Final Environmental Assessment Report of Transmission and Distribution Subprojects in Garo Hill Districts of Meghalaya Under NERPSIP

Prepared & Submitted By

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NERPSIP/Meghalaya/FEAR-1/2018-19/R4 November, 2019

ABBREVIATIONS

ADC	–	Autonomous District Council
APs	–	Affected Persons
AP		Angle Point
CBIS	–	Capacity Building & Institutional Strengthening
CEA	–	Central Electricity Authority
CPTD	–	Compensation Plan for Temporary Damages
CPIU	–	Central Project Implementation Unit
dB		Decibel
DC	–	District Collector
DL		Distribution Line
E&S	–	Environmental and Social
EHS		Environment, Health & Safety
EMF		Electro Magnetic Field
ESMC	–	Environment & Social Management Cell
ESPPF	–	Environment and Social Policy & Procedures Framework
EMP	–	Environmental Management Plan
FCA,1980	–	Forest (Conservation) Act, 1980
FEAR	–	Final Environment Assessment Report
GHADC		Garo Hills Autonomous District Council
GOI	–	Government of India
GRM	–	Grievances Redressal Mechanism
GRC	–	Grievance Redressal Committee
HFL		High Flood Level
IA	–	Implementing Agency
IEAR	–	Initial Environmental Assessment Report
MoEFCC	–	Ministry of Environment, Forest and Climate Change
MePDCL	–	Meghalaya Power Distribution Corporation Ltd
MePTCL	–	Meghalaya Power Transmission Corporation Ltd
LOA	–	Letter of Award
NOC		No Objection Certificate
NEHU	–	North Eastern Hill University
NER	–	North Eastern Region
NERPSIP	–	North Eastern Region Power System Improvement Project
O & M		Operation & Maintenance
OPs	–	Operational Policies
PCB		Poly Chlorinated Biphenyl
PIU	–	Project Implementation Unit
POWERGRID	–	Power Grid Corporation of India Ltd.
PPEs	–	Personal Protective Equipments
PMU	–	Project Management Unit
PRA		Participatory Rural Appraisal

RoW	–	Right of Way
R& R	–	Rehabilitation and Resettlement
RRM	–	Random Rubble Masonry
SS	–	Substation
SPCU	–	State Project Coordination Unit
T & D	–	Transmission & Distribution (T&D)
TL		Transmission Line
WB	–	The World Bank

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Acknowledgement

It is a pleasure to place on record, my appreciation for all the help and support received from different quarters towards completion of the project.

I am thankful to the Power Grid Corporation of India for reposing their faith in NEHU for undertaking the project. I am especially appreciative of Mr. Deepjyoti Baruah and the field station staff of Power Grid for all the support through documents and consultations during the course of the project.

I am thankful to my teammates Prof. B. K. Tiwari, Prof. D. Walia and Mr. K.K. Choudhury for their valuable observations and inputs, both during field visits, and during compilation of the report.

My confidence in my project staff who are past students of the department has been amply rewarded by the excellent discipline and meticulous work ethics they exhibited during the field work and data collection. I am thankfully proud of them and am confident that this experience would have exposed them to new domains of discourse and enriched their knowledge

Finally I am extremely grateful to all the respondents of the PRA exercise whose valuable inputs were indispensable in the fruition of the work and its logical culmination into the present report.

Dibyendu Paul

Executive Summary

North Eastern Region Power Supply Improvement Project (NERPSIP) is a World Bank funded project aimed at improving the impoverished power transmission and distribution system in the North Eastern states of India with Power Grid Corporation of India Ltd. (POWERGRID), the single transmission utility of the country as the implementing agency (IA). The present Final Environmental Assessment Report (FEAR) is for the for the West and South west Garo hills transmission and distribution system, and has been undertaken to verify the actual locational details of the project elements, to report any impacts on the biodiversity and protected area and the project affected people, and to assess the compliance of the Initial Environmental Assessment Report (IEAR) /Environment Management Plan (EMP) prepared and submitted by the IA for the instant project.

The elements of the present project include a 132 kV D/C line transmission line from Phulbari to Ampati and 5 nos. 33 kV distribution lines and associated new substations at 132/33 kV Phulbari, 33/11 kV Chibinang, 33/11 kV Rajballa Bhaitbari & 33/11 kV and extension/augmentation of existing 132/33 kV Ampati, 33/11 kV Phulbari & 33/11 kV Tikrikilla substations.

The topography of the western fringes of Garo hills where the project is located is mostly plain land (>70%) interspersed by small undulating hillocks. About 30% of the landscape has a vegetation cover (open forest, plantations) mostly in the hilly terrain, and the rest (70%) is constituted by plain farm land (paddy cultivation). Most of the land is privately owned and some are under the jurisdiction of the Village Council. The final layout of transmission line from Phulbari to Ampati has been carefully selected from three given options. The alignment has successfully avoided all reserve forests and protected areas. This is evident from the satellite imagery with superimposed transmission alignments. Only a small portion (about 30%) of the line passes through private land with cashew / betelnut plantations. Such portions of the line, being in open forests with low canopy, will not necessitate felling of commercially important trees along the RoW, except for the portion passing through the plantation, where compensation being provided to affected person/land owner. Further, for the tower locations on hillocks, the height gain due to elevation is sufficient to allow retention of

trees along RoW, thus further minimizing felling requirements. The original length of the line has been significantly reduced 50 km from earlier 69 km due to relocation of the Phulbari in same locality after non-finalization of earlier identified land & location of Ampati substation closer to Phulbari by about 11 km. As a result, the environmental footprints have been drastically reduced without any additional impacts as envisaged in IEAR.

Similarly, the distribution lines too have been aligned by avoiding dense plantation areas. Here, the RoW corridor being narrower (15m) will further reduce the necessity of tree felling. Much of the line would only need lopping of branches for unhindered passage. The land requirement and excavation for tower footing has been adequately addressed. Unequal Leg Extensions (ULE) has not been used in the present case. Soil excavated for tower footing has been backfilled, and the remaining soil has been optimally managed through even spreading and compaction. Since the excavation operations are undertaken during the dry season, no hindrances to cropping operations are envisaged. However, as per procedures compensation to all affected persons/ land owners for any damage to crops/ felling of trees and cost for use of the land for tower base area @ 100% land cost as per prevailing rates are being provided by IA/Utility.

As the transmission and distribution lines avoid ecologically sensitive areas, there is no evidence to suggest threats to biodiversity. Elephant sightings have been reported in a section of the transmission line (AP60-AP75), and extensions have been provided for towers in this section so as to ensure unhindered passage of elephants. Review of literature on animal/elephant corridors have revealed the presence of two documented elephant corridors, but they are located distantly, to the east and south east of the project area. No animal corridors are present in the project area. An endangered (IUCN category) mammalian species *Manis crassicaudata* is reported to inhabit in some pockets of the project area. However, being fussorial (burrowing) in habit, there is no apparent threat to the species except in the event of the necessity of excavations for project elements being located in the vicinity of active burrows. Although no borrows exist in tower location/RoW Care during study period, care should be taken by IA to avoid such accidental encroachment. Primates are also reported in some locations. However, as most of the line passes through paddy fields, chances of electrocution are negative. Even in the portions where the line passes through private plantation area, the clearance of the conductors from the canopy is high enough to negate any chances

of electrocution. No bird migration/fly path found in project area. Moreover, bird guard/anti perching devices are being made part of BoQ/tower design.

The substations are located away from human habitation and are mostly on high ground so as to avoid instances of flooding or noise pollution. Permissions have been taken from the Garo Hills Autonomous District Council (GHADC) wherever necessary. In some locations, earth cutting requirements have necessitated and installation of retention walls which have been provided. All tower footings are of equal leg distribution, and the excavated soils are being backfilled, the excess being evenly spread out within the boundary of the substations. Appropriate drainage has been provided, and management of transformer oil spillage has been adequately addressed through provisions for collection and storage for either recycling or disposal.

Excavations and all accident prone areas are appropriately barricaded for safety. Issues relating to operational health and safety has been adequately addressed. The labourers are provided with safety gear and provisions for first aid and arrangement for shifting of affected persons to nearby hospitals are also in place. Compensation for injury and death has been ensured through provisions in Safety Plan & Contract condition. Proper sanitation facilities and safe drinking water are being provided in the project locations. The site managers have been advised to ensure that there are no instances of open defecation.

The IA has a continuous monitoring mechanism of the project w.r.t. compliance of the mandatory requirements as stipulated in the IEAR. Thus the adherences to the clauses by the contractors are regularly monitored especially in respect of EMP implementation, OHS compliance. The project has thus far had zero fatality which is indicative of the strict vigil of the IA.

The Capacity building and Institutional Strengthening program of the IA is held intermittently to enhance the skills of the project officials. Further, meetings between IA and MePTCL are held on a monthly/ bimonthly basis to assess the work progress and difficulties encountered in respect of land acquisition, RoW and compensation if any.

For the Participatory Rural Appraisal (PRA), prior permissions and appointments were taken from the village headmen and meetings were held with the villagers to generate

information regarding their opinions about the project and its potential impact on the area. Further, information about the important biodiversity elements present in the area was also generated through 500m walks undertaken in the North, South, East and West directions from a focal point for sightings of large winged birds and their nesting sites, and primates. At private plantation locations, potential perching sites were carefully observed for sightings. Most of the tower locations visited for PRA was on either flat land or on gentle slopes, thus negating chances of erosive losses during construction. Further, as most of the locations were agricultural land or private plantation patches with low canopy, the requirement of tree felling for ROW is drastically reduced and will have negligible impact.

It emerged from the survey that the PAP were appreciative of the project and hoped that the power scenario would improve after commissioning of the project. Local people also benefited through project related employment that was being generated.

Overall, the planning and layout of the project elements have been undertaken in a judicious manner so as to ensure minimum environmental impact. However, during the implementation phase, especially in respect of the construction, strict monitoring by the IA should be undertaken so as to ensure proper compliance by the contractors with reference to the IEAR and especially with regard to compliance of the health and safety measures.

CHAPTER 1: INTRODUCTION

1.1 Project Background

Electric power being an enabler sector acts as a catalyst for the growth and development of areas having accessibility to it. The North Eastern Region (NER) of India faces significant bottlenecks in accessibility and availability of power and the per capita power consumption of NER is one third of the national average. Further, no significant generation capacity has been added between 2004 and 2011, as a result of which, inadequate power supply remains a critical constraint to sustainable and inclusive growth, and to the efforts of scaling up private investment and economic competitiveness in the NER.

The road-map for development of power sector specifying the need for strengthening of overall Transmission, Sub-transmission and Distribution system of NER was brought out in the "Pasighat Proclamation on Power" released during the first Sectoral Summit of North Eastern Council at Pasighat in Arunachal Pradesh in January 2007. Accordingly, Government of India (GoI) with the financial assistance of The World Bank (WB) has planned a composite scheme viz. **"North Eastern Region Power System Improvement Project" (NERPSIP)** to create/augment proper infrastructure/network of Transmission & Distribution (T&D) in the region**.** The scheme covers six North Eastern States (Assam, Meghalaya, Manipur, Tripura, Nagaland & Mizoram) to create a robust power network by improving the intra-state transmission & distribution (33kV and above) network with required capacity building initiatives for effective utilization of assets. The Ministry of Power (MoP), GoI appointed **Power Grid Corporation of India Limited (POWERGRID),** the Central Transmission Utility of the country as the "Implementing Agency" (IA) to implement the project under Tranche-1 in close coordination with the respective State Governments/Utilities. However, the ownership of the assets shall be with the respective State Governments/ State Utilities, who will be responsible for operation and maintenance of assets once they are handed over to them upon progressive commissioning. POWERGRID is also facilitating in building the institutional capacity of the state departments and utilities to continue managing the rehabilitated networks in an efficient manner. The state wise scope of works proposed under Tranche-1 is given below:

State	Transmission/ Sub-transmission (132kV & above)			Distribution (33kV)		
	Line (Km)	New S/s (No.)	Total MVA (New & Aug.)	Line (Km)	New S/s (No.)	Total MVA (New & Aug.)
Assam	233	11	1644	479	16	240
Manipur	254	2	160	131	13	229.4
Meghalaya	225	4	940	263	11	135
Mizoram	143	3	125	5	1	6.3
Nagaland	285	5	245	76.5	10	190
Tripura	261	9	1306.5	1096	34	450.5
Total	**1401**	**34**	**4420.5**	**2051**	**85**	**1251.2**

The project has two components namely Component A: Priority Investments for Strengthening Intrastate Transmission, Sub-transmission, and Distribution Systems, and Component B: Technical Assistance for Capacity Building and Institutional Strengthening (CBIS) of Power Utilities and Departments of Participating States. The total project cost is Rs. 5111 Crore with financing from both GoI and Bank on 50:50 basis. The Bank is providing financial support to the tune of Rs $ 470 million (Rs 2511.165 crores) under the Loan No.-8631-IN which was signed on 28th November, 2016 and became effective from 20th February, 2017. The loan closing date is 31st March, 2023. The remaining financing including capacity building will be met through Govt. of India funding.

1.2 Project Justification

The existing intra-state transmission system in Meghalaya is quite old & weak, and is unable to cater to the growing power requirements of the state. Although the present T&D system covers many areas of the state, it is inadequate in its reach, and due to a redundant T&D system, outage of any transmission system element results in long term power shortages making the system highly unreliable. Further, some of the network elements have undergone long term outage due to break-down. Therefore, it has become essential to address the situation through remedial measures in the transmission and distribution system. Accordingly, phase-wise strengthening of transmission & sub-transmission system has been proposed.

The transmission schemes proposed under Tranche-1 of Meghalaya State include construction of 416 km of 220/132 kV transmission lines & associated 4 nos. new

substation and 198 ckm of 33 kV distribution lines & associated 11 nos. substation along with augmentation & strengthening of transmission and sub-transmission spread across the State

1.3 Benefits of the Project

The proposed transmission and distribution schemes will not only improve the overall power situation, but will also enhance reliability, quality and security of power supply of the State.

1.4 Project Scope & Present Study

In line with MePTCL & MePDCL's **Environment and Social Policy & Procedures Framework (ESPPF)**, POWERGRID in association with Meghalaya Power Transmission Corporation Ltd (MePTCL) & Meghalaya Power Distribution Corporation Ltd (MePDCL) carried out comprehensive environment and social assessment of each subprojects and prepared Initial Environment Assessment (IEA) reports. These reports were subsequently disclosed for public information both on the State Utility, POWERGRID and Bank website after obtaining clearance from The World Bank.

As per provision the ESPPF, a **Final Environment Assessment Report (FEAR)** for each subproject need to be prepared with an objective to assess the compliance of mitigation measures as suggested in IEARs. However, as per Project Agreement signed between POWERGRID and Bank such study require to be undertaken by Independent Agencies as per Term of Reference agreed with Bank. Accordingly, POWERGRID appointed North Eastern Hill University (NEHU) as Independent consultant vide LOA Ref No.: NEGW/NERPSIP/C&M/17-18/400-13/LOA-57/117 dated 27th March 2019 to carry out FEAR study.

The present Final Environment Assessment Report (FEAR) is a document developed as a consultancy assignment by NEHU to validate the work undertaken and to critically examine any deviation, if any with respect to management measures as outlined in the IEAR which is based on MePTCL/MePDCL's Environmental and Social Policy & Procedures Framework (ESPPF), World Bank's Operational Policies and Bank's Environmental, Health, and Safety Guidelines for Electric Power Transmission and Distribution.

The scope of the present study include of 132 KV transmission line and associated 132/33 kV substations & 33 KV distribution lines and 33/11 KV substations being implemented in Garo Hills District of Meghalaya. Details of T & D component are as follow;

A. Transmission Components

i) Phulbari – Ampati 132 kV D/C line
ii) Establishment of 132/33 kV substation at Phulbari
iii) Extension of 132/33 kV Ampati substation

B. Distribution Components

i) 33 kV line from Phulbari 132/33 kV substation (New) - 33/11 kV Rajballa Bhaitbari substation (New)
ii) 33 kV line from Phulbari 132/33 kV substation (New) - 33/11 kV Chibinang substation (New)
iii) 33 kV line from 33/11 kV Tikrikilla substation(Existing) - 33/11 kV Raksambre substation(New)
iv) 33 kV line from Phulbari 132/33 kV substation (New) - 33/11 kV Phulbari substation (Existing)
v) 33 kV line from Phulbari 132/33 kV substation (New at 33/11 kV line Tikrikilla-(Taping point)
vi) Reconductoring of 33 KV Tikrila-Phulbari line (Existing) from point “X” to 33/11 kV Tikrikilla substation (Existing)
vii) Establishment of 33/11 kV substation at Rajballa Bhaitbari, Chibinang, Raksambre
viii) Strengthening at 33/11 kV Phulbari substation (Existing) with replacement of existing 2 X 2.5 MVA by 2 X 5 MVA
ix) Bay addition 1 No each at 33/11 kV Phulbari (Existing) and 33/11 kV Tikrikilla;

1.5 Overall Project Progress

A brief status on project implementation progress of various transmission & distribution components till October, 2019 is presented below;

Name of the T & D Component	Progress as on September, 2019
A. Transmission and Distribution Line	
Phulbari – Ampati 132 kV D/C line	Overall progress- 64 % ➢ 172 out of 174 tower foundations completed. ➢ 151 out of 174 tower erections completed. ➢ 2 km out of 50 km stringing yet completed.
33 kV line from Phulbari 132/33 kV substation (New) - 33/11 kV Rajballa Bhaitbari substation (New)	➢ 311 HT poles out of total 746 poles erected. ➢ Stringing (26 km) yet to commence.
33 kV line from Phulbari 132/33 kV substation (New) - 33/11 kV Chibinang substation (New)	Completed. ➢ 59 HT poles out of total 59 poles erected. ➢ Stringing of 2.02km out of 2.02 km completed.
33 kV line from 33/11 kV Tikrikilla substation(Existing) - 33/11 kV Raksambre substation(New)	➢ 249 HT poles out of total 302 poles erected. ➢ Stringing (11 km) yet to commence.
33 kV line from Phulbari 132/33 kV substation (New) - 33/11 kV Phulbari sub-station (Existing)	➢ 228 HT poles out of total 234 poles erected. ➢ Stringing (8 km) yet to commence.
33 kV line from Phulbari 132/33 kV substation (New at 33/11 kV line Tikrikilla- (Taping point)	➢ 02 HT poles out of total 25 poles erected. ➢ Stringing (1 km) yet to commence.
Reconductoring of 33 KV Tikrila-Phulbari line (Existing) from point “X” to 33/11 kV Tikrikilla substation(Existing)	➢ Stringing activity yet to commence.
T & D Substations	
132/33 kV Phulbari substation (2 x 50 MVA)	Land area measuring 12.50 acre secured from single landowner through private purchase on willing buyer willing seller based on negotiated/market rate. Approx. 65 % civil work & 25 % equipment erection completed.
Extension of 132/33 kV Ampati substation	Required land for extension work already available in the existing substation premise and hence, no fresh

	land secured. Civil work just started (2 % completed.)
Establishment of 33/11 kV Substation at Rajballa Bhaitbari (1 X 5 MVA)	Land area measuring 0.66 acre secured from single landowner through private purchase on willing buyer willing seller based on negotiated/market rate. Approx. 45 % civil work & equipment erection yet to commence.
Establishment of 33/11 kV Substation at Chibinang (1 X 5 MVA)	Land area measuring 1.65 acre secured from single landowner through private purchase on willing buyer willing seller based on negotiated/market rate. Substation commissioned on 31.07.2019.
Establishment of 33/11 kV Substation at Raksambre (1 X 5 MVA)	Land area measuring 0.66 acre secured from single landowner through private purchase on willing buyer willing seller based on negotiated/market rate. All works completed and test charged successfully completed on 30.09. 2019.

1.6 Objectives and Methodology adopted for FEAR Study

The main objectives of the FEAR study is to assess the mitigative measures as suggested in IEAR and/or EMP are effectively implemented/ addressed at the ground during pre-construction & construction stages of project cycles. The study also help in establishing the status of compliance of various mitigation/management measures provided in the IEAR/EMP and suggests gaps or weaknesses, if any.

To achieve this, NEHU undertook a comprehensive biophysical, environmental, socio-economic data gathering exercise along the transmission/ distribution line routes and substations location to assess/verify the actual site specific measures implemented /being implemented by IA/Contractor in respect of measure/actions listed in IEAR/EMP. The methodologies adopted for instant FEAR are as follows:

(i) **Review of IEAR:** The IEAR has been thoroughly analyzed to ensure that the mitigation measures as proposed in IEAR are being implemented at ground level or deviation if any.

(ii) **Physical verification of construction elements:** Extensive site visits were conducted for ascertaining/verifying the compliance with respect to IEAR/EMP, contract conditions through discussion with Site In-charge and Construction Contractor & verify various data/ maps/ other records substantiating compliance measures undertaken. Photographs of visit to various subproject sites is presented at **Appendix-A**

(iii) **Line transects survey for flora and fauna:** Line transacts survey were conducted along 10% of the transmission and distribution routes for analysis of flora and fauna. The results were corroborated in consultation with secondary data and further with the information generated through PRA. Details of line transacts survey undertaken during study is placed at **Appendix – B.** Besides, bird walks were also undertaken, particularly in private plantation patches, to locate nesting sites and for bird sightings.

(iv) **Visit schedule with local residents to generate PRA data and public consultation:** Local headmen of villages selected for PRA study were approached and meetings were fixed to gather information from the local residents in respect of the impact of the project, the compensation status, the biodiversity elements etc. and any other information related to the project implementation. The details of PRA exercise is presented at **Appendix-C.**

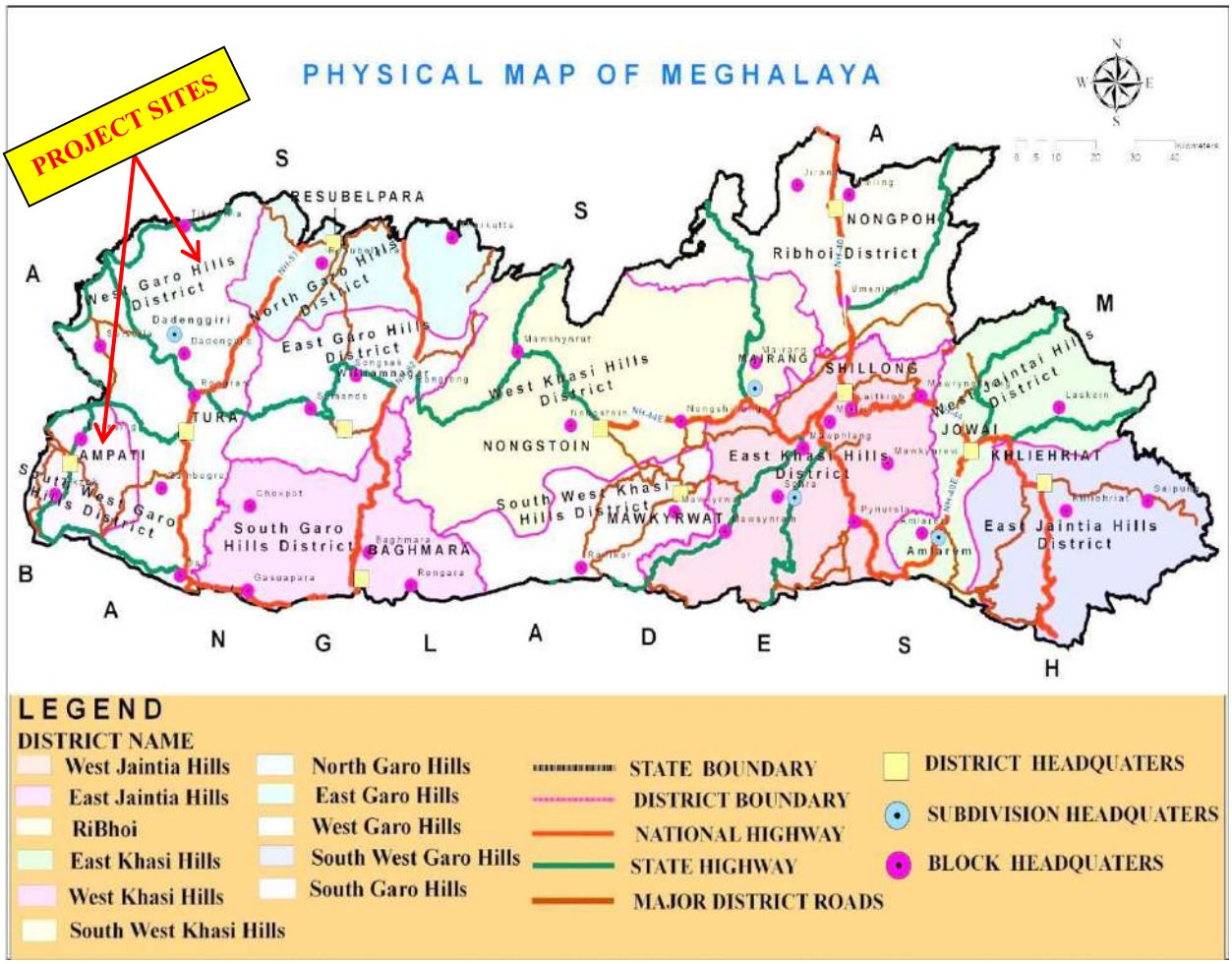
(v) **Analysis of secondary data :** Extensive literature survey was undertaken to determine the biodiversity components of the project area. Further, literature in respect of animal corridors, status of forests, etc. were also consulted. The official websites of the forest department were also visited to corroborate the information garnered from secondary sources

(vi) **Development of Google maps:** Google maps and Geo-referenced maps with superimposed coordinates of project elements have been generated so as to verify locational details and details of physical features of terrain of the project locations.

CHAPTER 2: BASELINE DATA

2.1 Project Location

The proposed project is located in West Garo Hills & South West Garo Hills districts of Meghalaya (**Map-2.1**). The map showing location of various subprojects is presented in **Map- 2.2 & Map -2.3.**



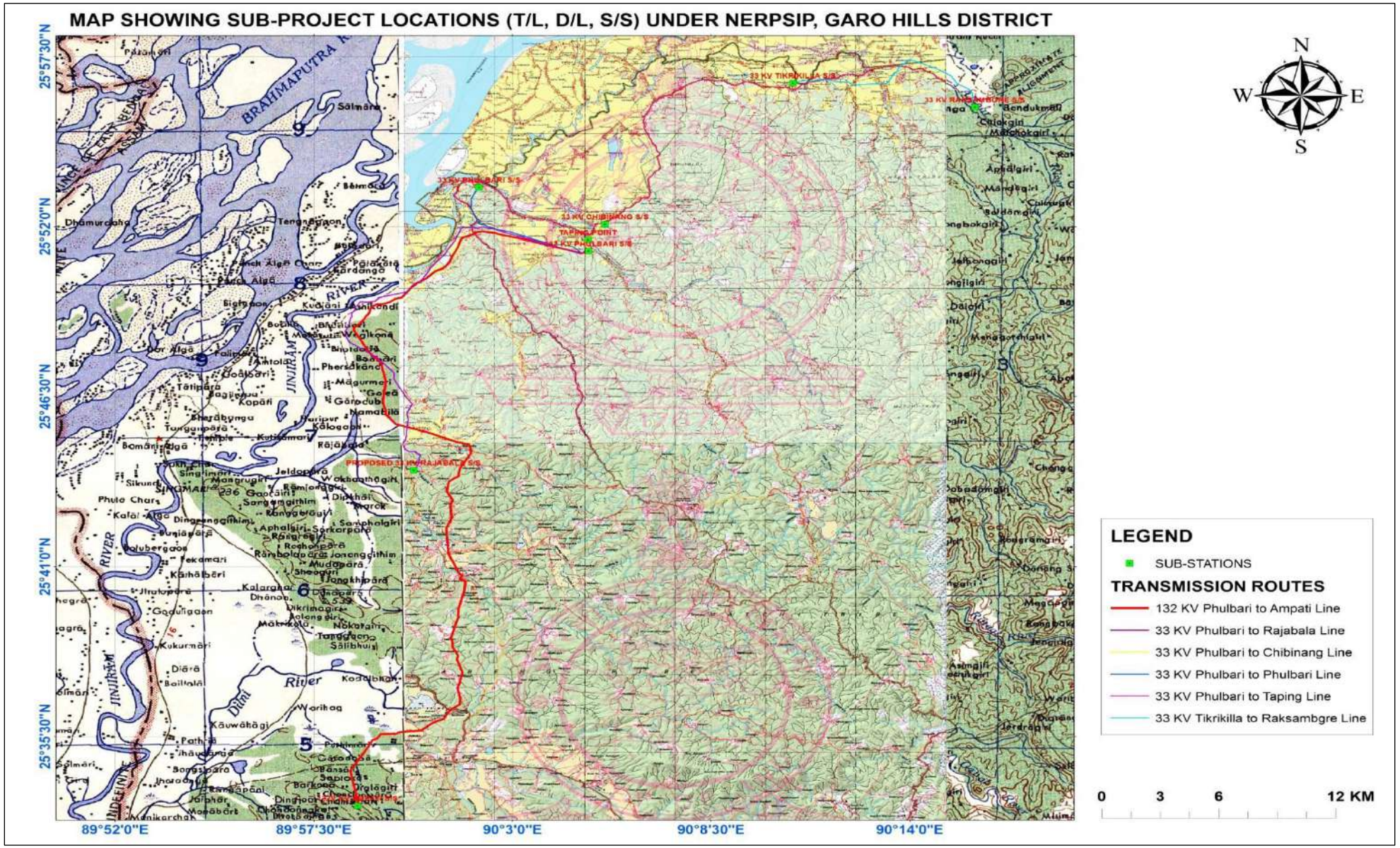
Map - 2.1: Location Map of the Project

It may be noted that South West Garo Hills, previously a part of West Garo Hills (Ampati Sub-division) became a district in year 2012. The basic environmental setting of the State and project area districts are given below:

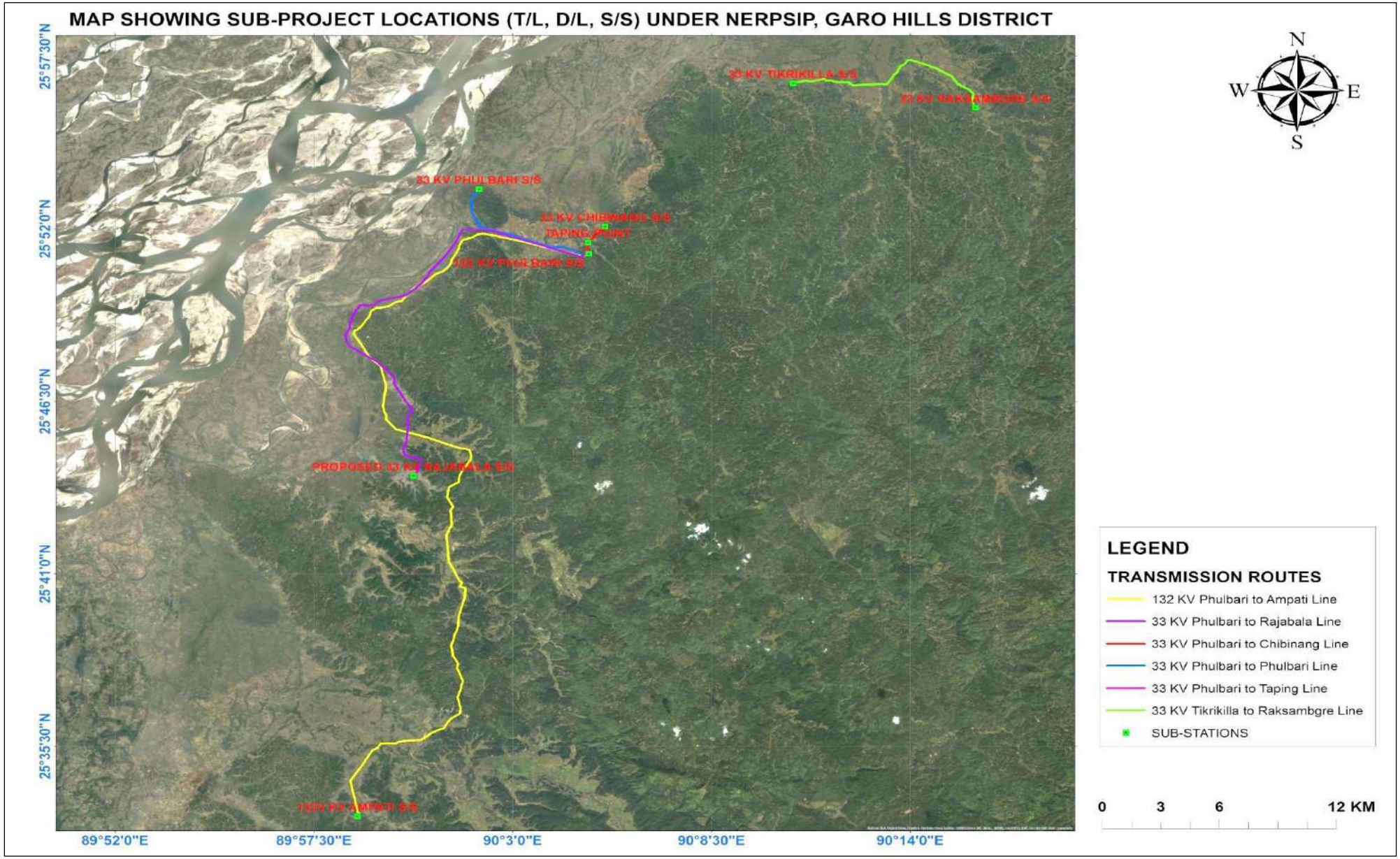
2.2 Meghalaya

Meghalaya has a geographic area of 2.24 million ha, which constitutes 6.82% of the country's total area. It is situated between latitude 24°58' N to 26°07' N and longitude

Map- 2.2: Topo Map showing Subprojects Location



Map- 2.3: Google Map showing Subprojects Location



89° 48' E to 92° 51'E. The state has most of its land covered by hills interspersed with gorges and small valleys with elevation ranging between 150 m to 1,950 m. In terms of tribal composition, the state has three distinct regions, namely, Garo Hills, Khasi Hills and Jaintia Hills. The general land use pattern of the state is depicted in **Table 2.1**.

Table- 2.1: Land use pattern in Meghalaya

Land Use	Area in '000 ha	Percentage
Total geographical area	2,243	
Reporting area for land utilization	2,243	100.00
Forests	946	42.21
Not available for cultivation	239	10.66
Permanent pastures and other grazing lands	00	00
Land under misc. tree crops & groves	164	7.31
Culturable wasteland	391	17.44
Fallow lands other than current fallows	155	6.91
Current Fallows	60	2.67
Net area sown	285	12.71

Source: Land use statistics, Ministry of Agriculture, GOI, 2011-12

Climate:

The State enjoys a temperate climate. It is directly influenced by the South-West Monsoon and the northeast winter wind. The climate varies with altitude. The four seasons of Meghalaya are: Spring - March and April, Summer & Monsoon - May to September, Autumn -October and November and Winter - December to February.

Temperature:

The temperature during summer months (April to October) is usually 15°C minimum to 23°C maximum, and during winter months (November to March) it is 3°C minimum to 15°C maximum.

Rainfall:

Monsoon usually starts by the third week of May and continues to the end of September, and sometimes well into the middle of October. The average rainfall in the

State is 12,000 millimeters (mm). There is a great variation of rainfall over central and southern Meghalaya. Mawsynram platform, receives the heaviest rainfall in the world. At Sohra (Cherrapunjee), the average annual rainfall is as high as 12000 mm but Shillong located at a distance of about fifty kilometers from Sohra receives an average of 2200 mm of rainfall annually.

Minerals:

Meghalaya with its rich wealth of mineral deposits has tremendous industrial potential. There are extensive deposits of coal, limestone, granite, clay and other minerals. Coal deposits are available in all districts and particularly in the southern slopes of the state. The coal bears low ash content and its calorific value ranges between 6500 to 7500 KCal/Kg. The total estimated reserve of coal is in the region of 640 million tonnes. The coal is mainly of sub-bituminous type and can be utilized in varied industries ranging from power, fertilizer, cement and textile to paper, rubber, brick kilns and also pottery based industries. The coal found in the State can also be converted into coke to recover value added chemicals like light, medium and heavy oil, phenol and producer gas.

Limestone is another mineral that occurs in an extensive belt (approx. 200 km. Long) along the Southern border of Meghalaya. The quality of limestone found here varies from cement grade to chemical grade having three brands as well. Total inferred reserve limestone within the State is about 5,000 million tons. The quality of limestone in the state has CaO content of 53% and can be of use in steel, fertilizer and chemical industries. Granite of excellent quality is at present being mined in the East and West districts of Khasi hills. Sizeable deposits are estimated and can be found in various shades and colours. Clay of various types such as Kaolin (China clay), white clay, and fire clay are found in various parts of the states. These clays are suitable for the ceramic, paper, rubber and refractory industries. It has been estimated that there are a few hundred million tonnes of clay reserves in the state.

Beside the above, other economically viable minerals like gypsum, phosphorite, silica and, base metals, quartz and feldspar can be located in various parts of the state. The State is also credited with having one of the most valuable sillimanite deposits in the world.

Soils:

The soils of the hills are derived from gneissic complex parent materials; they are dark brown to dark reddish-brown in colour, varying in depth from 50-200 cm. The texture of

soils varies from loamy to fine loamy. The soils of the alluvial plains adjacent to the northwest and southern plateau are very deep, dark brown to reddish-brown in colour and sandy-loam to silty-clay in texture. Meghalaya soils are rich in organic carbon, which is a measure of nitrogen supplying potential of the soil, deficient in available phosphorous and medium to low in available potassium. The reaction of the soils varies from acidic (pH 5.0 to 6.0) to strongly acidic (pH 4.5 to 5.0). Most of the soils occurring on higher altitudes under high rainfall belt are strongly acidic due to intense leaching. Base saturation of these soils is less than 35 %. These soils are not suitable for intensive crop production.

There is not much difference in fertility classes of the soils of the State. Four soils fertility classes, namely, High Low Medium (HLM), High Medium Medium (HMM), Medium Medium Low (MML), Medium Low Medium (MLM) have been established from the soil test data so far compiled in the Soil Testing Laboratory of the State. A study conducted by the Indian council of Agricultural Research (ICAR) Complex, Shillong revealed that about 40% of the soils of the state contain micronutrients below the critical level.

Water Resources:

River System: The river system of Meghalaya comprises mainly of rivers draining to the Brahmaputra Basin in the north and the Meghna Basin in the South. Brahmaputra Basin comprises of sub-basin of Dilni, Ganol, Jinjiram, Ringgi, Ghagua, Didak, Damring, Krishnai, Dudhnoi, Ronggre, Umsiang, Umkhri, Umiam, Umiew, Myntang, Umlarem and Meghna Basin comprises of sub- Basin of Kangra, Simsang, Dareng, Darong, RongIk, Kynshi, Umngi, Myntdu, Lubha. Meghalaya is dominated by the Brahmaputra river (length: 2900 km). Its drainage area is roughly 935,500 sq. km.

Surface Water: The availability of surface water has been roughly estimated at 63.204BCM by referring to data from various sources.

Ground Water: The ground water resources of the state have been assessed by the Central Ground Water Board and the Annual replenishable ground water is 1.15 BCM.

Ecological Resources:

The recorded forest area is 9,496 sq. km which constitutes 42.34% of the geographic area of the state. According to legal status, Reserved Forests constitute 11.72 % and Unclassed Forest 88.15% of the total forest area (**Map-2.4**).

The state has eight forest types as per Champion & Seth Classification system (1968), belonging to five forest type groups, viz. Tropical Wet Evergreen, Tropical Semi Evergreen, Tropical Moist Deciduous, Subtropical Broadleaved Hill and Subtropical Pine Forests.

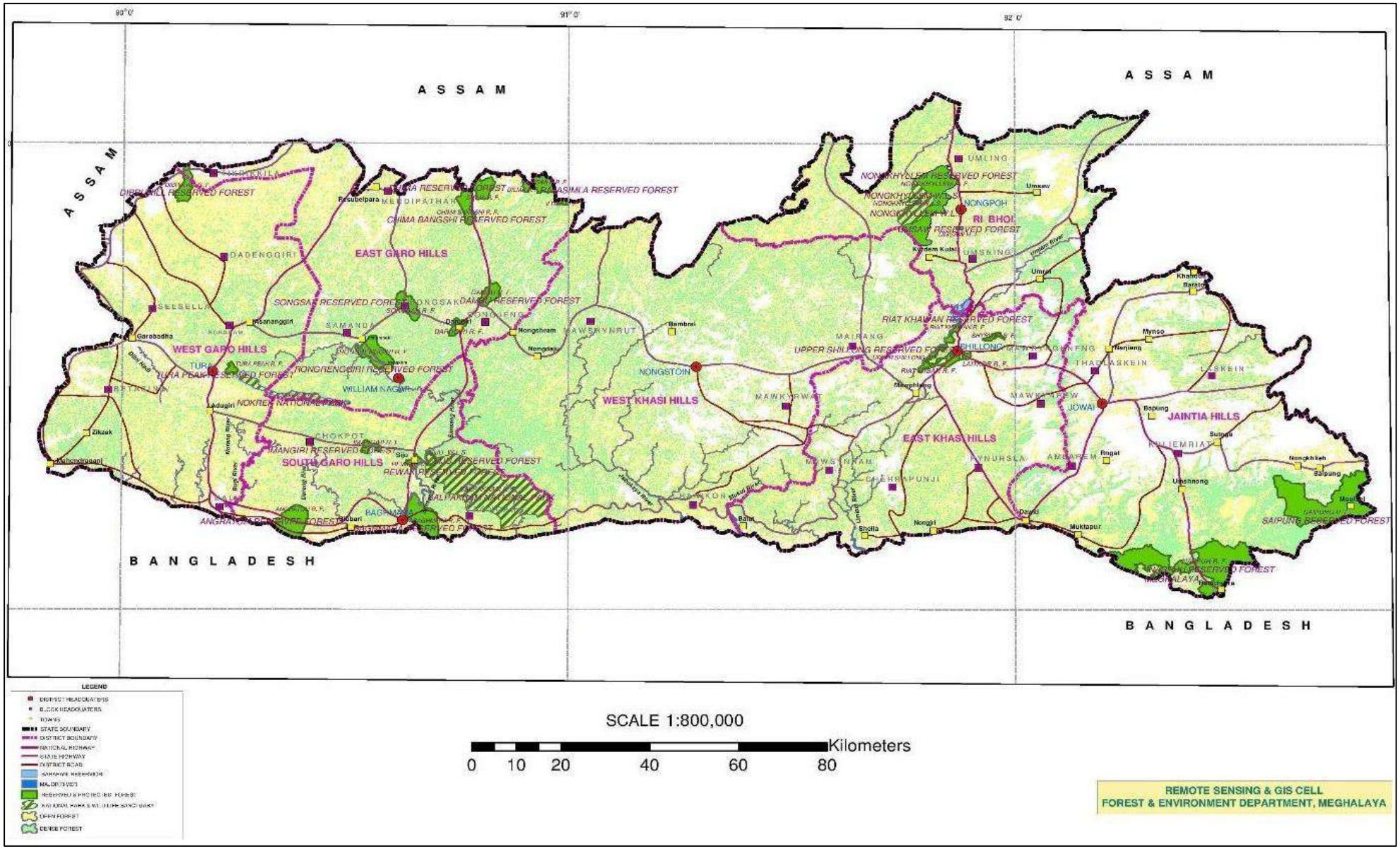
Protected Areas: The protected area network in Meghalaya occupies 1133.9 Sq. Km area which constitute about 5.06 % of the State's Geographical Area. The Protected Area Network includes 2 national Parks, 4 wildlife Sanctuaries and 1 Biosphere Reserve playing an important role in in-situ conservation of Biodiversity. Details of the protected areas are presented in **Table -2.2** below:

Table 2.2: Protected Areas in Meghalaya

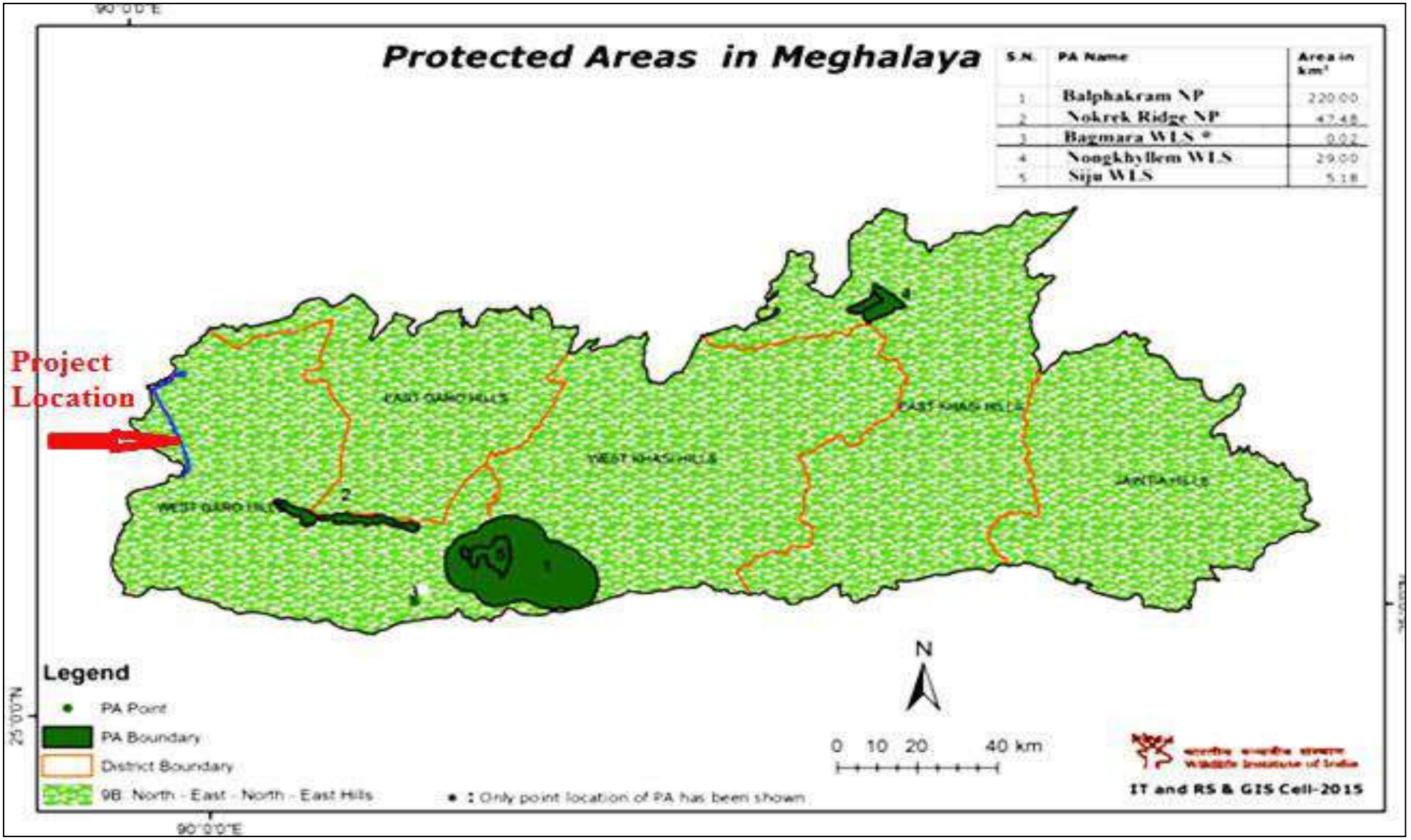
Sl. No.	Protected Areas	Area in Sq. km	District	Year of Establishment
1.	Siju Wildlife Sanctuary	5.81	South Garo Hills	1979
2.	Nongkhyllem Wildlife Sanctuary	29	Ri-Bhoi District	1981
3.	Baghmara Pitcher Plant Sanctuary	0.02	South Garo Hills	1984
4.	Balpakram National Park	220	South Garo Hills	1985
5.	Nokrek Ridge National Park	47.78	East Garo Hills	1986
6.	Nokrek Biosphere Reserve	820	East, West and South Garo Hills	1988
7.	Narpuh Wildlife Sanctuary	59.90	East Jaintia Hills	2014

It has been observed that none of the proposed transmission and distribution lines or substations are located/passing through any protected area like national parks, sanctuaries, biosphere reserves etc **(Map- 2.4).** It is also found that there is no ecologically sensitive area within a radius of 10 Km from the transmission and distribution lines proposed under this scheme.

Map 2.4 - Forest Cover Map of Meghalaya



Map 2.5- Protected Areas of Meghalaya vis-à-vis the sub-projects location



Wetlands:

The state of Meghalaya has 259 wetlands including small wetlands, covering an area of 29987 Ha, constituting 1.25% of geographic area of the state. None of the wetlands are part of Ramsar Convention. Total wetland area of West Garo Hills is 7196 Ha, which is 0.021% of the geographic area of the district. However, none of these wetlands are impacted in due to construction of T & D lines and associated substations.

Human and Economic Development:

Meghalaya is predominantly an agrarian economy. Agriculture and allied activities engage nearly two-thirds of the total work force in Meghalaya. However, the contribution of this sector to the State's NSDP is only about one-third. Agriculture in the state is characterized by low productivity and unsustainable farm practices. Despite the large percentage of population engaged in agriculture, the state imports food from other Indian states. The service sector is made up of real estate and insurance companies. Infrastructural constraints have also prevented the economy of the state from creating high income jobs at a pace commensurate with that of the rest of India.

2.3. West Garo Hills District:

West Garo Hillls district is one of the largest district of Meghalaya located in the western part of the State and having a Geographic Area of 3677 sq km, including the area of newly created South West Garo Hills. As per 2011 census, total population of the district is 4,70,796. Around 84% population of the district lives in rural areas. The district is predominantly inhabited by Schedule Tribes, who constitutes 71% of the total population. The district has a healthy sex ratio of 979 females for 1000 males, which is better than the corresponding National figure. The literacy rate of the district is 67%. The district derives its name from Garo community, a tribe with a matrilineal society belonging to the Bodo family of the Tibeto-Burman race tribes who are the main inhabitants of the district The Garo Hills district was divided into two districts, viz. the West Garo Hills district and the East Garo Hills district in October 1976. The erstwhile West Garo Hills district was further divided into two administrative districts of West and South Garo Hills on June 1992. The West Garo Hills district was further divided into two administrative district of West and South West Garo Hills on 7th August, 2012. The

district headquarters of West Garo Hills is Tura. The West Garo Hills district has two sub-division and six development blocks with an area of 2,93,400 ha. Other indigenous inhabitants are the Hajongs, Rabhas, Koches, Rajbansis, Meches, Kacharis and Dalus. The district is also inhabited by Bengalis, Assamese, Nepalese, Marwaries, Biharis and people from other parts of India.

Administratively the district is divided into three subdivisions viz. Tura, Phulbari and Dalu. There are five revenue circles and six community development blocks (CD) in the district. The total number of villages in the districts is 1258 of which 1172 are inhabited. The administration is carried on by the Executive Committee constituted under the Autonomous District Rules, the Committee being headed by the Chief Executive Member. There are two Executive Members under him. These functionaries share among themselves the entire responsibility of administration, their separate functions being defined. In short, in respect of the internal administration of the district they may be compared to the Ministers of the State Government in that they are elected to the Council and have particular subjects under their charge. The major subjects assigned to the Council are: Forests, Civil Works, Taxation, Revenue, Judicial, Transport and Education. The business of the house is conducted by the Chairman and Deputy Chairman, corresponding to the Speaker and the Deputy Speaker in the State Assembly. In domestic matters, very wide powers are exercised by the *Nokma* of individual villages. He is the head or chief of the dominant clan within the territorial limits. At the grass root level, the village headman or locally called *Nokma* enjoys full freedom in planning and developing the area under his jurisdiction. They are also known as the Local Self Government. There are *Laskars* and *Sardars* recognized by District Council who have a certain measure of magisterial powers and rather more police powers. *Sardars* are appointed to assist the *Laskars* in the discharge of their duties. The institution of *Laskarship* has come under some criticism in recent years.

Topography:

The West Garo Hills district is mostly hilly with plains fringing the northern, western and the south-western borders. The district is situated approximately between the latitudes 90° 30’ and 89° 40’ E, and the longitudes of 26° and 25° 20’ N. The West Garo Hills district lies on the western part of the state of Meghalaya bounded by the East Garo Hills district on the east, the South Garo Hills on the south-east, the North Garo Hills district

on the north and South West Garo Hills on the south- west. There are three important mountain ranges in the districts of Garo Hills. The project area is located in the westernmost fringes of the district and mostly constituted by flat land.

Tura Range: This is one of the most important mountain ranges in West Garo Hills. The Tura range is about 50 km long and extends in the east-west direction from Tura to Siju in the South Garo Hills district. The mountain peaks that are located in this range are Tura Peak, Nokrek Peak, Meminram Peak, Nengminjok Peak, Chitmang Peak The highest peak of this range is the Nokrek (Altitude 1412 m above msl) lying 13 km southeast of Tura. To the west of the Tura range low hill ranges run from north to south, and to the north of the Tura range hill ranges run parallel to it, gradually increasing in height till they meet in the south. Now the entire Tura range comes under the management of

Nokrek National Park: These high ranges are strictly protected as Catchment areas right from the time of British Administration in Garo Hills. There is no human habitation in the heart of these ranges which has now become an ideal home to various flora and fauna.

Arbella Range: Arbella Peak is 999 metres high. It lies on the northern side of Asananggre village on the Tura- Guwahati road. Most of the peaks in this mountain range fall in the East Garo Hills district.

Ranggira Range: This mountain range lies on the western fringe of the district and ends in Hallidayganj village. The height of this peak is 673 metres.

Climate: The climate of the district is largely controlled by South-West monsoon and seasonal winds. The West Garo Hills district being relatively lower in altitude to the rest of Meghalaya, experiences a fairly high temperature ranging between 20^{o}C to 30^{o}C for most part of the year. The average rainfall is 2800- 3300 mm of which more than two-thirds occur during the monsoon, and relative humidity ranges between 60%-80% (KVK, Tura; 2014). Winters are practically dry.

Soils : The district shows different types of soil as the provenance differs widely. Red gravelly soils and red Sandy Loam in the hilly slopes and Clayey Loam in the plains are the predominant soil types. The soils are acidic in nature and comparatively rich in organic matter and nitrogen but poor in phosphorous and potassium.

The project area enjoys the climatic conditions and soils as outlined above. Being on the western most fringes of the district, the project area is located mostly on level land (>70%) and mildly undulating hillocks.

Forests[1]:

The district has mostly dense tropical mixed forest, and a small patch of temperate forest in the higher parts of the Tura range. However, as per the latest State of Forest Report 2017 published by Forest Survey of India (FSI) it has been observed that there is a reduction of 2.14% of forest cover from 2015 in the project area district. The details of forest resource available in the project area districts is presented in **Table 2.3**.

Table 2.3. Forest Cover (West Garo Hills):

						(Area in Sq. km)
District	**Geographic area**	**As per 2017 Assessment**				**% Forest cover**
		Very Dense forest	**Mod Dense forest**	**Open forest**	**Total**	
West Garo Hills	3677	0	1244	1593	2837	77.16

Source: Indian State of Forest Report, 2017

It is evident from above table that the project area district has a very high forest cover i.e. 77.16% of the geographical area of the district which are mostly comprising of moderately dense or open forest. However, due to meticulous routing of T & D lines and

Locating the substation lands by IA/State Utilities involvement of notified forest area were completely avoided. Further, State forest authorities after joint inspection has issued No Objection Certificate (NoC) stating that the status of land coming under RoW of 132 kV Phulbari-Ampati is only non-forest land (**Annexure- 1).**

Biodiversity: The whole of Garo Hills region forms a sort of undulating plateau with plenty of flat lands and valleys with altitudes varying from 100-1400 m above sea level, Nokrek being the highest point, i.e. 1418 m. The district has a rich and unique flora and it is supposed to be the original home of the Citrus. Based on altitude, the vegetation of Garo Hills can be broadly classified into the flora of tropical and sub-tropical zones.

[1] **Notified forests**- An area under Government control notified or recorded as forest.
Reserve forests - Natural forests having rich bio-diversity and No activity is permitted without permission.
Protected forests - All activities are permitted unless it is prohibited.
Protected areas - A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means. It includes National Parks, Wildlife Sanctuaries, Tiger Reserves, Biosphere Reserves etc.
Community forests - Involvement of local communities in the protection and/or management of public forests.
Degraded forests- Forest with canopy density < 40%.
Open forests- Canopy density between 10 to 40%.

Flora of Tropical Zone: The tropical vegetation covers areas upto an elevation of about 1000. The majority of the forests viz. Dilma, Dhima, Chimabangsi, Rajasimla Ildek, Darugre, Rongrenggre, Songsak, Siju, Rewak, Emangre, baghmara, Phulbari, Rongmatchokgre, Rongchugre, Singimari etc. fall in this zone. It embraces evergreen, semi-evergreen and deciduous forests, bamboo thickets and grasslands including riparian forests and swamps. These forests mainly consists of Shorea robusta and in certain area Tectona grandis has also been introduced. The tallest trees are *Schima wallichii, Terminalia belirilia belirica, Engelhardtia spicata, Aesculus assamica, Papheopedilum insigne, Diplomeris pulchella, Leptomischus wallichi, Carex remota L. Eriocaulon* etc. *Aporusa wallichii, Bridelia retusa, Cryptocarya andersonii, Talauma hodgsonii, Lagerstroemia parviflora, Gmelina arborea*. *Miliusa velutina, Hibiscus macrocarpus, Zizyphus rugosa, Helicia robusta, Engelhardtia spicata var. Colebrooliana and Ficus cuminate* etc. form the lower canopy. The main components of Shrub species are *Capparis zeylanica, Garcinia lancifolia, Bauhinia cuminate, Mimosa himalayayana, Acacia Concinna, Mussaenda Roxburghii, Eupatorium Modiflorum, Solanum Kurzii and Phlogacanthus tubiflorus* etc. In a few areas, numerous tree intertwining lianas such as *Dysolobium grande, Mucuna bracteata, Fissistigma wallichii, Paederia scanders, Solena heterophylla and Aristolocchia saccata* are prominent. Rarely, *Aristolochia cathcartii* may be seen in certain forests. Several species of bamboo stretch for long distances forming thickets of secondary vegetation without any competition. A few palms like *Areca, Caryota, Pinanga and Didymosperma* are also conspicuous. The ground flora in deciduous forests is very poor and seasonal, while in evergreen forests, species of *Alpinia, Amomum, Colocasia, Costus, Hedychium* etc are not uncommon. The epiphytic climbers found are *Rhaphidophora* spp., members of

Gesneriaceae, *Hoya spp*. With beautiful bunches of star like flowers and stem, parasites of Loranthaceae and total root parasite *Cuscuta reflexa* are also seen. A few species of epiphytic orchids are seen in the evergreen forests but with low species diversity. The herbaceous vegetation is less profuse and includes the members of Oxalidaceae, Balsaminanceae, Acanthaceae, Leeaceae, Fabaceae, Asteraceae and Poaceae. Ferns and fern-allies, liverworts and mosses etc. are also seen on old tree trunks and stones etc. near water sources and in shady places. Due to excessive *'Jhum'* practice, most of the forest areas are cleared and secondary monoculture planatations of *Shorea robusta* have been established. In more or less open moist localities and near water sources,

herbs like *Dictyospermum, Aneilema Scaberrimum, Burmania Sp., Coiictyospermum, Aneilema Scaberrimum, Burmania Sp., Coix sp. Cyprus spp., Oxalis Corniculate, Anemone spp.* and *Ericcaulon* can be seen.

Flora of sub-tropical vegetation: The sub-tropical vegetation occurs at elevations above 1200 m from sea level and this type of forest is restricted in Tura Peak, Nokrek Peak etc. These are mainly evergreen forests but a few elements of deciduous forests are also seen. The top canopy is constituted by *Castanopsis hystrix, Betula culindristachvs, Kavea floribunda, Garonia affinis, Cyathocalvx martabanicus, Talauma rabaniania, Taluma phellocarna, Dryntes lancifolia Pasania xylocarpa, Fiscus spp.* and *Vitax altissima. Aldina cordifolia, Sterculia villosa, Garuga pinnata, Machilus gamblei, M. Villosa, Milletia orainii, Carnicia paniculata, Sageraea juarina, Symolocus ferruginea, Eriobotrya benghalensis, Adinandra griffithi, Leptomischus wallichi, Anthoxanthum clarkei , Ceropegia angustifolia Wight , Clematis apiculata , Emblica offinialis, Ebretia cuminate, Quercus semiserrata, Betula alnoides* with *Litsea spp*. etc. forming the middle canopy of trees. The lowest canopy comprises of *Aglata roxburghii, Antidesma bunius, Breynia patens, Pasania spicata, Mitrephora tomentosa, Styrax serrulati*, *Premna multiflora, Entada phaseoloides, Conophalus suaveolens, Dalbergia stipulacea, Spatholobus roxburghii* and *Vitis latifolia* etc. The high altitude coupled with low temperature and moisture is congenial for the profile growth of epiphytic flora. The branches of old tree trunks are moss-laden and are fully covered by epiphytic orchids, though species diversity is very low. Ferns, liverworts and mosses etc. are also predominant in this region.

However, it may be noted that much of the plant diversity is concentrated in the protected and Reserve forests. Moreover, the lines traversing only non-forest area which are mostly on secondary growth (Jhum fallows) or are degraded forests and plantations therefore having nil or insignificant impact on biodiversity of the project area

Fauna: The large diversity of mammalian fauna found in project area district includes:

Hoolock gibbon	Stump-tailed macaque	Rhesus macaque
Assamese macaque	Slow loris	Golden langur
Capped langur	Common monkey	Tiger
Leopard	Clouded leopard	Golden cat

Leopard cat	Marbled cat	Jungle cat
Large Indian civet	Masked Palm civet	Binturong
Indian Grey mongoose	Indian fox	Himalayan Black bear
Yellow Throated marten	Yellow-Bellied weasel	Madras Tree shrew
Indian flying squirrel	Malayan Giant squirrel	Bandicoot rat
Lesser Bamboo rat	Black Napped hare	Rufous-tailed hare
Sambar	Gaur	Indian Crested porcupine
Cheetal	Muntjac or Barking deer	Indian elephant
Wild dog	Indian Wild boar	Different Species of Bats
Scaly ant eater		

Some of the threatened flora and fauna found in the project area district are as follows

Sl No	***Scientific name***	***Category***
Flora		
1	*Papheopedilum insigne*	Endangered
2	*Adinandra griffithi*	Endangered
3	*Diplomeris pulchella*	Vulnerable
4	*Leptomischus wallichi*	Rare
5	*Nepenthes khasiana*	Endangered
6	*Anthoxanthum clarkei*	Endangered
7	*Carex remota L.*	Endangered
8	*Ceropegia angustifolia Wight*	Vulnerable
9	*Clematis apiculata*	Endangered
10	*Eriocaulon gregatum koern.*	Rare
11	*Hoya spp*	Endangered
12	*Fimbristylis stolonifera*	Rare
Fauna		
1	*Philautus garo* (Amphibia)	Vulnerable
2	*Macaca assamensis* (Mammalia)	
3	*Nycticebus bengalensis (Mammalia)*	Vulnerable
4	*Macaca arctoides (Mammalia)*	Vulnerable
5	*Manis sp (Mammalia)*	Endangered

Different varieties of birds are in abundance in the forest areas of the region.

Indian black baza	Barred jungle owlet	Red jungle-fowl
Thick-billed green pigeon	Blue throated barbet	Long-tailed broadbill
Grey-headed myna	Jungle myna	Green magpie
Indian house crow	Red winged crested cuckoo	Large green-billed malkoha
Crow pheasant	Red headed trogon	Red wattled lapwing
Burmese roller	Broad-billed roller	Spur-winged plover
Indian three-toed forest kingfisher		

Some other varieties of birds like the White-crested Laughing Thrush, Scarlet Minivet, Black-headed Oriole, Cockoo-shrike, Green Barbet, Chloropsis, Green Himalayan Barbet, White–capped Redstart, Magpie Robin, Yellow Bulbul, Brown Fish Owl, Bee-Eaters, Serpent Eagle, Hill Myna, Pied Myna, Grey-headed Sibia, Slaty-headed Scimitar Babbler, as well as various species of Hornbills, Nightjars, Egrets, Parrots, Swallow-Shrikes have also been reported.

Reptile fauna include different varieties of lizards, snakes, turtle/tortoises. Different species of lizards, geckos and skinks include *Calotes Emma, C. Maria, C. Versicolor, Cnemaspis Jerdoni, Cytodac Tylus Khasiensis, Cosymbotus Platyrus, Hemidactylus Brooki, H. Frenatus, Gekko Gecko, Japalura Planidorsata* etc.

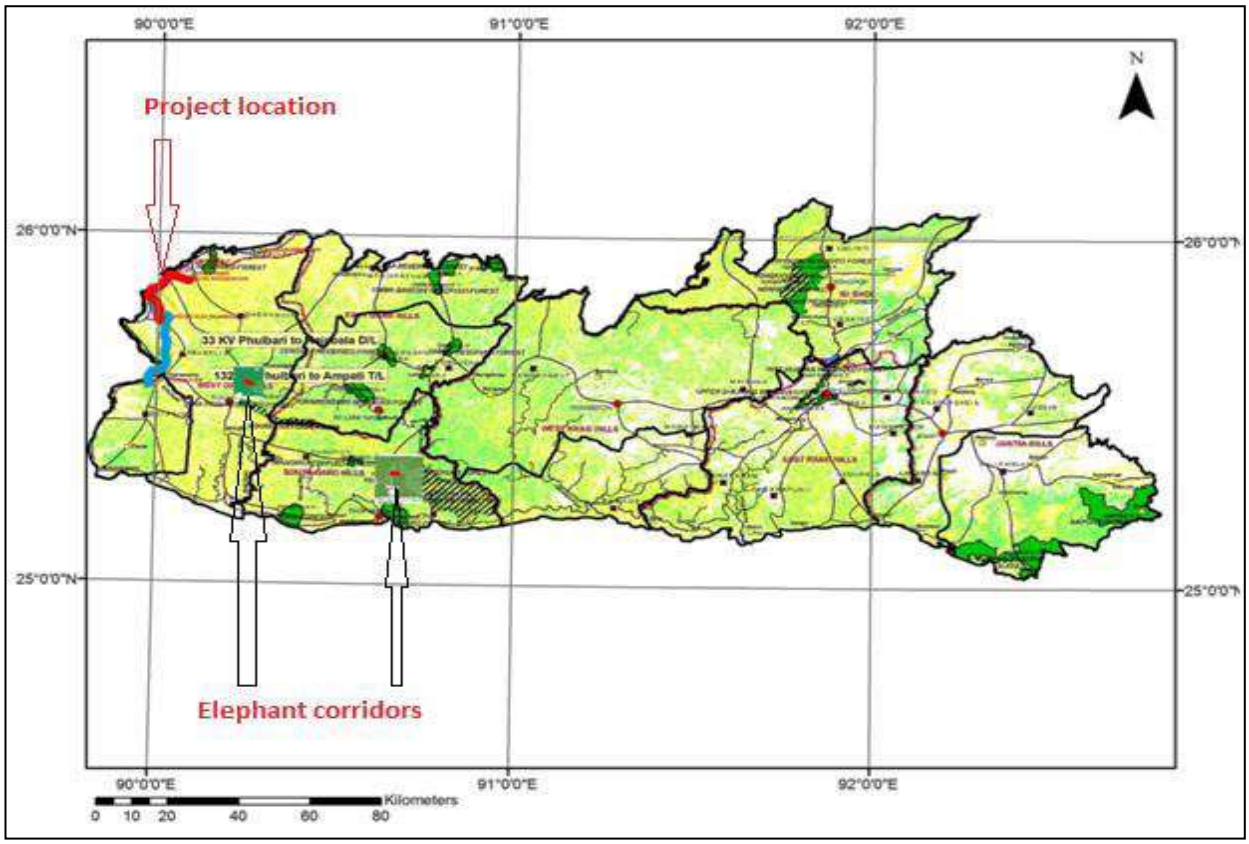
Different species of snakes include Blind snakes, Indian Gamma, Checkered Keelback, Red necked Keelback and others important poisonous species include Indian Cobra and Vipers.

Protected Areas: The only protected area located in project area district is Nokrek Biosphere Reserve. Besides, Elephant corridors are present around Nokrek Biosphere reserve (to the east of project area) and also in the southern eastern parts **(Map- 2.6).** A larger area encompassing many reserve and protected forests are included as Elephant reserve by the State Forest department. However, these corridors and reserves are far away from the project area.

Water resources:

River Systems: The Tura range forms watersheds in the West Garo Hills district, from which the rivers flows towards Bangladesh plains in the south and the Brahmaputra valley in the north and the west. The important rivers of the north group are the Kalu,

Ringgi and the Didak. The important rivers of the southern group are the Bhogai, Dareng etc. The Tura range is also the source of the Simsang (Someswari), one of the major rivers of Meghalaya, whose valley is one of the most important features in the South Garo Hills.



Map- 2.6 : Elephant Corridors vis-à-vis sub-projects location.

Someswari: This is the largest and the second longest river in the whole district. The river is locally known as Simsang. It starts from Nokrek mountains and runs towards the east, passing through Rongrenggre, Williamnagar (headquarters of East Garo Hills district), Nongalbibra, Siju, Rewak and lastly Baghmara the headquarters of South Garo Hills district. The upper course of this river is not navigable due to the high number of cataracts and numerous huge boulders. However the lower course has many deep pools and falls. They are Mirik, Matma, Kan´chru Suk, Jamiseng, Warisik, Bobra, Goka etc. The chief tributaries are Chibok, Rongdik, Rompa and Ringdi rivers.

Jinjiram: It starts from Derek village and its main tributary starts from Upot Lake. It runs towards the east connecting with Gagua river, then runs through the border of Goalpara district towards Phulbari and reaches Hallidayganj where it enters the Goalpara district. It is the longest river in the Garo Hills districts.

Kalu: Locally, this river is called Ganol. Its sources start from Tura peak and runs towards the west through Damalgre, Garobadha and Rangapani before it enters Goalpara district. Its chief tributaries are Dilni and Rongram rivers.

Didak: It stars from Anogre village and runs through Garo Hills district before it enters into Goalpara district.

Bogai: Locally known as Bugi, its source starts from the southern side of Nokrek Mountains and runs through Dalu village and enters into Mymensingh district in Bangladesh.

Rongai: Starts from Arabela peak and runs through Ringgegre village and then falls into Jinjiram river. Locally known as Ringge river.

Dareng or Nitai: The source is on the southern side of Nokrek Mountain. It runs southwards through Silkigre and enters into Bangladesh. It has many deep pools like Warima, Rong´ang, Bamon etc. where Bamon is the deepest. The chief tributaries are Kakija, Daji and Rompa.

Economics Status

The economic status of the district is primarily driven by Agriculture and assistance schemes of Central and local government. Agriculture remains the main profession/source of livelihood for the local community. Poultry, Dairy Farming and Beekeeping are also practiced. However, the presence of industries is by and large negligible except for Tourism. Among several factors, lack of reliable power may be one of the reasons for the dismal growth of the industries.

Demography Features

Total Population

Total population in Meghalaya stands at 29,66,889 of which 23,71,439 (79.93%) population belong to rural area and 5,95,450 (20.07%) population belong to urban area. The West Garo Hills district has a total of 6,43,291 population of which is the most populous district of Meghalaya constituting 21.68% of State's population. The rural and urban population constitute 88.36% and 11.64% of total populations of the district. Details are given in **Table 2.4**.

