Report No: GG/RP/2015-16/TS/043A

# ReportOn DGPS SURVEY FOR COMPENSATORY FORESTATION FOR PROPOSED 132 KV BARSOOR – BIJAPUR TRANSMISSION LINE



Chhattisgarh State Power Transmission Co Ltd
(A Govt. of Chhattisgarh Undertaking)

Report Submitted to
Office of the Executive Director (EHT: C&M)
Dagania, Raipur (CG)

By

# GAVESHANA GEOSCIENCES PRIVATE LIMITED

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## **REPORT ON**

# DGPS SURVEY FOR COMPENSATORY FORESTATION FOR PROPOSED 132 KV BARSOOR – BIJAPUR TRANSMISSION LINE

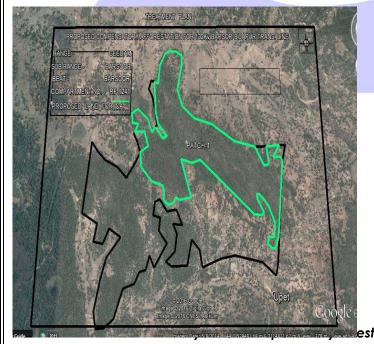
### 1.0 INTRODUCTION

132 KV DCSS line from 220/132 KV S/S Barsoor to proposed 132/33 KV S/s Bijapur was awarded by Chhattisgarh State Power Transmission Company Limited (A CG Govt Undertaking) to M/S Gaveshana Geosciences Pvt Ltd, New Delhi (India) vide contract agreement dated 11 Aug 2015. The proposed transmission line will be utilized to evacuate power from 220 kV Barsoor Sub Station.

The scope of work include the identification of route, detail survey on identified route, tree enumeration and doing ground work related to finalization of forest proposal. With the requirement of DGPS survey for compensatory forestation area in order to finalize the forest proposal, this report summarizes the detail of DGPS survey for identified compensatory forestation area.

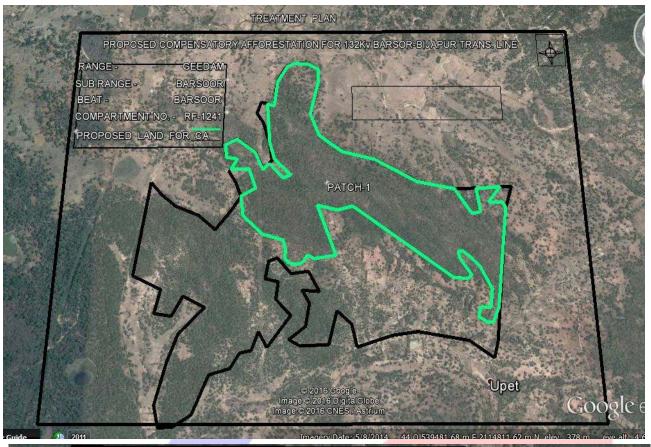
#### 2.0 SURVEY AREA

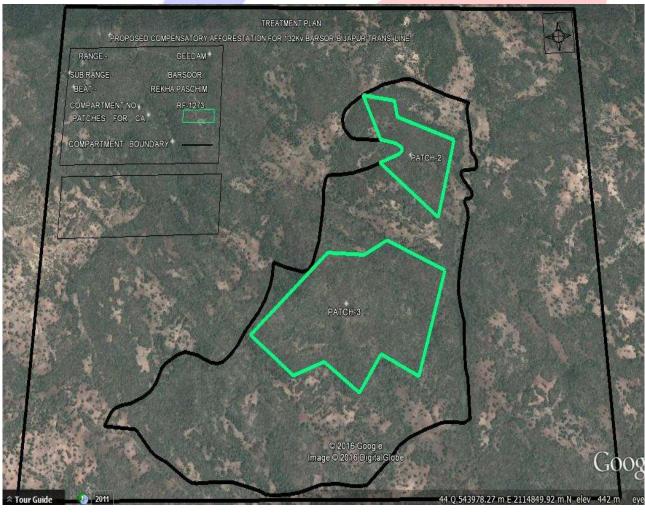
The compensatory forest area is identified around Barsoor area i.e. PF 1241 and RF 1273. PF 1241, which is situated around 2 km ground distance from Barsoor Sub station, whereas RF 1273 is situated around 9 km ground distance from Barsoor Sub station. PF 1241 could be described as 127.1 hectare area identified for plantation in which only 120 hectare area would be used for plantation, whereas RF 1273 could be described as 84.2 hectare area identified for plantation in which only 80 hectare area would be used for plantation.



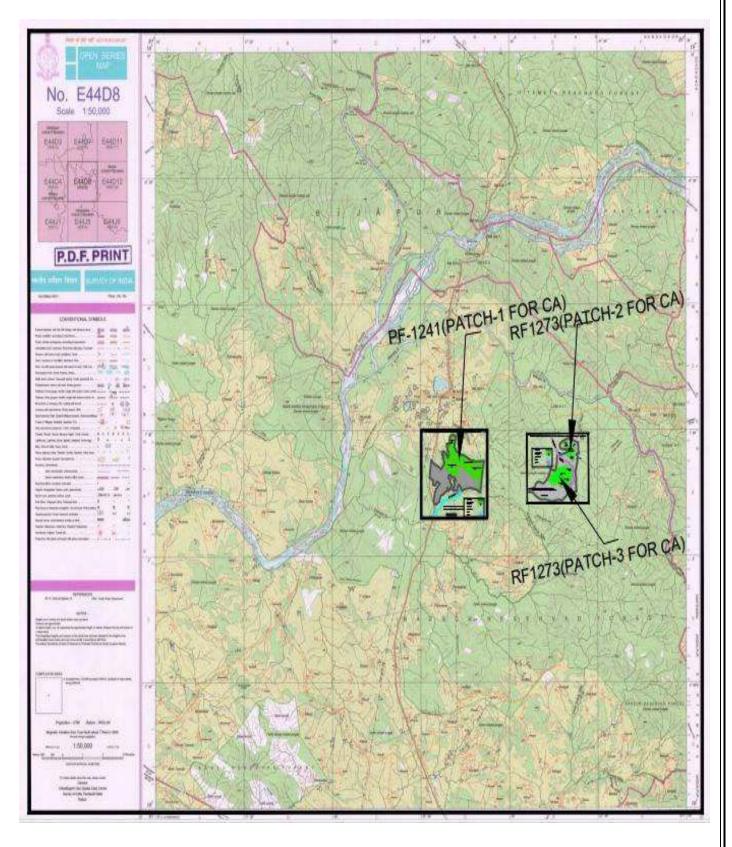


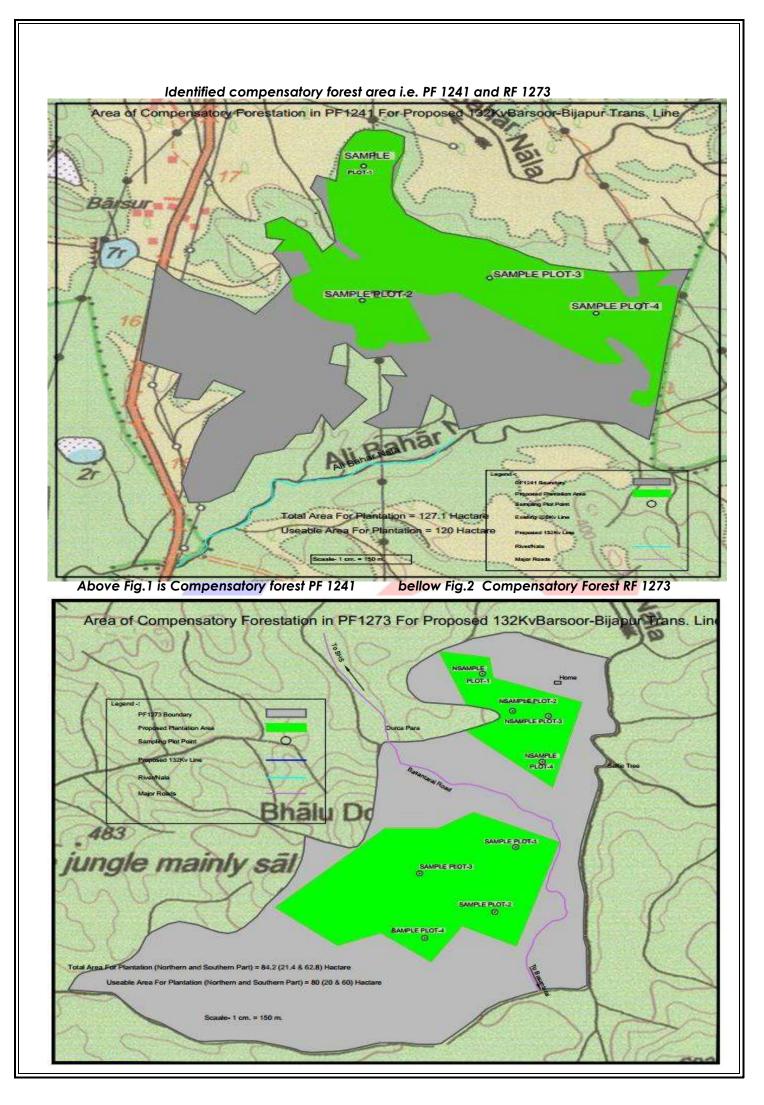
The Google Imagery for both identified compensatory forest area is given below:



