

STRUCTURAL STABILITY ASSESSMENT FOR CHP I BUILDING AND STRUCTURES

1. **Scope of Work:** Detailed visual inspection and physical observation of all the identified Buildings and structures to ascertain structural stability of all the structures and buildings due to aging effects/ encountered with service loads. To identify the structural deficiencies such as reduction in thickness of MS Sections/plates, micro cracks & delamination, settlements, cracks & spalling in concrete etc. due to aging effects/ encountered with service loads etc. by conducting ND test as per requirement and scanning of critical joints wherever required as per expertise of competent person and recommending the corrective measures.
2. **Contactors Scope:** The agency shall undertake the job of visual inspection and physical observation of all the structures as per BOQ and perform necessary test for detailed evaluation of the structure as listed below:

1. Inspection and testing of CHP structure

A. FOR CONCRETE STRUCTURE.

- Spalling of concrete
- Settlement of foundation
- Cracks in concrete / wall elements
- Corrosion of rebars (exposure or stains)
- Surface honey combs

Details of proposed tests on RC members.

1. Extraction of concrete Core samples from RC members at random for assessment of in-situ strength of concrete.
2. Measurement of crack width.
3. Carrying out Rebound Hammer test on identified RC members at random for assessment of surface hardness and strength of concrete.
4. Carrying out Ultrasonic Pulse Velocity Test on identified RC members at random for assessment of in-situ strength of concrete.
5. Carrying out profometer test on RC members at random to assess the cover provided to re-bars.
6. Carrying out Half-cell potential measurement test on RC members at random to assess the extent of corrosion in re-bars, if any.
7. Carrying out carbonation test on RC members to assess the loss of alkalinity in concrete.
8. Chemical analysis of hardened concrete to assess the level of chlorides, Sulphates and PH.

B. FOR STEEL STRUCTURE

- Painting condition
- Corrosion status
- Scaling
- Weld condition
- Bolted connections (any loosening)
- Reduction in cross section of members at critical locations
- Deformations
- Foundation bolts condition
- Permanent deformation of steel members
- Sagging or deflection of members
- Condition of chequered plates provided in walk way / floor.

Details of proposed tests for Steel Structure.

1. Measurement of steel members (cross section) will be carried out after appropriate surface preparation to assess any dimensional change in the members if any, on account of corrosion.
2. Measurement of thickness of corroded steel members to check the reduction in thickness by Ultrasonic Thickness Gauge.
3. Hardness Test on steel members
4. Inspection of corroded members for any pitting corrosion.
5. Detail inspection of welded connections and measurement of weld thickness at random.
6. Carrying out Dye Penetration Test / MPT on few welded joints.
7. Wherever surface defects were observed on welded joints, in such locations close observation will be made by magnified lens for any cracks.

C. Working out Corrective / Restoration measures for the distressed members.

Based on the results of field tests and observations appropriate corrective / restoration measures will be worked out for the distressed / affected concrete and steel members. The measures comprises of the following.

1. Working out appropriate scheme.
2. Specifying retrofitting of distressed members to maintain original stable configuration.
3. Specifying additional members wherever the existing members were found to be beyond Strengthening.
4. Suggesting replacement of existing bolts wherever the severe corrosion were observed.
5. Suggesting fresh riveted joints where the existing rivets were found to be ineffective or severely corroded.
6. Suggesting redoing of weld wherever the existing welds were severely corroded.
7. Suggesting protective coating for the steel and concrete structures to arrest further deterioration.

8. Suggesting appropriate corrective / strengthening measures Viz; RC jacketing, PMM, epoxy / cement grouting and filling up of cracks by using low viscosity epoxy etc., for the existing RC pedestals/ foundations.

STRUCTURAL STABILITY ASSESSMENT FOR CHP I BUILDING AND STRUCTURES

SPECIAL CONDITIONS OF CONTRACT

1. The work as defined in scope of work is to be carried out in CHP of IB Thermal Power Plant.
2. Price: The rates shall be quoted as per the prescribed price bid format enclosed.
3. The contractor has to abide by Safety Procedures enforced at OPGC. The people deployed by contractor on job should have all personnel protective equipment like Safety shoes, helmets, dust mask, year plug, hand-gloves, goggle, aprons etc. as required for the job. These are necessarily to be arranged by the agency.
4. All the e equipments/accessories along with consumables and testing instruments required as per the scope of work shall be arranged by contractor. Party shall ensure that the all the testing instruments used for structural stability are tested and certified by competent authority before deployment on job
5. The travelling expenses, including local conveyance cost shall be borne by the agency.
6. Lodging and boarding facility at Purchasers site shall be provided on chargeable basis subject to availability.
7. If the scaffolding is required for the execution of the work that shall be carried out by the party, however the scaffolding material shall be given by OPGC.
8. Necessary permit to work for the job shall be issued by the EIC or his representative.
9. Purchaser will provide JCB for excavation of soil to expose RC pedestals for inspection and testing.
10. Purchaser will provide Man-lifter to reach higher levels of conveyors and junction house / towers for inspection and testing.
11. Purchaser will provide 3 pin, 5 amps power supply and water supply for core extraction and other test instruments.
12. Permission will be given to take photographs of test objects foe the purpose to reference and evaluation and reporting
13. Final report shall be submitted in the below format:

Final Report Format:

1. Introduction
2. Physical Observation
3. Results of test
4. Inferences
5. Restoration / Corrective measures
6. Concluding Remarks
7. Sketches
8. Specifications
9. Photographs

14. Quantity measurement

Final report submission as per BOQ and engineer in-charge assessment.

GENERAL TERMS & CONDITIONS

1. Contract Period: The period of contract is 6(Six) months, excluding mobilization period of 15 days from the date of issue of LOI / Work Order.
2. The contractor is required to mobilize his men, materials, plant & equipment at his work site within 15 days of intimation to start the work, failing which the Engineer-In-Charge will annul the contract agreement at his discretion. The onus of proving that the delay in mobilization was beyond the control lies with the contractor. The Engineer-in-Charge after satisfying himself with the reason for the delay if any may allow extension of time to avoid the annulment of the contract.
3. Price: It is a work contract. The rates shall be quoted as per the prescribed price bid format enclosed. The rates quoted shall remain firm during the entire contract period. There shall be no escalation irrespective of any changes in minimum wages or material rates during the contract period, any price implication shall be borne by the contractor.
4. Taxes, Duties & Statutory deductions: All applicable taxes, duties, levy & statutory dues etc. shall be deducted from your bills at the rate ruling at the time of payment of the bills.
5. Submission of bill: Bills in triplicate along with GST No for the measured work shall be submitted to Engineer-in-charge for verification after completion of work. The bills shall be prepared & raised as per GST Rules showing-
 - a) Name, address & registration number of such service provider
 - b) Name, address of the person receiving taxable service
 - c) Description, classification & value of taxable service provided
 - d) GST payable thereon.
6. Payment of bill: Payment after statutory deductions and other deductions like applicable taxes, duties, levies, penalty (if any), LD (if any) and security deposit etc. shall be released after completion of mile stones duly certified by EIC as per below clauses (. The payment shall be made through e-mode facilities of RTGS / NEFT / Internet Banking. To facilitate the E-payment you shall return the enclosed Bank Mandate Form duly filled, along with the duplicate copy of the Work Order)
 - a) 25% on completion of field test.
 - b) 25% on submission on interim draft report.
 - c) Balance 50% within 30days from the date of submission of final report to the complete satisfaction and certification by EIC.
7. Measurement of work: The work shall be inspected / measured as directed by Engineer-in-charge and entered in the measurement book with signatures of both contractor and Engineer-in-charge or their representatives as a token of mutual acceptance.
8. Penalty:
 - a) In case of your failure to start the work within due date, OPGC reserves the right to terminate the contract without any further reference to you and the earnest money deposit shall be forfeited.
 - b) In case of your failure to make payment to your workmen within 07(seven) days of completion of wage period, penalty @ 0.1% of contract value shall be imposed for each day of delay subject to a maximum of 01(one)% of the total contract value.

Repetition of such default for more than three times shall lead to immediate termination of the contract without any further reference to you.

- c) In case of non-performance / continuous poor performance, the contract shall be terminated with 07(seven) days notice and the work shall be done by any other means at your cost and risk. In this case your security deposit and other dues of the contract shall be forfeited.
 - d) In case of delay in completion of the work beyond the stipulated period, liquidated damage @ 1 % of the executed value per each week of delay or part thereof shall be imposed subject to a maximum of 10 % of the executed value. Or In case the work is not completed beyond the stipulated period, liquidated damage @ 1 % of the contract value per each week of delay or part thereof shall be imposed subject to a maximum of 10 % of the contract value.
9. Termination of contract:
- a) In case of failure to start the work within due date, OPGC reserves the right to terminate the contract without reference to you.
 - b) If the quality of the work is found to be unsatisfactory, the contract shall be terminated with immediate notice.
 - c) OPGC has the right to terminate the Contract at any point of time.
10. Offloading of job: In case it is observed during the tenure of the contract that you are not capable or in a position to complete the job, OPGC reserves the right to offload the same and get it done through other agencies at your cost and risk.
11. Subletting: The work shall not in any manner or degree be sublet. The work shall be executed under the direct supervision of the supervisors of your firm.
12. Indemnity: You shall keep OPGC indemnified from all liabilities resulting out of this contract and act of your workmen.
13. Works Programme/Quality Assurance Plan/Safety Plan:
Before starting the work, you shall submit detailed works programme, milestone of different activities, safety and quality assurance plan of the work to the Engineer-in-charge for his approval after which work shall be started as per the approved programme. Any other documents required by the Engineer-in-charge for the above work shall be submitted.
14. Permit to Work: Before the start of each work, you shall ensure that a valid and duly signed Permit to Work has been issued. Also, you shall ensure the issue of valid and duly signed Confined Space permit and Hot Work Permit if the same is required as per OPGC rule. All the permits shall be returned to the concerned Engineer after completion of the job.
15. Tools and Tackles: You should have adequate Tools and tackles for execution of the job and such Tools and tackles are to be made available during the entire tenure of contract and shall be submitted to the satisfaction of Engineer-in-charge.
16. Labour and Statutory Regulations:
- a) You shall submit a copy of valid Labour License (if applicable) from competent authority to the Engineer-in-charge before commencement of work.
 - b) You shall submit a copy of Provident Fund and Employee State Insurance Registration Certificate number to the Engineer-in-charge before commencement of work.

