

DETAILED SURVEY REPORT

**220KV D/C TRANSMISSION LINE AT NORTH KARANPURA
(NTPC)**

**CONSULTANT
MEDHAJ TECHNO CONCEPT PVT. LTD**

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- 1 Substation Co-ordinates
- 2 Summary of Route & Towers
- 3 Tower Schedule
- 4 Tree Enumeration
- 5 Stringing chart.
- 6 Route Alignment drawing on digital map
- 7 Route profile
- 8 SAG Template

CHAPTER-1

SUBSTATION COORDINATES

Co-ordinates of Substations

PROPOSED 220 KV SUBSTATION (NTPC END)

*(Longitude 85°1'2.29"E and Latitude 23°51'8.56"N)
(Easting 298081 and Northing 2639296)*

PROPOSED 220 KV SUBSTATION (MINING END)

*(Longitude 85°5'24.23"E and Latitude 23°52'32.64"N)
(Easting 305528 and Northing 2641781)*

CHAPTER-2

**SUMMARY OF ROUTE &
TOWERS**

Sr. No.	Description	Alt-I(Proposed) (Red)
1	BEE Line	7.83 KM
2	Line Length	9.32 KM
3	a) Angle Points	10
4	Forest	NIL
5	Power Line (132KV & Above)	NIL
6	Railway crossings	NIL
7	NH	NIL
8	SH	2
		AP2-3 (SH-7)
		AP5-6 (SH-7)
8	River crossings	
	a) Major	Nil
	b) Minor	1Nos.
		AP4 – AP5 (Barki River) only 100M. Width
9	Air Port	66 KM Away (Ranchi)

Summary of Tower				
Tower Type Extn.	+0	+3	+6	Total
DB	26	1	1	28
DC	2			2
DD	3		1	4
Total	31	1	2	34

Total Line Length = 9325 m
 Bee Line Length = 7850 m

Total No. of DB Tower = 28
 Total No. of DC Tower = 2
 Total No. of DD Tower = 4

CHAPTER-3

TOWER SCHEDULE

TOWER SCHEDULE

220KV DC TRANSMISSION LINE AT NORTH KARANPURA

AP. No.	Loc No.	Tower Type	Angle of Deviation	Sectional Length (Mtr.)	Span (Mtr.)	Chainage (Mtr.)	Wind Span (Mtr.)	Weight Span (Cold)			Weight Span (Hot)			Adjacent Span			Easting	Northing	Longitude			Latitude			Elevation (Mtr.)	Remarks
								Left	Right	Total	Left	Right	Total	Left	Right	Total			Deg	Min	Sec	Deg	Min	Sec		
				0		0	47.7	0	53	53	0	51	51	0	95	95	298081	2639296	85	1	2.29	23	51	8.56	100.19	NTPC PLANT END
GANTRY	Loc-1	DD+0	0°00'00"		95.44																					
				95		95	196.1	43	159	202	44	156	200	95	297	392	298161	2639244	85	1	5.14	23	51	6.90	100.00	
AP1	Loc-2	DB+0	29°16'43"R		296.77																					VILLAGE ROAD, BOUNDARY WALL
1/1	Loc-3	DB+0			314.25	392	305.5	137	210	347	141	193	334	297	314	611	298299	2638981	85	1	10.14	23	50	58.43	98.66	
				611		706	308.9	104	159	264	121	157	278	314	304	618	298445	2638703	85	1	15.44	23	50	49.45	91.84	
AP2	Loc-4	DC+0	35°13'10"L		303.55																					
2/1	Loc-5	DB+0			311.42	1010	307.5	144	147	291	147	150	296	304	311	615	298715	2638565	85	1	25.06	23	50	45.08	90.88	
					292.03																					
2/2	Loc-6	DB+0				1321	301.7	164	140	304	162	142	304	311	292	603	298993	2638423	85	1	34.93	23	50	40.60	92.00	
						1613	261.2	152	107	259	150	110	260	292	230	522	299253	2638290	85	1	44.18	23	50	36.40	92.72	
2/3	Loc-7	DB+0			230.35																					STATE HIGHWAY-7 TANDWA TO HAZARIBAGH ,11KV LINE
				1137		1844	275.1	123	133	256	121	141	262	230	320	550	299458	2638185	85	1	51.47	23	50	33.08	93.47	
AP3	Loc-8	DD+0	64°40'44"L		319.77																					
3/1	Loc-9	DB+0			292.88	2164	306.3	187	97	285	178	113	292	320	293	613	299711	2638380	85	2	0.34	23	50	39.53	97.06	
																										CART TRACK
3/2	Loc-10	DB+0			248.45	2456	270.7	196	228	423	180	195	374	293	248	541	299943	2638559	85	2	8.45	23	50	45.44	102.96	
																										CART TRACK
3/3	Loc-11	DB+0			318.26	2705	283.4	21	196	217	54	185	238	248	318	567	300140	2638710	85	2	15.33	23	50	50.45	92.41	
3/4	Loc-12	DB+0			225.54	3023	271.9	122	228	349	134	191	325	318	226	544	300392	2638904	85	2	24.15	23	50	56.88	87.53	
AP4	Loc-13	DB+0	17°24'32"L	1405		3249	266.4	-2	116	113	35	128	162	226	307	533	300571	2639042	85	2	30.39	23	51	1.43	76.89	
					307.29																					GARHI RIVER WIDTH 100M. NO NEED OF SPECIAL TOWER
4/1	Loc-14	DB+0				3556	304.1	192	109	301	180	122	302	307	301	608	300747	2639294	85	2	36.50	23	51	9.69	81.70	

