

संदर्भ/Ref : CC-ENGG-TB202362-1002341-T23411-6121662-FDN DA+0 DRY

Date : 05/06/2024

**From :** Md Anisur Rahman  
DGM**To :** M/S LARSEN And TOUBRO LIMITED  
D, MANAPAKKAM, CHENNAI 600089  
ECC DIVISION, MOUNT POONAMALLEE  
Chennai-600089, Tamil Nadu**Cc :** CGM PROJECTS, SR-II**Subject :** Transmission line package TL02 for Koppal II PS – Narendra(New) 765 kV D/C line Part-II associated with "Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-A)" through tariff based competitive bidding route.**LOA Ref :** CC/T/W-TW/DOM/A02/23/02840/NOA-1/24-103428/01 Dated 12/03/2024

Please find enclosed following drawings/ documents for necessary action at your end.

**Vendor Drg. No. :** 023032-T-TL-0D-DC-1001**Orgn. Drg. No. :** TB202362-1002341-T23411-6121662-FDN DA+0 DRY**Revision No. :** 00**Drg. Title :** Foundation design document and drawing for 765kV D/C tower Type 'DA-3m to +0m' BE (Hexa AL59 Zebra)-WZ-1 - Dry Soil**App. Category :** CAT-I**Release Date :** 05/06/2024

Scan to verify

**Comments :** Casting of Foundations before successful proto-type testing of tower shall be at the complete risk & cost of Contractor.**अनुमोदित श्रेणी/App. Category:**

- I. फेब्रिकेशन/निर्माण/टाइप टेस्टिंग हेतु जारी।  
**Approved/released for fabrication/construction.**
- II. फेब्रिकेशन/निर्माण/टाइप टेस्टिंग हेतु अनुमोदित/जारी बशर्ते दिए गए टिप्पणियाँ एवं आशोधनों की सम्मिलित किया जाये। कृपया रिवाइज्ड दस्तावेज अनुमोदनार्थ प्रस्तुत करें।  
**Approved/released for fabrication/ construction subject to incorporation of comments and modification as noted. Revised drawing required for approval.**
- III. टिप्पणियाँ सम्मिलित करने के उपरांत दस्तावेज को अनुमोदनार्थ प्रस्तुत करें।  
**To be resubmitted for approval after incorporating the comments.**
- IV. सूचनार्थ एवं रिकार्ड हेतु।  
**For information and record.**
- CATREL/ निर्माण हेतु जारी।  
REL-CON **Released for construction.**

**नोट/Note:**

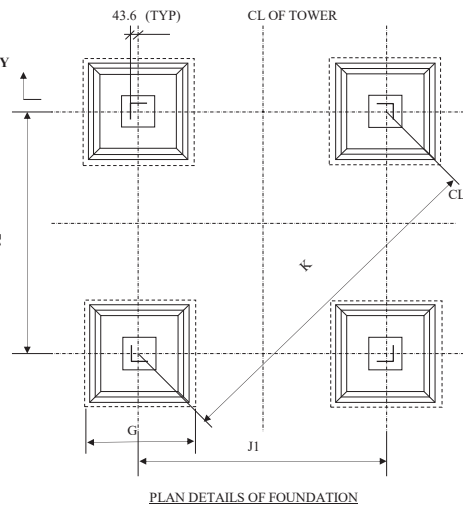
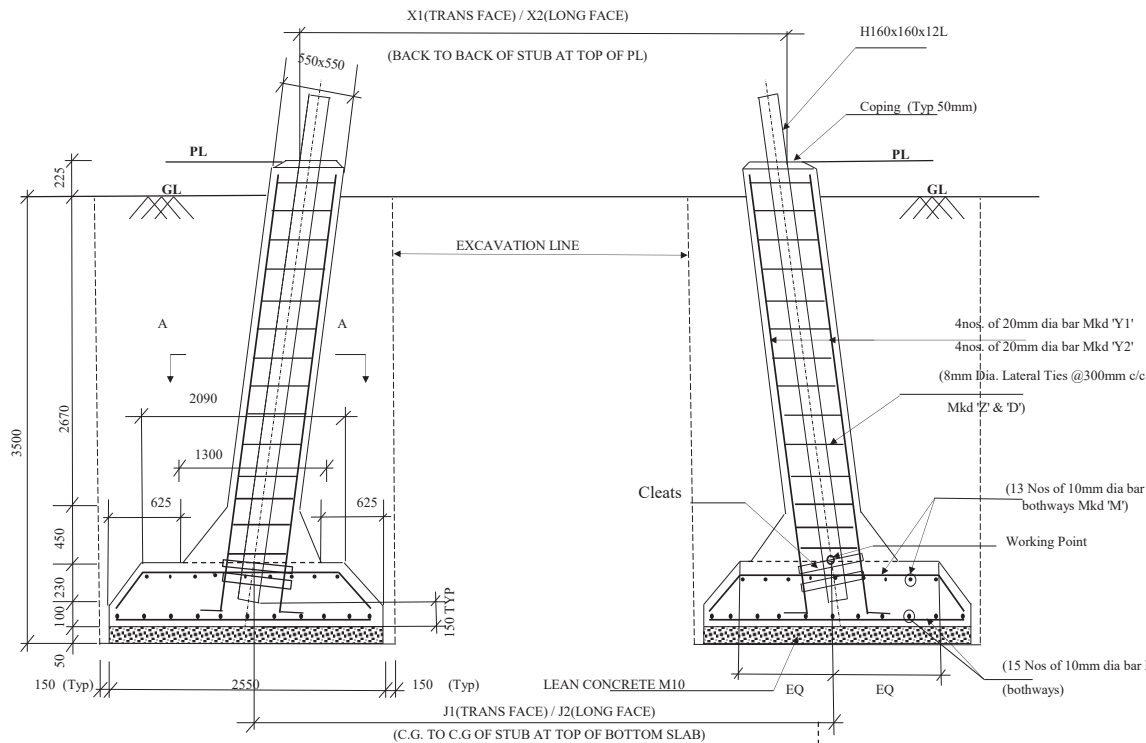
1. Approval/Comments conveyed herein neither relieve the contractor of his contractual obligations and his responsibilities, weights, quantities, design details assemble fits, performance particulars and conformity of the supplies with the Indian Statutory Laws as may be applicable, nor does it limits the purchaser's right under the contract.
2. The approval conveyed vide this letter does not cover the approval of make for sub-vendor items.

