FINAL

ENVIRONMENTAL ASSESSMENT REPORT (FEAR)

For

TRANSMISSION AND DISTRIBUTION NETWORK

In

Dibrugarh and Tinsukia Districts Under "North Eastern Region Power System Improvement Project" NERPSIP Tranche-1, Assam

GCI/2019-20/R-1/EIA, May 2021

THE GREEN PEOPLE

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For

ASSAM ELECTRICITY GRID CORPORATION LIMITED (AEGCL)

&

ASSAM POWER DISTRIBUTION COMPANY LIMITED (APDCL)

(A Government of Assam Enterprise)

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We express our sincere thanks to management & employees of M/s. POWERGRID Corporation of India Limited at Assam. For their co-operation & unstinted help without which the Final Environment Assessment Report (FEAR-I) study of Transmission & Distribution sub-projects of Dibrugarh and Tinsukia District, Assam could not have been possible. The courtesy extended to our team is highly appreciated.

For: GREEN CIRCLE, INC.

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ABBREVIATIONS

ADC	Autonomous District Council
AEGCL	Assam Electricity Grid Corporation Ltd
APDCL	Assam Power Distribution Corporation Ltd
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
GCI	Green Circle Inc
GIS	Global Information System
GPS	Global Positioning System
GOI	Government of India
GRM	Grievances Redressal Mechanism
GRC	Grievance Redressal Committee
HFL	High Flood Level
IA	Implementing Agency
IBA	Important Bird Areas

IEAR	Initial Environmental Assessment Report
MoEF&CC	Ministry of Environment, Forest and Climate Change
LOA	Letter of Award
NOC	No Objection Certificate
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
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	World Bank

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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 part of priority works of strengthening of Transmission & distribution System in Assam under Tranche-1 of the World Bank Fund. To report any effects on the biodiversity and protected area and the project affected people, and to assess the compliance of the Initial Environmental Assessment Report prepared and submitted by the IA.

The elements of the present project of the Transmission line include:

- Rupai – Chapakhowa 132 kV S/C on D/C line of 41.7 km
- Tinsukia–Behiating (New Dibrugarh) 220 kV D/C line of 49.61 km

And four Distribution Lines are as follow:

- 33kV line from 132/33 kV Chapakhowa (New) to 33/11kV Chapakhowa (Existing) substation-2.61 km
- 33 kV line from 132/33kV (Existing) Dibrugarh to 33/11kV Romai (New) substation-16.96 km
- 33kV line from 220/132kV Behiating (New) to 33/11kV Bogibil (New) substation-13.2 km
- 33kV line from 220/132kV Behiating (New) to 33/11kV Dibrugarh (New) substation – 9.31 km

The project activities include the survey for finalizing the route alignment and installation of transmission/distribution lines and construction of substations (civil and electrical installation). Lattice towers/ poles are then erected on designated places using normal excavation and foundations thereafter conductors are strung across these using manual/stringing machines. The construction of substations is regular civil works for small buildings. The electrical installations consist of the transformers, breakers, capacitors etc. and other protection/controlling devices to ensure required power flow.

The Final Environment Assessment Report (FEAR) for North Eastern Region NER has been prepared in accordance with Environmental & Social Policy and Procedures (ESPP) of the Corporation. The present report describes the environmental issues/affects that have been encountered or may arise due to setting up this project in state of Assam & Tripura and

various mitigation measures are being taken care of by POWERGRID during construction and maintenance stages.

The recorded forest area is 26,832 sq. km which constitutes 34.21% of the geographic area of the State. According to legal status, Reserved Forests constitute 66.58 % and Un-classed Forest 33.42% of the total forest area. Forest types occurring in the State are Tropical Wet Evergreen, Tropical Semi-Evergreen, Tropical Moist Deciduous, Sub Tropical Broad Leaved Hill, Sub Tropical Pine and Littoral and Swamp Forests. Based on interpretation of satellite data, total forest cover is 27,671 sq. km which is 35.28% of State's geographical area. In terms of forest canopy density classes, the State has 1, 444 sq. km very dense forest, 11,345 sq. km moderately dense forest and 14,882 sq. km is open forest. The project districts are rich in coal, natural gas and petroleum products. This T & D project will help to explore more resources from this area.

During line routing stage itself, all measures have been undertaken to avoid settlements such as cities, villages etc. in line with the guiding principle of avoidance as per ESPPF. In the present project, transmission lines pass through agriculture fields, private plantation area 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. The final line routes don't involve any notified forest land which would necessitate forest clearance under Forest (Conservation) Act, 1980. Besides all protected areas like National parks, Wildlife sanctuaries and designated wildlife/elephant have been completely avoided. Necessary care was taken while survey to avoid flooding because of lines and the flood prone areas avoided for erection of T & D network.

The soil excavated for tower/pole footings and substation construction is optimally utilized for backfilling and the remaining soil being spread evenly and compacted. Top soil disturbed during the development of sites are used to restore the surface of the platform. Drilling in the Basin of Brahmaputra River to the downstream of Dr. Bhupen Hazarika Setu was done to erect transmission towers of Rupai Chapakhowa 132 kV line. The drilling work was undertaken by M/s Meher Foundation & Civil Engg. Pvt. Ltd. For boring, the drilling chemical used was Sodium based Bentonite. This is a non-toxic chemical. While drilling in the river bed, no harm was observed to the environment and river ecosystem. A proper drilling waste management was done, whose waste management plan is attached in the annexure.

During the survey and site selection for 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. The equipment installed on lines and substations are static in nature and do not generate any fumes or waste materials. Apart from this, state of art safety instruments, fire safety equipment and firefighting design have been included in the design in the substations on both the ends, so that, the line gets tripped within milliseconds in case of any fault.

All the substations in the subproject areas are located at such places where least chances of flooding. However, necessary care such as drainage provisions, elevation from flood levels has taken to avoid any damage to the substations. The substation will have adequate height

from the ground and proper storm water distribution system or layout will help to dispose-off the storm water collected in the substation premises, further creating recharge or percolation pits will help to recharge the ground water table. As per our observation, no any substation is vulnerable to flooding. Adequate measures are taken while selecting location of substations to avoid flooding hazards.

The monitoring committee of this project is very alert. It has been observed 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. As per record available, no written complaint or court case is registered against any of the sub projects. It has been observed from surveys, public meetings and discussion with project affected people, that they are appreciating the efforts taken by both the government and funding agencies to improve power network of that area. Local people believe that this project will enhance their quality of life as well as this project will help them to get new income source in near future.

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 with reference to the IEAR and especially with regard to compliance of the health and safety measures by the contractors.

1. Project Description

1.1. Background

The North Eastern Region (NER) in India is endowed with rich energy resources but faces significant bottlenecks in electricity access and availability levels. The per capita power consumption in NER is one-third of the national average. 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 scaling up private investment and economic competitiveness in the NER.

The power-starved North-Eastern (N-E) Region, comprising Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura, is blessed with a huge hydro potential. The region also has abundant resource of coal, oil and gas for thermal power generation. According to the estimates of the North Eastern Electric Power Corporation (NEEPCO), the north-eastern region has the potential of about 58971 MW hydro power i.e. almost 40% of the country's total hydro potential; but out of this only less than 2% (1095MW) has so far been harnessed. As per the report status of hydroelectric power potential listed by Central Electricity Authority (CEA) out of the total capacity of 58971MW, only 4029 MW has been tapped, which amounts to less than 7%. The region has a reserve of 151.68 billion cubic feet natural gas, which is capable of generating 7500 MW for 10 years. The region is also blessed with 864.78 million tons of coal against 186 billion tons of reserves in the country. With this reserve in the NE Region, approximately 240 MW/day can be generated for a period of 100 years.

But, in spite of such huge potential, the region ranks lowest in the country in terms of power generation and per capita energy consumption mainly due to lack of proper planning, inhospitable climatic conditions, remote location and inaccessibility. However, with continual improvement of infrastructure and communication facilities, the Northeast stands to become the power house of India by utilizing its surplus power potential, especially in hydel sector. The region offers a large potential in renewable energy, which is also yet to be exploited. There is also an imbalance between hydro and thermal power, both in terms of generation and availability. The transmission and distribution sector is the weakest link of the electricity industry in the NE region. Huge transmission and distribution losses, estimated to be at over 40 per cent, lower tariffs as compared to costs of generation and transmission and mounting losses of the state electricity boards, are crippling the electricity sector of the region.

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 Sectorial 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 and details of funding are given below:

TABLE 1-1 STATE WISE SCOPE OF WORK

Sr. No.	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.)
1	Assam	233	11	1644	479	16	240
2	Manipur	254	2	160	131	13	229.4
3	Meghalaya	225	4	940	263	11	135
4	Mizoram	143	3	125	5	1	6.3
5	Nagaland	285	5	245	76.5	10	190
6	Tripura	261	9	1306.5	1096	34	450.5
	TOTAL	**1401**	**34**	**4420.5**	**2051**	**85**	**1251.2**

TABLE 1-2 DETAILS OF FUNDING

State	World Bank	Government of India		Total
	Project Cost (Rs. in Cr.)	Project Cost (Rs. in Cr.)	Capacity Building (Rs. in Cr.)	Total (Rs. in Cr.)
Assam	729.485	729.485	14.83	**1473.803**
Manipur	213.690	213.690	14.83	**442.213**
Meghalaya	381.050	381.050	14.83	**776.933**
Mizoram	150.965	150.965	14.83	**316.763**
Nagaland	357.290	357.290	14.83	**729.413**
Tripura	678.685	678.685	14.83	**1372.203**
Total	**2511.165**	**2511.165**	**89.00**	**5111.33**

1.2. Project justification:

The present intra-state transmission system of the Assam state is quite old & weak and inadequate to meet the growing power requirements of the State. Although the present Transmission &Distribution (T&D) system covers many areas of the State, it is inadequate in its reach and due to non-availability of redundant T&D system, breakdown of any transmission system element results in long term power shortages making the system highly unreliable. Moreover, some of the network elements have undergone long term outage due to break-down. Therefore, it has become essential to address the above situation through remedial measures in the proposed transmission & distribution system. The detail of power transmission network of Assam is as follows:

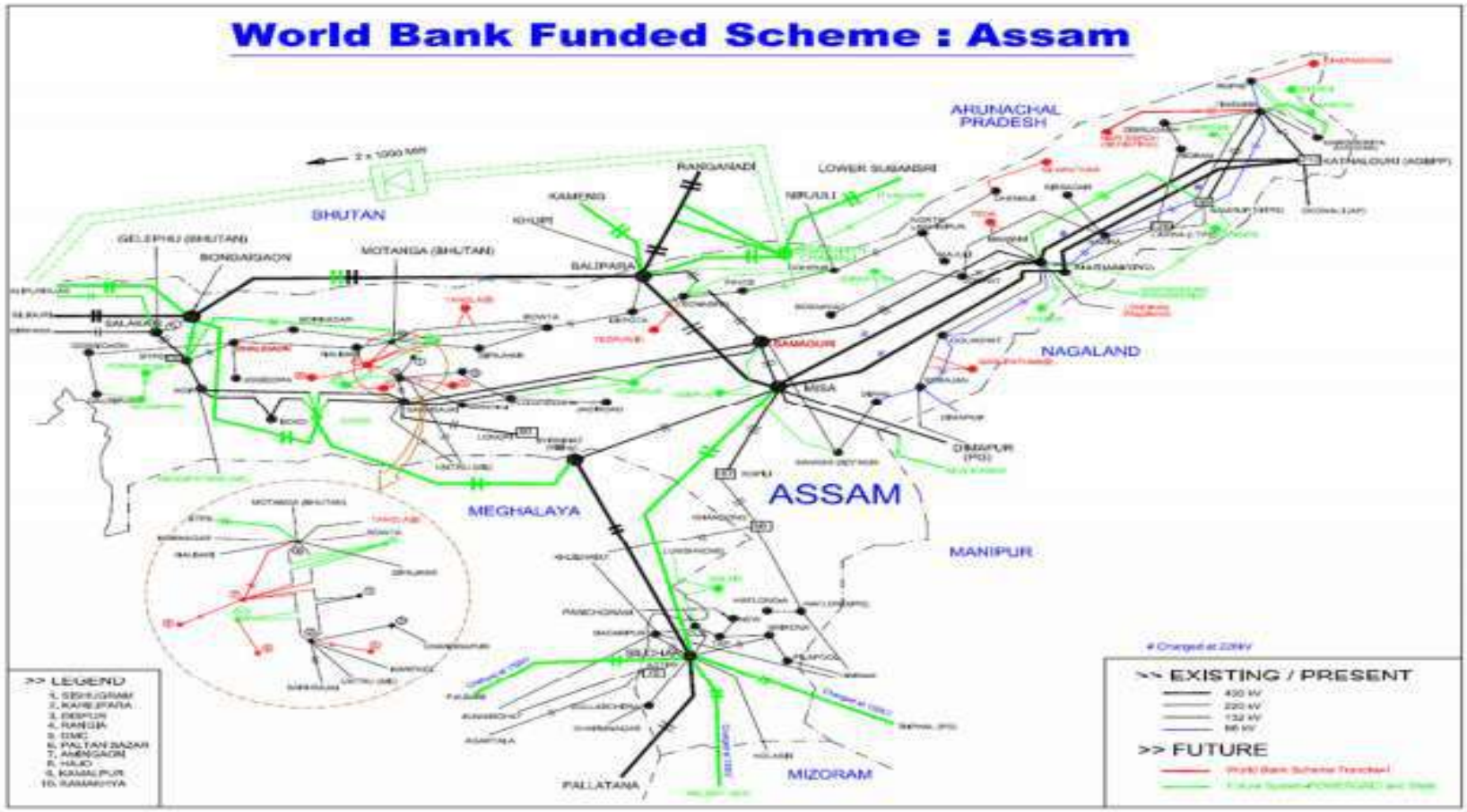


FIGURE 1-1 POWER MAP OF ASSAM

1.3. Benefits of project:

The present transmission and distribution schemes not only improve overall power supply situation but also improve reliability, quality, security and enhancement of power supply in the Assam state.

1.4. Need of the project:

In accordance with AEGCL & APDCL's Environment and Social Policy & Procedures Framework (ESPPF), POWERGRID in association with Assam Electricity Grid Corporation Ltd (AEGCL) & Assam Power Distribution Corporation Ltd (APDCL) carried out comprehensive environment and social assessment for each Sub-project and had 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) requires to be prepared for each subproject with an objective to assess the compliance of mitigation measures as suggested in IEARs. Accordingly, POWERGRID appointed M/s Green Circle Inc. as Independent Consultant to undertake the instant FEAR study.

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 Tinsukia and Dibrugarh district of Assam. Details of T & D components are as follows:

TABLE 1-3 SCOPE OF WORK OF T & D NETWORK IN TINSUKIA AND DIBRUGARH DISTRICT OF ASSAM.

Sr. No.	Name of the Line	Name of New/Existing Substation
A. Transmission Scheme		
1.	Rupai – Chapakhowa 132 kV S/C on D/C line - 41.7 km	Establishment of 4 x 8.33 MVA, 132/33 kV new substation at Chapakhowa, Extension of 132/33 kV substation at Rupai (Existing)
2.	Tinsukia–Behiating (New Dibrugarh) 220 kV D/C line 49.61 km	Establishment of 2x100 MVA, 220/132 kV new substation at Behiating (New Dibrugarh) Extension of 132/33 kV substation at Tinsukia (Existing)
B. Distribution Scheme		
1.	33 kV line from 132/33 kV Chapakhowa (New) to 33/11kV Chapakhowa (Existing) substation-6.97 km	Strengthening of 33/11 kV Chapakhowa (Existing) substation
2.	33 kV line from 132/33kV (Existing) Dibrugarh to	Establishment of 2x10 MVA, 33/11 kV new substation at Romai.

Sr. No.	Name of the Line	Name of New/Existing Substation
	33/11kV Romai (New) substation- 20.9 km	
3.	33kV line from 220/132kV Behiating (New) to 33/11kV Bogibil (New) substation- 9.2 km	Establishment of 2x5 MVA, 33/11 kV new substation at Bogibil
4.	33kV line from 220/132kV Behiating (New) to 33/11kV Dibrugarh (New) substation - 8.2 km	Establishment of 2x 10 MVA, 33/11 kV new substation at Dibrugarh Electrical SD-3

The schematic diagram of proposed transmission and distribution network in Tinsukia and Dibrugarh District is shown below:

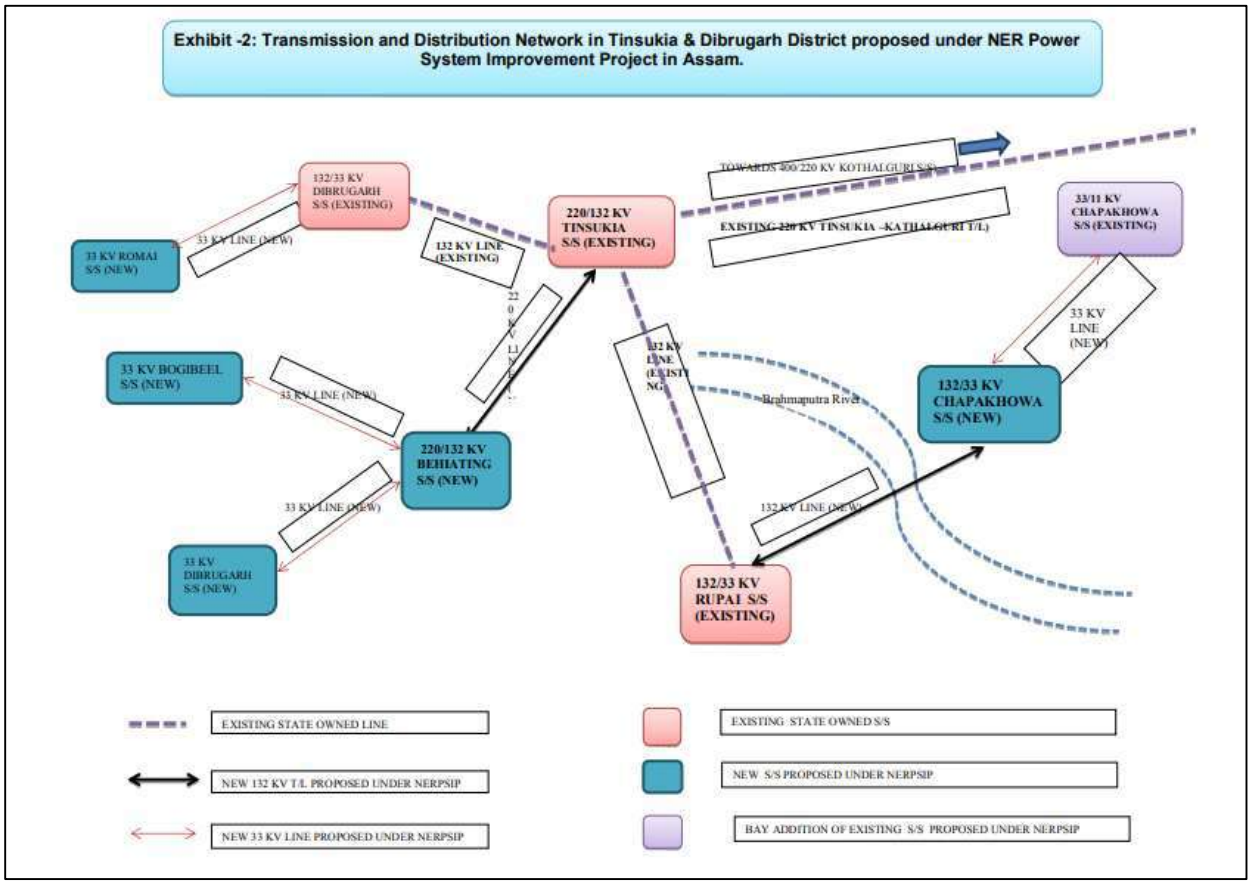


FIGURE 1-2 DETAILS OF PROPOSED T & D NETWORK OF TINSUKIA AND DIBRUGARH DISTRICT

1.5. Overall Project Progress:

The details of overall project progress are as follows:

Sr. No.	Details of T&D Line/Substation	Length of T&D Lines (Km)		Overall Progress as of October 2020
		As per IEAR	As per Work Order	
A.	**Transmission Line Network**			
1.	Rupai – Chapakhowa 132 kV S/C on D/C line	41.7 Km	41.7 Km	Route alignment survey, check survey and detailed survey completed. 110 + 4 (Pile) Towers erected out of 158 towers.
2.	Tinsukia–Behiating (New Dibrugarh) 220 kV D/C line	49.61 Km	49.61 Km	Route alignment, check survey & detailed survey of 49.73 km line completed. 73 towers out of 188 erected.
B.	**Distribution Line Network**			
1.	33 kV line from 132/33 kV Chapakhowa (New) to 33/11kV Chapakhowa (Existing) substation	6.97 Km	2.617 Km	This line commissioned on 11.06.2020
2.	33 kV line from 132/33kV (Existing) Dibrugarh to 33/11kV Romai (New) substation	20.9 Km	16.966 Km	Out of 351, 189 poles have been erected, remaining work under progress.
3.	33kV line from 220/132kV Behiating (New) to 33/11kV Bogibil (New) substation	9.2 Km	13.2 Km	This line is commissioned on 29.2.2020
4.	33kV line from 220/132kV Behiating (New) to 33/11kV Dibrugarh (New) substation	8.2 Km	9.314 Km	Out of total line 200 m section tested and commissioned. Remaining work is under progress.
C.	**Substations:**			
5.	220/132kV Behiating (New) S/S – 2x100 MVA	-	-	Expected Completion: Dec'21

Sr. No.	Details of T&D Line/Substation	Length of T&D Lines (Km)		Overall Progress as of October 2020
6.	132/33kV Chapakhowa New S/S -2x31.5 MVA	-	-	Expected Completion: Mar'21
7.	132/33kV Rupai s/s (Extn.)	-	-	Commissioned on 30.9.2020
8.	220kV Tinsukia Bay Extn.	-	-	Expected Completion: Mar'21
9.	Romai (New) S/S- 2x10 MVA	-	-	Expected Completion: Nov'20
10.	Bogibil (New) S/S- 2x5 MVA	-	-	Commissioned on 29.02.2020
11.	Dibrugarh (New) S/S- 2x10 MVA	-	-	Commissioning Completed

1.6. Study Methodology:

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 will 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. The project methodology flow chart is given below:

The methodology for the proposed study is inclusive of but not limited to following steps;

1. **Review of existing reports:** Review of existing reports and data prepared and generated by POWERGRID such as Initial Environment Assessment Report (IEAR), Environment and Social Policy & Procedures Framework (ESPPF), Compensatory Plan for Temporary Damage (CPTD) etc. was undertaken and suitably incorporated in the present report.
2. **Literature review:** Review of existing literature are undertaken for collection of secondary baseline data related to physiography, climatic conditions, demography, natural resources including forest/wildlife and socio-economic features of the study area. Sources and data so collected have been mentioned below:

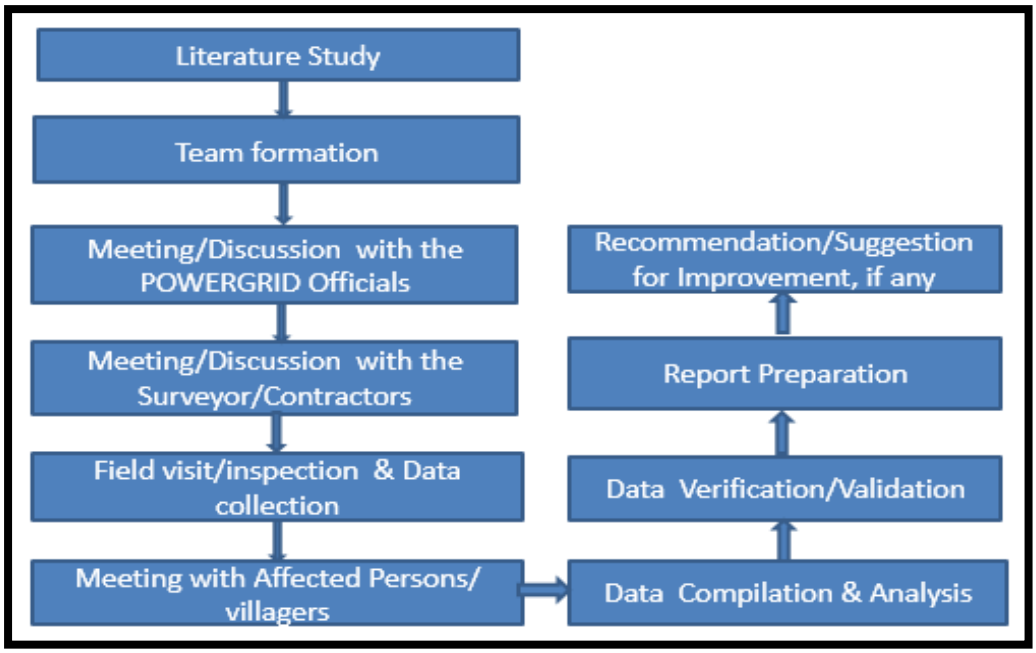


Figure 1-3 Study Methodology For Preparation Of Fear

- Literature from various research papers was reviewed for study biodiversity of the project site
- A Revised Survey of the Forest Types of India' by Champion and Seth (1968) was used for forest type classification of forests in the study area.
- Conservation status of flora and fauna of the study area as per Indian Wildlife (Protection) Act (1972), threatened status according to IUCN Red List 2020.1, Red Data Book of Indian Plants by Botanical Survey of India, Kolkata.
- Census of India 2011 for demography of the study area.

3. **Collection & collation of primary data:** The data was collected by extensive field visits and interaction with various stakeholders such as POWERGRID, Contractor, forest officials of Dibrugarh and Tinsukia office, Project Affected People (PAPs) and public at large. The environmental primary data other than vegetation profile is verified and ascertained through the discussion with local people and stakeholders for the proposed T&D alignment and substations following IEAR and final alignment schedule. In order to, collect data with respect to final route alignment with important feature & maps, forest involvement/forest clearances, other applicable statutory clearances/consent/ exact number of trees to be felled / damaged both in forest as well as non-forest area, number and profile of PAP along with details of compensation provided to PAPs. This includes collection of any other primary data, which, in the opinion of agency, is required for ascertaining the compliance of the mitigating measures as enlisted in IEAR/EMP. Besides, photographs of important events such as

interaction with various stakeholders, safe working practices, borrow area management, top soil management and construction during lean period etc. was taken as evidence.

4. **Collection of Secondary data:** Secondary data collection of major environment and social features of study area viz. presence of protected areas National Parks and Wildlife Sanctuaries), Archaeological monuments, Sixth Schedule/Tribal Areas etc. Collection of other secondary baseline data related to physiography, climatic conditions, demography, and socio-economic features of the study area.

5. **Ascertaining the compliance:** Analysis and interpretation of secondary and primary data to ascertain the compliance of the measures as discussed in EMP.

6. **Survey of flora and fauna:** Phyto-sociological survey is necessary as this is a transmission line project. Being a transmission line project, phyto-sociological surveys for assessment of vegetation structure/ profile in the proximity of the proposed transmission lines, corridors of transmission line routes, sub-stations, etc. were conducted wherein line transact methodology has been followed. Faunal surveys were also conducted. During the surveys, at least 10% route was covered to collect baseline data, because entire route is not accessible at present. Please Refer Annexure 16.

7. **Consultation:** During assessment consultation was done with various field officers of consulting team such as Central Project Implementation Unit CPIU)/ State Project Coordination Unit (SPCU) in organizing stakeholder consultation during assessment process/wherever needed.

2. Baseline Data

2.1. Introduction:

Impact assessment is necessary to address possible physical, biological and socio-economic impacts of a project and helps in formulating management and mitigation measures to minimize the impacts to a great extent. This chapter deals with baseline survey of physical, biological and socio-economic environment of the project site.

2.2. Project Location:

The proposed subprojects comprising of both transmission and linked distribution networks are located in Tinsukia and Dibrugarh district in the State of Assam. The basic environmental settings of the State and subject project area is given below:

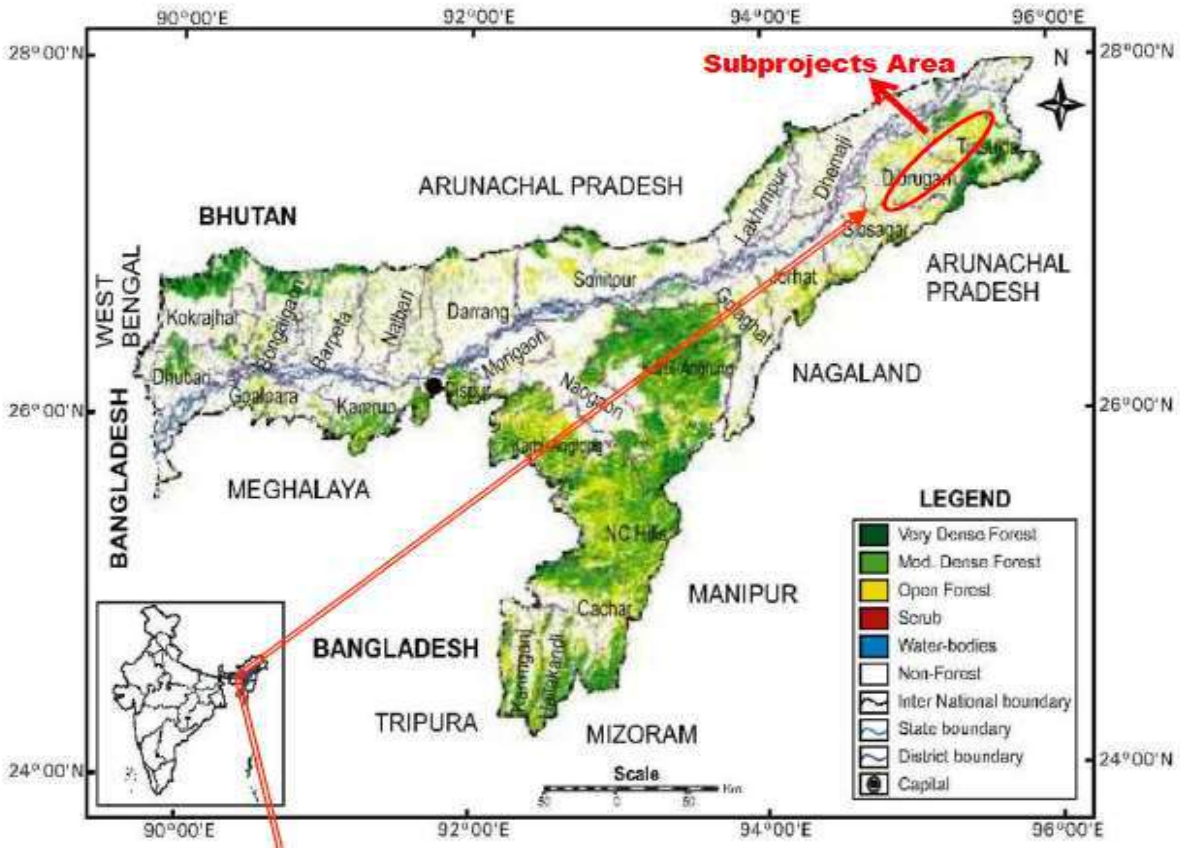


FIGURE 2-1 LOCATION OF PROJECT SITE

FIGURE 2-2 BEHIATING SUBSTATION

FIGURE 2-3 BOGIBIL SUBSTATION

FIGURE 2-4 CHAPAKHOWA NEW AND EXISTING SUBSTATION

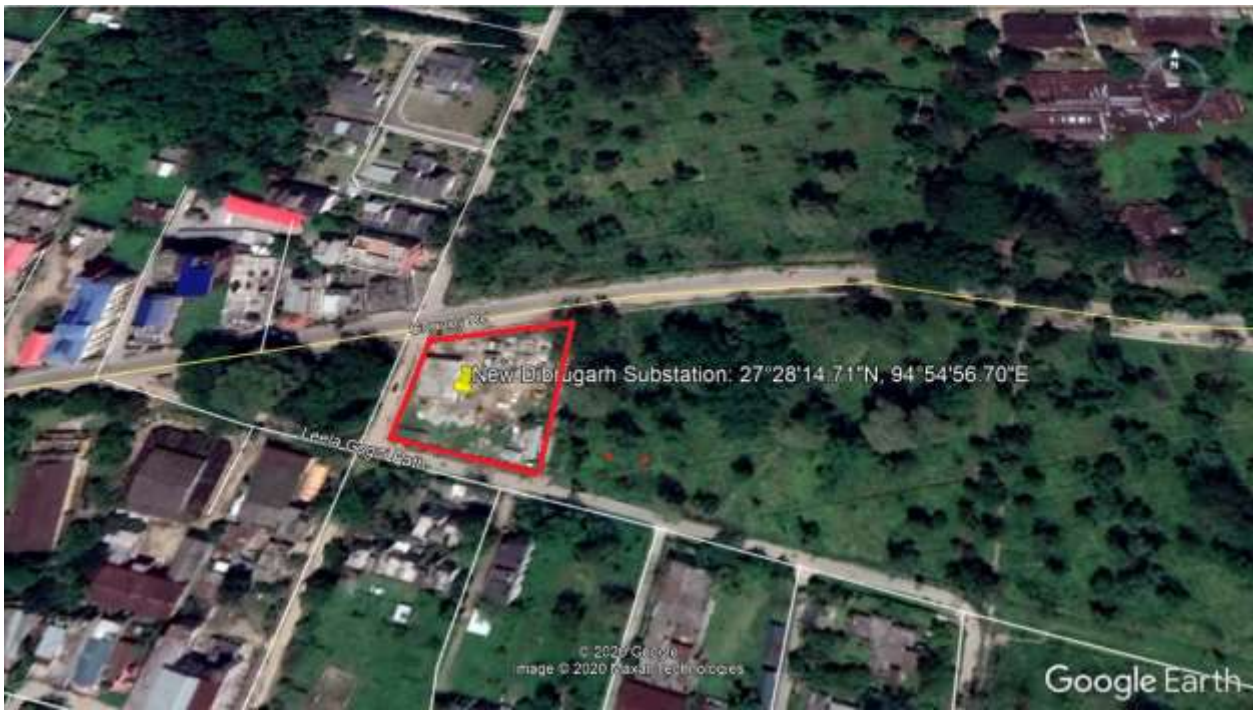


FIGURE 2-5 NEW DIBRUGARH SUBSTATION

FIGURE 2-6 TINSUKIA SUBSTATION

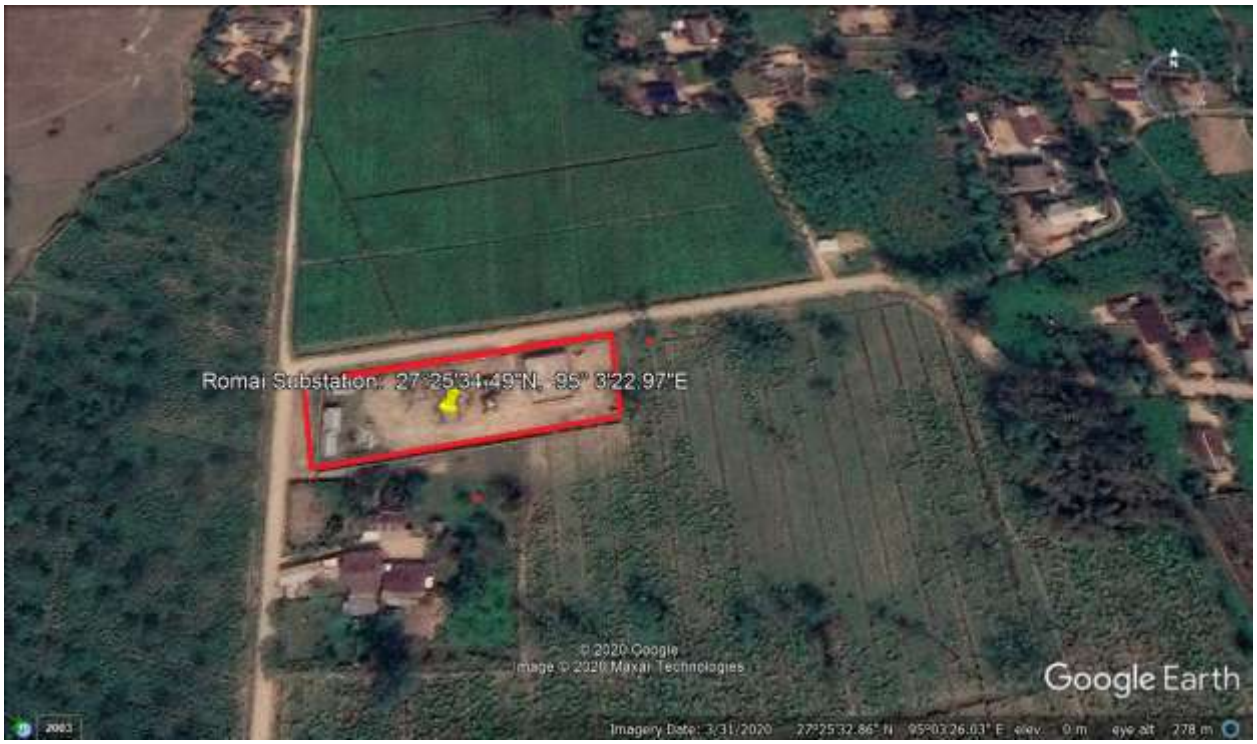


FIGURE 2-7 ROMAI SUBSTATION

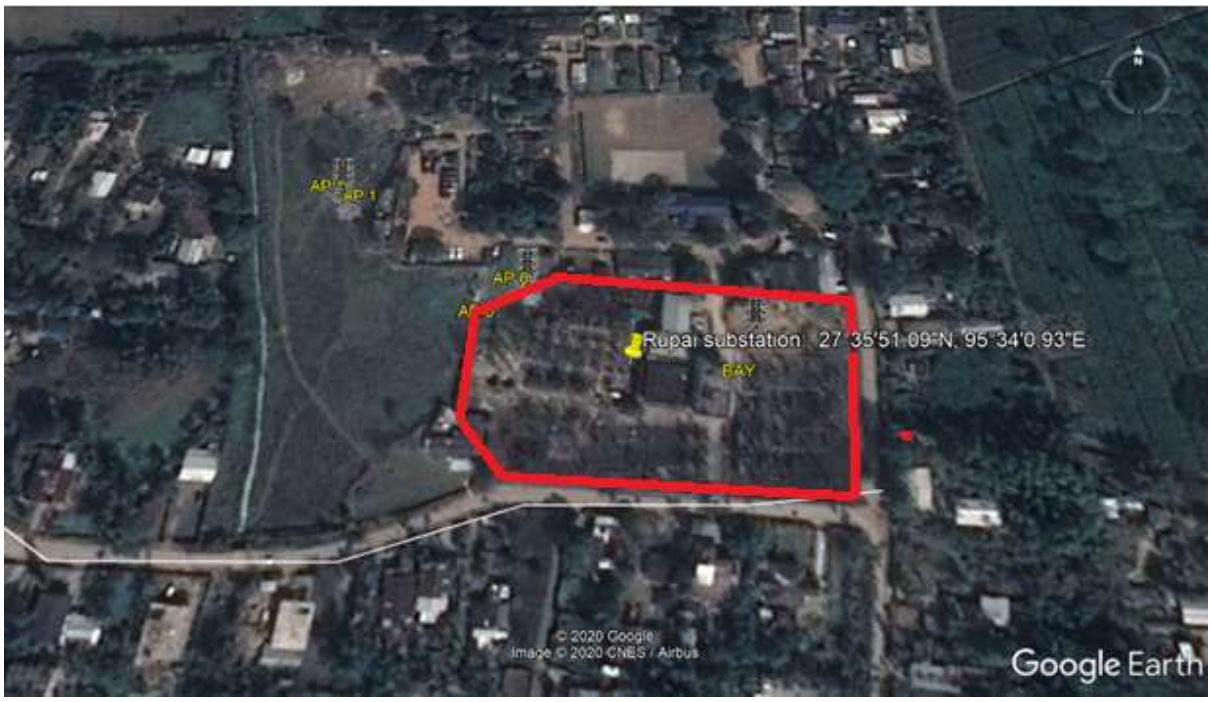


FIGURE 2-8 RUPAI SUBSTATION

2.3. Baseline Data of Assam state:

2.3.1. Physiography of Assam State

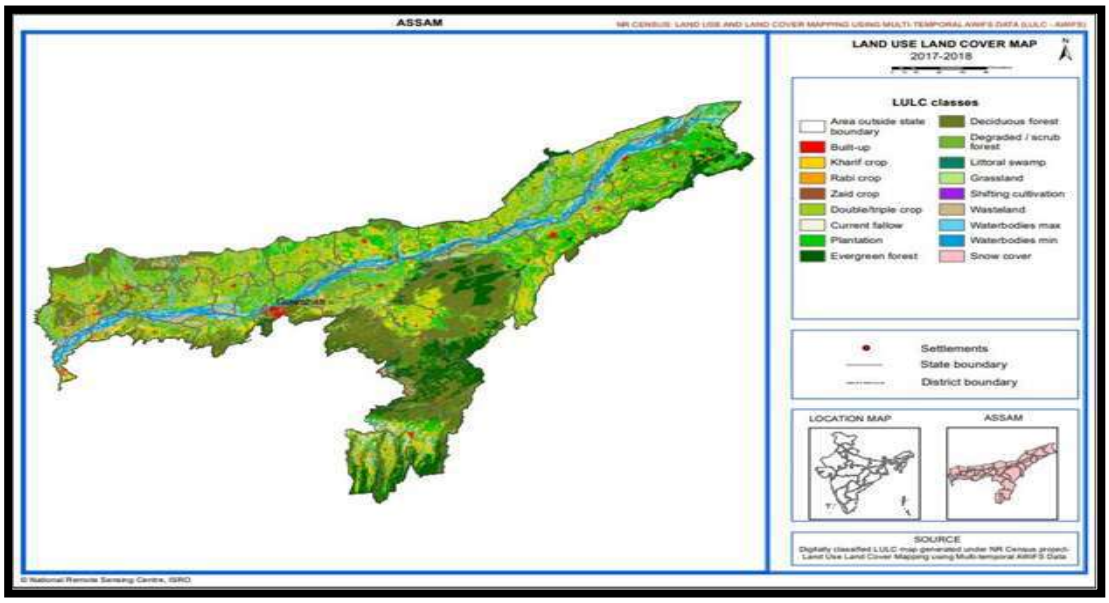
Assam has a geographic area of 7.84 million ha, which constitutes 2.39% of the country's total area. It is situated between latitude 24°07'28°00' N and longitude 89°42'96°02'E. Topographically the State can be divided into three parts, viz. the Brahmaputra valley, the Surma valley and the Assam range. The first two parts are plain areas, while the Assam range is a mountainous region.

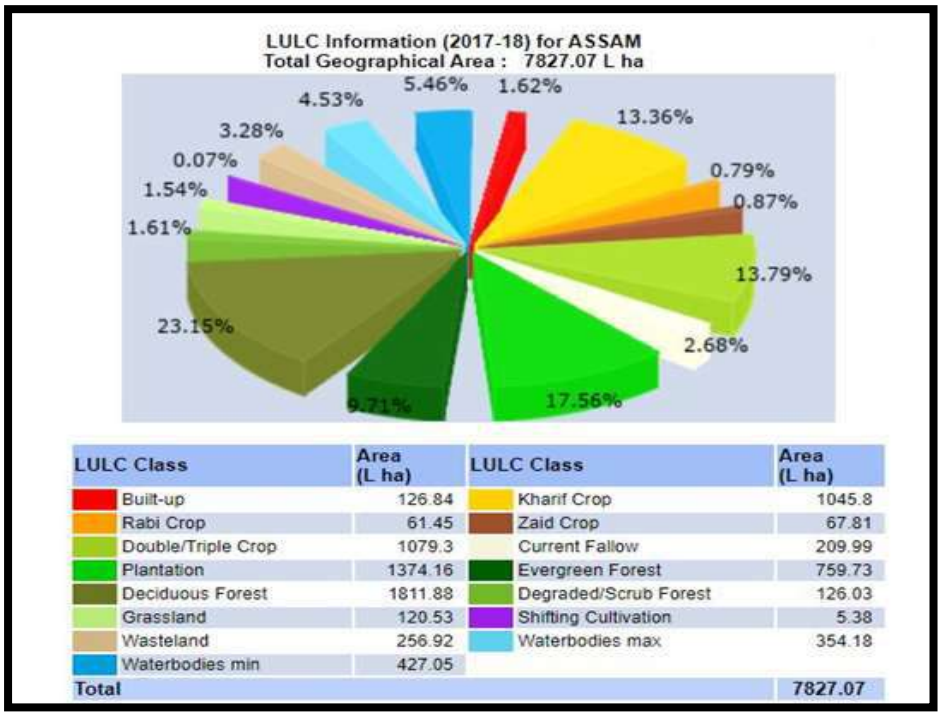
2.3.2. Land use pattern of Assam

The terms land use and land cover is often used interchangeably, but each term has its own unique meaning. Land cover refers to the surface cover on the ground like vegetation, urban infrastructure, water, bare soil etc. Identification of land cover establishes the baseline information for activities like thematic mapping and change detection analysis. Land use refers to the purpose the land serves, for example, recreation, wildlife habitat, or agriculture.

When used together with the phrase Land Use / Land Cover (LULC) generally refers to the categorization or classification of human activities and natural elements on the landscape within a specific time frame based on established scientific and statistical methods of analysis of appropriate source materials. Land cover is the physical material at the surface of the earth. Land use is the description of how people utilize the land for the socio-economic activities.

The general land use pattern of the Assam State is given on the following page.





LULC Class	Area (L ha)	LULC Class	Area (L ha)
Built-up	126.84	Kharif Crop	1045.8
Rabi Crop	61.45	Zaid Crop	67.81
Double/Triple Crop	1079.3	Current Fallow	209.99
Plantation	1374.16	Evergreen Forest	759.73
Deciduous Forest	1811.88	Degraded/Scrub Forest	126.03
Grassland	120.53	Shifting Cultivation	5.38
Wasteland	256.92	Waterbodies max	354.18
Waterbodies min	427.05		
Total			7827.07

(SOURCE- BHUVANISRO)

FIGURE 2-9 LULC INFORMATION OF ASSAM

2.3.3. Demography of Assam:

The Population of Assam according to the 2011 census stands at about 31 million, making it the 14th most populated state in India. The state is spread over an area of about 78000 sq. KM making it the 16th largest state in the country in terms of area. The density of population per sq. KM is about 397 and is fairly equal to the national average. The state has a growth

rate of about 17% which is again very close to the national growth rate of about 17%. The population of the state is rising considerably due to rapid efforts towards development and progress. The literacy rate in the state is about 73% a figure that has improved tremendously in the last few years due to the consistent efforts of the government. The sex ratio in Assam exceeds the national average by a good 30 points and is one of the better states in the country with respect to the sex ratio.

In general there is a huge chunk of Other Backward Classes (OBC) population comprising of Ahoms, Konches etc. The Schedule tribes include Mishings, Sonowal Kacharis Bodos, Deoris, Lalungs, Hazongs, Tea garden community makes up only a negligible part of the total population. The principal languages of the region are Assamese, Mishing, Bodo and Bengali. The principal religion is Hinduism. However, Christianity and Islam are also practiced to a limited extent. There is almost no record of communal violence.

2.3.4. Socio Economy:

National Sample Survey Office (NSSO) was set up by the Govt. of India in 1950 to collect Socio Economic data implying scientific sampling methods. In this survey some rural and urban areas like villages and wards are given as samples to collect various data under definite subject coverage like Poverty, Employment and Unemployment, Health, Education etc. Socio economic survey is an important aspect of any project which helps to define impact of project on local people of that particular area.

2.3.4.1. Agriculture:

Dibrugarh district: Dibrugarh district has total of 1, 27,313 Ha net sown area with cropping intensity of 148%. Net irregated area is 12420 Ha and rainfed area is 115088Ha. Irregations sources are mainly tanks, bore wells, lift irregation schemes, etc. Major cultivated crops are paddy, Arhar, Black gram, Green gram, Pea, Rapeseed, Mustard, Potato, Banana, Assam lemon. Pineapple, Papaya, Orange etc. Vegetables like Chilli, ginger, turmeric also cultivated in some area. In some amount, medicinal plants, aromatic plants and tea is cultivated in Dibrugarh district.

Tinsukia district: Cultivable area of Tinsukia district is 200 Ha. Net sown area is 99.9 ha and gross cropped area is 145.2 Ha. The cropping intensity is 145.2%. Net irregated area is 2.7 ha, gross irregated area is 6.24 ha and rainfed area is 97.2 ha. Main source of irregation is bore well. This district has total no. of 2734 bore wells which occupy area of 4.6 ha. Other than bore wells, open wells, tanks are also used to draw water. Main crop of Tinsukia district is paddy which is sown on total of 68.42 ha area. Apart from this, Maize, black gram, sesamum, arhar, rapeseed and mustard, potato, wheat is sown in Tinsukia district. Major horticultural crops are Banana and pineapple, kharif and rabi vegetables also grown in this

district. Medicinal crops like ginger, coriander, turmeric, black pepper and plantation crops such as tea are also grown in Tinsukia district.

2.3.5. Population:

Total population in Assam stands at 3,12,05,576 of which 2,68,07,034 (85.90%) population belong to rural area and 43,98,542 (14.10%) population belong to urban area. Details are given in **Table 2.19**;

TABLE 2-1 POPULATION OF ASSAM AND PROJECT DISTRICTS

Name/ Particulars	Total Population	Total (Rural)	Total (Urban)	Percentage (%) (Rural)	Percentage (%) (Urban)
Assam	3,12,05,576	2,68,07,034	43,98,542	85.90	14.10
Dibrugarh	1,326,335	1,082,605	243,730	81.62	18.37
Tinsukia	1,327,929	1,063,186	264,743	80.06	19.94

(Source: Census of India, 2011)

Out of total population 3,12,05,576 of the State, male population constitutes 15,939,443 (51.08%) and female population is 15,266,133 (48.92%).

2.3.6. Climate:

The climate of Assam is typically 'tropical monsoon rainfall' type, with high levels of humidity and heavy rainfall. Climatic variations can be seen regionally. While the plains of Assam have a tropical climate with high humidity, the hills have a sub-alpine type of climate. There are four distinct seasons in Assam - summer, monsoon, autumn and winter. The summer season in Assam starts from the month of March and extends till the end of June. The season is characterized by extreme humidity and frequent showers. The average temperature during this time of the year is between 35 and 38 degree Celsius. This season brings relief from the scorching heat of the summers. The neighboring areas of Cherapunji and Mawsynram have the highest rainfall in the world. The average annual rainfall in the state is around 70 inches in the west and around 120 inches in the east. The winter season in Assam is basically characterized by scanty rainfall and misty mornings and afternoons. It starts in November and continues till the month of February. The mercury reading at this time of the year is around 6 to 8 degree Celsius or 43- 46 degree Fahrenheit. In Assam, spring (March- April) and autumn (September- October) present pleasant seasons, with moderate temperature and rainfall.

2.3.7. Soil Characteristics of Assam:

Mainly three types of soil found in Assam State viz. Alluvial, Red Loam, and Lateritic Soil. Alluvial Soil covers entire Darrang, Kamrup, Lakhinpur, Goalpara, Sibsagar and part of Garo Hills. Red Loam Soil is found in Garo Hills, Mizo Hills, Khasi-Jaintia Hills and part of Cachar & Sibsagar. Lateritic Soil found in part of Shibsagar, Jaintia Hills, Khasi Hills, Cachar, Nowgaon area. The most typical characteristics of Assam soil is acidity, where pH of the soils generally ranges between 4.2 - 5.8

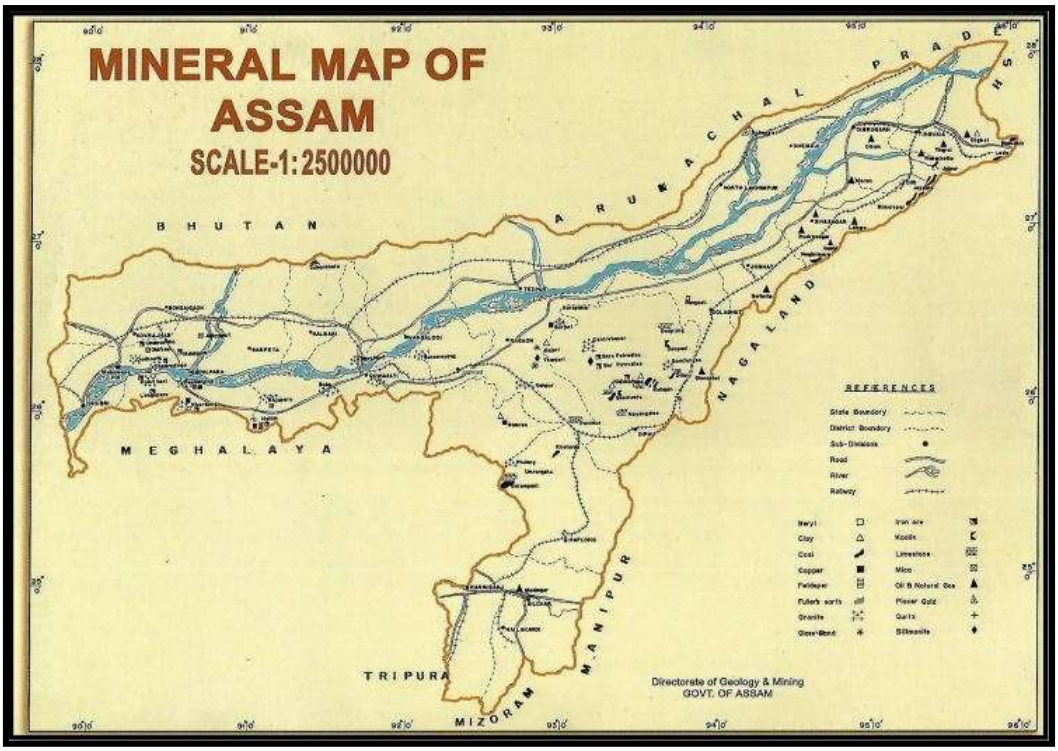
2.3.8. Minerals in Assam:

Coal, petroleum and natural gas, limestone and minor minerals are produced in Assam. Coal occurs in Tinsukia, Dibrugarh, North Cachar Hills, Sivasagar and Lakhimpur districts. Assam coal is friable in nature and has high sulphur content, deposits of banded magnetic quartzite occurs in Kamrup and Goalpara districts, Limestone occurs in Lakhimpur, North Cachar Hills, Karbi Anglong, Nagaon and Sivasagar districts. Kaolin is found in KarbiAnglong and Lakhimpur district. The Digboy oil fields in Lakhimpur district and Moran and Rudrasagar oil fields in Sivasagar district are the major source of oil and gas. Hydrocarbons are struck in Borsilla, Changmaigaon, Kurgaon and Rajgarh in the past. Sillimanite bearing rocks occur in Karbi Anglong district. Assam continued to be the 3rd largest producer of Petroleum (crude) and natural gas in the country accounting for 16% and 8% respectively of the total production of this mineral in the country (figure 2-5).

TABLE 2-2MINERAL DISTRIBUTION OF ASSAM

DISTRIBUTION OF MINERALS IN ASSAM

SL.NO	MINERAL	DISTRICT
1.	Oil and Natural Gas	Tinsukia,Dibrugarh,Sivsagar,Jorhat,Golaghat and Cachar
2	Coal	Tinsukia,Karbi Anglong, Dima- Hasao.
3	Lime Stone	Karbi Anglong,Dima Hasao
4	Iron Ore	Kamrup(R), Goalpara,Dhubri
5	Granite	Goalpara,Kamrup,Morigaon,Nagaon,Karbi Anglong
6	Sillimanite	Karbi Anglong
7	China Clay	Karbi Anglong
8	Glass Sand	Nagoan
9	Fuller's earth	Nalbari,Baksa
10	Placer Gold	Lakhimpur



(Source: https://mines.gov.in/writereaddata/UploadFile/Assam.pdf)

FIGURE 2-11 MINERALS OF ASSAM

2.3.9. Water Resources of Assam:

Assam is dominated by the Brahmaputra river (length: 2900 KM). Its drainage area is roughly 935,500 sq. KM which is the main river which flows from east to west in the southern part of the district is the Brahmaputra River. Different tributaries viz. Dihingia, Jiadhal, Miridhal, Telijan, Kaitongjan, Laipulia Nadi, kapurdhua, Sissi, Gai, Tangani & Guttong originating from Arunachal Pradesh in the north, flow southwest carrying enormous amount of alluvium through the district before meeting the river Brahmaputra. The district is vulnerable to floods and occurrences of flood are a regular feature which causes a lot of damage. Nearly 27% of the net cropped area is flood prone.

- **Brahmaputra River**

The Brahmaputra enters India in the state of Arunachal Pradesh, where it is called Siang. It makes a very rapid descent from its original height in Tibet and finally appears in the plains, where it is called Dihang. It flows for about 35 KM (22 mi) and is joined by the Dibang River and the Lohit River at the head of the Assam Valley.

- **Subansiri River**

Subansiri River is a tributary of the Brahmaputra River in the Indian states of Assam and Arunachal Pradesh, and the Tibet Autonomous Region of China. The Subansiri is 442

kilometres (275 mi) long, with a drainage basin 32,640 square kilometres (12,600 sq m) large. The Subansiri is the largest tributary of the Brahmaputra.

- **Moridhal River**

This is the main river west of Sissi. Though Kanibil River looks larger and broader but it is only a tributary to River Moridhal. Jiadhal or Kumatiya originates almost at the same location in Arunachal Pradesh. These rivers are, in fact, the triangular configuration of rivers in a swampy and comparatively flat area at the foothills of Himalayas (alluvial fan). In such geomorphological setting rivers do not follow the same course for a long time and frequently change their course and the older courses become either misfit, dry or marginalized channels. Moridhal is an example of such phenomenon and the new course that it follows now as the main channel is Jiadhal. Flash floods are common features of these rivers.

- **Gai River**

A distributary emerges from Sissi River along southward direction at 2 KM north of Sissiborgaon near Tokoubari village. This branch, known as Gai River, flows 2 KM downstream and crosses the NH 52. From this point Gai River continues through Salahanibeel for another 4 KM in the same direction. Gai River flows leaving aside Chakamora and Chumanibeel on its left side. Near Chumanibeel, River Gai changes its course towards SW and travels 3 KM downstream, merges into Kukurabeel and combines with Kapurdhowa River after flowing across the beel. After 1970, a drastic change in the course of this river is recorded, which requires a detailed scientific study to understand the root cause.

- **Jiadhal River**

The river Jiadhal, a Northern Sub-tributary of the river Brahmaputra originates in the sub-Himalayan Mountains of Arunachal Pradesh at an altitude of 1247m above the M.S.L. After passing through a narrow gorge in Arunachal Pradesh, the river enters the plains of Assam in Dhemaji district where it flows in braided channels. The river is known as 'Kumotiya' from the Railway line to the Gogamukh – Ghilamara P.W.D. road wherefrom it is known as the river 'Sampara'. The river finally debouches into the river Brahmaputra near Selamukh. But after construction of the embanKMent over the KherkutiyaSuti of the Brahmaputra, the river falls into the Subansiri River.

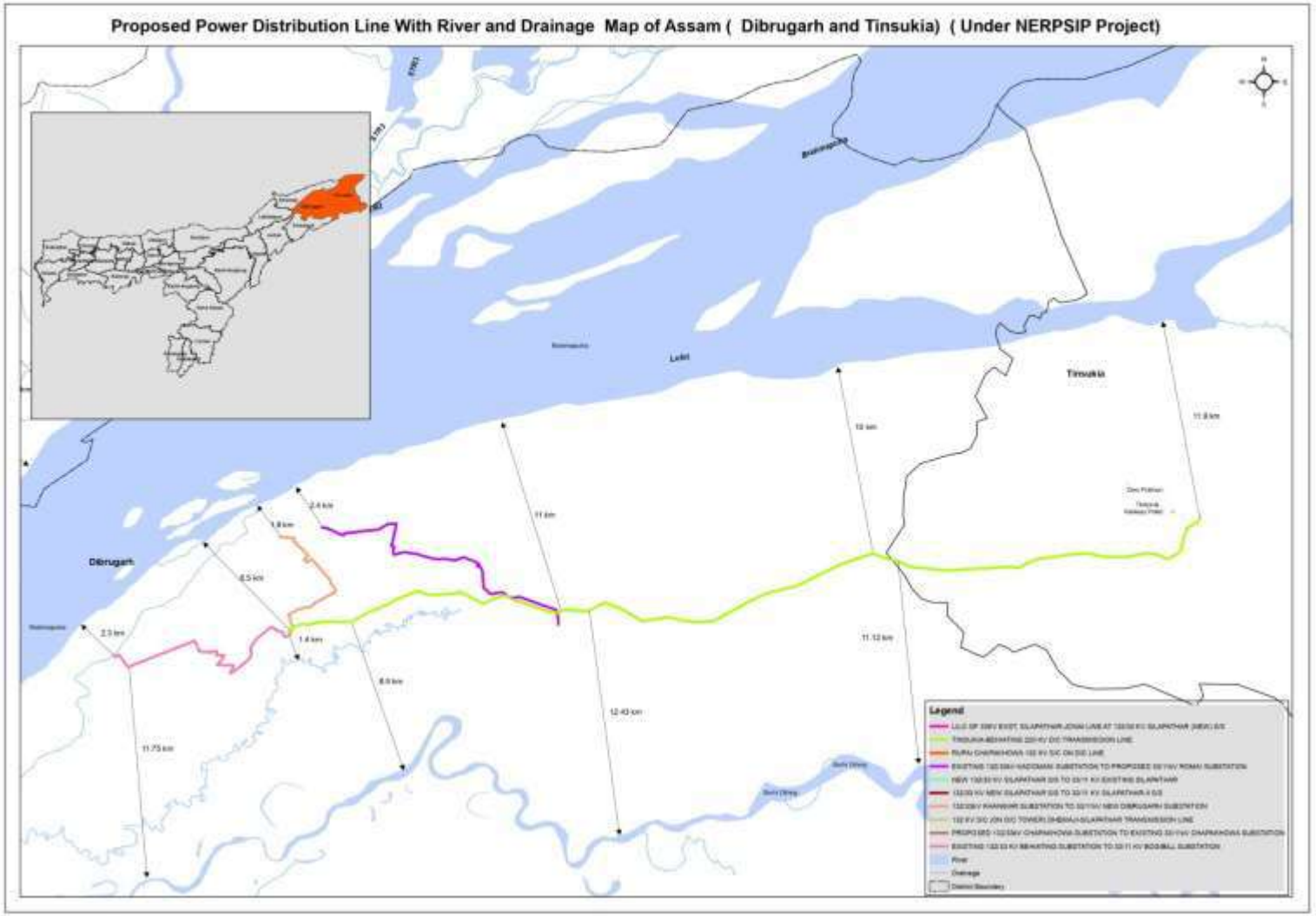


FIGURE 2-12 DISTANCE OF SUBPROJECT AREAS IN DIBRUGARH DISTRICT FROM NEAREST RIVERS

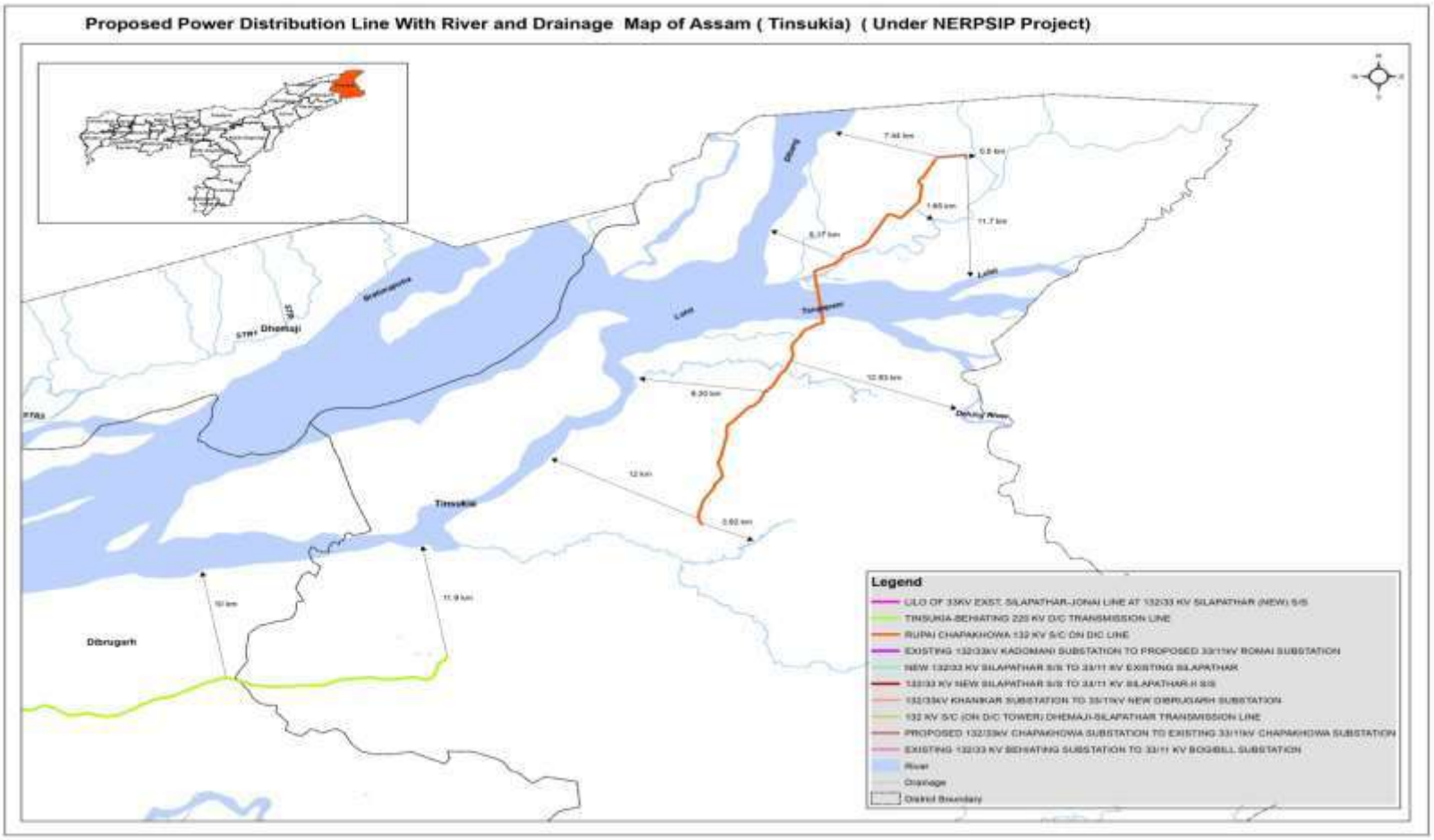
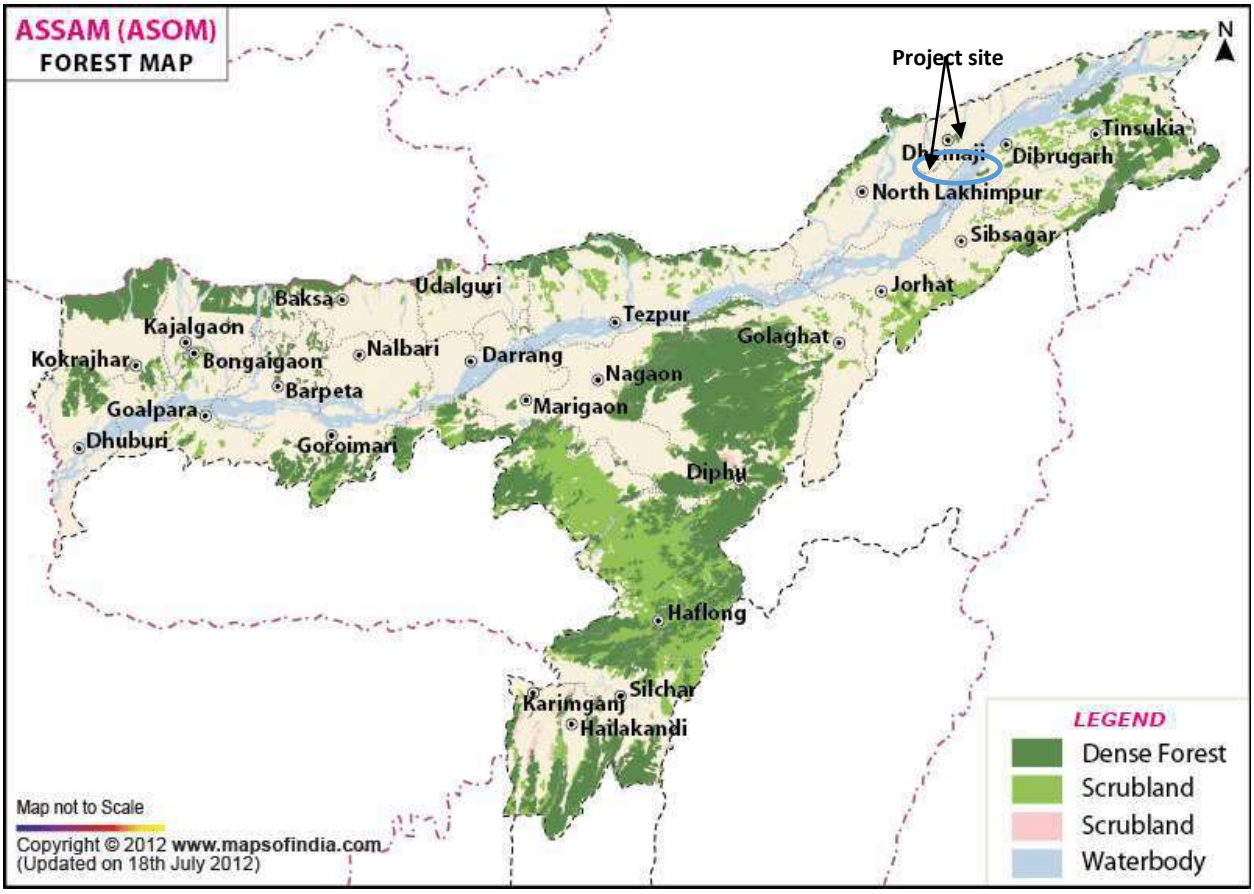


FIGURE 2-13 DISTANCE OF SUBPROJECT AREAS IN TINSUKIA DISTRICT FROM NEAREST RIVERS

2.3.10. Forests in Assam:

Based on interpretation of satellite data pertaining to Oct-Dec 2015, the forest cover in the state is 28,105 sq. KM which is 35.83% of the state's geographical area. In terms of forest canopy density classes, the state has 2797 sq. KM under very dense forest, 10192 under moderately dense forest & 15116 sq. KM under open forest. The following map provides details about forests of Assam.



(Source: https://www.mapsofindia.com/maps/assam/assam-forest-map.htm)

FIGURE 2-14 FOREST COVER IN ASSAM

2.3.11. Protected areas of Assam:

There are 5 National Parks and 20 Wildlife Sanctuaries in the State. Total protected area is 0.40 million hector which constitutes 4.98% of the total geographic area of the State. This is as per 2017 ENVIS Centre, WLI, Dehraun (Uttarakhand).

The State has three Tiger Reserves namely Kaziranga, Manas and Nameri. Manas Tiger Reserves has also been declared as a Biosphere Reserve. Kaziranga National Park and Manas Wildlife Sanctuary are also included in the World Heritage sites. Besides, the State also one Ramsar Site & 46 Important Bird Areas (IBA).

TABLE 2-3 DETAILS OF WILDLIFE PROTECTED AREAS OF ASSAM

Sr. No.	Protected area	Location	Main Habitat
1.	Kaziranga National Park	Golaghat, Nagaon & Sonitpur	One horned Rhino, Swamp Deer, Wild Buffalo, Tiger, Elephant, Hoolock Gibbon, Capped Langur, Home to 25 globally threatened and 21 near threatened species of birds
2.	Manas National Park	Chirang and Baksa	Rhino, Elephant, Tiger, Pygmy Hog, Hispid hare, Golden Langur, Assamese Macaque, Rhesus Macaque, Leopard, Golden Cat, Fishing Cat, Leopard Cat, Jungle Cat, Large Indian civet, Small Indian civet, Toddy Cat
3.	Orang National Park	Udalguri and Sonitpur	Rhino, Tiger, Maljuria Elephants (male elephants in group), Hog Deer, Wild Pig 222 species of Birds (Greater Adjutant Stork, Lesser Adjutant Stork, Brahminy Duck, Pintail Duck etc.)
4.	Nameri National Park	Sonitpur	Tiger, Leopard, Elephant, Gaur, Wild Pigs, Sambar, Barking Deer, Hispid hare, Slow Loris, Capped Langur, White Winged Wood duck, Palla's fish-eagle, Lesser Adjutant Stork, Greater spotted Eagle, White ramped vulture, Longo billed vulture, Black bellied Term, Rufous–necked Hornbill, Wreathed Hornbill, Great Pied Hornbill etc.
5.	Dibru-Saikhowa National Park	Dibrugarh and Tinsukia	Tiger, Elephant, Leopard, Jungle Cat, Bears, Small Indian Civet, Squirrels, Gangetic Dolphin, Slow Loris, Assamese Macaque, Rhesus Macaque, Capped Langur, Hoolock Gibbon. It is an identified Important Bird Area (IBA)
6.	Bherjan-Borajan-Padumoni WLS	Tinsukia	Hoolock Gibbon, Capped Langur, Pig-tailed, Macaque, Macaque, Slow Loris and Rhesus Macaque

Sr. No.	Protected area	Location	Main Habitat
7.	Panidehing WLS	Sivasagar	Elephants, Lesser Adjutant Stork, Greater Adjutant, Swamp Francolin, Spot-billed Pelican, White-rumped Vulture, Greater Spotted Eagle, Slender-billed Vulture, Pallas's Fish-eagle
8.	Hollongpara Gibbon WLS	Jorhat	7 Primates (Hoolock Gibbon, Stump-tailed Macaque, Capped Langur, Pig-tailed Macaque, Assamese Macaque, Slow Loris and Rhesus Macaque)
9.	Nambor Doigurung WLS	Golaghat	Gaur, Elephants, Hoolock Gibbon
10.	Garampani WLS	Karbi Anglong	Elephants, White-winged Duck, Lesser Adjutant Stork
11.	Nambor WLS	Karbi Anglong	Gaur , Elephants, Hoolock Gibbon
12.	East Karbi Anlong WLS	Karbi Anglong	Gaur, Elephants, Tiger, Hoolock Gibbon
13.	Marat Longri WLS	Karbi Anglong	Tigers, Leopards, Gaur , Elephants, Hoolock Gibbon
14.	Burhachapori WLS	Sonitpur	Elephants, Aquatic Birds, Tiger, Bengal Florican
15.	Laokhowa WLS	Nagaon	Elephant, Tiger, Asiatic Wild Buffalo, Bengal Florican
16.	Pabitora WLS	Morigaon	Rhino, Leopards, Barking Deer, Lesser Adjutant, Greater Adjutant, White-bellied Heron, Greater Spotted Eagle
17.	Sonai-Rupai WLS	Sonitpur	White Winged wood duck, Elephant, Tiger, Gaur
18.	Barnadi WLS	Udalguri	Hispid Hare, Pygmy Hog, Elephants, Tiger
19.	Chakrasila WLS	Kokrajhar	Golden Langur, Gaur
20.	Dihing-Patkai WLS	Dibrugarh and Tinsukia	Hoolock Gibbon, Elephants, White Winqed wood duck, Tiqer
21.	Borail WLS	Cachar	Serow, Himalayan Black bear, Hoolock Gibbon
22.	Amchang WLS	Kamrup (Metro)	Elephant, Gaur, Leopard
23.	Deepor Beel Wildlife Sanctuary	Kamrup (Metro)	Greater Adjutant Stork, Whistling Teal, Open Billed Stork, Shoveler, Pintail, Garganey, Pheasant tail jacanas
24.	North Karbi Anglong Wildlife	Karbi Anglong	Tiger, Lesser cats, Elephant, Gaur, Sambar, Bears, Barking deer, Rhesus

Sr. No.	Protected area	Location	Main Habitat
	Sanctuaries (Proposed)*		macaque, Hoolock gibbon, Capped langur, Slow loris
25.	Bordoibam Bilmukh Bird Sanctuaries (Proposed)*	Dhemaji and Lakhimpur	Kingfishers, Large whistling Teal, Lesser Adjutant Stork, Spotted Dove, Pheasant tailed Jacana, Bronze winged Jacana, Indian River Tern, Black Headed Gull, White Wagtail, Black Headed Oriole, Purple Moorhen, Openbill Stork

**Proposed sanctuaries*

FIGURE 2-15 PROTECTED AREAS OF ASSAM

Source: (https://www.mapsofindia.com/maps/wildlife/wildlife-assam.htm)

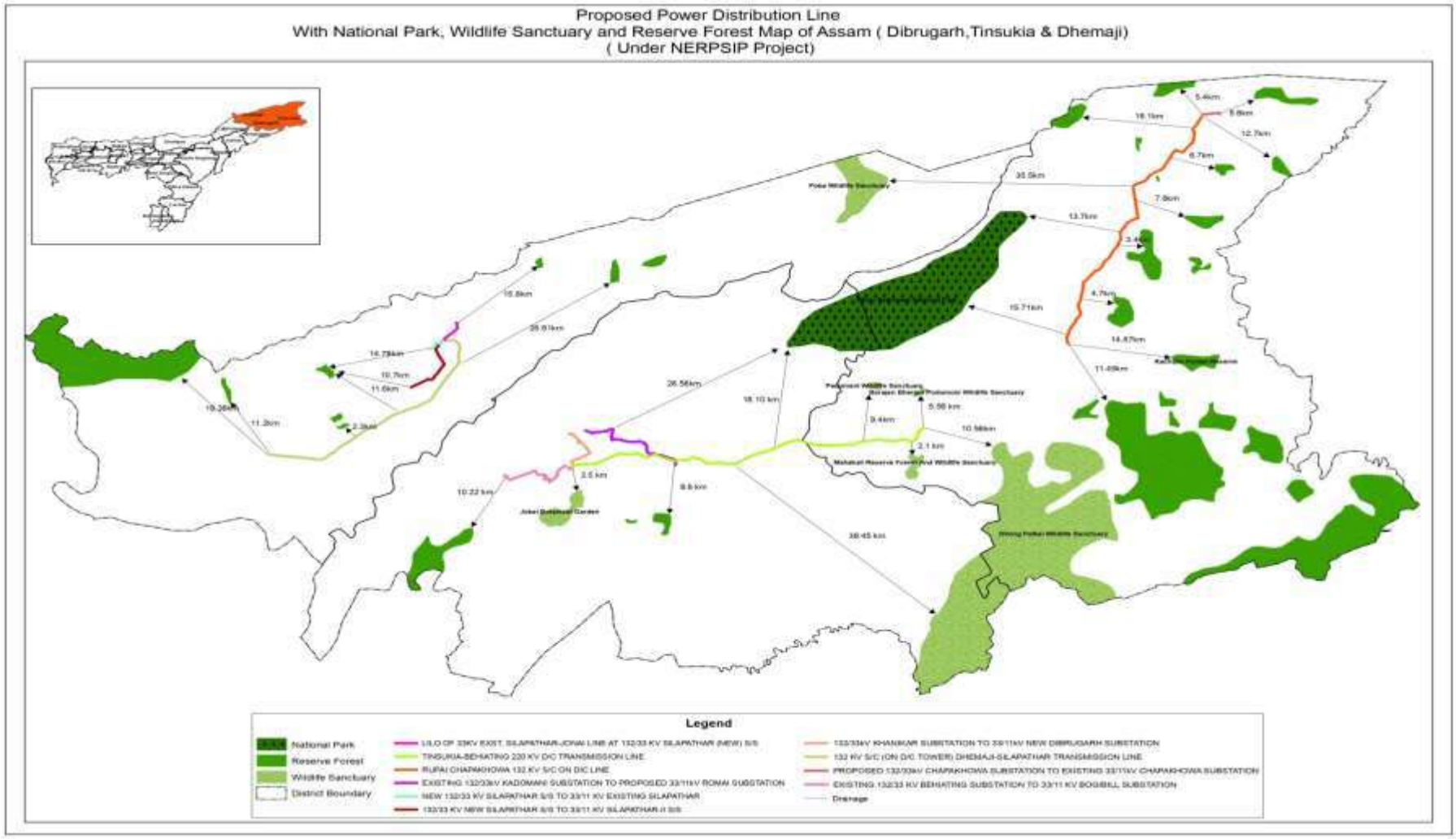


FIGURE 2-16 DISTANCE OF T & D SUBPROJECTS AREAS FROM VARIOUS NATIONAL PARKS & PROTECTED AREAS

2.3.12. Elephant Corridors in Assam:

TABLE 2-4 ELEPHANT RESERVES IN ASSAM

Sr. No.	Name of Elephant Reserves
1.	Kotha-Burhidihing
2.	Upper Dihing East-Upper Dihing West Block at Bogapani
3.	Upper Dihing East-Upper Dihing West Block between Golai-Pawai
4.	Kalapahar-Daigurung
5.	Kaziranga-KarbiAnglong at Panbari
6.	Kaziranga-KarbiAnglong at Kanchanjuri
7.	Kukurakata-Bagser at Amguri
8.	Charduar-Singri hill

1. **Kotha-Burhidihing:** This corridor connects the Kotha Reserve Forest (Digboi Forest Division) and adjacent elephant populations of Changlang district of Arunachal Pradesh with the Burhidihing Reserve Forest (Doom Dooma Forest Division) thereby maintaining the linkage with Tarai Reserve Forest, Kakojan Reserve Forest and Nalani Reserve Forest. Length of the corridor is 6 KM and width is 1 KM Major Settlements in the corridor are Monogaon and Takelipathar.

2. **Upper Dihing East-Upper Dihing West Block at Bogapani:** The corridor lies between the Upper Dihing East and West blocks of forestland and passes through Bogapani tea estate and a few settlements (viz. Bogapani and Panbari). This 3km long and 0.5 KM wide elephant corridor constitutes of Reserve Forest and some forest land which are leased to tea gardens and patta land.

3. **Upper Dihing East-Upper Dihing West Block between Golai-Pawai:** This corridor is primarily of Reserve Forest and patta land, connecting Upper Dihing East and West blocks for elephant movement. This corridor has witnessed crop degredation by elephant resulting discontinuation of cultivation by the adjacent villagers in 2000-2001. Again new settlements have started coming in the 6-7 KM long and 0.5 km wide corridor.

4. **Kalapahar-Daigurung:** This corridor, located about 22 km from Silonijan (Karbi Anglong) on the Silonijan - Chokikhola road is a small patch forest located between Sotiona and Parolijan village (Parolijan River). It is encircled by two hills, namely Kalapahar and Risak on either side connecting Kaziranga National Park via Kalioni Reserve Forest. Length of the corridor is 2 km and width is 2 km

5. **Kaziranga-KarbiAnglong at Panbari:** This 1 KM long and 0.85 km wide corridor consisted of Reserve forest and Kaziranga National Park and connects elephant habitats of Kaziranga National Park with the Karbi Anglong forest.
6. **Kaziranga-KarbiAnglong at Kanchanjuri:** This corridor connects the elephant habitats of Kaziranga National Park with Brahapahar and Karbi Anglong forests. Under

Eastern Assam Wildlife Division this corridor area passes through teagardens and is close to NH 37. Length of the corridor is 2 km and width is 0.5 km consisting of Reserve forest and proposed addition (4rd addition) to Kaziranga National Park.

7. **Kukurakata-Bagser at Amguri:** This corridor falls under Eastern Assam Wildlife Division, connecting the elephant habitats of Kaziranga National Park and Kukurakata Reserve Forest with Bagser Reserve Forest and the forest of Karbi Anglong. Length of the corridor is 0.8 KM and width 0.5 km Amguri is the major settlement in the corridor.

8. **Charduar-Singri hill:** This corridor (Sonitpur West Forest Division) passesthrough tea gardens and settlements of Sonitpur district and is known to have veryman-animal conflict. Several major settlements (viz. Posabasi, Panchnoi, Dipabasti, Rowmaribasti etc.) lay in this 30 km long and 1.5 km wide elephant corridor.

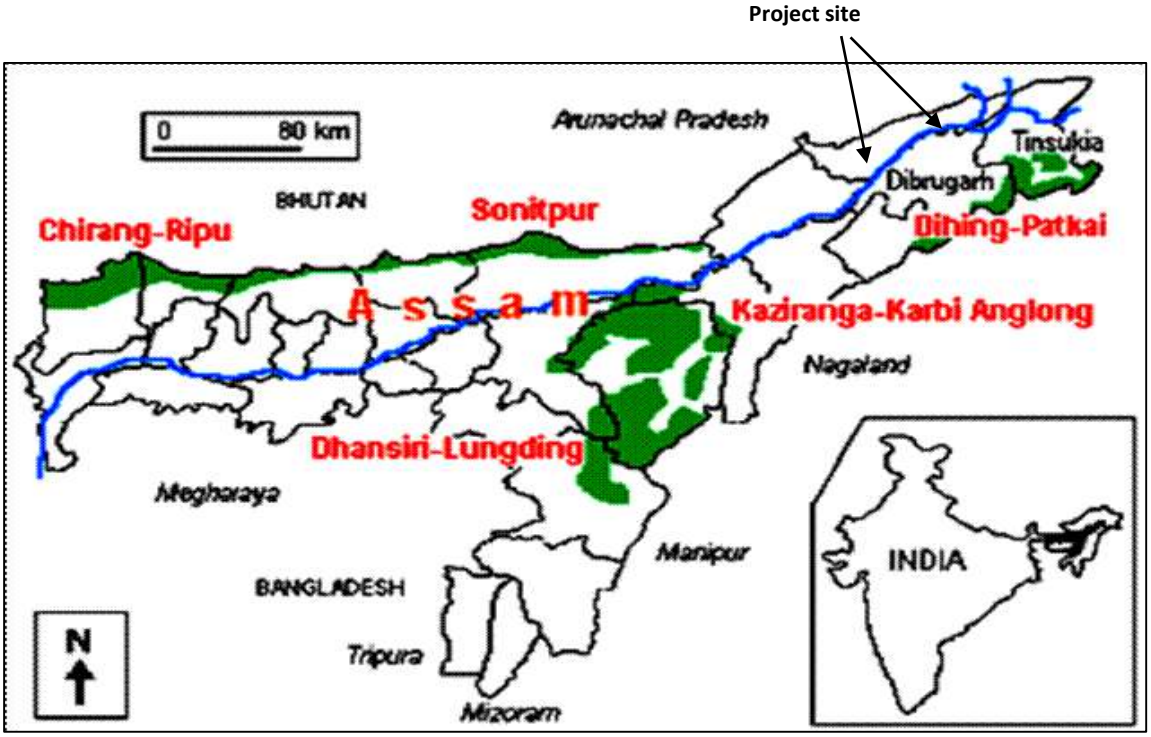


FIGURE 2-17 ELEPHANT RESERVES OF ASSAM

2.3.13. Important Bird and Biodiversity areas (IBA) of Assam:

The geographical location of the Dibrugarh and Tinsukia District has enhanced the entire area as a suitable location for a large number of residential as well as migratory birds. The riverine sand bars and islands of the River Brahmaputra and its numerous tributaries and its innumerable fresh water lakes (locally called beel), or ox-bow lakes (era suti), marshy tracts and seasonally flooded plains creates an ideal wetland eco-system, which serve as a rare refuge for a large number of water birds.

2.3.14. Biodiversity of Assam

2.3.14.1. Plant diversity of Assam

Favorable geographical location, diversified topography and ideal climatic conditions have made Assam very rich in biodiversity. A series of transects were identified along the routes of transmission line covering corridors between ROW and transmission line and substations. The vegetation of Assam is primarily of tropical type covering areas of evergreen, semi-evergreen, grasslands, deciduous forests, grasslands and riverside forests. Some important tree species found in Assam are Hoooong (*Dipterocarpus macrocarpus*), Gurjan (*Dipterocarpus turbinatus*), Mekai (*Shorea assamica*), Kurta (*Palaquium polyanthum*), Nahar (*Mesua ferrea*), Sia-nahar (*Kayea assamica*), Sissoo (*Dalbergia sissoo*), Khair (*Acacia catechu*) etc.

The large scale exploitation of forests both in legally and illegally and the encroachment of forest land for the settlement, agricultural use and others the productivity as well as the area under forest is de decreasing at an alarming rate in the state. Many dense forest area of the state have already come to the list of degraded forest. Another important cause of forest degradation in the state is the shifting agricultural practices especially in the Karbi-Anglong and North Cachar Hill districts. Many of the environmental problems facing by the people such as flood, soil erosion etc. are directly related to the reckless exploitation of forest resources of the state. It also leads to the serious ecological crisis in the state.

TABLE 2-5 PLANT DIVERSITY OF ASSAM

Flora	No. of Species (Including intraspecific taxa)
Angiosperms	236 Families & 3854 Genera
Dicotyledons	2752
Monocotyledons	1080
Gymnosperm	22
Orchids	328
Bamboo	42
Cane	14
Medicinal Plant diversity	About 952 plants species have been identified which have uses in medical practices in some form or other.
Plants of different Conservational Status	871
Endemic	167
Critically Endangered/Endangered/ Vulnerable	318

Flora	No. of Species (Including intraspecific taxa)
Rare for Assam	386
Type of Vegetation	**Percentage**
Herbs	47%
Shrubs	22%
Trees/Small Trees	20%
Climbers/lianas	8%
Undershrub	3%
Extinct:	*Bambusa Mastersii, Cleisostoma Arietinum, Cyperus Corymbosus, Dendrobiumassamicum, Dendrobium aurantiacum, Hetaeria anomala, Liparis Stachyurus and Sapria himalayana. Paphiopedilum Spicerianum* etc. are reported to be extinct in wild.

(Source: http://asmenvis.nic.in/Database/Plant_Diversity_833.aspx)

Gymnosperms:

Assam has 22 species of Gymnosperms. These species have restricted distribution but represent plants of high economic importance as source of timber, pulpwood, resins and turpentine and their seed as source of food and medicine and leaves as vegetables. Common species of gymnosperms in Assam are as follows:

TABLE 2-6 COMMON GYMNOSPERMS OF ASSAM

Sr. No.	Name of plant	Family
1.	*Cycas pectinata*	Cycadaceae
2.	*Podocarpus neriifolia*	Podocarpaceae
3.	*P. wallichianus*	Podocarpaceae
4.	*Genetum gnemon*	Gnetaceae
5.	*G. montanum*	Gnetaceae
6.	*Juniperus recurva*	Cupressaceae
7.	*Juniperus squamata*	Cupressaceae
8.	*Larix grifitthii*	Pinaceae
9.	*Nageia wallichiana*	Cupressaceae
10.	*Pinus kesiya*	Pinaceae

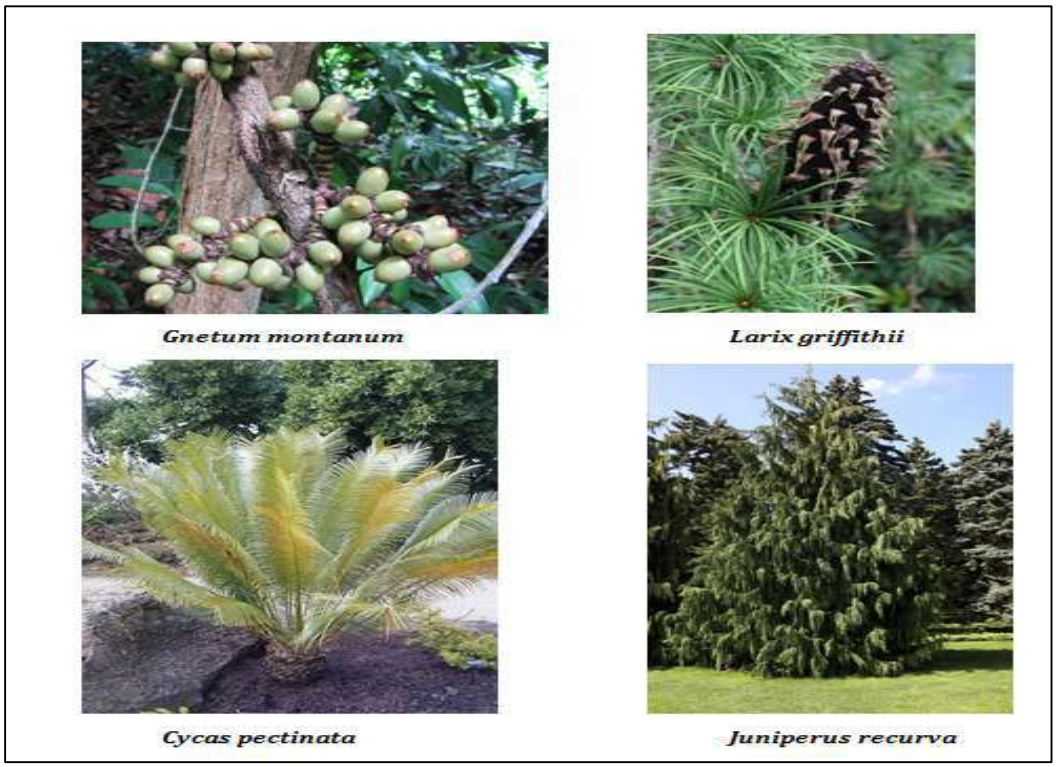


FIGURE 2-18 COMMON GYMNOSPERMS OF ASSAM

Angiosperms*:*

Angiosperms form the largest category of plants in Assam with 3832 species. Assam has also 154 species of primitive Angiosperms better known as "Living fossils" belonging to following families:

TABLE 2-7 COMMON ANGIOSPERM FAMILIES IN ASSAM

Sr. No.	Name of Family	No. of genera reported in Assam
1.	Magnoliaceae	19
2.	Schizandraceae	01
3.	Annonaceae	45
4.	Myristicaceae	07
5.	Chloranthaceae	02
6.	Lauraceae	80

The important species are *Magnolia* species, *Pachylarnax pleiocarpa*, *Fissistigma* species, *Alseodaphne* species, *Cinnamomum* species, *Litsea* species, *Micheliaspecies* etc. Plants belonging to this category are the most economically important plants of Assam and meet the demand for timber, plywood, pulpwood, furniture, agricultural implements.