220KV DC TRANSMISSION LINE AT NORTH KARANPURA																										
AP. No.	Loc No.	Tower Type	Angle of Deviation	Sectional Length (Mtr.)	Span (Mtr.)	Chainage (Mtr.)	Wind Span (Mtr.)	Weight Span (Cold)			Weight Span (Hot)			Adjacent Span			Easting	Northing	Longitude			Latitude			Elevation (Mtr.)	Remarks
								Left	Right	Total	Left	Right	Total	Left	Right	Total			Deg	Min	Sec	Deg	Min	Sec		
					301.00																					
4/2	Loc-15	DB+0				3857	294.9	192	104	296	179	117	296	301	289	590	300920	2639540	85	2	42.48	23	51	17.78	86.84	
					288.82																					
4/3	Loc-16	DB+0				4146	289.4	185	115	299	172	124	296	289	290	579	301086	2639777	85	2	48.21	23	51	25.54	91.60	POND, CART TRACK
					290.01																					
4/4	Loc-17	DB+0				4436	285.0	175	128	303	166	132	298	290	280	570	301252	2640014	85	2	53.97	23	51	33.34	95.19	
					280.06																					
AP5	Loc-18	DB+0	14°28'47"L	1467		4716	300.0	152	135	287	148	143	291	280	320	600	301409	2640239	85	2	59.42	23	51	40.70	96.55	STATE HIGHWAY-7 TANDWA TO HAZARIBAGH, 11KV
					319.99																					
AP6	Loc-19	DC+0	52°35'58"R	320		5036	298.0	185	119	303	177	125	302	320	276	596	301525	2640549	85	3	3.37	23	51	50.83	99.79	
					275.96																					
6/1	Loc-20	DB+0				5312	281.5	157	145	302	151	144	296	276	287	563	301784	2640628	85	3	12.49	23	51	53.50	101.99	
					287.03																				LT LINE	
6/2	Loc-21	DB+0				5599	285.8	142	137	280	143	139	282	287	285	572	302059	2640711	85	3	22.16	23	51	56.34	101.85	
					284.60																				CART TRACK	
6/3	Loc-22	DB+0				5883	282.2	147	157	304	146	151	297	285	280	564	302331	2640794	85	3	31.74	23	51	59.14	102.42	
					279.79																				POND	
AP7	Loc-23	DB+0	1°39'31"L	1127		6163	299.2	123	88	211	128	111	240	280	319	598	302599	2640875	85	3	41.16	23	52	1.90	100.48	11KV LINE, VILLAGE ROAD
					318.68																					
7/1	Loc-24	DB+3				6482	319.0	230	232	462	208	209	416	319	319	638	302901	2640976	85	3	51.79	23	52	5.33	106.75	
					319.40																					
7/2	Loc-25	DB+0				6801	319.3	88	191	279	111	181	292	319	319	639	303204	2641078	85	4	2.44	23	52	8.77	100.30	
					319.20																					

AP. No.	Loc No.	Tower Type	Angle of Deviation	Sectional Length (Mtr.)	Span (Mtr.)	Chainage (Mtr.)	Wind Span (Mtr.)	Weight Span (Cold)			Weight Span (Hot)			Adjacent Span			Easting	Northing	Longitude			Latitude			Elevation (Mtr.)	Remarks
								Left	Right	Total	Left	Right	Total	Left	Right	Total			Deg	Min	Sec	Deg	Min	Sec		
					301.00																					
4/2	Loc-15	DB+0				3857	294.9	192	104	296	179	117	296	301	289	590	300920	2639540	85	2	42.48	23	51	17.78	86.84	
					288.82																					
4/3	Loc-16	DB+0				4146	289.4	185	115	299	172	124	296	289	290	579	301086	2639777	85	2	48.21	23	51	25.54	91.60	
					290.01																				POND, CART TRACK	
4/4	Loc-17	DB+0				4436	285.0	175	128	303	166	132	298	290	280	570	301252	2640014	85	2	53.97	23	51	33.34	95.19	
					280.06																					
AP5	Loc-18	DB+0	14°28'47"L	1467		4716	300.0	152	135	287	148	143	291	280	320	600	301409	2640239	85	2	59.42	23	51	40.70	96.55	
					319.99																				STATE HIGHWAY-7 TANDWA TO HAZARIBAGH, 11KV	
AP6	Loc-19	DC+0	52°35'58"R	320		5036	298.0	185	119	303	177	125	302	320	276	596	301525	2640549	85	3	3.37	23	51	50.83	99.79	
					275.96																					
6/1	Loc-20	DB+0				5312	281.5	157	145	302	151	144	296	276	287	563	301784	2640628	85	3	12.49	23	51	53.50	101.99	
					287.03																				LT LINE	
6/2	Loc-21	DB+0				5599	285.8	142	137	280	143	139	282	287	285	572	302059	2640711	85	3	22.16	23	51	56.34	101.85	
					284.60																				CART TRACK	
6/3	Loc-22	DB+0				5883	282.2	147	157	304	146	151	297	285	280	564	302331	2640794	85	3	31.74	23	51	59.14	102.42	
					279.79																				POND	
AP7	Loc-23	DB+0	1°39'31"L	1127		6163	299.2	123	88	211	128	111	240	280	319	598	302599	2640875	85	3	41.16	23	52	1.90	100.48	
					318.68																				11KV LINE, VILLAGE ROAD	
7/1	Loc-24	DB+3				6482	319.0	230	232	462	208	209	416	319	319	638	302901	2640976	85	3	51.79	23	52	5.33	106.75	
					319.40																					
7/2	Loc-25	DB+0				6801	319.3	88	191	279	111	181	292	319	319	639	303204	2641078	85	4	2.44	23	52	8.77	100.30	
					319.20																					
7/3	Loc-26	DB+0				7121	319.0	128	175	303	138	170	308	319	319	638	303507	2641179	85	4	13.09	23	52	12.20	96.14	
					318.88																					
AP8	Loc-27	DB+0	7°28'15"R	1276		7439	309.7	144	149	293	149	150	299	319	300	619	303809	2641281	85	4	23.72	23	52	15.63	94.13	
					300.49																					
8/1	Loc-28	DB+0				7740	297.6	151	145	296	151	146	296	300	295	595	304104	2641340	85	4	34.10	23	52	17.68	94.24	
					294.77																					
8/2	Loc-29	DB+0				8035	299.0	150	188	338	149	176	325	295	303	598	304393	2641398	85	4	44.29	23	52	19.70	94.55	
					303.30																					
8/3	Loc-30	DB+0				8338	289.9	115	168	283	127	158	285	303	276	580	304690	2641458	85	4	54.77	23	52	21.77	90.03	
					276.50																					

