

Clarification No.-I dated 25.08.2026 to the Bidding Documents for Engagement of 3rd party for implementation of SFQPs during Construction of Gadag-II PS – Koppal-II PS 400KV (Quad Moose) 2nd D/C line under the scheme “System strengthening at Koppal-II and Gadag-II for integration of RE Generation Projects” by POWERGRID Koppal Gadag Augmentation Transmission Limited (PKGATL)

(Specification No. SR2/T/S-CONS/DOM/C00/26/09081)

S No.	Volume/ Section/ Clause No.	Bidder's Queries	Amended as/ POWERGRID's Reply
1	Clause No. 9.5 of GCC Section IV	INDEMNITY For the equipment/material to be provided by the Contractor, it will be the responsibility of the Contractor to take delivery, unload and store the materials at Site and execute an Indemnity Bond and obtain authorisation letter from Employer as per proforma enclosed at Section VI (Sample Forms and Procedures), in favour of the Employer against loss, damage “We request you to limit of indemnification by Third party inspection agency/ Contractor will be limited to the contract fees. Please consider”	The clauses are as per bid documents and the same shall prevail.
2	Clause No. 26 of GCC Section IV	LIMITATION OF LIABILITY Except in cases of gross negligence or willful misconduct, (a) the Contractor and the Employer shall not be liable to the other party for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Contractor to pay liquidated damages to the Employer and	The clauses are as per bid documents and the same shall prevail.

		(b) the aggregate liability of the Contractor to the Employer, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment, or to any obligation of the Contractor to indemnify the Employer with respect to patent infringement. “We request you to consider the liability of the Third-party Agency/ Contractor shall be limited to 100% of total contract fees under any circumstances for this contract. Please advice”	
3	Clause No. 17 of SCC Section-V	LIQUIDATED DAMAGES If the Contractor fails to comply with the Time for Completion in accordance with Clause GCC 21 for the whole of the facilities, (or a part for which a separate time for completion is agreed) then the Contractor shall pay to the Employer a sum equivalent to Zero Point Zero Five Percent (0.05%) of the Contract Price for the whole of the facilities, (or a part for which a separate time for completion is agreed) as liquidated damages for such default and not as a penalty, without prejudice to the Employer's other remedies under the Contract, for each day which shall elapse between the relevant Time for Completion and the date stated in Taking Over Certificate of the whole of the Works (or a part for which a separate time for completion is agreed) subject to the limit of Five percent (5%) of Contract Price.....	The clauses are as per bid documents and the same shall prevail.

		"We request you to kindly consider all circumstances, including the fact that penalties, liquidated damages and risk purchase are capped at 5% of the contract value under this contract. Please Clarify."	
4	Clause No. 36 of GCC Section IV	TERMINATION 36.1 Termination for Employer's Convenience 36.1.1 The Employer may at any time terminate the Contract for any reason by giving the Contractor a notice of termination that refers to this GCC Sub-Clause 36.1. 36.1.2 Upon receipt of the notice of termination under GCC Sub Clause 36.1.1, the Contractor shall either immediately or upon the date specified in the notice of termination a) "We request you to consider prior written notice of 60 days before termination of Contract due to any reason. b) We request you to please allow the equal right for termination by giving 60 days prior notice in writing to the contractor. c) We understand that client shall pay the outstanding fee prior to the termination, also we request you to please give the clarification on the payment after the termination of the contract. Please consider."	The clauses are as per bid documents and the same shall prevail.
5	Clause No. 30 of GCC Section IV	INSURANCE	Please refer Appendix-3 of "09-sec-VI Forms & Procedure".

		To the extent specified in the corresponding Appendix-3 (Insurance Requirements) to the Contract Agreement, the Contractor shall at its expense take out and maintain in effect, or cause to be taken out and maintained in effect, during the performance of the Contract, the insurances set forth below in the sums and with the deductibles and other conditions specified in the said Appendix. The identity of the insurers and the form of the policies shall be subject to the approval of the Employer, who should not unreasonably withhold such approval..... “We understand that the scope under this contract is limited to Engagement of 3rd party for implementation of SFQPs during Construction of Gadag-II PS - Koppal-II PS 400KV (Quad Moose) 2nd D/C line under the scheme “System strengthening at Koppal-II and Gadag-II for integration of RE Generation Projects” by POWERGRID Koppal Gadag Augmentation Transmission Limited (PKGATL); therefore, we are required to carry only personnel-related insurance (Medical Insurance and Workmen’s Compensation Policy) for our staff deployed at site. Please clarify whether any other insurance policies are required to be carried under this contract. Please Clarify”	
--	--	---	--

