

Reliance Jio Infocomm Limited 4G OFC
Network

DGPS Survey report for Forest Diversion of
proposed OFC Cable Route from Jaitpuri to
Patla with Route Length 25.75 Km,
in District Kondagaon



APPLICATION SUBMITTED BY:

RELIANCE JIO INFOCOMM LIMITED

DGPS SURVEY AND GIS MAPPING DONE BY:

Geotrax International Services
Raipur, Chhattisgarh.



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1. Introduction and Background

PROJECT 4G OPTICAL FIBER CABLE

1.1 Background

Reliance Jio Infocomm Limited is setting up 4G Optical Fiber Cable network across the country. In the state of Chhattisgarh, the company plans to set up the telecom network (including laying of OFC cable) along the NHAI/PWD Road corridor. Reliance Jio Infocomm is granted license by Ministry of Communications & IT, Dept. of Telecommunications, and Govt. Of India, to establish Optical Fiber Cable network under the license number 370/2011 dated. 23.06.2011 issued to M/S Infotel Broadband Services Limited (company name changed to Reliance Jio Infocomm Limited on 22.01.2013). The OFC Cable is laid under the ground at approx. depth of 1.65m and the trench width is 0.5m. The cable trench line on National Highways is approx. at a distance of 14.5m from the road centerline and for State/District highways it is approx. 7m from the road centerline.

1.2 Location and Communication

The proposed OFC Cable route from Jaitpuri to Patla is on the National Highway corridor NH-43. The route length is approx. 25.75 km. The OFC cable route falls in Pharsgaon tehsil in district Kondagaon. The survey site is located in Pharsgaon ranges of Keshkal division. The cable route's proposed starting point is Jaitpuri Latitude 19°40'48.5627" N and Longitude 81°39'26.4093" E, and the end location is Patlai at Latitude 19°53'13.4512" N and Longitude 81°38'03.0359" E. The OFC Cable route is covered under Survey of India Toposheet 65 E/09 and 65 E/110, on RF 1:50000.



1.3 Objective

As per directives of Ministry of Environment & Forests (MoEF) dated 8th July 2011; all applications for Forest Diversion, under Forest Conservation Act, 1980 must be accompanied with Geo-referenced shape file, showing the boundary of the proposed area (both soft copy and hard copy maps), prepared using Differential GPS (DGPS) and the same should be uploaded to MoEF website along with the online application.

To meet this requirement of MoEF, Reliance Jio Infocomm Limited, entrusted the DGPS survey work to M/s Geotrax International Services, Raipur, which is an empanelled agency of Directorate of Geology and Mines, Chhattisgarh (*Ref. Circular No. F-7-14/2013/12, dated. 10.11.2014*).

1.4 Geotrax Empanelment Certificate in Chhattisgarh

By Speed post 366

छत्तीसगढ़ शासन
खनिज साधन विभाग
मंत्रालय
महानदी भवन, नया रायपुर-492002
// अधिसूचना //

19 0 NOV 2014
रायपुर, दिनांक नवम्बर, 2014

क्रमांक एफ 7-14/2013/12:: राज्य शासन एतद् द्वारा चीफ कन्ट्रोलर ऑफ माइन्स, भारतीय खान ब्यूरो नागपुर के परिपत्र क्रमांक 2/2010, दिनांक 06.4.2010 के पैरा-2 के बिन्दु-2 के तारतम्य में समस्त खनिजों के खनिज रियायतों के सीमा स्तम्भ का Differential Global Positioning System (डीजीपीएस) का उपयोग करते हुए सर्वेक्षण करने के लिए तालिका में दर्शित संस्थानों को अधिमाम्यता प्रदान करता है:-

| क्र. | एजेंसी का नाम एवं पता |
|------|--|
| 1 | 2 |
| 1 | M/S SHREERAM GEMICON (PVT.) LIMITED GEOLOGICAL AND MINING CONSULTANTS L-09, Songanga Colony Seepat Road, Bilaspur (Chhattisgarh) |
| 2 | M/S SINHA MINING CONSULTANCY, GOA Office No. 9, D.Costa Commercial Apartment, Near Old Railway Station Gate, Malbhat, Margo - 403601, Goa-India |
| 3 | M/S SPATIAL PLANNING AND ANALYSIS RESEARCH CENTRE PVT. LTD. E/11, Infocity, Chandaka Industrial Estate, Bhubaneswar, Orissa, India, Pin - 751024 |
| 4 | M/S SIDDHARTH GEO CONSULTANTS, 21/3, First Floor Ramkund, Samta Colony, Behind Lifeworth Hospital, Raipur (Chhattisgarh) 492001 |
| 5 | M/S SOHAM FERRO MANGANESE PVT. LTD. Block No. 16,17 Ground Floor N.K.Y. Tower, Anjani Sq. Wardha Road, Nagpur (Maharashtra) |
| 6 | M/S SAN SURVEY ENGINEERING, HOOGHLY(WB) Regd. Off. - 465, Jiban Pal Bagan, Karbala (West), P.O. & Dist. - Hooghly, West Bengal, Pin - 712103 Contact Office - Anjali Complex, Bankim Kanan, Chinsurah Station Road, Chinsurah, Hoogly, West Bengal -712102 |
| 7 | M/S GEOTRAX INTERNATION SERVICES, HYDERABAD (TELANGANA) Plate No 156 & 157, Lokayuta Colony, Badangpet Nadergul, Hyderabad 500058, Telangana |
| 8 | M/S RAFT CONTRACTORS AND DESIGNERS, Plot No. D-36, Ground Floor, Koelnagar, Raurkela, Dist. Sundargarh, Orissa, Pin No. - 769014 |
| 9 | M/S MICRONET SOLUTION, Bisesar House, Opp. HSSC Board Office, (P.B. 85 G.P.O.) Civil Line, Nagpur, Maharashtra - 440001 |
| 10 | M/S BHARAT ALUMINIUM COMPANY LIMITED (BALCO) P.O. Balco Nagar Korba(C.G.), India, Pin 495684 |

2/ अधिमाम्यता प्राप्त संस्थानों के लिए शर्तें:-

2.1. The Survey Agency Shall Be responsible for the accuracy of the data collected and Survey.

2.2. Coordinates of boundry pillars shall be established in the World Geodetic System 1984 (WGS-84) Datum.

2.3. Each boundry pillar shall be served using DGPS, at least 2 Hours observation for its ground position.



1/21

- 2.4 The maximum distance between any two successive pillars should not be more than 100 meter.
- 2.5 All corner pillar should be of pyramid shaped with base of 1 meter and height of 2 meter and should be placed 1 meter above the ground and 1 meter below the ground.
- 2.6 Distance and bearing to the forward and backward pillars and latitudes and longitudes should be marked on all the corner pillars.
- 2.7 डीजीपीएस सर्वे कार्य हेतु पारिश्रमिक का निर्धारण अधिमान्य प्राप्त संस्थान एवं खनिज रियायतधारी के मध्य आपसी समन्वय से किया जाएगा। किसी भी प्रकार का आपसी विवाद होने पर राज्य शासन उत्तरदायी नहीं होगा।
- 2.8 डीजीपीएस सर्वे कार्य के गुणवत्ता में कमी पाये जाने पर या किसी भी प्रकार की कार्य संबंधी शिकायत पाये जाने पर जांच उपरांत राज्य शासन को यह अधिकार होगा कि उक्त अधिकृत एंजेसी की मान्यता किसी भी समय समाप्त की जा सकती है।
- 2.9 डीजीपीएस सर्वे के संबंध में भारतीय खान ब्यूरो/राज्य शासन द्वारा समय-समय पर जारी निर्देशों का पालन अधिमान्यता प्राप्त संस्थान को करना होगा।
- 2.10 राज्य शासन द्वारा जारी यह अधिमान्यता 03 वर्ष के लिए होगी। समयावधि समाप्ति से 03 माह पूर्व अधिकृत एंजेसी नवीनीकरण हेतु आवेदन कर सकेगा।
- 2.11 भारत सरकार एवं राज्य शासन द्वारा डीजीपीएस सर्वे के संबंध में समय-समय पर जारी निर्देशों का पालन किया जाना होगा।
- 3/ यह अधिमान्यता अधिसूचना के जारी होने की तिथि से 03 वर्ष के लिए होगी।

छत्तीसगढ़ के राज्यपाल के नाम से
तथा आदेशानुसार,

(सुबोध कुमार सिंह)
सचिव

छत्तीसगढ़ शासन
खनिज साधन विभाग

पृ. क्रमांक एफ 7-14/2013/12
प्रतिलिपि:-

रायपुर, दिनांक नवम्बर, 2014

1. सचिव, भारत सरकार, खान मंत्रालय, शास्त्री भवन, नई दिल्ली,
2. कंट्रोलर जनरल, भारतीय खान ब्यूरो, सेकण्ड फ्लोर, ए-ब्लॉक, इन्दरा भवन, सिविल लाईन, नागपुर (महाराष्ट्र)
3. चीफ कंट्रोलर ऑफ माईन्स, भारतीय खान ब्यूरो, सेकण्ड फ्लोर, ए-ब्लॉक, इन्दरा भवन, सिविल लाईन, नागपुर (महाराष्ट्र)
4. क्षेत्रीय खान नियंत्रक, भारतीय खान ब्यूरो, छटवां तल, बी एवं सी -ब्लॉक, इन्दरा भवन, सिविल लाईन, नागपुर (महाराष्ट्र)
5. संचालक, भौमिकी तथा खनिकर्म, छत्तीसगढ़ ब्लॉक-4, द्वितीय तल, इन्द्रावती भवन, नया रायपुर,
6. समस्त कलेक्टर, जिला ----- छत्तीसगढ़

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304

7.1

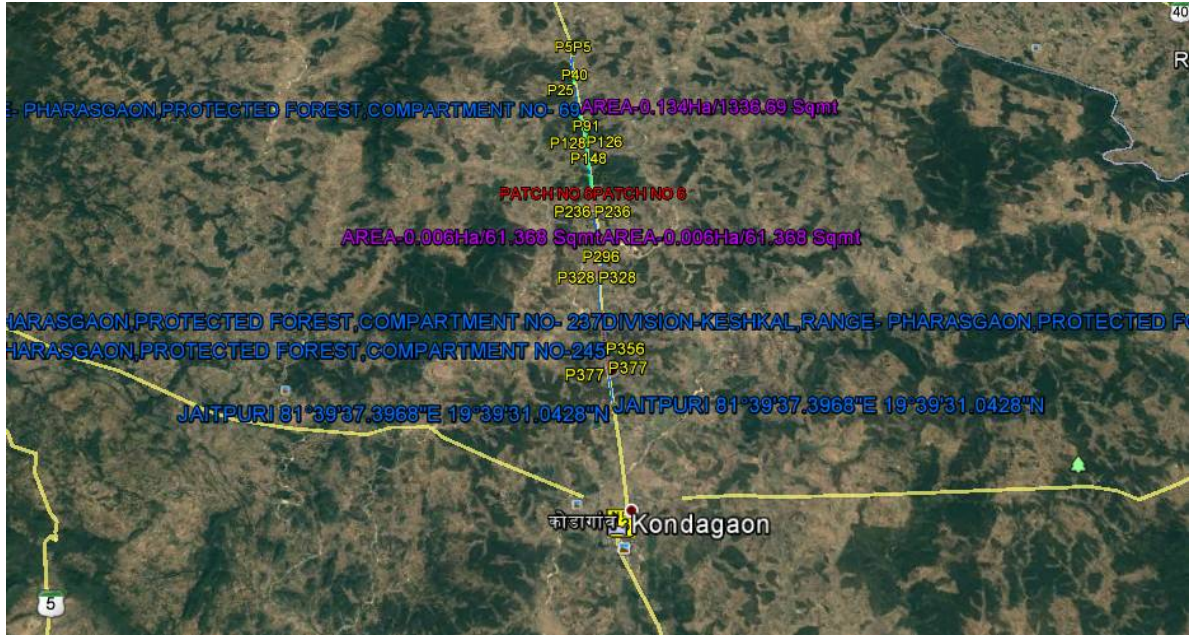
समस्त संबंधित

- की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु
8. संचालक, शासकीय मुद्रणालय, गोंदवारा, भनपुरी, रायपुर(छत्तीसगढ़) की ओर राजपत्र में प्रकाशनार्थ।
9. श्री श्रीकांत राव, सहायक भौमिकी विद्, संचालनालय भौमिकी तथा खनिकर्म, द्वितीय फ्लौर, इन्द्रावती भवन, नया रायपुर। कृपया उक्त आदेश/अधिसूचना को संचालनालय की वेबसाईट में अपलोड करने का कष्ट करें।
10. गार्ड फाईल रजिस्टर

सचिव

abf

छत्तीसगढ़ शासन
खनिज साधन विभाग



Not to Scale

Fig-1: Jaitpuri to Patla 4G OFC Cable Proposed Route on Satellite Imagery

2. Scope of Work

1. Establishment of one base station with 72 Hours observation and secondary control points at every 10km along the proposed route.
2. DGPS Survey for collection of ground coordinates along the OFC Cable trench at every 50m interval and/or at every turn/bend along the proposed trench. The DGPS data is collected at forest patches only.
3. Data processing and Interpretation
 - a. Geo-referencing of SOI Toposheet (1:50000), Forest Stock map (1:15000, if available) and satellite imagery
 - b. Creation of OFC Cable trench boundary vector map using the DGPS Surveyed data
 - c. Superimposition of cable route layer on Georeferenced forest maps, SOI Toposheet and Satellite imagery.
 - d. Computation of Forest area proposed for diversion. It includes Reserved/Protected Forest & Revenue Forest.
 - e. Preparation of Geo-referenced forest map at 1:15000 scale, and SOI Toposheet at 1:50000 scale.
 - f. Preparation of DGPS survey report along with soft copy of – maps in shapefile format and kml file
4. Printing of report and Geo-referenced maps and Technical compliance.