220KV DC TRANSMISSION LINE AT NORTH KARANPURA

[illegible]

CHAPTER – 4

TREE ENUMERATION

SN.	NAME	GIRTH IN CM	HEIGHT IN MTR	RIGHT/LEFT
	GANTRY TO AP 1		NILL	
	AP 1 TO AP 2		NILL	
	AP2 TO 3			
1	MANGO	80	12	RIGHT
2	MANGO	90	12	RIGHT
3	BABUL	12	10	RIGHT
	AP3 TO AP4			
1	KHAJUR	30	11	RIGHT
2	KHAJUR	25	10	RIGHT
3	JUNGLE JALEBI	35	9	LEFT
4	JUNGLE JALEBI	95	12	RIGHT
5	KHAJUR	25	10	LEFT
6	KHAJUR	35	7	RIGHT
7	KHAJUR	20	4	LEFT
8	KHAJUR	20	6	RIGHT
9	KHAJUR	25	5	RIGHT
10	KHAJUR	30	5	LEFT
11	KHAJUR	35	4	LEFT
12	KHAJUR	20	4	LEFT
13	KHAJUR	15	4	LEFT
14	KHAJUR	15	4	LEFT
15	KARAJ	45	7	LEFT
16	MANGO	80	9	LEFT
17	MANGO	90	10	LEFT
18	KHAJUR	25	4	RIGHT
19	JUNGLE JALEBI	85	8	RIGHT
20	KHAJUR	20	4	RIGHT
21	KHAJUR	15	2	LEFT
22	KHAJUR	20	4	LEFT
23	JUNGLE JALEBI	75	13	RIGHT
24	KHAJUR	20	5	RIGHT
25	KHAJUR	15	4	RIGHT
26	KHAJUR	20	4	RIGHT
27	KHAJUR	20	5	RIGHT
28	KHAJUR	25	4	RIGHT
	AP4 TO AP5			
1	NEEM	40	7	RIGHT
2	NEEM	50	5	RIGHT
3	MAHUA	35	7	RIGHT
4	MAHUA	65	6	RIGHT
5	KARI	35	7	RIGHT

SN.	NAME	GIRTH IN CM	HEIGHT IN MTR	RIGHT/LEFT
6	JAMUN	100	8	LEFT
7	NEEM	150	7	LEFT
8	MAHUA	40	6	LEFT
9	MAHUA	30	6	LEFT
10	SUKHA TREE	100	7	RIGHT
11	KHAJUR	15	5	RIGHT
12	NEEM	90	7	RIGHT
13	JAMUN	40	5	RIGHT
14	MAHUA	100	8	LEFT
15	MAHUA	45	7	RIGHT
16	MAHUA	50	7	LEFT
17	JAMUN	100	8	LEFT
18	MANGO	120	8	LEFT
19	NEEM	100	10	LEFT
20	NEEM	130	8	RIGHT
21	KHAJUR	30	8	RIGHT
22	KARI	7	6	RIGHT
23	KARI	7	3	RIGHT
24	KARI	10	6	LEFT
	AP 5 TO AP 6		NILL	
	AP 6 TO AP 7		NILL	
	AP 7 TO AP 8		ROW	
	AP 8 TO AP 9		ROW	
	AP 9 TO AP 10		ROW	
	AP 10 TO GANTRY END		ROW	

