OWNER:

THE TATA POWER COMPANY LIMITED

TITLE OF WORK TO BE AWARDED:

GENERAL CIVIL WORKS AND CONSTRUCTION OF APPROACH ROAD AT SHIRAWTA PUMP STORAGE PROJECT (PSP), VILLAGE- KHANDSHI, DIST. PUNE, MAHARASHTRA

ENQUIRY REFERENCE NO.: CC27PMR018

NOTICE INVITING EXPRESSION OF INTEREST (EOI) FOR

GENERAL CIVIL WORKS AND CONSTRUCTION OF APPROACH ROAD AT SHIRAWTA PUMP STORAGE PROJECT (PSP), VILLAGE- KHANDSHI, DIST. PUNE, MAHARASHTRA

Enquiry reference no.: CC27PMR018
Title of Work: General Civil Works and Construction of Approach Road at Shirawta Pump Storage Project (PSP), Village- Khandshi, Dist. Pune, Maharashtra
Type of Bidding: E-tendering (through Ariba online portal) / Two Part (Technical and Price bids under separate envelopes)
Contact Details: All communication including EOI submission shall be addressed to following officer/s: Mr. Prasad Redij Email: prasad.redij@tatapower.com Copy of all communications shall be marked to (Cc): Ms. Yogita Waman Email: yogita.waman@tatapower.com Mr. P Ramrayka Email: p.ramrayka@tatapower.com

The Tata Power Company Limited ("Owner") invites Expression of Interest (EOI) from interested parties for the Two-Part e-Tendering Process of following Relevant Work Package:

Table 1

Package Description	**Tender Fee**	**Bid Security**	**Estimated package value (Package has 2 lots- Lot 1&2)**	**Last date and time for Payment of Tender Participation Fee**	**Last date and time for bid submission**
General Civil Works and Construction of Approach Road at Shirawta Pump Storage Project (PSP), Village- Khandshi, Dist. Pune, Maharashtra	INR 2000/- (INR Two Thousand Only) *To be submitted along with EOI.*	INR 20,00,000 (INR Twenty Lakhs only). *Bid Security to be submitted as a Guarantee/ DD/ NEFT at the BID stage (and not with EOI)*	INR 40 Crores (INR Forty Crores) approx. for individual Lot	2nd November 2026, CoB.	5th November 2026, 1700 Hrs Any changes/ extensions shall be intimated through Ariba online portal to vendors who have purchased the tender.

- **Interested bidders are strongly advised not to wait by above time and purchase the tender immediately to get the link for bid submission. This will enable them to communicate/raise queries against the subject tender in time.**

1. INTRODUCTION:

The Tata Power Company Limited (TPC) is among the largest private sector Power Utility companies in India with presence in Generation, Transmission and Distribution of Power through conventional and renewable sources.

The tendering/ procurement activities for this Package are being managed from Tata Power's following office

Smart Center of Procurement Excellence (SCOPE),
Corporate Contracts,
The Tata Power Company Limited,
2nd Floor, Sahar Receiving Station, Near Hotel Leela,
Sahar Airport Road, Andheri East, Mumbai – 400 059, Maharashtra, India.

2. SCOPE OF WORK:

Brief scope includes Civil works related to construction of 2 approach roads of approx. chainage 4-5 kms each in a hilly terrain for Lower reservoir/ Powerhouse and Upper reservoir at Shirawta PSP, including all other services necessary for complete execution of work. Approach road is considered as separate individual lot as under:
Lot 1- For Lower/ reservoir/ Power house (Ch. 4.47 km approx.)
Lot 2- For Upper reservoir (Ch. 4.21 km approx.)

Detailed Technical Specifications/ Scope of Work and BOQ/ Price schedule is attached as Volume F & I in this NIT document, respectively.

3. TENDER FEE & TIMELINES:

a) Interested parties meeting the "Bidder Pre-Qualification Requirements" specified under point no. 4 in this document can request tender document and participate in the bidding process by submitting the Expression of Interest (EOI) Letter along with the Tender Fee Payment Details to the contact details mentioned below not later than deadline specified below. Request for extension of EOI submission date will be not entertained.

b) Interested bidders should submit the Expression of Interest (EOI) letter and tender fee payment details to below mentioned email addresses:

- Mails shall be addressed to (To): prasad.redij@tatapower.com
- Must mark copy to (cc): yogita.waman@tatapower.com; p.ramrayka@tatapower.com

EOI / requests without complete information and communication as above within deadline shall be liable to be rejected and will not be considered further.

c) Tender Fee, as indicated in the Table1 above may be paid through **NEFT/RTGS** as per details for payment of Tender Fee given in Table2 below:

Table 2

Details for payment of Tender Fee:	
Bank details for submitting Tender fees through bank transfer / NEFT:	Beneficiary Name: The Tata Power Company Limited Bank Name: HDFC Bank A/c no: 00600110000763 IFS Code: HDFC0000060 A/c type: CC Branch Name & Address: HDFC Bank, Maneckji Wadia Building, Nanik Motwani Marg, Fort, Mumbai 400023
Deadline for tender fee payment and submission of EOI:	**2nd November 2026, CoB.**
Deadline for submission of bid in ARIBA and EMD:	**5th November 2026, 1700 HRS** Any changes/ extensions shall be intimated through Ariba online portal to vendors who have purchased the tender.

d) Expression of Interest letter to be submitted along with tender fee payment details should include the following details:

- A covering letter duly stamped and signed by an authorized signatory clearly indicating the Tender Reference number and your EOI to participate in the tendering process.
- Tender fee payment details / reference no (ensure that tender fee is received by us within specified deadline)
- Bidder to indicate authorized person name, contact number and e-mail id (mandatory) of the person to whom RFQ / tender and all other communications to be addressed for this tender.

e) Interested bidders to submit Tender Participation Fee and Authorization Letter before Last date and time as indicated above after which link from Tata Power E-Tender system (Ariba) will be shared for further communication and bid submission.

4. BIDDER PRE-QUALIFICATION REQUIREMENTS:

Interested parties to note that Bidder shall be required to fulfill the following bidder pre-qualification requirement / criteria to qualify for the subject work. Bidder will be required to submit relevant supporting documents to demonstrate their qualification during the bid submission stage against Tender document / RFQ and bidders not found meeting the pre-qualification requirements given below will be disqualified from the tender.

4.1 TECHNICAL REQUIREMENT:

4.1.1 Bidder should have experience of supply and execution of Flexible Pavements/ Road of 10 km on cumulative basis during the past 5 (five) calendar years with all safety measures **(Attach related supporting documents)**

4.1.2 Bidder should have successfully executed the following quantum of works (including supply of all materials) on cumulative basis during the past 5 (five) calendar years:

- **Excavation / Earthwork (in soil / hard rock)-** 3,00,000 cubic meters
- **RCC work-** 1,000 cubic meters
- **Reinforcement works-** 400 Tons
- **GSB work-** 20,000 cubic meters
- **WMM work-** 15,000 cubic meters
- **DBM work-** 8,000 cubic meters

(Attach Purchase order copy, Certificate of Experience and Satisfactory Completion of work awarded from concerned Establishments / Companies along with their references)

4.1.3 Bidder should possess ISO-9001, ISO-14001 and OHSAS-18001 / ISO- 45001 Certification or bidder should provide an undertaking that they will obtain these certifications for their organization within 2 months of qualification for the work.

4.2 FINANCIAL REQUIREMENT:

4.2.1 Bidder shall have a minimum average annual turnover of Rs. 45 Crores in preceding 3 (Three) years.

4.2.2 Bidder shall have a positive net worth as per the latest audited financial statements, duly certified by a Chartered Accountant, as on the last day of the preceding financial year.

(Attach Certificates from Chartered Accountant in this regard)

It may be noted that the above requirements are minimum qualification criteria. However, Tata Power reserves its right to further assess the capabilities of the parties and reserves its rights to further shortlist, accept or reject any party without assigning any reason. The tender may be split in more than one parties at the discretion of Owner.

5. BID SECURITY / EMD:

Interested parties to note that Bidder will be required to furnish a Bid Security along with their Bid, in the format prescribed in Bid Document **in the form of Bank Guarantee or through RTGS or Demand Draft**, for an amount as defined in the covering page of this notice document. Bids not accompanied by an acceptable Bid Security shall be rejected by the Owner as being non-responsive and returned to the bidder without being opened.

Interested parties to note that Bid Security is not required with the EOI and it is required to be submitted with the Bid only during Bid Submission stage once RFQ is released to the interested parties that have submitted a valid EOI.

6. BIDDING PROCESS:

Detailed Bid Document (also referred as RFQ) shall be issued through Tata Power e-tender portal (Ariba System) only to the parties that submitted a valid EOI as per terms mentioned in this document.

Bidder to note that commercials for subject tender may be conducted through e-auction. Detailed bidding and auction process shall be detailed in the RFQ / tender document.

CONTENTS OF THE ENQUIRY

Following Documents Form Part of Tender Enquiry:

A. Tender notice including Instruction to Bidders (This document)
B. Format for Submission of Bank Guarantee for EMD/ Bid security
C. Agreed Terms and Conditions
D. Format for Pre bid queries/ deviations
E. Techno-Commercial Pre-Qualification Requirement
F. Technical Specifications/ Scope of Work
G. Safety bid document
H. Special Conditions of Contract
I. Price Schedule
J. General Conditions of Contract-Civil-R2
K. Tata Power Policies
    - K.1 Safety Terms and Condition- R6
    - K.2 Environment Policy
    - K.3 Health and Safety Policy
    - K.4 Sustainability Policy with ESG framework for BA.
    - K.5 TCOC
    - K.6 Guidelines of CERC
    - K.7 Vendor Declaration Compliances
    - K.8 Supplier Code of Conduct
    - K.9 Cybersecurity Compliances

The Tata Power Company Limited (TPCL) invites bid for "**General Civil Works and Construction of Approach Road at Shirawta Pump Storage Project (PSP), Village- Khandshi, Dist. Pune, Maharashtra"**

1. The bid package is issued in the name of Bidder and is non-transferable.
2. Bidder shall acknowledge the receipt of the tender within two (2) working days from the Date of issue of this Request for Quotation (RFQ)/enquiry.
3. Bidders shall review the entire tender document (including technical documents) and ensure the given objectives expected herein can be achieved or the technical requirements can be met in totality. Any deviation or substitution must be highlighted on a separate document.
4. Bidder must carefully go through all commercial conditions of contract before quoting the price. Any exceptions pertaining to clauses affecting prices or costs either way must be clearly stated.
5. Any deviation taken by Bidder may lead to rejection of the bid.
6. Bidder shall quote a firm price and shall be bound to keep this price firm without any escalation for any reason whatsoever until they complete Service against the tender.
7. Bidder shall give clear break-up of the basic price and the taxes and duties included in the price quoted.
8. The quantities mentioned in the tender are liable for change.
9. TPCL reserves the right to accept or reject any or all bids or cancel/ withdraw the RFQ without assigning any reason whatsoever. In such an event, no claim shall be made arising out of such action.
10. Any time prior to the deadline for submission of Bid, TPCL may for any reasons, whether at their own initiative or in response to clarifications requested by Bidders, modify the enquiry including specification by amendment. The amendment will be notified in writing to all qualified Bidders to whom the RFQ has been issued and will be binding on them. The Bidder shall acknowledge the receipt of the amendment promptly upon the receipt of the same. In order to afford Bidders time in preparing of Bid due to amendment, TPCL may, at its discretion, extend the deadline set for submission of the Bid.
11. TPCL will not be liable for any expenses whatsoever incurred by the Bidder for the preparation, submission and opening of bids
12. This specification consists of two (2) volumes:

12.1. **Volume – I**

A-Instruction to bidders (ITB), B- Special Conditions of Contract, C- General Terms and Conditions – Civil, D1-Environment- D2-Health & Safety D3-Sustainability, D4-Safety terms & Conditions, D5-Tata Code Of Conduct, E-Agreed terms and Conditions (ATC), F- Format for submission of deviations.

