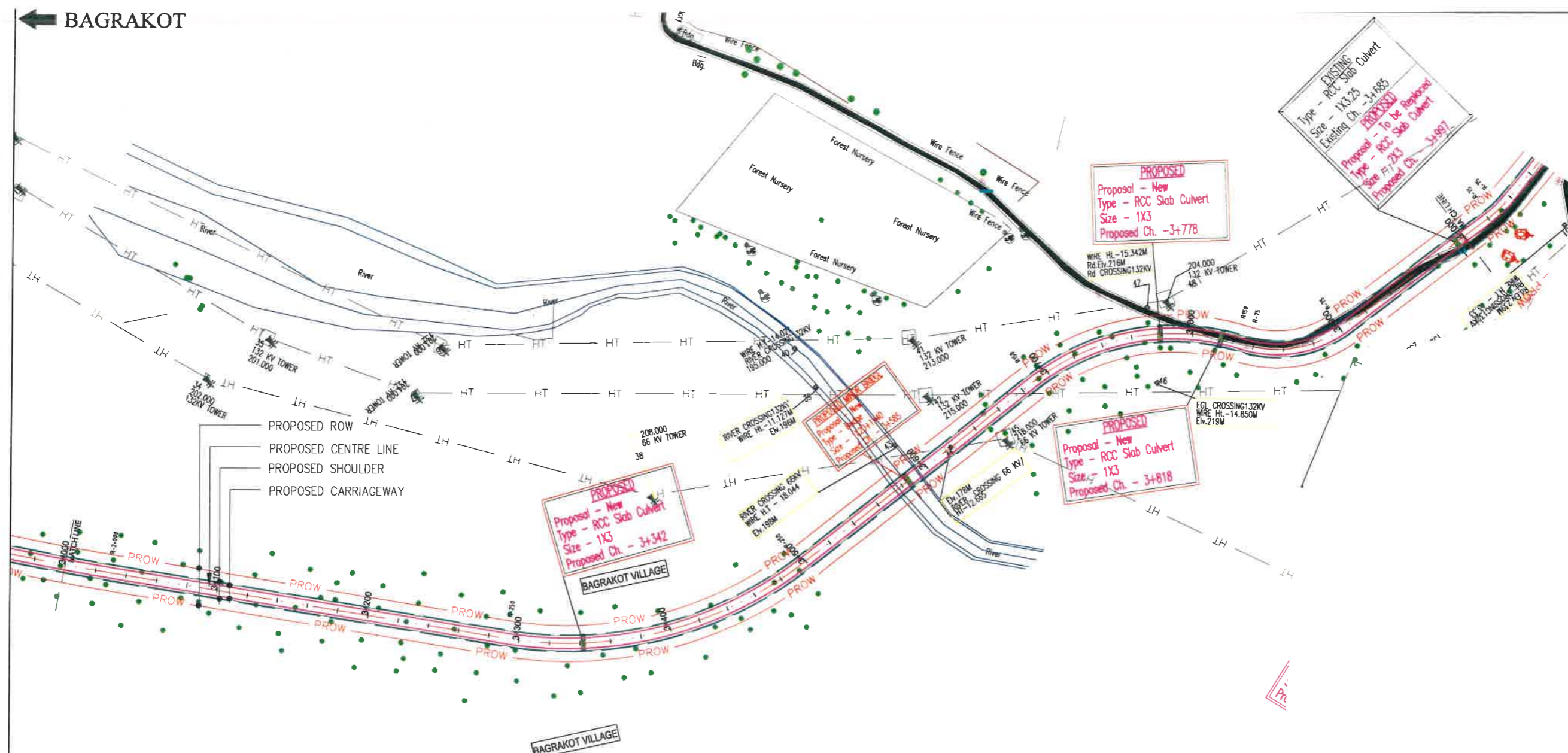
DATE : Jan-2018		Revision R0	
DESIGNED BY P.S.	DRAWN BY Naresh	CHECKED BY P.S.	APPROVED BY L.A.Z.
SCALE:- H :- 1:2000 V :- 1:200 For A2 Paper Size			

PACKAGE-IVa
PART OF BAGRAKOT TO KAFER
PLAN & PROFILE
(PLAN-Km 2+000 To Km 3+000)

Dwg. No. :- SAICPL-SESPL/NHIDC/WB-SKM/P&P_03

← BAGRAKOT

KAFER →



PROPOSED
 Proposal - New
 Type - RCC Slab Culvert
 Size - 1X3
 Proposed Ch. - 3+342
 BAGRAKOT VILLAGE

PROPOSED
 Proposal - New
 Type - RCC Slab Culvert
 Size - 1X3
 Proposed Ch. - 3+778

PROPOSED
 Proposal - New
 Type - RCC Slab Culvert
 Size - 1X3
 Proposed Ch. - 3+818

EXISTING
 Type - RCC Slab Culvert
 Size - 1X3.25
 Existing Ch. - 3+885
PROPOSED
 Proposal - To be Replaced
 Type - RCC Slab Culvert
 Size - 1X3
 Proposed Ch. - 3+997

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan 2018	Due to Vertical Profile Revised	

Client :
 NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
 (Ministry of Road Transport & Highways)

Consultant :

 SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
 In Association with
 Specialized Engineering Services Pvt. Ltd.
 1101A, 11th Floor, Tower A-11, Corporate Park,
 Plot No. 7A/1, Sector-142,
 Noida 201301, Uttar Pradesh

Project :
 Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Artar-Rolep-Menia in the State of Sikkim

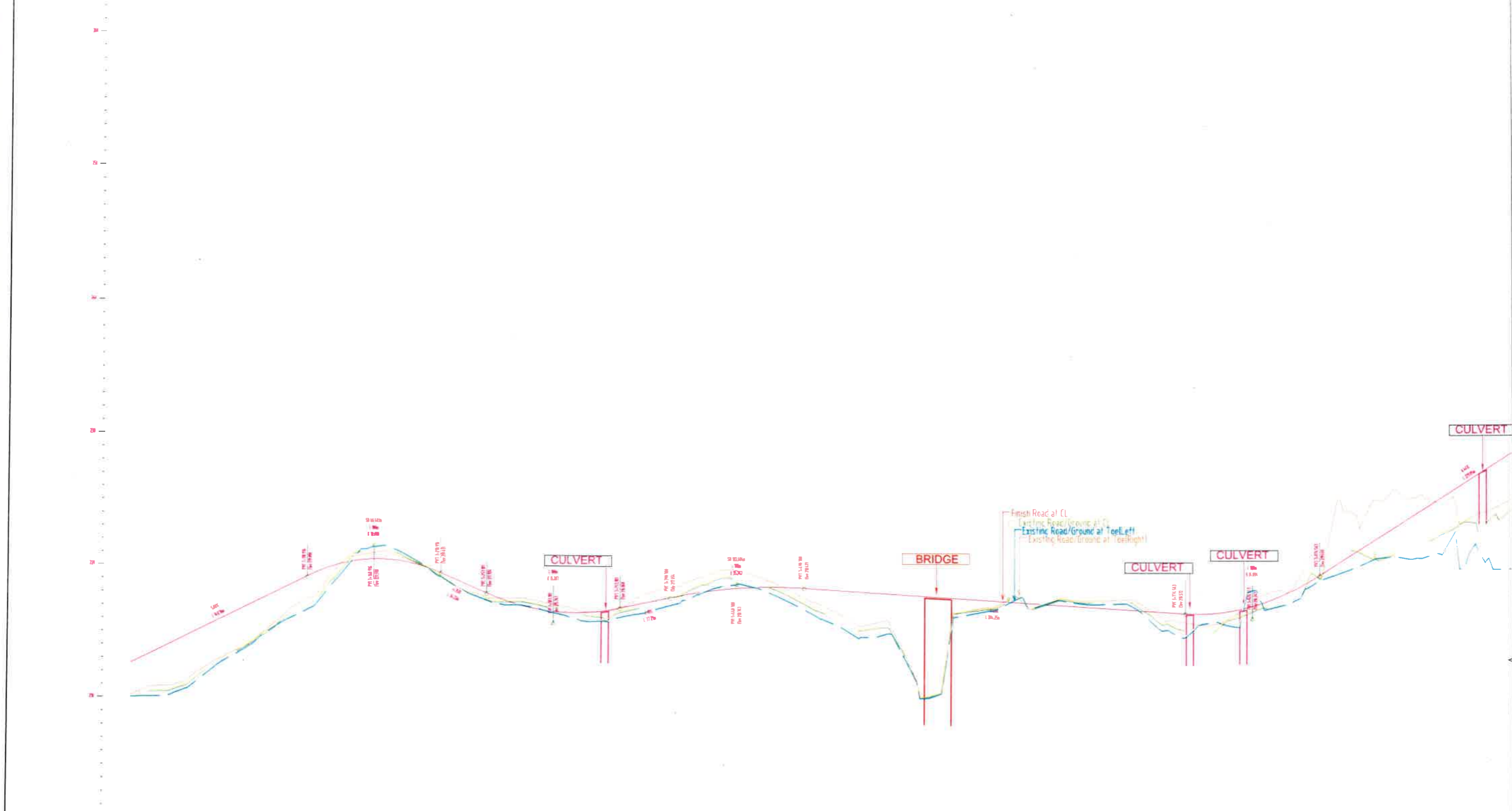
DATE : Jan-2018	Revision	RO
DESIGNED BY P.S.	DRAWN BY Naresh	CHECKED BY P.S.
APPROVED BY L.A.Z.		
SCALE:- H = 1:2000 V = 1:200 } For A2 Paper Size		

PACKAGE-IVa
PART OF BAGRAKOT To KAFER
PLAN & PROFILE
 (PLAN-Km 3+000 To Km 4+000)

Dwg. No. :-
 SAICFL-SESPLN/HIDC/WB-SKM/P&P_04

← BAGRAKOT

KAFER →



Datum 200.0	
PROPOSED RL LVL	212.144, 213.144, 214.144, 215.144, 216.144, 217.144, 218.144, 219.143, 219.936, 220.355, 220.399, 220.069, 219.365, 218.494, 217.639, 216.989, 216.601, 216.475, 216.610, 216.997, 217.428, 217.852, 218.178, 218.300, 218.489, 218.474, 218.359, 218.228, 218.098, 217.968, 217.838, 217.708, 217.578, 217.448, 217.318, 217.188, 217.057, 216.927, 216.797, 216.667, 216.547, 216.437, 216.317, 216.187, 216.067, 215.937, 215.807, 215.677, 215.547, 215.417, 215.287, 215.157, 215.027, 214.897, 214.767, 214.637, 214.507, 214.377, 214.247, 214.117, 213.987, 213.857, 213.727, 213.597, 213.467, 213.337, 213.207, 213.077, 212.947, 212.817, 212.687, 212.557, 212.427, 212.297, 212.167, 212.037, 211.907, 211.777, 211.647, 211.517, 211.387, 211.257, 211.127, 210.997, 210.867, 210.737, 210.607, 210.477, 210.347, 210.217, 210.087, 209.957, 209.827, 209.697, 209.567, 209.437, 209.307, 209.177, 209.047, 208.917, 208.787, 208.657, 208.527, 208.397, 208.267, 208.137, 208.007, 207.877, 207.747, 207.617, 207.487, 207.357, 207.227, 207.097, 206.967, 206.837, 206.707, 206.577, 206.447, 206.317, 206.187, 206.057, 205.927, 205.797, 205.667, 205.537, 205.407, 205.277, 205.147, 205.017, 204.887, 204.757, 204.627, 204.497, 204.367, 204.237, 204.107, 203.977, 203.847, 203.717, 203.587, 203.457, 203.327, 203.197, 203.067, 202.937, 202.807, 202.677, 202.547, 202.417, 202.287, 202.157, 202.027, 201.897, 201.767, 201.637, 201.507, 201.377, 201.247, 201.117, 200.987, 200.857, 200.727, 200.597, 200.467, 200.337, 200.207, 200.077, 199.947, 199.817, 199.687, 199.557, 199.427, 199.297, 199.167, 199.037, 198.907, 198.777, 198.647, 198.517, 198.387, 198.257, 198.127, 197.997, 197.867, 197.737, 197.607, 197.477, 197.347, 197.217, 197.087, 196.957, 196.827, 196.697, 196.567, 196.437, 196.307, 196.177, 196.047, 195.917, 195.787, 195.657, 195.527, 195.397, 195.267, 195.137, 195.007, 194.877, 194.747, 194.617, 194.487, 194.357, 194.227, 194.097, 193.967, 193.837, 193.707, 193.577, 193.447, 193.317, 193.187, 193.057, 192.927, 192.797, 192.667, 192.537, 192.407, 192.277, 192.147, 192.017, 191.887, 191.757, 191.627, 191.497, 191.367, 191.237, 191.107, 190.977, 190.847, 190.717, 190.587, 190.457, 190.327, 190.197, 190.067, 189.937, 189.807, 189.677, 189.547, 189.417, 189.287, 189.157, 189.027, 188.897, 188.767, 188.637, 188.507, 188.377, 188.247, 188.117, 187.987, 187.857, 187.727, 187.597, 187.467, 187.337, 187.207, 187.077, 186.947, 186.817, 186.687, 186.557, 186.427, 186.297, 186.167, 186.037, 185.907, 185.777, 185.647, 185.517, 185.387, 185.257, 185.127, 184.997, 184.867, 184.737, 184.607, 184.477, 184.347, 184.217, 184.087, 183.957, 183.827, 183.697, 183.567, 183.437, 183.307, 183.177, 183.047, 182.917, 182.787, 182.657, 182.527, 182.397, 182.267, 182.137, 182.007, 181.877, 181.747, 181.617, 181.487, 181.357, 181.227, 181.097, 180.967, 180.837, 180.707, 180.577, 180.447, 180.317, 180.187, 180.057, 179.927, 179.797, 179.667, 179.537, 179.407, 179.277, 179.147, 179.017, 178.887, 178.757, 178.627, 178.497, 178.367, 178.237, 178.107, 177.977, 177.847, 177.717, 177.587, 177.457, 177.327, 177.197, 177.067, 176.937, 176.807, 176.677, 176.547, 176.417, 176.287, 176.157, 176.027, 175.897, 175.767, 175.637, 175.507, 175.377, 175.247, 175.117, 174.987, 174.857, 174.727, 174.597, 174.467, 174.337, 174.207, 174.077, 173.947, 173.817, 173.687, 173.557, 173.427, 173.297, 173.167, 173.037, 172.907, 172.777, 172.647, 172.517, 172.387, 172.257, 172.127, 171.997, 171.867, 171.737, 171.607, 171.477, 171.347, 171.217, 171.087, 170.957, 170.827, 170.697, 170.567, 170.437, 170.307, 170.177, 170.047, 169.917, 169.787, 169.657, 169.527, 169.397, 169.267, 169.137, 169.007, 168.877, 168.747, 168.617, 168.487, 168.357, 168.227, 168.097, 167.967, 167.837, 167.707, 167.577, 167.447, 167.317, 167.187, 167.057, 166.927, 166.797, 166.667, 166.537, 166.407, 166.277, 166.147, 166.017, 165.887, 165.757, 165.627, 165.497, 165.367, 165.237, 165.107, 164.977, 164.847, 164.717, 164.587, 164.457, 164.327, 164.197, 164.067, 163.937, 163.807, 163.677, 163.547, 163.417, 163.287, 163.157, 163.027, 162.897, 162.767, 162.637, 162.507, 162.377, 162.247, 162.117, 161.987, 161.857, 161.727, 161.597, 161.467, 161.337, 161.207, 161.077, 160.947, 160.817, 160.687, 160.557, 160.427, 160.297, 160.167, 160.037, 159.907, 159.777, 159.647, 159.517, 159.387, 159.257, 159.127, 158.997, 158.867, 158.737, 158.607, 158.477, 158.347, 158.217, 158.087, 157.957, 157.827, 157.697, 157.567, 157.437, 157.307, 157.177, 157.047, 156.917, 156.787, 156.657, 156.527, 156.397, 156.267, 156.137, 156.007, 155.877, 155.747, 155.617, 155.487, 155.357, 155.227, 155.097, 154.967, 154.837, 154.707, 154.577, 154.447, 154.317, 154.187, 154.057, 153.927, 153.797, 153.667, 153.537, 153.407, 153.277, 153.147, 153.017, 152.887, 152.757, 152.627, 152.497, 152.367, 152.237, 152.107, 151.977, 151.847, 151.717, 151.587, 151.457, 151.327, 151.197, 151.067, 150.937, 150.807, 150.677, 150.547, 150.417, 150.287, 150.157, 150.027, 149.897, 149.767, 149.637, 149.507, 149.377, 149.247, 149.117, 148.987, 148.857, 148.727, 148.597, 148.467, 148.337, 148.207, 148.077, 147.947, 147.817, 147.687, 147.557, 147.427, 147.297, 147.167, 147.037, 146.907, 146.777, 146.647, 146.517, 146.387, 146.257, 146.127, 145.997, 145.867, 145.737, 145.607, 145.477, 145.347, 145.217, 145.087, 144.957, 144.827, 144.697, 144.567, 144.437, 144.307, 144.177, 144.047, 143.917, 143.787, 143.657, 143.527, 143.397, 143.267, 143.137, 143.007, 142.877, 142.747, 142.617, 142.487, 142.357, 142.227, 142.097, 141.967, 141.837, 141.707, 141.577, 141.447, 141.317, 141.187, 141.057, 140.927, 140.797, 140.667, 140.537, 140.407, 140.277, 140.147, 140.017, 139.887, 139.757, 139.627, 139.497, 139.367, 139.237, 139.107, 138.977, 138.847, 138.717, 138.587, 138.457, 138.327, 138.197, 138.067, 137.937, 137.807, 137.677, 137.547, 137.417, 137.287, 137.157, 137.027, 136.897, 136.767, 136.637, 136.507, 136.377, 136.247, 136.117, 135.987, 135.857, 135.727, 135.597, 135.467, 135.337, 135.207, 135.077, 134.947, 134.817, 134.687, 134.557, 134.427, 134.297, 134.167, 134.037, 133.907, 133.777, 133.647, 133.517, 133.387, 133.257, 133.127, 132.997, 132.867, 132.737, 132.607, 132.477, 132.347, 132.217, 132.087, 131.957, 131.827, 131.697, 131.567, 131.437, 131.307, 131.177, 131.047, 130.917, 130.787, 130.657, 130.527, 130.397, 130.267, 130.137, 130.007, 129.877, 129.747, 129.617, 129.487, 129.357, 129.227, 129.097, 128.967, 128.837, 128.707, 128.577, 128.447, 128.317, 128.187, 128.057, 127.927, 127.797, 127.667, 127.537, 127.407, 127.277, 127.147, 127.017, 126.887, 126.757, 126.627, 126.497, 126.367, 126.237, 126.107, 125.977, 125.847, 125.717, 125.587, 125.457, 125.327, 125.197, 125.067, 124.937, 124.807, 124.677, 124.547, 124.417, 124.287, 124.157, 124.027, 123.897, 123.767, 123.637, 123.507, 123.377, 123.247, 123.117, 122.987, 122.857, 122.727, 122.597, 122.467, 122.337, 122.207, 122.077, 121.947, 121.817, 121.687, 121.557, 121.427, 121.297, 121.167, 121.037, 120.907, 120.777, 120.647, 120.517, 120.387, 120.257, 120.127, 120.000
EXISTING GROUND LVL	209.790, 210.404, 210.611, 211.790, 213.045, 214.264, 215.790, 217.051, 219.061, 220.995, 221.168, 220.218, 219.074, 217.917, 217.901, 217.798, 216.984, 216.375, 216.198, 216.711, 217.475, 217.940, 218.795, 219.143, 218.689, 217.795, 216.753, 215.870, 215.373, 214.349, 210.276, 215.394, 216.808, 217.148, 216.903, 217.590, 217.442, 217.451, 217.031, 215.819, 215.187, 215.557, 216.569, 217.101, 217.567, 217.560, 219.821, 221.301, 220.661, 221.508, 222.288, 222.788, 221.475, 221.671, 222.554
HORIZONTAL ALIGNMENT	
VERTICAL ALIGNMENT	
SUPERELEVATION	
CHAINAGE STATION	3+000, 3+020, 3+040, 3+060, 3+080, 3+100, 3+120, 3+140, 3+160, 3+180, 3+200, 3+220, 3+240, 3+260, 3+280, 3+300, 3+320, 3+340, 3+360, 3+380, 3+400, 3+420, 3+440, 3+460, 3+480, 3+500, 3+520, 3+540, 3+560, 3+580, 3+600, 3+620, 3+640, 3+660, 3+680, 3+700, 3+720, 3+740, 3+760, 3+780, 3+800, 3+820, 3+840, 3+860, 3+880, 3+900, 3+920, 3+940, 3+960, 3+980, 4+000

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan 2018	Due to Vertical Profile Revised	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. In Association with Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-11, Corporate Park, Plot No. 7471, Sector-14B, Gurgaon 201301 | Near Shreekrishna

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chaikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Artar-Rolep-Menia in the State of Sikkim

DATE : Jan-2018

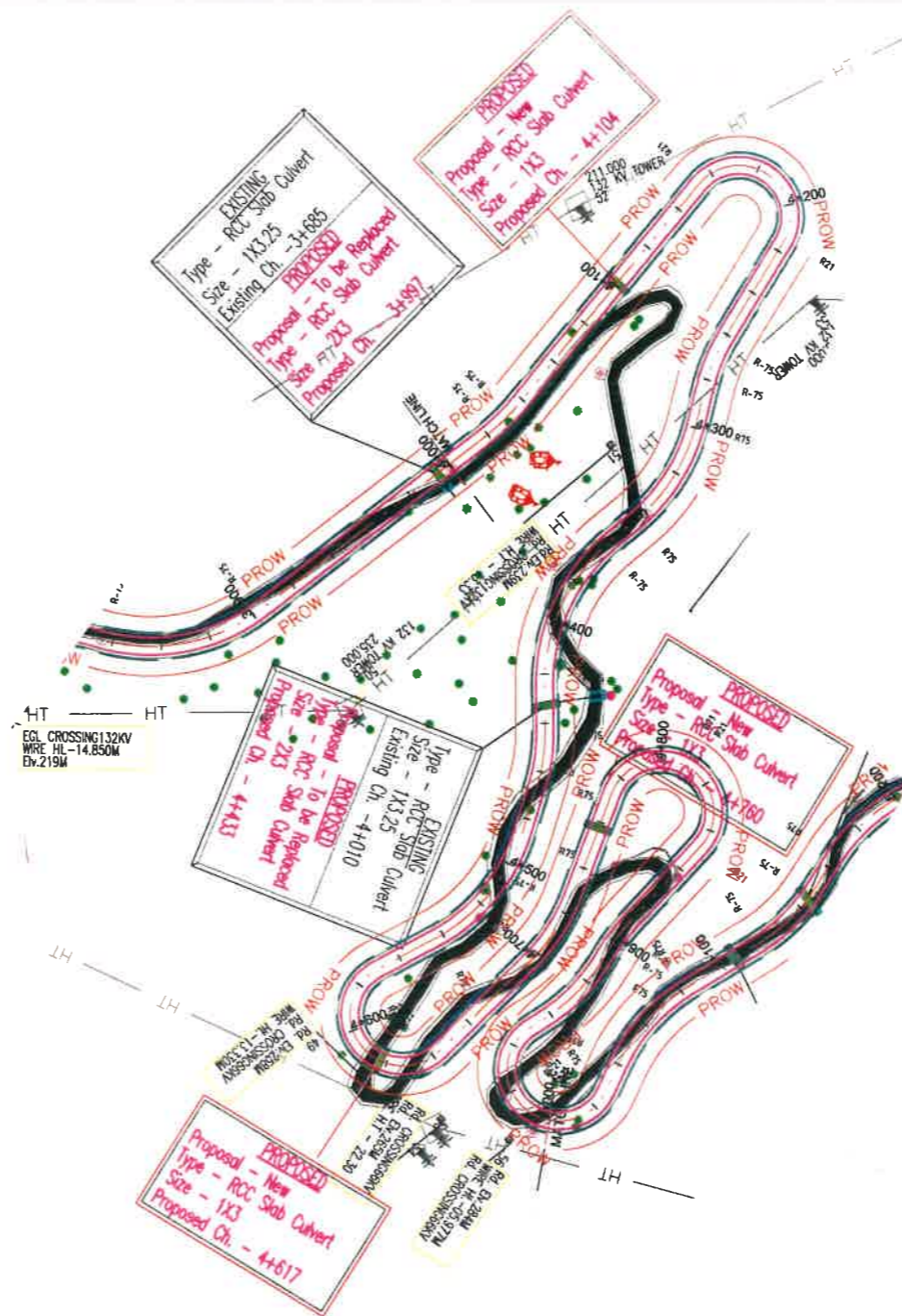
Revision R0

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
PS	Notresh	PS	LAZ

SCALE:- H :- 1:2000
V :- 1:200 For A2 Paper Size

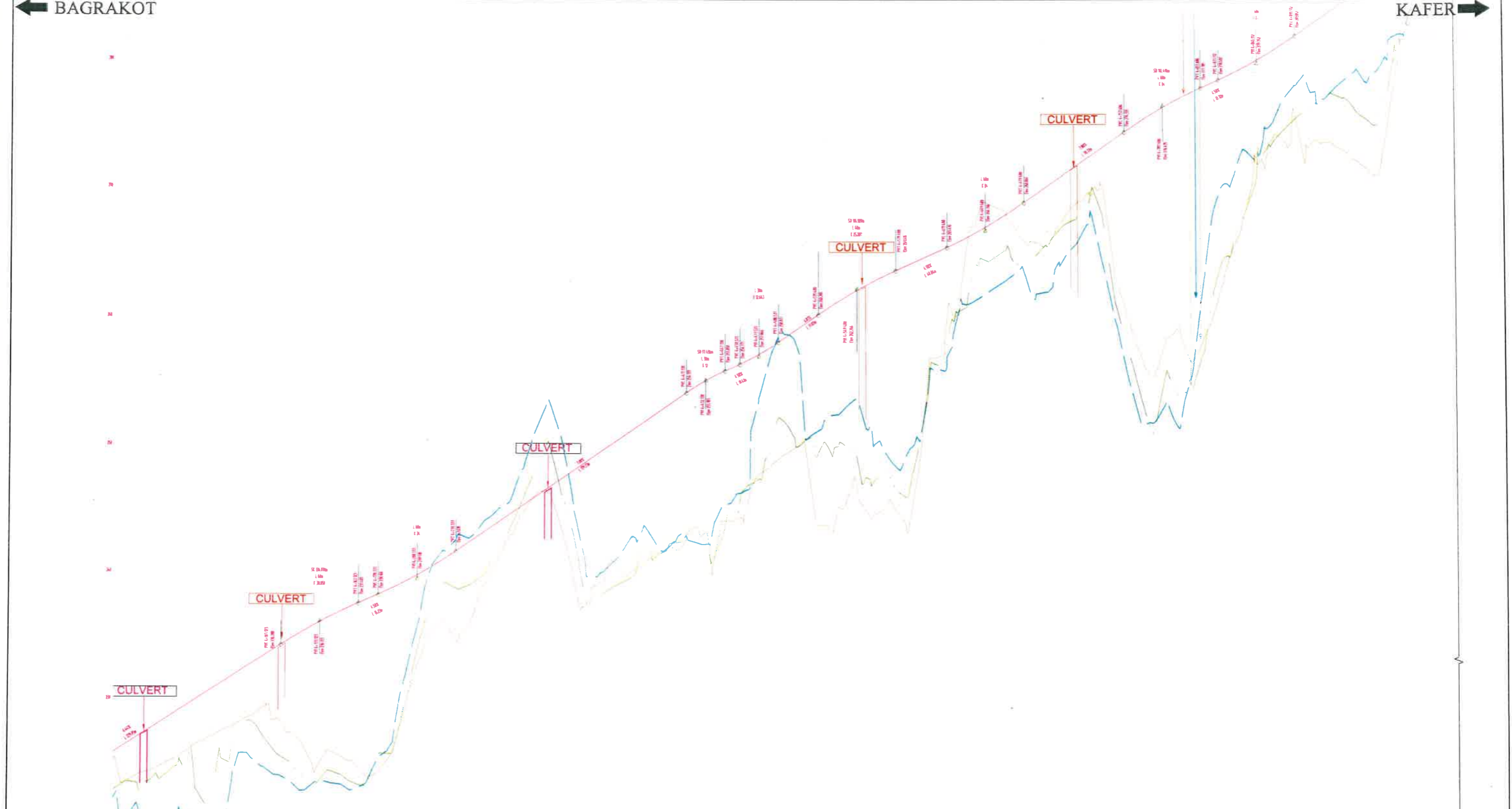
PACKAGE-IVa
PART OF BAGRAKOT To KAFER
PLAN & PROFILE
(PROFILE Km 3+000 To Km 4+000)

Dwg. No. :- SAICPL-SESPL/NHIDC/WB-SKM/04a



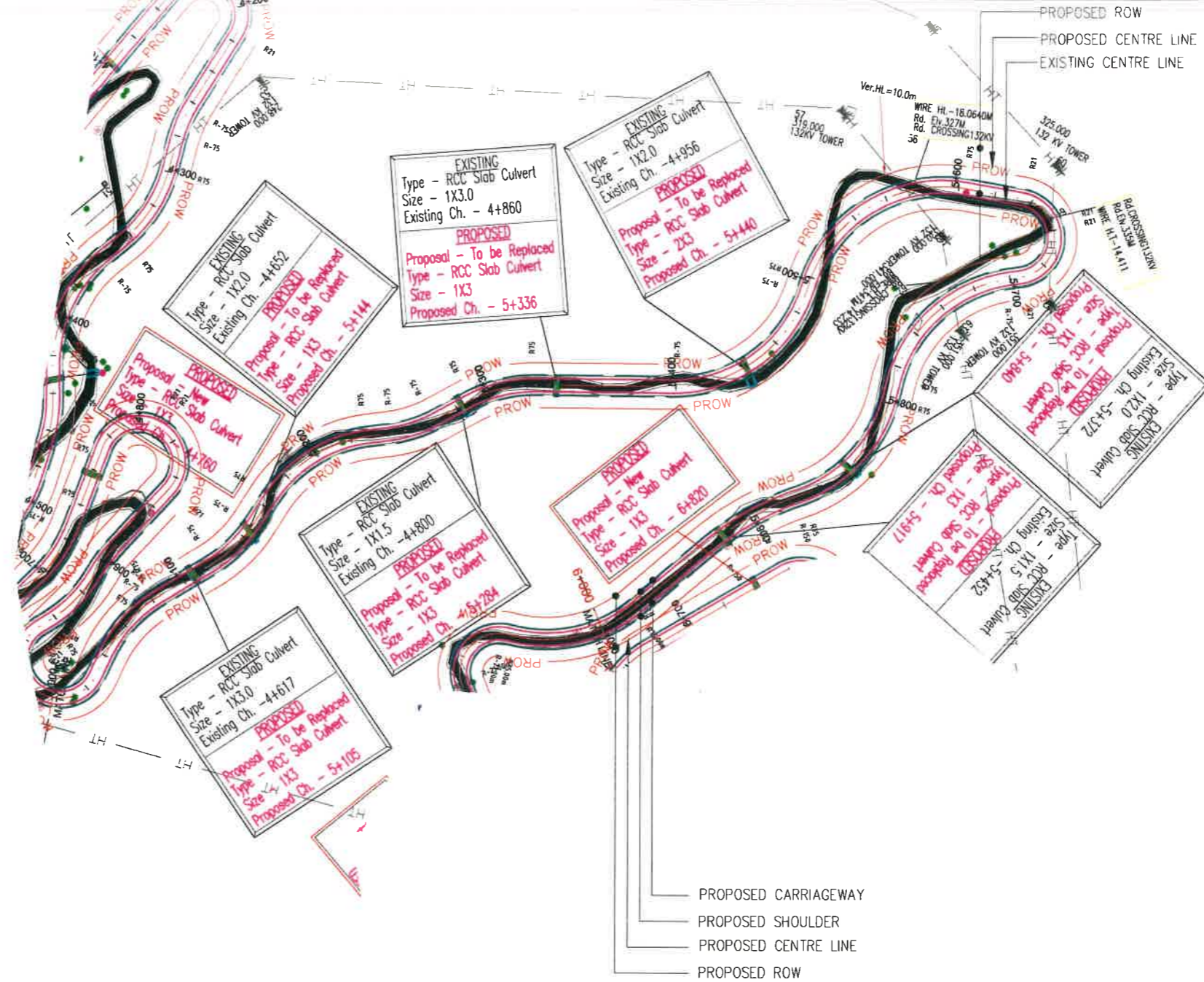
← BAGRAKOT

KAFER →



PROPOSED RD LVL	226.265	227.554	228.843	230.132	231.421	232.710	233.999	235.241	236.556	237.341	238.243	239.240	240.404	241.734	243.134	244.534	245.934	247.334	248.734	250.134	251.534	252.934	254.331	255.516	256.438	257.520	258.866	260.240	261.531	262.855	263.640	264.540	265.440	266.427	267.582	268.903	270.303	271.703	273.103	274.501	275.798	276.928	277.883	278.809	279.864	281.087	282.460	283.860	285.260	286.660	288.003	289.042
EXISTING GROUND LVL	223.475	223.531	224.652	225.565	226.319	227.107	227.771	228.070	228.479	228.470	228.784	229.179	230.817	231.634	232.767	243.191	248.263	246.194	237.822	238.855	240.809	241.785	243.440	241.505	246.367	249.574	250.808	249.571	250.074	247.110	246.673	251.140	258.448	263.734	264.879	264.125	265.920	267.616	267.973	257.566	250.826	253.912	257.583	264.582	270.395	274.248	276.190	277.282	275.717	276.322	282.647	285.986
HORIZONTAL ALIGNMENT	[Diagram showing horizontal alignment with L, U, and S curve segments]																																																			
VERTICAL ALIGNMENT	[Diagram showing vertical alignment with curve segments and grades]																																																			
SUPERELEVATION	[Diagram showing superelevation transition curves]																																																			
DAMAGE/STATION	3+980	4+000	4+020	4+040	4+060	4+080	4+100	4+120	4+140	4+160	4+180	4+200	4+220	4+240	4+260	4+280	4+300	4+320	4+340	4+360	4+380	4+400	4+420	4+440	4+460	4+480	4+500	4+520	4+540	4+560	4+580	4+600	4+620	4+640	4+660	4+680	4+700	4+720	4+740	4+760	4+780	4+800	4+820	4+840	4+860	4+880	4+900	4+920	4+940	4+960	4+980	5+000