3. Deliverables

The deliverables envisaged for the assignment are described below

1. Post processed DGPS observations data as well as raw data in RINEX format.
2. DGPS Reports - Base line & network adjustment report for the primary and Secondary Control Points.
3. Geo-referenced SOI maps & forest block maps based on DGPS observations – Hard and Soft Copy (SHP and KML formats).
4. Proposed Forest Diversion area statement as per DGPS Survey
5. DGPS Survey and mapping report

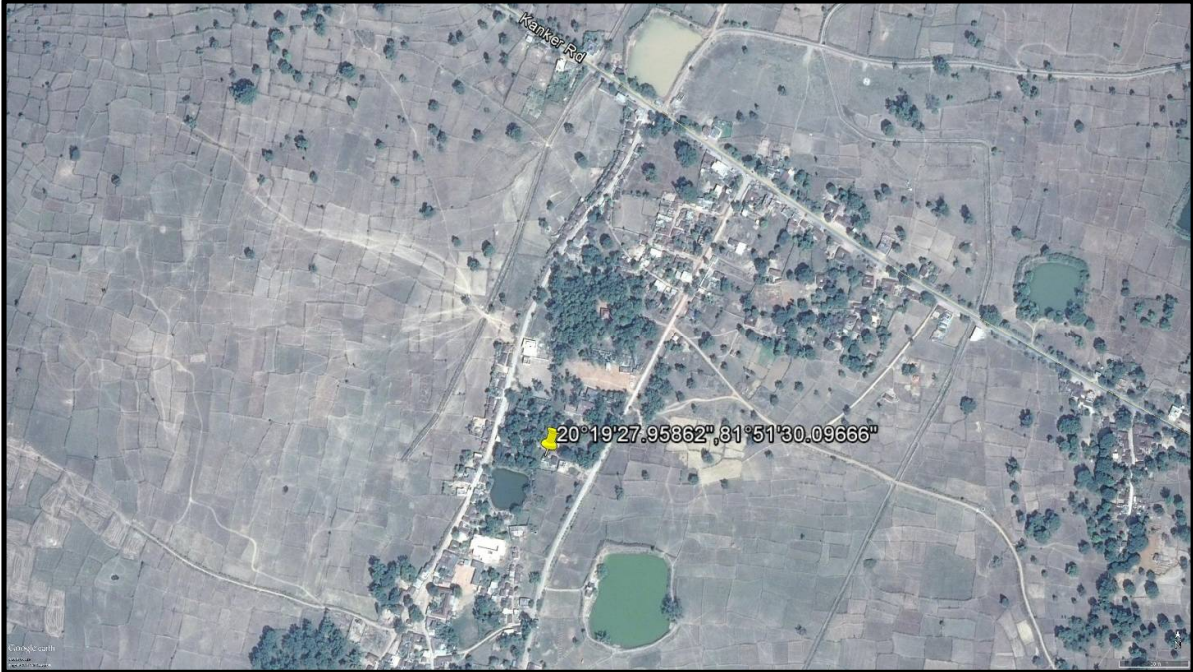
4. Brief description of the Technical approach

4.1 Input Data

The proposed 4G Cable Route plan is shown on the ground by the engineer/ Vendor of Reliance Jio Infocomm Ltd (RJIL). The Forest & SOI maps required for geo-referencing were provided by Reliance Jio Infocomm Limited. It is proposed that the cable is laid within the ROW of the NHAI/PWD road corridor. The cable trench is laid at a depth of 1.65m below ground and the trench width is 0.5m. The revenue village maps were collected from NIC online website (<http://cg.nic.in/bhunaksha/>). The revenue forest information & details are collected from the District Revenue department and were provided by RJIL.

4.2 GIS Data Preparation

Based on the input data and information provided, the DGPS base station - Primary and Temporary Benchmarks Control Points (PCP and TBM) in the project area are planned. One PCP with 72 hours observation is planned and established on the roof top of the Forest Department office, Birgudi Range, Dhamtari.



Not to Scale

Fig-2: Satellite Image showing the location of the Primary Control Point

4.3 Establishment of Primary Control Point (PCP)

The Primary Control Point (PCP) with 72 hours of DGPS Observation was established as the DGPS base station. The PCP was established in the Forest Department office of Birgudi Range in Dhamtari division. As per Survey of India (SOI) Guideline, the PCP is to be fixed through continuous observation for 72 hours duration. The 72 hours of observation was carried out using DGPS from 8thMarch 2016 to 11thMarch 2016. The observed data was processed with reference to the data of International GNSS Service (IGS) stations as per SOI guideline (IGS processed report is enclosed as Annexure-1).

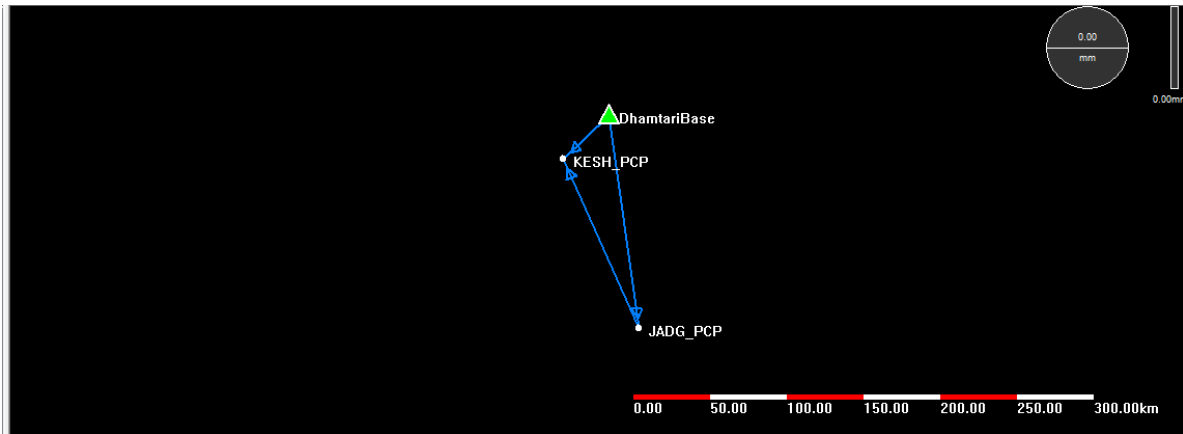
| Station (s) | Submitted File | Antenna Type | Antenna | Start Time | End Time |
|-------------|------------------|--------------|------------|-------------------|--------------------|
| | | | Height (m) | | |
| DhamtariPCP | 03102966068t.160 | CNT300 | 1.835 | 3/8/2016 11:05 | 3/11/2016 11:08 |

The coordinate of the PCP is as follows:

| Station | Latitude (d:m:s) | Longitude (d:m:s) | Ellipsoidal Height (m) |
|-----------------------------------|------------------|-------------------|------------------------|
| PCP Base @ Forest Office, Birgudi | 20°19'27.95862" | 81°51'30.09666" | 526.826219 |

4.4 Establishment of Temporary Benchmarks (TBM)

The Temporary Control Point with 24hours of static observation was established in Jagdalpur(Station ID: **JADG_PCP**) and Keshkal (Station ID: **KESH_PCP**).The TBM are post-processed using the Dhamtari Base.



| | Grid | | WGS84 | |
|-----------|-----------|-------------|---------------------|------------------|
| | JADG_PCP | North(m) | 2109591.622 | Latitude |
| East(m) | | 608826.178 | Longitude | 82°02'03.86504"E |
| Height(m) | | 491.344 | Ellipsoid Height(m) | 491.344 |
| KESH_PCP | North(m) | 2218861.487 | Latitude | 20°03'56.56788"N |
| | East(m) | 561503.883 | Longitude | 81°35'17.51417"E |
| | Height(m) | 615.101 | Ellipsoid Height(m) | 615.101 |

4.5 DGPS Survey Procedure

DGPS survey was carried out using a pair of DGPS instrument. One DGPS Instrument was used as Base Station. The first base station for the survey was established at the nearest TBM (**JADG_PCP**). The base is shifted using the Real Time Kinematic Survey method. The distance between the Base Station TBM and rover was always less than 5km.

The other DGPS instrument was working as Rover. The survey was conducted in Real Time Kinematic (RTK) mode. The Survey team carried out DGPS Survey of boundary points by walking along the proposed cable trench



boundary. DGPS readings were collected at every 50m distance along trench and at every turn or bend. For Geo-referencing village maps around 5 GCPs were collected for the eachvillage having Govt. Forest Land.

During the survey the start and end of forest patch was identified in the field with the help of staff from the forest department. The forest department staff also provided information regarding the forest range, compartment number etc.

The static data is Post Processed using Trimble Business Centre software for obtaining the TBM coordinates.

4.6 Creation of Vector Layers

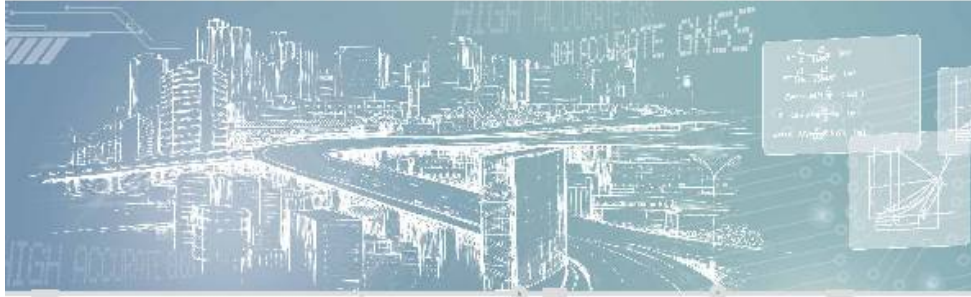
The surveyed points captured through DGPS were plotted in the GIS Software and the Polygon and Polylinelayers are created using the DGPS Surveyed points. Different layers such as the Forest Patch polygon, Forest Trench centerline, Non-Forest Trench line, polygon showing Revenue forest patches (ChoteJadka Jungle + Bade JadKa Jungle) etc., are prepared. The vector layers prepared are then super-imposed on the Geo-referenced Forest map and Cadastral maps.

4.7 Specification of DGPS Equipment

Geotrax deployed the most advance and hi-precision devices to carry out the DGPS survey. The DGPS performance specifications are given below. The corresponding fact sheets are placed below for ready reference.

COMNAV

T300 GNSS Receiver



Features

- *Ultra small*
- *Super light*
- *Many user-friendly conveniences built in*
- *GPS L1/L2/L5, BeiDou B1/B2/B3, GLONASS L1/L2*
- *Low power consumption*
- *Support long baseline E-RTK**

RTK robust enough for challenging environments, in a device that is light and easy to carry

With decades of experience in the surveying GNSS receiver, the T300 is a product which combines lots of market proved advantages together. It can track all the working GNSS constellations. By using ComNav's unique QUAN™ algorithm technology, it can function in RTK mode with all the GNSS constellations or by using any single GNSS constellation such as GLONASS or BeiDou. The strong anti-interference ability of the receiver makes it possible to work in any environment.

Design driven to improve user experience

Our R&D people are always thinking about how to improve the physical experience of users and workflow in the field. With this in mind, the T300 integrates a cutting edge GNSS board, Bluetooth®, UHF (Rx&Tx) into a compact board. Smart design makes the T300 the lightest and smallest (volume) receiver in the world.

Hot swap battery design

Extending the field working time is also a passion for our R&D people. They do lots of tests and analysis to reduce the power consumption, and make the whole system work more efficiently. In parallel, they've designed in the capability to hot swap the battery source. When the warning sounds and LED flashes, put your second battery in place. Then recharge the first while you keep working.