The orchids of Assam: In Assam, as many as 293 species of Orchids are reported which represent 44.39% of North East species and 24.42% of species occurring in India. Orchids as a group of flowering plants exhibit wide range of habits and have specific macro climatic requirements for their growth, development and regeneration. Assam orchids show all the habits and growth forms found in orchidaceous taxa. Mostly they are epiphytes. *Goodyeraprocera* and *Spiranthissinesis* are adapted to aquatic habitat whereas *Vanilla pilifera* and *Galeolaaltissima* are climbers. Orchids grow to their magnificent best in the Evergreen and Semi- Evergreen forest and to some extent in Moist Deciduous forests. Following is list of some common orchids reported in Assam:

TABLE 2-8 COMMON ORCHIDS IN ASSAM STATE

Sr. No.	Name of Orchid	Family
1.	*Acanthephippium*	Orchidaceae
2.	*Anoectochilus*	Orchidaceae
3.	*Apostasia*	Orchidaceae
4.	*Agrostophyllum*	Orchidaceae
5.	*Coelogyne*	Orchidaceae
6.	*Cymbidium*	Orchidaceae
7.	*Dendrobium*	Orchidaceae
8.	*Eria*	Orchidaceae
9.	*Oberonia*	Orchidaceae
10.	*Calanthe*	Orchidaceae
11.	*Eulophia*	Orchidaceae
12.	*Geodorum*	Orchidaceae
13.	*Habenaria*	Orchidaceae
14.	*Malaxis*	Orchidaceae
15.	*Nephelaphyllum*	Orchidaceae
16.	*Vanilla*	Orchidaceae
17.	*Zeuxine*	Orchidaceae
18.	*Didymoplexis*	Orchidaceae
19.	*Galeola*	Orchidaceae
20.	*Bulbophyllum*	Orchidaceae
21.	*Camarotis*	Orchidaceae

Medicinal Plant diversity:

Assam is home to a good number of plants having medicinal uses traditional village practitioners, Aurvedic, Unani, Homeopathic and even modern medical practices. Altogether, 952 plants species have been identified which have uses in medical practices. List of some common medicinal plants is as follows:

TABLE 2-9 COMMON MEDICINAL PLANTS OF ASSAM

Sr. No.	Name of plant	Family	Common Name
1.	*Asparagus racemosus*	Asparagaceae	Satmul
2.	*Curcuma aromatica*	Zingiberaceae	Banhaldi
3.	*Emblica officinalis*	Phyllanthaceae	Amla
4.	*Terminalia species*	Combretaceae	Hilikha, Bahera
5.	*Eugenia jambolana*	Myrataceae	Lohajam
6.	*Garcinia species*	Guttiferae	Thekera
7.	*Holarrhina antidysentrica*	Apocynaceae	Dudhkuri
8.	*Hydnocarpus kurzii*	Achariaceae	Chalmugra
9.	*Litsea cubeba*	Lauraceae	Mejankuri
10.	*Ocimum sanctum*	Lamiaceae	Tulsi
11.	*Phlogocanthus thyrsiflorus*	Lamiaceae	Titaphul
12.	*Piper longum*	Piperaceae	Pipoli
13.	*Saraca indica*	Fabaceae	Asoka
14.	*Wedelia calandulacea*	Asteraceae	Mahabhringraj
15.	*Zinziber officinalis*	Zinziberaceae	Ada

Bamboos and Cane Diversity in Assam:

Bamboos have gained considerable importance in the socio-economic life of people in Assam for the variety of uses. Altogether 42 naturally growing species of bamboo are recorded in Assam of which *Bamboosa masrtersei* is restricted in distribution to Dibrugarh district. *Bamboosa cacharensis, Dinochlora compactiflora, D. india* are restricted to Barak Valley. *Chimnobabusa griffithiana* and *Oxetenanthera parviflora* are restricted in distribution to N.C.Hills. *Bambusa rangaensis* grows wild in the Ranga R.F. of Lakhimpur district. Bamboosua vulgaris is the introduced species cultivated throughout Assam as ornamental plant. *Bambusa jaintiana* and *Melocanna arundiana* are the species reported only from Assam. There are no exclusive bamboo forests in the plains of Assam, bamboo grooves are found mostly along the edge of Reserve Forests. But pure bamboo forests occur in N.C Hills and Karbi Anglong districts predominated with *Melocanna baccifera* and *Chimno Bambusa griffithiana*. Bamboo is cultivated widely in Assam and every household grows bamboo in its bari land. Commonly cultivated species are *Bambusa balcooa* (Bhaluka bamboo), *Bambusa tulda* (Jati bamboo), *Melocanna baccifera* (Muli bamboo), *Dendrocalamus hamiltonii* (Koko bamboo) and *Dendrocalamus giganteus* (Mokalm bamboo).

Total 14 species of cane grow in cane brakes in forests of Assam. *Calamus flagellum, Calamus floribundus, Calamus latifolius* are found widely distributed throughout Assam. *Plectocomia assamica* and *Plectomycetes* are endemic species.

Aquatic Plant Diversity:

Assam has more fresh water wetlands than any other state in the North Eastern Region. The two major drainage systems of Assam-the Brahmaputra and the Barak and in the flood plains of these river systems exist patches of marshy depressions and swamps as well as perennial water bodies of varying shape, size and depth called locally as beels, haors, jalah, doloni, hola, pitoni etc. Manmade tanks like *Joysagar, Sibsagar, Dighalipukhuri, Jorpukhuri, Hazarapukhuri, Rajhuwa Borpukhuri* etc. were also dug by ancient Rulers of Assam. Deeporbeel near Guwahati is a Ramsar site. Besides Deeporbeel and some others mentioned above wetlands of importance are Chandubi, Rata, Sohola, Taralipather, Phokolai, Mer, Sonbeel, Jamjing, Sagunpara, Motapung, Sarlane, Sareswar, Roumari, Khalihamari, Goranga, Sapekhati, Koladuar etc.

The aquatic plants species of Assam belongs to diverse habits and have distinctive characteristics (Table 2-11). More than 100 such aquatic species have been identified and they can be described into following broad categories.

TABLE 2-10 COMMON AQUATIC PLANTS OF ASSAM

Sr. No.	Name of plant	Family
1.	*Hydrocera triflora*	Hydroceraceae
2.	*Myriophyllum tuberculatum*	Haloragaceae
3.	*Potamogeton nodosus*	Potamogetonaceae
4.	*Trapa maximowiczii*	Trapaceae
5.	*Utricularia gibba*	Lentibulariaceae
6.	*Eichhornia crassipes*	Pontederiaceae
7.	*Lemna spp*	Lemnaceae

Endemic flora:

Endemic floras are plants which occur in a restricted area. Altogether 165 species of plants have been recorded which are restricted in distribution to certain pockets in Assam, though some of them show extended destruction in the N.E. Region and elsewhere in India. However, more than 100 such species have distribution restricted to Assam only. These include following commonly reported trees:

TABLE 2-11 ENDEMIC FLORA OF ASSAM

Sr. No.	Name of plant	Family
1.	*Acacia gageana*	Mimosae
2.	*Adiantum assamicum*	Pteridaceae
3.	*Alseodaphne andersonii*	Lauraceae
4.	*Alseodaphane khasyana*	Lauraceae
5.	*Angiopteris assamica*	Marattiaceae
6.	*Cedrela fabrifuga*	Meliaceae

Sr. No.	Name of plant	Family
7.	*Cinnamomum cacharensis*	Lauraceae
8.	*Coelogyne assamica*	Orchidaceae
9.	*Combretum wallichii*	Combretaceae
10.	*Dinochloa indica*	Poaceae
11.	*Diospyros cacharensis*	Ebenaceae
12.	*Dipterocarpus mannii*	Dipterocarpaceae
13.	*Eugenia cyanophylla*	Myrataceae
14.	*Bambusa cacharensis*	Poaceae
15.	*Bambusa mastersii*	Poaceae
16.	*Chimnobambusa griffitheana*	Poaceae
17.	*Bulbophyllum elassonotum*	Orchidaceae
18.	*Bulbophyllum vireus*	Orchidaceae
19.	*Dendrobium assamicum*	Orchidaceae

Invasive Flora:

Like any other part of India, Assam have invasive plants growing widely and interfering the original vegetation. Following are some common plants which are alien to Assam state:

TABLE 2-12 INVASIVE FLORA OF ASSAM

Sr. No.	Name of Plant	Family
1.	*Mimosa invisa*	Mimosaceae
2.	*Mikania micrantha*	Asteraceae
3.	*Chromolaena odorata*	Asteraceae
4.	*Ipomoea carnea*	Ipomeaceae

Rare and endangered species:

In Assam, 284 species of plants are observed to be critically endangered, 149 species as endangered, 58 species as vulnerable, 13 species as near threatened. Following categories of threatened plants recognized by the IUCN have been reported from Assam.

TABLE 2-13 RARE AND ENDANGERED PLANT IN ASSAM

No.	Name of Plant	Family	IUCN status
1.	*Acampe papillosa*	Orchidaceae	Vulnerable
2.	*Acampe rigida*	Orchidaceae	Vulnerable
3.	*Acanthephippium striatum*	Orchidaceae	Critically Endangered
4.	*Aerides odorata*	Orchidaceae	Vulnerable

No.	Name of Plant	Family	IUCN status
5.	*Aerides rosea*	Orchidaceae	Vulnerable
6.	*Anoectochilus brevilabris*	Orchidaceae	Critically Endangered
7.	*Anoectochilus roxburghii*	Orchidaceae	Critically Endangered
8.	*Biermannia bimaculata*	Orchidaceae	Critically Endangered
9.	*Bulbophyllum andersonii*	Orchidaceae	Vulnerable
10.	*Vanilla borneensis*	Orchidaceae	Rare
11.	*Calamus nambariensis*	Arecaceae	Endemic and Threatened
12.	*Brucea mollis*	Simaroubaceae	Endangered

(Source: http://article.sapub.org/10.5923.j.ijmb.20120202.02.html, & Baruah, et. Al. 2017)

2.3.14.2. Animal diversity of Assam

Assam is part of the transitional zone between the Indian, Indo- Malayan and Indo-Chinese Biographical regions which provides the gateway for spread of both oriental and Palaearctic fauna to other parts of the country. Favorable climate, topographic and edaphic factors support luxuriant growth of diverse plant communities and create varied habitats. The forest as well as extensive network of river systems and swamps, marshes and wetlands provides ideal conditions and suitable habitat for sustenance of wide variety of fauna with existence of one of the most diverse faunal population mammals, primates, reptiles, amphibians, fishes, molluscs, birds, butterflies, moths etc.

TABLE 2-14 ANIMAL DIVERSITY OF ASSAM

Fauna	No. of Species
Mammals	193
Primates	9 (Out of 15 Indian primate species 9 are found in Assam)
Birds	950 (State is home to 53.5% of the bird species found in the Indian Sub- Continent, 17 species of birds are endemic to Assam) 45 species of birds from Assam find mention in the Indian Red Data Book.
Migratory birds	280
Amphibians	Assam and other parts of the N.E. region have 70 species of Amphibians reported from the region which 60+ species are found in Assam. Gangenophis fulleri and Ichthyphis garoensis are endemic to Assam.
Butterflies	Around 1500 species of butterflies are reported from India of which nearly half are reported from Assam and N.E. India.
Moths	About 387 species of moths are reported in the state.
Reptiles	116 (19 species of tortoises and 77 species of snakes and lizards are found in the state)
Mollusca	39 species of freshwater snails have been reported from Assam of which 10 species are used as food.

Fauna	No. of Species
Fish	185 (25 species are identified as Threatened)
Mosquito	156

(Source: http://asmenvis.nic.in/Database/Animal_Diversity_844.aspx)

A. Mammals

Assam forms the western most boundary for the Indo-Chinese species including primates and the easternmost limit of several peninsular mammalian fauna.

The distributional extent of several Indian species including clawless otter, the spotted deer, the swamp deer, the stone marlin, the hispid hare, the great Indian one horned rhinoceros, the pigmy hog etc. have terminated in Assam plains. The distributional range of several Indo-Chinese fauna gets its sustenance from this region.

Mention can be made of its sustenance from this region. Mention can be made of such species like clouded leopard, the marbled cat, the golden cat, the spotted linsang, the large Indian civet, the binturong, the crab eating mongoose, the ferret badger, the hog badger, the hoary bamboo rat, the bay bamboo rat etc.

Assam's mammalian diversity is represented by 193 species which are widely distributed in this region. But of late some of the species like onehorned rhinoceros, water buffalo, pigmy hog, swamp deer, golden langur, and hillock gibbon have their distribution limited to isolated pockets and protected areas.

B. Primates

Out of 15 Indian primate species 9 are found in Assam. Hoolock gibbon is the only ape found in India. The other primate species are golden langur, capped monkey, rhesus macaque, pigtail macaque, stump tailed macaque, Assamese macaque, and slow Lorries. Golden langur or "Sonali Bandar" as it is known locally is confined between Sankosh river in the west; Manas in the east; Brhmaputra in the south and mountains in Bhutan in the north.

Pigtail macaque and stumped tailed macaque locally known as Gahorinejia Bandar and "Senduiria Bandar" respectively are distributed in the Eastern, central and southern part of the state. Rhesus macaque, capped monkey and Assamese macaque are more or less distributed through the State. Assamese macaque and Rhesus monkeys are also found in villages and in urban areas. Most of the primates are predominately arboreal in nature but Rhesus monkey, Assamese macaque and stump tailed macaque are partly terrestrial also.

Slow Lorries is the only prosimian found in Assam and the N.E. region. Locally known as "Lajuki Bandar" they are solitary animals and obligatecanopy dwellers. Because of the habitant loss and fragmentation the primates are facing serious threat to their survival.

C. Birds

Assam is one of the "endemic bird areas" in the world. With 950 bird species the State is home to 53.5% of the bird species found in the Indian Sub- Continent, 17 species of birds are endemic to Assam and include Manipur Bush Quail, Marsh Babbler, Snowy throated Babbler, Tawny breasted Wren Babbler, Blyth's Tragopan, Beautiful Sibia, Grey sibia, Black breasted Parrotbill, Chestrunt breasted partridge, Rusty breasted shortwig etc**.**

45 species of birds from Assam find mention in the Indian Red Data Book and include white winged wood duck (Assam's State Bird), Blyth's Tragopan, Greater Adjunct, lesser Adjunct, Lesser white fronted Goose, Merbled Teal, Beer's Pochard, Palla's Sea Eagle, Greater spotted Eagle, Green Peafowl, White rumped vulture, long billed vulture etc.

D. Reptiles

Assam's varied physiography and habitant conditions support a rich variety of reptilian population. Gangetic gharial, 19 species of tortoises and 77 species of snakes and lizards are found in the state.

E. Amphibians

Assam and other parts of the N.E. region have 70 species of Amphibians reported from the region. *Gangenophis fulleri* and *Ichthyophis garoensis* are endemic to Assam.

F. Fish Diversity

The Brahmaputra and Barak river system along with their tributaries and flood plain wetlands locally known as beels provide very conducive habitant for an array of fish species, Assam and other parts of N.E. region is recognized as one of the hot spots of fresh water fish biodiversity.A total of 197 food, sports and ornamental fish species are reported from the region of which 185 are reported from Assam.

The important ornamental fish species are colisa, Nemacheilus, Danio, Botia and Chaca. Commercially important fish species include, Rohu, Ktla, Pabha, Pabda Chital, Magur, Singi, Sol, etc. Over exploitation is posing serious threats to fish diversity and 25 species are identified as threatened. Following are details of endangered and rare fauna in Assam:

TABLE 2-15 ENDANGERED FAUNA OF ASSAM

Sr. No.	Common Name	Generic Name	Vulnerability status
1.	Oriental White-backed vulture	*Gyps bengalensis*	Critically Endangered
2.	Slender billed vulture	*Gyps tenuirostris*	Critically Endangered

Sr. No.	Common Name	Generic Name	Vulnerability status
3.	White billed heron	*Adrea insignis*	Critically Endangered
4.	Pallas's Fish Eagle	*Haliaeetus leucoryphus*	Vulnerable
5.	Lesser Adjunct	*Leptoptilos javanicus*	Vulnerable
6.	Spot billed pelican	*Pelecanus philippensis*	Vulnerable

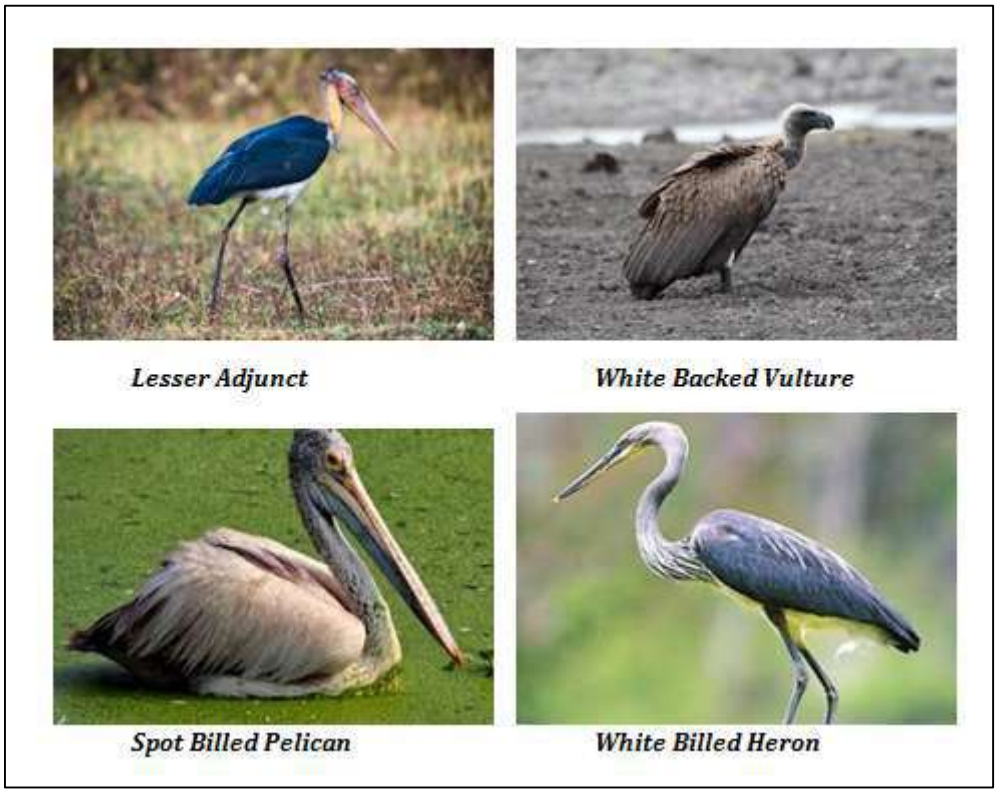


FIGURE 2-19 ENDANGERED FAUNA OF ASSAM

2.4. Baseline data of project districts:

2.4.1. Physiography of Dibrugarh and Tinsukia district:

A tributary of Brahmaputra- Buridihing, divides the district from east-to-west. Buridihing flows through Naharkatia and Khowang and at a later stage in its course, Buridihing acts as a divider between Dibrugarh and Sivasagar districts. The region is flat with a gradual slope from the East Arunachal hills to the west. The soil of the district is mostly fertile, alluvial soil.

Dibrugarh district occupies an area of 3,381 square kilometres (1,305 sq mi). The district extends from 27.4728° N to 94.9120° E. It is bounded by Dhemaji district on the north,

Tinsukia district on the east, Tirap district of Arunachal Pradesh on the south-east and Sibsagar district on the north and south-west. The area stretches from the north bank of the Brahmaputra, which flows for a length of 95 km through the northern margin of the district, to the Patkai foothills on the south.

Tinsukia is an industrial district of Assam. The Oldest oil refinery in India is situated at Digboi and places like Margherita and Ledo are famous for open cast coal mining. **Tinsukia district** extends from coordinates 27.4886° N to 95.3558° E. The district occupies an area of 3790 km^2. The district is 84 km away from the border of Myanmar. It is bound by Dibrugarh district in the southwest, Arunachal Pradesh in the southeast and Dhemaji district in the north.

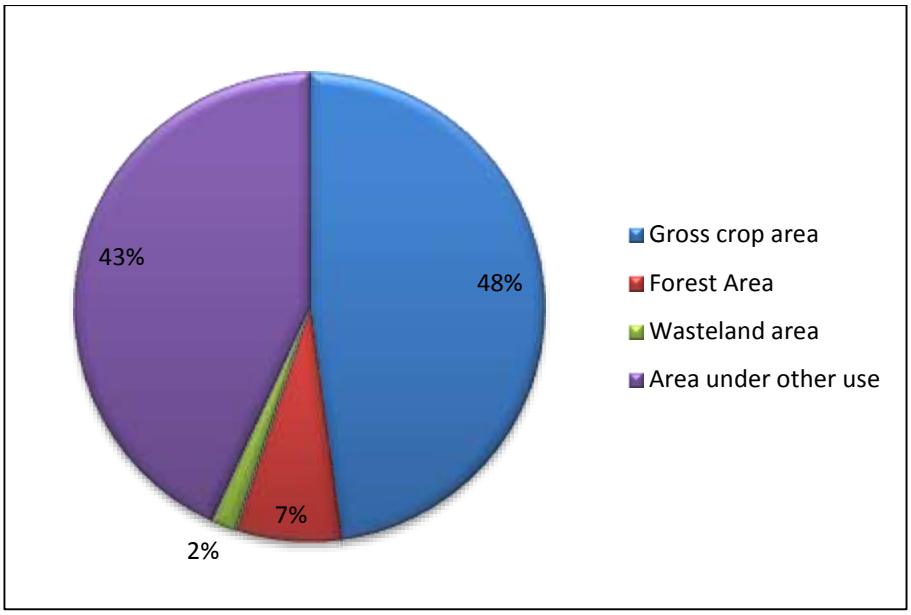
2.4.2. Land Use pattern of Dibrugarh District:

The major area of Dibrugarh district is covered by crops (43%) and under other uses (43%) such as constructions, residential & commercial areas, roads, water bodies etc. The remaining land is covered by forests (7%) and wastelands (2%). Following table and figure shows land use pattern of Dibrugarh district.

TABLE 2-16 LAND USE PATTERN OF DIBRUGARH DISTRICT

Name of Block	TGA	Area Under Agriculture				Area under Forest (Ha)	Area under Wasteland (Ha)	Area under other uses (Ha)
		GCA	NSA	AST	CI (%)			
Barbaruah	43369	23560	17313	6247	136.08	10630	806	14620
Lahoal	70527	37674	22227	15447	169.50	980	1307	46013
Panitola	26950	13510	10140	3370	133.23	2929	1179	12702
Tengakhat	52912	33820	23413	10407	144.45	4472	928	24099
Khowang	42723	29179	19793	9386	147.42	3750	820	18360
Tingkhong	47727	21157	15326	5831	138.05	2840	946	28615
Joypur	48828	29792	19101	10691	155.97	2841	1098	25788
Total	**333036**	**188692**	**127313**	**61379**	**148.21**	**28442**	**7084**	**170197**

TGA- Total Geographical Area, GCA- Gross Cropped Area, NSA- Net Sown Area, AST- Area Sown more than once, CI- Cropping Intensity



(Source: dirhorti.assam.gov.in)

FIGURE 2-20 LAND USE PATTERN OF DIBRUGARH DISTRICT

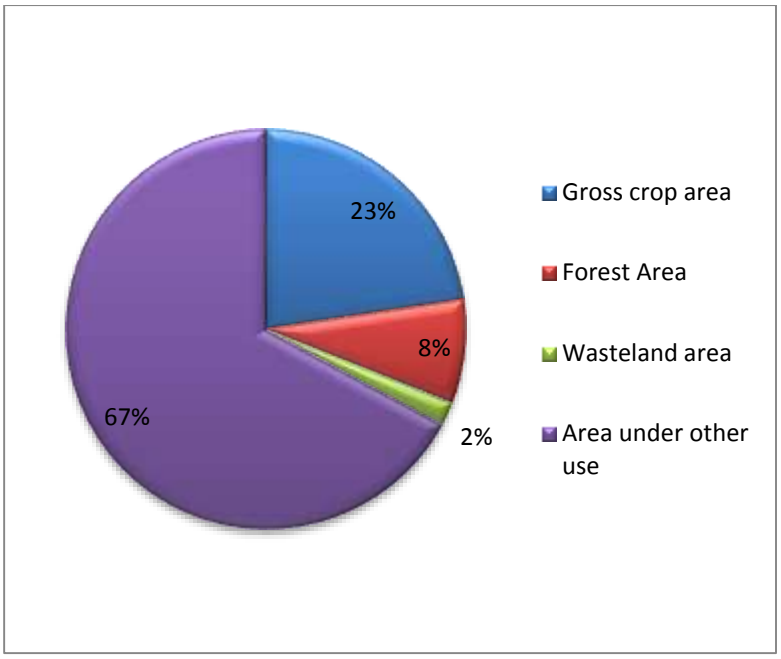
2.4.3. Land use pattern of Tinsukia District:

Major part (67%) of land is occupied for other than agriculture and forests, such as construction, , residential & commercial areas, roads, water bodies etc. Gross crop area is about 23% of total geographic area. The forest area covers 8% land and wastelands cover 2% land of Tinsukia. The details of land use pattern are as follows:

TABLE 2-17 LAND USE PATTERN OF TINSUKIA DISTRICT

Name of Block	TGA	Area Under Agriculture				Area under Forest (Ha)	Area under Waste land (Ha)	Area under other uses (Ha)
		GCA	NSA	AST	CI (%)			
Sadiya	79046.4	28600	25929	2671	110	12575.2	1022	65449.2
Saikhowa	41250	17053	13154	3899	129.6	1062	907	39281
Hapjan	40804	14004.4	11260.5	2744	124	23650	423	16731
Kakapathar	83200	19810	17173	2637	115.3	87	4993	78120
Guijan	20996	7920	6133	1787	129.1	225	364	20407
Itakhuli	38760	11343	8577	2766	132	7703	415	30642
Margherita	116337	24279.4	18704.23	5575.17	129.8	0	2438	113899
Total	**420393.4**	**123009.8**	**100930.7**	**22079.17**	**122**	**45302.2**	**10562**	**364529.2**

TGA- Total Geographical Area, GCA- Gross Cropped Area, NSA- Net Sown Area, AST- Area Sown more than once, CI- Cropping Intensity



(Source: dirhorti.assam.gov.in)

FIGURE 2-21 LAND USE PATTERN OF TINSUKIA DISTRICT

2.4.4. Population of Project Districts:

TABLE 2-18 POPULATION STATISTICS OF DIBRUGARH AND TINSUKIA DISTRICT

Sr. No.	Details	Number
Dibrugarh District		
1	Person	141,263
2	Male	62,879
3	Female	78,384
Tinsukia District		
1	Person	1,327,929
2	Male	680,231
3	Female	647,698

(Source: Census of India, 2011)

A. Population of SC/ST Community:

As per census 2011, the Scheduled Caste (SC) & Scheduled Tribe (ST) population of the State stands at 4,074,447 (7%) and 8,917,174 (15%) respectively. SC/ST population of Dibrugarh and Tinsukia district is as follows:

TABLE 2-19 SC/ST POPULATION OF DIBRUGARH AND TINSUKIA DISTRICT

Sr. No.	Details	Number		Percentage (%)	
		SC	ST	SC	ST
Dibrugarh District					
1	**Person**	58,876	102,871	4.44	7.76
2	**Male**	30,517	51,835	4.51	7.66
3	**Female**	28,359	51,036	4.36	7.85
Tinsukia District					
1	**Person**	37,688	82,066	2.84	6.18
2	**Male**	19,443	41,769	2.86	6.14
3	**Female**	18,245	40,297	2.82	6.22

(Source: Census of India, 2011)

B. Literacy Rate:

The literacy rate of Dibrugarh and Tinsukia districts is as follows:

TABLE 2-20 LITERACY OF DIBRUGARH AND TINSUKIA DISTRICT

Sr. No.	Particulars	No. of Literate	Percentage (%)
Dibrugarh District			
1	Person	884,531	76.05
2	Male	491,361	82.82
3	Female	393,170	68.99
Tinsukia District			
1	Person	798,322	69.66
2	Male	453,449	77.19
3	Female	344,873	61.73

(Source: Census of India, 2011)

C. Workers in Dibrugarh and Tinsukia district:

Total population into work in Assam stands at 1,19,69,690 of which total Male (work) population stands at 85,41,560 (71.36%) and total female (Work) population stands at 34,28,130 (28.64%). Details of workers in Dibrugarh and Tinsukia districts are as follows:

TABLE 2-21 DETAILS OF WORKERS IN DIBRUGARH AND TINSUKIA DISTRICTS

Sr. No.	Particulars	No. of Workers	Percentage (%)
Dibrugarh District			
1	Person	560,557	42.26
2	Male	368,013	54.40
3	Female	192,544	29.63
Tinsukia District			

Sr. No.	Particulars	No. of Workers	Percentage (%)
1	Person	410,188	30.89
2	Male	297,578	43.75
3	Female	112,610	17.39

(Source: Census of India, 2011)

D. Households in Dibrugarh and Tinsukia district:

Total Households in Assam stands at 64, 06,471of which 54, 20,877 (84.61%) households belong to rural area and 9, 85,594 (15.39%) households belong to urban area. Following is the detail information about households in Dibrugarh and Tinsukia districts:

TABLE 2-22 DETAILS OF HOUSEHOLDS IN DIBRUGARH AND TINSUKIA DISTRICTS

Sr. No.	Particulars	Number
Dibrugarh District		
1	Normal	275,374
2	Institutional	1,339
3	Houseless	154
Tinsukia District		
1	Normal	267,807
2	Institutional	655
3	Houseless	136

(Source: Census of India, 2011)

2.4.5. Climate of Dibrugarh and Tinsukia district:

2.4.5.1. Climate of Dibrugarh district:

The climate of Dibrugarh is humid sub-tropical climate. The weather is marked by extremely wet summers and relatively dry winters. The average annual temperature in Dibrugarh is 23.9 ^{o}C. Summer season in Dibrugarh is marked by high humidity. Winter starts from December and lasts till February here. The minimum temperature during this time of the year ranges between 8^{o}C and 10 ^{o}C while the maximum stays between 27 ^{o}C and 29^{o}C. The monsoon month's start from April and lasts till September. Monsoon is accompanied by heavy rainfall. . The average annual rainfall of Dibrugarh is 2781mm.

TABLE 2-23 CLIMATE OF DIBRUGARH DISTRICT

Sr. No.	Name of district	Minimum	Maximum	Average
1.	Temperature	8°C - 10 °C	27 °C - 29°C	23.2°C
2.	Relative Humidity	46%	82%	80%
3.	Rainfall	500 mm	2000 mm	2781mm

2.4.5.2. Climate of Tinsukia district:

The climate of Tinsukia district is moderate and ranges from 21 °C to 35°C during summer. In winters, the temperature again falls down to as low as 13°C. Average temperatures in Tinsukia district are 17 °C in January , 21 °C in February , 23 °C in March , 23 °C in April , 25 °C in May. The average rainfall of Tinsukia district is 2679 mm and rainy season start in June and end in September.

TABLE 2-24 CLIMATE OF TINSUKIA DISTRICT

Sr. No.	Name of district	Minimum	Maximum	Average
1.	Temperature	13°C	35°C	20°C
2.	Relative Humidity	50%	83%	60%
3.	Rainfall	80 mm	560 mm	2679 mm

2.4.6. Soil Characteristics of Dibrugarh district:

Soils of the area are sandy to clayey loam type and grayish is color. They are acidic in reaction with PH ranges from 4.6 to 5.9. They are also characterized by low to medium phosphate and medium to high potash content. Based on pedogenic and pedological characters, soils of this area may be classified into following classes a) Recent riverine alluvial soils (Antisol) b) Old riverine alluvial soils (Inceptisol) c) Old mountain valley alluvial soils (Alfisol) Soil.

2.4.7. Soil Characteristics of Tinsukia district:

The soil in the Tinsukia district may be grouped into three broad categories depending upon the origin and occurrence. These are given below: (a) Newer alluvial Soil : Flood plain areas of River Brahmaputra and the tributaries in the northern part are characterised by light grey clay with sand and silt. (b) Older alluvial Soil: It occurs mainly in the central part with limonite yellow to reddish yellow clay. (c) Soil cover in forest and hilly areas: It is deep reddish in colour and occurs over the older geological formation in the southernmost part of the district.

2.4.8. Minerals of Dibrugarh district:

Coal and petroleum are the chief minerals for economic and industrial development of this district. Next is the natural gas associated with the petroleum from the Naharkatia area, which is now gaining importance in various industrial uses. Besides, clays for brick making and pottery and gravels for road metal ling and other useful purposes are abundantly found within the district.

Coal:

Large deposits of coal exist in two different fields, viz., Makum and Jaipur. The Makum coalfield is the well developed and important one occurring near Ledo-Margherita and having a length of30 km and a width of 5 km including Baragolai, Ledo, Tipang and Namdang mines along the southern boundary of the Dibrugarh district. At least, five workable seams of coal successively 18 m, 2.30m, 6,0m, 1.50m are well developed. The workable indicated reserve is of the order of 235 million tones to a depth of 300m.

The Jaipur coalfield covers a tract 15 km long and roughly 1 km wide at the base of the JaipurTipam hills along the course of the Disang river which separated Dibrugarh and Sibsagar District.

Six coal seams have been recorded in this field out of which the lowermost seam is 11.89m thick, and in seam No.3 the thickness varies from 2,70m to 4.25 m .The others very in thickness between 0.30 m and 2.0 m. Richest development of the seams are in the vicinity of the Disang river. Inferred workable reserves of the coal up to a depth of 100m have been estimated at about 100 m have been estimated at about 10 million tones.

Petroleum:

Seepages of crude petroleum with bubble discharges of natural gas are seen along the base of the Jaipur-Tipam –Digboi range of hills as well as along with valley of Buri-Dehing river near Margherita . The important ones amongst them are in the Barapatra and Naharjan streams in Jaipur and Digboi; Makumpather,Hilikapani and Namangpani and around Margherita and Namchik towards east of the Makumcoal field.

The discovery of big oil seepage in Digboi in Digboi jungle during the construction of the Dibrugarh–Ledo railway line in 1882, eventually led to the discovery of Digboi oilfield. Crude oil at Digboi occurs in 24 different oil sand horizons within a stratigraphic thickness of 1,065 m of Tipam sandstone. The Digboi crude is of mixed paraffin and asphalt base with fair proportion of cyclic hydrocarbobns. The Naharkatia oilfield covers Naharkatia-Hungrijan area in the Dehing valley Oil occurs in this field in 5 main producing oil sand horizons within a thick stratigraphic unit of the Barails struck at a depth between 3000 m and 3,926 m.

Natural Gas:

Large reserves of Natural gas are found in association with oil in the Naharkatia field. For utilization of the gas, a thermal power station and a fertilizer factory have already been set up in Namrup.

2.4.9. Minerals of Tinsukia district:

Coal:

The Makum coal mines are network of four opencast and underground mines operated by North Eastern Coalfields Limited, a subsidiary of Coal India, with a capacity of 1 million ton-per-annum (MTPA), near Margherita town, Tinsukia

Petroleum:

The Baghjan Oil Field is located in Tinsukia district near Baghjan village. Crude oil was discovered in Digboi in late 19th century and first oil well was dug in 1866. Digboi is known as the Oil City of Assam where the first oil well in Asia was drilled. The first refinery was started here as early as 1901. Digboi has the oldest oil well in operation.

Natural gas:

Oil India Ltd, India's second-largest state oil producer, has unearthed natural gas at well Dinjan-1 in Tinsukia Petroleum Mining Lease (PML) situated in the upper Assam basin.

2.4.10. Rivers of Dibrugarh district:

Dibrugarh district is drained by a dense network of rivers comprising of the Brahmaputra and its tributaries like Dibru, Maijan and Burhi Dihing and innumerable wetlands. The river Brahmaputra flows in the north-east to south-west direction in the northern part of the district. The length of the river within the district is about 85 km, the average width is 6 to 8 km and the width near Dibrugarh town is around 10 km. The Burhi Dihing originates from the Namphuk river of Pataki Bum in Upper Myanmar and flows down the Tirap district in Arunachal Pradesh and passes through the Tinsukia district before entering Dibrugarh district from the east. The river meanders almost through middle of the district and drains into the Brahmaputra at Dihingmukh.

2.4.11. Rivers of Tinsukia district:

The Brahmaputra River has entered the plain area of Tinsukia district near Sadiya in the east. The Brahmaputra Valley has a gradual slope from east to west At Sadiya, the easternmost point of the State, the altitude is 134 meters above sea level. The rivers, Burhidihing and

Dibru, both being two of the major tributanes of the Brahmaputra River, drain the tract. The Burhi Dihing curves through the plains facing Patkai Hills for a length of 50 km and then enters into Joypur-Digboi low hill range. It then comes out near Joypur to flow through the plains for a length of 120 km and ultimately joins the Brahmputra at about 32 km southwest of Dibrugarh city. The other streams and rivers contributing to the drainage of the area are the rivers, Maijan, Dirak, Tirap, Namsang, Tingrai, Dihing and the streams Khaijan, Dhekiajan, Digboi, Telpani, etc. Besides the above, a number of scattered, confined water bodies, viz., ponds, roadside burrows, swampy land, flood plain etc., exist within the district, most of which contain water throughout the year.

2.4.12. Vulnerability of project locations to floods:

All the substations in the subproject areas are located at such places where least chances of flooding. However, necessary care such as drainage provisions, elevation from flood levels has taken to avoid any damage to the substations. In case of T & D lines, necessary care was taken while survey to avoid flooding because of lines and the flood prone areas avoided for erection of T & D network.

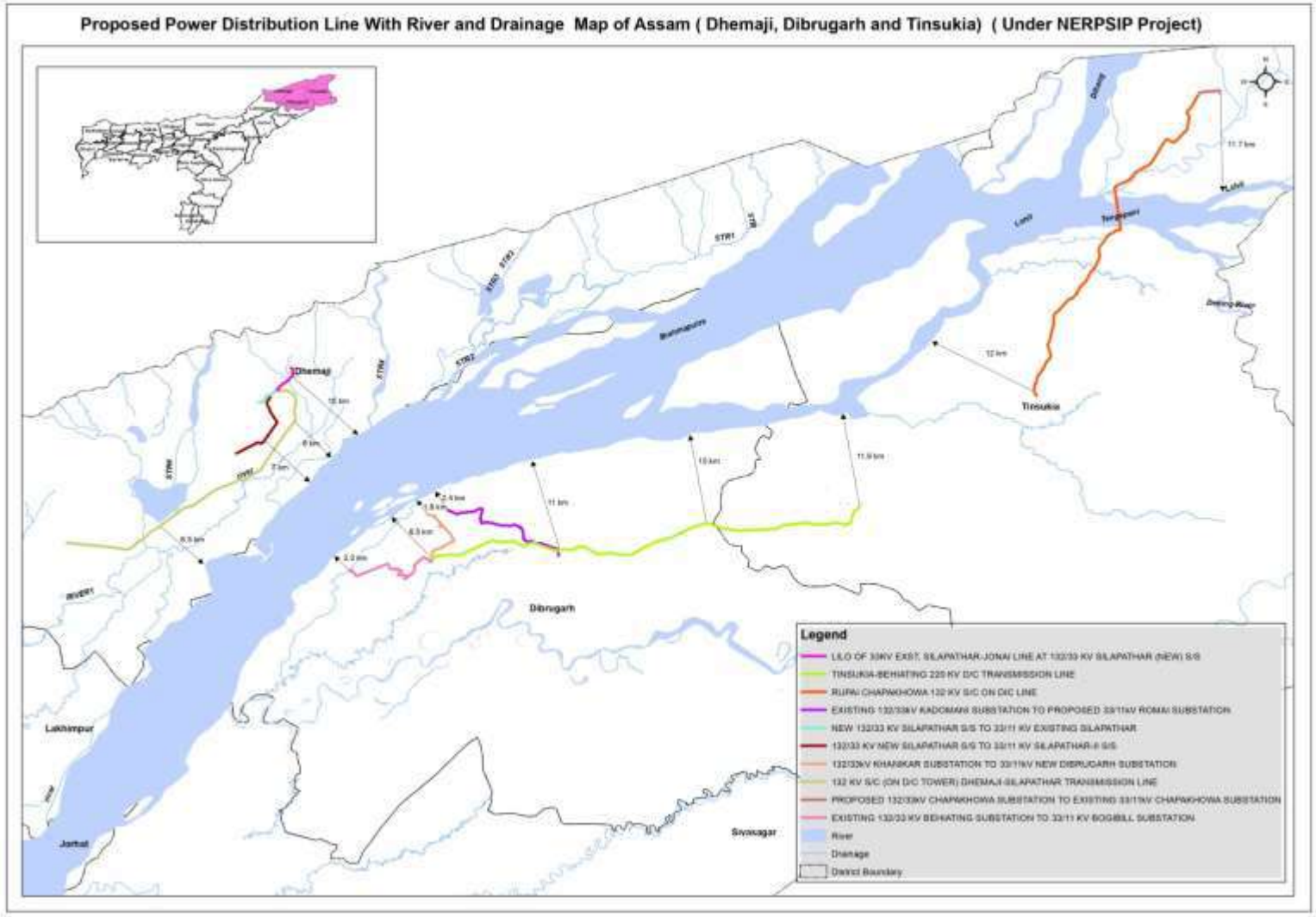


FIGURE 2-22 DISTANCE OF T & D SUBPROJECT AREA FROM NEAREST RIVERS

2.4.13. Forest Details of project districts:

The proposed transmission and distribution subprojects passing through 2 districts namely Dibrugarh and Tinsukia of Assam. However, by adopting careful route selection technique, forest involvements along routes of all transmission and distribution lines under the subject scheme have been completely avoided thereby minimizing ecological disturbance. The details of forest resources available in the subproject area district are as follows:

TABLE 2-25 FOREST DETAILS OF PROJECT AREA

District	Geographic area	(Area in Sq. Km.)				% Forest cover
		Very Dense Forest	Moderate Dense forest	Open forest	Total	
Dibrugarh	3381	29	165	561	755	22.33
Tinsukia	3790	106	698	730	1534	40.47

2.4.14. Forests in Dibrugarh District:

Dibrugarh has rich flora and fauna in the surrounding wildlife sanctuaries and rainforests.

a) Jokai Botanical Garden cum Germplasm Centre

Jokai Botanical Garden cum Germplasm Centre spread over an area of 1.2 Ha amidst Jokai Reserve Forest is 12 km from Dibrugarh town on Mancotta-Khamtighat road. Apart from the storehouse of germplasm of some of the valuable and endangered species of flora of this region, the centre is a showcase of what this region has in terms of floral biodiversity. The various zones of this centre include Orchid house, Medicinal and aromatic plants plot, Rainforest specimen plot, a water pond etc.

Added attractions to visit this botanical garden are Elephant ride to have an overview of the richness of Jokai Reserve Forest, a retreat to scenic beauty of Era-suti along northern boundary of Jokai Reserve Forest famous for migratory birds.

The work of developing trekking routes inside Jokai reserve forest and introduction of boating facilities at Era-suti is in progress to ensure that a tourist has a complete date with nature here.

b) Dibru – Saikhowa National Park

Dibru-Saikhowa National Park is located at about 42 km north of Dibrugarh town of Assam covering an area of 350 km^2. It lies between 27°30' N to 27°45' N latitude and 95°10' E to 95°45'E longitude at an average altitude of 118 m (range 110-126m). It is also a biosphere

reserve. The park bounded is by the Brahmaputra and Lohit rivers in the north and Dibru river in the south. It is situated in Dibrugarh and Tinsukia District of Assam. It mainly consists of wet evergreen forests, tropical moist deciduous forest, canebrakes and grasslands. It is the largest salix swamp forest in north east India. Situated in the flood plains of the Brahmaputra and the Lohit, at an altitude of 118 m above sea level, Dibru-Saikhowa is a safe haven for many endangered species. Due to the auto stocking by the Brahmaputra and Dibru river, it is rich in fish diversity. Dibru Saikhowa has tropical monsoon climate with a hot and wet summer and cool and usually dry winter. The annual rainfall ranges from 2300 mm to 3800 mm. The main rainy months are June, July, August, and September. The average coldest and warmest temperature of the area ranges from 7 °C to 34 °C where June, July and August are the hottest while December and January are the coolest months.

c) Joypur Rainforest

Situated 60 km southeast of Dibrugarh town in eastern Assam, Jeypore Rainforest is India's easternmost rainforest, one of very few wildlife reserves on earth housing seven wildcat species including Royal Bengal tiger, clouded leopard, common leopard, golden cat and marbled cat. Jeypore reserve forest and Dilli reserve forest combine to be the only rain forest area in the state spread across the three of upper Assam's districts of Tinsukia, Dibrugarh and Sibsagar comprising a total area of 575 km^2. The forest is listed to be the last lowland forests under the Assam valley wet evergreen forest area in the region.

2.4.15. Forests in Tinsukia District:

Dehing Patkai Wildlife Sanctuary is a major forest in Tinsukia district. The Sanctuary with an area of 111.19 Sq. Kms. is located in Dibrugarh and Tinsukia districts and is famous for Assam Valley Tropical Wet Evergreen Forests bordering Arunachal Pradesh. The Sanctuary is a part of the Dehing-Patkai Elephant Reserve having the World War II cemeteries nearby, along with the Stillwell Road and the oldest refinery of Asia in Digboi and 'open cast' coal mining at Lido.

Many mammal species such as Chinese pangolin, Flying fox, Slow loris, Stump-tailed macaque, Assamese macaque, Rhesus macaque, Capped langur, Hoolock gibbon, Himalayan black bear, Hog –badger, Jungle cat, Leopard cat, Fishing cat, Marbled cat, Clouded leopard, Leopard, Tiger, Wild pig, Sambar, Barking deer, Gaur, Serow, Malayan giant squirrels, Porcupine, Pig-tailed macaque etc. reported from this sanctury, apart from this, birds like, Lesser Adjutant Stork, White Winged Wood duck, White-backed Vulture, Slender-billed Vulture, White cheeked Hill Partridge, Khaleej Pheasant, Grey Peacock-Pheasant, Rufus

necked Hornbill, Wreathed Hornbill and reptiles like Rock python, King cobra, Asian leaf turtle, Monitor Lizard etc. reported from this sanctury.

2.4.16. Details of Flora and Fauna at Dibrugarh and Tinsukia district:

The Dibru-Saikhowa National park has rich animal diversity. Many types of monkeys, cats, leopalds have been identified from this area. Details of common flora and fauna of Dibrugarh and Tinsukia district are as follows:

TABLE 2-26 COMMON FLORA OF DIBRUGARH AND TINSUKIA DISTRICT

Sr. No.	Botanical Name	Family	Conservation Status
1.	*Dipterocarpus retusus*	Dipterocarpaceae	Endangered
2.	*Cinnamomum glanduliferum*	Lauraceae	Not evaluated
3.	*Magnolia hodgsoni*	Magnoliaceae	Not evaluated
4.	*Sapium baccatum*	Euphorbiaceae	Not evalulated
5.	*Aphanomixis polystachya*	Meliaceae	Least Concern
6.	*Zanthoxylum rhetsa*	Rutaceae	Not Evaluated
7.	*Ardisia paniculatum*	Myrsinaceae	Not known
8.	*Hoya acuminata*	Asclepidaceae	Not known
9.	*Anthocephalus chinensis*	Rubiaceae	Not Evaluated
10.	*Elaeocarpus floribunda*	Elaeocarpaceae	Endangered
11.	*Ficus subulata*	Urticaceae	Not evaluated
12.	*Schizostachyum polymorphum*	Poaceae	Least Concern
13.	*Mangifera indica*	Anacardiaceae	Least Concern
14.	*Bombax ceiba*	Bombaceae	Least Concern
15.	*Actonodaphne angustifolia*	Lauraceae	Least Concern
16.	*Aglaia hiernii*	Meliaceae	Least Concern
17.	*Lyngbya martensiana*	Oscillatoriaceae	Least Concern
18.	*Oscillatoria acuminata*	Oscilatoriaceae	Least Concern
19.	*Calothrix*	Rivulariaceae	Least Concern
20.	*Nostoc*	Nostocaeae	Not Evaluated

TABLE 2-27 COMMON FAUNA OF DIBRUGARH AND TINSUKIA DISTRICT

Sr. No.	Common Name	Generic name	Conservation Status
1.	Indian leopard	*Panthera pardus*	*Not extinct*
2.	Clouded leopard	*Neofelis nebulosa*	*vulnerable*
3.	Jungle cat	*Felis chaus*	*Least concern*

4.	Sloth bear	*Melursus ursinus*	*Vulnerable*
5.	Small Indian civet	*Viverricula indica*	*Least concern*
6.	Malayan giant squirrel	*Ratufa bicolor*	*Near threatened*
7.	Rhesus macaque	*Macaca mulatta*	*Least concern*
8.	Assamese macaque	*Macaca assamensis*	*Near threatened*
9.	Asian elephant	*Elephus maximus*	*Endangered*
10.	Sambar deer	*Rusa unicolor*	*Vulnerable*
11.	Asian Toad	*Bufomelano stictus*	*Least concern*
12.	Slender Billed vulture	*Gyps tenuirostris*	*Critically endangered*
13.	White Bellied heron	*Ardrea insignis*	*Critically endangered*
14.	Spot Billed Pelican	*Pelecanus phillipinensis*	*Near threatened*
15.	Lesser Adjunct	*Leptoptilos javanicus*	*Vulnerable*
16.	Pallas's fish Eagle	*Aquila clanga*	*Vulnerable*
17.	Swamp Francolin	*Francolinus gularis*	*Vulnerable*
18.	Wild Buffalo	*Bubalus arnee*	*Not extinct*

(Source: http://thebrahmaputra.in/pdf/Brahmaputra%20Wildlife.pdf)

2.4.17. Collection of Baseline Data of flora and Fauna at the subproject locations:

The baseline data is collected nearby the T & D lines. The team visited various locations along the T & D lines to collect flora and fauna details. The identification of flora was done using available standard literature e.g. Flora of Assam, and fauna was identified using different online and offline sources. Necessary care was taken to avoid loss of biodiversity while survey of flora and fauna.

2.4.17.1 Methodology and Sample Size Adopted for Primary Survey

The study area for the floristic surveys is defined as area in the proximity of the proposed transmission lines on both left and right sides, corridors of transmission line routes and substations. The description of the vegetation is based upon these observations and data collected around each site collected through transects method.

In general, the vegetation in and areas around sampling sites is comprised of tropical wet evergreen and semi-evergreen floral elements. Therefore, field surveys for the assessment and composition of vegetation were conducted to assess the floral wealth in the proximity to the towers, sub-station and along the routes of transmission line.

A series of transects were identified along the routes of transmission line covering the corridors between the ROW of transmission line and substations. The basis of data collection is along the route of the transmission/distribution lines considering a RoW of 35 meters for 220 kV line, 27 meters for

132 kV line and 15 meters for 33 kV line. For homogenous stretches/sections of the route like along paddy field, along tea garden etc. data collected is carried out section wise.

Line transact methodology has been followed for vegetation sampling. Faunal surveys were also conducted during vegetation survey. During the surveys, 10% of total route length was covered to collect baseline data, because entire route is not accessible at present. **Please Refer Annexure 16.** Details of transmission line and locations (transacts) selected for phytosociological survey / vegetation sampling are as given in **Table 2.28.**

Table 2-28 Transmission Lines and Transects Locations for Vegetation Sampling

Sr. No.	Name of Line and Locations of samplings	Stretch Covered	Section Length	Number of trees likely to be impacted
A	**Tinsukia- Behiating 220 KV D/C transmission line**			
1	Tinsukhia	AP 1 to AP 65 188 Towers / poles	49.69 km	3
2	Bhimpara	AP 1 to AP 65 188 Towers / poles	49.69 km	1587
3	Sewpur	AP 9 to AP 12A 188 Towers / poles	49.69 km	745
4	Jingha	AP 9 to AP 16A 11Towers / poles	2.503 km	1962
5	Kadomani	AP 16B to AP 18/2 8 Towers / poles	2.084 km	1247
6	Kukurakhooa	AP 18/2 to AP 22/3 23 Towers / poles	6.354 km	2323
7	Balijanahon	AP 22/4 to AP 24 5 Towers / poles	1.449 km	2603
8	Bamsubani	AP 24 to AP25/2 4 Towers / poles	1.453 km	1805
9	Chabua	AP 26 to AP 27 7 Towers / poles	1.972 km	92
10	Korapatti	AP 27 to AP 27 /8 8 Towers / poles	2.213 km	185
11	Fathruanja	AP 30 to AP 31 5 Towers / poles	1.294 km	121
12	Rangamati	AP 31/1 to AP 33/1 188 Towers / poles	2.397 km	1385
13	Barbam	AP 33/2 to AP 34/1 3 Towers / poles	0.795 km	1375
14	Kuhidbari	AP 35 to AP 38/1 15 Towers / poles	3.839 km	262
15	Alimur	AP 38/2 to AP 40/2	1.264 km	140

Sr. No.	Name of Line and Locations of samplings	Stretch Covered	Section Length	Number of trees likely to be impacted
		5 Towers / poles		
16	Karikatiya	AP 41 to AP 41/4 5 Towers / poles	1.320 km	-
17	Singlijan	AP 43 to AP 44/7 9 Towers / poles	2.433 km	-
18	Mecen Gaon	AP 45 to AP 45/1 2 Towers / poles	0.425 km	69
19	Taliyapatti	AP 45A to AP 47/2 5 Towers / poles	1.171 km	2743
20	Muttuck	AP 48 to 48/4 5 Towers / poles	1.358 km	78
21	Chadmari	AP 49 to 50/3 5 Towers / poles	1.530 km	21
22	Bakulmaj	AP 51/1 to 53/1 6 Towers / poles	1.853 km	5474
23	Bakulkath	AP 54 to 55/2 4 Towers / poles	1.180 km	183
24	Bogpara	AP 55/3 to 56/2 4 Towers / poles	1.099 km	132
25	Hatigarh	AP 57 to 58/1 3 Towers / poles	0.927 km	45
26	Lakei	AP 58/2 to AP 60 6 Towers / poles	1.471 km	407
27	Khanikar	AP 61 to AP 65 6 Towers / poles	1.191 km	232
B	**Behiating to Bogibeel 33KVA**			
1	Dibrugarh Township	SP 136 to Gantry 143 Towers / poles	6.124 km	143
2	Baughpara	Gantry to FP 11 158 Towers / poles	7.7.6 km	755
C	**Behiating to Dibrugarh 33 KV Line**			
1	Khanikar	FP 1 to FP 2 16 Towers / poles	0.636 km	142
2	Mancota	SP 6 to SP 34 34 Towers / poles	1.469 km	172
3	Baughpara	SP 35 to SP 109 34 Towers / poles	3.99 km	
4	Dibrugarh Township	SP 114 to DP 38 63 Towers / poles	2.635 km	64
5	Chowkidingi	DP 38 to Gantry 11 Towers / poles	0.5 km	17

Sr. No.	Name of Line and Locations of samplings	Stretch Covered	Section Length	Number of trees likely to be impacted
D	**Dibrugarh to Romai 33 KV Line**			
1	Romai	Gantry to SP 318 377 Towers / poles	16.966 km	589
E	**Rupai - Chapakhowa transmission 132 KV line**			
1	Mankhowa	Bay to AP 6A 10 Towers / poles	1.802 km	510
2	Rangajan	AP 6B to AP 10/0 14 Towers / poles	3.632 km	648
3	Talap	AP 10A/0 to AP 12 14 Towers / poles	3.755 km	483
4	Sengali	AP 10A/0 to AP 12 14 Towers / poles	1.443 km	483
5	Dhadum	AP 17/6 to AP 19/2 14 Towers / poles	1.375 km	164
6	Megela	AP 20 to AP 21A 7 Towers / poles	1.731 km	-
7	Ajukhowa	AP 21A/1 to AP 22/1 5 Towers / poles	1.572 km	24
8	Bokapathar	AP 23 to AP 27/3 5 Towers / poles	3.306 km	18434
9	Kherbari	AP 27/4 to AP 30 6 Towers / poles	1.248 km	6409
10	Sisni	AP 27E to AP 27/3 5 Towers / poles	1.125 km	714
11	Brahmaputra River	AP 30/1 to AP 30/9 9 Towers / poles	4.293 km	-
12	Mulluk Chapori	AP 31/0 to AP 33 8 Towers / poles	2.111 km	8361
13	Kobibagan	AP 33/1 to AP 34A 7 Towers / poles	2.020 km	3392
14	Manipuri Basti	AP 34A/1 to AP 35A 3 Towers / poles	0.562 km	21767
15	Gumtibil	AP 35A/1 to AP 42 19 Towers / poles	5.22 km	19917
16	Rampur megala	AP 42/1 to AP 43/3 8 Towers / poles	2.15 km	30
17	Majuli Gaon	AP 43/4 to Bay 14 Towers / poles	3.31 km	91
F	**Chapakhowa (new) to Chapakhowa (Existing) 33 KV line**			
1	Chapakhowa	SP 1 to FP 4	2.617 km	79

2.4.17.2 Flora at the project site:

The primary data and secondary data were collected by field survey and literature survey, respectively. The details of flora found at the project sites are as follows:

TABLE 2-29 FLORA IDENTIFIED AT PROJECT SITES IN PROJECT SITE

Sr. No.	Name of Plant	Family
1.	*Actonodaphne angustifolia*	Lauraceae
2.	*Aglaia hiernii*	Meliaceae
3.	*Antidesma bunius*	Phyllanthaceae
4.	*Cinnamomum glanduliferum*	Lauraceae
5.	*Dipterocarpus retusus*	Dipterocarpaceae
6.	*Magnolia griffithii*	Magnoliacae
7.	*Sapium baccatum*	Euphorbiaceae
8.	*Camellia caudata*	Theaceae
9.	*Saurauia panduana*	Actinidiaceae
10.	*Ficus benjamina*	Urticaceae
11.	*Michelia baillonii*	Michelliaceae
12.	*Garcinia kydia*	Apiaceae
13.	*Syzygium oblatum*	Rosaceae
14.	*Antidesma acuminatum*	Phyllanthaceae
15.	*Clematis acuminata*	Rananculaceae
16.	*Erythropalum scandens*	Erythropalaceae
17.	*Glochidion assamicum*	Phyllanthaceae
18.	*Morinda angustifolia*	Rubiaceae
19.	*Piper peepuloides*	Piperaceae
20.	*Raphidophora*	Araceae
21.	*Dalbergia stipulacea*	Fabaceae
22.	*Dalbergia assamica*	Fabaceae
23.	*Careya arborea*	Lecithydaceae
24.	*Sclerostachya fusca*	Poaceae
25.	*Saurauia nepaulensis*	Actinidiaceae
26.	*Mikania micrantha*	Asteraceae
27.	*Urena lobata*	Malvaceae
28.	*Schizostachyum polymorphum*	Poaceae
29.	*Mangifera indica*	Anacardiaceae
30.	*Bambusa jaintiana*	Poaceae
31.	*Marchantia spp*	Marchantiaceae
32.	*Riccia spp*	Riccciaceae
33.	*Nostoc spp*	Nostocaceae

34.	*Anabaena spp*	Nostocaceae

2.4.17.3 Details of Fauna at project site:

Following fauna was identified at the project area in Dibrugarh and Tinsukia district:

TABLE 2-30 FAUNA IDENTIFIED AT THE PROJECT SITE IN PROJECT SITE

Sr. No.	Common Name	Generic Name
Reptiles		
1	Indian Rock Python	*Python molurus*
2	Cobra	*Naja naja*
3	Monitor Lizards	*Varanus spp*
Birds		
4	Pallas' Fish Eagle	*Haliaeetus leucoryphus*
5	Slender Billed Vulture	*Gyps tenuirostris*
6	Capped Pigeon	*Columba punicea*
7	Swamp Francolin	*Francolinus gularis*
8	Crow	*Corvus linnaeus*
Animals		
9	Malayan giant squirrel	*Ratufa bicolor*
10	Asian Toad	*Bufomelano stictus*
11	Wild Pig	*Sus scrofa*
12	Small Indian Civet	*Viverricula indica*
13	Indian Tent Turtle	*Pangshura tentoria*
14	Indian Softshelled Turtle	*Nilssonia gangetica*
15	Indian Cow	*Bos indicus*
16	Buffalo	Bubalus bubalis
17	Dog	*Fido spp*

3. Policy, Legal and Regulatory Framework

3.1. Introduction

Power transmission and distribution project activities by their inherent nature and flexibility have negligible impacts on environmental and social attributes. Indian laws relating to environmental and social issues have strengthened in the last decade both due to local needs and international commitments. DPN, IA and contractors 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 World Bank's Operational Policies.

3.2. 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.

Article 371 A Provides special provision with respect to state of Nagaland which states "no act of parliament in respect of religious and social practices of the Naga, Naga customary laws and procedures, administration of civil and criminal justices involving decisions according to Naga customary law and ownership and transfer of land and its resources shall apply to the state of Nagaland, unless Legislative Assembly of the state, by a resolution, so decides".

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.

3.3. Environmental Provisions

Environmental issues of T&D projects are manageable given the inherently small 'foot print' of towers and flexibility in siting facilities within a relatively large host area and are mostly localized to RoW. However, transmission line project may have some adverse effects on natural resources. These impacts can be minimized by careful route selection and siting of substations. The applicable acts, rules, and relevant policies in the context of the project and its status of compliance are presented in Table 3.1.

TABLE 3-1 ENVIRONMENTAL PROVISIONS

Sr. No.	Acts, Notification & Policies	Relevance/Applicability to the project	Status of compliance
National/ State requirement			
1.1	Forest (Conservation) Act, 1980	When transmission projects pass through forest land, prior clearance has to be obtained from Ministry of Environment Forest & Climate Change	Since no notified forest area is involved in any of the line routes or substations

Sr. No.	Acts, Notification & Policies	Relevance/Applicability to the project	Status of compliance
		(MoEF&CC), GoI under the Forest (Conservation) Act, 1980 before starting any construction activity in designated forest area	location. forest clearance under FC Act 1980 is not applicable in instant case
1.2	Environment (Protection) Act,1986/ Environment Impact Assessment 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 MoEF & CC for power transmission projects in three districts in the Aravalis (viz., Alwar in Rajasthan and Gurgaon & Nuh- Mewat in Haryana).	Not applicable
1.3	The Scheduled Tribes & Other Traditional Forest Dwellers(Recognition of Forest Rights) Act, 2006	When transmission projects pass through forest land, NoC from DC has to be obtained before Stage-II approval in compliance to FRA as per MoEF&CC circular dated 5th February 2013	Not applicable as there is no forest land involvement
1.4	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 16thSeptember 1987	Only CFC free equipment are being procured/specified intender document
1.5	Batteries (Management and Handling) Rules, 2001	Provides certain restriction on disposal of used batteries and its handling and to file half yearly returning prescribed form to the concerned State Pollution Control Board.	Batteries will be used during operational phase. Hence, the issue of proper handling and disposal of batteries as per the rules is not an issue during the construction phase.

Sr. No.	Acts, Notification & Policies	Relevance/Applicability to the project	Status of compliance
1.6	Hazardous Wastes (Management, Handling and Trans boundary Movement) Rules, 2016	Provides for environmentally sound management of hazardous wastes so as to ensure no adverse effects that may result from such waste. Used transformer oil is categorized as hazardous waste which has to be disposed of only through auctioned/sold to registered recyclers only and file annual return on prescribed form to the concerned State Pollution Control Board.	Generally Used oil is generated after 10-15 years of operation of transformers and therefore, the handling and disposal of hazardous transformer oil is not an issue at this stage.
1.7	E-waste (Management and Handling) Rules, 2016	The main objective of this rule is channelizing the E-waste towards authorized dismantlers and recyclers or is returned to the pick-up of take back services provided by the producer in order to formalize the e-waste recycling sector & protect the environment.	Not applicable during construction phase
1.8	Biological Diversity Act,2002	Provide for conservation of the biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of use of the biological resources, knowledge and for matters connected therewith.	Not applicable as the project does not involve any biosphere reserves
1.9	Ancient Monuments & Archaeological Sites and Remains Act, 1958	The act has been enacted to prevent the damage to the archaeological sites identified by Archaeological Survey of India.	All such areas have been completely avoided.
1.10	Assam control of Tree Felling Rules, 2002	This rule specify which plantations need to be registered, which tree species do not require felling permission, what process is to be followed in order to fell trees outside non recorded forest areas, how is the transit of timber originating from non-recorded forest areas regulated and how and why timber can be confiscated	The route has been selected in such a way that it has minimum obstructions under its alignment &majority of the trees have been trimmed. Only such trees are felled which create hindrance to

Sr. No.	Acts, Notification & Policies	Relevance/Applicability to the project	Status of compliance
		to Government. AEGCL/APDCL follows all provisions of this rule for felling of trees from non-forest land.	electrical safety after due compliance of applicable tree felling provisions.
	World Bank Operational Policy		
2.1	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 into the management procedures based on comprehensive environment assessment undertaken by IA during 2015.
2.2	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, forest area, protected area etc.
2.3	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
2.4	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 have been selected in such a way that it successfully avoids any kind of protected area and reserve forests.
2.5	WB EHS Guidelines for	The Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and	Applicable provisions of EHS guidelines have been followed

Sr. No.	Acts, Notification & Policies	Relevance/Applicability to the project	Status of compliance
	Electric power Transmission and Distribution	industry specific examples of Good International Industry Practice. The EHS Guidelines contains the performance levels & measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs.	during the implementation of the project

3.4. Social Provisions

The applicable acts, rules, and relevant policies in the context of the project and its status of compliance are presented in Table 3.2.

TABLE 3-2 SOCIAL PROVISIONS

Sr. No.	Acts, Notification & 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.	Not applicable as the subproject district doesn't fall under six schedule areas.
2	The Right to fair compensation and transparency in land	Act ensures appropriate identification of the affected families/households, fair compensation and rehabilitation	No involuntary acquisition involved.

Sr. No.	Acts, Notification & Policies	Relevance/Applicability to the project	Status of compliance
	acquisition, rehabilitation & resettlement act, 2013	of titleholders and nontitle holders	
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 Assam vide its Office Memorandum dated 1st December 2014.
4	Right of Way (RoW) & compensation	In case of agricultural or private land, the provision of section- 67 and or section-68 (5 & 6) of Electricity act, 2003 and section-10 of the Indian Telegraph act, 1885 are followed for assessment and payment of composition towards such damages.	As per the guidelines following compensation shall be paid to all affected farmers/land owners in addition to normal tree and crop damage compensation; i) Tower base: Compensation @ 85% of land value as determined by District Commissioner/Bodoland Territorial Council (BTC) or any other competent authority based on Circle rate/ Guideline value/ Stamp Act for tower base area (between four legs). ii) Line corridor: Compensation @ maximum 15% of land value towards diminution of land value in the width of RoW corridor as determined by District Commissioner or any

Sr. No.	Acts, Notification & Policies	Relevance/Applicability to the project	Status of compliance
			other competent authority based on Circle rate/ Guideline value/ Stamp Act. (Details are attached in the Annexure 1.)
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 Information Commission and State Information Commissions and for matters connected therewith or incidental thereto	The required mechanism to comply with the provisions of the act including designated officers at various levels are already in place in AEGCL & APDCL.
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 in instant case till date. Moreover, very less possibilities of such discoveries because of limited and shallow excavations
7. World Bank Operational Policy			
7.1	OP 4.12 – Involuntary Resettlement	This policy covers direct economic and social impacts bothresulting from Bank-assisted investment projects and arecaused 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 there is no involuntary acquisition invoked for securing land for proposed substations.

Sr. No.	Acts, Notification & Policies	Relevance/Applicability to the project	Status of compliance
		levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.	
7.2	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 the project.

3.5. Statutory permissions/NoC's

The applicability of acts, notifications and policies have already been described in above paragraphs and table. As per the applicability, necessary permission/ licenses/ NOC so far obtained by IA or contractor are:

- Under the provisions of Section 68(1) of Electricity Act, 2003, prior approval GoA is a mandatory requirement to undertake any new transmission project 66kV upward and for distribution project of 33kV system in the State. As a part of permission/ approval, GoI approved the NERPSIP comprehensive scheme for six North Eastern States including Assam under vide its Office Memorandum dated 1st December 2014.

In addition, Implementation/ Participation agreement between DoP and PGCIL has been signed on 26th March, 2015.

- All the contractors are operating with valid labour 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.
- All the contractors have obtained requisite insurance policy as per provisions of Employee Compensation Act, 1923 for its employed workforce.
- Since the tower locations are coming under various villages of Dibrugarh and Tinsukia district, No Objection Certificates (NoC) from concerned land owner/ Headman /Village Council are being obtained as per the progress of work.

Copies of NOC documents are shown as annexure and details of NOCs are summarized as below;

TABLE 3-3 PERMISSIONS AND NOC'S FROM GOVERNMENT DEPARTMENTS

S. No.	NOCs	Application ID/Permission Letter No.
1.	Application for Railway Line crossing, Tinsukia, NF Railway	NFR-TSK-2018-42
2.	Permission for crossing railway line between DBRG-DMGN, NF Railway for 33kV Electric line	EL/30/TSK/2554 dtd 21.2.2019
3.	Proposal for Permission for obtaining NOC to cross railway line for 33kV distribution line between Dibrugarh-Romai	NERPSIP/DBR/1000/59B/0711 dtd. 1.4.2019
4.	Proposal for Permission for obtaining NOC to cross railway line for 33kV distribution line between Dibrugarh Town and Chaulkhowa station	NEPRPSIP/DBR/1000/59B/1713, dtd. 1.4.2019 NFR/TSK/2019-14 dtd 20.03.2019
5.	Application for Railway Line crossing between Lahoal and Dikom, NR Rly	NFR-TSK-2019-16 dtd. 06.02.2019
6.	Application for NOC to National Highway Authority and Infrastructure Development Corporation	NERPSIP/DBR/1000/61/1000,

S. No.	NOCs	Application ID/Permission Letter No.
7.	Compensation amount of land value & surface damage	NERPSIP/CHAPAKHOWA/TL-16/297 dtd 20.09.2019
8.	Permissions from Executive Engineer for construction of 33kV line from road	DIB/RR/TB/AP (SOPD)/Elect/23 dtd. 01.08.2019 TBNH.8/91/2011/9608 dtd. 03.07.19
9.	NOC from Tea Estate Owners	1. Joonktollee Tea & Industries Ltd. dtd. 25.6.2018 2. Jalannagar South Estate Pvt. Ltd., HJNS/A-45/877/18/TE dtd. 27.11.2018 3. Beheating Tea Estate, APDCL/0204/18 dtd. 22.10.2018 4. Kabir Tea Estate, Permission letter dtd. 19.07.2019

4. Major Features of Final Route and Environment Impact

4.1. Introduction

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, DPN & 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 in the ensuing paragraphs.

4.2. Environmental Criteria for route selection

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

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

In order to achieve this, AEGCL/APDCL undertakes route selection for individual transmission and distribution lines in close consultation with representatives of concerned Forest Department and the Department of Revenue. Although under the law, AEGCL/APDCL has 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.*

TABLE 4-1 CHANGE IN SCOPE OF WORK

Sr. No.	Details of Power Line	Change in Length of Power Lines (Km)/ Change in location of substation		Reason for change in scope of work
		As per IEAR	Final Route/Location	
A.	**Transmission Line Network**			
1.	Rupai – Chapakhowa 132 kV D/C line	41.7 Km	Final route length is **41.7 Km** and there is no change in route. Expected completion: March 2021	**No change**
2.	Tinsukia–Behiating (New Dibrugarh) 220 kV D/C line	49.61 Km	Final route length is **49.61 Km** and there is no change in route Expected completion: July 2021	**No change**
B.	**Distribution Line Network**			
3.	33 kV line from 132/33 kV Chapakhowa (New) to 33/11kV Chapakhowa (Existing) substation	6.97 Km	Final route length is **2.617 Km** and there is reduction of 4.36 Km Commissioned on 11.06.2020	To avoid densely habituated areas
4.	33 kV line from 132/33kV (Existing) Dibrugarh to 33/11kV Romai (New) substation	20.9 Km	Final route length is **16.966 Km** and there is reduction of 3.94 Km Expected Completion: March 2021	Route is mostly passing along with the state/ village roads and also some portion

Sr. No.	Details of Power Line	Change in Length of Power Lines (Km)/ Change in location of substation		Reason for change in scope of work
		As per IEAR	Final Route/Location	
				through agriculture /paddy fields to avoid heavily populated area
5.	33kV line from 220/132kV Behiating (New) to 33/11kV Bogibil (New) substation	9.2 Km	Final route length is **13.2 Km** and there is increase of 4.0 Km Line Commissioned on 29.2.2020	To avoid densely habituated areas
6.	33kV line from 220/132kV Behiating (New) to 33/11kV Dibrugarh (New) substation	8.2 Km	Final route length is **9.314 Km** and there is increase of 1.1 Km Expected completion: March 2021	To avoid densely habituated areas
C.	**Substations**			
7.	132/33 kV Chapakhowa (New) substation	27º52'54.32"N, 95º44'47.13"E	27°55'15.02"N, 95°44'20.62"E	Earlier identified land found technically not suitable due to low lying area. New land finalized in same locality which is 4.5 km north from earlier location.
8.	33/11kV Chapakhowa (Existing) substation	**No change**		

Sr. No.	Details of Power Line	Change in Length of Power Lines (Km)/ Change in location of substation		Reason for change in scope of work
		As per IEAR	Final Route/Location	
9.	132/33kV (Existing) Dibrugarh substation	**No change**		
10.	33/11kV Dibrugarh (New) substation	27º27'49.21"N 94º54'20.65"E	27°28'14.89"N 94°54'56.48"	Location changed by AEGCL due to non-finalization earlier identified land. New Location is 1.27 km north east from earlier location.
11.	33/11kV Romai (New) substation	**No change**		
12.	220/132kV Behiating (New) substation	**No change**		
13.	33/11kV Bogibil (New) substation	**No change**		

4.3. Features and Satellite Images of T & D Lines

4.3.1. Transmission Lines

A major portion of the transmission line passes through paddy fields, and the remaining portion through plantation/ tree owned by private owner. The final line routes don't involve any notified forest land which would necessitate forest clearance under Forest (Conservation) Act, 1980. Besides all protected areas like National parks, Wildlife sanctuaries and designated wildlife/elephant reserves or corridors have been completely avoided.

4.3.1.1. Rupai – Chapakhowa 132 kV S/C on D/C line

Rupai – Chapakhowa 132 kV D/C line covers distance of 41.7Km. The transmission line passes through plain paddy fields and private plantation/ lands owned by village council. The selected line does not pass through any National Highway and Power line. Major part of this line is going from agricultural area (58.67%) as well as tea estates. Other than agriculture, this line goes from fallow land, roads, tree crops and groves, quarries, grazing lands etc.

This line passes through Brahmaputra river. Drilling in Basin of Brahmaputra River was done to erect transmission towers. The drilling work was completed by M/s Meher Foundation & Civil Engg. Pvt. Ltd. A total of 09 towers (AP 30/1 to AP 30/9) have been erected in the basin of Brahmaputra. The average depth of pile ranging between 32.40 mtr to 34.60 mtr. The boring for pile is done using direct mud circulation method. For boring, drilling chemical used was Sodium based bentonite. This is nontoxic chemical. While drilling in the river bed, no harm was observed to the environment and river ecosystem.

As on October 2020, 28 pile caps and 28 pedestal has been done out of 36. Piling of total of 7 towers is completed namely, loc 30/1, 30/2, 30/3, 30/6, 30/7, 30/8, 30/9. Piling of loc 30/5 has not yet started & piling of loc 30/4 is under progress. A proper drilling waste management was done, whose waste management plan is attached in the annexure. The Google earth image of section of line passing through river is provided in the chapter 5. The details of GIS route survey map provided in **annexure A1** & features of electric line provided in **annexure B1**.

TABLE 4-2 FEATURE DETAILS OF RUPAI – CHAPAKHOWA 132 KV D/C LINE

Sr. No.	Feature Class	Area in ha.	% of Area
1.	Electric Substation	3.65	1.51%
2.	Vacant Land	1.24	0.51%
3.	Fallow Land	7.31	3.02%
4.	Drain	1.15	0.47%
5.	Agriculture Land	142.04	58.67%

Sr. No.	Feature Class	Area in ha.	% of Area
6.	Tea Garden	36.25	14.97%
7.	Metal Road	1.53	0.63%
8.	Mud Road	0.84	0.35%
9.	Bricks Road	1.03	0.43%
10.	Tree Crops and Groves	14.29	5.90%
11.	Waste Land	2.57	1.06%
12.	Pond/Lake	0.46	0.19%
13.	Bricks Kilns/Quarry	0.6	0.25%
14.	Stream	0.13	0.05%
15.	River	10.82	4.47%
16.	Grazing Land	5.56	2.30%
17.	River Sand	11.19	4.62%
18.	Canal	0.1	0.04%

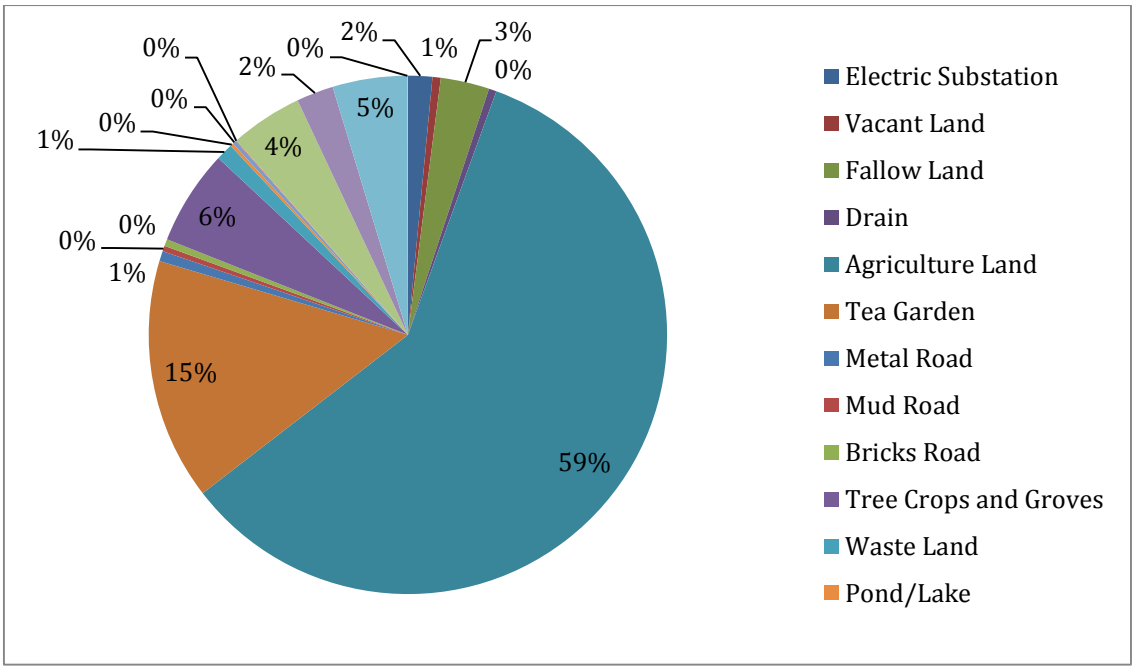


FIGURE 4-1 FEATURE DETAILS OF RUPAI CHAPAKHOWA 132KV LINE

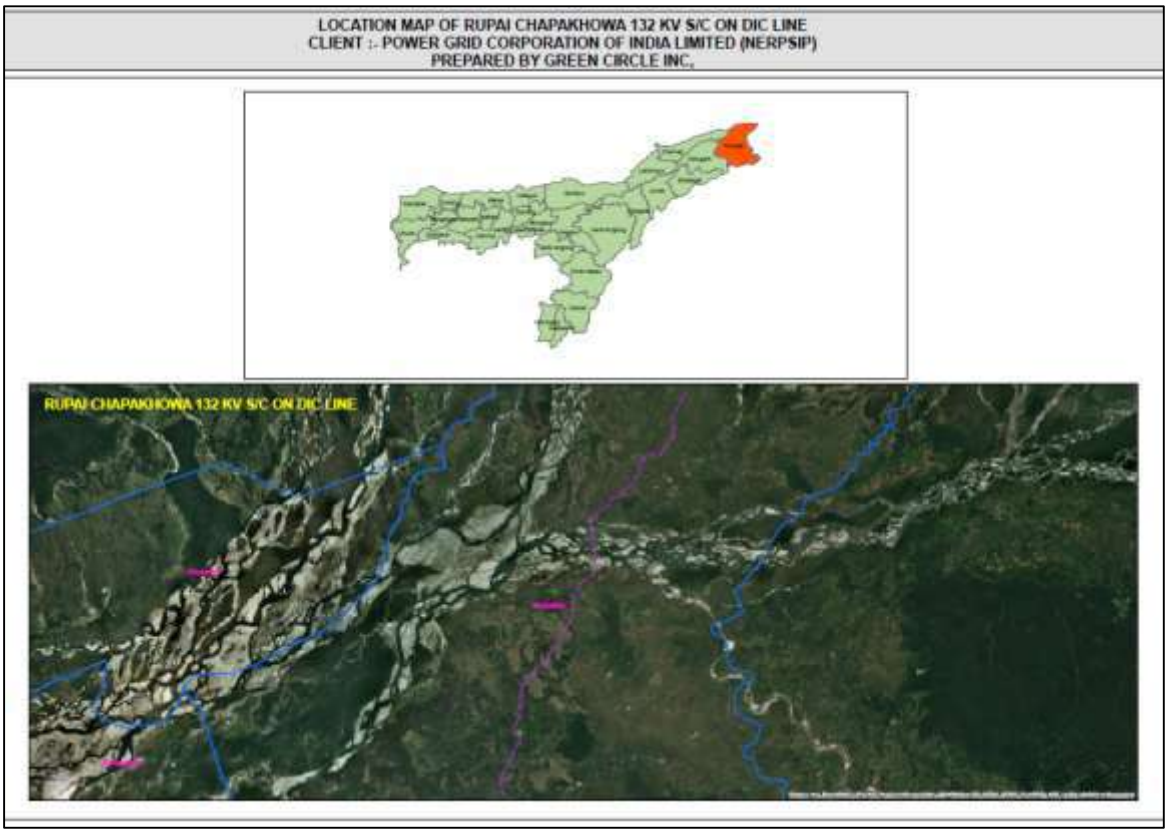


FIGURE 4-2 GOOGLE EARTH PHOTOGRAPH OF 132 KV RUPAI CHAPAKHOWA 132 KV LINE

4.3.1.2. Tinsukia–Behiating 220 kV D/C line

Tinsukia to Behiating (New Dibrugarh) 220kV line covers distance of 49.61 Km. This line majorly crosses agricultural land and tea gardens. Apart from this, this line goes from fallow land, roads, railway and quarries etc. Please refer to table no. 4.3 for details. The details of GIS route survey map provided in **annexure A2** & features of electric line provided in **annexure B2**.

TABLE 4-3 DETAILS OF FEATURES OF TINSUKIA TO BEHIATING (NEW DIBRUGARH) 220KV LINE

Sr. No.	Feature Class	Area In Ha.	% of Area
1.	Fallow Land	13.65	3.80%
2.	220 Kv Electric Substation	8.2	2.28%
3.	Road	0.1	0.03%
4.	Agriculture Land	190.38	53.00%
5.	Metal Road	4.59	1.28%
6.	Bricks Road	1.81	0.50%
7.	Water Logged Area	4.4	1.23%
8.	Vacant Land	1.95	0.54%
9.	Pond/Lake	2.03	0.56%
10.	Tea Garden	101.89	28.37%
11.	Mud Road	1.33	0.37%
12.	Drain	0.89	0.25%
13.	River	2.81	0.78%
14.	Bricks Kilns/Quarry	3.44	0.96%
15.	Railway	0.12	0.03%
16.	Stream	0.83	0.23%
17.	Tree Crops and Groves	15.95	4.44%

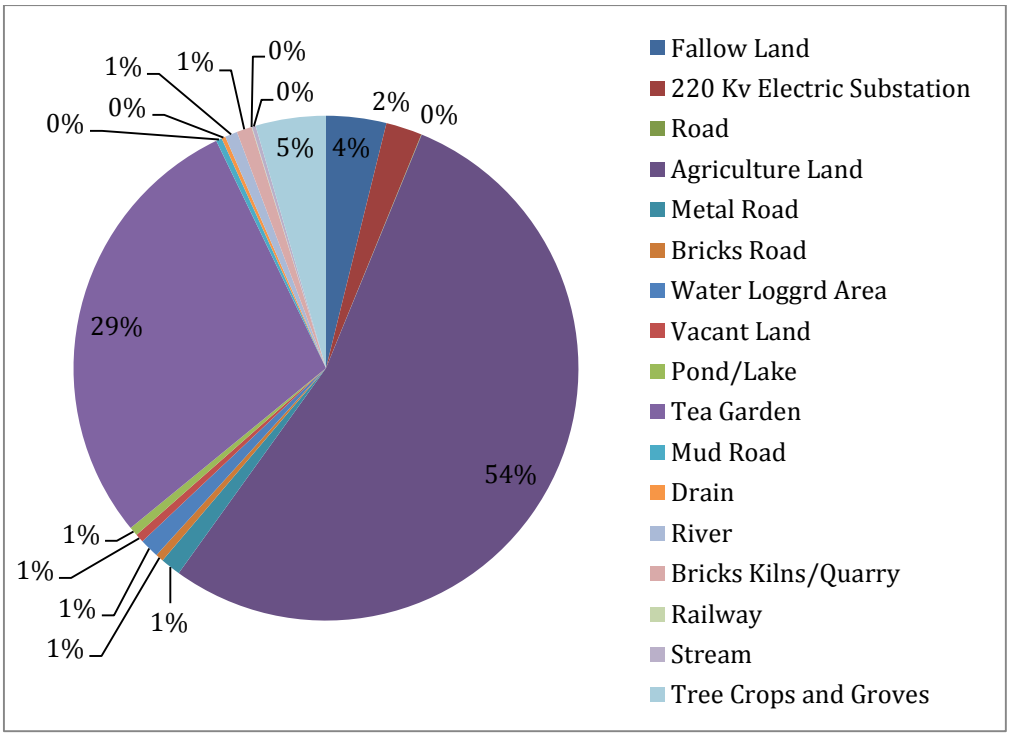


FIGURE 4-3 FEATURE DETAILS OF TINSUKIA TO BEHIATING (NEW DIBRUGARH) 220KV LINE

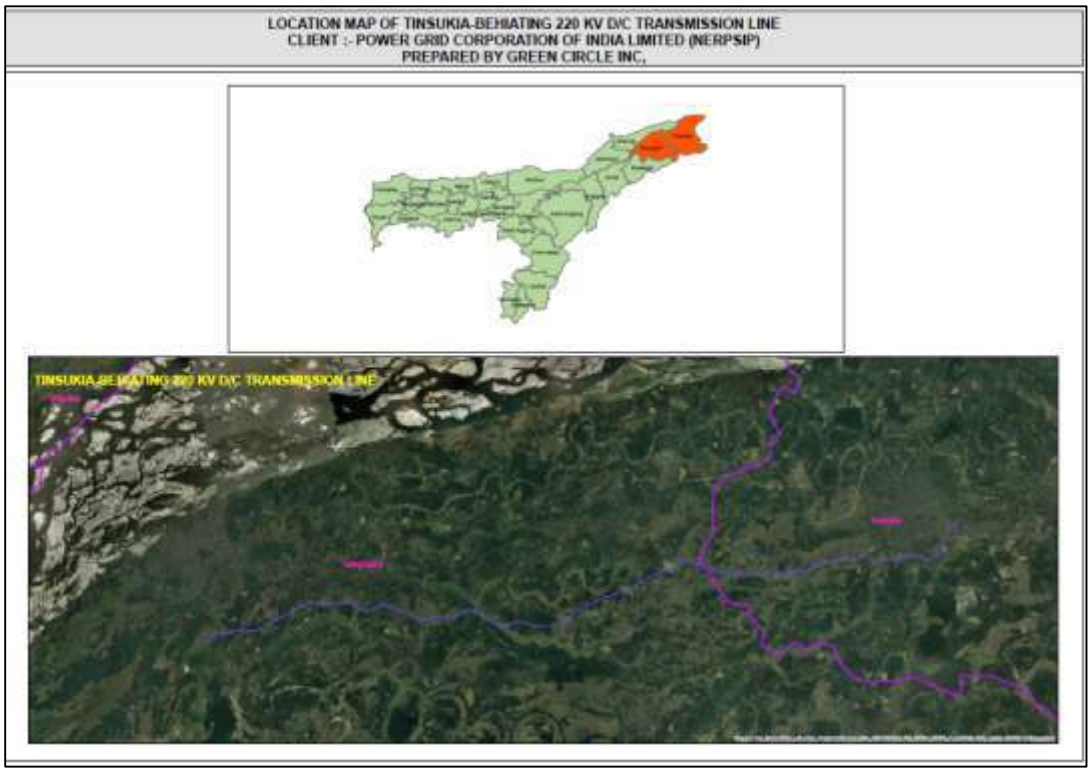


FIGURE 4-4 GOOGLE EARTH MAP OF TINSUKIA TO BEHIATING (NEW DIBRUGARH) 220KV LINE

4.3.2. Distribution Lines

4.3.2.1. 33 kV line from 132/33 kV Chapakhowa (New) to 33/11kV Chapakhowa (Existing) substation

The 33 kV line from 132/33 kV Chapakhowa (New) to 33/11kV Chapakhowa (Existing) substation is 2.60 Km long which stretches majorly from agricultural land (39.86%). Electric substation occupies 28.98% land in this sub project. Very few area is covered by roads and fallow lands. Details of this line provided in figure 4.3 and table 4.4. The details of GIS route survey map provided in **annexure A3** & features of electric line provided in **annexure B3**.

TABLE 4-4 FEATURE DETAILS OF 33KV LINE-NEW CHAPAKHOWA TO CHAPAKHOWA EXISTING SUBSTATION

Sr. No.	Feature Class	Area In Ha.	% of Area
1.	Agriculture Land	4.62	39.86%
2.	Electric Substation	3.36	28.98%
3.	Fallow Land	0.18	1.54%
4.	Pond/Lake	0.05	0.46%
5.	Vacant Land	0.54	4.65%
6.	Road	2.66	22.95%
7.	Tree Crops and Groves	0	0.04%

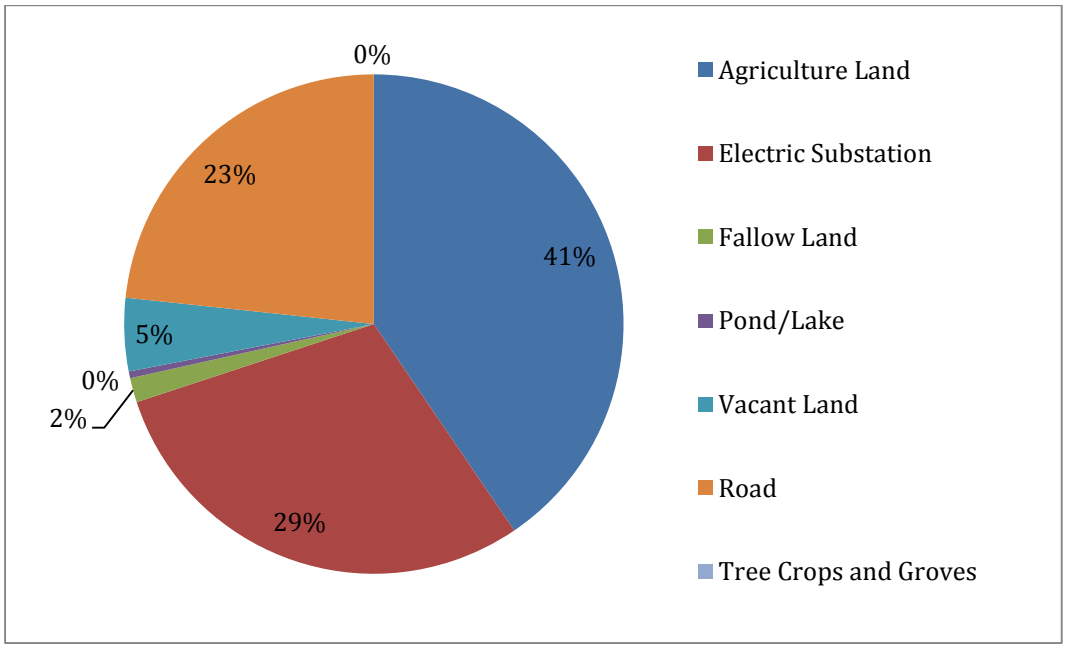


FIGURE 4-5 FEATURE DETAILS OF 33KV LINE-NEW CHAPAKHOWA TO CHAPAKHOWA EXISTING SUBSTATION

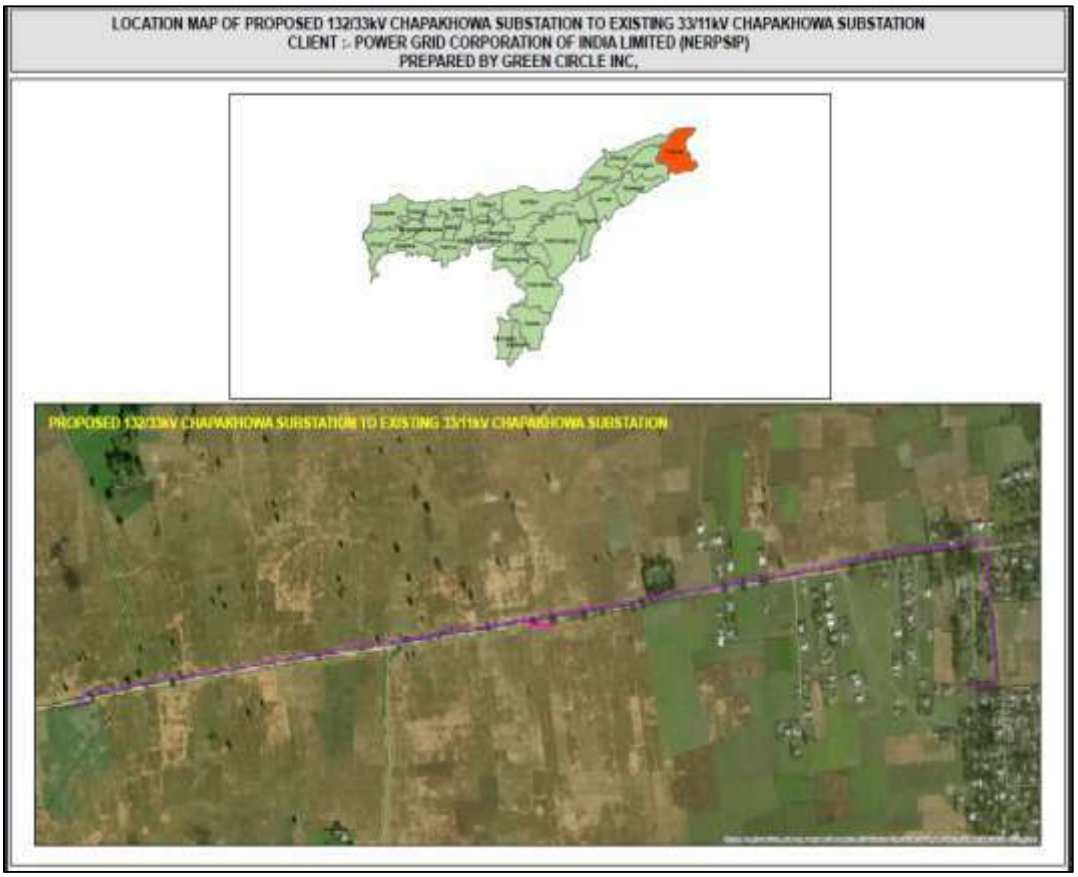


FIGURE 4-6 GOOGLE EARTH MAP OF 33KV LINE-NEW CHAPAKHOWA TO CHAPAKHOWA EXISTING SUBSTATION

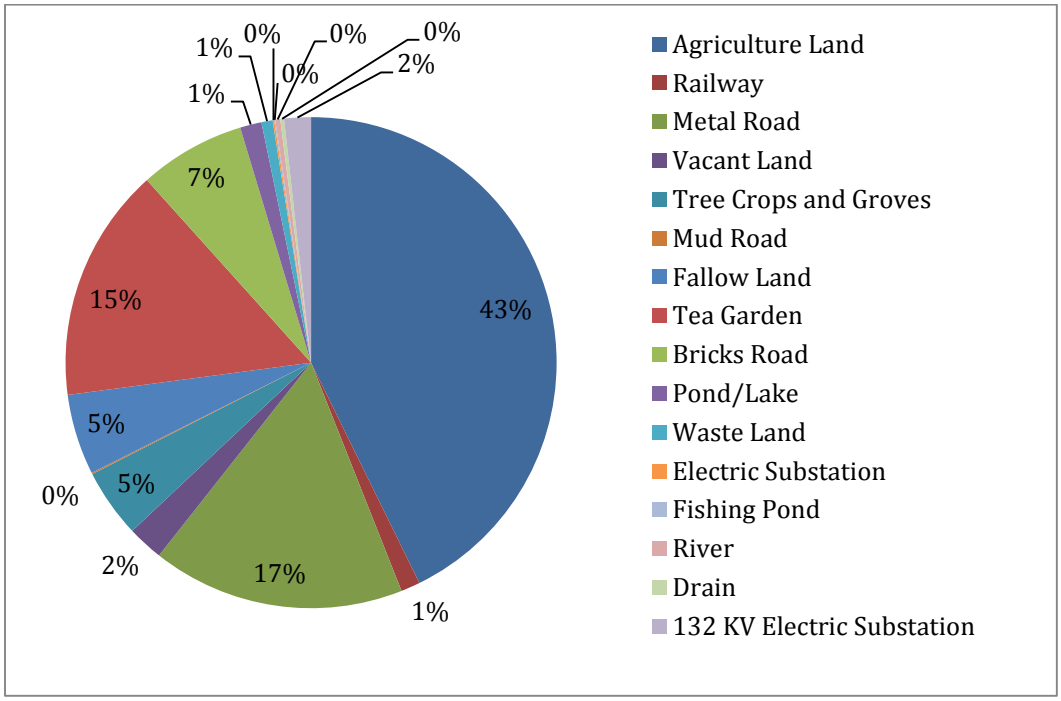
4.3.2.2. 33 kV line from 132/33kV (Existing) Dibrugarh to 33/11kV Romai (New) substation

Agricultural land is the major feature which is crossed by 33kv line from Dibrugarh (existing) to Romai (new) substation. Other than agricultural land, line goes from railway corridor (pole no. 4P-1), metal roads (DP 1 & 2, SP 1), tea garden (SP25-36). The entire subproject area is having moderate flood hazard as it goes from agricultural land. But, necessary provisions have been made to avoid such conditions and possible harms to the distribution lines. The details of GIS route survey map provided in **annexure A4** & features of electric line provided in **annexure B4**.

