DGPS SURVEY REPORT
Compensatory Afforestation
OF

REHABILITATION & UPGRADING OF PANDUKA JATMAY
GHATARANI GAYDABRI MADELI MUDAGAON ROAD
District : Gariyaband

Forest Division: Gariyaband
Range : Fingeshwar
Tahsil :Rajim

Village
Pitaibandh (Area 12.00 Ha.)
Arand (Area 4.10 Ha.)
Teka (Area 8.50 Ha.)

Total Revenue Area : 24.60 Ha.

Report Prepared by.
SAN SURVEY ENGINEERING
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Submitted to
Divisional Forest Officer
Gariyaband Forest Division (C.G.)

Submitted By
Project Manager (ADB Project)
Chhattisgarh State Road Development Project
P.W.D. Raipur (C.G.)

कार्यालय कलेक्टर, जिला–गरियाबंद (छत्तीसगढ़)

।। अनापत्ति प्रमाण पत्र ।।

क्रमांक/1655/कले./वाचक/2022 गरियाबंद, दिनांक 23.03.2022

कार्यालयीन पत्र क्रमांक/692/कले./वाचक/2022 गरियाबंद, दिनांक 08.02.2022 अनुसार पाण्डुका जतगई धतरानी गायडबरी गढ़ेली गुड़ामांव मार्ग के पुनर्निर्माण एवं उन्नयन कार्य में प्रभावित वन भूमि 24.569 हेक्टेयर के बदले ग्राम टेका स्थित शासकीय भूमि खसरा नंबर 468 रकबा 10.37 हेक्टेयर में से 9.00 हेक्टेयर व खसरा नंबर 694 रकबा 8.29 हेक्टेयर में से 3.60 हेक्टेयर घास (चराई) मद तथा ग्राम गोल्डीबंद स्थित भूमि खसरा नंबर 356 रकबा 20.39 हेक्टेयर में से 12.00 हेक्टेयर घास (चराई) मद इसप्रकार कुल 24.60 हेक्टेयर में वैकल्पिक वृक्षारोपण हेतु विहित शर्तो के अधीन अनापत्ति प्रमाण पत्र जारी किये गये है।

परियोजना प्रबंधक (ए0डी0बी0 प्रोजेक्ट) छत्तीसगढ़ राज्य सड़क क्षेत्र परियोजना रायपुर संभाग रायपुर, लोक निर्माण विभाग, शिरपुर भवन, रायपुर के पत्र पूर्वावलोकन क्रमांक 286/परि.प्र./ए.डी.बी./पै.03/लोना–3/2022 रायपुर, दिनांक 10.03.2022 अनुसार ग्राम टेका में वृक्षारोपण हेतु अनापत्ति प्रमाण पत्र प्रदत्त भूमि खसरा नंबर 468 रकबा 10.37 हेक्टेयर में से 9.00 हेक्टेयर के स्थान पर 8.00 हेक्टेयर व खसरा नंबर 694 रकबा 8.29 हेक्टेयर में से 3.60 हेक्टेयर के स्थान पर मात्र 0.50 हेक्टेयर ही मौके पर उपलब्ध है। इस प्रकार वृक्षारोपण हेतु कुल 4.10 हेक्टेयर अनुपलब्ध होने के कारण ग्राम अरण्ड तहसील राजिम स्थित भूमि खसरा नंबर 260 का भाग रकबा 5.00 हेक्टेयर में वैकल्पिक वृक्षारोपण हेतु अनापत्ति प्रमाण पत्र देने बाबत् अनुरोध किये गये है

तत्संबंध में अनुविभागीय अधिकारी (राजस्व) राजिम के पत्र क्रमांक/965/अदिय/वाचक–2/2022 राजिम, दिनांक 15.03.2022 अनुसार ग्राम अरण्ड तहसील राजिम स्थित भूमि खसरा नंबर 260 का भाग रकबा 5.00 हेक्टेयर (घास मद) वर्तमान में अतिक्रमण मुक्त है। उक्त स्थल, किसी व्यक्ति विशेष या संस्था द्वारा अधिक्रमित नही है। वैकल्पिक वृक्षारोपण हेतु प्रस्तावित भूमि में शासन द्वारा संचालित कोई भी सुविधा विद्यमान नही है तथा किसी व्यक्ति विशेष या संस्था को शासकीय पट्टा प्रदान नहीं किये गये है। प्रस्तावित भूमि, वैकल्पिक वृक्षारोपण हेतु उपयुक्त है।

उपरोक्तानुसार अनुविभागीय अधिकारी (राजस्व) राजिम के जांच प्रतिवेदन से सहमत होते हुये कार्यालयीन पत्र क्रमांक/692/कले./वाचक/2022 गरियाबंद, दिनांक 08.02.2022 में आंशिक रूप से संशोधन कर ग्राम टेका स्थित भूमि खसरा नंबर 468 रकबा 10.37 हेक्टेयर में से 8.00 हेक्टेयर व खसरा नंबर 694 रकबा 8.29 हेक्टेयर में से 0.50 हेक्टेयर (चराई मद) मद तथा ग्राम अरण्ड तहसील राजिम स्थित भूमि खसरा नंबर 260 रकबा 13.27 हेक्टेयर में से 4.10 हेक्टेयर (घास मद) में वैकल्पिक वृक्षारोपण हेतु अनापत्ति प्रमाण पत्र प्रदान किया जाता है।

अनापत्ति प्रमाण की शासकीय शर्तें पूर्ववत/यथावत् लागू रहेंगी।

कलेक्टर
गरियाबंद (छ0ग0)

INTRODUCTION TO DGPS

WHAT IS DGPS AND WHY USE IT?

- **Differential Global Positioning System (DGPS)** is an enhancement to Global Positioning System that provides improved location accuracy, from the 15-meter nominal GPS accuracy to about 10 cm in case of the best implementations.

- DGPS refers to using a combination of receivers and satellites to reduce/eliminate common receiver based and satellite based errors reduce orbit errors reduce ionospheric and tropospheric errors reduce effects of SA eliminate satellite and receiver clock errors
- improve accuracy significantly 100's of metres to metres to centimetres to millimetres

1. DGPS uses one or several (network) fixed ground based reference stations (in known locations).

2. The base station compares its own known location, to that computed from a GPS receiver.

3. Any difference is then broadcast as a correction to the user.

Correction signals can be broadcast either from ground stations, or via additional satellites. These services are privately owned and usually require a user subscription.

Examples:

- Satellite Based Augmentation System (SBAS),
- Wide Area Augmentation System (WAAS),
- Local Area Augmentation System (LAAS),
- European Geostationary Navigation Overlay Service (EGNOS),
- Omni STAR
- Coast guard beacon service.

Why do we Need Differential GPS?

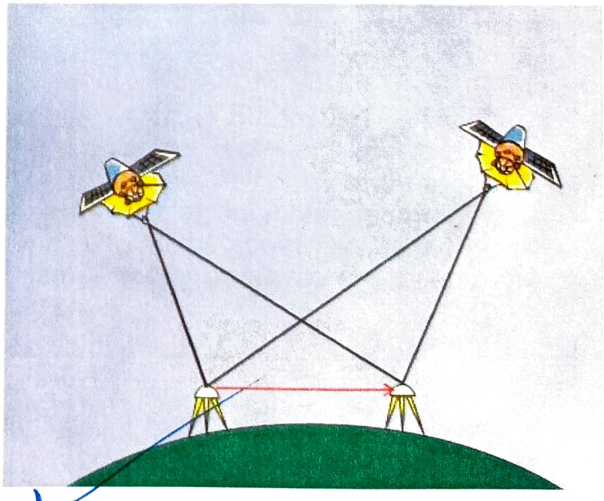
By using DGPS we can improve our positional accuracy from around 1.5m with standard GPS to around 40cm with DGPS, without the need for post processing.