Consumer grade batteries... always available

Losing power in the field is significantly inconvenient for users, as the batteries for GNSS receivers are often unusual types and not readily available. Once again our R&D people developed a solution so that the T300 runs on normal consumer batteries.

Technical Specifications

T300

Signal Tracking

- 256 channels with simultaneously tracked satellite signals
- GPS: L1 C/A, L1 C, L2 P, L5
- BeiDou: B1, B2, B3
- GLONASS: L1, L2
- SBAS: WAAS, EGNOS, MSAS, GAGAN

Performance Specifications

- Cold start: <50 s
- Warm start: <30 s
- Hot start: <15 s
- Initialization time: <10 s
- Singal re-acquisition: <2 s
- Initialization reliability: >99.9%

Positioning Specifications

- Post Processing Static
 - Horizontal: 2.5 mm + 0.5 ppm RMS
 - Vertical: 5 mm + 0.5 ppm RMS
- Real Time Kinematic
 - Horizontal: 8 mm + 1 ppm RMS
 - Vertical: 15 mm + 1 ppm RMS
- E-RTK¹ (baseline <100 km)
 - Horizontal: 0.2 m + 1 ppm RMS
 - Vertical: 0.4 m + 1 ppm RMS
- Code differential GNSS positioning
 - Horizontal: 0.25 m+ 1 ppm RMS
 - Vertical: 0.5 m + 1 ppm RMS
- SBAS: Typically <1 m 3D RMS
- Standalone: <1.5 m 3D RMS

Communications and Memory

- 1 Serial port (7 pin Lemo), Baud rates up to 921,600 bps.
- Radio modem: Tx/Rx with full frequency range from 410-470 MHz²
 - Transmit power: 0.5-2W adjustable
 - Range: 1-4 km
- Position data output rates: 1 Hz, 2 Hz, 5 Hz, 10 Hz
- 5 LEDs (indicating Power, Satellite Tracking, Bluetooth[®] and Differential Data)
- Bluetooth[®]: V 2.X protocol, work compatible with Windows 7, Windows mobile and Android

Data Format

- Correction data I/O:
 - RTCM 2.x, 3.x, CMR (GPS only), CMR+ (GPS only).
- Position data output:
 - ASCII: NMEA-0183 GSV, RMC, HDT, VHD, GGA, GSA, ZDA, VTG, GST, PJK, PTNL
 - ComNav Binary update to 20 Hz

Physical

- Size(WxH): 15.8 cm x 7.5 cm
- Weight: 0.95 kg (include 2 batteries)

Environmental

- Operating temperature: -40 °C to +65 °C (40 °F to 149 °F)
- Storage temperature: -40 °C to +85 °C (40 °F to 185 °F)
- Humidity: 100% condensation
- Waterproof and dust proof: IP67 protected from temporary immersion to depth of 1 meter, floats
- Shock: survives a 2 meter drop on to concrete

Electrical

- Input Voltage: 5-27 VDC
- Power consumption: 2.85 W (3 constellations)³
- Li-ion battery capacity: 2 x 1800 mAh, up to 8 hours typically
- Memory: 256 MB internal with up to 16 GB pluggable memory card

Software

- ComNav field data collection software CGSurvey
- Carlson's SurvCE field data collection software (optional)
- MicroSurvey's FieldGenius field data collection software (optional)

¹ E-RTK, BeiDou B3 signal used in RTK calculate engine; concern the current situation, this mode can be used in APAC.

² 410-470 MHz, 3 frequency range, 410-430, 430-460, 460-470, need to clarify when place the order.

³ Power consumption will increase if using internal radio modem transmitter.

Specifications subject to change without notice.

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Fax: +86 21 54309582

Email: sales@comnavtech.com
www.comnavtech.com

5. Results

The total route length from Jaitpuri to Patla is approx. 25.75 km and the proposed forest area for diversion is 0.674 Ha. DGPS Survey processing report and co-ordinates of the PCP are in Annexure-1, and DGPS coordinates of TBM and forest patch boundary coordinates is in Annexure-2. The geo-referenced maps are in Annexure -3.

AREA STATEMENT

| Jaitpuri to Patla- Proposed Forest Diversion Area Statement | | | |
|--|---|-----------------------------------|--|
| Total Route Length (in KM) | Total Forest Patch Length (in KM) | OFC Cable Trench Width (in KM) | Total Forest Diversion Area (in HA) |
| 25.75 | 13.48 | 0.0005 | 0.674 |

| Jaitpuri to Patla - Details of Reserved/Protected Forest Land | | | | | | |
|--|--------------|----------|------------|------------------|--------------------|------------------------|
| SL. NO | PATCH NUMBER | DIVISION | RANGE | COMPARTMENT TYPE | COMPARTMENT NUMBER | DIVERSION AREA (in HA) |
| 1 | 5 | KESHKAL | PHARASGAON | PROTECTED FOREST | 81 | 0.024 |
| 2 | 13 | | | PROTECTED FOREST | 237 | 0.038 |
| 3 | 14 | | | PROTECTED FOREST | 245 | 0.044 |
| 4 | 15 | | | PROTECTED FOREST | 245 | 0.030 |
| 5 | 11 | | | PROTECTED FOREST | 232 | 0.022 |
| 6 | 3 | | | RESERVED FOREST | 69 | 0.134 |
| 7 | 2 | | | RESERVED FOREST | 64 | 0.032 |
| 8 | 4 | | | RESERVED FOREST | 75 | 0.047 |
| 9 | 3 | | | RESERVED FOREST | 68 | 0.021 |
| 10 | 3 | | | RESERVED FOREST | 71 | 0.036 |
| 11 | 3 | | | RESERVED FOREST | 75 | 0.001 |
| 12 | 3 | | | RESERVED FOREST | 73 | 0.070 |
| 13 | 15 | | | ORANGE AREA | 293 | 0.004 |
| Total Protected/Reserved Forest Area (A) | | | | | | 0.500 |

| Jaitpuri to Patla - Details of Revenue Forest Land | | | | | | |
|---|---------------------|-----------------|---------------|---------------------|----------------------|-------------------------------|
| SL. NO | PATCH NUMBER | DISTRICT | TALUKA | VILLAGE NAME | KHASRA NUMBER | DIVERSION AREA (in HA) |
| 1 | 1 | KONDAGAON | PHARASGAON | CHICHARI | 1/26 KA | 0.003 |
| 2 | 2 | | | PATLA | 55/4 | 0.004 |
| 3 | 2 | | | PHARASGAON | 4/8 | 0.014 |
| 4 | 2 | | | PHARASGAON | 4/22 | 0.016 |
| 5 | 4 | | | SARBERA | 1/2,1/6 | 0.005 |
| 6 | 6 | | | KULHARGAON | 7/52 | 0.006 |
| 7 | 6 | | | KULHARGAON | 7/49 KA | 0.005 |
| 8 | 7 | | | KULHARGAON | 7/45,7/48 | 0.096 |
| 9 | 8 | | | JUGNIKALAR | 50/42 | 0.005 |
| 10 | 8 | | | JUGNIKALAR | 19/18 | 0.013 |
| 11 | 9 | | | SIRPUR | 74/1 | 0.021 |
| 12 | 10 | | | SIRPUR | 98/1,98/8 | 0.008 |
| 13 | 11 | | | LANJORA | 205/6 | 0.010 |
| 14 | 12 | | | KOSAGAON | 43,44/1 KA | 0.002 |
| Total Revenue Forest Area | | | | | | 0.174 |



6. Background of Organization

6.1 Company Profile: Geotrax

Geotrax International Services (www.geotrax.in) is a Professional Land Mapping and Services provider across India established in the year 1999. During the last 14+ years, we had an opportunity to execute a variety of surveying jobs all over India and in the Middle East to various customer specifications for RIS, LIS, and Municipal GIS oriented jobs. Cadastral Surveys using ETS/DGPS and Provision of Ground control conforming to stringent accuracy standards using high end instruments as RTK/GPRS DGPS is our specialty. We also have a UAV (Drone) and Ground Penetrating Radar (on Roaster).

Geotrax is headed by Mr. V.V.S Bandhakavi (Ex-Survey of India employee) who has more than 40+ years' experience in the field of surveying in India and abroad.

Some of our major clients include:

- Odisha Space Application Centre (ORSAC)
- Steel Authority of India (SAIL)
- National Thermal Power Corporation (NTPC)
- Survey Settlement and Land Records Department (Govt. Of Gujarat)
- Survey Settlement and Land Records Department (Govt. Of Madhya Pradesh)
- Irrigation Dept. (Govt. of Jammu and Kashmir)
- National Remote Sensing Agency (Hyderabad)
- Meinhardt India Private Limited (Delhi),
- Nagarjuna Construction Company (NCC, Hyderabad)
- Consulting Engineering Services (CES, New Delhi)
- Lee Associates of South Asia (LASA, Delhi)
- Power development Corporation (Govt. of Jammu and Kashmir)

Geotrax expertise covers:

- ❖ DGPS Surveys for Mining lease boundary, and Forest Diversion
- ❖ Consultancy services for Mining Plan & EIA
- ❖ Boundary and cadastral surveys using DGPS and Total station;
- ❖ Topographic surveys.
- ❖ Ground control surveys for photogrammetric projects, including Airborne GPS.



- ❖ Only one of the two companies in India who are empanelled by NRSA for DGPS survey for ground control point collection
- ❖ Route and alignment surveys combining conventional and photogrammetric methods.
- ❖ Construction and cross-section surveys (from road design to precision layout and quality control).

Being a client focused organization, GeoTrax's combination of survey equipment, personnel, and computer resources allow for the tailoring of the project approach to match the orders of accuracy and precision requirements for each project. GeoTrax's equipment resources include 250 DGPS, 33 hand-held GPS units, theodolites, electronic digital and automatic levels, 19 Electronic Total Stations, and data collectors.

On the mapping side, our CAD and GIS professionals assist the survey projects by creating accurate maps. We have dedicated CAD experts who have extensive experience with different CAD software.

7. Annexure

7.1 Annexure – 1: PCP Observation Processing Report



AUSPOS GPS Processing Report

March 13, 2016

This document is a report of the GPS data processing undertaken by the AUSPOS Online GPS Processing Service (version: AUSPOS 2.2) . The AUSPOS Online GPS Processing Service uses International GNSS Service (IGS) products (final, rapid, ultra-rapid depending on availability) to compute precise coordinates in ITRF anywhere on Earth and GDA94 within Australia. The Service is designed to process only dual frequency GPS phase data.

An overview of the GPS processing strategy is included in this report.

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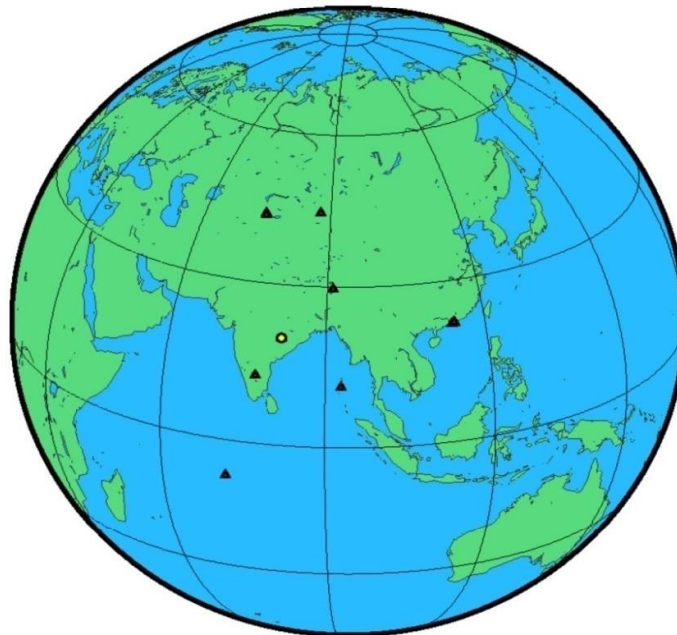


1 User Data

All antenna heights refer to the vertical distance from the Ground Mark to the Antenna Reference Point (ARP).

| Station (s) | Submitted File | Antenna Type | Antenna Height (m) | Start Time | End Time |
|-------------|------------------|--------------|--------------------|---------------------|---------------------|
| 0310 | 03102966068t.160 | NONE NONE | 1.835 | 2016/03/08 11:05:00 | 2016/03/11 11:08:00 |

2 Processing Summary



| Date | User Stations | Reference Stations | Orbit Type |
|---------------------|---------------|---|------------|
| 2016/03/08 11:05:00 | 0310 | CHUM COAL DGAR FOMO HKNP HKSC HKSL IISC LHAZ PBRI POL2 URUM | IGS rapid |

Remark: An IGS Rapid Orbit product has been used in this computation, IGS Rapid orbits are usually of very high quality. However, to ensure you achieve the highest quality coordinates please resubmit approximately 2 weeks after the observation session end to ensure the use of the IGS Final Orbit product.