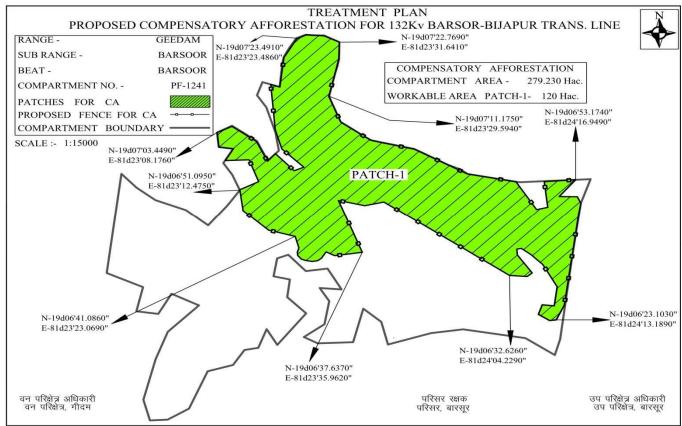


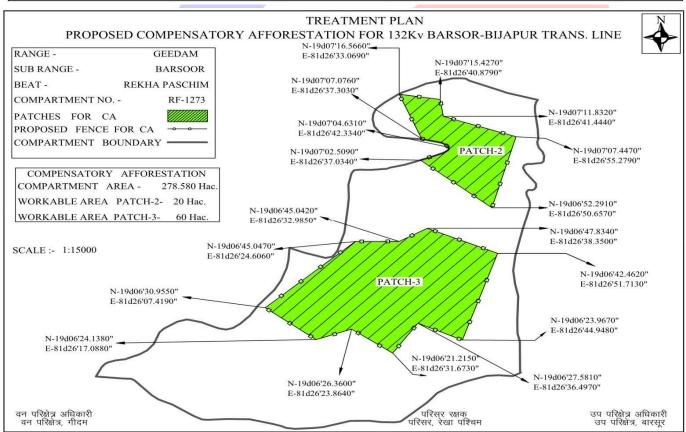
Both compensatory forest area i.e. PF 1241 and RF 1273 falls in survey of India toposheet No.E44D8, The toposheet plot is given below:





#### The Layout map of the compensatory forest is hereunder:





#### 3.0 INTRODUCTION ABOUT DGPS

The survey using DGPS (Differential Global Positioning system) was the purpose to enhance location accuracy as compare to hand GPS from 7 – 10m to 10 cm.

The real time DGPS occurs when the base station calculates and broadcasts corrections for each satellite as it receives the data. The correction is received by the roving receiver via a radio signal if the source is land based or via satellite signal if it is satellite based and applied to the position it is calculating. As a result, the position displayed and logged to the data file of the roving GPS receiver is a differential corrected position.

Another method for obtaining real – time differential correction data in the field is by using geostationary satellites. This system obtains corrections from more than one reference station. Reference stations collect the base station GPS data and relay this data in RTCM SC-104 format to a network control center, which sends the information to a geostationary satellite for verification. The verified information is sent to the roving GPS receiver to ensure it obtains GPS positions in real time.

# 4.0 EQUIPMENT DEPLOYED:

Specific Surveying equipment was used for fixing the control points on ground for this project. The present work was performed by using GRX-1 dual frequency GNSS base receiver in RTK model.







The GRX1 receiver is a multi-frequency, GNSS receiver built to be the most advanced and compact receiver for the surveying market. The receiver is a multi-function, multi-purpose receiver intended for survey and construction markets.

The GRX1 receivers and processes multiple signal types (including GPS L1, L2, C/A, L2C GLONASS L1, L2, C/A Signals) improving the accuracy and reliability of the survey points and positions, especially under difficult jobsite conditions. The receiver provides the functionality, accuracy, availability, and integrity needed for fast and easy data collection.

#### PRINCIPLES OF OPERATION:

Surveying with the right GPS receiver can provide users accurate and precise positioning; a requirement for any surveying project. This section gives an overview of existing and proposed Global Navigation Satellite Systems (GNSS) and receiver functions so that basic operating principles can be applied.

#### **GNSS OVERVIEW:**

Currently the following two global navigation satellite systems (GNSS) offer line of site radio navigation and positioning, velocity, and time services on a global, all – weather scale to any user equipped with a GNSS tracking receiver on or near the earth surface:

- GPS: The Global Positioning System maintained and operated by the United States Department of Defence. For information on the status of this system, visit the US Naval Observatory website (<a href="http://tycho.usno.navi.mil/">http://tycho.usno.navi.mil/</a>) or the US Coast Guard website (<a href="http://www.naven.uscg.gov/">http://www.naven.uscg.gov/</a>).
- GLONASS: The Global Navigation Satellite system maintained and operated by the Russian Federation Ministry of Defence. For information on the status

of this system, visit the Coordinational Scientific Information Center Website (http://www.glonas-ianc.rsa.ru/).

Despite numerous technical differences in the implementation of these systems, satellite positioning systems have three essential components:

- **SPACE**: GPS and GLONASS satellites orbit approximately 12,000 nautical miles above Earth and are equipped with a clock and radio. These satellites broadcast ranging signals and various digital information (ephemerides, almanacs, time and frequency corrections, and so forth).
- CONTROL: Ground stations located around the Earth that monitor the satellites and upload data, including clock corrections and new ephemerides (satellite positions as a function of time), to ensure the satellites transmit data properly.
- **USER:** the community and military that use GNSS receivers to calculate positions.

#### **CALCULATING ABSOLUTE POSITIONS:**

When calculating an absolute position, a stationary or moving receiver determines its three – dimensional position with respect to the origin of an Earth-Center Earth-Fixed coordinate system. To calculate this position, the receiver measures the distance (called pseudoranges) between it and at least four satellites. The measured pseudoranges are corrected for clock differences (receiver and satellites) and signal propagation delayes due to atmospheric effects. The positions of the satellites are computed from the ephemeris data transmitted to the receiver in navigation messages. When using a single satellite system, the minimum number of satellites needed to compute a position is four. In a mixed satellite scenario (GPS and GLONASS), the receiver must lock onto five or more satellites to account for the different time scales used in these systems and to obtain an absolute position.

#### **CALCULATING DIFFERENTIAL POSITIONS:**

DGPS (Differential GPS) is a relative positioning technique where the measurements from two or more remote receivers are combined and processed using sophisticated alghorthms to calculate the receivers relative coordinates with high accuracy. DGPS accomodates various implementaion techniques that can be classified accordin to the following criteria:

- The type of GNSS measurements used, either code-phase differential measurements or carrier phase differential measurements
- If real time or post-mission results are required. Real-time applications can be further divided according to the source of differential data and communication link used.

With DGPS in its most traditional approach, one receiver is placed at a known, surveyed location and is referred to as the reference receiver or base station. Another receiver is placed at an unknown location and is referred to as the remote receiver or rover. The reference station collects the code-phase and carrier – phase measurements from each GNSS satellite in view.

#### **5.0 CONCLUSION:**

The DGPS survey is conducted for two identified compensatory forest area i.e. PF 1241 and RF 1273. The sample survey was also conducted for four parts in the identified area for both PF 1241 and RF 1273 in order to calculate the present density of proposed area for compensatory forestation. The detail of DGPS survey for PF 1241 is given hereunder:

DGPS OBSERVATION OF COMPENSATORY FORESTATION AREA OF pf 1241FOR PROPOSED 132KV

BARSOOR-BIJAPUR TRANS. LINE								
S.N	Point ID	Distance From Base (in Meter)	Co-Ordinate in UTM-44N		Co-Ordinate in WGS-84(DMS)		Co-Ordinate in WGS-84(DD)	
3.14			Easting	Northing	Latitude	Longitude	Latitude	Longitude
1	BASE1	0	542271.000	2113052.000	19°06'36.1520"N	81°24'06.7950"E	19.110040	81.401890
2	1	131.786	542196.270	2112943.450	19°06'32.6260"N	81°24'04.2290"E	19.109060	81.401170
3	2	118.206	542295.400	2112936.340	19°06'32.3880"N	81°24'07.6210"E	19.109000	81.402120
4	3	106.131	542323.300	2112959.650	19°06'33.1440"N	81°24'08.5770"E	19.109210	81.402380
5	4	40.451	542239.820	2113077.770	19°06'36.9930"N	81°24'05.7300"E	19.110280	81.401590
6	5	73.179	542236.620	2113116.600	19°06'38.2570"N	81°24'05.6230"E	1 <mark>9.110</mark> 630	81.401560
7	6	69.552	542263.080	2113121.100	19°06'38.4010"N	81°24'06.5290"E	<mark>19.1</mark> 10670	81.401810
8	7	53.436	542315.680	2113081.310	19°06'37.1030"N	81°24'08.3260"E	19.110310	81.402310
9	8	117.587	542382.680	2113015.200	19°06'34.9470"N	81°24'10.6140"E	19.109710	81.402950
10	9	266.222	542463.650	2112868.260	19°06'30.1600"N	81°24'13.374 <mark>0</mark> "E	19.108380	81.403710
11	10	355.169	542447.060	2112743.540	19°06'26.1040"N	81°24'12.7960"E	19.107250	81.403550
12	11	320.534	542380.060	2112750.590	19°06'26.3380"N	81°24'10.5040"E	19.107320	81.402920
13	12	374.862	542358.110	2112687.400	19°06'24.2840"N	81°24'09.7470"E	19.106750	81.402710
14	13	432.195	542421.190	2112646.740	19°06'22.9560"N	81°24'11.9030"E	19.106380	81.403310
15	14	442.460	542458.750	2112651.350	19°06'23.1030"N	81°24'13.1890"E	19.106420	81.403660
16	15	382.360	542503.410	2112748.380	19°06'26.2570"N	81°24'14.7250"E	19.107290	81.404090
17	BASE2	357.201	542141.090	2113384.740	19°06'46.9880"N	81°24'02.3750"E	19.113050	81.400660
17	BASE2	0.000	-	=	-	-	-	-
18	16	456.991	542596.630	2113421.130	19°06'48.1370"N	81°24'17.9690"E	19.113370	81.404990