CHAPTER – 5

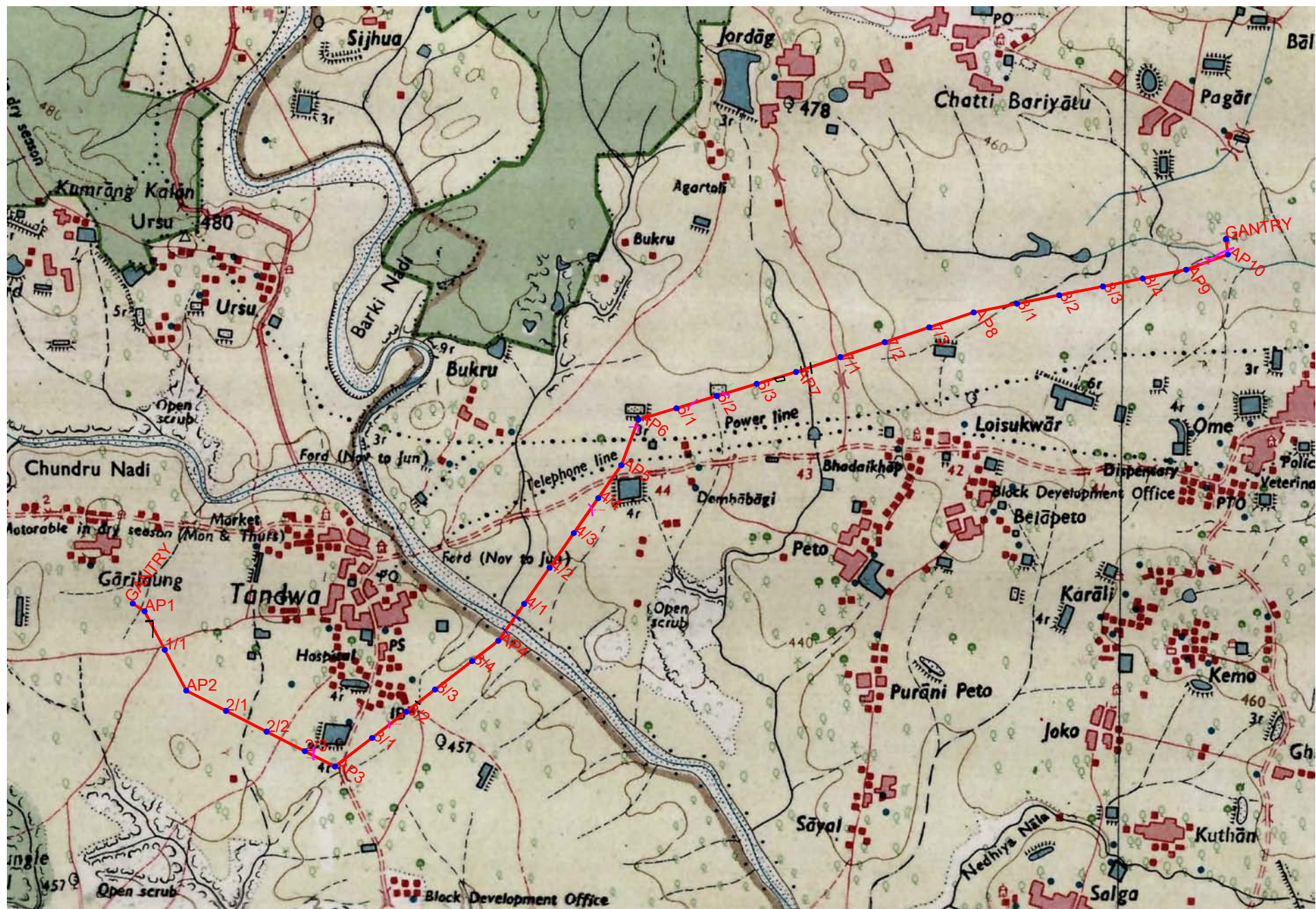
STRINGING CHART

Note: Stringing Chart will be finalized after check survey and the same is not a part of our scope of work.

CHAPTER – 6

ROUTE ALIGNMENT DRAWING

(ON DIGITAL MAP)



CHAPTER – 7

ROUTE PROFILE

Loc. No.1
GANTRY
444.0
W.S.H.:51(L)+51(R)=51
W.S.C.:430(L)+430(R)=430
S.A.Span:47.7
Wind Span:47.7
X=28690.98
Y=26326.01
Elevation:100.19

Loc. No.2
AP1
449.0
W.S.H.:44(L)+156(R)=200
W.S.C.:430(L)+150(R)=280
S.A.Span:95(L)+297(R)=392
Wind Span:186.1
X=288161
Y=26394.44
Elevation:100

Loc. No.3
171
450.0
W.S.H.:141(L)+193(R)=334
W.S.C.:130(L)+210(R)=347
S.A.Span:297(L)+314(R)=611
Wind Span:305.5
X=288208.94
Y=26396.24
Elevation:98.06

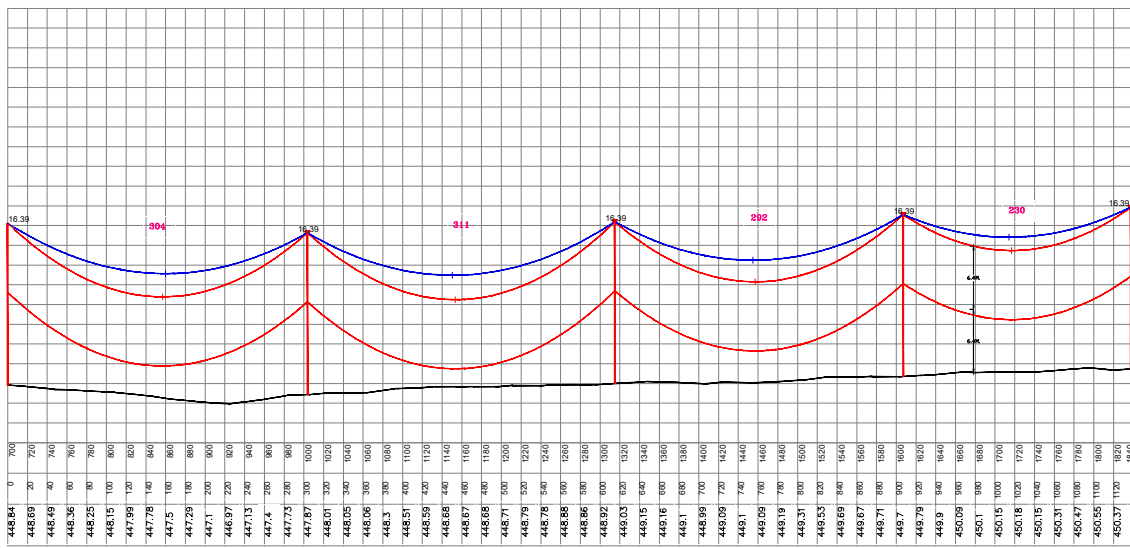
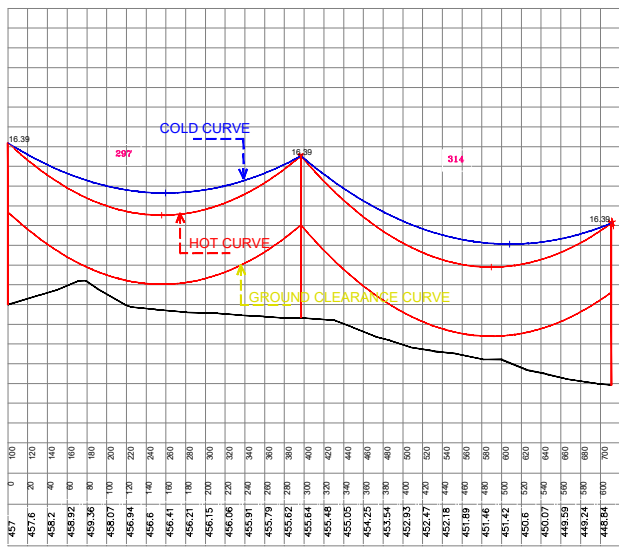
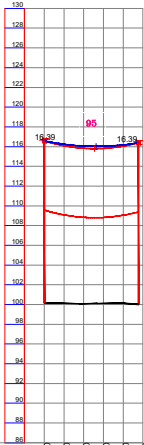
Loc. No.4
AP2
450.0
W.S.H.:121(L)+157(R)=278
W.S.C.:140(L)+160(R)=304
S.A.Span:311(L)+304(R)=615
Wind Span:308.9
X=288445
Y=263870.5
Elevation:91.84