In the case of the road survey van (top right), users can measure the amount of road wear and judge whether the road should be resurfaced just by driving over it. Just one day's driving can replace a month's manual work using traditional methods.

There are many other applications like this. The labour saving is immense but at the same time, previously impossible tasks are made possible such as the prediction of earthquakes before they occur.

DGPS Summary

- Term refers to simple C/A code differential
- Available on GPS receivers from low cost to high cost
- Produces accuracies from sub-metre to metres
- Many real-time DGPS correction providers - Coast guard, EGNOS, OmniSTAR



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- Used for many different applications including marine navigation, precision farming and vehicle testing applications.

What is RTK?

Real Time Kinematic is an advanced form of DGPS which uses the satellites carrier wave to compare 2 observations from different receivers
within the system, to fine tune the satellite and receiver clock errors, thus improving positional accuracy.

Real Time Kinematic (RTK)

The GPS signal is made up of 3 distinct components:

- Carrier wave
- GPS Code
- Navigation message

Typical GPS receivers will use the GPS navigation message to calculate its position. RTK uses the carrier wave of the GPS signal, which is 19.02cm long. By counting the number of cycles (and phase of the carrier), the travel time and distance can be measured more accurately.

RTK Summary

- Similar technique as DGPS that uses the carrier phase to provide more accurate positioning
- Cost is higher compared to DGPS receivers
- Produces accuracies from 20 cm to sub-centimetres
- RTK corrections provided via a local base station or by a private correction provider - OmniSTAR, Leica, Trimble
- Used for many different applications including machine control (construction, container ports, farming), vehicle testing applications, surveying (land, marine, hydrographic, aerial)

RINEX FILE

The first proposal for the ***Receiver Independent Exchange Format RINEX*** was developed by the Astronomical Institute of the University of Berne for the easy exchange of the Global.

Positioning System (GPS) data to be collected during the first large
European GPS campaign
EUREF 89, which involved more than 60 GPS receivers of 4 different manufacturers. The governing aspect during the development was the following fact:
Most geodetic processing software for GPS data use a well-defined set of observables:

- The carrier-phase measurement at one or both carriers (actually being a measurement on the beat frequency between the received carrier of the satellite signal and a receivergenerated reference frequency).

- The pseudorange (code) measurement, equivalent to the difference of the time of reception (expressed in the time frame of the receiver) and the time of transmission (expressed in the time frame of the satellite) of a distinct satellite signal.

- The observation time being the reading of the receiver clock at the instant of validity of the carrier-phase and/or the code measurements. Usually the software assumes that the observation time is valid for both the phase **and** the code measurements, **and** for all satellites observed. Consequently all these programs do not need most of the information that is usually stored by the receivers: They need phase, code, and time in the above mentioned definitions, and some stationrelated information like station name, antenna height, etc. Up till now two major format versions have been developed and published:
- The original RINEX Version 1 presented at and accepted by the 5th

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International Geodetic Symposium on Satellite Positioning in Las Cruces, 1989. [Gurtner et al. 1989],[Evans 1989]

- RINEX Version 2 presented at and accepted by the Second International Symposium of Precise Positioning with the Global Positioning system in Ottawa, 1990, mainly adding the possibility to include tracking data from different satellite systems (GLONASS, SBAS). [Gurtner and Mader 1990a, 1990b], [Gurtner 1994]. Several subversions of RINEX Version 2 have been defined:
- Version 2.10: Among other minor changes allowing for sampling rates other than integer seconds and including raw signal strengths as new observables. [Gurtner 2002]
- Version 2.11: Includes the definition of a two-character observation code for L2C pseudoranges and some modifications in the GEO NAV MESS files [Gurtner and Estey 2005]
- Version 2.20: Unofficial version used for the exchange of tracking data from spaceborne receivers within the IGS LEO pilot project [Gurtner and Estey 2002]. As spin-offs of this idea of a receiver-independent GPS exchange format other RINEX-like exchange file formats have been defined, mainly used by the International GNSS Service IGS:
- Exchange format for **satellite and receiver clock offsets** determined by processing data of a GNSS tracking network [Ray and Gurtner 1999]

- Exchange format for the complete **broadcast data of spacebased augmentation systems** SBAS. [Suard et al. 2004]
- IONEX: Exchange format for **ionosphere models** determined by processing data of a GNSS tracking network [Schaer et al. 1998] • ANTEX: Exchange format for **phase center variations** of geodetic GNSS antennae [Rothacher and Schmid 2005].

The upcoming European Navigation Satellite System Galileo and the enhanced GPS with new frequencies and observation types, especially the possibility to track frequencies on different channels, ask for a more flexible and more detailed definition of the observation codes. To improve the handling of the data files in case of "mixed" files, i.e. files containing tracking data of more than one satellite system, each one with different observation types, the record structure of the data record has been modified significantly and, following several requests, the limitation to 80 characters length has been removed. As the changes are quite significant, they lead to a new RINEX Version 3. The new version also includes the unofficial Version 2.20 definitions for space-borne receivers. The major change asking for a version 3.01 was the requirement to generate consistent phase observations across different tracking modes or channels, i.e. to apply ¼-cycle shifts prior to RINEX file generation, if necessary, to facilitate the processing of such data.
The RINEX version 3.00 format consists of three ASCII file types:

1. Observation data File
2. Navigation message File
3. Meteorological data File

Each file type consists of a header section and a data section. The header section contains global information for the entire file and is placed at the beginning of the file. The header section contains **header labels in columns 61-80** for each line contained in the header section. These labels are mandatory and must appear exactly as given in these descriptions and examples. The format has been optimized for minimum space requirements independent from the number of different observation

types of a specific receiver or satellite system by indicating in the header the types of observations to be stored for this receiver and the satellite systems having been observed. In computer systems allowing variable record lengths the observation records may be kept as short as possible. Trailing blanks can be removed from the records. There is no maximum record length limitation for the observation records.

Each Observation file and each Meteorological Data file basically contain the data from one site and one session. Starting with Version 2 RINEX also allows including observation data from more than

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one site subsequently occupied by a roving receiver in rapid static or kinematic applications. Although Version 2 and higher allow to insert header records into the data section it is not recommended to concatenate data of more than one receiver (or antenna) into the same file, even if the data do not overlap in time. If data from more than one receiver have to be exchanged, it would not be economical to include the identical satellite navigation messages collected by the different receivers several times. Therefore the navigation message file from one receiver may be exchanged or a composite navigation message file created containing non-redundant information from several receivers in order to make the most complete file. The format of the data records of the RINEX Version 1 navigation message file was identical to the former NGS exchange format. RINEX version 3 navigation message files may contain navigation messages of more than one satellite system (GPS, GLONASS, Galileo, Quasi Zenith Satellite System (QZSS), BeiDou System (BDS) and SBAS).
The actual format descriptions as well as examples are given in the Appendix Tables at the end of the document.