Table 2.4: Details on Total Population

Name/Particulars	Total Population	Total (Rural)	Total (Urban)	Percentage (Rural)	Percentage (Urban)
Meghalaya	29,66,889	23,71,439	5,95,450	79.93	20.07
West Garo Hills	6,43,291	5,68,433	74,848	88.36	11.64

Source: Census of India, 2011

Male and Female Population

Out of total population 29,66,889 of the State, male population constitutes 14,91,832 (50.27%) and female population is 14,75,057 (49.73%). Total population in West Garo Hills district stands at 6,43,291of which male population stands at 3,24,159 (51.41%) and female population stands at 3,19,132 (48.59%). The sex ratio of the district stands at 945 females per thousand male which is lower than State's average of 989. Details are given in **Table 2.5.**

Table 2.5: Details on Male/ Female Population

Name /Particulars	Total Population	Total Male	Total Female	Percentage (Male)	Percentage (Female)	Sex Ratio
Meghalaya	29,66,889	14,91,832	14,75,057	50.27	49.73	989
West Garo Hills	6,43,291	3,24,159	3,19,132	51.41	48.59	945

Source: Census of India, 2011

Scheduled Caste (SC) and Scheduled Tribe (ST) Population

As per census 2011, the Scheduled Caste (SC) & Scheduled Tribe (ST) population of the State stands at 17,355 (0.89%) and 25,55,861 (86.14%) respectively. The West Garo Hills district has a total SC population of 8,810 (1.37%) and ST population of 4,74,009 (73.68%). Details are given in **Table 2.6**.

Table 2.6: Details on Percentage SC/ST

Name/ Particulars	Total Population	Total SC Population	Percentage of SC Population	Total ST Population	Percentage of ST Population
Meghalaya	29,66,889	17,355	0.89	25,55,861	86.14
West Garo Hills	6,43,291	8,810	1.37	4,74,009	73.68

Source: Census of India, 2011

Literacy

The literacy rate of West Garo Hills district stands at 55.76 % which is slightly lower than State's average. However, the female literacy rate of the district is higher than State's literacy rate. Details are given in **Table 2.7**.

Table 2.7 : Literate and Illiterate Population

Name/Particulars	Total Population	Total Literate	Percentage of Literate	Percentage (Male)	Percentage (Female)
Meghalaya	29,66,889	17,85,005	60.16	51.20	48.80
West Garo Hills	6,43,291	3,58,702	55.76	53.92	46.08`

Source: Census of India, 2011

Total Workers (Male and Female)

Total population into work in Meghalaya stands at 11,85,619 of which total Male (work) population stands at 7,03,709 (59.35%) and total female (Work) population stands at 4,81,910 (40.65%). The West Garo Hills district has a total work population of 2,55,693 of which total Male (work) population stands at 1,51,914 (59.41%) and total female (Work) population stands at 1,03,779 (40.59%). Details are given in **Table 2.8.**

Table 2.8: Details on Workers

Name/ Particulars	Total Population (Work)	Total Male (Work)	Total Female (Work)	Percentage (Male)	Percentage (Female)
Meghalaya	11,85,619	7,03,709	4,81,910	59.35	40.65
West Garo Hills	2,55,693	1,51,914	1,03,779	59.41	40.59

Source: Census of India, 2011

Households

Total Households in Meghalaya stands at 5,48,059 of which 4,30,573 (78.56%) households belong to rural area and 1,17,486 (21.44%) households belong to urban area. The district has a total of 1,23,352 households of which 1,09,609 (88.85%) households belong to rural area and 13,743 (11.15%) households belong to urban area. Details are given in **Table 2.9.**

Table 2.9: Details on Households

Name/ Particulars	Total Households	Total (Rural)	Total (Urban)	Percentage (Rural)	Percentage (Urban)
Meghalaya	5,48,059	4,30,573	1,17,486	78.56	21.44
West Garo Hills	1,23,352	1,09,609	13,743	88.85	11.15

Source: Census of India, 2011

2.4 Baseline Description of the Subproject areas:

The baseline data around the sub-project sites is generally in conformity with the baseline data of the West & South West Garo hills districts. However, the topography

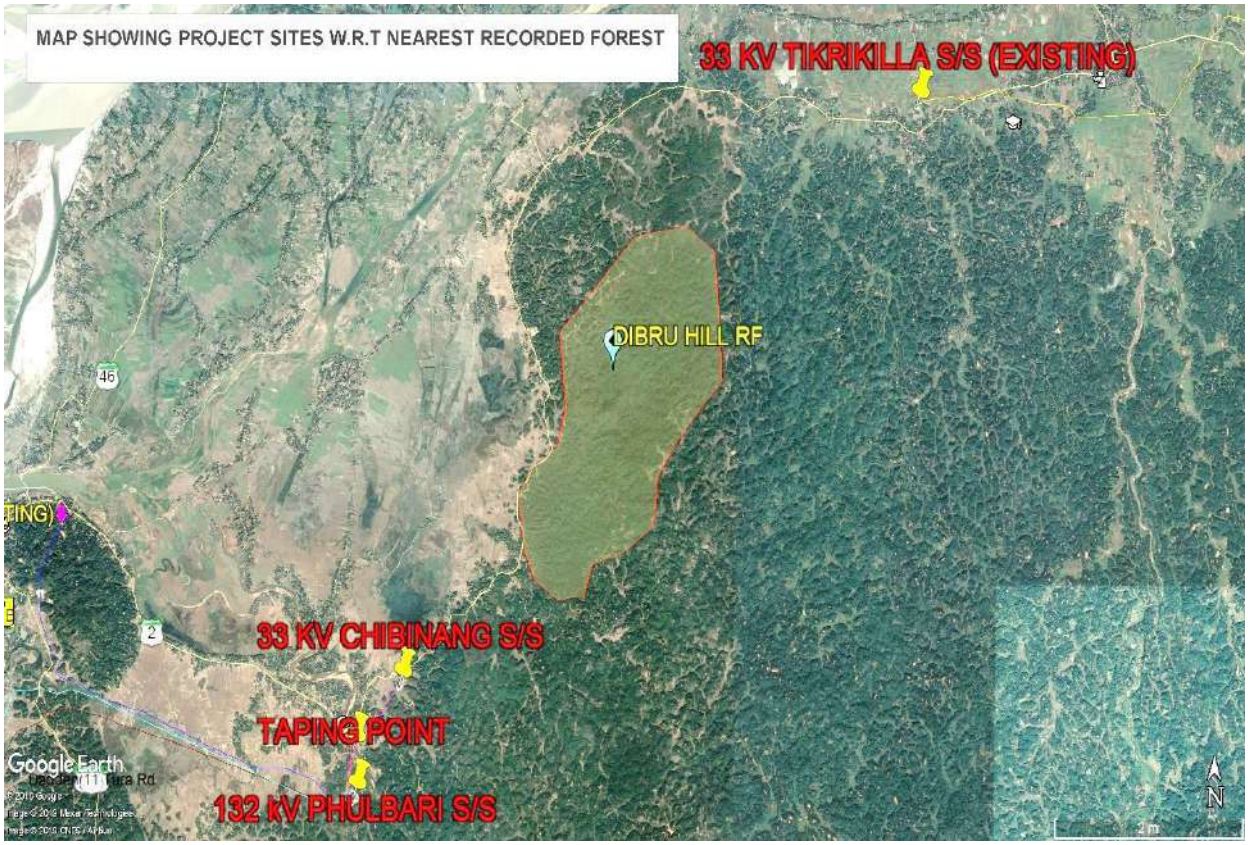
encountered around the transmission and distribution line route alignment is mostly combination of hilly (with gentle slope) and plain land under paddy cultivation. On an average 70% of transmission/distribution line corridors are in plain land and remaining 30% are in hill areas with gentle slope. All the substations are located generally in plain area.

The common vegetation type encountered along the transmission line corridor are mostly paddy cultivation and private land with moderate dense tree cover dominated by fruit bearing /cashew nut trees and in some places by rubber cultivation done by local population. The general baseline of the project area is well depicted below in the **Map-2.7**

Map-2.7 – Map showing general land use pattern along transmission corridor

The general demographic profile of the project areas (in and around Phulbari/Raksambre/Chibinang/Ampati) is mix of scheduled tribe population dominated by Garo people and also some other population of Bengalis, Nepalis, Assamese, members of other ethnic groups such as the Hajong, Rabhas and Koches.

There is no recorded forest (reserved forest/protected forest etc.) and Protected areas (NP/WS/Tiger Reserve etc.) involved in the sub-project sites. The nearest recorded forest i.e. Dibru Hill RF is located approximately 3 km from the nearest project site i.e. 33/11 kV Chibinang S/s as shown in **Map 2.8** below



Map-2.8 – Map showing notified forest area vis-à-vis subproject location

CHAPTER 3: LEGAL & REGULATORY FRAMEWORKS

Power transmission and distribution project activities by their inherent nature and flexibility have negligible impacts on environmental and social attributes. The IA & MePTCL/MePDCL are undertaking its activities within the purview of Indian and State specific laws keeping in mind appropriate international obligations and directives and guidelines with respect to environmental and social considerations of Bank's Operational Policy. The regulatory frameworks applicable for this project and its status of compliance provided below;

3.1. Constitutional Provisions

Subsequent to the first United Nations Conference on Human Environment at Stockholm in June, 1972, which emphasized the need to preserve and protect the natural environment, the Constitution of India was amended through the historical 42nd Amendment Act, 1976 by inserting Article 48-A and 51-A (g) for protection and promotion of the environment under the Directive Principles of State Policy and the Fundamental Duties respectively. The amendment, inter alia provides:

"The State shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country". (New Article 48A)

"It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures". [New Article 51 A(g)]

Article 21 of the constitution provides, "no person shall be deprived of his life or personal liberty except according to procedure established by law".

Article 21 is the heart of the fundamental rights and has received expanded meaning from time to time after the decision of the Supreme Court in 1978. The Article 21 guarantees fundamental right to life – a life of dignity to be lived in a proper environment, free of danger or disease or infection. Recently, Supreme Court has broadly and liberally interpreted the Article 21, transgressing into the area of protection

of environment, and held that the citizen's right to live in an eco-friendly atmosphere is to be interpreted as the basic right guaranteed under Article 21.

Thus the Indian Constitution now has a two folds provision:

(a) On the one hand, it gives directive to the State for the protection and improvement of environment.
(b) On the other hand the citizens owe a constitutional duty to protect and improve the natural environment.

Constitutional provisions in regard to social safeguards are well enshrined in the preamble such as JUSTICE, social, economic and political; LIBERTY of thought, expression, belief, faith and worship; EQUALITY of status and of opportunity; FRATERNITY assuring the dignity of the individual and the unity and integrity of the Nation. Fundamental Rights and Directive Principles guarantee the right to life and liberty. Health, safety and livelihood have been interpreted as part of this larger right. Social safeguards provisions are dealt in detail in different Article such as Article-14, 15 17, 23, 24, 25, 46, 330, 332 etc. POWERGRID shall implement the said constitutional provision in true sprit to fulfill its environmental and social obligations and responsibilities.

3.2 Environmental Provisions

Sl. No.	Acts, Notifications and Policies	Relevance/ Applicability to the project	Status of Compliance
I.	**National/State requirement**		
1.	Forest (Conservation) Act, 1980	When transmission projects pass through forest land, prior clearance has to be obtained from Ministry of Environment Forest & Climate Change (MoEFCC), GoI under the Forest (Conservation) Act, 1980 before starting any construction activity in designated forest area	No notified forest area is involved in any of the line routes or substations location. Hence, forest clearance under FC, Act 1980 not applicable.
2.	The Scheduled Tribes & Other	When transmission projects pass through forest land, NoC from DC	Since no forest clearance is involved

Sl. No.	Acts, Notifications and Policies	Relevance/ Applicability to the project	Status of Compliance
	Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	has to be obtained before Stage-II approval in compliance to FRA Act as per MoEF circular dated 5th February 2013	such requirement is not applicable.
3.	Environment (Protection) Act, 1986/ Environment Impact Assesment Notification, 2006	Transmission line projects are exempted from of Environment (Protection) Act, 1986 EIA Notification, 2006 However, amendment in the Environment (Protection) Act, 1986 on 7th May' 1992 made it necessary to obtain clearance from MoEFCC for power transmission projects in three districts in the Aravalis (viz., Alwar in Rajasthan and Gurgaon & Nuh-Mewat in Haryana).	Not applicable
i)	Ozone Depleting Substances (Regulation and Control) Rules, 2000	Regulate and control manufacturing, import, export and use of Ozone Depleting Substances under Montreal Protocol adopted on 16th September 1987	Only CFC free equipments are being procured/specified in tender document
ii)	Batteries (Management and Handling) Rules, 2001	Provides certain restriction on disposal of used batteries and its handling and to file half yearly return in prescribed form to the concerned State Pollution Control Board.	Batteries are used during operation phase. Hence, the issue of proper handling and disposal of batteries as per rules not an issues during construction stage.
iii)	Hazardous	Provides for environmentally sound	Generally Used oil is

Sl. No.	Acts, Notifications and Policies	Relevance/ Applicability to the project	Status of Compliance
	Wastes (Management, Handling and Transboundary Movement) Rules, 2008	management of hazardous wastes so as to ensure no adverse effects that may result from such waste. Used trasnsformer oil is categorized as hazardous waste which has to be disposed off only through auctioned/ sold to registered recyclers only and file annual return on prescribed form to the concerned State Pollution Control Board.	generated after 10-15 years of operation of transformers and hence the issues of handling and disposals of hazardous transformer oil is not an issue at this stage.
iv)	E-waste (Management and Handling) Rules, 2011	Provides for environmentally sound management of e-waste to ensure that e-waste are managed in a manner which shall protect health and the environment against the adverse effects that may result from hazardous substance contained in such wastes. It is the responsibility of the bulk consumer to ensure that e-waste generated is channelized to authorized collection center(s) or registered dismantler(s) or recycler(s) or is returned to the pick-up of take back services provided by the producer.	E-waste disposal is not an issue during construction phase.
4.	Biological Diversity Act, 2002	Provide for conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith.	The present project does not involve any biosphere reserves.

Sl. No.	Acts, Notifications and Policies	Relevance/ Applicability to the project	Status of Compliance
5.	Ancient Monuments & Archaeological Sites and Remains Act, 1958	The act has been enacted to prevent damage to archaeological sites identified by Archaeological Survey of India.	All such areas have been completely avoided.
6.	Meghalaya Tree (Preservation) Act, 1976	Deals with felling of trees outside forest areas within 10 Km radius of the municipal areas of Shillong and Shillong Cantonment area. MePTCL/MePDCL would take necessary permission under this act, wherever necessary.	The sub projects are located far away from such area.
7.	Meghalaya Forest regulation (Amendment) Bill 2012	Defines 'Forest' "as a continuous area of at least 4 Acres of land having trees, irrespective of ownership, where more than 250 trees of 15 cm diameter at breast height (DBH) per hectare are present, or where more than 100 clumps of bamboo per hectare are present".	The project does not involve any forest land as per definition of forest. Accordingly, NoC has been issued by forest authority based on tree enumeration data and joint verification.
II. World Bank Operational Policy (OP)			
8.	OP- 4.01: Environmental Assessment	To ensure the environmental and social and sustainability of investment projects. Support integration of environmental and social aspects of projects in the decision-making process.	E & S aspects of the project have already been integrated in to management procedures based on comprehensive environment assessment undertaken by IA during 2015.

Sl. No.	Acts, Notifications and Policies	Relevance/ Applicability to the project	Status of Compliance
9.	OP- 4.04: Natural Habitats	To promote sustainable development by supporting the protection, conservation, maintenance, and rehabilitation of natural habitats and their functions.	The present project does not involve any natural habitats such as biodiversity area, protected area etc.
10.	OP-4.11: Physical Cultural Resources (PCR)	To preserve PCR and in avoiding their destruction or damage. PCR includes resources of archeological, paleontological, historical, architectural, and religious (including graveyards and burial sites), aesthetic, or other cultural significance.	The Present project does not encroach upon any such resources.
11.	OP-4.36: Forests	To realize the potential of forests to reduce poverty in a sustainable manner, integrate forests effectively into sustainable economic development, and protect the vital local and global environmental services and values of forests	All line routes and substation locations successfully avoided encroachment into any Protected and Reserve forests.
10.	WB EHS Guidelines for Electric Power Transmission and Distribution	The Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry specific examples of Good International Industry Practice. The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs.	Applicable provisions of EHS guidelines are being followed during project implementation.

3.3 Social Provisions

Sl. No.	Acts, Rules and Policies	Relevance/ Applicability to the project	Status of Compliance
1	Sixth Schedule of the Constitution	Special provisions also have been extended to the Tribal Areas under the 6th Schedule [Articles 244(2) and 275(1) of the constitution] in addition to basic fundamental rights. The Sixth Schedule provides for administration of tribal areas as autonomous entities. The administration of an autonomous district is vested in a District Council and of an autonomous region, in a Regional Council. These Councils are endowed with legislative, judicial, executive and financial powers.	NoC from Village Council/ Headman (Dorbar) /Land owner obtained by IA, wherever applicable.
2.	The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013	Act ensures appropriate identification of the affected families/ households, fair compensation and rehabilitation of titleholders and non-titleholders.	No involuntary acquisition involved. However, fresh land required for construction of 132/33 KV substation at Phulbari and 33/11 kV substations at Rajballa Bhaitbari, Chibinang, Raksambre were secured through direct Purchase on Willing Buyer Willing Seller basis on negotiated rate.

Sl. No.	Acts, Rules and Policies	Relevance/ Applicability to the project	Status of Compliance
3.	Electricity Act, 2003 (EA, 2003)	Sanction of Ministry of Power (MoP), GoI/State Govt. is a mandatory requirement for taking up any new transmission project under the section 68(1) of The Electricity Act, 2003. The sanction authorizes to plan and coordinate activities to commission the new projects.	MoP, GoI approved the NERPSIP comprehensive scheme for six North Eastern States including Meghalaya under vide its Office Memorandum dated 1st December 2014.
4.	Rights of Way (RoW) and Compensation	The act has a provision for notifying transmission company under section 164 (B) to avail benefits of eminent domain provided under the Indian Telegraph Act, 1885.	MePTCL & MePDCL has been vested with the powers of Telegraph Authority vide Deptt. of Power, Govt. of Meghalaya notification dated 5th February 2016, under Section - 164 of the Electricity Act. However, compensation for all damages are being paid to the individual land owner as per the provision of Section-10 (d) of Indian Telegraph Act, 1885
5.	The Right to Information Act, 2005	The Act provides for setting out the practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, the constitution of a Central	Designated authorities are already in place in MePTCL & MePDCL.

Sl. No.	Acts, Rules and Policies	Relevance/ Applicability to the project	Status of Compliance
		Information Commission and State Information Commissions and for matters connected therewith or incidental thereto.	
6.	Indian Treasure Trove Act, 1878 as amended in 1949	The Act provides for procedures to be followed in case of finding of any treasure, archaeological artifacts etc. during excavation.	No such instances reported. Moreover, possibilities of such discoveries are quite remote due to limited and shallow excavations.
7.	The Meghalaya Transfer of Land (Regulation) Act, 1971 (Act 1 of 1972)	Act prohibits transfer of land from tribal to non-tribal.	Not applicable as Govt. of Meghalaya has already issued an Exemption Certificate that the provisions of Section 11(d)(i) of the aforesaid act (as amended) shall not apply in relation to all purchases/ acquisition of land by MePTCL /MePDCL
II. World Bank Operational Policy (OP)			
8.	OP 4.12 – Involuntary Resettlement	This policy covers direct economic and social impacts both resulting from Bank-assisted investment projects and are caused by the involuntary taking of land. To avoid or minimize involuntary resettlement and, where this is not feasible, assist displaced persons in improving or at least restoring their livelihoods and standards of living in real terms relative to pre-displacement	Not applicable as no involuntary acquisition invoked for securing land for proposed substations. However, fresh land required for construction of 132/33 KV substation at Phulbari and 33/11 kV substations at Rajballa Bhaitbari, Chibinang, Raksambre were secured through direct Purchase on

Sl. No.	Acts, Rules and Policies	Relevance/ Applicability to the project	Status of Compliance
		levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.	Willing Buyer Willing Seller basis on negotiated rate
9.	OP 4.10 – Indigenous Peoples	This policy contributes to the Bank's mission of poverty reduction and sustainable development by ensuring that the development process fully respects the dignity, human rights, economies, and cultures of Indigenous Peoples. The objective is to design and implement projects in a way that fosters full respect for indigenous peoples so that they receive culturally compatible social and economic benefits, and do not suffer adverse effects during the development process. The project shall ascertain broad community support for the project based on social assessment and free prior and informed consultation with the affected Tribal community, if any.	Explicit consent from ADC and the Village Councils is required in the case of acquisition of lands which is not applicable in instant project. However, NoC of from village councils (Head man, Sordars) and land owners obtained for community forest land/ADC area wherever applicable.

CHAPTER-4 : MAJOR FEATURES OF FINAL ROUTE & ENVIRONMENTAL IMPACTS

Environmental impact of transmission and distribution (T & D) line projects are not far reaching and are mostly localized to RoW. However, T & D project has some effects on natural and socio-culture resources. These impacts can be minimized by careful route selection. To minimize these possible impacts, MePTCL/MePDCL & IA at the system planning stage itself try to avoid ecological sensitive areas like forest. Wherever such infringements are substantial, different alternative options are considered to select most viable route alignment. For further optimization of route modern survey techniques/tools like GIS, GPS aerial photography is also applied. Introduction of GIS and GPS in route selection result in access to updated/latest information, through satellite images and further optimization of route having minimal environmental impact. Moreover, availability of various details, constraints like topographical and geotechnical details, forest and environmental details etc. help in planning the effective mitigate measures including engineering variations depending upon the site situation/location. The route/site selection criteria followed is detailed below:

4.1 Environmental Criteria for Route Selection

For selection of optimum route, the following points are taken into consideration:

(i) The route of the proposed lines does not involve any human rehabilitation.
(ii) Any monument of cultural or historical importance is not affected by the route of the line.
(iii) The proposed route does not create any threat to the survival of any community with special reference to Tribal Community.
(iv) The proposed route does not affect any public utility services like playgrounds, schools, other establishments etc.
(v) The line route does not pass through any sanctuaries, National Park etc.
(vi) The line route does not infringe with area of natural resources.

In order to achieve this, MePTCL/MePDCL undertook route selection for individual transmission & distribution lines in close consultation with representatives from the Ministry of Environment and Forests and the Department of Revenue. Although under

National law, POWERGRID has the right of eminent domain, yet alternative alignments are considered keeping in mind the above-mentioned factors during site selection, ***with minor alterations often added to avoid environmentally sensitive areas and settlements at execution stage.***

- As a rule, alignments are generally cited 10-15 km away from major towns, whenever possible, to account for future urban expansion (refer final route maps **Map 4.1 to Map- 4.5**).
- Similarly, forests are avoided to the extent possible, and when it is not possible, a route is selected in consultation with the local Divisional Forest Officer, that causes minimum damage to existing forest resources.
- Alignments are selected to avoid wetlands and unstable areas for both financial and environmental reasons.

In addition, care is also taken to avoid National parks, Sanctuaries, Eco-sensitive zones, Tiger reserves, Biosphere reserves, Elephant corridors and IBA sites etc. Keeping above in mind the routes of proposed lines under the project have been so aligned that it takes care of above factors. As such, different alternatives for transmission lines were studied with the help of Govt. published data like Forest atlas, Survey of India etc. and Google Maps to arrive at the most optimum route, which can be taken up for detailed survey and assessment of environmental & social impacts for their proper management.

Similarly the TOR for detailed survey using modern tool like GIS/GPS also contained parameters to avoid/reduce environmental impact while deciding the final route alignment. The major objectives for detailed survey that are part of contract are summarized below**:**

(i) The alignment of transmission line shall be most economical from the point of view of construction and maintenance.

(ii) **Routing of transmission line through protected and reserved forest area should be avoided. In case it is not possible to avoid the forest or areas having large trees completely then keeping in view of the overall economy, the route should be aligned in such a way that cutting of trees is minimum.**

(iii) The route should have minimum crossing of major rivers, railway lines, and national/state high ways, overhead EHP power lines and communication lines.

(iv) *The number of angle point shall be kept to a minimum.*

(v) *The distance between the terminal points specified shall be kept shortest possible, consistent with the terrain that is encountered.*

(vi) Marshy and low line areas, river beds and earth slip zones shall be avoided to minimum risk to the foundations.

(vii) It would be preferable to utilize level ground for the alignment.

(viii) Crossing of power line shall be minimal. Alignment will be kept at a minimum distance of 300 meters from power lines to avoid induction problems on the lower voltage lines.

(ix) Crossings of communication lines shall be minimized and it shall be preferably at right angle, proximity and paralyses with telecom lines shall be eliminated to avoid danger of induction to them.

(x) **Area subjected to flooding searches streams shall be avoided.**

(xi) Restricted areas such as civil and military airfield shall be avoided. Care shall also be taken to avoid the aircraft landing approaches.

(xii) All alignment should be easily accessible both in dry and rainy seasons to enable maintenance throughout the year.

(xiii) Certain areas such as query sites, tea, tobacco and saffron fields and rich plantation, gardens and nurseries that will present the owner problems in of right of way and leave clearance during construction and maintenance should be avoided.

(xiv) Angle point should be selected such that shifting of the point within 100 m radius is possible at the time of construction of the line.

(xv) The line routing should avoid large habitation densely populated areas to the extent possible

(xvi) The area requires special foundations and those prone to flooding should be avoided

(xvii) For examination of the alternatives and identification of the most appropriate route, besides making use of information/data/details available/extracted through survey of India topographical maps and computer aided processing of NRSA

satellite imagery, the contractor shall also carry out reconnaissance/preliminary survey as may be required for the verification and collection of additional information/data/details.

(xviii) The contractor shall submit his preliminary observation and suggestion along with various information/data/details collected and also processed satellite imagery data, topographical map data marked with alternative routes etc. The final evaluation of the alternative routes shall be conducted by the contractor in consultation with owners' representatives and optimal route alignment shall be proposed by the contractor. Digital terrain modeling using contour data from topographical maps as well as processed satellite data shall be done by the contractor for the selected route. A flythrough perspective using suitable software(s) shall be developed or further refinement of the selected route. If required site visit and field verification shall be conducted by the contractor jointly with the owners' representatives for the proposed route alignment.

(xix) Final digitized route alignment drawing with the latest topographical and other details/features including all river railway lines, canals, roads etc. upto 8 Kms on both side of selected route alignment shall be submitted by the contractors for owners approval along with report containing other information / details as mentioned above.

In the instant project also, criteria for route selection as mentioned above, has been duly adhered to and the proposed 132 kV Phulbari-Ampati route has been selected from analysis of three (03) alternatives routes as described in the IEAR. Subsequently, the proposed route was considered for detail survey by Contractor Agency (after awarding of contract). During detailed survey minor alterations as well as geometrical corrections of the route have been carried out which seems inevitable due to actual ground conditions with prime objective of avoiding dense forest/private plantation areas, settlements, CPR, and also considering the technical feasibility of the route from operation and maintenance point of view in consultation with the local village councils prevalent in the project area. Therefore, following minor change in scope of work has been observed with respect to IEAR scope which resulted due to the best effort of IA/MePTCL in effectively integrating safeguard and engineering measures in successful minimization of impact on forest and environment.

Sl. No	Scope as per IEAR		Current Status with justification	Remarks
Transmission Component				
	Line	Substation		
1.	Phulbari – Ampati 132 kV D/C line - 69.29 km	Establishment of 132/33KV substation at Phulbari	Final route is 50.10 km and line length is reduced by 20 km due to location of substation at Phulbari & Ampati	Substation land changed by approx.. 5.7 km in east direction in the same locality by MePTCL due to non-finalization of earlier identified land. This has resulted in the reduction of route length which has further reduced the environment impacts
		Ext. of 132/33 kV Ampati substation	NA	NA
Distribution Component				
1	33 kV line from 132/33 kV Phulbari - 33/11 kV Rajballa Bhaitbari substation - 15.30 km	Establishment of 33/11 kV substation at Rajballa Bhaitbari	Final line route is 25.81 km and there is an increase of line length of 10.5 km due to change in the location of Phulbari & Rajballa Bhaitbari substation.	Substation location changed by MePDCL due to non-finalization of earlier identified land. However, no additional environmental impact is anticipated as there is no significant change has been observed with respect base line data as considered in IEAR in the change route portion
2	33 kV line from 132/33 kV Phulbari - 33/11 kV Chibinang substation- 5.58 km	Establishment of 33/11 kV substation at Chibinang	Final route is 2.02 km which is approx. 3.5 km less as compared to earlier route due to change in the location of 132/33 kV Phulbari substation	
3	33 kV line from 33/11 kV Tikrikilla - 33/11 kV Raksambre substation -14 km	Establishment of 33/11 kV substation at Raksambre	Final route is 11.01 km and reduction of line length of approx. 3 km from earlier route was due to further optimization during ground truthing survey considering construction	Meticulous realignment during ground truthing survey has reduced line length further.

			difficulties and RoW issues.	
4	33 kV line from 132/33 kV Phulbari - 33/11 kV Phulbari- 2 km	Strengthening at 33/11 kV Phulbari substation (Existing)	Final route is 8.10 km and line length has been increased by 6.0 km due to change in location of 132/33 kV Phulbari substation	
5	33 kV line from 132/33 kV Phulbari substation - Tikrikilla- Phulbari taping point - 6 km	Bay addition 1 No at 33/11 kV Phulbari (Existing)	Final route (0.8 km) has been reduced by 5.2 km due to change in in the location of 132/33 kV Phulbari substation	
6	Reconductoring of 33 kV Tikrila- Phulbari line from point "X" to 33/11kV Tikrikilla-30km	Bay addition 1 No at 33/11 kV Tikrikilla (Existing) substation	Final reconductoring Length reduced to 22 km	

4.2 Major Features of Final Route of TL & DL

Transmission line: A major portion of the transmission line passes through paddy fields, and the remaining portion through private plantation/ lands owned by Village council. The selected line does not have any National Highway, Power line or Railway crossings. However, there are 6 stream crossings which do not require any special towers, or tower locations on the river beds.

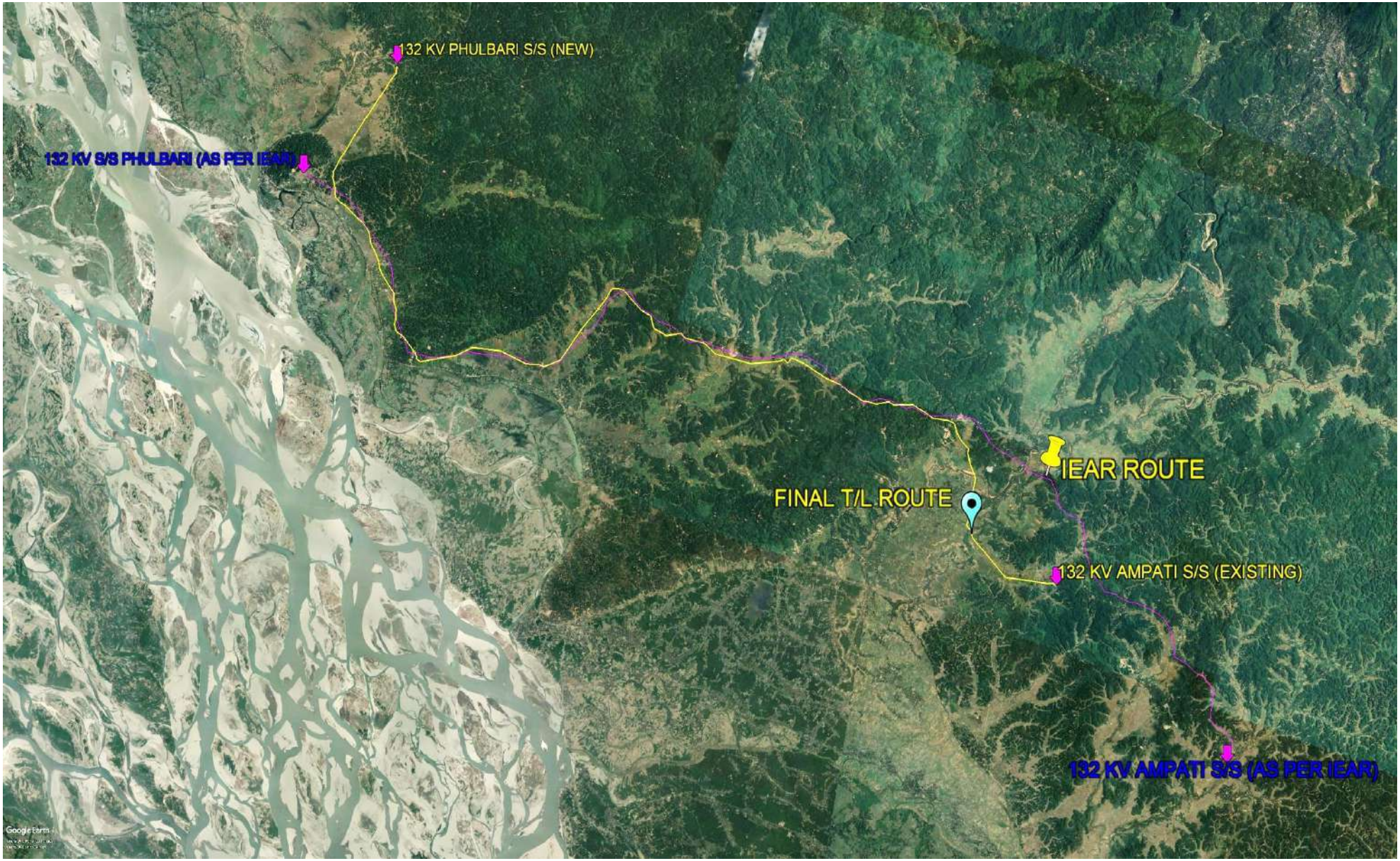
The line route doesn't involve any notified forest land which would necessitate forest clearance under Forest (Conservation) Act, 1980. Moreover, Forest authority after joint verification has issued No Objection Certificate (NoC) for non-involvement of forest land in the RoW of proposed line route (refer **Annexure-1**). Besides all protected areas like National parks, Wildlife sanctuaries and designated wildlife/elephant have been completely avoided. However, during survey forest officials revealed that elephant sightings/movement have been reported between stretches AP-60 to AP-75. Further

analysis of literature revealed that no animal / elephant corridors are present within the project locations. Moreover, after interactions with villagers during PRA exercise & analysis of literature, it has emerged that there was a reported sighting around 5 years back.

The line length of final route **(Map -4.1)** has been reduced by approx. 19 km from to 50.10 km from earlier 69.29 km due to shifting of Phulbari substation by approximately 5.7 km in east direction in same locality and also location of Ampati substation site about 10-12 km nearer to Phulbari. Since there is a significant reduction in line length without any major deviation from earlier route alignment including no change land use pattern and other base line data of the projects area it is expected that the resultant environmental footprints will be further reduced. Comparison of line route as in IEAR vis-à-vis final route is presented as **Map- 4.2**. The line has a total 176 towers without any National Highway (NH), railways and major river crossings. Most of the tower locations are easily accessible through existing road to carryout construction and maintenance activity and construction of new approach road not required. Details of tower schedule of final route alignment describing important features of line route is placed as **Annexure-2.**

Map 4.1- Satellite image with superimposed line route showing important land use features

Map- 4.2: Comparison of line route between IEAR Route vis-à-vis Final Route of 132 kV Phulbari -Ampati line



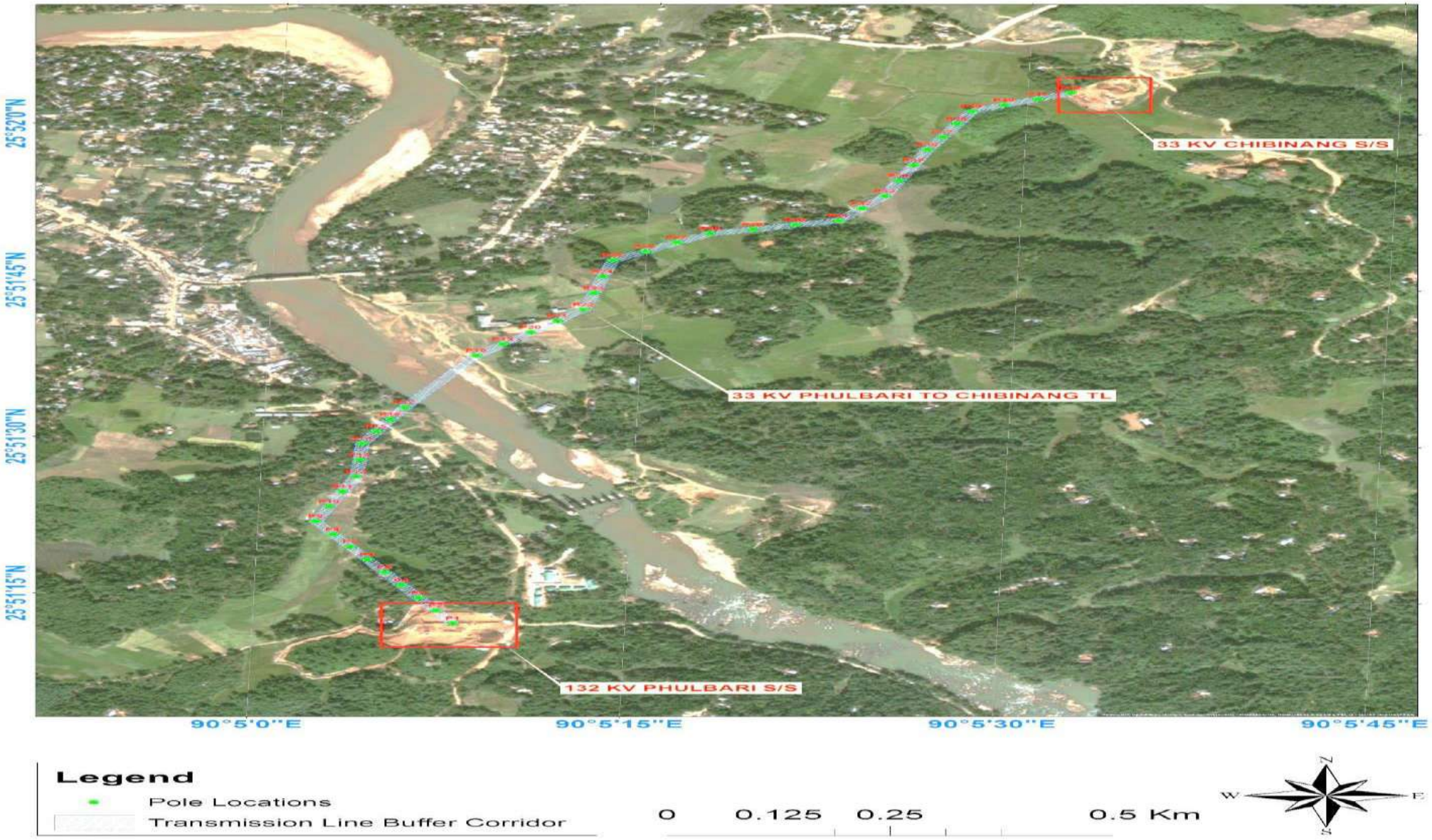
Distribution lines: About 80% of the lines are passing through plain terrain and 20% through gentle sloping hills. These lines mostly passing through agricultural lands/ along existing roads and do not involve any reserve/protected forest land or located in elephant movement zones (refer **Map 4.3- 4.6**). It has been observed that there are some major variations in final route length of lines from earlier routes due to change in location of some associated substations. However, considering that distribution line has minimum environmental footprints and increase in total line length by 4.8 km for all lines (from earlier 72.88 km to 77.68 km) without any change in land use and other base line data, no additional impacts of any kind apart from earlier identified impacts in IEAR/EMP are anticipated. A total of 1371 poles are being/to be erected for all 5 proposed distribution lines having a total line length of 77.68 km. Details of pole schedule of final route of various lines are placed as **Annexure-3.**

The Phulbari-Chibinang distribution line (refer **Map-4.3)** has been carefully laid, traversing agricultural land and avoids dense vegetation area except in two small patches, one near Phulbari substation, and the other close to the Chibinang substation. However, the envisaged impact in these two patches is minimal as no felling of will be required and only lopping of tree branches will suffice for RoW clearance (**Figure-4.1**). The line has a river crossing with a span of 173 m.

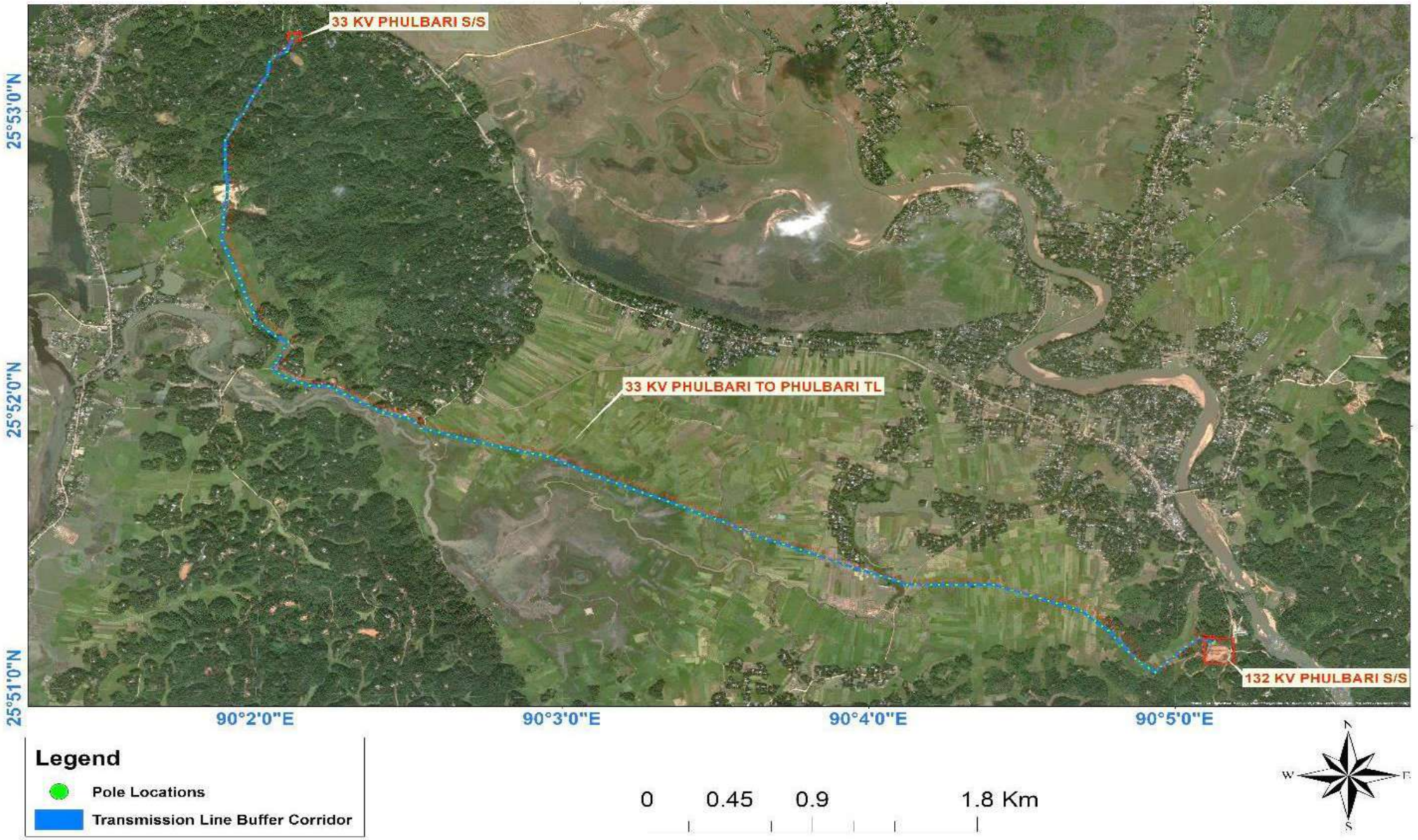
Figure-4.1. Completed portion of 33 kV Phulbari-Chibinang line without disturbance to standing tree

The Phulbari- Phulbari distribution line has about 20% of the line traversing through private plantation (near the 132/33 kV Phulbari substation), the rest being aligned on agricultural land **(Map- 4.4**). The Phulbari-Rajaballa distribution line is also aligned on agricultural land with only a small portion (5%) emanating from Phulbari substation having private plantation **(Map- 4.5).** Similarly Tikrikilla-Raksambre distribution line has about 5% of the alignment through private plantation land near the Raksamgre substation, the rest being aligned on agricultural land and/ or along roadsides, and has three road crossings **(Map- 4.6).**

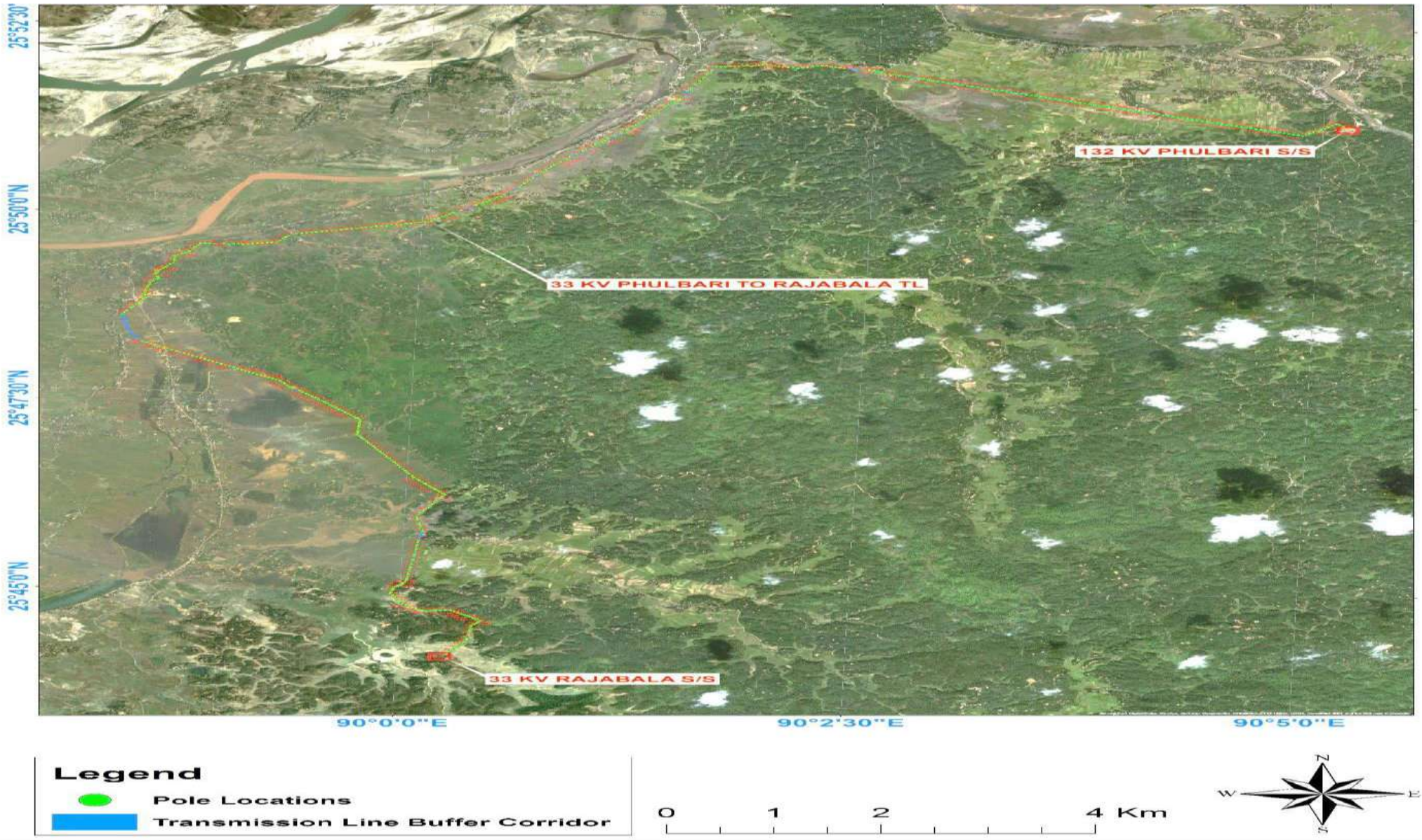
Map- 4.3: Satellite imagery showing details of 33 KV line route from Phulbari to Chibinang



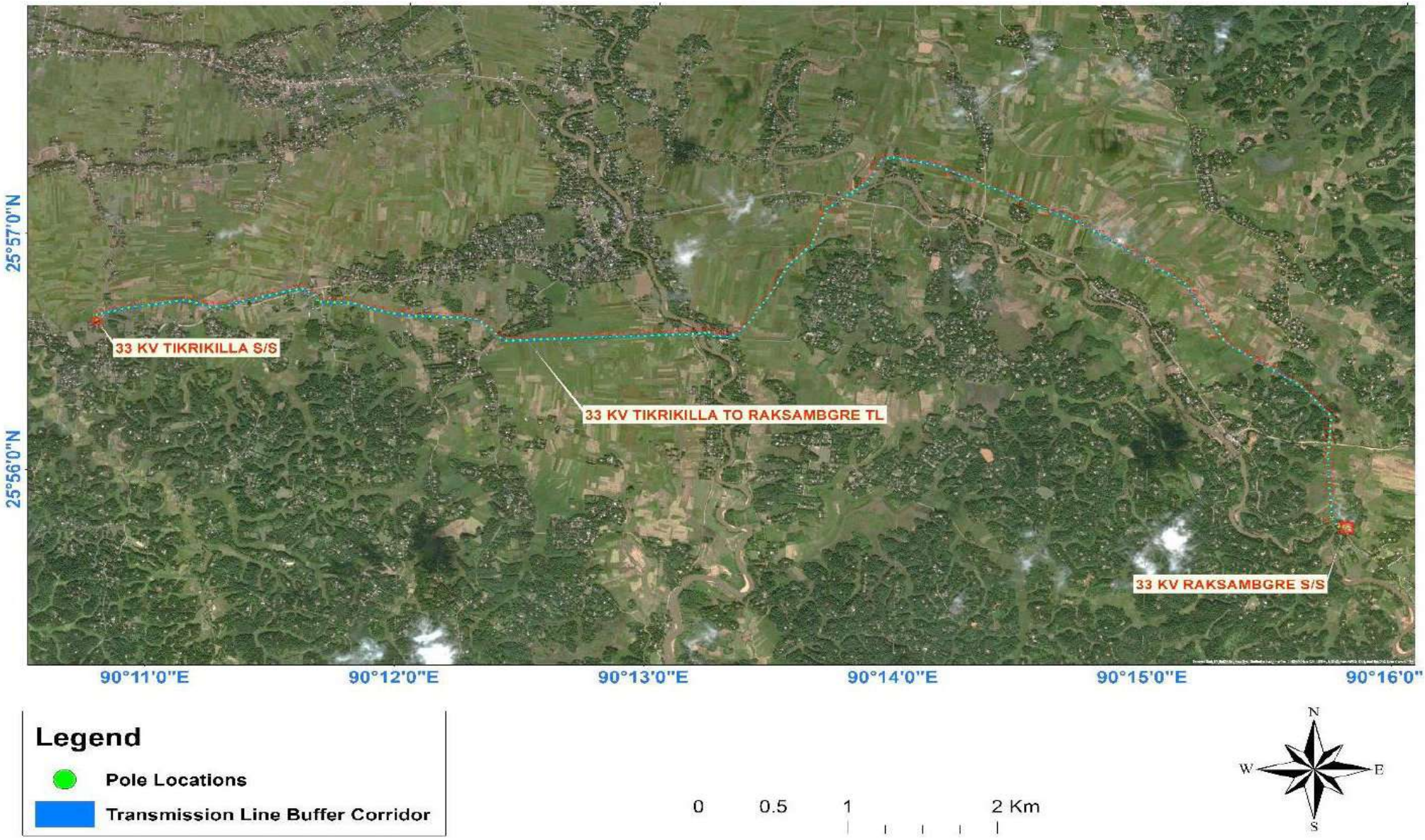
Map-4.4: Satellite imagery showing details of 33 KV line from Phulbari to Phulbari



Map-4.5: Satellite imagery showing details of 33 KV line from Phulbari to Rajaballa



Map-4.6: Satellite imagery showing details of 33 KV line from Tikrikilla to Raksambre



Based on the above analysis of final route of transmission and distribution lines, the summarized environmental impact matrix is presented below;

S. No.	PARAMETERS	EXTENT OF IMPACT
1. A.	Total Line length- (TL -50.10km, DL- 77.68 km)	Though change in final route length observed in most lines as compared line length envisaged in IEAR, no additional impacts are anticipated as the final routes are more or less aligned to earlier routes without involvement of any ecologically sensitive area or change in land use pattern. Moreover, due to significant reduction in final route of 132kV line length by approx. 19 km, it is expected that resultant environmental footprints will be less as envisaged earlier.
B.	Terrain: Plain area- 41 km(TL)+ 71.2 km (DL) Hilly area- 9 km (TL)+ 6.5 (DL)	Major portion (80 %) of lines are passing through plain area and remaining through hilly terrain which are mostly gentle sloping hills. Hence, no major impacts with respect to soil erosion & slope protection like revetment/ retaining/ toe wall etc. are required/ anticipated.
2.	Forest land traversed (km)	No notified forest, protected areas and other ecological sensitive area involved. Only private plantation of approx 15 km of total line length having sparse vegetation encountered. It is estimated that maximum 3000 trees will be felled out of total of 15365 trees coming under the RoW. The species wise tree detail is enclosed as **Annexure-4**. Further, in hilly area due to additional height gain of towers and availability of adequate clearance tree felling will be further minimized.
3.	Forest land	Nil
4.	Forest type	NA
5.	Forest density	NA
6.	Rare/endangered flora	No rare/endangered flora found in project area.

7.	Rare/ endangered fauna	The pangolin or scaly ant eater (*Manis sp*) which is an endangered species is reported in some pockets of the project area. However, this animal is fussorial in habit, living in burrows inside dense vegetation areas only. As the lines being drawn aerially and there is no involvement of forest land in the line routes, encroachment of these burrows are quite remote and unlikely. Hence, possibility of any impacts on this species not anticipated.
8.	Migrating Wildlife/ breeding ground	Although no documented corridors exist along the line routes, elephant sightings have been reported in some section (between AP-60 to AP-75) of 132 kV Phulbari-Ampati line However, necessary measures like tower extensions up to 9m have been provided in vulnerable locations in consultation with forest officials to maintain adequate ground clearance for safe passage of elephant. Further, no impact on avifauna is anticipated as there is no migratory path or nesting sites found in project area /tower location.
9.	National Park / sanctuaries	No protected areas involved
10.	Wet land traversed	None
11.	Soil erodability	Low
12.	Historical / Cultural	None
13.	Relocation of villagers	None
14.	Loss/ Hindrance to Public Utilities	Negligible, restricted to construction phase only.

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CHAPTER-5 : POTENTIAL ENVIRONMENTAL IMPACTS, EVALUATION AND ITS MANAGEMENT

Although, all possible measures have been taken during the finalization of route alignment as described in the earlier chapter for the proposed transmission/distribution system but due to peculiarity of terrain and demography of the area where project is being implemented, some environmental impacts may be there. The explanations in brief with regard to possible environmental impact and measures taken to minimize the same are as follows:

5.1 Impact Due to Project Location

(i) Impact on habitation and Resettlement

As explained in previous chapter during line routing stage itself all measures have been undertaken by IA to avoid settlements such as cities, villages etc in line with the guiding principle of avoidance as per ESPPF. During detail survey modern techniques/tools like GIS, GPS, and aerial photography were utilized to further optimization the final route alignment avoiding human habitation and other ecological and socially sensitive areas. The final route map of transmission and distribution lines clearly depict no major habitations /settlement areas are located near to project location (refer **Map 4.1 to Map 4.6**). Moreover, the project does not require any resettlement of villagers as no land is acquired for tower/pole foundation as per existing law.

However, the project involves construction of 4 new substations i.e. 132/33 kV substation at Phulbari and three 33/11 kV substations at Rajballa Bhaitbari, Chibinang and Raksamgre for which fresh lands have been secured through private purchase on willing–buyer and willing-seller basis on negotiated/market rate. A total of 15.47 acres land was secured for these substations from 4 private persons who willing sold their land. The augmentation/extension work in Ampati, Phulbari and Tikrila substations are being undertaken in the already existing MePTCL/MePDCL substations premise and no acquisition of fresh land was required for this purpose. However, all substations are located on level land and away from human habitations, water bodies and ecologically sensitive areas. Since, no involuntary acquisition was involved and fresh lands were secured only through private purchase there is no R & R and resettlement issues.

(ii) Land value depreciation

It is evident that electric power being an enabler sector acts as a catalyst for the growth and development of areas having accessibility to it. Based on past experience land prices are generally expected to rise in the areas receiving power. The final route 132 kV Phulbari-Ampati line is passing mostly through agriculture fields and uninhabited areas where the land-use is not going to change in foreseeable future. Therefore, the value of land is not adversely affected to a significant degree. Moreover, distribution lines intended to provide power supply to populated area will boost the economic status as well as land price of the area, thus, outweighing possible negative impacts, if any.

(iii) Historical/cultural monuments/value

The final routes of transmission and distribution line don't involve any monuments of historical or cultural significance.

(iv) Encroachment into precious ecological areas

In accordance with the policy of route selection, IA/Utility have taken due precautions right from the planning stage itself to avoid routing of line through forest, protected areas like national park/sanctuaries and other ecological sensitive areas. Because of careful route selection technique it was possible to avoid all such areas completely in all line routes and substation locations in spite of the fact that the project area district is rich in natural resources and biodiversity area having forest cover more than 77% of total geographical area of the district. The final route alignment passes mostly though cultivated land (70%) and the remaining 30% passes through degraded land with sparse tree cover which does not have any ecologically sensitive locations. Further, State forest authority has already issued No Objection Certificate (NoC) stating that only non-forest land is involved in RoW of 132 kV Phulbari-Ampati line. (refer Annexure- 1).

(v) Encroachment into other valuable lands

Most of the stretch (70%) of final route passes through paddy cultivated agricultural land and the remaining 30% passes through degraded forests with sparse tree cover including a small stretch a cashew nut plantation area (**Map 5.1 & Map 5.2**).

Map 5.1: Line route in paddy field

Map 5.2 : Line route in private plantation

As per existing law, land for tower/pole & right of way is not acquired and ownership of land remains with the owner and agricultural activities are allowed to continue after construction activity. . However, as per existing laws[2] compensation for all damages (tree/crop) are paid to the individual land owner. Additionally, land compensation @100% land value for tower footing area is also paid to land owner as per prevailing practices.

In the instance case all the 176 nos. tower locations are coming either on private land or community land owned by Autonomous District Council/Village council. Since the whole area is coming under Garo Hills Autonomous District Council (GHADC), No Objection Certificate (NoC) from concerned land owner/ Headman /Village Council has already been obtained **(Annexure-5).** The agriculture, horticulture departments have been approached to determine the rates of compensation for the paddy fields and cashew plantations respectively. Similarly, for land compensation the land rate has been fixed by District Collector/ ADCs. In line with the compensation procedures laid down in ESPPF & CPTD, compensation towards damage to tree/crop and land diminution value have been paid to affected persons after assessment of actual damage based on market rate and verification by concerned revenue authorities. A sample case of compensation payment including notice to land owner, assessment and verification by revenue authority and payment to affected person etc is enclosed as **Annexure-6.** The details of compensation plan along with estimated cost for damages towards tree/crop & land has been explained in the Compensation Plan for Temporary Damages (CPTD) report prepared for this project.

[2] *As per the present provision in the Electricity Act, 2003 read with relevant provisions of Indian Telegraph Act, 1885 all the damages (without acquisition of subject land) accrued to person while placing the tower and line are to be compensated*

(vi) Interference with other utilities and traffic

As per regulations, it is mandatory for IA/Utility to seek clearance prior to construction from department of Railways, Telecommunications and wherever necessary from aviation authorities that are likely to be affected by the construction of transmission lines.

The transmission and distribution lines do not interfere with telecommunication towers. Further, railway lines and aviation routes are not present in the project locations. It is therefore not required to avail clearances from Department of Railways, Department of Telecommunications, and the Ministry of Aviation.

As regard inference with traffic, it is to may be noted that the project area has very low vehicular/traffic density due to low economic base prevalent in the area. Further, the instant project activities don't require very less vehicular movement and that too restricted to construction period only. Hence, no steep rise in traffic volume is anticipated/observed.

(vii) Interference with drainage pattern

As the transmission/distribution lines are constructed aerially and the blockage of ground surface is limited to area of tower footings, which is very small, there is little possibility of affecting drainage pattern. Since in the instant project most part of the line and all substations are located in plain area possibility of any impact on drainage of the area is negligible and no such case encountered till date. Further, no tower/pole to be placed on river beds which could interfere with existing drainage patterns.

5.2 Environmental Problems Due to Design

(i) Escape of polluting materials

The equipment installed on lines and substations are static in nature and do not generate any fumes or waste materials. However, detailed specification with respect to equipment design and substation sewage design has been included in tender document to avoid any incidence of land and water contamination. Apart from this, solid waste like packing materials, cables, aluminum conductor, sand, aggregate material, cements and

steel generated during construction is carefully handled and removed from site periodically to avoid any contamination

(ii) Explosion/fire hazards

During the survey and site selection for transmission lines and sub-stations, it has been ensured that these are kept away from oil/gas pipelines and other sites with potential for creating explosions or fires. In the instant case the route line routes and substations are not located close to the vicinity of oil/gas pipelines or other installations with potential fire/ explosion hazard. Apart from this, states of art safety instruments have been installed in the substations on both the ends, so that, the line gets tripped within milliseconds in case of any fault.

(iii) Erosion hazards due to inadequate provision for resurfacing of exposed area

Each 132kV tower and 33 kV pole foundation involve generation of approx. 108 m3 and 0.72 m3 excavated earth respectively. Similarly, each 132/33 kV & 33/11 kV would generate approx. 7500 m3 and 2000 m3 excavated earth respectively. Based on this, it is estimated that a total of approx. 33,495 m3 (176X108 + 7500X1 + 1371x0.72 + 3X 2000) of excavated materials will be generated for construction of 176 nos of tower, 1 no of 132/33 kV substation, 1371 nos of poles and 3 nos of 33/11 kV substations. However, all the soil excavated for tower/pole footings and substations construction are optimally utilized for backfilling and the remaining soil being spread evenly and compacted. Topsoil disturbed during the development of sites are used to restore the surface of the platform. Infertile and rocky material are dumped at carefully selected dumping areas and used as fill for substation/ and tower/pole foundations. Since most of the tower locations and substations are on flat land, there is no potential for erosion hazard in instant case.

(iv) Environmental aesthetics

The visual aesthetics of the localities are not going adversely affected as all line routes and substations are located away from habitation area. Further, towers and poles for 132 kV transmission & 33 kV distribution lines will be placed wide apart at an interval of approx. 300 meters and 70-100 meter.

(v) Noise/vibration nuisances

The equipment installed at substation are mostly static and are so designed that the noise level always remains within permissible limits i.e. 85dB as per Indian standards. Some noise is unavoidable during construction phase like Noise produced by concrete mixing equipment and excavators which are temporary and only in day time. However, regular monitoring by IA/Contractors and due maintenance of equipment are ensured to keep the noise level well within the prescribed limit. . Noise level measured during site visits to all active sites found to be within permissible limits (<75 dB).

(vi) Blockage of wildlife passage/ impact on avifauna

As already explained, the transmission & distribution lines have been aligned with total avoidance of reserve forest, protected areas, demarcated/ documented migration path of wildlife/elephant corridors. However, during ground survey it was informed by local forest officials that in some section of the transmission line (Between AP-60 to AP-75) elephant sighting has been reported a few years back. Further analysis of literature and interaction with villagers revealed that no animal / elephant corridors are present within the project locations and sightings of stray elephants (straying from the main herd) were reported in the past (5-10 years back) and, there were no reported sightings in recent times due to reduction in forest cover in that area.

However, as a precautionary measure, this section has been provided with tower extensions to ensure unhindered passage in the event of incursion of elephants. Accordingly, tower extensions of 9M have been used in vulnerable locations in consultation with forest officials so as to maintain a clearance of 13M from the lowest sag point of the bottom conductor, thus maintaining an additional clearance of more than the mandated 6.6 M so that elephants can pass safely below the conductor(refer **Figure – 5.1**)

Figure 5.1 Tower installed at AP 72/0 with 9 m extension

It has also been reported that the pangolin or scaly ant eater (*Manis sp*) which is an endangered species are found in some pockets of the project area district. However, this animal is fussorial in habit, living in burrows inside plantation land **(Figure - 5.2**). Since all transmission and distribution line routes completely avoid forest land and mostly traverse on agricultural land, chances of encroachment of these burrows are quite remote and unlikely.

Figure 5.2 Pangolin's burrow/habitat

The Bird hit/electrocution by electric lines mostly occurs during landing and takeoff near the water bodies, fly path of birds. Since in the instant case due to routing of line away from such areas bird hit/electrocution is not anticipated. However, as an additional measures Bird guard/ anti perch devise has been included in part of BoQ and also made integral part of tower design (drawing attached as **Annexure-7).**

5.3 Environmental Problems during Construction Phase

(i) Uncontrolled silt runoff

Majority of tower/pole locations are on flat land and those located on hilly terrain have been positioned on hilltops so as to avoid bench cutting of soil, revetments or retaining walls. The excavated material has been backfilled and any remaining earth, if any have been spread around the base and compacted. In case of distribution lines all the excavated soil is backfilled and compacted after erection of tubular poles. So far there are no instances with potential of erosion during construction of above said lines.

Similarly, all substations are also located on flat land and adjacent to existing roads. The substation towers are all of equal leg footing. In some instances retaining walls in some portions have been recommended after inspection. The substations have been provided with boundary walls and backfilling /and or spreading and compaction within the boundary walls have been done to take care of excavated materials. Being located on high flat land, the substations are not prone to flooding/ erosive losses of soil. Barricading of pits/ excavated areas and accident prone locations have not been done in some instances, and was pointed out to the officials of the implementing agency.

There are no instances of erosion/losses of soils into adjoining area as all the overburden are being backfilled within the substation boundary walls and properly managed. The substations are not located in the vicinity of water bodies or ecologically sensitive areas. As a site specific measures, construction of retaining walls have been necessitated at three new 33/11 kV substations i.e. Chibinang, Rajballa Bhaitbari & Raksambre. The dimension details and photographs of under construction retaining wall at Raksambre given in **Table -5.1** and **Figure 5.3**

Table 5.1 Details of retaining wall

Sl.	Substation	Retaining wall dimensions
1	Chibinang	Length: 80.081m +22.5m = 102.581m Height: 2.25m (for 80.081m section); 4.25m (for 22.5m section) Earthwork excavation: 190.914 m^3 Wall up to plinth: 92.444m^3 Wall up to raft: 37.728m^3 Wall above plinth: 166.273m^3 Cement concrete above R-R wall: 2.933m^3 Pointing: 198.463m^2 Weep holes: 43
2	Rajballa Bhaitbari	Length: 51m + 30m = 102.581m Height: 4.75m (for 51m section); 6.25m (for 30m section) Earthwork excavation: 204.761 m^3 Wall up to plinth: 156.798m^3 Wall above plinth: 437.495m^3 Cement concrete above R-R wall: 2.357m^3 Pointing: 368.392m^2 Weep holes: 64
3	Raksambre	Length: 144.63m + 8m +8m = 160.3m Height:2.25m (for 144.63m section); 2.76m (for 8m section); 4.85m (for 8m section) Earthwork excavation: 227 m^3 Wall up to plinth: 136.35m^3 Wall above plinth: 217.19m^3 Cement concrete above R-R wall: 4.69m^3 Pointing: 264.46m^2 Weep holes: 42

Figure 5.3 Retaining wall at 33/11 kV Raksambre

(ii) Nuisance to nearby properties

Due to careful route and site selection settlements/habitation area have been kept away from transmission/distribution line route and substations. Further, construction activities are mostly undertaken through the use of small mechanical devices e.g. tractors and manual labour **(Figure 5.4),** therefore nuisance to the nearby properties if any, is not expected. The construction activities are normally undertaken in lean period and post harvesting to avoid/minimize such impact **(Figure 5.5).**

Figure 5.4 Use of Tractor for Stringing

Figure 5.5 Construction during lean period

Apart from siting of substations from habitated area, all active substations sites are prohibited for general public both due to its separation/demarcation by boundary wall and also due to statutory provisions (**Figure- 5.6**). Hence, any adverse impact arising during the construction of these substations will be temporary and limited to the boundaries of proposed substations only and will neither impact nearby habitat/property nor health & safety of neighboring community.

Figure 5.6 Substation sites located far away from settlement area and all construction activities are confined within the boundary

(iii) Interference with utilities and traffic and blockage of access way

It has been observed that most of the tower/pole locations are easily accessible (taking 250 m as buffer zone which can always be accessed through head load) through existing roads or village paths but no major construction of roads will be necessary either during construction or as a part of maintenance procedures. Further, all the new substations are located adjacent to existing road and no new approach road is required to be constructed. However, in case upgradation /augmentation of existing field/path is required during construction, compensation for any damage to crop or field as per normal compensation procedure will be paid to the owner In many areas such improvement in the access road is highly appreciated by the local population.

The transmission and distribution lines do not interfere with telecommunication towers. Further, railway lines and aviation routes are not present in the project locations. It is therefore not required to avail clearances from Department of Railways, Department of Telecommunications, and the Ministry of Aviation. For crossings of road short span angle (DT) towers are located at a distance so as not to cause any hindrance to the movement of traffic. Stringing at the construction stage is carried out during lean traffic period in consultation with the concerned authorities and angle towers are planted to facilitate execution of work in different stages.

(iv) Inadequate resurfacing for erosion control

As explained earlier, majority of tower/pole locations are on flat land and those located on hilly terrain have been positioned on hilltops so as to avoid bench cutting of soil, revetments or retaining walls. However, till date no instances with potential of erosion observed during construction of above said lines. Furthermore, construction is generally undertaken outside the rainy season. As the proposed lines are mostly passing through plain areas no such problems are anticipated.

Although substations are located on flat land but due to undulating terrain additional site specific erosion protection measures such as Revetment & RRM Wall & Grass with bamboo grids slopes have been planned/being implemented in case of Phulbari, Rajballa Bhaitbari substation whereas RRM wall has been constructed in Chibinang

substation (refer **Table -5.1** and **Figure 5.3)** based on site requirement/conditions and subsequent technical approval through committee.

(v) Inadequate disposition of borrow area

As mentioned earlier the transmission tower foundations involve excavations on small scale basis and the excavated soil is being optimally utilized for back filling. All the substations land on located in flat land hence the volume of cutting is equal to volume of filling avoiding borrowing of the area. Besides, only existing borrow sites are being used to source construction aggregates required for the project. Hence, acquisition/creation of any new borrow area is not needed in instant project.

