

COMPENSATION PLAN FOR TEMPORARY DAMAGES (CPTD)

FOR

**T & D NETWORK IN MOKOKCHUNG, KOHIMA, PHEK,
WOKHA, ZUNHEBOTO, DIMAPUR & MON DISTRICTS
UNDER NERPSIP TRANCHE-1, NAGALAND**



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(A GOVERNMENT OF INDIA ENTERPRISE)**

For

**Department of Power, Nagaland
(GOVERNMENT OF NAGALAND)**

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LIST OF ABBREVIATIONS

AC	:	Autonomous Council
DPN	:	Department of Power, Nagaland
AP	:	Affected Person
CEA	:	Central Electricity Authority
Ckt-Km	:	Circuit-kilometer
CGWB	:	Central Ground Water Board
CP	:	Compensation Plan
CPTD	:	Compensation Plan for Temporary Damages
CPIU	:	Central Project Implementation Unit
CRM	:	Contractor Review Meeting
DC	:	District Collector
D/c	:	Double Circuit
DL	:	Distribution Line
DM	:	District Magistrate
DMS	:	Distribution Management System
EHV	:	Extra High Voltage
EHS	:	Environment Health & Safety
EMP	:	Environment Management Plan
E&S	:	Environmental & Social
ESPP	:	POWERGRID's Environmental and Social Policy & Procedures
ESPPF	:	DPN's Environmental and Social Policy & Procedures Framework
GoI	:	Government of India
GRC	:	Grievance Redress Committee
GRM	:	Grievance Redress Mechanism
Ha	:	Hectare
HPC	:	High Powered Committee
IA	:	Implementing Agency
INRs	:	Indian National Rupees
IP	:	Indigenous People
IR	:	Involuntary Resettlement
JCC	:	Joint Coordination Committee
kV	:	Kilo volt
Km	:	Kilometer
LA	:	Land Acquisition
MCM	:	Million Cubic Meter
MoP	:	Ministry of Power
M&E	:	Monitoring and Evaluation
NoC	:	No Objection Certificate
NER	:	North Eastern Region
NERPSIP	:	North Eastern Region Power System Improvement Project
O&M	:	Operation and Maintenance
OP	:	Operational Policy
PAP	:	Project Affected Person
POWERGRID	:	Power Grid Corporation of India Limited
PPIU	:	PMC Project Implementation Unit
RFCTLARRA	:	The Right to Fair Compensation and Transparency in Land, Acquisition, Rehabilitation and Resettlement Act, 2013
RoW	:	Right of Way
RP	:	Resettlement Plan
R&R	:	Resettlement and Rehabilitation

S/c	:	Single Circuit
SC	:	Scheduled Caste
Sq.m.	:	Square Meters
SMF	:	Social Management Framework
SPCU	:	State Project Coordination Unit
ST	:	Scheduled Tribe
T & D	:	Transmission & Distribution
TL	:	Transmission Line
USD	:	United States Dollar
WB	:	The World Bank

GLOSSARY

Regional Council/Autonomous District Council/ Village Council	:	An autonomous body/institution formed under the provisions of 6th Schedule of Constitution of India which provides tribal people freedom to exercise legislative, judicial, executive and financial powers.
Village Headman	:	Elected head of the Village Council
Zila/District	:	It is the first administrative division at the State level.
Sub-division	:	A revenue sub-division, within a district
Block	:	An administrative sub-division within a district
Panchayat	:	The third tier of decentralized governance

EXECUTIVE SUMMARY

i. The Compensation Plan for Temporary Damages (CPTD) has been prepared for Transmission & Distribution (T & D) network in Mokokchung, Kohima, Phek, Wokha, Zunheboto, Dimapur and Mon districts of Nagaland state under the North Eastern Region Power System Improvement Project (NERPSIP) which is being funded by Govt. of India (Gol) and the World Bank (WB). The Implementing Agency (IA) is Power Grid Corporation of India Limited (POWERGRID). The present CPTD is based on the Environmental and Social Policy & Procedures Framework (ESPPF) of Department of Power, Nagaland (DPN).

ii. The project components include construction of one no. of 220 kV line of 86.94 km length, five nos. of 132 kV lines of 77 km length & nine new 33kV distribution lines of total 53.5 km length along with associated 132/33kV substation at Longnak, Kohima, New-Kohima, Pfutsero, Zunheboto, Wokha, Mokokchung & 33/11kV substation at Longtho, Zunheboto south point, Lalmati, Chiephobozou, Tizit, Padampukhri, Wokha, Pfutsero, Mokokchung, Longnak, Chukitong, Phugoboto, Tseminyu, Akuluto, Torogonyu, Nagarjan, Refferal Hospital, Industrial estate located in in Mokokchung, Kohima, Phek, Zunheboto, Dimapur, Phek, Mon, Districts of Nagaland State . The present CPTD has been prepared based on the detailed survey/ investigation. However, the temporary impacts on land and loss of crops/trees occurred only during the project implementation/construction. Therefore, the CPTD remains as draft, as actual temporary impacts on crop/tree including details of Affected Persons (AP) shall be ascertained during check survey and tower spotting once the construction contractor is mobilized for implementation. DPN/ POWERGRID¹ provide compensation for actual damages after assessment by revenue authority. Check survey is done progressively during the construction of the transmission/distribution line. Normally the work is done in off season when there is no standing crop. The compensation for damage is assessed in actual after construction activities of transmission/distribution lines in three stages i.e. after completion of foundation, tower erection and stringing of conductor. The payment of compensation may also be paid in three instances, if there are different damages during all the above three stages. Assessment of damages at each stage and subsequent payment of compensation is a continuous process. Hence, CPTD updating will also be a continuous process during construction and updated data on APs shall be disclosed through semi-annual E & S monitoring report submitted by DPN /POWERGRID.

¹ For the purpose of CPTD, DPN and POWERGRID may be referred as SPCU and PPIU respectively. For further details, please refer Chapter - VII Institutional arrangements.

iii. The project components under the scope of present CPTD include following transmission/ distribution lines and associated substations;

A. Transmission Components:

1. 220 KV S/C (On D/C Tower) New Kohima-Mokokchung via Wokha- 86.637 km.
2. 132 KV D/C New Kohima (Zhadima) to New Secretariat Complex (NU campus)- 13.97 km.
3. 132 kV S/C (on D/C tower) Wokha-Zunheboto-Mokokchung- 50.29 km.
4. LILO of 132kV S/C Mokokchung-Mariani at Longnak- 0.80 km.
5. LILO of both ckts of 132kV D/C Kohima-Meluri(kiphire)line at Pfutsero- 2.41 km.
6. LILO of 132kV S/C Kohima-Wokha at new Kohima- 9.21 km.
7. Establishment of 132/33kV Longnak (New) S/S
8. Establishment of 132/33kV Zunheboto (New) S/S
9. Establishment of 132/33kV Sect. Complex Kohima (New) S/S
10. Establishment of 132/33kV Pfutsero (New) S/S
11. Bay Extn. at Mokokchung (state)S/S
12. Bay Extn. at 220 kV Mokokchung (PG) GIS S/S
13. Bay Extn. at 220/132/33 kV New Kohima S/S Extn.
14. Bay Extn. at 132/33 kV Wokha S/S Extn.

B. Distribution Components:

1. Existing 33 kV Mokokchung -Mariani line to prop. 33/11 kV Longtho S/s- 0.12 km.
2. LILO of existing 33kv Mok- Mariani line at Exit. 33/11kV Longnak S/s-0.198 km
3. Existing 66/33kV Mokokchung S/s to New 33/11kV s/s Mokokchung Town Power House-9 km.
4. Existing 66/33kV Mokokchung S/s to New 33/11kV s/s Mokokchung Town Hospital Area- 3 km.
5. New 132/33kV Zunheboto S/s to New 33/11kV s/s Zunheboto South Point- 5.53km.
6. Existing 33/11kV Suruhuto S/s to Exist. 33/11kV s/s Akuloto- 23.29km.
7. Existing 33/11kV Pughoboto S/s to Exist. 33/11kV s/s Torogonyu- 2.27km.
8. 132/33kV Kohima (New) s/s to 33/11kV Zhadima- 0.54km.
9. New 132/33kV Pfutsero s/s to New 33/11kV Pfutsero- 3.6km.
10. Existing 132/66/33kV Nagarjan s/s to New 33/11kV s/s Padam Pukhri- 6.15km.
11. Establishment of 33/11 kV substation at Longtho
12. Establishment of 33/11 kV substation at Mokokchung (Power House)
13. Establishment of 33/11 kV substation at Mokokchung (Hospital Area)
14. Establishment of 33/11 kV substation at Zunheboto South Point
15. Establishment of 33/11 kV substation at Lalmati (Zubza)

16. Establishment of 33/11 kV substation at Zhadima (Chiephobozou)
17. Establishment of 33/11 kV substation at Pfutsero
18. Establishment of 33/11 kV substation at Padampukhri
19. Establishment of 33/11 kV substation at Tizit
20. Bay Extn. at 33/11 kV s/s at Longnak
21. Bay Extn. at 132/66/33kV s/s at Nagarjan.

iv. As per existing law, land for tower/pole and right of way is not acquired² and agricultural activities are allowed to continue after construction activity. Land requirements for erecting tower/poles for transmission/ distribution lines are just minimal and require placing of 4 legs which needs an area of 4-6 sq- ft. Thereby, the actual impact is restricted to 4 legs of the tower. Further, line alignments are done in such a way so as to avoid settlements and / or structures. Hence no relocation of affected persons on account of Transmission Line (TL)/Distribution Line (DL) is envisaged. Most of the impacts are temporary in nature in terms of loss of standing crops/trees and other damages for which compensation will be paid to the affected persons including cost of land for tower base area to its owner without acquisition or transfer of title as per provisions of law and Entitlement matrix defined in ESPPF.

v. For the temporary loss of crops, only agricultural land and private plantation land are considered for estimation. Though Right of Way (RoW) for 220kV, 132 kV & 33 kV line are 35 meter, 27 meter & 15 meter respectively but average affected width/corridor would be limited to maximum 30 meter for 220kV, 20 meter for 132 kV & 10 meter for 33 kV line. Accordingly, actual impacted area for crops and other damages worked out to be approx. 1056.99 acres. Total number of trees likely to be affected is 16096 excluding 5100 bamboo during construction of line. Private trees will be compensated in cash as per the entitlement matrix. The total number of affected persons is estimated to be 1149.

vi. Public participation and community consultations have been taken up as an integral part of the project's social and environmental assessment process. Public is informed about the project at every stage of execution. During survey also DPN & POWERGRID's site officials meet people and inform them about the routing of transmission/ distribution line. During the construction, every individual, on whose land tower is erected and people affected by RoW, are consulted. There were many informal group and public consultation meetings conducted during survey of the entire routes of transmission/distribution lines and substation site. The process of such consultation will be

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

continued during project implementation and even during Operation & Maintenance (O&M) stage. The draft/summary CPTD will be disclosed to the affected households and other stakeholders by placing it on website. To maintain the uninterrupted communication channel, DPN & POWERGRID's site/field officials are meeting APs and inform about the norms and practices of damage assessment and compensation thereof. For wider circulation, executive summary of the CPTD and Entitlement Matrix will be translated in local language and placed at construction offices/sites.

vii. Grievance Redress Mechanism (GRM) is an integral part of project implementation, operation and maintenance stage of the project. For handling grievance, Grievance Redress Committee (GRC) has been established at two places, one at the project/scheme level and another at corporate/head quarter level. The GRCs include members from Department of Power, POWERGRID, Local Administration, Village Council Members, Affected Persons representative and reputed persons from the society and representative from the autonomous districts council in case of tribal districts selected/decided on nomination basis under the chairmanship of project head. The composition of GRC disclosed in Panchayat/village council office and concerned district headquarter for wider coverage. In case of any complaint, GRC meeting shall be convened within 15 days. If project level GRC is not able to take decision it may refer the complaint to corporate GRC for solution. GRC endeavors to pronounce its decision within 30-45 days of receiving grievances. In case complainant/appellant is not satisfied with the decision of project level GRC they can make an appeal to corporate GRC for review. The proposed mechanism does not impede access to the country's judicial or administrative remedies at any stage. Further, grievance redressal is also inbuilt in the tree/crop compensation process where affected persons are given a chance to place their grievances after issuance of notice by revenue officials on the basis of assessment of actual damages. Grievances received towards compensation are generally addressed in open forum and in the presence of many witnesses. Process of spot verification and random checking by the district collector also provides forum for raising the grievance towards any irregularity/complaint.

viii. The CPTD is based on the DPN's ESPPF. Being a transmission project, the relevant national laws applicable for this project are (i) The Electricity Act, 2003 and (ii) The Indian Telegraph Act, 1885. The compensation principles adopted for the project shall comply with applicable laws and regulations of the Governments of India, DPN's ESPPF as well as World Bank Safeguard Policies.

ix. APs will be entitled for compensation for temporary damages to crops/trees/structures etc.

as per the Entitlement Matrix (EM) given in **E-1**. Temporary damage will occur during construction of transmission/distribution lines for which compensation is paid as per eligibility criteria of EM and other applicable norms. All APs are paid compensation for actual damages irrespective of their religion, caste and their economic status including non-title holders. However, vulnerable households are provided additional one time lump sum assistance on recommendation of State/ local Authority. As per the policy provision construction contractors shall be encouraged to hire local labor that has necessary skills.

E-1: Entitlement Matrix

Sl.	Type of Issue/ Impact	Beneficiary	Entitlement Options
1.	Land area below tower base (#)	Owner	100% land cost at market value as ascertained by revenue authorities or based on negotiated settlement without actual acquisition/title transfer.
2.	Loss/damage to crops and trees in line corridor	Owner/ Tenant/ sharecropper/ leaseholder	Compensation to actual cultivator at market rate for crops and 8 years income for fruit bearing trees*. APs will be given advance notice to harvest their crops. All timber* will be allowed to retain by the owner.
3.	Other damages (if applicable)	All APs	Actual cost as assessed by the concerned authority.
4.	Loss of structure		
(i)	House	Titleholders	Cash compensation at replacement cost (without deduction for salvaged material and depreciation value) plus Rs. 25,000/- assistance (based on prevailing GOI norms for weaker section housing) for construction of house plus transition benefits as per category-5 below.
(ii)	Shop/ Institutions/ Cattle shed	Individual/ Titleholders	Cash compensation plus Rs. 10000/- for construction of working shed/shop plus transition benefits as per category-5 below
(iii)	Losses during transition under (i) & (ii) above for Shifting / Transport	Family/unit	Provision of transport or equivalent cash for shifting of material/ cattle from existing place to alternate place

Sl.	Type of Issue/ Impact	Beneficiary	Entitlement Options
(iv)	Tribal/ Vulnerable APs	Vulnerable APs ³	One time additional lump sum assistance not exceeding 25% of total compensation on recommendation of State Authority/ADC/VC.

(#) As per decision taken by State Govt./DPN, only land compensation for tower base shall be paid as per prevailing practice.

* Assistance/help of Forest department for timber yielding trees and Horticulture department for fruit bearing trees shall be taken for assessing the true value.

x. Due to inherent flexibility in routing of line, no major damages to structures or physical displacement is envisaged in transmission/distribution line. Hence, there are no adverse impacts such as permanent loss of assets, livelihood loss or physical resettlement/relocation due to project intervention. However, in case it is completely unavoidable, compensation for structures as decided by committee based on government norms and entitlement matrix shall be provided. A notice for damage is issued to APs and the joint measurement by DNP/ POWERGRID and APs is carried out before start of construction and same is assessed and verified by revenue official during/ after construction for estimation of compensation against actual damages. Hence, compensation is paid in parallel with the construction activity of transmission/distribution line. The cost estimate for the project includes eligible compensation for loss of crops, trees, and support cost for implementation of CPTD, monitoring, other administrative cost etc. The budget estimation presented in CPTD is tentative and may get revised during the course of implementation. The total indicative cost is estimated to be INR **1038.116** Lakhs equivalent to USD 1.599 million.

xi. The implementation and monitoring are critical activities which shall be followed as per Implementation Chart/Schedule provided in Chapter-X. POWERGRID will be the Implementing Agency (IA) for the Project. For the day to day implementation of Project activities, PMC Project Implementation Units (PPIUs) located in each participating State, has been formed including members of Utility on deputation, with its personnel being distributed over work site & working in close association with the State Project Coordination Unit (SPCU) / Central Project Implementation Unit (CPIU). PPIU 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.

³ Vulnerable APs include scheduled tribes residing in scheduled areas/ physically handicapped/ disabled families etc.

xii. Monitoring is the responsibility of both DPN / POWERGRID and will submit semi-annual monitoring reports on their implementation performance to The World Bank. If required, DPN/ POWERGRID will engage the services of an independent agency/external monitoring for which necessary provisions have been kept in the budget.

I. INTRODUCTION AND PROJECT DESCRIPTION

1.1. Project Background

1. Recognizing that intrastate T&D systems in the North Eastern States (NER) states have remained very weak and that there is a critical need to improve the performance of these networks, the Central Electricity Authority (CEA) developed a comprehensive scheme for the NER in consultation with POWERGRID and the concerned state governments. This scheme is intended to (a) augment the existing T&D infrastructure to improve the reliability of service delivery across all the NER states and (b) build institutional capacity of the power utilities and departments in the NER. This scheme is part of the GoI's wider efforts to develop energy resources in the NER for electricity supply within the region, to strengthen transmission networks, expand and strengthen sub-transmission systems, and extend last mile electricity connectivity to household.

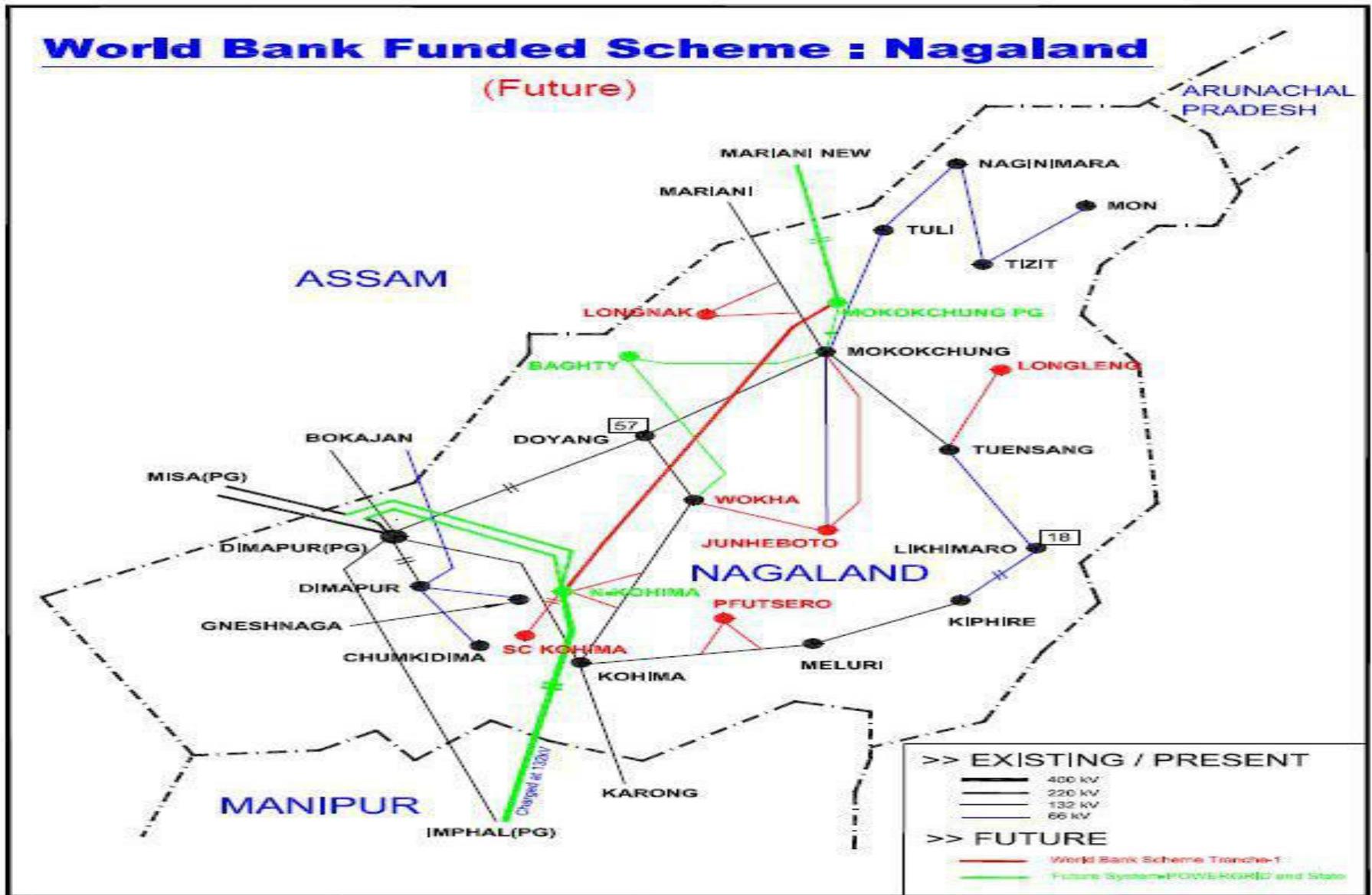
2. GoI requested for World Bank's support in implementing a set of priority investments in six NER States. In 2016, the World Bank (WB) has approved a loan (IBRD 470 USD Million) to the Government of India (GoI) for North Eastern Region Power System Improvement Project (NERPSIP) which aims to create a robust intrastate transmission and distribution network in all the six (6) North Eastern States including Nagaland. The project being funded on 50:50 (World Bank loan: GoI) basis except the component of capacity building for Rs.89 crore, which GoI will bear entirely. The scheme is to be taken up under a new Central Sector Plan Scheme of MoP.

3. Ministry of Power, GoI has appointed POWERGRID as Implementing Agency (IA) to six North Eastern States for the said project. However, the ownership of the assets shall be with the respective State Utilities/State Government which upon progressive commissioning shall be handed over to them for taking care of Operation and Maintenance of assets.

4. The project will be implemented over a seven-year period and has two components, namely Component A: Priority Investments for Strengthening Intrastate Transmission, Sub-transmission, and Distribution Systems, and Component B: Technical Assistance for Capacity Building and Institutional Strengthening (CBIS) of Power Utilities and Departments of Participating States.

5. The scope of work under NERPSIP in state of Nagaland include construction of 265 km of 220/132 kV transmission lines & associated 10 nos. new substations & Extn. Aug. Substation and 76 ckm of 33 kV distribution lines & 29 nos. substation along with augmentation & strengthening of transmission and distribution system spread across the State. The power map of Nagaland indicating the existing intra-state transmission network along with proposed project under Tranche-1 of NERPSIP is presented in **Figure 1.1**.

Figure 1.1 : Power Map of Nagaland along with proposed project



1.2. Project Components

6. The project components under the scope of present CPTD include following transmission/ distribution lines and associated Extra High Voltage (EHV) & Distribution substations proposed in Mokokchung, Kohima, Phek, Zunheboto, Dimapur, Phek, Mon, Districts of Nagaland State;

A. Transmission System:

1. 220 KV S/C (On D/C Tower) New Kohima-Mokokchung via Wokha- 86.63 km.
2. 132 KV D/C New Kohima (Zhadima) to New Secretariat Complex (NU campus)- 13.97 km.
3. 132 kV S/C (on D/C tower) Wokha-Zunheboto-Mokokchung- 50.29 km.
4. LILO of 132kV S/C Mokokchung-Mariani at Longnak- 0.80 km.
5. LILO of both ckts of 132kV D/C Kohima-Meluri(kiphire)line at Pfutsero- 2.41 km.
6. LILO of 132kV S/C Kohima-Wokha at new Kohima- 9.21 km.
7. Establishment of 132/33kV Longnak (New) S/S
8. Establishment of 132/33kV Zunheboto (New) S/S
9. Establishment of 132/33kV Sect. Complex Kohima (New) S/S
10. Establishment of 132/33kV Pfutsero (New) S/S
11. Bay Extn. at Mokokchung (state)S/S
12. Bay Extn. at 220 kV Mokokchung (PG) GIS S/S
13. Bay Extn. at 220/132/33 kV New Kohima S/S Extn.
14. Bay Extn. at 132/33 kV Wokha S/S Extn.

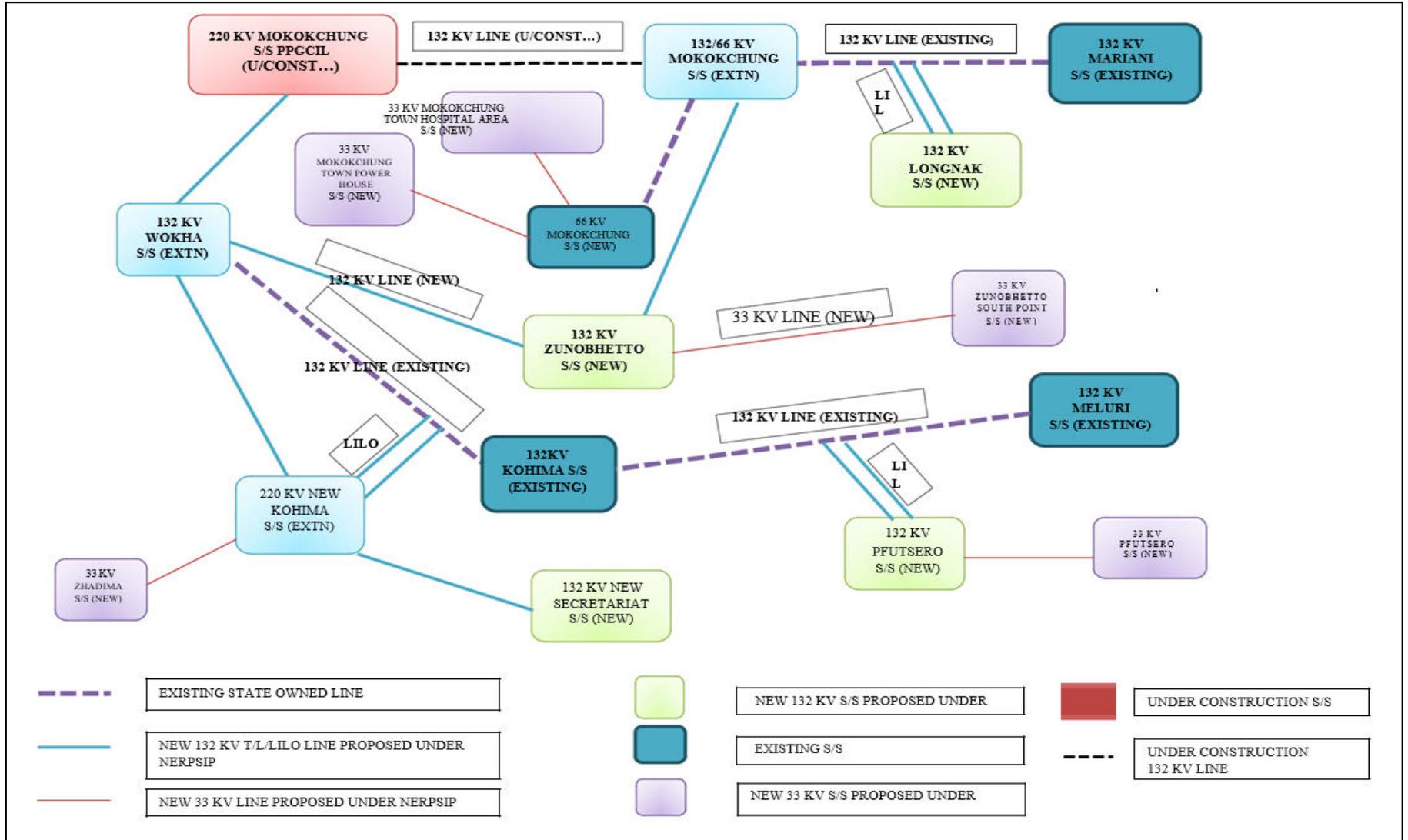
B. Distribution System:

1. Existing 33 kV Mokokchung -Mariani line to prop. 33/11 kV Longtho S/s- 0.12 km.
2. LILO of existing 33 kV Mokokchung - Mariani line at Exit. 33/11kV Longnak S/s- 0.198 km
3. Existing 66/33kV Mokokchung S/s to New 33/11kV S/s Mokokchung Town Power House-9 km.
4. Existing 66/33kV Mokokchung S/s to New 33/11kV/s Mokokchung Town Hospital Area- 3 km.
5. New 132/33kV Zunheboto S/s to New 33/11kV s/s Zunheboto South Point- 5.53km.
6. Existing 33/11kV Suruhuto S/s to Exist. 33/11kV s/s Akuloto- 23.29km.
7. Existing 33/11kV Pughoboto S/s to Exist. 33/11kV s/s Torogonyu- 2.27km.
8. 132/33kV Kohima (New) s/s to 33/11kV Zhadima- 0.54km.
9. New 132/33kV Pfutsero s/s to New 33/11kV Pfutsero- 3.6km.
10. Existing 132/66/33kV Nagarjan s/s to New 33/11kV s/s Padam Pukhri- 6.15km.
11. Establishment of 33/11 kV substation at Longtho

12. Establishment of 33/11 kV substation at Mokokchung (Power House)
13. Establishment of 33/11 kV substation at Mokokchung (Hospital Area)
14. Establishment of 33/11 kV substation at Zunheboto South Point
15. Establishment of 33/11 kV substation at Lalmati (Zubza)
16. Establishment of 33/11 kV substation at Zhadima (Chiephobozou)
17. Establishment of 33/11 kV substation at Pfutsero
18. Establishment of 33/11 kV substation at Padampukhri
19. Establishment of 33/11 kV substation at Tizit
20. Bay Extn. at 33/11 kV s/s at Longnak

7. The schematic diagram of proposed transmission and distribution network under NERPSIP Trench-1 of Nagaland in Mokokchung, Kohima, Phek, Zunheboto, Dimapur, Phek, Mon, Districts are shown below:

Figure 1. 2 : Proposed T & D Network in Mokokchung, Kohima, Phek, Zunheboto, Dimapur, Phek, Mon, Districts under NERPSIP



1.3 Objective of Compensation Plan for Temporary Damages (CPTD)

8. The primary objective of the CPTD is to identify impacts/damages and to plan measures to mitigate losses likely to be caused by the projects. The CPTD is based on the general findings of field visits, detailed survey and meetings with various project-affected persons in the project areas. The CPTD report include (i) introduction and project description (ii) socio-economic information and profile (iii) legal & regulatory framework (iv) project impacts,(v) entitlement, assistance and benefit (vi) information disclosure, consultation and participation (vii) institutional arrangements (viii) grievance redress mechanism (ix) budget (x) implementation schedule & (xi) monitoring and reporting.

1.4. Scope and Limitation of the CPTD

9. Based on the assessment of proposed project components and intervention as well as provisions of existing law/ regulations, it has been established that no permanent land acquisition is involved and only temporary impacts on land and loss of standing crops/trees are anticipated. The present CPTD has been prepared based on the detailed survey/ investigation. However, the temporary impacts on land and loss of crops/trees occurred only during the project implementation/construction. Therefore, the CPTD remains as draft, as actual temporary impacts on crop/tree including details of Affected Persons (AP) shall be ascertained during check survey and tower spotting once the construction contractor is mobilized for implementation. DPN/ POWERGRID⁴ provide compensation for actual damages after assessment by revenue authority. Check survey is done progressively during the construction of the transmission/distribution line. Normally the work is done in off season when there is no standing crop. The compensation for damage is assessed in actual after construction activities of transmission/distribution lines in three stages i.e. after completion of foundation, tower erection and stringing of conductor. The payment of compensation shall be paid in three instances, if there are different damages during above all the three activities. Assessment of damages at each stage and subsequent payment of compensation is a continuous process. Hence, CPTD updating will also be a continuous process during construction and updated data on APs shall be disclosed through semi-annual E & S monitoring report submitted by DPN/POWERGRID.

1.5. Measures to Minimize Impact

⁴ For the purpose of CPTD, DPN and POWERGRID may be referred as SPCU and PPIU respectively. For further details, please refer Chapter - VII Institutional arrangements.

7. In keeping with provisions of ESPPF and Bank's Safeguard Policies, DPN/ POWERGRID has selected and finalised the routes of transmission line with due consideration of the avoidance or minimization to the extent possible and same principles shall be followed during construction stages of project to further restrict the possibility of temporary damages on crops/ trees/ structures etc. in the Right of Way (RoW). Similarly, the route of distribution lines are mostly selected /finalized along the existing roads (PWD roads/Village roads etc.) involving minimum habituated areas and also through barren lands wherever possible. Regular field visits and public consultations helped in developing the measures for further minimizing the possible social impacts.

10. For transmission/distribution line there is no permanent land acquisition involved as per applicable legal framework i.e. in exercise of the powers under Indian Telegraph Act-1885, Part 3, section 10 to 16 conferred under section 164 of the Electricity Act, 2003 through Department of Power, Govt. of Nagaland vide notification dated 16th April, 2016, DPN has the mandate to place and maintain transmission lines under/ over/ along or across and posts in or upon, any immovable property. However, clause 10 (d) of same act stipulates that the user agency shall pay full compensation to all interested for any damages sustained during the execution of said work. Therefore, DPN/ POWERGRID have developed a procedure which is designed to minimize impacts, during the preliminary survey/ investigation (for screening & scoping of the project with at least 3 alternative route alignments), thereafter during detailed survey (spot)/design followed by foundation work, tower erection and during the stringing of conductors.

11. All tower foundations and tower footings are dug and laid, including transportation of material and land clearance, generally at the end of a crop season to avoid impacts on cultivations and need for compensation. After construction of transmission towers, farmers are allowed to continue agricultural activity below tower.

12. Because the concrete needs time to dry and settle, all towers are erected normally three weeks after casting of foundation. Thus, both foundation and erection works are generally completed in one gap between two crop seasons.

13. Given the limited time needed for the stringing, the latter can be done right after the tower construction, before the following crop season.

14. For this reason no household is significantly affected due to the project. Thus, productive loss due to construction is negligible. However, due care shall be taken to avoid damages to

crop/trees by taking up the construction activities during lean period or post-harvest season. As per the prevailing norms farming activity shall be allowed after the construction work is completed. All affected farmers will be compensated for all sorts of damages during construction as per the laid down procedure.

1.6. Route Selection and Study of Alternatives

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

- (i) The route of the proposed transmission/distribution lines does not involve any human displacement/rehabilitation.
- (ii) Any monument of cultural or historical importance is not affected by the route of the transmission/distribution line.
- (iii) The proposed line route does not create any threat to the survival of any community with special reference to Tribal Community.
- (iv) The proposed line route 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.

16. In order to achieve this, DPN/POWERGRID undertakes route selection for individual line in close consultation with representatives of concerned Forest Department and the Department of Revenue. Although under the law, DPN have the right of eminent domain yet alternative alignments are considered, keeping in mind, the above-mentioned factors during site selection, with minor alterations often added to avoid environmentally sensitive areas and settlements at execution stage.

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

17. In addition, care is also taken to avoid National Parks and Wildlife Sanctuaries and any other forest area rich in wildlife. Keeping above in mind the route of proposed lines have been so

aligned that it takes care of above factors. As such different alternatives were studied with the help of Govt. published data like Forest atlas, Survey of India topo maps, satellite imageries etc. to arrive at most optimum sections of the route which can be taken up for detailed survey and assessment of environmental & social impacts for their proper management.

18. The comparative details of three alternatives in respect of proposed lines are presented in **Annexure-1**.

II. SOCIOECONOMIC INFORMATION AND PROFILE

2.1. General

19. The socio-economic profile of the project area is based on general information collected from various secondary sources. As the assets of any sorts will not be acquired but for temporary damage to crops/trees or any other structures adequate compensation as per norms shall be paid to all APs. This chapter provides broad socio-economic profile in terms of demography, literacy, employment and other infrastructure etc. in the State of Nagaland and Mokokchung, Kohima, Phek, Zunheboto, Dimapur, Phek, Mon, districts in particular through which the various lines will traverse. Following section briefly discuss socio-economic profile.

2.2. Socio-Economic Profile

2.2.1. Land Use Pattern Nagaland

20. Nagaland is situated in the north-eastern part of India sharing international border with Myanmar. It lies between latitudes of 25°6' N and 27°4' N and the longitudes of 93°20' E and 95°15' E and has geographical area of 16,579 sq km. Nagaland consists of a narrow strip of hilly area running northeast to southwest which is located in the northern extension of the Arakan Yoma ranges. The altitude ranges from 194 m to 3,826 m. The general land use pattern of the state is given in **Table-2.1**.

Table-2.1 Land use Pattern

Land Use	Area in '000 ha	Percentage
Total geographical area	1,658	
Reporting area for land utilization	1,644	100.00
Forests	863	52.51
Not available for cultivation	95	05.78
Permanent pastures and other grazing lands	00	00.00
Land under misc. tree crops & groves	92	05.61
Culturable wasteland	67	04.08
Fallow lands other than current fallows	98	05.98
Current Fallows	49	02.99
Net area sown	379	23.05

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

Kohima district is located between 25°40'N - 25.67°N latitude and 94°07'E - 94.120E longitude. It has an average elevation of 1261 meter (4137 feet). Kohima has the advantage of being

centrally located - being bounded by the state of Assam on the west, Wokha district on the north, Zunheboto and Phek districts on the east and Manipur state on the south. Total Geographical area of the district is 1595 Sq.km.

Mokokchung is located between 26°20'N - 26.33°N latitude and 94°32'E -94.53°E longitude at an elevation of 1325 meters above sea level. The District has a total Geographical Area of 1615 sq. km and is bounded by the state of Assam to its north, Tuensang to its east, Zunheboto to its south and Wokha and Assam to its west.

Phek is a district in the southeastern part of Nagaland located between 94°35'-94°38'E longitude and 25°37'-25°39'N latitude with a Geographical Area of 2026 sq km. It is bounded by Myanmar in the east, Zunheboto and Tuensang districts in the north, Manipur state in the south and Kohima district in the west.

The Wokha District is situated in the mid-western part of Nagaland State, adjacent to Sibsagar plain of the Assam State. It is bounded by Mokokchung District in the North, Kohima District in the South. Zunheboto District in the East and the State of the Assam in the West. The Wokha District is situated at a latitude of 26° '80' North and a longitude of 94° '18' East with a total Geographical Area of 1628 sq km.

Zunheboto district is located between 25°6'-26°4'N latitude and 93°20'-95°15'E longitude and is bounded by Phek in the south, Kohima and Wokha in the west, Mokokchung in the north and Tuensang and Kiphire in the east. It has total geographical area of 1255 sq km.

Dimapur district lies between 25°48'-26°00'N latitude and 93°30' - 93°54' E longitude. The district is bounded by Assam on its North and West, Kohima on the East and Peren District in the South. Total Geographical Area of the district is 927 sq km.

The District of Mon, which covers an area of 1786 Sq.km., is bounded on the North by Sibsagar District of Assam, on the South by Tuensang District of Nagaland and Myanmar (Burma), on the East by Myanmar (Burma) and on the West by Tuensang and Mokokchung Districts of Nagaland. On the Northeast lies the Tirap District of Arunachal Pradesh. The altitude of Mon district headquarters is 897.64 meters above sea level. The Coordinates of the district are 26°43' - 26°717'N and 95°02' - 95°33'E.

2.2.2 Climate

21. The climate of Nagaland has a wet climate with high humidity levels. Annual Rainfall varies from 175 cm to 250 cm with maximum rainfall occurring during months of June to September. Summer temperature varies from 16°C to 31°C, while the winter temperature varies from 4° C to 24° C. Strong North West winds blow through the state during the months of February and March.

Kohima features a more moderate version of a humid subtropical climate. Kohima has a pleasant and moderate climate - not too cold in winters and pleasant summers. December and January are the coldest months when frost occurs and in the higher altitudes, snowfall occurs occasionally. During peak summer months from July-August, temperature ranges an average of 80-90 Fahrenheit. Heavy rainfall occurs during summer.

Mokokchung has a mild climate throughout the year. For ten months of the year, maximum temperature hovers in the mid-twenties.

In Phek district summer is moderately warm and winter is cold. Monsoon sets in by the last week of May and retreats by the end of September.

Wokha district enjoys a monsoon climate, cold in winter and warmer in summer. In winter the night temperature is between 4° to 2° C. December and January are the coldest months. The average temperature in summer is approximately 27°C. Southwest monsoon set in the middle of June and continues up to the middle of September. The district received average annual rainfall of 2000 mm and rains for about six months in the year with greatest concentration in July and August.

Zunheboto district enjoys a monsoon climate almost throughout the year. Winters are very cold but summers moderately warm. December and January form the coldest part of the season with minimum temperature coming down to 10°C. The highest summer temperature is 22°C. The average rainfall is about 200 cm. It falls for nine months in a year, heaviest contribution being in July and August.

The climate of Dimapur is hot and humid in the plains during summer (reaching a maximum of 36°C, with humidity up to 93%) while the winter months are cool and pleasant. The average annual rainfall is 1504.7 mm.

The Mon District has a fairly moderate climate. Days are warm and nights are cool. Rainy season sets in the month of May and lasts till October. From November to April, the District has dry weather with relatively cool nights and bright and sunny days. The average relative humidity is 76 per cent and the average temperature is 24.4 degrees Celsius. The average annual rainfall ranges from 2000mm to 3000mm, mostly occurring between May and October.

2.2.3 Minerals:

22. The state is rich in mineral resources such as coal, limestone, iron, nickel, cobalt, chromium, and marble. Nagaland has a recoverable reserve of limestone of 1,000 million tonnes plus a large untapped resource of marble and handicraft stone. Important mineral occurrences in the State are coal in Borjan, Jhanzi-Disai, Tiesang and Tiru Valley Coalfields; iron ore (magnetite), cobalt and nickeliferous chromite in Tuensang district; and limestone in Phek and Tuensang districts.

2.2.4 Soils:

23. The soil of Nagaland is an important part of the topography and the geography of Nagaland. The systematic survey and classification of soils in Nagaland has facilitated extensive crop cultivation in the state. Major types of soil in the state are: a) Inceptisols b) Entisols c) Alfisols d) Ultisols. Inceptisols is the most important type of soil that covers about 66 percent of the land area of Nagaland. These soil types are predominant near the river beds. About 23.8 percent of the land area of Nagaland is enveloped by the Utisols. The soil is characterized by its low base saturation feature. This soil type is found in different regions of the state and is prevalent mostly in the forested regions of the state which receive a high amount of rainfall. The texture of the soil remains clayey. Entisols cover 7.3 percent of the land area and is found mainly in the north and the north eastern parts of the state of Nagaland. The light colored and mineral rich, Alfisols cover a meager 2.9 percent of the land area of the state of Nagaland. The fine loamy and the fine drained class of soil texture occur in the western extremity of the state near its border with Assam.

2.2.5 Water Resources:

24. Nagaland has a number of seasonal and perennial rivers and rivulets. The major rivers of Nagaland include Doyang, Dikhu, Dhansiri, Tizu, Tsurong, Nanung, Tsurang or Disai, Tsumok, Menung, Dzu, Langlong, Zunki, Likimro, Lanye, Dzuza and Manglu. All these rivers are dendritic in nature. While Dhansiri, Doyang and Dikhu flow westward into the Brahmaputra, the Tizu River,

on the other hand, flows towards east and joins the Chindwin River in Burma. The main rivers flowing through project districts are given below:

Sl.	Name of the district	Name of the River
1	Kohima	Doyang, Nzhu
2	Mokokchung	Melak, Dikhu, Tsurang
3	Phek	Tizu, Lanye, Sedzu
4	Wokha	Doyang, Chubi, Nzhu
5	Zunheboto	Tizu, Doyang, Tsutha
6	Dimapur	Dhansiri
7	Mon	Dikhu, Yamon, Yityong, Kaimang, Tapi, Pongma, Tehok

However, the subprojects covered under instant scheme have no major river crossings and thus do not have any impact on these water bodies.