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)	Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. <small>In Association with Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida-201301 Uttar Pradesh.</small>	Project :	DATE : Jan-2018	Revision	R0
		Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chulkhm-Nimbong-Kafer-Bakhm-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menia in the State of Sikkim	DESIGNED BY	DRAWN BY	CHECKED BY
P.S. Naresh P.S. LAZ	SCALE:- H = 1:2000 V = 1:200 } For A2 Paper Size		Dwg. No. :-	SA/ICPL/SHDC/WB-SKM/ 5a	
01 Jan 2018 Due to Vertical Profile Revised					
REV	DATE	DESCRIPTION OF REVISIONS	INITIALS		



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan 2018	Due to Vertical Profile Revised	

Client : **NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED**
(Ministry of Road Transport & Highways)

Consultant : **SA INFRASTRUCTURE CONSULTANTS PVT. LTD.**
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301, Uttar Pradesh

Project : **Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menia in the State of Sikkim**

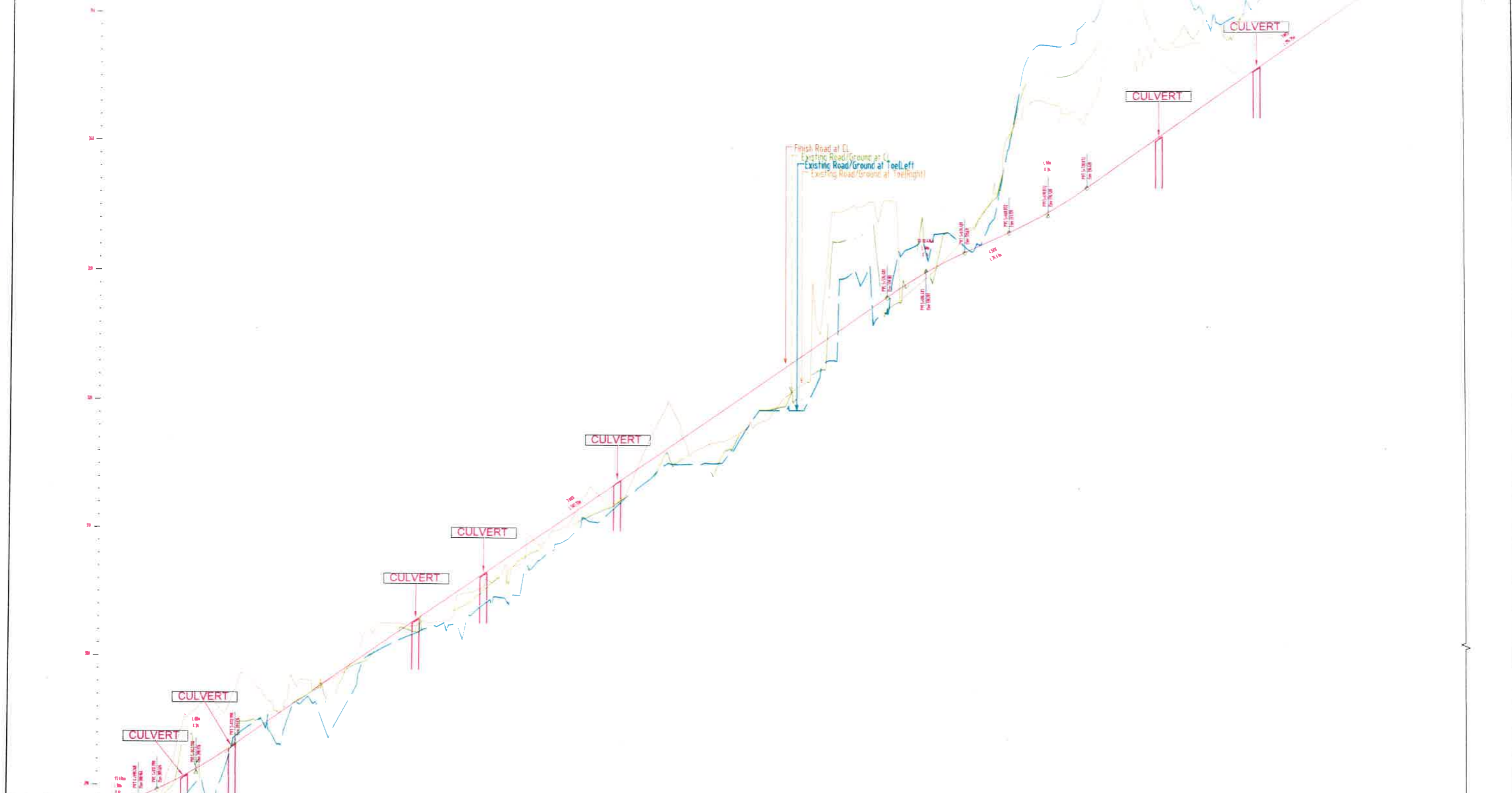
DATE : Jan-2018	Revision	R0	
DESIGNED BY P.S.	DRAWN BY Noresh	CHECKED BY P.S.	APPROVED BY L.A.Z.
SCALE:- H :- 1:2000 V :- 1:200 } For A2 Paper Size			

PACKAGE-IVa
PART OF BAGRAKOT To KAFER
PLAN & PROFILE
(PLAN-Km 5+000 To Km 6+000)

Dwg. No. :-
SAICPL-SESPL/NHIDC/WB-SKM/P&P 06

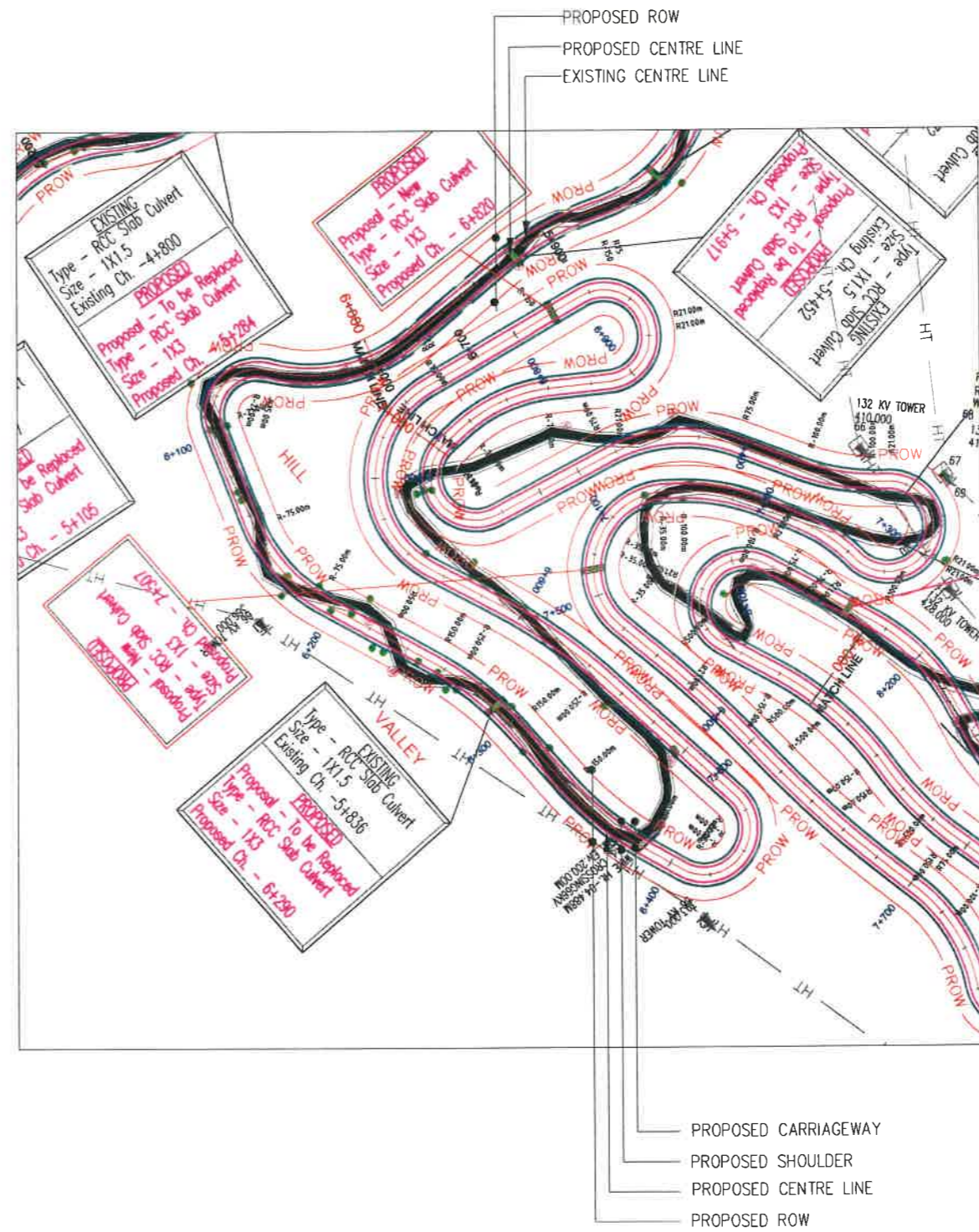
← BAGRAKOT

KAFER →



Datum 288	289.042	289.952	290.984	292.202	293.567	294.967	296.367	297.767	299.167	300.567	301.967	303.367	304.767	306.167	307.567	308.967	310.367	311.767	313.167	314.567	315.967	317.367	318.767	320.167	321.567	322.967	324.367	325.767	327.167	328.567	329.967	331.367	332.767	334.167	335.567	336.967	338.367	339.767	341.167	342.567	343.967	345.367	346.767	348.167	349.567	350.967	352.367	353.767	355.167	356.567	357.967	359.367	360.767																																																																																						
PROPOSED RL LVL	285.988	286.814	287.640	288.466	289.292	290.118	290.944	291.770	292.596	293.422	294.248	295.074	295.900	296.726	297.552	298.378	299.204	300.030	300.856	301.682	302.508	303.334	304.160	304.986	305.812	306.638	307.464	308.290	309.116	309.942	310.768	311.594	312.420	313.246	314.072	314.898	315.724	316.550	317.376	318.202	319.028	319.854	320.680	321.506	322.332	323.158	323.984	324.810	325.636	326.462	327.288	328.114	328.940	329.766	330.592	331.418	332.244	333.070	333.896	334.722	335.548	336.374	337.200	338.026	338.852	339.678	340.504	341.330	342.156	342.982	343.808	344.634	345.460	346.286	347.112	347.938	348.764	349.590	350.416	351.242	352.068	352.894	353.720	354.546	355.372	356.198	357.024	357.850	358.676	359.502	360.328	361.154	361.980	362.806	363.632	364.458	365.284	366.110	366.936	367.762	368.588	369.414	370.240	371.066	371.892	372.718	373.544	374.370	375.196	376.022	376.848	377.674	378.500	379.326	380.152	380.978	381.804	382.630	383.456	384.282	385.108	385.934	386.760	387.586	388.412	389.238	390.064	390.890	391.716	392.542	393.368	394.194	395.020	395.846	396.672	397.498	398.324	399.150	400.000
EXISTING GROUND LVL																																																																																																																																											
HORIZONTAL ALIGNMENT																																																																																																																																											
VERTICAL ALIGNMENT																																																																																																																																											
SUPERELEVATION																																																																																																																																											
DAMAGE STATION	5+000	5+020	5+040	5+060	5+080	5+100	5+120	5+140	5+160	5+180	5+200	5+220	5+240	5+260	5+280	5+300	5+320	5+340	5+360	5+380	5+400	5+420	5+440	5+460	5+480	5+500	5+520	5+540	5+560	5+580	5+600	5+620	5+640	5+660	5+680	5+700	5+720	5+740	5+760	5+780	5+800	5+820	5+840	5+860	5+880	5+900	5+920	5+940	5+960	5+980	6+000																																																																																								

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)	Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok In Sikkim via Bagrakot-Chulkhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok In the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur from Aritar-Rolep-Menie In the State of Sikkim	DATE : Jan-2018	Revision R0	PACKAGE-IVa PART OF BAGRAKOT To KAFER PLAN & PROFILE (PROFILE Km 5+000 To Km 6+000)
		DESIGNED BY P.S.	DRAWN BY Noresh	
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-4, Corporate Park, Plot No. 7A/1, Sector-142, Noida-201301, Uttar Pradesh.	SCALE:- H :- 1:2000 V :- 1:200	For A2 Paper Size		Dwg. No. :- SAICPL-SESPL/NHDC/WB-SKM/ 06a
01 Jan 2018 Due to Vertical Profile Revised				
REV	DATE	DESCRIPTION OF REVISIONS	INITIALS	



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
C1	Jan 2018	Due to Vertical Profile Revised	

Client : **NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED**
(Ministry of Road Transport & Highways)

Consultant : **SA INFRASTRUCTURE CONSULTANTS PVT. LTD.**
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida 201301, Uttar Pradesh.

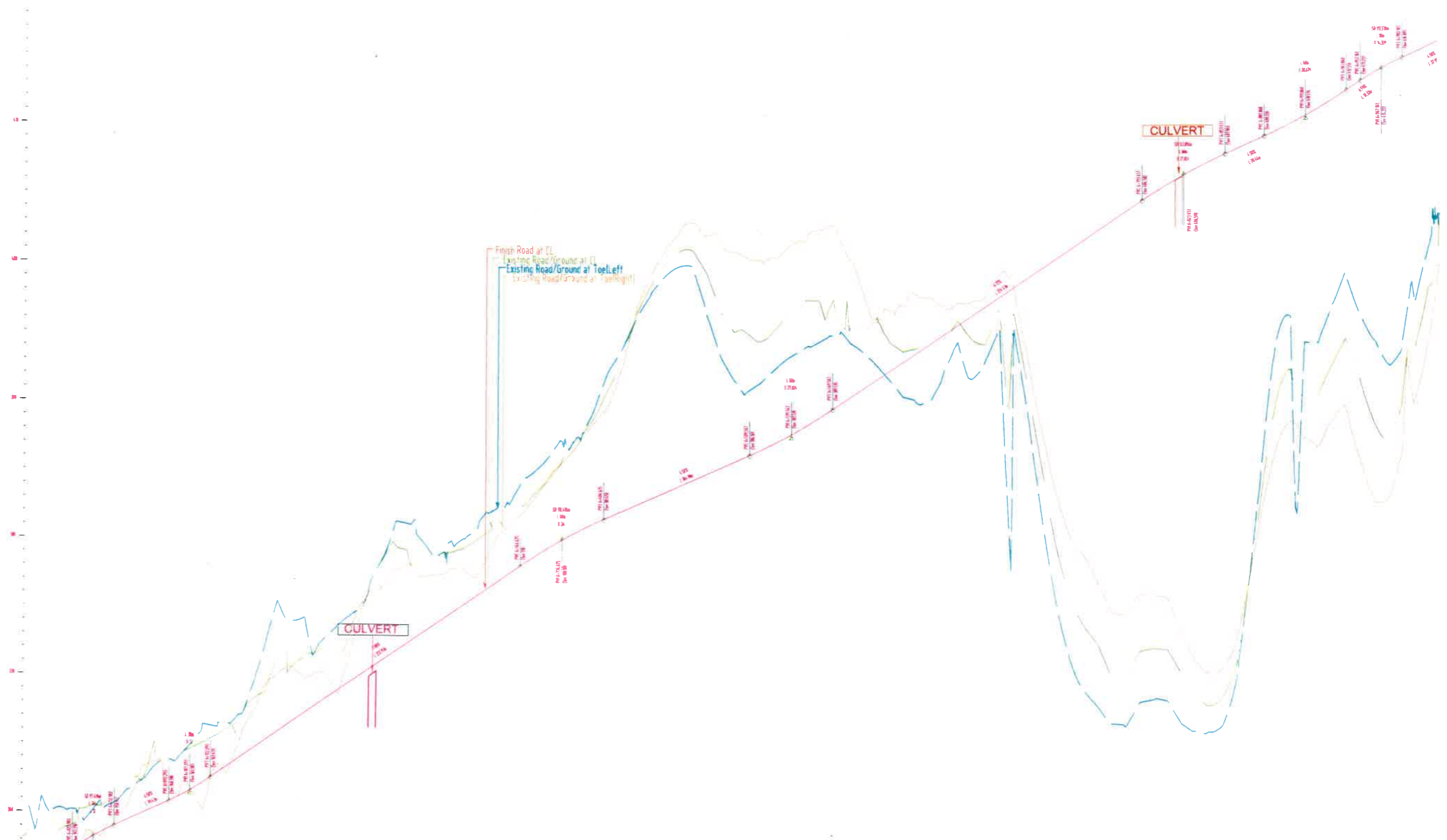
Project : **Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim**

DATE : Jan-2018	Revision	R0
DESIGNED BY P.S.	DRAWN BY Naresh	CHECKED BY P.S.
		APPROVED BY L.A.Z.

SCALE:- H :- 1:2000
V :- 1:200 For A2 Paper Size

PACKAGE-IVa
PART OF BAGRAKOT To KAFER
PLAN & PROFILE
(PLAN-Km 6+000 To Km 7+000)

Dwg. No. :- SAICPL-SESPL/NHIDC/WB-SKM/ P&P/07



Datum 356.0 ▼

PROPOSED RL (M)	EXISTING GROUND LVL (M)	HORIZONTAL ALIGNMENT	VERTICAL ALIGNMENT	SUPERELEVATION	CHANGING STATION
355.607	358.196	1.5%	1.5%	0.00%	6+000
357.007	358.916	1.5%	1.5%	0.00%	6+020
358.285	360.443	1.5%	1.5%	0.00%	6+040
359.255	361.917	1.5%	1.5%	0.00%	6+060
360.155	364.431	1.5%	1.5%	0.00%	6+080
361.079	364.190	1.5%	1.5%	0.00%	6+100
362.275	365.176	1.5%	1.5%	0.00%	6+120
363.672	365.610	1.5%	1.5%	0.00%	6+140
365.072	368.614	1.5%	1.5%	0.00%	6+160
366.477	370.505	1.5%	1.5%	0.00%	6+180
367.872	371.771	1.5%	1.5%	0.00%	6+200
369.272	372.558	1.5%	1.5%	0.00%	6+220
370.672	376.742	1.5%	1.5%	0.00%	6+240
372.072	378.213	1.5%	1.5%	0.00%	6+260
373.477	378.556	1.5%	1.5%	0.00%	6+280
374.872	378.208	1.5%	1.5%	0.00%	6+300
376.272	380.464	1.5%	1.5%	0.00%	6+320
377.672	381.899	1.5%	1.5%	0.00%	6+340
379.023	383.871	1.5%	1.5%	0.00%	6+360
380.212	386.517	1.5%	1.5%	0.00%	6+380
381.235	388.174	1.5%	1.5%	0.00%	6+400
382.139	391.868	1.5%	1.5%	0.00%	6+420
383.039	398.767	1.5%	1.5%	0.00%	6+440
383.939	400.087	1.5%	1.5%	0.00%	6+460
384.839	398.944	1.5%	1.5%	0.00%	6+480
385.739	395.164	1.5%	1.5%	0.00%	6+500
386.639	394.599	1.5%	1.5%	0.00%	6+520
387.711	396.877	1.5%	1.5%	0.00%	6+540
388.910	397.399	1.5%	1.5%	0.00%	6+560
390.237	397.471	1.5%	1.5%	0.00%	6+580
391.581	396.208	1.5%	1.5%	0.00%	6+600
392.926	393.752	1.5%	1.5%	0.00%	6+620
394.270	394.791	1.5%	1.5%	0.00%	6+640
395.614	393.961	1.5%	1.5%	0.00%	6+660
396.958	394.143	1.5%	1.5%	0.00%	6+680
398.302	396.713	1.5%	1.5%	0.00%	6+700
399.646	395.353	1.5%	1.5%	0.00%	6+720
400.990	395.963	1.5%	1.5%	0.00%	6+740
402.334	397.413	1.5%	1.5%	0.00%	6+760
403.678	399.973	1.5%	1.5%	0.00%	6+780
405.014	397.127	1.5%	1.5%	0.00%	6+800
406.356	397.236	1.5%	1.5%	0.00%	6+820
407.699	397.917	1.5%	1.5%	0.00%	6+840
409.043	397.018	1.5%	1.5%	0.00%	6+860
409.143	394.699	1.5%	1.5%	0.00%	6+880
410.100	392.426	1.5%	1.5%	0.00%	6+900
411.196	390.777	1.5%	1.5%	0.00%	6+920
412.432	394.613	1.5%	1.5%	0.00%	6+940
413.728	398.646	1.5%	1.5%	0.00%	6+960
414.798	399.928	1.5%	1.5%	0.00%	6+980
415.700	398.171	1.5%	1.5%	0.00%	7+000

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 74/1, Sector-142, Gurgaon-201301, Haryana, India.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chulkhim-Nimborng-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Artar-Rolep-Menia in the State of Sikkim

DATE : Jan-2018

Revision R0

DESIGNED BY: [Signature]

DRAWN BY: [Signature]

CHECKED BY: [Signature]

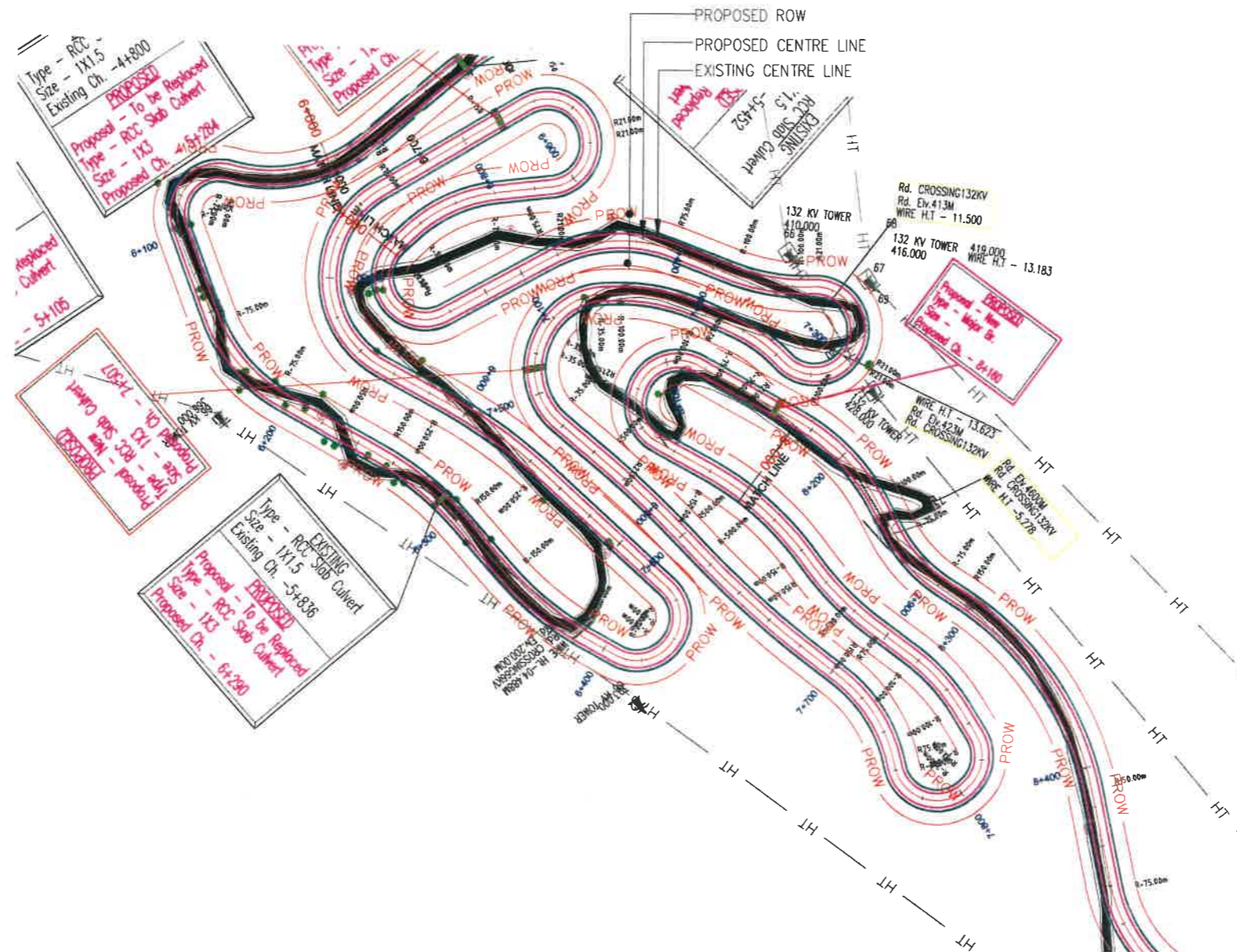
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SCALE:- H :- 1:2000
V :- 1:200 For A2 Paper Size

PACKAGE-IVa
PART OF BAGRAKOT To KAFER
PLAN & PROFILE
(PROFILE Km 6+000 To Km 7+000)

Dwg. No. :- SA/ICPL-SESPL/NHIDC/WB-SKM/07a

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan 2018	Due to Vertical Profile Revised	



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan 2018	Due to Vertical Profile Revised	

Client : **NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED**
(Ministry of Road Transport & Highways)

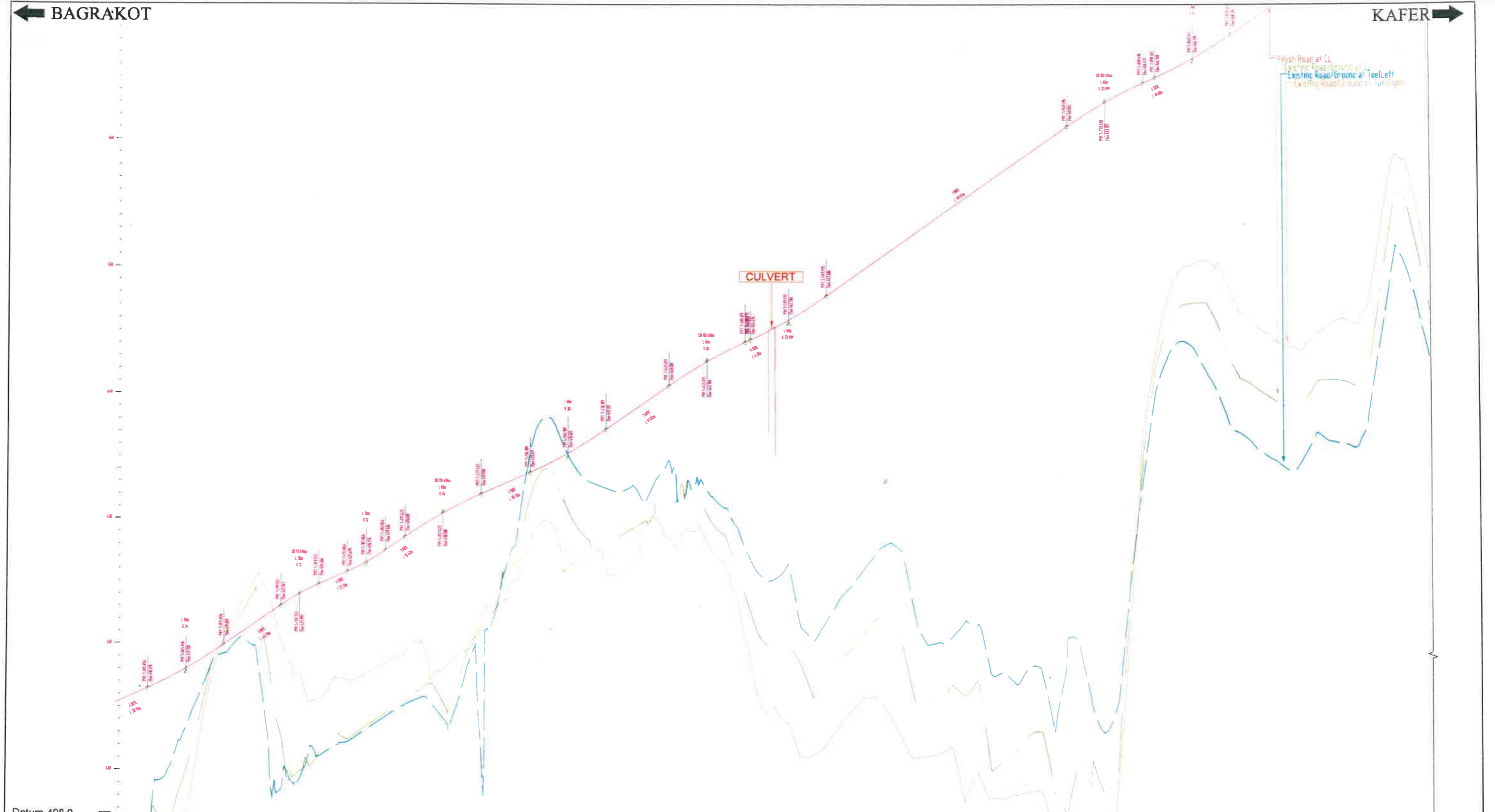
Consultant : **SA INFRASTRUCTURE CONSULTANTS PVT. LTD.**
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida 201301, Uttar Pradesh.

Project : **Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chulkim-Nimbong-Kafer-Bakhim-Agarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Ariar-Rolep-Imlia in the State of Sikkim**

DATE : Jan-2018	Revision	RO	
DESIGNED BY P.S.	DRAWN BY Naresh	CHECKED BY P.S.	APPROVED BY L.A.Z.
SCALE:- H :- 1:2000 V :- 1:200 } For A2 Paper Size			

PACKAGE-IVa
PART OF BAGRAKOT To KAFER
PLAN & PROFILE
(PLAN-Km 7+000 To Km 8+000)

Dwg. No. :- SAICPL-SESPL/NHIDC/WB-SKM/P&P 08



Datum 408.0	
PROPOSED RL LVL	415.700, 416.605, 417.629, 418.820, 420.173, 421.573, 422.973, 424.198, 425.137, 426.063, 427.262, 428.659, 429.954, 431.083, 432.046, 432.946, 433.849, 434.865, 436.047, 437.393, 438.793, 440.193, 441.551, 442.750, 443.781, 444.710, 445.777, 447.011, 448.390, 449.790, 451.190, 452.590, 453.990, 455.390, 456.790, 458.190, 459.590, 460.990, 462.311, 463.465, 464.453, 465.371, 466.433, 467.667, 469.039, 470.439, 471.839, 473.239, 474.639, 476.039, 477.434, 478.712
EXISTING GROUND LVL	398.173, 407.114, 408.179, 415.976, 421.120, 424.140, 410.901, 412.407, 412.878, 414.261, 415.683, 416.707, 416.910, 421.438, 426.073, 432.958, 432.197, 428.562, 428.193, 429.413, 430.649, 432.810, 429.654, 426.141, 420.183, 420.073, 415.163, 418.575, 420.918, 421.275, 415.186, 415.716, 415.865, 409.950, 411.559, 412.927, 408.684, 410.704, 400.321, 415.182, 445.302, 442.116, 445.156, 441.030, 419.701, 418.915, 441.014, 440.930, 443.064, 455.917, 449.899
HORIZONTAL ALIGNMENT	Diagram showing horizontal alignment with lane widths and offsets.
VERTICAL ALIGNMENT	Diagram showing vertical curves with grades and elevations.
SUPERELEVATION	Diagram showing superelevation percentages across the road width.
CHAINAGE/STATION	74+000, 74+020, 74+040, 74+060, 74+080, 74+100, 74+120, 74+140, 74+160, 74+180, 74+200, 74+220, 74+240, 74+260, 74+280, 74+300, 74+320, 74+340, 74+360, 74+380, 74+400, 74+420, 74+440, 74+460, 74+480, 74+500, 74+520, 74+540, 74+560, 74+580, 74+600, 74+620, 74+640, 74+660, 74+680, 74+700, 74+720, 74+740, 74+760, 74+780, 74+800, 74+820, 74+840, 74+860, 74+880, 74+900, 74+920, 74+940, 74+960, 74+980, 8+000, 8+020

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan 2018	Due to Vertical Profile Revised	

Client :
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
 (Ministry of Road Transport & Highways)

Consultant :

SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
 In Association with
 Specialized Engineering Service Pvt Ltd
 1101A, 11th Floor, Tower A-II, Corporate Park,
 Plot No. 74/1, Sector-142,
 Noida-201301, Uttar Pradesh.

