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25434349
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dycfthane@mahaforest.gov.in

महाराष्ट्र शासन
वनविभाग

## उप वनसंरक्षक ठाणे वनविभाग ठाणे यांचे कार्यालय

मॅरेथॉन सर्कल,लाल बहादूर शास्त्री मार्ग नौपाडा ठाणे - 400 602

पत्र जा.क्र.कक्ष -25/ब/मोजणी/एफसीए/ 528 /2025-26 दिनांक - 21 /07/2025

प्रति,

मुख्य वनसंरक्षक (प्रा.),
ठाणे

**विषय -** Diversion of 12.0225 Ha Forest Land in favour of EHV Project Division, Kalyan for Construction and laying of 220 KV LILO M/C Transmission Line on 220 KV Padghe Wada & Kolshet Wada Tr.line for 400 KV Kudus Sub Station passing through Village Eksal, Chichavali, Kunde, & Dighashi Taluka Bhiwandi District Thane in the State of Maharashtra.

**संदर्भ -**
1. केंद्र शासन पत्र क्र. FC-II/MH-201/2022-NGP/13854 दि. 23/12/2024.
2. या कार्यालयाचे पत्र क्र. कक्ष-25/ब/मोजणी/एफसीए/285 दि. 10/06/2025.
3. आपलेकडील पत्र क्र. कक्ष-10/अ-20/एफसीए/प्र.क्र.19/22-23/41 दि. 13/06/2025.
4. अपर प्रधान मुख्य वनसंरक्षक व केंद्रस्थ अधिकारी, म.रा.नागपूर यांचेकडील पत्र क्र. कक्ष-17/नोडल/ठाणे/एस 1/पीआयडी-48241/25-26/793 दि. 03/07/2025.
5. कार्यकारी अभियंता, अ.उ.दा.प्र.विभाग, MSETCL कल्याण यांचेकडील पत्र क्र. EE/EHV P/DN/KLN/T/002958 दि. 21/07/2025.

वन (संवर्धन) अधिनियम, 1980 अंतर्गत Diversion of 12.0225 Ha Forest Land in favour of EHV Project Division, Kalyan for Construction and laying of 220 KV LILO M/C Transmission Line on 220 KV Padghe Wada & Kolshet Wada Tr.line for 400 KV Kudus Sub Station passing through Village Eksal, Chichavali, Kunde, & Dighashi Taluka Bhiwandi District Thane वनजमिन मागणी प्रस्तावाबाबत संदर्भिय पत्र क्र. 1 अन्वये केंद्र शासनाने प्रकरणी वन (संरक्षण एवमं संवर्धन), नियम 2023 चे उपनियम 15(1) आणि 15(2) नुसार अधिकारीता क्षेत्र असलेले विभागीय वन अधिकारी वा उप वनसंरक्षक हे वन (संरक्षण एवमं संवर्धन), 1980 चे कलम 3A वा 3B नुसार प्राधिकृत असुन त्यांनी अशा प्रकरणांमध्ये कार्यवाही करावी असे कळविले आहे.

या कार्यालयाचे संदर्भिय पत्र क्र. 2 अन्वये प्रकल्प यंत्रणेने सादर केलेला सुधारीत वनभंग अहवाल (Violation Report) उप वनसंरक्षक, ठाणे यांचे अभिप्रायासह आपणांस सादर केला असून आपलेकडील संदर्भिय पत्र क्र. 3 अन्वये सदरचा अहवाल अपर प्रधान मुख्य वनसंरक्षक व केंद्रस्थ अधिकारी, म.रा.नागपूर यांना सादर केला आहे.

महाराष्ट्र शासनाकडील पत्र क्र. FLD-2022/CR.192/F-10 दि. 23/06/2025 अन्वये मा. प्रथम वर्ग न्यायदंडाधिकारी, भिवंडी यांचे न्यायलयात दावा क्र. SSC 11510/2025 दाखल करण्यात आला असून सदर दाव्या संदर्भात अनुषंगिक अभिलेख / दस्तऐवज सादर करण्यात आले नसल्याचे Parivesh 2.0 वर कळविले असून अपर प्रधान मुख्य वनसंरक्षक व केंद्रस्थ अधिकारी, म.रा.नागपूर यांनी संदर्भिय पत्र क्र. 4 अन्वये सदर प्रकरणी आवश्यक अभिलेख / दस्तऐवज आंग्ल भाषेत सादर करणेबाबत कळविले आहे.

त्यावर प्रकल्प यंत्रणेने संदर्भिय पत्र क्र. 5 अन्वये महाराष्ट्र शासनाने उपस्थित केलेल्या मुद्दांबाबत मा. प्रथम वर्ग न्यायदंडाधिकारी, भिवंडी यांचे न्यायलयात दाखल करण्यात आलेला दावा क्र. SSC 11510/2025 बाबत सादर करण्यात आलेले अनुषंगिक अभिलेख / दस्तऐवज आंग्ल भाषेत तयार करून या कार्यालयास सादर केले आहेत.

सदरील अभिलेख Parivesh 2.0 वर Upload करण्यात आले असून 2 प्रतीत या सोबत माहिती व पुढील आवश्यक कार्यवाहीस्तव सादर करण्यात येत आहे.

सहपत्र - वरीलप्रमाणे

(सचिन रेपाळ)
उप वनसंरक्षक
ठाणे वनविभाग, ठाणे

**प्रतिलीपी** - कार्यकारी अभियंता, अ.उ.दा.प्र.विभाग, MSETCL, कल्याण, 2 रा मजला, अ विंग, तेजश्री इमारत, जहागीर मैदान, कॉर्णिक रोड, म.रा.वि.वा.कं.लि., कल्याण (प.) - 421.301.

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महाराष्ट्र शासन
वनविभाग

## उप वनसंरक्षक ठाणे वनविभाग ठाणे यांचे कार्यालय

मॅरेथॉन सर्कल जाल बहादुर शास्त्री मार्ग तीनपाडा ठाणे - 400 602

पत्र जा.क्र.कक्ष -25/ब/मोजणी/एफसीए/ 152 /2025-26 दिनांक - 09 /04/2025

**विषय** - मा. प्रथम वर्ग न्यायदंडाधिकारी, भिवंडी यांचे न्यायालयात तक्रारपत्र दाखल करणेबाबत.

**संदर्भ** - 1. केंद्र शासन पत्र क्र. FC-II/MH-201/2022-NGP/12797 दि. 01/02/2024.
2. अपर प्रधान मुख्य वनसंरक्षक व केंद्रस्थ अधिकारी, म.रा.नागपूर यांचेकडील पत्र क्र. Desk-17/SI/PID-48241/Thane/3094 दि. 06/02/2024.
3. मुख्य वनसंरक्षक (प्रा.), ठाणे यांचेकडील पत्र क्र. कक्ष-10/वसं/प्र.क्र.19/22-23/जा. 573 दि. 23/02/2024.

वन (संवर्धन) अधिनियम, 1980 अंतर्गत Diversion of 12.0225 Ha Forest Land in favour of EHV Project Division, Kalyan for Construction and laying of 220 KV LILO M/C Transmission Line on 220 KV Padghe Wada & Kolshet Wada Tr.line for 400 KV Kudus Sub Station passing through Village Eksal, Chichavali, Kunde, & Dighashi Taluka Bhiwandi District Thane वनजमिन मागणी प्रस्तावातील वनभंग झालेबाबतचे तक्रारपत्र साक्षांकित करून या सोबत पाठविण्यात येत आहे.

त्या अनुषंगाने वनक्षेत्रपाल, पडघा यांना कळविण्यात येते की, सदरील तक्रारपत्र मा. प्रथम वर्ग न्यायदंडाधिकारी, भिवंडी यांचे न्यायालयात दाखल करून त्याबाबतचा अहवाल निम्नस्वाक्षरीकर्ते यांना सादर करावा.

सहपत्र - वरीलप्रमाणे

(सचिन रेपाळे)
उप वनसंरक्षक
ठाणे वनविभाग, ठाणे
09/04

प्रति,

वनक्षेत्रपाल, पडघा

कोर्ट केस फाईल घेतली
वनक्षेत्रपाल पडघा
11/04/2025

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[ Govt. Emblem ]
Government of Maharashtra
**Forest Department**

**Office of The Deputy Conservator of Forest, Thane Forest Division, Thane**
Marathon Circle, Lal Bahadur Shastri Road, Naupada, Thane- 400602.

Letter O. No. Kaksha-25/B/Mojani/FCA/152/2025-26 Date - 09/04/2025

**Subject** : About filing complaint in the court of Hon'ble Judicial Magistrate First Class, Bhiwandi.

**Reference** :
1. Letter of Central Government bearing No. FC-II/MH-20/2022-NGP/12797 Date 01/02/2024.
2. Letter bearing No. Desk-17/SI/PID-48241/Thane/3094, dated 06/02/2024 issued from the Senior Principal Chief Conservator of Forests and Central Officer, Maharashtra, Nagpur.
3. Letter bearing No: Kaksha-10/ VaSan/Pra.Kra.19 /22-23/0/573 Dated 23/02/2014 issued by the Chief Conservator of Forests (Pr.) Thane.

As violation of forest laws has been caused in the proposal viz. Diversion of 12.0225 Ha of forest land in favor of EHV Project Division, Kalyan for construction and laying of 220 KV LILO M/C Transmission Line on 220 KV Padghe Wada & Kolshet Wada Tr. line for 400 KV Kudus Sub Station passing through Village Eksal, Chichavali, Kunde, & Dighashi, Taluka Bhiwandi District Thane filed under the Forest (Conservation) Act seeking forest land, copy of complaint is being attested and forwarded herewith.

In this regard, the Forest Ranger, Padgha is being informed that the said complaint should be filed in the court of Hon'ble Judicial Magistrate First Class, Bhiwandi and a report regarding the same be submitted to the undersigned.

Enclosures – As above

Sd/-
(Sachin Repal)
Deputy Conservator of Forests
Thane Forest Division, Thane

To,
Forest Ranger, Padgha

*File received for .... (text not legible)*

*Sd/-*
*V. R. Pacchapur*
*11/02/2025*

| | |
|---|---|
| **Translated by**<br>**Mr. Rajesh Sidram Dasa**<br>**A Panel Translator of Govt. of Maharashtra**<br>Appointed at Sr. No. 6 of the Panel constituted by the Government of Maharashtra vide a GR No. Namuka-2019/Pra.Kra.29/Bhasha-2 Dated 22nd March, 2021.<br>Language Pair – Marathi ⇄ English | **TRUE TRANSLATION**<br><br>_____<br>**MR. RAJESH SIDRAM DASA**<br>**R/at : Flat No. 501, Paramount Gardens, Katraj-Kondhwa Road, Gokulnagar, Katraj, Pune – 411046.**<br>**Mobile No. : 9850914652 Email : rajeshdasa.08@gmail.com** |

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महाराष्ट्र शासन
वन विभाग

सहा. वनसंरक्षक भिवंडी (मुख्यालय – ठाणे) यांचे कार्यालय
परिक्षेत्र कर्मचारी, लाल बहादूर शास्त्री मार्ग, मौजे ठाणे-400 602

उपवनसंरक्षक ठाणे वनविभाग, ठाणे
M25017
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04 APR 2025
10 08/04

पत्र जा.क्र. अ/सवस/भिवंडी/ 423 सन 2024-25 दिनांक - 31 मार्च, 2025

प्रति,

उप वनसंरक्षक, ठाणे

विषय : Diversion of 12.0225 ha. Forest Land in favour of EHV Project Division, kalyan for construction and laying of 220 KV Lilo M/C Transmission Line on 220 KV Padghe Wada & Kolshet Wada Tr. Line for 400 KV Kudus sub station passing through village Eksal, Chinchvali, Kunde & Dighashi Tal. Bhiwandi in the state of Maharashtra.

संदर्भ
1. उप वनसंरक्षक, ठाणे यांचेकडील पत्र क्र. कक्ष-25/गोलणी/एफसीए/ 5559 दि. 21/02/2025
2. वनक्षेत्रपाल पडघा यांचेकडील पत्र क्र. जमीन/ 698 दि. 04/03/2025
3. या कार्यालयाकडील पत्र क्र. अ/उपविभाग/भांडवी/ 499 दि. 10/03/2025
4. वनक्षेत्रपाल पडघा यांचेकडील पत्र क्र. जमीन/ 698 दि. 04.03.2025
5. कार्यकारी अभियंता म.रा.वि.पा.के. मर्या. ब.उ.दा. प्रकल्प विभाग, कल्याण यांचेकडील पत्र क्र. अउदाप्र.वि./कल्याण/तांत्रिक / 01328 दि. 25/03/2025
6. कार्यकारी अभियंता म.रा.वि.पा.के. मर्या. ब.उ.दा. प्रकल्प विभाग, कल्याण यांचेकडील पत्र क्र. अउदाप्र.वि./कल्याण/तांत्रिक / 01352 दि. 25/03/2025
7. वनक्षेत्रसहाय्यक ठाणे वन विभाग, ठाणे यांचेकडील पत्र क्र. 62 दि. 21/03/2025
8. वनसंरक्षण अधिनियम 1980 अंतर्गत प्रकरण मंजुरीने सादर केलेला प्रस्तावाची नस्ती

उपरोक्त संदर्भीय विषयान्वये निम्नस्वाक्षरीकर्ता यांना वनपाल दिघाशी यांचेकडून न्यायालयात दाखल करण्यात आलेले प्रकरण व्हरील संदर्भीय पत्र क्र. 1 अन्वये वर्ग करण्यात आले असून पुढील न्यायालयीन प्रक्रियेकरीता प्राधिकृत करण्यात आले.

वनपाल दिघाशी यांनी न्यायालयात प्रकरण दाखल केले आहे. त्यास SCC No. 7002/2024 हा क्रमांक असून त्याची पुढील तारीख दि. 14/07/2025 आहे.

सदर न्यायालयीन प्रकरणात वनपाल दिघाशी यांनी न्यायालयात दाखल केलेले दोषारोपपत्र, इतर कागदपत्रांचा अभ्यास करुन वन (संरक्षण एवम संवर्धन) 1980 मधील तरतुदीनुसार कार्यवाही अनुकूल तात्काळ अनुपालन-सादर करणेबाबत निर्देशित केले होते. संदर्भ क्र. 4 अन्वये वनक्षेत्रपाल पडघा यांचेकडून वनपाल दिघाशी यांनी न्यायालयात दाखल केलेले प्रकरण सादर केले. संदर्भ क्र. 3 अन्वये मागणी केलेली कागदपत्रे कार्यकारी अभियंता यांनी

संदर्भ क्र. 5 व 6 अन्वये सादर केले आहे. वरील संदर्भीय कागदपत्रांच्या अनुषंगाने आपल्या मौखिक सूचनेनुसार प्राथमिक तक्रारीची दखल घेऊन अनुषंगीक कार्यवाहीस सविनय सादर करण्यात येत आहे.

सोबत : प्रारूप तक्रारपत्र व कागदपत्रे.

(अमोल चिरमे)
सहा. वनसंरक्षक भिवंडी
(मुख्यालय – ठाणे)

[ Square Outward Seal ]

[ Logo ]

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Satyamev Jayate
**Government of Maharashtra**
**Forest Department**
**Office of the Assistant Conservator of Forests, Bhiwandi (Headquarters - Thane)**
Marathon Circle, Lal Bahadur Shastri Road, Noupada, Thane- 400602.

Letter O. No. A /AVS/ Bhiwandi / 523 Year 2024 – 25 Date – 31st March 2025

To,
Deputy Conservator of Forests, Thane

**Subject:** Diversion of 12.0225 Ha. Forest Land in favour of EHV Project Division, Kalyan for construction and laying of 220 KV Lilo M/C Transmission Line on 220 KV Padghe Wada & Kolshet Wada Tr. Line for 400 KV Kudus sub station passing through village Eksal, Chinchvali, Kunde & Dighashi Tal. Bhiwandi in the state of Maharashtra.

**Reference:**

1. Letter of Deputy Conservator of Forests Thane bearing No. Kaksha-25/ Mojani/FCA/5559, Dt. 21/02/2025
2. Letter of the Forest Ranger, Padgha bearing No. Jamin/698, Dt. 04/03/2025
3. Letter of this office bearing No. A/UpaViVaA/Mandvi/499 Dt. 10/03/2025
4. Letter of Forest Ranger Padgha bearing No. Jamin/698 Dt. 04.03.2025
5. Letter of Executive Engineer, M.S.E.T.C.L. A.U.D. Project Division, Kalyan bearing No. AUDaPra.Vi./Kalyan/Tantrik/01328 Dt. 25/03/2025
6. Letter of Executive Engineer, M.S.E.T.C.L. A.U.D. Project Division, Kalyan bearing No. AUDaPra.Vi./Kalyan/Tantrik/01352 Dt. 25/03/2025
7. Letter of Forest Range Surveyor, Thane Forest Division, Thane bearing No. 62 Dt. 21/03/2025
8. File of the case presented by the project system under the Forest Conservation Act, 1980

With reference to the above-mentioned subject, the case filed in court by the Forester, Dighashi, has been transferred to the undersigned vide a letter referred at Sr. No. 1 mentioned hereinabove and authorized for further court proceedings.

The Forester, Dighashi has filed a case in court. It is numbered as S.C.C. No. 7002/2024 and the next date for hearing scheduled on 14/07/2025.

It has been directed that, the charge sheet and other documents filed by the Forester Dighashi in the court be studied and take action as per the provisions of the Forest (Conservation and Preservation) Act, 1980 and submit a report thereof immediately. Vide Reference No. 4, the Forester, Dighashi has filed the case in court on behalf of Forest Range Officer, Padgha. The

**Translated by**
**Mr. Rajesh Sidram Dasa**
A Panel Translator of Govt. of Maharashtra
Appointed at Sr. No. 6 of the Panel constituted by the Government of Maharashtra vide a GR No. Namuka-2019/Pra.Kra.29/Bhasha-2 Dated 22nd March, 2021.
Language Pair – Marathi ⇄ English

**TRUE TRANSLATION**

**MR. RAJESH SIDRAM DASA**
R/at : Flat No. 501, Paramount Gardens, Katraj-Kondhwa Road, Gokulnagar, Katraj, Pune – 411046.
Mobile No. : 9850914652 Email : rajeshdasa.08@gmail.com

documents sought vide Reference No. 3 are submitted by The Executive Engineer vide Reference No. 3. As per the above-referred documents and your verbal instructions, a draft complaint has been prepared and the same is being humbly submitted herewith for further action.

Enclosed - Draft complaint and documents.

Sd/-

**(Amol Chirame)**
**Asst. Conservator of Forest Bhiwandi**
**(Headquarter - Thane)**

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|---|---|
| **Translated by**<br>**Mr. Rajesh Sidram Dasa**<br>A Panel Translator of Govt. of Maharashtra<br>Appointed at Sr. No. 6 of the Panel constituted by the Government of Maharashtra vide a GR No. Namuka-2019/Pra.Kra.29/Bhasha-2 Dated 22nd March, 2021.<br>Language Pair – Marathi ⇄ English | **TRUE TRANSLATION**<br><br>_____<br>**MR. RAJESH SIDRAM DASA**<br>R/at : Flat No. 501, Paramount Gardens, Katraj-Kondhwa Road, Gokulnagar, Katraj, Pune – 411046.<br>Mobile No. : 9850914652 Email : rajeshdasa.08@gmail.com |

# तक्रारपत्र

## मा. प्रथम वर्ग न्यायदंडाधिकारी भिवंडी यांचे न्यायालयात ता. भिवंडी

केस क्र :

दिनांक :

उप वनसंरक्षक वन विभाग ठाणे

विरुद्ध

| अ क्र | आरोपीचे नाव | पदनाम |
|---|---|---|
| 1 | श्री तुषार वारुळे | तत्कालीन अति कार्यकारी अभियंता, अति उच्च दाब प्रकल्प उपविभाग कल्याण, |
| 2 | श्री भारत चौगुले | तत्कालीन अतिरिक्त कार्यकारी अभियंता,स्पेशल टीम उपविभाग कल्याण |
| 3 | श्री अप्पासाहेब देवबा रुपट्टके | तत्कालीन कार्यकारी अभियंता, अति उच्च दाब प्रकल्प, विभाग कल्याण |
| 4 | श्री विजय आवारे | तत्कालीन कार्यकारी अभियंता, अति उच्च दाब प्रकल्प विभाग कल्याण |
| 5 | श्री अनिल सपकाळ | सुपरवायझर, मे. बीएनसी पॉवर प्रोजेक्ट लि.303, तिसरा मजला, मंत्री अल्पाईन, क्रिस्टल होंडा शोरुम मागे, बावधन, पुणे |

अपराधाचे कलम: -

भारतीय वन अधिनियम 1927 चे कलम 30, 32, 33 (b), (c), व वन संवर्धन अधिनियम 1980 चे कलम 2, 3A, 3B

अपराधाचे ठिकाण :-

परिमंडळ दिघाशी अंतर्गत मौजे कुंदे संरक्षित वन स. क्र. 54 मध्ये मनोरा क्र 37 व मौजे दिघाशी संरक्षित वन स. क्र. 211 मध्ये मनोरा क्र 38

**फौजदारी प्रक्रिया संहिता चे कलम 190 (1), 200 नुसार फिर्याद/**

**भारतीय नागरिक सुरक्षा संहिता 2023 चे कलम 210 व 223 नुसार फिर्याद**

**फिर्यादीची फिर्याद येणेप्रमाणे :**

1. अधिसुचना क्र 1555 B नुसार मौजे दिघाशी स क्रं 211 व मौजे कुंदे स क्रं 54 चे संरक्षित वन झालेले आहे व त्यास भारतीय वन अधिनियम 1927 च्या तरतुदी लागु होतात.

2. दिनांक 23/02/2021 रोजी वन परिक्षेत्र अधिकारी पडघा यांनी कार्यकारी अभियंता यांना मौजे दिघाशी संरक्षित वन स. क्र. 211 मध्ये मनोरा क्र. 38 व मौजे कुंदा संरक्षित वन स. क्र. 54 क्षेत्रामध्ये मनोरा क्र. 37 चे काम वन विभागाची कोणतीही परवानगी न घेता केल्याचे निर्दशनास आल्याने बांधकाम ज्या अधिकारी/कर्मचारी यांच्या कालावधीत करणेत आले त्यांना चौकशी कामी वन परिक्षेत्र कार्यालय पडघा येथे उपस्थित राहणे बाबत कळविले होते, त्यानुसार कार्यकारी अभियंता (नोडल) अति उच्च दाब प्रकल्प, विभाग कल्याण यांनी श्री तुषार वारुळे , अतिरिक्त कार्यकारी अभियंता व श्री मिलिंद द जाधव, अतिरिक्त कार्यकारी अभियंता हे अधिकारी उपस्थित राहणार असल्याचे वन परिक्षेत्र अधिकारी पडघा यांना कळविले होते.

3. दिनांक 04/03/2021 रोजी वन परिक्षेत्र अधिकारी पडघा यांना श्री मिलिंद द जाधव, अति कार्यकारी अभियंता यांचा जबाब नोंदविला. श्री मिलिंद द जाधव यांनी आपल्या जबाबात, 7/12 उतारा व जागेची स्थिती पाहुन अनावधनाने वनक्षेत्र जमीन नाही असे समजुन, मनोऱ्याची जागा कायम केली व वनक्षेत्रात हेतु परस्पर मनोरे उभे करण्याचा उद्देश नव्हता, असे म्हटले होते.

4. दिनांक 15/03/2021 रोजी वन परिमंडळ अधिकारी दिघाशी व वन कर्मचाऱ्यांसमवेत फिरती करत असताना, मौज कुंदे गावच्या संरक्षित वन स. क्र. 54 मध्ये लिलो 220kV पडघा वाडा विद्युत वाहिनी मधील मनोरा क्र. 37 चे वनविभागच्या जागेत अतिक्रमण करुन फॉऊडेशनचे बांधकाम करुन मनोरा उभारला असल्याने भारतीय वन अधिनियम 1927 चे कलम 32, 33 व वन संवर्धन अधिनियम 1980 चे कलम 2 या वनगुन्हांखाली श्री मिलिंद द. जाधव अति. का. अ. (स्था) व मे अ. उ. दा. प्रकल्प (महापारेषण) यांच्यावर वन परिमंडळ अधिकारी दिघाशी यांनी वन अपराधचे पहिले प्रतिवृत्त नोंदविले होते. त्याचा परिमंडळ अपराध क्र 30/ई/2020-21 होता.

5. दिनांक 15/03/2021 रोजी वन परिमंडळ अधिकारी दिघाशी व वन कर्मचाऱ्यांसमवेत फिरती करत असताना मौज माडोशी/दिघाशी गावच्या संरक्षित वन स. क्र. 211 मध्ये लिलो 220 kV पडघा वाडा विद्युत वाहिनी मधील मनोरा क्र. 38 चे वनविभागच्या जागेत अतिक्रमण करुन फॉऊडेशनचे बांधकाम करुन मनोरा उभारला असल्याने भारतीय वन अधिनियम 1927 चे कलम 32, 33 व वन संवर्धन अधिनियम 1980 चे कलम 2 या वनगुन्हांखाली श्री मिलिंद द. जाधव, अति. का. अ. (स्था) व मे अ. उ. दा. प्रकल्प (महापारेषण) यांच्यावर वन परिमंडळ अधिकारी दिघाशी यांनी वन अपराधचे पहिले प्रतिवृत्त नोंदविले होते. त्याचा परिमंडळ अपराध क्र 29/ई/2020-21 होता.

6. दिनांक 31/3/2021 रोजी वन परिमंडळ अधिकारी यांनी श्री मिलिंद द गाधव, अति कार्यकारी अभियंता, स्थापत्य, स. व नि. कल्याण यांच्या उपस्थितीत अतिक्रमण करुन उभारलेला मनोरा क्र 37 व 38 चे घटनास्थळ पंचनामा नोंदविला होता.

7. मौज कुंदे गावच्या संरक्षित वन स. क्र. 54 मध्ये लिलो 220kV पडघा वाडा विदुयत वाहिनी मधील मनोरा क्र. 37 चे बांधकाम (foundation casting) दिनांक 21/04/2018 रोजी सुरु करुन दिनांक 11/05/2018 रोजी पुर्ण झाले होते व दिनांक 03/11/2019 रोजी मनोरा उभारण्याचे (tower erection) काम पुर्ण झाले होते.

8. तसेच मौज दिघाशी गावच्या संरक्षित वन स क्र. 211 मध्ये लिलो 220 kV पडघा वाडा विदुयत वाहिनी मधील मनोरा क्र 38 चे बांधकाम (foundation casting) दिनांक 05/04/2018 रोजी सुरु करुन दिनांक 27/04/2018 रोजी पुर्ण झाले होते व दिनांक 20/01/2020 रोजी मनोरा उभारण्याचे (tower erection) काम पूर्ण झाले होते.

9. लिलो 220kV पडघा- वाडा विदुयत वाहिनी मधील मनोरा क्र. 37 व 38 चे बांधकाम हे, मे. बीएनसी पॉवर प्रोजेक्ट लि. 303, तिसरा मजला, मंत्री अल्पाईन, क्रिस्टल हॉंडा शोरुम मागे, बावधन, पुणे या कंत्राटदाराने निविदेच्या अनुषंगाने केले होते. प्रस्तुत निविदेचा करारनामा हा श्री. राजेंद्र गायकवाड, तत्कालीन मुख्य अभियंता, (DC &M) MSETCL, बांद्रा पुर्व, मुबंई व श्री राजेश चौधरी, संचालक, मे. बीएनसी पॉवर प्रोजेक्ट लि. 303, तिसरा मजला, मंत्री अल्पाईन, क्रिस्टल हॉंडा शोरुम मागे, बावधन, पुणे यांच्या स्वाक्षरीने झाला होता.

10. मनोरा क्र. 37 व 38 चे बांधकाम करणेपुर्वी प्रकल्प यंत्रणेद्वारे वन संरक्षण अधिनियम 1980 अंतर्गत वनविभागाची परवानगी घेतली नाही. मनोरा क्र. 37 व 38 चे बांधकाम होण्यास जबाबदार अधिकारी, श्री तुषार वारुळे, तत्कालीन अति कार्यकारी अभियंता, अति उच्च दाब प्रकल्प उपविभाग कल्याण, कालावधी (13/06/2017 ते 11/07/2018), श्री भारत चौगुले, तत्कालीन अतिरिक्त कार्यकारी अभियंता, स्पेशल टीम, उपविभाग कल्याण, (28/02/2018 ते 24/02/2021), श्री अप्पासाहेब देवबा रुपट्टके, तत्कालीन कार्यकारी अभियंता, अति उच्च दाब प्रकल्प, विभाग कल्याण, कालावधी (27/04/2018 ते 02/05/2018), श्री विजय आवरे, तत्कालीन कार्यकारी अभियंता, अति उच्च दाब प्रकल्प, विभाग कल्याण, कालावधी (28/05/2018 ते 24/02/2021) , श्री मिलिंद द. जाधव, अति कार्यकारी अभियंता, स्थापत्य, स. व नि. कल्याण तसेच श्री. राजेंद्र गायकवाड, तत्कालीन मुख्य अभियंता, (DC &M)MSETCL बांद्रा पुर्व, मुंबई हे होते.

11. मनोरा क्र. 37 व 38 चे पायाभरणी व उभारणीचे काम हे श्री अनिल सपकाळ, सुपरवायझर, मे. बीएनसी पॉवर प्रोजेक्ट लि. यांच्या देखरेखीखाली करण्यात आले होते व श्री राजेश चौधरी, संचालक, मे. बीएनसी पॉवर प्रोजेक्ट लि. हे करारनामानुसार जबाबदार आहेत.

12. वन संवर्धन अधिनियम 1980 अंतर्गत प्रकल्प यंत्रणेद्वारे प्रस्ताव सादर करणेत आला होता, तथापि परवानगी प्राप्त न होताच वनक्षेत्रात मनोरे उभारण्याचे केले होते.

13. लिलो 220kV पडघा - वाडा विद्युत वाहिनी व मनोरे उभे करताना वनक्षेत्रात काम करण्यापुर्वी जबाबदार अधिकारी यांनी खबरदारी घेतली नसल्याने वन गुन्हा घडलेला होता.

थोडक्यात

आरोपी क्र 1 ते 8 यांनी मौजे कुंदे व दिघाशी गावातील संरक्षित वनात वन संवर्धन अधिनियम 1980 अंतर्गत परवानगी न घेता तसेच योग्य खबरदारी न घेता अनुक्रमे मनोरा क्र 37 व 38 यांची पायाभरणी व उभारणी करून भारतीय वन अधिनियम 1927 चे कलम 30, 32, 33 (b), (c), व वन संवर्धन अधिनियम 1980 चे कलम 2, 3A, 3B चा भंग केला आहे.

प्रार्थना : मे. न्यायालयास नम्र विनंती की,

1. आरोपी क्र. 1 ते 8 यांनी भारतीय वन अधिनियम 1927 चे कलम 30, 32, 33 (b), (c), व वन संवर्धन अधिनियम 1980 चे कलम 2 चा भंग केला आहे. याबाबत आरोपी क्र 1 ते 8 याना भारतीय वन अधिनियम 1927 चे कलम 33 अन्वये "एक वर्षापर्यंत असू शकेल इतक्या मुदतीच्या कारावासाच्या, किंवा पाच हजार रुपयांपर्यंत असू शकेल इतक्या द्रव्य दंडाच्या शिक्षेस किंवा दोन्ही शिक्षास पात्र होईल" व वन संवर्धन अधिनियम 1980 चे कलम 3A, 3B अन्वये "पंधरा दिवस असू शकेल इतक्या मुदतीच्या कारावासाच्या शिक्षेस पात्र होईल."
2. आरोपी क्र. 1 ते 8 यांनी भारतीय वन अधिनियम 1927 व वन संवर्धन अधिनियम 1980 अन्वये जास्तीत जास्त शिक्षा होणेस विनंती आहे.

ठिकाण : - ठाणे
दिनांक : - /04/2025

(सचिन रेपाळ)
उप वनसंरक्षक
ठाणे वनविभाग ठाणे

मा. प्रथम वर्ग न्यायदंडाधिकारी भिवंडी यांचे न्यायालयात ता भिवंडी

परिमंडळ दिघाशी गुन्हा क्र 29/ई/2020-21 व 30/ई/2020-21 मधील साक्षदारांची यादी

| अ क्र | नाव | वय | व्यवसाय | पत्ता |
|---|---|---|---|---|
| 1 | श्री. अनंत शंकर सपकाळ | 54 | शेती | रा. माडोशी, ता. भिवंडी, जि. ठाणे |
| 2 | श्री. अर्जुन मारुती जाधव | 60 | शेती | रा. माडोशी, ता. भिवंडी, जि. ठाणे |
| 3 | श्री. संजय नथुराम धारवणे | 47 | नोकरी, तत्कालीन वन परिक्षेत्र अधिकारी पडघा | रा. वाशिंद, ता. शहापुर, जि. ठाणे |
| 4 | श्री. अशोक नारायण काटसकर | 55 | नोकरी, तत्कालीन वन परिमंडळ अधिकारी दिघाशी | रा. वापे, ता. भिवंडी, जि. ठाणे |
| 5 | श्री. शरद महादु म्हाडा | 41 | नोकरी, तत्कालीन वनरक्षक कोंदळी | रा. बदलापुर जि. ठाणे |
| 6 | श्री. विलास हनुमंत सपकाळ | 54 | नोकरी, तत्कालीन वनरक्षक दिघाशी | रा पनवेल, जि. रायगड |

उप वनसंरक्षक
ठाणे वनविभाग, ठाणे

मा. प्रथम वर्ग न्यायदंडाधिकारी भिवंडी यांचे न्यायालयात ता भिवंडी परिमंडळ दिघाशी गुन्हा क्र 29/ई/2020-21 व 30/ई/2020-21 मधील फेरिस्त

(कागदपत्रांची यादी)

| अ क्र | तपशील | पान क्र |
|---|---|---|
| 1 | प्रकल्प यंत्रणा व कंत्राटदार यांच्यामधील करारनामा | 1 ते 5 |
| 2 | निविदा | 6 ते 265 |
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उप वनसंरक्षक
ठाणे वनविभाग, ठाणे

**Complaint Letter**

**In the Court of Hon'ble Judicial Magistrate First Class, Bhiwandi, Bhiwandi Taluka.**

Case No. :

Date :

Deputy Conservator of Forests, Forest Department, Thane

**Versus**

| Sr. No. | Name of Accused | Designation |
|---|---|---|
| 1. | Mr. Tushar Varule | Then Additional Executive Engineer, Extra High Voltage Project Sub-Division Kalyan. |
| 2. | Mr. Bharat Chougule | Then Additional Executive Engineer, Special Team Sub-Division Kalyan. |
| 3. | Mr. Appasaheb Devba Ruptakke | Then Executive Engineer, Extra High Voltage Project, Division Kalyan. |
| 4. | Mr. Vijay Aaware | Then Executive Engineer, Extra High Voltage Project, Division Kalyan. |
| 5. | Mr. Anil Sapakal | Supervisor, M/s. BMC Power of Project Ltd., 303, Third Floor, Mantri Alpine, Behind Cristal Honda Showroom, Bavdhan, Pune |

**Sections of offence: -**

Sections 30, 32, 33 (b), (c) of the Indian Forest Act, 1927 and Sections 2, 3A, 3B of the Forest Conservation Act, 1980.

**Place of offence: -**

Tower No. 37, in S. No. 34 Reserve Forest of village Mouje Kunde within Dighashi Circle and Tower No. 38, in S. No. 211 Reserve Forest of village Mouje Dighashi.


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**Complaint under Section 190 (1) and 200 of the Criminal Procedure Code / Complaint under Sections 210 and 223 of the Bharatiya Nagarik Suraksha Sanhita, 2023**

As the complaint of the Complainant is as under: -

1) As per the Notification No. 1555 B, S. No. 211 of Mouje Dighashi and S. No. 54 of Mouje Kunde are declared as Reserved Forest and provisions of the Indian Forest Act, 1927 are applicable to those.

2) On 23/02/2021, the Forest Range Officer, Padgha informed the Executive Engineer that, as it came to know that the construction of Tower No. 38 in Reserved Forest at S. No. 211 in Mouje Dighashi and Tower No. 37 in Reserved Forest at S. No. 54 in Mouje Kunde was carried out without obtaining any permission from the Forest Department, the officials / employees, in whose period it was effected, were called upon to remain present at Forest Range Office, Padgha, for inquiry. Accordingly, the Executive Engineer (Nodal), Extra High Voltage Project, Kalyan Division, informed the Forest Range Officer, Padgha, that Mr. Tushar Varule, Additional Executive Engineer and Mr. Milind D. Jadhav, Additional Executive Engineer will remain present for the inquiry.

3) On 04/03/2021, the Forest Range Officer, Padgha has recorded the statement of Mr. Milind D. Jadhav, Additional Executive Engineer. Mr. Milind D. Jadhav stated in his statement that, based on 7/12 extract and site inspection, they inadvertently considered that it was not a forest land and finalized the location of the tower. He further stated that they don't have any deliberate intention to construct towers in the forest area.


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|---|---|

4) On 15/03/2021, while having joint inspection conducted by the Dighashi Forest Division Officer and Forest Staff, it was observed that Tower No. 37 of the LILO 220kV Padgha-Wada Transmission Line had been constructed in S. No. 54, Reserved Forest in Mouje Kunde village by constructing foundation and erect tower by encroaching forest land and therefore, the Forest Circle Officer Dighashi lodged a forest offense report under Sections 32 and 33 of the Indian Forest Act, 1927 and under Section 2 of the Forest Conservation Act, 1980 against Mr. Milind D. Jadhav, Additional Executive Engineer (Civil), and M/s. E. H. V. Project (Transmission/Mahapareshan). It's Circle Offense number was 30/E/2020 - 21.

5) On 15/03/2021, while having joint inspection conducted by the Dighashi Forest Division Officer and Forest Staff, it was observed that Tower No. 38 of the LILO 220kV Padgha-Wada Transmission Line had been constructed in S. No. 54, Reserved Forest in Mouje Madoshi/Dighashi village by constructing foundation and erect tower by encroaching forest land and therefore, the Forest Circle Officer Dighashi lodged a forest offense report under Sections 32 and 33 of the Indian Forest Act, 1927 and under Section 2 of the Forest Conservation Act, 1980 against Mr. Milind D. Jadhav, Additional Executive Engineer (Civil), and M/s. E. H. V. Project (Transmission/Mahapareshan). It's Circle Offense number was 29/E/2020 - 21.


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6) On 31/03/2021, the Divisional Forest Officer recorded the Spot Panchnama of Tower Nos. 37 and 38, which were erected by causing encroachment in presence of Mr. Milind D. Jadhav, Additional Executive Engineer, Civil, S & I , Kalyan.

7) The foundation casting of Tower No. 37 in the LILO 220kV Padgha-Wada transmission line in Reserved Forest S. No. 54, Mouje Kunde Village started on 21/4/2018 and completed on 11/05/2018. The tower erection work was completed on 3/11/2019.

8) The foundation casting for Tower No. 38 of the LILO 220kV Padgha-Wada transmission line in Reserved Forest S. No. 211, Mouje Dighashi village started on 5/04/2018 and completed on 27/04/2018. The tower erection work was completed on 20/01/2020.

9) The construction of Tower Nos. 37 and 38 of the LILO 220kV Padgha-Wada transmission line was carried out by M/s. BNC Power Projects Ltd., 303, 3rd Floor, Mini Alpine, behind Crystal Honda Showroom, Bavdhan, Pune in accordance with the Tender. The Tender Agreement was executed by Mr. Rajendra Gaikwad, then Chief Engineer (DC & M), MSETCL, Bandra East, Mumbai, and Mr. Rajesh Chaudhary, Director, M/s. BNC Power Projects Ltd., 303, 3rd Floor, Mini Alpine, behind Crystal Honda Showroom, Bavdhan, Pune.


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10) Before causing constructing of Tower Nos. 37 and 38, the project authorities did not obtain permission of Forest Department under the Forest Conservation Act, 1980. The officials responsible for the construction of Tower Nos. 37 and 38 were Mr. Tushar Warule, Then Additional Executive Engineer, Extra High Voltage Project Sub-Division, Kalyan (Duration 13/06/2017 to 11/07/2018); Mr. Bharat Chougule, Then Additional Executive Engineer, Special Team, Kalyan Sub-Division (28/02/2018 to 24/02/2021); Mr. Appasaheb Devba Rupattake, Then Executive Engineer, Extra High Voltage Project Division, Kalyan (27/04/2018 to 02/05/2018); Mr. Vijay Aware, Then Executive Engineer, Extra High Voltage Project Division, Kalyan (28/05/2018 to 24/02/2021); Mr. Milind D. Jadhav, Additional Executive Engineer, Civil, S&I, Kalyan and Mr. Rajendra Gaikwad, Then Chief Engineer (DC & M), MSETCL, Bandra East, Mumbai.

11) The foundation and erection work of Tower Nos. 37 and 38 was carried out under the supervision of Mr. Anil Sapkal, Supervisor, M/s. BNC Power Projects Ltd., and Mr. Rajesh Chaudhary, Director, M/s. BNC Power Projects Ltd. Are responsible as per the Agreement.

12) The proposal was submitted by the project authorities under the Forest Conservation Act, 1980, however, the towers were erected in the forest area without obtaining the permission.

13) A forest offense has taken place because the responsible officials failed to take necessary precautions before commencing work in the forest area while constructing the LILO 220kV Padgha-Wada transmission line and towers.


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In short

By causing construction of the foundation and erecting Tower Nos. 37 and 38 in the protected forest area of villages viz. Kunde and Dighashi without obtaining permission under the Forest Conservation Act, 1980 and without taking necessary precautions, the Accused Nos. 1 to 8 have violated provisions under Sections 30, 32, 33 (b), and (c) of the Indian Forest Act, 1927 and Sections 2, 3A, and 3B of the Forest Conservation Act, 1980.

Prayer : Humbly prayed to this Hon'ble Court that,

1. Accused Nos. 1 to 8 have violated Sections 30, 32, 33(b) and (c) of the Indian Forest Act, 1927 and Section 2 of the Forest Conservation Act, 1980. Accordingly, Accused Nos. 1 to 8 shall be liable for punishment under Section 33 of the Indian Forest Act, 1927, which prescribes "imprisonment for a term which may extend to one year or with fine which may extend to five thousand rupees or with both" and under Sections 3A and 3B of the Forest Conservation Act, 1980, which prescribes "punishment with imprisonment for a term which may extend to fifteen days".

2. It is requested that, Accused Nos. 1 to 8 be awarded with maximum punishment under the Indian Forest Act, 1927 and the Forest Conservation Act, 1980.

Place : Thane
Date : /04/2025

Sd/-

(Sachin Repal)
Deputy Conservator of Forests
Thane Forest Department, Thane


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|---|---|

**List of Witnesses in Crime No. 29/E/2020-21 and 30/E/2020-21, Dighashi Division, Bhiwandi Taluka in the Hon'ble Judicial Magistrate First Class, Bhiwandi Court.**

| Sr. No. | Name | Age | Occupation | Address |
|---|---|---|---|---|
| 1 | Mr. Anant Shankar Sapkal | 54 | Agriculture | R/at : Madoshi, Tal. Bhiwandi, Dist. Thane. |
| 2 | Mr. Arjun Maruti Jadhav | 60 | Agriculture | R/at : Madoshi, Tal. Bhiwandi, Dist. Thane. |
| 3 | Mr. Sanjay Jairam Dharwane | 47 | Service, Rhen Forest Range Officer, Padgha. | R/at : Washind, Tal. Shahapur, Dist. Thane |
| 4 | Mr. Ashok Narayan Kataskar | 55 | Service, Then Forest Circle Officer, Dighashi | R/at : Vape, Tal. Bhiwandi, Dist. Thane |
| 5 | Mr. Sharad Mahadu Mhada | 41 | Service, Then Forester, Kandali | R/at : Badlapur Dist. Thane |
| 6 | Mr. Vilas Hanumat Sapkal | 54 | Service, Then Forester, Dighashi | R/at : Panvel, Dist. Raigad |

Sd/-
**Deputy Conservator of Forest**
Thane Forest Department, Thane


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**List of documents in the case of Crime No. 29/E/2020-21 and 30/E/2020-21, Dighashi Division, Bhiwandi, before the Court of the Judicial Magistrate First Class, Bhiwandi.**

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| 19 | Letter of award for supply of material. | 305 to 307 |
| 20 | Letter of award for erection and civil portion. | 308 to 309 |
| 21 | Purchas order copy for supply of material. | 310 to 314 |
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Sd/-

Deputy Conservator of Forests
Thane Forest Division, Thane.


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| **Translated by**<br>**Mr. Rajesh Sidram Dasa**<br>A Panel Translator of Govt. of Maharashtra<br>Appointed at Sr. No. 6 of the Panel constituted by the Government of Maharashtra vide a GR No. Namuka-2019/Pra.Kra.29/Bhasha-2 Dated 22nd March, 2021.<br>Language Pair – Marathi ⇄ English | **TRUE TRANSLATION**<br><br>_____<br>**MR. RAJESH SIDRAM DASA**<br>R/at : Flat No. 501, Paramount Gardens, Katraj-Kondhwa Road, Gokulnagar, Katraj, Pune – 411046.<br>Mobile No. : 9850914652 Email : rajeshdasa.08@gmail.com |

TENDER DOCUMENTS AND AGREEMENT COPY

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

Supply

Dy. Executive Engineer (O)
M.S.E.T. Co. Ltd.
E.H.V. Project Dn. Kalyan.

# BNC Power Projects Ltd.

Ref No.: BNC/PNA/220kV Kudus / Agreement /1910 Date: 12.05.2018

M.S.E.T.C.L.
E.H.V. Projects Dn., Kalyan
Inward 862 Date 14.5.18
HR / F&A / Tech

To,
The Chief Engineer,
EHV, PC O & M Zone,
MSETCL, Vashi.

Sub.: LILO on 220kV Kolshet-Wada & 220kV LILO on Padghe-Wada line for 400kV Kudus S/stn. (Route Length 7 Kms), against SRM e-tender no.T-1718 (RFx No. 6000000253) under Vashi Zone.....**Submission of Contract Agreement Copies.**

Ref.: 1. Tender specification No.: **T-1718/ MSETCL/ CO/ DCM/ D&T/ TKC-L.**

2. LOA No.: **i) MSETCL/ CO/ DCM/ D&T/ TKC-L/ T-1718/ Supply/ BNC/ 394 Dtd.: 11.01.2018.**

**ii) MSETCL/ CO/ DC&M/ D&T/ TKC-L/ T-1718/ ETC/ BNC/ 1761 Dtd.: 15.02.2018.**

DY.E.E (O)
14 Dear Sir,

With Reference to above subject, we are herewith submitting the Signed Contract Agreement Copies for your reference.

Thanking You.

**Yours faithfully,**
**For BNC Power Projects Ltd.**

BNC POWER PROJECTS LTD. * PUNE *

**(Authorized Signatory)**

Encl: Signed Contract Agreement - 1 Copy.

**Copy To -**

1. The Superintending Engineer, EHV Proj. Circle, MSETCL, Kalwa - 1 Copy.
2. The Senior Manager Accounts, EHV Proj. Circle, Kalwa - 1 Copy.
3. The Executive Engineer, EHV Proj. Div., MSETCL, Kalyan - 1 Copy.
4. The Manager Accounts, EHV Proj. Div., Kalyan - 1 Copy.
5. The Addition Executive Engineer, EHV TL, Lines Proj. Subdivision., MSETCL, Kalyan - 1 Copy.

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

CIN : U45207PN2007PLC143396
Regd. Office : Plot No. 67, Shri Shivaji Housing Society, off Senapati Bapat Rd., Shivajinagar, Pune 411016
Corporate Office : Butte Patil Complex, 3rd Floor, Karve Road, Paud Phata, Next to Dashbhuja Ganpati Temple, Pune - 411038
Phone - 020 - 25460161, Fax - 020 - 25460171 Email : bnchaudhary@yahoo.co.in, info@bncpower.in

महाराष्ट्र शासन

GOVERNMENT OF MAHARASHTRA

ई-सुरक्षित बँक व कोषागार पावती

e-SECURED BANK & TREASURY RECEIPT (e-SBTR)

16194794213401

Bank/Branch : UBKL - 0910007/PUNE F.C. ROAD
Bnk Txn Id : 101355790
Bnk DtTime : 06-APR-2018[17:06:10
ChallanIdNo: 0910032018040600019
District : 1201-PUNE

Stationery No: 16194794213401
Print DtTime : 06-APR-2018 18:35:43
GRAS GRN : MH009934793201819D
Office Name : IOX009-HVDC NAVSARI NO1
Txn Date : 06-Apr-2018[17:06:11

StDuty Hdm: 0030044401-75/STAMP DUTY
StDuty Amt : ₹ 1,43,300/- (Rs One, Four Three, Three Zero Zero only)

RgnFee Hdm: 0030021201-70/Registration Fees
RgnFee Amt : ₹ 9/- (Rs Zero only)

Article : E1-Work Contract
Prop Mobile: N.A
Prop Desc : AGREEM CO ECN 5 AND 7 TAT 1, TITLE DOMAIN ONE 104

Duty Payer: PAN-AADCE2522D:M/S. POWER PROJECTS LIMITED

Other Party: PAN-AAECM2936J:MAHARASHTRA STATE ELECT TRANS CO LTD

Bank Official's Name & Signature

Shridhar Patil

Bank official's Name & Signature
--- --- Space for customer/office use - - - Please write below this line --- ---

## CONTRACT AGREEMENT FOR SUPPLY

THIS AGREEMENT made on the 23rd Day of April 2018 between **Maharashtra State Electricity Transmission Company Ltd.** having its Registered Office at PRAKASHGANGA, Plot No.C-19, 'E' Block, Bandra Kurla Complex, Bandra (East), Mumbai 400051 (hereinafter referred to as 'Owner' or 'MSETCL' which expression shall unless repugnant to the context or meaning thereof include its successors and permitted assigns) acting **through its Chief Engineer (Design, Contracts & Monitoring) of the one part.**

e-SBTR IS VALID UPTO SIX MONTHS FROM THE DATE OF PAYMENT.

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

**AND**

**M/s BNC Power Projects Ltd.** having its registered office at 3rd Floor, Batte Patil Complex, Next to Dashbhuja Ganpati Temple, Karve Road, Pune-411038 (herein after referred to as the "Contractor" which expression shall unless repugnant to the context or meaning thereof include its successors and permitted assigns) of **the other part**.

WHEREAS the OWNER is desirous for Work of **Turnkey Construction of LILO on 220kV Kolshet - Wada & 220kV LILO on Padghe - Wada line for 400kV Kudus Substation (Route Length - 7 kms) against SRM e-Tender No. T-1718 ( RFx No. 6000000253) under Vashi Zone,** hereinafter called the "Project", invited bids as per SRM e-tender reference no. **T-1718 / MSETCL/ CO/ DCM/ D&T/ TKC-LINES ( RFx No. 6000000253)** from the qualified bidders for design, engineering, manufacturing, testing at manufacturer's works and supply of all equipments /materials required for construction of the above transmission line on turnkey basis as per tender specifications.

In response to above **M/s BNC Power Projects Ltd** submitted its offer to the Owner vide **RFx Response no. 4000033481 dtd.06.08.2017**, which is opened on Dtd. 09.08.2017 through MSETCL SRM E-tendering website (including Technical & Price bids).

The Owner has accepted **M/s BNC Power Projects Ltd** offer for the transmission line for a total contract price of **Rs. 14,37,64,667.00** (Rupees Fourteen Crore Thirty Seven Lakhs Sixty Four Thousand Six Hundred and Sixty Seven Only) (hereinafter referred to as 'Contract price') inclusive of all taxes and duties on the terms and conditions contained in Tender Specification and Letter Of Award No. MSETCL/ CO/ DCM/ D&T/ TKC-L/ T-1718/ Supply/ 394 dt. 11.01.2018 for Supply of all equipment/materials.

NOW therefore this agreement Witnessed as under:

1. **AWARD OF CONTRACT:**

The owner has awarded this contract to the contractor for the work of Design, Engineering, manufacture and Supply of equipment and materials on FOR destination basis for construction of following transmission line.

**Work of Turnkey Construction of LILO on 220kV Kolshet - Wada & 220kV LILO on Padghe - Wada line for 400kV Kudus Substation (Route Length - 7 kms) against SRM e-Tender No. T-1718 ( RFx No. 6000000253) under Vashi Zone.**

The contract is based on terms and conditions contained in the Letter of Award, in Owner's Tender Specifications and amendments issued thereof, bidding documents, clarifications/confirmations issued thereon, and this agreement. In this Agreement, words and expressions shall have the same meanings as are assigned to them in Contract Documents referred to in the succeeding article.

Executive Engineer
TL Pretender

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

2. **CONTRACT DOCUMENT:**

The following documents shall be deemed to form and construed as part of this agreement.

a) Annexure 'A' : Important features and conditions of the contract including Price Variation Formulae.

b) Annexure 'B' : Schedule I i.e. Price Schedule and Price breakup Schedule

c) Annexure 'C' : Owner's technical specifications issued vide tender No. T-1718/ MSETCL/ CO/ DCM/ D&T /TKC-LINES/ (RFx No. 4000003253) including amendments.

d) Annexure 'D' : Contractors RFx Response No. 4000033481 Dtd. 06.08.2017 Opened On Dtd. 09.08.2017 through MSETCL SRM E-tendering website including Technical & Price Bids. Contractors techno letter No.BNCPPL/PNA/Tender/T-1718/4037 Dt. 25.11.2017

e) Annexure 'E' : Letters issued by Owner to the contractor and vice-versa from the date of beginning of sale of tender documents till date of signing this contract agreement irrespective of whether listed herein below or not.

f) Annexure 'F' : Letter of Award No. MSETCL / CO/ DCM/ D & T/ TKC-L/T- 1718/ Supply/ 394 Dtd. 11.01.2018 and Contractor's acceptance letter no. BNCPPL/ PNA / 220kV Kudus /0710 dtd. 16.02.2018.

g) Annexure 'G': Performance Bank Guarantee No. 1676010000035738 Dtd. 16.01.2018 Of Axis Bank at Pune for Rs. 1,42,76,500.00 from M/s. BNC Power Projects Ltd. Pune and Owner's acceptance letter No. MSETCL : CO/ DCM/ D & T/ TKC-L/T- 1718/ BNC/4373 Dtd. 25.04.2018.

h) Annexure 'H': Format of Material Receipt Certificate (MRC)

i) Annexure 'I': PV Formulae

j) Annexure 'J': Bar chart

3. In consideration of the payments to be made by the owner, the contractor hereby covenants with the owner to provide the goods and services and remedying defects therein, in conformity in all respects with the provisions of the contract.

4. The owner hereby covenants to pay the contractor in consideration of the provisions of the contract for the goods and services and the remedying of defects in the goods and services under the scope of the contract, the contract price or such other sum as may become payable under the provisions of the contract at the time and in the manner prescribed by the contract.

Executive Engineer
T. Precinder

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

IN WITNESS thereof, the parties here to have caused this Agreement to be executed (execution whereof has been approved by the Competent Authorities of both the parties) on the day and year first above written, at Mumbai.

(For the Contractor)

**Name:- Mr. Rajesh Chaudhari**
Designation :- Director, BNCPPL
M/s. BNC Power Projects Ltd.
Butte Patil Complex, 3rd Floor,
Karve Road, Paud Phata,
Pune-411038

(For the Owner)

23/4/2014

**Name:- Mr. Rajendra L. Gaikwad**
Chief Engineer (DC&M)
MSETCL
Prakashganga
Bandra (E),
Mumbai 400 051.

(For the contractor)

WITNESS:

**Name :- Mr. Keshav Pawar**
Designation :- Assistant General Manager
M/s. BNC Power Projects Ltd.

**Name :- Mr. Saurabh Chaudhari**
Designation :-Project Engineer
M/s. BNC Power Projects Ltd.

(For the Owner)

WITNESS:

Mr. K. D. Kakchawre
Superintending Engineer
MSETCL, Mumbai

Mr. N. K. Gedam
Ex. Engineer
MSETCL, Mumbai.

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

## ANNEXURE 'A'

Design, Engineering, Manufacturing, testing at manufacturer's works and supply of all equipments /materials required for Work of **Turnkey Construction of LILO on 220kV Kolshet - Wada & 220kV LILO on Padghe - Wada line for 400kV Kudus Substation (Route Length - 7 kms) against SRM e-Tender No. T-1718 ( RFx No. 6000000253) under Vashi Zone**.

## IMPORTANT FEATURES AND CONDITIONS OF THE CONTRACT FOR SUPPLY OF EQUIPMENTS /MATERIALS

### 1.0 CONTRACT PRICE (SUPPLY)

The contract price as specified below amounting to total price of **Rs. 14,37,64,667.00** Rupees Fourteen Crore Thirty Seven Lakhs Sixty Four Thousand Six Hundred and Sixty Seven Only) on price variation basis and inclusive of all taxes and duties for the Work of **Turnkey Construction of LILO on 220kV Kolshet - Wada & 220kV LILO on Padghe - Wada line for 400kV Kudus Substation (Route Length - 7 kms) against SRM e-Tender No. T-1718 ( RFx No. 6000000253) under Vashi Zone** has been accepted.

| Name of Transmission line | Quoted Tender Evaluation Price for Supply inclusive of all taxes and duties | Discount | Final Price Quoted for Supply inclusive of all taxes and duties |
|---|---|---|---|
| Work of **Turnkey Construction of LILO on 220kV Kolshet - Wada & 220kV LILO on Padghe - Wada line for 400kV Kudus Substation (Route Length - 7 kms) against SRM e-Tender No. T-1718 ( RFx No. 6000000253) under Vashi Zone.**<br><br>SRM E-Tender No. T-1718/ MSETCL/ CO/ DCM/ D&T/ TKC-LINES (RFx No 6000000253) on turnkey basis. | Rs. 14,37,64,667.00 | NIL | Rs. 14,37,64,667.00 |
| (Rupees Fourteen Crore Thirty Seven Lakhs Sixty Four Thousand Six Hundred and Sixty Seven Only) | | | |

The above contract value is inclusive of all taxes and duties as applicable and the owner shall not be liable for payment of any such Taxes & Duties.

1.1. The detailed price break up of Taxes and Duties on Unit Rate is given in Schedule-I enclosed as Annexure II of the contract agreement.

1.2. The tender is on individual percentage basis for Supply & ETC.

1.3. The above contract price for supply of equipments is based on the estimated quantity of individual items furnished in the BOM of tender documents. Actual materials and quantities to be supplied for supply are to be worked out on detailed engineering as per detailed survey report. Variations are to be brought out for approval of owner with due recommendation of Engineer in charge of works and Chief Engineer, EHV Projects cum O & M Zone, MSETCL, Vashi and the price of these items shall be adjusted as per the unit rates quoted.

Executive Engineer
TL Protection



Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

1.4. The quantities for supply of items are tentative and may vary. The supply is to be effected as per actual requirements at site after approval of Engineer-in-charge. The payments will be made as per actual requirement and supply effected, limiting to order value. For increase in order value, the proposal for approval be submitted through The C.E., EHV Projects cum O & M Zone, MSETCL, Vashi and necessary amendment to the contract value shall be issued by MSETCL.

1.5. In case of any error in calculations, the same shall be corrected and contract value will stand revised accordingly but limiting to offered value as indicated above. In case the contract value increases due to calculation error, the same shall be maintained by adjusting unit rates.

1.6. Your Quoted prices shall be taken into account as maximum quoted price after loading necessary discount.

## 2.0 PRICE VARIATION DUE TO VARIATION IN TAXES

Variation in Taxes and duties, if any, will not be payable.

## 3.0 PROJECT IMPLEMENTING AUTHORITY

3.1 The Chief Engineer, EHV Projects cum O & M Zone, MSETCL, Vashi having his Head Quarter at Vashi will be the implementing authority for the contract from Owner's side. All the activities associated with the contract shall be subject to approval of the Chief Engineer, EHV Projects cum O & M Zone, MSETCL, Vashi or the representative designated by him except for the activities listed in Clause 3.2 here under.

3.2 The issues related to designs and drawings of the equipment/materials shall be dealt with from Owner' side by Chief Engineer (Design, Contracts & Monitoring), Mumbai.

## 4.0 PAYMENT PROCEDURE / TERMS OF PAYMENT

MSETCL shall make payment to M/s BNC Power Projects Ltd, by way of advancing as mentioned below:

| Sl No | Nature of payment | Documents to be submitted to Nodal officer, MSETCL |
|---|---|---|
| 1 | 60% of the cost of supply of equipment/ materials shall be payable within 45 days against the receipt at site. | • M/s BNC Power Projects Ltd. invoice in triplicate<br>• Proof of receipt of material verified and signed by MSETCL site Engineer not below the rank of Executive Engineer<br>• Delivery Challan<br>• Material dispatch clearance certificate by owner's representative |
| 2 | 30% of the cost of supply of equipment/ materials shall be payable within 45 days against successful erection. | • M/s BNC Power Projects Ltd's invoice in triplicate<br>• Certificate of erection of equipment/ material issued by MSETCL site engineer not below the rank of Executive Engineer. |
| 3 | The balance 10% of the cost of supply of equipment/ materials shall be payable within 45 days upon successful commissioning. | • M/s BNC Power Projects Ltd's final invoice in triplicate with material account details of advance released.<br>• Commissioning certificate issued by MSETCL official not below the rank of Executive Engineer |

Executive Engineer
TL Pretender



Executive Engineer
M.S.E.T. Co. Ltd.
Executive Engineer Dn. Kalwa

4.1 The payment to the contractor for the performance of the works under the contract shall be made by the owner as per guidelines and conditions specified herein. All payments made during the contract shall be on account payee only. The final payment shall be made on completion of the whole work as per the contract and on fulfillment by the contractor of all his liabilities under the contract.

4.2 The owner shall make progressive payments as and when those are due as per the payment schedule. Payment shall become due and payable by the owner within 45 days from the date of receipt of contractor's bills/invoices (except final bill) by the owner, provided the documents submitted with the invoices are complete in all respects.

4.3 Verification for completeness of bills/invoices shall be completed within seven days of receipt of the same from the contractor. In case any discrepancy is noticed, the bills/ invoices shall be returned to the Contractor for revision within seven days of receipt of the same from Contractor.

4.4 The payments will be made after fulfillment of dependency clause indicated in Activity Schedule enclosed.

4.5 **For Price Variation:**
The payments of Price Variation claims shall be made within 60 days from the date of submission of claim with relevant documents in support of P.V. claims. The P.V. Bill shall be submitted by contractor against each lot and after monthly completion of works, duly certified by engineer in-charge of works. All the above payment periods shall commence on submission the bills duly certified by Engineer in-charge and accompanied with documents complete in all respects, supporting the claim(s) made.

## 5.0 SUBMISSION OF INVOICE

5.1 On receipt of equipment/materials and intimation by the Contractor with the required documents, MSETCL site engineer will inspect the same and issue the Material Receipt Certificate (MRC), within 10 days of receipt of material, as per the format enclosed as Annexure- H. On the same certificate, MSETCL site engineer will certify the receipt of material and hand over the same to M/s BNC Power Projects Ltd. site engineer for erection of the same. M/s BNC Power Projects Ltd. engineer will also sign on the same for having received equipment/ materials and that these will not be transported out of the premises. The MSETCL will also prepare proper entries in the Measurement Books before issuing the MRC.

5.2 On receipt of MRC, the contractor will submit monthly invoices along with all the necessary documents to concerned Executive Engineer, EHV Construction Division, MSETCL, Jalgaon. The concerned Executive Engineer will process the bill by M.B. recording etc. The D.V. passed for payment duly audited and certifying satisfactory completion of work along with attested photocopy of M.B. shall be submitted through Project Circle office Nashik to loan section, Corporate office Mumbai for processing payment. The M.B.'s need not be sent to Corporate office Mumbai.

## 6.0 LIQUIDATED DAMAGES

6.1 If the Contractor fails to complete all the works within the time frame stipulated as completion period or within any extension of time granted by the Owner, the Owner shall levy liquidated damages for breach of Contract without prejudice to any other rights and/or remedies provided for the Contract.

6.2 The liquidated damages shall be levied at 05% (half percent) of the total Contract price per week of delay subject to maximum of 10% (Ten percent) of the Contract price for the entire scope of work, delay. The Contract may be terminated by the Owner and the balance work shall be completed by the Owner at the risk and cost of the Contractor in case the progress is not to the satisfaction of the owner.

Executive Engineer
M.S.E.T.C.L.
E.H.V. Project Dn., Kalyan

Executive Engineer
Transmission

6.3 In the event the contract being divided into sections such as Supply of materials & equipments, Civil and Erection, Testing & Commissioning, the provision for liquidated damages shall be applicable for the total project irrespective of the divisible contract.

7.0 **DOCUMENTATION**

The design of the transmission lines shall be as per Owner's requirement. All the relevant preliminary drawings shall be submitted to the Owner by the Contractor within 60 days from the date of signing of Contract Agreement. All the drawings shall be taken up for execution only after approval of the Owner.

8.0 **PERFORMANCE GUARANTEE IN LIEU OF SECURITY DEPOSIT**

8.1 The Performance Bank Guarantee for the proper fulfillment of the Contract shall be furnished by the Contractor in the prescribed form within Thirty (30) days of Notice of Award of Contract/Letter of Award and before release of any payments due including the advance payment, if any. The performance Guarantee shall be as per proforma attached to the Bid Document. This guarantee shall be for an amount equal to 10% (ten percent) of the Contract price.

8.2 The performance guarantee shall cover additionally the following guarantee to the Owner:- The Contractor guarantees that the equipment installed by him shall be free from all defects in material/workmanship and shall, upon written notice from the Owner, fully remedy free of expenses to the Owner such defects that are attributable to the Contractor within the period of guarantee specified in the relevant clause of the Contract.

8.3 The Contract performance Guarantee is intended to secure the performance of the entire Contract. However, it is not to be construed as limiting the damages stipulated in other clauses of the Contract.

8.4 The Performance Guarantee shall be returned to the Contractor 90 days after the end of the guarantee period. The Owner is not liable to pay any interest or compensation to the Contractor for retaining the performance Guarantee after the end of the guarantee period.

8.5 The termination of the Contract under the clause 25.0 'Contractor's default' of this section shall not entitle the Contractor to reduce the value of the performance guarantee nor the time thereof. The performance guarantee shall be valid for the full value and for the full period of Contract including 90 days after the end of guarantee period.

8.6 In the case of increase in contract value, the contractor shall within 30 days from the date of amendment letter, indicating increase in contract value, submit the performance Bank Guarantee equivalent to 10% of the value of increase in contract value, valid for period as indicated in sub clause 8.5 above.

8.7 After issue of the Notice of Award /Letter of Award of contract, if the contractor has not submitted the Performance Bank Guarantee within 60 days, the action of cancellation of Notice of Award/ Letter of Award will be initiated against the contractor and EMD Bank Guarantees will be forfeited.

9.0 **INTIMATION FOR TEST AND INSPECTIONS:**

A notice of 15 days period should be given to the Chief Engineer (Design, Contracts & Monitoring) by the contractor for schedule of acceptance testing and routine testing of all equipments. MSETCL may depute its representative for witnessing the tests, if desired.

Executive Engineer
TL Pretender

Executive Engineer
M.S.E. Transmission Co. Ltd.
E.H.V. Project Dn., Kalyan

## 10.0 COMPLETION PERIOD

The Supply Works shall suit the project completion schedule as stipulated below:

**09 (Nine) months from the date of Handing over of Line profiles (including monsoon).**

## 11.0 GUARANTEE/WARRANTY PERIOD

11.1 The Contractor shall warranty that the equipments/materials will be new and in accordance with the Contract documents and will be free from defects in material and workmanship for a period of **2 (two) years** from the date of **final acceptance** of the works by the Owner. Any defect developed due to defective materials and/or workmanship during testing and commissioning of the equipments or during the guarantee period of two years from the date of final acceptance of work by the Owner, shall be rectified or made good by the Contractor at his own cost. The Contractor's liability shall be limited to repair/replacement of any defective part in the equipment of his own manufacture or those of his sub-contractor and arising from faulty design, materials and/or workmanship. All costs for the repair and/or replacement of defective parts such as dismantling, re-erection, supply, transportation, etc. shall be to the account of the Contractor.

11.2 No repairs or replacement shall normally be carried out by the Engineer when the plant is under supervision of Contractor's supervisory engineers. In the event of emergency, where in the judgement of the Engineer, delay would cause serious loss or damage, repairs or adjustment may be made by the engineer or a third party chosen by the engineer without advance notice to the Contractor and the cost of such work shall be paid by the Contractor. In the event the cost of such action is taken by the engineer, the Contractor will be notified promptly and he shall assist where ever possible in making the necessary corrections. This shall not relieve the Contractor's liability under the terms and conditions of the Contract.

11.3 If it becomes necessary for the Contractor to replace or renew any defective portion of the plant under this clause, the provision of this clause shall apply to the portion of the plant so replaced or renewed until the expiry of two year from the date of such replacement of renewal

11.4 The acceptance of the works by the engineer shall in no way relieve the Contractor of his obligation under this clause.

11.5 If at any time during the guarantee period, it shall appear to the engineer that any work has been executed with unsound, imperfect or unskilful workmanship or with material of inferior quality or that any materials or articles provided by him for the execution of the work unsound or of a quality inferior to that Contracted for or are otherwise not in accordance with the Contract, it shall be lawful for engineer, notwithstanding the fact that the work or materials or articles complained of may have been inadvertently passed, certified and paid for the Contractor shall be found forthwith to rectify, to remove and reconstruct the work so specified in whole or in part, as the case may require or, if so required, to remove the materials or articles so specified and provide other proper and suitable materials or articles at his own charge and cost.

11.6 In the event of the Contractor failing to remove the defect within the time specified by the Engineer, the Owner may proceed to undertake the removal of such defect at the Contractor's risk and expense, without prejudice to any other rights and recover the same from performance bank guarantee/other dues.

11.7 The Contractor shall promptly provide adequate staff at site during the guarantee period to attend to defects, if any.

Executive Engineer
M.S.E.T.Co.Ltd
E.H.V. Project Dn., Kalyan

Executive Engineer
TL Projects

## 12.0 SUCCESSFUL COMMISSIONING:

12.1 The Successful Commissioning of the project shall imply completion of the following events:

(i) Completion of all works as also as per Contract Document.

(ii) First successful operation of the equipment after all initial adjustments, trials etc. cleaning and reassembly required at site, if any, have been completed and the equipment is made ready for commercial use.

12.2 Commissioning certificate shall be issued by MSETCL to M/s BNC Power Projects Ltd. within 15 days of commissioning as above. In case if the project is ready for commissioning but cannot be commissioned for reasons not attributable to M/s BNC Power Projects Ltd., project shall be deemed to have been commissioned and commissioning certificate shall be issued to M/s BNC Power Projects Ltd. within 07 days of its notification of project work being ready for commissioning.

## 13.0 INSURANCE

13.1 The Contractor at his cost shall arrange, secure and maintain comprehensive insurance as may be necessary and for all such amounts to protect his interests and the interest of the Owner, against all risks. Any loss or damage to the equipment, during supply, handling, transporting, storage and erection, till such time the plant is taken over by the Owner shall be to the account of the Contractor. The Contractor shall be responsible for lodging of all claims and make good for the damage or loss by way of repairs and/or replacement of the portion of the works damaged or lost. The transfer of title shall not in any way relieve the Contractor of the above responsibilities during the period of the Contract.

13.2 **INDEMNIFICATION OF OWNER**

The Contractor shall insure all his personnel, tools and plants, etc. and shall also take a third party liability cover to indemnify the Owner of all liabilities which may come up due to any act or omission on the part of Contractor and cause harm/damage to other Contractor/representatives of Owner or all or anybody rendering service to the Owner or in connected with Owner's work in any manner whatsoever.

The Contractor shall necessarily indemnify the Owner in all these respects and the indemnification and insurance policy shall be to the approval of Engineer.

The recommended value for the third party insurance policy to be taken by the Contractor are as follows:

Maximum liability for injury to any person ... Rs.1,00,000/-

Maximum liability for any one accident ... Rs.2,00,000/-

Maximum liability for total number of accidents during the Contract period ... Rs.10,00,000/-

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

13.3 **WORKMEN'S COMPENSATION INSURANCE**

This insurance shall protect the Contractor against all claims applicable under the workmen's compensation Act 1948 or any amendment thereof. This policy shall also cover the Contractor against claims for injury, disability, disease or death of his or his sub-Contractor's employees, which for any reason are not covered under the workmen's compensation Act 1948. The liabilities shall not be less than workmen's Compensation as per statutory provisions.

13.4 **COMPREHENSIVE AUTOMOBILE INSURANCE**

This insurance shall in such a form as protect the Contractor against all claims for injuries, disability, disease and death to members of public including the Owner's men and damage to the property of others arising from the use of motor vehicle during on or off the site operations, irrespective of the Ownership of such vehicles.

13.5 **COMPREHENSIVE GENERAL LIABILITY INSURANCE**

This insurance shall protect the Contractor against all claims arising from injuries, disabilities, disease or death of members of public or damage to property of others, due to any act or omission on the part of the Contractor, his agents, his employees, his representatives and sub-Contractors or from riots, strikes and civil commotion. This insurance shall also cover all the liabilities of the Contractor arising out of the clause entitled "Defense of Suits".

The hazards to be covered will pertain to all the works which are under the Contractor, his sub-Contractors, his agents and his employees have to perform work pursuant to the Contract.

The above are only illustrative list of insurance covers normally required and it will be the responsibility of the contractors to maintain all necessary insurance coverage to the extent both in time and amount to take care of all his liabilities either direct or indirect.

14.0 **PRICE VARIATION AS PER PV CLAUSE**

14.1 Bids for all the packages having completion schedule more than 6 months will be on variable price basis.

14.2 Bids for all the packages having completion schedule less than 6 months will be on firm price basis.

14.3 For the purpose of calculation of price adjustment for transmission lines & substation.

- The indices for various materials shall be considered as published by IEEMA. The indices published by IEEMA on the 1st working day of the calendar month, one month prior to the date of opening of bid ( Date of opening of bid 09.08.2017) will be the base indices for calculation of P.V., 01.07.2017 will be the base date for calculation of Price Variation.
- The formula for calculation of price variation will be as per IEEMA. For supply of materials (as specified under clause 14.5 below) and civil services (erection) latest revision of IEEMA P.V. formula will be applicable.

14.4 The Owner shall not be liable for any additional cost incurred by Contractor on account of price variation beyond the time stipulated in the Contract for completion of works on account of default by Contractor.

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14.5 Components for which PV is applicable for Structural Steel and ACSR conductor.

14.6 If interest free advance is paid for supply of material, P.V. on amount equivalent to value of advance payment will not be considered on applicable items for supply. The price variation will be evaluated as per recent PV formula specified by GEMA.

14.7 The PV formula for calculation of price variation for the items to which PV is applicable are enclosed separately as Schedule-J

14.8 In case of non completion of activities related to Supply within the scheduled time, if the price adjustment calculated for the period beyond the scheduled date is positive no payment against the same shall be allowed, while if the figure is negative, the price adjustment will be applicable.

15.0 **FORCE MAJEURE**

The force majeure conditions shall be as per the Clause No. 32 of Section II (GTC) Book-I Page No. 25 of Owner's tender specification.

16.0 **JURISDICTION OF CONTRACT**

16.1 The Contract shall be considered as having come into force from the date of the issue of Letter of Award by the Owner.

16.2 The laws applicable to this Contract shall be the laws in force in India. The Courts of Mumbai shall have exclusive jurisdiction in all matters arising under this Contract.

**********

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# ANNEXURE

## 'A'

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# ANNEXURE

# 'B'

# ANNEXURE

## 'C'

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## PREAMBLE

1.0 This specification covers the requirements associated with turnkey construction of following 220kV line with Design, Manufacture and supply of all materials, execution of all required works for construction and commissioning of EHV line.

| Description of EHV Line | Route length (Kms) |
|---|---|
| Turnkey construction LILO on 220kV Kolshet-Wada & 220kV LILO on Padghe-Wada line for 400kV Kudus S/S, under Vashi Zone. | 7 |

The scope of work also includes supply of specified materials, as well as execution of required works which broadly includes.Tower foundations, Erection of towers, Stringing, Testing and commissioning of the transmission line.

2.0 For ease of handling this specification is divided into two parts: Book I & Book II. The general terms and conditions are covered in Book-I, whereas the technical requirements in respect of line works and price schedules are covered in Book II.

3.0 Commercial terms and conditions covered in Book I generally applicable for works, including supply of materials against contract.

4.0 The quantities of items for supply as well as erection are tentative and based on estimate as per preliminary survey. While awarding the contract the quantities of supply and erection shall be worked out as per detailed survey report. The contract value shall be decided on the basis of unit rates for supply and erection indicated in Price schedule of specification with % (percentage) above/below offered by the Bidder and accepted by MSETCL.

5.0 Bidders can submit the offers, subject to their meeting the qualifying requirements. The offer shall be submitted with only essential particulars which are in line with the requirement of these specifications.

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MAHATRANSCO
Maharashtra State Electricity Transmission Co. Ltd.

# MAHARASHTRA STATE ELECTRICITY TRANSMISSION COMPANY LIMITED

(CIN No.U40109MH2005SGC153646)

## RFx No. 6000000253

SRM e-TENDER No. T-1718 /MSETCL/CO/DCM/D&T/TKC-LINES

SPECIFICATION No. MSETCL/CO/ D,C&M/D&T /2017-18/TKC-L

**Turnkey construction of LILO on 220kV Kolshet- Wada &220kV LILO on Padghe-Wada line for 400kV Kudus Substation(Common M/C Line) (Route Length – 7 kms)**

UNDER VASHI ZONE ON TURNKEY BASIS

## BOOK I

## GENERAL TERMS AND CONDITIONS

Reference:

BOOK-I : General Terms and Conditions

BOOK-II : Technical specification & Price Schedules

Tender Fee Rs. 25,000/- + MVAT(@6%) Extra

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## SECTION-I
## INVITATION FOR BID (IFB)
## (LOCAL COMPETETIVE BIDDING)

**1.0** The Maharashtra State Electricity Transmission Company Limited Mumbai, herein after referred to as the 'Owner' (MSETCL) invites SRM e-tender in TWO bids system (Techno- commercial Bid & Price Bid) from eligible bidders in India having executed similar projects in transmission sector on turnkey basis for **construction of LILO on 220kV Kolshet-Wada & 220kV LILO on Padghe-Wada line for 400kV Kudus S/stn. (Route Length 7 Kms),** under Vashi Zone.

**2.0** Scope of Work :-

SRM E -Tender No. T-1718/MSETCL/CO/DCM/D&T/TKC-Lines

| Name of Line | Estimated Cost in Rs. Lakhs | Completion period in months from date of Handing over of Line Profile (Including Monsoon) | Tender No. RF's No. |
|---|---|---|---|
| Turnkey construction of LILO on 220kV Kolshet-Wada & 220kV LILO on Padghe-Wada line for 400kV Kudus S/stn. (Route Length 7 Kms), | 1886.24 | 09 Months | T-1718 6000000253 |

**3.0** QUALIFYING REQUIREMENT

In addition to the requirement stipulated under the relevant clauses of the bid documents, the following minimum requirements shall also apply.

**3.1** **STATUTORY QUALIFYING CRITERIA**

**Statutory Licences /Registration**

3.1.1 The bidder or his associate should have a valid Govt. Electrical Contractor's License.

3.1.2 The lead bidder should be registered under Maharashtra Value Added Tax (MVAT) Act or Central Sales Tax Act and Service Tax Act under GOI as well as for other various taxes in force.
The bidder should have returns of all above said taxes for preceding 3 financial years.

3.1.3 The lead bidder should be registered under P.F. Act.

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Note: The original coloured scan copy should be uploaded as bid documents in support of Statutory Qualifying Criteria i.e. Statutory Licenses/Registration. Attested / Notarized photocopies of the same will not be entertained.

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## 3.2 TECHNICAL QUALIFYING CRITERIA:

3.2.1(a) The bidder should have, in last 5 years executed the work on turnkey basis including supply of material, erection, testing & commissioning as mentioned at (i) and (ii) below

(i) The bidder should be an approved vendor of MSETCL or PGCIL and have installed tower material manufacturing capacity of at least 10000 MT per year and should have fabricated and supplied at least 1000 MT of EHV transmission line towers cumulatively in last three years of voltage class at least one step below than the voltage class as mentioned in scope of tender.

OR

The bidder not satisfying above condition shall furnish a legally enforceable Joint Deed of Undertaking duly notarized (Format Enclosed) from the manufacturer who satisfies such condition fully, to guarantee for quality & timely supply of tower material.

(ii) The bidder should have constructed (including tower foundation, tower erection and stringing) at least S/C Tr. Line of route length at least 50% of route length mentioned in the scope of this tender in single order and of voltage class at least one step below than the voltage class as mentioned in scope of tender.

3.2.1(b) The bidder should submit the user's certificate in support of tower material supplies executed in last three years and end user's certificate for completed works issued by the concerned ordering authority indicating therein name of the line constructed, its voltage class, route length, configuration of conductor, date of completion and period taken for completion etc.

3.2.2 The owner reserves the right to accept / reject the Bid.

Note: The original coloured scan copy should be uploaded as bid documents in support of Technical Qualifying Criteria. The Attested/Notarized photocopies of the same will not be entertained. Detailed communication address, e-mail ID & contact numbers of end users should be furnished for cross verification.

## 3.3 FINANCIAL QUALIFYING CRITERIA

3.3.1 The average annual turnover of the bidder during last three financial years should be not below than 60% of estimated cost.

3.3.2 The bidder should have a Net Worth (which is defined as "Equity share capital + Reserves – Revaluation reserves – Intangible assets – Miscellaneous expenditure to the extent not written off and carry forward losses") of not less than 25% (Twenty Five Percent) value of estimated cost of tender offered. The bidder should submit the statement of Net worth duly certified by Chartered Accountant for the last financial year.

Note: 1.The original coloured scan copy should be uploaded as bid documents in support of Financial Qualifying Criteria. The Attested/Notarized photocopies of the same will not be entertained.

2. The duly audited, verified & certified figures from Chartered Accountain will be considered for Annual Turnover & Net worth. The provisional certificates (if any) will not be entertained.

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## 3.4 IN CASE OF CONSORTIUM

(Not more than 2 partners including lead partner)

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3.4.1 The principal (lead) bidder who desire to bid against this specification may submit the offer jointly with erection contractor /equipment manufacturer by entering into a legally valid agreement subject to fulfilment of following requirements.

- The bid, and in case of a successful bid, the Contract Agreement shall be signed so as to be legally binding on both partners.
- Both partners of the consortium shall be jointly and severally liable for execution of the contract in accordance with the Contract terms.

3.4.2 One of the consortium partners should satisfy 100% technical qualifying criteria at 3.2 and subject to fulfilment of remaining qualifying criteria jointly by both the partners.

3.4.3 The number of partners in a consortium should not be more than two, including the lead partner.

3.4.4 The lead partner shall be authorized to be in charge and this authorization shall be evidenced by submitting a duly registered/ notarised power of attorney signed jointly by legally authorized signatories of both partners.

3.4.5 A copy of agreement entered into by the consortium partners as specified in Schedule 'G' shall be submitted with the bid.

3.4.6 The bid document should have been purchased and submitted by the Lead Partner only.

3.5 **OTHER MANDATORY DOCUMENTS FOR VALID BID**

3.5.1 Original colour scan copy of duly signed/sealed schedules given in Book-I (GTC).

3.5.2 Bid Security Deposit (BSD) for an amount equal to 1% (one percent) of the estimated cost of tender in the form of Bank Guarantee from Scheduled/Nationalized Bank in the prescribed format annexed in the tender specifications as schedule 'F', along with the offer. The validity of Bank Guarantee should at least be for six (6) months from the originally scheduled date of techno-commercial bid opening.

4.0 **General Points:-**

4.1 The prices to be quoted against this IFB shall be in Indian Rupees only.

4.2 A complete set of documents can be downloaded by the bidder from MSETCL's SRM e-tendering website http://srmetender.mahatransco.in/. The cost of bidding documents can be paid online before the date of bid submission and the screen shot of successful payment transaction shall be uploaded with bid documents being submitted by the bidder.

4.3 The bidder shall be required to furnish Bid Security Deposit (BSD) for an amount equal to 1% (one percent) of the estimated cost of tender in the form of Bank Guarantee from Scheduled/ Nationalized Bank in the prescribed format annexed in the tender specification as schedule 'F', along with the offer. The validity of Bank Guarantee should at least be for Eight (08) months from the date of opening of bid.

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4.4 The tender is invited on individual percentage basis for Supply & ETC. For Evaluation of the Tender, the total price of Supply & ETC including all taxes & duties shall be considered. The LOA will be placed on the final accepted price for Supply & ETC including all applicable Taxes & duties.

4.5 Variation in Statutory Taxes / Duties if any will not be payable.

4.6 Price variation shall be given on Ex-works price mentioned in MSETCL's estimation in price schedules or Bidders quoted Ex-works price whichever is lower.

4.7 It may please be noted that the taxes / duties will be paid / reimbursed as per actual OR as stated in Price break up statement whichever is lower on submission of valid documentary proof.

4.8 The price variation will be applicable to the items as indicated in clause no 8.3.4 of Book I (GTC).

4.9 The new bidders are requested to complete the contractor registrations with MSETCL as per the procedure prior to the date of submission of the tender documents. The bids of only registered main/lead bidders will be entertained.

5.0 Interested bidders may obtain further information, if needed, on our Website www.mahatransco.in/https://srmetender.mahatransco.in or from the Office of the Chief Engineer (Design, Contracts & Monitoring), Maharashtra State Electricity Transmission Co. Ltd; 5th floor, Plot No. C-19, 'E'-Block, Bandra Kurla Complex, Bandra (East), Mumbai 400051. Tel No. 26595000 (Extn No. 5124/5163/5178) Fax No. (022) 26598587/26598590.

5.1 Bidders are requested to note the dates for purchase, submission, and opening of bid documents as below:

| | | |
|---|---|---|
| a) | Starting Date of downloading | 24.04.2017 |
| b) | Price of bid document | Rs.25,000/- + MVAT (@ 6%) extra. |
| c) | Pre bid meeting | 28.04.2017 at 15.00 Hrs |
| d) | Last date for submission of Queries | 03.05.2017 at 15.00 Hrs |
| e) | Last date and time for submission of bid | 27.05.2017 at 13.00 Hrs |
| f) | Date and time for opening of techno-commercial bid | 27.05.2017 at 15.00 Hrs |
| g) | Date and time for opening of price bid of qualified bidders | 07.06.2017 at 15.00 Hrs |

In case the due date for sale, receipt and/or opening of bids happens to be a holiday, the working day shall be the corresponding due date. The bidder should take care of e-tender website system constraint and upload the document accordingly.

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## SECTION – II

## GENERAL TERMS AND CONDITIONS OF CONTRACT

### 1.0 DEFINITION OF TERMS

In constituting these general terms and conditions and the annexed specifications, the following words shall have the meanings herein assigned to them.

1.1 'Owner' or 'Purchaser' or 'Company' shall mean the Maharashtra State Electricity Transmission company Ltd., Mumbai and shall include their legal representatives, successors and permitted assignees.

1.2 'Contractor' shall mean the Bidder whose Bid has been accepted by the Owner for the award of the Contract and shall include such successful Bidder's legal representatives, successors and permitted assignees.

1.3 'SUB-CONTRACTOR' shall mean any person (other than the Contractor) named in the Contract for any part of the work or any person to whom any part of the Contract has been sublet by the Contractor with the consent in writing of the Owner/Engineer and will include the legal representatives, successors and permitted assignees of such person.

1.4 'Engineer' shall mean the officer appointed in writing by the Owner to act as Engineer from time to time for the purpose of the Contract.

1.5 'Engineer's Representative' shall mean any assistant of the Engineer appointed from time to time to exercise the powers, directions, functions, and other authorities vested in the Engineer.

1.6 The terms 'Equipment', 'Materials', 'Stores' shall mean and include plant 'Stores' and 'Materials' to be provided by the Contractor under the Contract.

1.7 'Works' shall mean the design, engineering, manufacture (whenever applicable), supply of equipment, material erection, testing, and commissioning of various equipment as detailed in the bidding documents.

1.8 'Specification' shall mean the Tender specification forming a part of the Contract and such other Schedules and drawings as may be mutually agreed upon.

1.9 'Site' shall mean the whole of the premises, buildings and grounds in or upon which the work or works is or are to be provided, executed, erected, done or carried out.

1.10 'Manufacturer's works' or 'Contractor's works' shall mean the place of work used by the Manufacturer, the Contractor, or sub-Contractor for the performance of the works.

1.11 'Notice of Award of Contract/letter of indent, shall mean the official notice issued by the Owner notifying the Contractor that his bid has been accepted.

1.12 The 'Contract' shall mean the agreement, if any, to be entered into by the Owner with the Contractor and shall include the conditions of Contract, specification, schedules, tender guarantees, drawings, and any further conditions which may be specifically agreed to between the parties as forming a part of the Contract.

'Contract Price' shall mean the sum named in the Contract agreement if any or the work order by the Owner, subject to such additions thereto or deductions there from as may be made under the provisions herein after contained.

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1.14 'Contract value' shall mean that part of Contract price which is properly apportionable to the work in question having regard to the amount of work done and all other relevant circumstances and disregarding any changes that may have occurred since the date of Contract in the cost of executing the works.

1.15 'Manufacturer's Supervisory Personnel' shall mean the supervisory personnel deputed by the Contractor or any other manufacturer who has supplied materials or under whose supervision the installation of equipment is to be carried out.

1.16 'Date of Contract' shall mean the date on which L.O.A. is issued and/or acceptance of bid is intimated to Contractor as the case may be.

1.17 'Guarantee Tests' shall mean such tests as prescribed in the Contract or as instructed by the Engineer to be performed by the Contractor before the works are finally accepted by the Owner ready for commercial use complete with all items to the satisfaction of site Engineer.

1.18 'Delivery period' shall mean the time period required from issue of LOI/Telegraphic intimation of acceptance of bid to the stage the works are ready for trial operation and inclusive of performance test.

1.19 'Commissioning' shall mean the first successful operation of the equipment after all initial adjustments, trials etc. cleaning and reassembly required at site if any have been completed and the equipment is made ready for commercial use.

1.20 The term 'Final Acceptance' shall mean the Owner's written acceptance of the works performed under the Contract after successful testing and commissioning of the equipments offered under this Contract.

1.21 'Guarantee period' shall mean the period during which the Contractor shall remain liable for repair, replacement of any defective part of the works performed under the Contract.

1.22 'Month' shall mean the calendar month. DAY or DAYS unless herein otherwise expressly defined shall mean calendar day or days of 2
4 hours each.

1.23 'Writing' shall include any manuscript, under or over signature and/or seal as the case may be.

1.24 When the words 'Approved', 'Subject to approval', 'As directed', 'Accepted' etc. or words or phrases of like are used, the approval, direction, judgement etc. is understood to be a function of the Owner/Engineer.

1.25 'Drawings' 'Plans' shall mean all:-

a) Drawings furnished by the Owner as a basic for proposal

b) Supplementary drawings, if any, furnished by the Owner to clarify and to define in greater detail the intent of the Contract.

c) Drawings submitted by the Contractor with his proposal, provided such drawings are acceptable to the Owner.

d) Drawings furnished by the Contractor/Manufacturer to the Owner during the progress of the work.

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1.26 'Codes' shall mean the following but not limited to the following including the latest amendments and/or replacements, if any.

i. Indian Electricity Act, 1910 / 2003 and Rules and Regulations made thereunder.
ii. Indian Factory Act, 1948 and Rules and Regulations applicable for relevant materials supplied.
iii. A.S.M.E. Test Codes.
iv. A.I.R.E. Test codes.
v. Standards of the Indian Standards Institutions applicable for relevant materials supplied.
vi. Other Internationally approved standards and/or Rules and Regulations touching the subject matter of Contract.

**2.0 INTERPRETATION**

2.1 Words imparting the "singular only" shall also include the plural and vice-versa where the context so requires.

2.2 Words imparting "Persons" shall include firms, companies, corporations and associations or bodies of individuals, whether incorporated or not.

2.3 Terms and expressions not herein defined shall have the same meaning as are assigned to them in the Indian Sale of Goods Act (1930), failing that in the Indian Contract Act (1872) and failing that in the General Clauses Act (1987).

**3.0 SCOPE OF CONTRACT**

This shall be as per Technical Specifications.

**4.0 ENGINEER'S SUPERVISIONS**

4.1 ENGINEER'S INSTRUCTIONS:

All instructions and orders to the Contractor shall, except as herein otherwise provided, be given by the Engineer.