(vi) Protection of Worker's health/safety

All health and safety issues and its management aspects related contract workers/laboures have been made integral part of project through contract specific safety plan. Accordingly, construction contractors has submitted their Safety Plan duly signed before award of each contract under the project. A sample copy of Safety Plan submitted by M/s Neccon Power & Infra Limited is enclosed as **Annexure-8.** The Project is being executed as per the approved plan and is regularly monitored by dedicated Safety personnel. Moreover, for strict compliance of safety standard/plan a special provision as a deterrent has been added in the contract which provides for a heavy penalty of Rs.10 lakhs for each accidental death and Rs1.0 lakh/each for any injury and is deducted from the contractor’s payment and paid to the deceased/affected family (**Annexure-9**). Additionally, work and safety regulations, workmen's compensation, insurance are adequately covered under the General Conditions of Contract (GCC), a part of bidding documents. The project authority ensures that all contractors are operating with valid labor license as per provision under section – 12(1) of the Contract Labour (Regulation & Abolition) Act, 1970 and also certified under Section- 7(3) of the Building and Other Construction Workers (Regulation of Employment and Condition of Service) Act, 1996 from Ministry of Labour & Employment. Besides, the contractors have obtained requisite insurance policy as per provisions of Employee Compensation Act, 1923 for its employed workforce. Sample copy of labor license and insurance policy for workers is attached as **Annexure-10**.

During construction work, safety guidelines/checklists including work permits and safety precautions are being strictly followed which are also regularly monitored by site in-charge. Sample copy of filled in checklist is enclosed as **Annexure-11.**

Labourers were hired locally wherever possible. The workers have been provided with PPEs such as boots and helmets. Mock drill such as fire safety, first aid etc are conducted periodically to enhance the preparedness level of the workforce. Safety induction & awareness programme including HIV/AID are also conducted at every active site. Safety film for transmission project in local language has been shown to workers for better awareness. Proper drinking water has also been provided. First aid boxes and provisions for treatment in case of emergencies were arranged locally/ nearby towns.

5.4 Environmental Problems Resulting from Operation

(i) O&M Staff/Skills less than acceptable resulting in variety of adverse effects

As informed by project officials, O & M program will be implemented by substation personnel for both the lines as well as substations. Monitoring measures employed include patrolling and thermo-vision scanning. The supervisors and managers entrusted with O&M responsibilities are intensively trained for necessary skills and expertise for handling these aspects. A monthly preventive maintenance program will be carried out to disclose problems related to cooling oil, gaskets, circuit breakers, vibration measurements, contact resistance, condensers, air handling units, electrical panels and compressors. Any sign of soil erosion is also reported and rectified. Monitoring results are published monthly, including a report of corrective action taken and a schedule for future action.

On potential effect of Electro Magnetic Field (EMF), the project official informed the transmission system are absolutely safe which are designed based on approved international standards following ICNIRP guidelines. As regard Poly Chlorinated Biphenyl (PCB), it has been observed that no PCB containing equipments are being procured and PCB level of less than 2 mg/kg (ppm) which is non –detectable has been stated in tender specification.

5.5 Critical Environmental Review Criteria

(i) Loss of irreplaceable resources

In the instant project none of the project elements encroach upon any forest area, protected areas, and ecologically sensitive areas hence, the problem of losing natural resources is not anticipated.

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(ii) Accelerated use of resources for short-term gains

There will be no significant impact on the natural resources occurring due to construction of transmission/distribution and substation. The construction material such as tower members, cement etc shall come from factories while the excavated soil finally reused for backfilling to restore the surface. The water is required for construction activity and domestic use in small quantity which is being met from nearby existing source or Borewell. Thus the project shall not cause any accelerated use of resources for short-term gains. The aggregates used for construction are sourced locally existing borrow sites only without creating any new borrow area. Hence, it may be seen that the activities associated with implementation of subject project shall not cause any accelerated use of resources for short term gain.

(iii) Endangering of species

As already explained, Pangolin or scaly ant eater (*Manis sp*) is reported in some pockets of the project. As the animal is fussorial in habit and mostly concentration in dense vegetation land, no direct impact on such species is anticipated considering no involvement of forest land along line route and also aerial nature of transmission and distribution project

(iv) Promoting undesirable rural-to urban migration

The project doesn't involve any submergence or loss of land holdings that normally trigger migration. It also does not involve resettlement due to acquisition of any private land holdings. Hence, there is no possibility of any migration.

5.6 Public Consultation

Public consultation/ information dissemination is a continuous process starting with the project conception and continues during project implementation and even during O&M stage. As stated in ESPPF, public consultation using different technique like Public Meeting, Small Group Meeting, informal Meeting are being carried out during different activities of project cycle. In the instant project both formal and informal consultations meeting were organized which is also made integral part of IEAR and CPTD. During survey also Utilities & POWERGRID site officials meet people and inform them about the routing of transmission and distribution lines. Similarly, during the construction every individual, on whose land tower is erected and people affected by RoW, are being consulted. Further, in case of Autonomous District Council areas consultations are being held with the respective village councils for identification of the landowner and obtaining their consent for the RoW **(refer Annexure -5**) . Besides, as per agreed framework, gender issues have also been addressed to the extent possible during such consultation process. Details of formal and informal consultation oragnized for instant project including photographs of the meeting and minutes of meeting are placed as **Annexure-12**.

5.7 Compliance of EMP

The IA has a continuous monitoring mechanism of the project w.r.t. compliance of the mandatory requirements as stipulated in the IEAR. As many provisions of EMP related to construction contractor, EMP has been made integral part of contract document for proper its implementation by contractor/sub-contractor. Thus, the adherence to the clauses by the contractor is regularly monitored especially in respect of various implementation E & S measures including health and safety aspects. During the present study, our team has critically assessed/evaluated the compliance measures with respect mitigation measures stipulated in the IEAR through physical inspection, verification of record/ documents/ drawing, interaction with project officials/contractor/ villagers/construction workers and PRA etc. Based on above, a detailed compliance status w.r.t. each identified impacts enlisted in EMP have been prepared and is presented in **Table – 5.2**.

Table – 5.2: Compliance Status of EMP as proposed in IEAR

Clause No.	Project activity/stage	Potential impact	Proposed mitigation measures	Compliance Status
Pre-construction				
1	Location of overhead line towers/ poles/ underground distribution lines and alignment & design	Exposure to safety related risks	Setback of dwellings to overhead line route designed in accordance with permitted level of power frequency and the regulation of supervision at sites.	Complied with. Route alignment criterion is part of survey contract wherein all statutory Electrical clearance as stipulated under CEA's regulations, 2010 (Measures related to safety & electric supply) is considered/ensured.
2	Equipment specifications and design parameters	Release of chemicals and gases in receptors (air, water, land)	PCBs not used in substation transformers or other project facilities or equipment.	Complied with Part of technical specification of transformer. PCB is not used or non-detectable level (i.e. less than 2mg/kg) as per IEC 61619 or ASTM D4059
			Processes, equipment and systems not to use chlorofluorocarbons (CFCs), including halon, and their use, if any, in existing processes and systems should be phased out and to be disposed of in a manner consistent with the requirements of the Government	Complied with. CFC Free equipment is part of tender specifications
3	Transmission/ Distribution line design	Exposure to electromagnetic interference	Line design to comply with the limits of electromagnetic interference from overhead power lines	Complied with. Design parameters have been complied with. Field testing should be done after energization.
4	Substation location and design	Exposure to noise	Design of plant enclosures to comply with noise regulations.	Complied with. Transformers with maximum noise emitting level of 75 dB specified in tender specification. Sound proof enclosures used for D.G sets
		Social inequities	Careful selection of site to avoid encroachment of socially, culturally and archaeological sensitive areas (i.e. sacred groves, graveyard, religious worship place, monuments etc.)	Complied with. No encroachment of any socially sensitive areas due to proposed substations.

Clause No.	Project activity/stage	Potential impact	Proposed mitigation measures	Compliance Status
5	Location of overhead line towers/poles/ laying of underground distribution line & alignment and design	Impact on water bodies	Avoidance of such water bodies to the extent possible. Avoidance of placement of tower inside water bodies to the extent of possible	Complied with. Part of detailed alignment survey and design. No tower/pole located in water bodies.
		Social inequities	Careful route selection to avoid existing settlements and sensitive locations	Complied with. Part of detailed tower/pole alignment survey design.
			Minimise impact on agricultural land	Though major section of proposed lines are routed through agricultural land in order to avoid impact on environmentally/ socially sensitive areas, efforts such as scheduling of construction lean/ post-harvest period, consultation with local authorities/ autonomous councils etc (fig.) are being made to minimize impacts on agricultural land/produce to the extent possible
			Careful selection of site and route alignment to avoid encroachment of socially, culturally and archaeological sensitive areas (i. g. sacred groves, graveyard, religious worship place, monuments etc.)	All settlements & ecologically sensitive areas avoided except some unidentified elephant movement zone.
6	Securing lands for substations.	Loss of land/ income change in social status etc.	In the case of Involuntary Acquisitions, Compensation and R&R measures are extended as per provision of RFCTLARRA, 2013[3]	Fresh land required for construction of substations at Phulbari, Rajballa Bhaitbari, Chibinang and Raksamgre have been secured through private purchase on willing-buyer and willing-seller basis on negotiated/market rate. Since no involuntary acquisition of land is involved, there is no R&R issue.

[3] In the instant case no Involuntary acquisition of land (permanent) is involved, hence this clause shall not be applicable.

Clause No.	Project activity/stage	Potential impact	Proposed mitigation measures	Compliance Status
7	Encroachment into protected area/ precious ecological area	Loss of precious ecological values/ damage to precious species	Avoid encroachment into such areas by careful site and alignment selection (National Parks, Wildlife Sanctuary, Biosphere Reserves/ Biodiversity Hotspots)	Complied with. Part of detailed siting and alignment survey/design. All such areas avoided
			Minimize the need by using RoW wherever possible	
8	Line through identified Elephant corridor / Migratory bird	Damage to the Wildlife/ Birds and also to line	Study of earmarked elephant corridors to avoid such corridors, Adequate ground clearance, Fault clearing by Circuit Breaker, Barbed wire wrapping on towers, reduced spans etc., if applicable	Complied with. Part of detailed sitting and alignment survey /design. All identified Elephant corridors/bird fly path have been avoided completely. In spite of that some elephant movement zone has been reported between AP 60 - AP75 for which adequate ground clearance has been provided through tower extension up to 9 meter.
			Avoidance of established/ identified migration path (Birds & Bats). Provision of flight diverter/ reflectors, bird guard, elevated perches, insulating jumper loops, obstructive perch deterrents, raptor hoods etc.[4], if applicable	Bird guard/ anti perch devise is part of BoQ and also integral part of tower design.
9	Line through forestland	Deforestation and loss of biodiversity edge effect	Avoid encroachment by careful site and alignment selection	Complied with. Part of detailed siting and alignment survey and forest areas have been completely avoided. Tower extensions of 3-9 m have been provided to reduce tree felling, wherever needed Invasion of alien species not anticipated. Not applicable as there is no involvement of forest land
			Minimise the need by using existing towers, tall towers and RoW, wherever possible	
			Measures to avoid invasion of alien species	
			Obtain statutory clearances from the Government	

[4] As per International/National best practices and in consultation with concerned forest/wildlife authority

Clause No.	Project activity/stage	Potential impact	Proposed mitigation measures	Compliance Status
			Consultation with autonomous councils wherever required	Complied with.
10	Lines through farmland	Loss of agricultural production/ change in cropping pattern	Use existing tower or footings wherever possible	Not applicable
			Avoid sitting new towers on farmland wherever feasible	Complied with. Part of detailed sitting and alignment survey. Though it is unavoidable but effort are being made to minimized the impact/loss of production
11	Noise related	Nuisance to neighbouring properties	Substations sited and designed to ensure noise will not be a nuisance	Complied with. Part of detailed equipment design. Substations are appropriately sited and away from settlement area. Transformers with maximum noise emitting level of 75 dB and DG set with proper enclosures are part of equipment specification/ design criteria
12	Interference with drainage patterns/ irrigation channels	Flooding hazards/ loss of agricultural production	Appropriate sitting of towers to avoid channel interference	Complied with. Part of detailed alignment survey and alignment survey, Interference with drainage patterns/ irrigation channels not anticipated
13	Escape of polluting materials	Environmental pollution	Transformers designed with oil spill containment systems, and purpose-built oil, lubricant and fuel storage system, complete with spill cleanup equipment.	Complied with. Part of detailed equipment design /drawings Designed with oil spill containment systems having sump of capacity of 200% of oil volume of largest transformer
			Substations to include drainage and sewage disposal systems to avoid offsite land and water pollution.	Complied with. Proper drainage and sewage system are part of detailed substation layout and design /drawings based on site condition.
14	Equipments submerged under flood	Contamination of receptors	Substations constructed above the high flood level(HFL) by raising the foundation pad	Complied with. Part of detailed substation layout and design /drawings. All substations are being constructed above HFL.

Clause No.	Project activity/stage	Potential impact	Proposed mitigation measures	Compliance Status
15	Explosions /Fire	Hazards to life	Design of substations to include modern fire fighting equipment	Complied with. Part of detailed substation layout and design /drawings. Compliance assured by site manager
			Provision of fire fighting equipment to be located close to transformers	
Construction				
16	Equipment layout and installation	Noise and vibrations	Construction techniques and machinery selection seeking to minimize ground disturbance.	Complied with. Noise produced by concrete mixing equipment and excavators are temporary and confined to day time only. No ground disturbance observed.
17	Physical construction	Disturbed farming activity	Construction activities on cropping land timed to avoid disturbance of field crops (within one month of harvest wherever possible).	Complied with Excavations not done during monsoon which is the cropping period. However, full compensation as per assessment of revenue authorities is being paid to land owner/farmer by IA/Utility in case of inevitable damages.
18	Mechanized construction	Noise, vibration and operator safety, efficient operation	Construction equipment to be well maintained.	Complied with. Some noise unavoidable in day time but no noise at night as no work being undertaken at night. Noise levels measurements are done regularly by IA & Construction contractor. Noise level measured during site visits to all active sites found to be within permissible limits (<75 dB).
		Noise, vibration, equipment wear and tear	Turning off plant not in use.	Complied with.

Clause No.	Project activity/stage	Potential impact	Proposed mitigation measures	Compliance Status
	Construction of roads for accessibility	Increase in airborne dust particles	Existing roads and tracks used for construction and maintenance access to the line wherever possible.	Complied with. Water sprinkling done whenever required
		Increased land requirement for temporary accessibility	New access ways restricted to a single carriageway width within the RoW.	Most of the tower locations are easily accessible through existing roads/paths. All substations sites are located close top existing road and no new access road required/ constructed for this project.
20	Construction activities	Safety of local villagers	Coordination with local communities for construction schedules, Barricading the construction area and spreading awareness among locals	Complied with. Excavated areas barricaded and restriction to enter work site during construction strictly followed,
		Local traffic obstruction	Coordination with local authority/ requisite permission for smooth flow of traffic	Most of the tower/pole locations are in farm/barren land. Hence, no traffic obstruction is witnessed. For substation location, smooth traffic flow is ensured by project authorities/contractor in close co-ordination with local authority wherever necessary.
21	Temporary blockage of utilities	Overflows, reduced discharge	Measure in place to avoid dumping of fill materials in sensitive drainage area	No dumping observed. All overburden managed optimally by reutilizing it as fill materials.
22	Site clearance	Vegetation	Marking of vegetation to be removed prior to clearance, and strict control on clearing activities to ensure minimal clearance.	Minimal clearing required as most part of line/towers are in paddy fields and substations are on degraded land. For distribution lines, hardly any trees will be required to be felled. No use of herbicides and pesticides observed/anticipated.
			No use of herbicides and pesticides	

Clause No.	Project activity/stage	Potential impact	Proposed mitigation measures	Compliance Status
23	Trimming /cutting of trees within RoW	Fire hazards	Trees allowed growing up to a height within the RoW by maintaining adequate clearance between the top of tree and the conductor as per the regulations.	Complied/to be complied during stringing work. In distribution line where string has already completed only looping/pruning done to maintain safe electrical clearance as per applicable norms (CEA's regulations, 2010 (Measures related to safety & electric supply) Construction period
		Loss of vegetation and deforestation	Trees that can survive pruning to comply should be pruned instead of cleared.	
			Felled trees and other cleared or pruned vegetation to be disposed of as authorized by the statutory bodies.	Felled trees are handed over to land owner. IA/State Utilities have no role in storage or disposal of felled trees/wood
24	Wood/ vegetation harvesting	Loss of vegetation and deforestation	Construction workers prohibited from harvesting wood in the project area during their employment, (apart from locally employed staff continuing current legal activities)	Complied with. Cooking Gas/ fuel wood provided by the Contractor
25	Surplus earthwork/soil	Runoff to cause water pollution, solid waste disposal	Soil excavated from tower footings/ substation foundation disposed of by placement along roadsides, or at nearby house blocks if requested by landowners	Complied with. Soil backfilled and excess spread out evenly and compacted. Excavated soil was properly stored and no dumping observed in visited sites/location.
26	Substation construction	Loss of soil	Loss of soil is not a major issue as excavated soil will be mostly reused for filling. However, in case of requirement of excess soil the same will be met from existing quarry or through deep excavation of existing pond or other nearby barren land with agreement of local communities	Complied with. Excavated soil used optimally for backfilling and distribution within the boundary is adequate. No additional requirements of soil observed for any substations.
		Water pollution	Construction activities involving significant ground disturbance (i.e. substation land forming) not undertaken during the	Complied with No construction during monsoons. No seepage

Clause No.	Project activity/stage	Potential impact	Proposed mitigation measures	Compliance Status
			monsoon season	or water pollution observed.
27	Site clearance	Vegetation	Tree clearances for easement establishment to only involve cutting trees off at ground level or pruning as appropriate, with tree stumps and roots left in place and ground cover left undisturbed	Complied with/to be complied
28	Substation foundation/Tower erection disposal of surplus earthwork/fill	Waste disposal	Excess fill from substation/tower foundation excavation disposed of next to roads or around houses, in agreement with the local community or landowner.	Complied/ to be complied Excavated soil optimally used. Backfilling and spreading of excess soil within substation area assured by project authorities.
29	Storage of chemicals and materials	Contamination of receptors (land, water, air)	Fuel and other hazardous materials securely stored above high flood level.	Proper complied to be ensured. Stored in designated area inside the premise in most sites. However, some construction waste laying haphazardly and required proper storage/disposal
30	Construction schedules	Noise nuisance to neighbouring properties	Construction activities only undertaken during the day and local communities informed of the construction schedule.	Complied with Construction in day time only
31	Provision of facilities for construction workers	Contamination of receptors (land, water, air)	Construction workforce facilities to include proper sanitation, water supply and waste disposal facilities.	Complied with. However, there is scope for further improvement in improving the living condition of worker
32	Influx of migratory workers	Conflict with local population to share local resources	Using local workers for appropriate asks	Complied with. Local workforces have been given preference based on skill only.
33	Lines through farmland	Loss of agricultural productivity	Use existing access roads wherever possible Ensure existing irrigation facilities are maintained in working condition	Complied with. Repair/restoration done immediately wherever required. No complaint observed/reported.

Clause No.	Project activity/stage	Potential impact	Proposed mitigation measures	Compliance Status
			Protect /preserve topsoil and reinstate after construction completed	
			Repair/reinstate damaged bunds etc after construction completed	
		Social inequities	Land owners/ farmers compensated for any temporary loss of productive land as per existing regulation.	Compensation for land and damage to crop/tree etc is paid to land owner after assessment by revenue authority. However, it has been observed that there is delay in payment of compensation to land owner (after 3-6 months of actual damage). Project authority need to expedite process for early payment
34	Uncontrolled erosion/silt runoff	Soil loss, downstream siltation	Need for access tracks minimised, use of existing roads.	Complied with. No new access road constructed and construction during monsoon avoided as far as possible
			Limit site clearing to work areas	
			Regeneration of vegetation to stabilise works areas on completion (where applicable)	
			Avoidance of excavation in wet season	
			Water courses protected from siltation through use of bunds and sediment ponds	
35	Nuisance to nearby properties	Losses to neighbouring land uses/ values	Contract clauses specifying careful construction practices.	Complied with. Good construction practices with proper scheduling of construction activities observed in all active sites. No major deviation with respect to contract conditions by the contractor found/reported
			As much as possible existing access ways will be used	
			Productive land will be reinstated following completion of construction	
		Social inequities	Compensation will be paid for loss of production, if any.	Observation already provided at Clause no 34 above

Clause No.	Project activity/stage	Potential impact	Proposed mitigation measures	Compliance Status
36	Flooding hazards due to construction impediments of natural drainage	Flooding and loss of soils, contamination of receptors (land, water)	Avoid natural drainage pattern/ facilities being disturbed/blocked/ diverted by ongoing construction activities	Complied/ being complied. No such issue reported/ came across during visit to various sites
37	Equipment submerged under flood	Contamination of receptors (land, water)	Equipment stored at secure place above the high flood level(HFL)	Complied with Substations are constructed above HFL.
38	Inadequate siting of borrow areas (quarry areas)	Loss of land values	Existing borrow sites will be used to source aggregates, therefore, no need to develop new sources of aggregates	Complied with.
39	Health and safety	Injury and sickness of workers and members of the public	Safety equipment's (PPEs) for construction workers	Safety equipment available but often not used by workers. Worker facilities/camp available but needs further improvement with respect to sanitation. Health & safety plan in place and properly implemented. No major accident/incident reported for any site till date. More training to be conducted to create awareness on use of PPEs /safety gear.
			Contract provisions specifying minimum requirements for construction camps	
			Contractor to prepare and implement a health and safety plan.	
			Contractor to arrange for health and safety training sessions	
40	Inadequate construction stage monitoring	Likely to maximise damages	Training of environmental monitoring personnel	Project staffs often found to be unaware of the IEAR, ESPPF and the requirements therein. More specific awareness/ training on IEAR, ESPPF etc requirements for effective implementation/ monitoring of provisions of IEAR, ESPPF and contract conditions to achieve 100% compliance
			Implementation of effective environmental monitoring and reporting system using checklist of all contractual environmental requirements	
			Appropriate contact clauses to ensure satisfactory implementation of contractual environmental mitigation measures.	

Clause No.	Project activity/stage	Potential impact	Proposed mitigation measures	Compliance Status
Operation and Maintenance				
41	Location of line towers/poles and overhead/ under-ground line alignment & design	Exposure to safety related risks	Setback of dwellings to overhead line route designed in accordance with permitted level of power frequency and the regulation of supervision at sites.	Not applicable at present. Pertain to Operation & Maintenance period only
42	Line through identified bird flyways, migratory path	Injury/ mortality to birds, bats etc due to collision and electrocution	Avoidance of established/identified migration path (Birds & Bats). Provision of flight diverter/ reflectors, elevated perches, insulating jumper loops, obstructive perch deterrents, raptor hoods etc., if applicable	
43	Equipment submerged under flood	Contamination of receptors (land, water)	Equipment installed above the high flood level (HFL) by raising the foundation pad.	
44	Oil spillage	Contamination of land/nearby water bodies	Substation transformers located within secure and impervious sump areas with a storage capacity of at least 100% of the capacity of oil in transformers and associated reserve tanks.	
45	SF6 management	Emission of most potent GHG causing climate change	Reduction of SF6 emission through awareness, replacement of old seals, proper handling & storage by controlled inventory and use, enhance recovery and applying new technologies to reduce leakage	
46	Inadequate provision of staff/workers health and safety during operations	Injury and sickness of staff /workers	Careful design using appropriate technologies to minimise hazards	
			Safety awareness raising for staff.	
			Preparation of fire emergency action plan and training given to staff on implementing emergency action plan	
			Provide adequate sanitation and water supply facilities	

Clause No.	Project activity/stage	Potential impact	Proposed mitigation measures	Compliance Status
47	Electric Shock Hazards	Injury/ mortality to staff and public	Careful design using appropriate technologies to minimise hazards	
			Security fences around substations	
			Barriers to prevent climbing on/ dismantling of transmission towers	
			Appropriate warning signs on facilities	
			Electricity safety awareness raising in project areas	
48	Operations and maintenance staff skills less than acceptable	Unnecessary environmental losses of various types	Adequate training in O&M to all relevant staff of substations & transmission/ distribution line maintenance crews.	
			Preparation and training in the use of O&M manuals and standard operating practices	
49	Inadequate periodic environmental monitoring.	Diminished ecological and social values.	Staff to receive training in environmental monitoring of project operations and maintenance activities.	
50	Equipment specifications and design parameters	Release of chemicals and gases in receptors (air, water, land)	Processes, equipment and systems using cholofluorocarbons (CFCs), including halon, should be phased out and to be disposed of in a manner consistent with the requirements of the Govt.	
51	Transmission/ distribution line maintenance	Exposure to electromagnetic interference	Transmission/ distribution line design to comply with the limits of electromagnetic interference from overhead power lines	
52	Uncontrolled growth of vegetation	Fire hazard due to growth of tree/shrub /bamboo along RoW	Periodic pruning of vegetation to maintain requisite electrical clearance. No use of herbicides/ pesticides	
53	Noise related	Nuisance to neighbouring properties	Substations sited and designed to ensure noise will not be a nuisance.	

5.8 Conclusion

It is vivid from the above discussion that all transmission & distribution line routes and substations location have been selected judiciously by considering the technical, environmental, socio-economic aspects. Though some changes in line length & route alignment have been observed in transmission /distribution lines as compared to IEAR scope but as a result careful route selection IA/Utility could able to avoid ecologically & socially sensitive areas including forest, protected areas, PCR etc completely in all the lines and substations being implemented under this project.

The provisions of IEAR & EMP are being implemented at ground level and strict compliance by construction contractors is ensured through regular monitoring by IA/Utility. So far, no major impacts apart from earlier identified impacts are anticipated due to such changes in scope. However, based on site condition IA /Utility has taken some additional site specific measures like providing tower extension in some stretches for adequate clearance to wild animal/elephant and erosion/slope protection measures like RRM Wall etc in substations. Besides, all other applicable laws/rules/regulations of the country & funding agencies are being complied with and till date no violation/ penalty with respect to contravention of any regulations has been reported. During assessment, it has also been observed that so far the project has achieved zero fatality with no major non-compliance of EMP/Contract provisions as stipulated in IEAR, which is an indicative of the strict vigil of the IA.

It has also emerged from the survey & PRA exercise that the PAP were appreciative of the project and hoped that the power scenario would improve after commissioning of the project. Local people also benefited through project related employment that was being generated. However, following suggestions may be considered to further improve the safeguard measures and also enhance the environmental sustainability of project,

- ✓ During the construction phase, the implementing agency needs to ensure strict compliance of the contract provisions/EMP by Contractor especially in respect of workers health and safety.
- ✓ Project staff of the implementing agency should be well versed with the contents of the IEAR so as to ensure proper compliance by the contractors.

- ✓ In some cases delay in payment of tree, crop & land compensation to affected FEAR for T & D Project in Garo Hill District of Meghalaya under NERPSIP persons observed. Further streamlining of compensation process and responsibility allocation need to be undertaken by IA/Utility to avoid delay in future cases.
- ✓ More regular co-ordination between IA & Utility as very less involvenmt of Utility in project implementation.
- ✓ It is suggested that the galvanized towers in the affected zone be painted grey/ green or barbed wire wrapping on towers/ installation of spike on towers up to a height equal to the normal height of adult elephants so as avoid damage to line tower and / or possible electrocution.
- ✓ Care should be taken to ensure that no borrows inhabited by Pangolin exists before taking up excavations for tower foundation or substations. The workers and field personnel should be educated on the identification and detection of burrows in consultation with the local inhabitants, who often have the knowledge about the presence and location of local biodiversity.

Overall, the commissioning of the project will augment the power distribution and availability in the region which will further catalyze economic activity and development of the area/region.

CHAPTER-6 : MONITORING & ORGANIZATIONAL SUPPORT STRUCTURE

For smooth implementation of this project, following administrative and functional set up have been institutionalized for project implementation, review and monitoring etc.

6.1 Administrative Arrangement for Project Implementation:

Central Project Implementation Unit (CPIU) - A body responsible for coordinating the preparation and implementation of the project housed within the IA's offices at Guwahati. The "Project-In-Charge" of IA & Head of each of the SPCU shall be a member of CPIU.

State Project Coordination Unit (SPCU) – A body formed by the State Utility and responsible for coordinating with IA in preparing and implementing the project at the State level. It consist of experts across different areas from the Utility headed by an officer of the rank not below Chief Engineer, from the Utility.

Project Implementation Unit (PIU) – A body formed by the IA, including members of Utility on deputation, and responsible for implementing the Project across the State, with its personnel being distributed over the work site/s & operating in close association with the SPCU/ CPIU. PIU reports to the State level "Project Manager" nominated by the Project-in-Charge of IA. The IA has a Core team stationed at the CPIU on a permanent basis, and other IA officers (with required skills) makes visits as and when required by this core team. This team represents IA is responsible for all coordination with SPCU, PIU, within IA and MoP, GoI. CPIU also assists MoP, GoI in monitoring project progress and coordination with The Bank.

6.2 Review of Project Implementation Progress:

To enable timely implementation of the project/subprojects, following committee has been set up to review the progress;

A. Joint Co-ordination Committee (JCC): IA and SPCU nominate their representatives in a body called JCC to review the project. IA specifies quarterly

milestones or targets, which are reviewed by JCC through a formal monthly review meetings. This meeting forum is called as Joint Co-ordination Committee Meeting (JCCM).The IA convenes & keeps record of every meeting. MoP, GoI and The Bank join in as and when needed.

B. High Power Committee (HPC): The Utility in consultation with its State Government has constituted a High Power Committee (HPC) consisting of high level officials from the Utility, State/ District Administration, Law enforcement agencies, Forest Department. etc. so that various permission/ approvals/ consents/ clearances etc. are processed expeditiously so as to reach the benefits of the Project to the end consumers. HPC meets on bimonthly basis or earlier, as per requirement. This forum is called as High Power Committee Meeting (HPCM) and the SPCU keeps records of every meeting. Minutes of the meeting will be shared with all concerned and if required, with GoI and The Bank.

C. Contractor's Review Meeting (CRM): Periodic Review Meeting is held by officials of PIU with Contractors at field offices, State Head Quarters (PIU location) and if required with core team of IA at Guwahati. These meetings are called "Contractor's Review Meeting" (CRM). PIU shall keep a record of all CRMs, which shall be shared with all concerned and if required, with GoI and The Bank.

D. Review meetings are held among MoP, GoI, The Bank, State Government, Utility and IA, at four (4) months interval or earlier if needed, primarily to maintain oversight at the top level, and also to debottleneck issues that require intervention at GoI/ State Government level. Minutes of the meeting shall be prepared by IA and shared with all concerned.

6.3. E & S Monitoring:

The arrangement for monitoring and reviewing of project from the perspective of environment and social management forms part of overall arrangements for project management and implementation environment. Environmental monitoring is a continuous process throughout the Project life cycle starting from site selection to construction and maintenance stage. As Implementing Agency (IA) POWERGRID endeavours to implement the project in close coordination with the respective state

power utilities and departments. POWERGRID has been implementing the project based on the Implementation/Participation agreements that were signed separately between POWERGRID and the Power utilities.

The IA has appointed dedicated Environment Officer in each state including Meghalaya to oversee the E & S management. Besides, MePTCL / MePDCL also has a separate cell at the Circle office level namely Environment and Social Management Cell (ESMC) headed by Chief Engineer (Transmission) for proper implementation and monitoring of environmental & social management measures. Apart from day to day E & S monitoring other major responsibilities are;

- Coordinating environmental and social commitments and initiatives with various multilateral agencies, MoEFCC and Govt. of Meghalaya.
- Coordination of all environmental activities related to a project from conceptualization to operation and maintenance stage. Advising site offices to follow-up with the state forest offices and other state departments for expediting forest clearances and other E & S issues of various projects.
- Providing a focal point for interaction with the MoEF for expediting forest clearances
- Training of Circle and Site officials on E & S issues arising out of Transmission/Distribution projects and their management plan.
- Training of other departments to familiarize them with the ESPP document.

Additionally, Field In-Charge reviews the progress on daily basis and periodic review by higher management including review by Heads of SPCU and CPIU undertaken wherein apart from construction issues the environmental aspects of the projects are discussed and remedial measures taken wherever required. Besides, Periodic Contractor's Review Meeting (CRM) are being held by officials of PIU with Contractors at field offices, State Head Quarters (PIU location) and with CPIU at Guwahati for better co-ordination and resolution any pending issues. The World Bank mission team also visits various sites every six months to review the progress status including ground level implementation of safeguard measures. Any observation/agreed action plan suggested by the Bank in the Aide Memoire is religiously complied in time bound manner. Additionally, review meeting among MoP, GoI, The Bank, State Governments., Utility and IA being held periodically to maintain oversight at the top level and also to debottleneck issues that require intervention at GoI/ State Government level.

The Capacity building and Institutional Strengthening program of the IA is held intermittently to enhance the skills of the project officials. Besides, separate E & S training are also organized for Official of State Utility under Capacity Building & Institutional Strengthening (CBIS) programme. Further, State utility meetings between IA and MePTCL are held on a monthly/ bimonthly basis to assess the work progress and difficulties encountered in respect of land acquisition, RoW and compensation if any.

The IA has a continuous monitoring mechanism of the project w.r.t. compliance of the mitigation measures as stipulated in the IEAR. Thus, the adherence to the clauses by the contractors are regularly monitored especially in respect of various implementation E & S measures including health and safety aspects. Due to such strong institutional support structure coupled with monitoring mechanism in place, no major non-compliance were observed/reported during the implementation of projects till date. The project has so far had zero fatality which is indicative of the strict vigil of the IA. During the present study, our team also observed mitigation measures as suggested in IEAR are mostly complied with even though some gaps were found with respect proper to documentation.

6.4 Grievance Redressal Mechanism (GRM)

Grievance Redress Mechanism (GRM) is an integral and important mechanism for addressing/resolving the concern and grievances in a transparent and swift manner. In accordance with the provision in ESPPF, Grievance Redress Committees (GRC) have been constituted in Meghalaya both at the project/scheme level and at Corporate/HQ. This GRC is aimed to provide a trusted way to voice and resolve environment & social concerns of the project, and to address the concerns of the affected person/community in a time bound manner without impacting project implementation.

The Corporate/HQ level GRC has been constituted and notified which is headed by Director (Transmission), MePTCL. Similarly project level GRCs have been constituted for each transmission and substations covered under this project. Notifications of Corporate & Project level GRC are placed as **Annexure-13.**

Apart from above, grievance redressal is in built in crop/tree compensation process where affected persons are given a chance to place their grievances after issuance of

notice by revenue officials on the basis of assessment of actual damages. Grievances received towards compensation are generally addressed in open forum and in the presence of many witnesses. Process of spot verification and random checking by the district collector/ its authorized representative also provides forum for raising the grievance towards any irregularity/complain. Moreover, MePTCL/MePDCL & POWERGRID officials also address to the complaints of affected farmers and the same are forwarded to revenue official for doing the needful, if required

It may also be noted that concerns of public are addressed regularly through public consultation process which started from project planning to construction and will be continued in operation and maintenance also. Besides, many concerns/grievances from affected persons/public have been received by Site Offices which are also regularly tracked for early resolution. However, it has been observed that most of them were minor in nature and were resolved instantly and amicably by Site Officials after discussion & deliberation with affected person/ in consultation of revenue/district officials.

APPENDIX A

Photo Plates of Site Visits & Project Elements

Interaction with POWERGRID Officials at Phulbari

Visit of Tower location at AP 27/0 of 132 kV Phulbari- Ampati line

Visit of Pole Location at C7 of 33 kV Phulbari-Chibinang line

Visit to 33/1 kV Raksambre Substation


Construction of 132/33 kV substation at Phulbari


Boundary wall of 132/33kV substation at Phulbari


132/33 kV Ampati Substation


132/33 kV Ampati Substation


33/11 kV at Phulbari substation
(Existing)


33/11 kV
Existing Phulbari Substation


33/11 kV substation at Chibinang


Boundary wall at 33/11 kV substation at Chibinang


33/11 kV substation at Raksamgre


33/11 kV substation at Raksamgre

APPENDIX-B

Data Collection Through Line Transacts Survey & PRA

For the Line Transact Survey & PRA studies, 10 % of the tower locations along the route were surveyed, and the villages falling therein were visited for interaction with the project affected people (PAP). Thus, for the whole stretch of the alignment, a total of 12 villages were visited. Although site visits were undertaken for distribution lines and substations, PRA studies were not conducted as the impact due to distribution lines is negligible, and the substations were mostly on land either already acquired earlier (extension or bay addition at existing substations), or located away from residential area (new). The location/village visited along with co-ordinates and other details are provided in the table below..

Sl No	**Tower No**	**Tower Type**	**Name of village**	**GPS coordinates**	**Topography**	**Land use**
1	AP 5	DB+6	Gopal Than	Lat- 25˚51'49.01" Long- 90˚02'20.50"	Gentle slope	Paddy
2	AP-20	DC+6	Balu Jhora	Lat -25˚50'05.92" Long- 90˚00'15.51"	Plain	Paddy
3	AP 35/3	DA+3	Negikona	Lat -25˚48'03.82" Long-89˚58'56.98"	Plain	Paddy
4	AP 45/1	DA 0	Dublamari	Lat-25˚45'33.31" Long-89˚59'56.92"	Plain	Paddy
5	AP 55/0	DB+3	Mela Giri	Lat-25˚44'02.38" Long - 90˚01'30.95"	Gentle slope	Plantation
6	AP 65/4	DA+0	Ranthapara	Lat - 25˚41'33.55" Long- 90˚01'13.13"	Plain	Paddy
7	AP 74	DB+9	Dokagre	Lat- 25˚38'52.66" Long- 90˚01'21.02"	Gentle slope	Private plantation
8	AP 92	DB+0	Dipty Para	Lat- 25˚36'16.18" Long-90˚01'12.22"	Gentle slope	Plantation
9	AP 103/1	DA+3	Chirangpara	Lat - 25˚34'48.22" Long- 89˚58'46.09"	Plain	Paddy
10	AP 76	DB+0	Kalamati	Lat -25°38'34.44" Long- 90°01'19.39"	Hillock	*Jhum*
11	AP 82	DD+0	Khalmangittim	Lat25°37'41.28" Long90°01'34.47"	Gentle slope	Private plantation
12	AP 90	DD+3	Mangapara	Lat- 25°36'32.76" Long- 90°01'32.16"	Gentle slope	Private plantation

Data Collection Report

Sample 1.

Name of the line	**:**	132 kV Phulbari- Ampati line
Section of Route	**:**	Gantry to AP5 (Loc No. Gantry to 5/0)
Number of Towers	**:**	17
Section length	**:**	4.731 km
AP surveyed after every 5 km	**:**	AP 5/0
Tower type of AP5/0	**:**	DB+6
Latitude	**:**	25˚51'49.01"
Longitude	**:**	90˚02'20.50"

DESCRIPTION	REMARKS
Status of land	Private ownership
General topography of the area	Gentle slope
Nature of vegetation in the study area	Agricultural crops.
Density of vegetation	Low
Number of trees likely to be felled in that	Based on the tree enumeration report obtained from POWERGRID, from AP5 to AP6 the number of economically important trees coming under 27M RoW are :- Bamboo, 360; Betel nut, 132; Banana, 19 and others 124
Any specific observation with respect to ecological sensitivity in the study area	There are no ecologically sensitive areas near the tower location that would impact the environment around it.

DETAILS ON BIODIVERSITY OF THE STUDY AREA AND LIKELY IMPACTS

DESCRIPTION	STATUS/ AVAILABILITY	LIKELY IMPACTS
FLORA		
a) Common flora in the study area	*Ziziphus mauritiana*, *Tectona grandis, Careya arborea, Tapioca sp.*	There are no likely impact as observed in the study area
b) Endemic flora	*Ziziphus mauritiana*, *Tectona grandis, Careya arborea, Tapioca sp.*	
c) Endangered flora	NA	
d) Vulnerable	NA	
e) Threatened	NA	
f) Any specific observation	The land where the base of the tower is constructed has been already covered with some vegetation, and there are barely any fully grown trees in the tower location.	

FAUNA		
a) Common fauna in the study area	Pigeon, mynah, fowl, monkey, squirrel	There is no likely impact on the faunal diversity in the tower location.
b) Endemic fauna		
c) Endangered fauna	NA	
d) Vulnerable	NA	
Special emphasis on Elephant habitat/ corridor	There is no elephant corridor nor an elephant habitat in the region	There will be no likely impact on it as there is no elephant habitat or corridor in the region.
a) Availability of large winged birds	Kite, hawk	This bird is spotted only at times. There is no likely impact
b) Availability of	In the specific tower location	There is barely any chance of

monkey/ primate species and chances of electrocution	AP5/0 monkeys are barely sighted unlike before because of conversion of forest land to agricultural land.	electrocution of animal since the estimated tower height is higher than the height of the tree, and also the population of the monkey has declined in the area.
c) Any species nesting sites of birds which may be impacted	There are no nesting sites of birds sighted	

IMPACT OF PROJECT ACTIVITY (TOWER FOUNDATION/ ERECTION/ STRINGING)

DESCRIPTION	REMARKS
Disposal of excavated soil/ excess soil	No disposal of the excavated soil
Any major issue of soil erosion at project site/ tower locations	There is no soil erosion observed in the tower location
Whether benching carried at tower locations	No benching is carried out
Number of trees felled/required to be felled at tower	NA
Leg extension/ extended tower provided/ requirement	No leg extension
Impact on nearby water bodies due to project activity	There is no impact on the water bodies as the tower location is far from the river.
Whether location is vulnerable to soil erosion/ soil failure	The location is not vulnerable to soil erosion
Any specific requirement of slope protection measures like revetment/ retaining/ toe wall etc. at project locations	No requirement for slope protection since the land is level
Impact of approach road construction (if required)	No impact on the road construction, the condition of the road itself is bad.
Transportation of tower materials	The materials are transported via trucks but only the base of the tower has been constructed.

SOCIO ECONMIC ASSESSMENT OF THE STUDY AREA

DESCRIPTION	REMARKS
Name of the village	Gopal Than
General socio economic profile of PAP in project area	
Nature of land affected due to project activity	
Any resettlement issue	There is no issue of resettlement as it is an agricultural land.
Any negative impact on livelihood of PAP	There is no negative impact on the livelihood of the people.
Any impact on archaeological structure *(If, available in the vicinity)*	No archaeological structure in and around the village
Any impact on common property resources/religious area/sacred groves etc.	There is no such impact on the common property resources or any religious area as the tower is located inside the village, few distances from the main road and there are no sacred groves in the village area.
Consultation with PAP/ Village council	As per the PRA conducted, the villagers were cooperative in answering the questions and there seem to be no issue as the project would also benefit them in many ways and the compensation is complete.

Sample 2.

Name of the line	**:**	132 kV Phulbari- Ampati line
Section of Route	**:**	AP6 to AP20 (Tower Loc 6/0 to 20/0)
Number of Tower/ Poles	**:**	19
Section length	**:**	5.101 km
AP surveyed after every 5 km	**:**	AP 20/0
Tower type of AP20/0	**:**	DC+6
Latitude	**:**	25˚50'05.92"
Longitude	**:**	90˚00'15.51"

DESCRIPTION	**REMARKS**
Status of land	Paddy field
General topography of the area	Plain
Nature of vegetation in the study area	Paddy field
Density of vegetation	Sparse
Number of trees likely to be felled in that stretch	Based on the tree enumeration report obtained from POWERGRID, from AP20 to AP21 the number of trees in RoW are 51.
Any specific observation with respect to ecological sensitivity in the study area	There is no ecological sensitivity in the study area

DETAILS ON BIODIVERSITY OF THE STUDY AREA AND LIKELY IMPACTS

DESCRIPTION	**STATUS/ AVAILABILITY**	**LIKELY IMPACTS**
FLORA		
a) Common flora in the study area	*Oryza sativa*	There are no likely impact as observed in the study area
b) Endemic flora	NA	
c) Endangered flora	NA	
d) Vulnerable	NA	
e) Threatened	NA	
f) Any specific observation	The tower is located in the paddy field where it has been left uncultivated and the vegetation in the area is sparse.	

FAUNA		
a) Common fauna in the study area	Mynah, squirrel, egret	No likely impact on the faunal diversity
b) Endemic fauna		
c) Endangered fauna		
d) Vulnerable		
Special emphasis on Elephant habitat/ corridor	There is no elephant habitat or corridor in the study area	There will be no likely impact since there is no elephant habitat or corridor in the study area
a) Availability of large winged birds	Kite, crow	There is no likely impact on the large winged.
b) Availability of monkey/ primate species and chances of electrocution	There are no monkeys around the tower location as it lies in the paddy field and there are no chances of electrocution of the animal	
c) Any species nesting sites of birds which may be impacted	There are no nesting sites sighted in the tower location	

IMPACT OF PROJECT ACTIVITY (TOWER FOUNDATION/ ERECTION/ STRINGING)

DESCRIPTION	REMARKS
Disposal of excavated soil/ excess soil	No disposal of the excavated soil
Any major issue of soil erosion at project site/ tower locations	There is no soil erosion observed at the tower location since it is a plain area
Whether benching carried at tower locations	No benching is carried out
Number of trees felled/required to be felled at tower	The tower is located in the paddy field
Leg extension/ extended tower provided/ requirement	No leg extension
Impact on nearby water bodies due to project activity	There is no impact on the nearby water body
Whether location is vulnerable to soil erosion/ soil failure	The location is not vulnerable to soil erosion
Any specific requirement of slope protection measures like revetment/ retaining/ toe wall etc. at project locations	No requirement for slope protection since it is a plain area
Impact of approach road construction (if required)	No impacts on the road construction
Transportation of tower materials	the materials are transported via trucks and only the base of the tower has been constructed

SOCIO ECONMIC ASSESSMENT OF THE STUDY AREA

DESCRIPTION	REMARKS
Name of the village	Balu Jhora
General socio economic profile of PAP in project area	
Nature of land affected due to project activity	
Any resettlement issue	There is no resettlement issue
Any negative impact on livelihood of PAP	There is no impact on the livelihood of the people.
Any impact on archaeological structure *(If, available in the vicinity)*	There is/are no archaeological site in the village
Any impact on common property resources/religious area/sacred groves etc.	There is no impact on the common property, religious area neither on the sacred groves.
Consultation with PAP/ Village council	The villagers took their time out for the meeting, where the briefing was done followed by queries regarding their greviances/apprehensions etc. When questions were raised regarding the project, the replies were positive where they also mentioned that they were assured of 100% compensation for acquisition of the land for tower.

Sample 3.

Name of the line	**:**	132 kV Phulbari- Ampati line
Section of Route	**:**	AP21 to AP 35/3 (Tower Loc 21/0 to 35/3)
Number of Tower/ Poles	**:**	20
Section length	**:**	5.336 km
AP surveyed after every 5 km	**:**	AP 35/3
Tower type of AP35/3	**:**	DA+3
Latitude	**:**	25˚48'03.82"
Longitude	**:**	89˚58'56.98"

DESCRIPTION	**REMARKS**
Status of land	Paddy field
General topography of the area	Plain
Nature of vegetation in the study area	Paddy field
Density of vegetation	Medium
Number of trees likely to be felled in that stretch	Based on the tree enumeration report obtained from POWERGRID, from AP21 to AP35 the number of trees to be felled are 4.
Any specific observation with respect to ecological sensitivity in the study area	There are no ecologically sensitive areas near the tower location

DETAILS ON BIODIVERSITY OF THE STUDY AREA AND LIKELY IMPACTS

DESCRIPTION	**STATUS/ AVAILABILITY**	**LIKELY IMPACTS**
FLORA		
a) Common flora in the study area	*Oryza sativa*	There are no likely impact as observed in the study area
b) Endemic flora	NA	
c) Endangered flora	NA	
d) Vulnerable	NA	
e) Threatened	NA	
f) Any specific observation	The tower is located in the paddy field.	

FAUNA		
a) Common fauna in the study area	egret, mynah, pigeon, squirrel, kingfisher	There are no likely impacts on the birds and the animals in the study area.
b) Endemic fauna	NA	
c) Endangered fauna	NA	
d) Vulnerable	NA	
Special emphasis on Elephant habitat/ corridor	There is no elephant habitat or corridor in the study area where the tower located	There will be no likely impact as there is no elephant habitat or corridor in the study area.
a) Availability of large winged birds	Kite, crow	There are no likely impact on the large winged birds
b) Availability of monkey/ primate species and chances of electrocution	There are no monkeys in the study area as per the information obtained.	
c) Any species nesting sites of birds which may be impacted	There are no nesting sites sighted.	

IMPACT OF PROJECT ACTIVITY (TOWER FOUNDATION/ ERECTION/ STRINGING)

DESCRIPTION	REMARKS
Disposal of excavated soil/ excess soil	No disposal of the excavated soil
Any major issue of soil erosion at project site/ tower locations	There is no soil erosion observed
Whether benching carried at tower locations	No benching is carried out
Number of trees felled/required to be felled at tower	The tower is right in the middle of the paddy field
Leg extension/ extended tower provided/ requirement	No leg extension
Impact on nearby water bodies due to project activity	There is no impact on the water bodies as the tower location is far from the river.
Whether location is vulnerable to soil erosion/ soil failure	The location is not vulnerable to soil erosion
Any specific requirement of slope protection measures like revetment/ retaining/ toe wall etc. at project locations	No requirement for slope protection since it is a plain area
Impact of approach road construction (if required)	No impacts on the road construction, the road itself is bad making it difficult for transporting the materials
Transportation of tower materials	the materials are transported via trucks and only the base of the tower has been constructed

SOCIO ECONMIC ASSESSMENT OF THE STUDY AREA

DESCRIPTION	REMARKS
Name of the village	Negikona
General socio economic profile of PAP in project area	
Nature of land affected due to project activity	
Any resettlement issue	There is no issue on the resettlement issue as the tower is located in the paddy field.
Any negative impact on livelihood of PAP	There is no such impact on the livelihood of the people.
Any impact on archaeological structure *(If, available in the vicinity)*	There is/are no archaeological site
Any impact on common property resources/religious area/sacred groves etc.	There is no impact on the common property or the religious area. It is located away from the place of worship.
Consultation with PAP/ Village council	As per the PRA, the people do not have any apprehensions. The Cultivation of rice is still being done, and there is no disturbance or effect on the paddy fields nearby. The compensation has been assured wherever required

Sample 4.

Name of the line	**:**	132 kV Phulbari- Ampati line
Section of Route	**:**	AP36 to AP45/1 (Tower Loc 36/0 to 45/1)
Number of Tower/ Poles	**:**	17
Section length	**:**	5.312 km
AP surveyed after every 5 km	**:**	AP 45/1
Tower type of AP45/1	**:**	DA+0
Latitude	**:**	25˚45'33.31"
Longitude	**:**	89˚59'56.92"

DESCRIPTION	**REMARKS**
Status of land	Paddy field
General topography of the area	Plain
Nature of vegetation in the study area	Paddy field
Density of vegetation	Medium
Number of trees likely to be felled in that stretch	Based on the tree enumeration report obtained from POWERGRID, from AP36 to AP45 the number of trees in RoW is 122.
Any specific observation with respect to ecological sensitivity in the study area	There is no ecological sensitivity in the study area.

DETAILS ON BIODIVERSITY OF THE STUDY AREA AND LIKELY IMPACTS

DESCRIPTION	**STATUS/ AVAILABILITY**	**LIKELY IMPACTS**
FLORA		
a) Common flora in the study area	*Oryza sativa*	There are no likely impact as observed in the study area
b) Endemic flora	NA	
c) Endangered flora	NA	
d) Vulnerable	NA	
e) Threatened	NA	
f) Any specific observation	The tower is located in the middle of the paddy field.	

FAUNA		
a) Common fauna in the study area	Mynah, wagtail,egret, squirrel, pigeon, monkey	There is no likely impact on the faunal diversity in the study area.
b) Endemic fauna	NA	
c) Endangered fauna	NA	
d) Vulnerable	NA	
Special emphasis on Elephant habitat/ corridor	There is no elephant habitat or corridor in the study area.	There will not be likely impact on it as there is no elephant habitat or corridor in the region
a) Availability of large winged birds	Crow, hawk	There will be no likely impact on the large winged birds in the study area.
b) Availability of monkey/ primate species and chances of electrocution	Monkeys are sighted at times but not in the area where the tower is located.	There will be no chances of electrocution
c) Any species nesting sites of birds which may be impacted	No nesting sites were sighted in the study area.	

IMPACT OF PROJECT ACTIVITY (TOWER FOUNDATION /ERECTION/ STRINGING)

DESCRIPTION	REMARKS
Disposal of excavated soil/ excess soil	No disposal of the excavated soil
Any major issue of soil erosion at project site/ tower locations	There is no soil erosion observed at the tower location
Whether benching carried at tower locations	No benching is carried out
Number of trees felled/required to be felled at tower	The tower is located in the paddy field
Leg extension/ extended tower provided/ requirement	No leg extension
Impact on nearby water bodies due to project activity	There is no impact on the nearby water body
Whether location is vulnerable to soil erosion/ soil failure	The location is not vulnerable to soil erosion
Any specific requirement of slope protection measures like revetment/ retaining/ toe wall etc. at project locations	No requirement for slope protection since it is a plain area
Impact of approach road construction (if required)	No impacts on the road construction, the condition of the road makes it difficult for transporting the materials.
Transportation of tower materials	the materials are transported via trucks and only the base of the tower has been constructed

SOCIO ECONMIC ASSESSMENT OF THE STUDY AREA

DESCRIPTION	REMARKS
Name of the village	Dublamari
General socio economic profile of PAP in project area	
Nature of land affected due to project activity	
Any resettlement issue	There is no resettlement issue as the tower is located far away from the settlement areas.
Any negative impact on livelihood of PAP	There is no negative impact on the livelihood of the people.
Any impact on archaeological structure *(If, available in the vicinity)*	There is/are no archaeological site
Any impact on common property resources/religious area/sacred groves etc.	No impact on the common property neither on any religious area and sacred groves. The tower location is far away from the religious area in the village and is located in the middle of the paddy field
Consultation with PAP/ Village council	There is no negative feedback from the villagers regarding the tower which is yet to be constructed. Even though only the tower base has been constructed, cultivation of rice was still done. The people from the village were quite cooperative and full compensation has been assured

Sample 5.

Name of the line	**:**	132 kV Phulbari- Ampati line
Section of Route	**:**	AP45/2 to AP55 (Tower Loc 45/2 to 55/0)
Number of Tower/ Poles	**:**	17
Section length	**:**	4.917 km
AP surveyed after every 5 km	**:**	AP 55/0
Tower type of AP55/0	**:**	DB+3
Latitude	**:**	25˚44'02.38"
Longitude	**:**	90˚01'30.95"

DESCRIPTION	REMARKS
Status of land	Plantation area
General topography of the area	Gentle slope
Nature of vegetation in the study area	Plantation
Density of vegetation	Medium
Number of trees likely to be felled in that	Based on the tree enumeration report obtained from POWERGRID, from AP55 to AP56 the number of trees in RoW are :- Bamboo, 220; Cashewnut, 184; other miscellaneous,175;
Any specific observation with respect to ecological sensitivity in the study area	There is no ecologically sensitivity in the study area

DETAILS ON BIODIVERSITY OF THE STUDY AREA AND LIKELY IMPACTS

DESCRIPTION	STATUS/ AVAILABILITY	LIKELY IMPACTS
FLORA		
a) Common flora in the study area	Cashewnut, *Tectona grandis, Lagerstroemia speciosa, Albizia lebbeck*	No likely impact on the trees
b) Endemic flora	*Tectona grandis, Lagerstroemia speciosa, Albizia lebbeck*	
c) Endangered flora	NA	
d) Vulnerable	NA	
e) Threatened	NA	
f) Any specific observation	The study is basically located in a Cashewnut plantation area. The tower height is more than that of the trees.	

FAUNA		
a) Common fauna in the study area	Fowl, squirrel, monkey, jungle cat, mynah, bats, wagtail	No likely impact
b) Endemic fauna		
c) Endangered fauna		
d) Vulnerable		
Special emphasis on Elephant habitat/ corridor	There are no elephant habitat or corridor in the study area	There will be likely impact on it as there is no elephant habitat or corridor in the region
a) Availability of large winged birds	Kite, hawk	
b) Availability of monkey/ primate species and	Monkeys sighted	There are no chances or electrocution. The tower

chances of electrocution		height is more than that of the cashewnut trees.
c) Any species nesting sites of birds which may be impacted	No nesting sites sighted in the study area	

IMPACT OF PROJECT ACTIVITY (TOWER FOUNDATION/ ERECTION/ STRINGING)

DESCRIPTION	REMARKS
Disposal of excavated soil/ excess soil	No disposal of the excavated soil
Any major issue of soil erosion at project site/ tower locations	There is no soil erosion observed
Whether benching carried at tower locations	No benching is carried out
Number of trees felled/required to be felled at tower	
Leg extension/ extended tower provided/ requirement	No leg extension
Impact on nearby water bodies due to project activity	There is no impact on the water bodies as the tower location is far from the river.
Whether location is vulnerable to soil erosion/ soil failure	The location is not vulnerable to soil erosion
Any specific requirement of slope protection measures like revetment/ retaining/ toe wall etc. at project locations	No requirement for slope protection
Impact of approach road construction (if required)	No impacts on the road construction
Transportation of tower materials	The materials are transported via trucks and hydra is also used.

SOCIO ECONMIC ASSESSMENT OF THE STUDY AREA

DESCRIPTION	REMARKS
Name of the village	Mela Giri
General socio economic profile of PAP in project area	
Nature of land affected due to project activity	
Any resettlement issue	No issue in resettlement as the tower location is far from the settlement areas.
Any negative impact on livelihood of PAP	No negative impact on the livelihood of the people
Any impact on archaeological structure *(If, available in the vicinity)*	There is/are no archaeological site
Any impact on common property resources/religious area/sacred groves etc.	No impact on the common property, religious area or sacred groves.
Consultation with PAP/ Village council	During the conduct of PRA the villagers were happy with the installations as there were parts of village where there is no electricity yet and it would be beneficial for them. The compensation has been assured

Sample 6.

Name of the line	**:**	132 kV Phulbari- Ampati line
Section of Route	**:**	AP56 to AP65/4 (Tower Loc 56/0 to 65/4)
Number of Tower/ Poles	**:**	17
Section length	**:**	5.030 km
AP surveyed after every 5 km	**:**	AP 65/4
Tower type of AP65/4	**:**	DA+0
Latitude	**:**	25˚41'33.55"
Longitude	**:**	90˚01'13.13"

DESCRIPTION	REMARKS
Status of land	Paddy field
General topography of the area	Plain
Nature of vegetation in the study area	Paddy field
Density of vegetation	Medium as the cultivation of rice has been done
Number of trees likely to be felled in that stretch	Based on the tree enumeration report obtained from POWERGRID, from AP65 to AP66 the number of trees in RoW is only 1.
Any specific observation with respect to ecological sensitivity in the study area	No ecological sensitivity in the study area

DETAILS ON BIODIVERSITY OF THE STUDY AREA AND LIKELY IMPACTS

DESCRIPTION	STATUS/ AVAILABILITY	LIKELY IMPACTS
FLORA		
a) Common flora in the study area	*Oryza sativa*	No likely impact
b) Endemic flora	NA	
c) Endangered flora	NA	
d) Vulnerable	NA	
e) Threatened	NA	
f) Any specific observation	The tower base has been constructed in a paddy field	

FAUNA		
a) Common fauna in the study area	Erget, Mynah, Wagtail	No likely impact
b) Endemic fauna	Mynah, Wagtail	
c) Endangered fauna	NA	
d) Vulnerable	NA	
Special emphasis on Elephant habitat/ corridor	There is no elephant habitat or corridor in the area	There will be likely impact on it as there is no elephant habitat or corridor in the region
a) Availability of large winged birds	Crow, kite	No likely impact
b) Availability of monkey/ primate species and chances of electrocution	There are no monkeys sighted near the tower location	No likely impact
c) Any species nesting sites of birds which may be impacted	There are no nesting sites sighted	No likely impact

IMPACT OF PROJECT ACTIVITY (TOWER FOUNDATION/ ERECTION/ STRINGING)

DESCRIPTION	REMARKS
Disposal of excavated soil/ excess soil	No disposal of the excavated soil
Any major issue of soil erosion at project site/ tower locations	There is no soil erosion observed
Whether benching carried at tower locations	No benching is carried out
Number of trees felled/required to be felled at tower	The tower is in the middle of the paddy field.
Leg extension/ extended tower provided/ requirement	No leg extension
Impact on nearby water bodies due to project activity	There is no impact on the water bodies as the tower location is far from the river.
Whether location is vulnerable to soil erosion/ soil failure	The location is not vulnerable to soil erosion
Any specific requirement of slope protection measures like revetment/ retaining/ toe wall etc. at project locations	No requirement for slope protection since it is a plain area
Impact of approach road construction (if required)	No impacts on the road construction
Transportation of tower materials	the materials are transported via trucks and only the base of the tower has been constructed

SOCIO ECONMIC ASSESSMENT OF THE STUDY AREA

DESCRIPTION	REMARKS
Name of the village	Ranthapara
General socio economic profile of PAP in project area	
Nature of land affected due to project activity	
Any resettlement issue	No resettlement issue
Any negative impact on livelihood of PAP	No impact on the livelihood of the people
Any impact on archaeological structure *(If, available in the vicinity)*	There is/are no archaeological site
Any impact on common property resources/religious area/sacred groves etc.	There is no impact on the common property, religious area ad sacred grove
Consultation with PAP/ Village council	As per the PRA there was no one opposing the construction of a tower, positive feedbacks were given by the villagers when certain questions were raised. The compensation is assured wherever necessary

Sample 7.

Name of the line	**:**	132 kV Phulbari- Ampati line
Section of Route	**:**	AP66 to AP74 (Tower Loc 66/0 to 74/0)
Number of Tower/ Poles	**:**	20
Section length	**:**	5.269 km
AP surveyed after every 5 km	**:**	AP 74/0
Tower type of AP74/0	**:**	DB+9
Latitude	**:**	25˚38'52.66"
Longitude	**:**	90˚01'21.02"

DESCRIPTION	**REMARKS**
Status of land	Private ownership
General topography of the area	Gentle slope
Nature of vegetation in the study area	Naturally grown trees
Density of vegetation	Medium
Number of trees likely to be felled in that stretch	Based on the tree enumeration report obtained from POWERGRID, from AP74 to AP75 the number of economically important trees in RoW are:- Bamboo, 155; Cashewnut, 25; Banana 10; and other miscellaneous species, 609.
Any specific observation with respect to ecological sensitivity in the study area	No ecological sensitivity in the study area

DETAILS ON BIODIVERSITY OF THE STUDY AREA AND LIKELY IMPACTS

DESCRIPTION	**STATUS/ AVAILABILITY**	**LIKELY IMPACTS**
FLORA		
a) Common flora in the study area	Tamarind, Teak, Cedrela toona, Albizzia lebbeck, litchi, Diploknema butyraceae, Grewia spp.	There are no likely impacts on the trees. The tower height is more than that of the trees.
b) Endemic flora	Teak, Cedrela toona, Albizzia lebbeck, litchi, Diploknema butyraceae, Grewia spp.	
c) Endangered flora	NA	
d) Vulnerable	NA	
e) Threatened	NA	
f) Any specific observation	There is a rubber plantation on one side of the erected tower.	There are no likely impacts on the plantation area.

FAUNA		
a) Common fauna in the study area	Mynah, woodpecker, wagtail, pigeon, squirrel, monkey, fowl, fox	There are no likely impact on the faunal diversity
b) Endemic fauna	Wagtail	
c) Endangered fauna	NA	
d) Vulnerable	NA	
Special emphasis on Elephant habitat/ corridor	There is no elephant habitat or corridor in the study area	There will be likely impact on it as there is no elephant habitat or corridor in the region
a) Availability of large winged birds	Hawk, eagle	

b) Availability of monkey/ primate species and chances of electrocution	Sighted occasionally	There are no chances of electrocution. The tower height is more than that of the tree height
c) Any species nesting sites of birds which may be impacted	There are no nesting sites sighted in the study area	

IMPACT OF PROJECT ACTIVITY (TOWER FOUNDATION/ ERECTION/ STRINGING)

DESCRIPTION	REMARKS
Disposal of excavated soil/ excess soil	No disposal of the excavated soil
Any major issue of soil erosion at project site/ tower locations	There is no soil erosion observed
Whether benching carried at tower locations	No benching is carried out
Number of trees felled/required to be felled at tower	
Leg extension/ extended tower provided/ requirement	No leg extension
Impact on nearby water bodies due to project activity	There is no impact on the water bodies as the tower location is far from the river.
Whether location is vulnerable to soil erosion/ soil failure	The location is not vulnerable to soil erosion
Any specific requirement of slope protection measures like revetment/ retaining/ toe wall etc. at project locations	No requirement for slope protection
Impact of approach road construction (if required)	No impacts on the road construction
Transportation of tower materials	the materials are transported via trucks and hydra is also used

SOCIO ECONMIC ASSESSMENT OF THE STUDY AREA

DESCRIPTION	REMARKS
Name of the village	Dokagre
General socio economic profile of PAP in project area	
Nature of land affected due to project activity	
Any resettlement issue	No resettlement issue
Any negative impact on livelihood of PAP	No impact on the livelihood of the people
Any impact on archaeological structure *(If, available in the vicinity)*	There is/are no archaeological site
Any impact on common property resources/religious area/sacred groves etc.	There is no impact on the common property, religious area and sacred grove
Consultation with PAP/ Village council	As per the PRA conducted, the villagers present in the meeting seem to have no problem in the construction of the tower as it would also help them in other ways. Even though the compensation is in process there was no one opposing the project and compensation for land acquisition has also been assured.

Sample 8.

Name of the line	**:**	132 kV Phulbari- Ampati line
Section of Route	**:**	AP75 to AP92 (Tower Loc 75/0 to 92/0)
Number of Tower/ Poles	**:**	18
Section length	**:**	5.286 km
AP surveyed after every 5 km	**:**	AP 92/0
Tower type of AP92/0	**:**	DB+0
Latitude	**:**	25˚36'16.18"
Longitude	**:**	90˚01'12.22"

DESCRIPTION	REMARKS
Status of land	Private ownership
General topography of the area	Gentle slope
Nature of vegetation in the study area	Private plantation
Density of vegetation	Low
Number of trees likely to be felled in that stretch	Based on the tree enumeration report obtained from POWERGRID, from AP92/0 to AP93/0 the number of economically important trees in RoW are:- Betel nut, 81; Bamboo 2 and other miscellaneous 7.
Any specific observation with respect to ecological sensitivity in the study area	No ecological sensitivity in the study area

DETAILS ON BIODIVERSITY OF THE STUDY AREA AND LIKELY IMPACTS

DESCRIPTION	STATUS/ AVAILABILITY	LIKELY IMPACTS
FLORA		
a) Common flora in the study area	Guava, teak, gamhar	There are no likely impact on floral diversity
b) Endemic flora	NA	
c) Endangered flora	NA	
d) Vulnerable	NA	
e) Threatened	NA	
f) Any specific observation	The height of the tower is more than that of the trees	

FAUNA		
a) Common fauna in the study area	Squirrel, magpie, bat, mynah, egret, fowl, wild pig, monkey	No likely impact
b) Endemic fauna		
c) Endangered fauna	Nil	
d) Vulnerable	Nil	
Special emphasis on Elephant habitat/ corridor	There is no elephant habitat or corridor in the study area	No likely impact as there is no elephant habitat or corridor in the region
a) Availability of large winged birds	Kite, hawk, eagle	No likely impact
b) Availability of monkey/ primate species and chances of electrocution	Monkeys are sighted at times.	No chances of electrocution of the animal as tower height is more than tree canopy
c) Any species nesting sites of birds which may be impacted	No nesting sites sighted	

IMPACT OF PROJECT ACTIVITY (TOWER FOUNDATION/ ERECTION/ STRINGING)

DESCRIPTION	REMARKS
Disposal of excavated soil/ excess soil	No disposal of the excavated soil.
Any major issue of soil erosion at project site/ tower locations	There is no soil erosion observed
Whether benching carried at tower locations	No benching is carried out
Number of trees felled/required to be felled at tower	
Leg extension/ extended tower provided/ requirement	No leg extension
Impact on nearby water bodies due to project activity	There is no impact on the water bodies as the tower location is far from the river.
Whether location is vulnerable to soil erosion/ soil failure	The location is not vulnerable to soil erosion
Any specific requirement of slope protection measures like revetment/ retaining/ toe wall etc. at project locations	No requirement for slope protection since the land is level.
Impact of approach road construction (if required)	No impacts on the road construction
Transportation of tower materials	the materials are transported via trucks and hydra

SOCIO ECONMIC ASSESSMENT OF THE STUDY AREA

DESCRIPTION	REMARKS
Name of the village	Dipty Para
General socio economic profile of PAP in project area	
Nature of land affected due to project activity	
Any resettlement issue	There is no issue on the resettlement as the tower is located far from the settlement area
Any negative impact on livelihood of PAP	No negative impact on the livelihood of the people
Any impact on archaeological structure *(If, available in the vicinity)*	No archaeological site in the area
Any impact on common property resources/religious area/sacred groves etc.	There is no impact on the common property religious area or sacred groves
Consultation with PAP/ Village council	The group discussion was quite effective as per the PRA as the villagers did not have any problem regarding the erection of the tower as it would also benefit them as well. Compensation has been assured

Sample 9.

Name of the line	**:**	132 kV Phulbari- Ampati line
Section of Route	**:**	AP93 to AP103/1 (Tower Loc 93/0 to 103/1)
Number of Tower/ Poles	**:**	21
Section length	**:**	5.394 km
AP surveyed after every 5 km	**:**	AP 103/1
Tower type of AP103/1	**:**	DA+3
Latitude	**:**	25˚34'48.22"
Longitude	**:**	89˚58'46.09"

DESCRIPTION	**REMARKS**
Status of land	Private ownership
General topography of the area	Plain
Nature of vegetation in the study area	Paddy field
Density of vegetation	Low
Number of trees likely to be felled in that stretch	Based on the tree enumeration report obtained from POWERGRID, from AP103/0 to AP104/0 the number of trees likely to be felled is 7
Any specific observation with respect to ecological sensitivity in the study area	No ecological sensitivity in the study area

DETAILS ON BIODIVERSITY OF THE STUDY AREA AND LIKELY IMPACTS

DESCRIPTION	**STATUS/ AVAILABILITY**	**LIKELY IMPACTS**
FLORA		
a) Common flora in the study area	*Oryza sativa*	No likely impact
b) Endemic flora	NA	
c) Endangered flora	NA	
d) Vulnerable	NA	
e) Threatened	NA	
f) Any specific observation	The tower lies in the paddy filed.	

FAUNA		
a) Common fauna in the study area	Magpie, egret, crow, wagtail	No likely impact
b) Endemic fauna	Wagtail	
c) Endangered fauna	NA	
d) Vulnerable	NA	
Special emphasis on Elephant habitat/ corridor	There is no emphasis on the elephant habitat corridor.	There will be likely impact on it as there is no elephant habitat or corridor in the region
a) Availability of large winged birds	Kite	No likely impact
b) Availability of monkey/ primate species and chances of electrocution	No monkeys sighted in the study area	
c) Any species nesting sites of birds which may be impacted	No nesting sites sighted in the study area	

IMPACT OF PROJECT ACTIVITY (TOWER FOUNDATION/ ERECTION/ STRINGING)

DESCRIPTION	REMARKS
Disposal of excavated soil/ excess soil	No disposal of the excavated soil.
Any major issue of soil erosion at project site/ tower locations	There is no soil erosion observed
Whether benching carried at tower locations	No benching is carried out
Number of trees felled/required to be felled at tower	
Leg extension/ extended tower provided/ requirement	No leg extension
Impact on nearby water bodies due to project activity	There is no impact on the water bodies as the tower location is far from the river.
Whether location is vulnerable to soil erosion/ soil failure	The location is not vulnerable to soil erosion
Any specific requirement of slope protection measures like revetment/ retaining/ toe wall etc. at project locations	No requirement for slope protection since it is a plain area.
Impact of approach road construction (if required)	No impacts on the road construction
Transportation of tower materials	the materials are transported via trucks

SOCIO ECONMIC ASSESSMENT OF THE STUDY AREA

DESCRIPTION	REMARKS
Name of the village	Chirangpara
General socio economic profile of PAP in project area	
Nature of land affected due to project activity	
Any resettlement issue	There is no issue on the resettlement as the tower is located in the paddy field.
Any negative impact on livelihood of PAP	No negative impact on the livelihood of the people
Any impact on archaeological structure *(If, available in the vicinity)*	No archaeological site in the area
Any impact on common property resources/religious area/sacred groves etc.	There is no impact on the common property, religious area or sacred groves
Consultation with PAP/ Village council	As per the group discussion and meeting held, certain questions were raised regarding the impacts and the compensation, no one in the meeting opposed the construction of the tower. 100% Compensation has been assured

Field Data Collection Report on the towers falling in tree lands

Since most of the tower locations are in paddy fields, a separate survey has been conducted for towers that are falling in vegetation/plantation rea.