2.2.6. Ecological Resources:

25. The recorded forest area of the state is 9,222 sq km which is 55.62% of its geographical area. The Reserved Forests constitute 0.93%, Protected Forests 5.51% and Unclassed Forests constitute 93.56%. Forest Map of Nagaland is enclosed as **Map-1**. The state has seven forest types as per Champion & Seth Classification, belonging to six forest type groups, viz. Tropical Wet Evergreen, Tropical Semi-evergreen, Tropical Moist Deciduous, Subtropical Broadleaved Hill, Subtropical Pine and Montane Wet Temperate Forests. The details of forest cover of sub-project districts are given below:

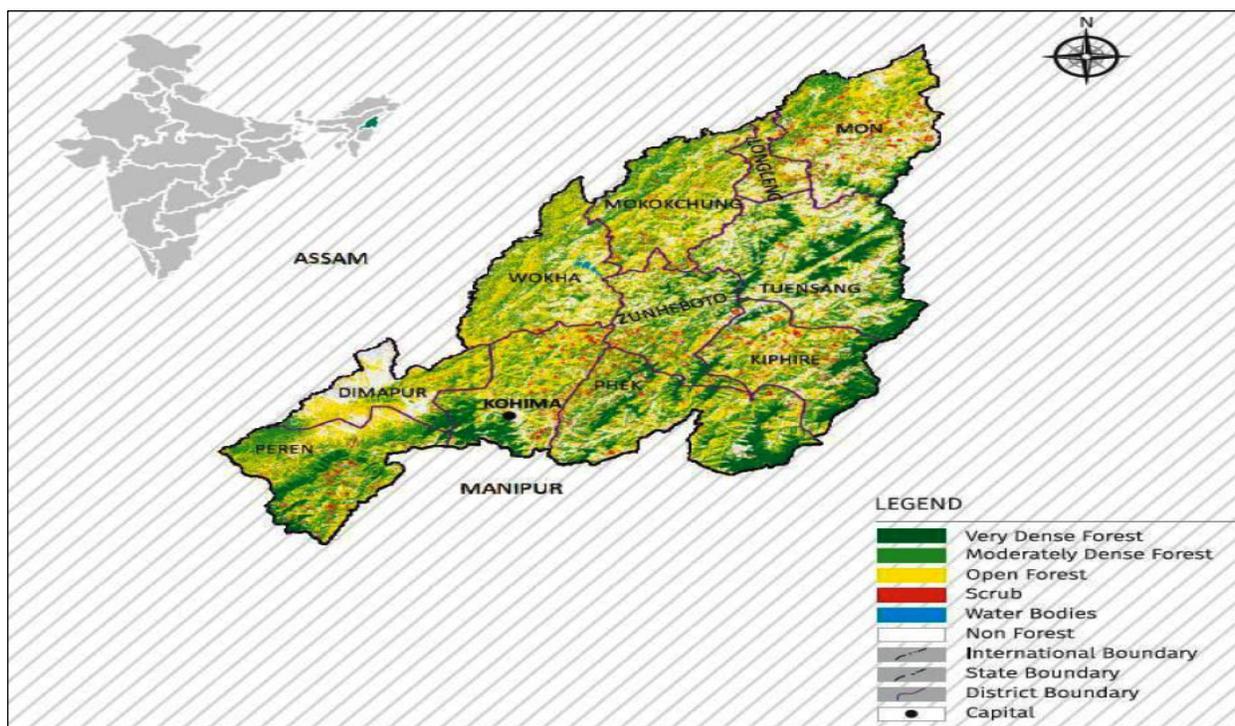
District	Geographic area	2013 Assessment (Area in Sq. km)				Total	% Forest cover
		Very Dense forest	Mod Dense forest	Open forest			
Kohima	3283	289	1136	1472	2897	88.24	
Peren							
Mokokchung	1615	6	519	835	1360	84.21	
Phek	2026	276	652	764	1692	83.51	
Wokha	1628	1	491	862	1354	83.17	
Zunheboto	1255	85	385	515	985	78.49	
Dimapur	758	0	75	325	427	56.33	
Mon	1786	32	451	720	1203	67.36	

Note: Peren district was carved out of Kohima district in year 2004

2.2.7 Forests and Protected Areas:

26. Forest cover constitutes 78.68 % of the total area of this State. The State is endowed with

wide range of flora and fauna due to the favourable climate and topography. The recorded forest cover of Nagaland is 13,044 sq. km. Above 90% of the forest of Nagaland is governed by private (individual or communities). These forests are mainly individual forest, village forest, group of village forests, restricted forest, sacred forests etc. Village committee or village council manages and protects these forests. GoN vide Notification No. FOR-58/82 dated 03-07-1986 has limited the application of the Forest Conservation Act to these forest lands. The act, however, does not apply to other forest areas so the compensatory afforestation is not required in private, community or individual forest.



Map-1- Forest Map of Nagaland

27. Even though the state has 78.68 % of the area under forest cover, there are four protected areas in the State (for details refer Table-1). There are also nine Important Bird Area (IBA) sites and 421 wetlands in the state. The Doyang reservoir is one of the important wetlands in the state.

Protected Area Network in Nagaland

Sl. No.	National Park/ WL	Area (sq. km.)	District	Important Habitats
1	Intanki National Park	202.02	Peren	White-winged Duck, Rufous-necked Hornbill, Grey Sibia, common pheasant and black star
2	Fakim Wildlife	6.4	Kiphire	Blyth's Tragopan, Hume's Pheasant, Rufous-

	Sanctuary			necked Hornbill, Grey Sibia
3	Puliebadze Wildlife Sanctuary	9.23	Kohima	Blyth's Tragopan, Chevron-breasted Babbler, Dark-rumped Swift, Striped Laughingthrush, Brown-capped Laughingthrush, Streak-throated Barwing, Grey Sibia, White-naped Yuhina
4	Rangapahar Wildlife Sanctuary	4.7	Dimapur	Sambar Deer, Spotted Deer and Barking Deer.

2.2.8. Wetland:

28. The state of Nagaland has a total wetland area of 21544 Ha, which is 1.3% of total geographic area of the State. Total number of wetlands present in the State is 421, including 267 small wetlands, however, none of the wetlands is in the Ramsar list. Doyang Lake, Chathe Reservoir, Shilloi Lake and parts of Tizu river are important wetlands of the State. The details of wetland area of sub-project districts are given below:

Sr. No.	District	Total Geographic Area (Ha)	Wetland Area (Ha)	% of Geographic Area
1	Kohima	132176	1173	0.89
2	Mokokchung	160504	1747	1.09
3	Phek	202600	2414	1.19
4	Wokha	161782	2946	1.82
5	Zunheboto	125500	2258	1.8
6	Dimapur	92700	2013	2.17
7	Mon	216188	2820	1.30

Source: National Wetland Atlas

2.2.9 Human and Economic Development:

29. The Gross State Domestic Product (GSDP) of Nagaland was about ₹ 12065 crore (US\$2.0 billion) in 2011-12. Nagaland's GSDP grew at 9.9% compounded annually for a decade, thus more than doubling the per capita income. Nagaland has a high literacy rate of 80.1 per cent. Majority of the population in the state speaks English, which is the official language of the state. The state offers technical and medical education. Nevertheless, agriculture and forestry contribute majority of Nagaland's Gross Domestic Product. Most of state's population, about 68 per cent of the total, depends on rural cultivation. The main crops of the state are rice, millet, maize, and pulses. Cash crops, like sugarcane and potato, are also grown in some parts. Plantation crops such as premium coffee, cardamom, and tea are grown in hilly areas in small quantities, but a large growth potential. Most people cultivate rice as it is the main staple diet of the people. About 80% of the cropped area is dedicated to rice. Oilseeds is another, higher

income crop gaining ground in Nagaland. The farm productivity for all crops is low, compared to other Indian states, suggesting significant opportunity for farmer income increase. Currently the Jhum to Terraced cultivation ratio is 4:3; where Jhum is local name for cut-and-burn shift farming. Jhum farming is ancient, causes a lot of pollution and soil damage, yet accounts for majority of farmed area. The state does not produce enough food, and depends on trade of food from others states of India. Forestry is also an important source of income. Cottage industries such as weaving, woodwork, and pottery are also an important source of revenue. Tourism has a lot of potential, but largely limited due to insurgency and concern of violence over the last five decades. Nagaland's gross state domestic product for 2004 is estimated at \$1.4 billion in current prices.

The main indigenous inhabitants of Kohima District are the Angami Nagas and the Rengma Nagas. But Kohima being the capital city, has a cosmopolitan appearance. As of 2011 Census, Kohima district has a population of 270,063. Out of this, male population numbers 140,118 while females number around 129,945. Kohima has an average literacy rate of 85.58%, higher than the national average of 74.04 %: male literacy is 89.28 % and female literacy is 81.56 %. Though some minerals like sand, sandstone, boulder stone etc have been reported from the district, there are no large scales or Public Sector Industries are located in the district. Total number of registered industrial units in the district is 204, which are micro enterprises.

Mokokchung is the cultural center and is economically and politically the most important urban centre in Northern Nagaland. According to the 2011 census, Mokokchung district has a population of 1,93,171 and a sex ratio of 927 females for every 1000 males. The district enjoys a high literacy rate of 92.68 %. Agriculture is the main source of livelihood in the district with a total cultivable area of 18433 Ha. Rice, Tuber, Maize, Soyabean and Mustard the main crops while Tea and Orange are the main cash crops. Total number of registered Industrial units in the district is 95, while number of medium and large industrial units is 6.

Phek district is the home to Chakhesangs and Pochurys tribes of Nagas. The district has a population of 163,294 with a population density of 81 people/sq km. Phek has a sex ratio of 951 females for every 1000 males and a literacy rate of 79.13. %. Agriculture is the main occupation with 80.84% of the population depending on it for livelihood. Terrace Rice Cultivation (TRC) is widely practiced. Besides agriculture, some allied activities like salt making, weaving, bamboo and wood carving and fruit juice making also give employment to a part of the population. Total

number of registered industrial units in the district is 22, while there is only one registered medium and large scale industrial unit.

Wokha district is primarily inhabited by Lothas tribe of Nagas. Total population of the district is 161098 with a population density of 99/sq km. The sex ratio of the district is 927 females per 1000 males. Cultivation is one of the main occupations of the people of this district with more than 80 per cent of the people depending on it for livelihood. Jhum type of cultivation is widely practiced. The other form of cultivation is terrace, which is done in a small area. But as a result of Govt. efforts, the area under terrace is increasing. Number of registered industrial units in the district is 250, all of which are small scale industries. Weaving, Poultry, Blacksmith, Carpentry and handicrafts are the main cottage industries of the district.

Zunheboto district is the home of the Sumi Nagas. According to the 2011 census Zunheboto district has a population of 1,41,014 with a sex ratio of 981 females for every 1000 males. The district has a healthy literacy rate of 86.26 %. Agriculture is the main stay of people's livelihood. Both Jhum and Terrace cultivation are practiced. Paddy, Millet, Maize, Taro, French bean, potato, pumkin, cucumber, chilly and several varieties of gourd are mainly grown. Total number of registered industrial units in the state is 95, all of which are small scale industries.

Dimapur is one of the main commercial hubs of Nagaland and is referred as Gateway to Nagaland and Manipur. According to 2011 census, the district has a population of 379769 with a population density of 409 per sq. km. The sex ratio of the district is 919 females for 1000 males. The district enjoys a good literacy rate of around 84.79%. The agriculture in the district is TRC, rain fed and traditional. By and large mono cropping is practiced in the district. The TRC paddy alone covers an area of 32,900 ha whereas Jhum covers about 7,800 ha. The second important crop in the district is Maize, which covers about 2500 ha. Important Pulses such as pea, lentil, black gram, beans, green gram, arhar and oilseeds such as groundnut, soybean, sesame, sunflower, mustard, linseed, etc. are also grown in the district. Commercially viable crops such as sugarcane, ginger, jute, turmeric, tea, potato etc. are also grown in the district covering an area of 1,580 ha. Number of registered industrial units belonging to MSE sectors is 575, while registered industrial units belonging to Medium and large scale is 12.

Mon district's main inhabitants belong to Konyak tribe of Nagas. According to 2011 census, the total population of the district is 250671, with a population density of 140. The sex ratio of the

district is 898 females for 1000 males. The district has a literacy rate of 56.60%, which is lower than the corresponding National figure. The main occupation of the people of this district is agriculture with nearly 90 per cent of the work force engaged in it. The economic condition of the people lags behind when compared to the living conditions of the people of other districts in Nagaland. As it is located in the remotest part of Nagaland, its economic development has not been satisfactory. The recent trend in the District is tea-cultivation by the local people. The gentle slopes of Mon provide ample scope for developing the Mon District for the cultivation with all modern techniques. Only 121 registered small-scale industries are present in the district.

2.2.3 ADMINISTRATIVE SET UP OF THE STATE

30. Since India's independence, the Naga territory of the present Nagaland State came under the administration of Assam Governor. In 1959, the Naga Hills District was divided into two, namely Kohima and Mokokchung with the office of Commissioner at Kohima. It was also assigned to look after the Tuensang Area²⁶¹ that formed the Naga Hills Tuensang Area (NHTA). Later, Nagaland became a full-fledged State on 1st December, 1963.

At the time of inauguration of the Statehood there were three districts, namely Kohima, Mokokchung and Tuensang. For effective administration reason, four more districts were created in 1973, namely Phek, carved out of Kohima, Wokha and Zunheboto out of Mokokchung and Mon out of Tuensang. In 2000, Dimapur district was created out of Kohima district and became the eighth district in the State. Subsequently, in 2004, three more districts were created, Peren from Kohima district, Kiphire and Longleng from Tuensang district.

According to 2011 census, there are eleven districts in Nagaland, each headed by a Deputy Commissioner assisted by 18 Additional Deputy Commissioners and 19 Sub-Divisional Officers (Civil). Altogether, there are 1428 villages headed by Gaonburas or the traditional headmen who look after the administrative functioning of the villages. Each village has a Village Development Board (VDB) headed by the VDB Secretary, which serves as a decision making as well as implementing agency for all developmental works in the village level. There are 9 (nine) census towns and 19 statutory towns. The State is almost entirely inhabited by tribals with their own distinct lingual and cultural features. As such, 16 tribes are recognised in the State, viz; Angami, Ao, Chakhesang, Chang, Kachari, Khamniungan, Konyak, Kuki, Lotha, Phom, Pochury, Rengma, Sangtam, Sema, Yimchunger and Zeliang.

2.2.4 Demography Features

2.2.4.1. Total Population

31. According to 2011 census, the population of Nagaland is 19,78,502. The district with highest population is Dimapur with 3,78,811, while with the lowest is Longleng with 50,484. As of 2011 census, the density of population in Nagaland is 119 per sq. km against the country's average of 362 per sq. km. Among the districts, the highest and lowest are Dimapur and Peren with 410 and 55 persons per square kilometre respectively.

The Naga people are a conglomeration of several tribes, have similar cultures and traditions. As of 2012, the State of Nagaland officially recognized 17 Naga tribes. Prominent Naga tribes include Angami, Ao, Chakhesang, Chang, Khiamniungan, Konyak, Liangmai, Lotha, Pochury, Rongmei, Zeme. The Naga tribes constitute about 86% of the population. In addition, some other Naga tribes occupy territory in the contiguous adjoining states of Manipur, Assam, and Arunachal Pradesh, India; and across the border in Burma. The Naga speak various distinct Tibeto-Burman languages, including Lotha, Angami, Pochuri, Ao, Poula (Poumai Naga), Inpui, Rongmei (Ruangmei), Tangkhul, Thangal, Maram, and Zeme. In addition, they have developed Nagamese Creole, which they use between tribes and villages, which each have their own dialect of language. The details of population residing in rural and urban area of the state and project districts are delineated at **Table no.2.2**.

Table 2.2: Details on Total Population

Name/Particular	Total Population	Total (Rural)	Total (Urban)	Percentage (Rural)	Percentage (Urban)
Nagaland	19,78,502	14,07,536	5,70,966	71.14	28.86
Dimapur	3,78,811	1,80,942	1,97,869	47.77	52.23
Wokha	1,66,343	1,31,339	35,004	78.96	21.04
Mokokchung	1,94,622	1,38,897	55,725	71.37	28.63
Phek	1,63,418	1,38,843	24,575	84.96	15.04
Zunheboto	1,40,757	1,13,160	27,597	80.39	19.61
Kohima	2,67,988	1,46,900	1,21,088	54.82	45.18
Mon	2,50,260	2,15,816	34,444	86.24	13.76

Source: Census of India, 2011

2.2.4.2 Male and Female Population

32. In 2011, the sex ratio in Nagaland is 931 as compared to 940 of India. Among the districts, Zunheboto has the highest sex ratio, while Mon has the lowest with 976 and 899 respectively. The details are given in **Table 2.3**.

Table 2.3: Details on Male/ Female Population

Name/ Particulars	Total Population	Total Male	Total Female	Percentage (Male)	Percentage (Female)	Sex Ratio
Nagaland	19,78,502	10,24,649	9,53,853	51.79	48.21	931
Dimapur	3,78,811	1,97,394	1,81,417	52.11	47.89	919
Wokha	1,66,343	84,505	81,838	50.80	49.20	968
Mokokchung	1,94,622	1,01,092	93,530	51.94	48.06	925
Phek	1,63,418	83,743	79,675	51.24	48.76	951
Zunheboto	1,40,757	71,217	69,540	50.60	49.40	976
Kohima	2,67,988	1,38,966	1,29,022	51.86	48.14	928
Mon	2,50,260	1,31,753	1,18,507	52.65	47.35	899

Source: Census of India, 2011

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

33. As per census 2011, the Scheduled Caste (SC) & Scheduled Tribe (ST) population of the State stands at nil and 17,10,973 (86.48%) respectively. The details n SC/ ST population of the state and project districts are given in **Table 2.4**.

Table 2.4: Details on SC/ ST Population

Name/Particulars	Total Population	Total SC Population	% of SC Population	Total ST Population	% of ST Population
Nagaland	19,78,502	0	0	17,10,973	86.48
Dimapur	3,78,811	0	0	2,23,989	59.13
Wokha	1,66,343	0	0	1,56,621	94.16
Mokokchung	1,94,622	0	0	1,78,431	91.68
Phek	1,63,418	0	0	1,57,146	96.16
Zunheboto	1,40,757	0	0	1,36,561	97.02
Kohima	2,67,988	0	0	2,24,738	83.86
Mon	2,50,260	0	0	2,38,285	95.21

Source: Census of India, 2011

2.2.4.4 Literacy

34. In Nagaland the literacy rate of the State stands at 67.85% comprising of 53.93% male literacy and 46.07% of female literacy. Such details for other projects districts are provided in **Table 2.5**.

Table 2.5: Literate Population

Name/Particulars	Total Population	Total Literate	% of Literate	% of Male Literate	% of Female Literate
Nagaland	19,78,502	13,42,434	67.85	53.93	46.07
Dimapur	3,78,811	2,78,037	73.40	54.00	46.00
Wokha	1,66,343	1,28,208	77.07	52.56	47.44
Mokokchung	1,94,622	1,59,494	81.95	52.34	47.66

Phek	1,63,418	1,05,893	64.80	54.70	45.30
Zunheboto	1,40,757	1,02,881	73.09	52.01	47.99
Kohima	2,67,988	1,97,489	73.69	54.20	45.80
Mon	2,50,260	1,19,626	47.80	56.37	43.63

Source: Census of India, 2011

2.2.4.5. Total Workers (Male and Female)

35. In Nagaland, Total population into work stands at 9,74,122 of which total Male (work) population stands at 5,47,357 (56.19%) and total female (Work) population stands at 4,26,765 (43.81%). The details on working population for other projects districts are given in **Table 2.6**.

Table 2.6: Details on Worker

Name/Particulars	Total Population (Work)	Total Male (Work)	Total Female (Work)	% of Male (Work)	% of Female (Work)
Nagaland	9,74,122	5,47,357	4,26,765	56.19	43.81
Dimapur	1,51,350	99,645	51,705	65.84	34.16
Wokha	78,412	42,096	36,316	53.69	46.31
Mokokchung	1,00,067	57,084	42,983	57.05	42.95
Phek	80,277	41,556	38,721	51.77	48.23
Zunheboto	79,466	41,178	38,288	51.82	48.18
Kohima	1,14,825	68,140	46,685	59.34	40.66
Mon	1,47,654	79,425	68,229	53.79	46.21

Source: Census of India, 2011

2.2.4.6. Households

36. Total Households in Nagaland stands at 3,96,002 of which 2,77,491 (70.07%) households belong to rural area and 1,18,511 (29.93%) households belong to urban area. The details on households of other projects districts are delineated at **Table 2.7**.

Table 2.7: Details on Households

Name/Particulars	Total Households	Total (Rural)	Total (Urban)	% of Rural	% of Urban
Nagaland	3,96,002	2,77,491	1,18,511	70.07	29.93
Dimapur	78,605	36,505	42,100	46.44	53.56
Wokha	31,891	25,618	6,273	80.33	19.67
Mokokchung	42,690	29,960	12,730	70.18	29.82
Phek	36,639	31,582	5,057	86.20	13.80
Zunheboto	27,835	23,014	4,821	82.68	17.32
Kohima	54,391	27,636	26,755	50.81	49.19
Mon	41,978	35,822	6,156	85.34	14.66

Source: Census of India, 2011

III. LEGAL & REGULATORY FRAMEWORK

3.1. Overview

37. In India, compensation for land acquisition (LA) and rehabilitation for project affected persons/families is directed by the National law i.e. “The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (hereafter RFCTLARR, 2013)”, effective from 1st January 2014. For transmission/distribution line project, land for tower/pole and right of way is not acquired and ownership of land remains with the owner and is allowed to continue cultivation after construction, hence this act is not applicable. However, as per existing laws⁵ compensation for all damages are paid to the individual land owner. The relevant national laws applicable for transmission/distribution project are (i) The Electricity Act, 2003 and (ii) The Indian Telegraph Act, 1885. The compensation principles adopted in the Entitlement Matrix for this project comply with applicable laws/ regulations of the GOI/ State Govt., World Bank’s Safeguard Policies and DPN’s ESPPF.

3.2. Statutory Requirements

38. Transmission lines are constructed under the ambit of The Electricity Act, 2003. The provisions stipulated in section 67-68 of the Electricity Act, 2003 read with section 10 & 16 of the Indian Telegraph Act, 1885 governs the compensation as DPN has been vested with the powers of Telegraph Authority vide Department of Power, Govt. of Nagaland notification dated 16th April, 2016 under Section- 164 of the Electricity Act. As per the provision of Indian Telegraph Act, 1885 under section 10 (b), DPN is not authorized to acquire any land hence land under tower is not acquired. However, compensation for all damages are paid to the individual land owner as per the provision of Section-10 (d) of Indian Telegraph Act, 1885.

39. The provisions in the Electricity Act, 2003 and Indian Telegraph Act, 1885 regarding compensation for laying of transmission lines are as follows:

3.2.1. The Electricity Act, 2003, Part-VIII, Section 67 & 68

Quote:

Section 67 (3-5):

(3) A licensee shall, in exercise of any of the powers conferred by or under this section and the rules made thereunder, cause as little damage, detriment and inconvenience as may be, and

⁵ As per the present provision in the Electricity Act, 2003 read with relevant provisions of Indian Telegraph Act, 1885 all the damages (without acquisition of subject land) accrued to person while placing the tower and line are to be compensated

shall make full compensation for any damage, detriment or inconvenience caused by him or by any one employed by him.

- (4) *Where any difference or dispute [including amount of compensation under sub-section (3)] arises under this section, the matter shall be determined by the Appropriate Commission.*
- (5) *The Appropriate Commission, while determining any difference or dispute arising under this section in addition to any compensation under sub-section (3), may impose a penalty not exceeding the amount of compensation payable under that sub-section.*

Section 68 (5 & 6):

- (5) *Where any **tree standing or lying near an overhead line or where any structure or other object which has been placed or has fallen near an overhead line** subsequent to the placing of such line, interrupts or interferes with, or is likely to interrupt or interfere with, the conveyance or transmission of electricity or to interrupt or interfere with, the conveyance or transmission of electricity or the accessibility of any works, an Executive Magistrate or authority specified by the Appropriate Government may, on the application of the licensee, cause the tree, structure or object to be removed or otherwise dealt with as he or it thinks fit.*
- (6) *When disposing of an application under sub-section (5), an Executive Magistrate or authority specified under that sub-section shall, in the case of any tree in existence before the placing of the overhead line, **award to the person interested in the tree such compensation as he thinks reasonable, and such person may recover the same from the licensee.***
- Explanation. - For purposes of this section, the expression "tree" shall be deemed to include any shrub, hedge, jungle growth or other plant.*

Unquote.

3.2.2. The Indian Telegraph Act, 1885, Part-III, Section 10 :

Quote:

Section 10 – *The telegraph authority may, from time to time, place and maintain a telegraph line under, over, along, or across, and posts in or upon any immovable property, Provided that*

- a) *the telegraph authority shall not exercise the powers conferred by this section except for the purposes of a telegraph established or maintained by the [Central Government], or to be so established or maintained;*
- b) ***the [Central Government] shall not acquire any right other than that of user only in the property under, over, along, across in or upon which the telegraph authority places any telegraph line or post; and***

- c) *except as hereinafter provided, the telegraph authority shall not exercise those powers in respect of any property vested in or under the control or management of any local authority, without the permission of that authority; and*
- d) *in the exercise of the powers conferred by this section, the telegraph authority shall do as little damage as possible, and, when it has exercised those powers in respect of any property other than that referred to in clause (c), shall pay full compensation to all persons interested for any damage sustained by them by reason of the exercise of those powers.*

Unquote.

Section 16 of the Indian Telegraph Act, 1885 which stipulates as under:

16. Exercise of powers conferred by section 10, and disputes as to compensation, in case of property other than that of a local authority:

- (1) *If the exercise of the powers mentioned in Section 10 in respect of property referred to in clause (d) of that section is resisted or obstructed, the District Magistrate may, in his discretion, order that the telegraph authority shall be permitted to exercise them.*
- (2) *If, after the making of an order under sub section (1), any person resists the exercise of those powers, or, having control over the property, does not give all facilities for this being exercised, he shall be deemed to have committed an offence under section 188 of the Indian Penal Code (45 of 1860).*

3.3. DPN's ESPPF

40. To address the environmental and social issues related to its power transmission and distribution projects under NERPSIP, DPN has adopted an Environmental and Social Policy & Procedures Framework (ESPPF) in 2015 based on the principles of avoidance, minimization, and mitigation. The ESPPF had been developed by POWERGRID on behalf of the State Utility based on ESPP of POWERGRID who has proven credentials in management of environmental and social issues of large number of power transmission projects both within and outside the country after a comprehensive review of Utility's existing policies/provisions and consultation with stakeholders.

41. ESPPF's outlines Utility's approach and commitment in dealing with the environmental and social issues relating to its transmission projects, lays down the management procedures

and protocols for the purpose that includes the framework for identification, assessment, and management of environmental and social concerns at both organizational and project levels.

42. ESPPF's provides compensation to affected persons in respect of temporary damages like crop/tree/structure etc during construction of transmission line as per the eligibility criteria stipulated in Entitlement Matrix (EM) (Table-5.1). Accordingly, compensation is paid to eligible APs for actual damages including non-title holders such as squatter, encroacher etc. As regard land compensation for transmission line, as per prevailing practice only compensation @100% of land cost for tower base shall be paid to affected land owner.

43. Specifically on social, the following criteria and approach are considered in the ESPPF:

- (i) Take due precautions to minimize disturbance to human habitations, tribal areas and places of cultural significance.
- (ii) Take due care of Project Affected Persons (PAP).
- (iii) Involve affected people from inception stage to operation and maintenance.
- (iv) Consult affected people in issues of RoW, land acquisition or loss of livelihood.
- (v) Encourage consultation with communities in identifying environmental and social implications of projects.
- (vi) Guarantee entitlements and compensation to affected people as per entitlement matrix.
- (vii) Share information with local communities about environmental and social implications.
- (viii) Always maintain highest standards of health and safety and adequately compensate affected persons in case of any eventuality.

3.4. Basic Principles for the Project

44. The basic principles adopted for the Project are:

- (i) Avoid negative impacts of land acquisition and involuntary resettlement on persons affected by the Project to the extent possible.
- (ii) Where negative impacts cannot be avoided, assist affected persons (AP), in improving or at least regaining their standard of living and income.
- (iii) Carry out meaningful consultations with affected persons and inform all displaced persons of their entitlements and resettlement options. Ensure their participation in planning, implementation and monitoring of the Project

- (iv) Disclose all information related to, and ensure AP participation in, resettlement planning and implementation.
- (v) Provide compensation for acquired assets at replacement/market value in accordance with the RP/CPTD.
- (vi) Ensure that displaced persons without titles to land or any recognizable legal rights to land are eligible for resettlement assistance and compensation for loss of non-land assets.
- (vii) Provide resettlement assistance and income restoration to APs.
- (viii) Provide for APs not present during enumeration. However, anyone moving into the project area after will not be entitled to assistance.
- (ix) Develop procedures in a transparent, consistent, and equitable manner if land acquisition is through negotiated settlement to ensure that those people who enter into negotiated settlements will maintain the same or better income and livelihood status.
- (x) Provide compensation and resettlement assistance prior to taking possession of the acquired lands and properties.
- (xi) Establish grievance redress mechanisms to ensure speedy resolution of disputes.
- (xii) Ensure adequate budgetary support to cover implementation costs for CPTD.
- (xiii) Monitoring of the implementation of CPTD.

45. Additionally, the issues related to the Right of Way (RoW) for the transmission lines will be dealt with proper care especially for the temporary loss. For the loss of crops and trees due to construction of overhead lines, cash compensation payable by cheque/through online transfer will be provided during construction works. Further, cash compensation (by cheque/ online transfer) to the APs for the temporary loss of crop and loss of trees if occurred, during the time of maintenance and repair.

3.5. World Bank's Environmental & Social Safeguard Policies

46. The objective of Bank's policies is to prevent and mitigate undue harm to people and their environment in the development process. Safeguard policies provide a platform for the participation of stakeholders in project design, and act as an important instrument for building ownership among local populations. Operational Policies (OP) are the statement of policy objectives and operational principles including the roles and obligations of the Borrower and the Bank, whereas Bank Procedures (BP) is the mandatory procedures to be followed by the Borrower and the Bank. Apart from these, World Bank Group Environmental, Health, and Safety

(EHS) General Guidelines and EHS Guidelines for Electric Power Transmission and Distribution are also relevant for environmental protection and monitoring of transmission projects. The WB’s relevant social safeguard policies and their objective are given in **Table – 3.1**.

Table 3.1: World Bank’s Operational Policies for Social Safeguard

Operational Policy (OP)	Policy Objectives
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.
OP 4.12 – Involuntary Resettlement	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 levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.
OP 4.10 – Indigenous Peoples	To ensure that the Indigenous Peoples receive social and economic benefits those are culturally appropriate and gender and inter generationally inclusive. 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.

IV. PROJECT IMPACTS

4.1. General

47. The project does not require any private land acquisition for construction of transmission/distribution lines. Due to inherent flexibility in routing of line, no major damages to structures or physical displacement is envisaged. Hence, there are no adverse social impacts such as permanent loss of assets, livelihood loss or physical resettlement/relocation due to project intervention. However, there are some social impacts due to construction of lines/placing of towers & poles which are temporary in nature in terms of loss of standing crops/trees/structures in the RoW. Preliminary investigation/survey has been carried out for transmission/distribution line to estimate/ arrive at the selection of one best feasible alignment route out of at least 3 alternative alignments studied, for detailed survey to be undertaken during execution of main contracts. The details of tower/pole schedule depicting location & its coordinate, land use including major crossings along proposed route alignment is placed as **Annexure-2**. The compensation for damage is assessed in actual after construction activities of transmission lines in three stages i.e. after completion of foundation, tower erection and stringing of conductor. The payment of compensation is also paid in three instances, if there are damages during all the above three stages. Assessment of damages at each stage and subsequent payment of compensation is a continuous process. Hence, CPTD updating will also be a continuous process during construction. The details of land use have been gathered to have an idea about the temporary damages that might occur during construction of the transmission and distribution lines. The RoW width for 220KV & 132 KV D/C transmission line is 35 & 27 meter whereas, the 33 kV distribution lines it is 15 meter.

48. Soil & Surface Geology: In plain areas impact on soil & geology will be almost negligible as the excavated pit material is stacked properly and back filled as well as used for resurfacing the area. On hill slopes where soil is disturbed will be prone to erosion is suitably protected by revetment, breast walls, and proper drainage. Besides extensive leg /chimney extension shall be used to avoid benching or cutting of slopes to minimize the impact on slope stability.

The land requirement for erection of tower legs is very small i.e. for each leg of tower actual construction is done on a small square area with side length ranging from 0.20 to 0.30 meter 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

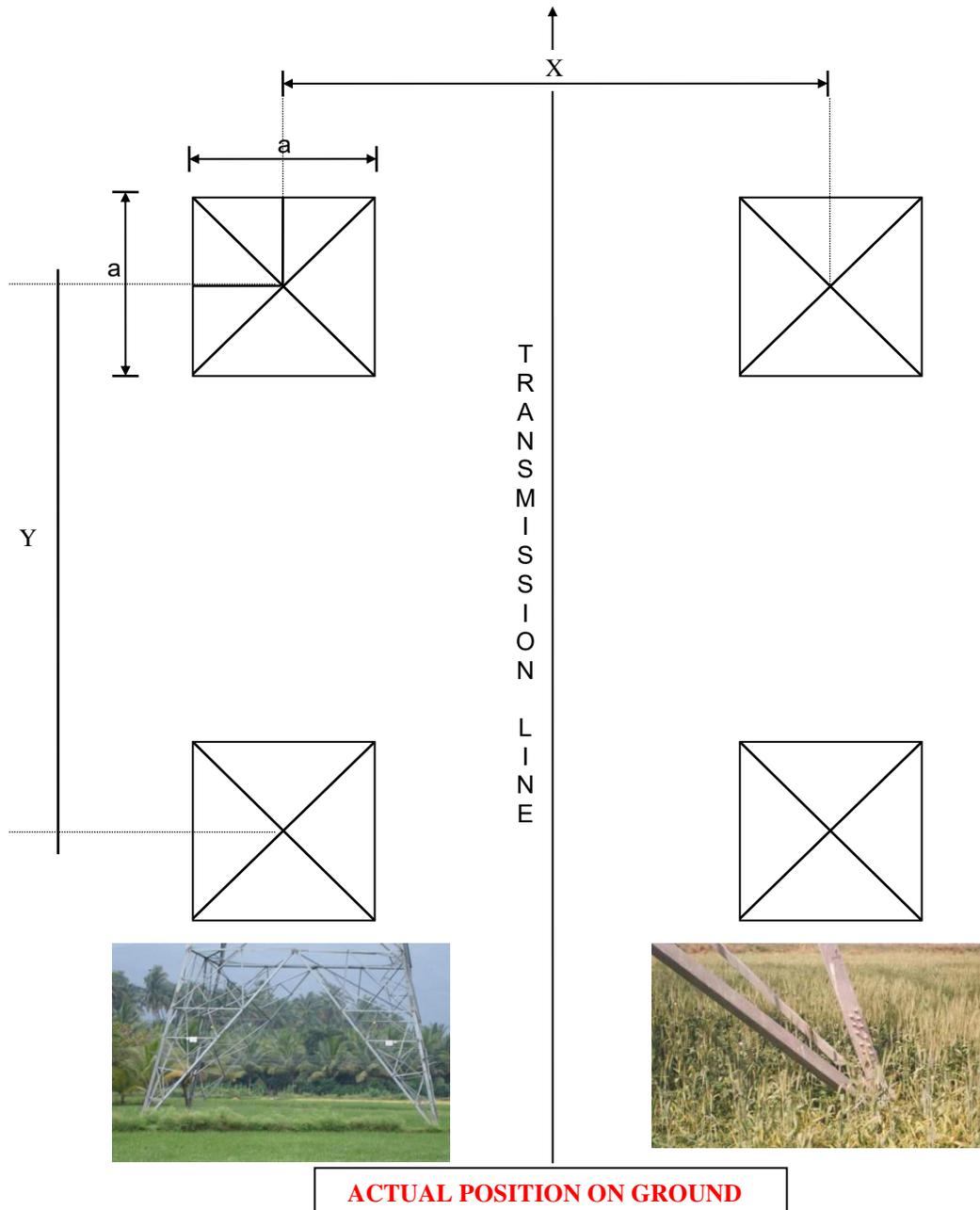
impact is restricted to 4 legs of the tower and agriculture can continue as clearly depicted in the **Figure-4.1**. In case of 33 kV distribution line area that becomes unavailable because of the erection of pole is insignificant as approx. 1 sq. ft. land area is occupied for one pole (refer **Figure. 4.2** depicting actual base area impact). Due diligence confirms that land is either agricultural or barren, and current land use is not altered and resumed after construction. As per present practices, full compensation (100%) towards land value in tower base areas as decided by the district authority is paid towards damages to the affected persons/land owners. Since, Govt. of Assam vide notification dated 10th March, 2017 has adopted the MoP guidelines, compensation toward damages in regard to RoW shall be paid as per the norms in addition to normal crop and tree damages.

49. Crops: 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. This data is compiled and analysed to study the extent and nature of impact. The compensation is in terms of yield/hectare and rate/quantity for prevailing crops in the area. Based on this, total compensation is calculated in consultation with revenue authorities. Compensation is paid to the owners and their acknowledgement obtained.

50. Trees: Construction of line in fruit bearing season is avoided as far as possible. Tree compensation is calculated on the basis of tree enumeration, tree species and an estimate of the compensation will be calculated on the basis of 8 years yield (assessed by revenue/horticulture department). Market rates of compensation are assessed by the relevant government authorities. The total estimate is submitted for approval of the competent authority. Payments are made to owners in the presence of local revenue authorities or village head/ Sarpanch and respective acknowledgements are obtained.

51. Other Damages: Like bunds, water bodies, fish ponds, approach paths, drainage and irrigation canals etc. are at best avoided. However, if damaged, the Revenue Department assesses the cost of damage as per State Govt. norms. The total estimate is submitted for approval to the competent authority. Payments are made to owners in the presence of local revenue authorities or village head/ Sarpanch and respective acknowledgements are obtained and POWERGRID/ DPN pays the compensation. Hindrances to power, telecom carrier & communication lines etc. shall be paid as per Govt. norms.

Figure- 4.1: Typical Plan of Transmission Line Tower Footing

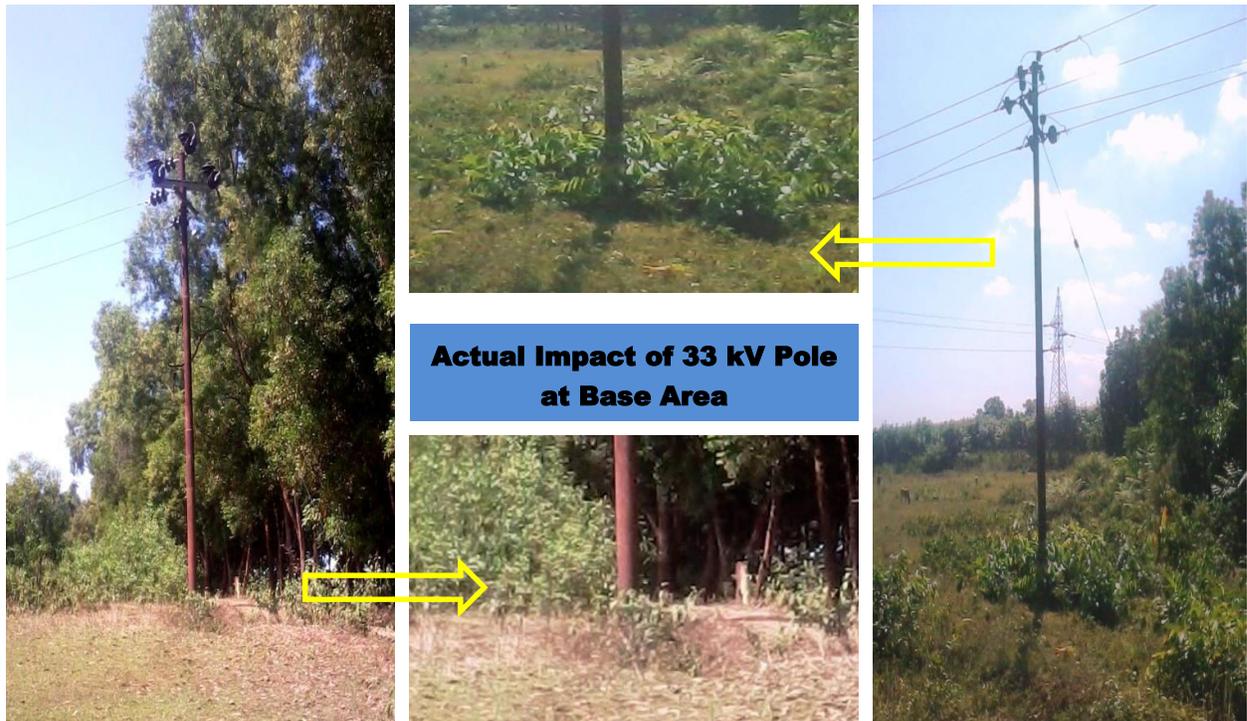


INDICATIVE MEASURES

X & Y = 5-10 METERS

a = 200- 300 mm

Figure- 4.2: 33 KV lines (Single & H pole) depicting base area impact



33 kV line inside city area of



33 kV (H Pole) line inside substation

4.2. Impact due to construction of New Substation and Bay extension

53. The project component consists of establishment of 08 Nos 132/33 KV new substation at Longnak, 132/33kV new substation at Zunheboto, 132/33kV new substation at Sect. Complex Kohima, 132/33kV new substation at Pfutsero and there are 28 nos of DMS S/s i.e. 33/11 kV new substation at Longtho, 33/11kV substation at Mokokchung PH, 33/11kv Substation at Mokokchung Hospital Area, 33/11kV substation at Zunheboto South Point, 33/11kV Substation at Lalmati etc.. However, only in case of 5 substations, fresh lands were secured through private purchased on negotiated rates based on “willing buyer-willing seller basis”. For remaining new substation and bay extensions of the EHV and DMS substations land is already available with DPN. Since involuntary acquisition is involved, R&R will not be an issue in the instant project. The details are provided in **Table 4.1**:

Table 4.1: Details of Substation

Name of substation	Permanent Impact on Land Use	Temporary Impact on loss of crops	Impact on Loss of Trees	Details of Land			
				Land Area (acre)	No. of Land owner	Compensation (Rs. Million)	Land Type/ Securing method
132/33kV Longnak	Yes	Nil	Nil	4.7	1	2.70	Private Land purchased on negotiated rates based on “willing buyer-willing seller basis.
132/33kV Zunheboto	Yes	Nil	Nil	14.64	6	2.781	
132/33kV Pfutsero	Yes	Nil	Nil	4.94	1	5.812	
132/33kV Sect. Complex Kohima	Nil	Nil	Nil	3.4	NA	NA	DPN land
Extn. at Mokokchung (state)	Nil	Nil	Nil	NA	NA	NA	DPN land
Extn. at 220 kV Mokokchung GIS	Nil	Nil	Nil	NA	NA	NA	DPN land
Extn. at 220/132/33 kV New Kohima	Nil	Nil	Nil	NA	NA	NA	DPN land
Extn. at 132/33 kV Wokha	Nil	Nil	Nil	NA	NA	NA	DPN land
33/11 kV Longtho	Nil	Nil	Nil	1.04	NA	NA	DPN land
33/11 kV Mokokchung (Power House)	Nil	Nil	Nil	0.15	NA	NA	DPN land
33/11 kV Mokokchung (Hospital Area)	Nil	Nil	Nil	0.20	NA	NA	DPN land

33/11 kV Zunheboto South Point	Nil	Nil	Nil	0.76	NA	NA	DPN land
33/11 kV Lalmati (Zubza)	Nil	Nil	Nil	0.33	NA	NA	DPN land
33/11 kV Zhadima (Chiephobozou)	Nil	Nil	Nil	0.37	NA	NA	DPN land
33/11 kV Pfutsero	Yes	Nil	Nil	0.19	1	0.757	Private Land purchased on negotiated rates based on “willing buyer-willing seller basis”.
33/11 kV Padampukhri	Yes	Nil	Nil	0.74	1	4.536	
33/11 kV Tizit	Nil	Nil	Nil	0.15	NA	NA	DPN land
Extn. of 33/11 kV Longnak	Nil	Nil	Nil	NA	NA	NA	DPN land
Extn. of 33/11 kV Suruhuto	Nil	Nil	Nil	NA	NA	NA	DPN land
Extn. of 33/11 kV Akuloto	Nil	Nil	Nil	NA	NA	NA	DPN land
Extn. of 33/11 kV Pughoboto	Nil	Nil	Nil	NA	NA	NA	DPN land
Extn. of 33/11 kV Torogonyu	Nil	Nil	Nil	NA	NA	NA	DPN land
Extn. of 66/33 kV Mokokchung	Nil	Nil	Nil	NA	NA	NA	DPN land

4.3. Temporary Impacts Caused due to Transmission/Distribution Line (Right of Way)

4.3.1. Type and Use of Land within Corridor Right of Way

54. The line corridor will pass through mixed land uses which are generally agricultural land, private plantation, government land etc. The calculations are based on detailed survey/ investigation carried out along the route of transmission/distribution lines and considering the total line length of the line and its right of way. The total line length is 217.02 kilometres which will impact an estimated of 1459.9 acre⁶ of land. These include 19.10 km of line passing through agricultural land (137.79 acre of agricultural land), 189.11 km of private plantation (1272.58 acre of private plantation land) and 10.9 km of government land (62.05 acre of government/ barren land). A brief description about the type and use of land in the corridor is given in **Table 4.2**.