4.2 ENGINEER'S REPRESENTATIVE

The Engineers may, from time to time, delegate to Engineer's Representative any of the powers, discretions, functions and authorities vested in him and may at any time revoke any such delegation. Any such delegation or revocation shall be in writing signed by the Engineer; and in case of delegation, shall specify the powers, discretions, functions and authorities thereby delegated and the person or persons to whom the same are delegated. No such delegation shall have effect until a copy thereof has been delivered to the Contractor. Any person to whom any delegation is made shall be entitled to exercise the powers, discretions, functions and authorities so delegated to him as aforesaid.

4.3 RESIDENT ENGINEERS

4.3.1 Resident Engineer/Engineers shall mean the Engineer/Engineers to be appointed by the Owner to execute the works at the site. The Contractor shall afford him every reasonable facility for so doing but the Engineer/s shall not be authorised to relieve the Contractor in any way of his duties or obligation under the Contract. Any written notice from the Engineer/s pointing out the defects in materials or workmanship shall have the effect of a similar notice given by the Engineer under clause entitled remedy of defects except that the Contractor may appeal to the Engineer for his decision in the matter.

4.3.2 The Engineer shall during the progress of the work, have following powers to order, in writing, from time to time.

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a) The removal from the site within such time or times as may be specified in the order, any materials, which in the opinion of the Engineer are not in accordance with the Contract.

b) The substation by proper and suitable material

c) The removal and proper re-execution (notwithstanding any previous test thereof or interim payment there for) of any work, which in respect of materials or workmanship is not, in the opinion of the Engineer, in accordance with the Contract.

d) Removal of materials obstructing the operation of existing station/equipments.

In case of default on the part of the Contractor in carrying out such order, the Owner shall be entitled to employ and pay other persons to carry out the same and all expenses consequent thereon or incidental thereto shall be recoverable from the contractor by the Owner or may be deducted by the Owner from any amount/money due or which may become due to the Contractor. The engineer shall stipulate reasonable time for the Contractor to carry out the order aforesaid.

## 5.0 CONTRACT DOCUMENTS

5.1 The term "Contract Documents" shall mean and include the following which shall be deemed to form an integral part of the Contract.

A) Bidding document of the Owner, covering the Instructions to Bidders, general terms and conditions of Contract, special terms and conditions, technical specifications, annexures, schedules, amendments etc.

B) Contractor's bid proposal including the letters of clarifications exchanged there to between the Contractor and the Owner prior to the Award of Contract.

C) All the data/information of any sort given by the Contractor alongwith his bid, subject to the approval of the Owner/engineer.

D) Any mutually agreed variations to the conditions of the documents, specifications terms and conditions of Contract, if any.

## 6.0 ASSIGNMENT AND SUBLETTING OF CONTRACT

6.1 The Contractor shall not assign the Contract or any part thereof or any benefit or interest therein or thereunder without the prior written consent of the Owner.

6.2 The Contractor shall not sublet any part of the works without prior written consent of the engineer/Owner.

6.3 Such consent, if given, shall not relieve the Contractor from any liability or obligation under the Contract and he shall be responsible for the acts, defaults and neglects of any subcontractor, his agents, servants or workman as fully as if those were the acts, defaults, neglects of the Contractor, his agents, servants or workmen.

6.4 The engineer shall have the right to obtain from the Contractor any agreement in writing entered into by the Contractor with any of his sub-Contractors or any purchase orders placed for supplies and services in respect of the works included in the Contract provided that the Contractor shall not be bound to disclose the sub Contract value. The Contractor shall supply the engineer with full technical and commercial details of orders placed on his sub-Contractors. The technical specification of all the items ordered on sub-Contractor shall be subject to the approval of engineer.

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**7.0 CONTRACTOR TO INFORM HIMSELF FULLY**

7.1 The Contractor shall be deemed to have satisfied himself as to all the conditions and circumstances affecting the Contract price and as to the possibility of executing the works as shown and described in the Contract. The Contractor shall be deemed to have inspected and examined the site and its surroundings, examined the approach roads etc., loading/unloading/ fabrication space etc. and to have fixed his price taking into account all such relevant conditions and also the risks, contingencies and other circumstances which may influence or affect the execution of the work as specified in the Contract.

7.2 The Contractor shall be responsible for any misunderstanding or incorrect information, however obtained, on which the Contract price has been based except the written information furnished by the Owner.

7.3 The Contractor shall be deemed to have carefully examined all Contract documents to his entire satisfaction. If he shall have any doubt as to the meaning of any portion of the Contract documents, he shall, within one month of issue of Letter of Award or before signing the Contract as the case may be, set forth the particulars thereof, and submit them to the Owner in writing, in triplicate, in order that such doubt may be removed. The Owner shall provide such clarification as may be necessary, in writing to the Contractor. Any information otherwise obtained from the Owner or the engineer shall not in any way relieve the Contractor of his responsibility to fulfil his obligations under the Contract.

7.4 SUPERVISION OF CONTRACTOR

The Contractor, upon award of the Contract shall, in addition to a Project Co-ordinator, nominate another responsible officer as his representative at site suitably designated for the purpose of overall responsibility and coordination of the works to be performed at site. Such persons shall function from site office of the Contractor during the pendency of Contract. Any written order or instruction of the engineer or his duly authorised representative shall be communicated to the said authorised resident representative of Contractor and the same shall be deemed to have been communicated to the Contractor.

**8.0 PERFORMANCE GUARANTEE IN LIEU OF SECURITY DEPOSIT**

8.1 The Performance Bank Guarantee for the proper fulfillment of the Contract shall be furnished by the Contractor in the prescribed form within Thirty (30) days of Notice of Award of Contract/Letter of Award and before release of any payments due including the advance payment, if any. The performance Guarantee shall be as per proforma attached to the Bid Document. This guarantee shall be for an amount equal to 10% (ten percent) of the Contract price.

8.2 The performance guarantee shall cover additionally the following guarantee to the Owner:-

The Contractor guarantees that the equipment installed by him shall be free from all defects in materials/workmanship and shall, upon written notice from the Owner, fully remedy free of expenses to the Owner such defects that are attributable to the Contractor within the period of guarantee specified in the relevant clause of the Contract.

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8.3 The Contract Performance Guarantee is intended to secure the performance of the entire Contract. However, it is not to be construed as limiting the damages stipulated in other clauses of the Contract.

8.4 The Performance Guarantee shall be returned to the Contractor 90 days after the end of the guarantee period. The Owner is not liable to pay any interest or compensation to the Contractor for retaining the performance Guarantee after the end of the guarantee period.

8.5 The termination of the Contract under the clause 25.0 'Contractor's default' of this section shall not entitle the Contractor to reduce the value of the performance guarantee nor the time thereof. The performance guarantee shall be valid for the full value and for the full period of Contract including 90 days after the end of guarantee period.

8.6 In the case of increase in contract value, the contractor shall within 30 days from the date of amendment letter, indicating increase in contract value, submit the Performance Bank Guarantee equivalent to 10% of the value of increase in contract value, valid for period as indicated in sub clause 8.5

8.7 After issue of the Notice of Award /Letter of Award of contract, if the contractor have not submitted the Performance Bank Guarantees within 60 days, the action of cancellation of Notice of Award/ Letter of Award will be initiated against the contractor and EMD Bank Guarantees will be forfeited.

**9.0 CONTRACT DRAWINGS**

These should be as per Technical specification.

**10.0 MISTAKES IN DRAWINGS**

The Contractor shall be responsible for any discrepancies, errors or omissions in the drawings or other particulars supplied by him and shall pay all the costs of the alterations in the work necessitated thereby notwithstanding the fact that such drawing or particulars have been approved by the engineer provided that such discrepancies, errors or omission are not due to inaccurate information or particulars furnished to the Contractor in writing by the engineer. The Owner shall be responsible for drawings and information supplied by the engineer.

10.1 If any dimensions/figures upon a drawing or a plan differ from those obtained by scaling the drawings or plan, the dimensions as figured upon the drawings or plan shall be taken as correct.

**11.0 EFFECT AND JURISDICTION OF CONTRACT**

11.1 The Contract shall be considered as having come into force from the date of the issue of Letter of Award, by the Owner.

11.2 The laws applicable to this Contract shall be the laws in force in India. The Courts of Mumbai shall have exclusive jurisdiction in all matters arising under this Contract.

**12.0 LANGUAGE AND MEASURES**

All documents pertaining to the Contract including specification, schedules, notices, correspondence, operating and maintenance instructions, drawings or any other writing shall be written in English language only. The metric system of measurement shall be used exclusively in the Contract.

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**13.0 PATENT RIGHTS & ROYALTIES**

13.1 Royalties and fees for patents covering materials, articles, apparatus, devices, equipments or processes used in the works shall be deemed to have been included in the Contract Price. The Contractor shall satisfy all demands that may be made at any time for such royalties or fees and he alone shall be liable for any damages or claims for patent infringements and shall keep the Owner indemnified in that regard. The Contractor shall, at his own cost and expenses, defend all suits or proceedings that may be instituted for alleged infringement of any patents involved in the works and in case of an award of damages, the Contractor shall pay for such award. In the event of any suit or other proceedings instituted against the Owner, the same shall be defended at the cost and expenses of the Contractor who shall also satisfy/comply the decree, order or award made against the Owner. Final payment to the Contractor by the Owner will not be made while any such suit or claim remains unsettled. In the event any apparatus or equipment or any part thereof furnished by the Contractor, is in such suit or proceedings held to constitute infringement, and its use is enjoined the Contractor shall, at his option, and at his own expense either procure for the Owner, the right to continue use of said apparatus, equipment or part thereof, replace it with non-infringing apparatus or equipment or modify it, so that it becomes non-infringing.

13.2 The Contractor shall be responsible for the observance by his sub-Contractors of the foregoing.

**14.0 WORKMANSHIP & MATERIALS**

14.1 The plant and/or the work shall be manufactured, constructed, provided, put in possession, carried out and maintained in all respect with workmanship and material of the best and most substantial and approved qualities to the entire satisfaction of the Engineer, who may reject any plant, apparatus, material or workmanship which shall in his opinion be defective in quality and such rejection shall be final and binding on the Contractor. The Contractor shall at his own expense provide all materials, labour, haulage, tools, tackles apparatus and all things necessary to execute and complete the work and plant in manner aforesaid.

14.2 All materials used in the manufacture shall be high graded, free from defects and imperfection, recent manufacture & unused. Materials shall, conform to the latest specifications of BIS, where applicable.

14.3 All work shall be performed and completed in accordance with the best shop practice. Manufacture, of high grade equipment castings shall be free from blow-holes, flaws, cracks or other defects and shall be smooth, close-grained and of free form and dimensions. All materials, supplies, parts, supplied under this Contract shall be tested.

**15.0 PACKING, FORWARDING AND TRANSPORTATION ETC.**

15.1 The Contractor shall be fully responsible for packing, forwarding, transportation by railways or any other authorised mode of transport, clearance of equipment and further transportation at site to place of works/storage yards etc, in respect of material in his scope.

15.2 The Contractor wherever applicable shall, after proper painting, pack and crate all equipment in such a manner as to protect them from deterioration and damage during rail/road or any other authorised mode of transport. The Contractor shall be held responsible for all damages/losses due to improper packing.

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15.3 The Contractor shall notify the Owner of date of each shipment from his/manufacturer's works and the expected date of arrival at the site for the information of Owner. The Contractor shall also give all shipping information concerning the weight size and content of each packing including any other information the Owner may require.

**16.0 INSPECTION, TESTING & INSPECTION CERTIFICATE:**

As per Technical Specifications.

**17.0 TIME THE ESSENCE OF CONTRACT**

17.1 The time stipulated in the Contract for the completion of works shall be deemed to be the essence of the Contract. The Contractor shall so organise his resources and perform his work as to complete it not later than the date agreed to.

17.2 The Contractor shall submit a detailed PERT net work/Bar chart within the time frame agreed consisting of adequate number of activities covering various key phases of work also clearly indicating the completion period for various groups of activities. This network shall also indicate the interface facilities to be provided by the Owner and the dates by which such facilities are needed. The Contractor shall discuss the network so submitted with the Owner and the agreed network which may be in the form as submitted or in revised form in line with the outcome of discussions shall form part of the Contract. During the performance of the Contract, if in the opinion of the engineer proper progress is not maintained, suitable changes shall be made in the Contractor's operations to ensure proper progress.

17.3 The above PERT network shall be reviewed and periodic review reports shall be submitted by the Contractor as directed by the engineer.

**18.0 DEMURRAGE AND WHARFAGE ETC.**

18.1 When the materials are despatched to the site stores with the name of consignee as that of the Owner, demurrage and wharfage and other expenses incurred due to delayed clearance of the material, despatch documents, Railway/Lorry Receipt, or any other reason shall be to the account of the Contractor. It shall be the responsibility of the Contractor to obtain clear railway receipt/lorry receipt and allied documents in order to avoid any difficulty while clearing/taking delivery of the materials.

**19.0 PROGRESS REPORT**

19.1 The Contractor shall submit monthly reports to the engineer showing the progress of manufacture and delivery of the equipment/materials and the erection work executed by the Contractor. The Contractor shall also furnish to the engineer such other information as the engineer may require to satisfy himself about the timely manufacture and delivery of the equipments/materials and the various stages of execution of the works to suit the accepted commissioning programme. The Contractor shall be responsible for the proper despatch, receipt and storage at the site of all equipment/materials delivered for the purpose of the Contract and also for notifying the engineer of the details of the deliveries and delay thereto. Should any plant and equipment be lost or damaged due to improper packing, transport, handling whilst in the custody of the Contractor and cost to the Owner, the Contractor shall make best efforts to ensure that the replacement is arranged expeditiously so that commissioning schedule is not affected.

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**20.0 EXTENSION OF TIME LIMIT FOR COMPLETION**

20.1 If by reasons of extra or additional work or any natural phenomenon or any cause beyond the control of the Contractor or the Owner as defined in the clause entitled "force majeure", the Contract shall have been delayed or impeded in the completion of the works, whether such delay or impediment occurs before or after the time or extended time fixed for completion, provided that the Contractor shall without delay have given to the Engineer a notice in writing of his claim for an extension of time, the Engineer shall on receipt of such notice grant the Contractor either prospectively or retrospectively such extension of time fixed by the Contract for the completion of work as may be justified. The Contractor shall have no other claim against the Owner in respect of delay and disorganisation of the work arising from occurrences here in above mentioned.

**21.0 CONTRACT PRICE**

21.1 The lumpsum prices quoted by the Contractor in his bid with additions and deletions as may be agreed for the entire scope of the works viz. Design, engineering,inspection at manufacturer's factory site, supply, transportation, receipt and storage at site, erection, testing and commissioning of the works covered under these specifications and documents shall be treated as the Contract price.

21.2.1 a) The Contract price shall include all taxes and duties inclusive of Corporate tax, Income Tax, Excise Duty, VAT/CST, Other levies, Fees, Cesses,Octroi, Deposit etc. whatsoever, and the Owner shall not be liable for payment of any such taxes or duties.

b) For Evaluation of the Tender, the total price of Supply & ETC including all Taxes & Duties shall be considered.

c) The LoA will be placed on final accepted price for Supply and ETC including all applicable Taxes & Duties.

**It may please be noted that the taxes/duties will be reimbursed as submitted by the bidder or as applicable on Ex works price whichever is lower, on submission of valid documentary proof.**

21.2.2 The prices quoted by the bidder shall take into account credit availed on inputs under the 'Modvat' scheme introduced by G.O.I. w.e.f. 1-3-86. Accordingly, as a result of additional duty set offs as may become available during the currency of Contract on the inputs used for the manufacture of final products on the date of supply under 'Modvat' scheme shall be passed on to the Board and you shall advise the Board for suitable reduction in the prices duly certified by Chartered Accountant.

21.3 The Bidder to furnish invariably break-up of the prices of taxes and duties on unit rate considered (for the items in BOM including ETC) in the bid in the prescribed Proforma.

The Contract price shall include any cost or charges for obtaining any permits, approval or licence etc. wherever applicable.

The Contract is to be treated as a divisible Contract. The Contract shall include all applicable taxes, duties, etc. as indicated above. Necessary concessional forms such as 'C' etc. will be issued for this Contract. The prevailing rate of MVAT applicable for power transmission purpose is 5% only.

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**22.0 PRICE VARIATION DUE TO VARIATION IN TAXES**

22.1.1 Variation in Taxes & duties if any will not be payable.

22.1.2 Delete

22.2 Delete

**23.0 DEDUCTION FROM CONTRACT PRICE**

23.1 All cost, damages or expenses which the Owner may have paid for which under the Contract the Contractor is liable, will be claimed by the Owner. All such claims shall be billed by the Owner to the Contractor regularly as and when they fall due. Such bills shall be supported by appropriate and certified vouchers or explanations to enable the Contractor to properly identify such claims. Such claims shall be paid by the Contractor within fifteen (15) days of the receipt of the corresponding bills and if not paid by the Contractor within the said period, the Owner may then deduct the amount from any amount due or becoming due by him to the Contractor under the Contract or Bank Guarantee issued by the Contractor or may be recovered by actions of law or otherwise, if the Contractor fails to satisfy the Owner of such claims.

**24.0 TERMS OF PAYMENT**

24.1 The payment to the contractor for the performance of the works under the contract shall be made by the owner as per guidelines and conditions specified herein. All payments made during the contract shall be on account payee only. The final payment shall be made on completion of the whole work as per the contract and on fulfillment by the contractor of all his liabilities under the contract.

24.2 The owner shall make progressive payments as and when those are due as per the payment schedule. Payment shall become due and payable by the owner within 45 days from the date of receipt of contractor's bills/invoices (except final bill) by the Owner, provided the documents submitted with the invoices are complete in all respects.

24.3 Verification for completeness of bills/invoices shall be completed within seven days of receipt of the same from the contractor. In case any discrepancy is noticed, the bills/invoices shall be returned to the Contractor for revision within seven days of receipt of the same from Contractor.

24.4 The payment will be made after fulfillment of dependency clause indicated in Activity Schedule enclosed.

24.5 **PAYMENT SCHEDULE**

**a) For Supply of materials/ equipment**

(i) No advance.

(ii) 60% of the cost for supply of materials/equipment shall be payable within 45 days against the receipt at site.

(iii) 30% of the cost of supply of materials/equipment shall be payable within 45 days against successful erection.

(iv) The balance **10%** of the cost of supply of materials/equipment shall be paid within 45 days **upon successful commissioning.**

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**b) For Services ( Erection ,Testing and commissioning)**

i) **90%** of the Charges towards erection portion completed shall be paid within 45 **days** from the date of completion, on those works.

ii) Balance **10%** of Erection charges (for the completed works) shall be paid **within 45 days after successful commissioning of the works.**

Note : The 45 **days** period mentioned for payments shall be reckoned from the date of successful clearance of verification of documents or due date whichever is later.

24.5.1 **For Price Variation:**
Price variation shall be given on Ex-works price mentioned in MSETCL's estimation or bidder's ex-works quoted price whichever is lowest.

The payments of Price Variation claims shall be made within 60 days from the date of submission of claim with relevant documents in support of P.V. claims. The P.V. Bill shall be submitted by contractor against each lot and after monthly completion of works, duly certified by engineer In-charge of works.

24.5.2 All the above payment periods shall commence on the date of submission of the bills duly certified by Engineer in-charge and accompanied with relevant documents complete in all respects, supporting the claim(s) made.

24.6 **MODE OF PAYMENT**

24.6.1 All payment due to the Contractor shall be paid only by 'Account Payee Cheques'.

24.6.2 The Contractor shall present every month his invoice for the supply/works done in the preceding month. The invoice/bill for supply/works should be separately submitted. After verification of such invoice by Owner, all items having financial value shall be entered and certified in Owner's Measurement Book by the "Engineer Incharge" and these certified invoices along with relevant supporting documents complete in all respect shall be presented for payment.

24.6.3 Work is to be measured as per standard procedure. The measurement shall be taken jointly by persons duly authorised on the part of Owner and by the Contractor.

24.6.4 If, at any time due to any reason whatsoever, it becomes necessary to remeasure the work done in full or in part, the expense towards such remeasurement shall be borne by the Contractor.

24.6.5 The Contractor shall bear the expenditure involved, if any, in making the measurement. The Contractor shall, without extra charges, provide all the assistance with appliances and other things necessary for measurement.

24.6.6 The measurement entered in the measurement books and the bills prepared shall be signed and dated by both the Contracting parties.

24.6.7 The Contractor will be intimated in writing by the engineer the proposed date of measurement. If the Contractor does not turn at the appointed time, the Engineer shall have the powers to proceed by himself to take measurement in which case the measurement shall be accepted by the Contractor as final.

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24.6.8 Passing of measurement as per bills does not amount to acceptance or the completion of the work mentioned. Any left out work has to be completed if pointed out at a later date by Engineer.

24.6.9 The Contractor shall be directly responsible for payment of wages to his workmen. A payroll sheet giving all the payments given to the workers and duly signed by the Contractor's representative should be furnished to Engineer for record purpose every month.

24.6.10 The payment for the works shall be made direct to the Contractor by the Owner / through funding agency.

**25.0 CONTRACTOR'S DEFAULT**

25.1 If the Contractor shall neglect to execute the works with due diligence and expedition or shall refuse or neglect to comply with any reasonable orders given to him in writing by the engineer in connection with the works or shall contravene the provisions of the Contract, the Owner may give notice in writing to the Contractor to make good the failure, neglect or contravention complained. Should the Contractor fail to comply with the notice within thirty(30) days from the date of service thereof then and in any such case, the Owner shall be at liberty to employ other workmen and forthwith execute such part of the works as the Contractor may have neglected to do or, if the Owner shall think fit, it shall be lawful for him, without prejudice to any other right he may have under the Contract, to take the works wholly or in part of the Contractor's hand and re-Contract with any other person or persons to complete the works or any part thereof and in that event the Owner shall have free use of Contractor's all equipment that may have been at the time on the site in connection with the works without being responsible to the Contractor for fair wear and tear thereof and to the exclusion of any right of the Contractor over the same, and the Owner shall be entitled to retain and apply any balance money which may otherwise be due on the Contractor thereof as may be necessary, to the payment of the cost of executing the said part of the works or completing the works, as the case may be. If the cost of completing the works or executing a part thereof as aforesaid shall exceed the balance due to the Contractor, the Contractor shall pay such excess. The Owner shall have the right to terminate the Contract in case of Contractor's default.

25.2 In addition, such action by the Owner as aforesaid shall not relieve the Contractor of his liability to pay liquidated damages for delay in completion of works as defined in Contract.

25.3 The termination of the Contract under this clause if effected by the Owner shall not entitle the Contractor to reduce the value of the performance guarantee nor the time thereof. The performance guarantee, shall be valid for the full value and for the full period of the Contract including 90 days after the end of guarantee period.

If any Part works/ half done work partial activity completion are delayed by contractor beyond the stipulated time even after the instructions are issued by nodal officer in writing, the nodal officer shall have the right to execute the same through any other Agency to avoid the delay in completion of the project. If the clause is exercised, the cost at such works shall be recovered through the Agency's payments upto the actual cost of the work executed with administrative cost i.e.10.75%. Further penalties at the rate of 10% of the above cost shall be levied to the Agency.

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25.5 Such incidences, execution of clause no. 25.4 if exercised three (3) times for the project, the contractor shall be blacklisted from the participation in the future tenders of MSETCL for further three year.

## 26.0 TERMINATION OF CONTRACT

26.1 The Owner may upon written notice of default by the Contractor, terminate the Contract in the circumstances detailed hereunder:

a) If, in the opinion of the Owner the Contractor fails to make delivery of equipment/ completion of work within the time specified in the Contract agreement or within the extended period of delivery granted by the Owner.

b) If in the opinion of the Owner, the Contractor fails to comply with any of the other provisions of the Contract including technical requirements, statutory provisions etc.

26.2 In the event the Owner terminates the Contract in whole or in part as provided above, the Owner reserves the right to purchase the materials/equipments and get work executed as deemed by the Owner to be similar to the one contracted for, upon such terms and in such manner as the Owner may deem proper and the Contractor shall be liable to the Owner for any additional cost for purchase of such similar materials/equipments or works.

26.3 If the Contract is terminated under the provisions of this clause, the Owner, in addition to any other rights that he may have in terms of the Contract, may require the Contractor to transfer title and deliver to the Owner and in the manner as directed by the Owner,

a) any completed equipment/works.

b) Such partially completed equipments, works, drawing, information and Contract rights as the Contractor has specifically produced or acquired for the performance of such parts of this Contract which has been terminated.

26.4 The Owner shall pay to the Contractor the Contract price for the completed equipment delivered to and accepted at the rates as provided for in the Contract or where no rates are provided for in the Contract, at the rates deemed reasonable by the Owner after deduction by the Owner for the additional expenses incurred by him in getting the balance equipment from agencies other than the Contractor.

26.5 In all such cases where the Contract has been terminated due to Contractor's defaults, the decision of the Owner regarding the reasonability of the price for the parts completed and accepted and for which no rates are available in the Contract shall be final and binding on the Contractor.

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**27.0 REJECTION**

27.1 In the event any of the equipment supplied/work done by the Contractor is found to be defective in material or workmanship or otherwise not in conformity with the requirements of the Contract even after rectification by the Contractor during the guarantee period, the Owner shall have the right to reject part or the whole of the material/work and call upon the Contractor to replace the material/work by a new one at his own expenses. If the Contractor fails to do so the Owner may either replace or rectify such defective equipment/work and charge to the Contractor the excess cost incurred by the Owner for replacement with a 15% overhead expenditure to cover the Owner's cost or terminate the Contract for Contractor's default as provided for in the Contract.

27.2 In the event the Contractor is unable to replace the rejected material within a reasonable time, the Owner reserves the right to acquire the said material/work at a reduced price considered equitable under the circumstances and the decision of the Owner as regards such reduced price shall be binding on the Contractor.

**28.0 DELAYS BY OWNER OR HIS AUTHORISED REPRESENTATIVES**

28.1 In case the Contractor's performance is delayed due to any act of omission on part of the Owner or his authorised representatives, then the Contractor shall be given due extension of time for the completion of the works to the extent such omission on the part of the Owner has caused delay in the Contractor's performance of his work.

28.2 The Contractor desirous of extension of time for completion of work on this ground shall apply in writing to the engineer at least 90 days (ninety days) before the expiry of the stipulated period of completion. Regarding reasonableness or otherwise of the extension of time, the decision of the Engineer shall be final.

**29.0 MODIFICATION & RECTIFICATION**

29.1 The modification, rectification, rework, revamping (in brief, any work done to change the existing state to the desired state) and also fabrication all or any, as are needed due to any change in or deviation from the drawing and design of equipment, operation/maintenance requirement, mismatching, transit damages and other allied works which are not very specifically indicated in the drawings, but are found essential for satisfactory completion of the work, if are required to be done, no extra charges shall be paid to the Contractor.

29.2 For the above work, any material and consumables required will also have to be arranged by the Contractor at his cost.

29.3 All the above, type of work shall preferably be carried out by separate personnel. Diversion of regular working personnel for such work shall not be permissible and no delay or slow progress should be caused due to executing such works. The Contractor shall not be liable for extension in Contract period for carrying out such works.

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**30.0 COMPLETION OF CONTRACT**

30.1 Unless otherwise terminated under the provision of any other relevant clause, this Contract shall be deemed to have been completed at the expiration of the guarantee period as provided for under the clause entitled 'Guarantee' and upon release of last payment to the Contractor by the 'Owner', whichever is later.

**31.0 CO-ORDINATION MEETINGS**

31.1 Co-ordination meetings between the Engineer and the Contractor shall be held from time to time at the discretion of the Engineer, to monitor the work.

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31.2 The Contractor will also be called upon to attend to design co-ordination meetings with the Engineer, other Contractors and consultants of the Owner during the period of Contract. The Contractor shall attend all such meetings at his own cost as and when required and fully co-operate with the Engineer/Owner and other agency involved during these discussions.

**32.0 FORCE MAJEURE**

32.1 The following clauses which substantially affect the performance of the Contract shall only be considered as force majeure conditions.

a) Natural phenomena, including but not limited to floods, droughts, earthquakes and epidemics.

b) Acts of any Government, domestic or foreign, including but not limited to war, declared or undeclared, quarantines, embargoes.

Provided the party affected by the 'Force Majeure' shall within fifteen (15) days from the occurrence of such a clause, notify the other party in writing of such cause with sufficient documentary proof.

32.2 Notwithstanding any provision under clause 32.1, the Owner shall not in any way be liable for non-performance either in whole or in part of any Contract or for any delay in performance thereof in consequence of strikes, shortages of labour or workmen or lockout, breakdown or accident to machinery or accidents of whatever nature, failure on the part of the railways to supply, sufficient wagons to carry essential raw materials etc. and finished products from the stores etc. These causes shall not be treated as 'Force Majeure' but subject to the provision and stipulation made in clause of liquidated damages for late delivery.

32.3 The Contractor or the Owner shall not be liable for delays in performing their respective obligations resulting from any force majeure causes as defined above. The date of completion will be extended by a reasonable time by mutual agreement.

32.4 In case of damage or destruction of any property or equipments belonging to the Contractor due to force majeure causes, the Owner shall not be liable for the same.

32.5 The Owner shall have the right to inform the Contractor not to ship any part of the equipment due to weather or any other reasonable cause and in all such cases, the Contractor shall withhold shipment of such parts without any extra charge for storage for a reasonable time.

**33.0 ARBITRATION**

33.1 The matters to be determined by the Chief Engineer:-

33.2 All disputes and differences of any kind whatsoever arising out of or in connection with the contract, whether during the progress of the work or after its completion and whether before or after the determination of the contract, shall be referred by the contractor to C.E. and the C.E. shall (within 120 days after receipt of the contractor's representation make and notify decisions of all matters to by the contractor in writing.

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33.3 Demand for arbitration:-

In the event of any dispute or difference between the parties hereto as to the construction or operation of this contract are the respective rights and liabilities of the parties on any matters in question, the dispute or difference on any account or as to the withholding by MSETCL of any certificate to which the contractor may claim to be entitled to, or if the C.E. fails to make a decision (within 120 days) then and in any such case, the contractor (after 120 days) but within (180 days) of his presenting his final claim on disputed matter, shall demand in writing that the dispute or difference to be referred to arbitration.

33.4 The demand for arbitration shall specify the matters which are in question are subject of the dispute are difference as also the amount of claim item-wise. Only such dispute (s) or difference (s) in respect of which the demand has been made, together with counter claims are set off, shall be referred to arbitration and other matters shall not be included in the reference.

a) The arbitration proceedings shall be assumed to have commenced from the day, a written and valid demand for arbitration is received by the MSETCL.
b) The claimant shall submit his claim stating the facts supporting the claims along with all relevant documents and the relief or remedy sought against each claim within a period of 30 days from the date of appointment of the Arbitration Tribunal.
c) The MSETCL shall submit its defence statement and counter claim (s), if any, within a period of 60 days of receipt of copy of claims from the Tribunal thereafter unless otherwise extension has been granted by the Tribunal.

33.5 No new claim shall be added during the proceedings by either party. However, a party may amend or suppliment the original claim or defence thereof during the course of arbitration proceedings subject to acceptance by tribunal having due regard to the delay in making it.

33.6 If the contractor(s) does/do not prefer his/their specific and final claims in writing within a period of 90 days of receiving the intimation from the MSETCL, that the final bill is ready for payment, he/they will be deemed to have waived his /their claims and the MSETCL shall be discharged and released of all liabilities under contract in respect of these claims.

33.7 Obligation during pendancy of Arbitration :

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33.7.1 Work under the contract shall unless otherwise directed by the Engineer, continue during the arbitration proceedings and no payments due or payable the MSETCL shall be with held on account of such proceedings, provided, however it shall be open for arbitral tribunal to consider and decide whether or not such works should be continued during arbitration proceedings.

a) In cases where the total value of all claims in question added together does not exceed Rs.1,00,00,000/- (Rupees One Crore) the Arbitral Tribunal shall consist of a Sole Arbitrator who shall be either not below the rank of C.E. serving or retired officer of the Government or equivalent to C.E. or a judicial officer retired not below the rank of Dist. Judge, nominated by the Chairman of the MSETCL in that behalf. The sole Arbitrator shall be appointed within 60 days from the day when a written and valid demand for arbitration is received by the MSETCL.

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b) In cases where the value of the claim exceeds Rs. 1,00,00,000/- (Rupees One Crore) as above, the Arbitral Tribunal shall consist of a panel of 3 serving or retired officers of Govt. not below the rank of C.E./C.A.O. or a judicial officer retired not below the rank of Dist. Judge, as the Arbitrators. For this purpose, the MSETCL will send a panel of more than 3 names of arbitrators who may be either serving or retired Govt. officials, / judicial officer retired not below the rank of Dist. Judge, to the contractor who will be asked to suggest to the Chairman at least 2 names for appointment as contractor's nominee. The Chairman shall appoint at least one of them as contractor's nominee. The Chairman of MSETCL will also appoint the owner's/company nominee either from the panel or from outside the panel. Further above both the arbitrator nominated by the respective parties shall appoint the third arbitrator who shall act as presiding arbitrator. While nominating arbitrators, it will be necessary to ensure that one of them is or has worked in Accounts department.

c) If one or more arbitrators appointed as above refuses to act as arbitrator, withdraws from his office as arbitrator or vacates his/their office/offices or is/are unable or unwilling to perform his functions as arbitrator for any reason whatsoever or dies or in the opinion of the Managing Director fails to act without undue delay, the Managing Director shall appoint new arbitrator/s to act in his/their place in the same manner in which the earlier arbitrator/s had been appointed. Such reconstituted Tribunal, may, at its discretion proceed with the reference from the stage at which it was left by the previous arbitrator(s).

d) The Tribunal shall have powers to call for such evidence by way of affidavits or otherwise as the Arbitral Tribunal shall think proper, and it shall be the duty of the parties hereto to do or cause to be done all such things as may be necessary to enable the Arbitral Tribunal to make the award without any delay.

e) While appointing arbitrator(s) as above, due care shall be taken that he/they is/are not the one/these who had an opportunity to deal with the matters to which the contract relates or who in the course of his / their duties as MSETCL's servant(s) expressed views on all or any of the matters under dispute or differences. The proceedings of the Arbitral Tribunal or the award made by such Tribunal will, however, not be invalid merely for the reason that one or more arbitrator had, in the course of his service, opportunity to deal with the matters to which the contract relates or who in the course of his/their duties expressed views on all or any of the matters under dispute.

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f) Arbitral award shall state item wise, the sum and reasons upon which it is based.

g) A party may apply for corrections of any computational errors, any typographical or clerical errors or any other error of similar nature occurring in the award and interpretation of specific point of award to tribunal within 30 days of receipt of the award.

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h) A party may apply to Tribunal within 30 days of receipt of award to make an additional award as to claims presented in the arbitral proceedings, but omitted from the arbitral award.

i) In case of the Tribunal comprising of three members any ruling or award shall be made by a majority of members of Tribunal. In the absence of such a majority, the views of the Presiding Arbitrator shall prevail.

j) Where the arbitral award is for payment of money, no interest shall be payable on whole or any part of the money for any period till the date on which the award is made.The arbitrator shall have full power to review and/or revise any decision, opinion, directions, certification or valuation of the Engineer in connection with the Contract, and neither party shall be limited in the proceedings before such arbitrators to the evidence or arguments put before the Engineer for the purpose of obtaining the said decision.

k) The cost of the arbitration shall be borne equally by the respective parties. The cost shall inter-alia include fees of the arbitrators as per the rates fixed by the MSETCL from time to time. Provided that the fees payable per arbitrator for claims up to Rs.One Crore, shall not exceed Rs.2000/- per sitting subject to a maximum of Rs.25,000/- and the fees payable per arbitrator for claims over Rs.One Crore, shall not exceed Rs.2000/- per sitting subject to a maximum of Rs.50,000/-. Provided further that the arbitrators who are in service of Govt./MSEB shall draw fees at half of the rates mentioned above.

l) MSETCL shall maintain a list of arbitrators. The Managing Director shall have full powers to delete or add the name of the Arbitrators in the list or to make amendments to the said list as per his discretion.

m) The arbitral proceedings should be completed and the award be finalizedwithin one year from the date of appointment of arbitrators.

n) Subject to the provisions as aforesaid, Arbitration & conciliation Act, 1996 and the rules there under, and any statutory notification thereof shall apply to the arbitration proceedings under this clause.

34.0 **SUSPENSION OF WORK**

The contractor shall, on the written order of the Engineer, suspend the progress of works or any part thereof for such time or times and in such manner as the Engineer may consider necessary and shall, during such suspension, properly protect and secure the work so far as is necessary in the opinion of the Engineer. If such suspension is not due to any default on the part of the Contractor the time for completion of the works shall be extended for a period of corresponding to the duration of the suspension of works.

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## 35.0 TERMINATION OF CONTRACT ON OWNER'S INITIATIVE

35.1 The owner reserves the right to terminate the contract either in part or in full for reasons other than those under clause 'Contractor's Default'. The owner shall in such an event give fifteen (15) days notice in writing to the contractor of his decision to do so.

35.2 The Contractor upon receipt of such notice, shall discontinue the work on the date and time specified in the notice, make all reasonable efforts to obtain cancellation of all orders and Contracts to the extent they are related to the work terminated and upon terms satisfactory to the Owner, stop all further sub-Contracting or purchasing activity related to the work terminated and assist the Owner in maintenance, protection and disposition of the works acquired under the Contract by the Owner.

35.3 In the event of such a termination, the Contractor shall be paid reasonable compensation dictated by the circumstances prevalent at the time of termination.

## 36.0 POWER TO VARY OR OMIT WORK

36.1 No alterations, amendments, omissions, suspensions or variations (hereinafter referred to as "Variation") of the works under the Contract as detailed in the Contract Documents shall be made by the Contractor except as directed in writing by the Engineer, but the engineer shall have full powers subject to the provisions hereinafter contained from time to time during the execution of the Contract, by notice in writing to instruct the Contractor to make such variation without prejudice to the Contract. The Contractor shall carry out such variation and be bound by the same conditions as far as applicable as though the said variations occurred in the Contract documents. If any suggested variation would, in the opinion of the Contractor, if carried out, prevent him from fulfilling any of his obligations or guarantees under the Contract, he shall notify the engineer thereof in writing and the Engineer shall decide forthwith whether or not, the same shall be carried out and if the engineer confirms his instructions, Contractor's obligations and guarantees shall be modified to such an extent as may be mutually agreed. Any agreed difference in cost occasioned by any such variation shall be added to or deducted from the Contract price as the case may be.

36.2 In the event of the Engineer requiring any variation, such reasonable and proper notice shall be given to the Contractor to enable him to make his arrangement accordingly, and in cases where any work done requires to be altered, a reasonable and agreed sum in respect thereof shall be paid to the Contractor.

36.3 In any case in which the Contractor has received instructions from the Engineer as to the requirements of carrying out the altered or additional substituted work which either then or later on will, in the opinion of the Contractor, involve a claim or additional payment, the Contractor shall immediately and in no case later than thirty (30) days after receipt of the instructions, aforesaid and before carrying out the instructions advise the Engineer to that effect. But the engineer shall not become liable for the payment of any charges in respect of any such variations, unless the instructions for the performance of the same are confirmed in writing by the Engineer.

36.4 If any variation in the works results in reduction of Contract price, the parties shall agree in writing as to the extent of any change in the price.

36.5 In all the above cases, in the event of a disagreement as to the reasonableness of the said sum, the decision of the Engineer shall prevail.

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36.6 Notwithstanding anything stated above in this clause, the Engineer shall have the full power to instruct the Contractor, in writing during the execution of the Contract, to vary the quantities of the items or groups of items. The Contractor shall carry out such variations and be bound by the same conditions, as though the said variations occurred in the Contract Documents.

**37.0 ENFORCEMENT OF TERMS**

37.1 The failure of either party to enforce at any time any of the provisions of this Contract or any rights in respect thereto or to exercise any option herein provided shall in no way be construed to be a waiver of such provisions, rights or options or in any way to affect the validity of the Contract. The exercise by either party of any of its rights herein shall not preclude or prejudice either party from exercising the same or any other right it may have under the Contract.

**38.0 ACCESS TO SITE AND WORKS ON SITE**

38.1 The works shall be carried out at such time as the Owner may approve and the Owner shall give the Contractor facilities as brought out in the Contract for carrying out the works.

38.2 In the execution of the works, no persons other than the Contractor or his duly appointed representative, sub-Contractor and workmen, shall be allowed to do work on the site, except with the special permission, in writing, of the Engineer or his representative.

**39.0 LINES AND GRADES**

39.1 All the works shall be performed to the lines, grades and elevations indicated on the drawings. The Contractor shall be responsible to locate and layout the work. Basic horizontal and vertical control points will be established and marked by the Engineer at site at suitable points. These points shall be used as datum for the works under the Contract. The Contractor shall inform the Engineer well in advance of the times and places at which he wishes to do work in the area allotted to him, so that suitable datum points may be established and checked by the Engineer to enable the Contractor to proceed with his work. Any work done without being properly located may be removed and/or dismantled by the Engineer at Contractor's expense.

39.2 If any time during the progress of works any error shall appear or arise in the position, levels, dimension or alignment of any part of the work, the Contractor on being required to do so by the Engineer or Engineer's representative shall at his expense, rectify such error.

39.3 The Contractor shall carefully protect and preserve all bench marks, reference points, pegs and other things used in setting out, locating and layout of the works.

**40.0 CONTRACTOR'S MATERIAL BROUGHT TO SITE**

40.1 The Ownership of Contractor's all goods, tools and plants shall, from the time of their being brought to site, vest in the Owner, and these may be used for the purpose of the works and shall not on any account be removed or taken away by the Contractor from the site without the written permission of the Engineer. The Contractor shall nevertheless be solely liable and responsible for any loss or destruction thereof and damage thereto.

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40.2 The Owner shall have a lien on such goods for any sum or sums which may at any time be due or owing to him by the Contractor, under in respect of or by reasons of the Contract. After giving a fifteen (15) days notice in writing of his intention to do so, the Owner shall be at liberty to sell and dispose of any such goods, in such manner as he shall think fit including public auction or private treaty and to apply the proceeds in or towards the satisfaction of such sum or sums due as aforesaid.

40.3 After the completion of the works, the Contractor shall remove from the site under the direction of the engineer the materials such as construction equipment, erection tools and tackles, etc. with the written permission of the Engineer. If the Contractor fails to remove such materials within fifteen (15) days of issue of a notice by the Engineer to do so, then the Engineer shall have the liberty to dispose of such materials as detailed above and credit the proceeds thereto to the account of the Contractor after deducting reasonable expenses incurred by the Engineer for such disposal.

**41.0 CO-OPERATION WITH OTHER CONTRACTORS AND OWNER**

41.1 The Contractor shall co-operate with all other Contractors or tradesmen of the Owner, who may be performing other works on behalf of the Owner and the workmen who may be employed by the Owner in the vicinity of the works under the Contract. The Contractor shall also so arrange to perform his work as to minimize, to the maximum extent possible, interference with the work of other Contractors and his workmen. Any injury or damage that may be sustained by the employees of the other Contractors and the Owner, due to the Contractor's work shall promptly be made good at his own expense. The Engineer shall determine the resolution for any difference or conflict that may arise between the Contractor and other Contractors or between the Contractor and the workmen of the Owner in regard to their work. If the works of Contractor are delayed because of any acts/omissions on the part of another Contractor, the Contractor shall have no claim against the Owner other than an extension of time for completing his works.

41.2 The Engineer shall be notified promptly by the Contractor of any defects in other Contractor's works that could affect the Contractor's works. The Engineer shall determine the corrective measures, if any, required to rectify this situation after inspection of the works and such decisions by the Engineer shall be binding on the Contractor.

**42.0 WORK TO BE OPEN TO INSPCTION AND CONTRACTOR OR RESPONSIBLE AGENT TO BE PRESENT**

All works under or in course of execution or executed in pursuance of the Contract shall at all times be open to the inspection and supervision of the Engineer and the Contractor shall at all times during the usual working hours and at all other times at which reasonable notice of the intention of the Engineer to visit the works shall have been given to the Contractor, either himself be present to receive orders and instructions or have a responsible agent duly accredited in writing, present for that purpose. Orders given to the Contractor's duly authorised agent shall be considered to have the same force and effect as if those had been given to the Contractor himself.

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**43.0 NOTICE TO BE GIVEN BEFORE WORK IS COVERED UP**

The Contractor shall give not less than seven days notice in writing to the Engineer before covering up or otherwise placing beyond the reach of measurement any work in order that the same may be measured and correct dimensions thereof taken. In case the Contractor covers up the work without such notice, the Engineer reserves the right to get the same uncovered at the risk and expense of the Contractor.

**44.0 REMEDY OF DEFECTS**

If at any time before the works are finally taken over by the Owner, the engineer shall:-

a) decide that any work done or plant supplied or materials used by the Contractor or any sub-Contractor is/are defective or not in accordance with the Contract or that the works or any portion thereof are defective or do not fulfill the requirements of the Contract (all such matters being hereinafter in this clause called 'defects') and

b) as soon as reasonably practicable give to the Contractor notice in writing of the said decision specifying particulars of the defects alleged and/or where the same are alleged to exist or to have occurred and

c) so far as may be necessary, place the works at the Contractor's disposal.

then the Contractor shall with all speed and at his own expense make good the defects so specified. In case the Contractor shall fail to do so, the Owner may take, at the cost of the Contractor such steps as may in all circumstances be reasonable to make good such defects. All plant provided by the Contractor to replace defective plant shall comply with the Contract. The Contractor shall be entitled to remove and retain all plant that the Owner may have replaced at the Contractor's cost. In case of failure of the Contractor to remove the replaced parts within a reasonable time, the Owner, reserves the right to take further, action for its disposal in any manner deemed fit. Such action shall in no way limit the liability and responsibility of the Contractor for removal of such parts. However, the Owner shall give reasonable time to the Contractor before such action is taken.

**45.0 EMPLOYMENT OF LABOUR**

45.1 The Contractor will be expected to employ on the work only his regular skilled employees with experience of this particular work. No person below the age of eighteen years shall be employed.

45.2 All travelling expenses including provisions of all necessary transport to and from site, lodging allowances and other payments to the Contractor's employees shall be the sole responsibility of the Contractor. The Contractor shall arrange, at his own cost, the accommodation for his labour and other supervisory staff.

45.3 The Contractor's employees shall wear identification badges while on work at site.

45.4 In case the Owner becomes liable to pay any wages or dues to the labour or to any Government agency under any of the provisions of the **Minimum Wages Act, Workmen Compensation Act, Contract Labour Regulation Abolition Act** or any other law due to act or omission of the Contractor, the Owner may make such payments and shall recover the same from the Contractor's bill.

45.5 As far as possible, unskilled workers shall be engaged from the local area in which the work is being executed.

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45.6 The Contractor shall at all times during the continuance of this Contract, in all his dealings with local labour for the time being employed on or in connection with the work, have due regard to all local festivals and religions and other customs. The Contractor will fully comply with all the provisions of labour, civil and other state and central laws, statutory rules, regulations etc. In case of his non-compliance with any provision under the laws, the Contractor will indemnify the Owner from and against all liabilities, damages, penalties, demand etc.

45.7 The Contractor, in the event of his engaging 20 or more workmen at the Project, shall obtain independent licence under the Contract Labour (Regulation and Abolition) Act, from the concerned State Labour Authorities.

45.8 No idle labour charges will be admissible in the event of any stoppage caused in the work resulting in Contractor's labour being rendered idle due to any cause at any time.

45.9 The Contractor shall fulfill all his obligations in respect of accommodation including proper medical facilities for the personnel employed by him.

45.10 The Contractor shall submit to the Engineer, on the first day or every month, a man-hour schedule for the month indicating the number of manpower, skilled or otherwise proposed to be employed by him for the works. Should the Engineer be of the opinion that the list needs modification to ensure completion of the scheduled work in time and in a professional manner, the Contractor shall, at his own expense, rearrange the manpower to be employed at site.

**46.0 DISCIPLINE OF WORKMEN**

The Contractor shall adhere to the disciplinary procedure set by the Engineer in respect of his employees and workmen at site. The Engineer shall be at liberty to object to the presence of any representative or employee of the Contractor who in the opinion of the Engineer has misconducted himself or is incompetent or negligent or otherwise undesirable. The Contractor shall forthwith remove such a person from site and provide in his place a competent replacement.

**47.0 DISORDERLY CONDUCT, ETC.**

The Contractor shall at all time take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst his employees and for the preservation of peace and protection of persons and property in the neighbourhood of the works.

**48.0 CLEANLINES**

48.1 The Contractor shall be responsible for keeping the entire area allotted to him clean and free from rubbish, debris etc. during the period of Contract. The Contractor shall employ enough number of special personnel to thoroughly clean his work area atleast once in a day. All such rubbish and scrap material shall be stacked or disposed of in a place to be identified by the Engineer. Materials and stores shall be so arranged to permit easy cleaning of the area. In areas where equipment might drip oil and cause damage to the floor surface, a suitable protective cover of a flame resistant, oil proof sheet shall be provided to protect the floor from such damage.

48.2 Similarly, the labour colony, the offices and the residential area of the Contractor's employees and workmen shall be kept clean and best to the entire satisfaction of the Engineer. Proper sanitary arrangements shall be provided by the Contractor, in the work areas, office and residential areas of the Contractor.

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48.3 On the completion of the works, the Contractor shall clear away and remove from the site all Contractor's equipments, surplus materials, rubbish and temporary works of every kind and leave the whole of the site and works clean and in a workman like condition to the satisfaction of the Engineer.

**49.0 FIRST AID**

The Contractor shall provide necessary first aid facilities for all his employees, representatives and workmen working at the site. Enough number of Contractor's personnel shall be trained in administering first aid.

50.0 SECURITY

The Contractor shall have total responsibility for all equipments and materials in his custody stored, loose, semi-assembled and/or erected by him at site. The Contractor shall make suitable security arrangements to ensure the protection of all materials, equipment and works from theft, fire, pilferage and any other damages and loss. All materials of the Contractor shall enter and leave the work site only with the written permission of the Engineer in the prescribed manner. It shall be the responsibility of the Contractor to arrange for security till the works are finally taken over by the Engineer.

**51.0 UNFAVOURABLE WORKING CONDITIONS**

The Contractor shall confine all his field operations to those works which can be performed without subjecting the equipment and materials to adverse effects, during inclement weather conditions like monsoon, storms, etc. and during other unfavourable construction conditions. No field activities shall be performed by the Contractor under conditions which might adversely affect the quality and efficiency thereof, unless special precautions or measures are taken by the Contractor in a proper and satisfactory manner in the performance of such works and with the concurrence of the engineer. Such unfavourable construction conditions will in no way relieve the Contractor of his responsibility to perform the works as per the Schedule.

**52.0 WORKS & SAFETY REGULATIONS**

52.1 The Contractor shall ensure the safety of all the workmen, materials and equipment either belonging to him or to others working at site.

52.2 The Contractor will notify the engineer of his intention to bring on to site any equipment or any container, with liquid or gaseous fuel or other substance which may create hazard. The Engineer shall have the right to prescribe the conditions under which such equipment or container may be handled and used during the performance of the works and the Contractor shall strictly adhere to such instructions. The Engineer shall have the right to inspect any construction plant and to forbid its use, if in his opinion it is unsafe. No claim due to such prohibition shall be entertained by the Owner.

52.3 The Contractor shall be responsible for provision of all safety notices and safety equipments required both by the relevant legislations and the Engineer as he may deem necessary.

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52.4 All safety rules and codes applied by the Owner at site shall be observed by the Contractor without exception. The Contractor shall be responsible for the safety of the equipment/material and work to be performed by him. The Contractor shall also take such additional precautions as may be indicated from time to time by the engineer with a view to prevent pilferage, accidents, fire hazards and due precautions shall be taken against fire hazards and atmospheric conditions. Suitable number of clerical staff, watch & ward, store keepers to take care of equipment, materials and construction tools and tackles shall be posted at site by the Contractor till the completion of the work under this Contract.

52.5 The Contractor shall arrange for such safety devices as are necessary for such type of work and carry out the requisite tests of handling equipment, lifting tools, tackles, etc. as per prescribed standards and practices.

**53.0 ELECTRICAL SAFETY REGULATIONS**

53.1 No work shall be carried out on any live equipment. The equipment must be made safe by the Engineer and a permit to work issued before any work is carried out.

53.2 The Contractor shall employ the necessary number of qualified, full-time electricians to maintain his temporary electrical installation, wherever necessary.

**54.0 INSURANCE**

54.1 The Contractor at his cost shall arrange, secure and maintain comprehensive insurance as may be necessary and for all such amounts to protect his interests and the interest of the Owner, against all risks. Any loss or damage to the equipment, during supply, handling, transporting, storage and erection, till such time the plant is taken over by the Owner shall be to the account of the Contractor. The Contractor shall be responsible for lodging of all claims and make good for the damage or loss by way of repairs and/or replacement of the portion of the works damaged or lost. The transfer of title shall not in any way relieve the Contractor of the above responsibilities during the period of the Contract.

All the insurance cover shall be procured by the contractor from Director of Insurance, Govt. Insurance Fund, Govt. of Maharashtra, MHADA Bhavan, 264, First Floor, Bandra (East), Mumbai- 400 051 under direct method or from United India Insurance Co. Ltd. (UIICL) on co-insurance cum servicing basis in the ratio of 40:60 (i.e. Govt. Insurance Fund @ 40% and UIICL @ 60%) under indirect method through their following designated offices :

1) Mumbai – D.O. Jainson Plaza, 201, S.V.Road, Malad (W), Mumbai-400 064 , phone no. 022-2888 6930,

2) Pune- D.O.-II, Gayatri Sadan, 2060, Vijaynagar Colony, Sadashiv Peth, Pune-411 030, phone no. 020-2432 1003,

3) Vashi- D.O., Shanti Centre, Room no. 5/6/12, Sector-17, Vashi- 400 703,phone no. 022- 2765 3215,

4) Nashik – D.O., Soubhagya Chambers, Bitco Point, Nashik Road, Nashik- 422 101, phone no. 0253-246 2237,

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5) Karad- B.O., 50, Super Market, Near Mohite Hospital, Shanivar Peth, Karad, phone no. 02164-233 126 ,

6) Aurangabad – D.O.-I, H.No:5/5/76. V.P.No:506, V.P.Chowk, Aurangabad-431 005, phone no. 0240- 233 4176 and

7) Nagpur- D.O.-III, Medical College Square, Opp. Mohta Petrol Pump, Nagpur-440 009 , phone no. 071?- 274 4691.

The Nodal Officer, MSETCL should ensure that all the insurance policies are obtained as above and copy of it is submitted to him accordingly. As per the directives of Govt. of Maharashtra letter no. NMP1009/sankra 39/NV 26, dtd. 16.03.2009, it is to be noted that in case the aforesaid directives are not followed by the contractor , the concerned authority of MSETCL shall recover 1% of contract value and deposit same with Director of Insurance , Govt. of Maharashtra , Mumbai by cheque/DD with complete details of contract.

**55.0 INDEMNIFICATION OF OWNER**

The Contractor shall insure all his personnel, tools and plants, etc. and shall also take a third party liability cover to indemnify the Owner of all liabilities which may come up due to any act or omission on the part of Contractor and cause harm/damage to other Contractor/representatives of Owner or all or anybody rendering service to the Owner or is connected with Owner's work in any manner whatsoever.

The Contractor shall necessarily indemnify the Owner in all these respects and the indemnification and insurance policy shall be to the approval of Engineer.

The recommended value for the third party insurance policy to be taken by the Contractor are as follows:

a) Maximum liability for injury to any person ... Rs.5,00,000/-
b) Maximum liability for any one accident ... Rs.10,00,000/-
d) Maximum liability for total number of accidents during the Contract period ... Rs.50,00,000/-

If the total liability exceeds Rs.10/- lakhs prior to completion of the work then the Contractor shall arrange to renew the policy for the same amount to cover the balance completion period. However, irrespective of the value of the policy, the Contractor shall indemnify the Owner for all liabilities.

**56.0 WORKMEN'S COMPENSATION INSURANCE**

This insurance shall protect the Contractor against all claims applicable under the Workmen's compensation Act 1948 or any amendment thereof. This policy shall also cover the Contractor against claims for injury, disability, disease or death of his or his sub-Contractor's employees, which for any reason are not covered under the Workmen's compensation Act 1948. The liabilities shall not be less than Workmen's Compensation as per statutory provisions.

**COMPREHENSIVE AUTOMOBILE INSURANCE**

This insurance shall in such a form to protect the Contractor against all claims for injuries, disabilities, disease and death to members of public including the Owner's men and damage to the property of others arising from the use of motor vehicle during, on or off the site operations, irrespective o the Ownership of such vehicles.

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**58.0 COMPREHENSIVE GENERAL LIABILITY INSURANCE**

58.1 This insurance shall protect the Contractor against all claims arising from injuries, disabilities, disease or death of members of public or damage to property of others, due to any act or omission on the part of the Contractor, his agents, his employees, his representatives and sub-Contractors or from riots, strikes and civil commotion. This insurance shall also cover all the liabilities of the Contractor arising out of the clause entitled "Defence of Suits".

58.2 The hazards to be covered will pertain to all the works which and areas the Contractor, his sub-Contractors, his agents and his employees have to perform work pursuant to the Contract.

58.3 The above are only illustrative list of insurance covers normally required and it will be the responsibility of the Contractor to maintain all necessary insurance coverage to the extent both in time and amount to take care of all his liabilities either direct or indirect.

**59.0 GUARANTEE/WARRANTY**

59.1 The Contractor shall warranty that the equipments/materials will be new and in accordance with the Contract documents and will be free from defects in material and workmanship for a period of **two years** from the date of **final acceptance** of the works by the Owner. Any defect developed due to defective materials and/or workmanship during testing and commissioning of the equipments or during the guarantee period of two years from the date of final acceptance of work by the Owner, shall be rectified or made good by the Contractor at his own cost. The Contractor's liability shall be limited to repair/replacement of any defective part in the equipment of his own manufacture or those of his sub-Contractor and arising from faulty, design, materials and/or workmanship. All costs for the repair and/or replacement of defective parts such as dismantling, re-erection, supply, transportation, etc. shall be to the account of the Contractor.

59.2 No repairs or replacement shall normally be carried out by the Engineer when the plant is under supervision of Contractor's supervisory engineers. In the event of emergency, where in the judgement of the Engineer, delay would cause serious loss or damage, repairs or adjustment may be made by the engineer or a third party chosen by the engineer without advance notice to the Contractor and the cost of such work shall be paid by the Contractor. In the event the cost of such action is taken by the engineer, the Contractor will be notified promptly and he shall assist wherever possible in making the necessary corrections. This shall not relieve the Contractor's liability under the terms and conditions of the Contract.

59.3 If it becomes necessary for the Contractor to replace or renew any defective portion of the plant under this clause, the provision of this clause shall apply to the portion of the plant so replaced or renewed until the expiry of two year from the date of such replacement of renewal.

59.4 The acceptance of the works by the engineer shall in no way relieve the Contractor of his obligation under this clause.

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59.5 If at any time during the guarantee period, it shall appear to the engineer that any work has been executed with unsound, imperfect or unskillful workmanship or with materials of inferior quality or that any materials or articles provided by him for the execution of the work unsound or of a quality inferior to that Contracted for or are otherwise not in accordance with the Contract, it shall be lawful for engineer, notwithstanding the fact that the work or materials or articles complained of may have been inadvertently passed, certified and paid for the Contractor shall be found forthwith to rectify, to remove and reconstruct the work so specified in whole or in part, as the case may require or, if so required, to remove the materials or articles so specified and provide other proper and suitable materials or articles at his own charge and cost.

59.6 In the event of the Contractor failing to remove the defect within the time specified by the engineer, the Owner may proceed to undertake the removal of such defect at the Contractor's risk and expense, without prejudice to any other rights and recover the same from performance bank guarantee/other dues.

59.7 The Contractor shall promptly provide adequate staff at site during the guarantee period to attend to defects, if any.

**60.0 BANKRUPTCY**

If the Contractor shall become bankrupt or insolvent, or have a receiving order made against him, or compound with his creditors, or being a company or corporation commence to the wound up, not being a member's voluntary winding up for the purpose of amalgamation or reconstruction, or carry on its business under a receiver for the benefit of its creditors or any of them, the Owner shall be at liberty (a) to terminate the Contract forthwith by notice in writing to the Contractor or to the receiver or liquidator or to any person the option of carrying out the Contract subject to his providing a guarantee for the due and faithful performance of the Contract upto an amount to be agreed.

**61.0 NOTICES**

61.1 Any notice to be given to the Contractor under the terms of the Contract shall be served by sending the same by registered post or leaving the same at the Contractor's principal place of business (or in the event of the Contractor being a company to or at its registered office).

61.2 Any notice to be given to the Owner under the terms of the Contract shall be served by sending the same by registered post at the owner's address.

**62.0 DETAILS CONFIDENTIAL**

The Contractor shall treat the Contract and everything contained therein as private and confidential. In particular the Contractor shall not publish any information, drawing or photograph concerning the works and shall not use the sites for the purpose of advertising except with the written consent of the Engineer and subject to such conditions as he may prescribe.

**63.0 BID SECURITY DEPOSIT (BSD)**

Notwithstanding whether the Bidder has already deposited a bank guarantee with the Owner, an amount of **1% of the estimated cost**, shall be paid as BSD alongwith the offer in the form of Bank Guarantee, as per proforma enclosed.

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63.2 The BSD as above shall also be submitted by those bidders who are public Sector Undertaking or belong to Small Scale Industries. No exemption on these grounds can be considered and all undertakings of the State Govt., Govt. of India or local bodies including those classified as Small Scale Industries shall furnish BSD as specified.

63.3 The BSD will be valid for a period of **8 months** from the date of opening of Techno-Commercial bid.

**64.0 CONTRACT PRICE, TAXES & DUTIES**

64.1 The Contract price shall amongst others, include the cost towards Design, Engineering, Supply, Inspection, Transportation, receipt including loading/unloading and Storage at site, erection, testing and commissioning of the works covered under the specification for package as agreed upto date. The cost towards inspection at factory includes cost of travel including that of by air, Hotel accommodation,etc for owners representative.

64.2 The Contract price shall include all taxes against C form and duties inclusive of corporate tax, Income Tax, Sales Tax, Vat, Excise duty on own manufactured items as well as boughtout items, other taxes, fees, Cesses, Octroi, deposits etc. whatsoever, and the Owner shall not be liable for payment for any such taxes or duties. The cost shall also include the cost of charges for obtaining any permit or license etc.

64.3 The Contract price shall also include the custom duty on any imported components and on finished equipment, if any, required for incorporation into the works. The responsibility for obtaining the import license shall rest with the Contractor.

**65.0 PRICE VARIATION**

65.1 Bids for all the packages having completion schedule more than 6 months will be on variable price basis.

65.2 Bids for all the packages having completion schedule less than 6 months will be on firm price basis.

65.3 For the purpose of calculation of price adjustment for Lines & substation:

- The indices for various materials shall be considered as published by IEEMA. The indices published by IEEMA on the 1st working day of the calendar month, one month prior to the date of opening of bid will be the base indices for calculation of PV.
- DELETED.
- The formula for calculation of price variation will be as per IEEMA. For supply of materials (as specified under clause 65.5 below) and civil services (Erection) latest revision of IEEMA. P.V. formula will be applicable.

65.4 The Owner shall not be liable for any additional cost incurred by Contractor on account of price variation beyond the time stipulated in the Contract for completion of works on account of default by Contractor.

65.5 Components for which PV is applicable:

(i) Structural Steel and ACSR conductor

(ii) Civil and Erection works

65.6 If interest free advance is paid for supply of material, P.V. on amount equivalent to value of advance payment will not be considered on applicable items for supply. The price variation will be evaluated as per recent PV formula specified by IEEMA.

65.7 The PV formula for calculation of price variation for the items to which PV is applicable are enclosed separately.

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65.8 In case of non completion of activities related to **Supply & ETC works** within the scheduled date, if the price adjustment calculated for the period beyond the scheduled date is positive, no payment against the same shall be allowed, while if the figure is negative, the price adjustment will be applicable.

**66.0 LIQUIDATED DAMAGES**

66.1 If the Contractor fails to complete all the works within the time frame stipulated as completion period or within any extension of time granted by the Owner, the Owner shall levy liquidated damages for breach of Contract without prejudice to any other rights and/or remedies provided for the Contract.

66.2 The liquidated damages shall be levied at ½% (half percent) of the total Contract price per week of delay subject to maximum of **10%** (Ten percent) of the **Contract price** for the entire scope of work delay. The Contract may be terminated by the Owner and the balance work shall be completed by the Owner at the risk and cost of the Contractor in case the progress is not to the satisfaction of the owner.

66.3 In the event the contract being divided into sections such as Supply of materials & equipments, Civil and Erection, Testing & Commissioning, the provision for liquidated damages shall be applicable for the total project irrespective of the divisible contract.

**67.0 VALIDITY OF THE OFFER**

67.1 Validity of the offer should be for a period of 6 months from the due date of submission of Techno-Commercial Bid.

**68.0** The bidder should submit one copy of offer complete in all respects before submission of Techno-Commercial bid.

**69.0** The offers not conforming to our clauses regarding (1) B.S.D. (2) Performance (3) Price break-up of taxes and duties in the prescribes proforma, (4) Terms of payment (5) liquidated damages (6) Force majeure and (7) validity are liable to be rejected.

**70.0 POLICY FOR BIDS UNDER CONSIDERATION**

70.1 The bids shall be deemed to be under consideration immediately after those are opened and until such time official intimation of award/rejection is made by the Owner to the bidders. While the bids are under consideration, bidders and/or their representatives or other interested parties are advised to refrain from contacting by any means, the Owner and/or his employees/representatives on matters related to the bid under consideration. The Owner if necessary, shall obtain clarifications on the bid by requesting for such information from any or all the bidders in writing as may be necessary.

**71.0 ACCEPTANCE OF BIDS**

The Owner does not bind himself to accept the lowest or any bid neither will any reason be assigned for the rejection of any bid or part of the bid. It is also not binding on the Owner to disclose any analysis report on bids.

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**72.0 WITHDRAWAL OF INVITATION TO BID**

While the Owner has floated this public tender and has requested bidders to submit their proposals, the Owner shall always be at liberty to withdraw this invitation to bid at any time before its acceptance.

**73.0 REPRESENTATIVE/AGENT OF BIDDER**

73.1 All the bidders are requested to mention the name of their authorised representative/agent, if any, with full address in the offer.

73.2 In case the representative/agent is changed during the course of execution of the Contract, such changes shall be notified by the Contractor, failing which, the Owner shall not accept any responsibility.

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## SECTION – III
## INSTRUCTIONS TO BIDDERS

**1.0 GENERAL INSTRUCTIONS**

1.1 Owner invites bids in respect of work to be done as set forth in the accompanying specifications. All bids are required to be prepared and submitted in accordance with the instructions, set forth hereinafter.

1.2 Owner reserves the right to accept any bid or reject any or all bids or cancel/ withdraw invitation to Bid without assigning any reason for such decision. Such decision of the Owner shall not be subject to question by any bidder and Owner shall bear no liability whatsoever for such a decision.

1.3 The new bidders are requested to complete the contractor registrations with MSETCL as per the procedure prior to the date of submission of the tender documents. The bids of only registered main/ lead bidders will be entertained.

**2.0 COST OF BIDDING**

All the costs and expenses incidental to preparation of the bid, pre-award discussions, technical and other presentations including any demonstrations, etc. shall be to the account of the Bidder and Owner shall bear no liability whatsoever towards such costs and expenses regardless of the conduct or outcome of the bidding process.

**3.0 UNDERSTANDING OF BID DOCUMENT**

3.1 The bidder is expected to examine all instructions, terms and conditions, forms and specifications in the Bid Document and fully inform himself as to all the conditions and matters which may in any way affect the works or the cost thereof.

3.2 Further, failure to furnish all information required by the Bid Document or submission of a bid not substantially responsive to the Bid Document in every respect will be at the Bidder's risk and may result in the rejection of his bid.

**4.0 AMENDMENT OF BIDDING DOCUMENTS**

4.1 At any time prior to the deadline for submission of bids, the Owner may, for any reason, whether at his own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding documents by amendment.

4.2 The amendment will be notified on website www.mahatransco.in and MSETCL's SRM e-tendering website https://srmetender.mahatransco.in only.

4.3 In order to allow prospective bidders reasonable time in which to take the amendment into account in preparing their bids, the Owner may, at his discretion, extend the deadline for the submission of bids.

**5.0 DOCUMENTS COMPRISING THE BID**

a) Bid Security form duly filled in completely on Stamp Paper (EMD BG)
b) All the schedules including guaranteed technical particulars, and deviation schedules.
c) Complete Bid forms and price schedule .
d) Schedule D of price Break-up of taxes and duties.
e) Copy of receipt/Transaction ID NO. & date for purchase of Bid Documents
f) Documentary Proof of meeting the Qualifying Requirements
g) Type test report of materials / Equipments
h) Joint venture agreement (in case of Joint venture)
i) Power of Attorney of authorized person Signing the Bid Documents/ contract

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agreement.

j) Bar Chart Indicating the Tentative schedule of Activities for Each line In the Package.

k) Under taking Declaring **(along with Techno commercial bid)** that he has quoted all inclusive rates including all taxes, Duties, Levies, Octori etc, and has furnished break-up of taxes and duties in the Prescribed Proforma along-with price bid. Failure to submit this undertaking the offer would be rejected.

l) Complete details regarding Financial, Technical and organisational capability/ structure/ Location etc. of the bidder shall be submitted for the assessment of the Owner. Only relevant information is to be furnished

**6.0 BID PRICES AND CURRENCIES**

6.1 The Bidders shall quote the prices inclusive of all duties & taxes in the Prescribed price schedule. Bidders quoting a system of pricing other than so specified that will be rejected. The prices shall be quoted for items given in Price Schedule. The same shall only be considered for evaluation of the bid.

6.2 The bidders shall indicate the bid price in Indian Rupees only.

**7.0 SIGNING OF BIDS**

7.1 The Bid must contain the name and place of business of the person or persons making the bid and must be signed and sealed by the Bidder with his usual signature. The names of all persons signing should also be typed or printed below the signature. All pages of bid drawings and other documents shall be initialed at the lower right hand corner with ink only and signed where required by the bidder.

7.2 Bid by a partnership firm must be furnished with full names of all partners and be signed with the partnership name, followed by the signature and designation(s) of the authorised partner(s) or other authorised representative(s).

7.3 Bid(s) by corporation/Company must be signed with the legal name of the Corporation/Company and by the President, Managing Director, Secretary or other person or persons authorised to bid on behalf of such Corporation/Company in the matter.

7.4 A bid by a person who affixes to his signature the word "President", "Managing Director", "Secretary", "Agent" or other designation without disclosing the details concerning the principal on whose authority he is signing the bid, will be rejected.

7.5 Satisfactory evidence of authority of the person(s) signing on behalf of the Bidder shall invariably be furnished with the bid.

7.6 The Bidder's name stated on the proposal shall be the exact legal name of the firm.

7.7 Erasures or other changes in the Bid including the proposal documents shall be initialed by the person(s) signing the bid.

7.8 Bids not conforming to the above requirements of signing may be disqualified.

**8.0 INFORMATION REQUIRED WITH THE BID:**

8.1 Bidder shall submit complete information as required under the relevant schedules of the accompanying bid forms and price schedules.

8.2 In case the information contained in the bid is in contradiction with the requirements of the specification, the specification requirements will govern, unless otherwise brought out clearly in the schedule of deviations.

8.3 If the bidder deliberately gives wrong information in his bid to create circumstances for the acceptance of his bid, the Owner reserves the right to reject such bid and/or cancel the order if placed.

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8.4 Bid submitted shall be for the complete scope of work as envisaged in the owner's specification. Bid submitted for partial scope of work will not be acceptable.

**9.0 SUBMISSION OF BIDS:**

9.1 The bidder should submit one copy of bid documents in CD/DVD form along with EMD BG in physical form except Price Bid before last date of submission.

9.2 The above said CD/DVD & EMD BG must be submitted by the bidder in sealed envelope duly super scribing the name of the Bidder and his address and shall be addressed to:

Chief Engineer (Design Contracts & Monitoring),
Maharashtra State Electricity Transmission Co. Ltd.
5th Floor, Prakashganga,
Plot No. C-19, E-Block,
Bandra-Kurla Complex, Bandra (East),
Mumbai-400051.(INDIA)

9.3 The Owner reserves the right to reject any bid which is not submitted in accordance with the instructions stipulated above.

9.4 The bidder has the option of sending his sealed envelope of CD/DVD & EMD BG by registered post or submitting the same in person so as to reach the owner at the designated address by the time and date stipulated by the owner for receipt of bids. The owner shall not be responsible for any delay in receipt of same.

9.5 The Owner may, at his discretion, extend the dead line for submission of bids by amending bidding documents in which case all rights and obligations of the Owner and bidders subject to the previous dead line will thereafter be subjected to the dead line as extended.

9.6 Any bid received by the Owner after the deadline for submission of bids prescribed by the Owner in clause 2.5 of Section – I of this specification will be rejected and/or returned unopened to the Bidder.

9.7 The Bidder may modify or withdraw his bids after the bid's submission, provided that written notice of the modification or withdrawal is received by the Owner prior to the deadline prescribed for submission of bids.

9.8 The Bidder's modification or withdrawal notice shall be prepared, sealed, marked and despatched in accordance with the provisions of clause 9.0 through 9.2 above. A withdrawal notice may also be sent by telex or cable followed by a signed confirmation copy, post marked not later than the deadline for submission of bid.

9.9 No bid may be modified subsequent to the deadline for submission of bids.

9.10 No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the proforma Bank Guarantee for Bid Security. Withdrawal of a bid during this interval may result in the Bidder's forfeiture of its bid guarantee.

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**10.0 CONTACTING THE OWNER:**

Bids shall be deemed to be under consideration immediately, after they are opened and until such time official intimation of award/rejection is made by the Owner to the Bidders. While the bids are under consideration, Bidders and/or their representatives or other interested parties are advised to refrain from contacting by any means, the Owner and/or his employees/representatives on matters related to the

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bids under consideration. The Owner, if necessary, will obtain clarifications on the bids by requesting for such information from any or all the bidders either in writing or through personal contact as may be necessary. Bidders will not be permitted to change the substance of the bids after the bids have been opened.

**11.0 MODE OF AWARD OF CONTRACT**

11.1 For operational convenience, the contract shall be awarded to the successful bidder, on " Divisible Basis" separately for,

(a) For Material Supply

(b) Services (Erection, Testing and commissioning).

11.2 In view of the Divisible nature of the contract, the relevant forms (Form 'C)' shall be issued to the successful bidder.

**12.0 Evaluation Criteria**

12.1 The bids shall be evaluated on the basis of total price including all the taxes, duties and levies as quoted for the package.

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MAHATRANSCO
Maharashtra State Electricity Transmission Co. Ltd.

# MAHARASHTRA STATE ELECTRICITY TRANSMISSION COMPANY LIMITED

(CIN No.U40109MH2005SGC153646)

## RFx No. 6000000253

SRM e-TENDER. No. T-1718 /MSETCL/CO/DCM/D&T/ TKC-Lines

SPECIFICATION No. MSETCL/CO/ D,C&M/D&T /2017-18/TKC-L

**Construction of LILO on 220kV Kolshet- Wada &220kV LILO on Padghe-Wada line for 400kV Kudus Substation(Common M/C Line)**
**(Route Length – 7 kms)**

UNDER VASHI ZONE ON TURNKEY BASIS

## BOOK - II

## TECHNICAL SPECIFICATION & PRICE SCHEDULES

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BOOK-I : General Terms and Conditions

BOOK-II : Technical specification & Price Schedules

Tender Fee Rs. 25,000/- + MVAT(@6%) Extra

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## SECTION I

# TECHNICAL SPECIFICATION FOR TRANSMISSION LINE

1.0 **General**

This Section details about the specifications for construction of EHV Transmission Lines.

2.0 **Scope of work for EHV lines**

2.1 The scope of work for the EHV Line will be as under:

a) Preliminary Survey, Detailed survey and Check survey of line.

b) Fabrication and supply of towers as per owner supplied tower designs with required extensions, design of special towers, (If required) modification/strengthening of tower extensions, (if required) supply of Bolts & Nuts, Conductors, Earth-wires, zindulstors, Insulator hardwares, accessories for conductor & ground wire and tower accessories including earthing sets, number plates, circuit plates, bird guards, anti climbing devices and all other material required for completion of the line.

b) Clearing of site, casting of tower foundations, with supply of required sand cement, steel, metal, water etc stub setting, erection of complete towers with extensions and providing all accessories, hoisting of insulators, stringing of conductor and earthwire, fitting of line hardwares, tower accessories etc. and all other material required for completion of line along with tree cutting as per requirement. The cost of cutting the trees, stacking of cut trees, clearing debris and transportation of cut trees (if required) shall be borne by the contractor.

c) Construction, Testing and commissioning of the line.

d) Design of Foundations for special towers (If required) and also for normal towers, if necessary.

3.0 **Material to be supplied by the Contractor**

All materials required to complete the line works in all respects shall be arranged by the contractor at his cost. The material to be supplied shall meet the following requirements:

3.1 **Tower**

Technical details for 220KV, 132KV and Special towers are given in **Annexure - 1.**

3.2 **Insulator hardware and conductor accessories**

3.2.1 The insulator hardwares shall be suitable for 0.2 ACSR Panther/0.4 ACSR Zebra conductor and disc insulators of EMS ratings 70 KN for suspension location and 120 KN for tension location and shall be in line with the parameters listed in **Annexure II** and generally as per the drawings enclosed and relevant standards listed in this specification.

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3.2.2 The conductor accessories shall be suitable for 0.2 ACSR Panther/0.4 ACSR zebra conductor and earthwire accessories shall be suitable for 7/3.15 mm size G.S. earthwire and shall be in line with the parameters listed in **Annexure-III** as well as standards listed elsewhere in this specification.

3.3 Insulators

The 70 KN & 120 KN normal / antifog porcelain disc insulators or porcelain long rod insulators shall be in line with the parameters listed in Annexure –VII and as per relevant standards listed elsewhere in the specification.

3.4 **Conductor and Earth-wire**

Size of conductor required for the line:

0.2 ACSR Panther( for 132 KV) / 0.4 ACSR zebra conductor (for 220 kV) line.

Size of earthwire required for the line:

7/3.15 mm G.S. wire

Aluminium strands of ACSR shall be manufactured from electrolytic grade aluminium rods suitably hard-drawn on wire drawing machines.

Re-inforcing steel wire (galvanized) of ACSR shall be drawn from high carbon steel rods produced by any of the following processes.

a) Acidic or open heat process.

b) Electric furnace process or basic oxygen process.

No joints shall be permitted in the Aluminium wires in the outermost layer of ACSR. Similarly, no joints shall be permitted in the galvanized steel wire except those in the base rod or wire before final drawings.

The ACSR Conductor and G.S. earthwire shall conform to technical specification contained in ANNEXURE - VIII and IX respectively.

3.5.1 All the material in the contractor's scope of supply shall be procured from reputed manufacturers having at least Five (5) years experience of supplying similar equipment for 220/132 KV lines. The list of approved vendors is given in **Annexure-IV.**

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Detailed dimensioned drawings of all material to be supplied by contractor shall be got approved by the contractor from owner before type testing of the same.

3.5.3 All material covered under contractor's scope of supply shall be satisfactorily type tested as per relevant standards in presence of owner's representatives before commencement of mass manufacturing.

Conductor, Insulators and Earthwire as per technical details given in **Annexure-I,** shall also be procured by the contractor.

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**4.0 Quantity for Tower, Conductor, Earth Wire, Insulators, Hardwares, Conductor & Earth Wire Accessories.**

4.1 The contractor shall assess the requirement of line materials after completion of detailed / check survey and work out the final tower quantities. Accordingly, the contractor shall intimate the owner regarding quantities of material for procurement and seek the approval from owner. The contractor shall consider the permitted extra consumption furnished below.

4.2 The procedure to be used for calculation of length of conductor and earthwire shall be as follows:

a) **Quantity of Conductor** = Route length x No. of Circuits x No. of phases (3)
b) **Quantity of Earthwire** = Route length.
c) One percent extra quantity on length as calculated above shall be allowed.

4.3 In case of conductor/ Earth wire, the permitted extra quantity of one percent is inclusive of sag, jumpering, damage, losses and wastages etc.

4.4 The insulators shall be supplied as per technical details given in Annexure-VII. The unit rate and quantity of insulators considered in the Price schedule are of disc insulators. The quantity of long rod insulator shall be number of Disc insulators divided by number of discs in one 132 KV string as specified in Clause No. 4.1 of Annexure-VII and the unit rate for long rod insulator string shall be equal to the number of Disc insulators in a 132 KV string as specified in Clause No. 4.1 of Annexure-VII multiplied by unit rate of Disc insulator.

**5.0 Construction**

5.1 The transmission lines shall be constructed with the best industry practice generally as per details given in **Annexure-V** and **Annexure-VI** keeping in view the various statutory clearances required en-route.

5.2 **Statutory clearances and way leave**

The statutory clearances/NOCs such as forest, aviation, PTCC, Railway, National highway/state highway, maritime board etc. which may be required for construction of the line shall be arranged by the contractor. The respective proposal shall be prepared and arranged by the contractor without any financial implication to the owner. All statutory fees required for obtaining the clearances/NOC will be reimbursed to contractor by owner on submission of documentary evidence.

Any way leave problem; obstructions etc. shall be cleared by the contractor. The owner, if required shall extend necessary information in resolving the issues. However, the entire responsibility of clearances including any payments such as expenditure required for collection of land documents from revenue department, charges for police protection (if required) etc. shall rest with the contractor. The contractor shall act proactively to achieve the goals.

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5.3 Felling of trees, tree cutting, crop compensation would be organized and paid by the contractor. The owner shall render necessary help for fixing compensation through horticulture Dept. or any other appropriate authorities. The compensation so paid by the contractor shall be reimbursed by the owner. However expenses on account of stacking of cut trees, clearing debris and transportation of cut trees (if required) shall be borne by contractor.

**6.0 Line profile**

Data on the route alignment and ground profile will be supplied by the owner after issuance of letter of Intent (LOA).

**7.0 Completion period**

7.1 The EHV line covered in this tender shall be completed within the period as mentioned in Book – I (including monsoon season) from the date of LOA.

7.2 Time is essence

The time stipulated in the contract for the completion of works shall be deemed to be an essence of the contract. The contractor shall so organize his resources and perform his work so as to complete it not later than the date agreed to.

7.2.1 The contractor shall submit a detailed activity schedule/bar chart within the time frame agreed consisting of adequate number of activities covering various key phases of work, also clearly indicating the completion period for various groups of activities. This network/chart, activity schedule shall also indicate the infrastructure facilities to be provided by the owner and the dates by which such facilities activity schedule are needed. The contractor shall discuss the activity schedule and network/bar chart, activity schedule so submitted with the owner and the agreed network/bar chart which may be in the form as submitted or in revised form in line with the outcome of discussions, before signing of contract, shall form part of the contract. During the performance of the contract, if in the opinion of the engineer proper progress is not maintained, suitable changes shall be made in the contractor's operations to ensure proper progress as per scheduled date of completion.

7.2.2 The above activity schedule/bar chart shall be reviewed and periodic review reports shall be submitted by the contractor as directed by engineer.

7.3 Bar chart indicating detailed programmed of project implementation shall be furnished by the bidder in his offer. The bar chart shall include but not be limited to following items with dates of commencement and completion shown against each.

1. Check survey
2. Supply of Stub setting Template and foundation for towers
3. Supply of 75% Suspension and 25% Angle Tower
4. Supply of tower
5. Erection of towers

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6. Supply of insulator hardwares & accessories for tower, Conductor and earthwire

7. Stringing of conductor & ground wire along with hoisting of insulators with hardwares & installation of accessories and tree cutting with clearing of site

8. Testing and commissioning

**Note:** The above activities are inter-related and shall commence as the status of allied activities. However, contractor may take-up certain activities in advance with no financial implication on owner.

**8.0 Price Schedule**

8.1 The bidder shall quote Price on lump sum, % (Percentage) above/below basis, in **price Schedule-B** enclosed in Book-II.

8.2 The unit prices and total costs shall be applicable for erection, casting of foundation (including soil investigation if necessary), for all types of towers in various soils as indicated in the price schedule enclosed separately. Quantity wise break up of probable types of soils and different types of towers is given in enclosed **price schedule** and **Annexure-A** in Book-II for the assessment purpose only. Type of earthings and foundation to be cast for any location will have to be got approved from the concerned engineer incharge at site. The unit price and cost of benching and protection to tower foundation near nallas, river beds, creek banks hilly/undulated terrain etc. required at few locations shall be as per the **price schedule-H.** The quantities of benching and tower footing protection in $m^3$ and stringing of conductors for three phases in route KM are to be indicated in the price schedule for bid evaluation purpose. Tentative quantities of insulator hardwares and conductor and earthwire accessories to be supplied by the contractor are indicated in price schedule enclosed separately. Unit price and total cost of stringing shall include the installation of these items. However, the owner reserves the right to increase/decrease or totally delete these quantities. Any variation in quantities (within the limit of contract value) duly justified by contractor and certified by engineer incharge at site shall be paid at the unit rates indicated by the contractor against item rates in price **Schedule-H.**

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## ANNEXURE-I

## GENERAL TECHNICAL REQUIREMENTS

1.0 SYSTEM PARAMETERS

Following are the salient parameters of the electrical and environmental systems :

| | | |
|---|---|---|
| a. | Nominal System Voltage | : 220/132 KV |
| b. | Frequency | : 50 Hz |
| c. | System highest voltage | : 245/145 KV |
| d. | Maximum ambient temperature | : 50 °C |
| e. | Minimum ambient temperature | : 0 °C |
| f. | Maximum daily average temperature | : 32 °C |
| g. | Maximum relative humidity (in %) | : 90 |
| h. | Maximum annual rain fall (in mm) | : 1500 to 3800 |
| i. | Number of rainy days/year | : 90 |
| j. | Average number of thunder storm (days per annum) | : 50 |
| k. | Pollution level category | : Moderately polluted as per IEC 71-2 |

| 2.0 | LINE DATA | 132 KV line | 220 kV line |
|---|---|---|---|
| a. | Conductor<br>Code Name & type | : 0.2 inch$^2$<br>: ACSR Panther | : 0.4 inch$^2$<br>: ACSR Zebra |
| b. | Number of Conductors Per phase | : One | : One |
| c. | No. of Earth wires<br>Type and size | : One<br>: 7/3.15 mm 110 KGF Qlty. | : One<br>: 7/3.15 mm 110 KGF Qlty. |
| d. | Phase Configuration | : Vertical | : Vertical |
| e. | Max. Wind pressure on wires | : 43 Kg/m$^2$<br>: 45 Kg/m$^2$ | : 43 Kg/m$^2$<br>: 45 Kg/m$^2$ |



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| | | | |
|---|---|---|---|
| f. | Ruling design span | : 320 meters | : 350 meters |

Note : The details applicable for the tender only be considered

**3.0 Material to be supplied by the contractor**

3.1 Insulator String Hardware inclusive of but not limited to

a) Anchor shackle

b) Ball eye

c) Line and tower side yoke plates

d) Ball clevis

e) Arcing horns

f) Socket clevis

g) Clevis Eye

h) External link

i) U/Y-clevis

j) Free centre type suspension clamp

k) Compression type dead end clamp

3.2 **Accessories for Conductor and Earthwire**

a) Mid span compression joints.

b) Repair sleeves.

c) Copper Earth Bond.

d) Vibration Damper (For conductor only).

e) Suspension Clamp for Earthwire

f) Tension Clamp for Earthwire

g) P. A. Rods

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3.3 **Towers**

3.3.1 Standard 220/132 KV D/C, Horizontal and Special towers are to be fabricated as per the approved structural drawings provided by the owner. The structural drawings would be spared to the successful bidder only. The manufacturer shall fabricate proto type towers (in case the proto assembly inspection has not been conducted by MSETCL before) and offer them for inspection by the representative of MSETCL before taking up mass production of towers.

3.3.2 **Erection Mark**

These shall be marked with a 16 mm die distinctly on each member of the tower. The notation shall be as follows:

A - BB - CC - DDD

Where A = Owner's code - Alphabet.(in this case 'M').

BB = Contractor's Mark - Numerical.

CC = Tower Type - Alphabet.

DDD = Mark Number - Numerical.

The details in respect of 'CC' are given in Statements III and V. Other details are to be furnished by the bidder.

For tower members having length more than three (3) mtrs the markings shall be provided at both the ends.

a) The details of fabrication of towers shall be in conformity with IS:802 (Part-II):1978 except to the extent modified herein.

b) Butt splices shall be used and the inside angle and outside plate shall be so as to transmit the load and the inside cleat angle shall not be less than half the thickness of heavier member connected plus 2mm. Lap splice may be used for connecting members of unequal size. The inside angle of lap splice shall be rounded at the heel to fit the fillet of the outside angle. All splices shall develop full stress in the members connected through bolts. Butt as well as lap splice shall be made as close to the main panel point as possible.

c) Joints shall be so arranged as to avoid eccentricity as far as possible. The use of gusset plates for joining tower members shall be avoided as far as possible. However, where the connections are such that the elimination of the gusset plates would result in eccentric joints or where more than three members are joining at a particular point, gusset plates and spacer plates may be used in conformity with modern practices. The thickness of the gusset plates, required to transmit stress, shall not be less than that of members connected.



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d) The use of filler in connection shall be avoided as far as possible. The diagonal web members in tension may be connected entirely to the gusset plate where necessary to avoid the use of filler and it shall be connected at the point of inter-section by one or more bolts.

e) The tower structures shall be accurately fabricated to bolt together easily at site without any undue strain on the bolts.

f) No angle member shall have the two leg flanges brought together by closing the angle.

g) The structure shall be such that all parts shall be accessible for inspection and cleaning. Drain holes shall be provided at all points where pockets of depressions are likely to hold water.

h) All similar parts shall be made strictly interchangeable. All steel sections before any work is done on them, shall be carefully levelled, straightened and made true to detailed drawings, by methods which will not injure the materials so that when assembled the adjacent matching surfaces are in close contact throughout. No rough edges shall be permitted in the entire structure.

3.3.3 **DRILLING AND PUNCHING**

a) Before any cutting work is started, all steel sections shall be carefully straightened and trued by pressure and not by hammering. They shall again be trued after being punched and drilled.

b) Holes for bolts shall be drilled or punched with a jig but drilled holes shall be preferred. The following maximum tolerance of accuracy of punched holes is permissible.

i) Holes must be perfectly circular and no tolerance in this respect is permissible.

ii) The maximum allowable difference in diameter of the holes on the two sides of plates or angle is 0.8mm i.e. the allowable taper in a punched holes should not exceed 0.8mm on diameter.

c) All burrs left by drills or punch shall be removed completely. When the tower members are in positions the holes shall be truly opposite to each other. Drilling or reaming to enlarge defective holes shall not be permitted.

d) The strain plate holes shall be chamfered properly and sharp edges removed.

3.3.4 **GALVANISING**

Fully galvanised towers and stubs shall be used for the lines. Galvanising of the member of the towers shall conform to IS:2629-1966 and IS:4759-1968. All galvanised members shall withstand tests as per IS:2633-1972. For fasteners, the galvanising shall be done after all fabrication work is completed, except that the nuts may be tapped or re-run after galvanising. Spring washers shall be electro- galvanised as per Grade 4 of IS:1573-1070.