Loc. No.5
217
450.0
W.S.H.:147(L)+150(R)=296
W.S.C.:140(L)+140(R)=284
S.A.Span:305(L)+311(R)=615
Wind Span:307.5
X=288715.27
Y=263864.8
Elevation:90.88

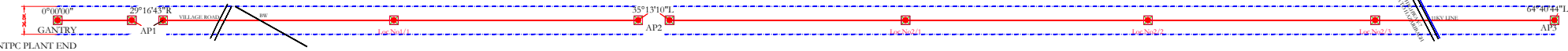
Loc. No.6
227
450.0
W.S.H.:162(L)+142(R)=304
W.S.C.:150(L)+107(R)=256
S.A.Span:311(L)+230(R)=542
Wind Span:275.1
X=288922.54
Y=263850.6
Elevation:92

Loc. No.7
237
450.0
W.S.H.:190(L)+110(R)=300
W.S.C.:150(L)+107(R)=256
S.A.Span:290(L)+230(R)=522
Wind Span:275.1
X=289252.54
Y=263830.6
Elevation:92.72

Loc. No.8
AP3
450.0
W.S.H.:121(L)+141(R)=262
W.S.C.:150(L)+107(R)=256
S.A.Span:200(L)+130(R)=330
Wind Span:275.1
X=289467.4
Y=263816.18
Elevation:93.47



Chainage
Section
Chainage
Elevation
(m)