⁶ Total Line Length (kilometers) X Right of Way (meters)X1000/4,047= Area in Acre

Table 4.2: Type and Use of Land within Corridor of RoW (in Km/Acre)

Sl. No.	Name of the Line	RoW Width (in meter)	Agricultural land	Private Plantation	Forest	Govt land	Total
A. Transmission Line							
1	220 kV S/C New Kohima-Mokokchung via Wokha	35	8.637km (74.69 acre)	76km (657.27 acre)	Nil	2km (17.29 acre)	86.637km (749.26 acre)
2	132 kV D/C New Kohima - New Secretariat Complex	27	1.5km (10 acre)	11.97km (79.86acre)	Nil	0.5km (3.33 acre)	13.97km (93.20 acre)
3	132 kV S/C Wokha-Zunheboto-Mokokchung		5km (33.36 acre)	45.293km (302.18acre)	Nil	2.3km (15.34 acre)	50.293km (335.54 acre)
4	LILO of 132kV S/C Mokokchung-Mariani at Longnak		Nil	0.804km (5.36acre)	Nil	Nil	0.804km (5.36 acre)
5	LILO of both ckts of 132kV D/C Kohima-Meluri line at Pfutsero		NIL	2.41km (16.07 acre)	Nil	Nil	2.411km (16.08 acre)
6	LILO of 132kV S/C Kohima-Wokha at New Kohima		1.7km (11.34 acre)	7km (46.70 acre)	Nil	0.51km (3.40Acre)	9.218km (61.50acre)
B. Distribution Line							
7	Existing 33 kV Mokokchung -Mariani line to prop. 33/11 kV Longtho S/s	15	Nil	NIL	Nil	0.12 (0.4 acre)	0.12km (0.4 acre)
8	LILO of existing 33kv Mok- Mariani line at Exit. 33/11kV Longnak S/s		Nil	NIL	Nil	0.198 0.73 acre	0.198 (0.73 acre)
9	66/33kV Mokokchung - 33/11kV Mokokchung Town Power House		1km (3.70 acre)	7km (25.94 acre)	Nil	1km (3.70acre)	9km (33.36 acre)
10	66/33kV Mokokchung - 33/11kV Mokokchung Town Hospital Area		Nil	2.5km (9.27)	Nil	0.5km (1.85 acre)	3km (11.12 acre)
11	132/33kV Zunheboto - New 33/11kV s/s Zunheboto South Point		Nil	5km (18.53 acre)	Nil	0.53km (1.96 acre)	5.53km (20.49 acre)
12	33/11kV Suruhuto -. 33/11kV Akuloto		1km (3.7acre)	20km (70.12 acre)	Nil	2.29km (8.49 Acre)	23.29km (86.32 acre)
13	33/11kV Pughoboto -. 33/11kV Torogonyu		0.27 (1 Acre)	2km (7.41 acre)	Nil	Nil	2.27km (8.41 acre)
14	132/33kV Kohima (New) - 33/11kV Zhadima		Nil	0.54km (2 acre)	Nil	Nil	0.54km (2 acre)

15	132/33kV Pfutsero - New 33/11kV Pfutsero		Nil	3.6km (13.34 acre)	Nil	Nil	3.6km (13.34 acre)
16	132/66/33kV Nagarjan - 33/11kV s/s Padam Pukhri		Nil	5km (18.53 acre)	Nil	1.15km (5.56 acre)	6.15km (22.79 acre)
Total			19.10 (137.79 acre)	189.11 (1272.58 acre)	Nil	10.9 (62.05 acre)	217.02km (1459.9 acre)

Source: Detailed Survey

4.3.2 Total loss of crop area (RoW Corridor & Tower/Pole)

55. 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-meter corridor is considered for accessing the damages. Moreover, all efforts are made to reduce the damages to crops and to minimize the impacts whatsoever. One of the reasons is that schedules of construction activities are undertaken in lean season or post-harvest periods. As the assets of any sorts will not be acquired but during construction, only temporary damages will occur for which the compensation shall be paid to affected persons as per entitlement matrix.

56. Based on the above estimation, the total land considered for crop compensation for transmission/distribution line corridor and tower/pole foundation for the entire subproject covered under the scope of above CPTD is 1056.99 acre. Details of estimated impacted area for crop damages is given in **Table 4.3:**

Table 4.3: Estimation on Loss of Land for Crop Damage due to Overhead Lines

Name of the line	Width Considered for Estimation of Loss of Crops and other impacts (Meter)	Total Agricultural Land (km)	Total Private Plantation (km)	Total Line Length Considered for Crop Compensation (km)	Total Land Area considered for Crop Compensation (acre)
A. Transmission Line					
220 kV S/C New Kohima-Mokokchung via Wokha	27	8.637	76	84.637	564.66
132 kV D/C New Kohima - New Secretariat Complex	20	1.5	11.97	13.47	66.57
132 kV S/C Wokha-Zunheboto-Mokokchung		5	45.293	50.293	248.54

LILO of 132kV S/C Mokokchung-Mariani at Longnak		Nil	0.804	0.804	3.97
LILO of both ckts of 132kV D/C Kohima-Meluri line at Pfutsero		Nil	2.41	2.41	11.91
LILO of 132kV S/C Kohima-Wokha at New Kohima		1.7	7	8.7	42.99
Total- A		16.83	143.48	160.31	938.64
B. Distribution Line					
Existing 33 kV Mokokchung -Mariani line to prop. 33/11 kV Longtho		Nil	Nil	Nil	Nil
LILO of existing 33kv Mok- Mariani line at Exit. 33/11kV Longnak S/s		Nil	Nil	Nil	Nil
66/33kV Mokokchung - 33/11kV Mokokchung Town Power House		1	7	8	19.76
66/33kV Mokokchung - 33/11kV Mokokchung Town Hospital Area		Nil	2.5	2.5	6.18
132/33kV Zunheboto - New 33/11kV s/s Zunheboto South Point	10	Nil	5	5	12.35
33/11kV Suruhuto -. 33/11kV Akuloto		1	20	21	51.89
33/11kV Pughoboto -. 33/11kV Torogonyu		0.27	2	2.27	5.60
132/33kV Kohima (New) - 33/11kV Zhadima		Nil	0.54	0.54	1.33
132/33kV Pfutsero - New 33/11kV Pfutsero		Nil	3.6	3.6	8.89
132/66/33kV Nagarjan - 33/11kV s/s Padam Pukhri		Nil	5	5	12.35
Total- B		2.27	45.64	47.91	118.35

Source: Detailed Survey

4.3.3 Actual loss of land for Tower Base & Pole

57. As already explained, the impact of transmission line is restricted to 4 legs of the tower and agriculture can continue after construction activity is over. The average land area will be unavailable for erection of one 220kV/132 kV T/L tower and one pole for 33 kV D/L is approx. 0.25 sq.m & 0.092 sq.m. respectively. Based on above, total land loss for construction 86.637km of 220kV transmission line, construction of 76.68 km of 132 kV transmission line and 51.44 km of 33 kV distribution line proposed under the present scheme is estimated 0.055 acre respectively. However, compensation toward loss land shall be provided to APs which is part of RoW

compensation. Details of land loss for tower base & pole are given in **Table- 4.4.**

Table 4.4: Estimation of Actual Loss of Land for Tower Base & Pole

Name of the 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				
220 kV S/C New Kohima-Mokokchung via Wokha	86.637	285	0.25	71.25
132 kV D/C New Kohima - New Secretariat Complex	13.97	48	0.25	12
132 kV S/C Wokha-Zunheboto-Mokokchung	50.29	166	0.25	41.5
LILO of 132kV S/C Mokokchung-Mariani at Longnak	0.80	5	0.25	1.25
LILO of both ckts of 132kV D/C Kohima-Meluri line at Pfutsero	2.41	10	0.25	2.5
LILO of 132kV S/C Kohima-Wokha at New Kohima	9.21	36	0.25	9
Total- A				137.5 \cong 0.034 acre
B. Distribution Line				
Existing 33 kV Mokokchung - Mariani line to prop. 33/11 kV Longtho S/s	0.125	7	0.092	0.644
LILO of existing 33kv Mok-Mariani line at Exit. 33/11kV Longnak S/s	0.198	6	0.092	0.552
66/33kV Mokokchung - 33/11kV Mokokchung Town Power House	9	138	0.092	12.70
66/33kV Mokokchung - 33/11kV Mokokchung Town Hospital Area	3	45	0.092	4.14
132/33kV Zunheboto - New 33/11kV Zunheboto South Point	5.537	93	0.092	8.56
33/11kV Suruhuto -. 33/11kV Akuloto	23.29	340	0.092	31.28
33/11kV Pughoboto -. 33/11kV Torogonyu	2.27	42	0.092	3.864
132/33kV Kohima (New) - 33/11kV Zhadima	0.54	13	0.092	1.196
132/33kV Pfutsero - New 33/11kV Pfutsero	3.6	57	0.092	5.24
132/66/33kV Nagarjan - 33/11kV s/s Padam Pukhri	6.152	192	0.092	17.67
Total- B				85.846 \cong 0.021 acre

4.3.4 Land area for Tower base compensation as per MoP Guidelines /Govt. of Nagaland notification

58. Since Govt. of Nagaland has not approved the adoption of MoP guidelines dated 15.10.2015 no payment will be paid for land compensation for RoW corridor area. However, as per prevailing practice compensation @ 100% land value for tower base shall be paid to the affected persons/land owners. Details of land areas considered for such compensation is given in **Table 4.5**.

Table 4.5 Land area for Tower base Compensation

Name of the line	Line length (km)	Nos. of Tower	Land area for Tower base per km (in acre)	Total land area for tower bas (In acre)
220 kV S/C New Kohima-Mokokchung via Wokha	86.63	285	0.077	6.67
132 kV D/C New Kohima - New Secretariat Complex	13.97	48	0.036	0.502
132 kV S/C Wokha-Zunheboto-Mokokchung	50.29	166	0.036	1.81
LILO of 132kV S/C Mokokchung-Mariani at Longnak	0.80	5	0.036	0.02
LILO of both ckts of 132kV D/C Kohima-Meluri line at Pfutsero	2.41	10	0.036	0.086
LILO of 132kV S/C Kohima-Wokha at New Kohima	9.2	36	0.036	0.33
Total				9.418

4.3.5. Loss of Trees

59. Total numbers of trees likely to be affected due to construction of 163.32 km of 220kV/132 kV line and for 51.44 km of 33 kV distribution line is approx. 16096 nos. out of which 13000 are private trees and approx 2000 trees in govt. land. Additionally, approx. 5570 nos. private bamboo trees likely to be affected. The major species to be affected are Bamboo (*Bambusa ballooa*), Orange tree(*Citrus sinensis*),Banana(*Musa acuminata*),Tiksung(*Tectona grandis*) & Gooseberry (*Emblica officinalis*). During construction, private trees will be compensated as per the entitlement matrix. Details on number of trees for each line are given in **Table 4.6**.

Table 4.6: Loss of Trees

Name of Line	Trees in Private Area (Numbers)	Trees in Govt. Area (Numbers)	Total Trees (Numbers)
A. Transmission Line			
220 kV S/C New Kohima-	5000+2200 Bamboo	700+380 Bamboo	5700+2580 Bamboo

Mokokchung via Wokha			
132 kV D/C New Kohima - New Secretariat Complex	1304+400 Bamboo	280+100 Bamboo	1584+500 Bamboo
132 kV S/C Wokha-Zunheboto-Mokokchung	4400+1200 Bamboo	580+300 Bamboo	4980+1500 Bamboo
LILO of 132kV S/C Mokokchung-Mariani at Longnak	140	10	150
LILO of both ckts of 132kV D/C Kohima-Meluri line at Pfutsero	300	20	320
LILO of 132kV S/C Kohima-Wokha at New Kohima	1000+200 Bamboo	152+ 70 Bamboo	1152+270 Bamboo
B. Distribution Line			
Existing 33 kV Mokokchung - Mariani line to prop. 33/11 kV Longtho S/s	20	10	30
LILO of existing 33kv Mok- Mariani line at Exit. 33/11kV Longnak S/s	20	10	30
66/33kV Mokokchung - 33/11kV Mokokchung Town Power House	250	30	280
66/33kV Mokokchung - 33/11kV Mokokchung Town Hospital Area	90	10	100
132/33kV Zunheboto - New 33/11kV s/s Zunheboto South Point	250	30	280
33/11kV Suruhuto -. 33/11kV Akuloto	920+200 Bamboo	100+50 Bamboo	1020+250 Bamboo
33/11kV Pughoboto -. 33/11kV Torogonyu	70	NIL	70
132/33kV Kohima (New) - 33/11kV Zhadima	30	NIL	30
132/33kV Pfutsero - New 33/11kV Pfutsero	160	10	170
132/66/33kV Nagarjan - 33/11kV Padam Pukhri	150	50	200
Total			

Source: Detailed Survey

4.3.6. Loss of Other Assets (Small Shed in Agriculture Fields)

60. It has been observed during survey that approximately 10 numbers of small structures exist along the right of way of proposed lines. These are small storage sheds/huts which are mostly temporary structure associated with the agricultural fields. People do not use these small structures/sheds for residential purpose and they use it as storage of agricultural purpose only. During construction, these will be compensated in cash as per the entitlement matrix. Details on impacts on small structures are given in **Table 4.7**

Table 4.7: Loss of Other Assets

Name of Line	No. of storage sheds/huts
A. Transmission Line	
220 kV S/C New Kohima-Mokokchung via Wokha	8
132 kV D/C New Kohima - New Secretariat Complex	2
132 kV S/C Wokha-Zunheboto-Mokokchung	0
LILO of 132kV S/C Mokokchung-Mariani at Longnak	0
LILO of both ckts of 132kV D/C Kohima-Meluri line at Pfutsero	0
LILO of 132kV S/C Kohima-Wokha at New Kohima	0
B. Distribution Line	
Existing 33 kV Mokokchung -Mariani line to prop. 33/11 kV Longtho S/s	0
LILO of existing 33kv Mok- Mariani line at Exit. 33/11kV Longnak S/s	0
66/33kV Mokokchung - 33/11kV Mokokchung Town Power House	0
66/33kV Mokokchung - 33/11kV Mokokchung Town Hospital Area	0
132/33kV Zunheboto - New 33/11kV s/s Zunheboto South Point	0
33/11kV Suruhuto -. 33/11kV Akuloto	0
33/11kV Pughoboto -. 33/11kV Torogonyu	0
132/33kV Kohima (New) - 33/11kV Zhadima	0
132/33kV Pfutsero - New 33/11kV Pfutsero	0
132/66/33kV Nagarjan - 33/11kV Padam Pukhri	0
Total	10

Source: Detailed Survey

4.4. Details of Affected Persons

61. It is estimated that total number of affected persons which may be impacted temporarily will be approximately 1149. Details are given in **Table 4.8**. The number of APs in the table refers to the most conservative option. State Utilities/ POWERGRID will schedule civil works in such a way to minimize impacts and substantially reduce the damages to crops and therefore the number of affected persons and Agricultural Households (AHH).

Table 4.8: Number of Affected Persons

Name of Line	Total APs
A. Transmission Line	
220 kV S/C New Kohima-Mokokchung via Wokha	300
132 kV D/C New Kohima - New Secretariat Complex	50
132 kV S/C Wokha-Zunheboto-Mokokchung	166
LILO of 132kV S/C Mokokchung-Mariani at Longnak	5
LILO of both ckts of 132kV D/C Kohima-Meluri line at Pfutsero	11
LILO of 132kV S/C Kohima-Wokha at New Kohima	36
B. Distribution Line	
Existing 33 kV Mokokchung -Mariani line to prop. 33/11 kV Longtho S/s	0

LILO of existing 33kv Mok- Mariani line at Exit. 33/11kV Longnak S/s	0
66/33kV Mokokchung - 33/11kV Mokokchung Town Power House	80
66/33kV Mokokchung - 33/11kV Mokokchung Town Hospital Area	20
132/33kV Zunheboto - New 33/11kV s/s Zunheboto South Point	45
33/11kV Suruhuto -. 33/11kV Akuloto	200
33/11kV Pughoboto -. 33/11kV Torogonyu	30
132/33kV Kohima (New) - 33/11kV Zhadima	6
132/33kV Pfutsero - New 33/11kV Pfutsero	50
132/66/33kV Nagarjan - 33/11kV Padam Pukhri	150
Total	1149

Source: Detailed Survey

4.5 Other Damages

62. As far as possible, damages to bunds, water bodies, fish ponds, approach paths, drainage and irrigation canals etc. are avoided. However, if damaged during construction activities, compensation as per practice is paid after assessment of the cost of damage by the State Govt. Revenue Department. The total estimate is submitted for approval to the competent authority. DPN/POWERGRID pays the compensation to owners in the presence of local revenue authorities or Village head/ Sarpanch and respective acknowledgements are obtained. Any hindrances to power, telecom carrier & communication lines etc. shall also be paid as per Govt. norms.

4.6 Impact on Indigenous People

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

- (i) tribes' primitive traits;
- (ii) distinctive culture;
- (iii) shyness with the public at large;
- (iv) geographical isolation; and
- (v) social and economic backwardness before notifying them as a Scheduled Tribe.

64. 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 Peoples. Indigenous people are also characterized by cultural continuity. Constitution of India identifies schedule areas which are predominately inhabited by such people.

65. The State of Nagaland is pre-dominantly a tribal state with > 89% population, inhabited by 16 major tribes under the umbrella term of the 'Naga', and along with a number of subtribes. Accordingly, special provision has extended to the State under Article 371 A of the Constitution of India which provides “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.

66. Since, the project under NERPSIP is envisaged for economic uplifting of the NE region, hence, no indigenous population will be negatively impacted in the project area. However, It may be noted that all social issues shall be dealt separately in accordance with the provisions of Social Management Framework (SMF, A-C) placed in the Further, *It may be noted that all social issues shall be dealt separately in accordance with the provisions of Social Management Framework (SMF, A-C), placed in the ESPPF of DPN*”.

4.7. Summary of Impacts

67. Based on the above assessment, temporary impacts on loss of crops, trees, other structures and number of APs are summarized below in **Table 4.9**.

Table 4.9: Summary of Impacts

Particulars	Details	
	Transmission Line	Distribution Line
Length in km	163.317	51.44
Number of Towers/ Poles	550	933
Total Area of actual land loss under Tower Base (acre)	0.034	0.021
Total APs	568	581
Affected Structures (Small Sheds for agricultural purpose)	10	Nil
Area of Temporary Damages for crop compensation (In acre)	938.64	118.35
Total Trees	13886 + 5320 bamboo	2210 + 250 Bamboo

Source: Detailed Survey

V. ENTITLEMENTS, ASSISTANCE AND BENEFITS

5.1. Entitlements

68. There is no involuntary acquisition of land involved; only temporary damage will occur during construction of transmission lines for which compensation is paid as per relevant regulations/ norms. APs will be entitled for compensation for land loss and other towards temporary damages to crops/ trees/ structures etc. as per the Entitlement Matrix given in **Table- 5.1**. Compensation towards temporary damages to all eligible APs including non-title holders is paid after assessment by relevant authorities of State Govt.

69. All APs are paid compensation for actual damages irrespective of their religion, caste and their economic status. One time additional lump sum assistance will be paid to vulnerable households not exceeding 25% of total compensation on recommendation of State Authority/ADC/VC. As an additional assistance, construction contractors are encouraged to hire local labour that has the necessary skills.

5.2. Entitlement Matrix

70. An Entitlement Matrix for the subprojects is given in **Table 5.1**.

Table 5.1: Entitlement Matrix

Sl.	Type of Issue/ Impact	Beneficiary	Entitlement Options
1.	Land area below tower base (#)	Owner	100% land cost at market value as ascertained by revenue authorities or based on negotiated settlement without actual acquisition/title transfer.
2.	Loss/damage to crops and trees in line corridor	Owner/ Tenant/ Sharecropper/ Leaseholder	Compensation to actual cultivator at market rate for crops and 8 years income for fruit bearing trees*. APs will be given advance notice to harvest their crops. All timber* will be allowed to retain by the owner.
3.	Other damages (if applicable)	All APs	Actual cost as assessed by the concerned authority.
4.	Loss of structure		
(i)	House	Titleholders	Cash compensation at replacement cost (without deduction for salvaged material and depreciation value) plus Rs. 25,000/- assistance (based on prevailing GOI norms for weaker section housing) for construction of house plus transition benefits as

Sl.	Type of Issue/ Impact	Beneficiary	Entitlement Options
			per category-5 below.
(ii)	Shop/ Institutions/ Cattle shed	Individual/ Titleholders	Cash compensation plus Rs. 10000/- for construction of working shed/shop plus transition benefits as per category-5 below
(iii)	Losses during transition under (i) & (ii) above for Shifting / Transport	Family/unit	Provision of transport or equivalent cash for shifting of material/ cattle from existing place to alternate place
(iv)	Tribal/ Vulnerable APs	Vulnerable APs ⁷	One time additional lump sum assistance not exceeding 25% of total compensation on recommendation of State Authority/ADC/VC.

(#) As per decision of State Govt./DPN only land compensation for tower base shall be paid as per prevailing practice.

*** Assistance/help of Forest department for timber yielding trees and Horticulture department for fruit bearing trees shall be taken for assessing the true value.**

5.3. Procedure of Tree/crop compensation

71. In exercise of the powers conferred by section 164 of the Electricity Act, 2003, Department of Power, Govt. of Nagaland vide notification dated 16th April, 2016 has authorized DPN to exercise all the power vested in the Telegraph Authority under part-III of the Indian Telegraph Act, 1885, to place and maintain transmission lines under over along or across and posts in or upon, any immovable property. However, the provisions of same act in Section 10 (d) stipulates that the user agency shall pay full compensation to all interested for any damages sustained during the execution of said work. Accordingly, DPN/ POWERGRID shall pay compensation to land owners towards damages, if any for tree, crop etc. during implementation of project as well as during operation and maintenance phase. The procedure followed for such compensation is as follows:

72. DPN follows the principle of Avoidance, Minimization and Mitigation in the construction of line in agricultural field and cropping areas due to inherent flexibility in phasing the construction activity and tries to defer construction in cropped area to facilitate crop harvesting. However, if it is unavoidable and is likely to affect project schedule, compensation is given at market rate for standing crops. All efforts are also taken to minimize the crop damage to the extent possible in such cases.:

73. As regard of trees coming in the Right of Way (RoW) following procedure is adopted for enumeration:

⁷ Vulnerable APs include scheduled tribes residing in scheduled areas/ physically handicapped/ disabled families etc.

- All the trees which are coming within the clearance belt of ROW on either side of the center line are identified and marked/numbered from one AP to the other and documented.
- Type, Girth (Measured 1 m. above ground level), approximate height of the tree is also noted for each tree
- Trees belonging to Govt., Forest, Highways and other local bodies may be separately noted down or timely follow up with the concerned authorities for inspection and removal.
- Guava, Lemon, and other hybrid trees which are not of tall growing nature are not marked for cutting since these trees can be crossed using standard tower extensions if required.

74. A notice under Electricity Act, 2003/ Indian Telegraph Act, 1885 is served to the landowners informing that the proposed transmission line is being routed through the property of the individual concerned. The notice shall contain the particulars of the land, ownership details and the details of the trees/crops/land inevitably likely to be damaged during the course of the construction of the proposed transmission line and acknowledgement received from land owners. A copy of said notice is further issued to the Revenue Officer/DC, who has been authorized by the Nagaland Govt. for the purpose of assessment/valuation and disbursement of compensation to the affected parties.

75. The revenue officer shall further issue a notice of intimation to the concerned land owner and inspect the site to verify the documents related to the proof of ownership and a detailed Mouja list is prepared for the identified trees/ crops/ land for tower footing inevitably damaged during the course of the construction. For assessing the true value of timber yielding trees help of forest officials is taken and for fruit bearing trees help of Horticulture department is taken.

76. The Mouja list shall contain the land owner details, type of tree/crop, its present age, variety, yielding pattern etc. and the same is prepared at site in the presence of the land owner. These Mouja lists are further compiled and a random verification is conducted by the concerned DC or his authorized representative in order to ascertain the assessment carried out by the revenue office is genuine and correct. After this process the DC issues a tree cutting permit to DPN to enable removal / damage to the standing tree/crop identified in the line corridor.

77. Once the tree/crop is removed / damaged, DPN 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 programme developed by the National Informatics Center exclusively for this purpose. The detailed Valuation statement thus generated using this programme is verified at various levels and approval of payment of compensation is accorded by the concerned District Collectors or Council Authority.

78. On approval of compensation, the revenue officer shall further intimate the amount payable to the different landowners and DPN/POWERGRID will arrange the payment by way Cheque/online transfer 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. Process of tree/crop compensation is depicted in **Figure-5.1**.

5.4. Land Compensation for Tower Footing & RoW Corridor

79. As per present practices, full compensation (100%) towards land value for tower base areas as decided by the district authority is paid to the affected persons/ land owners in addition to tree/crop damage compensation. Since State Govt./DPN has decided that only land compensation for tower base shall be paid as per prevailing practice in the State , land compensation for corridor area as per MoP guidelines of Oct'15 shall not be applicable in the instant project.

5.5. Compensation for Structure

80. No physical displacement is envisaged in the proposed project. Displacement of structures is normally not envisaged due to flexibility of routing of transmission/distribution line. However, whenever it is necessary, compensation for structures as per entitlement matrix shall be provided (**refer Table 5.1**). In the instant case, 10 numbers of small structures likely to be encountered in the right of way of proposed transmission/distribution lines. These are small sheds/small storage which are associated with the agricultural fields. People do not use these small structures/sheds for residential purpose. A notice for damage is issued to APs and the joint measurement by DPN/POWERGRID and APs will be done and verified by revenue official for actual damages. The compensation will be paid to the APs as decided by committee based on state government norms. Hence, compensation is paid parallely with the construction activity of line.

5.6. Compensation Disbursement Module

81. In order to streamline the compensation process, a disbursement module has been

developed (**Table -5.2**) specifying time period with respect to various process/activities which will be implemented during the project execution.

Table 5.2: Compensation Disbursement Module

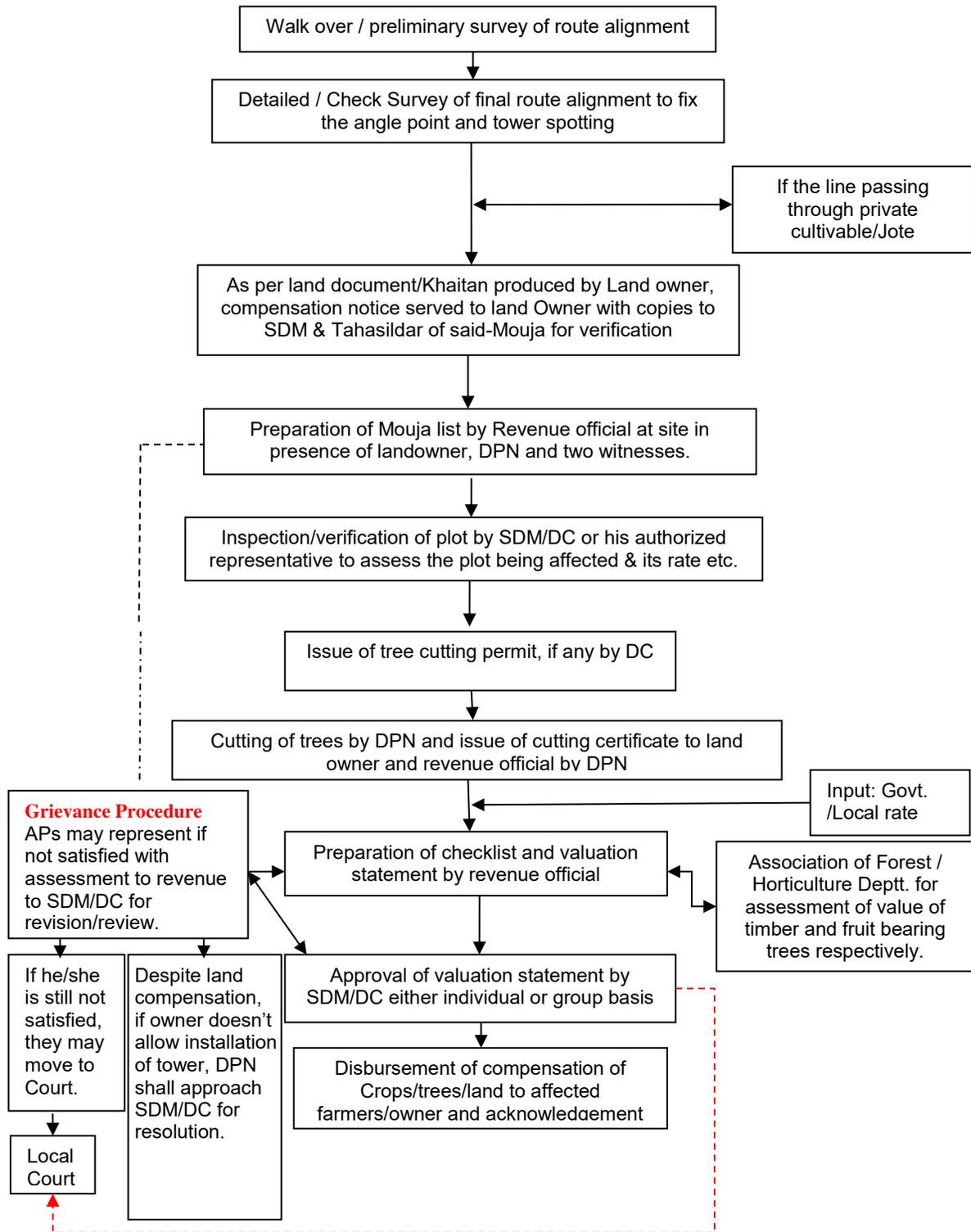
Activity/Stage	Process	Maximum Time Period from Cut-Off date
Tower Foundation/ Erection/ Stringing	Serving of Notice (<i>Cut-off date</i>)	0 date
	Verification of Ownership by Revenue Deptt.	15 days
	Assessment/Verification of damages by Revenue Deptt.	45 days
	Online disbursement*	60 days**

*** Provision of advance payment up to 25% (Rs. 1 lakh maximum) of total estimated land compensation already made in the RoW guidelines of POWERGRID and may also be implemented in the NERPSIP after consent of concerned State Utilities.**

**** 60 days is on maximum side. However, based on past experience it's normally concluded within 30-45 days.**

*****For payment of land compensation also, the above schedule will be followed, however, the process will start only after fixation of land rates by concerned DC/DM.**

Figure-5.1: Tree / Crop Compensation Process



VI. INFORMATION DISCLOSURE, CONSULTATION & PARTICIPATION

6.1. Consultations

82. Public consultation/information is an integral part of the project implementation. Public is informed about the project at every stage of execution. During survey also DPN & POWERGRID site officials meet people and inform them about the routing of transmission and distribution lines. During the construction, every individual, on whose land tower is erected and people affected by RoW, are consulted. Apart from this, Public consultation using different technique like Public Meeting, Small Group Meeting, informal Meeting shall also be carried out during different activities of project cycle. During such consultation the public are informed about the project in general and in particular about the following;

- Complete project plan (i.e. its route and terminating point and substations, if any, in between);
- Design standards in relation to approved international standards;
- Health impacts in relation to EMF;
- Measures taken to avoid public utilities such as school, hospitals, etc.;
- Other impacts associated with transmission & distribution lines and DPN approach to minimizing and solving them;
- Trees and crop compensation process.

83. In the instant project also, many group meetings were organized (informally and formally) in all villages where the interventions are likely to happen (**Table - 6.1**). These meetings were attended by Village Panchayat members, senior/respected person of village, interested villagers/general public and representatives from DPN & POWERGRID. Besides, gender issues have also been addressed to the extent possible during such consultation process (total 27 female out of 216 participants). To ensure maximum participation, prior intimation in local language was given and such notices were also displayed at prominent places/panchayat office etc. Details of above public consultation meetings including minutes of meeting, list of participants and photographs are enclosed as **Annexure -3**.

Table 6.1 Details of Consultations

Date of meeting	Venue of Meeting	No. of Persons attended	Persons Attended
Public Consultation Meeting			
09.12.2014	Conference hall, DC, Office	16	Village head, Senior persons and

	Kohima, Nagaland		general public, DPN Members, PGCIL representatives.
18.03.2015	Conference hall, DC Office, Mokokchung Nagaland	21	Land Owner, Village head & Residents of Mokokchung town
18.02.2015	Conference Hall, DC Office Zunheboto, Nagaland	45	Land Owner, Village head & Residents of Zunheboto districts.
19.04.2018	Conference hall, DC, Office Kohima, Nagaland	14	Village head, Senior persons and general public, DPN Members, PGCIL representatives.
27.06.2018	EAC office, Botsa, Kohima	15	Village head, Senior persons and general public, Land owners
12.07.2018	Conference Hall, DC Office Zunheboto, Nagaland	09	Village head, Senior persons and general public, Land owners
17.07.2018	Village council hall of Longkhum, Mokokchung	32	Village head, Senior persons and general public, Land owners
Informal Group Meeting			
25.09.2019	Zubza village community hall, Kohima	11	Village council members/ village headmen, farmers, PAPs etc.
12.10.2017	Chiephobozou, Kohima	10	Villagers mostly women
20.04.2018	Zhadima village head's house, Kohima	10	Village council members/ village headmen, farmers, PAPs
09.05.2018	Zhadima village head's house, Kohima	18	Village council members/ village headmen, farmers, PAPs
24.11.2018	Alichan village , Mokokchung	15	Village headmen, farmers, project affected persons etc.

84. During consultations/interaction processes with people of the localized areas, DPN field staffs explained benefit of the project, impacts of transmission line, payment of compensation for damaged of crops, trees, huts etc as per The Indian Electricity Act, 2003 and The Indian Telegraph Act, 1885 and measures to avoid public utilities such as schools, hospital etc. People more or less welcomed the construction of the proposed project.

85. Various issues inter alia raised by the people during public consultation and informal group meetings are as follows;

- To Involve Village headman during survey work/finalization of line corridor;
- To engage local people in various works associated with construction of line and if required proper training may be provided to engage them.
- To provide flexibility in disbursement of compensation;
- Direct payment of compensation to affected land owners and expeditious disbursement of compensation.

86. DPN & POWERGRID representative replied their queries satisfactorily and it was assured that compensation will be paid in time after Revenue department fixed/award the amount.

6.2. Plan for further Consultation and Community Participation during Project Implementation

87. The process of such consultation to be continued during project implementation and even during O&M stage. The progress and proposed plan for Public consultation is described in **Table 6.2**

Table 6.2: Plan for Future Consultations

S. N.	Activity	Technique	Schedule
1.	Detailed/ Check survey	Formal/Informal Meeting at different places (20-50 Km) en-route final route alignment of line	Public meeting during pre-construction stage
2.	Construction Phase	Localized group meeting, Pamphlet/ Information brochures, Public display etc.	During entire construction period.
3.	O&M Phase	Information brochures, Operating field offices, Response to public enquiries, Press release etc.	Continuous process as and when required.

6.3. Information Disclosure

88. The CPTD will be disclosed to the affected households and other stakeholders by placing it on DPN & POWERGRID websites. To maintain the uninterrupted communication channel DPN & POWERGRID site officials are meeting APs and inform about norms and practices of damage assessment and compensation thereof. A notice is also issued to APs after the detailed/ check survey and finalization of tower location during the construction. Affected persons also visit site/construction offices of DPN & POWERGRID to know about the compensation norms and policies and to discuss their grievances. For wider circulation, the executive summary of the CPTD and Entitlement Matrix will be translated in local language and placed at construction offices/ sites. The summary of CP will be disclosed on the World Bank website. DPN & POWERGRID will organize further public consultation meetings with the stakeholders to share the views of public and all possible clarifications. This consultation process will continue throughout the project implementation and even during operation and maintenance (O&M) stage.

VII. INSTITUTIONAL ARRANGEMENTS

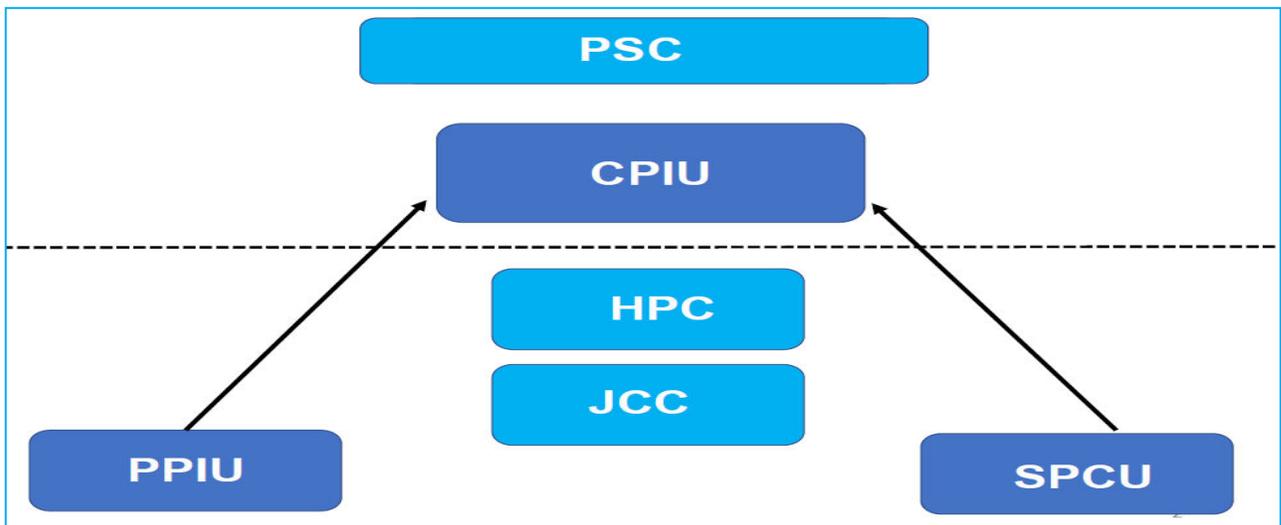
7.1 Administrative Arrangement for Project Implementation

89. Ministry of Power (MoP), GoI has appointed POWERGRID as Implementing Agency (IA) to implement the project in close coordination with the respective state power utilities and departments. POWERGRID will implement the project based on the Implementation/Participation agreements that were signed separately between POWERGRID and the power utilities. . However, the ownership of the assets shall be with respective State government or State Utilities, which upon progressive commissioning shall be handed over to them for taking care of Operation and Maintenance of assets. The arrangement for monitoring and reviewing of project from the perspective of environment and social management will form part of overall arrangements for project management and implementation environment. Following implementation arrangement has been proposed at different levels for smooth implementation of this project;

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

State Project Coordination Unit (SPCU) – A body formed by the 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.

PMC Project Implementation Unit (PPIU) – 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.



7.2. Review of Project Implementation Progress:

90. To enable timely implementation of the project/subprojects, following committee has been setup to review the progress;

- A. Joint Co-ordination Committee (JCC):** IA and SPCU nominate their representatives in a body called JCC to review the project. IA shall specify quarterly milestones or targets, which shall be reviewed by JCC through a formal monthly review meeting. This meeting forum shall be called as Joint Co-ordination Committee Meeting (JCCM). The IA shall convene & keep a record of every meeting. MoP, Gol and The Bank may join as and when needed. Minutes of the meeting will be shared with all concerned and if required, with Gol and The Bank.
- B. High Power Committee (HPC):** The Utility in consultation with its State Government shall arrange to constitute 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 shall meet on bimonthly basis or earlier, as per requirement. This forum shall be called as High Power Committee Meeting (HPCM) and the SPCU shall keep a record of every meeting. Minutes of the meeting will be shared with all concerned and if required, with Gol and The Bank.

- C. Contractor's Review Meeting (CRM):** Periodic Review Meeting will be 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 shall be called "Contractor's Review Meeting" (CRM). PIU shall keep a record of all CRMs, which shall be shared with all concerned and if required, with GoI and The Bank.
- D.** A review will be 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.

7.3. Arrangement for Safeguard Implementation

91. At the central project implementation level (CPIU) based at Guwahati, POWERGRID has set up an Environmental and Social Management cell (ESMC) which is headed by Dy. General Manager(DGM) to oversee Environmental and Social issues of the projects and to coordinate the SPCU & Site Offices.

92. At the State level, POWERGRID has already set up PPIU at the capital of each participating State. The PPIU is staffed with dedicated multidisciplinary team headed by Project Manager who is also responsible for overseeing and implementing the environmental and social aspects of project in their respective state. The PPIU team is assisted by a dedicated Field Officer (Environment & Social Management) who has been specifically recruited for this purpose by POWERGRID. Moreover, State Utilities have constituted State Project Coordination Unit (SPCU) at each state and also designated their Environmental & Social Officer within SPCU to work in close co-ordination with the PMC Project Implementation Unit of POWERGRID and CPIU team at Guwahati. Major responsibilities of Environment and Social team at State level are conducting surveys on environmental and social aspects to finalize the route/substation land, implementation Environment Management Plan (EMP)/CPTD, co-ordination with the various statutory departments, monitoring EMP/CPTD implementation and producing periodic progress reports to CPIU.

93. In the instant subprojects, POWERGRID will implement the CPTD in close co-ordination with DPN which includes overall coordination, planning, implementation, financing and maintaining all databases & also work closely with APs and other stakeholders. A central

database will also be maintained for regular updation of social assessment & compensation data. DPN & POWERGRID will ensure that local governments are involved in the CPTD implementation to facilitate smooth settlement of compensation related activities. Roles and responsibilities of various agencies for CPTD implementation are presented in **Table 7.1**.

Table 7.1: Agencies Responsible for CPTD Implementation

Activity	Agency Responsible	
	Primary	Secondary
Implementing CPTD	Field staffs of POWERGRID & DPN	
Updating the CPTD	POWERGRID	DPN
Review and Approval of CPTD	DPN	POWERGRID
Verification survey for identification of APs	POWERGRID, DPN field staffs	Revenue Officials
Survey for identification of plots for Crop/Tree/ other damages Compensation	POWERGRID, DPN	Revenue Officials
Consultation and disclosure of CPTD to APs	POWERGRID, DPN	Revenue officials
Compensation award and payment of compensation	Revenue Deptt / Competent Authority	POWERGRID, DPN
Fixing of replace cost and assistance	Revenue Dept / Competent Authority	POWERGRID, DPN
Payment of replacement cost compensation	POWERGRID, DPN	Revenue Department
Takeover temporary possession of land/houses	POWERGRID, DPN	Revenue Department
Hand over temporary possession land to contractors for construction	POWERGRID & DPN	Contractor
Notify construction starting date to APs	POWERGRID & DPN Field Staff	Contractor
Restoration of temporarily acquired land to its original state including restoration of private or common property resources	Contractor	POWERGRID, DPN
Development, maintenance and updating of Compensation database	POWERGRID & DPN	
Internal monitoring	POWERGRID & DPN	
External monitoring, if required	POWERGRID & DPN	

7.4. Responsibility Matrix to manage RoW Compensation

94. In order to manage the RoW compensation effectively, a Work Time Breakdown (WTB) matrix depicting sequence of activities, timing, agencies responsible have been drawn both for

Tree/Crop and Land compensation which will be implemented during project execution.

a) WTB for Tree/Crop Compensation

Activities	Responsibility		Time Schedule
	Primary	Secondary	
Identification of APs (During Tower spotting & Check Survey)	Contractor	POWERGRID & DPN field staffs	In 3 different Stages i.e. before start of Foundation, Erection & Stringing Works
Serving Notice to APs	POWERGRID & DPN field staffs	Revenue Dept.,	0 date
Verification of ownership	POWERGRID & DPN Revenue Dept.	ADC/VDC (if applicable)	0-15 days
Joint Assessment of damages	Revenue Dept. & APs	POWERGRID & DPN	16-45 days
Payment (online/DD) of compensation to AP*	POWERGRID & DPN		46-60 days

a) WTB for Land Compensation

Activities	Responsibility		Time Schedule
	Primary	Secondary	
Identification of APs (During Tower spotting and Check Survey)	Contractors	POWERGRID & DPN field staffs	Before start of Foundation/ Erection & Stringing Works
Fixation of land rate	DC, ADC/BTC (if applicable)	POWERGRID & DPN	0 date
Serving Notice to APs	POWERGRID & DPN field staffs	Revenue Dept.,	0-7 days
Assessment of compensation/ Verification of ownership	Revenue Dept./ ADC/VDC,	POWERGRID & DPN	8-15 days
Payment (online/DD) of compensation to AP*	POWERGRID & DPN		16-30 days

* AP can approach to DC for any grievance on compensation.