6	Clause No. 32 of GCC Section IV	FORCE MAJEURE "Force Majeure" shall mean any event beyond the reasonable control of the Employer or of the Contractor, as the case may be, and which is unavoidable notwithstanding the reasonable care of the party affected, and shall include, without limitation, the following: (a) war, hostilities or warlike operations (whether war be declared or not), invasion, act of foreign enemy and civil war, (b) rebellion, revolution, insurrection, mutiny, usurpation of government, conspiracy, riot and civil commotion, a) "We request you to add the following events in the Force Majeure definition i.e. any war, hostility, acts of the public enemy, epidemics, civil commotion, sabotage, fires, floods, Pandemic, explosion, quarantine restrictions, strikes, lockouts or act of God (but not including negligence or wrongdoing, predictable/seasonal rain) any other catastrophic unforeseeable, circumstances, any statutory, rules, regulations, orders or requisitions issued by a Govt. department or competent authority thereon considering Covid-19 situation. Please Consider. b) We request you to kindly allow us to provide a written notice within 30 days	The clauses are as per bid documents and same shall prevail.
---	---------------------------------	---	--

		of occurrence of such force majeure. Please Consider. c) We request you to kindly include notice period of 60 days in case of termination due to force majeure if applicable for this contract. Please Consider."	
7	Clause No. 2.14 Of GCC Section-IV	GOVERNING LAW & ITS JURISDICTION The Contract shall be governed by and interpreted in accordance with laws of Union of India and the Courts of New Delhi shall have exclusive jurisdiction in all matters arising under this Contract. "We request you to allow Courts of Mumbai to have exclusive jurisdiction over the matter. Please Considered."	The clauses are as per bid documents and same shall prevail.
8	Vol-II (Scope of work)	As per TS/Scope of work The Time schedule of FQP supervision activities shall be as per L2 schedule of Main Package. In case of any delay of main transmission line work from its L2 network, i.e. beyond scheduled completion date of main package, service provider contract shall be extended for 06 months on same terms and conditions. At expiry of extension period of 06 months further extension if required, issue shall be finalized on mutual agreement between Powergrid and service provider. Remarks/Query As per the L2 schedule of the main package, all project activities are planned to be completed by November 2026, assuming the FQA contract	"It has been mentioned clearly at Sl.no.10 of Standard scope of work and SCC, "In case of any delay in main transmission line work from its L2 network"i.e. beyond SCHEDULED COMPLETION DATE OF MAIN PACKAGE, service provider contract shall be extended for 06 month on same terms and conditions."

		is awarded in August 2026. Accordingly, the anticipated execution period is approximately three (03) months. Further, the tender provides for an extension of the contract by up to six (06) months on the same terms and conditions. However, the tender document do not have methodology for determining compensation in the event that the deployment of FQA resources is required beyond the L2 schedule plus the stipulated six-month extension period (L2 + 6 months). In the absence of a defined mechanism, the existing provision may give rise to ambiguity, contractual disputes, and financial uncertainty regarding the continued deployment of manpower. Based on our experience in executing several POWERGRID FQA contracts, we have observed that such provisions often lead to differing interpretations during contract execution, thereby exposing both the Employer and the FQA agency to avoidable contractual disputes. We therefore request that the tender document be suitably amended to clearly specify the methodology for determining compensation for any deployment required beyond the L2 + 6 months period. Alternatively, we propose that the contract be structured on a resource-based (man-month) basis for the specified personnel, as is being followed in certain other POWERGRID regions. Such an approach provides greater contractual clarity, ensures equitable compensation for actual resource	
--	--	--	--

		deployment, and effectively eliminates the possibility of disputes arising from project schedule extensions.	
9	Vol-II (Scope of work)	As per standard BOQ format of TS/Scope of work, 01 team consisting of 01 Team Leader 03 Engineers, 03 Technicians and one AC Vehicle with driver is required for T/L below 100Km. Remarks/Query Considering the proposed project of approx. 38Km, the above resource requirement is quite disproportionate and will lead to higher cost of resources. Also, it is not possible to pull/utilize these resources for our other projects due to uncertainty of quantum of work of proposed work. We therefore request to modify the requirement to 01 team consisting of 01 Team Leader 04 Technicians and one AC Vehicle with driver. Alternatively, we request you to confirm that present deployment is not mandatory all the time and the resources can be deployed as per site requirements.	The same cannot be modified in view of work requirement, as this forms the basis for quoting of rates.
10	Vol-II (Scope of work)	Checklist for FQA supervision Remarks/Query Request you to provide checklist for FQA supervision expected from agency.	Checklist for foundation, erection and stringing activities attached.

11	General	Estimated Cost /EMD Remarks/Query: Bidders have tendency to quote around the estimated cost of bid which can be calculated from EMD amount which is 2% of estimated cost. We feel that the present estimated cost is too much on lower side leading to unviable L1 price, we therefore request you to review the estimated cost.	Bidders are advised to quote as per the bidding documents.
12	General	Hard Copy Submission Remarks/Query: We request that the hard copy submission should not be mandatory for bidders exempted from EMD submission as per provisions of tender documents. The hard copies can be sought from bidders before award of contract in case they have emerged as L1 bidder in the process.	Hard copies as per the tender document is mandatory to submit.