Project: 220KV DC TRANSMISSION LINE AT NORTH KARANPURA

OWNER: NTPC, NODA

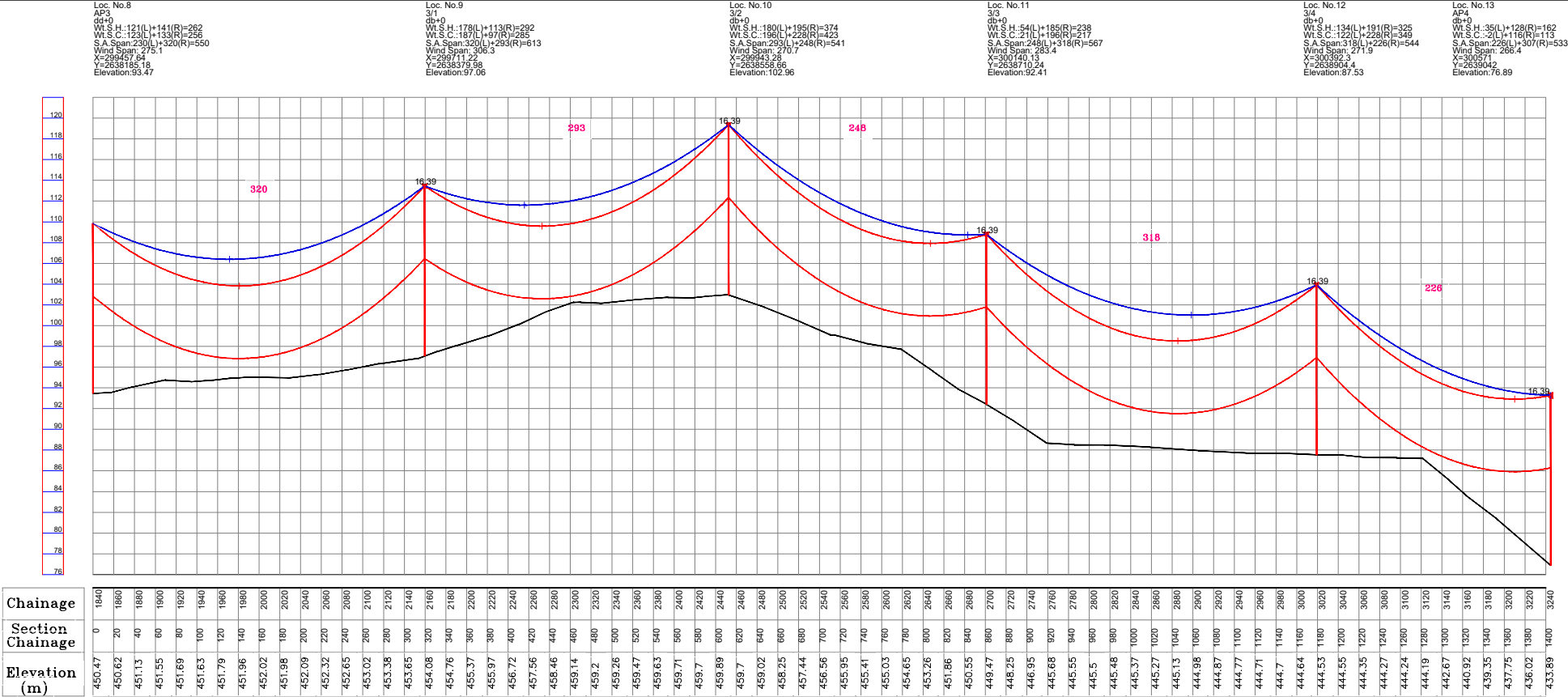
CONTRACTOR: BHEL, NODA

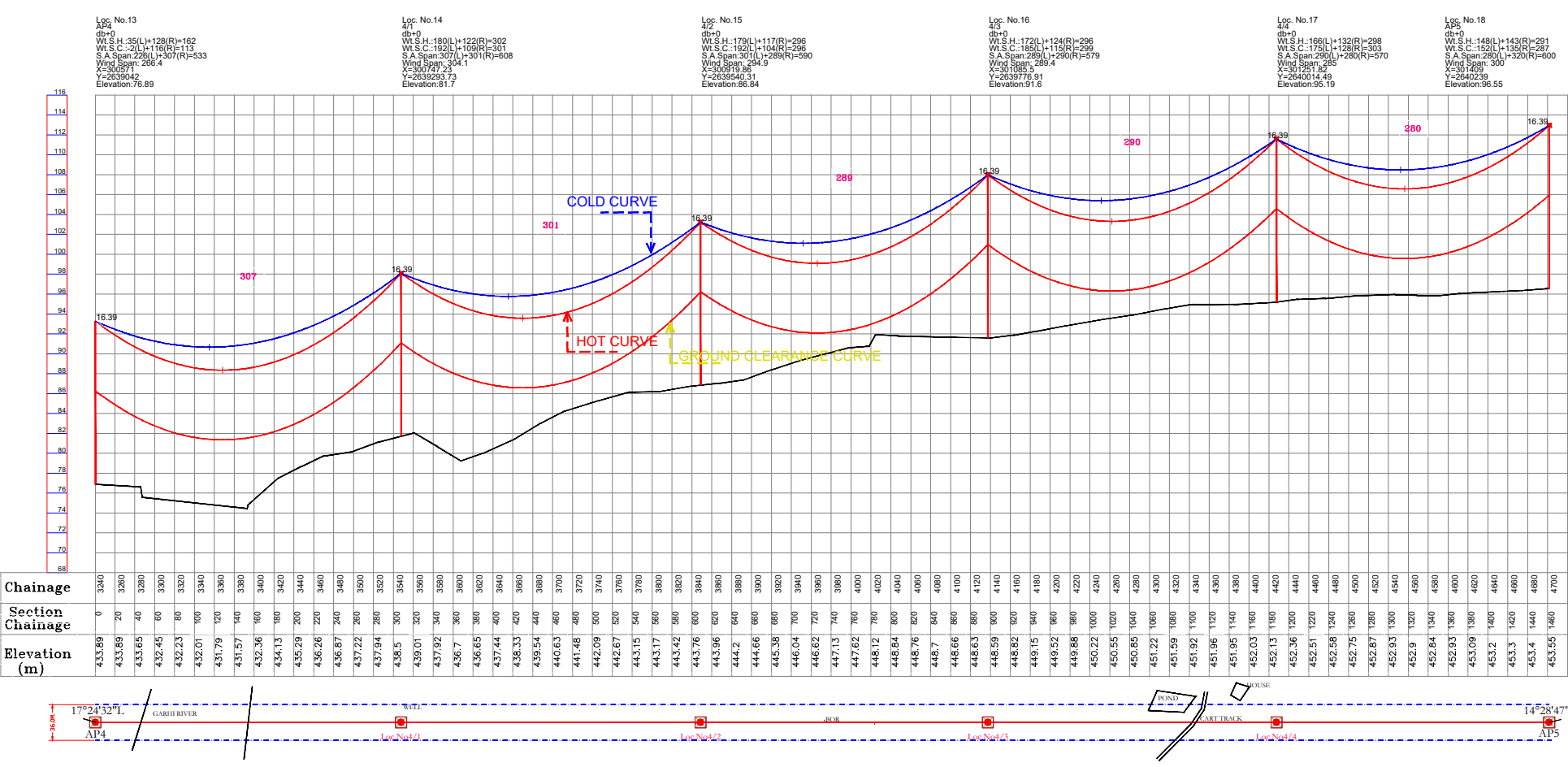
Project: 220KV DC TRANSMISSION LINE AT NORTH KARANPURA

TITLE: **VERTICAL ALIGNMENT PROFILE FROM GANTRY TO AP3** **REV. No. 0**

Drawing No.: **NTPC/BHEL/01** **Sheet No. 1**

SURVEYED BY:	CHECKED BY:	SUBMITTED BY:
MEDHAJ	MEDHAJ	MEDHAJ
CHECKED BY:	RECOMMENDED BY:	
BHEL	BHEL	BHEL
CHECKED BY:	RECOMMENDED BY:	APPROVED BY:
NTPC	NTPC	NTPC