** Discussion for release of certain % as advance is also under progress with Utilities.

Note: Both a and b activities shall run parallelly.

VIII. GRIEVANCE REDRESS MECHANISM

95. Grievance Redress Mechanism (GRM) is an integral and important mechanism for addressing/resolving the concern and grievances in a transparent and swift manner. Many minor concerns of peoples are addressed during public consultation process initiated at the beginning of the project. For handling grievance, a two tier GRM consisting of Grievance Redress Committee (GRC) at two levels, i.e. project/scheme level and Corporate/ HQ level have been constituted. The project level GRCs include members from DPN, POWERGRID, Local Administration, Village Council/Panchayat Members, Affected Persons representative and reputed persons from the society and representative from the autonomous districts council in case of tribal districts selected/decided on nomination basis under the chairmanship of project head. The composition of GRC also disclosed in Panchayat/Village council offices and concerned district headquarter for wider coverage.

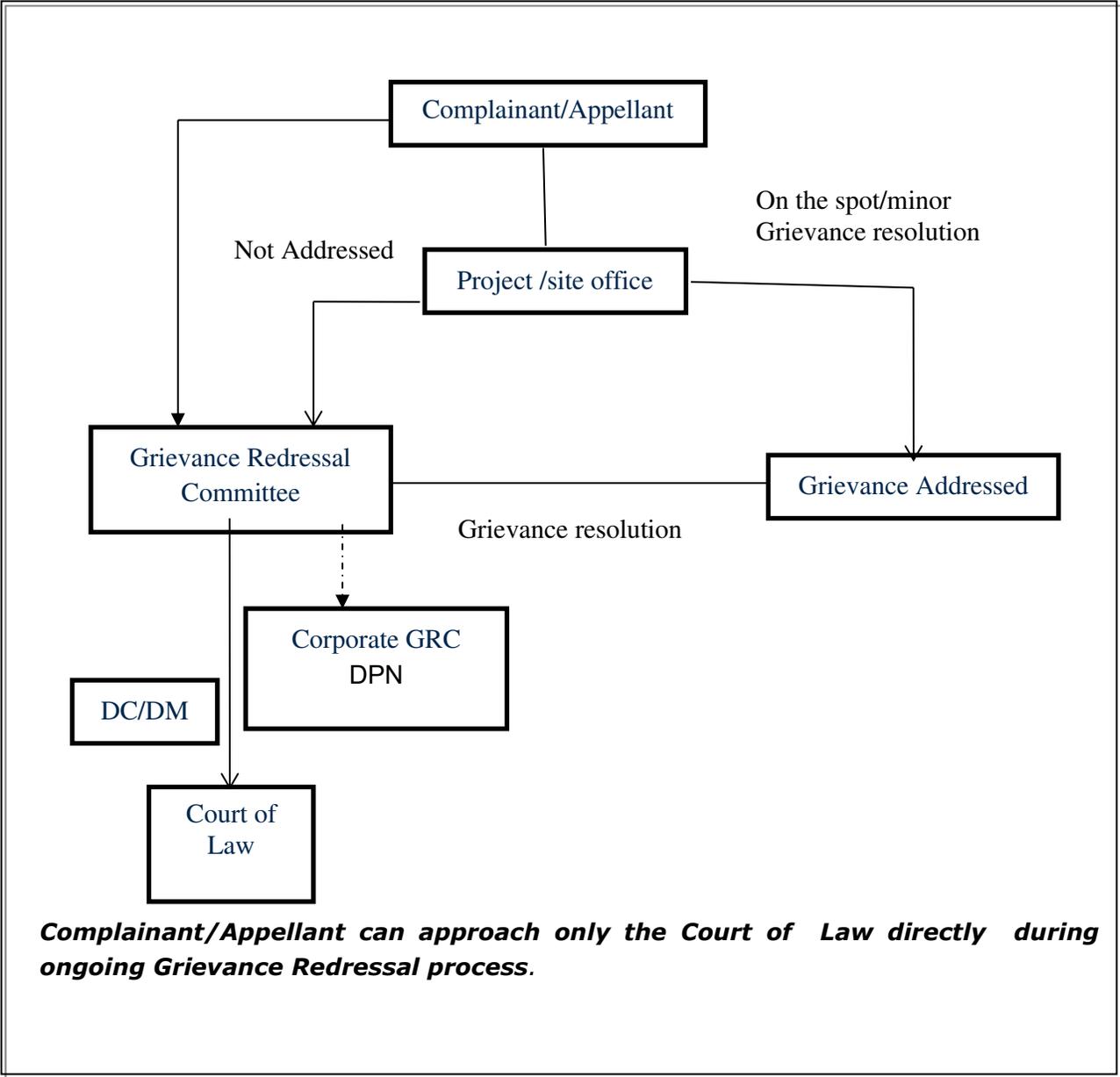
96. The complainant will also be allowed to submit its complaint to local project official who will pass it to GRC immediately but not more than 5 days of receiving such complaint. The first meeting of GRC will be organized within 15 days of its constitution/disclosure to formulate procedure and frequency of meeting. In case of any complaint, GRC meeting shall be convened within 15 days. If Project level GRC is not able to take decision it may refer the complaint to corporate GRC for solution. GRC endeavours to pronounce its decision within 30-45 days of receiving grievances. In case complainant/appellant is not satisfied with the decision of project level GRC they can make an appeal to corporate GRC for review. The proposed mechanism does not impede access to the country's judicial or administrative remedies at any stage.

97. The corporate level GRC function under the chairmanship of Director (PMU) who nominated other members of GRC including one representative from corporate ESMC conversant with the environment & social issues. The meeting of Corporate GRC shall be convened within 7-10 days of receiving the reference from project GRC or complainant directly and pronounce its decision within next 15 days.

98. Apart from above, grievance redressal is in built in crop/tree compensation process where affected persons are given a chance to place their grievances after issuance of notice by revenue officials on the basis of assessment of actual damages. Grievances received towards compensation are generally addressed in open forum and in the presence of many witnesses. Process of spot verification and random checking by the district collector/ its authorised

representative also provides forum for raising the grievance towards any irregularity/complain. Moreover, DPN officials also address to the complaints of affected farmers and the same are forwarded to revenue official for doing the needful. Details are depicted below in **Figure-8.1**:

Figure-8.1: Flow Chart of Grievance Redress Mechanism



IX. BUDGET

99. The CPTD Implementation cost estimate for the project includes eligible compensation for loss of crops/ trees/ huts and support cost for implementation of CPTD, monitoring, other administrative cost etc. Though Govt. of Nagaland has not yet adopted MoP guidelines for RoW compensation for implementation, budgetary provision for compensation for Tower Base (@ 100% of the land cost) has been made as per the prevailing practices. Accordingly, the cost has been estimated for proposed for 220 kV /132kV lines in the budget by including these provisions. However, this is a tentative budget which may change during the original course of implementation. The unit cost for the loss of crop has been derived through rapid field appraisal and based on DPN & POWERGRID's previous experience of similar project implementation. Contingency provision equivalent to 3% of the total cost has also been made to accommodate any variations from this estimate. Sufficient Budget has been provided to cover all compensation towards land use restriction, crops losses, other damages etc. As per DPN & POWERGRID's previous projects and with strategy for minimization of impacts, an average of 50-60% of the affected land area is expected for compensation for crops and other damages. Structure will be avoided to the extent possible. However, if any structure is affected, budget provisions are available to cover all damages as per entitlement matrix. . As detailed in above paras, initial study has confirmed that no residential structure shall be affected. Therefore, provisions of budget expenditure for implementation of CPTD for the subprojects considering corridor of 27,20 meter & 10 meter maximum for 220kV,132 kV & 33 kV line respectively.

9.1. Compensation for Land under Tower Base

100. The land area for 220 kV and 132 kV tower base are estimated as 0.077 acre and 0.036 acre per km respectively. As Govt. of Nagaland has not approved the adoption of MoP guidelines dated 15.10.2015, no payment shall be paid for land compensation for RoW corridor. However, as per prevailing practice only land compensation @ 100% land value for tower base will be paid. Accordingly, land compensation cost for 132kV lines tower base is estimated around Rs. 141.45 Lakhs A detail of cost is given below in **Table 9.1**.

Table 9.1: Cost of Land Compensation for Tower Base

Name of Line	Line Length (km)	Land Area for Tower Base (acre)	Avg. Cost of Land (Lakhs /acre)	Total in Lakhs (Tower base @ 100%)

220 kV S/C New Kohima-Mokokchung via Wokha	86.637	6.67	15.00	100.05
132 kV D/C New Kohima - New Secretariat Complex	13.97	0.50		7.5
132 kV S/C Wokha-Zunheboto-Mokokchung	50.293	1.81		27.15
LILO of 132kV S/C Mokokchung-Mariani at Longnak	0.804	0.03		0.45
LILO of both ckts of 132kV D/C Kohima-Meluri line at Pfutsero	2.411	0.09		1.35
LILO of 132kV S/C Kohima-Wokha at New Kohima	9.218	0.33		4.95
Total				141.45

9.2. Compensation for Crops and Trees

101. The crop compensation is estimated in consultation with revenue authorities in terms of yield/hectare and rate/quantity for prevailing crops in the area. Similarly, tree compensation is calculated on basis of tree enumeration, tree species and an estimate of the yield. In case of fruit bearing trees compensation will be calculated on the basis of 8 years yield (assessed by revenue/horticulture department). Market rates of compensation are assessed by the relevant government authorities. The estimation of crop and tree damages are based on preliminary investigation and accordingly budgetary provisions are made which will be updated during implementation. Details of line wise cost are given in **Table 9.2** below.

Table 9.2: Cost of Compensation for Crops and Trees

SI No	Name of the Line	Total Length (Km)	Compensation /Km (In Lakh)	Total compensation cost for Crops & trees (Lakh)
1.	220 kV S/C New Kohima-Mokokchung via Wokha	86.637	5.0	433.185
2.	132 kV D/C New Kohima - New Secretariat Complex	13.97	5.0	69.85
3.	132 kV S/C Wokha-Zunheboto-Mokokchung	50.29	5.0	251.45
4	LILO of 132kV S/C Mokokchung-Mariani at Longnak	0.80	5.0	4
5	LILO of both ckts of 132kV D/C Kohima-Meluri line at Pfutsero	2.41	5.0	12.05
6	LILO of 132kV S/C Kohima-Wokha at New Kohima	9.21	5.0	46.05

7	Existing 33 kV Mokokchung - Mariani line to prop. 33/11 kV Longtho S/s	0.125	0.5	0.06
8	LILO of existing 33kv Mok- Mariani line at Exit. 33/11kV Longnak S/s	0.198	0.5	0.09
9	66/33kV Mokokchung - 33/11kV Mokokchung Town Power House	9	0.5	4.5
10	66/33kV Mokokchung - 33/11kV Mokokchung Town Hospital Area	3	0.5	1.5
11	132/33kV Zunheboto - New 33/11kV s/s Zunheboto South Point	5.537	0.5	2.76
12	33/11kV Suruhuto -. 33/11kV Akuloto	23.29	0.5	11.645
13	33/11kV Pughoboto -. 33/11kV Torogonyu	2.27	0.5	1.14
14	132/33kV Kohima (New) - 33/11kV Zhadima	0.54	0.5	0.27
15	132/33kV Pfutsero - New 33/11kV Pfutsero	3.6	0.5	1.8
16	132/66/33kV Nagarjan - 33/11kV Padam Pukhri	6.152	0.5	3.076
Total				843.426

9.3. Summary of Budget

102. The total indicative cost is estimated to be **INR 1038.116 Lakhs** equivalent to **USD 1.599** million. Details are given in **Table 9.3**. The following estimated budget is part of complete project cost as on date. However, actual updation of the estimated cost shall be updated during execution.

Table 9.3: Summary of Budget

Item	Amount in Lakh (INR)	Amount in (Million USD)
A. Compensation		
A-1: Loss of Crops and Trees	843.426	1.299
A-2: Land Compensation for Tower Base	141.45	0.218
Sub Total-A	984.876	1.517
B: Implementation Support Cost		
B-1: Man-power involved for CPTD Implem. & Monitoring	18.00	0.028
B-2: External Monitoring, if required	5.00	0.008
Sub Total- B	23.00	0.035
Total (A+B)	1007.876	1.552
Contingency (3%)	30.24	0.047

Grand Total	1038.116	1.599
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X. IMPLEMENTATION SCHEDULE

103. Following work schedule has been drawn for implementation of CPTD considering letter of award for execution of work placed in end of 2016. Tentative implementation schedule for project including various sub tasks presented in **Table 10.1**.

Table 10.1 Tentative Implementation Schedule

Sl. No.	Activity	1 st Year				2 nd Year				3 rd Year			
		Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
1.	Initial CPTD Matrix disclosure												
2.	Detailed Survey												
3.	Public Consultation												
4.	Compensation Plan Implementation												
i)	Compilation of land record, ownership,												
ii)	Finalization of list of APs, fixing rate by DC												
iii)	Serving of Notice to APs												
iv)	Joint assessment & acknowledgement by APs												
v)	Validation of Compensation amount												
vi)	Compensation Payment												
5.	Civil Works												
6.	Review/ Activity Monitoring												
i)	Monthly												
ii)	Quarterly												
iii)	Half yearly												
iv)	Annual												
7.	Grievance redress												
8.	CPTD Documentation												
9.	External Monitoring, if required												

11.1 Status of Compensation (Tree/ Crop / Land / Structures)

108. As explained in previous chapters, compensation for the loss of crops, trees, land, structure etc. are paid to Affected Persons (APs) based on actual damages in 3 different stages i.e. during foundation work, tower erection & stringing as per norms. Till Oct, 2020, work in 170 locations out of total of 549 tower locations have been completed for which land compensation of Rs 15.79 million to 116 affected persons have been paid. Similarly, compensation to the tune of Rs. 1.13 million has been paid to 96 APs towards tree & crop damage. Details of line wise compensation status is placed below;

Sl. No.	Name of the Line	Land compensation					Tree/Crop Compensation				
		Foundation Completed	Total Affected Persons	Compensation already paid to Affected Persons	Compensation for APs under progress	Total Compensation paid for Tower Base	Total Compensation paid for RoW Corridor	Total Affected Persons	Compensation already paid to APs	Compensation for APs under progress	Total Compensation paid for Tree & Crop damages
		(No.)	(No.)	(No.)	(No.)	(Rs. Million)	(Rs. Lakh)	(No.)	(No.)	(No.)	(Rs. Million)
1	132 kV D/c Kohima-New Sec. Complex	28	29	23	7	2.82	Not Applicable as State Govt. has not adopted MoP Guidelines	28	22	6	0.176
2	LILO 132kV D/c Kohima-Meluri at Pfutsero	10	11	11	0	1.00		11	0	0	0
3	220 kV S/c N.Kohima-Wokha-M.chung	102	109	58	51	7.52		95	53	12	0.74
4	LILO132kV S/c M'chung-Mariani at Longnak	5	6	6	0	2.45		5	5	0	0.007
5	LILO 132kVS/c Kohima-Wokha at N Kohima	25	28	18	10	2.00		28	16	12	0.19
Total		170	183	116	68	15.79		167	96	30	1.113

11.2 Status of Grievances

109. Till date 2 written and 12 verbal complaints have been registered against various subprojects covered under present CPTD. Out of these total 14 compliants, 9 have been resolved to the satisfaction of the complainants and remaining 3 are still open/ being negotiated. Details are provided below.

S N	Name of the Subproject /State	Loc. No/ Village	Name of complainant	Date of complaints /Court case	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						
1	220kV New Kohima - Mokokchung via Wokha line (Nagaland)	AP-68 & 70	Mr. Shwehilo Tep	20.05.20	Land compensation for approach road	Matter resolved through discussion with Contractor and Land owners on 20.07.20 & 28.10.20 respectively.
2		AP-53, 54 & 83	Mr. Sotilo Tep Mr. Daniel Tep Mr.Hillo Khing	19.06.20		
C. Verbal Complaints						
1	33/11 kV Botsa (Ext.) substation (Nagaland)	Village Botsa	Dr. Ropfu Dolie (PHC)	01.03.18	Regarding Road Block due to construction materials	Resolved on 01.03.18. Within 3 hours to complainant satisfaction.
2	33/11 kV Sechu-Zubza substation (Nagaland)	Village Zubza	Nearest Church authorities	04.06.18	Power cut due to substation construction work	Resolved through discussion on 04.06.18.
3	33/11 kV Chiephobozou substation (Nagaland)	Village Chiephobozou	Visakuolie Kiewhuo (Villager)	06.06.18	Demand for road	Though matter is not under purview of POWERGRID, discussion is being held to find an amicable solution.
4	33/11 kV Padampukhri substation (Nagaland)	Village Padampukhri	Nearby Residents	18.07.18	Unpleasant sound due to construction	Resolved on 29.07.18. Noise reduction measures implemented & no further complaint received.
5	33/11 kV Botsa (Ext.) substation (Nagaland)	Village Botsa	Villagers	28.12.18	Fencing of the substation boundary	Resolved. Fencing work completed in July'19.
6	132 kV D/c Kohima- New Sec. Complex Line (Nagaland)	Village Zhadima	Neizolie Loueii (land owner)	13.01.19	Compensation related issue (for trees & Land)	Issue resolved on 18.01.19 (both cases) through meeting/ discussion. Compensation framework explained to complainant to their satisfaction.
7			Concerned land owners of Loc. No.01-28 of Zhadima village	06.06.19		

8			Land Owners at AP- 19-20	08.11.19	Compensation towards Approach road	Matter resolved on 11.11.19 through discussion with Contractor and Land owners.
9	132kV Kohima – Wokha (Nagaland)	Phezha AP-01	Medosao Semou	21.10.19	RoW issue (demand for higher compensation)	Discussion/ negotiation under progress in consultation with local authority.
10	132kV Kohima – Wokha (Nagaland)	Phezha AP-01	Medosao Semou	21.10.19	RoW issue (demand for higher compensation)	Discussion/ negotiation under progress in consultation with local authority.
11	220kV New Kohima- Mokokchung via Wokha line (Nagaland)	Ehunn, AP-113 to 121	Village council of Ehunnu	08.11.19	Compensation towards Approach road	Matter resolved on 22.12.19 through discussion with Contractor and Land owners.
12	220kV New Kohima - Mokokchung via Wokha line (Nagaland)	AP-116	School authorities of Phugoboto	25.03.20	Construction of tower nearby School area	Resolved on 22.04.20. Modification in route alignment avoiding such land has been achieved after due diligence to the satisfaction of complainants.

ANNEXURE - 1

EVALUATION OF ALTERNATIVES ROUTE ALIGNMENT

EVALUATION OF ALTERNATIVES ROUTE ALIGNMENT

Three different alignments were studied with the help of Google Maps / published data such as Forest Atlas, Survey of India topographic sheets, etc. and walkover survey to arrive at the most optimum route to be considered for detailed survey. The comparative details of these three alternatives in respect of the proposed lines are as follows;

1. 220 KV S/C (ON D/C TOWER) NEW KOHIMA- MOKOKCHUNG VIA WOKHA TRANSMISSION LINE

S.N	Description	Alternative-I	Alternative-II	Alternative-III
1.	Route Particulars (Bee Line :- 64.77 KM)			
i.	Route Length (km)	86.63	90.6	88.42
ii.	Terrain			
	Hilly/Undulated	100%	100%	100%
	Plain			
2.	Environmental details			
i.	Name of District through which the line passes	Kohima, Wokha & Mokokchung	Kohima, Wokha & Mokokchung	Kohima, Wokha & Mokokchung
ii.	Town in alignment	Kohima, Wokha & Mokokchung.	Kohima, Wokha & Mokokchung.	Kohima, Wokha & Mokokchung.
iii.	House within ROW	To be ascertained during detail survey	To be ascertained during detail survey	To be ascertained during detail survey
iv.	Forest involvement in Ha/km	Nil	Nil	Nil
v.	Type of Forest (RF/PF/ Wildlife Area/ Elephant Corridor/ Biodiversity Hotspots/ Biosphere Reserve/ Wetlands or any other environmentally sensitive area.	Nil	Nil	Nil
vi.	Density of Forests	Nil	Nil	Nil
vii.	Type of flora	Bonsum, Gogra, Alder, Wild Lemon, Wild Banana, Gomari, Neem etc	Bonsum, Gogra, Alder, Wild Lemon, Wild Banana, Neem Gomari, etc	Bonsum, Gogra, Alder, Wild Lemon, Wild Banana, Gomari, Neem etc
viii.	Type of fauna	Cow, Buffalo, Dog, Goat, Cat, Snake, Pigeon, Sparrow	Cow, Buffalo, Goat, Cat, Dog, Snake, Pigeon, Sparrow	Cow, Cat, Buffalo, Goat, Dog, Snake, Pigeon, Sparrow
ix.	Endangered species, if any	Nil	Nil	Nil
x.	Historical/cultural monuments	Nil	Nil	Nil

S.N	Description	Alternative-I	Alternative-II	Alternative-III
xi.	Any other relevant information	Line is passing through Jhum cultivation land and private/community owned land having some tree cover along the Kohima-Wokha-Mokokchung National Highway No.61. The route enjoys better accessibility and avoids major inhabitations.	The route is passing through moderately dense private forest area. The accessibility is not good due to lack of approach roads/ paths.	The route is passing through moderately dense private forest area. Accessibility is a major hurdle due to lack of approach roads/paths.
3	Compensation Cost (in Lakhs)			
i.	Crop (Non Forest)	Provision for Rs. 5 Lakhs/km exist in the DPR.	Provision for Rs. 5 Lakhs/km exist in the DPR.	Provision for Rs. 5 Lakhs/km exist in the DPR.
ii.	Forest (CA+NPV)	N.A. <i>Provision of voluntary afforestation in the ratio of 1:3 @ Rs.1 lakh/km made in budget as per ESPPF.</i>	N.A.	N.A.
4.	No. of Crossings (Nos.)			
i.	Highway (NH/SH)	Appx. 20 times	4	5
ii.	Power line	4	4	4
iii.	Railway line	Nil	Nil	Nil
iv.	River crossing (normal span)	1 (Doyang River)	1 (Doyang River)	1 (Doyang River)
5.	Overall Remarks	Preferred route being shortest and passing along & in proximity of National Highway - 61 and having existing approach roads/paths up to tower locations. Also involves minimum tree felling.	Not Preferred due to unavailability of approach roads/ paths and involvement of more tree felling.	Not Preferred due to unavailability of approach roads/ paths and involvement of more tree felling

From the comparative analysis of three alternative routes, it is evident that none of the three alternative routes studied involves forest or wildlife area. However, Alternative-I is shorter in length than alternative II & III and is easily accessible due to its proximity to National Highway-61. Since the route is shorter in length, it will involve minimum tree felling. Hence, Alternative - I is considered as the most optimum route and recommended for detailed survey.

2. 132 KV S/C (ON D/C TOWER) WOKHA- ZUNHEBOTO- MOKOKCHUNG (STATE) TRANSMISSION LINE

S.N	Description	Alternative-I	Alternative-II	Alternative-III
1.	Route Particulars (Bee Line :- 64.77 KM)			
i.	Route Length (km)	50.29	59.6	57.46
ii.	Terrain			
	Hilly/Undulated	100%	100%	100%
	Plain			
2.	Environmental details			
i.	Name of District through which the line passes	Wokha, Zunheboto & Mokokchung	Wokha, Zunheboto & Mokokchung	Wokha, Zunheboto & Mokokchung
ii.	Town in alignment	Wokha, Zunheboto & Mokokchung	Wokha, Zunheboto & Mokokchung	Wokha, Zunheboto & Mokokchung
iii.	House within ROW	To be ascertained during detail survey	To be ascertained during detail survey	To be ascertained during detail survey
iv.	Forest involvement in Ha/km	Nil	Appx. 16 km./ 43.2 Ha	Appx. 18 km./ 48.6 Ha
v.	Type of Forest (RF/PF/ Wildlife Area/ Elephant Corridor/Biodiversity Hotspots/Biosphere Reserve/Wetlands or any other environmentally sensitive area.	NA	Protected Forest (Aochaklimi PF & Sapotami PF)	Protected Forest (Aochaklimi PF & Sapotami PF)
vi.	Density of Forests	NA	Medium to dense	Medium to dense
vii.	Type of flora	Bonsum, Gogra, Alder, Wild Lemon, Wild Banana, Gomari, Neem etc	Bonsum, Gogra, Alder, Wild Lemon, Wild Banana, Neem Gomari, etc	Bonsum, Gogra, Alder, Wild Lemon, Wild Banana, Gomari, Neem etc
viii.	Type of fauna	Cow, Buffalo, Cat, Goat, Dog, Snake, Pigeon, Sparrow	Cow, Buffalo, Cat, Goat, Dog, Snake, Pigeon, Sparrow	Cow, Buffalo, Cat, Goat, Dog, Snake, Pigeon, Sparrow
ix.	Endangered species, if any	Nil	Nil	Nil
x.	Historical/cultural monuments	Nil	Nil	Nil
xi.	Any other relevant information	Line is mostly passing through Jhum cultivation land and private/ community owned land having some tree cover. The route enjoys good accessibility due to its proximity to NH-61 and availability of approach roads/ paths.	Poor accessibility due to lack to approach roads/paths.	Poor accessibility due to lack to approach roads/paths and difficult terrain.
3	Compensation Cost (in Lakhs)			
i.	Crop (Non Forest)	Provision for Rs. 5 Lakhs/km exist in the DPR.	Provision for Rs. 5 Lakhs/km exist in the DPR.	Provision for Rs. 5 Lakhs/km exist in the DPR.

S.N	Description	Alternative-I	Alternative-II	Alternative-III
ii.	Forest (CA+NPV)	N.A. <i>Provision of voluntary afforestation in the ratio of 1:3 @ Rs.1 lakh/km made in budget as per ESPPF.</i>	N.A.	N.A.
4.	No. of Crossings (Nos.)			
v.	Highway (NH/SH)	Appx. 20 times	4	5
vi.	Power line	4	4	4
vii.	Railway line	Nil	Nil	Nil
viii.	River crossing (normal span)	1 (Doyang River)	1 (Doyang River)	1 (Doyang River)
5.	Overall Remarks	Preferred Route being the shortest and passing along and in proximity of National Highway - 61 having existing approach roads/paths up to tower locations and involves minimum tree felling.	Not Preferred due unavailability of approach roads/paths and involvement of more tree felling.	Not Preferred due unavailability of approach roads/paths, involvement of more tree felling and difficult terrain.

From the comparative analysis of three alternative routes, it is evident that two of the alternative routes studied involves few forest or wildlife area except Alternative-I, which is completely free from forest involvement. Moreover, Alternative- I is shorter in length than alternative II & III and is easily accessible due to availability of approach roads/paths. Since the route is shorter in length, it will involve minimum tree felling. Hence, Alternative - I is considered as the most optimum route and recommended for detailed survey.

ANNEXURE - 2

DETAILS OF TOWER SCHEDULE OF PROPOSED LINES ROUTE ALIGNMENT

SL NO	AP NO	TOWER NO	TYPE OF TOWER	CONNE CT WITH BB	CONNE CT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMLTV LENGTH	R.L	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WIND SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			FOUNDA TION TYPE	MAJOR CROSSING DETAIL	VILL NAME	GPS CO-ORDINATE	
								A	B	C	D	A	B	C	D									LEFT	RIGHT	TOTA L	LEFT	RIGHT	TOTAL				EASTING	NORTHING
																								WGS-84										
1		EXT-Tower	C				20°53'19"RT	0	0	0	0	0	0	0	0	0	0	0	0	100.00	50.00		-295.83	-295.83		-514.74	-514.74			TSIESEMA	94°04'54.54"	25°45'51.07"		
2	1	1/0 (ON LINE)	DD	BB	0		92°49'54"LT	6	3	3	6	0	0	0	0	100	100	100	1287.41	0.5	19.07	126.00	63.00	395.83	-485.01	-89.18	614.74	-800.25	-185.51		FP	TSIESEMA	94°04'55.06"	25°45'54.20"
3	2	2/0	DD	BB	0		56°45'27"RT	4.5	3	3	6	0	0	0	0	26	26	126	1294.55	0.5	7.14	139.00	69.50	511.01	-280.20	230.81	826.25	-493.33	332.92		Boundary	TSIESEMA	94°04'53.89"	25°45'54.32"
4	3	3/0	DB	BB		X-Arm Strengthening Suggested	4°39'9"RT	0	0	0	0	0	0	0	0	113	113	239	1319.03	1	20.98	507.00	253.50	393.20	-143.32	249.87	606.33	-358.76	247.57		2 Nos 11KV, Boundary, NH-2	TSIESEMA	94°04'51.92"	25°45'57.50"
5	5	5/0	DD	BB	0		35°8'41"RT	3	3	3	3	0	0	0	0	394	394	633	1390.47	1.5	73.94	675.00	337.50	537.32	-218.84	318.49	752.76	-446.31	306.45			TSIESEMA	94°04'45.91"	25°46'09.13"
6	6	6/0	DB	BB	0	X-Arm Strengthening Suggested	3°47'23"LT	6	6	6	6	0	0	0	0	281	281	914	1443.65	2	55.68	478.00	239.00	499.84	15.47	515.31	727.31	-37.09	690.21			TSIESEMA	94°04'47.56"	25°46'18.13"
7	8	8/0	DD	BB	0		36°15'0"LT	4.5	3	4.5	4.5	0	0	0	0	197	197	1111	1454.17	0.5	9.02	589.00	294.50	181.53	61.05	242.59	234.09	-24.37	209.72		2 Nos FP, Pond	NERHEMA	94°04'48.28"	25°46'24.43"
8	9	9/0	DB	BB	0	X-Arm Strengthening Suggested	9°12'40"LT	9	9	9	9	0	0	0	0	392	392	1503	1477.84	1	29.17	836.00	418.00	330.95	789.73	1120.68	416.37	1149.11	1565.48		2 Nos FP	NERHEMA	94°04'41.04"	25°46'35.4"
9	10	10/0	DC	BB		X-Arm Strengthening Suggested	21°36'42"RT	0	0	0	0	0	0	0	0	444	444	1947	1347.84	1	-139.00	832.00	416.00	-345.73	174.70	-171.03	-705.11	162.48	-542.64		2 Nos Foot Track, Nala	NERHEMA	94°04'30.55"	25°46'46.30"
10	11	11/0	DC	BB	0	Used DC type instead of DB type due to Sum of adj. span limit crossed.	13°47'01"LT	4.5	3	3	3	0	0	0	0	388	388	2335	1348.97	1	4.13	720.00	360.00	213.30	423.71	637.01	225.52	586.84	812.37		Nala, 11KV, Fencing, Foot Track	ZHADIMA	94°04'25.90"	25°46'58.17"
11	12	12/0	DB	BB	0		05°28'47"RT	6	6	3	3	0	0	0	0	332	332	2667	1300.79	0	-47.18	423.00	211.50	-91.71	234.42	142.71	-254.84	354.01	99.17		Nala	ZHADIMA	94°04'19.25"	25°47'07.16"
12	13	13/0	DC	BB			23°04'44"RT	0	0	0	0	0	0	0	0	91	91	2758	1295.81	1.5	-9.48	364.00	182.00	-143.42	98.57	-44.85	-263.01	74.56	-188.45		Nala	ZHADIMA	94°04'17.72"	25°47'09.65"
13	14	14/0	DB	BB	0		02°20'12"LT	4.5	4.5	3	3	0	0	0	0	273	273	3031	1298.02	1	5.71	515.00	257.50	174.43	288.56	462.99	198.44	394.63	593.07		Nala	ZHADIMA	94°04'16.78"	25°47'18.47"
14	15	15/0	DB	BB			09°03'09"LT	0	0	0	0	0	0	0	0	242	242	3273	1278.66	1	-22.36	541.00	270.50	-46.56	-122.64	-169.20	-152.63	-294.91	-447.54		FP	ZHADIMA	94°04'15.68"	25°47'26.34"
15	16	16/0	DC	BB	0	X-Arm Strengthening Suggested	17°17'48"LT	3	3	3	3	0	0	0	0	299	299	3572	1321.03	1.5	44.87	407.00	203.50	421.64	-369.65	52.00	593.91	-637.82	-43.91		Nala	ZHADIMA	94°04'12.57"	25°47'35.62"
16	17	17/0	DC	BB	0	Used DC type instead of DB type due to single span limit crossed (X-Arm Strengthening Suggested)	10°25'24"RT	4.5	3	3	4.5	0	0	0	0	108	108	3680	1345.76	1	25.23	585.00	292.50	477.65	487.82	965.47	745.82	645.65	1391.47		Nala	ZHADIMA	94°04'10.29"	25°47'38.61"
17	19	19/0	DD	BB		Single span limit crossed refer to engineer	56°27'48"RT	1.5	1.5	0	0	0	0	0	0	477	477	4157	1282.68	0.5	-65.58	711.00	355.50	-10.82	147.15	136.32	-168.65	166.23	-2.42		Nala	ZHADIMA	94°04'03.13"	25°47'52.57"
18	20	20/0	DC	BB	0		21°41'36"LT	4.5	3	3	3	0	0	0	0	234	234	4391	1276.79	1.5	-3.89	481.00	240.50	86.85	193.40	280.25	67.77	237.64	305.41		Nala	ZHADIMA	94°04'07.62"	25°47'59.23"
19	21	21/0	DC	BB	0		18°38'32"LT	3	3	3	3	0	0	0	0	247	247	4638	1266.77	1	-9.52	654.00	327.00	53.60	305.80	359.41	9.36	370.56	379.92		2 Nos Foot Track, Nala	ZHADIMA	94°04'09.46"	25°48'06.82"
20	23	23/0	DC	BB	0	X-Arm Strengthening Suggested	17°31'55"LT	3	3	3	3	0	0	0	0	407	407	5045	1244.31	1.5	-22.96	613.00	306.50	101.20	795.90	897.10	36.44	1234.52	1270.96		2 Nos Foot Track, FP	ZHADIMA	94°04'08.21"	25°48'20.10"
21	24	24/0	DB	BB	0	X-Arm Strengthening Suggested	07°56'06"LT	3	3	3	3	0	0	0	0	206	206	5251	1165.10	1	-78.71	694.00	347.00	-589.90	625.01	35.11	-1028.52	866.20	-162.32		Foot Track	ZHADIMA	94°04'05.33"	25°48'26.21"
22	24A	24A/0	DB	BB			12°53'5"RT	1.5	0	0	0	0	0	0	0	488	488	5739	1065.57	1	-102.53	647.00	323.50	-137.01	187.40	50.38	-378.20	255.70	-122.51		2 Nos Nala	ZHADIMA	94°03'56.30"	25°48'39.79"
23	25	25/0	DB	BB			09°27'35"LT	1.5	1.5	0	0	0	0	0	0	159	159	5898	1055.11	0	-9.46	508.00	254.00	-28.40	7.91	-20.49	-96.70	-97.54	-194.24		Nala	ZHADIMA	94°03'54.40"	25°48'44.61"
24	26	26/0	DC	BB	0	Used DC type instead of DB type due to single span limit crossed	14°10'09"LT	9	9	9	9	0	0	0	0	349	349	6247	1080.17	2	32.06	474.00	237.00	341.09	-80.69	260.40	446.54	-171.33	275.21		Foot Track	ZHADIMA	94°03'48.52"	25°48'54.61"
25	27	27/0	DB	BB	0		01°43'56"RT	3	4.5	3	3	0	0	0	0	125	125	6372	1095.04	1	9.87	344.00	172.00	205.69	141.22	346.91	296.33	161.29	457.63			ZHADIMA	94°03'45.50"	25°48'57.50"

SUBMITTED BY:
SHYAMA POWER(I) LTD.
Sudip Barua
Sudip Barua
Sudip Barua
S-P.T.-L

CHECKED BY:
P.G.C.I.L
AET

Dr. Manoj
Powergrid



APPROVED BY:
P.G.C.I.L

SL NO	AP NO	TOWER NO	TYPE OF TOWER	CONNE CT WITH BB	CONNE CT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMLTV LENGTH	R.L	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WIND SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			FOUNDATI ON TYPE	MAJOR CROSSING DETAIL	VILL NAME	GPS CO-ORDINATE	
								A	B	C	D	A	B	C	D									LEFT	RIGHT	TOTA L	LEFT	RIGHT	TOTAL				EASTING	NORTHING
25	27	27/0	DB	BB	0		01°43'56"RT	3	4.5	3	3	0	0	0	0	219	219	6591	1095.04	1		344.00	172.00	205.69	141.22	346.91	296.33	161.29	457.63		ZHADIMA	94°03'45.50"	25°48'57.50"	
26	28	28/0	DB	BB	0	X-Arm Strengthening Suggested	12°54'35"LT	9	9	9	9	0	0	0	0	179	179	6770	1084.71	0.5	-3.83	398.00	199.00	77.78	407.41	485.20	57.71	608.66	666.37	FP	ZHADIMA	94°03'40.27"	25°49'02.99"	
27	29	29/0	DD	BB	0		29°30'25"RT	3	6	3	3	0	0	0	0	411	411	7181	1060.83	2	-31.38	590.00	295.00	-228.41	579.71	351.30	-429.66	816.59	386.93	2 Nos Nala	ZHADIMA	94°03'35.17"	25°49'06.47"	
28	30	30/0	DC	BB	0	X-Arm Strengthening Suggested	19°18'27"RT	6	4.5	3	4.5	0	0	0	0	320	320	7501	974.02	0	-84.81	731.00	365.50	-168.71	726.77	558.06	-405.59	1085.54	679.95	Foot Track	ZHADIMA	94°03'29.18"	25°49'18.64"	
29	31	31/0	DB	BB		X-Arm Strengthening Suggested	05°08'36"RT	0	0	0	0	0	0	0	0	266	266	7767	878.01	1	-100.01	586.00	293.00	-406.77	166.68	-240.09	-765.54	188.00	-577.54	Nala	ZHADIMA	94°03'28.21"	25°49'29.06"	
30	32	32/0	DB	BB	0	X-Arm Strengthening Suggested	04°48'54"RT	3	3	3	3	0	0	0	0	372	372	8139	870.07	1	-4.94	638.00	319.00	99.32	551.81	651.14	78.00	783.38	861.38	Nala	ZHADIMA	94°03'28.44"	25°49'37.59"	
31	33	33/0	DD	BB		X-Arm Strengthening Suggested	37°19'12"LT	0	1.5	1.5	0	0	0	0	0	301	301	8440	797.53	0.5	-75.04	673.00	336.50	-179.81	618.03	438.21	-411.38	913.98	502.60	Umetal Road	ZHADIMA	94°03'29.63"	25°49'49.65"	
32	34	34/0	DD	BB	0	Used DD type both side due to long span	11°50'57"LT	6	7.5	6	6	0	0	0	0	608	608	9048	714.43	1	-77.60	909.00	454.50	-317.03	-148.50	-465.53	-612.98	-434.94	-1047.92	Nala	ZHADIMA	94°03'23.88"	25°49'57.55"	
33	35	35/0	DD	BB	0	Used DD type both side due to long span (X-Arm Strengthening Suggested)	16°42'15"LT	3	3	3	3	0	0	0	0	79	79	9127	870.64	2.5	151.71	687.00	343.50	756.50	-466.89	289.61	1042.94	-787.45	255.49	Umetal Road, Fancing	ZHADIMA	94°03'08.66"	25°50'12.26"	
34	36	36/0	DD	BB			13°19'03"LT	0	0	0	0	0	0	0	0	91	91	9218	893.20	0	22.06	170.00	85.00	545.89	-69.88	476.01	866.45	-142.92	723.53		ZHADIMA	94°03'06.14"	25°50'13.44"	
35		Bay	Gantry															898.99	0	5.79	91.00	45.50	160.88		160.88	233.92		233.92		ZHADIMA	94°03'03.03"	25°50'14.17"		

SL NO	AP NO	TOWER NO	TYPE OF TOWER	CONNE CT WITH BB	CONNE CT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMLTV LENGTH	R.L	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WIND SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			FOUNDATI ON TYPE	MAJOR CROSSING DETAIL	VILL NAME	GPS CO-ORDINATE	
								A	B	C	D	A	B	C	D									LEFT	RIGHT	TOTA L	LEFT	RIGHT	TOTAL				EASTING	NORTHING
1	1	1/0 (ON LINE)	DD	BB	0		83°32'25"LT	3	3	3	3	0	0	0	0	42	42	42	1287.41	0.5	2.48	133.00	66.50		-86.08	-86.08		-153.87	-153.87		TSIESEMA	94°04'55.06"	25°45'54.20"	
2		EXT-Tower	C				24°44'56"RT	0	0	0	0	0	0	0	0				1292.39	0		42.00	21.00	128.08		128.08	195.87		195.87		TSIESEMA	94°04'55.07"	25°45'55.65"	

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By. Man. Powergrid.

AET.