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### 3.3.5 FASTENERS : BOLTS, NUTS and WASHERS

a) All bolts and nuts shall confirm to IS:6639-1972 or IS.12427 - 1988 as applicable and shall be of approved makes only. All bolts and nuts shall be Hot Dip galvanised and shall have hexagonal heads and nuts. The heads shall be forged out of the solid, truly concentric, and square with the shank, which must be perfectly straight. The material shall be as per makes approved by M.S.E.T.C.L., the list of which is available on the website. However, if the bidders desires to procure bolts & nuts from any other vendor the same can be approved by the owner, if the credentials of such vendors are submitted for verification to the owner and the owner finds the same to be acceptable for use on transmission lines.

b) Fully threaded bolts shall not be used. The length of bolts shall be such that the threaded portion will not extend into the place of contact of the members. All bolts shall be threaded to take the full depth of the nut and threaded enough to permit firm gripping of the members, but not further. It shall be ensured that the threaded portion of each bolt protrudes not less than 3 mm and not more than 8 mm when fully tightened. All nuts shall fit hand tight to the bolt. Threads of bolts and nuts shall have a neat fit and shall be such that they can be turned with finger throughout the length of the threads of bolts and they shall be capable of developing full strength of the bolts.

c) Flat and tapered washers shall be provided where necessary. Spring washers shall be provided for insertion under all nuts. These washers shall be of steel electro-galvanised, positive lock type and 3.5 mm thick for 16mm dia. bolt and 4.5mm thick for 24mm dia. bolt.

d) The contractor shall furnish bolt schedules giving thickness of members connected, the nut and the washer, the length of shank, the threaded portion of bolts and sizes of holes and any other detail of this nature.

e) The bolts shall be of class 5.6 and nuts shall be of property class 5. For normal towers 16mm dia. bolts of required length shall be used. For special towers 24 mm dia. bolts may also be used. The ultimate shear stress on bolts shall be 3160 Kg/cm$^2$ and ultimate bearing stress shall be 5500 Kg/cm$^2$ In case of connection with MS angles and plate the ultimate bearing stress shall be 4440 Kg/cm$^2$.

f) To obviate bending stress in bolts or to reduce it to minimum, no bolt shall connect aggregate thickness of more than three (3) times its diameter.

g) Bolts at the joints shall be so staggered that nuts may be tightened with spanners without fouling.

h) The minimum bolt spacing and rolled edge distance and sheared edge distances of sections from the centers of bolt holes to be maintained are given in following Table:



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| Diameter of bolts (mm) | Hole diameter (mm) | Min. Bolt spacing (mm) | Min. rolled distance (mm) | Min. sheared edge distance (mm) |
|---|---|---|---|---|
| 16 | 17.5 | 40 | 20 | 23 |

3.3.6 STEP BOLTS/LADDER AND TOWER ACCESSORIES

a) Step Bolts & Ladders

Each tower shall be provided with step bolts of not less than 16mm diameter and 175 mm long, spaced not more than 450 mm apart and extending from about 3.5 metres above the ground level to the top of the tower. The step bolts shall be provided with two nuts on one end to fasten the bolt securely to the tower and button head at the other end to prevent the foot from slipping away. The step bolts shall be capable of withstanding a vertical load not less than 1.5 KN. For towers, where the height of the super structure exceeds 50 metres, ladders alongwith protection rings as per the Owner approved design shall be provided in continuation of the step bolts on the longitudinal face of the tower from 30 metres above ground level to the top of the super structure. From 3.5m to 30m height of superstructure step bolts shall be provided. Suitable platform using 6mm thick checkered plates alongwith suitable railing for access from step bolts to the ladder and from the ladder to each cross-arm and the groundwire support shall also be provided on tower above 50 mtrs.

b) Anticlimbing Device

Provision for inserting fully galvanised barbed wire type anticlimbing device as per drawing enclosed shall be made for all towers. This shall be provided at 3.5m above ground level on the tower. The galvanised barbed wire and accessories shall be supplied by the Contractor.

c) Danger, Number & Phase Plates

i) The provision for fixing Danger, Number and Phase Plates shall be made on transverse face of the tower during development of the structural drawing. The arrangement for fixing these accessories shall not be more than 4.5m above the ground level and shall be provided above anti-climbing device.

ii) The letters, figures and the conventional skull and bones mark of danger plate shall conform to IS : 2551-1963 and shall be in a signal red colour on the front of the plate.

iii) Typical drawings of Number plate, phase plate, danger board are enclosed.

3.4 Conductor Earthwire and Insulators



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ACSR conductor, G.S earthwire and Insulators are also to be supplied by the contractor as per relevant Specifications.

**4.0 Stub Setting Templates**

Stub templates shall be arranged by the Contractor at his own cost for all types of towers with or without extensions for the line in the scope. Stub templates for standard towers and tower with extensions shall be of adjustable type. The stub templates shall be galvanized or painted. One set of each type of stub setting template will be retained by the owner on completion of the project, supply of which shall be included in the scope of the Contractor at no extra cost to the owner.

**5.0 Aviation Requirements**

The river crossing towers and the crossing span shall be painted and provided with markers respectively to caution the low flying air-craft as given below:

5.1 Span marker of size 600mm x 600mm shall be provided on the earthwire. Each face of the marker shall be divided into two triangles by drawing a line along one of the diagonals of the markers, one of the triangles thus formed shall be painted in orange or red and other in white. These markers shall be suspended from earthwire at intervals of 36m. The design of the markers and their fixing arrangement should be such that they can withstand the wind pressure.

5.2 The full length of the towers shall be painted over the galvanized surface in contrasting bands of orange or red and white. The bands should be horizontal and not less than 1.5m and not more than 3m in height. The bands on the extremities should be orange or red in color.

a) **Surface Preparation**

The etching of galvanized surface of erected tower members with suitable etching or wash primer is to be done as per IS:1477-1971 to enhance the adhesion of subsequently applied paint coating. After etching of galvanized surface of tower one coat of zinc primer is to be applied.

b) **Painting of Towers**

Two coats of international orange or red and white paint at alternate interval (bands) as explained above are to be applied. The painting of towers shall generally conform to relevant provisions in IS: 1477-1977 parts II & I. The paints to be used for painting shall be in accordance with IS: 2074-1962.

5.3 **Obstruction lights**

Fixed lights, red in color, having intensity sufficient to ensure conspicuity considering the intensity of the adjacent lights and the general level of illumination against which they would normally be viewed shall be provided on the river crossing towers. In no case the intensity of the light shall be less than 107.6 Lox of red lights. If the height of the towers are more than 45m above the level of surrounding ground, additional lights shall



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be provided at intermediate levels. The numbers and arrangement of lights at each level to be marked shall be such that the towers are visible from all sides.

5.4 The lighting fixture, paint and L.T. power supply for the aviation light requirements shall be arranged by the owner.

## 6.0 SPECIAL TOWERS

a) Special towers shall be used for major river crossing, for very long spans and railway track or line crossings. The special towers shall be offered in such a way that after suitable truncation the same tower can be used for crossing the spans of 700 M, 800 M, 900 M or 1000M. These towers including their foundations, soil testing, tower erections and stringing shall form part of the scope. The Contractor shall submit the most economical design for the towers and foundations.

b) All the requirements for standard towers shall be applicable for special towers. Wind pressure on towers for height beyond 45 metres shall be as per following Table.

| Unit ($Kgf/m^2$) | Height of support | | | | | | |
|---|---|---|---|---|---|---|---|
| | 45m | 50m | 60m | 70m | 80m | 100m | 120m |
| Light | 140 | 145 | 150 | 154 | 159 | 165 | 172 |
| Medium | 210 | 217 | 224 | 230 | 238 | 249 | 258 |

### 6.1 Angle of Deviation for special tower

The angle of deviation to be considered for special tower is minimum $2^0$ and all the live material clearance to be computed considering double 'X' suspension string.

### 6.2 Factor of safety for special tower

The minimum factor of safety for special tower shall be as follows:

a) 2.5 under normal conditions
b) 2.0 under broken wire conditions

### 6.3 Maximum tension for conductor and earth wire

The minimum factor of safety for conductor and earthwire shall be 2.5 for the maximum tension corresponding to 2/3 full wind pressure at $0\ ^0C$ or full wind pressure at $32\ ^0C$ such that the initial unloaded tensions at $32\ ^0C$ do not exceed 30 % of their ultimate strength and the final unloaded tension at $32\ ^0C$ do not exceed 20 % of the ultimate strength of conductor and Earthwire.

### 6.4 Wind Loads

a) The procedure for wind load calculation on tower, conductor and earthwire shall be the same as adopted for normal structure.



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b) The wind pressure acting at an angle of 45° to the tower body and 90° to the conductor acting simultaneously shall also be considered for designing the structure.

6.5 Under normal condition, unbalanced longitudinal pull due to difference in tension in ruling span for river crossing towers on one side and span of the line on the other side shall also be considered for the design of anchor towers on case to case basis.

6.6 During designing and detailing for the river crossing tower, provision for ladders, platform etc. shall be made.

6.7 The rates for special towers shall be quoted on the basis of per ton. However the payment shall be released as per the approved BOM weight.

## 7.0 STANDARDS

The manufacturing, fabrication, galvanizing, and materials used for manufacture of towers shall conform to the following Indian Standards (IS) Codes and Rules which shall mean latest revisions, with amendments/changes adopted and published, unless specifically stated otherwise in the specification. In the event of supply of equipment conforming to standards other than IS, the features of comparison of the relevant standard and IS shall be brought out and furnished.

| Sr. No. | Indian Standards | Title |
|---|---|---|
| 1. | IS:209-1966 | Specification for zinc |
| 2. | IS:2062-1992 | Structural steel(Standard quality) |
| 3. | IS:8500 | High Tensile Steel |
| 4. | IS:800-1962 | Code of practice for use of structural steel in general Building construction. |
| 5. | IS:802 Part I 1978<br>IS:802 (Part-II)1978 | Code of practice for use of structural steel in overhead transmission line. Part I: Load and permissible stresses.<br>Code of practice for use of structural steel in overhead transmission line.<br>Part II : Fabrication, Galvanizing, inspection and packing. |
| | IS:802 (Part-III) 1978 | Code of practice for use of structural steel in overhead transmission line towers.<br>Part III : Testing |
| 6. | IS:1367-1992 | Technical supply conditions for threaded fasteners (First Revision). |
| 7. | IS:2016-1992 | Plain Washers |
| 8. | IS:2551-1992 | Danger Notice Plates. |



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| | |
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| 9. IS:2629-1992 | Recommended practice for hot dip galvanizing of iron and steel. |

| Sr. No. | Indian Standards | Title |
|---|---|---|
| 10. | IS:2633-1994 | Method of testing uniformity of coating of zinc coated articles. |
| 11. | IS:3063-1994 | Single Coil Rectangular Section spring washers for bolts, nuts, screws. |
| 12. | IS:5358-1969 | Hot dip galvanized coatings on fasteners. |
| 13. | IS:6610-1991 | Specification for heavy washers for steel structures. |
| 14. | IS:6639-1990 | Hexagonal bolts for ISO/R 272-1968 steel Structures. |
| 15. | IS:6745-1972 | Methods for determination of weight of zinc coating for zinc coated iron and steel articles. |
| 16. | IS:5613-1993 | Code of practice for design, installation and maintenance of overhead power lines Section-1 Designs<br>Section-2 Installation Maintenance |
| 17. | CEA (Measures relating to Safety and Electric Supply) Regulations, 2010 | |
| 18. | Publication No. 87/Elect/112/1 Regulation for Electrical Crossing of Railway Tracks amended update | |
| 19. | IS-961 | H.T.Steel |
| 20. | IS-12427-1988 | Specification for Transmission Tower Bolts. |
| 21. | Indian Electricity Act - 2003 and amended update | |



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# ANNEXURE-II

## TECHNICAL PARTICULARS FOR INSULATOR HARDWARES

### 1.0 TECHNICAL DESCRIPTION

### 1.1 GENERAL

This section details the technical particulars of the Hardware fittings for 132/220 KV Line. The insulator hardwares shall be suitable for 0.2 ACSR Panther conductor (for 132 KV line) and 0.4 ACSR Zebra conductor (for 220 KV line).

### 1.1.1 DETAILS OF HARDWARE FITTINGS

The hardware fittings shall generally be as per drawings enclosed with this specification & suitable for hot line maintenance.

### 1.2 DIMENSIONS OF INSULATOR STRING ALONGWITH HARDWARE FITTING

The various limiting dimensions of the various suspension and tension strings along with hardware fittings shall be as per the drawings attached with this specification. The hardwares shall be suitable for use with 'Normal' and 'Antifog' type insulators.

### 1.3 INTERCHANGEABILITY

The hardware together with ball and socket fittings shall be of standard design so that these hardware are interchangeable with each other.

### 1.4 BALL AND SOCKET DESIGNATION

The dimensions of the ball and socket shall be of 16 mm for 70 KN and 20 mm for 120 KN disc insulators in accordance with the standard dimensions stated in IS:2486 (Part-II) - 1974.

### 1.5 SECURITY CLIPS AND SPLIT PINS

Security clips for use with ball and socket coupling shall be R-shaped, hump type which provides positive locking of the coupling as per IS:2486 (Part-III) 1974. There shall be no risk of the locking device being displaced accidentally or being rotated when in position. Under no circumstances shall the locking device allow separation of fittings.

### 1.6 ARCING HORN

The arcing horn shall be provided on line side of the hardware fittings. The same shall be either ball ended rod type for 132 KV and tubular type for 220 KV.

### 1.7 FREE CENTRE TYPE SUSPENSION CLAMP



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a) The suspension clamp shall have a slip strength between 12.5% to 20% of breaking load of conductor.

b) The suspension assembly shall be designed, manufactured and finished so as to avoid any possibility of hammering between suspension assembly and conductor due to vibration. The suspension assembly shall be smooth so that it shall not damage the conductor.

1.8 **DEAD END ASSEMBLY**

a) The dead end assembly shall be of compression type with provision for compressing jumper terminal at one end. The angle of jumper terminal to be mounted, should be $30^0$ with respect to the vertical line.

b) The assembly shall not permit slipping off, damage to or failure of the complete conductor or any part thereof at a load less than 95% of the ultimate tensile strength of the conductor.

c) The steel sleeve of dead end assembly shall be made by drop forging method and shall not involve any welded joints.

1.9 **FASTENERS**

All fasteners shall conform to IS: 6639-1972. All fasteners shall be hot dip galvanised.

1.10 **WORKMANSHIP**

a) All the equipment shall be of the latest design and conform to the best modern practices adopted in the Extra High Voltage field.

b) The design, manufacturing process and quality control of all the materials shall be such as to give maximum possible working load, highest mobility, elimination of sharp edges and corners to limit corona and radio interference, best resistance to corrosion and a good finish.

c) After award of contract, the contractor shall submit to the Owner, within one month, 2 copies of Quality assurance plan for approval.

d) Minimum weight of zinc coating shall be 300 gm/m$^2$ for fasteners and 610 gm/m$^2$ for all other hot dip galvanised articles.

1.11 **BID DRAWINGS**

The proposal shall include fully dimensioned assembly and component drawings for all items quoted. All drawings shall be neatly arranged, and all drafting and lettering shall be standard and legible. The minimum size of lettering shall be one eighth of an inch. Dimensions shall be in the customary units. The drawings shall give following information:

a) The bill of material indicating quantity, nature, grade and reference standard of the material used for various parts. The thickness of plain/spring washers, size and length of bolts shall also be indicated.



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b) Technical details like ball and socket designation, method of manufacture, Hardness, Proof Load, slip strength, UTS, installation torque, make of Nuts, bolts, plain/spring washers, security clip and identification mark of the manufacturer.

c) After award of contract the contractor shall submit to the Owner, within one month, 2 copies of drawings for approval. The Owner shall accord approval for the drawings in reasonable period provided the same are as per specification. The Contractor shall endeavor to furnish all the clarification required by the Owner for approving the drawings promptly.

d) Once the drawings have been approved, no alteration or modification should be carried out without prior approval of the Owner.

1.12 **TESTS**

A) **TYPE TESTS**

The bidder shall offer the hardwares and accessories which are already type tested within the last five (5) years and manufactured by the reputed manufactures approved by MSETCL.

In case the items are not type tested within 5 years as on the date of LOA, fresh type tests as per relevant IS standards and MSETCL specification shall be carried out, in presence of purchasers representative, before supply of material.

The list of type tests to be conducted is as follows:

| Sr. No. | Particulars of test | Reference standard |
|---|---|---|
| I) | **Suspension hardwares:** | |
| 1) | Visual examination | IS:2486(I)/ MSETCL specification |
| 2) | Verification of Dimensions | |
| 3) | Mechanical strength test on clamp and components | |
| 4) | Slip strength test on clamp | |
| 5) | Magnetic power loss test on suspension clamp assembly | |
| 6) | Galvanising/Electroplating test | |
| II) | **Tension hardwares:** | |
| 1) | Visual examination | IS:2486(I)/MSETCL specification |
| 2) | Verification of Dimensions | |
| 3) | Mechanical strength test on components | |
| 4) | Mechanical/slip strength test on dead end assembly | |



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|---|---|---|
| 5) | Heating cycle test | |
| 6) | Electrical resistance test (Before and after heat cycle test) | |
| 7) | Galvanising/Electroplating test | |
| **III)** | **Tests on locking devices(Security clip):** | |
| 1) | Verification of resistance to bending | |
| 2) | Hardness test | IS:2486(IV) |
| 3) | Operation test | |

B) **ACCEPTANCE TESTS:**

This shall mean those tests which are to be carried out on samples taken at random from a lot for acceptance of the lot.

The item wise list of acceptance tests to be conducted is as follows:

| Sr. No. | Particulars of test | Refrence standard |
|---|---|---|
| **I)** | **Suspension hardwares:** | |
| 1) | Visual examination | |
| 2) | Verification of Dimensions | |
| 3) | Mechanical strength test on clamp and components | IS:2486(I) |
| 4) | Galvanising/Electroplating test | |
| **II)** | **Tension hardwares:** | |
| 1) | Visual examination | |
| 2) | Verification of Dimensions | |
| 3) | Mechanical strength test on components | IS:2486(I) |
| 4) | Mechanical/slip strength test on dead end assembly | |
| 5) | Galvanising/Electroplating test | |
| **III)** | **Tests on locking devices(Security clip):** | |
| 1) | Verification of resistance to bending | IS:2486(IV) |
| 2) | Hardness test | |
| 3) | Operation test | |



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C) **ROUTINE TESTS:**

This shall mean those tests, which are to be carried out on each item to check the requirements which are likely to vary during production.

The list of routine tests to be conducted is as follows:

| Sr. No: | Particulars of test | Reference standard |
|---|---|---|
| I) | **Insulator String fittings:** | |
| 1) | Visual Inspection | IS:2486(I) |
| 2) | Mechanical routine test | |
| II) | **Tension Clamp:** | |
| 1) | Visual Inspection | IS:2486(I) |

D) **TESTS DURING MANUFACTURING:**

Stage tests during manufacture shall mean those tests which are to be carried out during the process of manufacturing to ensure quality control such that the end product is of the designed quality conforming to the intent of this specification.
The list of tests to be conducted during manufacturing is as follows:

| Sr. No. | Particulars of test | Reference standard |
|---|---|---|
| 1) | Visual inspection, Chemical analysis, tensile strength, Hardness, inclusion rating, Grain size, Forgeability, proof load and magnetic particle examination tests for ferrous forgings. | As per relevant IS Standards |
| 2) | Visual inspection, Dimensional check, Chemical analysis, tensile strength and hardness test for steel fabricated components. | - do - |
| 3) | Chemical analysis test for aluminum alloy ingots. | - do - |
| 4) | Visual inspection, Dimensional check and chemical analysis test for aluminum, aluminum alloy tubes and flats. | - do - |
| 6) | Chemical analysis of zinc for | - do - |



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| Sr. No. | Particulars of test | Reference standard |
|---|---|---|
| 7) | Visual inspection, Dimensional check, chemical analysis and hardness test for Stainless steel bolts, U-bolts, Nuts and washers. | - do - |
| 8) | Visual inspection, Dimensional check, Resistance to bending, Operation, Hardness and Resistance to internal corrosion tests on security clip. | - do - |
| 9) | Visual inspection, Dimensional check and mechanical strength tests on M.S bolts, nuts and plain washers. | - do - |
| 10) | Visual inspection, Dimensional check, Twist, Permanent load and hardness tests on spring washers. | - do - |

E) **ADDITIONAL TESTS**

The Owner reserves the right of having at his own expenses any other test(s) of reasonable nature carried out at manufacturer's premises, at site, or in any other laboratory in addition to the aforesaid type, acceptance and routine tests to satisfy himself that the material complies with the specification. The owner also reserves the right to repeat the full series or a particular type test at any time during the pendency of contract.

1.13 **GUARANTEED TECHNICAL PARTICULARS**

The Guaranteed Technical Particulars for insulator hardwares enclosed with this Annexure shall be duly filled in and submitted along with the offer.

1.14 **IDENTIFICATION MARK**

All components of hardwares made by forging/casting shall invariably be marked by embossing with identification mark of the manufacturer. The identifying letters and numbers shall be raised 1 mm and shall be at least 5 mm high. They shall be die stamped or cast on one or both sides of the assembly. The characters shall be distinct, durable, and conspicuous after galvanising.



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## 1.15 STANDARDS APPLICABLE

Except as modified in this specification, the materials to be supplied shall conform to the latest version, with amendments thereof, of the following Bureau of Indian Standards and other International Standards.

| Sr. No. | Bureau of Indian Standard No. | Title |
|---|---|---|
| 1) | IS 2486-1993 Part-I | Metal fittings of insulators for overhead power lines with a nominal voltage greater than 1000 V - General requirements and tests |
| 2) | IS 2486-1989 Part-II | Insulator fittings for overhead power lines with a nominal voltage greater than 1000 V – Dimensional requirements |
| 3) | IS 2486-1974 Part-III | Insulator fittings for overhead power lines with a nominal voltage greater than 1000 V – Locking devices |
| 4) | IS 2486-1981 Part-IV | Insulator fittings for overhead power lines with a nominal voltage greater than 1000 V – Tests for Locking devices |
| 5) | IS:2121-1981 Part I | Conductor and Earthwire accessories for overhead power Lines – P.A.Rod |
| 6) | IS:2121-1981 Part II | Conductor and Earthwire accessories for overhead power Lines – MSCJ & Repair Sleeves |
| 7) | IS 9708-1993 | Stockbridge vibration dampers for Overhead power lines |
| 8) | IS 2004-1991 | Carbon steel forgings for general Engineering Purposes |
| 9) | IS 2062-1992 | Steel for general structural Purposes |
| 10) | IS 5082-1981 | Wrought aluminum and aluminum sections for electrical purposes |
| 11) | ASTM A 276-96 | Standard specification for stainless steel Bars and Shapes |
| 12) | IS 6603-1972 | Stainless steel bars and flats |
| 13) | IS 4759-1984 | Hot dip zinc coatings on structural steel and other allied products |
| 14) | IS 2633-1986 | Method of testing uniformity of coatings on zinc coated articles |
| 15) | IS 3063-1994 | Single coil rectangular section spring washers for bolts, nuts & screws |
| 16) | IS 6639-1972 | Hexagonal bolts for steel structures |



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|---|---|---|
| 17) | IS 2016-1967 | Specification for plain washers |
| 18) | IS 5358 | Specification for hot dip galvanize coatings on fasteners. |
| 19) | IS 1573-1986 | Electroplated coatings of zinc on iron and steel |
| 20) | IS 1363-1984 | Black hexagonal bolts, nuts and lock nuts and hexagonal screws. |
| 21) | IS 1367-1991 Part-I | Technical supply conditions for threaded steel fasteners – Introduction and general information |
| 22) | IS 1367-1979 Part-III | Technical supply conditions for threaded steel fasteners – Mechanical properties and test methods for Bolts, screws & Studs with full loadibility |
| 23) | IS 1367-1980 Part-VI | Technical supply conditions for threaded steel fasteners – Mechanical properties and test Methods for nuts with specified proof loads |
| 24) | IS 1367-1979 Part-IX | Technical supply conditions for threaded steel fasteners – Surface discontinuities on Bolts, screws & studs |
| 25) | IS 1367-1979 Part-X | Technical supply conditions for threaded steel fasteners – Surface discontinuities on nuts |
| 26) | IS 1367-1979 Part-XIII | Technical supply conditions for threaded steel fasteners – Hot dip Galvanized coatings on threaded fasteners |
| 27) | IS 9997-1991 | Aluminum alloy redrawn rods for Electrical purposes |
| 28) | IS 3703 | Code of practice for Magnetic Power flaw detection |



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## 2.0 GUARANTEED TECHNICAL PARTICULARS FOR INSULATOR HARDWARE SUITABLE FOR ACSR Panther/Zebra

Manufacturer's name and address •
Identification mark on forged & cast components •

| Sr. No. | Item | Material | Grade |
|---|---|---|---|
| A) | **Single Suspension hardware** | | |
| 1) | Horn holder ball hook • | | |
| 2) | Tower side arcing horn • | | |
| 3) | Horn holder Socket eye • | | |
| 4) | Line side arcing horn • | | |
| 5) | Anchor/Twisted Shackle • | | |
| B) | **Double Suspension hardware** | | |
| 1) | Tower side Twisted Shackle • | | |
| 2) | Tower side yoke plate • | | |
| 3) | Tower side arcing horn • | | |
| 4) | Ball clevis • | | |
| 5) | Socket clevis • | | |
| 6) | Line side yoke plate • | | |
| 7) | Line side arcing horn • | | |
| 8) | Clevis eye • | | |
| 9) | Line side Twisted/ Anchor Shackle • | | |
| C) | **FCT Clamp assembly** (Common for suspension hardwares) | | |
| 1) | Saddle and link strap • | | |
| 2) | Keeper piece • | | |



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3) Suspension clamp •

**D) Single tension hardware**

1) Anchor Shackle •

2) Horn holder ball link •

3) Tower side arcing horn •

4) Horn holder Socket eye •

5) Line side arcing horn •

**E) Double tension hardware**

1) Anchor Shackle •

2) Chain link •

3) Tower side yoke plate •

4) Tower side arcing horn •

5) Ball clevis •

6) Socket clevis •

7) Line side yoke plate •

8) Line side arcing horn •

9) Clevis eye •

**F) Clamp assembly**
(Common for tension hardwares)

1) Steel sleeve •

2) Compression tube and jumper •

1) Minimum failing load of
   a) Single suspension hardware •
   b) Double suspension hardware •
   c) Single tension hardware •
   d) Double tension hardware •

2) Length of suspension clamp •

3) Slip strength of •



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| | | |
|---|---|---|
| | suspension clamp | |
| 4) | Magnetic power loss in watts for suspension clamp at 800 Amps. | • |
| 5) | Slip strength of tension clamp | • |
| 6) | Electrical resistance of tension joint after compression | • |
| 7) | Standard specification to which galvanising confirm | • |

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## ANNEXURE-III

## TECHNICAL PARTICULARS OF CONDUCTOR & EARTHWIRE ACCESSORIES

1.0 Accessories suitable for 0.2 ACSR Panther conductor(for 132 kV line), 0.4 ACSR Zebra Conductor (for 220 kV line) and 7/3.15 mm earth wire shall be offered.

### 2.0 MID SPAN COMPRESSION JOINT (CONDUCTOR)

Mid Span Compression Joint shall be used for joining two lengths of conductor. The electrical resistance of joint shall be less than 75% of measured resistance of equivalent length of conductor. The joint shall not permit slipping off, damage to, or failure of the complete conductor or any part thereof at a load less than 90% of the ultimate tensile strength of the conductor. The joint shall be made of aluminium alloy.

### 3.0 REPAIR SLEEVE (CONDUCTOR)

Repair Sleeve of compression type shall be used to repair conductor with not more than two strands broken in the outer layer. The sleeve shall be manufactured from aluminium alloy. The repair sleeve shall comprise of two pieces with a provision of seat for sliding of the keeper piece. The edges of the seat as well as the keeper piece shall be so rounded that the conductor strands are not damaged during installation.

### 4.0 PRE-FORMED ARMOUR RODS

P. A. Rods shall be used for wrapping on the conductor before installation of suspension clamp on line. The rods shall be made of aluminum alloy grade 6201 having tensile strength not less than 35 Kg/mm$^2$. The electrical conductivity of each rod shall not be less than 40% of IACS(International Annealed Copper Specification). The shape of ends of each rod shall be Parrot bill. The center point of each rod shall be marked with indelible black paint.

### 5.0 VIBRATION DAMPER

Vibration damper of 4R-stock bridge type with four different resonant frequencies spread within the specified aeolian frequency band-width shall be used for suspension and tension points on each conductor in each span to damp out aeolian vibrations. Two dampers on each side shall be used at tension points and one damper on each side at suspension points, for normal spans. The Bidder shall furnish damper placement charts along with the bid for spans ranging from 100 m to 600 m.

The clamp of the vibration damper shall be made of aluminium alloy. The clamp shall be capable of supporting the damper during installation and prevent damage or chafing of the conductor during erection or continued operation.

The messenger cable shall be made of high tensile strength steel wire with a minimum strength of 135 kg/mm$^2$. The damper mass shall be made of cast iron, hot dip galvanized or a permanent mould cast zinc alloy.



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The vibration analysis of the system, with and without damper, dynamic characteristic of the damper shall be submitted by the Bidder along with his bid.

## 6.0 SUSPENSION CLAMP (EARTH WIRE)

At all suspension towers suitable envelop type suspension clamp shall be used to hold earthwire. The suspension clamp shall be provided with an eye hook suitable for M16 size bolt, for attaching it to the hanger plate. The design of the assembly shall be such that the direction of run of the earthwire through the clamp shall be same as that of the earthwire.

The suspension clamp shall be provided with M12 size U&J bolts, nuts and plain washers of Mild steel and spring washers of spring steel for connecting earth bond to the tower body.

The suspension clamp shall have a slip strength between 12.5% to 20% of ultimate tensile strength of the earthwire. The breaking load of suspension clamp shall not be less than 50 KN.

## 7.0 TENSION CLAMP (EARTH WIRE)

At all tension towers suitable compression type tension clamps shall be used to hold earthwire. 16 mm diameter anchor shackle shall be supplied which shall be suitable for attaching the tension clamp to strain plate. The tension clamp shall be provided with jumper plate, for attaching jumper terminal to it. The same shall be attached with 2xM12 size bolts, nuts and plain washers of mild steel and spring washer of spring steel. The length of one of the bolts shall be more than the other for connecting earth bond to the tower body.

The electrical resistance of the clamp when compressed on the earthwire shall be less than 75% of measured resistance of equivalent length of earthwire. The slip strength of the assembly shall not be less than 90% of the ultimate tensile strength of the earthwire. The angle of jumper terminal shall be $30^0$ with respect to the vertical line.

The clamp shall be complete with all the components including anchor shackle, bolt, nuts, washers, split pin, jumper arrangement etc.

## 8.0 MID SPAN COMPRESSION JOINT (EARTHWIRE)

Mid Span Compression Joint shall be used for joining two lengths of earthwire. The joint shall be made of Mild Steel. The joint shall not permit slipping off, at a load less than 90% of the ultimate tensile strength of the earthwire. The electrical resistance of joint shall be less than 75% of measured resistance of equivalent length of earthwire.

## 9.0 EARTH BOND

The earth bond shall be made of E.C. grade (% of Copper > 99.5%) tinned flexible copper cable of size 37/7/0.417 mm and copper area equivalent of 35 $mm^2$. The length of earth bond shall not be less than 750 mm. Two tinned copper lugs having suitable holes for 12 mm & 16 mm diameter bolts shall be press jointed at either ends of the copper [illegible]. One 45 mm long galvanised Mild Steel bolt with nut and plain, spring washer shall

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also be provided. This shall be suitable for providing proper bondage between earthwire hardware and tower body. The pull off load shall not be less than 300 kg.

## 10.0 WORKMANSHIP

a) All the equipment shall be of the latest design and conform to the best modern practices adopted in the Extra High Voltage field.

b) The design, manufacturing process and quality control of all the materials shall be such as to give maximum possible working load, highest mobility, elimination of sharp edges and corners to limit corona and radio interference, best resistance to corrosion and a good finish.

c) Minimum weight of zinc coating shall be 300 gm/m$^2$ for fasteners and 610 gm/m$^2$ for all other hot dip galvanised articles.

## 11.0 BID DRAWINGS

The proposal shall include fully dimensioned assembly and component drawings for all items quoted. All drawings shall be neatly arranged, and all drafting and lettering shall be standard and legible. The minimum size of lettering shall be one eighth of an inch. Dimensions shall be in the customary units. The drawings shall give following information:

a) The bill of material indicating quantity, nature, grade and reference standard of the material used for various parts. The thickness of plain/spring washers, size and length of bolts shall also be indicated.

b) After award of contract the contractor shall submit to the Owner, 2 copies of drawings for approval within one month. The Owner shall accord approval for the drawings in reasonable period provided the same are as per specification. The Contractor shall endeavor to furnish all the clarification required by the Owner for approving the drawings promptly.

c) Once the drawings have been approved, no alteration or modification should be carried out without prior approval of the Owner.

## 12.0 TESTS

### A) TYPE TESTS

The contractor shall offer the accessories which are already type tested within the last five (5) years and manufactured by the reputed manufactures approved by the Board.

In case the items are not type tested within 5 years as on the date of LOA, fresh type tests as per relevant IS standards shall be carried out, in presence of purchasers representative, before supply of material.



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The list of type tests to be conducted is as follows:

| Sr. No. | Particulars of test | Reference standard |
|---|---|---|
| I) | **Conductor accessories:** | |
| A) | **MSCJ** | |
| 1) | Visual examination | IS:2121 |
| 2) | Verification of Dimensions | |
| 3) | Mechanical/slip strength test | |
| 4) | Heat cycle test | |
| 5) | Electrical resistance test (Before and after heat cycle test)) | |
| B) | **Repair Sleeves** | |
| 1) | Visual examination | IS:2121 |
| 2) | Verification of Dimensions | |
| 3) | Mechanical/slip strength test | |
| 4) | Electrical resistance test | |
| C) | **P.A.Rod** | |
| 1) | Visual examination | IS:2121 |
| 2) | Verification of Dimensions | |
| 3) | Slip strength test | |
| 4) | Tensile Strength test | |
| 5) | Bend test | |
| 6) | Resilience test | |
| 7) | Electrical resistance test | |
| D) | **Vibration Damper** | |
| 1) | Visual examination | IS:9708 |
| 2) | Verification of Dimensions | |
| 3) | Mass pull off test | |
| 4) | Magnetic power loss test | |
| 5) | Clamp slip test (Before & after fatigue test) | |
| 6) | Clamp bolt torque test | |
| 7) | Resonance frequency test | |
| 8) | Fatigue test | |
| 9) | Galvanising/Electroplating test | |
| 10) | Dynamic characteristics test (Before & after fatigue test) | |
| 11) | Vibration analysis/ Damper Efficiency test | |

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| Sr. No. | Particulars of test | Reference standard |
|---|---|---|
| II) | **Earthwire accessories:** | |
| A) | **Suspension clamp** | |
| 1) | Visual examination | IS:2486 |
| 2) | Verification of Dimensions | |
| 3) | Mechanical strength test | |
| 4) | Clamp slip test | |
| 5) | Galvanising/Electroplating test | |
| B) | **Tension clamp** | |
| 1) | Visual examination | IS:2486 |
| 2) | Verification of Dimensions | |
| 3) | Mechanical/Slip strength test | |
| 4) | Electrical resistance test | |
| 5) | Galvanising/Electroplating test | |
| C) | **MSCJ** | |
| 1) | Visual examination | IS:2121 |
| 2) | Verification of Dimensions | |
| 3) | Mechanical/slip strength test | |
| 4) | Electrical resistance test | |
| 5) | Galvanising test | |
| D) | **Earth Bond** | |
| 1) | Visual examination | IS:2121 |
| 2) | Verification of Dimensions | |
| 3) | Slip strength test | |

B) ACCEPTANCE TESTS:

This shall mean those tests which are to be carried out on samples taken at random from a lot for acceptance of the lot.

The item wise list of acceptance tests to be conducted is as follows:

| Sr. No. | Particulars of test | Reference standard |
|---|---|---|
| I) | **Conductor accessories:** | |
| A) | **MSCJ** | |
| 1) | Visual examination | IS:2121 |
| 2) | Verification of Dimensions | |
| 3) | Mechanical/slip strength test | |
| B) | **Repair Sleeves** | |
| 1) | Visual examination | IS:2121 |
| 2) | Verification of Dimensions | |
| 3) | Mechanical/slip strength test | |



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| Sr. No. | Particulars of test | Reference standard |
|---|---|---|
| C) | **P.A. Rod** | |
| 1) | Visual examination | IS:2121 |
| 2) | Verification of Dimensions | |
| 3) | Tensile Strength test | |
| 4) | Resilience test | |
| 5) | Electrical resistance test | |
| D) | **Vibration Damper** | |
| 1) | Visual examination | IS:9708 |
| 2) | Verification of Dimensions | |
| 3) | Mass pulloff test | |
| 4) | Fatigue test | |
| 5) | Clamp slip test after fatigue test | |
| 6) | Resonance frequency test | |
| 7) | Galvanising/Electroplating test | |
| II) | **Earthwire accessories:** | |
| A) | **Suspension clamp** | |
| 1) | Visual examination | IS:2486 |
| 2) | Verification of Dimensions | |
| 3) | Mechanical strength test | |
| 4) | Galvanising/Electroplating test | |
| B) | **Tension clamp** | |
| 1) | Visual examination | IS:2486 |
| 2) | Verification of Dimensions | |
| 3) | Mechanical strength test on clamp & components | |
| 4) | Galvanising/Electroplating test | |
| C) | **MSCJ** | |
| 1) | Visual examination | IS:2121 |
| 2) | Verification of Dimensions | |
| 3) | Mechanical/slip strength test | |
| 4) | Galvanising test | |
| D) | **Earth Bond** | |
| 1) | Visual examination | IS:2121 |
| 2) | Verification of Dimensions | |
| 3) | Slip strength test | |

C) **ROUTINE TESTS:**

This shall mean those tests, which are to be carried out on each item to check the requirements which are likely to vary during production.

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The list of routine tests to be conducted is as follows:

| Sr. No. | Particulars of test | Reference standard |
|---|---|---|
| I) | **Conductor accessories:** | |
| A) | P.A. Rod | |
| 1) | Visual Inspection | IS:2121 |
| 2) | Verification of Dimensions | |
| B) | MSCJ & Repair Sleeves | |
| 1) | Visual Inspection | IS:2121 |
| 2) | Verification of Dimensions | |
| C) | Vibration Damper | |
| 1) | Visual Inspection | IS:9708 |
| II) | **Earthwire fittings:** | |
| A) | Suspension clamp | |
| 1) | Visual Inspection | IS:2486 |
| 2) | Mechanical routine test | |
| B) | Tension Clamp | |
| 1) | Visual Inspection | IS:2486 |
| C) | MSCJ | |
| 1) | Visual Inspection | IS:2121 |
| 2) | Verification of Dimensions | |
| D) | Earth Bond | |
| 1) | Visual Inspection | IS:2121 |

D) **TESTS DURING MANUFACTURING:**

Stage tests during manufacture shall mean those tests which are to be carried out during the process of manufacturing to ensure quality control such that the end product is of the designed quality conforming to the intent of this specification.

The list of tests to be conducted during manufacturing is as follows:

| Sr. No. | Particulars of test | Reference standard |
|---|---|---|
| 1) | Visual inspection, Dimensional check, Chemical analysis and mechanical strength tests for malleable Cast Iron castings. | As per relevant IS standards |
| 2) | Dimensional check and chemical analysis test for Copper wire/ bars. | - do - |



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| Sr. No. | Particulars of test | | Reference standard |
|---|---|---|---|
| 3) | Chemical analysis of zinc for galvanising. | ) | - do - |

E) ADDITIONAL TESTS

The Owner reserves the right of having at his own expenses any other test(s) of reasonable nature carried out at manufacturer's premises, at site, or in any other laboratory in addition to the aforesaid type, acceptance and routine tests to satisfy himself that the material complies with the specification. The owner also reserves the right to repeat the full series or a particular type test at any time during the pendency of contract.

## 13.0 GUARANTEED TECHNICAL PARTICULARS

The Guaranteed Technical Particulars for conductor and earthwire accessories enclosed with this Annexure shall be duly filled in and submitted along with the offer.

## 14.0 IDENTIFICATION MARK

All components made by forging/casting shall invariably be marked by embossing with identification mark of the manufacturer. The identifying letters and numbers shall be raised 1 mm and shall be at least 5 mm high. They shall be die stamped or cast on one or both sides of the assembly. The characters shall be distinct, durable, and conspicuous after galvanising.

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**GUARANTEED TECHNICAL PARTICULARS FOR MSCJ FOR 0.2 sq.in. ACSR Panther/0.4 ACSR zebra**

Manufacturer's name and address .

| Sr. No. | Particulars | Guaranteed Value |
|---|---|---|
| 1) | Material | . |
| 2) | Before Compression dimensions | |
| i) | Aluminium Sleeve | |
| a) | Outer Diameter | . |
| b) | Inner Diameter | . |
| ii) | Steel Sleeve | |
| a) | Outer Diameter | . |
| b) | Inner Diameter | . |
| 3) | After Compression dimensions | |
| a) | Corner to Corner | . |
| b) | Flat to Flat | . |
| 4) | Length before Compression | . |
| 5) | Slip strength | . |
| 6) | Electrical resistance of Joint after Compression | . |

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## GUARANTEED TECHNICAL PARTICULARS FOR REPAIR SLEEVES FOR 0.2 sq. in. ACSR Panther/ 0.4 ACSR Zebra

Manufacturer's name and address .

| Sr. No. | Particulars | Guaranteed Value |
|---|---|---|
| 1) | Material | . |
| 2) | Before Compression dimensions | |
| a) | Outer Diameter | . |
| b) | Inner Diameter | . |
| 3) | After Compression dimensions | |
| a) | Corner to Corner | . |
| b) | Flat to Flat | . |
| 4) | Length before Compression | . |
| 5) | Slip strength | . |
| 6) | Electrical resistance of Joint after Compression | . |

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**GUARANTEED TECHNICAL PARTICULARS FOR P.A.ROD FOR 0.2 sq.in. ACSR Panther/0.4 ACSR Zebra**

Manufacturer's name and address •

| Sr. No. | Particulars | Guaranteed Value |
|---|---|---|
| 1) | Material | • |
| 2) | Dimensions | • |
| a) | Length of each rod (in mm) | • |
| b) | Diameter of each rod (in mm) | • |
| c) | No. of rods per set | • |
| d) | Tolerance on length of each rod | • |
| 3) | Conductivity | • |
| 4) | Direction of lay | • |
| 5) | Shape of end | • |
| 6) | Tensile strength | • |

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## GUARANTEED TECHNICAL PARTICULARS FOR VIBRATION DAMPER FOR 0.2 sq.in. ACSR Panther/0.4 ACSR Zebra

Manufacturer's name and address .

Identification mark .

| Sr No. | Particulars | Guaranteed Value |
|---|---|---|
| 1) | Type | . |
| 2) | Material, Grade and | |
| 3) | Standard of | . |
| a) | Clamp | . |
| b) | Messenger cable | . |
| c) | Weights (Damper mass) | . |
| 4) | Weight of damper mass | |
| 5) | Total weight of damper | |
| 6) | Slip strength of clamp | |
| a) | Before fatigue | . |
| b) | After fatigue | . |
| 7) | Maximum possible Dynamic strain on the conductor with damper | . |
| 8) | Resonance frequency | |
| 9) | Mass pull off load | . |
| 10) | Magnetic power loss at 800 Amps. | . |
| 10) | Standard specification to which galvanizing confirm | . |

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## GUARANTEED TECHNICAL PARTICULARS FOR SUSPENSION CLAMP FOR EARTHWIRE

Manufacturer's name and address •

Identification mark •

| Sr. No | Particulars | Guaranteed Value |
|---|---|---|
| 1) | Type • | |
| 2) | Material, Grade & Standard for | |
| a) | Clamp body • | |
| b) | Keeper piece • | |
| c) | U&J bolt and nut • | |
| d) | Eye hook • | |
| 3) | Breaking load of clamp • | |
| 4) | Slip strength • | |
| 5) | Length of clamp • | |

## GUARANTEED TECHNICAL PARTICULARS FOR COPPER BOND

| Sr.No. | Particulars | Guaranteed value |
|---|---|---|
| 1) | Material, Grade and Standard for | |
| a) | Connecting lugs • | |
| b) | Flexible bond • | |
| 2) | Stranding • | |
| 3) | Length • | |
| 4) | Pull off load • | |

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## GUARANTEED TECHNICAL PARTICULARS FOR TENSION CLAMP FOR EARTHWIRE

Manufacturer's name and address .

Identification mark .

| Sr. No. | Particulars | Guaranteed Value |
|---|---|---|
| 1) | Material, Grade & Standard for | |
| a) | Clamp body | . |
| b) | Jumper | . |
| 2) | Before compression dimensions | |
| a) | Outer Diameter | . |
| b) | Inner Diameter | . |
| 3) | After compression dimensions | |
| a) | Corner to Corner | . |
| b) | Flat to flat | . |
| 4) | Slip strength | . |
| 5) | Length before compression | . |
| 6) | Electrical resistance of Joint after compression | . |
| 7) | Standard specification to which galvanizing confirm | . |

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## GUARANTEED TECHNICAL PARTICULARS FOR MSCJ FOR EARTHWIRE

Manufacturer's name and address •

| Sr. No. | Particulars | | Guaranteed Value |
|---|---|---|---|
| 1) | Material, Grade & Standard for sleeve | • | |
| 2) | Before compression dimensions | | |
| a) | Outer Diameter | • | |
| b) | Inner Diameter | • | |
| 3) | After compression dimensions | | |
| a) | Corner to Corner | • | |
| b) | Flat to flat | • | |
| 4) | Length before compression | • | |
| 5) | Slip strength | • | |
| 6) | Electrical resistance of joint after compression | • | |
| 7) | Standard specification to which galvanizing confirm | • | |

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## ANNEXURE IV

## LIST OF APPROVED VENDORS

Please refer MSETCL website www.mahatransco.in for list of approved vendors for all items.

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## ANNEXURE-V

## GENERAL TECHNICAL REQUIREMENTS OF FOUNDATION, STUB SETTING AND EARTHING

### 1.0 GENERAL

Cement concrete/Reinforced concrete footings shall be used for all types of Towers in conformity with the present day practice followed in the country and the specifications laid herein.

Foundation works shall include all items of work related to supply and installation of foundations such as form installation work, excavation, concreting, curing, backfilling, stub setting, providing reinforcement etc. Supply of materials such as cement, sand, coarse aggregate and reinforcement steel is included in the scope of the contractor.

The foundation designs and drawings for a few types of soil for 220/132 KV towers are available and shall be spared to the successful Bidder. The foundation designs required for any other type of soil shall be developed by the Bidder as per the details given and shall be submitted to the owner for approval.

### 2.0 CLASSIFICATION OF SOIL AND FOUNDATIONS

### 2.1 CLASSIFICATION OF SOILS

The soil shall be classified for the excavation asked upon the type of soil, subsoil water level and the presence of surface water as under:

a) **Normal Soil**

Soil for which removal by means of an ordinary pick, axe, spade and shovel is possible.

b) **Wet Soil**

Where the sub-soil water table is encountered within the range of foundation depth or/and where pumping or bailing out of water is required due to presence of surface water.

c) **Rocky Soil**

i) **Fissured Rock**

Lime stone, laterite, hard conglomerate or other soft or fissured rock which can be quarried or split with crow bars, wedges or pickaxes shall be classified as Fissured Rock. However, if required, light blasting may be resorted to for loosening the material, but this will not in any way entitle the material to be classified as hard rock.

ii) **Hard Rock**

Rock other than specified under fissured rock above for which blasting, drilling, chiseling required, for excavation.

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iii) **Black Cotton Soil**

Where soil is clayey type loose not necessarily black in colour, which shrinks when dry & swells when wet resulting in differential movement extending to a maximum depth of about 3.5 meters below ground level, the foundation shall be classify as black cotton.

3.0 **Classification of Foundations**

The foundation design shall depend upon the type of soil, sub-soil water level and the presence of surface water which have been classified as follows.

3.1 **Normal dry**

Where cohesive or non-cohesive soils or soft murrum are met in dry conditions, the foundations shall be classified as normal dry.

3.2 **Wet**

Where sub-soil water is met at 1.5 meters or more below the ground level or where surface water is present for long periods with water penetration not exceeding one meter below the ground level e.g. the paddy fields, the foundation shall be classified as wet.

3.3 **Partially submerged**

Where sub-soil water table is met between 0.75 meter to 1.5 meter below the ground level, the foundation shall be classified as partially submerged.

3.4 **Fissured Rock**

Where decomposed or fissured rock, Soft Rock, hard gravel, kankar, limestone, laterite or any other soil of similar nature is met, the foundations shall be classified as Fissured Rock and Undercut type foundation is to be used for these types of locations.

3.5 **Hard Rock**

Where hard rock is encountered at 1.5 mtr. or less below ground level and excavation by Chiseling, drilling and blasting is required

3.6 **Black cotton soil**

Where soil is clayey type loose not necessarily black in colour, which shrinks when dry & swells when wet resulting in differential movement extending to a maximum depth of about 3.5 meters below ground level, the foundation shall be classify as black cotton.

4.0 **Properties of soil**

Properties of soil encountered in general in the state of Maharashtra are given in following table:

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## PROPERTIES OF EARTH

| Sr. No. | Particulars | Unit | Value |
|---|---|---|---|
| 1) | **Weight of earth** | | |
| a) | Dry | $KN/m^3$ | 14.12 |
| b) | In presence of surface water | $KN/m^3$ | 14.12 |
| c) | In presence of subsoil water | $KN/m^3$ | 9.22 |
| 2) | **Normal Dry** | | |
| a) | Ultimate bearing capacity | $KN/m^2$ | 490 |
| b) | Weight of earth | $KN/m^3$ | 14.40 |
| c) | Angle of respose | Degrees | $30^0$ degree |
| 3) | **Soft Rock/Fissured Rock** | | |
| a) | Ultimate Bearing Capacity | $KN/m^2$ | 612.19 |
| b) | Weight of earth | $KN/m^3$ | 14.12 |
| c) | Angle of Repose | Degrees | $20^0$ |
| 4) | **Wet Fissured Rock** | | |
| a) | Ultimate bearing capacity | $KN/m^2$ | 612.19 |
| b) | Weight of Earth | $KN/m^3$ | 9.22 |
| c) | Angle of Repose | Degrees | $10^0$ |
| 5) | **Hard Rock** | | |
| a) | Ultimate Bearing Capacity | $KN/m^2$ | 1250.0 |
| b) | Ultimate bond between steel and concrete | $KN/m^2$ | 0.147 |

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| Sr. No. | Particulars | Unit | Value |
|---|---|---|---|
| 6) | **Black Cotton Soil** (On Dry portion) | | |
| a) | Ultimate Bearing Capacity | $KN/m^2$ | 122.58 |
| b) | Weight of Earth | $KN/m^3$ | 14.22 |
| c) | Angle of Repose | Degrees | 0° |
| 7) | **Black Cotton Soil** (On Wet portion) | | |
| a) | Ultimate Bearing Capacity | $KN/m^2$ | 122.58 |
| b) | Weight of Earth | $KN/m^3$ | 9.22 |
| c) | Angle of Repose | Degrees | 9.0° |

## 5.0 DESIGN OF FOUNDATIONS

All the four footings of the tower and its extension shall be similar, irrespective of down thrust an tip-lift.

5.1 The total depths of foundations below the ground level shall not be less than 1.5 meters and more than 3.5 meters. To maintain the interchangeability of stubs for all types of foundations, for each type of tower, the same depths of stub below ground level shall be used for different types of foundations. Common foundation design shall be suitable for normal tower and tower with 3M/ 6M extension.

For designing foundations at locations involving black cotton soil the soil is to be considered as fully submerged in nature.

In case of fissured rock locations where water table is met at 1.5 meter or more below ground level wet type fissured rock foundations shall be adopted. If after soil investigation, water level is encountered less than 1.5m below ground level, a separate foundation design for partially submerged condition as applicable shall be developed by the Contractor for execution.

5.2 The foundation shall be designed to withstand the specific loads of the super-structure and for the full footing reactions obtained from the structure stress analysis in conformity with the relevant safety factors.

5.3 The reactions on the footings shall be composed of the following type of loads for which they shall be required to be checked.

(a) Maximum tension or uplift along the leg slope.

(b) Maximum compression or down thrust along the leg slope.

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(c) Maximum horizontal shear on side thrust.

5.4 The additional weight of concrete in the footing below ground level over the earth weight and the full weight of concrete above the ground level in the footing and embedded steel parts will also be taken into account adding to the down thrust.

5.5 Foundations in B.C. soil shall be designed with zero degree angle of repose and also for fully submerged condition.

5.6 16 mm dia. deformed bars and 6 mm dia. stirrups shall be used for reinforcement.

5.7 Reinforcement bars shall be provided in the chimney portion in all types of soil.

## 6.0 FACTOR OF SAFETY

6.1 The factor of safety of 2.2 and 1.65 shall be adopted in normal condition and broken wire conditions respectively. The working loads on normal tower or extensions whichever is critical, shall be multiplied by appropriate factor of safety to arrive at the ultimate foundation loads.

## 7.0 STABILITY ANALYSIS

7.1 In addition to the strength design, stability analysis of the foundation shall be done to check the possibility of failure by over-turning, uprooting, sliding and tilting of the foundation.

7.2 The following primary types of soil resistance shall be assumed to act in resisting the loads imposed on the footing in earth:

a) Resistance against uplift:

The uplift loads will be assumed to be resisted by the weight of earth in an inverted frustum of a conical pyramid of earth as per formula detailed in drawing enclosed of this specification on the footing pad whose sides make an angle equal to the angle of repose of the earth with the vertical, in average soil.

The weight of concrete embedded in earth and that above the ground will also be considered for resisting the uplift. In case where the frustum of earth pyramids of two adjoining legs superimpose each other, the earth frustum will be assumed truncated by a vertical plane passing through the centerline of the tower base. The self-weight of tower shall not be considered with FOS while calculating uplift.

b) Resistance against down-thrust:

The down-thrust loads combined with the additional weight of concrete above earth will be resisted by bearing strength of the soil assumed to be acting on the total area of the bottom of the footing.

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c) Resistance against side-thrust:

The contractor has to check the foundation against side thrust force as detailed in drawing enclosed. If uplift and down thrust are computed in vertical direction for foundation design, full resultant horizontal shear shall be taken at footing tip for design of the footing to resist side thrust.

## 8.0 PROPERTIES OF CONCRETE

8.1 The cement concrete used for the foundations shall be grade M-150 corresponding to 1:2:4 nominal mix ratio or M-20 corresponding to 1:1.5:3 nominal mix ratio with 20mm coarse aggregate for chimney portion and 40mm coarse aggregate for pyramid or slab portion depending on foundation design and relevant foundation drawing.

All the properties of concrete regarding its strength under compression, tension, shear, punching and bend etc. as well as workmanship will conform to IS:456-1978.

8.2 The weight of concrete to be considered for design of foundation is given in following Table:

**WEIGHT OF CONCRETE**

| Type of Concrete | Weight in dry region $KN/M^3(Kg/M^3)$ | Weight in presence of subsoil water $KN/M^3(Kg/M^3)$ |
|---|---|---|
| Concrete | 21.96 (2240) | 12.16(1240) |
| Reinforced Concrete | 23.54 (2400) | 13.73(1400) |

## 9.0 DETAILING OF FOUNDATIONS

9.1 The thickness of concrete in the chimney portion of the tower footing would be such that it provides minimum cover of not less than 100mm from any part of the stub angle to the nearest outer surface of the concrete in respect of all dry locations limiting the minimum section of chimney to 300 mm x 300 mm. In respect of all wet location, the chimney should have all round clearance of 150mm from any part of stub angle considering the minimum chimney size of 450 mm x 450 mm.

9.2 The chimney top or muffing must be at least 225mm above ground level and also the coping shall be extended up to the lower most joint level between the bottom lattices and the main corner legs of the tower.

9.3 The spread of concrete pyramid or slabs shall be limiting to $45^0$, with respect to the vertical. However, bidders can design foundation with reinforced concrete pyramid/slab, in which case the limitation of $45^0$ is not applicable. Mild steel bars shall not be used for reinforcement steel.

9.4 At least 50mm thick pad of size equal to the base of pyramid with its sides vertical will be provided below the pyramid to account for the unevenness of soils impurities likely

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to be mixed in concrete due to direct contact of wet concrete with earth and also for allowing stone aggregate reaching up to corner edges. This pad will also be provided in cases where pyramids are provided over concrete slabs.

9.5 In case of partially submerged and fully submerged type foundation, at least one base slab of not less than 200mm thick shall be provided. In case of reinforced concrete slab, the slab thickness should not be less than 300mm.

9.6 The minimum distance between the lowest edge of the stub angle and the bottom surface of concrete footing shall not be less than 75 mm or more than 100mm in case of dry locations and not less than 100mm or more than 150mm in case of wet locations.

9.7 In case of foundations having steel reinforcement in pyramid or slab and for all wet, partially submerged locations at least 50mm thick pad of lean concrete corresponding to 1:3:6 shall be provided prior to pad/slab mentioned in clauses 9.4 and 9.5 to avoid the possibility of reinforcement rods being exposed to unevenness of the bottom excavated pit and to avoid direct contact of concrete slab with water.

9.8 The portion of the stub in the pyramid (or slab) shall be designed to take full down-thrust or uplift loads by the cleats combined with the bond between stub angles and pyramid concrete. The Contractor shall furnish the calculation for uprooting of stub along with the foundation design.

## 10.0 MARKING OF TOWER LOCATION

The check survey shall be carried out and pit markings of foundation as per approved excavation chart shall be made on the ground.

## 11.0 EXCAVATION

11.1 Except as specifically otherwise provided, all excavation for footing shall be made to the lines and grades of the foundation. The excavation wall shall be vertical and the

pit dimensions shall be such as to allow a clearance on all sides from the foundation pad. The Contractor should ensure that clearance is maintained as advised by Engineer incharge of owner from the foundation pad is maintained as per advice of engineer incharge for quality work. All excavation shall be protected so as to maintain a clean sub grade, until the footing is placed, using timbering, shoring etc., if necessary. Any sand, mud, silt or other undesirable materials which may accumulate in the excavated pit shall be removed by the Contractor before placing concrete.

11.2 No extra charge shall be admissible for the removal of the fallen earth in the pit, when once excavated. Shoring shutting and timbering as approved by authorized representative of the Owner shall be provided by the Contractor when the soil condition is so bad that there is likelihood of the falling of earth.

11.3 Where rock is encountered, the holes for tower footings, shall preferably be drilled, but where blasting is to be resorted to as an economy measure it shall be done with utmost care to minimize the use of concrete for filling the blasted areas. All necessary precautions for handling and use of blasting materials shall be taken. In case where drilling is done, the stubs may be shortened suitably with the approval of the Owner or

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his authorized representatives. Further it may be noted that the contractor may be required to do controlled blasting if the site conditions so warrant.

12.3.1 When intermediate soil strata is encountered the owner will modify the foundation drawings as per requirement with under cut position of reinforcement The Contractor shall supply requisite blasting material and be responsible for storage and use of this material.

11.4 The Contractor shall record the types of soil encountered during excavation of pits for different strata and soil.

## 12.0 SETTING OF STUBS

12.1.1 The stubs shall be set correctly in accordance with approved method at the exact location and alignment and precisely at correct levels with the help of stub-setting templates and leveling instrument. Stubs shall be set in the presence of Owner's representative available at site where required and for which adequate advance intimation shall be given to the Owner by the Contractor. No extra charges shall be payable while cutting/cleaning of earth required for setting of stub setting template.

12.2 Setting of stub at each location shall be approved by the Owner's representative.

## 13.0 RAISED FOUNDATIONS

Wherever normal towers and extensions are to be spotted at locations which fall under highest flood level of adjacent rivers, the chimney shall be suitably raised above HFL. The stub length for such locations shall be suitably increased and provided through out the chimney and frustum.

## 14.0 BASE PLATES AND ANCHOR BOLTS

At some special locations/normal locations, it may be necessary to provide Anchor bolts and Base plates instead of stubs. These shall be designed and submitted by the Contractor for the approval of the Owner. The Contractor shall supply the anchor bolts, base plates, tower footing and template for setting of anchor bolts.

## 15.0 CEMENT, AGGREGATES & REINFORCEMENT STEEL

15.1 The cement shall be arranged by the contractor. Also cement should be stacked in an approved manner and only fresh cement not more than three months old from the date of manufacture should be used for foundations. Empty cement bags shall be retained by the Contractor.

15.2 a) The Portland cement used in concrete shall conform to IS:269-1967.

b) The Puzzolena cement if used in concrete shall conform to IS:1489-1976. The curing time of Puzzolena cement will be decided at the time of execution of the Contract.

c) The minimum cement content for the various grades of concrete shall be as follows:

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| | |
|---|---|
| M 20 (1:1.5:3) | 400 kg/m$^3$ |
| M 15 (1:2:4) | 330 kg/m$^3$ |
| Lean concrete<br>M 10 (1:3:6) | 260 kg/m$^3$ |
| M7.5 (1:4:8) | 180 Kg/m$^2$ |
| 1:5 Cement & sand mortar | 105 kg/m$^3$ |

d) The bidder shall use the cement of following brands:

i) L & T
ii) KESORAM
iii) ACC
iv) Ambuja

15.3 Concrete aggregates shall conform to IS:383-1970. It may be noted that the metal to be used shall be black trap metal machine-crushed and it should be without skin-material.

15.4 The water used for mixing concrete shall be fresh, clean and free from oil, acids and alkalis, organic materials or other deleterious substances. Potable water is generally satisfactory.

15.5 Reinforcement shall conform to IS:432-1966 for M.S. bars and hard drawn steel wires and to IS:1139-1966 an IS:1786 for deformed and cold twisted bars respectively. All reinforcement shall be clean and free from loose mill scales, dust, loose rust, and coats of paint, oil or other coatings, which may destroy or reduce bond. Contractor shall supply, fabricate and place reinforcement with fusion bonded epoxy coating to shapes and dimensions as indicated or as required to carry out the intent of drawings and specifications.

## 16.0 MIXING, PLACING AND COMPACTING OF CONCRETE

16.1 The concrete shall be mixed in the mechanical mixer. However, in case of difficult terrain hand mixing may be permitted at the discretion of Owner's site Engineer. The water for mixing concrete shall be fresh, clean and free from oil, acids and alkalies. Saltish or brakish water shall not be used.

16.2 Mixing shall be continued until there is uniform distribution of material and the mix is uniform in colour and consistency, but in no case the mixing be done for less than two minutes. Normally mixing shall be done close to the foundation, but in case it is not possible, the concrete may be mixed at the nearest convenient place. The concrete shall be transported from the place of mixing to the place of final deposit as rapidly as practicable by methods which shall prevent the segregation or loss of any ingredient. The concrete shall be placed and compacted before setting commences.

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16.3 Form boxes shall be used for casting all types of foundation. The concrete shall be laid down in 150mm layers and consolidated well, so that the cement cream works up to the top and no honey-combing is left in the concrete. The mechanical vibrator shall be employed for compaction of the concrete. However, in case of difficult terrain, manual compaction may be permitted at the discretion of site engineer. After concreting the chimney portion to the required height, the top surface should be finished smoothly with a slight slope towards the outer edge, to drain off any rain water falling on the coping.

16.4 In wet locations, the site must be kept completely dewatered, both during placing of the concrete and for 24 hours thereafter. There should be no disturbance of concrete by water during this period. No extra charges shall be paid for dewatering.

16.5 After the form work has been removed if the concrete surface is found to be defective, the damage shall be repaired with rich cement and sand mortar to the satisfaction of the Owner's representative before the foundation pits are backfilled.

## 17.0 BACK-FILLING AND REMOVAL OF STUB TEMPLATES

17.1 After opening of form work and removal of shoring and timbering if any, backfilling shall be started, after repairs, if any, to the foundation concrete. Backfilling shall normally be done with the excavated soil, unless it consists of large boulders/stones, in which case the boulders shall be broken to a maximum size of 80mm. At such locations where borrowed earth is required for backfilling, this shall be done by the Contractor at his own cost, irrespective of lead.

17.2 The backfilling materials should be clean and free from organic or other foreign materials. The earth shall be deposited in maximum 200mm layers, leveled and wetted and tempered properly before another layer is deposited. Care shall be taken that the back filling is started from the foundation ends of the pits, towards the outer ends. After the pits have been backfilled to full depth, the stub template may be removed.

17.3 The backfilling and grading shall be carried to an elevation of about 75mm above the finished ground level drain out water. After backfilling 50mm high earthen embankment (bandh) will be made along the sides of excavation pits and sufficient water will be poured in the backfilling earth for at least 24 hours.

## 18.0 CURING

The concrete after setting for 24 hours shall be cured by keeping the concrete wet continuously for a period of 21 days after laying. The pit may be back filled with selected earth sprinkled with necessary amount of water and well consolidated in layers not exceeding 200mm of consolidated thickness after a minimum period of 24 hours and thereafter both the backfilled earth and exposed chimney top shall be kept wet for the remainder of the prescribed time of 10 days. The uncovered concrete chimney above the backfilled earth shall be kept wet by providing empty cement bags dipped in water fully wrapped around the concrete chimney for curing and ensuring that the bags are kept wet by the frequent pouring of water on them.

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## 19.0 SPECIAL FOUNDATIONS

The Owner may desire to construct a few special foundations in marshy locations, loose soil etc. if necessary.

## 19.1 FACTOR OF SAFETY FOR SPECIAL FOUNDATIONS

The factor of safety of 2.75 and 2.2 shall be adopted in normal condition and broken wire conditions respectively. The working loads on normal tower or extensions whichever is critical, shall be multiplied by appropriate factor of safety to arrive at the ultimate foundation loads.

## 19.2 EARTHING

The footing resistance of all towers shall be measured by the Contractor in dry weather after tower erection and before the stringing of earth-wire. All the towers are to be earthed, however, in no case tower footing resistance shall exceed 10 ohms. Pipe type earthing and counterpoise type earthing wherever required shall be done in accordance with the stipulations made in IS:3043-1987 and IS:5613 (Part-II/Section-2) 1985. The details for pipe and counterpoise type earthing are given in drawing enclosed.

## 20.0 Benching

When the line route passes through hilly/undulated terrain, for a few tower locations it may be required to level the ground for casting of tower footings on same elevation. All the activities related to make the required area of ground in same elevation for casting of foundation, shall be termed as benching work. Benching work shall include cutting of excess earth and removing the same to a suitable point of disposal as required by the Owner. The excavated earth should be used for filling the slopping area for leveling the ground. Benching shall be resorted to only after getting specific approval from the Owner. Volume of the earth to be cut shall be measured before cutting and got approved from the Owner. This volume of earth shall be considered for the purpose of payment against the head of benching work. It may be noted that the activity related to making the area of ground to same elevation for level difference less than one meter shall not be considered as benching. No payment shall be made for benching works excavation up to the level of 1 meter from top. For level difference more than 3.0 mtr. between legs, the bidder shall provide the towers with unequal-legs. The required unequal legs with bracings shall be designed by the bidder.

## 21.0 PROTECTION OF TOWER FOOTING

21.1 The work shall include all necessary stone pitching and concreting after earth filling above ground level and the clearance with stacking of all surplus excavated soil at site for providing revetment. Special measures for protection of foundation close to or in nallas, river beds, hilly undulated terrain, etc. shall be arranged by providing suitable revetment with stone pitching and galvanized wire netting and mesbing packed with boulders. The top seal cover of the stone revetment shall be done with M-15 concrete (1:2:4 mix). The Contractor shall furnish recommendations for providing protection at these locations wherever required.

21.2 **Retaining Wall**

In case level difference between tower footing is more, the retaining wall of suitable height at the low lying part shall be provided with Rubble stone, masonry in 1:5 mix with necessary excavation, lean concrete, rubble stone masonry & provision of 100 mm thick M-15 concrete at top of wall. The tower footing will be leveled by back

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filling with excavated soil or borrowed soil inside the retaining wall. The height of retaining wall, its length and width shall be got approved by the contractor before taking up the work from engineer in-charge not below the rank of Executive Engineer.

21.3 The quantity of excavated earth obtained from a particular location shall generally be utilised in back filling work in protection of tower footing of same location, unless it is unsuitable for such purposes. In the latter case, the back-filling shall be done with excavated soil is not sufficient to achieve the leveled filling borrowed earth of suitable quality irrespective of lead, as per the rate provided in the letter of award. The consolidation of earth shall however, be done after backfilling free of cost.

## 22.0 STANDARDS

22.1 The erection procedure and materials used for design and construction of foundations shall conform to the following Indian Standards (IS) which shall mean latest revisions, with amendments/changes adopted and published, unless specifically stated otherwise in the specification.

22.2 The material and services covered under these specifications shall be performed as per requirements of the relevant standards/codes referred hereinafter against each set of equipment and services. Other internationally acceptable standards which ensure equal or higher performance than those specified shall also be accepted.

| Sr. No. | Indian Standards | Title |
|---|---|---|
| 1. | IS:269-1967 | Ordinary rapid hardening and low heat Portland Cement |
| 2. | IS:388-1970 | Coarse and fine aggregates from natural sources for concrete |
| 3. | IS:432-1966 (Part I & II) | Mild steel and medium tensile bars and hard drawn steel wire for concrete reinforcement |
| 4. | IS:456-1978 | Code of practice for plan and reinforced concrete |
| 5. | IS:800-1962 | Code of practice for use of structural steel in general Building construction. |
| 6. | IS:1139-1966 | Hot rolled mild steel medium high yield strength steel deformed bars for concrete reinforcements. |
| 7. | IS:1489-1976 | Portland Pozzolena Cement |
| 8. | IS:1786-1966 | Cold twisted steel bars for concrete reinforcements |
| 9. | IS:1893-1965 | Criteria of Earth- quake resistant design of structures |
| 10. | IS:3043-1972 | Code of practice for earthing(with amendments No.1 & 2) |
| 11. | IS:4091-1967 | Code of practice for design and construction of foundation for transmission line towers and poles |

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## ANNEXURE-VI

## GENERAL TECHNICAL REQUIREMENTS OF ERECTION WORKS

**1.0 General**

1.1 The scope of erection work shall include the labour, all tools and plants and all other incidental works in connection with the setting up of site stores, unloading at the destination the various materials, transportation to stores, storage, safe custody, movement to work site, erection, stringing, and testing and commissioning of the line.

1.2 Contractor shall set up required number of stores along the line and the exact location of such stores hall be discussed and agreed to between the Contractor and the Owner.

The insulators packed in wooden crates should be stacked properly so as to cause no damages. The insulators should be taken to site in packed crates and not in loose condition so that there are no breakages during transit. It will be the responsibility of the contractor to see that damaged insulators are not used.

1.3 All galvanised members shall be thoroughly inspected. If any defects are found in case of hot-dip galvanised members, the members if acceptable to Owner shall be repaired by applying zinc rich protection paint.

**1.4 Treatment of Joints**

Before starting assembly, the surfaces at joints shall be cleaned and applied with a coat of Zinc-rich paint, if required. However for the lines in coastal or highly polluted areas, the above painting shall necessarily be carried out.

**1.5 Assembly**

The method followed for the erection of towers, shall ensure the points mentioned below:

a) Straining of the members shall not be permitted for bringing them into position. It may, however, be necessary to match hole positions at joints and to facilitate this, tummy bars not more than 450mm long may be used.

b) Before starting erection of an upper section, the lower section shall be completely braced and all bolts provided and tightened adequately in accordance with approved drawings to prevent any mishap during tower erection.

c) All plan diagonals relevant to a section of tower shall be placed in position before assembly of upper section is taken up.

d) The bolt positions in assembled towers shall be as per IS:5613 (Part-II/Section-2)-1976.

e) Tower shall be fitted with number plate, danger plate, pole plates, circuit plate and ant climbing device as described.

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**2.0 Tightening and Punching of Bolts and Nuts**

2.1 All nuts shall be tightened properly using correct size spanners and torque wrench. Before tightening, it will be seen that filler washers and plates are placed in relevant gaps between members, bolts of proper size and length are inserted, and one spring washer is inserted under each nut. In case of step bolts spring washers shall be placed under the outer nuts. The tightening shall progressively be carried out from the top downwards, care being taken that all bolts at every level are tightened simultaneously. The threads of bolts projecting outside the nuts shall be punched at their position on the diameter to ensure that the nuts are not loosened in course of time. If during tightening a nut is found to be slipping or running over the bolt threads, the bolt together with the nut shall be replaced.

2.2 The threads of all the bolts projected outside the nuts shall be welded at two diametrically opposite places. The circular length of each welding shall be at least be 10mm. The welding shall be provided from ground level to first panel or six meters height whichever is higher. After welding, cold galvanized paint having at least 90% zinc content shall be applied to the welded portion. At least two coats of the paint shall be applied. The cost of welding

and paint including application of paint shall be deemed to be included in the tower erection price.

2.3 Instead of tack welding of nuts with bolts, as de- scribed above, the Contractor can also propose some alternative arrangements, like use of epoxy resin adhesive which can serve the purpose of locking the nut permanently with the bolt and thus preventing pilferage of the tower members.

In case the contractor offers some alternative to tack welding, as stated above, he shall have to furnish all the technical parameters of the same, to facilitate the owner to technically evaluate its acceptability.

**3.0 Insulator Hoisting**

3.1 Suspension insulator strings shall be used on suspension towers and tension insulator strings on angle and dead end towers. These shall be fixed on all the towers just prior to the stringing. Damaged insulators and fittings, if any, shall not be employed in the assemblies. Before hoisting all insulators shall be cleaned in a manner that will not spoil, injure or scratch the surface of the insulator, but in no case shall any oil be used for the purpose. Corona control rings shall be fitted in an approved manner. The yoke arrangements shall be horizontal for tensions and longitudinal for suspension strings. Torque wrench shall be used for fixing different line materials and their components like suspension clamp for conductor and earthwire, etc. wherever recommended by the manufacturer of the same.

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**4.0 Stringing of conductor and earthwire**

4.1 The Contractor shall be entirely responsible for any damage to the towers, conductors and earthwire during stringing. While running out the conductors, and earthwire, care shall be taken that these do not touch and rub against the ground or objects which could cause scratches or damages to the strands. The conductors shall be



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run out of the drums from the top in order to avoid damage due to chafing. Immediately after running out, the conductor shall be raised at the supports to the levels of the clamp and placed into the running blocks. The groove of the running blocks shall be of such a design that the seat is semicircular and larger than the diameter of the conductor/earthwire and it does not slip over or rub against the sides. The grooves shall be lined with hard rubber or neoprene to avoid damage to conductor and shall be mounted on properly lubricated bearings.

4.2 The running blocks shall be suspended in a manner to suit the design of the cross-arm. All running blocks especially those at the tensioning end, will be fitted on the cross arms with jute cloth wrapped over the steel work and under the slings to avoid damage to the slings as well as to the protective surface finish of the steel work. In case tension or section towers are used even for temporary terminations, if this be unavoidable, they shall be well guyed and steps shall be taken by the Contractor to avoid damage. Guying proposal along with necessary calculations shall be submitted by the Contractor to Engineer-in-Charge for the approval. Proper T&P shall also be made available to the Owner by the Contractor for checking the tensions in the guy wires. The drums shall be provided with a suitable braking device to avoid damages, loose running out and kinking of the conductor. The conductor shall be continuously observed for loose or broken strands or any other damage. When approaching end of a drum length at least three coils shall be left when the stringing operations are to be stopped. These coils are to be removed carefully, and if another length is required to be run out, a joint shall be made as per the recommendations of the accessories manufacturers.

4.3 Repairs to conductors, if necessary, shall be carried out during the running out operations, with repair sleeves. Repairing of conductor surface shall be done only in case of minor damage, scuff marks etc. keeping in view both electrical and mechanical safe requirements. The final conductor surface shall be clean, smooth without any projections, sharp points, cuts, abrasions etc.

4.4 Conductor splices shall be so made that they do not crack or get damaged in the stringing operation. The Contractor shall use only such equipment/methods during conductor stringing which ensure complete compliance in this regard.

4.5 Derricks shall be used where roads, rivers, channels, telecommunication or overhead power lines, railway lines, fences or walls have to be crossed during stringing operations. It shall be ensured that normal services are not interrupted or damage caused to property. Shut down shall be obtained when working at crossing of overhead power lines. The Contractor shall be entirely responsible for the proper handling of the conductor, earthwire and accessories in the field.

4.6 The sequence of running out shall be from top to downwards, i.e. the earthwire shall be run out first, followed by the conductors in succession Unbalances of loads on towers shall be avoided as far as possible.

4.7 The proposed transmission line may run parallel for certain distance with the existing 400 KV, 220 kV, 132 KV lines which may remain energized during the stringing period. As a result there is a possibility of dangerous voltage build up due to electromagnetic and electrostatic coupling in the pulling wire of conductors and earth wires which although comparatively small during normal operation can be severe during

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switching. It shall be the Contractor's responsibility to take adequate safety precautions to protect his employees and others from this potential danger.

4.8 B, C and D angle type of towers are not designed for one side stringing. Therefore proper guying arrangements shall be made for 'B', C and D type of towers during stringing on one section while the other section is not strung. The Contractor has to submit the detailed proposal along with the calculation for guying which shall be approved by Engineer-in-Charge. Proper T&P shall be made available to the Owner by the Contractor for checking the tension in the guy wires. All the expenditure on account of the above work is deemed to be included in the bid price and no extra payment shall be made for the same.

## 5.0 Stringing of earthwire and conductor

The sequence of stringing shall be first earthwire, then phase conductor.

5.1 An allowance of 500 mm should be given to compensate the conductor creep.

5.2 The contractor shall give complete details of the stringing methods which he proposes to follow. Before the commencement of stringing, the Contractor shall submit the stringing charts for the conductor and earthwire showing the initial and final sags and tension for various temperatures and spans, along with equivalent spans in the lines for the approval of the Owner. The stringing chart shall be prepared for actual spans based on tower schedule and shall cover the entire line details.

## 6.0 Jointing

6.1 All the joints on the conductor and earthwire shall be of compression type, in accordance with the recommendations of the manufacturer for which all necessary tools and equipment like motorized compressors, dies processes etc. shall have to be arranged by the contractor. Each part of the joint shall be cleaned by wire brush to make it free of rust or dirt etc. all be properly greased with anti-corrosive compound, if required and as recommended by the supplier before the final compression is done with the compressors.

6.2 All the joints or splices shall be made at least 30 meters away from the structures. No joints or splices shall be made in the spans crossing over main roads, railways, small rivers with tension spans. Not more than one Joint per sub-conductors shall be allowed in one span. The compression type fittings used shall be self centering type or care shall be taken to mark the conductors to indicate when the fitting is centered properly. During compression or splicing operation the conductor shall be handled in such a manner as to prevent lateral or vertical bearing against the dies. After pressing the joint the aluminum sleeve shall have all corners rounded, burrs and sharp edges removed and smoothened.

6.3 During stringing of conductor to avoid any damage to the joint the Contractor shall use a suitable protector with mid span compression joints in case joints are to be passed over pulley blocks/aerial rollers. The size of the groove of the pulley shall be such that the joint along with projection can be passed over it smoothly.

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**7.0 Sagging-in-Operation**

7.1 The conductors, and earth wire shall be pulled unto the desired sag and left in running block for at least one hour after which the sag shall be re-checked and adjusted, if necessary, before transferring the conductors from the running blocks to the suspension clamps. The conductors shall be clamped within 36 hours of sagging in.

7.2 The sag will be checked in the first and the last span of the section in case of sections up to eight spans and in one intermediate span also for sections with more than eight spans. The sag shall also be checked when the conductors have been drawn up and transferred from running blocks to the insulator clamps.

7.3 The running blocks, when suspended from the transmission structure for sagging shall be so adjusted that the conductors on running blocks will be at the same height as the suspension clamp to which it is to be secured.

7.4 At sharp vertical angles, the sags and tensions shall be checked on both sides of the angle, the conductor and earthwire shall be checked on the running block for equality of tension on both sides. The suspension insulator assemblies will normally assume vertical positions when the conductor is clamped.

7.5 Tensioning and sagging operations shall be carried out in calm weather when rapid changes in temperatures are not likely to occur.

7.6 Tensioning and Sagging of Conductors and Earth wire shall be done accordance with the approved stringing charts before the conductors and earthwire are finally attached to the towers through the clamps for the earthwire and insulator strings for the conductor. The 'Initial' stringing chart shall be used for the conductor and 'final' stringing chart for earthwire should be employed for this purpose. Dynamometers shall be employed for measuring tension in the conductor and earthwire. The dynamometers employed shall be periodically checked and calibrated with a standard dynamometer.

**8.0 Clipping in**

8.1 Clipping of the conductors in position shall be done in accordance with the recommendations of the manufacturer. Conductor shall be fitted with the Armour rods where it is made to pass through suspension clamps.

8.2 The jumpers at the section and angle towers shall be formed to parabolic shape to ensure maximum clearance requirements. Pilot suspension insulator string shall be used, if found necessary, to restrict the jumper swings to the design values.

8.3 Fasteners in all fittings and accessories shall be secured in position. The security clip shall be properly opened and sprung into position.

**9.0 Fixing of Conductor/Earthwire Accessories**

Vibration dampers for condoctor and other conductor and earthwire accessories to be supplied by the Contractor shall be installed by the Contractor as per the design requirements and respective manufacturer's instructions within 24 hours of the conductor/ earthwire clamping. While installing the conductor and earthwire accessories proper

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care shall be taken to ensure that the surfaces are clean and smooth and no damage shall occur to any part of the accessories.

## 10.0 Replacement

If any replacements are to be effected after stringing and tensioning or during maintenance, leg members and bracings shall not be removed without reducing the tension on the tower with proper guying or releasing the conductor. If the replacement of cross arms becomes necessary after stringing, the conductor shall be suitably tied to the tower at tension points or transferred to suitable roller pulleys at suspension points.

## 11.0 Returnables

The Contractor shall not be required to return to the owner, empty wooden drums of conductor and earthwire and shall dispose off the same at his cost.

## 12.0 Final checking, testing and commissioning

After completion of the works, final checking of the line shall be done by the Contractor to ensure that all the foundation works, tower erection and stringing have been done strictly according to the specifications and as approved by the Owner. All the works shall be thoroughly inspected keeping in view the following main points:

a) Sufficient backfilled earth is lying over each foundation pit and it is adequately compacted.
b) Concrete chimney and their copings are in good finely shaped conditions.
c) All the tower members are correctly used, strictly according to final approved drawing and are free of any defect or damage, whatsoever.
d) All bolts are properly tightened and punched/tack welded.
e) The stringing of the conductors and earthwire has been done as per the approved sag and tension charts and desired clearances are clearly available.
f) All conductor and earthwire accessories are properly installed.
g) All other requirements to complete the work like fixing of danger-plate, phase plate, number plate, anticliming device, aviation signal(wherever required) etc, are properly installed.
h) Wherever required it should be ensured that revetment is provided.
i) The original tracings of profile, route alignment and tower designs, structural drawings, bill material, shop drawings of all towers other than the towers designed by the Owner are submitted to the owner for reference and record.
j) The line insulation is tested by the Contractor by providing his own equipment, labour etc. to the satisfaction of the owner.
k) All towers are to be properly earthed.
l) The line is tested satisfactorily for commissioning purpose.

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## ANNEXURE – VII

## TECHNICAL SPECIFICATION FOR PORCELAIN DISC / LONGROD INSULATORS

### 1.0 GENERAL

This section details the technical particulars of Porcelain disc / Longrod insulators for 132KV / 220 KV / 400 KV Transmission Lines. The Insulators shall conform in all respects to high standards of Engineering, design, workmanship and latest revisions of relevant standards

Contractor may quote for disc insulator or porcelain longrod insulator made of electro-porcelain.

### 2.0 STANDARDS APPLICABLE

2.1 Except as modified in this specification, the insulators to be supplied shall conform to the latest version, with amendments thereof, of the following Bureau of Indian Standards and equivalent International Standards.

| Sr. No. | Indian Standard | Title | International Standard |
|---|---|---|---|
| 1. | IS: 206 | Method for Chemical Analysis of Slab Zinc | |
| 2. | IS: 209 | Specification for Zinc | BS: 3436 |
| 3. | IS: 731 | Porcelain insulators for overhead power lines with a nominal voltage greater than 1000V | BS 137(I&II) IEC:274 |
| 4. | IS: 2071 Part (I to III) | Method of High Voltage Testing | |
| 5. | IS: 2486 | Specification for Insulator fittings for overhead power lines with a nominal voltage greater than 1000V | |
| | Part I | General Requirements and Tests | BS: 3288 |
| | Part II | Dimensional Requirements | IEC: 120 |
| | Part III | Locking Devices | IEC: 372 |
| | Part IV | Tests for Locking Devices | IEC: 372 |
| 6. | IS: 2629 | Recommended practice for Hot Dip Galvanization for iron and steel | |
| 7. | IS: 2633 | Testing for Uniformity of Coating of Zinc coated articles | |
| 8. | IS: 3188 | Dimensions for Disc Insulators | IEC: 305 |

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| Sr. No. | Indian Standard | Title | International Standard |
|---|---|---|---|
| 9. | IS: 6745 | Determination of Weight of Zinc coating on Zinc coated iron and steel articles | |
| 10. | IS: 8263 | Methods of RIV Test of HV Insulators 107/1964 CISPR | IEC: 437, NEMA Publication No |
| 11. | IS: 8269 | Methods for Switching impulse test on HV insulators | IEC: 506 |
| 12. | | Thermal Mechanical performance test and mechanical performance test on string insulator units | IEC: 575 |
| 13. | | Tests on insulators of Ceramic material or glass or glass for overhead lines with a nominal voltage greater than 1000V | IEC: 60383 |

2.2 Insulators conforming to any other International standards are also acceptable provided always that such standard are equivalent to or better than the corresponding standards specified in 2.1 above. However, in such an event the salient points of comparison between the standards adopted and the standards quoted herein shall be detailed in the offer. One copy of authentic English version of such standards shall be submitted (in physical form) alongwith the offer.

## 3.0 GENERAL REQUIREMENTS:

a) All raw materials to be used in the manufacture of insulators shall be subject to strict raw material quality control and to stage testing/quality control during manufacturing stage to ensure the quality of the final end product. Manufacturing shall conform to the best engineering practices adopted in the field of extra high voltage transmission. Bidders shall therefore offer insulators as are guaranteed by them for satisfactory performance on transmission lines.

b) The design, manufacturing process and material control at various stages shall be such as to give maximum working load, highest mobility, best resistance to corrosion, good finish, elimination of sharp edges and corners to limit corona and radio interference voltages.

c) The design of the insulator shells shall be such that stresses due to expansion and contraction in any part of the insulator shall not lead to deterioration. Shells with cracks shall be eliminated by temperature cycle test followed by mallet test. Shells shall be dried under controlled conditions of humidity and temperature.

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d) The cap and pin shall be designed to transmit the mechanical stresses to the shell by compression and develop uniform mechanical strength in the insulator. The cap shall be circular with the inner and outer surfaces concentric and of such design that it will not yield or distort under loaded conditions. The head portion of the pinball shall be suitably designed so that when the insulator is under tension the stresses are uniformly distributed over the pinhole portion of the shell. The pinball shall move freely in the cap socket either during assembly of a string or during erection of a string or when a string is placed in position.

e) Insulator units after assembly shall be concentric and coaxial within limits as permitted by Indian/International standards.

f) The insulator design shall be such that when units are coupled together to form a string, there shall be no contact between the shell of one unit and metal of the adjacent unit.

g) Metal caps shall be free from cracks, seams, shrinks, air holes, blowholes and rough edges. All metal surfaces shall be perfectly smooth with no projecting parts or irregularities, which may cause corona. All load bearing surfaces shall be smooth and uniform so as to distribute the loading stresses uniformly. Pins shall not show any microscopically visible cracks, inclusions and voids.

h) Cap, Pin shall not be manufactured by joining, welding, shrink fitting or by any other process from more than one piece of metal.

i) The insulator design shall be such that the insulating medium shall not directly engage with hard metal. The surface of porcelain shall be coated with resilient paint to offset the effect of difference in thermal expansion of these materials.

j) The porcelain longrod insulators shall have sheds of 'open aerodynamic profile' with good self cleaning properties. Insulator shed profile, spacing, projection etc. shall be strictly in accordance with the recommendations of IEC:60815.

k) For 400 KV and 220 KV strings, the porcelain longrod insulators shall be supplied with intermediate ball pins.

## 4.0 DETAILS OF INSULATORS:

### 4.1 DISC INSULATORS:

a) The insulator strings shall consist of standard discs for a three phase 50 Hz, effectively earthed 400 KV/220 KV/132 KV transmission system in a moderately polluted atmosphere. The discs shall be cap and pin, ball and socket type.

b) The size of disc insulator, minimum creepage distance, the number to be used in different type of strings, their electromechanical strength; and mechanical strength of insulator string alongwith hardware fitting shall be as follows:



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| Type of String | | Size of disc insulator (mm) | Minimum creepage distance of each disc (mm) | No. of standard discs (Nos.) | Mechanical strength of Insulator string with H/W fitting (KN) |
|---|---|---|---|---|---|
| **400 KV** | | | | | |
| Single Suspension 'I' string/pilot string | (N) | 255x145 | 320 | 23 | 120 |
| | (AF) | 280x145 | 430 | 23 | 120 |
| Double Suspension 'I' string | (N) | 255x145 | 320 | 2x23 | 240 |
| | (AF) | 280x145 | 430 | 2x23 | 240 |
| Single Suspension 'V' string | (N) | 280x170 | 320 | 2x23 | 210 |
| | (AF) | 280/305x170 | 430 | 2x23 | 210 |
| Double Suspension 'V' string | (N) | 280x170 | 320 | 2x2x23 | 420 |
| | (AF) | 280/305x170 | 430 | 2x2x23 | 420 |
| Double Tension string | (N) | 280x170 | 320 | 2x24 | 320 |
| | (AF) | 280/305x170 | 430 | 2x24 | 320 |
| Quadruple Tension String | (N) | 280x170 | 320 | 2x2x24 | 640 |
| | (AF) | 280/305x170 | 430 | 2x2x24 | 640 |
| **220 KV** | | | | | |
| Single Suspension | (N) | 255x145 | 320 | 14 | 70 |
| | (AF) | 280x145 | 430 | 14 | 70 |
| Double Suspension | (N) | 255x145 | 320 | 2x14 | 2x70 |
| | (AF) | 280x145 | 430 | 2X14 | 2X70 |
| Single tension | (N) | 255x145 | 320 | 15 | 120 |
| | (AF) | 280x145 | 430 | 15 | 120 |
| Double tension | (N) | 255x145 | 320 | 2x15 | 2x120 |
| | (AF) | 280x145 | 430 | 2x15 | 2x120 |
| **132 KV** | | | | | |
| Single Suspension | (N) | 255x145 | 320 | 9 | 70 |
| | (AF) | 280x145 | 430 | 9 | 70 |
| Double Suspension | (N) | 255x145 | 320 | 2x9 | 2x70 |
| | (AF) | 280x145 | 430 | 2X9 | 2X70 |
| Single tension | (N) | 255x145 | 320 | 10 | 120 |
| | (AF) | 280x145 | 430 | 10 | 120 |
| Double tension | (N) | 255x145 | 320 | 2x10 | 2x120 |
| | (AF) | 280x145 | 430 | 2x10 | 2x120 |

NOTE: Details applicable for strings required only be considered.

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## 4.2 LONGROD INSULATORS:

a) The insulator strings shall consist of standard longrod insulators for a three phase 50 Hz, effectively earthed 400 KV/220 KV/132 KV transmission system in a moderately polluted atmosphere. The insulators shall be cap and pin, ball and socket type.

b) The length of longrod insulator, minimum creepage distance, the number to be used in different type of strings and mechanical strength of insulator string alongwith hardware fitting shall be as follows:

| Type of String | | Length of longrod insulator (mm) | Minimum creepage distance of each string (mm) | No. of units per string (Nos.) | Mechanical strength of insulator string with H/W fitting (KN) |
|---|---|---|---|---|---|
| **400 KV** | | | | | |
| Single Suspension 'I' string | (N) | 3335 | 7360 | 1x3 | 120 |
| | (AF) | 3335 | 9890 | 1x3 | 120 |
| Double Suspension 'I' string | (N) | 3335 | 7360 | 2x3 | 240 |
| | (AF) | 3335 | 9890 | 2x3 | 240 |
| Single Suspension 'V' string | (N) | 4075 | 7680 | 2x3 | 210 |
| | (AF) | 4075 | 10320 | 2x3 | 210 |
| Double Suspension 'V' string | (N) | 4075 | 7680 | 2x2x3 | 420 |
| | (AF) | 4075 | 10320 | 2x2x3 | 420 |
| Double Tension string | (N) | 4075 | 7680 | 2x3 | 320 |
| | (AF) | 4075 | 10320 | 2x3 | 320 |
| Quadruple Tension string | (N) | 4075 | 7680 | 2x2x3 | 640 |
| | (AF) | 4075 | 10320 | 2x2x3 | 640 |
| **220 KV** | | | | | |
| Single Suspension | (N) | 2030 | 4480 | 2 | 70 |
| | (AF) | 2030 | 6020 | 2 | 70 |
| Double Suspension | (N) | 2030 | 4480 | 2x2 | 140 |
| | (AF) | 2030 | 6020 | 2x2 | 140 |
| Single tension | (N) | 2175 | 4800 | 2 | 120 |
| | (AF) | 2175 | 6450 | 2 | 120 |
| Double | (N) | 2175 | 4800 | 2x2 | 240 |
| | (AF) | 2175 | 6450 | 2x2 | 240 |

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| | | | | | |
|---|---|---|---|---|---|
| 132 KV | | | | | |
| Single Suspension | (N) | 1305 | 2880 | 1 | 70 |
| | (AF) | 1305 | 3870 | 1 | 70 |
| Double Suspension | (N) | 1305 | 2880 | 1x2 | 70 |
| | (AF) | 1305 | 3870 | 1x2 | 70 |
| Single tension | (N) | 1450 | 3200 | 1 | 120 |
| | (AF) | 1450 | 4300 | 1 | 120 |
| Double tension | (N) | 1450 | 3200 | 1x2 | 240 |
| | (AF) | 1450 | 4300 | 1x2 | 240 |

NOTE: Details applicable for strings required only be considered.

c) The electro-mechanical strength of individual disc/longrod in strings mentioned above are as follows:

| Sr. No. | Type of String | Electro-Mechanical strength of individual disc/longrod insulator |
|---|---|---|
| A) | 400 KV | |
| 1) | Single/Double Suspension 'I' string | 120 KN |
| 2) | Single Suspension 'Pilot' string | 120 KN |
| 3) | Single/Double Suspension 'V' string | 160 KN |
| 4) | Double Tension string | 160 KN |
| 5) | Quadruple Tension string | 160 KN |
| B) | 220/132 KV | |
| 1) | Single/Double Suspension string | 70 KN |
| 2) | Single/Double Tension string | 120 KN |

NOTE: Details applicable for strings required only be considered.