19°06'49.5420"N 81°24'17.2900"E

19.113760

81.404800

2113464.260

542576.710

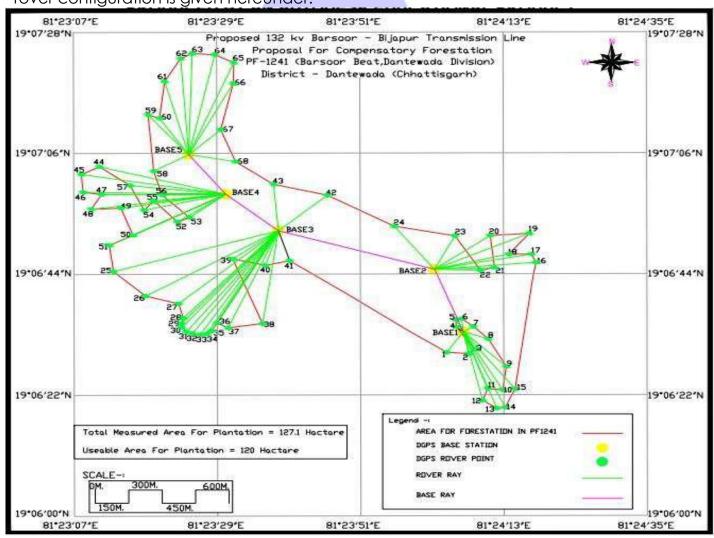
442.818

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20									
22   20   307.211   \$42390.980   2113563.440   19'0652.7830"N   81'24'10.9410"E   19.114660   81.403040   223   21   269.772   \$42410.700   2113379.200   19'06'47.7220"N   81'24'11.6030"E   19.113130   81.403220   22   206.774   \$42347.790   2113379.200   19'06'46.7920"N   81'24'09.4490"E   19.113000   81.405220   225   23   200.036   \$42233.330   2113662.240   19'06'52.7560"N   81'24'09.4490"E   19.113000   81.405260   226   224   291.464   \$41960.720   2113662.340   19'06'53.6850"N   81'23'38.4290"E   19.115120   81.398950   88.53   729.279   \$41441.000   2113589.000   19'06'53.6850"N   81'23'38.4290"E   19.115120   81.398950   227   88.53   779.279   \$41441.000   2113371.620   19'06'53.6850"N   81'23'38.4290"E   19.112960   81.386970   228   25   7771.220   \$40701.050   2113371.620   19'06'46.6660"N   81'23'13.0860"E   19.112960   81.386970   229   26   690.048   \$40894.890   2113241.410   19'06'42.4190"N   81'23'17.9990"E   19.111780   81.388330   30   27   592.741   \$40993.120   2113200.740   19'06'34.6660"N   81'23'17.9990"E   19.111780   81.388330   31   28   630.747   \$41014.040   2113124.730   19'06'34.610"N   81'23'23.690"E   19.111410   81.389340   31   27   592.741   \$40993.120   211300.590   19'06'35.610"N   81'23'23.690"E   19.11070   81.389860   33   30   672.718   \$41007.750   2113074.370   19'06'36.610"N   81'23'23.690"E   19.11070   81.389880   31   30   672.718   \$41007.750   2113074.370   19'06'36.930"N   81'23'23.5600"E   19.11070   81.389880   31   676.2410   81.01540	20	18	343.492	542474.980	2113465.390	19°06'49.5870"N	81°24'13.8090"E	19.113770	81.403840
23 21 269.772 562410.700 2113379.000 19°06′47.2720°N 81′24′11.6030°F 19.113130 81.403220 22 206.774 542347.790 2113379.200 19°06′46.7920°N 81′24′09.490°F 19.113300 81.405220 25 23 200.036 542233.330 2113562240 19°06′57.7960°N 81′24′05.5450°F 19.114660 81.401540 26 24 29°1.464 51960.720 2113613.690 19°06′54.450°N 81′24′05.5450°F 19.114660 81.401540 27 84528 27 82 82 82 82 82 82 82 82 82 82 82 82 82	21	19	466.351	542566.480	2113575.860	19°06'53.1740"N	81°24'16.9490"E	19.114770	81.404710
24   22   206.774   542347.790   2113379.200   19'06'46.7920'N   81'24'09.4490'E   19.113000   81.402620   25   23   200.036   542233.330   2113562.240   19'06'52.7560'N   81'24'05.5450'E   19.114500   81.401540   26   24   291.464   541960.720   2113613.690   19'06'54.650'N   81'23'36.2190'E   19.115120   81.398950   27   8A8E3   729.279   541441.000   2113589.000   19'06'53.6850'N   81'23'38.4290'E   19.115120   81.394010   27   8A8E3   70.000   7.000	22	20	307.211	542390.980	2113563.440	19°06'52.7830"N	81°24'10.9410"E	19.114660	81.403040
25   23   200.036   542233.330   2113562.240   19'06'52.7560'N   81'24'05.5450'E   19.11450   81.401540   26   24   291.464   541960.720   2113613.690   19'06'54.4500'N   81'23'36.2190'E   19.115120   81.398950   27   8ASE3   729.279   541441.000   2113589.000   19'06'53.6850'N   81'23'38.4290'E   19.114910   81.399010   28   25   771.220   540701.050   2113371.620   19'06'46.6660'N   81'23'13.0860'E   19.112960   81.386970   29   26   690.048   540844.890   2113241.410   19'06'42.4190'N   81'23'17.9990'E   19.111780   81.388330   30   27   592.741   540993.120   2113207.070   19'06'36.610'N   81'23'23.0800'E   19.11410   81.3889740   311   28   630.747   541014.040   2113124.730   19'06'38.6110'N   81'23'23.7800'E   19.110470   81.389840   32   29   657.628   541005.690   2113096.070   19'06'36.6970'N   81'23'23.7800'E   19.110470   81.389860   33   30   672.718   541007.750   2113074.370   19'06'36.9730'N   81'23'23.4920'E   19.110470   81.389880   33   33   652.655   541088.830   2113095.530   19'06'35.8960'N   81'23'23.4500'E   19.1100970   81.390070   35   32   670.288   541054.480   2113091.380   19'06'35.960'N   81'23'24.2510'E   19.110950   81.390070   35   33   655.265   541088.830   2113035.780   19'06'35.8960'N   81'23'24.2510'E   19.109970   81.390660   37   34   635.341   541119.870   2113040.790   19'06'35.8730'N   81'23'28.1600'E   19.110400   81.391140   39   36   562.410   541166.570   2113095.550   19'06'35.8730'N   81'23'28.1500'E   19.110400   81.391140   39   36   562.410   541166.570   2113073.310   19'06'35.8730'N   81'23'28.1000'E   19.110400   81.391300   41   38   498.496   541370.040   2113095.580   19'06'35.8730'N   81'23'28.1000'E   19.110400   81.391300   41   38   498.496   541380.600   2113095.580   19'06'35.8730'N   81'23'35.6500'E   19.110400   81.391300   41   44   41   41   41   41   41	23	21	269.772	542410.700	2113394.090	19°06'47.2720"N	81°24'11.6030"E	19.113130	81.403220
26         24         291.464         541960.720         2113613.690         19'06'54.4500''N         81'23'56.2190'E         19.115120         81.398950           27         BASE3         729.279         541441.000         2113589.000         19'06'53.6850''N         81'23'38.4290''E         19.11910         81.394010           27         BASE3         0.000         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         81.386900         19'06'54.6666''N         81'23'13.84290''E         19.11990         81.388930           29         26         690.048         540844.890         2113241.410         19'06'42.490''N         81'23'23.5060''E         19.111780         81.388930           30         27         592.741         540905.690         2113060.700         19'06'36.690''N         81'23'23.5600''E         19.11170         81.388930           31         28         657.628         541007.790         2113063.700         19'06'36.9730''N         81'23'23.490''E         19.110270         81.389800           33         30         672.718         541007.790         2113063.730         19'06'36.9730''N         81'23'27.5100''E<	24	22	206.774	542347.790	2113379.200	19°06'46.7920"N	81°24'09.4490"E	19.113000	81.402620
27   BASE3   729,279   \$41441.000   2113589.000   19'06'53.6850'N   81'23'38.4290'E   19.114910   81.394010     28   25   771,220   \$40701.050   2113371.620   19'06'46.6660'N   81'23'13.0860'E   19.112960   81.386970     29   26   690.048   \$40844.890   2113241.410   19'06'42.4190'N   81'23'17.9990'E   19.111780   81.388330     30   27   \$592.741   \$40993.120   2113200.740   19'06'40.0860'N   81'23'23.0800'E   19.111740   81.388930     31   28   630.747   \$41014.040   2113124.730   19'06'38.6110'N   81'23'23.7800'E   19.111740   81.389740     32   29   657.628   \$41005.690   2113096.070   19'06'37.6790'N   81'23'23.4920'E   19.11070   81.389880     33   30   672.718   \$41007.750   2113074.370   19'06'36.9730'N   81'23'23.5600'E   19.11070   81.389880     34   31   678.634   \$41027.970   2113050.530   19'06'36.1980'N   81'23'23.5500'E   19.11090   81.399070     35   32   670.288   \$41054.480   2113041.380   19'06'35.8960'N   81'23'23.51570'E   19.10990   81.39030     36   33   655.265   \$41089.830   2113035.780   19'06'35.7120'N   81'23'26.3670'E   19.10990   81.39060     37   34   635.341   \$41140.600   2113056.150   19'06'35.8730'N   81'23'27.3950'E   19.10990   81.39104     39   36   \$62.410   \$41166.570   2113098.090   19'06'36.9370'N   81'23'23.8980'E   19.11000   81.391140     39   36   \$562.410   \$41166.570   2113098.090   19'06'37.6370'N   81'23'23.8990'E   19.110480   81.391330     40   37   \$563.018   \$4125.050   2113073.310   19'06'36.9320'N   81'23'35.9520'E   19.110480   81.391320     41   38   498.496   \$41370.040   2113055.580   19'06'37.6370'N   81'23'35.9520'E   19.110480   81.391330     42   39   253.812   \$4123.899   2113493.500   19'06'37.6370'N   81'23'35.9520'E   19.110480   81.393320     43   40   40   40   40   40   40   40	25	23	200.036	542233.330	2113562.240	19°06'52.7560"N	81°24'05.5450"E	19.114650	81.401540
27         BASE3         0.000         -	26	24	291.464	541960.720	2113613.690	19°06'54.4500"N	81°23'56.2190"E	19.115120	81.398950
28         25         771.220         540701.050         2113371.620         19°06'46.6660°N         81'23'13.0860°E         19.112960         81.386970           29         26         690.048         540844.890         2113241.410         19°06'42.4190°N         81'23'13.0860°E         19.111780         81.388330           30         27         592.741         \$40993.120         2113200.740         19°06'36.10860°N         81'23'23.7890°E         19.111740         81.388340           31         28         630.747         \$41005.690         2113096.070         19°06'36.8610°N         81'23'23.4920°E         19.110470         81.389840           32         29         657.628         \$41007.750         2113074.370         19°06'36.9730°N         81'23'23.4920°E         19.110470         81.389880           33         30         672.718         \$41027.970         2113050.530         19°06'35.8960°N         81'23'23.2500°E         19.110470         81.389880           34         31         678.634         \$41027.970         2113050.530         19°06'35.8960°N         81'23'23.150°E         19.10990         81.390200           35         32         670.288         \$41193.770         2113050.5780         19°06'35.730°N         81'23'23.8950°E         19.109990	27	BASE3	729.279	541441.000	2113589.000	19°06'53.6850"N	81°23'38.4290"E	19.114910	81.394010
29   26   690.048   540844.890   2113241.410   19'06'42.4190'N   81'23'17.9990'E   19.111780   81.388330   30   27   592.741   540993.120   211320.740   19'06'41.0860'N   81'23'23.0690'E   19.111410   81.389740   31.388330   29   657.628   541005.690   2113096.070   19'06'36.6130'N   81'23'23.7800'E   19.110730   81.389860   33   30   672.718   541007.750   2113074.370   19'06'36.9730'N   81'23'23.5600'E   19.110770   81.389880   34   31   678.634   541027.970   2113050.530   19'06'36.1960'N   81'23'23.5600'E   19.110270   81.389800   35   32   670.288   541054.480   2113041.380   19'06'35.8960'N   81'23'24.2510'E   19.110970   81.390300   35   32   670.288   541054.480   2113041.380   19'06'35.8960'N   81'23'25.1570'E   19.109970   81.390300   36   33   655.265   541089.830   2113035.780   19'06'35.8730'N   81'23'23.5900'E   19.109920   81.390660   37   34   635.341   541119.870   2113060.790   19'06'35.8730'N   81'23'27.3950'E   19.109920   81.390840   38   35   611.694   541140.600   2113056.150   19'06'35.8730'N   81'23'27.3950'E   19.109960   81.39130   40   37   563.018   541215.050   2113073.310   19'06'35.69230'N   81'23'23.9800'E   19.110450   81.391380   41   38   498.496   541370.040   2113095.580   19'06'37.6370'N   81'23'33.9960'E   19.110450   81.391350   43   40   192.649   541383.060   2113073.310   19'06'48.4850'N   81'23'33.990'E   19.110450   81.393320   44   41   167.464   541491.400   2113405.720   19'06'47.7120'N   81'23'36.4310'E   19.113570   81.39480   45   42   289.439   541659.910   211378.350   19'06'48.4850'N   81'23'35.9620'E   19.113570   81.39480   47   8A564   305.103   541245.910   2113783.540   19'06'47.7120'N   81'23'36.4310'E   19.113250   81.39480   45   45   45   45   45   45   45   4	27	BASE3	0.000	-	-	-	-	-	-