..... - - - - - TRANSMISSION LIMITED
CORPORATE OPERATION SERVICES
Safety Check List during Foundation Work

Region : TL Const. Office: Date of Inspection

Name of Line:

Loc. No..... Classification of Foundation and Type of tower.....

Main Contractor: Sub contractor.....

Sl.No.	Description	Observations	Remark
1	Check whether Supervisor / Gang leader had issued instructions to workers before start of work on that day.		
2	a) All workers are using PPEs at site i.e. Safety Helmets, Rubber Gum Boots, Hand Gloves. b) PQWERGRID Officials are using PPEs at site.	Safety helmet - No. in use / total worker = Rubber Gum Boot - No. in use / total worker = Hand Gloves - No. in use / total worker = Yes /No.	
3	Distance of Dumped excavated soil of all four sides from the edge of the pit.		
4	Slope of cutting edge of all four sides.		
5	a) De watering arrangement, if required, b) If yes, Distance of disposal of water.		
6	Installation of Shoring & Shuttering, if required.		
7	Adequate warning & Barricading of the pit for protection have been made.		
8	The Blaster is a valid license holder. Yes / No. Adequate arrangement made to inform public by caution marking [Red flag) / Public Notice) and signal man posted.		
9	Strong ladder provided in the pit.		
10	Jacks for supporting the template is placed at safe distance.		
11	Distance of construction materials, Concrete Mixer / Compressor placed from edge of pit.		
12	Whether arrangements for electrical loose joints and barricading of electrical panels have been made.		
13	Whether all Safety aspects taken care of for concreting.		
14	First Aid box with required items is available at site and (Name & No.) of First Aid trained persons		
15	Action taken for violation for safety norms, if any.		
16	Any other points specific to location:		

TOWER FOUNDATION

1. PIT MARKING

Name of Line:

Loc. No. _____

Name of Contractor:

Tower Type _____

i)	Approved Drg. Nos.		
ii)	Reference Level		
iii)	Alignment of Loc w.r.t previous and next Loc.	OK. /Not OK	
iv)	Loc of centre peg/position of various land marks are matching as per Profile	OK. /Not OK	
v)	Any new features on ground w.r.t profile necessitating realignment / shifting of Loc. or due to any other reasons.	Yes /No	
vi)	Span and both sides of Loc.	As per Profile (Mtr)	Actual (Mtr)
	a) Preceding Span (Loc. No.)		
	b) Succeeding Span (Loc. No.)		
vii)	Angle of deviation and bisection in case of angle towers	As per Profile/ Actual	
	a) Angle of Deviation		
	b) Bisection found	OK. /Not OK	
viii)	Position of cross pegs in transverse direction	OK. /Not OK	
ix)	Position of all four pits is on levelled ground and safe	Yes /No	
x)	Whether benching / Revetment required if yes, then.	Yes /No	
	a) If contour maps /revetment required if yes, then	Yes /No	
	b) Possibly calculate volume in Cu. Mtr		

Certificate: Cleared for excavation

For

For

Signature

Signature

Name

Name

Designation

Designation

Date.....

Date.....

2. FOUNDATION CLASSIFICATION

Name of Line:

Loc. No. _____

Name of Contractor:

Tower Type _____

i) Strata wise pit details

STRATA DEPTH

.....
.....
.....
.....

PIT-C

RECEIVING END

.....
.....
.....
.....

Trial pit details/
Bore log details

STRATA DEPTH

.....
.....
.....
.....

PIT-B

STRATA DEPTH

.....
.....
.....
.....

PIT-D

STRATA DEPTH

.....
.....
.....
.....

PIT-A

SENDING END

NOTE: CLASSIFICATION MAY ALSO BE GIVEN ON TRIAL PIT OR ONE PIT EXCAVATION BASIS

a) Predominant soil

ii) Sub soil water table details as on date.

PIT-A	PIT-B	PIT-C	PIT-D

iii) Water table in nearby well as on date.....mtrs.

iv) Maxm. Subsoil water table in monsoon season after thorough local enquiry..... mtrs.

v) Surface water table on grnd. in monsoon season and its duration.....mtrs. for..... days

vi) Type of cultivation.

Paddy fields / cultivated land/barren land

vii) Whether encasement of stubs reqd due to surface water?

Yes/No

If yes, ht. of encasement above grnd. level.....mtrs.

viii) Whether soil investigation carried out at this Loc. or nearby Loc.

Loc. No.

ix) If this loc. strata details are comparable with above soil investigation report or any Other loc. of this line.