3 Computed Coordinates, ITRF2008

All computed coordinates are based on the IGS realisation of the ITRF2008 reference frame. All the given ITRF2008 coordinates refer to a mean epoch of the site observation data. All coordinates refer to the Ground Mark.

3.1 Cartesian, ITRF2008

| Station | X (m) | Y (m) | Z (m) | ITRF2008 @ |
|---------|--------------|-------------|-------------|------------|
| 0310 | 847431.032 | 5923497.015 | 2201542.645 | 08/03/2016 |
| CHUM | 1228950.494 | 4508079.980 | 4327868.536 | 08/03/2016 |
| COAL | -2363061.244 | 5418784.895 | 2386861.974 | 08/03/2016 |
| DGAR | 1916268.941 | 6029977.645 | -801719.532 | 08/03/2016 |
| FOMO | -2359952.443 | 5416530.098 | 2394688.441 | 08/03/2016 |
| HKNP | -2392360.793 | 5400226.084 | 2400094.284 | 08/03/2016 |
| HKSC | -2414267.443 | 5386768.794 | 2407459.846 | 08/03/2016 |
| HKSL | -2393382.945 | 5393860.986 | 2412592.226 | 08/03/2016 |
| IISC | 1337935.984 | 6070317.122 | 1427877.174 | 08/03/2016 |
| LHAZ | -106941.954 | 5549269.791 | 3139215.168 | 08/03/2016 |
| PBRI | -295635.867 | 6240848.757 | 1278178.473 | 08/03/2016 |
| POL2 | 1239971.069 | 4530790.141 | 4302578.862 | 08/03/2016 |
| URUM | 193030.282 | 4606851.294 | 4393311.529 | 08/03/2016 |

3.2 Geodetic, GRS80 Ellipsoid, ITRF2008

Geoid-ellipsoidal separations, in this section, are computed using a spherical harmonic synthesis of the global EGM2008 geoid. More information on the EGM2008 geoid can be found at <http://earth-info.nga.mil/GandG/wgs84/gravitymod/egm2008/>

| Station | Latitude (DMS) | Longitude (DMS) | Ellipsoidal Height(m) | Derived Above Geoid Height(m) |
|---------|----------------|-----------------|-----------------------|-------------------------------|
| 0310 | 20 19 27.95862 | 81 51 30.09666 | 374.523 | 439.432 |
| CHUM | 42 59 54.60521 | 74 45 03.96822 | 716.346 | 759.336 |
| COAL | 22 07 14.46822 | 113 33 40.99130 | 169.428 | 173.849 |
| DGAR | -7 16 10.85492 | 72 22 12.87672 | -64.945 | 8.936 |
| FOMO | 22 11 50.69337 | 113 32 32.97380 | 56.639 | 61.324 |
| HKNP | 22 14 56.63138 | 113 53 37.96948 | 350.665 | 354.011 |
| HKSC | 22 19 19.81344 | 114 08 28.29612 | 20.203 | 22.659 |
| HKSL | 22 22 19.21124 | 113 55 40.75260 | 95.266 | 98.809 |
| IISC | 13 01 16.21017 | 77 34 13.36859 | 843.700 | 929.621 |
| LHAZ | 29 39 26.40107 | 91 06 14.51053 | 3624.609 | 3659.300 |
| PBRI | 11 38 16.00933 | 92 42 43.69169 | -22.497 | 38.437 |
| POL2 | 42 40 47.17396 | 74 41 39.36737 | 1714.214 | 1754.280 |
| URUM | 43 48 28.61949 | 87 36 02.41330 | 858.876 | 922.255 |



3.3 Positional Uncertainty (95% C.L.) - Geodetic, ITRF2008

| Station | Longitude(East) (m) | Latitude(North) (m) | Ellipsoidal Height(Up) (m) |
|---------|---------------------|---------------------|----------------------------|
| 0310 | 0.006 | 0.005 | 0.011 |
| CHUM | 0.006 | 0.005 | 0.009 |
| COAL | 0.008 | 0.005 | 0.010 |
| DGAR | 0.007 | 0.007 | 0.015 |
| FOMD | 0.008 | 0.005 | 0.010 |
| HKNP | 0.008 | 0.005 | 0.009 |
| HKSC | 0.008 | 0.005 | 0.010 |
| HKSL | 0.008 | 0.005 | 0.009 |
| IISC | 0.006 | 0.005 | 0.010 |
| LHAZ | 0.006 | 0.005 | 0.010 |
| PBRI | 0.006 | 0.005 | 0.010 |
| POL2 | 0.006 | 0.005 | 0.009 |
| URUM | 0.006 | 0.005 | 0.008 |



4 Ambiguity Resolution - Per Baseline

| Baseline | Ambiguities Resolved | Baseline Length (km) |
|-------------|----------------------|----------------------|
| CHUM - POL2 | 94.5 % | 35.732 |
| DGAR - IISC | 88.9 % | 2303.736 |
| CHUM - URUM | 90.6 % | 1042.674 |
| HKSC - HKSL | 84.8 % | 22.645 |
| COAL - HKNP | 92.0 % | 37.121 |
| HKNP - URUM | 67.2 % | 3359.554 |
| HKNP - HKSL | 85.1 % | 14.063 |
| HKNP - PBRI | 66.7 % | 2522.221 |
| 0310 - IISC | 94.5 % | 927.744 |
| LHAZ - PBRI | 70.9 % | 1994.328 |
| 0310 - PBRI | 75.0 % | 1503.302 |
| COAL - FOMO | 91.4 % | 8.718 |
| AVERAGE | 83.5% | 1147.653 |

Please note for a regional solution, such as used by AUSPOS, ambiguity resolution success rate of 50% or better for a baseline formed by a user site indicates a reliable solution.



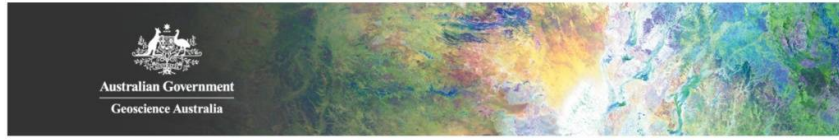
5 Computation Standards

5.1 Computation System

| | |
|----------------|------------------------------------|
| Software | Bernese GNSS Software Version 5.2. |
| GNSS system(s) | GPS only. |

5.2 Data Preprocessing and Measurement Modelling

| | |
|--|--|
| Data preprocessing | Phase preprocessing is undertaken in a baseline by baseline mode using triple-differences. In most cases, cycle slips are fixed by the simultaneous analysis of different linear combinations of L1 and L2. If a cycle slip cannot be fixed reliably, bad data points are removed or new ambiguities are set up. A data screening step on the basis of weighted postfit residuals is also performed, and outliers are removed. |
| Basic observable | Carrier phase with an elevation angle cutoff of 7° and a sampling rate of 3 minutes. However, data cleaning is performed a sampling rate of 30 seconds. Elevation dependent weighting is applied according to $1/\sin(e)^2$ where e is the satellite elevation. |
| Modelled observable | Double differences of the ionosphere-free linear combination. |
| Ground antenna phase centre calibrations | IGS08 absolute phase-centre variation model is applied. |
| Tropospheric Model | A priori model is the GMF mapped with the DRY-GMF. |
| Tropospheric Estimation | Zenith delay corrections are estimated relying on the WET-GMF mapping function in intervals of 2 hour. N-S and E-W horizontal delay parameters are solved for every 24 hours. |
| Tropospheric Mapping Function | GMF |
| Ionosphere | First-order effect eliminated by forming the ionosphere-free linear combination of L1 and L2. Second and third effect applied. |
| Tidal displacements | Solid earth tidal displacements are derived from the complete model from the IERS Conventions 2010, but ocean tide loading is not applied. |
| Atmospheric loading | Applied |
| Satellite centre of mass correction | IGS08 phase-centre variation model applied |
| Satellite phase centre calibration | IGS08 phase-centre variation model applied |
| Satellite trajectories | Best available IGS products. |
| Earth Orientation | Best available IGS products. |



5.3 Estimation Process

| | |
|------------------------|---|
| Adjustment | Weighted least-squares algorithm. |
| Station coordinates | Coordinate constraints are applied at the Reference sites with standard deviation of 1mm and 2mm for horizontal and vertical components respectively. |
| Troposphere | Zenith delay parameters and pairs of horizontal delay gradient parameters are estimated for each station in intervals of 2 hours and 24 hours. |
| Ionospheric correction | An ionospheric map derived from the contributing reference stations is used to aid ambiguity resolution. |
| Ambiguity | Ambiguities are resolved in a baseline-by-baseline mode using the Code-Based strategy for 180-6000km baselines, the Phase-Based L5/L3 strategy for 18-200km baselines, the Quasi-Ionosphere-Free (QIF) strategy for 18-2000km baselines and the Direct L1/L2 strategy for 0-20km baselines. |

5.4 Reference Frame and Coordinate Uncertainty

| | |
|-----------------------------|--|
| Terrestrial reference frame | IGS08 station coordinates and velocities mapped to the mean epoch of observation. |
| Australian datum | GDA94 coordinates determined via Helmert transformation from ITRF using the Dawson and Woods (2010) parameters. |
| Derived AHD | For stations within Australia, AUSGeoid09 is used to compute AHD. AUSGeoid09 is the Australia-wide gravimetric quasigeoid model that has been a posteriori fitted to the Australian Height Datum. |
| Above-geoid heights | Earth Gravitational Model EGM2008 released by the National Geospatial-Intelligence Agency (NGA) EGM Development Team is used to compute above-geoid heights. This gravitational model is complete to spherical harmonic degree and order 2159, and contains additional coefficients extending to degree 2190 and order 2159. |
| Coordinate uncertainty | Coordinate uncertainty is expressed in terms of the 95% confidence level for both GDA94 and ITRF2008. Uncertainties are scaled using an empirically derived model which is a function of data span, quality and geographical location. |

7.2 Annexure – 2: DGPS Surveyed coordinates of Forest Patches

| Sl. No. | Patch No | Pillar ID | Easting (m) | Northing (m) | Latitude "N" | Longitude "E" |
|---------|------------|-------------|-------------|----------------|----------------|----------------|
| 1 | PATCH NO 1 | P1 | 566386.42 | 2199109.507 | 19°53'13.4512" | 81°38'03.0359" |
| 2 | | P2 | 566377.2985 | 2199082.258 | 19°53'12.5659" | 81°38'02.7187" |
| 3 | | P3 | 566371.11 | 2199063.771 | 19°53'11.9652" | 81°38'02.5035" |
| 4 | | P4 | 566366.08 | 2199043.144 | 19°53'11.2948" | 81°38'02.3278" |
| 5 | | P5 | 566361.05 | 2199022.517 | 19°53'10.6244" | 81°38'02.1522" |
| 6 | PATCH NO 2 | P6 | 566377.366 | 2197867.401 | 19°52'33.0459" | 81°38'02.5638" |
| 7 | | P7 | 566384.065 | 2197838.366 | 19°52'32.1006" | 81°38'02.7904" |
| 8 | | P8 | 566385.1579 | 2197790.006 | 19°52'30.5273" | 81°38'02.8217" |
| 9 | | P9 | 566384.7055 | 2197747.879 | 19°52'29.1569" | 81°38'02.8007" |
| 10 | | P10 | 566383.531 | 2197701.148 | 19°52'27.6369" | 81°38'02.7542" |
| 11 | | P11 | 566382.144 | 2197647.511 | 19°52'25.8922" | 81°38'02.6996" |
| 12 | | P12 | 566391.38 | 2197594.62 | 19°52'24.1705" | 81°38'03.0104" |
| 13 | | P13 | 566398.4855 | 2197552.429 | 19°52'22.7971" | 81°38'03.2492" |
| 14 | | P14 | 566405.58 | 2197510.157 | 19°52'21.4211" | 81°38'03.4877" |
| 15 | | P15 | 566413.0986 | 2197465.357 | 19°52'19.9629" | 81°38'03.7404" |
| 16 | | P16 | 566419.151 | 2197429.295 | 19°52'18.7890" | 81°38'03.9439" |
| 17 | | P17 | 566420.9665 | 2197382.983 | 19°52'17.2822" | 81°38'04.0003" |
| 18 | | P18 | 566422.782 | 2197336.671 | 19°52'15.7754" | 81°38'04.0567" |
| 19 | | P19 | 566433.6935 | 2197288.427 | 19°52'14.2047" | 81°38'04.4257" |
| 20 | | P20 | 566443.4731 | 2197245.187 | 19°52'12.7969" | 81°38'04.7564" |
| 21 | | P21 | 566451.343 | 2197210.391 | 19°52'11.6640" | 81°38'05.0225" |
| 22 | | P22 | 566442.4348 | 2197164.529 | 19°52'10.1732" | 81°38'04.7102" |
| 23 | | P23 | 566448.642 | 2197118.074 | 19°52'08.6612" | 81°38'04.9176" |
| 24 | | P24 | 566453.8044 | 2197079.437 | 19°52'07.4037" | 81°38'05.0901" |
| 25 | | P25 | 566463.2877 | 2197032.093 | 19°52'05.8624" | 81°38'05.4101" |
| 26 | | P26 | 566471.885 | 2196998.636 | 19°52'04.7730" | 81°38'05.7014" |
| 27 | | P27 | 566477.0949 | 2196978.361 | 19°52'04.1128" | 81°38'05.8779" |
| 28 | | P28 | 566480.344 | 2196965.717 | 19°52'03.7011" | 81°38'05.9880" |
| 29 | | P29 | 566482.251 | 2196958.296 | 19°52'03.4594" | 81°38'06.0526" |
| 30 | | P30 | 566483.2172 | 2196950.059 | 19°52'03.1913" | 81°38'06.0847" |
| 31 | | P31 | 566485.7755 | 2196928.251 | 19°52'02.4816" | 81°38'06.1699" |
| 32 | | P32 | 566489.276 | 2196898.411 | 19°52'01.5104" | 81°38'06.2864" |
| 33 | | P33 | 566491.8194 | 2196876.729 | 19°52'00.8048" | 81°38'06.3710" |
| 34 | | P34 | 566493.8688 | 2196859.259 | 19°52'00.2362" | 81°38'06.4392" |
| 35 | | P35 | 566495.4159 | 2196846.07 | 19°51'59.8070" | 81°38'06.4907" |
| 36 | | P36 | 566498.5371 | 2196823.689 | 19°51'59.0786" | 81°38'06.5951" |
| 37 | | P37 | 566502.2027 | 2196799.368 | 19°51'58.2870" | 81°38'06.7180" |
| 38 | | P38 | 566505.4563 | 2196777.781 | 19°51'57.5843" | 81°38'06.8271" |
| 39 | | P39 | 566508.6151 | 2196756.823 | 19°51'56.9021" | 81°38'06.9330" |
| 40 | | P40 | 566512.332 | 2196732.162 | 19°51'56.0994" | 81°38'07.0576" |
| 41 | | PATCH NO 3 | P41 | 566706.7577 | 2195290.236 | 19°51'09.1689" |
| 42 | P42 | 566726.2856 | 2195162.133 | 19°51'04.9992" | 81°38'14.2102" | |