12.2 **Volume – II**

A- Technical Specifications

13. Submission of Offer

Two bid system: Bidder shall submit complete bid including list of deviations if any to the Scope of Work and the terms & conditions of the RFQ if any as well as furnish all required and relevant enclosures and submit the same in **submit/upload the same in Ariba system as per the guidelines**:

I. Techno-Commercial Bid (Un-priced Bid)
II. Price Bid

14. Kindly, note that the Technical Bid shall contain Volume I- **B,D** and Volume II-**A** has to be signed and stamped. Volume I- **E,F** to be duly filled, signed & stamped. Above mentioned documents to be submitted with all the supporting document as per Pre-Qualification Requirements (PQR)**.**

15. **Kindly note that offers submitted with price details in technical bid are liable for rejection**.

16. The bidder shall sign, its proposal with the exact names of the entity to which the contract is to be awarded. Each page of the bid shall be duly signed and sealed by an authorized officer of the bidder's organization.

17. The bid must be kept valid for **180** days from the date of opening of the bids. In exceptional circumstances TPCL may solicit the bidder's consent to an extension of the period of validity.

18. Bidders are advised to submit their bid well in time.

19. Bidders are advised to submit their bid well in time i. e. on or before bid submission date and time. Request for extension of Bid submission date will not be entertained.

20. Contact Details for technical queries:-

1. **Name:- Mr. Rakesh Patil (Group Head- Corp. Engineering)**
   Email ID:- rakesh.patil@tatapower.com ; Mobile:- 9967686494

Contact Details for Site visit:-

2. **Name:- Mr. Onkar Pande (Lead Engineer- Civil, PSP)**
   Email ID:- onkar.pande@tatapower.com ; Mobile:- 9029002689

Site visit & Submission of Pre - bid queries	Site visit to be done by bidder immediately upon receipt of RFQ and Pre-bid queries to be submitted within 1 day from site visit.
Due date and time for submission of bids & Bid Security	05.11.2026 till 5PM
Bid Security (EMD)	Rs. 20,00,000/-

Details for payment of EMD:	
Bank details for submitting Tender fees through bank transfer / NEFT:	Beneficiary Name: The Tata Power Company Limited Bank Name: HDFC Bank A/c no: 00600110000763 IFS Code: HDFC0000060 A/c type: CC Branch Name & Address: HDFC Bank, Maneckji Wadia Building, Nanik Motwani Marg, Fort, Mumbai 400023

21. Bid Security / Bid Security Validity:

20.1. *Bidder shall furnish a Bid Security along with the Bid, in the form of a Bank Guarantee or through RTGS or Demand Draft, for an amount of INR 20,00,000/- with expiry date at least 45 days beyond the expiry of Bid Validity. In case of bid security Bank Guarantee, validity shall be of minimum 225 days from the Bid Submission Date and having a claim period of six months beyond the expiry date.*

20.2. Owner may request for extension of Bid Validity at its convenience till the award of contract to the successful Bidder and accordingly, Bidder shall extend the Bid Security Validity along with the Bid Validity such that the Bid Security is valid for at least 45 days beyond the Bid Validity date. In case Bidder do not accept Owner's request of extension to Bid Validity or Bidder fails to suitably extend the Bid Security Validity date in line with the above requirement before the expiry date, the Bid shall thereon be treated as invalid and not evaluated further.

20.3. Subsequent to post-bid discussions/clarifications and in response to Owner's request for any revised Price Bid/s thereon, any revised Price Bid submitted by the Bidder shall thereon have the same Bid Validity of 180 days from the Bid Submission Date of such revised Price Bids and Bidder shall have to extend the Bid Security Validity accordingly for minimum 225 days from such revised Bid Submission Date failing which the Bid shall be rejected.

20.4. Bids not accompanied by an acceptable Bid Security/ EMD shall be summarily rejected by the Owner as being non-responsive and not evaluated further. Bid Security of the unsuccessful bidder will be returned at the end of the Bid Validity. Bid Security of successful Bidder shall be returned on submission of Contract Performance Security cum Warranty Bank Guarantee (CPBG) and due acceptance of the same by Owner. Successful Bidder must therefore submit CPBG well in advance prior to the expiry of the Bid Security failing which Owner shall be within his rights to revoke the Bid Security. Wherever CPBG is not applicable, the Bid Security of successful Bidder shall be retained as Contract Security till work completion.

20.5. The bid package document shall remain the property of the Company.

22. Evaluation Criteria:

22.1. The bids will be evaluated technically on the compliance to tender terms and conditions, scope compliance etc.

22.2. The bids will be evaluated commercially on lowest total contract price basis for each Lot as per Price Schedule:

Lot 1:- General civil works and construction of approach road for Lower reservoir/ Powerhouse at Shirawta PSP.

Lot 2:- General civil works and construction of approach road for Upper reservoir at Shirawta PSP.

Hence, all bidders are advised to quote their most competitive offer for both Lots.

22.3. Both Lots may be awarded to same or different bidder based on techno-commercial evaluation at the sole discretion of the Owner.

23. Bid Opening & Evaluation Process:

23.1. **Process to be Confidential:**

Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process. Any effort by a Bidder to influence the TPCL processing of Bids or award decisions may result in the rejection of the Bidder's Bid.

23.2. **Technical Bid Opening:**

Technical Bid of all valid Bids shall be opened simultaneously.

23.3. **Preliminary Examination of Bids/ Responsiveness:**

TPCL will examine the Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Bids are generally in order. TPCL may ask for submission of original documents to verify the documents submitted in support of qualification criteria.

Arithmetical errors will be rectified on the following basis: If there is a discrepancy between the unit price and the total price per item that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price per item will be corrected. If there is a discrepancy between the Total Amount and the sum of the total price per item, the sum of the total price per item shall prevail and the Total Amount will be corrected.

Prior to the detailed evaluation, TPCL will determine the substantial responsiveness of each Bid to the Bidding Documents including capability of providing the Goods/Services and acceptable quality of the Goods / Services offered. A substantially responsive Bid is one, which conforms to all the terms and conditions of the Bidding Documents without material deviation.

Bid determined as not substantially responsive will be rejected by TPCL and may not subsequently be made responsive by the Bidder by correction of the non-conformity.

23.4. **Techno Commercial Clarifications:**

Bidders need to ensure that the bids submitted by them are complete in all respects to assist in the examination, evaluation and comparison of Bids, TPCL may, at its discretion, ask the Bidder for a clarification on its Bid for any deviations with respect to the TPCL specifications and attempt will be made to bring all bids on a common footing. All responses to requests for clarification shall be in writing only. Where applicable, Safety Bid shall also be evaluated along with technical bid for the qualification of Bidders against their safety systems & practices and past safety records.

23.5. **Price Bid Opening**:

Bidders may be asked to submit revised Price Bid in case there is any material change agreed by TPCL during technical evaluation / clarifications. Price Bid of only Technically and / or Safety Qualified Bidders shall be considered and opened.

24. Reverse Auctions:

TPCL reserves the right to go for Reverse Auction (RA) for price negotiation and discover the most competitive price on its e-sourcing portal. This will be decided after techno-commercial evaluation of the bids. Bidders need to give their acceptance with the offer for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case TPCL decides to go for RA.

Only those Bidder who are techno-commercially qualified & have submitted valid Price Bids shall be eligible to participate further in RA process. However, H1 Bidder (whose price bid is the highest post techno-commercial evaluation) shall not be allowed to participate in further RA process provided minimum three techno-commercially qualified bids are available.

FORMAT OF EMD – Bid Guarantee BG

Note: a) Format shall be followed in toto
b) Claim period of six months must be kept. In case of Bank is not ready to give BG for six months and claim period of six months EMD BG valid of one year to be given
c) The guarantee to be accompanied by the covering letter from the bank confirming the signatories to the guarantee on the Bank's letter head.

The Tata Power Co Ltd
34,Sant Tukaram Road
Carnac Bunder,
Mumbai 400 009

Whereas (Name of the Contractor), a Company incorporated under the Indian Companies Act 1956, having its Registered office at _____, (hereinafter called the "BIDDER") has in response to your Invitation to Bid against Enquiry No. _____dated _____, for (name of work), offered to supply and/or execute the works as contained in Employers letter dated _____.

AND WHEREAS BIDDER is required to furnish to you a Bank Guarantee for the sum of Rs._____/-(Rupees ____ only) as Earnest Money against Bidder's offer as aforesaid.

AND WHEREAS we, (name of the bank) having our Registered Office at _____and Branch office at _____, have at the request of Bidder, agreed to give you this Guarantee as hereinafter contained.

NOW THEREFORE, in lieu of earnest money deposit, we, the undersigned, hereby covenant that the aforesaid Bid of the BIDDER shall remain open for acceptance by you during the period of validity as mentioned in the Bid Document or any extension thereof as requested by you and if Bidder shall for any reason back out, whether expressly or impliedly, from this said Bid during the period of its validity or any extension thereof as aforesaid, we hereby guarantee to you the payment of the sum of Rs._____/-(Rupees ____ only) on demand and without demur and notwithstanding the existence of any dispute between you and the BIDDER in this regard and we hereby further agree as follows:

(a) You shall have the right to file/make a claim on us under the Guarantee for a further period of six months from the said date of expiry.

(b) That this guarantee shall not be revoked during its currency without your written express consent.

(c) That you may without affecting this guarantee grant time or other indulgence to or negotiate further with BIDDER in regard to the conditions contained in the said Bid document and thereby modify these conditions or add thereto any further conditions as may be mutually agreed upon between you and BIDDER.

(d) That the guarantee hereinbefore contained shall not be affected by any change in the constitution of our Bank or in the constitution of BIDDER.

(e) That any account settled between you and BIDDER shall be conclusive evidence against us of the amount due hereunder and shall not be questioned by us.

(f) That this guarantee commences from the date hereof and shall remain in force till BIDDER, if his Bid is accepted by you, furnishes the Contract Performance Guarantee as required under the said specifications and executes formal Contract Agreement as therein provided or till ____Days (__days) from the date of submission of the Bid by the BIDDER i.e. (expiry date), whichever is earlier.

(g) That the expression, BIDDER and Bank, and OWNER herein used shall, unless such an interpretation is repugnant to the subject or context, include their respective successors and assignees.

(h) Notwithstanding anything herein contained, our liability under this guarantee is limited to Rs._____/-(Rupees _____only) and the Guarantee will remain in force upto and including and shall be extended from time to time for such period or periods as may be desired by you. Unless a demand or claim under this Guarantee is received by us in writing within six months from (expiry date), i.e. on or before (claim period date), we shall be discharged from all liabilities under this guarantee thereafter.