BASIC DEFINITIONS

Time:
The time of the measurement is the receiver time of the received signals. It is identical for the phase and range measurements and is identical for all satellites observed at that epoch. For single-system data files it is by default expressed in the time system of the respective satellite system. Otherwise the actual time can (for mixed files must) be indicated in the Start Time header record.
Pseudo-Range:
The pseudo-range (PR) is the distance from the receiver antenna to the satellite antenna including receiver and satellite clock offsets (and other biases, such as atmospheric delays): PR = distance + c * (receiver clock offset –satellite clock offset + other biases)
so that the pseudo-range reflects the actual behaviour of the receiver and satellite clocks. The pseudo-range is stored in units of meters.

Phase:
The phase is the carrier-phase measured in whole cycles. The halfcycles measured by squaring type receivers must be converted to whole cycles and flagged by the respective observation code.

The phase changes in the same sense as the range (negative doppler). The phase observations between epochs must be connected by including the integer number of cycles. The observables are not corrected for external effects like atmospheric refraction, satellite clock offsets, etc. If necessary phase observations are corrected for phase shifts needed to guarantee consistency between phases of the same frequency and satellite system based on different signal channels.

If the receiver or the converter software adjusts the measurements using the real-time-derived receiver clock offsets dT(r), the consistency of the 3

quantities phase / pseudo-range / epoch must be maintained, i.e. the receiver clock correction should be applied to all 3 observables:

1 Time (corr) = Time(r) - dT(r)

2 PR (corr) = PR (r) - dT(r)*c

3 phase (corr) = phase (r) - dT(r)*freq

Doppler:
The sign of the doppler shift as additional observable is defined as usual: Positive for approaching satellites.
Satellite numbers:
Starting with RINEX Version 2 the former two-digit satellite numbers **nn**are preceded by a one-character system identifier **s**. The same satellite system identifiers are also used in all header records when appropriate.

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THE EXCHANGE OF RINEX FILES:

The original RINEX file naming convention was implemented in the MSDOS era when file names were restricted to 8.3 characters. Modern operating systems typically support 255 character file names. The goal of the new file naming convention is to be more: descriptive, flexible and extensible than the RINEX 2.11 file naming convention. All elements are fixed length and are separated by an underscore "_" except for the: file type and compression fields that uses a period "." separator. Fields must be padded with zeros to fill the field width. The file compression field is optional. In order to further reduce the size of observation files Yuki Hatanaka developed a compression scheme that takes advantage of the structure of the RINEX observation data by forming higher order differences in time between observations of the same type and satellite. This compressed file is also an ASCII file that is subsequently compressed again using the above mentioned standard compression programs.

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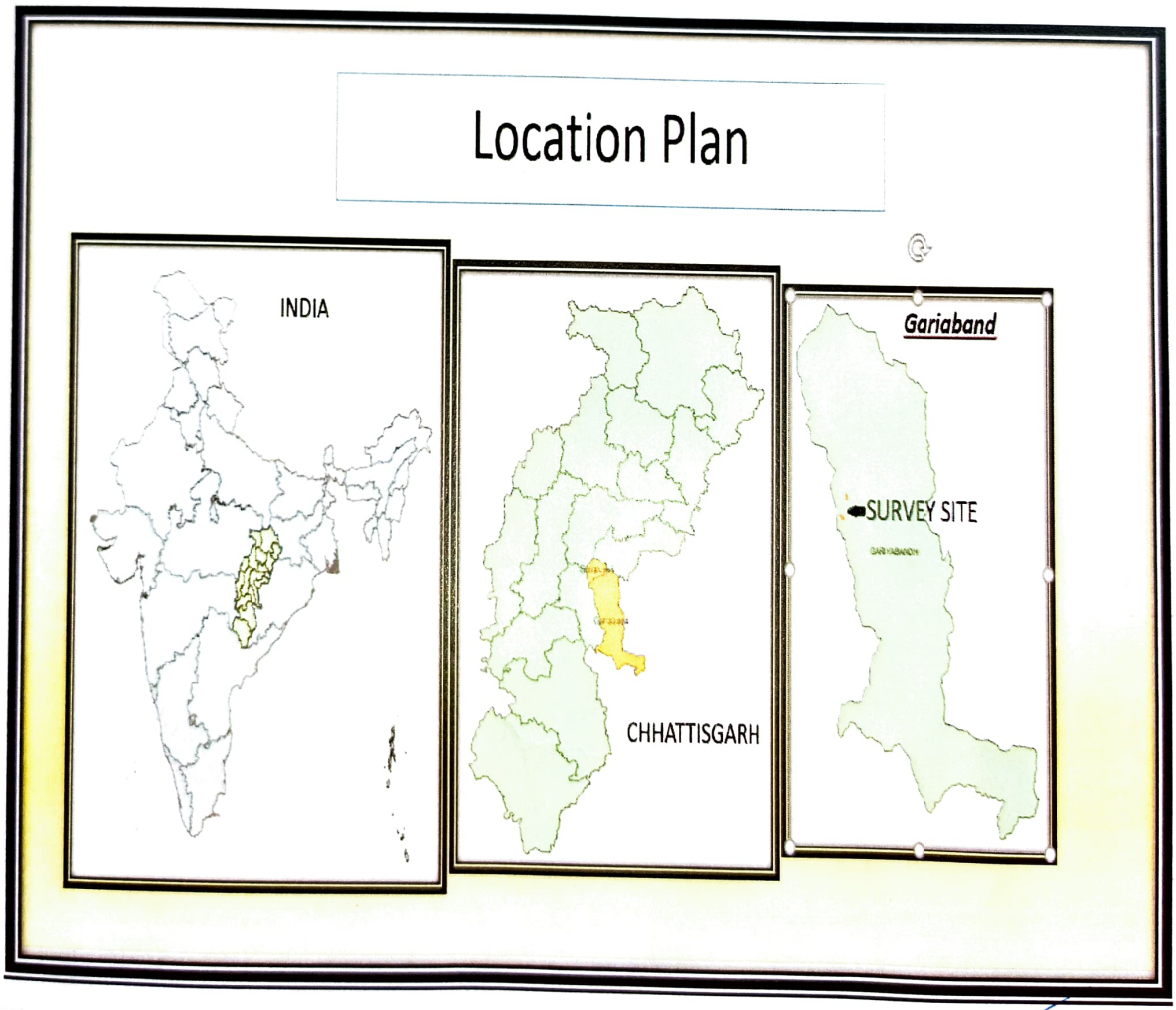
ABOUT LOCATION

Pitaibandh village is located in Rajim Tehsil of Raipur district in Chhattisgarh, India. It is situated 3km away from sub-district headquarter Rajim (tehsildar office) and 48km away from district headquarter Raipur. As per 2009 stats, Pitaiband village is also a gram panchayat.

Arand village is located in Rajim Tehsil of Raipur district in Chhattisgarh, India. It is situated 12km away from sub-district headquarter Rajim (tehsildar office) and 57km away from district headquarter Raipur. As per 2009 stats, Arand village is also a gram panchayat.

Teka village is located in Rajim Tehsil of Raipur district in Chhattisgarh, India. It is situated 17km away from sub-district headquarter Rajim (tehsildar office) and 62km away from district headquarter Raipur. As per 2009 stats, Teka village is also a gram panchayat.



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CA AREA DETAILS

Sr.No.	District	Tahsil	Forest Division	Village	Khasra no.	Type of Land	Area (Ha.)
1.	GRIYABAND	RAJIM	GARIYABAND	PITAIBANDH	356	GRASS	12.00
2.				ARAND-1	260		3.00
3.				ARAND-2	260		1.10
4.				TEKA -1	468		8.00
5.				TEKA -2	694		0.50
						TOTAL	**24.60**

SURVEYED AREA : 24.60 Ha.