| Sl. No. | Patch No | Pillar ID | Easting (m) | Northing (m) | Latitude "N" | Longitude "E" |
|---------|----------|-----------|-------------|--------------|----------------|----------------|
| 43 | | P43 | 566749.5113 | 2195016.098 | 19°51'00.2458" | 81°38'14.9897" |
| 44 | | P44 | 566771.231 | 2194903.975 | 19°50'56.5957" | 81°38'15.7219" |
| 45 | | P45 | 566790.2826 | 2194760.478 | 19°50'51.9253" | 81°38'16.3582" |
| 46 | | P46 | 566804.055 | 2194656.743 | 19°50'48.5490" | 81°38'16.8182" |
| 47 | | P47 | 566825.334 | 2194533.854 | 19°50'44.5488" | 81°38'17.5338" |
| 48 | | P48 | 566818.225 | 2194487.588 | 19°50'43.0446" | 81°38'17.2834" |
| 49 | | P49 | 566838.931 | 2194430.385 | 19°50'41.1812" | 81°38'17.9878" |
| 50 | | P50 | 566858.451 | 2194361.578 | 19°50'38.9404" | 81°38'18.6500" |
| 51 | | P51 | 566865.6655 | 2194297.886 | 19°50'36.8676" | 81°38'18.8897" |
| 52 | | P52 | 566872.5435 | 2194245.194 | 19°50'35.1527" | 81°38'19.1193" |
| 53 | | P53 | 566878.9646 | 2194195.847 | 19°50'33.5466" | 81°38'19.3337" |
| 54 | | P54 | 566881.938 | 2194157.605 | 19°50'32.3022" | 81°38'19.4309" |
| 55 | | P55 | 566892.45 | 2194097.918 | 19°50'30.3592" | 81°38'19.7845" |
| 56 | | P56 | 566909.9872 | 2194046.377 | 19°50'28.6804" | 81°38'20.3807" |
| 57 | | P57 | 566928.6163 | 2193996.808 | 19°50'27.0656" | 81°38'21.0147" |
| 58 | | P58 | 566951.735 | 2193941.985 | 19°50'25.2793" | 81°38'21.8024" |
| 59 | | P59 | 566977.1498 | 2193877.858 | 19°50'23.1901" | 81°38'22.6677" |
| 60 | | P60 | 567001.0375 | 2193818.904 | 19°50'21.2693" | 81°38'23.4813" |
| 61 | | P61 | 567018.1145 | 2193775.54 | 19°50'19.8566" | 81°38'24.0627" |
| 62 | | P62 | 567032.65 | 2193732.59 | 19°50'18.4576" | 81°38'24.5568" |
| 63 | | P63 | 567040.73 | 2193706.789 | 19°50'17.6173" | 81°38'24.8312" |
| 64 | | P64 | 567047.2032 | 2193677.779 | 19°50'16.6728" | 81°38'25.0500" |
| 65 | | P65 | 567056.7953 | 2193646.531 | 19°50'15.6551" | 81°38'25.3756" |
| 66 | | P66 | 567065.7325 | 2193621.044 | 19°50'14.8249" | 81°38'25.6796" |
| 67 | | P67 | 567075.6049 | 2193592.889 | 19°50'13.9078" | 81°38'26.0153" |
| 68 | | P68 | 567085.4096 | 2193564.928 | 19°50'12.9969" | 81°38'26.3487" |
| 69 | | P69 | 567098.262 | 2193526.474 | 19°50'11.7444" | 81°38'26.7855" |
| 70 | | P70 | 567111.5338 | 2193485.222 | 19°50'10.4008" | 81°38'27.2364" |
| 71 | | P71 | 567124.9125 | 2193440.638 | 19°50'08.9488" | 81°38'27.6905" |
| 72 | | P72 | 567136.0438 | 2193403.543 | 19°50'07.7407" | 81°38'28.0683" |
| 73 | | P73 | 567142.7845 | 2193381.617 | 19°50'07.0266" | 81°38'28.2972" |
| 74 | | P74 | 567151.726 | 2193355.951 | 19°50'06.1906" | 81°38'28.6012" |
| 75 | | P75 | 567152.779 | 2193325.737 | 19°50'05.2076" | 81°38'28.6335" |
| 76 | | P76 | 567165.2085 | 2193275.1 | 19°50'03.5588" | 81°38'29.0542" |
| 77 | | P77 | 567175.2677 | 2193233.282 | 19°50'02.1972" | 81°38'29.3945" |
| 78 | | P78 | 567183.005 | 2193197.649 | 19°50'01.0371" | 81°38'29.6558" |
| 79 | | P79 | 567202.7505 | 2193146.313 | 19°49'59.3646" | 81°38'30.3279" |
| 80 | | P80 | 567225.2237 | 2193092.644 | 19°49'57.6160" | 81°38'31.0935" |
| 81 | | P81 | 567257.1005 | 2193020.167 | 19°49'55.2543" | 81°38'32.1798" |
| 82 | | P82 | 567268.197 | 2192994.938 | 19°49'54.4322" | 81°38'32.5580" |
| 83 | | P83 | 567284.732 | 2192949.38 | 19°49'52.9481" | 81°38'33.1204" |
| 84 | | P84 | 567301.267 | 2192903.821 | 19°49'51.4640" | 81°38'33.6829" |
| 85 | | P85 | 567323.3512 | 2192840.433 | 19°49'49.3992" | 81°38'34.4338" |
| 86 | | P86 | 567344.1379 | 2192780.769 | 19°49'47.4558" | 81°38'35.1405" |
| 87 | | P87 | 567351.363 | 2192760.031 | 19°49'46.7803" | 81°38'35.3862" |
| 88 | | P88 | 567354.9309 | 2192737.251 | 19°49'46.0388" | 81°38'35.5058" |

| Sl. No. | Patch No | Pillar ID | Easting (m) | Northing (m) | Latitude "N" | Longitude "E" |
|---------|---------------|-----------|-------------|--------------|----------------|----------------|
| 89 | | P89 | 567356.6986 | 2192725.965 | 19°49'45.6714" | 81°38'35.5651" |
| 90 | | P90 | 567358.4116 | 2192715.028 | 19°49'45.3154" | 81°38'35.6226" |
| 91 | | P91 | 567363.5547 | 2192682.191 | 19°49'44.2466" | 81°38'35.7951" |
| 92 | | P92 | 567370.4 | 2192638.487 | 19°49'42.8240" | 81°38'36.0247" |
| 93 | | P93 | 567377.6804 | 2192592.004 | 19°49'41.3110" | 81°38'36.2689" |
| 94 | | P94 | 567383.9757 | 2192551.81 | 19°49'40.0027" | 81°38'36.4800" |
| 95 | | P95 | 567389.437 | 2192516.942 | 19°49'38.8677" | 81°38'36.6632" |
| 96 | | P96 | 567392.7453 | 2192476.003 | 19°49'37.5355" | 81°38'36.7715" |
| 97 | | P97 | 567396.4655 | 2192429.968 | 19°49'36.0375" | 81°38'36.8934" |
| 98 | | P98 | 567400.3167 | 2192382.311 | 19°49'34.4867" | 81°38'37.0195" |
| 99 | | P99 | 567403.494 | 2192342.994 | 19°49'33.2073" | 81°38'37.1236" |
| 100 | | P100 | 567401.9835 | 2192317.837 | 19°49'32.3891" | 81°38'37.0684" |
| 101 | | P101 | 567400.9491 | 2192300.609 | 19°49'31.8288" | 81°38'37.0306" |
| 102 | | P102 | 567399.1661 | 2192270.911 | 19°49'30.8629" | 81°38'36.9654" |
| 103 | | P103 | 567397.9014 | 2192249.847 | 19°49'30.1779" | 81°38'36.9192" |
| 104 | | P104 | 567396.8025 | 2192231.545 | 19°49'29.5826" | 81°38'36.8790" |
| 105 | | P105 | 567396.142 | 2192220.544 | 19°49'29.2248" | 81°38'36.8548" |
| 106 | | P106 | 567399.1151 | 2192201.017 | 19°49'28.5893" | 81°38'36.9545" |
| 107 | | P107 | 567401.5524 | 2192185.01 | 19°49'28.0682" | 81°38'37.0362" |
| 108 | | P108 | 567403.573 | 2192171.739 | 19°49'27.6363" | 81°38'37.1039" |
| 109 | | P109 | 567400.9519 | 2192146.057 | 19°49'26.8011" | 81°38'37.0104" |
| 110 | | P110 | 567397.5104 | 2192112.336 | 19°49'25.7046" | 81°38'36.8877" |
| 111 | | P111 | 567393.9905 | 2192077.848 | 19°49'24.5831" | 81°38'36.7622" |
| 112 | | P112 | 567390.4596 | 2192043.251 | 19°49'23.4581" | 81°38'36.6363" |
| 113 | | P113 | 567388.068 | 2192019.818 | 19°49'22.6961" | 81°38'36.5510" |
| 114 | | P114 | 567384.8235 | 2191988.028 | 19°49'21.6623" | 81°38'36.4353" |
| 115 | | P115 | 567384.6599 | 2191963.665 | 19°49'20.8698" | 81°38'36.4265" |
| 116 | | P116 | 567385.0662 | 2191930.932 | 19°49'19.8049" | 81°38'36.4362" |
| 117 | | P117 | 567383.5354 | 2191883.742 | 19°49'18.2700" | 81°38'36.3774" |
| 118 | | P118 | 567381.3434 | 2191837.395 | 19°49'16.7626" | 81°38'36.2960" |
| 119 | | P119 | 567379.0121 | 2191788.105 | 19°49'15.1595" | 81°38'36.2094" |
| 120 | | P120 | 567375.8406 | 2191739.152 | 19°49'13.5673" | 81°38'36.0940" |
| 121 | | P121 | 567372.1966 | 2191689.739 | 19°49'11.9604" | 81°38'35.9622" |
| 122 | | P122 | 567369.8667 | 2191646.161 | 19°49'10.5431" | 81°38'35.8764" |
| 123 | | P123 | 567368.9663 | 2191591.205 | 19°49'08.7554" | 81°38'35.8383" |
| 124 | | P124 | 567369.8227 | 2191549.856 | 19°49'07.4102" | 81°38'35.8623" |
| 125 | | P125 | 567370.6615 | 2191509.36 | 19°49'06.0927" | 81°38'35.8859" |
| 126 | | P126 | 567371.5807 | 2191464.978 | 19°49'04.6488" | 81°38'35.9117" |
| 127 | | P127 | 567373.0298 | 2191421.434 | 19°49'03.2321" | 81°38'35.9558" |
| 128 | | P128 | 567375.307 | 2191366.804 | 19°49'01.4547" | 81°38'36.0269" |
| 129 | | P129 | 567375.6355 | 2191327.195 | 19°49'00.1661" | 81°38'36.0330" |
| 130 | PATCH NO 3 | P130 | 567375.964 | 2191287.586 | 19°48'58.8776" | 81°38'36.0391" |
| 131 | | P131 | 567377.8506 | 2191256.633 | 19°48'57.8704" | 81°38'36.0999" |
| 132 | | P132 | 567381.648 | 2191194.33 | 19°48'55.8432" | 81°38'36.2223" |
| 133 | | P133 | 567397.6179 | 2191140.664 | 19°48'54.0954" | 81°38'36.7642" |
| 134 | | P134 | 567416.4633 | 2191074.579 | 19°48'51.9433" | 81°38'37.4033" |