केन्द्रीय कार्यालय: "सौदामिनी", प्लॉट नंबर 2, सेक्टर -29, गुरुग्राम -122001, (हरियाणा), दूरभाष: 0124-2571700-719

**Corporate Office:** "Saudamini", Plot No. 2, Sector-29, Gurugram-122001, (Haryana) Tel.: 0124-2571700-719

पंजीकृत कार्यालय: बी -9, कुतुब इंस्टीट्यूशनल एरिया, कटवारिया सराय, नई दिल्ली -110016. दूरभाष: 011-26560112, 26560121, 26564812, 26564892, सीआईएन: L40101DL1989GOI038121

**Registered Office:** B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi-110016. Tel: 011-26560112, 26560121, 26564812, 26564892, CIN : L40101DL1989GOI038121**Website:** www.powergridindia.com



| FOUNDATION DESIGN PARAMETERS: |                         |
|-------------------------------|-------------------------|
| TYPE OF SOIL:                 | Dry Soil(3.5m Depth)    |
| UNIT WEIGHT:                  | 1440 kg/m <sup>3</sup>  |
| LIMIT BEARING CAPACITY:       | 21870 kg/m <sup>2</sup> |
| ANGLE OF REPOSE:              | 30 Deg                  |
| WATER TABLE:                  | > 3.5 m from GL         |

#### NOTES

1. ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE SPECIFIED
2. CONCRETE GRADE IS M 20 AND LEAN CONCRETE GRADE IS M10
3. NOT MORE THAN 50% BARS SHALL BE LAPPED AT ONE SECTION, UNLESS SHOWN.
4. CONCRETE COVER TO REINFORCEMENT SHALL BE 50 MM MINIMUM, UNLESS OTHERWISE STATED.
5. MIX PROPERTIES CONFIRMING TO IS 456-2000 AND CEMENT CONTENT SHOULD CONFIRM WITH THE TECHNICAL SPECIFICATION REQUIREMENT.
6. REINFORCEMENT BARS ARE HIGH STRENGTH DEFORMED BARS CONFIRMING TO IS 1786 (Fe500 N/mm<sup>2</sup>)
7. DURING PLACEMENT OF REINFORCEMENT BARS, THE BAR SPACING HAS TO BE ADJUSTED TO PROVIDE PROPER CLEARANCE FOR CLEATS.
8. FOR FOUNDATION DESIGN REFER DOC: 023032-T-TL-0D-DC-1001.
9. STUB SETTING TEMPLATE HAS TO BE USED AT EACH LOCATION OF TOWER AND SST DRAWINGS SHALL BE REFERRED FOR THE VALUES OF X (INDICATED IN THE TABLE) FOR CONSTRUCTION PURPOSE.
10. FOR SPlicing, LAP LENGTH TO BE PROVIDED IS 57d, d= DIA OF LARGER BAR.
11. NO FOUNDATION SHALL REST ON FILLED UP SOIL.
12. DRAWING IS NOT TO SCALE, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
13. AT SITE PROPER COMPACTION OF THE BACKFILLED EARTH MUST BE DONE.
14. FOUNDATION DESIGN HAS BEEN DONE AS PER IS456-2000.
15. FOR STUB AND CLEAT DETAILS REFER APPROVED DRAWING OF STUB AND STUB DEPTH BELOW GROUND LEVEL IS 3300mm AND CLEAR COVER TO STUB IS 150MM OVER THE LEAN CONCRETE BASE.
16. THIS DRAWING IS ONLY APPLICABLE FOR TOWER WITH EQUAL BODY/ LEG EXTENSIONS.
17. ALL HOOKS, BENDS, LAPS & SPLICES SHALL BE AS PER IS 456:2000 AND IS 2502, EXCEPT STATED OTHERWISE