30   27   592.741   540993.120   2113200.740   19'06'41.0860'N   81'23'23.0690'E   19.111410   81.389740   31   28   630.747   541014.040   2113124.730   19'06'38.6110'N   81'23'23.7800'E   19.110730   81.389940   32   29   657.628   541005.690   2113096.070   19'06'36.76790'N   81'23'23.4920'E   19.110470   81.389860   33   30   672.718   541007.750   2113074.370   19'06'36.9730'N   81'23'23.4920'E   19.110470   81.389800   31   678.634   541027.970   2113050.530   19'06'36.960'N   81'23'24.2510'E   19.110050   81.390070   35   32   670.288   541054.480   2113041.380   19'06'35.8960'N   81'23'25.1570'E   19.109970   81.390320   36   33   655.265   541089.830   2113035.780   19'06'35.8960'N   81'23'25.1570'E   19.109970   81.390600   37   34   635.341   541119.870   2113066.150   19'06'35.8730'N   81'23'27.3950'E   19.109960   81.390940   38   35   611.694   541140.600   2113066.150   19'06'35.8730'N   81'23'28.9980'E   19.109960   81.391140   40   37   563.416   54125.505   2113073.310   19'06'36.9230'N   81'23'28.9980'E   19.110480   81.391390   40   37   563.418   541215.505   2113073.310   19'06'36.9230'N   81'23'30.6560'E   19.110450   81.391350   41   38   498.496   541370.040   2113095.80   19'06'37.7330'N   81'23'35.960'E   19.110450   81.391350   41   38   498.496   541381.040   2113405.270   19'06'47.7120'N   81'23'36.4310'E   19.113570   81.39250   43   40   19.649   54188.640   2113405.270   19'06'47.7120'N   81'23'36.4310'E   19.113570   81.393450   19'06'48.856'N   81'23'31.3970'E   19.113570   81.39480   42   289.439   541659.910   2113778.350   19'06'59.290'N   81'23'36.630'E   19.11660   81.39140   44   584.922   540688.490   2113875.400   19'06'59.290'N   81'23'36.630'E   19.11660   81.39170   44   584.922   540688.490   2113875.400   19'06'59.290'N   81'23'36.630'E   19.11660   81.393800   50   45   66.66.67   540556.070   2113782.600   19'06'59.290'N   81'23'30.660'E   19.11660   81.38600   50   45   66.66.67   540556.070   2113782.700   19'06'59.290'N   81'23'30.660'E   19.11660   81.3860	28	25	771.220	540701.050	2113371.620	19°06'46.6660"N	81°23'13.0860"E	19.112960	81.386970
31   28   630.747   541014.040   2113124.730   19°06'38.6110"N   81°23'23.7800"E   19.110730   81.389940   32   29   657.628   541005.690   2113096.070   19°06'37.6790"N   81°23'23.4920"E   19.110470   81.389860   33   30   672.718   541007.750   2113074.370   19°06'36.69730"N   81°23'23.5500"E   19.110270   81.389880   34   31   678.634   541027.970   2113050.530   19°06'36.1960"N   81°23'23.25500"E   19.110270   81.3990070   35   32   670.288   541054.480   2113041.380   19°06'35.8960"N   81°23'24.2510"E   19.110505   81.390070   36   33   655.265   541089.830   2113035.780   19°06'35.8730"N   81°23'25.1570"E   19.109970   81.390600   37   34   635.341   541119.870   2113040.790   19°06'35.8730"N   81°23'27.3950"E   19.109960   81.39040   38   35   611.694   541140.600   2113056.150   19°06'36.3710"N   81°23'28.9980"E   19.110480   81.391140   39   36   562.410   541166.570   2113098.090   19°06'37.7330"N   81°23'28.9980"E   19.110480   81.391390   40   37   563.018   541215.050   2113073.310   19°06'36.9230"N   81°23'36.6560"E   19.110260   81.391850   42   39   253.812   541235.890   2113479.500   19°06'48.8360"N   81°23'35.660"E   19.110450   81.391320   42   39   253.812   541235.890   2113449.500   19°06'48.8360"N   81°23'36.4310"E   19.113570   81.393450   44   41   167.464   541491.400   2113429.300   19°06'48.4850"N   81°23'36.4310"E   19.11370   81.394480   45   42   289.439   541659.910   2113778.350   19°06'48.8450"N   81°23'37.6820"E   19.110600   81.39170   47   8A584   0.000   4   4   584.922   540638.420   2113497.790   19°06'48.4850"N   81°23'30.3620"E   19.11660   81.39170   47   8A584   0.000   4   4   584.922   540638.421   2113927.938   38°00'34.0250"N   81°23'30.3620"E   19.11660   81.39600   51   46   639.925   540656.070   2113792.700   19°06'59.9900"N   81°23'30.3620"E   19.11660   81.38630   51   46   639.925   540656.070   2113792.700   19°06'59.9900"N   81°23'30.6900"E   19.11660   81.38630   51   46   639.925   540668.890   2113907.700   19°06'57.4450"N   81°23'10.9840"E   19.116	29	26	690.048	540844.890	2113241.410	19°06'42.4190"N	81°23'17.9990"E	19.111780	81.388330
32         29         657.628         \$41005.690         2113096.070         19°06′37.6790°N         81°23′23.4920°E         19.110470         81.389860           33         30         672.718         \$41007.750         2113074.370         19°06′36.9730°N         81°23′23.5600°E         19.110270         81.389880           34         31         678.634         \$41027.970         2113050.530         19°06′35.8960°N         81°23′24.2510°E         19.110050         81.390070           35         32         670.288         \$41054.480         2113041.380         19°06′35.8960°N         81°23′25.5570°E         19.109970         81.390320           36         33         655.265         \$41089.830         2113040.790         19°06′35.7120°N         81°23′27.3950°E         19.109900         81.390940           37         34         635.341         \$41110.600         2113040.790         19°06′36.3710°N         81°23′27.3950°E         19.109900         81.390940           38         35         611.694         \$41146.600         2113095.150         19°06′36.3710°N         81°23′28.060°E         19.110400         81.391390           40         37         563.018         \$41215.500         2113097.301         19°06′37.7330°N         81°23′36.060°E         19.110400<	30	27	592.741	540993.120	2113200.740	19°06'41.0860"N	81°23'23.0690"E	19.111410	81.389740
33 30 672.718 541007.750 2113074.370 19"06'36.9730"N 81"23'23.5600"E 19.110270 81.389880 34 31 678.634 541027.970 2113050.530 19"06'36.1960"N 81"23'24.2510"E 19.110050 81.390070 35 32 670.288 541054.480 2113041.380 19"06'35.8960"N 81"23'25.1570"E 19.109970 81.390320 36 33 655.265 541089.830 2113035.780 19"06'35.7120"N 81"23'25.3570"E 19.109920 81.390660 37 34 635.341 54119.870 2113040.790 19"06'35.8730"N 81"23'27.3950"E 19.109960 81.390940 38 35 611.694 541140.600 2113056.150 19"06'36.3710"N 81"23'28.1060"E 19.110100 81.391140 40 37 563.018 541215.050 2113098.090 19"06'37.7330"N 81"23'29.8980"E 19.110260 81.391390 40 37 563.018 541215.050 2113093.510 19"06'36.9320"N 81"23'39.6560"E 19.110260 81.391390 41 38 498.496 541370.040 2113095.580 19"06'37.6370"N 81"23'39.6560"E 19.110260 81.391320 42 39 253.812 541235.890 2113439.500 19"06'48.8360"N 81"23'33.59620"E 19.110450 81.393320 43 40 192.649 541383.060 2113405.270 19"06'48.8360"N 81"23'34.64310"E 19.113570 81.394380 44 41 167.464 541491.400 2113429.300 19"06'59.8290"N 81"23'34.59360"E 19.116620 81.39480 45 42 289.439 541659.910 2113778.350 19"06'59.8290"N 81"23'45.9360"E 19.116620 81.396090 46 43 247.412 541418.640 2113835.400 19"07'01.7030"N 81"23'36.6430"E 19.116620 81.396090 47 8ASE4 0.000	31	28	630.747	541014.040	2113124.730	19°06'38.6110"N	81°23'23.7800"E	19.110730	81.389940
34         31         678.634         541027.970         2113050.530         19°06'36.1960"N         81°23'24.2510"E         19.110050         81.390070           35         32         670.288         541054.480         2113041.380         19°06'35.8960"N         81°23'25.1570"E         19.109970         81.390320           36         33         655.265         541089.830         2113035.780         19°06'35.7120"N         81°23'25.1570"E         19.109960         81.390940           37         34         635.341         541119.870         2113040.790         19°06'35.8730"N         81°23'23.9980"E         19.109960         81.390940           38         35         611.694         541140.600         2113056.150         19°06'35.3710"N         81°23'28.1060"E         19.10100         81.391390           40         37         563.018         541215.050         2113073.310         19°06'37.7330"N         81°23'23.9980"E         19.10480         81.391850           41         38         498.496         541215.050         2113073.510         19°06'37.6370"N         81°23'35.9620"E         19.110260         81.393320           43         40         192.649         541383.060         2113495.270         19°06'48.8360"N         81°23'36.31.970"E         19.11357	32	29	657.628	541005.690	2113096.070	19°06'37.6790"N	81°23'23.4920"E	19.110470	81.389860
35         32         670.288         \$41054.480         2113041.380         19°06′35.8960°N         81°23′25.1570°E         19.109970         81.390320           36         33         655.265         \$41089.830         2113035.780         19°06′35.7120°N         81°23′26.3670°E         19.109920         81.390660           37         34         635.341         \$41119.870         2113040.790         19°06′35.8730°N         81°23′27.3950°E         19.109960         81.390940           38         35         611.694         \$41140.600         2113056.150         19°06′36.3710°N         81°23′28.1060°E         19.110100         81.391140           39         36         562.410         \$41166.570         2113098.090         19°06′36.3710°N         81°23′28.9980°E         19.110480         81.391390           40         37         563.018         \$41215.050         2113073.310         19°06′36.9230°N         81°23′30.6560°E         19.110450         81.391850           41         38         498.496         541370.040         2113495.200         19°06′37.6370°N         81°23′35.9620°E         19.110450         81.393450           42         39         253.812         541235.890         2113495.270         19°06′48.8450°N         81°23′31.36430°E         19.1135	33	30	672.718	541007.750	2113074.370	19°06'36.97 <mark>30"N</mark>	81°23'23.5600"E	19.110270	81.389880
36         33         655.265         \$41089.830         2113035.780         19°06'35.7120"N         81°23'26.3670"E         19.109920         81.390660           37         34         635.341         \$41119.870         2113040.790         19°06'35.8730"N         81°23'27.3950"E         19.109960         81.390940           38         35         611.694         \$41140.600         2113056.150         19°06'36.3710"N         81°23'28.1060"E         19.110100         81.391140           39         36         562.410         \$41166.570         2113098.090         19°06'36.9230"N         81°23'28.980"E         19.110480         81.391390           40         37         563.018         \$41215.050         2113073.310         19°06'36.9230"N         81°23'30.6560"E         19.110450         81.391850           41         38         498.496         541370.040         2113095.580         19°06'48.8360"N         81°23'31.3970"E         19.110450         81.393320           42         39         253.812         541235.890         2113439.500         19°06'48.8360"N         81°23'31.3970"E         19.113570         81.393450           44         41         167.464         54191.400         2113429.300         19°06'48.8360"N         81°23'36.4310"E         19.113470<	34	31	678.634	541027.970	2113050.530	19°06'36.1960"N	81°23'24.2510"E	19.110050	81.390070
37         34         635.341         541119.870         2113040.790         19°06'35.8730"N         81°23'27.3950"E         19.109960         81.390940           38         35         611.694         541140.600         2113056.150         19°06'36.3710"N         81°23'28.1060"E         19.110100         81.391140           39         36         562.410         541166.570         2113098.090         19°06'37.7330"N         81°23'28.9980"E         19.110480         81.391390           40         37         563.018         541215.050         2113073.310         19°06'37.6370"N         81°23'30.6560"E         19.110260         81.391850           41         38         498.496         541370.040         2113095.580         19°06'37.6370"N         81°23'31.3970"E         19.110450         81.393320           42         39         253.812         541235.890         2113495.00         19°06'48.8360"N         81°23'31.3970"E         19.113570         81.393250           43         40         192.649         541383.060         2113405.270         19°06'47.7120"N         81°23'340.1410"E         19.113250         81.393450           45         42         289.439         541659.910         2113778.350         19°06'59.8290"N         81°23'345.9360"E         19.1162	35	32	670.288	541054.480	2113041.380	19°06'35.8960"N	81°23'25.1570"E	19.109970	81.390320