| Sl. No. | Patch No | Pillar ID | Easting (m) | Northing (m) | Latitude "N" | Longitude "E" |
|---------|---------------|-----------|-------------|--------------|----------------|----------------|
| 135 | | P135 | 567432.362 | 2191006.264 | 19°48'49.7190" | 81°38'37.9409" |
| 136 | | P136 | 567446.2475 | 2190910.461 | 19°48'46.6007" | 81°38'38.4056" |
| 137 | | P137 | 567460.133 | 2190814.657 | 19°48'43.4825" | 81°38'38.8703" |
| 138 | | P138 | 567471.0254 | 2190725.7 | 19°48'40.5873" | 81°38'39.2331" |
| 139 | | P139 | 567481.519 | 2190648.985 | 19°48'38.0904" | 81°38'39.5837" |
| 140 | | P140 | 567500.975 | 2190572.005 | 19°48'35.5838" | 81°38'40.2424" |
| 141 | | P141 | 567509.3827 | 2190504.286 | 19°48'33.3797" | 81°38'40.5225" |
| 142 | | P142 | 567516.2548 | 2190432.186 | 19°48'31.0334" | 81°38'40.7492" |
| 143 | | P143 | 567521.275 | 2190369.676 | 19°48'28.9993" | 81°38'40.9136" |
| 144 | | P144 | 567526.298 | 2190307.13 | 19°48'26.9640" | 81°38'41.0780" |
| 145 | | P145 | 567541.291 | 2190236.432 | 19°48'24.6623" | 81°38'41.5841" |
| 146 | | P146 | 567546.6341 | 2190213.638 | 19°48'23.9201" | 81°38'41.7648" |
| 147 | | P147 | 567547.9399 | 2190208.067 | 19°48'23.7388" | 81°38'41.8089" |
| 148 | | P148 | 567549.648 | 2190200.78 | 19°48'23.5015" | 81°38'41.8667" |
| 149 | | P149 | 567599.541 | 2189772.617 | 19°48'09.5669" | 81°38'43.5254" |
| 150 | | P150 | 567600.1185 | 2189735.624 | 19°48'08.3634" | 81°38'43.5404" |
| 151 | | P151 | 567600.696 | 2189698.63 | 19°48'07.1599" | 81°38'43.5554" |
| 152 | | P152 | 567606.2165 | 2189655.769 | 19°48'05.7649" | 81°38'43.7395" |
| 153 | | P153 | 567611.737 | 2189612.908 | 19°48'04.3699" | 81°38'43.9236" |
| 154 | | P154 | 567619.0903 | 2189562.859 | 19°48'02.7408" | 81°38'44.1698" |
| 155 | | P155 | 567625.0935 | 2189521.999 | 19°48'01.4109" | 81°38'44.3707" |
| 156 | | P156 | 567630.8369 | 2189482.907 | 19°48'00.1385" | 81°38'44.5630" |
| 157 | | P157 | 567635.9939 | 2189447.807 | 19°47'58.9960" | 81°38'44.7356" |
| 158 | | P158 | 567641.2382 | 2189412.112 | 19°47'57.8342" | 81°38'44.9112" |
| 159 | | P159 | 567645.2313 | 2189384.934 | 19°47'56.9496" | 81°38'45.0449" |
| 160 | | P160 | 567648.334 | 2189363.816 | 19°47'56.2622" | 81°38'45.1487" |
| 161 | | P161 | 567658.8345 | 2189318.2 | 19°47'54.7770" | 81°38'45.5037" |
| 162 | | P162 | 567669.335 | 2189272.583 | 19°47'53.2917" | 81°38'45.8586" |
| 163 | PATCH NO 4 | P163 | 567675.4187 | 2189218.455 | 19°47'51.5301" | 81°38'46.0605" |
| 164 | | P164 | 567681.9932 | 2189159.96 | 19°47'49.6264" | 81°38'46.2788" |
| 165 | | P165 | 567687.9178 | 2189107.247 | 19°47'47.9109" | 81°38'46.4755" |
| 166 | | P166 | 567694.6243 | 2189047.578 | 19°47'45.9690" | 81°38'46.6982" |
| 167 | | P167 | 567702.756 | 2188994.559 | 19°47'44.2432" | 81°38'46.9707" |
| 168 | | P168 | 567705.5526 | 2188963.344 | 19°47'43.2274" | 81°38'47.0627" |
| 169 | | P169 | 567708.8346 | 2188926.71 | 19°47'42.0353" | 81°38'47.1707" |
| 170 | | P170 | 567713.187 | 2188878.13 | 19°47'40.4544" | 81°38'47.3139" |
| 171 | | P171 | 567709.1065 | 2188850.011 | 19°47'39.5402" | 81°38'47.1700" |
| 172 | | P172 | 567707.5824 | 2188839.508 | 19°47'39.1987" | 81°38'47.1162" |
| 173 | | P173 | 567705.5987 | 2188825.838 | 19°47'38.7543" | 81°38'47.0462" |
| 174 | | P174 | 567703.62 | 2188812.203 | 19°47'38.3110" | 81°38'46.9765" |
| 175 | | P175 | 567705.0666 | 2188800.28 | 19°47'37.9229" | 81°38'47.0246" |
| 176 | | P176 | 567706.5688 | 2188787.898 | 19°47'37.5199" | 81°38'47.0746" |
| 177 | | P177 | 567708.3193 | 2188773.47 | 19°47'37.0504" | 81°38'47.1329" |
| 178 | | P178 | 567710.088 | 2188758.892 | 19°47'36.5759" | 81°38'47.1917" |
| 179 | PATCH NO 5 | P179 | 567753.61 | 2188464.303 | 19°47'26.9873" | 81°38'48.6488" |
| 180 | | P180 | 567756.8059 | 2188432.087 | 19°47'25.9389" | 81°38'48.7544" |

| Sl. No. | Patch No | Pillar ID | Easting (m) | Northing (m) | Latitude "N" | Longitude "E" |
|---------|---------------|-------------|-------------|----------------|----------------|----------------|
| 181 | | P181 | 567759.9999 | 2188399.89 | 19°47'24.8911" | 81°38'48.8600" |
| 182 | | P182 | 567762.9964 | 2188369.684 | 19°47'23.9081" | 81°38'48.9590" |
| 183 | | P183 | 567768.4285 | 2188314.926 | 19°47'22.1261" | 81°38'49.1385" |
| 184 | | P184 | 567774.089 | 2188257.865 | 19°47'20.2692" | 81°38'49.3255" |
| 185 | | P185 | 567780.7007 | 2188191.216 | 19°47'18.1002" | 81°38'49.5440" |
| 186 | | P186 | 567790.0178 | 2188097.297 | 19°47'15.0438" | 81°38'49.8518" |
| 187 | | P187 | 567802.215 | 2187981.855 | 19°47'11.2868" | 81°38'50.2558" |
| 188 | | P188 | 567810.796 | 2187908.071 | 19°47'08.8855" | 81°38'50.5410" |
| 189 | | P189 | 567813.3079 | 2187880.314 | 19°47'07.9823" | 81°38'50.6237" |
| 190 | | P190 | 567814.9222 | 2187861.963 | 19°47'07.3851" | 81°38'50.6768" |
| 191 | PATCH NO 6 | P191 | 567817.286 | 2187828.086 | 19°47'06.2827" | 81°38'50.7536" |
| 192 | | P192 | 567820.5259 | 2187806.686 | 19°47'05.5862" | 81°38'50.8621" |
| 193 | | P193 | 567823.6937 | 2187785.761 | 19°47'04.9051" | 81°38'50.9682" |
| 194 | | P194 | 567826.291 | 2187768.606 | 19°47'04.3467" | 81°38'51.0552" |
| 195 | | P195 | 567829.1888 | 2187749.465 | 19°47'03.7237" | 81°38'51.1523" |
| 196 | | P196 | 567832.8379 | 2187723.111 | 19°47'02.8659" | 81°38'51.2742" |
| 197 | | P197 | 567836.701 | 2187684.692 | 19°47'01.6156" | 81°38'51.4019" |
| 198 | | P198 | 567839.8509 | 2187653.366 | 19°47'00.5961" | 81°38'51.5061" |
| 199 | | P199 | 567843.434 | 2187618.481 | 19°46'59.4609" | 81°38'51.6246" |
| 200 | | P200 | 567847.4299 | 2187585.05 | 19°46'58.3728" | 81°38'51.7576" |
| 201 | | P201 | 567852.1555 | 2187552.647 | 19°46'57.3182" | 81°38'51.9157" |
| 202 | | P202 | 567858.681 | 2187507.903 | 19°46'55.8618" | 81°38'52.1341" |
| 203 | | P203 | 567858.762 | 2187474.74 | 19°46'54.7830" | 81°38'52.1325" |
| 204 | | P204 | 567861.333 | 2187441.408 | 19°46'53.6983" | 81°38'52.2165" |
| 205 | | P205 | 567863.3695 | 2187408.423 | 19°46'52.6250" | 81°38'52.2821" |
| 206 | | P206 | 567865.406 | 2187375.438 | 19°46'51.5518" | 81°38'52.3478" |
| 207 | | P207 | 567872.084 | 2187346.543 | 19°46'50.6110" | 81°38'52.5734" |
| 208 | | P208 | 567876.6861 | 2187307.926 | 19°46'49.3541" | 81°38'52.7265" |
| 209 | | P209 | 567878.0251 | 2187296.69 | 19°46'48.9885" | 81°38'52.7711" |
| 210 | | P210 | 567879.9984 | 2187280.131 | 19°46'48.4495" | 81°38'52.8367" |
| 211 | P211 | 567882.3963 | 2187260.01 | 19°46'47.7947" | 81°38'52.9164" | |
| 212 | P212 | 567883.0159 | 2187254.811 | 19°46'47.6255" | 81°38'52.9371" | |
| 213 | P213 | 567883.9819 | 2187246.701 | 19°46'47.3615" | 81°38'52.9692" | |
| 214 | P214 | 567884.826 | 2187239.602 | 19°46'47.1305" | 81°38'52.9973" | |
| 215 | P215 | 567885.6954 | 2187232.29 | 19°46'46.8925" | 81°38'53.0262" | |
| 216 | P216 | 567886.5483 | 2187225.117 | 19°46'46.6591" | 81°38'53.0545" | |
| 217 | P217 | 567887.3969 | 2187217.98 | 19°46'46.4268" | 81°38'53.0828" | |
| 218 | P218 | 567888.0741 | 2187212.285 | 19°46'46.2414" | 81°38'53.1053" | |
| 219 | P219 | 567888.6639 | 2187207.325 | 19°46'46.0800" | 81°38'53.1249" | |
| 220 | PATCH NO 7 | P220 | 567901.7965 | 2187097.037 | 19°46'42.4906" | 81°38'53.5617" |
| 221 | | P221 | 567902.75 | 2187089.041 | 19°46'42.2304" | 81°38'53.5934" |
| 222 | | P222 | 567904.0436 | 2187081.974 | 19°46'42.0003" | 81°38'53.6369" |
| 223 | | P223 | 567905.535 | 2187073.825 | 19°46'41.7350" | 81°38'53.6871" |
| 224 | | P224 | 567907.554 | 2187062.794 | 19°46'41.3760" | 81°38'53.7551" |
| 225 | | P225 | 567909.2757 | 2187053.388 | 19°46'41.0697" | 81°38'53.8130" |
| 226 | | P226 | 567911.21 | 2187042.819 | 19°46'40.7257" | 81°38'53.8781" |