Loc. No.

x) Details of soil investigation report:

a) STRATA DEPTH

.....
.....
.....
.....

b) Subsoil water tablemtrs.

c) Ultimate Bearing capacitykg./m²

d) Angle of repose.(°)degrees

xi) Foundation classification proposed by contractor

xii) Foundation classification recommended.

As per Soil Investigation	Actual

Remarks/Reasons:

.....

For

For

Signature

Signature

Name

Name

Designation

Designation.....

Date.....

Date

Approval: Site visited on..... and details verified.

The classification of foundation is approved as

FOR

Signature.....

Name.....

3. STUB SETTING

Name of Line:

Loc. No. _____

Name of Contractor:

Tower Type _____

i)	Approved drg. Nos.							
	Pit Dimensions							
	a)	Depth of Pits	From Ref. Level		Ground Level			
				Normal	DFR	WFR	HR	WET
		Pit-A						
		Pit-B						
		Pit-C						
		Pit-D						
	b)	Pit dimensions are as per approved foundation classification.			Yes /No			
		Excavated soil is kept 2 m away from pit edge.			Yes /No			
		Under cutting done in case of fissured rocks			Yes /No			
iii)	Alignment of template							
	a)	Tangent Tower						
	a.a)	In the direction of line			Yes/No			
	b)	Angle Tower						
	b.a)	Angle of deviation degrees						
	b.b)	Alignment of template on bisection			Yes/No			
iv)	Diagonals of template.							
	AC							
	BD							
	$\angle$ = Angle of Deviation. PQ = Line of Bisection. (Lines AD and BC are perpendicular to PQ)							
v)	Level of template checked by dumpy level				Yes/No			
vi)	Ht. of template above ground level				Ok/Not Ok			
vii)	Clearance between lowest part of stub and base of pit (Not less than 15 cm or as specified in the drg.) in Cm.							
	Leg A							
	Leg B							
	Leg C							
	Leg D							
viii)	Template support positioning is causing any danger to collapse of pit. .				Ok/Not Ok			

ix)	All members of template are fixed as per drg. and fully tightened	Yes/No
x)	Checking of stubs	
	Stub dimensions are as per type of tower.	Yes/No
	All plates/cleats fixed with reqd. no. of Nut/bolts and are fully tightened	Yes/No

Certificate: Cleared for Stub Setting

For

For

Signature

Signature

Name

Name

Designation

Designation

Date.....

Date.....

4. CONSTRUCTION MATERIALS

Name of Line:

Loc. No. _____

Name of Contractor:

Tower Type _____

i) Quality / Quantity of Sand as per approved drawing and specifications.

Quantity required	Quantity available	Approved Source	Quality Ok /Not Ok

ii) Quality / Quantity of Course Aggregates as per approved drawings and specifications.

Size	Quantity required	Quantity available	Approved Source	Quality (Ok /Not Ok)
10 mm				
20 mm				

iii) Dimensions of Measuring Box (30 x 30 x 39) Cm (Ok/Not Ok)

iv) Proportions of concrete mix

Grade of concrete/ Type of Mix	Qty. of coarse aggregate		Qty of sand	Qty. of cement	Qty. of water
M-10 (Nominal)					
M-20 (Nominal)	10mm	20mm			
M-25 (Design Mix)					
M-30 (Design Mix)					

v) Quality & Quantity of water as per Specification (OK /NOT OK)

vi) Reinforcement Steel

Quality & Quantity as per approved Drawings / Specifications.

Dia (MT)	Quantity required (MT)	Quantity Available (MT)	Approved Source	Quality (OK / NOT OK)
6 mm				
8 mm				
10 mm				
12 mm				
16 mm				
20 mm				
25 mm				
32 mm				

vii) Form Boxes and T&P

a)	Form Boxes	
	i) Dimensions as per approved Drawings	OK / NOT OK
	ii) Oiling of inner walls of form boxes	OK / NOT OK
b)	T&P and manpower as per requirement are available at site	Yes / No

Certificate: Materials and T&P cleared for lean concreting

viii) Lean Concreting

a)	Pits are free from all foreign materials	Yes / No
b)	Pits are free from standing water (Dewatering continued in advanced Pumps / Buckets)	Yes / No
c)	Mix Ratio 1:3:6 with 20 mm metal	Yes / No
d)	Concreting mixing by mixer as per specifications	Yes / No
e)	Mixture running time (mixing time - 2 Min)	Yes / No
f)	Dewatering done	Yes/No / Not Reqd
g)	Lean concreting done upto specified level and area in all the four pits	Yes / No
h)	No. of Cement bags consumed (as per design_____)	Actual
i)	In case of excess excavation filling is done by lean concrete & no loose soil is permitted for filling	
j)	Vol. of excess lean concrete in Cum.	

Certificate: Pits are cleared for installation of reinforcement and Form boxes.