TABLE 4-5 FEATURE DETAILS OF 33KV LINE FROM DIBRUGARH (EXISTING) TO ROMAI (NEW) SUBSTATION

Sr. No.	Feature Class	Area In Ha.	% of Area
1.	Agriculture Land	37.68	40.79%
2.	Railway	1.12	1.21%
3.	Metal Road	14.67	15.88%
4.	Vacant Land	2.08	2.25%
5.	Tree Crops and Groves	3.98	4.30%
6.	Mud Road	0.08	0.09%
7.	Fallow Land	4.68	5.07%
8.	Tea Garden	13.62	14.74%
9.	Bricks Road	6.17	6.67%
10.	Pond/Lake	1.25	1.36%
11.	Waste Land	0.65	0.71%
12.	Electric Substation	0.09	0.10%
13.	Fishing Pond	0.06	0.07%
14.	River	0.29	0.32%
15.	Drain	0.22	0.24%
16.	132 KV Electric Substation	1.55	1.68%

FIGURE 4-7 FEATURE DETAILS OF 33KV LINE FROM DIBRUGARH (EXISTING) TO ROMAI (NEW) SUBSTATION



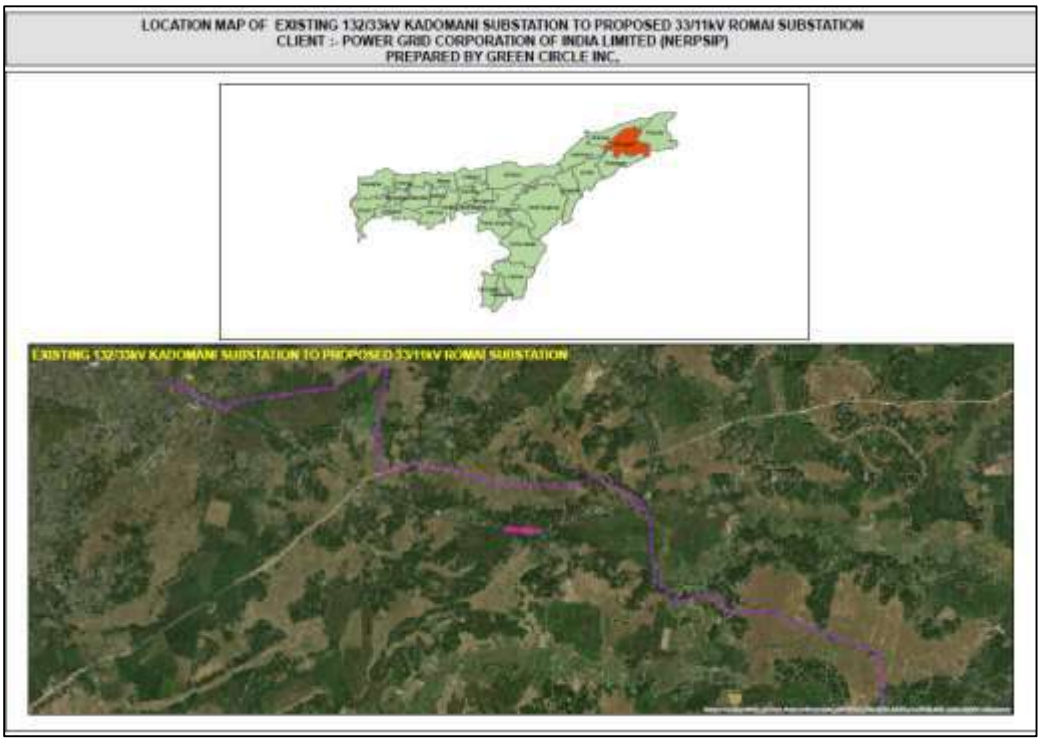


FIGURE 4-8 MAP OF 33KV LINE FROM (EXISTING) DIBRUGARH TO 33/11KV ROMAI (NEW) SUBSTATION

4.3.2.3. 33kV line from 220/132kV Behiating (New) to 33/11kV Bogibil (New) substation

Behiating (New) to 33/11kV Bogibil (New) substation 33 kv line crosses from roads, railways, agricultural lands, tea gardens, ponds and lakes etc. Major part of this distribution line is crossing tea estates (36%), agricultural lands (10%), railways (0.06%), because, this line passes through agricultural fields, there is risk of floods to some extents. But, precautions have been taken to avoid such conditions and possible threats to the power lines. The details of GIS route survey map provided in **annexure A5** & features of electric line provided in **annexure B5.**

TABLE 4-6 FEATURE DETAILS OF 33 KV LINE FROM BEHIATING (NEW) TO BOGIBIL (NEW) SUBSTATION

Sr. No.	Feature Class	Area in Ha.	% of Area
1	Electric Substation	4.33	9.46%
2	Mud Road	3.50	7.66%
3	Agriculture Land	4.85	10.61%
4	Drain	0.63	1.37%
5	Pond/Lake	0.20	0.43%
6	Waste Land	0.62	1.36%
7	Tree Crops and Groves	1.19	2.60%
8	Fallow Land	3.13	6.85%
9	Tea Garden	16.81	36.77%
10	Others Building	0.23	0.51%
11	Residential House	0.28	0.62%
12	Vacant Land	0.63	1.39%
13	Metal Road	2.60	5.68%
14	Bricks Road	1.64	3.58%
15	Road Side Fallow land	5.00	10.94%
16	Railway	0.03	0.06%
17	Canal	0.05	0.11%

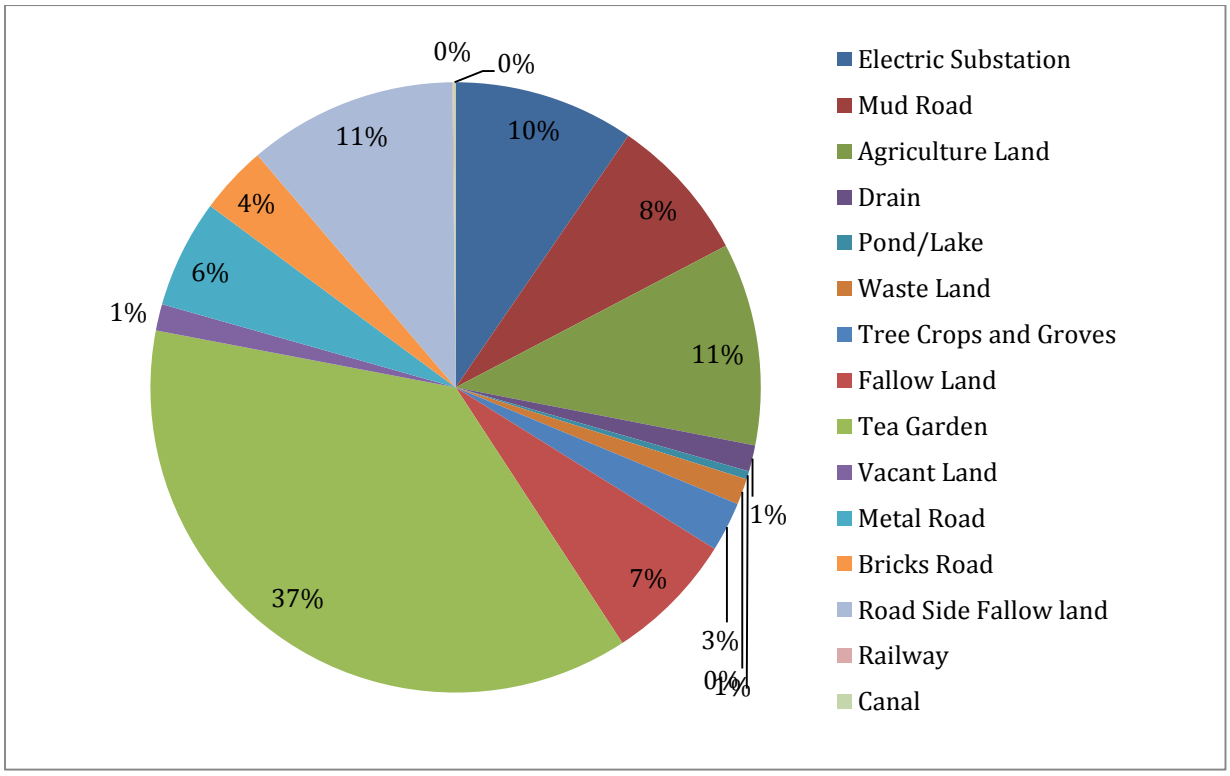


FIGURE 4-9 FEATURE DETAILS OF 33 KV LINE FROM BEHIATING (NEW) TO BOGIBIL (NEW) SUBSTATION

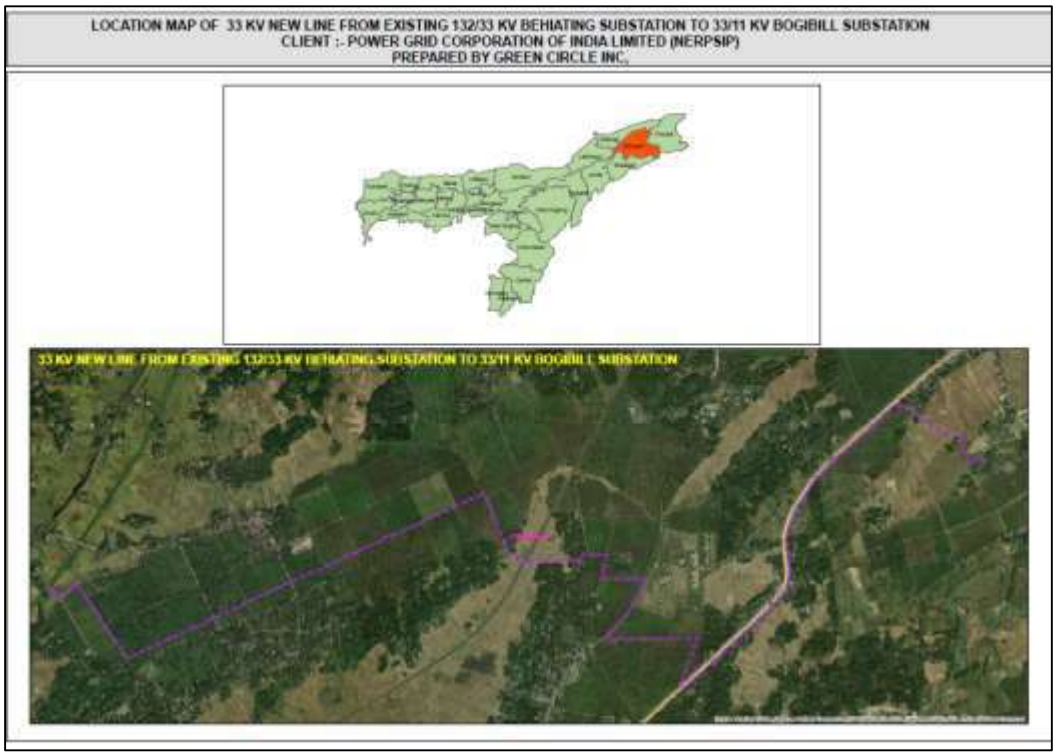


FIGURE 4-10 GOOGLE EARTH MAP OF 33 KV LINE FROM BEHIATING (NEW) TO BOGIBIL (NEW) SUBSTATION

4.3.2.4. 33kV line from 220/132kV Behiating (New) to 33/11kV Dibrugarh (New) substation

A total of 217 poles carry 33kV line from Behiating (new) to Dibrugarh (new) substation. Major part of this line crosses tea garden and roads. However, this line crosses railways, ponds, canals, drains, brick roads, wet lands etc. The details of line features are provided in table 4.7 and figure 4.11, while figure 4.10 shows map of this line. The details of GIS route survey map provided in **annexure A5** & features of electric line provided in **annexure B5.**

TABLE 4-7 DETAILS OF FEATURES OF 33KV LINE FROM BEHIATING (NEW) TO DIBRUGARH (NEW) SUBSTATION

Sr. No.	Feature Class	Area In ha.	% of Area
1.	Electric Substation	3.99	7.38%
2.	Tree Crops and Groves	1.11	2.05%
3.	Metal Road	10.58	19.56%
4.	Vacant Land	7.02	12.98%
5.	Fallow Land	5.57	10.29%
6.	Agriculture Land	6.89	12.74%
7.	Pond/Lake	0.38	0.70%
8.	Tea Garden	10.31	19.05%
9.	Waste Land	1.09	2.02%
10.	Bricks Road	0.5	0.93%
11.	Canal	0.33	0.61%
12.	Drain	0.05	0.08%
13.	Mud Road	0.05	0.09%
14.	Low Wet Land	1	1.85%
15.	Railway	0.13	0.24%
16.	Wet Land	0.27	0.49%

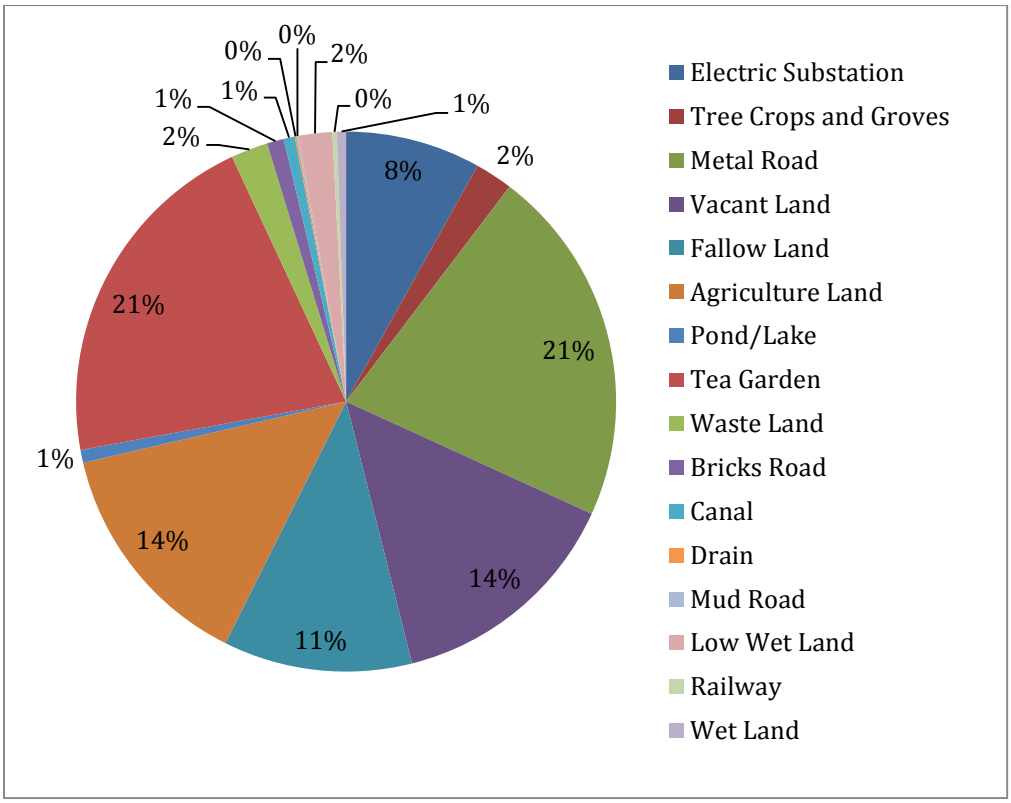


FIGURE 4-11 DETAILS OF FEATURES OF 33KV LINE FROM BEHIATING (NEW) TO DIBRUGARH (NEW) SUBSTATION

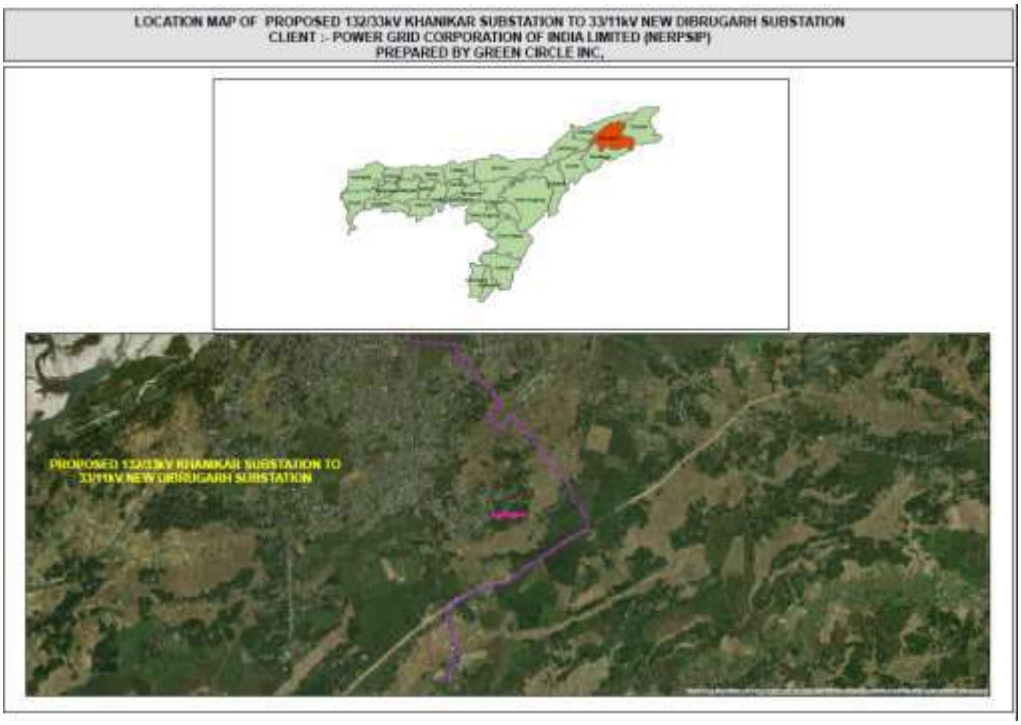


FIGURE 4-12 33KV LINE FROM 220/132KV BEHIATING (NEW) TO 33/11KV DIBRUGARH (NEW) SUBSTATION

4.3.3. Photos of Substations

FIGURE 4-13 BOGIBIL SUBSTATION

FIGURE 4-14 BEHIATING SUBSTATION

FIGURE 4-15 ROMAI SUBSTATION

FIGURE 4-16 NEW CHAPAKHOWA SUBSTATION

4.4. Project Impacts

4.4.1. Summary of Impacts:

On the basis of analysis of final route of transmission & distribution lines and locations of substations, following is the summarized information of impacts of this project (Table No. 4.8).

TABLE 4-8 SUMMARY OF IMPACTS

Sr. No.	Parameter	Extent of Impact
1.	Total Line length TL= 91.31Km DL= 42.09 Km	**Transmission Line:** There is no change in the length of transmission line **Distribution line:** The 33 kV line from 132/33 kV Chapakhowa (New) to 33/11kV Chapakhowa (Existing) substation was having 6.97 Km length but, final route length is **2.617 Km** and there is reduction of 4.36 Km The 33 kV line from 132/33kV (Existing) Dibrugarh to 33/11kV Romai (New) substation was having 20.9 Km length. Final route length is **16.96 Km** and there is reduction of 3.94 Km The 33kV line from 220/132kV Behiating (New) to 33/11kV Bogibil (New) substation was having length of 9.2 Km. Final route length is **13.2 Km** and there is increase of 4.0 Km 33kV line from 220/132kV Behiating (New) to 33/11kV Dibrugarh (New) substation having 8.2 Km length as per initial survey, and final route length is **9.314 Km** and there is increase of 1.1 Km Though, the final route length of some distribution lines has increased, there is no additional impact of any kind on the environment not identified. Changes in final route length have been made so as to avoid or minimize environment and social sensitive areas.
2.	Terrain	100% Plain
3.	Forest land traversed (km)	NIL
4.	Forest type	NA
5.	Forest density	NA
6.	Rare/endangered flora	No rare/endangered flora found in project area.

Sr. No.	Parameter	Extent of Impact
7.	Rare/ endangered fauna	No rare/endangered fauna habitat found in project area.
8.	Migrating Wildlife/ breeding ground	NA
9.	National Park / sanctuaries	No protected areas involved
10.	Wet land traversed	None
11.	Soil Erosion Vulnerability	Low
12.	Historical / Cultural monuments	None
13.	Relocation of villagers	None
14.	Affected Structures	None
15.	Temporary Damage to Crop	The loss is negligible and temporary and it can be recovered later
16.	Loss/ Hindrance to Public Utilities	Negligible, restricted to construction phase only

5. Potential Environmental Impacts, Evaluation and its Management

5.1. Introduction

The environmental impacts of T & D line projects are generally localized to Right of Way (RoW) (Table 5.1). However, T & D line projects may affect natural and socio-cultural resources. All possible care is taken during finalizing route alignment as described previously to minimize the effect of T & D line project on environment and people. This chapter discusses possible environmental impacts and measures taken to minimize them.

TABLE 5-1 ROW WIDTH AND CLEARANCE BETWEEN CONDUCTOR AND TREES

Transmission Voltage	Max. RoW (m)	Min. Clearance (m) between conductor & Trees
220 kV	35	**4.6**
132 kV	27	**4.0**
33 kV	**15**	**2.8**

5.2. Impact due to project location and design:

5.2.1. Resettlement

For this project, land is required for erection of towers/ pole for transmission and distribution lines and construction of substations. During line routing stage itself all measures have been undertaken 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. Moreover, the project does not require any resettlement of villagers as no land is acquired for tower/pole foundation as per existing law.

The present project includes construction of **four** new substations. Land for proposed new 220/132 kV substation at Behiating (within the campus of existing Behiating substation), augmentation of 220/132 kV at Tinsukia & augmentation of 132/33 kV substation at Rupai are already in possession with the AEGCL. However, fresh land required for establishment of one (1) new 132/33 kV substations at Chapakhowa and one nos. of 33/11 kV substations at Romai, Bogibil and Dibrugarh Electrical SD-3 for which required land has already been identified by AEGCL/APDCL. Procurement of land done on "willing buyer willing seller" basis on market/negotiated rate. So, there is no involuntary acquisition of land done for this

project. Details of substations provided in the baseline data & change in place of some substations has been mentioned in chapter 4.

5.2.2. Land value depreciation

The electric power acts as a catalyst for the growth and development of areas having accessibility to it. Based on previous experiences, land prices are generally expected to rise in the areas receiving power. In the present project, transmission lines pass through agriculture fields, private plantation area 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 are primarily intended to provide power supply to populated area which boosts the economic status as well as land price of the area, thus, outweighing possible negative impacts, if any.

5.2.3. Historical or cultural monuments

Final routes of transmission and distribution line and sites for construction of new sub stations don't involve any monuments of historical or cultural significance.

5.2.4. Encroachment into precious ecological areas

All the precautions have taken right from the planning stage itself to avoid routing of line through forest, protected areas like national parks etc. The forest area covered under Forest (conservation) Act, 1980 has been completely avoided with careful selection of route alignment; therefore, provisions of the Forest (conservation) act, 1980 shall not prevail (Figure 5.1). In case of felling of trees in non-designated areas, that is areas under control of individuals/communities/village councils, mitigation measures as referred in ESPPF shall be undertaken.

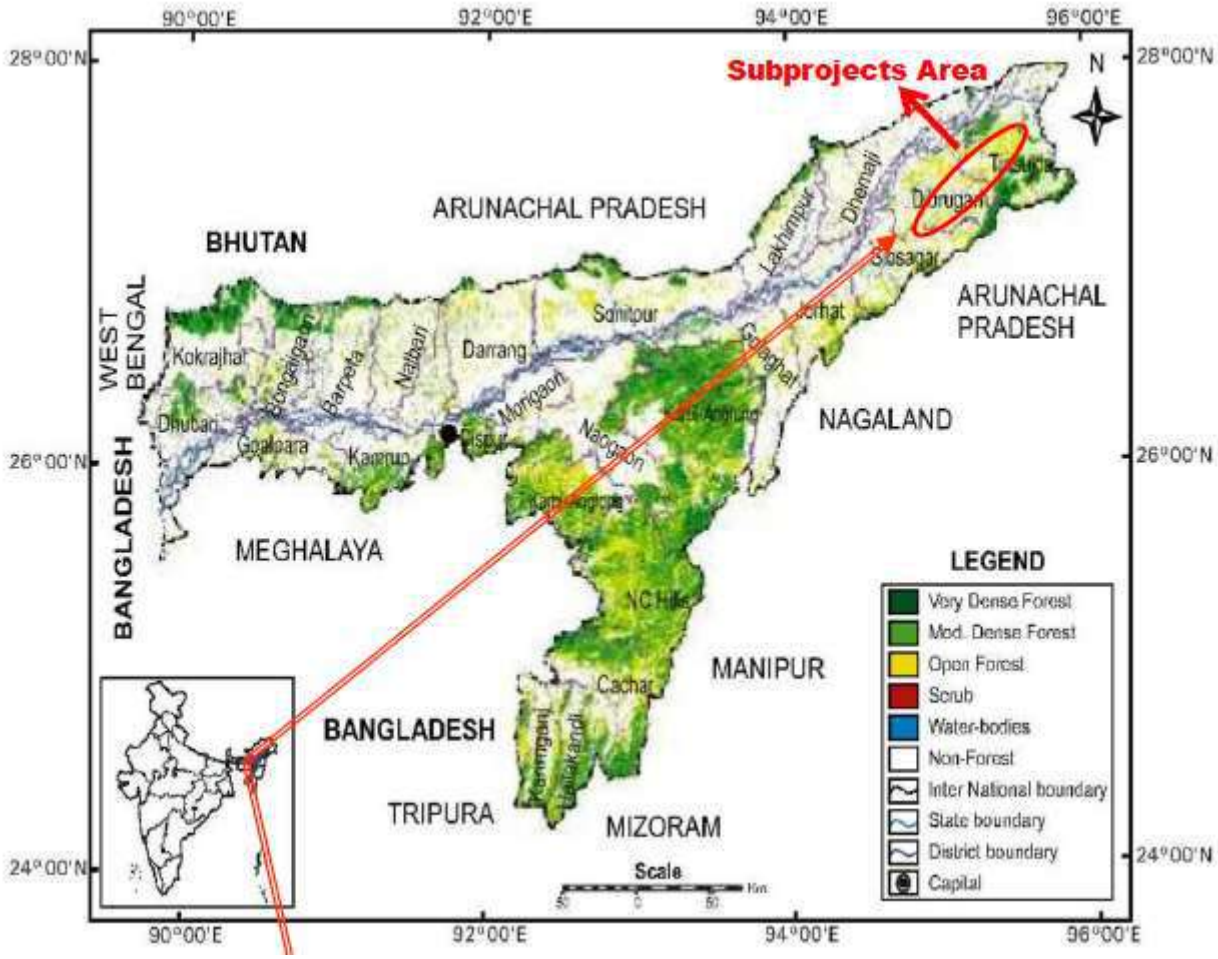


FIGURE 5-1 MAP OF PROJECT SITE

FIGURE 5-2 A PHOTOGRAPH SHOWING POLES OF BEHIATING-BOGIBIL 33 KV LINE IN WHICH A TREE IS PREVENTED FROM CUTTING

5.2.5. Encroachment into other valuable lands

The final route of transmission and distribution line passes through agricultural land (49%, 386.46 Ha), through private plantation such as tea gardens (22.67%, 178 ha). 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.

Due to the realignment of the TL / DL lines by avoiding crossing residential, commercial area, water bodies etc. the impact severity and probability is reduced, overall the TL/DL lines, S/S, won't affect the natural movement of animals, social life of people and environmental conditions of the project area.

The tower locations will require small land area of which is generally less than 10% of the land area owned by any of the land owners along the transmission route. This is termed as insignificant impact under both the Government of India norms. The impact also indicates that the total area required for the tower is scattered, thus, justifying the fact that there will be insignificant impact on the local population due to the project development. As per existing laws, compensation for all damages (tree/crop) paid to the individual land owner. Additionally, land compensation as per MoP guidelines paid to land owner as per prevailing practices. The details of loss of land because of erection of towers/poles provided in table no. 4.9

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, compensation for tree and crop damages are paid being paid to the individual land owners as per compensation procedures laid in As per ESPPF Further, in line with the MOP guidelines of October 2015 and subsequent notification by Govt. of Assam adopted the MOP guidelines of Oct.' 2015 on land compensation for tower footing and RoW Corridor on 10th March 2017 which provides for payment of 85% and 15% of land value towards compensation for land coming under tower base and line corridor respectively. Till date, Rs. 0.52 million compensation paid for tower base & Rs. 2.98 million compensation paid for tree/crops for 132 kV Rupai-Chapakhowa line. In case of 220 kV Tinsukia-Behiating line, Rs. 1.28 million compensation paid till date.

Once the tree/crop is removed / damaged, AEGCL shall issue a tree cutting/crop damaged notice to the land owner with a copy to the Revenue Officer to process the compensation payment. Based on the above the compensation payment is generated by means of a computerized program developed by the National Informatics Center exclusively for this purpose. The detailed Valuation statement thus generated using this program is verified at various levels and approval of payment of compensation is accorded by the concerned District Collectors.

On approval of compensation, the revenue officer shall further intimate the amount payable to the different landowners and AEGCL arranges the payment by way of Demand Draft/Cheque to the affected parties. The payment is further disbursed at the local village office after due verification of the documents in presence of other witnesses. 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-1**. The budget estimation of crop/tree compensation provided in **Annexure 13**.

5.2.6. Interference with utilities and traffic

As per regulations, it is mandatory for IA/utility to seek clearance prior to construction from land of Indian Railways, Posts and Telegraphs department, Ministry of Aviation wherever necessary. The transmission and distribution lines do not interfere with telecommunication towers. But, the T & D lines cross railway tracks. The permissions necessary for the crossing of railway track have been taken by the IA. The T & D lines interfere with aviation routes and national highways, so communication has made with concern authorities for permission. Details of permissions/NoC pending or approved provided in the table no. 3.3 and **Annexure 5.** Google earth images & photographs of railway crossings are as follows:

FIGURE 5-3 GOOGLE EARTH IMAGE OF BG RAILWAY CROSSING ON BEHIATING-BOGIBIL LINE

FIGURE 5-4 BG RAILWAY CROSSING ON BEHIATING BOGIBIL ELECTRIC LINE

FIGURE 5-5 BG RAILWAY CROSSING ON BEHIATING TO NEW DIBRUGARH ELECTRIC LINE

FIGURE 5-6 BG RAILWAY LINE CROSSING ON NEW DIBRUGARH TO ROMAI ELECTRIC LINE

5.2.7. Interference with drainage pattern

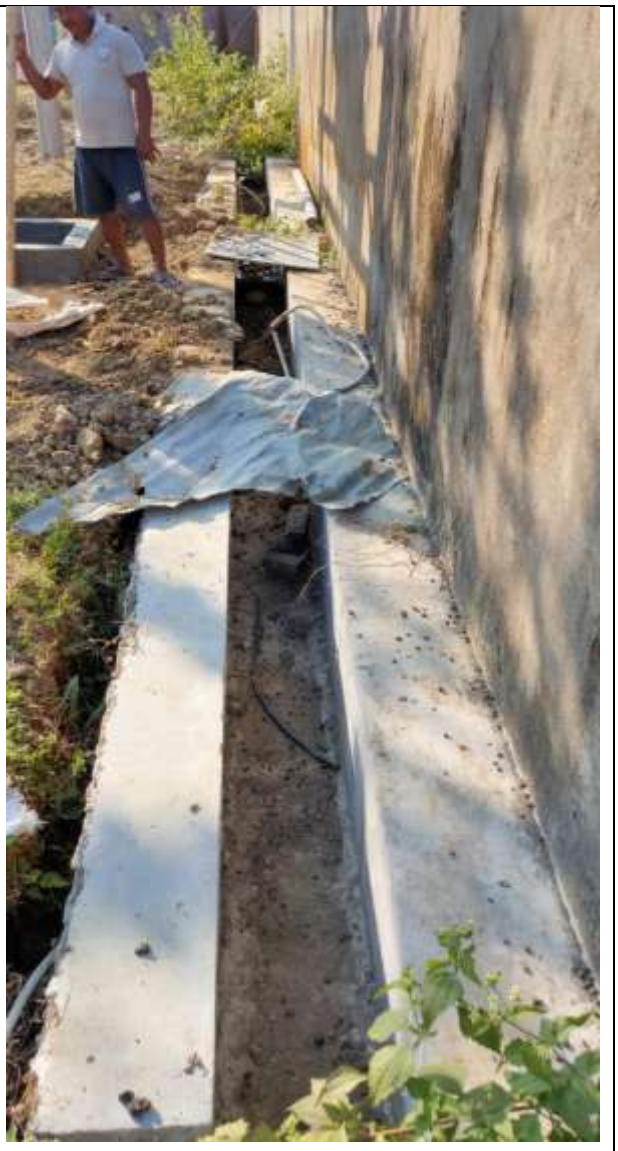
As the transmission lines are constructed aerially and the blockage of ground surface is limited to very small area of tower footings, there is little possibility of affecting drainage pattern.

Towers/ Poles and drainage pattern:

Provision of drains around the tower pad in plain area is made as the monsoon is very intense and unpredictable in this area. To avoid any interference, DC towers are being used instead DB tower as single span limit is crossed in the stretches where TL/ DL is crossing river; cross-arm strengthening has been suggested. Another measure already suggested in EMP and in place is to avoid dumping of fill materials in sensitive drainage area which will prevent flooding. In case of transmission lines passing through the Brahmaputra river, the pile foundation work is done in such a way that it will remain stable during flooding situations. So there are least chances of harm to the transmission lines due to floods. In case of distribution lines, care has been taken while surveying and flood prone areas has been avoided. The distribution lines pass from paddy field bunds or tea garden bunds and low lying areas avoided completely.

Substations and drainage pattern:

The entire project is designed on plain terrain, so there is no any chance of flooding nearby substations. Adequate measures have been taken to avoid manmade flooding because of construction of substations. All drainage channels along or inside substations are being trained and connected to main or existing drainage to avoid any erosion due to uncontrolled flow of water. Same can be observed from the figure 4.12-4.14 (Refer Annexure 6). The yearly flooding from backflow of tributaries or overflowing of major River in project districts does not harm substations as necessary care has been taken while survey and flood prone regions avoided for construction of substation. For example, in case of 132/33 kV Chapakhowa substation, the earlier location was in low lying area (27º52’54.32”N, 95º44’47.13”E) which is later relocated in same locality which is 4.5 km north from earlier location (27°55'15.02"N, 95°44'20.62"E). The photographs of drainage provisions made at various substations are as follows:



Drainage Provision at Bogibil Substation

Drainage Provision at Dibrugarh Substation

Drainage Provision at Romai Substation

FIGURE 5-7 PHOTOGRAPHS OF DRAINAGE PROVISIONS AT VARIOUS ELECTRIC SUBSTATIONS

5.2.8. Impact on nearby water bodies

During construction limited quantity of excavated material will be generated from tower/pole foundations and substation foundation. However, adequate measures are taken to store excavated materials properly for refilling after construction is over. Further, excavation in the undulated areas is avoided in rainy season. Hence, uncontrolled silt run off is not anticipated.

The 33 kV line from 132/33kV (Existing) Dibrugarh to 33/11kV Romai (New) substation goes nearby water bodies at SP-93 to SP-97 and DP 10 pole locations. But adequate measure taken while erecting poles to avoid flooding situation such as the excavated material leveled off to avoid flooding.

There are 09 transmission tower locations for 132 kV Rupai - Chapakhowa transmission line requiring pile foundation across the Brahmaputra river. The pile locations are near the famous Dhola-Sadia Bridge towards the downstream side of the bridge. The detail of drilling waste management plan is provided in **Annexure 13**.

FIGURE 5-8 GOOGLE EARTH IMAGE OF RIVER CROSSING OF RUPAI CHAPAKHOWA ELECTRIC LINE

Pile foundation work at Brahmaputra river for construction of 132 kV Rupai-Chapakhowa Electric Line

FIGURE 5-9 PHOTOGRAPHS OF PILE FOUNDATION WORKS IN BRAHMAPUTRA RIVER

5.3. Environmental Problems Due to Design

5.3.1. Escape of polluting material

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.

5.3.2. Explosion and fire hazards

During the survey and site selection for 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 also the route and substations are not located close to the vicinity of oil/gas pipelines or other installations with potential fire/ explosion hazard. Apart from this, state of art safety instruments, fire safety equipment and firefighting design have been included in the design in the substations on both the ends, so that, the line gets tripped within milliseconds in case of any fault.

5.3.3. Soil erosion and contamination

Construction of each 132kV tower and 33 kV pole foundations involve generation of approx. 108 m^3 and 0.72 m^3 excavated earth respectively. Similarly, each 132/33 kV & 33/11 kV substation would generate approx. 7500 m^3 and 2000 m^3 excavated earth respectively. So, construction of 348 towers generates 37584 m^3 earth and 1059 33kV poles generate 1059 m^3 earth.

It has been observed that soil excavated for tower/pole footings and substations construction are optimally utilized for backfilling and the remaining soil being spread evenly and compacted. Top soil 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. Additional soil will be used to maintain plain area. Moreover, the project is being implemented in plain area only and hence, possibility of erosion hazard is not anticipated from any of the project site.

5.3.4. Environmental Aesthetics

Environmental aesthetics won't affect because spacing between the towers/poles in case of 220/132kV transmission & 33kV distribution lines is approximately 300 mtr and 100 mtr respectively. While survey of route, it is ensured that the lines should be as far away from

the localities as possible. AEGCL / APDCL takes up plantation of trees to buffer the visual effect around its substations and to provide better living conditions.

5.3.5. Noise/Nuisance vibrations

The equipments installed at substation are mostly static and are so designed that the noise level always remains within permissible limits. In line with the above in the technical specification of transformer maximum noise level of 75 dB has been specified. DG set with proper enclosures is part of equipment specification/ design criteria. 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.

5.3.6. Blockage of wildlife passage/Impact on avifauna

The T&D lines of this project do not pass through any type of forest, elephant corridor, wildlife area. Hence, possibility of any disturbance to wildlife is not imminent. There is no fly path of migratory birds observed near the project area. Since in the instant case due to routing of line away from such areas, bird hit/electrocution is not anticipated. Although the incidence of avian hazards is rare due to the distance between the conductors, however, as an additional measure to prevent any avian hazards, bird guards/ anti perch devices are part of BoQ and also integral part of tower design (Please refer to **Annexure 7).**

5.4. Environmental Problems during construction phase

5.4.1. Uncontrolled Silt Runoff

To prevent the soil erosion during construction phase, balance cutting & filling practice has been observed to minimize risk of soil erosion & topsoil is restored immediately after construction activity is over. During construction limited quantity of excavated material is generated from tower/pole foundations and sub-station foundation. However, adequate measures have been taken to store excavated materials properly for refilling after construction is over.

It has been observed that all tower/pole and substations are located on flat land. Hence, the excavated material from tower foundations have 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, the substation towers are all of equal leg footing. All 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. 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 (please refer the image below). The substations are not located in the vicinity of water bodies or ecologically sensitive areas.

FIGURE 5-10 A PHOTOGRAPH SHOWING BOUNDARY WALL OF BEHIATING SUBSTATION

5.4.2. Nuisance to nearby properties

During site selection due care is taken to keep the transmission & distribution lines and substations away from settlements. Further, construction activities are mostly undertaken through the use of small mechanical devices e.g. tractors and manual labour therefore nuisance to the nearby properties if any, is not expected. All the substations have a proper boundary wall which prevents nuisance to neighboring properties.

FIGURE 5-11 A PHOTOGRAPH SHOWING BOUNDARY WALL OF ROMAI SUBSTATION TO AVOID NUISANCE TO NEARBY PROPERTIES

5.4.3. Dust emission due to construction activities & vehicular movements

Exposed soils are compacted easily for prevention of dust emission due to construction activities. Sprinkling of water spray vulnerable area and covering transporting vehicles to avoid spillage of materials along with controlled speed measures have been observed in project site. Use of personal protective equipment and proper scheduling of transportation of materials are being undertaken to minimize and mitigate any adverse impact on construction materials.

5.4.4. Traffic and Blockage of Local Access way during construction activities

The project will lead to an increase in vehicles movements on existing road routes and waterways during construction due to the transportation of construction equipment, personnel, construction materials and excavated material. The proposed construction locations are well connected through road network and river waterways and hence construction of approach roads for transport is not necessary either during construction or as a part of maintenance procedures. The T&D lines do not interfere with telecommunication

towers. Where transmission line crosses any road/ railways line, adequate precautions is taken so as not to cause any hindrance to the movement of traffic.

Stringing at the construction stage is planned to carry out during lean traffic period (both road and waterways) in consultation with the concerned authorities and angle towers are planted to facilitate execution of work in different stages. Apart from this, safety precaution like barricading of work area and placement of visible signage is undertaken to avoid any unforeseen incident.

5.4.5. Water Quality deterioration during pile foundation construction of Transmission line:

In the project transmission towers pile foundation construction is required in River. Drilling in the Basin of Brahmaputra River to the downstream of Dr. Bhupen Hazarika Setu was done to erect transmission towers of Rupai Chapakhowa 132 kV line. The drilling work was undertaken by M/s Meher Foundation & Civil Engg. Pvt. Ltd.

Total 09 towers (AP 30/1 to AP 30/9) were erected in the Brahmaputra river bed. Total 16 piles required for each tower location and 144 piles required for all the towers erected in Brahmaputra River. The average depth of pile ranging between 32.40 mtr to 34.60 mtr. The boring for pile was done using direct mud circulation method.

For boring, the drilling chemical used was Sodium based Bentonite. This is a nontoxic chemical. While drilling in the river bed, no harm was observed to the environment and river ecosystem. A proper drilling waste management was done, whose waste management plant is attached in the annexure.

The Brahmaputra River hydrology is heavily influenced by monsoon rains which increases the amount of water and the force of the flows of the Brahmaputra river basin. The water level in the river fluctuates significantly with the season. The lean period last only for about 120 days i.e. December to March.

During construction, the inorganic loading of the river may increase slightly on account of introduction construction material to the river system. Substantial amount of deposition of construction material such as cement take place during construction activities. The construction activities also involve disposal of slurry resulting due to excavation activities. However, the impact is found short term in nature and is compensated by construction of cofferdam.

To mitigate the issues, construction methodology including transportation of concrete in river Construction has been carefully planned in such a way that the safe levels of foundations are reached during that period itself. The concrete required for construction of foundations is transported to the foundation well either through pipelines across the river channel or by floating barges towed by tugs. Also the prefabricated tower material is procured from the nearest source and is transported to the pile / tower location by waterway through barges / big vessels to avoid transport issues.

5.4.6. Noise generation from construction activities

Generally, machineries and vehicular movements generate noise during construction activities. It has been found that construction works at substation are potential to generate noise levels higher than the background noise as compared to construction activity of lines. Since construction sites are quite far from settlement/other sensitive receptors like school, hospitals, possibility of any direct impact to surrounding community is not anticipated. Moreover, all these activities are being undertaken during day time only. To prevent any adverse impact, staffs/workers engaged in construction activity are equipped with personal protective equipments like earmuffs/ earplugs Besides; construction techniques like use of low noise producing equipments /machinery selection and their proper maintenance of equipments/machinery are practiced by construction contractors which is also evident from the fact that noise levels reported/ measured during site visit are well within the prescribed limits.

5.4.7. Inadequate resurfacing for erosion control

As explained in earlier sections, major portion of lines are passing through plain area. Hence, no major impacts with respect to soil erosion & slope protection like revetment/ retaining/ toe wall etc. are required/ anticipated. Although substations are located on flat land, boundary wall is constructed at Romai and Behiating substation (refer Figure 5.10 and 5-11) based on site requirement/conditions and subsequent technical approval.

Excavated material and sites are stored and covered immediately to prevent washout and erosion. Designated areas for stockpiling are provided with silt traps are in the surface drainage system. Please refer figure 4.12-4.14.

5.4.8. Inadequate disposition of borrow area

The tower/pole foundations involve excavation on small scale basis and the excavated soil is being optimally utilized for back filling. 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. In case of S/S the excess earth will be used for leveling the surrounding area to the extent possible and the excavated part for the poles & towers will be entirely used for refilling. By implementing this mitigation measure all the statutory requirements will be complied.

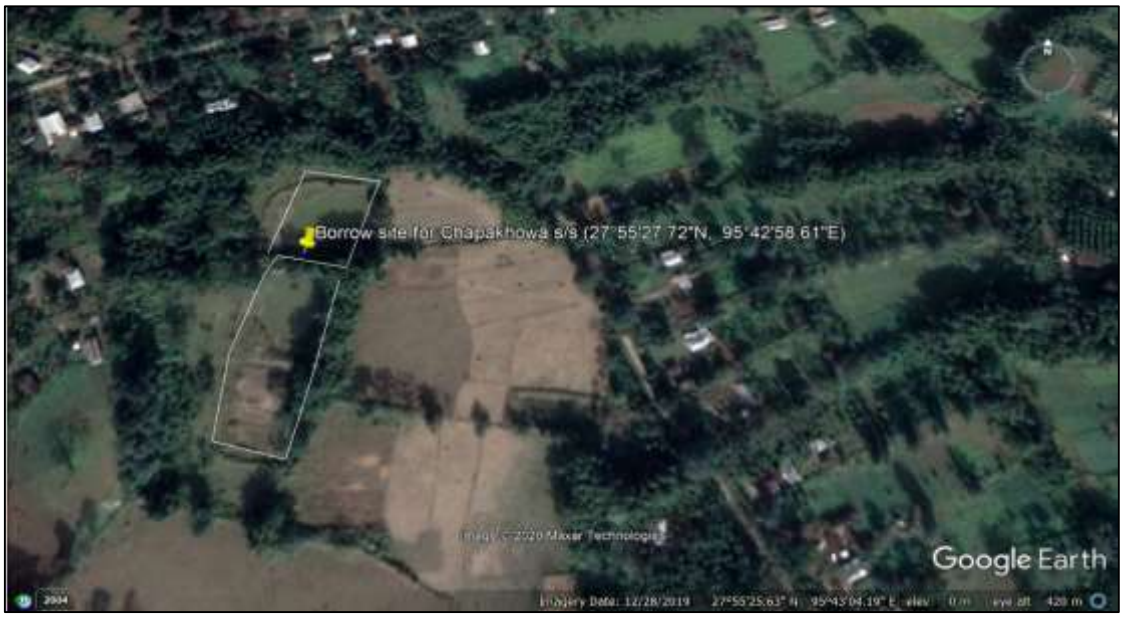
A photo showing excavation for construction of a pole for 33 kV Dibrugarh- Romai distribution line

A photograph showing pole base on Behiating- Bogibil 33 kV distribution line

FIGURE 5-12 PHOTOGRAPHS SHOWING EXCAVATIONS FOR POLE ERECTION AND POLE BASE AFTER COMPLETION OF ERECTION

Borrow sites for Behiating substation

FIGURE 5-13 EXISTING REGISTERED BORROW SITE FOR BEHIATING SUBSTATION



Borrow site for Chapakhowa substation

FIGURE 5-14: BORROW SITE FOR CHPAKHOWA SUBSTATION

5.4.9. Protection of workers health and safety

The health and safety issues and its management aspects related contract workers/labours have been made integral part of project through contract specific safety plan. Accordingly,

construction contractors have submitted their Safety Plan duly signed before award of each contract under the project. A sample copy of Safety Plan submitted by M/s Power Mech Projects 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. 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 labour license as per provision under section – 12(1) of the Contract Labours (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 labour license and insurance policy for workers is attached as **Annexure-12**.

It has been observed that construction contractors are following the safety guidelines/checklists including work permits and safety precautions during construction stage which are also being regularly monitored strictly by site in-charge. Sample copy of filled in checklist is enclosed as **Annexure-10.**

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 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. Safety induction & awareness program including HIV/AID are also conducted at every active site. Work sites and quarters were fumigated to avoid Covid 19 risk to the workers. Awareness program on Covid 19 at 33 kV Dibrugarh Substation was carried out by the construction contractor to prevent Covid 19 infections. Distribution of essential food materials at Chapakhowa substation was done during lockdown period. Photos of health and safety measures taken at the work sites are as follows:

A worker at 132 kV Rupai Chapakhowa electric line works wearing safety helmet.

Workers wearing safety helmets while working at a transmission line site

Awareness program on Covid 19 at 33 kV Dibrugarh Substation

Distribution of essentials at Chapakhowa substation

Sanitization at 132 kV Behiating substation

FIGURE 5-15 PRECAUTIONS TAKEN BY THE CONTRACTOR FOR HEALTH AND SAFETY OF WORKERS

5.5. Environmental problems during operational phase

5.5.1. O & M Staff/Skills less than acceptable resulting in variety of adverse effects

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 and 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. Especially at sub-station sites vulnerability to flooding and adequacy of design measures have been considered and taken care of and is adequate to address potential impacts. Raising the plinth level of S/S with proper storm water distribution layout reduces flood risk to the structures.

The S/S will have adequate height from the ground and proper storm water distribution system or layout will help to dispose-off the storm water collected in the S/S premises, further creating recharge or percolation pits will help to recharge the ground water table. As per our observation, no any substation is vulnerable to flooding. Adequate measures are taken while selecting location of substations to avoid flooding hazards.

5.6. Critical Environmental Review Criteria

5.6.1. Loss of irreplaceable resources

Problem of losing natural resources is not envisaged as this project doesn't involve any forest area, protected areas, and ecologically sensitive areas. The S/S and TL / DL lines including poles & towers locations are so planned that there will be no or minimal interference in environmental conditions as by avoiding protected forest area and ecological sensitive area, residential & commercial area, agricultural area, water bodies as pond. Lake, river and animal pass or corridors, wherever possible realignment of the route has been considered to minimize the environmental impacts and maintaining social and economic aspects.

5.6.2. Accelerated use of resources for short-term gains

The construction material for example tower members, cement etc. come from factories while the excavated soil finally reused for backfilling to restore the surface. There will be no significant impact on the natural resources occurring due to proposed transmission/distribution lines and substations. The aggregates used for construction are sourced locally existing borrow sites only without creating any new borrow area. Small quantity of water is required for construction activity and domestic use which is being met from nearby existing source or Bore well. Thus the project shall not cause any accelerated use of resources for short-term gains.

5.6.3. Endangering of species

As per wildlife act, 1972 schedule – I species of flora & fauna do exist however this project has proper environmental management plan including ecology and biodiversity conservation. But, as described earlier, no endangered species of flora and fauna exist in the subprojects area is getting affected thus there is no possibility of endangering/causing extinction of any species. The T & D lines majorly passing through paddy fields, so there is no any chance of endangering flora because of this T & D project. As there is no any habitat of fauna observed nearby the T & D route, endangering of fauna is not possible. The entire project is biodiversity friendly and it will not harm nature of the particular subproject area. The wild life has not been affected due to this project as no elephant corridors are crossed nor any animal habitat observed in the RoW of alignment route.

5.6.4. Promoting undesirable rural-to urban migration

The subprojects will not cause any submergence or loss of land holdings that normally trigger migration. It also does not involve acquisition of any private land holdings. Hence, there is no possibility of any migration.

5.7. Other Impacts:

5.7.1. Impact of Transmission and Distribution Lines

Acquisition of any private land for construction of transmission or distribution line is not necessary for this project. Because, the route alignment is designed considering the habitation areas, forest areas etc. Therefore, physical displacement is not necessary. However, some social impacts due to construction of lines or placing of towers and poles may be seen, but they are temporary. For instance, loss of standing crops/trees etc. lasts during construction phase only. Care has been taken by the contractors to avoid unnecessary loss of crops.

5.7.2. Type and use of land within RoW

The major land occupied by T&D lines is agricultural which counts 386.46Ha. Brick roads were covered on 11.14 Ha areas in RoW. Total of 36.51 ha Tree, crops and groves were covered by T&D lines. Transmission line RoW covers 332.42Ha agricultural land, while, distribution line RoW covers 718.88 Ha land. Trees crops and groves are covered on 30.24 Ha land under Transmission line RoW, and 6.27Ha under RoW of distribution line. Details of land use are provided in following table.

5.7.3. Impact on soil and surface geology

There is no hilly area at the project site. As, the project area is 100% plain, there is no impact on soil and geology as the excavated pit material is stacked properly and back filled as well as used for resurfacing purpose.

5.7.4. Impact of tower base and pole on land

As per the assessment carried out in Compensation Plan for Temporary Damages (CPTD) by PGCIL, the land required for erection of tower legs is very small i.e. for each leg of tower actual construction a small square area with side length ranging from 0.20 to 0.30 meter required depending on the types of tower. Four such square pieces of land will be required to place the legs of tower. The area that becomes unavailable because of the erection of tower legs for an average 132 kV D/C transmission tower ranges from 0.16-0.36 sq m of land. Thus, the actual impact is restricted to 4 legs of the tower and agriculture can continue as clearly depicted in the Figure below. In case of 33 kV distribution line area that becomes unavailable because of the erection of pole is insignificant as approx. 1 sq. ft. land area is occupied for one pole (please refer figure below). Due diligence confirms that land is either agricultural or barren, and current land use is not altered and resumed after construction.

TABLE 5-2 DETAILS OF LAND USE OF PROJECT AREA (T&D LINES)

Sr. No.	Feature Class	Transmission Line Area (in Ha)			Distribution Line (Area in ha)					
		Rupai chapakhowa 132 kv line	Tinsukia to Behiating (new dibrugarh) 220kV line	Sub Total	Chapakhowa new to Chapakhowa (New) to Chapakhowa (existing) substation	33kV line from Dibrugarh to Romai	33kV line from Behiating (New) to Bogibil (New) substation	33kV line from 220/132kV Behiating (New) to 33/11kV Dibrugarh (New) substation	Sub Total	Total Area (in Ha)
1	Agriculture Land	142.04	190.38	332.42	4.62	37.68	4.85	6.89	54.04	386.46
2	Bricks Road	1.03	1.81	2.84	0	6.17	1.64	0.5	8.31	11.15
3	Bricks Kilns/Quarry	0.6	3.44	4.04	0	0	0	0	0	4.04
4	Canal	0.1	0	0.1	0	0	0.05	0.33	0.38	0.48
5	Drain	1.15	0.89	2.04	0	0.22	0.63	0.05	0.9	2.94
6	Electric Substation	3.65	8.2	11.85	3.36	1.55	4.33	3.99	13.23	25.08
7	Fallow Land	7.31	13.65	20.96	0.18	4.68	3.13	5.57	13.56	34.52
8	Fishing Pond	0	0	0	0	0.06	0	0	0.06	0.06
9	Grazing Land	5.56	0	5.56	0	0	0	0	0	5.56

Sr. No.	Feature Class	Transmission Line Area (in Ha)		Sub Total	Distribution Line (Area in ha)				Sub Total	Total Area (in Ha)
		Rupai chapakhowa 132 kv line	Tinsukia to Behiating (new dibrugarh) 220kV line		Chapakhowa new to Chapakhowa (New) to Chapakhowa (existing) substation	33kV line from Dibrugarh to Romai	33kV line from Behiating (New) to Bogibil (New) substation	33kV line from 220/132kV Behiating (New) to 33/11kV Dibrugarh (New) substation		
10	Low Wet Land	0	0	0	0	0	0	1	1	1
11	Metal Road	1.53	4.59	6.12	2.66	14.67	2.6	10.58	30.51	36.63
12	Mud Road	0.84	1.33	2.17	0	0.08	3.5	0.05	3.63	5.8
13	Pond/Lake	0.46	2.03	2.49	0.05	1.25	0.2	0.38	1.88	4.37
14	Railway	0	0.12	0.12	0	1.12	0.03	0.13	1.28	1.4
15	River	10.82	2.81	13.63	0	0.29	0	0	0.29	13.92
16	River Sand	11.19	0	11.19	0	0	0	0	0	11.19
17	Roadside Fallow land	0	0	0	0	0	5	0	5	5
18	Stream	0.13	0.83	0.96	0	0	0	0	0	0.96
19	Tea Garden	36.25	101.89	138.14	0	13.62	16.81	10.31	40.74	178.88
20	Tree Crops and Groves	14.29	15.95	30.24	0	3.98	1.19	1.11	6.28	36.52
21	Vacant Land	1.24	1.95	3.19	0.54	2.08	0.63	7.02	10.27	13.46
22	Waste Land	2.57	0	2.57	0	0.65	0.62	1.09	2.36	4.93

Sr. No.	Feature Class	Transmission Line Area (in Ha)		Sub Total	Distribution Line (Area in ha)				Sub Total	Total Area (in Ha)
		Rupai chapakhowa 132 kv line	Tinsukia to Behiating (new dibrugarh) 220kV line		Chapakhowa new to Chapakhowa (New) to Chapakhowa (existing) substation	33kV line from Dibrugarh to Romai	33kV line from Behiating (New) to Bogibil (New) substation	33kV line from 220/132kV Behiating (New) to 33/11kV Dibrugarh (New) substation		
23	Wet Land	0	4.4	4.4	0	0	0	0.27	0.27	4.67

FIGURE 5-16 A PHOTOGRAPH SHOWING TOWER BASE ON RUPAI CHAPAKHOWA TRANSMISSION LINE

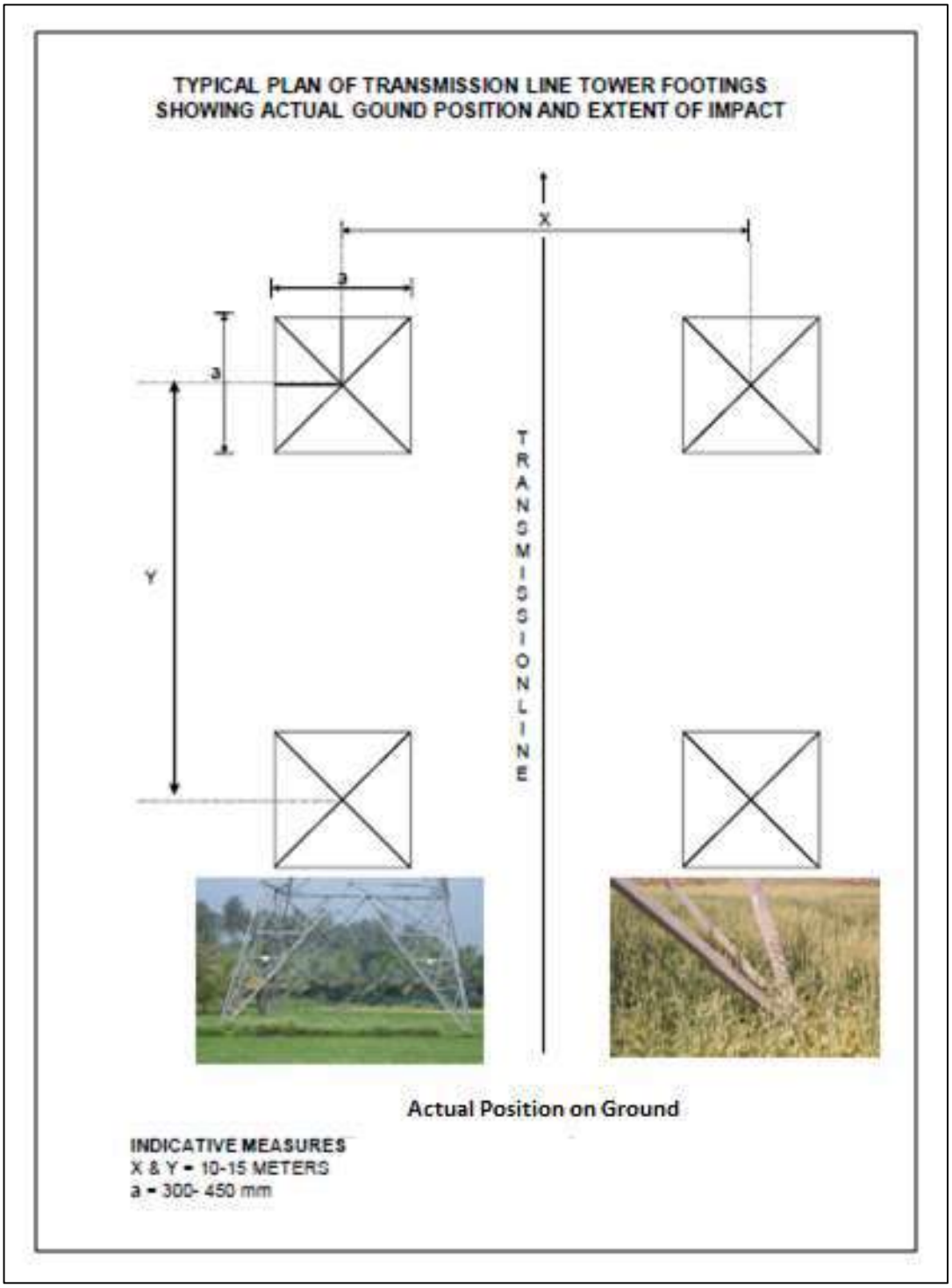


FIGURE 5-17 TYPICAL PLAN OF TRANSMISSION LINE

TABLE 5-3 ESTIMATION OF ACUTAL LAND LOSS BECAUSE OF TOWER AND POLE BASE

Sr. No.	Name of line	Line Length (km)	Total Tower/Pole (Nos.)	Land Loss per tower/pole base (sq m)	Total land loss area for tower & pole base (sq. m.)
A Transmission Line					
1.	Rupai – Chapakhowa 132 kV S/C on D/C line	**41.7 Km**	160	0.25	40
2.	Tinsukia–Behiating (New Dibrugarh) 220 kV D/C line	**49.61 Km**	188	0.25	47
B Distribution Lines					
1.	33 kV line from 132/33 kV Chapakhowa (New) to 33/11kV Chapakhowa (Existing) substation	**2.617 Km**	56	0.092	5.152
2.	33 kV line from 132/33kV (Existing) Dibrugarh to 33/11kV Romai (New) substation	**16.966 Km**	379	0.092	34.868
3.	33kV line from 220/132kV Behiating (New) to 33/11kV Bogibil (New) substation	**13.2 Km**	379	0.092	34.868
4.	33kV line from 220/132kV Behiating (New) to 33/11kV Dibrugarh (New) substation	**9.314 Km**	301	0.092	27.69

5.7.5. Impact on Crop area

Construction of line in crop season is avoided as far as possible. In case when installation of towers/poles impacts on agricultural activity, detailed assessment/survey is conducted looking at existing crops, general crop patterns, seasonal particulars, nature and extent of yield. Wherever necessary, permissions from tea estate owners were taken to erect towers/poles in their agricultural fields. This data is compiled and analyzed to study the extent and nature of impact.

For the temporary loss of crops, only agricultural land and private plantation land are considered for estimation. The damages are not done in complete RoW of line (35m for 220kV D/c & 27 m for 132 kV D/c) but mostly restricted to tip to tip of the conductor and tower base area where average affected width/corridor would be limited to 27 & 20 meter (maximum). In 33 kV distribution lines, damages are minimal (mostly near bi-pole/quad-pole structure) however, 10 m corridor is considered for accessing the damages. However, care was taken to reduce the damages to crops and to minimize the impacts whatsoever **(Annexure 1 & 4).**

5.7.6. Impact on Trees:

While construction of transmission lines and distribution lines fruit bearing season was avoided to prevent loss of crops. Tree compensation was calculated on the basis of tree enumeration. The total no. of trees affected is presented in following table 4.10.

TABLE 5-4 IMPACT ON TREES

Sr. No.	Name of Line	Total Trees (Nos.) affected
Transmission Line		
1.	Rupai – Chapakhowa 132 kV S/C on D/C line	14973
2.	Tinsukia–Behiating (New Dibrugarh) 220 kV D/C line	1659

5.7.7. Other Damages

Major part of T&D lines goes from agricultural fields. Habituated areas and other sensitive areas were purposely avoided to prevent damages. So, there is no possibility of damage to bunds, water bodies, etc. However, if damaged, local revenue department assess the cost of damage as per norms of Govt. of Assam and submit estimate to the competent authority for approval.

5.7.8. Impact Due to Construction of New Substation and Bay Extension

This project involves construction following new substations:

a. 33/11 kV Romai New substation

b. 33/11kV Bogibil New substation

c. 220/132kV Behiating substation

d. 33/11kV Dibrugarh New substation

These substations are being constructed on vacant lands owned by AEGCL, so there is no displacement of people for this project. Therefore, there is no any social impact on the people residing in this area. Minor improvements to paths were made to reach to the new substation, which is found useful for the local people of the particular area.

5.7.9. Impact on Indigenous People

Government of India, under Article 342 of the Constitution, considers the following characteristics to define indigenous peoples [Scheduled Tribes (ST)]:

a. tribes' primitive traits;
b. distinctive culture;
c. shyness with the public at large;
d. geographical isolation; and
e. Social and economic backwardness before notifying them as a Scheduled Tribe.

Essentially, indigenous people have a social and cultural identity distinct from the 'mainstream' society that makes them vulnerable to being overlooked or marginalized in the development processes. STs, who have no modern means of subsistence, with distinctive culture and are characterized by socio- economic backwardness, could be identified as Indigenous people. Indigenous people are also characterized by cultural continuity. Constitution of India identifies schedule areas which are predominately inhabited by such people. As, this project is directly connected with the life of local people of Assam, there is no negative impact on indigenous people because of this project. Local people are cooperating project related authorities.

5.8. Public Consultation

Public consultation/information is an integral part of the project implementation. Local public of project area is informed about the project at each and every stage of execution. During survey, AEGCL/APDCL site officials meet people and inform them about the transmission route and distribution lines. During construction of T & D lines, each and

every household is consulted on whose land tower/pole is erected. After finalizing route and during construction stage Green circle Inc. carried out public meetings. Public consultation using different technique like Public Meeting, Small Group Meeting, informal Meeting has also been carried out during different activities of project cycle by Green Circle Inc.

Major findings of the consultations carried out by Green Circle Inc. are summarized below:

- People are well aware about the project, its various components and confirmed that IA & DPN informed about the project at every stage of execution
- People confirmed that IA & DPN are taking every step possible to avoid/ minimize the environmental and social impacts along the route of transmission lines and at site of sub stations
- People confirmed that community reserves, sacred groves and community conserved areas are completely avoided while finalizing the route of lines
- People also confirmed that their common property resources such as cemetery, school, community hall, habitation areas etc. have been completely avoided while finalizing the route of lines
- People informed that staff of IA/ contractor are easily approachable and are very open to address their grievances. As a result, no written grievance has been received till date
- People are very much happy with the rate of compensation being given to them and they are being involved in the process of deciding the rate of compensation
- People confirmed that there is no disturbance of any sort to their life/ livelihood due to the construction or various other activities being carried out under the project
- Execution of project work provides opportunities to local contractors to get involved in construction, fabrication, transportation etc. activities
- Most of the sub-contracts are awarded/ being awarded to local peoples
- Contractor prefer and engage local peoples for skilled and unskilled works
- Local villagers rented out their buildings to contractor and IA for temporary offices and staff quarters in local that helps in income generation
- Wherever possible contractor and IA purchase daily need requirements for local vendors and shopkeepers that helps in economic uplifting of the area
- The contractor labour informed that they have been provided with PPEs such as boots and helmets
- Mock drills such as fire safety, first aid etc. are conducted periodically to enhance the preparedness level. Safety induction & awareness program including HIV/AID are also conducted. Safety film for transmission project in local language is shown for better awareness
- First aid boxes and provisions for treatment in case of emergencies have been arranged locally/ nearby towns
- It was revealed that contractor and IA work with close coordination with village heads and community to avoid any misunderstanding during work

Details of formal and informal consultation organized for instant project including photographs of the meeting and details of meeting are placed as **Annexure-3.**

5.9. Compliance of EMP

As already mentioned, the project is being implemented as per provisions of approved Initial Environmental Assessment Report including Environment Management Plans (EMP) to minimize/mitigate the identified impacts to the extent possible. The EMP contains mitigation measures including monitoring indicators with responsibility allocation in different stages of project cycle. For ensuring proper and effective implementation of various measures by contractors/sub-contractors engaged in construction, provisions of EMP was made part of contract condition/bidding document and its regular monitoring is ensured by IA during construction period. Any incidence of deviation/non-compliance of the applicable contract conditions result in issuance of notice/letter to concerned contractor/ subcontractor for necessary compliance and further improvement. During the present study, our team has critically assessed/evaluated the compliance measures with respect to Environment, health and safety aspects through physical inspection, verification of record/ documents/ drawing, checklists, interaction with project officials/contractor/ villagers/construction workers etc.

As impacts from project development are unavoidable, all approaches of mitigation measures are essential and needed in order to protect the affected environmental quality. Thus, this part's structure aiming to specified necessary mitigation measures that impacts are potentially contributed from project implementation during design, planning, construction and operation periods. Based on above, a detailed compliance status w.r.t. each identified impacts enlisted in EMP have been prepared and is presented in **Table 5.5**

TABLE 5-5 DETAILS OF ENVIRONMENT MANAGEMENT PLAN

Sr. No.	Project Activity/Stage	Potential Impact	Proposed Mitigation Measures	Compliance status
Pre-Construction Phase				
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 ASTMD4059
			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
				Not Applicable
3	Transmission/ Distribution	Exposure to	Line design to comply with the	**Complied with**

Sr. No.	Project Activity/Stage	Potential Impact	Proposed Mitigation Measures	Compliance status
	line design	electromagnetic interference	limits of electromagnetic interference from overhead power lines	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 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 graves, graveyard, religious worship place, monuments etc.)	Complied with. No involvement of any socially/culturally sensitive, areas.
		Soil erosion	By proper excavation method no excess earth will be disposed-off outside the area	**Complied with**
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 to possible	**Complied with** No tower/pole located in water bodies.
		Flood Risk	Adequate height of the plinth level and structures	Completed

Sr. No.	Project Activity/Stage	Potential Impact	Proposed Mitigation Measures	Compliance status
			Storm water distribution network, percolation and recharging pits	In progress
		Social inequities	Careful route selection to avoid existing settlements and sensitive locations	**Complied with.** All major settlements & socially sensitive areas like school, hospitals etc. are avoided completely.
			Minimize impact on agricultural land Careful selection of site and route alignment to avoid encroachment of socially, culturally and archaeological sensitive areas (i.e. graveyard, religious worship place, monuments etc.)	As major sections of proposed line are routed through agricultural land, construction activity is being undertaken in lean or post-harvest period to minimize impacts on agricultural production/crop damage land.
6	Securing lands for substations.	Loss of land/ income change in social status etc.	Compensation and R&R measures are extended as per provision of **RFCT LARR** Act, 2013 (Right to Fair Compensation and Transparency in Land Acquisition, Resettlement and Rehabilitation Act, 2013)	**Complied with.** Fresh land required for construction of substations secured through private purchase on willing-buyer and willing-seller basis on negotiated/market rate.

Sr. No.	Project Activity/Stage	Potential Impact	Proposed Mitigation Measures	Compliance status
7	Line through protected area/ precious ecological area	Loss of precious ecological values /damage to precious species	Avoid siting of lines through such areas by careful site and alignment selection (National Parks, Wildlife Sanctuary, Biosphere Reserves/ Biodiversity Hotspots)	**Complied with.** NA as such areas are completely avoided
			Minimize the need by using RoW wherever possible	Part of detailed siting and alignment survey/design
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** Not Applicable as there is no presence of any elephant corridor.
			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., if applicable	**Complied with.** No migratory/fly path reported. However, bird guard/ anti perch devise is part of BoQ and also integral part of tower design. We do not foresee any difficulties for the endangered avifauna because of the transmission lines, because these birds do not fly to such heights. If necessary, the threat to avifauna may be addressed in conservation plan.
9	Line through forestland	Deforestation and loss	Avoid locating lines in forest	**Complied with**

Sr. No.	Project Activity/Stage	Potential Impact	Proposed Mitigation Measures	Compliance status
		of biodiversity edge effect	land by careful site and alignment selection	Forest areas have been completely avoided.
			Minimize the need by using existing towers, tall towers and RoW, wherever possible	Part of detailed siting and alignment survey/design Invasion of alien species not anticipated
			Measures to avoid invasion of alien species	
			Obtain statutory clearances from the Government	Not applicable as there is no involvement of forest land
			Consultation with autonomous councils wherever required	
10	Lines through farmland	Loss of agricultural production/ change in cropping pattern	Use existing tower or Footings wherever possible.	**Complied with** Not Applicable
			Avoid sitting new towers on farmland wherever feasible	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 neighboring properties	Substations sited and designed to ensure noise is to 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 dBA and DG set with proper enclosures are part of equipment specification/ design

Sr. No.	Project Activity/Stage	Potential Impact	Proposed Mitigation Measures	Compliance status
				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	Environment al pollution	Transformers designed with oil spill containment systems, and purpose-built oil, lubricant and fuel storage system, complete	**Complied with.** Part of detailed equipment design /drawings. Secondary containment with sump of capacity of 200% of oil volume of largest transformer is part of detailed design.
			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 (High Flood Level)
15	Explosions /Fire	Hazards to life	Design of substations to include modern firefighting equipment	**Complied with.** Part of detailed substation layout and design/drawings. Compliance assured by site manager
			Provision of firefighting equipment to be located close to transformers	

Sr. No.	Project Activity/Stage	Potential Impact	Proposed Mitigation Measures	Compliance status
Construction Phase				
16	Equipment layout and installation	Noise and vibrations	Construction techniques and machinery selection seeking to minimize ground disturbance.	**Complied with.** Noise level monitored/reported is well within prescribed level. 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.** Scheduling of Construction activity in lean period/ post-harvest period to has minimized agricultural/crop damage. In spite of all efforts if damage is unavoidable, full compensation as per assessment of revenue authorities is being paid to land owner/farmer by IA/Utility.
18	Mechanized construction	Noise, vibration and operator safety, efficient operation	Construction equipment to be well maintained.	**Complied with.** No complaints w.r.t noise recorded so far. Noise level measured during site visits to all active sites found to be within the permissible limits (<75dBA).
		Noise, vibration, equipment wear and tear	Turning off plant not in use.	
19	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.** Existing road/path are being utilized with minor improvement/strengthening, wherever necessary for transportation of

Sr. No.	Project Activity/Stage	Potential Impact	Proposed Mitigation Measures	Compliance status
				construction materials/ equipments. Sprinkling of water being undertaken, whenever needed.
		Increased land requirement for temporary accessibility	New access ways restricted to a single carriageway width within the RoW.	Already explained above, 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.** Barricading of excavated areas and restriction to enter construction site for general public being followed strictly in all active sites.
		Local traffic obstruction	Coordination with local authority/requisite permission for smooth flow of traffic	**Complied with.** As most of the tower/pole foundation is located in farm/barren land. No traffic obstructionist observed due to construction activity. However, in case of substation, 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	**Complied with** No dumping of waste material apart from designated storage location observed. All overburden managed optimally by reutilizing it as fill materials.
22	Site clearance	Vegetation	Marking of vegetation to be	**Complied with**

Sr. No.	Project Activity/Stage	Potential Impact	Proposed Mitigation Measures	Compliance status
			removed prior to clearance, and strict control on clearing activities to ensure minimal clearance.	Only controlled clearing of vegetation is being undertaken, wherever necessary.
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 with** As explained above Actual damage/tree felling is minuscule and limited 3m strip below each conductor and not in entire RoW In remaining RoW area, only pruning/ pollarding is done to maintain safe electrical as per applicable norms.
		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.	All felled trees are handed over to concerned author/owner for disposal. 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.** Supply of cooking Gas/ fuel wood to construction workers by the Contractor is ensured through regular monitoring by IA.
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.** Excavated soil from foundations is backfilled and excess spread out evenly and compacted. In most cases volume of cutting is equal to volume of filling and hence no dumping of materials in other

Sr. No.	Project Activity/Stage	Potential Impact	Proposed Mitigation Measures	Compliance status
				sites/locations required.
26	Substation construction	Loss of soil	Loss of soil is not a major issue as excavated soil is to be mostly reused for filling. However, in case of requirement of excess soil the same is to be met from existing quarry or through deep excavation of existing pond or other nearby barren land with agreement of local communities	**Complied with** All excavated soil optimally used for backfilling.
		Water pollution	Construction activities involving significant ground disturbance (i.e. substation land forming) not undertaken during the monsoon season	**Complied** Civil works avoided during monsoon period as far as possible.
		Solid Waste	Recycle packaging wastes from electrical equipment as much as possible otherwise dispose of in designated waste disposal areas, Remove all surplus materials and left in a clean and tidy condition after erection, Identify disposal site for wastes that can cause adverse effects on human health and environment.	

Sr. No.	Project Activity/Stage	Potential Impact	Proposed Mitigation Measures	Compliance status
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.** Already explained against sr. no 23.
28	Substation foundation/ Tower erection disposal of surplus earthwork/fill	Waste disposal	Excessfill from substation/tower foundation excavation disposed of next to roads or around houses, in agreement with the local community or landowner.	**Complied with.** Already explained against sr. no 26.
29	Storage of chemicals and materials	Contamination of receptors (land, water, air)	Fuel and other hazardous materials securely stored above high flood level.	**Partially complied** In some places construction waste are laying haphazardly and required proper storage/disposal. Project authority was informed about the same for improvement.
30	Construction schedules	Noise nuisance to neighboring properties	• Construction activities only undertaken during the day and local communities informed of the construction schedule • Minimized transportation activities from 7:00 pm to 6:00 am,	**Complied with.** Proper scheduling of construction activity is observed and activity is confined to day time only

Sr. No.	Project Activity/Stage	Potential Impact	Proposed Mitigation Measures	Compliance status
			• Vehicles to be maintained in good condition to minimize • exhaust emissions, • A speed limit of 20KM/hour imposed on construction traffic • through the villages; • Share knowledge on regulations of traffic and traffic police directives among drivers. Careful design using appropriate technologies to minimize 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 - Install suitable sign boards to make people aware about potential construction hazard at construction site,	

Sr. No.	Project Activity/Stage	Potential Impact	Proposed Mitigation Measures	Compliance status
			• Provide training and appropriate personal protection equipment for Contractor's employ	
31	Lines through farmland	Loss of agricultural productivity	Use existing access roads wherever possible	**Complied with.** **Already explained against Sr. No 19.** No complaint observed/reported.
32	Influx of migratory workers	Conflict with local population to share local resources	Using local workers for appropriate asks	**Complied with.** Most of the workers engaged in construction activity are local. No such conflict is reported/recorded.
33	Lines through farmland	Loss of agricultural productivity	Use existing access roads wherever possible	**Complied with.** Repair/restoration done immediately wherever required. No complaint recorded/reported.
			Ensure existing irrigation facilities are maintained in working condition	
			Protect /preserve topsoil and reinstate after construction completed	
			Repair /reinstate damaged bunds etc. after construction	
		Loss of Income	Land owners/ farmers compensated for any temporary loss of productive land as per existing regulation	**Complied with.** In addition crop and tree damages, compensation towards land diminution value as per MOP guidelines being paid to affected land owner/ farmer after

Sr. No.	Project Activity/Stage	Potential Impact	Proposed Mitigation Measures	Compliance status
				assessment by revenue authority.
34	Uncontrolled erosion/silt runoff	Soil loss, downstream siltation	Need for access tracks minimized, use of existing roads.	**Complied with.** As explained in clause no 19 23 and 26 adequate prudence has been practiced with respect to use of existing road/path, site clearance and construction schedule
			Limit site clearing to work areas	
			Regeneration of vegetation to stabilize 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 neighboring land uses/values	Contract clauses specifying careful construction As much as possible existing access ways Is to be Productive land is to be reinstated following completion of construction	**Complied with** Standard 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
		Social inequities	Compensation is to be paid for loss of production, if any.	Already explained against Sr. No 33, 34 above
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 on-going construction activities	**Complied with.** No such issue reported/ recorded.

Sr. No.	Project Activity/Stage	Potential Impact	Proposed Mitigation Measures	Compliance status
37	Equipment submerged under flood	Contamination of receptors (land, water)	Equipment stored at secure place above the high flood level(HFL)	**Complied with.** All substations are designed and constructed above HFL (High Flood Level)
38	Inadequate siting of borrow areas (quarry areas)	Loss of land values	Existing borrow sites is to be used to source aggregates, therefore, no need to develop new sources of aggregates	**Complied with.** **Already explained against Sr. No 26.**
39	Health and safety	Injury and sickness of workers and members of the public	Safety equipment's (PPEs) for construction workers	**Partially Complied** Safety equipment available but often not used by workers. More training to be conducted to create awareness on use of PPEs /safety gear. Worker facilities/camp found in good condition. Health &safety plan in place and properly implemented. No major accident/incident reported for any site till date.
40	Inadequate construction stage monitoring	Likely to maximize damages	Training of environmental monitoring personnel Implementation of effective environmental monitoring and reporting system using checklist of all contractual environmental requirements	**Complied with** Dedicated safeguard personal in place for proper monitoring and implementation of E & S measures. However, officials directly involved in construction activities need to be provided with more specific awareness/ training on IEAR, ESPPF etc. requirements for effective implementation/ monitoring of

Sr. No.	Project Activity/Stage	Potential Impact	Proposed Mitigation Measures	Compliance status
			Appropriate contact clauses to ensure satisfactory implementation of contractual environmental mitigation measures.	provisions of IEAR, ESPPF and contract conditions to achieve 100% compliance
Operation & Maintenance				
41	Location of line towers/poles and overhead/ underground 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 will be applicable 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.	

Sr. No.	Project Activity/Stage	Potential Impact	Proposed Mitigation Measures	Compliance status
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	• Ensuring that live-wire maintenance works are conducted by trained workers with strict adherence to specific safety and insulation standards • Where maintenance and operation is required within minimum set back distances, specific training, safety measures, personal safety devices, and other precautions should be defined in a health and safety plan. Scheduling for maintenance activities.	
47	Electric Shock Hazards	Injury/ mortality to staff and public	Careful design using appropriate technologies to minimize hazards Security fences around substations Barriers to prevent climbing on/ dismantling of towers	

Sr. No.	Project Activity/Stage	Potential Impact	Proposed Mitigation Measures	Compliance status
			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 & T&D line maintenance crews.	
			Preparation and training in the use of O&M manuals and standard operating practices	
49	Inadequate periodic Environmental monitoring.	Diminished ecological & 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 chlorofluorocarbons (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	

Sr. No.	Project Activity/Stage	Potential Impact	Proposed Mitigation Measures	Compliance status
52	Uncontrolled growth of vegetation	Fire hazard due to growth of tree/shrub /bamboo along RoW	Regular maintenance of vegetation within the rights-of-way is necessary to avoid disruption to overhead power distribution lines and poles. No herbicides used in the control of vegetation within the rights-of-way. Tree plantation and crops with higher than 3 metres will not be allowed. Rather, local people living along the distribution line route also will be participated under mutual contract to trim or cut vegetation along right-of-way. Scheduling activities for right-of-way maintenance.	
53	Noise related	Nuisance to neighboring properties	Substations sited and designed to ensure noise is to not be a nuisance.	

5.10. Conclusion

The power-starved North-Eastern (N-E) Region, comprising Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura, is blessed with a huge hydro potential. The region also has abundant resource of coal, oil and gas for thermal power generation. But, in spite of such huge potential, the region ranks lowest in the country in terms of power generation and per capita energy consumption mainly due to lack of proper planning, inhospitable climatic conditions, remote location and inaccessibility. 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 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 Tinsukia and Dibrugarh district of Assam. This project consists of commissioning of 91.31 Km transmission line network and 42.09 Km distribution network.

Selection of route for this project made carefully avoiding forests and ecologically sensitive areas like national parks, wildlife sanctuaries. There is no change in the transmission line alignment but distribution line alignment is changed to avoid habituated areas, protected areas, rivers, areas prone to floods. The change in alignment prevented resettlement of people which helped to avoid circumstances of public agitation.

The provisions of IEAR and EMP implemented at grass root level and strict compliance by construction contractors is ensured through regular monitoring by IA. Because of change in scope, no major impact apart from earlier identified impacts is anticipated. All the applicable rules/regulations/laws of Govt. of India, Govt. of Assam and funding agencies are strictly complied; no violation/penalty has been reported till date. The project has achieved zero fatality with no major noncompliance of EMP/provisions of IEAR.

It has been observed from surveys, public meetings and discussion with project affected people, that they are appreciating the efforts taken by both the government and funding agencies to improve power network of that area. Local people believe that this project will enhance their quality of life as well as this project will help them to get new income source in near future.

6. Monitoring and Organization 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

6.1.1. 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.

6.1.2. State Project Coordination Unit (SPCU)

A body formed by the 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 and shall be headed by an officer of the rank not below Chief Engineer, from the Utility.

6.1.3. 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 work site & working in close association with the SPCU/ CPIU. PIU report to State level "Project Manager" nominated by the Project-in-Charge of IA. The IA will have a Core team stationed at the CPIU on permanent basis and other IA officers (with required skills) will visit as and when required by this core team. This team shall represent IA and shall be responsible for all coordination with SPCU, PIU, within IA and MOP, GoI. CPIU shall also assist MOP, GoI in monitoring project progress and in its 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.

6.2.1. 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 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.

6.2.2. 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.

6.2.3. 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.

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.

The scheduled meetings were conducted by PGCL with the stakeholders including contractors and surrounding people and no complaints are received till now.

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 endeavors 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 Assam to oversee the E & S management. Besides, AEGCL / APDCL also has a separate cell at the Corporate office namely Environment and Social Management Cell (ESMC) headed by Director (PMU) 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, MoEF&CC and Govt. of Assam.
- 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&CC 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 ESPPF 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 coordination 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) program. Further, State utility meetings between IA and AEGCL/APDCL are held on a monthly/ bi-monthly 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 is 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.

It has been observed during field visit and interactions with local people, contractors and contract workers that PGCL has adequately taken all precautions and importance to environmental & social aspects. The stakeholders are satisfied with the various measures taken by PGCL its proven fact from the interactions that no complaints are received from the project area.

Design realignment, consultation i.e. PAP, Environment & safety awareness training and regular interactions with all the stakeholders has led to sustainability of the project.

6.4. Grievance Redressal Mechanism

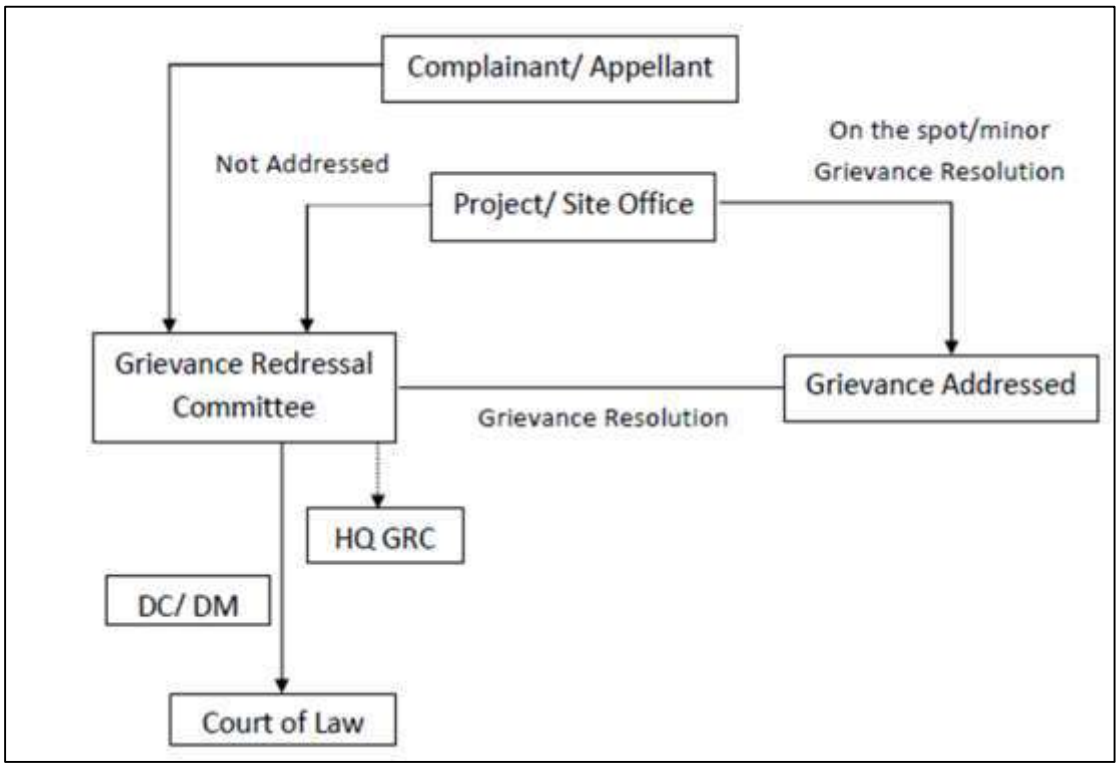


FIGURE 6-1 GRIEVANCE REDRESSAL MECHANISM

Grievance Redressal 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) has been constituted in Assam 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 (PMU). Similarly project level GRCs have been constituted for each transmission and substations covered under this project. Notifications of Corporate & Project level GRC are shown as below;

Apart from above, grievance redresses 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. In case of T & D projects, 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, AEGCL/APDCL & 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 has been observed 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. As per record available, no written complaint or court case is registered till study period against any of the sub projects in instant case. The present transmission and distribution schemes not only improve overall power supply situation but also improve reliability, quality, security and enhancement of power supply in the Assam state.

From the above discussion, it would seem that the area is rich in physical resources. But careful route selection has minimized involvement of forest area to the extent possible but could not be completely avoided due to terrain and other physiographical reasons. Thus, routes selected for detailed survey are the most optimum alignment and involved minimum forest.

TABLE 6-1 DETAILS OF GRIEVANCES

Sr. No	Name of the Subproject /State	Location	Name of complainants	Date of complaints	Main Issue of Complaints	Status of complaint
A. Court Cases						
No Court Case has been registered so far against any subprojects under NERPSIP						
B. Written Complaints						
No written complaint has been received so far						
C. Verbal Complaints						
No verbal complaints has been received so far						

6.5. Good practices of project:

- **All the precautions were taken for health and safety of workers**

Except in case of 220 kV Behiating substation where the construction contractor was penalized for non-compliance of safety standards. Apart from this, at all the other places the contractor has taken all the necessary precautions for prevention of diseases at the project sites. Workers were provided with all the safety equipments, special measures taken for prevention of Covid-19.

- **All the stakeholders were considered for consultation during the project cycle**

All the stakeholders were consulted by POWERGRID and their queries were resolved during formal/informal meetings. Therefore, no any major issue observed during project construction. Because of strong PAP consultation, no any written complaint/court case has been received so far.

- **Eco sensitive zones avoided as far as possible**

Eco sensitive zones avoided as far as possible. While erection of Rupai-Chapakhowa 132kV line which is passing from Basin of Brahmaputra River was erected taking necessary care. River ecosystem was not harmed because of pile foundation. Due care is taken to avoid pollution of river because of pile foundation work.

- **Avoidance of habituated areas**

Habituated areas were avoided as far as possible to lay towers of 132 kV line. The residential houses are far from the RoW of 132 kV towers, therefore, there is no chance of damage to the human being because of 132 kV line.