## 5.0 DRAWINGS:

5.1 The bidder shall furnish outline drawings of disc insulator unit/longrod indicating all dimensions for scrutiny and approval. All drawings shall be neatly arranged, and all drafting and lettering shall be standard and legible. Dimensions shall be in SI units. The drawings shall give following information:

1) The bill of material indicating quantity and nature of material used for various parts.

2) Details like Ball and Socket designation, Maximum Axial & Radial Runout, Minimum & Protected Creepage distance, Colour of Glaze, Electro-mechanical strength, Identification mark and weight of insulator.

3) Electrical characteristics like One minute power frequency withstand and flashover voltage under dry and wet conditions, Lightening impulse withstand and flashover voltage, Switching surge impulse withstand voltage, Visible discharge and Radio Interference Voltage.

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4) After award of contract, the bidder shall submit 3 sets of drawings to C.E.(D, C&M), giving details as mentioned above, for scrutiny and approval. Once the drawings have been approved, no alteration or modification will be carried out without prior approval of the Purchaser.

## 6.0 SPECIFIC TECHNICAL REQUIREMENTS:

### I) NON-METALLIC PARTS (PORCELAIN)

#### a) PORCELAIN

The porcelain used in the manufacture of the shells shall be ivory white, nonporous, of high dielectric, mechanical and thermal strength, free from internal stresses, blisters, laminations, voids, foreign matter, imperfections or other defects which might render it in any way unsuitable for insulator shells. Porcelain shall remain unaffected by climatic conditions, ozone, acid, alkalis, zinc or dust. The manufacturing shall be by the wet process and impervious character obtained by thorough vitrification.

#### b) PORCELAIN GLAZE

Surfaces to come in contact with cement shall be made rough by sand glazing. All other exposed surfaces shall be glazed with ceramic materials having the same temperature coefficient of expansion as that of the insulator shell. The thickness of glaze shall be uniform throughout and the colour of glaze shall be brown. The glaze shall have a visible luster, shall be smooth on surface and be capable of satisfactory performance under extreme tropical climatic weather conditions and prevent ageing of the porcelain. The glaze shall remain under compression on the porcelain body throughout the working temperature range.

#### c) FILLER MATERIAL

Cement to be used, as a filler material shall be quick setting, fast curing portland cement. It shall not cause fracture by expansion or loosening by contraction. Cement shall not react chemically with metal parts in contact with it and its thickness shall be as small and as uniform as possible.

### II) METALLIC PARTS

#### a) BALL PINS / TWIN BALL PINS

These shall be made of forged steel of grade EN-8D(BS:970)/CL-IV(IS:2004) or equivalent, by drop forging method and normalised. They shall not be manufactured by joining, welding, shrink fitting or by any other process from more than one piece of metal. The ball pins shall be free from forging defects. The bidder shall specify the grade, composition and mechanical properties of steel used in manufacture of ball pin, in Quality Assurance Plan.



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b) METAL CAP

The caps shall be cast from black heart malleable cast iron of grade BM 320 (IS: 14329) or equivalent and annealed. The caps shall be made in single piece and shall be free from casting defects like misrun, cold shut etc.

The bidder shall specify the grade, composition and mechanical properties of steel used in manufacture of caps, in Quality Assurance Plan.

c) INTERMEDIATE ARCING HORN

For 220KV and 400 KV longrod insulators besides arcing horn on tower side of the hardware fittings, intermediate arcing horns alongwith fixtures and fasteners may be provided by the insulator manufacturer. The arcing horn shall be of mild steel tube.

d) SECURITY CLIPS

i) These shall be made of Stainless Steel grade AISI 304/316 (ASTM A276) or Phosphor Bronze.

ii) The security clips to be used as locking device for ball and socket coupling shall be 'R' shaped hump type to provide for positive locking of the coupling as per IS:2486 (Part IV). 'W' type security clips are also acceptable. The legs of the security clips shall allow for spreading after installation to prevent complete withdrawal from the socket. The locking device shall be resilient, corrosion resistant and of sufficient mechanical strength. There shall be no possibility of the locking device to be displaced or be capable of rotation when placed in position and under no circumstances shall it allow separation of insulator units.

iii) The hole for the security clip shall be countersunk and the clip shall be of such design that the eye of the clip may be engaged by a hot line clip puller to provide for disengagement under energized conditions.

iv) The force required for pulling the R-clip into its unlocked position shall not be less than 50 N (5 Kgs) or more than 500 N (50 Kgs).

v) The force required for pulling the W-clip into its unlocked position shall not be less than 25 N (2.5 Kgs) or more than 250 N (25 Kgs).

7.0 GALVANISING:

a) All ferrous parts shall be hot dip galvanized in accordance with IS: 2629 and IS: 2633. Before galvanization, the steel section shall be thoroughly cleaned of any paint, grease, rust, scale, acid/alkali or such other foreign matters as are likely to interfere with the galvanizing process or with the quality and durability of the zinc coating. Pickling shall be very carefully done and shall be proper.

b) Before ball fittings are galvanized, all die flashing on the shank and on bearing surface of the ball shall be carefully removed without reducing the designed dimensional requirements.

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c) The zinc used for galvanizing shall be of grade Zn 98 (% of zinc ≥ 99.95%) as per IS: 209. The mass of zinc coating shall not be less than 610 gm/m$^2$ (86 microns).

d) The galvanized surface shall consist of continuous and uniformly thick coating of zinc, firmly adhering to the surface of steel. The finished surface shall be clean and smooth and shall be free from defects like discolored patches, bare spots, unevenness of coating, spelter which is loosely attached to the steel, globules, spiky deposits, blistered surface, flaking or peeling off etc. The presence of any of these defects noticed on visual or microscopic inspection shall render the material liable to rejection.

e) There shall be no flaking or loosening when struck squarely with a chisel faced hammer. The galvanized components shall withstand minimum four one minute dips in standard copper sulphate solution as per IS: 2633.

f) Defect in any component indicating presence of impurities in the galvanizing bath in quantities larger than that permitted by the specifications, or lack of quality control in any manner in the galvanizing plant, shall render the entire production in the relevant shift liable to rejection.

## 8.0 BALL AND SOCKET DESIGNATION:

The dimensions of ball and socket for 120 KN and 160 KN discs shall be 20 mm in accordance with the standard dimensions stated in IS: 2486 (Part II)/IEC:120.

## 9.0 INTERMEDIATE BALL PIN DESIGNATION:

The dimensions of intermediate ball pin shall be in accordance with standard dimensions stated in IEC:471.

## 10.0 DIMENSIONAL TOLERANCES:

a) **DISC INSULATORS**

The dimensions of the disc insulators shall be within the limits specified below:-

| | Standard | Maximum | Minimum |
|---|---|---|---|
| **Diameter of Disc** (in mm) | | | |
| 120 KN (N) | 255 | 266 | 244 |
| 120 KN (AF) | 280 | 293 | 267 |
| 160 KN (N) | 280 | 293 | 267 |
| 160 KN (AF) | 280/305 | 293/318 | 267/292 |
| **Ball to Ball Spacing between Discs** (in mm) | | | |
| 120 KN (N, AF) | 145 | 149 | 141 |
| 160 KN (N, AF) | 170 | 175 | 165 |

b) **LONGROD INSULATORS**



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The tolerance on all dimensions e.g. diameter, length and creepage distance shall be as follows:

± (0.04d + 1.5) mm when d < 300 mm
± (0.025d + 6) mm when d > 300 mm

where d stands for dimensions in millimeters for diameter, length or creepage distance as the case may be.

However, for creepage distance no negative tolerance shall be applicable.

## 11.0 INTERCHANGEABILITY:

The insulators inclusive of ball and socket fittings shall be of standard design suitable for use with hardware fittings of any make conforming to relevant Indian Standards.

## 12.0 CORONA AND RIV PERFORMANCE:

All surfaces shall be even, smooth, without cuts, abrasions or projections. No part shall be subjected to excessive localized pressure. The metal parts and porcelain shall not produce any noise-generating corona under all operating conditions. The insulators and metal parts shall be so designed and manufactured that it shall avoid local corona formation and not generate any radio interference beyond specified limit under operating conditions.

## 13.0 SUITABILITY FOR LIVE LINE MAINTENANCE:

a) The insulators shall be compatible for use with hot line or live line maintenance techniques so that usual hot line operations can be carried out with ease, speed and safety.

b) All insulators shall be designed to facilitate cleaning and insulators shall have minimum practical number of sheds and grooves. All grooves shall be so proportioned that any dust deposit can be removed without difficulty either by wiping with cloth or by remote washing under live line condition.

## 14.0 FREEDOM FROM DEFECTS:

Insulators shall have none of the following defects:

a) Ball pin shake
b) Cementing defects near the pin like small blowholes, hair cracks, lumps, etc.
c) Sandfall defects on the surface of the insulator.

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## 15.0 STRING CHARACTERISTICS:

The characteristic of the complete string shall be as follows:

| Sr. No. | STRING TYPE ➤ / PARTICULARS ▼ | | SUSPENSION | | | TENSION | | |
|---|---|---|---|---|---|---|---|---|
| | | | 400 KV | 220 KV | 132 KV | 400 KV | 220 KV | 132 KV |
| 1 | Switching Surge Withstand Voltage (Dry & Wet) (KVp) | N | 1050 | -- | -- | 1050 | -- | -- |
| | | AF | 1050 | -- | -- | 1050 | -- | -- |
| 2 | Dry Lightning Impulse Withstand Voltage (KVp) | N | 1600 | 1050 | 650 | 1700 | 1050 | 675 |
| | | AF | | 1080 | 670 | | 1110 | 690 |
| 3 | 50% Lightning Impulse flashover voltage (KVp) | N | 1650 | 1100 | 680 | 1770 | 1100 | 710 |
| | | AF | | 1130 | 700 | | 1125 | 720 |
| 4 | Dry Power frequency withstand voltage (KV rms) | N | 740 | 510 | 335 | 740 | 550 | 375 |
| | | AF | | 520 | 365 | | 570 | 380 |
| 5 | Wet Power frequency withstand voltage (KV rms) | N | 690 | 460 | 300 | 690 | 500 | 350 |
| | | AF | | 480 | 330 | | 520 | 360 |
| 6 | Corona extinction Voltage (KV rms) | N | 320 | 176 | 105 | 320 | 176 | 105 |
| | | AF | 320 | 176 | 105 | 320 | 176 | 105 |
| 7 | Maximum RIV for complete string Including corona Rings, arcing horns, clamps etc. at 1.1 times max. Line to Ground Voltage (μV) | N | 500 | 500 | -- | 500 | 500 | -- |
| | | AF | 500 | 500 | -- | 500 | 500 | -- |
| 8 | Maximum voltage across any disc | N | 9% | 13% | -- | 10% | 13% | -- |
| | | AF | 9% | 13% | -- | 10% | 13% | -- |

## 16.0 TESTS

### 16.1 TYPE TESTS:

a) The bidder shall offer the Insulator that are already type tested within the last five years and manufactured by reputed manufacturer approved by MSETCL. In case the insulators are not type tested within last 5 (five) years as on the date of opening of bids, fresh type tests as specified hereunder shall be carried out in presence of purchaser's representative before supply of materials

b) In case of manufacturers of foreign origin, reports for all the type tests specified under Clause No. 15.1.1 of this specification, conducted in internationally accredited laboratories (accredition based on ISO/IEC vide 25/17025 or EN 45001 by the National



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accredition body of the country where laboratory is located) or at the manufacturers works in presence of users representative can also be submitted alongwith the offer as evidence to establish the fulfillment of above requirement. However, in such a case all type tests as specified under clause No. 15.1.1 of this specification shall be organised by the successful bidder, after award of contract, in presence of Purchaser's representative, at the cost of bidder. The arrangement of journey of purchaser's representative (2 nos.) from his headquarter to the place of testing shall be made by the bidder at his cost.

c) In case, the test(s) on insulator have been conducted earlier than 5 years, the respective type test(s) shall be carried out by the successful bidder, after award of contract, in presence of purchaser's representative, free of cost.

d) If there is any change in manufacturing process or insulator design since after earlier passing of the type tests, all the type tests as specified under Clause No. 15.1.1 shall be carried out by the successful bidder, after award of contract, in presence of purchaser's representative, free of cost.

16.1.1. **LIST OF TYPE TESTS**

The list of type tests to be conducted is as follows:

I) **<u>On Disc/Long rod Insulator Unit</u>:**

| Sr. No. | Particulars of test | Reference Standard |
|---|---|---|
| a) | Visual examination | IS:731 |
| b) | Verification of dimensions test | IS: 731 |
| c) | Thermal-Mechanical performance test | IEC: 575 and Annexure-a of this specification |
| d) | Power frequency voltage flashover test<br>i) Dry<br>ii) Wet | IEC:60383 |
| e) | Lightning impulse voltage withstand test (Dry) | IEC: 60383 |
| f) | 50% Lightning Impulse voltage flashover test (Dry) | IEC: 60383 |
| g) | Visible Discharge test (Dry) | IS:731 |
| h) | Radio Interference Voltage test (Dry) | IEC: 60437 & Annex.-a of this specification |
| i) | Residual strength test (On 160KN disc insulator only) | As per Annex.-a of this specification |
| j) | Steep wave front test (On 160KN disc insulator only) | As per Annexure - a of this specification |

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II) **On complete insulator string with hardware fittings:**

a) The type tests on 132KV and 220KV strings specified hereunder, shall be conducted on Single Suspension (1x70 KN) and Double tension (2x120 KN) insulator strings alongwith hardware fittings except for mechanical strength test which shall be conducted on all strings mentioned.

b) The type tests on 400KV strings specified hereunder, shall be conducted on Single 'I' Suspension (1x120 KN) and Double tension (2x160 KN) insulator strings alongwith hardware fittings.

| Sr. No. | Particulars of test | Reference Standard |
|---|---|---|
| A) | **On 132KV String of 70KN & 120KN insulators** | |
| a) | Power frequency voltage withstand test<br>i) Dry<br>ii) Wet | IEC:60383 |
| b) | Lightning Impulse voltage withstand test (Dry) | IEC:60383 |
| c) | 50% Lightning Impulse voltage flashover test (Dry) | IEC:60383 |
| d) | Mechanical strength test on<br>i) Single suspension string<br>ii) Double suspension string<br>iii) Single Tension string<br>iv) Double Tension string | As per Annexure-II of this specification |
| B) | **On 220KV String of 70KN & 120KN insulators** | |
| a) | Power frequency voltage withstand test<br>i) Dry<br>ii) Wet | IEC:60383 |
| b) | Lightning Impulse voltage withstand test (Dry) | IEC:60383 |
| c) | 50% Lightning Impulse voltage flashover test (Dry) | IEC:60383 |
| d) | Voltage distribution test (For Disc insulator only) | IEC:60383 |
| e) | RIV test under dry condition | As per Annexure-II of this specification |
| f) | Mechanical strength test on<br>i) Single suspension string<br>ii) Double suspension string | As per Annexure-II of this specification |



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iii) Single Tension string
iv) Double Tension string

| Sr. No. | Particulars of test | Reference Standard |
|---|---|---|
| C) | **On 400KV String of 120KN & 160KN insulators** | |
| I) | **On 1st sample** | |
| a) | Power frequency voltage withstand test with corona control/grading rings and arcing horn i) Dry ii) Wet | IEC:60383 and Annexure-a of this specification |
| b) | Switching Surge voltage withstand test (Wet) | IEC:60383 and Annexure-a of this specification |
| c) | Lightning Impulse voltage withstand test (Dry) | IEC:60383 and Annexure-a of this specification |
| d) | 50% Lightning Impulse voltage flashover test (Dry) | IEC: 60383 and Annexure-a of this specification |
| e) | Voltage distribution test | IEC: 383 and Annexure-a of this specification |
| f) | Corona and RIV test under dry condition | As per Annexure - a of this specification |
| g) | Mechanical strength test i) Single 'I' suspension string ii) Double Tension string | As per Annexure-a of this specification |
| II) | **On 2nd sample** | |
| b) | Dynamic test (Vibration test) | As per Annexure - a of this specification |
| III) | **On 3rd sample** | |
| i) | Time Load test | As per Annexure - a of this specification |

16.2 **ACCEPTANCE TESTS:**

This shall mean those tests, which are to be carried out on samples taken from each lot offered for predespatch inspection for the purpose of acceptance of the lot.

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16.2.1 **LIST OF ACCEPTANCE TESTS:**

The following acceptance tests shall be conducted on 70KN, 120KN and 160KN disc / longrod insulators in presence of purchasers representative for the purpose of acceptance of a lot:

| Sr. No. | Particulars of test | Reference Standard |
|---|---|---|
| a) | Visual examination | IS:731 |
| b) | Verification of dimensions | IS: 731 |
| c) | Temperature cycle test | IS: 731 |
| d) | Galvanizing test | IS: 731 |
| e) | Mechanical performance test | IEC: 60575 |
| f) | Test on locking device for ball and socket coupling | IS: 2486(IV) |
| g) | Eccentricity test (Axial & Radial Runout) | IEC:60383/60168 |
| h) | Electro-mechanical strength test | IS: 731 |
| i) | Puncture test (Only for Porcelain Disc insulators) | IS: 731 |
| j) | Porosity test (Only for Disc insulators) | IS: 731 |
| k) | Power frequency voltage withstand test (Dry) (Only on Disc insulator) | IEC: 60383 |
| l) | Mechanical strength test (On longrod insulator only) | IEC:60383-1 |

16.3 **ROUTINE TESTS:**

This shall mean those tests, which are to be carried out on each insulator to check the requirements which are likely to vary during production.

16.3.1 **LIST OF ROUTINE TESTS:**

The following routine tests shall be conducted on each insulator and results certified by the manufacturer.

| Sr. No. | Particulars of test | Reference Standard |
|---|---|---|
| a) | Visual Inspection | IS: 731 |
| b) | Mechanical routine test | IS: 731 |



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| | | | |
|---|---|---|---|
| c) | Electrical routine test (For disc insulator only) | ) | IEC: 60383 |

16.4 **TESTS DURING MANUFACTURING:**

Stage tests during manufacturing shall mean those tests, which are to be carried out during the process of manufacturing to ensure quality control such that the end product is of the designed quality conforming to the intent of this specification.

16.4.1 **LIST OF TESTS DURING MANUFACTURING:**

The following tests, including but not limited to, shall be conducted on raw and in process material during the process of manufacturing:

| Sr. No. | Particulars of test | | Reference Standard |
|---|---|---|---|
| a) | Fineness, Raw appearance, Fired appearance, Free Magnetic Iron content, Grain size, Chemical Analysis, Free Moisture Content on raw materials like Quartz Powder, Feldspar Powder, China Clay, Ball Clay etc. | ) | Relevant Indian /International/ Plant standard |
| b) | Raw appearance, Fired appearance, Chemical Analysis of Glaze material | ) | Relevant Indian /International/ Plant standard |
| c) | Visual inspection, Grain size, Compressive Strength, Optimum water content, Initial and final setting time, Auto Clave Expansion of Cement | ) | Relevant Indian /International/ Plant standard |
| d) | Hydraulic Pressure Proof load test, High Frequency test on Porcelain Shell | ) | Relevant Indian /International/ Plant standard |
| e) | Visual inspection, Dimension/Gauge Checking, Chemical Analysis, Tensile Strength, Hardness, Grain size, Inclusion rating, Heat treatment, Magnetic Particle Inspection on ball pins | ) | As per Annexure - a of this specification |
| f) | Visual inspection, Dimension/ Guage Checking, Chemical Analysis, Tensile Strength, Hardness, Microstructure, Magnetic Particle Inspection on MCI caps | ) | As per Annexure - a of this specification |
| g) | Visual inspection, Dimensional verification, Resistance to Bending, Operation test, Hardness test on Security Clip | ) | As per Annexure - a of this specification |
| | Chemical analysis of Zinc used for galvanizing | ) | As per Annexure - a of this specification |

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**17.0 TEST VALUES:**

For all type and acceptance tests, the acceptance values shall be the values guaranteed by the Bidder in the guaranteed technical particulars or the acceptance value specified in this specification or the relevant standard whichever is more/stringent for that particular test.

**18.0 TEST PROCEDURE AND SAMPLING NORMS:**

a) The test procedure and sampling norms for carrying out type tests, acceptance tests and routine tests shall be as per reference standards specified under clause No. 15.0 of this specification.

b) The test procedure and sampling norms for carrying out tests during manufacturing shall be as per relevant Indian/ International Standard where applicable and plant standard for others. The sampling norm for conducting tests on bought out items shall be as outlined in Annexure-a of this specification.

c) The bidder shall furnish details regarding sampling norm and reference standard followed, in Quality Assurance Plan.

**19.0 ADDITIONAL TESTS:**

The Purchaser reserves the right for carrying out any other test(s) of a reasonable nature at the works of the supplier or at any other recognized laboratory/research institute in addition to the above mentioned type, acceptance and routine tests at the cost of the Purchaser to satisfy himself that the material complies with the intent of this specification.

**20.0 IDENTIFICATION MARK:**

a) The shell of each disc/longrod insulator shall be legibly and indelibly marked with the trade mark/name of the manufacturer, the month and year of manufacture, country of manufacture, guaranteed electro-mechanical strength in Kilo-Newton's abbreviated by 'KN' to facilitate easy identification and proper use. The marking shall be printed and not impressed and the same shall be applied before firing.

b) The metal cap of each disc/longrod insulator shall bear the name of manufacturer by embossing. The identifying letters shall be at least 5 mm high. The characters shall be distinct, durable, and conspicuous after galvanizing.

**21.0 INSPECTION:**

a) The work and materials covered by this specification shall be subject to inspection by the authorised representative of the Purchaser at manufacturer's/ sub-vendors work.

b) Inspector shall have free access at all times to all parts of the shop where raw material is stacked, and where material is being manufactured and shall be provided with all reasonable facilities for inspection and tests. Equipments and instruments required for



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carrying out the tests shall be furnished by the manufacturer. No material shall be dispatched without inspection unless such inspection is waived in writing by Purchaser.

c) Inspection by inspector or waival of inspection shall neither relieve the manufacturer from the responsibility of supplying materials confirming to the requirements of this specification nor invalidate any claims which may be made because of defective or unsatisfactory material, workmanship, galvanizing etc.

d) The correct grade and quality of raw material shall be used by the manufacturer. To ascertain the grade of material, the Purchaser may at his discretion get the material tested at an approved laboratory of his choice.

e) The arrangement of journey (by air) of purchaser's representative (2 nos.) from his headquarter to the place of testing and boarding/lodging shall be made by the bidder at his cost.

## 22.0 PACKING & FORWARDING:

a) All disc/longrod insulators shall be packed in strong seasoned wooden crates. The gross weight of the crates alongwith insulators shall not normally exceed 50 Kg for disc insulators and 65 Kg for longrod insulators to avoid handling problem.

b) The packing shall be of sufficient strength to withstand rough handling during transit, storage at site and subsequent handling in the field.

c) Suitable cushioning, protective padding, dunnage or spacers shall be provided to prevent damage or deformation during transit and handling.

d) All packing cases shall be marked legibly and correctly so as to ensure safe arrival at their destination and avoid the possibility of goods being lost or wrongly despatched on account of faulty packing and faulty or illegible markings. Each wooden case/crate shall have all the markings stenciled on it in indelible ink.

## 23.0 GUARANTEED TECHNICAL PARTICULARS FOR INSULATORS:

The Guaranteed Technical Particulars for Insulators enclosed as SCHEDULE- "IIC" shall be duly filled in and submitted along with the offer.

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## SCHEDULE- IIC

### A) GUARANTEED TECHNICAL PARTICULARS FOR UNIT DISC INSULATOR

| Sr. No. | INSULATOR TYPE ▶ / PARTICULARS ▼ | 70 KN (N) | 70 KN (AF) | 120 KN (N) | 120 KN (AF) | 160 KN (N) | 120 KN (AF) |
|---|---|---|---|---|---|---|---|
| 1) | Manufacturers name, address and country | | | | | | |
| 2) | Size and designation of Ball & Socket and standard to which it will conform (mm) | | | | | | |
| 3) | Outside diameter of disc (mm) | | | | | | |
| 4) | Spacing (mm) | | | | | | |
| 5) | Eccentricity of disc | | | | | | |
| a) | Axial runout(mm) | | | | | | |
| b) | Radial runout(mm) | | | | | | |
| 6) | Creepage distance of disc (mm) | | | | | | |
| 7) | Electro-mechanical strength of disc(KN) | | | | | | |
| 8) | Withstand voltage of disc | | | | | | |
| 8.1 | Power frequency | | | | | | |
| a) | Dry (kV rms) | | | | | | |
| b) | Wet (kV rms) | | | | | | |
| 8.2 | Impulse voltage (1.2/50 μsec) | | | | | | |
| a) | +ve (kV peak) | | | | | | |
| b) | –ve (kV peak) | | | | | | |



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| Sr. No. | INSULATOR TYPE ▶ / PARTICULARS ▼ | 70 KN (N) | 70 KN (AF) | 120 KN (N) | 120 KN (AF) | 160 KN (N) | 120 KN (AF) |
|---|---|---|---|---|---|---|---|
| 9) | Flashover voltage of disc | | | | | | |
| 9.1 | Power frequency | | | | | | |
| a) | Dry (kV rms) | | | | | | |
| b) | Wet (kV rms) | | | | | | |
| 9.2 | 50% Lightning impulse voltage (1.2/50 μsec) | | | | | | |
| a) | +ve (kV peak) | | | | | | |
| b) | -ve (kV peak) | | | | | | |
| 10) | Corona inception voltage (kV rms) | | | | | | |
| 11) | Corona extinction voltage (kV rms) | | | | | | |
| 12) | Max. RIV at 1 MHz and 10 KV AC (rms) | | | | | | |
| 13) | Weight of each disc (kgs) | | | | | | |

NOTE 1) Please furnish GTP, only for insulators mentioned in tender document.

Signature of the Bidder.....

Name.....

Designation.....

Date.....

Common seal of the bidder.....

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## SCHEDULE- IIC

### B) GUARANTEED TECHNICAL PARTICULARS FOR 132KV AND 220KV DISC / LONGROD INSULATOR STRING

| Sr. No. | STRING TYPE ➤ / PARTICULARS ▼ | SINGLE SUSPENSION (70 KN) | DOUBLE SUSPENSION (2x70KN) | SINGLE TENSION (120KN) | DOUBLE TENSION (2x120 KN) |
|---|---|---|---|---|---|
| 1) | No. of insulator discs per string | | | | |
| 2) | **Withstand voltage of complete string** | | | | |
| 2.1 | Power frequency | | | | |
| a) | Dry (kV rms) | | | | |
| b) | Wet (kV rms) | | | | |
| 2.2 | Impulse voltage (1.2/50 μsec) | | | | |
| a) | +ve (kV peak) | | | | |
| b) | -ve (kV peak) | | | | |
| 3) | **Flashover voltage of complete string** | | | | |
| 3.1 | Power frequency | | | | |
| a) | Dry (kV rms) | | | | |
| b) | Wet (kV rms) | | | | |
| 3.2 | 50% Lightning impulse voltage (1.2/50 μsec) | | | | |
| a) | +ve (kV peak) | | | | |
| b) | -ve (kV peak) | | | | |
| 4) | Corona inception voltage (kV rms) | | | | |

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| Sr. No. | STRING TYPE ▶ / PARTICULARS ▼ | SINGLE SUSPENSION (70 KN) | DOUBLE SUSPENSION (2x70KN) | SINGLE TENSION (120KN) | DOUBLE TENSION (2x120 KN) |
|---|---|---|---|---|---|
| 5) | Corona extinction voltage (kV rms) | | | | |
| 6) | Max. RIV for complete string including corona rings, arcing horns, clamps etc. at 1.1 times maximum line to ground voltage (in μvolts) | | | | |
| 7) | Max. voltage (%) across any disc in the string | | | | |
| 8) | Electromechanical strength of complete string (KN) | | | | |

NOTE: 1) Separate sheets to be filled in for each voltage class.
2) Please furnish GTP, only for insulators mentioned in tender document.

Signature of the Bidder.....

Name.....

Designation.....

Date.....

Common authorised seal of the bidder.....

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SCHEDULE- IIC

C) GUARANTEED TECHNICAL PARTICULARS FOR 400 KV DISC / LONGROD INSULATOR STRING

| Sr. No. | STRING TYPE ► / PARTICULARS ▼ | SINGLE"I" SUSPENSION (120 KN) N/AF | DOUBLE"I" SUSPENSION (120KN) N/AF | QUAD TENSION (160KN) N/AF |
|---|---|---|---|---|
| 1) | No. of insulator discs per string | | | |
| 2) | Withstand voltage of complete string | | | |
| 2.1 | Power frequency | | | |
| a) | Dry (kV rms) | | | |
| b) | Wet (kV rms) | | | |
| 2.2 | Impulse voltage (1.2/50 μsec) | | | |
| a) | +ve (kV peak) | | | |
| b) | –ve (kV peak) | | | |
| 3) | Flashover voltage of complete string | | | |
| 3.1 | Power frequency | | | |
| a) | Dry (kV rms) | | | |
| b) | Wet (kV rms) | | | |
| 3.2 | 50% Lightning impulse voltage (1.2/50 μsec) | | | |
| a) | +ve (kV peak) | | | |
| b) | –ve (kV peak) | | | |
| 4) | Corona inception voltage (kV rms) | | | |
| 5) | Corona extinction voltage (kV rms) | | | |

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| | | | | |
|---|---|---|---|---|
| 6) | Max. RIV for complete string including corona rings, arcing horns, clamps etc. at 1.1 times maximum line to ground voltage (in uvolts) | | | |
| 7) | Max. voltage (%) across any disc in the string | | | |
| 8) | Electromechanical strength of complete string (KN) | | | |

Signature of the Bidder.....

Name.....

Designation.....

Date.....

Common authorized seal of the bidder.....

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ANNEXURE - a

## TEST PROCEDURE

### 1.0 PROCEDURE FOR MOUNTING INDIVIDUAL DISC AND COMPLETE STRING FOR MEASUREMENT OF RIV, VOLTAGE DISTRIBUTION & VISIBLE DISCHARGE:

a) The insulator unit or insulator string shall be suspended vertically by means of an earthed wire rope or other suitable means from a supporting structure. The distance between the upper most point of the insulator metal work and the supporting structure shall be not less than 1 meter. No other object shall be nearer to the insulator than 1 meter or 1.5 times the length of the insulator string, whichever is greater. A length of conductor in the form of a straight smooth metal rod or tube shall be attached to the lower integral fitting of the insulator unit or insulator string so that it lies in a horizontal plane and the distance from the lowest shed of porcelain part to the upper surface of the conductor shall be as short as possible but greater than 0.5 times the diameter of the lowest insulator.

b) The diameter of the conductor shall be about 1.5% of the length of the insulator unit or insulator string with a minimum of 25 mm.

c) The length of the conductor shall be at least 1.5 times that of the insulator unit or insulator string and it shall extend at least 1 meter on each side of the vertical axis.

d) Precaution shall be taken to avoid flashover from the ends of the conductor.

e) The test voltage shall be applied between the conductor and earth.

### 2.0 MOUNTING PROCEDURE FOR COMPLETE STRING FOR WET POWER FREQUENCY, WET SWITCHING SURGE AND DRY IMPULSE WITHSTAND TESTS:

a) The insulator string shall be suspended vertically in an arrangement simulating a tower body and cross arm. The cross arm is simulated by a horizontal member, the insulator string being at one end and the vertical member simulating the tower body at the other. Both members and the link supporting the insulator string shall be earthed. The width of each member facing the insulator string shall be from 400 mm minimum to at least 20% of the length of the insulator string. The distance between the axis of the insulator string and the vertical member simulating the tower body shall be between 1.2 and 1.5 times the length of the insulator string. The distance between the upper most point of the insulator string and the lower part of the horizontal member simulating the cross arm shall be equal to about 300 mm. The member simulating the tower body shall extend to at least twice the length of the insulator string below the member simulating the tower cross arm.

b) A bundle consisting of two/quad sub conductors in the form of straight smooth metal rods or tubes shall be attached to the lower integral fittings of the insulator string at right angles to the cross arm. The two/quad sub conductors of the bundle shall be maintained parallel by means of horizontal spacers, the sub conductor spacing shall be equal to about one tenth of the length of the insulator string. The bundle shall extend approximately for the length of the insulator string on each side of the axis of the insulator string and diameter of each sub conductor shall be between 0.75% and 1.25% of the length of insulator string. To avoid spark over from the two ends of the bundle, each end shall be protected by means of a suitable device (for instance by means of metal ring). The height of the conductor above ground shall be equal to about 1.5 times the length of the insulator string but not less than 6 meters.

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c) The test voltage shall be applied between the conductor bundle and earth, the H.V. connection being made at one end of the conductor bundle.

d) During the test, no object other than those described in this clause shall be nearer to the live end of the insulator string than 1.5 times the length of string.

e) The insulator string shall be complete with those parts, which are considered necessarily associated with the string and are specified as such by the manufacturer.

3.0 **TESTING PROCEDURE FOR DYNAMIC TEST (VIBRATION TEST)**

Complete string is to be subjected to aeolian vibrations by suitable arrangement, while keeping the tension at every day stress (e.d.s). The string shall be vibrated at frequencies and double amplitude as already agreed between purchaser and supplier for 10 million cycles. After 5 million cycles, the string shall be rotated through 90 in horizontal plane. For 'V'/'I' suspension string & quad tension string, the e.d.s. will be 4600 kgs per conductor. All discs shall be thoroughly checked for any damage, cracks, loosening of pins/caps. Thereafter, all the discs will be subjected to electrical routine test, electro mechanical failing load test and porosity test. The string shall be deemed to have passed the dynamic test if it withstands all these tests.

4.0 **TESTING PROCEDURE FOR WET POWER FREQUENCY WITHSTAND TEST** ( As per IEC: 60383/IS: 731)

a) The insulator string shall be mounted as per mounting arrangement given above in Clause 2.0.

b) The characteristics of artificial rain shall be in accordance with Clause 3.3 of IS 2071 (Part-I)

c) The test voltage to be applied to the insulator string shall be the wet power frequency withstands voltage adjusted for atmospheric conditions at the time of test.

d) A voltage of about 75% of the test voltage so determined shall be applied and then increased gradually with a rate of rise of about 2% of this voltage per second. The test voltage at full value shall be maintained for one minute. No flashover or puncture shall occur during this period.

5.0 **TESTING PROCEDURE FOR WET SWITCHING SURGE WITHSTAND TEST.** (As per IEC: 60383/IS: 731)

a) The insulator string shall be mounted as per mounting arrangement given above (Clause 2.0). The impulse generator shall be adjusted to produce a 250/2500 μ second impulse wave. Impulse waves of both positive and negative polarity shall be used. Wet tests shall be made under the conditions prescribed in specified standards.

b) The withstand test shall be performed at a specified switching impulse voltage with application of corrections for atmospheric conditions. Fifteen impulses shall be applied to the insulator string under test. If the number of flashovers on the external insulation does not exceed two, the insulator string shall be deemed to have complied with this test requirement.

c) The insulators shall not be damaged by the test but slight marks on the

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surface of the insulating parts or chipping of the cement or other material used for assembly is permitted.

6.0 TESTING PROCEDURE FOR DRY LIGHTNING IMPULSE VOLTAGE WITHSTAND TEST: (As per IEC: 60183/IS: 731)

a) The insulator string shall be arranged as per mounting arrangement given above (Clause 2.0). Impulse waves of both positive and negative polarity shall be used. However, when it is evident which polarity will give the lowest flashover voltage it will suffice to test with that polarity.

b) The impulse generator shall be adjusted to produce a standard 1.2/50 μ second impulse wave of a value equal to the specified value of the impulse withstand voltage corrected for atmospheric conditions.

c) Five such impulses shall be applied. If there is no flashover or puncture, the insulator shall be considered to have passed the test. If during the application of these five impulses, puncture occurs or if there is more than one flashover, the insulator shall be considered to have failed to comply with the test requirement. If only one flashover occur, a new series of ten impulses shall be applied. The insulator will be considered to have passed the test only if during this new series of impulses there is no flashover or puncture.

d) The insulators shall not be damaged by the test but slight marks on the surface of the insulating parts or chipping of the cement or other material used for assembly is permitted.

7.0 TESTING PROCEDURE FOR MECHANICAL STRENGTH TEST ON STRING:

a) The complete disc/longrod insulator string consisting of number of units as stipulated alongwith its hardware fitting excluding arcing horn, corona control ring/grading ring and suspension/dead end assembly shall be mounted in the Tensile Testing Machine.

b) The assembly shall then be subjected to a tensile load equal to 50% of the specified minimum ultimate tensile strength (UTS) which shall be increased at a steady rate to 67% of the minimum UTS specified. This load shall be maintained on the string for five minutes and then removed. After removal of the load the string shall be unloaded and dismantled with hand or small hand tools and the string components shall be inspected for visual deformation. Should any difficulty be experienced in dismantling and re-assembling the string with hand or small hand tool and/or if there is any visual deformation caused by the application of the above load, the string shall be deemed to have failed in this test.

c) If the string can be re-assembled, it shall again be mounted in the tensile testing machine and loaded up to 50% of UTS and the load shall be further increased at a steady rate till the specified minimum UTS is reached and held there for one minute. No fracture should occur during this period. The applied load shall then be increased until the failing load is reached and the value recorded. The string shall be deemed to have passed the test if the breakage occurs at a load not lower than guaranteed E&M strength.

8.0 TESTING PROCEDURE FOR TIME LOAD TEST:

The insulator string shall first be subjected to 5 minutes power frequency routine test. After successful completion of this test, the insulator string shall be mounted

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vertically/horizontally and subjected to a load equal to 66% of the specified mechanical strength for duration of 24 hours.

b) After the completion of above period if the string is found to be intact on visual examination, it shall again be subjected to 5 minutes power frequency routine test. The string shall be deemed to have passed the time load test if it successfully withstands 5 minutes power frequency routine test.

9.0 **TESTING PROCEDURE FOR VOLTAGE DISTRIBUTION TEST:**

The voltage across each insulator unit shall be measured by sphere gap method. The result obtained shall be converted into percentage and proportionate correction be applied so as to give a total of 100% distribution. The voltage across any disc shall not exceed the specified values.

10.0 **TESTING PROCEDURE FOR CORONA EXTINCTION VOLTAGE TEST (Dry):**

The sample assembly when subjected to power frequency voltage shall have a corona extinction voltage of not less than the value specified under dry condition. There shall be no evidence of corona on any part of the sample when all possible sources of corona are photographed in a darkened room.

11.0 **TESTS ON INDIVIDUAL DISCS:**

11.1 **VISUAL EXAMINATION:**

a) Visual examination shall be made at random on the lot of insulators. The color of the insulator shall approximate to the color specified. Some variation of color shade is permitted and shall not justify rejection of the insulator. The insulator shall be free from physical distortion of shape within tolerance specified. Defects such as looseness of pins/caps, cracks etc. in the metal part shall be checked.

b) The area specified as glazed on the drawing shall be covered by a smooth hard glaze, free from cracks and other defects prejudicial to satisfactory performance in service.

c) Out of the areas specified as glazed on the drawing the total area not covered by glaze shall not exceed.

$$1 + \frac{DF}{2000} \text{ cm}^2$$

Also the area of any single glaze defect shall not exceed:

$$0.5 + \frac{DF}{20000} \text{ cm}^2$$

Where:

D is the greatest diameter of the insulator in cm.
F is the creepage distance of the insulator in cm.

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11.2 **VERIFICATION OF DIMENSIONS:**

The dimension of the insulator shall be checked with the approved drawing. Unless otherwise specified, the tolerance in the diameter shall be:



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± (0.04D + 1.5) mm for D less than or equal to 300 mm and
± (0.03D + 6) mm for D more than 300 mm.

Where: **D** = Specified insulator diameter in mm.
The tolerance in spacing shall be ± (0.03S + 0.3) mm.
Where: S = Specified insulator spacing in mm.

11.3 **ECCENTRICITY TEST (AXIAL RUNOUT & RADIAL RUNOUT):**
The insulator shall be vertically mounted on a fixture using dummy pin and socket. A vertical scale with horizontal slider shall be used for the axial run out. The scale shall be positioned in contact with the bottom of the outermost petticot of the disc. The disc insulators shall be rotated with reference to the fixture and the slider shall be allowed to move up and down on the scale but always maintaining contact with the bottom of the outermost petticot. After one full rotation of the disc the maximum and minimum position the slider has reached on the scale can be found out. Difference between the above two readings shall satisfy the guaranteed value for axial run out.

Similarly, using a horizontal scale with vertical slider the radial run out shall be measured. The slider shall be positioned on the scale to establish contact with the circumference of the disc insulator and disc insulator rotated on its fixture always maintaining the contact. After one full rotation the maximum and minimum position of the slider reached on the scale are found out. The difference between the above readings shall satisfy the guaranteed value for radial run out.

11.4 **DRY LIGHTNING IMPULSE VOLTAGE WITHSTAND TEST:**

Please refer to Clause No. 5.0 for Testing Procedure.

11.5 **WET POWER FREQUENCY WITHSTAND TEST:**

Please refer to Clause No. 4.0 for Testing procedure.

11.6 **RADIO INTERFERENCE VOLTAGE TEST :** ( As per IS 8263)

a) Insulator string or insulators shall be mounted as per mounting arrangement given above (Clause 1). As radio interference level may be affected by fibres or dust setting on the insulator, the insulators may be wiped with a clean cloth before taking a measurement. The atmospheric conditions during tests shall be recorded. It is not known what correction factors apply to radio interference testing, but it is known that rest may be sensitive to high relative humidity exceeding 80%.

b) The test circuits may be either NEMA-107 or as per Fig.1 of IS: 8263. The measuring set shall be tuned to 1 MHz ± 10% frequency and the results shall be expressed as dB above 1 μ volt across a resistance of 300 Ohm.

c) A voltage of 10% higher than the specified test voltage shall be applied to the object under test and maintained for at least 5 minutes. The voltage shall then be decreased by steps down to 30% of the specified test voltage, raised again by steps to the initial value and finally decreased by steps to the 30% value. At each step, a radio interference level as recorded during third run v/s the applied voltage shall be plotted.

The curve so obtained is the radio interference characteristics of the insulator. Each voltage step shall be approximately 10% of the specified test voltage.

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d) The insulator unit passes the radio interference test if the radio interference level at the specified test voltage, as read from the radio interference characteristic, does not exceed the specified radio interference level. Furthermore, no sudden increase shall be found on the radio interference characteristic between the specified test voltage and 1.1 times the specified test voltage. Because of high variability, it is preferable to make radio interference measurements on a number of insulators. The radio interference characteristic is the mean curves obtained after taking into account all measurements made on insulators of one type.

11.7 TEST PROCEDURE FOR THERMAL-MECHANICAL PERFORMANCE TEST (As per IEC 575)

The test shall be conducted on string of 3 or 10 or 15 units.

a) This test has an initial stage of thermal cycles together with mechanical loading and unloading and a concluding stage of testing the insulator units to failure. Such a failing load test constitutes the basis of the thermal mechanical performance test in judging the test results.

b) During the initial stage of test, the insulator units shall be subjected to four 24 hours cycles of cooling and heating and to a tensile load equal to 60% of the specified electro-mechanical failing load. The tensile load shall be applied to the insulator units at room temperature before starting the first thermal cycle.

c) Each 24 hours cycle shall comprise a cooling to -30 ± 5° C and a heating to +40 ± 5° C. The temperature limits for temperate range of 45° C may be suitably changed where the prevailing conditions so require. The temperature sequence shall be first cooling, then heating. The temperature equipment shall be such as to permit keeping of minimum and maximum temperatures each for at least four consecutive hours of the temperature cycle.

d) The tensile load shall be completely removed and reapplied towards the end of each heating period, the last one excepted.

e) On completion of the fourth 24 hours cycle and cooling to room temperature the tensile load shall be removed on the same day. After this load removed, the insulator units shall be subjected individually to an electromechanical strength test.

f) The performance of insulator unit will be determined by comparison of the failing load values and the fracture pattern obtained during the electromechanical strength test.

11.8 RESIDUAL STRENGTH TEST

The test shall be conducted in accordance with clause No. 4.4 and 4.5 of IEC: 797 proceeded by temperature cycle test. The sample size shall be 25 and the evaluation of results and acceptance criteria shall be as per Clause No. 4.6 of IEC: 797.

11.9 POLARISED LIGHT INSPECTION (Only for Glass Disc Insulator)

The disc insulator shall be held over a polarised light source and the stress lines viewed thereon. There shall be no uneven stress distribution in the toughened glass insulators. This shall be carried out on 100% glass shells.

11.10 STEEP WAVE FRONT TEST (Only for Glass Disc Insulator)

Following test shall be performed on 10 insulator units in case of disc insulators selected at random from the lot offered for inspection.



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a) Each insulator unit shall be subjected to five successive positive and negative impulse flashovers with a wave having minimum effective rate of rise of 2500 kV per microseconds.

b) Each unit shall then be subjected to three dry power frequency voltage flashovers.

**Acceptance Criteria**

An insulator shall be deemed to have met the requirement of this test if, having been successfully subjected to the ten impulse flashovers, the arithmetic mean of the three subsequent dry power frequency voltage flashover values equals or exceeds 95% of the rated dry power frequency flashover voltage.

An insulator shall be deemed to have failed to meet the requirement of above testing if,

(a) It has not flash over when the oscillogram or peak voltage indicator shows a marked reduction in voltage.

or

(b) Any one of the subsequent three dry power frequency voltage flashover value is less than 80% of the value specified.

In case of failure of any one unit either in the steep wave front or subsequent low frequency voltage test, above tests shall be conducted on double number of units.

## 11.11 MECHANICAL FAILING LOAD TEST

The test shall be performed in accordance with clause No. 18 and 19 of IEC 383 with the following acceptance criteria:

(i) X greater than or equal to R + 3S

Where

X = Mean value of the electro-mechanical/mechanical failing load.

R = Rated electro-mechanical / mechanical failing load.

S = Standard deviation.

(ii) The minimum sample size shall be taken as 20 for disc insulators units and 5 for long rod units. However, for larger lot size, IEC 591 shall be applicable.

(iii) The individual electro mechanical/mechanical failing load shall be at least equal to the rated value. Also electrical puncture shall not occur before the ultimate fracture.

## 12.0 HYDRAULIC INTERNAL PRESSURE TEST ON SHELLS:

The test shall be carried out on 100% disc insulator shells before assembly. The insulator should withstand required pressure for the preset time of one second (min.) without breaking.

## 13.0 HIGH FREQUENCY TEST ON SHELLS:

The test shall be carried out on 100% disc insulator shells before assembly. The insulators should withstand applied High Frequency voltage for 5 minutes without puncture.

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A) **TESTS ON BOUGHT-OUT ITEMS:**

1) **Forged Components (Ball Pins):**

a) Visual inspection: All material (100% samples) shall be visually checked for forging defects and general appearance.

b) Dimensional check: At random check of not less than 1 sample per lot. The acceptance norm shall be dimensions as per drawing.

c) Gauge Check: The test shall be conducted on 100% samples with 'GO' and 'NO GO' gauges. The acceptance norm shall be dimensions as per approved drawing/relevant IS.

d) Normalising: Time temperature chart/Graph from output of recorder shall be verified. The same shall conform to required standard.

e) Hardness test: The test shall be conducted on minimum of 2 samples per lot of 1000 nos. The acceptance norm shall be hardness as per IS:1500/173-210 BHN.

f) Grain Size: The test shall be conducted on minimum of 2 samples per lot of 1000 nos. The acceptance norm shall be grain size of 6 microns and above (ASTM No. 6 and above).

g) Inclusion rating: The test shall be conducted as per IS: 4163 on minimum of 1 sample per lot of 1000 nos. The acceptance norm shall be inclusion rating of ASTM 2 thick series or less.

h) Chemical analysis: The test shall be conducted on minimum of 1 sample per lot per heat no. The acceptance norm shall be chemical composition as per BS: 970 for EN-8D steel or equivalent.

i) Failing Load test: At random check of not less than 2 samples per lot of 1000 nos. The sample shall be subjected to proof load limit and held for one minute. The load shall be released and there shall not be any crack or permanent deformation. Thereafter, the sample shall be subjected to further loading up to its recommended breaking load and actual breaking load shall be noted.

j) Magnetic Particle Examination: The test shall be conducted on 100% samples as per IS: 3703 for detection of longitudinal and transverse cracks. There shall not be any surface or sub-surface cracks.

2) **Malleable Cast Iron Cap:**

a) Visual inspection: All material (100% samples) shall be visually checked for freedom from casting defects and identification mark. The surface shall be free from casting defects and shall be cleanly fettled. The cap shall bear identification mark of the manufacturer.

b) Dimensional check: At random check of not less than 1 sample per lot of 1000 nos. The acceptance norm shall be dimensions as per drawing.

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c) Gauge Check: The test shall be conducted on 100% samples with 'GO' and 'NO GO' gauges. The acceptance norm shall be dimensions as per approved drawing/relevant IS.

d) Hardness test: The test shall be conducted on minimum of 2 samples per lot of 1000 nos. The acceptance norm shall be hardness as per IS:2108/150 BHN max.



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e) Chemical analysis: The test shall be conducted on minimum of 1 sample per 5000 nos. The acceptance norm shall be chemical composition confirming to grade BM:320 or equivalent.

f) Failing Load test: At random check of not less than 2 samples per lot of 1000 nos. The sample shall be subjected to proof load limit and held for one minute. The load shall be released and there shall not be any crack or permanent deformation. Thereafter, the sample shall be subjected to further loading upto its recommended breaking load and actual breaking load shall be noted.

g) Magnetic Particle Examination: The test shall be conducted on 100% samples as per IS:3703 for detection of longitudinal and transverse cracks. There shall not be any surface or sub-surface cracks.

3) **Security clip**:

a) Visual inspection: All material (100% samples) samples shall be inspected for corrosion and surface irregularities. The acceptance norm shall be as per IS:3063.

b) Dimensional check: At random check of not less than 1% sample per lot. The acceptance norm shall be dimensions as per IEC: 372/ IS: 2486(IV).

c) Resistance to bending: At random check of not less than 1 sample per lot. The acceptance norm shall be as per IEC: 372/IS: 2486(IV).

d) Operation test: At random check of not less than 1 sample per lot. The acceptance norm shall be as per IEC: 372/IS: 2486(IV).

e) Hardness test: At random check of not less than 2 samples per lot. The acceptance norm shall be hardness not less than 152 BHN for R-clip and 143 BHN for W-clip.

f) Chemical analysis: At random check of not less than 1 sample per lot. The acceptance norm shall be chemical composition confirming to AISI: 304/316 grade as per ASTM A 276.

B) **Hot Dip Galvanized components**:

I) **Test on Raw material**

1) Chemical analysis of Zinc: At random check of not less than one sample per lot. The acceptance norm shall be grade Zn98 (% of zinc > 99.95%) as per IS: 209.

II) **Galvanizing checking**:

1) Visual inspection: All material (100% samples) shall be visually checked as per IS: 2629. The finished surface shall be clean, smooth and shall be free from defects like discoloured patches, bare spots, unevenness of coating, spelter which is loosely attached to the steel, globules, spiky deposits, blistered surface, flaking or peeling off etc.

2) Uniformity of zinc coating: At random check of not less than 2 samples per lot. The test shall be conducted as per IS: 2633 and the samples shall withstand minimum 4 dips of 1 minute each in standard $CuSO_4$ solution without showing signs of red deposits of copper.

3) Thickness of zinc coating: At random check of not less than 1 sample per lot. The acceptance norm shall be thickness of coating not less than 610 gms/mm$^2$.

4) Adherence of zinc coating: At random check of not less than 2 samples per lot. There shall be no flaking or loosening when struck squarely with a chisel faced hammer.

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# ANNEXURE- VIII

## TECHNICAL SPECIFICATION FOR 0.2 ACSR "PANTHER" AND 0.4 ACSR "ZEBRA" CONDUCTOR FOR EHV TRANSMISSION SCHEMES

1.0 GENERAL

This section details on the'ACSR aluminum conductors to be used for the 220 kV and 132 kV overhead transmission lines

1.1 This specification provides for design, manufacture, engineering, inspection and testing before dispatch, packing and delivery of ALUMINIUM CONDUCTOR STEEL REINFORSED (ACSR) for EHV overhead transmission purposes in Maharashtra State

2.0.0 STANDARDS

2.1.0 Except as modified in this Specification, the conductor shall conform to the following Indian Standards, which shall mean latest revisions, amendments thereof. Equivalent International and Internationally recognized standard to which some of these standards generally correspond are also listed below:

| Sr. No. | Indian Standards | Title | International Standards |
|---|---|---|---|
| 1 | IS:209 | Specification for Zinc | BS:3436 |
| 2 | IS:398 Part I to Part V as relevant | Specification for Aluminium conductors for overhead Transmission purpose. | IEC 209, BS:215(Part II) |
| 3 | IS:1778 | Reels and Drums for Bare conductors. | BS:1559 |
| 4 | IS:1521 | Method of Tensile Testing of Steel wire. | ISO/R89 |
| 5 | IS:2629 | Recommended practice for Hot Dip Galvanising of Iron and Steel | |
| 6 | IS:2633 | Method of Testing of Uniformity of coating of Zinc Coated Articles | |
| 7 | IS:4826 | Galvanised Coating on Round Steel Wire. | ASTM A-472 729, |
| 8 | IS:6745 | Methods of Determination of weight of Zinc Coating of zinc coated Iron & Steel Articles. | Bs:443 |
| 9 | IS:1841 | EC grade Aluminium rod produced by rolling(Second Revision). | |
| 10 | IS:5484 | EC grade Aluminium rod produced by continuous casting and rolling (First Revisim). | |
| 11 | IS:7623 | Specification for Lithium Soap Grease. | |

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## 3.0.0 PRINCIPAL PARAMETERS

3.1.0 The details of ACSR conductor are tabulated below:

| Sr.No. | Particulars | Values For ACSR panther | Values For ACSR Zebra |
|---|---|---|---|
| (a) | Stranding and wire diameter | Aluminium: 30/3.00 mm., Steel: 7/3.00 mm. | Aluminium: 54/3.18 mm., Steel: 7/3.18 mm. |
| (b) | Number of Strands | | |
| | (i) Steel Centre | 1 | 1 |
| | (ii) Ist Steel Layer | 6 | 6 |
| | (iii) Ist Aluminium Layer | 12 | 12 |
| | (iv) 2nd Aluminium Layer | 18 | 18 |
| | | | 24 |
| (c) | Sectional area of Aluminium in Sq. mm. | 212.1 | 428.9 |
| (d) | Sectional area of Steel in Sq. mm. | 49.4 | 55.6 |
| (e) | Total sectional area in Sq.mm. | 261.5 | 484.5 |
| (f) | Overall Diameter in mm. | 21.00 | 28.62 |
| (g) | Approximate weight in Kg/Km. | 974 | 1621 |
| (h) | Calculated D.C. Resistance at 20 degree Celsius in Ohm/Km. | 0.1400 | 0.06915 |
| (i) | Minimum Breaking load in KN | 89.67 | 130.32 |
| (j) | Modulus of Elasticity in GN/Sq.metre. | 80.00 | 69 |

3.2.0 The details of Aluminium Strands are as below:

| Sr. No. | Particulars | Values For ACSR panther | Values For ACSR Zebra |
|---|---|---|---|
| (a) | Minimum Breaking Load of Strand before stranding in KN | 1.17 | 1.29 |
| (b) | Minimum Breaking Load of Strand after stranding in KN. | 1.11 | 1.23 |
| (c) | Maximum D.C. Resistance of Strand at 20 Degree Celsius in Ohm/K.m. | 4.107 | 3.651 |

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3.3.0 The details of Steel Strands are as below:

| Sr. No. | Particulars | Values For ACSR panther | Values For ACSR Zebra |
|---|---|---|---|
| (a) | Minimum Breaking Load of Strand before stranding in KN. | 9.29 | 10.43 |
| b) | Minimum Breaking Load of Strand after stranding in KN. | 8.83 | 9.91 |
| (c) | Minimum weight of Zinc Coating after stranding in Gm/Sq. Metre | 260 | 260 |

## 4.0.0 GENERAL TECHNICAL REQUIREMENTS

The conductor shall be suitable for satisfactory operation under the following tropical climatic conditions:

| Sr. No. | Particulars | Values |
|---|---|---|
| (a) | Maximum Ambient Air Temperature | 50 Degree C. |
| (b) | Minimum Ambient Air Temperature | 3.5 Degree C |
| (c) | Average Daily Ambient Air Temperature | 40 Degree C. |
| (d) | Relative Humidity | 10-100% |
| (e) | Maximum Rainfall yearly | 1450 mm. |
| (f) | Maximum Altitude above Mean Sea level | 1000 metres |
| (g) | Maximum Wind Pressure | 45 Kg/Sq.m. |
| (h) | Isoceraunic level | 50 days/year. |

## 5.0.0 PHYSICAL CONSTANTS OF MATERIALS

5.1.0 **Physical Constants of Hard Drawn Aluminium:**

(a) **Resistivity:**

The resistivity of aluminium depends upon its purity and its physical condition. For the purpose of this specification the maximum value permitted is 0.02845 Ohm Sq.mm/mtr at 20 Degree C and this value has been used for calculation of the maximum permissible value of resistance.

Note: It is not intended to check the resistivity from the measured values of resistance.

(b) Density:

At a temperature of 20 Degree C, the Density of hard drawn Aluminium has been taken as 2.703 gm/cubic cm.

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(c) **Constant-Mass Temperature Co-Efficient of Resistance:**

At a temperature of 20 Degree C, the constant mass temperature co-efficient of hard drawn aluminium measures between two potential points rigidly fixed to the wire, the metal being allowed to expand freely, has been taken as 0.004 per Degree C.

(d) **Co-Efficient of Linear Expansion:**

The Co-Efficient of Linear Expansion of hard drawn aluminium at 0 Degree C has been taken as $23 \times 10^{-6}$ per Degree C. This value holds good for all practical purposes over the range of temperature from 0 Degree C to highest safe operating temperature.

5.2.0 **Physical Constants For Galvanised Steel Wires:**

(a) Density:

At a temperature of 20 Degree C, the density of galvanised steel wire is to be taken 7.80 gm/cubic cm.

(b) Co-Efficient of Linear Expansion:

In order to obtain uniformity in calculations, a value of $11.5 \times 10^{-6}$ per Degree C may be taken as the value for the co-efficient of Linear Expansion of galvanised steel wires used for the cores of steel re-in forced aluminium conductors.

5.3.0 **MATERIALS**

(a) The conductors shall be manufactured from EC Grade aluminium rods suitably hard-drawn on wire drawing machines. The aluminium rods used shall comply with IS: 1841 and IS:5484. The mechanical and electrical properties of aluminium wire shall comply with the requirements given in relevant standard.

(b) Galvanised steel wire shall be drawn from high carbon steel rods produced by either acidic or basic open hearth process, electric furnace process or basic oxygen process. The mechanical and electrical properties of wire shall comply with the requirements given in relevant standard. The chemical composition of high carbon steel wire is given below for guidance only:

| Sr.No. | Element | Percentage Composition |
|---|---|---|
| 1 | Carbon | 0.50 to 0.85 |
| 2 | Manganese | 0.50 to 1.10 |
| 3 | Phosphorus | Not more than 0.035 |
| 4 | Sulphur | Not more than 0.045 |
| 5 | Silicon | 0.10 to 0.35 |

(c) The Zinc used for galvanising shall be electrolytic high grade Zinc not less than 99.95% purity. It shall conform to and satisfy all the requirements of IS: 209. Galvanising may be done by hot process. Neutral Grease may be applied to the core wire.

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5.4.0 **FREEDOM FROM DEFECTS**

The wires shall be smooth and free from all imperfections such as spills, spills, slag inclusion, die marks, scratches, fittings, blow-holes, projections, looseness, overlapping of strands, chipping of aluminium layers etc. and all such other defects which may hamper the mechanical and electrical properties of the conductor. Special care should be taken to keep away dirt, grit etc.during stranding.

5.5.0 WIRE SIZE

5.5.1 NOMINAL SIZE

The aluminium and galvanised steel wires for the stranded conductor covered by this standard shall have diameters specified in Clause 5.1.0. The diameter of the steel wires shall be measured over the zinc coating.

5.5.2 TOLERANCE ON NORMAL SIZE

(i) ALUMINIUM WIRES: A tolerance of ±1 % is permitted on the nominal diameter of "Panther"/ "Zebra" conductor

(ii) GALVANISED STEEL WIRES: A tolerance of ± 2 % is permitted on the nominal diameter.

**NOTE :** In order to maintain the circularity of the wires, the tolerance allowed in Clause 5.5.2 shall apply to both the measurements at right angles taken at the same cross- section as per Clause 2.2 of IS:398 (Part-II, Second Revision with Amendments 1 to 30).

5.6.0 **JOINTS IN WIRES**

(i) Aluminium Wires: No joints shall be permitted in the aluminium wires in the outermost layer of the ACSR conductor. Joints in the inner layers are permitted, in addition to those made in the base rod or wire before final drawing, but no two such joints shall be less than 15 metre apart in the complete stranded conductor. Such joints shall be made by cold pressure butt welding.

NOTE: Joints are not permitted in the outermost layer of the conductor in order to ensure a smooth conductor finish and reduce radio interference levels and corona losses on the extra high voltage.

(ii) Galvanized Steel Wires: There shall be no joints except those in the base rod or wire before final drawing, in steel wires forming the core of the steel re-in forced aluminium conductor.

NOTE: Joints have not been permitted in the steel wires after final drawing in order to avoid reduction in the breaking strength of the conductor that may occur as a result of presence of the joints.

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5.7.0 **STRANDING**

(i) The wires used in the construction of galvanised steel reinforced aluminium conductor shall before stranding, satisfy all the relevant requirements of this specification.

(ii) The lay-ratio of the different layers shall be within the limit given in the following table:

LAY-RATIO OF ALUMINIUM CONDUCTOR GALVANISED STEEL REINFORCED

| Sr. No. | Particulars | For ACSR Panther | For ACSR Zebra |
|---|---|---|---|
| 1 | Number of Wire | Aluminium: 30<br>Steel: 7 | Aluminium: 54<br>Steel: 7 |
| 2 | Ratio of Diameter | 1.0 | 1.0 |
| 3 | Lay-Ratio for Steel Core (6 Wire Layer) | Minimum: 13<br>Maximum: 28 | Minimum: 13<br>Maximum: 28 |
| 4 | Lay-Ratio for Aluminium Wires | | |
| (i) | Out side Layer | Minimum: 10<br>Maximum: 14 | Minimum: 10<br>Maximum: 14 |
| (ii) | Layer immediately beneath outside Layer | Minimum: 10<br>Maximum: 16 | Minimum: 10<br>Maximum: 16 |
| (iii) | Innermost layer of conductor with three All Wire layers | Minimum: 10 | Maximum: 17 |

**NOTE:** For the purpose of calculation, the mean lay-ratio shall be taken as the arithmetic mean of the relevant minimum and maximum values given in the above table.

(iii) While stranding, pre forming and post forming method should be used for stranded steel core in order to relieve the residual tension in core wire to avoid flaring of conductor.

(iv) In all constructions, the successive layers shall have opposite directions of lay, the outermost layer being right-handed. The wires in each layer shall be evenly and closely stranded.

(v) In conductors having multiple layers of aluminium wires, the lay-ratio of any aluminium layer shall not be greater than the lay-ratio of aluminium layer immediately beneath it.

5.8.0 **STANDARD LENGTH OF THE CONDUCTOR**

The standard length of the 'Panther' / 'Zebra' conductor shall be minimum 2000 / 2000 metres. Tolerance of ±5 % in standard length offered by the bidders shall be permitted. All length outside this limit of tolerance shall be treated as random length.

5.9.0 **GUARANTEED TECHNICAL PARTICULARS**

The bidder shall furnish the guaranteed technical particulars of item offered in the form enclosed at SCHEDULE "A" of this specification.

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## 6.0 TESTS

The conductor offered in the tender should have been successfully type tested in line with the standard and technical specification within the last five years from the date of opening of tender. The bidder shall submit copy of the type test reports specified hereunder along with the offer :

6.1.1 The type tests, acceptance tests, routine tests and tests during manufacture shall be carried out on the conductor. For the purpose of this clause:

(a) Type tests shall mean those tests, which are to be carried out to prove the design, process of manufacture and general conformity of the material to this specification. These tests shall be carried out on sample prior to commencement of commercial production against the order. The bidder shall indicate his schedule for carrying out these tests in the offer.

(b) Acceptance tests shall mean those tests, which are to be carried out on sample taken from each lot, offered for pre-despatch inspection, for the purposes of acceptance of that lot.

(c) Routine tests shall mean those tests, which are to be carried out on each strand/spool/length of the conductor to check requirements which are likely to vary during production.

(d) Tests during manufacture shall mean those tests, which are to be carried out during the process of manufacturing by the supplier, to ensure the desired quality of the end product to be supplied by him.

6.1.2 For all type tests and acceptance tests, the acceptance values shall be the values guaranteed by the bidder in the "Guaranteed Technical Particulars" of his proposal or the acceptance value specified in this specification, whichever is more stringent for that particular test.

## 6.2 DESCRIPTIONS OF TESTS

### 6.2.1 TYPE TESTS

The following Type Tests shall be conducted free of cost once on each sample/samples of conductor for every 500 Kms. or part thereof of production from each manufacturing facility.

#### (a) TEST FOR SURFACE CONDITION

A sample of the finished conductor having a minimum recommended length of 5 metres with compression type dead end clamps compressed on both ends in such a manner as to permit the conductor to take its normal straight line shape, shall be subjected to a tension of 50 % of the ultimate breaking load of the conductor

The surface shall not depart from its cylindrical shape nor shall the strands move relative to each other so get out of place or disturb the longitudinal smoothness of the conductor. The measured diameter at any place shall not be less than the sum of the minimum specified diameters of the individual aluminium and steel strands.

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(b) ULTIMATE TENSILE STRENGTH TEST

Circles perpendicular to the axis of the conductor shall be marked at two places on a sample conductor of minimum 5 metre length, suitably compressed with Tension Clamps at either end. Tensile load shall be applied to the sample and shall be increased at a steady rate up to 50 % of the Ultimate Tensile Strength of the conductor and held for one minute. The circles drawn, shall not be distorted due to relative movement of strands. The applied load shall then be increased at steady rate until the failing load is reached. This value shall not be less than the guaranteed breaking load of the conductor.

(c) D.C.RESISTANCE TEST

On a conductor sample of minimum 5 metres length, two contact clamps shall be fixed. The resistance shall be measured by a Kelvin Double Bridge by placing the clamps initially zero metre and subsequently one metre apart. The test shall be repeated at least 5(five) times and the average value recorded. The value obtained shall be corrected to the value at 20 degree C as per IS: 398 (Part II). The resistance corrected at 20 °C shall conform to the requirements of this specification.

6.2.7 ACCEPTANCE TESTS

The following acceptance tests shall be conducted on the samples in presence of the purchaser's representative and the test values shall conform to IS:398-V.

(a) VISUAL AND DIMENSIONAL CHECK ON DRUM

The drums shall be visually and dimensionally checked to ensure that they conform to the requirements of this specification.

(b) CHECK FOR JOINTS, SCRATCHES ETC.

Conductor drums shall be rewound in the presence of Purchaser's representative. The Purchaser's representative shall visually check for scratches, joints etc. and that the conductor generally conforms to the requirements of this specification.

(c) DIMENSIONAL CHECK ON ALUMINIUM AND STEEL STRANDS

The individual strands shall be dimensionally checked to ensure that they conform to the requirement of this specification.

(d) LAY- RATIO TEST OF VARIOUS LAYERS

The Lay-ratios of various layers shall be checked to ensure that they conform to the requirements of this specification.

(e) ELONGATION AND TORSION TEST

The test procedure shall be as specified in IS-398 (Part-V)-1992. The material shall conform to the requirements of this specification and Clause No.9.4 & 9.5 of IS:398 (Part-V).

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(f) **BREAKING LOAD TEST ON INDIVIDUAL ALUMINIUM AND STEEL STRAND**

For the purpose of acceptance test, this test shall be made on both aluminium and steel. The tensile test shall apply to all wires of ACSR conductors. The tensile strength of any of the wires shall not be less than the values given in the technical particulars mentioned in this specification.

When an automatic tensile testing machine is used, the load shall be applied gradually and rate of separation of the jaws of the testing machine shall not be less than 25 mm/minute and not greater than 100 mm/minute.

(g) **RESISTANCE TEST**

As per Clause 13.8 of IS-398-V, the measurement of resistance shall be made on strands of ACSR conductor, and shall be carried out to an accuracy of at least one part in a thousand and conform to the specified values. Certificates as to the accuracy of the apparatus shall be provided.

(h) **UTS TEST ON WELDED JOINTS OF ALUMINIUM STRAND**

As per procedure mentioned in IS: 398 (Part I-V)

(i) **VERIFICATION OF LENGTH**: By rewinding method.

(j) **QUANTITY OF DRUMS TO BE VERIFIED FOR LENGTH**:

As per Clause No. 7.5.

(k) **GALVANISING TEST**

The test procedure shall as specified in IS: 4826. The material shall conform to the requirement of this specification.

NOTE: All the above tests except test mentioned at (b) shall be carried out on aluminium and steel strands after stranding only.

6.2.3 **ROUTINE TESTS**

(a) Check to ensure that the joints are as per specification.

(b) Check that there are no cuts etc. on the strands.

(c) Check that drums are as per specifications.

(d) All above routine tests shall be carried out on each coil and the record of the same shall be kept by the supplier and same shall be produced at the time of Inspection.

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6.2.4 **TESTS DURING MANUFACTURE**

(a) Chemical Analysis of Zinc Used for Galvanising:

Sample taken from the zinc ingots shall be chemically/spectrographically analyzed. The same shall be in conformity to the requirements stated in this specification

(b) Chemical Analysis of Aluminium used for making Aluminium Strands:

Chemical Analysis of Aluminium samples taken from the Aluminium ingots/coils/strands shall be chemically/spectrographically analyzed. The same shall be in conformity to the requirements stated in this specification.

(c) Chemical Analysis of Steel used for making Steel Strands:

Chemical Analysis of Steel samples taken from the Steel ingots/coils/strands shall be chemically/spectrographically analyzed. The same shall be in conformity to the requirements stated in this specification.

6.3 **TESTING EXPENSES:**

6.3.1 The Purchaser may opt for repetition of Type Test at his own expenses prior to manufacture.

6.3.2 In case of failure in any type test, the bidder is either required to modify the design of the material or repeat the particular type test successfully, at his own expenses. The decision of the purchaser, in this regard shall be final and binding.

6.3.3 Bidder shall indicate the laboratories, in which he proposes to conduct the type test. He shall ensure that the tests can be completed in these laboratories, within the time schedule, guaranteed by him, in the appropriate schedule. (Name of Laboratories to be uploaded with the offer).

6.3.4 The entire cost of testing for the acceptance tests, routine tests and tests during manufacture, specified herein, shall be treated as included in the quoted unit price of conductor, except, for the expenses of the inspector/ purchaser's representative.

6.4 **ADDITIONAL TESTS:**

The purchaser reserves the right of having, at his own expenses, any other test(s) of reasonable nature carried out at supplier's premises, at site, or at any other place in addition to the aforesaid type, acceptance and routine tests to satisfy himself, that the materials complies with the specification.

6.5 SAMPLE BATCH FOR TYPE TESTING

6.5.1 The supplier shall offer at least five (5) drums for selection of samples required for conducting all the type tests.

6.5.2 The Supplier is required to carry out all the type tests & acceptance tests successfully in the presence of purchaser's representative before mass production & dispatch respectively.



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The bidder/manufacturer may carry out the type tests in absence of user's representative in Govt. testing laboratory to establish his eligibility for trial order. However on award of purchase order, the bidder will conduct type tests in presence of purchaser's representative.

## 6.6 TEST REPORTS

6.6.1 Two copies of type test reports shall be furnished to the Purchaser within one month of conducting the tests. One copy will be returned duly certified by the purchaser to the supplier within three weeks thereafter and on receipt of the same, supplier shall commence commercial production of the conductor.

6.6.2 Two copies of the acceptance test reports shall be furnished to the purchaser. One copy will be returned, duly certified by the purchaser and only thereafter, shall the conductor be dispatch.

6.6.3 All records of routine test reports shall be maintained by the supplier at his works for periodic inspection by the purchaser.

6.6.4 All test reports of tests conducted during manufacture, shall be maintained by the supplier. These shall be produced for verification as and when requested for by the purchaser.

## 6.7 TEST FACILITIES

6.7.1 The following additional test facilities shall be available at supplier's works:

(i) The testing equipments with Valid Calibration certificate of various testing equipments including tensile testing machine, resistance measurements facilities, burette, thermometer, barometer etc.

(ii) Standard resistance for calibration of resistance bridges.

(iii) Finished conductor shall be checked for length verification and surface finish on separate rewinding machine at reduced speed (variable from 8 to 16 metres per minute). The rewinding facilities shall have appropriate clutch system and free of vibrations, jerks etc with transverse layering facilities.

(iv) Test for Zinc Coating by volumetric method or by weight methods.

## 6.8 RE-TEST AND REJECTION

6.8.1 Each drum or reel selected for testing, shall be tested for compliance with the requirements of IS-398(I-V). Should any selected drum or reel not fulfill any of the test requirements, that particular drum or reel shall be withdrawn. In respect of each failure, two test pieces shall be selected from two different drums in the lot and subjected to the test under which the failure occurred. If either of the two re-test pieces fails to pass that test, the drum or reel concerned shall be rejected.

6.8.2 All rejected drums shall be marked and segregated.

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6.9 **The Purchaser reserves the right to have carried out any/all type tests mentioned under Clause No. 6.2.1 at his own expenses on samples of conductor selected from the lot supplied at site. The entire conductor shall be rejected if the test results are not satisfactory.**

## 7.0 INSPECTION

7.1 The Purchaser's representative shall, at all time, be entitled to have access to the works and all places of the manufacturer, where the conductor shall be manufactured or prepared and the representative shall have full facilities for unrestricted inspection of Supplier's works, the raw materials, the manufacture of the conductor and for conducting necessary tests as detailed herein before.

7.2 The Supplier shall keep the Purchaser informed in advance of the time of starting and of the progress of manufacture of conductor in its various stages so that arrangements shall be made for Inspection.

7.3 No material shall be dispatched from its point of manufacture before it has been satisfactorily inspected and tested, unless the inspection, if waived off by the Purchaser in writing. In the later case also, the conductor shall be dispatched only after satisfactory testing for all tests specified herein has been completed.

7.4 The acceptance of any quantity of conductor shall in no way relieve the supplier of any of his responsibilities for meeting all requirements on the specification, and shall not prevent subsequent rejection if such conductor is later found to be defective.

7.5 At least 5 % of the total number of drums subject to minimum two in any lot put-up for inspection shall be selected at random to ascertain the length of conductor by following method:

"At the works of the manufacturer of the conductor, the conductor shall be transferred from one drum to another at the same time measuring its length with the help of a graduated pulley and Cyclometer. The difference in the average length thus obtained and as declared by the Supplier in the packing list shall be applied to all the drums if the conductor is found short during checking."

## 8.0 QUALITY ASSURANCE PLAN

8.1 The Bidder shall invariably furnish following information along with his offer, failing which his offer shall be liable for rejection.

(i) Statement giving list of important raw materials, names of sub suppliers for the raw materials, list of Standards according to which the raw materials are tested, list of tests normally carried out on raw materials in presence of purchaser's representative, copies of test certificates.
(ii) Information and copies of test certificates as in (i) above in respect of bought out materials
(iii) List of manufacturing facilities available.
(iv) Level of automation achieved and list of areas where manual processing exists.
(v) List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections.
(vi) List of testing equipments available with the Bidder for final testing of equipment specified and test plan limitation, if any, vis-à-vis the type, special, acceptance and routine tests



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specified in the relevant standards. These limitations shall be very clearly brought out in schedule of deviation from specified test requirements.

8.2 The supplier shall within 30 days of placement of order, submit Quality Assurance Plan to C.E.(D,C&M) for scrutiny and approval.

8.3 The supplier shall submit the routine test certificates of raw materials at the time of acceptance tests on the conductor.

## 9.0 PACKING & FORWARDING

9.1 The conductor shall be supplied in non-returnable strong wooden drums provided with lagging of adequate strength and displacement during transit, storage and subsequent handling and stringing operation in the field. The drums shall generally conform to IS:1778-1980, amendment No.1, June 1989, except otherwise specified hereinafter. A specimen wooden drum drawing No. EEPL/WM-II/PANTHER/235 Dt 25.03.1997 for 0.2 ACSR "Panther" Conductor and No. EEPL/WM-II/ZEBRA/234 Dt 25-031997 for 0.4 ACSR "Zebra" Conductor, is enclosed for ready reference.

9.2 The drums shall be suitable for wheel mounting and for jetting off the conductor under a minimum controlled tension of the order of 5 KN.

9.3 The Bidder should submit the proposed drum drawing along with the bid. However, the same shall be in line with the requirements as stated herein. After placement of the LOA, the supplier shall submit Three copies of full dimensioned drawing of the drum he wishes to supply, for Purchaser's approval before taking up manufacturing of Conductor.

9.4 All wooden components shall be manufactured out of seasoned soft wood, free from defects that may materially weaken the component parts of the drums. Preventive treatment for anti-termite/anti-fungus (Aldrime/Aldrase) shall be applied to the entire drum with preservatives of a quality which is not harmful to the conductor.

9.5 The flanges shall be of two/three ply construction with each ply at right angles to the other and nailed together. The nails shall be driven from the inside face flange, punched and then clenched on the outer face. The tolerance in the thickness of each ply shall be ±3 mm only. There shall be at least 3 nails per plank for ply with maximum nail spacing of 75 mm. Where a slot is cut in the flange to receive the inner end of the conductor, the entrance shall be in the line with the periphery of the barrel.

9.6 The wooden battens used for making the barrel of the conductor shall be of segmental type. These shall be nailed to the barrel supports with at least two nails. The battens shall be closely butted and shall provide a round barrel with smooth external surface. The edges of the battens shall be rounded or chamfered to avoid damage to the conductor.

9.7 Barrel studs shall be used for constructions of drums. The flanges shall be holed and the barrel supports slotted to receive them. The barrel studs shall be threaded over a length on either end, sufficient to accommodate washers, spindle plates and nuts for fixing flanges at the required spacing. Barrel studs should be tack welded with the nuts after tightening.

9.8 Normally, the nuts on the studs shall stand round of the flanges. All the nails used on the outer surface of the flanges and the drum barrel shall be countersunk. The ends of barrel shall generally be flushed with the top of the nuts.

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9.9 The inner cheek of the flanges and drum barrel surface shall be painted with a bitumen based paint.

9.10 Before reeling, card board or double corrugated or thick bitumenised waterproof bamboo paper shall be secured to the drum barrel and inside of flanges or the drum by means of a suitable commercial adhesive material. The paper should be dried before use. Medium grade craft paper shall be used in between the layers of the conductor. After reeling the conductor, the exposed surface of the outer layer conductor shall be wrapped with thin polythene sheet across the flanges to preserve the conductor from dirt, grit and damage during transportation and handling and also to prevent ingress of rain water during storage/transport.

9.11 A minimum space of 75 mm shall be provided between the inner surface of the external protective layer and outer layer of the conductor.

9.12 Each batten shall be securely nailed across grains as far as possible to the flange edges with at least 2 nails per end. The length of the nails shall not be less than twice the thickness of the battens. The nail shall not protrude above the general surface and shall not have exposed sharp edges or allow the battens to be released due to corrosion.

9.13 Outside the protective layer, there shall be minimum of two binder consisting of hoop iron/galvanised steel wire. Each protective layer shall have two recess to accommodate the binders.

9.14 The conductor ends shall be properly sealed and secured with the help of U- nails on one side of the flanges. The end securing shall be done by taking out at least 500 mm of steel core on either ends by U-nails. The composite conductor shall be binded by use of galvanised steel wire/aluminium wire at three locations at least 75 mm apart or more covered with PVC adhesive tape so as to avoid loosening of conductor layers in transit and handling.

9.15 Only one length of conductor shall be wound on each drum.

10.0 MARKING

Each drum shall have the following information stenciled on it in indelible ink along with other essential data:

(a) Contract/Award letter number :

(b) Name and address of consignee :

(c) Manufacturer's name and address :

(d) Drum Number :

(e) Size of Conductor :

(f) Length of Conductor in metres :



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(g) Gross weight of drum with Conductor:

(h) Weight of empty drum with lagging :

(i) Arrow marking for unwinding :

(j) I.S.I. Marking :

Note: The conductor offered shall bear valid ISI Certification mark. The Bidder shall furnish copies of documentary proof to this effect along with his offer.

## 9.0 REQUIREMENT OF DOCUMENTS

9.1 Following information shall be furnished along with the offer in hard and soft copy.

Certificate of accreditation of the testing laboratory where the type test are to be conducted.

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SCHEDULE –'a'

**GUARANTEED TECHNICAL PARTICULAR OF ACSR "PANTHER"/ "ZEBRA" CONDUCTOR**

(The form of information to be furnished by the bidder as per Clause No.5.9.0 of the specification.)

(1) Code word of Conductor offered :

(2) Maker's, address and country of

(a) Aluminium wire :

(b) Steel wire :

(c) Complete Conductor :

(3) Whether the Supplier has valid ISI Certification for the conductor offered? (Please furnish copies of documentary proof) :

(4) Details of quantities of conductor of same or higher number of strands supplied during the last five years (Please furnish copies of documentary proof). :

(5) Average annual turn over during the last five years (Please furnish copies of documentary proof). :

(6) Details of type test conducted on similar conductor during last five years (Please furnish copies of documentary proof). :

(7) Stranding and wire diameter in mm.

(a) Aluminium :

(b) Steel :

(8) Tolerance on diameter of wires

(a) Aluminium :

(b) Steel :

(9) Cross Sectional area in Sq.mm. :

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(10) Overall Diameter of conductor in mm. :
(11) Approximate weight of complete conductor :

(12) Minimum breaking load in KN for

(a)Aluminium :

(b) Steel :

(13) Zinc coating of steel strand

(a) Thickness of coating number and duration of dips (Precee Test) withstood :

(b) Minimum weight of coating in gms/sq.mm :

(14) Type of grease applied to the core wires :

(15) Maximum working tension at 0 degree C and 2/3 of wind pressure (Enclose sag tension chart) :

(16) Weight in Kg /Km

(a) Aluminium :

(b) Steel :

(c) Complete Conductor :

(17) Resistance in ohms/Km at 20 degree C

(a) Aluminium Strand :

(b) Complete Conductor :

(18) Continuous maximum current rating of conductor in still air at 40 degree C ambiem temperature in Amps. :

(19) Temperature rise for the above current in degree C. :

(20) Reactance/Km at 50 degree C per one metre spacing between conductors in ohms/Km, temperature rise for the above current in degree C. :

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(21) Lay Ratio (Maximum & Minimum)



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| | | |
|---|---|---|
| (a) Steel Core | (i) 6 Wire layer | : |
| (b) Aluminium | (i) 12 Wire layer | : |
| | (ii) 18 Wire layer | : |

(22) Whether the drum on which the conductor is wound is conforming to the specification. ( The detailed dimensional drawing shall be submitted with the offer). :

(23) Physical Constants of material/conductor

(i) Modulus of elasticity of

(a) Aluminium strand :

(b) Steel strand :

(c) Complete conductor :

(ii) Co-efficient of linear expansion per degree C. Of

(a) Aluminium strand :

(b) Steel strand :

(c) Complete conductor :

(iii) Resistivity of Aluminium :
(iv) Chemical composition of Steel :

(24) Standard length of each piece in Km :

(25) Tolerance, if any, on standard length :

(26) No. of standard lengths in one reel :

(27) Whether bidder is ready to supply six numbers of 2500 metres long conductor, if required :

(28) Diameter of the reel in cms. :
(29) Weight of the conductor in one reel in Kgs :

(30) Weight of the reel in Kgs :

(31) Gross weight of the reel including weight of the conductor. :

(32) Standard according to which the conductor

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will be manufactured and tested.

(33) Whether the bidder has valid ISI mark for the conductor offered(Furnish documentary evidence).

(34) Whether the bidder has adequate facilities for performing, post forming and stranding the aluminium wire/core.

(35) List of facilities available for testing of conductor.

(36) Other particulars, if any.

Signature of the Bidder : .....

Name : .....

Designation : .....

Date : .....

Authorized Common Rubber Stamp/Seal of The Bidder : .....

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# ANNEXURE - IX
# TECHNICAL SPECIFICATION FOR 7/3.15MM GALVANISED STEEL EARTH-WIRE

## 1.0 GENERAL

This section details about the Galvanised Steel (G.S.) earthwire, required for 220/132 KV EHV lines. The earthwire offered, shall conform to the technical requirements covered under this specification and latest Indian Standard Specifications.

## 2.0 SYSTEM PARTICULARS

(i) The 7/3.15mm size G.S. earthwire is required for shielding of EHV Transmission Lines.

| | | | | | |
|---|---|---|---|---|---|
| (ii) (a) | System | | : | AC, 3 Phase 50 Hz. | |
| (b) | Line Voltage | | : | | |
| | | Normal | : | 220 KV | 132KV |
| | | Maximum | : | 245 KV | 145KV |
| (c) | Tower Configuration | | : | | |
| | i) | Single Circuit | : | Delta | Delta |
| | ii) | Double Circuit | : | Vertical | Vertical |
| | iii) | Bil (Impulse) | : | 1050 KV (peak) | 650 KV (peak) |
| | iv) | Power Frequency withstand voltage (wet) | : | 460 KV (4rms) | 275KV (rms) |
| | v) | Max. wind pressure on power conductors and groundwire in Kg/ sq.mtrs. | : | 45 | 45 |
| | vi) | No. of conductors per phase | : | One | One |
| | vii) | Earthing | : | Effectively earthed | Effectively earthed |

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## 3.0 TECHNICAL PARTICULARS OF EARTHWIRE SIZE 7/3.15mm

### 3.1 Physical properties

| | | | | | |
|---|---|---|---|---|---|
| i) | Material | : | Heavily galvanized steel | | |
| ii) | No. of steel wires in strand (Nos.) | : | Inner<br>1 | Outer<br>6 | Total<br>7 |
| iii) | Normal diameter of galvanized strand wire (mm.) | : | Std.<br>3.15 | Max.<br>3.25 | Min.<br>3.07 |
| iv) | Total sectional area (mm.sq.) | : | 54.52 | | |
| v) | Approximate weight (kg/ Km) | : | 426 | | |
| vi) | Minimum breaking load of strand (KN) | : | Std.<br>54.0 | Max.<br>64.3 | Min.<br>48.2 |
| vii) | Elongation of strand after breakage shall not be less than | : | 4% | | |
| viii) | Co-efficient of linear expansion (per deg.C) | : | $11.5 \times 10^{-6}$ | | |
| ix) | Modulus of elasticity (Kg/sq.mm.) | : | $1.9 \times 10^{4}$ | | |
| x) | Permissible variation in diameter of individual zinc coated wires for a nominal diameter of 3.15mm (percent) | : | +/- 2% | | |
| xi) | Overall diameter of earthwire (mm) | : | 9.45 | | |
| xii) | Minimum weight of zinc coating (g/M sq.) | : | 240 (should withstand one minute dips = 3 Nos, 1/2 minute dips =1 No. | | |

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| | | | | | |
|---|---|---|---|---|---|
| xiii) | Calculated D.C. resistance at 20 deg. C (ohm/km) | : | 3.41 | | |
| xiv) | Strand lay and lay length (mm) | : | Minimum | : | 123 |
| | | | Maximum | : | 265 |
| xv) | Direction of lay of outer layer | : | Right hand | | |
| xvi) | Density at 20 deg.C (g/cm$^3$) | : | 7.8 | | |

## 3.2 Detailed Technical Particulars

### 3.2.1 Material

The basic metal shall be steel made by the open heart basic oxygen or electric furnace process and of such quality and purity that when drawn to size of wire specified and coated with zinc, the finished strand and individual wires shall be of uniform quality and have the properties and characteristics as prescribed in this specification. The steel shall have following composition as per IS-12776: 2002.

| Element | Composition |
|---|---|
| Carbon | 0.55 Max |
| Manganese | 0.40 to 1.10 |
| Phosphorous | 0.05 Max |
| Sulphur | 0.05 Max |
| Silicon | 0.15 to 0.35 |

### 3.2.1 Galvanised:

The slab zinc, when used for zinc coating, shall be of any grade of zinc conforming to ASTM specification, B-6, for zinc metal (slab Zinc) process – Hot dip.

### 3.2.2 Stranding:

All steel strands shall be smooth, uniform and free from all imperfections such as spills and split die marks, scratches, abrasions and kinks after drawing and also after stranding. The finished material shall have minimum brittleness. Unless otherwise specified, the strand shall right hand lay. All wires shall be stranded with uniform tension. Stranding shall be sufficiently close to ensure no appreciable reduction in diameter when stressed to 10% of the specified strength. The 7 wire strand shall consist of central wire with 6 wire layer concentrically twisted over it with a uniform pitch not more than 16 times the specified nominal diameter of the strand.

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3.2.3 **Ductility of steel**

The zinc coated wire shall not fracture when wrapped at a rate not exceeding 15 turns per minute in a close helix of at least two turns around a cylindrical mandrel. The mandrel diameter for extra high strength strand shall be equal to three times the nominal diameter of the individual wire of the strand.

3.2.4 **Joints and splices**

There will be no joint/splice in any of the wires of the strand in the standard length of 2750 ± 10% metre. The tenders should explicitly mention in their offers that there will be no joint in any of the wires constituting the ground wire not withstanding the provisions, otherwise, if any, in the IS.

3.2.5 **Weight of coating**

The weight of zinc coating gm/sq.mtre. of uncoated wire surface shall be not less than 240 gm/sq.mtr.

3.2.6 **Tests of coating**

The weight of the zinc coating shall be determined by stripping test in accordance with ASTM methods A90, test for weight of coating on zinc coated iron or steel articles.

3.2.7 **Adherence of coating**

The zinc coated wire shall be capable of being wrapped at a rate not exceeding 15 turns per minute in close helix of at least two turns round a cylindrical mantrel equal to three times the nominal diameter of the wire under test without cracking of flaking the zinc coating to such an extent that any zinc can be removed by rubing with the bare fingers.

3.2.8 **Finish**

The zinc coated wire shall be free from imperfections not consistent with good commercial practice. The zinc coating shall be continuous and of reasonably uniform thickness.

3.3 **Tests**

All type tests and routine tests as per standard methods shall be carried out by the bidder. copies of the Type test certificate shall be submitted with the tender in hard and soft copies.

3.4 **Standards**

The Groundwire shall confirm to the provisions of the latest edition of ASTM Designation A 475-72(a) pertaining to Standard Specification for Zinc coated steel wire

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strand or any other authoritative standard (as amended upto date) except where specified otherwise, in the specification. The materials conforming to any international standard which ensure equal or better performance shall also be acceptable.

3.5 **Sag Tension Charts**

The supplier shall be required to submit six sets of stringing charts for earthwire, showing initial and final sags and tensions for various temperatures and spans. One set of chart shall be in ink on tracing cloth.