Sample 10.

Name of the line	**:**	132 kV Phulbari- Ampati line
Section of Route	**:**	AP 71A to AP 76/0 (Tower Loc 71A/0 to 76/0)
Number of Tower/ Poles	**:**	6
Section length	**:**	1.475 km
AP surveyed of AP76/0	**:**	AP 76/0
Tower type	**:**	DB+0
Latitude	**:**	25°38'34.44"
Longitude	**:**	90°01'19.39"

DESCRIPTION	REMARKS
Status of land	Private ownership
General topography of the area	Hillock
Nature of vegetation in the study area	Jhum land
Density of vegetation	Sparse
Number of trees likely to be felled in that stretch	Based on the tree enumeration report obtained from POWERGRID, the number of trees in RoW from AP 76/0 to 77/0 is 658 out of which 429 are bamboo.
Any specific observation with respect to ecological sensitivity in the study area	No ecological sensitivity in the study area.

DETAILS ON BIODIVERSITY OF THE STUDY AREA AND LIKELY IMPACTS

DESCRIPTION	STATUS/ AVAILABILITY	LIKELY IMPACTS
FLORA		
a) Common flora in the study area	Bamboo sp, *Grewia sp, Albizia sp. Lebbeck, Wrightia antidysenterica*	There is no impact on the flora in the study area.
b) Endemic flora	*Grewia sp, Albizia sp. Lebbeck, Wrightia antidysenterica*	
c) Endangered flora	NA	
d) Vulnerable	NA	
e) Threatened	NA	
f) Any specific observation	NA	

FAUNA		
a) Common fauna in the study area	Monkey, pigeon, fox, wild boar, fowl, pangolin, barking deer, mynah	No likely impact observed
b) Endemic fauna	Monkey, pigeon, fox, wild boar, fowl, pangolin, barking deer, mynah	
c) Endangered fauna	pangolin	No likely impact observed as no borrows found in Tower location/RoW
d) Vulnerable		
Special emphasis on Elephant habitat/ corridor	No elephant habitat or corridor in the study area.	There will be likely impact on it as there is no elephant habitat or corridor in the region

a) Availability of large winged birds	Eagle, kite, hawk	No likely impact
b) Availability of monkey/ primate species and chances of electrocution	Primates sighted occasionally	No chances of electrocution of the animal in the study area as there are no big trees near the tower location
c) Any species nesting sites of birds which may be impacted	No nesting sites sighted	

IMPACT OF PROJECT ACTIVITY (TOWER FOUNDATION/ ERECTION/ STRINGING)

DESCRIPTION	REMARKS
Disposal of excavated soil/ excess soil	No disposal of the excavated soil
Any major issue of soil erosion at project site/ tower locations	There is no major soil erosion observed
Whether benching carried at tower locations	Negligible benching is carried out
Number of trees felled/required to be felled at tower	
Leg extension/ extended tower provided/ requirement	No leg extension
Impact on nearby water bodies due to project activity	There is no impact on the water bodies as the tower location is far from the river.
Whether location is vulnerable to soil erosion/ soil failure	The location is not vulnerable to soil erosion
Any specific requirement of slope protection measures like revetment/ retaining/ toe wall etc. at project locations	No requirement for slope protection.
Impact of approach road construction (if required)	No impacts on the road construction.
Transportation of tower materials	the materials are transported via trucks and hydra

SOCIO ECONMIC ASSESSMENT OF THE STUDY AREA

DESCRIPTION	REMARKS
Name of the village	Kalamati
General socio economic profile of PAP in project area	
Nature of land affected due to project activity	
Any resettlement issue	There is no issue on the resettlement.
Any negative impact on livelihood of PAP	No negative impact on the livelihood of the people
Any impact on archaeological structure *(If, available in the vicinity)*	No archaeological site in the area
Any impact on common property resources/religious area/sacred groves etc.	There is no impact on the common property religious area or sacred groves
Consultation with PAP/ Village council	As per the PRA, the villagers had no issue in the construction of tower as it did not have any impact on their cultivation area nor on the other assets. The compensation has been assured

Sample 11.

Name of the line	**:**	132 kV Phulbari- Ampati line
Section of Route	**:**	AP 77 to AP 82 (Tower Loc 77/0 to 82/0)
Number of Tower/ Poles	**:**	6
Section length	**:**	1.754 km
AP surveyed	**:**	AP 82/0
Tower type of AP82/0	**:**	DD+0
Latitude	**:**	25°37'41.28"
Longitude	**:**	90°01'34.47"

DESCRIPTION	REMARKS
Status of land	Private ownership
General topography of the area	Gentle slope
Nature of vegetation in the study area	Naturally grown trees
Density of vegetation	Low
Number of trees likely to be felled in that stretch	Based on the tree enumeration report obtained from POWERGRID, the number of trees in RoW between AP 82/0 to AP83/0 is 35
Any specific observation with respect to ecological sensitivity in the study area	No ecological sensitivity in the study area.

DETAILS ON BIODIVERSITY OF THE STUDY AREA AND LIKELY IMPACTS

DESCRIPTION	STATUS/ AVAILABILITY	LIKELY IMPACTS
FLORA		
a) Common flora in the study area	*Grewia sp, Wrightia antidysenterica, Lagerstoemia speciosa, Schima wallichii*	There is no impact on the flora or on the area
b) Endemic flora	*Grewia sp, Wrightia antidysenterica, Lagerstoemia speciosa, Schima wallichii*	
c) Endangered flora	NA	
d) Vulnerable	NA	
e) Threatened	NA	
f) Any specific observation		
FAUNA		
a) Common fauna in the study area	Monkey, squirrel, jungle cat, fox, pangolin, barking deer, mynah, wagtail	No likely impact
b) Endemic fauna		
c) Endangered fauna	Pangolin	No likely impact observed as no borrow found in Tower location/RoW
d) Vulnerable		
Special emphasis on Elephant habitat/ corridor	No elephant habitat or corridor in the study area	No likely impact as there is no elephant habitat or corridor in the region
a) Availability of large winged birds	Kite, hawk	No likely impact
b) Availability of monkey/ primate species and chances of electrocution	Primates sighted	No chances of electrocution of the since the height of the tower will be higher than that of the trees.

c) Any species nesting sites of birds which may be impacted	No nesting sites sighted	

IMPACT OF PROJECT ACTIVITY (TOWER FOUNDATION/ERECTION/STRINGING)

DESCRIPTION	REMARKS
Disposal of excavated soil/ excess soil	No disposal of the excavated soil
Any major issue of soil erosion at project site/ tower locations	There is no major soil erosion observed
Whether benching carried at tower locations	Negligible benching is carried out
Number of trees felled/required to be felled at tower	
Leg extension/ extended tower provided/ requirement	No leg extension
Impact on nearby water bodies due to project activity	There is no impact on the water bodies as the tower location is far from the river.
Whether location is vulnerable to soil erosion/ soil failure	The location is not vulnerable to soil erosion
Any specific requirement of slope protection measures like revetment/ retaining/ toe wall etc. at project locations	No requirement for slope protection.
Impact of approach road construction (if required)	No impacts on the road construction, the condition of the road itself is bad making it difficult for transporting the materials.
Transportation of tower materials	the materials are transported via trucks

SOCIO ECONMIC ASSESSMENT OF THE STUDY AREA

DESCRIPTION	REMARKS
Name of the village	Khalmangittim
General socio economic profile of PAP in project area	
Nature of land affected due to project activity	
Any resettlement issue	There is no issue on the resettlement as the tower is located far away from the settlement area.
Any negative impact on livelihood of PAP	No negative impact on the livelihood of the people
Any impact on archaeological structure *(If, available in the vicinity)*	No archaeological site in the area
Any impact on common property resources/religious area/sacred groves etc.	There is no impact on the common property religious area or sacred groves
Consultation with PAP/ Village council	As per the PRA, since the tower is located far from the settlement area there is no problem with the villagers and neither is it causing any impact on the jhum lands nor on the faunal diversity. There was a positive response from the people of that village. As per their opinion the population decline of animals was because of loss of habitat. Compensation for land has been assured.

Sample 12.

Name of the line	**:**	132 kV Phulbari- Ampati line
Section of Route	**:**	AP 83 to AP 90 (Tower Loc 83/0 to 90/0)
Number of Tower/ Poles	**:**	8
Section length	**:**	2.186 km
AP surveyed	**:**	AP 90/0
Tower type of AP90/0	**:**	DD+3
Latitude	**:**	25°36'32.76"
Longitude	**:**	90°01'32.16"

DESCRIPTION	REMARKS
Status of land	Private ownership
General topography of the area	Gentle slope
Nature of vegetation in the study area	Naturally growing trees
Density of vegetation	Low
Number of trees likely to be felled in that stretch	Based on the tree enumeration report obtained from POWERGRID, the number of trees in RoW between AP 90/0 to 91/0 is 167 and Cashewnut is 8.
Any specific observation with respect to ecological sensitivity in the study area	There is no ecological sensitivity in the study area.

DETAILS ON BIODIVERSITY OF THE STUDY AREA AND LIKELY IMPACTS

DESCRIPTION	STATUS/ AVAILABILITY	LIKELY IMPACTS
FLORA		
a) Common flora in the study area	Mahua, Cashewnut, Albizia sp, Neem	There is no impact on the flora or on the area
b) Endemic flora	NA	
c) Endangered flora	NA	
d) Vulnerable	NA	
e) Threatened	NA	
f) Any specific observation	The tower location is near the cashew nut plantation area.	

FAUNA		
a) Common fauna in the study area	Squirrel, fowl, wagtail, mynah, monkey	There is no likely impact as the tower height will be more than the tree height
b) Endemic fauna	Wagtai	
c) Endangered fauna	NA	
d) Vulnerable	NA	
Special emphasis on Elephant habitat/ corridor	No elephant habitat or corridor in the study area	No likely impact as there is no elephant habitat or corridor in the region
a) Availability of large winged birds	Kite, hawk	
b) Availability of monkey/ primate species and chances of electrocution	Monkeys sighted	No chances of electrocution of the animal
c) Any species nesting sites of birds which may be impacted	No nesting sites sighted	

IMPACT OF PROJECT ACTIVITY (TOWER FOUNDATION/ERECTION/STRINGING)

DESCRIPTION	REMARKS
Disposal of excavated soil/ excess soil	No disposal of the excavated soil
Any major issue of soil erosion at project site/ tower locations	There is no major soil erosion observed
Whether benching carried at tower locations	Negligible benching is carried out
Number of trees felled/required to be felled at tower	
Leg extension/ extended tower provided/ requirement	No leg extension
Impact on nearby water bodies due to project activity	There is no impact on the water bodies as the tower location is far from the river.
Whether location is vulnerable to soil erosion/ soil failure	The location is not vulnerable to soil erosion
Any specific requirement of slope protection measures like revetment/ retaining/ toe wall etc. at project locations	No requirement for slope protection.
Impact of approach road construction (if required)	No impacts on the road construction.
Transportation of tower materials	the materials are transported via trucks

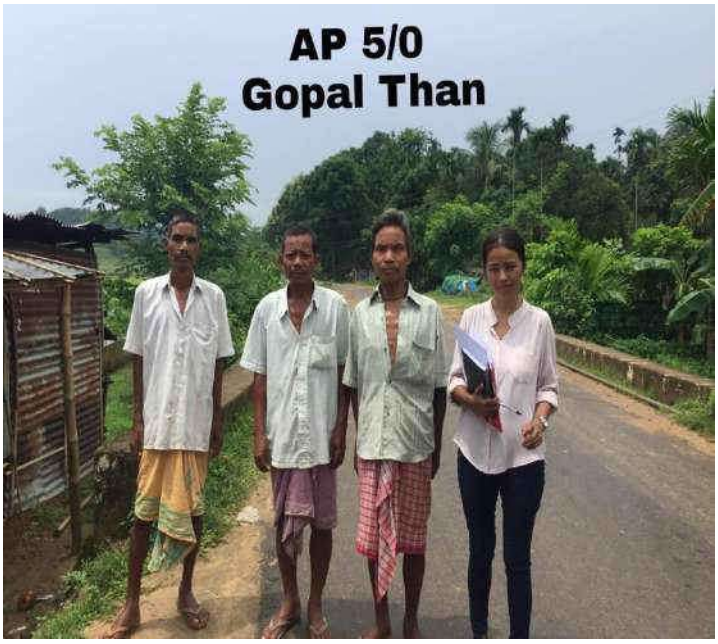
SOCIO ECONMIC ASSESSMENT OF THE STUDY AREA

DESCRIPTION	REMARKS
Name of the village	Mangapara
General socio economic profile of PAP in project area	
Nature of land affected due to project activity	
Any resettlement issue	There is no resettlement issue
Any negative impact on livelihood of PAP	No negative impact on the livelihood of the people
Any impact on archaeological structure *(If, available in the vicinity)*	No archaeological site in the area
Any impact on common property resources/religious area/sacred groves etc.	There is no impact on the common property religious area or sacred groves
Consultation with PAP/ Village council	The villagers were quite cooperative in the PRA and had no problem with the construction. Compensation has been assured wherever necessary.

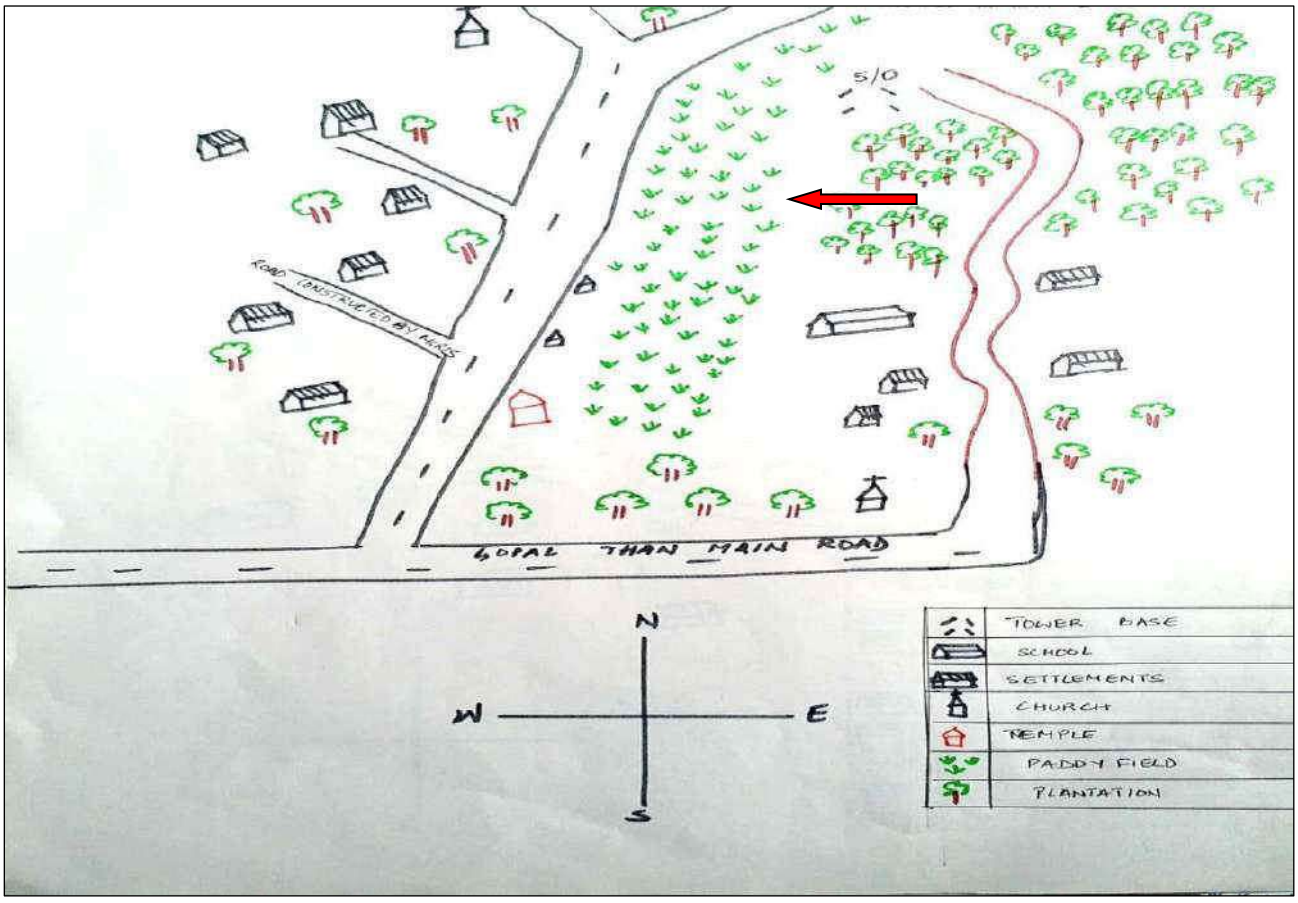
APPENDIX C

Details of Participatory Rural Appraisal (PRA)

Location of tower footing (AP 5/0)

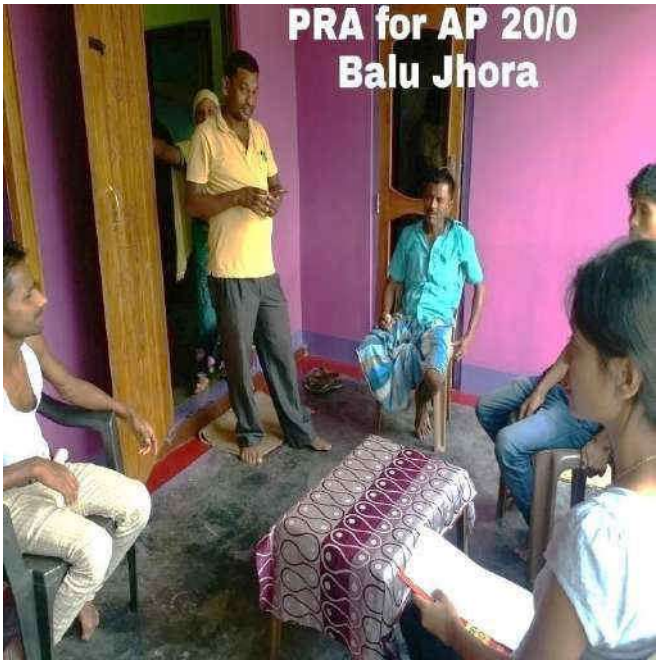


Survey and interaction with villagers

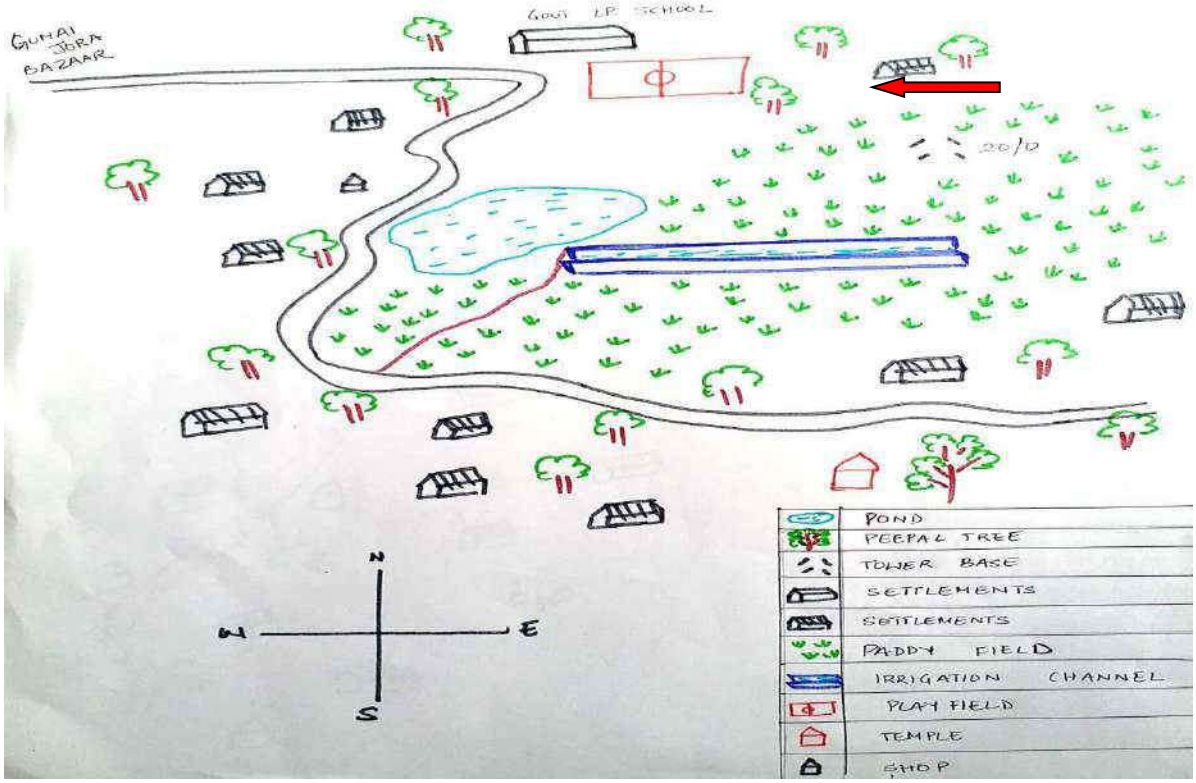


Layout of village with location of tower footing (arrow)

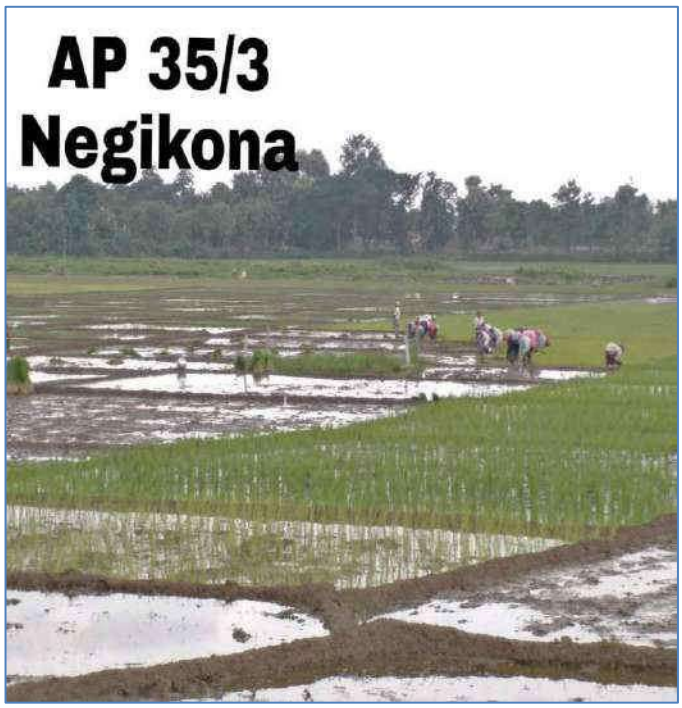
Tower footing of AP 20/0 (arrow)



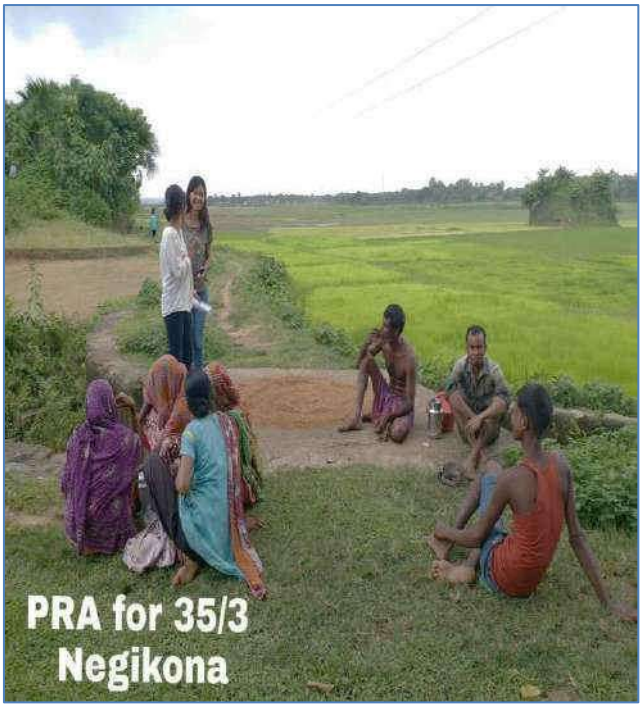
PRA Interaction with villagers



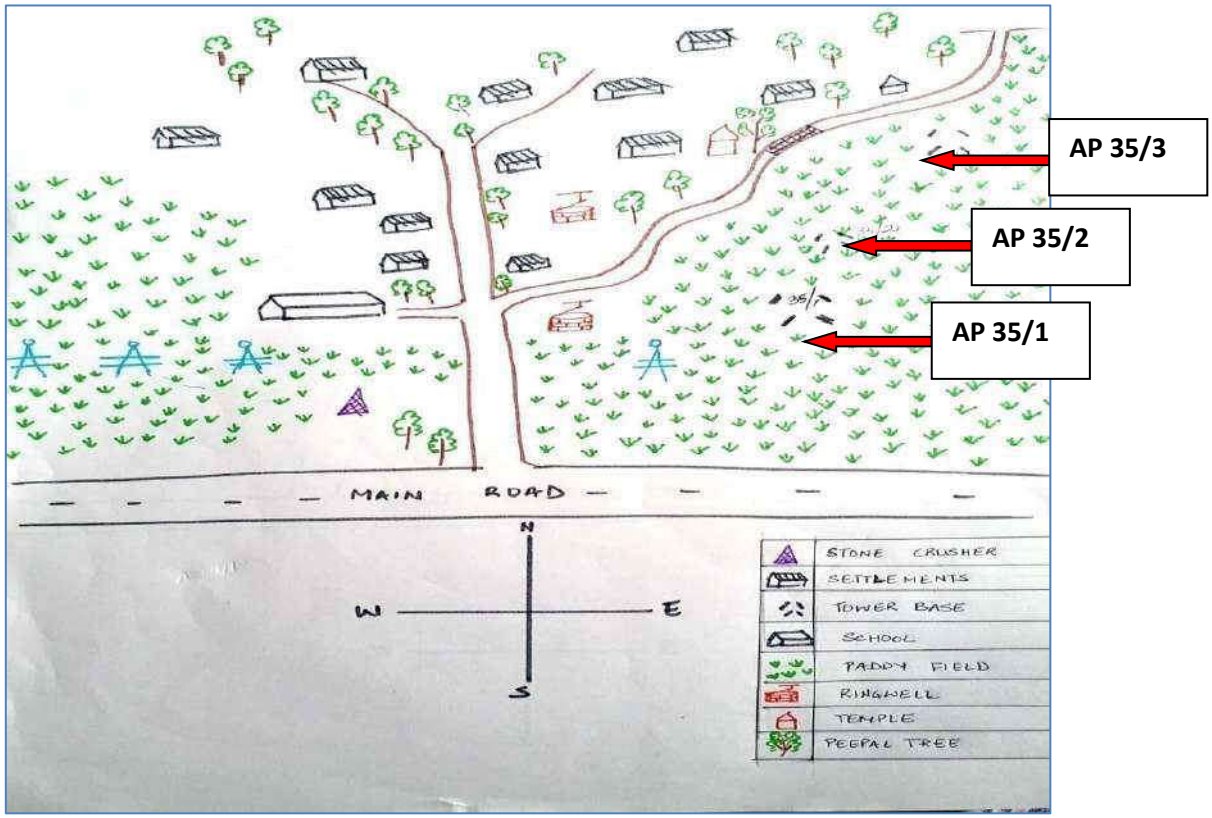
Layout of village with location of tower footing (arrow)



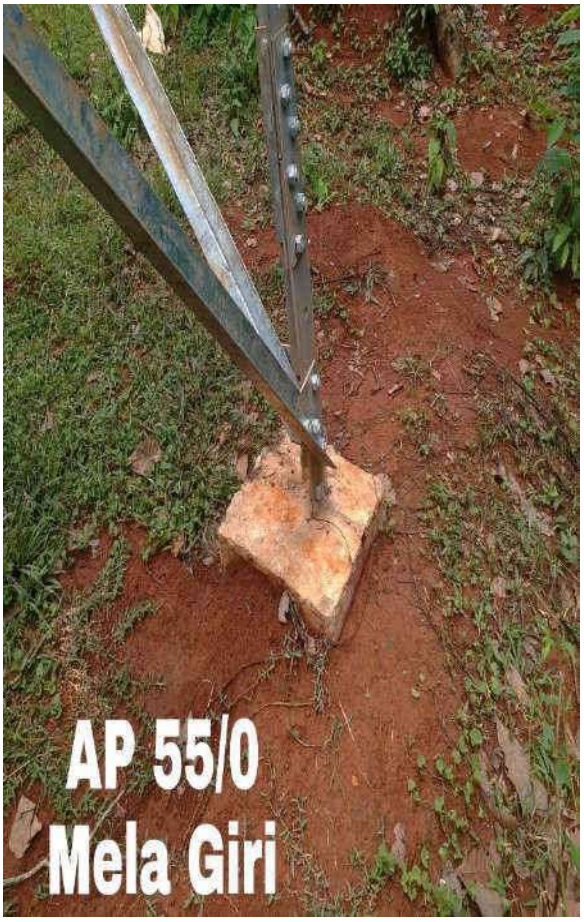
Location of tower (AP35/3)



Survey and PRA interaction with villagers



Layout of village with location of tower footing (arrow)

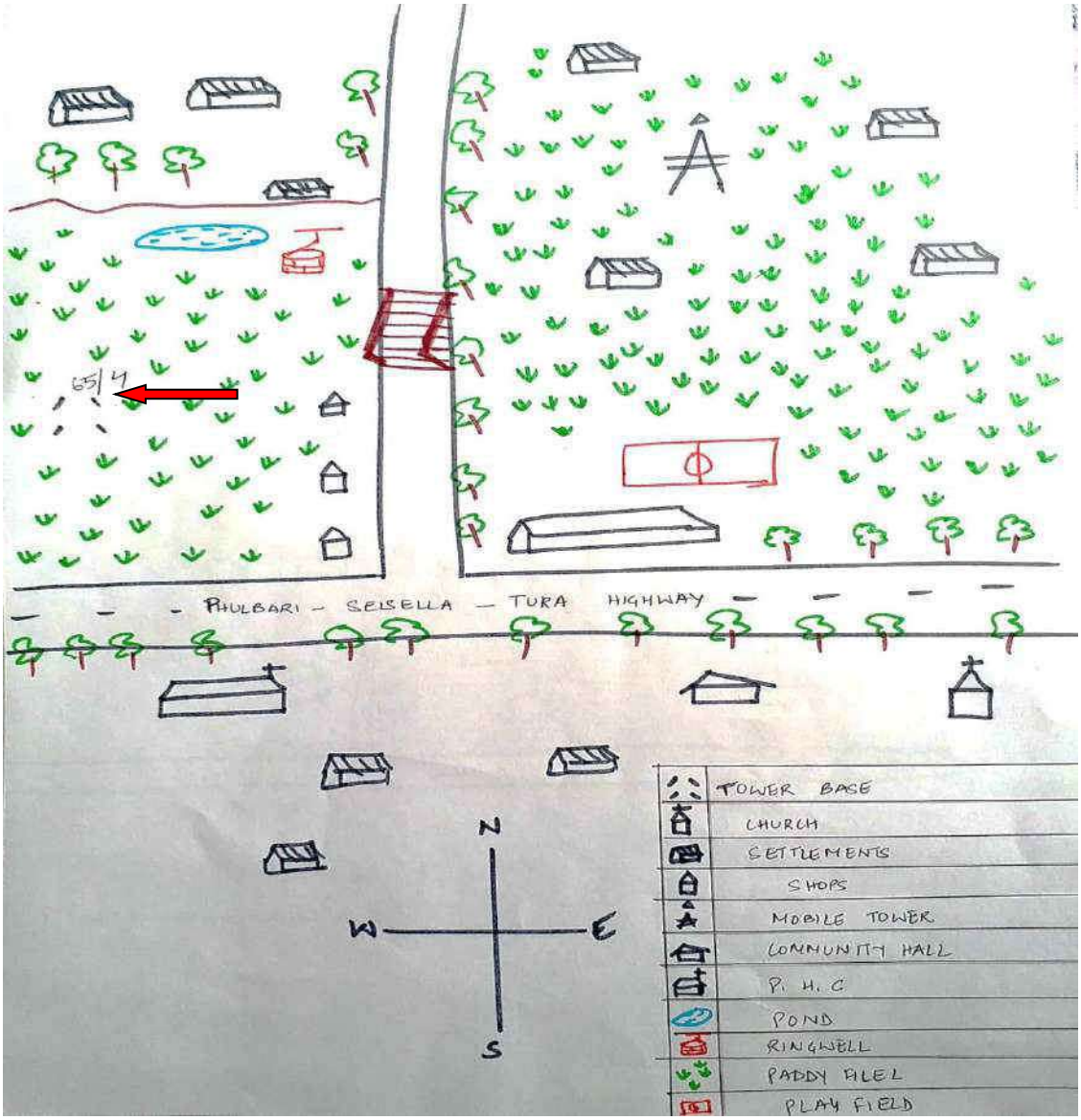


Tower footing

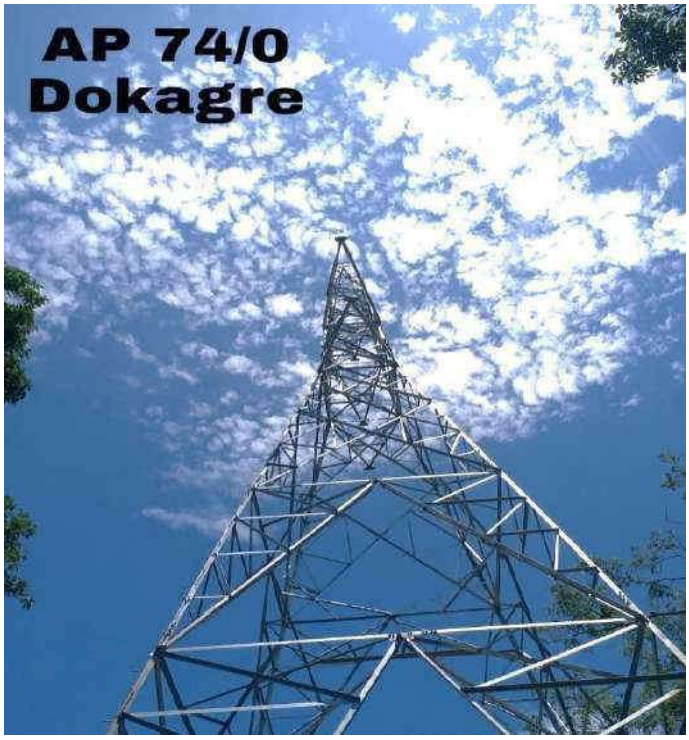
Tower base

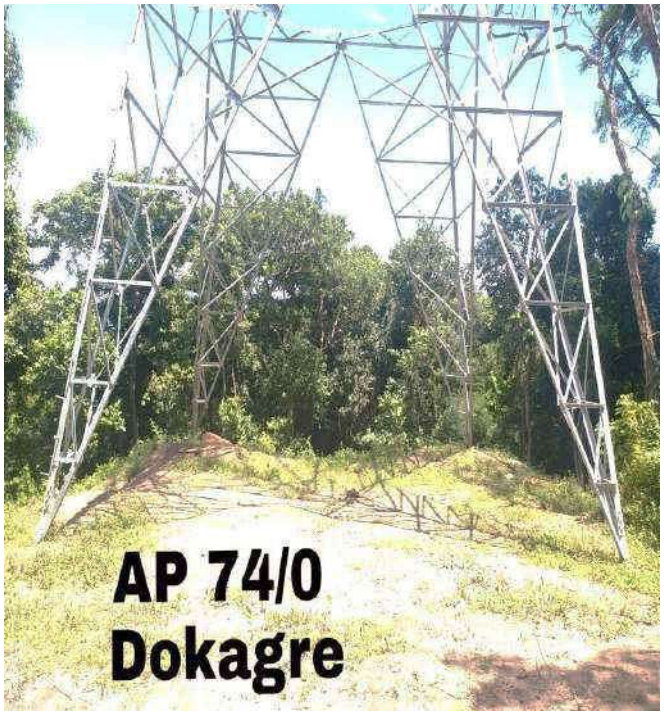
Tower footing (arrow)

Interaction with villagers for PRA

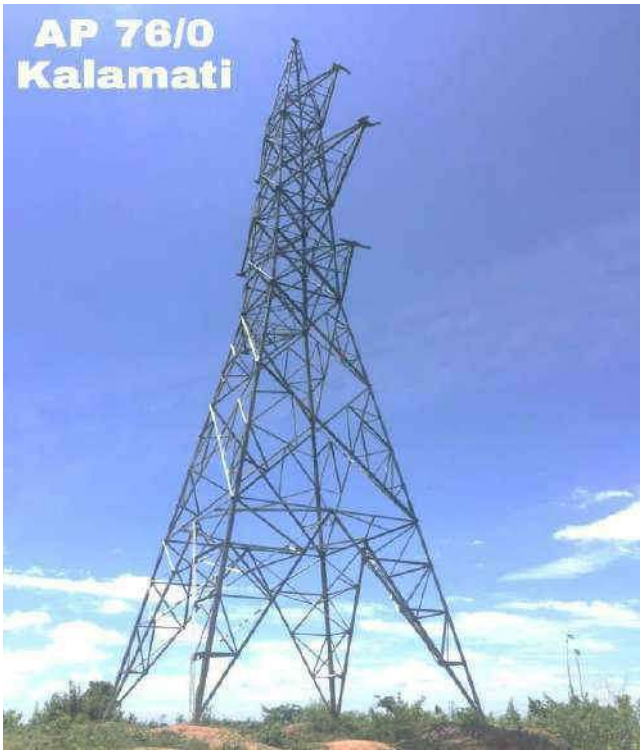


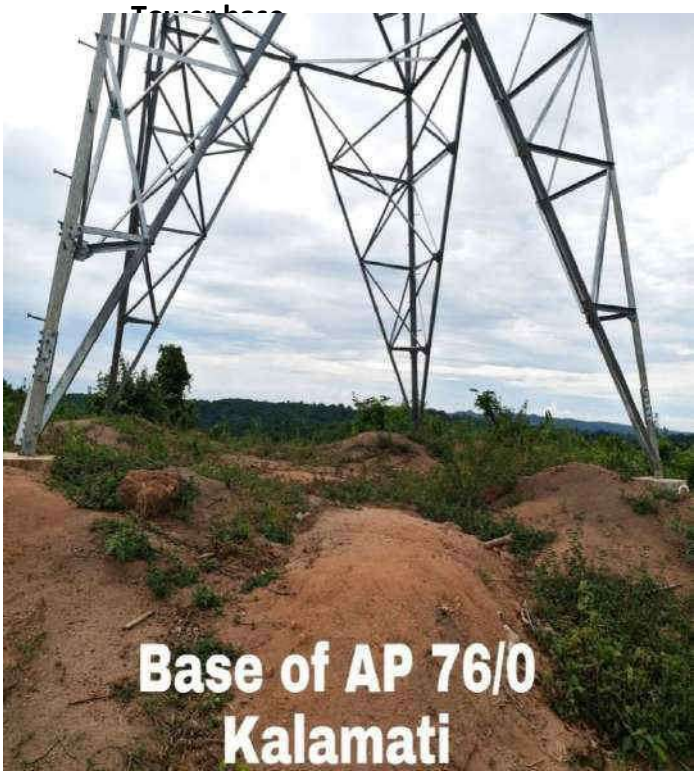
Layout of village with location of tower footing (arrow)



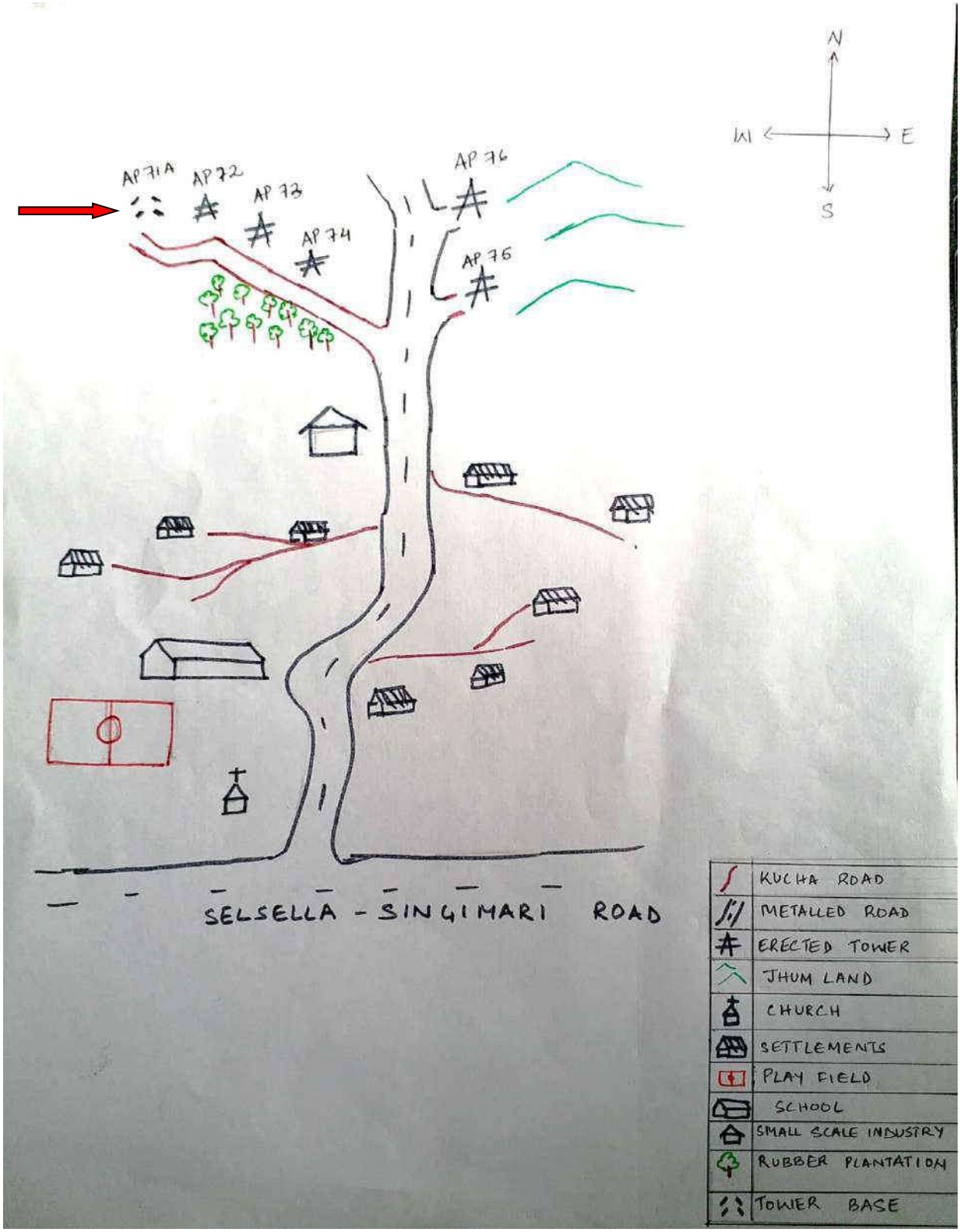


Tower base



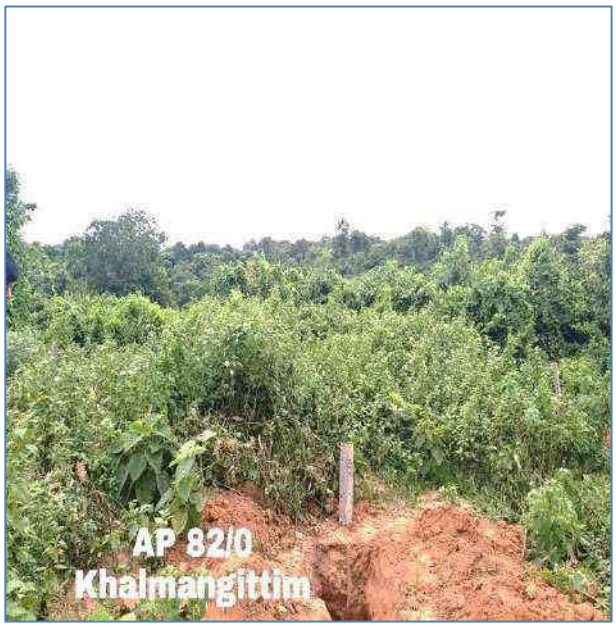


Tower base

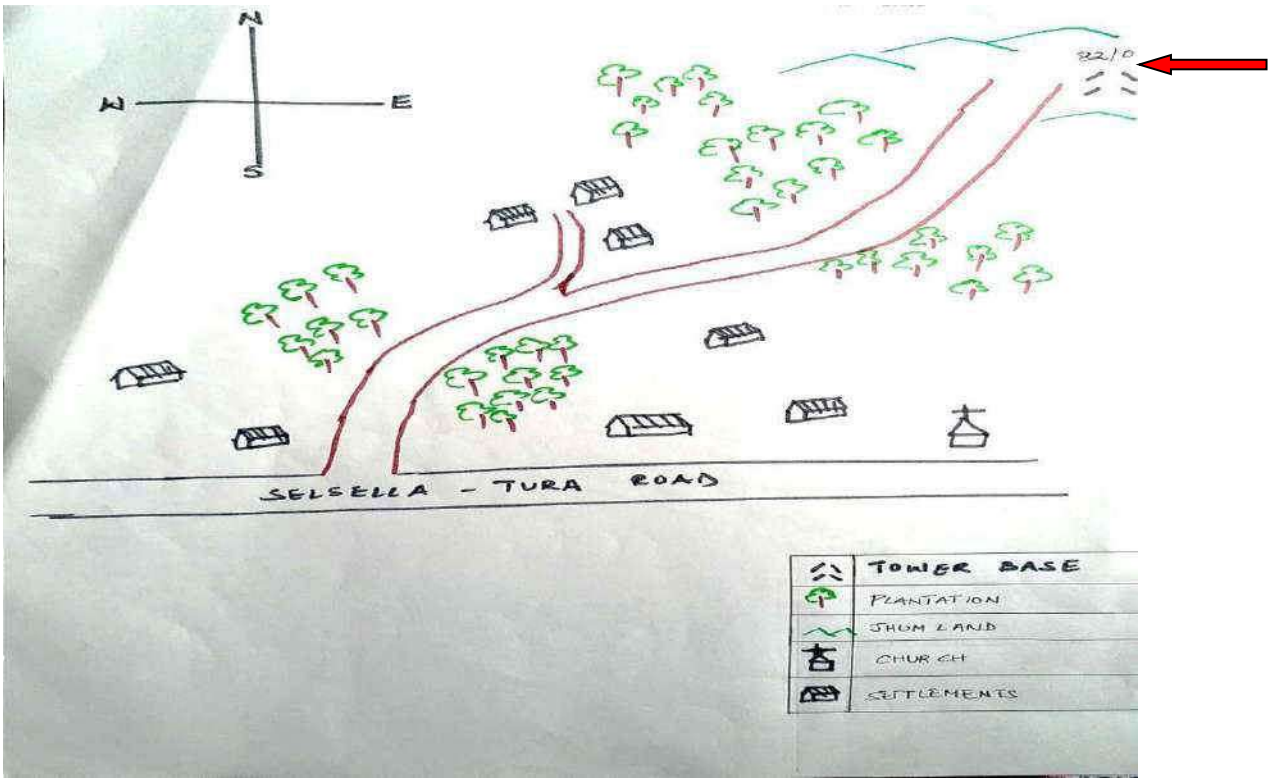


Layout of village with location of tower locations & tower footing (arrow)

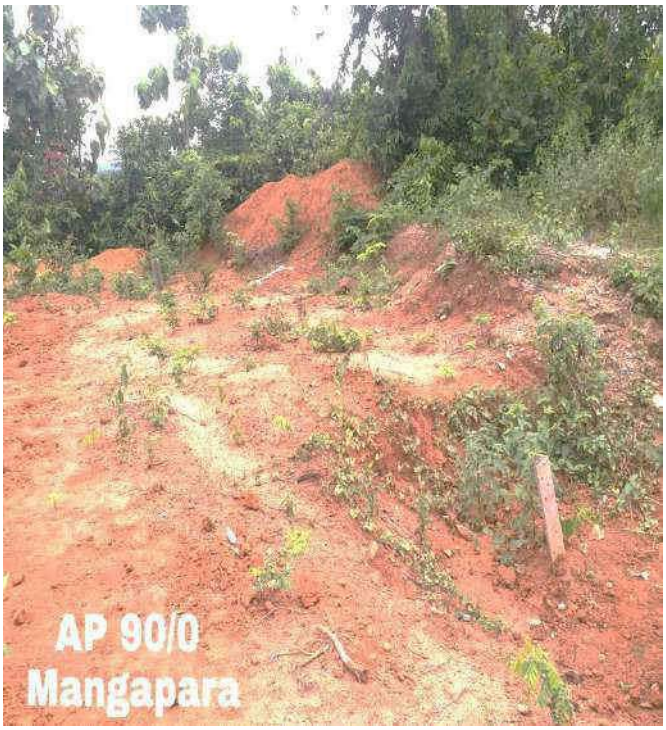
Location of AP 82/0



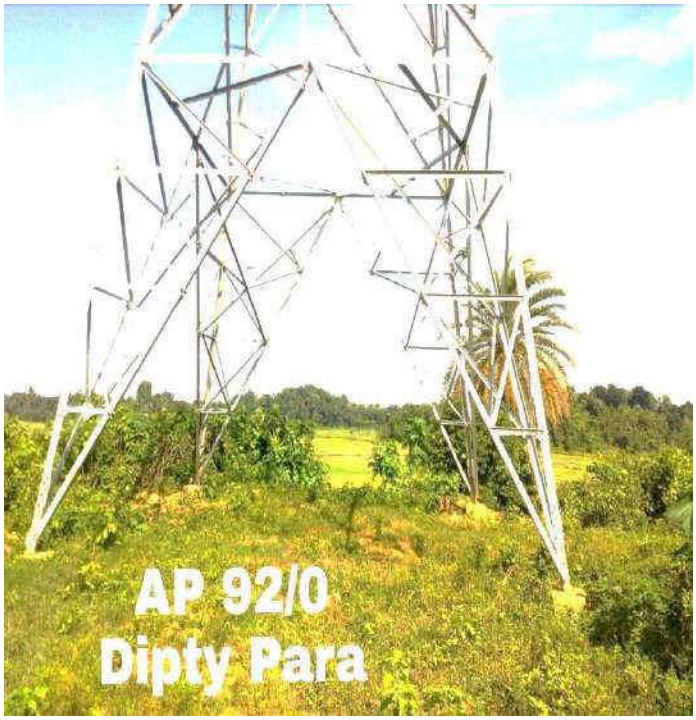
Excavation for foundation of tower



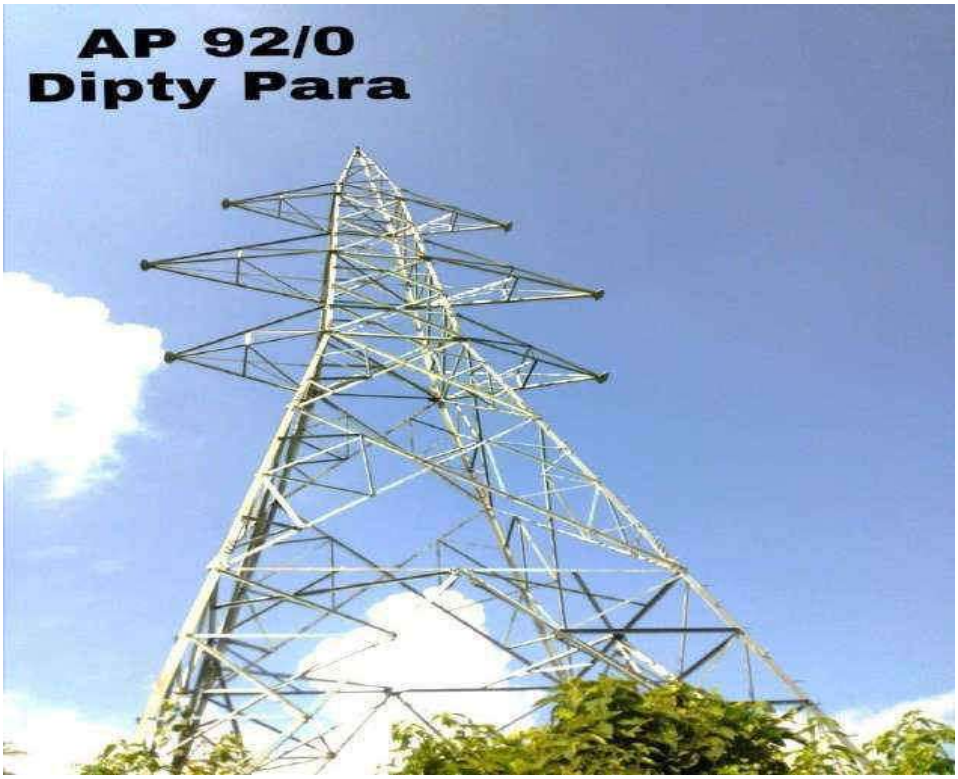
Layout of village with location of tower footing (arrow)



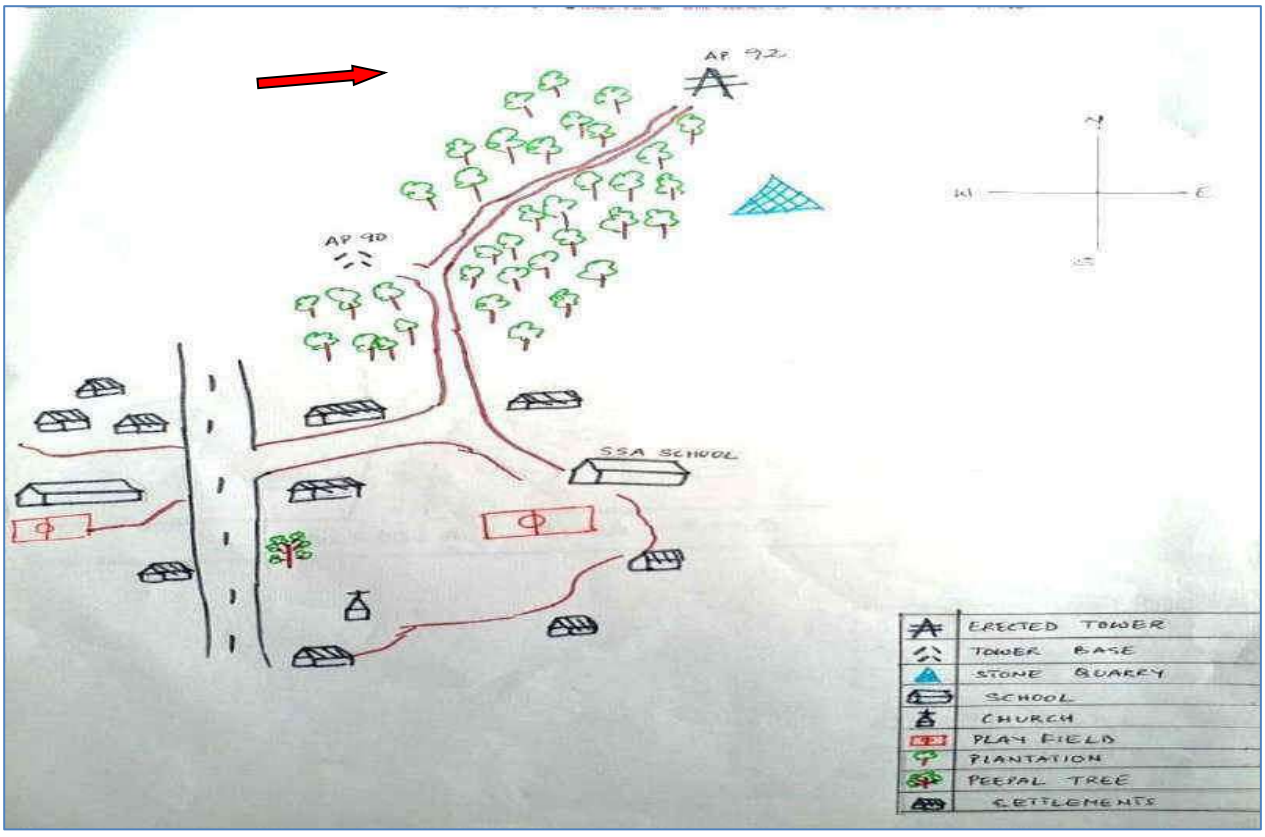
Location of AP 90/0



Tower base

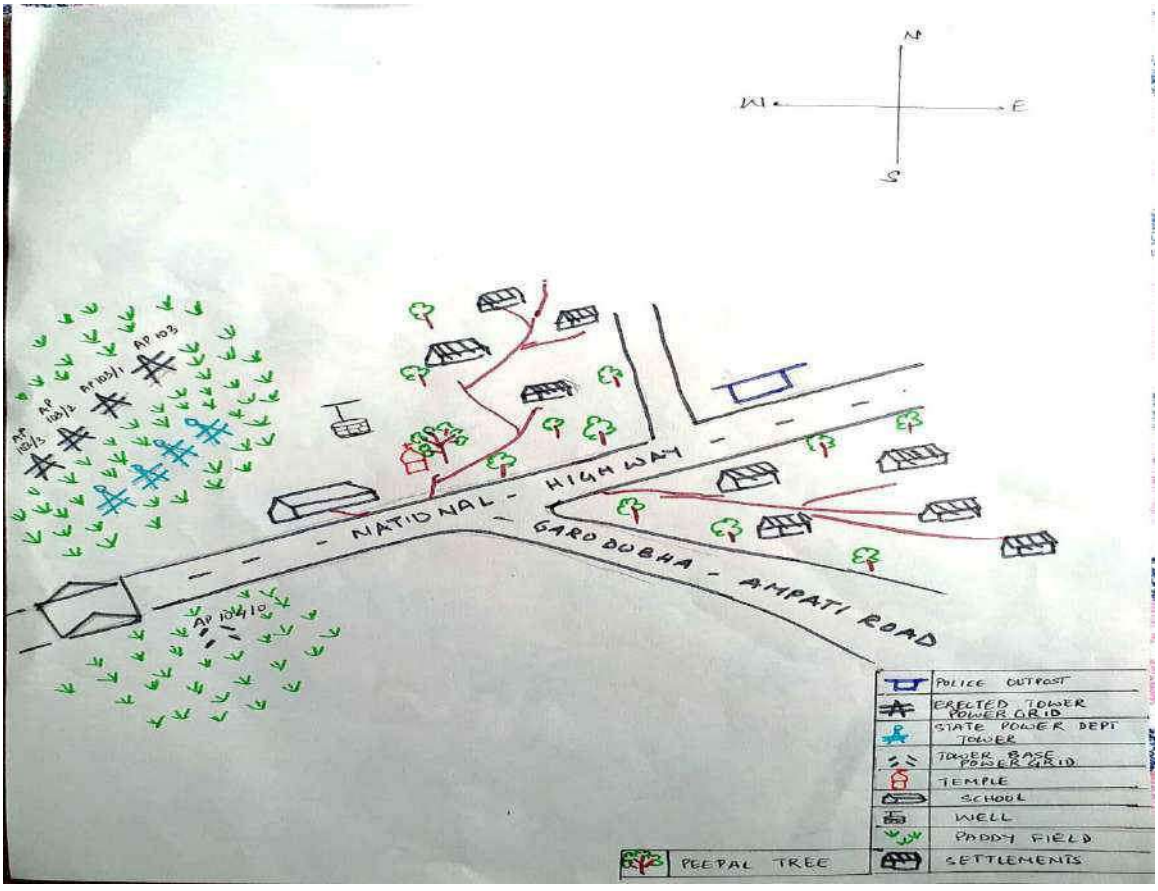


Interaction with villagers for PRA



Layout of village with location of tower footing (arrow)

Interaction with villagers for PRA



Layout of village with location of tower (104/0) footing (arrow)

ANNEXURE-1

NOC from Forest Authority

Government of Meghalaya
Forests & Environment Department
West & South-West
Garo Hills (Territorial) Division, Tura
Email- garohillsdiv@gmail.com
Fax No. 03651-223850

Shri. Sachin Gavade, IFS
Divisional Forest Officer

No. B/ 19/I/FC Act/General/ 1763 **Dated Tura, the** 7th **May, 2019**

To: The Chief Manager,
NERPSIP, Phulbari.

Sub: Ampati-Phulbari 132 KV Transmission Line-Reg.

Ref: 1. Memo No. CF.1191/SCRF/SDR/GHADC/54-57 Dated 30.04.2019
2. Memo No. B/MWL/GH/Build-Gen/11/394 Dated 26.03.2019

Sir

With reference to subject cited above, it is to inform that the area falling under Right of Way (ROW) of Ampati-Phulbari Transmission Line is not falling within any Village Reserve Forest of GHADC as per letter under reference No.1 received from the Secretary to the Executive Committee, GHADC. Also, the Divisional Forest Officer, East and West Garo Hills (WL) Division, Tura vide letter under reference No.2 has informed to this office that your office is complying with Wildlife Guidelines.

Furthermore, based on the inspection report submitted by the Range Forest Officer, I/c Hollaidanga Beat, Hollaidanga, vide letter No. HD/MECL/60/2018/54 Dated 04.06.2018 and by the Range Forest Officer, I/c Tura Beat, Tura dated 16.05.2018, in respect of the proposed Ampati-Phulbari Transmission Line, the Status of the land is " NON-FOREST" as per the Meghalaya Forest Regulation (Amendment) Act, 2012.

Thus, this office has No Objection for Construction of proposed Transmission Line. Also, in case of any felling of tree is necessitating then as per Felling of Trees (Non-Forest) rule, 2006, the application in that need to be submitted (copy enclosed).

This is for the favour of your kind information and necessary action.

Encl: as above

Yours faithfully,

Divisional Forest Officer,
West & South-West
Garo Hills (T)Division, Tura

No. A/ 19/I/FC Act/General/ **Dated Tura, the** **May, 2019**

Copy to- The Conservator of Forests (WL&T), Garo Hills Circle, Tura, for favour of the kind information.

Divisional Forest Officer,
West & South-West
Garo Hills (T)Division, Tura

ANNEXURE-2

Tower Schedule of 132 kV Phulbari – Ampati TL

UNIQUE STRUCTURES & TOWERS LTD.