- **Interference with utilities**

Wherever utilities were crossed, necessary permissions/NoC was taken from the concern authorities to lay electric wires from their premises. During construction, the concern officials were taking care of avoiding damage to the utility instruments & premises.

Annexures

Annexure 1

MoP Guidelines for Payment of Compensation for Transmission Line

No.3/7/2015-Trans
Government of India
Ministry of Power
Shram Shakti Bhawan
Rafi Marg, New Delhi – 110001

Dated, 15th October, 2015

To

1. Chief Secretaries/Administrators of all the States/UTs (As per list attached)
2. Chairperson, CEA, New Delhi with the request to disseminate the above guidelines to all the stakeholders.
3. CMD, PGCIL, Gurgaon.
4. CEO, POSOCO, New Delhi.
5. Secretary, CERC, New Delhi.
6. CMD of State Power Utilities/SEBs

Subject: Guidelines for payment of compensation towards damages in regard to Right of Way for transmission lines.

During the Power Ministers Conference held on April 9-10, 2015 at Guwahati with States/UTs, it has, *inter alia*, been decided to constitute a Committee under the chairmanship of Special Secretary, Ministry of Power to analyse the issues related to Right of Way for laying of transmission lines in the country and to suggest a uniform methodology for payment of compensation on this count. Subsequently, this Ministry had constituted a Committee with representatives from various State Governments and others. The Committee held several meetings to obtain the views of State Governments on the issue and submitted its Report along with the recommendations (copy of the Report is at **Annex-1**).

2. The Recommendations made by the Committee are hereby formulated in the form of following guidelines for determining the compensation towards "damages" as stipulated in section 67 and 68 of the Electricity Act, 2003 read with Section 10 and 16 of Indian Telegraph Act, 1885 which will be in addition to the compensation towards normal crop and tree damages. This amount will be payable only for transmission lines supported by a tower base of 66 KV and above, and not for sub-transmission and distribution lines below 66 KV:-

(i) Compensation @ 85% of land value as determined by District Magistrate or any other authority based on Circle rate/ Guideline value/ Stamp Act rates for tower base area (between four legs) impacted severely due to installation of tower/pylon structure;

-1-

(ii) Compensation towards diminution of land value in the width of Right of Way (RoW) Corridor due to laying of transmission line and imposing certain restriction would be decided by the States as per categorization/type of land in different places of States, subject to a maximum of 15% of land value as determined based on Circle rate/ Guideline value/ Stamp Act rates;

(iii) In areas where land owner/owners have been offered/ accepted alternate mode of compensation by concerned corporation/ Municipality under Transfer Development Rights (TDR) policy of State, the licensee /Utility shall deposit compensation amount as per (i) & (ii) above with the concerned Corporation/ Municipality/ Local Body or the State Government.

(iv) For this purpose, the width of RoW corridor shall not be more than that prescribed in the table at **Annex-2**and shall not be less than the width directly below the conductors.

3. Necessary action may kindly be taken accordingly. These guidelines may not only facilitate an early resolution of RoW issues and also facilitate completion of the vital transmission lines through active support of State/ UT administration.

4. All the States/UTs etc. are requested to take suitable decision regarding adoption of the guidelinesconsidering that acquisition of land is a State subject.

Yours faithfully,

(Jyoti Arora)
Joint Secretary (Trans.)
Tele: 011-2371 0389

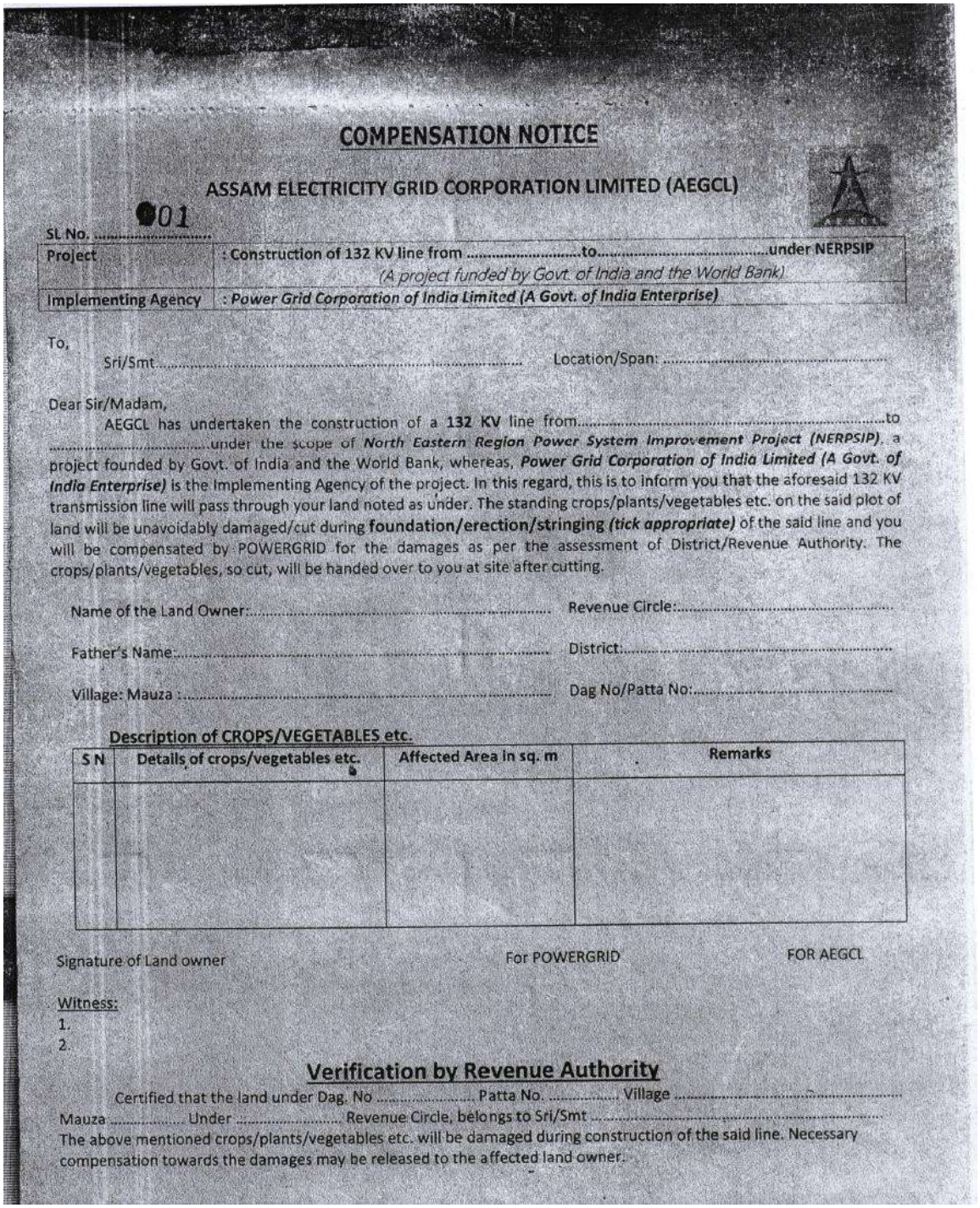
Copy, along with enclosure, forwarded to the following:

1. Secretaries of Government of India (Infrastructure Ministries/Deptt including MoEF - As per attached list)
2. Prime Minister's Office (Kind Attn: Shri Nripendra Mishra, Principal Secretary to PM).
3. Technical Director, NIC, Ministry of Power with the request to host on the website of Ministry of Power.

Copy to PS to Hon'ble MoSP (IC) / Secretary (Power) / AS (BNS) / AS (BPP) / All Joint Secretaries/EA/ All Directors/DSs, Ministry of Power.

-2-

Sample Compensation Notice



COMPENSATION NOTICE

ASSAM ELECTRICITY GRID CORPORATION LIMITED (AEGCL)

Sl.No. 001

Project	: Construction of 132 KV line from .....to.....under NERPSIP (A project funded by Govt. of India and the World Bank)
Implementing Agency	: *Power Grid Corporation of India Limited (A Govt. of India Enterprise)*

To,

Sri/Smt..... Location/Span: .....

Dear Sir/Madam,

AEGCL has undertaken the construction of a **132 KV** line from.....to .....under the scope of ***North Eastern Region Power System Improvement Project (NERPSIP)***, a project founded by Govt. of India and the World Bank, whereas, ***Power Grid Corporation of India Limited (A Govt. of India Enterprise)*** is the Implementing Agency of the project. In this regard, this is to inform you that the aforesaid 132 KV transmission line will pass through your land noted as under. The standing crops/plants/vegetables etc. on the said plot of land will be unavoidably damaged/cut during **foundation/erection/stringing** ***(tick appropriate)*** of the said line and you will be compensated by POWERGRID for the damages as per the assessment of District/Revenue Authority. The crops/plants/vegetables, so cut, will be handed over to you at site after cutting.

Name of the Land Owner:..... Revenue Circle:.....

Father's Name:..... District:.....

Village: Mauza :..... Dag No/Patta No:.....

Description of CROPS/VEGETABLES etc.

S N	Details of crops/vegetables etc.	Affected Area in sq. m	Remarks

Signature of Land owner For POWERGRID FOR AEGCL

Witness:

1.

2.

Verification by Revenue Authority

Certified that the land under Dag. No ..... Patta No. ..... Village .....

Mauza ..... Under ..... Revenue Circle, belongs to Sri/Smt .....

The above mentioned crops/plants/vegetables etc. will be damaged during construction of the said line. Necessary compensation towards the damages may be released to the affected land owner.

Crop Compensation Payment Slip

CROPS COMPENSATION [Proposal No. 5] OF 220 KV D/C TINSUKIA DIBRUGARH TRANSMISSION LINE UNDER NERPSIP SCHEME

VILLAGE : KODOMONI MOUZA : GHARSANDHI CIRCLE: TINSUKIA DIST : TINSUKIA STATE :ASSAM

1	2	3	4	5	6	7	8	10	12	13	14
S L NO	Location No.	Tower Type	Notice No	Name/Adress of Landowner	Dag/ Patta No	Activity	Demaged Zirat	Total effected Quantities in Nos	Rate (Rs) per Nos	Payable Amount in Rs.	Remarks
1	17/0	DD+0	002	PHUL CHAND TANTI	177 / 47	FOUNDATION	LADIES FINGER	33.00	200.00	6600.00	For Tower Base & Approach
								33.00		6600.00	
2	17/0	DD+0	002	PHUL CHAND TANTI	177 / 47	FOUNDATION	YARD LONG BEAN (DANGBODI)	4.00	300.00	1200.00	For Tower Base & Approach
								4.00		1200.00	
3	35A/0	DB+3	003	RAJIV HAZARIKA	222 / (Govt. Land)	FOUNDATION	Tea Bushes	244.00	50.00	12200.00	For Tower Base
								1006.00	50.00	50300.00	For Approach & Others
								1250.00		62500.00	
								G.Total		70300.00	

RUPEES SEVENTY THOUSAND THREE HUNDRED ONLY

Signature of POWERGRID
अंजन सेन / Anjan Sen
Deputy General Manager
पावरग्रिड / POWERGRID
डिब्रुगढ़ / Dibrugarh

Signature of AEGCL
Deputy Manager
132 KV GSS, Kodamani
AEGCL, Dibrugarh

Signature of Revenue Officials

Signature of Circle Officer
Circle Officer
Tinsukia Revenue Circle
Tinsukia

Annexure 2

Details of Tower & Pole Schedule

Tower Schedule

O/C

TOWER SCHEDULE After Proposed Diversion from Section: 4/0 to 8/0. dated-01.1

CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)

CONTRACTOR :- PMPL-RCC INFRASTRUCTURES (JV)

TINSUKIA-BEHIATING 220 KV D/C TRANSMISSION LINE

TOWER SCHEDULE FROM TINSUKI BAY TO BEHIATING BAY LENGTH- 49.744 KM.

SL.NO	LOC.NO	Types of Tower	Span Length in	Section Length in	Cum. length in	Angle of Deviation	Adjacent Span Left	Adjacent Span Right	Adjacent Span Total	Wind span	R.L.	Weight Span Cold Left	Weight Span Cold Right	Weight Span Cold Total	Weight Span Hot Left	Weight Span Hot Right	Weight Span Hot Total	Crossings Details	GPS Coordinates Easting	GPS Coordinates Northing	Remarks
0	GANTRY	-		30	30	-	-	30	-	-	102.320	-	-	-	-	-	-		734995	3041936	
			30																		
1	AP-1	DD+6		29	59	12°7'25" LT	30	29	59	29.5	101.977	-	-	-	-	-	-		734974	3041932	TINSUKIA
			29																		
2	AP-2	DD+12		167	226	19°36'46" LT	29	167	196	98.0	101.687	-	83.38	-	-	83.29	-		734986	3041929	TINSUKIA
			167															2 Nos. 132 KV Line, 33 KV Line & LT Line.			
3	AP-3	DD+18		107	333	8°36'17" LT	167	107	274	137.0	101.730	83.87	182.76	266.63	83.71	154.53	238.24		734881	3041775	TINSUKIA
			107															Substation Boundary, Pucca Road & 66 KV Line			
4	AP-4	DB+3		533	867	9°47'2" LT	107	232	339	169.5	101.619	-95.76	140.02	44.24	-47.55	132.36	84.83		734807	3041674	BHIMPARA
			232															LT Line & 11 KV Line.			
5	4/1	DA+6					232	300	532	266.8	101.474	91.90	140.99	240.97	99.64	145.39	249.83				BHIMPARA
			302															LT Line, 2 Nos.11 KV Line & Pucca Road.			
6	AP-5	DC+6		265	1130	17°32'40" RT	300	263	565	282.5	101.561	131.01	151.49	282.50	150.61	146.18	296.79		734765	3041149	BHIMPARA
			262															1 Nos. 11 KV Line			
7	AP-6	DD+3		473	1602	6°29'2" LT	265	242	507	253.5	101.520	113.21	138.31	251.52	118.02	133.22	251.04		734648	3040934	BHIMPARA
			242																		
8	6/1	DA+0					242	230	472	236.0	102.241	103.99	82.60	186.59	109.78	93.09	202.87				SEWPUR
			236															11 KV Line & Pucca Road.			
9	AP-7	DD+6		456	2058	43°19'00" RT	230	236	466	233.0	100.535	147.40	142.66	290.06	136.91	134.38	271.29		734400	3040668	BHIMPARA
			236																		
10	7/1	DA+2					236	220	456	228.0	100.333	93.34	108.12	201.46	101.62	108.69	210.31				BHIMPARA
			220															Boundary Wall, 11KV Line & Pucca Road.			
11	AP-8	DD+3		287	2345	43°46'47" LT	220	287	507	253.5	100.580	111.88	134.82	246.70	115.31	136.55	249.86		734084	3040151	BHIMPARA
			287															11 KV Line & Cart Track			
12	AP-9	DD+3		521	2866	30°53'27" RT	287	260	547	273.5	101.537	150.18	132.61	282.79	148.45	143.3	291.75		733991	3039979	SEWPUR
			260																		
13	9/1	DA+0					260	261	521	260.5	101.288	107.39	113.66	220.45	114.7	118.7	233.4				SEWPUR
			261															33 KV line			
14	AP-10	DB+3		234	3100	13°36'6" RT	261	234	495	247.5	100.891	147.94	90.33	238.27	143.3	98.90	241.25		733567	3039481	SEWPUR
			234															Pucca Road, House, Foot Track & 11 KV Line			
15	AP-11	DD+6		235	3335	43°54'14" RT	234	235	469	234.5	101.357	143.67	133.81	277.48	133.05	128.54	261.59		733350	3039009	SEWPUR
			235															RR, 33 KV Line, Tea Garden, House, Hut & LT Line			
16	AP-12	DB+6		341	3676	7°8'42" RT	235	341	576	288.0	99.173	101.19	172.14	273.33	106.46	171.61	278.07		733136	3039408	SEWPUR
			341															LT Line, 2 Nos. River & Foot Track.			
17	AP-12A	DC+6		355	4031	21°04'27" LT	341	355	696	348.0	98.654	168.86	154.29	323.15	169.39	161.79	331.18		732814	3039831	SEWPUR
			355															2 Nos. LT Line, 2 Nos. House, River & Pond			
18	AP-13	DB+9				3°56'44" LT	355	265	620	310.0	100.549	168.86	92.47	261.33	169.39	99.73	269.12		732476	[illegible]	SINGHA

अंजन सेन / Anjan Sen
उप महाप्रबंधक / Deputy General Manager
पावरग्रिड / POWERGRID
डिब्रूगढ़ / Dibrugarh

S. K. Shah
General Manager
POWERGRID
DIBRUGARH

APPROVED BY

SL.NO	LOC. NO	Types of Tower	Span Length in	Section Length in	Cum. length in	Angle of Deviation	Adjacent Span Left	Adjacent Span Right	Adjacent Span Total	Wind span	R.L.	Weight Span Cold Left	Weight Span Cold Right	Weight Span Cold Total	Weight Span Hot Left	Weight Span Hot Right	Weight Span Hot Total	Crossings Details	GPS Coordinates Easting	GPS Coordinates Northing	Remark
41	19/1	DA+0		1029	18719		257	257	514	257.0	98.475	100.13	128.20	234.23	113.26	128.3	241.66				KUKURAKHOOA
			257																		
42	19/2	DA+0					257	280	537	268.5	98.519	128.80	121.68	250.48	128.7	127.6	256.3				KUKURAKHOOA
			280															11 KV Line & Drain			
43	19/3	DA+3					280	235	515	257.5	98.441	158.32	119.09	277.41	152.4	118.58	270.98				KUKURAKHOOA
			235																		
44	AP-20	DD+3		339	11030	35°31'41" RT	235	339	574	287.0	98.228	115.9	154.68	270.6	116.42	159.47	275.89		725992	3038951	KUKURAKHOOA
			339															Pond, Metal Road & LT Line			
45	AP-21	DB+6		3241	14290	10°48'13" LT	339	295	634	317.0	98.090	184.32	167.67	351.99	179.53	161.15	340.68		725607	3038989	KUKURAKHOOA
			295															Canal			
46	21/1	DA+3					295	295	590	295.0	97.706	127.33	165.60	292.93	133.85	159.75	293.6				KUKURAKHOOA
			295																		
47	21/2	DA+0					295	294	589	294.5	97.658	129.40	147.22	276.62	135.25	147.15	282.4				KUKURAKHOOA
			294																		
48	21/3	DA+0					294	295	589	294.5	97.621	146.73	147.41	294.19	146.85	147.44	294.29				KUKURAKHOOA
			295																		
49	21/4	DA+0					295	294	589	294.5	97.636	147.51	148.08	295.59	147.56	147.68	295.24				KUKURAKHOOA
			294															Canal			
50	21/5	DA+0					294	295	589	294.5	97.468	146.00	147.62	293.62	146.32	147.38	293.9				KUKURAKHOOA
			295															Drain & Metal Road			
51	21/6	DA+0					295	295	590	295.0	97.447	147.38	147.93	295.33	147.42	147.79	295.21				KUKURAKHOOA
			295																		
52	21/7	DA+0					295	295	590	295.0	97.375	147.07	148.05	295.12	147.21	147.87	295.08				KUKURAKHOOA
			295																		
53	21/8	DA+0					295	295	590	295.0	97.283	146.95	130.50	277.45	147.13	135.99	283.12				KUKURAKHOOA
			295																		
54	21/9	DA+0					295	294	589	294.5	97.141	164.58	127.30	291.85	159.01	133.7	292.71				KUKURAKHOOA
			294															11 KV Line & Drain			
55	21/10	DA+0					294	294	588	294.0	97.432	166.65	185.01	351.66	160.3	172.73	333.03				KUKURAKHOOA
			294															Pond			
56	AP-22	DB+0		1773	16872	9°32'37" RT	294	300	594	297.0	97.064	108.99	134.42	243.41	121.27	139.45	260.72		723425	3038739	KUKURAKHOOA
			300															Jungle & Canal			
57	22/1	DA+3					300	294	594	297.0	96.728	165.58	166.56	332.14	160.55	160.23	320.78				KUKURAKHOOA
			294															Metal Road			
58	22/2	DA+0					294	295	589	294.5	96.452	127.44	149.08	276.52	133.77	148.57	282.34				KUKURAKHOOA
			295															4 Nos. Canal			
59	22/3	DA+0					295	295	590	295.0	96.187	145.92	127.25	273.17	146.43	133.8	280.23				KUKURAKHOOA
			295																		
60	22/4	DA+3					295	295	590	295.0	96.590	167.75	132.82	300.57	161.2	137.56	298.76				BALIJANAHONI
			295															LT Line & Metal Road			
61	22/5	DA+6					295	294	589	294.5	96.058	162.18	164.41	326.59	157.44	158.78	316.22				BALIJANAHONI
			294															Pond, House, 11 KV Line, Cart Track & LT Line			
62	AP-23	DC+3		577	16449	22°47'21" RT	294	289	583	291.5	96.141	129.6	163.78	293.4	135.22	157.53	292.75		720660	3038894	BALIJANAHONI
			289																		
63	23/1	DA+0					289	288	577	288.5	95.970	125.24	126.97	252.21	131.47	132.47	263.94				BALIJANAHONI
			288															2 Nos. LT Line, 2 Nos. Drain, House & 11 KV Line			
64	AP-[illegible]	DB+3				13°09'33" LT	288	283	571	285.5	95.765	161.03	142.50	303.53	155.53	142.18	297.71		[illegible]	[illegible]	BALIJANAHONI

CHECKED BY

APPROVED BY

SL.NO	LOC.NO	Types of Tower	Span Length in	Section Length in	Cum. length in	Angle of Deviation	Adjacent Span Left	Adjacent Span Right	Adjacent Span Total	Wind span	R.L	Weight Span Cold Left	Weight Span Cold Right	Weight Span Cold Total	Weight Span Hot Left	Weight Span Hot Right	Weight Span Hot Total	Crossings Details	GPS Coordinates Easting	GPS Coordinates Northing	Remarks
			283																		
65	24/1	DA+3		583	17232		283	300	583	291.5	95.921	140.50	169.74	310.24	140.82	163.36	304.18				BAMSISIANI
			300															Drain, LT Line & Cart Track			
66	AP-25	DB+0		870	18102	4°22'19" RT	300	290	590	295.0	95.317	130.26	146.26	276.52	136.64	145.86	282.5		719662	3039291	BAMSISIANI
			290																		
67	25/1	DA+0					290	290	580	290.0	95.636	143.74	131.27	275.01	144.14	135.71	279.85				BAMSISIANI
			290															Drain			
68	25/2	DA+5					290	290	580	290.0	95.650	156.73	142.11	300.04	154.29	143.05	297.34				BAMSISIANI
			290															Canal			
69	AP-26	DD+3		1696	19798	40°24'55" LT	290	283	573	286.5	94.766	147.09	160.01	307.90	146.95	154.02	300.97		718762	3039608	CHABUA
			283																		
70	26/1	DA+0					283	283	566	283.0	94.782	122.59	141.67	264.66	128.98	141.62	270.6				CHABUA
			283															Drain			
71	26/2	DA+0					283	270	553	276.5	94.754	141.33	144.70	286.03	141.38	141.56	282.94				CHABUA
			270																		
72	26/3	DA+0					270	295	565	282.5	93.262	125.30	138.78	264.08	128.44	141.6	270.04				CHABUA
			295															2 Nos Metal Road & Drain			
73	26/4	DA+0					295	300	595	297.5	94.727	156.22	141.11	297.33	153.4	143.99	297.39				CHABUA
			300															Drain & 2 Nos. Metal Road			
74	26/5	DA+0					300	265	565	282.5	96.246	158.69	137.07	295.76	156.01	136.13	292.14				CHABUA
			265															Drain, LT Line, Metal Road, Cart Track & Canal			
75	AP-27	DB+0		2489	22287	8°41'36" LT	265	276	541	270.5	95.430	127.13	136.89	264.02	128.87	137.25	266.12		717182	3028984	CHABUA
			276															Foot Track & Drain			
76	27/1	DA+0					276	277	553	276.5	95.610	139.11	137.70	276.81	138.75	137.96	276.71				KORAPATTI
			277															Foot Track			
77	27/2	DA+0					277	277	554	277.0	95.736	139.34	142.88	282.10	139.04	141.41	280.45				KORAPATTI
			277															Foot Track & Drain			
78	27/3	DA+0					277	290	567	283.5	95.057	134.20	148.33	282.53	135.59	147.25	282.84				KORAPATTI
			290															2 Nos. Foot Track & Drain			
79	27/4	DA+0					290	290	580	290.0	94.307	141.67	139.38	281.05	142.75	141.2	283.95				KORAPATTI
			290															Foot Track			
80	27/5	DA+0					290	270	560	280.0	95.435	150.62	135.52	286.14	148.8	135.35	284.15				KORAPATTI
			270															2 Nos. Foot Track & Drain			
81	27/6	DA+0					270	270	540	270.0	95.355	134.40	139.88	274.28	134.65	138.25	272.9				KORAPATTI
			270															CT Pipe Line			

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SL.NO	LOC NO	Types of Tower	Span Length in	Section Length in	Cum. length in	Angle of Deviation	Adjacent Span Left	Adjacent Span Right	Adjacent Span Total	Wind span	R.L	Weight Span Cold Left	Weight Span Cold Right	Weight Span Cold Total	Weight Span Hot Left	Weight Span Hot Right	Weight Span Hot Total	Crossings Details	GPS Coordinates Easting	GPS Coordinates Northing	Remarks
82	27/7	DA+0					270	270	540	270.0	94.616	130.20	134.69	264.89	131.75	134.79	266.54				KORAPATTI
			270															2 Nos. Drain & Foot Track			
83	27/8	DA+0					270	269	539	269.5	94.664	135.31	133.30	268.61	135.21	133.69	268.9				KORAPATTI
			269															Drain & Cart Track			
84	AP-28	DC+6				14°23'39" RT	269	289	558	279.0	94.898	135.7	147.87	282.8	135.31	146.24	281.55		715827	3037730	CHABUA
			289															Tea Garden			
85	28/1	DA+6		867	23154		289	289	578	289.0	94.667	143.93	145.56	287.49	142.76	145.22	287.98				CHABUA
			289															Pond			
86	28/2	DA+6					289	289	578	289.0	94.327	143.41	130.34	273.75	143.78	130.05	273.83				CHABUA
			289															2 Nos. drain & Cart Track			
87	AP-29	DB+0				6°6'52" LT	289	276	565	282.5	94.246	128.61	131.09	264.59	128.95	137.42	266.37		714211	3037530	CHABUA
			276	567	23721													Drain & Foot Track			
88	29/1	DA+3					276	291	567	283.5	94.315	166.11	166.42	331.53	160.58	160.79	321.37				CHABUA
			291															2 Nos. Drain & 2 Nos. Foot Track			
89	AP-30	DB+0				12°2'50" LT	291	260	551	275.5	94.078	131.58	131.38	262.96	137.21	130.94	268.15		713645	3037201	FATHIBUANIA
			260															Tea Garden, Drain, Cart Track & Foot Track			
90	30/1	DA+0					260	260	520	260.0	93.873	120.62	138.99	259.61	129.06	130.67	259.73				FATHIBUANIA
			260	1041	24762																
91	30/2	DA+0					260	260	520	260.0	93.726	129.01	130.31	259.32	129.33	130.21	259.54				FATHIBUANIA
			260															Brick Road			
92	30/3	DA+0					260	261	521	260.5	93.680	129.65	130.82	260.51	129.79	130.72	260.51				FATHIBUANIA
			261																		
93	AP-31	DB+0				4°53'2" LT	261	253	514	257.0	93.652	130.18	128.76	258.94	130.28	128.83	259.11		712726	3036062	FATHIBUANIA
			253															2 Nos. Foot Track, Cart Track & Drain			
94	31/1	DA+0					253	253	506	253.0	93.306	124.24	126.73	250.97	124.97	126.65	251.62				RANGAMATI
			253	1013	25775													2 Nos. Foot Track			
95	31/2	DA+0					253	253	506	253.0	93.273	126.27	126.15	252.42	126.35	126.27	252.62				RANGAMATI
			253															Foot Track & Drain			
96	31/3	DA+0					253	254	507	253.5	93.223	126.85	128.83	255.68	126.73	128.24	254.97				RANGAMATI
			254															Cart Track & Drain			
97	AP-32	DB+0				6°7'30" RT	254	280	534	267.0	93.058	125.17	144.70	269.87	125.76	143.18	268.94		713875	3036214	RANGAMATI
			280															Cart Track, Brick Road, House & Drain			
98	32/1	DA+0					280	263	543	271.5	92.380	135.30	135.86	270.94	136.82	135.9	272.72				RANGAMATI
			263	1070	26845																
99	32/2	DA+0					263	263	526	263.0	91.777	127.96	131.85	260.81	129.1	132.21	261.31				RANGAMATI
			263																		
100	32/3	DA+0					263	264	527	263.5	91.620	130.45	122.87	253.32	130.79	125.82	255.61				RANGAMATI
			264															Jungle Area			
101	AP-33	DC+0				20°37'34" RT	264	299	563	281.5	92.994	141.1	131.35	272.7	138.18	137.35	275.53		718975	3035736	RANGAMATI
			299															Pond, 11 KV Line & Cart Track			

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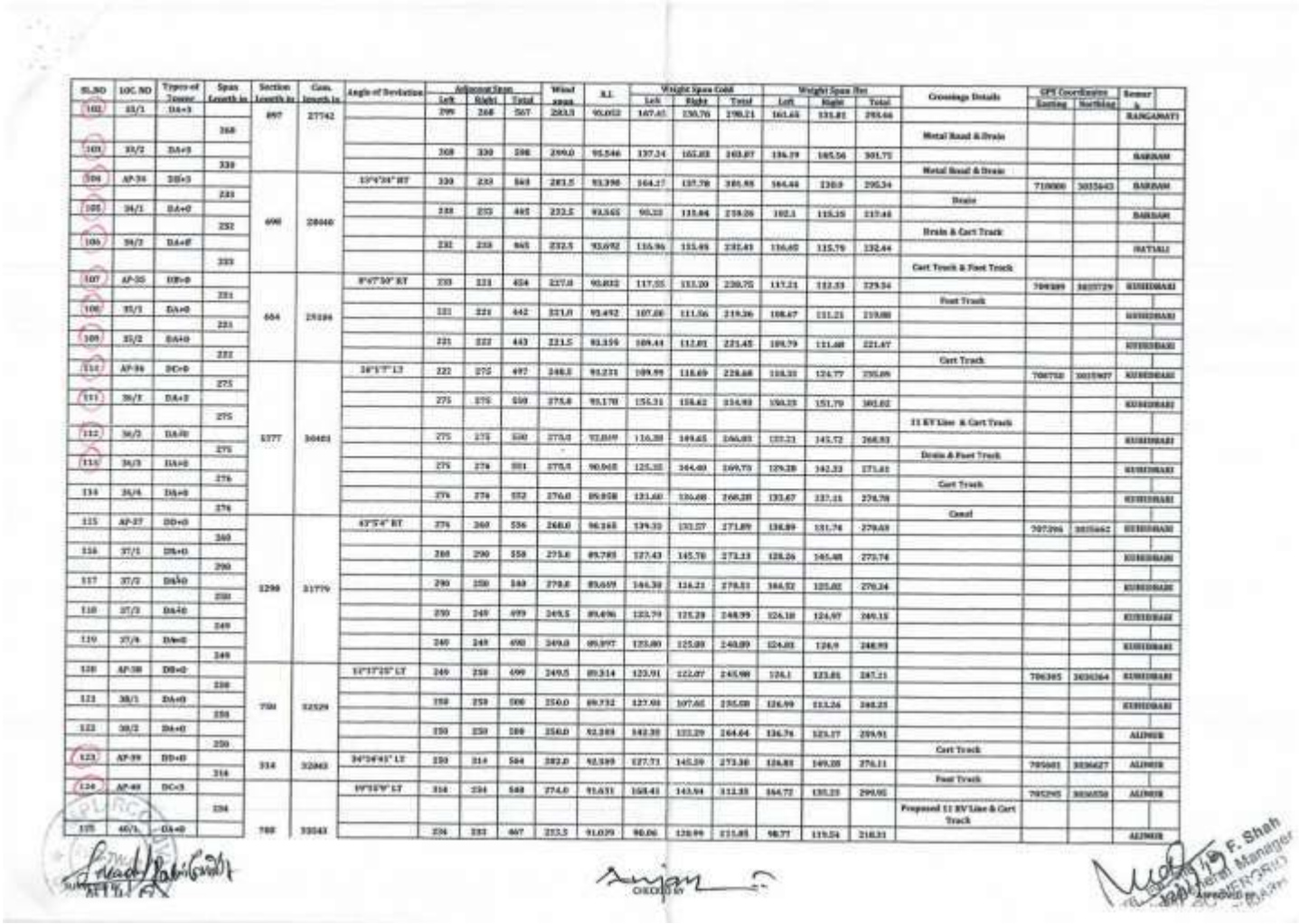

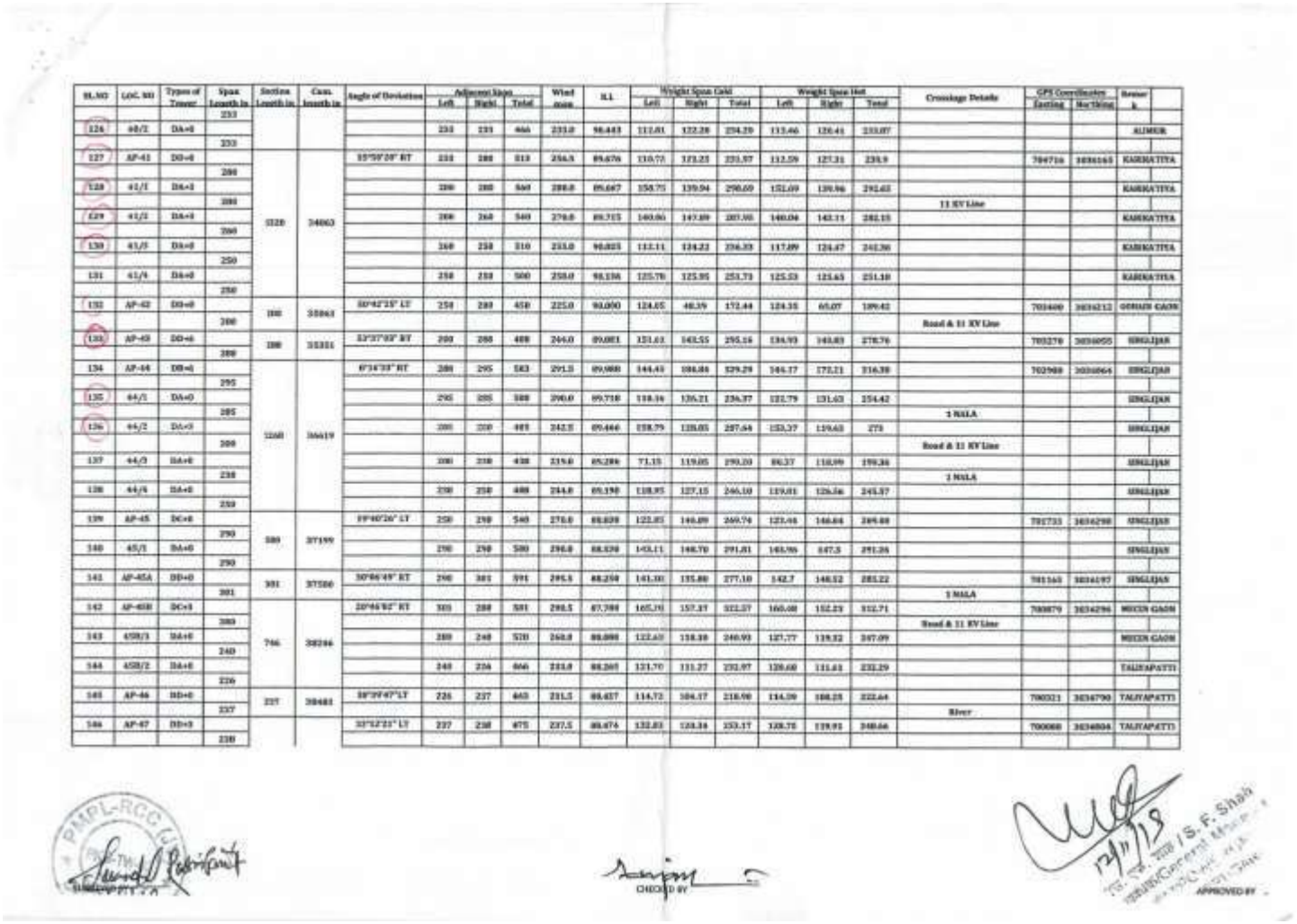

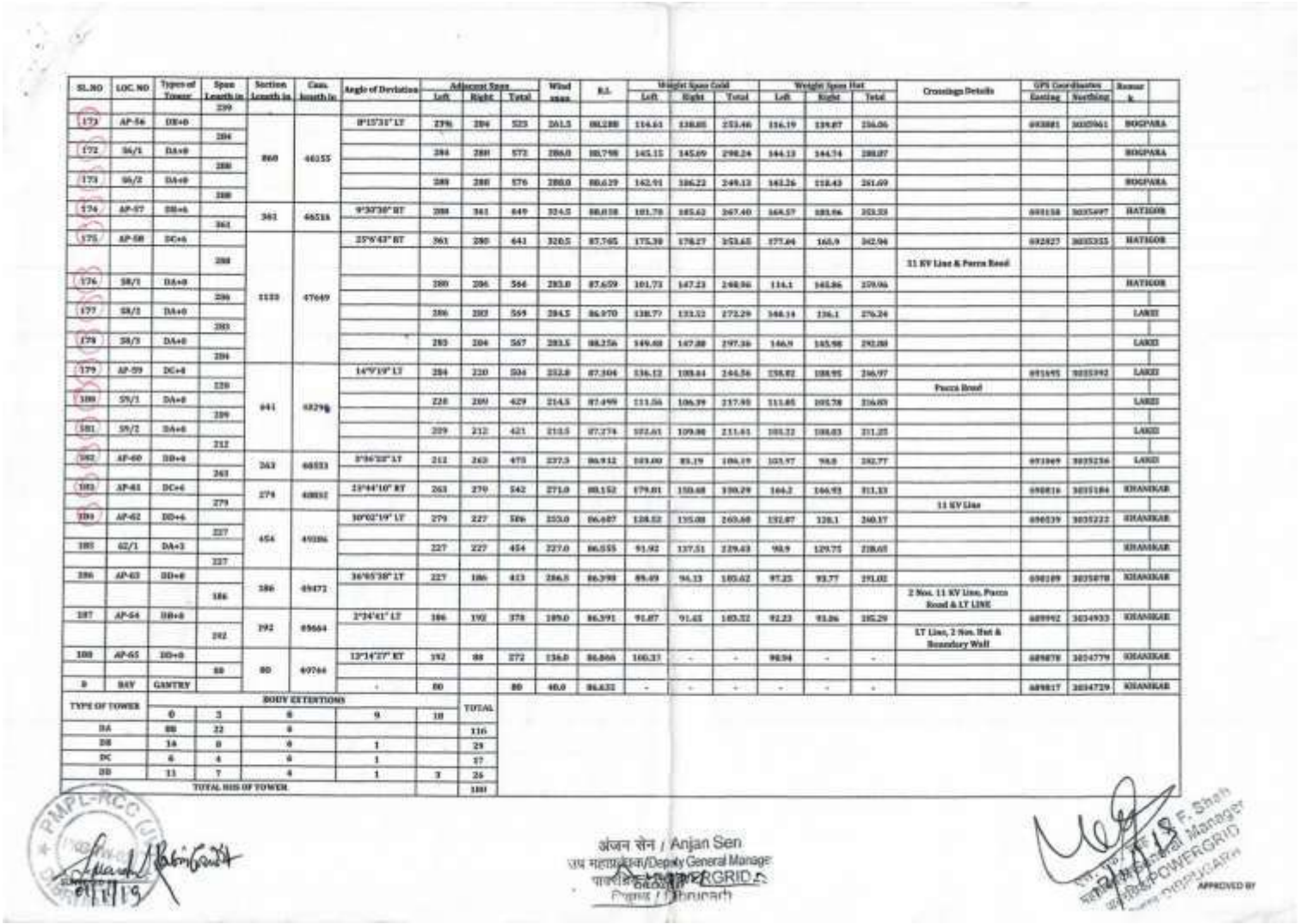

SL.NO	LOC. NO	Types of Tower	Span Length in	Section Length in	Cum. Length in	Angle of Deviation	Adjacent Span			Wind span	B.L	Weight Span Cold			Weight Span Hot			Crossings Details	GPS Coordinates		Remark
							Left	Right	Total			Left	Right	Total	Left	Right	Total		Easting	Northing	
			239																		
173	AP-56	DE+0				8°15'31" LT	276	284	523	261.5	80.280	114.61	138.85	253.46	116.19	139.87	256.06		693881	3035961	BOGPARA
			284																		
172	56/1	DA+0		860	46155		284	288	572	286.0	80.798	145.15	145.09	290.24	144.13	144.74	288.87				BOGPARA
			288																		
171	56/2	DA+0					289	288	576	288.0	80.629	142.91	146.22	289.13	142.26	118.43	261.69				BOGPARA
			288																		
174	AP-57	DE+6		361	46516	9°30'38" RT	288	361	649	324.5	80.038	101.70	165.62	267.40	168.57	183.96	352.53		693158	3035497	HATIGOR
			361																		
175	AP-58	DC+6				25°6'43" RT	361	280	641	320.5	87.765	175.39	178.27	353.65	177.64	165.9	342.94		692827	3035335	HATIGOR
			288															33 KV Line & Pacca Road			
176	58/1	DA+0					280	286	566	283.0	87.659	101.73	147.23	248.96	114.1	165.86	279.96				HATIGOR
			286	1133	47649																
177	58/2	DA+0					286	283	569	284.5	86.970	138.77	133.52	272.29	146.14	130.1	276.24				LAKE
			283																		
178	58/3	DA+0					283	284	567	283.5	88.256	149.68	147.88	297.56	146.9	145.98	292.88				LAKE
			284																		
179	AP-59	DC+6				14°9'19" LT	284	220	504	252.0	87.304	136.12	109.64	246.56	138.82	108.95	246.97		691695	3035392	LAKE
			220															Pacca Road			
180	59/1	DA+0		841	48298		220	209	429	214.5	87.499	111.56	106.39	217.95	111.85	105.78	216.83				LAKE
			209																		
181	59/2	DA+0					209	212	421	210.5	87.274	107.01	109.86	211.61	103.32	108.03	211.25				LAKE
			212																		
182	AP-60	DD+0		263	48933	3°36'33" LT	212	263	475	237.5	86.912	103.00	85.19	188.19	103.97	98.8	202.77		691869	3035236	LAKE
			263																		
183	AP-61	DC+6		274	48892	23°44'10" RT	263	279	542	271.0	88.152	179.81	150.68	330.29	164.2	166.93	331.13		690816	3035184	KHANIKAR
			279															11 KV Line			
184	AP-62	DD+6				30°02'19" LT	279	227	506	253.0	86.687	128.52	135.08	263.60	132.87	128.1	260.17		690539	3035222	KHANIKAR
			227	454	49386																
185	62/1	DA+3					227	227	454	227.0	86.555	91.92	137.51	229.43	90.9	129.75	220.65				KHANIKAR
			227																		
186	AP-63	DD+0		186	49572	36°05'38" LT	227	186	413	206.5	86.398	89.49	94.13	183.62	97.25	93.77	191.02		690189	3035078	KHANIKAR
			186															2 Nos. 11 KV Line, Pacca Road & LT LINE			
187	AP-64	DB+0		192	49664	2°24'41" LT	186	192	378	189.0	86.391	91.87	91.45	183.32	92.23	93.06	185.29		689992	3034933	KHANIKAR
			192															LT Line, 2 Nos. Hut & Boundary Wall			
188	AP-65	DD+0		80	49744	12°14'27" RT	192	80	272	136.0	86.866	160.33	-	-	98.94	-	-		689878	3034779	KHANIKAR
			80																		
0	66V	GANTRY				-	-	80	80	40.0	86.632	-	-	-	-	-	-		689817	3034729	KHANIKAR

TYPE OF TOWER	BODY EXTENTIONS					TOTAL
	0	3	6	9	10	
DA	88	22	6			116
DB	14	0	6	1		21
DC	6	4	6	1		17
DD	11	7	6	1	3	26
TOTAL NOS OF TOWER						180

PMPL-RCC (U)

अंजन सेन / Anjan Sen
उप महाप्रबंधक/Deputy General Manager
पावरग्रिड/POWERGRID
Dibrugarh

F. Shah
General Manager
POWERGRID
APPROVED BY

Pole Schedule

Annexture - 3

POLE COUNT FROM EXISTING 132/33kV BEHIATING

Sl No	Pole No	Pole Type	Recomndatio	Route Name	Latitude	Longitude	Remarks
1	GANTRY	GANTRY	SP64	Route 1	27 25 16.2	94 55 12.2	
2	FP-1	Four Pole	SP64	Route 1	27 25 15.5	94 55 12.4	
3	SP-1	Single Pole	SP64	Route 1	27 25 14.9	94 55 10.7	
4	SP-2	Single Pole	SP64	Route 1	27 25 14.6	94 55 09.5	
5	FP-2	Four Pole	SP64	Route 1	27 25 14.2	94 55 07.7	
6	SP-3	Single Pole	SP64	Route 1	27 25 15.7	94 55 07.3	
7	SP-4	Single Pole	SP64	Route 1	27 25 17.1	94 55 06.8	
8	SP-5	Single Pole	SP76	Route 1	27 25 18.8	94 55 06.3	Local Road Crossing/33 KV crossing
9	SP-6	Single Pole	SP76	Route 1	27 25 19.9	94 55 06.1	Local Road Crossing/33 KV crossing
10	SP-7	Single Pole	SP64	Route 1	27 25 21.1	94 55 05.6	
11	SP-8	Single Pole	SP64	Route 1	27 25 22.3	94 55 05.2	
12	DP-1	Double Pole	SP64	Route 1	27 25 23.3	94 55 04.8	
13	SP-9	Single Pole	SP64	Route 1	27 25 23.5	94 55 03.1	
14	SP-10	Single Pole	SP64	Route 1	27 25 23.6	94 55 01.3	
15	DP-2	Double Pole	SP64	Route 1	27 25 24.2	94 54 58.6	
16	SP-11	Single Pole	SP64	Route 1	27 25 25.0	94 54 57.4	
17	SP-12	Single Pole	SP64	Route 1	27 25 25.9	94 54 55.9	
18	SP-13	Single Pole	SP64	Route 1	27 25 26.6	94 54 54.4	
19	SP-14	Single Pole	SP64	Route 1	27 25 27.5	94 54 53.0	
20	SP-15	Single Pole	SP64	Route 1	27 25 28.4	94 54 51.5	
21	SP-16	Single Pole	SP64	Route 1	27 25 29.3	94 54 50.2	
22	SP-17	Single Pole	SP64	Route 1	27 25 30.2	94 54 48.6	
23	SP-18	Single Pole	SP64	Route 1	27 25 31.1	94 54 47.1	
24	FP-3	Four Pole	SP64	Route 1	27 25 32.1	94 54 46.2	
25	DP-3	Double Pole	SP64	Route 1	27 25 31.6	94 54 45.1	
26	FP-4	Four Pole	SP64	Route 1	27 25 31.9	94 54 43.2	
27	SP-19	Single Pole	SP64	Route 1	27 25 31.1	94 54 42.1	
28	SP-20	Single Pole	SP64	Route 1	27 25 30.2	94 54 40.9	
29	SP-21	Single Pole	SP64	Route 1	27 25 29.2	94 54 39.5	
30	SP-22	Single Pole	SP64	Route 1	27 25 28.3	94 54 38.5	
31	SP-23	Single Pole	SP64	Route 1	27 25 27.3	94 54 37.3	
32	SP-24	Single Pole	SP76	Route 1	27 25 26.2	94 54 36.1	33 KV crossing
33	SP-25	Single Pole	SP76	Route 1	27 25 24.9	94 54 34.6	33 KV crossing
34	SP-26	Single Pole	SP64	Route 1	27 25 24.2	94 54 33.7	
35	SP-27	Single Pole	SP64	Route 1	27 25 23.3	94 54 32.7	
36	SP-28	Single Pole	SP64	Route 1	27 25 22.4	94 54 31.4	
37	SP-29	Single Pole	SP64	Route 1	27 25 21.4	94 54 30.1	
38	SP-30	Single Pole	SP64	Route 1	27 25 20.5	94 54 28.7	
39	SP-31	Single Pole	SP64	Route 1	27 25 19.4	94 54 27.4	
40	SP-32	Single Pole	SP64	Route 1	27 25 18.4	94 54 26.1	
41	SP-33	Single Pole	SP64	Route 1	27 25 17.5	94 54 24.9	
42	DP-4	Double Pole	SP64	Route 1	27 25 16.5	94 54 23.5	
43	SP-34	Single Pole	SP64	Route 1	27 25 15.4	94 54 22.2	
44	SP-35	Single Pole	SP64	Route 1	27 25 14.3	94 54 21.1	

STERLING AND WILSON PVT. LTD.

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45	SP-36	Single Pole	SP64	Route 1	27 25 13.1	94 54 19.8	
46	DP-5	Double Pole	SP64	Route 1	27 25 12.4	94 54 19.0	
47	SP-37	Single Pole	SP64	Route 1	27 25 11.8	94 54 18.2	
48	SP-38	Single Pole	SP64	Route 1	27 25 11.1	94 54 17.6	
49	SP-39	Single Pole	SP64	Route 1	27 25 10.4	94 54 16.9	
50	SP-40	Single Pole	SP64	Route 1	27 25 09.3	94 54 15.9	
51	SP-41	Single Pole	SP64	Route 1	27 25 08.1	94 54 14.9	
52	SP-42	Single Pole	SP64	Route 1	27 25 06.7	94 54 13.7	
53	SP-43	Single Pole	SP64	Route 1	27 25 05.4	94 54 12.9	
54	SP-44	Single Pole	SP64	Route 1	27 25 04.1	94 54 12.2	
55	SP-45	Single Pole	SP64	Route 1	27 25 03.1	94 54 11.5	
56	SP-46	Single Pole	SP64	Route 1	27 25 01.7	94 54 10.5	
57	SP-47	Single Pole	SP64	Route 1	27 25 00.4	94 54 09.8	
58	SP-48	Single Pole	SP64	Route 1	27 24 59.0	94 54 09.1	
59	SP-49	Single Pole	SP64	Route 1	27 24 57.6	94 54 08.4	
60	SP-50	Single Pole	SP64	Route 1	27 24 56.2	94 54 07.7	
61	DP-6	Double Pole	SP64	Route 1	27 24 54.5	94 54 06.7	
62	DP-7	Double Pole	SP64	Route 1	27 24 53.0	94 54 06.5	
63	SP-51	Single Pole	SP64	Route 1	27 24 51.5	94 54 06.7	
64	SP-52	Single Pole	SP64	Route 1	27 24 50.0	94 54 06.8	
65	SP-53	Single Pole	SP64	Route 1	27 24 48.5	94 54 07.0	
66	SP-54	Single Pole	SP64	Route 1	27 24 46.9	94 54 07.2	
67	SP-55	Single Pole	SP64	Route 1	27 24 45.4	94 54 07.4	
68	SP-56	Single Pole	SP64	Route 1	27 24 43.6	94 54 07.3	
69	DP-8	Double Pole	SP64	Route 1	27 24 42.0	94 54 07.4	
70	SP-57	Single Pole	SP64	Route 1	27 24 40.4	94 54 07.1	
71	SP-58	Single Pole	SP64	Route 1	27 24 39.4	94 54 06.6	
72	DP-9	Double Pole	SP64	Route 1	27 24 38.0	94 54 06.2	
73	SP-59	Single Pole	SP64	Route 1	27 24 36.7	94 54 05.2	
74	SP-60	Single Pole	SP64	Route 1	27 24 35.6	94 54 04.1	
75	SP-61	Single Pole	SP64	Route 1	27 24 34.6	94 54 03.1	
76	SP-62	Single Pole	SP64	Route 1	27 24 33.6	94 54 02.6	
77	SP-63	Single Pole	SP64	Route 1	27 24 32.5	94 54 01.4	
78	SP-64	Single Pole	SP64	Route 1	27 24 31.5	94 54 00.2	
79	SP-65	Single Pole	SP64	Route 1	27 24 30.5	94 53 59.0	
80	SP-66	Single Pole	SP64	Route 1	27 24 29.3	94 53 57.5	
81	SP-67	Single Pole	SP64	Route 1	27 24 28.1	94 53 56.3	
82	SP-68	Single Pole	SP64	Route 1	27 24 27.2	94 53 55.2	
83	SP-69	Single Pole	SP64	Route 1	27 24 26.1	94 53 53.8	
84	SP-70	Single Pole	SP76	Route 1	27 24 25.1	94 53 52.8	LT CROSSING
85	SP-71	Single Pole	SP76	Route 1	27 24 24.5	94 53 51.5	LT CROSSING
86	SP-72	Single Pole	SP64	Route 1	27 24 23.5	94 53 50.3	
87	SP-73	Single Pole	SP64	Route 1	27 24 22.4	94 53 49.0	
88	SP-74	Single Pole	SP64	Route 1	27 24 21.2	94 53 47.6	
89	SP-75	Single Pole	SP64	Route 1	27 24 20.0	94 53 46.4	
90	SP-76	Single Pole	SP64	Route 1	27 24 19.1	94 53 45.1	
91	SP-77	Single Pole	SP64	Route 1	27 24 18.0	94 53 43.9	
92	SP-78	Single Pole	SP64	Route 1	27 24 17.0	94 53 42.7	
93	SP-79	Single Pole	SP64	Route 1	27 24 16.1	94 53 41.5	
94	SP-80	Single Pole	SP64	Route 1	27 24 15.4	94 53 40.4	
95	SP-81	Single Pole	SP64	Route 1	27 24 14.6	94 53 39.3	

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45	SP-36	Single Pole	SP64	Route 1	27 25 13.1	94 54 19.8	
46	DP-5	Double Pole	SP64	Route 1	27 25 12.4	94 54 19.0	
47	SP-37	Single Pole	SP64	Route 1	27 25 11.8	94 54 18.2	
48	SP-38	Single Pole	SP64	Route 1	27 25 11.1	94 54 17.6	
49	SP-39	Single Pole	SP64	Route 1	27 25 10.4	94 54 16.9	
50	SP-40	Single Pole	SP64	Route 1	27 25 09.3	94 54 15.9	
51	SP-41	Single Pole	SP64	Route 1	27 25 08.1	94 54 14.9	
52	SP-42	Single Pole	SP64	Route 1	27 25 06.7	94 54 13.7	
53	SP-43	Single Pole	SP64	Route 1	27 25 05.4	94 54 12.9	
54	SP-44	Single Pole	SP64	Route 1	27 25 04.1	94 54 12.2	
55	SP-45	Single Pole	SP64	Route 1	27 25 03.1	94 54 11.5	
56	SP-46	Single Pole	SP64	Route 1	27 25 01.7	94 54 10.5	
57	SP-47	Single Pole	SP64	Route 1	27 25 00.4	94 54 09.8	
58	SP-48	Single Pole	SP64	Route 1	27 24 59.0	94 54 09.1	
59	SP-49	Single Pole	SP64	Route 1	27 24 57.6	94 54 08.4	
60	SP-50	Single Pole	SP64	Route 1	27 24 56.2	94 54 07.7	
61	DP-6	Double Pole	SP64	Route 1	27 24 54.5	94 54 06.7	
62	DP-7	Double Pole	SP64	Route 1	27 24 53.0	94 54 06.5	
63	SP-51	Single Pole	SP64	Route 1	27 24 51.5	94 54 06.7	
64	SP-52	Single Pole	SP64	Route 1	27 24 50.0	94 54 06.8	
65	SP-53	Single Pole	SP64	Route 1	27 24 48.5	94 54 07.0	
66	SP-54	Single Pole	SP64	Route 1	27 24 46.9	94 54 07.2	
67	SP-55	Single Pole	SP64	Route 1	27 24 45.4	94 54 07.4	
68	SP-56	Single Pole	SP64	Route 1	27 24 43.6	94 54 07.3	
69	DP-8	Double Pole	SP64	Route 1	27 24 42.0	94 54 07.4	
70	SP-57	Single Pole	SP64	Route 1	27 24 40.4	94 54 07.1	
71	SP-58	Single Pole	SP64	Route 1	27 24 39.4	94 54 06.6	
72	DP-9	Double Pole	SP64	Route 1	27 24 38.0	94 54 06.2	
73	SP-59	Single Pole	SP64	Route 1	27 24 36.7	94 54 05.2	
74	SP-60	Single Pole	SP64	Route 1	27 24 35.6	94 54 04.1	
75	SP-61	Single Pole	SP64	Route 1	27 24 34.6	94 54 03.1	
76	SP-62	Single Pole	SP64	Route 1	27 24 33.6	94 54 02.6	
77	SP-63	Single Pole	SP64	Route 1	27 24 32.5	94 54 01.4	
78	SP-64	Single Pole	SP64	Route 1	27 24 31.5	94 54 00.2	
79	SP-65	Single Pole	SP64	Route 1	27 24 30.5	94 53 59.0	
80	SP-66	Single Pole	SP64	Route 1	27 24 29.3	94 53 57.5	
81	SP-67	Single Pole	SP64	Route 1	27 24 28.1	94 53 56.3	
82	SP-68	Single Pole	SP64	Route 1	27 24 27.2	94 53 55.2	
83	SP-69	Single Pole	SP64	Route 1	27 24 26.1	94 53 53.8	
84	SP-70	Single Pole	SP76	Route 1	27 24 25.1	94 53 52.8	LT CROSSING
85	SP-71	Single Pole	SP76	Route 1	27 24 24.5	94 53 51.5	LT CROSSING
86	SP-72	Single Pole	SP64	Route 1	27 24 23.5	94 53 50.3	
87	SP-73	Single Pole	SP64	Route 1	27 24 22.4	94 53 49.0	
88	SP-74	Single Pole	SP64	Route 1	27 24 21.2	94 53 47.6	
89	SP-75	Single Pole	SP64	Route 1	27 24 20.0	94 53 46.4	
90	SP-76	Single Pole	SP64	Route 1	27 24 19.1	94 53 45.1	
91	SP-77	Single Pole	SP64	Route 1	27 24 18.0	94 53 43.9	
92	SP-78	Single Pole	SP64	Route 1	27 24 17.0	94 53 42.7	
93	SP-79	Single Pole	SP64	Route 1	27 24 16.1	94 53 41.5	
94	SP-80	Single Pole	SP64	Route 1	27 24 15.4	94 53 40.4	
95	SP-81	Single Pole	SP64	Route 1	27 24 14.6	94 53 39.3	

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147	SP-126	Single Pole	SP64	Route 1	27 24 41.3	94 53 14.4	
148	SP-127	Single Pole	SP64	Route 1	27 24 41.4	94 53 12.7	
149	SP-128	Single Pole	SP64	Route 1	27 24 41.5	94 53 10.9	
150	SP-129	Single Pole	SP64	Route 1	27 24 41.5	94 53 09.2	
151	SP-130	Single Pole	SP64	Route 1	27 24 41.6	94 53 07.4	
152	SP-131	Single Pole	SP64	Route 1	27 24 41.6	94 53 05.9	
153	FP-10	Four Pole	SP64	Route 1	27 24 41.6	94 53 04.3	
154	SP-132	Single Pole	SP64	Route 1	27 24 43.0	94 53 04.7	
155	SP-133	Single Pole	SP64	Route 1	27 24 44.4	94 53 05.0	
156	SP-134	Single Pole	SP64	Route 1	27 24 46.0	94 53 05.5	
157	SP-135	Single Pole	SP64	Route 1	27 24 47.4	94 53 05.7	
158	FP-11	Four Pole	SP64	Route 1	27 24 48.7	94 53 06.0	
159	SP-136	Single Pole	SP64	Route 1	27 24 48.7	94 53 04.3	
160	SP-137	Single Pole	SP64	Route 1	27 24 48.8	94 53 02.4	
161	SP-138	Single Pole	SP76	Route 1	27 24 48.8	94 53 00.7	Dense Residential Area
162	DP-12	Double Pole	SP76	Route 1	27 24 48.8	94 52 58.4	Dense Residential Area
163	SP-139	Single Pole	SP76	Route 1	27 24 47.6	94 52 57.8	Dense Residential Area
164	FP-12	Four Pole	SP76	Route 1	27 24 46.6	94 52 57.2	Dense Residential Area
165	SP-140	Single Pole	SP64	Route 1	27 24 47.0	94 52 55.6	
166	SP-141	Single Pole	SP64	Route 1	27 24 47.3	94 52 54.3	
167	DP-13	Double Pole	SP76	Route 1	27 24 47.6	94 52 52.9	11 KV crossing
168	DP-14	Double Pole	SP76	Route 1	27 24 47.2	94 52 52.1	11 KV crossing
169	SP-142	Single Pole	SP64	Route 1	27 24 47.1	94 52 50.6	
170	SP-143	Single Pole	SP64	Route 1	27 24 47.1	94 52 49.2	
171	SP-144	Single Pole	SP64	Route 1	27 24 47.1	94 52 47.8	
172	SP-145	Single Pole	SP64	Route 1	27 24 47.2	94 52 46.6	
173	SP-146	Single Pole	SP64	Route 1	27 24 47.4	94 52 44.9	
174	DP-15	Double Pole	SP64	Route 1	27 24 47.5	94 52 43.1	
175	SP-147	Single Pole	SP64	Route 1	27 24 47.1	94 52 41.4	
176	DP-16	Double Pole	SP64	Route 1	27 24 46.9	94 52 39.5	
177	DP-17	Double Pole	SP64	Route 1	27 24 47.4	94 52 38.3	
178	SP-148	Single Pole	SP64	Route 1	27 24 48.4	94 52 37.3	
179	DP-18	Double Pole	SP64	Route 1	27 24 49.1	94 52 36.4	
180	SP-149	Single Pole	SP64	Route 1	27 24 49.6	94 52 34.8	
181	FP-13	Four Pole	SP64	Route 1	27 24 49.7	94 52 33.2	
182	SP-150	Single Pole	SP64	Route 1	27 24 51.1	94 52 32.6	
183	SP-151	Single Pole	SP64	Route 1	27 24 52.3	94 52 32.2	
184	SP-152	Single Pole	SP64	Route 1	27 24 53.6	94 52 31.7	
185	SP-153	Single Pole	SP64	Route 1	27 24 54.7	94 52 31.2	
186	SP-154	Single Pole	SP64	Route 1	27 24 56.3	94 52 30.5	
187	SP-155	Single Pole	SP64	Route 1	27 24 57.6	94 52 30.0	
188	SP-156	Single Pole	SP64	Route 1	27 24 59.0	94 52 29.3	
189	SP-157	Single Pole	SP64	Route 1	27 25 00.4	94 52 28.7	
190	SP-158	Single Pole	SP64	Route 1	27 25 01.8	94 52 28.2	
191	SP-159	Single Pole	SP64	Route 1	27 25 03.2	94 52 27.6	
192	SP-160	Single Pole	SP64	Route 1	27 25 04.7	94 52 26.9	
193	SP-161	Single Pole	SP64	Route 1	27 25 06.1	94 52 26.2	
194	FP-14	Four Pole	SP64	Route 1	27 25 07.6	94 52 25.1	
195	SP-162	Single Pole	SP64	Route 1	27 25 06.9	94 52 23.7	
196	SP-163	Single Pole	SP64	Route 1	27 25 06.2	94 52 22.1	
197	SP-164	Single Pole	SP64	Route 1	27 25 05.6	94 52 20.5	

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198	SP-165	Single Pole	SP64	Route 1	27 25 05.0	94 52 19.0	
199	SP-166	Single Pole	SP64	Route 1	27 25 04.4	94 52 17.5	
200	SP-167	Single Pole	SP64	Route 1	27 25 03.9	94 52 16.0	
201	SP-168	Single Pole	SP64	Route 1	27 25 03.2	94 52 14.4	
202	SP-169	Single Pole	SP64	Route 1	27 25 02.7	94 52 13.0	
203	SP-170	Single Pole	SP64	Route 1	27 25 02.0	94 52 11.3	
204	SP-171	Single Pole	SP64	Route 1	27 25 01.5	94 52 09.8	
205	SP-172	Single Pole	SP64	Route 1	27 25 00.8	94 52 08.3	
206	SP-173	Single Pole	SP64	Route 1	27 25 00.2	94 52 06.7	
207	SP-174	Single Pole	SP64	Route 1	27 24 59.6	94 52 05.0	
208	SP-175	Single Pole	SP64	Route 1	27 24 58.9	94 52 03.5	
209	SP-176	Single Pole	SP64	Route 1	27 24 58.1	94 52 02.0	
210	SP-177	Single Pole	SP64	Route 1	27 24 57.6	94 52 00.4	
211	SP-178	Single Pole	SP64	Route 1	27 24 57.1	94 51 58.8	
212	SP-179	Single Pole	SP64	Route 1	27 24 56.4	94 51 57.2	
213	SP-180	Single Pole	SP64	Route 1	27 24 55.9	94 51 55.5	
214	SP-181	Single Pole	SP64	Route 1	27 24 55.4	94 51 53.0	
215	DP-19	Double Pole	SP64	Route 1	27 24 54.66	94 51 51.29	
216	SP-182	Single Pole	SP64	Route 1	27 24 53.9	94 51 50.9	
217	SP-183	Single Pole	SP64	Route 1	27 24 53.3	94 51 49.3	
218	SP-184	Single Pole	SP64	Route 1	27 24 52.8	94 51 47.7	
219	SP-185	Single Pole	SP64	Route 1	27 24 52.3	94 51 46.3	
220	SP-186	Single Pole	SP64	Route 1	27 24 51.5	94 51 44.6	
221	SP-187	Single Pole	SP64	Route 1	27 24 50.9	94 51 42.9	
222	SP-188	Single Pole	SP64	Route 1	27 24 50.2	94 51 41.3	
223	SP-189	Single Pole	SP64	Route 1	27 24 49.6	94 51 39.8	
224	SP-190	Single Pole	SP64	Route 1	27 24 49.0	94 51 38.2	
225	SP-191	Single Pole	SP64	Route 1	27 24 48.3	94 51 36.7	
226	SP-192	Single Pole	SP64	Route 1	27 24 47.6	94 51 35.2	
227	SP-193	Single Pole	SP64	Route 1	27 24 46.9	94 51 33.5	
228	SP-194	Single Pole	SP64	Route 1	27 24 46.3	94 51 32.1	
229	SP-195	Single Pole	SP64	Route 1	27 24 45.7	94 51 30.5	
230	SP-196	Single Pole	SP64	Route 1	27 24 45.1	94 51 28.9	
231	SP-197	Single Pole	SP64	Route 1	27 24 44.6	94 51 27.4	
232	SP-198	Single Pole	SP64	Route 1	27 24 44.1	94 51 25.8	
233	SP-199	Single Pole	SP64	Route 1	27 24 43.6	94 51 24.1	
234	SP-200	Single Pole	SP64	Route 1	27 24 43.1	94 51 22.8	
235	DP-20	Double Pole	SP76	Route 1	27 24 42.45	94 51 21.53	Road Crossing/11 KV Crossing
236	DP-21	Double Pole	SP76	Route 1	27 24 41.79	94 51 20.15	Road Crossing/11 KV Crossing
237	SP-201	Single Pole	SP64	Route 1	27 24 41.4	94 51 18.8	
238	SP-202	Single Pole	SP64	Route 1	27 24 40.7	94 51 17.2	
239	SP-203	Single Pole	SP64	Route 1	27 24 40.1	94 51 15.7	
240	SP-204	Single Pole	SP64	Route 1	27 24 39.5	94 51 14.2	
241	SP-205	Single Pole	SP64	Route 1	27 24 38.9	94 51 12.6	
242	SP-206	Single Pole	SP64	Route 1	27 24 38.3	94 51 11.0	
243	SP-207	Single Pole	SP64	Route 1	27 24 37.7	94 51 09.5	
244	SP-208	Single Pole	SP64	Route 1	27 24 37.1	94 51 08.2	
245	SP-209	Single Pole	SP64	Route 1	27 24 36.5	94 51 06.9	

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246	SP-210	Single Pole	SP64	Route 1	27 24 36.1	94 51 05.8	
247	SP-211	Single Pole	SP64	Route 1	27 24 35.5	94 51 04.2	
248	SP-212	Single Pole	SP64	Route 1	27 24 34.9	94 51 02.7	
249	SP-213	Single Pole	SP64	Route 1	27 24 34.2	94 51 01.1	
250	SP-214	Single Pole	SP64	Route 1	27 24 33.7	94 50 59.6	
251	SP-215	Single Pole	SP64	Route 1	27 24 33.1	94 50 58.1	
252	SP-216	Single Pole	SP64	Route 1	27 24 32.6	94 50 56.8	
253	SP-217	Single Pole	SP64	Route 1	27 24 32.0	94 50 55.4	
254	SP-218	Single Pole	SP76	Route 1	27 24 31.5	94 50 54.1	11 KV crossing
255	SP-219	Single Pole	SP76	Route 1	27 24 31.0	94 50 52.8	11 KV crossing
256	SP-220	Single Pole	SP64	Route 1	27 24 30.0	94 50 51.2	
257	SP-221	Single Pole	SP64	Route 1	27 24 29.7	94 50 49.6	
258	DP-22	Double Pole	SP64	Route 1	27 24 29.1	94 50 48.2	
259	SP-222	Single Pole	SP64	Route 1	27 24 28.5	94 50 46.7	
260	SP-223	Single Pole	SP64	Route 1	27 24 27.8	94 50 45.1	
261	SP-224	Single Pole	SP64	Route 1	27 24 27.1	94 50 43.2	
262	SP-225	Single Pole	SP64	Route 1	27 24 26.4	94 50 41.5	
263	SP-226	Single Pole	SP64	Route 1	27 24 25.8	94 50 40.0	
264	SP-227	Single Pole	SP64	Route 1	27 24 25.3	94 50 38.3	
265	SP-228	Single Pole	SP64	Route 1	27 24 24.7	94 50 36.8	
266	SP-229	Single Pole	SP64	Route 1	27 24 24.1	94 50 35.4	
267	SP-230	Single Pole	SP64	Route 1	27 24 23.5	94 50 34.0	
268	SP-231	Single Pole	SP64	Route 1	27 24 22.6	94 50 32.2	
269	SP-232	Single Pole	SP64	Route 1	27 24 22.1	94 50 30.7	
270	SP-233	Single Pole	SP64	Route 1	27 24 21.5	94 50 29.3	
271	SP-234	Single Pole	SP64	Route 1	27 24 20.9	94 50 27.9	
272	SP-235	Single Pole	SP76	Route 1	27 24 20.4	94 50 26.6	ROAD CROSSING
273	FP-15	Four Pole	SP76	Route 1	27 24 19.9	94 50 25.3	ROAD CROSSING
274	SP-236	Single Pole	SP64	Route 1	27 24 21.2	94 50 24.4	
275	SP-237	Single Pole	SP64	Route 1	27 24 22.5	94 50 23.4	
276	SP-238	Single Pole	SP64	Route 1	27 24 23.8	94 50 22.4	
277	SP-239	Single Pole	SP64	Route 1	27 24 25.1	94 50 21.5	
278	SP-240	Single Pole	SP64	Route 1	27 24 26.4	94 50 20.4	
279	SP-241	Single Pole	SP64	Route 1	27 24 27.6	94 50 19.5	
280	DP-23	Double Pole	SP64	Route 1	27 24 29.0	94 50 18.4	
281	SP-242	Single Pole	SP64	Route 1	27 24 30.4	94 50 17.5	
282	SP-243	Single Pole	SP64	Route 1	27 24 31.9	94 50 16.5	
283	SP-244	Single Pole	SP64	Route 1	27 24 33.5	94 50 15.7	
284	SP-245	Single Pole	SP64	Route 1	27 24 34.6	94 50 14.8	
285	SP-246	Single Pole	SP64	Route 1	27 24 36.1	94 50 13.8	
286	SP-247	Single Pole	SP64	Route 1	27 24 37.3	94 50 12.7	
287	SP-248	Single Pole	SP64	Route 1	27 24 38.6	94 50 11.7	
288	SP-249	Single Pole	SP64	Route 1	27 24 39.7	94 50 10.8	
289	SP-250	Single Pole	SP64	Route 1	27 24 40.6	94 50 10.2	
290	SP-251	Single Pole	SP76	Route 1	27 24 41.7	94 50 09.3	Road Crossing
291	FP-16	Four Pole	SP76	Route 1	27 24 42.7	94 50 08.6	Road Crossing
292	SP-252	Single Pole	SP64	Route 1	27 24 41.8	94 50 07.4	
293	SP-253	Single Pole	SP64	Route 1	27 24 40.9	94 50 06.5	
294	SP-254	Single Pole	SP64	Route 1	27 24 40.1	94 50 05.6	
295	SP-255	Single Pole	SP64	Route 1	27 24 39.1	94 50 04.4	
296	FP-17	Four Pole	SP76	Route 1	27 24 37.9	94 50 03.1	33KV CROSSING

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297	SP-256	Single Pole	SP64	Route 1	27 24 39.1	94 50 02.4	
298	SP-257	Single Pole	SP64	Route 1	27 24 40.4	94 50 01.1	
299	FP-18	Four Pole	SP64	Route 1	27 24 41.66	94 50 01.14	
300	FP-19	Four Pole	SP64	Route 1	27 24 41.17	94 49 59.7	
301	GANTRY	GANTRY	SP64	Route 1	27 24 40.1	94 50 00.5	

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Annexure 3

POLE COUNT FROM EXISTING 132/33kV KADOMANI SUBSTATION TO PROPOSED 33/11kV ROMAI SUBSTATION

Sl No	Pole No	Pole Type	Route Name	Substation	Latitude	Longitude
1	GANTRY	GANTRY	Proposed Final Route	Romai	27 28 31.4	94 56 13.4
2	DP-1	Double Pole	Proposed Final Route	Romai	27 28 31.8	94 56 15.7
3	SP-1	Single Pole	Proposed Final Route	Romai	27 28 31.6	94 56 17.5
4	DP-2	Double Pole	Proposed Final Route	Romai	27 28 31.3	94 56 19.3
5	DP-3	Double Pole	Proposed Final Route	Romai	27 28 31.3	94 56 21.1
6	SP-2	Single Pole	Proposed Final Route	Romai	27 28 30.9	94 56 22.2
7	SP-3	Single Pole	Proposed Final Route	Romai	27 28 30.5	94 56 23.2
8	4P-1	Four Pole	Proposed Final Route	Romai	27 28 29.9	94 56 24.8
9	4P-2	Four Pole	Proposed Final Route	Romai	27 28 30.9	94 56 25.5
10	SP-4	Single Pole	Proposed Final Route	Romai	27 28 30.1	94 56 26.5
11	SP-5	Single Pole	Proposed Final Route	Romai	27 28 29.3	94 56 27.6
12	SP-6	Single Pole	Proposed Final Route	Romai	27 28 28.7	94 56 29.0
13	DP-4	Double Pole	Proposed Final Route	Romai	27 28 28.2	94 56 30.3
14	DP-5	Double Pole	Proposed Final Route	Romai	27 28 27.9	94 56 32.0
15	SP-7	Single Pole	Proposed Final Route	Romai	27 28 27.2	94 56 33.0
16	SP-8	Single Pole	Proposed Final Route	Romai	27 28 26.5	94 56 34.1
17	SP-9	Single Pole	Proposed Final Route	Romai	27 28 25.7	94 56 35.4
18	SP-10	Single Pole	Proposed Final Route	Romai	27 28 25.0	94 56 36.9
19	SP-11	Single Pole	Proposed Final Route	Romai	27 28 24.4	94 56 38.3
20	SP-12	Single Pole	Proposed Final Route	Romai	27 28 23.7	94 56 39.7
21	SP-13	Single Pole	Proposed Final Route	Romai	27 28 23.0	94 56 41.3
22	SP-14	Single Pole	Proposed Final Route	Romai	27 28 22.2	94 56 42.9
23	SP-15	Single Pole	Proposed Final Route	Romai	27 28 21.5	94 56 44.5
24	SP-16	Single Pole	Proposed Final Route	Romai	27 28 20.8	94 56 46.0
25	SP-17	Single Pole	Proposed Final Route	Romai	27 28 20.3	94 56 47.2
26	SP-18	Single Pole	Proposed Final Route	Romai	27 28 19.7	94 56 48.4
27	SP-19	Single Pole	Proposed Final Route	Romai	27 28 19.1	94 56 49.8
28	SP-20	Single Pole	Proposed Final Route	Romai	27 28 18.6	94 56 50.9
29	SP-21	Single Pole	Proposed Final Route	Romai	27 28 18.0	94 56 52.4
30	DP-6	Double Pole	Proposed Final Route	Romai	27 28 17.5	94 56 53.6
31	DP-7	Double Pole	Proposed Final Route	Romai	27 28 17.7	94 56 54.2
32	SP-22	Single Pole	Proposed Final Route	Romai	27 28 18.9	94 56 54.8
33	SP-23	Single Pole	Proposed Final Route	Romai	27 28 19.9	94 56 55.3
34	4P-3	Four Pole	Proposed Final Route	Romai	27 28 21.2	94 56 56.1
35	SP-24	Single Pole	Proposed Final Route	Romai	27 28 21.4	94 56 57.8
36	SP-25	Single Pole	Proposed Final Route	Romai	27 28 21.7	94 56 59.5
37	SP-26	Single Pole	Proposed Final Route	Romai	27 28 21.9	94 57 01.1
38	SP-27	Single Pole	Proposed Final Route	Romai	27 28 22.1	94 57 02.9
39	SP-28	Single Pole	Proposed Final Route	Romai	27 28 22.3	94 57 04.3
40	SP-29	Single Pole	Proposed Final Route	Romai	27 28 22.5	94 57 05.9
41	SP-30	Single Pole	Proposed Final Route	Romai	27 28 22.7	94 57 07.7
42	SP-31	Single Pole	Proposed Final Route	Romai	27 28 22.9	94 57 09.4
43	SP-32	Single Pole	Proposed Final Route	Romai	27 28 23.2	94 57 11.0
44	SP-33	Single Pole	Proposed Final Route	Romai	27 28 23.3	94 57 12.6
45	SP-34	Single Pole	Proposed Final Route	Romai	27 28 23.6	94 57 14.3
46	SP-35	Single Pole	Proposed Final Route	Romai	27 28 23.8	94 57 15.9
47	SP-36	Single Pole	Proposed Final Route	Romai	27 28 23.9	94 57 17.4
48	SP-37	Single Pole	Proposed Final Route	Romai	27 28 24.1	94 57 19.1
49	SP-38	Single Pole	Proposed Final Route	Romai	27 28 24.3	94 57 20.8
50	SP-39	Single Pole	Proposed Final Route	Romai	27 28 24.5	94 57 22.4
51	SP-40	Single Pole	Proposed Final Route	Romai	27 28 24.7	94 57 24.0
52	SP-41	Single Pole	Proposed Final Route	Romai	27 28 24.9	94 57 25.7
53	SP-42	Single Pole	Proposed Final Route	Romai	27 28 25.1	94 57 27.4
54	SP-43	Single Pole	Proposed Final Route	Romai	27 28 25.2	94 57 29.0
55	SP-44	Single Pole	Proposed Final Route	Romai	27 28 25.4	94 57 30.5
56	SP-45	Single Pole	Proposed Final Route	Romai	27 28 25.6	94 57 32.0

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Annexure 3

57	SP-46	Single Pole	Proposed Final Route	Romai	27 28 25.7	94 57 33.7
58	SP-47	Single Pole	Proposed Final Route	Romai	27 28 25.9	94 57 35.3
59	SP-48	Single Pole	Proposed Final Route	Romai	27 28 26.1	94 57 37.0
60	SP-49	Single Pole	Proposed Final Route	Romai	27 28 26.3	94 57 38.7
61	SP-50	Single Pole	Proposed Final Route	Romai	27 28 26.5	94 57 40.4
62	SP-51	Single Pole	Proposed Final Route	Romai	27 28 26.7	94 57 42.1
63	SP-52	Single Pole	Proposed Final Route	Romai	27 28 26.8	94 57 43.9
64	SP-53	Single Pole	Proposed Final Route	Romai	27 28 27.0	94 57 45.5
65	SP-54	Single Pole	Proposed Final Route	Romai	27 28 27.2	94 57 47.0
66	SP-55	Single Pole	Proposed Final Route	Romai	27 28 27.4	94 57 48.7
67	SP-56	Single Pole	Proposed Final Route	Romai	27 28 27.6	94 57 50.4
68	SP-57	Single Pole	Proposed Final Route	Romai	27 28 27.7	94 57 52.1
69	SP-58	Single Pole	Proposed Final Route	Romai	27 28 27.9	94 57 53.8
70	SP-59	Single Pole	Proposed Final Route	Romai	27 28 28.1	94 57 55.3
71	SP-60	Single Pole	Proposed Final Route	Romai	27 28 28.3	94 57 56.9
72	DP-8	Double Pole	Proposed Final Route	Romai	27 28 28.4	94 57 58.4
73	SP-61	Single Pole	Proposed Final Route	Romai	27 28 29.4	94 57 59.8
74	SP-62	Single Pole	Proposed Final Route	Romai	27 28 30.3	94 58 01.1
75	SP-63	Single Pole	Proposed Final Route	Romai	27 28 31.0	94 58 02.0
76	SP-64	Single Pole	Proposed Final Route	Romai	27 28 31.8	94 58 03.4
77	SP-65	Single Pole	Proposed Final Route	Romai	27 28 32.6	94 58 04.9
78	SP-66	Single Pole	Proposed Final Route	Romai	27 28 33.4	94 58 06.3
79	SP-67	Single Pole	Proposed Final Route	Romai	27 28 34.2	94 58 07.7
80	SP-68	Single Pole	Proposed Final Route	Romai	27 28 35.0	94 58 09.1
81	SP-69	Single Pole	Proposed Final Route	Romai	27 28 35.8	94 58 10.5
82	SP-70	Single Pole	Proposed Final Route	Romai	27 28 36.5	94 58 11.8
83	SP-71	Single Pole	Proposed Final Route	Romai	27 28 37.2	94 58 13.2
84	SP-72	Single Pole	Proposed Final Route	Romai	27 28 37.9	94 58 14.7
85	DP-9	Double Pole	Proposed Final Route	Romai	27 28 38.5	94 58 16.1
86	SP-73	Single Pole	Proposed Final Route	Romai	27 28 38.6	94 58 17.9
87	SP-74	Single Pole	Proposed Final Route	Romai	27 28 38.6	94 58 19.6
88	SP-75	Single Pole	Proposed Final Route	Romai	27 28 38.6	94 58 21.3
89	SP-76	Single Pole	Proposed Final Route	Romai	27 28 38.6	94 58 23.0
90	SP-77	Single Pole	Proposed Final Route	Romai	27 28 38.7	94 58 24.8
91	SP-78	Single Pole	Proposed Final Route	Romai	27 28 38.7	94 58 26.4
92	SP-79	Single Pole	Proposed Final Route	Romai	27 28 38.7	94 58 28.1
93	4P-4	Four Pole	Proposed Final Route	Romai	27 28 38.8	94 58 29.9
94	SP-80	Single Pole	Proposed Final Route	Romai	27 28 37.3	94 58 29.5
95	SP-81	Single Pole	Proposed Final Route	Romai	27 28 35.7	94 58 29.2
96	SP-82	Single Pole	Proposed Final Route	Romai	27 28 34.2	94 58 28.9
97	SP-83	Single Pole	Proposed Final Route	Romai	27 28 32.6	94 58 28.5
98	SP-84	Single Pole	Proposed Final Route	Romai	27 28 31.0	94 58 28.2
99	SP-85	Single Pole	Proposed Final Route	Romai	27 28 29.5	94 58 27.8
100	SP-86	Single Pole	Proposed Final Route	Romai	27 28 28.0	94 58 27.5
101	SP-87	Single Pole	Proposed Final Route	Romai	27 28 26.6	94 58 27.2
102	SP-88	Single Pole	Proposed Final Route	Romai	27 28 25.1	94 58 26.8
103	SP-89	Single Pole	Proposed Final Route	Romai	27 28 23.5	94 58 26.6
104	SP-90	Single Pole	Proposed Final Route	Romai	27 28 22.0	94 58 26.3
105	SP-91	Single Pole	Proposed Final Route	Romai	27 28 20.6	94 58 26.0
106	SP-92	Single Pole	Proposed Final Route	Romai	27 28 19.0	94 58 25.7
107	SP-93	Single Pole	Proposed Final Route	Romai	27 28 17.5	94 58 25.2
108	SP-94	Single Pole	Proposed Final Route	Romai	27 28 16.0	94 58 24.9
109	SP-95	Single Pole	Proposed Final Route	Romai	27 28 14.4	94 58 24.5
110	SP-96	Single Pole	Proposed Final Route	Romai	27 28 12.9	94 58 24.2
111	SP-97	Single Pole	Proposed Final Route	Romai	27 28 11.4	94 58 23.9
112	DP-10	Double Pole	Proposed Final Route	Romai	27 28 09.9	94 58 23.5
113	SP-98	Single Pole	Proposed Final Route	Romai	27 28 08.3	94 58 23.2
114	SP-99	Single Pole	Proposed Final Route	Romai	27 28 06.7	94 58 22.8
115	SP-100	Single Pole	Proposed Final Route	Romai	27 28 05.1	94 58 22.5

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116	SP-101	Single Pole	Proposed Final Route	Romai	27 28 03.6	94 58 22.1
117	SP-102	Single Pole	Proposed Final Route	Romai	27 28 02.3	94 58 21.6
118	SP-103	Single Pole	Proposed Final Route	Romai	27 28 01.0	94 58 21.1
119	SP-104	Single Pole	Proposed Final Route	Romai	27 27 59.7	94 58 20.6
120	4P-5	Four Pole	Proposed Final Route	Romai	27 27 58.6	94 58 20.2
121	SP-105	Single Pole	Proposed Final Route	Romai	27 27 58.4	94 58 21.7
122	SP-106	Single Pole	Proposed Final Route	Romai	27 27 58.2	94 58 23.3
123	4P-6	Four Pole	Proposed Final Route	Romai	27 27 58.0	94 58 25.0
124	SP-107	Single Pole	Proposed Final Route	Romai	27 27 56.7	94 58 24.9
125	SP-108	Single Pole	Proposed Final Route	Romai	27 27 55.2	94 58 24.8
126	SP-109	Single Pole	Proposed Final Route	Romai	27 27 53.7	94 58 24.6
127	SP-110	Single Pole	Proposed Final Route	Romai	27 27 52.2	94 58 24.5
128	SP-111	Single Pole	Proposed Final Route	Romai	27 27 50.6	94 58 24.3
129	SP-112	Single Pole	Proposed Final Route	Romai	27 27 49.1	94 58 24.2
130	SP-113	Single Pole	Proposed Final Route	Romai	27 27 47.8	94 58 24.1
131	DP-11	Double Pole	Proposed Final Route	Romai	27 27 46.4	94 58 23.9
132	SP-114	Single Pole	Proposed Final Route	Romai	27 27 45.1	94 58 24.4
133	SP-115	Single Pole	Proposed Final Route	Romai	27 27 43.9	94 58 24.8
134	4P-7	Four Pole	Proposed Final Route	Romai	27 27 42.7	94 58 25.2
135	SP-116	Single Pole	Proposed Final Route	Romai	27 27 43.1	94 58 26.7
136	SP-117	Single Pole	Proposed Final Route	Romai	27 27 43.5	94 58 28.4
137	SP-118	Single Pole	Proposed Final Route	Romai	27 27 43.9	94 58 30.2
138	SP-119	Single Pole	Proposed Final Route	Romai	27 27 44.4	94 58 31.9
139	SP-120	Single Pole	Proposed Final Route	Romai	27 27 44.8	94 58 33.7
140	SP-121	Single Pole	Proposed Final Route	Romai	27 27 45.3	94 58 35.4
141	SP-122	Single Pole	Proposed Final Route	Romai	27 27 45.7	94 58 37.2
142	SP-123	Single Pole	Proposed Final Route	Romai	27 27 46.1	94 58 38.9
143	SP-124	Single Pole	Proposed Final Route	Romai	27 27 46.5	94 58 40.4
144	SP-125	Single Pole	Proposed Final Route	Romai	27 27 46.9	94 58 42.0
145	SP-126	Single Pole	Proposed Final Route	Romai	27 27 47.3	94 58 43.5
146	DP-12	Double Pole	Proposed Final Route	Romai	27 27 47.5	94 58 44.6
147	SP-127	Single Pole	Proposed Final Route	Romai	27 27 47.3	94 58 46.4
148	SP-128	Single Pole	Proposed Final Route	Romai	27 27 47.0	94 58 48.2
149	SP-129	Single Pole	Proposed Final Route	Romai	27 27 46.6	94 58 50.0
150	SP-130	Single Pole	Proposed Final Route	Romai	27 27 46.3	94 58 51.7
151	SP-131	Single Pole	Proposed Final Route	Romai	27 27 46.0	94 58 53.2
152	SP-232	Single Pole	Proposed Final Route	Romai	27 27 45.6	94 58 54.8
153	DP-13	Double Pole	Proposed Final Route	Romai	27 27 45.1	94 58 56.4
154	SP-133	Single Pole	Proposed Final Route	Romai	27 27 45.0	94 58 57.4
155	SP-134	Single Pole	Proposed Final Route	Romai	27 27 44.9	94 58 59.0
156	SP-135	Single Pole	Proposed Final Route	Romai	27 27 44.8	94 59 00.4
157	SP-136	Single Pole	Proposed Final Route	Romai	27 27 44.8	94 59 01.6
158	SP-137	Single Pole	Proposed Final Route	Romai	27 27 44.9	94 59 03.0
159	DP-14	Double Pole	Proposed Final Route	Romai	27 27 44.9	94 59 04.4
160	SP-138	Single Pole	Proposed Final Route	Romai	27 27 44.6	94 59 06.0
161	SP-139	Single Pole	Proposed Final Route	Romai	27 27 44.0	94 59 07.5
162	SP-140	Single Pole	Proposed Final Route	Romai	27 27 43.4	94 59 09.1
163	SP-141	Single Pole	Proposed Final Route	Romai	27 27 42.9	94 59 10.4
164	SP-142	Single Pole	Proposed Final Route	Romai	27 27 42.4	94 59 11.7
165	SP-143	Single Pole	Proposed Final Route	Romai	27 27 41.8	94 59 13.3
166	SP-144	Single Pole	Proposed Final Route	Romai	27 27 41.4	94 59 14.9
167	SP-145	Single Pole	Proposed Final Route	Romai	27 27 40.9	94 59 16.6
168	SP-146	Single Pole	Proposed Final Route	Romai	27 27 40.5	94 59 18.2
169	SP-147	Single Pole	Proposed Final Route	Romai	27 27 40.1	94 59 19.9
170	SP-148	Single Pole	Proposed Final Route	Romai	27 27 39.7	94 59 21.5
171	SP-149	Single Pole	Proposed Final Route	Romai	27 27 39.3	94 59 23.0
172	SP-150	Single Pole	Proposed Final Route	Romai	27 27 38.9	94 59 24.2
173	SP-151	Single Pole	Proposed Final Route	Romai	27 27 38.5	94 59 25.9
174	SP-152	Single Pole	Proposed Final Route	Romai	27 27 38.0	94 59 27.4

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175	SP-153	Single Pole	Proposed Final Route	Romai	27 27 37.5	94 59 29.1
176	SP-154	Single Pole	Proposed Final Route	Romai	27 27 37.1	94 59 30.6
177	SP-155	Single Pole	Proposed Final Route	Romai	27 27 36.6	94 59 32.3
178	DP-15	Single Pole	Proposed Final Route	Romai	27 27 36.3	94 59 33.4
179	SP-156	Single Pole	Proposed Final Route	Romai	27 27 35.9	94 59 34.7
180	SP-157	Single Pole	Proposed Final Route	Romai	27 27 35.7	94 59 36.4
181	SP-158	Single Pole	Proposed Final Route	Romai	27 27 35.4	94 59 38.1
182	SP-159	Single Pole	Proposed Final Route	Romai	27 27 35.2	94 59 39.9
183	SP-160	Single Pole	Proposed Final Route	Romai	27 27 34.9	94 59 41.6
184	SP-161	Single Pole	Proposed Final Route	Romai	27 27 34.7	94 59 43.3
185	DP-16	Double Pole	Proposed Final Route	Romai	27 27 34.6	94 59 45.0
186	SP-162	Single Pole	Proposed Final Route	Romai	27 27 34.6	94 59 46.5
187	SP-163	Single Pole	Proposed Final Route	Romai	27 27 34.7	94 59 48.3
188	SP-164	Single Pole	Proposed Final Route	Romai	27 27 34.9	94 59 50.1
189	SP-165	Single Pole	Proposed Final Route	Romai	27 27 35.0	94 59 51.9
190	DP-17	Double Pole	Proposed Final Route	Romai	27 27 35.2	94 59 53.6
191	SP-166	Single Pole	Proposed Final Route	Romai	27 27 35.1	94 59 55.4
192	SP-167	Single Pole	Proposed Final Route	Romai	27 27 35.0	94 59 57.2
193	SP-168	Single Pole	Proposed Final Route	Romai	27 27 34.9	94 59 59.0
194	SP-169	Single Pole	Proposed Final Route	Romai	27 27 34.8	95 00 00.7
195	DP-18	Double Pole	Proposed Final Route	Romai	27 27 34.7	95 00 02.2
196	SP-170	Single Pole	Proposed Final Route	Romai	27 27 34.4	95 00 03.9
197	SP-171	Single Pole	Proposed Final Route	Romai	27 27 34.1	95 00 05.6
198	SP-172	Single Pole	Proposed Final Route	Romai	27 27 33.8	95 00 07.3
199	SP-173	Single Pole	Proposed Final Route	Romai	27 27 33.5	95 00 09.1
200	SP-174	Single Pole	Proposed Final Route	Romai	27 27 33.1	95 00 10.8
201	SP-175	Single Pole	Proposed Final Route	Romai	27 27 32.8	95 00 12.4
202	DP-19	Double Pole	Proposed Final Route	Romai	27 27 32.5	95 00 14.0
203	SP-176	Single Pole	Proposed Final Route	Romai	27 27 32.8	95 00 14.9
204	SP-177	Single Pole	Proposed Final Route	Romai	27 27 33.4	95 00 16.6
205	SP-178	Single Pole	Proposed Final Route	Romai	27 27 33.9	95 00 18.2
206	SP-179	Single Pole	Proposed Final Route	Romai	27 27 34.4	95 00 19.9
207	SP-180	Single Pole	Proposed Final Route	Romai	27 27 34.9	95 00 21.5
208	SP-181	Single Pole	Proposed Final Route	Romai	27 27 35.4	95 00 23.1
209	SP-182	Single Pole	Proposed Final Route	Romai	27 27 35.8	95 00 24.4
210	SP-183	Single Pole	Proposed Final Route	Romai	27 27 36.3	95 00 26.0
211	SP-184	Single Pole	Proposed Final Route	Romai	27 27 36.9	95 00 27.5
212	SP-185	Single Pole	Proposed Final Route	Romai	27 27 37.4	95 00 29.2
213	SP-186	Single Pole	Proposed Final Route	Romai	27 27 38.0	95 00 30.7
214	DP-20	Double Pole	Proposed Final Route	Romai	27 27 38.3	95 00 31.8
215	SP-187	Single Pole	Proposed Final Route	Romai	27 27 37.8	95 00 33.4
216	SP-188	Single Pole	Proposed Final Route	Romai	27 27 37.1	95 00 34.9
217	SP-189	Single Pole	Proposed Final Route	Romai	27 27 36.3	95 00 36.4
218	SP-190	Single Pole	Proposed Final Route	Romai	27 27 35.6	95 00 37.9
219	SP-191	Single Pole	Proposed Final Route	Romai	27 27 35.1	95 00 39.0
220	SP-192	Single Pole	Proposed Final Route	Romai	27 27 34.6	95 00 40.1
221	SP-193	Single Pole	Proposed Final Route	Romai	27 27 34.0	95 00 41.8
222	SP-194	Single Pole	Proposed Final Route	Romai	27 27 33.4	95 00 43.5
223	SP-195	Single Pole	Proposed Final Route	Romai	27 27 32.9	95 00 45.1
224	SP-196	Single Pole	Proposed Final Route	Romai	27 27 32.3	95 00 46.8
225	SP-197	Single Pole	Proposed Final Route	Romai	27 27 31.6	95 00 48.4
226	SP-198	Single Pole	Proposed Final Route	Romai	27 27 30.8	95 00 49.9
227	SP-199	Single Pole	Proposed Final Route	Romai	27 27 30.0	95 00 51.5
228	SP-200	Single Pole	Proposed Final Route	Romai	27 27 29.3	95 00 53.1
229	SP-201	Single Pole	Proposed Final Route	Romai	27 27 28.6	95 00 54.4
230	SP-202	Single Pole	Proposed Final Route	Romai	27 27 28.3	95 00 55.1
231	SP-203	Single Pole	Proposed Final Route	Romai	27 27 27.9	95 00 56.2
232	DP-21	Double Pole	Proposed Final Route	Romai	27 27 27.4	95 00 57.5
233	DP-22	Double Pole	Proposed Final Route	Romai	27 27 27.0	95 00 57.9