| SOIL TYPE | Basic Body/ Leg Extn | FOUNDATION    |               |                     |                     |          | EXCAVATION                                     |      |             | Reinforcement Per Tower in kg |
|-----------|----------------------|---------------|---------------|---------------------|---------------------|----------|------------------------------------------------|------|-------------|-------------------------------|
|           |                      | X1 @ TF in mm | X2 @ LF in mm | J1 @ TF in mm (C/C) | J2 @ LF in mm (C/C) | K in mm  | Volume of Concrete Per Tower in M <sup>3</sup> |      | Width in mm |                               |
| Dry Soil  | DA-3.0MBE BB         | 18722.67      | 15387.48      | 19767.21            | 16233.17            | 25578.48 | 12.70                                          | 1.30 | 2850        | 113.72                        |
|           | DA-1.5MBE BB         | 19230.74      | 15806.19      | 20275.28            | 16651.88            | 26236.85 |                                                |      |             |                               |
|           | DA+0MBE BB           | 19738.80      | 16224.91      | 20783.34            | 17070.60            | 26895.22 |                                                |      |             |                               |

#### BAR BENDING SCHEDULE



| Mkd No                                 | SKETCH | Dia in MM | Length in MM | Nos/ Leg | Unit Wt in Kg | Wt/ Leg Kg | Total Wt/Tower Kg |
|----------------------------------------|--------|-----------|--------------|----------|---------------|------------|-------------------|
| K                                      | 2450   | 10        | 2450         | 30       | 0.617         | 45.3       | 181.2             |
| M                                      | 287    | 10        | 2623         | 26       | 0.617         | 42.1       | 168.4             |
| Y1                                     | 500    | 20        | 4085         | 4        | 2.466         | 40.3       | 161.2             |
| Y2                                     | 500    | 20        | 4085         | 4        | 2.466         | 40.3       | 161.2             |
| Z                                      | 450    | 8         | 1950         | 13       | 0.395         | 10.0       | 40.0              |
| D                                      | 318    | 8         | 1423         | 13       | 0.395         | 7.3        | 29.2              |
| Total weight of steel required in Kg = |        |           |              |          |               |            | 742               |

| LEG SLOPE:        |          |
|-------------------|----------|
| TRANSVERSE FACE   | = 0.1694 |
| LONGITUDINAL FACE | = 0.1396 |

#### RELEASED FOR GFC

Issue Authority.....  
Date.....06/06/2024

Raised Chimney foundation shall be used by site with specific approval of Head of the Region for each location.

|                                                                                                                                                                                                                                                                                                                                              |          |                               |  |  |                                       |       |          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------------------------|--|--|---------------------------------------|-------|----------|
| 0                                                                                                                                                                                                                                                                                                                                            | 04.06.24 | First Submission for approval |  |  | UMW                                   | TRAMS | CSR      |
| Rev No                                                                                                                                                                                                                                                                                                                                       | DATE     | DESCRIPTION                   |  |  | PREP                                  | CHKD  | APPD     |
| THIS IS PROPRIETARY ITEM AND DESIGN RIGHT IS STRICTLY RESERVED WITH POWERGRID AND UNDER NO CIRCUMSTANCES, SHALL THIS DRAWING BE USED BY ANYBODY WITHOUT PRIOR PERMISSION IN WRITING.                                                                                                                                                         |          |                               |  |  |                                       |       |          |
| CLIENT :  POWERGRID CORPORATION OF INDIA LTD                                                                                                                                                                                                            |          |                               |  |  |                                       |       |          |
| CONTRACTOR :  L&T CONSTRUCTION<br>POWER TRANSMISSION AND DISTRIBUTION IC                                                                                                                                                                                |          |                               |  |  | NAME                                  |       | DATE     |
|                                                                                                                                                                                                                                                                                                                                              |          |                               |  |  | DSND                                  | UMW   | 04.06.24 |
| Transmission Line Package TL02: Koppal-II PS – Narendra (New) 765 kV D/c line- Part-II associated with “Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-A) and Gadag-II (Phase- A)” through tariff based competitive bidding (TBCB) route ;<br>Spec. No.: CC/T/W-TW/DOM/A02/23/02840/ 5006004459 |          |                               |  |  | DRWN                                  | UMW   | 04.06.24 |
|                                                                                                                                                                                                                                                                                                                                              |          |                               |  |  | CHKD                                  | TRAMS | 04.06.24 |
|                                                                                                                                                                                                                                                                                                                                              |          |                               |  |  | APPD                                  | CSR   | 04.06.24 |
| PROJECT : Foundation design document and drawing for 765kV D/C tower Suspension Type Tower<br>DA (0°-2°) "-3m to +0m" BE (Hexa AL59 Zebra)-WZ-1- Dry Soil                                                                                                                                                                                    |          |                               |  |  | SCALE                                 | NTS   |          |
| TITLE:                                                                                                                                                                                                                                                                                                                                       |          |                               |  |  | Document No<br>O23032-T-TL-0D-DC-1001 |       | REV.     |
|                                                                                                                                                                                                                                                                                                                                              |          |                               |  |  | PAGE 40 OF 40                         |       | 0        |