3.6 **Guaranteed Technical Particulars**

The bidder shall fill in the guaranteed technical particulars in this specification and submit the same with his tender.

4 **TESTS**

4.1 The earthwire offered in the tender should have been successfully type tested in line with the standard and technical specification within the last five years from the date of opening of tender.

4.2 The following type, acceptance and routine tests and tests during manufacture shall be carried out on the earthwire for the purpose of this clause.

4.2.1 Type tests shall mean those tests which are to be carried out to prove the process of manufacture and general conformity of the material to these specifications. These tests shall be carried out on samples prior to commencement of commercial production.

4.2.1 Acceptance tests shall mean those tests which are to be carried out on samples taken from each lot offered for pre-despatch inspection for the purpose of acceptance of that lot.

4.2.2 Routine tests shall mean those tests, which are to be carried out on each strand spool/length of the earthwire to check requirements, which are likely to vary during production.

4.2.3 Tests during manufacture shall mean those tests which are to be carried out during the process of manufacture and end inspection by the Contractor to ensure the desired quality of the end product to be supplied by him.

4.2.4 The norms and procedures of sampling for these tests will be as per the Quality Assurance Programme to be mutually agreed to, by the Contractor and Board or as per relevant IS/International Standard.

4.2.5 The standards and norms to which these tests will be carried out are listed against them. Where a particular tests is a specific requirement of this specification, the norms and procedures of these tests shall be as specified in Annexure-I or as mutually agreed by the Contractor and the Owner in the Quality Assurance Programme.

4.2.6 For all type and acceptance tests, the acceptance tests, the acceptance values shall be the values guaranteed by the bidder in the guaranteed technical particulars of this proposal or the acceptance value specified in these specifications, whichever is more stringent for that particular test.



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4.3 Type Tests

The following tests shall be conducted once on a sample/samples of earthwire for every 500 kms of production from each manufacturing facility.

| | | | |
|---|---|---|---|
| (a) | UTS Tests | : | MSETCL Specification |
| (b) | DC Resistance Test | : | Annexure-a |
| (c) | Surface Condition Test | : | |

4.4 Acceptance Tests

| | | | |
|---|---|---|---|
| a) | Visual check for joints etc | : | MSETCL Specification Annexure-a |
| b) | Dimensional check on steel strands | : | - do - |
| c) | Check for Lay – Length of 6 wire Layer | : | - do - |
| d) | Wrap test on steel strands | : | - do - |
| e) | DC resistance test on steel strands | : | - do - |
| f) | Visual check on drum | : | - do - |
| g) | Breaking load test on steel strands | : | IS-12776-2002 |
| h) | Elongation test on steel strand | : | - do - |
| i) | Torsion Test | : | - do - |
| j) | Galvanising tests on steel strands | : | *IS-4826-1979 |
| k) | Length & Surface Verification by rewinding method | | |

*Note:
Although the tests will be as specified in IS-4826-1979, no allowance or relaxation will be given for galvanization tests done on steel wires after stranding for the purpose of acceptance of an material covered by these specifications.

4.5 Routine Tests

(a) Check to ensure that there are no joints as per specification.
(b) Check that there are no cuts, fins etc. on the strands.
(c) Check for correctness of stranding.
(d) Check that drums are as per specification.

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4.6 **Test During Manufacture**

| | | |
|---|---|---|
| (a) | Chemical analysis of Zinc used for galvanizing | MSETCL Specification Annexure-a |
| (b) | Chemical analysis of steel for making steel strands | |

4.7 Testing Expenses

4.7.1 The purchaser may opt for repetition of Type test at his own expenses, prior to manufacture.

4.7.2 In case of failure in any type test the bidder is either required to modify the design of the material or repeat the particular type test successfully at his own expense. The decision of the purchaser in this regard shall be final and binding.

4.7.3 Bidder shall indicate the laboratories in which he proposes to conduct the type tests. He shall ensure that the tests can be completed in these laboratories within the time schedule guaranteed by him in the appropriate schedule.

4.7.4 The entire cost of testing for the acceptance and routine tests and tests during manufacture specified herein shall be treated as included in the quoted unit price of conductor, except for the expenses of the inspector/purchaser's representative.

4.8 **Additional Tests**

The owner reserves the right of having at his own expenses any other test(s) of reasonable nature carried out at contractor's premises, at site, or any other place in addition to the aforesaid type, acceptance and routine tests to satisfy himself that the materials comply with the specification.

4.9 Sample Batch for Type Testing

4.9.1 The supplier shall offer at least five (5) drums for selection of samples required for conducting all the type tests.

4.9.2 The supplier is required to carry out all the acceptance tests successfully in the presence of purchaser's representative before dispatch.

5 TEST REPORTS (DOCUMENTS IN PHYSICAL FORM).

5.1 At least 3 (three) copies of type test reports should be furnished. One copy of type test reports will be returned duly certified by the Board. Only after receipt of this report, the commercial production of the said material should start.

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5.2 At least 3 (three) copies of acceptance test reports shall be furnished. One copy will be returned duly certified by the owner, only after receipt of which, the materials should be dispatched.

5.3 Record of routine test reports should be maintained by the Contractor at his works for periodic inspection by the Company's representatives.

## 6 INSPECTION

6.1 The Company's representative shall at all times be entitled to have access to the works and all places of manufacture, where earthwire shall be made or prepared and the representatives shall have full facilities for unrestricted inspection of the Contractor's works, raw materials, manufacture of the earthwire and for conducting necessary tests detailed herein.

6.2 The contractor shall keep the Company informed in advance of the time of starting and of the progress of manufacture of earthwire in its various stages so that arrangements can be made for inspection.

6.3 No earthwire shall be dispatched from its point of manufacture before it has been satisfactorily inspected and tested, unless the inspection is waived off by the Company in writing. In the later case also, the earthwire shall be dispatched only after satisfactory testing for all tests specified herein have been completed.

6.4 The acceptance of any quantity of material shall in no way relieve the Contractor of any of his responsibilities for meeting all requirements of the specification and shall not prevent subsequent rejection, if such materials are later found to be defective.

## 7 PACKING

7.1 The earthwire shall be suitably packed before dispatch in strong, non-returnable wooden drums suitable for ocean/local rail and road transportation, rough handling and stringing and shall conform in all respects to the latest edition of IS 1778-1961 except as otherwise specified herein. The general construction of the drum shall be as shown in drawing enclosed.

7.2 Standard Length

The standard length of the galvanized steel earth strand shall be minimum 2750 metre. A tolerance of ± 10 % on the standard length shall be permitted.

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7.3 **Random Length**

Random length will be accepted provided no length is less than 70% of standard length and total quantity of random lengths is not more than ten (10%) percent of the total quantity in each shipment.

7.4 Only one length of earthwire shall be wound on each drum.

7.5 Boiled linseed oil should be applied to earthwire to avoid white rust.

8 **MARKING**

8.1 Each drum shall have the following information stenciled on it in indelible ink alongwith other essential data.

(a) Contract / LOI No.
(b) Name and Address of Consignee
(c) Manufacturer's Name and Address
(d) Drum No. & Lot No.
(e) Size of Earthwire
(f) Length of Earthwire in mtrs.
(g) Gross weight of the drum with earthwire.
(h) Weight of empty drum with laggings.
(i) Arrow marking for unwinding.
(j) Position of the earthwire ends.
(k) Number of lengths on the reel/or drum.
(l) The product may be marked with the standard mark.

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ANNEXURE – a

## TESTS

1 **UTS Test on Earthwire**
A sample of earthwire of about 5m length will be subjected to the ultimate Tensile strength test. The earthwire shall not fail at a value less than 54 KN.

2 **Surface Condition Test**
A sample of earthwire of 5m length shall be subjected to a load of 50% of the UTS of the earthwire. Neither shall the surface depart from its cylindrical form nor the strands move relative to each other so as to get out of place or disturb the longitudinal smoothness of the earthwire.

3 **D.C. Resistance Test**
On strand of minimum 5m length, two contact clamps shall be fixed. The Resistance shall be measured by Kelvin bridge by placing the clamps initially from one end and subsequently one metre apart. The test shall be repeated at each metre length and the value recorded. The value obtained shall be corrected to the value at 20 deg.C.

4 **Visual Check for joints/lengths**
Two drums from each lot/50Km. whichever is less, shall be selected at random and rewound in the presence of the inspector and actual length of earthwire measured. The weight of the earthwire also will be measured by weighing empty drum and drum with earthwire. The inspector shall visually check for scratches, joints etc. and see that the earthwire generally conforms to the requirements of this specification. The expenditure for above measurements, if any, will be to the bidder's account. The firm should have separate facility for winding and unwinding for inspection purpose.

5 **Visual Check on Drums**
The drums shall be visually and dimensionally checked to ensure that they conform to these specifications.

6 **Chemical analysis of Zinc used for galvanising**
Samples taken from the zinc ingots shall be chemically/ spectrographically analysed as per IS-209. The purity of zinc shall not be less than 99.95%.

7 **Wrapping Test**
One specimen cut from each of the samples of galvanised steel wire shall be wrapped round a mandrel of diameter equal to 4 times the wire of diameter to form a close helix of 8 turns. Six turns shall be unwrapped and again closely wrapped in the same direction as before. The wire shall not break.

8 **Lay Length Check**
The lay length shall be checked to ensure that they confirm to the requirement of the specification.

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ANNEXURE – b

## DRAWING CHARTS & DESIGN DATA TO BE SUBMITTED IN PHYSICAL FORM

(A) Bidder shall furnish full details of earthwire drum offered. The drawing shall indicate:

i) Size & weight of drum
ii) Materials used
iii) Identification marks
iv) Any other information which may be useful to the user.

(B) Successful bidder during the execution of contract, shall submit the sag tension charts of earthwire for approval.

## (GUARANTEED TECHNICAL PARTICULARS)

| Sr.No | Description | Unit | Specified values | Offered Values |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 1. | Maker's name, address and country | | | |
| 2 | Percentage composition of steel wire element | | | |
| | i) Carbon: | % | .55 (Max) | |
| | ii) Sulphur | % | .05 (Max) | |
| | iii) Phosphorus | % | .05 (Max) | |
| | iv) Manganese | % | 0.4to 1.1 | |
| | v) Silicon | % | 0.15 to 0.35 | |
| 3 | Particulars of steel strand: | | | |
| | a) No. of strands | Nos. | 7 | |
| | b) Diameter of strand | | | |
| | Standard | mm | 3.15 | |
| | Maximum | mm | 3.25 | |
| | Minimum | mm | 3.07 | |
| | c) Sectional area of strand | sq.mm. | | |
| 4. | Zinc coating of steel strand: | | | |
| | a) Uniformity of coating (number and duration of dips withstood) | | | |
| | Minute duration of dips | | | |
| | i) One | No. | 3 | |

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| | | | |
|---|---|---|---|
| | ii) Half | No. | 1 |
| | b) Minimum weight of coating | g/m.sq. | 240 |
| 5. | Standard overall diameter of steel wire | mm | 9.45 |
| 6. | Total area of cross section of steel wire | sq.mm. | 54.52 |
| 7. | Guaranteed ultimate tensile strength of steel wire | N/mm$^2$ | 1100 |
| 8. | D.C. resistance in ohms per km. At 20 deg.C | | 2.41 |
| 9. | Standard length of steel wire (minimum) | Km | 2.75 ± 10 % |
| 10. | Tolerance if any on standard length | % | + 10 % |
| 11. | Random length of steel wire | Km | |
| 12. | Random lengths in No. | No. | |
| 13. | Modulus of elasticity of steel wire | Kg/mm$^2$ | $19 \times 10^3$ |
| 14. | Co-efficient of linear expansion | /deg.C | $11.5 \times 10^{-6}$ |
| 15. | 1) Length of the lay of standard wire<br>a) Maximum<br>b) Standard<br>c) Minimum | <br>mm<br>mm<br>mm | <br>265<br><br>123 |
| | 2) Direction of lay of outer layer | Right/Left | Right |
| 16. | Weight of steel wire | Kg/Km | 426 |
| 17. | Standard length of steel wire in each drum | Metre | 2750 |
| 18. | Standard weight of steel wire on the drum | Kg. | |
| 19. | Weight of empty drum | Kg. | |
| 20. | Gross weight of the drum | Kg. | |
| 21. | Dimension of the drum in cms. | GWD | |
| 22. | Initial and final sags and tension and stringing charts, whether furnished. | Yes/No | |
| 23. | Standard according to which the steel wire will be manufactured | IS or equivale | |

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24. Other particulars, if any

25. Separate winding & unwinding facilities for inspection purpose whether available. Yes/No

Name of the Firm:

Signature of the Bidder:

Designation:

Date:

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## SECTION - II

### 1.0 SURVEY AND ALIGNMENT

1.1 **Check Survey**

1.1.1 The Contractor shall finalise and submit proposal for all obligatory points within One (1) Month from the date of commencement of work at site. These obligatory points shall include all the river crossings, railway crossings, Power Line crossings or any other important crossings encountered in the transmission line route. The following schedule shall be adhered to in respect of obligatory points.

1.1.2 **Route Making:**

1.2 **Tower Location**

1.2.1 **Sag Template**

Sag template curve drawing and tower spotting Data shall be supplied by the owner to the successful bidder on award of contract. Sag template prepared based on the supplied sag template curve drawing shall only be used for tower spotting on the profiles. Two nos. of the approved template prepared on rigid transparent plastic sheet, shall be provided by the Contractor to the Owner for the purpose of checking tower spotting. The templates shall be on the same scale as that of the profile.

1.2.2 **Tower Spotting**

With the help of approved sag template and tower spotting data, tower locations shall be marked on the profiles. While locating the towers on the profile sheet, the following shall be considered.

a) **Span**

The number of consecutive spans between the Section points shall not exceed 10.(A section point shall be taken to comprise of a tension point with angle tower).

b) **Extension**

An individual span shall be as near to the normal design span as possible. In case an individual span becomes too short with normal supports on account of undulations in ground profile, one or both the supports of the span may be extended by inserting standard body extension designed for the purpose according to technical specifications.

c) **Loading**

There shall not be any upward force on suspension towers under normal working conditions and the suspension towers shall support at least the minimum weight span provided in the designs. In case uplift is unavoidable, it will be examined if the same can be overcome by adding standard body extensions to the towers failing which tension towers designed for purpose shall be employed at such positions.

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d) **Road crossing**

At all important road crossings, the towers shall be fitted with single suspension or tension or double tension insulator strings depending on the type of towers and the importance of the road being crossed but the ground clearance at the roads under maximum temperature and in still air shall be such that even with conductor broken in adjacent span, the ground clearance of the conductor from the road surface will not be less than 8.0 meters. At all national highways tension towers with double tension string shall be used. The crossing span, however, will not exceed 200 meters in any case.

e) **Railway Crossing**

Railway Crossing shall be supported on $15^0$ ,$30^0$ or $60^0$ type towers on either side, depending on the merits of each case and shall be constructed in confirmity with the specification laid down by the Railway Authorities. Necessary copies of tracings and prints of plan, profile etc. required for the approval of railway crossings shall be supplied by the Contractor.

f) River Crossing

In case of Major River Crossings, towers shall be of suspension type using double suspension strings and the anchor towers on either side of the main River crossing shall be $60^0$ type tower with double tension string. Clearance required by navigation authority shall be provided. For non navigable rivers clearance shall be reckoned with respect to highest flood level (HFL).

g) **Power Line Crossings**

Where this line is to cross over another line of the same voltage or lower voltage, $2^0$ type tower with suitable extensions shall be used. Provision to prevent the possibility of its coming into contact with other overhead lines shall be made in accordance with the CEA (Measures relating to Safety and Electric Supply) Regulations, 2010. In order to reduce the height of the crossing towers, it may be advantageous to remove the ground wire of the line to be crossed (if this is possible and permitted by the Owner of the line to be crossed). All the works related to the above proposal shall be deemed to be included in the scope of the contractor without any extra cost of the Owner.

h) **Telecommunication Line Crossing**

The angle of crossing shall be as near to 90 Deg. as possible. However, deviation to the extent of $30^0$ may be permitted under exceptionally different situations. When the angle of crossing has to be below $60^0$, the matter will be referred to the authority in-charge of the telecommunication system. On a request from the Contractor the permission of the telecommunication authority will be obtained by the Owner. Also, in the crossing span, power line supports will be as near the telecommunication line as possible, to obtain increased vertical clearance between the wires.

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1.2.3 **Clearance from Ground Buildings, Trees etc.**

Clearance from ground, buildings, trees and telephone lines shall be provided in conformity with the CEA (Measures relating to Safety and Electric Supply) Regulations, 2010 as amended up to date.

1.2.4 **Preliminary Schedule**

The profile sheets, duly spotted, along with preliminary schedules indicating type of towers, type of foundations, wind span angle of deviation, river or road crossing and other details shall be submitted for the approval of the owner.

1.2.5 The detailed check survey shall be made along the alignment.

1.2.6 **Preliminary line alignment and Soil resistivity measurement**

During execution of the project, if due to some unavoidable reasons, the route is required to be diverted then the contractor shall have to submit the preliminary line alignment for the diverted portion to the owner for approval. The alignment shall be plotted on Survey of India maps to the scale of 1 cm=0.5 km.(1:50000). All the topographical details including all railway lines, P&T Lines, wires, canals, roads etc. up to 8 Kms. on either side of the route of the transmission line shall be drawn to the scale. After getting approval for the diverted alignment. Original tracing of the route alignment drawing shall be handed over to the Owner.

1.2.7 The soil resistivity, along the diverted line alignment, shall also be measured by the Contractor. It shall be measured by four electrodes method keeping inter-electrode spacing as 50 m. For calculating soil resistivity, the formula $R=2\pi ar$ (where a = 50 m & r = Megger reading in OHMS) shall be adopted. The measurement shall be made at every 2 or 3 kms along the line route or wherever the soil characteristic changes.

1.2.8 All the expenditure on account of the above shall be deemed to be included in the bid price and no extra payment shall be made for the same.

## 1.3 Check Survey of Tower Location

1.3.1 The Check survey shall be conducted to make a check on detailed survey and to locate and peg mark the tower positions on ground conforming to the approved profile and tower schedule. In the process, it is necessary to have the pit centers marked according to the excavation marking charts. The levels, up or down of each pit center, with respect to the center of the tower location shall be noted and recorded for determining the amount of earthwork required to meet approved design parameters.

1.3.2 The changes desired by the Owner in the preliminary tower schedule shall be carried out by the Contractor and he shall thereafter submit a final tower schedule for the approval of the Owner. The tower schedule shall show position of all towers, "type of towers, span length, type of foundation for each towers and the deviation at all angles as set down with other details.

Excavation work must not be started until the approved tower schedule and profile has been given by the Owner.

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1.3.4 The Owner may get certain tower foundations constructed by other agencies. However, the Contractor shall be responsible for check survey, location marking on the ground and stub setting work.

1.4 Way Leaves and Trees Cutting

1.4.1 Any way leave which may be required shall be arranged by the Contractor, after submission of the final alignment. Necessary help if required for establishing way leave and right of way shall given by the representatives of the MSETCL. However the tree cutting required for way leave, approach road and tower location shall be carried out by the contractor with the prior permission from Forest/ Local authorities. The payment for compensation of way leave and plantation shall be made by the successful bidder.

1.4.2 The Owner shall not be held responsible for any claim on account of damage done by the contractor or his gangs to trees, crops or other property without specific consent from the Owner.

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# SCHEDULES (A TO I)

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# SCHEDULES

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## SCHEDULE 'A'

## DEVIATION FROM SPECIFICATION

All the deviations from this specification shall be set out by the tenderer, clause by clause in this schedule. Unless specifically mentioned in this schedule the tender shall be deemed to conform to the specification.

| Sr. No. | : Part/Section : Clause No. | : Details of : deviation | : Justification/ : Reasons |
|---|---|---|---|

Name of the firm : _____

Signature of the bidder: _____

Designation : _____

Date : _____

Seal of company : _____

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## SCHEDULE- B

### SUMMARY SHEET OF LUMPSUM PRICE BID FOR

LINES:---------- (Comprising Lines----------,----------,----------,----------)

| Sr. No. | Name of the Work | Total Lumpsum Bid price | |
|---|---|---|---|
| | | In figures | In words |
| 1 | Supply of Materials and construction & commissioning of EHV Lines on Turnkey basis (including foundation & Erection works) as per Tender ------ | --- | --- |
| | **Total** | | |

Place:

Date:

Signature:

Name :

Designation:

Company Seal

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## SCHEDULE B (I) FOR EHV LINE

### PRICE SCHEDULE

| Sr. No. | Description | Price in Rupees |
|---|---|---|
| 1 | 2 | 3 |
| A | Price Schedule of Supply of materials for EHV line | |
| 1 | Estimated cost ( as per schedule I of book II of specification) | |
| 2 | % Lower/Higher quoted by the bidder on estimated cost | |
| 3 | Corresponding value of supply of material as per % Lower/Higher quoted | |
| 4 | Bid Price for Supply of Equipments/material (inclusive of all taxes, duties, levies, Octroi, freight charges, etc.). (A4=A1+A3) (in Rs.) | |
| B | Price Schedule of Erection(Including foundation) for line | |
| 1 | Estimated cost ( as per schedule I of book II of specification) | |
| 2 | % Lower/Higher quoted by the bidder on estimated cost | |
| 3 | Corresponding value for erection as per % Lower/Higher quoted | |
| 4 | Bid Price for Erection(including foundation), (B4 = B1+B ... Rs. | |
| C | BID PRICE = (A4 + B4 ), in Rs. | |
| | TOTAL PRICE (in Words)..... only | ..... |

Above price schedule for all the Lines in the Tender should be brou... ...and to Summary Schedule 'B' for Line Works.

Notes:

1. 1) Offered Price:-
   For Supply.....% Above / Below (Calculated Value in Rs.....)
   For ETC.....% Above / Below (Calculated Value in Rs.....)
   **(Percentage rate should be equally distributed to all items)**
2. Break-up of taxes /duties and other charges shall be given in a separate schedule by the bidder as per the proforma in Price Schedules .

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(Break-up of taxes and duties should be percentagewise)

3. Variation in Taxes/Duties will not be payable.

4. The Prices have been quoted for all the activities for construction of line including Supply and ETC as per Bid Specification.

5. The tentative BOQ and Billing Schedule of Price are enclosed herewith. In case of any variation, the offer price shall be corrected limiting to above quoted price for Supply, and ETC.

6. All items / activities required for completion of job as per specification have been considered in the offer.

7. The discount, if offered, shall be distributed proportionately for each item rate.

8. The MVAT/CST & Octroi will be considered for evaluation of the bids. Bidder should note & express the willingness of such process as per Clause No. 21.2.1 of Section II, Book-I, General terms and conditions.

SEAL OF COMPANY

SIGNATURE _____

NAME _____

DESIGNATION _____

COMPANY'S ADDRESS _____

DATE _____



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## SCHEDULE – 'C'

QUALIFYING REQUIREMENT DATA SCHEDULE – Form No. 1

Tender Specification No.

Name of Project:

Name of Bidder & Address:

DETAILS OF FULFULLMENT OF FOLLOWING CONDITIONS.

| Sr. No. | Particulars of registration | Registration No. | Period of Validity From – To |
|---|---|---|---|
| 1 | Valid Electrical Contractor's license | | |
| 2 | Maharashtra Value Added Tax(MVAT) Act 2005<br><br>Service Tax Act.<br><br>Any other Taxes | | |
| 3 | P.F. Act | | |

SIGNATURE & SEAL OF THE BIDDER

DATE

PLACE

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## SCHEDULE – 'C'

### QUALIFYING REQUIREMENT DATA SCHEDULE- Form – 2

Tender Specification No.
Name of Project:
Name of Bidder & Address:
DETAILS OF EXPERIENCE IN RESPECT OF FABRICATION & SUPPLY OF TOWER MATERIAL/SUBSTATION STRUCURE MATERIAL

| | | |
|---|---|---|
| A | Indicate source of the Tower/Substation Structure Supply<br>Owned - ☐ Associate - ☐<br>Please specify.....<br>Please Tick - ☐ Yes | |
| B 1 | Details of source i.e. Manufacturer of tower/substation structure material<br>Name & Address: | Telephone No .....<br>Fax No. .....<br>Contact person..... |
| 2 | Equipment Capacities:<br>(a) Manufacturing Capacity/Year:<br>(b) Quantity manufactured, tested and supplied by manufacturer during last three years: | |

| Sr. No. | Year (specify) | Voltage class of Towers/substation Structure | Quantity MT | Supplied to |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |

(C) Details of current commitments

| Sr. No | Customer | Order Ref. | Order Value | Tonnage | Date of order | Date of completion / Expected date of completion |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |

SIGNATURE & SEAL OF THE BIDDER

DATE
PLACE

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Dn. Ident Dn., Kalyan

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## SCHEDULE – 'C'

QUALIFYING REQUIREMENT DATA SCHEDULE Form No. – 3

Tender Specification No.
Name of Project:
Name of Bidder & Address:
DETAILS OF TOOLS-PLANTS AND INFRASTRUCTURE AVAILABLE

| Sr. No | Particulars of Tools, Plants, Machinery available | Capacity Rating, if any | Quantity available | Make |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

SIGNATURE & SEAL OF THE BIDDER

DATE
PLACE

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E.H.V. Project Dn.,Kalyan



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## SCHEDULE-C

QUALIFYING REQUIREMENT DATA SCHEDULE Form No.4

TENDER SPECIFICATION NO.:
NAME OF PROJECT:
BIDDER'S NAME & ADDRESS.

The following is the list of orders executed by us for 220/132kV and above voltage transmission line, the details of which are furnished in the support of Qualifying Requirement.

| Sr. no | Customer | Order Ref. & Date | Order value (Rs. Lakhs) | Line Volt. (KV) | Total Line Length in Ckt. KM | Scope of Work | | | | | Date of commissioning |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Survey* | Profiling & spotting* | Tower Design* | Tower foundations & erection* | Stringing | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| | | | | | | | | | | | |

Remarks : 1)Copies of User's certificates should be enclosed.
2)Bidder is requested to indicate Yes/No regarding scope of work

Date
Place:

SIGNATURE & SEAL OF THE BIDDER



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## SCHEDULE– 'C'

### QUALIFYING REQUIREMENT DATA SCHEDULE- Form No. 5

Tender Specification No.
Name of Project

Name of Bidder & Address

DETAILS OF EXPERIENCED STAFF EMPLOYED BY THE BIDDER

| Sr. No. | Name of person with designation | Educational Qualification | Date of joining the organization | Details of project executed with voltage class |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

SIGNATURE & SEAL OF THE BIDDER

DATE
PLACE

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Div. Kandli



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## SCHEDULE – 'C'

### QUALIFYING REQUIREMENT DATA SCHEDULE Form No. 6

Tender Specification No.

Name of Project:

Name of Bidder & Address:

DETAILS OF FULFILLMENT OF CONSORTIUM / ASSSOCIATE CONDITIONS

| Sr.No | Particulars | Remarks |
|---|---|---|
| 1 | Name of principal /lead bidder | |
| 2 | Name of consortium / associate | |
| 3 | Details of Qualifying Requirements fulfilled by the principal bidder<br>1)<br>2)<br>3) | |
| 4 | Details of Qualifying Requirements fulfilled by the consortium / associate<br>1)<br>2)<br>3) | |

NOTE: The principal /lead bidder alongwith consortium / associate fulfil all the Qualifying Requirements jointly.

SIGNATURE & SEAL OF THE BIDDER

DATE
PLACE



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BRC POWER PROJECTS LTD. PUNE

## SCHEDULE – 'C'

### QUALIFYING REQUIREMENT DATA SCHEDULE Form No. 7

Tender Specification No.
Name of Project:
Name of Bidder & Address:
DETAILS OF ANNUAL TURNOVER FOR LAST THREE YEARS IN TRANSMISSION SECTOR

| Sr.No. | Financial Year (Specify) | Annual Turnover (in Rs. Lakhs) |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |

Average Annual Turnover for last three financial years: Rs.....Lakhs
NOTE: The above details should be duly certified by the Chartered Accountant.

SIGNATURE & SEAL OF THE BIDDER

DATE
PLACE

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E.H.V. Project Dn., Kalyan



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## SCHEDULE – 'C'

### QUALIFYING REQUIREMENT DATA SCHEDULE Form No. 8

Tender Specification No.
Name of Project:
Name of Bidder & Address:
DETAILS OF NET WORTH

| Sr. No. | Financial Year | Equity Capital* | Reserves * | Revaluation Reserves * | Intangible assets * | Misc. Exp to the extent not written off & carry forward losses * | Net Worth * |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |

( * All the figures are in Rs. lakhs.)

NOTE: The above details should be duly certified by the Chartered Accountant.

2. Details of comfort letter from a Nationalized Bank / Scheduled Bank
   A) Name of a Bank with address & telephone /fax no. :
   B) Amount for which the Bank agrees to provide adequate cash flow. :
   C) Letter from a Bank is Enclosed Yes / No

SIGNATURE & SEAL OF THE BIDDER

DATE
PLACE

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M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan



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## SCHEDULE-C
## QUALIFYING REQUIRMENT DATA SCHDULE FORM NO.9
## (SAMPLE FORM)
## LETTER OF ASSURED LINE OF CREDIT

Bid No.
(To be submitted by a Reputed Bank on the Bank's Letterhead)

Date: (Insert Date)

To Maharashtra State Electricity Transmission Company Limited
*Represented by*
Chief Engineer (Transmission Projects Cell)
Prakashganga, Bandra-Kurla Complex
Bandra (East), Mumbai 400051, INDIA

Subject: **Letter of Assurance of Providing a Revolving Line of Credit for Turnkey construction work of**

Dear Sir,

**WHEREAS** _____(name and address of Bidder) (hereinafter called the Bidder) intends to submit a Bid for design, manufacture and supply of all materials, execution of relevant civil works, erection, testing and commissioning including a five year guarantee (defects liability) period for the construction work of 132KV transmission lines covered under Bid No._____ for _____ transmission line on a single point responsibility "Turnkey basis" (hereinafter called "the Bid"), of 132kV transmission lines, in response to the Notice inviting Tenders issued by the **Maharashtra State Electricity Transmission Company Limited (MSETCL)** (hereinafter called the Owner) on _____20_____; and

**WHEREAS** the Bidder has requested that an assured revolving line of credit be provided to it for executing the works in the event that it is determined to be qualified to undertake the Works and is subsequently determined to be eligible for award of contract; then

**KNOW ALL THESE PEOPLE** by these presents that We _____(name of Bank) of _____(name of Country) having our registered office at _____(address of registered office) are willing to provide to _____(the Bidder) a sum of up to Rs _____(Rupees _____only) as an assured revolving line of credit for executing the Works under construction of 132 KV transmission lines should the Bidder be selected for award of contract based on its tendered prices. The assured line of credit will be in addition to any existing lines of credit, which the Bidder has with our Bank, and will not be transferable to any other project that the Bidder may have.

We understand that this assurance may be taken into consideration by the Owner during evaluation of the Bidder's financial capabilities, and further assure that we intend to maintain this revolving line of credit until such time as the Works are completed and taken over by the Owner.

**SEALED** with Common Seal of the said Bank on the _____day of _____ 20_____.

Date : _____ Signature of the Bank : _____

Witness: _____ Seal: _____



Executive Engineer
M.S.E.T. Co. Ltd.
H.V. Project Dn., Kalyan

Executive Engineer
TL Pretender

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(Signature, name and address)

## SCHEDULE – D

## SCHEDULE OF UNIT PRICE

Note :

The bidder shall indicate the unit rate for all the equipments /material to be supplied against this specification / and also unit rate for erection, testing & commissioning of each item so as to enable calculation of revised order value due to any increase/decrease in scope of work that may become necessary during execution.

Name of the LINE :-----

## PROFORMA OF TAXES AND DUTIES FOR SUPPLY WORKS- ENCLOSED SEPERATELY

**For Erection Portion :**

## PROFORMA FOR TAXES AND DUTIES FOR ERECTION- ENCLOSED SEPERATELY

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E.H.V. Project Dn., Kalyan



Executive Engineer
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## SCHEDULE 'E'

### PERFORMANCE SECURITY FORM
### (PERFORMANCE GUARANTEE IN LIEU OF SECURITY DEPOSIT)
(To be Stamped in accordance with Stamp Act)

The Bank of .....(Name & Address) hereby agree unequivocally and unconditionally to pay, at Mumbai with in 48 hours, on demand in writing from the Maharashtra State Electricity Transmission Co. Ltd, or any Officer authorized by it in this behalf, of any amount up to and not exceeding Rs.....(in Words) Rupees..... to the said Electricity Transmission Co. Ltd on behalf of M/s..... who have tendered and/or contractec or may tender or contract hereafter for unit scope of works for the Maharashtra State Electricity Transmission Co. Ltd, against order No..... dated..... Total value of order is Rs.....

This agreement shall be valid and binding on this Bank up to and including.....and shall not be terminable by notice or any change in the constitution of the Bank or the firm of contractors or by any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alterations made, given, concerned or agree with or without our knowledge or consent, by or between parties to the said within written contract. The validity of this Bank Guarantee will be extended by us for the further period, of six months, one month prior to its present validity period at the request of Maharashtra State Electricity transmission Co. Ltd.

In case of any dispute arising out of or in connection the extension or encash...ent of Bank Guarantee, the courts in Mumbai will have jurisdiction.

Our liability under this Guarantee is restricted to 10% value of Contract Rs..... (Rs.....only). Our Guarantee shall remain in force until.....

Date: Signature:.....

Address: Name & Designation:.....
(For:.....)
(Banker's Rubber Seal)

Fax no.:.....

WITNESS:

(Signature)

(Name)

(Official Address)

Executive Engineer
M.S.E.T. Dn. I/V
E.H.V. P.G. & O.T. Dn., Kalyan



Executive Engineer
TL Pretender

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**SCHEDULE 'F'**

**BID SECURITY FORM**
(BANK GUARANTEE IN LIEU OF BID SECURITY EQUIVALENT TO 1% OF ESTIMATED COST)

(To be Stamped in accordance with Stamp Act)

Ref.....

Date.....

Bank Guarantee No.....

In accordance with invitation to Bid for the work of construction of EHV lines as per scope of tender No.------- in accordance with the tender specification _____ Messers (Bidders) _____ or Mr._____ Address _____ Director(s) _____ wish/wishes to participate in the said tender and as a bank guarantee for the sum of Rs.....(in words Rs.....) as specified in the invitation to Bid valid for..... days from..... is required to be submitted by the tenderer, this bank hereby guarantees and undertakes, during the above said period, to immediately pay on written request by Maharashtra State Electricity Transmission Co. Ltd; Owner) the amount ..... to the said Electricity transmission Co. Ltd, without any reservations. This guarantee would remain valid upto 4 P.M. on..... (this date shall be 8 months after last date for submission of bid) and if any further extension to this is required, the same will be extended on receiving instructions from the .....on whose behalf this Guarantee has been issued.

Witness: .....

(Signature)

(Signature)

(Name)

(Official Address)

Mailing address
including Fax No.
H.O.of Bank

(Seal of the Bank)



ENG POWER PROJECTS LTD. PUNE

Executive Engineer
TL Pretender

Executive Engineer
M.S.E.T. Co. Ltd.

## SCHEDULE 'G'

### PROFORMA OF JOINT UNDERTAKING BY THE COLLOBORATOR/ASSOCIATE ALONGWITH THE BIDDER

(On Non-judicial stamp paper of Appropriate value)

THE DEED OF UNDERTAKING executed this _____ day of _____ (month) of year two thousand seven by a Company incorporated under the laws of _____ and having its registered office at_____ (hereinafter called the collaborator"/"Associate" which expression shall include its successors, executors and permitted assigns) and "Bidder"/"Contractor" which expression shall include its Successors, executors and permitted assigns) in favour of Maharashtra State Electricity Transmission Co. Ltd: having its Registered office at Mumbai,(hereinafter called the "Owner" which expression shall include its successors, executors and assigns).

WHEREAS THE OWNER invited bids as per its specification No. ---------- for the supply of materials, erection and stringing of 132 KV transmission line.

AND WHEREAS clause 3.0 of Section 1 , Part-I interalia stipulates that the Bidder along with its Collaborator/ Associate must fulfill the qualifying requirements and be jointly and severally bound and responsible for the successful performance of the contract in the event the bid is accepted by the Owner resulting in a "Contract".

AND WHEREAS the bidder has submitted its bid to the Owner vide Proposal No_____ dated _____ based on the Collaboration/Association of the Collaborator/ Associate

NOW THEREFORE THIS UNDERTAKING WITNESSETH AS UNDER:

1) In consideration of the award of Contract by the Owner to Bidder (hereinafter referred to as the "Contract") we, the Collaborator/Associate and the Bidder/Contractor do hereby declare that we shall be jointly and severally bound unto the Maharashtra State Electricity Transmission Co. Ltd. (Owner) for the successful performance of the Contract and shall be fully responsible for the design, manufacture, erection, testing and successful performance of the 132 KV line in accordance with contract specifications.

2) In case of any breach of the contract by the Contractor, we, the Collaborator/Associate do hereby agree to be fully responsible for successful performance of the Contract and undertake the Contract in order to discharge the Contractor's obligations stipulated in the contract. Further if the Owner suffers any loss or damage on account of any breach in the contract, we the Collaborator/ Associate and the Contractor jointly and severally undertake to pay such loss or damage to the Owner on its demand without any demur. This is without prejudice to any rights of the Owner against the Contractor under the contract and connected documents/guarantees. It shall not be necessary or obligatory for the Owner to proceed against individual Collaborator/Associate before proceeding against the while dealing with the Contractor, nor any extension of the time or any relaxation by the Owner to the Contractor shall prejudice any rights of the Owner under the deed of undertaking against the Collaborator/Associate or the Contractor.



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M.S.E.T. Co. Ltd.
E.H.V. Project Dn. Kalyan

Executive Engineer
TL Pretender

3) Without in anyway affecting the generality and total responsibility in terms of this deed of Undertaking, the Collaborator/Associate in particular hereby agrees to depute their technical experts from time to time to contractors works/Owner's project site as mutually considered necessary by the Owner, Contractor and the Collaborator/Associate to ensure proper design, manufacture, erection, testing and successful performance of the material package in accordance with contract specifications and if necessary the Collaborator/Associate shall advise the Contractor suitable modifications of designs and implement necessary corrective measures to discharge the obligations under the Contract.

4) The financial liability of the Collaborator/Associate to MSETCL (Owner) with respect to any and all claims arising out of the performance or non performance of the obligations set forth in this Deed of Undertaking read in conjunction with the relevant provisions of the contract, shall however, be limited to the extent of 100% price of the supply portion as established in the contract awarded by the Owner to the Contractor in terms of the Contract and this Deed of Undertaking.

5) This Deed of Undertaking shall be construed and interpreted in accordance with the laws of India and the courts in Mumbai shall have exclusive jurisdiction in all matters arising under the Undertaking.

6) We, the Collaborator, Associate and the Bidder/ Contractor agree that this undertaking shall be irrevocable and shall form an integral part of the contract and further agree that this Undertaking shall continue to be enforceable till the Owner discharges and it shall become operative from the effective date of the contract.

IN WITNESS WHEREOF the Collaborator/Associate and the Bidder/ Contractor have, through their authorised representatives, executed these presents and affixed common seal of their respective Companies, on the day, month and year first above mentioned.

WITNESS

1. .....For Collaborator/Associate
(Signature)

.....(Signature of Authorised
(Name) Representative)

.....
(Official Address) (Name)

(Designation)

Common Seal of the Company



Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn. No.1

Executive Engineer
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2. ..... For Bidder/Contractor
(Signature)

..... .....
(Name in Block Letters) (Signature of the Authorized Representative)

..... .....
(Official Address) (Name)

.....
(Designation)

Common Seal of the Company

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

Executive Engineer
TL Pretender

## SCHEDULE 'I'

## PROFORMA OF INDEMNITY BOND TO BE EXECUTED BY THE CONTRACTOR FOR THE MATERIALS HANDED OVER IN INSTALMENTS BY MSETCL FOR PERFORMANCE OT ITS CONTRACT

(On non-Judicial stamp paper of appropriate value)

### INDEMNITY BOND

THIS INDEMNITY BOND is made on this..... day of.... 20__ by ..... a company registered under the law, having its Registered Office at ..... (hereinafter called a 'Contractor' or 'Obligor' which expression shall include its successors and permitted assigns) in favour of Maharashtra State Electricity Transmission Co. Ltd; constituted under the Electricity (Supply) act 1948 having its Registered Office at Mumbai and its project in ------ District. (hereinafter called the MSETCL which expression shall include its successors and assigns):

WHEREAS MSETCL has awarded to the Contractor a Contract for.....vide its Award letter/Contract No.....and Amendment No.....(applicable when amendments have been issued) (hereinafter called "Contract") in terms of which the MSEB is required to hand over materials to the Contractor for execution of the Contract.

AND WHEREAS by virtue of Clause No..... of the said Contract, the Contractor is required to execute an Indemnity Bond in favour of the MSETCL for the materials handed over to it by the MSETCL for the purpose of performance of the Contract/Erection portion of the Contract. (hereinafter called the "Material").

NOW THEREFORE, this indemnity Bond witnesseth as follows:

1. That in consideration of various materials as mentioned in the Contract valued at Rs..... (Rupees.....) handed over to the Contractor in installments from time to time for the purpose of performance of the Contract, the Contractor hereby

undertakes to indemnify and shall keep the MSETCL indemnified, for the full value of the Material. The Contractor hereby acknowledges receipt of initial installments of the Materials as per details in the Schedule appended hereto. Further the Contractor agrees to acknowledge receipt of the subsequent installments of the Material as required by the MSETCL in the form of schedules consecutively numbered which shall be attached to this Indemnity Bond so as to form integral part of this Bond. It is expressly understood by the Contractor that handing over of the Dispatch title documents in respect of the said Material duly endorsed by the MSETCL in favor of the Contractor shall be construed as handing over of the Material purported to be covered by such title documents and the Contractor shall hold such materials in trust as a Trustee for and on behalf of the MSETCL.

2. That the Contractor is obliged and shall remain absolutely responsible for the safe transit/protection and custody of the Material at the said project sites against all risks whatsoever till the Material are duly used/ erected in accordance with the terms of the Contract and the Plant/Package duly erected and commissioned in accordance with the



Executive Engineer
M.S.E.T. Co. Ltd.

Executive Engineer
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POWER PROJECTS LTD. PUNE

terms of the Contract, is taken over by the owner. The Contractor undertakes to keep the owner harmless against any loss or damage that may be caused to the Materials.

3. The Contractor undertakes that the Materials shall be used exclusively for the Performance/execution of the Contract strictly in accordance with its terms and conditions and no part of the material shall be utilized for any other work or purpose whatsoever. It is clearly understood by the Contractor that non-observance of the obligations under this Indemnity Bond by the Contractor shall inter-alias constitute a criminal breach or trust on the part of the Contractor for all intents and purposes including legal/penal consequences.

4. The MSETCL is and shall remain the exclusive Owner of the Materials free from all encumbrances, charges or liens of any kind, whatsoever. The materials shall at all times be open to inspection and checking by Engineer-in-Charge / Engineer or other employees / agents authorized by him in this regard. Further, the MSETCL shall always be free at all times to take possession of the materials in whatever form the Materials may be, if in its opinion, the Materials are likely to be endangered, mis-utilised or converted to uses other than those specified in the Contract, by and acts of omission or commission on the part of the Contractor or any other person or on account of any reason whatsoever and the contractor binds itself and undertakes to comply with the directions of demand of the MSETCL to return the Materials without any demur or reservation.

5. That this Indemnity Bond is irrevocable. If at any time any loss or damage occurs to the materials or the same or any part thereof is mis-utilised in any manner whatsoever, then the Contractor hereby agrees that the decision of the Engineer-in-charge/Engineer of the Owner shall be binding on the Contractor. The Contractor binds itself and undertakes to replace the lots and any demur, reservation or protest. This is without prejudice to any other right or remedy that may be available to the MSETCL against the Contractor under the Contract and under this Indemnity Bond.

6. NOW THE CONDITION of this bond is that if the Contractor shall duly and punctually comply with the terms and conditions of this Bond to the satisfaction of MSETCL. Then, the above bond shall be void, but otherwise, it shall remain in full force and virtue.

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

| Particulars of the material handed over | Qty. | Particulars of Dispatch the Title Document receipt. | Value of Signature of Attorney Material in token of |
|---|---|---|---|
| | | RR/LR/ Carrier No., date of bill/ Date of loading. | |

(Please Number subsequent Schedules)

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan



BHC POWER PROJECTS LTD. PUNE

Executive Engineer

For and on behalf of

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

WITNESS:

I) 1. Signature---------- (Signature)----------

2. Name---------- (Name)----------

3. Address---------- (Designation)----------

II) 1. Signature---------- (Common Seal)

2. Name---------- (In case of Company)

3. Address----------

---

Indemnity Bonds are to be executed by the authorized persons and

(i) in case of contracting Company under common seal of the Company of (ii) having the power of attorney issued under common seal of the Company with authority to execute Indemnity Bonds, (iii) In case of (ii), the original Power of Attorney if it is specifically for this Contract or a photo state copy of the Power of Attorney if it is General Power of Attorney and such documents should be attached to Indemnity Bond.

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn. Kalyan



Executive Engineer
TL Pretender

BMC POWER PROJECTS LTD. PUNE

## STANDARD ACTIVITY SCHEDULE FOR PAYMENT ELIGIBILITY

NAME OF LINE : LILO on 220kV Kolshet-Wada & 220kV LILO on Padghe-Wada line for 400kV Sata.
(Route Length 7 Kms), under Vashi Zone.

**COMPLETION PERIOD = 09 MONTHS**

| Sr. No. | ACTIVITY | Schedule for completion of activities from date of LOA | | Remarks/ Hold points for payments |
|---|---|---|---|---|
| | | Commencement | Scheduled period of completion | |
| 1 | Submission of performance B.G. in lieu of S.D. | | Within 10 days | |
| 2 | Visit to site, verification of scope of work, establishment of site office and mobilisation of gang | After 5 days | Within 20 days | |
| 3 | Signing of contract agreement | After 10 days | Within 30 days | |
| 4 | Trial pits and inspection of route | After 3 days | Within 15 days | |
| 5 | Preliminary & Detailed Survey | After 10 days | Within 20 days | |
| 6 | Check survey | After 10 days | Within 30 days | |
| 7 | Approval of detailed /check survey & trial pits | After 15 days | Within 45 days | |
| 8 | Requisition of drawings of towers, stubs templates | After 5 days | Within 20 days | |
| 9 | Issuance of all drawings for execution by MSETCL | After 10 days | Within 30 days | Copy of trial pits report duly approved by Engineer in Charge be furnished |
| 10 | Collection of drawings by Contractor | 5 days | 15 days | |
| 11 | Preparation of shop drawings | 15 days | 45 days | |
| 12 | Proto manufacturing, assembly of towers, submission of call for inspection (if applicable) | After 30 days | Within 60 days | |
| 13 | Proto inspection | After 37 days | Within 70 days | |
| 14 | Supply of stub & stub setting templates | After 20 days | Within 80 days | Supply to be effected within 15 days after approval of check survey |
| 15 | Tower foundation | After 20 days | Within 100 days | At the rate minimum 10 locations per month |
| 16 | Supply of tower material | After 60 days | Within 90 days | The foundation should have been casted for tower under supply. The towers to be supplied on per tower basis within 15 days of casting of foundation |
| 17 | Erection of towers | After 80 days | Within 180 days | 50% tower foundations should be completed. Erection @ 6 loc. per month. |
| 18 | Supply of conductor, earthwire, insulators for accessories towers & conductor /groundwire & insulator Hardware | After 60 days | Within 180 days | Contractor's confirmation about complete erection of towers of equivalent route length is ready for stringing |
| 19 | Stringing of line | After 90 days | Within 210 days | Atleast 30% of towers should have been erected. Progress @ 2.5 KM/Month |
| 20 | Miscellaneous works (fixing of tower accessories,tree cutting etc.) | After109 days | Within 230 days | |
| 21 | Inspection, testing & commissioning of line | After 140 days | Within 270 days | |

Notes:-

| | |
|---|---|
| 1 | Contractor may execute the erection works ahead of schedule dates. In such an event the schedule date for supply of respective materials stands preponed accordingly and such supplies will become eligible for payments. |
| 2 | The contractor shall supply the material as per actual requirement only, based on the bill of quantities after check survey & duly approved by Engineer incharge No additional /surplus material shall be accepted except specifically requisitioned by Engineer-in-Charge. |
| 3 | The contractor can supply the material prior to scheduled delivery period,however,the payment eligibility will be from the date as per approved schedule period subject to satisfying conditions of hold points. |

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

Executive Engineer
TL Pretender

POWER PROJECTS

# ANNEXURE

# 'D'

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

# MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO. LTD.

Vendor: 4000001314
Company
BHC POWER PROJECTS LTD
B 27/28 Nigdi Height,
Bhakti Housing Society
411044 PUNE
INDIA

Information
B.E No: 5000000253
Tender Code:
T-1718/MSETCL/CO/DC&M/D&T/TKC-L
Bid Number: 4000073481
Tech Bid Open:00.00.00
Price Bid Open:00.00.00

MAHATRANSCO

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

Project Abstract

(Amount in ₹)

| Product Category | Substation/ Line | M.S.E.T.C.L. Estimated Cost | Bid % Variation | Bidder Cost |
|---|---|---|---|---|
| Supply | 220KV LILO SHT WADA PADGH | 1785581824.2 | Above 21.25 | 1447185809 |
| CIVIL | 220KV LILO SHT WADA PADGH | 47770776.84 | Above 9.71 | 51971699 |
| ERECTION | 220KV LILO SHT WADA PADGH | 21088982.08 | Above 8.19 | 23796359 |
| Total | | 1853381583.32 | | 2023953867.00 |

Executive Engineer
TL Pretender

PSCEIM

(21)

# MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO. LTD.

Vendor: 4000007214
Company
BNC POWER PROJECTS LTD.
B-27/28,Nilgiri Heights,
Shirish Housing Society
411016 PUNE
INDIA

Information:
RFx No: 6000000153
Tender Code:
T-1718/MSETCL/CO/DC&M/DA/17EC-1
Bid Number: 4000033481
Tech Bid Open:00:00:00
Price Bid Open:00:00:00

MAHATRANSCO

Executive Engineer
M.S.E.T. Co. Ltd.

## Detail Price Bid Conditions

(Amount in ₹)

| Item No | Item Description | Qty / UOM | Net Value | Excise Duty Amt. | % | Freight Amt. | % | Insurance Amt. | % | VAT/CST Amt. | % | Discount Amt. | % | Service Tax Amt. | % | Octroi Amt. | % | Unit Rate | Amount |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0001 | Fab, Galvg,Supply Of Tower Mat-TKP | 870.000 MT | 94754.84 | | | 1700.00 | | 1.00 | | 0.00 | | | | | | | | | 3039888.30 |
| 0002 | Galvanized Nuts/Bolts ni Washers | 33.550 MT | 109685.73 | | | 1700.00 | | 1.00 | | 0.00 | | | | | | | | | 3743408.13 |
| 0003 | DANGER BOARD | 49.000 EA | 305.94 | | | 10.00 | | 1.00 | | 6.00 | | | | | | | | | 16543.87 |
| 0004 | NUMBER PLATE FOR TOWER | 49.000 EA | 253.93 | | | 10.00 | | 1.00 | | 5.00 | | | | | | | | | 13853.19 |
| 0005 | Phase indication Plate | 49.000 EA | 415.69 | | | 10.00 | | 1.00 | | 5.00 | | | | | | | | | 22314.11 |
| 0030 | CIRCUIT PLATE FOR TOWER | 98.000 EA | 438.93 | | | 10.00 | | 1.00 | | 6.00 | | | | | | | | | 46716.60 |
| 0001 | Anti Climbing Device at Barbed Wire | 10.000 EA | 5003.86 | | | 100.00 | | 1.00 | | 6.00 | | | | | | | | | 81804.09 |
| 0008 | 70kN Anti/log Disc Insulator | 3,700.000 EA | 1082.61 | | | 40.00 | | 1.00 | | | | | | | | | | | 5738848.00 |
| 0009 | 120kN Anti/log Disc Insulator | 10,140.00 0 EA | 1283.77 | | | 50.00 | | 1.00 | | | | | | | | | | | 13499737.40 |
| 0010 | SSH HW(Arcing Horn) - 0.4 Single Zebra | 345.000 EA | 3067.92 | | | 59.00 | | 1.00 | | | | | | | | | | | 1067992.00 |
| 0011 | DSH H/W - 0.4 ACSR Zebra | 19.000 EA | 3549.23 | | | 120.00 | | 1.00 | | | | | | | | | | | 67403.37 |
| 0012 | STH H/W - 0.4 ACSR Zebra | 625.000 EA | 3397.13 | | | 80.00 | | 1.00 | | | | | | | | | | | 2194437.50 |
| 0013 | DTH H/W - 0.4 ACSR Zebra | 35.000 EA | 8532.88 | | | 167.00 | | 1.00 | | | | | | | | | | | 309916.00 |
| 0014 | 0.4 ACSR Zebra Conductor | 77.000 km | 928105.99 | | | 4000.00 | | 1.00 | | | | | | | | | | | 23870246.17 |
| 0015 | Mid Span Cmpr Joint- 0.4 ACSR Zebra | 88.000 EA | 983.72 | | | 25.00 | | 1.00 | | | | | | | | | | | 98020.80 |
| 0016 | Repair Sleeves - 0.4 ACSR Zebra | 20.000 EA | 535.79 | | | 15.00 | | 1.00 | | | | | | | | | | | 9781.20 |
| 0017 | A.A. Rod - 0.4 ACSR Zebra | 240.000 EA | 1042.79 | | | 44.00 | | 1.00 | | | | | | | | | | | 457250.40 |
| 0018 | Vibration Damper - 0.4 ACSR Zebra | 800.000 EA | 812.51 | | | 22.00 | | 1.00 | | | | | | | | | | | 719281.20 |
| 0019 | 7/3.15 mm HG Steel Earthwire | 7.000 km | 49830.17 | | | 4000.00 | | 1.00 | | | | | | | | | | | 407039.03 |
| | | | | | | | | | | | | | | | | | | Total of 220KOLSHT WADA PADGH | 148587062.20 |

Executive Engineer
TI Contractor

PADGH

(21)

# MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO. LTD.

Vendor: 4000001214
Company
BNC POWER PROJECTS LTD
B-2708,Nilgiri Heights,
Shivaji Housing Society
411015 PUNE
INDIA

Information
Ref.No.: 4000000253
Tender Code:
T-1158/MSETCL/CO/DC&MID&T/TKC-L
Bid Number: 4000033481
Tech Bid Open:00:00:00
Price Bid Open:00:00:00

MAHATRANSCO

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

| Item No. | Item Description | Qty / Unit | Ex-Works | Excise Duty Amt. | % | Freight Amt. | % | Insurance Amt. | % | VAT/CST Amt. | % | Discount Amt. | % | Service Tax Amt. | % | Octroi Amt. | % | Unit Rate | Amount |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0020 | 7/3.15 mm Earthwire Suspension Clamp | 10.000 EA | 852.48 | | | 73.00 | | 1.00 | | | | | | | | | | | 7320.00 |
| 0021 | 7/3.15 mm Earthwire Tension Clamp | 80.000 EA | 851.48 | | | 73.00 | | 1.00 | | | | | | | | | | | 65592.00 |
| 0022 | Mid Span Compr Joint- 7/3.15 mm Earthwire | 3.000 EA | 177.48 | | | 15.00 | | 1.00 | | | | | | | | | | | 843.00 |
| 0023 | 7/3.15 mm Elv Flexible Cu Earth Bond | 80.000 EA | 791.38 | | | 75.00 | | 1.00 | | | | | | | | | | | 78614.00 |
| 0024 | OH/UG: Detailed Survey | 8.000 Km | 12018.04 | | | | | 1.00 | | | | | | 15.00 | | | | | 96022.33 |
| 0025 | O/H/G: Check Survey | 8.000 Km | 4916.84 | | | | | 1.00 | | | | | | 15.00 | | | | | 37073.01 |
| 0026 | TE:Excvn. of pits-Normal Soil | 1,210.000 M3 | 218.63 | | | | | 1.00 | | | | | | 15.00 | | | | | 308738.00 |
| 0027 | TE:Excvn.of pits-RCC/Cr/Submerged Soil | 13,100.000 M3 | 327.78 | | | | | 1.00 | | | | | | 15.00 | | | | | 4900783.00 |
| 0028 | TE:Excvn.of pits-Hard Murum/Soft Rock | 3,850.000 M3 | 382.96 | | | | | 1.00 | | | | | | 15.00 | | | | | 1612954.90 |
| 0029 | TE:Excvn.of pits-Dry Basaltic Rock | 6,050.000 M3 | 982.39 | | | | | 1.00 | | | | | | 15.00 | | | | | 5901114.00 |
| 0030 | TE:Excvn.of pits-Hard Rock by chiseling | 1,210.000 M3 | 1420.41 | * | | | | 1.00 | | | | | | 15.00 | | | | | 1979685.79 |
| 0031 | TE: Casting in-situ CC M-10 | 435.000 M3 | 6094.21 | | | | | | | 0.00 | | | | 15.00 | | | | | 2921381.79 |
| 0032 | TE: Casting in-situ CC M-20 | 3,610.000 M3 | 7002.29 | | | | | | | 0.00 | | | | 15.00 | | | | | 28692136.80 |
| 0033 | F&F (Steel Reinforcement) in Concrete Fdn | 202.900 MT | 74238.05 | | | | | | | 0.00 | | | | 15.00 | | | | | 185248013.37 |
| 0034 | TE: Earthing (Pipe Type) | 40.000 EA | 5483.00 | | | | | 1.00 | | | | | | 15.00 | | | | | 253487.23 |
| 0035 | TE: Earthing (Counter poise) | 0.000 CA | 12016.70 | | | | | 1.00 | | | | | | 15.00 | | | | | 1295/0.02 |
| 0036 | TE: Erection of Towers (220/kV) | 553.000 MT | 8909.40 | | | | | 1.00 | | | | | | 15.00 | | | | | 6165304.72 |
| 0037 | BH/CH: Benching-Normal Soil/BC Soil | 100.000 M3 | 175.73 | | | | | 1.00 | | | | | | 15.00 | | | | | 20329.00 |
| 0038 | BH/CH: Benching-H.M/S.R/F.R. | 200.000 M3 | 295.33 | | | | | 1.00 | | | | | | 15.00 | | | | | 68516.00 |
| 0039 | TP: Erection of PCC Protection Wall (NS/SM) | 30.000 M3 | 219.23 | | | | | 1.00 | | | | | | 15.00 | | | | | 7575.00 |
| 0040 | TP: Erection of PCC Protection Wall (BC/SS) | 130.000 M3 | 327.78 | | | | | 1.00 | | | | | | 15.00 | | | | | 49429.90 |
| | | | | | | | | | | | | | | | | | | Total of 220/400/LIGHT WADA PADGH | 70011560.38 |

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Executive Engineer

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# MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO. LTD.

Vendor: 4000001214
Company
BNC POWER PROJECTS LTD
B-27/28,Nilgiri Heights,
Shivaji Housing Society
411016 PUNE
INDIA

Information
Rfx No: 4000002253
Tender Code:
T-1718/MSETCL/CO/DC&M/DE/TECH-L
Bid Number: 4000033461
Tech Bid Open:00/00/00
Price Bid Open:00/00/00

MAHATRANSCO

| Item No | Item Description | Qty/ Unit | Ex-Works | Excise Duty Amt. | % | Freight Amt. | % | Insurance Amt. | % | VAT/CST Amt. | % | Discount Amt. | % | Service Tax Amt. | % | Octroi Amt. | % | Unit Rate | Amount |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9041 | TFP:Excavn of FDN Protect Wall (BRHM) | 50.000 M3 | 382.96 | | | | | 1.00 | | | | | | 10.30 | | | | | 35530.40 |
| 9042 | TFP:Excavn of FDN Protect Wall (DRD) | 260.000 M3 | 983.35 | | | | | 1.00 | | | | | | 15.00 | | | | | 3965?8.80 |
| 9043 | P&C Tran Mild CC 1:3:6 for Retaining Wall | 150.000 M3 | 4009.21 | | | | | | | 6.00 | | | | 15.00 | | | | | 673058.60 |
| 9044 | P&C Tran Metal CC 1:3:6 for Retaining Wall | 30.000 M3 | 5865.63 | | | | | | | 8.00 | | | | 15.00 | | | | | 264089.50 |
| 9045 | P&C UCR Masonry of Tran Stone in CM 1:6 | 300.000 M3 | 2703.17 | | | | | | | 8.00 | | | | 15.00 | | | | | 2383117.00 |
| 9046 | 220kV D/C (wt 0.8 ALS/d/AAAC) on DC Line | 6.000 km | 8932.01 | | | | | 1.00 | | | | | | 15.00 | | | | | 615873.50 |
| 9047 | 220kV D/C (wt 0.8 ACSR/AAAC) on DC Line | 1.500 km | 7211.52 | | | | | 1.00 | | | | | | 15.00 | | | | | 1254?6.01 |
| 9048 | SWSTRG 6MI Stringing 220kV | 7.000 km | 13897.78 | | | | | 1.00 | | | | | | 15.00 | | | | | 110991.00 |
| 9049 | Dewatering inducing diversion of stream | 200.000 M3 | 238.43 | | | | | | | 8.00 | | | | 15.00 | | | | | 51228.00 |
| 9050 | TELTACK WELDING M/C TOWER | 23.000 EA | 3496.36 | | | | | 1.00 | | | | | | 15.00 | | | | | 85383.94 |
| 9051 | TELTACK WELDING D/C TOWER | 6.000 EA | 3963.74 | | | | | 1.00 | | | | | | 15.00 | | | | | 22307.94 |
| 9052 | 220kV D/C Tower 60° (Stub Setting Temp) | 8.000 EA | 4916.81 | | | | | 1.00 | | | | | | 15.00 | | | | | 46820.00 |
| 9053 | 220kV M/C Tower 2° (Stub Set Template) | 8.000 EA | 4370.50 | | | | | 1.00 | | | | | | 15.00 | | | | | 40025.02 |
| 9054 | 220kV M/C Tower 15° (Stub Set Template) | 1.000 EA | 4910.38 | | | | | 1.00 | | | | | | 15.00 | | | | | 5703.00 |
| 9055 | 220kV M/C Tower 30° (Stub Set Template) | 3.000 EA | 5009.48 | | | | | 1.00 | | | | | | 15.00 | | | | | 20913.90 |
| 9056 | 220kV M/C Tower 60° (Stub Setting Temp) | 10.000 EA | 8337.18 | | | | | 1.00 | | | | | | 15.00 | | | | | 73513.00 |
| 9057 | 220kV Horizontal Tower | 10.000 MT | 3624.14 | | | | | 1.00 | | | | | | 15.00 | | | | | 70970.00 |
| 9058 | 220kV Horizontal Tower | 2.000 MT | 3466.55 | | | | | 1.00 | | | | | | 15.00 | | | | | 8112.00 |
| | | | | | | | | | | | | | | | | | | Total of IMMEDIATE WORK ORDER | 5107355.34 |
| | | | | | | | | | | | | | | | | | | Total | 220196089.27 |

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

BNC POWER PROJECTS LTD. PUNE

Executive Engineer
TL Pretender

MAHA

(221)

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# BNC Power Projects Ltd.

Ref No: BNCPPL/PNA/ Tender /T-1718/4037 Date: 23.11.2017

To,
The Chief Engineer (DC&M),
MSETCL, Prakashganga,
Plot No. C-19, E - Block,
Bandra Kurla Complex,
Bandra East, Mumbai 51.

Sub: Work of Construction of LILO on 220KV Kolshet-Wada & LILO on Padghe - Wada line for 400KV Kudus S/STN-7KMS.

Ref: i) T-1718 / MSETCL/ CO/ DCM/ D&T/ TKC-LINES RFx.No.6000000253 Meeting held at Corporate Office Mumbai Dt.26.09.2017.
ii) T.O.L.No.:- BNCPPL/PNA/ Tender /T-1718/3465 Dt. 10.10.2017.
iii) T.O.L.No.: BNCPPL/PNA/ Tender /T-1718/3558 Dt. 25.10.2017.
iv) T.O.L.No.: BNCPPL/PNA/ Tender /T-1718/3572 Dt. 26.10.2017.

Dear Sir,

In continuation to our letter under reference (iv) above, we further offer an unconditional Rebate of Rs.59,48,851.00 with which our final offer towards subject tender work is Rs.21,64,00,000.00.

| Sr. No. | Product Category | Our Quoted Price | 1st Rebate 1.35% | Final Price offer |
|---|---|---|---|---|
| 1 | Supply | 14,97,29,835.45 | 14,77,08,483.00 | 14,37,64,667.00 |
| 2 | Erection | 2,38,90,833.00 | 2,35,68,307.00 | 2,29,26,896.00 |
| 3 | Civil | 5,17,70,969.11 | 5,10,72,061.00 | 4,97,08,437.00 |
| | TOTAL:- | 22,53,91,637.56 | 22,23,48,851.00 | 21,64,00,000.00 |

Thanking you,

Yours faithfully,
For BNC Power Projects Ltd.

Mr. Rajesh Chaudhari
(Director)

CIN : U45207PN2007PLC133396
Regd. Office : Plot No. 67, Shree Shivaji Housing Society, off Senapati Bapat Rd, Shivajinagar Pune-16
Corporate Office : Butte Patil Complex, 3rd floor, Karve Road, Next to Dashbhuja Ganpati Temple, Pune- 411 038.
Phone- 020-25460161, Fax- 020-25460171, E-mail : bnchaudhary@yahoo.co.in , info@bncpower.asp

Executive Engineer
M.S.E.T. Co. Ltd.

Executive Engineer
TL Pretender

# ANNEXURE

# 'E'

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Division, Kuriyan

(224)

MAHATRANSCO

MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO.LTD.

(A Government of Maharashtra Undertaking)

Office of the Executive Engineer,
EHV T.L. Project Sub Division,
Behind Mahatma Phule Market,
M.S.E.T.C.L. Road, Kalyan (W) 421301.
Email:- dee.kalyanehvtl@mahatransco.in

No. ASP/EE/EHV/TL/KALYAN/KLN-T-148/No. 17

Date: 01 February, 2018

To,
M/S BNC Power Projects Limited,
Plot No. 67, Shri Shivaji Housing Society,
Shivajinagar, Pune. 411016
Email: bnchaudhary@yahoo.co.in

Subject: Handing over of site

Reference:
1) MSETCL/CO/DCM/D&T/TKC-L/T-171/Corrdy/BNC/304 dated 11.01.2018
2) MSETCL/CO/DCM/D&T/TKC-L/T-1738/ETC/BNC/305 dated 11.01.2018
3) Instructions in meeting at EHV Projects Circle, Kalwa to hand over site, dated 30 January, 2018.

Dear Sirs,

In connection to above subject, the work of TLEO on 220 kV Kolshet-Vadavali and LILO on 220 kV Padghe-Wada Line for 400 kV Kudus S/Stn. is awarded to you, vide Corporate Office LOAs under reference 1 & 2. Now, it is to confirm that the site is handed over to you for execution of work as per said LOAs, today i.e. on 01st February, 2018.

1) Various joint site visits of MSETCL and M/S BNC staff, along the complete route, are already carried out. You are requested to start the work as per instructions in LOAs, deploy adequate skilled, experienced manpower at site, complete the work as per instructions in LOAs.
2) Visit to 400 kV Kudus S/S is carried out, all 220 kV bays present situation, sequence of bays at present, change of sequence of bays if needed, availability of space for future bays, etc studied in detail.
3) On site, discussed possible hurdles like ROW issues during execution of this project, in detail.
4) On site, discussed possible difficulties of outages of existing lines (4 crossing lines and line to be LILO) during execution of this project. So that, same shall be in mind in deciding the proposed locations for towers.
5) The situation at site, issues, present lines loading conditions, future outage constraints, timely execution of project, etc- all these things are discussed in detail with agency.

On 30 January, 2018, Hon. SE, EHV Projects Circle, Kalwa explained the project in detail to all. He instructed agency for timely completion of project, instructed agency to complete detailed survey and submit the detailed report at the earliest.

It is requested to submit copy of bar chart and action plan for complete scope of work to this sub division. You are instructed to submit weekly progress report to this office.

Signed
Assistant Executive Engineer,
EHV T.L. Line Projects Sub Division, Kalyan.

Copy s.w.r.s. to,
1) The Superintending Engineer, EHV Projects Circle, Kalwa
2) The Executive Engineer, EHV Projects Division, Kalyan. Submitting for information and further needful, guidelines please.

Regd. Office: "Prakashganga", Plot No.C-19, 'E' Block, Bandra - Kurla Complex, Bandra (E), Mumbai 400 051

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

Executive Engineer
TL Pretender

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Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

MAHARASHTRA STATE ELECTRICITY TRANSMISSION COMPANY LIMITED

Work of Construction of LILO on 220KV Kolshet-Wada & LILO on Padgire – Wada line for 400KV Kudus S/STN-TKMS

LOA Ref: MSETCL/CO/DCM/D&T/TKC-I/73718/Supply/BNC/394 Dtd: 23.11.2017

Agency : M/S. BNC Power Projects Ltd., Pune

Supply Breakup

| Sr. No. | Item No. | Description | Qty | Unit | Ex-Works Rate | Freight | Insurance | GST @18% | [illegible] | Amount |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Material 500030036 | Fab, Galvg, Supply Of Tower Mat-TKI" | 675.00 | MT | 84,397.84 | 1,700.00 | 860.80 | 15,636.89 | [illegible] | 89,894,963.53 |
| 2 | Material 500000039 | Galvanised Nuts/ Bolts wt Washers | 25.50 | MT | 120,906.45 | 1,900.00 | 1,045.80 | 22,257.41 | [illegible] | 3,220,696.33 |
| 3 | Material 500029530 | DANGER BOARD | 49.00 | EA | 221.31 | 10.00 | 2.94 | 51.16 | [illegible] | 16,435.07 |
| 4 | Material 500003455 | NUMBER PLATE FOR TOWER | 49.00 | EA | 224.22 | 10.00 | 2.94 | 42.38 | [illegible] | 13,541.56 |
| 5 | Material 500000712 | Phase Indication Plate | 49.00 | EA | 370.42 | 10.00 | 2.94 | 69.01 | [illegible] | 22,166.33 |
| 6 | Material 500033466 | CIRCUIT PLATE FOR TOWER | 98.00 | EA | 382.37 | 10.00 | 2.94 | 71.16 | [illegible] | 45,714.66 |
| 7 | Material 500033467 | Anti Climbing Device wt Barbed Wire | 15.00 | EA | 4,453.40 | 100.00 | 42.00 | 827.43 | [illegible] | 81,863.90 |
| 8 | Material 500000322 | 70kN Antifog Disc Insulator | 5200.00 | EA | 887.97 | 40.00 | 9.86 | 168.07 | [illegible] | 5,763,260.00 |
| 9 | Material 500000330 | 120kN Antifog Disc Insulator | 10140.00 | EA | 1,066.40 | 50.00 | 11.20 | 201.07 | [illegible] | 13,261,073.40 |
| 10 | Material 500000315 | SSN H/W(Anclog Point) -0.4 Single Zebra | 345.00 | EA | 2,579.83 | 55.00 | 28.09 | 477.88 | [illegible] | 1,050,636.90 |
| 11 | Material 500000820 | DSN H/W - 0.4 ACSR Zebra | 73.00 | EA | 5,498.60 | 120.00 | 42.94 | 1,019.19 | [illegible] | 466,837.29 |
| 12 | Material 500021940 | STN H/W - 0.4 ACSR Zebra | 635.00 | EA | 2,846.26 | 80.00 | 29.12 | 532.06 | [illegible] | 2,179,955.03 |
| 13 | Material 500031439 | DTN H/W - 0.4 ACSR Zebra | 25.00 | EA | 7,211.00 | 167.00 | 60.86 | 1,339.07 | [illegible] | 212,458.30 |

BNC POWER PROJECTS LTD. PUNE

Executive Engineer
TL Pretender

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| Sr. No. | Item No. | Description | Qty | Unit | Ex-Works Rate | Freight | Insurance | GST @18% | [illegible] | Amount |
|---|---|---|---|---|---|---|---|---|---|---|
| 14 | Material 500003736 | 0.4 ACSR Zebra Conductor | 77.00 | km | 274,183.86 | 5,500.00 | 3,764.00 | 50,912.61 | [illegible] | 25,819,555.42 |
| 15 | Material 500006871 | Mid Span Cmpr Joint- 0.4 ACSR Zebra | 55.00 | EA | 823.89 | 25.00 | 9.03 | 154.43 | [illegible] | 85,629.35 |
| 16 | Material 500008822 | Repair Sleeves - 0.4 ACSR Zebra | 20.00 | EA | 271.65 | 10.00 | 3.28 | 51.38 | [illegible] | 6,736.20 |
| 17 | Material 500002880 | P.A. Rod :- 0.4 ACSR Zebra | 240.00 | EA | 1,544.06 | 44.00 | 16.88 | 288.71 | [illegible] | 454,233.65 |
| 18 | Material 500002904 | Vibration Damper - 0.4 ACSR Zebra | 880.00 | EA | 679.54 | 22.00 | 7.87 | 127.69 | [illegible] | 711,835.00 |
| 19 | Material 500000785 | 7/3.15 mm HC Steel Earthwire | 7.50 | km | 40,765.36 | 4,500.00 | 525.00 | 8,242.27 | [illegible] | 405,244.79 |
| 20 | Material 500000791 | 7/3.15 mm Earthwire Suspension Clamp | 10.00 | EA | 534.11 | 23.00 | 9.74 | 110.93 | [illegible] | 7,221.80 |
| 21 | Material 500000792 | 7/3.15 mm Earthwire Tension Clamp | 90.00 | EA | 558.22 | 23.00 | 9.14 | 115.36 | [illegible] | 68,055.26 |
| 22 | Material 500000793 | Mid Span Cmpr Joint- 7/3.15 mm Earthwire | 5.00 | EA | 144.53 | 15.00 | 1.89 | 28.51 | [illegible] | 934.23 |
| 23 | Material 500000795 | 7/3.15 mm E/w Flexible Cu Earth Bond | 90.00 | EA | 638.40 | 25.00 | 9.85 | 130.71 | [illegible] | 75,870.60 |
| | | | | | | | | | Total Supply:- | 143,264,562.01 |
| | | | | | | | | | Total Erections:- | 22,930,896.00 |
| | | | | | | | | | Total Civil:- | 49,208,437.49 |
| | | | | | | | | | Grand Total:- | 216,403,895.51 |

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn. Kalwan

BNC POWER PROJECTS LIMITED

Executive Engineer
TL Pretender

# MAHARASHTRA STATE ELECTRICITY TRANSMISSION COMPANY LIMITED

Work of Construction of LILO on 220KV Kolshet-Wada & LILO on Padghe - Wada line for 400KV Kudus S/S IN 2KMS

LOA Ref.: MSETCL/CO/DCM/D&T/TKC-I/T1718/ETC/BNC/395Dtd: 23.11.2017

Agency : M/s. BNC Power Projects Ltd., Pune

Erection Breakup

| Sr. No. | Item No. | Description | Qty | Unit | Ex-Works Rate | GST @ 18% | Unit Rate | Amount |
|---|---|---|---|---|---|---|---|---|
| 24 | Material 300006597 | CHKS: Detailed Survey | 6.50 | KM | 11,382.59 | 2,048.87 | 13,431.46 | 87,304.49 |
| 25 | Material 300002036 | CHKS: Check Survey | 6.50 | KM | 4,656.52 | 838.17 | 5,494.69 | 35,715.49 |
| 26 | Material 300002037 | TE:Excvn of pits-Normal Soil | 1210.00 | CUM | 206.96 | 37.25 | 244.21 | 295,494.10 |
| 27 | Material 300002039 | TE:Excvn of pits-BCSoil/Submerged Soil | 12100.00 | CUM | 310.43 | 55.88 | 366.31 | 4,433,251.00 |
| 28 | Material 300002038 | TE:Excvn of pits-Hard Murum/Soft Rock | 3630.00 | CUM | 362.69 | 65.29 | 427.98 | 1,553,531.18 |
| 29 | Material 300002040 | TE:Excvn of pits-Dry fissured Rock | 6050.00 | CUM | 931.31 | 167.63 | 1,098.94 | 6,648,587.00 |
| 30 | Material 300002041 | TE:Excvn of pits-HardRock by chiseling | 1210.00 | CUM | 1,345.21 | 242.14 | 1,587.35 | 1,920,693.50 |
| 31 | Material 300002045 | TE: Earthing (Pipe Type) | 40.00 | EA | 5,173.91 | 931.30 | 6,105.21 | 244,208.40 |
| 32 | Material 300002046 | TE: Earthing (Counter poise) | 9.00 | EA | 11,382.59 | 2,048.87 | 13,431.46 | 120,883.14 |
| 33 | Material 300002048 | TE: Erection of Towers (220KV) | 885.00 | MT | 5,691.30 | 1,024.43 | 6,715.73 | 5,943,989.59 |
| 34 | Material 300002053 | BNCH: Benching-Normal Soil/BC Soil | 100.00 | CUM | 165.13 | 29.72 | 194.85 | 19,485.00 |
| 35 | Material 300002054 | BNCH: Benching-H.M./S.R./F.R. | 200.00 | CUM | 278.85 | 50.19 | 329.04 | 65,808.00 |

Executive Engineer

Executive Engineer
M.S.E.T. Co. Ltd.

BNC POWER PROJECTS LTD.

| Sr. No. | Item No. | Description | Qty | Unit | Ex-Works Rate | GST @18% | Unit Rate | Amount |
|---|---|---|---|---|---|---|---|---|
| 39 | Material 300008643 | TFP:Excavn of FDN Protecn Wall (NS/SM) | 50.00 | CUM | 206.53 | 37.18 | 243.71 | 12,185.50 |
| 40 | Material 300008642 | TFP:Excavn of FDN Protecn Wall (BCS/SS) | 130.00 | CUM | 310.43 | 55.88 | 366.31 | 47,620.30 |
| 41 | Material 300008643 | TFP:Excavn of FDN Protecn Wall (SR/HM) | 80.00 | CUM | 362.69 | 65.28 | 427.97 | 34,237.60 |
| 42 | Material 300008644 | TFP:Excavn of FDN Protecn Wall (DFR) | 260.00 | CUM | 931.31 | 167.63 | 1,098.94 | 285,724.40 |
| 46 | Material 300008690 | 220kV D/C (wt 0.4 ACSR/AAAC) on MC Line | 6.00 | KM | 83,817.23 | 15,087.11 | 98,904.36 | 593,426.16 |
| 47 | Material 300008690 | 220kV D/C (wt 0.4 ACSR/AAAC) on DC Line | 1.50 | KM | 68,295.94 | 12,293.29 | 80,589.74 | 120,884.11 |
| 48 | Material 300002869 | EWSTRG-E/W Stringing-220KV | 7.00 | KM | 12,934.76 | 2,328.26 | 15,263.02 | 106,841.14 |
| 50 | Material 300007351 | TE:TACK WELDING M/C TOWER | 23.00 | EA | 3,311.30 | 596.03 | 3,907.33 | 89,868.59 |
| 51 | Material 300007350 | TE:TACK WELDING D/C TOWER | 8.00 | EA | 2,276.52 | 409.77 | 2,686.29 | 21,490.32 |
| 52 | Material 300008652 | 220kV D/C Tower 60° (Stub Setting Temp) | 8.00 | EA | 4,656.52 | 838.17 | 5,494.69 | 43,957.52 |
| 53 | Material 300008660 | 220kV M/C Tower 2° (Stub Set. Template) | 9.00 | EA | 4,139.13 | 745.04 | 4,884.17 | 43,957.53 |
| 54 | Material 300008661 | 220kV M/C Tower 15° (Stub Set. Template) | 1.00 | EA | 4,656.52 | 838.17 | 5,494.69 | 5,494.69 |
| 55 | Material 300008662 | 220kV M/C Tower 30° (Stub Set. Template) | 3.00 | EA | 5,691.30 | 1,024.43 | 6,715.73 | 20,147.19 |
| 56 | Material 300008653 | 220kV M/C Tower 60° (Stub Setting Temp) | 10.00 | EA | 6,001.53 | 1,080.28 | 7,081.81 | 70,818.10 |
| 57 | Material 300005788 | 220kV Horizontal Tower MC | 16.80 | MT | 3,621.74 | 651.91 | 4,273.65 | 68,378.40 |

Executive Engineer
M.S.E.T. Co. Ltd.

Executive Engineer

(23)

| Sr. No. | Item No. | Description | Qty | Unit | Ex-Works Rate | GST @ 18% | Unit Rate | Amount |
|---|---|---|---|---|---|---|---|---|
| 28 | Material 300005789 | 220kV Horizontal Tower DC | 2.00 | MT | 3,311.30 | 596.03 | 3,907.33 | 7,814.66 |
| | | | | | | | Total Erection:- | 22,926,896.02 |

Civil Breakup

| Item | Item category Product no. | Description | Qty | Unit | Ex-Works Rate | GST @ 18% | Unit Rate | Amount |
|---|---|---|---|---|---|---|---|---|
| 30 | Material 300009292 | TE: Casting in-situ CC M-10 | 435.00 | M3 | 5,475.72 | 985.63 | 6,461.35 | 2,810,687.25 |
| 32 | Material 300009290 | TE: Casting in-situ CC M-20 | 3610.00 | M3 | 6,470.38 | 1,164.67 | 7,635.05 | 27,562,530.50 |
| 39 | Material 300009294 | P&F Steel Reinforcement in Concrete Fdn | 202.00 | M3 | 66,699.51 | 12,005.91 | 78,705.42 | 15,898,494.84 |
| 43 | Material 300009296 | P&C Trap Metal CC 1:3:6 for Retaing Wall | 130.00 | M3 | 5,475.30 | 985.55 | 6,460.85 | 839,910.50 |
| 44 | Material 300009295 | P&C Trap Metal CC 1:2:4 for Retaing Wall | 35.00 | M3 | 6,171.73 | 1,110.91 | 7,282.64 | 254,892.40 |
| 45 | Material 300009297 | P&C UCR Masonry of Trap Stone in CM 1:6 | 800.00 | M3 | 2,428.64 | 437.16 | 2,865.80 | 2,292,640.00 |
| 49 | Material 300009105 | Dewatering including diversion of steam | 200.00 | M3 | 208.82 | 37.59 | 246.41 | 49,282.00 |
| | | | | | | | Total Civil:- | 49,708,437.49 |

Executive Engineer
M.S.E.T. Co. Ltd.

BHC POWER PROJECTS PVT. LTD. PUNE

Executive Engineer
TL Pretender

(2.2)

(230)

MAHA[illegible]

MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO.LTD.
CIN No. U40109MH2005SGC153646
EHV PROJECTS CIRCLE, KALWA

| From: Office of the Superintending Engineer, | To: |
|---|---|
| EHV Projects Circle, Kalwa, | The Executive Engineer, |
| Thane Belapur Road, MSETCL Complex, | EHV Projects Division, |
| Airoli Naka, Navi Mumbai 400 708 | Kalyan. |
| Email: se7600@mahatransco.in | |

Ref. No.SE/EHV/PC/KLW/Tech/TL-1578/ 00173 Date: 15 FEB 2018

**Sub :- Construction of 220KV M/C LILO on 220KV D/C Padghe – Wada line for 400KV Kudus substation (M/C Line 7.725Km with Twin Conductors) under Vashi Zone. .....Approval of profile, tower schedule & route map (Loc. No. 1 to 23 & Loc. No. 31 to 50) thereof.**

**Ref.:-** 1) MSETCL/CO/DCM/D&T/TKC-L/T-1718/ETC/BNC/395 Dt.11.01.2018.
2) BNCPPL/PNA/WADA/Corres/429 Dt. 26.01.2018.
3) PE/EHV/PR/DN/KLN/T-236G/No. 78 dt.03.02.2018.

With reference to above subject, this office is in receipt of profile, tower schedule & route map (Loc. No. 1 to 23 & Loc. No. 31 to 50) for work of construction of 220KV M/C LILO on 220KV D/C Padghe – Wada line for 400KV Kudus substation (M/C Line 7.725Km with Twin Conductors) under Vashi Zone from you vide letter under references (1).

The profile, tower schedule & route map submitted by M/s. B. N. Chaudhari is found to be in order and approved considering hot curve of conductors & subject to;

1) Maintaining all statutory clearances, vertical & horizontal clearances during actual execution as per IE rule by work executing agency.
2) Further, MCN+9mtr tower to be utilized at Loc No. 6.
3) And agency has to submit new design of Dwarf tower & its foundation (without top section suitable for single conductor) to Design section, HO for approval before supply and its erection.

The detail of approved profile is as below;

| Sr. No. | Section | | Length (in KM) |
|---|---|---|---|
| | From | To | |
| 1 | Gantry at 400/220KV Kudus Substation | Proposed Loc No. 23 of Padghe – Wada D/C LILO line | 2.841 |
| 2 | Proposed Loc No. 31 of Padghe – Wada D/C LILO line | Proposed Loc No. 50 (Inline tower) of Padghe – Wada D/C LILO line | 3.384 |
| Total Route Length (in KM) | | | 6.225 |

It is to note that, if any changes occur during the execution of work, the above said approval stands cancelled and revised profile is required to be submitted to this office for approval.

You are requested to submit one blue print of approved profile to this office for record & reference.

Encl: Approved profile in original.

Kudus

Dy.Executive Engr.226

Executive Engineer
TL Pretender

(S. N. SURYAWANSHI)
SUPERINTENDING ENGINEER
EHV PROJECTS CIRCLE, KALWA

POWER PRO... PUNE

# ANNEXURE

# 'F'

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn. Kalyan

MAHATRANSCO

MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO. LTD

(CIN No.U40109MH2005SGC153646)

| From<br>The Chief Engineer,<br>Design, Contract & Monitoring Dept.<br>Plot No.C-19, "E" Block, Prakashganga,<br>Bandra – Kurla Complex,<br>Bandra (East), Mumbai – 400 051.<br>Tel: 022-2659 5124(O)/ 022-2659 5163<br>Fax: 022-2659 8587<br>E-mail : eccm@mahatransco.in | To,<br>M/s. BNC Power Projects Ltd.,<br>Plot no. 67, Shree Shivaji Housing Society, off<br>Senapati Bapat Rd. Shivajinagar,<br>Pune-411 016.<br>bndhaudhary@yahoo.co.in |
|---|---|

Ref.No.MSETCL/CO/DCM/D&T/TKC-L/T-1718/Supply/BNC/394 Date: 11.01.2018

**Sub:** Award of Contract for turnkey construction of LILO on 220kV Kolshet-Wada & 220kV LILO on Padghe-Wada line for 400kV Kudus Stn. (Route Length 7 Kms), against SRM e-tender no.T-1718 (RFx No. 6000000253) under Vashi Zone.
**– Letter of Award for supply of materials thereof.**

**Ref:** 1) SRM Tender No. T-1718/MSETCL/CO/DCM/D&T/TKC-L(RFx No. 6000000253)
2) Your offer against subject tender, opened on 28.08.2017.

***

Dear Sirs,

In connection with the above subject, we are pleased to inform you that, your offer for turnkey construction of LILO on 220kV Kolshet-Wada & 220kV LILO on Padghe-Wada line for 400kV Kudus S/stn. (Route Length 7 Kms), against SRM e-tender no.T-1718 (RFx No. 6000000253) under Vashi Zone has been accepted for the supply portion as per details below: -

| Sr. No. | Description of works | Final Price quoted inclusive of all taxes and duties. |
|---|---|---|
| 1 | LILO on 220kV Kolshet-Wada & 220kV LILO on Padghe-Wada line for 400kV Kudus S/stn. (Route Length 7 Kms), against SRM e-tender no.T-1718 (RFx No. 6000000253) under Vashi Zone | Rs.14,37,64,667.00 |

**(Rs. Fourteen Crore Thirty Seven Lakh Sixty Four Thousand Six Hundred Sixty Seven Rupees Only).**

The activity schedule for payment eligibility for 09 (Nine) months (including monsoon) from the date of handing over of line profile for supply of material for turnkey construction of above line is enclosed herewith.

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

Executive Engineer
T.E. Pretender

It may please be noted that the scope shall also include supply of all equipments / materials which are not specifically listed in your offer but are necessary in order to meet the requirements of the line as per tender specifications in all respects.

Detailed terms and conditions will be as per the tender specification, amendments thereof, your offer, clarifications thereon and contract agreement being executed shortly. The work of above line has to be completed within 09 (Nine) months (including monsoon) from the date of handing over of line profile.

You are requested to: -

1) Intimate the **acceptance of this LoA within 10 days from receipt.**
2) Submit **bar chart within** 10 days from the date of receipt of LoA, indicating all activities for completion of the project.
3) Submit price **schedule with detailed break up of unit rate** into ex-works price and GST **rates within** 10 days from receipt of LoA.
4) Complete the formalities like furnishing of **Performance Bank Guarantee** as per Clause No. 8.0 of Section-II of Book-1 in prescribed format **within 30 days** from the date of receipt of LoA, so that the contract agreement can be finalized early.
5) **M/s. BNC Power Projects Ltd** shall submit the **invoice as per GST regulation.**

Encl: Activity Schedule.

Thanking you,

Yours faithfully,

(Rajendra L. Gaikwad)
Chief Engineer (D.C&M)

Copy s.w.r.to:

1) The Chairman & Managing Director, MSETCL, Mumbai.
2) The Director (Projects), MSETCL, Mumbai.

Copy f.w.cs.to:

1) The C.E., EHV Projects cum O&M Zone, MSETCL, Vashi
2) The C.E., C.O., Civil, MSETCL, Mumbai.
3) The Chief General Manager (F&A), MSETCL, Mumbai.

Copy to:

1) The G.M. (F&A-III), MSETCL, Mumbai —This is as per the Draft LOA pre-audited vide no. GM (F&A-III) O/W No. 08 dt.08.01.2018.
2) The S.E., (S&C/Civil), MSETCL, Mumbai.
3) The S.E., EHV Project Circle, MSETCL, Vashi
4) The S.E., EHV Civil CCM Circle, MSETCL, Vashi.
5) The S.E., TCC, MSETCL, Vashi.
6) The E.E., (PMT), MSETCL, Mumbai.
7) The E.E., (FTU), MSETCL, Mumbai.
8) The E.E., EHV Project Division, MSETCL, Kalyan

Executive Engineer
TL Pretender

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

BNC POWER PROJECTS LTD. ★ MUMBAI ★

## STANDARD ACTIVITY SCHEDULE FOR PAYMENT ELIGIBILITY

NAME OF LINE : LILO of 420kV Kolhapur-Vasla & 420kV LILO of Padghe-Wasla line for 400KV Sstn.
(Route Length-7 kms. under Vasai Zone.
COMPLETION PERIOD – 09 MONTHS

| Sr. No. | ACTIVITY | Schedule for completion of activities from date of LOA | | Remarks/ Hold points for payments |
|---|---|---|---|---|
| | | Commencement | Scheduled period of completion | |
| 1 | Submission of performance B.G. in lieu of S.D. | | Within 10 days | |
| 2 | Visit to site , verification of scope of work, Establishment of site office and mobilisation of gang | After 5 days | Within 20 days | |
| 3 | Signing of contract agreement | After 10 days | Within 30 days | |
| 4 | Trial pits and inspection of route | After 7 days | Within 15 days | |
| 5 | Preliminary & Detailed Survey | After 10 days | Within 20 days | |
| 6 | Check survey | After 10 days | Within 30 days | |
| 7 | Approval of detailed check survey & trial pits | After 15 days | Within 45 days | |
| 8 | Requisition of drawings of towers, stubs Templates | After 5 days | Within 20 days | |
| 9 | Issuance of all drawings for execution by MSETCL. | After 10 days | Within 30 days | Copy of trial pits report duly approved by Engineer in Charge to be furnished |
| 10 | Collection of drawings by Contractor | 5 days | 15 days | |
| 11 | Preparation of shop drawings | 15 days | 45 days | |
| 12 | Proto manufacturing, assembly of tower, submission of call for inspection (if applicable) | After 30 days | Within 60 days | |
| 13 | Proto inspection | After 37 days | Within 70 days | |
| 14 | Supply of stub & stub setting templates | After 20 days | Within 80 days | Supply to be effected within 15 days after approval of check survey |
| 15 | Tower foundation | After 30 days | Within 100 days. | At the rate minimum 10 locations per month |
| 16 | Supply of tower material | After 60 days | Within 90 days | The foundation should have been casted for tower under supply. The towers to be supplied on per tower basis within 15 days of casting of foundation. |
| 17 | Erection of tower | After 80 days | Within 180 days | 30% tower foundations should be completed. Erection @ 6 loc. per month. |
| 18 | Supply of conductor, earthwire, Insulators for accessories towers & conductor /groundwire & insulator Hardware . | After 60 days | Within 180 days | Contractor's confirmation about complete erection of towers of equivalent route length is ready for stringing |
| 19 | Stringing of line | After 90 days | Within 210 days | Atleast 30% of towers should have been erected. Progress @ 2.5 KM/Month |
| 20 | Miscellaneous works (fixing of tower accessories, tree cutting etc.) | After 180 days | Within 230 days | |
| 21 | Inspection, testing & commissioning of line | After 140 days | Within 270 days | |

Note :-

| | |
|---|---|
| 1 | Contractor may execute the erection works ahead of schedule dates. In such an event the schedule date for supply of respective materials stands preponed accordingly and such supplies will become eligible for payments. |
| 2 | The contractor shall supply the material as per actual requirement only, based on the bill of quantities after check survey & duly approved by Engineer incharge. No additional /surplus material shall be accepted except specifically requisitioned by Engineer-In-Charge. |
| 3 | The contractor can supply the material prior to scheduled delivery period, however the payment eligibility will be from the date as per approved schedule period subject to satisfying conditions of hold points. |

Executive Engineer
M/S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

Executive Enginear
TL Pretender

POWER PROJECT

# BNC Power Projects Ltd.

Ref:- BNCPPL/PNA/220 KV Kudus/0710

Date:-16.02.2018

To,
The Chief Engineer, (D, C& M)
MSETCL, Corporate Office,
Prakash Ganga Bandra (E),
Mumbai – 400 051.