38         35         611.694         \$41140.600         2113056.150         19°06'36.3710"N         81°23'28.1060"E         19.110100         81.391140           39         36         562.410         \$41166.570         2113098.090         19°06'37.7330"N         81°23'28.9980"E         19.110480         81.391390           40         37         563.018         541215.050         2113073.310         19°06'36.9230"N         81°23'30.6560"E         19.110260         81.391850           41         38         498.496         541370.040         2113095.580         19°06'37.6370"N         81°23'35.9620"E         19.110450         81.393320           42         39         253.812         541235.890         2113495.00         19°06'48.8360"N         81°23'31.3970"E         19.113570         81.392050           43         40         192.649         541383.060         2113405.270         19°06'47.7120"N         81°23'36.4310"E         19.113250         81.393450           44         41         167.464         541491.400         2113429.300         19°06'48.4850"N         81°23'40.1410"E         19.11460         81.394480           45         42         289.439         541659.910         2113778.350         19°06'59.8290"N         81°23'345.9360"E         19.116620	36	33	655.265	541089.830	2113035.780	19°06'35.7120"N	81°23'26.3670"E	19.109920	81.390660
39         36         562.410         541166.570         2113098.090         19°06'37.7330'N         81°23'28.9980"E         19.110480         81.391390           40         37         563.018         541215.050         2113073.310         19°06'36.9230'N         81°23'30.6560"E         19.110260         81.391850           41         38         498.496         541370.040         2113095.580         19°06'37.6370"N         81°23'35.9620"E         19.110450         81.393320           42         39         253.812         541235.890         2113495.270         19°06'47.7120"N         81°23'36.4310"E         19.113570         81.393450           43         40         192.649         541383.060         2113405.270         19°06'47.7120"N         81°23'36.4310"E         19.113250         81.393450           44         41         167.464         541491.400         2113429.300         19°06'48.4850"N         81°23'45.9360"E         19.113470         81.394480           45         42         289.439         541659.910         2113778.350         19°06'59.8290"N         81°23'45.9360"E         19.116620         81.394800           47         BASE4         305.103         541204.910         2113782.500         19°06'59.9900"N         81°23'30.3620"E         19.11	37	34	635.341	541119.870	2113040.790	19°06'35.8730"N	81°23'27.3950"E	19.109960	81.390940
40         37         563.018         541215.050         2113073.310         19°06′36.9230″N         81°23′30.6560″E         19.110260         81.391850           41         38         498.496         541370.040         2113095.580         19°06′37.6370″N         81°23′35.9620″E         19.110450         81.393320           42         39         253.812         541235.890         2113495.270         19°06′48.8360″N         81°23′36.4310″E         19.113570         81.392050           43         40         192.649         541383.060         2113405.270         19°06′48.4850″N         81°23′36.4310″E         19.113250         81.393450           44         41         167.464         541491.400         2113778.350         19°06′48.4850″N         81°23′36.4310″E         19.11470         81.394480           45         42         289.439         541659.910         2113778.350         19°06′59.8290″N         81°23′37.6820″E         19.11740         81.399300           47         BASE4         305.103         541204.910         2113782.260         19°06′59.9900″N         81°23′37.6820″E         19.11740         81.391770           47         BASE4         0.000         -         -         -         -         -           48	38	35	611.694	541140.600	2113056.150	19°06'36.3710"N	81°23'28.1060"E	19.110100	81.391140
41         38         498.496         541370.040         2113095.580         19°06'37.6370"N         81°23'35.9620"E         19.110450         81.393320           42         39         253.812         541235.890         2113439.500         19°06'48.8360"N         81°23'31.3970"E         19.113570         81.392050           43         40         192.649         541383.060         2113405.270         19°06'47.7120"N         81°23'36.4310"E         19.113250         81.393450           44         41         167.464         541491.400         2113778.350         19°06'48.4850"N         81°23'30.1410"E         19.116620         81.394480           45         42         289.439         541659.910         2113778.350         19°06'59.8290"N         81°23'35.960"E         19.116620         81.396090           46         43         247.412         541418.640         2113835.400         19°07'01.7030"N         81°23'30.3620"E         19.11740         81.393800           47         BASE4         305.103         541204.910         2113782.260         19°06'59.9900"N         81°23'30.3620"E         19.117660         81.391770           47         BASE4         30.000         -         -         -         -         -         -         -	39	36	562.410	541166.570	2113098.090	19°06'37.7330"N	81°23'28.9980"E	19.110480	<b>81</b> .391390
42         39         253.812         541235.890         2113439.500         19°06′48.8360″N         81°23′31.3970″E         19.113570         81.392050           43         40         192.649         541383.060         2113405.270         19°06′47.7120″N         81°23′36.4310″E         19.113250         81.393450           44         41         167.464         541491.400         2113429.300         19°06′48.4850″N         81°23′36.4310″E         19.113470         81.39480           45         42         289.439         541659.910         2113778.350         19°06′59.8290″N         81°23′37.6820″E         19.116620         81.396090           46         43         247.412         541418.640         2113782.260         19°06′59.9900″N         81°23'37.6820″E         19.11740         81.393800           47         BASE4         0.000         -         -         -         -         -         -           48         44         584.920         540638.421         2113927.938         38°00′34.0250″N         87°37′52.5570″E         38.009450         87.631270           49         44         584.922         540638.420         2113871.40         19°07′04.7700″N         81°23′10.9840″E         19.117620         81.38630           5	40	37	563.018	541215.050	2113073.310	19°06'36.9230"N	81°23'30.6560"E	19.110260	81.391850
43         40         192.649         541383.060         2113405.270         19°06'47.7120"N         81°23'36.4310"E         19.113250         81.393450           44         41         167.464         541491.400         2113429.300         19°06'48.4850"N         81°23'40.1410"E         19.113470         81.394480           45         42         289.439         541659.910         2113778.350         19°06'59.8290"N         81°23'45.9360"E         19.116620         81.396090           46         43         247.412         541418.640         2113835.400         19°07'01.7030"N         81°23'37.6820"E         19.117140         81.393800           47         BASE4         305.103         541204.910         2113782.260         19°06'59.9900"N         81°23'37.6820"E         19.116660         81.391770           47         BASE4         0.000         - </td <td>41</td> <td>38</td> <td>498.496</td> <td>541370.040</td> <td>2113095.580</td> <td>19°06'37.6370"N</td> <td>81°23'35.9620"E</td> <td>19.110450</td> <td><b>81.3</b>93320</td>	41	38	498.496	541370.040	2113095.580	19°06'37.6370"N	81°23'35.9620"E	19.110450	<b>81.3</b> 93320
44         41         167.464         541491.400         2113429.300         19°06′48.4850″N         81°23′40.1410″E         19.113470         81.394480           45         42         289.439         541659.910         2113778.350         19°06′59.8290″N         81°23′45.9360″E         19.116620         81.396090           46         43         247.412         541418.640         2113835.400         19°07′01.7030″N         81°23′37.6820″E         19.117140         81.393800           47         BASE4         305.103         541204.910         2113782.260         19°06′59.9900″N         81°23′30.3620″E         19.116660         81.391770           47         BASE4         0.000         -         -         -         -         -         -           48         44         584.920         540638.421         2113927.938         38°00′34.0250″N         87°37′52.5570″E         38.009450         87.631270           49         44         584.922         540638.420         211387.140         19°07′04.7700″N         81°23′10.9840″E         19.117990         81.386380           50         45         656.867         540556.470         2113787.140         19°07′03.4490″N         81°23′10.84630″E         19.117620         81.385680	42	39	253.812	541235.890	2113439.500	19°06'48.83 <mark>60"N</mark>	81°23'31.3970"E	19.113570	81.392050
45         42         289.439         541659.910         2113778.350         19°06'59.8290"N         81°23'45.9360"E         19.116620         81.396090           46         43         247.412         541418.640         2113835.400         19°07'01.7030"N         81°23'37.6820"E         19.117140         81.393800           47         BASE4         305.103         541204.910         2113782.260         19°06'59.9900"N         81°23'30.3620"E         19.116660         81.391770           47         BASE4         0.000         -	43	40	192.649	541383.060	2113405.270	19°06'4 <mark>7.7120"</mark> N	81°23'36.4310"E	19.113250	<b>81</b> .393450
46         43         247.412         541418.640         2113835.400         19°07'01.7030"N         81°23'37.6820"E         19.117140         81.393800           47         BASE4         305.103         541204.910         2113782.260         19°06'59.9900"N         81°23'30.3620"E         19.116660         81.391770           47         BASE4         0.000         -         -         -         -         -         -         -           48         44         584.920         540638.421         2113927.938         38°00'34.0250"N         87°37'52.5570"E         38.009450         87.631270           49         44         584.922         540638.420         2113927.940         19°07'04.7700"N         81°23'10.9840"E         19.117990         81.386380           50         45         656.867         540556.470         2113887.140         19°07'03.4490"N         81°23'08.4630"E         19.117620         81.385680           51         46         639.925         540565.070         2113792.700         19°07'03.740"N         81°23'08.4630"E         19.116770         81.385680           52         47         557.882         540647.030         2113702.710         19°06'57.4450"N         81°23'09.6950"E         19.115660         81.386030 <td>44</td> <td>41</td> <td>167.464</td> <td>541491.400</td> <td>2113429.300</td> <td>19°06'48.4850"N</td> <td>81°23'40.1410"E</td> <td>19.113470</td> <td><mark>8</mark>1.394480</td>	44	41	167.464	541491.400	2113429.300	19°06'48.4850"N	81°23'40.1410"E	19.113470	<mark>8</mark> 1.394480