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DGPS SURVEY COORDINATES

SURVEY DATE 11-12/04/2022 TIME 10 AM TO 5 PM

DGPS SURVEY POINTS PITAIBANDH (Khasra no. 356)						
SL N0	POINT NO	NORTHING	EASTING	ZONE	LONGITUIDE	LATITUDE
1	P1	2320527.248	593063.740	44	81°53'43.181"	20°58'58.819"
2	P2	2320205.343	592894.140	44	81°53'37.245"	20°58'48.38"
3	P3	2320312.685	592893.893	44	81°53'37.257"	20°58'51.871"
4	P4	2320449.130	592414.508	44	81°53'20.682"	20°58'56.396"
5	P5	2320645.929	592825.246	44	81 °53'34.944"	20°59'2.723"
DGPS SURVEY POINTS ARAND						
SL N0	POINT NO	NORTHING	EASTING	ZONE	LONGITUIDE	LATITUDE
FIRST POLYGONE (Khasra no.260)						
1	P1	2322715.514	599601.508	44	81°57'30.042"	21°0'8.758"
2	P2	2322690.445	599465.776	44	81°57'25.335"	21°0'7.969"
3	P3	2323024.702	599390.391	44	81°57'22.794"	21°0'18.855"
4	P4	2323003.918	599449.871	44	81°57'24.849"	21°0'18.168"
5	P5	2322929.626	599439.104	44	81°57'24.461"	21°0'15.753"
6	P5A	2322838.119	599569.736	44	81°57'28.967"	21°0'12.752"
SECOND POLYGONE (Khasra no. 260)						
1	P1	2322559.654	599634.113	44	81°57'31.138"	21°0'3.683"
2	P2	2322565.610	599692.287	44	81°57'33.154"	21°0'3.865"
3	P2A	2322475.999	599686.700	44	81°57'32.942"	21°0'0.952"
5	P3	2322418.290	599665.612	44	81°57'32.18"	20°59'59.07"
6	P4	2322458.584	599571.547	44	81°57'28.93"	21° 0'0.39"
DGPS SURVEY POINTS TEKA						
FIRST POLYGONE (Khasra no. 468)						
SL N0	POINT NO	NORTHING	EASTING	ZONE	LONGITUIDE	LATITUDE
1	P1	2309139.945	601121.914	44	81°58'19.82"	20°52'46.90"
2	P2	2309154.165	601064.655	44	81°58'17.85"	20°52'47.40"
3	P2A	2309223.740	601090.119	44	81°58'18.766"	20°52'49.661"
4	P2B	2309215.163	601118.687	44	81°58'19.753"	20°52'49.377"
5	P2C	2309398.378	601187.702	44	81°58'22.18"	20°52'55.322"
6	P3	2309500.700	601197.399	44	81°58'22.537"	20°52'58.648"
7	P4	2309485.263	601320.247	44	81°58'26.785"	20°52'58.122"
8	P4A	2309548.298	601348.963	44	81°58'27.8"	20°53'0.182"
9	P4B	2309553.522	601447.413	44	81°58'31.18"	20°53'0.251"
10	P4C	2309508.222	601528.038	44	81°58'33.973"	20°52'58.824"

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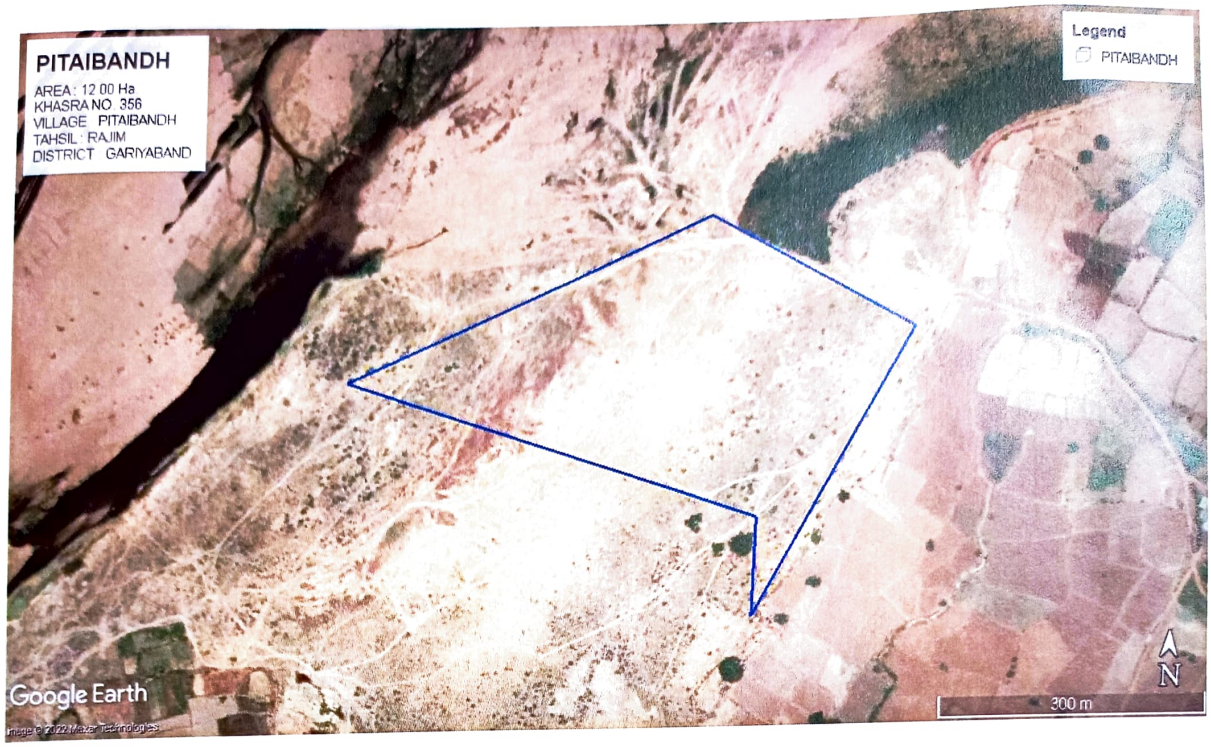
11	P4D	2309418.330	601504.258	44	81°58'33.974"	20°52'55.908"
12	P4E	2309309.454	601399.786	44	81°58'33.975"	20°52'52.596"
13	P5	2309320.969	601325.830	44	81°58'33.976"	20°52'52.897"
14	P5A	2309256.929	601284.474	44	81°58'33.977"	20°52'50.702"
15	P6	2309255.768	601213.126	44	81°58'33.978"	20°52'50.679"
SECOND POLYGONE (Khasra no. 694)						
1	P1	2309139.945	601121.914	44	81°58'19.82"	20°52'46.90"
2	P2	2309154.165	601064.655	44	81°58'17.85"	20°52'47.40"
5	P1A	2309024.656	601038.575	44	81°58'16.92"	20°52'43.18"
6	P1B	2309030.155	601022.589	44	81°58'16.37"	20°52'43.38"

Ayushmaan Engineering Consultants Raipur

Project Manager
ADB Project PWD
C.G.R.D.P. RAIPUR

Divisional Forest Officer
Territorial Division Gariaband

GOOGLE IMAGE



Ayushmaan Engineering Consultants Raipur

Project Manager
ADB Project PWD
C.G.R.D.P. RAIPUR

Divisional Forest Officer
Gariaband Division Gariaband

SITE PHOTOGRAPHS

Ayushmaan Engineering Consultants Raipur

Project Manager
ADB Project PWD
C.G.R.D.P. RAIPUR

Division Forest Officer
Gariaband Division Gariaband

Ayushmaan Engineering Consultants Raipur

Project Manager
ADB Project PWD
C.G.R.D.P. RAIPUR

Divisional Forest Officer
Gariaband Division Gariaband

Encl.