(i) Any claim/extension under the guarantee can be lodgeable at issuing outstation bank or at Mumbai branch and claim will also be payable at Mumbai Branch. **(To be confirmed by Mumbai Branch by a letter to that effect)**

Notwithstanding anything contained hereinabove :

a) Our liability under this Bank Guarantee shall not exceed Rs._____/-(Rupees _____ only).
b) This Bank Guarantee shall be valid upto ---------- 200.
c) Our Liability to make payment shall arise and we are liable to pay the guaranteed amount or any part there of under this Bank Guarantee only and only if you serve upon us a written claim or demand on or before ---------- 200.

VOLUME ID

AGREED TERMS & CONDITIONS (ATC)

Bidder's Name: M/s. _____

RFQ ref. No. _____

Enquiry Description: _____

Bidder's Offer Ref.: _____

1. SUBMISSION OF THIS DOCUMENT DULY SIGNED, SHALL CONSTRUE THAT ALL THE CLAUSES OF AGREED TERMS AND CONDITIONS HAVE BEEN ACCEPTED BY YOU. PURCHASE ORDER, IF ANY, SHALL BE GOVERNED BY THE CONFIRMATION PROVIDED HERE.

Sr. No.	Description	BIDDER'S RESPONSE
A	**TECHNICAL (If applicable)**	
1	Acceptance of technical specifications including General/Technical notes and scope of supply/work as per Tender specification **In case of deviation, confirm that the same has been furnished separately.**	
2	Confirm data sheets duly filled in have been submitted, wherever required as requested in Technical specification	
B	**COMMERCIAL**	
3	**Bid Validity** As per Annexure - Special Conditions of Contract	
4	**Firm price:** Quoted prices shall remain firm and fixed till complete execution of the order.	
5	**Taxes:** GST: Any other tax as applicable:	
6	**Completion/Delivery Period :** As per Annexure - Special Conditions of Contract	
7	**Payment Terms Acceptance:** As per Annexure - Special Conditions of Contract	
8	**Contract Performance Bank Guarantee:** As per Annexure - Special Conditions of Contract	
9	**Liquidated Damages (LD):-** As per Annexure - Special Conditions of Contract	
10	**Service Level Agreement (SLA):-** As per Annexure - Special Conditions of Contract	
11	**Compliance to other terms & conditions** Acceptance of all other terms & conditions as forming the Part of the RFQ/ Tender document and communicated vide subsequent addendum(s) if any: **In case of deviation, confirm that the same has been furnished separately.**	

*Bidders/ Vendor shall note that in case of any contradiction between the Agreed Terms and Conditions (ATC) ; Bidder offer and the Bidders offer , the ATC shall prevail.

Bidder's Authorised Signatory
Name:

Tata Power Company Limited

Package Name:

Technical Specification No:

Bidder's Name:

Subject: Technical Deviation sheet by Bidder

Sl.No	Page No	Reference Clause no.	Technical Particulars/Description as per Technical Specification	Comments / Deviation with respect to technical specification by Bidder Dated:	Comments/ Clarifications by Tata Power Dated:

Tata Power Company Limited

Package Name:

Technical Specification No:

Bidder's Name:

Subject: Commercial Deviation sheet by Bidder

Sl.No	Page No	Reference Clause no.	Description as per Commercial documents	Comments / Deviation with respect to Commercial TnC's Dated:	Comments/ Clarifications by Tata Power Dated:

PRE-QUALIFICATION REQUIREMENT

TECHNICAL REQUIREMENT:

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2. Bidder should have successfully executed the following quantum of works (including supply of all materials) on cumulative basis during the past 5 (five) calendar years:
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3. Bidder should possess ISO-9001, ISO-14001 and OHSAS-18001 / ISO- 45001 Certification or bidder should provide an undertaking that they will obtain these certifications for their organization within 2 months of qualification for the work.

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2. Bidder shall have a positive net worth as per the latest audited financial statements, duly certified by a Chartered Accountant, as on the last day of the preceding financial year.

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APPROACH ROAD AT SHIROWTA PSP

Document Title: TECHNICAL SPECIFICATION FOR GENERAL CIVIL WORKS AND CONSTRUCTION OF APPROACH ROAD AT SHIROWTA PSP

Document No: CA/SPEC/083/2026

TATA POWER

The Tata Power Company Limited

Tata Power, Trombay Thermal Power Station Chembur- Mahul Mumbai 400074

Registered Office Bombay House 24 Homi Mody Street Mumbai 400 001

Revision	Date	Description	Approvals		
			Prepared By	Checked By	Approved By
0	22-10-2026	Issued for Review	Sandip Kaspale	Sujit Jha /Paresh Mestri	Sambrit Chakraborty

This is a controlled copy, if printed the hard copy will become non-controlled.

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Annexure 1.0	FQP and SFQP for Civil works
Annexure 1.1	Project Qualification Requirement PQR.

A1 INTENT OF SPECIFICATION:

Tata Power Company Limited (Tata Power) hereinafter called the "OWNER" or "PURCHASER", proposes to construction of Approach Road at Shirowta PSP.

A2 PROJECT INFORMATION- NA

A3 SCOPE OF WORK

3.1.1.1 The specific requirement briefly covers the following:

3.1.1.1.1 Supply and Construction works pertaining to Civil work related to construction of flexible pavement /roads and all other services necessary for complete execution of works for proposed Approach Road at Shirowta PSP, including setting out necessary area for the Works and cleaning up of working areas after completion of Works. The project broadly covers following construction works of Approach Road at Shirowta PSP.

3.1.1.2 The detailed description of the components of work are as noted below:

3.1.1.2.1 The design drawings shall be made available by the OWNER. All RFC drawings issued by the ONWER are property of the OWNER and the same shall be returned to the OWNER after completion of the job. Bidder shall make bar bending schedules, shop drawings etc. for the approval by the OWNER before executing the respective work items.

3.1.1.2.2 Conducting survey of the plot identified for the project. Permanent Benchmark and Elevation for conducting the survey to be considered from the plinth level of existing building in the premises. OWNER shall guide the surveying agency of the BIDDER in this regard.

3.1.1.2.3 Site grading, levelling, terracing and setting out works as per the building plans and drawings with reference to property lines and co-ordinates shall be in scope of bidder.

3.1.1.2.4 Finished ground level of the plot to be maintained as per the existing road level available at site.

3.1.1.2.5 All safety precautions such as PPE, Hand Gloves, Temporary barricading, stable side slopes, berms, etc. must be adhered to during all works by bidder.

3.1.1.2.6 Clearing and grubbing of the construction area. Removal of vegetation, roots, rubbish, and unsuitable material. Dismantling existing pavement/structures where required. Setting out and surveying of alignment, levels, and benchmarks.

3.1.1.2.7 Earthwork in excavation for all kinds of soils and/or rock, dewatering, compacted backfilling and disposal of surplus unusable earth and/or rock to disposal areas as per Local statutory authorities norms as directed. All necessary statutory permissions and payment pertaining to excavation shall be in scope of Bidder.

3.1.1.2.8 Supplying, spreading, watering, and compacting approved granular material. Construction of GSB layer to specified thickness and grade. Quality control testing for gradation, density, and compaction.

3.1.1.2.9 Supply and laying of WMM material through mechanical pavers. Watering and compaction to specified density. Surface finishing to required line, level, and cross-fall. Conducting quality tests as per specifications.

3.1.1.2.10 Dense Bituminous Macadam (DBM) Production of DBM mix in hot mix plant. Transportation, laying, and compaction using paver finisher and rollers. Quality testing for mix design, density, thickness, and temperature

3.1.1.2.11 Bituminous Concrete (BC) - Preparation and laying of bituminous concrete, Rolling and finishing to required smoothness and camber. Compliance with specified surface tolerance and riding quality.

3.1.1.2.12 Construction of earthen or granular shoulders. Dressing and compaction to specified levels. Integration with pavement edge.

3.1.1.2.13 Storm water drains to be connected suitably to the existing storm water drainage network of the existing plot and connection to the nearest drain outside the plot boundary.

3.1.1.2.14 Road signages.

3.1.1.2.15 Any other civil works for successful commissioning of the project is under the scope of Bidder.

3.1.1.2.16 Bidder has to ensure compliance of all other necessary statutory requirements such as but not limited to Collector’s permissions (Royalty), permissions from Debris Management Cell of Statutory authority including relevant payments for the same at no extra cost to the Owner.

3.1.1.2.17 Construction / Potable water and power supply arrangements shall be under the scope of the Bidder for the entire duration of the contract.

3.1.1.2.18 Any enabling works, temporary structures such as site office, canteen, labour shed, cement / material shed, fencing, security, access/approach road etc., wherever applicable shall be under the scope of Bidder. No extra shall be paid under this work to the Bidder.

3.1.1.2.19 All drawings shall be approved by OWNER prior to commencement of work. Approval by the OWNER of any of the drawings shall not relieve the CONTRACTOR of the responsibility for correctness of OWNER & connection, workmanship, fit of parts, details, material, errors or omissions of any and all work shown thereon. The OWNER approval shall constitute approval of only the size of members, dimensions and general arrangement but shall not constitute approval of the connections between members and other details.

3.1.1.2.20 The drawings prepared by the bidder and all subsequent revisions etc. shall be at the cost of the bidder for which no separate payment will be made.

3.1.1.2.21 Bidder shall be responsible for the preparation, submission and approval of "As built drawing" after successful completion of the project.

3.1.1.2.22 Bidder must visit site and assess the various practical constructability aspects prior to quoting for this tender enquiry. The Bidder shall submit the project schedule and bid guarantees along with the bid document.

3.2 SPECIAL NOTES TO BIDDER: -

The above is only a brief indicative scope of work which helps the Bidder to understand the nature of works involved in this project. The Bidder is advised to visit the project site and thoroughly refer the above scope of work, detailed technical specifications and tender purpose drawings before submitting the bid documents to the OWNER. The tender purpose drawings are indicative and may undergo changes during detail engineering phase of the project. In addition to this, BIDDER shall assume whatever is necessary for successful completion and commissioning of the project. Such assumptions must be clearly mentioned in the bid.

In case of conflict between clauses of different sections of this specification, the following precedence of sections will govern:

a. RFC Drawing and Bill of Quantities (Section C1).
b. Technical Specification
c. Special condition of contract.
d. General condition of contract.

Bidders to confirm any Technical Deviations in the Technical deviation sheet only. Any deviations mentioned anywhere else in the bid submission will not be considered. Bidder shall also confirm on his letter head if he has not opted for any technical deviation. Bidder to note that after confirmation of no technical deviation, bidder shall meet the requirements as per the bid documents during detailed engineering

3.3 ENGINEERING DATA AND DRAWINGS

3.3.1 One set of the complete specification document will be furnished by the OWNER to the Bidder.

3.3.2 OWNER shall also supply construction drawings and details progressively during the contract period, to cover all the works envisaged in the scope of the contract.

3.3.3 Construction drawings would be issued at the commencement of the work and subsequently to ensure that progress is maintained at the required pace, to meet the agreed work schedule of completion provided design data are available.

3.3.4 In the event Bidder apprehends any delay in construction for want of drawings and details, he shall immediately advise the OWNER accordingly. Bidder shall only have a claim for extension of time due to delay in issue of construction drawings as considered fit in the opinion of the OWNER. OWNER`s decision in regard to extension of time allowed on this account shall be final and binding on the Bidder.

3.4 DRAWINGS

3.4.1 All drawings submitted by the Bidder including those submitted at the time of bid shall be with sufficient detail to indicate the type, size, arrangement, material description, Bill of Materials, weight of each component, break-up for packing and shipment, dimensions, internal & the external connections, fixing arrangement required and any other information specifically requested in the specifications.