Project :
 Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chulkhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakvong along with Spur From Artar-Rolep-Menia in the State of Sikkim

DATE : Jan-2018	Revision	R0
DESIGNED BY	DRAWN BY	CHECKED BY
		APPROVED BY

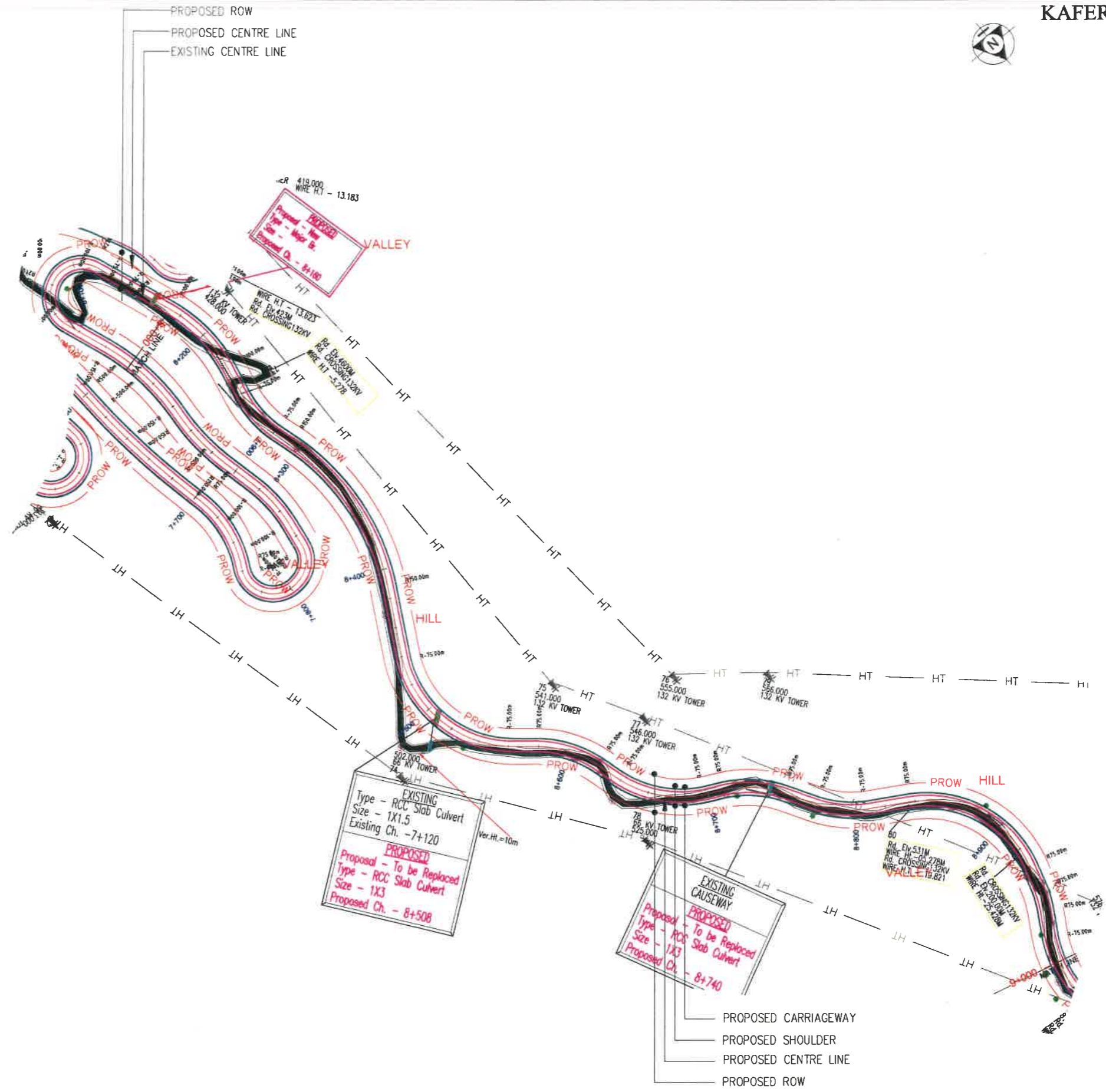
PACKAGE-IVa
PART OF BAGRAKOT To KAFER
PLAN & PROFILE
 (PROFILE Km 7+000 To Km 8+000)

Dwg. No. :- SAICPL-SESPL/NHIDC/WB-SKM/08a

SCALE:- H :- 1:2000
 V :- 1:200 } For A2 Paper Size



PROPOSED ROW
 PROPOSED CENTRE LINE
 EXISTING CENTRE LINE



EXISTING
 Type - RCC Slab Culvert
 Size - 1X1.5
 Existing Ch. - 7+120
 PROPOSED
 Type - To be Replaced
 Type - RCC Slab Culvert
 Size - 1X3
 Proposed Ch. - 8+508
 Ver.Ht.=10m

EXISTING
 CAUSEWAY
 PROPOSED
 Type - To be Replaced
 Type - RCC Slab Culvert
 Size - 1X3
 Proposed Ch. - 8+740

PROPOSED CARRIAGEWAY
 PROPOSED SHOULDER
 PROPOSED CENTRE LINE
 PROPOSED ROW

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan 2018	Due to Vertical Profile Revised	

Client :
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
 (Ministry of Road Transport & Highways)

Consultant :
SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
 In Association with
 Specialized Engineering Service Pvt. Ltd.
 1101A, 11th Floor, Tower A-II, Corporate Park,
 Plot No. 7A/1, Sector-142,
 Noida 201301, Uttar Pradesh

Project :
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DATE : Jan-2018	Revision	RO
DESIGNED BY P.S	DRAWN BY Naresh	CHECKED BY P.S
		APPROVED BY L.A.Z.

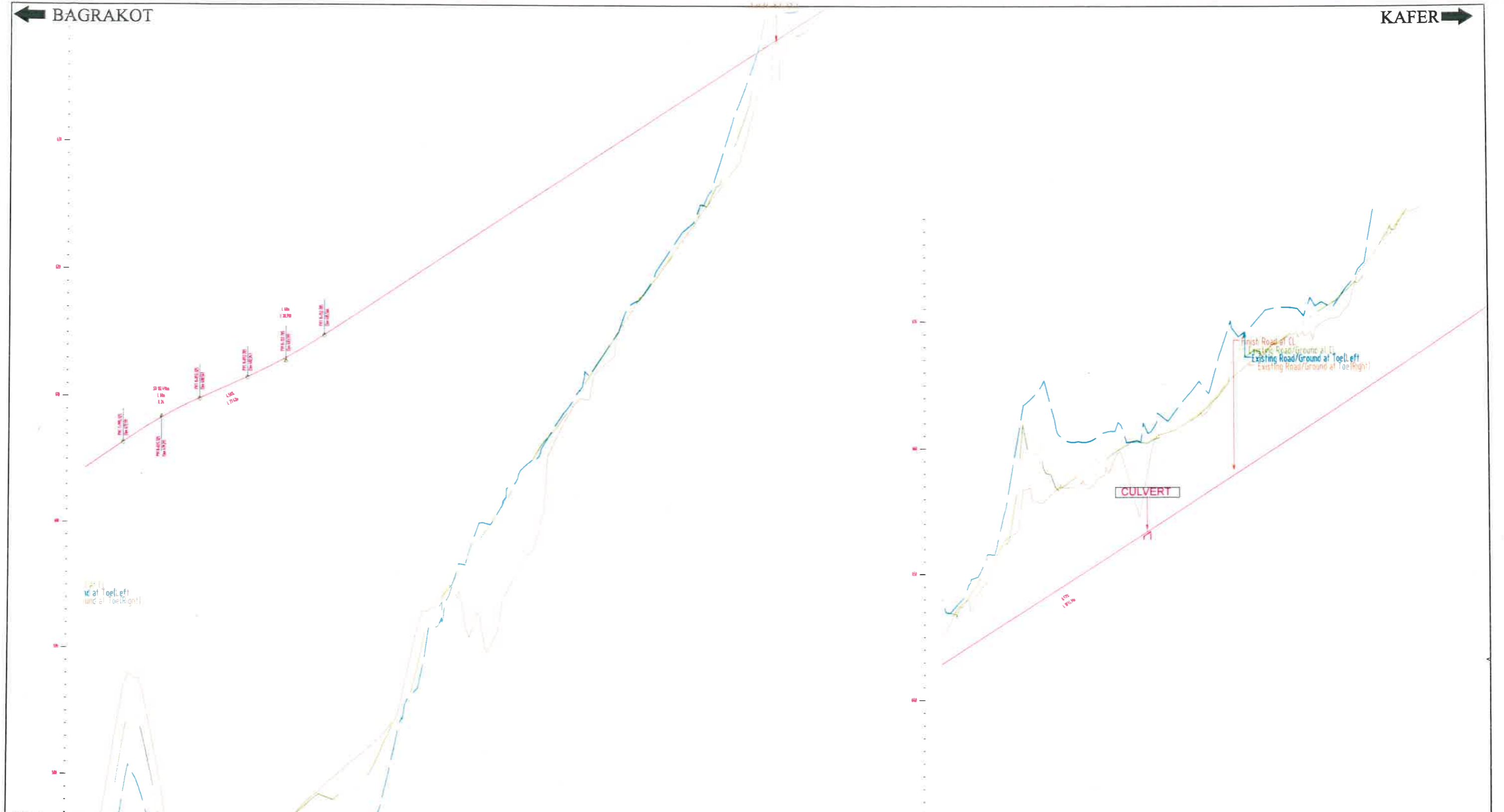
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 V :- 1200 } For A2 Paper Size

PACKAGE-IVa
PART OF BAGRAKOT TO KAFER
 PLAN & PROFILE
 (PLAN-Km 8+000 To Km 9+000)

Dwg. No. :-
 SAICPL-SESPL/NHIDC/WB-SKM/ P&P/09

← BAGRAKOT

KAFER →



PROPOSED RL LVL	476.038	477.434	478.712	479.823	480.772	481.672	482.581	483.600	484.758	486.044	487.358	488.672	489.985	491.299	492.613	493.927	495.241	496.555	497.869	499.183	500.497	501.811	503.125	504.439	505.753	507.067	508.381	509.695	511.009	512.322	513.636	514.950																				
EXISTING GROUND LVL	443.064	455.912	449.859	444.118	437.992	440.906	442.469	446.745	448.458	448.992	449.851	453.133	458.477	463.477	466.962	470.157	473.279	476.478	479.100	482.264	485.151	488.557	491.969	493.799	497.184	501.800	509.698	508.381	509.718	510.895	512.544	517.210	519.007	514.950																		
HORIZONTAL ALIGNMENT	[Diagram showing horizontal alignment with various curve types and lengths]																																																			
VERTICAL ALIGNMENT	[Diagram showing vertical alignment with parabolic curves and grades]																																																			
SUPERELEVATION	[Diagram showing superelevation transition across the road width]																																																			
CHAINAGE/STATION	7+980	8+000	8+020	8+040	8+060	8+080	8+100	8+120	8+140	8+160	8+180	8+200	8+220	8+240	8+260	8+280	8+300	8+320	8+340	8+360	8+380	8+400	8+420	8+440	8+460	8+480	8+500	8+520	8+540	8+560	8+580	8+600	8+620	8+640	8+660	8+680	8+700	8+720	8+740	8+760	8+780	8+800	8+820	8+840	8+860	8+880	8+900	8+920	8+940	8+960	8+980	9+000

01	Jan 2018	Due to Vertical Profile Revised	
REV	DATE	DESCRIPTION OF REVISIONS	INITIALS

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-14B,
Gurgaon 122001, Haryana, India

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chulkim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim

DATE : Jan-2018	Revision R0
DESIGNED BY P.S	DRAWN BY Naresh
CHECKED BY P.S	APPROVED BY L.A.Z

PACKAGE-IVa
PART OF BAGRAKOT TO KAFER
PLAN & PROFILE
(PROFILE Km 8+000 To Km 9+000)

Dwg. No. :- SAICPL-SESP/NHDC/WB-SKM/09a

SCALE:- H :- 1:2000
V :- 1:200 } For A2 Paper Size



Client : **NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED**
(Ministry of Road Transport & Highways)

Consultant : **SA INFRASTRUCTURE CONSULTANTS PVT. LTD.**
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida 201301, Uttar Pradesh.

Project : **Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chulkhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim**

DATE : Jan-2018	Revision	R0	
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
P.S	Noresh	P.S	L.A.Z.

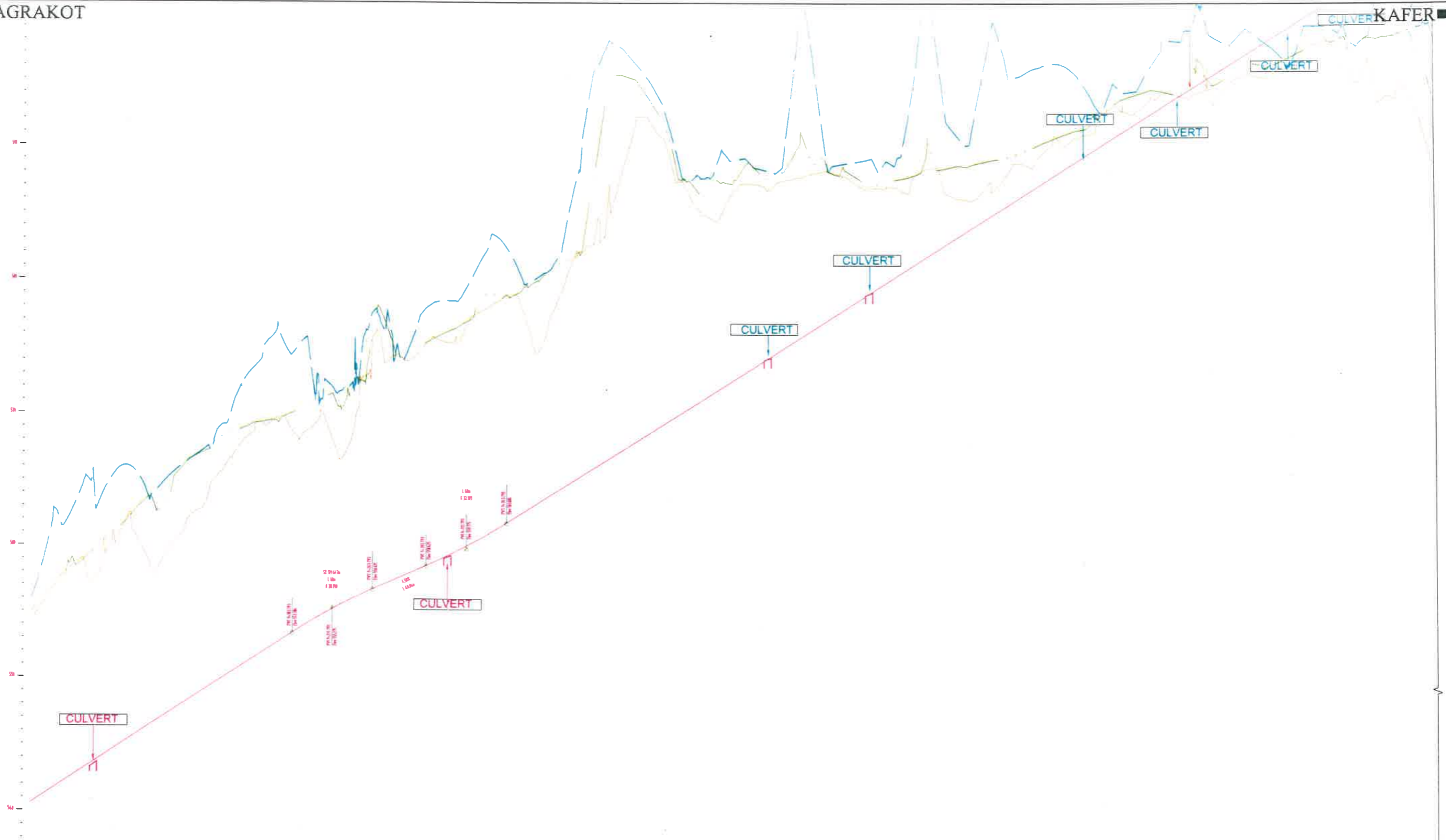
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V :- 1:200 } For A2 Paper Size

PACKAGE-IVa
PART OF BAGRAKOT TO KAFER
PLAN & PROFILE
(PLAN-Km 9+000 To Km 10+000)

Dwg. No. :- SAICPL-SESPL/NHDC/WB-SKM/P&P 10

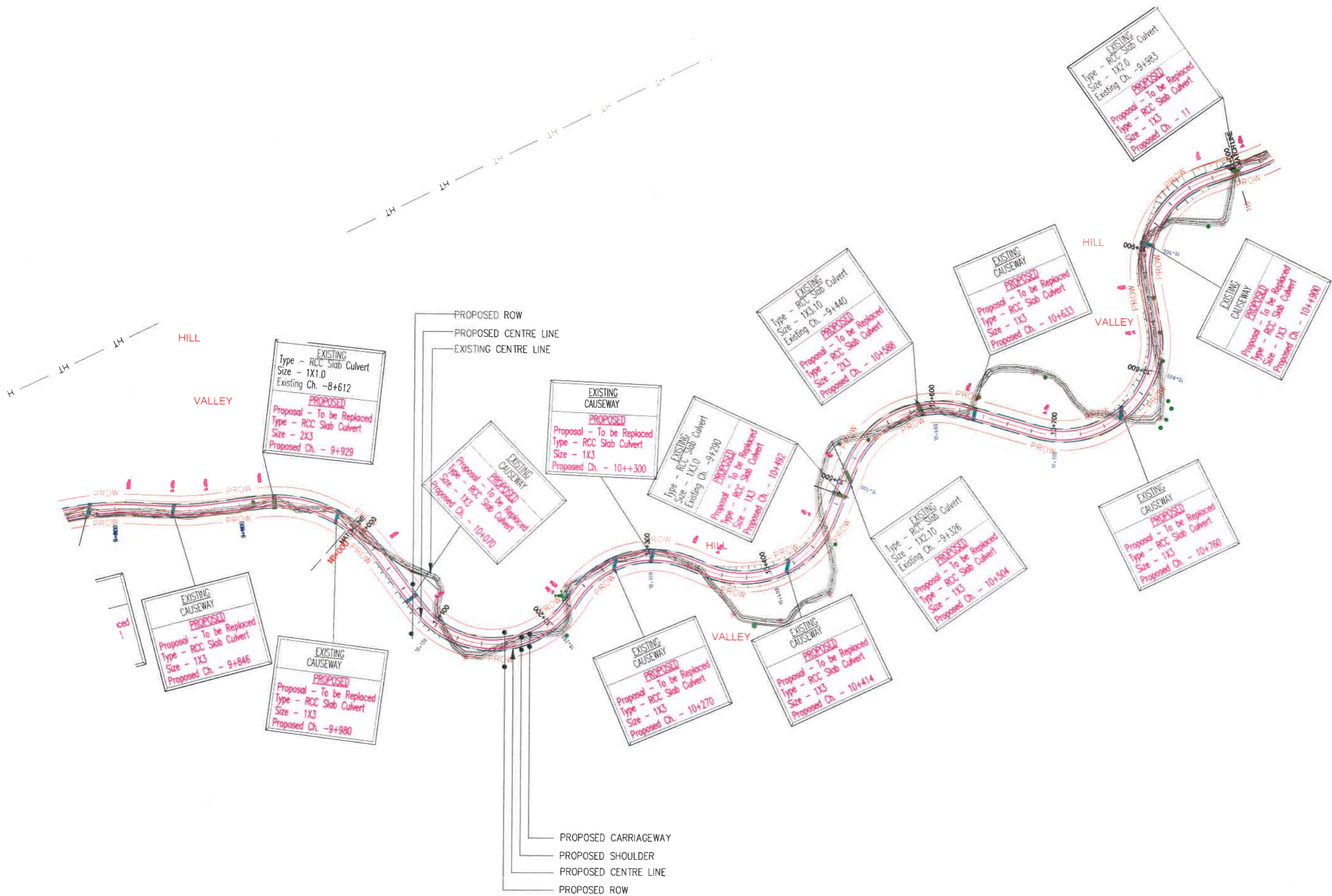
← BAGRAKOT

→ CULVER KAFER



Datum 536.0

PROPOSED RL. LV.	541.229	542.543	543.857	545.171	546.485	547.799	549.113	550.427	551.741	553.055	554.369	555.683	556.997	558.311	559.625	560.939	562.253	563.567	564.881	566.195	567.509	568.823	570.137	571.451	572.765	574.079	575.393	576.707	578.021	579.335	580.649	581.963	583.277	584.591	585.905	587.219	588.533	589.847	591.161	592.475	593.789	595.103	596.417	597.731	599.045	600.359	601.673	602.987	604.301	605.615	606.929	608.243	609.557	610.871	612.185	613.499	614.813	616.127	617.441	618.755	620.069	621.383	622.697	624.011	625.325	626.639	627.953	629.267	630.581	631.895	633.209	634.523	635.837	637.151	638.465	639.779	641.093	642.407	643.721	645.035	646.349	647.663	648.977	650.291	651.605	652.919	654.233	655.547	656.861	658.175	659.489	660.803	662.117	663.431	664.745	666.059	667.373	668.687	670.001	671.315	672.629	673.943	675.257	676.571	677.885	679.199	680.513	681.827	683.141	684.455	685.769	687.083	688.397	689.711	691.025	692.339	693.653	694.967	696.281	697.595	698.909	700.223	701.537	702.851	704.165	705.479	706.793	708.107	709.421	710.735	712.049	713.363	714.677	715.991	717.305	718.619	719.933	721.247	722.561	723.875	725.189	726.503	727.817	729.131	730.445	731.759	733.073	734.387	735.701	737.015	738.329	739.643	740.957	742.271	743.585	744.899	746.213	747.527	748.841	750.155	751.469	752.783	754.097	755.411	756.725	758.039	759.353	760.667	761.981	763.295	764.609	765.923	767.237	768.551	769.865	771.179	772.493	773.807	775.121	776.435	777.749	779.063	780.377	781.691	783.005	784.319	785.633	786.947	788.261	789.575	790.889	792.203	793.517	794.831	796.145	797.459	798.773	800.087	801.401	802.715	804.029	805.343	806.657	807.971	809.285	810.599	811.913	813.227	814.541	815.855	817.169	818.483	819.797	821.111	822.425	823.739	825.053	826.367	827.681	828.995	830.309	831.623	832.937	834.251	835.565	836.879	838.193	839.507	840.821	842.135	843.449	844.763	846.077	847.391	848.705	850.019	851.333	852.647	853.961	855.275	856.589	857.903	859.217	860.531	861.845	863.159	864.473	865.787	867.101	868.415	869.729	871.043	872.357	873.671	874.985	876.299	877.613	878.927	880.241	881.555	882.869	884.183	885.497	886.811	888.125	889.439	890.753	892.067	893.381	894.695	896.009	897.323	898.637	900.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
EXISTING GROUND LV.	516.057	518.818	520.058	521.917	523.111	524.367	525.119	526.827	528.301	529.815	531.055	532.912	534.277	535.456	536.249	537.185	538.195	539.128	540.156	541.156	542.137	543.097	544.034	544.948	545.839	546.706	547.550	548.371	549.170	550.048	550.905	551.741	552.557	553.354	554.131	554.889	555.628	556.348	557.049	557.731	558.395	559.041	559.669	560.279	560.871	561.445	562.001	562.539	563.060	563.564	564.051	564.521	564.975	565.413	565.834	566.238	566.625	567.096	567.551	567.991	568.415	568.824	569.218	569.597	570.061	570.510	570.944	571.363	571.767	572.156	572.530	572.889	573.233	573.562	573.876	574.175	574.459	574.728	574.982	575.221	575.445	575.654	575.848	576.027	576.191	576.345	576.489	576.623	576.747	576.861	576.965	577.059	577.143	577.217	577.281	577.335	577.379	577.413	577.437	577.461	577.475	577.489	577.503	577.517	577.531	577.545	577.559	577.573	577.587	577.601	577.615	577.629	577.643	577.657	577.671	577.685	577.699	577.713	577.727	577.741	577.755	577.769	577.783	577.797	577.811	577.825	577.839	577.853	577.867	577.881	577.895	577.909	577.923	577.937	577.951	577.965	577.979	577.993	578.007	578.021	578.035	578.049	578.063	578.077	578.091	578.105	578.119	578.133	578.147	578.161	578.175	578.189	578.203	578.217	578.231	578.245	578.259	578.273	578.287	578.301	578.315	578.329	578.343	578.357	578.371	578.385	578.399	578.413	578.427	578.441	578.455	578.469	578.483	578.497	578.511	578.525	578.539	578.553	578.567	578.581	578.595	578.609	578.623	578.637	578.651	578.665	578.679	578.693	578.707	578.721	578.735	578.749	578.763	578.777	578.791	578.805	578.819	578.833	578.847	578.861	578.875	578.889	578.903	578.917	578.931	578.945	578.959	578.973	578.987	579.001	579.015	579.029	579.043	579.057	579.071	579.085	579.099	579.113	579.127	579.141	579.155	579.169	579.183	579.197	579.211	579.225	579.239	579.253	579.267	579.281	579.295	579.309	579.323	579.337	579.351	579.365	579.379	579.393	579.407	579.421	579.435	579.449	579.463	579.477	579.491	579.505	579.519	579.533	579.547	579.561	579.575	579.589	579.603	579.617	579.631	579.645	579.659	579.673	579.687	579.701	579.715	579.729	579.743	579.757	579.771	579.785	579.799	579.813	579.827	579.841	579.855	579.869	579.883	579.897	579.911	579.925	579.939	579.953	579.967	579.981	579.995	580.009	580.023	580.037	580.051	580.065	580.079	580.093	580.107	580.121	580.135	580.149	580.163	580.177	580.191	580.205	580.219	580.233	580.247	580.261	580.275	580.289	580.303	580.317	580.331	580.345	580.359	580.373	580.387	580.401	580.415	580.429	580.443	580.457	580.471	580.485	580.499	580.513	580.527	580.541	580.555	580.569	580.583	580.597	580.611	580.625	580.639	580.653	580.667	580.681	580.695	580.709	580.723	580.737	580.751	580.765	580.779	580.793	580.807	580.821	580.835	580.849	580.863	580.877	580.891	580.905	580.919	580.933	580.947	580.961	580.975	580.989	581.003	581.017	581.031	581.045	581.059	581.073	581.087	581.101	581.115	581.129	581.143	581.157	581.171	581.185	581.199	581.213	581.227	581.241	581.255	581.269	581.283	581.297	581.311	581.325	581.339	581.353	581.367	581.381	581.395	581.409	581.423	581.437	581.451	581.465	581.479	581.493	581.507	581.521	581.535	581.549	581.563	581.577	581.591	581.605	581.619	581.633	581.647	581.661	581.675	581.689	581.703	581.717	581.731	581.745	581.759	581.773	581.787	581.801	581.815	581.829	581.843	581.857	581.871	581.885	581.899	581.913	581.927	581.941	581.955	581.969	581.983	581.997	582.011	582.025	582.039	582.053	582.067	582.081	582.095	582.109	582.123	582.137	582.151	582.165	582.179	582.193	582.207	582.221	582.235	582.249	582.263	582.277	582.291	582.305	582.319	582.333	582.347	582.361	582.375	582.389	582.403	582.417	582.431	582.445	582.459	582.473	582.487	582.501	582.515	582.529	582.543	582.557	582.571	582.585	582.599	582.613	582.627	582.641	582.655	582.669	582.683	582.697	582.711	582.725	582.739	582.753	582.767	582.781	582.795	582.809	582.823	582.837	582.851	582.865	582.879	582.893	582.907	582.921	582.935	582.949	582.963	582.977	582.991	583.005	583.019	583.033	583.047	583.061	583.075	583.089	583.103	583.117	583.131	583.145	583.159	583.173	583.187	583.201	583.215	583.229	583.243	583.257	583.271	583.285	583.299	583.313	583.327	583.341	583.355	583.369	583.383	583.397	583.411	583.425	583.439	583.453	583.467	583.481	583.495	583.509	583.523	583.537	583.551	583.565	583.579	583.593	583.607	583.621	583.635	583.649	583.663	583.677	583.691	583.705	583.719	583.733	583.747	583.761	583.775	583.789	583.803	583.817	583.831	583.845	583.859	583.873	583.887	583.901	583.915	583.929	583.943	583.957	583.971	583.985	583.999	584.013	584.027	584.041	584.055	584.069	584.083	584.097	584.111	584.125	584.139	584.153	584.167	584.181	584.195	584.209	584.223	584.237	584.251	584.265	584.279	584.293	584.307	584.321	584.335	584.349	584.363	584.377	584.391	584.405	584.419	584.433	584.447	584.461	584.475	584.489	584.503	584.517	584.531	584.545	584.559	584.573	584.587	584.601	584.615	584.629	584.643	584.657	584.671	584.685	584.699	584.713	584.727	584.741	584.755	584.769	584.783	584.797	584.811	584.825	584.839	584.853	584.867	584.881	584.895	584.909	584.923	584.937	584.951	584.965	584.979	584.993	585.007	585.021	585.035	585.049	585.063	585.077	585.091	585.105	585.119	585.133	585.147	585.161	585.175	585.189	585.203	585.217	585.231	585.245	585.259	585.273	585.287	585.301	585.315	585.329	585.343	585.357	585.371	585.385	585.399	585.413	585.427	585.441	585.455	585.469	585.483	585.497	585.511	585.525	585.539	585.553	585.567	585.581	585.595	585.609	585.623	585.637	585.651	585.665	585.679	585.693	585.707	585.721	585.735	585.749	585.763	585.777	585.791	585.805	585.819	585.833	585.847	585.861	585.875	585.889	585.903	585.917	585.931	585.945	585.959	585.973	585.987	586.001	586.015	586.029	586.043	586.057	586.071	586.085	586.099	586.113	586.127	586.141	586.155	586.169	586.183	586.197	586.211	586.225	586.239	586.253	586.267	586.281	586.295	586.309	586.323	586.337	586.351



Client : **NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED**
(Ministry of Road Transport & Highways)

Consultant : **SA INFRASTRUCTURE CONSULTANTS PVT. LTD.**
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301, Uttar Pradesh.