Sudip Biswas Surveyor S-P-I-L

SL NO	AP NO	TOWER NO	TYPE OF TOWER UPTO BASIC BODY	CONNECT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUM.LTV LENGTH	R.L	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING	DETAIL	PROP. FOUNDATION TYPE	VILL NAME	GPS CO-ORDINATE WGS-84	
							A	B	C	D	A	B	C	D								LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL					EASTING	NORTHING
							0	0	0	0	0	0	0	0								0	0	0	0	0	0					0	0
28	30	30/0	DD	NONE		30°41'45"LT	0	0	0	0	0	0	0	0	0	0	1183.87	1.50	40.75	255.00	169.57	-112.86	56.71	198.87	-214.84	-15.97			DFR	VILL-Tsiemekhuma	84°7'11.84"	25°50'32.33"	
29	31	31/0	DB	NONE		04°00'58"RT	1.5	0	0	0	0	0	0	0	0	0	1205.62	0.50	5.10	377.00	367.86	-1.88	365.98	459.84	-28.55	441.28	Metal Road, 11KV		DFR	VILL-Tsiemekhuma	84°07'17.71"	25°50'38.38"	
30	32	32/0	DB	+0 m		08°13'13"RT	4.5	6	6	3	0	0	0	0	0	0	1205.22	0.00	17.45	505.00	123.88	122.87	246.85	150.55	93.90	244.45			DFR	VILL-Tsiemekhuma	84°07'20.72"	25°50'41.44"	
31	33	33/0	DC	NONE		20°48'50"LT	0	0	0	0	0	0	0	0	0	0	1227.17	1.50	35.69	677.00	260.03	138.33	398.36	289.10	92.23	381.39	3 Nos Metal Road, 11KV		DFR	VILL-Chingg Khuma	84°07'31.57"	25°50'49.21"	
32	34	34/0	DB	NONE		09°12'28"RT	0	0	1.5	3	0	0	0	0	0	0	1261.36	0.00	15.44	735.00	355.67	24.14	379.80	401.77	-16.75	385.02	2 Nos Metal Road		DFR	VILL-Chingg Khuma	84°07'40.60"	25°51'02.97"	
33	35	35/0	DB	NONE		11°24'42"LT	0	0	0	0	0	0	0	0	0	0	1277.33	1.00	36.94	579.00	216.66	4.62	221.48	257.75	-65.12	192.62			DFR	VILL-Chingg Khuma	84°07'46.17"	25°51'08.95"	
34	36	36/0	DC	NONE		14°33'17"LT	1.5	0	0	1.5	0	0	0	0	0	0	1314.74	1.00	-6.86	511.00	333.38	146.14	479.52	403.12	171.45	574.57			DFR	VILL-Chingg Khuma	84°07'51.82"	25°51'18.63"	
35	37	37/0	DD	NONE		37°10'05"RT	1.5	3	1.5	0	0	0	0	0	0	0	1300.88	0.00	-59.55	539.00	26.86	427.72	454.58	1.56	531.55	533.11	11Kv, Metal Road, 2 Nos Vill Road		DFR	VILL-Chingg Khuma	84°07'53.34"	25°51'24.00"	
36	38	38/0	DC	+0 m		16°10'18"RT	3	3	3	3	0	0	0	0	0	0	1245.83	1.50	102.56	863.00	-61.72	-61.68	-123.60	-185.55	-193.57	-359.12			DFR	VILL-Chingg Khuma	84°08'03.54"	25°51'31.85"	
37	39	39/0	DB	NONE	X-Arm Strengthening Suggested	06°49'39"LT	1.5	3	0	1.5	0	0	0	0	0	0	1350.89	1.00	24.86	641.00	558.88	-187.66	371.22	690.57	-297.83	382.73			DFR	VILL-Chingg Khuma	84°08'19.91"	25°51'38.00"	
38	40	40/0	DB	+0 m	X-Arm Strengthening Suggested	01°21'46"LT	9	9	6	6	0	0	0	0	0	0	1364.25	0.50	-95.24	452.00	331.66	619.10	850.76	441.83	816.42	1258.26	Un-Metal Road, 11Kv		DFR	VILL-Chingg Khuma	84°08'24.30"	25°51'40.23"	
39	42	42/0	DC	NONE		21°38'10"RT	0	3	3	0	0	0	0	0	0	0	1279.41	0.00	-18.90	490.00	-311.10	247.19	-63.90	-508.42	313.46	-194.96			DFR	VILL-Chingg Khuma	84°08'33.69"	25°51'45.71"	
40	43	43/0	DD	NONE		48°44'28"LT	0	0	0	0	0	0	0	0	0	0	1281.61	1.00	-27.90	394.00	-65.19	303.94	239.75	-131.46	387.93	256.46			DFR	VILL-Chingg Khuma	84°08'40.17"	25°51'46.70"	
41	44	44/0	DD	NONE		46°21'16"RT	0	0	0	0	0	0	0	0	0	0	1233.71	1.00	-32.58	382.00	-91.94	373.25	281.31	-175.93	495.55	319.63			DFR	VILL-Betsa	84°08'44.06"	25°51'52.65"	
42	45	45/0	DC	NONE		16°35'10"RT	0	1.5	1.5	1.5	0	0	0	0	0	0	1200.63	0.50	3.01	456.00	-203.25	127.17	-76.08	-325.55	120.45	-205.10			DFR	VILL-Betsa	84°08'50.02"	25°51'53.74"	
43	46	46/0	DB	NONE		06°17'20"RT	0	0	1.5	1.5	0	0	0	0	0	0	1203.64	0.50	55.40	633.00	158.83	-66.63	92.20	165.55	-168.52	-2.97	Nala		DFR	VILL-Betsa	84°09'00.20"	25°51'52.75"	
44	47	47/0	DC	+0 m		17°51'10"LT	3	3	6	6	0	0	0	0	0	0	1255.54	0.00	17.82	706.00	413.63	104.84	518.47	515.52	73.16	588.68	Vill Road		DFR	VILL-Betsa	84°09'12.45"	25°51'50.36"	
45	48	48/0	DB	NONE	X-Arm Strengthening Suggested	05°57'38"LT	0	0	1.5	1.5	0	0	0	0	0	0	1278.36	0.00		713.00	254.16	-442.35	-188.19	285.84	-705.13	-419.29	2 Nos Vill Road		DFR	VILL-Betsa	84°09'25.13"	25°51'51.52"	



Khunzo Phakelg
06/02/19

CHECKED BY:
P.G.C.I.L



[Signature]

APPROVED BY:
P.G.C.I.L

DETAILED SURVEY TOWER SCHEDULE

SL NO	AP NO	TOWER NO	TYPE OF TOWER UPTO BASIC BODY	CONNECT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMLV. LENGTH	R.L	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING	DETAIL	PROP. FOUNDATION TYPE	VILL NAME	GCS CO-ORDINATE WGS-84	
							A	B	C	D	A	B	C	D								LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL					EASTING	NORTHING
45	48	48/0	DB	NONE	X-Arm Strengthening Suggested	05°57'38"LT	0	0	1.5	1.5	0	0	0	0			1276.96	0.00		713.00	254.16	-442.35	-188.19	285.84	-705.13	-419.29			DFR	VILL-Botsa	94°09'25.13"	25°51'51.52"	
46	49	49/0	DD	+0 m	X-Arm Strengthening Suggested	38°10'36"LT	6	7.5	6	6	0	0	0	0	354	13107	1416.63	0.50	-25.93	767.00	796.35	300.93	1097.29	1059.13	341.00	1400.13	Vill Road		DFR	VILL-Botsa	94°09'37.66"	25°51'53.79"	
47	51	51/0	DB	NONE		02°05'30"RT	0	0	1.5	3	0	0	0	0	413	13520	1396.7	0.50		775.00	112.07	-48.39	63.67	72.00	-145.72	-73.72			DFR	VILL-Botsa	94°09'47.27"	25°52'04.11"	
48	52	52/0	DC	+0 m	Used DC tower instead of DB due to Single Span Limit Crossed(Refer to Engineer)	10°23'47"RT	9	9	9	9	0	0	0	0	362	13882	1447.41	5.00	55.21	1161.00	410.39	445.70	856.09	507.72	465.30	973.02	Vill Road		DFR	VILL-Botsa	94°09'56.17"	25°52'12.55"	
49	53	53/0	DC	NONE	Used DC tower instead of DB due to Single Span Limit Crossed(Refer to Engineer)	03°10'8"RT	0	0	0	0	0	0	0	0	788	14681	1427.87	1.00	-24.54	1026.00	353.30	218.79	572.09	333.70	263.46	597.16	Nala		DFR	VILL-Hembaunu	94°10'18.92"	25°52'28.31"	
50	54	54/0	DB	NONE		00°09'07"LT	0	1.5	1.5	3	0	0	0	0	227	14908	1411.98	1.00	-15.89	449.00	8.21	115.95	124.16	-36.46	119.04	81.59			DFR	VILL-Hembaunu	94°10'25.77"	25°52'32.33"	
51	55	55/0	DC	NONE		18°13'15"LT	0	0	1.5	1.5	0	0	0	0	222	15130	1410.75	0.50	-0.73	369.00	106.05	312.93	418.98	103.96	414.51	518.46	Vill Road		DFR	VILL-Hembaunu	94°10'32.42"	25°52'36.27"	
52	56	56/0	DB	NONE	X-Arm Strengthening Suggested	11°19'07"RT	0	0	0	0	0	0	0	0	147	15277	1387.85	1.00	-23.40	601.00	-165.93	545.67	379.75	-267.51	680.88	413.37			DFR	VILL-Terogvunyu	94°10'35.70"	25°52'40.07"	
53	57	57/0	DC	+0 m		21°43'42"LT	3	3	6	3	0	0	0	0	454	15731	1289.16	1.50	-96.19	916.00	-91.67	459.91	362.24	-226.88	548.49	321.61	2 Nos Vill Road, 2Nos Nala		DFR	VILL-Terogvunyu	94°10'48.17"	25°52'49.59"	
54	58	58/0	DB	+0 m		06°41'42"LT	9	9	9	9	0	0	0	0	462	15193	1216.19	3.00	-68.47	845.00	8.09	297.14	305.23	-86.49	341.96	255.47	Vill Road		DFR	VILL-Terogvunyu	94°10'56.01"	25°53'02.75"	
55	59	59/0	DD	+0 m		01°11'11"LT	9	9	9	9	0	0	0	0	383	16576	1188.29	2.00	-26.90	599.00	85.86	67.33	153.19	41.04	50.08	91.12			DFR	VILL-Terogvunyu	94°11'01.21"	25°53'14.25"	
56	60	60/0	DC	NONE		16°50'39"RT	0	0	3	1.5	0	0	0	0	216	16792	1201.63	0.50	5.84	423.00	148.67	91.95	240.61	165.92	87.05	252.96	Pond, Vill Road		DFR	VILL-Terogvunyu	94°11'03.94"	25°53'20.78"	
57	61	61/0	DD	NONE		33°39'42"LT	0	0	0	0	0	0	0	0	207	16999	1203.22	0.50	1.59	486.00	115.05	188.27	303.32	119.95	213.20	333.16			DFR	VILL-Terogvunyu	94°11'08.62"	25°53'26.17"	
58	62	62/0	DC	NONE		24°16'46"LT	0	0	0	1.5	0	0	0	0	259	17258	1193.6	1.00	-10.12	523.00	70.73	129.15	199.88	45.80	127.94	173.74	2 Nos Nala		DFR	VILL-Terogvunyu	94°11'09.34"	25°53'34.63"	
59	63	63/0	DB	NONE		12°59'56"RT	0	0	0	3	0	0	0	0	264	17522	1194.1	1.00	0.50	376.00	134.85	-10.74	124.10	136.06	-39.06	97.00			DFR	VILL-Zunpha	94°11'05.95"	25°53'42.45"	
60	64	64/0	DB	NONE		05°44'04"RT	0	0	0	1.5	0	0	0	0	112	17634	1188.5	0.50	4.97	237.00	122.74	252.86	375.60	151.06	333.62	484.68			DFR	VILL-Zunpha	94°11'05.81"	25°53'46.26"	
61	65	65/0	DB	+0 m	X-Arm Strengthening Suggested	04°29'04"LT	3	3	4.5	3	0	0	0	0	125	17759	1180.25	1.00	-15.82	326.00	-127.86	579.79	451.93	-208.62	783.14	574.52			DFR	VILL-Zunpha	94°11'05.86"	25°53'50.36"	
62	66	66/0	DB	NONE		07°32'41"RT	0	0	1.5	0	0	0	0	0	201	17960	1119.7	1.00	-64.05	533.00	-378.79	240.03	-138.76	-582.14	271.43	-310.70			DFR	VILL-Tsemnyu	94°11'04.47"	25°53'56.84"	
63	67	67/0	DD	NONE		50°45'07"RT	1.5	0	3	3	0	0	0	1.5	332	18292	1102.36	0.50	-16.34	459.00	91.97	-174.08	-82.10	60.57	-274.87	-214.31			DFR	VILL-Tsemnyu	94°11'04.65"	25°54'07.73"	
64	68	68/0	DB	NONE		06°00'14"RT	0	0	3	1.5	0	0	0	0	127	18419	1122.42	0.50	20.06	127.00	301.08	71.20	372.27	401.87	58.98	460.85			DFR	VILL-Tsemnyu	94°11'08.02"	25°54'10.33"	

Khuyi Shakesh
06/02/19

CHECKED BY:
P.G.C.I.L



APPROVED BY:
P.G.C.I.L



SUBMITTED BY:
SHYAMA POWER (I) LTD

DETAILED SURVEY TOWER SCHEDULE

SL NO	AP NO	TOWER NO	TYPE OF TOWER UPTO BASIC BODY	CONNECT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMLV. LENGTH	R.L.	G.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING	DETAIL	PROP. FOUNDATION TYPE	VILL. NAME	GPS CO-ORDINATE	
							A	B	C	D	A	B	C	D								LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL					EASTING	NORTHING
							0	0	3	1.5	0	0	0	0								0	0	0	0	0	0					0	0
64	68	68/0	DB	NONE		06°00'14"RT	0	0	3	1.5	0	0	0	0	0	0	1122.42	0.50	3.83	327.00	301.08	71.20	372.27	401.87	58.98	460.85			DFR	VILL-Tseminyu	94°11'08.02"	25°54'10.33"	
65	69	69/0	DB	+0 m		08°27'17"LT	6	6	7.5	7.5	0	0	0	0	0	200	1121.25	1.50	47.13	503.00	128.80	-82.45	46.35	141.02	-181.71	-40.69			DFR	VILL-Tseminyu	94°11'14.15"	25°54'13.78"	
66	70	70/0	DC	NONE		16°59'21"LT	3	0	1.5	3	0	0	0	0	0	303	1172.83	0.00	80.73	617.00	385.45	-133.90	251.55	484.71	-257.32	227.39			DFR	VILL-Tseminyu	94°11'22.19"	25°54'20.47"	
67	71	71/0	DC	NONE		18°35'27"LT	0	0	0	0	0	0	0	0	0	314	1235.11	1.50	58.00	698.00	447.90	-35.18	412.72	571.32	-131.57	439.76			DFR	VILL-Tseminyu	94°11'28.06"	25°54'29.18"	
68	73	73/0	DC	NONE	X-Arm Strengthening Suggested	18°05'29"RT	0	0	0	0	0	0	0	0	0	384	1293.11	1.50	52.06	747.00	418.18	387.21	816.39	515.57	488.73	1004.30	Pond, Vill Road		DFR	VILL-Tseminyu	94°11'31.00"	25°54'41.23"	
69	75	75/0	DB	+0 m		06°55'15"RT	6	7.5	9	9	0	0	0	0	0	363	1233.65	0.00	-50.35	719.00	-34.21	390.73	356.52	-125.73	480.98	355.25	3 Nos. Vill Road, 11KV, Unmetal Road		DFR	VILL-Tseminyu	94°11'37.78"	25°54'51.44"	
70	76	76/0	DC	NONE		16°36'43"RT	0	0	1.5	1.5	0	0	0	0	0	356	1189.7	0.50	-23.87	698.00	-34.73	275.98	241.25	-124.88	320.52	195.54	2 Nos. Vill Road		DFR	VILL-Tseminyu	94°11'45.76"	25°55'00.45"	
71	77	77/0	DB	+0 m	X-Arm Strengthening Suggested	14°53'16"LT	3	3	4.5	3	0	0	0	0	0	342	1163.33	1.00	-71.48	602.00	66.02	543.51	609.53	21.48	718.85	740.43	4 Nos. Vill Road		DFR	VILL-Tseminyu	94°11'56.78"	25°55'06.84"	
72	78	78/0	DB	NONE	X-Arm Strengthening Suggested	10°28'34"RT	0	0	3	0	0	0	0	0	0	260	1094.35	0.50	-36.13	393.00	-283.51	475.09	191.58	-458.95	648.45	189.50			DFR	VILL-Tseminyu	94°12'01.82"	25°55'13.23"	
73	79	79/0	DB	+0 m		03°25'44"LT	3	4.5	6	3	0	0	0	0	0	133	1055.22	0.50	3.77	447.00	-342.09	138.94	-203.15	-515.45	131.28	-384.17			DFR	VILL-Tseminyu	94°12'05.50"	25°55'15.96"	
74	80	80/0	DC	NONE		21°09'33"LT	0	0	0	0	0	0	0	0	0	314	1062.49	1.00	25.89	686.00	175.06	81.32	256.38	182.72	36.91	219.63	Nala		DFR	VILL-Tseminyu	94°12'13.66"	25°55'22.99"	
75	81	81/0	DB	NONE		05°52'50"LT	0	0	0	0	0	0	0	0	0	372	1088.38	1.00	-1.75	639.00	290.68	143.36	434.04	335.09	147.54	482.63	Nala		DFR	VILL-Tseminyu	94°12'19.50"	25°55'33.78"	
76	82	82/0	DB	NONE		03°21'27"LT	0	0	1.5	0	0	0	0	0	0	267	1086.63	1.00	18.73	786.00	123.64	163.04	316.69	119.46	169.09	288.55			DFR	VILL-Tseminyu	94°12'22.64"	25°55'41.89"	
77	83	83/0	DB	NONE		06°09'38"LT	0	0	0	0	0	0	0	0	0	499	1106.36	2.00	13.17	577.00	305.96	-214.96	81.00	329.91	-322.71	7.20	Vill Road		DFR	VILL-Tseminyu	94°12'28.28"	25°55'57.45"	
78	84	84/0	DD	+0 m	Used DD tower instead of DC due to Single Span Limit Crossed	24°20'42"LT	3	4.5	4.5	3	0	0	0	0	0	78	1115.53	1.00	-73.85	629.00	292.96	476.55	769.51	400.71	561.84	962.55	Vill Road		DFR	VILL-Tseminyu	94°12'28.81"	25°56'00.02"	
79	85	85/0	DD	NONE		45°14'02"RT	1.5	0	0	1.5	0	0	0	0	0	551	1044.38	0.50	31.78	775.00	74.45	-101.39	-26.84	-10.84	-181.93	-202.77	Nala		DFR	VILL-Tseminyu	94°12'24.10"	25°56'17.26"	
80	86	86/0	DB	NONE		05°37'06"RT	0	0	0	1.5	0	0	0	0	0	224	1076.16	0.50	47.52	530.00	325.39	-80.58	244.82	415.93	-179.68	236.25			DFR	VILL-Tseminyu	94°12'28.43"	25°56'23.49"	
81	87	87/0	DB	NONE		12°40'58"LT	0	0	0	0	0	0	0	0	0	306	1124.65	1.50	39.96	455.00	386.58	-328.88	57.70	485.68	-500.02	-14.34			DFR	VILL-Tseminyu	94°12'35.07"	25°56'31.32"	
82	88	88/0	DC	NONE	X-Arm Strengthening Suggested	19°13'43"RT	1.5	0	0	1.5	0	0	0	0	0	149	1164.14	1.00	48.95	600.00	477.88	62.25	540.13	649.02	-7.01	642.01			DFR	VILL-Tseminyu	94°12'37.38"	25°56'35.73"	
83	89	89/0	DD	+0 m		41°12'16"LT	6	3	3	6	0	0	0	0	0	451	1209.59	0.50		451.00	388.75	172.45	561.20	458.01	181.10	649.11	Vill Road		DFR	VILL-Tseminyu	94°12'48.79"	25°56'46.28"	

Khungs Khakhs
06/02/19

CHECKED BY:
P.G.C.I.L



SL NO	AP NO	TOWER NO	TYPE OF TOWER UPTO BASIC BODY	CONNECT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMULV LENGTH	R.L	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING	DETAIL	PROP. FOUNDATION TYPE	VILL NAME	GPS CO-ORDINATE WGS-84	
							A	B	C	D	A	B	C	D								LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL					EASTING	NORTHING
83	89	89/0	DD	+0 m		41°12'18"LT	6	3	3	6	0	0	0	0			1209.59	0.50		708.00	388.75	172.45	561.20	458.01	191.10	649.11			DFR	VILL-Taeminyu	94°12'48.79"	25°56'46.28"	
84	90	90/0	DB	+0 m		12°51'49"LT	6	6	3	3	0	0	0	0			1202.08	0.50	-7.51	414.00	84.55	-47.00	37.55	65.90	-100.25	-34.35			DFR	VILL-Ziphenyu	94°12'49.18"	25°56'54.60"	
85	90A	90A/0	DB	+0 m		00°46'03"RT	3	4.5	3	3	0	0	0	0			1215.88	1.00	13.10	508.00	204.00	120.56	324.56	257.25	97.26	354.50			DFR	VILL-Ziphenyu	94°12'48.28"	25°56'59.77"	
86	91	91/0	DC	NONE		28°53'58"RT	1.5	3	0	0	0	0	0	0			1251	0.50	12.82	594.00	230.44	136.48	366.91	253.74	142.63	396.58	Unmetal Road		DFR	VILL-Ziphenyu	94°12'46.34"	25°57'10.88"	
87	92	92/0	DC	+0 m	Used DC tower instead of DB due to Single Span Limit Crossed	12°33'35"LT	3	3	3	3	0	0	0	0			1226.58	1.50	-2.42	876.00	106.52	302.62	409.14	100.17	296.74	396.80	2Nos NH-2(Kohima - Mokokchung Road), Vill Road		DFR	VILL-New Ziphenyu	94°12'49.45"	25°57'18.41"	
88	93	93/0	DD	NONE	Used DD tower instead of DC due to Single Span Limit Crossed	27°57'08"RT	0	0	0	0	0	0	0	0			1234.82	1.00	5.84	920.00	330.38	134.22	484.60	336.26	130.29	466.55	2Nos Vill Road		DFR	VILL-New Ziphenyu	94°12'52.29"	25°57'38.69"	
89	94	94/0	DB	+0 m		04°59'05"LT	9	9	9	9	0	0	0	0			1227.19	0.50	1.77	838.00	152.78	195.74	348.51	156.71	161.80	318.61	2Nos NH-2(Kohima - Mokokchung Road), 33KV		DFR	VILL-New Ziphenyu	94°12'58.42"	25°57'46.20"	
90	95	95/0	DD	NONE		31°43'18"RT	3	1.5	0	1.5	0	0	0	0			1264.91	0.00	29.22	798.00	355.26	-32.82	322.45	389.10	-99.14	289.97	NH-2		DFR	VILL-New Ziphenyu	94°13'08.35"	25°58'01.74"	
91	96	96/0	DC	+0 m		16°48'38"LT	4.5	3	3	4.5	0	0	0	0			1287.58	0.00	25.67	658.00	278.82	312.45	592.27	346.14	357.62	703.76	Unmetal Road		DFR	VILL-New Ziphenyu	94°13'16.19"	25°58'05.37"	
92	97	97/0	DC	+0 m		18°37'11"LT	7.5	5	5	7.5	0	0	0	0			1266.82	0.50	-29.16	737.00	99.55	-25.12	74.49	54.38	-104.72	-50.34	2Nos Nala		DFR	VILL-New Ziphenyu	94°13'26.88"	25°58'15.00"	
93	98	98/0	DB	+0 m		11°46'33"RT	9	9	9	9	0	0	0	0			1294.46	1.50	40.54	594.00	350.12	340.71	690.83	429.72	429.20	857.82	Pond		DFR	VILL-New Ziphenyu	94°13'32.22"	25°58'23.86"	
94	99	99/0	DD	+0 m		43°46'22"RT	9	6	6	6	0	0	0	0			1259.58	0.50	-36.88	526.00	-71.71	-27.70	-89.41	-159.20	-93.98	-253.18	Unmetal Road		DFR	VILL-New Ziphenyu	94°13'38.32"	25°58'30.85"	
95	100	100/0	DC	NONE		28°16'33"RT	1.5	0	0	0	0	0	0	0			1293.77	2.00	26.89	408.00	284.70	227.99	512.70	350.98	292.48	643.45	Unmetal Road, 132KV S/C T/L		DFR	VILL-New Ziphenyu	94°13'47.54"	25°58'31.85"	
96	101	101/0	DB	+0 m	X-Arm Strengthening Suggested	03°49'09"RT	9	9	9	9	0	0	0	0			1272.41	5.00	-15.36	367.00	-75.89	598.23	523.24	-140.48	807.86	867.38	NH-2, 33KV		DFR	VILL-New Ziphenyu	94°13'52.59"	25°58'39.11"	
97	102	102/0	DB	+0 m		07°16'02"RT	9	9	9	9	0	0	0	0			1199.12	2.00	-70.29	410.00	-384.23	359.67	-24.56	-592.85	470.91	-121.86			DFR	VILL-New Ziphenyu	94°13'59.47"	25°58'25.93"	
98	103	103/0	DB	NONE	X-Arm Strengthening Suggested	01°57'10"RT	1.5	1.5	0	0	0	0	0	0			1172.63	0.50	-33.99	337.00	-164.67	576.99	412.31	-275.91	781.67	515.76			DFR	VILL-New Ziphenyu	94°14'05.27"	25°58'23.44"	
99	104	104/0	DD	+0 m		42°35'30"LT	6	6	9	6	0	0	0	0			1120.36	2.00	-47.77	676.00	-434.98	282.75	-152.24	-649.67	289.43	-360.24			DFR	VILL-New Ziphenyu	94°14'09.42"	25°58'20.79"	
100	105	105/0	DC	+0 m		15°03'05"LT	4.5	4.5	3	3	0	0	0	0			1118.71	1.00	-5.69	775.00	251.25	-124.02	127.23	244.57	-227.77	16.81	Nala, Vill Road		DFR	VILL-Nsunyu	94°14'28.52"	25°58'22.74"	
101	105A	105A/0	DB	NONE		04°11'23"LT	0	0	0	0	0	0	0	0			1158.45	0.50	39.18	377.00	365.02	-127.86	237.16	488.77	-210.96	257.81			DFR	VILL-Nsunyu	94°14'36.49"	25°58'25.92"	
102	106	106/0	DC	+0 m	X-Arm Strengthening Suggested	26°17'28"RT	6	6	6	6	0	0	0	0			1170.66	1.00	17.71	136.00	263.86	493.78	757.62	346.96	648.09	995.05			DFR	VILL-Nsunyu	94°14'40.79"	25°58'27.98"	



Kanizo Rhakho
06/2/19

CHECKED BY:
P.G.C.I.L



APPROVED BY:
P.G.C.I.L

SL NO	AP NO	TOWER NO	TYPE OF TOWER UPTO BASIC BODY	CONNECT WITH HT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMULV. LENGTH	R.L	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING	DETAIL	PROP. FOUNDATION TYPE	VILL NAME	GPS CO-ORDINATE	
							A	B	C	D	A	B	C	D								LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL					EASTING	NORTHING
							WGS-84	WGS-84																									
102	106	106/0	DC	+0 m	X-Arm Strengthening Suggested	25°17'28"RT	6	6	6	6	0	0	0	0			1170.66	1.00		395.00	263.86	493.76	757.62	346.96	648.08	995.05			DFR	VILL -Nsunyu	94°14'40.79"	25°58'27.58"	
103	107	107/0	DB	+0 m		08°26'00"RT	6	6	7.5	6	0	0	0	0	260	260	30149	1109.28	2.50	-62.88	545.00	-233.76	442.19	208.43	-388.09	569.12	181.03	Vill Road	DFR	VILL -Nsunyu	94°14'50.32"	25°58'28.12"	
104	108	108/0	DD	NONE		30°01'06"RT	0	0	3	1.5	0	0	0	0	286	286	30435	1057.39	1.50	-56.89	590.00	-156.19	65.31	-70.88	-283.12	57.01	-226.12	2nos Nala	DFR	VILL -Nsunyu/ Chunlikha	94°15'00.53"	25°58'27.49"	
105	109	109/0	DD	NONE		34°51'06"LT	0	0	3	3	0	0	0	0	304	304	30730	1070.37	1.00	13.48	574.00	218.69	490.08	708.77	246.99	640.73	887.72			DFR	VILL -Nsunyu	94°15'09.51"	25°58'21.78"
106	110	110/0	DB	NONE		07°48'31"RT	0	1.5	3	0	0	0	0	0	270	270	31009	1006.63	1.00	-63.74	509.00	-220.06	440.71	220.63	-370.73	576.99	206.26			DFR	VILL -Nsunyu	94°15'19.37"	25°58'21.91"
107	111	111/0	DD	NONE	Single Span Limit Crossed Referred to Engineer	54°20'24"LT	0	0	3	1.5	0	0	0	0	239	239	31228	956.09	1.50	-51.04	658.00	-201.71	356.40	154.89	-337.99	376.29	36.31			DFR	VILL -Nsunyu	94°15'27.89"	25°58'20.95"
108	112	112/0	DD	NONE		39°45'49"RT	1.5	0	0	0	0	0	0	0	618	618	31887	936.25	1.00	-19.30	861.00	262.80	-509.29	-246.68	242.71	-776.70	-534.00			DFR	VILL -Kadunu	94°15'43.07"	25°58'35.52"
109	112A	112A/0	DB	+0 m	X-Arm Strengthening Suggested	04°28'19"RT	9	6	6	7.5	0	0	0	0	242	242	32109	1031.7	1.00	101.41	366.00	751.29	-307.96	443.33	1018.70	-464.92	553.78			DFR	VILL -Ehunnu	94°15'51.48"	25°58'36.14"
110	113	113/0	DB	+0 m		00°05'02"RT	9	7.5	6	6	0	0	0	0	124	124	32233	1062.7	1.50	30.50	327.00	431.96	-347.50	84.45	588.92	-538.00	50.92			DFR	VILL -Ehunnu	94°15'56.18"	25°58'36.47"
111	114	114/0	DC	NONE	X-Arm Strengthening Suggested	28°40'10"RT	1.5	1.5	0	0	0	0	0	0	203	203	32436	1127.6	0.00	60.60	425.00	550.50	51.82	602.42	741.00	26.85	767.86			DFR	VILL -Ehunnu	94°16'03.49"	25°58'36.89"
112	115	115/0	DB	NONE		10°42'01"RT	3	0	0	0	0	0	0	0	222	222	32658	1139.02	2.50	8.72	708.00	170.08	290.17	460.24	195.15	310.18	505.32			DFR	VILL -Ehunnu	94°16'10.65"	25°58'33.70"
113	116	116/0	DB	NONE		03°00'12"LT	0	0	0	0	0	0	0	0	486	486	33144	1122.28	1.00	-15.24	673.00	195.83	422.55	618.98	175.82	562.16	737.98	Vill Road	DFR	VILL -Ehunnu	94°16'24.66"	25°58'24.42"	
114	117	117/0	DB	NONE		08°45'24"RT	0	3	1.5	0	0	0	0	0	187	187	33331	1080.87	0.50	-40.91	362.00	-235.55	335.98	100.43	-375.16	441.40	66.24			DFR	VILL -Yikhanu	94°16'30.29"	25°58'20.98"
115	118	118/0	DD	+0 m		34°28'38"LT	3	4.5	3	3	0	0	0	0	175	175	33506	1049.96	1.50	-28.91	535.00	-160.98	810.00	449.03	-266.40	792.44	526.04			DFR	VILL -Ehunnu	94°16'34.86"	25°58'17.21"
116	119	119/0	DB	+0 m	X-Arm Strengthening Suggested	09°21'21"LT	6	6	6	6	0	0	0	0	360	360	33866	943.54	1.00	-102.92	611.00	-250.00	540.29	290.29	-432.44	716.28	283.84			DFR	VILL -Yikhanu	94°16'47.60"	25°58'15.02"
117	120	120/0	DC	+0 m	X-Arm Strengthening Suggested	15°11'31"LT	4.5	6	3	3	0	0	0	0	251	251	34117	876.32	0.00	-89.22	482.00	-289.28	675.53	385.24	-465.28	913.13	447.86			DFR	VILL -Ehunnu	94°16'56.73"	25°58'15.04"
118	121	121/0	DC	NONE	Used DC tower instead of DB due to Single Span Limit Crossed(X-Arm Strengthening Suggested)	02°35'27"LT	0	0	0	0	0	0	0	0	231	231	34348	795.31	2.00	-86.01	764.00	-444.63	142.33	-302.19	-882.13	89.66	-582.48			DFR	VILL -Phami	94°17'04.69"	25°58'16.95"
119	122	122/0	DD	+0 m		30°54'18"LT	4.5	3	3	6	0	0	0	0	533	533	34681	834.81	0.50	44.00	745.00	380.67	-290.74	99.93	443.34	-459.06	-15.72			DFR	VILL -Phami	94°17'23.14"	25°58'22.20"
120	123	123/0	DB	+0 m	X-Arm Strengthening Suggested	05°50'32"RT	6	3	3	4.5	0	0	0	0	212	212	35093	890.73	0.50	55.92	503.00	502.74	-288.77	213.97	671.06	-473.02	198.04			DFR	VILL -Phami	94°17'28.05"	25°58'27.43"
121	124	124/0	DC	+0 m	X-Arm Strengthening Suggested	15°12'49"RT	9	7.5	6	6	0	0	0	0	291	291	35384	872.25	1.00	84.02	291.00	579.77	-209.97	369.81	764.02	-323.44	440.58	Vill Road	DFR	VILL -Psephimi	94°17'35.26"	25°58'34.32"	



Kouso Khakho
06/2/19

CHECKED BY:
P.G.C.I.L



SL NO	AP NO	TOWER NO	TYPE OF TOWER UP TO BASIC BODY	CONNECT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMLV. LENGTH	R.L	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING	DETAIL	PROP. FOUNDATION TYPE	VILL NAME	GPS CO-ORDINATE WGS-84	
							A	B	C	D	A	B	C	D								LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL					EASTING	NORTHING
121	124	124D	DC	+0 m	X-Arm Strengthening Suggested	15°12'49"RT	9	7.5	6	6	0	0	0	0	115	115	35499	872.25	1.00	20.45	406.00	579.77	-209.97	369.81	764.02	-323.44	440.58	Vill Road	DFR	VILL-Psaphmi	94°17'35.28"	25°58'34.32"	
122	125	125D	DB	+0 m		11°02'45"RT	6	6	3	3	0	0	0	340	340	35839	895.7	1.00	61.66	455.00	324.97	-102.77	222.20	438.44	-218.50	219.94		DFR	VILL-Psaphmi	94°17'38.57"	25°58'36.64"		
123	126	126D	DC	NONE		22°18'12"LT	3	3	0	0	0	0	0	229	229	36058	1060.36	1.00	68.77	569.00	442.77	-337.19	105.58	558.50	-528.82	29.66		DFR	VILL-Psaphmi	94°17'49.85"	25°58'40.55"		
124	127	127D	DC	+0 m		38°42'24"RT	9	6	6	7.5	0	0	0	238	238	36058	1123.13	1.00	68.77	467.00	566.19	105.73	671.92	757.82	100.10	857.92	Nala	DFR	VILL-Psaphmi	94°17'55.40"	25°58'45.39"		
125	128	128D	DC	+0 m		22°53'09"RT	6	6	3	3	0	0	0	305	305	36305	1128.23	1.00	2.10	543.00	132.27	-284.57	-152.30	137.90	-470.01	-332.11	FP, 11KV	DFR	VILL-Psaphmi	94°18'03.55"	25°58'48.55"		
126	129	129D	DD	+0 m		41°02'24"LT	6	6	9	6	0	0	0	230	230	36541	1217.86	5.00	86.63	535.00	589.57	310.07	899.65	775.01	392.64	1167.85		DFR	VILL-Kitami	94°18'14.38"	25°58'47.73"		
127	130	130D	DC	+0 m		15°21'53"LT	6	6	7.5	9	0	0	0	156	156	36597	1185.05	2.00	-29.83	395.00	-80.07	337.74	257.67	-162.84	447.95	285.11		DFR	VILL-Kitami	94°18'21.14"	25°58'51.92"		
128	131	131D	DB	NONE		10°18'31"RT	0	0	3	1.5	0	0	0	398	398	37395	1162.59	0.50	-57.46	554.00	-181.74	416.15	234.40	-291.95	508.28	216.33	FP	DFR	VILL-Kitami	94°18'24.78"	25°58'56.06"		
129	132	132D	DB	NONE		04°33'36"RT	0	0	3	0	0	0	0	292	292	37687	1106.13	1.50	-58.71	690.00	-18.15	436.11	419.96	-110.28	562.05	451.77		DFR	VILL-Kitami	94°18'35.57"	25°59'04.42"		
130	132A	132AD	DB	NONE	X-Arm Strengthening Suggested	11°11'31"LT	0	0	3	0	0	0	0	124	124	37811	1045.42	1.50	-31.05	416.00	-146.11	438.83	282.52	-270.05	598.42	329.37		DFR	VILL-Kitami	94°18'44.25"	25°59'09.82"		
131	133	133D	DD	+0 m		40°33'39"RT	6	6	6	7.5	0	0	0	642	642	38453	1012.37	1.50	-16.38	766.00	-314.63	359.38	44.75	-474.42	375.66	-98.77		DFR	VILL-Kitami	94°18'47.39"	25°59'12.70"		
132	134	134D	DD	+0 m	Used DD tower instead of DC due to Sum of Adj. Span Limit Crossed	26°52'13"RT	6	6	9	7.5	0	0	0	389	389	38927	996.49	2.00	-17.03	1011.00	282.62	253.92	536.54	268.34	283.37	549.71	FP	DFR	VILL-Kitami	94°19'10.38"	25°59'14.12"		
133	135	135D	DD	+0 m		59°58'27"RT	3	3	6	3	0	0	0	258	258	39080	982.46	2.00	13.07	627.00	115.08	52.80	167.89	85.63	20.48	106.11		DFR	VILL-Kitami	94°19'22.92"	25°59'09.93"		
134	136	136D	DD	+0 m		31°10'52"LT	6	6	9	6	0	0	0	196	196	39278	994.53	4.00	-20.42	454.00	205.20	254.70	459.90	237.52	321.19	558.71		DFR	VILL-Kitami	94°19'28.85"	25°59'01.75"		
135	137	137D	DC	+0 m	X-Arm Strengthening Suggested	22°22'47"LT	3	3	6	4.5	0	0	0	302	302	39578	876.11	3.00	-85.77	498.00	-58.70	578.17	519.47	-125.19	759.41	634.22		DFR	VILL-Kitami	94°19'29.07"	25°58'56.63"		
136	138	138D	DC	NONE	Used DC tower instead of DB due to Sum of Adj. Span Limit Crossed	14°37'03"LT	0	0	1.5	3	0	0	0	427	427	40005	892.34	2.00	15.12	729.00	-276.17	160.24	-115.93	-457.41	137.64	-318.76	11KV	DFR	VILL-Kitami	94°19'38.71"	25°58'52.21"		
137	139	139D	DD	+0 m		48°03'06"LT	6	6	9	9	0	0	0	346	346	40351	899.46	0.00	-14.46	773.00	266.76	235.86	502.62	289.36	262.53	551.88	11KV	DFR	VILL-Kitami	94°19'53.71"	25°58'49.37"		
138	140	140D	DB	+0 m		05°30'49"LT	3	3	6	3	0	0	0	352	352	40703	888.5	1.50	-12.24	698.00	110.14	228.30	338.44	83.47	250.49	333.96		DFR	VILL-Puneboqa	94°20'03.85"	25°58'56.12"		
139	141	141D	DB	NONE		14°35'34"LT	0	0	0	0	0	0	0	178	178	40881	878.76	1.00	10.39	530.00	123.70	1.21	124.90	101.51	-36.04	65.46		DFR	VILL-Puneboqa	94°20'13.47"	25°59'03.73"		
140	142	142D	DB	NONE		08°54'15"LT	0	0	0	0	0	0	0	178	178	40881	890.65	1.50		178.00	178.78	144.09	320.89	214.04	148.58	362.63		DFR	VILL-Puneboqa	94°20'16.81"	25°59'08.54"		



Karunya Rakshg
06/2/19

CHECKED BY:
P.G.C.I.L



SL NO	AP NO	TOWER NO	TYPE OF TOWER UPTO BASIC BODY	CONNECT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMULV. LENGTH	R.L	C.P.D	LEVEL DIFF.	SUM OF ADJ. SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING	DETAIL	PROP. FOUNDATION TYPE	VILL NAME	GPS CO-ORDINATE	
							A	B	C	D	A	B	C	D								LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL					EASTING	NORTHING
							WGS 84	WGS 84	WGS 84	WGS 84	WGS 84	WGS 84	WGS 84	WGS 84								WGS 84	WGS 84	WGS 84	WGS 84	WGS 84	WGS 84					WGS 84	WGS 84
140	142	1420	DB	NONE		08°54'15"LT	0	0	0	0	0	0	0	0	0	0	890.65	1.50	-1.88	445.00	178.79	144.09	320.89	214.04	148.58	362.63			DFR	VILL-Puneboqa	94°20'15.81"	25°59'08.54"	
141	143	1430	DC	+0 m		23°17'03"RT	6	6	6	6	0	0	0	0	0	267	882.27	1.00	-44.63	580.00	122.91	375.60	498.51	116.42	472.81	581.22			DFR	VILL-Kitam	94°20'21.03"	25°59'16.18"	
142	144	1440	DB	+0 m		06°25'11"RT	4.5	4.5	3	3	0	0	0	0	0	293	839.64	0.00	-8.54	528.00	-82.60	172.16	89.58	-179.81	195.35	15.54			DFR	VILL-Kitam	94°20'28.59"	25°59'22.92"	
143	145	1450	DB	+0 m		06°49'49"LT	6	6	7.5	6	0	0	0	0	0	235	828.6	0.50	-47.79	499.00	62.84	404.27	467.12	39.65	519.79	559.44			DFR	VILL-Kitam	94°20'34.86"	25°59'27.92"	
144	146	1460	DC	NONE		20°34'11"RT	0	1.5	1.5	0	0	0	0	0	0	264	786.31	0.00	-19.52	401.00	-140.27	282.81	142.53	-255.79	373.73	117.94			DFR	VILL-Kitam	94°20'41.15"	25°59'34.26"	
145	147	1470	DC	NONE		16°58'16"LT	0	0	1.5	0	0	0	0	0	0	137	767.79	1.00	-10.23	371.00	-145.81	182.76	36.95	-236.73	210.65	-26.08			DFR	VILL-Kitam	94°20'45.77"	25°59'36.19"	
146	148	1480	DB	NONE		21°53'36"LT	0	0	0	0	0	0	0	0	0	234	758.06	1.50	-30.95	545.00	51.24	305.18	356.43	23.35	368.69	392.04			DFR	VILL-Kitam	94°20'51.88"	25°59'41.44"	
147	149	1490	DC	NONE		26°50'29"RT	0	0	0	0	0	0	0	0	0	311	727.11	1.50	-46.85	733.00	6.82	377.98	383.60	-57.69	448.83	391.14		2 Nos. FP		DFR	VILL-Kitam	94°20'58.48"	25°59'49.69"
148	150	1500	DC	NONE	Used DC tower instead of DB due to Sum of Adj. Span Limit Crossed	11°51'52"LT	0	1.5	1.5	0	0	0	0	0	0	422	678.76	0.00	-69.85	853.00	44.02	463.35	507.37	-26.83	547.30	520.47		2 Nos Unmetal Road		DFR	VILL-Kitam	94°21'11.6"	25°59'56.09"
149	151	1510	DC	NONE	Used DC tower instead of DB due to Single Span Limit Crossed(X-Arm Strengthening Suggested)	14°38'17"RT	1.5	1.5	0	0	0	0	0	0	0	533	609.41	0.50	-57.94	663.00	67.85	726.20	793.85	-16.30	1006.31	990.01			DFR	VILL-Kitam	94°21'26.33"	26°07'2"	
150	152	1520	DC	NONE	Used DC tower instead of DB due to Single Span Limit Crossed(X-Arm Strengthening Suggested)	09°40'08"LT	0	0	3	1.5	0	0	0	0	0	132	550.97	0.00	-39.88	789.00	-594.20	419.80	-174.41	-874.31	458.53	-415.78		2 Nos Unmetal Road, Dayang River		DFR	VILL-Shena Old	94°21'30.75"	26°09'
151	154	1540	DD	NONE		31°27'12"RT	3	0	0	3	0	0	0	0	0	657	511.59	0.50	57.04	789.00	237.20	-583.95	-346.75	198.47	-659.70	-661.24			DFR	VILL-Shena Old	94°21'49.98"	26°02'11.2"	
152	155	1550	DB	NONE	X-Arm Strengthening Suggested	02°54'51"RT	0	1.5	0	0	0	0	0	0	0	132	568.13	0.00	73.88	463.00	715.95	-170.22	545.73	991.70	-312.65	679.05			DFR	VILL-Shena Old	94°21'54.78"	26°02'13.8"	
153	156	1560	DB	+0 m	X-Arm Strengthening Suggested	12°11'34"RT	3	3	6	3	0	0	0	0	0	331	641.01	2.00	104.42	881.00	501.22	-273.73	227.48	643.65	-464.12	179.53		Unmetal Road		DFR	VILL-Shena Old	94°22'6.61"	26°02'15.5"
154	157	1570	DD	NONE		32°08'52"LT	1.5	0	0	0	0	0	0	0	0	350	747.45	1.00	102.60	782.00	623.73	-141.22	482.51	814.12	-292.78	521.34		3 Nos Unmetal Road		DFR	VILL-Shena Old	94°22'19.0"	26°00'19.0"
155	158	1580	DB	NONE	X-Arm Strengthening Suggested	00°31'4"RT	0	0	0	0	0	0	0	0	0	432	849.53	0.50	21.22	634.00	573.22	-57.00	516.22	724.78	-124.04	600.74			DFR	VILL-Shena Old	94°22'33.04"	26°00'24.03"	
156	159	1590	DC	NONE	Used DC tower instead of DB due to Single Span Limit Crossed	13°07'03"LT	0	0	1.5	1.5	0	0	0	0	0	202	871.25	1.00	66.18	719.00	258.00	65.96	324.97	326.04	-15.72	310.32			DFR	VILL-Shena Old	94°22'40.01"	26°00'26.08"	
157	161	1610	DD	+0 m		38°36'35"LT	6	6	6	6	0	0	0	0	0	517	932.93	2.50	71.18	1040.00	451.04	56.77	507.80	532.72	-30.10	502.62			DFR	VILL-Shena Old	94°22'55.03"	26°00'36.07"	
158	162	1620	DC	+0 m	Used DC tower instead of DB due to Sum of Adj. Span Limit Crossed	14°33'14"RT	6	6	6	7.5	0	0	0	0	0	523	1000.62	1.00	85.17	1081.00	468.23	30.89	487.12	553.10	-70.13	482.96			DFR	VILL-Shena Old	94°23'00.3"	26°00'52.9"	
159	163	1630	DB	+0 m	X-Arm Strengthening Suggested	06°58'09"RT	6	6	7.5	7.5	0	0	0	0	0	538	1087.29	0.50		538.00	507.11	241.63	748.74	608.13	306.60	814.73		Nala		DFR	VILL-Shena Old	94°23'10.1"	26°11'8"