| Sl. No. | Patch No | Pillar ID | Easting (m) | Northing (m) | Latitude "N" | Longitude "E" |
|---------|------------|-----------|-------------|--------------|----------------|----------------|
| 227 | | P227 | 567912.358 | 2187036.547 | 19°46'40.5215" | 81°38'53.9167" |
| 228 | | P228 | 567913.1574 | 2187023.864 | 19°46'40.1088" | 81°38'53.9425" |
| 229 | | P229 | 567913.9235 | 2187011.708 | 19°46'39.7133" | 81°38'53.9672" |
| 230 | | P230 | 567914.8848 | 2186997.321 | 19°46'39.2452" | 81°38'53.9984" |
| 231 | | P231 | 567916.4703 | 2186982.57 | 19°46'38.7651" | 81°38'54.0509" |
| 232 | | P232 | 567919.821 | 2186951.397 | 19°46'37.7506" | 81°38'54.1619" |
| 233 | | P233 | 567922.7499 | 2186924.146 | 19°46'36.8637" | 81°38'54.2590" |
| 234 | | P234 | 567924.735 | 2186905.677 | 19°46'36.2627" | 81°38'54.3248" |
| 235 | | P235 | 567926.5373 | 2186888.909 | 19°46'35.7170" | 81°38'54.3845" |
| 236 | | P236 | 567928.6381 | 2186867.142 | 19°46'35.0086" | 81°38'54.4539" |
| 237 | | P237 | 568294.7554 | 2184773.944 | 19°45'26.8695" | 81°39'06.7585" |
| 238 | | P238 | 568297.3059 | 2184768.626 | 19°45'26.6961" | 81°39'06.8455" |
| 239 | | P239 | 568302.2997 | 2184758.214 | 19°45'26.3568" | 81°39'07.0157" |
| 240 | | P240 | 568304.9678 | 2184752.651 | 19°45'26.1755" | 81°39'07.1066" |
| 241 | | P241 | 568309.2438 | 2184742.525 | 19°45'25.8455" | 81°39'07.2522" |
| 242 | | P242 | 568312.8373 | 2184733.643 | 19°45'25.5562" | 81°39'07.3745" |
| 243 | | P243 | 568315.8855 | 2184726.11 | 19°45'25.3107" | 81°39'07.4783" |
| 244 | PATCH NO 8 | P244 | 568320.2167 | 2184715.405 | 19°45'24.9619" | 81°39'07.6257" |
| 245 | | P245 | 568325.659 | 2184701.954 | 19°45'24.5237" | 81°39'07.8109" |
| 246 | | P246 | 568331.8657 | 2184681.825 | 19°45'23.8681" | 81°39'08.0215" |
| 247 | | P247 | 568337.7418 | 2184662.767 | 19°45'23.2474" | 81°39'08.2209" |
| 248 | | P248 | 568344.7338 | 2184640.091 | 19°45'22.5088" | 81°39'08.4581" |
| 249 | | P249 | 568354.557 | 2184608.233 | 19°45'21.4712" | 81°39'08.7914" |
| 250 | | P250 | 568361.5615 | 2184583.943 | 19°45'20.6802" | 81°39'09.0289" |
| 251 | | P251 | 568368.566 | 2184559.653 | 19°45'19.8891" | 81°39'09.2664" |
| 252 | | P252 | 568369.118 | 2184530.143 | 19°45'18.9291" | 81°39'09.2814" |
| 253 | | P253 | 568369.67 | 2184500.633 | 19°45'17.9690" | 81°39'09.2965" |
| 254 | | P254 | 568375.061 | 2184471.367 | 19°45'17.0163" | 81°39'09.4779" |
| 255 | | P255 | 568377.5811 | 2184463.999 | 19°45'16.7763" | 81°39'09.5635" |
| 256 | | P256 | 568381.9785 | 2184451.143 | 19°45'16.3575" | 81°39'09.7129" |
| 257 | | P257 | 568385.573 | 2184440.634 | 19°45'16.0152" | 81°39'09.8350" |
| 258 | PATCH NO 8 | P258 | 568422.9159 | 2184324.816 | 19°45'12.2429" | 81°39'11.1028" |
| 259 | | P259 | 568428.4923 | 2184303.309 | 19°45'11.5425" | 81°39'11.2915" |
| 260 | | P260 | 568435.9613 | 2184268.992 | 19°45'10.4252" | 81°39'11.5436" |
| 261 | | P261 | 568442.5459 | 2184234.995 | 19°45'09.3185" | 81°39'11.7653" |
| 262 | | P262 | 568446.154 | 2184216.367 | 19°45'08.7120" | 81°39'11.8868" |
| 263 | | P263 | 568443.9954 | 2184204.739 | 19°45'08.3340" | 81°39'11.8111" |
| 264 | | P264 | 568431.0289 | 2184134.886 | 19°45'06.0633" | 81°39'11.3564" |
| 265 | | P265 | 568428.7776 | 2184122.759 | 19°45'05.6691" | 81°39'11.2774" |
| 266 | | P266 | 568426.9886 | 2184109.215 | 19°45'05.2287" | 81°39'11.2142" |
| 267 | PATCH NO 9 | P267 | 568424.66 | 2184090.062 | 19°45'04.6059" | 81°39'11.1316" |
| 268 | | P268 | 568425.833 | 2184072.153 | 19°45'04.0232" | 81°39'11.1695" |
| 269 | | P269 | 568426.7304 | 2184058.454 | 19°45'03.5774" | 81°39'11.1986" |
| 270 | | P270 | 568428.688 | 2184038.634 | 19°45'02.9324" | 81°39'11.2632" |
| 271 | | P271 | 568431.3728 | 2184018.693 | 19°45'02.2834" | 81°39'11.3528" |
| 272 | | P272 | 568436.5519 | 2183979.778 | 19°45'01.0168" | 81°39'11.5256" |

| Sl. No. | Patch No | Pillar ID | Easting (m) | Northing (m) | Latitude "N" | Longitude "E" |
|---------|----------------|-----------|-------------|--------------|----------------|----------------|
| 273 | PATCH NO 10 | P273 | 568437.731 | 2183968.037 | 19°45'00.6347" | 81°39'11.5646" |
| 274 | | P274 | 568439.088 | 2183954.524 | 19°45'00.1949" | 81°39'11.6094" |
| 275 | | P275 | 568442.199 | 2183937.563 | 19°44'59.6428" | 81°39'11.7140" |
| 276 | | P276 | 568447.0134 | 2183912.552 | 19°44'58.8286" | 81°39'11.8762" |
| 277 | | P277 | 568450.5285 | 2183895.943 | 19°44'58.2878" | 81°39'11.9947" |
| 278 | | P278 | 568453.9672 | 2183879.695 | 19°44'57.7588" | 81°39'12.1107" |
| 279 | | P279 | 568457.807 | 2183861.551 | 19°44'57.1681" | 81°39'12.2403" |
| 280 | | P280 | 568458.6605 | 2183833.857 | 19°44'56.2671" | 81°39'12.2659" |
| 281 | | P281 | 568459.3641 | 2183811.028 | 19°44'55.5243" | 81°39'12.2871" |
| 282 | | P282 | 568460.012 | 2183790.005 | 19°44'54.8404" | 81°39'12.3065" |
| 283 | | P283 | 568463.142 | 2183765.739 | 19°44'54.0506" | 81°39'12.4109" |
| 284 | | P284 | 568466.5583 | 2183740.176 | 19°44'53.2186" | 81°39'12.5249" |
| 285 | | P285 | 568469.7457 | 2183716.326 | 19°44'52.4423" | 81°39'12.6312" |
| 286 | | P286 | 568472.628 | 2183694.759 | 19°44'51.7404" | 81°39'12.7274" |
| 287 | | P287 | 568474.6645 | 2183665.703 | 19°44'50.7949" | 81°39'12.7935" |
| 288 | | P288 | 568476.4075 | 2183640.835 | 19°44'49.9857" | 81°39'12.8501" |
| 289 | | P289 | 568478.9948 | 2183609.262 | 19°44'48.9583" | 81°39'12.9348" |
| 290 | | P290 | 568484.441 | 2183563.32 | 19°44'47.4630" | 81°39'13.1159" |
| 291 | | P291 | 568486.8871 | 2183544.327 | 19°44'46.8449" | 81°39'13.1974" |
| 292 | | P292 | 568488.792 | 2183529.538 | 19°44'46.3635" | 81°39'13.2609" |
| 293 | | P293 | 568491.8032 | 2183512.234 | 19°44'45.8003" | 81°39'13.3621" |
| 294 | | P294 | 568496.8085 | 2183483.471 | 19°44'44.8639" | 81°39'13.5302" |
| 295 | | P295 | 568499.7424 | 2183462.88 | 19°44'44.1937" | 81°39'13.6283" |
| 296 | | P296 | 568502.1052 | 2183444.608 | 19°44'43.5990" | 81°39'13.7070" |
| 297 | PATCH NO 11 | P297 | 568286.3925 | 2182931.269 | 19°44'26.9267" | 81°39'06.2278" |
| 298 | | P298 | 568276.9875 | 2182918.503 | 19°44'26.5125" | 81°39'05.9030" |
| 299 | | P299 | 568272.9837 | 2182913.068 | 19°44'26.3362" | 81°39'05.7647" |
| 300 | | P300 | 568268.1419 | 2182906.496 | 19°44'26.1230" | 81°39'05.5975" |
| 301 | | P301 | 568264.6787 | 2182897.259 | 19°44'25.8230" | 81°39'05.4773" |
| 302 | | P302 | 568261.22 | 2182888.035 | 19°44'25.5234" | 81°39'05.3573" |
| 303 | | P303 | 568262.1793 | 2182881.589 | 19°44'25.3135" | 81°39'05.3894" |
| 304 | | P304 | 568263.5589 | 2182872.318 | 19°44'25.0118" | 81°39'05.4356" |
| 305 | | P305 | 568265.4834 | 2182859.386 | 19°44'24.5909" | 81°39'05.5000" |
| 306 | | P306 | 568268.094 | 2182841.844 | 19°44'24.0199" | 81°39'05.5873" |
| 307 | | P307 | 568268.1244 | 2182831.176 | 19°44'23.6728" | 81°39'05.5870" |
| 308 | | P308 | 568268.202 | 2182803.92 | 19°44'22.7862" | 81°39'05.5861" |
| 309 | | P309 | 568267.7917 | 2182775.358 | 19°44'21.8571" | 81°39'05.5682" |
| 310 | | P310 | 568267.3705 | 2182746.041 | 19°44'20.9034" | 81°39'05.5498" |
| 311 | | P311 | 568266.4745 | 2182714.755 | 19°44'19.8857" | 81°39'05.5149" |
| 312 | | P312 | 568264.611 | 2182688.552 | 19°44'19.0336" | 81°39'05.4475" |
| 313 | | P313 | 568262.4527 | 2182660.162 | 19°44'18.1103" | 81°39'05.3696" |
| 314 | | P314 | 568258.96 | 2182617.06 | 19°44'16.7086" | 81°39'05.2439" |
| 315 | | P315 | 568259.973 | 2182578.676 | 19°44'15.4598" | 81°39'05.2736" |
| 316 | | P316 | 568260.8574 | 2182545.164 | 19°44'14.3695" | 81°39'05.2996" |
| 317 | | P317 | 568259.2559 | 2182495.038 | 19°44'12.7391" | 81°39'05.2379" |
| 318 | | P318 | 568258.487 | 2182474.927 | 19°44'12.0849" | 81°39'05.2089" |