Project : **Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Silikim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Artar-Rolep-Ivienia in the State of Sikkim**

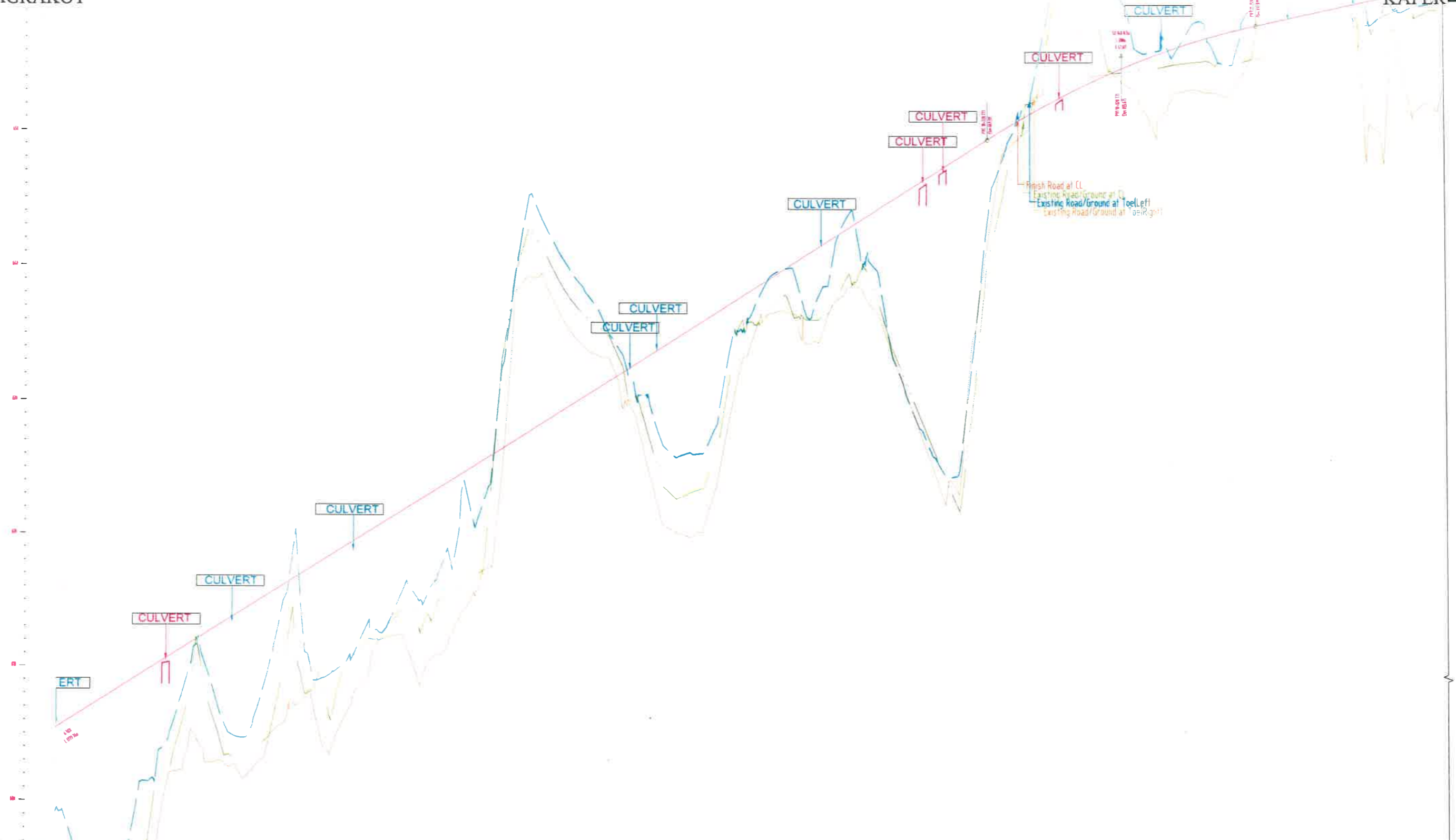
DATE : Jan-2018	Revision	R0	
DESIGNED BY P.S.	DRAWN BY Nresh	CHECKED BY P.S.	APPROVED BY L.A.Z.
SCALE:- H :- 1:2000 V :- 1:200 } For A2 Paper Size			

PACKAGE-IVa
PART OF BAGRAKOT TO KAFER
PLAN & PROFILE
(PLAN-Km 10+000 To Km 11+000)

Dwg. No. :-
SAICPL-SESPL/NHIDC/WB-SKM/ P&P/11

← BAGRAKOT

KA FER →



Datum 596.0	
PROPOSED H.C. LVL	603.443 604.716 605.989 607.261 608.534 609.807 611.080 612.352 613.625 614.898 616.171 617.443 618.716 619.989 621.262 622.534 623.807 625.080 626.353 627.625 628.898 630.171 631.444 632.716 633.989 635.262 636.535 637.807 639.080 640.353 641.626 642.898 644.171 645.444 646.717 647.989 649.262 650.535 651.807 653.080 654.353 655.626 656.898 658.171 659.444 655.406 656.679 657.952 659.225 655.444 656.717 657.990 659.263 655.406 656.679 657.952 659.225
EXISTING GROUND LVL	598.233 599.506 600.779 602.052 603.325 604.598 605.871 607.144 608.417 609.690 610.963 612.236 613.509 614.782 616.055 617.328 618.601 619.874 621.147 622.420 623.693 624.966 626.239 627.512 628.785 630.058 631.331 632.604 633.877 635.150 636.423 637.696 638.969 640.242 641.515 642.788 644.061 645.334 646.607 647.880 649.153 650.426 651.699 652.972 654.245 655.518 656.791 658.064 659.337 655.406 656.679 657.952 659.225
HORIZONTAL ALIGNMENT	-----
VERTICAL ALIGNMENT	-----
SUPERELEVATION	-----
CHAINAGE/STATION	10+000 10+020 10+040 10+060 10+080 10+100 10+120 10+140 10+160 10+180 10+200 10+220 10+240 10+260 10+280 10+300 10+320 10+340 10+360 10+380 10+400 10+420 10+440 10+460 10+480 10+500 10+520 10+540 10+560 10+580 10+600 10+620 10+640 10+660 10+680 10+700 10+720 10+740 10+760 10+780 10+800 10+820 10+840 10+860 10+880 10+900 10+920 10+940 10+960 10+980 11+000

01	Jan 2018	Due to Vertical Profile Revised	
REV	DATE	DESCRIPTION OF REVISIONS	INITIALS

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. In Association with Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-4, Corporate Park, Plot No. 74/1, Sector-142, Noida 201301, Uttar Pradesh

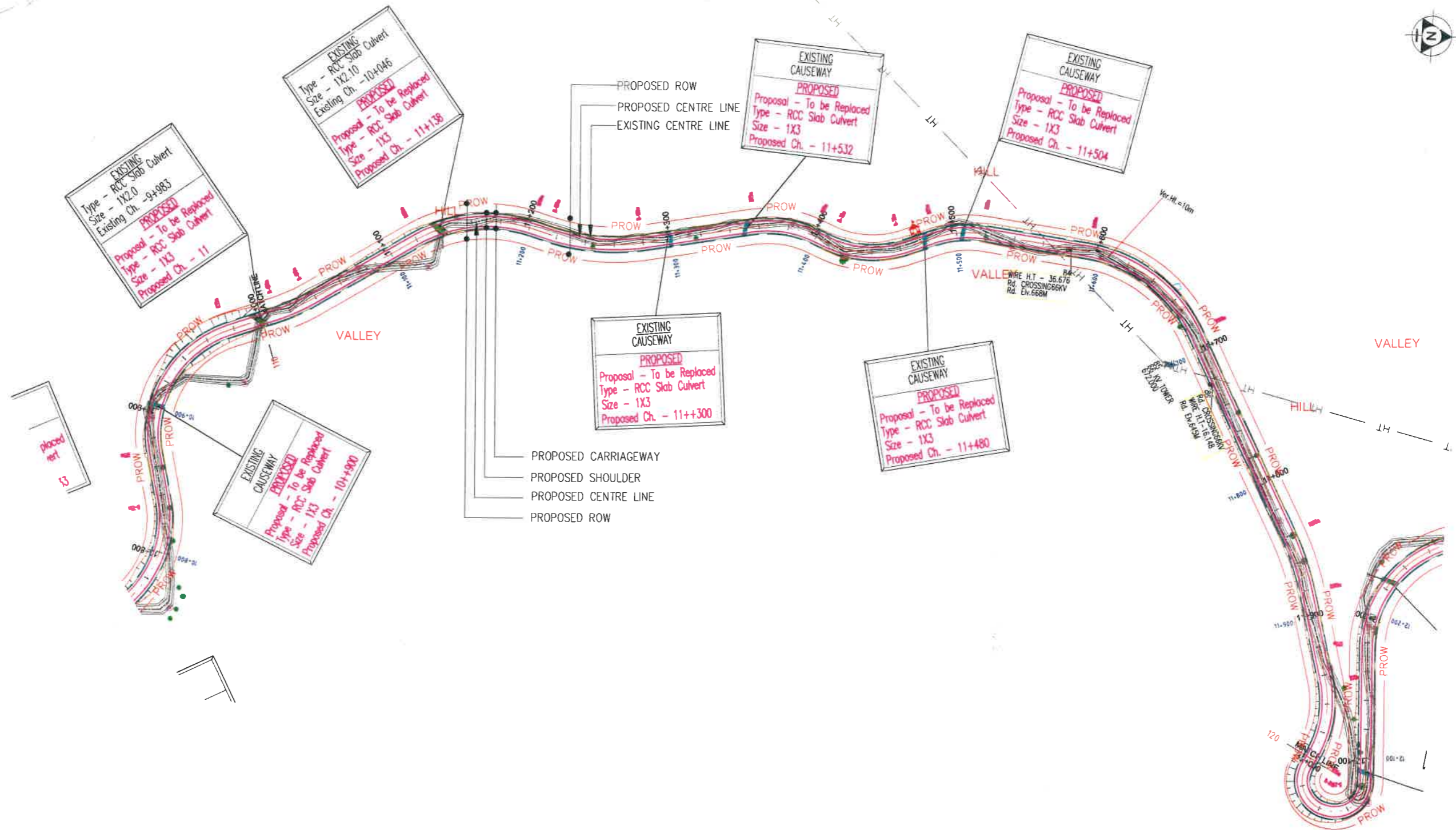
Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chulkhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Artar-Rolep-Mena in the State of Sikkim

DATE : Jan-2018	Revision R0
DESIGNED BY P.S.	DRAWN BY Noresh
CHECKED BY P.S.	APPROVED BY LAZ.

PACKAGE-IVa
PART OF BAGRAKOT To KA FER
PLAN & PROFILE
(PROFILE Km 10+000 To Km 11+000)

Dwg. No. :- SAICPL-SESPL/NHIDC/WB-SKM/11a

SCALE:- H :- 1:2000
V :- 1:200 } For A2 Paper Size



Client : **NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED**
(Ministry of Road Transport & Highways)

Consultant : **SA INFRASTRUCTURE CONSULTANTS PVT. LTD.**
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida 201301, Uttar Pradesh.

Project : **Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bekhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Artar-Rolep-Menia in the State of Sikkim**

DATE : Jan-2018	Revision	RO
DESIGNED BY P.S	DRAWN BY Naresh	CHECKED BY P.S
		APPROVED BY L.A.Z.

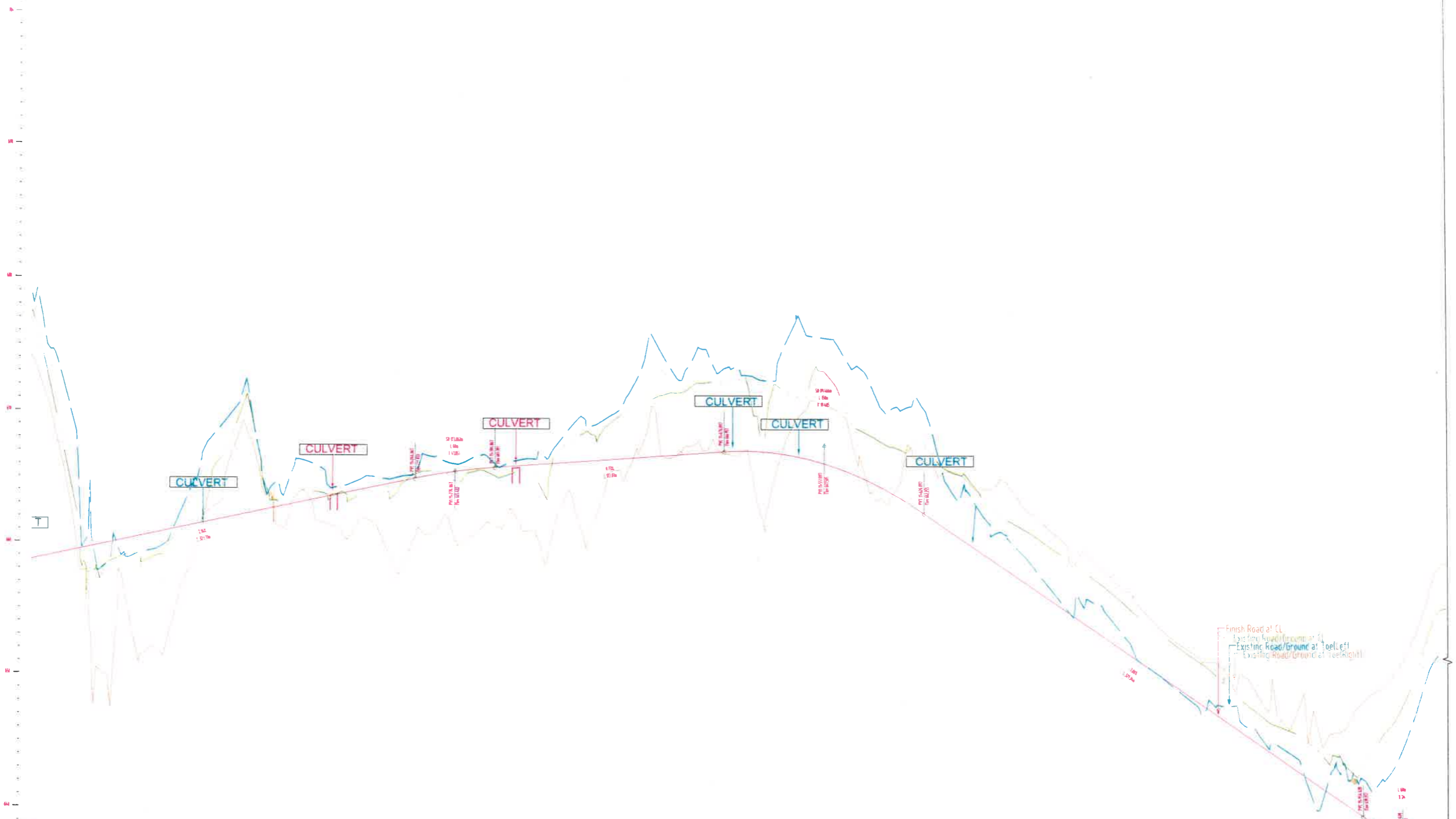
SCALE:- H :- 1:2000
V :- 1:200 } For A2 Paper Size

PACKAGE-IVa
PART OF BAGRAKOT TO KAFER
PLAN & PROFILE
(PLAN-Km 11+000 To Km 12+000)

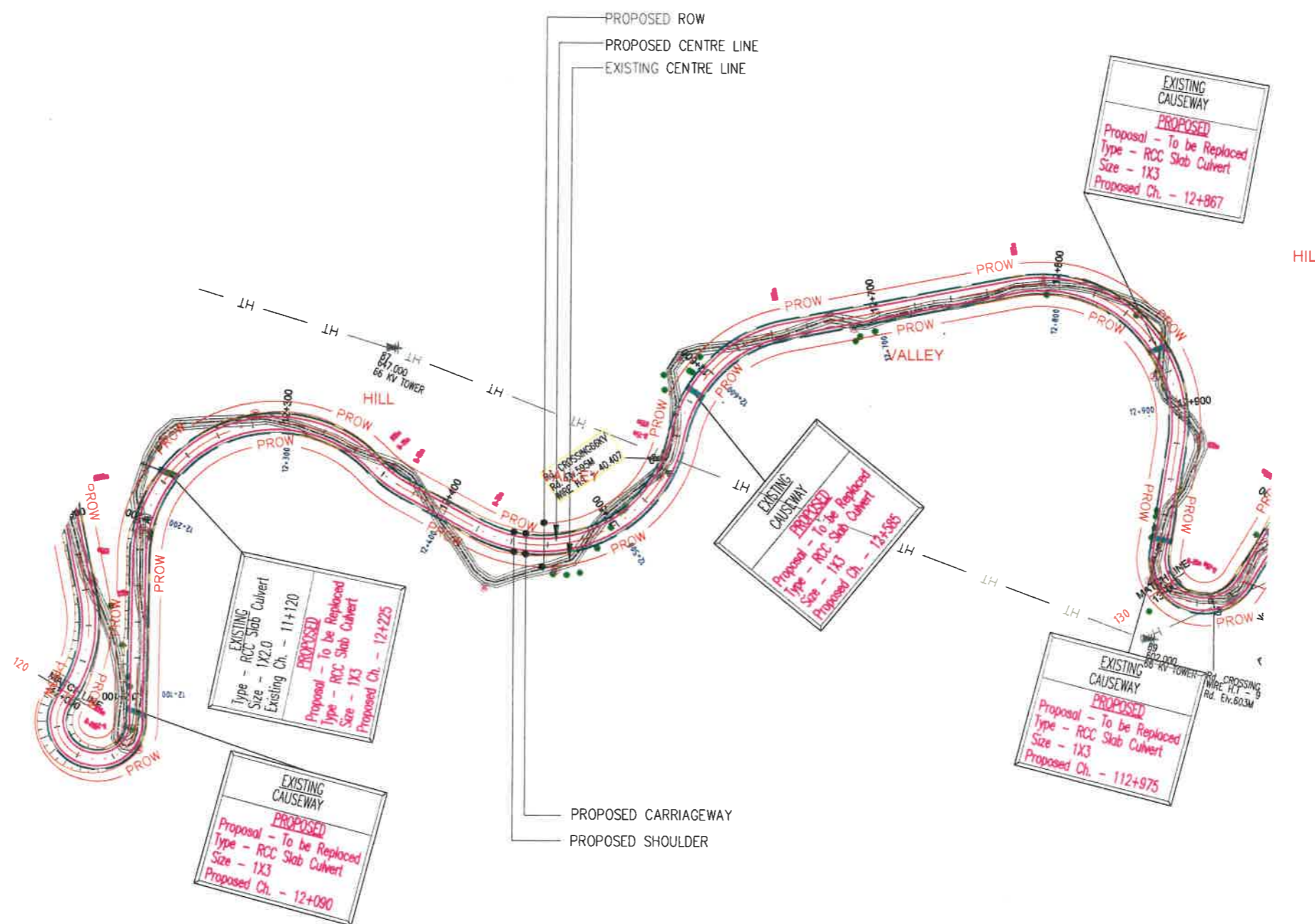
Dwg. No. :-
SAICPL-SESPL/NHIDC/WB-SKM/ P&P/ 12

← BAGRAKOT

KAFER →



Datum-638	
PROPOSED RD. LV.	658.687, 659.120, 659.553, 659.985, 660.418, 660.851, 661.284, 661.716, 662.149, 662.582, 663.014, 663.447, 663.880, 664.313, 664.745, 665.178, 665.611, 666.044, 666.477, 666.910, 667.343, 667.776, 668.209, 668.642, 669.075, 669.508, 669.941, 670.374, 670.807, 671.240, 671.673, 672.106, 672.539, 672.972, 673.405, 673.838, 674.271, 674.704, 675.137, 675.570, 676.003, 676.436, 676.869, 677.302, 677.735, 678.168, 678.601, 679.034, 679.467, 679.900, 680.333, 680.766, 681.199, 681.632, 682.065, 682.498, 682.931, 683.364, 683.797, 684.230, 684.663, 685.096, 685.529, 685.962, 686.395, 686.828, 687.261, 687.694, 688.127, 688.560, 688.993, 689.426, 689.859, 690.292, 690.725, 691.158, 691.591, 692.024, 692.457, 692.890, 693.323, 693.756, 694.189, 694.622, 695.055, 695.488, 695.921, 696.354, 696.787, 697.220, 697.653, 698.086, 698.519, 698.952, 699.385, 699.818, 700.251, 700.684, 701.117, 701.550, 701.983, 702.416, 702.849, 703.282, 703.715, 704.148, 704.581, 705.014, 705.447, 705.880, 706.313, 706.746, 707.179, 707.612, 708.045, 708.478, 708.911, 709.344, 709.777, 710.210, 710.643, 711.076, 711.509, 711.942, 712.375, 712.808, 713.241, 713.674, 714.107, 714.540, 714.973, 715.406, 715.839, 716.272, 716.705, 717.138, 717.571, 718.004, 718.437, 718.870, 719.303, 719.736, 720.169, 720.602, 721.035, 721.468, 721.901, 722.334, 722.767, 723.200, 723.633, 724.066, 724.499, 724.932, 725.365, 725.798, 726.231, 726.664, 727.097, 727.530, 727.963, 728.396, 728.829, 729.262, 729.695, 730.128, 730.561, 730.994, 731.427, 731.860, 732.293, 732.726, 733.159, 733.592, 734.025, 734.458, 734.891, 735.324, 735.757, 736.190, 736.623, 737.056, 737.489, 737.922, 738.355, 738.788, 739.221, 739.654, 740.087, 740.520, 740.953, 741.386, 741.819, 742.252, 742.685, 743.118, 743.551, 743.984, 744.417, 744.850, 745.283, 745.716, 746.149, 746.582, 747.015, 747.448, 747.881, 748.314, 748.747, 749.180, 749.613, 750.046, 750.479, 750.912, 751.345, 751.778, 752.211, 752.644, 753.077, 753.510, 753.943, 754.376, 754.809, 755.242, 755.675, 756.108, 756.541, 756.974, 757.407, 757.840, 758.273, 758.706, 759.139, 759.572, 760.005, 760.438, 760.871, 761.304, 761.737, 762.170, 762.603, 763.036, 763.469, 763.902, 764.335, 764.768, 765.201, 765.634, 766.067, 766.500, 766.933, 767.366, 767.799, 768.232, 768.665, 769.098, 769.531, 769.964, 770.397, 770.830, 771.263, 771.696, 772.129, 772.562, 772.995, 773.428, 773.861, 774.294, 774.727, 775.160, 775.593, 776.026, 776.459, 776.892, 777.325, 777.758, 778.191, 778.624, 779.057, 779.490, 779.923, 780.356, 780.789, 781.222, 781.655, 782.088, 782.521, 782.954, 783.387, 783.820, 784.253, 784.686, 785.119, 785.552, 785.985, 786.418, 786.851, 787.284, 787.717, 788.150, 788.583, 789.016, 789.449, 789.882, 790.315, 790.748, 791.181, 791.614, 792.047, 792.480, 792.913, 793.346, 793.779, 794.212, 794.645, 795.078, 795.511, 795.944, 796.377, 796.810, 797.243, 797.676, 798.109, 798.542, 798.975, 799.408, 799.841, 800.274, 800.707, 801.140, 801.573, 802.006, 802.439, 802.872, 803.305, 803.738, 804.171, 804.604, 805.037, 805.470, 805.903, 806.336, 806.769, 807.202, 807.635, 808.068, 808.501, 808.934, 809.367, 809.800, 810.233, 810.666, 811.099, 811.532, 811.965, 812.398, 812.831, 813.264, 813.697, 814.130, 814.563, 814.996, 815.429, 815.862, 816.295, 816.728, 817.161, 817.594, 818.027, 818.460, 818.893, 819.326, 819.759, 820.192, 820.625, 821.058, 821.491, 821.924, 822.357, 822.790, 823.223, 823.656, 824.089, 824.522, 824.955, 825.388, 825.821, 826.254, 826.687, 827.120, 827.553, 827.986, 828.419, 828.852, 829.285, 829.718, 830.151, 830.584, 831.017, 831.450, 831.883, 832.316, 832.749, 833.182, 833.615, 834.048, 834.481, 834.914, 835.347, 835.780, 836.213, 836.646, 837.079, 837.512, 837.945, 838.378, 838.811, 839.244, 839.677, 840.110, 840.543, 840.976, 841.409, 841.842, 842.275, 842.708, 843.141, 843.574, 844.007, 844.440, 844.873, 845.306, 845.739, 846.172, 846.605, 847.038, 847.471, 847.904, 848.337, 848.770, 849.203, 849.636, 850.069, 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901.565, 901.998, 902.431, 902.864, 903.297, 903.730, 904.163, 904.596, 905.029, 905.462, 905.895, 906.328, 906.761, 907.194, 907.627, 908.060, 908.493, 908.926, 909.359, 909.792, 910.225, 910.658, 911.091, 911.524, 911.957, 912.390, 912.823, 913.256, 913.689, 914.122, 914.555, 914.988, 915.421, 915.854, 916.287, 916.720, 917.153, 917.586, 918.019, 918.452, 918.885, 919.318, 919.751, 920.184, 920.617, 921.050, 921.483, 921.916, 922.349, 922.782, 923.215, 923.648, 924.081, 924.514, 924.947, 925.380, 925.813, 926.246, 926.679, 927.112, 927.545, 927.978, 928.411, 928.844, 929.277, 929.710, 930.143, 930.576, 931.009, 931.442, 931.875, 932.308, 932.741, 933.174, 933.607, 934.040, 934.473, 934.906, 935.339, 935.772, 936.205, 936.638, 937.071, 937.504, 937.937, 938.370, 938.803, 939.236, 939.669, 940.102, 940.535, 940.968, 941.401, 941.834, 942.267, 942.700, 943.133, 943.566, 944.000, 944.433, 944.866, 945.299, 945.732, 946.165, 946.598, 947.031, 947.464, 947.897, 948.330, 948.763, 949.196, 949.629, 950.062, 950.495, 950.928, 951.361, 951.794, 952.227, 952.660, 953.093, 953.526, 953.959, 954.392, 954.825, 955.258, 955.691, 956.124, 956.557, 956.990, 960.423, 960.856, 961.289, 961.722, 962.155, 962.588, 963.021, 963.454, 963.887, 964.320, 964.753, 965.186, 965.619, 966.052, 966.485, 966.918, 967.351, 967.784, 968.217, 968.650, 969.083, 969.516, 969.949, 970.382, 970.815, 971.248, 971.681, 972.114, 972.547, 972.980, 973.413, 973.846, 974.279, 974.712, 975.145, 975.578, 976.011, 976.444, 976.877, 977.310, 977.743, 978.176, 978.609, 979.042, 979.475, 979.908, 980.341, 980.774, 981.207, 981.640, 982.073, 982.506, 982.939, 983.372, 983.805, 984.238, 984.671, 985.104, 985.537, 985.970, 986.403, 986.836, 987.269, 987.702, 988.135, 988.568, 989.001, 989.434, 989.867, 990.300, 990.733, 991.166, 991.599, 992.032, 992.465, 992.898, 993.331, 993.764, 994.197, 994.630, 995.063, 995.496, 995.929, 996.362, 996.795, 997.228, 997.661, 998.094, 998.527, 998.960, 999.393, 999.826, 1000.259, 1000.692, 1001.125, 1001.558, 1001.991, 1002.424, 1002.857, 1003.290, 1003.723, 1004.156, 1004.589, 1005.022, 1005.455, 1005.888, 1006.321, 1006.754, 1007.187, 1007.620, 1008.053, 1008.486, 1008.919, 1009.352, 1009.785, 1010.218, 1010.651, 1011.084, 1011.517, 1011.950, 1012.383, 1012.816, 1013.249, 1013.682, 1014.115, 1014.548, 1014.981, 1015.414, 1015.847, 1016.280, 1016.713, 1017.146, 1017.579, 1018.012, 1018.445, 1018.878, 1019.311, 1019.744, 1020.177, 1020.610, 1021.043, 1021.476, 1021.909, 1022.342, 1022.775, 1023.208, 1023.641, 1024.074, 1024.507, 1024.940, 1025.373, 1025.806, 1026.239, 1026.672, 1027.105, 1027.538, 1027.971, 1028.404, 1028.837, 1029.270, 1029.703, 1030.136, 1030.569, 1031.002, 1031.435, 1031.868, 1032.301, 1032.734, 1033.167, 1033.600, 1034.033, 1034.466, 1034.899, 1035.332, 1035.765, 1036.198, 1036.631, 1037.064, 1037.497, 1037.930, 1038.363, 1038.796, 1039.229, 1039.662, 1040.095, 1040.528, 1040.961, 1041.394, 1041.827, 1042.260, 1042.693, 1043.126, 1043.559, 1043.992, 1044.425, 1044.858, 1045.291, 1045.724, 1046.157, 1046.590, 1047.023, 1047.456, 1047.889, 1048.322, 1048.755, 1049.188, 1049.621, 1050.054, 1050.487, 1050.920, 1051.353, 1051.786, 1052.219, 1052.652, 1053.085, 1053.518, 1053.951, 1054.384, 1054.817, 1055.250, 1055.683, 1056.116, 1056.549, 1056.982, 1057.415, 1057.848, 1058.281, 1058.714, 1059.147, 1059.580, 1060.013, 1060.446, 1060.879, 1061.312, 1061.745, 1062.178, 1062.611, 1063.044, 1063.477, 1063.910, 1064.343, 1064.776, 1065.209, 1065.642, 1066.075, 1066.508, 1066.941, 1067.374, 1067.807, 1068.240, 1068.673, 1069.106, 1069.539, 1069.972, 1070.405, 1070.838, 1071.271, 1071.704, 1072.137, 1072.570, 1073.003, 1073.436, 1073.869, 1074.302, 1074.735, 1075.168, 1075.601, 1076.034, 1076.467, 1076.900, 1077.333, 1077.766, 1078.199, 1078.632, 1079.065, 1079.498, 1079.931, 1080.364, 1080.797, 1081.230, 1081.663, 1082.096, 1082.529, 1082.962, 1083.395, 1083.828, 1084.261, 1084.694, 1085.127, 1085.560, 1085.993, 1086.426, 1086.859, 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1130.592, 1131.025, 1131.458, 1131.891, 1132.324, 1132.757, 1133.190, 1133.623, 1134.056, 1134.489, 1134.922, 1135.355, 1135.788, 1136.221, 1136.654, 1137.087, 1137.520, 1137.953, 1138.386, 1138.819, 1139.252, 1139.685, 1140.118, 1140.551, 1140.984, 1141.417, 1141.850, 1142.283, 1142.716, 1143.149, 1143.582, 1144.015, 1144.448, 1144.881, 1145.314, 1145.747, 1146.180, 1146.613, 1147.046, 1147.479, 1147.912, 1148.345, 1148.778, 1149.211, 1149.644, 1150.077, 1150.510, 1150.943, 1151.376, 1151.809, 1152.242, 1152.675, 1153.108, 1153.541, 1153.974, 1154.407, 1154.840, 1155.273, 1155.706, 1156.139, 1156.572, 1157.005, 1157.438, 1157.871, 1158.304, 1158.737, 1159.170, 1159.603, 1160.036, 1160.469, 1160.902, 1161.335, 1161.768, 1162.201, 1162.634, 1163.067, 1163.500, 1163.933, 1164.366, 1164.799, 1165.232, 1165.665, 1166.098, 1166.531, 1166.964, 1167.397, 1167.830, 1168.263, 1168.696, 1169.129, 1169.562, 1170.000, 1170.433, 1170.866, 1171.299, 1171.732, 1172.165, 1172.598, 1173.031, 1173.464, 1173.897, 1174.330, 1174.763, 1175.196, 1175.629, 1176.062, 1176.495, 1176.928, 1177.361, 1177.794, 1178.227, 1178.660, 1179.093, 1179.526, 1179.959, 1180.392, 1180.825, 1181.258, 1181.691, 1182.124, 1182.557, 1182.990, 1183.423, 1183.856, 1184.289, 1184.722, 1185.155, 1185.588, 1186.021, 1186.454, 1186.887, 1187.320, 1187.753, 1188.186, 1188.619, 1189.052, 1189.485, 1189.918, 1190.351, 1190.784, 1191.217, 1191.650, 1192.083, 1192.516, 1192.949, 1193.382, 1193.815, 1194.248, 1194.681, 1195.114, 1195.547, 1195.980, 1196.413, 1196.846, 1197.279, 1197.712, 1198.145, 1198.578, 1199.011, 1199.444, 1199.877, 1200.310, 1200.743, 1201.176, 1201.609, 1202.042, 1202.475, 1202.908, 1203.341, 1203.774, 1204.207, 1204.640, 1205.073, 1205.506, 1205.939, 1206.372, 1206.805, 1207.238, 1207.671, 1208.104, 1208.537, 1208.970, 1209.403, 1209.836, 1210.269, 1210.702, 1211.135, 1211.568, 1212.001, 1212.434, 1212.867, 1213.300, 1213.733, 1214.166, 1214.599, 1215.032, 1215.465, 1215.898, 1216.331, 1216.764, 1217.197, 1217.630, 1218.063, 1218.496, 1



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan 2018	Due to Vertical Profile Revised	

Client : **NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED**
(Ministry of Road Transport & Highways)

Consultant : **SA INFRASTRUCTURE CONSULTANTS PVT. LTD.**
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301, Uttar Pradesh

Project : **Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bekhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Palyong along with Spur From Artar-Rolep-Menta in the State of Sikkim**

DATE : Jan-2018

DESIGNED BY: P.S. DRAWN BY: Naresh CHECKED BY: P.S. APPROVED BY: L.A.Z.

Revision: RO

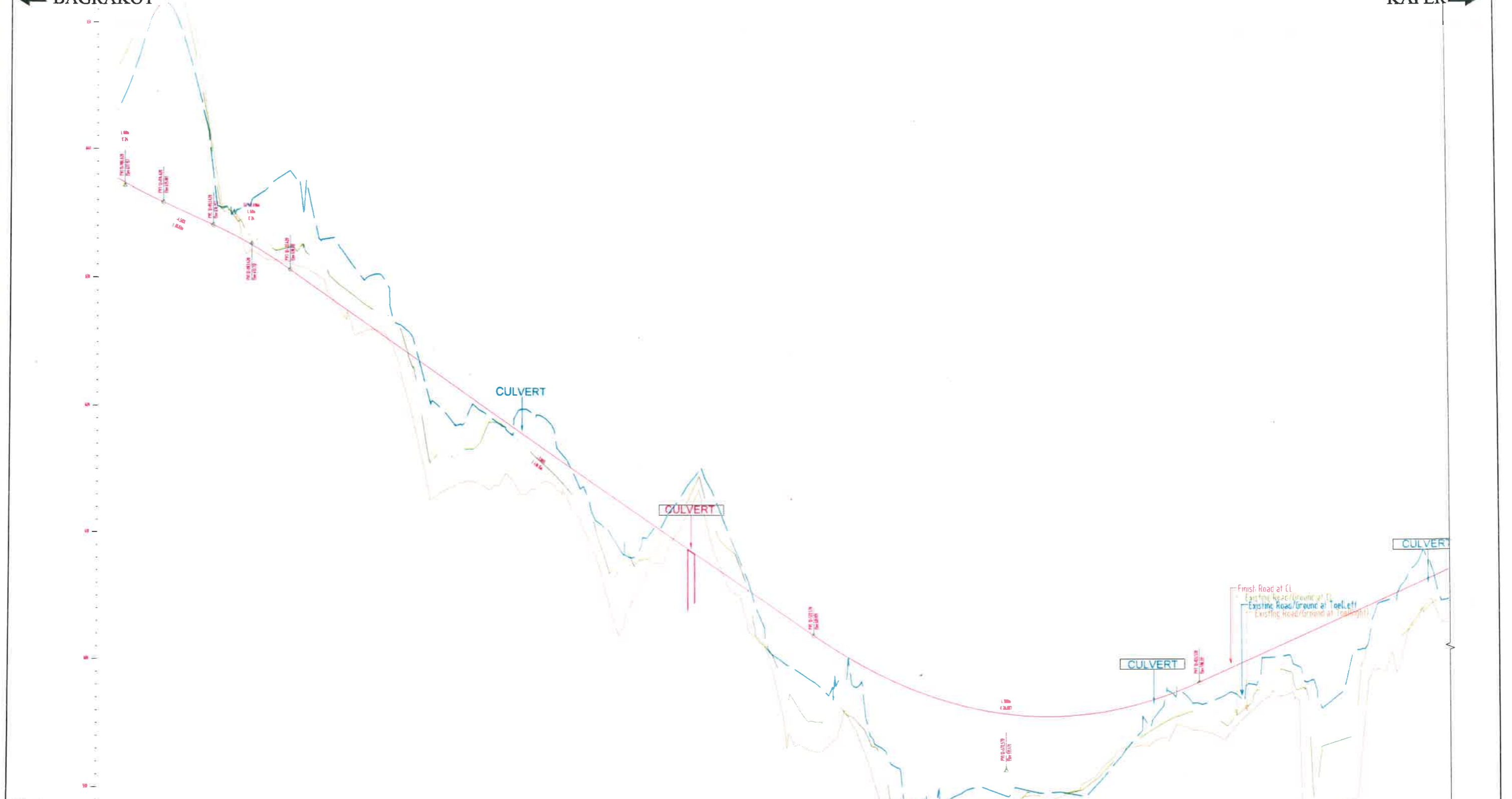
SCALE:- H :- 1:2000
V :- 1:200 For A2 Paper Size

PACKAGE-IVa
PART OF BAGRAKOT TO KAFER
PLAN & PROFILE
(PLAN-Km 12+000 To Km 13+000)