19/8/19
CHECKED BY:
P.G.C.I.L



SL NO	AP NO	TOWER NO	TYPE OF TOWER UPTO BASIC BODY	CONNECT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMLTV. LENGTH	R.L.	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING	DETAIL	PROP FOUNDATION TYPE	VILL NAME	GPS CO-ORDINATE	
							A	B	C	D	A	B	C	D								LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL					EASTING	NORTHING
159	163	163/0	DB	+0 m	X-Arm Strengthening Suggested	06°58'09"RT	6	6	7.5	7.5	0	0	0	0	177	177	47566	1087.29	0.50	-18.02	715.00	507.11	241.63	748.74	608.13	306.60	914.73			DFR	VILL-Shena Old	94°23'10.1"	26°11'8"
160	163A	163A/0	DB	+0 m		13°17'10"LT	6	6	9	6	0	0	0	0	177	177	47566	1071.27	2.50	-45.31	558.00	-64.63	369.37	304.74	-129.60	445.26	315.67	FP		DFR	VILL-Shena Old	94°23'14.2"	26°11'12.8"
161	164	164/0	DB	+0 m		05°00'50"LT	3	3	6	4.5	0	0	0	0	303	303	47647	1026.96	0.50	-35.55	664.00	11.63	327.97	339.60	-64.26	402.84	338.58	Nala		DFR	VILL-Shena Old	94°23'18.8"	26°11'23.8"
162	165	165/0	DB	+0 m		13°35'11"RT	6	6	6	6	0	0	0	0	303	303	48250	989.91	2.00	-14.71	735.00	-24.97	267.22	242.25	-99.84	288.95	189.10	Vill Road		DFR	VILL-Shena Old	94°23'23.6"	26°11'32.8"
163	166	166/0	DD	+0 m		34°58'00"LT	3	3	3	3	0	0	0	0	432	432	48682	977.2	1.00	-78.71	757.00	164.78	526.77	691.55	143.05	681.32	824.37	3 Nos FP		DFR	VILL-Shena Old	94°23'32.3"	26°11'44.7"
164	167	167/0	DB	NONE		05°58'05"RT	0	1.5	0	0	0	0	0	0	325	325	49007	901.49	1.00	-23.19	623.00	-201.77	266.05	64.28	-356.32	315.71	-40.61	Vill Road		DFR	VILL-Shena Old	94°23'32"	26°11'55.2"
165	168	168/0	DB	NONE		14°24'51"LT	0	0	0	0	0	0	0	0	298	298	49305	877.8	0.50	-69.92	714.00	31.95	460.80	482.76	-17.71	568.06	550.35	2 Nos Vill Road		DFR	VILL-Shena Old	94°23'33"	26°12'4.8"
166	169	169/0	DB	NONE		02°07'49"RT	0	0	0	0	0	0	0	0	416	416	49721	808.38	1.00	20.92	697.00	-44.80	28.52	-16.28	-152.06	-18.99	-171.05	2 Nos Vill Road		DFR	VILL-Shena Old	94°23'30.64"	26°12'16.18"
167	170	170/0	DB	+0 m		11°01'59"LT	4.5	4.5	3	3	0	0	0	0	281	281	50002	825.8	0.50	-40.48	574.00	252.48	354.30	606.78	299.99	442.46	742.45			DFR	VILL-Shena Old	94°23'29.5"	26°12'27.2"
168	171	171/0	DD	+0 m	Used DC tower instead of DC due to Sum of Adj. Span Limit Crossed	28°34'43"RT	9	9	9	9	0	0	0	0	293	293	50295	781.32	2.50	-167.42	856.00	-61.30	711.31	650.01	-149.46	672.45	722.99	Vill Road		DFR	VILL-Shena Old	94°23'26.25"	26°12'36.27"
169	174	174/0	DC	+0 m	Used DC tower instead of DB due to Sum of Adj. Span Limit Crossed (X-Arm Strengthening Suggested)	12°23'21"RT	9	9	9	9	0	0	0	0	663	663	50958	612.9	1.50	-69.14	988.00	-48.31	482.48	434.17	-209.45	618.24	408.78	FP		DFR	VILL-Shena Old	94°23'30.7"	26°12'57.5"
170	175	175/0	DB	NONE		08°58'20"LT	0	0	0	0	0	0	0	0	325	325	51283	552.26	1.00	-39.43	765.00	-157.48	354.79	197.31	-293.24	411.97	118.74			DFR	VILL-Shena Old	94°23'35.47"	26°13'7.2"
171	176	176/0	DD	NONE		42°06'50"RT	3	3	1.5	0	0	0	0	0	440	440	51723	512.33	0.50	-27.54	889.00	65.21	316.76	401.97	28.03	355.90	383.92	Nala		DFR	VILL-Shena Old	94°23'39.40"	26°13'20.80"
172	177	177/0	DC	+0 m	Used DC tower instead of DB due to Single Span Limit Crossed (X-Arm Strengthening Suggested)	14°33'40"LT	3	3	3	6	0	0	0	0	449	449	52172	484.29	3.00	55.70	606.00	132.24	-455.12	-322.87	93.10	-681.52	-588.41	Tulo River		DFR	VILL-Philimi	94°23'52.85"	26°13'28.90"
173	178	178/0	DB	NONE	X-Arm Strengthening Suggested	02°48'28"RT	0	0	0	1.5	0	0	0	0	157	157	52329	540.99	1.00	176.56	645.00	612.12	-300.18	311.93	838.52	-531.07	307.45			DFR	VILL-Philimi	94°23'56.49"	26°13'32.89"
174	179	179/0	DD	+0 m	X-Arm Strengthening Suggested	40°21'51"LT	6	6	6	7.5	0	0	0	0	488	488	52817	711.55	1.00	78.86	740.00	788.18	-344.68	443.50	1019.07	-544.38	474.68			DFR	VILL-Philimi	94°24'08.82"	26°13'44.23"
175	180	180/0	DB	NONE	X-Arm Strengthening Suggested	00°57'49"LT	1.5	0	0	1.5	0	0	0	0	252	252	53069	796.41	1.00		252.00	596.68	-181.01	415.68	796.38	-280.69	505.70			DFR	VILL-Philimi	94°24'09.35"	26°13'52.45"



Checked by: P.G.C.I.L. 19/01/19



SL NO	AP NO	TOWER NO	TYPE OF TOWER UPTO BASIC BODY	CONNECT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMULV. LENGTH	R.L	G.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING	DETAIL	PROP. FOUNDATION TYPE	VILL NAME	GPS CO-ORDINATE	
							A	B	C	D	A	B	C	D								LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL					EASTING	NORTHING
																							WGS-84										
175	180	180/D	DB	NONE	X-Arm Strengthening Suggested	00°57'49"LT	1.5	0	0	1.5	0	0	0	0	155	53224	786.41	1.00	25.64	407.00	596.68	-181.01	415.68	796.38	-290.69	505.70			DFR	VILL-Philimi	94°24'09.35"	26°03'52.45"	
176	181	181/D	DB	NONE		12°15'29"RT	0	0	0	0	0	0	0	293	53517	822.05	0.00	36.67	448.00	336.01	-41.74	294.27	445.69	-121.61	324.08			DFR	VILL-Philimi	94°24'09.59"	26°03'57.45"		
177	182	182/D	DC	+0 m		25°27'44"LT	6	6	7.5	9	0	0	0	263	53780	853.72	1.00	0.56	556.00	334.74	126.30	463.04	414.61	126.84	541.55			DFR	VILL-Philimi	94°24'12.38"	26°04'06.68"		
178	183	183/D	DB	NONE		09°05'43"RT	0	0	1.5	3	0	0	0	194	53974	860.78	1.50	2.03	457.00	134.70	81.25	215.96	136.06	74.58	210.65			DFR	VILL-Philimi	94°24'10.63"	26°04'15.13"		
179	184	184/D	DB	NONE		12°47'51"RT	0	0	2	1.5	0	0	0	204	54178	861.81	0.50	-38.92	398.00	112.74	388.96	501.70	119.42	510.78	630.12			DFR	VILL-Philimi	94°24'10.43"	26°04'21.25"		
180	184A	184A/D	DB	NONE		05°36'54"RT	0	0	1.5	1.5	0	0	0	289	54467	822.85	0.50	-7.81	483.00	-184.98	185.15	0.19	-306.70	202.39	-104.31		2 Times Vill Road	DFR	VILL-Philimi	94°24'11.96"	26°04'27.81"		
181	185	185/D	DB	+0 m		11°34'01"LT	6	6	6	9	0	0	0	196	54663	809.08	0.50	2.45	485.00	103.85	79.20	183.05	86.61	71.22	157.83		Metal Road	DFR	VILL-Philimi	94°24'14.90"	26°04'36.91"		
182	186	186/D	DD	+0 m		30°27'13"LT	3	3	3	3	0	0	0	299	54862	814.53	0.50	-10.39	495.00	116.80	201.77	318.57	124.78	223.94	348.72		Metal Road	DFR	VILL-Philimi	94°24'15.75"	26°04'43.15"		
183	187	187/D	DD	NONE		43°56'54"LT	0	0	0	0	0	0	0	265	55227	808.14	1.50	-27.68	584.00	87.23	289.61	388.84	75.06	356.26	431.32		3 Times Metal Road	DFR	VILL-Philimi	94°24'11.25"	26°04'52.17"		
184	188	188/D	DC	NONE		25°49'45"RT	0	1.5	3	0	0	0	0	214	55441	778.95	0.00	-19.76	479.00	-24.61	245.88	221.28	-61.26	304.81	213.54		2 Times Metal Road	DFR	VILL-Philimi	94°24'02.49"	26°04'55.44"		
185	189	189/D	DB	NONE		12°37'08"RT	0	0	0	0	0	0	0	257	55698	780.2	1.00	-5.59	471.00	-31.88	161.22	129.33	-90.81	175.10	84.29		2 Times Metal Road	DFR	VILL-Philimi	94°23'57.43"	26°05'00.60"		
186	189A	189A/D	DC	NONE		19°57'46"RT	0	0	0	0	0	0	0	265	55963	755.11	1.50	-7.67	522.00	85.78	176.03	271.82	81.90	194.50	276.41			DFR	VILL-Philimi	94°23'52.81"	26°05'07.78"		
187	190	190/D	DD	+0 m	Use DD tower instead of DC due to Proposed Power Line crossing	16°46'29"RT	7.5	9	7.5	6	0	0	0	116	56079	740.94	1.00	9.48	381.00	88.97	-64.92	24.05	70.50	-117.07	-46.58		Proposed 132KV D/C W-2 TL.	DFR	VILL-Philimi	94°23'51.47"	26°05'16.30"		
188	191	191/D	DD	+0 m	Use DD tower instead of DC due to Proposed Power Line crossing	15°35'23"RT	18	18	18	18	0	0	0	214	56293	739.92	2.50	-29.04	330.00	180.92	311.11	492.03	233.07	397.70	630.78			DFR	VILL-Philimi	94°23'51.97"	26°05'20.01"		
189	192	192/D	DC	+0 m	X-Arm Strengthening Suggested	24°09'50"LT	6	9	6	6	0	0	0	301	56594	720.88	0.50	-89.18	515.00	-97.11	496.19	399.08	-183.70	642.85	459.15		Metal Road	DFR	VILL-Philimi	94°23'55.35"	26°05'26.37"		
190	194	194/D	DD	NONE		43°27'43"LT	0	1.5	0	0	0	0	0	516	57110	558.7	1.50	-81.11	817.00	-195.19	434.43	299.24	-341.86	594.74	252.88			DFR	VILL-Philimi	94°23'55.59"	26°05'36.20"		
191	195	195/D	DB	NONE		00°52'27"LT	1.5	0	0	0	0	0	0	414	57524	577.05	1.00	-15.13	936.00	21.57	261.97	283.54	-78.74	265.29	206.55		Metal Road	DFR	VILL-Philimi	94°23'42.66"	26°05'48.38"		
192	196	196/D	DD	NONE		43°08'00"LT	1.5	0	0	0	0	0	0	188	57712	561.96	1.00	-11.08	602.00	152.03	182.65	334.66	126.71	220.26	348.97			DFR	VILL-Philimi	94°23'32.30"	26°05'57.89"		
193	197	197/D	DD	NONE		42°34'16"RT	0	3	0	0	0	0	0	273	57985	551.38	1.50	-67.81	461.00	5.35	510.65	610.00	-32.26	669.39	637.14		Vill Road	DFR	VILL-Philimi	94°23'25.48"	26°05'58.19"		
194	198	198/D	DB	+0 m		10°42'15"RT	3	3	6	6	0	0	0			478.97	0.00		273.00	-237.65	204.00	-33.65	-396.39	216.72	-179.87			DFR	VILL-Philimi	94°23'18.53"	26°06'04.46"		



19/01/19

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SL NO	AP NO	TOWER NO	TYPE OF TOWER UPTO BASIC BODY	CONNECT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMULTV. LENGTH	R.L	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING	DETAIL	PROP FOUNDATION TYPE	VILL NAME	GPS CO-ORDINATE	
							A	B	C	D	A	B	C	D								LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL					EASTING	NORTHING
194	168	198/0	DB	+0 m		10°42'18"RT	3	3	6	6	0	0	0	0	348	348	58333	478.97	0.00	-5.94	621.00	-237.65	204.00	-33.65	-396.39	216.72	-179.67			DFR	VILL-Pholim	94°23'18.53"	26°06'04.46"
195	199	199/0	DC	NONE		25°24'54"RT	0	0	0	0	0	0	0	193	193	58526	476.53	1.50	9.00	541.00	144.00	26.38	170.37	131.28	-3.40	127.88	Metal Road		DFR	VILL-Pholim	94°23'11.74"	26°06'13.96"	
196	200	200/0	DC	NONE		30°07'52"RT	1.5	3	1.5	0	0	0	0	276	276	58802	485.03	1.00	-82.79	469.00	166.64	589.17	755.81	196.40	780.59	876.99			DFR	VILL-Pholim	94°23'10.89"	26°06'20.18"	
197	201	201/0	DB	NONE		13°04'16"RT	0	0	0	0	0	0	0	257	257	59059	402.24	1.00	-9.33	533.00	-313.17	183.10	-130.07	-504.59	206.27	-268.32	Rubber Garden		DFR	VILL-Pholim	94°23'14.20"	26°06'28.64"	
198	202	202/0	DC	NONE		24°54'00"LT	1.5	3	0	0	0	0	0	307	307	59366	392.91	1.00	39.54	564.00	73.90	-40.22	33.68	50.73	-122.41	-71.68	Rubber Garden, FP, Doyang river, NH-2		DFR	VILL-Pholim	94°23'19.59"	26°06'35.54"	
199	203	203/0	DB	NONE		06°27'16"RT	0	0	0	0	0	0	0	269	269	59665	431.95	0.50	41.28	606.00	347.22	-58.15	289.06	429.41	-146.26	283.15	Rubber Garden		DFR	VILL-Mukhami	94°23'21.25"	26°06'45.36"	
200	204	204/0	DC	NONE		21°52'58"RT	0	0	0	1.5	0	0	0	224	224	59989	473.73	1.00	11.00	523.00	357.15	38.14	395.29	445.26	6.80	452.06			DFR	VILL-Mukhami	94°23'24.22"	26°06'54.57"	
201	205	205/0	DD	+0 m		45°16'26"RT	4.5	6	3	3	0	0	0	424	424	60313	480.73	0.00	-0.22	648.00	186.86	212.78	398.64	217.20	213.11	430.31			DFR	VILL-Mukhami	94°23'29.39"	26°07'00.33"	
202	206	206/0	DC	NONE	Used DC tower instead of DB due to Sum of Adj. Span Limit Crossed	13°55'11"RT	1.5	1.5	0	0	0	0	0	443	443	60756	483.51	0.00	84.31	867.00	211.22	-64.75	146.47	210.89	-186.20	24.69			DFR	VILL-Mukhami	94°23'44.66"	26°07'01.28"	
203	207	207/0	DD	+0 m	Used DD tower instead of DC due to Sum of Adj. Span Limit Crossed	21°21'21"RT	9	7.5	6	6	0	0	0	500	500	61356	564.82	3.00	44.59	1043.00	507.75	188.22	695.97	629.20	140.80	770.00			DFR	VILL-Mukhami	94°24'00.4"	26°06'58.9"	
204	209	209/0	DD	+0 m		35°18'38"LT	9	7.5	6	6	0	0	0	392	392	61748	609.41	3.00	-24.23	992.00	411.78	298.97	700.75	458.20	328.41	787.62			DFR	VILL-Mukhami	94°24'18.81"	26°06'48.8"	
205	210	210/0	DC	+0 m		27°28'58"LT	9	7.5	6	6	0	0	0	168	168	61916	583.88	1.50	-6.55	580.00	103.03	142.64	245.67	63.59	167.52	231.11			DFR	VILL-Mukhami	94°24'32.93"	26°06'49.87"	
206	211	211/0	DD	+0 m		46°12'5"LT	6	3	3	3	0	0	0	243	243	62159	581.13	2.50	13.55	411.00	25.36	37.63	62.99	0.48	2.05	2.52			DFR	VILL-Mukhami	94°24'38.1"	26°06'52.78"	
207	212	212/0	DD	+0 m		37°53'08"LT	7.5	7.5	6	6	0	0	0	381	381	62550	589.18	0.00	-37.20	634.00	205.37	338.60	543.97	240.65	399.31	640.27			DFR	VILL-Mukhami	94°24'38.8"	26°07'00.64"	
208	213	213/0	DB	NONE		01°59'01"RT	1.5	3	0	0	0	0	0	242	242	62792	558.96	1.00	11.10	633.00	52.40	52.01	104.41	-8.31	22.74	14.43			DFR	VILL-Mukhami	94°24'33.77"	26°07'11.84"	
209	214	214/0	DB	NONE		08°28'24"LT	0	0	0	0	0	0	0	470	470	63262	570.08	1.00	7.44	712.00	189.99	211.19	401.18	219.26	201.09	420.35			DFR	VILL-Mukhami	94°24'30.08"	26°07'19.12"	
210	216	216/0	DD	+0 m	Used DD tower instead of DC due to Sum of Adj. Span Limit Crossed	29°21'52"RT	9	7.5	6	6	0	0	0	302	302	63564	573.02	2.50	-12.89	772.00	268.81	215.20	474.01	266.91	242.44	511.35			DFR	VILL-Mukhami	94°24'21.41"	26°07'32.22"	
211	217	217/0	DC	NONE		27°22'21"RT	0	0	0	0	0	0	0	376	376	63640	564.83	1.00	27.79	678.00	86.80	76.83	163.64	59.56	29.67	89.23			DFR	VILL-Mukhami	94°24'21.5"	26°07'42.1"	
212	218	218/0	DC	+0 m	X-Arm Strengthening Suggested	15°30'57"LT	6	3	3	3	0	0	0	134	134	64074	588.42	0.00	50.36	510.00	299.17	-498.27	-189.10	346.33	-738.19	-391.76			DFR	VILL-Mukhami	94°24'27.62"	26°07'52.91"	
213	219	219/0	DB	+0 m	X-Arm Strengthening Suggested	05°25'51"LT	3	3	3	3	0	0	0	315	315	64389	640.28	1.50	0.38	449.00	632.27	155.69	787.95	872.19	154.92	1027.01			DFR	VILL-Mukhami	94°24'28.4"	26°07'57.17"	
214	220	220/0	DB	NONE		03°18'46"RT	0	0	0	0	0	0	0				643.66	1.50		315.00	159.31	40.65	199.97	160.08	-11.89	148.19			DFR	VILL-Mukhami	94°24'28.9"	26°08'07.41"	



19/01/19

CHECKED BY:
P.G.C.I.L



SL NO	AP NO	TOWER NO	TYPE OF TOWER UPTO BASIC BODY	CONNECT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMLV. LENGTH	R.L	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING	DETAIL	PROP. FOUNDATION TYPE	VILL NAME	GPS CO-ORDINATE	
							A	B	C	D	A	B	C	D								LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL					EASTING	NORTHING
							0	0	0	0	0	0	0	0																			
214	220	220/0	DB	NONE		03°16'46"RT	0	0	0	0	0	0	0	0	0	0	643.86	1.50		644.00	159.31	40.65	199.97	160.08	-11.88	148.19		DFR	VILL- Mukhami	94°24'28.9"	26°08'07.41"		
215	221	221/0	DB	NONE		11°29'23"LT	0	0	0	0	0	0	0	0	0	679.25	1.00	27.09	492.00	286.35	-18.88	271.67	340.89	-58.34	282.56	33KV	DFR	VILL- Phishumi	94°24'30.01"	26°08'18.1"			
216	222	222/0	DC	NONE		15°36'55"RT	0	1.5	0	0	0	0	0	0	0	680.39	0.50	10.64	846.00	178.88	341.32	521.00	221.34	341.25	562.59		DFR	VILL- Phishumi	94°24'29.53"	26°08'23.4"			
217	223	223/0	DD	NONE	Used DD tower instead of DC due to Single Span Limit Crossed	27°08'03"RT	3	1.5	0	1.5	0	0	0	0	0	680.47	0.50	0.08	808.00	341.68	-189.59	152.09	341.75	-295.54	45.21	NH-2, Nala	DFR	VILL- Phishumi	94°24'34.11"	26°08'44.98"			
218	224	224/0	DC	NONE		21°23'46"RT	3	0	0	0	0	0	0	0	0	702.42	1.50	20.95	353.00	314.59	-29.28	285.30	421.54	-90.08	331.46	Nala	DFR	VILL- Phishumi	94°24'37.00"	26°08'48.2"			
219	225	225/0	DC	+0 m		18°49'54"RT	6	6	3	3	0	0	0	0	0	720.84	1.00	21.72	422.00	257.26	190.73	448.02	318.08	230.50	548.58	Nala	DFR	VILL- Phishumi	94°24'43.9"	26°08'52.3"			
220	226	226/0	DC	NONE	X-Arm Strengthening Suggested	28°37'53"LT	3	1.5	0	0	0	0	0	0	0	712.55	2.00	-12.09	426.00	3.27	-414.78	-411.51	-36.50	-639.87	-576.47	11KV	DFR	VILL- Phishumi	94°24'50.3"	26°08'53.71"			
221	227	227/0	DD	NONE		57°44'27"LT	0	0	3	3	0	0	0	0	0	792.42	0.00	81.87	530.00	646.78	333.02	879.80	671.97	411.10	1283.07	Vill Road	DFR	VILL- Phishumi	94°24'57.26"	26°08'58.24"			
222	228	228/0	DB	+0 m		07°32'27"RT	4.5	4.5	3	3	0	0	0	0	0	753.96	1.00	-36.46	764.00	-35.02	183.39	148.37	-113.10	162.34	49.24	Nala, 2 Nos Vill Road, Coffee Garden	DFR	VILL- Phishumi	94°24'55.9"	26°09'07.66"			
223	229	229/0	DC	+0 m		19°57'13"LT	3	3	3	3	0	0	0	0	0	768.83	0.50	15.37	643.00	282.61	-181.47	101.14	303.66	-296.01	7.64	NH-2	DFR	VILL- Phishumi	94°24'55.85"	26°09'22.5"			
224	230	230/0	DD	+0 m		44°53'42"RT	3	3	3	3	0	0	0	0	0	801.6	1.50	17.37	569.00	358.47	129.35	487.82	473.01	101.08	574.09		DFR	VILL- Phishumi	94°24'53.31"	26°09'28.31"			
225	232	232/0	DC	+0 m		22°18'49"LT	3	3	3	3	0	0	0	0	0	818.97	1.50	-6.74	612.00	262.85	156.08	418.78	290.92	175.63	466.56	NH-2	DFR	VILL- Phishumi	94°24'59.1"	26°09'39.8"			
226	233	233/0	DC	NONE		17°00'58"RT	3	3	0	0	0	0	0	0	0	814.73	1.00	36.15	695.00	63.92	123.03	186.95	44.37	74.46	118.83		DFR	VILL- VK Town	94°24'59.87"	26°09'47.25"			
227	234	234/0	DD	NONE		37°31'15"LT	3	1.5	0	3	0	0	0	0	0	850.89	1.00	24.10	783.00	351.97	36.31	388.28	400.54	-13.62	386.91		DFR	VILL- VK Town	94°25'05.79"	26°10'01.54"			
228	235	235/0	DB	+0 m		01°43'38"RT	7.5	7.5	6	6	0	0	0	0	0	857.98	0.00	-6.71	585.00	271.89	178.67	450.36	321.82	193.58	515.21		DFR	VILL- VK Town	94°25'02.69"	26°10'11.14"			
229	236	236/0	DB	+0 m		05°46'52"RT	3	3	3	3	0	0	0	0	0	865.27	1.00	-24.17	605.00	108.33	273.32	381.65	83.42	321.82	415.24		DFR	VILL- VK Town	94°24'58.00"	26°10'30.26"			
230	237	237/0	DD	NONE		30°37'42"RT	1.5	3	0	1.5	0	0	0	0	0	844.6	1.50	53.27	971.00	44.68	203.80	248.48	-3.82	151.74	147.92	FP	DFR	VILL- VK Town	94°25'06.45"	26°10'50.01"			
231	238	238/0	DC	+0 m	Used DC tower instead of DB due to Sum of Adj. Span Limit Crossed	05°49'36"LT	6	6	6	6	0	0	0	0	0	890.87	0.50	-18.89	978.00	449.20	248.92	699.12	501.26	287.01	788.27	Vill Road	DFR	VILL- Aijami	94°25'09.5"	26°11'00.17"			
232	239	239/0	DB	+0 m		06°05'14"LT	7.5	6	6	6	0	0	0	0	0	871.98	0.50	100.49	812.00	75.08	-66.86	8.22	37.99	-198.54	-160.55	Vill Road	DFR	VILL- Aijami	94°25'12.37"	26°11'15.93"			
233	240	240/0	DC	NONE	Used DC tower instead of DB due to Single Span Limit Crossed (X-Arm Strengthening Suggested)	12°51'19"RT	1.5	3	0	1.5	0	0	0	0	0	978.97	1.00		487.00	553.88	187.13	740.99	685.54	229.19	914.73		DFR	VILL- Sastami	94°25'12.37"	26°11'15.93"			



Checked by: *[Signature]*
19/01/19



SL NO	AP NO	TOWER NO	TYPE OF TOWER UP TO BASIC BODY	CONNECT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMULV. LENGTH	R.L	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING	DETAIL	PROP. FOUNDATION TYPE	VILL NAME	GPS CO-ORDINATE	
							A	B	C	D	A	B	C	D								LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL					EASTING	NORTHING
																							WGS-84										
233	240	240/0	DC	NONE	Used DC tower instead of DB due to Single Span Limit Crossed(X-Arm Strengthening Suggested)	12°51'19"RT	1.5	3	0	1.5	0	0	0	0	176			978.97	1.00		663.00	553.86	187.13	740.99	686.54	229.19	914.73			DFR	VILL- Saslami	94°25'12.37"	26°11'15.93"
234	241	241/0	DB	+0 m		08°03'12"LT	7.5	9	6	6	0	0	0	0	176	70925	960.87	0.50		608.00	-11.13	324.94	313.81	-53.19	371.16	317.97	2 Nos FP		DFR	VILL- Saslami	94°25'14.61"	26°11'20.98"	
235	242	242/0	DC	+0 m		21°26'02"LT	6	6	6	6	0	0	0	0	432	432	71357	930.68	1.50		515.00	107.06	229.66	336.72	60.84	288.28	349.12			DFR	VILL- Saslami	94°25'18.60"	26°11'34.64"
236	243	243/0	DB	NONE		05°11'08"LT	0	0	0	0	0	0	0	0	183	183	71540	919.27	1.00		428.00	-46.66	258.18	211.51	-105.28	315.74	210.46	Vill Road		DFR	VILL- Saslami	94°25'17.89"	26°11'40.66"
237	244	244/0	DB	NONE		07°50'05"RT	1.5	1.5	0	0	0	0	0	0	245	245	71785	896.67	0.50		559.00	-13.18	272.98	259.80	-70.74	300.97	230.23	NH-2, FP, 11KV		DFR	VILL- Saslami	94°25'16.15"	26°11'48.31"
238	245	245/0	DC	NONE		28°30'59"RT	0	1.5	0	1.5	0	0	0	0	414	414	72199	878.51	0.50		772.00	141.02	40.56	181.59	113.03	-18.17	94.86			DFR	VILL- Izheto	94°25'14.9"	26°12'01.9"
239	246	246/0	DC	NONE		18°54'24"LT	0	0	0	0	0	0	0	0	358	358	72557	912.46	1.50		605.00	317.44	-93.04	224.39	378.17	-184.91	181.26	Vill Road, FP		DFR	VILL- Izheto	94°25'20.54"	26°12'12.37"
240	247	247/0	DB	NONE		00°31'48"LT	0	0	0	1.5	0	0	0	0	247	247	72804	947.52	1.00		551.00	340.04	267.82	607.87	431.91	316.97	748.88			DFR	VILL- Izheto	94°25'21.47"	26°12'20.22"
241	248	248/0	DB	+0 m		08°01'47"LT	9	9	6	6	0	0	0	0	304	304	73108	918.11	1.00		797.00	36.18	2.61	38.79	-12.97	-100.86	-113.83			DFR	VILL- Izheto	94°25'22.68"	26°12'30.12"
242	249	249/0	DC	+0 m		22°13'33"LT	9	6	7.5	7.5	0	0	0	0	493	493	73601	987.06	0.00		852.00	490.39	-69.24	421.15	593.86	-174.77	419.09			DFR	VILL- Izheto	94°25'22.01"	26°12'46.06"
243	250	250/0	DB	+0 m		13°15'42"RT	6	6	7.5	9	0	0	0	0	359	359	73960	1057.42	1.00		658.00	428.24	46.88	475.12	533.77	3.34	537.11			DFR	VILL- Izheto	94°25'16.50"	26°12'55.91"
244	251	251/0	DC	+0 m		15°01'11"RT	3	3	4.5	6	0	0	0	0	299	299	74259	1080.82	1.00		615.00	252.12	196.36	446.48	285.88	212.64	508.30			DFR	VILL- Longkhum	94°25'14.45"	26°13'06.62"
245	252	252/0	DB	NONE		03°16'01"LT	3	1.5	0	0	0	0	0	0	316	316	74575	1076.28	1.50		684.00	119.64	99.44	219.07	103.36	63.56	166.92			DFR	VILL- Longkhum	94°25'15.09"	26°13'16.60"
246	253	253/0	DB	NONE		03°18'20"RT	3	1.5	0	0	0	0	0	0	368	368	74983	1095.95	0.50		607.00	288.56	68.97	337.53	304.44	47.52	351.87			DFR	VILL- Longkhum	94°25'14.84"	26°13'28.46"
247	254	254/0	DC	NONE		15°53'30"LT	0	0	0	0	0	0	0	0	239	239	75182	1104.48	1.00		453.00	170.03	63.99	234.02	191.48	45.74	237.21			DFR	VILL- Longkhum	94°25'15.21"	26°13'36.27"
248	255	255/0	DB	+0 m		02°59'13"LT	3	3	4.5	3	0	0	0	0	214	214	75396	1107.1	0.50		508.00	150.01	187.01	337.03	188.26	203.78	372.04			DFR	VILL- Longkhum	94°25'13.50"	26°13'43.00"
249	256	256/0	DC	NONE		19°33'05"LT	0	0	0	0	0	0	0	0	295	295	75691	1103.36	1.50		545.00	107.89	-80.15	17.84	91.22	-181.43	-80.20			DFR	VILL- Longkhum	94°25'10.36"	26°13'52.22"
250	257	257/0	DB	+0 m		02°41'20"RT	7.5	6	6	7.5	0	0	0	0	250	250	75941	1131.61	0.00		580.00	340.15	80.54	420.69	431.43	44.71	476.14			DFR	VILL- Longkhum	94°25'05.06"	26°13'58.71"
251	258	258/0	DB	+0 m		07°25'37"LT	7.5	6	6	6	0	0	0	0	330	330	76271	1151.64	1.50		517.00	249.46	-30.69	218.77	285.28	-83.38	201.91			DFR	VILL- Longkhum	94°24'58.88"	26°14'07.84"
252	259	259/0	DB	NONE		04°19'5"RT	0	0	0	0	0	0	0	0	187	187	76458	1173.08	1.50		187.00	217.69	53.87	271.56	270.38	18.39	288.77			DFR	VILL- Longkhum	94°24'54.24"	26°14'12.37"



19/11/19
CHECKED BY:
P.G.C.I.L



SL NO	AP NO	TOWER NO	TYPE OF TOWER UPTO BASIC BODY	CONNECT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMULTV. LENGTH	R.L	C.P.D.	LEVEL DIFF.	SUM OF ADJ SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING	DETAIL	PROP. FOUNDATION TYPE	VILL NAME	GPS CO-ORDINATE	
							A	B	C	D	A	B	C	D								LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL					EASTING	NORTHING
							0	0	0	0	0	0	0	0								0	0	0	0	0	0					0	0
252	259	259/0	DB	NONE		04°19'05"RT	0	0	0	0	0	0	0	0	0	0	1173.08	1.50	15.29	462.00	217.69	53.87	271.56	270.38	18.39	288.77			DFR	VILL- Longkhum	84°24'54.24"	26°14'12.37"	
253	260	260/0	DB	NONE		09°45'14"RT	0	0	0	0	0	0	0	0	0	0	1188.37	1.50	-2.25	447.00	221.13	105.68	326.80	256.61	114.02	370.63			DFR	VILL- Longkhum	84°24'45.29"	26°14'19.58"	
254	261	261/0	DB	NONE		02°26'47"RT	1.5	0	0	3	0	0	0	0	0	0	1185.12	0.50	40.80	622.00	86.32	86.69	154.95	57.98	30.77	88.75	3 Nos Vill Road, Tea Garden		DFR	VILL- Longkhum	84°24'45.57"	26°14'24.64"	
255	262	262/0	DD	+0 m	Used DD tower instead of DC due to Sum of Adj. Span Limit Crossed	27°18'45"RT	3	3	3	3	0	0	0	0	0	0	1223.42	1.00	29.98	982.00	381.37	181.24	542.61	419.23	145.28	564.51	3 Nos Vill Road		DFR	VILL- Longkhum	84°24'38.55"	26°14'37.74"	
256	263	263/0	DB	NONE		09°00'23"RT	3	1.5	0	0	0	0	0	0	0	0	1255.9	0.50	37.76	739.00	350.76	-170.87	179.89	386.72	-287.28	99.45			DFR	VILL- Longkhum	84°24'39.50"	26°14'55.09"	
257	264	264/0	DB	NONE		02°20'53"RT	3	3	0	0	0	0	0	0	0	0	1293.16	0.00	17.87	515.00	377.87	66.73	444.60	494.28	29.71	523.99			DFR	VILL- Longkhum	84°24'41.12"	26°15'01.72"	
258	265	265/0	DC	NONE		22°24'51"RT	1.5	3	0	0	0	0	0	0	0	0	1312.09	1.00	22.76	628.00	241.27	53.02	294.29	278.29	7.63	285.92	2 Nos Nala		DFR	VILL- Longkhum	84°24'43.82"	26°15'11.29"	
259	266	266/0	DB	+0 m		14°06'40"RT	9	7.5	6	6	0	0	0	0	0	0	1329.79	2.00	38.39	559.00	266.98	-122.10	144.86	312.37	-224.60	87.76	Vill Road		DFR	VILL- Longkhum	84°24'51.44"	26°15'19.45"	
260	267	267/0	DC	+0 m		24°55'58"LT	9	7.5	6	6	0	0	0	0	0	0	1369.18	3.00	37.82	637.00	361.10	55.70	416.78	483.80	-5.10	458.50	Nala, 2 Times Vill Road		DFR	VILL- Longkhum	84°24'57.68"	26°15'24.53"	
261	268	268/0	DB	+0 m		10°21'22"RT	9	6	6	6	0	0	0	0	0	0	1406.6	2.50	61.33	651.00	342.30	-238.11	104.20	403.10	-392.80	10.30			DFR	VILL- Longkhum	84°25'03.89"	26°15'36.1"	
262	269	269/0	DC	+0 m	X-Arm Strengthening Suggested	23°15'59"RT	9	9	6	6	0	0	0	0	0	0	1467.43	2.00	-28.02	375.00	491.11	406.45	897.56	645.80	553.01	1198.81			DFR	VILL- Longkhum	84°25'09.11"	26°15'42.8"	
263	270	270/0	DB	NONE	X-Arm Strengthening Suggested	02°53'38"RT	0	1.5	1.5	0	0	0	0	0	0	0	1443.41	0.00	-59.07	336.00	-284.45	477.55	193.10	-431.01	634.33	203.32	Vill Road		DFR	VILL- Longkhum	84°25'13.01"	26°15'44.66"	
264	271	271/0	DB	NONE		03°32'23"LT	1.5	3	0	0	0	0	0	0	0	0	1390.34	0.00	-30.15	572.00	-261.55	305.98	43.84	-418.33	359.43	-58.91			DFR	VILL- Longkhum	84°25'20.22"	26°15'47.94"	
265	272	272/0	DC	NONE		15°07'56"LT	1.5	1.5	0	0	0	0	0	0	0	0	1360.19	0.00	1.14	802.00	50.82	116.03	168.85	-3.48	113.07	108.64	Metal Road, 11KV		DFR	VILL- Longkhum	84°25'31.22"	26°15'53.88"	
266	273	273/0	DC	NONE		29°25'04"RT	0	0	0	0	0	0	0	0	0	0	1362.83	1.50	-5.08	392.00	129.97	125.33	256.30	132.93	147.54	280.47			DFR	VILL- Longkhum	84°25'37.42"	26°15'59.31"	
267	274	274/0	DB	NONE		03°14'32"RT	0	0	0	0	0	0	0	0	0	0	1357.75	1.50	-34.41	392.00	20.67	333.39	354.06	-1.54	422.65	421.11	Metal Road		DFR	VILL- Longkhum	84°25'42.56"	26°16'0.44"	
268	275	275/0	DB	NONE		02°27'42"RT	1.5	0	0	1.5	0	0	0	0	0	0	1321.84	0.00	-18.99	449.00	-87.38	242.20	154.81	-176.65	301.80	126.25			DFR	VILL- Longkhum	84°25'51.12"	26°16'02.11"	
269	276	276/0	DC	+0 m		25°15'46"LT	9	6	7.5	6	0	0	0	0	0	0	1299.35	2.50	-55.54	702.00	-39.20	447.05	407.85	-98.90	530.87	431.97	Metal Road		DFR	VILL- Longkhum	84°25'58.36"	26°16'03.27"	
270	277	277/0	DB	NONE		01°28'44"RT	0	0	0	0	0	0	0	0	0	0	1239.31	2.00	-30.71	773.00	51.95	305.58	357.53	-31.87	377.10	345.24			DFR	VILL- Aichen	84°26'13.26"	26°16'12.53"	
271	278	278/0	DB	NONE		03°22'18"RT	0	0	1.5	0	0	0	0	0	0	0	1207.6	1.00		274.00	-31.58	385.47	353.89	-103.10	491.11	388.00			DFR	VILL- Aichen	84°26'21.33"	26°16'17.44"	



19/01/19

CHECKED BY:
P.G.C.I.L



SL NO	AP NO	TOWER NO	TYPE OF TOWER UP TO BASIC BODY	CONNECT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC LENG.	CUMLV. LENGTH	R.L	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING DETAIL	PROP. FOUNDATION TYPE	VILL NAME	GPS CO-ORDINATE	
							A	B	C	D	A	B	C	D								LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL				EASTING	NORTHING
271	278	278/0	DB	NONE		03°22'18" RT	0	0	1.5	0	0	0	0	0	0	0	1207.6	1.00		547.00	-31.58	385.47	353.89	-103.10	491.11	388.00	33KV LT Line Un metal Road Via Road	DFR	VILL- Aichen	94°25'21.33"	26°16'17.44"	
272	279	279/0	DD	+0 m		15°26'38" LT	9	9	6	6	0	0	0	0	0	1157.41	2.00	-45.18	393.00	-112.47	298.77	186.30	-218.11	400.08	161.87	132 KV S/C Doyang to Aolijen TL-11KV	DFR	VILL- Aichen	94°28'30.03"	26°16'21.85"		
273	280	280/0	DD	+0 m	Used DD tower instead of DC due to Single Span Limit Crossed	28°45'29" RT	6	6	9	6	0	0	0	0	0	1138.35	2.00	-19.05	578.00	-178.77	290.94	112.16	-280.08	317.22	37.14	2 Nos FP, Nala	DFR	VILL- Aichen	94°26'33.01"	26°16'24.42"		
274	281	281/0	DD	+0 m		31°09'27" LT	9	9	9	9	0	0	0	0	0	1115.5	1.00	-18.86	870.00	167.06	573.33	740.40	140.78	729.18	869.97		DFR	VILL- Aichen	94°26'51.18"	26°16'28.41"		
275	282	282/0	DC	+0 m		20°25'58" RT	6	7.5	7.5	6	0	0	0	0	0	1017.88	1.00	-100.62	1011.00	-161.33	281.80	120.46	-317.18	274.29	-42.80	Nala	DFR	VILL- Aichen	94°26'59.51"	26°16'38.01"		
276	284	284/0	DC	NONE	X-Arm Strengthening Suggested	21°12'20" RT	0	0	0	3	0	0	0	0	0	1031.83	2.00	7.05	884.00	317.20	-369.88	-52.48	324.71	-586.99	-282.27		DFR	VILL- Aichen	94°27'19.01"	26°16'45.12"		
277	285	285/0	DD	+0 m		54°07'54" RT	18	18	18	18	0	0	0	0	0	1112.48	3.50	97.05	374.00	654.68	8.67	663.35	871.99	-6.53	865.46	132 KV S/C Doyang to Aolijen TL-11KV	DFR	VILL- Aichen	94°27'29.41"	26°16'45.51"		
278	286	286/0	DD	+0 m		33°08'26" LT	18	18	18	18	0	0	0	0	0	1116.1	5.00	2.12	454.00	80.33	211.41	291.73	95.53	221.55	317.08	Vill Road	DFR	VILL- Aichen	94°27'31.51"	26°16'44.36"		
279	287	287/0	DC	NONE		22°48'21" LT	0	0	1.5	1.5	0	0	0	0	0	1124.64	1.50	-5.86	884.00	163.98	108.43	272.03	153.45	46.46	199.92	Vill Road, Nala	DFR	VILL- Aichen	94°27'44.18"	26°16'40.88"		
280	288	288/0	DC	NONE		16°02'38" LT	0	1.5	1.5	0	0	0	0	0	0	1173.07	0.50	49.43	628.00	400.57	-155.37	245.20	462.54	-246.53	216.00	2 Nos Nala	DFR	VILL- Aichen	94°28'02.50"	26°16'42.59"		
281	289	289/0	DB	+0 m		05°20'48" RT	3	3	4.5	6	0	0	0	0	0	1187.57	1.00	17.00	547.00	274.37	-50.64	213.73	365.53	-177.18	188.38	- Nala	DFR	VILL- Setsu	94°28'08.44"	26°16'44.05"		
282	290	290/0	DB	+0 m	X-Arm Strengthening Suggested	08°02'49" RT	3	3	3	4.5	0	0	0	0	0	1266.72	2.00	78.15	575.00	488.64	263.30	751.94	605.16	343.83	948.99	NH-2, 11KV	DFR	VILL- Setsu	94°28'21.57"	26°16'47.83"		
283	291	291/0	DD	NONE	X-Arm Strengthening Suggested	51°42'15" RT	0	0	0	1.5	0	0	0	0	0	1250.17	1.00	-18.55	211.00	-116.30	-527.10	-643.40	-196.83	-764.31	-961.14		DFR	VILL- Setsu	94°28'26.49"	26°16'48.64"		
284	292	292/0	DD	NONE		43°49'11" RT	0	0	3	0	0	0	0	0	0	1274.46	1.50	23.79	121.00	591.10	150.94	742.04	828.31	202.89	1031.19	Metal Road	DFR	VILL- Setsu	94°28'28.22"	26°16'46.98"		
285	Ext T-150	T-160	DD			33°43'56" LT	0	0	0	0	0	0	0	0	0	1268.32		-4.64	160.00	-93.94	320.92	226.98	-145.89	435.23	289.34			VILL- Setsu	94°28'28.17"	26°16'45.18"		
286	Ext T-151	T-161	DD			11°06'58" LT	0	0	0	0	0	0	0	0	0	1249.87		18.45	260.00	-217.92	391.77	173.85	-332.23	524.68	192.45			VILL- Setsu	94°28'30.39"	26°16'42.52"		
287	Ext BAY	BAY	GANTRY				0	0	0	0	0	0	0	0	0	1217.17		-32.70	157.00	-234.77		-234.77	-367.68		-367.68	Sub-Station Boundary		VILL- Setsu	94°28'34.46"	26°16'39.09"		
288	Ext T-158	T-158	DB				18	18	18	18	0	0	0	0	0	1246.88	0.00		181.00		-38.30	-38.30		-92.95	-92.95			VILL- Setsu	94°28'31.89"	26°16'54.46"		
289	Ext T-159	T-159	DB			6°09'30" LT	3	3	3	3	0	0	0	0	0	1277.38	0.00	15.50	230.00	219.30	368.60	587.90	273.95	514.59	788.54			VILL- Setsu	94°28'29.91"	26°16'48.85"		
290	293	293/0	DD	+0 m		46°23'11" LT	9	9	9	9	0	0	0	0	0	1261.68	1.50	-11.21	269.00	-319.60	458.62	137.03	-465.59	803.69	138.10			DFR	VILL- Setsu	94°28'29.76"	26°16'47.49"	
291	294	294/0	DD	+0 m		01°55'37" LT	9	7.5	6	6	0	0	0	0	0	1213.48	1.00	-50.70	292.00	-236.62	62.74	-173.89	-383.69	74.08	-309.60			DFR	VILL- Setsu	94°28'34.28"	26°16'41.54"	
292		BAY	GA				0	0	0	0	0	0	0	0	0	1217.2	0.00	-1.28	72.00	9.26		9.26	-2.08		-2.08	S/S Boundary		VILL- Setsu	94°28'35.78"	26°16'35.63"		