47         BASE4         305.103         541204.910         2113782.260         19°06'59.9900"N         81°23'30.3620"E         19.116660         81.391770           47         BASE4         0.000         -<	45	42	289.439	541659.910	2113778.350	19°06'59.8290"N	81°23'45.9360"E	19.116620	81.396090
47         BASE4         0.000         -	46	43	247.412	541418.640	2113835.400	19°07'01.7030"N	81°23'37.6820"E	19.117140	81.393800
48         44         584.920         540638.421         2113927.938         38°00'34.0250"N         87°37'52.5570"E         38.009450         87.631270           49         44         584.922         540638.420         2113927.940         19°07'04.7700"N         81°23'10.9840"E         19.117990         81.386380           50         45         656.867         540556.470         2113887.140         19°07'03.4490"N         81°23'08.1760"E         19.117620         81.385600           51         46         639.925         540565.070         2113792.700         19°07'00.3760"N         81°23'08.4630"E         19.116770         81.385680           52         47         557.882         540647.030         2113780.860         19°06'59.9840"N         81°23'11.2680"E         19.116660         81.386460           53         48         608.889         540601.240         2113702.710         19°06'57.4450"N         81°23'09.6950"E         19.115960         81.386030           54         49         475.918         540734.780         2113708.260         19°06'57.6160"N         81°23'14.2660"E         19.114700         81.387300           55         50         470.202         540788.560         2113563.760         19°06'55.9950"N         81°23'12.4750"E         19.11470	47	BASE4	305.103	541204.910	2113782.260	19°06'59.9900"N	81°23'30.3620"E	19 <mark>.116660</mark>	81.391770
49         44         584.922         540638.420         2113927.940         19°07'04.7700"N         81°23'10.9840"E         19.117990         81.386380           50         45         656.867         540556.470         2113887.140         19°07'03.4490"N         81°23'08.1760"E         19.117620         81.385600           51         46         639.925         540565.070         2113792.700         19°07'00.3760"N         81°23'08.4630"E         19.116770         81.385680           52         47         557.882         540647.030         2113780.860         19°06'59.9840"N         81°23'11.2680"E         19.116660         81.386460           53         48         608.889         540601.240         2113702.710         19°06'57.4450"N         81°23'09.6950"E         19.115960         81.386030           54         49         475.918         540734.780         2113708.260         19°06'57.6160"N         81°23'14.2660"E         19.116000         81.387300           55         50         470.202         540788.560         2113563.760         19°06'52.9110"N         81°23'12.4750"E         19.114700         81.386800           57         52         261.888         540987.730         2113635.910         19°06'55.9850"N         81°23'24.7820"E         19.11555	47	BASE4	0.000	- "	-	-	<del>-</del>	- (	-
50         45         656.867         540556.470         2113887.140         19°07'03.4490"N         81°23'08.1760"E         19.117620         81.385600           51         46         639.925         540565.070         2113792.700         19°07'00.3760"N         81°23'08.4630"E         19.116770         81.385680           52         47         557.882         540647.030         2113780.860         19°06'59.9840"N         81°23'11.2680"E         19.116660         81.386460           53         48         608.889         540601.240         2113702.710         19°06'57.4450"N         81°23'09.6950"E         19.115960         81.386030           54         49         475.918         540734.780         2113708.260         19°06'57.6160"N         81°23'14.2660"E         19.116000         81.387300           55         50         470.202         540788.560         2113563.760         19°06'52.9110"N         81°23'12.4750"E         19.114700         81.386800           56         51         589.820         540682.890         2113507.700         19°06'55.040"N         81°23'12.4750"E         19.114190         81.386800           57         52         261.888         540987.730         2113658.800         19°06'55.9850"N         81°23'24.7820"E         19.115550	48	44	584.920	540638.421	2113927.938	38°00'34.0250"N	87°37'52.5570"E	38.009450	87.631270
51         46         639.925         540565.070         2113792.700         19°07'00.3760"N         81°23'08.4630"E         19.116770         81.385680           52         47         557.882         540647.030         2113780.860         19°06'59.9840"N         81°23'11.2680"E         19.116660         81.386460           53         48         608.889         540601.240         2113702.710         19°06'57.4450"N         81°23'09.6950"E         19.115960         81.386030           54         49         475.918         540734.780         2113708.260         19°06'57.6160"N         81°23'14.2660"E         19.116000         81.387300           55         50         470.202         540788.560         2113563.760         19°06'52.9110"N         81°23'16.0960"E         19.114700         81.387800           56         51         589.820         540682.890         2113507.700         19°06'51.0950"N         81°23'12.4750"E         19.114190         81.386800           57         52         261.888         540987.730         2113658.800         19°06'55.9850"N         81°23'24.7820"E         19.115550         81.390220	49	44	584.922	540638.420	2113927.940	19°07'04.7700"N	81°23'10.9840"E	<b>19.117990</b>	81.386380
52         47         557.882         540647.030         2113780.860         19°06'59.9840"N         81°23'11.2680"E         19.116660         81.386460           53         48         608.889         540601.240         2113702.710         19°06'57.4450"N         81°23'09.6950"E         19.115960         81.386030           54         49         475.918         540734.780         2113708.260         19°06'57.6160"N         81°23'14.2660"E         19.116000         81.387300           55         50         470.202         540788.560         2113563.760         19°06'52.9110"N         81°23'16.0960"E         19.114700         81.387800           56         51         589.820         540682.890         2113507.700         19°06'51.0950"N         81°23'12.4750"E         19.114190         81.386800           57         52         261.888         540987.730         2113635.910         19°06'55.2440"N         81°23'22.9180"E         19.115350         81.389700           58         53         204.295         541042.140         2113658.800         19°06'55.9850"N         81°23'24.7820"E         19.115550         81.390220	50	45	656.867	540556.470	2113887.140	19°07'03.4490"N	81°23'08.1760"E	19.117620	81.385600
53         48         608.889         540601.240         2113702.710         19°06'57.4450"N         81°23'09.6950"E         19.115960         81.386030           54         49         475.918         540734.780         2113708.260         19°06'57.6160"N         81°23'14.2660"E         19.116000         81.387300           55         50         470.202         540788.560         2113563.760         19°06'52.9110"N         81°23'16.0960"E         19.114700         81.387800           56         51         589.820         540682.890         2113507.700         19°06'51.0950"N         81°23'12.4750"E         19.114190         81.386800           57         52         261.888         540987.730         2113635.910         19°06'55.2440"N         81°23'22.9180"E         19.115350         81.389700           58         53         204.295         541042.140         2113658.800         19°06'55.9850"N         81°23'24.7820"E         19.115550         81.390220	51	46	639.925	540565.070	2113792.700	19°07'00.3760"N	81°23'08.4630 <mark>"E</mark>	19.116770	81.385680
54         49         475.918         540734.780         2113708.260         19°06'57.6160"N         81°23'14.2660"E         19.116000         81.387300           55         50         470.202         540788.560         2113563.760         19°06'52.9110"N         81°23'16.0960"E         19.114700         81.387800           56         51         589.820         540682.890         2113507.700         19°06'51.0950"N         81°23'12.4750"E         19.114190         81.386800           57         52         261.888         540987.730         2113635.910         19°06'55.2440"N         81°23'22.9180"E         19.115350         81.389700           58         53         204.295         541042.140         2113658.800         19°06'55.9850"N         81°23'24.7820"E         19.115550         81.390220	52	47	557.882	540647.030	2113780.860	19°06'59.9840"N	81°23'11.26 <mark>80</mark> "E	19.116660	81.386460
55         50         470.202         540788.560         2113563.760         19°06'52.9110"N         81°23'16.0960"E         19.114700         81.387800           56         51         589.820         540682.890         2113507.700         19°06'51.0950"N         81°23'12.4750"E         19.114190         81.386800           57         52         261.888         540987.730         2113635.910         19°06'55.2440"N         81°23'22.9180"E         19.115350         81.389700           58         53         204.295         541042.140         2113658.800         19°06'55.9850"N         81°23'24.7820"E         19.115550         81.390220	53	48	608.889	540601.240	2113702.710	19°06'57.4450"N	81°23'09.6950"E	19.115960	81.386030
56         51         589.820         540682.890         2113507.700         19°06'51.0950"N         81°23'12.4750"E         19.114190         81.386800           57         52         261.888         540987.730         2113635.910         19°06'55.2440"N         81°23'22.9180"E         19.115350         81.389700           58         53         204.295         541042.140         2113658.800         19°06'55.9850"N         81°23'24.7820"E         19.115550         81.390220	54	49	475.918	540734.780	2113708.260	19°06'57.6160"N	81°23'14.2660"E	19.116000	81.387300
57         52         261.888         540987.730         2113635.910         19°06'55.2440"N         81°23'22.9180"E         19.115350         81.389700           58         53         204.295         541042.140         2113658.800         19°06'55.9850"N         81°23'24.7820"E         19.115550         81.390220	55	50	470.202	540788.560	2113563.760	19°06'52.9110"N	81°23'16.0960"E	19.114700	81.387800
58 53 204.295 541042.140 2113658.800 19°06'55.9850"N 81°23'24.7820"E 19.115550 81.390220	56	51	589.820	540682.890	2113507.700	19°06'51.0950"N	81°23'12.4750"E	19.114190	81.386800
	57	52	261.888	540987.730	2113635.910	19°06'55.2440"N	81°23'22.9180"E	19.115350	81.389700
59   54   376.362   540838.110   2113697.960   19°06'57.2740"N   81°23'17.8020"E   19.115910   81.388280	58	53	204.295	541042.140	2113658.800	19°06'55.9850"N	81°23'24.7820"E	19.115550	81.390220
	59	54	376.362	540838.110	2113697.960	19°06'57.2740"N	81°23'17.8020"E	19.115910	81.388280
60 55 323.798 540882.940 2113747.900 19°06'58.8950"N 81°23'19.3400"E 19.116360 81.388710	60	55	323.798	540882.940	2113747.900	19°06'58.8950"N	81°23'19.3400"E	19.116360	81.388710
61 56 285.853 540919.080 2113778.600 19°06'59.8910"N 81°23'20.5790"E 19.116640 81.389050	61	56	285.853	540919.080	2113778.600	19°06'59.8910"N	81°23'20.5790"E	19.116640	81.389050
62 57 431.807 540775.630 2113828.910 19°07'01.5380"N 81°23'15.6730"E 19.117090 81.387690	62	57	431.807	540775.630	2113828.910	19°07'01.5380"N	81°23'15.6730"E	19.117090	81.387690