PROJECT : 132 KV D/C PHULBARI TO AMPATI TRANSMISSION LINE (TW-02)
TOWER SECHDULE FROM GANTRY (PHULBARI) TO GANTRY (AMPATI)
CLIENT: POWERGRID CORPORATION OF INDIA LIMITED(NERPSIP)

Unique STRUCTURES & TOWERS LIMITED

SL. NO.	AP NO.	LOC No	ANGLE OF DEVIATION	RAISED CHIMNEY	REVISED RAISED CHIMNEY	TOWER TYPE	LEVEL ON THE LOCATION	SPAN (MTRS)	SECTION LENGTH (MTRS)	SUM OF ADJ-SPAN	WEIGHT SPAN			WEIGHT SPAN			GPS COORDINATE		REMARKS/CROSSING
											LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL	LATITUDE	LONGITUDE	
1	GANTRY	GANTRY	0			GANTRY	37.337			0	0	0	0	0	0	0	25°51'10.06"	90°05'02.94"	VILL-CHIBINANG
								41											
2	AP1	1/0	02°52'04"RT			DD+6	30.444		41	256	0	168	168	0	245	245	25°51'9.61"	90°5'1.36"	VILL-CHIBINANG
								215											
3	AP2	2/0	31°49'20"RT	1m.		DD+0	28.322		215	525	47	140	187	51	130	181	25°51'8.16"	90°4'53.98"	VILL-CHIBINANG
								310											
4	AP3	3/0	02°21'26"LT			DB+3	28.895		310	599	170	157	327	180	164	344	25°51'11.45"	90°4'43.51"	VILL-CHIBINANG
								289											NALA,HILL
5		3/1		1m.		DA+3	26.969			578	132	167	299	125	181	306			
								289											
6		3/2		1m.		DA+0	26.41			578	122	128	250	108	118	226			
								289											
7		3/3		1m.		DA+3	25.999			607	161	157	318	171	156	327			
								318											POND,NALA,11 KV LINE,ROAD
8		3/4		1m.		DA+3	26.305			601	161	166	327	162	182	344			
								283											
9		3/5		1m.		DA+0	25.418			566	117	123	240	101	112	213			
								283											CT ROAD
10		3/6		1m.		DA+3	25.247			601	160	162	322	171	165	336			
								318											CT ROAD,WELL
11		3/7		1m.		DA+3	24.642			578	156	126	282	153	128	281			
								260											
12		3/8		1m.		DA+3	24.236			531	134	158	292	125	157	282			
								271											
13	AP3A/0	3A/0	03°22'02"LT	1m.		DB+0	24.297		2600	588	113	142	255	114	133	247	25°51'36.67"	90°3'14.31"	VILL-SHYAM NAGAR
								315											NALA
14		3A/1		1m.		DA+3	23.915			535	175	175	350	182	185	367			VILL-SHYAM NAGAR
								320											2 NOS NALA
15		3A/2		1m.		DB+0	24.208			650	145	144	289	135	131	266			VILL-SHYAM NAGAR
								330											
16	AP4/0	4/0	06°55'19"RT	1m.		DB+3	24.96		965	620	186	132	318	199	124	323	25°51'44.26"	90°2'40.93"	VILL-SHYAM NAGAR
								290											RIVER,11 KV LINE
17	AP4A/0	4A/0	08°50'58"LT	1m.	1m.	DB+6	24.004		290	600	158	73	231	166	79	245	25°51'47.54"	90°2'31.20"	VILL-GOPAL THAN
								310											CT ROAD
18	AP5	5/0	02°30'53"LT			DB+6	38.946		310	605	237	228	465	231	230	461	25°51'49.01"	90°2'20.50"	VILL-GOPAL THAN
								295											LT LINE,NALA
19	AP6	6/0	11°42'32"LT			DB-3	34.911		295	425	68	32	100	75	25	100	25°51'51.10"	90°2'10.00"	TRUNCKKETED TOWER
								130											
20	AP7	7/0	16°16'59"LT			DC-3	37.341		130	250	98	138	236	105	145	250	25°51'50.01"	90°2'5.47"	TRUNCKKETED TOWER
								120											POND

Jiten Borah
Surveyor

Chairman

UNIQUE STRUCTURES & TOWERS LTD. S.O. PHULBARI Tezpur

SL. NO.	AP NO.	LOC No	ANGLE OF DEVIATION	RAISED CHIMNEY	REVISED RAISED CHIMNEY	TOWER TYPE	LEVEL ON THE LOCATION	SPAN (MTRS)	SECTION LENGTH (MTRS)	SUM OF ADJ-SPAN	WEIGHT SPAN			WEIGHT SPAN			GPS COORDINATE		REMARKS/CROSSING
											LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL	LATITUDE	LONGITUDE	
21	AP8	8/0	16°54'47"LT	1m.	1m.	DC+0	28.054		120	405	-19	133	114	-35	127	92	25°51'49.60"	90°2'1.38"	VILL-ASAM PANI
								285										
22	AP9	9/0	15°55'08"RT			DC+3	27.582		285	647	152	181	333	158	181	339	25°51'44.34"	90°1'53.17"	3 NOS LT LINE,CT ROAD,TAR ROAD
								362											
23	AP9A	9A/0	15°16'36"LT			DC+3	27.62		362	537	181	151	332	181	192	373	25°51'40.28"	90°1'40.96"	LT LINE,TAR ROAD
								175											VILL-ASAM PANI
24	AP10	10/0	32°02'53"LT	1m.		DD+0	23.477		175	441	24	134	158	-17	135	119	25°51'37.25"	90°1'35.89"	POND
								266											VILL-ASAM PANI
25	AP11	11/0	10°26'05"LT	1m.	1m.	DB+0	23.283		266	511	132	90	222	131	112	243	25°51'29.27"	90°1'31.88"	
								245											VILL-ASAM PANI
26	AP12	12/0	10°52'39"RT			DB+3	25.187			570	155	150	305	160	157	317	25°51'21.53"	90°1'29.85"	11 KV LINE
								325											VILL-ASAM PANI
27		12/1		1m.	1m.	DB+6	23.63			690	175	196	371	210	185	395			
								365											
28	AP13	13/0	06°53'33"LT	1m.		DB+3	23.703		935	695	170	182	352	175	193	368	25°51'1.37"	90°1'19.15"	2 NOS 11 KV LINE,LT LINE
								330											VILL-BUDHBALA
29	AP14	14/0	13°43'28"RT	1m.		DB+0	23.549		330	570	145	123	268	137	125	262	25°50'51.25"	90°1'15.24"	
								240											VILL-BANGA GIRI
30	AP15	15/0	12°22'35"RT	1.5m.		DB+0	23.121		240	510	117	117	234	115	106	221	25°50'44.92"	90°1'10.52"	
								270											VILL-DAMDAMA
31	AP16	16/0	17°37'07"RT	2.m.		DC+3	22.273		270	630	153	177	330	164	176	340	25°50'38.77"	90°1'03.82"	11 KV LINE
								360											VILL-DAMDAMA
32	AP17	17/0	18°06'45"LT	1m.		DC+3	23.299		360	660	183	166	349	189	170	354	25°50'33.66"	90°0'52.03"	BND,CT ROAD
								300											VILL-GUMAI JORA
33		17/1		2m.		DA+0	22.078			585	134	144	278	140	140	280			
								285											VILL-GUMAI JORA
34	AP18	18/0	01°46'58"LT	1m.		DB+0	23.376		585	531	141	120	261	145	129	274	25°50'19.78"	90°0'37.16"	NALA
								248											D TYPE FOR RIVER CROSSING
35	AP19	19/0	12°03'38"RT	1m.		DB+0	23.913		246	506	128	101	229	125	100	225	25°50'15.02"	90°0'30.32"	NALA,11 KV LINE,RIVER
								260											VILL-GUMAI JORA
36		19/1		2m.		DA+6	22.443			502	165	117	282	160	120	280			NALA,CT ROAD,LT LINE
								242											VILL-GUMAI JORA
37	AP20	20/0	18°50'54"LT	1m.		DC+6	23.459		502	657	125	207	332	130	207	337	25°50'05.92"	90°0'15.51"	11 KV LINE,BUND
								415											VILL-BALU JHORA
38	AP21	21/0	01°01'45"RT	1m.		DB+6	23.5		415	670	208	131	339	208	135	343	25°49'55.30"	90°0'06.33"	LT LINE,FENCING
								255											
39		21/1		1.5m.		DA+6	22.685			502	124	168	192	130	155	285			CT ROAD
								247											VILL-BALU JHORA
40	AP22	22/0	32°43'53"RT	1m.		DD+0	22.887		502	551	79	130	209	95	116	211	25°49'42.47"	89°59'55.35"	
								304											VILL-BALU JHORA
41	AP23	23/0	17°39'27"LT	1m.		DC+3	23.591		304	644	174	171	340	188	163	352	25°49'39.95"	89°59'45.06"	TAR ROAD,NALA
								340											VILL-VABAGIRI
42	AP24	24/0	18°26'31"RT			DC+3	24.341		340	691	169	165	334	117	183	300	25°49'33.08"	89°59'34.80"	NALA
								351											VILL-GANDHIPARA
43	AP25	25/0	13°39'12"RT			DB+3	26.464		351	801	109	153	262	115	145	260	25°49'29.82"	89°59'22.80"	TAR ROAD,NALA
																			VILL-NEW BAJMARI

Jiten Borah
Surveyor

Chandra Tagore

UNITED STRUCTURES & TOWERS LTD. S.O. PHULBARI

SL. NO.	AP NO.	LOC No	ANGLE OF DEVIATION	RAISED CHIMNEY	REVISED RAISED CHIMNEY	TOWER TYPE	LEVEL ON THE LOCATION	SPAN (MTRS)	SECTION LENGTH (MTRS)	SUM OF ADJ-SPAN	WEIGHT SPAN			WEIGHT SPAN			GPS COORDINATE		REMARKS/CROSSING
											LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL	LATITUDE	LONGITUDE	
								250											
44	AP26	26/0	33°53'42"LT			DD+0	25.579		250	550	97	133	230	105	135	240	25°49'29.36"	89°59'13.64"	CT ROAD
								300											VILL-KAAR GNOW
45	AP27	27/0	39°19'43"LT			DD+3	27.342		300	660	149	142	291	148	119	266	25°49'23.69"	89°59'05.14"	
								360											CPD 2m.
46	AP28	28/0	24°43'42"RT			DC+0	35.802		360	577	218	77	293	241	55	297	25°49'12.19"	89°59'01.95"	VILL-KAAR GNOW
								217											VILL-BADA GHOKRI
47	AP29	29/0	07°48'09"LT			DB-3	40.701		217	531	115	111	226	125	117	242	25°49'06.86"	89°58'57.08"	CT ROAD,11 KV LINE,LT LINE
								314											CPD 1m.VILL-BAS PUR
48	AP30	30/0	03°07'58"RT			DB-3	49.404		314	560	203	147	350	210	155	365	25°48'57.97"	89°58'51.21"	2 NOS CT ROAD
								246											CPD 1.5m.VILL-RAS PUR
49	AP31	31/0	09°40'02"RT			DB-3	45.607		246	416	99	155	254	87	165	242	25°48'51.48"	89°58'46.32"	CT ROAD
								170											CPD 1m.VILL-RAS PUR
50	AP32	32/0	16°32'02"RT			DC-3	40.022		170	325	15	210	225	-35	215	180	25°48'47.51"	89°58'42.03"	CT ROAD
								155											CPD 2m.VILL-RAS PUR
51	AP33	33/0	48°03'59"LT			DD-3	27.995		155	325	-55	104	49	-145	115	-30	25°48'45.02"	89°58'37.14"	2 NOS POND
								170											CPD 1m.
52	AP34	34/0	39°37'53"LT			DD+0	22.248		170	410	34	125	160	2	130	132	25°48'39.69"	89°58'36.11"	LT LINE
								240											VILL-OLD BHAJMARI
53		34/1				DA+0	21.478			492	114	123	237	110	125	235			
								252											
54	AP35	35/0	00°25'54"RT	1m.	1m.	DA+0	21.028		492	502	129	97	226	129	97	226	25°48'25.48"	89°58'44.55"	
								250											CT ROAD,11 KV LINE
55		35/1				DA+3	22.837			500	153	132	285	155	132	287			
								250											CT ROAD
56		35/2				DA+3	21.968			500	119	125	244	122	130	252			
								250											
57		35/3				DA+3	22.023			491	125	117	242	128	121	249			
								241											
58	AP36	36/0	10°44'04"LT			DB+3	22.447		991	673	124	138	262	135	145	280	25°47'57.02"	89°59'00.88"	11 KV LINE
								322											VILL-PARADAGA
59	AP37	37/0	04°41'40"LT	1m.	1m.	DB+9	19.577		322	798	184	234	418	185	242	427	25°47'48.98"	89°59'08.29"	CT ROAD,NALA,11 KV LINE
								476											VILL-PARADAGA
60	AP38	38/0	30°00'33"RT	1m.	1m.	DD+9	20.648		476	796	242	281	410	245	285	530	25°47'37.75"	89°59'20.42"	
								320											VILL-PARADAGA
61		38/1		2.5m.	1m.	DA+0	17.701			640	102	141	243	109	129	238			
								320											
62		38/2		2m.	1m.	DA+3	18.59			640	179	160	339	191	190	351			
								320											
63		38/3		1m.	1m.	DA+3	19.617			575	160	145	305	160	157	317			2 NOS LT LINE,CT ROAD
								255											
64	AP39	39/0	18°54'56"RT	1m.	1m.	DC+0	20.114		1215	555	110	130	239	98	117	215	25°46'59.13"	89°59'29.64"	LT LINE
								300											VILL-SIDHAKANDI
65		39/1		2m.	1m.	DA+0	19.487			600	170	174	345	183	189	373			NALA
								300											VILL-SIDHAKANDI

Jiten Boral
Surveyor

UNITED STRUCTURES & TOWERS LTD. S.O. PHULBARI Dist Jalpaiguri

SL. NO.	AP NO.	LOC No	ANGLE OF DEVIATION	RAISED CHIMNEY	REVISED RAISED CHIMNEY	TOWER TYPE	LEVEL ON THE LOCATION	SPAN (MTRS)	SECTION LENGTH (MTRS)	SUM OF ADJ-SPAN	WEIGHT SPAN			WEIGHT SPAN			GPS COORDINATE		REMARKS/CROSSING
											LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL	LATITUDE	LONGITUDE	
66		39/2		1.5m.	1m.	DA+0	18.998			576	126	134	260	111	132	243			VILL-SIDHAKANDI
								276											NALA
67	AP40	40/0	02°08'19"RT	1m.	1m.	DB+0	20.035		876	576	142	155	297	144	149	293	25°46'30.88"	89°59'26.06"	VILL-PATRNGA
								300											
68	AP41	41/0	12°19'42"LT	1m.	1m.	DB+0	19.178		300	585	142	140	282	151	139	290	25°46'21.14"	89°59'24.63"	
								285											POND & TREES
69	AP42	42/0	21°11'22"LT	1m.	1m.	DC+0	19.52		285	585	145	146	291	146	151	297	25°46'11.93"	89°59'26.48"	
								300											2 NOS CT ROAD & TREES
70	AP43	43/0	26°50'42"RT			DC+0	22.502		300	547	154	103	257	166	105	271	25°46'03.03"	89°59'30.02"	CPD 1.5m.
								247											CT ROAD,11KV LINE
71	AP44	44/0	40°14'13"LT	2m.	1m.	DD+3	18.457		247	623	119	191	310	100	178	278	25°45'55.08"	89°59'29.68"	
								376											
72		44/1		2m.	1m.	DB+3	18.724			730	189	196	385	198	207	405			NALA
								354											
73	AP45	45/0	32°56'15"LT	2m.	1m.	DD+0	18.112		730	674	158	159	317	147	158	305	25°45'36.59"	89°59'46.04"	NALA
								320											
74		45/1		2m.		DA+0	18.283			640	161	144	305	162	134	296			CT ROAD
								320											
75		45/2		1m.	1m.	DA+3	19.055			640	178	141	319	186	125	310			
								320											
76		45/3		1m.	1m.	DA+6	19.881			640	179	180	359	195	193	388			2 NOS 11 KV LINE,NALA
								320											
77		45/4				DA+3	20.315			626	142	134	276	127	133	260			CT ROAD
								306											
78	AP46	46/0	05°02'10"RT			DB+6	20.926		1586	586	172	157	329	173	165	338	25°45'20.43"	90°00'40.19"	2 NOS LT LINE,CT ROAD,NALA
								280											
79		46/1				DA+3	20.821			560	122	135	257	115	145	260			CT ROAD,NALA
								280											
80		46/2				DA+3	21.398			560	145	136	281	150	134	284			NALA
								280											
81		46/3				DA+3	21.942			580	144	132	274	146	115	261			NALA,ROAD
								300											
82	AP47	47/0	01°00'56"RT			DB+6	22.479		1140	602	168	147	315	185	145	330	25°45'05.77"	90°01'17.46"	2 NOS 11 KV LINE,LT LINE,2 NOS NALA
								302											
83	AP48	48/0	10°57'09"LT			DB+6	23.092		302	612	155	169	324	157	178	335	25°45'01.75"	90°01'27.90"	2 NOS CT ROAD,LT LINE
								310											
84		48/1				DA+3	23.696			575	142	128	270	132	125	257			NALA
								265											
85	AP49	49/0	59°35'54"RT			DD+3	24.389		575	540	137	13	150	140	-69	71	25°44'57.42"	90°01'47.62"	11 KV LINE
								275											
86	AP50	50/0	07°13'51"RT			DB+0	46.595			620	262	286	548	334	358	692	25°44'48.74"	90°01'50.67"	NALA,CT ROAD
								345											VILL-MELA GIRI
87	AP51	51/0	27°13'38"RT			DC+3	24.978		345	662	75	160	234	13	160	173	25°44'37.84"	90°01'52.59"	2 NOS TAR ROAD,11 KV LINE
								317											VILL-MELA GIRI
88	AP52	52/0	47°17'08"RT			DD+3	24.784		317	677	157	167	324	157	158	315	25°44'39.71"	90°01'50.50"	POND,NALA
																			VILL-MELA GIRI

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SL. NO.	AP NO.	LOC No	ANGLE OF DEVIATION	RAISED CHIMNEY	REVISED RAISED CHIMNEY	TOWER TYPE	LEVEL ON THE LOCATION	SPAN (MTRS)	SECTION LENGTH (MTRS)	SUM OF ADJ-SPAN	WEIGHT SPAN			WEIGHT SPAN			GPS COORDINATE		REMARKS/CROSSING
											LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL	LATITUDE	LONGITUDE	
								360											2 NOS NALA
89	AP53	53/0	25°02'35"LT			DC+3	27.461		360	732	193	36	229	202	-60	142	25°44'21.05"	90°01'38.77"	VILL-MELA GIRI
								372											
90	AP54	54/0	13°44'19"LT			DB+3	58.321		372	612	336	64	401	432	29	461	25°44'10.28"	90°01'32.94"	VILL-MELA GIRI
								240											
91	AP55	55/0	05°29'21"LT			DB+3	65.709		240	472	176	172	348	211	207	419	25°44'02.38"	90°01'30.95"	VILL-MELA GIRI
								232											CART TRACK
92	AP56	56/0	54°26'25"RT			DD+0	61.555		232	442	60	384	444	25	561	585	25°43'55.48"	90°01'30.23"	VILL-MELA GIRI
								210											
93	AP57	57/0	06°18'55"LT	1m.	1m.	DB+0	29.263		210	533	-165	179	14	-336	190	-146	25°43'52.03"	90°01'23.75"	VILL-MARKA PARA
								323											NALA
94	AP58	58/0	43°33'53"LT	1.5m.		DD+0	25.697		323	623	144	149	294	133	149	282	25°43'45.70"	90°01'14.40"	VILL-MARKA PARA
								300											2 NOS NALA
95		58/1		3m.	1m.	DA+0	24.312			588	151	145	295	151	145	296			VILL-ASKARA
								288											
96	AP59	59/0	36°25'42"LT	1.5m.		DD+0	25.689		588	598	143	135	278	143	122	265	25°43'26.66"	90°01'10.79"	VILL-ASKARA
								310											2 NOS NALA
97		59/1		1m.		DA+3	26.612			627	175	171	346	188	179	366			VILL-ASKARA
								317											3 NOS NALA
98	AP60	60/0	53°26'46"RT			DD+0	28.469		627	577	146	52	198	138	43	181	25°43'08.87"	90°01'20.84"	VILL-ASKARA
								260											2 NOS 11 KV LINE
99	AP61	61/0	33°27'06"LT			DD+6	30.603		260	540	187	-83	104	223	-224	-2	25°43'01.41"	90°01'16.62"	VILL-ASKARA GIRI
								280											2 NOS 11 KV LINE,NALA,ROAD
100	AP62	62/0	03°26'53"LT			DB+3	68.035		280	585	363	159	522	504	163	667	25°42'52.43"	90°01'17.24"	VILL-ASKARA GIRI
								305											
101	AP63	63/0	03°13'35"LT			DB+3	66.973		305	570	146	393	539	142	558	700	25°42'42.67"	90°01'17.95"	VILL-ASKARA GIRI
								265											11 KV LINE,LT LINE,ROAD
102	AP64	64/0	33°44'53"RT	1m.		DD+6	24.919		265	595	-128	187	59	-293	200	-93	25°42'34.41"	90°01'19.16"	VILL-RANTHA PARA
								330											
103		64/1				DB+3	25.00			660	143	164	308	130	164	294			VILL-RANTHA PARA
								330											
104	AP65	65/0	25°41'39"RT	1m.		DC+3	24.127		660	650	166	158	324	166	157	324	25°42'15.06"	90°01'10.00"	VILL-RANTHA PARA
								320											11 KV LINE
105		65/1		1m.		DD+3	24.411			640	162	142	304	163	131	293			VILL-RANTHA PARA
								320											ROAD,RIVER
106		65/2		1m.		DD+6	24.558			640	178	175	353	189	185	374			VILL-RANTHA PARA
								320											11 KV LINE
107		65/3		1m.		DA+3	24.833			640	145	180	325	135	193	328			VILL-RANTHA PARA
								320											NALA
108		65/4		1m.		DA+0	24.236			640	140	139	278	127	125	252			VILL-RANTHA PARA
								320											NALA,TAR ROAD
109	AP66	66/0	19°16'43"LT	1m.		DC+3	24.97		1600	620	181	165	346	195	175	370	25°41'24.24"	90°01'13.84"	VILL-RANTHA PARA
								300											11 KV LINE
110		66/1		1m.		DA+0	25.445			600	135	154	288	125	156	281			VILL-RANTHA PARA
								300											NALA

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SL. NO.	AP NO.	LOC No	ANGLE OF DEVIATION	RAISED CHIMNEY	REVISED RAISED CHIMNEY	TOWER TYPE	LEVEL ON THE LOCATION	SPAN (MTRS)	SECTION LENGTH (MTRS)	SUM OF ADJ-SPAN	WEIGHT SPAN			WEIGHT SPAN			GPS COORDINATE		REMARKS/CROSSING
											LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL	LATITUDE	LONGITUDE	
111		66/2				DA+0	25.863			600	146	147	293	144	144	289			VILL-RANTHA PARA
								300											CT ROAD
112		66/3				DA+0	26.437			600	153	143	296	156	172	328			VILL-SHELSLA
								300											POND
113	AP67	67/0	19°57'11"LT			DC+0	27.473		1200	540	157	87	244	174	90	264	25°40'46.34"	90°01'31.78"	VILL-SHELSLA
								240											
114	AP67A	67A/0	06°49'02"RT	1m.		DB+3	27.855		240	450	153	132	285	162	135	297			VILL-SHELSLA
								210											2 NOS 11 KV LINE,NALA,TAR ROAD
115	AP68	68/0	28°40'55"RT			DC+0	28.72		210	430	78	86	164	75	95	170	25°40'36.51"	90°01'32.27"	VILL-SHELSLA
								220											TAR ROAD
116	AP68A	68A/0	11°56'24"RT	2m.		DB+0	28.149		220	440	114	86	200	102	99	201			VILL-THOKAT GIRI
								220											11 KV LINE,NALA
117		68A/1		1m.	1m.	DA+3	28.941			470	134	122	256	121	125	246			VILL-THOKAT GIRI
								250											11 KV LINE,NALA
118	AP69	69/0	11°04'14"LT	1m.		DB+3	29.387		470	530	128	139	267	135	128	263	25°40'14.97"	90°01'40.05"	VILL-THOKAT GIRI
								280											2 NOS11 KV LINE,33 KV LINE,NALA
119		69/1				DA+3	30.494			570	141	156	297	152	162	314			VILL-THOKAT GIRI
								290											
120	AP69A	69A/0	07°00'01"LT			DB+0	31.789		570	570	134	137	271	128	140	268			VILL-THOKAT GIRI
								280											
121		69A/1				DA+0	32.587			564	143	114	257	145	112	257			VILL-THOKAT GIRI
								284											NALA
122	AP70	70/0	06°35'20"LT			DB+3	33.727		564	591	170	139	299	175	129	304	25°39'39.17"	90°01'30.47"	VILL-THOKAT GIRI
								307											
123		70/1				DB+3	36.22			586	168	2	170	178	-98	80			VILL-THOKAT GIRI
								279											LT LINE,NALA
124	AP71	71/0	16°15'10"RT			DC+6	54.291		586	609	277	-47	230	278	-185	93	25°39'20.31"	90°01'29.18"	CPD 1m.
								330											
125	AP71A	71A/0	12°38'20"RT			DB+0	99.597		330	504	377	-184	193	489	-56	433	25°39'09.83"	90°01'26.12"	CPD 1m.
								174											
126	AP72	72/0	12°03'15"LT			DB+9	116.616		174	364	358	-37	321	530	38	568	25°39'04.80"	90°01'23.51"	VILL-THOKAT GIRI
								190											CT ROAD
127	AP73	73/0	00°46'38"LT			DB+0	129.246		190	385	227	-122	105	152	-257	-106	25°38'58.86"	90°01'22.15"	VILL-THOKAT GIRI
								195											CT ROAD
128	AP74	74/0	11°51'52"RT			DB+9	143.598		195	525	315	158	472	452	153	605	25°38'52.66"	90°01'21.02"	
								330											CT ROAD
129	AP75	75/0	08°17'12"LT			DB+9	144.962		330	586	173	219	392	172	277	449	25°38'42.52"	90°01'17.65"	VILL-KALAMATI
								256											
130	AP76	76/0	12°05'48"LT			DB+0	141.094		256	602	37	185	222	-21	193	172	25°38'34.44"	90°01'19.39"	VILL-KALAMATI
								346											2NOS CT ROAD,LT LINE
131	AP77	77/0	31°36'46"LT			DD+0	138.78		346	652	161	183	343	153	201	355	25°38'23.31"	90°01'20.17"	VILL-KALAMATI
								306											
132	AP78	78/0	06°33'20"RT			DB+9	125.787		306	568	123	32	156	105	-30	75	25°38'14.85"	90°01'25.68"	CPD 1m.
								262											NALA
133	AP79	79/0	38°40'30"RT			DD+0	148.025		262	486	223	54	277	281	60	341	25°38'07.13"	90°01'29.46"	VILL-KHALMANGITM

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SL. NO.	AP NO.	LOC No	ANGLE OF DEVIATION	RAISED CHIMNEY	REVISED RAISED CHIMNEY	TOWER TYPE	LEVEL ON THE LOCATION	SPAN (MTRS)	SECTION LENGTH (MTRS)	SUM OF ADJ-SPAN	WEIGHT SPAN			WEIGHT SPAN			GPS COORDINATE		REMARKS/CROSSING
											LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL	LATITUDE	LONGITUDE	
								224											
134	AP80	80/0	35°19'48"LT			DD+0	155.12		224	486	170	105	275	175	115	290	25°38'00.08"	90°01'27.48"	VILL-KHALMANGITM
								262											
135	AP81	81/0	05°43'13"RT			DB+3	155.78		262	616	157	219	376	180	222	402	25°37'52.28"	90°01'30.83"	VILL-KHALMANGITM
								354											
136	AP82	82/0	06°14'00"LT			DB+3	147.362		354	554	135	-293	-158	132	-302	-170	25°37'41.28"	90°01'34.47"	VILL-KHALMANGITM
								200											
137	AP83	83/0	35°27'35"RT			DD+3	125.96		200	516	93	171	264	100	175	275	25°37'35.36"	90°01'37.12"	VILL-KHALMANGITM
								316											
138	AP84	84/0	03°48'55"LT	1m.		DB+3	122.718		316	618	145	141	286	147	145	292	25°37'25.47"	90°01'34.54"	VILL-MANGA PARA
								302											11 KV LINE,LT LINE
139	AP85	85/0	06°46'45"RT			DB+3	135.306		302	504	161	82	243	165	70	235	25°37'15.91"	90°01'32.81"	VILL-MANGA PARA
								202											11 KV LINE,LT LINE,NALA
140	AP86	86/0	09°34'46"LT			DB+0	140.42		202	398	120	-35	85	132	-120	12	25°37'09.72"	90°01'30.38"	VILL-MANGA PARA
								196											LT LINE,CT ROAD,HUT
141	AP87	87/0	28°00'40"LT			DC+0	154.825		196	491	231	157	388	316	163	479	25°37'03.61"	90°01'28.42"	VILL-MANGA PARA
								295											CT ROAD
142	AP88	88/0	03°22'10"RT			DB+6	147.257		295	675	138	342	480	132	438	570	25°36'54.33"	90°01'30.69"	VILL-MANGA PARA
								380											NALA
143	AP89	89/0	14°14'25"RT			DB+3	118.479		380	675	38	335	373	-58	340	282	25°36'42.23"	90°01'33.03"	VILL-MANGA PARA
								295											CT ROAD
144	AP90	90/0	49°53'22"LT			DD+3	87.724		295	785	-42	439	397	-192	561	369	25°36'32.76"	90°01'32.16"	VILL-MANGA PARA
								490											2 nos 11 kv line
145	AP91	91/0	18°09'33"LT	1 m.	1m.	DC+9	28.408		490	760	51	129	180	-71	125	53	25°36'24.38"	90°01'19.32"	VILL-DIPTY PARA
								270											NH 127B & ROAD
146	AP92	92/0	08°00'00"LT			DB+0	39.337		270	704	141	221	362	145	224	369	25°36'16.18"	90°01'12.22"	VILL-DIPTY PARA
								434											NALA,ROAD,11 kv line
147	AP93	93/0	47°51'12"RT			DD+6	32.375		434	642	213	-47	166	210	-143	67	25°36'03.96"	90°01'05.29"	VILL-DIPTY PARA
								208											Betel nut trees
148	AP94	94/0	14°10'49"LT			DC+3	54.729		208	613	255	296	551	351	355	706	25°36'02.25"	90°00'58.02"	CPD-2.5m.
								405											CT Road,Betel nut trees
149	AP95	95/0	16°16'14"LT	1 m.		DC+9	24.889		405	720	109	169	278	50	176	226	25°35'55.60"	90°00'45.51"	VILL-DIPTY PARA
								315											Road
150	AP95A	95A	02°14'54"RT	1 m.		DD+6	25.884		315	630	146	205	351	139	235	374			
								315											Ganal River & road
151	AP96	96/0	34°14'52"RT			DD+0	24.608		315	601	110	126	236	80	115	195	25°35'42.51"	90°00'28.32"	VILL-BALA PARA
								286											
152		96/1				DA+3	24.308			571	160	144	305	171	146	317			VILL-BALA PARA
								285											
153		96/2				DA+0	24.002			534	122	125	247	129	128	257			VILL-BALA PARA
								249											
154		96/3				DA+0	23.907			463	124	104	228	129	112	241			VILL-BALA PARA
								214											
155	AP97	97/0	34°42'06"LT	1 m.	1m.	DD+0	23.867		1034	429	120	90	210	123	79	220	25°35'39.05"	89°59'51.69"	VILL-BALA PARA
								215											CT Road,Canal,11 kv line

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SL. NO.	AP NO.	LOC No	ANGLE OF DEVIATION	RAISED CHIMNEY	REVISED RAISED CHIMNEY	TOWER TYPE	LEVEL ON THE LOCATION	SPAN (MTRS)	SECTION LENGTH (MTRS)	SUM OF ADJ-SPAN	WEIGHT SPAN			WEIGHT SPAN			GPS COORDINATE		REMARKS/CROSSING
											LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL	LATITUDE	LONGITUDE	
156	AP98	98/0	36°14'42"RT			DD+3	23.958			435	125	111	236	136	112	248	25°35'35.33"	89°59'45.87"	
								220											11 kv line,Nala
157		98/1				DA+3	23.811			460	109	120	229	108	121	229			
								240											Nala,road
158		98/2				DA+3	23.75			471	120	137	257	119	151	271			VILL-BALA PARA
								231											LT Line,Nala,Road
159	AP99	99/0	54°28'22"LT			DD+0	23.962		906	525	94	95	189	80	62	142	25°35'35.09"	89°59'21.15"	VILL-PHUTIMARI
								294											Pond,LT Line,CT Road
160	AP100	100/0	22°21'28"RT			DC+9	23.363		294	554	199	169	368	232	175	407	25°35'26.61"	89°59'15.17"	VILL-PHUTIMARI
								260											Nala,Road
161	AP101	101/0	27°48'23"LT			DC+3	23.909		260	582	91	182	273	95	189	284	25°35'22.84"	89°59'07.34"	VILL-PHUTIMARI
								322											
162	AP102	102/0	02°35'20"LT			DB+0	22.958		322	634	139	135	274	135	122	257	25°35'13.89"	89°59'01.53"	VILL-MONABARI
								312											
163		102/1				DA+3	23.552			601	177	153	330	190	159	349			VILL-MONABARI
								289											
164	AP103	103/0	02°40'51"LT			DB+0	25.157		601	589	136	127	262	130	112	242	25°34'56.59"	89°58'51.57"	VILL-CHIRANG PARA
								300											
165		103/1				DA+3	26.013			600	173	167	340	188	177	365			VILL-CHIRANG PARA
								300											
166		103/2				DA+0	26.251			580	133	111	244	123	118	241			VILL-CHIRANG PARA
								280											
167		103/3				DA+3	26.458			570	170	116	285	162	104	266			VILL-CHIRANG PARA
								290											Nala
168	AP104	104/0	39°28'35"LT			DD+6	26.856		1170	590	166	144	311	180	141	321	25°34'23.99"	89°58'30.28"	
								300											11 kv line,Nala
169		104/1				DA+6	27.769			620	156	171	327	159	178	337			VILL-CHIRANG PARA
								320											
170		104/2				DA+3	28.719			640	149	155	304	142	152	294			VILL-CHIRANG PARA
								320											Nala
171		104/3				DA+3	29.626			640	165	153	318	168	148	316			VILL-CHIRANG PARA
								320											Nala
172		104/4				DA+3	30.459			620	167	146	314	172	144	316			VILL-CHIRANG PARA
								300											Pond,11kv line
173		104/5				DA+3	31.476			562	154	145	298	156	153	309			VILL-CHIRANG PARA
								262											11 kv line,Nala
174	AP105	105/0	11°29'22"LT			DB+0	32.523		1822	507	117	79	196	109	51	160	25°33'25.80"	89°58'42.13"	VILL-CHIRANG PARA
								245											Boundary
175	AP106	106/0	15°00'00"RT			DD+0	38.425		245	288	166	-48	118	194	-92	102	25°33'18.36"	89°58'45.27"	VILL-CHIRANG PARA
								43											
176	GANTRY	GANTRY	0			GANTRY	40.067		43	43	91						25°33'17.10"	89°58'45.31"	VILL-CHIRANG PARA

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UNIQUE STRUCTURES & TOWERS (I) PVT. LTD. PHULBARI

ANNEXURE-3

Pole Schedule of Distribution lines

33 kV Phulbari – Chibinang
33 kV Phulbari – Phulbari
33 kV Phulbari – Rajaballa
33 kV Tikrikilla – Raksambre
Phulbari -Tikrikilla-Phulbari

Neccon Power & Infra Limited

Project: **33 kV S/C Transmission Line from 132/33 kV Phulbari (New) Sub-Station to 33/11 kV Chibinang Sub-Station**
Client: Power Grid Corporation of India Limited (A Government of India Enterprise)
Detailed Survey & Pole Schedule for Route No 1

Serial No	Location No	Pole Type	GPS Co-Ordinates		Span (in Meters)	Cummulative Distance (in Meters)	Remarks
			Latitude	Longitude			
1	C1	DP	25.853441	90.085691			
2	C2	DP	25.85378	90.08549	42.402	42.402	
3	C3	SP	25.85411	90.08529	42.402	84.804	
4	C4	SP	25.85445	90.08509	42.402	127.207	
5	C5	SP	25.85479	90.08489	42.402	169.609	
6	C6	DP	25.85512	90.08469	42.402	212.011	
7	C7	SP	25.85546	90.08449	42.402	254.413	
8	C8	SP	25.85579	90.08429	42.402	296.815	
9	C9	DP	25.85613	90.08409	42.402	339.217	
10	C10	SP	25.85653	90.08423	46.632	385.849	
11	C11	SP	25.85693	90.08437	46.632	432.481	
12	C12	DP	25.85733	90.08451	46.632	479.113	
13	C13	SP	25.85778	90.08454	49.545	528.658	33 kV Existing Line Crossing
14	C14	DP	25.85822	90.08456	49.545	578.203	
15	C15	SP	25.85854	90.08471	38.618	616.821	Minor Road Crossing
16	C16	SP	25.85886	90.08486	38.618	655.440	
17	C17	4P	25.85918	90.08501	38.618	694.058	River Crossing
18	C18	4P	25.86058	90.08578	173.696	867.754	
19	C19	SP	25.86089	90.08607	45.432	913.185	
20	C20	SP	25.86121	90.08637	45.432	958.617	
21	C21	SP	25.86152	90.08666	45.431	1004.048	
22	C22	DP	25.86183	90.08695	45.431	1049.480	
23	C23	SP	25.86227	90.08705	49.873	1099.353	
24	C24	SP	25.86271	90.08714	49.873	1149.225	
25	C25	DP	25.86315	90.08724	49.873	1199.098	
26	C26	SP	25.86339	90.08760	44.785	1243.883	
27	C27	SP	25.86364	90.08795	44.785	1288.667	
28	C28	DP	25.86388	90.08831	44.785	1333.452	33 kV Existing Line Crossing
29	C29	SP	25.86400	90.08879	49.626	1383.079	
30	C30	SP	25.86413	90.08926	49.626	1432.705	
31	C31	DP	25.86425	90.08974	49.626	1482.331	
32	C32	SP	25.86459	90.08999	44.870	1527.201	
33	C33	DP	25.86492	90.09024	44.870	1572.070	
34	C34	SP	25.86534	90.09039	48.701	1620.772	
35	C35	SP	25.86575	90.09054	48.701	1669.473	
36	C36	DP	25.86617	90.09069	48.701	1718.175	
37	C37	SP	25.86651	90.09085	41.270	1759.444	
38	C38	SP	25.86686	90.09100	41.270	1800.714	
39	C39	DP	25.86720	90.09116	41.270	1841.984	
40	C40	SP	25.86737	90.09152	40.974	1882.958	
41	C41	SP	25.86754	90.09189	40.974	1923.932	33 kV Existing Line Crossing
42	C42	4P	25.86771	90.09225	40.974	1964.906	
				Total Distance	***1964.91***		

Total No of Poles : ***64 Nos***
No of Single Poles : ***26 Nos***
No of Double Poles : ***13 Nos***
No of Four Poles : ***3 Nos***

Signature of Surveyor
Neccon Power & Infra Limited

Signature of Project Manager
Neccon Power & Infra Limited

C. Sangma
Junior Engineer
POWERGRID, NERTS
NERPSIP Phulbari

Signature of
PGCIL

08/01/18
H.K. Phukan
Chief Manager
POWERGRID, NERTS
NERPSIP Phulbari

Project Manager
NECCON Power & Infra Ltd.
Phulbari, W.G. Hills (Megh)

Neccon Power & Infra Limited

Project: **33 kV S/C Transmission Line from 132/33 kV Phulbari (New) Sub-Station to 33/11 kV Phulbari (Existing) Sub-Station**

Client: Power Grid Corporation of India Limited (A Government of India Enterprise)

Detailed Survey & Pole Schedule for Route No 1

Serial No	Location No	Pole Type	GPS Co-Ordinates		Span (in Meters)	Cummulative Distance (in Meters)	Remarks
			Latitude	Longitude			
1	P1	4P	25.88784	90.03447			33/11 kV Phulbari SS
2	P2	4P	25.88706	90.03419	91.143	91.143	
3	P3	DP	25.88681	90.03355	69.799	160.941	
4	P4	4P	25.88647	90.03326	47.654	208.596	
5	P5	4P	25.88569	90.03318	87.100	295.696	
6	P6	DP	25.88508	90.03278	78.753	374.449	
7	P7	DP	25.88445	90.03241	79.230	453.680	
8	P8	DP	25.88387	90.03211	71.134	524.814	
9	P9	4P	25.88340	90.03193	55.277	580.091	
10	P10	DP	25.88309	90.03157	49.852	629.943	
11	P11	DP	25.88254	90.03138	64.043	693.986	
12	P12	SP	25.88221	90.03117	42.283	736.269	
13	P13	DP	25.88188	90.03096	42.283	778.552	
14	P14	SP	25.88132	90.03097	62.833	841.385	
15	P15	DP	25.88075	90.03098	62.833	904.218	
16	P16	DP	25.88006	90.03103	76.887	981.105	
17	P17	DP	25.87928	90.03117	87.856	1068.961	
18	P18	SP	25.87885	90.03115	48.411	1117.372	
19	P19	DP	25.87841	90.03113	48.411	1165.783	
20	P20	DP	25.87787	90.03102	61.045	1226.828	
21	P21	SP	25.87742	90.03100	50.078	1276.906	
22	P22	SP	25.87697	90.03098	50.078	1326.984	
23	P23	SP	25.87652	90.03096	50.078	1377.062	
24	P24	DP	25.87607	90.03094	50.078	1427.139	
25	P25	SP	25.87564	90.03114	52.242	1479.382	
26	P26	SP	25.87520	90.03134	52.242	1531.624	
27	P27	SP	25.87477	90.03154	52.242	1583.866	
28	P28	SP	25.87433	90.03174	52.242	1636.109	
29	P29	DP	25.87390	90.03194	52.243	1688.351	
30	P30	SP	25.87352	90.03208	44.453	1732.804	
31	P31	SP	25.87314	90.03222	44.453	1777.257	
32	P32	SP	25.87276	90.03235	44.453	1821.709	
33	P33	DP	25.87238	90.03263	50.477	1872.186	
34	P34	SP	25.87193	90.03277	51.829	1924.015	11 kV Line Crossing
35	P35	DP	25.87148	90.03290	51.829	1975.843	
36	P36	SP	25.87118	90.03326	49.093	2024.936	
37	P37	SP	25.87088	90.03362	49.093	2074.029	33 kV Line Crossing
38	P38	SP	25.87058	90.03398	49.093	2123.121	
39	P39	4P	25.87028	90.03470	79.386	2202.507	
40	P40	SP	25.86988	90.03449	49.298	2251.806	
41	P41	SP	25.86948	90.03428	49.298	2301.104	
42	P42	SP	25.86908	90.03406	49.298	2350.402	
43	P43	4P	25.86868	90.03385	49.298	2399.701	Minor Road Crossing
44	P44	SP	25.86843	90.03424	47.831	2447.532	
45	P45	DP	25.86817	90.03462	47.831	2495.363	
46	P46	SP	25.86804	90.03506	46.019	2541.382	
47	P47	SP	25.86791	90.03549	46.019	2587.401	
48	P48	DP	25.86778	90.03593	46.019	2633.421	
49	P49	SP	25.86778	90.03644	51.030	2684.451	
50	P50	DP	25.86777	90.03695	51.030	2735.481	

SITE ENGINEER
NECCON

Project Manager
NECCON Power & Infra Ltd.
Phulbari, W.G. Hills (Megh)

H.K. Phukan
Chief Manager
POWERGRID, NERTS
SSP Phulbari

51	P51	SP	25.86755	90.03739	50.256	2785.737	
52	P52	SP	25.86733	90.03783	50.256	2835.994	
53	P53	SP	25.86712	90.03827	50.256	2886.250	
54	P54	SP	25.86690	90.03871	50.256	2936.506	
55	P55	DP	25.86668	90.03915	50.256	2986.763	33 kV Line Crossing
56	P56	SP	25.86648	90.03956	46.223	3032.986	
57	P57	DP	25.86628	90.03996	46.224	3079.210	
58	P58	SP	25.86619	90.04042	47.181	3126.391	
59	P59	SP	25.86609	90.04088	47.181	3173.571	
60	P60	DP	25.86600	90.04134	47.181	3220.752	
61	P61	SP	25.86572	90.04171	48.372	3269.125	
62	P62	DP	25.86544	90.04208	48.372	3317.497	
63	P63	SP	25.86533	90.04256	49.560	3367.057	33 kV Line Crossing
64	P64	SP	25.86522	90.04304	49.560	3416.616	
65	P65	SP	25.86511	90.04352	49.560	3466.176	
66	P66	SP	25.86500	90.04400	49.560	3515.736	
67	P67	DP	25.86489	90.04448	49.560	3565.296	
68	P68	SP	25.86478	90.04497	50.252	3615.548	
69	P69	SP	25.86466	90.04545	50.252	3665.801	
70	P70	SP	25.86455	90.04594	50.252	3716.053	
71	P71	SP	25.86443	90.04642	50.252	3766.306	
72	P72	DP	25.86432	90.04691	50.252	3816.558	
73	P73	SP	25.86424	90.04732	42.126	3858.684	
74	P74	SP	25.86416	90.04773	42.126	3900.810	
75	P75	SP	25.86409	90.04815	42.126	3942.935	
76	P76	SP	25.86401	90.04856	42.126	3985.061	
77	P77	DP	25.86393	90.04897	42.126	4027.187	
78	P78	SP	25.86374	90.04945	51.924	4079.111	
79	P79	SP	25.86356	90.04992	51.924	4131.035	
80	P80	SP	25.86337	90.05040	51.924	4182.960	
81	P81	SP	25.86319	90.05087	51.924	4234.884	
82	P82	DP	25.86300	90.05135	51.924	4286.808	
83	P83	SP	25.86282	90.05182	51.023	4337.830	
84	P84	SP	25.86264	90.05229	51.023	4388.853	
85	P85	SP	25.86247	90.05276	51.023	4439.876	
86	P86	SP	25.86229	90.05323	51.023	4490.898	
87	P87	DP	25.86211	90.05370	51.023	4541.921	
88	P88	SP	25.86195	90.05417	50.280	4592.202	
89	P89	SP	25.86179	90.05464	50.280	4642.482	
90	P90	SP	25.86163	90.05511	50.280	4692.762	
91	P91	SP	25.86147	90.05558	50.280	4743.043	
92	P92	DP	25.86131	90.05605	50.280	4793.323	
93	P93	SP	25.86115	90.05647	45.636	4838.959	
94	P94	SP	25.86099	90.05689	45.636	4884.595	
95	P95	SP	25.86083	90.05731	45.636	4930.231	
96	P96	SP	25.86067	90.05773	45.636	4975.866	
97	P97	DP	25.86051	90.05815	45.636	5021.502	
98	P98	SP	25.86033	90.05862	51.103	5072.605	
99	P99	SP	25.86014	90.05909	51.103	5123.708	
100	P100	SP	25.85996	90.05955	51.103	5174.810	
101	P101	SP	25.85977	90.06002	51.103	5225.913	
102	P102	DP	25.85959	90.06049	51.103	5277.016	
103	P103	SP	25.85944	90.06096	50.276	5327.292	
104	P104	SP	25.85929	90.06144	50.276	5377.568	
105	P105	SP	25.85914	90.06191	50.276	5427.844	
106	P106	SP	25.85899	90.06239	50.276	5478.120	
107	P107	DP	25.85884	90.06286	50.276	5528.396	
108	P108	SP	25.85868	90.06333	50.627	5579.024	
109	P109	SP	25.85851	90.06380	50.627	5629.651	
110	P110	SP	25.85835	90.06428	50.627	5680.278	

SITE ENGINEER
NECCON

Project Manager
NECCON Power & Infra Ltd.
Phulbari, W.G. Hills (Megh)

H.K. Phukan
Chief Manager
POWERGRID, NERTS
NERPSIP Phulbari

111	P111	SP	25.85818	90.06475	50.627	5730.906	
112	P112	DP	25.85802	90.06522	50.627	5781.533	
113	P113	SP	25.85787	90.06572	53.118	5834.651	
114	P114	SP	25.85772	90.06623	53.118	5887.769	
115	P115	SP	25.85757	90.06673	53.118	5940.887	
116	P116	SP	25.85742	90.06724	53.118	5994.005	
117	P117	DP	25.85727	90.06774	53.118	6047.123	
118	P118	SP	25.85712	90.06822	51.029	6098.152	Minor Road Crossing
119	P119	DP	25.85696	90.06870	51.029	6149.181	(Near ARM Brick Industry)
120	P120	SP	25.85697	90.06914	43.632	6192.813	
121	P121	SP	25.85697	90.06957	43.633	6236.446	
122	P122	SP	25.85698	90.07001	43.633	6280.078	
123	P123	SP	25.85698	90.07044	43.632	6323.711	
124	P124	DP	25.85699	90.07088	43.632	6367.343	
125	P125	SP	25.85700	90.07138	50.449	6417.792	
126	P126	SP	25.85701	90.07189	50.449	6468.241	
127	P127	SP	25.85703	90.07239	50.449	6518.691	
128	P128	SP	25.85704	90.07290	50.449	6569.140	
129	P129	DP	25.85705	90.07340	50.449	6619.589	
130	P130	SP	25.85690	90.07391	53.828	6673.417	
131	P131	SP	25.85674	90.07442	53.828	6727.246	
132	P132	SP	25.85659	90.07493	53.828	6781.074	
133	P133	SP	25.85643	90.07544	53.829	6834.903	
134	P134	DP	25.85628	90.07595	53.829	6888.731	
135	P135	SP	25.85614	90.07640	47.880	6936.611	
136	P136	SP	25.85601	90.07686	47.880	6984.491	
137	P137	SP	25.85587	90.07731	47.880	7032.370	
138	P138	SP	25.85574	90.07777	47.880	7080.250	
139	P139	DP	25.85560	90.07822	47.880	7128.130	
140	P140	SP	25.85532	90.07860	48.937	7177.067	
141	P141	SP	25.85504	90.07897	48.937	7226.003	
142	P142	SP	25.85475	90.07935	48.937	7274.940	
143	P143	DP	25.85447	90.07972	48.937	7323.877	
144	P144	SP	25.85408	90.08009	57.184	7381.061	
145	P145	SP	25.85369	90.08047	57.184	7438.245	
146	P146	SP	25.85330	90.08084	57.184	7495.428	
147	P147	DP	25.85291	90.08121	57.184	7552.612	
148	P148	SP	25.85258	90.08156	50.358	7602.970	
149	P149	SP	25.85236	90.08196	47.236	7650.206	
150	P150	4P	25.85212	90.08231	44.019	7694.225	
151	P151	SP	25.85246	90.08263	48.947	7743.171	
152	P152	SP	25.85276	90.08296	47.905	7791.077	
153	P153	SP	25.85307	90.08330	47.882	7838.959	
154	P154	DP	25.85335	90.08363	45.994	7884.953	
155	P155	SP	25.85364	90.08396	45.542	7930.495	
156	P156	SP	25.85393	90.08430	46.922	7977.417	
157	P157	4P	25.85419	90.08467	47.167	8024.584	
158	P158	4P	25.85405	90.08498	34.707	8059.292	
159	P159	4P	25.85388	90.08541	46.997	8106.289	132/33 kV Phulbari SS
				Total Distance	***8106.289***		

Total No of Poles : ***234 Nos***
No of Single Poles : ***106 Nos***
No of Double Poles : ***42 Nos***
No of Four Poles : ***11 Nos***

Signature of Surveyor
Neccon Power & Infra Limited

Project Manager
NECCON Power & Infra Ltd.
Phulbari W.G. Hills (Meghl.)

Signature of Project Manager
Neccon Power & Infra Limited

Signature of
PGCIL

K. Phukan
Chief Manager
POWERGRID, NERTS
NERPSIP Phulbari

Neccon Power & Infra Limited

Project: 33 kV S/C Transmission Line from 132/33 kV Phulbari (New) Sub-Station to 33/11 kV Rajaballa (Existing) Sub-Station

Client: Power Grid Corporation of India Limited (A Government of India Enterprise)

Pole Schedule for Route No 1

Serial No	Location No	Pole Type	GPS Co-Ordinates		Span (in Meters)	Cummulative Distance (in Meters)	Remarks
			Latitude	Longitude			
1	R1	4P	25.853905	90.085634			
2	R2	SP	25.854135	90.085276	43.989	43.989	
3	R3	SP	25.854365	90.084919	43.989	87.977	
4	R4	4P	25.854595	90.084561	43.988	131.966	
5	R5	SP	25.854301	90.084226	46.857	178.823	
6	R6	SP	25.854006	90.083891	46.857	225.680	
7	R7	SP	25.853712	90.083556	46.857	272.537	
8	R8	SP	25.853418	90.083221	46.857	319.395	
9	R9	DP	25.853123	90.082885	46.857	366.252	
10	R10	SP	25.852829	90.082550	46.857	413.109	
11	R11	SP	25.852535	90.082215	46.858	459.967	
12	R12	SP	25.852240	90.081880	46.858	506.825	
13	R13	DP	25.851946	90.081545	46.858	553.683	
14	R14	SP	25.852090	90.081104	46.923	600.605	
15	R15	SP	25.852234	90.080663	46.923	647.528	
16	R16	SP	25.852378	90.080223	46.923	694.450	
17	R17	SP	25.852521	90.079782	46.922	741.373	
18	R18	DP	25.852665	90.079341	46.922	788.295	
19	R19	SP	25.852809	90.078900	46.922	835.218	
20	R20	SP	25.852953	90.078459	46.922	882.140	
21	R21	SP	25.853097	90.078018	46.922	929.063	
22	R22	DP	25.853241	90.077578	46.922	975.985	
23	R23	SP	25.853384	90.077137	46.922	1022.907	
24	R24	SP	25.853528	90.076696	46.922	1069.829	
25	R25	DP	25.853672	90.076255	46.922	1116.751	
26	R26	SP	25.853825	90.075796	48.985	1165.736	
27	R27	SP	25.853979	90.075337	48.985	1214.721	
28	R28	SP	25.854132	90.074878	48.985	1263.706	
29	R29	SP	25.854286	90.074419	48.985	1312.691	
30	R30	DP	25.854439	90.073961	48.985	1361.675	
31	R31	SP	25.854593	90.073502	48.985	1410.660	
32	R32	SP	25.854746	90.073043	48.984	1459.645	
33	R33	SP	25.854899	90.072584	48.985	1508.629	
34	R34	SP	25.855053	90.072125	48.985	1557.614	
35	R35	DP	25.855206	90.071666	48.985	1606.598	
36	R36	SP	25.855360	90.071207	48.984	1655.583	
37	R37	SP	25.855513	90.070748	48.984	1704.567	
38	R38	SP	25.855667	90.070290	48.984	1753.551	
39	R39	SP	25.855820	90.069831	48.984	1802.536	
40	R40	DP	25.855973	90.069372	48.984	1851.520	
41	R41	SP	25.856127	90.068913	48.984	1900.504	
42	R42	SP	25.856280	90.068454	48.984	1949.488	
43	R43	SP	25.856434	90.067995	48.984	1998.472	
44	R44	SP	25.856587	90.067536	48.984	2047.456	
45	R45	DP	25.856741	90.067077	48.984	2096.440	
46	R46	SP	25.856894	90.066619	48.984	2145.424	

SITE ENGINEER
NECCON

Project Manager
NECCON Power & Infra Ltd.
Phulbari, W.G. Hills (Megh)

47	R47	SP	25.857048	90.066160	48.984	2194.408	
48	R48	SP	25.857201	90.065701	48.984	2243.391	
49	R49	SP	25.857354	90.065242	48.984	2292.375	
50	R50	DP	25.857508	90.064783	48.984	2341.358	
51	R51	SP	25.857661	90.064324	48.984	2390.342	
52	R52	SP	25.857815	90.063865	48.983	2439.326	
53	R53	SP	25.857968	90.063406	48.983	2488.309	
54	R54	SP	25.858122	90.062948	48.983	2537.292	
55	R55	DP	25.858275	90.062489	48.983	2586.276	
56	R56	SP	25.858428	90.062030	48.983	2635.259	
57	R57	SP	25.858582	90.061571	48.983	2684.242	
58	R58	SP	25.858735	90.061112	48.983	2733.225	
59	R59	SP	25.858889	90.060653	48.983	2782.208	
60	R60	DP	25.859042	90.060194	48.983	2831.191	
61	R61	SP	25.859196	90.059735	48.983	2880.175	
62	R62	SP	25.859349	90.059276	48.983	2929.157	
63	R63	SP	25.859502	90.058818	48.983	2978.140	
64	R64	SP	25.859656	90.058359	48.983	3027.123	
65	R65	DP	25.859809	90.057900	48.983	3076.106	
66	R66	SP	25.859963	90.057441	48.983	3125.089	
67	R67	SP	25.860116	90.056982	48.983	3174.071	
68	R68	SP	25.860270	90.056523	48.983	3223.054	
69	R69	SP	25.860423	90.056064	48.982	3272.036	
70	R70	DP	25.860576	90.055605	48.983	3321.019	
71	R71	SP	25.860730	90.055147	48.982	3370.001	
72	R72	SP	25.860883	90.054688	48.982	3418.984	
73	R73	SP	25.861037	90.054229	48.982	3467.966	
74	R74	SP	25.861190	90.053770	48.982	3516.948	
75	R75	DP	25.861344	90.053311	48.982	3565.930	
76	R76	SP	25.861497	90.052852	48.982	3614.913	
77	R77	SP	25.861650	90.052393	48.982	3663.895	
78	R78	SP	25.861804	90.051934	48.982	3712.877	
79	R79	SP	25.861957	90.051476	48.982	3761.859	
80	R80	DP	25.862111	90.051017	48.982	3810.841	
81	R81	SP	25.862264	90.050558	48.982	3859.823	
82	R82	SP	25.862418	90.050099	48.982	3908.805	
83	R83	SP	25.862571	90.049640	48.982	3957.786	
84	R84	SP	25.862725	90.049181	48.982	4006.768	
85	R85	DP	25.862878	90.048722	48.982	4055.750	
86	R86	SP	25.863031	90.048263	48.982	4104.732	
87	R87	SP	25.863185	90.047805	48.982	4153.713	
88	R88	SP	25.863338	90.047346	48.981	4202.695	
89	R89	SP	25.863492	90.046887	48.981	4251.676	
90	R90	DP	25.863645	90.046428	48.981	4300.657	
91	R91	SP	25.863799	90.045969	48.981	4349.639	
92	R92	SP	25.863952	90.045510	48.981	4398.620	
93	R93	SP	25.864105	90.045051	48.981	4447.601	
94	R94	SP	25.864259	90.044592	48.981	4496.582	
95	R95	DP	25.864412	90.044134	48.981	4545.563	
96	R96	SP	25.864566	90.043675	48.981	4594.544	
97	R97	SP	25.864719	90.043216	48.981	4643.525	
98	R98	SP	25.864873	90.042757	48.981	4692.506	
99	R99	DP	25.865026	90.042298	48.981	4741.487	
100	R100	SP	25.865204	90.041955	39.610	4781.097	
101	R101	SP	25.865383	90.041613	39.610	4820.707	
102	R102	SP	25.865561	90.041270	39.610	4860.316	
103	R103	DP	25.865739	90.040927	39.610	4899.926	
104	R104	DP	25.865668	90.040440	49.362	4949.289	
105	R105	SP	25.865532	90.040100	37.229	4986.517	
106	R106	SP	25.865412	90.039777	34.964	5021.481	
107	R107	SP	25.865505	90.039303	48.541	5070.022	
108	R108	SP	25.865730	90.038870	50.029	5120.051	
109	R109	DP	25.866083	90.038564	49.780	5169.831	

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110	R110	SP	25.866192	90.038148	43.332	5213.164	
111	R111	SP	25.866301	90.037732	43.332	5256.496	
112	R112	SP	25.866410	90.037317	43.332	5299.828	
113	R113	SP	25.866519	90.036901	43.332	5343.161	
114	R114	DP	25.866628	90.036485	43.332	5386.493	
115	R115	SP	25.866491	90.036032	47.828	5434.321	
116	R116	SP	25.866354	90.035579	47.828	5482.150	
117	R117	SP	25.866218	90.035125	47.828	5529.978	
118	R118	SP	25.866081	90.034672	47.828	5577.806	
119	R119	DP	25.865944	90.034219	47.828	5625.635	
120	R120	SP	25.866038	90.033765	46.618	5672.253	
121	R121	SP	25.866133	90.033311	46.618	5718.871	
122	R122	SP	25.866227	90.032857	46.618	5765.489	
123	R123	DP	25.866321	90.032403	46.618	5812.107	
124	R124	SP	25.866504	90.032019	43.507	5855.614	
125	R125	SP	25.866687	90.031634	43.506	5899.120	
126	R126	4P	25.866870	90.031250	43.506	5942.627	
127	R127	4P	25.866780	90.030970	29.749	5972.376	
128	R128	SP	25.866620	90.030603	40.773	6013.149	
129	R129	SP	25.866460	90.030237	40.773	6053.922	
130	R130	DP	25.866300	90.029870	40.773	6094.695	
131	R131	DP	25.866520	90.029530	41.901	6136.596	
132	R132	SP	25.866410	90.029125	42.328	6178.924	
133	R133	DP	25.866300	90.028720	42.328	6221.252	
134	R134	SP	25.866288	90.028308	41.244	6262.496	
135	R135	SP	25.866276	90.027896	41.244	6303.740	
136	R136	SP	25.866264	90.027484	41.244	6344.984	
137	R137	SP	25.866252	90.027072	41.244	6386.229	
138	R138	4P	25.866240	90.026660	41.244	6427.473	
139	R139	SP	25.865844	90.026476	47.757	6475.230	
140	R140	SP	25.865447	90.026293	47.757	6522.987	
141	R141	SP	25.865051	90.026109	47.757	6570.744	
142	R142	SP	25.864654	90.025926	47.757	6618.501	
143	R143	DP	25.864258	90.025742	47.757	6666.258	
144	R144	SP	25.863861	90.025559	47.757	6714.016	
145	R145	SP	25.863465	90.025375	47.757	6761.773	
146	R146	SP	25.863068	90.025192	47.757	6809.530	
147	R147	SP	25.862672	90.025008	47.757	6857.287	
148	R148	DP	25.862275	90.024825	47.757	6905.044	
149	R149	SP	25.861879	90.024641	47.757	6952.802	
150	R150	SP	25.861482	90.024458	47.757	7000.559	
151	R151	SP	25.861086	90.024274	47.757	7048.316	
152	R152	SP	25.860689	90.024091	47.757	7096.074	
153	R153	DP	25.860293	90.023907	47.757	7143.831	
154	R154	SP	25.859896	90.023724	47.757	7191.588	
155	R155	DP	25.859500	90.023540	47.757	7239.346	
156	R156	SP	25.859167	90.023340	42.122	7281.468	
157	R157	SP	25.858833	90.023140	42.122	7323.591	
158	R158	DP	25.858500	90.022940	42.122	7365.713	
159	R159	SP	25.858120	90.022694	48.914	7414.627	
160	R160	SP	25.857740	90.022448	48.914	7463.540	
161	R161	SP	25.857360	90.022201	48.914	7512.454	
162	R162	SP	25.856980	90.021955	48.914	7561.367	
163	R163	DP	25.856600	90.021709	48.914	7610.281	
164	R164	SP	25.856220	90.021463	48.914	7659.195	
165	R165	SP	25.855840	90.021216	48.914	7708.109	
166	R166	SP	25.855460	90.020970	48.914	7757.023	
167	R167	SP	25.855080	90.020724	48.914	7805.937	
168	R168	DP	25.854700	90.020478	48.914	7854.851	
169	R169	SP	25.854320	90.020231	48.914	7903.765	
170	R170	SP	25.853940	90.019985	48.914	7952.679	
171	R171	DP	25.853560	90.019739	48.914	8001.593	
172	R172	SP	25.853180	90.019493	48.914	8050.507	

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173	R173	SP	25.852800	90.019246	48.914	8099.421	
174	R174	DP	25.852420	90.019000	48.914	8148.335	
175	R175	SP	25.852078	90.018713	47.704	8196.039	
176	R176	SP	25.851735	90.018426	47.704	8243.743	
177	R177	SP	25.851393	90.018139	47.704	8291.448	
178	R178	SP	25.851050	90.017852	47.704	8339.152	
179	R179	DP	25.850708	90.017565	47.704	8386.856	
180	R180	SP	25.850365	90.017278	47.704	8434.561	
181	R181	SP	25.850023	90.016990	47.704	8482.265	
182	R182	SP	25.849680	90.016703	47.704	8529.970	
183	R183	SP	25.849338	90.016416	47.705	8577.674	
184	R184	DP	25.848995	90.016129	47.704	8625.379	
185	R185	SP	25.848653	90.015842	47.705	8673.083	
186	R186	SP	25.848310	90.015555	47.705	8720.788	
187	R187	SP	25.847968	90.015268	47.705	8768.493	
188	R188	SP	25.847625	90.014981	47.705	8816.197	
189	R189	DP	25.847283	90.014694	47.705	8863.902	
190	R190	SP	25.846940	90.014407	47.705	8911.607	
191	R191	SP	25.846598	90.014120	47.705	8959.312	
192	R192	SP	25.846255	90.013833	47.705	9007.017	
193	R193	SP	25.845913	90.013545	47.705	9054.722	
194	R194	DP	25.845570	90.013258	47.705	9102.427	
195	R195	SP	25.845228	90.012971	47.705	9150.132	
196	R196	SP	25.844885	90.012684	47.705	9197.837	
197	R197	SP	25.844543	90.012397	47.705	9245.543	
198	R198	DP	25.844200	90.012110	47.705	9293.248	
199	R199	SP	25.843819	90.011868	48.833	9342.081	
200	R200	SP	25.843438	90.011625	48.833	9390.914	
201	R201	SP	25.843056	90.011383	48.833	9439.748	
202	R202	SP	25.842675	90.011141	48.833	9488.581	
203	R203	DP	25.842294	90.010898	48.833	9537.415	
204	R204	SP	25.841913	90.010656	48.834	9586.249	
205	R205	SP	25.841532	90.010414	48.834	9635.082	
206	R206	SP	25.841151	90.010171	48.834	9683.916	
207	R207	SP	25.840769	90.009929	48.834	9732.750	
208	R208	DP	25.840388	90.009686	48.834	9781.583	
209	R209	SP	25.840007	90.009444	48.834	9830.417	
210	R210	SP	25.839626	90.009202	48.834	9879.251	
211	R211	SP	25.839245	90.008959	48.834	9928.085	
212	R212	DP	25.838864	90.008717	48.834	9976.918	
213	R213	SP	25.838482	90.008475	48.834	10025.752	
214	R214	SP	25.838101	90.008232	48.834	10074.586	
215	R215	DP	25.837720	90.007990	48.834	10123.420	
216	R216	SP	25.837431	90.007663	45.866	10169.286	
217	R217	SP	25.837142	90.007336	45.866	10215.151	
218	R218	SP	25.836853	90.007009	45.866	10261.017	
219	R219	SP	25.836564	90.006682	45.866	10306.883	
220	R220	DP	25.836275	90.006355	45.866	10352.749	
221	R221	SP	25.835986	90.006028	45.866	10398.615	
222	R222	SP	25.835697	90.005701	45.866	10444.481	
223	R223	SP	25.835408	90.005374	45.866	10490.347	
224	R224	SP	25.835119	90.005047	45.866	10536.213	
225	R225	DP	25.834830	90.004720	45.866	10582.079	
226	R226	SP	25.834538	90.004382	46.951	10629.030	
227	R227	SP	25.834245	90.004043	46.951	10675.982	
228	R228	SP	25.833953	90.003705	46.951	10722.933	
229	R229	SP	25.833660	90.003367	46.951	10769.884	
230	R230	DP	25.833368	90.003028	46.951	10816.836	
231	R231	SP	25.833075	90.002690	46.952	10863.787	
232	R232	SP	25.832783	90.002352	46.951	10910.738	
233	R233	SP	25.832490	90.002013	46.952	10957.690	
234	R234	DP	25.832198	90.001675	46.952	11004.642	
235	R235	SP	25.831905	90.001337	46.952	11051.593	

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236	R236	SP	25.831613	90.000998	46.952	11098.545	
237	R237	4P	25.831320	90.000660	46.952	11145.497	
238	R238	DP	25.831290	90.000440	22.270	11167.767	
239	R239	SP	25.831180	89.999998	45.897	11213.664	
240	R240	SP	25.831070	89.999556	45.897	11259.561	
241	R241	SP	25.830960	89.999114	45.897	11305.459	
242	R242	SP	25.830850	89.998672	45.897	11351.356	
243	R243	DP	25.830740	89.998230	45.897	11397.253	
244	R244	SP	25.830633	89.997769	47.691	11444.945	
245	R245	SP	25.830525	89.997307	47.691	11492.636	
246	R246	SP	25.830418	89.996846	47.691	11540.327	
247	R247	SP	25.830311	89.996385	47.691	11588.019	
248	R248	DP	25.830204	89.995923	47.691	11635.710	
249	R249	SP	25.830096	89.995462	47.692	11683.402	
250	R250	SP	25.829989	89.995000	47.692	11731.093	
251	R251	SP	25.829882	89.994539	47.692	11778.785	
252	R252	SP	25.829775	89.994078	47.692	11826.477	
253	R253	DP	25.829667	89.993616	47.692	11874.168	
254	R254	SP	25.829560	89.993155	47.692	11921.860	
255	R255	SP	25.829453	89.992694	47.692	11969.552	
256	R256	SP	25.829345	89.992232	47.692	12017.244	
257	R257	SP	25.829238	89.991771	47.692	12064.936	
258	R258	DP	25.829131	89.991310	47.692	12112.627	
259	R259	SP	25.829024	89.990848	47.692	12160.319	
260	R260	SP	25.828916	89.990387	47.692	12208.011	
261	R261	SP	25.828809	89.989925	47.692	12255.703	
262	R262	DP	25.828702	89.989464	47.692	12303.395	
263	R263	SP	25.828595	89.989003	47.692	12351.087	
264	R264	SP	25.828487	89.988541	47.692	12398.780	
265	R265	4P	25.828380	89.988080	47.692	12446.472	
266	R266	SP	25.828016	89.987816	48.336	12494.808	
267	R267	SP	25.827652	89.987552	48.336	12543.144	
268	R268	SP	25.827288	89.987288	48.336	12591.481	
269	R269	SP	25.826924	89.987024	48.336	12639.817	
270	R270	4P	25.826560	89.986760	48.336	12688.153	
271	R271	SP	25.826483	89.986310	45.850	12734.003	
272	R272	SP	25.826406	89.985860	45.850	12779.852	
273	R273	SP	25.826329	89.985410	45.849	12825.702	
274	R274	DP	25.826251	89.984960	45.850	12871.551	
275	R275	SP	25.826174	89.984510	45.850	12917.401	
276	R276	SP	25.826097	89.984060	45.849	12963.250	
277	R277	DP	25.826020	89.983610	45.850	13009.100	
278	R278	SP	25.826039	89.983169	44.200	13053.300	
279	R279	SP	25.826058	89.982728	44.200	13097.501	
280	R280	SP	25.826077	89.982287	44.200	13141.701	
281	R281	SP	25.826096	89.981846	44.200	13185.901	
282	R282	DP	25.826114	89.981404	44.200	13230.101	
283	R283	SP	25.826133	89.980963	44.200	13274.302	
284	R284	SP	25.826152	89.980522	44.200	13318.502	
285	R285	SP	25.826171	89.980081	44.200	13362.702	
286	R286	4P	25.826190	89.979640	44.200	13406.902	
287	R287	SP	25.825818	89.979446	45.695	13452.598	
288	R288	SP	25.825446	89.979252	45.695	13498.293	
289	R289	SP	25.825074	89.979058	45.695	13543.988	
290	R290	SP	25.824702	89.978864	45.695	13589.683	
291	R291	DP	25.824330	89.978670	45.695	13635.379	
292	R292	SP	25.824083	89.978355	41.850	13677.229	
293	R293	SP	25.823835	89.978040	41.850	13719.079	
294	R294	SP	25.823588	89.977725	41.850	13760.929	
295	R295	4P	25.823340	89.977410	41.850	13802.780	
296	R296	SP	25.822953	89.977385	43.160	13845.940	
297	R297	SP	25.822565	89.977360	43.160	13889.101	
298	R298	SP	25.822178	89.977335	43.160	13932.261	

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299	R299	DP	25.821790	89.977310	43.161	13975.422	
300	R300	DP	25.821560	89.976950	44.187	14019.609	
301	R301	SP	25.821190	89.976745	45.975	14065.584	
302	R302	DP	25.820820	89.976540	45.975	14111.559	
303	R303	SP	25.820563	89.976320	36.048	14147.606	
304	R304	SP	25.820307	89.976100	36.048	14183.654	
305	R305	DP	25.820050	89.975880	36.048	14219.702	
306	R306	SP	25.819753	89.975787	34.285	14253.987	
307	R307	SP	25.819457	89.975693	34.285	14288.272	
308	R308	4P	25.819160	89.975600	34.285	14322.558	
309	R309	SP	25.818770	89.975790	47.353	14369.910	
310	R310	4P	25.818380	89.975980	47.353	14417.263	
311	R311	SP	25.818053	89.975727	44.299	14461.562	
312	R312	SP	25.817727	89.975473	44.299	14505.862	
313	R313	DP	25.817400	89.975220	44.299	14550.161	
314	R314	SP	25.817028	89.975132	42.292	14592.453	
315	R315	SP	25.816656	89.975044	42.292	14634.745	
316	R316	SP	25.816284	89.974956	42.292	14677.037	
317	R317	SP	25.815912	89.974868	42.292	14719.329	
318	R318	DP	25.815540	89.974780	42.292	14761.621	
319	R319	SP	25.815175	89.974765	40.614	14802.235	
320	R320	DP	25.814810	89.974750	40.614	14842.849	
321	R321	SP	25.814455	89.974800	39.790	14882.639	
322	R322	DP	25.814100	89.974850	39.790	14922.430	
323	R323	SP	25.813723	89.974643	46.762	14969.192	
324	R324	SP	25.813346	89.974435	46.762	15015.954	
325	R325	SP	25.812969	89.974228	46.763	15062.717	
326	R326	SP	25.812593	89.974021	46.762	15109.479	
327	R327	DP	25.812216	89.973813	46.763	15156.242	
328	R328	SP	25.811839	89.973606	46.763	15203.004	
329	R329	SP	25.811462	89.973398	46.763	15249.767	
330	R330	SP	25.811085	89.973191	46.763	15296.530	
331	R331	SP	25.810708	89.972984	46.763	15343.292	
332	R332	DP	25.810332	89.972776	46.763	15390.055	
333	R333	SP	25.809955	89.972569	46.763	15436.818	
334	R334	SP	25.809578	89.972362	46.763	15483.580	
335	R335	SP	25.809201	89.972154	46.763	15530.343	
336	R336	SP	25.808824	89.971947	46.763	15577.106	
337	R337	DP	25.808447	89.971739	46.763	15623.869	
338	R338	SP	25.808071	89.971532	46.763	15670.632	
339	R339	SP	25.807694	89.971325	46.763	15717.395	
340	R340	SP	25.807317	89.971117	46.763	15764.158	
341	R341	DP	25.806940	89.970910	46.763	15810.920	
342	R342	SP	25.806684	89.971302	48.424	15859.344	
343	R343	SP	25.806428	89.971693	48.424	15907.768	
344	R344	SP	25.806173	89.972085	48.424	15956.191	
345	R345	SP	25.805917	89.972476	48.424	16004.615	
346	R346	DP	25.805661	89.972868	48.424	16053.039	
347	R347	SP	25.805405	89.973259	48.424	16101.463	
348	R348	SP	25.805150	89.973651	48.424	16149.887	
349	R349	SP	25.804894	89.974042	48.424	16198.311	
350	R350	SP	25.804638	89.974434	48.424	16246.735	
351	R351	DP	25.804382	89.974825	48.424	16295.159	
352	R352	SP	25.804127	89.975217	48.424	16343.584	
353	R353	SP	25.803871	89.975608	48.424	16392.008	
354	R354	SP	25.803615	89.976000	48.424	16440.432	
355	R355	SP	25.803359	89.976391	48.424	16488.857	
356	R356	DP	25.803104	89.976783	48.425	16537.282	
357	R357	SP	25.802848	89.977174	48.425	16585.706	
358	R358	SP	25.802592	89.977566	48.425	16634.131	
359	R359	SP	25.802336	89.977957	48.425	16682.555	
360	R360	SP	25.802081	89.978349	48.425	16730.980	
361	R361	DP	25.801825	89.978740	48.425	16779.405	

SITE ENGINEER

362	R362	SP	25.801569	89.979132	48.425	16827.830	
363	R363	SP	25.801313	89.979523	48.425	16876.255	
364	R364	SP	25.801058	89.979915	48.425	16924.680	
365	R365	SP	25.800802	89.980306	48.425	16973.105	
366	R366	DP	25.800546	89.980698	48.425	17021.531	
367	R367	SP	25.800290	89.981089	48.425	17069.956	
368	R368	SP	25.800035	89.981481	48.425	17118.381	
369	R369	SP	25.799779	89.981872	48.425	17166.807	
370	R370	SP	25.799523	89.982264	48.425	17215.232	
371	R371	DP	25.799267	89.982655	48.426	17263.658	
372	R372	SP	25.799012	89.983047	48.426	17312.083	
373	R373	SP	25.798756	89.983438	48.426	17360.509	
374	R374	DP	25.798500	89.983830	48.426	17408.935	
375	R375	SP	25.798263	89.984195	45.033	17453.968	
376	R376	SP	25.798025	89.984559	45.033	17499.002	
377	R377	SP	25.797788	89.984924	45.033	17544.035	
378	R378	SP	25.797551	89.985288	45.034	17589.069	
379	R379	DP	25.797314	89.985653	45.034	17634.102	
380	R380	SP	25.797076	89.986017	45.034	17679.136	
381	R381	SP	25.796839	89.986382	45.034	17724.170	
382	R382	DP	25.796602	89.986746	45.034	17769.204	
383	R383	SP	25.796365	89.987111	45.034	17814.237	
384	R384	SP	25.796127	89.987475	45.034	17859.271	
385	R385	DP	25.795890	89.987840	45.034	17904.305	
386	R386	SP	25.795570	89.988073	42.519	17946.825	
387	R387	SP	25.795250	89.988305	42.520	17989.344	
388	R388	SP	25.794930	89.988538	42.520	18031.864	
389	R389	DP	25.794610	89.988770	42.519	18074.383	
390	R390	SP	25.794313	89.989070	44.613	18118.996	
391	R391	SP	25.794017	89.989370	44.613	18163.609	
392	R392	SP	25.793720	89.989670	44.613	18208.221	
393	R393	SP	25.793423	89.989970	44.613	18252.834	
394	R394	DP	25.793127	89.990270	44.613	18297.447	
395	R395	SP	25.792830	89.990570	44.613	18342.060	
396	R396	SP	25.792533	89.990870	44.613	18386.673	
397	R397	SP	25.792237	89.991170	44.613	18431.285	
398	R398	DP	25.791940	89.991470	44.613	18475.898	
399	R399	SP	25.791621	89.991756	45.531	18521.429	
400	R400	SP	25.791303	89.992041	45.531	18566.961	
401	R401	SP	25.790984	89.992327	45.531	18612.492	
402	R402	SP	25.790666	89.992613	45.531	18658.023	
403	R403	DP	25.790347	89.992899	45.531	18703.554	
404	R404	SP	25.790029	89.993184	45.531	18749.086	
405	R405	SP	25.789710	89.993470	45.531	18794.617	
406	R406	SP	25.789391	89.993756	45.531	18840.148	
407	R407	SP	25.789073	89.994041	45.532	18885.680	
408	R408	DP	25.788754	89.994327	45.531	18931.211	
409	R409	SP	25.788436	89.994613	45.532	18976.743	
410	R410	SP	25.788117	89.994899	45.532	19022.274	
411	R411	SP	25.787799	89.995184	45.532	19067.806	
412	R412	DP	25.787480	89.995470	45.532	19113.338	
413	R413	SP	25.787081	89.995448	44.396	19157.734	
414	R414	SP	25.786683	89.995425	44.396	19202.130	
415	R415	SP	25.786284	89.995403	44.396	19246.526	
416	R416	SP	25.785885	89.995380	44.396	19290.923	
417	R417	DP	25.785486	89.995358	44.396	19335.319	
418	R418	SP	25.785088	89.995335	44.396	19379.715	
419	R419	SP	25.784689	89.995313	44.396	19424.111	
420	R420	DP	25.784290	89.995290	44.396	19468.507	
421	R421	SP	25.783910	89.995512	47.783	19516.291	
422	R422	SP	25.783529	89.995734	47.783	19564.074	
423	R423	SP	25.783149	89.995956	47.783	19611.857	
424	R424	SP	25.782768	89.996178	47.783	19659.640	