3.4.2 Each drawing submitted by the Bidder shall be clearly marked with the name of the Owner, the unit designation, the specifications title, the specification number and the name of the Project. If standard catalogue pages are submitted, the applicable items shall be indicated therein. All titles, noting, markings and writings on the drawing shall be in English. All the dimensions should be in metric units.

3.4.3 Further work by the Bidder shall be in strict accordance with these drawings and no deviation shall be permitted without the written approval of the Owner, if so required.

3.4.4 The review of these data by the Owner will cover only general conformance of the data to the specifications and documents interfaces with the equipment provided under the specifications, external connections and of the dimensions which might affect plant layout. This review by the Owner may not indicate a thorough review of all dimensions, quantities and details of the equipment, materials, any devices or items indicated, or the accuracy of the information submitted. This review and/or approval by the Owner shall not be considered by the Contractor, as limiting any of his responsibilities and liabilities for

mistakes and deviations from the requirements, specified under these specifications and documents.

3.4.5 All manufacturing and fabrication work relating to the equipment prior to the approval of the drawings shall be at the Bidders risk. The Bidder may make any changes in the design, which are necessary to make the equipment conform to the provisions and intent of the Contract and such changes will again be subject to approval by the Owner. Approval of Bidders drawing or work by the Owner shall not relieve the Bidder of any of his responsibilities and liabilities under the Contract.

3.4.6 All engineering data submitted by the Bidder after final process including review and approval by the Owner shall form part of the Contract Document and the entire works performed under these specifications shall be performed in strict conformity, unless otherwise expressly requested by the Owner in Writing.

3.1 APPROVAL PROCEDURE

3.1.1 The scheduled dates for the submission of the drawings as well as for, any data/information to be furnished by the Owner would be discussed and finalized at the time of award. The following schedule shall be followed for approval and for providing final documentation. (Note: This is valid only for the documents and drawings submitted by the contractor for approval of Owner.)

i)	Approval/comments/ by Owner on initial submission	As per agreed schedule
ii)	Resubmission (whenever required)	Within 1 (One) weeks from date of Comments through Wrench
iii)	Approval or comments	Within 1 weeks of receipt of resubmission.
iv)	Furnishing of distribution copies in bound volume (3 copies)	1 weeks from the date of final approval
v)	Furnishing of distribution copies of test reports	
	a) Type test reports (3 copies)	2 weeks from the date of final approval
	b) Routine Test Reports (one copy each)	2 weeks from the date of final approval

vi)	Furnishing of instruction/operation manuals (two copies)	As per agreed schedule
vii)	Hard copy of approved RFC drawings (two sets)	As per agreed schedule
viii)	As built drawings (Three sets)	On completion of entire works
ix)	CD / DVD for all As built drawings	On completion of entire works

A4 TERMINAL POINTS

NA

A5 EXCLUSIONS:

NA

A6 BIDDER'S QUALIFICATION REQUIREMENTS

Technical: Please refer NIT

A7 PROJECT SCHEDULE / MILESTONES

Bidder shall submit with the bid, a detailed Project Schedule covering the following based on the milestones tabulated below:

Milestone *	**Target**
Site handover for Construction	Within One week from LOI
Commencement of Construction / Erection	Within Two weeks from LOI
Completion of all activities and handover to Tata Power after commissioning	3 calendar months from LOI

Based on the above milestones, the Bidder shall prepare a detail project schedule and shall submit the same with the bid.

Time is the essence of this contract. The CONTRACTOR shall, within one week of receipt of the Letter of Intent has to submit to the OWNER for his approval, a detailed work schedule before starting the foundation work to achieve completion schedule both interim and ultimate. After the OWNER has agreed with the schedule, the CONTRACTOR shall prepare detailed program of each work front/activity breaking it down giving daily/weekly quantifiable/measure of progress. The schedules are to be reviewed periodically with the OWNER to ensure that the completion date will be met or to institute corrective steps (at no extra cost to the OWNER) to adhere to the completion dates. The OWNER reserves the right to revise the schedule at his discretion in order to keep up to the completion date and to suit the project requirement and such alterations shall not entitle the CONTRACTOR to any extra payment

The CONTRACTOR shall arrange for the mobilization of all equipment, material, personnel and all other resources to progress the work at the site to suit the completion dates of works of scope of enquiry. No financial, time extension or other claims for idling or underutilization of CONTRACTOR's resources will be entertained or paid by OWNER unless certified by OWNER's ENGINEER.

The whole works must be proceeded with, within such sections and at such times and in such order and manner as described in these specifications and as directed by the

ENGINEER. No extra payment or relaxation in the rates will be permitted on account of this.

To achieve the completion schedule stipulated, BIDDER shall furnish along with the bid a list of machinery/boring and piling rigs, concrete batching plant with its capacity and other equipment he proposes to employ in the work. CONTRACTOR shall provide and maintain all equipment and plants necessary in good working conditions to perform the work at site. All arrangements for transporting machinery, equipment, men and material to and from the site shall be made by the CONTRACTOR at his own expense.

CONTRACTOR shall identify suitable quarries for uninterrupted supply of coarse and fine aggregates and make necessary arrangements for transportation of the same. Since quarries are located faraway, CONTRACTOR shall at all time have a reserve storage of coarse and fine aggregates to meet peak requirement for one month
The CONTRACTOR shall make his own arrangements for providing accommodation for all staff outside our premises and necessary storage space for equipment and consumables such as but not limited to petrol, diesel, lubricants, oxygen, acetylene, welding rods, etc., together with sufficient quantity of spare parts for efficient and uninterrupted execution of the work.

The CONTRACTOR shall furnish the ENGINEER with two levels of report in the frequency noted below:

		Frequency	Required by Date
RL 1:	Report Level 1	Monthly	29th of each month for reporting period until 27th.
RL 2:	Report Level 2	Weekly	Friday evening for week stating from Friday to Thursday.

Report Level 1: This report to give in brief describing the summary of the progress / milestones achieved on each of the major fronts during the month accompanied with Photographs. The other details shall be given in the following format:

ID no	Activity Group	%of progress in that Month		Cum% progress		Reasons for shortfall and steps taken to make up
		Sch.	Act.	Sch.	Act.	

Report Level 2: Report should be given in the following format:

ID no	Activity Group	Original comp date	Scope of work (measured)	% progress in the month		Cum % progress		Reason s for delay	Steps to cover shortfall	Target next week	Remaining duration to complete the activity
				Sch	Act	Sch	Act				

Apart from this the CONTRACTOR is required to submit a daily report of the skilled labour and plant, equipment and other resources deployed by him at the project site. This shall include the resources of the sub-CONTRACTOR if any.

Extension of contract period only under force majeure conditions for completion of work shall be granted by the OWNER, equal to the time `Force Majeure' conditions were in existence and as applicable to this contract. Monsoon or inclement weather shall not be considered as a reason for extension of time.

Idle time charges for any reason whatsoever shall not be entertained by the OWNER

If the CONTRACTOR fails to maintain the stipulated time of completion specified hereinabove, he shall be liable to pay penalty as set out in `General Conditions of Contract'. It shall be clearly understood that failure to meet interim completion dates shall also attract penalty.

CONTRACTOR'S SCOPE OF SUPPLY

The CONTRACTOR will be required to provide at his own cost all facilities for his office, warehouse, tool room, change room or any other building/structure required to execute his work.

CONTRACTOR will establish his own office / shed at specified place inside the plant for his worker/staff. The CONTRACTOR’s office/shed will be porta-cabin type. Only the shed

for storing Cement will be in brick masonry. In addition, the office/shed will have proper ventilation lighting and sanitary facilities. CONTRACTOR will plan their site facilities and obtain clearance from the OWNER before construction of the Office/shed

All royalties will be paid by the CONTRACTOR as also all tolls, local and other taxes, etc. at no extra cost to OWNER. The rates quoted for excavation will include Collector's permissions for Excavation permits, Royalty payments, disposal in NMMC/MCGM (Debris Cell management) approved yard etc. The debris disposal NMMC/MCGM disposal area and or any other authorities beyond NMMC/MCGM limit and relevant payments for the same in CONTRACTOR's scope.

All materials supplied by the CONTRACTOR will be of the best quality and will conform to this specification. Approval in writing will be obtained from OWNER before any alternative or equivalent material is proposed to be used by the CONTRACTOR.

CONTRACTOR will obtain all necessary permits and licenses before commencement of work at no extra cost to OWNER. Contractor should liaison with locals and local authorities for maintaining uninterrupted working.

The CONTRACTOR will have PF coverage, for all workmen in his permanent employee as well as those temporarily hired by him for the said project. He will also have ESIC cover for all workmen, permanent as well as temporary if required by law. The cost for both the above viz. PF as well as ESIC will be deemed to have been covered in the rate quoted by contractor. The OWNER will not pay any extra charges over and above the rates quoted for these statutory payments. Contractor shall register under BOCW Act.

MATERIALS SUPPLIED BY CONTRACTOR

All materials supplied by the CONTRACTOR will be of the best quality and will conform to the given specifications. Approval in writing will be obtained from the ENGINEER, before any alternative or equivalent material is used, other than what is specifically mentioned in the drawings. Steel reinforcement must be of primary vendor.

The CONTRACTOR will get tested all material supplied by him in a OWNER approved laboratory, as directed by ENGINEER or as specified in the corresponding code of practice, at no extra cost to the OWNER. This is in addition to furnishing the Manufacturer's Test Certificate where available.

A8 SUBMISSIONS BY BIDDERS

Bidder shall submit the following Data sheets / information along with the Technical Bid.

- Dully filled in schedules, listed in section 'C' and complete specification.
- Quality Assurance Plan (QAP), Manufacturing Quality Plan (MQP)
- Guaranteed Technical Particulars of all the material to be supplied duly filled in with all technical parameters, design calculations, etc.
- Testing Facility and Testing Plan for all items offered.
- Project Schedule to be prepared and submitted by the bidder along with the bid document.

1. ALONGWITH BID: NA

2. AFTER AWARD OF CONTRACT:
Bidder has to submit

a. Master document list.
b. As built drawings after successful completion of project.
c. Field Quality Plan of GCW.
d. Activity wise construction method statements.
e. Concrete mix designs.
f. Inspection Categorization Plan (ICP)

A9 QUALITY REQUIREMENTS

Refer detail technical specification, FQP and SQP for Quality requirements.

SECTION B

SECTION B DETAILED TECHNICAL SPECIFICATIONS

1. **CIVIL AND ARCHITECTURAL:** Refer Chapter- 1.1 for detailed technical specification of Civil submitted separately.

Rev No	Date	Originator	Reviewed By	Cleared By		Approved By (HOD)
				HOD	Signature	
				Mechanical		
				Civil		
				Piping & Layout		
				C & I		
				Automation		
				Electrical		

SECTION C

C1 - SCHEDULE OF QUANTITIES AND PRICES

SUPPLY: Please refer BOQ in separate sheet provided

NOTES ON SCHEDULE OF QUANTITIES AND PRICES (CIVIL)

Civil Works

1. The Schedule of Quantities and Rates shall be read in conjunction with the specifications, tender drawings and tender documents. Bidder shall not rely merely on the description given in the Schedule of Quantities and Rates. All the work shall conform to specifications and the quoted rates shall be deemed to include all works necessary to achieve this whether actually indicated under the item description or not

2. Quantities of work indicated in the Schedule of Quantities and Rates are only approximate and are given to provide a common basis for tendering. No claim shall be entertained from Contractor if the actual quantities or items of work differ to any extent from those indicated herein with a cap of +/- 25% of overall contract price.