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234	DP-23	Double Pole	Proposed Final Route	Romai	27 27 25.7	95 00 58.8
235	4P-8	Four Pole	Proposed Final Route	Romai	27 27 24.4	95 00 58.7
236	SP-204	Single Pole	Proposed Final Route	Romai	27 27 23.9	95 00 57.0
237	4P-9	Four Pole	Proposed Final Route	Romai	27 27 23.5	95 00 55.3
238	4P-10	Four Pole	Proposed Final Route	Romai	27 27 22.5	95 00 56.0
239	SP-205	Single Pole	Proposed Final Route	Romai	27 27 22.0	95 00 57.6
240	SP-206	Single Pole	Proposed Final Route	Romai	27 27 21.3	95 00 59.2
241	SP-207	Single Pole	Proposed Final Route	Romai	27 27 20.8	95 01 00.8
242	DP-24	Double Pole	Proposed Final Route	Romai	27 27 20.2	95 01 02.3
243	SP-208	Single Pole	Proposed Final Route	Romai	27 27 18.8	95 01 02.8
244	SP-209	Single Pole	Proposed Final Route	Romai	27 27 17.4	95 01 03.3
245	SP-210	Single Pole	Proposed Final Route	Romai	27 27 15.9	95 01 03.8
246	SP-211	Single Pole	Proposed Final Route	Romai	27 27 14.4	95 01 04.2
247	SP-212	Single Pole	Proposed Final Route	Romai	27 27 12.9	95 01 04.8
248	SP-213	Single Pole	Proposed Final Route	Romai	27 27 11.7	95 01 05.1
249	DP-25	Double Pole	Proposed Final Route	Romai	27 27 10.6	95 01 05.5
250	SP-214	Single Pole	Proposed Final Route	Romai	27 27 09.0	95 01 05.6
251	SP-215	Single Pole	Proposed Final Route	Romai	27 27 07.4	95 01 05.6
252	SP-216	Single Pole	Proposed Final Route	Romai	27 27 05.9	95 01 05.7
253	SP-217	Single Pole	Proposed Final Route	Romai	27 27 04.3	95 01 05.7
254	SP-218	Single Pole	Proposed Final Route	Romai	27 27 02.8	95 01 05.7
255	SP-219	Single Pole	Proposed Final Route	Romai	27 27 01.7	95 01 05.8
256	DP-26	Double Pole	Proposed Final Route	Romai	27 27 00.4	95 01 05.8
257	DP-27	Double Pole	Proposed Final Route	Romai	27 26 59.3	95 01 06.3
258	SP-220	Single Pole	Proposed Final Route	Romai	27 26 57.7	95 01 06.1
259	SP-221	Single Pole	Proposed Final Route	Romai	27 26 56.2	95 01 06.2
260	SP-222	Single Pole	Proposed Final Route	Romai	27 26 54.5	95 01 06.3
261	SP-223	Single Pole	Proposed Final Route	Romai	27 26 52.9	95 01 06.4
262	SP-224	Single Pole	Proposed Final Route	Romai	27 26 51.3	95 01 06.5
263	SP-225	Single Pole	Proposed Final Route	Romai	27 26 49.7	95 01 06.7
264	SP-226	Single Pole	Proposed Final Route	Romai	27 26 48.2	95 01 06.8
265	SP-227	Single Pole	Proposed Final Route	Romai	27 26 46.7	95 01 06.9
266	DP-28	Double Pole	Proposed Final Route	Romai	27 26 45.1	95 01 07.0
267	4P-11	Four Pole	Proposed Final Route	Romai	27 26 44.0	95 01 06.7
268	SP-228	Single Pole	Proposed Final Route	Romai	27 26 42.9	95 01 07.9
269	SP-229	Single Pole	Proposed Final Route	Romai	27 26 41.9	95 01 08.8
270	SP-230	Single Pole	Proposed Final Route	Romai	27 26 41.0	95 01 09.8
271	SP-231	Single Pole	Proposed Final Route	Romai	27 26 40.0	95 01 10.8
272	SP-232	Single Pole	Proposed Final Route	Romai	27 26 39.0	95 01 12.2
273	DP-29	Double Pole	Proposed Final Route	Romai	27 26 38.0	95 01 13.5
274	SP-233	Single Pole	Proposed Final Route	Romai	27 26 36.8	95 01 14.5
275	SP-234	Single Pole	Proposed Final Route	Romai	27 26 35.6	95 01 15.5
276	SP-235	Single Pole	Proposed Final Route	Romai	27 26 34.5	95 01 16.5
277	DP-30	Double Pole	Proposed Final Route	Romai	27 26 33.3	95 01 17.5
278	SP-236	Single Pole	Proposed Final Route	Romai	27 26 32.8	95 01 18.9
279	SP-237	Single Pole	Proposed Final Route	Romai	27 26 32.3	95 01 20.4
280	DP-31	Double Pole	Proposed Final Route	Romai	27 26 32.0	95 01 22.1
281	SP-238	Single Pole	Proposed Final Route	Romai	27 26 32.2	95 01 24.1
282	SP-239	Single Pole	Proposed Final Route	Romai	27 26 32.7	95 01 25.8
283	SP-240	Single Pole	Proposed Final Route	Romai	27 26 33.2	95 01 27.5
284	SP-241	Single Pole	Proposed Final Route	Romai	27 26 33.7	95 01 29.1
285	SP-242	Single Pole	Proposed Final Route	Romai	27 26 34.0	95 01 30.3
286	DP-32	Double Pole	Proposed Final Route	Romai	27 26 34.3	95 01 31.3
287	SP-243	Single Pole	Proposed Final Route	Romai	27 26 34.3	95 01 32.9
288	SP-244	Single Pole	Proposed Final Route	Romai	27 26 34.3	95 01 34.4
289	SP-245	Single Pole	Proposed Final Route	Romai	27 26 34.5	95 01 36.2
290	SP-246	Single Pole	Proposed Final Route	Romai	27 26 34.7	95 01 37.9
291	SP-247	Single Pole	Proposed Final Route	Romai	27 26 34.9	95 01 39.7
292	4P-12	Four Pole	Proposed Final Route	Romai	27 26 35.0	95 01 41.2

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293	SP-248	Single Pole	Proposed Final Route	Romai	27 26 34.7	95 01 41.5
294	SP-249	Single Pole	Proposed Final Route	Romai	27 26 34.1	95 01 42.6
295	DP-33	Double Pole	Proposed Final Route	Romai	27 26 33.7	95 01 43.6
296	DP-34	Double Pole	Proposed Final Route	Romai	27 26 32.8	95 01 45.0
297	SP-250	Single Pole	Proposed Final Route	Romai	27 26 31.5	95 01 46.0
298	SP-251	Single Pole	Proposed Final Route	Romai	27 26 30.2	95 01 46.9
299	SP-252	Single Pole	Proposed Final Route	Romai	27 26 29.2	95 01 47.7
300	DP-35	Double Pole	Proposed Final Route	Romai	27 26 28.3	95 01 48.3
301	SP-253	Single Pole	Proposed Final Route	Romai	27 26 27.6	95 01 49.1
302	DP-36	Double Pole	Proposed Final Route	Romai	27 26 26.8	95 01 50.0
303	SP-254	Single Pole	Proposed Final Route	Romai	27 26 26.4	95 01 51.4
304	SP-255	Single Pole	Proposed Final Route	Romai	27 26 26.0	95 01 52.4
305	DP-37	Double Pole	Proposed Final Route	Romai	27 26 25.7	95 01 53.3
306	SP-256	Single Pole	Proposed Final Route	Romai	27 26 25.6	95 01 55.1
307	SP-257	Single Pole	Proposed Final Route	Romai	27 26 25.6	95 01 56.8
308	SP-258	Single Pole	Proposed Final Route	Romai	27 26 25.6	95 01 58.6
309	SP-259	Single Pole	Proposed Final Route	Romai	27 26 25.5	95 02 00.3
310	SP-260	Single Pole	Proposed Final Route	Romai	27 26 25.5	95 02 02.0
311	SP-261	Single Pole	Proposed Final Route	Romai	27 26 25.4	95 02 03.6
312	SP-262	Single Pole	Proposed Final Route	Romai	27 26 25.4	95 02 05.2
313	SP-263	Single Pole	Proposed Final Route	Romai	27 26 25.4	95 02 06.7
314	4P-13	Four Pole	Proposed Final Route	Romai	27 26 25.3	95 02 08.2
315	SP-264	Single Pole	Proposed Final Route	Romai	27 26 26.3	95 02 09.4
316	4P-14	Four Pole	Proposed Final Route	Romai	27 26 27.1	95 02 10.6
317	SP-265	Single Pole	Proposed Final Route	Romai	27 26 26.5	95 02 12.1
318	SP-266	Single Pole	Proposed Final Route	Romai	27 26 25.9	95 02 13.8
319	SP-267	Single Pole	Proposed Final Route	Romai	27 26 25.4	95 02 15.3
320	SP-268	Single Pole	Proposed Final Route	Romai	27 26 24.8	95 02 16.9
321	SP-269	Single Pole	Proposed Final Route	Romai	27 26 24.1	95 02 18.6
322	SP-270	Single Pole	Proposed Final Route	Romai	27 26 23.6	95 02 20.1
323	SP-271	Single Pole	Proposed Final Route	Romai	27 26 23.0	95 02 21.7
324	SP-272	Single Pole	Proposed Final Route	Romai	27 26 22.4	95 02 23.3
325	SP-273	Single Pole	Proposed Final Route	Romai	27 26 21.8	95 02 24.8
326	SP-274	Single Pole	Proposed Final Route	Romai	27 26 21.3	95 02 26.4
327	SP-275	Single Pole	Proposed Final Route	Romai	27 26 20.7	95 02 28.0
328	SP-276	Single Pole	Proposed Final Route	Romai	27 26 20.2	95 02 29.4
329	SP-277	Single Pole	Proposed Final Route	Romai	27 26 19.7	95 02 30.8
330	SP-278	Single Pole	Proposed Final Route	Romai	27 26 19.2	95 02 32.3
331	SP-279	Single Pole	Proposed Final Route	Romai	27 26 18.6	95 02 33.9
332	DP-38	Double Pole	Proposed Final Route	Romai	27 26 18.0	95 02 35.5
333	SP-280	Single Pole	Proposed Final Route	Romai	27 26 17.6	95 02 36.8
334	SP-281	Single Pole	Proposed Final Route	Romai	27 26 17.2	95 02 38.0
335	SP-282	Single Pole	Proposed Final Route	Romai	27 26 16.7	95 02 39.5
336	SP-283	Single Pole	Proposed Final Route	Romai	27 26 16.2	95 02 41.2
337	SP-284	Single Pole	Proposed Final Route	Romai	27 26 15.6	95 02 42.7
338	SP-285	Single Pole	Proposed Final Route	Romai	27 26 15.0	95 02 44.4
339	SP-286	Single Pole	Proposed Final Route	Romai	27 26 14.4	95 02 46.0
340	SP-287	Single Pole	Proposed Final Route	Romai	27 26 13.9	95 02 47.4
341	SP-288	Single Pole	Proposed Final Route	Romai	27 26 13.4	95 02 48.9
342	SP-289	Single Pole	Proposed Final Route	Romai	27 26 12.8	95 02 50.5
343	SP-290	Single Pole	Proposed Final Route	Romai	27 26 12.3	95 02 52.0
344	SP-291	Single Pole	Proposed Final Route	Romai	27 26 11.7	95 02 53.7
345	SP-292	Single Pole	Proposed Final Route	Romai	27 26 11.1	95 02 55.5
346	SP-293	Single Pole	Proposed Final Route	Romai	27 26 10.5	95 02 57.2
347	SP-294	Single Pole	Proposed Final Route	Romai	27 26 10.0	95 02 58.8
348	SP-295	Single Pole	Proposed Final Route	Romai	27 26 09.4	95 03 00.5
349	SP-296	Single Pole	Proposed Final Route	Romai	27 26 08.8	95 03 02.2
350	SP-297	Single Pole	Proposed Final Route	Romai	27 26 08.2	95 03 03.9
351	DP-39	Double Pole	Proposed Final Route	Romai	27 26 07.6	95 03 05.6

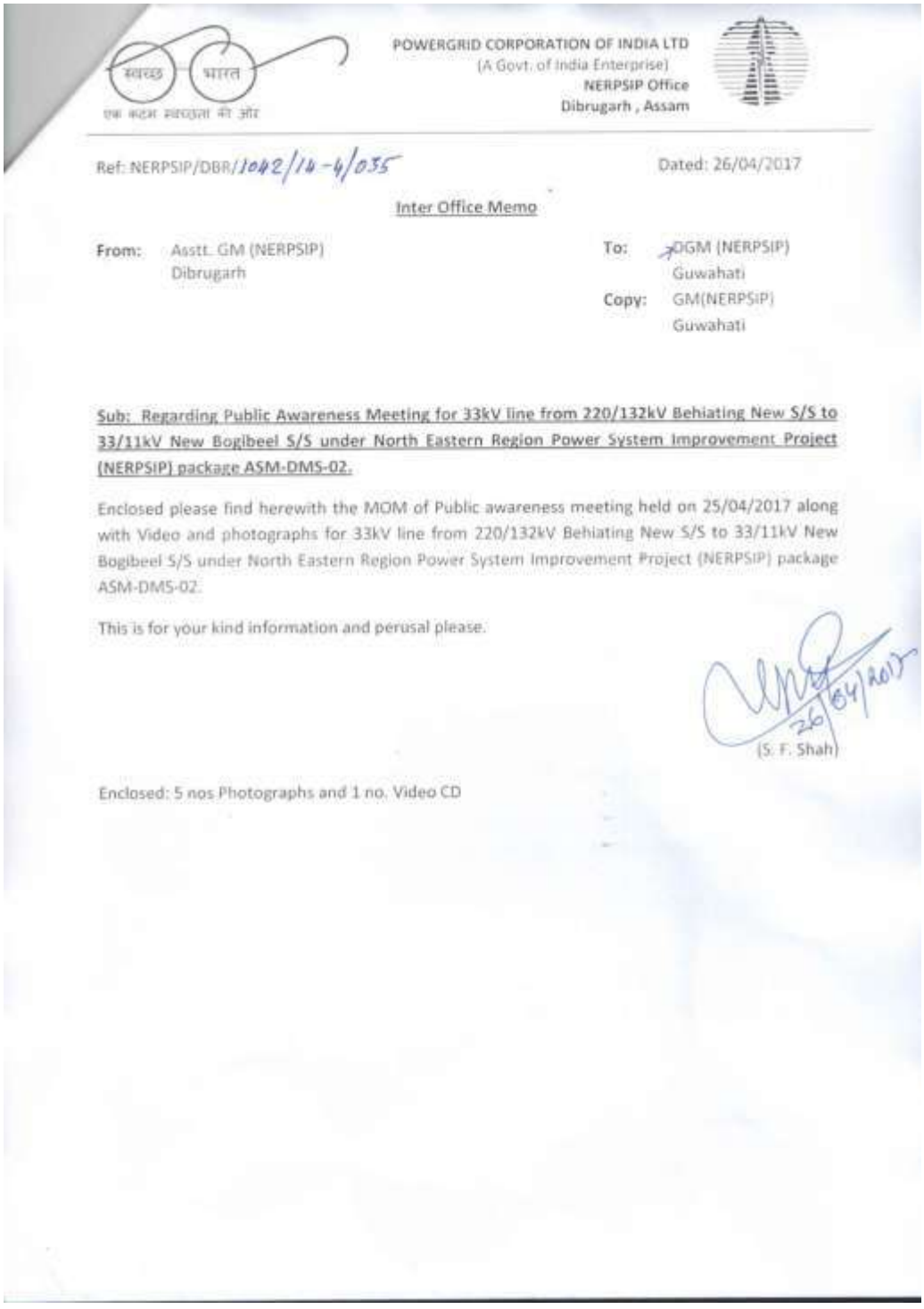
Annexure 3

352	SP-298	Single Pole	Proposed Final Route	Romai	27 26 07.0	95 03 07.3
353	SP-299	Single Pole	Proposed Final Route	Romai	27 26 06.4	95 03 09.0
354	SP-300	Single Pole	Proposed Final Route	Romai	27 26 05.8	95 03 10.7
355	SP-301	Single Pole	Proposed Final Route	Romai	27 26 05.2	95 03 12.4
356	SP-302	Single Pole	Proposed Final Route	Romai	27 26 04.7	95 03 14.0
357	SP-303	Single Pole	Proposed Final Route	Romai	27 26 04.1	95 03 15.6
358	SP-304	Single Pole	Proposed Final Route	Romai	27 26 03.5	95 03 17.3
359	4P-15	Four Pole	Proposed Final Route	Romai	27 26 03.0	95 03 18.8
360	SP-305	Single Pole	Proposed Final Route	Romai	27 26 01.4	95 03 19.2
361	SP-306	Single Pole	Proposed Final Route	Romai	27 25 59.9	95 03 19.5
362	SP-307	Single Pole	Proposed Final Route	Romai	27 25 58.3	95 03 19.9
363	SP-308	Single Pole	Proposed Final Route	Romai	27 25 57.0	95 03 20.2
364	SP-309	Single Pole	Proposed Final Route	Romai	27 25 55.9	95 03 20.4
365	SP-310	Single Pole	Proposed Final Route	Romai	27 25 54.8	95 03 20.7
366	SP-311	Single Pole	Proposed Final Route	Romai	27 25 53.2	95 03 20.9
367	SP-312	Single Pole	Proposed Final Route	Romai	27 25 51.6	95 03 21.1
368	SP-313	Single Pole	Proposed Final Route	Romai	27 25 50.0	95 03 21.4
369	SP-314	Single Pole	Proposed Final Route	Romai	27 25 48.4	95 03 21.6
370	SP-315	Single Pole	Proposed Final Route	Romai	27 25 46.9	95 03 21.8
371	DP-40	Double Pole	Proposed Final Route	Romai	27 25 45.3	95 03 22.0
372	SP-316	Single Pole	Proposed Final Route	Romai	27 25 43.8	95 03 22.0
373	SP-317	Single Pole	Proposed Final Route	Romai	27 25 42.4	95 03 22.0
374	SP-318	Single Pole	Proposed Final Route	Romai	27 25 40.9	95 03 21.9
375	SP-319	Single Pole	Proposed Final Route	Romai	27 25 39.4	95 03 21.9
376	SP-320	Single Pole	Proposed Final Route	Romai	27 25 37.9	95 03 21.9
377	SP-321	Single Pole	Proposed Final Route	Romai	27 25 36.7	95 03 21.9
378	4P-16	Four Pole	Proposed Final Route	Romai	27 25 35.6	95 03 21.8
379	GANTRY	GANTRY	Proposed Final Route	Romai	27 25 35.5	95 03 22.3

STERLING AND WILSON PVT. LTD.

Annexure 3

Details of Public Consultation and PAP meetings



POWERGRID CORPORATION OF INDIA LTD
(A Govt. of India Enterprise)
NERPSIP Office
Dibrugarh , Assam

Ref: NERPSIP/DBR/1042/14-4/035 Dated: 26/04/2017

Inter Office Memo

From: Asstt. GM (NERPSIP)
Dibrugarh

To: DGM (NERPSIP)
Guwahati

Copy: GM(NERPSIP)
Guwahati

Sub: Regarding Public Awareness Meeting for 33kV line from 220/132kV Behiating New S/S to 33/11kV New Bogibeel S/S under North Eastern Region Power System Improvement Project (NERPSIP) package ASM-DMS-02.

Enclosed please find herewith the MOM of Public awareness meeting held on 25/04/2017 along with Video and photographs for 33kV line from 220/132kV Behiating New S/S to 33/11kV New Bogibeel S/S under North Eastern Region Power System Improvement Project (NERPSIP) package ASM-DMS-02.

This is for your kind information and perusal please.

26/04/2017

(S. F. Shah)

Enclosed: 5 nos Photographs and 1 no. Video CD

PUBLIC AWARENESS MEETING

Subject: Construction of 33kV line from 220/132kV Behiating S/S to 33/11kV New Bogibeel S/S under North Eastern Region Power System Improvement Project (NERPSIP), a World Bank funded Scheme.

Venue: Khanikar Gaon Panchayat Office, Khanikar, Dibrugarh

Date & Time: 25/04/2017, 11:30am onwards

A public awareness meeting was held at the office of Gaon Panchayat (Khanikar), Dist - Dibrugarh, Assam on 25th April 2017 from 11:30am onwards to apprise the public about Construction of a New 33kV line from 220/132kV Behiating S/S to 33/11kV New Bogibeel S/S under North Eastern Region Power System Improvement Project (NERPSIP), a World Bank funded Scheme and also to discuss the various issues associated with the proposed 33kV line. The meeting was held in presence of representatives from Assam Power Distribution Company Limited along with officers of Power Grid Corporation Of India Ltd, Counselor (Gaon Panchayat), Secretary (Gaon Panchayat) and public of the nearby areas.

The meeting started with a detailed overview on the necessity of the NERPSIP Project, benefits of the project for the general public, various environment and socio-economic issues, various compensation related issues etc by Power Grid Officials. A leaflet termed "PROJECT SUMMARY" was also handed over to all the attendees of the meeting. Subsequently, after the brief from Power Grid and APDCL officials, it was requested to raise project related issues from the attendees so that appropriate clarification can be provided from the project proponent.

In this regard, various issues were raised by the public for proper execution of the project in their locality. The various issues raised were:

- Proper intimation to respective Land owner(s) prior to constructional activities on his/her land.
- Providing proper guard wires in lines passing through residential areas.
- Proper and uniform payment of compensation to all the eligible beneficiaries /land owners, where damage is incurred during construction of the line.
- Constructional Activities during paddy/wheat cultivation time in paddy field areas are to be avoided, as far as possible.

Officials from Power Grid Corporation Of India Ltd and Assam Power Distribution Company Limited (APDCL) assured that all the genuine issues raised by the public will be taken care of during execution of the project and also suitable lawful compensation will be paid for any damages caused during implementation of the project.Subsequently, all the attendees unanimously accepted the need for implementation of the project which will benefit the common public.

The meeting concluded with a request to all for providing full support while implementation of the project and a vote of thanks to the public and other officials for attending the meeting.

Particulars of Public Consultation Meeting

Sr. No.	Project	Date of Meeting	Venue of Meeting	No. of Persons Attended
1.	33 KV line from Behiating to New Bogibil substation	25.4.2017	Khanikar Panchayat Office	**29**
2.	220 kV Line from Tinsukia to Behiating	22.11.2019	Tinsukia	**13**
3.	220 kV Line from Tinsukia to Behiating	9.2.2019	Bhimpara	**05**
4.	220 kV Line from Tinsukia to Behiating	9.2.2019	Kadomani	**08**
5	33kV line from Dibrugarh to Romai	10.2.2019	Barbari	**10**
6	33kV line from Dibrugarh to Romai	10.2.2019	Balizan	**06**
7.	33kV line from Dibrugarh to Romai	11.2.2019	Choukhowa	**02**
8.	**33kV line from Dibrugarh to Romai**	**11.2.2019**	**Bashbari**	**07**

Details of PAP Meetings

Project	Place of Consultation	Stakeholders Consulted
	Transmission Line	
220 kV Line from Tinsukia to Behiating	Construction Site and Power Grid office	Contractor, Contractor labour IA Staff and Villagers
	Distribution Line	
220 kV Line from Tinsukia to Behiating	Construction Site	Contractor, Contractor labour

Photographs of Public Consultation Meeting

Formal consultation at Khanikar village

Meeting of GCI team member With Power grid Official at Chapakhowa office

Meeting GCI team member with Surveyors at Dibrugarh and Sadia Bridge

Public consultation by GCI team member at Tinsukia

Public consultation by GCI team member at Kadamoni

Public consultation by GCI team member at Mohanbadi

Public consultation by GCI team member at Banipur

Public consultation by GCI team member at Chapakhowa

Annexure 4

NoC Letters from Tea Estate Owners

Jamirah Tea Estate
Joonktollee Tea & Industries Ltd
P.O.-DIBRUGARH (ASSAM)

Head Office: 21, Strand Road,
Kolkata-700001, Phone: 2230 9601-04, Fax :(033)2230 2105
CIN: L01132WB1900PLC00292

Date-25.06.2018

To,
Assistant GM(NERPSIP)
Power Grid Corporation of India Ltd.
Dibrugarh

Sub- NOC for Installation of Poles In Jamirah T.E. for Drwal of 33 KV Lines from 132/33 KV Beheating (Khanikar) S/s to 33/11 KV Bogibil New S/s

Dear Sir,

With reference to your Memo No. NERPSIP/DBR/1042/14-6/861, dated 14.06.2018 regarding the subject cited above the undersigned hereby allowed to construct the line sections which are falling inside the tea garden area as per your terms and conditions.

Thanking you,

General Manager
JAMIRAH T. E.
GENERAL MANAGER
Dist Dibrugarh (Assam)

Jalannagar South Estate Pvt. Ltd

Head Office :
Jalannagar, Dibrugarh-786005
(ASSAM)
Ph: 0373-2300215, 2302895
Fax: 0373-2300895
Email: jalandib@gmail.com

Letter No HJNS/A-45/877/18/TE
Dated 27th Nov'18

Mr.S.F Shah
General Manager
Powergrid Corporation of India Ltd
Milannagar, D Lane
Dibrugarh

Sub:- Installation of poles in Jalannagar South T.E for drawal of 33KV Line from 132/33KV Behating (Khanikar) S/s(Jalannagar)

Dear Sir,

With reference to your letter No.NERPSIP/DBR/1042/14-6/1197 dated 01.11.2018 and subsequently our executive Sri J.P Khaund & Sri Tarun Ekka have had physical survey of proposed installation of poles for the above.

In this regard we have some queries which we would like to discuss in person with you and we would like to meet you at your convenience.

Thanking you,

Yours faithfully
For Jalannagar South Estate (Pvt) Ltd

Ashok Kr Tripathi
General Manager

Head Office:
P. B. No. 28 (Dibrugarh)
Pin : 786001 (Assam)
☎ : (0373) 2322009, 2322869
Fax : (0373) 2324542

Beheating Tea Estate

P.O. Dibrugarh
Pin : 786001 (Assam)
☎ : (0373) 2370142

Ref. No. APDCL/0204/18

Dtd. 22.10.18

To
Mr. S.F.Shah,
Asstt. G.M.(NERPSIP) Powergrid,
(A.Govt. of India Enterprise)
NERPSIP Office
Milan Nagar. Lane D Dibrugarh.

Ref :- **Your letter No. NERPSIP/DBR/1042/14-6/1126 dtd. 05.10.2018.**

Sub:- **Installation of Poles at Beheating T.E.**

Dear Sir,

We received the letter referred to above and noted the contents thereof.
In this context we refer to our discussions made with Mr.S.F.Shah, AGM at our Beheating Tea Estate at the work site at our garden sec.No.18 on 10/10/2018 where in it was agreed that the matter relating to the payment of compensation pertaining to the plots of land will be discussed at the time of drawl of the line once the pillar erected and the compensation will be computed by your personnel presumably your Junior Engineer, was also present at the time of discussion.

This being the position you are allowed to Carry out your work on the condition of making further discussion and necessary steps pertaining to payment of compensation for the plots effected as stated above.

Yours faithfully,

Manager.

C.C.
1. AGM , APDCL
2. SDO, Beheating Sub station.
3. Head Office: Beheating T.E. Dibruarh.

Annexure 5

Clearances from Various Authorities

Application
For Crossing Railway Line

Application ID : NFR-TSK-2019-62 Date : 07/12/2019

1. Applied to	:DRM/Engg.,Tinsukia,Northeast Frontier Railway
2. Purpose	:Power Lines/Transmission Lines
3. Applicant	:State Electricity Board
3.1 Applicant Name	:Assam Electricity Grid Corporation Ltd
3.2 Auth. Signatory	:Subodh Kr. Deka
3.3 Designation	:Assistant General Manager
3.4 Address	:The AGM, 132/33kV GSS, T&T Division, AEGCL, Nalkata, North Lakhimpur, 787031, North Lakhimpur, Assam 787031
3.5 Landline No	:
3.6 Mobile	:98xxxxxx85
3.7 Email	:ttd*****@gmail.com
4. Location	
4.1 Between Stations	:TANGANI and NEW SISIBARGAON
4.2 Railway KM/TP	:38/0 and 38/1
4.3 Revenue Village	:Udmara
4.4 Tehsil	:Sissiborgaon
4.5 District	:Dhemaji
4.6 State	:Assam
5. Method of work execution	
5.1 Work to be executed by	:Applicant Party
6. Detail of crossing	:Above 66 kV and upto 132 kV
7. Fee Mode(Rs.2000/-)	:DD/Banker's Cheque
7.1 No	:536436
7.2 Date	:24/09/2019
7.3 Issuing Bank/Name of Station	:State Bank of India Kulajan

Note :
1. Duly filled Application form should be downloaded, signed, and enclosing a copy of rough sketch and draft agreement duly signed (on each page) by the applicant should be sent to DRM/Engg. of the Division within one week of online registration by speed post / registered post.
2. The formal registration will be done after receipt of duly signed application form.
3. Application form without rough sketch, draft agreement duly signed by applicant (on each page) and registration fee shall be considered incomplete and be summarily rejected.
4. The demand draft(DD) should be prepared in favour of Senior Divisional Finance Mananger of the concerned Division payable at the divisional head querter's station.

(Subodh Kr. Deka)
(Signature of the Applicant)
Assistant General Manager
T&T Division, AEGCL
North Lakhimpur

Seal(in case other than individual)
Date: 07.12.19

Name of TL : 132 kV S/c (on D/c tower) Dhemaji-Silapathar TL
Name of pkg.: TL004 under NERPSIP

Scanned by CamScanner

POWER GRID CORPORATION OF INDIA LIMITED
पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड
(A Govt. of India Enterprise)
NERPSIP, Dibrugarh, Assam-786003

Ref: NERPSIP/DBR/ 3011/06C/ 1053

Date:14/09/2018

To

The Officer in Charge
Indian Air Force.
Chabua, Dibrugarh.

Sub: Construction of 220 KV Transmission line from Tinsukia to Dibrugarh under NERPSIP Scheme (a World Bank funded scheme) under Govt. of India.

Dear Sir,

In reference to the above subject we would like to inform you that "POWERGRID CORPORATION OF INDIA LIMITED" (a Navratna PSU) under Ministry of Power, Govt. of India is implementing the World Bank funded "NERPSIP" scheme in the entire North East India.

As a part of this Scheme we are constructing a 220 KV Extra High Voltage(EHV) line from Tinsukia to Dibrugarh.

As such in order to obtain the statutory permission/ NOC from various authorities during construction, we are enclosing herewith a copy sketch with details indicating the "TOWERS" falling approximately outside the radius of avg. 3 (three) km from Indian Airforce, Chabua, parallel to another existing EHV line.

We therefore request you please to intimate us about the formalities and documents to be submitted for obtaining "NOC" from your end.

Thanking you.

Yours Sincerely
14/09/18
S P Shah
Asst. GM, NERPSIP
POWERGRID, Dibrugarh.

Copy To:

1. DGM (NERPSIP & Engg.), POWERGRID, Guwahati.
2. AGM, AEGCL, Dibrugarh.

Received by
20/9/18

पावरग्रिड कारपोरेशन
ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
POWER GRID CORPORATION OF INDIA LIMITED
(A GOVERNMENT OF INDIA ENTERPRISE)
पावरग्रिड

मिलन नगर, लेन-डी, पी.ओ - सी आर बिल्डिंग,
डिब्रुगढ़ - ७८६००३, असम, दूरभाष : (०३७३) २३१९४३६
Milan Nagar, Lane - D, P.O. - C. R. Building,
Dibrugarh - 786003, Assam, Tel. : (0373) 2319436

संदर्भ संख्या / Ref. No. NERPSIP/DBR/1000/61/1000 दिनांक / Date 14.08.2018

To,

The Deputy General Manager (Projects),
NHAIDCL,
House No. A-40, Bylane-1,
Sonali Jayanti Nagar, AT Road,
Jorhat-785001

Sub: **Construction of 33 kV Lines in Dibrugarh District under NERPSIP Scheme – Submission of proposal for obtaining clearance from NHAIDCL for the portions of the lines falling under the utility of NHAIDCL corridor.**

Dear Sir

As discussed with you on dated 24.08.2018, we are submitting herewith the proposal for obtaining clearances from NHAIDCL in respect of 2 nos. 33kV lines under construction in NERPSIP Scheme, a portion of which is falling under the NHAIDCL utility corridor.

We request you kindly to accord NOC at an early.

The following draft documents are enclosed –

i) Agreement.
ii) Checklist (both Overhead and Underground).
iii) Detailed Enroute survey of 33kV Behaiting-Dibrugarh Line and 33kV Behaiting-Bogibil Line.
iv) Detail Site Plan.
v) Execution Methodology.

This is for your kind information and further needful action please.

Thanking You,

Office of the D.G.M. (P) N.H.I.D.C.L., JORHAT
Received 292
ON 28-8-18
Sign

Yours sincerely

S. F. Shah
Asst. General Manager
NERPSIP, Dibrugarh

Copy To : DGM, Engg. & NERPSIP

केन्द्रीय कार्यालय : सौदामिनी प्लॉट न-२, सेक्टर-२९, गुड़गाँव - १२२००१, दूरभाष - ०१२४-२५१७००-२१९
Corporate Centre "Saudamini", Plot No. 2, Sector - 29, Gurgaon - 122001, Tel. No. 0124-251700-219
Website : http //www.powergridindia.com

Application
For Crossing Railway Line

Application ID : NFR-TSK-2018-40 Date : 03/10/2018

1. Applied to	:DRM/Engg.,Tinsukia,Northeast Frontier Railway
2. Purpose	:Electrical Cable Underground
3. Applicant	:State Electricity Distribution Company
3.1 Applicant Name	:Assam Power Distribution Company Limited
3.2 Auth. Signatory	:ABHIJIT SAIKIA
3.3 Designation	:ASSISTANT GENERAL MANAGER
3.4 Address	:OFFICE OF THE ASSISTANT GENERAL MANAGER, APDCL, LACHIT NAGAR, DIBRUGARH, Assam 786001
3.5 Landline No.	:03732320395
3.6 Mobile	:9435706103
3.7 Email	:agm_ded@rediffmail.com
4. Location	
4.1 Between Stations	:DIBRUGARH and DHAMALGAON
4.2 Railway KM/TP	:10/8 and 10/9
4.3 Revenue Village	:BORBOROOAH TEA ESTATE
4.4 Tehsil	:BORBOROOAH
4.5 District	:Dibrugarh
4.6 State	:Assam
5. Method of work execution	
5.1 Work to be executed by	:Applicant Party
6. Detail of crossing	:Others : HDD (HORIZONTAL DRILL DRIVEN)
7. Fee Mode(Rs.2000/-)	:DD/Banker's Cheque
7.1 No.	:000420
7.2 Date	:03/10/2018
7.3 Issuing Bank/Name of Station	:ICICI BANK, DIBRUGARH BRANCH

Note :
1. Duly filled Application form should be downloaded, signed, and enclosing a copy of rough sketch and draft agreement duly signed (on each page) by the applicant should be sent to DRM/Engg. of the Division within one week of online registration by speed post / registered post.
2. The formal registration will be done after receipt of duly signed application form.
3. Application form without rough sketch, draft agreement duly signed by applicant (on each page) and registration fee shall be considered incomplete and be summarily rejected.
4. The demand draft(DD) should be prepared in favour of Senior Divisional Finance Mananger of the concerned Division payable at the divisional head quarter's station.

3-10-18
(ABHIJIT SAIKIA)
(Signature of the Applicant)
Assistant General Manager
Dibrugarh Electrical Division
APDCL, DIBRUGARH
Seal(in case other than individual)
Date:

OFFICE OF THE
DIVISIONAL RAILWAY MANAGER (ELECTRICAL)
NORTHEAST FRONTIER RAILWAY, TINSUKIA DIVISION
TINSUKIA PIN-786125 (ASSAM)
Phone & Fax No.0374- 2338464, 2333462 & E. mail ID –sdeetsk@gmail.com.

No: EL/30/TSK/ 2554 Date: -21.02.2019

To,
SSE/E/DBRT,
SSE/W/DBRT,
SSE/P-Way/DBRG,

Sub: Site plan w.r.t. permission for crossing Railway track by 33KV UG cable between DBRG - DMGN at Km.3/3 – 3/4 .

With reference to the above, it is to inform you that AGM/Dibrugarh Electrical Division, APDCL, Dibrugarh has applied for Permission of Railway track crossing by 33KV UG cable at the following location –

SN	Location	Km
1	DBRG - DMGN	3/3 – 3/4

Therefore you are advised to verify the site of the above noted location and submit the joint feasibility report alongwith drawings/sketch plan properly authenticated through respective ADEN of the concerned site and send all the site plan data, drawings, sketch properly mentioning the clearances and height wherever required at the earliest for onwards process from this end.
Before making proposals the following points must be followed as per Railway Board guidelines –

- Actual reduced level of RL, FL and GL to be shown instead of assumed reduced level.
- Crossing of Railway track by way leave shall mandatorily have to be at 90°.
- No boring of pit is allowed within Railway boundary for crossing of any cable/pipeline crossing.
- Separate drawing should be submitted for each crossing with signature & official seal/stamp of SSE/W, SSE/P-Way and ADEN concerned.

22.02.19

Senior Divisional Electrical Engineer
N.F.Railway/Tinsukia

Copy to:- 1) Sr.DEN/C/TSK – for kind information and to direct your concerned supervisor(SSE/Works and SS/P-Way) for joint site verification on the above mentioned location please.
2) ADEN/DBRT – for information and necessary action.
3) AGM/Dibrugarh Electrical Division – for information and to depute your official for necessary joint survey.

Received 22-2-19 Read 22/2/19

POWERGRID CORPORATION OF INDIA LTD
(A Govt. of India Enterprise)
NERPSIP Office, Dibrugarh , Assam
Email Id : nerpsip.dibrugarh@powergrid.co.in

Ref No.: NERPSIP/DBR/1000/598/ Date: 19.02.2019

To,

The Sr. DEE,
Tinsukia Railway Division,
Tinsukia.

Sub: **Submission of proposal for obtaining NOC for 33kV Railway Underground Crossing near Banipur Railway Station.**

Dear Sir,

Please find enclosed herewith the proposal as cited above for further needful action and issuance of NOC at an early.

The following documents are enclosed -

i) Application Form
ii) Demand Draft (in original)
iii) 25 Point Questionnaires
iv) 12 Point Questionnaires
v) Estimate Agreement
vi) A4 size Site Plan
vii) Land Valuation Certificate
viii) Execution Methodology
ix) Certificate of Endorsement
x) GST Certificate
xi) Agreement.

This is for your kind information and further needful action please.

Thanking You.

Yours sincerely,

19/02/2019

S. F. Shah
GM, NERPSIP
POWERGRID, Dibrugarh

Copy to : AGM, APDCL, Dibrugarh.

Application
For Crossing Railway Line

Application ID : NFR-TSK-2019-07 **Date : 06/02/2019**

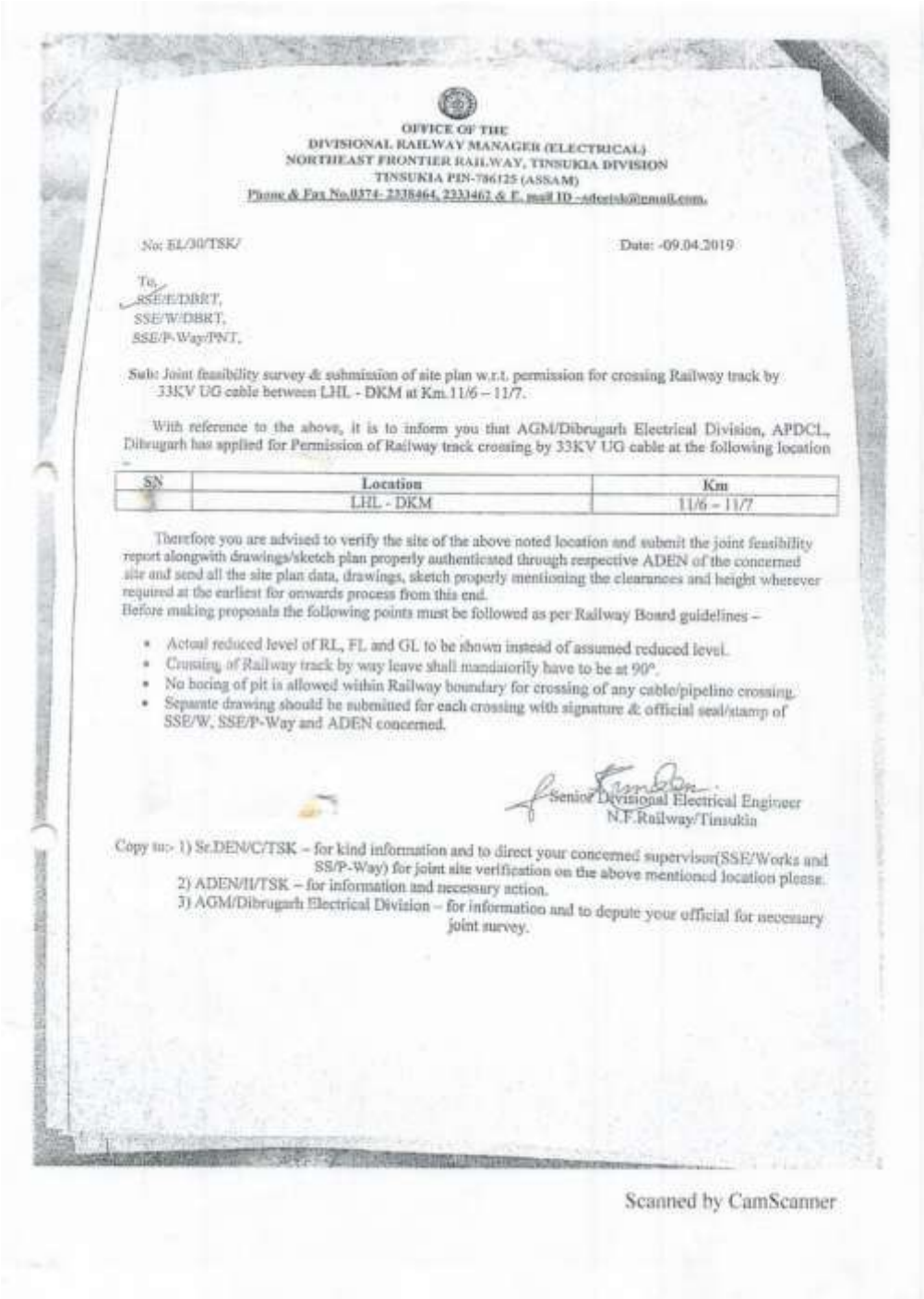
1. Applied to	:DRM/Engg.,Tinsukia,Northeast Frontier Railway
2. Purpose	:Electrical Cable Underground
3. Applicant	:State Electricity Distribution Company
3.1 Applicant Name	:Abhijeet Saikia
3.2 Auth. Signatory	:Abhijeet Saikia
3.3 Designation	:Assistant General Manager
3.4 Address	:Office of the AGM, Dibrugarh Electrical Circle, APDCL, Lachit Nagar , DIBRUGARH, Assam 786003
3.5 Landline No.	:373-2320395
3.6 Mobile	:94xxxxxx03
3.7 Email	:agm****@rediffmail.com
4. Location	
4.1 Between Stations	:DIBRUGARH and DHAMALGAON
4.2 Railway KM/TP	:3/3 and 3/4
4.3 Revenue Village	:Boiragimoth Kachari Gaon
4.4 Tehsil	:Dibrugarh West
4.5 District	:Dibrugarh
4.6 State	:Assam
5. Method of work execution	
5.1 Work to be executed by	:Applicant Party
6. Detail of crossing	:Others : Horizontal Drill Driven Underground Crossing
7. Fee Mode(Rs.2000/-)	:DD/Banker's Cheque
7.1 No.	:939706
7.2 Date	:04/02/2019
7.3 Issuing Bank/Name of Station	:SBI, Chowkidinghee Branch

Note :
1. Duly filled Application form should be downloaded, signed, and enclosing a copy of rough sketch and draft agreement duly signed (on each page) by the applicant should be sent to DRM/Engg. of the Division within one week of online registration by speed post / registered post.
2. The formal registration will be done after receipt of duly signed application form.
3. Application form without rough sketch, draft agreement duly signed by applicant (on each page) and registration fee shall be considered incomplete and be summarily rejected.
4. The demand draft(DD) should be prepared in favour of Senior Divisional Finance Mananger of the concerned Division payable at the divisional head quarter's station.

(Abhijeet Saikia)
(Signature of the Applicant)

Assistant General Manager
Dibrugarh Electrical Division
APDCL, DIBRUGARH

Seal(in case other than individual)
Date



OFFICE OF THE
DIVISIONAL RAILWAY MANAGER (ELECTRICAL)
NORTHEAST FRONTIER RAILWAY, TINSUKIA DIVISION
TINSUKIA PIN-786125 (ASSAM)
Phone & Fax No.0374- 2338464, 2331462 & E. mail ID -adeetsk@gmail.com.

No: EL/30/TSK/ Date: -09.04.2019

To,
SSE/E/DBRT,
SSE/W/DBRT,
SSE/P-Way/PNT.

Sub: Joint feasibility survey & submission of site plan w.r.t. permission for crossing Railway track by 33KV UG cable between LHL - DKM at Km.11/6 – 11/7.

With reference to the above, it is to inform you that AGM/Dibrugarh Electrical Division, APDCL, Dibrugarh has applied for Permission of Railway track crossing by 33KV UG cable at the following location

SN	Location	Km
	LHL - DKM	11/6 – 11/7

Therefore you are advised to verify the site of the above noted location and submit the joint feasibility report alongwith drawings/sketch plan properly authenticated through respective ADEN of the concerned site and send all the site plan data, drawings, sketch properly mentioning the clearances and height wherever required at the earliest for onwards process from this end.
Before making proposals the following points must be followed as per Railway Board guidelines –

- Actual reduced level of RL, FL and GL to be shown instead of assumed reduced level.
- Crossing of Railway track by way leave shall mandatorily have to be at 90°.
- No boring of pit is allowed within Railway boundary for crossing of any cable/pipeline crossing.
- Separate drawing should be submitted for each crossing with signature & official seal/stamp of SSE/W, SSE/P-Way and ADEN concerned.

Senior Divisional Electrical Engineer
N.F.Railway/Tinsukia

Copy to:- 1) Sr.DEN/C/TSK – for kind information and to direct your concerned supervisor(SSE/Works and SS/P-Way) for joint site verification on the above mentioned location please.
2) ADEN/II/TSK – for information and necessary action.
3) AGM/Dibrugarh Electrical Division – for information and to depute your official for necessary joint survey.

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POWERGRID CORPORATION OF INDIA LTD
(A Govt. of India Enterprise)
NERPSIP Office, Dibrugarh , Assam
Email Id : nerpsip.dibrugarh@powergrid.co.in

Ref No.: NERPSIP/DBR/1000/59B/

Date: 01.04.2019

To,

The Sr. DEE,
Tinsukia Railway Division,
Tinsukia.

Sub: **Submission of proposal for obtaining NOC for 33kV Railway Underground Crossing between Lahowal and Dikom Railway Station for 33kV Dibrugarh-Romai Line under North Eastern Region Power System Improvement Project, Dibrugarh.**

Dear Sir,

Please find enclosed herewith the proposal as cited above for further needful action and issuance of NOC at an early.

The following documents are enclosed -

i) Application Form
ii) Demand Draft (in original)
iii) 25 Point Questionnaires
iv) 12 Point Questionnaires
v) Estimate
vi) A4 size Site Plan
vii) Land Valuation Certificate
viii) Execution Methodology.
ix) Certificate of Endorsement
x) GST Certificate
xi) Agreement.

This is for your kind information and further needful action please.

Thanking You,

Yours sincerely,

Anjan Sen
DGM, NERPSIP
POWERGRID, Dibrugarh

Copy to : AGM, APDCL, Dibrugarh.

Application
For Crossing Railway Line

Application ID : NFR-TSK-2019-16 **Date : 20/03/2019**

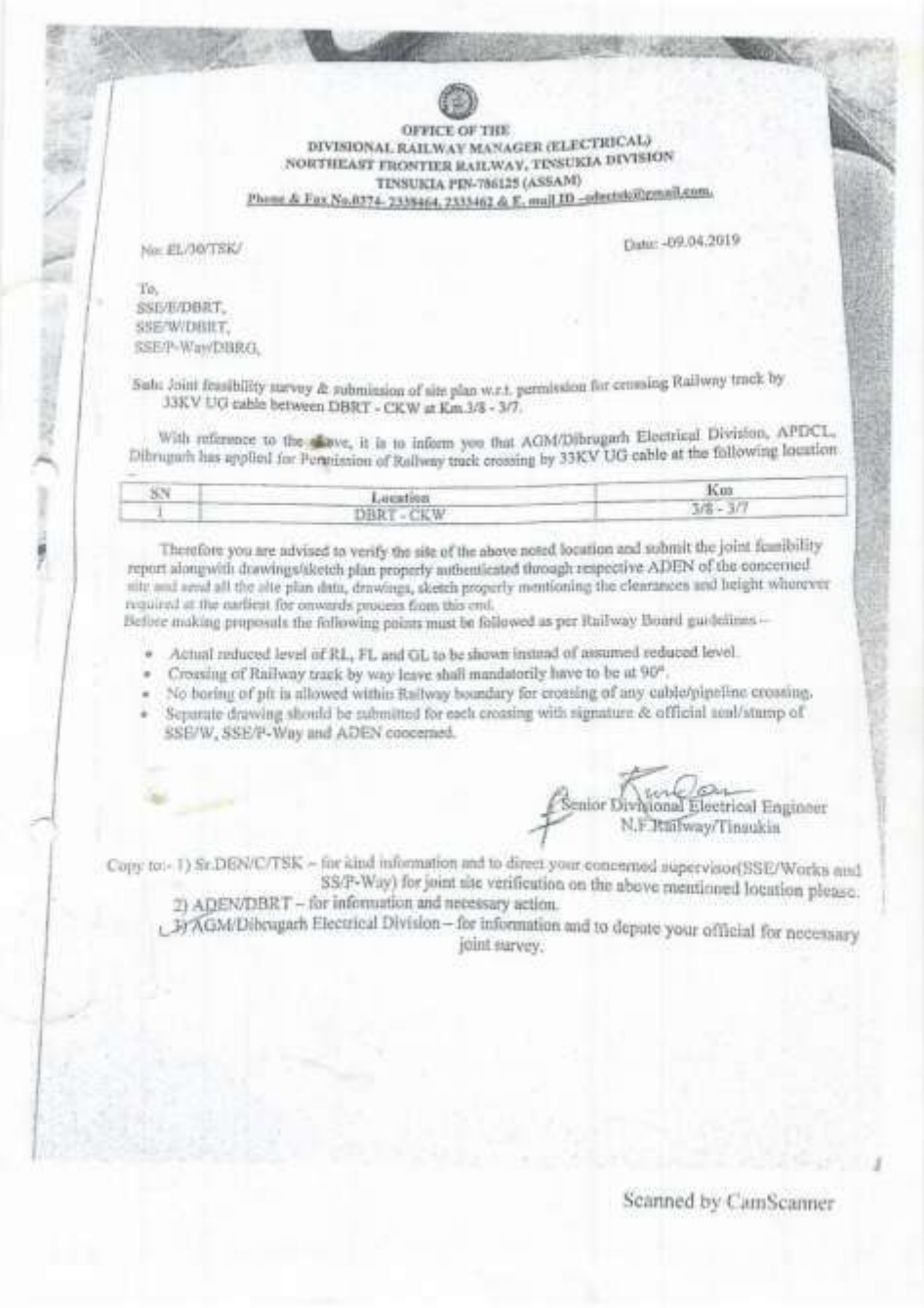
1. Applied to	:DRM/Engg.,Tinsukia,Northeast Frontier Railway
2. Purpose	:Electrical Cable Underground
3. Applicant	:State Electricity Distribution Company
3.1 Applicant Name	:Abhijeet Saikia
3.2 Auth. Signatory	:ABHIJEET SAIKIA
3.3 Designation	:ASSISTANT GENERAL MANAGER
3.4 Address	:OFFICE OF THE AGM, DIBRUGARH ELECTRICAL CIRCLE, APDCL, LACHIT NAGAR, DIBRUGARH, ASSAM - 786003, DIBRUGARH, Assam 786003
3.5 Landline No.	:373-2320395
3.6 Mobile	:94xxxxxx03
3.7 Email	:agm****@rediffmail.com
4. Location	
4.1 Between Stations	:LAHOAL and DIKOM
4.2 Railway KM/TP	:11/6 and 11/7
4.3 Revenue Village	:NIZ MOIDUMIA
4.4 Tehsil	:DIBRUGARH EAST
4.5 District	:Dibrugarh
4.6 State	:Assam
5. Method of work execution	
5.1 Work to be executed by	:Applicant Party
6. Detail of crossing	:Others : HORIZONTAL DRILL DRIVEN UNDERGROUND CROSSING
7. Fee Mode(Rs.2000/-)	:DD/Banker's Cheque
7.1 No.	:487
7.2 Date	:20/03/2019
7.3 Issuing Bank/Name of Station	:ICICI BANK, MILAN NAGAR

Note :
1. Duly filled Application form should be downloaded, signed, and enclosing a copy of rough sketch and draft agreement duly signed (on each page) by the applicant should be sent to DRM/Engg. of the Division within one week of online registration by speed post / registered post.
2. The formal registration will be done after receipt of duly signed application form.
3. Application form without rough sketch, draft agreement duly signed by applicant (on each page) and registration fee shall be considered incomplete and be summarily rejected.
4. The demand draft(DD) should be prepared in favour of Senior Divisional Finance Mananger of the concerned Division payable at the divisional head quarter's station.

26-3-19
(ABHIJEET SAIKIA)
(Signature of the Applicant)

Assistant General Manager
Dibrugarh Electrical Division
APDCL, DIBRUGARH

Seal(in case other than individual)
Date:



OFFICE OF THE
DIVISIONAL RAILWAY MANAGER (ELECTRICAL)
NORTHEAST FRONTIER RAILWAY, TINSUKIA DIVISION
TINSUKIA PIN-786125 (ASSAM)
Phone & Fax No.0374- 2338464, 2333462 & E. mail ID –sdectsk@gmail.com.

No: EL/30/TSK/ Date: -09.04.2019

To,
SSE/E/DBRT,
SSE/W/DBRT,
SSE/P-Way/DBRG,

Sub: Joint feasibility survey & submission of site plan w.r.t. permission for crossing Railway track by 33KV UG cable between DBRT - CKW at Km.3/8 - 3/7.

With reference to the above, it is to inform you that AGM/Dibrugarh Electrical Division, APDCL, Dibrugarh has applied for Permission of Railway track crossing by 33KV UG cable at the following location

SN	Location	Km
1	DBRT - CKW	3/8 - 3/7

Therefore you are advised to verify the site of the above noted location and submit the joint feasibility report alongwith drawings/sketch plan properly authenticated through respective ADEN of the concerned site and send all the site plan data, drawings, sketch properly mentioning the clearances and height wherever required at the earliest for onwards process from this end.
Before making proposals the following points must be followed as per Railway Board guidelines –

- Actual reduced level of RL, FL and GL to be shown instead of assumed reduced level.
- Crossing of Railway track by way leave shall mandatorily have to be at 90°.
- No boring of pit is allowed within Railway boundary for crossing of any cable/pipeline crossing.
- Separate drawing should be submitted for each crossing with signature & official seal/stamp of SSE/W, SSE/P-Way and ADEN concerned.

Senior Divisional Electrical Engineer
N.F Railway/Tinsukia

Copy to:- 1) Sr.DEN/C/TSK – for kind information and to direct your concerned supervisor(SSE/Works and SS/P-Way) for joint site verification on the above mentioned location please.
2) ADEN/DBRT – for information and necessary action.
3) AGM/Dibrugarh Electrical Division – for information and to depute your official for necessary joint survey.

Scanned by CamScanner

POWERGRID CORPORATION OF INDIA LTD
(A Govt. of India Enterprise)
NERPSIP Office, Dibrugarh , Assam
Email Id : nerpsip.dibrugarh@powergrid.co.in

Ref No.: NERPSIP/DBR/1000/59B/1215 Date: 01.04.2019

To,

The Sr. DEE,
Tinsukia Railway Division,
Tinsukia.

Sub: **Submission of proposal for obtaining NOC for 33kV Railway Underground Crossing between Dibrugarh Town and Chaulkhowa Railway Station for 33kV Dibrugarh-Romai Line under North Eastern Region Power System Improvement Project, Dibrugarh.**

Dear Sir,

Please find enclosed herewith the proposal as cited above for further needful action and issuance of NOC at an early.

The following documents are enclosed -

i) Application Form
ii) Demand Draft (in original)
iii) 25 Point Questionnaires
iv) 12 Point Questionnaires
v) Estimate
vi) A4 size Site Plan
vii) Land Valuation Certificate
viii) Execution Methodology.
ix) Certificate of Endorsement
x) GST Certificate
xi) Agreement.

This is for your kind information and further needful action please.

Thanking You,

Yours sincerely,

Anjan Sen
DGM, NERPSIP
POWERGRID, Dibrugarh

Copy to : AGM, APDCL, Dibrugarh.

Application
For Crossing Railway Line

Application ID : NFR-TSK-2019-14 **Date : 20/03/2019**

1. Applied to	:DRM/Engg.,Tinsukia,Northeast Frontier Railway
2. Purpose	:Electrical Cable Underground
3. Applicant	:State Electricity Distribution Company
3.1 Applicant Name	:Abhijeet Saikia
3.2 Auth. Signatory	:ABHIJEET SAIKIA
3.3 Designation	:ASSISTANT GENERAL MANAGER
3.4 Address	:OFFICE OF THE AGM, DIBRUGARH ELECTRICAL CIRCLE, APDCL, LACHIT NAGAR, DIBRUGARH, ASSAM - 786003, DIBRUGARH, Assam 786003
3.5 Landline No.	:373-2320395
3.6 Mobile	:94xxxxxx03
3.7 Email	:agm***@rediffmail.com
4. Location	
4.1 Between Stations	:DIBRUGARH TOWN and CHALKHOA
4.2 Railway KM/TP	:3/7 and 3/8
4.3 Revenue Village	:NIZ KODOMONI GAON
4.4 Tehsil	:DIBRUGARH EAST
4.5 District	:Dibrugarh
4.6 State	:Assam
5. Method of work execution	
5.1 Work to be executed by	:Applicant Party
6. Detail of crossing	:Others : HORIZONTAL DRILL DRIVEN UNDERGROUND CROSSING
7. Fee Mode(Rs.2000/-)	:DD/Banker's Cheque
7.1 No.	:486
7.2 Date	:20/03/2019
7.3 Issuing Bank/Name of Station	:ICICI BANK, MILAN NAGAR

Note :
1. Duly filled Application form should be downloaded, signed, and enclosing a copy of rough sketch and draft agreement duly signed (on each page) by the applicant should be sent to DRM/Engg. of the Division within one week of online registration by speed post / registered post.
2. The formal registration will be done after receipt of duly signed application form.
3. Application form without rough sketch, draft agreement duly signed by applicant (on each page) and registration fee shall be considered incomplete and be summarily rejected.
4. The demand draft(DD) should be prepared in favour of Senior Divisional Finance Mananger of the concerned Division payable at the divisional head quarter's station.

20-3-19
(ABHIJEET SAIKIA)
(Signature of the Applicant)

Assistant General Manager
Dibrugarh Electrical Division
APDCL, DIBRUGARH

Seal(in case other than individual)
Date:

GOVT. OF ASSAM
OFFICE OF THE EXECUTIVE ENGINEER:PWD:DIBRUGARH RURAL ROAD DIVISION
DIBRUGARH – 786001.

No.DIB/RR/TB/AP(SOPD)/Elect/23 Dated: 01-08-19.

To,
The DGM , NERPSIP
Powergrid , Dibrugarh

Sub : Construction of 33KV line from 132/33 KV Beheating (Khanikar) SS to 33/11 KV Dibrugarh New SS under ASM-DMS – 02 Package of NERPSIP Scheme, Dibrugarh.

Ref : (1) Your letter No. NERPSIP/DBR/1000/61/1936 Dated.03/07/2019
(2) A.E.E.'s letter No.DIB/SUB/9/2019-20/652 Dated.20/07/2019

Sir,

With reference to the subject cited above, I would like to submit herewith the drawing to show the specification of overhead cable crossing of the road which may be adopted by you with following terms and condition during execution.

1) The entire works should be carried out in consultation with A.E.E., PWD Dibrugarh Rural Road Dub-Division, Dibrugarh , Contact No. 9435516380
2) The erection of poles should be outside of the toe line without disturbing the formation of the road.
3) Pedestrian's movement and vehicle Traffics movement should not be disturbed at any cost during execution.
4) While executing your work any damage such as cable by the other department, responsibility will rest solely upon you.
5) On completion of your work you are to inform this office immediately for joint inspection with our officials.
6) Caution must be taken to ensure least possible damage to the road while executing the work.
7) The agency shall ensure that during work period , proper cautionary regulatory signal would be displayed by your own cost to avoid mishaps towards this.
8) The agency shall shift or remove the poles and cables in future widening/ development of the road at their own cost as and when requested by the PWRD or within a responsible time frame as given by PWRD.
9) The agency shall remove all debris/ loose earth etc. due to digging shifted to a safe place and construction materials should not be dumped within the ROW of PWD land.
10) The agency understand that violation of the norms may entail cancellation of the permission accords.

In this regard a copy of schematic diagram is enclosed for favour of your ready reference and necessary action.

Enclosed : 1 (One) copy of Diagram.

Yours faithfully
01.8.19
(B.C. Pangging)
Executive Engineer, P.W.D.
Dibrugarh Rural Road Division,
Dibrugarh
01/8/19

GOVT. OF ASSAM

OFFICE OF THE EXECUTIVE ENGINEER, P.W.D. N.H.DIVISION, DIBRUGARH

No. TBNH.8/91/2011/ 9608 Date:-03.07.19

To

The GM, POWER GRID
NERPSIP, DIBRUGARH

Sub :- Construction of new 33 KV Transmission Line from 33 KV Kodomoni S/s to 33/11 KV Romai new S/s under NERPSIP (North Eastern Region Power System Improvement Project) , Dibrugarh - Request for construction of the said line in the Utility Corridor of Proposed NH Project. (Permission for crossing NH)

Ref :- Your letter No. NERPSIP/DBR/1042/14-6/1487 dated 11.02.2019

Sir,

With Reference to the above subject proposed power line is allowed to install/construct in the greater interest of the public along newly constructed Mohanbari-Chabua By-pass , along existing NH-37 and crossing at chainages as shown in the line plan attached with the letter under reference as per the guidelines laid as follows.

1.1 All the poles meant for overhead line must be placed at the outer edge of National Highway ROW.

2.1 Road crossing at Ch.607.400km (Mohanbari-Chabua By-pass) would be overhead maintaining the minimum vertical clearence as per IRC norms.

2.2 Road crossing at Ch.599.500km & at Ch.607.900km would be underground maintaining the minimum depth as per instruction given by this Deptt.

3.1 For Underground crossing at Ch.599.500km & at Ch607.900km adjacent Railway ROW, separate permission(NOC) must be obtained from the respected Deptt.

4.1 Any damage to the National Highway during execution of work must be restored to NH standard at your own cost.

5.1 Before installation/construction it must be consulted with AEE, PWD, Dibrugarh NH Sub-Division, Dibrugarh for proper guidance.

This is for your information and necessary action.

Yours Faithfully

Executive Engineer, PWD
Dibrugarh NH Division

Executive Engineer P.W.D.
National Highway Division
Dibrugarh

Memo No. TBNH.8/91/2011/ 9608-A Date:-03.07.19

Copy to :-

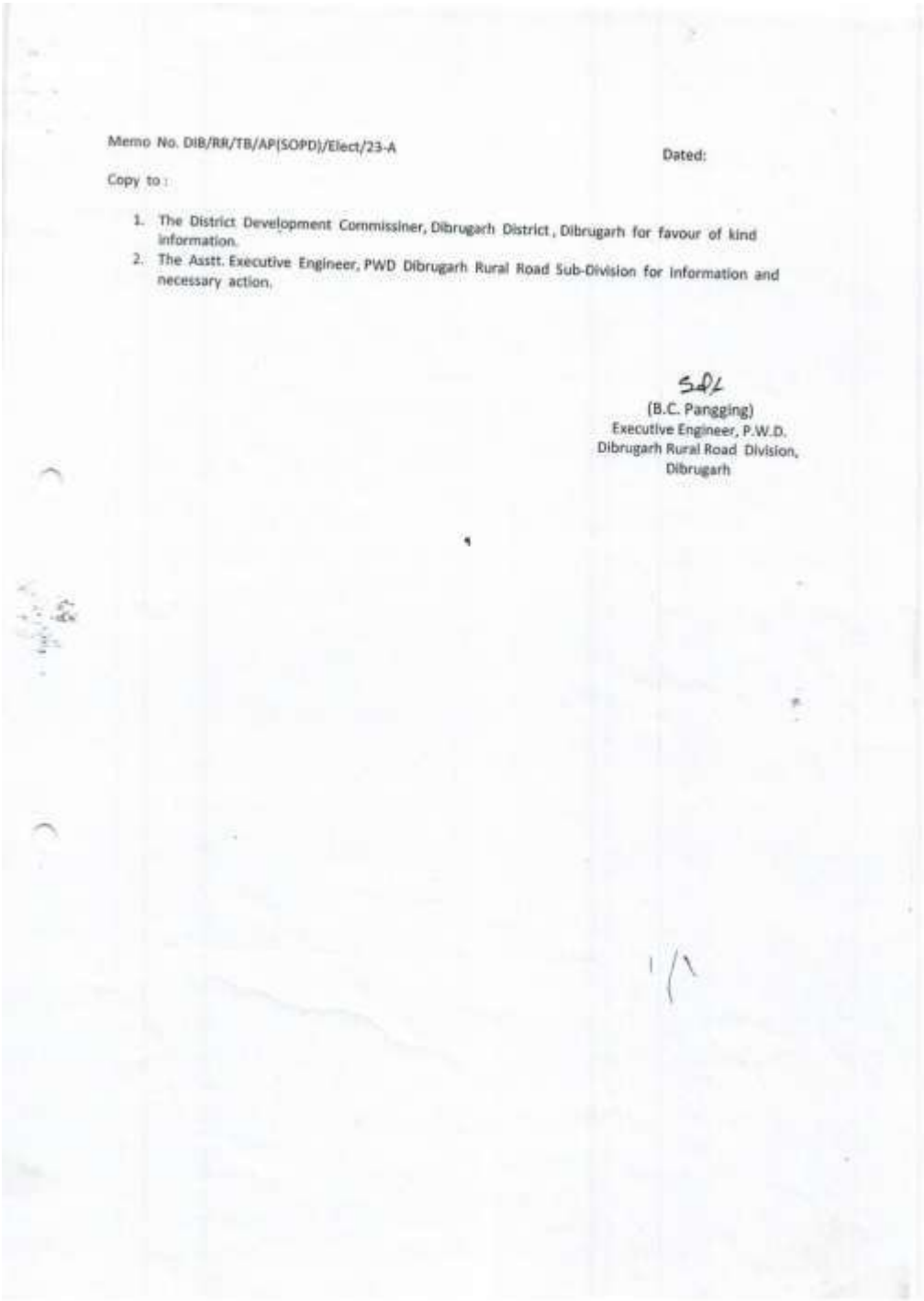
1) The Commissioner & Special Secretary to the Govt. of Assam, PW(Building &NH) Deptt. Assam Secretariat, Dispur, Guwahati-781006 , for favour of kind information.

2) The Chief Engineer, PWD (NH Works) Assam, Chandmari, Guwahati-3 for favour of kind information.

3) The Superintending Engineer, PWD, Dibrugarh NH Circle, for favour of kind information.

4) AEE, PWD, Dibrugarh NH Sub-Division for information and necessary action.

Executive Engineer, PWD
Dibrugarh NH Division



Memo No. DIB/RR/TB/AP(SOPD)/Elect/23-A Dated:

Copy to :

1. The District Development Commissiner, Dibrugarh District, Dibrugarh for favour of kind information.
2. The Asstt. Executive Engineer, PWD Dibrugarh Rural Road Sub-Division for information and necessary action.

Sd/-
(B.C. Pangging)
Executive Engineer, P.W.D.
Dibrugarh Rural Road Division,
Dibrugarh

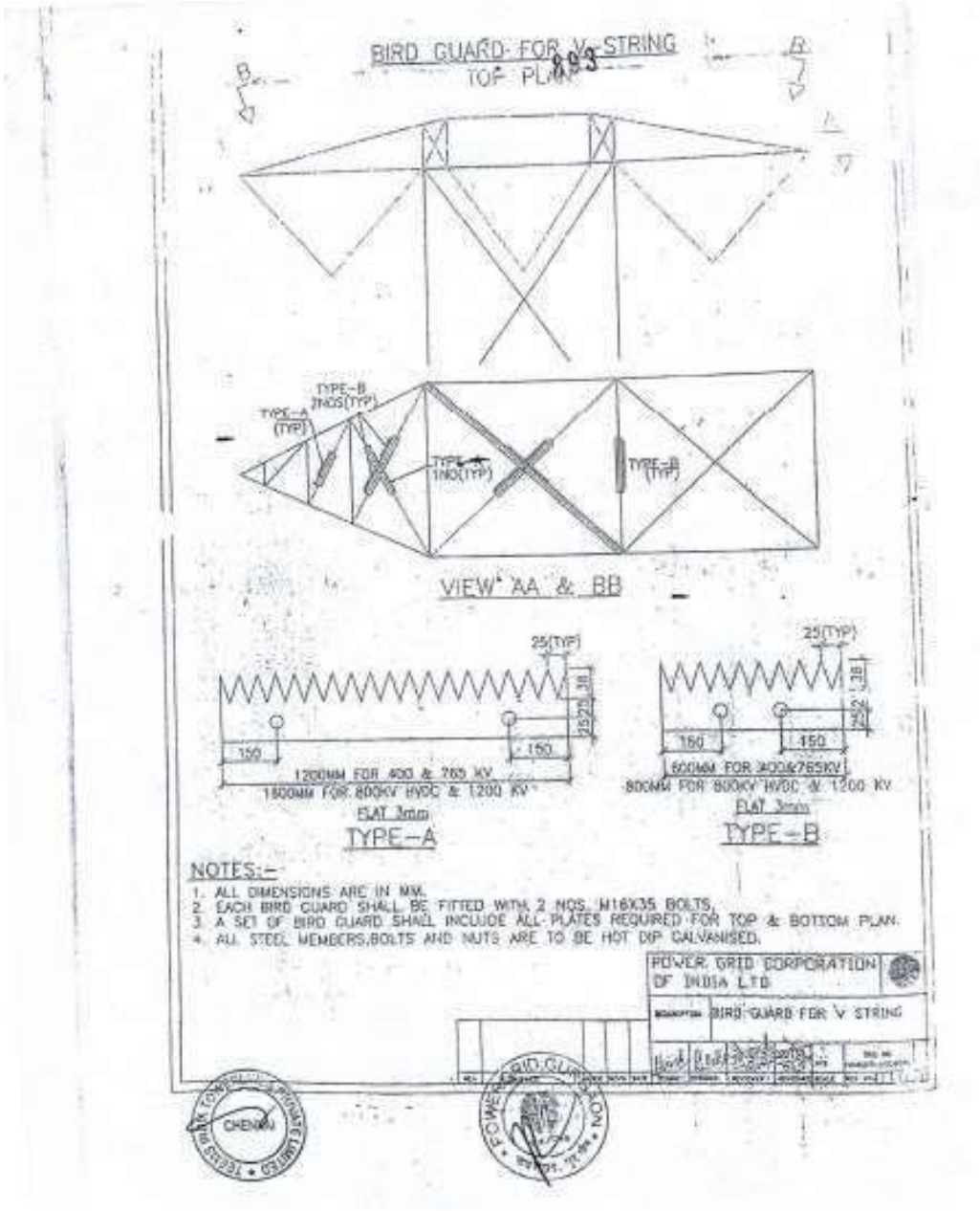
Annexure 6

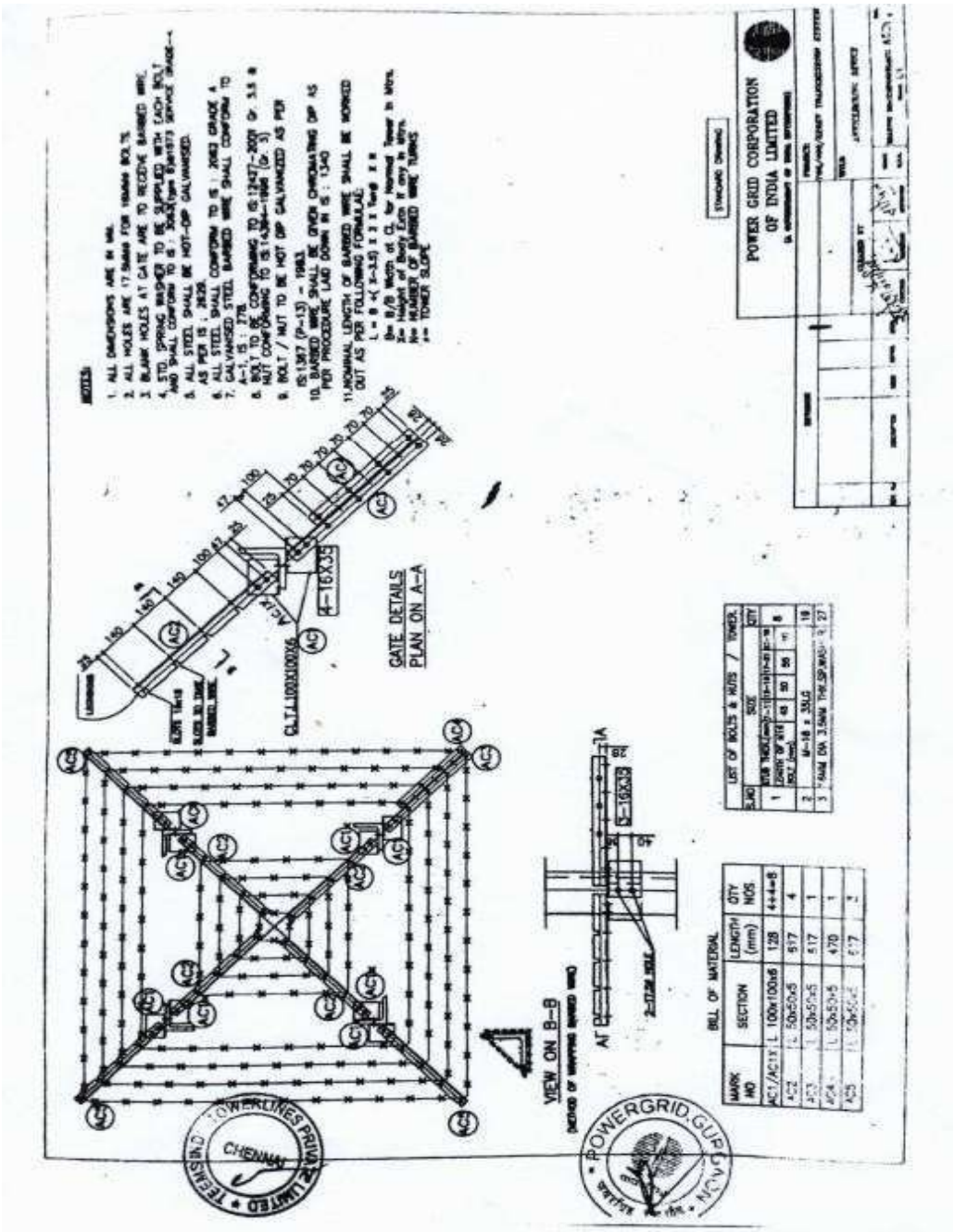
Impact on Drainage

Structure for oil spillage prevention

Annexure 7

Bird Guard & Anti Perch Device


BIRD GUARD FOR V STRING
TOP PLAN
VIEW AA & BB
TYPE-A
TYPE-B
NOTES:-
1. ALL DIMENSIONS ARE IN MM.
2. EACH BIRD GUARD SHALL BE FITTED WITH 2 NOS. M16X35 BOLTS.
3. A SET OF BIRD GUARD SHALL INCLUDE ALL PLATES REQUIRED FOR TOP & BOTTOM PLAN.
4. ALL STEEL MEMBERS,BOLTS AND NUTS ARE TO BE HOT DIP GALVANISED.
POWER GRID CORPORATION OF INDIA LTD
BIRD GUARD FOR V STRING


POWER GRID CORPORATION OF INDIA LIMITED
GATE DETAILS
PLAN ON A-A
VIEW ON B-B
BILL OF MATERIAL
LIST OF BOLTS & NUTS / TOWER
POWERGRID GURGAON
CHENNAI

Annexure 8

Sample Copy of Safety Plan

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/No	
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/No	
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/No	
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. 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	Yes/No	

S. N.	Details of Enclosure	Status of Submission of information/ documents	Remarks
	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.		
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 per requirement	Yes/No	
6.	**Annexure – 5A (SP)** List of Qualified Safety Officer(s) along with their contact details	Yes/No	
7.	**Annexure – 5B (SP)** Details of Explosive Operator (if required), Safety officer / Safety supervisor for every erection / stringing 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	Yes/No	

S. N.	Details of Enclosure	Status of Submission of information/ documents	Remarks
	Contractor alongwith copy of organisation of the Contractor in regard to safety		
8.	**Annexure – 6 (SP)** Copy of Safety Policy/ Safety Document of the Contractor's company	Yes/No	
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/No	
10.	**Annexure – 8 (SP)** Safety Audit Check Lists (Formats to be enclosed)	Yes/No	
11.	**Annexure – 9 (SP)** 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.	Yes/No	
12.	**Annexure – 10A (SP)** Information along with 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/No	
(ii)	Factories Act 1948	Yes/No	

S. N.	Details of Enclosure	Status of Submission of information/ documents	Remarks
	_____ [*Name of Documentary evidence in support of compliance*]		
(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/No	
(iv)	Workmen Compensation Act 1923 and Rules. _____ [*Name of Documentary evidence in support of compliance*]	Yes/No	
(v)	Public Insurance Liabilities Act 1991 and Rules. _____ [*Name of Documentary evidence in support of compliance*]	Yes/No	
(vi)	Indian Explosive Act 1948 and Rules. _____ [*Name of Documentary evidence in support of compliance*]	Yes/No	
(vii)	Indian Petroleum Act 1934 and Rules. _____ [*Name of Documentary evidence in support of compliance*]	Yes/No	
(viii)	License under the contract Labour (Regulation & Abolition) Act 1970 and Rules. _____ [*Name of Documentary evidence in support of compliance*]	Yes/No	
(ix)	Indian Electricity Rule 1956 and amendments if	Yes/No	

S. N.	Details of Enclosure	Status of Submission of information/ documents	Remarks
	any, from time to time. _____ *[Name of Documentary evidence in support of compliance]*		
(x)	The Environment (Protection) Act 1986 and Rules. _____ *[Name of Documentary evidence in support of compliance]*	Yes/No	
(xi)	Child Labour (Prohibition & Regulation) Act 1986. _____ *[Name of Documentary evidence in support of compliance]*	Yes/No	
(xii)	National Building Code of India 2005 (NBC 2005). _____ *[Name of Documentary evidence in support of compliance]*	Yes/No	
(xiii)	Indian standards for construction of Low/ Medium/ High/ Extra High Voltage Transmission Line _____ *[Name of Documentary evidence in support of compliance]*	Yes/No	
(iv)	Any other statutory requirement(s) *[please specify]* _____ *[Name of Documentary evidence in support of compliance]*	Yes/No	
13.	**Annexure – 10B (SP)** Details of Insurance Policies alongwith documentary evidences taken by the Contractor for the insurance coverage against accident for all employees as below:		

S. N.	Details of Enclosure	Status of Submission of information/ documents	Remarks
(i)	Under Workmen Compensation Act 1923 and Rules. *[Name of Documentary evidence in support of insurance taken]*	Yes/No	
(ii)	Public Insurance Liabilities Act 1991 *[Name of Documentary evidence in support of insurance taken]*	Yes/No	
(iii)	Any Other Insurance Policies *[Name of Documentary evidence in support of insurance taken]*	Yes/No	

EMPLOYER

Annexure 9

Compliance of Safety Standards

POWERGRID CORPORATION OF INDIA LTD
(A Govt. of India Enterprise)
NERPSIP Office
Dibrugarh , Assam

Ref :NERPSIP/DBR/1000/01/ 527 Dated: 30.01.18

IOM

From: Asstt. GM (NERPSIP) Dibrugarh

To: Dy. Manager (Safety) Shillong

CC : DGM (NERPSIP) Guwahati

Sub: Forwarding of Safety Plan of 220kV D/C Tinsukia-Dibrugarh TL.

Please find enclosed herewith the Safety Plans along with Checklist, Labor License, BOCW, Insurance etc in respect of 220kV D/C Tinsukia-Dibrugarh Transmission Line under Tower Pkg. TW-02 submitted by JV of M/s Powermech & RCC Infrastructure vide letter no. RCC/PGCIL/TW-02/PSR/9 dtd.29.12.17, for favour of needful action at your end and onward transmission of the same for approval of Competent Authority.

(S. F. Shah)

PMPL-RCC INFRASTRUCTURES(JV)
(An Engineering, Procurement, Construction Firm)

Ref:-RCC/PGCIL/TW02/PSR/9 Date:-29-12-2017

To,
The Asst. General Manger.
POWER GRID CORPORATION OF INDIA LTD.
Milan Nagar, Dibrugarh, Assam-786003.

Sub: - Submission copies of Site Safety plan for 220kV DC Tinsukia – Behiating Transmission Line for Assam State associated with NERPSIP.

Ref: - 01.CC-CS/94-NER/TW-3616/1/GB/NOA-2/7404 Dt-10-10-2017.
02. CC-CS/94-NER/TW-3616/1/GB/7356 Package TW-02

Dear Sir,

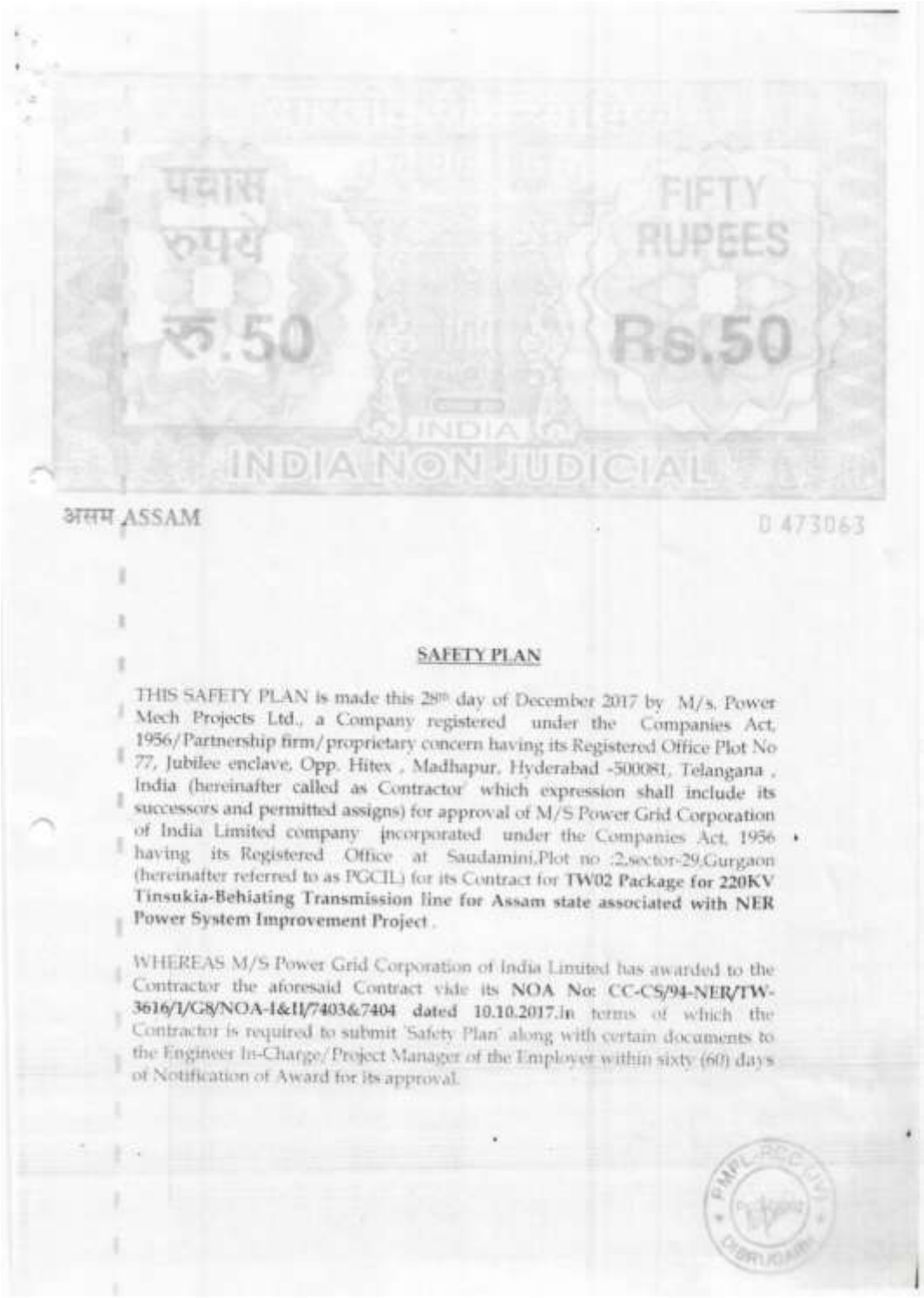
As cited above mentioned subject, we are submitting site safety plan of above mentioned TL.This is for your kind information.

Thanking you and assuring you of our best services at all times.

Yours Faithfully,

P.Srihivas Rao
P. Srinivas Rao
(Project Manager)
PMPL-RCC (JV)

PMPL-RCC (JV) DIBRUGARH



पचास रुपये
FIFTY RUPEES
रु.50
Rs.50
INDIA NON JUDICIAL
असम ASSAM
D 473063

SAFETY PLAN

THIS SAFETY PLAN is made this 28th day of December 2017 by M/s. Power Mech Projects Ltd., a Company registered under the Companies Act, 1956/Partnership firm/proprietary concern having its Registered Office Plot No 77, Jubilee enclave, Opp. Hitex , Madhapur, Hyderabad -500081, Telangana , India (hereinafter called as Contractor which expression shall include its successors and permitted assigns) for approval of M/S Power Grid Corporation of India Limited company incorporated under the Companies Act, 1956 having its Registered Office at Saudamini,Plot no :2,sector-29,Gurgaon (hereinafter referred to as PGCIL) for its Contract for **TW02 Package for 220KV Tinsukia-Behiating Transmission line for Assam state associated with NER Power System Improvement Project** .

WHEREAS M/S Power Grid Corporation of India Limited has awarded to the Contractor the aforesaid Contract vide its **NOA No: CC-CS/94-NER/TW-3616/1/GS/NOA-1&II/7403&7404 dated 10.10.2017.**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 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 , 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)] 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

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 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 scaffolding hook/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.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 PPEs 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 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 ensure 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-coordinator of the Employer. In case of work being carried out through sub contractors the sub-contractor's workmen / employees will also be considered as he contractor's employees/ workmen for the above purpose. If the number of workers is 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 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 organization 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 short comings 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. 15,00,000/- (Rupees Fifteen Lakh Only) per person affected causing death and Rs. 5,00,000/-(Rupees Five 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 stipulation is in

addition to all other compensation payable to sufferer as per workmen compensation Act. / Rule.

Notwithstanding above, the contractor shall also be responsible for payment of sum as indicated below additionally which shall be deposited in safety corpus fund pursuant to GCC Sub-Clause 18.3.3.26

a.	Upon 1st Fatal Accident due to negligence by the contractor	Rs. 50,00,000/-
b.	Upon 2nd Fatal Accident due to negligence by the contractor	Rs. 75,00,000/-
c.	Upon 3rd Fatal Accident due to negligence by the contractor	Rs. 1,00,00,000/-
d.	Re-occurrence of Fatal Accident even after 3rd Fatal accident due to negligence by the contractor	Rs. 1,00,00,000/- per fatal accident
e.	Tower collapse leading to more than one (01) death attributable to the contractor as per the Accident Enquiry Committee Report.	Rs. 1,00,00,000/- per fatal accident in addition to a, b, c or d above, as applicable.

THAT as per the Employer's instructions, the Contractor agrees that this amount shall
be deducted from their running bills(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 along with 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.

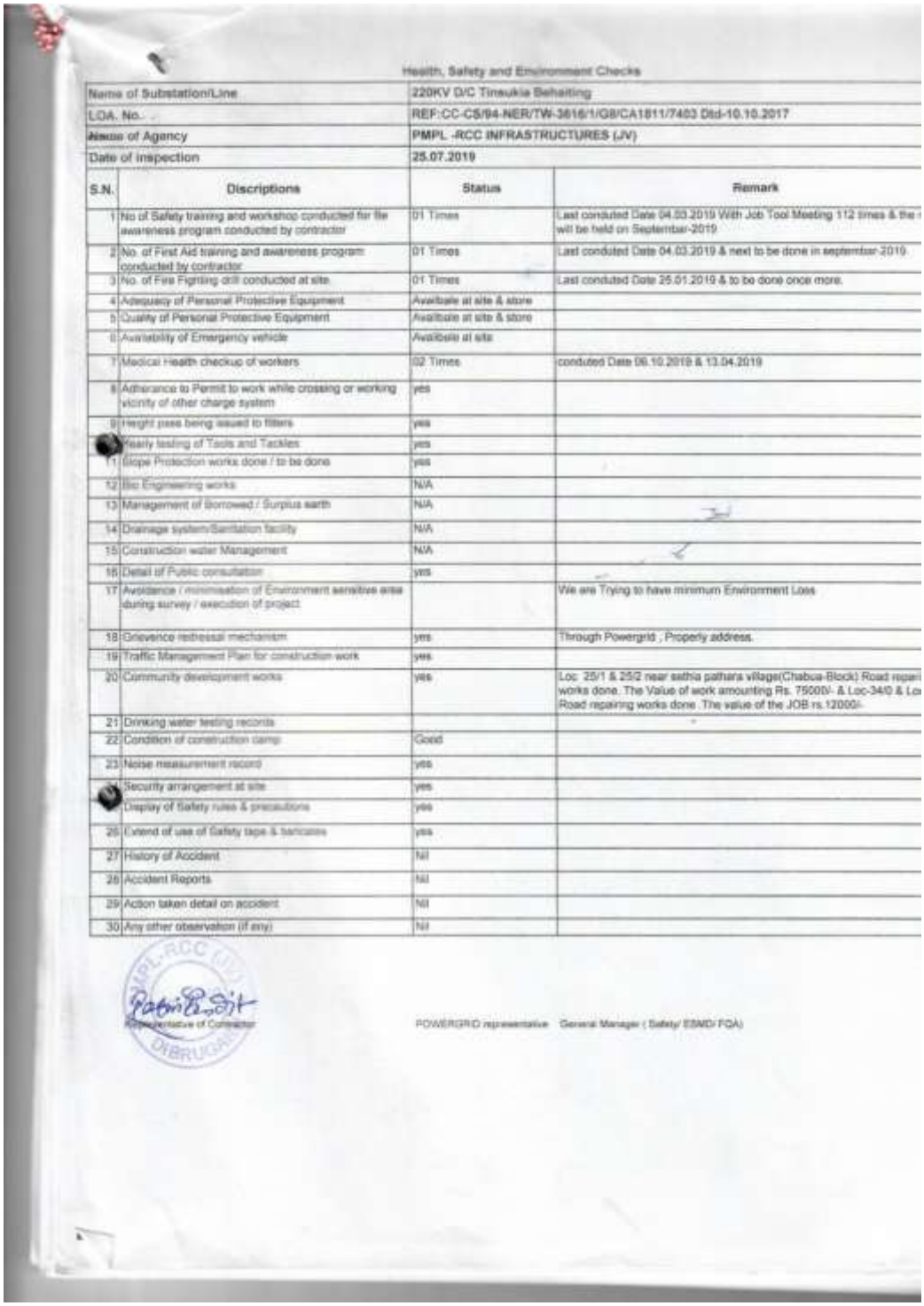
16. THAT the Contractor is submitting a copy of Safety Policy / Safety Documents of its Company which is enclosed at **Annexure – 6 (SP)** and ensure that the safety Policy and safety documents are implemented in healthy spirit.