For

For

Signature

Signature

Name

Name

Designation

Designation

Date.....

Date.....

5. INSTALLATION OF REINFORCEMENT STEEL & FORM BOXES

Name of Line:

Loc. No.

Name of Contractor:

Tower Type

i)	Approved Drawings No.	
ii)	Reinforcement steel	
	a) Quality / Quantity as per specification	Yes /No
	b) Bending / Placing as per approved drawings	Yes /No
	c) Required no. of chairs approved (Min. Dia – 12 mm, Max. spacing – 1000 mm)	Yes /No
	d) Binding done as per specification	Yes /No
	e) Any undue stress or bending of steel bars	Yes /No
	f) Steel is clean and free from loose rust or any other foreign materials	Yes /No
	g) Position of bars w.r.t stub as per approved drawing	Yes /No
iii)	Form Boxes :	
	a) Dimensions as per approved drawing	Yes /No
	b) Placing w.r.t stub as per approved drawing	Yes /No
	c) Nut & Bolts are watertight	Yes /No
iv)	Clear cover of 50 mm or (as per specification available)	Yes /No
v)	Earth strips fixed as per approved drawing	Yes /No

Certificate: **Cleared for foundation casting.**

For

For

Signature

Signature

Name

Name

Designation

Designation

Date.....

Date.....

6. MIXING, PLACING AND COMPACTION OF CONCRETE

Name of Line:

Loc. No. _____

Name of Contractor:

Tower Type _____

i)	Approved Drawing No.			
ii)	Mix Ratio			
	a) For pyramid with 20 mm metal with ratio 1:1.5:3 (M-20)			Yes / No
	b) For chimney with 20 mm metal with ratio 1:1.5:3 (M-20)			Yes / No
	c) Water to cement ratio as per specification			Yes / No
iii)	Mixing done by			
	a) Mixer (Running time 2 min)			Yes / No
	b) Hand mixing (with 10% extra cement or as specified in LOA)			Yes / No
	c) Hand Mixing done on GI Sheet platform			Yes / No
iv)	Use of pocking rod for compacting			Yes / No
v)	Use of vibration for compacting			Yes / No
vi)	Checking of templates levels & its diagonals at regular intervals			Yes / No
vii)	Casting of legs done in continuity			Yes / No
viii)	No. of cement bags consumed (as per drawing_____)			Actual_____
ix)	Coping is done as per approved drawing#			Yes / No
x)	Details of cubes collection			
	Tower Leg	Frustum/Step box/Pyramid (Date)	Chimney (Date)	No. of cube
	A			
	B			
	C			
	D			
xi)	Curing is started after 24 hrs. of foundation casting and foundation kept continuously in wet condition by putting wet gunny bags or otherwise			Yes / No
xii)	Form box are removed after 24 hrs. casting			Yes / No
xiii)	Sufficient quantity of water available at Loc before back filling			Yes / No
xiv)	Backfilling is done by soil as per specification and free from foreign material			Yes / No
xv)	Back filling is done in layers with proper compacting and adequate water			Yes / No
xvi)	Back filling is done upto 75 mm above ground level or as per specification			Yes / No

xvii)	Earth embankment of height 50 mm or as per specification made along the side of backfilling earth.	Yes / No
xviii)	Sufficient quantity of water sprinkled over backfilled earth and chimney kept wet by wet gunny bags.	Yes / No
xix)	Template is removed after complete backfilling	Yes / No
xx)	Curing of backfilled earth and chimney carried out for period as per specification (min. period of curing 10 days after concreting both in morning and evening)	Yes / No
xxi)	a) Availability of water pump with storing arrangement for curing purpose	Yes / No
	b) Date of start of curing	
	c) Date of completion of curing	
xxii)	Cubes sent for testing as per approved FQP	Yes / No
xxiii)	Details of cube test submitted at approved lab	
xxiii)	All the surplus material removed from the site	Yes / No
	# In case of Wet, Wet cultivated. PS, FS & WBC foundation before coping, three coats of anticorrosive paint applied (if applicable as per TS)	Yes / No

For

Signature

Name

Designation

Date.....

For

Signature

Name

Designation

Date.....

7. EARTHING:

Name of Line:

Loc. No.