Dwg. No. :- SAICPL-SESPL/NHDCWB-SKM/ P&P/ 13

← BAGRAKOT

KAFER →

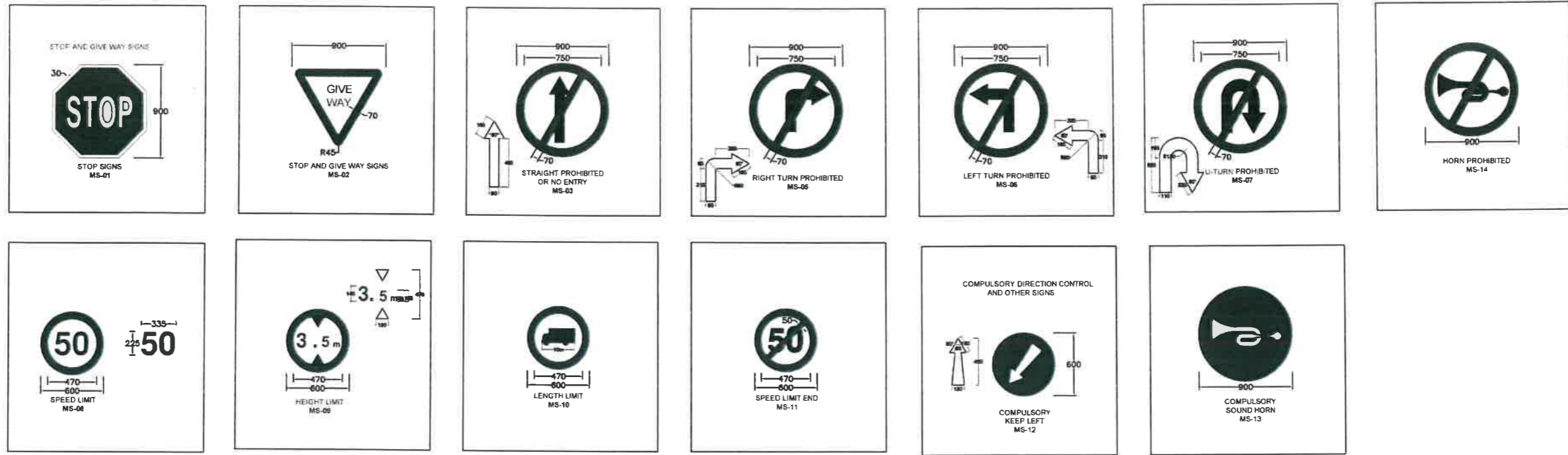


Datum 588.0	637.613	636.510	635.566	634.666	633.757	632.718	631.514	630.151	628.751	627.351	625.951	624.551	618.951	617.551	616.151	614.751	613.351	611.951	610.551	609.151	607.751	606.351	604.951	603.551	602.151	600.809	599.620	598.620	598.583	597.700	596.700	596.394	595.971	595.701	595.595	595.622	595.812	596.156	596.633	597.303	598.107	599.006	599.806	600.806	601.706	602.606	603.506	604.406	605.306	606.206		
PROPOSED RD. LVL.	651.631	654.635	647.253	635.278	633.496	632.223	632.177	630.605	628.647	627.445	625.962	618.521	616.619	614.714	612.420	608.072	608.147	608.719	611.852	612.033	608.543	601.532	598.012	595.300	596.707	594.811	590.326	581.295	587.278	586.672	588.512	588.916	589.598	589.683	590.589	592.639	594.196	595.377	596.072	595.121	596.354	598.899	597.671	593.243	593.827	601.210	601.826	603.306	603.919			
EXISTING GROUND LVL.	L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%							
HORIZONTAL ALIGNMENT	L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%							
VERTICAL ALIGNMENT	L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%							
SUPERELEVATION	L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%		L 1.20%							
CHAINAGE/STATION	11+980	12+000	12+020	12+040	12+060	12+080	12+100	12+120	12+140	12+160	12+180	12+200	12+220	12+240	12+260	12+280	12+300	12+320	12+340	12+360	12+380	12+400	12+420	12+440	12+460	12+480	12+500	12+520	12+540	12+560	12+580	12+600	12+620	12+640	12+660	12+680	12+700	12+720	12+740	12+760	12+780	12+800	12+820	12+840	12+860	12+880	12+900	12+920	12+940	12+960	12+980	13+000

<table border="1"> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION OF REVISIONS</th> <th>INITIALS</th> </tr> <tr> <td>01</td> <td>Jan 2018</td> <td>Due to Vertical Profile Revised</td> <td></td> </tr> </table>	REV	DATE	DESCRIPTION OF REVISIONS	INITIALS	01	Jan 2018	Due to Vertical Profile Revised		<p>Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)</p> <p>Consultant :  SA INFRASTRUCTURE CONSULTANTS PVT. LTD. In Association with Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Khirkee 2011/511, 1st Floor, Gurgaon.</p>	<p>Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chulkhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menia in the State of Sikkim</p>	<p>DATE : Jan-2018</p> <p>DESIGNED BY : P.S.</p> <p>DRAWN BY : Neesh</p> <p>CHECKED BY : P.S.</p> <p>APPROVED BY : LAZ.</p> <p>Revision : R0</p>	<p>PACKAGE-IVA PART OF BAGRAKOT To KAFER PLAN & PROFILE (PROFILE Km 12+000 To Km 13+000)</p> <p>Dwg. No. :- SAICPL-SESPL/NHIDC/WB-SKM/ P&P/13a</p>
	REV	DATE	DESCRIPTION OF REVISIONS	INITIALS								
01	Jan 2018	Due to Vertical Profile Revised										
<p>SCALE:- H :- 1:2000 V :- 1:200 For A2 Paper Size</p>												

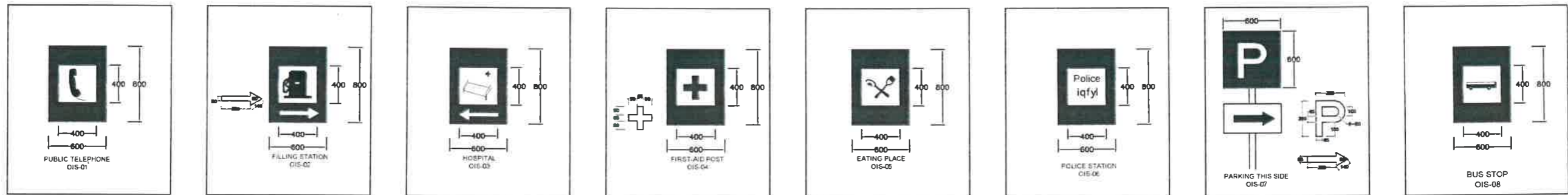
STANDRED DRAWING

MANDATORY/REGULATORY SIGNS



INFORMATORY SIGN BOARD:-

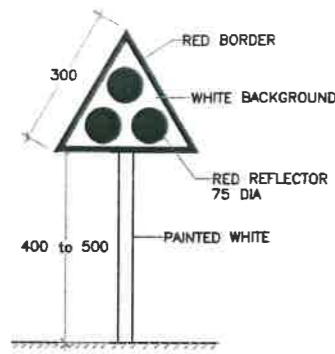
(A) FACILITY INFORMATION SIGNS



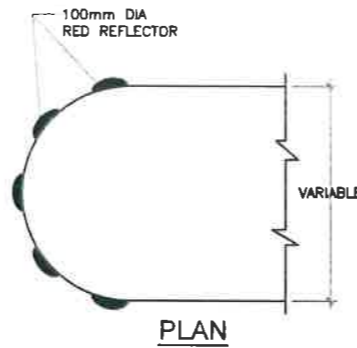
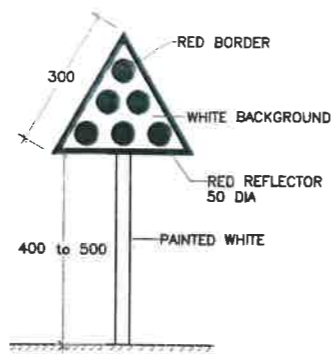
(B) DIRECTION AND PLACE IDENTIFICATION SIGNS



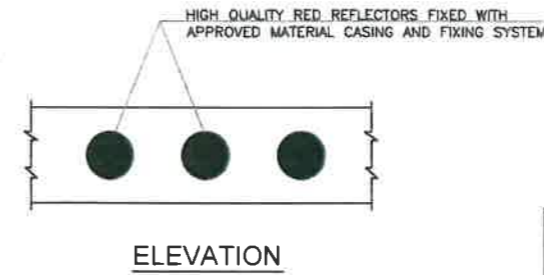
<p>Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED <small>(Ministry of Road Transport & Highways)</small></p>		<p>Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chulkhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menia in the State of Sikkim</p>		<p>DATE : Jan-2018</p>	<p>Revision : R0</p>	<p align="center">PACKAGE-IVa PART OF BAGRAKOT To KAFER ROAD SIGN (SHEET 02 OF 03)</p>	
<p>Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. <small>Specialized Engineering Service Pvt. Ltd 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No 7A/1, Sector-142, Naraina, New Delhi</small></p>		<p>DESIGNED BY : P.S. DRAWN BY : Nareesh</p> <p>CHECKED BY : P.S. APPROVED BY : L.A.Z.</p>		<p>SCALE:- NTS</p>	<p>Dwg. No. :- SAICPL-SESPL/NHIDC/WB-SKM/ MISC -02</p>		
REV	DATE	DESCRIPTION OF REVISIONS	INITIALS				



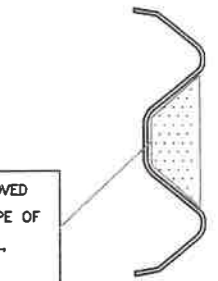
CLUSTER OF RED REFLECTORS
TA-1



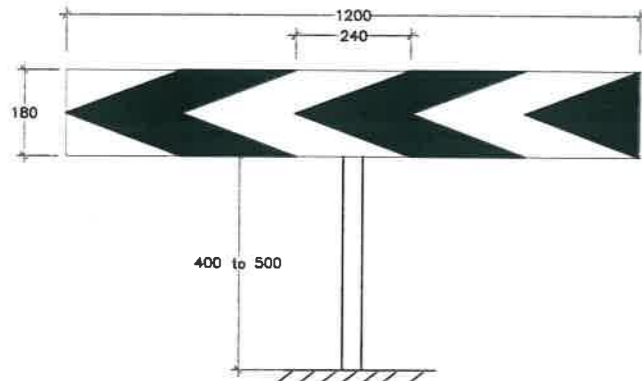
MEDIAN TIP REFLECTORS
TA-2



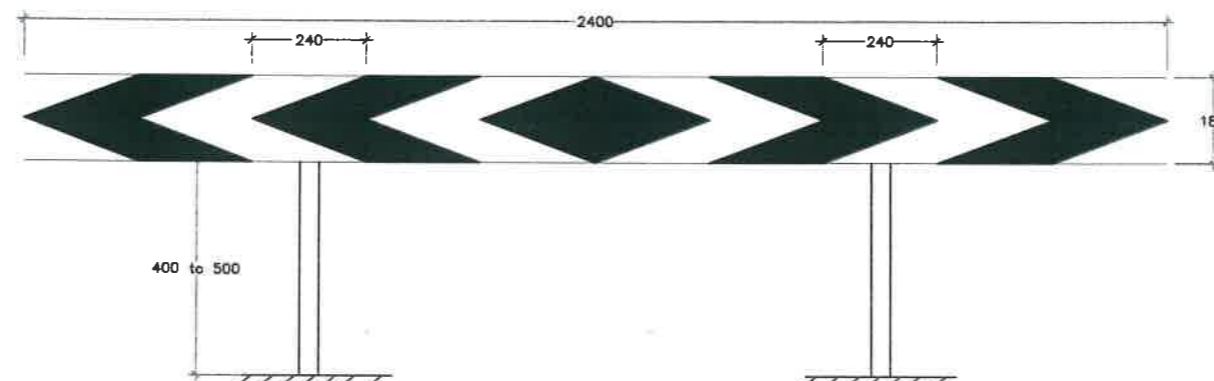
HIGH QUALITY RED REFLECTORS OF APPROVED SIZE AND SHAPE (TO FIXED IN THE SHAPE OF W-BEAM), FIXED WITH APPROVED MATERIAL, CASING ANF FIXUP SYSTEM



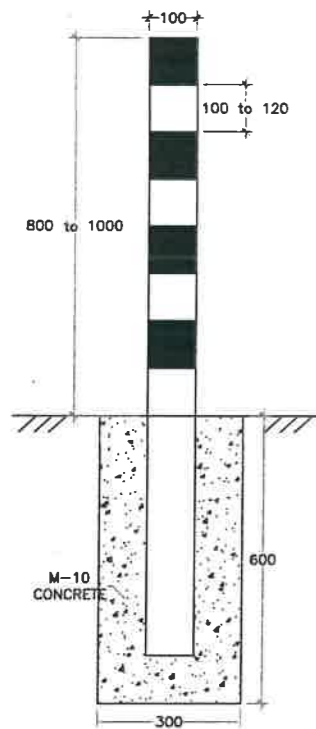
ON W-BEAM OF METAL BEAM CRASH BARRIER
TA-3



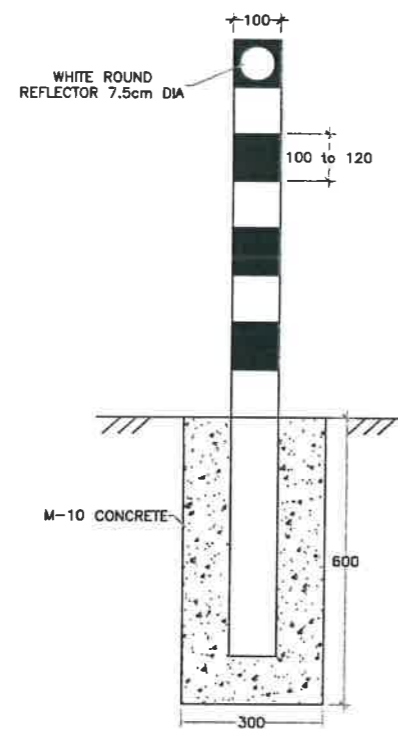
ONE-WAY HAZARD MARKER



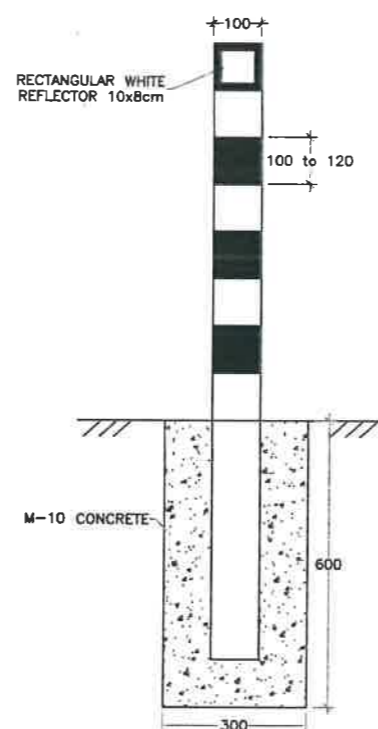
TWO-WAY HAZARD MARKER



DELINEATOR
WITHOUT
REFLECTOR

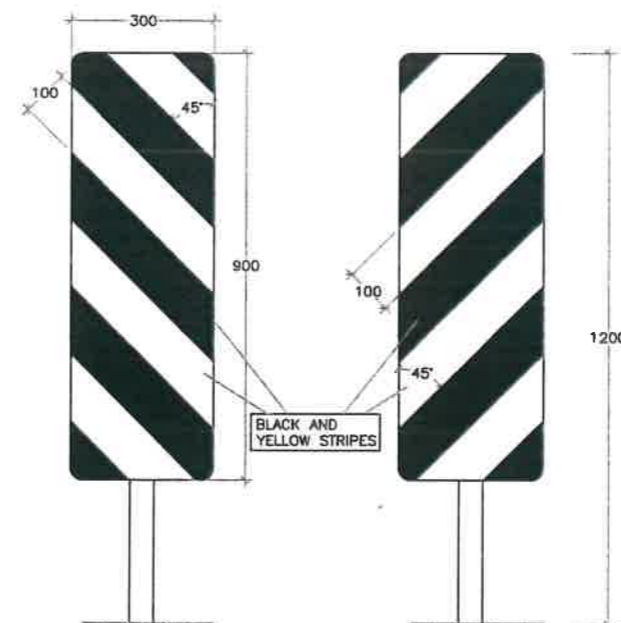


DELINEATOR
WITH CIRCULAR
REFLECTOR



DELINEATOR
WITH RECTANGULAR
REFLECTOR

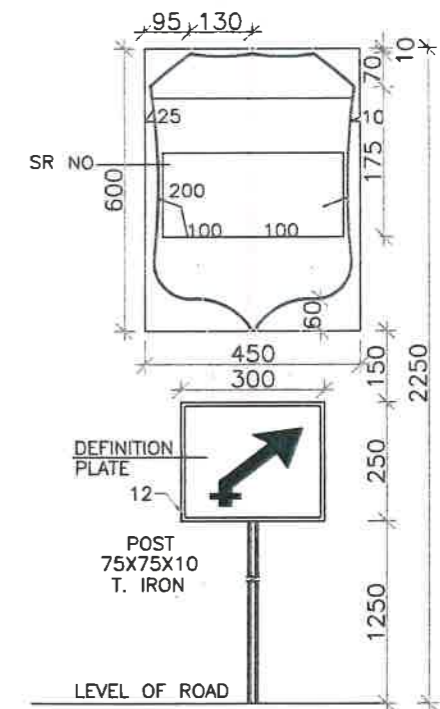
ROADWAY DELINEATORS



LEFT

RIGHT

OBJECT HAZARD MARKERS



ASSEMBLY OF ROUTE MARK SIGN
ARRANGEMENT FOR ERECTION OF
STATE ROUTE MARKER SIGN

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	04/01/2018	Give the Method Profile Revised	

Client :
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

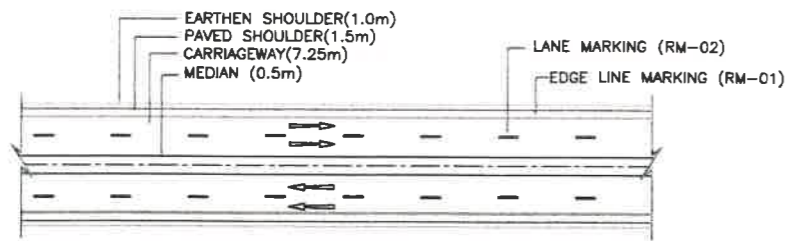
Consultant :
SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
In Association with
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301, Uttar Pradesh.

Project :
Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Begnaskol-Chukhim-Nirnbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Koithang-Pakyong along with Spur From Antar-Rolep-Mante in the State of Sikkim

DATE : Jan-2018	Revision	RO
DESIGNED BY	DRAWN BY	CHECKED BY / APPROVED BY
P.S.	Karash	P.S. / L.A.Z.

PACKAGE-IVa
PART OF BAGRAKOT To KAFER
ROAD SIGN
(SHEET 03 OF 03)

Dwg. No. :-
SAICPL-SESPL/NHIDC/WB-SKM/MISC -03



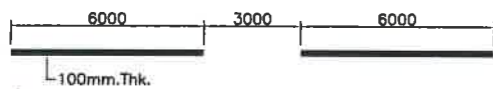
TYPICAL LAYOUT OF ROAD MARKINGS FOR 4-LANE



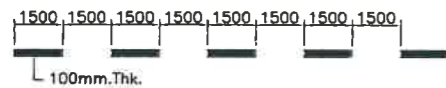
LANE MARKING AT STRAIGHT REACHES IN RURAL AREA (RM-02A)



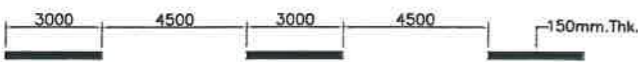
LANE MARKING AT APPROACHES TO INTERSECTION IN RURAL AREA (RM-02C)



LANE MARKING AT CURVES AND APPROACHES TO INTERSECTION IN URBAN AREAS (RM-03B)



LANE MARKING FOR 2-LANE ROAD ON STRAIGHT REACHES IN URBAN AREA (RM-05A)

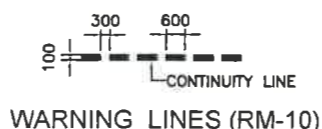


DETAILS OF DIAGONAL AND CHEVRON MARKINGS (RM-09)

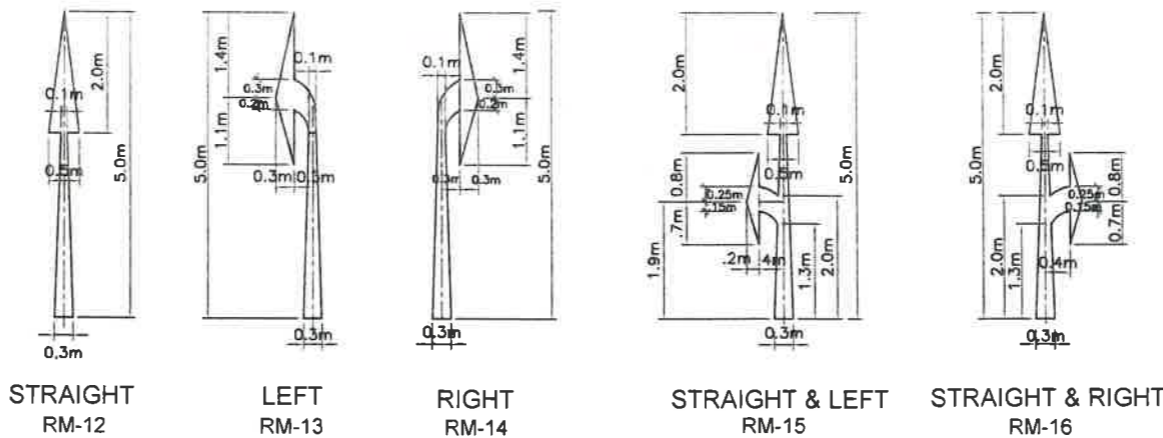
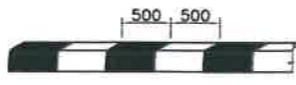
TOTAL LENGTH OF MARKING (m)	CLEAR SPACING BETWEEN DIAGONALS OR CHEVRONS (mm)	
	SPEED (<75km/h)	SPEED (>75km/h)
<6	2100	-
6 TO 22	3500	-
>22	5000	-
<10	-	4000
>10	-	6000

- ALL LENGTHS AND SPACINGS IN THE TABLE ARE MEASURED PARALLEL TO ROAD CENTRE LANE.
- FIRST DIAGONAL OR CHEVRON IS TO BE SO LOCATED THAT ITS LENGTH IS AT LEAST EQUAL TO ITS WIDTH.
- WIDTH OF ALL DIAGONALS/CHEVRONS MEASURED AT RIGHT ANGLES TO THE DIAGONALS OR CHEVRONS IS 600mm.

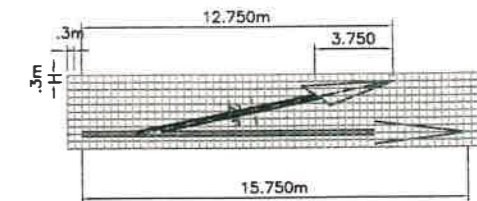
WARNING LINES (RM-10)



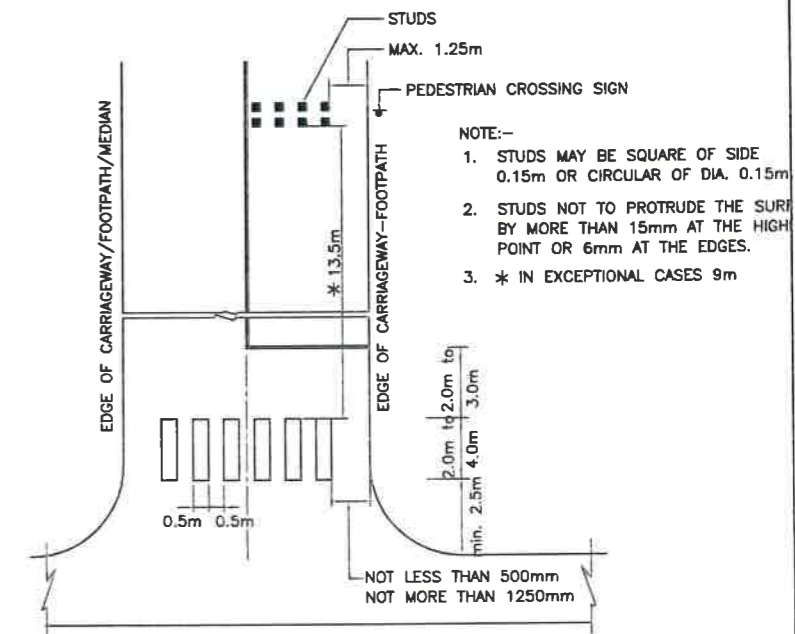
KERB MARKINGS (RM-11)



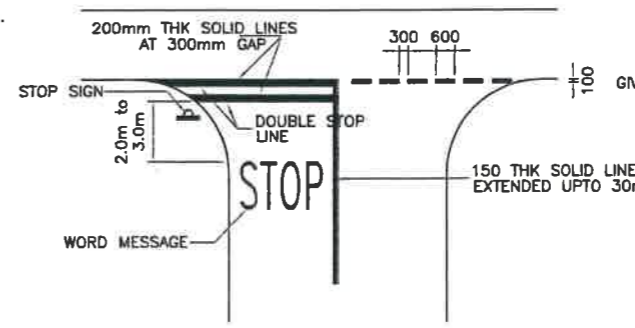
ARROWS FOR DECELERATION LANE RM-17



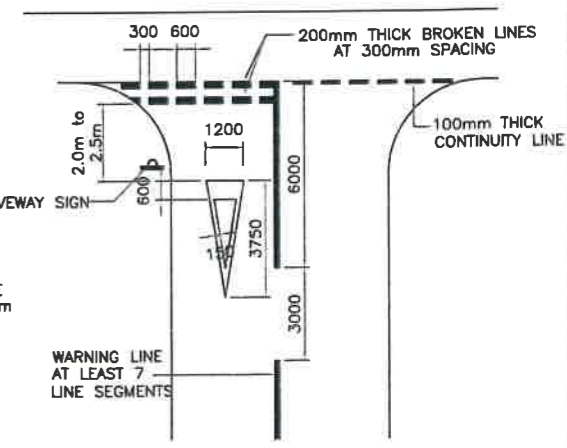
ROUTE DIRECTIONAL ARROWS FOR PROJECT ROAD (ALL THE ARROWS ARE IN WHITE COLOUR)



STOP LINE MARKINGS FOR USE WITH STOP SIGN (RM-06)



MARKINGS FOR GIVE WAY LINES (RM-07)

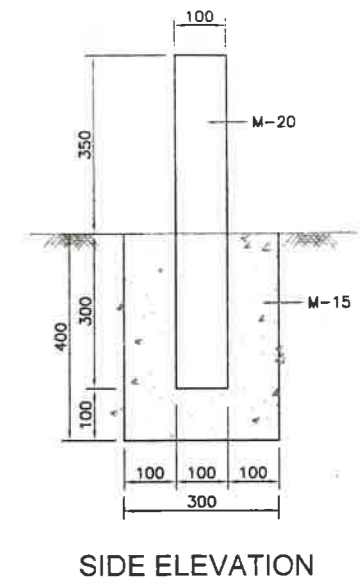
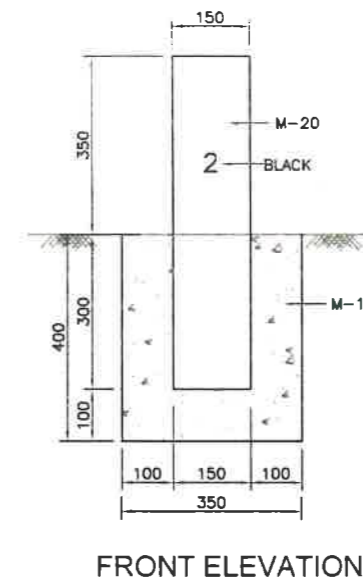
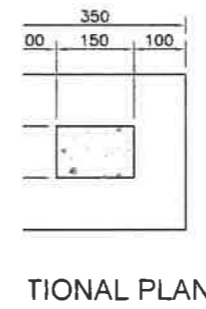
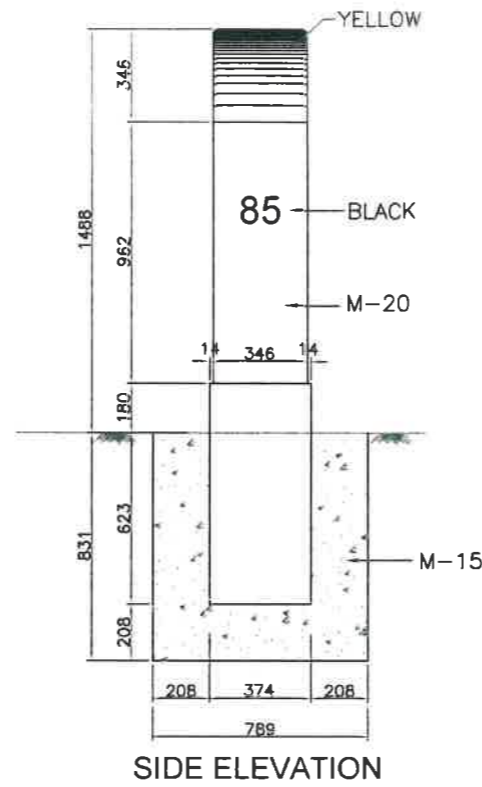
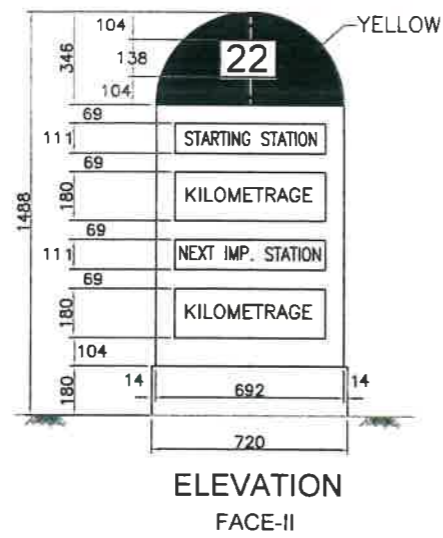
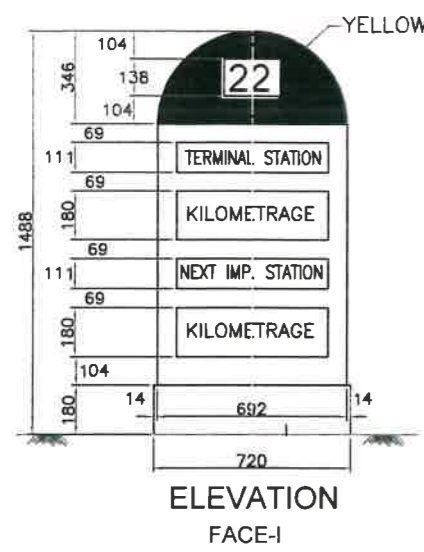


REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jun-2018	Due to Vertical Profile Revised	

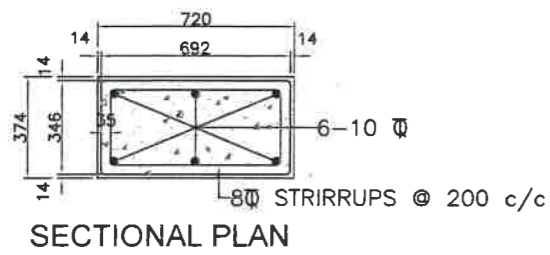
Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)
 Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida-201301, India
 Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menia in the State of Sikkim

DATE : Jan-2018
 Revision : R0
 DESIGNED BY : P.S.
 DRAWN BY : Nareesh
 CHECKED BY : P.S.
 APPROVED BY : L.A.Z.
 SCALE :- NTS

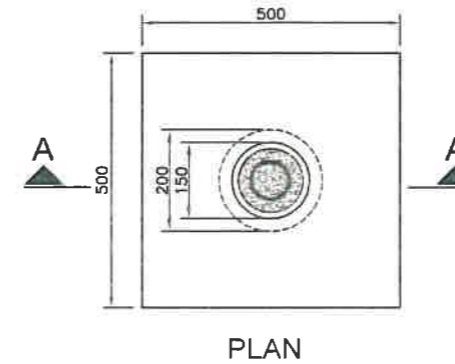
PACKAGE-IVa
 PART OF BAGRAKOT TO KAFER
 DETAIL OF ROAD MARKING
 Dwg. No. :- SAICPL-SESPL/NHIDC/WB-SKM/MISC-04



DETAIL OF 200 METRE STONE
(SCALE 1:10)

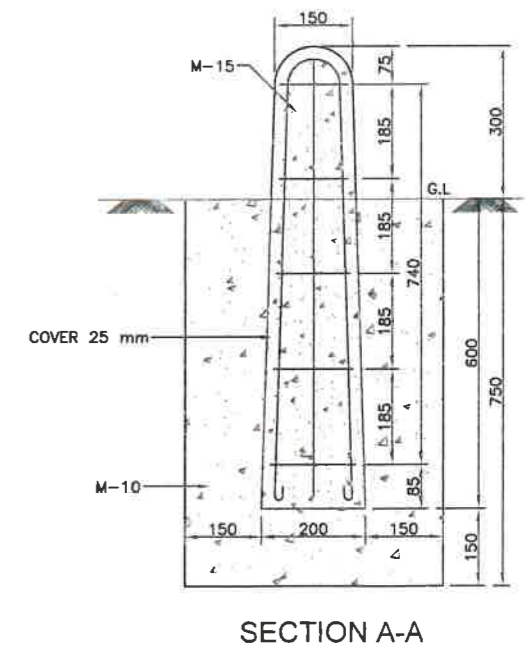
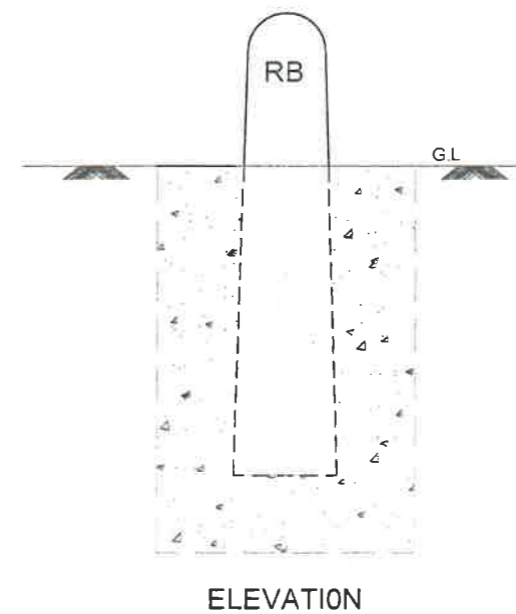


DETAIL OF FIFTH KILOMETRE STONE
(SCALE 1:20)