3. The quotation submitted by Bidder should be based on the approximate estimated quantities of the several items of work, which are furnished for Bidder's convenience in the Schedule of Quantities and Rates. The approximate estimated quantities nor the values of the individual items nor the aggregate value of the entire tender will form a part of the Contract and the Owner does not in any way assure or guarantee Bidder that the work would correspond there to.

4. The quantities of work actually carried out (as evaluated from construction drawings and or field measurements) if directed by the Engineer against each item will be measured and paid at the rates quoted in the Schedule of Quantities & rates, where applicable or otherwise at such rates and prices as may be fixed within the terms of the Contract.

5. Unit or lump sum prices shall be quoted for all items and they shall be firm. If unit or lump sum prices are not quoted against any of the items, it shall be deemed to have been covered in the prices quoted elsewhere. These rates shall include cost of all plant, labour, materials, oil and lubricant, transport, wastage, supervision, insurance, taxes, overheads, profits, etc. and every incidental and contingent cost and charges whatsoever required for completing the items of work in all respects and as per specifications.

6. Bidder shall be deemed to have allowed in his rates and prices for the provision, maintenance and final removal of all temporary works of whatsoever nature required for the proper execution of the works, except for those temporary works for which specific items have been provided in Schedule of Quantities and Rates. The prices inserted against these specific items of particular temporary works shall be for the provision, maintenance and their final removal. The rates shall also be deemed to include cost of any survey works that may be required to be carried out for setting out of all the works involved.

7. Rates and prices shall be written in ink and shall be entered both in figures and in words. Where there is a discrepancy between rates quoted in figures and in words, the rates quoted in words shall prevail. Where there is a discrepancy between the unit rates and the amount entered, the unit rate shall govern for evaluating the correct amount. Rates and prices shall be written only in the Schedule of Quantities and Rates and given in any other format will be rejected and Bidder will be disqualified.

8. The rates quoted shall hold good for works above ground level irrespective of elevations including lifts or below ground/grade level inclusive of dewatering where necessary. No extra amount is payable for dewatering under any circumstances. This shall also include the cost of materials utilised for testing.

9. The rates quoted shall hold good even if the shapes and sizes of members shown on bid drawings are modified while issuing the final drawings stamped 'Released for Construction'. No extra claims shall be entertained in this regard.

10. Rates quoted by the BIDDER shall be firm for the entire period of construction and is valid even if the contract is split.

11. Suitable admixture shall be used in concrete to achieve necessary slump and to reduce cement content shall be provided by BIDDER as directed by the Engineer at no extra cost to the OWNER.

12. Bidder shall quote his rates for all items in Schedule of Quantities. The Owner reserves the right to operate /increase or decrease quantities in each item or omit any item included in Schedule of Quantities at his discretion. Contractor shall have no claim, whatsoever, on grounds of loss of anticipated profit, etc. on account of the same.

13. All works shall be carried out strictly as per the specification

14. For all reinforced concrete works, bar bending schedule shall be prepared by the Contractor and approval shall be taken from the Engineer at site before cutting and placing the reinforcement.

15. For any deviations taken from the drawings released for construction, during actual execution of work, a sketch / drawing shall be furnished by the Contractor and got approved from the Engineer-in-Charge.

16. Cement used shall be Portland Pozzolana cement (PPC) conforming to IS: 1489- Part 2. In case PPC is not available readily, OPC conforming to IS: 12269 will be used.

17. Under- ground protection shall be provided for all concrete surfaces coming in contact with earth. This will include the edge of pile cap, sides of wall and top of pile cap excluding the pedestal.

18. The CONTRACTOR, desires to use any brand/manufacture other than those listed below shall be used only after written consent from ENGINEER.

Structural Steel

1. The quantities indicated against various items are based on preliminary design based on data available. Quantities are liable for change.

2. Supply of all structural steel material such as plates, rolled sections, M.S. rounds for Anchor bolts, chequered plates, M.S pipes for handrails, G.I. Pipe handrails, Electro forged gratings will be supplied by the Contractor.

3. Fabrication shall commence only based on fabrication drawings, which shall be prepared by the Contractor based on design drawings furnished by OWNER and approved by ENGINEER.

4. All Structural steel works covered in Schedule of Quantities of the specification shall be provided with protection painting system described in the relevant item.

5. Field Quality Plan will be prepared by the CONTRACTOR on award of work, describing in detail the type and extent of various quality checks/test which he will be performing and which are included in his rates. These checks/tests will be in line with the requirements of specification

enclosed in section '1'. The OWNER will review and approve the field quality plan before the fabrication commences, Tests as per item of Schedule of Quantities are tests which will be specifically ordered in writing by ENGINEER over and above those included in the Field Quality Plan.

6. Grouting work below the base plate shall be taken up only after alignment and final welding of columns are completed. The supply of premixed non-shrinking grout shall be the responsibility of CONTRACTOR and shall be of approved brand like Conbextra, Non-shrinktop, Sunepoxy 368, etc. The strength of grout shall be one grade higher than that of the base concrete.

Seal of the Company

Signature
Designation

C2- PROJECT TIME SCHEDULE

Seal of the Company

Signature

Designation

Note: The bidder shall indicate schedule of milestones and also attach/furnish a detailed bar chart identifying customer inputs.

C3- SCHEDULE OF DEVIATIONS FROM TECHNICAL SPECIFICATIONS

All deviations from this specification, shall be set out by the Bidders, indicating clause no and page in this schedule. Unless ***specifically*** mentioned in this schedule, the tender shall be deemed to conform to the purchaser's specifications:

Sr. No.	**Clause No.**	**Details of deviation with justifications**
--------	----------	----------

We confirm that there are no deviations apart from those detailed above.

Seal of the Company Signature

Designation

C4- SCHEDULE OF DEVIATIONS FROM GENERAL & SPECIAL CONDITIONS OF CONTRACT

All deviations from this specification, shall be set out by the Bidders, indicating clause no and page in this schedule. Unless ***specifically*** mentioned in this schedule, the tender shall be deemed to conform to the purchaser's specifications:

Sr. No.	**Clause No.**	**Details of deviation with justifications**
--------	----------	----------

We confirm that there are no deviations apart from those detailed above.

Seal of the Company

Signature

Designation

C5- SCHEDULE OF DRAWINGS & DOCUMENT SUBMISSION

As part of the proposal, the BIDDER shall furnish the schedule of drawing/document submission

Sr. No.	Title of Drawing/Document	Target Date of submission	For Information/Review/Approval	Remarks
1.0				
1.1				
1.2				
2.0				
2.1				
2.2				
3.0				
3.1				
3.2				
4.0				
4.1				
4.2				
5.0				
5.1				
5.2				

Seal of the Company

Signature

Designation

C6- SCHEDULE OF EQUIPMENTS

As part of the proposal, the BIDDER shall indicate below the list of recommended spares for three years of trouble free operation of the equipment/system offered by him.

Sr. No.	Equipment tag no.	Description of spare	Material of construction	Part no	Quantity recommended per unit of equipment	Unit price	Total price	Delivery period from date of LOI	Remarks

Seal of the Company

Signature

Designation

C7 - SCHEDULE OF SPECIAL ERECTION/MAINTENANCE TOOLS & TACKLES

As part of the proposal, the BIDDER shall indicate below, the list of erection/maintenance tools & tackles offered by him.

Sr. No.	Description of spare	Quantity recommended per unit of equipment	Unit price	Total price	Delivery period from date of LOI	Remarks

Seal of the Company

Signature

Designation

C8 - SCHEDULE OF PLACES OF MANUFACTURE, TESTS AND INSPECTION

For major equipment / systems, the Bidder shall indicate the name of the Manufacturer / SUBCONTRACTOR and place of test and inspection.

ITEM OF EQUIPMENT	Manufacturer / SUBCONTRACTOR	PLACE OF TESTING & INSPECTION

Seal of the Company

Signature

Designation

SECTION D

D- DRAWINGS AND DOCUMENTS

D1 TENDER PURPOSE DRAWINGS

NA

E – ANNEXURE

NA

SECTION 1.1

ROAD WORKS

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19.1. SCOPE OF WORK

i) This Section covers the general requirements for the materials, equipment and services required for the construction of permanent access/approach roads in the project area and temporary site roads as shown on the Drawings or as directed by the Owner/Project Manager.

ii) The Contractor shall be responsible for maintenance and repair of permanent access/approach roads and temporary site roads.

iii) Maintenance shall include good riding condition, filling of potholes, maintenance / cleaning of side drains, culverts, protection works / walls and clearance of slides as and when it occurs.

iv) The roads and bridges constructed by the Contractor shall confirm to IRC/ CPWD/MoRTH specifications for roads and bridge works and based on the layout shown on the Drawings and as described herein.

v) The construction of Access roads and temporary site roads shall include but not be limited to the following items:

a) Common excavation
b) Rock excavation
c) Backfill with available stones/ material
d) Stone masonry walls.
e) Gabions / Wire crates
f) Pipe Culvert
g) Concreting works.
h) Construction of sub-Grade, WBM, WMM,DLC and Concrete Pavement.

vi) The Contractor shall establish adequate traffic and dust control measures and safety regulations on all site roads. Paved/ Unpaved roads shall be frequently sprayed with water during dry weather to prevent the formation of dust clouds. Site roads shall be well drained and graded to ensure a firm, non-sliding surface during the rains and in winter.

vii) In case of failure of any road structure without any fault on the part of the contractor, the same will be rebuilt by the contractor and payment shall be made as per road work rates of BOQ.

viii) Measurement for payment and payment for the road items “Excavation / Concrete / Reinforcement / embankment / Sub Grade / WBM / WMM / Concrete Pavement etc.” shall be made in accordance with respective items of this section and respective technical Specifications.

ix) The measurement for payment and payment will be made only for permanent access road/approach roads.

x) No measurement for payment or payment will be made for constructions of temporary site roads, roads to Quarries/Borrow/dumping areas or any other roads constructed by contractor for his convenience.

xi) No measurement for payment or payment will be made for maintenance of permanent access road/approach roads, temporary roads or any other roads constructed by contractor for his convenience within the project boundary.

xii) All project roads shown in tender drawing no. TCE.13376B-CV-3000-GA-30000 (PROJECT LAYOUT PLAN) will be paid. Any other roads need to be constructed for construction purpose shall be aligned within the available project area and shall not be paid. Cost of such roads shall be included in the rates being quoted by Bidders.

19.2. SUBMITTALS

i) Within 5 days of after receipt of letter of award, contractor shall submit the methodology, work program and schedule of execution of temporary and permanent roads.

ii) The Contractor shall prepare and submit detailed design criteria/memo for approval prior to start of the work.

iii) At least 5 days prior to scheduled construction of work, the contractor shall submit to the owner the information and schedule indicating methodology for phase wise execution.

iv) The Owner/Project Manager reserves the right to require any additional information deemed necessary to be included in submitted documents.

19.3. PRINCIPLE ACCESS ROAD TO THE SITE

Shirawta Pumped Storage Project is located near Khandshi village, Maval Taluka in Pune District of Maharashtra State. It is located about 100 km southeast of Mumbai and 40 km north-west of Pune. The project site is well connected and accessible throughout the year.