1. SOI Toposheet showing affected forest area (1:50000 Scale)
2. Geo-Referenced Map
3. KML & SHAPE File (C.D.)

निर्यात के लिए नहीं NOT FOR EXPORT

OPEN SERIES MAP

No. F44P16

Scale 1:50,000

F44P11 (64G/11)	F44P15 (64G/15)	F44Q3 (64K/3)
1 F44P12 (64G/12)	Raipur CHHATTISGARH **F44P16** (64G/16)	Mahasamund CHHATTISGARH F44Q4 (64K/4)
F44V9 (64H/9) 1 Dhamtari CHHATTISGARH	F44V13 (64H/13)	F44W1 (64L/1)

1 Durg, CHHATTISGARH.

भारतीय सर्वेक्षण विभाग SURVEY OF INDIA

1st Edition 2009. Price : Rs. 50/-

CONVENTIONAL SYMBOLS

Express highway: with toll; with bridge; with distance stone
Roads, metalled: according to importance
Roads, double carriageway: according to importance
Unmetalled road. Cart-track. Pack-track with pass. Foot-path
Streams: with track in bed; undefined. Canal
Dams: masonry or rock-filled; earthwork. Weir
Rivers: dry with water channel; with island & rocks. Tidal river.
Submerged rocks. Shoal. Swamp. Reeds
Wells: lined; unlined. Tube-well. Spring. Tanks: perennial; dry.
Embankments: road or rail; tank. Broken ground
Railways, broad gauge: double, single with station; under constrn.
Railways, other gauges: double, single with distance stone; do.
Mineral line or tramway. Kiln. Cutting with tunnel
Contours with sub-features. Rocky slopes. Cliffs
Sand features: (1)flat, (2)sand-hills(permanent), (3)dunes(shifting)
Towns or Villages: inhabited; deserted. Fort
Huts: permanent; temporary. Tower. Antiquities
Temple. Chhatri. Church. Mosque. Idgāh. Tomb. Graves
Lighthouse. Lightship. Buoys: lighted; unlighted. Anchorage
Mine. Vine on trellis. Grass. Scrub
Palms: palmyra; other. Plantain. Conifer. Bamboo. Other trees
Areas: cultivated; wooded. Surveyed tree
Boundary, international
" state: demarcated; undemarcated
" district; subdivision; tahsil or tāluk; forest
Boundary Pillars: surveyed; unlocated
Heights, triangulated: station; point; approximate. △ 200 ▲ 200 ⌐200
Bench-mark: geodetic; tertiary; canal. BM 63-3 BM 60-3
Post office. Telegraph office. Overhead tank
Rest house or Inspection bungalow. Circuit house. Police station
Camping gound. Forest: reserved; protected. CG1 R F P F
Spaced names: administrative; locality or tribal. KIKRI NAGA
Hospital. Dispensary. Veterinary. Hospital / Dispensary
Aerodrome. Helipad. Tourist site
Power line: with pylons surveyed; with poles unsurveyed

REFERENCES

NH-6 National Highway No. 6. S E C R South East Central Railway.

NOTES :-

Heights are in metres and above Indian mean sea level.
Contours are approximate.
A relative height e.g., 3r, represents the approximate height, in metres, between the top and bottom of a steep slope.
Tanks shown dry, in this area usually contain water from July to December.
Cultivation is Periodic and dependent on rainfall.
The kilometre stone numbers along roads railways and canals are shown in slant type, e.g., '9' whereas milestone numbers are shown in upright type, e.g., '9'.
The triangulated heights and contours in this sheet have not been adjusted to the heights of the spirit-levelled bench-marks and may not be strictly in accordance with them.
Forest boundaries are not clearly demarkated but have been surveyed as pointed out by the local officials on the ground.

COMPILATION INDEX

A

A. Surveyed during 1979-80. Updated for major details during 2003-04.

Projection - UTM Datum - WGS 84

Magnetic Variation from True North about $\frac{3}{4}$° West in 2005.
(Decreasing by about 1' annually)

500 m to 1 cm 1:50,000 2 cm to 1 km

Metres 1000 500 0 1 2 3 Kilometres

CONTOUR INTERVAL 10 METRES

For further details about this map, please contact
Director
Chhattisgarh Geo-Spatial Data Centre
Survey of India, Pachpedi Naka
Raipur.

WEBSITE - www.surveyofindia.gov.in

REG. No. WPG D'00 (Chhattisgarh GDC-1:50,000)-

भारत के महासर्वेक्षक के नियंत्रण में प्रकाशित,
Published Under the direction of Surveyor General of India,
Survey of India, Hāthībarkala Estate, Post Box No.37, Dehra Dūn-248001 (Uttarākhand),
Department of Science & Technology, Government of India.

PRINTED AT THE WESTERN PRINTING GROUP OF SURVEY OF INDIA

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C.S.R.U.P. RAIPUR

Divisional Forest Officer
Dhamtari Division Dhamtari

AREA DETAILS

SL. NO	DISTRICT	TAHSIL	VILLAGE	KHASRA NO.	AREA (Ha.)
1	GARIYABAND	RAJIM	ARAND	260	3.00
2				260	1.10
				TOTAL	4.10

निर्यात के लिए नहीं NOT FOR EXPORT

OPEN SERIES MAP

No. F44V13

Scale 1:50,000

F44P12 (64G/12)	F44P16 (64G/16)	Mahāsamund CHHATTĪSGARH F44Q4 (64K/4)
F44V9 (64H/9)	**F44V13 (64H/13)**	F44W1 (64L/1) Raipur CHHATTĪSGARH
F44V10 (64H/10)	Dhamtari CHHATTĪSGARH F44V14 (64H/14)	F44W2 (64L/2)

1 Durg, CHHATTĪSGARH.
2 Kānker, CHHATTĪSGARH.

भारतीय सर्वेक्षण विभाग SURVEY OF INDIA

1st Edition 2010. Price : Rs. 70/-

CONVENTIONAL SYMBOLS

Express highway: with toll, with bridge, with distance stone
Roads, metalled: according to importance
Roads, double carriageway: according to importance
Unmetalled road. Cart-track. Pack-track with pass. Foot-path
Streams: with track in bed; undefined. Canal
Dams: masonry or rock-filled; earthwork. Weir
River: dry with water channel; with island & rocks. Tidal river
Submerged rocks. Shoal. Swamp. Reeds
Wells: lined; unlined. Tube-well. Spring. Tanks: perennial; dry
Embankments: road or rail; tank. Broken ground
Railways, broad gauge: double; single with station; under constn
Railways, other gauges: double; single with distance stone; do.
Mineral line or tramway. Kiln. Cutting with tunnel
Contours with sub-features. Rocky slopes. Cliffs
Sand features:(1)Flat. (2)sand-hills(permanent). (3)dunes(shifting)
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.. district, subdivision; tahsīl or tāluk; forest
Boundary pillars: surveyed; unlocated
Heights, triangulated: station; point; approximate. △200 ,200 ,200
Bench-mark: geodetic; tertiary; canal. BM 63·3 ,BM 63·3 ,63
Post office. Telegraph office. Overhead tank
Rest house or Inspection bungalow. Circuit house. Police station
Camping ground. Forest: reserved; protected. RF PF
Spaced names: administrative; locality or tribal. KIKORI NAGA
Hospital. Dispensary. Veterinary. Hospital / Dispensary
Aerodrome. Helipad. Tourist site
Power line: with pylons surveyed; with poles unsurveyed

REFERENCES

PWD Public Works Department. SECR South East Central Railway.