- c) You shall abide by all norms of Contract Labour (R&A) Act - 1970 and provisions of other applicable labour laws and rules made there under from time to time.
 - d) You shall comply with all provisions of Factories Act - 1948 and rules made there under from time to time.
 - e) Before commencement of work, you shall submit a copy of 'Group Insurance Policy'/'Employee State Insurance' (as applicable) covering employment accidental/ in respect of your workmen to meet your liabilities against benefit in respect of your personnel against Employees Compensation Act (Workmen Page 129 of 184 Compensation Act-1923) /Employees State Insurance Act, 1948 and furnish a copy of the same to the EIC. The work shall commence only after submission of the Group Insurance Policy/ Employee State Insurance (as applicable) to the EIC
17. Employees Provident Fund (EPF) and Employee State Insurance (ESI):
Provident Fund (PF) and Employee State Insurance (ESI) dues of all your workmen shall be deposited against the PF and ESI number allotted to you by competent authority. You shall declare that Provident Fund and ESI amount for the people engaged by you has been deposited as per rule.
18. Security Management Procedure:
- a) Entry Permit/Gate Access Card shall be issued to the contractor employee free of cost and to be displayed in person whenever they are inside ITPS premises.
 - b) At any time if the worker of any contractor leaves the job, it is the responsibility of the contractor or his representative to withdraw his Entry Permit/Gate Access Card and deposit at Security Pass Section.
 - c) In the event of expiry of the Contract, the contractor has to deposit the Entry Permits/Gate Access Cards to Security at Pass Section and collect required No Objection Certificate (NOC) for the purpose of Bill Clearance by Finance Department.
 - d) Against non-deposit of Entry Permits/Gate Access Cards after expiry of the Contract by the Contractor, penalty @Rs. 300.00 (Rupees Three Hundred Only) per each Entry Permit/Gate Access Card shall be recovered from the Bill of the contractor by Finance Department.
 - e) No Final Bill of the contractor shall be released by Finance Department unless No Objection Certificate (NOC) is obtained by the contractor from Security Department against issue/deposit of Entry Permits/Gate Access Cards.
19. Safety, Health and Environment:
- a) Your service personnel shall abide by Safety, Health & Environment (SHE) Rules & Regulations for Contractors as per enclosure and obtain safety induction training from OPGC Safety Officer before starting the work. Any violation in the safety rules shall be viewed seriously and you shall be penalized as per OPGC Safety Rules.
 - b) You shall ensure the medical fitness of your service personnel before the start of work.
 - c) You shall submit Safety Plan of the work to the Engineer-in-charge before start of the work.
 - d) While driving two wheelers inside the plant boundary Crash Helmet to be used positively. Violation of this rule will attract penalty
20. Dispute settlement: Any dispute or difference arising out of this contract shall be mutually settled and the decision of Managing Director, OPGC or his authorized representative shall be final & binding.
21. Jurisdiction: Appropriate Court of Bhubaneswar under the Odisha High Court shall have exclusive jurisdiction over all matters related to this contract.

BOQ & PRICE BID FORMAT FOR STRUCTURAL STABILITY ASSESSMENT FOR BUILDING AND STRUCTURES AT CHP 1

Sl. No.	Item Description	UOM	Quantity	Unit Rate (Rs.)	Total Cost (Rs.)
1	Stability testing of Transfer House Building and Structures	Nos	6		
2.	Stability Testing of Conveyor Structures (1600mm width)	M	4200		
3	Bunker and Associated Structures	Nos	12		
4	Track Hopper building, Hoppers, Platform and associated Structures	Nos.	1		
TOTAL VALUE IN INR (EXCLUDING GST)					
GST SHALL BE EXTRA AT ACTUALS					