Both Upper and Lower reservoir are accessible from Mumbai and situated about 126 km from Mumbai and 57 km from Pune in Maharashtra State. The nearest airport is at Mumbai, Pune airport and nearest rail head is at Lonavala. There is a good network of roads to khandshi. The major roads meeting at khandshi are:

i) Mumbai- Lonaval – khamshet-2 via Mumbai Satara highway – NH 48.

19.4. FLEXIBLE PAVEMENT

19.4.1. Reference Standards

The codes and standards mentioned below shall be latest as on the day of award of contract of the works unless otherwise specified.

IS 73	:	Specification for Paving Bitumen
IS 215	:	Specification for Road Tar
IS 217	:	Specification for Cutback Bitumen
IS 454	:	Specification for Digboi type Cutback Bitumen
IS 460 (Part 1,2,3)	:	Specification for Test Sieves
IS 1195	:	Specification for Bitumen Mastic Flooring
IS 1834	:	Specification for Hot Applied Sealing Compounds for Joints in Concrete
IS 2386 (Part 1-8)	:	Methods of tests for aggregates for concrete.
IS 2720 Part 5	:	Methods of Test for Soils: Part 5 – Determination of Liquid and Plastic Limit
IS 6241	:	Method of test for determination of stripping value of road aggregates
IS 16	:	Specification for priming of base course with bituminous primers
IS 19	:	Standard specification and code of practice for water bound macadam
IRC 37	:	Guidelines for the Design of Flexible Pavements
IRC 86	:	Geometric Design Standard for Urban Roads in Plants
IRC 109	:	Guidelines for Wet Mix Macadam

IRC 110	:	Standard Specifications and Code of Practice for construction of Surface Dressing
IRC 111	:	Specifications for Dense Graded Bituminous Mixes
Ministry of Shipping, Road Transport & Highways	:	Specifications for Road and Bridge works, 2013 (Fifth Revision)

19.4.2. Materials

i) Soling Stone

It shall be clean, sound, dense, hard tough, durable stone of uniform quality free from unsound material, cracks, decay, and weathering. The stone shall be in the smallest dimension equal to thickness of the soling course specified with a tolerance of 25 mm. The height of the soling stone shall be equal to the specified thickness of soling. The length and breadth shall not exceed twice the specified thickness.

ii) Stone Aggregate/ Metal

Coarse aggregate and screenings shall consist of natural or crushed stone, clean, hard, tough, durable, and free from excess of flat, elongated, soft and disintegrated particles, dirt, salt, alkali, vegetable matter, adherent coatings, organic and other objectionable matter, and shall conform to the physical requirements given in IS 2386 (Part 1 to 4), as applicable. Aggregate for bituminous wearing courses shall in addition have good hydrophobic properties i.e. capacity of retaining the film of bituminous material applied to the stone in all weather conditions and especially in wet conditions. Basalt and dolerite are good in this respect; granite and quartzite are comparatively poor.

iii) Crushed Slag

Crushed slag shall be made from air cooled blast furnace slag. It shall be of angular shape, reasonably uniform in quality and density and generally free from thin, elongated and soft pieces, dirt or other deleterious materials. The weight of crushed slag shall not be less than 11.2kN/m3 and the percentage of glossy material shall not be more than 20. It should also comply with requirements in IS 14685 and IS 2386 (Part-3).

iv) Granular Sub-Base

The material to be used for the work shall be natural sand, cohesionless material (moorum), similar to gravel with higher fines content, gravel, crushed stone, or combination depending on the grading required. Materials like crushed slag, crushed concrete, brick metal and kankar may be allowed only with the specific approval of the Owner/Project Manager. The material shall be free from organic or other deleterious constituents. Granular sub-base (GSB) should conform to the MoRTH Specifications for Road and Bridge Works and IRC 37.

v) Screenings for Water Bound Macadam

Screening should conform to the MoRTH Specifications for Road and Bridge Works. Screenings to fill voids in the coarse aggregate shall consist of the same materials as the coarse aggregate. However, where permitted, predominantly non-plastic material such as moorum or gravel (other than river borne rounded material) may be used provided liquid limit and plasticity index of such material is below 20 and 6 respectively and fraction passing 75-micron sieve does not exceed 10 percent.

vi) Binding Material

Binding material shall comprise of a suitable material approved by Owner/Project Manager, having plasticity index value of less than 6 as determined in accordance with IS:2720 (Part-5). Binding material should conform to the MoRTH Specifications for Road and Bridge Works

Application of binding material may not be necessary when the screenings used are of crushable type such as moorum or gravel.

vii) Moorum/Gravel/Sand

Large lumps of moorum shall all be broken at the quarry and delivered at site, must pass in every direction through a 63 mm ring. Moorum shall not contain more than 5% to 8% of fines passing a 75-micron sieve.

Gravel shall be composed of large, coarse, siliceous grains, sharp and gritty to the touch, thoroughly free from dirt, organic and deleterious matter. It shall be hard, tough and dense, shall not contain particles bigger than 12 mm and shall not have more than 10 percent silt.

Sand used for blinding the bituminous road surface, shall be coarse, sharp, gritty, clean, granular material. Only material passing through 4.75 mm sieve and retained on 75micron sieve shall be used.

viii) Aggregates for Wet Mix Macadam

Coarse aggregates shall be crushed stone. If crushed gravel/ shingle is used, not less than 90% by weight of the gravel shingle pieces retained on 4.75mm sieve shall have at least two fractured faces. Aggregates shall conform to physical requirements (Los Angles Abrasion Value, Aggregate Impact Value, Combined Flakiness and Elongation Indices) as given in IS 2386 (Part 1 and 4) or IS 5460. Aggregates for Wet Mix Macadam should conform to the MoRTH Specifications for Road and Bridge Works.

ix) Bituminous Materials

Bituminous materials shall conform to IS 73, IS 215, IS 217 or IS 454, IRC 111 as applicable and be of the grade specified in this specification.

19.4.3. Construction

19.4.3.1. Earthwork in Excavation

i) In general, the excavation shall be in accordance with Section B.3 and B.4 for open and underground excavation respectively.

ii) Profiles of road excavation shall be laid at 50 m intervals to conform to the required alignment, sections, grades and side slopes and the lines of cuts shall be clearly marked.

iii) Contractor shall not excavate beyond the slopes or below the specified grade unless so directed by the Owner/Project Manager in writing. If excavation is done below the specified level or outside the section it shall not be paid for and the Contractor shall be required to fill up at his own cost such extra excavation with approved materials, in layers of 150 to 200 mm, watered and compacted as specified for the subgrade.

iv) The excavation shall be finished neatly, smoothly and evenly to the correct lines, grades, sections and side slopes as shown in the drawings or directed by Owner/Project Manager.

19.4.3.2. Earthwork in Embankment

i) The construction and material used for construction of embankment including subgrades, earthen shoulders and backfill with approved material shall conform to the MoRTH Specifications for Road and Bridge Works.

ii) Expansive clay with free swelling index exceeding 50 percent (when tested as per IS:2720 – Part 40) shall not be used as a fill material. Where expansive clay having "free swelling index" value less than 50 percent is used as a fill material, subgrade and top 500 mm portion of the embankment just below sub-grade shall be non-expansive in nature.

iii) Embankment shall be finished and dressed smooth and even to conform to the alignment, levels, cross sections, and dimensions shown on drawings with due allowance for shrinkage. Any damage caused by rain, or any other reason shall be made good in the finishing operation.

iv) The density and compaction requirement of embankment and subgrade material shall conform to IS 2720 (Part 8).

v) <u>Preparation of Subgrade</u>

a) The limits of embankment/sub-grade shall be marked by fixing batter pegs on both sides at regular intervals as guides before commencing the earthwork. The embankment/sub-grade shall be built sufficiently wider than the design dimension so that surplus material may be trimmed, area is dewatered and kept dry.

b) The top-soil from all areas of cutting and filling for embankment foundation shall be stripped to specified depths not exceeding 150 mm and stored in stockpiles of height not exceeding 2 m for covering embankment slopes, cut slopes and other disturbed areas where re-vegetation is desired. Original ground shall be levelled, scarified, mixed with water and then compacted by rolling. Any unsuitable material occurring in the embankment foundation (500 mm portion just below the sub-grade) shall be removed, suitably disposed and replaced by approved materials laid in layers to the required degree of compaction specified according to IS 2720 (Part 8).

c) The compacted thickness of each layer shall not be more than 250 mm when vibratory roller / vibratory soil compactor is used and not more than 200 mm when 80-100 kN static roller is used. Moisture content for each layer of soil shall be checked in accordance with IS:2720 (Part 2). All permanent faces of side slopes of embankments and other areas of fill shall, subsequent to any trimming operations.

d) Immediately prior to the laying of the soling the subgrade shall be cleaned of all foreign substances, vegetation etc. The camber of subgrade shall conform in shape to that of the finished road surface. Camber boards shall be used to get the required section.

e) The prepared subgrade shall be lightly sprinkled with water, if necessary, and rolled with power roller of' not less than 10 tonnes, till the soil is evenly consolidated to 95% of Proctor density with 2% variation in optimum moisture content. Any undulations in the surface that develop due to rolling shall be made good with approved earth and subgrade rerolled.

vi) Measurement

Earth embankment/ subgrade construction shall be measured separately and will be made to the lines and grades shown on the construction drawings by taking cross sections at intervals and computing volume of earthwork in cubic meters (CUM) by method of average and areas. The measurement of fill materials from borrow areas shall be the difference between the net quantities of compacted fill and the net quantities brought from road/ drain excavation. It shall be assumed that one CUM of material brought from excavation is equivalent to one CUM of compacted fill and bulking/ shrinkage shall be ignored.

Payment will be made at the appropriate Unit Rate per cubic meter entered in the Bill of Quantities . The rate shall cover carrying out works as specified above and include the cost of all materials, labour, plant, equipment, mixing, transport, placing, compacting, finishing, rectification of defects and incidentals such as trial length, etc., involved in the works.

19.4.4. Granular Sub-Base

i) The construction and material used for construction of granular subbase shall conform to the MoRTH Specifications for Road and Bridge Works.

ii) The sub-base material of specified grading shall be spread with the help of motor grader. Moisture content of loose material shall be checked in accordance to IS 2720 (Part 2) and adjusted by sprinkling of water to maintain it at 1% above or 2% below optimum moisture content as per IS:2720 (Part 8). The material shall be made uniformly wet by use of mechanical mixing equipment.

iii) Grade and cross fall shall be checked during rolling and high spots or depressions corrected. Rolling shall be continued till density achieved is at least 98% of maximum dry density of the material determined as per IS 2720 (Part 8). The surface shall look well closed, free from movement under compaction equipment and free from compaction planes, ridges, cracks or loose material. All defective areas shall be made good to the full thickness of layer and re-compacted.

iv) Measurement for payment of the granular subbase will be of the volumes placed within the lines and grades shown on the Construction Drawings. Payment will be made at the appropriate Unit Rate per cubic meter entered in the Bill of Quantities. The rate shall cover carrying out works as specified above and include the cost of all materials, labour, plant, equipment, mixing, transport, placing, compacting, finishing, rectification of defects and incidentals such as trial length, etc., involved in the works.