NOTES :-

Heights are in metres and above Indian mean sea level.
Contours are approximate.
A relative height, e.g. . . 8r, represents the approximate height, in metres, between the top and bottom of a steep slope.
Tanks, shown dry, in this area usually contain water from July to December.
Tube-wells are numerous throughout the sheet, only the important ones have been shown.
Unmetalled roads and cart-tracks in this sheet are generally motorable in dry season. Permission to use those along canals is required from Irrigation authorities.

COMPILATION INDEX

A. Surveyed during 1976-77. Updated for major details during 2003-04.

Projection - UTM Datum - WGS 84

Magnetic Variation from True North about 1° West in 2005.
(Decreasing by about 1' annually).

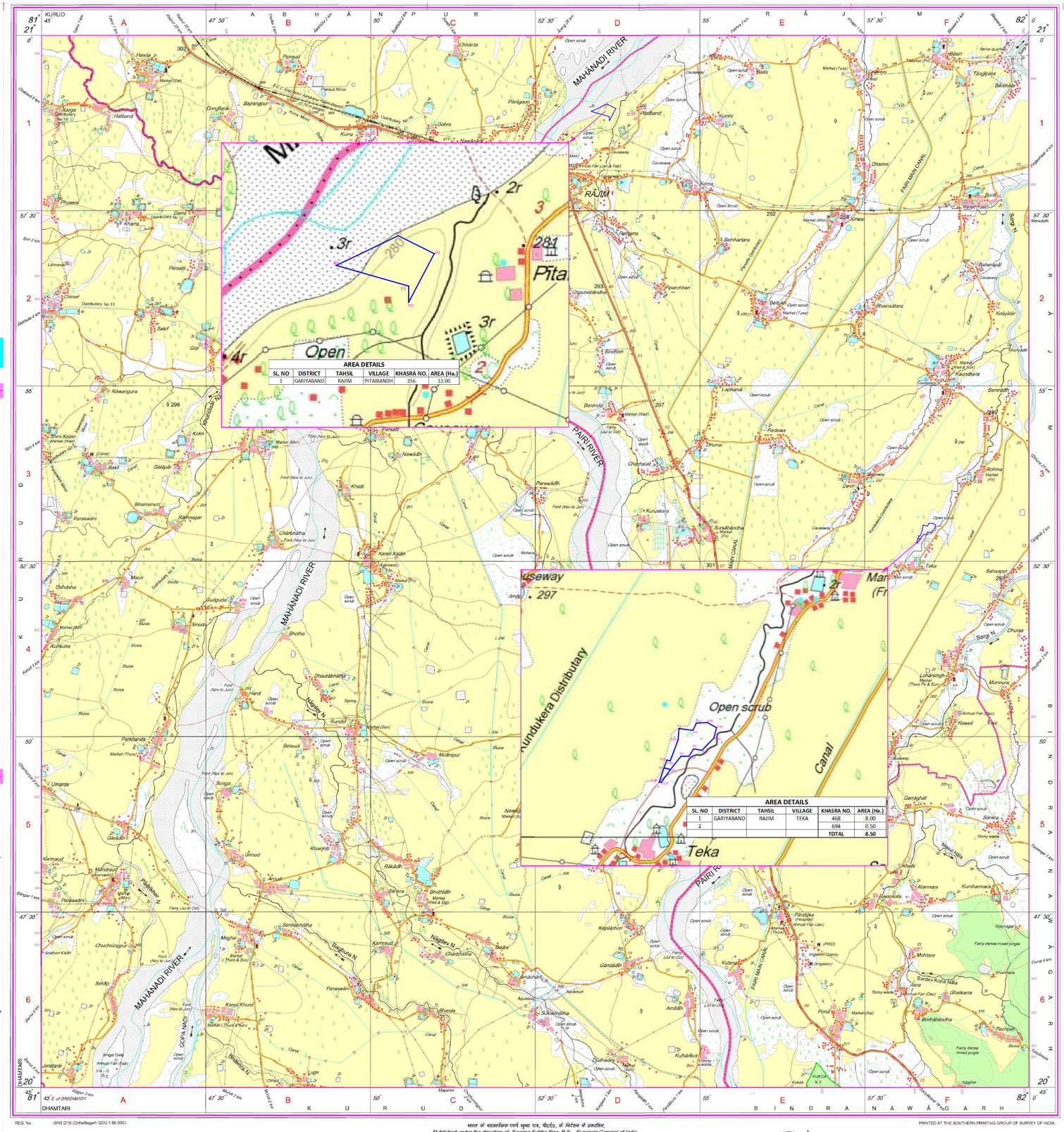
500 m to 1 cm 1:50,000 2 cm to 1 km

Metres 1000 500 0 1 2 3 Kilometres

CONTOUR INTERVAL 20 METRES

For further details about this map, please contact
Director
Chhattisgarh Geo-Spatial Data Centre
Survey of India, Pachpedi Naka
Raipur.

WEBSITE - www.surveyofindia.gov.in



REG. No. -SPD 216 (Chhattisgarh GDC-1:50,000)-

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Published under the direction of Swarna Subba Rao, B.E., *Surveyor General of India,*
Survey of India, Hathibarkala Estate, Post Box No.37, Dehra DUn-248001 (Uttarakhand),
Department of Science & Technology, Government of India.