Name of Contractor:

Tower Type

i)	Tower Footing resistance	Ohm
ii)	Type of Earthing approved	Rod Type / Pipe Type /Counter Poise
A	Rod type Earthing (Should be provided at all locations of transmission tower in all Normal soils (Dry, wet, PS, FS, Wet cultivated, black cotton soils) in addition to Pipe Type Earthing (As per approved Drgs/TS for the contract))	
i)	MS rod of 40mm and 3mtrs length, is driven directly in to ground straightly up to required depth as per drawing after excavation	Yes/No
ii)	Rod type Earthing provided in Leg-C (Diagonally opposite to Pipe Type Earthing provided)	Yes/No
iii)	MS Rod, MS Cleat, galvanized wire connected firmly using G.S lug as per drawing and all nut bolts tightened	Yes/No
iv)	Photographs taken and record maintained in Hidden register	Yes/No
B	Pipe Type Earthing (As per approved Drgs/TS for the contract)	
i)	Earthing provided on Leg A	Yes/No
ii)	G.S. Pipe, Flat tightened with Nut & bolt and placed as per appd. drg.	Yes/No
iii)	There is no sharp bent/damage in Earthing strips/flat	Yes/No
iv)	Finely broken coke (max. size 25mm) and salt in ratio 10:1 filled in bore holes	Yes/No
v)	Backfilling done, properly	Yes/No
C	Counter poise Earthing (As per approved Drgs/TS for the contract)	
i)	Excavation done up to required depth (min. 1m), a) 4 lengths of 30mtr (if resistivity<1500 ohms-meter) in four radial directions. b) 4 lengths of 70mtr (if resistivity>1500 ohms-meter) in four radial directions.	Yes/No
ii)	G.S. wire placed in excavation and lugs firmly tightened with nut and blot	Yes/No
iii)	Backfilling done as per specification.	Yes/No
D	Additional Earthing provided on every 7 to 8km distance of Tension Tower (if applicable as per TS).	Yes/No
E	Value of tower footing resistance after Earthing in dry season (permissible limit - 10 ohm)	Ohm

Certificate: Foundation and Earthing is cleared for Tower erection subject to fulfillment of Part (I) before tower erection and Part (II) in due course as per planning.

Part – I	Setting period (28 days) is allowed as per specification
Part – II	a) Revetment / Benching proposal status.....
	b) Revetment / Benching likely execution date.....

For

Signature

Name

Designation

Date.....

For

Signature

Name

Designation

Date.....

FORMAT FOR DIAGONAL MEASUREMENT

Name of Line :

	Date of completion	Loc No.	Fdn Type	Tower Type	Measurement Reference*	Actual Measurement		Dimension as per Drawing
						B-D	A-C	

* Level at which the measurement is done – eg : Stub Top Level or Template Top Level etc.

Signature -

Signature -



पावरग्रिड

TOWER ERECTION

..... TRANSMISSION LIMITED

CORPORATE OPERATION SERVICES

Safety Check List during Tower Erection

Region :

TL Const. Office:

Date of Inspection

Name of Line:

Loc. No.....

Classification of Foundation and Type of tower.....

Main Contractor:

Sub contractor.....

SI.No.	Description	Observations	Remark
1	Check whether Supervisor / Gang leader had instructions to workers before start of the work on that day.		
2	a) All workers are using PPEs at site i.e. Safety Helmets, Safety Belts, Rubber Gum Boots, Hand Gloves. b) Officials are using PPEs at site. c) Check all workers working at height have locked their safety bel d) Ensure workers are using Retractable Fall Arrestor while ascending/ descending from tower e) Check no distraction for the workmen while ascending / descending from tower.	Safety helmet -No. in use / total worker= Safety Belt - No. in use / total worker= Safety Shoe No. in use / total worker = Hand Gloves -No in use / total worker = Yes /No. Yes /No. Yes /No. Yes /No.	
3	Check that working area underneath the tower is levelled properly.		
4.	a) Check all lifting tools and tackles being used at site have been tested for safe working load and having valid test certificates. (Copy of test certificate be checked by TL I/c before start of Tr. Line.) b) Visual inspection of all T & P to be used at site have been identified with identification No. and found to be in healthy condition.	Derrick = Pulleys (Open& Closed) = Ropes / Sling Wire rope) = PP Rope = D Shackles and hooks = Any other =	
5	All nuts and Bolts of Stub are fitted and are reasonably tightened.		
6.	All Nuts and Bolts and step bolts are fitted in tower and have been reasonably tightened before undertaking job of upper section of tower.		
7.	Ensure communication facility is available at site.		
9.	Ensure only erection team members are allowed to stand near the tower while erection is in progress.		
10.	a) Ensure safety measures during tower erection near Read / Rail / River / Adjoining power line. b) Name of Sr. Officials from and contractor available at site.		
11.	Adequate warning to public moving nearby ensured.		
12.	First Aid box with required items are available at site and (Name & No.) of First Aid trained persons		
13.	Action taken for violation for safety norms, if any.		
14.	Any other points specific to location :		

..... **TRANSMISSION LIMITED** (*CONSTRUCTION*
MANAGEMENT)
LINE CONSTRUCTION
CHECK FORMAT

Name of Line:

Loc. No.