19.4.5. Water Bound Macadam Course

19.4.5.1. General

i) The construction and material used for construction of water bound macadam course shall conform to the MoRTH Specifications for Road and Bridge Works.

ii) The surface over which water bound macadam is to be laid shall be prepared to the specified grade and camber. It shall be made free of dust and other extraneous material. Bituminous wearing course if present shall be completely picked out.

iii) A sub-base course of specified thickness shall be provided in lieu of a soling course.

iv) Base course of specified thickness shall be provided over a soling course or sub-base course.

v) Total thickness of sub-base and base shall be as shown in construction drawings.

vi) The width of the sub-base course shall be 150 mm more on either side than that of the base course.

19.4.5.2. Spreading Coarse Aggregate

i) The coarse aggregate shall be spread uniformly and evenly upon the prepared surface by using templates placed across the road about 6m apart in such quantities that the compacted thickness of each layer for sub-base course does not exceed 75 mm. Mechanical spreaders shall be used to spread the material uniformly except for inaccessible areas where other approved means may be adopted to achieve specified results.

ii) The coarse aggregate shall not normally be spread in lengths exceeding 3 days average work ahead of the rolling and bonding of the proceeding section.

19.4.5.3. Rolling

i) After the spreading of the coarse aggregate, rolling shall be started with three wheeled power rollers of 80 to 100 kN capacity or tandem or vibratory roller of approved type of 80 to 100 kN static weight.

ii) The rolled surface shall be checked transversely and longitudinally with templates and all undulations shall be corrected by loosening the surface, adding or removing necessary amounts of aggregate and re-rolling until the entire surface conforms to desired camber and grade. In no case shall the use of screenings be permitted to make up depressions. Material which gets crushed excessively during compaction or becomes segregated shall be removed and replaced with suitable aggregates. It shall be ensured that shoulders are also built-up simultaneously along with water bound macadam course.

19.4.5.4. Application of Screenings

i) After the coarse aggregate of the sub-base course/ base course has been rolled, screenings to completely fill the interstices shall be applied gradually over the

surface. These shall not be damp or wet at the time of application. Dry rolling shall be done while the screenings are being spread so that vibrations of the roller cause them to settle into the voids of the coarse aggregate.

ii) Spreading, rolling and brooming of screenings shall be carried out in only such lengths of the road which could be completed within one day's operation.

19.4.5.5. Sprlinking and Grouting

After the screenings have been applied, the surface shall be copiously sprinkled with water, swept and rolled. Hand brooms shall be used to sweep the wet screenings into voids and to distribute them evenly. The sprinkling, sweeping and rolling operations shall be continued, with additional screenings applied as necessary, until the coarse aggregate has been thoroughly keyed, well bonded and firmly set in its full depth and a grout has been formed of screenings. Care shall be taken to see that the sub-grade or sub-base or base does not get damaged due to the addition of excessive quantities of water during construction. In case the subgrade or sub-base gets damaged, the Contractor shall, without additional compensation rectify the damaged portion.

19.4.5.6. Application of Binding Material

After the application of screenings over the surface of sub-base course / base course, the binding material where it is required to be used shall be applied successively in two or more thin layers at a slow and uniform rate, in the same way, as the screenings are applied. After each application, the surface shall be copiously sprinkled with water, the resulting slurry swept in with hand brooms or mechanical brooms to fill the voids properly and rolled, during which water shall be applied to the wheels of the rollers, if necessary, to wash down the binding material sticking to them. These operations shall continue until the resulting slurry after filling of voids, forms a wave ahead of the wheels of the moving roller.

19.4.5.7. Setting and Drying

i) After the final compaction of sub-base course / base course, the same shall be allowed to dry overnight. Next morning hungry spots shall be filled with screenings

or binding material as directed, lightly sprinkled with water if necessary and rolled. No traffic shall be allowed on the road until the base course has set.

ii) The compacted water bound macadam course should be allowed to completely dry and set before the next pavement course is laid over it.

19.4.5.8. Multiple Layered Course

When the total compacted thickness of the water bound macadam, course is a multiple of 100 mm/ 75 mm, it shall be constructed in layers. Each layer shall be constructed as per all the operations described above. The same degree of quality control and refinement shall be used for constructing each layer.

19.4.5.9. Measurements and Rates

i) Measurement for payment of the water bound macadam course will be of the volumes placed within the lines and grades shown on the Construction Drawings. Payment will be made at the appropriate Unit Rate per cubic meter entered in the Bill of Quantities.

ii) The rates shall cover carrying out works as specified above and include the cost of all materials, labour, plant, equipment, mixing, transport, placing, compacting, finishing, rectification of defects and incidentals such as trial length, etc., involved in the works.

19.4.6. Wet Mix Macadam Course

19.4.6.1. General

i) The construction and material used for construction of wet mix macadam course shall conform to the MoRTH Specifications for Road and Bridge Works.

ii) The work shall consist of laying and compacting clean, crushed, graded aggregate and granular material, premixed with water, to a dense mass on a prepared subgrade/ sub-base/ base or existing pavement as the case may be in accordance with specifications. The material shall be laid in one or more layers as necessary to lines, grades and cross-sections shown on the approved drawings or as directed by the Owner/Project Manager.

iii) The thickness of a single compacted Wet Mix Macadam (WMM) layer shall not be less than 75mm. When vibrating or other approved types of compacting equipment are used, the compacted depth of a single layer of sub-base course may be increased to 200mm upon approval of the Owner/Project Manager.

19.4.6.2. Preparation of Mix

Wet Mix macadam shall be prepared in an approved mixing plant of suitable capacity having provision for controlled addition and forced mixing arrangement like pugmill or pan type mixer of concrete batching plant. For small quantity of wet mix work, Owner/Project Manager may permit the mixing to be done in concrete mixers. Optimum moisture content shall be determined in accordance with IS 2720 (Part-8) after replacing the aggregate fraction retained on 22.4mm sieve with material of 4.75mm to 22.4mm size. The mixed material should be uniformly wet, and no segregation is permitted.

19.4.6.3. Spreading of Mix

Immediately after mixing, the aggregates shall be spread uniformly and evenly upon the prepared subgrade/ sub-base/ base in requisite quantities.

The paver finisher shall be self-propelled having loading hoppers with distribution mechanism, tamping and vibrating arrangement for initial compaction to the layer as it is spread without rutting or marring the profile and control mechanism to ensure that the finished surface is free from blemishes.

19.4.6.4. Compaction

i) After the mix has been laid to the required thickness, grade and camber, this shall be uniformly compacted to full depth with suitable roller. If the thickness of single compacted layer does not exceed 100mm, a smooth wheeled roller of 80 to 100 kN weight may be used. For compacted single layer up to 200mm, the compaction shall be done with vibratory roller of 80 to 100 kN static weight. The speed of roller shall not exceed 5 km per hour.

ii) Any displacement occurring as a result of reversing of the direction of a roller or from any other cause shall be corrected at once and made good to the satisfaction of the Owner/Project Manager.

iii) Along forms, kerbs, walls or other places not accessible to the roller, the mixture shall be thoroughly compacted with mechanical tampers or a plate compactor.

iv) If irregularities develop during rolling which exceed 12mm when tested with a 3-metre straight edge, the surface should be loosened, and premixed material added to achieve a uniform surface conforming to the desired grade and camber. In no case should the use of unmixed material be permitted to make up the depressions.

v) Rolling shall be continued till the density achieved is at least 98% of the maximum dry density for the material as determined according to IS 2720 (Part-8).

vi) After completion, the surface of any finished layer shall be well-closed, free from movement under compaction equipment or any compaction planes, ridges, cracks, and loose material. All loose, segregated or otherwise defective areas shall be made good to the full thickness of the layer and re-compacted.

19.4.6.5. Setting and Drying

After the final compaction of the wet mix macadam course, the same shall be allowed to dry for 24 hours.

19.4.6.6. Rectification of Surface Irregularity

Where the surface irregularity exceeds acceptable tolerance limit, or the course is defective due to subgrade soil getting mixed with the aggregates, the full thickness of the layer shall be scarified over the affected area, reshaped with added premixed material, or removed and replaced with fresh premixed material and re-compacted. The area treated shall not be less than 5-metre long and 2 metre wide. In no case shall depressions be filled up with unmixed or ungraded material or fines.

19.4.6.7. The Measurements and Rates

Measurement for payment of the wet mix macadam course will be of the volumes placed within the lines and grades shown on the Construction Drawings. Payment will be made at the appropriate Unit Rate per cubic meter entered in the Bill of Quantities. The rates shall cover carrying out works as specified above and include the cost of all materials, labour, plant, equipment mixing, transport, placing,

compacting, finishing, rectification of defects and incidentals such as trial length, etc., involved in the works.

19.4.7. Semi Dense/ Dense Graded Bituminous Macadam/ Bituminous Concrete

19.4.7.1. General

Three different specifications for dense graded bituminous mixes are available for use in base course, binder course and wearing course as mentioned in below table.

Type	Purpose	No. of Layers	Thickness of each layer (mm)
Dense Bituminous Macadam (DBM)	Base / Binder Course / Overlay for Strengthening	Single or Multiple	50-100
Semi-Dense Bituminous Macadam (SDBM)	Wearing Course	Single	25-40
Bituminous Concrete (BC)	Wearing Course	Single	25 / 40 / 50

19.4.7.2. Materials

i) Bitumen

This shall be paving bitumen of suitable viscosity grade within the range as per IRC 111. The grade of viscosity-graded paving bitumen and modified bitumen shall be selected from table 2 to 4 of IRC 111. The type and grade of bitumen to be used shall be as specified in the schedule of quantities or specific technical requirements or approved drawings. Project specific climatic conditions shall be considered while selecting the bitumen grade.

ii) Coarse Aggregate

It shall be crushed rock or gravel, or other hard material retained on 2.36 mm sieve. They shall be clean, hard and durable, of cubical shape, free from dust and soft or friable matter, organic or other deleterious matter. Aggregates shall preferably be of low porosity and shall satisfy the physical requirements specified in Table 5 of IRC 111. Where crushed gravel is proposed as aggregate, not less than 90% by weight of the crushed material retained on 4.75mm sieve shall have at least two fractured surfaces.

iii) Fine Aggregates

The fine aggregates shall conform to the requirement of IRC 111. They shall be the fraction passing 2.36 mm sieve and retained on 75- micron sieve consisting of crusher run screenings, natural sand or mixture of both. These shall be clean, hard, durable, uncoated, dry and free form any injurious, soft or flaky pieces and organic or deleterious substances.

iv) Filler

Filler shall consist of finely divided mineral matter such as rock dust (having a Plasticity Index not greater than 4), hydrated lime or cement approved by the Owner/Project Manager and free from organic impurities. Grading limits of filler shall be as per Table 6 of IRC 111.

The Plasticity Index requirement shall not apply if filler is cement or lime is used. When the coarse aggregate is gravel, 2% by weight of total aggregate shall be OPC or hydrated lime and the percentage of fine aggregate reduced accordingly. For limestone aggregate, cement/ lime is not required. Where the aggregates fail to meet the requirement of water sensitivity test, hydrated lime at 2% by weight of total aggregate shall be added by the contractor without additional cost.

v) Aggregate Grading and Bitumen Content

The fine aggregates quality shall conform to IRC 111. The combined grading of coarse aggregates, fine aggregates and filler, when tested in accordance with IS 2386 (Part 1) shall conform to limits given in table 7 of IRC 111.

The combined aggregates grading shall not vary from the lower limit on one sieve to the upper limit on the adjacent sieve to avoid grading.