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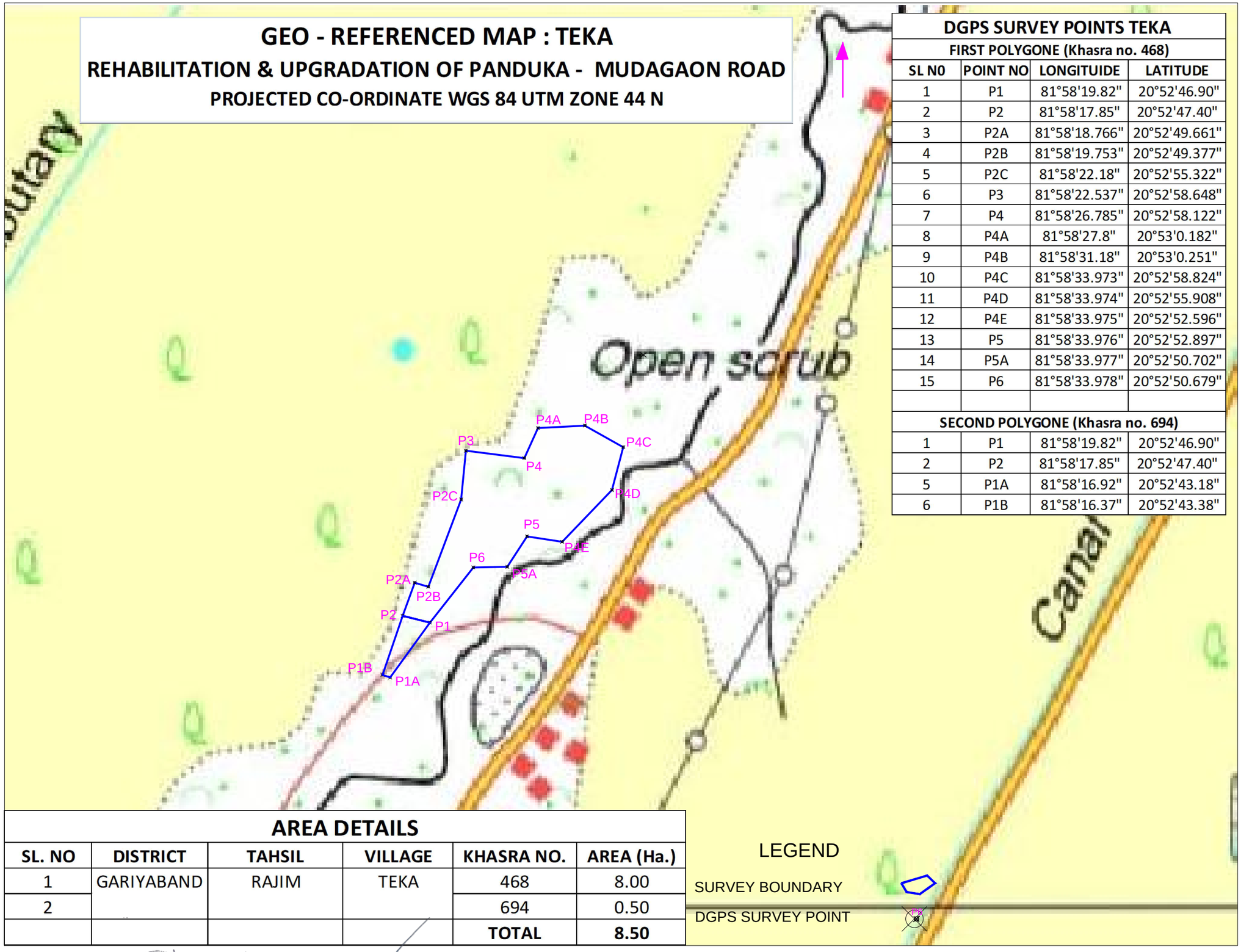
Project Manager
ADG Project PWD
C.G.R.D.P. RAIPUR

Divisional Forest Officer
Gariyaband Division Gariaband

GEO - REFERENCED MAP : TEKA

REHABILITATION & UPGRADATION OF PANDUKA - MUDAGAON ROAD

PROJECTED CO-ORDINATE WGS 84 UTM ZONE 44 N



DGPS SURVEY POINTS TEKA			
FIRST POLYGONE (Khasra no. 468)			
SL N0	POINT NO	LONGITUIDE	LATITUDE
1	P1	81°58'19.82"	20°52'46.90"
2	P2	81°58'17.85"	20°52'47.40"
3	P2A	81°58'18.766"	20°52'49.661"
4	P2B	81°58'19.753"	20°52'49.377"
5	P2C	81°58'22.18"	20°52'55.322"
6	P3	81°58'22.537"	20°52'58.648"
7	P4	81°58'26.785"	20°52'58.122"
8	P4A	81°58'27.8"	20°53'0.182"
9	P4B	81°58'31.18"	20°53'0.251"
10	P4C	81°58'33.973"	20°52'58.824"
11	P4D	81°58'33.974"	20°52'55.908"
12	P4E	81°58'33.975"	20°52'52.596"
13	P5	81°58'33.976"	20°52'52.897"
14	P5A	81°58'33.977"	20°52'50.702"
15	P6	81°58'33.978"	20°52'50.679"
SECOND POLYGONE (Khasra no. 694)			
1	P1	81°58'19.82"	20°52'46.90"
2	P2	81°58'17.85"	20°52'47.40"
5	P1A	81°58'16.92"	20°52'43.18"
6	P1B	81°58'16.37"	20°52'43.38"

AREA DETAILS					
SL. NO	DISTRICT	TAHSIL	VILLAGE	KHASRA NO.	AREA (Ha.)
1	GARIYABAND	RAJIM	TEKA	468	8.00
2				694	0.50
				TOTAL	**8.50**

LEGEND

SURVEY BOUNDARY

DGPS SURVEY POINT

Raipur

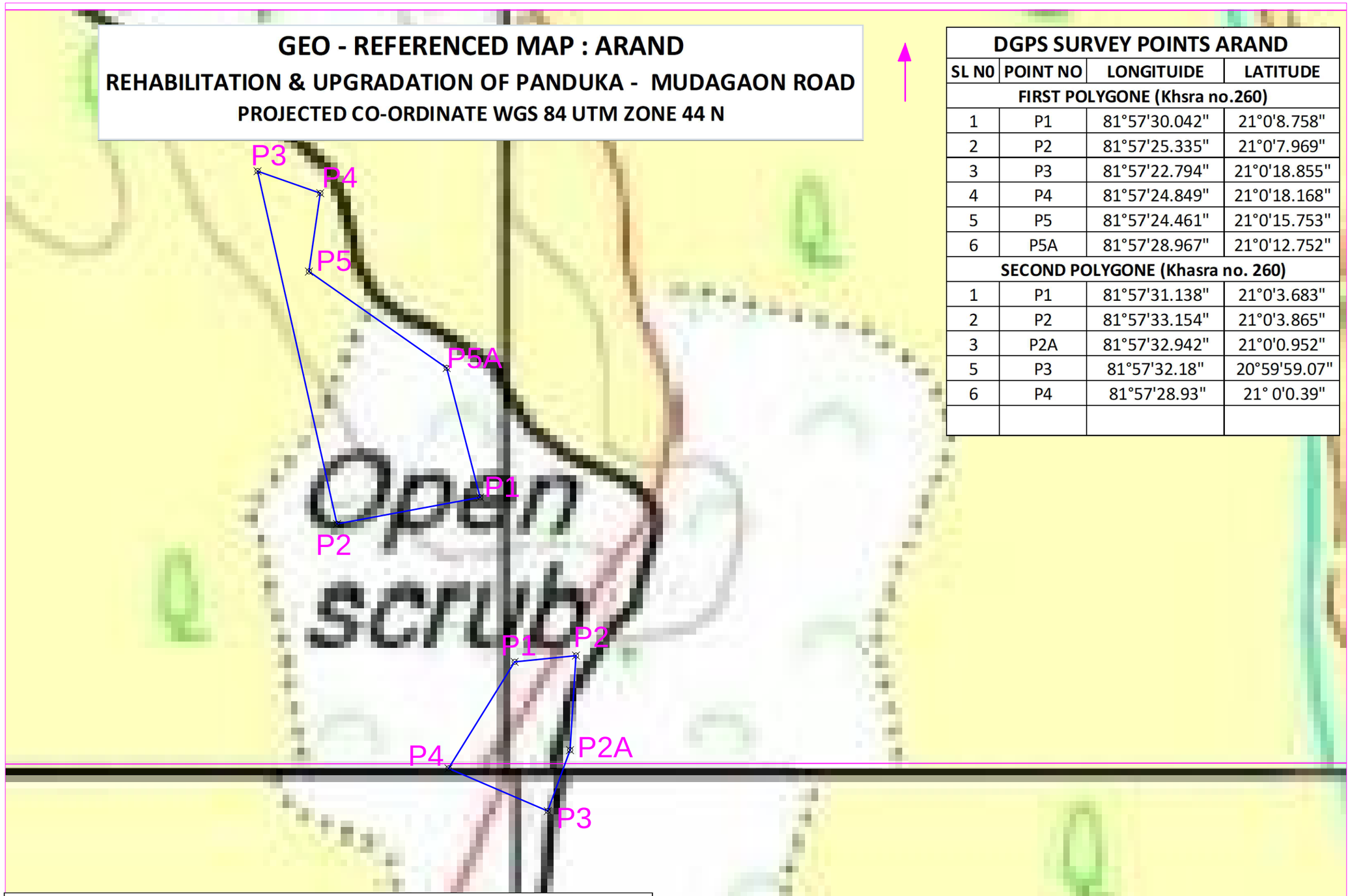
Project Manager
ADB Project PWD
C.G.R.E.P. RAIPUR