Sub:- Work of Construction of LILO on 220KV Kalshet-Wada & LILO on Padghe - Wada line for 400KV Kudus S/STN-7KMS (RFx No.6000000253)

Ref:- i) Ref No: MSETCL/CO/DCM/D&T/TKC-L/T1718/Supply/BNC/394 Dtd: 23.11.2017
ii) Ref No: MSETCL/CO/DCM/D&T/TKC-L/T-1718/ETC/BNC/1761Dtd: 15.02.2018
iii)Ref No: BNCPPL/PNA/ Tender /T-1718/4037 Dtd: 23.11.2017

Dear Sir,

We are thankful to you for placing work order mentioned under reference for the work of Supply, Erection & Civil Works for Work of Construction of LILO on 220KV Kalshet-Wada & LILO on Padghe - Wada line for 400KV Kudus S/STN-7KMS (RFx No.6000000253)

We hereby submit our acceptence to above order placed on us. We are enclosing herewith the documents requested in the LOA as follows:

1. Bar chart
2. Detailed break-up of Unit Rate which includes Ex-works, Freight, Insurance &Tax Bifurcation for Supply of Materials.
3. Detailed break-up of Unit Rate which includes Ex-works & Tax Bifurcation for Erection Works
4. Detailed break-up of Unit Rate which includes Ex-works & Tax Bifurcation for Civil Works

Submitted for your necessary action please.
Thanking you,

Yours Faithfully,
For BNC Power Projects Ltd.

Mr. Rajesh Chaudhari
(Director)

Encl: i) Barchart,
ii) Price Sebedule.

Executive Engineer
TL Pretender

CIN : U45207PN2007PLC133196
Regd. Office : Plot No. 67, Sane Shivaji Housing Society, off Senapati Bapat Rd. Shivajinagar Pune - 411 016
Corporate Office : Butte Patil Complex 3rd floor, Karve Road, Paud Phata Next to Dashbhuja Ganpati Temple Pune - 411 038
Phone - 020-25460161, Fax - 020-25460171 Email : bnchaudhary@yahoo.co.in, info@bncpower.in

Executive Engineer
M.S.E.T. Co. Ltd.

# ANNEXURE

# 'G'

Executive Engineer
M.S.E.T.C.L. Ltd.,
E.H.V. Project Dn. Kalyan

# BNC Power Projects Ltd.

Ref No - BNCPPL/PNA/220kV Kudus/PBG/1212 Date: 17.03.2018

To,
The Chief Engineer,
Design Contractor & Monitoring Dept.,
Plot No. C-19, E – Block, Prakashganga,
Bandra Kurla Complex,
Bandra East, Mumbai-400051.

Sub : Turnkey Construction of LILO on 220kV Kolshet - Wada & 220kV LILO on Padghe - Wada line for 400kV Kudus Substation (Route Length - 7 kms), under Vashi Zone.....Regarding Delay in Submission of Performance bank guarantee.

Refs- i) LOA Ref : MSETCL/CO/DCM/D&T/TKC-L/T-1738/Supply/391 Dtd.: 11.01.2018
ii) LOA Ref : MSETCL/CO/DCM/D&T/TKC-L/T-1718/ETC/1761 Dtd.: 15.02.2018
iii) T.O.A.: BNCPPL/PNA/220kV Kudus/PBG/1211

Dear Sir,

We are awarded with the contracts under reference above, for Work of Turnkey Construction of LILO on 220kV Kolshet - Wada & 220kV LILO on Padghe - Wada line for 400kV Kudus Substation (Route Length - 7 kms), under Vashi Zone by your good office. We were facing some financial crunch due to non-receipt of our payments from various works including of MSETCL contracts. As such we were not in position in submitting the security amount towards the PBG.

Now we are submitting herewith BG against performance guarantee for the above vide our Letter under ref. (ii) above, which may please be accepted.

The delay in submission of Performance guarantee in the form of BG may please be condoned. Inconvenience is regretted.

Thanking you.

Yours faithfully
For BNC Power Projects Ltd.,

(Authorized Signatory)

Executive Engineer
M.S.E.T.Co. Ltd.
EHV Project Dn., Kalyan

Executive Engineer
TL Pretender

CIN : U40300MH2007PLC174306
Regd. Office : Plot No. 67, Shree Ganesh Housing Society, off Senapati Bapat Rd., Shivajinagar, Pune - 411 016.
Corporate Office : Suite Earl Complex, 3rd Floor, Karve Road, Paud Phata, Next to Dashbhuja Ganpati Temple, Pune - 411 038.
Phone : 020 - 25460161, Fax : 020 - 25460171 Email : bncheadhiary@yahoo.co.in, info@bncpower.in

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# BNC Power Projects Ltd.

Ref No: - BNCPPL/PN/400kV Kudus/PBG/0211 — Date - 12.03.2018

To,
The Chief Engineer,
Design Contracts & Monitoring Dept.,
Plot No. C-19, E - Block, Prakashganga,
Bandra Kurla Complex,
Bandra East, Mumbai-400051

Sub.: Turnkey Construction of LILO on 220kV Kolshet - Wada & 220kV LILO on Padghe - Wada line for 400kV Kudus Substation (Route Length - 7 kms); against SRM e-tender no. T - 1718 (RFx. No. 4000000253) under Vashi Zone..... Submission of Performance bank guarantee.

Ref:- i) LOA Ref.: MSETCL/CO/DCM/D&T/TKC-L/T-1718/Supply/394 Dtd.: 11.01.2018
ii) LOA Ref.: MSETCL/CO/DCM/D&T/TKC-L/T-1718/ETC/1961 Dtd.: 15.02.2018

Dear Sir,

We are awarded with the contracts under reference above, for Work of Turnkey Construction of LILO on 220kV Kolshet - Wada & 220kV LILO on Padghe - Wada line for 400kV Kudus Substation (Route Length - 7 kms), against SRM e-tender no. T - 1718 (RFx. No. 4000000253) under Vashi Zone, by the office of Chief Engineer, D.C & M Prakashganga, MSETCL. We are submitting herewith BG against performance guarantee for the above contracts as listed below:-

| PBG NO. | Against | Amount | Date of BG dd/mm/yyyy | Valid Upto dd/mm/yyyy | Issuing Bank |
|---|---|---|---|---|---|
| 1636010000073 8 | Supply | Rs.1,43,76,500.00 | 15/03/2018 | 15/03/2019 | Axis Bank, 214 - 215 City Mall, 2nd Floor, Plot No. 1, S No. 132, Ganesh Khind Road, Pune - 411007 |
| 1636010000573 7 | Erection | Rs.72,63,550.00 | | | |

The above BG's may please be accepted. We are also enclosing herewith the undertaking to extend the BG as and when required as per the contractual period.

Thanking you.

Yours faithfully,
For BNC Power Projects Ltd.,

Encl: -
1) BG No. 1636010000573 8 - In original
2) BG No. 1636010000573 7 - In original
3) Undertaking to extend the validity of PBG Original

Authorized Signatory

Executive Engineer
M.S.E.T. Co. Ltd.

Executive Engineer
TL Pretender

CIN No. : U40300PN2007PLC132096
Regd. Office : Plot No. 67, Shree Ganesh Housing Society, off Senapati Bapat Rd., Shivajinagar, Pune - 411 016.
Corporate Office : Dutte Patil Complex, 3rd Floor, Karve Road, Erandwane, Near to Dashbhuja Ganpati Temple, Pune - 411 038.
Phone : 020 - 25460161, Fax : 020 - 25460171 Email : ancheudhary@yahoo.co.in, info@bncpower.in

# AXIS BANK LIMITED

Date: AXIS BANK LIMITED
Credit Management Centre, PUNE

To,

THE CHIEF ENGINEER (E-S), SLDC, 3RD FLOOR, PLOT NO. C-19, 'E' BLOCK,
BANDRA KURLA COMPLEX,
BANDRA (EAST),
MUMBAI-400051

| | |
|---|---|
| BG No. | 1AX9917D8C057SE |
| Date of Issue | 19-05-2017 |
| Amount (Rs.) | Rs. 1,41,74,400.00 (RUPEES ONE CRORE FORTY ONE LAKH SEVENTY FOUR THOUSAND FOUR HUNDRED ONLY) |
| Expiry Date | 25-05-2018 |
| Claim Expiry Date | 25-05-2018 |
| Name and Address of the Applicant | M/s. ESSAR POWER (MP) LIMITED, SHANTI NAGAR, |

We have issued our above mentioned Bank Guarantee in favour of the Nodal Agency, Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) for the amount mentioned above and undertake to pay you, upon your first demand in writing and declaration to the effect that the Applicant is in breach of its obligations under the Agreement, any sum or sums not exceeding in total the amount of Rupees One Crore Forty One Lakh Seventy Four Thousand Four Hundred Only (Rs. 1,41,74,400.00) upon receipt by us of your demand in writing which must be received by us on or before the Expiry Date/Claim Expiry Date. The Bank shall be discharged from all liability under this guarantee after the said Expiry Date/Claim Expiry Date.

Please Note:

1. The beneficiary is at its own interest to verify the genuineness of this guarantee from our website before any action in reliance on it.

AXIS BANK LIMITED
SG Confirmation Desk, Transaction Banking Operations
4th floor, Tower 3, Building No. 1, Plot No. C-31,
MIDC, Wagle Knowledge Park, Airoli,
Navi Mumbai 400708 | Tel: | Fax: 022-7161 0031

2. Request no claim shall be given effect to by AXIS Bank unless it is received at the above mentioned address.

FOR AXIS BANK LIMITED

AUTHORISED SIGNATORY
NAME: RICHA MOYAL
SS No. 17224

FOR AXIS BANK LIMITED

AUTHORISED SIGNATORY
NAME: HIRANJAN D'SOUZA
S. S. No. 26687

Executive Engineer

Executive Engineer

240

महाराष्ट्र शासन

GOVERNMENT OF MAHARASHTRA

e-सुरक्षित बँक व कोषागार पावती

e-SECURED BANK & TREASURY RECEIPT (e-SBTR)

1619476416548

Bank/Branch: IDBI - 6910207/PUNE - F.C. ROAD
Bnk Txn Id : 257946846
Bnk Dttime : 23-MAR-2018 17:38:45
ChallanIdNo: 6910323201803231351163
District : 2201-PUNE

Stationery No: 1619476416548
Print Dttime : 23-MAR-2018 17:43:19
QRPG CRN : MH011FB23A7301716E
Office Name : IGR_CSD_DVL1_PANVEL
CRN Date : 23-MAR-2018 08:27

StDuty Schm: 0030044401-75/STAMP DUTY
StDuty Amt : R 13,900/- (Rs One Three, Nine Zero Zero only)

RgnFee Schm: 0030061301-70/Registration Fees
RgnFee Amt : R 0/- (Rs Zero only)

Article : 33-Bond
Prop Nature: N.A.
Prop Descr : PENAL CO BOX D AND T PKC 1 21214 SUPPLY SNC 39e

Consideration: R 1,63,76,580/-

Duty Payer: PAN-AADCR2585R SNC POWER PROJECTS LIMITED

Other Party: PAN-AAACU3414K AXIS BANK LTD

Bank official's Name & Signature

Shridhar Patil
EIN: 702095

Bank official's Name & Signature
--- Space for customer/office use - - - Please write below this line ---

AXIS BANK LTD. CPC PUNE

BANK GUARANTEE NO.1634190000573B DATED 16TH MARCH 2018
(PERFORMANCE GUARANTEE TOWARDS SECURITY DEPOSIT)

TO,
THE CHIEF ENGINEER (D, C & M),
5TH FLOOR, PLOT NO. C-19, 'E' BLOCK,
BANDRA KURLA COMPLEX,
BANDRA (EAST),
MUMBAI 400051.

We Axis Bank Ltd a company incorporated under the Companies Act 1956 and carrying on the business of banking under the Banking Regulation Act 1949 having its registered office at Axis



For AXIS BANK LTD.

Authorised Signatory

RICHA MOYAL

For AXIS BANK LTD.

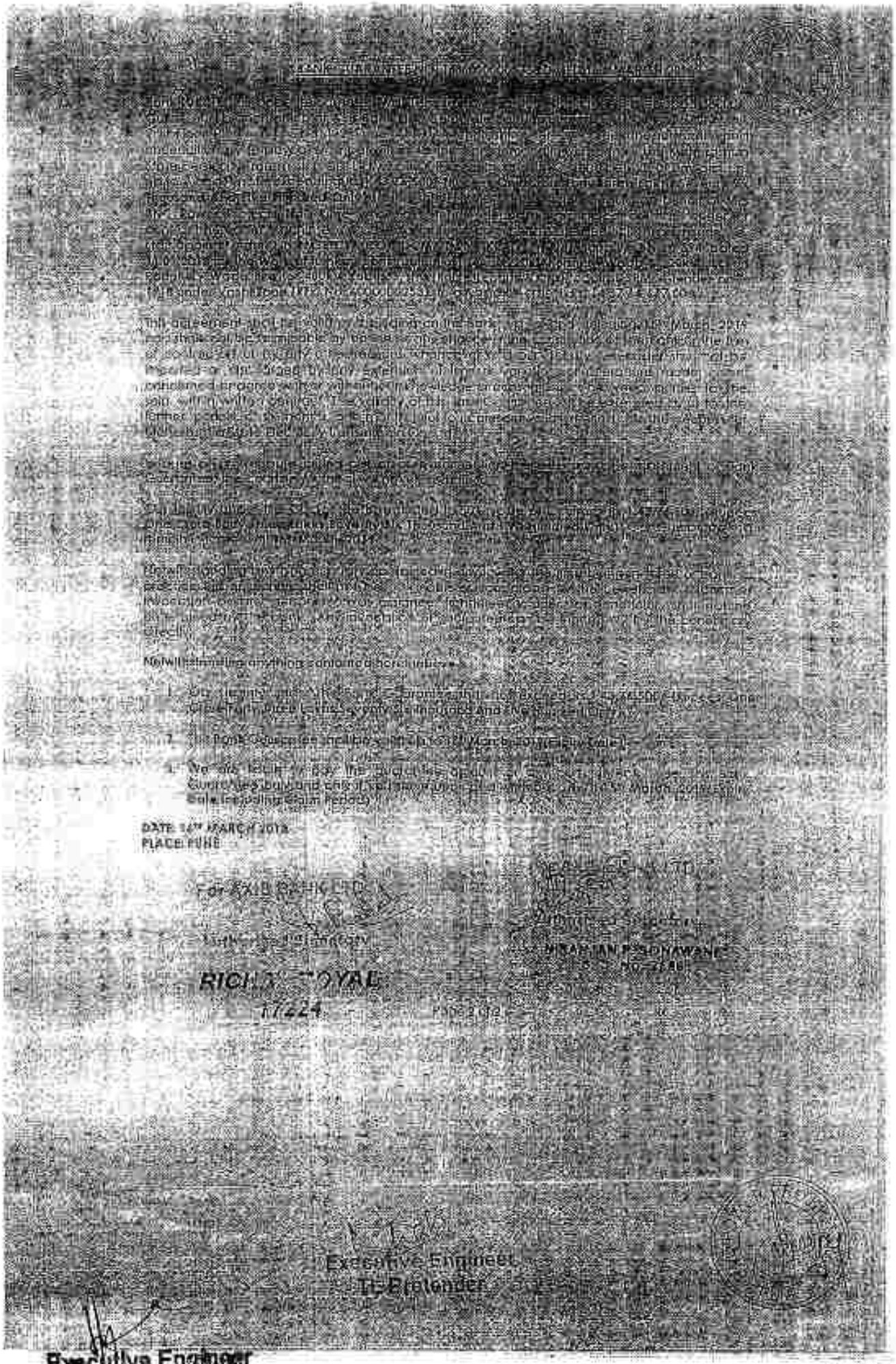
Authorised Signatory

Executive Engineer
Pretender

NIRANJAN P. SONAWANE
P.No. 2695

*SBTR IS VALID UPTO SIX MONTHS FROM THE DATE OF PAYMENT.

Executive Engineer
M.S.E.T. Co. Ltd.



DATE: 14TH MARCH 2018
PLACE: PUNE

For AXIS GRAPHICS

Authorised Signatory

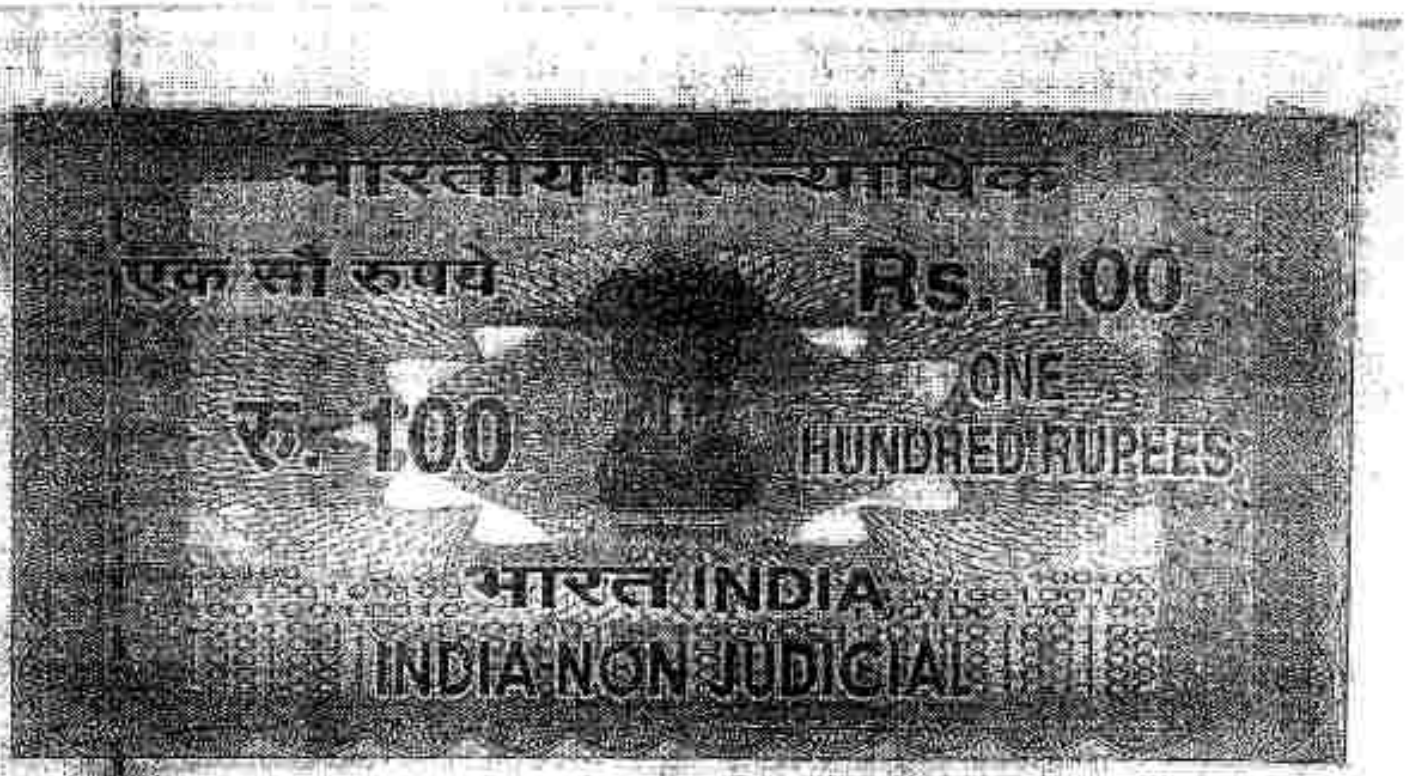
NARAYAN PRADHAWANI
PROPRIETOR

RICHA GOYAL
17424

Page 2 of 2

Executive Engineer
ITP Pretender

Executive Engineer
M.S.E.T. Co. Ltd.
E[illegible] Div., Kalyan




महाराष्ट्र MAHARASHTRA © 2017 © SZ 667893

88796

17 MAR 2018

15 MAR 2018

प्रतिज्ञापत्र Affidavit

शपथ घेणाऱ्याचे नाव B.N.C. Power project Ltd Bafna Pathi Complex Karve Rd Pune 38

वकिलाचे नाव

शपथ घेणाऱ्याचे नाव व पत्ता Nandan Rajguru Karve Rd Pune

## UNDERTAKING

The Chief Engineer (D, C&M) MSETCL has placed order on M/s BNC Power Projects Ltd. Pune for Turnkey Construction of LILO on 220kV Kolhapur - Wada & 220kV LILO on Padghe - Wada line for 400kV Kudus Substation (Route Length - 7 kms), against SRM e-tender no. T-1718 (Ref. No. 6000000253) under Vashi Zone as detailed below.

1) Supply: MSETCL/ CO/ DGM/ D&T/ TKC-L/ T-1718/ Supply/ 394 Dtd. 11.01.2018 of Rs.14,37,64,567.00

2) Erection: MSETCL/ CO/ DGM/ D&T/ TKC-L/ T-1718/ ETC/ 1[illegible] Dtd. 15.02.2018 of Rs.7,26,35,235.00

Executive Engineer
TL Pretender

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

As per Clause 8.2 (a) (iv) of Section – II of the Bid, the validity of the performance BG is to be 2.9 Months (completion period) + two years from the date of final acceptance (Guarantee Period) + 90 days. However, the Bank has issued B.G. as detailed below having a guarantee period of one year from the date of issue.

| Sr. no. | PBG NO. | Against Contract | Amount | Date of BG dd/mm/yyyy | Valid Upto dd/mm/yyyy | Issuing Bank |
|---|---|---|---|---|---|---|
| 1. | 1656100000 5206 | Supply | Rs.5,79,76,509.00 | 16/03/2018 | 16/09/2019 | Axis Bank Ltd., 218, City Mall, 2nd Floor, Plot No. 1, Block No. 12, Chhoga Khera Road, Dwarka – 110078 |
| 2. | 1656100000 5222 | Erection | Rs.2,19,65,049.00 | | | |

We hereby submit our undertaking that we will renew above B.G.s within one month prior to the date of its expiry period from time to time.

Kindly accept the under-taking.

Place : Pune
Date : 17.03.2018

For BNC Power Projects Ltd.

Mr. Rajesh Chaudhari
(Director, BNCPPL)

Executive Engineer
TL Pretender

Executive Engineer

(244)

# BNC Power Projects Ltd.

Ref No.: BNC/PNA/220kV Kudus/PBG/1428 Date: 03.04.2018

To,
The Chief Engineer, (D, C & M),
5th floor, Plot No. C-19, 'E'-Block,
Bandra Kurla Complex,
Bandra (East), Mumbai 400051.

Sub.: Work of Construction of LILO on 220KV Kolshet-Wada & LILO on Padghe - Wada line for 400KV Kudus S/STN..... **Submission of Amendment No. 1 of Bank Guarantee No. 163601000005727 & 163601000005738 thereof.**

Ref.: 1. Tender specification No.: T-1718/MSETCL/CO/DCM/D&T/TKC-LINES.
2. LOA No. : i) MSETCL/ CO/ DCM/ D&T/ TKC-I/ T1718/ Supply/ BNC/ 394 Dtd; 23.11.2017
ii) MSETCL/ CO/ DCM/ D&T/ TKC-I/ T-1718/ ETC/ BNC/ 1761 Dtd: 15.02.2018.
3. T.O.L :BNCPPL/PNA/220kV kudus/PBG/1212 Dtd.:17.03.2018.
4. Y.O.L. :MSETCL/CO/DC&M/D&T/TKC-I/T-1718/3505 Dtd.:02.04.2018.

Dear Sir,

With Reference to above subject, we are herewith submitting the Amendment No. 1 to our Bank Guarantees No. 163601000005727 & 163601000005738. The reply to the queries vide letter under Ref. 4 is as follows:

| | |
|---|---|
| Stamp Duty Less paid - | Amendment No. 1 is submitted herewith with difference amount stamp duty for both Bank Guarantees. |

Thanking You.

Yours faithfully,
For BNC Power Projects Ltd.

(Authorized Signatory)

Encl: 1. PBG No.:163601000005727 - In Original
2. PBG No.:163601000005738 - In Original
3. Amendment No. 1 to PBG No.:163601000005727 - In Original.
4. Amendment No. 1 to PBG No.:163601000005738 - In Original.

Executive Engineer
TL Pretender

Executive Engineer
M.S.E.T. Co. Ltd.

CIN : U45207PN2007PTC143396,
Regd. Office : Plot No. 67, Shree Shivaji Housing Society, off Senapati Bapat Rd. Shivajinagar Pune-16/NE
Corporate Office : Butte Patil Complex, 3rd Floor, Karve Road, Next to Dashbhuja Ganpati Temple, Pune- 411 038.
Phone- 020-25460161, Fax- 020-25460171, E-mail : bnchaudhary@yahoo.co.in, info@bncpower.in

Sr.No. 077536 of 11

# AXIS BANK LIMITED

AXIS BANK LIMITED
Credit Management Centre, PUNE

Ref. No. : 163601800005738
Date: 28-03-2018

To,

THE CHIEF ENGINEER, (D, C &M), 5TH FLOOR, PLOT NO. C-19, 'E' BLOCK,
BANDRA KURLA COMPLEX,
BANDRA (EAST),
MUMBAI 400051

Dear Sirs,

| | |
|---|---|
| **BG No.** | 163601800005738 |
| **Date of Issue** | 16-03-2018 |
| **Amount of BG** | Rs. 1,43,76,500.00 ( RUPEES ONE CRORE FORTY THREE LAKHS SEVENTY SIX THOUSAND FIVE HUNDRED ONLY ) |
| **Expiry Date** | 15-09-2019 |
| **Claim Expiry Date** | 15-09-2019 |
| **Name and Address of the Applicant** | M/S. BHC POWER PROJECTS LIMITED, SHANG NAGAR, |

We forward herewith the above Inland Bank Guarantee (original issued by us in your favour.

2. The above Guarantee is issued subject to the condition that the Bank's liability is restricted to the amount mentioned above and in the said Guarantee. The Guarantee shall remain in force till the expiry date. Unless a demand or claim under the guarantee is made on the Bank in writing and delivered to the Bank on or before the Expiry date/Claim Expiry Date, the Bank shall be discharged from all liability under the said guarantee thereafter.

Please Note:

3. The beneficiary in their own interest should verify the genuineness of this guarantee from following office of the Bank in writing.

AXIS BANK LIMITED
BG Confirmation Desk,Transaction Banking Operations
5th floor, Gigaplex, Building No. 1(Plot No.I.T.5,
MIDC, Airoli Knowledge Park, Airoli,
Navi Mumbai 400708 (Tel/Fax: 022-71315888)

4. BG confirmation can also be sought by sending email to bg.confirmation@axisbank.com

FOR AXIS BANK LIMITED

AUTHORISED SIGNATORY
NAME: RICHA MOYAL
SS No. 17224

FOR AXIS BANK LIMITED

AUTHORISED SIGNATORY
NAME: Upendra Barve
SS No. 5084

Enter Bank Guarantee Number 163601800005738

Executive Engineer
M.S.E.T. Co. Ltd.

Registered Office: "Trishul", Opp. Samartheshwar Temple, Near Law Garden, Ellisbridge, Ahmedabad - 380006

http://ashchint.axisb.com:7001/cpm/BgCoveringResult.jsp 3/28/2018

Executive Engineer
M.S.E.T. Co. Ltd.

महाराष्ट्र शासन

GOVERNMENT OF MAHARASHTRA

ई-सुरक्षित बँक व कोषागार पावती

e-SECURED BANK & TREASURY RECEIPT (e-SBTR)

1613947744643101

Bank/Branch: UBXL - 6910207/PUNE - F.C. ROAD
Ref Txn id : 113206313
Pmt DtTime : 23-MAR-2018 17:53:55
ChallanIdNo: 6910231820180322151534
District : 2201-PUNE
Stationery No: 1613947744643101
Print DtTime : 23-MAR-2018 19:06:14
GRAS GRN : MH012311101201718E
Office Name : 2QB008-HVLI HAVELI NO1
GRN Date : 23-Mar-2018 17:53:06

StDuty Schm: 0030046401-TS/STAMP DUTY
StDuty Amt : R 14,960/- (Rs One Four, Nine Zero Zero only)

RgnFee Schm: 0031006301-RG/Registration Fees
RgnFee Amt : R 0/- (Rs Zero only)

Article : 13-Bond
Prop Mvblty: M.A.
Prop Descr : MSETCL CO DLN D AND T TRC & TIPIR SUPPLY BNC 184
Consideration: R 1,47,76,900/-

Duty Payer: PAN-AADCB2499R,BHC POWER PROJECTS LIMITED

Other Party: PAN-AAACU2414E,AXIS BANK LTD.

Bank official's Name & Signature

DEEPAK PRASAD PATIL
EMP-127875
ASSISTANT MANAGER

Shridhar Patil
EMP 702895

Bank official's Name & Signature

--- Space for customer/office use --- Please write below this line ---

Amendment No. 01 Dated 28-03-2018
Bank Guarantee No: 1436010000 5738 Dated 16-03-2018

To

THE CHIEF ENGINEER (D, C AND M),
5TH FLOOR, PLOT NO C-19, E-BLOCK,
BANDRA KURLA COMPLEX,
BANDRA (EAST), MUMBAI 400051

For AXIS BANK LTD.

Authorised Signatory

RICHA MOYAL
17224

For AXIS BANK LTD.

Authorised Signatory

Upendra Barve
S. No. 5084

Executive Engineer
TL Pretender

e-SBTR IS VALID UPTO SIX MONTHS FROM THE DATE OF PAYMENT.

Executive Engineer
M S E T Co. Ltd.
E... ... Dn., Kalwa

(247)

Amendment No. 01 Dated 16/03/2018
Bank Guarantee No. 1a3601000005738 Dated 16-03-2018

In addition to our Bank Guarantee No 1a3601000005738 Dated 16-03-2018 issued in your favor on Behalf of M/S. M.S.E.T. POWER PROJECT (I) PVT. LTD.

We hereby agree to our Guarantee No 1a3601000005738 Dated 16-03-2018 issued in your favor by us on behalf of M/S. M.S.E.T. POWER PROJECT (I) PVT. LTD. and have executed as below:

All other terms and conditions of our aforesaid guarantee no 1a3601000005738 Dated 16-03-2018 remains unchanged.

The amendment forms integral part of our aforesaid guarantee and should be presented along with the original guarantee.

Notwithstanding anything contained herein above:

a) Our liability under this bank guarantee shall not exceed Rs.1,43,71,500/-(Rupees One Crore Forty Three Lakhs Seventy Six Thousand and Five Hundred Only).

b) This Bank Guarantee shall be valid up to 15/03/2019 (Date of Expiry).

c) We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if you serve upon us a written claim on or before 15/03/2019 (Date of Claim Expiry).

Date: 28-03-2018
Place: Pune

For AXIS BANK LTD.
Authorised Signatory
RICHA MOYAL
17224

For AXIS BANK LTD.
Authorised Signatory
Upendra Barve
S.No.5084



Executive Engineer
TL Pretender

Executive Engineer
M.S.E.T. Co. Ltd.
E. H.V. Project Dn.,Kalyan

MAHATRANSCO

MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO. LTD
(CIN No. U40109MH2005SGC153646)

From
Chief Engineer,
Design ,Contract & Monitoring Dept.
Plot No.C-19, "E" Block, Prakashganga,
Bandra – Kurla Complex,
Bandra (East), Mumbai – 400 051.
Tel: 022-2659 8589(D)/ 022-2659 8588
Fax: 022-2659 8587
E-Mail : ceem@mahatransco.in

To,
M/s. BNC Power Projects Ltd.,
Plot no. 67, Shree Shivaji Housing Society, off
Senapati Bapat Rd. Shivajinagar,
Pune-411 016.

Ref. No. MSETCL/CO/DC&M/D&T/TKC-L/T-1718/BNC/4373 Date: 20.04.2018

Sub: Turnkey construction of LILO on 220kV Kolshet-Wada & 220kV LILO on Palghe-Wada line for 400kV Kudus S/stn. (Route Length 7 Kms), against SRM e-tender no.T-1718 (RFx No. 6000000253) under Vashi Zone.
**- Acceptance of 10% Performance Bank Guarantee towards Supply & Erection works.**

Ref: 1. LOA No. MSETCL/CO/DCM/D&T/TKC-L/T-1718/Supply/394 dt.11.01.2018.
2. LOA No. MSETCL/CO/DCM/D&T/TKC-L/T-1718/ETC/1761 dt.15.02.2018.
3. Your letter No. BNCPPL/PNA/220kV Kudus/PBG/1211 dt.17.03.2018.

***

Dear Sir,

This has reference to your letter cited at (3) above, vide which you have submitted following Performance Bank Guarantees and Stamp Duty for Supply & Erection works against LOA's under reference (1) & (2) above, in respect of turnkey construction subject lines under Vashi Zone.

| Sr. No | Purpose | B.G. No. & Date. | Valid upto | B.G. Amount in Rs. | Name of Bank |
|---|---|---|---|---|---|
| 1 | Supply | 163601000005738 dt.28.03.2018 | 15.03.2019. | 9,43,76,500.00 | Axis bank Limited, Pune |
| 2 | Erection | 163601000005727 dt.28.03.2018 | 15.03.2019. | 72,63,550.00 | Axis bank Limited, Pune |

The Performance Bank Guarantees has been scrutinized and audited and are found to be generally in order and hence accepted.

The validity of these bank guarantees may please be extended for the further period of Six months, one month prior to its present validity.

Executive Engineer
TL Pretender

BNC POWER PROJECTS LTD. PUNE

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Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

Also, you will have to keep the above cited Performance Bank Guarantees valid for a period of ninety (90) days from the date of expiry of guarantee period i.e. two years after the date of successful commissioning of the line.

Henceforth, it is requested to submit the amendments to the Superintending Engineer, EHV Project Circle, MSETCL, Vashi.

Please note that, it is your sole responsibility for timely extension of the aforesaid Performance Bank Guarantees for further validity.

This letter is issued without prejudice to other terms and conditions of the contract.

Thanking you,

Yours Faithfully,

Chief Engineer (D,C&M)

Copy f.w.c.to:-
1) The C.E. EHV Projects Cum O & M Zone, MSETCL, Vashi.
2) The Chief General Manager (F&A), MSETCL, Mumbai.

Copy to:-
1) The GM (F&A-Project), MSETCL, Mumbai.
2) The S.E. EHV Project Circle, MSETCL, Kalwa.
3) The E.E. EHV Project Division, MSETCL, Kalyan.
4) The Branch Manager,
Axis Bank Limited, BG confirmation Desk, Transaction Banking Operations,
5th Floor, Gigaplex, Building no.1, Plot no. I.T.5, MIDC,
Airoli Knowledge Park, Airoli, Navi Mumbai. 400708.
E-mail id: - ibg.confirmation@axisbank.com

Executive Engineer
TL Pretender

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Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

# ANNEXURE

# 'H'

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

# ANNEXURE

# 'I'

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project On., Kalyan

## ANNEXURE-'E'

## MATERIAL PRICE VARIATION CLAUSE FOR AAC/AAAC/ACSR CONDUCTORS

The price quoted/confirmed for Aluminum Conductor is based on the input cost of raw materials as on the date of quotation. It is deemed to be related to the prices of raw materials, as specified in the price variation clauses given below. In case of any variation in these prices, the prices payable shall be subject to adjustment up or down in accordance with the following formulae.

1. **AAC/AAAC Conductors**

   $P = Po + WA (AL - ALo)$

2. **ACSR Conductors**

   $P = Po + WA (AL - ALo) + WF (FE - FEo)$

Wherein,

P = Ex-works price payable in Rs. per km as adjusted in accordance with the price variation clause.

Po = Ex-works price quoted/confirmed in Rs. per Km.

WA = Weight of Aluminum in AAC/AAAC/ACSR Conductor in MT per Km. as per the type of conductor (Refer the enclosed annexure – A giving this factor for various types of conductors).

ALo = Price of Daily LME Cash SELLER Settlement price of Aluminum
This price is applicable prevailing as on 30 days prior to the date of tender opening.

WF = Weight of Steel Content in ACSR Conductor in MT per Km. as per the type of conductor. (Refer the enclosed annexure – A giving this factor for various types of conductors)

FEo = Price of High Tensile Galvanized Steel Wire in Rs./MT of appropriate size.
This price is applicable prevailing as on 30 days prior to the date of tender opening.

For example, if tender is opened on 31st October 2014, the applicable raw material prices (ALo and FEo) would be those, prevailing as on the 1st day of October 2014.

AL = Price of Daily LME Cash SELLER Settlement price of Aluminum
This price is applicable prevailing as on 30 days prior to the date of delivery.

FE = Price of High Tensile Galvanized Steel Wire in Rs./MT of appropriate size.
This price is applicable prevailing as on 30 days prior to the date of delivery.

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

Executive Engineer
TL Pretender

RNE POWER PROJECT PUNE

For example, if date of delivery is 31st December 2014, the applicable raw material prices (Al. and FE) would be those, prevailing as on the 1st day of December 2014.

The above prices and indices are as published by IEEMA.

The date of delivery for the purpose of price variation shall be the date on which the Conductor is notified as being ready for inspection/dispatch or the contractual delivery date whichever is earlier whenever supplies are effected within contractual delivery period. In case the supplies are effected after the contractual delivery period, the date of delivery for price variation purpose would be the one out of the above two on which the price variation is less.

Notes :

1. All domestic prices of raw materials applicable to excise duty units are exclusive of modvatable excise/CV duty amount and exclusive of any other central, state or local taxes, octroi etc.

2. Price of Daily LME Cash SELLER Settlement price of Primary Aluminum in US$ per MT is as published by London Metal Bulletin (LME). Premium for Ingot in US$ per MT is added in this Daily LME price and converted in Indian Rs./MT using exchange rate and adding appropriate customs duty.

   Monthly price circular will contain daily prices of Aluminum during the month as announced by LME.

3. The price of High tensile Galvanized Steel Wire (In Rs./MT) for different sizes in mm is the price as quoted by a primary producer, which is normally valid for the entire month. Further revisions in prices; if any; as quoted by the primary producer will also be published.

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Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

Executive Engineer
TL Pretender

## ANNEXURE - A

### Weight Factors for various types of Conductors as per IS: 398

| Sr. No. | Conductor types | A/AA Strands | Steel Strands | Aluminum EC Grade/Alloy kg/km | HT GS Steel kg/km | Total kg/km |
|---|---|---|---|---|---|---|
| 1. | AAC – GNAT | 7/2.21 | - | 74.00 | 0.00 | 74.00 |
| 2. | AAC – ANT | 7/3.10 | - | 145.00 | 0.00 | 145.00 |
| 3. | AAC – WASP | 7/4.39 | - | 290.00 | 0.00 | 290.00 |
| 4. | AAC – PEONY | 19/3.18 | - | 415.00 | 0.00 | 415.00 |
| 5. | AAC – SPIDER | 19/3.99 | - | 654.00 | 0.00 | 654.00 |
| 6. | AAC – BUTTERFLY | 19/4.65 | - | 888.00 | 0.00 | 888.00 |
| 7. | ACSR – MOLE | 6/1.50 | 1/1.50 | 29.00 | 14.00 | 43.00 |
| 8. | ACSR – ROSE | 6/1.96 | 1/1.96 | 50.00 | 23.00 | 73.00 |
| 9. | ACSR – SQUIRREL | 6/2.11 | 1/2.11 | 58.00 | 27.00 | 85.00 |
| 10. | ACSR – WEASEL | 6/2.59 | 1/2.59 | 87.00 | 41.00 | 128.00 |
| 11 | ACSR – RABBIT | 6/3.35 | 1/3.35 | 145.00 | 69.00 | 214.00 |
| 12. | ACSR – RACCOON | 6/4.09 | 1/4.09 | 216.00 | 103.00 | 319.00 |
| 13. | ACSR – DOG | 6/4.72 | 7/1.57 | 288.00 | 106.00 | 394.00 |
| 14. | ACSR – WOLF | 30/2.59 | 7/2.59 | 437.00 | 289.00 | 726.00 |
| **15.** | **ACSR – PANTHER** | **30/3.00** | **7/3.00** | **586.00** | **388.00** | **974.00** |
| 16. | ACSR – KUNDAH | 42/3.50 | 7/1.96 | 1,116.00 | 165.00 | 1,281.00 |
| 17. | ACSR – ZEBRA | 54/3.18 | 7/3.18 | 1,185.00 | 436.00 | 1,621.00 |
| 18 | ACSR – MORKULLA | 42/4.13 | 7/2.30 | 1,553.00 | 228.00 | 1,781.00 |
| 19. | ACSR – MOOSE | 54/3.53 | 7/3.53 | 1,465.00 | 539.00 | 2,004.00 |
| 20. | ACSR – BERSIMIS | 42/4.57 | 7/2.54 | 1,909.00 | 278.00 | 2,181.00 |
| 21. | ACSR – SNOWBIRD | 42/3.99 | 7/2.21 | 1,447.00 | 210.00 | 1,657.00 |
| 22 | ACSR – LAPWING | 45/4.78 | 7/3.18 | 2,231.00 | 436.00 | 2,667.00 |
| 23. | ACSR – CYNX | 30/2.79 | 7/2.79 | 507.00 | 335.00 | 842.00 |
| 24. | ACSR – DRAKE | 26/4.44 | 7/3.45 | 1,116.00 | 512.00 | 1,628.00 |
| 25. | ACSR – COYOTE | 26/2.54 | 7/1.91 | 365.00 | 156.00 | 521.00 |

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

Executive Engineer
TL Pretender

ANNEXURE - A

**Weight Factors for various types of Conductors as per IS: 398**

| Sr. No. | Conductor types | A/AA Strands | Steel Strends | Aluminum EC Grade/Alloy kg/km | HT GS Steel kg/km | Total kg/km |
|---|---|---|---|---|---|---|
| 26. | AAAC – MOLE | 3/2.50 | - | 40.15 | 0.00 | 40.15 |
| 27. | AAAC – SQUIRREL | 7/2.00 | - | 60.16 | 0.00 | 60.16 |
| 28. | AAAC – WEASEL | 7/2.50 | - | 94.00 | 0.00 | 94.00 |
| 29. | AAAC – RABBIT | 7/3.15 | - | 149.20 | 0.00 | 149.20 |
| 30. | AAAC – RACCOON | 7/3.81 | - | 218.26 | 0.00 | 218.26 |
| 31. | AAAC – DOG | 7/4.26 | - | 272.86 | 0.00 | 272.86 |
| 32. | AAAC – DOG – UP | 19/2.89 | - | 342.51 | 0.00 | 342.51 |
| 33. | AAAC – COYOTE | 19/3.15 | - | 406.91 | 0.00 | 406.91 |
| 34. | AAAC – WOLF | 19/3.40 | - | 474.02 | 0.00 | 474.02 |
| 35. | AAAC – WOLF – UP | 19/3.66 | - | 549.40 | 0.00 | 549.40 |
| 36. | AAAC – PANTHER | 19/3.94 | - | 636.67 | 0.00 | 636.67 |
| 37. | AAAC – PANTHER-UP1 | 37/3.15 | - | 794.05 | 0.00 | 794.05 |
| 38. | AAAC – PANTHER-UP2 | 37/3.45 | - | 952.56 | 0.00 | 952.56 |
| 39. | AAAC – KUNDAH | 37/3.71 | - | 1,101.63 | 0.00 | 1,101.63 |
| 40. | AAAC – ZEBRA | 37/4.00 | - | 1,280.50 | 0.00 | 1,280.50 |
| 41. | AAAC – ZEBRA – UP | 61/3.31 | - | 1,449.38 | 0.00 | 1,449.38 |
| 42. | AAAC – MOOSE | 61/3.45 | - | 1,573.71 | 0.00 | 1,573.71 |
| 43. | AAAC – MORKULLA | 61/3.55 | - | 1,666.00 | 0.00 | 1,666.00 |
| 44. | AAAC – MOOSE UP | 61/3.68 | - | 1,771.36 | 0.00 | 1,771.36 |
| 45. | AAAC – MORKULLA –UP | 61/3.81 | - | 1,919.13 | 0.00 | 1,919.13 |
| 46. | AAAC – BERSIMIS | 61/4.00 | - | 2,115.54 | 0.00 | 2,115.54 |

Executive Engineer
TL Pretander

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

## ANNEXURE-'E'

### MATERIAL PRICE VARIATION CLAUSE FOR AAC/AAAC/ACSR CONDUCTORS

The price quoted/confirmed for Aluminum Conductor is based on the input cost of raw materials as on the date of quotation. It is deemed to be related to the prices of raw materials, as specified in the price variation clauses given below. In case of any variation in these prices, the prices payable shall be subject to adjustment up or down in accordance with the following formulae.

1. **AAC/AAAC Conductors**

   P= Po + WA (AL – ALo)

2. **ACSR Conductors**

   P= Po + WA (AL – ALo) + WF (FE – FEo)

Wherein,

P = Ex-works price payable in Rs. per km as adjusted in accordance with the price variation clause.

Po = Ex-works price quoted/confirmed in Rs. per Km.

WA = Weight of Aluminum in AAC/AAAC/ACSR Conductor in MT per Km. as per the type of conductor (Refer the enclosed annexure – A giving this factor for various types of conductors).

ALo = Price of Daily LME Cash SELLER Settlement price of Aluminum
This price is applicable prevailing as on 30 days prior to the date of tender opening.

WF = Weight of Steel Content in ACSR Conductor in MT per Km. as per the type of conductor. (Refer the enclosed annexure – A giving this factor for various types of conductors)

FEo = Price of High Tensile Galvanized Steel Wire in Rs./MT of appropriate size.
This price is applicable prevailing as on 30 days prior to the date of tender opening.

For example, if tender is opened on 31st October 2014, the applicable raw material prices (ALo and FEo) would be those, prevailing as on the 1st day of October 2014.

AL = Price of Daily LME Cash SELLER Settlement price of Aluminum
This price is applicable prevailing as on 30 days prior to the date of delivery.

FE = Price of High Tensile Galvanized Steel Wire in Rs./MT of appropriate size.
This price is applicable prevailing as on 30 days prior to the date of delivery.

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

Executive Engineer
TL Pretander

For example, if date of delivery is 31st December 2014, the applicable raw material prices (AL and FE) would be those, prevailing as on the 1st day of December 2014.

The above prices and indices are as published by IEEMA.

The date of delivery for the purpose of price variation shall be the date on which the Conductor is notified as being ready for inspection/dispatch or the contractual delivery date whichever is earlier wherever supplies are effected within contractual delivery period. In case the supplies are effected after the contractual delivery period, the date of delivery for price variation purpose would be the one out of the above two on which the price variation is less.

Notes :

1. All domestic prices of raw materials applicable to excise duty units are exclusive of modvatable excise/CV duty amount and exclusive of any other central, state or local taxes, octroi etc.

2. Price of Daily LME Cash SELLER Settlement price of Primary Aluminum in US$ per MT is as published by London Metal Bulletin (LME). Premium for Ingot in US$ per MT is added in this Daily LME price and converted in Indian Rs./MT using exchange rate and adding appropriate customs duty.

   Monthly price circular will contain daily prices of Aluminum during the month as announced by LME.

3. The price of High tensile Galvanized Steel Wire (in Rs./MT) for different sizes in mm is the price as quoted by a primary producer, which is normally valid for the entire month. Further revisions in prices, if any, as quoted by the primary producer will also be published.

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Executive Engineer
TL Pretender

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

## ANNEXURE - A

### Weight Factors for various types of Conductors as per IS: 398

| Sr. No. | Conductor types | A/AA Strands | Steel Strands | Aluminum EC Grade/Alloy kg/km | HT GS Steel kg/km | Total kg/km |
|---|---|---|---|---|---|---|
| 1. | AAC – GNAT | 7/2.21 | - | 74.00 | 0.00 | 74.00 |
| 2. | AAC – ANT | 7/3.10 | - | 145.00 | 0.00 | 145.00 |
| 3. | AAC – WASP | 7/4.39 | - | 290.00 | 0.00 | 290.00 |
| 4. | AAC – PEONY | 19/3.18 | - | 415.00 | 0.00 | 415.00 |
| 5. | AAC – SPIDER | 19/3.99 | - | 654.00 | 0.00 | 654.00 |
| 6. | AAC – BUTTERFLY | 19/4.65 | - | 888.00 | 0.00 | 888.00 |
| 7. | ACSR – MOLE | 6/1.50 | 1/1.50 | 29.00 | 14.00 | 43.00 |
| 8. | ACSR – ROSE | 6/1.96 | 1/1.96 | 50.00 | 23.00 | 73.00 |
| 9. | ACSR – SQUIRREL | 6/2.11 | 1/2.11 | 58.00 | 27.00 | 85.00 |
| 10. | ACSR – WEASEL | 6/2.59 | 1/2.59 | 87.00 | 41.00 | 128.00 |
| 11. | ACSR – RABBIT | 6/3.35 | 1/3.35 | 145.00 | 69.00 | 214.00 |
| 12. | ACSR – RACCOON | 6/4.09 | 1/4.09 | 216.00 | 103.00 | 319.00 |
| 13. | ACSR – DOG | 6/4.72 | 7/1.57 | 288.00 | 106.00 | 394.00 |
| 14. | ACSR – WOLF | 30/2.59 | 7/2.59 | 437.00 | 289.00 | 726.00 |
| 15. | ACSR – PANTHER | 30/3.00 | 7/3.00 | 586.00 | 388.00 | 974.00 |
| 16. | ACSR – KUNDAH | 42/3.50 | 7/1.96 | 1,116.00 | 165.00 | 1,281.00 |
| **17.** | **ACSR – ZEBRA** | **54/3.18** | **7/3.18** | **1,185.00** | **436.00** | **1,621.00** |
| 18 | ACSR – MORKULLA | 42/4.13 | 7/2.30 | 1,553.00 | 228.00 | 1,781.00 |
| 19. | ACSR – MOOSE | 54/3.53 | 7/3.53 | 1,465.00 | 539.00 | 2,004.00 |
| 20. | ACSR – BERSIMIS | 42/4.57 | 7/2.54 | 1,909.00 | 278.00 | 2,181.00 |
| 21. | ACSR – SNOWBIRD | 42/3.99 | 7/2.21 | 1,447.00 | 210.00 | 1,657.00 |
| 22. | ACSR – LAPWING | 45/4.78 | 7/3.18 | 2,231.00 | 436.00 | 2,667.00 |
| 23. | ACSR – CYNX | 30/2.79 | 7/2.79 | 507.00 | 335.00 | 842.00 |
| 24. | ACSR – DRAKE | 26/4.44 | 7/3.45 | 1,116.00 | 512.00 | 1,628.00 |
| 25. | ACSR – COYOTE | 26/2.54 | 7/1.91 | 365.00 | 156.00 | 521.00 |

Executive Engineer
TL Pretender

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

ANNEXURE - A

**Weight Factors for various types of Conductors as per IS: 398**

| Sr. No. | Conductor types | A/AA Strands | Steel Strands | Aluminum EC Grade/Alloy kg/km | HT GS Steel kg/km | Total kg/km |
|---|---|---|---|---|---|---|
| 26. | AAAC – MOLE | 3/2.50 | - | 40.15 | 0.00 | 40.15 |
| 27. | AAAC – SQUIRREL | 7/2.00 | - | 60.16 | 0.00 | 60.16 |
| 28. | AAAC – WEASEL | 7/2.50 | - | 94.00 | 0.00 | 94.00 |
| 29. | AAAC – RABBIT | 7/3.15 | - | 149.20 | 0.00 | 149.20 |
| 30. | AAAC – RACCOON | 7/3.81 | - | 218.26 | 0.00 | 218.26 |
| 31. | AAAC – DOG | 7/4.25 | - | 272.86 | 0.00 | 272.86 |
| 32. | AAAC – DOG – UP | 19/2.89 | - | 342.51 | 0.00 | 342.51 |
| 33. | AAAC – COYOTE | 19/3.15 | - | 406.91 | 0.00 | 406.91 |
| 34. | AAAC – WOLF | 19/3.40 | - | 474.02 | 0.00 | 474.02 |
| 35. | AAAC – WOLF – UP | 19/3.66 | - | 549.40 | 0.00 | 549.40 |
| 36. | AAAC – PANTHER | 19/3.94 | - | 636.67 | 0.00 | 636.67 |
| 37. | AAAC – PANTHER-UP1 | 37/3.15 | - | 794.05 | 0.00 | 794.05 |
| 38. | AAAC – PANTHER-UP2 | 37/3.45 | - | 952.56 | 0.00 | 952.56 |
| 39. | AAAC – KUNDAH | 37/3.71 | - | 1,101.63 | 0.00 | 1,101.63 |
| 40. | AAAC – ZEBRA | 37/4.00 | - | 1,280.50 | 0.00 | 1,280.50 |
| 41. | AAAC – ZEBRA – UP | 61/3.31 | - | 1,449.38 | 0.00 | 1,449.38 |
| 42. | AAAC – MOOSE | 61/3.45 | - | 1,573.71 | 0.00 | 1,573.71 |
| 43. | AAAC – MORKULLA | 61/3.55 | - | 1,666.00 | 0.00 | 1,666.00 |
| 44. | AAAC – MOOSE UP | 61/3.66 | - | 1,771.36 | 0.00 | 1,771.36 |
| 45. | AAAC – MORKULLA –UP | 61/3.81 | - | 1,919.13 | 0.00 | 1,919.13 |
| 46. | AAAC – BERSIMIS | 61/4.00 | - | 2,115.54 | 0.00 | 2,115.54 |

Executive Engineer
TL Pretender

Executive Engineer
M.S.E.T. Co. Ltd.
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(268)

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Clr. No.: 86/DIV/T&D P/05

Date: 20 May 2014

To all members of IEEMA T&D Projects Division
SEBs, Utilities and other listed purchasing organizations

Sub: 1. Discontinuation of PV circulars for Transmission Line Towers (TLT) and Transmission Line Accessories & Hardware (TLA&H) giving JPC Market prices of steel Billets & Blooms
2. Revision in IEEMA PV clauses for TLT and TLA&H giving JPC RETAIL prices of Steel Billets & Blooms

IEEMA had publishing prices of Steel billets and Blooms based on prices published by Joint Plant Commission (JPC), Kolkata in their circular titled 'JPC Indicative Market Prices' till April 2014 for using the revised Price Variation Clauses for TLT and TLA&H; both effective from 1st July 2010

However, from 1st April 2014, JPC has started publishing a different price circular titled "JPC Prices (Retail)" which is on the different basis of working of prices.

IEEMA has therefore decided to revise the PV formulae for TLT and TLA&H incorporating the above 'Retail' prices with different nomenclature effective from 1st April 2014. Both the PV formulae are enclosed along with April 2014 PV circular giving 'Retail' prices of Steel Billets and Blooms.

We request and recommend all the users & stakeholders including Utilities, PSUs etc. to incorporate these new PV formulae in all the new tenders/contracts requiring base prices/indices of April 2014.

For contracts that will remain still pending which will require prices/indices beyond April 2014, to arrive at the final price variation, we recommend using the following two stage method, which is a standard methodology adopted by IEEMA for change over in all IEEMA PV clauses.

1. Calculate price variation 'P' from prices/indices of your base date applicable as per IEEMA PV clause effective from 1st July 2010 up to April 2014 (i.e. by taking April 2014 prices/indices at the numerator) applicable for the same PV clause.

2. Treat the above calculated 'P' as '$P_0$' and calculate final price variation considering April 2014 as base prices/indices as per new IEEMA PV clause; effective from 1st April 2014 (i.e. by taking April 2014 prices/indices at the denominator) up to the prices/indices of your date of delivery as per this new IEEMA PV clause.

Deputy Director General

Encl.: as above

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IEEMA/PVC/TLT/2010 (R-1)

Effective from: 1st April 2014

## PRICE VARIATION CLAUSE FOR TRANSMISSION LINE TOWERS

The price quoted/confirmed is based on the input cost of raw materials/components and labour cost as on the date of quotation and the same is deemed to be related to prices of raw materials and all India average consumer price index number for industrial workers as specified in the price variation clause given below. In case of any variation in these prices and index numbers, the price payable shall be subject to adjustment, up or down in accordance with the following formula:

**(A) Transmission Line Tower with both Heavy and Light angles**

$$P = \frac{P_0}{100}\left(11 + 32\,\frac{SBLR}{SBLR_0} + 25\,\frac{SBIR}{SBIR_0} + 09\,\frac{Zn}{Zn_0} + 23\,\frac{W}{W_0}\right)$$

**(B) Transmission Line Tower with only Heavy angles**

$$P = \frac{P_0}{100}\left(11 + 57\,\frac{SBLR}{SBLR_0} + 09\,\frac{Zn}{Zn_0} + 23\,\frac{W}{W_0}\right)$$

**(C) Transmission Line Tower with only Light angles**

$$P = \frac{P_0}{100}\left(11 + 57\,\frac{SBIR}{SBIR_0} + 09\,\frac{Zn}{Zn_0} + 23\,\frac{W}{W_0}\right)$$

Wherein,

$P$ = Price payable as adjusted in accordance with the above formula.

$P_0$ = Price quoted/confirmed.

$SBLR_0$ = Price of Steel Blooms- Retail (refer notes)
This price is as applicable on the 1st working day of the month, one month prior to the date of tendering.

$SBIR_0$ = Price of Steel Billets- Retail (refer notes)
This price is as applicable on the 1st working day of the month, one month prior to the date of tendering.



Executive Engineer
TL Pretander

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Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

$Zn_0$ = Price of Electrolytic high grade zinc (refer notes)
This price is as applicable on the 1st working day of the month, one month prior to the date of tendering.

$W_0$ = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base: 2001 = 100) (Refer notes)
This index number is as applicable on the first working day of the month, three months prior to the date of tendering.

For example, if date of tendering falls in May 2014, the applicable prices of Steel Bloom-Retail ($SBLR_0$), Steel Billets-Retail ($SBIR_0$) and Zinc ($Zn_0$) should be for the month April 2014 and all India average consumer price index number ($W_0$) should be for the month of February 2014.

The above prices and indices are as published by IEEMA vide circular reference number IEEMA (PVC)/TLT-2014/ _/_ one month prior to the date of tendering.

SBLR = Price of Steel Bloom-Retail (refer notes)
This price is as applicable on the 1st working day of the month, two months prior to the date of delivery.

SBIR = Price of Steel Billets-Retail (refer notes)
This price is as applicable on the 1st working day of the month, two months prior to the date of delivery.

Zn = Price of Electrolytic high grade zinc (refer notes)
This price is as applicable on the 1st working day of the month, two months prior to the date of delivery.

W = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base: 2001 = 100) (refer notes)
This index number is as applicable on the first working day of the month, four months prior to the date of delivery.

For example, if date of delivery falls in December 2014, the applicable prices of Steel Bloom-Retail (SBLR), Steel Billets-Retail (SBIR) and Zinc (Zn) should be for the month October 2014 and all India average consumer price index number (W) should be for the month of August 2014.



Executive Engineer
TL Pretender

Executive Engineer
M.S.E.T. Co. Ltd.
E. H.V. Project Dn., Kalyan

The date of delivery is the date on which Transmission line towers are notified as being ready for inspection/dispatch (in the absence of such notification, the date of manufacturer's dispatch note is to be considered as the date of delivery) or the contracted delivery date (including any agreed extension thereto), whichever is earlier.

Notes: (a) All prices of raw materials are exclusive of modvatable excise/CV duty amount and exclusive of any other central, state or local taxes; octrol etc.

(b) All prices are as on first working day of the month.

(c) The details of prices are as under:

1. The prices of Steel Bloom-Retail are the average Retail price of Blooms of size 150 x 150 mm of all cities in Rs/MT; as published by Joint Plant Committee (JPC), Kolkata. Heavy angles of **size above 110mm x 110mm are deemed to be related to this price.**

2. The prices of Steel Billet-Retail are the average Retail price of billets of size 100 mm of all cities in Rs/MT; as published by Joint Plant Committee (JPC), Kolkata. Light angles of size **below & including 110mm x 110mm are deemed to be related to this price.**

3. The price of Electrolytic high grade zinc (in Rs/MT) is ex-works price as quoted by a primary producer.

4. Cost weightage of re-rolling/conversion charges is included in labour cost weightage (W)

Deputy Director General



Executive Engineer
TL Pretender

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

# ANNEXURE

# 'J'

Executive Engineer
M.S.E.D.C.L.
E.H.V. Project Dn. Kalyan

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

# BAR CHART

Name of Project: Work of Construction of LILO in 220KV Kolshet-Wada & LILO on Padghe - Wada line for 400KV Kudus SS (N-GIMS.

LOA No.: i) Ref No:MSETCL/CO/DCM/DS&T/TKC-1/71774/Supply/BNC/296 Dtd: 23.11.2017
ii) Ref No:MSETCL/CO/DCM/DS&T/TKC-1/71719/ETC/BNC/095 Dtd: 23.11.2017

Name of Contractor & Address: M/s BNC Power Projects Ltd.,
Rome Palli Complex, 3rd Floor, Next to Dashbhuja Ganpati Mandir, Karve Road, Pune-411 038

| SR. NO | ACTIVITY | COMPLETION PERIOD IN MONTHS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Month 1 | Month 2 | Month 3 | Month 4 | Month 5 | Month 6 | Month 7 | Month 8 | Month 9 |
| 1 | Submission of PBG in lieu of SD | | | | | | | | | |
| 2 | Site Visit & Establishment of site office | | | | | | | | | |
| 3 | Check Survey | | | | | | | | | |
| 4 | Supply of Stubs & Stub Setting templates | | | | | | | | | |
| 5 | Tower Foundation | | | | | | | | | |
| 6 | Supply of Tower Material | | | | | | | | | |
| 7 | Erection of tower Material | | | | | | | | | |
| 8 | Supply of Conductor, Earthwire, Insulators, Accessories for Towers & Conductor/ Groundwire & Insulator Hardwares | | | | | | | | | |
| 9 | Stringing of line | | | | | | | | | |
| 10 | Inspection, Testing & Commissioning | | | | | | | | | |

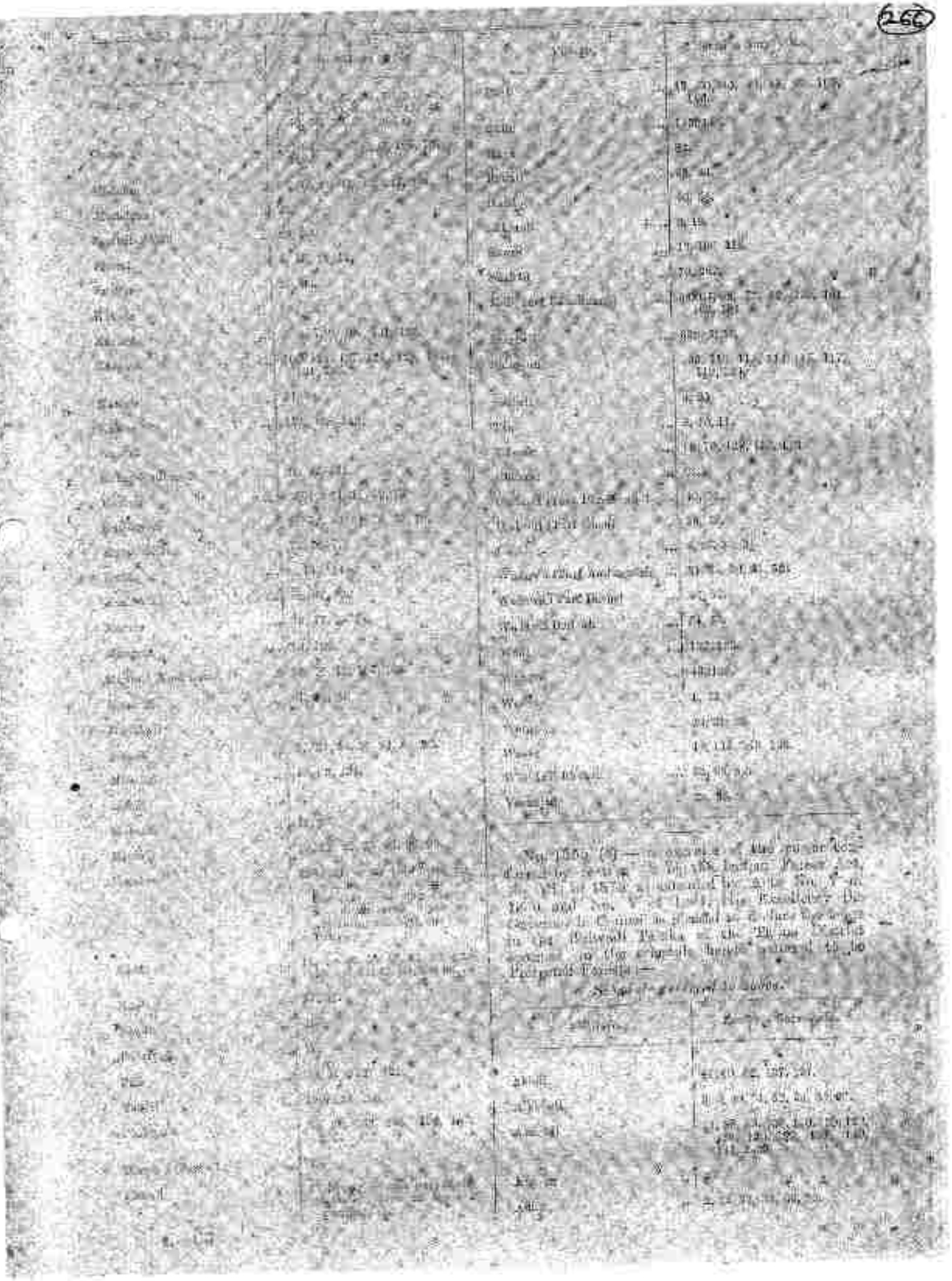
Note:
1) Above Barchart is applicable subject to timely clearance of ROW and approval of drawings, design and timely for dispatch inspection of material by MSETCL authorities.

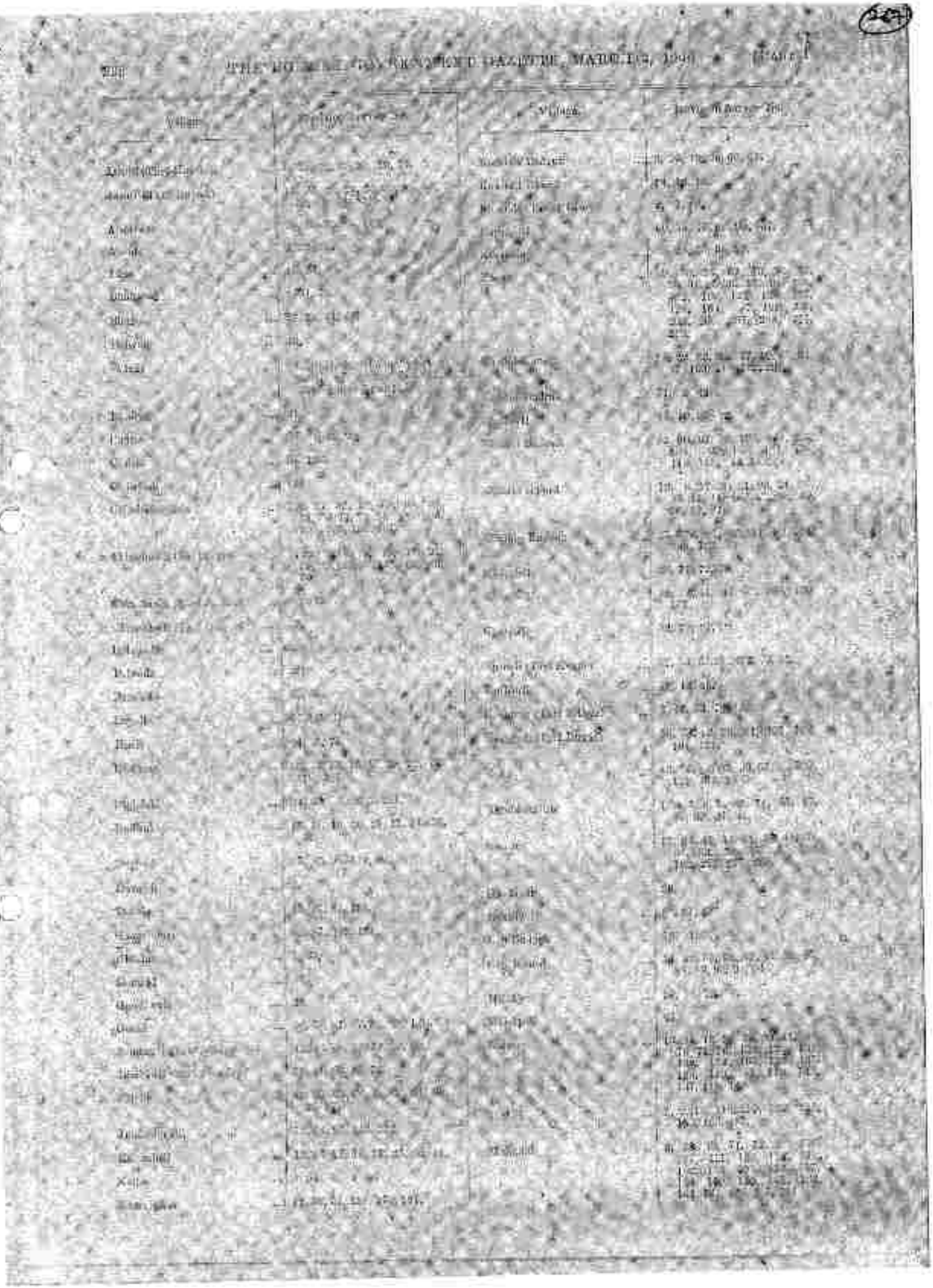
For BNC Power Projects Ltd.

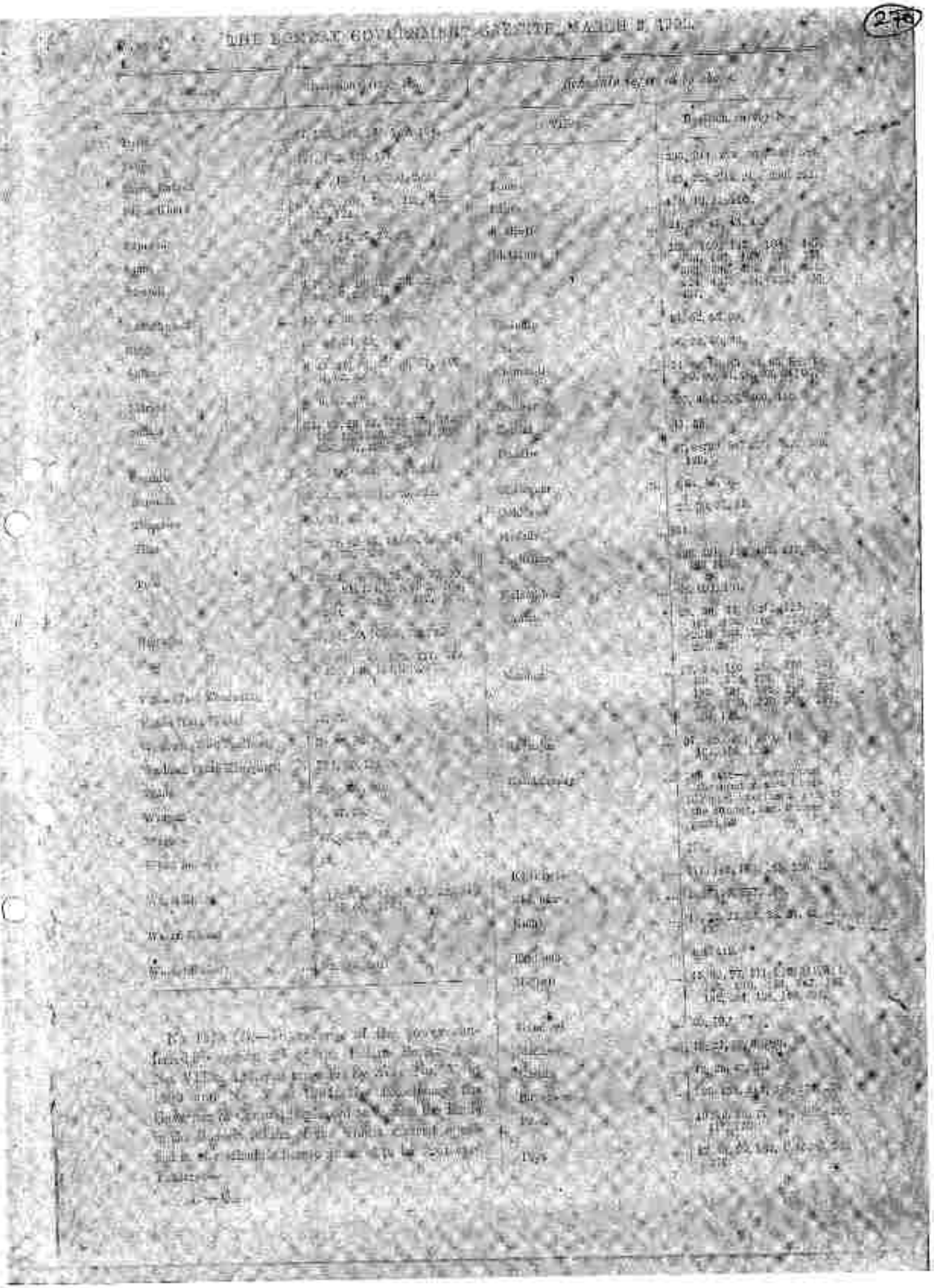
(Authorised Signatory)

Executive Engineer
TL Designation

252

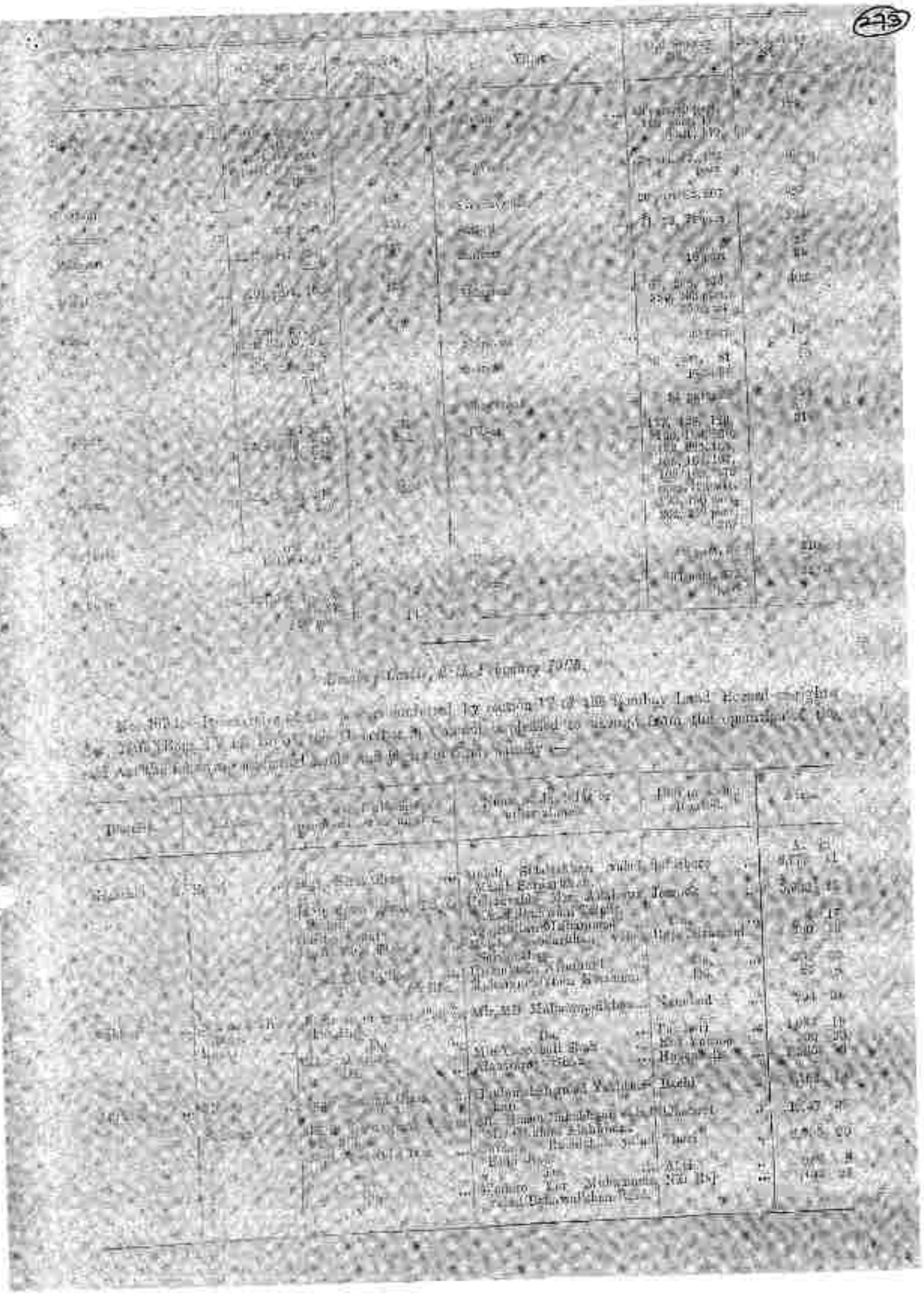












TRUE EXTRACTS

Director of Land
Government of Odisha

आरोपी- ① श्री. मिलींद द. गाधव, प्रा.व.अ. (वा.)

* विभागीय वन अधिकाऱ्यास पाठवावयाचे
* परिमंडल अधिकाऱ्यास पाठवावयाचे

वा.व. अधिनियम 1927 कलम 33 (1) (ब), व,
वनसंवर्धन अधिनि 1980 चे कलम 2 अन्वये
वन अपराध पहिले प्रतिवृत्त

कार्यालयीन प्रत
(सक्षम पोलीस)
* तिसरी प्रत
* चौथी मूळप्रत

क्र. 10/2020-21 दि. 15/03/2021

ठिकाण- दिहाडी परिमंडल- दिहाडी दाखल दि. } 15/03/2021 खबर दि.

अपराधाचा थोडक्यात- आज दोन्ही वॉचमन/परिमंडल अधिकारी यांचे मार्फत मौ. मु. क्र. 27/2/2020-21 मध्ये गु.र.नं. क्र 211 अन्वये मौ. मांडोखे शिवारातील खाजगी जमिनीत 220 KV पडळकरवाडी ते खरवंडी या लाईनचे मनोरे उभारणीचे काम चालू असल्याचे समजले. त्यावरून मी व वनरक्षक श्री. [illegible] असे दोघे जण मौ. मांडोखे शिवारात गेलो असता 33 ते 34 या मनोऱ्याचा पायाचा खड्डा खोदलेला दिसून आला. त्याचे GPS रिडिंग घेतले. [illegible] [illegible] [illegible]

Office copy

[Round Seal]

Third Copy
Fourth Original Copy

*To be sent to Divisional Forest Office
*To be sent to Circle Officer

Accused – (1) Mr. Milind D. Jadhav, Addl. E.E. (C)
S & I, Kalyan.
(2). EHV Project (Mahapareshan)
Kalyan

**Under Section 32, 33 of Indian Forest At, 1927 and under Section 2 of Forest Conservation Act, 1980**

## First Intimation of Forest Offence

**Encroached area 9 mtrs X 9 mtrs.**
(Particulars to be provided by Circle Officer)

No. 10/2020-21 Dt. 15/03/2021

Date of filing
**Specified Area – Dighashi** Circle **Dighashi** **15/3/2021**
Date of issue

**Where it has taken place** Circle Crime Number : **No. 29/E/2020-21**

Particulars of crime – Today, as visited with staff for inspection towards eastern side of village Mouje Madosi, it appeared that Tower No. 38 in the transmission line viz. 220 Kv Padgha Wada line has been erected in forest land by encroaching in the land and constructing foundation and erecting the tower. GPS reading of the land obtained and panchanama thereof has been prepared and after papering papers further investigation is going on.

Sd/-
Sign
Circle Guard or Forester

Filed on

What arrangements are made about prisoner.

Divisional Order No.

What arrangements has been made for the goods seized.

Divisional Crime Register No.

Sd/-

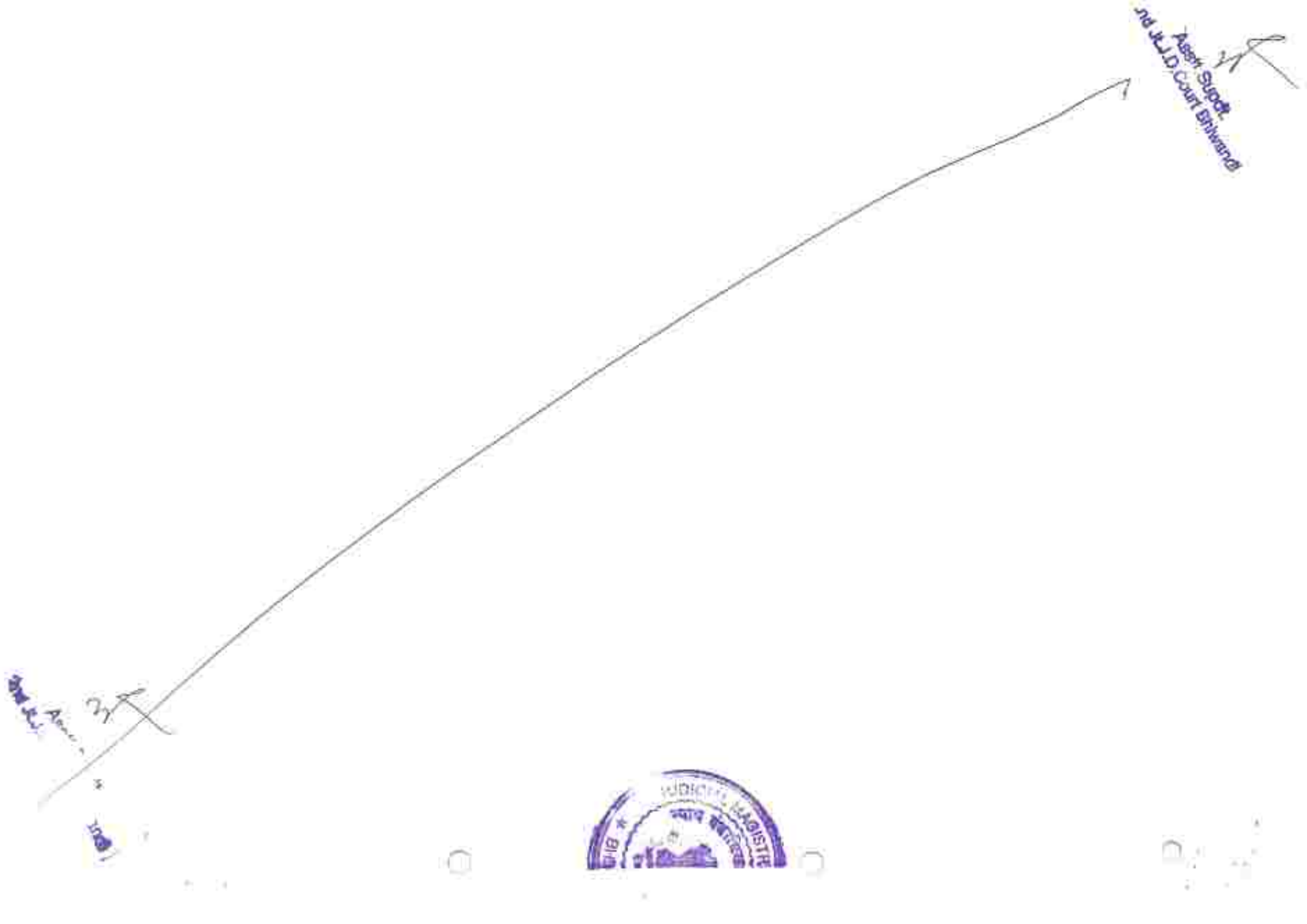
Place Date

**Divisional Forest Officer**

N 1929583
07306813 (Sign)

* Keep what is required.

| | |
|---|---|
| **Translated by**<br>**Mr. Rajesh Sidram Dasa**<br>A Panel Translator of Govt. of Maharashtra<br>Appointed at Sr. No. 6 of the Panel constituted by the Government of Maharashtra vide a GR No. Namuka-2019/Pra.Kra.29/Bhasha-2 Dated 22nd March, 2021.<br>Language Pair – Marathi ⇄ English | **TRUE TRANSLATION**<br><br>_____<br>**MR. RAJESH SIDRAM DASA**<br>R/at : Flat No. 501, Paramount Gardens, Katraj-Kondhwa Road, Gokulnagar, Katraj, Pune – 411046.<br>Mobile No. : 9850914652 Email : rajeshdasa.08@gmail.com |



आरोपी- ① श्री. सिन्गोट इ. गावला, अनि, वा. व. (शेरा)

* विभागीय वन अधिकाऱ्यास पाठवावयाचे / * परिमंडल अधिकाऱ्यास पाठवावयाचे

प्र.व.प. अकोला (सामाजिकवनीकरण)

* तिसरी प्रत
* चौथी गुलाबत

कार्यालयीन प्रत
For. 128/m.

महा. वन अधिनियम 1927 कलम 33, 35, 41
व वनसंपत्ति अधिनियम 1980 चे कलम 2 आणिक

वन अपराध पहिले प्रतिवृत्त

(परिमंडल अधिकाऱ्याने वापरावयाचा तपशील)

क्र. 11/2020-21 दि. 15/03/2021

निवासाचे- दिग्रसवाडी परिमंडल- दिग्रसवाडी वापरले दि. } 15/03/2021 रवाना दि.

अपराधाचा तपशील- आज मौजे कवठाळबंद परिमंडल अपराध अनुक्रमांक- दि.गु.क्र.30/दि/2020-21
कलम वि.का.क. 54 प्रमाणे मा. छे
पळसे जिल्हा अमरावती आरोपी 220 रु
घटनास्थळ हस्तगतकरण मालाचा सविस्तर
अहवाल दि. 37 चे पंचनामाप्रमाणे हस्तगत
आरोपी कडून दि. चे जप्तीपंचनामे प्रमाणे जप्त
आरोपीस अटक दि. जामीनपत्र आदेश क्र.-
आरोपीस दि. रोजी न्यायालयीन अभिरक्षा मंजूरी क्र.-
पंचनामा, हजर कागदपत्रे तपास कामी
पुढील तपास चालू.

(सही)
विभागीय वन अधिकारी
.....
पदनाम

19 29 647 (सही)
E 073 06 948

* आवश्यक ते खोडावे.

Office copy

[Round Seal]

Third Copy
Fourth Original Copy

*To be sent to Divisional Forest Office
*To be sent to Circle Officer

Accused – (1) Mr. Milind D. Jadhav, Addl. E.E. (C)
S & I, Kalyan
(2). EHV Project (Mahapareshan)
Kalyan

**Under Section 32, 33 of Indian Forest At, 1927 and under Section 2 of Forest Conservation Act, 1980**

## First Intimation of Forest Offence

No. 11/2020-21 Dt. 15/03/2021

**Encroached area 9 mtrs X 9 mtrs.**
(Particulars to be provided by Circle Officer)

Date of filing
**Specified Area – Dighashi** Circle **Dighashi** **15/3/2021**
Date of issue

**Where it has taken place** Circle Crime Number :- **No. 30/E/2020-21**

Particulars of crime – Today, as visited with staff for inspection towards eastern side of village Mouje Kunde, it appeared that Tower No. 37 in the transmission line viz. 220 Kv Padgha Wada line has been erected in forest land by encroaching in the land and constructing foundation and erecting the tower. GPS reading of the land obtained and panchanama thereof has been prepared and after papering papers further investigation is going on.

Sd/-
Sign
Circle Guard or Forester
**Forester Dighashi**

What arrangements are made about prisoner.

Filed on

Divisional Order No.

What arrangements has been made for the goods seized.

Divisional Crime Register No.

Sd/-

Place Date

**Divisional Forest Officer**

N 1929647
E 07306948 (Sign)

* Keep what is required.

| | |
|---|---|
| **Translated by**<br>**Mr. Rajesh Sidram Dasa**<br>A Panel Translator of Govt. of Maharashtra<br>Appointed at Sr. No. 6 of the Panel constituted by the Government of Maharashtra vide a GR No. Namuka-2019/Pra.Kra.29/Bhasha-2 Dated 22nd March, 2021.<br>Language Pair – Marathi ⇄ English | **TRUE TRANSLATION**<br><br>_____<br>**MR. RAJESH SIDRAM DASA**<br>R/at : Flat No. 501, Paramount Gardens, Katraj-Kondhwa Road, Gokulnagar, Katraj, Pune – 411046.<br>Mobile No. : 9850914652 Email : rajeshdasa.08@gmail.com |

Asstt Supdt.
2nd Jt.J.D.Court Bhiwandi

① श्री. अर्जुना शंकर कदुबाले ग्राम पं
पद जि.प. - रोजगार ध. मोरशी ता. वणी
② श्री. अनुसूचि साहसे ग्राम पं ६० ए
ओढा. रामी ध. मोरशी ता. वणी

आम्ही आपणास अत्यंत आदराने पंचायत समितीच्या कार्यालयाचे लक्षात आणून आम्हा पंचायत समितीच्या पदाधिकारी यांनी त्यांचे कडील पत्र क्र. जि.प.वणी 30/E/2020-21 दि. 31/3/2021 च्या नुसार आमचे मौ. कुंडे, येथील ग्राम पं. क्र. 54 कुंडेकवणी - उकणी, रोड लगत पाण्याचा उंच टॉवर बांधण्याकरीता शासकीय जागेचा प्रस्ताव मागितला होता. त्यानुसार आम्ही ग्रामसभा घेऊन सदर जागेचा ठराव पारित करून पंचायत समिती वणी यांचे मार्फत सादर केला होता.

आता दिनांक 31/3/2021 रोजी आम्ही पदाधिकारी व सदस्य यांनी मौ. कुंडे येथील ग्राम पं. क्र. 54 मध्ये कुंडे ते कवणी - उकणी रोड लगत पश्चिमेला असलेल्या पाण्याच्या RCC जलकुंभाच्या बाजुला पाण्याच्या टाकीचे बांधकाम करून देण्याचा ठराव ग्रामसभेच्या सर्वानुमते पारित करण्यात आला होता. त्याप्रमाणे आम्ही सर्व पदाधिकारी व सदस्य यांनी ग्रामसभेचा ठराव घेऊन सदर जागेचा पाहणी करून सदरहू जागेचा प्रस्ताव पंचायत समिती वणी यांचेकडे सादर केला होता. त्यानुसार मा. उपविभागीय अधिकारी सो. वणी यांचे कार्यालयाकडून 220 KV M/c line पडत्या वाहत / कोलवण. वाडा कुंभेफळ इत्यादी ठिकाणी मार्गिकेचे काम हे. महाराष्ट्रा ट्रान्समिशन कंपनीचा विस्तारीकरण केंद्र प्रस्तावित असल्याने सदर जागा मालक श्री. महेश्वर पारधी यांनाही मौ. कुंडे ता. झरीजामणी यांचे वतीने संमतीने 7/12 व इतर आवश्यक कागदपत्रे जोडण्यात आले. आपले महाराष्ट्रेषणाची अधिकारी ता. झरीजामणी हे आम्हा पंचायतीत येऊन आम्हाला सदरचे जागे हे पाण्याच्या टाकीचे बांधकामाकरीता उपयोगात आणावी असे सुचविले. त्यानुसार सदरची जागा ही ग्रामपंचायत कार्यालय कुंडे ता. वणी जि. यवतमाळ यांचे मालकीची असल्याने ग्रामपंचायत कुंडेच्या ठरावाने सदर जागा पाण्याच्या टाकीचे बांधकामाकरीता देण्यात येत आहे.