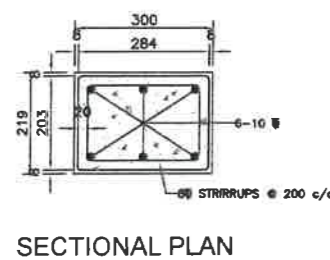
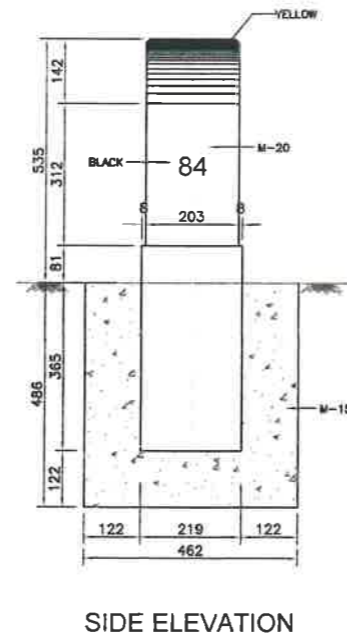
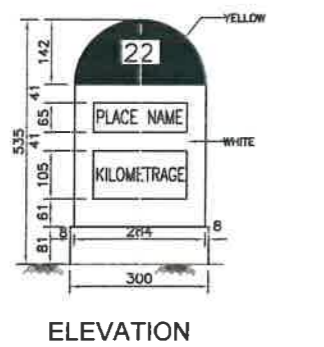


BAR BENDING SCHEDULE FOR BOUNDARY STONE

S NO.	TYPE OF M.S. BAR	NO OF BARS	SHAPE OF BARS	DIA IN mm	LENGTH OF ONE BAR INCLUDING HOOKS
1.	MAIN BARS	2	⊥	6 mm	1.48 m
2.	TOPMOST STIRRUP	1	⊙	6 mm	370 mm
3.	STIRRUP (FIRST FROM TOP)	1	⊙	6 mm	405 mm
4.	STIRRUP (SECOND FROM TOP)	1	⊙	6 mm	440 mm
5.	STIRRUP (THIRD FROM TOP)	1	⊙	6 mm	475 mm
6.	BOTTOMMOST STIRRUP	1	⊙	6 mm	810 mm

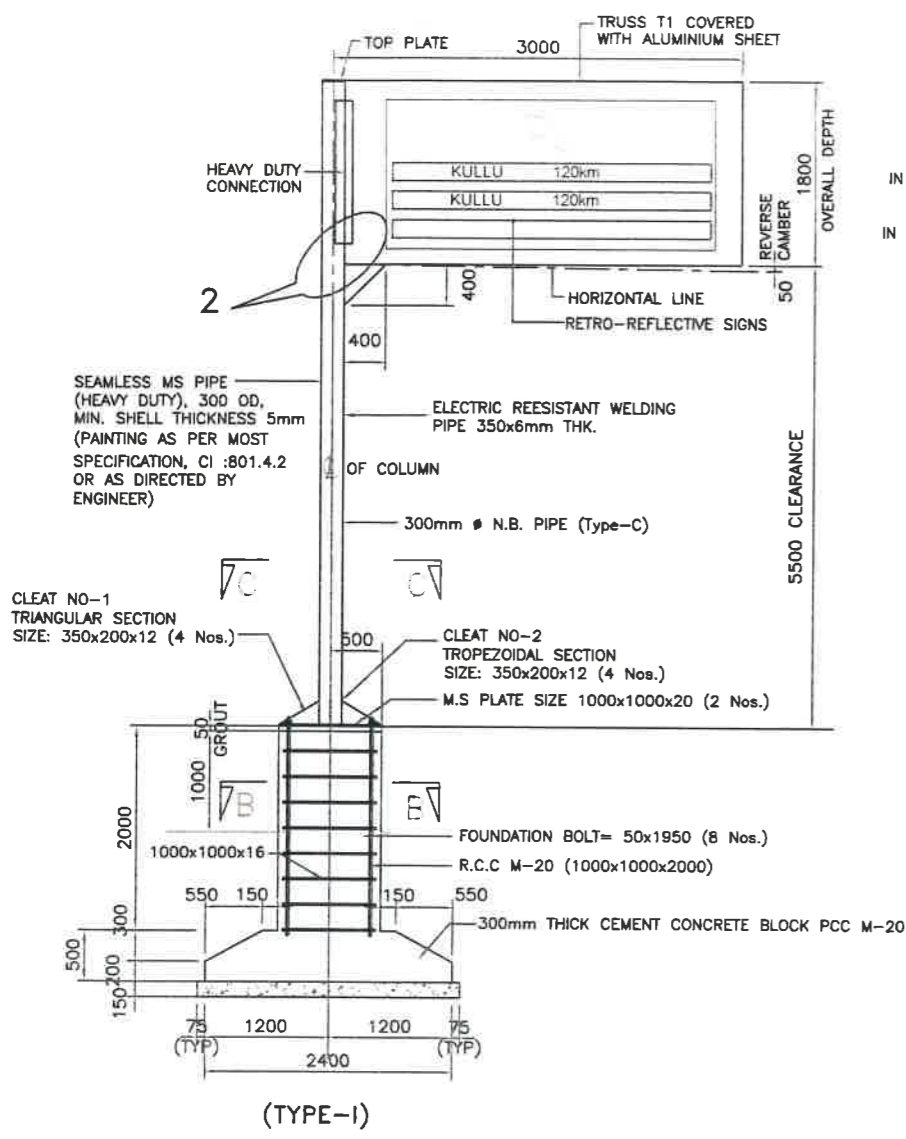


DETAIL OF BOUNDARY STONE
(SCALE 1:10)

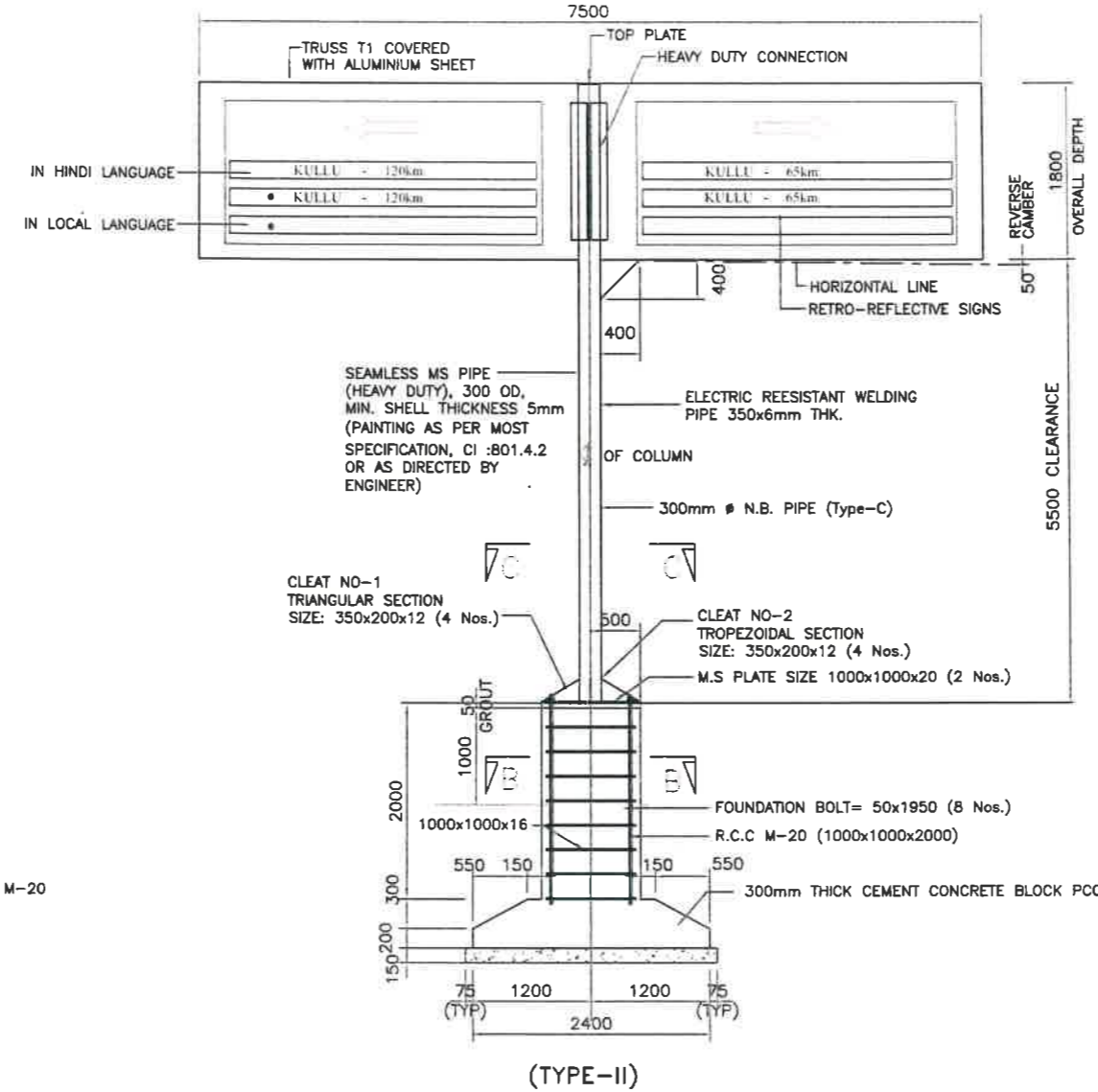


DETAIL OF KILOMETRE STONE
(SCALE 1:10)

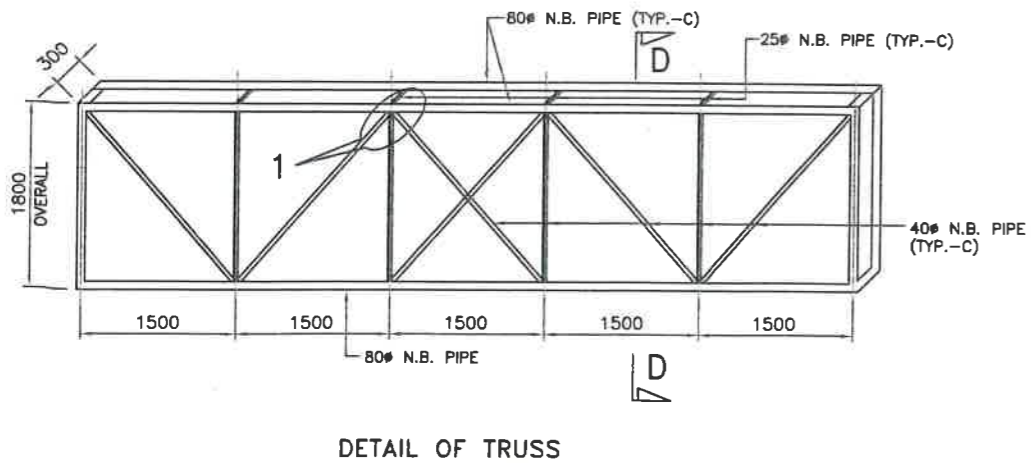
REV	DATE	DESCRIPTION OF REVISIONS	INITIALS	Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)	Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nirnabong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Artar-Rolep-Menia in the State of Sikkim	DATE : Jan-2018	Revision	RO	PACKAGE-IVa PART OF BAGRAKOT To KAfer DETAIL OF DISTANCE STONE & BOUNDARY STONE
						DESIGNED BY P.S.	DRAWN BY Noresh	CHECKED BY P.S.	
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida-201301, Uttar Pradesh						SCALE:- NTS			Dwg. No. :- SA/CPL-SESPL/NHIDC/WB-SKM/MISC-05



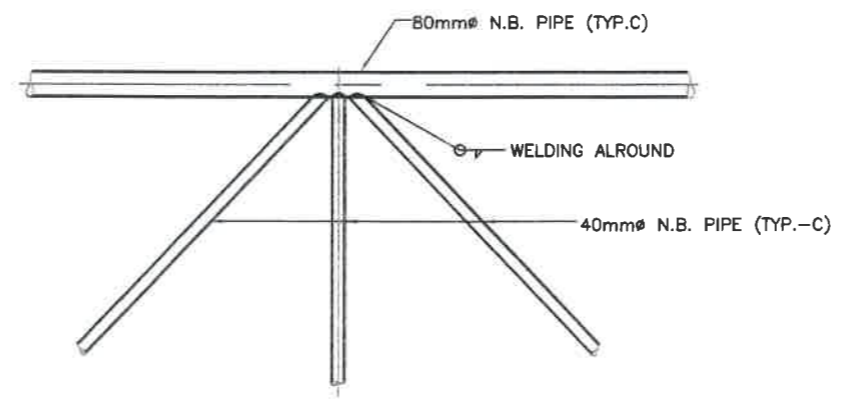
(TYPE-I)



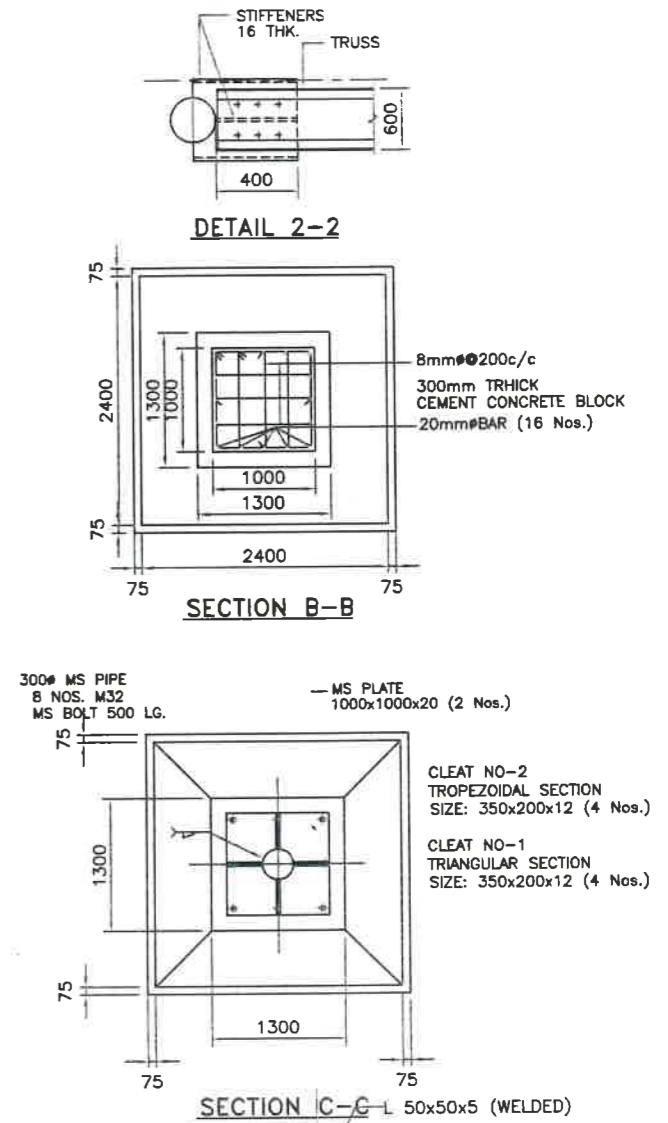
(TYPE-II)



DETAIL OF TRUSS



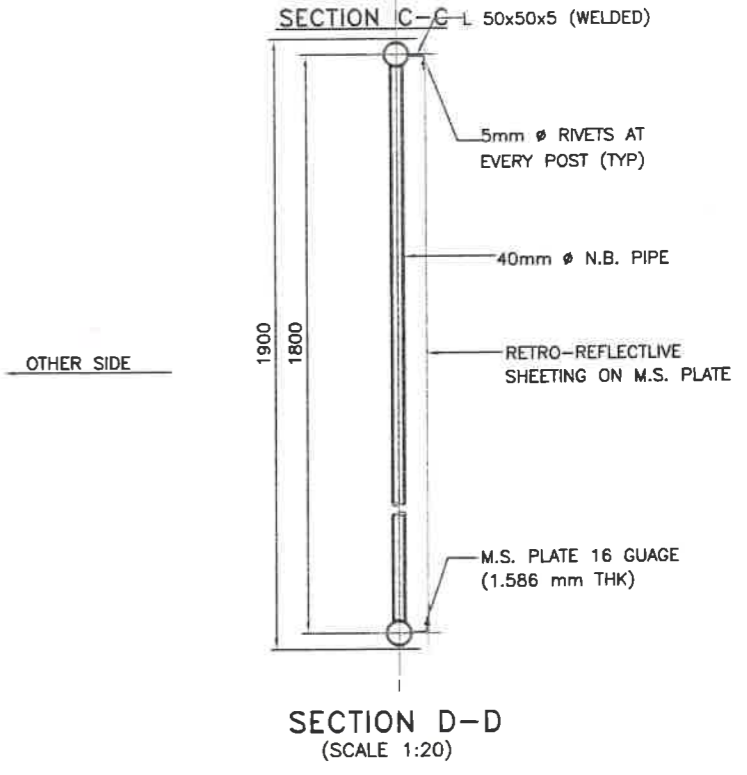
DETAIL-1
(SCALE 1:20)



DETAIL 2-2

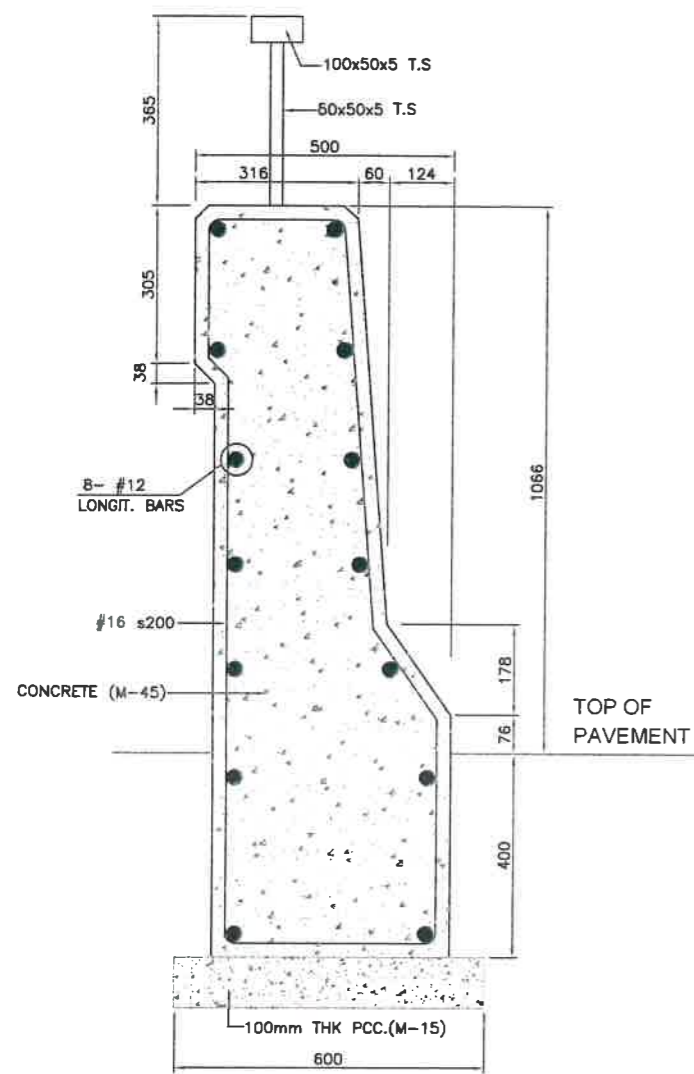
SECTION B-B

SECTION C-C

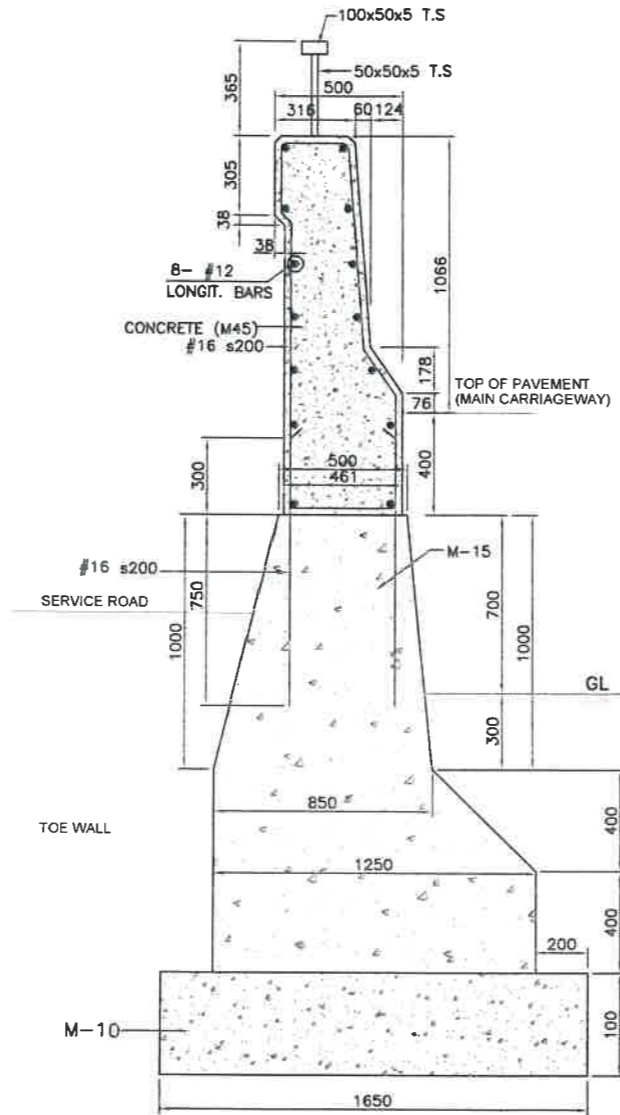


SECTION D-D
(SCALE 1:20)

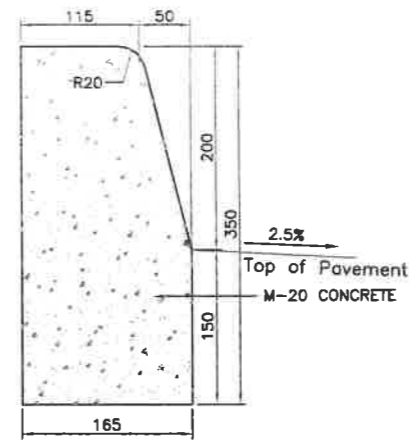
Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)		Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menia in the State of Sikkim		DATE : Jan-2018		Revision R0		PACKAGE-IVa PART OF BAGRAKOT TO KAFER DETAILS OF OVERHEAD GANTRY SIGN	
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida-2013011, Uttar Pradesh.		DESIGNED BY : P.S. DRAWN BY : Naresh CHECKED BY : P.S. APPROVED BY : L.A.Z.		SCALE:- NTS		Dwg. No. :- SAICPL-SESPL/NHIDC/WB-SKM/MISC-06			



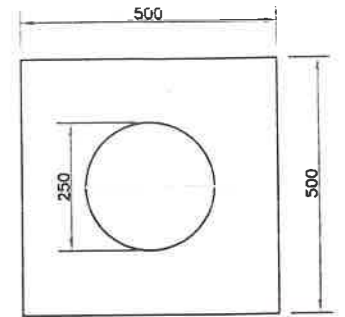
DETAILS OF JERCY TYPE CRASH BARRIER



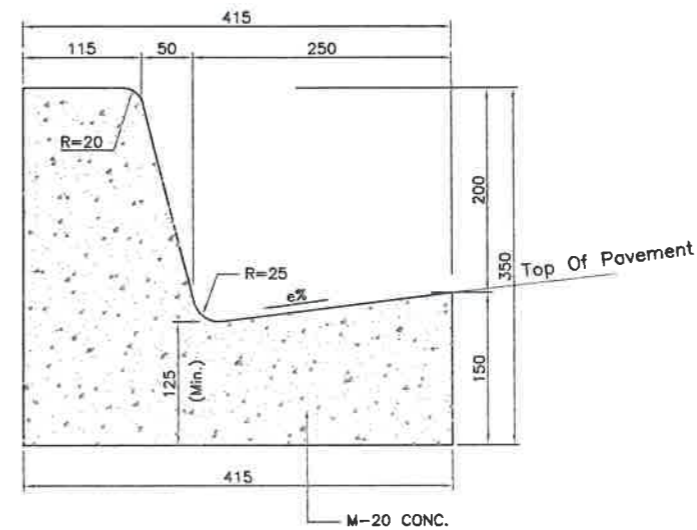
NEWJERSEY TYPE CRASH BARRIER BETWEEN MAIN CARRIAGEWAY AND SERVICE ROAD



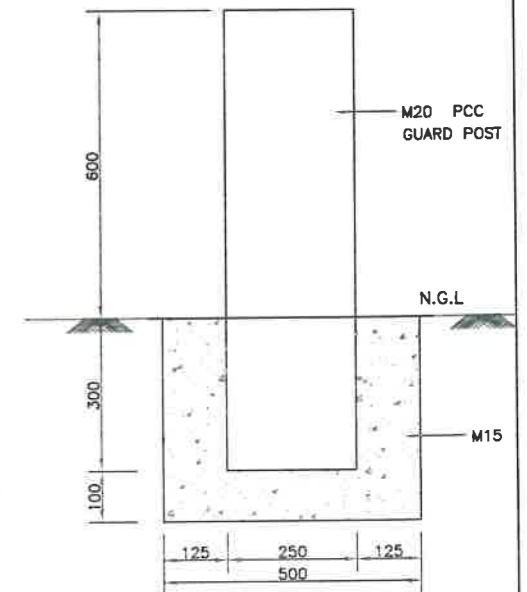
CENTRAL MEDIAN KERB STONE (ON MEDIAN SIDE FOR NORMAL CAMBERED SECTIONS)



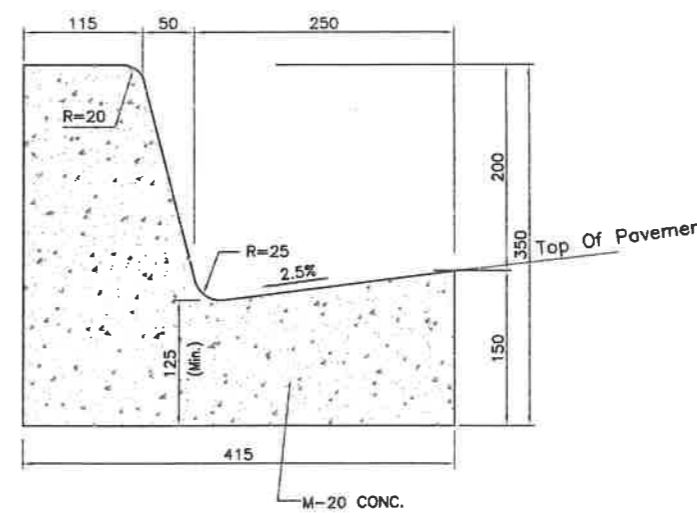
PLAN



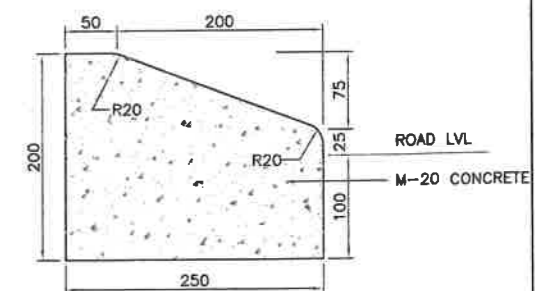
KERB WITH CHANNEL (ON MEDIAN SIDE FOR SUPER ELEVATED SECTIONS)



ELEVATION OF GUARD POST



KERB WITH CHANNEL (ON FOOTPATH SIDE)



MOUNTABLE TYPE KERB STONE (ON CHANNELISING ISLANDS AT INTERSECTIONS)

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	2018	Due to Verking Profile Revised	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)

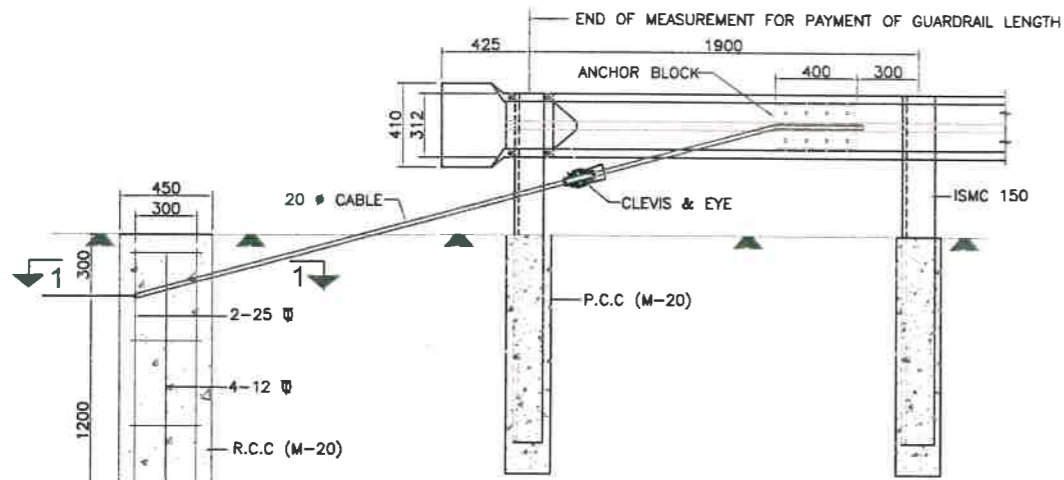
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Gurgaon-2011031, Haryana, India

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chulkhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menia in the State of Sikkim

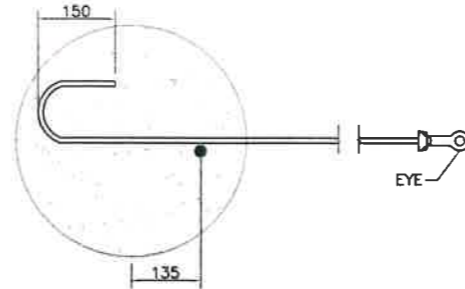
DATE : Jan-2018	Revision	R0	
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
P.S.	Norash	P.S.	L.A.Z.
SCALE:- NTS			

PACKAGE-IVa
PART OF BAGRAKOT TO KAFER
DETAIL OF CRASH BARRIER, KERB STONE & MEDIAN

Dwg. No. :- SAICPL-SESPL/NHIDC/WB-SKM/MISC.-07

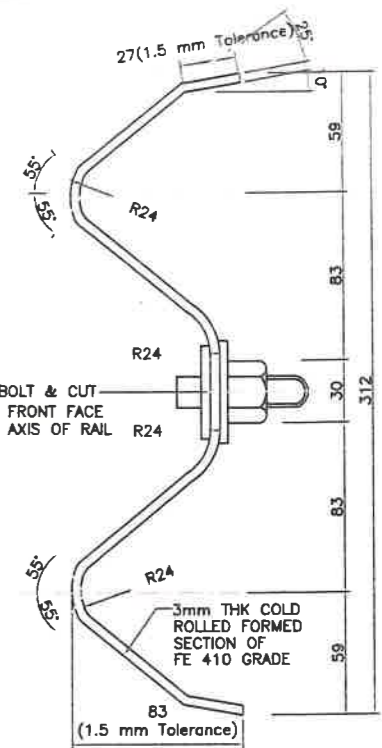


DETAIL OF BREAKAWAY CABLE ANCHOR ASSEMBLY
SCALE 1:25

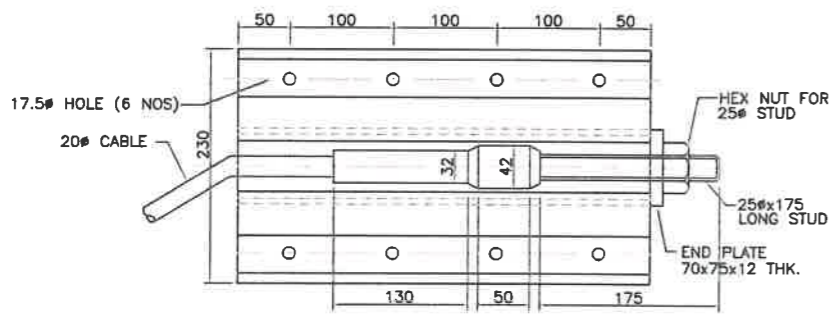


SECTION 1-1
SCALE 1:10

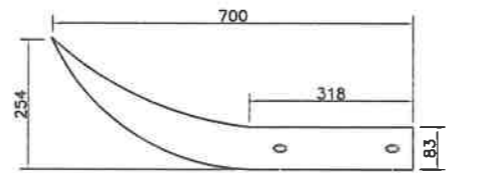
* PARABOLIC CURVE
EQUATION: $y = \frac{wx^2}{l}$
WHERE
w = TANGENT OFFSET AT MAXIMUM FLARE (1200mm)
l = TOTAL LENGTH OF FLARE (11400mm)
y = TANGENT OFFSET AT ANY POINT IN GUARDRAIL FLARE
x = DISTANCE FROM POINT OF TANGENT TO ANY POINT OF OFFSET



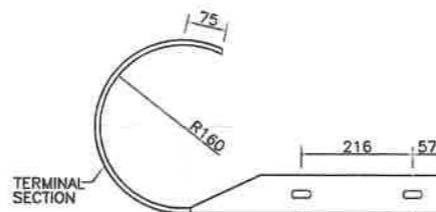
W-BEAM
(SCALE 1:5)



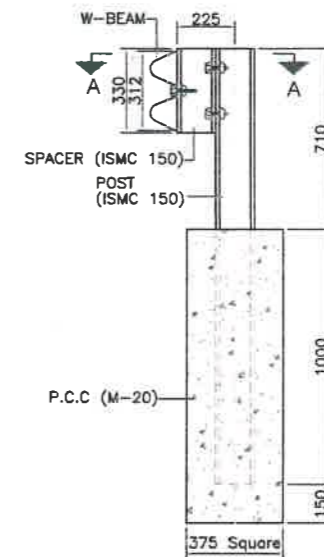
ANCHOR BLOCK DETAILS
(SCALE 1:5)