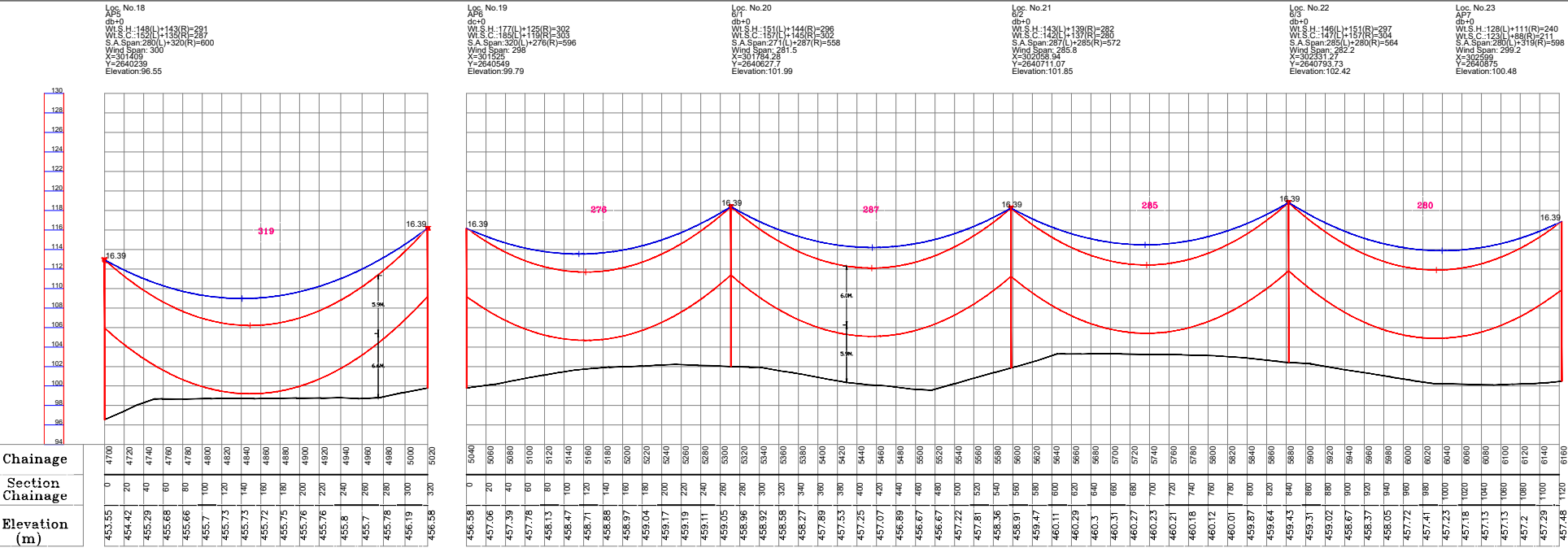


Scale
0 25 50 75 100 125 150 175 200
1:2500
0 25 50 75 100 125 150 175 200
1:5000

OWNER: NTPC, Noida
CONTRACTOR: BHEL, Noida
Project : 220KV DC TRANSMISSION LINE AT NORTH KARAMPURA

DETAILED GROUND PROFILE FROM AP-4 TO AP-5		REV.NO.	0
TITLE		SHEET No. 3	
Drawing No.		NTPC/BHEL/01 [DATE:25.05.2016]	

SURVEYED BY:	CHECKED BY:	SUBMITTED BY:
MEDHAJ	MEDHAJ	MEDHAJ
CHECKED BY:	RECOMMENDED BY:	SUBMITTED BY:
BHEL	BHEL	BHEL
CHECKED BY:	RECOMMENDED BY:	APPROVED BY:
NTPC	NTPC	NTPC



Loc. No.23
AP7
db+0
Wt.S.H.:128(L)+111(R)=240
Wt.S.C.:123(L)+88(R)=211
S.A.Span:280(L)+319(R)=598
Wind Span: 280.2
X=302599.13
Y=264087.5
Elevation:100.48

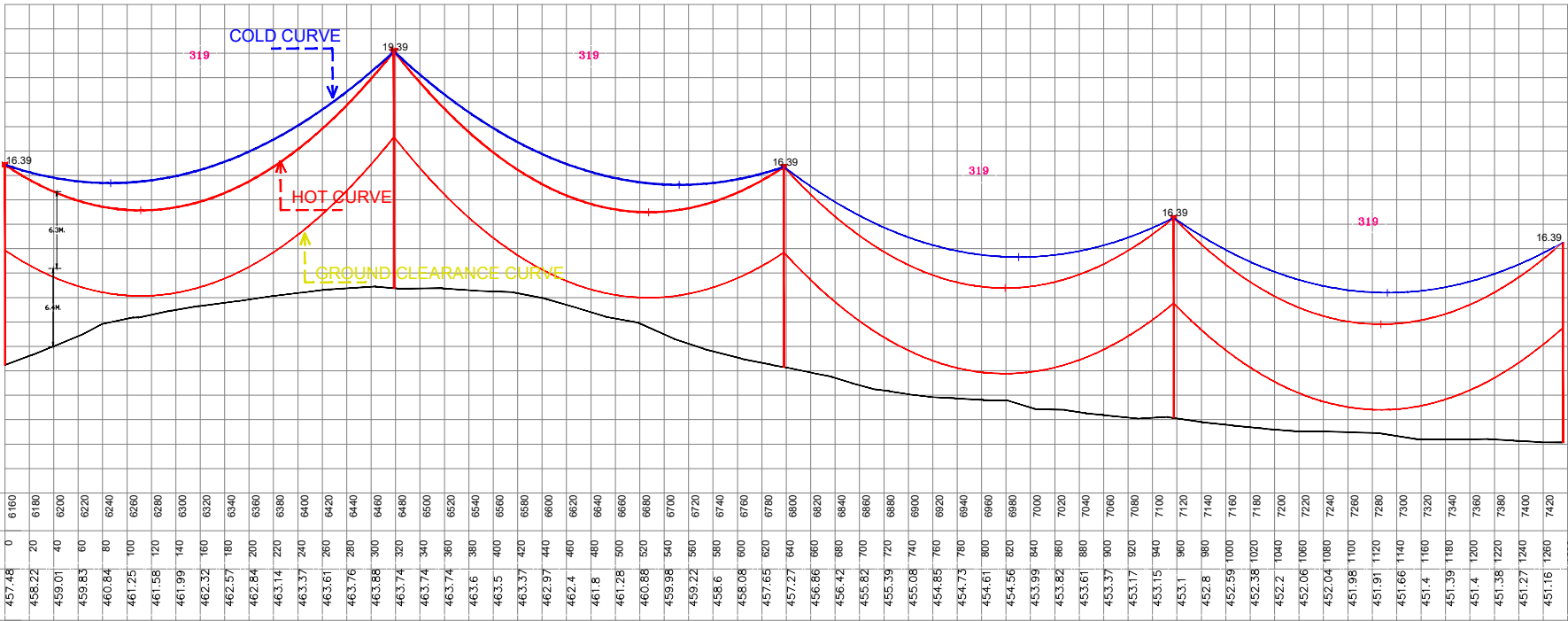
Loc. No.24
7/7
db+3
Wt.S.H.:208(L)+209(R)=416
Wt.S.C.:230(L)+232(R)=462
S.A.Span:319(L)+319(R)=638
Wind Span: 319
X=302901.13
Y=2640976.35
Elevation:106.75