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63	BASE5	268.212	541039.000	2113993.000	19°07'06.8580"N	81°23'24.7000"E	19.118570	81.390190
63	BASE5	0.000	-	-	-	-	-	-
64	58	180.277	540881.560	2113905.180	19°07'04.0120"N	81°23'19.3050"E	19.117780	81.388700
65	59	278.506	540856.490	2114203.370	19°07'13.7150"N	81°23'18.4690"E	19.120480	81.388460
66	60	234.007	540907.450	2114186.530	19°07'13.1640"N	81°23'20.2120"E	19.120320	81.388950
67	61	403.766	540930.590	2114381.940	19°07'19.5200"N	81°23'21.0190"E	19.122090	81.389170
68	62	512.459	541002.400	2114504.150	19°07'23.4910"N	81°23'23.4860"E	19.123190	81.389860
69	63	537.419	541054.000	2114530.210	19°07'24.3350"N	81°23'25.2540"E	19.123430	81.390350
70	64	544.102	541155.470	2114524.490	19°07'24.1410"N	81°23'28.7270"E	19.123370	81.391310
71	65	529.414	541240.690	2114482.490	19°07'22.7690"N	81°23'31.6410"E	19.122990	81.392120
72	66	427.330	541237.860	2114371.240	19°07'19.1500"N	81°23'31.5360"E	19.121990	81.392090
73	67	195.084	541181.700	2114126.020	19°07'11.1750"N	81°23'29.5940"E	19.119770	81.391550
74	68	212.729	541248.520	2113956.190	19°07'05.6450"N	81°23'31.8690"E	19.118230	81.392190