Divisional Forest Officer
Gariaband Division Gariaband

GEO - REFERENCED MAP : ARAND

REHABILITATION & UPGRADATION OF PANDUKA - MUDAGAON ROAD

PROJECTED CO-ORDINATE WGS 84 UTM ZONE 44 N



DGPS SURVEY POINTS ARAND			
SL N0	POINT NO	LONGITUIDE	LATITUDE
FIRST POLYGONE (Khsra no.260)			
1	P1	81°57'30.042"	21°0'8.758"
2	P2	81°57'25.335"	21°0'7.969"
3	P3	81°57'22.794"	21°0'18.855"
4	P4	81°57'24.849"	21°0'18.168"
5	P5	81°57'24.461"	21°0'15.753"
6	P5A	81°57'28.967"	21°0'12.752"
SECOND POLYGONE (Khasra no. 260)			
1	P1	81°57'31.138"	21°0'3.683"
2	P2	81°57'33.154"	21°0'3.865"
3	P2A	81°57'32.942"	21°0'0.952"
5	P3	81°57'32.18"	20°59'59.07"
6	P4	81°57'28.93"	21° 0'0.39"

AREA DETAILS					
SL. NO	DISTRICT	TAHSIL	VILLAGE	KHASRA NO.	AREA (Ha.)
1	GARIYABAND	RAJIM	ARAND	260	3.00
2				260	1.10
				TOTAL	**4.10**

LEGEND

SURVEY BOUNDARY

DGPS SURVEY POINT

Project Manager
ADB Project PWD
C.G.R.C.P. RAIPUR

Divisional Forest Officer
Gariaband Division Gariaband

GEO - REFERENCED MAP : PITAIBANDH

REHABILITATION & UPGRADATION OF PANDUKA - MUDAGAON ROAD

PROJECTED CO-ORDINATE WGS 84 UTM ZONE 44 N

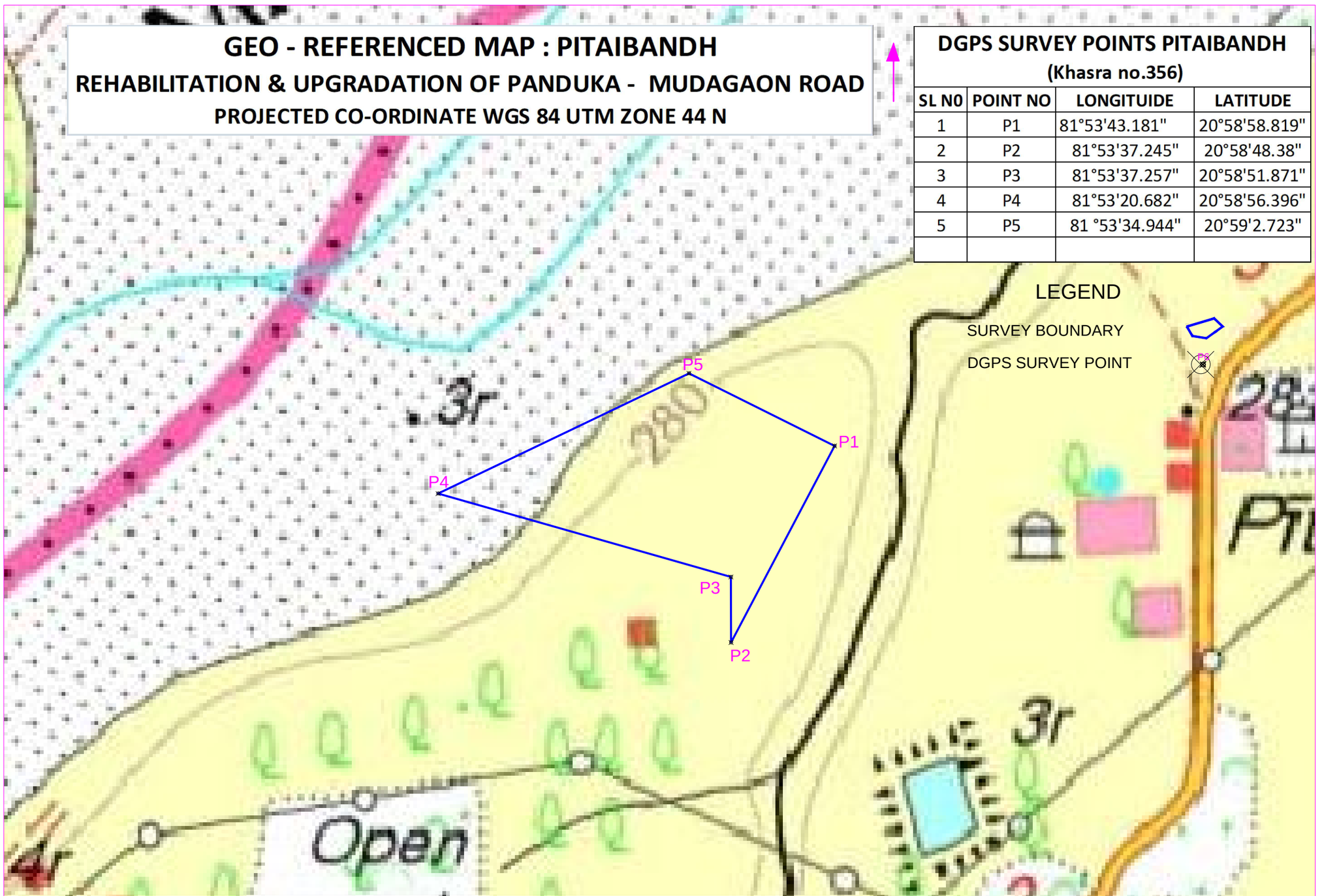
DGPS SURVEY POINTS PITAIBANDH
(Khasra no.356)

SL N0	POINT NO	LONGITUIDE	LATITUDE
1	P1	81°53'43.181"	20°58'58.819"
2	P2	81°53'37.245"	20°58'48.38"
3	P3	81°53'37.257"	20°58'51.871"
4	P4	81°53'20.682"	20°58'56.396"
5	P5	81 °53'34.944"	20°59'2.723"

LEGEND

SURVEY BOUNDARY

DGPS SURVEY POINT



AREA DETAILS

SL. NO	DISTRICT	TAHSIL	VILLAGE	KHASRA NO.	AREA (Ha.)
1	GARIYABAND	RAJIM	PITAIBANDH	356	12.00

Project Manager
ADB Project PWD
C.G.R.D.P. RAIPUR

Divisional Forest Officer
Gariaband Division Gariaband