19/01/19
CHECKED BY:
P.G.C.I.L



SL NO	AP NO	TOWER NO	TYPE OF TOWER	CONNE CT WITH BB	CONNEC T WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMLTV LENGTH	R.L.	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WIND SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN ()			MAJOR CROSSING DETAIL	VILL NAME	GPS CO-ORDINATE	
								A	B	C	D	A	B	C	D									LEFT	RIGHT	TOTA L	LEFT	RIGHT	TOTAL			EASTING	NORTHING
1		BAY	CANTRY (ZUNHEBOTO)					0	0	0	0	0	0	0	0	0	1250.8			97.00	48.50		214.70	214.70		319.91	319.91		VILL-LIZU NEW	94°29'34.86"	26°02'11.68"		
2	1	1/0	DD	BB	0		00°58'43"RT	9	9	9	9	0	0	0	0	97	97	97	-8.89	215.00	102.50	-117.70	-172.14	-289.84	-222.91	-318.46	-541.37		VILL-LIZU NEW	94°29'32.13"	26°02'13.78"		
3	2	2/0	DD	BB	0		50°31'37"RT	0	0	1.5	0	0	0	0	118	118	215	15.04	242.00	121.00	290.14	148.14	438.28	436.46	202.67	639.12		VILL-LIZU NEW	94°29'28.96"	26°02'16.31"			
4	3	3/0	DD	BB	0		42°12'00"RT	9	9	9	9	0	0	0	124	124	339	-5.89	451.00	225.50	-24.14	15.70	-8.43	-78.67	-77.85	-156.52		VILL-LIZU NEW	94°29'29.08"	26°02'20.29"			
5	4	4/0	DB	BB	0		06°16'52"RT	3	3	3	3	0	0	0	327	327	666	26.65	512.00	256.00	311.30	-68.65	242.64	404.85	-170.67	234.18	FP, FT	VILL-LIZU NEW	94°29'37.0"	26°02'27.86"			
6	5	5/0	DC	BB	0		22°11'28"LT	0	0	1.5	0	0	0	185	185	851	16.44	714.00	357.00	253.65	254.80	508.45	355.67	248.66	604.32	FP	VILL-LIZU NEW	94°29'42.69"	26°02'31.59"				
7	7	7/0	DB	BB	0		04°38'41"LT	0	0	1.5	1.5	0	0	0	529	529	1380	2.83	744.00	372.00	274.20	94.59	368.80	280.34	86.43	366.77	FT	VILL-LIZU NEW	94°29'52.13"	26°02'46.59"			
8	8	8/0	DD	BB	0	X-Arm Strengthening Suggested	37°19'22"LT	6	6	9	7.5	0	0	0	215	215	1595	1.53	591.00	295.50	120.41	813.94	934.34	128.57	1210.16	1338.74	Nala	VILL-LIZU NEW	94°29'55.43"	26°02'52.81"			
9	9	9/0	DC	BB	0	X-Arm Strengthening Suggested	15°03'14"LT	6	7.5	7.5	6	0	0	0	376	376	1971	-129.78	723.00	361.50	-437.94	987.37	549.43	-834.16	1502.56	668.39	FT	VILL-LIZU NEW	94°29'52.75"	26°03'04.68"			
10	10	10/0	DB	BB	0	X-Arm Strengthening Suggested	07°28'58"LT	6	9	9	6	0	0	0	347	347	2318	-155.73	584.00	292.00	-640.37	1015.67	575.30	-1155.56	1583.59	428.04		VILL-LIZU NEW	94°29'46.93"	26°03'14.73"			
11	11	11/0	DB	BB	0	X-Arm Strengthening Suggested	00°08'17"LT	3	4.5	4.5	3	0	0	0	237	237	2555	-117.25	840.00	420.00	-778.67	174.23	-604.44	-1346.59	93.66	-1252.93		VILL-LIZU NEW	94°29'42.00"	26°03'20.94"			
12	12	12/0	DC	BB	0	X-Arm Strengthening Suggested	16°41'42"RT	9	9	9	9	0	0	0	603	603	3158	42.32	879.00	439.50	428.77	-402.89	25.89	509.34	-745.28	-235.94	Nala	VILL-EMLOMI	94°29'29.49"	26°03'36.89"			
13	14	14/0	DB	BB	0	X-Arm Strengthening Suggested	07°25'02"RT	9	9	9	9	0	0	0	276	276	3434	82.32	841.00	420.50	678.89	-231.59	447.29	1021.28	-557.03	464.25	2 Nos FP, Nala	VILL-EMLOMI	94°29'26.13"	26°03'45.45"			
14	16	16/0	DC	BB	0	X-Arm Strengthening Suggested	17°25'35"LT	6	6	6	7.5	0	0	0	565	565	3999	160.17	959.00	479.50	796.59	-490.74	305.86	1122.03	-926.09	195.94		VILL-YESHOLTOM	94°29'22.03"	26°04'03.26"			
15	17	17/0	DC	BB	0	X-Arm Strengthening Suggested	17°46'08"RT	9	9	9	9	0	0	0	394	394	4393	149.42	570.00	285.00	884.74	-292.21	592.53	1320.09	-532.89	787.20		VILL-YESHOLTOM	94°29'15.08"	26°04'14.65"			
16	18	18/0	DB	BB	0	X-Arm Strengthening Suggested	06°48'03"RT	6	6	6	6	0	0	0	176	176	4569	36.90	339.00	169.50	468.21	239.82	708.03	708.89	340.03	1048.92	Vill Road	VILL-YESHOLTOM	94°29'13.80"	26°04'20.19"			
17	19	19/0	DC	BB	0		17°45'57"RT	0	0	0	0	0	0	0	163	163	4732	-14.23	627.00	313.50	-76.82	8.05	-68.77	-177.03	-133.71	-310.75		VILL-ASUKHUTO	94°29'13.44"	26°04'25.40"			
18	21	21/0	DC	BB	0		20°40'07"RT	1.5	0	0	0	0	0	0	464	464	5196	57.30	778.00	389.00	455.95	-64.43	391.52	597.71	-204.60	393.11	2 Nos FP	VILL-ASUKHUTO	94°29'17.17"	26°04'40.16"			
19	22	22/0	DB	BB	0		10°51'11"LT	9	9	9	9	0	0	0	314	314	5510	38.34	644.00	322.00	378.43	206.38	584.81	518.60	232.57	751.17	FP	VILL-ASUKHUTO	94°29'23.49"	26°04'48.61"			
20	23	23/0	DB	BB	0		01°17'48"RT	9	9	9	9	0	0	0	330	330	5840	-7.53	734.00	367.00	123.62	220.13	343.75	97.43	231.61	329.04	3 Nos FP	VILL-ASUKHUTO	94°29'28.13"	26°04'58.45"			
21	24	24/0	DB	BB	0		00°08'6"RT	1.5	0	0	0	0	0	0	404	404	6244	-4.04	551.00	275.50	183.87	-4.47	179.40	172.39	-53.82	118.56	3 Nos FP, Nala	VILL-ASUKHUTO	94°29'34.02"	26°05'10.43"			
22	25	25/0	DB	BB	0		12°00'00"LT	0	0	0	0	0	0	0	147	147	6391	6.32	596.00	298.00	151.47	194.09	345.55	200.82	174.84	375.66	2 Nos FP	VILL-ASUKHUTO	94°29'36.15"	26°05'14.77"			
23	26	26/0	DB	BB	0		08°59'20"RT	0	0	1.5	0	0	0	0	449	449	6840	7.53	704.00	352.00	254.91	14.21	269.12	274.16	-57.50	216.66		VILL-ASUKHUTO	94°29'39.89"	26°05'29.14"			
24	28	28/0	DD	BB	0		32°48'01"RT	9	9	6	6	0	0	0	255	255	7095	15.93	514.00	257.00	240.79	146.51	387.30	312.50	157.28	469.79	FP	VILL-ASUKHUTO	94°29'43.08"	26°05'36.64"			
25	29	29/0	DB	BB	0		03°54'59"RT	9	9	6	6	0	0	0	259	259	7354	-2.43	527.00	263.50	112.49	-306.65	-194.16	101.72	-585.58	-483.87	2 Nos FP	VILL-ASUKHUTO	94°29'50.52"	26°05'41.48"			
26	30	30/0	DC	BB	0	X-Arm Strengthening Suggested	16°50'15"RT	6	6	3	3	0	0	0	268	268	7622	65.12	730.00	365.00	574.65	-167.53	407.11	855.58	-419.81	433.77	Nala, Metal Road	VILL-ASUKHUTO	94°29'58.86"	26°05'45.89"			
27	31	31/0	DD	BB	0	X-Arm Strengthening Suggested	52°17'47"LT	9	9	9	9	0	0	0	462	462	8084	101.53	527.00	263.50	629.53	-663.59	-34.06	881.81	-1104.23	-222.42	3 Times Metal Road, 2 Nos FP, Vill Road Nala	VILL-ATOIZU	94°30'15.06"	26°05'49.47"			
28	32	32/0	DC	BB	0	X-Arm Strengthening Suggested	19°03'12"RT	9	9	9	9	3	1.5	0	65	65	8149	24.95	161.00	80.50	728.59	97.11	825.71	1169.23	128.21	1297.44	33KV, FP	VILL-ATOIZU	94°30'15.99"	26°05'51.46"			
29	33	33/0	DC	BB	0		28°17'59"RT	9	9	9	9	0	0	0	96	96	8245	-2.60	520.00	260.00	-1.11	167.39	166.28	-32.21	139.15	106.95	66KV	VILL-ATOIZU	94°30'18.50"	26°05'53.89"			
30	34	34/0	DC	BB	0		15°03'07"RT	1.5	1.5	0	0	0	0	0	424	424	8669	10.43	641.00	320.50	256.61	217.31	473.92	284.85	286.19	571.03	2 Nos FP, Vill Road, 33KV	VILL-ATOIZU	94°30'33.06"	26°05'57.92"			

SUBMITTED BY: SHYAMA POWER (I) LTD



Wattimjen
 वतिमजेन /WATITEMJEN
 इंजीनियर /ENGINEER
 एन.ई.आर.पी.एस.आई.पी /NERPSIP
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SL NO	AP NO	TOWER NO	TYPE OF TOWER	CONNE CT WITH BB	CONNEC T WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMLV T LENGTH	R.L	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WIND SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (C)			MAJOR CROSSING DETAIL	VILL NAME	GPS CO-ORDINATE WGS-84				
								A	B	C	D	A	B	C	D									LEFT	RIGHT	TOTA L	LEFT	RIGHT	TOTAL			EASTING	NORTHING			
30	34	34/0	DC	BB			15°03'07"RT	1.5	1.5	0	0	0	0	0	0	0	0	0	0	1663.54	0	-13.02	641.00	320.50	256.61	217.31	473.92	284.85	280.19	571.03		VILL-ATOIZU	94°30'33.06"	26°05'57.92"		
31	35	35/0	DB	BB	0		10°20'49"LT	6	7.5	8	6	0	0	0	0	0	0	0	217	217	8886	1646.02	1.5	-11.37	533.00	266.50	-0.31	223.25	222.94	-69.19	264.50	195.37	FP	VILL-ATOIZU	94°30'40.9"	26°05'58.26"
32	36	36/0	DB	BB	0		12°04'03"LT	7.5	8	6	6	0	0	0	0	0	0	0	316	316	9202	1633.65	0.5	-17.80	529.00	264.50	92.75	258.05	350.80	51.44	353.98	405.43	Nala, FP	VILL-ATOIZU	94°30'51.9"	26°06'00.88"
33	37	37/0	DB	BB		X-Arm Strengthening Suggested	03°27'39"LT	1.5	1.5	0	0	0	0	0	0	0	0	0	213	213	9413	1621.85	0.5	-45.64	505.00	252.50	-45.05	429.45	384.40	-140.98	608.88	467.89	FP	VILL-ATOIZU	94°30'58.66"	26°06'03.88"
34	38	38/0	DB	BB			05°52'15"LT	1.5	1.5	0	0	0	0	0	0	0	0	0	292	292	9707	1576.71	1	25.76	712.00	356.00	-137.45	98.77	-38.67	-516.88	28.37	-288.31	2 Nos FP	VILL-ATOIZU	94°31'07.96"	26°06'06.47"
35	39	39/0	DB	BB	0		05°57'59"RT	8	9	6	6	0	0	0	0	0	0	0	420	420	10127	1597.97	2.5	9.61	512.00	256.00	321.23	-143.43	177.80	391.63	-263.34	128.29	Nala	VILL-ATOIZU	94°31'20.29"	26°06'16.23"
36	40	40/0	DB	BB	0		12°30'48"RT	9	7.5	6	6	0	0	0	0	0	0	0	92	92	10219	1608.08	3	-31.85	614.00	307.00	235.43	371.65	607.08	355.34	441.69	797.03	2 Times Metal Road	VILL-ATOIZU	94°31'23.14"	26°06'17.72"
37	41	41/0	DC	BB	0		15°40'23"RT	9	9	9	9	3	1.5	0	0	0	0	0	522	522	10781	1571.73	1.5	46.32	953.00	476.50	150.33	20.60	170.96	80.31	-102.77	-22.46	33KV, Metal Road	VILL-KITSAKITA	94°31'41.02"	26°06'22.81"
38	42	42/0	DD	BB	0		48°17'6"LT	9	9	9	9	0	0	0	0	0	0	0	431	431	11172	1620.55	4	-66.45	672.00	336.00	410.40	-379.52	30.87	553.77	-696.04	-162.28		VILL-KITSAKITA	94°31'56.52"	26°06'23.14"
39	43	43/0	DC	BB	0	X-Arm Strengthening Suggested	15°03'32"LT	6	6	6	6	0	0	0	0	0	0	0	241	241	11413	1687.5	1.5	34.98	646.00	323.00	620.52	45.87	666.39	937.04	-53.28	883.76		VILL-KITSAKITA	94°32'02.09"	26°06'29.15"
40	45	45/0	DD	BB	0	X-Arm Strengthening Suggested	30°09'46"LT	4.5	4.5	4.5	3	0	0	0	0	0	0	0	405	405	11818	1723.98	0	-110.55	775.00	387.50	359.13	726.84	1085.97	458.28	1069.83	1528.11		VILL-KITSAKITA	94°32'08.33"	26°06'41.07"
41	46	46/0	DB	BB	0	X-Arm Strengthening Suggested	13°29'15"LT	8	8	6	6	0	0	0	0	0	0	0	370	370	12188	1611.93	1.5	-11.51	661.00	330.50	-356.84	217.23	-139.61	-699.83	262.63	-437.19	2 Times NH-702A	VILL-KITSAKITA	94°32'07.50"	26°06'52.96"
42	47	47/0	DB	BB		X-Arm Strengthening Suggested	10°20'49"LT	1.5	1.5	0	0	0	0	0	0	0	0	0	291	291	12479	1605.42	0.5	73.72	571.00	285.50	73.77	-337.46	-263.69	28.37	-639.70	-611.34	Nala, Vill Road	VILL-KITSAKITA	94°32'04.49"	26°07'02.30"
43	48	48/0	DC	BB		X-Arm Strengthening Suggested	18°07'31"LT	1.5	0	0	0	0	0	0	0	0	0	0	280	280	12759	1681.14	2.5	21.31	530.00	265.00	620.52	-29.58	590.94	937.04	-127.43	809.61	2 Times Vill Road, Nala	VILL-KITSAKITA	94°31'59.57"	26°07'10.13"
44	49	49/0	DB	BB	0		08°50'43"RT	3	3	3	3	0	0	0	0	0	0	0	250	250	13009	1698.45	1.5	-16.92	446.00	223.00	279.58	254.55	534.13	327.43	353.65	731.08		VILL-KITSAKITA	94°31'53.32"	26°07'15.88"
45	50	50/0	DC	BB		X-Arm Strengthening Suggested	17°55'50"LT	1.5	1.5	0	0	0	0	0	0	0	0	0	196	196	13205	1683.03	0	-78.48	531.00	265.50	-58.55	592.34	533.79	-157.65	861.27	703.62		VILL-AOTSAKILIMI	94°31'49.07"	26°07'20.91"
46	51	51/0	DD	BB	0	Used DD tower instead of DC due to Sum of Adj. Span Limit Crossed	24°39'30"RT	4.5	6	3	3	0	0	0	0	0	0	0	335	335	13540	1602.55	1	-55.52	880.00	440.00	-257.34	457.24	199.90	-526.27	574.19	47.92	2 NOS NH-702A, Nala	VILL-AOTSAKILIMI	94°31'39.18"	26°07'27.29"
47	52	52/0	DD	BB			30°16'05"RT	1.5	1.5	0	0	0	0	0	0	0	0	0	545	545	14085	1549.53	0.5	-35.68	839.00	419.50	87.76	-73.08	14.68	-29.19	-312.40	-241.59	Nala, FP	VILL-AOTSAKILIMI	94°31'29.48"	26°07'42.57"
48	52A	52A/0	DB	BB		X-Arm Strengthening Suggested	01°43'34"RT	1.5	1.5	0	0	1.5	1.5	0	0	0	0	0	294	294	14379	1584.71	0	28.32	402.00	201.00	367.08	-421.53	-54.45	506.40	-722.55	-216.15	Nala	VILL-AOTSAKILIMI	94°31'29.48"	26°07'52.21"
49	53	53/0	DB	BB	0	X-Arm Strengthening Suggested	08°10'35"LT	6	6	7.5	6	0	0	0	0	0	0	0	108	108	14487	1608.03	1	2.32	417.00	208.50	-529.53	140.88	670.42	830.55	132.27	962.82	4 Times FP	VILL-AOTSAKILIMI	94°31'29.40"	26°07'55.55"
50	55	55/0	DB	BB	0		02°24'51"RT	4.5	4.5	3	3	0	0	0	0	0	0	0	309	309	14796	1613.35	1	-47.19	761.00	380.50	168.12	415.33	583.45	176.73	535.18	711.92	2 Nos Nala	VILL-AOTSAKILIMI	94°31'28.04"	26°08'05.64"
51	56	56/0	DC	BB	0	Used DC tower instead of DB due to Sum of Adj. Span Limit Crossed	09°03'42"RT	4.5	3	3	3	0	0	0	0	0	0	0	452	452	15248	1567.2	2	-23.63	948.00	474.00	36.67	334.40	371.06	-83.18	399.09	305.90	2 Nos NH-702A, Rain Cut, 2 Times FP	VILL-AOTSAKILIMI	94°31'25.10"	26°08'20.06"
52	57	57/0	DC	BB			19°21'57"RT	1.5	0	0	0	0	0	0	0	0	0	0	496	496	15744	1546.5	2	11.27	680.00	340.00	161.60	-19.08	142.53	106.91	-89.39	17.53	Rain Cut	VILL-AOTSAKILIMI	94°31'24.98"	26°08'38.14"
53	58	58/0	DB	BB	0	X-Arm Strengthening Suggested	01°40'53"LT	4.5	6	3	3	0	0	0	0	0	0	0	184	184	15928	1552.8	0	-64.22	542.00	271.00	203.08	504.31	707.39	273.39	710.24	983.62	FT, FP, NH-702A, Rain Cut, 11KV, 33KV	VILL-AOTSAKILIMI	94°31'27.12"	26°08'41.82"
54	59	59/0	DB	BB		X-Arm Strengthening Suggested	01°51'13"RT	0	0	0	0	0	0	0	0	0	0	0	189	189	16286	1493.6	2	-43.74	527.00	263.50	-146.31	553.86	407.55	-352.24	830.97	498.73	Rain Cut	VILL-AOTSAKILIMI	94°31'31.23"	26°08'52.89"
55	60	60/0	DD	BB			41°13'35"LT	0	1.5	1.5	0	0	0	0	0	0	0	0	404	404	16859	1448.3	0.5	-83.64	573.00	286.50	-384.86	577.44	192.59	-681.97	815.10	133.14	Rain Cut	VILL-AOTSAKILIMI	94°31'33.61"	26°08'57.99"
56	61	61/0	DB	BB			00°40'13"LT	0	0	0	0	0	0	0	0	0	0	0	390	390	17249	1411.3	0.5	49.59	794.00	397.00	-173.44	-35.59	-209.03	-411.10	-181.56	-592.66	Nala, Rain Cut	VILL-LOKOBOMI	94°31'28.71"	26°09'10.29"
57	62	62/0	DD	BB	0		40°33'03"LT	6	3	3	3	0	0	0	0	0	0	0	362	362	17611	1418.6	0.5	4.29	752.00	376.00	425.59	159.51	585.10	571.56	145.90	717.46	Rain Cut, 33KV, NH-702A	VILL-LOKOBOMI	94°31'23.98"	26°09'22.19"
58	63	63/0	DC	BB			29°28'07"RT	1.5	1.5	0	0	1.5	1.5	0	0	0	0	0	227	227	17838	1444.5	1.5	-17.82	589.00	294.50	302.49	-85.74	116.75	216.10	-211.87	4.23	2 Times NH-702A	VILL-LOKOBOMI	94°31'12.51"	26°09'27.91"
59	64	64/0	DB	BB			11°20'16"RT	0	1.5	0	0	0	0	0	0	0	0	0	291	291	18129	1423.2	1		518.00	259.00	312.74	256.55	569.29	438.87	326.85	765.71		VILL-LOKOBOMI	94°31'08.16"	26°09'34.21"
60	65	65/0	DB	BB	0	X-Arm Strengthening Suggested	05°16'23"RT	4.5	6	3	3	0	0	0	0	0	0	0				1423.2	1		441.00	220.50	34.45	420.41	454.85	-35.85	639.05	603.20		VILL-LOKOBOMI	94°31'04.71"	26°09'43.23"



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कोहिमा : नागालैण्ड / Kohima : Nagaland

SL NO	AP NO	TOWER NO	TYPE OF TOWER	CONNECT WITH BB	CONNECT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	QUALITY LENGTH	R.L.	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WIND SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (C)			MAJOR CROSSING DETAIL	VILL NAME	GPS CO-ORDINATE WGS-84	
								A	B	C	D	A	B	C	D									LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL			EASTING	NORTHING
60	65	65/0	DB	BB	0	X-Arm Strengthening Suggested	05°16'23"RT	4.5	6	3	3	0	0	0	0			1423.2	1		441.00	220.50	34.45	420.41	454.85	-35.85	639.05	603.20		VILL-LOKOBOMI	94°31'04.71"	26°09'43.23"	
61	66	66/0	DD	BB			40°02'56"LT	0	1.5	0	0	0	0	0	0			1397.6	1	-28.57	593.00	296.50	-270.41	475.26	204.86	-489.05	635.90	146.85	5 Times FP	VILL-LOKOBOMI	94°31'03.26"	26°09'47.85"	
62	67	67/0	DC	BB	0	X-Arm Strengthening Suggested	21°18'24"LT	4.5	3	3	3	0	0	0	0			1332.6	1	-61.99	735.00	367.50	-32.26	684.20	651.94	-192.90	1024.89	832.00	FT	VILL-LOKOBOMI	94°30'50.52"	26°09'56.30"	
63	68	68/0	DB	BB	0	X-Arm Strengthening Suggested	09°35'42"RT	3	4.5	4.5	3	0	0	0	0			1245	0	-86.66	532.00	266.00	-392.20	391.11	-1.09	-732.89	562.73	-170.16	NH-702A	VILL-LOKOBOMI	94°30'40.20"	26°09'58.81"	
64	69	69/0	DC	BB	0	X-Arm Strengthening Suggested	27°56'24"RT	3	4.5	4.5	3	0	0	0	0			1209.1	0	-35.88	534.00	267.00	-151.11	694.80	543.69	-322.73	1041.57	718.84	FP, 33KV	VILL-AKULUTO	94°30'32.47"	26°10'02.03"	
65	70	70/0	DB	BB	0	X-Arm Strengthening Suggested	05°58'16"RT	3	3	3	3	0	0	0	0			1121.8	1.5	-88.81	657.00	328.50	-400.80	751.27	350.47	-747.57	1111.94	364.37		VILL-AKULUTO	94°30'26.06"	26°10'09.55"	
66	71	71/0	DB	BB		X-Arm Strengthening Suggested	00°29'42"RT	0	0	0	0	0	0	0	0			1009.7	0.5	-114.05	911.00	455.50	-388.27	192.72	-195.54	-748.94	141.28	-607.67	Nala	VILL-AKULUTO	94°30'19.28"	26°10'19.73"	
67	72	72/0	DD	BB	0		35°11'38"RT	6	3	3	3	0	0	0	0			1031.8	1	24.56	813.00	406.50	355.28	-191.67	163.61	406.72	-396.87	9.85		VILL-AKULUTO	94°30'09.12"	26°10'34.87"	
68	73	73/0	DB	BB	0	X-Arm Strengthening Suggested	04°00'45"LT	4.5	6	3	3	0	0	0	0			1078.7	0.5	47.37	550.00	275.00	456.67	188.95	645.62	661.87	218.35	880.22	Rain Cut, FP	VILL-AKULUTO	94°30'09.71"	26°10'43.64"	
69	74	74/0	DC	BB			25°13'51"LT	0	0	0	0	0	0	0	0			1076.9	3	-7.30	679.00	339.50	96.05	324.13	420.18	66.65	404.60	471.25	2 Nos FP, Rain Cut	VILL-AKULUTO	94°30'09.68"	26°10'52.68"	
70	75	75/0	DB	BB			10°12'54"RT	0	0	0	0	0	0	0	0			1046.8	0.5	-27.62	838.00	419.00	69.87	54.42	124.29	-10.60	-51.67	-62.27	Rain Cut, FP, Vill Road	VILL-LUMTHSAMI	94°30'30.57"	26°11'42.22"	
71	76	76/0	DD	BB	0	X-Arm Strengthening Suggested	33°50'58"LT	4.5	3	4.5	4.5	0	0	0	0			1084.8	0.5	41.03	803.00	401.50	389.58	661.11	1050.69	495.67	965.97	1461.63	Rain Cut, FP	VILL-LUMTHSAMI	94°29'58.39"	26°11'18.03"	
72	77	77/0	DB	BB		X-Arm Strengthening Suggested	06°08'17"LT	0	1.5	0	0	0	0	0	0			992.94	1	-95.34	843.00	421.50	-302.11	350.21	48.10	-606.97	418.71	-188.26	Rain Cut	VILL-LUMTHSAMI	94°29'49.37"	26°11'25.69"	
73	78	78/0	DD	BB		Used DD tower instead of DC due to Sum of Adj. Span Limit Crossed	24°22'38"RT	0	0	0	0	0	0	0	0			964.06	1	-28.88	933.00	466.50	133.79	208.71	342.50	65.29	198.71	264.00	Rain Cut	VILL-ALAPHUMI	94°28'34.80"	26°11'34.50"	
74	79	79/0	DB	BB			00°06'37"LT	0	0	0	0	0	0	0	0			967.97	1	3.91	801.00	400.50	240.29	230.15	470.44	250.29	264.42	514.71	Rain Cut	VILL-ALAPHUMI	94°28'26.26"	26°11'46.82"	
75	80	80/0	DB	BB			11°45'26"RT	0	0	0	0	0	0	0	0			957.96	1.5	-10.51	692.00	346.00	121.85	76.29	198.14	87.58	16.96	104.54	FT, Rain Cut	VILL-ALAPHUMI	94°29'19.50"	26°11'56.48"	
76	81	81/0	DB	BB		X-Arm Strengthening Suggested	00°28'17"LT	0	1.5	0	0	0	0	0	0			975.03	1	17.57	600.00	300.00	263.71	728.72	992.44	323.04	1107.73	1430.76	2 Nos Rain Cut, Vill Road	VILL-ALAPHUMI	94°29'15.19"	26°12'06.80"	
77	82	82/0	DC	BB	0	X-Arm Strengthening Suggested	24°41'49"LT	4.5	6	4.5	3	0	0	0	0			885.19	0	-85.84	663.00	331.50	-468.72	375.92	-92.81	-847.73	486.33	-361.40	Rain Cut, FP	VILL-ALAPHUMI	94°29'12.02"	26°12'14.69"	
78	83	83/0	DD	BB			44°38'00"RT	0	0	0	0	0	0	0	0			851.43	2	-38.76	654.00	327.00	27.08	-491.80	-464.72	-83.33	-882.57	-965.89	Nala	VILL-LUMAMI	94°29'01.91"	26°12'24.04"	
79	83A	83A/0	DB	BB	0	X-Arm Strengthening Suggested	00°04'28"LT	9	9	9	9	1.5	3	0	0			927.87	2	85.44	434.00	217.00	742.80	85.55	828.36	1133.57	81.79	1215.36		VILL-LUMAMI	94°29'1.94"	26°12'32.19"	
80	84	84/0	DB	BB	0	X-Arm Strengthening Suggested	06°21'30"LT	9	9	9	9	3	1.5	0	0			928.47	2	0.60	509.00	254.50	97.45	645.79	743.24	101.21	954.41	1052.62	FT	VILL-LUMAMI	94°29'1.33"	26°12'38.11"	
81	85	85/0	DB	BB	0	X-Arm Strengthening Suggested	06°38'46"LT	9	9	9	9	3	0	0	0			842.18	2.5	-86.79	806.00	403.00	-319.79	305.51	-14.28	-625.41	346.98	-278.45	2 Nos Nala	VILL-LUMAMI	94°28'59.30"	26°12'48.54"	
82	86	86/0	DB	BB			01°11'33"RT	1.5	0	0	0	0	0	0	0			832.34	1	-17.34	841.00	420.50	174.49	104.29	278.78	133.02	56.05	189.07	2 Nos Nala, FP	VILL-LUMAMI	94°28'54.27"	26°13'03.61"	
83	87	87/0	DC	BB		Used DC tower instead of DB due to Sum of Adj. Span Limit Crossed	12°58'02"RT	1.5	0	0	1.5	1.5	0	0	1.5			846.51	0	15.17	884.00	442.00	256.71	-24.60	232.11	304.95	-205.70	99.24	4 Times FT, Nala	VILL-LUMAMI	94°28'50.64"	26°13'14.74"	
84	88	88/0	DD	BB	0	Used DD tower instead of DC due to Sum of Adj. Span Limit Crossed	28°34'38"LT	9	9	9	9	0	0	0	0			924.52	4.5	82.51	767.00	383.50	547.60	411.11	958.71	728.70	594.13	1322.83	3 Times FT	VILL-ZAPHUMI(NEW)	94°28'49.75"	26°13'31.88"	

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SL NO	AP NO	TOWER NO	TYPE OF TOWER	CONNE CT WITH BB	CONNEC T WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMULV LENGTH	R.I.	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WIND SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (COLD)			MAJOR CROSSING DETAIL	VILL. NAME	GPS CO-ORDINATE WGS-84		
								A	B	C	D	A	B	C	D									LEFT	RIGHT	TOTA L	LEFT	RIGHT	TOTAL			EASTING	NORTHING	
84	88	88/0	DD	BB	0	Used DD tower instead of DC due to Sum of Adj. Span Limit Crossed	28°34'38"LT	9	9	9	9	0	0	0	0			924.52	4.5		767.00	383.50	547.60	411.11	958.71	728.70	594.13	1322.83		VILL-ZAPHUM(NEW)	94°28'49.75"	26°13'31.88"		
85	89	89/0	DB	BB	0		10°18'43"LT	3	3	3	3	0	0	0	0	244	244	26862	888.12	1	-38.90	604.00	302.00	-167.11	158.39	-8.73	-350.13	144.71	-205.42	3 Times Nala, 2 Nos FT, Shed	VILL-ZAPHUM(NEW)	94°28'45.20"	26°13'38.55"	
86	90	90/0	DB	BB	0		05°04'54"LT	3	3	3	3	0	0	0	0	360	360	27222	891.91	0.5	4.29	570.00	285.00	201.61	44.72	246.33	215.29	6.57	221.86		VILL-ZAPHUM(NEW)	94°28'36.81"	26°13'47.36"	
87	91	91/0	DD	BB			38°07'51"RT	0	1.5	0	0	0	0	0	0	210	210	27432	901.89	0.5	6.98	555.00	277.50	165.28	-206.28	-41.00	203.43	-446.05	-242.62		VILL-ZAPHUM(NEW)	94°28'31.47"	26°13'51.93"	
88	92	92/0	DC	BB	0	X-Arm Strengthening Suggested	15°25'18"RT	6	3	3	3	0	0	0	0	345	345	27777	971.95	1.5	72.06	753.00	376.50	551.28	458.46	1009.74	791.05	619.54	1410.60	Nala, FT	VILL-ZAPHUM(NEW)	94°28'29.43"	26°14'03.07"	
89	93	93/0	DB	BB			02°40'24"LT	0	1.5	0	0	0	0	0	0	408	408	28185	916.7	0.5	-57.25	639.00	319.50	-50.46	166.84	116.38	-211.54	199.34	-12.20	Vill Road, FT	VILL-SHITSUMI	94°28'30.61"	26°14'16.55"	
90	94	94/0	DC	BB			28°27'19"RT	1.5	1.5	0	0	0	0	0	0	231	231	28416	909.66	0	-6.54	597.00	298.50	64.16	178.44	242.60	31.66	175.56	207.21	Nala, FT	VILL-SHITSUMI	94°28'31.16"	26°14'24.04"	
91	95	95/0	DD	BB			34°44'54"RT	0	0	0	0	0	0	0	0	366	366	28782	911.08	0.5	0.92	732.00	366.00	187.56	-88.53	99.03	190.44	-260.40	-69.96		VILL-SHITSUMI	94°28'38.72"	26°14'33.92"	
92	96	96/0	DB	BB	0	X-Arm Strengthening Suggested	00°25'48"LT	7.5	9	6	6	0	0	0	0	366	366	29148	960.38		54.80	634.00	317.00	454.53	235.03	689.55	626.40	298.98	925.38	2 Nos Nala	VILL-ZAPHUM(OLD)	94°28'51.07"	26°14'38.27"	
93	97	97/0	DC	BB	0		20°43'21"LT	9	9	9	9	0	0	0	0	268	268	29416	942.95	1.5	-14.93	443.00	221.50	32.97	293.51	326.48	-30.98	423.92	392.94		VILL-ZAPHUM(OLD)	94°28'59.83"	26°14'42.04"	
94	98	98/0	DD	BB	0		58°00'20"LT	4.5	4.5	3	3	0	0	0	0	175	175	29591	928.07	0.5	-19.88	321.00	160.50	-118.51	-84.25	-202.76	-248.92	-183.79	-432.71	Vill Road, Nala	VILL-ZAPHUM(OLD)	94°29'04.09"	26°14'46.23"	
95	99	99/0	DB	BB			06°46'5"RT	1.5	0	0	0	0	0	0	0	146	146	29737	944.23	1	12.66	584.00	292.00	230.25	-3.46	226.79	329.79	-144.28	185.51		Vill Road	VILL-ZAPHUM(OLD)	94°29'02.58"	26°14'50.83"
96	100	100/0	DB	BB			00°25'04"LT	0	0	0	0	0	0	0	0	438	438	30175	997.46	0.5	53.73	847.00	423.50	441.46	227.11	668.57	582.28	241.43	823.71	Nala, Vill Road	VILL-SUMI-SETTSU	94°28'58.57"	26°15'04.72"	
97	101	101/0	DC	BB			20°59'48"RT	1.5	0	0	0	1.5	0	0	0	409	409	30584	992.36	0.5	-5.10	832.00	416.00	181.89	119.50	301.38	167.57	61.26	228.83		Nala	VILL-SUMI-SETTSU	94°28'56.82"	26°15'17.55"
98	102	102/0	DC	BB			18°33'32"LT	0	1.5	0	0	0	0	0	0	423	423	31007	1014.8	1.5	21.46	854.00	427.00	303.50	-159.14	144.36	361.74	-396.30	-34.56		2 Nos Vill Road	VILL-SUMI-SETTSU	94°28'59.02"	26°15'31.39"
99	103	103/0	DD	BB		Used DD tower instead of DC due to Sum of Adj. Span Limit Crossed	28°53'17"LT	1.5	0	0	1.5	0	0	0	0	431	431	31438	1102.9	0.5	89.04	786.00	393.00	590.14	243.14	835.29	827.30	284.70	1111.99		Vill Road	VILL-SUMI-SETTSU	94°28'56.70"	26°15'45.08"
100	104	104/0	DC	BB			23°37'22"RT	1.5	1.5	0	0	0	0	0	0	355	355	31793	1090	0.5	-12.85	606.00	303.00	111.86	68.21	180.06	70.30	31.94	102.24		Vill Road	VILL-SUMI-SETTSU	94°28'48.61"	26°15'54.22"
101	105	105/0	DC	BB			24°15'32"RT	1.5	1.5	0	0	0	0	0	0	251	251	32044	1098.4	1	7.93	483.00	241.50	182.79	332.68	515.47	219.06	469.84	688.90			VILL-SETTSU	94°28'46.58"	26°16'02.12"
102	106	106/0	DB	BB	0		04°41'06"LT	7.5	6	6	6	0	0	0	0	232	232	32276	1084.7	1	-27.72	522.00	261.00	-100.68	-158.79	-259.47	-237.84	-351.09	-588.93			VILL-SETTSU	94°28'40.11"	26°16'09.65"
103	107	107/0	DC	BB	0	X-Arm Strengthening Suggested	23°15'58"LT	9	9	9	9	1.5	1.5	0	0	290	290	32566	1110.3	1	48.58	642.00	321.00	448.79	-154.24	294.55	641.09	-363.28	277.81		66KV (M/C Tower), Un Metal Road, 33KV	VILL-SETTSU	94°28'48.63"	26°16'19.07"
104	108	108/0	DC	BB	0	X-Arm Strengthening Suggested	25°18'55"RT	9	9	9	9	0	0	0	0	352	352	32918	1175.4	2	64.10	650.00	325.00	506.24	39.52	545.76	715.28	-29.78	685.50			VILL-SETTSU	94°28'44.18"	26°16'29.55"
105	109	109/0	DB	BB			13°46'36"RT	0	1.5	0	0	0	0	0	0	298	298	33216	1201.4	1	17.99	496.00	248.00	258.48	398.22	656.70	327.78	587.64	915.41			VILL-SETTSU	94°28'45.12"	26°16'39.38"
106	110	110/0	DC	BB	0		19°52'50"LT	4.5	4.5	4.5	3	0	0	0	0	198	198	33414	1165.2	0.5	-32.67	429.00	214.50	-200.22	245.66	45.44	-389.64	328.06	-61.58			VILL-AOLIJEN	94°28'47.19"	26°16'45.53"
107	111	111/0	DC	BB	0		28°15'14"LT	4.5	3	3	3	0	0	0	0	231	231	33645	1149.1	1	-16.58	494.00	247.00	-14.66	-101.98	-116.64	-97.06	-249.77	-346.83		Vill Road	VILL-AOLIJEN	94°28'46.85"	26°16'53.11"
108	112	112/0	DC	BB		X-Arm Strengthening Suggested	23°51'14"RT	0	0	0	0	0	0	0	0	263	263	33908	1186	1	33.86	434.00	217.00	364.98	-485.90	-120.93	512.77	-847.61	-334.84		FT, 2 Nos Pond, 33KV	VILL-AOLIJEN	94°28'41.89"	26°17'00.28"



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SHYAMA POWER (I) LTD.