SITE ENGINEER
NECCON

Project Manager
NECCON Power & Infra Ltd.
Phulbari, W.G. Hills (Megh)

425	R425	DP	25.782388	89.996400	47.783	19707.424	
426	R426	SP	25.782008	89.996622	47.783	19755.207	
427	R427	SP	25.781627	89.996844	47.783	19802.990	
428	R428	SP	25.781247	89.997066	47.783	19850.774	
429	R429	SP	25.780866	89.997288	47.783	19898.557	
430	R430	DP	25.780486	89.997510	47.783	19946.341	
431	R431	SP	25.780106	89.997732	47.783	19994.124	
432	R432	SP	25.779725	89.997954	47.783	20041.908	
433	R433	SP	25.779345	89.998176	47.784	20089.691	
434	R434	SP	25.778964	89.998398	47.784	20137.475	
435	R435	DP	25.778584	89.998620	47.784	20185.259	
436	R436	SP	25.778204	89.998842	47.784	20233.042	
437	R437	SP	25.777823	89.999064	47.784	20280.826	
438	R438	SP	25.777443	89.999286	47.784	20328.610	
439	R439	SP	25.777062	89.999508	47.784	20376.393	
440	R440	DP	25.776682	89.999730	47.784	20424.177	
441	R441	SP	25.776302	89.999952	47.784	20471.961	
442	R442	SP	25.775921	90.000174	47.784	20519.745	
443	R443	SP	25.775541	90.000396	47.784	20567.529	
444	R444	SP	25.775160	90.000618	47.784	20615.312	
445	R445	DP	25.774780	90.000840	47.784	20663.096	
446	R446	SP	25.774468	90.001087	42.557	20705.653	
447	R447	SP	25.774157	90.001333	42.557	20748.210	
448	R448	SP	25.773845	90.001580	42.557	20790.767	
449	R449	SP	25.773533	90.001827	42.557	20833.324	
450	R450	DP	25.773222	90.002073	42.557	20875.880	
451	R451	SP	25.772910	90.002320	42.557	20918.437	
452	R452	SP	25.772598	90.002567	42.557	20960.994	
453	R453	SP	25.772287	90.002813	42.557	21003.551	
454	R454	DP	25.771975	90.003060	42.557	21046.108	
455	R455	SP	25.771663	90.003307	42.557	21088.666	
456	R456	SP	25.771352	90.003553	42.557	21131.223	
457	R457	4P	25.771040	90.003800	42.557	21173.780	
458	R458	SP	25.770665	90.003555	48.380	21222.160	
459	R459	DP	25.770290	90.003310	48.380	21270.540	
460	R460	DP	25.770180	90.003270	12.871	21283.411	
461	R461	SP	25.769778	90.003068	49.064	21332.475	
462	R462	SP	25.769376	90.002866	49.064	21381.539	
463	R463	SP	25.768974	90.002664	49.064	21430.603	
464	R464	SP	25.768572	90.002462	49.064	21479.667	
465	R465	DP	25.768170	90.002260	49.064	21528.731	
466	R466	SP	25.767768	90.002058	49.064	21577.795	
467	R467	SP	25.767366	90.001856	49.064	21626.859	
468	R468	SP	25.766964	90.001654	49.064	21675.923	
469	R469	SP	25.766562	90.001452	49.064	21724.988	
470	R470	DP	25.766160	90.001250	49.064	21774.052	
471	R471	SP	25.765748	90.001328	46.520	21820.572	
472	R472	SP	25.765335	90.001405	46.520	21867.092	
473	R473	SP	25.764923	90.001483	46.520	21913.611	
474	R474	DP	25.764510	90.001560	46.520	21960.131	
475	R475	SP	25.764098	90.001638	46.520	22006.651	
476	R476	SP	25.763685	90.001715	46.520	22053.171	
477	R477	SP	25.763273	90.001793	46.520	22099.691	
478	R478	DP	25.762860	90.001870	46.520	22146.211	
479	R479	SP	25.762545	90.001740	37.368	22183.578	
480	R480	DP	25.762230	90.001610	37.368	22220.946	
481	R481	SP	25.761783	90.001593	49.791	22270.736	
482	R482	SP	25.761335	90.001575	49.791	22320.527	
483	R483	SP	25.760888	90.001558	49.791	22370.318	
484	R484	DP	25.760440	90.001540	49.791	22420.108	
485	R485	SP	25.760017	90.001497	47.188	22467.296	
486	R486	SP	25.759595	90.001455	47.188	22514.484	
487	R487	SP	25.759172	90.001412	47.188	22561.672	

SITE ENGINEER

Project Manager
NECCON Power & Infra Ltd.
Phulbari, W.G. Hills (Megh)

488	R488	SP	25.758749	90.001369	47.188	22608.860	
489	R489	DP	25.758327	90.001327	47.188	22656.048	
490	R490	SP	25.757904	90.001284	47.188	22703.236	
491	R491	SP	25.757482	90.001242	47.188	22750.424	
492	R492	SP	25.757059	90.001199	47.188	22797.612	
493	R493	SP	25.756636	90.001156	47.188	22844.800	
494	R494	DP	25.756214	90.001114	47.188	22891.988	
495	R495	SP	25.755791	90.001071	47.188	22939.176	
496	R496	SP	25.755368	90.001028	47.188	22986.364	
497	R497	SP	25.754946	90.000986	47.188	23033.552	
498	R498	SP	25.754523	90.000943	47.188	23080.740	
499	R499	DP	25.754101	90.000901	47.188	23127.928	
500	R500	SP	25.753678	90.000858	47.188	23175.116	
501	R501	SP	25.753255	90.000815	47.188	23222.304	
502	R502	SP	25.752833	90.000773	47.188	23269.492	
503	R503	DP	25.752410	90.000730	47.188	23316.680	
504	R504	DP	25.752000	90.000680	45.864	23362.544	
505	R505	DP	25.751620	90.000500	45.939	23408.483	
506	R506	SP	25.751355	90.000365	32.421	23440.904	
507	R507	DP	25.751090	90.000230	32.421	23473.325	
508	R508	SP	25.750923	90.000047	26.166	23499.490	
509	R509	DP	25.750755	89.999863	26.166	23525.656	
510	R510	4P	25.750601	89.999542	36.425	23562.081	
511	R511	SP	25.750226	89.999469	42.362	23604.443	
512	R512	SP	25.749851	89.999396	42.362	23646.804	
513	R513	SP	25.749475	89.999323	42.362	23689.166	
514	R514	DP	25.749100	89.999250	42.362	23731.527	
515	R515	SP	25.748737	89.999447	44.947	23776.474	
516	R516	SP	25.748373	89.999643	44.947	23821.421	
517	R517	SP	25.748010	89.999840	44.947	23866.367	
518	R518	DP	25.747647	90.000037	44.947	23911.314	
519	R519	SP	25.747283	90.000233	44.947	23956.261	
520	R520	DP	25.746920	90.000430	44.947	24001.207	
521	R521	DP	25.746830	90.000500	12.219	24013.427	
522	R522	SP	25.746557	90.000773	40.905	24054.331	
523	R523	SP	25.746283	90.001047	40.905	24095.236	
524	R524	DP	25.746010	90.001320	40.905	24136.141	
525	R525	SP	25.745833	90.001645	38.067	24174.208	
526	R526	SP	25.745655	90.001970	38.067	24212.275	
527	R527	SP	25.745478	90.002295	38.067	24250.343	
528	R528	4P	25.745300	90.002620	38.067	24288.410	
529	R529	SP	25.745346	90.003084	46.753	24335.163	
530	R530	SP	25.745392	90.003548	46.753	24381.917	
531	R531	SP	25.745438	90.004012	46.753	24428.670	
532	R532	SP	25.745484	90.004476	46.753	24475.424	
533	R533	4P	25.745530	90.004940	46.753	24522.177	
534	R534	SP	25.745263	90.005273	44.653	24566.830	
535	R535	SP	25.744997	90.005607	44.653	24611.482	
536	R536	DP	25.744730	90.005940	44.653	24656.135	
537	R537	SP	25.744510	90.006230	37.975	24694.110	
538	R538	SP	25.744290	90.006520	37.975	24732.085	
539	R539	SP	25.744070	90.006810	37.975	24770.059	
540	R540	DP	25.743850	90.007100	37.975	24808.034	
541	R541	SP	25.743575	90.007420	44.298	24852.332	
542	R542	4P	25.743300	90.007740	44.298	24896.630	
543	R543	SP	25.742980	90.007580	39.025	24935.655	
544	R544	DP	25.742660	90.007420	39.025	24974.679	
545	R545	SP	25.742405	90.007155	38.839	25013.519	
✓ 546	R546	4P	25.742150	90.006890	38.839	25052.358	
547	R547	SP	25.741860	90.006920	32.386	25084.744	
548	R548	DP	25.741570	90.006950	32.386	25117.131	
549	R549	SP	25.741155	90.006870	46.837	25163.967	
550	R550	DP	25.740740	90.006790	46.836	25210.803	

SITE ENGINEER

Project Manager
NECCON Power & Infra Ltd.
Phulbari, W.G. Hills (Megh)

551	R551	SP	25.740310	90.006743	48.050	25258.853	
552	R552	SP	25.739880	90.006695	48.050	25306.903	
553	R553	SP	25.739450	90.006648	48.050	25354.953	
554	R554	DP	25.739020	90.006600	48.050	25403.003	
555	R555	SP	25.738657	90.006392	45.446	25448.449	
556	R556	SP	25.738293	90.006184	45.446	25493.895	
557	R557	SP	25.737930	90.005977	45.446	25539.341	
558	R558	SP	25.737567	90.005769	45.446	25584.788	
559	R559	DP	25.737203	90.005561	45.446	25630.234	
560	R560	SP	25.736840	90.005353	45.446	25675.680	
561	R561	SP	25.736477	90.005146	45.446	25721.126	
562	R562	SP	25.736113	90.004938	45.446	25766.572	
563	R563	4P	25.735750	90.004730	45.446	25812.018	
				Total Distance	***25812.018***		

Total No of Poles : ***746 Nos***
No of Single Poles : ***418 Nos***
No of Double Poles : ***126 Nos***
No of Four Poles : ***19 Nos***

Signature of Surveyor
Neccon Power & Infra Limited

Project Manager
NECCON Power & Infra Ltd.
Phulbari, W.G. Hills (Megh)

Signature of Project Manager
Neccon Power & Infra Limited

13/3/18

Signature of
PGCIL

Pole Schedule of 33 kV Line
Existing Tikrikila 33/11kV S/S to Proposed Rakshambre 33/11kV S/S
Approved Route: Route No 2

Serial No	Pole Type	Co-Ordinates		Distance (in Meters)	Cummulative Distance (in Meters)
		Latitude	Longitude		
1	DP-1	25.943995	90.179639		0.000
2	4P-1	25.94431	90.179625	35.556	35.556
3	SP-1	25.94444	90.17997	37.937	73.493
4	DP-2	25.944559	90.180401	45.726	119.218
5	SP-2	25.94466	90.18084	45.957	165.175
6	SP-3	25.94477	90.18129	47.294	212.470
7	SP-4	25.94487	90.18175	47.996	260.466
8	SP-5	25.94495	90.18221	47.517	307.983
9	DP-3	25.945032	90.182663	46.864	354.847
10	SP-6	25.9451	90.1831	44.978	399.825
11	SP-7	25.94517	90.18356	47.315	447.140
12	SP-8	25.94524	90.18402	47.315	494.456
13	SP-9	25.94532	90.18448	47.517	541.972
14	SP-10	25.9454	90.18492	45.527	587.499
15	DP-4	25.945476	90.185398	49.230	636.729
16	SP-99	25.94538	90.18584	46.116	682.845
17	SP-100	25.9453	90.18626	43.541	726.385
18	SP-101	25.94517	90.1867	46.971	773.356
19	DP-5	25.945019	90.187163	49.949	823.305
20	SP-102	25.94507	90.18761	45.697	869.003
21	SP-103	25.94512	90.18805	44.979	913.981
22	SP-104	25.94517	90.18844	39.953	953.934
23	SP-105	25.94537	90.18893	54.575	1008.509
24	DP-6	25.945497	90.189375	47.349	1055.858
25	SP-106	25.9456	90.18979	43.662	1099.520
26	SP-107	25.94571	90.19025	48.273	1147.794
27	SP-108	25.94583	90.19068	45.661	1193.455
28	SP-109	25.94594	90.19116	50.236	1243.691
29	DP-7	25.94607	90.1916	46.971	1290.662
30	SP-110	25.9462	90.19205	47.935	1338.597
31	SP-111	25.9463	90.19251	47.996	1386.593
32	SP-112	25.94638	90.19293	43.540	1430.133
33	DP-50	25.946417	90.19334	41.790	1471.922
34	SP-113	25.94625	90.19378	48.436	1520.358
35	SP-114	25.94599	90.19413	46.042	1566.400
36	SP-115	25.94564	90.19436	45.851	1612.251
37	DP-49	25.945519	90.194592	27.200	1639.452
38	SP-116	25.94553	90.19507	48.493	1687.945
39	SP-117	25.94551	90.1955	43.668	1731.613
40	SP-118	25.9455	90.19596	46.666	1778.279
41	SP-119	25.94549	90.19642	46.666	1824.944
42	DP-48	25.945459	90.196866	45.367	1870.312
43	SP-120	25.94533	90.19732	48.287	1918.599
44	SP-121	25.9452	90.19777	47.935	1966.534
45	SP-122	25.94509	90.19821	46.116	2012.851

Manoranjan Singha

Chief Manager
POWERGRID, NERTS
Phulbari

Junior Engineer
POWERGRID NERTS
NERPSIP, PHULBARI

46	SP-12	25.94498	90.19867	48.274	2061.124
47	DP-47	25.944867	90.199107	46.116	2107.240
48	SP-124	25.9448	90.19953	43.560	2150.801
49	SP-125	25.94478	90.20004	51.772	2202.573
50	SP-126	25.94471	90.20049	46.316	2248.889
51	SP-127	25.94466	90.20097	49.006	2297.895
52	DP-46	25.944668	90.201424	46.053	2343.948
53	SP-128	25.94466	90.20191	49.298	2393.245
54	SP-129	25.94466	90.20237	46.652	2439.898
55	SP-130	25.94464	90.20283	46.707	2486.605
56	SP-131	25.94463	90.2033	47.680	2534.284
57	DP-45	25.944618	90.203751	45.760	2580.044
58	SP-132	25.9446	90.20417	42.543	2622.587
59	SP-133	25.94455	90.20458	41.962	2664.549
60	DP-44	25.944506	90.20499	41.877	2706.425
61	SP-134	25.94431	90.20537	44.429	2750.854
62	SP-135	25.94405	90.2057	44.497	2795.351
63	SP-136	25.94378	90.20603	45.249	2840.600
64	DP-51	25.943515	90.206343	43.600	2884.200
65	SP-137	25.94323	90.20664	44.051	2928.252
66	DP-43	25.943057	90.207056	46.484	2974.736
67	SP-138	25.94306	90.20751	46.046	3020.781
68	SP-139	25.94309	90.20798	47.787	3068.569
69	SP-140	25.94311	90.20842	44.682	3113.250
70	SP-141	25.94316	90.2089	49.007	3162.257
71	SP-142	25.94318	90.20936	46.708	3208.964
72	DP-42	25.94319	90.209808	45.450	3254.414
73	SP-143	25.94322	90.21026	45.966	3300.381
74	SP-144	25.94325	90.21073	47.787	3348.168
75	SP-145	25.94326	90.21119	46.667	3394.834
76	SP-146	25.9433	90.21164	45.861	3440.696
77	SP-147	25.94334	90.21213	49.900	3490.595
78	DP-41	25.943364	90.212578	45.516	3536.112
79	SP-148	25.94338	90.21304	46.890	3583.002
80	SP-149	25.94342	90.21349	45.861	3628.863
81	SP-150	25.94345	90.21397	48.799	3677.662
82	SP-151	25.94347	90.21444	47.720	3725.382
83	DP-40	25.94348	90.214904	47.072	3772.454
84	SP-152	25.94353	90.21538	48.604	3821.058
85	SP-153	25.94354	90.21586	48.694	3869.752
86	SP-154	25.94356	90.21632	46.707	3916.460
87	SP-155	25.94361	90.21679	47.999	3964.459
88	DP-39	25.943638	90.217249	46.658	4011.118
89	SP-156	25.94366	90.21772	47.833	4058.950
90	SP-157	25.94368	90.21818	46.707	4105.657
91	SP-158	25.9437	90.21863	45.694	4151.352
92	DP-38	25.943713	90.219068	44.446	4195.797
93	SP-159	25.94375	90.2195	44.011	4239.809
94	SP-160	25.94379	90.21994	44.852	4284.661
95	SP-161	25.94384	90.22032	38.950	4323.610
96	DP-37	25.943887	90.220601	28.988	4352.598
97	DP-36	25.943626	90.220895	41.900	4394.497
98	SP-162	25.94362	90.22134	45.137	4439.634

JORHAT

Chief Manager, POWERGRID, NERTS, Phulbari

C. Sangma, Junior Engineer, POWERGRID NER, NERPSIP, PHULBARI

99	SP-164	25.9436	90.22181	47.720	4487.354
100	SP-163	25.94375	90.22223	45.833	4533.187
101	SP-165	25.94401	90.22262	49.238	4582.425
102	SP-166	25.94432	90.22295	48.400	4630.825
103	DP-35	25.944643	90.223223	45.757	4676.582
104	SP-167	25.94498	90.22349	46.668	4723.250
105	SP-168	25.94536	90.2237	47.858	4771.108
106	SP-169	25.94569	90.22395	45.034	4816.143
107	SP-170	25.94605	90.22419	47.339	4863.482
108	DP-34	25.946378	90.224433	44.451	4907.933
109	SP-171	25.94674	90.22465	46.382	4954.315
110	SP-172	25.94711	90.22488	47.807	5002.122
111	SP-173	25.94748	90.2251	47.321	5049.443
112	SP-174	25.94788	90.2253	49.464	5098.906
113	SP-175	25.94826	90.22553	48.795	5147.701
114	DP-33	25.948645	90.225726	47.756	5195.457
115	SP-176	25.94895	90.22601	44.865	5240.322
116	SP-177	25.94924	90.22634	46.795	5287.117
117	SP-178	25.94955	90.22664	46.347	5333.464
118	SP-179	25.94987	90.22695	47.864	5381.328
119	DP-32	25.95018	90.227286	48.822	5430.150
120	SP-181	25.95056	90.22743	45.278	5475.428
121	SP-182	25.95094	90.22757	45.149	5520.577
122	SP-183	25.95133	90.2277	45.919	5566.496
123	DP-53	25.951712	90.22786	46.038	5612.534
124	SP-184	25.9521	90.22799	45.703	5658.237
125	SP-185	25.95245	90.22814	42.304	5700.542
126	DP-8	25.952766	90.228248	37.285	5737.827
127	SP-11	25.953	90.22862	46.040	5783.867
128	SP-12	25.95325	90.22897	45.330	5829.197
129	SP-13	25.95348	90.2293	42.342	5871.540
130	SP-180	25.95374	90.22961	42.991	5914.530
131	DP-9	25.953962	90.229929	40.907	5955.438
132	DP-10	25.954194	90.230252	41.924	5997.361
133	SP-14	25.95446	90.23061	47.097	6044.458
134	SP-15	25.95473	90.23096	46.767	6091.224
135	SP-16	25.95507	90.23123	47.119	6138.343
136	SP-17	25.95545	90.23141	46.584	6184.927
137	SP-18	25.95586	90.23163	51.342	6236.269
138	3P-1	25.956228	90.231821	45.802	6282.071
139	SP-19	25.9564	90.23226	48.561	6330.633
140	DP-11	25.956492	90.232649	40.789	6371.422
141	SP-20	25.95641	90.2331	46.661	6418.083
142	SP-21	25.95632	90.23356	47.739	6465.822
143	SP-22	25.95626	90.23402	47.136	6512.958
144	SP-23	25.95617	90.23446	45.760	6558.718
145	SP-24	25.9561	90.2349	45.313	6604.031
146	DP-12	25.956029	90.235358	47.130	6651.161
147	SP-25	25.9559	90.23579	46.161	6697.322
148	SP-26	25.9557	90.2362	47.302	6744.625
149	SP-27	25.95553	90.23664	48.565	6793.190
150	SP-28	25.95539	90.23708	47.331	6840.521
151	SP-29	25.95521	90.23748	45.360	6885.881

NECCON POWER & INFRA LIMITED JORHAT

H. K. Phukan, Chief Manager, POWERGRID, NERTS, Phulbari

Junior Engineer, POWERGRID NER, NERPSIP, PHULBARI

152	DP-13	25.955033	90.237906	47.590	6933.471
153	SP-30	25.95487	90.23834	47.697	6981.168
154	SP-31	25.95473	90.23867	37.003	7018.171
155	DP-14	25.954568	90.239051	42.740	7060.911
156	SP-32	25.9544	90.23947	46.524	7107.435
157	SP-33	25.95426	90.23991	47.332	7154.766
158	SP-34	25.95408	90.24034	48.100	7202.867
159	SP-35	25.95389	90.24075	46.775	7249.642
160	SP-36	25.95372	90.24119	48.566	7298.208
161	DP-15	25.953547	90.241627	48.422	7346.629
162	SP-37	25.95338	90.24201	43.166	7389.796
163	SP-38	25.95322	90.24244	47.193	7436.989
164	SP-39	25.95306	90.24284	44.397	7481.386
165	SP-40	25.95288	90.24323	44.456	7525.842
166	SP-41	25.95272	90.24367	48.132	7573.974
167	DP-16	25.95255	90.244092	46.894	7620.868
168	SP-42	25.95236	90.24453	49.317	7670.185
169	SP-43	25.95219	90.24498	49.500	7719.685
170	SP-44	25.95199	90.24539	47.303	7766.988
171	SP-45	25.95176	90.24579	48.150	7815.138
172	SP-46	25.95153	90.24617	46.454	7861.592
173	DP-17	25.951313	90.246571	47.463	7909.056
174	SP-47	25.95107	90.24697	48.872	7957.927
175	SP-48	25.95084	90.24737	48.150	8006.077
176	SP-49	25.95064	90.24773	42.915	8048.993
177	SP-50	25.95041	90.24811	46.454	8095.447
178	DP-18	25.950171	90.248501	47.947	8143.394
179	SP-51	25.94996	90.2489	46.943	8190.338
180	SP-52	25.94971	90.2493	49.402	8239.740
181	SP-53	25.94949	90.2497	47.553	8287.293
182	SP-54	25.94927	90.25007	44.985	8332.278
183	DP-19	25.949033	90.250449	46.817	8379.095
184	SP-55	25.94883	90.25083	44.913	8424.007
185	SP-56	25.94861	90.25122	46.691	8470.698
186	SP-57	25.94836	90.25161	48.573	8519.271
187	SP-58	25.94815	90.25196	42.672	8561.943
188	DP-20	25.947934	90.252335	45.164	8607.108
189	SP-59	25.94758	90.25256	45.987	8653.094
190	SP-60	25.94722	90.25281	47.869	8700.963
191	SP-61	25.94688	90.25303	44.365	8745.328
192	SP-62	25.94652	90.25328	47.869	8793.197
193	DP-21	25.946152	90.253524	48.322	8841.519
194	SP-64	25.9458	90.25379	47.999	8889.517
195	SP-65	25.94545	90.25401	45.344	8934.861
196	SP-66	25.94511	90.25426	45.971	8980.832
197	SP-67	25.94475	90.25451	47.869	9028.701
198	SP-68	25.9444	90.25475	46.376	9075.077
199	DP-22	25.944043	90.254982	46.635	9121.712
200	SP-63	25.94374	90.25531	47.691	9169.403
201	SP-69	25.94349	90.25566	45.333	9214.736
202	SP-70	25.94327	90.25607	48.422	9263.158
203	SP-71	25.94305	90.25648	48.422	9311.581
204	DP-23	25.942807	90.256847	46.223	9357.803

Monoranjan Singha

NECCON POWER & INFRA LIMITED JORHAT

C. Sangma, Junior Engineer, POWERGRID NER, NERPSIP, PHULBARI 04.08.17

Chief Manager, POWERGRID, NERTS, Phulbari 4/08/17

205	SP-72	25.94261	90.25725	46.521	9404.324
206	SP-73	25.94236	90.25763	47.753	9452.077
207	SP-74	25.94214	90.25803	47.555	9499.632
208	SP-75	25.94192	90.25842	46.693	9546.324
209	SP-76	25.94169	90.2588	46.457	9592.781
210	DP-24	25.941478	90.259174	44.839	9637.619
211	SP-77	25.94126	90.25954	44.524	9682.144
212	SP-78	25.94105	90.25996	48.739	9730.883
213	SP-79	25.94078	90.2603	46.005	9776.887
214	SP-80	25.94049	90.26063	46.797	9823.685
215	DP-25	25.940166	90.260947	48.672	9872.357
216	SP-81	25.93985	90.26124	46.404	9918.761
217	SP-82	25.93953	90.26154	47.206	9965.966
218	SP-83	25.9392	90.26186	49.382	10015.348
219	DP-26	25.938896	90.262203	48.845	10064.193
220	SP-84	25.9385	90.26232	46.212	10110.405
221	SP-85	25.93807	90.26229	48.593	10158.998
222	SP-86	25.93768	90.26227	44.033	10203.031
223	SP-87	25.93725	90.26227	48.498	10251.529
224	DP-27	25.936912	90.262221	38.444	10289.973
225	DP-28	25.936522	90.262212	43.996	10333.969
226	SP-88	25.93612	90.26218	45.456	10379.424
227	SP-89	25.93572	90.26217	45.125	10424.549
228	SP-90	25.9353	90.26218	47.380	10471.930
229	SP-91	25.9349	90.26224	45.523	10517.453
230	DP-29	25.934479	90.262258	47.518	10564.970
231	SP-92	25.93407	90.2623	46.325	10611.295
232	SP-93	25.93367	90.26232	45.160	10656.455
233	SP-94	25.93326	90.26239	46.784	10703.239
234	SP-95	25.93284	90.26243	47.543	10750.782
235	SP-96	25.93242	90.26246	47.467	10798.249
236	DP-30	25.932005	90.262498	46.964	10845.213
237	SP-97	25.93161	90.26253	44.668	10889.882
238	SP-98	25.93146	90.26262	19.223	10909.105
239	DP-31	25.931162	90.262825	39.522	10948.627
240	4P-2	25.930936	90.263031	32.959	10981.586
241	DP-52	25.930932	90.263312	28.505	11010.092
			Total Distance	***11010.092***	

Total No of Poles: 302 Nos

Manrajan Singha
Signature of Surveyor
Neccon Power & Infra Limited

NECCON POWER & INFRA LIMITED JORHAT

Signature of Project Manager
Neccon Power and Infra Limited

Signature of
POWERGRID

Junior Engineer
POWERGRID
NERPSIP, PHULBARI

4/08/17
एच. के. कुकन / H. K. Kukan
मुख्य प्रबंधक / Chief Manager
पावरग्रिड, एन.ई.आर.पी.एस.आई.पी
POWERGRID, NERTS
फुलबारी / Phulbari

Pole Schedule of 33 KV Line
Proposed 132/33 KV Phulbari S/S to Existing Tikrikilla 33 KV Feeder
Approved Route: Route No 3

Sl.No	Pole Type	Co-Ordinates		Distance (in Meters)	Cummulative Distance (in Meters)
		Latitude	Longitude		
1	DP-1	25.85309	90.08512	0.000	0.000
2	DP-7	25.85343	90.08449	74.537	74.537
3	SP-3	25.85372	90.08428	45.300	119.837
4	DP-6	25.85404	90.08408	58.023	177.860
5	SP-2	25.85436	90.08404	45.665	223.525
6	SP-3	25.85469	90.08402	48.143	271.668
7	SP-4	25.85510	90.08402	46.242	317.910
8	SP-5	25.85541	90.08402	49.058	366.968
9	DP-5	25.85573	90.08403	55.584	422.552
10	SP-6	25.85607	90.08408	52.412	474.964
11	SP-7	25.85645	90.08416	49.027	523.991
12	SP-8	25.85682	90.08424	47.235	571.226
13	DP-4	25.85720	90.08435	59.485	630.711
14	SP-9	25.85759	90.08438	43.784	674.495
15	SP-10	25.85792	90.08440	48.567	723.062
16	SP-11	25.85831	90.08445	44.786	767.848
17	DP-3	25.85876	90.08448	51.095	818.943
18	DP-2	25.85913	90.08451	59.057	878.000
			Total Distance	**878.000**	

*** Total No of Poles:-25 Nos.**

Signature of Surveyor
Neccon Power & Infra Limited

Signature of Project Manager
Neccon Power & Infra Limited

Signature of
PGCIL

ANNEXURE-4

Species-wise Tree Details under RoW

Species wise Tree coming under RoW

Common name	Botanical name	Nos.
Agar	*Aquilaria maiaccensis*	57
Amra	*Curcuma amada*	7
Babul	*Acacia nilotica*	37
Bahera	*Terminilia bellerica*	18
Bajalganta	-	17
Balsuber	-	4
Bamboo	*Bambusoideae sp.*	291
Banana	*Musa acuminata*	32
Barsol	-	2
Ber	*Ziziphus jujuba*	23
Betel Nut	*Areca catechu*	2750
Bhawara	-	5
Black Berry	*Rubus sp.*	3
Bodbok	-	10
Bolbat	-	460
Boldogra	-	236
Boldok	-	457
Bolmark	-	24
Bolmatra	-	16
Borsal	-	23
Cashew Nut	*Anacardium occidentale*	1681
Champ	-	12
Chiring	-	3
Chuinching	-	6
Chultata	-	2
Churi	-	2142
Coconut	*Cocos nucifera*	9
Demmer	-	1
Dhudhkhere	-	1
Digah	-	4
Dimonu	-	1
Drumstick	*Moringa oleifera*	3
Dudhkhar	-	1
Fakaram	-	63
Gamari	*Gmelina arborea*	224
Giga	-	1
Gijara	-	2
Goalmatra	-	1529
Golden	-	6
Golmarech	-	1

Golmogra	-	39
Goose Berry	*Phyllanthus acidus*	2
Guava	*Psidium guajava*	10
Gular	-	7
Guljar	-	6
Hazari	-	1
Henaduti	-	5
Imli	*Tamarindus indica*	10
Jack Fruit	*Artocarpus heterophyllus*	34
Jakha	-	3
Jam	-	5
Jambora	-	3
Jamun	*Syzygium cumini*	38
Jangle Tree	-	10
Jarul	-	402
Jia	-	34
Jigar	-	12
Jogra	-	59
Jukha	-	907
Jungle Tree	-	48
Jutuli	-	14
Kadamb	*Anthocephalus kadamba*	6
Kahua	-	7
Kamsari	-	3
Kanchan	-	1
Keveli	-	4
Khajur	*Phoenix dactylifera*	10
Kharibol	-	82
Khashe	-	12
Khokan	-	2
Khowla	-	2
Khura	-	3
Kiring	-	1
Korai	-	40
Kowla	-	2
Krishnasura	-	2
Kujha	-	1
Kumbhir	-	834
Lemon	*Citrus sp.*	4
Lichi	*Litchi chinensis*	4
Madar	-	10
Makahi	-	1
Makhanti	-	19
Makrisal	-	1

Maksi	-	1
Mandal	-	1
Mango	*Mangifera indica*	34
Matmi	*Croton joufera*	28
Medla	-	14
Nahar	-	2
Nahon	-	96
Nedla	-	1
Neem	*Azadirachta indica*	48
Niour	-	3
Orange	*Citrus reticulata*	7
Palm	*Palm species*	6
Panipitha	-	1
Piple	*Ficus religiosa*	15
Plase	*Butea monosperma*	2
Poma	-	93
Populer	*Populus sp.*	*25*
Rubber	*Hevea brasiliensis*	56
Sal	*Shorea robusta*	317
Sagawan	*Tectona grandis*	1588
Sahajan	-	6
Sakhuaa	-	1
Salmahuri	-	3
Salmara	-	6
Samoga	-	1
Semalu	-	3
Seoul	-	10
Shagalsena	-	4
Sidai	-	11
Simmer	-	53
Siris	*Albizia macrophylla* L.	39
Sohejan	-	11
Somalu	-	1
Sram	-	1
Sumithinge	-	3
Tuni (P)	-	1
Wakhanti	-	5
Zigar	-	4
Grand Total		15365

ANNEXURE-5

NOC from Land owner/ Headman/ Village Council

Sikjen A. Sangma
Nokma
Masangpani
P.O. Masangpani
Dist. West Garo Hills
Meghalaya- 794104.

COUNCIL OF NOKMAS
HQ TURA, MEGHALAYA

Masangpani, West Garo Hills * Nokma

Date: 22/06/2018

Ref. No.:

To,

The Manager, NERPSIP
POWERGRID, Phulbari

Sub- NOC for Construction of 132 KV Transmission Line

Sir,

This is in reference to your request letter no Ref: NERPSIP/PLBI/2018/400 dated 21/06/2018 regarding construction of 132 kV Double Circuit transmission line (132 kV D/C Phulbari to Ampati) emanating from Ampati associated with NERPSIP project.

The Nokma of Masangpani Village, West Garo Hills District, Meghalaya is pleased to intimate you that it has no Objection for whatsoever to the construction of 132 kV D/C line under the jurisdiction of Masangpani Village.

Therefore, you are hereby allowed to start the construction activities of the said transmission line within the jurisdiction of Masangpani village. However necessary compensation will be made as per prevailing norms.

Nokma 22/6/18
Masangpani
West Garo Hills, Megh.

Signature of Nokma
Masangpani
West Garo Hills, Meghalaya

OFFICE OF THE

GAON BURA KAIMBATAPARA

P.O. Chibinang
Dist. West Garo Hills, Meghalaya
Pin 794104

Ref. No: GHADC-REV/266/04/1704-711

Date 22/06/2018.

OFFICE OF THE GAON BURA KAIMBATAPARA P.O. Chibinang Date W.G HILLS (MEGH)

To,

The Manager, NERPSIP
POWERGRID, Phulbari

Sub- NOC for Construction of 132 KV Transmission Line

Sir,

This is in reference to your request letter no Ref: NERPSIP/PLBI/2018/402 dated 21/06/2018 regarding construction of 132 kV Double Circuit transmission line (132 kV D/C Phulbari to Ampati) emanating from Ampati associated with NERPSIP project.

The Gaon Bura of Chibinang Village, West Garo Hills District, Meghalaya is pleased to intimate you that it has no Objection for whatsoever to the construction of 132 kV D/C line under the jurisdiction of Chibinang Village.

Therefore, you are hereby allowed to start the construction activities of the said transmission line within the jurisdiction of Chibinang village. However necessary compensation will be made as per prevailing norms.

Badiaon Rabha
22-6-2018

Signature of Gaon Bura
Kaimbatapara
Chibinang
West Garo Hills, Meghalaya

Gaon Bura
Kaimbatapara
Chibinang
West Garo Hills, Megh.

GRAM PANCHAYAT NOKMA

OF VILLAGE GOPALTHAN
WEST GARO HILLS, MEGHALAYA

Ref. No:

Date:22/06/2018

To,

The Manager, NERPSIP
POWERGRID, Phulbari

Sub- NOC for Construction of 132 KV Transmission Line

Sir,

This is in reference to your request letter no Ref: NERPSIP/PLBI/2018/401 dated 21/06/2018 regarding construction of 132 kV Double Circuit transmission line (132 kV D/C Phulbari to Ampati) emanating from Ampati associated with NERPSIP project.

The Nokma of Gopalthan Village, West Garo Hills District, Meghalaya is pleased to intimate you that it has no Objection for whatsoever to the construction of 132 kV D/C line under the jurisdiction of Gopalthan Village.

Therefore, you are hereby allowed to start the construction activities of the said transmission line within the jurisdiction of Gopalthan village. However necessary compensation will be made as per prevailing norms.

22/6/18

Head Man
Vill. Gopalthan
West Garo Hills (Megh

Signature of Nokma
Gopalthan
West Garo Hills, Meghalaya

NO OBJECTION CERTIFICATE

001

I ~~Shri~~/Smti. Balgi Sangma

S/o /D/o.....

aged about .....

old and residing at Bangranggri, Masangpani, West Garo Hills

District and Owner of Land mentioned hereunder at clause (I), hereby on this day the .....

10th of April 2017 solemnly affirm and declare as follows :

1) That I have no objection whatsoever for MePTCL/PGCIL to construct 132KV Phulbari-Ampati Transmission Line passing through my land located at .....

Bangranggri ..... Village West Garo Hills... District Meghalaya

2) That I am making this declaration sincerely and conscientiously, believing the same to be true and with full knowledge that it is on the strength of this declaration that MePTCL/ PGCIL has agreed to pay compensation to me, in accordance with the schedule of rates issued by the Deputy Commissioner West Garo Hills District / West Garo Hills District Council.

Land Owner

Witness :

1. Mijen Sangma

2. Sengbath Marak

NO OBJECTION CERTIFICATE

003

I ~~Shri/Smti~~ Mrs. Logina Momin

S/o /D/o.....

aged about .....

old and residing at Masangpani, West Garo Hills

District and Owner of Land mentioned hereunder at clause (I), hereby on this day the .....

11th of April, 2017 solemnly affirm and declare as follows :

1) That I have no objection whatsoever for MePTCL/PGCIL to construct 132KV Phulbari-Ampati Transmission Line passing through my land located at .....

Masangpani Village West Garo Hills District Meghalaya

2) That I am making this declaration sincerely and conscientiously, believing the same to be true and with full knowledge that it is on the strength of this declaration that MePTCL/ PGCIL has agreed to pay compensation to me, in accordance with the schedule of rates issued by the Deputy Commissioner West Garo Hills District / West Garo Hills District Council.

Logina Ch Momin

Land Owner

Witness :

1. Easter Rani Ch. Momin

2. Chingchang G. Marak

NO OBJECTION CERTIFICATE

004

I Shri/Smti Florafauna Ch. Momin

S/o /D/o Dalendra R. Marak

aged about .....

old and residing at Nasangpani, West Garo Hills

District and Owner of Land mentioned hereunder at clause (I), hereby on this day the 10th of june 2017 solemnly affirm and declare as follows :

1) That I have no objection whatsoever for MePTCL/PGCIL to construct 132KV Phulbari-Ampati Transmission Line passing through my land located at Nasangpani Village West Garo Hills District Meghalaya

2) That I am making this declaration sincerely and conscientiously, believing the same to be true and with full knowledge that it is on the strength of this declaration that MePTCL/ PGCIL has agreed to pay compensation to me, in accordance with the schedule of rates issued by the Deputy Commissioner West Garo Hills District / West Garo Hills District Council.

Flora Fauna Ch. Momin
Land Owner

Witness :

1. Jangrik R Marak

2.

NO OBJECTION CERTIFICATE

027

I Shri/Smti. Adesh Koch

S/o /D/o. Bir Koch

aged about 83 years

old and residing at Balujhora, West Garo Hills

District and Owner of Land mentioned hereunder at clause (I), hereby on this day the 8th of November, 2017 solemnly affirm and declare as follows :

1) That I have no objection whatsoever for MePTCL/PGCIL to construct 132KV Phulbari-Ampati Transmission Line passing through my land located at Balujhora Village West Garo Hills District Meghalaya

2) That I am making this declaration sincerely and conscientiously, believing the same to be true and with full knowledge that it is on the strength of this declaration that MePTCL/ PGCIL has agreed to pay compensation to me, in accordance with the schedule of rates issued by the Deputy Commissioner West Garo Hills District / West Garo Hills District Council.

Land Owner

(Left Hand Thumb)

Witness :

1. Sukumar Koch

2. Sumitra Koch

NO OBJECTION CERTIFICATE

029

I Shri/Smti Mozjal Hoque

S/o /D/o Jongser Ali

aged about 45 years

old and residing at Nayagaon, West Garo Hills

District and Owner of Land mentioned hereunder at clause (I), hereby on this day the 20th of November, 2017 solemnly affirm and declare as follows :

1) That I have no objection whatsoever for MePTCL/PGCIL to construct 132KV Phulbari-Ampati Transmission Line passing through my land located at Nayagaon Village West Garo Hills District Meghalaya

2) That I am making this declaration sincerely and conscientiously, believing the same to be true and with full knowledge that it is on the strength of this declaration that MePTCL/ PGCIL has agreed to pay compensation to me, in accordance with the schedule of rates issued by the Deputy Commissioner West Garo Hills District / West Garo Hills District Council.

Land Owner

Witness :

1. Rahul Khan

2. [redacted] Mrs. Banesa Bibi

NO OBJECTION CERTIFICATE

030

I Shri/Smti Sopola Hajong

~~S/o/D/o~~ W/o Babul Hajong

aged about 44 years

old and residing at Arjungre, West Garo Hills

District and Owner of Land mentioned hereunder at clause (I), hereby on this day the 20th of November, 2017 solemnly affirm and declare as follows :

1) That I have no objection whatsoever for MePTCL/PGCIL to construct 132KV Phulbari-Ampati Transmission Line passing through my land located at Arjungre Village West Garo Hills District Meghalaya

2) That I am making this declaration sincerely and conscientiously, believing the same to be true and with full knowledge that it is on the strength of this declaration that MePTCL/ PGCIL has agreed to pay compensation to me, in accordance with the schedule of rates issued by the Deputy Commissioner West Garo Hills District / West Garo Hills District Council.

Land Owner

Witness :

1. Anjolly Hajong
2. Nomali Hajong

ANNEXURE-6

Sample Case of Compensation Payment Towards Temporary Damages

Format I

MEGHALAYA POWER TRANSMISSION CORPORATION LIMITED
(Under Department of Power, Meghalaya State)

001 **Executing Agency: Power Grid Corporation of India Ltd** (A Govt. of India Enterprise)

Office Address: 3rd Floor, Dove Tower, Phulbari, West Garo Hills, Meghalaya.

Contact No.: ...7002779826....

NOTICE CUM COMPENSATION CERTIFICATE FOR CROP AND TREE

Serial No.: Meghalaya/132KV D/C Phulbari-Ampati TL/ Date: 27/11/18....

To,

Sri/Ms, Sodagor...Sk.......... S/W/o (Lt.) Gamiruddin Sk... Village :- Goalgaow...

Tahsil Dadengre District: - West Garo Hills, State: - Meghalaya.

Subject: Construction of 132 KV D/C Power Transmission System from Phulbari to Ampati under NERPSIP.

Sir/Madam,

Under the power vested in The Electricity Act 2003, Section 68 and 164 read with part III of Indian Telegraph Act 1885 and The Central Electricity Authority (measures relating to Safety and Electric Supply) Regulation 2010, A Notice is hereby given that 132 kV D/C Phulbari - Ampati Transmission Line will go through your property.

Certain minimum unavoidable damage of Crop/Tree is likely to take place during the Foundation/Erection/Stringing works of the aforesaid transmission line. The tree(s) or crops(s) so fell/Cut or dealt with will be handed over to you. You are therefore requested to remain present to receive the same personally. The compensation for yield component of the tree(s) so full and crop(s) actually damaged will be paid to you as assessed by the Executive Magistrate/ Revenue Department or any other Component Authority specified by the appropriate Government in this behalf.

SL. NO.	LOCATION /SPAN	DETAIL OF DAMAGES DURING CONSTRUCTION			REMARKS
		LAND KHASARA / DAG / PATTA NO	NAME OF THE CROP OR TREES	AREA OR NOS	
1	39/1	Mouza No VI	① Paddy - Arize 6444	25m X 25m = 625 m²	During Foundation
	DA+0	-3 Dof	Approch/roads —	2'8 X 15 s.m = 42 m²	
			② Maize Crops —	25m X 25m = 625m²	During Erection

(Girth of tree means circumference of tree at chest level)

For and On behalf of Meghalaya Power Transmission Corporation Limited

03/12/18
Signature of MePTCL
Executive Engineer,
Transmission & Transformation Division
MePTCL, Tura.

29/11/18
Signature of POWERGRID
L. SANGLEY
JUNIOR ENGINEER
POWERGRID
NERPSIP, PHULBARI.

Received Notice with consent for work.

Owner's Signature.............. (RTI, Sodogar SK

Sign of Witness I. N. ISLAM ....

Sign of Witness II. .... (RTI, SAIDUL ISLAM)

P.K. PATHAK
CHIEF MANAGER
POWERGRID
NERPSIP, PHULBARI

VERIFICATION BY REVENUE AUTHORITY

Certified that Land under Khasra/Dag/Pattano....3.....of Village..Goalgaow.......Tahsil Dadengre.

District West Garo Hills, State Meghalaya belongs to Sri / Smt. Sodagor. Sk............... Son/Wife

of (Lt) Gomiruddin Sk.... He / She is sole/shared owner of the above mentioned Land / property.

Manjak Sangma
Manjak Ch. Sangma, Nokma
Daljinda (Melagre) A.king-III-25 (25a)
P.O. Bhalamara
West Garo Hills, Megh.

Seal & Signature of Circle Officer / Revenue Authority.

Format I

006

MEGHALAYA POWER TRANSMISSION CORPORATION LIMITED
(Under Department of Power, Meghalaya State)
Executing Agency: Power Grid Corporation of India Ltd (A Govt. of India Enterprise)
Office Address: 3rd Floor, Dove Tower, Phulbari, West Garo Hills, Meghalaya.
Contact No.: 8258074590

NOTICE CUM COMPENSATION CERTIFICATE FOR CROP AND TREE

Serial No.: Meghalaya/132KV D/C Phulbari-Ampati TL/ 75 Date: 30/11/18

To,

Sri/Ms. JOINTI BALA HAJONG S/W/o. THELORAM HAJONG Village :- DOLGURI.

Tahsil. DADENGGRE.. District: - West Garo Hills, State: - Meghalaya.

Subject: Construction of 132 KV D/C Power Transmission System from Phulbari to Ampati under NERPSIP.

Sir/Madam,

Under the power vested in The Electricity Act 2003, Section 68 and 164 read with part III of Indian Telegraph Act 1885 and The Central Electricity Authority (measures relating to Safety and Electric Supply) Regulation 2010, A Notice is hereby given that 132 kV D/C Phulbari - Ampati Transmission Line will go through your property.

Certain minimum unavoidable damage of Crop/Tree is likely to take place during the Foundation/Erection/Stringing works of the aforesaid transmission line. The tree(s) or crops(s) so fell/Cut or dealt with will be handed over to you. You are therefore requested to remain present to receive the same personally. The compensation for yield component of the tree(s) so full and crop(s) actually damaged will be paid to you as assessed by the Executive Magistrate/ Revenue Department or any other Component Authority specified by the appropriate Government in this behalf.

SL. NO.	LOCATION /SPAN	DETAIL OF DAMAGES DURING CONSTRUCTION			REMARKS
		LAND KHASARA / DAG / PATTA NO	NAME OF THE CROP OR TREES	AREA OR NOS	
1	46/3	P. No – 23	① Paddy - Arize 6444	25m x 25m = 625 m²	During Foundation
	DA+3	D. No – 523	Approch roads –	2'8m x 15m = 42 m²	
			–		
			② Maize Crops –	25 x 25 = 625 m²	During Erection

(Girth of tree means circumference of tree at chest level)

For and On behalf of Meghalaya Power Transmission Corporation Limited

03/12/18
Signature of MePTCL
Executive Engineer,
Transmission & Transformation Division
MePTCL, Tura.

30/11/18
Signature of POWERGRID
L. SANGMA
JUNIOR ENGINEER
POWERGRID
NERPSIP, PHULBARI.

P.K. PATHAK
CHIEF MANAGER
POWERGRID
NERPSIP, PHULBARI

Received Notice with consent for work.

Owner's Signature. Jointi Bala Hajong

Sign of Witness I. Khudi Ram Hajong

Sign of Witness II. Shri Theloram Hajong

VERIFICATION BY REVENUE AUTHORITY

Certified that Land under Khasra/Dag/Pattano. 23 of Village. Dolguri Tahsil. Dadengre District West Garo Hills, State Meghalaya belongs to Sri / Smt. Jointi Bala Hajong Son/Wife of Theloram Hajong He / She is sole/shared owner of the above mentioned Land / property.

A. Hajong
30/11/18
Gaon Bura
West Garo Hills

Seal & Signature of Circle Officer / Revenue Authority.

CROP COMPENSATION PROPOSAL

Sl. No.	Notice No.	Loc. No.	Tower Type	Name of Land Owner	Land Patta No.	Details of Crops	Dimension of Land (in metre)	Area (in Sqm)	Rate in Rs. (per Sqm)	Amount	Payable Amount	
1	1	39/1	DA+0	Sodagor Sk Son of Lt. Gomiruddin Sk. Village: Goalgaow	Mouza No. vi 3 Lot	During Foundation					18542.00	31420548506 IFSC : 6922
						Paddy-Arize 6444	25 * 25	625	17.96	11225		
						Approach Road	2.8 * 15	42	17.96	754.32		
						During Erection						
						Maize Crops	25 * 25	625	10.5	6562.5		
2	6	46/3	DA+3	Jointibala Hajong Wife of Theloram Hajong Village: Dolguri	23	During Foundation					18542.00	31768298694 IFSC : 6594
						Paddy-Arize 6444	25 * 25	625	17.96	11225		
						Approach Road	2.8 * 15	42	17.96	754.32		
						During Erection						
						Maize Crops	25 * 25	625	10.5	6562.5		
3	10	3/7 Leg C & D	DA+3	Shyam Nagar Durga Puja Committee Fund Vill. Shyamnagar	254	During Foundation					9271.00	702005121911 IFSC : YESBOMCA005
						Paddy-Arize 6444	25 * 12.5	312.5	17.96	5612.5		
						Approach Road	1.4 * 15	21	17.96	377.16		
						During Erection						
						Maize Crops	25 * 12.5	312.5	10.5	3281.25		
4	16	3/7 Leg A & B	DA+3	Trithonath Rabha S/o Tohindra Rabha Rongkhola	255	During Foundation					9271.00	32643507750 IFSC : 6375
						Paddy-Arize 6444	25 * 12.5	312.5	17.96	5612.5		
						Approach Road	1.4 * 15	21	17.96	377.16		
						During Erection						
						Maize Crops	25 * 12.5	312.5	10.5	3281.25		
5	21	35/0	DA+0	Anjolibala Koch W/o Lt. Ibi Ch. Koch Vill. Nekkona	42	During Foundation					18542.00	67004192124 IFSC : SBINORRMEGB
						Paddy-Arize 6444	25 * 25	625	17.96	11225		
						Approach Road	2.8 * 15	42	17.96	754.32		
						During Erection						
						Maize Crops	25 * 25	625	10.5	6562.5		
6	22	35/1	DA+3	Surubala Koch W/o Sudin Ch. Koch Vill. Nekkona	199	During Foundation					18542.00	67004332623 IFSC : SBINORRMEGB
						Paddy-Arize 6444	25 * 25	625	17.96	11225		
						Approach Road	2.8 * 15	42	17.96	754.32		
						During Erection						
						Maize Crops	25 * 25	625	10.5	6562.5		

P.K. PATHAK
CHIEF MANAGER
POWERGRID
KUMARGHAT, PHULBARI

03/12/19
Executive Engineer,
Transmission & Transformation Division
MePTCL, Tura

POWER[illegible]D CORPORATION OF INDIA LTD. NERPSIP, PHULBARI
DETAILS OF COMPENSATION FOR CROP TO[illegible]DS CONSTRUCTION OF 132 Kv D/C PHULBARI-AMPAT[illegible]ANSMISSION LINE (MEG-TW-02)
CROP COMPENSATION PROPOSAL N0.-1

Notice No.	Loc. No.	Tower Type	Name of Land Owner	Land Patta No.	Details of Crops	Dimension of Land (in metre)	Area (in Sqm)	Rate in Rs. (per Sqm)	Amount	Payable Amount	Bank A/C & IFSC code
36	59/1	DA+3	Levison Marak S/o Lt. Osinat Sangma Vill. Askara	23	During Foundation					18542.00	31580421084 IFSC : 7788
					Paddy-Arize 6444	25 * 25	625	17.96	11225		
					Approach Road	2.8 * 15	42	17.96	754.32		
					During Erection						
					Maize Crops	25 * 25	625	10.5	6562.5		
	58/1	DA+0	Bhobeswar Hajong S/o Lt. Hawaram Hajong Vill. Askara	45	During Foundation					18542.00	30887612477 IFSC : 6594
					Paddy-Arize 6444	25 * 25	625	17.96	11225		
					Approach Road	2.8 * 15	42	17.96	754.32		
					During Erection						
					Maize Crops	25 * 25	625	10.5	6562.5		
	48/1	DA+3	Birojini Sangma W/o Sajit Marak Vill. Bhajamara	112	During Foundation					18542.00	31741943816 IFSC : 6594
					Paddy-Arize 6444	25 * 25	625	17.96	11225		
					Approach Road	2.8 * 15	42	17.96	754.32		
					During Erection						
					Maize Crops	25 * 25	625	10.5	6562.5		
									Grand Total Rs.	129794.00	

P.K. PATHAK
CHIEF MANAGER
POWERGRID
NERPSIP, PHULBARI

03/2/18
Executive Engineer,
Transmission & Transformation Division
MePTCL, Tura.

Compensation type : 132KV_PHULBARI-AMPATI TL
state MEGHALAYA
WBS CS-2014045-01-03-01
APPROVED BUDGET 17950000
APPROVED TILL DATE

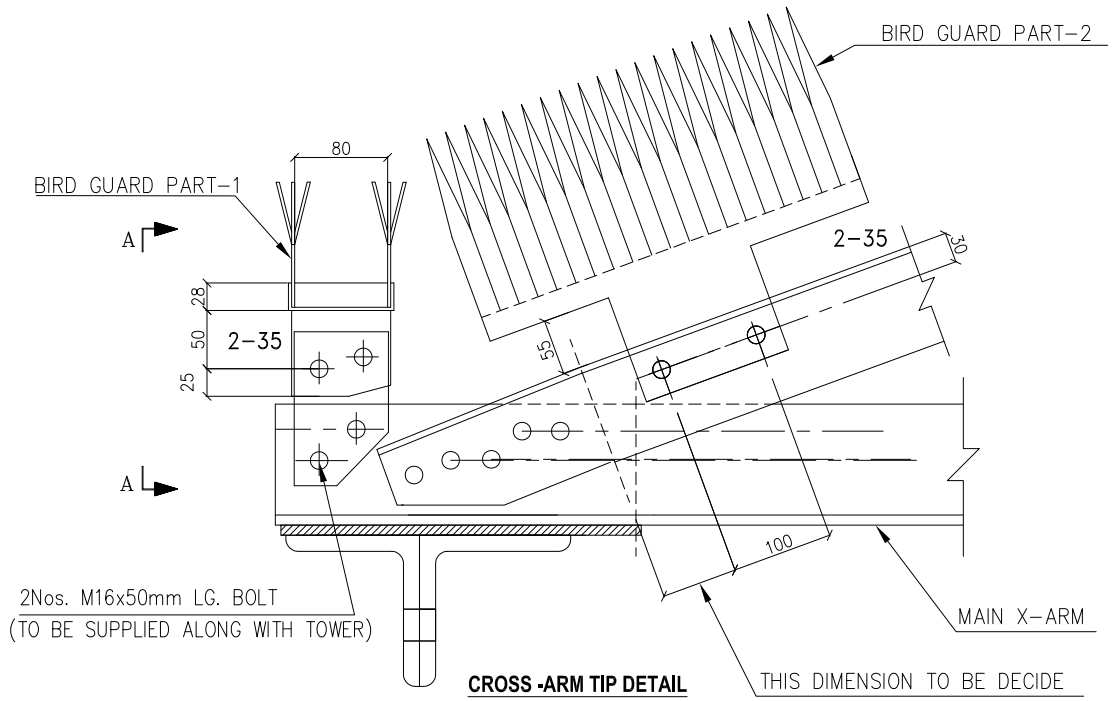
SL No	Lot No	NAME OF LAND OWNER	TOWER LOCATION & ACTIVITY	Amount	Bank Name	Bank A/C No	IFSC CODE	JV NO	JV DATE	EPV NO	ECHEQUE NO	DATE	PAYMENT DONE
1	Lot-1	Sodagor Sk	39/1	18,542.00	SBI	31420548506	SBIN0005922	2300346762	08/12/18	2400195084	CTE6018718	08/12/18	
2	Lot-1	Joimbala Hajong	46/3	18,542.00	SBI	31768298694	SBIN0006594	2300346763	08/12/18	2400195082	CTE6018345	08/12/18	
3	Lot-1	Shyam Nagar Durga Puja Committee Fund	3/7	9,271.00	Meghalaya Co op Apex Bank	702005121911	YESB0MCA005	2300346764	08/12/18	2400195085	CNAANONBR0	08/12/18	
4	Lot-1	Trithonath Rabha	3/7	9,271.00	SBI	32643507750	SBIN0006375	2300346765	08/12/18	2400195087	CTE6018347	08/12/18	
5	Lot-1	Anjoibala Koch	3/7	18,542.00	Meghalay Rural Bank	87004192124	SBIN0RRMEGB	2300346792	08/12/18	2400195079	CTE6018545	08/12/18	
6	Lot-1	Sorobala Koch	35/1	18,542.00	Meghalay Rural Bank	87004332628	SBIN0RRMEGB	2300346793	08/12/18	2400195086	CTE6018719	08/12/18	
7	Lot-1	Levison Marak	59/1	18,542.00	SBI	31580421084	SBIN0007763	2300346766	08/12/18	2400195083	CTE6018346	08/12/18	
8	Lot-1	Bhobeswar Hajong	58/1	18,542.00	SBI	30887612477	SBIN0006594	2300346767	08/12/18	2400195080	CTE6018546	08/12/18	
9	Lot-1	Brojini Sangma	48/1	18,542.00	SBI	31741943816	SBIN0006594	2300346768	08/12/18	2400195081	CTE6018717	08/12/18	
		TOTAL		1,48,336.00									

09/12/2018
C SARMA
Manager (F & A)
Power Grid Corporation of India Limited
Guwahati-781006
EMP No 00050170

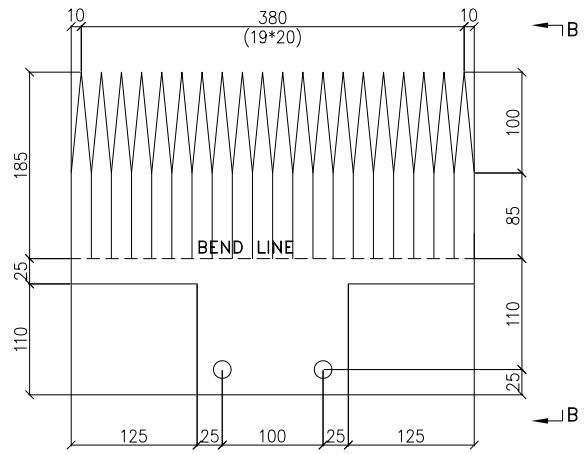
Debasis Sahoo
वरिष्ठ लेखा अधिकारी
Sr. Accounts Officer
पावरग्रिड/POWERGRID
गुवाहाटी/Guwahati

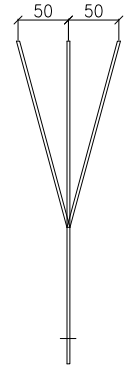
ANNEXURE-7

Drawings of Bird guard/ Anti-perching Devices



CROSS -ARM TIP DETAIL
(TYPE-1)

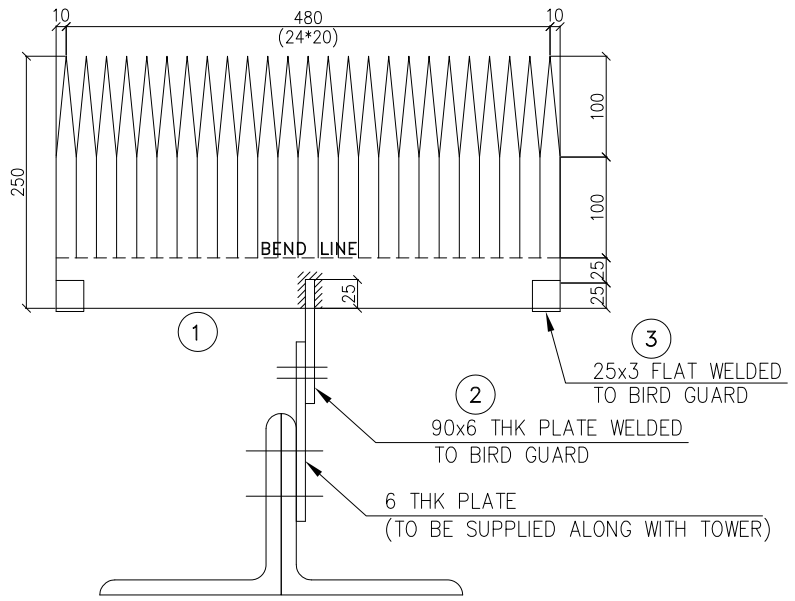




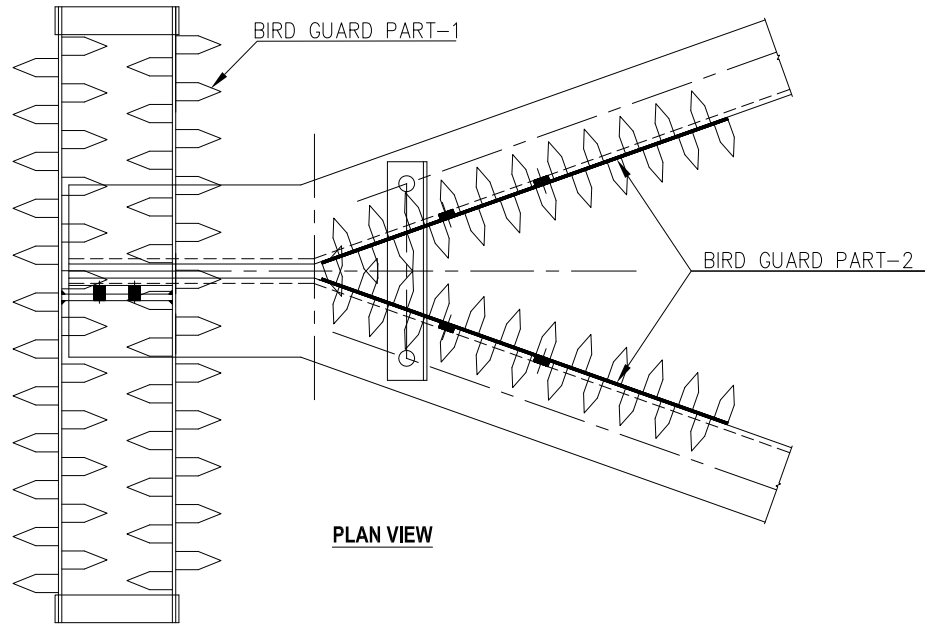
VIEW B-B

(4) 320x3THK.-400LG.
QTY: 2 NOS / SETS

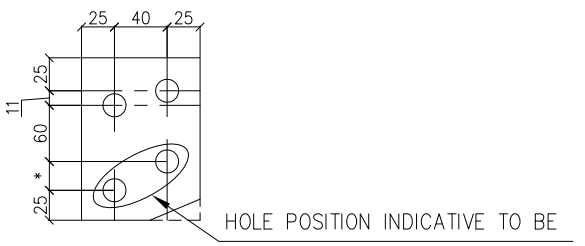
BIRD GUARD PART-2



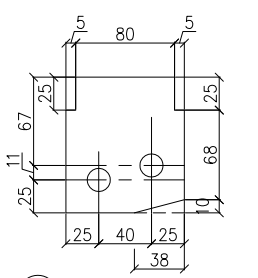
SECTION A-A



PLAN VIEW



6MM PLATE
(TO BE SUPPLIED ALONG WITH TOWER)



(2) 6mm PLATE 90x103Lg

MATERIAL LIST / SETS (TYPE-1)				
NO	DESC.	QTY./ SET	WT/PC (kg)	TOTAL (kg)
1	3 THK 250x500 LG	2	2.944	5.888
2	6 THK 90x103 LG	1	0.437	0.437
3	3 THK 25x140 LG	2	0.082	0.164
4	3MM THK 320x400 LG	2	3.014	6.028
	16ø x35MM Lg B&N	6	0.119	0.714
	16ø 3.5mm SP.Washer	6	0.009	0.054
			GRD. TOTAL=13.285	

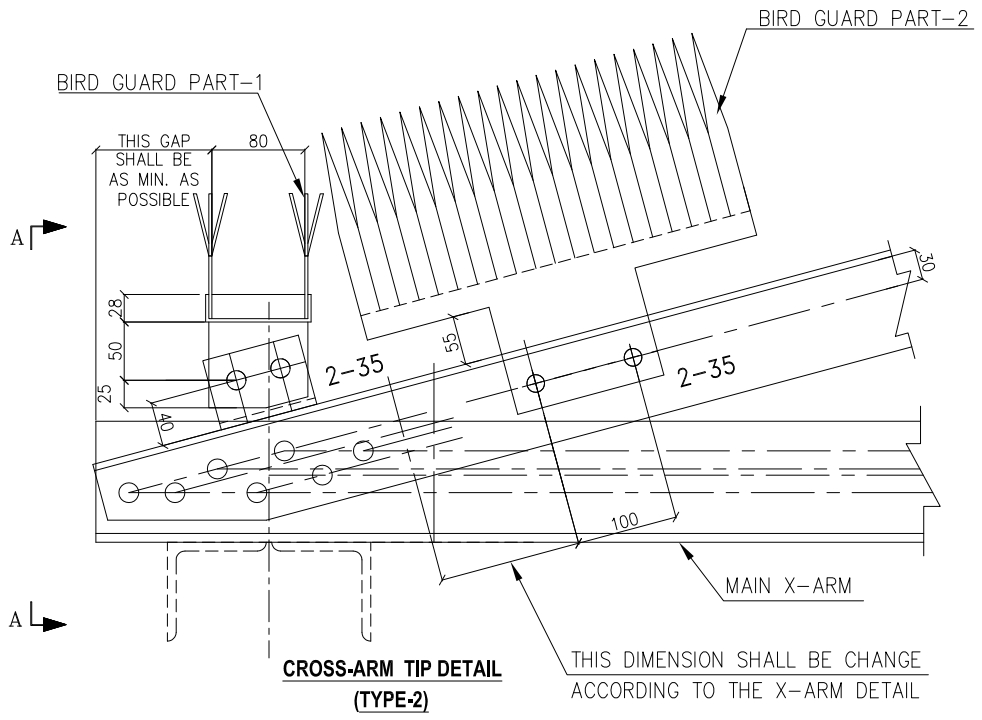
NOTES:

1. ALL DIMENSIONS ARE IN MM.
2. GALVANISED AFTER FABRICATION.
3. FIXING ARRANGEMENT TO BE CHECKED WITH TOWER.
4. SUITABLE PROVISION OF CLEAT/PLATE/HOLE TO BE PROVIDED ON SUSPENSION TOWER FACILITING INSTALLATION OF BIRD GUARD AFTER STRINGING.
5. ONE SET OF BIRD GUARD FOR I-STRING (TYPE-1) INCLUDES.
   A) BIRD GUARD PART-1(TYPE-1) = ONE NUMBER
   B) BIRD GUARD PART-2 = TWO NUMBERS
6. HOLE FOR FIXING BG PART-2 TO BE ENSURED ON TOWER MEMBER.
7. 6MM PLATE & 2 Nos. M16x50 Lg. BOLT & NUT TO BE SUPPLIED ALONG WITH TOWER

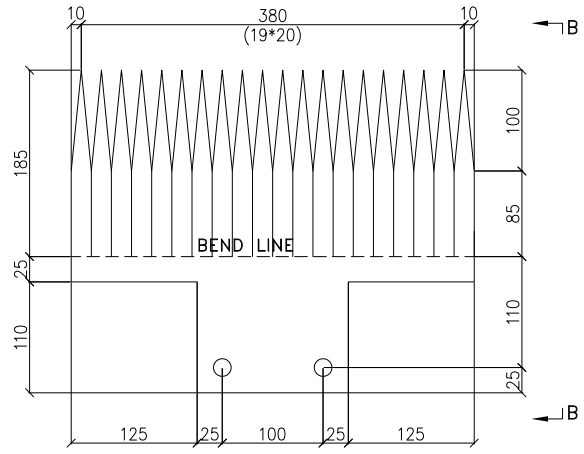
POWER GRID CORPORATION OF INDIA LIMITED

TITLE : **DETAILS OF BIRD GUARD FOR I-STRING (TYPE - 1)-REVISED**

DRAWING No. CC:ENGG:TLACC:BG (SHEET 1 of 2)

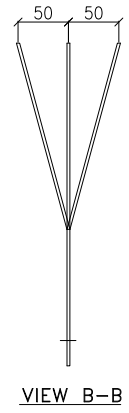


CROSS-ARM TIP DETAIL (TYPE-2)

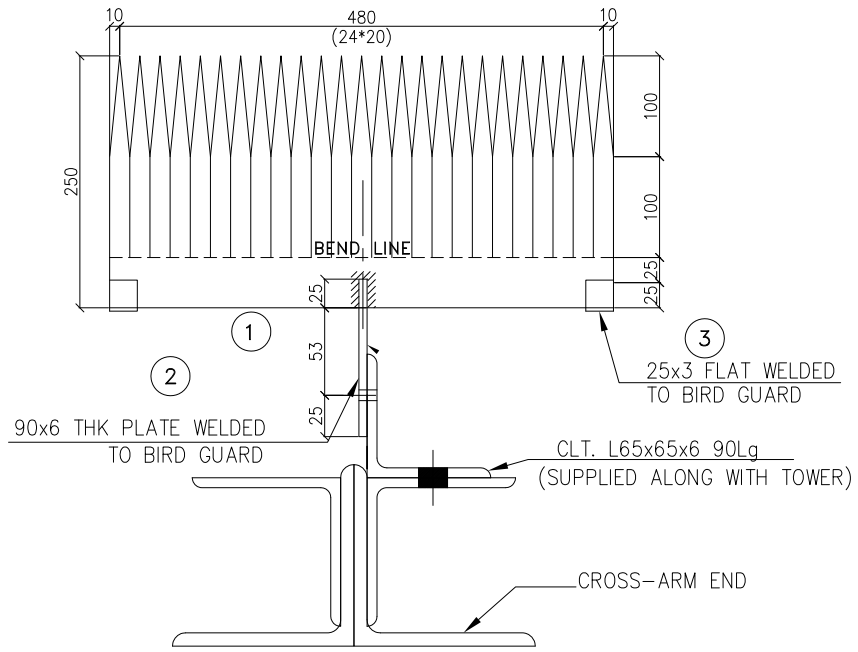


4 320x3THK.-400LG.
QTY: 2 NOS / SETS

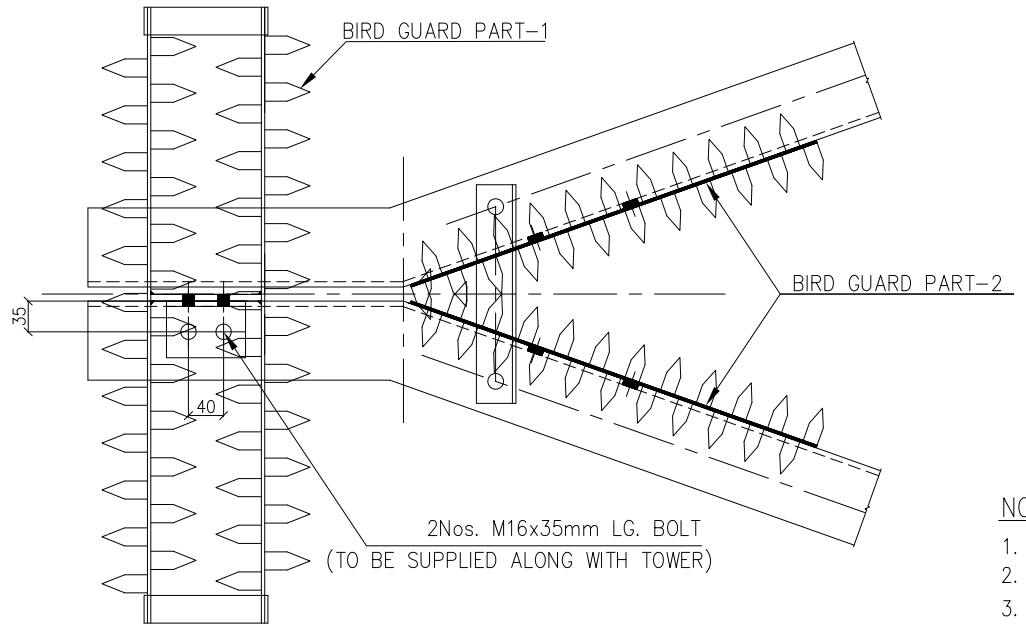
BIRD GUARD PART-2



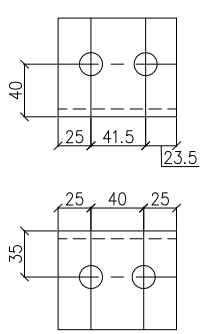
VIEW B-B



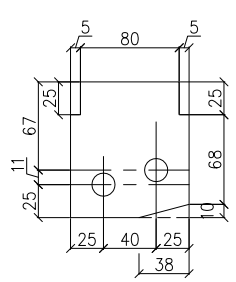
SECTION A--A



PLAN VIEW



CLT. L65x65x6 90Lg
(TO BE SUPPLIED ALONG WITH TOWER)



②6mm PLATE 90x103Lg

MATERIAL LIST / SETS (TYPE-2)				
NO	DESC.	QTY./ SET	WT/PC (kg)	TOTAL (kg)
1	3 THK 250x500 LG	2	2.944	5.888
2	6 THK 90x103 LG	1	0.437	0.437
3	3 THK 25x140 LG	2	0.082	0.164
4	3MM THK 320x400 LG	2	3.014	6.028
	16ø x35MM Lg B&N	6	0.119	0.714
	16ø 3.5mm SP.Washer	6	0.009	0.054
			GRD. TOTAL=	13.285

NOTES:

1. ALL DIMENSIONS ARE IN MM.
2. GALVANISED AFTER FABRICATION.
3. FIXING ARRANGEMENT TO BE CHECKED WITH TOWER.
4. SUITABLE PROVISION OF CLEAT/PLATE/HOLE TO BE PROVIDED ON SUSPENSION TOWER FACILITING INSTALLATION OF BIRD GUARD AFTER STRINGING.
5. ONE SET OF BIRD GUARD FOR I-STRING (TYPE-2) INCLUDES.
   A) BIRD GUARD PART-1(TYPE-2) = ONE NUMBER
   B) BIRD GUARD PART-2 = TWO NUMBERS
6. HOLE FOR FIXING BG PART-2 TO BE ENSURED ON TOWER MEMBER
7. L65x65x6-90Lg. & 2 Nos. M16x35 Lg. BOLT & NUT TO BE SUPPLIED ALONG WITH TOWER

POWER GRID CORPORATION OF INDIA LIMITED

TITLE :

DETAILS OF BIRD GUARD FOR I-STRING (TYPE - 2)-REVISED

DRAWING No. CC:ENGG:TLACC:BG (SHEET 2 of 2)

ANNEXURE-8

Signed Safety Plan Submitted by Construction Contractor

NECCON POWER & INFRA LIMITED

(Formerly : North Eastern Cables & Conductors (P) Ltd.)