P.T.O.

ते स्थान ओळखले व्हावे म्हणून पाईल उभारले आहे. सदर पाईलवर झाडांना दिलेला नंबर व त्यांच्या जातीची माहिती देणारा फलक लावण्यात येणार आहे. सदर वृक्षांचे संवर्धन होण्यासाठी त्यांच्या सुरक्षेसाठी जाळी, ट्रीगार्ड इत्यादी व्यवस्था करण्यात आली आहे. तसेच वृक्षांना पाणी देण्यासाठी ठिबक सिंचन व्यवस्था करण्यात आली आहे. सदर वृक्षांचे संवर्धन होण्यासाठी त्यांच्या सुरक्षेसाठी जाळी, ट्रीगार्ड इत्यादी व्यवस्था करण्यात आली आहे. तसेच वृक्षांना पाणी देण्यासाठी ठिबक सिंचन व्यवस्था करण्यात आली आहे. सदर वृक्षांचे संवर्धन होण्यासाठी त्यांच्या सुरक्षेसाठी जाळी, ट्रीगार्ड इत्यादी व्यवस्था करण्यात आली आहे. तसेच वृक्षांना पाणी देण्यासाठी ठिबक सिंचन व्यवस्था करण्यात आली आहे.

वृक्षारोपण योजनेचा प्रारंभ उपवनसंरक्षक सातारा (प्रादेशिक) यांच्या हस्ते दिनांक ०१/०७/२०१९ रोजी सोनापाचा ओढा येथे GPS रिडिंग घेऊन करण्यात आला.

(1) वृक्षारोपण झालेले क्षेत्र - १० हे. ०० आर.

(2) GPS रिडिंग N 19 29 647 E 073 06 948

वनक्षेत्रपाल सातारा पश्चिम व GPS रिडिंग घेऊन सदर ठिकाणचे ठिकाण निश्चित करण्यात आले. सदर ठिकाणचे क्षेत्र वनपरिक्षेत्र कार्यालय आंबोली यांच्याकडे हस्तांतरित करण्यात आले. सदर वृक्षारोपण योजनेचा प्रारंभ उपवनसंरक्षक सातारा (प्रादेशिक) यांच्या हस्ते करण्यात आला. सदरचे हस्तांतरित क्षेत्र वनपरिक्षेत्र आंबोली यांच्याकडे देण्यात आले. सदर वृक्षारोपण योजनेचा प्रारंभ उपवनसंरक्षक सातारा (प्रादेशिक) यांच्या हस्ते करण्यात आला. सदरचे हस्तांतरित क्षेत्र वनपरिक्षेत्र आंबोली यांच्याकडे देण्यात आले. सदर वृक्षारोपण योजनेचा प्रारंभ उपवनसंरक्षक सातारा (प्रादेशिक) यांच्या हस्ते करण्यात आला. सदरचे हस्तांतरित क्षेत्र वनपरिक्षेत्र आंबोली यांच्याकडे देण्यात आले.



सदरचे वृक्षारोपण योजनेचा प्रारंभ दि. २०/०७/२०१९ रोजी सुरु

1) Mr. Ananta Shankar Sakpal, Age 54 years, Occupation : Farming, R/at : Madoshi, Tal. Bhivandi.
2) Mr. Arjun Madni Jadhav, Age 60 years, Occupation : Agriculture, R/at : Madoshi, Tal. Bhivandi

We, the undersigned Pancha are the permanent residents and we have arrived at the high tower constructed towards western side adjacent to Kunda Phata – Uchar Road of S. No. 54, Reserve Forest in Mouje Kunde in the mater of inquiry in I.C. No. 50/E/2020-21 Dt. 31/3/2021 with the Forester Dighashi and conducted inspection of the present circumstances and prepared Panchanama in writing which is as under : -

Today on 31/3/2021, the Forester Dighashi and others have found that there is an RCC construction caused at the place of electricity tower at western side of Kunda Phata – Uchar Road in S. No. 54 Reserve Forest in village Mouje Kunda and thus electricity tower has been constructed illegally.

As we the Pancha alongwith the Forest Officer made inspection by getting there on actual site and as the Forester Dighashi asked to the Accused Mr. Milind D. Jadhav, Addl. Executive Engineer, S & I, Division Kalyan before us, the Pancha, he said that, the work of 22kV M/s. LiLo Padgha Wada / Kolshet – Wada Kudus Sub-Station transmission line is going on through the Kalyan Division of M/s. Mahapareshan, the construction has been caused after verifying 7/12 extract document of the land owner Mr. Laxman Janu Pilane, Mouje Kunde, Tal. Bhivandi and this is what the Engineer of Mahapareshan Mr. Milind D. Jadhav told before us, the Pancha. The Forester Dighashi has said that in the year 1979, the Forest Department has transferred the said area to Revenue Department for local landless people. The said area is Protected Forest S. No. 54 and any such remark of Forest Department is not there on 7/12 extract. It appears that, on actual land, there are rice fields. There are no shrubs appearing on the said land. The holder is cultivating the said land for farming since many years. After having inspection in the vicinity, it


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|---|---|

appeared that towards east, the land is possessed by Mr. Arjun Laxman Pilane and towards West and South, there is S. No. 54 B of Mr. Ladku Ganu Vudle and towards North side, the land of Mr. Arjun Laxman Pilane. It appears that as on today the entire land is under agricultural cultivation. It appears that there are no structures and towers of Forest Department in the said land.

Before, we the Pancha, the Forester Dighashi had taken the measurements and GPS reading of the area where construction has been caused and tower erected which are as under :-

1) Area of construction 9 mtrs. X 9 mtrs.
2) GPS reading N 1929647 E 0730694S

After obtaining measurements & GPS reading, the forester is saying before, we the Pancha that, as the work of changing status of the said land is pending at the higher level and as there is no status to the said land, it appears that the said land belonged to the Forest Department. The said encroached area falls within the Protected Forest S. No. 54 of Forest Department.

The Accused Mr. Milind D. Jadhav, Addl. Engineer states that, the Accused has caused construction and erect Towers by verifying papers and the circumstances without obtaining permission of the Forest Department. Therefore, it appeared that construction has been caused and tower has been erected inadvertently and unknowingly by considering that the land does not belonged to forest department. With reference to the said construction, we the Pancha, have arrived at opinion that the Accused has violated provisions of Indian Forest Act.

The said Panchnama has been commenced at 2.00 pm, and confirmed that it is correct as per the instructions given by us and therefore we have put our signatures hereunder.


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|---|---|

Place : Mouje Kunde, P. Forest, S. No. 54

Date : 31/3/2021

| | | |
|---|---|---|
| Before | Before | |
| Sd/- | Sd/- | Sd/- |
| [ Seal of Forest Range Officer Dighashi ] | **Addl. Ex. Engineer** Spl. Project Division Kalyan | Sd/- |

| | |
|---|---|
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(1) श्री. अनिल सकट सरपंच, ग्रा.प. [illegible]
ता. शेवगाव जि. अहमदनगर

(2) श्री. अशोक मारुती लवांडे ग्रा.प. [illegible]
ता. शेवगाव जि. अहमदनगर

आपली प्राथमिक तक्रार अर्जावरुन पंचायत समितीचे गटविकास अधिकारी आपला पंचायत समिती स्तरावरील अपील क्र. मु.कु.सु. 27/E/2020-21 दि. 30/3/2021 रोजी चौकशी अंती मौ. शिंगवी संदर्भीय गट नं. क्र. 211 मधील शासकीय जमिनीचे अतिक्रमण उत्तरेश्वर देवस्थान ट्रस्ट होवून त्यांनी शासकीय जमिनीवर बांधकाम केलेले आहे असे निष्कर्ष काढून अपील फेटाळले आहे.

आपली दि. 31/3/2021 रोजी केलेली तक्रार व त्यानंतर मौ. शिंगवी संदर्भीय गट नं. 211 मध्ये अंतर्गत रस्त्यालगत असलेल्या पुरातन RCC फाऊंडेशन टाईप विहीरीचा होवर क्राफ्टच्या सहाय्याने अनाधिकृत अतिक्रमण करुन विहीरीचा होवर उभारलेला आहे. आपली पंचायत समिती अधिकारी यांचे सह तलाठी यांचे पाहणी अहवालात सदरच्या जागेवर बांधकाम केलेचे दोन्ही आपला पंचायत समिती अधिकारी यांनी दि. 31/3/2021 रोजी मा. तहसिलदार सो. यांचे कार्यालय शेवगाव यांना विहीरीच्या केलेली तक्रार 220 K.V. M/c Line पासून वाघा / शेवगाव. वाया. कुरुंद उपकेंद्र ट्रान्सफार्मर पर्यंतचे काम मे. महापारेषण विभाग नगर यांचे कार्यालयाचे पुढील आदेश होईपर्यंत तात्पुरते थांबविणेत आलेचे सांगितले त्यानुसार तात्पुरते काम थांबविणेत आलेले आहे असे महापारेषण अभियंता श्री. सिध्दे व. तहसिलदार हे आपला पंचायत समिती अधिकारी यांचेकडे सदरचे क्षेत्र हे 1964 च्या कोतवाल पुनर्विलोकन प्रतिनिधी अभिलेखाकडून सदरचे मौ. वाघा क्र. 211 चे क्षेत्र वगळणे केलेचे दिसून येत नसून, तसेच अनधिकृत आपला पंचायत समिती अधिकारी यांनी सदर जागेवर कुठलाही प्रकारची अनधिकृत बांधकामे नाही सदर क्षेत्र हे शासन जमिनीचे असल्याचे अहवाल तलाठी यांनी

(P.T.O.)

प्रस्तावित क्षेत्रात अनेकांनी इमारती बांधलेल्या असल्याचे तसेच काही ठिकाणी पक्के रस्ते व गटारे बांधलेली असल्याचे दिसून आले. सदर प्रस्तावित क्षेत्रात गट नं. 65/1 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/2 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/3 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/4 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/5 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/6 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/7 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/8 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/9 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/10 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/11 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/12 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/13 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/14 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/15 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/16 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/17 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/18 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/19 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/20 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/21 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/22 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/23 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/24 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/25 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/26 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/27 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/28 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/29 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/30 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/31 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/32 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/33 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/34 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/35 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/36 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/37 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/38 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/39 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/40 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/41 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/42 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/43 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/44 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/45 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/46 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/47 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/48 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/49 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/50 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/51 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/52 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/53 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/54 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/55 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/56 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/57 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/58 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/59 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/60 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/61 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/62 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/63 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/64 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/65 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/66 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/67 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/68 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/69 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/70 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/71 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/72 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/73 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/74 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/75 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/76 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/77 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/78 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/79 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/80 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/81 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/82 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/83 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/84 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/85 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/86 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/87 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/88 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/89 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/90 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/91 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/92 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/93 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/94 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/95 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/96 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/97 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/98 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/99 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/100 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/101 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/102 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/103 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/104 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/105 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/106 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/107 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/108 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/109 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/110 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/111 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/112 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/113 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/114 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/115 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/116 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/117 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/118 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/119 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/120 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/121 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/122 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/123 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/124 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/125 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/126 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/127 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/128 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/129 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/130 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/131 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/132 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/133 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/134 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/135 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/136 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/137 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/138 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/139 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/140 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/141 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/142 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/143 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/144 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/145 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/146 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/147 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/148 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/149 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/150 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/151 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/152 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/153 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/154 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/155 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/156 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/157 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/158 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/159 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/160 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/161 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/162 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/163 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/164 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/165 मध्ये एकूण क्षेत्र 0.40 हे.आर. पैकी 0.20 हे.आर. क्षेत्र हे सरकारी असून त्यावर सरकारी शाळा बांधलेली आहे. तसेच गट नं. 65/166 मध्ये

(287)

टिकण :- मॅसर्स विजयलक्ष्मी बांधकाम संस्था 211

पत्रांक :- 51/5/2021

सादर

Sd/-
Addl. Ex. Engineer
Spl. Project (Roads)
Kolhapur

1) अ.अ.ता. २/क्र.२ २१.०५.२०

2) अ. अ. (गा.इं.)

समक्ष

वनपरिमंडळ अधिकारी
दिंघाशी

ग. ल. अधिकारी
दि. ग्रा. दोडामार्ग

1) Mr. Ananta Shankar Sakpal, Age 54 years, Occupation : Farming, R/at : Madoshi, Tal. Bhivandi.
2) Mr. Arjun Madni Jadhav, Age 60 years, Occupation : Agriculture, R/at : Madoshi, Tal. Bhivandi

We, the undersigned Pancha are the permanent residents and we have arrived at the high tower constructed adjacent to Aambai Sagav Tar Road in S. No. 21, Reserve Forest in Mouje Dighashi in the matter of inquiry in I.C. No. 30/E/2020-21 Dt. 31/3/2021 with the Forester Dighashi and conducted inspection of the present circumstances and prepared Panchanama in writing which is as under : -

Today on 31/3/2021, the Forester Dighashi with staff have found that there is an RCC foundation is constructed at the place of electricity tower erected towards northern side of Ambai - Sagav Road in S. No. 211 Reserve Forest in village Mouje Dighoshi and thus electricity tower has been constructed illegally. As we the Pancha along with the Forest Officer caused inspection by getting there on actual site and as the Forester Dighashi asked to the Accused Mr. Milind D. Jadhav, Addl. Executive Engineer, S & I, Division Kalyan before us, the Pancha, he said that, the work of 22kV M/s. LiLo Padgha Wada / Kolshet - Wada Kudus Sub-Station transmission line is going on through the Kalyan Division of M/s. Mahapareshan and the construction has been caused after verifying 7/12 extract document of the land owner Mr. Mahadev Dagdu Jadhav, R/at : Mouje Mandoshi, Tal. Bhivandi and this is what the Engineer of Mahapareshan Mr. Milind D. Jadhav told before us, the Pancha. The Forester Dighashi has said that, there are Government Orders issued directing that, in the year 1964 the Forest Department has transferred the said Protected Forest area S. No. 211 for Koyna Rehabilitation. Any remark of Forest Department is not there on 7/12 extract. It appears that, on actual land, there are rice fields. There are no shrubs appearing on the said land. The holder is cultivating the said land for farming since many years. After having inspection in the vicinity, it


| Translated by<br>Mr. Rajesh Sidram Dasa<br>A Panel Translator of Govt. of Maharashtra<br>Appointed at Sr. No. 6 of the Panel constituted by the Government of Maharashtra vide a GR No. Namuka-2019/Pra.Kra.29/Bhasha-2 Dated 22nd March, 2021.<br>Language Pair – Marathi ⇄ English | TRUE TRANSLATION<br><br>MR. RAJESH SIDRAM DASA<br>R/at : Flat No. 501, Paramount Gardens, Katraj-Kondhwa Road, Gokulnagar, Katraj, Pune – 411046.<br>Mobile No. : 9850914652 Email : rajeshdasa.08@gmail.com |
|---|---|

appeared that towards east, there is a land possessed by Mr. Mahadu Dagdu Jadhav, having its 7/12 extract with S. No. 65/4 and it appeared that there is rice filed and towards West, there is a land possessed by Mr. Mahadu Dagdu Jadhav, having its 7/12 extract with S. No. 65/4 and it appeared that there is rice filed. Towards South, it appears that, there is Ambai Sagav Road and towards North, there is a land possessed by Mr. Mahadu Dagdu Jadhav, having its 7/12 extract with S. No. 65/4 and it appeared that there is rice filed. It appears that there are no structures and towers of Forest Department in the said land.

Before, we the Pancha, the Forester Dighashi had taken the measurements and GPS reading of the area where construction has been caused and tower erected which are as under :-

1) Area of construction 9 mtrs. X 9 mtrs.
2) GPS reading N 1929583 E 07306813

After obtaining measurements & GPS reading, the forester is saying before, we the Pancha that, as the work of changing status of the said land is pending at the higher level and as there is no status to the said land, it appears that the said land belonged to the Forest Department. The said encroached area falls within the Protected Forest S. No. 211 of Forest Department. The Accused Mr. Milind D. Jadhav, Addl. Engineer states that, the Accused has caused construction and erect Towers by verifying papers and the circumstances without obtaining permission of the Forest Department. Therefore, it appeared that construction has been caused and tower has been erected inadvertently and unknowingly by considering that the land does not belonged to forest department. With reference to the said construction, we the Pancha, have arrived at opinion that the Accused has violated provisions of Indian Forest Act.

The said Panchnama has been commenced at 11.00 pm and finished on 1.00 pm. The said Panchanama and confirmed that it is correct as per the instructions given by us and therefore we have put our signatures hereunder.


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Place : Mouje Dighashi, P. Forest, S. No. 211

Date : 31/3/2021

| | | |
|---|---|---|
| Before | Before | |
| Sd/- | Sd/- | Sd/- |
| [ Seal of Forest Range Officer Dighashi ] | **Addl. Ex. Engineer** Spl. Project Team Kalyan | Sd/- |

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| **Translated by**<br>**Mr. Rajesh Sidram Dasa**<br>**A Panel Translator of Govt. of Maharashtra**<br>Appointed at Sr. No. 6 of the Panel constituted by the Government of Maharashtra vide a GR No. Namuka-2019/Pra.Kra.29/Bhasha-2 Dated 22nd March, 2021.<br>Language Pair – Marathi ⇄ English | **TRUE TRANSLATION**<br><br>_____<br>**MR. RAJESH SIDRAM DASA**<br>**R/at : Flat No. 501, Paramount Gardens, Katraj-Kondhwa Road, Gokulnagar, Katraj, Pune – 411046.**<br>**Mobile No. : 9850914652 Email : rajeshdasa.08@gmail.com** |

Asstt. Supdt.
2nd Jt.J.D.Court Bhiwandi

Asstt. Supdt.
2nd Jt.J.D.Court Bhiwandi

JUDICIAL MAGIS

वनसंरक्षण अधिनियम १९८० अन्वये आवश्यक परवानगी मिळणेबाबत.

महोदय,

आपले पत्र क्र. मा.मु.का.-१/अधिक/वृक्ष/७१६ सन २०२०-२१ पदरचा ४२१९०१ दि. २२.२.२०२१ अन्वये निदर्शनास आणण्यात आले की, मिलिंद द. गाडगे, अतिरिक्त कार्यकारी अभियंता (स्था.), महाराष्ट्र विद्युत पर्यवेक्षण कार्यालय, यांनी खालील प्रकरणी अहवाल सादर केला आहे.

"मौजे २२० केव्ही पडघा-वाडा, कोलशेत वाडा ४०० के.व्ही. नवीन एक्सप्रेसवे ओव्हरहेड विद्युत वाहिनी ही M.S.E.T.C.L./२२ नुसार मंजूर करण्यात आलेली आहे. तसेच सदर विद्युत वाहिनीचे सर्वेक्षणाचे काम हे विभागीय कार्यालय, वसई यांना सुपूर्द करण्यात आले होते. सदरचे काम ठेकेदार यांनी २०१७ साली पूर्ण केले. सदर सर्वेक्षणानुसार कामाची पहाणी करताना ही वाहिनी मौजे दिवाशी येथून सुरू होऊन अडसुन, ही विद्युत वाहिनी दिवाशी, कुंडे, चिंचवली व एकसाल या गावांतुन जात आहे. वरील नमूद केलेल्या ठेकेदारामार्फत विभागीय ही प्रस्तावित विद्युतवाहिनीच्या मार्गातील काही झाडांच्या फांद्या छाटणे तसेच झाडे तोडणे बाबत वरील नमूद केलेल्या आपल्या पत्राप्रमाणे मौजे दिवाशी येथील वनपरिक्षेत्र क्र. २१७ मधील प्रस्तावित विद्युत वाहिनीचा गणेश क्र. ३८ चे काम झालेले आहे, व मौजे कुंडे येथील वनपरिक्षेत्र क्र. ५१ मधील गणेश क्र. ३० ची उभारणी झालेली आहे.

सदर अनुषंगाने आपणास कळविण्यात येते की, सर्वेक्षण करताना आढळले की वनपरिक्षेत्र क्र. २१७ व ५१ मधील गणेश क्र. ४५/४ व मौजे दिवाशी येथील ठेकेदार श्री. महादेव दगडू गाडगे यांचा आहे. सदर ठिकाणी वृक्षतोड झालेली असून वनविभागाची परवानगी नाही. त्यामुळे सदर क्षेत्रे वनक्षेत्र नाही असे समजण्यात यावे. त्यामुळे अनावधानाने तसेच सदर विभागाने नेमलेल्या ठेकेदाराने सदर ठिकाणी वृक्षतोड झाली असल्यास या विभागाचे कळविण्यात यावे.

तहसील, मवेरा क. 36 हा वनजमिनीवर सर्वे नं 41 मध्ये असून
असलेला अंदाजे सर्वेक्षण केलेला आणेवारी पहाणी केली असता
अहवाल आणेवारी ०।१८ हे गहाळ आहे सोबत नोंद
दर्शविली. सदर आणेवारी पहाणी वेळी असता वनसेवानी कुठलीही
सुचना आक्षेप काही न करता हिजावी होती केले नाही
त्यामुळे झालेली प्रथा ही वनसेवानी मान्य करुन लिखितमध्ये
आलेले नाही

वरील दोन्ही सनोबाबती प्रथा-परंपरा व ०।१८ प्रमाणाची
नोंदणी पाहता तसेच आणेवारी कमी-जास्ती ही केवळ दोनशब्दांची
फिरते, त्यामुळे अभयारण्याने वा विभागाने वनसेवानी प्रति
नाही म्हणून सनोबाबती प्रथा कायम केली. यापेक्षा
वनसेवानुन लांबीचे सनोदे रद्द करावे असे कोणतेही
हेतुपुरस्सर उद्देश नव्हता

तरी आपण दिलेल्या पत्रानुसार आपल्या निर्णयाचा, व
सदर कार्यालय अभिलेखाचे निरीक्षणाचे अनुषंगाने आणि अनुषंगिक
आपल्या कार्यालय दि 19/12/23 रोजी झालेल्या मौखिक चर्चेनुसार
वरील प्रमाणे लिहून दिलेले आहे

ठिकाण: वनपरीक्षेत्र कार्यालय, मवेरा
दिनांक: 8/12/23



(निलिंद ए. गोरवत)
सहायक वनसंरक्षक (प्रशा.)
महाव्यवस्थापक राज्य वनविकास निगम मर्या मुंबई

Before the Hon'ble Forest Range Officer, Padgha

Statement given by : Milind D. Jadhav, Additional Executive Engineer (Civil), __ & __, Sub-Division Kalyan, Mahapareshan Co. Ltd.

Sir,

As inquired by you vide your letter bearing O. No. Kaksha-1/Jamin/Vruksha/716 Year 2010-21 Padgha 421 101 Dt. 22.2.2011, I, Milind D. Jadhav, Additional Executive Engineer (Civil), Maharashtra Electricity Transmission Co. Limited, giving statement as under :-

That, the electric line connecting Lilo 220 kV Padgha – Wada, Kolshet Wada 400 kV Kudus substation has been sanctioned vide M.P.R. 112/26. Thereafter this Department has handed over the survey work of the said electricity line to M/s. Vinayaka Consultancy. Accordingly, the said work was completed in the year 2017. While conducting survey of this work, it appeared that this electric line is passing through village Dighashi, Kunde, Chinchwadli and Eksal. This Department has given clear instructions to this contractor that the way of the proposal electrical line be planned from least forest area rather it can be excluded. As per the letter issued by you as mentioned hereinabove, the work of Tower No. 36 of the proposed electrical line in Forest S. No. 211 in village Mouje Dighoshi is completed and the Tower No. 37 in Protected Forest S. No. 54 of village Kunde is also erected.

Accordingly, it is hereby informed to you that, while conducting the survey, we found that, the land bearing Survey No. 65/4 out of Protected Forest Survey No. 211 in village Mouje Dighoshi is in the name of the occupant 1. Mr. Mahadev Dagdu Jadhav. Any entry of Forest Department is not there on 7/12 extract thereof. Therefore, said area was considered as non-forest area. Therefore, inadvertently, the Contractor appointed by


| Translated by<br>Mr. Rajesh Sidram Dasa<br>A Panel Translator of Govt. of Maharashtra<br>Appointed at Sr. No. 6 of the Panel constituted by the Government of Maharashtra vide a GR No. Namuka-2019/Pra.Kra.29/Bhasha-2 Dated 22nd March, 2021.<br>Language Pair – Marathi ⇄ English | TRUE TRANSLATION<br><br>MR. RAJESH SIDRAM DASA<br>R/at : Flat No. 501, Paramount Gardens, Katraj-Kondhwa Road, Gokulnagar, Katraj, Pune – 411046.<br>Mobile No. : 9850914652 Email : rajeshdasa.08@gmail.com |
|---|---|

this department has not conveyed to this Department that the said land belonged to Forest Department. Further, the Tower No. 37 falls in Survey No. 54 of Forest Survey and while verifying the said land while conducting survey, it appeared that, on 7/12, the said land has been shown in the name of Revenue Department. Verifying the said land, it appears that there are no marks of forest department in the said land. It did not found that the said land is a forest area.

In view of both sites of tower and entries on 7/12 extract, it appeared that, the present status of the said land is agriculture. Therefore, this department has inadvertently considered that the said land is not a forest land and fixed the place of tower. In this regard, there was no deliberate intention to erect towers of line through the forest land.

Therefore, as per the said land, as our department has madvertently violated rules of forest department in this work, proper decision be taken at your level. Therefore, I am writing and delivering my statement accordingly.

Place : Forest Range Office, Padghe

Date : 4/3/2021

Sd/-

Milind D. Jadhav
Additional Executive Engineer (Civil)
Maharashtra State Transmission Electricity Co. Ltd.

Before
Sd/-
R.F.O. Padgha

| | |
|---|---|
| **Translated by**<br>**Mr. Rajesh Sidram Dasa**<br>**A Panel Translator of Govt. of Maharashtra**<br>Appointed at Sr. No. 6 of the Panel constituted by the Government of Maharashtra vide a GR No. Namuka-2019/Pra.Kra.29/Bhasha-2 Dated 22nd March, 2021.<br>Language Pair – Marathi ⇄ English | **TRUE TRANSLATION**<br><br>_____<br>**MR. RAJESH SIDRAM DASA**<br>**R/at : Flat No. 501, Paramount Gardens, Katraj-Kondhwa Road, Gokulnagar, Katraj, Pune – 411046.**<br>**Mobile No. : 9850914652 Email : rajeshdasa.08@gmail.com** |

MAHATRANSCO
Maharashtra State Electricity Transmission Co. Ltd.

**MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO. LTD.**


| From, | To, |
|---|---|
| Office of the Executive Engineer, E.H.V. Projects Division, IInd floor, 'A' wing, 'Tejashri Bldg.', Jahangir Maidan, Karnik road, M.S.E.T. Co. Ltd., Kalyan (W) 421 301.<br>Tel. – 0251 2328540 / Fax – 0251 2201657<br>E-mail – ee7620@mahatransco.in<br>ee7620@email.com | The Rang Forest Officer, Padghe. |


**Ref No : EE/EHV/PR/DN/KLN/T- 256F /No. 249** **Date: 24.02.2021**

Sub: Construction of M/C LILO on 220 Kv Padghe – Wada Kolshet – Wada Line for 400 Kv Kudus substation.
.....Illegal tower erection work at Loc No. 37 & 38.

Ref: जा.क्र.कक्ष-9/जमीन/गुन्हा/७१६ सन २०२०-२०२१ पडघा-४२१ १०१ दि.२३.०२.२०२१.

Dear Sir,

With respect to the above subject this office is in receipt of letter under reference from your good office regarding violation of forest act. As per your letter it is to mention that following officers will represent MSETCL side.

1) Shri Tushar P. Varule (Add. Ex. Engineer, The then subdivision In-charge) and
2) Shri Milind D. Jadhav (Add. Ex. Engineer S&I S/Dn)

This is for your information please.

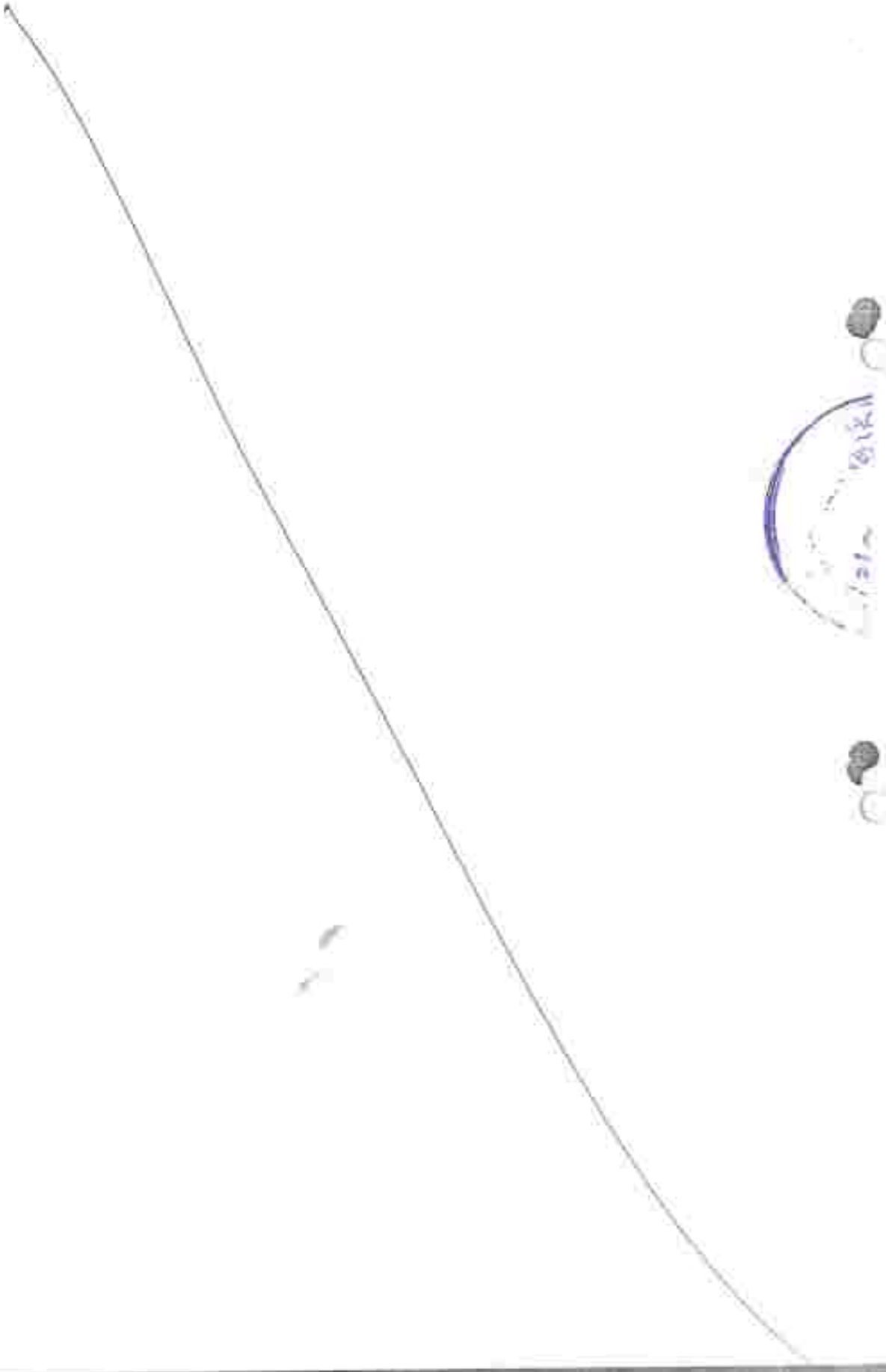
Vijay B. Awarc)
Executive Engineer (Nodal)
EHV Projects Div. Kalyan.

Copy S.W.R.To :

1. The Superintending Engineer, EHV Projects Circle, Kalwa.

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Forester - sanctioned upto - vide GR. No. F.D.L.2003/P.K.169/F-2 dated:10/11/2005
Forest Guard - sanctioned upto - vide GR. No. F.D.L.2003/P.K.169/F-2 dated:10/11/2005



# वनक्षेत्रपाल पडघा याच कार्यालय

निलांई हॉस्पिटलचे समोर, पडघा भिवंडी रोड दूरध्वनी क्रमांक - ०२५२२-२०२०४५

पत्र

विषय :- २२० के. व्ही. पडघा- वाडा ट्रान्समिशन लाईन मौजे दिघाशी व मौजे कुंदा येथील संरक्षीत वनामध्ये अनधिकृतपणे केलेले टॉवरचे बांधकामाबाबत.

जा.क्र.कक्ष -२/जमीन / वृक्ष / ६१६ सन २०२०-२१
पडघा - ४२१ १०१ दिनांक २३.१२.२०२१

प्रति,

मा. कार्यकारी अभियंता,
२२० के. व्ही. अतिउच्च दाब विभाग,
कल्याण

उपरोक्त विषयांकित प्रकरणी पडघा वनपरिक्षेत्राअंतर्गत मौजे दिघाशी संरक्षीत वन स.क्र. २२१ क्षेत्रामध्ये टॉवर क्रमांक ४८ व मौजे कुंदा संरक्षीत वन स.क्र. ५४ क्षेत्रामध्ये टॉवर क्रमांक ३७ चे काम वनविभागाची कुठल्याही प्रकारची पूर्व परवानगी न घेता सन २०१९-२० मध्ये बांधकाम करुन मनोरे उभारले आहेत. सदरील क्षेत्रामध्ये पूर्व परवानगी न घेता बांधकाम केल्याने आपणाकडून भारतीय वन अधिनियम १९२७ कलम ३२, ३३ व वनसंवर्धन अधिनियम १९८० चे कलम २ अंतर्गत वनगुन्हा घडलेला असल्याचे निदर्शनास आलेला असून सदरील बांधकाम ज्या अधिकारी/ कर्मचारी यांच्या कालावधीमध्ये करणेत आलेला आहे त्यांना प्रत्यक्षात या कार्यालयास जबाब नोंदविणेकामी **दिनांक ०२.०३.२०२१ रोजी ठिक सकाळी ११.३० वाजता** वनपरिक्षेत्र कार्यालयात उपस्थित रहाणेबाबत सूचित करावे. जबाबानंतर पुढील कारवाई करणेत येईल याची नोंद घ्यावी.

(संजय सारवणे)
वनपरिक्षेत्र अधिकारी
पडघा (सं.)

[ Logo ]

# Office of the Forest Range Officer, Padgha

Opposite Nijaai Hospital, Padgha Bhiwandi Road, Telephone No. 02522-202045.

---

Letter

**Subject :** **220 KV Padgha-Wada Transmission Line**
Regarding unauthorized construction of towers caused in the Protected Forest area in the village of Mouje Dighashi and Mauje Kunda

O. No. : Kaksha -1/Jamin/Vruksha/716 Year 2020-21,
Padgha - 421 101 Date - 23.02.2021.

To,
Hon'ble Executive Engineer,
220 kV, Extra High Voltage Department,
Kalyan.

With reference to the caption, construction of Tower No. 37 in Protected Forest area S. No. 211 in the Padgha Forest Range in village of Mauje Dighashi and Tower No. 38 in Protected Forest area S. No. 54 in village of Mauje Kunda caused without obtaining any prior permission from the Forest Department in the year 2019 - 20 and towers are erected. It has been observed that as the construction has been carried out in the said area without obtaining any prior permission, an offence has been committed by you under Section 32, 33 of the Indian Forest Act, 1927 and Section 2 of the Forest Conservation Act, 1980, the concerned officers/employees under whose tenure the said construction has been caused are hereby informed to remain present in person at 11.30 am. on 02.03.2021 at the Forest Range Office for recording their statement. After recording statements, further action will be taken, note of which may be taken.

Sd/-

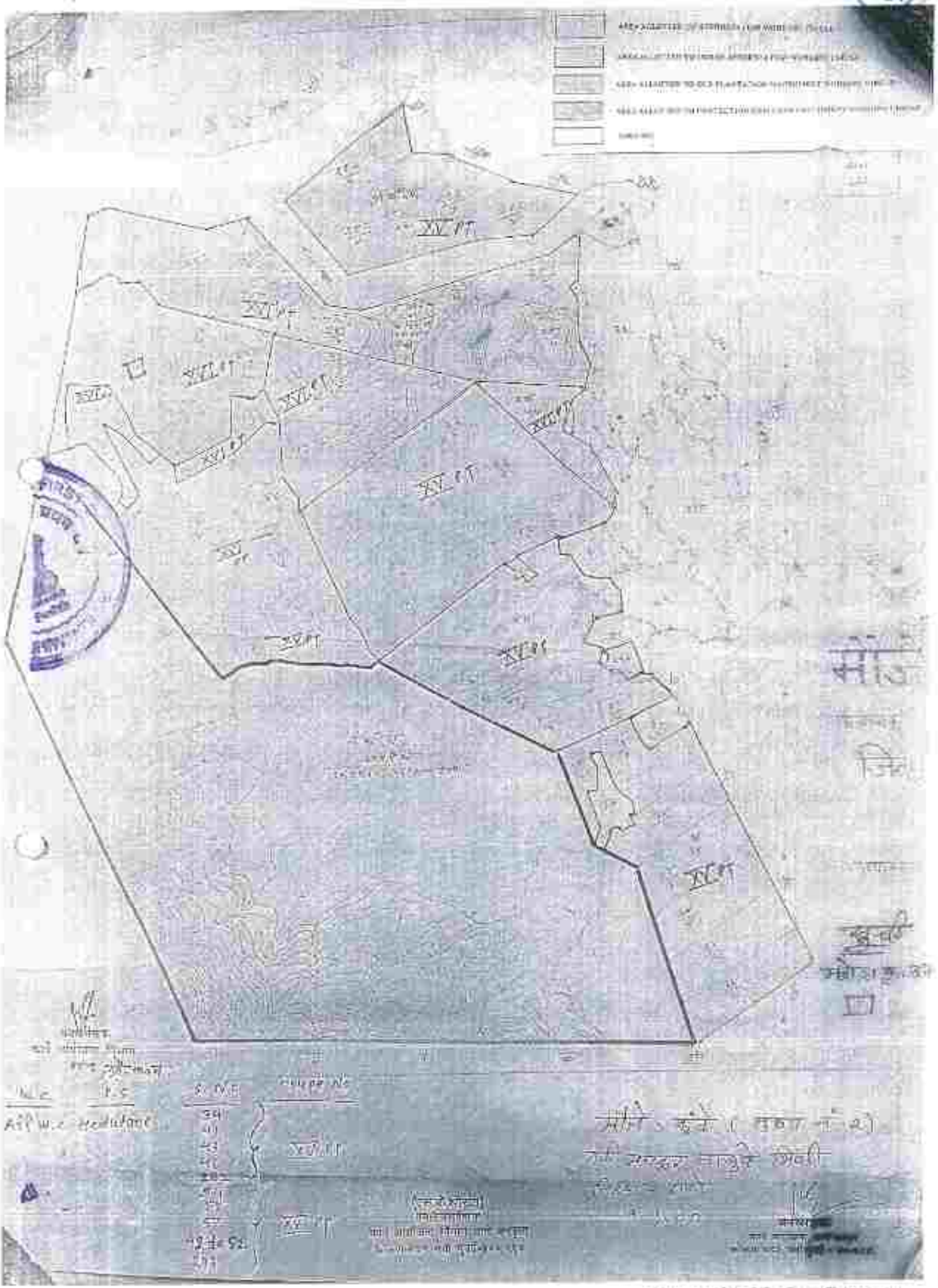
(Sanjay Dharwane)
**Forest Range Officer**
Padgha (S)

Sd/-

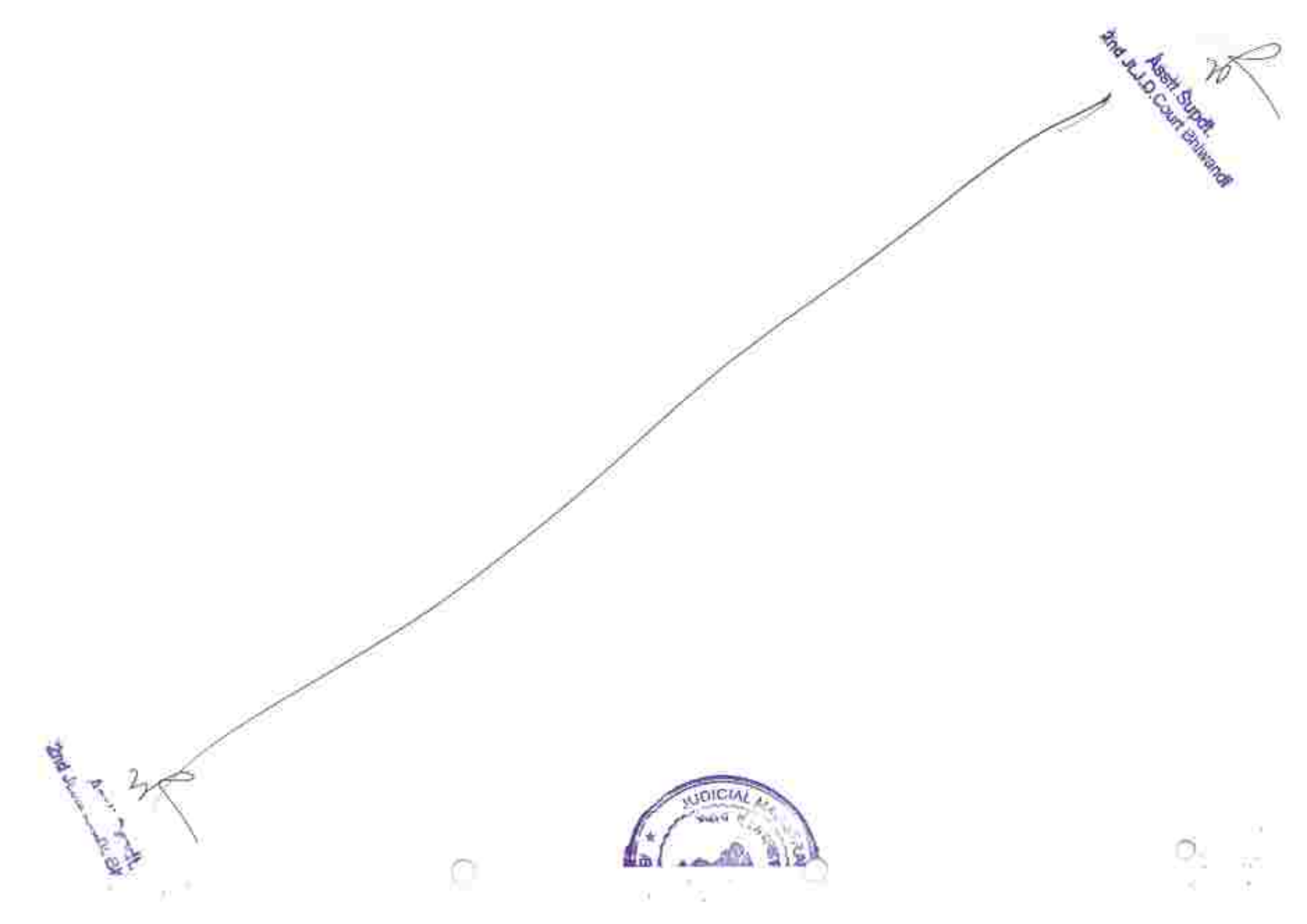
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| **Translated by**<br>**Mr. Rajesh Sidram Dasa**<br>**A Panel Translator of Govt. of Maharashtra**<br>Appointed at Sr. No. 6 of the Panel constituted by the Government of Maharashtra vide a GR No. Namuka-2019/Pra.Kra.29/Bhasha-2 Dated 22nd March, 2021.<br>Language Pair – Marathi ⇄ English | **TRUE TRANSLATION**<br><br>_____<br>**MR. RAJESH SIDRAM DASA**<br>**R/at : Flat No. 501, Paramount Gardens, Katraj-Kondhwa Road, Gokulnagar, Katraj, Pune – 411046.**<br>**Mobile No. : 9850914652 Email : rajeshdasa.08@gmail.com** |

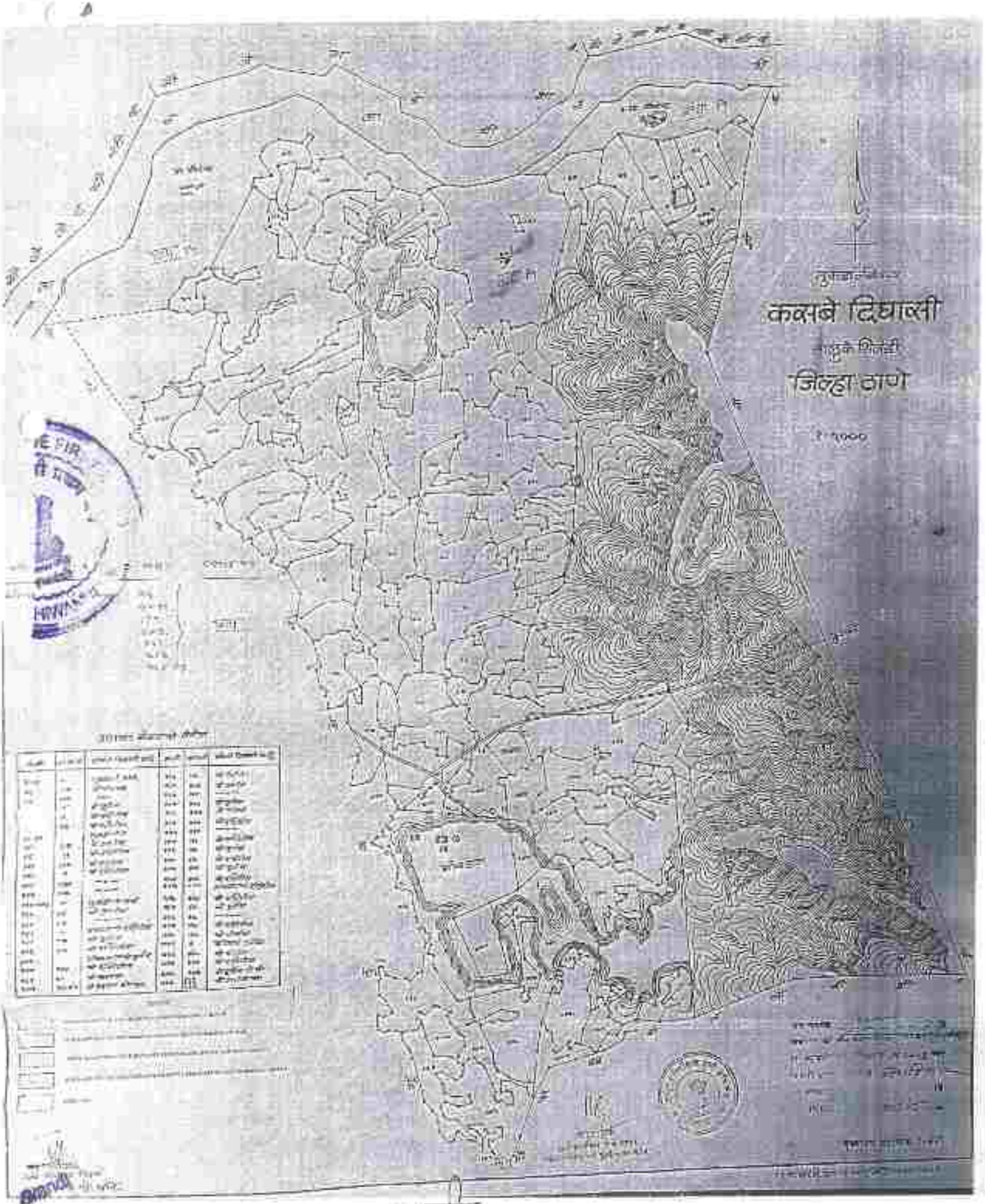
Asstt.Supdt.
2nd JMJ.D.Court Bhiwandi

Asstt.
2nd JMJ.D.



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Asstt. Supdt.
2nd J.J.D. Court Bhiwandi




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Asstt Supdt.
2nd Jt. J.D. Court Bhiwani

JUDICIAL MAGISTRATE
1st Class

Asstt. Supdt.
2nd Judicial Magistrate

# वनक्षेत्रपाल पडघा यांचे कार्यालय

निनाई हॉस्पिटलचे समोर, पडघा भिवंडी रोड दूरध्वनी क्रमांक - 02522-202045

## प्रमाणपत्र

वनपरिक्षेत्र कार्यालय, पडघा यांचेकडून प्रमाणपत्र देण्यात येते की, Diversion of 14.10 ha Forest land for Construction and laying of 220 KV LILO M/C Transmission Line on 220 KV Padgha - Wada & Kolshet-Wada Tr. Line for 400KV Kudus Sub Station passing through Thane District प्रस्तावांतर्गत 14.10 हे आर वनजमिन मिळणेकरिता Maharashtra State Electricity Transmission Company Limited मार्फत वन (संवर्धन) अधिनियम 1980 चे कलम 2 नुसार मागणी करण्यात आलेल्या तरी सदर प्रकल्प संज्ञेने मागणी केलेल्या वनजमिनीची स्थळ पाहणी करुन मागणी क्षेत्र बरोबर असल्याची खात्री केली आहे. तसेच प्रस्ताव अंतर्गत झाडांची मोजणी व छापणीचे कामे करुन त्याप्रमाणे यादी तयार करण्यात आलेली आहे. तरी सदर प्रकल्प संज्ञेने वन (संवर्धन) अधिनियम 1980 चे कलम 2 चे उल्लंघन अनावधानाने झाले असल्याचे त्यांनी जबाबामध्ये सांगितले आहे, असे खात्री करुन प्रमाणपत्र सादर करण्यात येत आहे.

(संजय धारवणे)
वनपरिक्षेत्र अधिकारी
पडघा (सं.)

[ Logo ]

## Office of the Forest Range Officer, Padgha

Opponite Nijaai Hospital, Padgha Bhiwandi Road, Telephone No. 02522-202045.

---

# Certificate

This certificate is being issued from the Forest Range Office, Padgha that, under the proposal of Diversion of 14.10 ha forest land for construction and laying of 220 KV LILO M/C transmission Line on 220 KV Padgha – Wada and Kolshet-Wada Tr. Line for 400Kv Kudus Sub Station passing through Thane District, the Maharashtra State Electricity Transmission Company Limited sought the forest land admeasuring about 14.10 Hec. Ares under Section 2 of the Forest (Conservation) Act, 1980. Thus, the forest land as sought by the said project authority was inspection and confirmed that the area sought is correct. Further, tree counting and cutting work under the proposal is done and list had been prepared. Therefore, as the project authority has stated in their statement that the violation of Section 2 of the Forest (Conservation) Act, 1980 caused as such, was caused inadvertently. After confirming the same, this certificate is being issued.

Sd/-

(Sanjay Dharwane)
**Forest Range Officer**
Padgha (S)

| | |
|---|---|
| **Translated by**<br>**Mr. Rajesh Sidram Dasa**<br>**A Panel Translator of Govt. of Maharashtra**<br>Appointed at Sr. No. 6 of the Panel constituted by the Government of Maharashtra vide a GR No. Namuka-2019/Pra.Kra.29/Bhasha-2 Dated 22nd March, 2021.<br>Language Pair – Marathi ⇄ English | **TRUE TRANSLATION**<br><br>_____<br>**MR. RAJESH SIDRAM DASA**<br>**R/at : Flat No. 501, Paramount Gardens, Katraj-Kondhwa Road, Gokulnagar, Katraj, Pune – 411046.**<br>**Mobile No. : 9850914652 Email : rajeshdasa.08@gmail.com** |

Asstt Supdt.
2nd J.J.D. Court Bhiwandi

JUDICIAL

Asstt Supdt.
2nd J.J.D. Court Bhiwandi

(२९७)

दूरध्वनी क्र. 022-25421373
ईमेल- acfmandvi@gmail.com

महाराष्ट्र शासन
वन विभाग
सहा. वनसंरक्षक भिवंडी (मुख्यालय-ठाणे) यांचे कार्यालय
मॅरेथॉन सर्कल, लाल बहादूर शास्त्री मार्ग, तीनपाडा, ठाणे-400 602

जा.क्र. अ/उपनिअ/सांडबी/ ४९८ /वन 2024-25 दिनांक- १० मार्च, 2025

प्रति,

Executive Engineer
EHV Project Division, Kalyan

विषय : Diversion of 12.0225 Ha. Forest Land in favouor EHV Project Division, Kalyan for Construction and laying of 220 KV Lilo M/C Transmission Line on 220 KV Padghe Wada & Kolshet Wada Tr. Line for 400 KV Kudus Sub station passing throuogh Village Eksal, Chinchvali, Kunde & Dighashi Tal. Bhiwandi Dist. Thane in the state of Maharashtra.

संदर्भ : उप वनसंरक्षक, ठाणे यांचेकडील पत्र क्र. 25/ब/मोजणी/एफसीए/ 5559 दि. 21/02/2025

उपरोक्त विषयांकित प्रकरणी संदर्भीय पत्रात नमूद केल्याप्रमाणे वन संवर्धन अधिनियम 1980 अंतर्गत Diversion of 12.0225 Ha. Forest Land in favouor EHV Project Division, Kalyan for Construction and laying of 220 KV Lilo M/C Transmission Line on 220 KV Padghe Wada & Kolshet Wada Tr. Line for 400 KV Kudus Sub station passing throuogh Village Eksal, Chinchvali, Kunde & Dighashi Tal. Bhiwandi Dist. Thane in the state of Maharashtra वनजमीन मागणी प्रस्तावाबाबत केंद्र शासनाने वन (संरक्षण एवम संवर्धन) अधिनियम 1980 अंतर्गत 3A व 3B निर्देशानुसार कार्यवाही करण्याबाबत कळविणेत आले आहे.

प्रस्तुत प्रकरणी सदर कामाचे निविदा, तांत्रिक व प्रशासकीय मंजूरी, कार्यारंभ आदेश, करारनामा व टॉवर क्र. 37 व 38 चे काम सुरू केल्याचा कालावधी, टॉवर उभारल्याचा कालावधी व टॉवरचे कामावर संनियंत्रण ठेवणारे अधिकारी यांची नावे व पद तसेच वनक्षेत्रात काम करण्यापूर्वी घेण्यात आलेल्या उपाययोजनांबाबत अनुषंगिक कागदपत्रांच्या साक्षांकित प्रती प्रथम प्राधान्याने या कार्यालयास सादर कराव्यात.

(अमोल चिरमे)
सहा. वनसंरक्षक, भिवंडी
(मुख्यालय - ठाणे)

[ Logo ] [ Govt. Emblem ]

Phone No. : 022-25421373
Email : acfmandvi@gmail.com

**Government of Maharashtra**
**Forest Department**

**Office of Asst. Conservator of Forest, Bhiwandi (Headquarter– Thane)**
Marathon Circle, Lal Bahadur Shastri Marg, Naupada, Thane – 400 602.

O.No. A/UpaViVaA/Mandvi/499/San 2024 - 25 Date – 10th March, 2025

To,
Executive Engineer
EHV Project Division, Kalyan

**Subject :** Diversion of 12.0255 Ha. Forest Land in favouor EHV project Division, Kalyan for construction and laying of 220 KV Lilo M/C Transmission Line on 220 KV Padgha Wada and Kolshet Wada Tr. Line for 400 KV Kudus Substation passing through village Eksal, Chinnchvali, Kunde and Dighashi Tal. Bhiwandi Dist. Thane in the State of Maharashtra.

**Reference :** Letter bearing No. 25/B/Mojani/FCA/5559 Dt. 21/02/2025 issued by the Deputy Conservator of Forest, Thane.

As mentioned in the referred letter with reference to the case mentioned hereinabove, it has been informed by the Central Government that action shall be taken as directed under Section 3A and 3B of the Forest (Protection and Conservation) Act, 1980 in respect of the proposal for demand of forest land made under Forest Conservator Act, 1980, vide Diversion of 12.0255 Ha. Forest Land in favouor EHV project Division, Kalyan for construction and laying of 220 KV Lilo M/C Transmission Line on 220 KV Padgha Wada and Kolshet Wada Tr. Line for 400 KV Kudus Substation passing through village Eksal, Chinnchvali, Kunde and Dighashi Tal. Bhiwandi Dist. Thane in the State of Maharashtra.

In the present case, attested copies of the papers pertaining to the tender for said work, technical and administrative approvals, work commencement orders, agreement and the period of commencement of work on Tower No. 37 and 38, the period of erection of the Tower and the name and posts of the officers supervising the work of the tower as well as the measurements taken before conducting work in the forest area alongwith supporting documents and all relevant documents be submitted to this office with first priority.

Sd/-
(Amol Chirame)
Assistant Conservator of Forests
(Headquarter – Thane)

| | |
|---|---|
| **Translated by**<br>**Mr. Rajesh Sidram Dasa**<br>A Panel Translator of Govt. of Maharashtra<br>Appointed at Sr. No. 6 of the Panel constituted by the Government of Maharashtra vide a GR No. Namuka-2019/Pra.Kra.29/Bhasha-2 Dated 22nd March, 2021.<br>Language Pair – Marathi ⇄ English | **TRUE TRANSLATION**<br><br>_____<br>**MR. RAJESH SIDRAM DASA**<br>R/at : Flat No. 501, Paramount Gardens, Katraj-Kondhwa Road, Gokulnagar, Katraj, Pune – 411046.<br>Mobile No. : 9850914652 Email : rajeshdasa.08@gmail.com |

महापारेषण

CIN NO.U40109MH2005GOI153646

महाराष्ट्र राज्य विद्युतपारेषणकंपनीमर्यादित

प्रेषक,
कार्यकारीअभियंता यांचेकार्यालय,
अ.उ.दा.प्रकल्प विभाग, कल्याण, तेजश्री इमारत, २ रामजला,
जहांगीर मैदान, कर्णिक रोड, म.रा.वि.पा.कं.मर्यादित,कल्याण (प) जि.ठाणे.,
पिनकोड नं. ४२१ ३०१,
ई मेल-ee7620mahatransco.in

जा.क्र. का.अ./अउदाप्र.वि/कल्याण/तांत्रिक/ 0 1 3 5 2 दिनांक :- 26 MAR 2025

प्रति,
सहा.वनरक्षक भिवंडी
मुख्यालय ठाणे कार्यालय
मॅरेथोन सर्कल,लालबहादूर शास्त्री मार्ग
नौपाडा ठाणे,४००६०२.

उप-विभागीय वन अधिकारी कार्यालय
मांडवी, ठाणे.
आवक क्रमांक
दिनांक 27/3/2025
शाखा

**विषय** :--Division of 12.0225 ha.Forest Land in favour EHV Project Division Kalyan for construction and laying of 220 KV M/C Transmission Line on 220 KV Padghe Wada & Kolshet Wada Tr. Line for 400 KV kudus sub station passing through village Eksal, Chinnchvali, Kunde & Dighashi tal. Bhiwandi Dist Thane in the state of Maharashtra

**संदर्भ** :-१उपवनसंरक्षक,ठाणे यांचेकडील पत्र क्र.२५/ब/मोजणी/एफसीए/5559 दि.२१/०२/२०२५
२ जा.क्र.अ./उपविवअ/मांडणी/४९९ /सन २०२४-२५ दि.१०मार्च,२०२५
३ जा.क्र. का.अ./अउदाप्र.वि/कल्याण/तांत्रिक/१३२८ दिनांक : -२५.०३.२०२५

वरील संदर्भीय पत्र क्र. ३ नुसार, आपणास असे कळविण्यात येते की टॉवर क्र.३७ व ३८ च्या पायाभरणी व उभारणीचे काम हे मे. BNC Power Project Ltd, 303, तीसरा मजला, मंत्री अल्पाईन,क्रिस्टल होंडा शोरूम च्या मागील बाजूस, बावधन, पुणे, ४११ ०२१ या कंत्राटदार कंपनीच्या साईट सुपरवायझर श्री. अनिल सकपाळ यांच्या देखरेखीखाली करण्यात आले आहे.

पुढील कार्यवाहीसाठी सादर.

(अजय दा.आठवले)
कार्यकारी अभियंता,
म.रा.वि.पा.कं.मर्या.,
अ.उ.दा.प्रकल्प विभाग, कल्याण

प्रत सविनय सादर:
अधीक्षक अभियंता अ.उ.दा.प्रकल्प मंडळ कळवा.
प्रत सादर
अतिरिक्त कार्यकारी अभियंता स व अ, उपविभाग कल्याण.

[Logo] [Logo] [Logo]

**Mahapareshan**

CIN NO. U40109MH2005GCI153646

Maharashtra State Electricity Transmission Company Limited

**From,**
**Office of the Executive Engineer**
A.U.D Project Department, Kalyan, Tejashree Building, 2nd Floor,
Jahangir Maidan, Karnik Road, M.R.V.P. Co. Limited, Kalyan (P) Dist. Thane,
Pin Code No. 421 301,
Email- ee7620mahatransco.in

O. No. Ka.A./AUDaPra./Kalyan/Tantrik/ 01352 Date :- 26 MAR 2025

**To,**
Assistant Conservator of Forest Bhiwandi
Headquarter Thane Office,
Marathon Circle, Lal Bahadur Shastri Marg/Road
Naupada Thane, 400602.

Sub-Divisional Forest Offices Office,
Mandvi, Thane
Inward Number
Date 28/3/2025
Branch

**Subject :** - Diversion of 12.0255 Ha. Forest Land in favour of EHV project Division, Kalyan for construction and laying of 220 KV Lilo M/C Transmission Line on 220 KV Padgha Wada and Kolshet Wada Tr. Line for 400 KV Kudus Substation passing through village Eksal, Chinnchvali, Kunde and Dighashi Tal. Bhiwandi Dist. Thane in the state of Maharashtra.

**Reference :** -

1. Letter of Deputy Conservator of Forests, Thane bearing O. No. 25/B/Mojani/FCA/5559 Dt. 21/02/2025
2. O. No. Aa./UpaViVaAa/Mandani/499/Year 2024 - 25 Dt. 10th March, 2025
3. O. No. Ka.Aa./AaUDaPra.Vi./Kalyan/Tantrik/ 1328 Date : 25.03.2025

As per the letter referred at Sr. No. 3 hereinabove, it is hereby informed to you that, the foundation and erection work of Tower No. 37 and 38 was carried out under the supervision of Site Supervisor Mr. Anil Sakpal of the Contractor Company viz. M/s. BNC Power Project Ltd, 503, 3rd floor, Matri Alpine, Behind Crystal Honda Showroom, Bhavdhan, Pune – 411 021.
Submitted for further action.

Sd/-
**(Ajay V. Athawale)**
Executive Engineer
M. S. E. T. Co. Ltd.
E.H.V. Project Division, Kalyan

Copy humbly submitted to : -
Superintendent Engineer E.H.V. Project Circle Kalva.
Copy submitted to :-
Additional Executive Engineer S & I. Sub-Division Kalyan.

**Translated by**
**Mr. Rajesh Sidram Dasa**
**A Panel Translator of Govt. of Maharashtra**
Appointed at Sr. No. 6 of the Panel constituted by the Government of Maharashtra vide a GR No. Namika-2019/Pra.Kra.29/Bhasha-2 Dated 22nd March, 2021.
Language Pair – Marathi ⇄ English

**TRUE TRANSLATION**

**MR. RAJESH SIDRAM DASA**
**R/at : Flat No. 501, Paramount Gardens, Katraj-Kondhwa Road, Gokulnagar, Katraj, Pune – 411046.**
**Mobile No. : 9850914652 Email : rajeshdasa.08@gmail.com**

Project Name: Diversion of 12.0225 ha. forest land for construction & laying of 220 KV LILO M/C transmission line on 220 KVPadghe-Wada &Kolshet-Wada tr. line for 400 KVKudus substation passing through Thane District.

VIOLATION REPORT

| Sr. No. | Object | Particulars |
|---|---|---|
| 1 | Name of Agency | Maharashtra State Electricity Transmission Company Limited. |
| 2 | Name of Project | Diversion of 12.0225 ha. forest land for construction & laying of 220 KV LILO M/C transmission line on 220 KVPadghe-Wada &Kolshet-Wada tr. line for 400 KVKudus substation passing through Thane District. |
| 2a | Whether the project is under EGS or Plan | No. |
| 3 | Location/Compt No. | Shown in Area Statement attached separately. |
| | a) Village<br>b) Taluka<br>c) District | Eaksal, Chinchavali, Kunde & Dighashi.<br>Bhivandi.<br>Thane. |
| 4 | No and date of Technical Sanction | MBR NO. 112/26 DT. 17.11.2016. |
| 5 | No and date of Administrative approval | MBR NO. 112/26 DT. 17.11.2016. |
| 6 | Period of work on Forest land | 2018-2019 |
| | a) Date of starting work | Loc.No. 37 – 21-04-2018<br>Loc No. 38 – 05-04-2018 |
| | b) Date of Stopping Work | Loc.No. 37 – 11-5-2018<br>Loc No. 38 – 27-04-2018 |

7.

| Sr. No. | Item | Location | Forest Land involved in item | Extent on violation of Forest Land | Amount Sanction on the item started | Amount on violation on item No. 2 | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | 220 KV LILO M/C transmission line on 220 KVPadghe-Wada &Kolshet-Wada tr. line for 400 KVKudus S/S. | Loc. No. 37 | 12.0225 Ha. | 0.015876 Ha. | 4487598.62 | 4487598.62 | |
| | | Loc No. 38 | | 0.0256 ha. | 5599981.82 | 5599981.82 | |
| | Total | | 12.0225 ha. | 0.041476 Ha. | 10087580.4 | 10087580.4 | |

8.

| Sr.No. | Name of Work | Quantity | Expenditure | Period of work done |
|---|---|---|---|---|
| 1 | Diversion of 12.0225 ha. forest land for construction & laying of 220 KV LILO M/C transmission line on 220 KVPadghe-Wada &Kolshet-Wada tr. line for 400 KVKudus substation passing through Thane District. | Total 2 No. of Towers erected in forest area | 10087580.4 | 2018-2019 |

9. Name of Officers responsible for violation.

| Name of the Officer | Designation | Period of violation |
|---|---|---|
| Shri. T.P. Warule | Addl. Executive Engineer | 2018-2019 |

10. Whether the violation case fit in the criteria in G.R. No. Revenue and Forest Department No FLD/1089/GR/475 Part2/F-10 dated 21/09/1991.

a) If yes in which para – No.

11. If not Why :- As the case is of transmission line proposal

12. Action propose by the agency against the officer responsible for violation.

| Name of the Officer | Designation | Action Taken |
|---|---|---|
| Shri. T.P. Warule | Addl. Executive Engineer | Transferred to HVDC Padghe Substation |

It is certified that the information in forgoing paras is verified by me and bound to be correct.

Place: Thane
Date: / /2021.

(VIJAY AWARE)
Executive Engineer
EHV Project Division, Kalyan.

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Projects Dn. Kalyan

13. **Remarks of Deputy Conservator of Forests**

After verification of the documents submitted by the user agency for the proposed project, it has been noticed that, the violation is done at the Construction and laying of 220 KV LILO M/C/ Transmission Line on 220 KV Padghe Wada & Kolshet Wada Tr.line for 400 KV Kudus Sub Station passing through Thane District. The violation was done, the project authority is ready to compensate in terms of Penal Compensatory Afforestation, Penal Net Present Value (Calculated as per Eco Class I) as directed by Government of India.

**Place : Thane**

**Date : 15/07/2022**

**Deputy Conservator of Forests**
**Thane Forest Division**
**Thane**

Deputy Conservator of Forests
Thane Forest Division, Thane

14. Remarks of Chief Conservator of Forests

**Chief Conservator of Forests**
**Thane Forest Division**
**Thane**

15. Remarks of the Principal Chief Conservator of Forests

**Principal Conservator of Forests**
**Maharashtra State**
**Nagpur**

# Violation Note

## DETAILS & NECESSITY OF PROJECT ALONGWITH BENEFITS.

MSETCL, Government of Maharashtra undertaking company has proposed to take up the work of construction of 220 KV Padghe-Wada & Kolshet-Wada transmission line Thane District, Maharashtra State vide MBR NO. 112/26 DT. 17.11.2016. The proposal requires diversion of 12.0225 Ha forest area in Eaksal, Chinchavali, Kunde & Dighashi Village under Section-2 of the forest (Conservation) Act 1980. Therefore for laying of transmission line forest clearance from Ministry of Environment, Forest & Climate Change (GOI) is required.

## BENEFITS OF PROJECT .

1. Strong & reliable source of 400 KV source will be made available for Mumbai & Suburban areas.
2. Strengthening of Power supply to commercial capital of India by providing continuous and reliable power supply.
3. It helps to meets the concept of zero load shedding of Maharashtra.
4. 24X 7 availability of Power Supply/ Electricity.
5. Provision of continuous power supply to all industries and farmers hence enhancing the GDP of Maharashtra.
6. It provides stability to voltage of Mumbai regions.

While doing execution the violation has been done at two locations i.e. loc. no. 37 having area 0.015876 Ha. Survey No. 54 Part, Village- Kunde & loc. no. 38 having area 0.0256 Ha. Survey No. 211/4A, Village- Dighashi, the total hector of violation is 0.041476 Ha. The violation was done in the year 2018-2019.

As vegetation was there on the fields/locations & there were no trees involved in the area. The violation has been done unknowingly & not with any other intention or purpose. In this mater we have taken action against **Mr. T.P. Warule** Addl. Executive Engineer, Lines Project sub-division Kalyan and transferred him to HVDC Padghe substation.

In this regards we agree for any penal action against violation by forest authority.

(VIJAY L. AWARE)
Executive Engineer
EHV Project Division
Kalyan.

Place: Kalyan.
Date: / /2022.

Tel No. 022 25421373
25434349
Email - dcfthane@gmail.com
dycftthane@mahaforest.gov.in

Government of Maharashtra
Forest Department

## Deputy Conservator of Forests, Thane Office

Marethon Circle, Lal Bahadur Shastri marg, Naupada Thae - 400 602

**Name of Project - Diversion of 12.0225 Ha Forest Land for Construction and laying of 220 KV LILO M/C/ Transmission Line on 220 KV Padghe Wada & Kolshet Wada Tr.line for 400 KV Kudus Sub Station passing through Thane District.**

**Calculation of Penalty Charges against violation done in the 220 KV LILO M/C/ Transmission Line on 220 KV Padghe Wada & Kolshet Wada Tr.line for 400 KV Kudus Sub Station.**

Construction of 2 Nos. of Towers erected on forest land at village Kunde and Dighashi Tal Bhiwandi & Dist. Thane.

### Details of Violation Area

| S.No. | Item of Work | Year | Area involved (Ha.) |
|---|---|---|---|
| 1. | Construction of Tower at Loc No. 37 | 2018-19 | 0.015876 |
| 2. | Construction of Tower at Loc No. 38 | 2018-19 | 0.0256 |
| Total | | | 0.041476 |

### Calculation Chart

| S. No. | Item of Work | Year | Area (Ha.) | Rate | Amount |
|---|---|---|---|---|---|
| 1 | Construction of Towers | 2018-19 | 0.041476 | 20 % of 5 times NPV as proposal is public utility @ 1116900 /- | 46324.55 /- |

| | | | | | |
|---|---|---|---|---|---|
| | | | | 12 % Simple interest Rate on penalty amount * 3 year (12*46324.55*3/100) | 16676.83 /- |
| | | **Total** | | | **63001.38 /-** |
| | | **Say Amount** | | | **63001.00 /-** |

It is also certified that the amount of Rs. 63001.00 /- (Sixty Three Thousand and One Rupees Only) is recommended for Penalty against violation done as per the guidelines under FCA, 1980 and MoEF & CC's letter No. F.No.11/42/2017/FCA Dated - 29/07/2018 and as per FCA Handbook Para No. 1.21(ii) a, b.

(Santosh Saste)
**Deputy Conservator of Forests**
**Thane Forest Division Thane**

# 220 KV Padghe-Wada & Kolshet-Wada tr.line - 12.0225 Ha.

## Penalty charges for Violation

| Year | Area (Ha.) | NPV rate /Ha | Penal amount |
|---|---|---|---|
| 2018-19 | 0.041476 | 1116900 | 46324.54 |
| 2019-20 | 0.041476 | 12% intrest | 5558.95 |
| 2020-21 | 0.041476 | 12% intrest | 5558.95 |
| 2021-22 | 0.041476 | 12% intrest | 5558.95 |
| **Grand Total** | | | **63001.38** |

Penal Amount for violation = 46324.54*12*1/100 5558.945328

महापारेषण

CIN NO.U40109MH2005GCI53646

महाराष्ट्र राज्य विद्युतपरेषणकंपनीमर्यादित

प्रेषक,
कार्यकारीअभियंता यांचेकार्यालय,
अ.उ.दा.प्रकल्प विभाग, कल्याण, तेजश्री इमारत, २ रामजला,
जहांगीर मैदान, कर्णिक रोड, म.रा.वि.पा.कं.मर्यादित,कल्याण (प) जि.ठाणे.,
पिनकोड नं. ४२१ ३०१,
ई मेल-ee7620mahatransco.in

जा.क्र. का.अ./अउदाप्र.वि/कल्याण/तांत्रिक/ 0 1 3 2 8 दिनांक :- 25 MAR 2025

प्रति,

सहा.वनरक्षक भिवंडी
मुख्यालय ठाणे कार्यालय
मॅरेथोन सर्कल,लालबहादूर शासी मार्ग
नौपाडा ठाणे,४००६०२.

उप-विभागीय वन अधिकारी कार्यालय
भांडवी, ठाणे
आवक क्रमांक
दिनांक 24/3/2025
शाखा

**विषय** :--Division of 12.0225 ha.Forest Land in favour EHV Project Division Kalyan for construction and laying of 220 KV M/C Transmission Line on 220 KV Padghe Wada & Kolshet Wada Tr. Line for 400 KV kudus sub station passing through village Eksal,chinnchvali, kunde & Dighashi tal. Bhiwandi Dist Thane in the state of Maharashtra

**संदर्भ** :-१उपवनसंरक्षक,ठाणे यांचेकडील पत्र क्र.२५/ब/मोजणी/एफसीए/5559 दि.२१/०२/२०२५
२ जा.क्र.अ./उपविवअ/मांडणी/४९९ /सन २०२४-२५ दि.१०मार्च,२०२५

वरील नमूद केलेल्या विषय व संदर्भानुसार सदर विषयांकीत प्रकरणाकरिता आपल्या कार्यालयाने कागदपत्र सादर करण्यास सांगितले आहे. तरि आपल्या निर्देशानुसार सदर कागदपत्र खालीलप्रमाणे सादर करत आहे

१. निविदा: निविदा व करारनामा सोबत जोडण्यात आलेले आहे.

२. तांत्रिक व प्रशासकीय मंजुरी :

i)Letter of award for supply of material सोबत जोडण्यात आलेले आहे.

ii)Letter of award for erection + civil portion जोडण्यात आलेले आहे.

iii)Purchase order/work order copy for supply of material सोबत जोडण्यात आलेले आहे.

iv)Purchase order/work order copy for erection+civil portion सोबत जोडण्यात आलेले आहे.

v)Site handing over letter सोबत जोडण्यात आलेले आहे

३. टॉवर क्रमांक ३७ व ३८ चे काम सुरु केल्याचा कालावधी : टॉवर क्र.३७ चे foundation casting 11.5.2018 रोजी व टॉवर क्र.३८ चे foundation casting चे काम २७.४.२०१८ रोजी पूर्ण झालेले आहे.

४. टॉवर उभारण्याचा कालावधी: टॉवर क्र.३७ च्या erection चे काम ३.११.२०१९ रोजी व टॉवर क्र.३८ च्या erection चे काम २०.१.२०२० रोजी पूर्ण झाले

५अ) टॉवरचे कामावर सनियंत्रण ठेवणारे अधिकारी : दिनांक २७.०४.२०१८ ते २४.०२.२०२१ या कालावधी मध्ये टॉवर क्र.३७ व ३८ च्या कंस्ट्रक्शनसाठी काम करणारे नियंत्रण अधिकारी खालीलप्रमाणे.

I) श्री तुषार वारुळे अति. कार्यकारी अभियंता अ.उ.दा.प्रकल्प उपविभाग कल्याण, कालावधी.१३.०६.२०१७ ते ११.०७.२०१८

II) श्री.भारत चौगूले, अतिरिक्त कार्यकारी अभियंता स्पेशल टिम उपविभाग कल्याण, कालावधी.२८.०२.२०१८ ते २४.०२.२०२१

५ब) टॉवरचे कामावर नियंत्रण ठेवणारे अधिकारी : दिनांक २७.०४.२०१८ ते २४.०२.२०२१ या कालावधी मध्ये टॉवर क्र.३७ व ३८ च्या कंस्ट्रक्शनसाठी काम करणारे सनियंत्रण अधिकारी खालीलप्रमाणे.

I) श्री अप्पासाहेब देवबा रूपटक्के कार्यकारी अभियंता,अ.उ.दा.प्रकल्प विभाग कल्याण, कालावधी. २७.०४.२०१८ ते ०२.०५.२०१८.

II) श्री.विजय आवारे, कार्यकारी अभियंता,अ.उ.दा.प्रकल्प विभाग कल्याण, कालावधी. २८.०५.२०१८ ते २४.०२.२०२१.

६.वनक्षेत्रात काम करण्यापूर्वी घेण्यात आलेल्या उपाययोजना बाबत अनुषंगिक कागदपत्राच्या साक्षांकित प्रति.

i) प्रस्तावित टॉवर उभारणीच्या कामाकरिता वनविभागाकडे अधिकृत प्रस्ताव सादर करावा लागतो.त्याप्रमाणे सदरच्या कामाचा वनप्रस्ताव हा परिवेश पोर्टलवरही FP/MP/TRANS/30/80/2017 या ID द्वारे १/११/२०१७ रोजी upload करण्यात आला व त्या क्रमाणे सदरच्या वनप्रस्तावाची कागदपत्र hardcopyमध्ये जमा करण्यात आली व त्या संदर्भातील कागदपत्र जोडलेली आहेत

ii) वनविभागाचा अधिकार्यांबारोबर केलेल्याचा स्थळ पाहणीचा अहवाल सोबत जोडला आहे

iii) DCFठाणे यांच्याबारोबरीचा स्थळ पाहणीचा अहवाल सोबत जोडला आहे

iv) DCFठाणे यांन CCF ठाणे यांच्याकडे सादर केलेला अहवाल सोबत जोडला आहे

v) CCFठाणे यांनी APCCF नागपूर सादर केलेला अहवाल सोबत जोडला आहे

पुढील कार्यवाहीसाठी सादर.

(अजय वा.आठवले)
कार्यकारी अभियंता,
म.रा.वि.पा.कं.मर्या.,
अ.उ.दा.प्रकल्प विभाग, कल्याण

सहपत्र: वरील प्रमाणे (पान क.१ ते ३०३)

प्रत सविनय सादर:

अधीक्षक अभियंता अ.उ.दा.प्रकल्प मंडळ कलवा.

प्रत सादर

अतिरिक्त कार्यकारी अभियंता स व अ, उपविभाग कल्याण.

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**Mahapareshan**

CIN NO. U40109MH2005GCI153646

Maharashtra State Electricity Transmission Company Limited


**From,**

**Office of the Executive Engineer**

A.U.D Project Department, Kalyan, Tejashree Building, 2nd Floor,
Jahangir Maidan, Karnik Road, M.R.V.P. Co. Limited, Kalyan (P) Dist. Thane,
Pin Code No. 421 301,
Email- ee7620mahatransco in


O. No. Ka.A./AUDaPra./Kalyan/Tantrik/ 01328 Date :- 25 MAR 2025

**To,**

Assistant Conservator of Forest Bhiwandi
Headquarter Thane Office,
Marathon Circle, Lal Bahadur Shastri Marg/Road
Naupada Thane, 400602.

Sub-Divisional Forest Officer Office,
Mandvi, Thane
Inward Number
Date 25/3/2025
Branch

**Subject :** - Diversion of 12.0255 Ha. Forest Land in favour of EHV project Division, Kalyan for construction and laying of 220 KV Lilo M/C Transmission Line on 220 KV Padgha Wada and Kolshet Wada Tr. Line for 400 KV Kudus Substation passing through village Eksal, Chinnchvali, Kunde and Dighashi Tal. Bhiwandi Dist. Thane in the state of Maharashtra.

**Reference :** -

1. Letter of Deputy Conservator of Forest, Thane bearing O. No. 25/B/Mojani/FCA/5359 Dt. 21/02/2025
2. O. No. Aa./UpaViVaAa/Mandani/499/Year 2024 - 25 Dt. 10th March, 2025

As per the caption and reference mentioned hereinabove your office has directed to furnish papers in the said matter. Therefore, as per your directions, following papers are being furnished.

1. Tender : Tender and Agreement are enclosed herewith.
2. Technical and administrative approval :

   i) Letter of award for supply of material enclosed herewith.
   ii) Letter of award for erection + civil portion enclosed herewith.
   iii) Purchase order / work order copy for supply of material enclosed herewith.
   iv) Purchase order / work order copy for erection + civil portion enclosed herewith.
   v) Site handing over letter enclosed herewith.

3. Duration of commencement of Tower Nos. 37 and 38 : The foundation casting work of Tower No. 37 completed on 11.5.2018 and the foundation casting work of Tower No. 38 completed on 27.4.2018.

**Translated by**
**Mr. Rajesh Sidram Dasa**
A Panel Translator of Govt. of Maharashtra
Appointed at Sr. No. 6 of the Panel constituted by the Government of Maharashtra vide a GR No. Namika-2019/Pra.Kra.29/Bhasha-2 Dated 22nd March, 2021.
Language Pair – Marathi ⇄ English

**TRUE TRANSLATION**

_____

**MR. RAJESH SIDRAM DASA**
R/at : Flat No. 501, Paramount Gardens, Katraj-Kondhwa Road, Gokulnagar, Katraj, Pune – 411046.
Mobile No. : 9850914652 Email : rajeshdasa.08@gmail.com

4. Period of erection of tower : The work of erection of Tower No. 37 completed on 3.11.2019 and the work of erection of Tower No. 38 completed on 20.1.2020.

5. A) Officers who have supervised the tower work : The Controlling Officers for the work of construction of Tower No. 37 and 38 during the period 27.04.2018 to 24.02.2021 are as under :-

I) Mr. Tushar Varule, Additional Executive Engineer, EHV Project Sub-Division Kalyan Duration 13.06.2017 to 11.07.2018

II) Mr. Bharat Chougule, Additional Executive Engineer, Special Team, Sub-Division Kalyan Duration 28.02.2018 to 24.02.2021

5B) Officers who have supervised the tower work : The Controlling Officers for the work of construction of Tower No. 37 and 38 during the period 27.04.2018 to 24.02.2021 are as under :-

I) Mr. Appasaheb Devba Ruptakke, Executive Engineer, EHV Project Sub-Division Kalyan Duration 27.04.2018 to 02.05.2018 .

II) Mr. Vijay Aavare, Executive Engineer, EHV Project Sub-Division Kalyan Duration 28.05.2018 to 24.02.2021.

6. Attested copies of papers in respect of caution taken before working in forest area.

i) Authorised proposal required to file with the Forest Department for proposed erection of tower. In this work the Forest Proposal has been uploaded on 1/11/2017 on Parivesh Portal vide ID viz. FP/MF/TRANS/30/80/2017 and accordingly papers of said forest proposal are deposited in hardcopy and papers pertaining thereto are enclosed herewith.

ii) Spot Inspection Report conducted with the officers of Forest Department enclosed herewith.

iii) Spot Inspection Report conducted with DCF enclosed herewith.

iv) Report furnished by DCF Thane to CCF Thane enclosed herewith.

v) Report furnished by DCF Thane to APCCF Nagpur enclosed herewith.

Submitted for further action.

Sd/-
**(Ajay V. Athawale)**
Executive Engineer
M. S. E. T. Co. Ltd.
E.H.V. Project Division, Kalyan

**Enclosures** : As above (Page Nos. 1 to 303)

Copy humbly submitted to : -

Superintendent Engineer E.H.V. Project Circle Kalva.

Copy submitted to :-

Additional Executive Engineer S & I, Sub-Division Kalyan.

| | |
|---|---|
| **Translated by**<br>**Mr. Rajesh Sidram Dasa**<br>A Panel Translator of Govt. of Maharashtra<br>Appointed at Sr. No. 6 of the Panel constituted by the Government of Maharashtra vide a GR No. Namuka-2019/Pra.Kra.29/Bhasha-2 Dated 22nd March, 2021.<br>Language Pair – Marathi ⇄ English | **TRUE TRANSLATION**<br><br>_____<br>**MR. RAJESH SIDRAM DASA**<br>R/at : Flat No. 501, Paramount Gardens, Katraj-Kondhwa Road, Gokulnagar, Katraj, Pune – 411046.<br>Mobile No. : 9850914652 Email : rajeshdasa.08@gmail.com |

दूरध्वनी क्र. 022-25421373
ईमेल- acfmandvi@gmail.com

महाराष्ट्र शासन
वन विभाग
सहा. वनसंरक्षक भिवंडी (मुख्यालय-ठाणे) यांचे कार्यालय
[illegible], माप बहादूर शास्त्री मार्ग, नौपाडा, ठाणे-400 602

जा.क्र. अ/उपविभाग/मांजणी/ ५८८ /सन 2024-25 दिनांक - १० मार्च, 2025

प्रति,

Executive Engineer

EHV Project Division, Kalyan

विषय : Diversion of 12.0225 Ha. Forest Land in favouor EHV Project Division, Kalyan for Construction and laying of 220 KV Lilo M/C Transmission Line on 220 KV Padghe Wada & Kolshet Wada Tr. Line for 400 KV Kudus Sub station passing throuogh Village Eksal, Chinchvali, Kunde & Dighashi Tal. Bhiwandi Dist. Thane in the state of Maharashtra.

संदर्भ : उप वनसंरक्षक, ठाणे यांचेकडील पत्र क्र. 25/व/मोजणी/एफसीए/ 5559 दि. 21/02/2025

उपरोक्त विषयांकित प्रकरणी संदर्भीय पत्रात नमूद केल्याप्रमाणे वन संवर्धन अधिनियम 1980 अंतर्गत Diversion of 12.0225 Ha. Forest Land in favouor EHV Project Division, Kalyan for Construction and laying of 220 KV Lilo M/C Transmission Line on 220 KV Padghe Wada & Kolshet Wada Tr. Line for 400 KV Kudus Sub station passing throuogh Village Eksal, Chinchvali, Kunde & Dighashi Tal. Bhiwandi Dist. Thane in the state of Maharashtra वनजमीन मागणी प्रस्तावाबाबत केंद्र शासनाने वन (संरक्षण एवम संवर्धन) अधिनियम 1980 अंतर्गत 3A व 3B निर्देशानुसार कार्यवाही करण्याबाबत कळविण्येत आले आहे.

प्रस्तुत प्रकरणी सदर कामाचे निविदा, तांत्रिक व प्रशासकीय मंजूरी, कार्यारंभ आदेश, करारनामा व टॉवर क्र. 37 व 38 चे काम सुरु केल्याचा कालावधी, टॉवर उभारल्याचा कालावधी व टॉवरचे कामावर संनियंत्रण ठेवणारे अधिकारी यांची नावे व पद तसेच वनक्षेत्रात काम करण्यापूर्वी घेण्यात आलेल्या उपाययोजनांबाबत अनुषंगिक कागदपत्रांच्या साक्षांकित प्रती प्रथम प्राधान्याने या कार्यालयास सादर कराव्यात.

(अमोल चिरगे)
सहा. वनसंरक्षक, भिवंडी
(मुख्यालय - ठाणे)

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Phone No. : 022-25421373
Email : acfmandvi@gmail.com

**Government of Maharashtra**
**Forest Department**
**Office of Asst. Conservator of Forest, Bhiwandi (Headquarter– Thane)**
Marathon Circle, Lal Bahadur Shastri Marg, Naupada, Thane – 400 602.

O.No. A/UpaViVaA/Mandvi/499/San 2024 - 25 Date – 10th March, 2025

To,
Executive Engineer
EHV Project Division, Kalyan

**Subject :** Diversion of 12.0255 Ha. Forest Land in favouor EHV project Division, Kalyan for construction and laying of 220 KV Lilo M/C Transmission Line on 220 KV Padgha Wada and Kolshet Wada Tr. Line for 400 KV Kudus Substation passing through village Eksal, Chinnchvali, Kunde and Dighashi Tal. Bhiwandi Dist. Thane in the State of Maharashtra.

**Reference :** Letter bearing No. 25/B/Mojani/FCA/5559 Dt. 21/02/2025 issued by the Deputy Conservator of Forest, Thane.

As mentioned in the referred letter with reference to the case mentioned hereinabove, it has been informed by the Central Government that action shall be taken as directed under Section 3A and 3B of the Forest (Protection and Conservation) Act, 1980 in respect of the proposal for demand of forest land made under Forest Conservator Act, 1980, vide Diversion of 12.0255 Ha. Forest Land in favouor EHV project Division, Kalyan for construction and laying of 220 KV Lilo M/C Transmission Line on 220 KV Padgha Wada and Kolshet Wada Tr. Line for 400 KV Kudus Substation passing through village Eksal. Chinnchvali, Kunde and Dighashi Tal. Bhiwandi Dist. Thane in the State of Maharashtra.

In the present case, attested copies of the papers pertaining to the tender for said work, technical and administrative approvals, work commencement orders, agreement and the period of commencement of work on Tower No. 37 and 38, the period of erection of the Tower and the name and posts of the officers supervising the work of the tower as well as the measurements taken before conducting work in the forest area alongwith supporting documents and all relevant documents be submitted to this office with first priority.