Name of Contractor:

Tower Type

	ITEM CHECKED	RESULT	OBSERVATION
1.	Setting period of foundation is allowed for at least 14 days as per specn. Back filling is OK.	Yes / No	
2.	All tested tools and plants and safety equipment in working conditions are available at site.	Yes / No	
3.	All tower members Nuts / Bolts are available at site without any damage, bent or rusting.	Yes / No	
4.	Benching / Revetment, if any completed. If not, then program of completion.	Yes / No	
5.	Shut down of power line, if required is arranged.	Yes / No	
6.	Reqd. No. of helmets, safety belts & safety shoes are being used.	Yes / No	
7.	First section is completely braced and all plane diagonals are placed in proper position.	Yes / No	
8.	Guying of tower provided as per approved drawing and norms. Guying to be terminated on firm ground.	Yes / No	
9.	All Nuts / Bolts, flat / spring washers are provided as per approved drawings.	Yes / No	
10.	All horizontal Bolt heads are facing inside and vertical bolt head facing upwards.	Yes / No	
11.	Subsequent section are erected only after complete erection and bracing of previous section.	Yes / No	
12.	Any undue stress, bending or damage of member during erection noticed. Yes / No		
13.	Any fitting of holes or cutting of members during erection observed.	Yes / No	
14.	Any heavy hammering of bolt causing damage of threads noticed.	Yes / No	
15.	Any substitute of tower member erected, if yes, member nos.	Yes / No	

16.	Tightening is done progressively from top to bottom.	Yes / No
17.	All bolts at the same level are tightened simultaneously.	Yes / No
18.	Slipping / Running over Nut / Bolts are replaced by new ones.	Yes / No
19.	Threaded portion of bolts projected outside of nut is not less than 3mm	Yes / No
20.	Punching of threads projected outside is done at three positions on dia.	Yes / No
21.	All left over holes are filled with correct size of Bolt / Nut.	Yes / No
22.	Verticality of tower is checked with the help of theodolite for both longitudinal & transverse direction. This is within specified limits.	Yes / No
23.	Details of missing member, nut, bolts etc.	Yes / No
24.	TOWER ACCESSORIES	Yes / No
	All the following tower accessories are fixed as per specification / approved drawing	
	a) Number Plate	Yes / No
	b) Danger Plate	Yes / No
	c) Phase Plate	Yes / No
	d) Anti-Climbing devices / Barbed wires	Yes / No
	e) Aviation signals / paints as per requirement / specification	Yes / No
25.	Tack welding is done as per specification using Standard quality of welding rods	Yes / No
26.	Zinc Rich (90%) cold galvanizing paint applied over tack welding	
27.	Earthing	
	Tower footing resistance	Ohm
	ii) Type of earthing approved	Pipe Type / Counterpoise
	A. Pipe Type Earthing	
I)	Earthing provided on Leg A.	Yes / No
	ii) G.S. Pipe, flat tightened with Nut & Bolt and placed as per approved. Drg	Yes / No
	iii) There is no sharp bent / damage in earth strips / flat	Yes / No

iv) Finely broken coke (max. Size 25 mm) and salt in ratio 10:1
filled in bore holes, Yes / No

v) Back filling done properly Yes / No

B. Counter Poise Earthing

i) Excavation done upto required depth (min. 1M) and length
(min.15 mm) in four radical directions. Yes / No

ii) G.S.wire placed in excavation and lugs firmly tightened with
Nut and Bolt. Yes / No

iii) Back filling done as per specn. Yes / No

C. Value of Tower footing resistance after Earthing in dry seasonOhm
(Permissible limit-10 ohm)

Certificate: Tower erection is complete in all respects and footing resistance is within permissible limits.

For

For

Signature

Signature

Name

Name

Designation

Designation

Date.....

Date.....



पावरग्रिड

STRINGING

..... **TRANSMISSION LIMITED** (*CONSTRUCTION*
MANAGEMENT)
LINE CONSTRUCTION

CHECK FORMAT

Name of Line:

Loc. No.

Name of Contractor:

Tower Type

ITEM CHECKED		RESULT	OBSERVATION
A) Pre-Stringing checks:			
1.	Backfilling of soil and revetment / Benching wherever required is done.	Yes / No	
2.	Towers are tightened properly and all the members Nut / Bolts are provided.	Yes / No	
3.	Trees in the corridor removed to facilitate smooth stringing.	Yes / No	
4.	All line materials, tested T & P, safety equipment and relevant drawings are available for stringing.	Yes / No	
5.	Shutdown of Power line /Railway block if required, is arranged	Yes / No	
6.	Necessary Protection /scaffolding / warning signals provided for Railway / Power line / P & T line / Road Crossing.	Yes / No	
7.	Tower vulnerable for one side load is guyed properly.	Yes / No	
8.	Tower footing resistance is within permissible limit of 10 ohms.	Yes / No	
B) Paying out of Earthwire			
1.	Work is being carried out with full safety measures as per guideline.	Yes / No	
2.	Travelling grounds are provided	Yes / No	
3.	Paying out is carried out as per approved drum schedule.	Yes / No	
4.	All pulleys fixed on towers for paying out are moving freely.	Yes / No	
5.	Effective communication exists through walkie-Talkie and through persons on towers.	Yes / No	
6.	Earthwire is being constantly checked as it is unwound. Damage portion, if any, is removed.	Yes / No	
7.	Necessary arrangement have been provided to avoid rubbing of earthwire against hard ground.	Yes / No	
8.	Necessary details of earthwire, M.S. Joints, recorded as per Annex CF-I & CF-II	Yes / No	