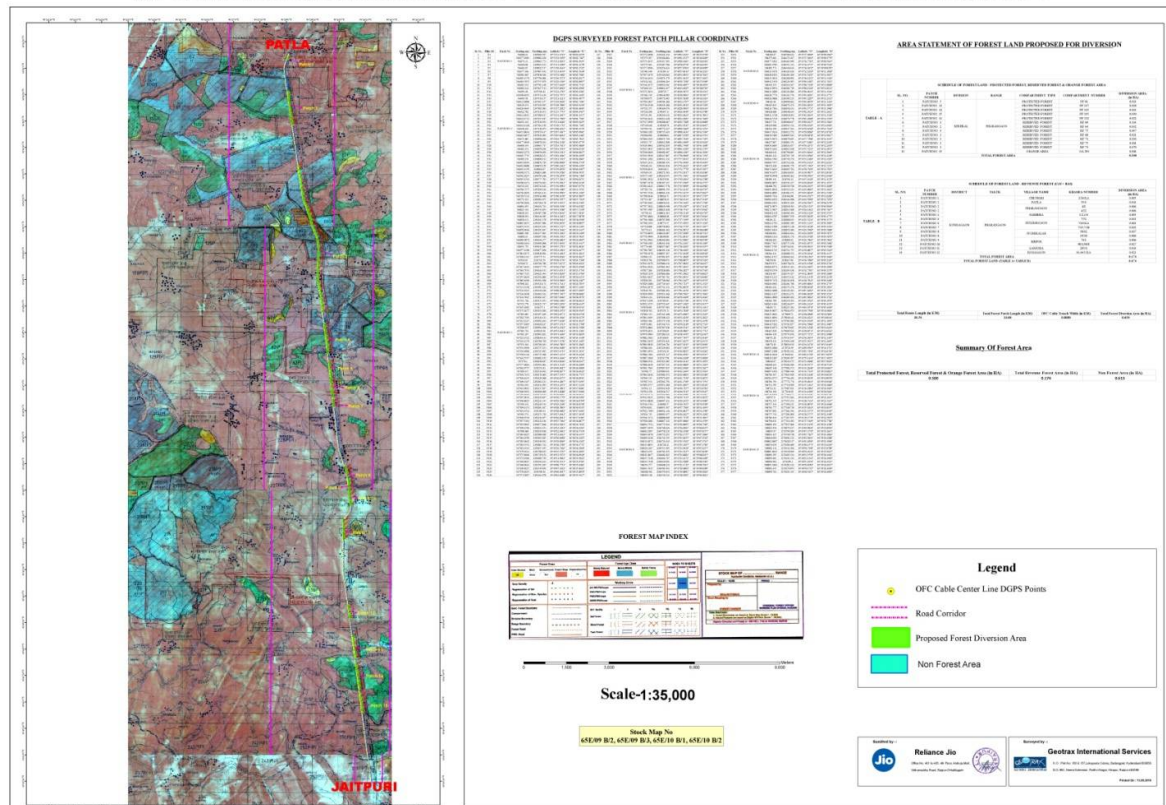
| Sl. No. | Patch No | Pillar ID | Easting (m) | Northing (m) | Latitude "N" | Longitude "E" |
|---------|----------------|-----------|-------------|--------------|----------------|----------------|
| 319 | | P319 | 568259.1135 | 2182455.012 | 19°44'11.4370" | 81°39'05.2278" |
| 320 | | P320 | 568259.7476 | 2182434.858 | 19°44'10.7813" | 81°39'05.2469" |
| 321 | | P321 | 568260.6961 | 2182404.708 | 19°44'09.8004" | 81°39'05.2755" |
| 322 | | P322 | 568261.622 | 2182375.276 | 19°44'08.8428" | 81°39'05.3034" |
| 323 | | P323 | 568262.6088 | 2182339.203 | 19°44'07.6692" | 81°39'05.3326" |
| 324 | | P324 | 568263.3127 | 2182313.471 | 19°44'06.8320" | 81°39'05.3534" |
| 325 | | P325 | 568264.0909 | 2182285.022 | 19°44'05.9064" | 81°39'05.3763" |
| 326 | | P326 | 568264.789 | 2182259.503 | 19°44'05.0762" | 81°39'05.3970" |
| 327 | | P327 | 568265.4304 | 2182236.057 | 19°44'04.3134" | 81°39'05.4159" |
| 328 | | P328 | 568265.73 | 2182225.103 | 19°44'03.9570" | 81°39'05.4248" |
| 329 | | P329 | 568419.0057 | 2179944.873 | 19°42'49.7598" | 81°39'10.3894" |
| 330 | | P330 | 568425.0021 | 2179899.71 | 19°42'48.2898" | 81°39'10.5894" |
| 331 | | P331 | 568431.8094 | 2179848.441 | 19°42'46.6211" | 81°39'10.8164" |
| 332 | | P332 | 568440.4873 | 2179783.082 | 19°42'44.4939" | 81°39'11.1059" |
| 333 | PATCH NO 12 | P333 | 568449.5262 | 2179724.857 | 19°42'42.5986" | 81°39'11.4087" |
| 334 | | P334 | 568456.6973 | 2179679.825 | 19°42'41.1328" | 81°39'11.6491" |
| 335 | | P335 | 568467.829 | 2179609.922 | 19°42'38.8574" | 81°39'12.0222" |
| 336 | | P336 | 568464.429 | 2179574.856 | 19°42'37.7171" | 81°39'11.9008" |
| 337 | | P337 | 568471.28 | 2179533.947 | 19°42'36.3854" | 81°39'12.1307" |
| 338 | | P338 | 568478.131 | 2179493.038 | 19°42'35.0537" | 81°39'12.3607" |
| 339 | | P339 | 568576.19 | 2178856.912 | 19°42'14.3476" | 81°39'15.6449" |
| 340 | | P340 | 568592.0286 | 2178721.99 | 19°42'09.9565" | 81°39'16.1711" |
| 341 | | P341 | 568607.2388 | 2178592.421 | 19°42'05.7396" | 81°39'16.6764" |
| 342 | PATCH NO 13 | P342 | 568619.0249 | 2178492.02 | 19°42'02.4720" | 81°39'17.0679" |
| 343 | | P343 | 568629.2187 | 2178394.997 | 19°41'59.3144" | 81°39'17.4052" |
| 344 | | P344 | 568646.07 | 2178232.275 | 19°41'54.0188" | 81°39'17.9625" |
| 345 | | P345 | 568668.463 | 2178106.289 | 19°41'49.9175" | 81°39'18.7150" |
| 346 | | P346 | 568695.148 | 2177902.473 | 19°41'43.2838" | 81°39'19.6045" |
| 347 | | P347 | 568697.4493 | 2177884.946 | 19°41'42.7134" | 81°39'19.6813" |
| 348 | | P348 | 568702.567 | 2177845.969 | 19°41'41.4448" | 81°39'19.8519" |
| 349 | | P349 | 568704.0717 | 2177796.492 | 19°41'39.8350" | 81°39'19.8970" |
| 350 | | P350 | 568704.793 | 2177772.776 | 19°41'39.0634" | 81°39'19.9186" |
| 351 | | P351 | 568712.785 | 2177719.099 | 19°41'37.3163" | 81°39'20.1860" |
| 352 | | P352 | 568713.21 | 2177687.811 | 19°41'36.2984" | 81°39'20.1965" |
| 353 | | P353 | 568724.192 | 2177630.39 | 19°41'34.4290" | 81°39'20.5661" |
| 354 | PATCH NO 14 | P354 | 568736.2121 | 2177566.275 | 19°41'32.3418" | 81°39'20.9704" |
| 355 | | P355 | 568747.9 | 2177515.064 | 19°41'30.6744" | 81°39'21.3651" |
| 356 | | P356 | 568752.545 | 2177455.353 | 19°41'28.7313" | 81°39'21.5167" |
| 357 | | P357 | 568757.144 | 2177396.235 | 19°41'26.8076" | 81°39'21.6668" |
| 358 | | P358 | 568761.777 | 2177348.719 | 19°41'25.2613" | 81°39'21.8197" |
| 359 | | P359 | 568767.892 | 2177264.394 | 19°41'22.5173" | 81°39'22.0185" |
| 360 | | P360 | 568777.743 | 2177204.809 | 19°41'20.5777" | 81°39'22.3490" |
| 361 | | P361 | 568784.834 | 2177167.955 | 19°41'19.3779" | 81°39'22.5876" |
| 362 | | P362 | 568790.611 | 2177111.692 | 19°41'17.5469" | 81°39'22.7786" |
| 363 | | P363 | 568801.393 | 2177037.006 | 19°41'15.1159" | 81°39'23.1390" |
| 364 | PATCH | P364 | 568823.956 | 2176879.327 | 19°41'09.9836" | 81°39'23.8930" |

| Sl. No. | Patch No | Pillar ID | Easting (m) | Northing (m) | Latitude "N" | Longitude "E" |
|---------|----------|------------|-------------|----------------|----------------|----------------|
| 365 | NO 15 | P365 | 568835.07 | 2176799.209 | 19°41'07.3759" | 81°39'24.2641" |
| 366 | | P366 | 568841.627 | 2176748.538 | 19°41'05.7267" | 81°39'24.4826" |
| 367 | | P367 | 568846.092 | 2176694.312 | 19°41'03.9621" | 81°39'24.6288" |
| 368 | | P368 | 568862.8607 | 2176628.517 | 19°41'01.8196" | 81°39'25.1960" |
| 369 | | P369 | 568876.039 | 2176586.689 | 19°41'00.4573" | 81°39'25.6430" |
| 370 | | P370 | 568883.112 | 2176533.306 | 19°40'58.7198" | 81°39'25.8788" |
| 371 | | P371 | 568885.8645 | 2176458.969 | 19°40'56.3012" | 81°39'25.9635" |
| 372 | | P372 | 568891.395 | 2176405.314 | 19°40'54.5550" | 81°39'26.1463" |
| 373 | | P373 | 568893.061 | 2176331.524 | 19°40'52.1543" | 81°39'26.1938" |
| 374 | | P374 | 568896.902 | 2176299.3 | 19°40'51.1056" | 81°39'26.3214" |
| 375 | | P375 | 568895.3003 | 2176292.312 | 19°40'50.8784" | 81°39'26.2655" |
| 376 | | P376 | 568892.445 | 2176279.854 | 19°40'50.4735" | 81°39'26.1658" |
| 377 | P377 | 568899.764 | 2176221.145 | 19°40'48.5627" | 81°39'26.4093" | |

7.3 Annexure – 3: Geo-Referenced Maps of the Proposed Route

7.3.1 Geo-referenced Forest Map showing Proposed 4G OFC Route

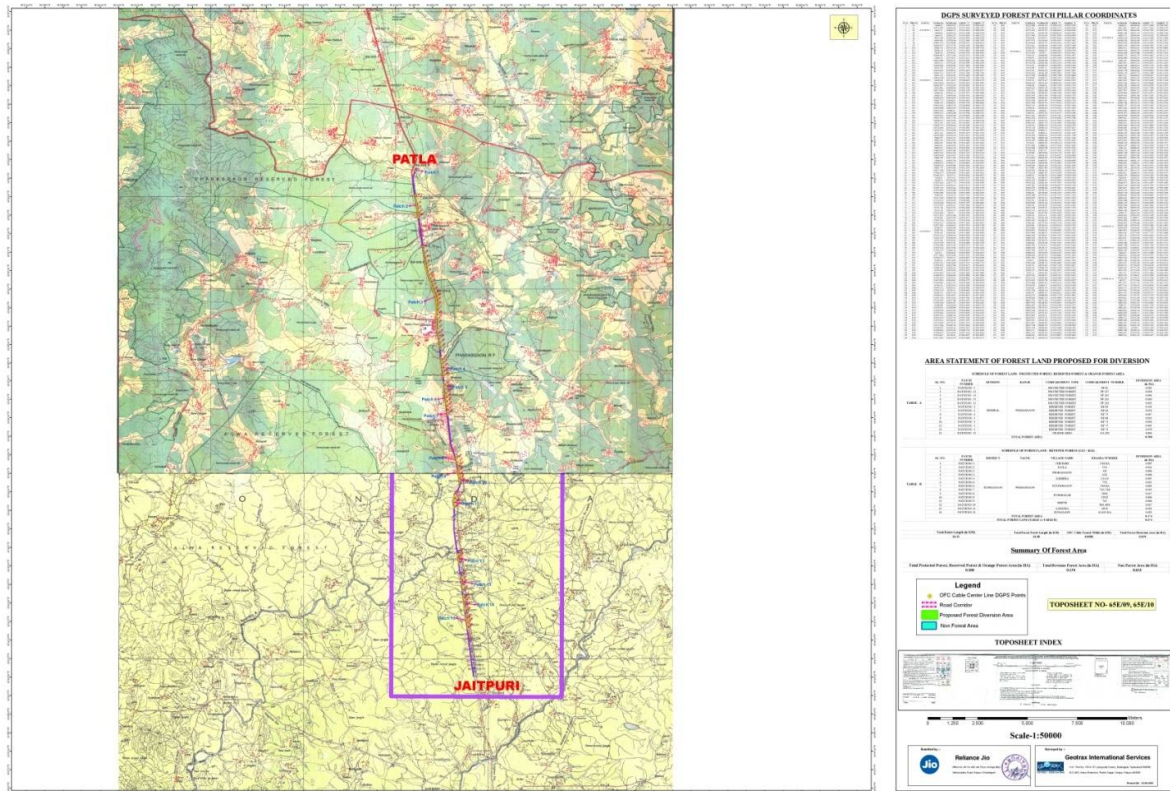
MAP SHOWING DGPS SURVEYED FOREST AREA PROPOSED FOR DIVERSION FOR LAYING OF OFC CABLE FROM JAITPURI TO PATLA



Not to Scale

7.3.2 Geo-referenced SOI Map showing Proposed 4G OFC Route

MAP SHOWING DGPS SURVEYED FOREST AREA PROPOSED FOR DIVERSION FOR LAYING OF OFC CABLE FROM JAITPURI TO PATLA



Not to Scale