REGISTERED OFFICE : SEUNI ALI, A.T. ROAD, JORHAT-785 001 (ASSAM) PHONE : (0376) 2351433, 2350894, FAX : 2351318, GRAM : NECCON
E-mail : neccon@necconpower.com, info@necconpower.com; Websit : http://www.khetan-group.com ♦ (CIN) : U27109AS1984PLC002275

Ref: NECCON/DGM/PGCIL/MEG-DMS-02/16-17 **Date: Oct. 15, 2016**

To

The Deputy General Manager (NERPSIP)
Power Grid Corporation of India Limited,
Dongtieh, Lower Nongrah,
Lapalang, Shillong, Meghalaya-793006

Sub:- **Submission of Safety Plan against "Substation Packages MEG-DMS-02 Under North Eastern Region Power Improvement System Improvement Project in Meghalaya".**

Ref:- **1. NOA No: CC-CS/474-NER/REW-2450/1/G5/NOA-I/5800; dated: 27/05/2016 (Supply)**
2. NOA No: CC-CS/474-NER/REW-2450/1/G5/NOA-II/5801; dated: 27/05/2016 (Service)

Dear Sir,

With reference to the above, we are submitting herewith the Safety Plan for above said project for your kind information & record please.

Thanking you.

Yours faithfully,
For, **Neccon Power & Infra Limited.**

14/12/16

(T.R. Sharma)
Director (tech)

Table of Contents For (Package MEG- DMS - 02)

NECCON POWER & INFRA LIMITED JORHAT

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19AA 385129

FORM- 18

SAFETY PLAN

THIS SAFETY PLAN is made this **27th** day of **May 2016**. by M/S **NECCON POWER & INFRA LIMITED**, India a Company incorporated under the laws of India and having its **Registered Office** at – **Seuni Ali, A.T.Road, Jorhat-785001 (Assam)** (hereinafter called as Contractor which shall include its successors and permitted assigns) for approval of M/S Power Grid Corporation of India Limited a company incorporated under the Company Act,1956 having its Registered Office at B-9, Quatab Institutional Area, Katwaria Sarai, New Delhi-110016 and its Corporate Office at Saudamini plot No.-2,Sector -29, Gurgaon-122001 and its Supply cum Installation Contract for Substation Package- **MEG –DMS-02 Under North Eastren Region Power Improvement System Improvement Project in Meghalaya.(33/11kv New s/s), (33kv S/C overhead line (Reconductoring), Addition of no.33kv line bay. OPGW, ADSS Fiber Optic Cable, Fiber Optic Terminal Equipment. LOA NO: CC-CS/474-NER/REW-2450/1/G5/NOA-1/5800; Dated: 27th May 2016.**

WHEREAS M/S Power Grid Corporation of India Limited has awarded to the Contractor the aforesaid Contract vide its Notification of Award No. **CC-CS/474-NER/REW-2450/1/G5/NOA-1/5800 dated: 27th May 2016.** In terms of which the Contractor is required to submit 'Safety Plan' along with certain documents to the Engineer In-Charge/Project Manager of the Employer within Sixty (60) days of Notification of Award for its approval.

NOW THEREFORE, the Contractor undertakes to execute the Contract as per the safety plan as follows:

1. THAT the Contractor shall execute the works as per provisions of Bidding Documents including those in regard to Safety Precautions / provisions as per statutory requirements.

2. THAT the Contractor shall execute the works in a well planned manner from the commencement of Contract as per agreed mile stones of work completion schedule so that

NECCON POWER & INFRA LIMITED JORHAT

planning and execution of construction works goes smoothly and consistently through out the contract duration without handling pressure in last quarter of the financial year/last months of the Contract and the shall be finalized in association with POWERGRID Engineer In-charge/Project Manager from time to time as required.

3. THAT the Contractor has prepared the safe work procedure for each activity i.e. foundation works including civil works, erection, stringing (as applicable), testing & commissioning, disposal of materials at site / store etc. to be executed at site, which is enclosed at **Annexure - 1A (SP)** for acceptance and approval of Engineer In-charge/Project Manager. The Contractor shall ensure that on approval of the same from Engineer In-charge/Project Manager , the approved copies will be circulated to Employer's personnel at site [Supervisor(s)/Executive(s)] and Contractor's personnel at site [Gang leader, supervisor(s) etc.] in their local language / language understood by gang.

THAT the Contractor has prepared minimum manpower deployment plan, activity wise as stated above, which is enclosed at **Annexure - 1B (SP)** for approval of Engineer In-charge/Project Manager.

4. THAT the Contractor shall ensure while executing works that they will deploy minimum 25% of their own experienced work force who are on the permanent roll of the company and balance 75% can be a suitable mixed with the hired gangs / local workers / casual workers if required. The above balance 75% work force should be provided with at least 10 days training by the construction agencies at sites and shall be issued with a certificate. No worker shall be engaged without a valid certificate. Hired gang workers shall also follow safe working procedures and safety norms as is being followed by company's workmen. It should also be ensured by the contractor that certified fitters who are climbing towers / doing stringing operations can be easily identifiable with a system like issue of Badge / Identification cards (ID cards) etc. Colour identification batches should be worn by the workers. Contractor has to ensure that inexperience workers / unskilled workers should not be deployed for skilled job.

5. THAT the Contractor's Gang leader / Supervisor / Senior most member available at every construction site shall brief to each worker daily before start of work about safety requirement and warn about imminent dangers and precautions to be taken against the imminent dangers (Daily Safety Drill). This is to be ensured without fail by Contractor and maintain record of each gang about daily safety instructions issued to workers and put up to POWERGRID site In-charge for his review and record.

6. THAT the Contractor shall ensure that working Gangs at site should not be left at the discretion of their Gang Leaders who are generally hired and having little knowledge about safety. Gang leader should be experienced and well versed with the safe working procedures applicable for transmission line/ Sub Station works. In case gang is having Gang leader not on permanent roll of the company then additional Supervisor from company's own roll having thorough knowledge about the works would be deployed so as to percolate safety instructions upto the grass root level in healthy spirits. Contractor has to ensure close

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supervision while executing critical locations of transmission lines / sub stations and ensures that all safety instructions are in place and are being followed.

7. THAT the Contractor shall maintain in healthy and working condition all kind of Equipments / Machineries / Lifting tools / Lifting tackles / Lifting gears / All kind of Ropes including wire ropes / Polypropylene ropes etc. used for Lifting purpose during execution of the project and get them periodically examined and load tested for safe working load in accordance with relevant provisions and requirement of Building & other construction workers Regulation of Employment and Conditions of Services Act and Central Rule 1998, Factories Act 1948, Indian Electricity Act 2003 before start of the project. A register of such examinations and tests shall be properly maintained by the contractor and will be promptly produced as and when desired by the Engineer In-charge/Project Manager or by the person authorised by him. The Contractor has to ensure to give special attention on the formation / condition of eye splices of wire rope slings as per requirement of IS 2762 Specification for wire rope slings and sling legs.

   THAT the Contractor has prepared a list of all Lifting machines, lifting Tools / Lifting Tackles / Lifting Gears etc. / All types of ropes and Slings which are subject to safe working load is enclosed at **Annexure - 2 (SP)** for review and approval of Engineer In-charge/Project Manager.

8. THAT the Contractor has to procure sufficient quantity of Personal Protective Equipment (PPE)conforming to Indian / International standards and provide these equipment to every workman at site as per need and to the satisfaction of Engineer-in-charge/Project Manager of POWERGRID. The Contractor's Site Supervisor/ Project Manager has to ensure that all workmen must use Personal Protective Equipment at site. The Contractor shall also ensure that Industrial Safety helmets are being used by all workmen at site irrespective of their working (at height or on ground). The Contractor shall further ensure use of safety shoes by all ground level workers and canvas shoes for all workers working at height, Rubber Gum Boots for workers working in rainy season and concreting job, Use of Twin Lanyard Full body Safety Harness with attachment of light weight such as aluminium alloy etc. and having features of automatic locking arrangement of snap hook, by all workers working at height for more than three meters and also for horizontal movement on tower shall be ensured by contractor. The Contractor shall not use ordinary half body safety harness at site. The Contractor has to ensure use of Retractable type fall arrestors by workers for ascending / descending on suspension insulator string and other similar works etc., Use of Mobile fall arrestor for ascending / descending from tower by all workers. The contractor has to provide cotton / leather hand gloves as per requirement, Electrical Resistance Hand gloves for operating electrical installations / switches, Face shield for protecting eyes while doing welding works and Dust masks to workers as per requirement. The Contractor will have to take action against the workers not using Personal Protective Equipment at site and those workers shall be asked to rest for that day and also their Salary be deducted for that day. POWERGRID may issue warning letter to Project Manager of contractor in violation of above norms.

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THAT the Contractor shall prepare a detailed list of PPEs, activity wise, to commensurate with manpower deployed, which is enclosed at **Annexure - 3 (SP)** for review and approval of Engineer In-charge/Project Manager. It shall also be ensured that the sample of these equipment shall be got approved from POWERGRID supervisory staff before being distributed to workers. The contractor shall submit relevant test certificates as per IS / International Standard as applicable to PPEs used during execution of work. All the PPE's to be distributed to the workers shall be checked by POWERGRID supervisory staff before its usage.

The Contractor also agrees for addition / modification to the list of PPE, if any, as advised by Engineer In-Charge/Project Manager.

9. THAT the Contractor shall procure, if required sufficient quantity of Earthing Equipment / Earthing Devices complying with requirements of relevant IEC standards (Generally IECs standards for Earthing Equipments / Earthing Devices are - 855, 1230, 1235 etc.) and to the satisfaction of Engineer In-Charge/ Project Manager and contractor to ensures to maintained them in healthy condition.

THAT the Contractor has prepared / worked out minimum number of healthy Earthing Equipments with Earthing lead confirming to relevant IS / European standards per gang wise during stringing activity/as per requirement, which is enclosed herewith at **Annexure - 4 (SP)** for review and acceptance of Engineer In-Charge/ Project Manager prior to execution of work.

10. THAT the Contractor shall provide communication facilities i.e. Walky - Talkie / Mobile Phone, Display of Flags / whistles for easy communication among workers during Tower erection / stringing activity, as per requirement.

11. THAT the Contractor undertakes to deploy qualified safety personnel responsible for safety as per requirements of Employer/Statutory Authorities.

THAT the Contractor employing more than 250 workmen whether temporary, casual, probationer, regular or permanent or on contract, shall employ at least one full time officer exclusively as qualified safety officer having diploma in safety to supervise safety aspects of the equipment and workmen who will coordinate with Engineer In-charge /Project Manager/Safety Co-ordinator of the Employer. In case of work being carried out through sub contractors the sub - contractor's workmen / employees will also be considered as the contractor's employees / workmen for the above purpose. If the number of workers are less than 250 then one qualified safety officer is to be deployed for each contract. He will report directly to his head of organization and not the Project Manager of contractor He shall also not be assigned any other work except assigning the work of safety. The curriculum vitae of such person shall be got cleared from POWERGRID Project Manager / Construction staff.

The name and address of such safety officers of contractor will be promptly informed in writing to Engineer In-charge with a copy to safety officer - In-charge before start of work or

NECO POWER & INFRA LIMITED JORHAT

immediately after any change of the incumbent is made during the currency of the contract. The list is enclosed at **Annexure - 5A (SP)**.

THAT the Contractor has also prepared a list including details of Explosive Operator (if required), Safety officer / Safety supervisor / nominated person for safety for each erection / stringing gang, list of personnel trained in First Aid Techniques as well as copy of organisation structure of the Contractor in regard to safety. The list is enclosed at **Annexure - 5B (SP)**.

12. The Project Manager shall have the right at his sole discretion to stop the work, if in his opinion the work is being carried out in such a way that it may cause accidents and endanger the safety of the persons and/or property, and/or equipment. In such cases, the Contractor shall be informed in writing about the nature of hazards and possible injury/accident and he shall comply to remove shortcomings promptly. The Contractor after stopping the specific work can, if felt necessary, appeal against the order of stoppage of work to the Project Manager within 3 days of such stoppage of work and decision of the Project Manager in this respect shall be conclusive and binding on the Contractor.

13. THAT, if, any Employer's Engineer/ supervisor at site observes that the Contractor is failing to provide safe working environment at site as per agreed Safety Plan / POWERGRID Safety Rule/ Safety Instructions / Statutory safety requirement and creates hazardous conditions at site and there is possibility of an accident to workmen or workmen of the other contractor or public or the work is being carried out in an un safe manner or he continues to work even after being instructed to stop the work by Engineer / Supervisor at site / RHQ / Corp. Centre, the Contractor shall be bound to pay a penalty of Rs. 10,000/ - per incident per day till the instructions are complied and as certified by Engineer / Supervisor of Employer at site. The work will remain suspended and no activity will take place without compliance and obtaining clearance / certification of the Site Engineer / Supervisor of the Employer to start the work.

14. THAT, if the investigation committee of Employer observes any accident or the Engineer In-charge/Project Manager of the Employer based on the report of the Engineer/Supervisor of the Employer at site observes any failure on the Contractor's part to comply with safety requirement / safety rules/ safety standards/ safety instruction as prescribed by the Employer or as prescribed under the applicable law for the safety of the equipment, plant and personnel and the Contractor does not take adequate steps to prevent hazardous conditions which may cause injury to its own Contractor's employees or employee of any other Contractors or Employer or any other person at site or adjacent thereto, or public involvement because of the Contractor's negligence of safety norms, the Contractor shall be liable to pay a compensation of Rs. 10,00,000/- (Rupees Ten Lakh only) per person affected causing death and Rs. 1,00,000/- (Rupees One Lakh only) per person for serious injuries / 25% or more permanent disability to the Employer for further disbursement to the deceased family/ Injured persons. The permanent disability has the same meaning as indicated in Workmen's Compensation Act 1923. The above stipulations is in addition to all other compensation payable to sufferer as per workmen compensation Act / Rules

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THAT as per the Employer's instructions, the Contractor agrees that this amount shall be deducted from their running bill(s) immediately after the accident, That the Contractor understands that this amount shall be over and above the compensation amount liable to be paid as per the Workmen's Compensation Act /other statutory requirement/ provisions of the Bidding Documents.

15. THAT the Contractor shall submit Near-Miss-Accident report alongwith action plan for avoidance such incidence /accidents to Engineer - In-charge/ Project Manager. Contractor shall also submit Monthly Safety Activities report to Engineer - In-charge/ Project Manager and copy of the Monthly Safety Activities report also to be sent to Safety In-charge at RHQ of the Employer for his review record and instructions.

16. THAT the Contractor is submitting a copy of Safety Policy/ Safety Documents of its Company which is enclosed at **Annexure - 6 (SP)** and ensure that the safety Policy and safety documents are implemented in healthy spirit.

17. THAT the Contractor shall make available of First Aid Box [Contents of which shall be as per Building & other construction workers (Regulation of Employment and Conditions of Services Act and Central Rule 1998 / POWERGRID Guidelines)] to the satisfaction of Engineer In-Charge/ Project Manager with each gang at site and not at camp and ensures that trained persons in First Aid Techniques with each gang before execution of work.

18. THAT the Contractor shall submit an 'Emergency Preparedness Plan' for different incidences i.e. Fall from height, Electrocution, Sun Stroke, Collapse of pit, Collapse of Tower, Snake bite, Fire in camp / Store, Flood, Storm, Earthquake, Militancy etc. while carrying out different activities under execution i.e. foundation works including civil works, erection, stringing (as applicable), testing & commissioning, disposal of materials at site / store etc. which is enclosed at **Annexure - 7 (SP)** for approval of the Engineer In-Charge/ Project Manager before start of work.

19. THAT the Contractor shall organize Safety Training Programs on Safety, Health and Environment and for safe execution of different activities of works i.e. foundation works including civil works, erection, stringing (as applicable), testing & commissioning, disposal of materials at site / store etc. for their own employees including sub contractor workers on regular basis.

    The Contractor, therefore, submits copy of the module of training program, enclosed at **Annexure - 9 (SP)**, to Engineer In-charge/Project Manager for its acceptance and approval and records maintained.

20. THAT the Contractor shall conduct safety audit, as per Safety Audit Check Lists enclosed at **Annexure - 8 (SP)**, by his Safety Officer(s) every month during construction of Transmission Lines / Sub Stations / any other work and copy of the safety audit report will be forwarded to the Employer's Engineer In-charge / Site In-charge/Project Manager for his comments and feedback. During safety audit, healthiness of all Personal Protective Equipments (PPEs) shall be checked individually by safety officer of contractor and issue a certificate of its

NEEPCO POWER & INFRASTRUCTURE LTD. JORHAT

healthiness or rejection of faulty PPEs and contractor has to ensure that all faulty PPEs and all faulty lifting tools and tackles should be destroyed in the presence of POWERGRID construction staff. Contractor has to ensure that each gang be safety audited at least once in two months. During safety audit by the contractor, Safety officer's feedback from POWERGRID concerned shall be taken and recorded. The Employer's site officials shall also conduct safety audit at their own from time to time when construction activities are under progress. Apart from above, the Employer may also conduct surveillance safety audits. The Employer may take action against the person / persons as deemed fit under various statutory acts/provisions under the Contract for any violation of safety norms / safety standards.

21. THAT the Contractor shall develop and display Safety Posters of construction activity at site and also at camp where workers are generally residing.

22. THAT the Contractor shall ensure to provide potable and safe drinking water for workers at site / at camp.

23. THAT the Contractor shall do health check up of all workers from competent agencies and reports will be submitted to Engineer In-Charge within fifteen (15) days of health check up of workers as per statutory requirement.

24. THAT the Contractor shall submit information alongwith documentary evidences in regard to compliance to various statutory requirements as applicable which are enclosed at **Annexure - 10A (SP)**.

    The Contractor shall also submit details of Insurance Policies taken by the Contractor for insurance coverage against accident for all employees are enclosed at **Annexure - 10B (SP)**.

25. THAT a check-list in respect of aforesaid enclosures alongwith the Contractor's remarks, wherever required, is attached as **Annexure - Check List** herewith.

THE CONTRACTOR shall incorporate modifications/changes in this 'Safety Plan' necessitated on the basis of review/comments of the Engineer In-Charge/Project Manager within fourteen (14) days of receipt of review/comments and on final approval of the Engineer In-Charge/Project Manager of this 'Safety Plan', the Contractor shall execute the works under the Contract as per approved 'Safety Plan'. Further, the Contractor has also noted that the first progressive payment towards Services Contract shall be made on submission of 'Safety Plan' alongwith all requisite documents and approval of the same by the Engineer In-Charge/Project Manager.

IN WITNESS WHEREOF, the Contractor has hereunto set its hand through its authorised representative under the common seal of the Company, the day, month and year first above mentioned.

For and on behalf of

NECCO POWER & INFRALIMITED JORHAT

M/s....................................

WITNESS

1. Signature..Dj.........

Name..Dheeraj chauhan

Address..Multi Storeyed RCC Building, Demseiniong Opp. - NEEPCO, East Khasi Hills, Meghalaya Shillong-793041

2. Signature..Binod Kumar

Name..BINOD KUMAR

Address..Multi Storeyed RCC Building, Demseiniong Opp. NEEPCO. East Khasi Hills, Meghalaya Shillong - 793041

Signature.......................

Name..T.R. Sharma Director (Tech.)

Address..........................

Authorised representative

(Common Seal)

(In case of Company)

NECCON POWER & INFRA LIMITED JORHAT

Note:

All the annexure referred to in this "Safety Plan" are required to be enclosed by the contractor as per the attached " Check List "

1. Safety Plan is to be executed by the authorised person and (i) in case of contracting Company under common seal of the Company or (ii) having the power of attorney issued under common seal of the company with authority to execute such contract documents etc., (iii) In case of (ii), the original Power of Attorney if it is specifically for this Contract or a Photostat copy of the Power of Attorney if it is General Power of Attorney and such documents should be attached to this Safety Plan.

2. For all safety monitoring/ documentation, Engineer In-charge / Regional In-charge of safety at RHQ will be the nodal Officers for communication.

NECCON POWER & INFRA LIMITED JORHAT

CHECK LIST FOR SEFETY PLAN

S. N.	Details of Enclosure	Status of Submission of information/ documents	Remarks
1.	**Annexure – 1A (SP)** Safe work procedure for each activity i.e. foundation works including civil works, erection, stringing (as applicable), testing & commissioning, disposal of materials at site / store etc. to be executed at site.	Yes	Enclosed at Page No. 16-18 (For concreting ,for Excavation & foundation for Erection & Transportation of tower parts, for stringing for crossing LT lines , for operation of mixers, during survey, for store, during tree cutting ,for shutdown during line crossing ,railway crossing and NH crosses.)
2.	**Annexure – 1B (SP)** Manpower deployment plan, activity wise foundation works including civil works, erection, stringing (as applicable), testing & commissioning, disposal of materials at site / store etc.	Yes	Enclosed at Page No. 29
3.	**Annexure – 2 (SP)** List of Lifting Machines i.e. Crane, Hoist, Triffor, Chain Pulley Blocks etc. and Lifting Tools and Tackles i.e. D shackle, Pulleys, come along clamps, wire rope slings etc. and all types of ropes i.e. Wire ropes, Poly propylene Rope etc. used for lifting purposes along with test certificates.	Yes	All Lifting Tools & Tackles are used, certified by competent person Page No. 30
4.	**Annexure – 3 (SP)** List of Personal Protective Equipment (PPE), activity wise including the following along with test certificate of each as applicable: 1. Industrial Safety Helmet to all workmen at site. (EN 397 / IS 2925) with chin strap and back stay arrangement. 2. Safety shoes without steel toe to all ground level workers and canvas shoes for workers working on tower.	Yes	Industrial Safety Helmet-IS 2925: 1964 Equipment for Eye and Face protection-IS 1179 :1967, Protective Filters for Welding & cutting-IS 5983: 1971,Rubber gloves for

NEC CONSTRUCTION POWER & INFRA LIMITED JORHAT

S. N.	Details of Enclosure	Status of Submission of information/ documents	Remarks
	3. Rubber Gum Boot to workers working in rainy season / concreting job. 4. Twin lanyard Full Body Safety harness with shock absorber and leg strap arrangement for all workers working at height for more than three meters. Safety Harness should be with attachments of light weight such as of aluminium alloy etc. and having a feature of automatic locking arrangement of snap hook and comply with EN 361 / IS 3521 standards. 5. Mobile fall arrestors for safety of workers during their ascending / descending from tower / on tower. EN 353 -2 (Guided type fall arresters on a flexible anchorage line.) 6. Retractable type fall arrestor (EN360: 2002) for ascending / descending on suspension insulator string etc. 7. Providing of good quality cotton hand gloves / leather hand gloves for workers engaged in handling of tower parts or as per requirement at site. 8. Electrical Resistance hand gloves to workers for handling electrical equipment / Electrical connections. IS : 4770 9. Dust masks to workers handling cement as per requirement. 10. Face shield for welder and Grinders. IS : 1179 / IS : 2553 11. Other PPEs, if any, as per requirement etc.		Electrical purposes-IS 4770:1968,Full Body (Harness Double Lanyard)-IS 3521:1965,Safety Shoes-IS 3737:1966. Other items, whenever required, shall be made available at site. Page No. 31
5.	**Annexure – 4 (SP)** List of Earthing Equipment / Earthing devices with Earthing lead conforming to IECs for earthing equipments are – (855, 1230, 1235 etc.) gang wise for stringing activity/as	Yes	Shall be available when required at site

S. N.	Details of Enclosure	Status of Submission of information/ documents	Remarks
	per requirement		
6.	**Annexure – 5A (SP)** List of Qualified Safety Officer(s) alongwith their contact details	] Yes	Enclosed at Page No. 33
7.	**Annexure – 5B (SP)** Details of Explosive Operator (if required), Safety officer / Safety supervisor for every erection / stinging gang, any other person nominated for safety, list of personnel trained in First Aid as well as brief information about safety set up by the Contractor alongwith copy of organisation of the Contractor in regard to safety	No	Not Applicable
8.	**Annexure – 6 (SP)** Copy of Safety Policy/ Safety Document of the Contractor's company	Yes	Enclosed at Page No. 34
9.	**Annexure – 7 (SP)** 'Emergency Preparedness Plan' for different incidences i.e. Fall from height, Electrocution, Sun Stroke, Collapse of pit, Collapse of Tower, Snake bite, Fire in camp / Store, Flood, Storm, Earthquake, Militancy etc. while carrying out different activities under execution i.e. foundation works including civil works, erection, stringing (as applicable), testing & commissioning, disposal of materials at site / store etc.	Yes	Enclosed at Page No. 35-46
10.	**Annexure – 8 (SP)** Safety Audit Check Lists (Formats to be enclosed)	Yes	Enclosed at Page No. 47-50
11.	**Annexure – 9 (SP)**	Yes	

NEC CONSTRUCTION & INFRA LIMITED JORHAT

S. N.	Details of Enclosure	Status of Submission of information/ documents	Remarks
	Copy of the module of Safety Training Programs on Safety, Health and Environment, safe execution of different activities of works for Contractor's own employees on regular basis and sub contractor employees.		Enclosed at Page No. 51-52
12.	**Annexure – 10A (SP)** Information alongwith documentary evidences in regard to the Contractor's compliance to various statutory requirements including the following:		
(i)	Electricity Act 2003 ________________ *[Name of Documentary evidence in support of compliance]*	Yes	All protection shall be taken as per E-Act 2003
(ii)	Factories Act 1948 ________________ *[Name of Documentary evidence in support of compliance]*	Yes	Not applicable
(iii)	Building & other construction workers (Regulation of Employment and Conditions of Services Act and Central Act 1996) and Welfare Cess Act 1996 with Rules. ________________ *[Name of Documentary evidence in support of compliance]*	Yes	Registration under BOCW placed at Page No. 67-68
(iv)	Workmen Compensation Act 1923 and Rules. ________________ *[Name of Documentary evidence in support of compliance]*	Yes	Enclosed at Page No. 54-56
(v)	Public Insurance Liabilities Act 1991 and Rules.	Yes	Covered at 13 (ii) of this check list

NECCON POWER & INFRA LIMITED JORHAT

S. N.	Details of Enclosure	Status of Submission of information/ documents	Remarks
	_____ [*Name of Documentary evidence in support of compliance*]		
(vi)	Indian Explosive Act 1948 and Rules. _____ [*Name of Documentary evidence in support of compliance*]	No	Not Applicable
(vii)	Indian Petroleum Act 1934 and Rules. _____ [*Name of Documentary evidence in support of compliance*]	No	-do-
(viii)	License under the contract Labour (Regulation & Abolition) Act 1970 and Rules. _____ [*Name of Documentary evidence in support of compliance*]	Yes	Enclosed Page No. 54-55
(ix)	Indian Electricity Rule 1956 and amendments if any, from time to time. _____ [*Name of Documentary evidence in support of compliance*]	Yes	All works shall be carried out as per E-Act 2003 & IE Rule 1956
(x)	The Environment (Protection) Act 1986 and Rules. _____ [*Name of Documentary evidence in support of compliance*]	Yes	All protection shall be taken as per Act & Rules
(xi)	Child Labour (Prohibition & Regulation) Act 1986. _____	Yes	All protection shall be taken as per Act & Rules

NECO POWER & INFRA LIMITED JORHAT

ANNEXURE-9

Safety/Penalty Provisions in Contract Conditions

ordered by the Employer consistent with the requirements of the Contract.

PC 21.4 Replace the word '**materials**' in line no. 2 with '**Plant and Equipment**'.

Add the word '**including liabilities for port charges if any**' after the word '**clearance**' in line no. 3.

Addition of Sub-Clauses (PC22.2.3.1, PC22.2.3.2, PC22.2.3.3, PC 22.2.3.4) of GC 22.2.3

PC 22.2.3.1 Compliance with Labour Regulations

During continuance of the contract, the Contractor and his sub-contractors shall abide at all times by all applicable existing labour enactments and rules made thereunder, regulations notifications and byelaws of the State or Central Government or local authority and any other labour law (including rules), regulations bye laws that may be passed or notification that may be issued under any labour law in future either by the State or the Central Government or the local authority. The employees of the Contractor and the Sub-contractor in no case shall be treated as the employees of the Employer at any point of time.

PC 22.2.3.2 The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made thereunder, regulations or notifications including amendments.

PC 22.2.3.3 If the Employer is caused to pay under any law as principal employer such amounts as may be necessary to cause or observe, or for non observance of the provisions stipulated in the notifications/ byelaws/Acts/ Rules/regulations including amendments, if any, on the part of the Contractor, the Employer shall have the right to deduct any money due to the Contractor under this contract or any other contract with the employer including his amount of performance security for adjusting the aforesaid payment. The Employer shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer.

PC 22.2.3.4 Salient features of some major laws applicable to establishments engaged in building and other construction works are indicated at **Appendix-I** to PC.

Addition of New Sub-Clauses (PC22.4.1 to 22.4.3 including its sub-clauses) of GC 22.4

PC 22.4.1 **Protection of Environment**

The Contractor shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other

causes arising as consequence of his methods of operation.

During continuance of the Contract, the Contractor and his Sub-contractors shall abide at all times by all existing enactments on environmental protection and rules made there under, regulations, notifications and bye-laws of the State or Central Government, or local authorities and any other law, bye-law, regulations that may be passed or notification that may be issued in this respect in future by the State or Central Government or the local authority.

Salient features of some of the major laws that are applicable are given below:

The Water (Prevention and Control of Pollution) Act, 1974, This provides for the prevention and control of water pollution and the maintaining and restoring of wholesomeness of water. 'Pollution' means such contamination of water or such alteration of the physical, chemical or biological properties of water or such discharge of any sewage or trade effluent or of any other liquid, gaseous or solid substance into water (whether directly or indirectly) as may, or is likely to, create a nuisance or render such water harmful or injurious to public health or safety, or to domestic, commercial, industrial, agricultural or other legitimate uses, or to the life and health of animals or plants or of aquatic organisms.

The Air (Prevention and Control of Pollution) Act, 1981, This provides for prevention, control and abatement of air pollution. 'Air Pollution' means the presence in the atmosphere of any 'air pollutant', which means any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.

The Environment (Protection) Act, 1986, This provides for the protection and improvement of environment and for matters connected therewith, and the prevention of hazards to human beings, other living creatures, plants and property. 'Environment' includes water, air and land and the inter-relationship which exists among and between water, air and land, and human beings, other living creatures, plants, micro-organism and property.

The Public Liability Insurance Act, 1991, This provides for public liability insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling hazardous substances and for matters connected herewith or incidental thereto. Hazardous substance means any substance or preparation which is defined as hazardous substance under Environment (Protection) Act, 1986, and exceeding such quantity as may be specified by notification by the Central Government.

PC 22.4.2 (i) The Contractor shall (a) establish an operational system of managing environmental impacts, (b) carry out all the monitoring and mitigation measures set forth in the environment management plan attached to the Particular Conditions as Appendix-I, and (c) allocate the budget required

to ensure that such measures are carried out. The Contractor shall submit to the Employer (quarterly) semi-annual) reports on the carrying out of such measures.

(ii) The Contractor shall adequately record the conditions of roads, agricultural land and other infrastructure prior to transport of material and construction commencement, and shall fully reinstate pathways, other local infrastructure and agricultural land to atleast their pre-project condition upon construction completion.

(iii) The Contractor shall undertake detailed survey of the affected persons during transmission line alignment finalization under the Project, where applicable. and

(iv) The Contractor shall conduct health and safety programme for workers employed under the Contract and shall include information on the risk of sexually transmitted diseases, including HIV/AIDS in such programs.

PC 22.4.3 Safety Precautions

PC 22.4.3.1 The Contractor shall observe all applicable regulations regarding safety on the Site.

Unless otherwise agreed, the Contractor shall, from the commencement of work on Site until taking over, provide:

a) fencing, lighting, guarding and watching of the Works wherever required, and

b) temporary roadways, footways, guards and fences which may be necessary for the accommodation and protection of Employer / his representatives and occupiers of adjacent property, the public and others.

PC 22.4.3.2 The Contractor shall ensure proper safety of all the workmen, materials, plant and equipment belonging to him or to THE EMPLOYER or to others, working at the Site. The Contractor shall also be responsible for provision of all safety notices and safety equipment required both by the relevant legislations and the Engineer, as he may deem necessary.

PC 22.4.3.3 The Contractor will notify well in advance to the Engineer of his intention to bring to the Site any container filled with liquid or gaseous fuel or explosive or petroleum substance or such chemicals which may involve hazards. The Engineer shall have the right to prescribe the conditions, under which such container is to be stored, handled and used during the performance of the works and the Contractor shall strictly adhere to and comply with such

instructions. The Engineer shall have the right at his sole discretion to inspect any such container or such construction, plant/equipment for which material in the container is required to be used and if in his opinion, its use is not safe, he may forbid its use. No claim due to such prohibition shall be entertained by the Owner and the Owner shall not entertain any claim of the Contractor towards additional safety provisions/conditions to be provided for/constructed as per the Engineer's instructions.

Further, any such decision of the Engineer shall not, in any way, absolve the Contractor of his responsibilities and in case, use of such a container or entry thereof into the Site area is forbidden by the Engineer, the Contractor shall use alternative methods with the approval of the Engineer without any cost implication to THE EMPLOYER or extension of work schedule.

PC 22.4.3.4 Where it is necessary to provide and/or store petroleum products or petroleum mixtures and explosives, the Contractor shall be responsible for carrying-out such provision and/or storage in accordance with the rules and regulations laid down in Petroleum Act 1934, Explosives Act, 1948 and Petroleum and Carbide of Calcium Manual published by the Chief Inspector of Explosives of India. All such storage shall have prior approval of the Engineer. In case, any approvals are necessary from the Chief Inspector (Explosives) or any statutory authorities, the Contractor shall be responsible for obtaining the same.

PC 22.4.3.5 All equipment used in construction and erection by Contractor shall meet Indian/International Standards and where such standards do not exist, the Contractor shall ensure these to be absolutely safe. All equipment shall be strictly operated and maintained by the Contractor in accordance with manufacturer's Operation Manual and safety instructions and as per Guidelines/rules of THE EMPLOYER in this regard.

PC 22.4.3.6 Periodical examinations and all tests for all lifting/hoisting equipment & tackles shall be carried-out in accordance with the relevant provisions of Factories Act 1948, Indian Electricity Act 1910 and associated Laws/Rules in force from time to time. A register of such examinations and tests shall be properly maintained by the Contractor and will be promptly produced as and when desired by the Engineer or by the person authorised by him.

PC 22.4.3.7 The Contractor shall be fully responsible for the safe storage of his and his Sub-Contractor's radioactive sources in accordance with BARC/DAE Rules and other applicable provisions. All precautionary measures stipulated by

BARC/DAE in connection with use, storage and handling of such material will be taken by the Contractor.

PC 22.4.3.8 The Contractor shall provide suitable safety equipment of prescribed standard to all employees and workmen according to the need, as may be directed by the Engineer who will also have right to examine these safety equipment to determine their suitability, reliability, acceptability and adaptability.

PC 22.4.3.9 Where explosives are to be used, the same shall be used under the direct control and supervision of an expert, experienced, qualified and competent person strictly in accordance with the Code of Practice/Rules framed under Indian Explosives Act pertaining to handling, storage and use of explosives.

PC 22.4.3.10 The Contractor shall provide safe working conditions to all workmen and employees at the Site including safe means of access, railings, stairs, ladders, scaffoldings etc. The scaffoldings shall be erected under the control and supervision of an experienced and competent person. For erection, good and standard quality of material only shall be used by the Contractor.

PC 22.4.3.11 The Contractor shall not interfere or disturb electric fuses, wiring and other electrical equipment belonging to the Owner or other Contractors under any circumstances, whatsoever, unless expressly permitted in writing by THE EMPLOYER to handle such fuses, wiring or electrical equipment

PC 22.4.3.12 Before the Contractor connects any electrical appliances to any plug or socket belonging to the other Contractor or Owner, he shall:

a. Satisfy the Engineer that the appliance is in good working condition;

b. Inform the Engineer of the maximum current rating, voltage and phases of the appliances;

c. Obtain permission of the Engineer detailing the sockets to which the appliances may be connected.

PC 22.4.3.13 The Engineer will not grant permission to connect until he is satisfied that:

a. The appliance is in good condition and is fitted with suitable plug;
b. The appliance is fitted with a suitable cable having two earth conductors, one of which shall be an

earthed metal sheath surrounding the cores.

PC 22.4.3.14 No electric cable in use by the Contractor/Owner will be disturbed without prior permission. No weight of any description will be imposed on any cable and no ladder or similar equipment will rest against or attached to it.

PC 22.4.3.15 No repair work shall be carried out on any live equipment. The equipment must be declared safe by the Engineer and a permit to work shall be issued by the Engineer before any repair work is carried out by the Contractor. While working on electric lines/equipment, whether live or dead, suitable type and sufficient quantity of tools will have to he provided by the Contractor to electricians/workmen/officers.

PC 22.4.3.16 The Contractors shall employ necessary number of qualified, full time electricians/electrical supervisors to maintain his temporary electrical installation.

PC 22.4.3.17 The Contractor employing more than 250 workmen whether temporary, casual, probationer, regular or permanent or on contract, shall employ at least one full time officer exclusively as safety officer to supervise safety aspects of the equipment and workmen, who will coordinate with the Project Safety Officer. In case of work being carried out through Sub-Contractors, the Sub-Contractor's workmen/employees will also be considered as the Contractor's employees/workmen for the above purpose.

The name and address of such Safety Officers of the Contractor will be promptly informed in writing to Engineer with a copy to Safety Officer-In charge before he starts work or immediately after any change of the incumbent is made during currency of the Contract.

PC 22.4.3.18 In case any accident occurs during the construction/ erection or other associated activities undertaken by the Contractor thereby causing any minor or major or fatal injury to his employees due to any reason, whatsoever, it shall be the responsibility of the Contractor to promptly inform the same to the Engineer in prescribed form and also to all the authorities envisaged under the applicable laws.

PC 22.4.3.19 The Engineer shall have the right at his sole discretion to stop the work, if in his opinion the work is being carried out in such a way that it may cause accidents and endanger the safety of the persons and/or property, and/or equipment. In such cases, the Contractor shall be informed in writing about the nature of hazards and

possible injury/accident and he shall comply to remove shortcomings promptly. The Contractor after stopping the specific work can, if felt necessary, appeal against the order of stoppage of work to the Engineer within 3 days of such stoppage of work and decision of the Engineer in this respect shall be conclusive and binding on the Contractor.

PC 22.4.3.20 The Contractor shall not be entitled for any damages/compensation for stoppage of work due to safety reasons as provided in para GCC 22.4.3.19 above and the period of such stoppage of work will not be taken as an extension of time for completion of work and will not be the ground for waiver of levy of liquidated damages.

PC 22.4.3.21 It is mandatory for the Contractor to observe during the execution of the works: requirements of Safety Rules which would generally include but not limited to following:

Safety Rules

a) Each employee shall be provided with initial indoctrination regarding safety by the Contractor, so as to enable him to conduct his work in a safe manner.

b) No employee shall be given a new assignment of work unfamiliar to him without proper introduction as to the hazards incident thereto, both to himself and his fellow employees.

c) Under no circumstances shall an employee hurry or take unnecessary chance when working under hazardous conditions.

d) Employees must not leave naked fires unattended. Smoking shall not be permitted around fire prone areas and adequate fire fighting equipment shall be provided at crucial location.

e) Employees under the influence of any intoxicating beverage, even to the slightest degree shall not be permitted to remain at work.

f) There shall be a suitable arrangement at every work site for rendering prompt and sufficient first aid to the injured.

g) The staircases and passageways shall be adequately lighted.

h) The employees when working around moving machinery, must not be permitted to wear loose

EMPLOYER employees or any other person who are at Site or adjacent thereto, then the Contractor shall be responsible for payment of a sum as indicated below to be deposited with THE EMPLOYER, which will be passed on by THE EMPLOYER to such person or next to kith and kin of the deceased:

a.	Fatal injury or accident causing death	Rs. 1,000,000/- per person
b.	Major injuries or accident causing 25% or more permanent disablement	Rs. 100,000/- per person

Permanent disablement shall have same meaning as indicated in Workmen's Compensation Act. The amount to be deposited with THE EMPLOYER and passed on to the person mentioned above shall be in addition to the compensation payable under the relevant provisions of the Workmen's Compensation Act and rules framed there under or any other applicable laws as applicable from time to time. In case the Contractor does not deposit the above mentioned amount with THE EMPLOYER, such amount shall be recovered by THE EMPLOYER from any monies due or becoming due to the Contractor under the contract or any other on-going contract.

PC22.4.3.25 If the Contractor observes all the Safety Rules and Codes, Statutory Laws and Rules during the currency of Contract awarded by the Owner and no accident occurs then THE EMPLOYER may consider the performance of the Contractor and award suitable 'ACCIDENT FREE SAFETY MERITORIOUS AWARD' as per scheme as may be announced separately from time to time.

PC22.4.3.26 The Contractor shall also submit 'Safety Plan' as per proforma specified in Section IX: Contract Forms, Part-3 of Bidding Documents alongwith all the requisite documents mentioned therein and as per check-list contained therein to the Engineer In-Charge for its approval within 60 days of award of Contract.

Further, one of the conditions for release of first progressive payment / subsequent payment towards Services Contract shall be submission of 'Safety Plan' alongwith all requisite documents and approval of the same by the Engineer In-Charge.

PC 22.6 **Emergency Work (GC Clause 22.6)**

Replace the words "Otherwise" with "In case such work is not in the scope of the Contractor", in the second last line of second paragraph of GC clause 22.6.

PC 23.3 **Supplementing sub-clause GC 23.3**

For notification of testing, four weeks shall be deemed as reasonable advance notice.

PC 23.7 **Test and Inspection (GC Clause 23.7)**

Replace the words "GC Sub-Clause 6.1" with "GC Sub-Clause 46.1", in the last line of GC clause 23.7.

PC 24 **Replace the marginal words/headings 'Completion of the Facilities' with 'Pre Commissioning'**

PC 24.5 **Replace sub clause GC 24.5 with the following:**

The Project Manager shall, within fourteen (14) days after receipt of the Contractor's notice under sub clause GC 24.4, notify the Contractor in writing of any defects and/or deficiencies.

If the Project Manager notifies the Contractor of any defects and/or deficiencies, the Contractor shall then correct such defects and/or deficiencies, and shall repeat the procedure described in sub clause GC 24.4. If the Project Manager is satisfied that the Facilities or that part thereof have passed Pre-commissioning, the Project Manager shall, within fourteen (14) days after receipt of the Contractor's notice/ seven (7) days after receipt of the Contractor's repeated notice, advise the Contractor to proceed with the Commissioning of the Facilities or that part thereof. If the Project Manager is not so satisfied, then it shall notify the Contractor in writing of any defects and/or deficiencies within seven (7) days after receipt of the Contractor's repeated notice, and the above procedure shall be repeated.

PC 24.6 **Replacing Sub-Clause GC 24.6**

If the Project Manager fails to advise the Contractor to proceed with the Commissioning of the Facilities or the relevant part thereof or inform the Contractor of any defects and/or deficiencies within fourteen (14) days after receipt of the Contractor's notice under GC Sub-Clause 24.4 or within seven (7) days after receipt of the Contractor's repeated notice under GC Sub-Clause 24.5, then the Facilities or that part thereof shall be deemed to have passed Precommissioning, as of the date of the Contractor's notice or repeated notice, as the case may be.

PC 24.7 **Replace the word 'Completion' with 'Pre-commissioning' in the 1st line of sub clause GC 24.7**

ANNEXURE-10

Labour License and Insurance Policy for Workers

Regd.A/D.

GOVERNMENT OF INDIA
MINISTRY OF LABOUR & EMPLOYMENT
OFFICE OF THE ASSISTANT LABOUR COMMISSIONER(CENTRAL)
KENDRIYA SHRAM SADAN,R.K.MISSION.ROAD,BIRUBARI,GUWAHATI-16

No.54(15)/2016–G/A dated:-05.11.18

To
M/s.Unique Structure & Towers Limited,
(Rep. by Shri R.K.Bansal,M.D)
1-A,Light Industrial Area,
Bhilai-490 026.

Subject:- Inter State Migrant Workmen(Regulation of Employment and condition Of Service)Act,1979_ Renewal of Licence No.54/15/16-ISMW dated 13.12.16

Dear Sir,

Please refer to your application dated 05.11.18 for renewal of labour licence received in this office on 05.11.18 under Inter State Migrant Workmen (Regulation of Employment and condition of Service)Act,1979

In this connection please find enclose herewith the Original licence renewed upto **12.12.19.**

Please acknowledge receipt.

Yours faithfully,

Enclo:-Original Licence

(Hari Om Gautam)
Assistant Labour Commissioner(Central)
& Registering Officer under ISMW(RE&CS)Act,1979

Assistant Labour Commissioner (Central)
Government of India
Guwahati

Copy for information to:-
1.The Dy.Chief Labour Commissioner©,Guwahati.

Assistant Labour Commissioner(Central)
& Registering Officer under ISMW(RE&CS)Act,1979.

Assistant Labour Commissioner (Central)
Government of India
Guwahati

FORM-VII

[(See Rule 11(1)]

Government of India

Ministry of Labour & Employment

Office of the Licencing Officer &

Assistant Labour Commissioner(Central)

KENDRIYA SHRAM SADAN,R.K.Mission Road,Birubari

Guwahati-781016

Licence NO:ISMW.54/15/2016-G/A Dated 13.12.16 Fee paid Rs.80/-

1) Licence is hereby granted to M/s Unique Structure & Towers Ltd. (Rep.by:-Shri R.K.Bansal.M.D) 1-A,Light Industrial Area, Bhilai-400 026 under section 8(1)on the Inter State Migrant Workmen (Regulation of Employment and conditions of Services)Act,1979, subject to the conditions specified in the Annexure.

2) This licence is for doing the work of::: *Service Contract for Topwer Package TW02 associated with NER Power System Improvement Project(Intra-State: Meghalaya) vide No.CC-CS/91-NER/TWT-2469/1/G4/NOA-II/5844 dt:- 29.06.16 under the establishment of* The Deputy General Manager,POWERGRID,Dongtieh,Lower Nongrah,Lapalang, Shillong-793006

3) The licence shall remain in force till 12.12.2017

(Hari Om Gautam)

Assistant Labour Commissioner(CENTRAL)

& Licencing Officer under ISMW(RE&CS)Act,1979

GUWAHATI

(RENEWAL)

(See Rule 14)

Date of Renewal	Fee Paid for renewal	Date of expiry
30.10.2017	Rs.80.00 (EIGHTY)only	12.12.2018
05.11.2018	Rs.80.00	12.12.2019

A.L.C.(C) GUWAHATI

MIGRANT LABOUR

Date:

Signature and Seal of Licencing Officer

for 50 (FIFTY)only MIGRANT LABOUR

REGISTERED A/D/

GOVERNMENT OF INDIA
MINISTRY OF LABOUR & EMPLOYMENT
OFFICE OF THE ASSISTANT LABOUR COMMISSIONER(CENTRAL)
KENDRIYA SHRAM SADAN,R.K.MISSION.ROAD,BIRUBARI,GUWAHATI-16

No.46(289)/2016–G/A

dated:-05.11.18

To
M/s.Unique Structure & Towers Ltd.
(Rep. by Shri R.K.Bansal,M.D)
1-A,Light Industrial Area,
Bhilai-400026.

Subject:-Contract Labour(Regulation & Abolition)Act,1970 and Contract Labour (Regulation & Abolition) Central Rules,1971-Renewal of Labour of licence No. Gh.46/289/2016-L dated 09.11.16.

Dear Sir,

Please refer to your application dtd.05.11.18 for renewal of labour licence under Contract Labour (Regulation & Abolition) Act,1970 received in this office on 05.11.18.

In this connection please find enclose herewith the original Licence renewed upto 08.11.19.

Please acknowledge receipt.

Yours faithfully,

Enclo:-Original Licence

(Hari Om Gautam)
Assistant Labour Commissioner(Central)
& Licencing Officer under CL(R&A)Act,1970.

Assistant Labour Commissioner (C)
& Licensing & Registering Officer under
Contract Labour (R&A) Act. 1970

Copy for information to:-
1.The Dy.C.L.C©,Guwahati for information.

Assistant Labour Commissioner(Central)&
Licencing Officer under CL(R&A)Act,1970

Assistant Labour Commissioner (C)
& Licensing & Registering Officer under
Contract Labour (R&A) Act. 1970

FORM-VI

[(See Rule 25(1)]

Government of India

Ministry of Labour & Employment

Office of the Licencing Officer & Assistant Labour Commissioner(Central)

KENDRIYA SHRAM SADAN,R.K.Mission Road,Guwahati-781016

ASSISTANT LABOUR COMMISSIONER(C) GUWAHATI
The Contract Labour (Regulation& Aboliti on) Act 1970
Registering Officer
Licencing Officer
GOVT OF INDIA

Licence No. GH.46/289/2016-L Dated: 09.11.16 Fee paid: Rs.150.00

1) Licence is hereby granted to M/s Unique Structure & Towers Ltd. (Rep.by:-Shri R.K.Bansal.M.D) 1-A,Light Industrial Area, Bhilai-400 026 under section 12(1)of the Contract Labour (Regulation and Abolition)Act,1970 subject to the conditions specified in the Annexure.

2) This licence is for doing the work of *Service Contract for Topwer Package TW02 associated with NER Power System Improvement Project(Intra-State:Meghalaya) vide No.CC-CS/91-NER/TWT-2469/1/G4/NOA-II/5844 dt:- 29.06.16 under the establishment of:::::::::::::* The Deputy General Manager,POWERGRID,Dongtieh,Lower Nongrah,Lapalang, Shillong-793006

3) The licence shall remain in force till *08.11.2017*

Date: 09.11.16

(HARI OM GAUTAM)
Assistant Labour Commissioner(Central)
and Licencing Officer under C.L.(R&A)Act,1970
GUWAHATI

Assistant Labour Commissioner (C)
& Licensing & Registering Officer under
Contract Labour (R&A) Act, 1970

(RENEWAL)

(See Rule 29)

Date of Renewal	Fee Paid for renewal	Date of expiry	
30.10.2017 05.11.2018	Rs.188.00 (ONE HUNDRED EIGHTY EIGHT) Rs.240.00	08.11.2018 08.11.2019	A.L.C.(C) GUWAHATI

Date:

ANNEXURE

The Licence is subject to the following conditions:-

1) The Licence shall be non transferable.

2) The number of workmen employed as contract labour in the establishment shall not, on any day exceed **200** (TWO HUNDRED)only

Contd..Page.2

ICICI Lombard
Nibhaye Vaade

ICICI Lombard General Insurance Company LTD
ICICI LOMBARD HOUSE 414, Veer Savarkar Marg
Near Siddhi Vinayak Temple, Prabhadevi, Mumbai 400 025

WORKMAN COMPENSATION INSURANCE

UIN- IRDAN115P0010V01200607 Misc 10

POLICY SCHEDULE

Policy No. 4010/164227752/00/000 (TRUE COPY) Issued at MUMBAI

1. Name of the Insured: UNIQUE STRUCTURES & TOWERS LTD
2. Address of the Insured: A1, Light Industrial Area, Bhilai
   Durg
   Chhattisgarh Pin- 490026
3. Total Sum Insured: 3,00,00,000.00
4. Scope of cover:

   Main Coverage: WC Liability Cover Table 'A'

   Extensions

   Endorsement

   (i) Table A: Coverage provided is Indemnity against legal liability for accidents to employees under the Workmen's Compensation Act, 1923 and subsequent amendments of the said Act prior to the date of the issue of the policy; The Fatal Accidents Act 1855 and at Common Law only

Exclusions:

(i) Any employment compensation in excess of the actual sum insured for workmen compensation ordinance (not to apply in respect of common law awards)
(ii) Losses suffered in the course of manufacturing and /or supplying and/or producing storing, filling, breaking down, transporting Fireworks, ammunition, fuses, cartridges, powder, nitro-glycerine, or any explosives.
(iii) Losses suffered in the course of manufacturing and /or supplying and/or producing storing, filling, breaking down, transporting Gases and/or air under pressure in containers.
(iv) Losses suffered in the course of manufacturing and /or supplying and/or producing storing, filling, breaking down, transporting Butane, methane, propane, and other liquefied gases.
(v) Losses suffered in the course of manufacturing and /or supplying and/or producing storing, filling, breaking down, transporting Celluloid and pyroxylin.
(vi) Losses suffered in the course of manufacturing and /or supplying and/or producing storing, filling, breaking down, transporting Petrochemicals and also chemicals of a toxic (as defined under India Public Liability Act 1991), noxious, explosive and/or highly flammable nature.
(vii) Losses suffered in the course of Manufacturing and /or supplying and/or producing storing, filling, down,transporting Asbestos and/or asbestos products.
(viii) It is understood and agreed, however, that the storage, transport and/or handling if any of the substances above mentioned other than f) which is merely incidental to the operation and/or trade of the Insureds not otherwise excluded is covered
(ix) Underground and/or underwater mines and/or underground services in connection therewith. However, this exclusion shall only apply where more than 20 people are working at the same location at any one time.
(x) Subaqueous work (underwater work).
(xi) Quarries, where explosives are used.
(xii) Losses suffered on or in connection with offshore rigs.
(xiii) Aircraft crews in respect of flight risk. However, this exclusion shall not apply to aircraft which are set aside for non fare paying executive use and which are crewed by six persons or less.
(xiv) Ship crews other than on inland vessels or on vessels operating within territorial waters. However, this exclusion shall not apply to a vessel crewed by six persons or less.
(xv) Fire brigades other than those formed privately for loss prevention purposes.
(xvi) Service in any kind of armed forces (including, but not limited to military, police, security services).
(xvii) Operation of railways, other than sidings.
(xviii) Employees employed on a permanent basis in USA and/or Canada.
(xix) Professional sports team.
(xx) Contractors engaged exclusively in wrecking or demolition of building and/or scrap metal merchants.
(xxi) Any compensation in medical extension expenses if the injured is hospitalized for more than 12 month due to an accident as per the coverage opted in WC policy.

Conditions:

(i) Classification Code : 157(Up to 9 meters),157A (Above 9 meters)
(ii) Compressed air disease not covered.
(iii) Terrorism is not covered under the policy.
(iv) Medical expenses covered upto Rs 50,000
(v) Entry age limit: As per WC Act
(vi) Sub Contractors of the contractors are covered in this policy

Nature of work/activity	ELECTRIFICATION OF TOWERS
Policy type	UNNAMED
Entry age limit	As per WC Act
Policy cover	table A
Risk classification code	157A , 157

No of lives 500

Special Conditions:

(i) (i)Occupational Diseases are not covered.
(ii) For resolution of any query or grievance, Insured may contact the respective branch office of the Company or may call toll free no.1800-2666 or may approach us at the sub section Grievance Redressal on our website www.icicilombard.com (Customer Support section). However, if the resolution provided by us is not satisfactory you may approach Insurance Regulatory and Development Authority (IRDA) through the Integrated Grievance Management Section (IGMS) or IRDA Grievance Call Centre(IGCC) at their toll free no.155255.

Clauses:

(i) Table A: Coverage provided is Indemnity against legal liability for accidents to employees under the Workmen's Compensation Act, 1923 and subsequent amendments of the said Act prior to the date of the issue of the policy; The Fatal Accidents Act 1855 and at Common Law only

5. Period of Insurance: From: 30/01/2019 Time: 00:00 Hours
To Midnight of 29/01/2020

6. Premium Calculations

Premium Break Up	(Rs.)	Premium (Rs.)
Stamp Duty	(Rs.)	119.00
*Total Premium	(Rs.)	280,000.84

*Premium value mentioned above is inclusive of taxes applicable

7. Details of workmen to be insured

Estimated Number of Employees	Occupation of Employees	Estimated Total Salaries Wages and other money earnings	Estimated Total Earnings for the Policy Duration	Place or Places of Employment	Industry Classification	Sub Industry Classification	Risk Classification Code
275	skilled	5,000.00	1,65,00,000.00	1. 132KV Phulbari - Ampati TL (69.0 KM) (Proj-54), 2. LILO of 132KV MLHEP-KHLIEHRIAT TL at Mynkre (17 KM) MEGHALAYA, PIN CODE 794105, INDIA	Engineering workshop & Fabrication works (Above 9 meters)	NA	157A
225	skilled	5,000.00	1,35,00,000.00	1. 132KV Phulbari - Ampati TL (69.0 KM) (Proj-54), 2. LILO of 132KV MLHEP-KHLIEHRIAT TL at Mynkre (17 KM) MEGHALAYA, PIN CODE 794105, INDIA	Engineering workshop & Fabrication works (up to 9 meters)	NA	157
Total: 500			Total: 3,00,00,000.00				

Subject otherwise to terms and conditions of Workman's Compensation Insurance Policy

Signed for and on behalf of the ICICI Lombard General Insurance Company limited, at Mumbai on this date 31/01/2019.

The Policy shall stand cancelled ab initio in the event of non-realization of premium.

Authorized Signatory

GSTIN Reg. No: 22AAACI7904G1ZX
IL GIC GSTIN Address : Ground Vanijya Bhawan Devendra Nagar Road Raipur Chattisgarh 492009
HSN/SAC code : 9971 - GENERAL INSURANCE SERVICES

"The stamp duty of Rs. 119.00 paid in cash or by demand draft or by pay order, vide Reciept/challan no. CSD299201914419 dated 11/01/2019."

ICICI Lombard General Insurance Company LTD
ICICI LOMBARD HOUSE, 414, Veer Savarkar Marg,
Near Siddhi Vinayak Temple, Prabhadevi, Mumbai 400 025

WC02 TERRORISM EXCLUSION:

Notwithstanding any provision to the contrary within this Notwithstanding any provision to the contrary within this insurance it is agreed that this insurance excludes loss, damage cost or expense of whatsoever nature directly or indirectly caused by, resulting from or in connection with any act of terrorism regardless of any other cause or event contributing concurrently or in any other sequence to the loss.

For the purpose of this warranty an act of terrorism means an act, including but not limited to the use of force or violence and /or the threat thereof, of any person or group(s) of persons whether acting alone or on behalf of or in connection with any organisation(s) or government(s) committed for political, religious, ideological or similar purpose including the intention to influence any government and/or to put the public, or any section of the public in fear.

The warranty also excludes loss, damage, cost or expenses of whatsoever nature directly or indirectly caused by, resulting from or in connection with any action taken in controlling, preventing, suppressing or to in any way relating to action taken in respect of an act of terrorism.

If the Company alleges that by reason of this exclusion, any loss, damage, cost or expenses is not covered by this insurance the burden of proving the contrary shall be upon the Assured

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ICICI LOMBARD HOUSE 414, Veer Sawarkar Marg
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WORKMAN COMPENSATION INSURANCE POLICY

WHEREAS the Insured carrying on the Business described the Schedule and no other for the purpose of this insurance by a proposal and declaration which shall be the basis of this contract and is deemed to be incorporated herein has applied to the Company for the insurance hereinafter contained and has paid or agreed to pay the Premium as consideration for such insurance.

NOW THIS POLICY WITNESSETH that if at any time during the period of Insurance any employee in the Insured's immediate service shall sustain personal injury by accident or disease arising out of and in the course of his employment by the Insured in the Business and if the Insured shall be liable to pay compensation for such injury either under :

the Law(s) set out in the Schedule

or at

Common Law

then subject to the terms exceptions and conditions contained herein or endorsed hereon the Company will indemnify the Insured against all sums for which the Insured shall be so liable and will in addition be responsible for all costs and expenses incurred with its consent in defending any claim for such compensation.

PROVIDED ALWAYS that in the event of any change in the Law(s) or the substitution of other legislation therefor this Policy shall remain in force but the liability of the company shall be limited to such sum as the Company would have been liable to pay if the Law(s) had remained unaltered.

EXCEPTIONS

The Company shall not be liable under the Policy in respect of :

a) any injury by accident or disease directly attributable to war invasion act of foreign enemy hostilities (whether war be declared or not), civil war, mutiny, insurrection, rebellion, revolution or military or usurped power

b) the Insured's liability to employees of contractors to the Insured.

c) any liability of the Insured which attaches to virtue to an agreement but which would not have attached in the absence of such agreement.

d) any sum which the Insured would have been entitled to recover from any party but for an agreement between the Insured and such party.

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Near Siddhi Vinayak Temple, Prabhadevi, Mumbai 400 025

CONDITIONS:

1. This Policy and the Schedule shall be read together as one contract and any word or expression to which a specific meaning has been attached in any part of this Policy or of the Schedule shall bear such specific meaning wherever it may appear.

2. Every notice or communication to be given or made under this Policy shall be delivered in writing to the Company.

3. The Insured shall take reasonable precautions to prevent accidents and disease and shall comply with all statutory obligations.

4. In the event of any occurrence which may give rise to a claim under this Policy the Insured shall as soon as possible give notice thereof to the Company with full particulars. Every letter, claim, writ, summons and process shall be notified or forwarded to the Company immediately on receipt. Notice shall also be given to the Company immediately the Insured shall have knowledge of any impending prosecution inquest or fatal enquiry in connection with any such occurrence as aforesaid.

5. No admission offer promise or payment shall be made by or on behalf of the Insured without the consent of the Company which shall be entitled if it so desires to take over and conduct in his name the defence or settlement of any claim or to prosecute in his name for its own benefit any claim for indemnity or damages or otherwise and shall have full discretion in the conduct of any proceedings and in the settlement of any claim and the Insured shall give all such information and assistance as the Company may require.

6. The first premium and all renewal premiums that may be accepted are to be regulated by the amount of wages and salaries and other earnings paid by the Insured to employees during each Period of Insurance. The name of every employee together with the amount of wages salary and other earnings shall be properly recorded and the Insured shall at all times allow the Company to inspect such records and shall supply the Company with a correct account of all such wages salaries and other earnings paid during any period of Insurance with one month from expiry date of such Period of Insurance. If the amount so paid shall differ from the amount on which premium has been paid the difference in premium shall be met by a further proportionate payment to the Company or by a refund by the Company as the case may be.

7. The Company may cancel this Policy by sending seven days notice by registered letter to the Insured at his last known address and in such event the premium shall be adjusted in accordance with Condition 6.

8. If any dispute or difference shall arise as to the quantum to be paid under this Policy (liability being otherwise admitted), such difference shall independently of all other questions be referred to the decision of a sole arbitrator to be appointed in writing by the parties to or if they cannot agree upon a single arbitrator within 30 days of any party invoking arbitration, the same shall be referred to a panel of three arbitrators, comprising of two arbitrators, one to be appointed by each of the parties to the dispute/difference and the third arbitrator to be appointed by such two arbitrators and arbitration shall be conducted under and in accordance with the provisions of the Arbitration and Conciliation Act, 1996.

It is clearly agreed and understood that no difference or dispute shall be referable to arbitration as herein before provided, if the Company has disputed or not accepted liability under or in respect of this Policy.

It is hereby expressly stipulated and declared that it shall be a condition precedent to any right of action or suit upon this Policy that the award by such arbitrator/ arbitrators of the amount of the loss or damage shall be first obtained.

It is also hereby further expressly agreed and declared that if the Company shall disclaim liability to the Insured for any claim hereunder and such claim shall not within 12 calendar months from the date of such disclaimer have been made the subject matter of a suit in a court of law, then the claim shall for all purposes be deemed to have been abandoned and shall not thereafter be recoverable hereunder.

9. The due observance and fulfillment of the terms, conditions and endorsements of this Policy so far as they relate to anything to be done or not to be done by the Insured and the truth of the statements and answers in the Proposal shall be conditions precedent to any liability of the Company to make any payment under this Policy.

10. **Grievance Clause**

In case you are aggrieved in any way, You should do the following

i. For resolution of any query or grievance, Insured may contact the respective branch office of The Company or may call us at toll free no. 1800 2666 or email us at customersupport@icicilombard.com or write to us at

Grievance Redressal Officer
ICICI Lombard General Insurance Company Ltd.
ICICI Lombard House, 414, Veer Savarkar Marg,
Near Siddhi Vinayak Temple, Prabhadevi, Mumbai- 400025.

ii. If you are not satisfied with the resolution provided, you may approach us at the sub section "Grievance Redressal" on our website www.icicilombard.com (Customer Support section).

iii. In case your complaint is not fully addressed by the insurer, you may use the Integrated Grievance Management System (IGMS) for escalating the complaint to IRDA. Through IGMS you can register your complaint online and track its status. For registration please visit IRDA website www.irda.gov.in. If the issue still remains unresolved, you may,subject to vested jurisdiction, approach Insurance Ombudsman for the redressal of the grievance.