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 Engineer In-charge/Project Manager before start of work.

19. THAT the contractor shall organize safety training program on safety, health and environment and for safe execution of different activities of worker 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 Station / 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 healthiness or rejection of faulty PPEs and contractor has 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 feed back from POWERGRID concerned shall be taken and recorded. The



Health, Safety and Environment Checks

Name of Substation/Line	220KV D/C Tinsukia Behiating
LOA. No.	REF:CC-CS/94-NER/TW-3616/1/GB/CA1811/7403 Dtd-10.10.2017
Name of Agency	PMPL -RCC INFRASTRUCTURES (JV)
Date of inspection	25.07.2019

S.N.	Discriptions	Status	Remark
1	No of Safety training and workshop conducted for tle awareness program conducted by contractor	01 Times	Last conduted Date 04.03.2019 With Job Tool Meeting 112 times & the will be held on September-2019
2	No. of First Aid training and awareness program conducted by contractor	01 Times	Last conduted Date 04.03.2019 & next to be done in septembar-2019
3	No. of Fire Fighting drill conducted at site	01 Times	Last conduted Date 25.01.2019 & to be done once more.
4	Adequacy of Personal Protective Equipment	Available at site & store	
5	Quality of Personal Protective Equipment	Available at site & store	
6	Availability of Emergency vehicle	Available at site	
7	Medical Health checkup of workers	02 Times	conduted Date 09.10.2018 & 13.04.2019
8	Adherance to Permit to work while crossing or working vicinity of other charge system	yes	
9	Height pass being issued to fitters	yes	
10	Yearly testing of Tools and Tackles	yes	
11	Slope Protection works done / to be done	yes	
12	Bio Engineering works	N/A	
13	Management of Borrowed / Surplus earth	N/A	
14	Drainage system/Sanitation facility	N/A	
15	Construction water Management	N/A	
16	Detail of Public consultation	yes	
17	Avoidance / minimisation of Environment sensitive area during survey / execution of project		We are Trying to have minimum Environment Loss
18	Grievance redressal mechanism	yes	Through Powergrid , Properly address.
19	Traffic Management Plan for construction work	yes	
20	Community development works	yes	Loc 25/1 & 25/2 near sathia pathara village(Chabua-Block) Road repair works done. The Value of work amounting Rs. 75000/- & Loc-34/0 & Lo Road repairing works done .The value of the JOB rs.12000/-
21	Drinking water testing records		
22	Condition of construction camp	Good	
23	Noise measurement record	yes	
24	Security arrangement at site	yes	
25	Display of Safety rules & precautions	yes	
26	Uxend of use of Safety tape & barricades	yes	
27	History of Accident	Nil	
28	Accident Reports	Nil	
29	Action taken detail on accident	Nil	
30	Any other observation (if any)	Nil	

PMPL-RCC (JV) DIBRUGARH

Representative of Contractor

POWERGRID representative General Manager (Safety/ ESMD/ FOA)

Annexure 10

Sample Copy of Filled Safety Checklist

Document No: Safety Checklist TL Const. 02

POWER GRID CORPORATION OF INDIA LIMITED

CORPORATE OPERATION SERVICES

Safety Check List During Foundation Work

Region: NERPSIP TL Const. office: Silapathar Date of Inspection: 03-04-19

Name of the T/L: Construction of 132KV S/C (ON D/C Tower) Dhemaji - Silapathar Transmission Line - TW04 Package

Loc No: 19/3 Classification of Foundation and Type of tower: MET PIS, DAF3

Main Contractor: TEEMS INDIA PVT LTD Sub contractor:

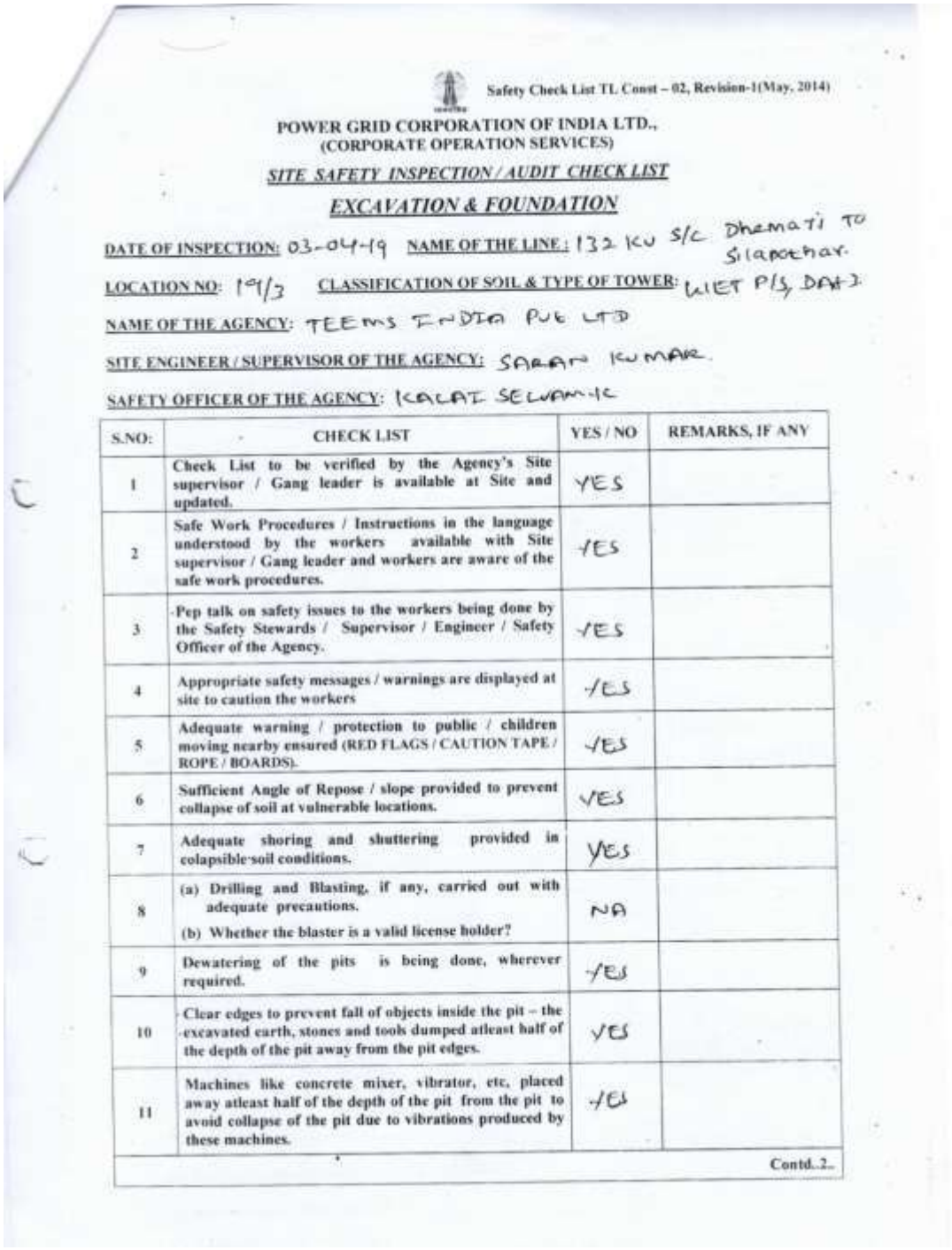
Sl.No	Description	Observations	Remark
1	Check whether Supervisor / Gang leader had issued instructions to workers before start of work on that day.	YES	
2	a) All workers are using PPEs at site i.e. Safety Helmets, Rubber Gum Boots, Hand Gloves.	Safety helmet - 14 / total worker = 19 Rubber Gum Boot - 6 / total worker = 19 Hand Gloves - 6 / total worker =	
	b) POWERGRID Officials are using PPEs at site.	YES/ No.	
3	Distance of Dumped excavated soil of all four sides from the edge of the pit.	YES	2m ev
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	30m ev
6	Installation of Shoring & Shuttering, if required.	NA	
7	Adequate warning & Barricading of the pit for protection have been made.	YES	
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.	NA YES	
9	Strong ladder provided in the pit.	YES	
10	Jacks for supporting the template is placed at safe distance.	NA	
11	Distance of construction materials, Concrete Mixer / Compressor placed from edge of pit.	YES	2m ev
12	Whether arrangements for electrical loose joints and barricading of electrical panels have been made.	NA	
13	Whether all Safety aspects taken care of for concreting.	YES	
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 - TEEMSINDIA			POWERGRID - OFFICIAL		
Name	Designation	Signature	Name	Designation	Signature
KALAI SELVAM K	SAFETY SUPERVISOR		Dhrubajyoti Hazarika	FE(E)	Dhrubajyoti

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.

Page 1 of 1



Safety Check List TL Const – 02, Revision-1(May, 2014)

POWER GRID CORPORATION OF INDIA LTD.,
(CORPORATE OPERATION SERVICES)

SITE SAFETY INSPECTION / AUDIT CHECK LIST

EXCAVATION & FOUNDATION

DATE OF INSPECTION: 03-04-19 NAME OF THE LINE: 132 KV S/C Dhemati TO Silapathar.

LOCATION NO: 19/3 CLASSIFICATION OF SOIL & TYPE OF TOWER: MIET P/S DA+2

NAME OF THE AGENCY: TEEMS INDIA PVT LTD

SITE ENGINEER / SUPERVISOR OF THE AGENCY: SARAN KUMAR

SAFETY OFFICER OF THE AGENCY: KALAI SELVAM.C

S.NO:	CHECK LIST	YES / NO	REMARKS, IF ANY
1	Check List to be verified by the Agency's Site supervisor / Gang leader is available at Site and updated.	YES	
2	Safe Work Procedures / Instructions in the language understood by the workers available with Site supervisor / Gang leader and workers are aware of the safe work procedures.	YES	
3	Pep talk on safety issues to the workers being done by the Safety Stewards / Supervisor / Engineer / Safety Officer of the Agency.	YES	
4	Appropriate safety messages / warnings are displayed at site to caution the workers	YES	
5	Adequate warning / protection to public / children moving nearby ensured (RED FLAGS / CAUTION TAPE / ROPE / BOARDS).	YES	
6	Sufficient Angle of Repose / slope provided to prevent collapse of soil at vulnerable locations.	YES	
7	Adequate shoring and shuttering provided in colapsible soil conditions.	YES	
8	(a) Drilling and Blasting, if any, carried out with adequate precautions. (b) Whether the blaster is a valid license holder?	NA	
9	Dewatering of the pits is being done, wherever required.	YES	
10	Clear edges to prevent fall of objects inside the pit – the excavated earth, stones and tools dumped atleast half of the depth of the pit away from the pit edges.	YES	
11	Machines like concrete mixer, vibrator, etc, placed away atleast half of the depth of the pit from the pit to avoid collapse of the pit due to vibrations produced by these machines.	YES	

Contd..2..

12	The steel plate (chute)used for pouring the concrete into the pit properly anchored to prevent the same from falling into the pit, endangering the persons inside the pit.	YES	
13	Jacks used for supporting the template are properly positioned / anchored to avoid sliding down of the template from the jacks and endangering the workers .	YES	
14	All ladders used are of sound construction, appropriate height and free from any defect.	YES	
15	All the workers are provided with good quality SAFETY HELMETS confirming to BIS Standard IS:2925.	YES	
16	All the workers engaged in steel work are provided with LEATHER SAFETY GLOVES.	YES	
17	The workers engaged in concreting work inside the pit are provided with GUMBOOTS.	YES	
18	The workers engaged in handling cement are provided with appropriate DUST MASKS.	YES	
19	Appropriate SAFETY BELT / fall protection provided to workers working on form box to pour concrete into the form box / ramming in form box.	YES	
20	(a) First aid box with listed items as per BOCW Act, 1996 available. (b) Number of First Aid Trained persons and their names. (c) First Aid Register is available at site. (d) Nearby medical facilities for use during exigencies identified (Location / Phone No.)	YES 1 YES YES	KACHE SELVAMK.
21	Atleast one vehicle (four wheeler) is available for use in case of emergencies.	YES	BOLERO

Jhulmoni Mahalary
SIGNATURE / NAME / DESIGNATION
OF POWERGRID REPRESENTATIVE

SAFETY SUPERVISOR
SIGNATURE / NAME / DESIGNATION
OF AGENCY'S REPRESENTATIVE

Copy To:

(5) Regional In-charge / POWERGRID / _____

(6) Projects In-charge (Region) / POWERGRID / _____

(7) Site Incharge / POWERGRID / _____

(8) Project In-charge / AGENCY / _____

Annexure 11

Emergency Response Plan

Ref. No:	OHS/ERP/01	EMERGENCY RESPONSE PLAN	STERLING & WILSON
Revision No.	00		
Date	01.12.2016		

INDEX

Ref. No:	OHS/ERP/01	EMERGENCY RESPONSE PLAN	STERLING & WILSON
Revision No.	00		
Date	01.12.2016		

1. Introduction

This Emergency Plan explains the code of conduct of all personnel on the site along with the actions to be carried out in case of an Emergency. This plan gives the guidelines for employees, contractors etc. It not only defines responsibilities but also informs about prompt rescue operations, evacuations, and rehabilitation, co-ordination communication. Emergency Response Team is constituted which will respond to an emergency and to help in restoration of normal site condition.

2. EMERGENCY:

An Emergency is a situation, which may lead to or cause large-scale damage or destruction of life, property or environment within or outside the site. Such an unexpected situation may be too difficult to handle for the normal work force within the site.

3. NATURE OF EMERGENCY:

The emergency specified in the Plan refers to occurrence of one or more of the following events: -

- Fire
- Work at Height (Fall of person)
- Electrocution
- Collapse of Pit
- Collapse of Tower.
- Snake bite.
- Natural Disaster
- Militancy

4. OBJECTIVES OF THE PLAN:

- To control the emergency, localize it and if possible eliminate it.
- To avoid confusion, panic and to handle the emergency with clear cut actions.
- To minimize loss of life and property to the plant as well as to the neighborhood.
- To make head count and carry out rescue operations.
- To treat the injured persons.
- To preserve records and to take steps to prevent recurrence.
- To restore normalcy.

Ref. No:	OHS/ERP/01	EMERGENCY RESPONSE PLAN	STERLING & WILSON
Revision No.	00		
Date	01.12.2016		

5. **Declaration of Emergency:**

In case of an emergency Project in-charge is responsible to declare the emergency. During the period of absence of Project in-charge, the person designated (Deputy) by Project in-charge to perform his duties is responsible to declare the emergency. Evacuation Team members will guide Workers & employees to move out

6. **Assembly Point:**

Assembly point for S&W Workers & Employees is identified with assembly point sign. Rescue Team Leader will ensure all persons remain at assembly point until all clear is not declared.

7. **All Clear**

For All Clear situation rescue Leader to be incorporate will declare All Clear with short briefing to all persons at assembly point. After declaration of All Clear all employees & Workers shall return back to the Work Location/Site.

8. **Emergency Response Team**

Emergency Response Team constitutes of Site Personnel & Safety Supervisor. ERT Leader may seek guidance and resources Safety & Security team to moderate emergency.

Contact details of key persons to guide ERT

Sr No	Function	Name of employee	Contact number
1	Site Personnel		

9. **Facilities at Site Office:**

The List of emergency management facilities available at Site are as follows:

1. First Aid Box
2. Fire extinguisher placed at several locations.
3. Emergency Assembly Points.

10. Emergency Communication:

An effective communication system through telephone / mobile is established and maintained to allow instant contact between staff, safety department, and contractor employees.

The list includes emergency contact numbers of Police, Fire and ambulance services, nearby to Site.

An emergency telephone list which includes important personnel from HR and administration, Safety Department is displayed in Site office.

11. Action to be taken in event of Emergency:

a) Fire:

- Shout for help.
- Turn off the electricity to the building from the mains.
- Call the fire brigade. Inform fire brigade about the nature of fire (solid / Liquid / gas) and location of the accident with any prominent landmark.
- In the event of small fire, attempt to put off the fire with fire extinguishers, water or any other available facility.
- Call the nearest hospital and ambulance services for transport and treatment of the injured personnel, if any.
- Inform Site in charge & Safety Department at the earliest.

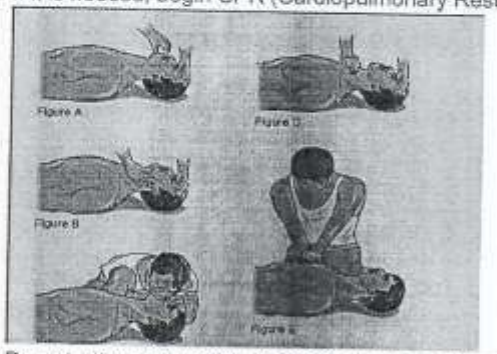
b) Fall of personnel:

- Shout for help.
- In the event of a minor injury, provide immediate first aid to the victim.
- In the event of a major injury, do not move the victim, as there could be possibility of a fracture or dislocation. Just try to make them in position in which they feel ease.
- Request for ambulance if needed and rush victims to the nearest hospital.
- Inform Site in charge &Safety Department at the earliest.

c) Electrocution:

- Shout for help.
- Do not endanger, if the victim is still in contract with the electrical current, one must be careful to avoid being shocked.
- Do not touch the victim directly. The current can pass through rescuer also.
- Do not touch the source of electricity.
- Break the current. Before one can do anything else, first must get the victim free from the current.
- If the victim is not breathing, begin rescue breathing.

- If it is needed, begin CPR (Cardiopulmonary Resuscitation)



- Do not attempt to move the victim unless he/she is in further danger. Other injuries may have occurred that you are unaware of.
- Cover the victim in a blanket and stay with him/her until help arrives. Do not leave him/her alone. Take steps to prevent or lessen the severity of shock.
- Inform Site in-charge &Safety Department at the earliest.

d) Collapse of pit:

- In the event of collapse of pit first inform to site in charge, dept. head and environmental officer.
- Proper barricading and sign board to be provided around the pit.
- All the loose material stacking minimum 1.5mtr edge of pit.
- Proper access should be provided.

e) Collapse of Tower:

- In the event of collapse of pit first inform to site in charge, dept. head
- Proper barricading and sign board to be provided working area.
- Restrict to unauthorized entry

f) Snake Bite:

- Be aware of snakes that may be swimming in the water to get to higher ground and those that may be hiding under debris or other objects.
- If you see a snake, back away from it slowly and do not touch it.
- If you or someone you know are bitten, try to see and remember the color and shape of the snake, which can help with treatment of the snake bite.
- Keep the bitten person still and calm. This can slow down the spread of venom if the snake is poisonous.
- Seek medical attention as soon as possible.
- Apply first aid if you cannot get the person to the hospital right away.
- Lay or sit the person down with the bite below the level of the heart.
- Tell him/her to stay calm and still.
- Cover the bite with a clean, dry dressing.

g) Natural Disaster:

1. Earthquake

During Earthquake: -

- Take cover under a piece of heavy furniture or against an inside wall and hold on.
- Stay inside.
- The most dangerous thing to do during the shaking of an earthquake is to try to leave the building because objects can fall on you.

After Earthquake: -

- Be prepared for aftershocks. Although smaller than the main shock, aftershocks cause additional damage and may bring weaken structures down. Aftershocks can occur in the first hours, days, weeks, or even months after the quake.
- Help injured or trapped persons.
- Give first aid where appropriate.
- Do not move seriously injured persons unless they are in immediate danger of further injury.
- Call for help.

2. Flood

- At the start of the flood situation (on receipt of warning of floods/release of water) the property manager shall take a call to evacuate building.
- After safe shutdown of all the system evacuate the building.

h) Militancy:

- Don't talk too much with any unknown person.
- Leaving Simply
- Don't go any problematic area
- If any type of problem arise than & than their informed concern dept.
- not talk with unknown person.
- Do not came out side at night

Ref. No:	OHS/ERP/01	EMERGENCY RESPONSE PLAN	STERLING & WILSON
Revision No.	00		
Date	01.12.2016		

ANNEXURE-1: LIST OF IMPORTANT TELEPHONE NUMBERS

Sr. No.	Name	Designation	Contact No.
1			
2			
3			
4			
5			
6			
7			
8			
9			

ANNEXURE-2 EMERGENCY COTACT NUMBERS

Sr.No	Name	Contact No.
1	Hospital	
2	Fire Station	
3	Ambulance Service	
4	Occupational Health Center	
5	Police Station	

Annexure 12

Sample Copy of Labour License and Insurance Policy

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.GH.46(303)/2016-L dated:-11.10.1919

To
M/s.Neccon Power & Infra Ltd.,
(Rep. by Shri J.P.Khetan,Director)
Seuni All,A.T.Road,
Jorhat-785001.

Subject:-Contract Labour(Regulation & Abolition)Act,1970 and Contract Labour (Regulation & Abolition) Central Rules,1971- Renewal of labour licence No. GH.46/303/2016-L dated 25.11.16.

Dear Sir,

Please refer to your application dtd.03.10.19 received by the office on 10.10.19 for renewal of Labour Licence under Contract Labour (Regulation & Abolition) Act,1970.

In this connection please find enclose herewith the original copy of Licence duly renewed upto 24.11.20.

Please acknowledge receipt.

Yours faithfully,

Enclo:-Original Licence

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

Assistant Labour Commissioner (Central)
& 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 Licensing Officer & Assistant Labour Commissioner(Central)
KENDRIYA SHRAM SADAN,R.K.Mission Road,Guwahati-781006

Licence No. GH.46/303/2016-L Dated: 25.11.16

1) Licence is hereby granted to M/s Neocon Power & Infra Ltd (Rep.by S[illegible]) Seuni Ali,A.T.Road, Jorhat-785001,ASSAM under section 12(1)on 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 Construction of 132/33KV Silapathar(New) s/s & 132/33 kV Chemaji s/s(Extn) under Substation Package ASM-SS-01 for Assam Associated with NER Power System Improvement Project vide No [illegible] dt 12.8.16 in the estt.of.................................. The Dy Manager, PGCIL,House No.91,Nigom Path,Mising gaon, Silapathar,Assam-787059

3) The licence shall remain in force till 24.11.2017

(HARI OM GAUTAM)
Assistant Labour Commissioner(Central)
and Licensing Officer [illegible] 1970

Date: 25.11.16

(RENEWAL)
(See Rule 29)

Date of Renewal	Fee Paid for renewal	Date of expiry	
02.11.2017	Rs.95.00 (Ninetyfive)only	24.11.2018	[illegible]
26.10.2018	Rs.100.00	24.11.2019	[illegible]
11.10.2019	Rs.100.00	24.11.2020	[illegible]

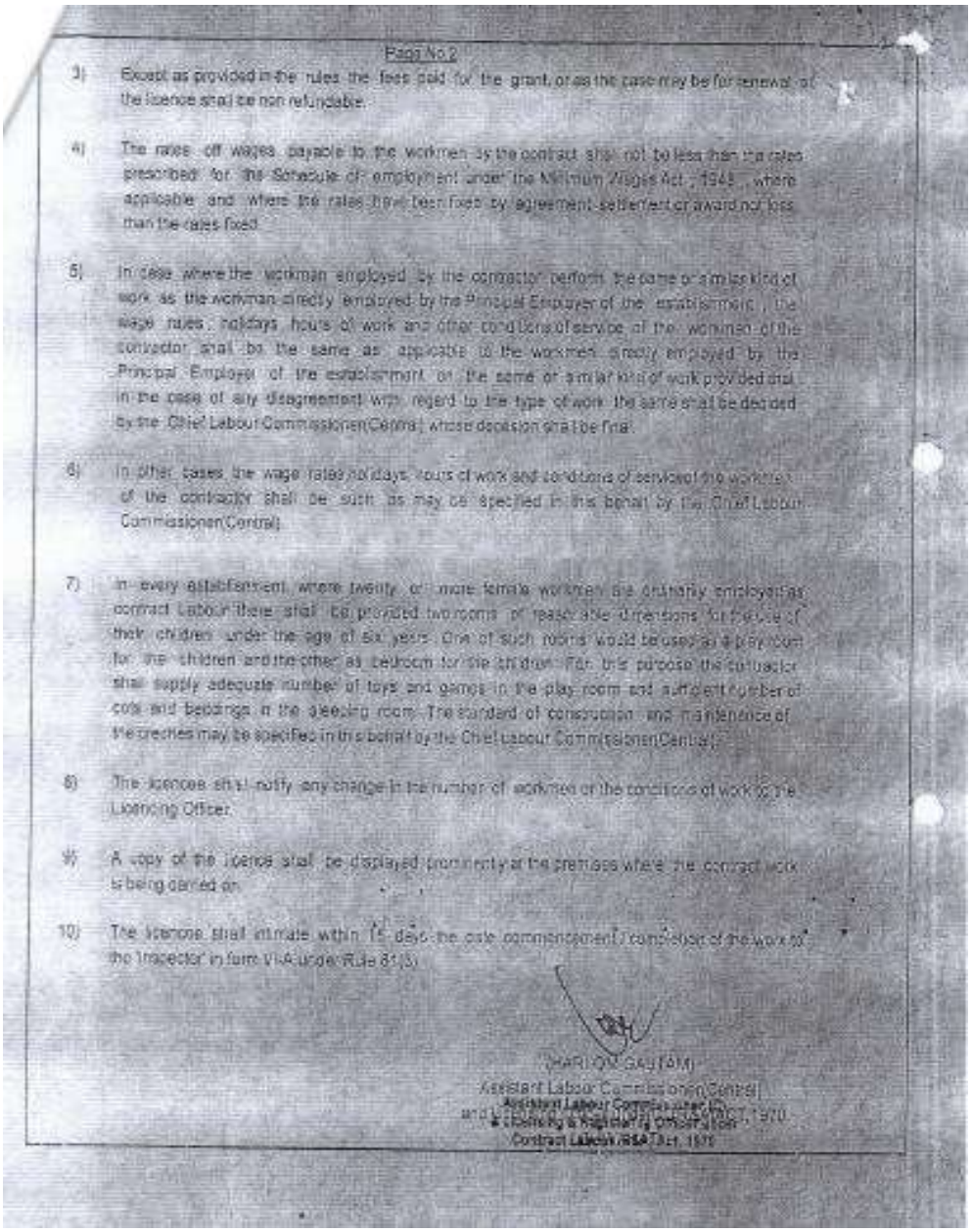
Date

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 35 (THIRTY FIVE)only

Contd. Page 2



Page No.2

3) Except as provided in the rules the fees paid for the grant, or as the case may be for renewal of the licence shall be non refundable.

4) The rates of wages payable to the workmen by the contract shall not be less than the rates prescribed for the Schedule of employment under the Minimum Wages Act , 1948 , where applicable and where the rates have been fixed by agreement settlement or award not less than the rates fixed.

5) In case where the workman employed by the contractor perform the same or a similar kind of work as the workman directly employed by the Principal Employer of the establishment , the wage rates , holidays hours of work and other conditions of service of the workmen of the contractor shall be the same as applicable to the workmen directly employed by the Principal Employer of the establishment on the same or a similar kind of work provided that in the case of any disagreement with regard to the type of work the same shall be decided by the Chief Labour Commissioner(Central) whose decision shall be final.

6) In other cases the wage rates holidays hours of work and conditions of service of the workmen of the contractor shall be such as may be specified in this behalf by the Chief Labour Commissioner(Central)

7) In every establishment where twenty or more female workmen are ordinarily employed as contract Labour there shall be provided two rooms of reasonable dimensions for the use of their children under the age of six years One of such rooms would be used as a play room for the children and the other as bedroom for the children For this purpose the contractor shall supply adequate number of toys and games in the play room and sufficient number of cots and beddings in the sleeping room The standard of construction and maintenance of the creches may be specified in this behalf by the Chief Labour Commissioner(Central)

8) The licencee shall notify any change in the number of workmen or the conditions of work to the Licencing Officer.

9) A copy of the licence shall be displayed prominently at the premises where the contract work is being carried on.

10) The licencee shall intimate within 15 days the date commencement / completion of the work to the Inspector in form VI-A under Rule 81(3).

(HARI OM GAUTAM)
Assistant Labour Commissioner(Central)
and Licencing & Registering Officer (CLRA) Act, 1970
Contract Labour (R&A) Act, 1970

ASM-SS-01 (W.C. Policy)

HE NEW I A ASSURANCE CO. LTD.
Governme f India Undertaking)

POLICY SCHEDULE FOR EMPLOYEES COMPENSATION INSURANCE

Insured's N	NECCON POWER & INFRA LIMITED		
Insured's Details		Issuing Office Details	
Customer ID	PO50672482	Office Code	DISPUR BRANCH (530702)
Address	SFUN ALLA T.ROAD, JORHAT,ASSAM JORHAT ASSAM 785001	Address	NILGIRI MANSION, OPPOSITE TO NEMCARE HOSPITAL, BHANGAGARH, G.S.ROAD,781005
Phone No		Phone No	03612529483
E-mail/Fax	neccon@necconpower.com /	E-mail/Fax	nia.530702@newindia.co.in /
PAN No	AABCN1603J	S.Tax Regn. No	AAACN4165CST178
GSTIN/UIN	18AABCN1603J4ZM / NA	GSTIN	18AAACN4165C2ZP
		SAC	997139 (Other non-life insurance services excl.RI)

Policy Details			
Policy Numb	53070236190100000026	Business Source Code	
Period of Ins	From: 17/10/2019 03:53:21 PM To: 16/10/2020 11:59:59 PM	Dev.Off level/Broker/Corp. Agent/Web Aggregator	Mr. PRADIP MEDHI - (DE7796252)
Date of Pro	17-Oct-19	Agent/Bancassurance/ Specified Person	Mrs. DOLLY SINGH (NAA0301 16942) DOLLY SINGH (S00198200)
Prev. Policy	53070239180100000016	Phone No	NA / 8894032188
Client Type	Corporate	E-mail/Fax	2018dollysingh@gmail.com / pradip.medhi@newindia.co.in / /

Prem (₹)	GST(₹)	Total (₹)	Total (₹ in words)	Receipt No. & Date
49[illegible]	8830	57883	RUPEES FIFTY-SEVEN THOUSAND EIGHT HUNDRED EIGHTY-THREE ONLY	330702811800000310 6 - 17/10/19

Details of Employees with monthly wages upto ₹ 8000:

Categories	Sub Categories	No of Employee	Cash Total Wages

Details of E ees with monthly wages above ₹ 8000:

Categories	Sub Categories	No of Employee	Cash Total Wages
Electric ight and/or Power Supply	SKILLED	35	5600000
Electric ght and/or Power Supply	UNSKILLED	60	7920000

Description	Particular of Works	Location Details	Included All Sub - Contractors
CONSTRUCTION	CONSTRUCTION WORKS OF CIVIL & SUB-STATION/SUB-STATION EXTENSIONS 132/33Kv &220/132Kv AS PER WORK ORDER	AT SILAPATHER, TEZPUR, DHEMAJI, SONABIL & SAMAGURI IN ASSAM UNDER SCHEME ASM-SS-01	

Contractor/Sub-Contractor Details:

Serial No	Name of Contractor	Description	Category	No. of Workers			Amount Wages
				Skilled	Unskilled	Others	

Extensions u the Policy Cover

e of the Extension	Sub Limit of the Extension	Deductibles of the Extension
Medical Extension	₹50000	NA

Special Con ons	NA
Special Ex	NA

Policy No. : 53070236190100000026 Document generated by 34505 at 17/10/2019 [illegible]
Regi d Office: New India Assurance Bldg., 87 M.G. Road, Fort, Mumbai - 400 001, [illegible]

दि न्यू इण्डिया एश्योरेन्स कम्पनी लिमिटेड
THE NEW INDIA ASSURANCE CO. LTD.
Dispur Branch Office-530702
Nilgiri Mansion, Opp.- Nemcare Hospital, Bhangagarh, G.S. Road
Guwahati-781005
Phone : 0361-2529483

THE NEW INDIA ASSURANCE CO. LTD.
(Government of India Undertaking)

Special Ex[illegible]/Deductible	NA
The Policy shall be subject to EMPLOYEES COMPENSATION INSURANCE Policy clauses attached herewith.	
Clauses	Description

Premium and GST Details

	Rate of Tax	Amount in INR
Premium		₹ 49053.00
SGST	9	4415
CGST	9	4415
IGST	0	0

In witness whereof the undersigned being duly authorised by the insurers and on behalf of the insurers has (have) hereunder set his (their) hand(s) on this 17th day of October,2019.

For and on behalf of

Date of [illegible]: [illegible]

The New India Assurance Company Limited

Duly Constituted Attorney(s)

Stamp Duty under the Policy is ₹1

Mudrank_________Dt.________consolidated Stamp Fees Paid by Pay Order Number__________vide receipt number________dt.________

Tax Invoice No : 530702198E0003877

IRDA Registration Number: 190

दि न्यू इण्डिया एश्योरन्स कम्पनी लिमिटेड
THE NEW INDIA ASSURANCE CO. LTD.
[illegible] Branch Office-530702
[illegible] Mansion, Opp.- Nemcare
Hospital, Bhangagarh, G.S. Road
Guwahati-781005
Phone : 0361-2529483

Policy No. : [illegible] Document generated by [illegible] at 17/10/2019 18:36:53 Hours.
Regd. & Head Office: New India Assurance Bldg., 87 M.G. Road, Fort, Mumbai - 400 001. TOLL FREE No. 1 800 209 1415.

THE NEW INDIA ASSURANCE CO. LTD
(Government of India Undertaking)

COLLECTION RECEIPT CUM ADJUSTMENT VOUCHER

Issuing Office : DISPUR BRANCH (530702)
Address : NILGIRI MANSION, OPPOSITE TO NEMCARE HOSPITAL, BHANGAGARH, G.S.ROAD 781005 GUWAHATI
Phone : 03612529463
Email : [illegible]@newindia.co.in
Fax :
Collection Number : [illegible]
Collection Date : 17/10/2019
Business Source Code : [illegible]
PAN No of Payer : [illegible]

Received with thanks from VECCON POWER & INFRA LTD

The amount received/adjusted towards :-

Policy No.	A/C Description	Amount₹	A/C Code	Sub A/C Code
[illegible]	Bank-530702	57883.00	[illegible]	[illegible]

Total = ₹ [illegible]

Your Payment/Adjustment Details are as under :-

Mode	Amount ₹	Cheque No.	Cheque Date	Drawee Bank	Drawee Branch	Reference No.	Scroll/BG/6 PD Balance
Cheque	[illegible]	[illegible]	17-OCT-19	INDIAN BANK	JORHAT	[illegible]	N.A.

Total = ₹ [illegible]

Utilization details of the Collected Amount :

Premium	GST	Stamp Duty	Excess Amount
[illegible]	[illegible]	0.00	0

Sr. no.	Agency Code	Agency Name	Department Code
1	[illegible]	DOLLY SINGH	38

For The New India Assurance Company Limited

Revenue Stamp

Date : [illegible]

Cashier's Initial

Authorised Signatory

Note :

1. Please note the Policy Number, Collection Number and date in all future correspondence. This Receipt is subject to Realisation of Cheque.

2. [illegible]

Tax Invoice No : 53070219E0003877

IRDA Registration Number: 190

THE NEW INDIA ASSURANCE CO. LTD.
Dispur Branch Office-530702
Nilgiri Mansion, Opp.- Nemcare Hospital, Bhangagarh, G.S. Road
Guwahati-781005
Phone : 0361-2529463

Policy No. : [illegible] Document generated by [illegible] at 17/10/2019 [illegible] Hours

Regd. & Head Office: New India Assurance Bldg., 87 M.G. Road, Fort, Mumbai - 400 001. TOLL FREE No. 1 800 209 1415

Annexure 13

Drilling Waste Management Plan

DRILLING WASTE MANAGEMENT PLAN

Name of Pkg	: ASM P01
Name of Agency	: Meher Foundation & Civil Engg Pvt. Ltd.
Date of LoA	: 18.09.2017
Location	: Brahmaputra river crossing locations (132 kV Rupai –Chapakhowa T/L)

CONTENTS

DESCRIPTION OF THE PROJECT SITE/PILE LOCATIONS

There are nine (09) transmission tower locations for 132 kV Rupai-Chapakhowa transmission line requiring pile foundation across the Brahmaputra river. The pile locations are near the famous Dhola-Sadia Bridge *(Dr. Bhupen Hazarika Setu)* towards the downstream side of the bridge. The details of the 9 pile locations are given below:-

Pile Location No	Span in mts	GPS CO-ORDINATES		Progress
		Northing	Easting	
30/1		27°46'50.19"	95°39'18.86"	Completed
	475.000			
30/2		27°47'05.93"	95°39'16.53"	Completed
	460.000			
30/3		27°47'20.68"	95°39'14.22"	Completed
	500.000			
30/4		27°47'36.92"	95°39'11.79"	U/Progress
	495.000			
30/5		27°47'52.65"	95°39'09.46"	U/Progress
	459.000			
30/6		27°48'07.69"	95°39'07.15"	U/progress
	475.000			
30/7		27°48'22.87"	95°39'04.88"	Completed
	456.000			
30/8		27°48'37.55"	95°39'02.64"	Completed
	482.000			
30/9		27°48'53.09"	95°39'00.36"	Completed


PILE FOUNDATION LOCATIONS OF 132 KV RUPAI-CHAPAKHOWA T/L
Legend
PILE LOCATIONS
AP 29
AP 28
30/1
30/2
30/3
30/4
30/6
30/7
AP 32
Google Earth

BRIEF DESCRIPTION OF THE PROJECT ACTIVITY

Total no of tower locations required pile foundation	: 09 nos
Total no of piles required for each tower location	: 16 nos
Total no of piles required for all locations	: 144 nos
Average depth of pile	: Varies from 32.40 meter to 34.60 meter
Method of boring	: DMC (Direct mud circulation) by rotary HR-180/ winch 5ton capacity

Procedure for Direct Mud Circulation Method of Pile Foundation Installation

- A Tripod is made to stand around the target pile (two legs around the pile and one into the slot provided in winch machine) and a plumb bob is then hung down the pulley (mounted on the tripod) aiming the center of the target pile so as to obtain the center for the chisel. The maximum tolerance permissible for piles with diameter 600mm or more is 75mm or D/10, whichever is more.
- Once the position of winch machine and the tripod is fixed, casing is installed into the earth keeping the center point intact. A wall made up of sacks filled with rubble or soil is created around the pile-area so as to channel an artificial conduit directed towards the bentonite pit. This channel directs the mixture of mud and bentonite slurry coming out from the bore to the bentonite pit.
- The topmost drill pipe is connected with a hose emerging from the vertical pump (installed in the bentonite) pit sending fresh bentonite slurry to the borehole through a fine opening in chisel and when the bore hole is filled to the brink, it flows back to the bentonite pit along with the mud through the artificial conduit. In this way the mud from the bore keeps on moving up the borehole and is directed to the bentonite tank.

- It is preferred to use fresh and clean water for the preparation of bentonite suspension as the minutest impurities may alter the properties of a suspension. The specific gravity of the bentonite suspension should be between 1.05 to 1.12 as it is responsible for the retention of the vertical cut soil surface of pile borehole. Cohesiveness and surface tension develop among the soil particles if the specific gravity of the suspension is overlooked which eventually leads to the collapse of vertical cut soil surface.

  To achieve the requisite specific gravity of the bentonite solution, the concentration of bentonite is calculated as under:

  $$Ys=1+0.006 \times Cs$$

  Where "ys" is the density of the bentonite suspension and "Cs" is the concentration of bentonite by weight.

  "Concentration of bentonite" means percentage of bentonite (by weight), to be mixed with water.

  So, $Cs=1/6 \times (1.05-1) \times 1000 = 8.33\%$ by weight.

  i.e. In 1m3 of water 83.3kg bentonite shall be mixed to get 1.05 specific gravity of the bentonite solution.

There are two stages of use of bentonite suspension:

First flushing: When earth is being bored, bentonite suspension of specific gravity between 1.05 to 1.25 is to be maintained.

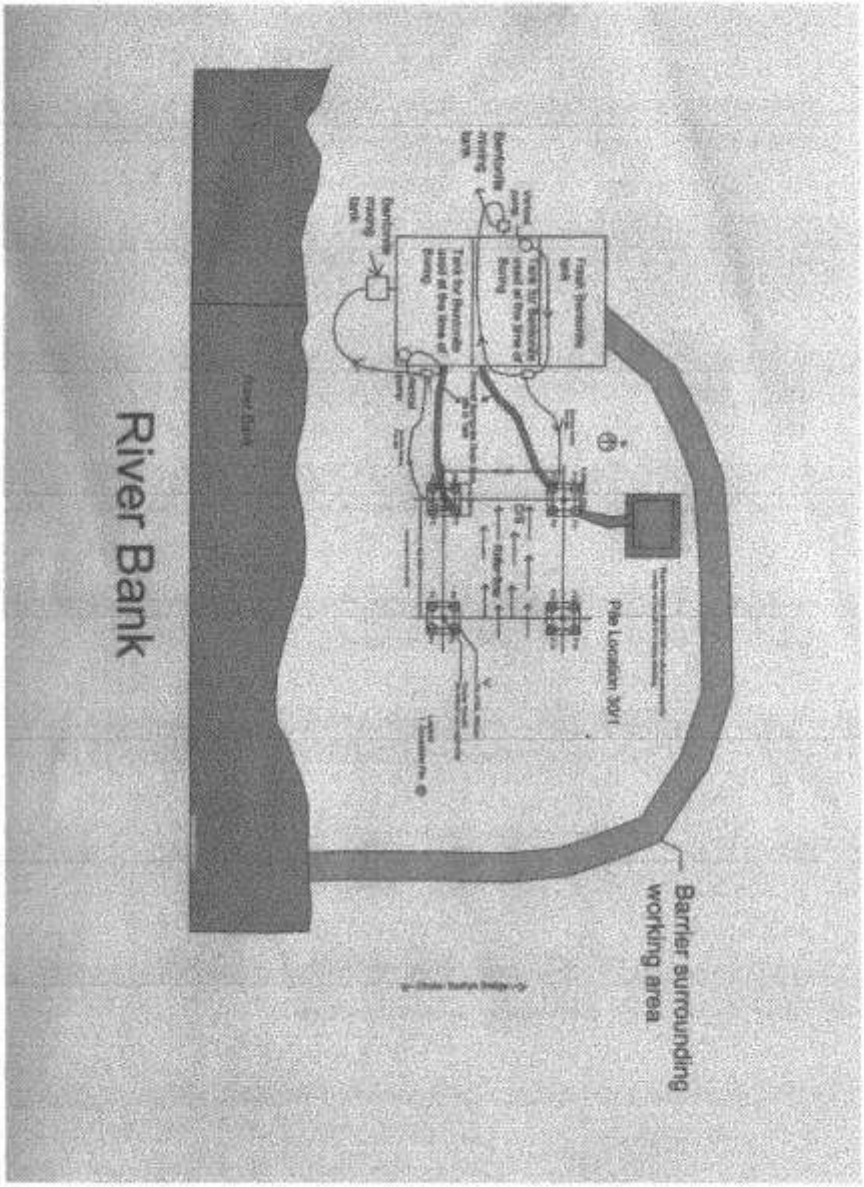
Second flushing: When the bore has to be cleaned after the completion.

- Chisel is then driven inside the casing and the earth is bored until the chisel has fully gone down inside the earth. Drill pipes are attached to the chisel in tandem and the boring progresses by maneuvering the winch machine until the requisite depth is bored. Flushing is done all the while during the pile boring. After the completion of bore, chisel is brought outside and the second flushing of the bore hole is done to remove all the mud and impurities.

- Cage Insertion should be done immediately after the completion of second flushing. It is recommended to provide temporary hooks to the cages so as to keep the verticality of the cage in view while inserting it down the bore hole.

- Tromie are finally inserted into the bore hole attached to a hopper at the top hung by the wire rope. The joint between the hopper and tremie pipe is closed with a steel plug before the first charge of concrete. The hopper is then filled with concrete to its full capacity. Once filled, the steel plug is removed to allow the concrete to flow down the tremie pipes thereby replacing the bentonite solution. Concreting is done up to at least 1m above the cut-off levels to ensure good concrete for proper embedment into pile cap.

The detail process of piling operation is illustrated in the **Figure** below:

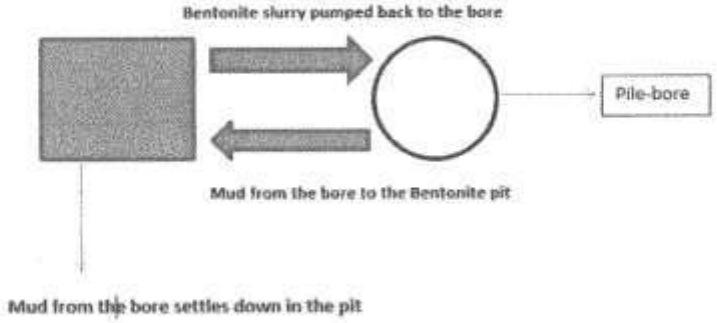

River Bank
Pile Location 30/1
Barrier surrounding working area

DRILLING WASTE MANAGEMENT AT SITE

- Bentonite is most commonly used during boring of pile. The bentonite in the flush fluid lubricates and cools the cutting tools while protecting against corrosion. As the drilling fluid generates hydrostatic pressure in the borehole, it hinders fluid and gas penetration. The drilling liquid conveys the drill cuttings to the surface. When the purge pumps have idle periods, the thixotropy of the bentonite hinders the stone material from dropping back in to the drilled shaft.

- As a flush fluid, bentonite seals the drilled shaft from water ingress downwards and at the sides of the shaft. The mineral forms a firm sludge cake on the bore wall which provides the borehole with additional stability. The fine bentonite particles enter into the bore wall, swell and harden. Depending on the

- Throughout the drilling process, drilling mud is recirculated, which helps decrease waste by reusing as much mud as possible. When the drilling process is finished, the drilling waste must be disposed of in some way. Pit burial/secured landfill is a very common technique, in which the waste is placed in a manmade or natural excavation.



- Bentonite used in drilling fluid is nontoxic in nature. Bentonite has a low impact on environment. Bentonite is unlikely to have any long term adverse effect on environment. At the present work site at each pile location, three (03) brick chambers have been constructed (below ground level) for mixing of bentonite. The bentonite slurry is feed in to the bore hole through a hose pipe and after circulation in the hole, the slurry is drain back to the brick chamber for recycling/reuse. Earthen embankment has been constructed around the pile work site for prevention of leakage /seepage of bentonite to the river water. Direct Mud Circulation (DMC) method has been followed. The appx quantity of residual drilling mud is **6.3 m^3** for each pile location totaling quantity of **57 m^3** in the entire piling operation. Finally, the unusable bentonite along with residual drilling mud is disposed of in an earthen pit with proper backfilling as secured landfill.

DRILING FLUID/MUD DISPOSAL MANAGEMENT PLAN

1. PACKAGE: River crossing locations corresponding to tower packages in Assam associated with NER Power system improvement project.
2. NAME OF THE IMPLEMENTING AGENCY: POWERGRID
3. NAME OF THE CONTRACTOR: M/s MEHER FOUNDATION & CIVIL ENGINEERS PVT. LTD.
4. NUMBER OF PILE LOCATION: 09 NOS.
5. NUMBER OF PILES: (9X16) = 144 Nos.
6. NATURE OF DRILLING CHEMICAL USED: Sodium based bentonite
7. TOXICITY OF THE CHEMICAL: Non- Toxic
8. AVAILABILITY OF MSDS: Available
9. METHOD OF DISPOSAL: During pile boring, the bentonite slurry is prepared in a separate masonry/ steel (MS Plate) tank. The slurry is fed to the bore hole through a 50mm diameter hose pipe which is mounted at the top of DMC rod. The slurry coming out from the bore hole is again recycled to the bentonite tank through a drain constructed on the ground surface with slope. The banks of earthen drain are provided with sand fill bags so as to protect the slurry against overflow.
   After completion of boring, casting of pile is done. During casting of pile, a separate waste bentonite collection earthen tank is constructed at a nearby safe location and connected to the pile bore through a drain. The waste bentonite slurry coming out from the bore during concreting is thus collected in the residual tank which is barricaded properly by safety ribbon. The waste slurry thus collected in the tank is allowed to dry for a considerable time . After drying the tank is filled up with sand.
10. PHOTOGRAPHS: Attached

(वी. ठाकुर) V.B. Thakur
वरिष्ठ उप महाप्रबंधक / Sr. DGM
एन.ई.आर.पी.एस.आई.पी. / NERPSIP
गुवाहाटी / Guwahati

Signature of Implementing Agency

Signature of Contractor

Material
Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION
Product Name: BENTONITE POWDER
Generic Description: [illegible]
Manufacturer: MAHARANI MINERALS
Corporate Office: ATABHAI ROAD - BHAVNAGAR-GUJARAT INDIA

2. CHEMICAL COMPOSITION
- SiO2 [illegible]
- Al2O3 [illegible]
- Fe2O3 [illegible]
- CaO [illegible]
- MgO [illegible]
- Na2O [illegible]
- K2O [illegible]

Note: Analysis may vary with clay source and is quoted at % dry weight

3. HAZARD IDENTIFICATION
Routes of Entry: INHALATION, EYE CONTACT, SKIN CONTACT, INGESTION
Carcinogenic Status: NONE
Target Organs: EYE, LUNGS
[illegible]

4. FIRST AID MEASURES
[illegible]

[illegible] Emergency Eye Wash: When there is a possibility that an employee's eyes may be exposed to bulk quantities or high concentrations of airborne dust of this substance, the employer should provide an eye wash fountain within the immediate work area for emergency.

5. FIRE FIGHTING MEASURES
[illegible]

6. ACCIDENTAL RELEASE MEASURES
[illegible]

7. HANDLING AND STORAGE
[illegible]

8. EXPOSURE CONTROLS PERSONAL PROTECTION
[illegible]
Hand Protection: Protective gloves are not required, but may be worn to prevent skin dryness or irritation.
Eye Protection: Dust tight goggles.
Body Protection: Normal work wear.
Emergency Eye Wash: When there is a possibility that an employee's eyes may be exposed to bulk quantities or high concentrations of airborne dust of this substance, the employer should provide an eye wash fountain within the immediate work area for emergency.

9. PHYSICAL AND CHEMICAL PROPERTIES
Physical state: Solid Powder
Color: Dark Brown
Odor: Odorless
Flammability: Not Flammable
Explosive Properties: Non Explosive

10. STABILITY AND REACTIVITY
Stability: Stable under normal temperatures and pressures
Incompatibility: None
Decomposition By Products: Carbon monoxide and carbon dioxide
Hazardous Polymerization: Should not occur under normal temperatures and pressures

11. TOXICOLOGICAL INFORMATION
Ingestion: Material is Orally Non Toxic
Eye Contact: [illegible]
Skin Contact: Non-Irritant

12. ECOLOGICAL INFORMATION
There are no known ecological problems associated with this product.

13. DISPOSAL
Product Disposal: Dispose of in accordance with all applicable local and national regulations.

14. TRANSPORT INFORMATION
[illegible]

15. REGULATORY INFORMATION
Dangerous Substances Directive 67/548/EEC and Dangerous Preparation Directive 88/379/EEC. These regulations do not apply.

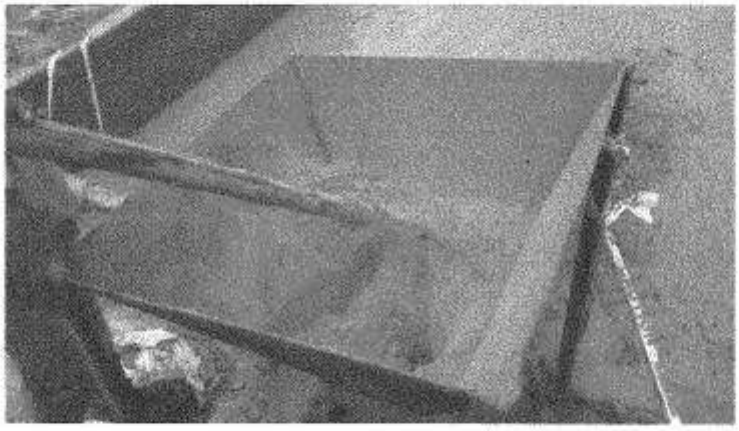
16. OTHER INFORMATION
MAHARANI MINERALS
Quality Assurance Department

MAHARANI MIENRALS.

Processing Plant: [illegible]

Regional Office: [illegible] STATION ROAD BHAVNAGAR (Gujarat) India.

Fig: Bentonite Mixing Tank



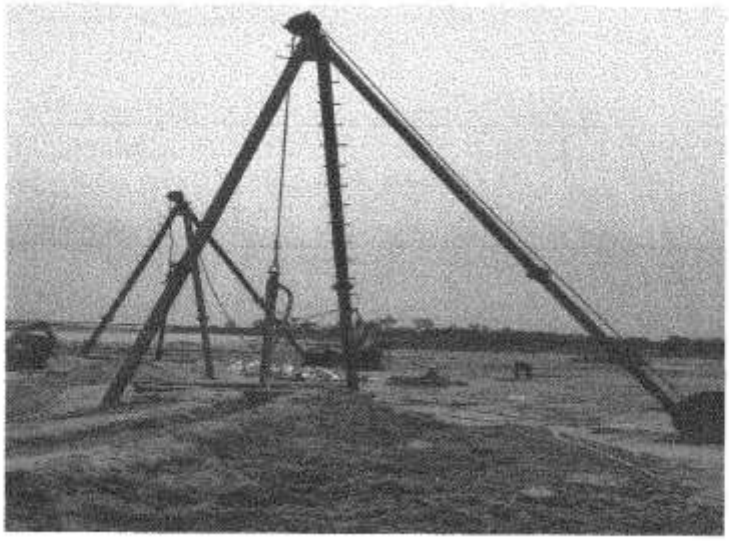


Fig: Photograph showing waste bentonite collection process.

Fig: Source of Construction Water

Annexure 14

Budget Estimate

Budget Estimate Towards Forest and Crop/Tree/ Tower Footing Compensation

Total 132 kV line length	-	**91.31 km.**
Total 132 kV tower locations	-	**304 approx.**

A. Compensation

1 Forest - **Nil**

2. Crop & Trees

- Transmission Line length in Private /Revenue land - 91.31 km.

- Crop/tree compensation for 132 kV line- (91.31 x 5,00,000) = **Rs.456.55 lakhs**

- Distribution Line length in Private /Revenue land – 20.9 km.

- Crop/tree compensation for 33 kV line - (20.9 x 50,000) = **Rs. 10.45 lakhs**

3. Land compensation for tower footings - (304 towers x 10,000) = **Rs. 30.40 lakhs**

Sub Total A (1+2+3) - **Rs. 497.40 lakhs**

B. Implementation Monitoring & Audit

i)	Man-power involved for EMP implementation & Monitoring in entire route of Transmission lines & distribution line (Rs.10, 000/-x 112 km)	= Rs. **11.20 lakhs**
ii)	Independent Audit (LS) if needed	= Rs. **5.00 lakhs**

Sub Total (B) - **Rs. 16.20 lakhs**

GrandTotal (A+B) = **Rs. 513.60 lakhs**

Annexure 15

Details of Environmental Assessment Team

DETAILS OF PROJECT TEAM

Sr. No.	Name	Description	Qualification	Relevant Experience
1.	Mr. Ram Raghav	Environment Expert	M. Sc. (Environment Science)	11+
2.	Mr. Anil Kumar Lakdawala	Transmission & Distribution Expert	B. Tech (Electrical Engineering)	50+
3.	Mr. Pradeep Joshi	Chief Field Officer	M. Sc. (Environment Science)	35+
4.	Mr. Mohit Sharma	Field Officer	M. Sc. (Environment Science)	2+
5.	Mr. Vishnu Vyshak	Field Officer	M. Sc. (Environment Science)	2+
6.	Mr. Umesh Kumar	Field Officer	M. Sc. (Environment Science)	6+

Annexure 16

Example of 10% Transect Survey

GREEN CIRCLE, INC.

FIELD DATA COLLECTION FORMAT
(FEAR, Assam)

DETAILS OF LAND/TOPOGRAPHY/VEGETATION

Name of the Line:- 33 KV Behiating to bogibeel line

Section of Route: Gantry to FP 11

Number of Tower/Poles : 158 Nos.

Section Length : 7.706 Km

Latitude: 27°25'16.2" to 27°24'48.7" **Longitude: 94°55'12.2" to 94°53'06.0"**

DESCRIPTION	REMARKS
Status of Land	Private ownership, Roadside
General topography of the area	Plain
Nature of vegetation in the study area	Naturally grown trees, Private plantation
Density of vegetation	Medium
Number of trees likely to be felled in that stretch	755 Nos. (Neem, siris, bamboo)
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 LIKEY IMPACTS

(It is desired that the assessment team to do a prior desk review or literature review on biodiversity of the Project areas/districts based on secondary data

DESCRIPTION	STATUS/AVAILABILITY	LIKELY IMPACT
FLORA		
(a) Common flora in the study area	Tea, siris, bamboo	There are no likely impact as observed in the study area
(b) Endemic flora	Tea, siris, bamboo	
(c) Endangered flora	NA	
(d) Vulnerable	NA	
e) Threatened	NA	
f) Any specific observation	NA	
FLORA		
a) Common Fauna in the study area	Cattle, fowl	There are no likely impact as observed in the study area
(b) Endemic flora	-	
(c) Endangered flora	NA	
(d) Vulnerable	NA	
Special emphasis on Elephant habitat/corridor		

a) Presence of Elephant habitat/corridor in the study area	There is no elephant corridor nor an elephant habitat in the region	
Special emphasis on electrocution of birds/monkey/primate species		
a) Availability of large winged birds	NA	
b) Availability of monkey/primate species and chances of electrocution	NA	
c) Any specific 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	Refilled in the tower trench
Any major issue of soil erosion at project site/tower locations	No
Whether benching carried at tower locations	No
Number of trees felled/required to be felled at tower location	755 Nos.
Leg extension /extended tower provided/requirement	No
Impact on nearby water bodies due to project activity	No
Whether location is vulnerable to soil erosion /slope failure	No
Any specific requirement of slope protection measures like revetment/retaining/toe wall etc. at project locations	No
Impact of approach road construction *(If required)*	No
Transportation of tower materials	Mechanical

SOCIO ECONOMIC ASSESSMENT OF THE STUDY AREA.

DESCRIPTION	REMARKS
Name of the village/village council	Baughpara
General socio economic profile of PAP in project area	Agriculture, service
Nature of land affected due to project activity	Roadside,Tea garden
Any resettlement issue	No
Any negative impact on livelihood of the PAP	No
Any impact on archaeological structure *(if, available in the vicinity)*	No
Any impact on common property resources/religious area /sacred groves etc.	No
Consultation with PAP/ Village council *(As per TOR, public consultation is required to be done by Consultant in association with POWERGRID and property documented)*	Photographs and details of issues raised.

Remark / Observation:

GREEN CIRCLE, INC.

FIELD DATA COLLECTION FORMAT
(FEAR, Assam)

DETAILS OF LAND/TOPOGRAPHY/VEGETATION

Name of the Line:- 33KV

Section of Route: SP 136 to Gantry

Number of Tower/Poles : 143 Nos.

Section Length : 6.124 Km

Latitude: 27°24'48.7" to 27°24'40.1" Longitude: 94°53'04.3 to 94°50'00.5"

DESCRIPTION	REMARKS
Status of Land	Private ownership, govt. land
General topography of the area	Plain
Nature of vegetation in the study area	Private plantation, naturally grown trees
Density of vegetation	Medium
Number of trees likely to be felled in that stretch	137 Nos. (Siris, krishnachura, peepal, Mango, Supari, Segun, Cotton, Simul, Eucalyptus, Fire Wood)
Any specific observation with respect to ecological sensitivity in the study area	No

DETAILS ON BIODIVERSITY OF THE STUDY AREA AND LIKEY IMPACTS

(It is desired that the assessment team to do a prior desk review or literature review on biodiversity of the Project areas/districts based on secondary data

DESCRIPTION	STATUS/AVAILABILITY	LIKELY IMPACT
FLORA		
(a) Common flora in the study area	Tea, siris	There are no likely impact as observed in the study area
(b) Endemic flora	Tea, siris	
(c) Endangered flora	-	
(d) Vulnerable	NA	
e) Threatened	NA	
f) Any specific observation	No	
FLORA		
a) Common Fauna in the study area	Cattle, fowl	There are no likely impact as observed in the study area
(b) Endemic flora	-	
(c) Endangered flora	NA	
(d) Vulnerable	NA	

GREEN CIRCLE, INC.

Special emphasis on Elephant habitat/corridor		
a) Presence of Elephant habitat/corridor in the study area	-	
Special emphasis on electrocution of birds/monkey/primate species		
a) Availability of large winged birds	No	
b) Availability of monkey/primate species and chances of electrocution	No	
c) Any specific 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	Refilled in the tower trench
Any major issue of soil erosion at project site/tower locations	No
Whether benching carried at tower locations	No
Number of trees felled/required to be felled at tower location	137 Nos.
Leg extension /extended tower provided/requirement	No
Impact on nearby water bodies due to project activity	No
Whether location is vulnerable to soil erosion /slope failure	No
Any specific requirement of slope protection measures like revetment/retaining/toe wall etc. at project locations	No
Impact of approach road construction *(If required)*	No
Transportation of tower materials	Mechanical

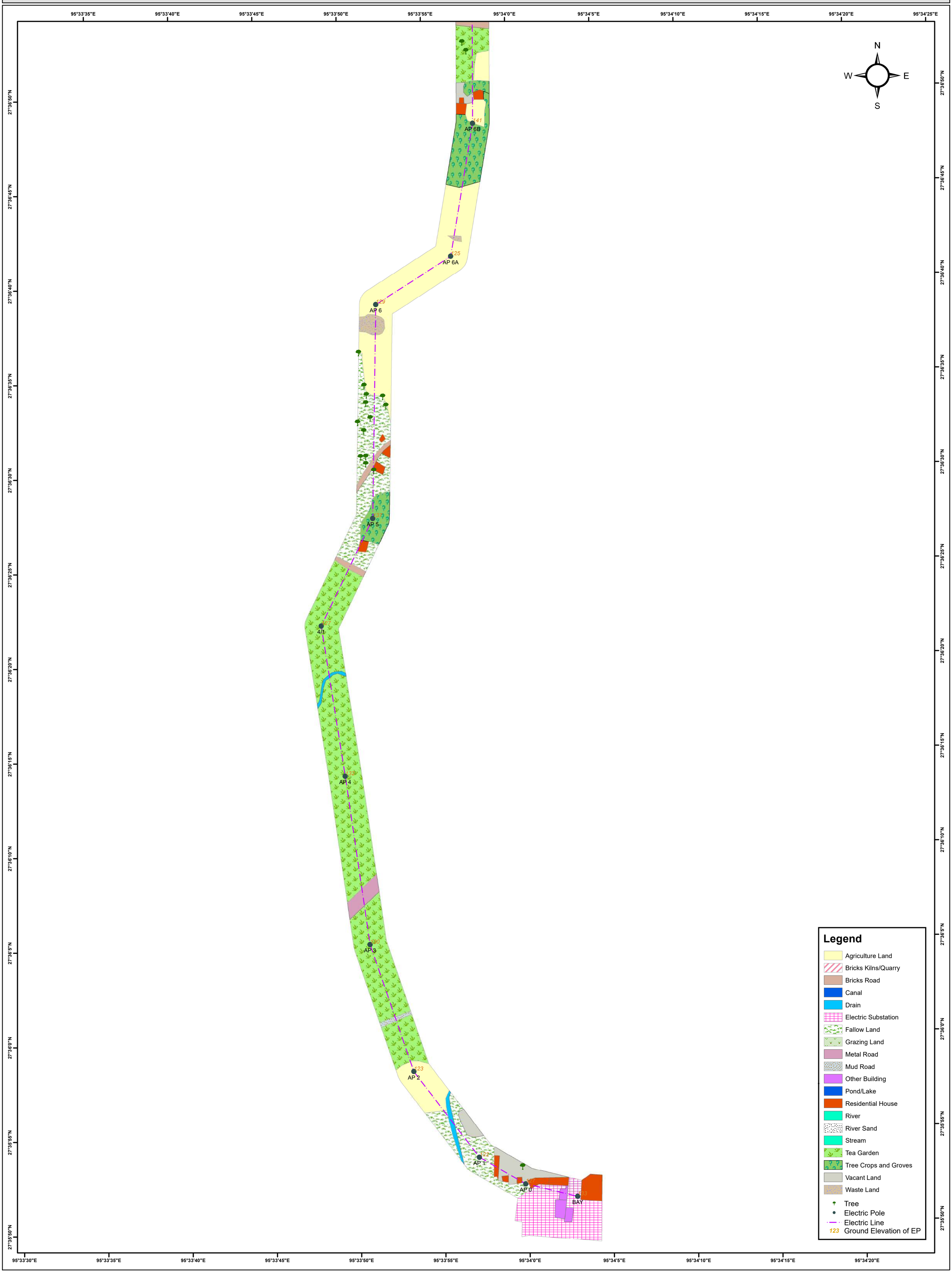
SOCIO ECONOMIC ASSESSMENT OF THE STUDY AREA.

DESCRIPTION	REMARKS
Name of the village/village council	Dibrugarh township
General socio economic profile of PAP in project area	Tea labors, agriculture, service
Nature of land affected due to project activity	Tea estate, roadside
Any resettlement issue	No
Any negative impact on livelihood of the PAP	No
Any impact on archaeological structure *(if, available in the vicinity)*	No
Any impact on common property resources/religious area /sacred groves etc.	No
Consultation with PAP/ Village council *(As per TOR, public consultation is required to be done by Consultant in association with POWERGRID and property documented)*	Photographs and details of issues raised.

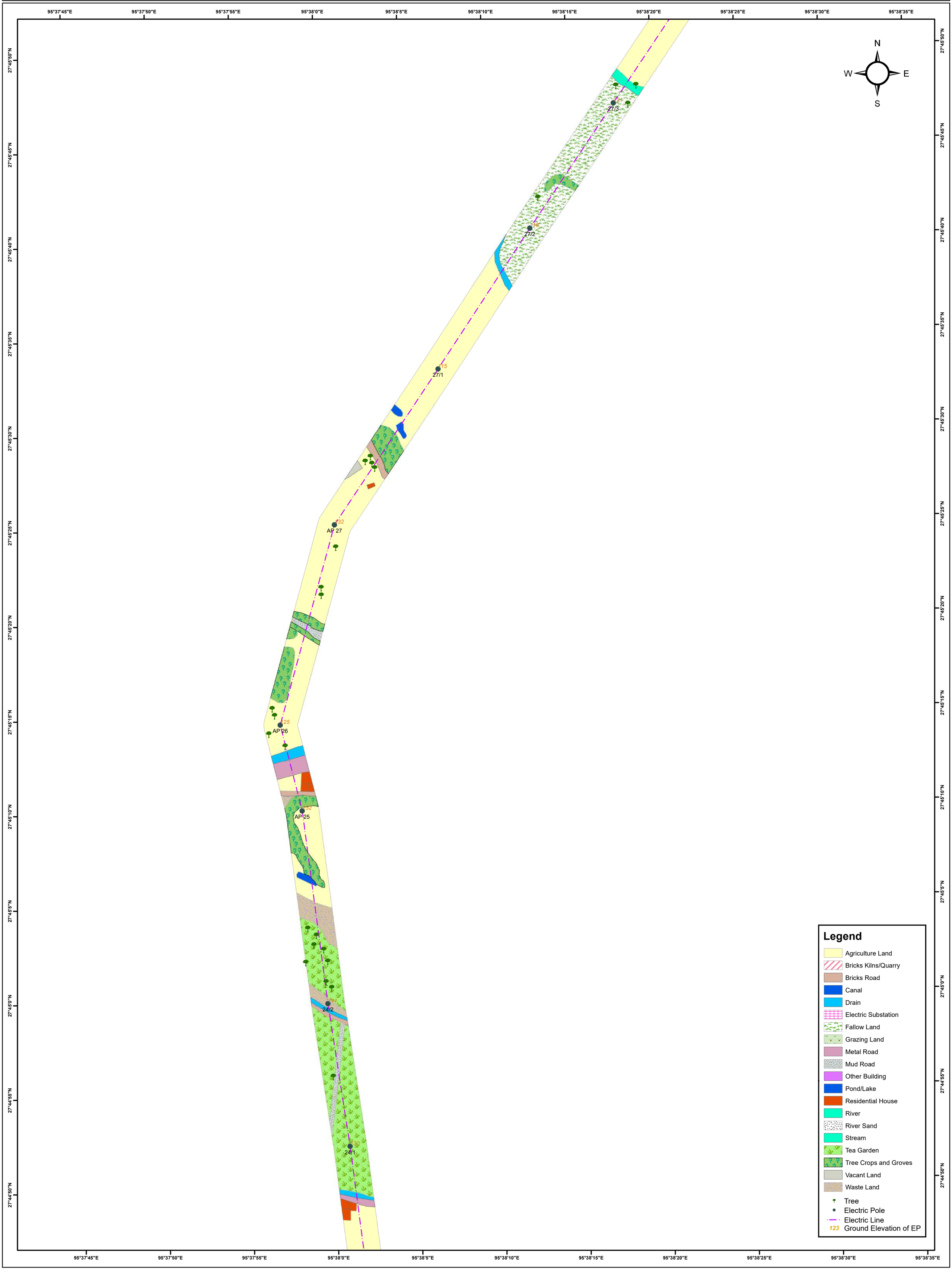
Remark / Observation:

ANNEXURE A-1

LAND USE/LAND COVER DETAILS OF RUPAI CHAPAKHOWA 132 KV S/C ON DIC LINE
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



LAND USE/LAND COVER DETAILS OF RUPAI CHAPAKHOWA 132 KV S/C ON DIC LINE
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



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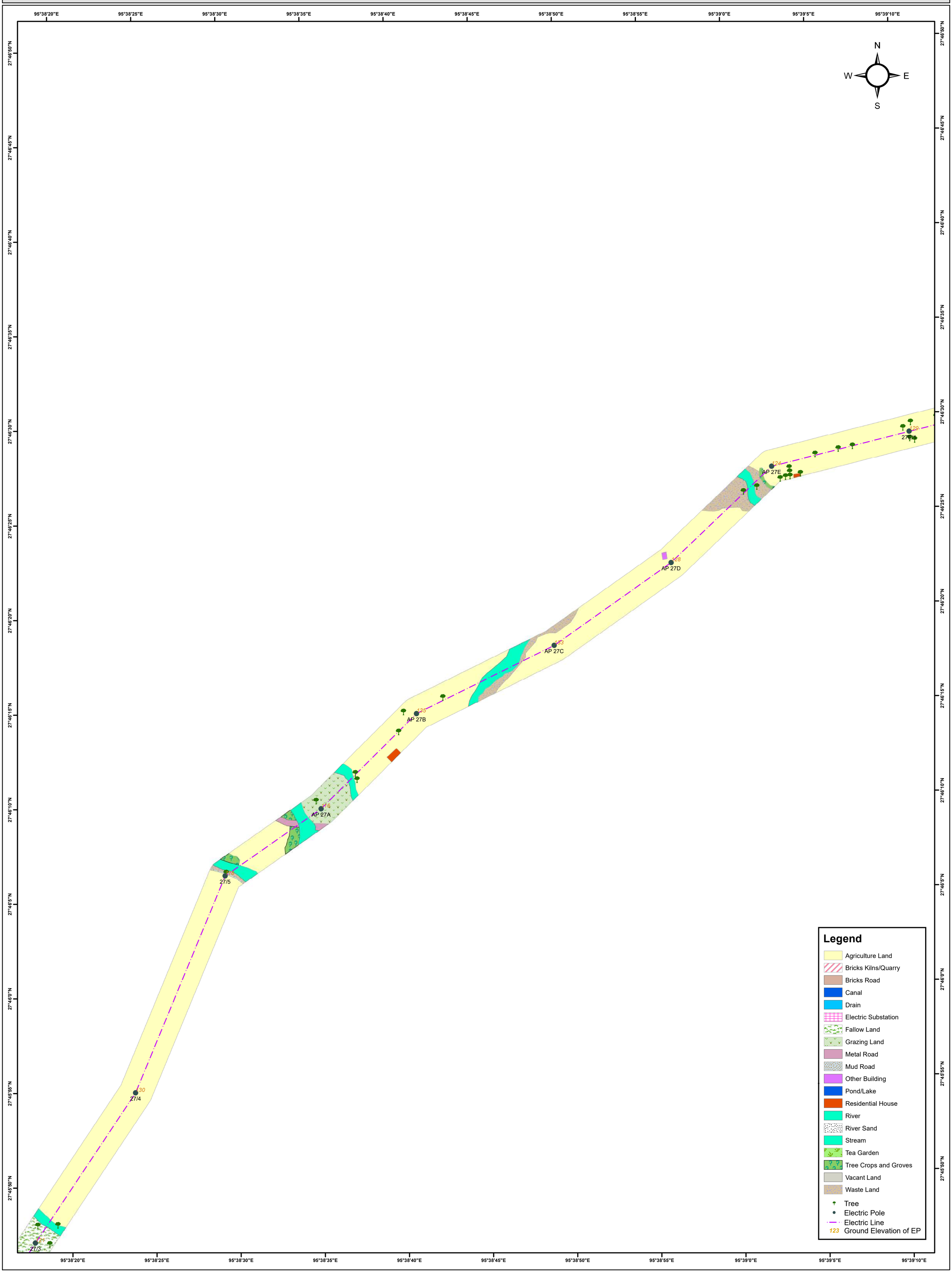

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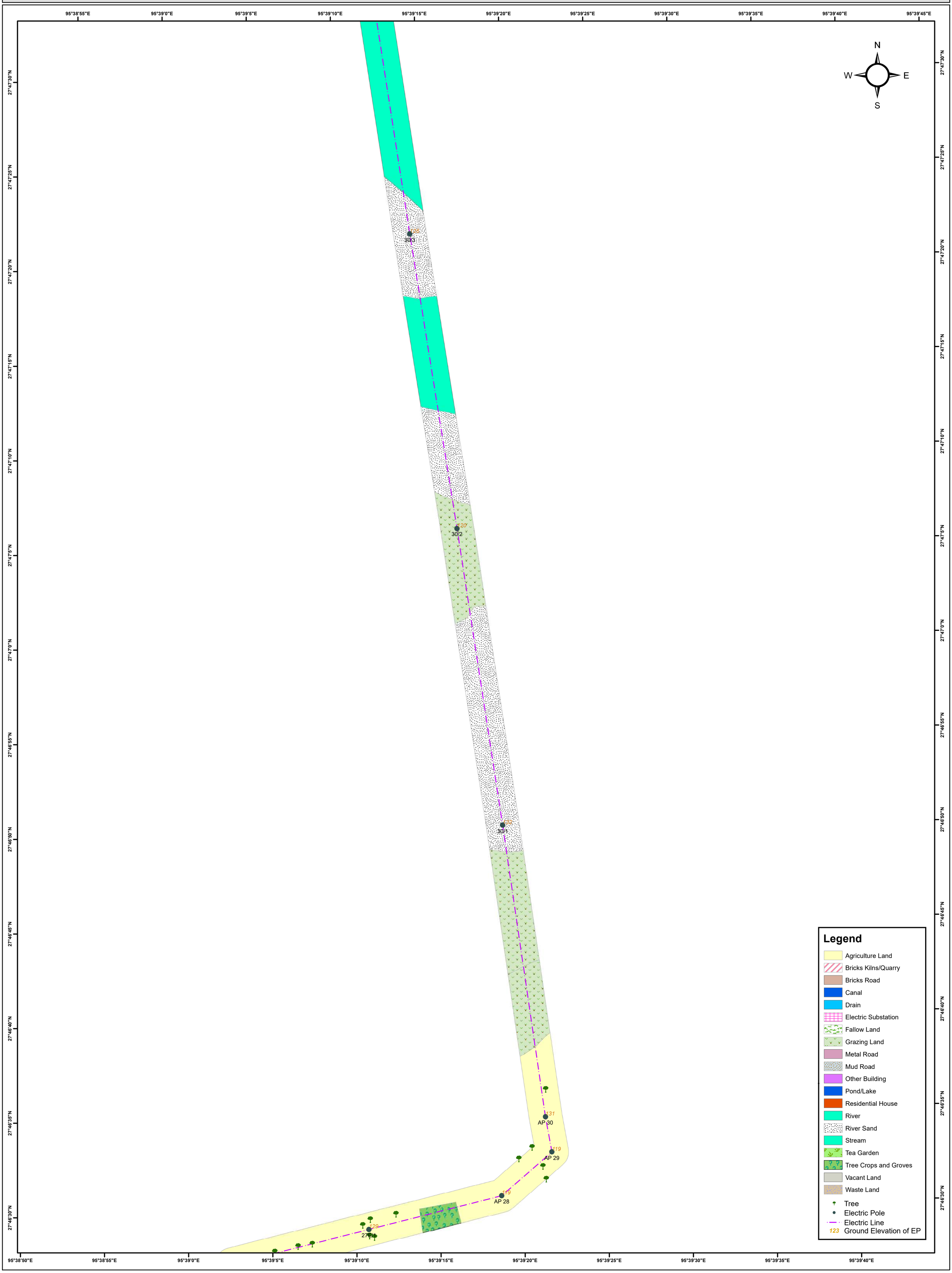

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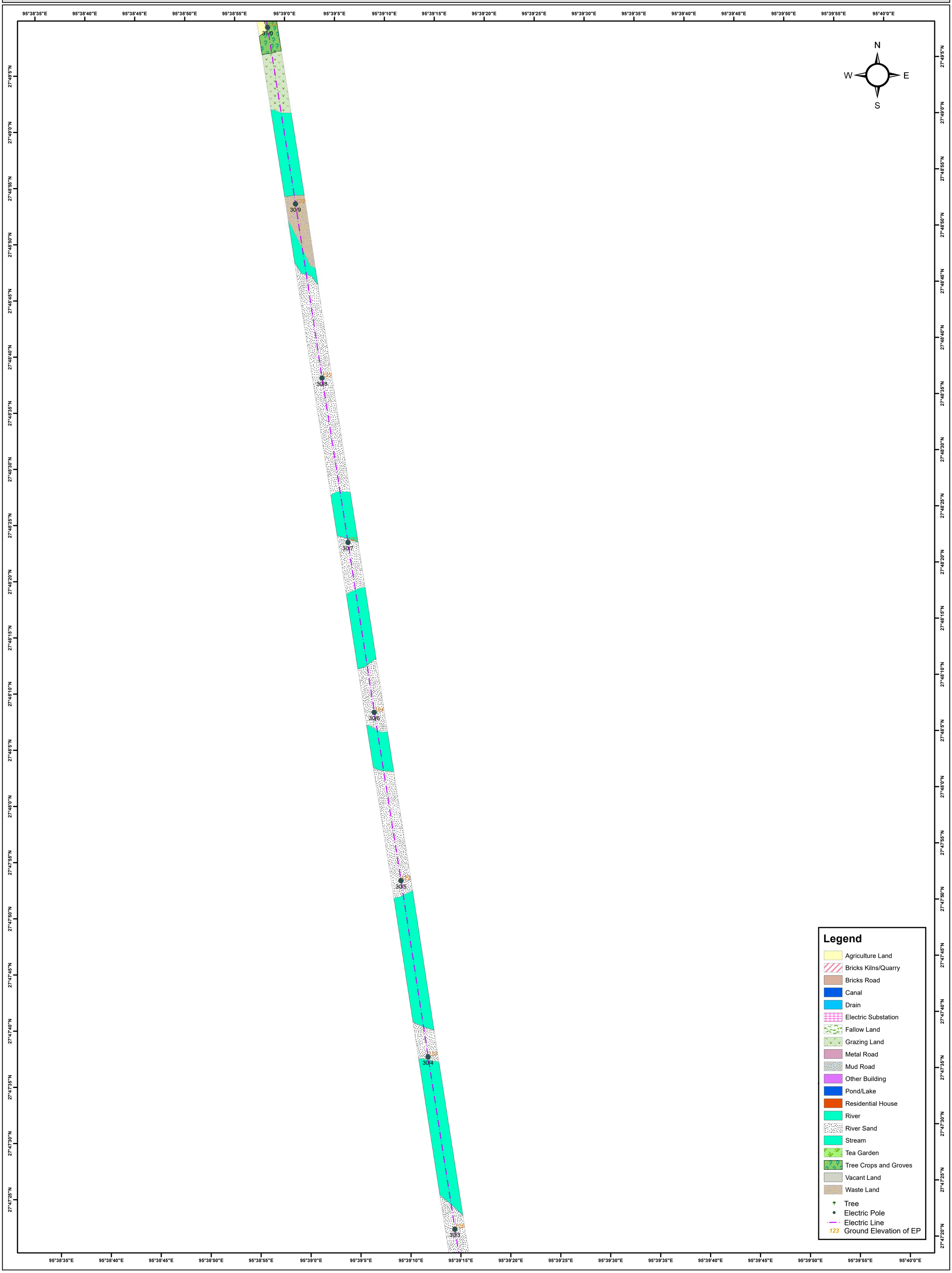

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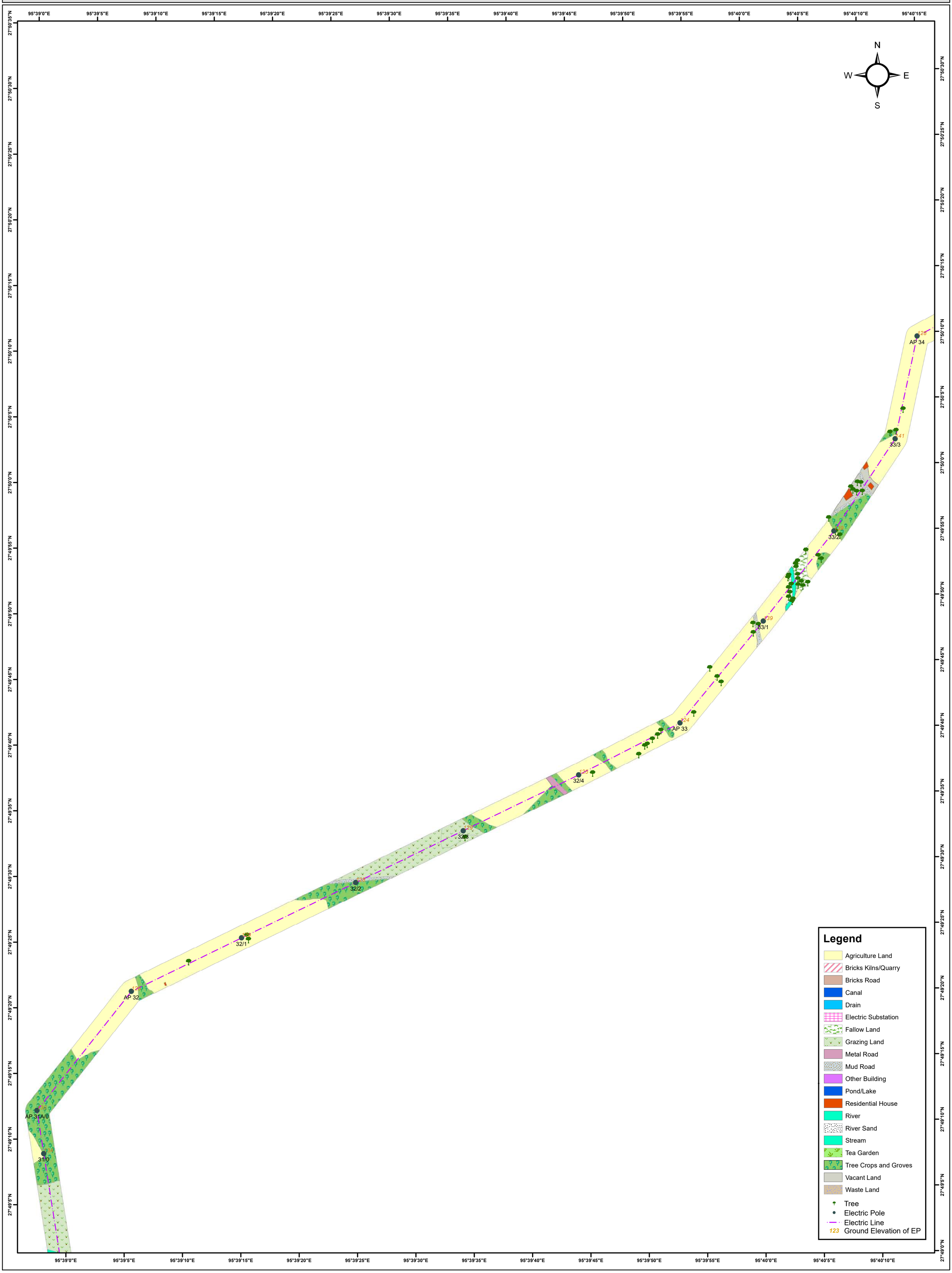

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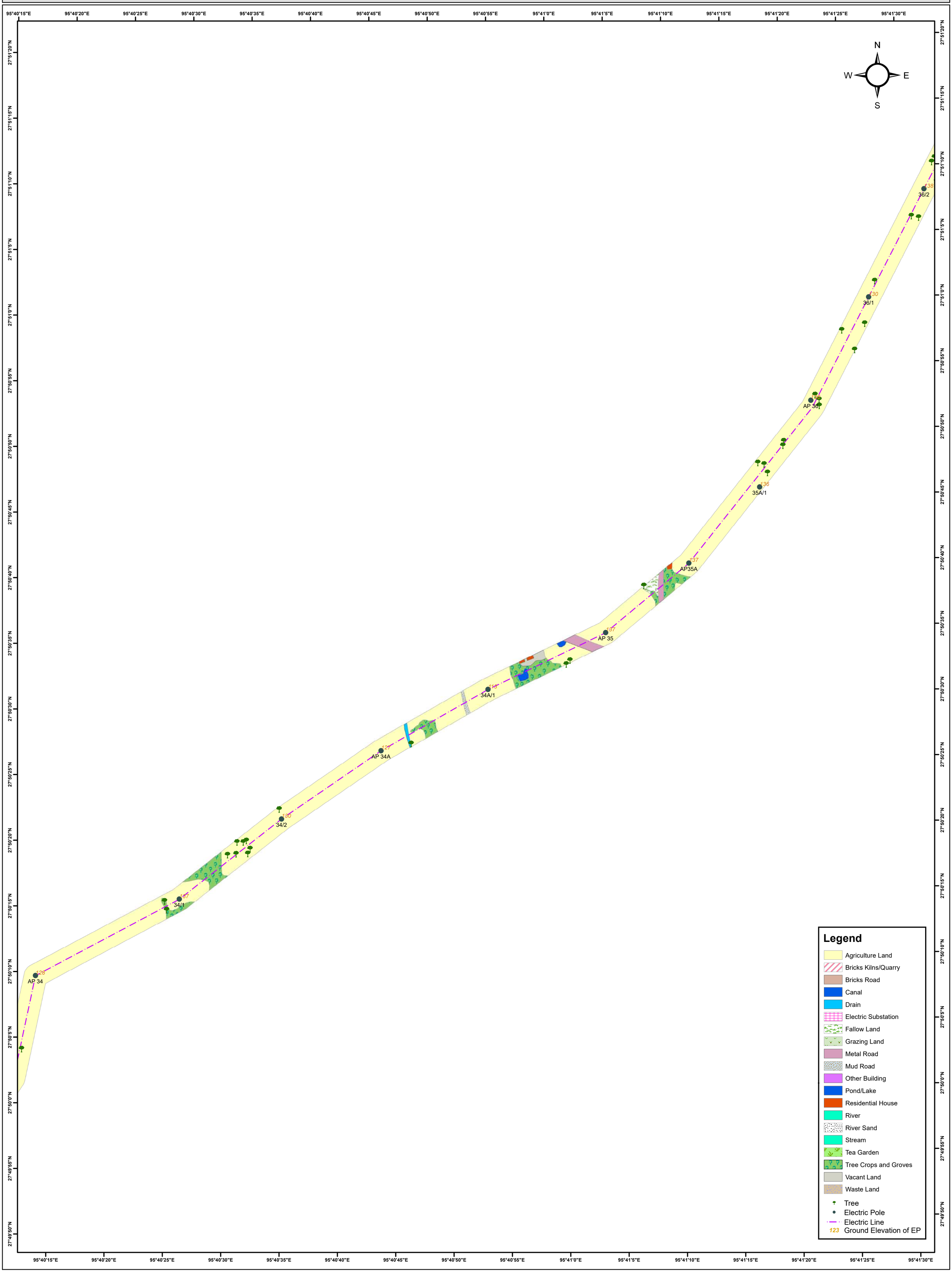

LAND USE/LAND COVER DETAILS OF RUPAI CHAPAKHOWA 132 KV S/C ON DIC LINE
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
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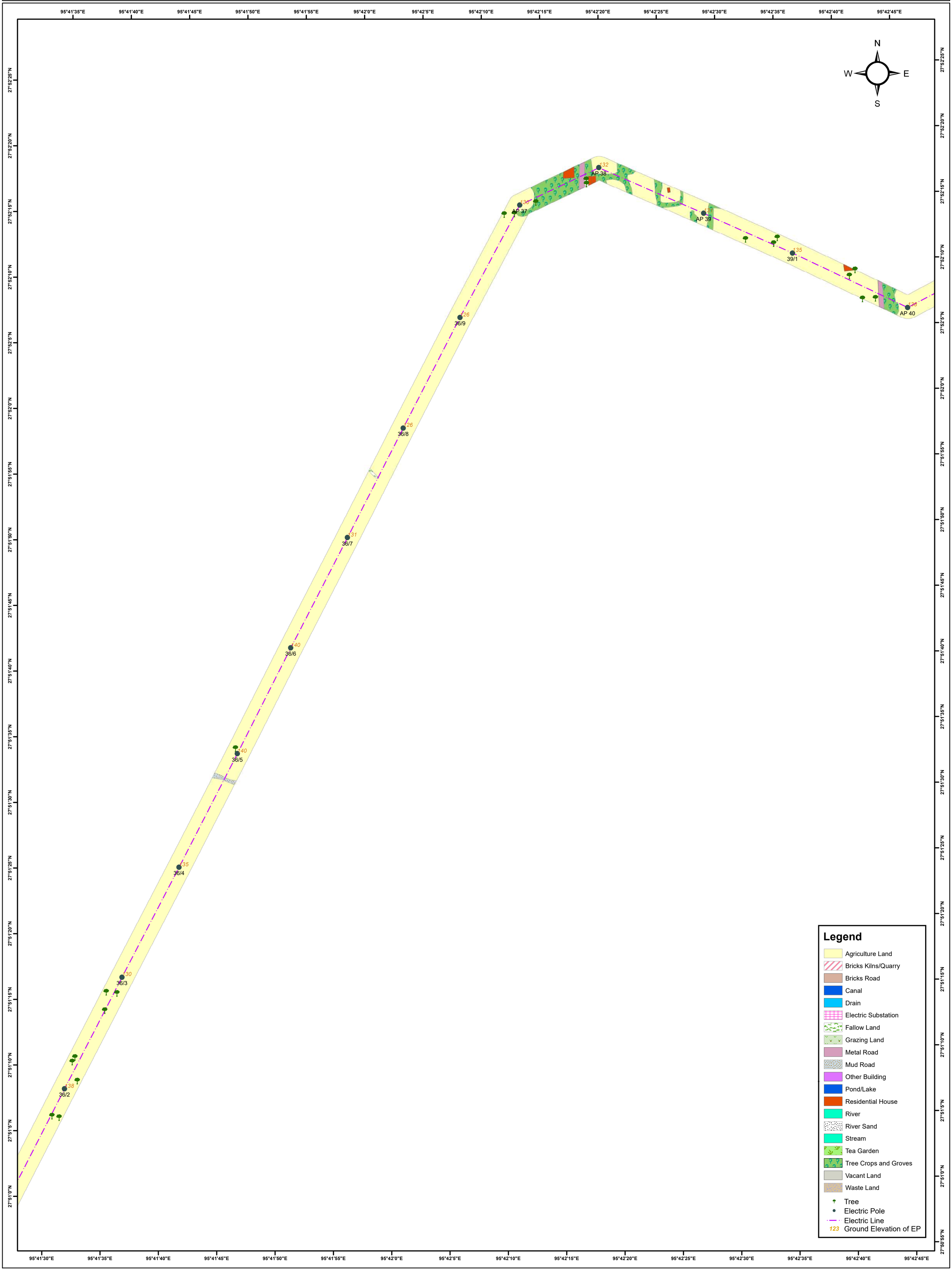