(C) Paying out of conductor

- | | | |
|-----|---|----------|
| 1. | Work is being carried out with full safety measures as per guideline. | Yes / No |
| 2. | Tensioner / puller are properly placed, firmly anchored, and earthed. | Yes / No |
| 3. | Conductor drums are placed properly to avoid bird caging. | Yes / No |
| 4. | Sequence of paying out is such that to avoid un-balancing of load on tower. | Yes / No |
| 5. | Details of insulators and fitting are recorded as per Ann. CF-III & CF-IV. | Yes / No |
| 6. | Paying out is carried out as per approved drum schedule. | Yes / No |
| 7. | Travelers fixed on towers are moving freely. | Yes / No |
| 8. | Effective communication exists through walkie-talkie and through persons standing on towers for smooth and safe paying out. | Yes / No |
| 9. | Conductor is checked continuously as it is un-wound from drum. Damaged, portion, if any, is removed / repaired. | Yes / No |
| 10. | Proper arrangements made to avoid rubbing of conductor on ground / hard surfaces. | Yes / No |
| 11. | Details of conductor and M.S.J. / repair sleeve is recorded as per Ann. CF-I & CF-II. | Yes / No |

(D) Final Sagging and Tensioning of Earthwire and Conductor

- | | | |
|----|---|----------|
| 1. | Sag board is fixed correctly after taking into account length of suspension clamp / fittings. | Yes / No |
| 2. | No. of sag boards fixed in a section is as per technical specification. | Yes / No |
| 3. | Sag is measured correctly at prevailing temperature. Details recorded as per Ann. CF-V. | Yes / No |
| 4. | Sag mismatch is within permissible limits of 40 mm as checked with Theodolite. | Yes / No |
| 5. | After measuring sag, marking / cutting of Earth-wire / conductor is done correctly to fix tension clamp / fittings) | Yes / No |
| 6. | Details of tension clamp/fitting are recorded as per Ann. CF-VI, CF-III, & CF-IV. | Yes / No |

(E) Clipping of Earthwire and Conductor

- | | | |
|----|---|----------|
| 1. | For clipping, the marking is done correctly so that suspension clamp/ fitting hangs exactly vertical. | Yes / No |
| 2. | Before clipping of conductor proper earthing is provided. | Yes / No |
| 3. | Following line material provided as per specification. Details recorded as shown below. | Yes / No |
| a) | Suspension clamp of earthwire and conductor as per Ann. CF-IV & CF-VI. | Yes / No |

- | | | |
|----|--|----------|
| b) | Vibration Dampers for Earthwire and Conductor as per Ann.CF-VII. | Yes / No |
| c) | Details of spacer / spacer damper/jumper spacer recorded as per Ann. CF-VIII | Yes / No |
| d) | Jumpers for Earthwire / Conductor as per Ann. CF-IV & CF-VI. | Yes / No |
| e) | Pilot fitting, wherever necessary, as per Ann. CF-III & CF-IV. | Yes / No |
| 4. | Sag / Tension again measured after clipping and found O.K. Details recorded as per Ann.CF-V. | Yes / No |
| 5. | Transposition done as per specification. Details of line material recorded properly. | Yes / No |
| 6. | All line materials provided are as per specification and approved drawings. All necessary details recorded for traceability. | Yes / No |
| 7. | Jumpers tightened properly. Live metal clearance are as per specification. | Yes / No |
| 8. | Minimum Ground Clearance. Clearances over Power line / Railway line / River Crossing are as per specification. | Yes / No |

Certificate: Stringing is Completed in all respect.

For

For

Signature

Signature

Name

Name

Designation.....

Designation.....

Date

Date

Sag Measurement for Earthwire and Conductor

1. Sag board fixed between Loc. No..... and.....
2. Temperature°C
3. Measurement of Sag / Tension.

Item	Phase / Wire No.	As per Sag / Tension Chart	Actual
Sag			
Tension			

4. During paying out / rough sagging, tension in conductor / Earthwire was as per technical specification.
5. For final sagging, initial stringing chart for conductor and final stringing chart for Earth Wire are used.

For

For

Signature

Signature

Name

Name

Designation

Designation

Date.....

Date.....