The details of Insurance Ombudsman are available below:-

Sr. No	Name of office of insurance Ombudsman	Territorial Area of jurisdiction
1	**Ahmedabad:** 2nd Floor, Ambika House, near C.U. Shah college, Ashram road, Ahmedabad-380014 Tel No. 079-27546840, 27545441 Fax No..079-27546412. Email-bimalokpal.ahmedabad@gbic.co.in	State of Gujarat and Union Territories of Dadra & Nagar Haveli and Daman and Diu.
2	**Bengaluru: 19/19,** Jeevan Soudha Building, Ground Floor, 24th Main Road, JP Nagar, 1st Phase, Bengaluru-560 078. Tel.:- 080-26652048 / 26652049 Email:- bimalokpal.bengaluru@gbic.co.in	State of Karnataka.
3	**BHOPAL:** Janak Vihar Complex, 2nd Floor, 6, Malviya Nagar, Opp.Airtel Office, Near New Market, Bhopal-462 033. Tel.:- 0755-2769200/201/202 Fax:- 0755-2769203 Email:- bimalokpalbhopal@gbic.co.in	States of Madhya Pradesh and Chattisgarh.
4	**BHUBANESHWAR:** 62, Forest park, Bhubaneswar-751 009. Tel.:- 0674-2596461 / 2596455 Fax:- 0674-2596429 Email:- bimalokpal.bhubaneswar@gbic.co.in	State of Orissa.
5	**CHANDIGARH:** S.C.O. No. 101, 102 & 103, 2nd Floor, Batra Building, Sector 17-D, Chandigarh-160 017. Tel.:- 0172-2706196/5861 / 2706468 Fax:- 0172-2708274 Email:- bimalokpal.chandigarh@gbic.co.in	States of Punjab, Haryana, Himachal Pradesh, Jammu & Kashmir and Union territory of Chandigarh.
6	**CHENNAI:** Fatima Akhtar Court, 4th Floor, 453 (old 312), Anna Salai, Teynampet, CHENNAI-600 018. Tel.:- 044-24333668 / 24335284 Fax:- 044-24333664 Email:- bimalokpal.chennai@gbic.co.in	State of Tamil Nadu and Union Territories - Pondicherry Town and Karaikal (which are part of Union Territory of Pondicherry).
	DELHI: 2/2 A, Universal Insurance Building, Asaf Ali Road,	

7	New Delhi-110 002. Tel.:- 011-23239611/7539/7532 Fax:- 011-23230858 Email:- bimalokpal.delhi@gbic.co.in	State of Delhi
8	**ERNAKULAM:** 2nd floor, Pulinat Building, Opp. Cochin Shipyard, M.G. Road, Ernakulum - 682 015. Tel.:- 0484-2358759/2359338 Fax:- 0484-2359336 Email:- bimalokpal.ernakulum@gbic.co.in	States of Kerala and Union territory of (a) Lakshadweep (b) Mahe-a part of Union territory of Pondicherry
9	**GUWAHATI:** 'Jeevan Nivesh', 5th Floor, Nr. Panbazar over bridge, S.S. Road, Guwahati-781001(ASSAM). Tel.:- 0361- 2132204 / 2132205 Fax:- 0361-2732937 Email:- bimalokpal.guwahati@gbic.co.in	States of Assam, Meghalaya, Manipur, Mizoram, Arunachal Pradesh, Nagaland and Tripura.
10	**HYDERABAD:** 6-2-46, 1st floor, "Moin Court" Lane Opp. Saleem Function Palace, A. C. Guards, Lakdi-Ka-Pool, Hyderabad - 500 004. Tel.:- 040-65504123/23312122 Fax:- 040-23376599 Email:- bimalokpal.hyderabad@gbic.co.in	States of Andhra Pradesh, Telangana and Union Territory of Yanam - a part of the Union Territory of Pondicherry.
11	**JAIPUR:** Jeevan Nidhi-II Bldg., Ground Floor, Bhawani Singh Marg, Jaipur - 302005. Tel.:- 0141-2740363 Email:- bimalokpal.jaipur@gbic.co.in	State of Rajasthan.
12	**KOLKATA:** Hindustan Building Annexe, 4th floor, 4, CR Avenue, Kolkata - 700 072. Tel.:- 033-22124339 / 22124340 Fax:- 033-22124341 Email:- bimalokpal.kolkata@gbic.co.in	States of West Bengal, Bihar, Sikkim and Union Territories of Andaman and Nicobar Islands.
13	**LUCKNOW:** 6th Floor, Jeevan Bhawan, Phase-II, Nawal Kishore Road, Hazratganj, Lucknow-226 001. Tel.:- 0522-2231330 / 2231331 Fax:- 0522-2231310. Email:- bimalokpal.lucknow@gbic.co.in	District of Uttar Pradesh: Lalitpur, Jhansi, Mahoba, Hamirpur, Banda, Chitrakoot, Allahabad, Mirzapur, Sonbhabdra, Fatehpur, Pratapgarh, Jaunpur, Varansi, Gazipur, Jalaun, Kanpur, Lucknow, Unnao, Sitapur, Lakhimpur, Bahraich, Barabanki, Raebareli, Sravasti, Gonda, Faizabad, Amethi, Kaushambi, Balrampur, Basti, Ambedkarnagar, Sulanpur, Maharajganj, Santkabirnagar, Azamgarh, Kaushinagar, Gorkhpur, Deoria, Mau, Chandauli, Ballia, Sidharathnagar.
14	**MUMBAI:** 3rd Floor, Jeevan Seva Annexe, S. V. Road, Santacruz (W), Mumbai - 400 054. Tel.:- 022-26106928/360/889 Fax:- 022-26106052 Email:- bimalokpal.mumbai@gbic.co.in	States of Goa, Mumbai Metropolitan Region excluding Navi Mumbai & Thane.
15	**NOIDA:** Bhagwan Sahai Palace, 4th Floor, Main Road, Naya Bans, Sector-15, Gautam Budh Nagar, Noida Email:- bimalokpal.noida@gbic.co.in	States of Uttaranchal and the following Districts of Uttar Pradesh:. Agra, Aligarh, Bagpat, Bareilly, Bijnor, Budaun, Bulandshehar, Etah, Kanooj, Mainpuri, Mathura, Meerut, Moradabad, Muzaffarnagar, Oraiyya, Pilibhit, Etawah, Farrukhabad, Firozabad, Gautam Budh Nagar, Ghaziabad, Hardoi, Shahjahanpur, Hapur, Shamli, Rampur, Kashganj, Sambhal, Amroha, Hathras, Kanshiramnagar, Saharanpur.
16	**PATNA:** Office of the Insurance Ombudsman, 1st Floor, Kalpana Arcade Building, Bazar Samiti Road, Bahadurpur, Patna - 800 006. Email:- bimalokpal.patna@gbic.co.in	States of Bihar and Jharkhand.
17	**PUNE:** Office of the Insurance Ombudsman, Jeevan Darshan Building, 3rd Floor, CTS Nos. 195 to 198, NC Kelkar Road, Narayan Peth, Pune - 411 030 Tel: 020 -32341320 Email:- bimalokpal.pune@gbic.co.in	States of Maharashtra, Area of Navi Mumbai and Thane excluding Mumbai Metropolitan Region.

The updated details of Insurance Ombudsman are available on IRDA website:www.irdaindia.org, on the website of General Insurance Council:www.generalinsurancecouncil.org.in, website of the Company www.icicilombard.com or from any of the offices of the Company

Note - In case of renewal of the policy, policy benefit and terms & conditions of policy including premium may be subject to change.

ICICI Lombard General Insurance Company Limited

IRDA Reg. No. 115

Mailing Address:
401 & 402, 4th Floor, Interface 11,
New Linking Road, Malad (West),
Mumbai - 400 064.

CIN: L67200MH2000PLC129408

Registered Office:
ICICI Lombard House, 414, Veer Savarkar Marg,
Near Siddhi Vinayak Temple, Prabhadevi,
Mumbai - 400 025.

Toll free No. : 1800 2666
Alternate No. : +9192236 22666 (chargeable)
Email : customersupport@icicilombard.com
Website : www.icicilombard.com

ANNEXURE-11

Safety Checklists

POWER GRID CORPORATION OF INDIA LIMITED

CORPORATE OPERATION SERVICES

Safety Check List During Foundation Work

Region: NER TL Const. office ....Phulbari..... Date of Inspection: 20-02-2019

Name of the TL ..132 KV D/C Phulbari - Rampati Transmission Line.....

Loc No. 67/0 ..... Classification of Foundation and Type of tower DC + 0, F.S.....

Main Contractor: Unique Structures & Towers LTD. Sub contractor... M/S Jusi Kakuty

Sl.No	Description	Observations	Remark
1	Check whether Supervisor / Gang leader had issued instructions to workers before start of work on that day.	Yes	Ajaj Jadav
2	a) All workers are using PPEs at site i.e. Safety Helmets, Rubber Gum Boots, Hand Gloves. b) POWERGRID Officials are using PPEs at site.	Safety helmet - No. in use / total worker = 13 Rubber Gum Boot – No. in use / total worker = 3 Hand Gloves – No. in use / total worker = 3 ~~Yes~~ / No.	
3	Distance of Dumped excavated soil of all four sides from the edge of the pit.	yes	2.00 m.
4	Slope of cutting edge of all four sides.	yes	
5	a)De watering arrangement, if required. b)If yes, Distance of disposal of water.	yes	
6	Installation of Shoring & Shuttering, if required.	yes	
7	Adequate warning & Barricading of the pit for protection have been made.	yes	Barricatim tape
8	The Blaster is valid license holder. Yes / No. Adequate arrangement made to inform public by caution marking (Red flag) / Public Notice) and signal man posted.	N/A	
9	Strong ladder provided in the pit.	yes	
10	Jacks for supporting the template is placed at safe distance.		
11	Distance of construction materials, Concrete Mixer / Compressor placed from edge of pit.	yes	
12	Whether arrangements for electrical loose joints and barricading of electrical panels have been made.	yes	
13	Whether all Safety aspects taken care of for concreting.		
14	First Aid box with required items are available at site and (Name & No.) of First Aid trained persons	yes	
15	Action taken for violation for safety norms, if any.		
16	Any other points specific to location:		

CONSTRUCTION AGENCY OFFICIALS			POWERGRID OFFICIALS		
Name	Designation	Signature	Name	Designation	Signature
Ajaj Kr. Jadav.	Supervisor	Ajaj Kr Jadav	Dumbha Sarcky	Jr. Engg	

Copy: 1. Project Manager Const. Agency M/s..... 2. GM of Const. Agency M/s .....

3. Site In-charge POWERGRID 4. ED(Region)/ GM(Projects)POWERGRID

· Safety Check list for Pile / Well Foundation will be issued separately.

Name of Line : 132KV D/C Phulbari-Ampati Transmission Line(TW-02) **Loc. No. : 91/0**

Name of the Contractor: Unique Structures & Towers Ltd. **Type of tower: DLHG**

	ITEM CHECKED	RESULT OBSERVATION
1	Setting period of foundation is allowed for at least 14 days as per specn. Back filling is OK	~~Yes~~ / No
2	All tested tools and plants and safety equipments in working condition are available at site	~~Yes~~ / No
3	All tower member nuts/ bolts are available at site with out any damage, bend or rushing	~~Yes~~ / No
4	Benching/revetment, if any, completed, if not then Programme of Completion	Yes / No ~~N/A~~
5	Shutdown of power line, if required, is arranged.	Yes / No ~~N/A~~
6	Reqd. no of safety helmets, safety belts & safety shoes are being used	~~Yes~~ / No
7	First section is completely braced and all plane Diagonals	~~Yes~~ / No
8	Guying of tower provided as per approved drawing and norms. Guying to be terminated on firm ground.	~~Yes~~ / No
9	All nuts / bolts flat/spring washers are provided as per approved drawings.	~~Yes~~ / No
10	All horizontal bolt heads are facing inside and vertical bolts head facing upwards.	~~Yes~~ / No
11	Subsequent section are erected only after completed erection and bracing of previous section	Yes / No
12	Any undue stress, bending or damage of member during erection noticed.	Yes / No ✓
13	Any filling of holes or cutting of members during erection observed.	Yes / No ✓
14	Any heavy hammering of bolts causing damage of threads noticed	Yes / No ✓
15	Any substitute of tower member erected, if yes, members nos.	Yes / No ✓
16	Tightening is done progressively from top to bottom.	~~Yes~~ / No
17	All bolts at the same level and tightened simultaneously	~~Yes~~ / No
18	Slipping running over nuts/bolts are replaced by new ones	~~Yes~~ / No
19	Threaded portion projected outside of nut is not less than 3 mm	~~Yes~~ / No
20	Punching of threads projected outside is done at three positions	~~Yes~~ / No
21	All left over holes are filled with correct size of bolt /nut	~~Yes~~ / No
22	Verticality of tower is checked with help of theodolite for both longitudinal & transverse direction. This is with in specified limits.	~~Yes~~ / No
23	Details of missing members, nuts/bolts etc.	Yes / No ✓

27.04.19

ANNEXURE-12

Details of Safeguard Consultations

MEGHALAYA POWER TRANSMISSION CORPORATION LIMITED

OFFICE OF THE EXECUTIVE ENGINEER (T & T)

TURA: MEGHALAYA : 794001.

Minutes / proceedings of Public Meeting / Hearing held on 9th December 2014 at Rongkhon, TURA, West Garo Hills District, Meghalaya under North Eastern Region Power System Improvement Project (NERPSIP) in Meghalaya.

Subject - Construction of 132 KV D/C PHULBARI–AMPATI Transmission Line and associated 33 KV Distribution Network / Lines connecting 33/11 KV PHULBARI S/S (existing), RAJABALLA-BHAITBARI S/S (new), CHIBINANG S/S (new), RAKSAMGRE S/S (new), TIKRIKILLA S/S (existing) under the scope of NERPSIP in West Garo Hills District, Meghalaya

Annexure – Signatures of members of the Village Council / General Public and Officials of Meghalaya Power Transmission Corporation Limited (MePTCL) / Meghalaya Power Distribution Corporation Limited MePDCL and Power Grid Corporation of India Limited (PGCIL) who attended the meeting.

The public and officials of MePTCL / MPDCL and PGCIL who attended the meeting is enclosed in Annexure.

The Executive Engineer, T&T Division, MePTCL, Tura welcomed all the public and officials who had spared their valuable time to attend the hearing. The Executive Engineer gave a brief description about the project and he also informed that the project will be funded by the World Bank and the Central Government of India. He urged the public to co-operate and informed that the officials of PGCIL will brief them about the project.

Accordingly, Shri S. K. PAL, DGM, PGCIL briefed about the North Eastern Region Power System Improvement Project (NERPSIP) and explained the detail scope to be covered under the Project for Meghalaya. He informed that in West Garo Hills District, 132 KV D/C Transmission Line connecting 132/33 KV PHULBARI S/S (New) to 132/33 KV AMPATI S/S (Under Construction) is proposed to be constructed under the scheme for strengthening the existing Transmission Network. He also informed that from 132/33 KV PHULBARI Substation, the associated 33 KV Distribution Lines (5 Nos.) will also be constructed connecting to 33/11 KV RAJABALLA-BHAITBARI S/S (new), 33/11 KV CHIBINANG S/S (new), 33/11 KV PHULBARI S/S (Existing) and 33/11 KV RAKSAMGRE S/S (new) to 33/11 KV Tikrikilla S/S (Existing) for ensuring that the common public will be directly benefited by the Project. He also informed that care will be taken to construct the line in such a way as to avoid human habitat, but in case it is unavoidable, sufficient compensation will be paid by PGCIL as per State Government Assessment for which adequate provision has been kept in the Project Cost. He sought the co-operation of all the public to make this Project successful.

Since most of the public attending the meeting belonged to Garo Community, the Executive Engineer (T&T), Tura has explained the details of the above speech delivered by POWERGRID in Garo language.

The public enquired various issues regarding compensation to be paid, final route of the line vis-à-vis affected persons, need for further consultation with the villagers etc.

In this regard, the Superintending Engineer, T&T Circle, MePTCL, Byrnihat and POWERGRID representative explained that at present only a tentative route is identified for the line. However, a detail survey/check survey will be carried out before construction and accordingly each and every affected landowner / person will be identified for assessment of compensation. The compensation will be paid at par with Govt. rate after joint survey of the damages. However, he explained that every care will be taken to avoid any human habitation during final survey of the line and in case if it cannot be avoided the damages caused to the public will be adequately compensated.

The Executive Engineer, WGHDD, MePDCL, Tura also spoke on the occasion to explain the benefit of the proposed Project and the need of support and cooperation from the public of the area to overcome present Voltage scenario in the areas fed by 33 KV Rongkhon-Phulbari Line.

In conclusion, the public has unanimously agreed that the construction of the transmission line and sub-stations and associated distribution lines is for the sole benefit of the State and the public, provided care should be taken to inflict minimum damage to crops, forests and any structure during construction.

The hearing concluded with the vote of thanks from the Assistant Engineer, T&T Division, Tura and also assured that all stake holder will be taken into confident during the construction.

11/12/14 (T.K. MARA

Executive Engineer(T&T)
MePTCL, TURA

MEGHALAYA POWER TRANSMISSION CORPORATION LIMITED

OFFICE OF THE EXECUTIVE ENGINEER (T & T)
TURA: MEGHALAYA : 794001.

North Eastern Region Power System Improvement Project (NERPSIP)
PUBLIC MEETING BA HEARING O SERIKANIRANG
9th DECEMBER 2014 – Rongkhon, Tura, West Garo Hills, Meghalaya

Subject: North Eastern Region Power System Improvement Project (NERPSIP) Project-o **132 KV D/C Phulbari**—Ampati **Transmission Line** ko salani aro nangchapgipa **33 KV Distribution Network ba** Linerang ko **33/11 KV Phulbari S/S (dongsogimin), 33/11 KV Rajaballa-Bhaitbari S/S** (gital), **33/11 KV Chibinang S/S (gital), 33/11 KV Raksamgre S/S** (gital), **33/11 KV Tikrikilla S/S (dongsogimin)** baksa chapatani.

Annexure: Tom'anio donggipa Songni Dilgiparang, Nokmarang, mande jinma, MePTCL(Meghalaya Power Transmission Corporation Limited), MePDCL(Meghalaya Power Distribution Corporation Limited) aro PGCIL (Power Grid Corporation of India Limited)-ni Official rangni sohirang.

Tom'ani a'bachengao Executive Engineer, T&T Division, MePTCL, Tura, dingtangmancha somoiko ra'e sokbagipa officerrang aro jinmana rimchaksoaniko aganaha. Executive Engineer,T&T Division, MePTCL, Tura, Projectni gimin aro Public Hearingko ia biapo ong'atani giminba kan'dike talataha. Ua ia gital Project-ko World Bank aro India Sorkari-ni dakchakgipa tangka paisarangchi tarigen ineba talataha aro jinmani ku'mongrimaniko on'pachina didiaha aro PGCIL ni Officerrangna Projectni gimin talbate aganna somoiko on'nangaha.

Uandaken PGCIL ni DGM Pa. S. K. Pal, **North Eastern Region Power System Improvement Project (NERPSIP)**-ni gimin bang'gija kattarangchi talataha aro ia Projectni ning'o Meghalayana a'bachengatnasienggipa dingtang dingtang kamrangni gimin kan'dike aganaha. West Garo Hills District –o dongsogipa Transmission Network ko bilakbatatna, 132KV D/C Line ko 132 KV Phulbari Substation (Gital) oni 132 KV Ampati Substationona rikna manchiaha ine ua u'iataha. Unbaksana 132/33 KV Phulbari Substation (gital) oni nangchapgipa 33 KV distribution-ni line-rang (Ge'bonga) ko 33/11 KV Rajaballa-Bhaitbari S/S (gital), 33/11 KV Chibinang S/S (gital), 33/11 KV Phulbari S/S (dongsogimin), 33/11 KV Raksamgre (gital) aro 33/11 KV Tikrikilla S/S (dongsogimin) ona soke rike sale on'gen aro Projectni namgniko manderang man'gen ineba ua jinmana u'iataha. Ia janapgimin bijoliko watani lineko rikanio ba tarianio amadipet mande rochakgipa nok a'damrangkode gelgen aro gelna man'telgijagipa obostaode PGCIL A'dok Sorkarini niamo a'a chi-na aro bagan bari-rang nosto ong'anina ba gimaanina chu'onga gita Gampilaniko dakna Projectni koros o man'chapataha ineba agane on'aha. Uni gimin ia Projectko chu'sokatna gita jinmako bakrimaniko on'pachina mol'molaha. Uni agangimin kattarangko , T & T ni Executive Engineer A'chikku(Garo) chi pe'e jinmana apsan kon talate on'aha.

Tom'bimonganiona sokbagiparangoni dingtang dingtang sing'sandianirangko dakaha; jekai, Project ni Compensation gamani bewal aro Lineko rikchongmotanio lineni joljol man.nasienggipa ge'a a'pal, nok jam, bagan bari aro uandake gimaanina gampilani biding aro songni nokni manderang baksa agangrike kam ka.ani.

T & T Byrnihat Circle ni Superintending Engineer baksana PGCIL ni DGM da'o niksamsogipa Project sima nia gitasan ong'engkua aro chong'motgipa biap bichamrangko name ma'sikuja indiba Project a'bachengna skang Detail Survey ba Check Survey ko dakgen aro uni ja'mano nosto ong'atako man'nasigipa a'a nokgiparangko simsake sandigen ine aganaha. A'a nokgipa aro kamko ka'nasienggipa Department damsan nosto ong'gniko sanditaiani ja'manosa Gamani (Compensation) ko A'dok Sorkarini dongimin dam gita dakanggen ineba ua janapjolaha. Indake ong'oba, Lineko rikna bon.chote survey ka'anio man'na dipet

song nok rogipa biaprangko gelna gita jotton ka'gen ba gelna man'jatelode nosto ka'ako man'nasienggipa manderangni gam ba bosturangna kraa gita Compensationko on.na nanggnok ineba ua agandapangaha.

WGHDD, Tura ni Executive Engineer ua somoi-ni bako ia Projectni gamchatani aro uko nangnikani gimin aganaha aro ia Project-ko chu'sokgipa ong'atna sakantini dakchakani aro bakrimanikoba nanganikoba aganjolaha; jedakode da'o 33 KV Rongkhon Phulbari Line oniko bijoliko jakkalenggipa songrango nambata Voltage-o bijoliko man'nangpagnok.

Bon'chote tom'bimonganiona sokbagiparangba ia Transmission Line aro Sub-station aro un'baksa Distribution Line rangko rikani-ara Meghalaya a'dokna aro uno songdonggipa gimiknan namgniko ra'bagen indiba amadipet songdonggiparangni a.a chi, mi misi, buring bolgrimrang ko nanga gitasan nosto ong'ataiode nambegen ine ku'onangaha.

Ia tom'aniko T & T Division-ni Assistant Engineer pilak sokbagiparangko mitelan baksa Lineko rikengmitingo nangchapgipa manderangni bakrimani baksasa dakgen ine ka.dongataniko agane matchotataha.

11/12/14

Executive Engineer (T & T)
MePTCL, Tura

MEGHALAYA POWER TRANSMISSION CORPORATION LIMITED
OFFICE OF THE EXECUTIVE ENGINEER (T & T)
TURA: MEGHALAYA : 794001.

Minutes / proceedings of Public Meeting / Hearing held on 10th December 2014 at Phulbari, West Garo Hills District, Meghalaya under North Eastern Region Power System Improvement Project (NERPSIP) in Meghalaya

Subject - Construction of 132 KV D/C PHULBARI–AMPATI Transmission Line and associated 33 KV Distribution Network / Lines connecting 33/11 KV PHULBARI S/S (existing), RAJABALLA-BHAITBARI S/S (new), CHIBINANG S/S (new), RAKSAMGRE S/S (new), Tikrikilla S/S (existing) under the scope of NERPSIP in West Garo Hills District, Meghalaya

Annexure – Signatures of members of the Village council / general public and officials of Meghalaya Power Transmission Corporation Limited (MePTCL)/ Meghalaya Power Distribution Corporation Limited (MePDCL) and Power Grid Corporation of India Limited (PGCIL) who attended the meeting.

The public and officials of MePTCL / MePDCL and PGCIL who attended the meeting is enclosed in Annexure.

At the outset of the meeting, the Executive Engineer, T&T Division, MePTCL, Tura welcomed all the public and officials who had spared their valuable time to attend the hearing. The Executive Engineer then gave a brief description about the Project and the purpose of Public Hearing that is held at that place. He also informed that the project will be funded by the World Bank and the Central Government of India and urged the public to co-operate and introduced officials of MePTCL/PGCIL present in the meeting.

Accordingly, Superintending Engineer, T&T Circle, MePTCL, Byrnihat, spoke on the importance of 132 KV Line connectivity in Garo Hills Region and sought peoples' support and cooperation to make all the upcoming Transmission Projects for providing quality Power Supply.

Shri S. K. PAL, DGM, POWERGRID briefed about the North Eastern Region Power System Improvement Project (NERPSIP) and explained the detail scope to be covered under the Project for Meghalaya. He informed that in West Garo Hills District, a 132 KV D/C Transmission Line connecting 132/33 KV PHULBARI S/S (New) to 132/33 KV AMPATI S/S (Under Construction) is proposed to be constructed under the scheme for strengthening the existing transmission network. He also informed that from 132/33 KV PHULBARI Substation, the associated 33 KV Distribution Lines (5 Nos.) will also be constructed connecting to 132/33 KV PHULBARI S/S (New) to 33/11 KV RAJABALLA-BHAITBARI S/S (new), 33/11 KV CHIBINANG S/S (new), 33/11 KV PHULBARI S/S (Existing) and 33/11 KV RAKSAMGRE S/S (new) to 33/11 KV Tikrikilla S/S (Existing) for ensuring that

the common public will be directly benefited by the Project. He also informed that care will be taken to construct the line in such a way as to avoid human habitat, but in case it is unavoidable, sufficient compensation will be paid by PGCIL as per State Government Assessment for which adequate provision has been kept in the project cost. He sought the co-operation of all the public to make this project successful.

The public enquired various issues regarding compensation to be paid, final route of the line vis-à-vis affected persons, need for further consultation with the villagers etc.

In this regard, the Superintending Engineer, T&T Circle, Byrnihat and POWERGRID representative explained that at present only a tentative route is identified for the line. However, a detail survey/check survey will be carried out before construction and accordingly each and every affected landowner / person will be identified for assessment of compensation. The compensation will be paid at par with Govt. rate after joint survey of the damages. However, he explained that every care will be taken to avoid any human habitation during final survey of the line and in case if it cannot be avoided the damages caused to the public will be adequately compensated.

In conclusion, the public has unanimously agreed that the construction of the transmission line and sub-stations and associated distribution lines is for the sole benefit of the State and the public, provided care should be taken to inflict minimum damage to crops, forests and any structure during construction.

The hearing concluded with the vote of thanks from the Executive Engineer (T&T), Tura.

11/12/14 (T. K. MARAK)
Executive Engineer (T&T)
MePTCL, TURA

MEGHALAYA POWER TRANSMISSION CORPORATION LIMITED

OFFICE OF THE EXECUTIVE ENGINEER (T & T)

TURA: MEGHALAYA : 794001.

North Eastern Region Power System Improvement Project (NERPSIP)

PUBLIC MEETING BA HEARING O SERIKANIRANG

10th DECEMBER 2014 – Phulbari, West Garo Hills, Meghalaya

Subject: North Eastern Region Power System Improvement Project (NERPSIP) Project-o **132 KV D/C Phulbari—Ampati Transmission Line** ko salani aro nangchapgipa **33 KV Distribution Network ba Linerang ko 33/11 KV Phulbari S/S (dongsogimin), 33/11 KV Rajaballa-Bhaitbari S/S (gital), 33/11 KV Chibinang S/S (gital), 33/11 KV Raksamgre S/S (gital), 33/11 KV Tikrikilla S/S (dongsogimin)** baksa chapatani.

Annexure: Tom'anio donggipa Songni Dilgiparang, Nokmarang, mande jinma, MePTCL (Meghalaya Power Transmission Corporation Limited), MePDCL(Meghalaya Power Distribution Corporation Limited) aro PGCIL (Power Grid Corporation of India Limited)-ni Official rangni sohirang.

Tom'ani a'bachengao Executive Engineer, T&T Division, MePTCL, Tura, dingtangmancha somoiko ra'e sokbagipa officerrang aro jinmana rimchaksoaniko aganaha. Executive Engineer,T&T Division, MePTCL, Tura, Projectni gimin aro Public Hearingko ia biapo ong'atani giminba kan'dike talataha. Ua ia gital Project-ko World Bank aro India Sorkari-ni dakchakgipa tangka paisarangchi tarigen ineba talataha aro jinmani ku'mongrimaniko on'pachina didiaha aro tom'aona sokbagipa MePTCL aro PGCIL ni Officerrangko jinmana mesoke on'nangaha.

Unikoa, Superintending Engineer, T&T Circle, MePTCL, Byrnihat, 132 KV Transmission Lineko Garo Hills ni a.jarangona sokpinggrikna nangani gimin aganaha aro nambata bijoliko watna jinmani bakrimpaaniko nangnikaniko janapjolaha.

PGCIL ni DGM Pa. S. K. Pal, **North Eastern Region Power System Improvement Project (NERPSIP)**-ni gimin bang'gija kattarangchi talataha aro ia Projectni ning'o Meghalayana a'bachengatnasienggipa dingtang dingtang kamrangni gimin kan'dike aganaha. West Garo Hills District –o dongsogipa Transmission Network ko bilakbatatna, 132KV D/C Line ko 132 KV Phulbari Substation (Gital) oni 132 KV Ampati Substationona rikna manchiaha ine ua u'iataha. Unbaksana 132/33 KV Phulbari Substation (gital) oni nangchapgipa 33 KV distribution-ni line-rang (Ge'bonga) ko 33/11 KV Rajaballa-Bhaitbari S/S (gital), 33/11 KV Chibinang S/S (gital), 33/11 KV Phulbari S/S (dongsogimin), 33/11 KV Raksamgre (gital) aro 33/11 KV Tikrikilla S/S (dongsogimin) ona soke rike sale on'gen aro Projectni namgniko manderang man'gen ineba ua jinmana u'iataha. Ia janapgimin bijoliko watani lineko rikanio ba tarianio amadipet mande rochakgipa nok a'damrangkode gelgen aro gelna man'telgijagipa obostaode PGCIL A'dok Sorkarini niamo a'a chi-na aro bagan bari-rang nosto ong'anina ba gimaanina chu'onga gita Gampilaniko dakna Projectni koros o man'chapataha ineba agane on'aha. Uni gimin ia Projectko chu'sokatna gita jinmako bakrimaniko on'pachina mol'molaha.

Tom'bimonganiona sokbagiparangoni dingtang dingtang sing'sandianirangko dakaha; jekai, Project ni Compensation gamani bewal aro Lineko rikchongmotanio lineni joljol man.nasienggipa ge'a a'pal, nok jam, bagan bari aro uandake gimaanina gampilani biding aro songni nokni manderang baksa agangrike kam ka.ani.

T & T Byrnihat Circle ni Superintending Engineer baksana PGCIL ni DGM da'o niksamsogipa Project sima nia gitasan ong'engkua aro chong'motgipa biap bichamrangko name ma'sikuja indiba Project a'bachengna skang Detail Survey ba Check Survey ko dakgen aro uni ja'mano nosto ong'atako man'nasigipa

manderangni gam ba bosturangna kraa gita Compensationko on.na nanggnok ineba ua agandapangaha.

Bon'chote tom'bimonganiona sokbagiparangba ia Transmission Line aro Sub-station aro un'baksa Distribution Line rangko rikani-ara Meghalaya a'dokna aro uno songdonggipa gimiknan namgniko ra'bagen indiba amadipet songdonggiparangni a.a chi, mi misi, buring bolgrimrang ko nanga gitasan nosto ong'ataiode nambegen ine ku'onangaha.

Tom'aniko Executive Engineer T&T, Tura pilak sokbagiparangna mitelpilaniko agane matchotataha.

11.2.14

Executive Engineer (T & T)
MePTCL, Tura

PROJECT SUMMARY

In order to strengthen the power scenario of the North Eastern States including Meghalaya, the Government of India with the financial assistance of the WORLD BANK, has formulated the **North Eastern Region Power System Improvement Project (NERPSIP)** which envisages in construction of new power Sub-stations, Transmission & Distribution lines and simultaneously augmentation/ expansion of the existing Sub-stations and Transmission/ distribution lines. The NERPSIP in the state of Meghalaya broadly aims at:-

- Load enhancement of the transmission and distribution network of Meghalaya as well as reducing the transmission and distribution (T & D) loss.
- To adequately address the demand side management for ensuring adequate supply of electricity.

Meghalaya Power Transmission Corporation Limited (MePTCL) is the owner for the projects in the state of Meghalaya under NERPSIP. Under the scope of NERPSIP, inter-alia, construction of **132 KV D/C Phulbari—Ampati Transmission Line (Appx. KM) and associated 33 KV distributions lines connecting** 33 KVPHULBARI S/S (existing), RAJBALLABHAITBARI (new) CHIBINANG (new) RAKSAMGRE (new) will be taken up MePTCL. The construction of the above transmission line and distribution lines do not require any permanent land acquisition and all the temporary damages caused will be adequately compensated. Adequate provision has been made in NERPSIP for payment of compensation to the project affected families for any damages caused during the project.

We hope that implementation of the North Eastern Power System Improvement Project (NERPSIP) in the state of Meghalaya will definitely contribute in the socio-economic development of the state.

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PROJECT NI GIMIN KANDIKE TALATANI

Salgro-Salaram A'dokrango, Meghalaya A'dokko man'chape, bijoli onani ba jakalani obostako bilakbatatna gita, World Bank tangka paisarangni gita dakchakaniko man'e India Sorkari **North Eastern Region Power System Improvement Project (NERPSIP)**-ko a'bachengtaha. Gital Power Sub-station-rangko rikna, Transmission aro Distribution Linerangko dal'dapatna aro uandake je gitcham dong'engggipa Sub-stationrang aro Transmission Linerangko dal'dapatna miksonge ia Projectko ko a'bachengtaha. Meghalaya a'doko NERSIP ni mongsongbate miksonganirangara :

- Meghalaya A'dokni bijoliko watani aro on'nani networkni load-ko bilakdapatna aro ùnbaksana bijoliko watani aro on'nani noksan-ko (T & D) komiatna.
- Chu'onga gita bijoliko on'na man'na gita bijoliko nangani ba am'ani obostarangko chu'onga gita nirok sandiani aro chu'soktani.

NERSIP-ni ningo, **Meghalaya Power Transmission Corporation Limited (MePTCL)** ia project-ko, Meghalaya a'doko chalaigipa' ong'a. Ia NERPSIP-ni chol on'aninio, **132 KV D/C Phulbari—Ampati Transmission Line (chanchichipe km) aro un'baksa 33 KV distribution-ni line-rang** 33 KV PHULBARI S/S (dongsogimin), RAJBALLA BHAITBARI (gital) CHIBINANG (gital) RAKSAMGRE (gital) -rangko MePTCL tarina jak-o ra'aha. Ia agangimin bijoliko watani lineko rikanio ba tarianio pangnajolna gita a'a chiko brena nang'ani dongjawa indiba iako rikanio dikdiksana ba bang'gija a'a chi-na aro bagan bari-rang nosto ong'anina ba gimaanina chu'onga gita gampilskaaniko dakgen. Je nokdangrangan ia project-o kam ka'mitingo a'a chi aro bagan bari nosto ong'aniko ba gimaani ong'giparangna NERSIP-ni ningo gampilskana gita chu'onga gita tangka paisarnagko chame don'aniko dakmanaha.

Meghalaya A'doko ia North Eastern Power System Improvement Project (NERPSIP) ko kam ka'anichi ia a'dokni songna nokna namgniko ra'bachongmotgen ine chinga ka'donga.

09/12/14

Meghalaya Power Transmission Corporation Limited (MePTCL)

Executive Engineer
Transmission & Transformation Division
Me.P.T.C.L., Tura

Public Hearing on " Construction of 132KV D/C Line from Phulbari to Ampati" at Rongkhon, West Garo Hills on 09.12.2014

Members Present

Sl. No.	Name & Designation(if any)	Signature
1	S K PAL, DGM (POWERGRID)	[signature]
2	O. G. Singh (ACE W,Zone)	[signature] 9/12/14
3	R. Syiem	[signature] 9/12/14
4	T. K. MARAK	[signature]
5	A.F.G. MOMIN	[signature] 9/12/14
6	DIPJYOTI BARUAH (PGCIL)	[signature] 9/12/14
7	Birendra nath Hajong (MePTCL)	[signature] 9/12/14
8	F. M. C. Momin	[signature]
9	Smt. S. K. Sangma.	[signature] 9/12/14.
10	Waljing A Sangma Damalgre	Waljegma
11	Pi dent sangma Dingnapara	[signature] 9/12/2014
12	Dinap Marak Nenghalpara	
13	Arbanian Marak Dingnapara	[signature]
14	Riksin Marak Chambagre	[signature]
15	Riklang Marak Manggapara	[signature]
16	Merk Relo	[signature]
17	Pajeng Marak Manggapara	[signature]
18	Milseng Sangma Manggapara	[signature]
19	Mesin Sangma Manggapara	[signature]
20	Rorin Marak Rongsongre	
21	Roseline Ch. Marak Damalgre	[signature]
22	S. K. Datta. Tura.	[signature]
23	D. H. Roy. Rongkhon.	[signature]
24	S. Bordoloi, Rongkhon.	[signature]
25	A. M. Sangma	[signature] 9/12/14

26	Sengseng A. Sangma (Chitoktak)	SASangma.
27	Bringstone D. Sangma	[illegible]
28	Winathson R. Marak	[illegible]
29	Billing T Sangma	[illegible]
30	Binoth Rabha	[illegible]
31	Majen Barman	[illegible]
32	Willson Marak.	[illegible]
33	JOTIN BORUAH	[illegible]
34	A. K Mawlong	[illegible]
35	Ram Balak Jaiswal	[illegible]
36	Deenanath Basfor	[illegible]
37	जवाहर महतो	जवाहर
38	Balen Das.	B Das
39	P Pidam	P Mak
40	Ashorita Lal	[illegible]
41	Wingston Sangma	Sangma
42	Stillwell Sangma	S Sangma.
43	Meniston R Marak	M marak
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PROJECT SUMMARY

In order to strengthen the power scenario of the North Eastern States including Meghalaya, the Government of India with the financial assistance of the WORLD BANK, has formulated the **North Eastern Region Power System Improvement Project (NERPSIP)** which envisages in construction of new power Sub-stations, Transmission & Distribution lines and simultaneously augmentation/ expansion of the existing Sub-stations and Transmission/ distribution lines. The NERPSIP in the state of Meghalaya broadly aims at:-

- Load enhancement of the transmission and distribution network of Meghalaya as well as reducing the transmission and distribution (T & D) loss.
- To adequately address the demand side management for ensuring adequate supply of electricity.

Meghalaya Power Transmission Corporation Limited (MePTCL) is the owner for the projects in the state of Meghalaya under NERPSIP. Under the scope of NERPSIP, inter-alia, construction of **132 KV D/C Phulbari—Ampati Transmission Line (Appx. KM) and associated 33 KV distributions lines connecting** 33 KVPHULBARI S/S (existing), RAJBALLABHAITBARI (new) CHIBINANG (new) RAKSAMGRE (new) will be taken up MePTCL. The construction of the above transmission line and distribution lines do not require any permanent land acquisition and all the temporary damages caused will be adequately compensated. Adequate provision has been made in NERPSIP for payment of compensation to the project affected families for any damages caused during the project.

We hope that implementation of the North Eastern Power System Improvement Project (NERPSIP) in the state of Meghalaya will definitely contribute in the socio-economic development of the state.

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PROJECT NI GIMIN KANDIKE TALATANI

Salgro-Salaram A'dokrango, Meghalaya A'dokko man'chape, bijoli onani ba jakalani obostako bilakbatatna gita, World Bank tangka paisarangni gita dakchakaniko man'e India Sorkari **North Eastern Region Power System Improvement Project (NERPSIP)**-ko a'bachengtaha. Gital Power Sub-station-rangko rikna, Transmission aro Distribution Linerangko dal'dapatna aro uandake je gitcham dong'engggipa Sub-stationrang aro Transmission Linerangko dal'dapatna miksonge ia Projectko ko a'bachengtaha. Meghalaya a'doko NERSIP ni mongsongbate miksonganirangara :

- Meghalaya A'dokni bijoliko watani aro on'nani networkni load-ko bilakdapatna aro unbaksana bijoliko watani aro on'nani noksan-ko (T & D) komiatna.
- Chu'onga gita bijoliko on'na man'na gita bijoliko nangani ba am'ani obostarangko chu'onga gita nirok sandiani aro chu'soktani.

NERSIP-ni ningo, **Meghalaya Power Transmission Corporation Limited (MePTCL)** ia project-ko, Meghalaya a'doko chalaigipa ong'a. Ia NERPSIP-ni chol on'aninio, **132 KV D/C Phulbari—Ampati Transmission Line (chanchichipe km) aro un'baksa 33 KV distribution-ni line-rang** 33 KV PHULBARI S/S (dongsogimin), RAJBALLA BHAITBARI (gital) CHIBINANG (gital) RAKSAMGRE (gital) -rangko MePTCL tarina jak-o ra'aha. Ia agangimin bijoliko watani lineko rikanio ba tarianio pangnajolna gita a'a chiko brena nang'ani dongjawa indiba iako rikanio dikdiksana ba bang'gija a'a chi-na aro bagan bari-rang nosto ong'anina ba gimaanina chu'onga gita gampilskaaniko dakgen. Je nokdangrangan ia project-o kam ka'mitingo a'a chi aro bagan bari nosto ong'aniko ba gimaani ong'giparangna NERSIP-ni ningo gampilskana gita chu'onga gita tangka paisarnagko chame don'aniko dakmanaha.

Meghalaya A'doko ia North Eastern Power System Improvement Project (NERPSIP) ko kam ka'anichi ia a'dokni songna nokna namgniko ra'bachongmotgen ine chinga ka'donga.

10/12/14

Meghalaya Power Transmission Corporation Limited (MePTCL)

Executive Engineer
Transmission & Transformation Division
Me

Public Hearing on " Construction of 132KV D/C Line from Phulbari to Ampati" at MeECL Complex, Phulbari, West Garo Hills on 10.12.2014

Members Present

Sl. No.	Name & Designation(if any)	Signature
1	S K Pal, DGM (POWERGRID)	[signature]
2	R. Syiem	[signature]
3	T K Marak	[signature]
4	DIPJYOTI BARUAH (PGCIL)	[signature]
5	F.M.C. MOMIN	[signature]
6	B. N. Hajong	[signature]
7	Smt. S. K. Sangma	[signature] 10/12/14
8	S. Rahman	[signature]
9	Frankline Sangma	[signature]
10	A. Rahman Mondal	[signature]
11	Jeslington N. Sangma	[signature] 9/12/14.
12	M. R. Boro	[signature]
13	Abul S.K	[signature]
14	Saseilbell Sangma	[signature]
15	Ratejing sangma	[signature]
16	Mofial Hoque Reporter	[signature]
17	Winsun. Ch. Momin	[signature]
18	Bonil Marak	[signature]
19	Edwick Hajon	[signature]
20	Bishnu Das	[signature]
21	Pratap Sangma	[signature]
22	Swapan Kr. Datta.	[signature]
23	Abdul Rashid.	[signature]
24	Padam B. Nekear	[signature]
25	Rakhal Kar	[signature]
26	Dilip Ch Hajong	[signature]

27	Nilendro R. Marak.	[signature]
28	Sanjay Shome (ACO)	[signature]
29	Paramananda Koch	[signature]
30	Zarat uddin SK G.B	[signature]
31	Gongrun A. Sangma	[signature]
32	Md Fozi ...	[signature]
33	Beinethson R. Marak.	[signature]
34	Starlin marin	[signature]
35	Rashidur Islam	[signature]
36	Mitra Thapar	[signature]
37	जवाहर महतो	जवाहर
38	প্রভিত চন্দ্র বর্মন	প্রভিত চন্দ্র বর্মন
39	Reja Greala	[signature]
40	[illegible]	[signature]
41	Dhiren Rabha	D. Rabha
42	Gautam Basumatary	[signature]
43	Praibitha Sangma	Sangma.
44	Dilling Sangma.	[signature]
45	Billeri Marak	[signature]
46	Bebilson Marak	[signature]
47	Grinath Marak.	[signature]
48	Rolison Sangma	R.M.S.
49	Dinamoti	[signature]
50	Subhash ch. Saha	[signature]
51	Theilinda Sangma	[signature]
52	Abdus Sobur Sarkar -	[signature]
53	Abu Jaher Ahmed	[signature]
54	Songga M. Sangma.	[signature]
55	Sofior Rahman.	[signature]
56	Pilbin A. Sangma	[signature]

Phtographs of Public Consultation held at Rongkhon (Tura) on 09.12.2014


"MEGHALAYA POWER TRANSMISSION CORPORATION LIMITED"
"PUBLIC MEETING"

Phtographs of Public Consultation held at Phulbari on 10.12.2014

Details of Informal meeting held on 16.04.2018 with Villagers/PAP at 132/33 kV Phulbari Substation

Substation	Date of meeting	No. of villagers interacted during meeting	Location of Public Consultation	District	Remarks
132/33 KV Phulbari	16/04/2018	12	Phulbari 132/33 kV Substation, Chibinang Village	West Garo Hills	Local villagers including Project Affected Persons were interacted during meeting

Details of Informal meeting held with Villagers/PAP along route of 132 KV line from 132 KV PHULBARI (New) S/s to 132 KV AMPATI (existing) sub-station associated with NERPSIP, MEGHALAYA

Transmission Line	Date of meeting	No. of villagers present during meeting	Location of Public Consultation	District	Remarks
132 KV line from 132/33 KV PHULBARI (New) S/s to 132/33 KV AMPATI (existing) sub-station	09/02/2017	7	Garodoba Village, Betasing Tehsil	West Garo Hills	Local villagers including project affected families/Village headman etc. were interacted during the time of detail survey of the route. Compensation Notice also served to concerned landowner before the start of civil work. Various concerns like project details, compensation procedures, local labour issues etc. were discussed during the time of interaction.

CONSULTATION WITH LANDOWNER (GARODOBA VILLAGE) ALONG 132 KV PHULBARI-AMPATI T/L

CONSULTATION WITH PAF (GARODOBA VILLAGE)

SERVING COMPENSATION NOTICE TO AP (GARODOBA VILLAGE) IN 132 KV PHULBARI-AMPATI T/L

OBTAINING CONSENT FROM AP (GARODOBA VILLAGE) 132 KV PHULBARI-AMPATI T/L

Details of Informal meeting held with Villagers/PAP along the route of 33 KV line from TIKRIKILLA to RAKSAMBGRE to be constructed under NERPSIP, MEGHALAYA

Distribution Line	Date of meeting	No. of villagers interacted during meeting	Location of Public Consultation	District	Remarks
33 KV line from TIKRIKILLA to RAKSAMBGRE	12/01/2017	7	Chamaguri Village, Selsella Block, West Garo Hills	West Garo Hills	Local villagers including project affected families/Village headman etc. were interacted during the time of detail survey of the route. Various concerns like route alignment, compensation procedures, etc. were discussed during the time of interaction.

CONSULTATION WITH VILLAGE COUNCIL PRESIDENT (CHAMAGURI VILLAGE)

CONSULTATION WITH VILLAGE ELDERS (CHAMAGURI VILLAGE)

CONSULTATION WITH PAF (CHAMAGURI VILLAGE) DURING 33 KV ROUTE SURVEY

Details of Informal interaction with land owners/villagers held along the route of 33 KV line from 132 KV Phulbari S/s to 33 kv existing Phulbari S/s to be constructed under NERPSIP, MEGHALAYA

Distribution Line	Date of meeting	No. of villagers interacted during meeting	Location of Public Consultation	District	Remarks
33 KV line from 132 KV Phulbari S/s to 33 kv existing Phulbari S/s	01/12/2016	10	Chaprabudi Village, Selsella Block, West Garo Hills	West Garo Hills	Local villagers including project affected families/Village headman etc. were interacted during the time of detail survey of the route. Various concerns like route alignment, compensation procedures, etc. were discussed during the time of interaction.

INTERACTION WITH LANDOWNER AND HIS FAMILY (CHAPRABUDI VILLAGE)

INTERACTION WITH LANDOWNER (CHAPRABUDI VILLAGE) AT THE POLE LOCATION

INTERACTION WITH LOCAL VILLAGERS (CHAPRABUDI VILLAGE) ALONG THE 33 KV ROUTE

ANNEXURE-13

Notification for formation of Corporate & Project Level GRCs

MEGHALAYA POWER TRANSMISSION CORPORATION LTD.
OFFICE OF THE DIRECTOR (TRANSMISSION)
LUMJINGSHAI, SHORT ROUND ROAD, SHILLONG: 793001.
Phone No. (0364)2590610 Extn – 319, (0364)2592022, Fax: 0364 – 2590422
E-mail: directormeptcl@gmail.com

No. MePTCL/DT/ T-126(Pt-I)/2015/66 Dated, Shillong the 8th July, 2015

OFFICE ORDER

One Grievance Redressal Committee (GRC) is hereby constituted comprising of following officials of Meghalaya Power Transmission Corporation Limited(MePTCL) for 'North Eastern Region Power System Improvement Project (NERPSIP)' with immediate effect.

1. Chief Engineer (Transmission), MePTCL - Chairman
2. Additional Chief Engineer, T&T, MePTCL - Co-Chairman
3. Superintending Engineer, T&T Circle, MePTCL, Shillong - Member
4. Superintending Engineer, T&T Circle, MePTCL, Byrnihat - Member
5. Executive Engineer, T&T Division, MePTCL, Shillong - Member
6. Executive Engineer, T&T Division, MePTCL, Umiam - Member
7. Executive Engineer, T&T Division, MePTCL, Byrnihat - Member
8. Executive Engineer, T&T Division, MePTCL, Tura - Member

8/7/15

(E. Slong)
Director (Transmission)

Memo No. MePTCL/DT/ T-126(Pt-I)/2015/66(a) Dated, Shillong the 8th July, 2015

Copy to:

1. The PS to the Chairman-cum-Managing Director, MeECL, Shillong for kind information of the CMD.
2. The Commissioner & Secretary, Power Department, Government of Meghalaya, Shillong for favour of kind information.
3. The Chief Engineer (T), MePTCL, Shillong for information and necessary action.
4. Mr. R. Mittal, Sr. Energy Specialist, World Bank, 70 Lodhi Estate, New-Delhi-110 003.
5. Mr. A.K.Srivastava, General Manager (PGCIL), Monal Tower, GS Road, Guwahati-781 006.
6. Officers Concerned.
7. Office Order File.

8/7/15

Director (Transmission)

"SAVE ENERGY FOR BENEFIT OF SELF AND NATION"

MEGHALAYA POWER TRANSMISSION CORPORATION LTD.

OFFICE OF THE DIRECTOR (TRANSMISSION)

Corporate Identification No: U40101ML2009SGC008393

Registered Office: Lum Jingshai, Short Round Road, Shillong-793001

Phone No (0364)2590610 (Extn) – 319, (0364)2592022, Fax: 0364-2590422

Email: directormeptcl@gmail.com Website address: www.meecl.nic.in

No. MePTCL/DT/T-126(Pt-II)/2017/139

Dated 24th February 2017

To,

The Deputy General Manager (NERPSIP)

Power Grid Corporation of India Limited

Dongtieh, Lower Nongrah, Lapalang, Shillong -793006.

Sub: Constitution of Site Level Grievance Redressal Committee (GRC).

Ref: Letter No. NERPSIP/Shillong/Grievance/MePTCL dated 10.02.2017

Sir,

With reference to the above, I am directed to convey the approval of the Director (Transmission) for nominating members from MePTCL for the site level Grievance Redressal Committee as follows:

Package Name	Package Description	Nominated members from MePTCL for site level GRC
A.	**SUB-STATION PACKAGES:**	
MEG SS-01	132/33 kV Mynkre sub-station (new)	Assistant Executive Engineer, Tower Line Maintenance Sub-Division, Khliehriat
	132/33 kV Phulbari sub-station (new)	Assistant Executive Engineer, Tower Line Construction Sub-Division-I, Tura
	132/33 kV Ampati sub-station (Bay extension – 2 nos.)	
MEG SS-02	220/132 kV / 33 kV GIS New Shillong sub-station (new)	Resident Engineer, 132 kV NEHU sub-station.
	220/132 kV (GIS) Mawngap sub-station (Upgradation)	Resident Engineer, 132 kV Mawphlang sub-station.
	220 kV Byrnihat (Killing) AIS sub-station (Bay extension-2 nos.)	Executive Engineer, 220/132 kV Killing sub-station
B.	**TRANSMISSION LINE PACKAGES:**	
TW01	220 kV D/C line Killing (Byrnihat – Mawngap – New Shillong T/L – 122 km	(i) Executive Engineer, 220/132 kV Killing sub-station. (ii) Assistant Executive Engineer, Tower Line Construction & Maintenance Sub-division, Byrnihat (iii) Assistant Executive Engineer, Tower Line Maintenance Sub-Division, Umiam (iv) Resident Engineer, 132 kV NEHU sub-station, Shillong

Package Name	Package Description	Nominated members from MePTCL for site level GRC
TW02	132 kV D/C Ampati -Phulbari T/L	Assistant Executive Engineer, Tower Line Construction Sub-Division-I, Tura
	LILO of 132 kV D/C MLHEP-Khliehriat line at Mynkre	Assistant Executive Engineer, Tower Line Maintenance Sub-Division, Khliehriat

In this regard, the detail list of the GRC members from PGCIL (as enclosed in letter under reference above) and MePTCL is at Annexure for the substation packages and the transmission line packages.

This is for information and kind action.

Enclosed: As stated

Yours faithfully,

(M. M. Chetri)
Superintending Engineer (Elect)-I

Memo No. MePTCL/DT/T-126(Pt-II)/2017/139(a) Dated 24th February 2017

Copy to:

1. The Commissioner & Secretary to the Government of Meghalaya, Power Department, Shillong.
2. The Chief Engineer (Transmission), MePTCL, Shillong , along with a copy of the enclosure.
3. The Additional Chief Engineer (T&T), MePTCL, Shillong, along with a copy of the enclosure.
4. The Joint Secretary (Corporate Affairs), MeECL, Shillong.
5. The Superintending Engineer, T&T Circle, MePTCL, Shillong / Tura, along with a copy of the enclosure.
6. The Executive Engineer, T&T Division / 220/132 kV sub-station, MePTCL, Shillong/ Umiam / Byrnihat / Tura, along with a copy of the enclosure.
7. The Assistant Executive Engineer, TLMSD /TLC&MSD / TLCSD-I, MePTCL, Umiam / Byrnihat / Khliehriat / Tura, along with copy of the enclosure for information and kind action.
8. The Resident Engineer, 132 kV Grid sub-station, MePTCL, NEHU / Mawphlang along with copy of the enclosure for information and kind action.

Superintending Engineer (Elect)-I

ANNEXURE

LIST OF MEMBERS FOR THE SITE LEVEL GRIEVANCE REDRESSAL COMMITTEE (GRC) FOR THE NORTH EASTERN REGION POWER SYSTEM IMPROVEMENT PROJECTS (NERPSIP) TRANCHE # I (TRANSMISSION) FOR MEGHALAYA

Package Name	Package Description	Nominated members from POWERGRID for site level GRC	Nominated members from MePTCL for site level GRC
A.	**SUB-STATION PACKAGES:**		
MEG SS-01	132/33 kV Mynkre sub-station (new)	Biswajit Medhi, Manager, Khliehriat	Assistant Executive Engineer, Tower Line Maintenance Sub-Division, Khliehriat
	132/33 kV Phulbari sub-station (new)	Hitendra Kumar Phukan, Manager, Phulbari	Assistant Executive Engineer, Tower Line Construction Sub-Division-I, Tura
	132/33 kV Ampati sub-station (Bay extension – 2 nos.)		
MEG SS-02	220/132 kV / 33 kV GIS New Shillong sub-station (new)	Vikash Chandra, Dy. Manager, Shillong	Resident Engineer, 132 kV NEHU sub-station.
	220/132 kV (GIS) Mawngap sub-station (Upgradation)	P. Bhattacharjya, Manager, Mawngap	Resident Engineer, 132 kV Mawphlang sub-station.
	220 kV Byrnihat (Killing) AIS sub-station (Bay extension-2 nos.)	J.C. Sarmah, Manager, Nongpoh	Executive Engineer, 220/132 kV sub-station, Killing
B.	**TRANSMISSION LINE PACKAGES:**		
TW01	220 kV D/C line Killing (Byrnihat – Mawngap – New Shillong T/L – 122 km		(i) Executive Engineer, 220/132 kV sub-station, Killing (ii) Assistant Executive Engineer, Tower Line Construction & Maintenance Sub-division, Byrnihat (iii) Assistant Executive Engineer, Tower Line Maintenance Sub-Division, Umiam (iv) Resident Engineer, 132 kV NEHU sub-station.
	From AP-1 to AP-140	J.C. Sarmah, Manager, Nongpoh	
	From AP-140 to AP-245	P. Bhattacharjya, Manager, Mawngap	
	From AP-245 to AP-338	Vikash Chandra, Dy. Manager, Shillong	
TW02	132 kV D/C Ampati -Phulbari T/L	Hitendra Kumar Phukan, Manager, Phulbari	Assistant Executive Engineer, Tower Line Construction Sub-Division-I, Tura
	LILO of 132 kV D/C MLHEP-Khliehriat line at Mynkre	Biswajit Medhi, Manager, Khliehriat	Assistant Executive Engineer, Tower Line Maintenance Sub-Division, Khliehriat

Superintending Engineer (Elect)-I

GOVERNMENT OF MEGHALAYA
POWER DEPARTMENT

.....

No. POWER- 113/2013/Pt-I/21. **Dated Shillong, the 22nd March, 2017.**

From :- Smti E. Rapthap,
Under Secretary to the Govt. of Meghalaya,
Power Department.

To

The Director (Transmission),
Meghalaya Power Transmission Corporation Limited,
"Lumjingshai" Short Round Road,
Shillong – 793 001.

Subject :- ***Constitution of Site Level Grievance Redressal Committee (GRC) for the North Eastern Region Power System Improvement Project (NERPSIP) Tranche # 1 (Transmission) for Meghalaya.***

Reference :- ***No.MePTCL/DT/T-126(Pt-II)/2017/138, dated 22-02-2017.***

Sir,

With reference to the above cited subject, I am directed to furnish herewith the nominations for representatives from the local administration to the Grievance Redressal Committee (GRC) as per annexure enclosed, for your kind information and necessary action.

This has the approval of the Competent Authority.

Yours faithfully,

Under Secretary to the Govt. of Meghalaya,
Power Department

Memo. No. POWER-113/2013/Pt-1/21-A **Dated Shillong, the 22nd March, 2017**

Copy for kind information to:-

1. Chairman-cum-Managing Director, MeECL.
2. Deputy Commissioner, East Khasi Hills, Shillong.
3. Deputy Commissioner, East Jaintia Hills, Khliehriat.
4. Deputy Commissioner, West Garo Hills, Tura.
5. Deputy Commissioner, Ri Bhoi, Nongpoh.
6. Deputy Commissioner, South West Garo Hills , Ampati.
7. Shri. Vikram Chand, DGM (NERPSIP), Power Grid Corporation Of India Limited, Dongtieh, Lower Nongrah, Lapalang, Shillong-793006.
8. Guard File.

By Order, etc
ERapthap

Under Secretary to the Govt. of Meghalaya,
Power Department

Copy To : 1) D. Boruh, DM
2) DGM (Guwahati)
3) DGM (PESM)
4) GM (GHY)
} for kind information please

10/4/17

Annexure

Transmission Packages:

Package Name	Package Description	Nominated members from Government for Site Level Grievance Redressal Committee
A.	**SUB-STATION PACKAGES:**	
MEG SS-01	132/33 kV Mynkre sub-station (new)	Nominee of Deputy Commissioner, East Jaintia Hills.
	132/33 kV Phulbari sub-station (new)	Nominee of Deputy Commissioner, West Garo Hills.
	132/33 kV Ampati sub-station (Bay extension – 2 nos.)	Nominee of Deputy Commissioner, Southwest Garo Hills.
MEG SS-02	220/132 kV / 33 kV GIS New Shillong sub-station (new)	Nominee of Deputy Commissioner, East Khasi Hills.
	220/132 kV (GIS) Mawngap sub-station (Upgradation)	Nominee of Deputy Commissioner, East Khasi Hills.
	220 kV Byrnihat (Killing) AIS sub-station (Bay extension-2 nos.)	Nominee of Deputy Commissioner, Ri Bhoi.
B.	**TRANSMISSION LINE PACKAGES:**	
TW 01	220 kV D/C line Killing (Byrnihat – Mawngap – New Shillong T/L – 122 km	(i) Nominee of Deputy Commissioner, East Khasi Hills. (ii) Nominee of Deputy Commissioner, Ri Bhoi.
TW 02	132 KV D/C Ampati - Phulbari T/L	(i) Nominee of Deputy Commissioner, Southwest Garo Hills. (ii) Nominee of Deputy Commissioner, West Garo Hills.
	LILO of 132 kV D/C MLHEP-Khliehriat line at Mynkre	Nominee of Deputy Commissioner, East Jaintia Hills

GOVERNMENT OF MEGHALAYA
POWER DEPARTMENT

No. POWER-113/2013/Pt-I/22. **Dated Shillong, the 22nd March, 2017.**

From :- Smti E. Rapthap,
Under Secretary to the Govt. of Meghalaya,
Power Department.

To

The Director (Distribution),
Meghalaya Power Distribution Corporation Limited,
"Lumjingshai" Short Round Road,
Shillong – 793 001.

Subj:- ***Constitution of Site Level Grievance Redressal Committee (GRC) for the North Eastern Region Power System Improvement Project (NERPSIP) Tranche # 1 (Transmission) for Meghalaya.***

Reference:- ***No.MePDCL/CE(D)/T-464 (Pt-II)/2016-17/115(a) dated 28-02-2017.***

Sir,

With reference to subject cited above, I am directed to furnish herewith the nominations for representatives from the local administration to the Grievance Redressal Committee (GRC) as per annexure enclosed, for your kind information and necessary action.

This has the order of the Competent Authority.

Yours faithfully,

Under Secretary to the Govt. of Meghalaya,
Power Department

Memo **No. POWER-113/2013/Pt-I/22-A.** **Dated Shillong, the 22nd March, 2017.**

Copy for kind information to:-

1. Chairman-cum-Managing Director, MeECL.
2. Deputy Commissioner, East Khasi Hills, Shillong.
3. Deputy Commissioner, East Jaintia Hills, Khliehriat
4. Deputy Commissioner, West Garo Hills, Tura.
5. Shri. Vikram Chand, DGM (NERPSIP), Power Grid Corporation Of India Limited, Dongtieh, Lower Nongrah, Lapalang, Shillong-793006.
6. Guard File.

Copy To:
1) GM(GHY) – for kind information please
2) DGM(GHY) – do
3) DGM(PESM) – do
4) DM(Envn) – do

By Order, etc
E Rapthap
Under Secretary to the Govt. of Meghalaya,
Power Department

Annexure

Distribution Packages:

Package Name	Package Description	Nominated members from Government for Site Level Grievance Redressal Committee
MEG DMS 01	**New 33/11KV Substations**	Nominee of Deputy Commissioner, East Jaintia Hills
	33/11KV Mynkre (New) S/s-2X5 MVA	
	33/11KV Rymbai(New) S/s-1X5 MVA	
	33/11KV Latyrke(New) S/s-2X10 MVA	
	33/11KV Byndihati (New) S/s - 1X5 MVA	
	33KV Transmission Lines	
	132/33 KV Mynkre (New) S/s to 33/11 KV Mynkre (New) S/s – 6 km	
	132/33 KV Mynkre (New) S/s to 33/11 KV Rymbai (New) S/s – 15km	
	132/33 KV Mynkre(New) S/s to 33/11 KV Byndihati (New) S/s -10km	
	132/33 KV Mynkre(New) S/s to 33/11 KV Latyrke (New) S/s – 25km	
MEG DMS 02	**New 33/11kV Substations**	Nominee of Deputy Commissioner, West Garo Hills.
	Chibinang(New) S/s-1X5 MVA	
	Raksambre (Potamati) (New) S/s-1X5 MVA	
	Rajabala (New) S/s-1X5 MVA	
	Augmentation at existing 33/11 kV s/s	
	Phulbari (Existing) S/s – Augmented to 2x5 MVA	
	Bay Extensions at existing 33/11KV Sub-stations	
	33/11 KV Tikrikilla (Existing) S/s – 1no	
	33KV Transmission Lines (on ACSR WOLF conductor	
	132/33 KV Phulbari (New) S/s to 33/11 KV Rajaballa Bhaitbari S/s – 10km	
	132/33 KV Phulbari (New) S/s to 33/11 KV Chibinang (New) S/s – 6km	
	33/11KV Tikrikilla (Existing) S/s to 33/11KV Rakshambre(New) S/s – 35km	
	132/33 KV Phulbari (New) S/s to 33/11 KV Phulbari (Existing) S/s – 6km	

Package Name	Package Description	Nominated members from Government for Site Level Grievance Redressal Committee
MEG DMS 02	LILO Existing Tikrikilla-Phulbari at 132/33 KV Phulbari (New) S/s – 6km	Nominee of Deputy Commissioner, West Garo Hills.
	Reconductoring (From Raccoon to Wolf): Part of existing 33 KV Tikrikilla Phulbari line from tapping point to Trikikila S/S – 30km	
MEG DMS 03	**New 33/11kV Substations**	Nominee of Deputy Commissioner, East Khasi Hills.
	Mawkynrew (New) S/s - 2X5 MVA	
	Mawryngkneng (New) S/s - 2X7.5 MVA	
	New Shillong (New) S/s - 2X10 MVA	
	Mawpat (New) S/s - 2X10 MVA	
	Augmentation at existing 33/11 KV s/s	
	SE Falls(Existing) S/s - Augmented to 2X10 MVA	
	Bay Extensions at existing 33/11KV Sub-stations	
	Jongksha Existing 33/11KV S/s -1no.	
	33KV Transmission Lines (on ACSR WOLF conductor)	
	220/132/33 kV New Shillong (New) S/s to 33/11KV Mawpat (New) S/s - 25km	
	Existing 33/11 kV SE Falls S/s to 33/11 KV Mawpat(New) S/s -10km	
	220/132/33 KV New Shillong(New)S/s to 33/11 KV New Shillong S/s - 6km	
	220/132/33 KV New Shillong(New) S/s to 33/11 KV Mawryngkneng S/s - 26km	
	LILO Existing Jowai -Ladnongkrem 33 KV at 33/11 KV Mawryngkneng S/s - 4km	
	Existing 33/11 KV Jongksha S/s to 33/11KV Mawkynrew S/s - 8km	
	Reconductoring (From Raccoon to Wolf): 33/11 KV Jowai-Ladnongkrem-Jongksha S/s - 35km	

Project Team Profile

Dr. Devesh Walia, Professor (Geology) (since- 01-01-2011) and Head, Department of Environmental Studies, North-Eastern Hill University (NEHU), Shillong, India completed his University education B. Sc. (1985) and M. Tech. Applied Geology (1988) from Dr Hari Singh Gour Vishwavidyalaya, Sagar and Ph. D. (1997) from Guwahati University, Guwahati. He joined NEHU as a faculty in 1990 and is actively engaged in teaching, research and consultancy with more than 27 years of experience.

Dr Walia has successfully completed number of research projects funded by various agencies such as North-Eastern Council, Department of Science and Technology, Ministry of Earth Sciences, Government of India, New Delhi, BARC-BRNS, DAE, Mumbai. He has guided research leading to the award of Ph. D. degree on topics such as Geophysical Studies of the Deep Crustal Structure of North Eastern Indian region using Magnetotelluric Techniques; Hydrogeochemical Study of Hot Springs of the North East India; Study of Seismicity and Active Tectonics in the South Eastern part of the Shillong Plateau. He has many research papers in reputed National and International Journals to his credit. He has oragnized few National and International conferences/seminars/workshops. He has participated and presented his research findings in various National and International conferences/seminars/workshops held in India and abroad. He has been invited to deliver keynote address, state of art lecture and to chair the session in different National and International conferences/seminars/ workshops. And has attended the Industry – Academia workshops on Upstream Petroleum Technology- Geology and Geophysics at Kaziranga, Gandhinagar and Duliajan. He has been collaborating with recognized scientists from national and international institutes of repute such as Earth Observatory of Singapore, NTU, Singapore; Indian Institute of Geomagnetism, Navi Mumbai; National Geophysical Research Institute, Hyderabad. Although the basic area of expertise of Dr Walia is Structure and Tectonics of NE Indian region but the research areas where significant contributions have been made include magnetotellurics; radon emanation studies; micro-seismology; global positioning system, seismic disaster management and mitigation; Earthquake forecasting;

Remote Sensing and GIS. Dr Walia is faculty for the training imparted to the Legislators, Architects, Engineers, Contractors and different level of Officers of Meghalaya on the seismic disaster mitigation, DM Act 2005 and building codes for the disaster resilient structural and non-structural elements. Dr Walia is life fellow and Executive Committee member of Geological Society of India; Indian Geophysical Union and life fellow of Indian Society of Remote sensing and life member of a number of academic and professional bodies including Indian Geological Congress; Indian Science Congress Association; The Geological, Mining and Metallurgical Society of India; Indian Society of Earth Sciences; Indian Association of Earth Scientists; Indian Seismological Research Society; Indian Association of Hydrologists; Indian Geomorphologists Institute and Member of the Sectional Committee (ESS) for 2009 to 2011 (97^{th} and 98^{th} Indian Science Congress). He has also worked as referee of scientific journals, expert in the area of disaster management and mitigation advisor/consultant and Member of the Shillong Disaster Management Plan Technical committee and acted as an Observer while the mock drill was conducted in Meghalaya with special reference to seismic disaster. He has been member of the Term Review Committee of GSI- NER and attended CGPB Group VIII meetings. PRESIDENT, EARTH SYSTEM SCIENCES, INDIAN SCIENCE CONGRESS ASSOCIATION, KOLKATA (2017-2018) and Chapter Convener, Shillong Chapter, ISCA, Kolkata.

Dr B. K. Tiwari is presently Professor in the Department of Environmental Studies, North-Eastern Hill University, Shillong. Professor Tiwari has been the Dean of School of Human and Environmental Sciences, Head, Department of Environmental Studies in North-Eastern Hill University, Shillong. He is an internationally acclaimed expert on socio-ecological issues of north-east India. He has researched in the areas of shifting agriculture, community institutions, common property resources, forest management, sacred groves, shifting cultivation, climate change, forest biodiversity, forest hydrology, watershed management, ecosystem services and eco-restoration of degraded landscapes. Professor Tiwari has collaborated with several national and international agencies viz., Ford Foundation, IDRC, CIFOR, ICIMOD,UCIL, La Farge-ADB, KfW-GIZ, IFAD, CFI, USA, Rothamsted Research, UK, University of Liverpool, UK, University of Jena, Germany, Indian Institute of Science, North-Eastern Council, MoEF&CC, Government of India, DST, Government of India,

MoS&PI, Government of India, State Governments of North-Eastern Region, RFRI, Jorhat, IGRMS, Bhopal, IIFM, Bhopal and several non-government agencies on research projects related to Natural Resource Management, Environmental Impact Assessment and Climate Change. Professor Tiwari has been Member and Chairman of Meghalaya State Environment Impact Assessment Committee and Member of State Environment Impact Assessment Authority. He has conducted EIA studies for UCIL- Uranium Mining in Meghalaya, for La Farge- Limestone Mining in Meghalaya, for Meghalaya Urban Development Authority- New Shillong Township, and for two major Cement Plants in Jaintia Hills Meghalaya. Professor Tiwari is a widely travelled person and has done research and delivered lectures in several universities and research institutes of USA, Canada, UK, Germany, China and South and South East Asia. He has executed more than two dozen research projects sponsored by various international, national and state agencies. He has published more than 120 research papers and has authored/edited half a dozen books on climate change, forest management, sacred groves, and shifting agriculture.

Dr Dibyendu Paul is a Ph. D in Ecology (Entomology) from North Eastern Hill University (NEHU), and is currently Professor in the department of Environmental Studies. His current research focuses around Bio-pesticides, Bio-resource utilization for value added products and pollution abatement. Six Ph. D students have successfully completed their dissertations under his supervision and another eight are currently enrolled. Professor D. Paul has more than 30 publications in peer reviewed international and national journals and is member of different Scientific committees and committees of other Universities. He has successfully completed 20 externally funded research projects. Professor Paul has wide experience in EIA and EMP related work and has collaborated with Reliance Power, Tato, JICA, LaFarge, MCL, MottMacDonald. MBB and BARC for their impact assessment studies and environmental monitoring and management planning requirements.

Mr K. K. Choudhury completed his B. Tech. In Mechanical Engineering from Assam Engineering College under Gauhati University and has wide experience both as field executive in oil well drilling with ONGC (1975-1980) and for construction of substations and high voltage transmission lines as Superitendent Engineer with

NEEPCO (1980-1991) . He has also served in POWERGRID and is currently engaged as an advisor for power erection transmission projects of a reputed firm.

Collen Marak and Christie Momin, project fellows for the present project, are both Post graduates in Environmental Science from NEHU and have knowledge of different aspects of EIA through their M. Sc. curriculum. Besides, they also have field work experience through their M. Sc. Dissertations.