Sd/-
(Amol Chirame)
Assistant Conservator of Forests
(Headquarter – Thane)

[ Logo ]

| | |
|---|---|
| **Translated by**<br>**Mr. Rajesh Sidram Dasa**<br>**A Panel Translator of Govt. of Maharashtra**<br>Appointed at Sr. No. 6 of the Panel constituted by the Government of Maharashtra vide a GR No. Namuka-2019/Pra.Kra.29/Bhasha-2 Dated 22nd March, 2021.<br>Language Pair – Marathi ⇄ English | **TRUE TRANSLATION**<br><br>_____<br>**MR. RAJESH SIDRAM DASA**<br>**R/at : Flat No. 501, Paramount Gardens, Katraj-Kondhwa Road, Gokulnagar, Katraj, Pune – 411046.**<br>**Mobile No. : 9850014652 Email : rajeshdasa.08@gmail.com** |

Chronology of tower violation case with respect to construction of LILO on 220 kv Padghe Wada and Kolshet Wada for Kudus s/stn

| Sr.no. | Particular | Date |
|---|---|---|
| 1 | Letter of award for supply of material to executing agency | 11.1.2018 |
| 2 | Letter of award for Erection + Civil work to executing agency | 11.1.2018 |
| 3 | Purchase order Erection + Civil work to executing agency | 3.5.2018 |
| 4 | Purchase order for supply of material to executing agency | 27.8.2018 |
| 5 | Handing over of site | 1.2.2018 |
| 6 | 1st Online proposal uploaded in Parivesh Portal with 9.4 Ha of forest | 9.11.2017 |
| 7 | Joint site inspection carried out by RFO Padghe and ACF Thane | 25.1.2018 |
| 8 | Date of casting for tower location 38 | 27.4.2018 |
| 9 | Date of casting for tower location 37 | 11.5.2018 |
| 10 | Joint site inspection carried out by DCF Thane | 7.8.2018 |
| 11 | Proposal moved from DCF to CCF | 14.8.2018 |
| 12 | Collector Thane informed forest to take over land comes under Dighashi to RFO Padghe | 3.1.2019 |
| 13 | Proposal moved from CCF to APCCF | 4.4.2019 |
| 14 | Date of tower erection location 37 | 3.11.2019 |
| 15 | Date of tower erection location 38 | 20.1.2020 |
| 16 | Reonline submission by newly appointed agency with 14.50 ha 5.8.2020 of forest | 5.8.2020 |
| 17 | During scrutiny of proposal forest violation observed and RFO Padghe informed EE, EHV, Project, Division, Kalyan to send concern for reporting | 24.2.2021 |
| 18 | Due to transfer of concern AddEE Line sdn Kalyan, Add EE, S&I, SDn Kalyan has been sent for further reporting to RFO Padghe | 4.3.2021 |
| 19 | Forester informed AddEE S&I to present at Bhiwandi Court | 12.4.2024 |

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

LIST OF DOCUMENTS

| Annexure | Particular | Page no |
|---|---|---|
| I | Tender document and agreement copy | |
| i | Agreement copy | 1-5 |
| ii | Tender document | 6-265 |
| II | Technical and Administrative sanction copies | |
| i | Letter of award for supply of material | 266-268 |
| ii | Letter of award for erection and civil portion | 269-270 |
| iii | Purchase order copy for supply of material | 271-275 |
| iv | Purchase order copy for erection and civil portion | 276-286 |
| III | Site handing over letter | 287 |
| IV | Documents regarding date of foundation casting and erection for tower location 37 and 38 | 288 |
| i | Joint measurement sheet for location 37 and 38 for foundation casting work | 289 |
| ii | Month wise quantity abstract for tower erection work for location 37 and 38 | 290 |
| V | Correspondence regarding initial forest online proposal, hardcopy submission and movement of proposal from DCF to CCF | |
| i | Uploading of online proposal | 291 |
| ii | Submission of hard copy of proposal | 292 |
| iii | Joint inspection report with forest officer Mandvi | 293-294 |
| iv | Joint inspection report with honorable DCF Thane | 295-297 |
| v | Submission of proposal from honorable DCF Thane to CCF Thane | 298-299 |
| vi | Instructions from honorable DCF Thane to correct forest area involved in part I | 300 |
| vii | Correction done as per instructions from EE, EHV, Project, Division, Kalyan | 301 |
| viii | Submission of proposal from honorable CCF Thane to APCCF Nagpur | 302-303 |

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

## TECHNICAL AND ADMINISTRATIVE SANCTION COPIES.

1. LETTER OF AWARD FOR SUPPLY OF MATERIAL
2. LETTER OF AWARD FOR ERECTION AND CIVIL PORTION
3. PURCHASE ORDER/ WORK ORDER FOR SUPPLY OF MATERIAL
4. PURCHASE ORDER/ WORK ORDER FOR ERECTION AND CIVIL PORTION
5. SITE HANDING OVER LETTER

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

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MAHATRANSCO

**MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO. LTD**
**(CIN No.U40109MH2005SGC153646)**

| From | To, |
|---|---|
| The Chief Engineer,<br>Design, Contract & Monitoring Dept.<br>Plot No.C-19, "E" Block, Prakashganga,<br>Bandra – Kurla Complex,<br>Bandra (East), Mumbai – 400 051.<br>Tel: 022-2659 5124(O)/ 022-2659 5163<br>Fax: 022-2659 8587<br>E-mail : ceem@mahatransco.in | **M/s. BNC Power Projects Ltd.,**<br>Plot no. 67, Shree Shivaji Housing Society, off<br>Senapati Bapat Rd. Shivajinagar,<br>Pune-411 016.<br>bnchaudhary@yahoo.co.in |

Ref.No.MSETCL/CO/DCM/D&T/TKC-L/T-1718/Supply/BNC/394 Date: 11.01.2018

**Sub:** Award of Contract for turnkey construction of LILO on 220kV Kolshet-Wada & 220kV LILO on Padghe-Wada line for 400kV Kudus S/stn. (Route Length 7 Kms), against SRM e-tender no.T-1718 (RFx No. 6000000253) under Vashi Zone.
**– Letter of Award for supply of materials thereof.**

**Ref:** 1) SRM Tender No. T-1718/MSETCL/CO/DCM/D&T/TKC-L(RFx No. 6000000253)
2) Your offer against subject tender, opened on 28.08.2017.

***

Dear Sirs,

In connection with the above subject, we are pleased to inform you that, your offer for turnkey construction of LILO on 220kV Kolshet-Wada & 220kV LILO on Padghe-Wada line for 400kV Kudus S/stn. (Route Length 7 Kms), against SRM e-tender no.T-1718 (RFx No. 6000000253) under Vashi Zone has been accepted for the supply portion as per details below: -

| Sr. No. | Description of works | Final Price quoted inclusive of all taxes and duties. |
|---|---|---|
| 1 | LILO on 220kV Kolshet-Wada & 220kV LILO on Padghe-Wada line for 400kV Kudus S/stn. (Route Length 7 Kms), against SRM e-tender no.T-1718 (RFx No. 6000000253) under Vashi Zone | **Rs.14,37,64,667.00** |

**(Rs. Fourteen Crore Thirty Seven Lakh Sixty Four Thousand Six Hundred Sixty Seven Rupees Only).**

The activity schedule for payment eligibility for 09 (Nine) months (including monsoon) from the date of handing over of line profile for supply of material for turnkey construction of above line is enclosed herewith.

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Cir. Kalyan

It may please be noted that the scope shall also include supply of all equipments / materials which are not specifically listed in your offer but are necessary in order to meet the requirements of the line as per tender specifications in all respects.

Detailed terms and conditions will be as per the tender specification, amendments thereof, your offer, clarifications thereon and contract agreement being executed shortly. The work of above line has to be completed within 09 (Nine) months (including monsoon) from the date of handing over of line profile.

You are requested to: -

1) Intimate the **acceptance of this LoA within 10 days from receipt.**
2) Submit **bar chart within 10 days** from the date of receipt of LoA, indicating all activities for completion of the project.
3) Submit price **schedule with detailed break up of unit rate** into ex-works price and GST rates within 10 days from receipt of LoA.
4) Complete the formalities like furnishing of **Performance Bank Guarantee** as per Clause No. 8.0 of Section-II of Book-I in prescribed format **within 30 days** from the date of receipt of LoA, so that the contract agreement can be finalized early.
5) **M/s. BNC Power Projects Ltd** shall submit the **invoice as per GST regulation.**

Encl: Activity Schedule.

Thanking you,

Yours faithfully,

(Rajendra L.Gaikwad)
Chief Engineer (D,C&M)

Copy s.w.r.to:

1) The Chairman & Managing Director, MSETCL, Mumbai.
2) The Director (Projects), MSETCL, Mumbai.

Copy f.w.cs.to:

1) The C.E., EHV Projects cum O&M Zone, MSETCL, Vashi
2) The C.E., C.O., Civil, MSETCL, Mumbai.
3) The Chief General Manager (F&A), MSETCL, Mumbai.

Copy to:

1) The G.M. (F&A-III), MSETCL, Mumbai —This is as per the Draft LOA pre-audited vide no. GM (F&A-III) O/W No. 08 dt.08.01.2018.
2) The S.E., (S&C/Civil), MSETCL, Mumbai.
3) The S.E., EHV Project Circle, MSETCL, Vashi
4) The S.E., EHV Civil CCM Circle, MSETCL, Vashi.
5) The S.E., TCC, MSETCL, Vashi.
6) The E.E., (PMT), MSETCL, Mumbai.
7) The E.E., (FTU), MSETCL, Mumbai.
8) The E.E., EHV Project Division, MSETCL, Kalyan

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

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## STANDARD ACTIVITY SCHEDULE FOR PAYMENT ELIGIBILITY

**NAME OF LINE : LILO on 220kV Kolshet-Wada & 220kV LILO on Padghe-Wada line for 400kV S/stn. (Route Length 7 Kms), under Vashi Zone.**

**COMPLETION PERIOD = 09 MONTHS**

| Sr. No. | ACTIVITY | Schedule for completion of activities from date of LOA | | Remarks/ Hold points for payments |
|---|---|---|---|---|
| | | Commencement | Scheduled period of completion | |
| 1 | Submission of performance B.G. in lieu of S.D. | | Within 10 days | |
| 2 | Visit to site , verification of scope of work, Establisment of site office and mobilisation of gang | After 5 days | Within 20 days | |
| 3 | Signing of contract agreement | After 10 days | Within 30 days | |
| 4 | Trial pits and inspection of route | After 7 days | Within 15 days | |
| 5 | Preliminary & Detailed Survey | After 10 days | Within 20 days | |
| 6 | Check survey | After 10 days | Within 30 days | |
| 7 | Approval of detailed /check survey & trial pits | After 15 days | Within 45 days | |
| 8 | Requisition of drawings of towers, stubs templates | After 5 days | Within 20 days | |
| 9 | Issuance of all drawings for execution by MSETCL | After 10 days | Within 30 days | Copy of trial pits report duly approved by Engineer in Charge be furnished |
| 10 | Collection of drawings by Contractor | 5 days | 15 days | |
| 11 | Preparation of shop drawings | 15 days | 45 days | |
| 12 | Proto manufacturing, assembly of tower, submission of call for inspection (if applicable) | After 30 days | Within 60 days | |
| 13 | Proto inspection | After 37 days | Within 70 days | |
| 14 | Supply of stub & stub setting templates | After 20 days | Within 80 days | Supply to be effected within 15 days after approval of check survey |
| 15 | Tower foundation | After 30 days | Within 180 days | At the rate minimum 10 locations per month |
| 16 | Supply of tower material | After 60 days | Within 90 days | The foundation should have been casted for tower under supply. The towers to be supplied on per tower basis within 15 days of casting of foundation. |
| 17 | Erection of tower | After 80 days | Within180 days | 50% tower foundations should be completed, Erection @ 6 loc. per month. |
| 18 | Supply of conductor, earthwire, insulators for accessories towers & conductor /groundwire & insulator Hardware . | After 60 days | Within 180 days | Contractor's confirmation about complete erection of towers of equivalent route length is ready for stringing |
| 19 | Stringing of line | After 90 days | Within 210 days | Atleast 50% of towers should have been erected. Progress @ 2.5 KM/Month |
| 20 | Miscellaneous works (fixing of tower accessories,tree cutting etc.) | After100 days | Within 230 days | |
| 21 | Inspection, testing & commissioning of line | After 140 days | Within 270 days | |

**Note:-**

| | |
|---|---|
| 1 | Contractor may execute the erection works ahead of schedule dates. In such an event the schedule date for supply of respective materials stands preponed accordingly and such supplies will become eligible for payments. |
| 2 | The contractor shall supply the material as per actual requirement only, based on the bill of quantities after check survey & duly approved by Engineer incharge No additional /surplus material shall be accepted except specifically requisitioned by Engineer-In-Charge. |
| 3 | The contractor can supply the material prior to scheduled delivery period,however,the payment eligibility will be from the date as per approved schedule period subject to satisfying conditions of hold points. |

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

MAHATRANSCO

# MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO. LTD

(CIN No.U40109MH2005SGC153646)

| From | To, |
|---|---|
| The Chief Engineer,<br>Design, Contract & Monitoring Dept.<br>Plot No.C-19, "E" Block, Prakashganga,<br>Bandra – Kurla Complex,<br>Bandra (East), Mumbai – 400 051.<br>Tel: 022-2659 5124(O)/ 022-2659 5163<br>Fax: 022-2659 8587<br>E-mail : cecm@mahatransco.in | M/s. BNC Power Projects Ltd.,<br>Plot no. 67, Shree Shivaji Housing Society, off<br>Senapati Bapat Rd. Shivajinagar,<br>Pune-411 016.<br>bnchaudhary@yahoo.co.in |

Ref.No.MSETCL/CO/DCM/D&T/TKC-L/T-1718/ETC/BNC/395 Date: 11.01.2018.

**Sub:** Award of Contract for turnkey construction of LILO on 220kV Kolshet-Wada & 220kV LILO on Padghe-Wada line for 400kV Kudus S/stn. (Route Length 7 Kms), against SRM e-tender no.T-1718 (RFx No. 6000000253) under Vashi Zone.
**–Letter of Award for Erection+Civil portion thereof.**

**Ref:** 1)SRM Tender No. T-1718/MSETCL/CO/DCM/D&T/TKC-L (RFx No. 6000000253)
2) Your offer against subject tender, opened on 28.08.2017.

***

Dear Sirs,

In connection with the above subject, we are pleased to inform you that, your offer for turnkey construction of Award of Contract for turnkey construction of LILO on 220kV Kolshet-Wada & 220kV LILO on Padghe-Wada line for 400kV Kudus S/stn. (Route Length 7 Kms), against SRM e-tender no.T-1718 (RFx No. 6000000253) under Vashi Zone has been accepted for the erection+civil work including foundation portion as per details below: -

| Sr. No. | Description of works | Final Price quoted inclusive of all taxes and duties. |
|---|---|---|
| 1 | LILO on 220kV Kolshet-Wada & 220kV LILO on Padghe-Wada line for 400kV Kudus S/stn. (Route Length 7 Kms), against SRM e-tender no.T-1718 (RFx No. 6000000253) under Vashi Zone. | ETC - Rs. 4,97,08,437.00<br>Civil – Rs. 2,29,26,896.00<br><br>**Total- Rs.7,26,35,333.00** |

**(Rs. Seven Crore Twenty Six Lakh Thirty Five Thousand Three Hundred Thirty Three Rupees Only).**

It may please be noted that the scope of ETC portion shall also include erection, testing and commissioning of equipments /materials which are not specifically indicated in your offer

Exe... Engineer
M.S.E.T. Page 1 of 2
E.H.V. Project Dn., Kalyan

but are necessary in order to meet the requirements of the line as per tender specifications in all respects.

Detailed terms and conditions will be as per the tender specification, amendments thereof, your offer, clarifications thereon and contract agreement being executed shortly. The work of above line has **to be completed within 09 (Nine) months (including monsoon) from the date of handing over of line profile.**

You are requested to: -

1) Intimate the **acceptance of this LoA within 10 days from receipt.**
2) **Submit bar chart within 10 days** from the date of receipt of LoA, indicating all activities for completion of the project.
3) Submit price schedule with detailed **break up of unit rate into ex-works price and GST rates within 10 days from receipt of LoA.**
4) Complete the formalities like furnishing of Performance Bank Guarantee as per Clause No. 8.0 of Section-II of Book-I in prescribed format within 30 days from the date of receipt of LoA, so that the contract agreement can be finalized early.
5) *M/s* BNC Power Projects Ltd., Pune **shall submit the invoice as per GST regulation.**

Thanking you,

Yours faithfully,

**(Rajendra L.Gaikwad)**
**Chief Engineer (D,C&M)**

**Copy s.w.r.to:**

1) The Chairman & Managing Director, MSETCL, Mumbai.
2) The Director (Projects), MSETCL, Mumbai.

**Copy f.w.cs.to:**

1) The C.E., EHV Projects cum O&M Zone, MSETCL, Vashi.
2) The C.E., C.O., Civil, MSETCL, Mumbai.
3) The Chief General Manager (F&A), MSETCL, Mumbai.

**Copy to:**

1) The G.M. (F&A-III), MSETCL, Mumbai --This is as per the Draft LOA pre-audited vide no. GM(F&A-III) O/W No. 08 dt.08.01.2018.
2) The S.E., (S&C/Civil), MSETCL, Mumbai.
3) The S.E., EHV Project Circle, MSETCL, Vashi.
4) The S.E., EHV Civil CCM Circle, MSETCL, Vashi.
5) The S.E., TCC, MSETCL, Vashi.
6) The E.E., (PMT), MSETCL, Mumbai.
7) The E.E., (FTU), MSETCL, Mumbai.
8) The E.E., EHV Project Division, MSETCL, Kalyan

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

# MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO.LTD.

(CIN : U40109MH2005SGC153646)
GSTIN:27AAECM2936N1Z2
MSETCL , DESIGN, CONTRACT & MONITORING , PLOT NO. C19, E-BLOCK, BKC, BANDRA MUMBAI - 40005
FAX- 022 2659 0768 , TEL- 022 2659 5000
www.mahatransco.in

## PURCHASE/WORKS ORDER

**Release Date :** 27.08.2018 13:20:05

**O No.:** 8000001792

| | |
|---|---|
| **o,** | BNC POWER PROJECTS LTD. ( 4000001214 ) |
| **STIN:** | 27AADCB1599R1ZV |
| **orr. Office :** | , PUNE , , B-27/28,Nilgiri Heights, , , , , |
| **ity :** | PUNE |
| **istrict :** | |
| **ostal code :** | 411016 . |
| **tate :** | Maharashtra |
| **el. No.** | 02025460161 |
| **ax No. :** | |
| **-mail :** | bnchaudhary@yahoo.co.in |

SUPPLY PORTION:-Turnkey construction of LILO on 220kV Kolshet-Wada & 220kV LILO on Pad_-Wada line for 400kV Kudus S/stn. (Route Length 7 Kms), tender No. T-1718 (RFx No. 6000000253)

Ex-Works Price is including 1% labour welfare cess.

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

# HEADER SHEET

| Sr. No Item No. | Item Code (HSN/SAC) | Description | BOM-A | Quantity (UOM) | Unit Price | Total Amount |
|---|---|---|---|---|---|---|
| 1<br>1 | 500000038<br>(73082011) | Fab, Galvg,Supply Of Tower Mat-TKP | | 533.61 MT | 102,508.54 | 54,699,582. |
| 2<br>2 | 500000039<br>(73181500) | Galvanised Nuts/Bolts wt Washers | | 29.89 MT | 145,909.66 | 4,361,239. |
| 3<br>3 | 500004550<br>(73082011) | DANGER BOARD | | 46.00 EA | 335.42 | 15,429. |
| 4<br>4 | 500003465<br>(83100090) | NUMBER PLATE FOR TOWER | | 46.00 EA | 280.44 | 12,900. |
| 5<br>5 | 500000712<br>(83100090) | Phase Indication Plate | | 184.00 EA | 452.36 | 83,234. |
| 6<br>6 | 500003466<br>(83100090) | CIRCUIT PLATE FOR TOWER | | 92.00 EA | 466.47 | 42,915. |
| 7<br>7 | 500003467<br>(73130010) | Anti Climbing Device wt Barbed Wire | | 20.00 EA | 5,424.26 | 108,485. |
| 8<br>8 | 500000322<br>(85462019) | 70kN Antifog Disc Insulator | | 4,101.00 EA | 1,106.40 | 4,537,346. |
| 9<br>9 | 500000330<br>(85462019) | 120kN Antifog Disc Insulator | | 14,001.00 EA | 1,317.66 | 18,448,557. |
| 10<br>10 | 500000815<br>(73269099) | SSN H/W(Arcing Horn) - 0.4 Single Zebra | | 255.00 EA | 3,132.77 | 798,856. |
| 11<br>11 | 500000820<br>(73269099) | DSN H/W - 0.4 ACSR Zebra | | 12.00 EA | 6,681.33 | 80,175. |
| 12<br>12 | 500021440<br>(73269099) | STN H/W - 0.4 ACSR Zebra | | 745.00 EA | 3,487.93 | 2,598,507. |
| 13<br>13 | 500021439<br>(73269099) | DTN H/W - 0.4 ACSR Zebra | | 72.00 EA | 8,778.33 | 632,039. |
| 14<br>14 | 500003736<br>(76042910) | 0.4 ACSR Zebra Conductor | | 33.00 km | 333,760.46 | 11,014,095. |
| 15<br>15 | 500000821<br>(76169990) | Mid Span Cmpr Joint- 0.4 ACSR Zebra | | 80.00 EA | 1,012.30 | 80,984. |
| 16<br>16 | 500000822<br>(73089040) | Repair Sleeves - 0.4 ACSR Zebra | | 25.00 EA | 336.81 | 8,420. |
| 17<br>17 | 500002880<br>(76169990) | P.A. Rod - 0.4 ACSR Zebra | | 235.00 EA | 1,892.65 | 444,772. |
| 18<br>18 | 500002904<br>(73269099) | Vibration Damper - 0.4 ACSR Zebra | | 804.00 EA | 837.16 | 673,028. |
| 19<br>19 | 500000785<br>(73121030) | 7/3.15 mm HG Steel Earthwire | | 9.50 km | 54,032.62 | 513,309. |
| 20<br>20 | 500000791<br>(73269099) | 7/3.15 mm Earthwire Suspension Clamp | | 6.00 EA | 727.18 | 4,363. |
| 21<br>21 | 500000792<br>(73269099) | 7/3.15 mm Earthwire Tension Clamp | | 90.00 EA | 756.27 | 68,064. |
| 22<br>22 | 500000793<br>(76169990) | Mid Span Cmpr Joint- 7/3.15 mm Earthwire | | 5.00 EA | 186.94 | 934. |
| 23 | 500000795<br>(74071020) | 7/3.15 mm B/w Flexible Cu Earth Bond | | 90.00 EA | 876.56 | 78,890. |
| TOTAL | | NINE CRORE NINETY THREE LAKH SIX THOUSAND ONE HUNDRED TWENTY EIGHT Rupees TWENTY Paise | | | | 99,306,128.2 |

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

# TAX ANALYSIS

| No. | Material No. / Net Unit Price(₹) | Basic Price / Discounted Price | Tax & Two | Freight Charges | Insurance | SGST | CGST | IGST |
|---|---|---|---|---|---|---|---|---|
| 1<br>1 | 500000038<br>302508.54 | ₹ 90477.76 | | ₹ 1,700.00 | ₹ 865.80 | 9.00 %<br>₹ 7,818.45 | 9.00 %<br>₹ 7,818.45 | |
| 2<br>2 | 500000039<br>145909.66 | ₹ 128785.18 | | ₹ 1,700.00 | ₹ 1,045.80 | 9.00 %<br>₹ 11,128.70 | 9.00 %<br>₹ 11,128.70 | |
| 3<br>3 | 500004550<br>335.42 | ₹ 296.04 | | ₹ 10.00 | ₹ 2.94 | 9.00 %<br>₹ 25.58 | 9.00 %<br>₹ 25.58 | |
| 4<br>4 | 500003465<br>280.44 | ₹ 247.53 | | ₹ 10.00 | ₹ 2.94 | 9.00 %<br>₹ 21.39 | 9.00 %<br>₹ 21.39 | |
| 5<br>5 | 500000712<br>452.36 | ₹ 399.27 | | ₹ 10.00 | ₹ 2.94 | 9.00 %<br>₹ 34.50 | 9.00 %<br>₹ 34.50 | |
| 6<br>6 | 500003466<br>466.47 | ₹ 411.72 | | ₹ 10.00 | ₹ 2.94 | 9.00 %<br>₹ 35.58 | 9.00 %<br>₹ 35.58 | |
| 7<br>7 | 500003467<br>5425.26 | ₹ 4787.63 | | ₹ 100.00 | ₹ 43.40 | 9.00 %<br>₹ 413.71 | 9.00 %<br>₹ 413.71 | |
| 8<br>8 | 500000322<br>1106.40 | ₹ 976.11 | | ₹ 40.00 | ₹ 9.66 | 9.00 %<br>₹ 84.39 | 9.00 %<br>₹ 84.39 | |
| 9<br>9 | 500000330<br>1317.66 | ₹ 1163.02 | | ₹ 50.00 | ₹ 11.20 | 9.00 %<br>₹ 100.50 | 9.00 %<br>₹ 100.50 | |
| 10<br>10 | 500000815<br>3132.77 | ₹ 2765.12 | | ₹ 55.00 | ₹ 20.09 | 9.00 %<br>₹ 238.94 | 9.00 %<br>₹ 238.94 | |
| 11<br>11 | 500000820<br>6681.33 | ₹ 5897.19 | | ₹ 120.00 | ₹ 43.54 | 9.00 %<br>₹ 509.59 | 9.00 %<br>₹ 509.59 | |
| 12<br>12 | 500021440<br>3487.93 | ₹ 3078.58 | | ₹ 80.00 | ₹ 29.12 | 9.00 %<br>₹ 266.03 | 9.00 %<br>₹ 266.03 | |
| 13<br>13 | 500021439<br>8778.33 | ₹ 7748.07 | | ₹ 167.00 | ₹ 60.86 | 9.00 %<br>₹ 669.53 | 9.00 %<br>₹ 669.53 | |
| 14<br>14 | 500003736<br>333760.46 | ₹ 294589.14 | | ₹ 5,500.00 | ₹ 3,164.00 | 9.00 %<br>₹ 25,456.31 | 9.00 %<br>₹ 25,456.31 | |
| 15<br>15 | 500000821<br>1012.30 | ₹ 893.09 | | ₹ 25.00 | ₹ 9.03 | 9.00 %<br>₹ 77.21 | 9.00 %<br>₹ 77.21 | |
| 16<br>16 | 500000822<br>336.81 | ₹ 297.29 | | ₹ 10.00 | ₹ 3.78 | 9.00 %<br>₹ 25.69 | 9.00 %<br>₹ 25.69 | |
| 17<br>17 | 500002880<br>1892.65 | ₹ 1670.52 | | ₹ 44.00 | ₹ 15.88 | 9.00 %<br>₹ 144.35 | 9.00 %<br>₹ 144.35 | |
| 18<br>18 | 500002904<br>837.10 | ₹ 738.86 | | ₹ 22.00 | ₹ 7.87 | 9.00 %<br>₹ 63.85 | 9.00 %<br>₹ 63.85 | |
| 19<br>19 | 500000785<br>54032.62 | ₹ 47691.19 | | ₹ 4,500.00 | ₹ 525.00 | 9.00 %<br>₹ 4,121.13 | 9.00 %<br>₹ 4,121.13 | |
| 20<br>20 | 500000791<br>727.18 | ₹ 641.86 | | ₹ 73.00 | ₹ 9.14 | 9.00 %<br>₹ 55.46 | 9.00 %<br>₹ 55.46 | |
| 21<br>21 | 500000792<br>756.27 | ₹ 667.96 | | ₹ 73.00 | ₹ 9.14 | 9.00 %<br>₹ 57.68 | 9.00 %<br>₹ 57.68 | |
| 22<br>22 | 500000793<br>186.94 | ₹ 165.42 | | ₹ 15.00 | ₹ 1.89 | 9.00 %<br>₹ 14.26 | 9.00 %<br>₹ 14.26 | |
| 23<br>23 | 500000795<br>876.56 | ₹ 773.69 | | ₹ 75.00 | ₹ 9.45 | 9.00 %<br>₹ 66.86 | 9.00 %<br>₹ 66.86 | |

EXECUTIVE DIRECTOR
M.S.E.I. Co. Ltd.

## LONG TEXT

| Sr. No. Item No. | Item Code | Description | Long Text |
|---|---|---|---|
| 1 1 | 500000038 | Fab, Galvg,Supply Of Tower Mat-TKP | FABRICATION, GALVANIZING AND SUPPLY OF VARIOUS TYPES OF TOWER MATERIAL AT SITE STORE WITH ALL COWER ACCESSORIES |
| 2 2 | 500000039 | Galvanised Nuts/Bolts wt Washers | GALVANISED BOLTS & NUTS WITH SPRING WASHERS, PLAIN WASHERS FOR LINE TO WERS/ STRUCTURES/ ACCESSORIES |
| 3 3 | 500004550 | DANGER BOARD | DANGER BOARD |
| 4 4 | 500003465 | NUMBER PLATE FOR TOWER | NUMBER PLATE FOR TOWER |
| 5 5 | 500000712 | Phase Indication Plate | PHASE PLATE |
| 6 6 | 500003466 | CIRCUIT PLATE FOR TOWER | CIRCUIT PLATE FOR TOWER |
| 7 7 | 500003467 | Anti Climbing Device wt Barbed Wire | ANTI CLIMBING DEVICE WITH BARBED WIRE |
| 8 8 | 500000322 | 70kN Antifog Disc Insulator | 770 kN DISC INSULATOR (ANTIFOG) |
| 9 9 | 500000330 | 120kN Antifog Disc Insulator | 120 kN DISC INSULATOR (ANTIFOG) |
| 10 10 | 500000815 | SSN H/W(Arcing Horn) - 0.4 Single Zebra | Single Suspension Normal Hardware with Arcing Horn for 0.4 ACSR Single# Zebra Conductor |
| 11 11 | 500000820 | DSN H/W - 0.4 ACSR Zebra | DOUBLE SUSPENSION NORMAL HARDWARE FOR 0. ACSR ZEBRA |
| 12 12 | 500021440 | STN H/W - 0.4 ACSR Zebra | STN H/W - 0.4 ACSR Zebra |
| 13 13 | 500021439 | DTN H/W - 0.4 ACSR Zebra | DTN H/W - 0.4 ACSR Zebra |
| 14 14 | 500003736 | 0.4 ACSR Zebra Conductor | 0.4 ACSR Zebra Conductor (EARTH DRUM) |
| 15 15 | 500000821 | Mid Span Compr Joint- 0.4 ACSR Zebra | MID SPAN COMPRESSION JOINT FOR 0.4 ACSR ZEBRA |
| 16 16 | 500000822 | Repair Sleeves - 0.4 ACSR Zebra | REPAIR SLEEVES FOR 0.4 ACSR ZEBRA |
| 17 17 | 500002880 | P.A. Rod - 0.4 ACSR Zebra | |
| 18 18 | 500002904 | Vibration Damper - 0.4 ACSR Zebra | |
| 19 19 | 500000785 | 7/3.15 mm HG Steel Earthwire | 7/3.15 mm Heavily Galvanised Steel Earth Wire |
| 20 20 | 500000791 | 7/3.15 mm Earthwire Suspension Clamp | SUSPENSION CLAMP FOR 7/3.15 MM EARTHWIRE |
| 21 21 | 500000792 | 7/3.15 mm Earthwire Tension Clamp | TENSION CLAMP FOR 7/3.15 MM EARTHWIRE |
| 22 22 | 500000793 | Mid Span Compr Joint- 7/3.15 mm Earthwire | MID SPAN COMPRESSION JOINT FOR 7/3.15 MM EARTHWIRE |
| 23 23 | 500000795 | 7/3.15 mm E/w Flexible Cu Earth Bond | FLEXIBLE COPPER EARTH BOND FOR 7/3.15 MM EARTHWIRE |

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

# DISPATCH INSTRUCTION

| Sr.No./ Item No | Material No. | Plant/Consignee | Storage Location Address | Quantity | Requirement Plan/ Storage Plan/Bin |
|---|---|---|---|---|---|
| 1 1 | 500000038 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 533.610 | |
| 2 2 | 500000039 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 29.890 | |
| 3 3 | 500004550 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 46.000 | |
| 4 4 | 500003465 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 46.000 | |
| 5 5 | 500000712 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 184.000 | |
| 6 6 | 500003466 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 92.000 | |
| 7 7 | 500003467 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 20.000 | |
| 8 8 | 500000322 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 4,101.000 | |
| 9 9 | 500000330 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 14,001.000 | |
| 10 10 | 500000815 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 255.000 | |
| 11 11 | 500000820 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 12.000 | |
| 12 12 | 500021440 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 745.000 | |
| 13 13 | 500021439 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 72.000 | |
| 14 14 | 500003736 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 33.000 | |
| 15 15 | 500000821 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 80.000 | |
| 16 16 | 500000822 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 25.000 | |
| 17 17 | 500002880 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 235.000 | |
| 18 18 | 500002904 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 804.000 | |
| 19 19 | 500000785 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 9.500 | |
| 20 20 | 500000791 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 6.000 | |
| 21 21 | 500000792 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 90.000 | |
| 22 22 | 500000793 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 5.000 | |
| 23 23 | 500000795 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 90.000 | |

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

# MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO.LTD.

(294)
(315)

(CIN : U40109MH2005SGC153646)
GSTIN:27AAECM2936N1Z2
MSETCL , DESIGN, CONTRACT & MONITORING , PLOT NO. C19, E-BLOCK, BKC, BANDRA MUMBAI - 4000
, FAX- 022 2659 0768 , TEL- 022 2659 5000

www.mahatransco.in

## PURCHASE/WORKS ORDER

**Release Date :** 03.05.2018 16:41:57

**PO No.:** 8000001778

**To,** BNC POWER PROJECTS LTD. ( 4000001214 )
**GSTIN:** 27AADCB2599R1ZV
**Corr. Office :** , PUNE , , B-27/28,Nilgiri Heights, , , , ,
**City :** PUNE
**District :**
**Postal code :** 411016
**State :** Maharashtra
**Tel. No.** 02025460161
**Fax No. :**
**E-mail :** bnchaudhary@yahoo.co.in

PROTECTION PORTION:-Turnkey construction of LILO on 220kV Kolshet-Wada & 220kV LILO on Padghe-Wada line for 400kV Kudus S/stn. (Route Length 7 Kms), against SRM e-tender no.T-1718 (RFx No. 6000000253) under Vashi Zone

Labour Welfare cess @1% is included in Ex-Works rate.

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

# HEADER SHEET

| Sr. No Item No. | Item Code (HSN/SAC) | Description | ITEM A | Quantity (UOM) | Unit Price ₹ | Total Amount ₹ |
|---|---|---|---|---|---|---|
| 24 24 | 300006597 (998631) | CHKS: Detailed Survey | | 9.00 km | 13,431.41 | 120,882 |
| 25 25 | 300002036 (995423) | CHKS: Check Survey | | 9.00 km | 5,494.69 | 49,452 |
| 26 26 | 300002037 (995461) | TE:Excvn of pits-Normal Soil | | 2,290.00 *** | 244.21 | 559,240 |
| 27 27 | 300002039 (995423) | TE:Excvn of pits-BCSoil/Submerged Soil | | 11,010.00 *** | 366.31 | 4,033,073 |
| 28 28 | 300002038 (995433) | TE:Excvn of pits-Hard Murum/SoftRock | | 2,740.00 *** | 427.97 | 1,172,637 |
| 29 29 | 300002040 (995433) | TE:Excvn of pits-Dry fissured Rock | | 4,820.00 *** | 1,098.95 | 5,296,939 |
| 30 30 | 300002041 (995433) | TE:Excvn of pits-HardRock by chiseling | | 1,740.00 *** | 1,587.35 | 2,761,989 |
| 31 31 | 300009292 (995423) | TE: Casting in-situ CC M-10 | | 405.00 *** | 6,461.35 | 2,616,846 |
| 32 32 | 300009290 (995423) | TE: Casting in-situ CC M-20 | | 5,670.00 *** | 7,635.05 | 43,290,733 |
| 33 3 | 300009294 (995423) | P&F Steel Reinforcement in Concrete Fdn | | 350.00 MT | 78,705.42 | 27,546,897 |
| 34 34 | 300002045 (995423) | TE: Earthing (Pipe Type) | | 27.00 EA | 6,105.21 | 164,840 |
| 35 35 | 300002046 (995423) | TE: Earthing (Counter poise) | | 19.00 EA | 13,431.46 | 255,197 |
| 36 36 | 300002048 (995444) | TE: Erection of Towers (220KV) | | 1,018.00 MT | 6,715.73 | 6,836,613 |
| 37 37 | 300002053 (995439) | BNCH: Benching-Normal Soil/BC Soil | | 500.00 *** | 194.85 | 97,425 |
| 38 38 | 300002054 (995439) | BNCH: Benching-H.M./S.R./F.R. | | 700.00 *** | 329.04 | 230,328 |
| 39 39 | 300008641 (995423) | TFP:Excavn of FDN Protecn Wall (NS/SM) | | 50.00 *** | 243.71 | 12,185. |
| 40 40 | 300008642 (995423) | TFP:Excavn of FDN Protecn Wall (BCS/SS) | | 130.00 *** | 366.31 | 47,620. |
| 41 41 | 300008643 (995423) | TFP:Excavn of FDN Protecn Wall (SR/HM) | | 80.00 *** | 427.97 | 34,237. |
| 42 42 | 300008644 () | TFP:Excavn of FDN Protecn Wall (DFR) | | 260.00 *** | 1,098.95 | 285,727. |
| 43 43 | 300009296 () | P&C Trap Metal CC 1:3:6 for Retaing Wall | | 130.00 *** | 6,460.85 | 839,910. |
| 44 44 | 300009295 () | P&C Trap Metal CC 1:2:4 for Retaing Wall | | 35.00 *** | 7,282.63 | 254,892. |
| 45 | 300009297 () | P&C UCR Masonry of Trap Stone in CM 1:6 | | 800.00 *** | 2,865.78 | 2,292,624. |
| 46 46 | 300008690 (995423) | 220kV D/C (wt 0.4 ACSR/AAAC) on DC Line | | 8.00 km | 98,904.36 | 791,234. |
| 47 47 | 300008690 (995423) | 220kV D/C (wt 0.4 ACSR/AAAC) on DC Line | | 1.50 km | 80,588.69 | 120,883. |
| 48 48 | 300002069 (998732) | EWSTRG: E/W Stringing-220KV | | 9.00 km | 15,263.01 | 137,367. |
| 49 49 | 300009105 () | Dewatering including diversion of stream | | 200.00 *** | 246.38 | 49,276. |
| 50 50 | 300007351 (995423) | TE:TACK WELDING M/C TOWER | | 27.00 EA | 3,907.33 | 105,497. |
| 51 51 | 300007350 (995423) | TE:TACK WELDING D/C TOWER | | 19.00 EA | 2,686.27 | 51,039. |
| 52 52 | 300008652 (998736) | 220kV D/C Tower 60° (Stub Setting Temp) | | 2.00 EA | 5,494.67 | 10,989. |
| 53 53 | 300008660 (998736) | 220kV M/C Tower 2° (Stub Set. Template) | | 5.00 EA | 4,884.14 | 24,420. |
| 54 54 | 300008661 (998736) | 220kV M/C Tower 15° (Stub Set. Template) | | 5.00 EA | 5,494.67 | 27,473. |
| 55 55 | 300008662 (998736) | 220kV M/C Tower 30° (Stub Set. Template) | | 6.00 EA | 6,715.73 | 40,294. |
| 56 56 | 300008653 (998736) | 220kV M/C Tower 60° (Stub Setting Temp) | | 14.00 EA | 7,081.77 | 99,144. |
| 57 57 | 300005788 (998736) | 220kV Horizontal Tower | | 12.00 MT | 4,273.61 | 51,283. |
| TOTAL | | TEN CRORE THREE LAKH NINE THOUSAND ONE HUNDRED SIXTY EIGHT Rupees FIFTY | | | | 100,309,168.5 |

Executive Engineer

| Sr. No Item No: | Item Code (HSN/SAC) | Description | HEM | Quantity (UOM) | Unit Price | Total Amount |
|---|---|---|---|---|---|---|
| 58<br>58 | 300003788<br>(998736) | 220kV Horizontal Tower | | 0.00 MT | 3,907.33 | 3 |
| TOTAL | | TEN CRORE THREE LAKH NINE THOUSAND ONE HUNDRED SIXTY EIGHT Rupees FIFTY EIGHT Paise | | | | 100,309,168. |

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

# TAX ANALYSIS

| SR.NO Item No | Material No Net Price Per Unit | Base Price Effective Unit Price | P/F & Insp. | Freight Charges | Description | SGST | CGST | IGST |
|---|---|---|---|---|---|---|---|---|
| 24<br>24 | 300006597<br>13431.41 | ₹ 11861.02 | | | | 9.00 %<br>₹ 1,024.43 | 9.00 %<br>₹ 1,024.43 | |
| 25<br>25 | 300002036<br>5494.69 | ₹ 4852.35 | | | | 9.00 %<br>₹ 419.09 | 9.00 %<br>₹ 419.09 | |
| 26<br>26 | 300002037<br>244.21 | ₹ 215.65 | | | | 9.00 %<br>₹ 18.63 | 9.00 %<br>₹ 18.63 | |
| 27<br>27 | 300002039<br>366.31 | ₹ 323.48 | | | | 9.00 %<br>₹ 27.94 | 9.00 %<br>₹ 27.94 | |
| 28<br>28 | 300002038<br>427.97 | ₹ 377.93 | | | | 9.00 %<br>₹ 32.64 | 9.00 %<br>₹ 32.64 | |
| 29<br>29 | 300002040<br>1098.95 | ₹ 970.44 | | | | 9.00 %<br>₹ 83.82 | 9.00 %<br>₹ 83.82 | |
| 30<br>30 | 300002041<br>1587.35 | ₹ 1401.75 | | | | 9.00 %<br>₹ 121.07 | 9.00 %<br>₹ 121.07 | |
| 31<br>31 | 300009292<br>6461.35 | ₹ 5975.77 | | | | 9.00 %<br>₹ 492.81 | 9.00 %<br>₹ 492.81 | |
| 32<br>32 | 300009290<br>7635.05 | ₹ 7062.28 | | | | 9.00 %<br>₹ 582.33 | 9.00 %<br>₹ 582.33 | |
| 33<br>33 | 300009294<br>78705.42 | ₹ 72795.81 | | | | 9.00 %<br>₹ 6,002.96 | 9.00 %<br>₹ 6,002.96 | |
| 34<br>34 | 300002045<br>6105.21 | ₹ 5391.36 | | | | 9.00 %<br>₹ 465.65 | 9.00 %<br>₹ 465.65 | |
| 35<br>35 | 300002046<br>13431.46 | ₹ 11860.92 | | | | 9.00 %<br>₹ 1,024.43 | 9.00 %<br>₹ 1,024.43 | |
| 36<br>36 | 300002048<br>6715.72 | ₹ 5930.46 | | | | 9.00 %<br>₹ 512.22 | 9.00 %<br>₹ 512.22 | |
| 37<br>37 | 300002053<br>194.85 | ₹ 172.95 | | | | 9.00 %<br>₹ 14.86 | 9.00 %<br>₹ 14.86 | |
| 38<br>38 | 300002054<br>329.04 | ₹ 291.45 | | | | 9.00 %<br>₹ 25.10 | 9.00 %<br>₹ 25.10 | |
| 39<br>39 | 300008641<br>243.71 | ₹ 215.66 | | | | 9.00 %<br>₹ 18.59 | 9.00 %<br>₹ 18.59 | |
| 40<br>40 | 300008642<br>366.31 | ₹ 323.48 | | | | 9.00 %<br>₹ 27.94 | 9.00 %<br>₹ 27.94 | |
| 41<br>41 | 300008643<br>427.97 | ₹ 377.93 | | | | 9.00 %<br>₹ 32.64 | 9.00 %<br>₹ 32.64 | |
| 42<br>42 | 300008644<br>1098.95 | ₹ 970.44 | | | | 9.00 %<br>₹ 83.82 | 9.00 %<br>₹ 83.82 | |
| 43<br>43 | 300009296<br>6460.85 | ₹ 5975.77 | | | | 9.00 %<br>₹ 492.78 | 9.00 %<br>₹ 492.78 | |
| 44<br>44 | 300009292<br>7282.63 | ₹ 6736.33 | | | | 9.00 %<br>₹ 555.45 | 9.00 %<br>₹ 555.45 | |
| 45<br>45 | 300009297<br>2865.78 | ₹ 2650.64 | | | | 9.00 %<br>₹ 218.58 | 9.00 %<br>₹ 218.58 | |
| 46<br>46 | 300008690<br>98904.36 | ₹ 87339.83 | | | | 9.00 %<br>₹ 7,543.55 | 9.00 %<br>₹ 7,543.55 | |
| 47<br>47 | 300008698<br>80588.69 | ₹ 71165.53 | | | | 9.00 %<br>₹ 6,146.59 | 9.00 %<br>₹ 6,146.59 | |

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MSETCL Ltd.

| Sr.No. Item No. | Material No. Net Unit Price(₹) | Basic Price Unit Base Price | Pet. & Fuel | Freight Charges | Insurance | SGST | CGST | IGST |
|---|---|---|---|---|---|---|---|---|
| 48<br>48 | 300002669<br>15263.01 | ₹ 13478.33 | | | | 9.00 %<br>₹ 1,164.13 | 9.00 %<br>₹ 1,164.13 | |
| 49<br>49 | 300009105<br>246.38 | ₹ 227.91 | | | | 9.00 %<br>₹ 18.79 | 9.00 %<br>₹ 18.79 | |
| 50<br>50 | 300007351<br>3907.33 | ₹ 3450.44 | | | | 9.00 %<br>₹ 298.02 | 9.00 %<br>₹ 298.02 | |
| 51<br>51 | 300007350<br>2686.27 | ₹ 2372.25 | | | | 9.00 %<br>₹ 204.89 | 9.00 %<br>₹ 204.89 | |
| 52<br>52 | 300008653<br>5494.67 | ₹ 4852.23 | | | | 9.00 %<br>₹ 419.09 | 9.00 %<br>₹ 419.09 | |
| 53<br>53 | 300008660<br>4884.14 | ₹ 4313.08 | | | | 9.00 %<br>₹ 372.52 | 9.00 %<br>₹ 372.52 | |
| 54<br>54 | 300008661<br>5494.67 | ₹ 4852.54 | | | | 9.00 %<br>₹ 419.09 | 9.00 %<br>₹ 419.09 | |
| 55<br>55 | 300008662<br>6715.73 | ₹ 5930.51 | | | | 9.00 %<br>₹ 512.22 | 9.00 %<br>₹ 512.22 | |
| 56<br>56 | 300008653<br>7081.77 | ₹ 6253.98 | | | | 9.00 %<br>₹ 540.14 | 9.00 %<br>₹ 540.14 | |
| 57<br>57 | 300005788<br>4273.61 | ₹ 3773.94 | | | | 9.00 %<br>₹ 325.95 | 9.00 %<br>₹ 325.95 | |
| 58<br>58 | 300005788<br>3907.33 | ₹ 3450.42 | | | | 9.00 %<br>₹ 300.00 | 9.00 %<br>₹ 380.00 | |

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

# LONG TEXT

| Sr. No from No. | Item Code | Description | Long Text |
|---|---|---|---|
| 24<br>24 | 300006597 | CHKS: Detailed Survey | |
| 25<br>25 | 300002036 | CHKS: Check Survey | |
| 26<br>26 | 300002037 | TE:Excvn of pits-Normal Soil | Excavation of pits for tower footings i earth for soils of all types including removing of excavated material beyond tower limits u p to 50 mtrs at all lead and all lifts, shoring, shuttering, dewatering, prepa ration of bed for foundation and back filling after c asting and curing of foundations with ramming etc comp)ete as per drawing & direction o f Engineer-in-charge. |
| 27<br>27 | 300002039 | TE:Excvn of pits-BCSoil/Submerged Soil | --do-- but for BC Soil/ Submergee Soil |
| 28<br>28 | 300002038 | TE:Excvn of pits-Hard Murum/SoftRock | --do-- but for Hard Murum/ Soft Rock |
| 29<br>29 | 300002040 | TE:Excvn of pits-Dry fissured Rock | --do-- but for Dry fissured Rock |
| 30<br>30 | 300002041 | TE:Excvn of pits-HardRock by chiseling | --do-- but for Hard Rock by chiseling |
| 31<br>31 | 300009292 | TE: Casting in-situ CC M-10 | Providing and casting in situ cement concrete of 1rap metal of size 25 to 40 mm as applicable, including fixing of stub units with Bolts & N uts with fixing of stub setting templates, form boxes, fishing, coping and curing for 21 days etc complete as per drawin gs and directions of Engineer-in-charge in CC M-10(1:3:6). |
| 32<br>32 | 300009290 | TE: Casting in-situ CC M-20 | M 20 ( 1:1.5:3) with graded metal for foundation |
| 33<br>33 | 300009294 | P&F Steel Reinforcement in Concrete Fdn | Providing and fixing in position Steel Reinforcement in concrete# foundation including supply of TMT bars with epoxy coating/Mats c om off various diameters for R.C.C. wor like raft, footing of column etc. as# pe drawing and direction which will be furnished by the owner# including cutting, bending hooking the bars, binding with binding wire# or tackwelding etc. complete as directed.(Ste el to be provided by# contractor) |
| 34<br>34 | 300002045 | TE: Earthing (Pipe Type) | Earthing of towers with pipe type earthing (with supply of earthing ma terial) including excavation of pits/ trenches, laying of ear thing pip e, strips, flats etc including supply of heavy duty GI pipe and GI str ip/ flat/ nut and bolts and provision of salt and c oke as per drawing including back filling, complete in all respect as per direction of En gineer-in-charge. |
| 35<br>35 | 300002046 | TE: Earthing (Counter poise) | Earthing of towers with Counter Poise type earthing(with supply of ear thing material) including excavation of pits/trenches, laying of earth wire and fitting plates to tower legs including supply of all material s (viz. GSS wire, lugs, nuts an bolts etc) as per the drawing and bac k filling, complete in all respect as per direction of Engr. In-charge . |
| 36<br>36 | 300002048 | TE: Erection of Towers (220KV) | Complete erection of SC/DC/MC towers (including special towers) with i ts extensions for 220KV Lines (as per requirement) with fixin g of Bolt s & Nuts, Tightening, punching and fittings including attachments (lik |

Executive Engineer

| Sr No /Item No. | Item Code | Description | Long Text |
|---|---|---|---|
| | | | step bolts, ladders, platforms, 'U' bolts, shackl es, hangers, strain plates etc) and including tack welding and applicatio : Zinc rich p rimer and two coats of enam paints on e xposed portion (Excluding stub s) ,including transportation of materials from site stores to work sit e. |
| 37<br>37 | 300002053 | BNCH: Benching-Normal Soil/BC Soil | |
| 38<br>38 | 300002054 | BNCH: Benching-H.M./S.R./F.R. | |
| 39<br>39 | 300008641 | TFP:Excavn of FDN Protecn Wall (NS/SM) | Excavation for foundation of revetment wall/protection wall in all type# of soil, sand, gravels, soft murum, Soft murum with boulder s, normal# soil including shoring, shuttering wherever necessary & disposi: of the# excavated stuff as directed upt: 50mtrs. Lead i n : Normal# Soil/Sand/Gravel/Soft Murum |
| 40<br>40 | 300008642 | TFP:Excavn of FDN Protecn Wall (BCS/SS) | Excavation for foundation of revetment wall/protection wall in all type# of soil, sand, gravels, soft murum, Soft murum with boulder s, normal# soil including shoring, shuttering wherever necessary & disposir of the# excavated stuff as directed upt: 50mtrs. lead i n : Black cotton# soil/Submerged soil |
| 41<br>41 | 300008643 | TFP:Excavn of FDN Protecn Wall (SR/HM) | Excavation for foundation of revetment wall/protection wall in all type# of soil, sand, gravels, soft murum, Soft murum with boulder s, normal# soil including shoring, shuttering wherever necessary & disposir of the# excavated stuff as directed upt: 50mtrs. Lead i n : Soft rock/Hard Murum |
| 42<br>42 | 300008644 | TFP:Excavn of FDN Protecn Wall (DFR) | Excavation for foundation of revetment wall/protection wall in all type# of soil, sand, gravels, soft murum, Soft murum with boulder s, normal# soil including shoring, shuttering wherever necessary & disposir of the# excavated stuff as directed upt: 50mtrs. Lead i n : Dry Fissured Rock |
| 43 | 300009296 | P&C Trap Metal CC 1:3:6 for Retaing Wall | Providing & casting in situ cement concrete of 1:3:6 of trap metal for# copping of retaining wall including cost of the cement, sand , metal,# water and form work, compactic & curing etc. complete in all respect. |
| 44<br>44 | 300009295 | P&C Trap Metal CC 1:2:4 for Retaing Wall | Providing & casting in situ cement concrete of 1:2:4 of trap metal for# copping of retaining wall including cost of the cement, sand , metal,# water, dewatering, form work, compaction & curing etc. complete in all respect. |
| 45<br>45 | 300009297 | P&C UCR Masonry of Trap Stone in CM 1:6 | Providing & constructing of UCR masonry of trap stone in cement mortar# 1:6 in super structure including racking out joints on the inside as co# plastering to be done fr: inside, scaffolding, dewatering, compacting,# curing etc. complete in all respects as per the drawings to be furnished# by the MSETCL. All the material such as trap stones, cement, sand,# metal, water etc. to be provided by the contractor as his own cost# including following activities. |
| 46<br>46 | 300008690 | 220kV D/C (wt 0.4 ACSR/AAAC) on DC Line | Stringing of conductors on S/C, D/C, M/C,D/C towers including# transportatic of conductor and required material from |

Executive Engineer

| Sr No Item No | Item Code | Description | Long Text |
|---|---|---|---|
| | | | nite store to<br># site locations, laying, paving,<br>nointing, rough sagging, final sagging,<br>clipping, fixing of accessories, hoistii<br>of insulators,<br>jumpering etc.# on tower complete in a<br>respect including tree cutting if<br>required as# per the direction of<br>Engineer incharge. ( w<br>hich includes the works# involved in th<br>crossing of LT,HT and EHV power lines,<br>railway and# river crossing). ( viz<br>dismantling a<br>nd restringing of conductors) :# 220kV<br>(with 0.4 ACSR/AAAC) on MC tower |
| 47<br>47 | 300008690 | 220kV D/C (wt 0.4 ACSR/AAAC) on DC Line | Stringing of conductors on S/C, D/C,<br>M/C,H/% towers including# transportati<br>of conductor and required material from<br>site store to<br># site locations, laying, paving,<br>jointing, rough sagging, final sagging,<br>clipping, fixing of accessories, hoistir<br>of insulators,<br>jumpering etc.# on tower complete in a<br>respect including tree cutting if<br>required as# per the direction of<br>Engineer incharge. ( w<br>hich includes the works# involved in th<br>crossing of LT,HT and EHV power lines,<br>railway and# river crossing). ( viz<br>dismantling a<br>nd restringing of conductors) :# 220kV<br>D/C (with 0.4 ACSR/AAAC) on DC line |
| 48<br>48 | 300002069 | EWSTRG: E/W Stringing-220KV | Stringing of Earth Wire for 220kV<br>including transportation of Earthwir e<br>and required material from stores to sit<br>locations, laying<br>, paving, jointing, rough sagging, fina<br>sagging, clamping and jumpering etc.,<br>providing earthing with earth bond,<br>complete in all<br>respect as per dir ection of<br>Engineer-in-charge. |
| 49<br>49 | 300009105 | Dewatering including diversion of stream | Dewatering including diversion of stream<br>providing cofferdam, bunds etc.# as may<br>be necessary for foundation and other<br>parts of work<br>and bailing# out and / or pumping out<br>water below the actual ini"ial natural<br>water# level during execution of all<br>items of construc<br>tion as required (from# start of that<br>particular component till completion of<br>bridge) including# all leads and lifts<br>etc. Complete M<br>ote: All items of construction#<br>i.e.excavation, bedding, (soling & PCC )<br>and concreting of that# structure upto<br>natural water level.<br>Spec. No. BR-4 Page No.103 |
| 50<br>50 | 300007351 | TE:TACK WELDING M/C TOWER | TE:TACK WELDING M/C TOWER |
| 51<br>51 | 300007350 | TE:TACK WELDING D/C TOWER | TE:TACK WELDING D/C TOWER |
| 52<br>52 | 300008652 | 220kV D/C Tower 60° (Stub Setting Temp) | 220kV DC Tower: : Stub setting in all<br>type of soils with the help of# templa<br>PROP including transportation if require<br>to the des<br>ired# location, fixing the stubs in<br>position as per the alignment, fixing<br>and# leveling the template and the stub<br>as directed.: 60 D<br>egree |
| 53<br>53 | 300008660 | 220kV M/C Tower 2° (Stub Set. Template) | 220kV Multi Circuit Tower : Stub setting<br>in all type of soils with the# help of<br>template/ PROP including transportation<br>if required<br>to the# desired location, fixing the<br>stubs in position as per the alignment,#<br>fixing and leveling the template and the |

Executive Engineer

| Sr. No. Item No. | Item Code | Description | Long Text |
|---|---|---|---|
| | | | stub as dire cted.: 2 Degree |
| 54 54 | 300008661 | 220kV M/C Tower 15° (Stub Set. Template) | 220kV Multi Circuit Tower : Stub settin in all type of soils with the# help of template/ PROP including transportation if required to the# desired location, fixing the stubs in position as per the alignment, fixing and leveling the template and the stub as dire cted.: 15 Degree |
| 55 55 | 300008662 | 220kV M/C Tower 30° (Stub Set. Template) | 220kV Multi Circuit Tower : Stub settin in all type of soils with the# help of template/ PROP including transportation if required to the# desired location, fixing the stubs in position as per the alignment, fixing and leveling the template and the stub as dire cted.: 30 Degree |
| 56 56 | 300008663 | 220kV M/C Tower 60° (Stub Setting Temp) | 220kV M/C Tower: : Stub setting in all type of soils with the help off# template PROP including transportation if requir to the de sired# location, fixing the stubs in position as per the alignment, fixing and# leveling the template and the stub as directed.: 60 Degree |
| 57 57 | 300005788 | 220kV Hocizontal Tower | With nuts and bolts |
| 58 58 | 300005788 | 220kV Horizontal Tower | With nuts and bolts |

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

# DISPATCH INSTRUCTION

| S. No./ Item No. | Material No. | Plant/Consumer | Storage Location Address | Quantity | Requirement Plant Storage Location |
|---|---|---|---|---|---|
| 24 24 | 300006597 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 9.000 | |
| 25 25 | 300002036 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 9.000 | |
| 26 26 | 300002037 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 2,290.000 | |
| 27 27 | 300002039 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 11,010.000 | |
| 28 28 | 300002038 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 2,740.000 | |
| 29 29 | 300002040 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 4,820.000 | |
| 30 30 | 300002041 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 1,740.000 | |
| 31 31 | 300009292 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 405.000 | |
| 32 32 | 300009290 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 5,070.000 | |
| 33 33 | 300009294 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 360.000 | |
| 34 34 | 300002045 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 27.000 | |
| 35 35 | 300002046 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 19.000 | |
| 36 36 | 300002048 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 1,018.000 | |
| 37 37 | 300002053 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 500.000 | |
| 38 38 | 300002054 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 700.000 | |
| 39 39 | 300008641 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 50.000 | |
| 40 40 | 300008642 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 130.000 | |
| 41 41 | 300008643 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 80.000 | |
| 42 42 | 300008644 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 260.000 | |
| 43 43 | 300009296 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 130.000 | |
| 44 44 | 300009295 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 35.000 | |
| 45 45 | 300009297 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 800.000 | |
| 46 46 | 300008690 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 8.000 | |
| 47 47 | 300008690 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 1.500 | |

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

| Item | Material No | Plant/Description | Storage Location Address | Demand | Requirement Plant Storage Location |
|---|---|---|---|---|---|
| 48 48 | 300002069 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 9.000 | |
| 49 49 | 300009705 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 200.000 | |
| 50 50 | 300007351 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 27.000 | |
| 51 51 | 300007350 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 19.000 | |
| 52 52 | 300008652 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 2.000 | |
| 53 53 | 300008660 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 5.000 | |
| 54 54 | 300008661 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 5.000 | |
| 55 55 | 300008662 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 6.000 | |
| 56 56 | 300008653 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 14.000 | |
| 57 57 | 300005788 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 12.000 | |
| 58 58 | 300005788 | 7620 EHV Const Division Kalyan, 2nd Floor, Kalyan Thane 421301 | 7621 S&I SDN KALYAN | 0.001 | |

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

MAHATRANSCO

# MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO.LTD.

CIN No.(MH)U40109MH2005SGC153646

(A Government of Maharashtra Undertaking)


Office of the Add. Executive Engineer,
E.H.V.T.L. Projects Sub-Division,
V^th floor, 'B' wing, 'Tejashri Bldg.',
Jahangir Maidan, Karnik road,
M.S.E.T. Co. Ltd., Kalyan (W) 421 301.
E-mail – dycelkalyan@gmail.com
dyee2021@mahatransco.in


No. AddEE/EHV/TLP/SDN/KLN/T-148/No. 17 Date: 01 February, 2018

To,
M/S BNC Power Projects Limited,
Plot No. 67, Shri Shivaji Housing Society,
Shivajinagar, Pune. 411016
Email: bnchaudhary@yahoo.co.in

Subject: Handing over of site

Reference:
1) MSETCL/CO/DCM/D&T/TKC-L/T-1718/Supply/BNC/394 dated 11.01.2018
2) MSETCL/CO/DCM/D&T/TKC-L/T-1718/ETC/BNC/395 dated 11.01.2018
3) Instructions in meeting at EHV Projects Circle, Kalwa to hand over site, dated 30 January, 2018.

Dear Sirs,
In connection to above subject, the work of "LILO on 220 kV Kolshet-Wada and LILO on 220 kV Padgha-Wada Line for 400 kV Kudus S/S" is awarded to you, vide Corporate Office LOAs under reference 1 & 2. Now, it is to confirm that, the site is handed over to you for execution of work as per said LOAs, today i.e. on 01 February, 2018.

1) Various joint site visits of MSETCL and M/S BNC staff, along the complete route, are already carried out. You are requested to start the work as per instructions in LOAs, deploy adequate skilled, experienced manpower at site, complete the work as per instructions in LOAs.
2) Visit to 400 kV Kudus S/S is carried out, all 220 kV bays present situation, sequence of bays at present, change of sequence of bays if needed, availability of space for future bays, etc studied in detail.
3) On site, discussed possible hurdles like ROW issues during execution of this project, in detail.
4) On site, discussed possible difficulties of outages of existing lines (4 crossing lines and line to be LILO) during execution of this project. So that, same shall be in mind in deciding the proposed locations for towers.
5) The situation at site, issues, present lines loading conditions, future outage constraints, timely execution of project, etc - all these things are discussed in detail with agency.

On 30 January, 2018, Hon. SE, EHV Projects Circle, Kalwa explained the project in detail to all. He instructed agency for timely completion of project; instructed agency to complete detailed survey and submit the detailed report at the earliest.
It is requested to submit copy of bar chart and action plan for complete scope of work to this sub division. You are instructed to submit weekly progress report to this office.

Additional Executive Engineer,
EHV Tr. Line Projects Sub-Division, Kalyan.

Copy s.w.r.s.to,
1) The Superintending Engineer, EHV Projects Circle, Kalwa.
2) The Executive Engineer, EHV Projects Division, Kalyan. Submitting for information and further needful, guidelines please.

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Div., Kalyan



Scanned with ACE Scanner

**DOCUMENTS REGARDING DATE OF FOUNDATION CASTING AND ERECTION FOR TOWER LOCATION 37 AND 38**

1. JOINT MEASUREMENT SHEET FOR LOC 37 AND 38 FOR FOUNDATION CASTING WORK
2. MONTHWISE QUANTITY ABSTRACT FOR TOWER ERECTION WORK LOCATION NO 37 AND 38

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

(255)
(327)

MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO. LTD.

## JOINT MEASUREMENT CERTIFICATE

| | | |
|---|---|---|
| Name of Project | - | Work of Construction of LILO on 220KV Kolshet-Wada & LILO on Padghe - Wada line for 400KV Kudus S/STN-7KMS. |
| Agency Executing the work | - | M/s BNC Power Projects Ltd. |
| PO No. | - | |
| Location No. & Type | - | 37 MDN+0 |
| Date of Casting | - | 11/05/2018 |
| Drawing No. | - | |
| Type of foundation | - | DFR |

EXCAVATION DETAILS :

All pit dimensions are in meter

| Sr. Nn. | Type of soil | Pit Size | | Depth | Total Exc. in CuM |
|---|---|---|---|---|---|
| | | Length | Width | | |
| 1 | W.C / Submerged Soil | 12.600 | 12.600 | 0.575 | 91.287 |
| 2 | Hard Murum/ Soft Rock | 12.600 | 12.600 | 0.375 | 59.535 |
| 3 | Dry Excavated soil | 12.600 | 12.600 | 1.610 | 255.609 |
| 4 | Hard Rock by Chiselling | 12.600 | 12.600 | 0.940 | 149.234 |
| | Total ..... | | | 3.500 | 555.66 |

CONCRETE DETAILS :

| CONCRETE | Item | Measurements | Total volume |
|---|---|---|---|
| Lean Concrete (1:3:6) | PCC (M10) | | 7.940 |
| Mass Concrete (1:1.5:3) | RCC (M20) | | 260.130 |
| Chimneys | | | |

STEEL REINFORCEMENT :

| Sr. No. | Shape of Rod | Diameter | Length in mm | Nos of Bar | Unit Weight | | Total weight in Kg |
|---|---|---|---|---|---|---|---|
| A | | 32mm | 3.938 | 112 | 6.31 | | 2.783 |
| B | | 8mm | 3.75 | 64 | 0.39 | | 0.094 |
| C | | 25mm | 12.5 | 103 | 3.85 | | 4.9569 |
| D | | 25mm | 12.5 | 103 | 3.85 | | 4.957 |
| E | | 25mm | 13.66 | 103 | 3.85 | | 5.4169 |
| F | | 25mm | 13.66 | 102 | 3.85 | | 5.4169 |
| | | | | | Total Weight in | | 23.624 |
| | | | | | Say | | 23.624 MT |

Asst. Executive Engineer
For MSETCL

For BNC Power Projects Ltd.

BNC POWER PROJECTS LTD. PUNE

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalya

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# MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO. LTD.

## JOINT MEASUREMENT CERTIFICATE

Name of Project : Work of Construction of LILO on 220KV Kolshet-Wade & LILO on
Agency Executing the work : M/s BNC Power Projects Ltd.
PO No. :
Location No. & Type : 38 | MCN+6
Date of Casting : 27/04/2018
Drawing No. :
Type of foundation : WBC

EXCAVATION DETAILS :

All pit Dimensions are in meter.

| Sr. No. | Type of soil | Pit Size | | Depth | Total Exc. in CuM |
|---|---|---|---|---|---|
| | | Length | Width | | |
| 1 | B. C. / Submerged Soil | 16.000 | 16.000 | 2.600 | 665.600 |
| 2 | Dry Fissured soil | 16.000 | 16.000 | 0.900 | 230.400 |
| | Total ..... | | | 3.500 | 896.00 |

CONCRETE DETAILS :

| CONCRETE | Item | Measurements | Total volume |
|---|---|---|---|
| Lean Concrete (1:3:6) | PCC (M10) | | 12.800 |
| Mass Concrete (1:1.5:3) | RCC (M20) | | 349.220 |
| Chimneys | | | |

STEEL REINFORCEMENT :

| Sr. No. | Shape of Rod | Diameter | Length in mm | Nos of Bar | Unit Weight | | Total weight in Kg |
|---|---|---|---|---|---|---|---|
| A | | 32mm | 3.358 | 80 | 6.31 | | 1.988 |
| B | | 8mm | 3.75 | 64 | 0.39 | | 0.094 |
| C | | 25mm | 15.9 | 110 | 3.85 | | 6.7337 |
| D | | 25mm | 15.9 | 110 | 3.85 | | 6.734 |
| E | | 25mm | 16.854 | 110 | 3.85 | | 7.1377 |
| F | | 25mm | 16.854 | 110 | 3.85 | | 7.1377 |
| | | | | | Total Weight in KG | | 29.824 |
| | | | | | Say | 29.824 MT | |

For MSETCL

(Authorised Signatory)

For BNC Power Projects Ltd.

BNC POWER PROJECTS LTD. PUNE

(Authorized Signatory)

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

# Monthwise Quantity abstract for Erection work

Sub:- Work of Construction of LILO on 220KV Kolshet-Wada & LILO on Padghe - Wada line for 400KV Kudus S/Stn. 7KMS.

Ref.: LOA No.: MSETCL/CO/DCM/D&T/TKC-L/T1718/ETC/BNC/1761 Dtd: 15.02.2018.

| Sr. No. | Loc. No. | Type of Tower | Erection of Tower | Date of erection |
|---|---|---|---|---|
| 1 | 5 | MDN+9 | 06.44 | 5.05.2018 |
| 2 | 8 | MDN+6 | 42.12 | 17.05.2018 |
| | | Total:- | 88.56 | MT |
| 3 | 7 | MCN+0 | 27.15 | 18.10.2019 |
| | | Total:- | 27.15 | MT |
| 4 | 42 | MDN+0 | 34.55 | 14.11.2019 |
| 5 | 37 | MDN+0 | 34.55 | 01.11.2019 |
| | | Total:- | 69.10 | MT |
| 6 | 43 | MAN+3 | 12.06 | 11.01.2020 |
| 7 | 38 | MCN+6 | 33.43 | 20.01.2020 |
| | | Total:- | 45.48 | MT |
| 8 | 6 | MCN+9 | 36.43 | 11.02.2020 |
| | | Total:- | 36.43 | MT |
| 9 | 41 | MCN+6 | 33.43 | 03.11.2020 |
| 10 | 47 | MCN+0 | 27.15 | 06.11.2020 |
| | | Total:- | 60.58 | MT |
| 11 | 44 | MD+0 | 26.42 | 1/14/2021 |
| 12 | 4 | MD+9 | 26.417 | 1/25/2021 |
| | | Total:- | 52.83 | MT |
| 13 | 3 | DD+9 | 11.56 | 2/1/2021 |
| 14 | 25 | MB | 16.88 | 2/20/2021 |
| | | Total:- | 28.44 | MT |
| 15 | 46 | MB+0 | 16.98 | 3/1/2021 |
| 16 | 23 | MD | 26.42 | 3/16/2021 |
| | | Total:- | 43.40 | MT |
| 17 | 26 | MB+0 | 16.88 | 4/6/2021 |
| 18 | 22 | MD | 26.42 | 4/21/2021 |
| 19 | 48A | Dwarft Tower | 8.30 | 4/27/2021 |
| 20 | 48B | Dwarft Tower | 8.30 | 4/29/2021 |
| | | Total:- | 59.90 | MT |
| 21 | 48C | Dwarft Tower | 8.30 | 5/3/2021 |
| 22 | 48D | Dwarft Tower | 8.30 | 5/5/2021 |
| 23 | 19 | Dwarft Tower | 8.30 | 5/12/2021 |
| 24 | 21 | Dwarft Tower | 8.30 | 5/13/2021 |
| 25 | 45 | MD | 26.42 | 5/13/2021 |
| 26 | 45 | MC+6 | 24.93 | 5/13/2021 |
| | | Total:- | 84.55 | All |

For BNC Power Projects Ltd.

BNC Power Projects Ltd. BNC Pune

Addl. Executive Engineer
M.S.E.T. Co. Ltd.
Special Project Team, Kalyan

Page 3 of 3

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

**CORRESPONDENCE REGARDING FOREST ONLINE PROPOSAL, HARDCOPY SUBMISSION, AND MOVEMENT OF PROPOSAL FROM DCF TO CCF THANE AND CCF THANE TO APCCF NAGPUR**

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

# TimeLine Details

## Proposal received date at each stage of flow.

### A. General Details

(i). Proposal No. : FP/MH/TRANS/30180/2017

(ii). Name of Project for which Forest Land is required : The 220KV M/C LILO on Padghe-Wada and Kolshet Wada Line for 400 KV Kudus S/S Passing Through the Village of Usar(dis kurpada), Ekasl, Kasapur,Chichowali,kumle,digoshi.The madpi forest land area required for this project is 6.45 Ha.

(iii). Short narrative of the proposal and Project/scheme for which the forest land is required : Maharashtra State Electricity Transmission Co. Ltd Plants to construct and operate Diversion of sanctioned vide MER. NO 112/26 Dt 27.11.2017 with an estimate cost of Rs 19146 lakhs. The 220KV M/C LILO on Padghe-Wada and Kolshet Wada Line for 400 KV Kudus S/S Passing Through the Village of Usar(dis ka

(iv). State : Maharashtra

(v). Category of the Project : Transmission Line

(vi). Shape of forest land proposed to be diverted : Linear

(vii). Area of forest land proposed for diversion(in ha.): 9.4

### B. Time Line

| Proposal No. | Submitted by User Agency | Query for Shortcoming(if any) by Nodal Officer | Resubmission of Proposal by User Agency | Query by Nodal Officer for submitting Hard Copies | Uploading(by U.A.) of copies of receipt received from DFO & DC | Division | Circle | Nodal Office | State Government | Regional Office | Stage-I Approval on | Stage-II Approval on |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FP/MH/TRANS/30180/2017 | 09/11/2017 | 15/11/2017 | 20/11/2017 | 23/11/2017 | | | | | | | | |

### C. Essential Details Sought History

| Communication between Regional Office & State Government | Communication between State Government & Nodal Officer | Communication between Nodal Officer & Circle | Communication between Circle & Division | Communication between Division & User Agency |
|---|---|---|---|---|
| | | | | |

NOTE:- Proposal is pending with User Agency for submitting hard copy of proposal .



Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

MAHATRANSCO
Maharashtra State Electricity Transmission Co. Ltd.

**MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO. LTD.**

| From, | To, |
|---|---|
| Office of the Executive Engineer,<br>E.H.V. Projects Division,<br>IInd floor, 'A' wing, 'Tejashri Bldg.',<br>Jahangir Maidan, Karnik road,<br>M.S.E.T. Co. Ltd., Kalyan (W) 421 301.<br>Tel. – 0251 2328540 / Fax – 0251 2201657<br>E-mail – eeehvpdnkalyan@gmail.com<br>ee7620@mahatransco.in | **The Deputy Conservator Of Forest**<br>**Thane D.F.O. Office**<br>**Thane** |

**Ref. No. EE/EHV P/DN/KLN/T- /No.** 1132 **Date:** 29.11.2017

Sub: Submission of 5 (Five) nos. of hard copies of forest proposal for work of LILO on 220 KV Boisar- Borivali & Boisar Ghodbundar Line for 400kV Kudus S/S. Online Submission is already done.

Ref: - 1. FP/MH/TRANS/30204/2017

We have submitted the above proposal through online on first of week of November vides under ref (1). Now we have received the mail from Your Nodal office to submit hard copies of the proposal along with concerned documents to your good office for further process. Accordingly the proposal is submitting herewith the following documents in 5(Five) sets to your perusal and further process of the same please.

1. Khasara maps with line route marking along with tower schedule and co-ordinates along with forest and non- forest area statement.
2. Topo sheet.
3. 7/12 list
4. Total village joint map
5. Google Earth Map
6. Project note, Part A (I), All Certificates and other A/4 documents of total 129 pages.

Kindly go through the above documents for further process and send the file with all documents and your reports to C.C.F office for further process please.

Thanking You

(A.D. Satpatake)
Executive Engineer
E.H.V. Projects Dn., Kalyan.

Encl: 5 (Five) sets of above files

Cc.w.to,
1. The Superintending Engineer, EHV Projects Circle, Kalwa

Copy to:-
The Addl. Executive Engineer, S&I S/Dn, Kalyan

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

834

# JOINT INSPECTION REPORT

o/c

1. The Name of Project :- Padghe- Wada 220kv transmission line for kudus substation

2. Details of the Forest Land :-

| Sr. No. | Range Name | Village Name | S. No. / Compt. No. | Status | Length in (Mtrs) | Width (Mtrs) | Forest area in Sq.mtrs. | Re Area in Hectar | marks |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Padgha | Eksal | 78 | RF | 1561.00 | 35.00 | 54635.00 | 5.4635 | |
| | | Chinchavali turf Kunde | 8(New 52) | PF | 59.00 | 35.00 | 2065.00 | 0.2065 | |
| 2 | | Kunde | 292 | PF | 224.00 | 35.00 | 7840.00 | 0.784 | |
| | | | 293 | PF | 203.00 | 35.00 | 7105.00 | 0.7105 | |
| | | | 54 | PF | 177.00 | 35.00 | 6195.00 | 0.6195 | |
| 3 | | | 52 | PF | 41.00 | 35.00 | 1435.00 | 0.1435 | |
| | | | 51 | PF | 23.00 | 35.00 | 805.00 | 0.0805 | |
| 4 | | | 54 | PF | 34.00 | 35.00 | 1190.00 | 0.119 | |
| 5 | | Dighashi | 210 | PF | 50.00 | 35.00 | 1750.00 | 0.175 | |
| 6 | | | 215 | RF | 583.00 | 35.00 | 20405.00 | 2.0405 | |
| | | Total | | | 2955.00 | | 103425.00 | 10.3425 | |

3. The above referred Forest area ad-measuring(10.3425 Hect.) was jointly inspected by

1) S.B. Kand,
Sub Divisional Forest Officer, Mandvi.

2) M.D. Jadhav
Addl. Executive Engineer, MSETCL Kalyan.

4. It is agreed that the forest area mentioned :- Yes

5. Classification of Forest :- Protected forest & Reserved Forest

6. Canopy Density :- less than 0.4 %

7. It is clarified that no work has been started :-

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

P.T.O.

1) On forest area :- Yes, no work has been started

2) On non forest area :- Yes, no work has been started

8. Date of joint inspection :- 25th Jan 2018

9. Remarks :-

1. Eksal S.NO 78 Has been distributed for Koyana Rehabilitation.

For Project Authority

( M.D.Jadhav )
Addl. Executive Engineer

Addl. Executive Engineer

For Forest Department

(S.B.Kand)
Sub Divisional Forest Officer, Mandvi.

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

(336)

(A)

# SITE INSPECTION REPORT

Prescribed vide PCCF (HoFF) No. Desk-17-4/1455, Dated 19/11/2...

| Sr. No. | Items | Observations and remarks |
|---|---|---|
| 1. | Name of the Project and location (Range, Round, Beat) | Diversion of 220 kv.M/C Lilo on Padgha-Vada, Transmission line , 10.3425 Hector. |
| 2. | Name of the User Agency | Padgha-wada 220 kv transmission line for kudus substation Padgha-wada 220 kv transmission line for kudus substation for MSETCL |
| 3. | Date of Site inspection | 07/08/2018 |
| 4. | Extent (ha) and legal status of forest land proposed for diversion | Reserve Forest & Protected forest, 10.3425 (As per Attach annexure ) |
| 5. | a) Details of forest land proposed for diversion and activity-wise break-up of forest land | Proposed area 10.3425 Hect.<br>The Detail activity –wise break-up of forest land proposed is as per Area Statement on page no. |
| | b) Density and Eco-value class | Density : 0.2 - 0.4<br>Eco-value class : I<br>Category-RF, PP |
| 6. | Whether the requirement of forest land as proposed by the User Agency in Col.2 of Part-I is unavoidable and barest minimum for the project. If no recommended area item-wise with details of alternative examined | Yes.<br>Required forest land is barest minimum and unavoidable. |
| 7. | Whether the proposal involves any construction of building (including residential) or not ? If yes, details thereof | No. |
| 8. | a) Whether forest area proposed for diversion is important from wildlife point of view or not. | No. |
| | b) Details of any rare or endangered or unique species of flora and fauna found in proposed forest | Nil. |

(P-5)

Executive Engineer
M.S.E.T. Co. Ltd.

| | | |
|---|---|---|
| | land. If so, the details thereof. | |
| | c) Aerial distance from the nearest boundary of any Protected Area (km) | Within 5 km Tansa wild life Sanctuary. |
| | d) Remarks about sensitivity of the forest area likely to be effected due to project: | There is no adverse effect on the Tansa Wildlife Sanctuary or Eco Sensitive Zone. |
| | e) Whether wildlife mitigation plan is required? If yes, reasons therefor. | No. |
| 9. | Details of vegetation:<br>a) Total number of trees to be felled: | 515<br>180 Nos x3.5 Mt = Survey No.215 Teak growth to be cut. |
| | b) Number of trees to be felled of girth below 60 cm | 375<br>(Small suplings 677) |
| | c) Number of trees to be felled of girth above 60 cm. | 140 |
| | d) Effect of removal of trees on the general ecosystem in the area. | Not Applicable |
| 10. | Whether the proposal involves any violation of Forest (Conservation) Act 1980? If yes, a detailed report on violation including action taken against the concerned officials to be attached | No |
| 11. | Whether the proposal involves rehabilitation of displaced person. If yes, whether rehabilitation plan has been approved by the State Government? | No rehabilitation on which to required but the area required for project belongs to project affected person who have been rehabilitated from Tiger Reserve. |
| 12. | a) Details on catchment and cultivable command area under the project (if applicable)<br>b) Status of catchment area treatment plan to prevent siltation of reservoir (if applicable) | Nil.<br>Nil. |
| | Utility of the project | Transmission lines for which electricity coverage. |
| 14. | Whether land being diverted has any socio-cultural/religious value? Whether any sacred grove or very old growth trees/forest exist in the areas proposed for diversion? | No |
| 15. | Any other important information related to the project (Separate note may be attached, if required) | - |
| 16. | Details of documents and photographs enclosed: | All related Maps enclosed. |

Executive Engineer
M.S.E.T. Co. Ltd.
Project Dn. Kalvan

P2(6)

| | | |
|---|---|---|
| 18. | Recommendation of the Inspecting Officer. (CCF/CF/DCF) | This project is for public purpose and to avoid load shedding of electricity during peak demand period in around Thane district. Part of the land required for project is already distributed to project affected persons rehabilitated from Sahyandri Tiger Reserve. The project can only be recommended on the condition that the user agency reaches an amicable agreement with the project affected persons and submits the copy of the agreement to forest department. |

Place : Thane

Date:-07/08/2018

(Dr.Jitendra Ramgaokar)
Deputy Conservator of Forests,
Thane Forest division, Thane

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

उप वनसंरक्षक, ठाणे वन विभाग यांचे कार्यालय
भरेखौन सर्कल, लाल बहादूर शास्त्री मार्ग, नौपाडा, ठाणे-400 602, ☎25421373.
Email : dycfthane@mahaforest.gov.in

Letter

Sub- Diversion of 10.3425 Hect. of forest land for laying Padgha-wada 220 Kv Transmission line for kudus Substation .

Despatch No.FCA/25/ 905 /2018-19

ठाणे - 400602. Date: 14 / 08/ 2018

To
The Chief Conservator of Forest(T)
Thane

Ref: Executive Engineer , E.H.V.Projects Dn.Kalyan letter No. EF/EHVP/DN/KLN/T-No.1133 Dt 29.11.2017

Executive Engineer , E.H.V.Projects Dn.Kalyan medabad has submitted a proposal for Laying for work LILO on 220 KV Padghe-Wada. This project requires the area of Reserved forest and Protected Forest. Therefore the project authority is seeking GOI permission under Forest (Conservation) Act, 1980.

| Sr.No | Name of Taluka | Village Name | Forest S.No | Forest area in Hect. | Status |
|---|---|---|---|---|---|
| 1 | Bhiwandi | Eksal | 78 | 5.4635 | R.F. |
| 2 | | Chinchavali turf Kunde | 8 | 0.2065 | P.F |
| 3 | | Kunde | 292 | 0.784 | P.F |
| | | | 293 | 0.7105 | P.F |
| | | | 54pt | 0.6195 | P.F |
| | | | 52 | 0.1435 | P.F |
| | | | 51 | 0.0805 | P.F |
| | | | 54pt | 0.119 | P.F |
| 4 | | Dighashi | 211 | 0.175 | P.F |
| | | | 215 | 2.0405 | R.F |
| | | | | Total | 10.3425 |

14/8/2018.
लिपीक
उप वनसंरक्षक (प्रा.)
ठाणे

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

The following documents which are necessary as per Government of India instructions have been received from the Agency.

1) Prescribed form – A, Part I & II.
2) Area statement.
3) Index map of suitable scale.
4) Certificate that there is no violation of Forest Conservation Act, 1980 by the Agency.
5) Brief project detail from the Project Authority.
6) The Project Authority has given an undertaking of Net Present Value.
7) The site inspection report of Deputy Conservator of Forests, Thane..

The project authority has not started the non-forestry work on Forest Land. This Project is less than 1.000 ha. and therefore the Compensatory land is not required. Hence Compensatory Afforestation on the area of double degraded forest land i.e. 1.000 ha. is proposed in this division. The project authority is willing to bear the cost of Compensatory afforestation as required the Government and not felling of trees.

The following documents are awaited from the Agency for proposal.

1) The certificate under The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 from Collector, Thane is requested by Project authority. The certificate will be attached in the proposal when it will be issued by the Collector, Thane

This project is for infrastructure development and is of national interest and importance; hence the proposal is being recommended and is of diverting the required forest land under Forest (Conservation) Act, 1980 on the following conditions.

1) The legal status of forest land shall remain unchanged.
2) The area diverted will be used only for purpose mentioned in proposal.
3) Cost of Compensatory afforestation to be borne by the Project Authority.
4) Net Present Value to be borne by the Project Authority.
5) As and when require by the Forest Department, , E.H.V.Projects Dn.Kalyan will provide well furnished.

Encl : 6 sets of proposals.

(Dr. Jitendra Ramgaokar)
Dy. Conservator of Forests,
Thane Forest Division, Thane

Copy forwarded to Executive Engineer , E.H.V.Projects Dn.Kalyan for information and necessary action.
Copy to Assistant Conservator of Forests, Mandvi for information and necessary action.
Copy to Range Forest Officer, Padgha, for information and necessary action.

12/5

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

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# उप वनसंरक्षक, ठाणे वन विभाग यांचे कार्यालय

मॅरेथॉन सर्कल, लाल बहादूर शास्त्री मार्ग, नौपाडा, ठाणे-400 602, ☎२५४२१३९३.
Email : dycftthane@mahaforest.gov.in

पत्र

INWARD No. 557
DATE: 25/3/2019
M.S.E.T.C.L.
EHV Projects Dn., Kalyan.
TECH
HR
F & A

विषय : Submission forest proposal for work of LILO on 220 KV Padgha-wada for 440Kv Kudus S/S.

जा. क्र. कक्ष-25/एफसीए/ UORC /सन 2018-19
ठाणे - 400602, दिनांक : 20 /03/2019

प्रति,
कार्यकारी अभियंता
ई.एच.व्ही.प्रकल्प विभाग,
कल्याण

संदर्भ : आपले कडील पत्र क्रमांक EE/EHVp/DN/KLN/T1132 दि.29/11/2017

कार्यकारी अभियंता ई.एच.व्ही.प्रकल्प विभाग कल्याण आपणास उपरोक्त संदर्भाच्या अनुषंगाने कळविणेत येते की 9.4 हेक्टरचा क्षेत्र वळती करणेचा प्रस्ताव आपण सादर केला होता. सदर प्रस्तावाच्या on line Part-I प्रणाली मध्ये सुध्दा 9.4 हेक्टर क्षेत्र नमूद करणेत आलेले आहे. परंतू क्षेत्र निश्चितीअंती प्रस्ताव बाधीत होणारे क्षेत्र 10.3425 हेक्टर निश्चित झालेले आहे. व त्याप्रमाणे आपण 10.3425 हेक्टरचा सुधारीत प्रस्ताव या कार्यालयात सादर केला आहे. त्याप्रमाणे प्रस्ताव मा.मुख्य वनसंरक्षक यांना सादर करणेत आलेला आहे. सदर प्रस्ताव Part II on line प्रणाली मध्ये भरणेचे असल्याने 10.3425 हेक्टर क्षेत्राचा on line प्रणाली part-I मध्ये दुरुस्ती करुन या कार्यालयात तात्काळ सादर करावे.

(डॉ.विरेंद्र रामगावकर)
उप वनसंरक्षक,
ठाणे वन विभाग, ठाणे

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn., Kalyan

T-19 / T-256 G

## Office of Deputy Conservator of Forest, Thane Forest Division

Marathon Circle, Lal Bahadur Shastri Road, Naupada, Thane- 400602.

Letter

[Inward Seal - Text in English ]

Subject : Submission forest proposal for work of LILO on 220 KV Padgha-Wada for 440 Kv Kudus S/S.

O. No. Kaksha-25/FCA/7098/Year 2018-19
Thane – 400602 Date : 20/03/2019

To,
Executive Engineer,
E.H.V. Project Division,
Kalyan.

**Reference :** Your letter No. EB/EHVp/DN/KLN/T1132 Dt. 29/11/2017

In connection with the aforementioned reference, it is hereby informed to the Executive Engineer, E.H.V. Project Division Kalyan that, you have submitted a proposal for transferring 9.4 Hectares. Area of 9.4 Hectares is also mentioned in the online Part – I system of the said proposal. However, after confirmation of the area, the proposal affecting area has been fixed as 10.3425 Hectares and accordingly you have submitted revised proposal of 10.3425 Hectares. Subsequently, the proposal has been furnished before the Hon'ble Chief Conservator of Forest. As the said proposal is to be uploaded in Part II on line, correction of area of 10.3425 Hectares be carried out in the online system, Part I and furnish to this office with immediate effect.

Sd/-
(Dr. Jitendra Ramgaokar)
Deputy Conservator of Forest
Thane Forest Division, Thane

Sd/-
[ Seal – Text in English ]

| | |
|---|---|
| **Translated by**<br>**Mr. Rajesh Sidram Dasa**<br>A Panel Translator of Govt. of Maharashtra<br>Appointed at Sr. No. 6 of the Panel constituted by the Government of Maharashtra vide a GR No. Namuka-2019/Pra.Kra.29/Bhasha-2 Dated 22nd March, 2021.<br>Language Pair – Marathi ⇄ English | **TRUE TRANSLATION**<br><br>_____<br>**MR. RAJESH SIDRAM DASA**<br>R/at : Flat No. 501, Paramount Gardens, Katraj-Kondhwa Road, Gokulnagar, Katraj, Pune – 411046.<br>Mobile No. : 9850914652 Email : rajeshdasa.08@gmail.com |

(342) 3

MAHATRANSCO

MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO. LTD.

| From, | To, |
|---|---|
| Office of the Executive Engineer,<br>E.H.V. Projects Division,<br>II[nd] floor, 'A' wing, 'Tejashri Bldg.',<br>Jatengir Maidan, Kamiknod,<br>M.S.E.T. Co. Ltd., Kalyan (W) 421 301<br>Tel. - 0251 2328410 / Fax - 0251 2201657<br>E-mail - ssetvrtkalyan@gmail.com<br>ee7b20.c.mahatransco.in | Deputy Conservator of Forest,<br>Thane Division,<br>Thane |

Ref. No. EE/EHV PDN/KLN/T-19/No. 000429 Date: 03 MAR 2019

Sub: Correction in forest proposal area for proposed project of construction and laying of 220KV M/C LILO on Padghe- Wada & Kolshet-Wada transmission line for 400kv Kudus S/S of MSETCL from 9.4 Ha to 10.3425Ha.

Ref: 1. On line forest proposal vide FP/MH/TRANS/30180/2017 DT.09.11.2017

2. Your reference letter No. -वि.व.क्र.२१/उपसंर/वन१८/ सन २०१८-१९ दिनांक २०/०३/२०१९

With reference to above subject, The on line forest proposal for proposed project of construction and laying of 220KV M/C LILO on Padghe- Wada & Kolshet-Wada transmission line for 400kv Kudus S/S was submitted by this office vide under ref(1).

Previously the online forest proposal is submitted for forest area of 9.4Ha and the same is incorporated in Part-I of forest proposal. But after joint inspection by your forest authority, the forest area changes from 9.4 Ha to 10.3425. The said proposal is in process at C.C.F. office, Thane.

Your office has conveyed vide letter under ref(2) to make correction in forest area of part-I of on line proposal of the above said work from 9.4Ha to 10.3425. Accordingly this office has made necessary correction in forest area of part-I so as to process part-II of on line forest proposal.

In this regard, it is requested to process the proposal to next stage to get approval accordingly.

Submitted for further needful action please.

(V.B. Aware)
Executive Engineer
EHV Project Division, Kalyan

Copy to:-

The Superintending Engineer, EHV Project Circle, Kalwa

Copy to:

The Additional Executive Engineer, S&I S-Dn., Kalyan.

Executive Engineer
M.S.E.T. Co. Ltd.
E.H.V. Project Dn.,Kalyan

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Letter No. ...

Subject :- [illegible]

No. DFO/108/F.C.A/Thane/[illegible]/2019
Thane - 400 601, Dt. [illegible]/04/2019

To,

The Addl. Principal Chief Conservator
of Forests and Nodal Officer,
Maharashtra State,
Nagpur – 440 001

The Deputy Conservator of Forests, Thane has submitted the proposal as enclosed in the captioned subject vide his letter No. FCA/25/005, dated 19/08/2019 and FCA/[illegible]/2019, dated 13/09/2019. A copy of the same is enclosed herewith for your ready reference. The Project Agency of this project is Executive Engineer, MSETCL Company Ltd., EHV Projects, Division Kalyan.

2(a) The Project Authority has submitted a proposal for Diversion of 10.3425 ha. of Forest land for laying of P-Kudus-Wada 220 KV Transmission line for Kudus Substation in Thane District. Therefore, the Project Authority is seeking GOI's permission u/s 2 of Forest (Conservation) Act, 1980.

2(b) The details of the land proposed for diversion are as under:-

| Sr. No. | Taluka | Village | Survey No. | Area | Legal Status |
|---|---|---|---|---|---|
| 1. | Bhiwandi | Eksal | 78 | 5.4615 | Reserved Forest |
| 2. | | Chinchoti Tarf Kudus | 8 | 0.2053 | Private Forest |
| 3. | | Kudus | 92 | 0.781 | Private Forest |
| | | | 293 | 0.7108 | Private Forest |
| | | | 54pt. | 0.6195 | Private Forest |
| | | | 57 | 0.1435 | Private Forest |
| | | | 61 | 0.0805 | Private Forest |
| | | | 59pt. | 0.119 | Private Forest |
| | | | 58 | 0.105 | Private Forest |
| 4. | | Dighashi | 218 | 2.0305 | Reserved Forest |
| | | | Total | 10.3425 | |

2(c) The Project Authority has given undertaking to pay the cost of NPV/Present Value as decided by the Government. The Project Authority has submitted Rs. 53,00,000/- (Rupees fifty three lakhs only) vide DD No. [illegible] dated [illegible] as enclosed in the proposal.

2(d) The area i.e. 10.3425 Ha. from village [illegible] of Bhiwandi of Thane District is not covered under [illegible]

Executive Engineer

Executive Engineer