Total 5 nos. base points have been established on ground to cover 68 points on ground to complete the survey for identified area. The map showing Base and rover configuration is given hereunder:

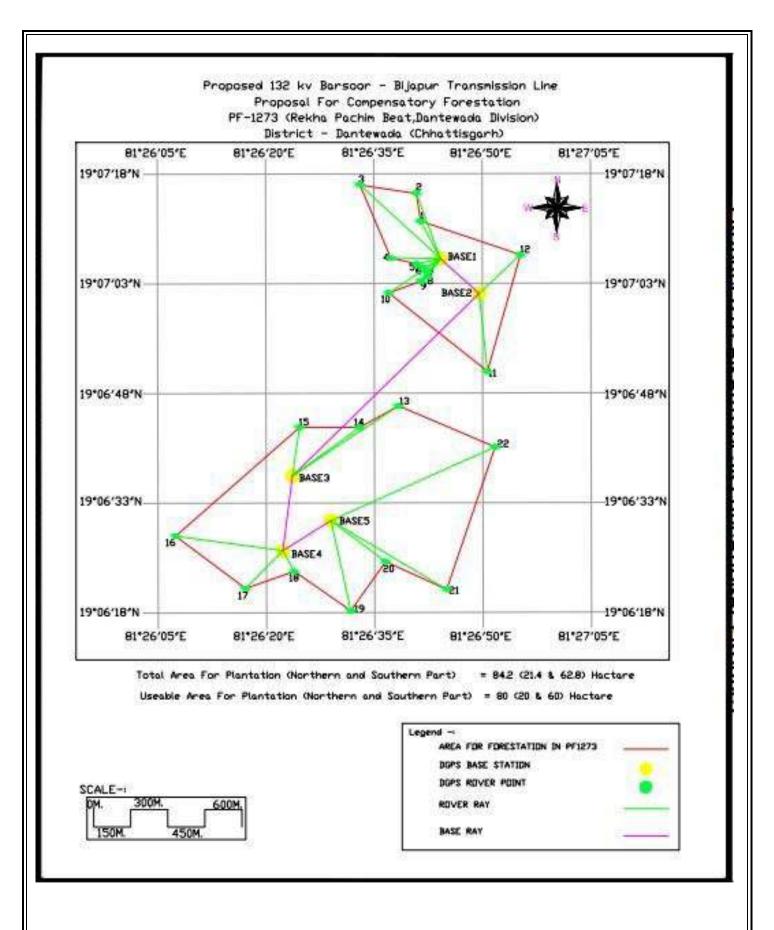


Map showing Distribution of observation points with respect to Base points for PF 1241

The detail of DGPS survey observation points for RF 2731 is presented hereunder:

DGPS OBSERVATION OF COMPENSATORY FORESTATION AREA FOR RF 1273 FOR PROPOSED 132KV BARSOOR-BIJAPUR TRANS. LINE								
	Point	Distance	Co-Ordinate in UTM-44N		Co-Ordinate in WGS-84(DMS)		Co-Ordinate in WGS-84(DD)	
S.N.	ID	FromBase (in Meter)	Easting	Northing	Latitude	Longitude	Latitude	Longitude
1	BASE1	0.000	546868.160	2114009.720	19°07'06.9490"N	81°26'44.2200"E	19.118600	81.445620
2	1	170.587	546786.670	2114159.590	19°07'11.8320"N	81°26'41.4440"E	19.119950	81.444850
3	2	278.275	546769.890	2114270.070	19°07'15.4270"N	81°26'40.8790"E	19.120950	81.444690
4	3	439.900	546541.610	2114304.480	19°07'16.5660"N	81°26'33.0690"E	19.121270	81.442520
5	4	202.118	546666.060	2114013.110	19°07'07.0760"N	81°26'37.3030"E	19.118630	81.443700
6	5	98.539	546771.970	2113988.290	19°07'06.2600"N	81°26'40.9260"E	19.118410	81.444700
7	6	77.518	546799.540	2113973.640	19°07'05.7810"N	81°26'41.8680"E	19.118270	81.444960
8	7	76.076	546815.360	2113954.940	19°07'05.1710"N	81°26'42.4080"E	19.118100	81.445110
9	8	90.059	546813.250	2113938.330	19°07'04.6310"N	81°26'42.3340"E	19.117950	81.445090
10	9	119.149	546789.270	2113920.420	19°07'04.0500"N	81°26'41.5120"E	19.117790	81.444860
11	10	250.399	546658.560	2113872.710	19°07'02.5090"N	81°26'37.0340"E	19.117360	81.443620
12	BASE2	208.664	547024.080	2113871.060	19°07'02.4250"N	81°26'49.5450"E	19.117340	81.447100
12	BASE2	0.000						
13	11	364.368	547057.360	2113559.670	19°06'52.2910"N	81°26'50.65 <b>70</b> "E	19.114530	81.447400
14	12	358.229	547191.210	2114025.850	19°07'07.4470"N	81°26'55.2790"E	19.118740	81.448690
15	BASE3	944.050	546268.800	2113141.670	19°06'38.7570"N	81°26'23.6310"E	19.110770	<b>8</b> 1.439900
15	BASE3	0.000						
16	13	512.624	546698.140	2113421.760	19°06'47.8340"N	81°26'38.3500"E	19.113290	81.443990
17	14	334.674	546541.610	2113335.530	19°06'45.0420"N	81°26'32.9850"E	19.112510	81.442500
18	15	195.418	546296.810	2113335.070	19°06'45.0470"N	81°26'24.6060"E	19.112510	81.440170
19	BASE4	301.329	546230.150	2112842.830	19°06'29.0380"N	81°26'22.2820"E	19.108070	81.439520
19	BASE4	0.000						
20	16	438.245	545795.740	2112900.680	19°06'30.9550"N	81°26'07.4190"E	19.108600	81.435390
21	17	213.808	546078.760	2112691.850	19°06'24.1380"N	81°26'17.0880"E	19.106700	81.438080
22	18	94.374	546276.550	2112760.650	19°06'26.3600"N	81°26'23.8640"E	19.107320	81.439960
23	BASE5	228.894	546424.820	2112963.230	19°06'32.9390"N	81°26'28.9550" <mark>E</mark>	19.109150	81.441380
23	BASE5	0.000				1//		
24	19	369.007	546505.140	2112603.070	19°06'21.2150"N	81°26'31.6 <mark>73</mark> 0"E	19.105890	81.442130
25	20	275.085	546645.590	2112799.120	19°06'27.5810"N	81°26'36.4970"E	19.107660	81.443470
26	21	542.572	546892.790	2112688.660	19°06'23.9670"N	81°26'44.9480"E	19.106660	81.445820
27	22	726.498	547088.990	2113257.640	19°06'42.4620"N	81°26'51.7130"E	19.111800	81.447700

Total 5 nos. base points have been established on ground to cover 22observation points on ground to complete the survey for identified area of RF 1273. The map showing Base and rover configuration is given hereunder:



Map showing observation points with respect to base points for RF 1273

# PHOTOGRAPHS:



Layout of compensatory forest PF 1241 and RF 1273