LAND USE/LAND COVER DETAILS OF RUPAI CHAPAKHOWA 132 KV S/C ON DIC LINE
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
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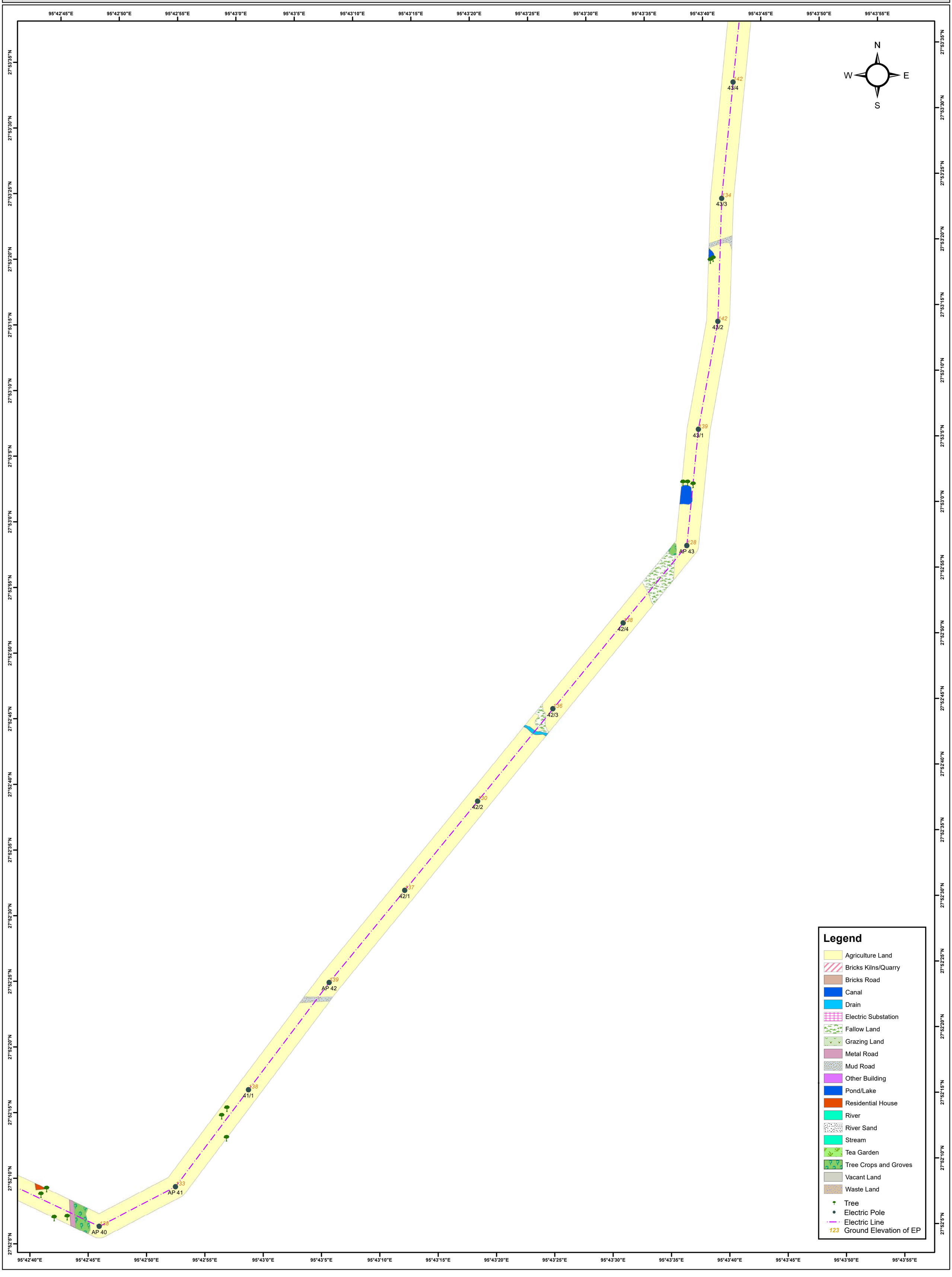
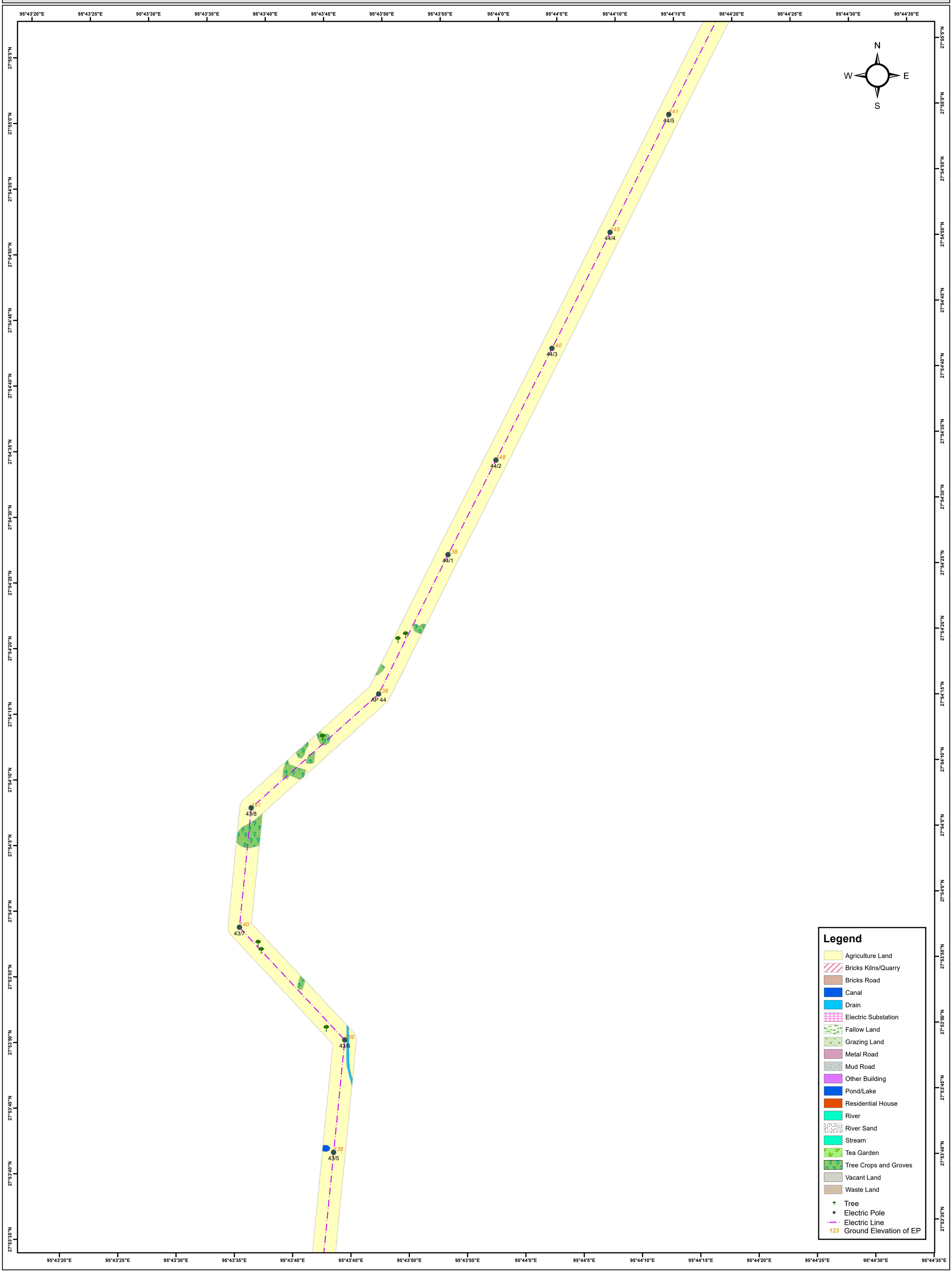


LAND USE/LAND COVER DETAILS OF RUPAI CHAPAKHOWA 132 KV S/C ON DIC LINE
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



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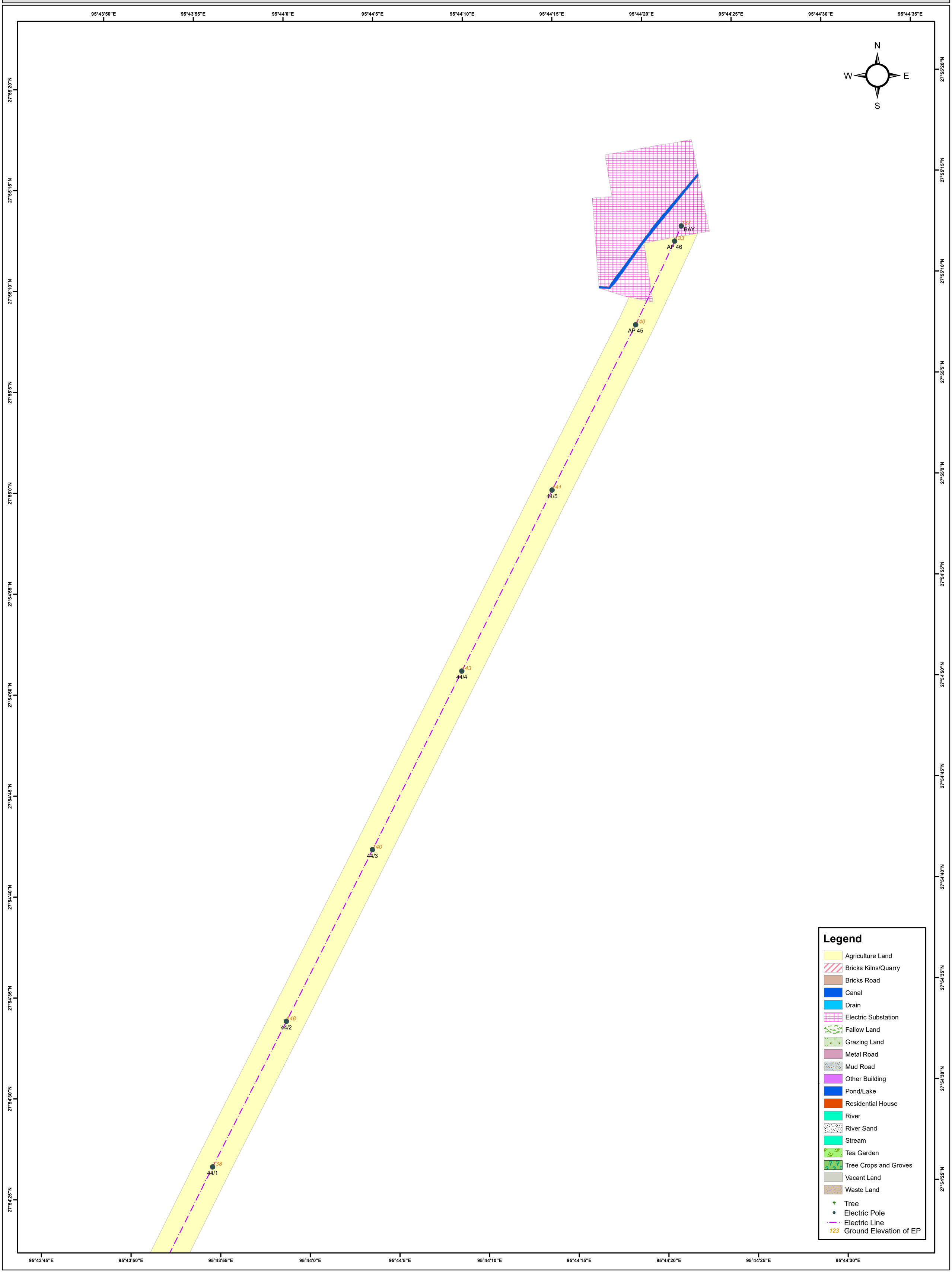

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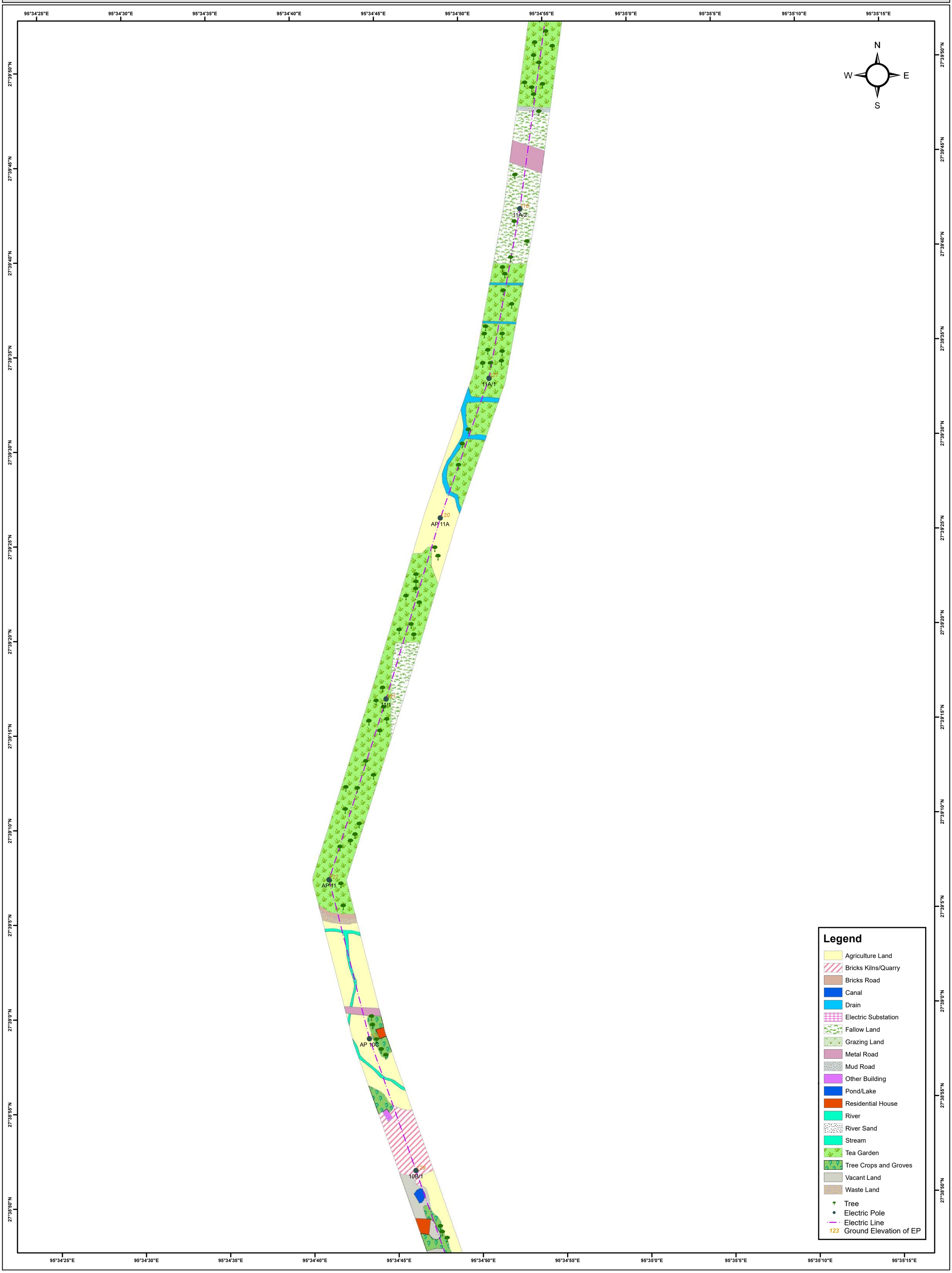

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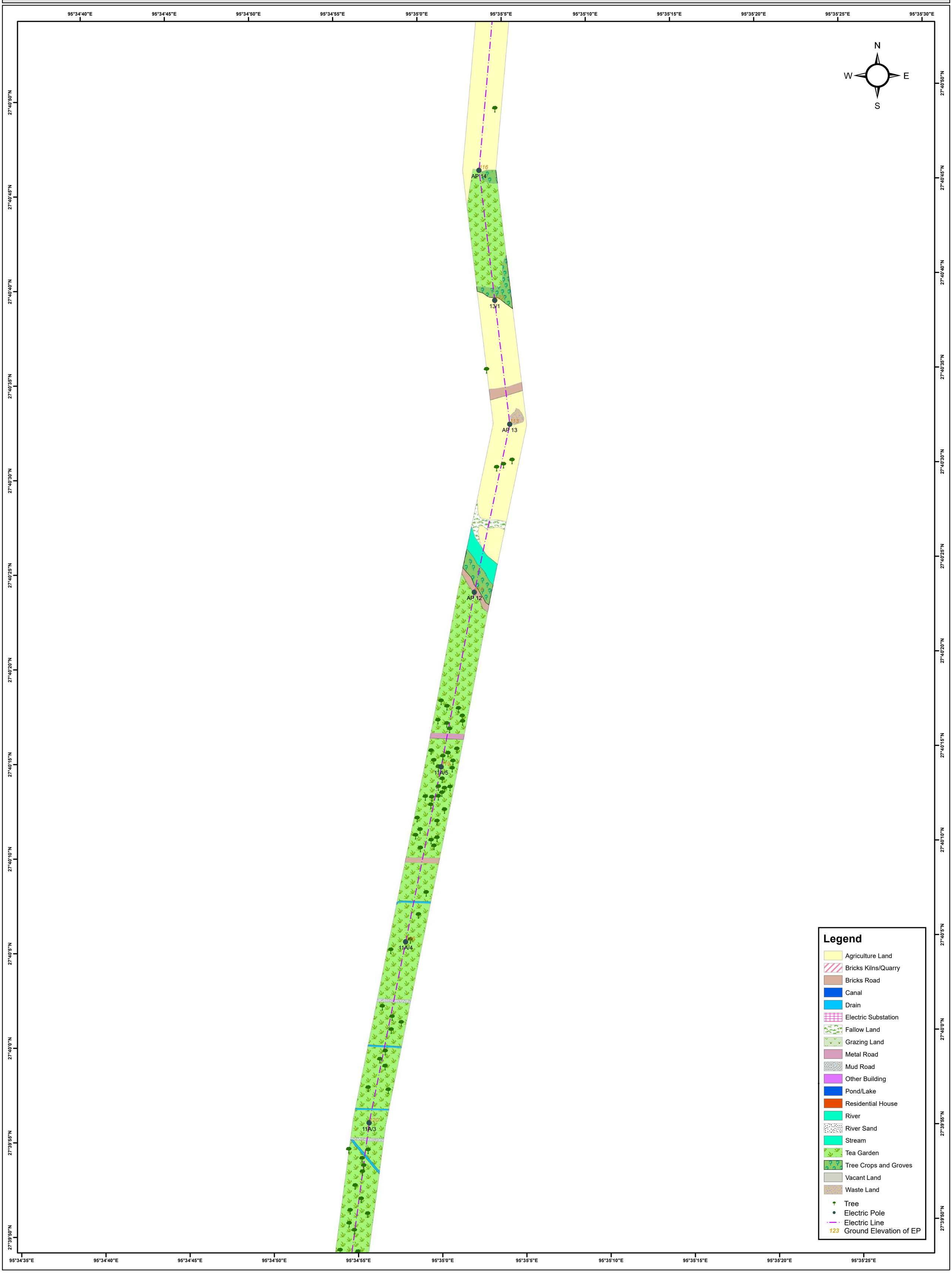

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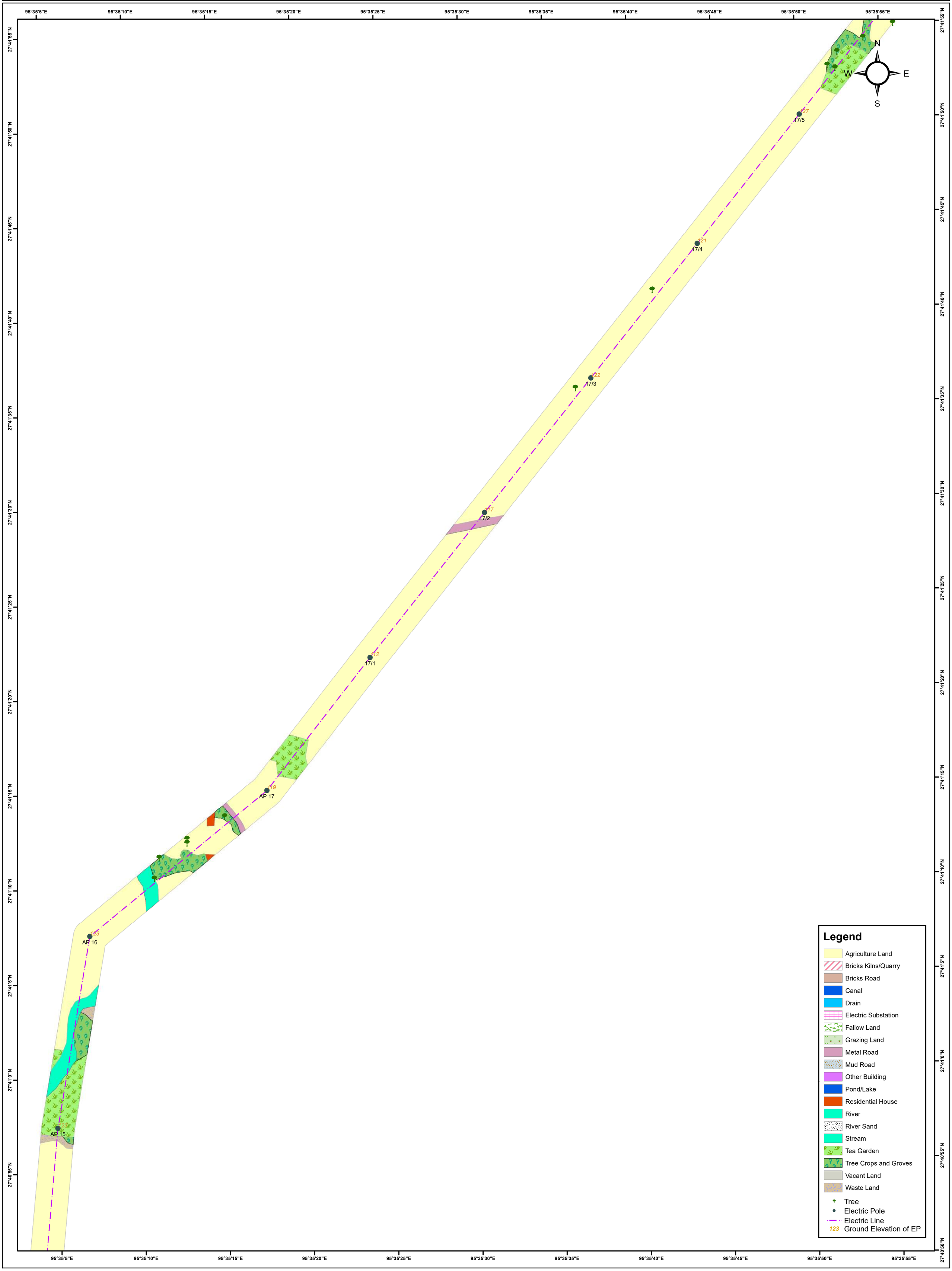

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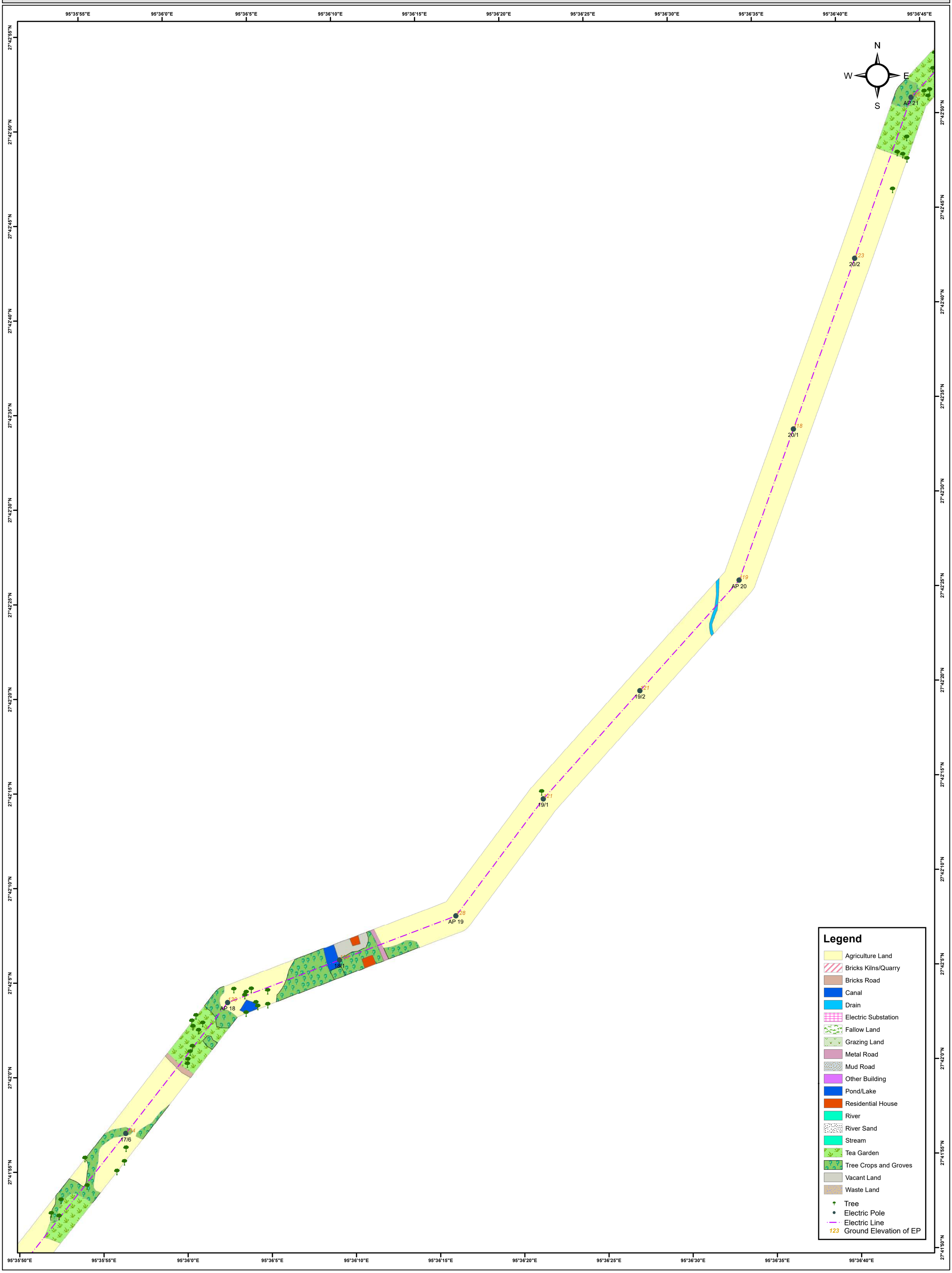

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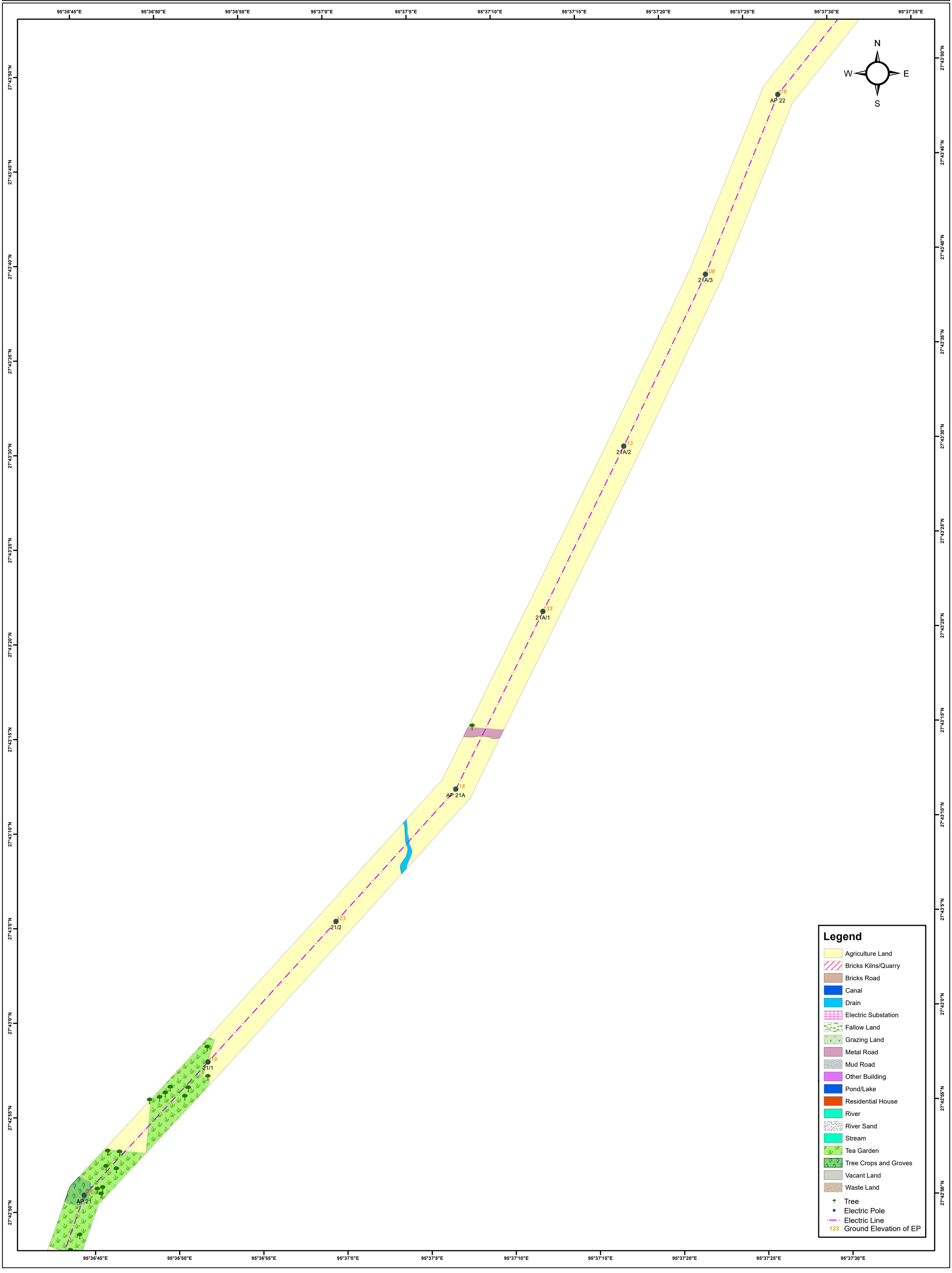

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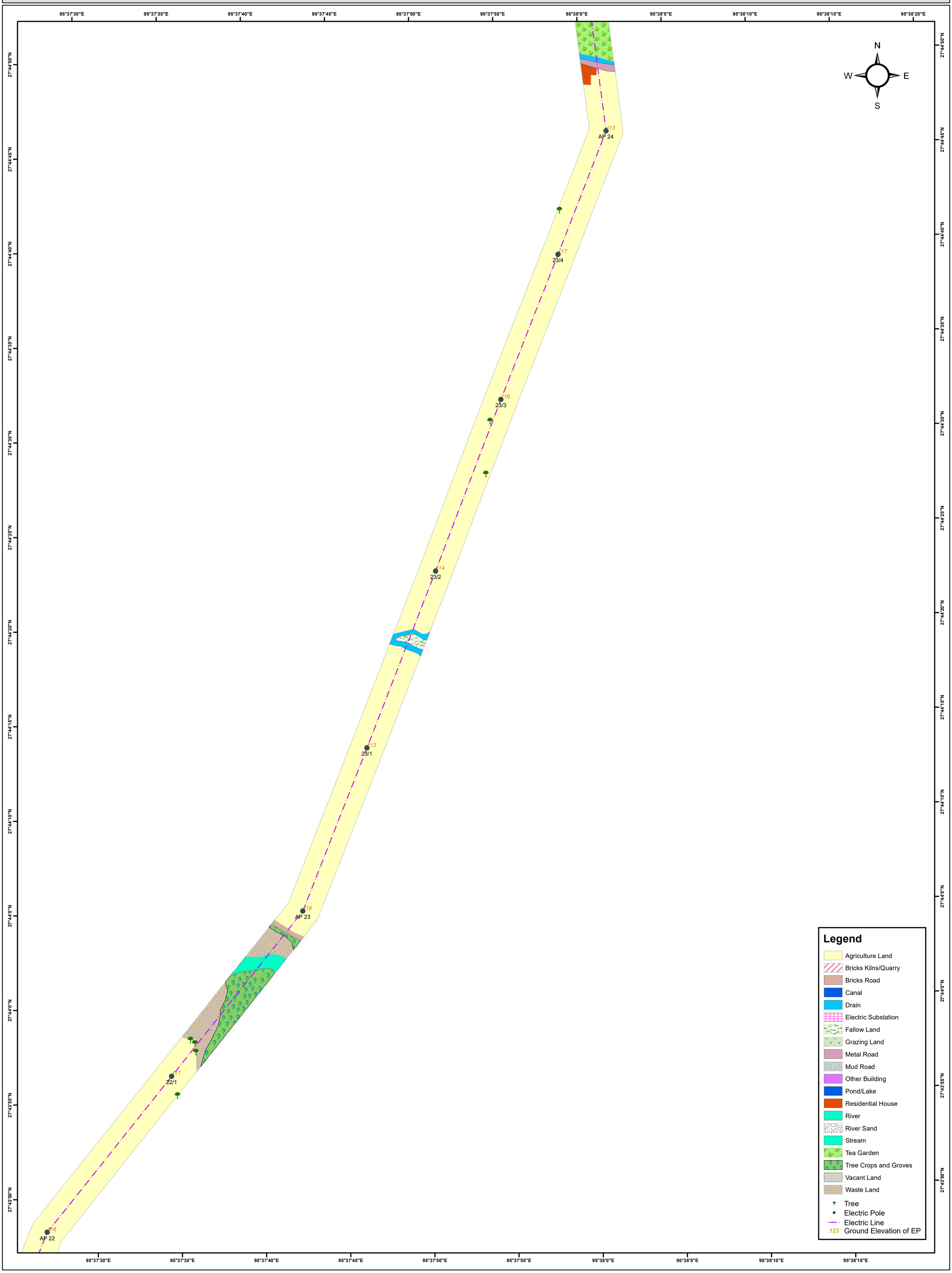
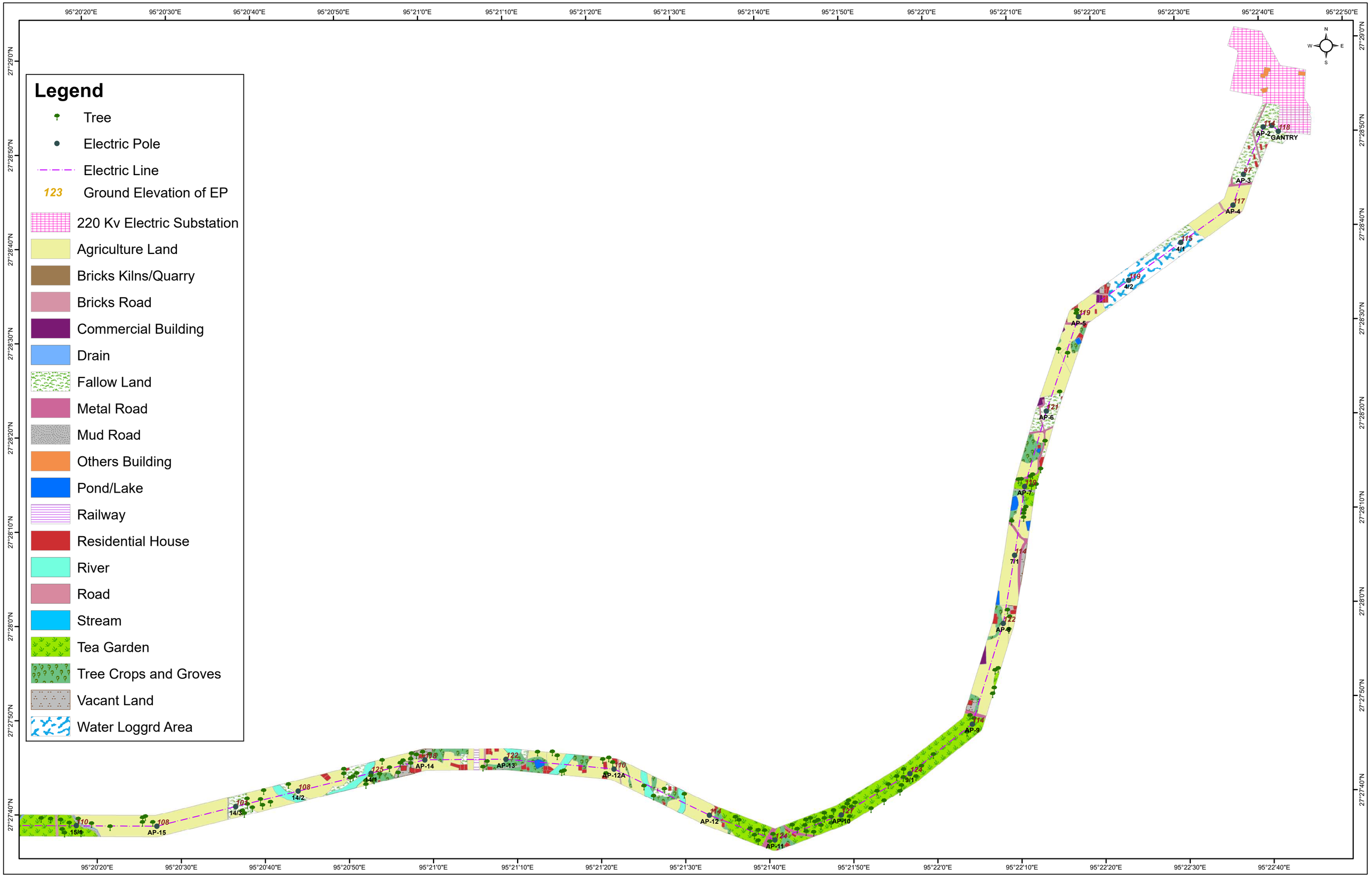
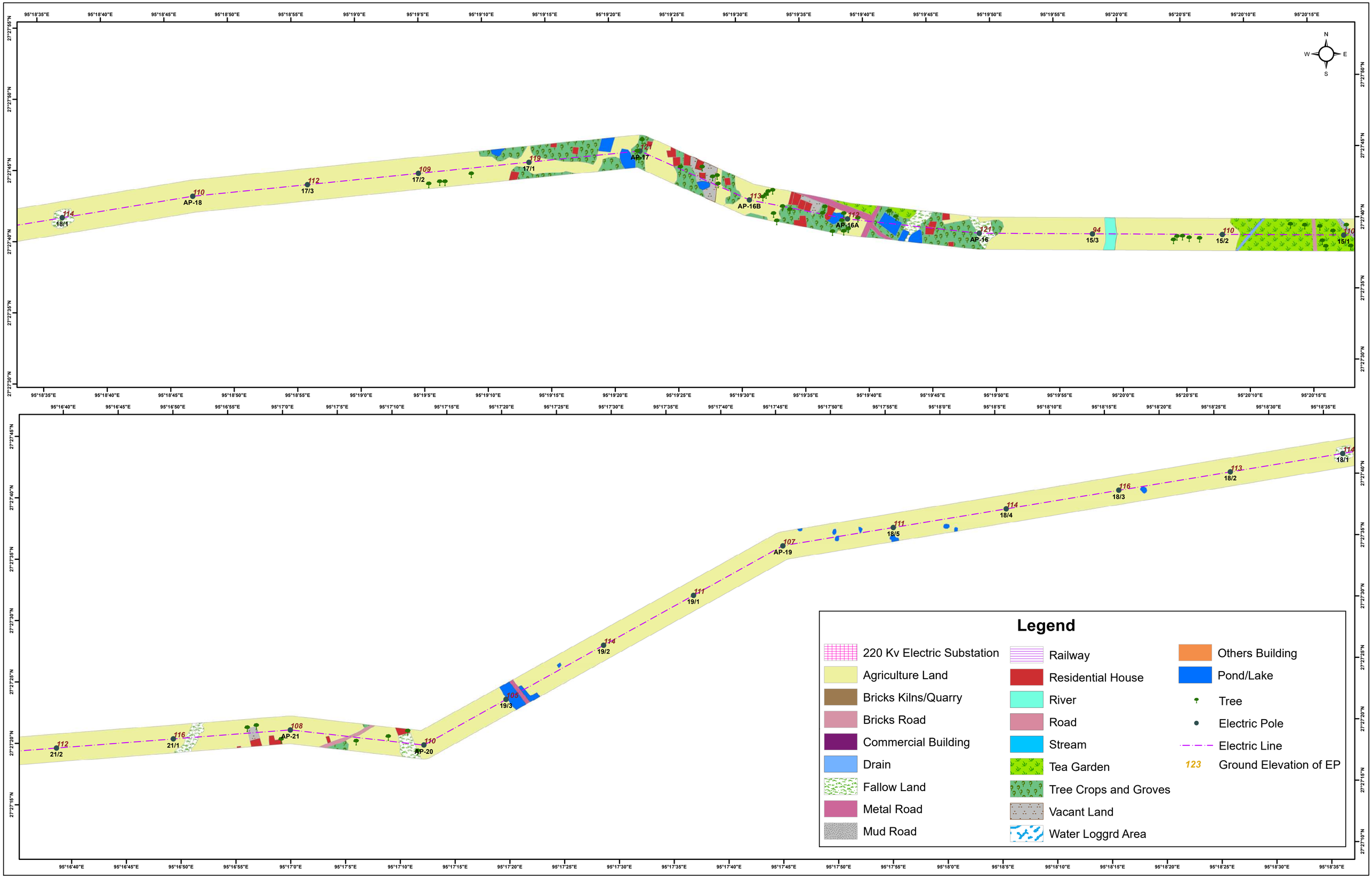


ANNEXURE A-2

LAND USE/LAND COVER DETAILS OF TINSUKIA-BEHIATING 220 KV D/C TRANSMISSION LINE
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



LAND USE/LAND COVER DETAILS OF TINSUKIA-BEHIATING 220 KV D/C TRANSMISSION LINE
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



LAND USE/LAND COVER DETAILS OF TINSUKIA-BEHIATING 220 KV D/C TRANSMISSION LINE
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,

N
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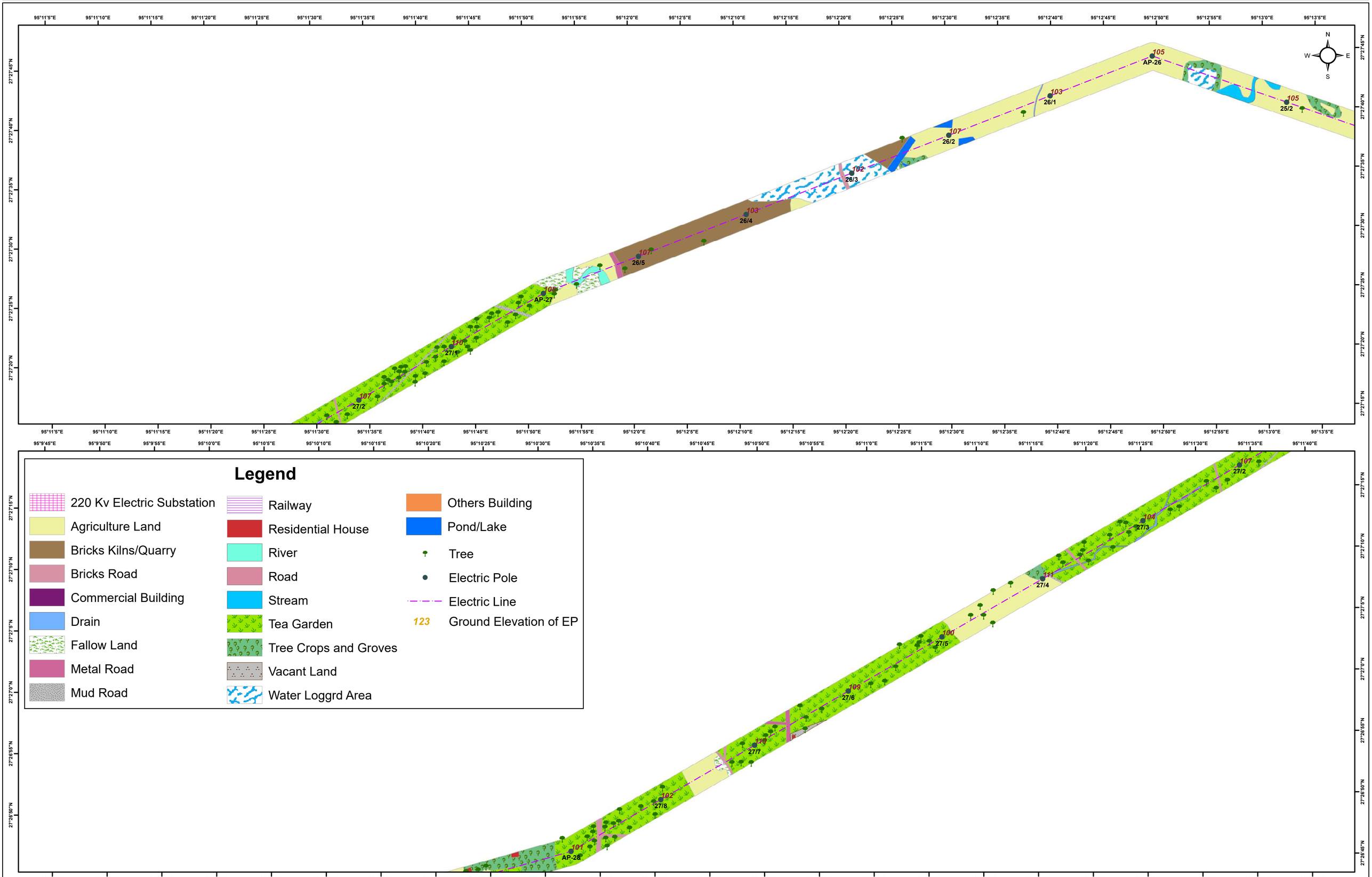
E
S

AP-22
AP-25
AP-24
AP-23

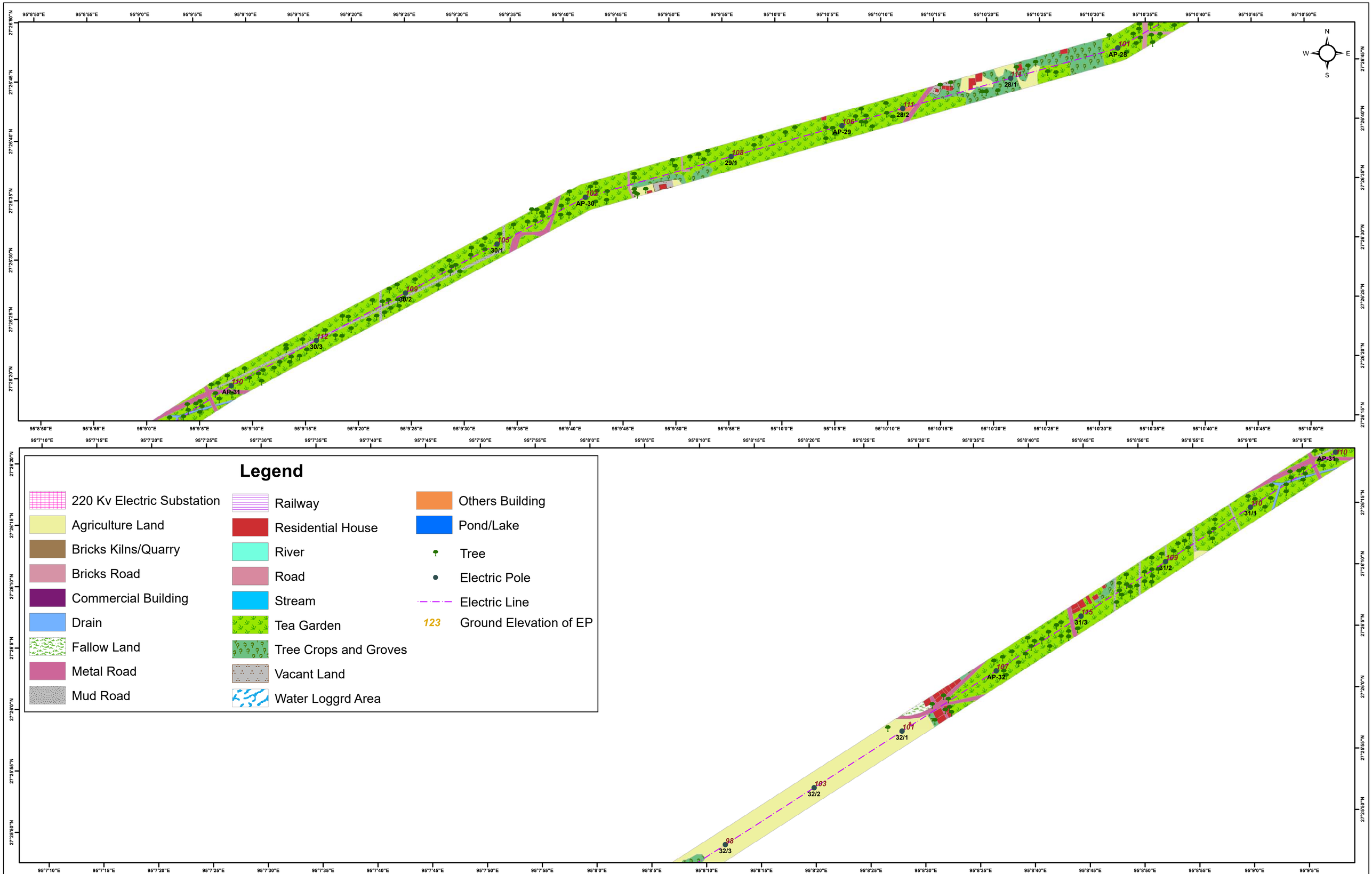
Legend

- 220 Kv Electric Substation
- Agriculture Land
- Bricks Kilns/Quarry
- Bricks Road
- Commercial Building
- Drain
- Fallow Land
- Metal Road
- Mud Road
- Railway
- Residential House
- River
- Road
- Stream
- Tea Garden
- Tree Crops and Groves
- Vacant Land
- Water Loggrd Area
- Others Building
- Pond/Lake
- Tree
- Electric Pole
- Electric Line
- 123 Ground Elevation of EP

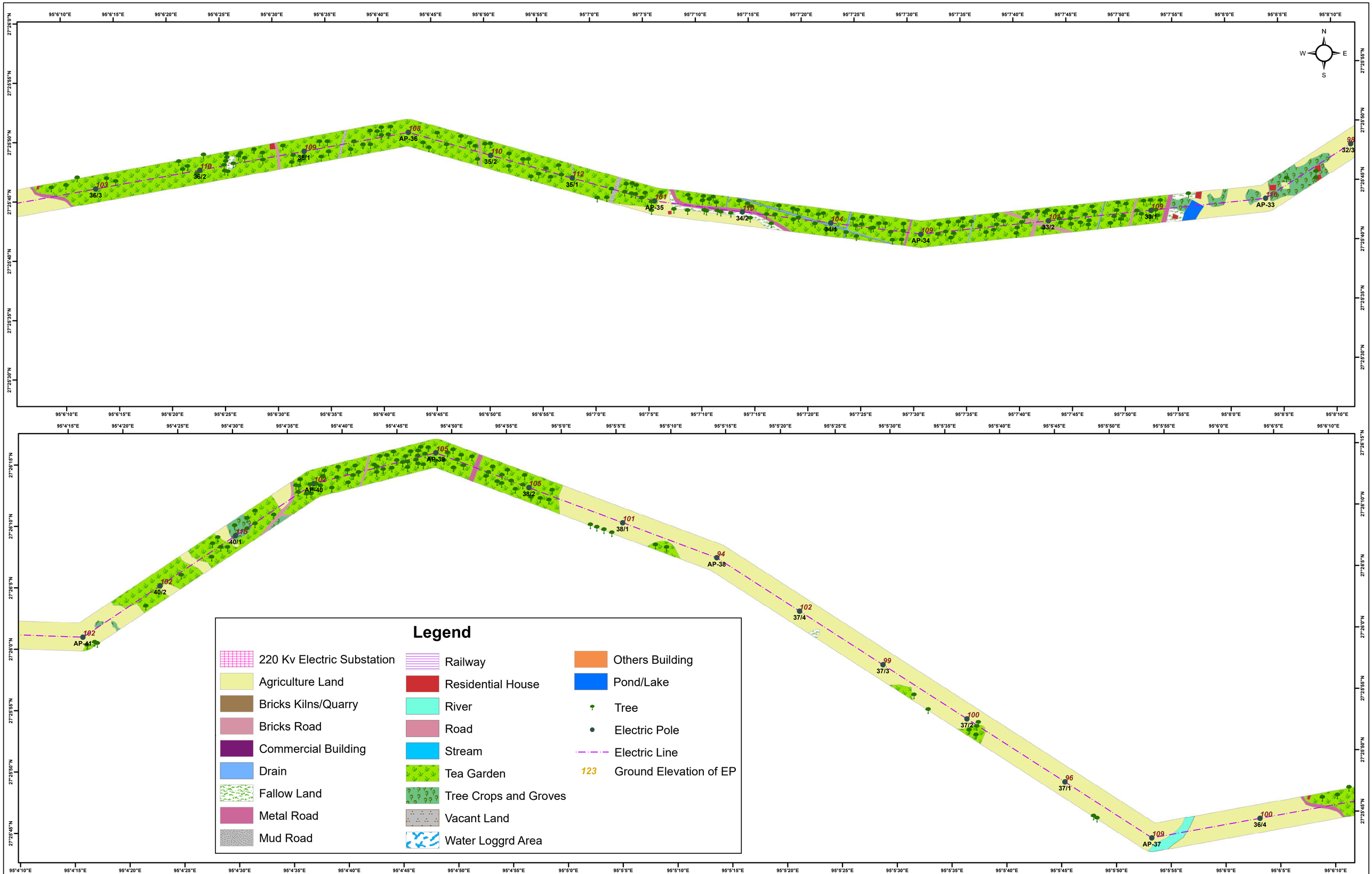
LAND USE/LAND COVER DETAILS OF TINSUKIA-BEHIATING 220 KV D/C TRANSMISSION LINE
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



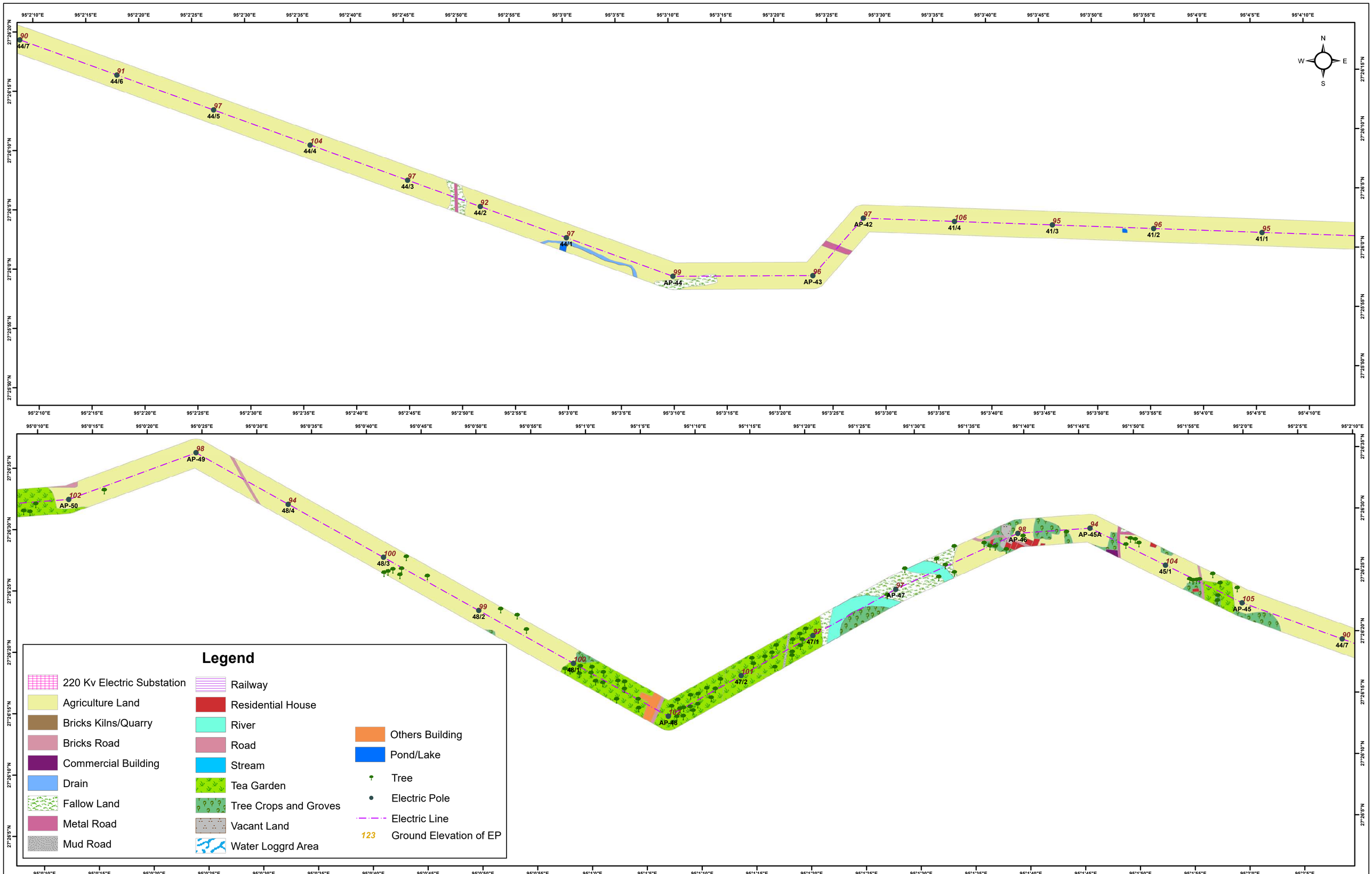
LAND USE/LAND COVER DETAILS OF TINSUKIA-BEHIATING 220 KV D/C TRANSMISSION LINE
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



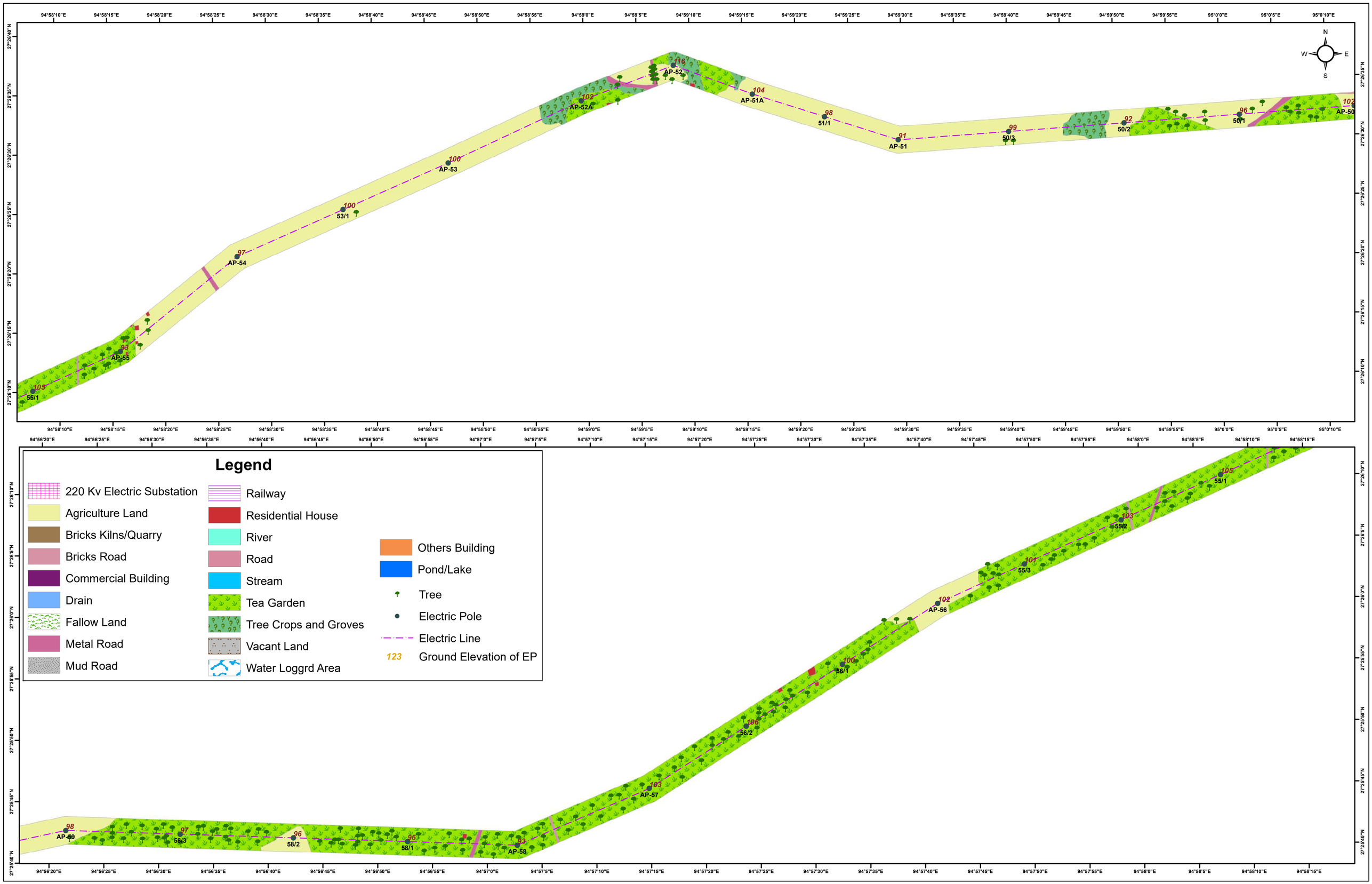
LAND USE/LAND COVER DETAILS OF TINSUKIA-BEHIATING 220 KV D/C TRANSMISSION LINE
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



LAND USE/LAND COVER DETAILS OF TINSUKIA-BEHIATING 220 KV D/C TRANSMISSION LINE
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



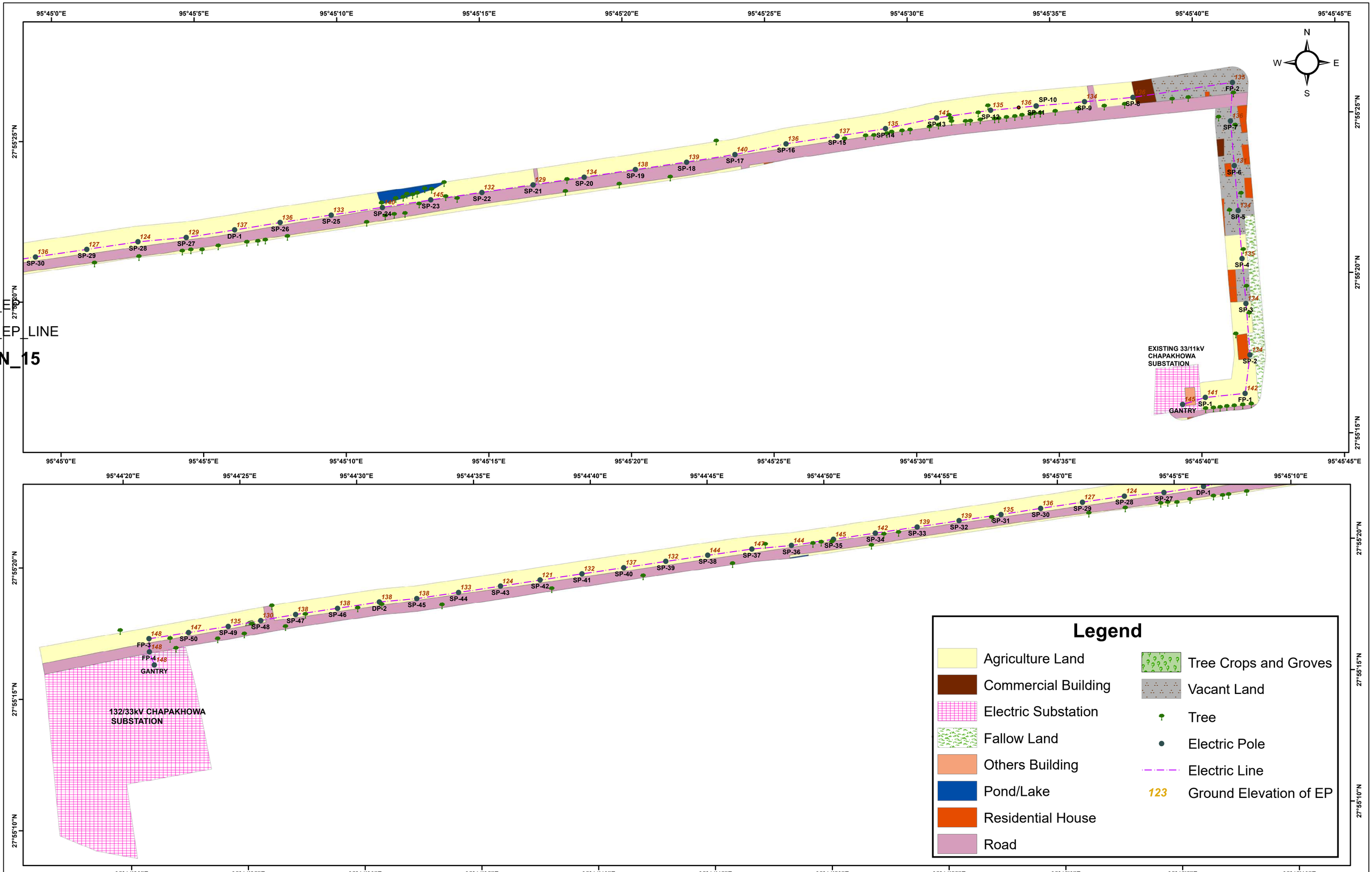
LAND USE/LAND COVER DETAILS OF TINSUKIA-BEHIATING 220 KV D/C TRANSMISSION LINE
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



LAND USE/LAND COVER DETAILS OF TINSUKIA-BEHIATING 220 KV D/C TRANSMISSION LINE
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,

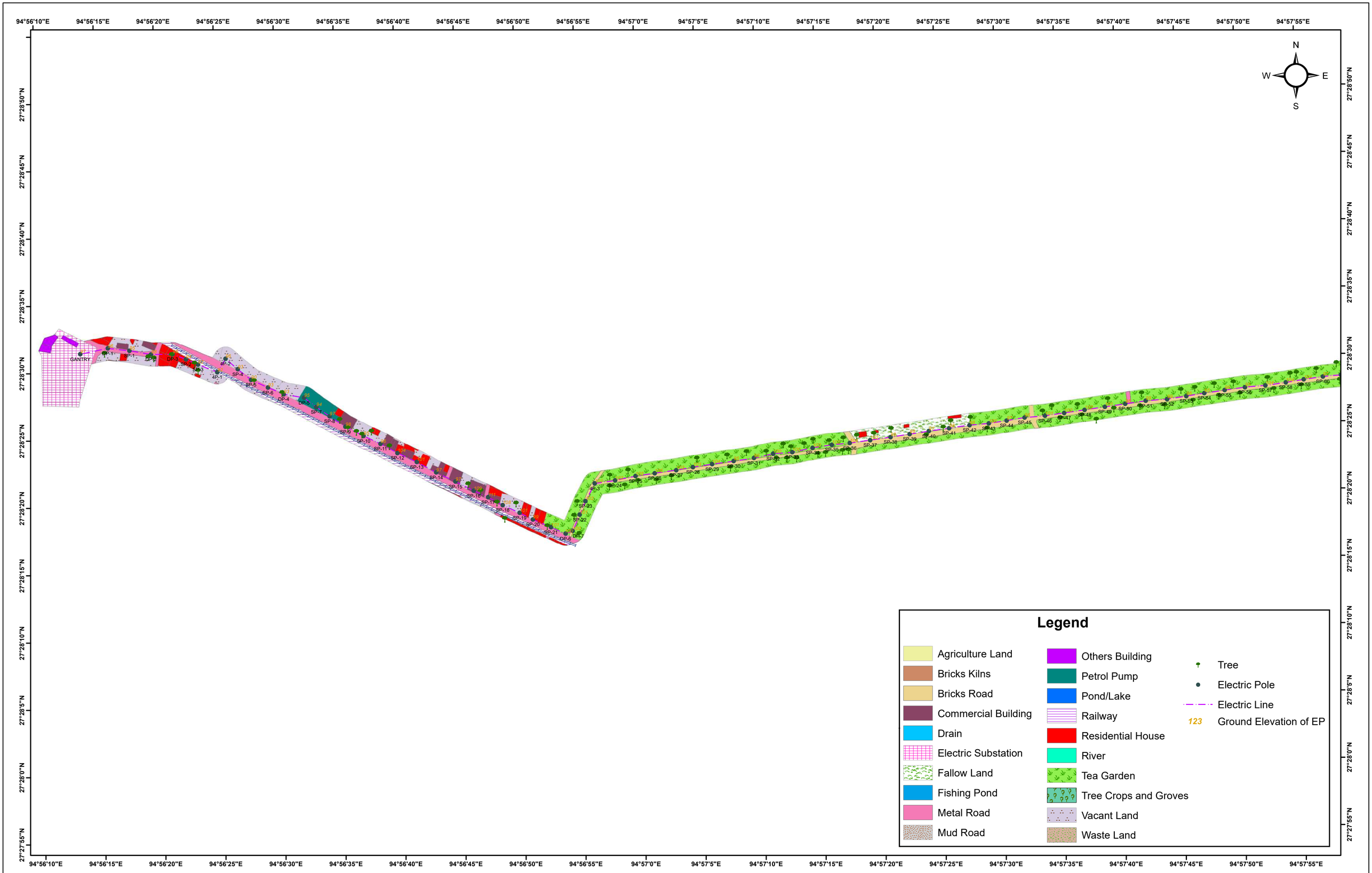
ANNEXURE A-3

LAND USE/LAND COVER DETAILS OF PROPOSED 132/33kV CHAPAKHOWA SUBSTATION TO EXISTING 33/11kV CHAPAKHOWA SUBSTATION
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,

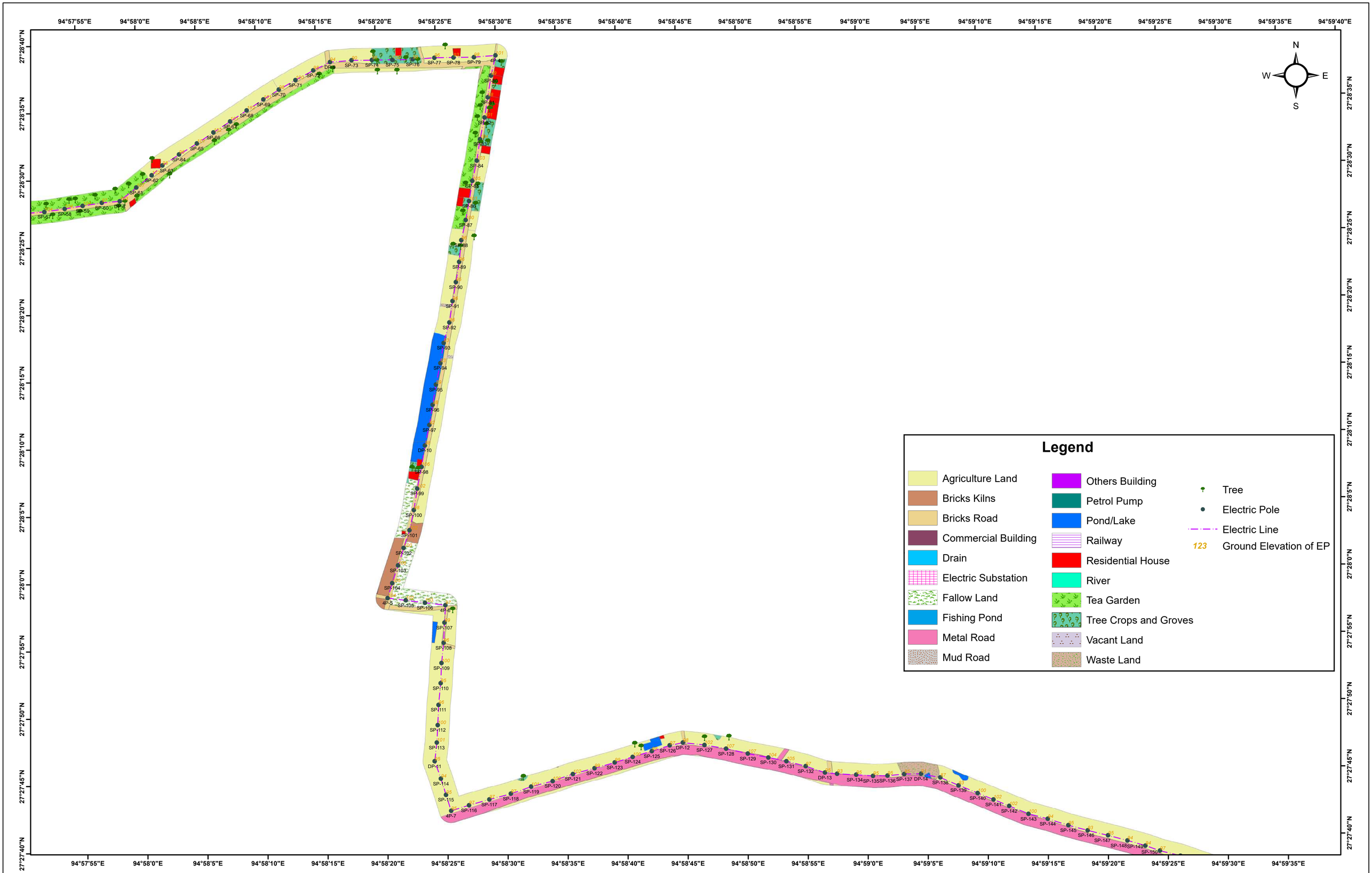


ANNEXURE A-4

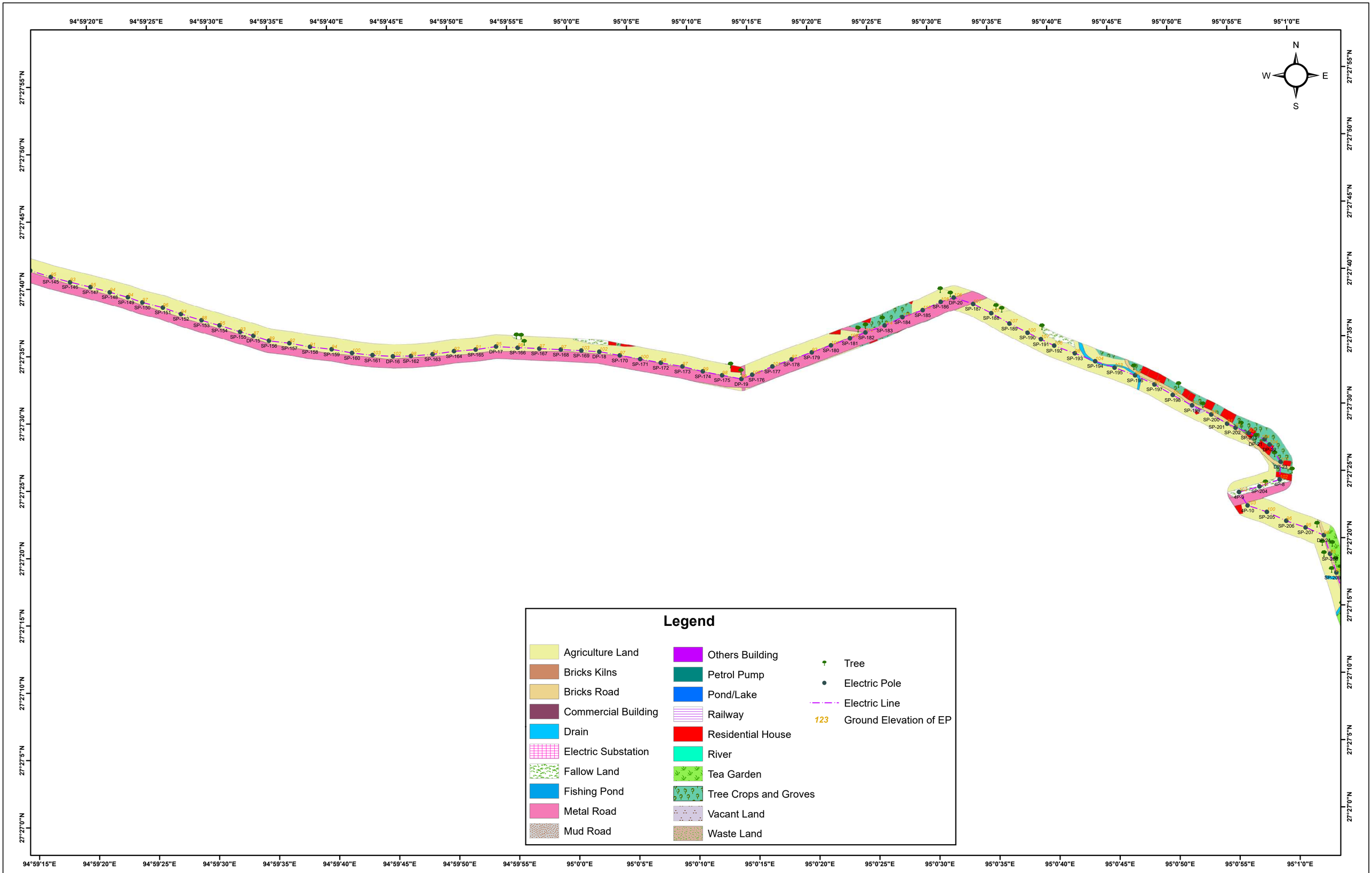
EXISTING 132/33kV KADOMANI SUBSTATION TO PROPOSED 33/11kV ROMAI SUBSTATION
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



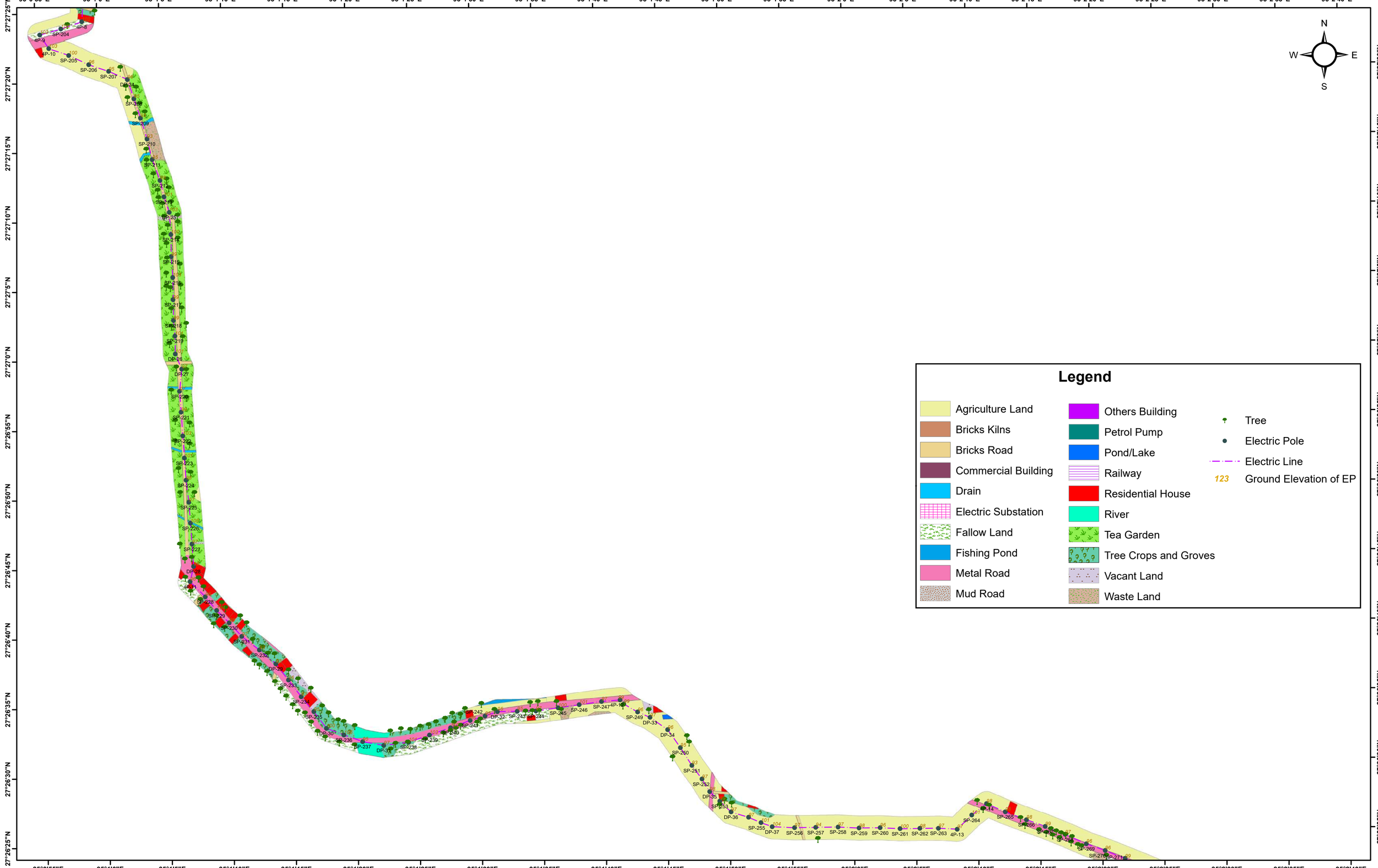
EXISTING 132/33kV KADOMANI SUBSTATION TO PROPOSED 33/11kV ROMAI SUBSTATION
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



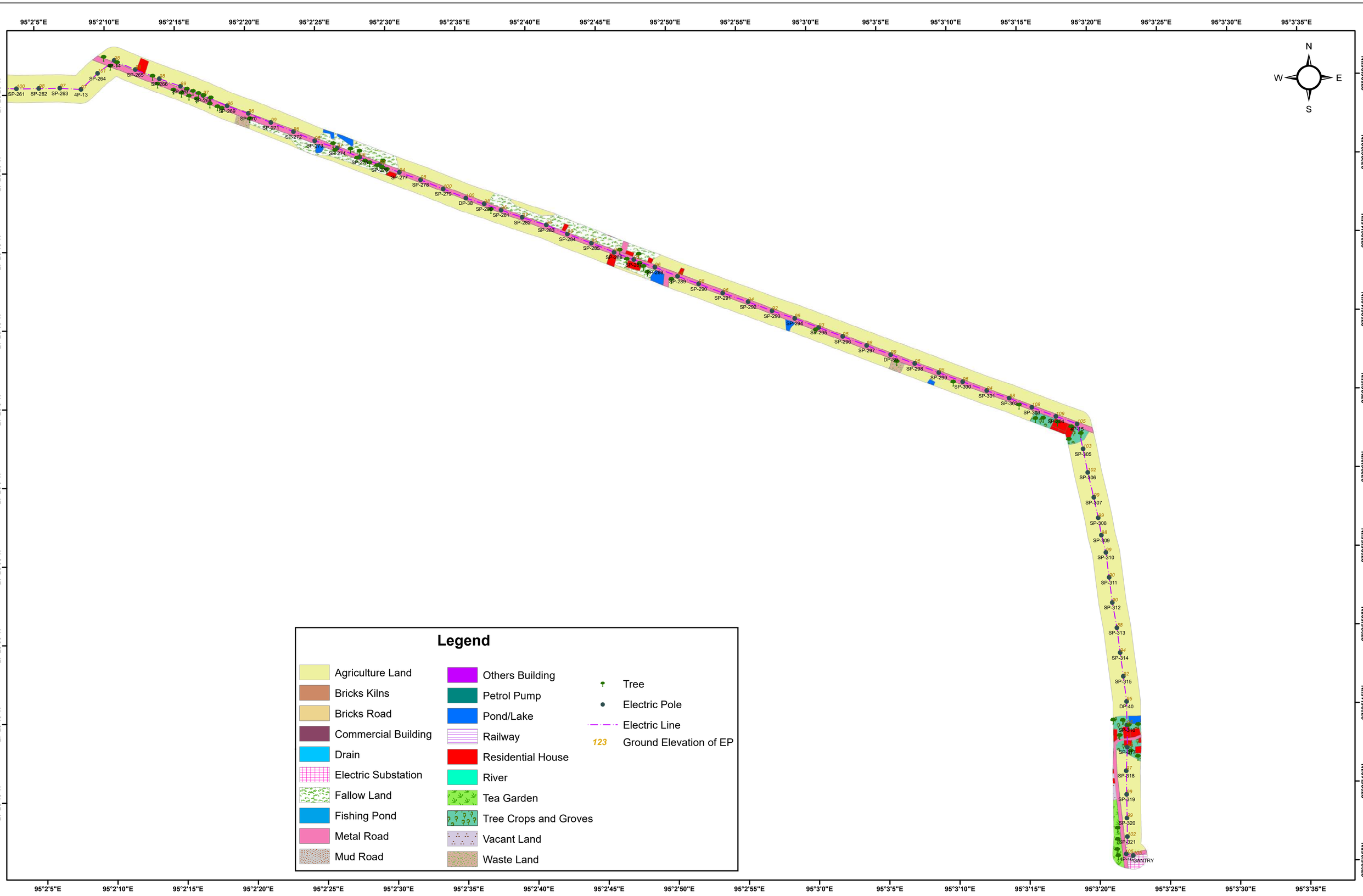
EXISTING 132/33kV KADOMANI SUBSTATION TO PROPOSED 33/11kV ROMAI SUBSTATION
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



EXISTING 132/33kV KADOMANI SUBSTATION TO PROPOSED 33/11kV ROMAI SUBSTATION
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,

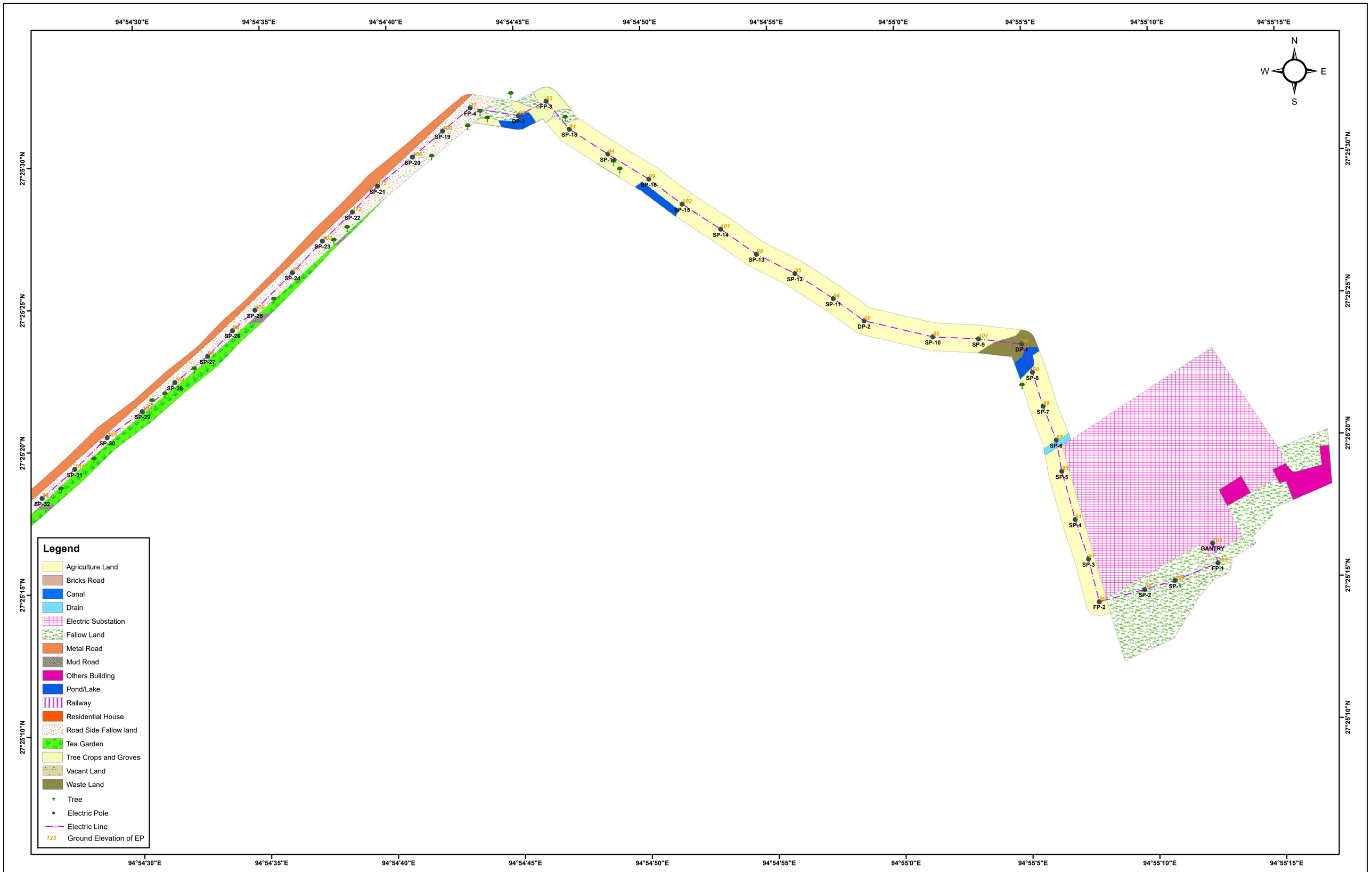


EXISTING 132/33kV KADOMANI SUBSTATION TO PROPOSED 33/11kV ROMAI SUBSTATION
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,

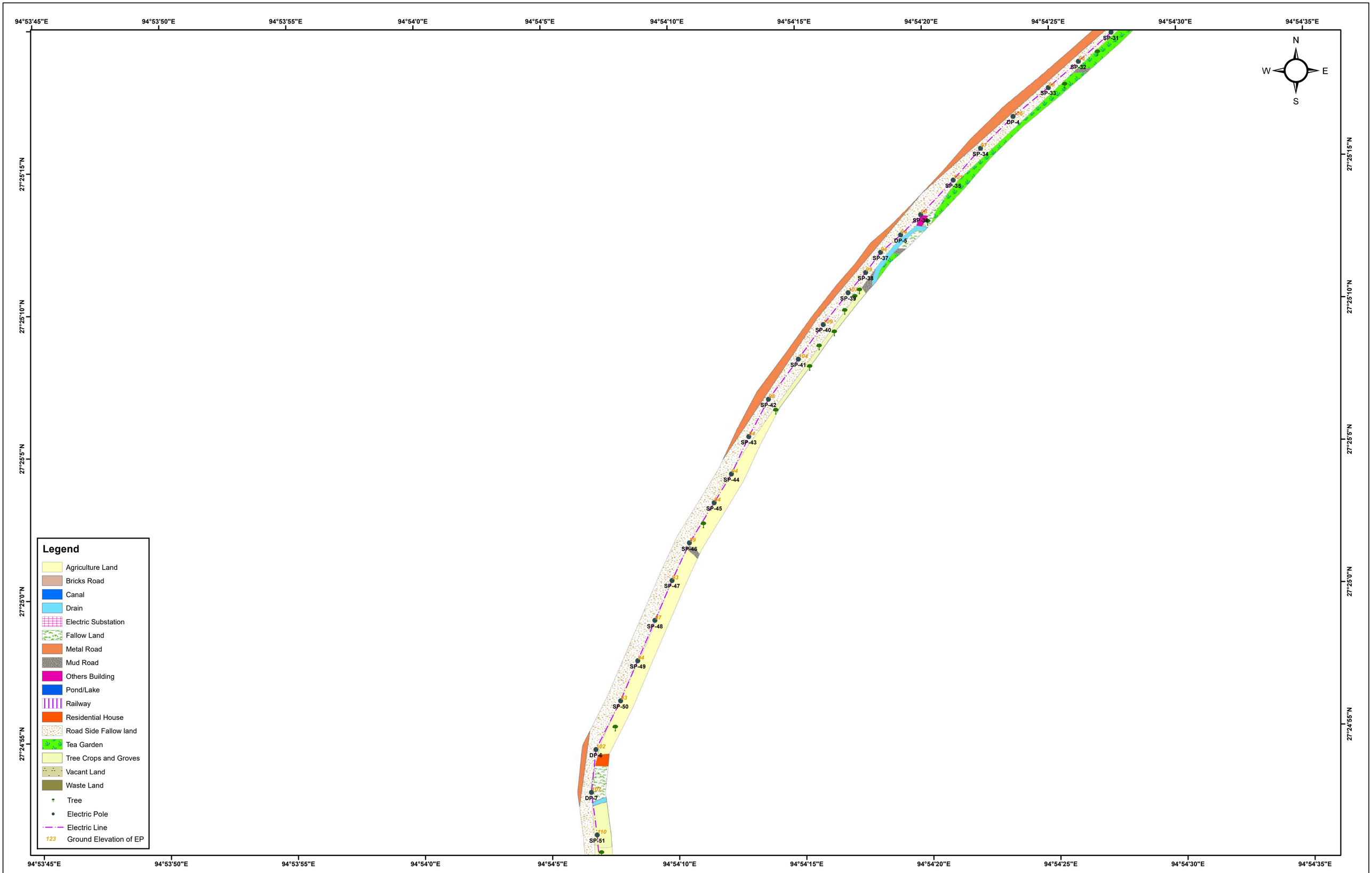


ANNEXURE A-5

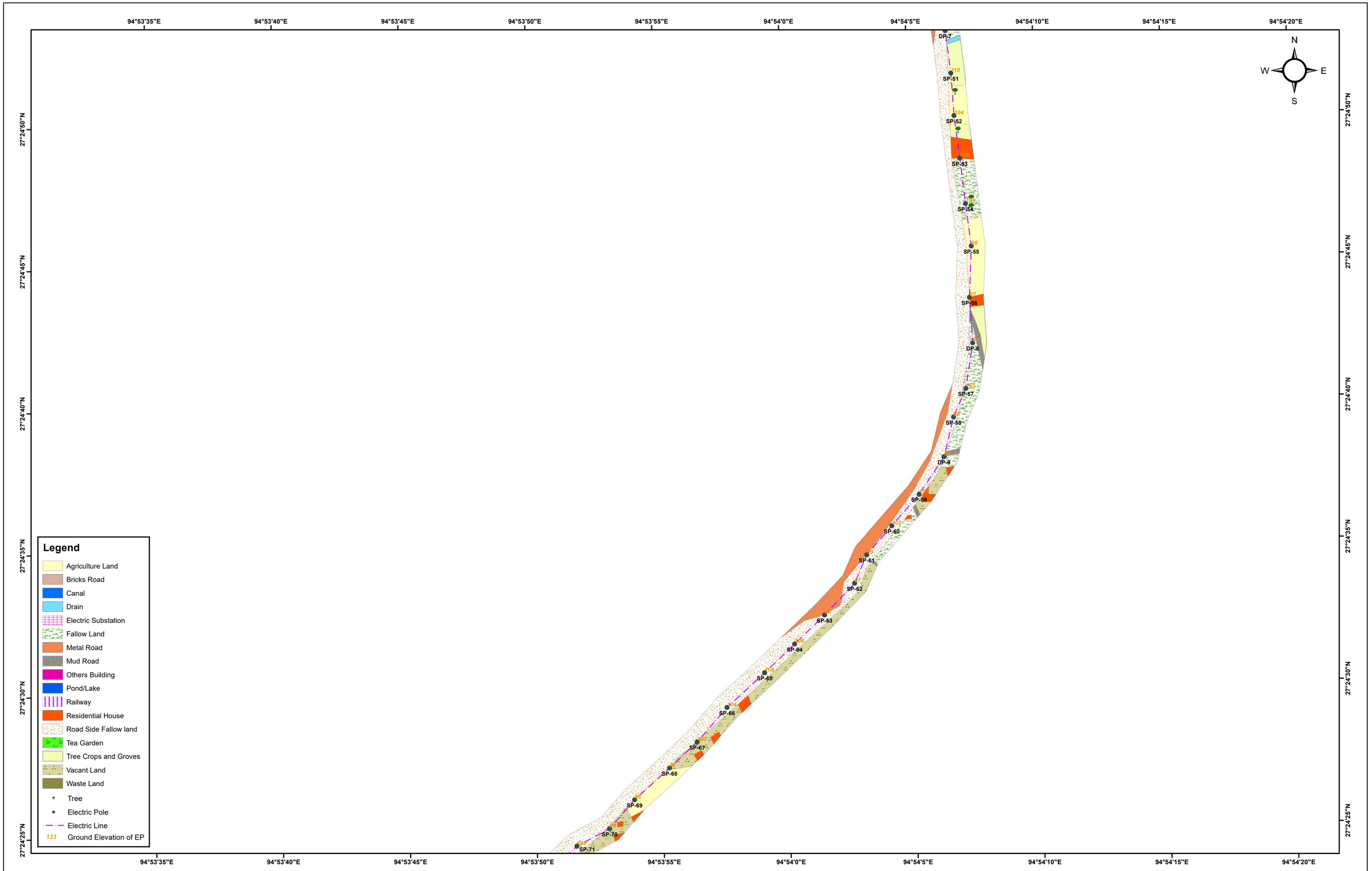
LAND USE/LAND COVER DETAILS OF 33 KV NEW LINE FROM EXISTING 132/33 KV BEHIATING SUBSTATION TO 33/11 KV BOGIBILL SUBSTATION
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