Loc. No.25
7/7
db+0
Wt.S.H.:111(L)+181(R)=292
Wt.S.C.:88(L)+191(R)=279
S.A.Span:319(L)+319(R)=638
Wind Span: 319.3
X=303203.95
Y=2641077.92
Elevation:100.3

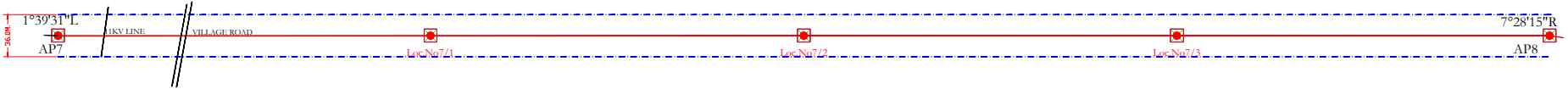
Loc. No.26
7/7
db+0
Wt.S.H.:138(L)+170(R)=308
Wt.S.C.:126(L)+175(R)=303
S.A.Span:319(L)+319(R)=638
Wind Span: 319
X=303506.58
Y=2641179.44
Elevation:96.14

Loc. No.27
AP8
db+0
Wt.S.H.:149(L)+150(R)=299
Wt.S.C.:144(L)+149(R)=293
S.A.Span:319(L)+300(R)=619
Wind Span: 309.7
X=303808.91
Y=2641280.85
Elevation:94.13

130
128
126
124
122
120
118
116
114
112
110
108
106
104
102
100
98
96
94
92
90



Chainage	6160	6180	6200	6220	6240	6260	6280	6300	6320	6340	6360	6380	6400	6420	6440	6460	6480	6500	6520	6540	6560	6580	6600	6620	6640	6660	6680	6700	6720	6740	6760	6780	6800	6820	6840	6860	6880	6900	6920	6940	6960	6980	7000	7020	7040	7060	7080	7100	7120	7140	7160	7180	7200	7220	7240	7260	7280	7300	7320	7340	7360	7380	7400	7420	7440	
Section Chainage	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	720	740	760	780	800	820	840	860	880	900	920	940	960	980	1000	1020	1040	1060	1080	1100	1120	1140	1160	1180	1200	1220	1240	1260	1280	1300
Elevation (m)	457.48	458.22	459.01	459.83	460.84	461.25	461.58	461.99	462.32	462.57	462.84	463.14	463.37	463.61	463.76	463.88	463.74	463.74	463.74	463.6	463.5	463.37	462.97	462.4	461.8	461.28	460.88	459.98	459.22	458.6	458.08	457.65	457.27	456.86	456.42	455.82	455.39	455.08	454.85	454.73	454.61	454.56	453.99	453.82	453.61	453.37	453.17	453.15	453.1	452.8	452.59	452.38	452.2	452.06	452.04	451.98	451.91	451.66	451.4	451.39	451.4	451.38	451.27	451.16	451.13	



Scale:

1:2000 (Elev)

1:200 (Dist)

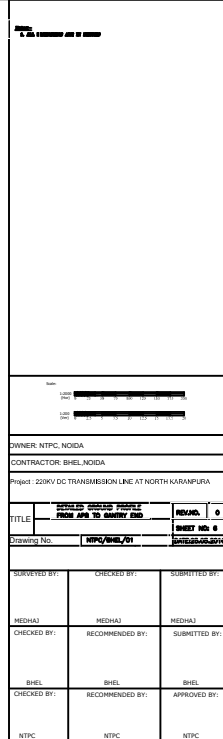
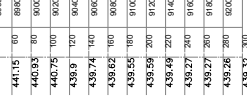
OWNER: NTPC, Noida

CONTRACTOR: BHEL,Noida

Project : 220KV DC TRANSMISSION LINE AT NORTH KARANPURA

TITLE	DETAILED GROUND PROFILE FROM AP7 TO AP8	REV.NO.	0
Drawing No.	NTPC/BHEL/01	SHEET NO:	5
DATE:25.05.2016			

SURVEYED BY:	CHECKED BY:	SUBMITTED BY:
MEDHAJ	MEDHAJ	MEDHAJ
CHECKED BY:	RECOMMENDED BY:	SUBMITTED BY:
BHEL	BHEL	BHEL
CHECKED BY:	RECOMMENDED BY:	APPROVED BY:
NTPC	NTPC	NTPC



CHAPTER – 8

SAG TEMPLATE

DRAWING

CONDITION		CONDUCTOR PARAMETERS	SCALE
1. BASIC SPAN (M)	: 320	ACSR MOOSE 1. DIAMETER (MM) : 28.62 2. UNIT WEIGHT(Kg/M) : 1.621	HOR : 1 CM = 20 M VER : 1 CM = 2 M 220 M/C
2. GROUND CLEARANCE (M)	: 7.00		
3. MAXIMUM SAG (75 NW) (M)	: 9.242		
4. TENSION AT 0 DEG NW (Kg)	: 4058		
5. TENSION AT 75 NW (Kg)	: 2686		
6. SAG ERROR (M)	: 0.15		