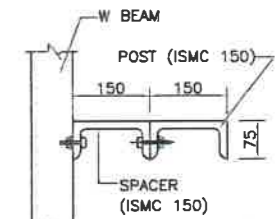
TOP VIEW OF END SECTION TYPE-A
(FLARED END SECTION)
SCALE 1:10



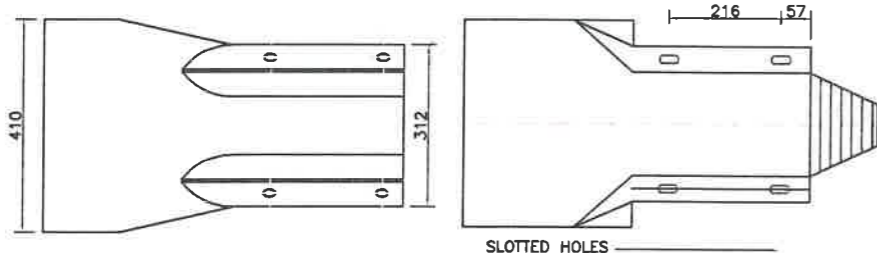
TOP VIEW OF END SECTION OF TYPE-B
(ROUNDED END SECTION)
SCALE 1:10



SECTION 2-2
SCALE 1:20

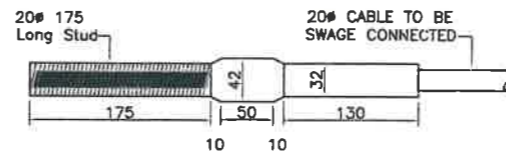


VIEW A-A
SCALE 1:10

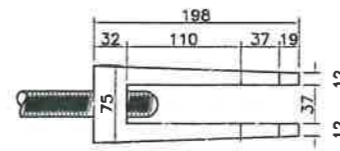


END SECTION TYPE-A
(FLARED END SECTION)
SIDE VIEW
(SCALE 1:10)

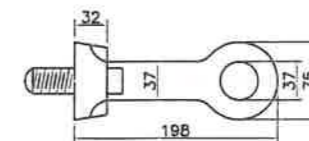
END SECTION TYPE-B
(ROUNDED END SECTION)
SIDE VIEW
(SCALE 1:10)



SWAGED FITTING AND STUD
(SCALE 1:5)



DETAIL OF CLEVIS
(SCALE 1:5)

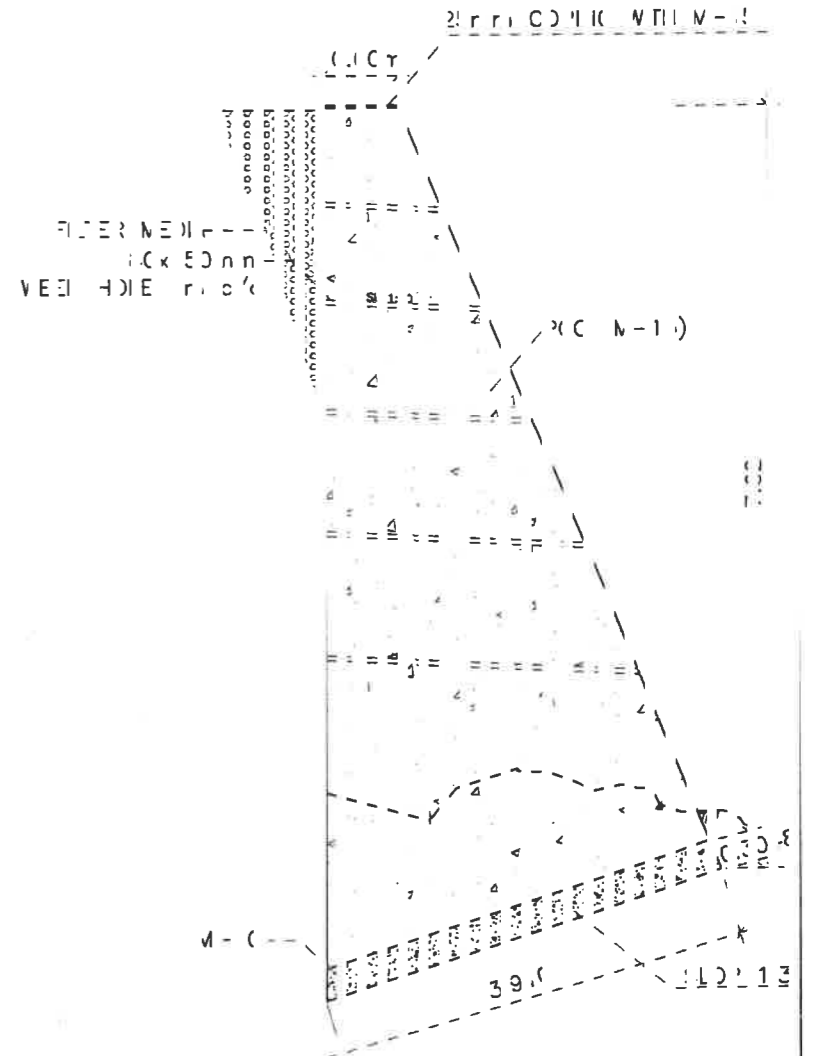
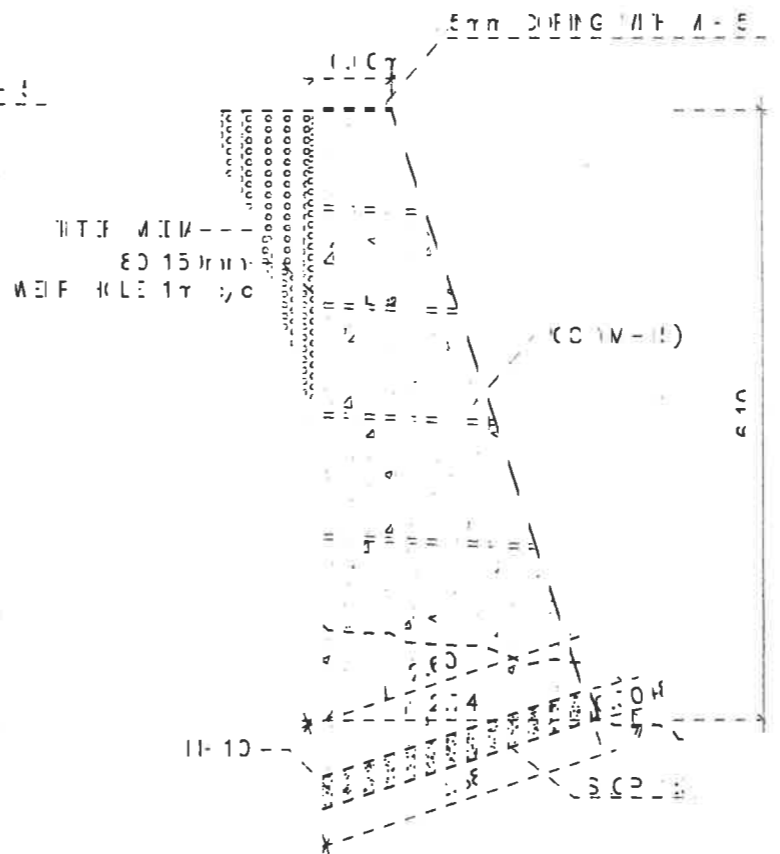
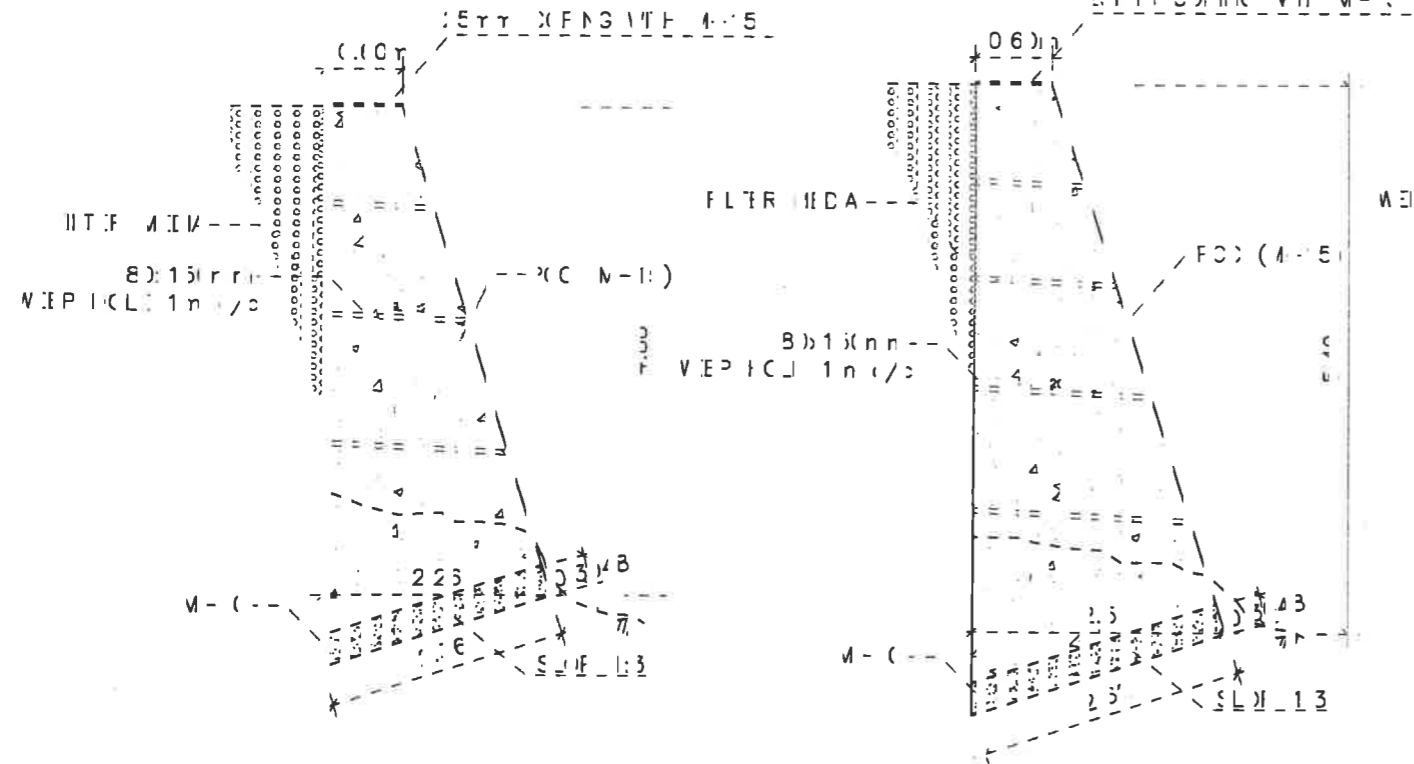
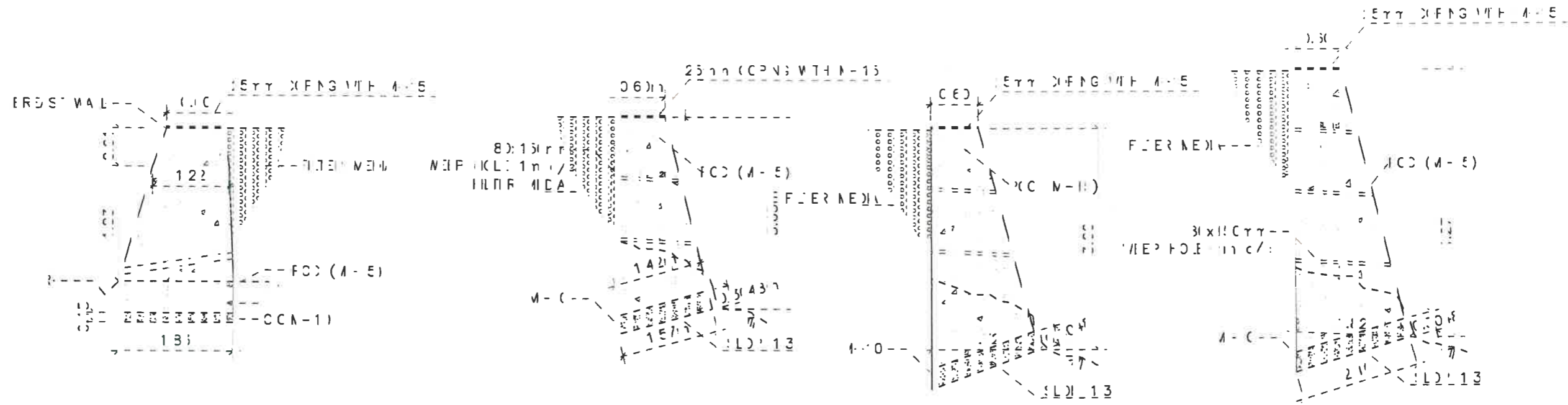


DETAIL OF EYE
(SCALE 1:5)

NOTES:

- METAL BEAM CRASH BARRIERS SHALL BE PROVIDED AT LOCATIONS SPECIFIED IN DRAWINGS AND WHERE INSTRUCTED BY THE ENGINEER
- SUITABLE REFLECTORS ARE TO BE PROVIDED ON W-BEAM AT A SPACING OF 3 M C/C
- ANCHOR CABLE HOOKS TO BE IN CONTACT WITH ANCHOR REINFORCEMENT WHEN CONCRETE IS PLACED
- ALL HOLES IN POSTS AND BLOCKS SHALL BE 21.50MM
- W-BEAM SHALL BE AS PER IS : 5986 - 1992 AND POST, SPACERS ETC SHALL BE PER IS : 2062 - 1992
- W-BEAM, POSTS & SPACERS SHALL BE HOT DIP GALVANISED AS PER SPECIFICATIONS
- AT BRIDGE LOCATIONS, THE METAL BEAM CRASH BARRIER SHALL TERMINATE PREFERABLY WITH END SECTION TYPE A AND CONNECTED WITH BRIDGE/CULVERT RAILING/CRASH BARRIER IN A SUITABLE MANNER AS APPROVED.

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)		Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhanok in the State of West Bengal and From Rhenok-Rovathang-Palyang along with Spur From Artar-Rolep-Menia in the State of Sikkim		DATE : Jan-2018	Revision R0	PACKAGE-IVa PART OF BAGRAKOT To KAfer TYPICAL DETAIL OF METAL BEAM CRASH BARRIER
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-1, Corporate Park, Plot No. 7A/1, Sector-142, Gurgaon, 122011 Haryana		DESIGNED BY : P.S. DRAWN BY : Naresh CHECKED BY : P.S. APPROVED BY : L.A.Z.		SCALE:- NTS		
REV	DATE	DESCRIPTION OF REVISIONS	INITIALS	Dwg. No. :- SAJICPL-SESPL/NHDC/WB-SKM/MISC-08		



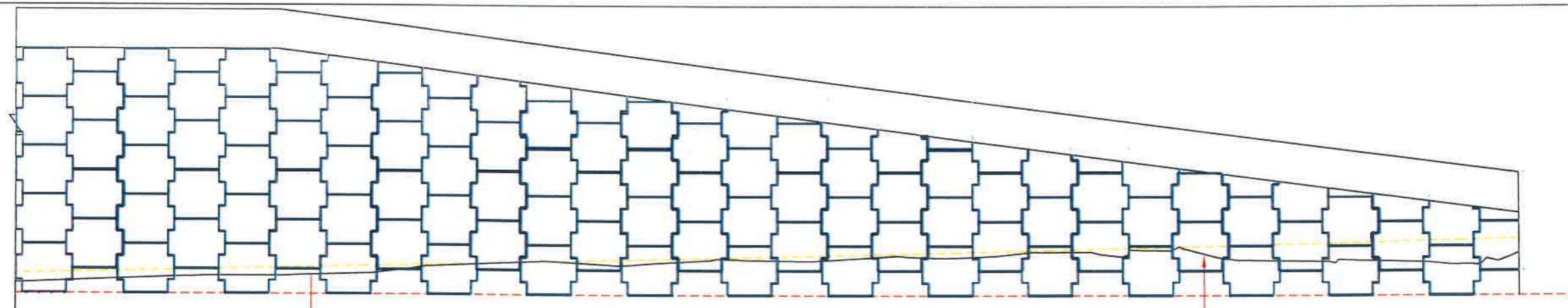
1 BB:
 1 C R R E

Сheck
 M.I.O.N.L
 M.I.R.S.Y.O.F.I.D.I.A.I.S.I.O.
 S.I.F.A.T.R.R.E.
 M.I.R.S.Y.O.F.I.D.I.A.I.S.I.O.
 S.I.F.A.T.R.R.E.

Project:
 o s l h n / r p r p r c i f f x i l l i e p
 c n p a l n a y k e i t i r u h a l e h w e r
 G h k i l k i n v i l a r o c u d n n o g
 K f e f a l l i g n y r t r k n t r s e m
 V e r e a d t n R e o f d i a t y s e r
 a l n v t S u f o r t r t e r t a r x s k i r

DATE: 11-10-61
 ENGINEER: J. H. HANEY
 REVISION: 1
 CHECKED: J. H. HANEY
 DRAWN: J. H. HANEY

PROJECT: M.I.R.S.Y.O.F.I.D.I.A.I.S.I.O.
 PART: (C.F.A.B.R.U.C.T.T.) C.F.E.R.
 TITLE: S.I.F.A.T.R.R.E.
 DRAWING NO: 13

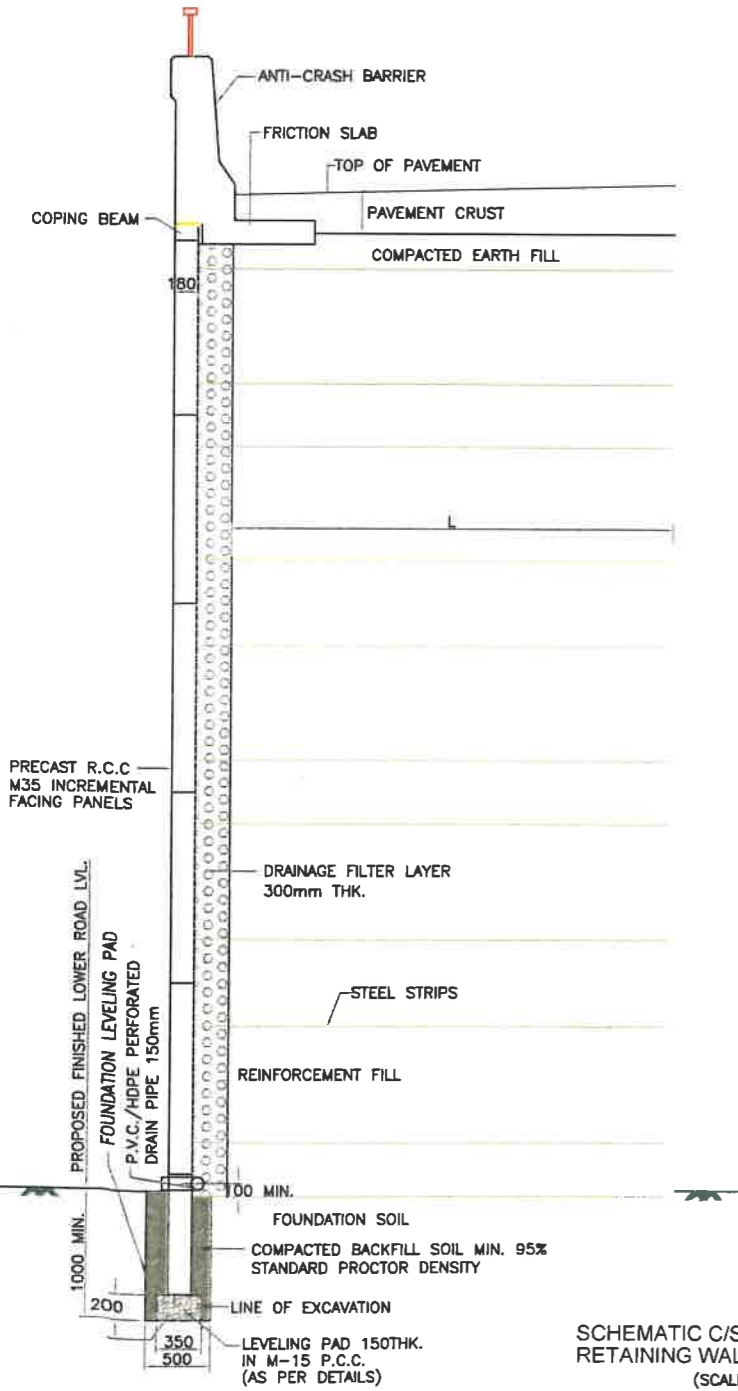


ELEVATION OF REINFORCED EARTH WALL

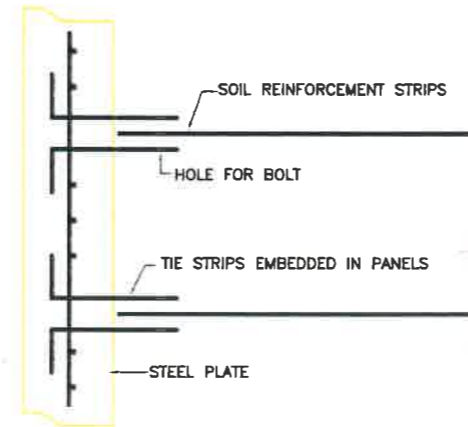
SCALE: H-1:500
V-1:50

PROPOSED LOWER ROAD LVL.

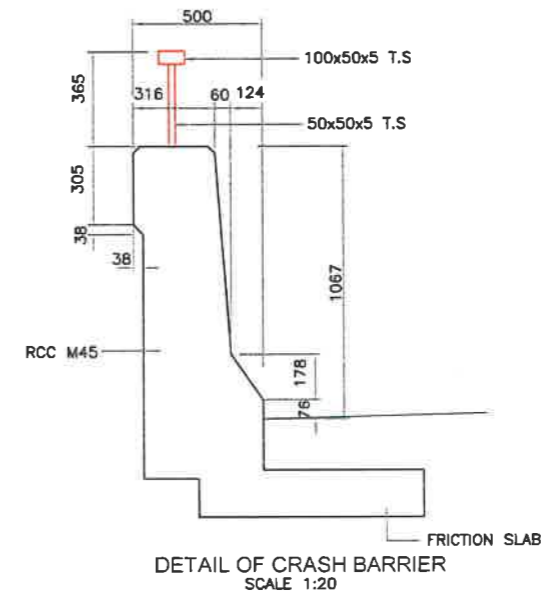
EXISTING G.L.



SCHEMATIC C/S OF REINFORCED SOIL RETAINING WALL FOR APPROACHES (SCALE 1:40)



SCHEMATIC C/S OF FACING PANELS WITH TIE STRIPS (NOT TO SCALE)



DETAIL OF CRASH BARRIER SCALE 1:20

1. All dimensions are in mm unless otherwise mentioned.
2. Grade of concrete used in precast concrete panels is of M35
3. Reinforcement used in precast concrete panel is of Fe415.
4. The scheme shown in the drawing is indicative. The contractor shall supply detail design as per manufacturer's design. The design shall conform to the specifications and shall be approved by the Engineer.
5. The paved/ segment layout shall be prepared for each location and got approved by Engineer.

REV.	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan 2018	Due to vertical Profile Revised	

Client : **NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED**
(Ministry of Road Transport & Highways)

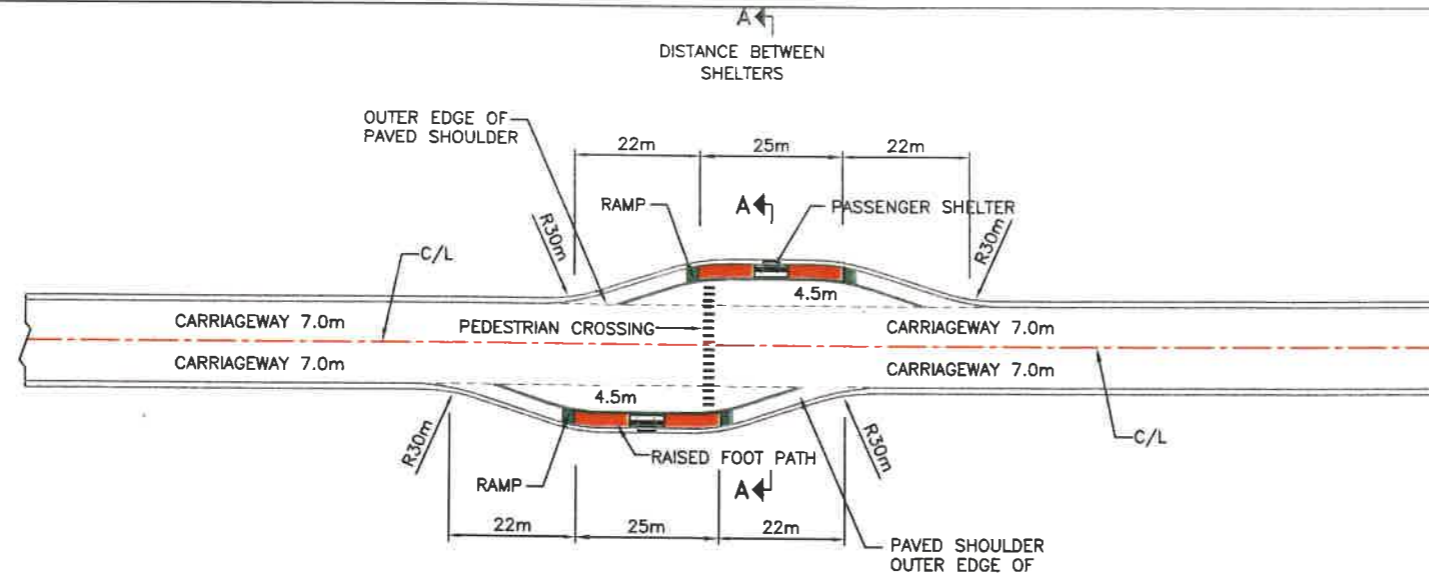
Consultant : **SA INFRASTRUCTURE CONSULTANTS PVT. LTD.**
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-2013011, Uttar Pradesh

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok In Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Roratr,ang-Pakyong along with Spur From Artar-Rolep-Menia in the State of Sikkim

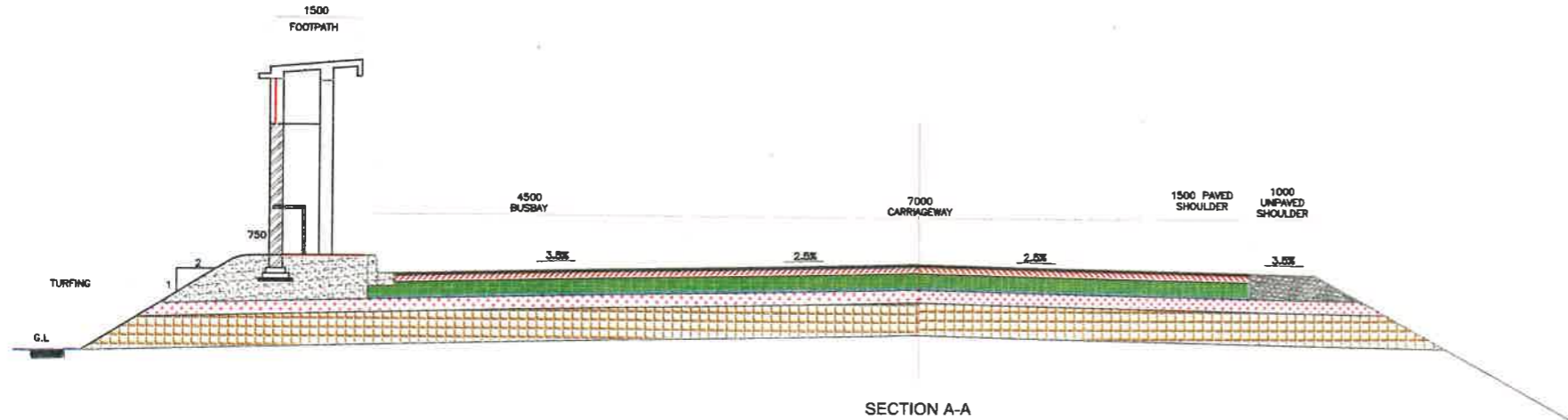
DATE : Jan-2018	Revision	R0	
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
<i>P.S.</i>	<i>Narresh</i>	<i>P.S.</i>	<i>L.A.Z.</i>
SCALE:- NTS			

PACKAGE-IVa
PART OF BAGRAKOT To KAFER
DETAIL OF RE WALL

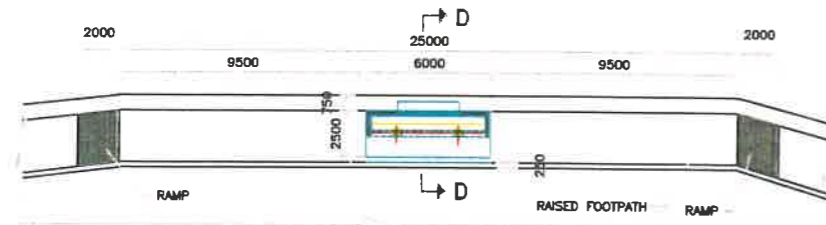
Dwg. No. :-
SAICPL-SESPL/NHIDC/WB-SKM/MISC -10



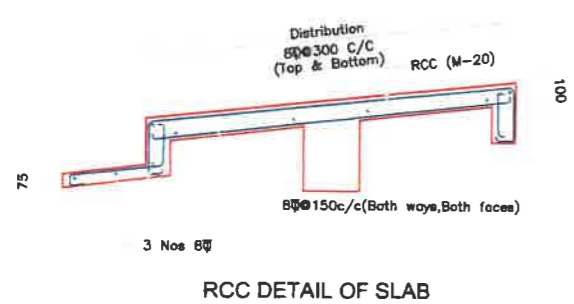
TYPICAL LAYOUT FOR BUS BAY FOR SIX LANE DIVIDED CARRIAGEWAY



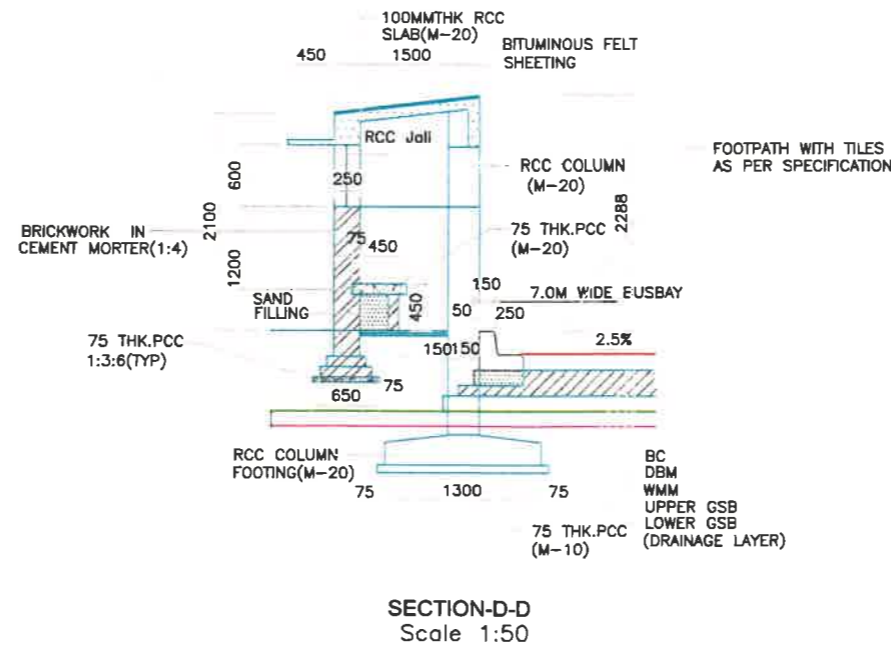
SECTION A-A



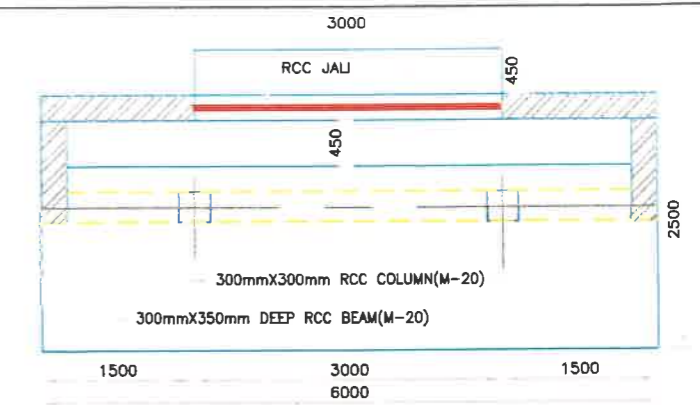
LOCATION OF PASSENGER SHELTER SCALE 1:250