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SL NO	AP NO	TOWER NO	TYPE OF TOWER	CONNE CT WITH BR	CONNEC T WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMULTV LENGTH	R.I.	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WIND SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (C			MAJOR CROSSING DETAIL	VILL NAME	GPS CO-ORDINATE	
								A	B	C	D	A	B	C	D									LEFT	RIGHT	TOTA L	LEFT	RIGHT	TOTAL			EASTING	NORTHING
108	112	112/0	DC	BB		X-Arm Strengthening Suggested	23°51'14"RT	0	0	0	0	0	0	0	0	0	1186	1		434.00	217.00	364.98	-485.90	-120.93	512.77	-847.61	-334.84		VILL-AOLIJEN	94°28'41.89"	26°17'00.26"		
109	112A	112A/0	DD	BB	0	X-Arm Strengthening Suggested	42°58'32"RT	9	6	6	9	0	0	0	3	171	171	34079	53.88	231.00	115.50	656.90	-576.91	79.99	1018.61	-961.09	57.52	LT Line	VILL- AOLIJEN	94°28'40.96"	26°17'05.87"		
110	113	113/0	DD	BB	0	D/E Tower with Auxiliary X-Arm(X-Arm Strengthening Suggested)	79°01'26"RT	6	9	7.5	6	0	0	0	0	60	60	34139	20.08	90.00	45.00	636.91	1319.49	1956.40	1021.09	2145.25	3166.34	33KV, FP, UN Metal Road	VILL- AOLIJEN	94°28'42.28"	26°17'07.44"		
111			GANTRY (MOKOKCHUNG)					0	0	0	0	0	0	0	30	30	34169	-21.58	30.00	15.00	-1289.49		#####	-2115.25		-2115.25	2 Nos FP, LT Line, Shed, S/S Boundary	VILL- AOLIJEN	94°28'43.22"	26°17'07.05"			

Definitive Site Survey


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SL NO	AP NO	TOWER NO	TYPE OF TOWER	CONNECT WITH BB	CONNECT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMLTV LENGTH	R.L.	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WIND SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (C)			MAJOR CROSSING DETAIL	VILL NAME	GPS CO-ORDINATE	
								A	B	C	D	A	B	C	D									LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL			EASTING	NORTHING
26	26	26/0	DD	BB	0		34°51'15"LT	6	4.5	3	3	0	0	0	0	189	189	6976	915.56	2	-10.24	474.00	237.00	10.72	192.75	203.47	-72.70	254.95	182.25	FP	VILL-ROTOMI	94°25'42.60"	26°04'20.67"
27	27	27/0	DD	BB			42°04'39"LT	1.5	1.5	0	0	0	0	0	0	242	242	7218	906.82	0.5	7.76	431.00	215.50	-3.75	62.85	59.10	-65.95	26.04	-39.91	FT	VILL-ROTOMI	94°25'49.32"	26°04'21.07"
28	29	29/0	DC	BB			20°09'17"RT	1.5	1.5	0	0	0	0	0	0	440	440	7658	914.58	0.5	-1.89	682.00	341.00	179.15	227.79	406.94	215.96	232.72	448.68	33KV	VILL-ROTOMI	94°25'55.49"	26°04'26.82"
29	30	30/0	DD	BB	0		30°09'31"RT	6	6	3	3	0	0	0	0	286	286	7944	910.69	1.5	28.26	726.00	363.00	212.21	-36.19	176.02	207.28	-149.62	57.66	33KV	VILL-ROTOMI	94°26'09.81"	26°04'32.95"
30	31	31/0	DB	BB	0		07°44'15"LT	9	9	6	7.5	0	0	0	0	501	501	8445	934.45	0	9.52	787.00	393.50	322.19	216.04	538.23	435.62	194.23	629.85	FP	VILL-ROTOMI	94°26'19.94"	26°04'32.09"
31	32	32/0	DC	BB	0	Used DC tower instead of DB due to Sum of Adj. Span Limit Crossed	12°08'36"LT	6	6	6	6	0	0	0	0	259	259	8704	945.47	1.5	-15.91	760.00	380.00	284.96	240.90	525.86	306.77	311.42	618.19		VILL-ROTOMI	94°26'37.75"	26°04'33.11"
32	33	33/0	DB	BB			12°17'09"RT	1.5	1.5	0	0	0	0	0	0	399	399	9103	935.06	1	43.92	658.00	329.00	18.10	-0.12	17.98	-52.42	-126.48	-178.90	3 Nos FP	VILL-AKUHAITO	94°26'46.89"	26°04'35.31"
33	34	34/0	DB	BB	0		09°45'59"RT	4.5	4.5	3	3	0	0	0	0	285	285	9348	975.48	0.5	22.74	684.00	342.00	399.12	-2.20	396.92	525.48	-93.79	431.69	2 Nos FP	VILL-AKUHAITO	94°27'01.07"	26°04'36.10"
34	35	35/0	DC	BB	0	X-Arm Strengthening Suggested	28°52'34"RT	7.5	7.5	6	6	0	0	0	0	232	232	9620	995.72	1	-55.92	517.00	258.50	287.20	553.11	840.30	378.79	829.81	1208.60	3 Nos FP	VILL-AKUHAITO	94°27'11.48"	26°04'35.19"
35	36	36/0	DC	BB	0	X-Arm Strengthening Suggested	17°03'36"RT	3	4.5	3	3	0	0	0	0	267	267	9887	942.8	1	-52.51	499.00	249.50	-321.11	490.15	169.04	-597.81	715.91	118.11	FP	VILL-AKUHAITO	94°27'18.35"	26°04'31.02"
36	37	37/0	DD	BB	0	X-Arm Strengthening Suggested	32°00'04"RT	3	3	4.5	3	0	0	0	0	214	214	10101	890.29	1	-86.23	481.00	240.50	-223.15	837.73	614.58	-448.91	1300.29	851.38	Nala	VILL-AKUHAITO	94°27'24.47"	26°04'24.34"
37	37A	37A/0	DC	BB	0	X-Arm Strengthening Suggested	18°45'35"LT	9	9	9	9	0	0	0	3	200	200	10301	800.06	3	-23.84	414.00	207.00	-623.73	316.17	-307.56	-1086.29	453.00	-633.29	Nala	VILL-AKUHAITO	94°27'25.22"	26°04'17.41"
38	38	38/0	DD	BB			30°49'35"LT	0	0	0	1.5	0	0	0	0	598	598	10899	783.72	1.5	13.08	798.00	399.00	-116.17	259.33	143.17	-253.00	234.22	-18.78	Nala	VILL-AKUHAITO	94°27'28.51"	26°04'11.63"
39	39	39/0	DB	BB		X-Arm Strengthening Suggested	05°13'32"LT	1.5	0	0	1.5	0	0	0	0	111	111	11010	795.8	0.5	52.69	709.00	354.50	338.67	-805.33	-466.66	363.78	-1350.24	-986.47		VILL-EMLOMI	94°27'45.71"	26°04'00.24"
40	39A	39A/0	DB	BB		X-Arm Strengthening Suggested	06°03'18"RT	1.5	0	0	0	0	0	0	0	98	98	11108	848.99	1	39.96	209.00	104.50	916.33	-690.45	225.87	1461.24	-1158.54	302.71		VILL-EMLOMI	94°27'49.23"	26°03'58.39"
41	40	40/0	DC	BB		X-Arm Strengthening Suggested	25°44'54"LT	0	0	0	0	0	0	0	0	331	331	11439	889.95	2	71.16	429.00	214.50	788.45	-224.37	564.08	1256.54	-471.16	785.37		VILL-EMLOMI	94°27'52.27"	26°03'56.74"
42	41	41/0	DD	BB			46°46'51"RT	1.5	1.5	0	0	0	0	0	0	385	385	11824	960.11	1	42.52	716.00	358.00	555.37	-7.78	547.59	802.16	-134.56	667.60		VILL-EMLOMI	94°28'03.85"	26°03'54.96"
43	42	42/0	DC	BB	0		26°34'59"RT	6	6	6	6	0	0	0	0	291	291	12115	996.13	0.5	45.24	676.00	338.00	392.78	-136.43	256.35	519.56	-314.90	204.67		VILL-EMLOMI	94°28'11.58"	26°03'44.48"
44	43	43/0	DC	BB	0	X-Arm Strengthening Suggested	15°33'44"RT	9	9	9	9	0	0	0	0	257	257	12372	1039.87	2	68.31	548.00	274.00	427.43	-353.52	73.91	605.90	-658.64	-52.75	2 Times FP	VILL-LITSAMI	94°28'13.02"	26°03'35.12"
45	44	44/0	DB	BB	0	X-Arm Strengthening Suggested	08°24'48"LT	9	7.5	6	6	0	0	0	0	270	270	12642	1110.68	1.5	4.32	527.00	263.50	610.52	105.98	716.50	915.64	87.62	1003.26	FP	VILL-LITSAMI	94°28'11.64"	26°03'26.75"
46	45	45/0	DB	BB	0		01°33'35"LT	7.5	9	6	6	0	0	0	0	389	389	13031	1114.5	1	69.96	659.00	329.50	164.02	-131.64	32.37	182.38	-338.10	-155.72	11KV, FP	VILL-LITSAMI	94°28'12.07"	26°03'18.18"
47	46	46/0	DB	BB	0	X-Arm Strengthening Suggested	04°36'55"LT	9	9	9	9	0	0	0	0	274	274	13305	1183.96	3.5	-26.94	663.00	331.50	520.64	315.30	835.95	727.10	428.17	1155.27	Un Metal Road	VILL-LITSAMI	94°28'13.02"	26°03'05.35"
48	47	47/0	DD	BB	0		34°25'20"LT	9	9	9	9	0	1.5	1.5	0	294	294	13599	1154.52	1	-61.93	568.00	284.00	-41.30	529.00	487.70	-154.17	770.81	616.64	FP	VILL-LITSAMI	94°28'14.70"	26°02'58.72"
49	48	48/0	DB	BB	0		14°23'15"LT	9	9	9	9	0	0	0	0	379	379	13978	1094.59	3	-52.43	673.00	336.50	-235.00	440.37	205.37	-476.81	599.18	122.36	FP	VILL-LITSAMI	94°28'22.08"	26°02'48.87"
50	49	49/0	DB	BB	0	X-Arm Strengthening Suggested	11°28'15"LT	9	9	9	9	0	0	0	0	292	292	14270	1039.65	0.5	-136.80	671.00	335.50	-61.37	995.60	934.23	-220.18	1533.41	1313.23	3 Times FP	VILL-LITSAMI	94°28'33.50"	26°02'43.09"
51	50	50/0	DD	BB	0	Used DD tower instead of DC due to Sum of Adj. Span Limit Crossed (X-Arm Strengthening Suggested)	25°26'57"RT	3	3	6	3	0	0	0	0				909.36	1		885.00	442.50	-703.60	533.78	-169.82	-1241.41	683.98	-557.43	2 Nos FP	VILL-LITSAMI	94°28'43.24"	26°02'39.77"

(Achim Ghosh)
 Sr. Engineer

Wattimjen
 WATTIMJEN
 ENGINEER
 एन.ई.आर.पी.एस.आई.पी./NERPSIP
 जुन्हेबोटो/ZUNHEBOTO

Recommended by
 H.K. Chutia
 Dy. Manager
 एन.ई.आर.पी.एस.आई.पी./NERPSIP
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L.A. Sharma
 General Manager
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 कोहिमा : नागालैन्ड / Kohima : Nagaland

SL NO	AP NO	TOWER NO	TYPE OF TOWER	CONNECT WITH BB	CONNECT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMULTV LENGTH	R.L	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (C)			MAJOR CROSSING DETAIL	VILL NAME	GPS CO-ORDINATE		
								A	B	C	D	A	B	C	D								LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL			EASTING	NORTHING	
								51	50	50/0	DD	BB	0	Used DD tower instead of DC due Sum of Adj. Span Limit Crossed (X-Arm Strengthening Suggested)	25°26'57"RT								3	3	6	3	0	0			0	0	909.36
52	51	51/0	DD	BB	0	X-Arm Strengthening Suggested	34°18'42"LT	3	3	4.5	6	0	0	0	0	593	593	14163	831.27	0.5	-77.59	906.00	453.00	59.22	-758.81	-699.59	-90.98	-1338.22	-1429.20	3 Nos Nala	VILL-LIZU NEW	94°28'57.98"	26°02'26.06"
53	52	52/0	DB	BB	0	X-Arm Strengthening Suggested	14°18'20"RT	9	6	6	6	0	0	0	0	313	313	15176	887.25	1.5	157.98	543.00	271.50	1071.81	-695.94	375.87	1651.22	-1209.27	441.94	Nala	VILL-LIZU NEW	94°29'08.66"	26°02'23.74"
54	53	53/0	DB	BB	0	X-Arm Strengthening Suggested	04°42'01"RT	6	4.5	3	3	0	0	0	0	230	230	15406	1092.1	0.5	102.85	525.00	262.50	925.94	-636.53	289.40	1439.27	-1132.84	306.43		VILL-LIZU NEW	94°29'16.11"	26°02'20.17"
55	54	54/0	DB	BB	0	X-Arm Strengthening Suggested	08°50'55"LT	6	3	3	4.5	0	0	0	0	295	295	15701	1220.14	1	127.54	370.00	185.00	931.53	-814.35	117.19	1427.84	-1353.58	74.26	FP	VILL-LIZU NEW	94°29'25.19"	26°02'15.07"
56	55	55/0	DD	BB	0	X-Arm Strengthening Suggested	08°59'08"RT	6	4.5	4.5	3	0	0	0	0	75	75	15706	1254.37	0	35.23	277.00	138.50	889.35	133.59	1022.94	1428.58	154.22	1582.80		VILL-LIZU NEW	94°29'27.57"	26°02'13.88"
57		BAY	GANTRY (ZUNHEBOTO S/S)	BB											202	202	15978	1253.74		-3.63	202.00	101.00	68.41		68.41	47.78	47.78		VILL-LIZU NEW	94°29'33.56"	26°02'10.29"		

FOR EXT. 132 KV S/C DOYANG TO WOKHA TR.LINE

SL NO	AP NO	TOWER NO	TYPE OF TOWER	CONNECT WITH BB	CONNECT WITH NT	REMARKS	ANGLE OF DEVIATION	LEG EXTENSION				CHIMNEY EXTENSION				SPAN IN (M)	SEC. LENG.	CUMULTV LENGTH	R.L	C.P.D.	LEVEL DIFF.	SUM OF ADJ. SPAN	WEIGHT SPAN IN (HOT)			WEIGHT SPAN IN (C)			MAJOR CROSSING DETAIL	VILL NAME	GPS CO-ORDINATE	
								A	B	C	D	A	B	C	D								LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL			EASTING	NORTHING
								1		BAY	GANTRY (WOKHA S/S)	BB			0								0	0	0	0	0	0			0	31
2	1	1/0	DD	BB		02°16'31"RT	0	0	0	0	0	0	0	0	81	81	16090	407	0	7.03	112.00	56.00	-6.14	-116.89	-123.04	-19.85	-216.52	-236.37	Vill Road	VILL-PHILIMI	94°22'55.87"	26°05'56.52"
3	1A	1A/0	DD	BB		35°48'02"RT	0	0	0	1.5	0	0	0	0	34	34	16124	414.53	0.5	-0.07	115.00	57.50	197.89	20.73	218.62	297.52	23.10	320.62		VILL-PHILIMI	94°22'55.82"	26°05'59.23"
4		EXT. TN -2	D	BB		16°32'30"RT	0	0	0	0	0	0	0	0				413.98	0		34.00	17.00	13.27		13.27	10.90	10.90		VILL-PHILIMI	94°22'58.84"	26°06'00.15"	

(Ashim Ghosh)
 Ashim Ghosh
 Site Engineer

Wabi buyin
 वतिमजेन / WATTIEMJEN
 इंजीनियर / ENGINEER
 एन.ई.आर.पी.एस.आई.पी. / NERPSIP
 जुन्हेबोटो / ZUNHEBOTO

Recommended by

 एम.के.चेल्लिया / H.K. Chella
 उप. प्रबंधक / Dy. Manager
 एन.ई.आर.पी.एस.आई.पी. / (NERPSIP)
 कोहिमा : नागालैन्ड / Kohima : Nagaland


 एल.ए.शर्मा / L.A. Sharma
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ANNEXURE – 3

DETAILS OF PUBLIC CONSULTATION

Details with Photographs of Public consultation under NERPSIP, Nagaland

Project	Date	Venue of Meeting	No. of Persons attended	Persons Attended
Public Consultation Meeting				
33/11kV S/s at Pfutsero (New)	20.11.2017	Office of the PD, SPCU NERPSIP, Pfutsero	07	Village head, Senior persons and general public, DPN Members, MSU members (Land owner) & PGCIL representatives.
132 KV D/C New Kohima (Zhadima) to New Secretariat Complex (NU campus) Line	19.04.2018	Conference hall, DC, Office Kohima, Nagaland	14	Village head, Senior persons and general public, DPN Members, PGCIL representatives.
220 KV S/C (On D/C Tower) New Kohima-Mokokchung via Wokha line	27.06.2018	EAC office, Botsa, Kohima	15	Village head, Senior persons and general public, Land owners
	12.07.2018	Conference Hall, DC Office Zunheboto, Nagaland	09	Village head, Senior persons and general public, Land owners
	19.07.2018	Village council hall of Longkhum, Mokokchung	32	Village head, Senior persons and general public, Land owners
	22.07.2018	Sattsu Village, Mokokchung	14	Project affected person, village headmen, PGCIL & Shyama Power India Ltd. Representatives.
	28.07.2018	Tseminyu Village, Kohima	15	Project affected person, village headmen, PGCIL & Shyama Power India Ltd. Representatives.
	22.11.2018	Tesophenyu village, Kohima	11	Project affected person, village headmen, PGCIL & Shyama Power India Ltd. Representatives.
	24.11.2018	Alichan village head's house Mokokchung	15	village headmen, farmers, project affected persons etc.
	07.12.2018	Tesophenyu village, Kohima	12	Village council members/ village headmen, project affected persons & PGCIL representatives.
220 KV S/C (On D/C Tower) New Kohima-Mokokchung via Wokha Line	27.03.2019	Phisumi Village, Mokokchung	12	Project affected person, village headmen, PGCIL & Shyama Power India Ltd. Representatives
	29.03.2019	Philimi Village, Mokokchung	11	Project affected person, village headmen, PGCIL & Shyama Power India Ltd. Representatives
Existing 132/66/33kV Nagarjan s/s to New 33/11kV s/s Padam Pukhri Line	30.05.2019	Office of the Executive Engineer, Dimapur.	12	Village Council Chairman/G. B's of Nharbari & Phaijijan, PGCIL, sterling & Wilson Pvt. Ltd and DoP representatives.
LILO of both ckts of 132kV D/C Kohima-	26.07.2019	DC Office, Phek.	10	Village council members/ village headmen, farmers, project affected persons etc.

Meluri(kiphire)line at Pfutsero	02.08.2019	Additional Deputy Commissioner office Pfutsero.	16	Village head, Village chairman, Land Owners, ADC Phek & PGCIL officials.
132 kV S/C (on D/C tower) Wokha-Zunheboto-Mokokchung line	04.09.2019	Rotomi village, Zunheboto	08	Village council members/ village headmen, farmers, project affected persons etc.
	04.09.2019	Philimi Village, Zunheboto.	15	Village council members/ village headmen, farmers, project affected persons PGCIL & SPIL representatives etc.
220 KV S/C (On D/C Tower) New Kohima-Mokokchung via Wokha Line	07.09.2019	Botsa village GB's house, Kohima.	16	Land Owners, Botsa village G. B's SPIL & PGCIL officials.
LILO of 132kV S/C Kohima-Wokha at new Kohima Line	22.09.2019	Phezha village, Kohima	09	Land Owners, Phezha village G. B's SPIL & PGCIL officials.
	25.09.2019	Zhadima village council hall, Kohima	32	Land Owners, Zhadima village G. B's, Village council members SPIL & PGCIL officials.
Informal Group Meeting				
Establishment of 33/11 kV substation at Lalmati (Zubza)	25.09.2017	Zubza village community hall, Kohima	11	Village council members/ village headmen, farmers, project affected persons etc.
Establishment of 33/11 kV substation at Zhadima (Chiephobozou)	12.10.2017	Chiephobozou Village, Kohima	10	Village council members/ village headmen, farmers, project affected persons etc.
132 KV D/C New Kohima (Zhadima) to New Secretariat Complex (NU campus) Line	20.04.2018	Zhadima village head's house, Kohima	10	Village council members/ village headmen, farmers, project affected persons etc.
	09.05.2018	Zhadima village head's house, Kohima	18	Village council members/ village headmen, farmers, project affected persons etc.
220 KV S/C (On D/C Tower) New Kohima-Mokokchung via Wokha Line	09.07.2018	Alichan village head's house	5	village headmen, PGCIL & Shyama Power India Ltd. Representatives.
	14.07.2018	Teroguvonou Village, Kohima	12	Project affected persons, village headmen, PGCIL & Shyama Power India Ltd. Representatives.
	25.07.2018	Nsunyu village, Kohima	10	Project affected persons, PGCIL & Shyama Power India Ltd. Representatives.
132 KV D/C New Kohima (Zhadima) to New Secretariat Complex (NU campus) Line	11.09.2018	Phezha village, Kohima	08	Project affected persons & PGCIL Representatives.
	19.09.2018	Tsiesema Village, Kohima	06	Project affected persons & PGCIL Representatives.
220 KV S/C (On D/C Tower) New Kohima-Mokokchung via Wokha Line	10.01.2019	Teichuma Village, Kohima	06	Project affected persons, PGCIL & Shyama Power India Ltd. Representatives.

132 KV D/C New Kohima (Zhadima) to New Secretariat Complex (NU campus) Line	18.01.2019	Zhadima Village, Kohima	15	Project affected persons, PGCIL Representatives.
	20.01.2019	Tsiesema village, Kohima.	04	Project affected persons, PGCIL Representatives.
	24.01.2019	Zhadima Village, Kohima	15	Project affected persons, Village head, PGCIL Representatives.
	13.02.2019	Zhadima Village, Kohima	5	Project affected persons, Village head, PGCIL Representatives.
	15.02.2019	Zhadima Village, Kohima	6	Project affected persons, Village head, PGCIL Representatives.
	20.02.2019	Zhadima Village, Kohima	4	Project affected persons, Village head, PGCIL Representatives.
	10.04.2019	Zhadima Village, Kohima	4	Project affected persons, Village head, PGCIL Representatives
220 KV S/C (On D/C Tower) New Kohima-Mokokchung via Wokha Line	25.04.2019	Teichuma village, Kohima.	6	Project affected persons, PGCIL Representatives.
132 KV D/C New Kohima (Zhadima) to New Secretariat Complex (NU campus) Line	06.05.2019	Zhadima Village, Kohima	03	Project affected persons, PGCIL Representatives.
220 KV S/C (On D/C Tower) New Kohima-Mokokchung via Wokha Line	11.05.2019	Ehunnu Village, Kohima.	06	Project affected persons, PGCIL Representatives.
	08.06.2019	Ehunnu Village, Kohima	04	Project affected persons, PGCIL Representatives.
	20.06.2019	Ehunnu Village, Kohima	05	Project affected persons, PGCIL Representatives.
	25.06.2019	Nsunyu Village, Kohima	10	Project affected persons, PGCIL & SPIL Representatives.
	11.07.2019	Nsunyu Village, Kohima	11	Project affected persons, PGCIL & SPIL Representatives.
	24.07.2019	Chiechama village, Kohima	10	Project affected persons, PGCIL & SPIL Representatives.
	26.07.2019	Chiechama village, Kohima	06	Project affected persons, PGCIL Representatives.
132 KV D/C New Kohima (Zhadima) to New Secretariat Complex (NU campus) Line	29.07.2019	Zhadima village, Kohima	04	Project affected persons, PGCIL Representatives.
	08.08.2019	Phezha village, Kohima.	04	Project affected persons, PGCIL Representatives.
LILO of 132kV S/C Kohima-Wokha at new Kohima line	10.09.2019	Phezha village, Kohima.	04	Project affected persons, PGCIL Representatives.
	16.09.2019	Phezha village, Kohima.	03	Project affected persons, PGCIL Representatives.

Department of Power, Govt. of Nagaland
"Public Meeting"

Sub: Public Awareness meeting for construction of 33/11 KV new sub-station at Zubza, Nagaland under World Bank Assistance.

Venue: Zubza ; District: Kohima, Nagaland. Dated: 25.09.2017

List of Participant attended in the meeting

Sl No.	Name & Designation (If any)	Signature	Mobile No.
01	K. LAURENCE NIALAMOU ND B. M.	[Signature]	9436809445
02	Zaseriezo mar DB	[Signature]	9019653048
03	Keluohera DB	[Signature]	9612002949
04	L.A.Hu megaso DB	[Signature]	9615936357
05	Noicaituo B. B.	[Signature]	9856726509
06	Swarika - Kumeny	[Signature]	9774652442
07	Kelenitio Kelenio	[Signature]	X-Lucas.
08	Shenunaru Kelenio	[Signature]	Shunua
09	Chovingutno Kelenio	[Signature]	[Signature]
10	Rajendra Saini	[Signature]	[Signature]
11	KHRUZO	Khruzo Besho (AET)	9612358921
12			
13			
14			
15			
16			

Public awareness meeting held on 25.09.2017(list of participants)

Department of Power, Govt. of Nagaland
"Public Meeting"

Sub: Public Awareness meeting for construction of 33/11KV New Chiephobozou sub-station at Kohima, Nagaland under World Bank Assistance

Venue: Chiephobozou ; District: Kohima Dated: 12.10.2017

List of Participant attended in the meeting

Sl No.	Name & Designation (If any)	Signature	Mobile No.
01	PEUNGKIO KERHIO G. B.	[Signature]	9612323922
02	ZAKIELHONKIE GB	[Signature]	8974397210
03	Vilokutio. Member	[Signature]	9862010955
04	Taikuo	[Signature]	9402800809
05	Meikeduo Cardi Head SB	[Signature]	9612328541
06	Rajendra Saini	[Signature]	7285777145
07	Viakuohe Kiewhu	[Signature]	9862969648
08	Senil Kumar Suro.	[Signature]	9668604400
09	KHRUZO	Khruzo Besho (AET)	9612358921
10	P.K. Sutradhan	[Signature]	943627894
11			
12			
13			
14			
15			
16			

Public awareness meeting held on 12.10.2017(list of participants)



Public consultation at Chiephobuzou on 12.10.2017

GOVERNMENT OF NAGALAND
OFFICE OF THE DEPUTY COMMISSIONER
KOHIMA: NAGALAND

MEETING NOTICE

Dated Kohima the April 2018

NO. REV/33/11/KV/2010/___// It is hereby informed to all concerned that a meeting is convened on the 19th April 2018 at 11:00 Am, in the Conference hall of the Deputy Commissioner, Kohima for discussion of acquisition of land at Ziezou, Zhadima, Phezha, Cieswema, and Nagaland University for setting up of 132 kV D/C transmission line.

Therefore, all concerned are requested to be present on the date without fail.

Sd/-
(RAJESH SUNDARARAJAN)IAS
Deputy Commissioner
Kohima: Nagaland
Dated Kohima the April 2018

NO. REV/33/11/KV/2010/___//

Copy to:

1. The DGM (NERSIP), Power Grid Corporation of India Limited, Nagaland. For information and necessary action.
2. The Land Records & Survey Officer, Kohima for information and necessary.
3. The Village Council Chairmen, Ziezou / Zhadima / Phezha / Cieswema / Registrar, Nagaland University, Kohima for information and necessary action.
4. The Head DB to cause service of the notice and return the same.
5. Office copy.


(ANYEI WALLIEMP)
Revenue Officer
Kohima: Nagaland

Meeting Notice for 132kV TL at DC office, Kohima

GOVERNMENT OF NAGALAND
OFFICE OF THE DEPUTY COMMISSIONER
ZUNHEBOTO: NAGALAND.

No. Dev -10/2018

Zbto Dated the, 5th July'2018

CIRCULAR

In continuation to this office Circular No. Dev-10/2018/223 Zbto Dated the, 30th June 2018 a consultative meeting has been rescheduled on 12/7/18 at 11 AM in the Conference hall of Deputy Commissioner, Zunheboto to discuss the matter pertaining to construction of 220 KV S/C (or D/C Tower) New Kohima (Zadima)-Mokokchung (PGCIL) Transmission line under the North Eastern Region System Improvement Project (NERPSIP) in Nagaland and permission of Right of Way (ROW).

Hence, all affected villages concerned Administrative officers, Transmission Engineer and manager, Power Grid Mokokchung are to attend the meeting as scheduled.

(SHANAVAS.C) IAS

Deputy Commissioner,
Zunheboto; Nagaland.

Zbto Dated the, 5th July'2018

No. Dev -10/2018

Copy to:-

1. The Addl. Deputy Commissioner, Pughoboto/Eac Saptiqa/EAC V.K for information and necessary action.
2. The village council Chairman i) Asukiqa ii) Kitami iii) Council Hall iv) Doyang Chati v) Shena Old vi) Philimi vii) Doyang viii) V.K Town.
3. The Transmission Engineer, NERPSIP for information and necessary action.
4. The Manager, Power Grid Mokokchung for information and necessary action.
5. Office copy.

Deputy Commissioner,
Zunheboto; Nagaland.

Meeting Notice for 220kV TL at DC Zunheboto, Kohima

**GOVERNMENT OF NAGALAND
OFFICE OF THE DEPUTY COMMISSIONER
KOHIMA : NAGALAND**

NO.REV/132/33kV/2016/

Dated Kohima, the 20th April, 2018

**MINUTES OF THE MEETING HELD ON 19TH APRIL, 2018 REGARDING CONSTRUCTION OF 132 kV
D/C ZHADIMA – NU CAMPUS TRANSMISSION LINE**

A meeting was held on 19th April, 2018 in the Conference Hall of the Deputy Commissioner, Kohima regarding acquisition of land and issue of Right of Way (RoW) for construction of 132 kV D/C New Kohima (Zhadima) – New Secretariat (Nagaland University Campus, Kohima) transmission line.

The meeting was chaired by Shri. Sangmai Imlong, Additional Deputy Commissioner (ADC), Chiephobozou and attended by Officials from the Power Grid Corporation of India Limited and the Village Councils of Ziezou, Zhadima, Phezha and Tsiesema Basa. The Deputy Commissioner, Kohima could not attend the meeting due to another official engagement.

The ADC, Chiephobozou welcomed all the members to the meeting and expressed that the project is a boon to the people for which everybody should be grateful. He requested the village councils to cooperate in giving their land and assist the Power Grid officials in every way possible.

The Power Grid officials gave a brief presentation on the nature of the project and also put forward their requirements including issue of RoW for a successful implementation of the project. The Extra Assistant Commissioner (Revenue), Kohima explained the procedures involved in the acquisition of land and also clarified that RoW permission would be issued only after the acquisition of land is completed.

The Village Councils of Ziezou, Zhadima, Phezha and Tsiesema Basa extended their full cooperation to the project and approved the acquisition of land from their end. However, since the land belonged to private individuals, they sought information regarding which individuals' lands would be acquired. They also enquired about the compensation rates to which it was clarified that a separate meeting would be called regarding that.

Representatives from the Nagaland University were not present. But the Power Grid Officials informed the house that the University has given their assurance in providing the land required for the project.

The meeting decided that the Power Grid officials and the Village Councils would first coordinate and find out the individuals whose lands would have to be acquired. The approval

from the concerned individuals would be taken by the Village Councils on behalf of the Government. Thereafter, the survey of the identified plots would start. It was further decided that the next meeting would be convened after all the aforementioned actions were completed.

The meeting ended with thanks from the Chair.

SD/-

RAJESH SOUNDARARAJAN, IAS
Deputy Commissioner
Kohima, Nagaland

Dated Kohima, the 19th April, 2018

NO.REV/132/334V/2016/

Copy to:-

1. The Additional Deputy Commissioner, Chiephobozou for information.
2. The DGM (NERPSIP), Nagaland, Kohima for information and necessary action.
3. The Registrar, Nagaland University, Meriema Campus for information.
4. The LRSD, Kohima for information and necessary action.
5. The Village Council Chairman, Ziezou/Zhadima/Phezha/Tsiesema Basa for information and necessary action.
6. The Head DB to cause service of the meeting minutes to all concerned in Sl. No. 5 and return the same.
7. Office copy.

1094/24/4/18
(WEKU ZHIEMI)
Extra Assistant Commissioner (Revenue)
Kohima, Nagaland

DATE: 19-04-2018 MEETING ATTENDANCE TIME: 11:00 AM

ACQUISITION OF LAND AT ZIEZOU, ZHADIMA, PHEZHA, MERIEMA, NAGALAND UNIVERSITY FOR SETTLING OF 132 KV/D/C TRANSMISSION LINE

Sl. No.	NAME	DESIGNATION	CONTACT NO.	SIGNATURE
1.	SANTHURI DALONG	ADC, CHIEFOU	-	[Signature]
2.	L. A. Sharma	DGM, NERPSIP, (and) 9435567082		[Signature]
3.	P. K. SUTARBAR	Chief manager NERPSIP, Nagaland, 9436176942		[Signature]
4.	S. SARKAR	SR-MANAGER SPIL	9830583812	[Signature]
5.	KHRUZO	AET, POWERGRID	9612358921	[Signature]
6.	Ratan Kumar Jena	FO(EM), NERPSIP	7003474646	[Signature]
7.	Santur Dalong	Supervisor	9979016409	[Signature]
	Nirmal Kumar	Sr. Supervisor	0960425684	[Signature]
8.	Kiekhue Isou	Phezha V.C.C.	9436401712	[Signature]
9.	Krengi Nene	Tsiesema Basa V.C.C.	9424422700	[Signature]
10.	Thinvenio bete.	Ziezou Village	7640182690	[Signature]
11.	Kasvillo Chiu	Zhadima Village	9436401712	[Signature]

Page-2 19th April meeting

Attendance sheet of 19th April Meeting



Meeting held on 19th April 2018 at DC office, Kohima



Meeting held on 20th April for 132kV TL at Zhadima village to identify land owner

132 KV Regarding ROW
AP 28 - AP 19
Attendance Sheet

Date - 20.04.2018
Place - Zhadima, Kullu

Sr. No	Name	Dept	Sig	Contact No.
1.	Vishalhou	GIB, Zhadima village		9612370237
2.	Kedilgo	GIB, Zhadima village		9402723395
3.	KHRUZO	AET (PGCIL)	Krusse Khando	
4.	Rajan Ku Jora	FO(ESM) PGCIL	R.K Jan	
5.	Shree SPIL Suker Ranzab	Shree SPIL	Shree SPIL	8974318909
6.	Unite Toptho	J.E (WERPIS) Kullu	Unite	9402015798

Attendance sheet of meeting held on 20.04.2018



Meeting held on 30th April 2018 for 132kV at Tsiesema village



Meeting held on 27th June at conference hall of EAC Botsa for 220kV TL.



Issuance of NOC by EAC, Botsa regarding 220kV TL



EXTRA ASSISTANT COMMISSIONER
Botsa : Kohima
Nagaland

ATTENDANCE SHEET

Date... 27/6/18

- ① BENDANG LONGKUMER - EAC BOTSА
- ② L. Amarjit Sharma - DGM, POWERGRID
- ③ TEPUHOSUL - CEO Kohima Transmission Division, Dept. of Power
- ④ KUVESU HESUH - FEL(CIVIL) POWERGRID - Kinseri
- ⑤ PRAMOD KUMAR FS (Electrical) powergrid Prasad of Khasma
- ⑥ Tenjen Ao (District) Powergrid
- ⑦ Teisovi - O D.B
- ⑧ Lhoulietuo G.B Tsiemekhu Bara.

Attendance sheet of meeting held on 27.06.2018



Meeting held on 09th July at longkhum, Mokokchung (220kV Land identification)

TO WHOM IT MAY CONCERN

Land Identification work done at Longkhum Village on 09/07/2018 by following below persons under the supervision of Mr. Tushie, Secretary of Longkhum Village Council.

- 1) Manangkaba - *Tushie*
Council Member
- 2) Dangkhyapang - *Gopang*
Council Member
- 3) Marclamba - *Man*
Council Member

Heidal Nlog - *Rony*
P.E. Pousseguid

Navajyoti Saikia - *Saikia*
P.E. (PACIL)

Gagan Deep
FS (Ext.) PSCIL *Gagan Deep*
(NSRPSIP) 9-7-18

Tushie
Secretary
Longkhum Village Council

GOVERNMENT OF NAGALAND
OFFICE OF THE DEPUTY COMMISSIONER, MOKOKCHUNG, NAGALAND.
Phone No. 0369-2226231, Fax No. 0369-2226055, e-mail-dcmok.nal@gnic.in

NO.LR-15/1992-2018/ /Dated, Mokokchung the 15th June, 2018.

CIRCULAR

This is to inform to all concerned that survey for construction of 220 KV S/C (on D/c tower) New Kohima (Zadima) - Mokokchung (PGCIL) Transmission lines under Northeast Region System Improvement Project will be conducted shortly under Mokokchung District. The Transmission lines will pass through the following Villages/Compound:

1. Longkhum Village
2. Alichen ✓
3. Setnu Village.

Therefore, the above Village Councils are requested to give full co-operation to the survey team.

Sd/-
(SACHIN JAISWAL)IAS
Deputy Commissioner,
Mokokchung, Nagaland

NO.LR-15/1992-2018/ 132 /Dated, Mokokchung the 15th June, 2018.
Copy to:-

1. The Extra Assistant Commissioner, Ongpangkong for information & necessary action.
2. The Manager, (NERPSIP), Power Grid Corporation of India Limited, North East Region, Nagaland, Mokokchung for information.
3. The Concerned Village Council Chairman for information & necessary action.
4. Office copy.

S. GRS of Alichen Compound.

(W MANPAI PHOM)
Addl. Deputy Commissioner,
Mokokchung, Nagaland.

OK
Received by -
Alichen Village Council
Chairman

Office
Alichen Compound
P/No 98/56 257214
(Kiklamen)

Meeting held on.09.07.2018(220kV)

Janu 21/9/18

GOVERNMENT OF NAGALAND
OFFICE OF THE DEPUTY COMMISSIONER
ZUNHEBOTO: NAGALAND.

No.DEV-10/2015-16

Zbto Dated the, 5th Sept'2018

CIRCULAR

This is to inform all concerned that survey for construction of 220KV S/C (on D/C Tower) New Kohima(Zhadima)- Mokokchung (PGCIL) Transmission lines under North East Region System Improvement Project will be conducted shortly under Zunheboto District. The transmission lines will pass through the following villages:

1. Askiqa 2. Kitami 3. Ghokimi 4. Shena Old 5. Rotomi 6. Philimi 7. Mukhami 8. Phishumi 9. Ajiqami
10. V.K Town 11. Izheto 12. Sumi Settsu 13. Mapulumi 14. Khrintomi 15. Sukomi 16. Ghukiye
17. Shoipu 18. Nunumi 19. Kichilimi 20. Usutomi 21. Zhevishe 22. Sastami 23. Saptiqa.

Therefore, the above village council are requested to give full co-operation to the survey team.

Sd/-
(SHANAVAS.C)IAS
Deputy Commissioner
Zunheboto; Nagaland.

No.DEV-10/2015-16 / 212

Zbto Dated the, 5th Sept'2018

Copy to:-

1. The Addl. Deputy Commissioner, Pughoboto/Satakha/Atoizu for information and necessary action.
2. The Sub-Divisional Officer(C) Zunheboto Sadar/Akuluto for information and necessary action.
3. The Extra Assistant Commissioner V.K/Akuhaito/Ghathashi/Saptiqa for information and necessary action.
4. The DGM (NERPSIP) Power Grid Corporation of India Ltd, Northeast Region Nagaland, Kohima for information.
5. The Chairman _____ village Council for information and cooperation to the survey team.
6. Office copy.

6/9/18
(NAMANG SEPONG CHANG)
Sub-Divisional Officer (Civil)
Office of the Deputy Commissioner
Zunheboto, Nagaland

Circular Came after Meeting held on 12th July 2018

**OFFICE OF THE
TEROGVUNYU VILLAGE COUNCIL**
P.O. TSEMNYU - 797109
Dist. Kohima - Nagaland

Ref No: _____

Date: 14th July 2018

NO OBJECTION CERTIFICATE

The Terogvunyu Village Council has no objection in regard to survey (erection of power Tower) by the power grid co-operation of India within its village jurisdiction.

The village council is also acknowledge the department for extending any possible land/ property damage compensation to the affected owner.

The village council with all the success,

Daniel Sep
(DANIEL SEP)
Chairman
Terogvunyu Village Council

Attendance Sheet

Date-14.07.2018
Place - Terogvunyu
Terogvunyu
Sub-Station

220KV Transmission line from derokima (220line) to mokokchung

Sl No.	Name and designation	Phone no.	Signature
1.	Sungui Samp G.B.	8787712601	<i>Sungui</i>
2.	Gwabulu Top G.B.	9856788798	<i>K. Sep</i>
3.	Kagranhu Top G.B.		
4.	Hills Samp G.B.	8979618445	<i>Resi</i>
5.	Gwabulo Hwy G.B.	9856788735	
6.	Gwabulu Top H.G.B.		<i>G. Sep</i>
7.	Daniel Top V.C.C.	7630098727	<i>Daniel Sep</i>
8.	Ratan Kunu Top P.E. Eng	7085474646	<i>P.K. Sep</i>
9.	Nonsilo mugh (J.E)	7085055105	<i>Self</i>



Jul 14, 2018



Jul 14, 2018

14th July 2018 meeting held at Terogvunou Village, Kohima



19th July meeting held at Longkhum Village, Mokokchung

Today on 22/07/2018, ^{Sunday} ~~Thursday~~ at 04:00 PM a meeting was held among Power Grid Corporation of India Limited (PGCIL) and people of Settsu Village at Settsu ^{Mn. Sani, VC} ~~Community hall~~ _{of Council house}, Mokokchung regarding the Land identification for Tower location and corridor for the upcoming 220 KV Transmission line from New Kohima Sub-Station to Mokokchung Sub-Station.

The main moto of this meeting was to inform the villagers about this new line and get consent from them for getting ROW clearances and construction of line.

After the metting it comes to the conclusion that the Settsu's people will give full support for construction of this upcoming line and they have no objection for this work.

Below are the noted Village and PGCIL representatives who were present at the meeting :

For Powergrid:
[Signature]
 RAJKUMAR
 Manager (PERPSIP)
 Power Grid, Mokokchung
 Nagaland-798601

[Signature]
 22.07.2018
 FE (Electrical)

For Village :

[Signature] 22/7/18
 (Settsu Village Council)

[Signature] 22/7/18
 Secretary
 Settsu Village Council

[Signature]
 LANGHER
 Panyabang
 LANU -
[Signature]
 Repafembra
 NOKSHUMEREN



22nd July meeting held at Sattsu Village, Mokokchung



25th July meeting held at Nsunyu Village, Kohima



28th July meeting held at Tseminyu, Kohima



11th Sep.2018 meeting held at Phezha Village, Kohima



19th Sep.2018 meeting held at Tsiesema Village, Kohima



22nd November 2018 meeting held at Tesophenyu, Kohima



24th November 2018 meeting held at Alichan, Ungma village of Mokokchung



07th December 2018 meeting held at Tesophenyu, Kohima

Attendance of the Members Present for the construction of 220kV S/C(on D/C) New Kohima(Zhadima) to Mokochung held at N.W. Tsophang on 22/11/2018

SL.No	Name	Designation	Signature
1.	Aham magh	VCE Sewane 9366081592	
2.	N.R. MASH	VCC Tsophang	
3.	Sulewar Woch	9383045731 VCC NEW TSO Bnyu	
4.	Agnalo Mung	7366082629 Head G.B.	
5.	Samuel Seb	VCC Ziphang	
6.	Sapam Chung	Head G.B. Ziphang	
7.	Shunleyp Kath	Ex. Chairman Mud Tsophang	
8.	SUBRATA SARKAR	SPIL	
9.	SUNGKUMLEMA JAMIK	PGCIL	
10.	KHRUZO	PGCIL	
11.	Nonsilo magh	PGCIL	

Attendance of the Members Present for the construction of 220kV S/C(on D/C) New Kohima(Zhadima) to Mokochung held at N.W. Tsophang on 22/11/2018

SL.No	Name	Designation	Signature
1.	Kepzude Keth Awoe	Land owner	
2.	Sapam Chung	G.B. Ziphang	
3.	Gwachung Chung	Tsophang & land owner	
4.	Bisayi Ted	Tsophang land owner	
5.	VIHOZHE	UBC	
6.	Thonwolo Jui (Aphabunga)	land owner	
7.	Achambri Key	land owner	
8.	Shunleyp Kath	land owner	
9.	Nyikla Key	land owner	
10.	SUBRATA SARKAR	S. Sarkar SPIL	
11.	Nonsilo magh	J.E	
12.	KHRUZO	ENGINEER	
13.			

OFFICE OF THE
NSUNYU VILLAGE COUNCIL

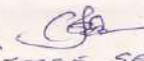
P.O/P.S. Tseminyu, Kohima - Nagaland - 797109

Ref. No.....

Date. 23/01/2019.....

NO OBJECTION CERTIFICATE

This is to Certify that the Land owners
and Village Council of Nsunyu have no objection
for installation of hydro power line.


(JESSE SEB)
Chairman
Nsunyu Village Council


OFFICE OF THE
NSUNYU VILLAGE COUNCIL

P.O/P.S. Tseminyu, Kohima - Nagaland - 797109

Ref. No.....

Date. 23/01/2019.....

SL NO.	LOCATION	NAME	PHONE NO.
1.	AP-105	LOTSUTHANG THONG	9862386446
2.	AP-105A	NYIPENLO SEB	9366813767
3.	AP-106	THANCHAYAMO SEB	8729922045
4.	AP-107	TEZENMO THONG	7005615866
5.	AP-108	NTHANGMO MAGH	8414858812
6.	AP-109	PVUYALO SEMY	8787577710
7.	AP-110	LHOJOMO TEP	8974039342
8.	AP-111	PFUGHAN SEMY	9383235790


(JESSE SEB)
Chairman
Nsunyu Village Council


NOC From village council



Today on 24/11/2018, Saturday at 02:00 PM a meeting was held among Power Grid Corporation of India Limited (PGCIL) and people of Alichen Village at Alichen Community Hall regarding the Land Identification for Tower Location and Corridor for the upcoming 220 KV Transmission Line from New Kohima Sub-Station to Mokokchung Sub-Station.

The main moto of this meeting was to inform the villagers about this new line and get consent from them for getting ROW clearances and construction of line.

After the meeting, it comes to the conclusion that the Alichen's people will give full support for construction of this upcoming line and they have no objection for this work.

Below are the noted Village and PGCIL representatives who were present at this meeting:

For POWERGRID & SPIL:

- 1) Maidul Neog
F.E, MKG.
2. Arso
(S.S. Boko)
Engineer, NERPSIP, MKG
24/11/18
3. Gurdeep
FS (NERPSIP)
24-11-18
4. S. Sarkar
(SUBRATA SARKAR)
SPIL
24.11.18

For Village:

1. CHAIRMAN
Shee
Vice Chairman
Alichen Compound
2. Timrang
24/11/2018
(T. MERANG LANGCHAR)
G.D. Alichen
Alichen Compound
3. Secy.
Atsing
24/11/2018
C. ATsing

OFFICE OF THE
CHAIRMAN VILLAGE COUNCIL TESOPHENYU
District Kohima: Nagaland

Ref. No.....

Date 12/11/19.....

TO WHOM IT MAY CONCERN.

This is to certify that construction of AP 90 - AP 102 under Tesophenyu village jurisdiction is well known to me from my location as proposed by your company. Hence the village authority can duly issue no objection for execution of work any time as your own convenience.

I wish the project grant success.

(N.R. THAKH)
Chairman
Tesophenyu Village Council
Dist. Kohima : Nagaland

Name of the landowners from AP 90 - AP 102

1. AP 90 - Gwachung Chung - 8575555812
2. AP 91 - Yan Chinghi Kath (Rayamo Kath)
3. AP 92 - N Kailo Kemp.
4. AP 93 - Besang Tep 8914844191
5. AP 94 - Ashu's Magh
6. AP 95 - Yanloshe Kath
7. AP 96 - Kipfische Kath
8. AP 97 - Nyekha Kiz 8837358282
9. AP 98 - Shunthuzi Kath 9383088530
10. AP 99 - A Chanbi Kiz 9436401804
11. AP 100 - Henlumi Magh
12. AP 101 - Alpha Rongma 9612777980
13. AP 102 - Vihozhe - 9612247611

NOC from Village Council



27th March 2019 Public consultation meeting held at Phisumi Village, Mokokchung.



29th March 2019 Public consultation meeting held at Philimi Village, Mokokchung.



20th June 2019 Informal meeting held at Ehunnu Village, Kohima.



24th July 2019 Informal meeting held at Chiechama, Kohima



2nd August 2019 formal meeting held at Additional Deputy Commissioner office Pfuotero.



4th September 2019 formal meeting held at Rotomi village & Philimi Village, Zunheboto



7th September 2019 formal meeting held at Botsa, Kohima(NAG-TW-01)



10th September 2019 Informal meeting held at Phezha, Kohima



Meeting held on 25.09.2019 at Zhadima village council hall, Kohima