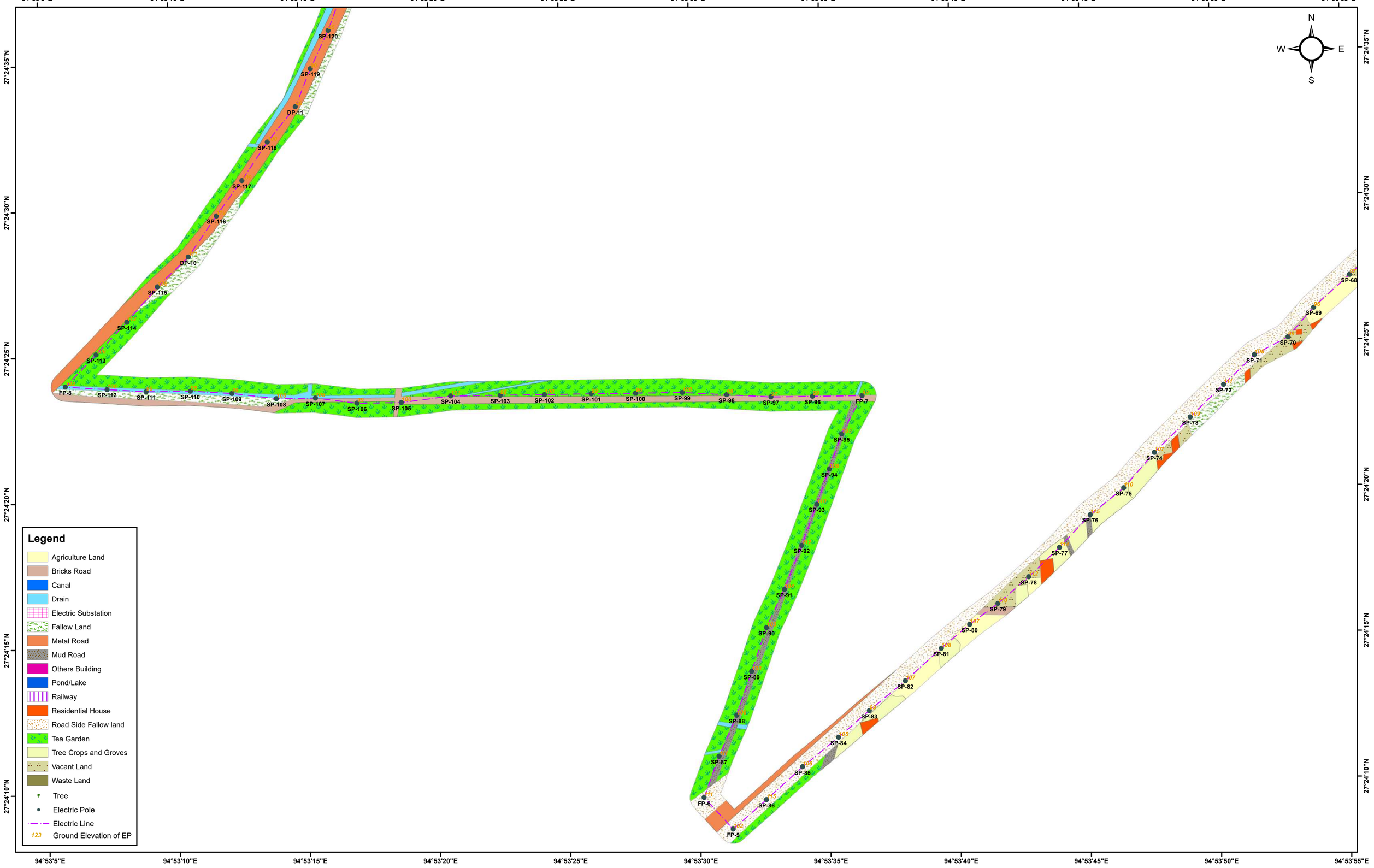
LAND USE/LAND COVER DETAILS OF 33 KV NEW LINE FROM EXISTING 132/33 KV BEHIATING SUBSTATION TO 33/11 KV BOGIBILL SUBSTATION
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



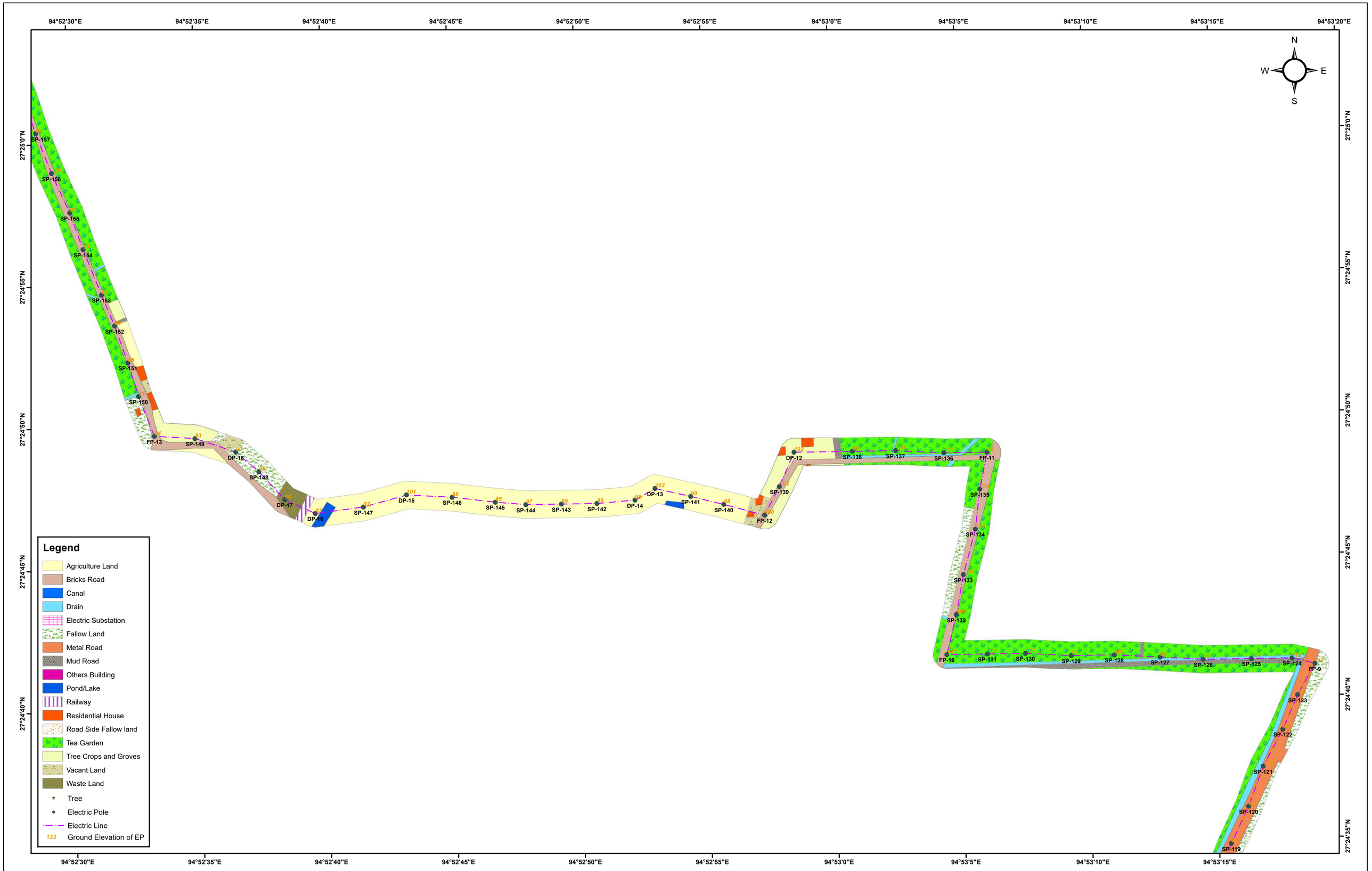
LAND USE/LAND COVER DETAILS OF 33 KV NEW LINE FROM EXISTING 132/33 KV BEHIATING SUBSTATION TO 33/11 KV BOGIBILL SUBSTATION
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



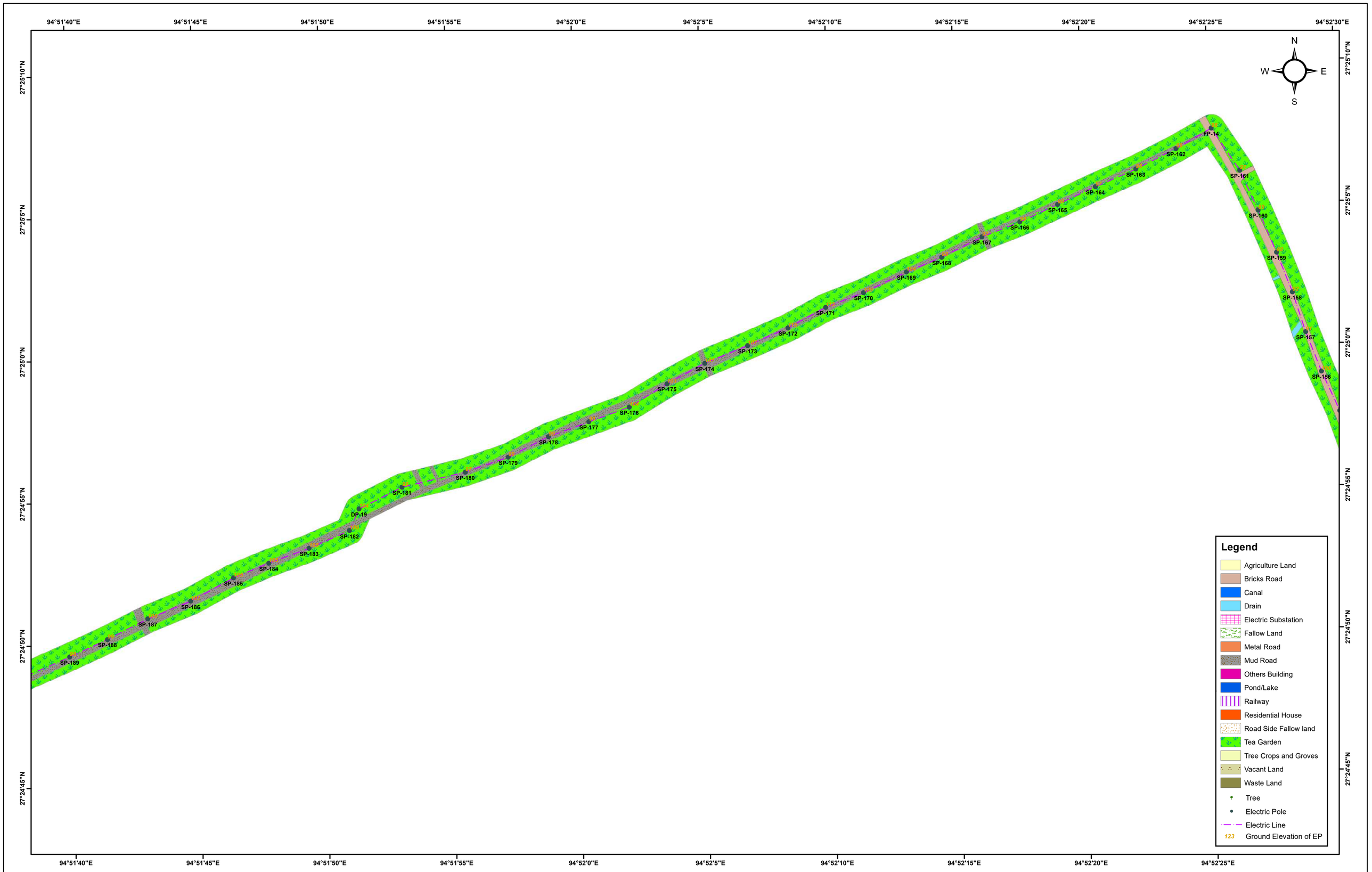
LAND USE/LAND COVER DETAILS OF 33 KV NEW LINE FROM EXISTING 132/33 KV BEHIATING SUBSTATION TO 33/11 KV BOGIBILL SUBSTATION
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



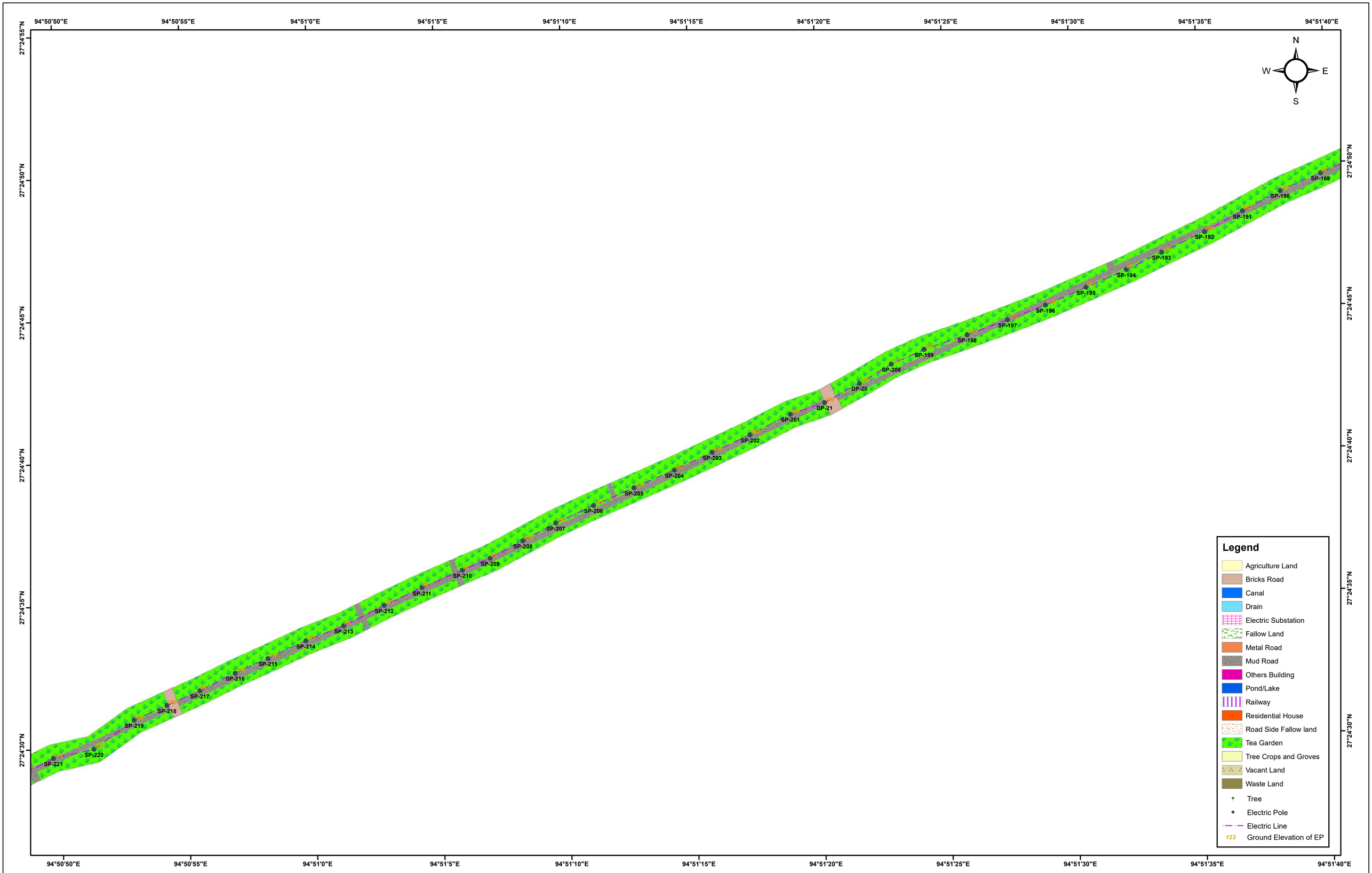
LAND USE/LAND COVER DETAILS OF 33 KV NEW LINE FROM EXISTING 132/33 KV BEHIATING SUBSTATION TO 33/11 KV BOGIBILL SUBSTATION
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



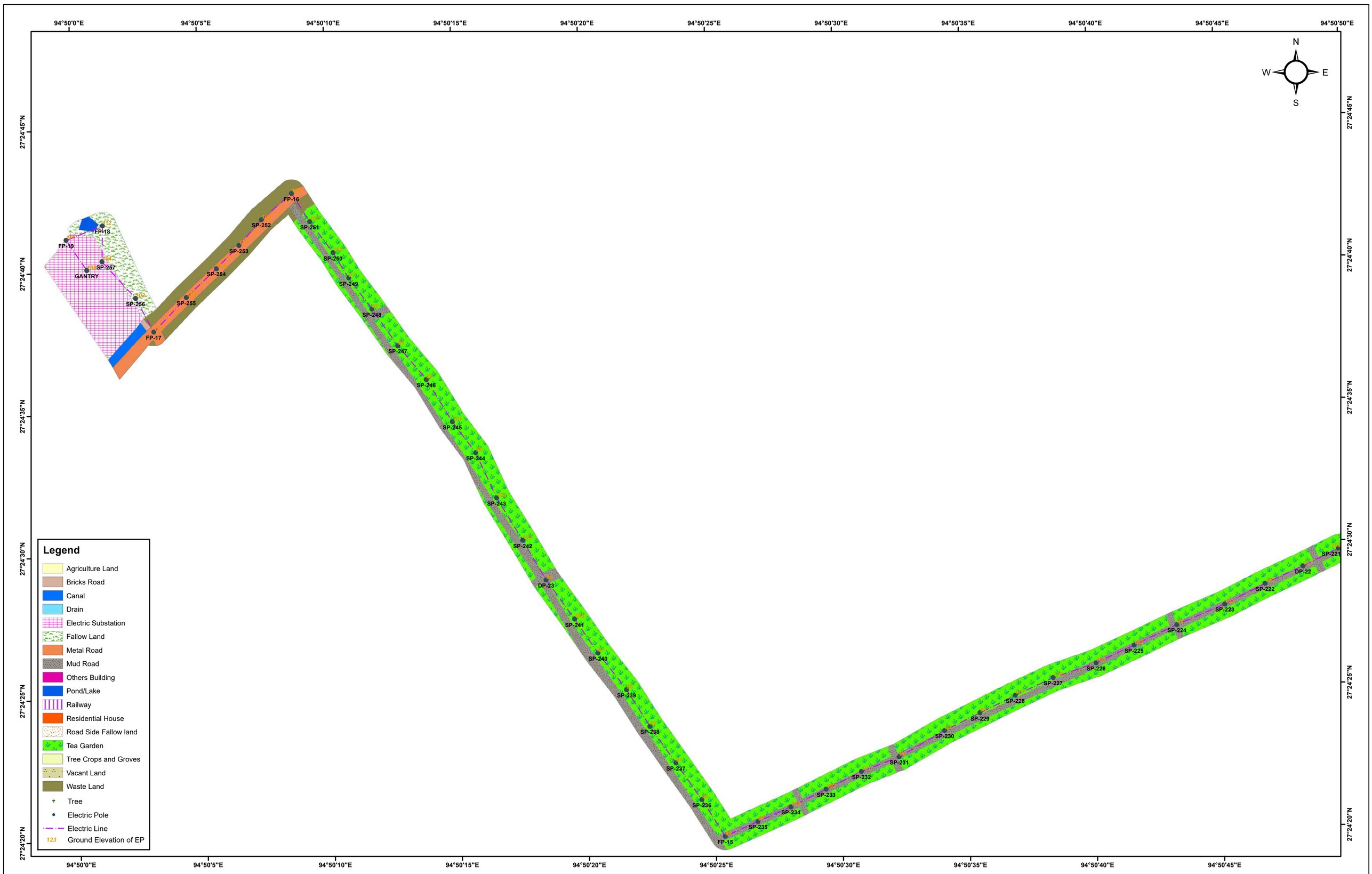
LAND USE/LAND COVER DETAILS OF 33 KV NEW LINE FROM EXISTING 132/33 KV BEHIATING SUBSTATION TO 33/11 KV BOGIBILL SUBSTATION
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



LAND USE/LAND COVER DETAILS OF 33 KV NEW LINE FROM EXISTING 132/33 KV BEHIATING SUBSTATION TO 33/11 KV BOGIBILL SUBSTATION
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,

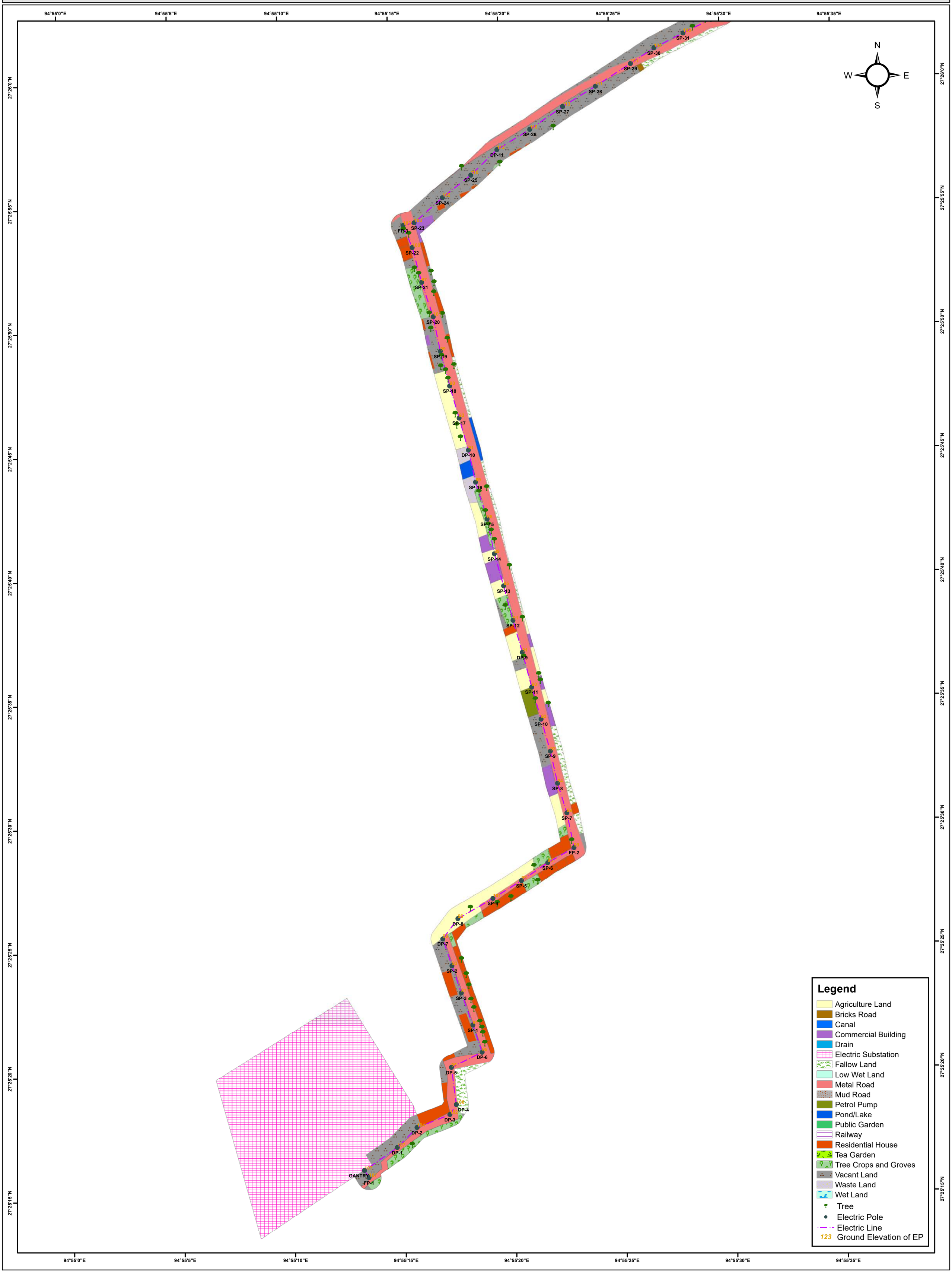


LAND USE/LAND COVER DETAILS OF 33 KV NEW LINE FROM EXISTING 132/33 KV BEHIATING SUBSTATION TO 33/11 KV BOGIBILL SUBSTATION
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,

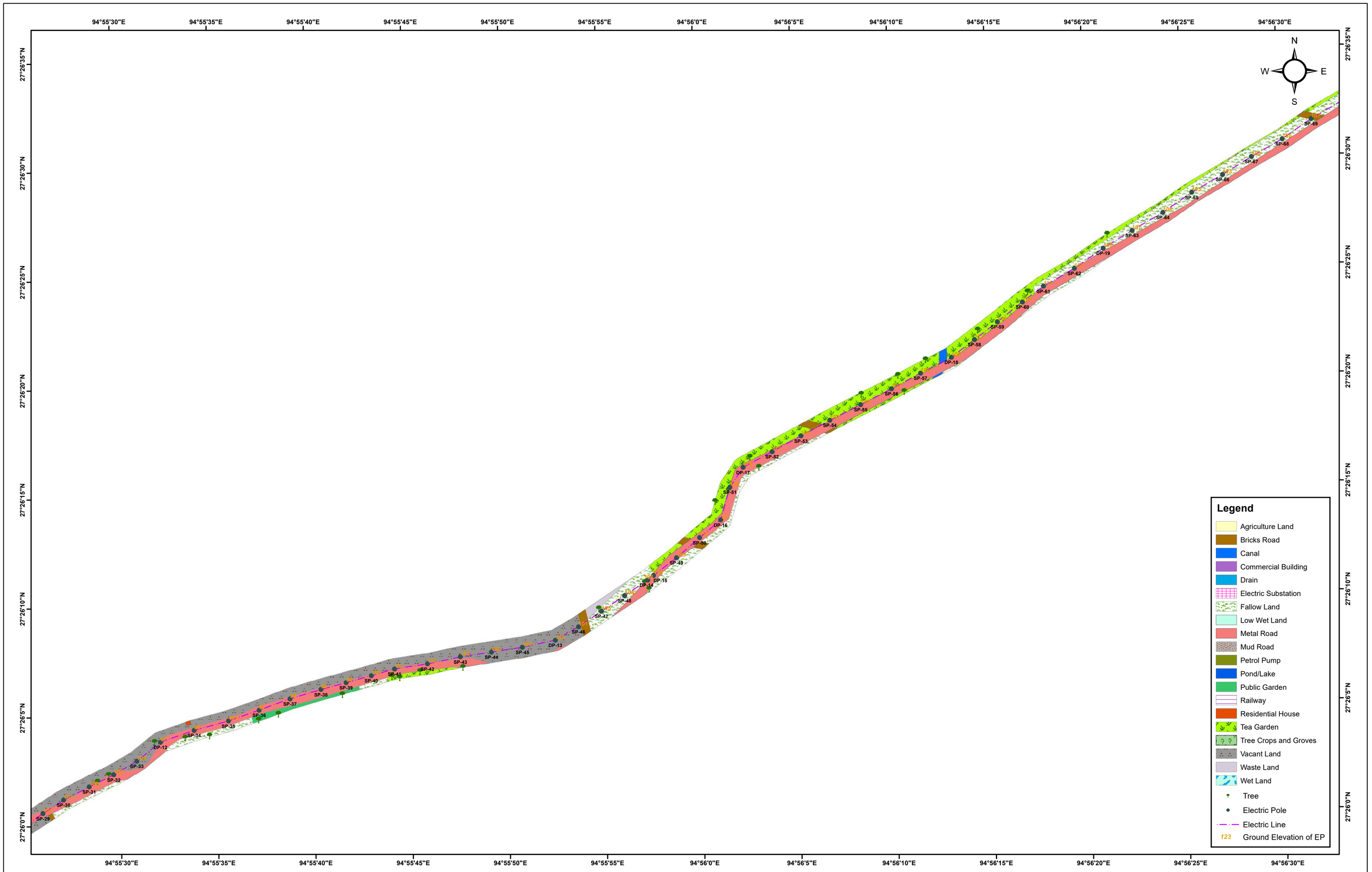


ANNEXURE A-6

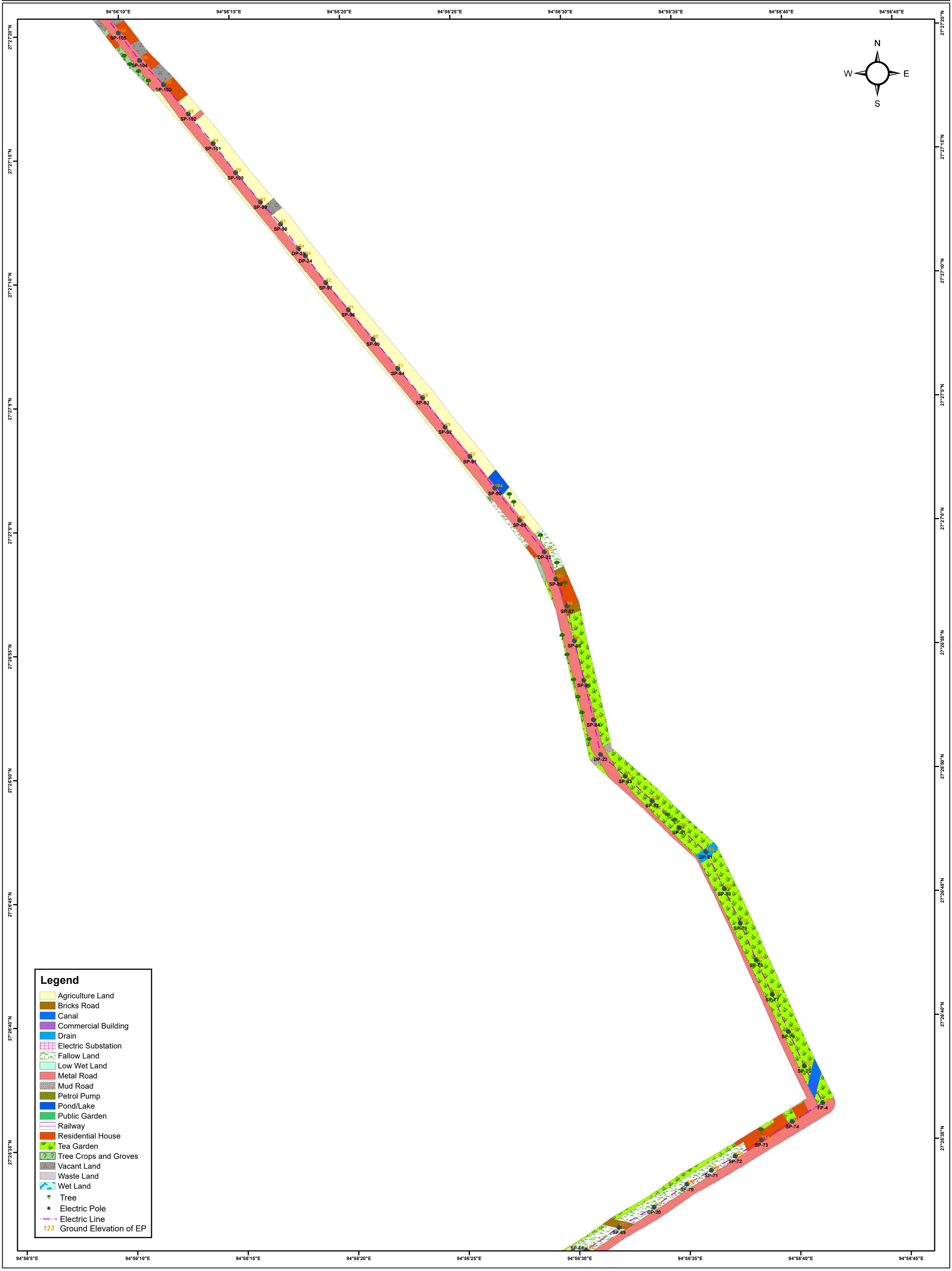
LAND USE/LAND COVER DETAILS OF PROPOSED 132/33kV KHANIKAR SUBSTATION TO 33/11kV NEW DIBRUGARH SUBSTATION
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



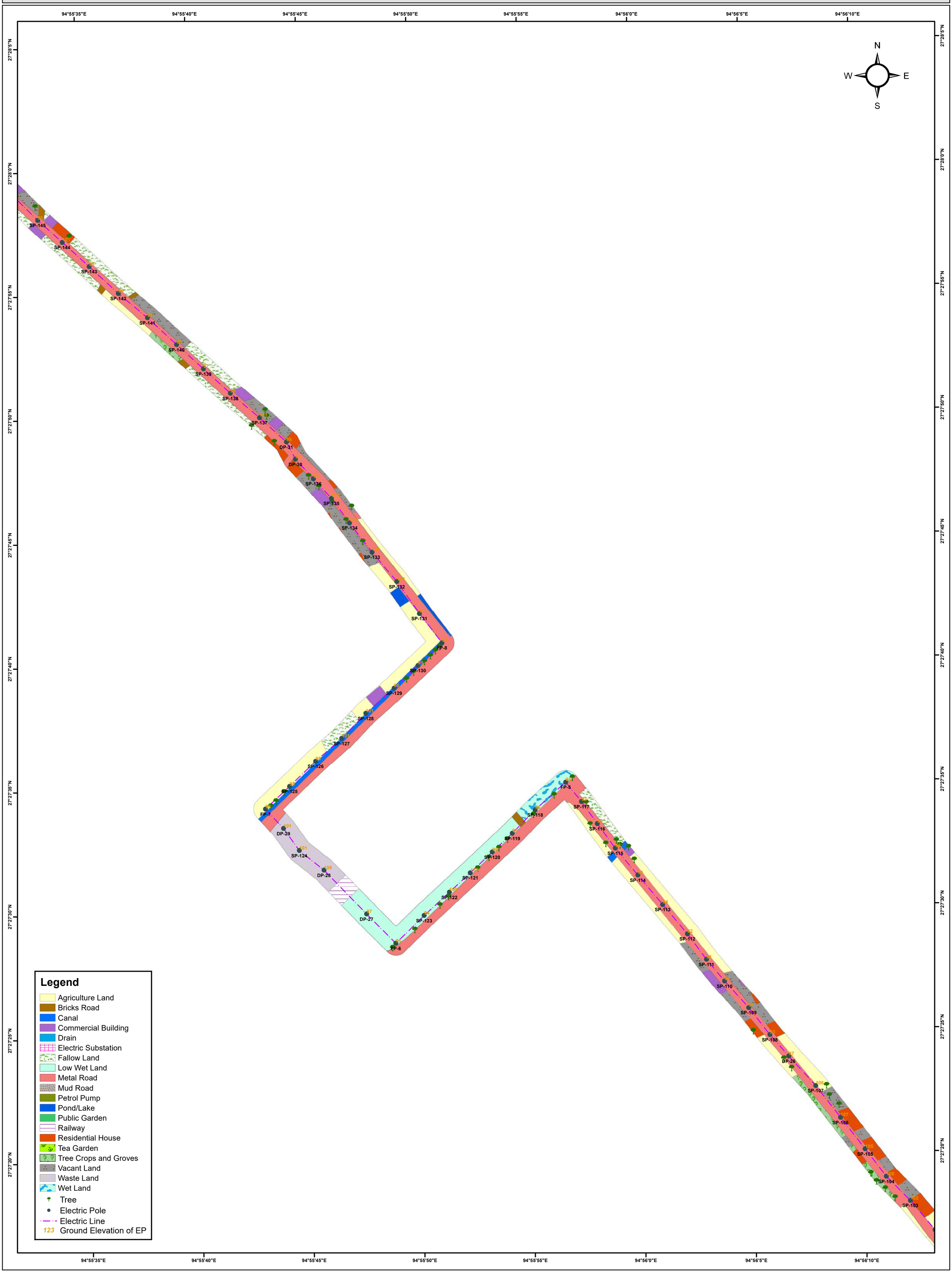
LAND USE/LAND COVER DETAILS OF PROPOSED 132/33kV KHANIKAR SUBSTATION TO 33/11kV NEW DIBRUGARH SUBSTATION
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



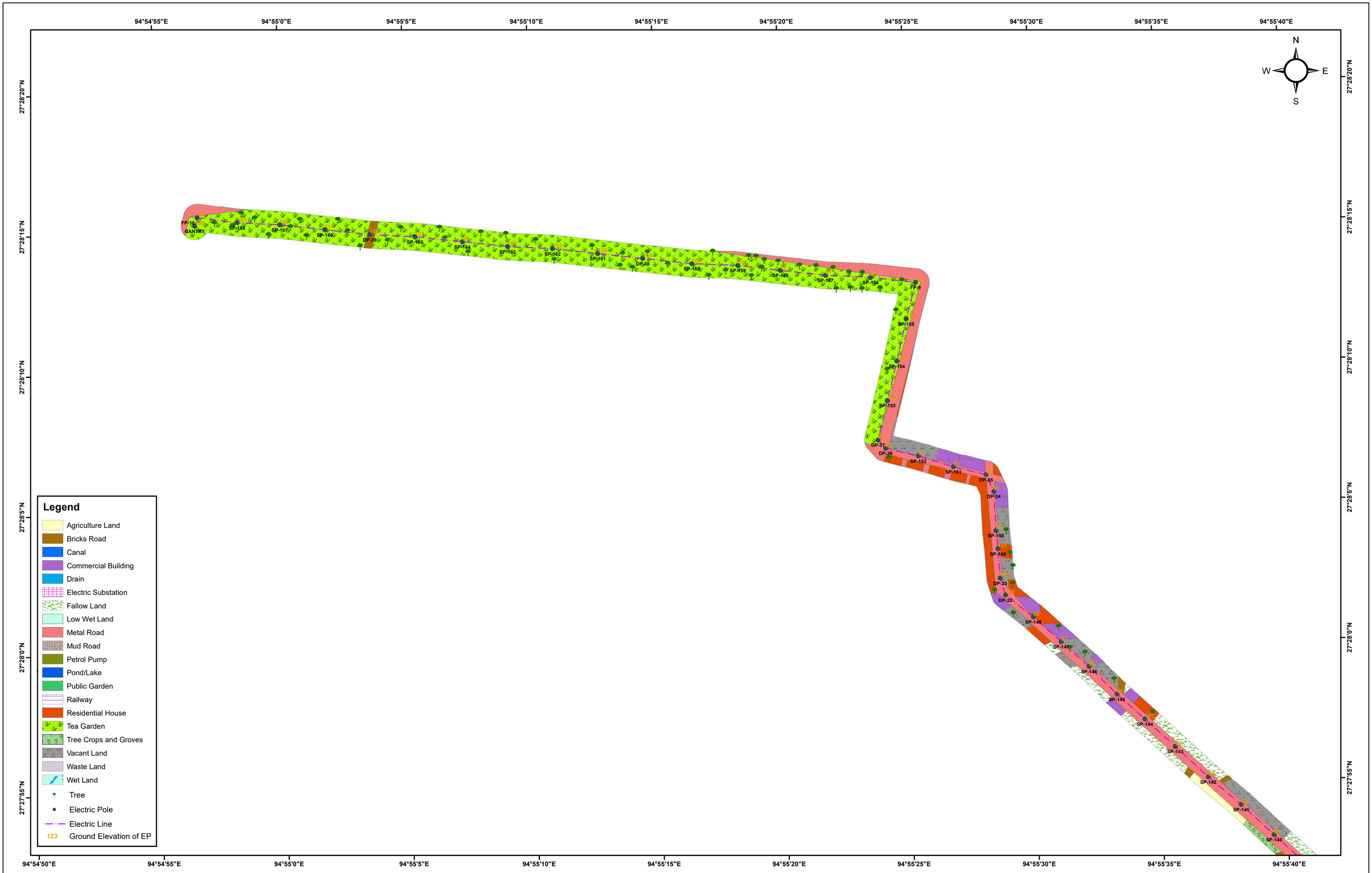
LAND USE/LAND COVER DETAILS OF PROPOSED 132/33kV KHANIKAR SUBSTATION TO 33/11kV NEW DIBRUGARH SUBSTATION
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



LAND USE/LAND COVER DETAILS OF PROPOSED 132/33kV KHANIKAR SUBSTATION TO 33/11kV NEW DIBRUGARH SUBSTATION
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



LAND USE/LAND COVER DETAILS OF PROPOSED 132/33kV KHANIKAR SUBSTATION TO 33/11kV NEW DIBRUGARH SUBSTATION
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (NERPSIP)
PREPARED BY GREEN CIRCLE INC,



Annexure B –I : Tinsukia - Behiating Electric Line Study Details

Pole No	Type Tower	Ground Elevation in M.	Pole Fall In Feature	Geomorphological Condition	Soil Moisture Condition	Flood Hazard Condition
GANTRY	-	118	220 Kv Electric Substation	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-1	DD+0	114	Fallow Land	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-2	DD+18	114	Fallow Land	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-3	DD+18	97	Fallow Land	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-4	DD+9	117	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-4/1	DA+6	115	Water Loggrd Area	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-4/2	DA+6	119	Water Loggrd Area	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-5	DD+6	119	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Very Low Flood Hazard
AP-6	DB+6	121	Fallow Land	Older Alluvial Plain	Very Wet Soil Moisture	Very Low Flood Hazard
AP-7	DB+0	119	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-7/1	DA+0	114	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-8	DB+3	122	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-9	DD+3	114	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-9/1	DA+0	124	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-10	DB+3	127	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-11	DD+6	124	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-12	DB+6	114	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-12A	DC+6	110	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-13	DD+9	122	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-14	DD+18	118	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard

Pole No	Type Tower	Ground Elevation in M.	Pole Fall In Feature	Geomorphological Condition	Soil Moisture Condition	Flood Hazard Condition
AP-14/1	DA+6	125	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-14/2	DA+6	108	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-14/3	DA+3	101	Fallow Land	Older Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-15	DB+3	108	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-15/1	DA+3	110	Tea Garden	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-15/2	DA+0	110	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-15/3	DA+3	94	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-16	DB+3	121	Fallow Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-16A	DB+3	112	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-16B	DB+3	113	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-17	DD+0	121	Tree Crops and Groves	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-17/1	DA+0	119	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-17/2	DA+0	109	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-17/3	DA+0	112	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-18	DB+0	110	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-18/1	DA+0	114	Fallow Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-18/2	DA+0	113	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-18/3	DA+0	116	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-18/4	DA+0	114	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-18/5	DA+0	111	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-19	DC+3	107	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-19/1	DA+0	111	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-19/2	DA+0	114	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard

Pole No	Type Tower	Ground Elevation in M.	Pole Fall In Feature	Geomorphological Condition	Soil Moisture Condition	Flood Hazard Condition
AP-19/3	DA+3	105	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-20	DD+3	110	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-21	DB+6	108	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-21/1	DA+3	116	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-21/10	DA+6	107	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-21/2	DA+0	112	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-21/3	DA+0	111	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-21/4	DA+0	106	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-21/5	DA+0	100	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-21/6	DA+0	105	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-21/7	DA+0	104	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-21/8	DA+0	104	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-21/9	DA+3	112	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-22	DB+0	108	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-22/1	DA+3	110	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-22/2	DA+0	107	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Very High Flood Hazard
AP-22/3	DA+0	111	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-22/4	DA+3	116	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-22/5	DA+6	103	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-23	DC+3	115	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-23/1	DA+0	104	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-24	DB+3	107	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-24/1	DA+3	110	Vacant Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard

Pole No	Type Tower	Ground Elevation in M.	Pole Fall In Feature	Geomorphological Condition	Soil Moisture Condition	Flood Hazard Condition
AP-25	DB+0	108	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-25/1	DA+0	101	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-25/2	DA+3	105	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-26	DD+3	105	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-26/1	DA+0	103	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-26/2	DA+0	107	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-26/3	DA+0	102	Water Loggrd Area	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-26/4	DA+0	103	Bricks Kilns/Quarry	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-26/5	DA+0	107	Bricks Kilns/Quarry	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP-27	DB+0	105	Tea Garden	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-27/1	DA+0	110	Tea Garden	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-27/2	DA+0	107	Tea Garden	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-27/3	DA+0	104	Tea Garden	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-27/4	DA+0	111	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-27/5	DA+0	100	Tea Garden	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-27/6	DA+0	109	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard Area
AP-27/7	DA+0	110	Tea Garden	Older Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-27/8	DA+0	102	Tea Garden	Older Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-28	DC+0	101	Tea Garden	Older Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-28/1	DA+0	111	Tree Crops and Groves	Older Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-28/2	DA+0	111	Others Building	Older Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-29	DB+0	106	Tea Garden	Older Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-29/1	DA+3	108	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area

Pole No	Type Tower	Ground Elevation in M.	Pole Fall In Feature	Geomorphological Condition	Soil Moisture Condition	Flood Hazard Condition
AP-30	DB+0	102	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-30/1	DA+0	105	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-30/2	DA+0	109	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-30/3	DA+0	112	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-31	DB+0	110	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-31/1	DA+0	110	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-31/2	DA+0	109	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-31/3	DA+0	115	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-32	DB+0	107	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-32/1	DA+0	101	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	High Flood Hazard
AP-32/2	DA+0	103	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	High Flood Hazard
AP-32/3	DA+0	98	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	High Flood Hazard
AP-33	DC+0	116	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-33/1	DA+3	109	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-33/2	DA+3	101	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-34	DB+3	109	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-34/1	DA+0	104	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-34/2	DA+0	110	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-35	DB+0	101	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-35/1	DA+0	112	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-35/2	DA+0	110	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-36	DC+0	108	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-36/1	DA+3	109	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area

Pole No	Type Tower	Ground Elevation in M.	Pole Fall In Feature	Geomorphological Condition	Soil Moisture Condition	Flood Hazard Condition
AP-36/2	DA+0	110	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-36/3	DA+0	103	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	High Flood Hazard
AP-36/4	DA+0	100	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	High Flood Hazard
AP-37	DD+0	109	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	High Flood Hazard
AP-37/1	DA+0	96	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	High Flood Hazard
AP-37/2	DA+0	100	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	High Flood Hazard
AP-37/3	DA+0	99	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	High Flood Hazard
AP-37/4	DA+0	102	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	High Flood Hazard
AP-38	DB+0	94	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-38/1	DA+0	101	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-38/2	DA+0	105	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-39	DD+0	105	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-40	DC+3	102	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-40/1	DA+0	115	Tree Crops and Groves	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-40/2	DA+0	102	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-41	DD+0	102	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-41/1	DA+3	95	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-41/2	DA+3	96	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-41/3	DA+0	95	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-41/4	DA+0	106	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-42	DD+0	97	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-43	DD+6	96	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-44	DC+6	99	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard

Pole No	Type Tower	Ground Elevation in M.	Pole Fall In Feature	Geomorphological Condition	Soil Moisture Condition	Flood Hazard Condition
AP-44/1	DA+0	97	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-44/2	DA+0	92	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-44/3	DA+0	97	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-44/4	DA+0	104	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-44/5	DA+0	97	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-44/6	DA+0	91	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-44/7	DA+0	90	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-45	DB+0	105	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-45/1	DA+0	104	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-45A	DD+0	94	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-46	DC+3	98	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-47	DB+3	97	Fallow Land	Younger Alluvial Plain	Wet Soil Moisture	Low Flood Hazard
AP-47/1	DA+0	97	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-47/2	DA+0	101	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-48	DD+0	102	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard Area
AP-48/1	DA+0	100	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-48/2	DA+0	99	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-48/3	DA+0	100	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-48/4	DA+0	94	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-49	DD+3	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-50	DC+6	102	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-50/1	DA+0	96	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-50/2	DA+3	92	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area

Pole No	Type Tower	Ground Elevation in M.	Pole Fall In Feature	Geomorphological Condition	Soil Moisture Condition	Flood Hazard Condition
AP-50/3	DA+0	99	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-51	DC+0	91	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-51/1	DA+0	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-51A	DB+0	104	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-52	DD+3	116	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-52A	DB+6	102	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-53	DB+6	100	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-53/1	DA+6	100	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-54	DC+9	97	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-55	DC+6	93	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-55/1	DA+3	105	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-55/2	DA+3	103	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-55/3	DA+0	101	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-56	DB+0	102	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-56/1	DA+0	100	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-56/2	DA+0	106	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-57	DB+6	103	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-58	DC+6	93	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-58/1	DA+0	96	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-58/2	DA+0	96	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-58/3	DA+0	97	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-59	DC+0	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-59/1	DA+0	97	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area

Pole No	Type Tower	Ground Elevation in M.	Pole Fall In Feature	Geomorphological Condition	Soil Moisture Condition	Flood Hazard Condition
AP-59/2	DA+0	99	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-60	DB+0	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-61	DC+6	106	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-62	DD+6	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-62/1	DA+3	93	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-63	DD+0	94	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-64	DB+0	94	Residential House	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
AP-65	DD+0	101	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
BAY	GANTRY	99	220 Kv Electric Substation	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area

Annexure B –2 : Rupai – Chapakhowa Electric Line Study Details

Pole No	Type Of Tower	Ground Elevation of EP	DESCR	Geomorphology	Soil Moisture	Flood Hazard
BAY		133	Electric Substation	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 0	D+0	127	Fallow Land	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 1	D+0	122	Fallow Land	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 2	C+0	123	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 3	D+3	130	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 4	D+3	132	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
4/1	A+3	127	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 5	B+0	137	Tree Crops and Groves	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 6	D+18	129	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 6A	D+18	125	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 6B	C+3	141	Tree Crops and Groves	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 6C	C+3	131	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
6C/1	A+3	122	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 6D	B+0	131	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
6D/1	A+0	125	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
6D/2	A+0	125	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 6E	B+6	128	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 7	D+6	126	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 7A	C+6	125	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 8	D+6	123	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
8/1	A+9	130	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 9	B+6	126	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
9/1	A+3	126	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard

Pole No	Type Of Tower	Ground Elevation of EP	DESCR	Geomorphology	Soil Moisture	Flood Hazard
AP 10	D+3	116	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 10A	B+6	118	Tree Crops and Groves	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 10B	B+0	124	Fallow Land	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
10B/1	A+3	129	Bricks Kilns/Quarry	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 10C	B+6	128	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 11	D+0	127	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
11/1	A+3	131	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 11A	B+6	120	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
11A/1	A+3	127	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
11A/2	A+3	116	Fallow Land	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
11A/3	A+0	120	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
11A/4	A+3	126	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
11A/5	A+3	119	Tea Garden	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 12	B+0	118	Bricks Road	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 13	C+6	113	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
13/1	A+6	122	Agriculture Land	Older Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 14	C+6	116	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 15	B+3	123	Tea Garden	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 16	D+6	123	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 17	B+3	119	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
17/1	A+0	112	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
17/2	A+0	117	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
17/3	A+0	122	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
17/4	A+0	121	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
17/5	A+0	127	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard

Pole No	Type Of Tower	Ground Elevation of EP	DESCR	Geomorphology	Soil Moisture	Flood Hazard
17/6	A+0	134	Tree Crops and Groves	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 18	D+0	130	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
18/1	A+6	135	Tree Crops and Groves	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 19	D+6	128	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
19/1	A+6	121	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
19/2	A+6	121	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 20	C+0	119	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
20/1	A+0	118	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
20/2	A+0	123	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 21	C+0	126	Tree Crops and Groves	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
21/1	A+3	119	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
21/2	A+3	123	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 21A	C+6	118	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
21A/1	A+3	133	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
21A/2	A+0	113	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
21A/3	A+3	108	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
AP 22	B+0	116	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
22/1	A+6	117	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
AP 23	C+3	116	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
23/1	A+0	113	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
23/2	A+3	114	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
23/3	A+3	116	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
23/4	A+3	117	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
AP 24	D+0	113	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
24/1	A+0	130	Tea Garden	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard

Pole No	Type Of Tower	Ground Elevation of EP	DESCR	Geomorphology	Soil Moisture	Flood Hazard
24/2	A+0	114	Waste Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 25	D+3	132	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 26	D+9	125	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 27	C+6	132	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
27/1	A+3	115	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
27/2	A+0	118	Fallow Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
27/3	A+0	121	Fallow Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
27/4	A+0	130	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
27/5	A+0	118	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
AP 27A	B+0	116	Grazing Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
AP 27B	C+0	135	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
AP 27C	B+0	133	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
AP 27D	B+0	128	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
AP 27E	D+0	124	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
27E/1	A+0	129	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
AP 28	D+0	119	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
AP 29	D+9	119	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
AP 30	D+25	131	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	River
30/1	D+25	132	River Sand	River Water Body	Very Wet Soil Moisture	River
30/2	D+25	120	Grazing Land	River Water Body	Very Wet Soil Moisture	River
30/3	D+25	126	River Sand	River Water Body	Very Wet Soil Moisture	River
30/4	D+25	127	River Sand	River Water Body	Very Wet Soil Moisture	River
30/5	D+25	122	River Sand	River Water Body	Very Wet Soil Moisture	River
30/6	D+25	124	River Sand	River Water Body	Very Wet Soil Moisture	River
30/7	D+25	120	River Sand	River Water Body	Very Wet Soil Moisture	River

Pole No	Type Of Tower	Ground Elevation of EP	DESCR	Geomorphology	Soil Moisture	Flood Hazard
30/8	D+25	132	River Sand	River Water Body	Very Wet Soil Moisture	River
30/9	D+25	129	Waste Land	River Water Body	Very Wet Soil Moisture	River
31/0	D+25	134	Tree Crops and Groves	River Water Body	Very Wet Soil Moisture	River
AP 31A/0	D+9	130	Tree Crops and Groves	River Water Body	Very Wet Soil Moisture	River
AP 32	D+0	126	Agriculture Land	River Water Body	Very Wet Soil Moisture	River
32/1	A+0	129	Agriculture Land	River Water Body	Very Wet Soil Moisture	Low Flood Hazard
32/2	A+0	128	Tree Crops and Groves	River Water Body	Very Wet Soil Moisture	Low Flood Hazard
32/3	A+0	129	Grazing Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
32/4	A+0	125	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
AP 33	D+0	124	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
33/1	A+3	139	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
33/2	A+0	139	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
33/3	A+0	141	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 34	C+0	128	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
34/1	A+0	137	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
34/2	A+3	130	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 34A	B+0	127	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
34A/1	A+3	113	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP 35	C+3	137	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP35A	B+3	137	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
35A/1	A+0	136	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP 36	B+0	136	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
36/1	A+0	130	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
36/2	A+0	138	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
36/3	A+3	130	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard

Pole No	Type Of Tower	Ground Elevation of EP	DESCR	Geomorphology	Soil Moisture	Flood Hazard
36/4	A+0	135	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
36/5	A+0	140	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
36/6	A+3	140	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
36/7	A+0	131	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
36/8	A+0	126	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
36/9	A+3	126	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP 37	D+0	130	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP 38	D+0	132	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
AP 39	B+0	131	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	High Flood Hazard
39/1	A+3	135	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 40	D+0	138	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 41	C+3	133	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
41/1	A+3	138	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 42	B+0	139	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
42/1	A+0	137	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
42/2	A+0	130	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
42/3	A+0	136	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
42/4	A+0	138	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 43	D+0	128	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
43/1	A+0	139	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
43/2	A+0	142	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
43/3	A+0	134	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
43/4	A+0	142	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
43/5	A+0	136	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
43/6	A+0	139	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard

Pole No	Type Of Tower	Ground Elevation of EP	DESCR	Geomorphology	Soil Moisture	Flood Hazard
43/7	A+0	140	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
43/8	A+0	151	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
AP 44	C+0	138	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
44/1	A+3	138	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Not Flood Hazard
44/2	A+0	148	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
44/3	A+0	140	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
44/4	A+3	143	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
44/5	A+0	141	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
AP 45	B+0	140	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
AP 46	D+0	133	Agriculture Land	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard
BAY	Gantry Bay	137	Electric Substation	Younger Alluvial Plain	Very Wet Soil Moisture	Low Flood Hazard

Annexure B3 : Chapakhowa Substation To Existing Chapakhowa Electric Line Study Details

Pole_ No	Pole Type	Ground Elevation in M.	EP Fall in Feature	Soil Moisture	Geomorphology/Rock	Flood Hazard Condition
GANTRY	GANTRY	145	33/11 KV Electric Substation	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-1	Single Pole	141	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
FP-1	Four Pole	142	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-2	Single Pole	134	Fallow Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-3	Single Pole	134	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-4	Single Pole	135	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-5	Single Pole	134	Fallow/Vacant Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-6	Single Pole	131	Fallow/Vacant Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-7	Single Pole	136	Fallow/Vacant Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
FP-2	Four Pole	135	Fallow/Vacant Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-8	Single Pole	136	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-9	Single Pole	134	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-10	Single Pole	136	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-11	Single Pole	136	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-12	Single Pole	135	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-13	Single Pole	141	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-14	Single Pole	135	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-15	Single Pole	137	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-16	Single Pole	136	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-17	Single Pole	140	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area

Pole_ No	Pole Type	Ground Elevation in M.	EP Fall in Feature	Soil Moisture	Geomorphology/Rock	Flood Hazard Condition
SP-18	Single Pole	139	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-19	Single Pole	138	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-20	Single Pole	134	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-21	Single Pole	129	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-22	Single Pole	132	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-23	Single Pole	145	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-24	Single Pole	140	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-25	Single Pole	133	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-26	Single Pole	136	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
DP-1	Double Pole	137	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-27	Single Pole	129	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-28	Single Pole	124	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-29	Single Pole	127	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-30	Single Pole	136	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Low Flood Prone Area
SP-31	Single Pole	135	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-32	Single Pole	139	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-33	Single Pole	139	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-34	Single Pole	142	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-35	Single Pole	145	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-36	Single Pole	144	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-37	Single Pole	147	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-38	Single Pole	144	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-39	Single Pole	132	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area

Pole_ No	Pole Type	Ground Elevation in M.	EP Fall in Feature	Soil Moisture	Geomorphology/Rock	Flood Hazard Condition
SP-40	Single Pole	137	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-41	Single Pole	132	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-42	Single Pole	121	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-43	Single Pole	124	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-44	Single Pole	133	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-45	Single Pole	138	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
DP-2	Double Pole	138	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-46	Single Pole	138	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-47	Single Pole	138	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-48	Single Pole	130	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-49	Single Pole	135	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
SP-50	Single Pole	147	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
FP-3	Four Pole	148	Agriculture Land	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
FP-4	Four Pole	148	Road	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area
GANTRY	GANTRY	148	132/33 KV Electric Substation	Very Wet Soil Moisture	Alluvium-sand/ silt & clay	Very Low Flood Prone Area

Annexure B 4: Dibrugarh - Romai Electric Line Study Details

Pole_ No	Pole_ Type	Ground Elevation Of EP	EP Fall in Feature	Geomorphology	Soil Moisture	Flood Hazard Condition
GANTRY	GANTRY	97	132 KV Electric Substation	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-1	Double Pole	96	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-1	Single Pole	95	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-2	Double Pole	98	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-3	Double Pole	96	Residential House	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-2	Single Pole	94	Residential House	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-3	Single Pole	92	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
4P-1	Four Pole	92	Railway	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
4P-2	Four Pole	96	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-4	Single Pole	93	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-5	Single Pole	90	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-6	Single Pole	93	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-4	Double Pole	93	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-5	Double Pole	95	Petrol Pump	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-7	Single Pole	94	Petrol Pump	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-8	Single Pole	97	Petrol Pump	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-9	Single Pole	98	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-10	Single Pole	95	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-11	Single Pole	96	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-12	Single Pole	104	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard

Pole_ No	Pole_ Type	Ground Elevation Of EP	EP Fall in Feature	Geomorphology	Soil Moisture	Flood Hazard Condition
SP-13	Single Pole	101	Residential House	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-14	Single Pole	97	Commercial Building	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-15	Single Pole	97	Commercial Building	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-16	Single Pole	109	Commercial Building	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-17	Single Pole	111	Commercial Building	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-18	Single Pole	108	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-19	Single Pole	101	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-20	Single Pole	99	Residential House	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-21	Single Pole	101	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-6	Double Pole	100	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-7	Double Pole	100	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-22	Single Pole	101	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-23	Single Pole	102	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
4P-3	Four Pole	101	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-24	Single Pole	103	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-25	Single Pole	105	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-26	Single Pole	105	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-27	Single Pole	103	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-28	Single Pole	103	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-29	Single Pole	104	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-30	Single Pole	95	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-31	Single Pole	99	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-32	Single Pole	100	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard

Pole_ No	Pole_ Type	Ground Elevation Of EP	EP Fall in Feature	Geomorphology	Soil Moisture	Flood Hazard Condition
SP-33	Single Pole	100	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-34	Single Pole	102	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-35	Single Pole	102	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-36	Single Pole	104	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-37	Single Pole	102	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-38	Single Pole	98	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-39	Single Pole	98	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-40	Single Pole	97	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-41	Single Pole	98	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-42	Single Pole	98	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-43	Single Pole	100	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-44	Single Pole	97	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-45	Single Pole	96	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-46	Single Pole	101	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-47	Single Pole	102	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-48	Single Pole	103	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-49	Single Pole	101	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-50	Single Pole	98	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-51	Single Pole	99	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-52	Single Pole	99	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-53	Single Pole	96	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-54	Single Pole	95	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-55	Single Pole	96	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard

Pole_ No	Pole_ Type	Ground Elevation Of EP	EP Fall in Feature	Geomorphology	Soil Moisture	Flood Hazard Condition
SP-56	Single Pole	95	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-57	Single Pole	104	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-58	Single Pole	104	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-59	Single Pole	104	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-60	Single Pole	97	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-8	Double Pole	103	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-61	Single Pole	107	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-62	Single Pole	102	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-63	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-64	Single Pole	96	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-65	Single Pole	101	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-66	Single Pole	102	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-67	Single Pole	101	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-68	Single Pole	102	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-69	Single Pole	101	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-70	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-71	Single Pole	100	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-72	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-9	Double Pole	94	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-73	Single Pole	90	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-74	Single Pole	96	Tree Crops and Groves	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-75	Single Pole	100	Tree Crops and Groves	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-76	Single Pole	99	Tree Crops and Groves	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard

Pole_ No	Pole_ Type	Ground Elevation Of EP	EP Fall in Feature	Geomorphology	Soil Moisture	Flood Hazard Condition
SP-77	Single Pole	96	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-78	Single Pole	93	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-79	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
4P-4	Four Pole	101	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-80	Single Pole	99	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-81	Single Pole	98	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-82	Single Pole	101	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-83	Single Pole	104	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-84	Single Pole	103	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-85	Single Pole	105	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-86	Single Pole	103	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-87	Single Pole	100	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-88	Single Pole	96	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-89	Single Pole	96	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-90	Single Pole	95	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-91	Single Pole	96	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-92	Single Pole	96	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-93	Single Pole	93	Pond/Lake	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-94	Single Pole	93	Pond/Lake	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-95	Single Pole	89	Pond/Lake	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-96	Single Pole	88	Pond/Lake	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-97	Single Pole	92	Pond/Lake	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-10	Double Pole	98	Pond/Lake	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard

Pole_ No	Pole_ Type	Ground Elevation Of EP	EP Fall in Feature	Geomorphology	Soil Moisture	Flood Hazard Condition
SP-98	Single Pole	106	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-99	Single Pole	102	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-100	Single Pole	98	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-101	Single Pole	102	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-102	Single Pole	100	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-103	Single Pole	106	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-104	Single Pole	105	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
4P-5	Four Pole	104	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-105	Single Pole	102	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-106	Single Pole	103	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
4P-6	Four Pole	97	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-107	Single Pole	99	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-108	Single Pole	96	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-109	Single Pole	100	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-110	Single Pole	95	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-111	Single Pole	96	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-112	Single Pole	100	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-113	Single Pole	101	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-11	Double Pole	95	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-114	Single Pole	94	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-115	Single Pole	95	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
4P-7	Four Pole	95	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-116	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard

Pole_ No	Pole_ Type	Ground Elevation Of EP	EP Fall in Feature	Geomorphology	Soil Moisture	Flood Hazard Condition
SP-117	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-118	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-119	Single Pole	101	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-120	Single Pole	100	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-121	Single Pole	102	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-122	Single Pole	99	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-123	Single Pole	99	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-124	Single Pole	100	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-125	Single Pole	98	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-126	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-12	Double Pole	98	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-127	Single Pole	102	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-128	Single Pole	107	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-129	Single Pole	107	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-130	Single Pole	104	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-131	Single Pole	105	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-132	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-13	Double Pole	95	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-133	Single Pole	93	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-134	Single Pole	95	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-135	Single Pole	95	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-136	Single Pole	95	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-137	Single Pole	95	Waste Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard

Pole_ No	Pole_ Type	Ground Elevation Of EP	EP Fall in Feature	Geomorphology	Soil Moisture	Flood Hazard Condition
DP-14	Double Pole	91	Waste Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-138	Single Pole	87	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-139	Single Pole	93	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-140	Single Pole	100	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-141	Single Pole	102	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-142	Single Pole	102	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-143	Single Pole	100	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-144	Single Pole	94	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-145	Single Pole	95	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-146	Single Pole	93	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-147	Single Pole	95	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-148	Single Pole	94	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-149	Single Pole	94	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-150	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-151	Single Pole	96	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-152	Single Pole	94	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-153	Single Pole	88	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-154	Single Pole	95	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-155	Single Pole	93	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
DP-15	Single Pole	87	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-156	Single Pole	89	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-157	Single Pole	92	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-158	Single Pole	91	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard

Pole_ No	Pole_ Type	Ground Elevation Of EP	EP Fall in Feature	Geomorphology	Soil Moisture	Flood Hazard Condition
SP-159	Single Pole	94	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-160	Single Pole	100	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-161	Single Pole	103	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
DP-16	Double Pole	102	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-162	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-163	Single Pole	94	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-164	Single Pole	92	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-165	Single Pole	91	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
DP-17	Double Pole	95	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-166	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-167	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-168	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-169	Single Pole	103	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
DP-18	Double Pole	102	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-170	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-171	Single Pole	100	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-172	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-173	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-174	Single Pole	99	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-175	Single Pole	98	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
DP-19	Double Pole	99	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-176	Single Pole	100	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-177	Single Pole	101	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard

Pole_ No	Pole_ Type	Ground Elevation Of EP	EP Fall in Feature	Geomorphology	Soil Moisture	Flood Hazard Condition
SP-178	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-179	Single Pole	93	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-180	Single Pole	101	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-181	Single Pole	108	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-182	Single Pole	112	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-183	Single Pole	114	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-184	Single Pole	116	Tree Crops and Groves	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-185	Single Pole	110	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-186	Single Pole	108	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
DP-20	Double Pole	106	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-187	Single Pole	107	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-188	Single Pole	107	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-189	Single Pole	107	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-190	Single Pole	100	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-191	Single Pole	107	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-192	Single Pole	106	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-193	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-194	Single Pole	104	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-195	Single Pole	103	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-196	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-197	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-198	Single Pole	100	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-199	Single Pole	101	Vacant Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard

Pole_ No	Pole_ Type	Ground Elevation Of EP	EP Fall in Feature	Geomorphology	Soil Moisture	Flood Hazard Condition
SP-200	Single Pole	93	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-201	Single Pole	91	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-202	Single Pole	91	Bricks Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-203	Single Pole	93	Residential House	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
DP-21	Double Pole	104	Tree Crops and Groves	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
DP-22	Double Pole	104	Tree Crops and Groves	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
DP-23	Double Pole	101	Tree Crops and Groves	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
4P-8	Four Pole	102	Fallow Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-204	Single Pole	102	Fallow Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
4P-9	Four Pole	102	Fallow Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
4P-10	Four Pole	103	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-205	Single Pole	100	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-206	Single Pole	96	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-207	Single Pole	95	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
DP-24	Double Pole	96	Bricks Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-208	Single Pole	95	Bricks Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-209	Single Pole	95	Bricks Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-210	Single Pole	93	Bricks Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-211	Single Pole	95	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-212	Single Pole	99	Bricks Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-213	Single Pole	101	Bricks Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
DP-25	Double Pole	103	Bricks Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-214	Single Pole	100	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard

Pole_ No	Pole_ Type	Ground Elevation Of EP	EP Fall in Feature	Geomorphology	Soil Moisture	Flood Hazard Condition
SP-215	Single Pole	99	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-216	Single Pole	103	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-217	Single Pole	99	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-218	Single Pole	99	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-219	Single Pole	101	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
DP-26	Double Pole	101	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
DP-27	Double Pole	97	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-220	Single Pole	97	Bricks Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-221	Single Pole	99	Bricks Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-222	Single Pole	103	Bricks Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-223	Single Pole	101	Bricks Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-224	Single Pole	98	Bricks Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-225	Single Pole	97	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-226	Single Pole	100	Tea Garden	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-227	Single Pole	97	Mud Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
DP-28	Double Pole	96	Residential House	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
4P-11	Four Pole	96	Fallow Land	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-228	Single Pole	96	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-229	Single Pole	104	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-230	Single Pole	98	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-231	Single Pole	92	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-232	Single Pole	93	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
DP-29	Double Pole	93	Tree Crops and Groves	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard

Pole_ No	Pole_ Type	Ground Elevation Of EP	EP Fall in Feature	Geomorphology	Soil Moisture	Flood Hazard Condition
SP-233	Single Pole	96	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-234	Single Pole	93	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-235	Single Pole	95	Tree Crops and Groves	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
DP-30	Double Pole	100	Tree Crops and Groves	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-236	Single Pole	106	Tree Crops and Groves	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-237	Single Pole	95	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
DP-31	Double Pole	97	River	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-238	Single Pole	101	Tree Crops and Groves	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-239	Single Pole	103	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-240	Single Pole	102	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Not Flood Hazard
SP-241	Single Pole	96	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-242	Single Pole	95	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
DP-32	Double Pole	95	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-243	Single Pole	95	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-244	Single Pole	97	Fallow Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-245	Single Pole	100	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-246	Single Pole	101	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-247	Single Pole	97	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
4P-12	Four Pole	99	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-248	Single Pole	99	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-249	Single Pole	96	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
DP-33	Double Pole	97	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
DP-34	Double Pole	96	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard

Pole_ No	Pole_ Type	Ground Elevation Of EP	EP Fall in Feature	Geomorphology	Soil Moisture	Flood Hazard Condition
SP-250	Single Pole	95	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-251	Single Pole	93	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-252	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
DP-35	Double Pole	98	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-253	Single Pole	99	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
DP-36	Double Pole	97	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-254	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-255	Single Pole	101	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
DP-37	Double Pole	104	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-256	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-257	Single Pole	94	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-258	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-259	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-260	Single Pole	96	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-261	Single Pole	100	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-262	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-263	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
4P-13	Four Pole	97	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-264	Single Pole	101	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
4P-14	Four Pole	98	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-265	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-266	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-267	Single Pole	99	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard

Pole_ No	Pole_ Type	Ground Elevation Of EP	EP Fall in Feature	Geomorphology	Soil Moisture	Flood Hazard Condition
SP-268	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-269	Single Pole	96	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-270	Single Pole	96	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-271	Single Pole	99	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-272	Single Pole	96	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-273	Single Pole	98	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-274	Single Pole	97	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-275	Single Pole	96	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-276	Single Pole	93	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-277	Single Pole	94	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-278	Single Pole	98	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-279	Single Pole	100	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
DP-38	Double Pole	100	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-280	Single Pole	98	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-281	Single Pole	96	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-282	Single Pole	97	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-283	Single Pole	96	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-284	Single Pole	98	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-285	Single Pole	95	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-286	Single Pole	95	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-287	Single Pole	95	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-288	Single Pole	96	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-289	Single Pole	98	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard

Pole_ No	Pole_ Type	Ground Elevation Of EP	EP Fall in Feature	Geomorphology	Soil Moisture	Flood Hazard Condition
SP-290	Single Pole	98	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-291	Single Pole	96	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-292	Single Pole	94	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-293	Single Pole	92	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-294	Single Pole	95	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-295	Single Pole	93	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-296	Single Pole	95	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-297	Single Pole	98	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
DP-39	Double Pole	99	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-298	Single Pole	96	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-299	Single Pole	95	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-300	Single Pole	96	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-301	Single Pole	94	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-302	Single Pole	98	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-303	Single Pole	108	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-304	Single Pole	109	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
4P-15	Four Pole	105	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-305	Single Pole	103	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-306	Single Pole	102	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-307	Single Pole	99	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-308	Single Pole	99	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-309	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-310	Single Pole	99	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard

Pole_ No	Pole_ Type	Ground Elevation Of EP	EP Fall in Feature	Geomorphology	Soil Moisture	Flood Hazard Condition
SP-311	Single Pole	90	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-312	Single Pole	90	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-313	Single Pole	88	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-314	Single Pole	94	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-315	Single Pole	92	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
DP-40	Double Pole	95	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-316	Single Pole	95	Tree Crops and Groves	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-317	Single Pole	96	Tree Crops and Groves	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-318	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-319	Single Pole	99	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-320	Single Pole	99	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
SP-321	Single Pole	102	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
4P-16	Four Pole	105	Agriculture Land	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard
GANTRY	GANTRY	105	Metal Road	Younger Alluvial Plain	Wet Soil Moisture	Moderate Flood Hazard

Annexure B5: Behiating (Khanikar) - BOGIBILL Electric line Study Details

Pole No	Pole Type	Ground Elevation of EP	EP Fall in Feature Class	Geomorphology	Soil Moisture	Flood Hazard
GANTRY	GANTRY	105	220/132 Kv Electric Substation	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
FP-1	Four Pole	105	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-1	Single Pole	100	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-2	Single Pole	97	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
FP-2	Four Pole	86	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-3	Single Pole	91	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-4	Single Pole	91	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-5	Single Pole	95	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-6	Single Pole	95	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-7	Single Pole	99	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-8	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
DP-1	Double Pole	98	Waste Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-9	Single Pole	101	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-10	Single Pole	85	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
DP-2	Double Pole	90	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-11	Single Pole	94	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-12	Single Pole	95	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-13	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-14	Single Pole	101	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-15	Single Pole	102	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard

Pole No	Pole Type	Ground Elevation of EP	EP Fall in Feature Class	Geomorphology	Soil Moisture	Flood Hazard
SP-16	Single Pole	99	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-17	Single Pole	94	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-18	Single Pole	91	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
FP-3	Four Pole	93	Tree Crops and Groves	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
DP-3	Double Pole	93	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
FP-4	Four Pole	97	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-19	Single Pole	100	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-20	Single Pole	106	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-21	Single Pole	115	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-22	Single Pole	112	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-23	Single Pole	103	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-24	Single Pole	97	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-25	Single Pole	100	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-26	Single Pole	98	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-27	Single Pole	98	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-28	Single Pole	104	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-29	Single Pole	105	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-30	Single Pole	105	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-31	Single Pole	101	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-32	Single Pole	98	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-33	Single Pole	98	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
DP-4	Double Pole	106	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-34	Single Pole	97	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area

Pole No	Pole Type	Ground Elevation of EP	EP Fall in Feature Class	Geomorphology	Soil Moisture	Flood Hazard
SP-35	Single Pole	101	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-36	Single Pole	98	Others Building	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
DP-5	Double Pole	94	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-37	Single Pole	94	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-38	Single Pole	99	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-39	Single Pole	107	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-40	Single Pole	109	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-41	Single Pole	104	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-42	Single Pole	98	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-43	Single Pole	94	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-44	Single Pole	94	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-45	Single Pole	94	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-46	Single Pole	89	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-47	Single Pole	93	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-48	Single Pole	97	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-49	Single Pole	94	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-50	Single Pole	93	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
DP-6	Double Pole	102	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
DP-7	Double Pole	107	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-51	Single Pole	110	Tree Crops and Groves	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-52	Single Pole	104	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-53	Single Pole	106	Residential House	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-54	Single Pole	105	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area

Pole No	Pole Type	Ground Elevation of EP	EP Fall in Feature Class	Geomorphology	Soil Moisture	Flood Hazard
SP-55	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-56	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
DP-8	Double Pole	97	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-57	Single Pole	101	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-58	Single Pole	98	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
DP-9	Double Pole	99	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-59	Single Pole	101	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-60	Single Pole	102	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-61	Single Pole	99	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-62	Single Pole	97	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-63	Single Pole	98	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-64	Single Pole	106	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-65	Single Pole	108	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-66	Single Pole	104	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-67	Single Pole	100	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-68	Single Pole	97	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-69	Single Pole	96	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-70	Single Pole	99	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-71	Single Pole	108	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-72	Single Pole	111	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-73	Single Pole	109	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-74	Single Pole	107	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-75	Single Pole	110	Tree Crops and	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area

Pole No	Pole Type	Ground Elevation of EP	EP Fall in Feature Class	Geomorphology	Soil Moisture	Flood Hazard
			Groves			
SP-76	Single Pole	115	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-77	Single Pole	114	Tree Crops and Groves	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-78	Single Pole	112	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-79	Single Pole	110	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-80	Single Pole	107	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-81	Single Pole	108	Tree Crops and Groves	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-82	Single Pole	107	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-83	Single Pole	99	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-84	Single Pole	105	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-85	Single Pole	106	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-86	Single Pole	115	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
FP-5	Four Pole	102	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
FP-6	Four Pole	111	Road Side Fallow land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-87	Single Pole	111	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-88	Single Pole	108	Mud Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-89	Single Pole	103	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-90	Single Pole	103	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-91	Single Pole	104	Mud Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-92	Single Pole	112	Mud Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-93	Single Pole	110	Mud Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-94	Single Pole	108	Mud Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-95	Single Pole	105	Mud Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area

Pole No	Pole Type	Ground Elevation of EP	EP Fall in Feature Class	Geomorphology	Soil Moisture	Flood Hazard
FP-7	Four Pole	99	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-96	Single Pole	99	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-97	Single Pole	97	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-98	Single Pole	98	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-99	Single Pole	100	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-100	Single Pole	96	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-101	Single Pole	99	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-102	Single Pole	100	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-103	Single Pole	98	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-104	Single Pole	101	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-105	Single Pole	100	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-106	Single Pole	99	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-107	Single Pole	105	Drain	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-108	Single Pole	106	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-109	Single Pole	99	Drain	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-110	Single Pole	95	Drain	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-111	Single Pole	95	Drain	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-112	Single Pole	100	Drain	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
FP-8	Four Pole	102	Drain	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-113	Single Pole	106	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-114	Single Pole	112	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-115	Single Pole	108	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
DP-10	Double Pole	111	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area

Pole No	Pole Type	Ground Elevation of EP	EP Fall in Feature Class	Geomorphology	Soil Moisture	Flood Hazard
SP-116	Single Pole	119	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-117	Single Pole	109	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-118	Single Pole	100	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
DP-11	Double Pole	96	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-119	Single Pole	90	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-120	Single Pole	95	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-121	Single Pole	100	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-122	Single Pole	98	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-123	Single Pole	111	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
FP-9	Four Pole	117	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-124	Single Pole	112	Drain	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-125	Single Pole	101	Drain	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-126	Single Pole	101	Drain	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-127	Single Pole	99	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-128	Single Pole	103	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-129	Single Pole	97	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-130	Single Pole	102	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-131	Single Pole	101	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
FP-10	Four Pole	103	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-132	Single Pole	101	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-133	Single Pole	100	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-134	Single Pole	104	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-135	Single Pole	104	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area

Pole No	Pole Type	Ground Elevation of EP	EP Fall in Feature Class	Geomorphology	Soil Moisture	Flood Hazard
FP-11	Four Pole	96	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-136	Single Pole	101	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-137	Single Pole	100	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-138	Single Pole	99	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
DP-12	Double Pole	102	Tree Crops and Groves	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-139	Single Pole	104	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
FP-12	Four Pole	100	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-140	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-141	Single Pole	99	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
DP-13	Double Pole	102	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
DP-14	Double Pole	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-142	Single Pole	99	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-143	Single Pole	99	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-144	Single Pole	97	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-145	Single Pole	95	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-146	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
DP-15	Double Pole	101	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
SP-147	Single Pole	92	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
DP-16	Double Pole	93	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard Area
DP-17	Double Pole	90	Waste Land	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-148	Single Pole	95	Fallow Land	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
DP-18	Double Pole	90	Fallow Land	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-149	Single Pole	93	Tree Crops and	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area

Pole No	Pole Type	Ground Elevation of EP	EP Fall in Feature Class	Geomorphology	Soil Moisture	Flood Hazard
			Groves			
FP-13	Four Pole	94	Bricks Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-150	Single Pole	91	Fallow Land	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-151	Single Pole	88	Bricks Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-152	Single Pole	90	Bricks Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-153	Single Pole	99	Bricks Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-154	Single Pole	99	Bricks Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-155	Single Pole	95	Bricks Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-156	Single Pole	100	Bricks Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-157	Single Pole	91	Bricks Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-158	Single Pole	92	Bricks Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-159	Single Pole	90	Bricks Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-160	Single Pole	89	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-161	Single Pole	97	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
FP-14	Four Pole	96	Bricks Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-162	Single Pole	96	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-163	Single Pole	98	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-164	Single Pole	97	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-165	Single Pole	98	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-166	Single Pole	99	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-167	Single Pole	92	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-168	Single Pole	98	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-169	Single Pole	104	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area

Pole No	Pole Type	Ground Elevation of EP	EP Fall in Feature Class	Geomorphology	Soil Moisture	Flood Hazard
SP-170	Single Pole	109	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-171	Single Pole	113	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-172	Single Pole	115	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-173	Single Pole	107	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-174	Single Pole	101	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-175	Single Pole	103	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-176	Single Pole	104	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-177	Single Pole	99	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-178	Single Pole	99	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-179	Single Pole	99	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-180	Single Pole	97	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-181	Single Pole	99	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
DP-19	Double Pole	104	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-182	Single Pole	109	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-183	Single Pole	105	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-184	Single Pole	105	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-185	Single Pole	105	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-186	Single Pole	101	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-187	Single Pole	100	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-188	Single Pole	99	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-189	Single Pole	98	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-190	Single Pole	103	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-191	Single Pole	103	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area

Pole No	Pole Type	Ground Elevation of EP	EP Fall in Feature Class	Geomorphology	Soil Moisture	Flood Hazard
SP-192	Single Pole	104	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-193	Single Pole	100	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-194	Single Pole	99	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-195	Single Pole	102	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-196	Single Pole	104	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-197	Single Pole	105	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-198	Single Pole	105	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-199	Single Pole	101	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-200	Single Pole	107	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
DP-20	Double Pole	109	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
DP-21	Double Pole	104	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-201	Single Pole	102	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-202	Single Pole	104	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-203	Single Pole	106	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-204	Single Pole	103	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-205	Single Pole	104	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-206	Single Pole	104	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-207	Single Pole	100	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-208	Single Pole	103	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-209	Single Pole	95	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-210	Single Pole	92	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-211	Single Pole	99	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-212	Single Pole	103	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area

Pole No	Pole Type	Ground Elevation of EP	EP Fall in Feature Class	Geomorphology	Soil Moisture	Flood Hazard
SP-213	Single Pole	99	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-214	Single Pole	103	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-215	Single Pole	104	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-216	Single Pole	100	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-217	Single Pole	99	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-218	Single Pole	100	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-219	Single Pole	104	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-220	Single Pole	101	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-221	Single Pole	102	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
DP-22	Double Pole	101	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-222	Single Pole	102	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-223	Single Pole	103	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-224	Single Pole	97	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-225	Single Pole	102	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-226	Single Pole	107	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-227	Single Pole	108	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-228	Single Pole	107	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-229	Single Pole	99	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-230	Single Pole	95	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-231	Single Pole	96	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-232	Single Pole	101	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-233	Single Pole	102	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-234	Single Pole	100	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area

Pole No	Pole Type	Ground Elevation of EP	EP Fall in Feature Class	Geomorphology	Soil Moisture	Flood Hazard
SP-235	Single Pole	98	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
FP-15	Four Pole	89	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-236	Single Pole	95	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-237	Single Pole	91	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-238	Single Pole	99	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-239	Single Pole	96	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-240	Single Pole	97	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-241	Single Pole	106	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
DP-23	Double Pole	98	Mud Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-242	Single Pole	101	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-243	Single Pole	102	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-244	Single Pole	95	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-245	Single Pole	101	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-246	Single Pole	89	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-247	Single Pole	95	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-248	Single Pole	96	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-249	Single Pole	97	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-250	Single Pole	103	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-251	Single Pole	107	Tea Garden	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
FP-16	Four Pole	102	Metal Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-252	Single Pole	104	Waste Land	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-253	Single Pole	111	Metal Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-254	Single Pole	112	Metal Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area

Pole No	Pole Type	Ground Elevation of EP	EP Fall in Feature Class	Geomorphology	Soil Moisture	Flood Hazard
SP-255	Single Pole	102	Metal Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
FP-17	Four Pole	103	Metal Road	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-256	Single Pole	102	Fallow Land	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
SP-257	Single Pole	104	33/11 KV Electric Substation	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
FP-18	Four Pole	112	Fallow Land	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
FP-19	Four Pole	111	33/11 KV Electric Substation	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area
GANTRY	GANTRY	108	33/11 KV Electric Substation	Younger Alluvial Plain	Dry Soil Moisture	Not Flood Hazard Area

Annexure B 6: Behiating (Khanikar) - New Dibrugarh Electric Line Study Details

Pole No	Pole Type	Ground Elevation Of EP	EP Fall In Feature Class	Geomorphology	Soil Moisture	Flood Hazard
GANTRY	GANTRY	107	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
FP-1	Four Pole	107	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-1	Double Pole	107	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-2	Double Pole	104	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-3	Double Pole	102	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-4	Double Pole	100	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-5	Double Pole	96	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-6	Double Pole	95	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-1	Single Pole	91	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-2	Single Pole	93	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-3	Single Pole	87	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-7	Double Pole	96	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-8	Double Pole	96	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-4	Single Pole	101	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-5	Single Pole	98	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-6	Single Pole	95	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
FP-2	Four Pole	99	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-7	Single Pole	99	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-8	Single Pole	94	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-9	Single Pole	92	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard

Pole No	Pole Type	Ground Elevation Of EP	EP Fall In Feature Class	Geomorphology	Soil Moisture	Flood Hazard
SP-10	Single Pole	92	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-11	Single Pole	90z	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-9	Double Pole	91	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-12	Single Pole	91	Tree Crops and Groves	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-13	Single Pole	85	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-14	Single Pole	89	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-15	Single Pole	88	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-16	Single Pole	89	Waste Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
DP-10	Double Pole	91	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-17	Single Pole	93	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-18	Single Pole	90	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-19	Single Pole	99	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-20	Single Pole	101	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-21	Single Pole	97	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-22	Single Pole	100	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
FP-3	Four Pole	103	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-23	Single Pole	103	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-24	Single Pole	102	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-25	Single Pole	110	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
DP-11	Double Pole	112	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-26	Single Pole	116	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-27	Single Pole	113	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-28	Single Pole	111	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard

Pole No	Pole Type	Ground Elevation Of EP	EP Fall In Feature Class	Geomorphology	Soil Moisture	Flood Hazard
SP-29	Single Pole	101	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-30	Single Pole	104	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-31	Single Pole	108	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-32	Single Pole	105	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-33	Single Pole	103	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
DP-12	Double Pole	97	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-34	Single Pole	98	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-35	Single Pole	102	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-36	Single Pole	97	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-37	Single Pole	98	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-38	Single Pole	98	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-39	Single Pole	96	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-40	Single Pole	100	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-41	Single Pole	101	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-42	Single Pole	102	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-43	Single Pole	102	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-44	Single Pole	100	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-45	Single Pole	103	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-13	Double Pole	105	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-46	Single Pole	101	Vacant Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-47	Single Pole	105	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-48	Single Pole	105	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-14	Double Pole	103	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard

Pole No	Pole Type	Ground Elevation Of EP	EP Fall In Feature Class	Geomorphology	Soil Moisture	Flood Hazard
DP-15	Double Pole	108	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-49	Single Pole	109	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-50	Single Pole	111	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-16	Double Pole	111	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-51	Single Pole	109	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-17	Double Pole	116	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-52	Single Pole	112	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-53	Single Pole	105	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-54	Single Pole	107	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-55	Single Pole	108	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-56	Single Pole	107	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-57	Single Pole	106	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-18	Double Pole	105	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-58	Single Pole	111	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-59	Single Pole	114	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-60	Single Pole	110	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-61	Single Pole	111	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-62	Single Pole	107	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-19	Double Pole	106	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-63	Single Pole	107	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-64	Single Pole	106	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-65	Single Pole	105	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-66	Single Pole	103	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard

Pole No	Pole Type	Ground Elevation Of EP	EP Fall In Feature Class	Geomorphology	Soil Moisture	Flood Hazard
SP-67	Single Pole	103	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-68	Single Pole	105	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-69	Single Pole	107	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-20	Double Pole	112	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-70	Single Pole	110	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-71	Single Pole	109	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-72	Single Pole	109	Fallow Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-73	Single Pole	114	Residential House	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-74	Single Pole	111	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
FP-4	Four Pole	109	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-75	Single Pole	108	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-76	Single Pole	108	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-77	Single Pole	107	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-78	Single Pole	105	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-79	Single Pole	105	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-80	Single Pole	108	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-21	Double Pole	105	Drain	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-81	Single Pole	103	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-82	Single Pole	97	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-83	Single Pole	95	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-22	Double Pole	99	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-84	Single Pole	101	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-85	Single Pole	97	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard

Pole No	Pole Type	Ground Elevation Of EP	EP Fall In Feature Class	Geomorphology	Soil Moisture	Flood Hazard
SP-86	Single Pole	98	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-87	Single Pole	99	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-88	Single Pole	101	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-23	Double Pole	106	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-89	Single Pole	98	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-90	Single Pole	104	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-91	Single Pole	93	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-92	Single Pole	89	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-93	Single Pole	95	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-94	Single Pole	91	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-95	Single Pole	92	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-96	Single Pole	91	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-97	Single Pole	92	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
DP-24	Double Pole	94	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
DP-25	Double Pole	94	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-98	Single Pole	91	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-99	Single Pole	91	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-100	Single Pole	89	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-101	Single Pole	94	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-102	Single Pole	95	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-103	Single Pole	102	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-104	Single Pole	100	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-105	Single Pole	105	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard

Pole No	Pole Type	Ground Elevation Of EP	EP Fall In Feature Class	Geomorphology	Soil Moisture	Flood Hazard
SP-106	Single Pole	107	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-107	Single Pole	106	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-26	Double Pole	97	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-108	Single Pole	93	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-109	Single Pole	94	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-110	Single Pole	94	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-111	Single Pole	91	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-112	Single Pole	92	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-113	Single Pole	94	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-114	Single Pole	96	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-115	Single Pole	96	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-116	Single Pole	93	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-117	Single Pole	92	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
FP-5	Four Pole	95	Wet Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-118	Single Pole	96	Wet Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-119	Single Pole	95	Low Wet Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-120	Single Pole	98	Low Wet Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-121	Single Pole	103	Low Wet Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-122	Single Pole	100	Low Wet Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-123	Single Pole	94	Low Wet Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
FP-6	Four Pole	95	Low Wet Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-27	Double Pole	97	Low Wet Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-28	Double Pole	108	Waste Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard

Pole No	Pole Type	Ground Elevation Of EP	EP Fall In Feature Class	Geomorphology	Soil Moisture	Flood Hazard
SP-124	Single Pole	101	Waste Land	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-29	Double Pole	101	Waste Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
FP-7	Four Pole	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-125	Single Pole	98	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-126	Single Pole	95	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-127	Single Pole	101	Canal	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-128	Single Pole	101	Agriculture Land	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-129	Single Pole	96	Canal	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-130	Single Pole	91	Canal	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
FP-8	Four Pole	92	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-131	Single Pole	94	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-132	Single Pole	100	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-133	Single Pole	101	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Moderate Flood Hazard
SP-134	Single Pole	103	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-135	Single Pole	101	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-136	Single Pole	99	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-30	Double Pole	99	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-31	Double Pole	98	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-137	Single Pole	101	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-138	Single Pole	98	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-139	Single Pole	97	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-140	Single Pole	96	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-141	Single Pole	99	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard

Pole No	Pole Type	Ground Elevation Of EP	EP Fall In Feature Class	Geomorphology	Soil Moisture	Flood Hazard
SP-142	Single Pole	99	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-143	Single Pole	95	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-144	Single Pole	101	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-145	Single Pole	98	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-146	Single Pole	96	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-147	Single Pole	97	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-148	Single Pole	96	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-32	Double Pole	100	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-33	Double Pole	100	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-149	Double Pole	101	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-150	Single Pole	98	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-34	Double Pole	97	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-35	Double Pole	95	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-151	Single Pole	93	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-152	Single Pole	93	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-36	Double Pole	93	Metal Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-37	Double Pole	93	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-153	Single Pole	105	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-154	Single Pole	104	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-155	Single Pole	100	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
FP-9	Four Pole	100	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-156	Single Pole	97	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-157	Single Pole	97	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard

Pole No	Pole Type	Ground Elevation Of EP	EP Fall In Feature Class	Geomorphology	Soil Moisture	Flood Hazard
SP-158	Single Pole	99	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-159	Single Pole	103	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-160	Single Pole	104	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-38	Double Pole	108	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-161	Single Pole	106	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-162	Single Pole	102	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-163	Single Pole	101	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-164	Single Pole	99	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-165	Single Pole	101	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
DP-39	Double Pole	106	Bricks Road	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-166	Single Pole	111	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-167	Single Pole	103	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
SP-168	Single Pole	102	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
FP-10	Four Pole	107	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard
GANTRY	GANTRY	106	Tea Garden	Younger Alluvial Plain	Medium Soil Moisture	Not Flood Hazard