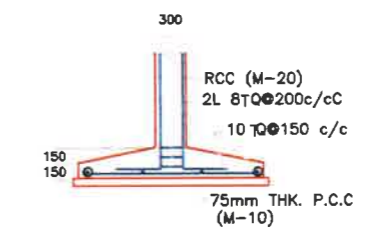
RCC DETAIL OF SLAB



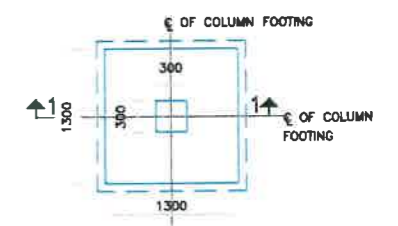
SECTION-D-D Scale 1:50



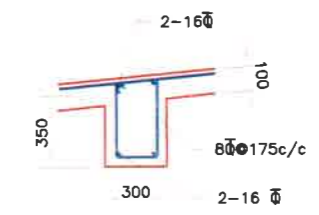
PLAN OF PASSENGER SHELTER SCALE 1:50



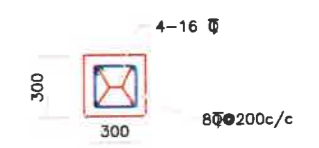
SECTION 1-1 SCALE 1:50



PLAN SHOWING COLUMN FOUNDATION SCALE 1:50



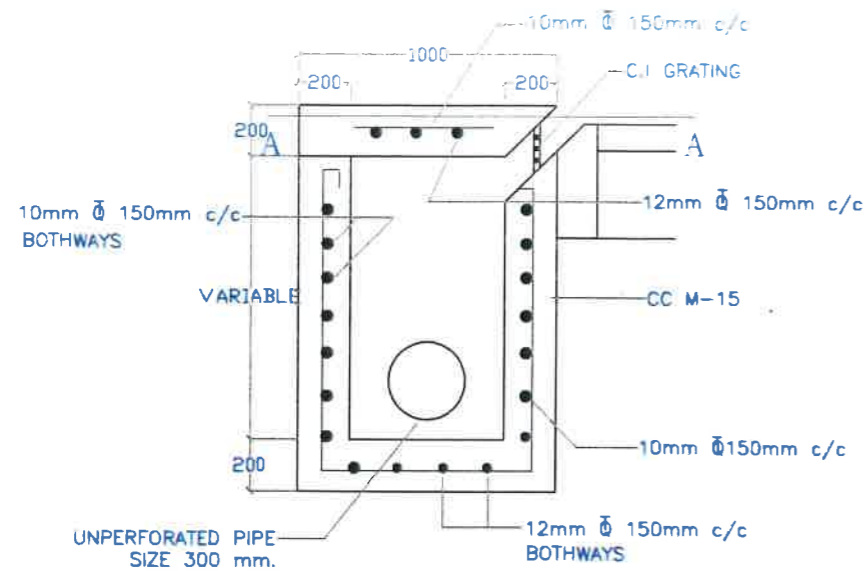
RCC DETAIL OF BEAM SCALE 1:25



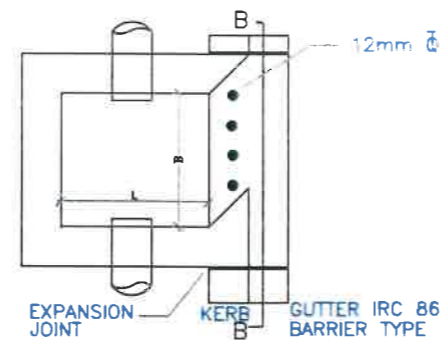
RCC DETAIL OF COLUMN SCALE 1:25

LIST OF PASSENGER SHELTER			
Sr.No.	EXISTING CHAINAGE	DESIGN CHAINAGE	SIDE
1	0+000	0+000	Both
2	0+967	0+960	Both
3	1+311	1+300	Both
4	1+840	1+840	Both
5	2+581	2+575	Both
6	6+622	6+600	Both
7	8+760	8+650	Both
8	13+240	13+270	Both
9	14+388	14+788	Both
10	14+800	15+220	Both
11	18+340	18+620	Both
12	19+480	19+735	Both
13	20+500	20+500	Both
14	21+360	21+400	Both
15	21+740	21+800	Both
16	22+720	22+720	Both
17	24+180	24+155	Both
18	25+880	25+820	Both
19	26+700	26+590	Both
20	28+000	27+120	Both

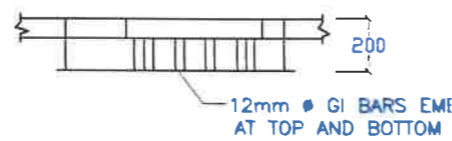
Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)	Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Artar-Rolep-Menla in the State of Sikkim	DATE : Jan-2018	Revision R0	PACKAGE-IVa PART OF BAGRAKOT To KAFER LAYOUT OF BUSBAY DETAILS OF PASSENGER SHELTER & BUSBAY LIST
		DESIGNED BY : [Signature] DRAWN BY : [Signature] CHECKED BY : [Signature] APPROVED BY : [Signature]	SCALE:- NTS	
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. Specialized Engineering Services Pvt. Ltd. 1167A, 11st Floor, Tower A, E. Corporate Park, Plot No. KA-1, Sector-142, Noida-201301, India				



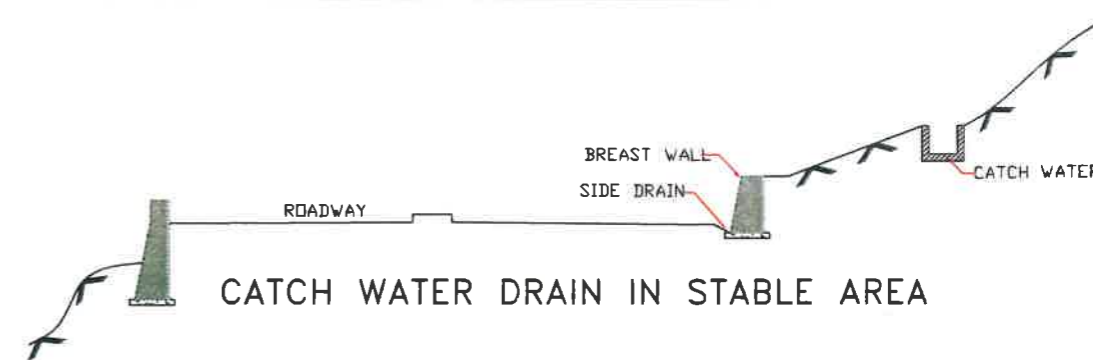
CATCH BASIN INLET CHAMBER



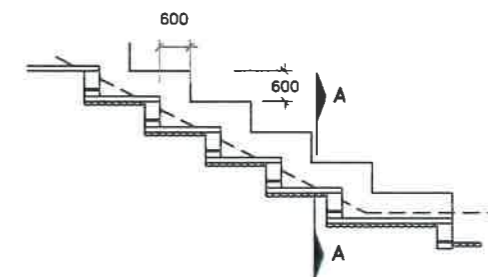
SECTION A-A



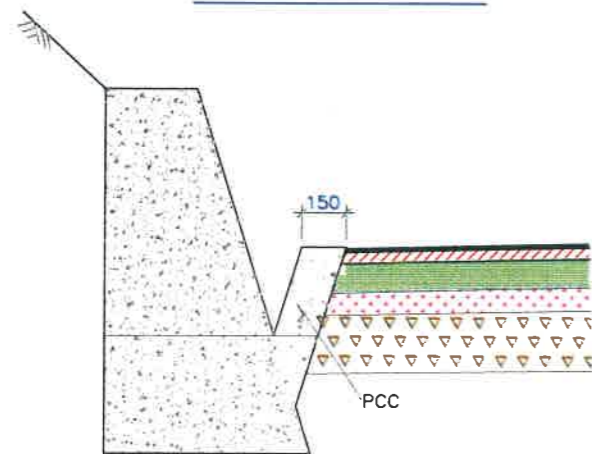
INLET DETAIL AT B-B



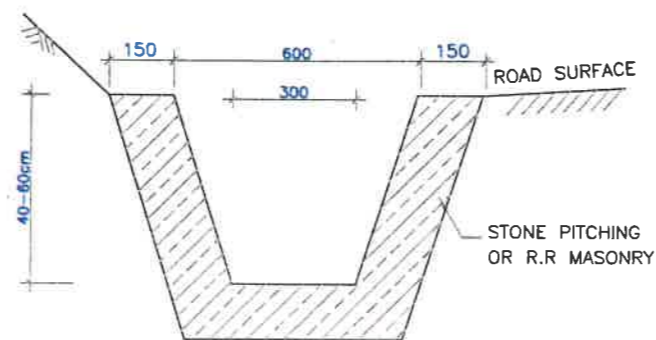
CATCH WATER DRAIN IN STABLE AREA



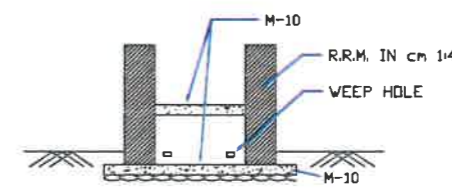
LONGITUDINAL SECTION OF CHUTE



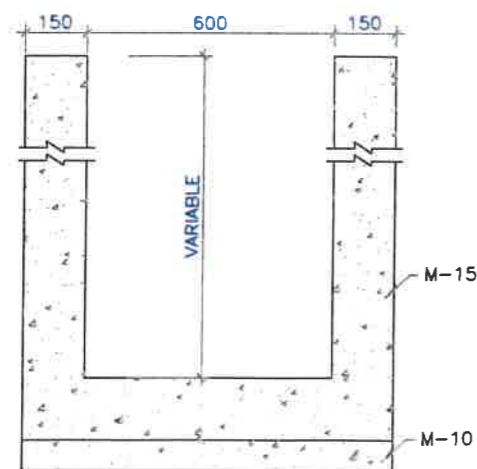
HILL SIDE DRAIN



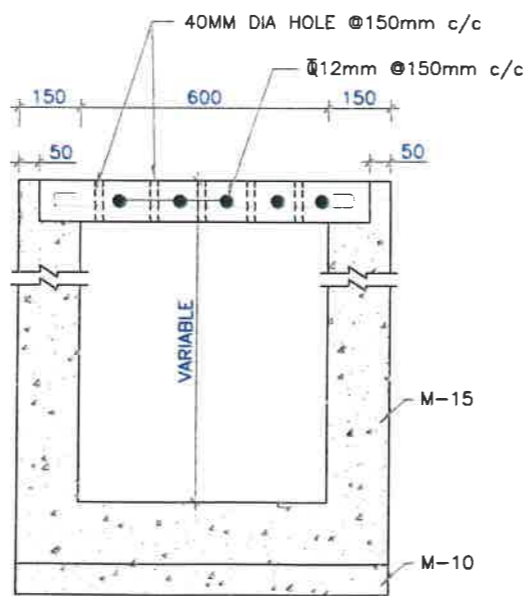
TRAPEZOIDAL DRAIN



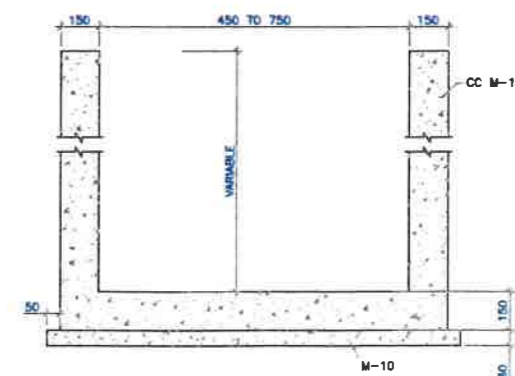
SECTION A-A



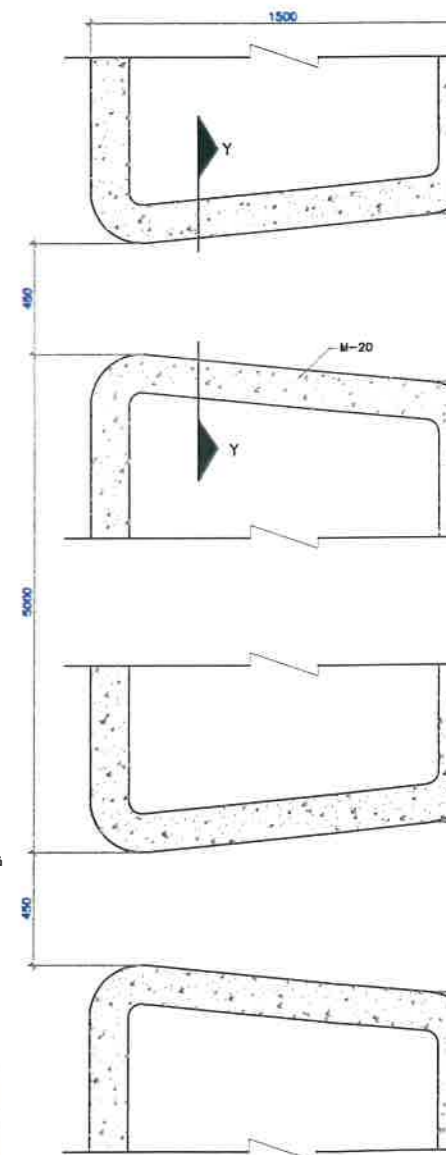
TYPICAL SECTION OF LINED DRAIN



TYPICAL SECTION OF COVERED LINED DRAIN



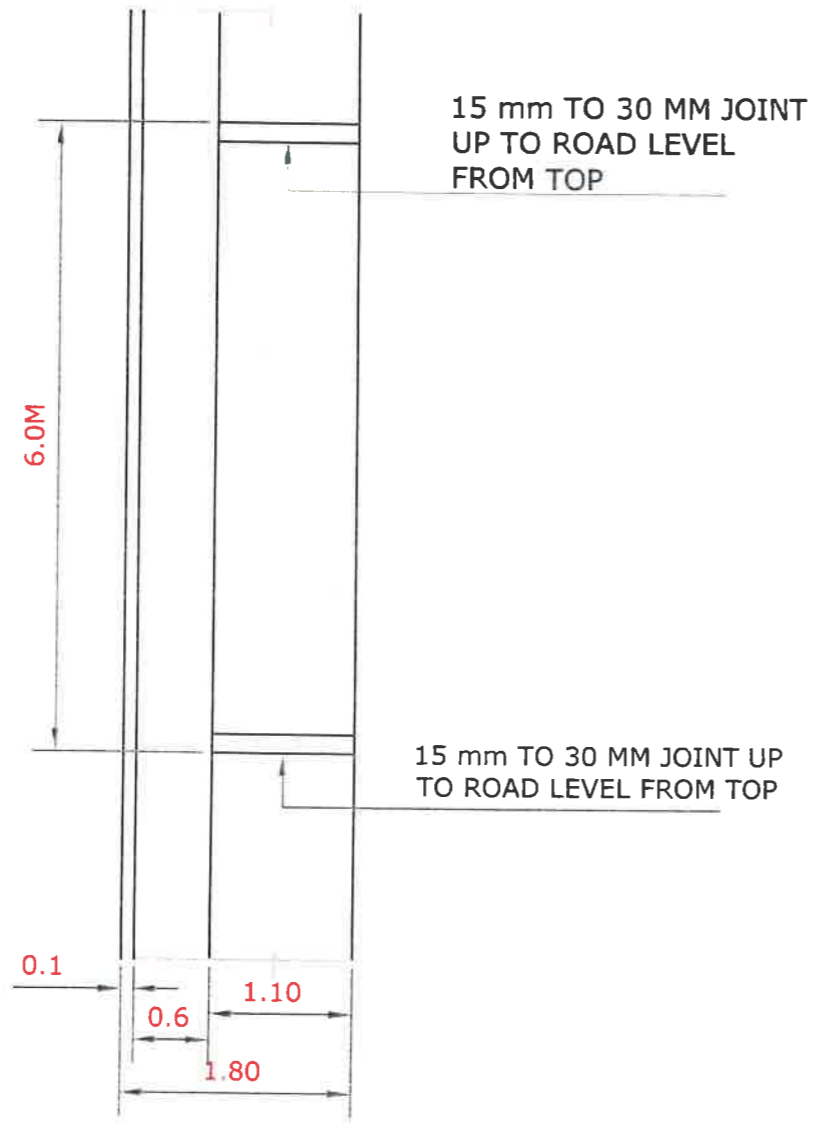
SECTION 'Y Y'



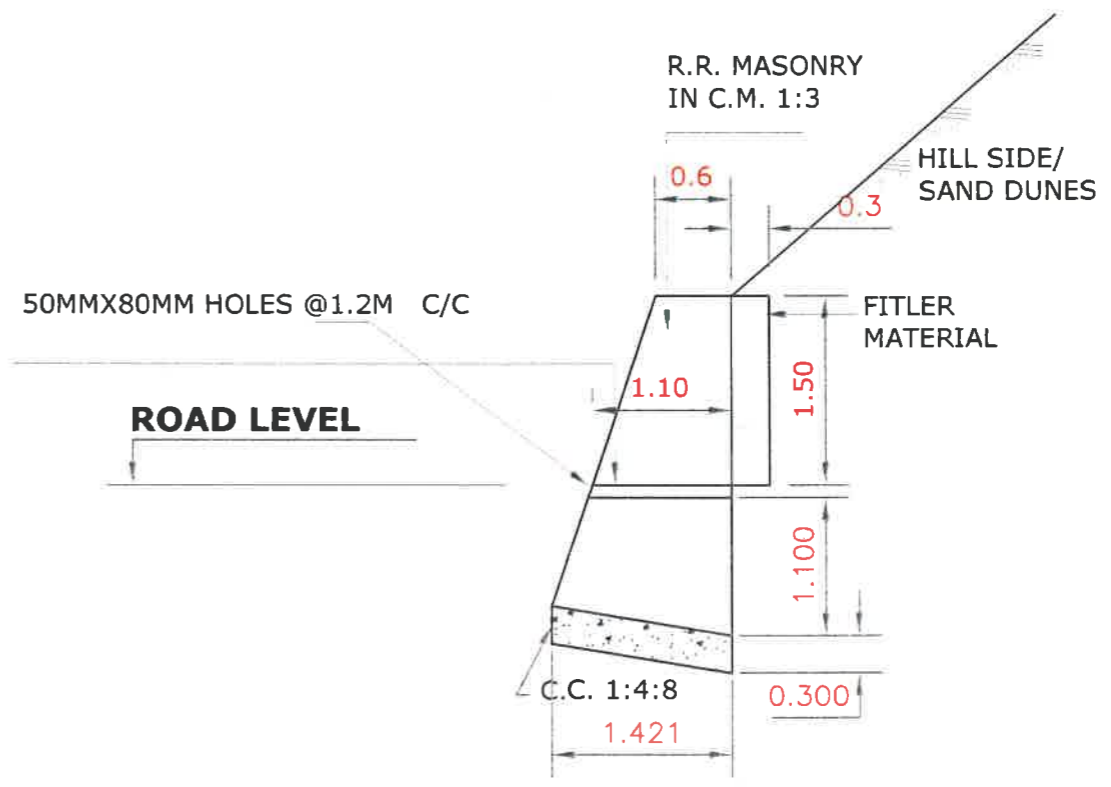
MEDIAN CUT DRAIN ON CURVE LOCATION

2. CATCH WATER DRAIN ARE PROVIDED AS PER SITE REQUIREMENT.

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)		Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakol-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Artar-Rolep-Menia in the State of Sikkim		DATE : Jan-2018	Revision : R0	PACKAGE-IVa PART OF BAGRAKOT TO KAFER DETAIL OF SIDE DRAIN, INLET CHAMBER & MEDIAN CUT DRAIN
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. Specialized Engineering Service Pvt. Ltd. 1101A, 11B, Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Mayapuri, New Delhi-110017		DESIGNED BY : P.S. DRAWN BY : Nareesh CHECKED BY : P.S. APPROVED BY : L.A.Z.		SCALE:- NTS		
01 REV. DATE 01 Jan 2018	DESCRIPTION OF REVISIONS Due to Vertical Profile Revised	INITIALS	Dwg. No. :- SAICPL-SESPL/NHIDC/WB-SKM/MISC -12			



PLAN
(AT ROAD LEVEL)



TYPICAL CROSS SECTION OF BREAST WALL

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
01	Jan-2018	Due to Vertical Profile Revised	

Client :
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

Consultant :
SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301 | New Delhi

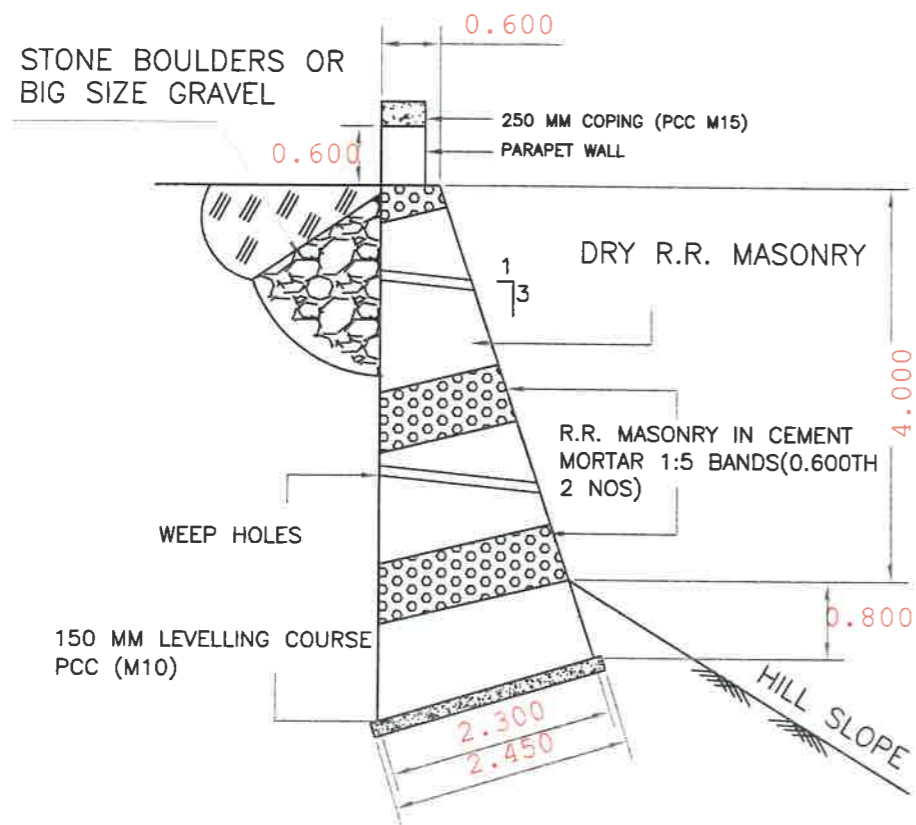
Project :
Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chukhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Roratheng-Pakyong along with Spur From Artar-Rolep-Merla in the State of Sikkim

DATE : Jan-2018	Revision	RO
DESIGNED BY P.S.	DRAWN BY Hresh	CHECKED BY P.S.
		APPROVED BY L.A.Z.

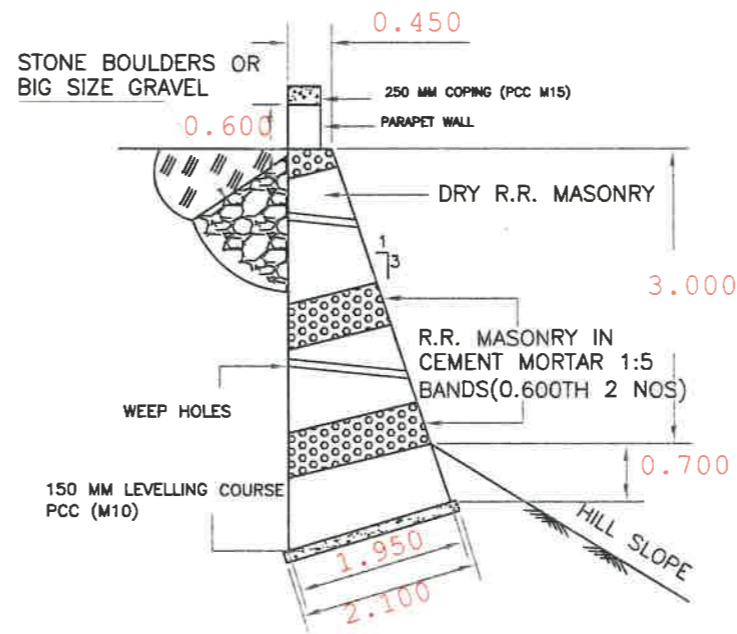
PACKAGE-IVa
PART OF BAGRAKOT To KAFER
DETAIL OF BREAST WALL

Dwg. No. :-
SAICPL/SESPL/NHIDC/WB-SKM/MISC-13

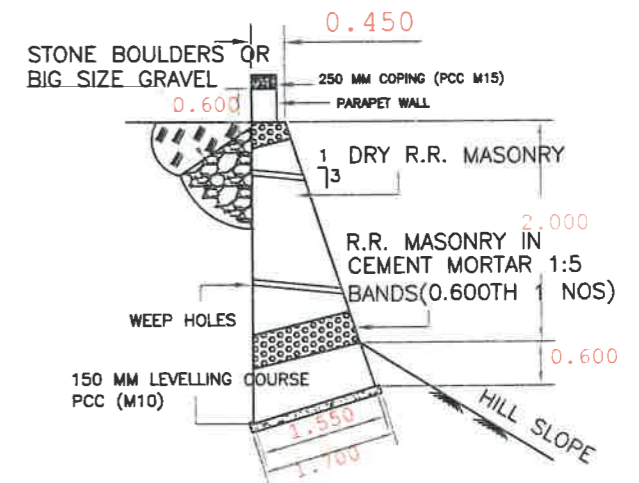
SCALE:- NTS



RETAINING WALL 4 M. HT.



RETAINING WALL 3 M. HT.

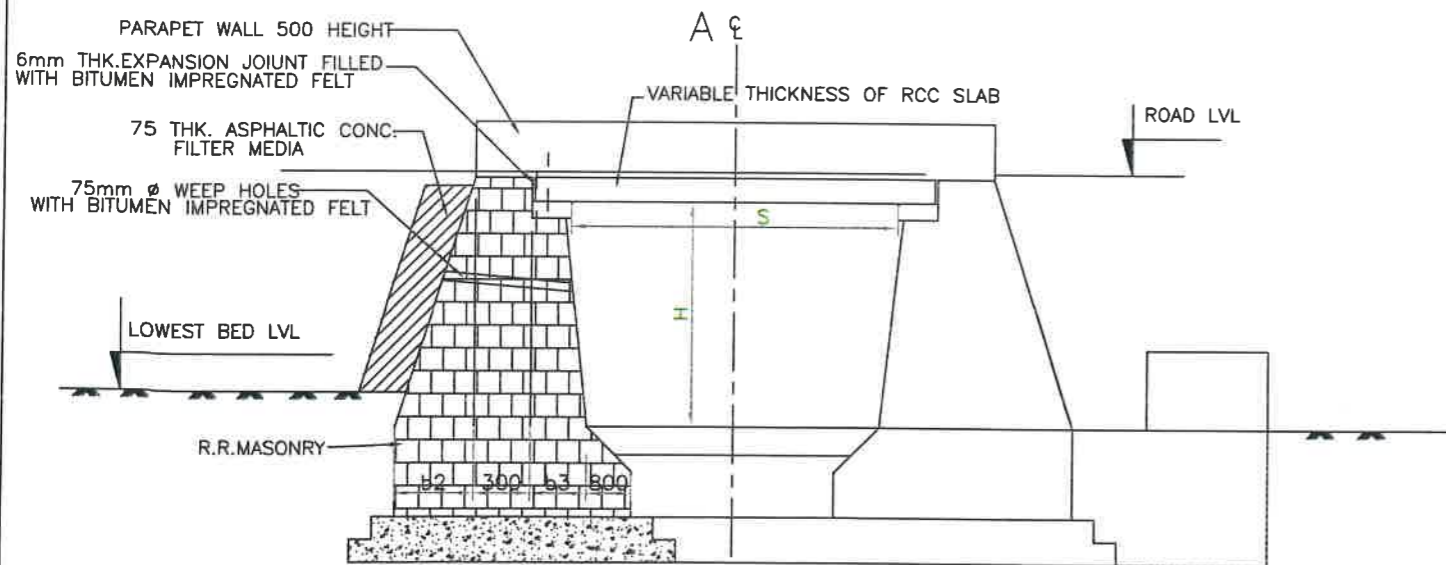
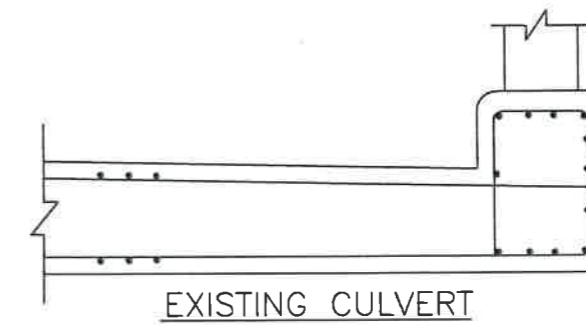
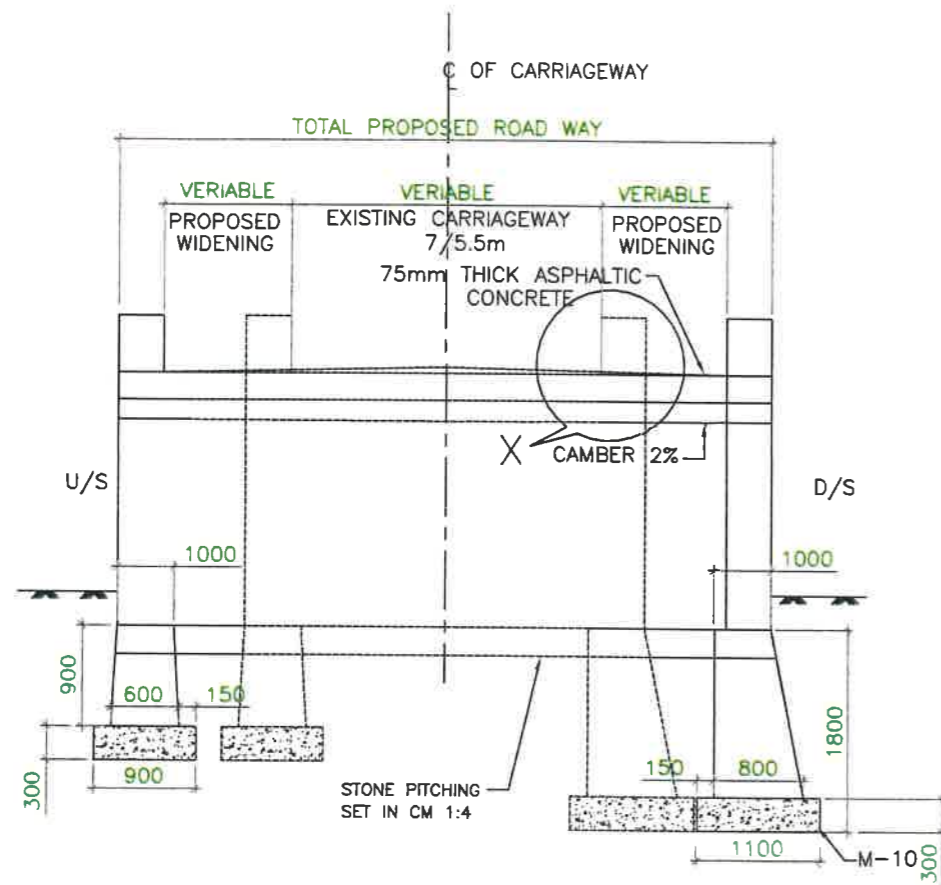


RETAINING WALL 2 M. HT.

NOTES:-

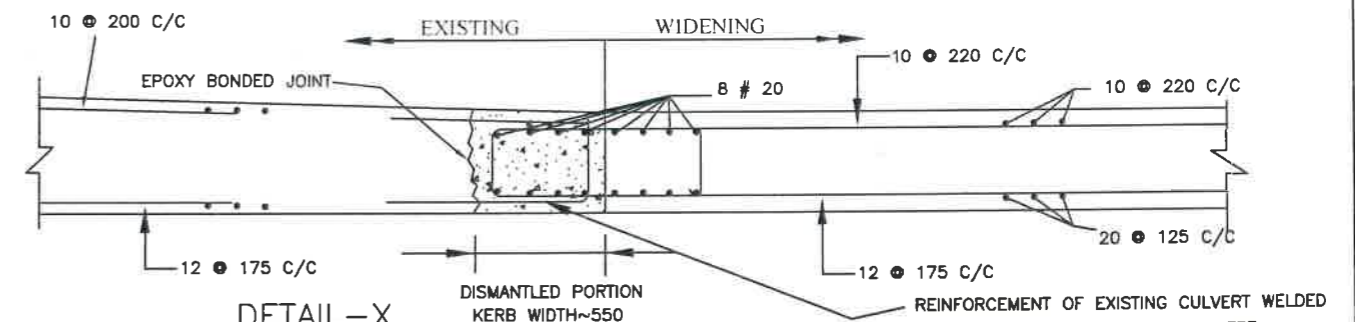
1. ALL DIMENSIONS IN METRES UNLESS OTHERWISE SPECIFIED
2. DESIGN AS PER GUIDELINES OF IRC:SP:48-1998 (HILL ROAD MANUAL)
3. BATTER TO BE KEPT AS 1:3 UP TO 4.0 M HT. ADJUSTING THE BASE DIMENSIONS SUITABLY

		Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)		Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chulthim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorahang-Pakyong along with Spur From Aritar-Rolep-Menia in the State of Sikkim		DATE : Jan-2018 Revision : R0		PACKAGE-IVa PART OF BAGRAKOT To KAFER DETAIL OF RETAINING WALL (MASONARY WALL)	
		Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. <small>Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida 201301 Near Shrawan</small>		DESIGNED BY : P.S. DRAWN BY : Noreah CHECKED BY : P.S. APPROVED BY : L.A.Z.		SCALE:- NTS			
REV	DATE	DESCRIPTION OF REVISIONS		INITIALS					



HALF SECTIONAL ELEVATION
SHOWING ABUTMENT

H = HEIGHT
S = CLEAR SPAN



DETAIL-X
SECTION SHOWING REINFORCEMENT ARRANGEMENT OF
EXISTING AND NEW CULVERT SLAB

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)		Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Artar-Rolep-Menia in the State of Sikkim		DATE : Jan-2018	Revision R0	PACKAGE-IVa PART OF BAGRAKOT To KAFER TYPICAL EXTENSION ARRANGEMENT FOR SLAB CULVERT
Ref: C-850 NER CHOWK TO MANALI Drawing FEASIBILITY STANDARD DRAWING I2.dwg SA INFRASTRUCTURE CONSULTANTS PVT. LTD.		Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida-201301 (Uttar Pradesh)		DESIGNED BY: P.S. DRAWN BY: Noresh CHECKED BY: P.S. APPROVED BY: L.A.Z.	Dwg. No. :- SAICPL-SESPL/NHIDC/WB-SKM/ MISC -15	