19.4.7.3. Mix Design

i) Besides conforming to the requirement of grading and quality for individual ingredient the mix shall meet the requirement set out in Table 8 of IRC 111 to produce a uniform mixture.

ii) The binder content shall be selected to obtain 4% air voids in the mix design and shall meet all requirements given in Table 8 of IRC 111. The Marshall method for designing the mix shall be adopted as described in the sixth edition of the Asphalt Institute Manual MS-2.

iii) The contractor shall ensure that the job mix formula is based on true representative sample of the materials to be used in the work. Permissible variations in the actual mix from approved job mix formula are specified in Table 9 of IRC 111.

19.4.7.4. Preparation of Base

i) The base on which bituminous macadam is to be laid shall be prepared, shaped and compacted to the required profile. The surface shall be cleaned of all loose extraneous matter by means of mechanical broom and high-pressure air jet from compressor or any other approved equipment or method. Any potholes or cracks shall be repaired and sealed.

ii) Depending upon the requirement, profile correcting course for correcting the existing pavement profile shall be laid either as a separate layer or as a composite layer with varying thickness. Where the maximum thickness of the profile corrective course is less than 40mm, the profile corrective course shall be laid as an integral part of the over laying layer. In other cases, the profile corrective course shall be constructed as a separate layer.

19.4.7.5. Tack Coat

Tack coat shall be as per IRC:16 – Standard Specification and Code of practice for Prime and Tack Coat. Handheld pressure sprayer shall be used for inaccessible areas or in narrow strips. Rate of application of tack coat shall be as per IRC 16.

19.4.7.6. Preparation and Transportation of Mix and Laying

i) Hot mix plant of adequate capacity and capable of producing a proper and uniform quality mix with thoroughly coated aggregates shall be used for preparing the mix. Appropriate mixing temperatures shall be as per table 10 of IRC 111. At no time shall the difference in temperature between the aggregate and binder exceed 14° C. In order to ensure uniform quality of the mix and better coating of aggregates, the hot mix plant shall be calibrated from time to time. In a continuous mixing plant, laboratory analysis shall be used to establish that the cold feed combined grading is within limits. The bitumen and filler content shall be derived using this combined grading.

ii) Bituminous materials shall be discharged from the mixer and transported to the point of use in suitable clean insulated and covered tippler vehicles. Thin coating of diesel or lubricating oil may be applied to the interior of the vehicle to prevent sticking and facilitate discharge of material with approval of Owner/Project Manager.

iii) The surface shall be cleaned of all loose and extraneous matter by means of a mechanical broom or other approved equipment/ method. The dust and loose matter shall be removed by use of high-pressure air jet.

iv) The hot mix shall be spread by means of a self-propelled mechanical paver with suitable screeds capable of spreading, tamping and finishing the mix to specified lines and levels to a thickness sufficient to achieve, after rolling, the specified thickness. Laying shall ensure uniform flow of material across the screed, free from dragging, tearing and segregation of material. In restricted locations and in narrow widths where available equipment cannot be operated in the opinion of the Owner/Project Manager, he may permit manual laying of the mix using hand tools by experienced staff.

v) Longitudinal joints and edges shall be constructed true to the delineating lines parallel to the centre line of the road. Longitudinal joints shall be offset by at least 150 mm from those in the tack coat. All joints shall be cut vertical to the full thickness of the previously laid mix and the surface painted with hot bitumen before placing fresh material. When laying binder course or wearing course approaching and expansion joint of a structure, machine laying shall stop 300mm short of the joint and the remaining portion shall be laid manually.

vi) Laying shall be suspended while free-standing water is present on the surface to be covered, or during rain, fog and dust storms. After rain the surface shall be blown off with high pressure air jet to remove excess moisture or left to dry before laying. Laying of bituminous mixtures shall not be carried out when surface temperature is less than 10oC or when wind speed exceeds 40km/ hour at 2m height.

19.4.7.7. Compaction

i) Immediately after the spreading of mix it shall be thoroughly compacted by rolling with a set of rollers moving at a speed not more than 5 km per hour. The initial or break down rolling shall be with 8-10 tonnes dead weight smooth-wheeled rollers. Intermediate rolling shall be done with 8 – 10 tonnes dead weight vibratory roller or with a pneumatic tired roller of 12 – 15 tonnes weight having nine wheels and tire pressure of at least 5.6kg/ sqcm. The finish rolling shall be done with 6 - 8 tonnes smooth wheeled tandem rollers.

ii) Rolling shall be done in longitudinal direction with driven rolls nearest the paver. Rolling of the longitudinal joints shall be done immediately behind the paving operation. Any high spots or depressions which become apparent shall be corrected by addition or removal of mix material.

19.4.7.8. Protection of the layer

The bituminous macadam shall be covered with the next pavement course or wearing course within maximum of forty-eight hours. In case of delay by contractor, it shall be covered with seal coat at no additional expense.

19.4.7.9. Measurement

Measurement for payment Bituminous Concrete, Semi Dense Bituminous Concrete and Dense Bitumen Macadam will be of the volumes placed within the lines and grades shown on the Construction Drawings. Payment will be made at the appropriate Unit Rate per cubic meter entered in the Bill of Quantities. The rates shall cover carrying out works as specified above and include the cost of all materials, tack coat, labour, plant, equipment, mixing, transport, placing, compacting, finishing, rectification of defects and incidentals such as trial length, etc., involved in the works.

19.4.7.10. Prime Coat

Prime coat shall be applied if DBM is to be laid on non-bituminous surface. The work shall consist of application of single coat of low viscosity liquid bituminous material to a porous granular surface.

The primer shall be bitumen emulsion SS1 grade complying with the requirements of IS 8887 or medium curing cutback bitumen conforming to IS 217.

Table below shows the rate of spray for various types of granular surfaces:

Type of Surface	Rate of spray (kg/sqm)	
	Bitumen Emulsion	Cutback Bitumen
WMM/ WBM	0.7 – 1.0	0.6 – 0.9
Stabilized soil bases/ Crushed run Macadam	0.9 – 1.2	0.9 – 1.2

The primer shall be applied by a self-propelled or towed bitumen pressure sprayer to spray uniformly at specified rates and temperatures. Hand spraying shall be permitted by the Owner/Project Manager for small areas inaccessible to the sprayer or in narrow strips. The road surface shall be carefully swept clean of dust and loose particles and surface shall be kept slightly moist till application of primer. The primed surface shall be allowed to cure for at least 24 hours or till such time to allow all volatiles to evaporate before any subsequent surface treatment is laid. Any unabsorbed primer shall be blotted with an application of sand.

19.4.8. Quality Control

19.4.8.1. General

i) All materials incorporated, and all works performed shall be strictly in conformity with the specification requirements. All works shall conform to the lines, grades, cross sections and dimensions shown on the drawings or as directed by the Owner/Project Manager subject to the permitted tolerances described hereinafter. The Contractor shall be responsible for the quality of the work in the entire construction within the Contract. He shall, therefore, have his own independent and adequate set-up for ensuring the same.

ii) The Contractor shall carry out quality control tests on the materials and work to the frequency specified. In the absence of clear indications about method and/or frequency of tests for any item, the direction of the Owner/Project Manager shall be followed. The Contractor shall provide necessary cooperation and assistance in obtaining the samples for test and carrying out the field test as required by the

Owner/Project Manager from time to time. This may include provision of labour, attendance, assistance in packing and dispatching and any other assistance considered necessary in connection with the test.

iii) The Contractor shall carry out modification in the procedure of work, if found necessary, as directed by the Owner/Project Manager during inspection. Works falling short of quality shall be rectified by the Contractor at his own cost as directed by the Owner/Project Manager.

iv) The Contract rate quoted for various items of works in the Bill of Quantities or the lumpsum amount tendered shall be deemed to be inclusive of all costs of the quality control tests and operations necessary for ensuring quality of the material and work to be in conformity with the specification requirement.

19.4.8.2. Permitted Tolerances

i) Horizontal Alignments:

Horizontal alignments shall be reckoned with respect to the centre line of the carriage-way as shown on the drawings. The edges of the carriage-way as constructed shall be correct within a tolerance of ± 10 mm therefrom. The corresponding tolerance for edges of the roadway and lower layers of pavement shall be ± 25 mm.

ii) Surface Levels:

The levels of the subgrade and different pavement courses as constructed, shall not vary from those calculated with reference to the longitudinal and cross-profile of the road shown on the drawings or as directed by the Owner/Project Manager beyond the tolerances mentioned below:

Subgrade	+ 20 mm/ (-) 20 mm
Sub-base	+ 10 mm/ (-) 10 mm

Base course

a) Bituminous Concrete + 6 mm/ (-) 6 mm

b) Granular

i) Machine laid ±10 mm

ii) Manually laid ±15 mm

Wearing Course

a) Machine laid ±6 mm

b) Manually laid ±10 mm

iii) Surface Regularity

The surface regularity of completed subgrade, sub-base course, base course and wearing course in the longitudinal and transverse directions shall be within the tolerances indicated in table below.

The longitudinal profile shall be checked with a 3-metre-long straight edge, at the middle of each traffic lane along a line parallel to the centre line of the road. The transverse profile shall be checked with a set of three camber boards at intervals of 10 metres.

Maximum Permitted number of Surface Irregularities

	Surfaces of carriageways and paved shoulders				**Surfaces of lay-bys, service areas and all bituminous base courses**			
Irregularity	4 mm		7 mm		4 mm		7 mm	
Length (m)	300	75	300	75	300	75	300	75
National Highways/ Expressways (*)	15	9	2	1	40	18	4	2
Roads of lower category (*)	40	18	4	2	60	27	6	3

(*) Category of road shall be described in the project contract.

The maximum allowable difference between the road surface and underside of a 3m straight edge when placed parallel with or at right angles to centre line of the road at points decided by the Owner/Project Manager shall be:

For pavement surface	3mm
For bituminous base courses	6mm
For granular sub-base/ base courses	8mm

For subgrade	15mm

iv) Rectification

Where the surface irregularity of subgrade and the various courses fall outside the specified tolerances, the Contractor shall be liable to rectify these in the manner described below and to the satisfaction of the Owner/Project Manager.

a) Subgrade: Where the surface is high, it shall be trimmed and suitably compacted. Where the same is low, the deficiency shall be corrected by adding fresh material.

b) Granular sub-base: The treatment method shall be similar to item (i) above.

c) Water Bound Macadam/ We Mix Macadam: Where the surface is high or low, the top 75 mm shall be scarified, reshaped with added material as necessary and recompacted as per the specification. The area treated at a place shall not be less than 5 metres long and 2 metres wide.

d) Bituminous Construction: For bituminous construction other than wearing course, where the surface is low, the deficiency shall be corrected by adding fresh material and recompacting to specifications. Where the surface is high, the full depth of the layer shall be removed and replaced with fresh material and compacted to specifications.

For wearing course, where the surface is high or low, the full depth of the layer shall be removed and replaced with fresh material and compacted to specifications. In all cases where the removal and replacement of a bituminous layer is involved, the area treated shall not be less than 5 metres long and not less than 3.5 m wide.

19.4.8.3. Tests

For ensuring the requisite quality of construction, the materials and works shall be subjected to quality control tests, as described hereinafter. The testing frequencies set forth are the desirable minimum and the Owner/Project Manager shall have the full authority to increase the frequencies of tests as he may deem necessary to

satisfy himself that the materials and works comply with the appropriate specifications.

Various quality control tests shall be conducted in accordance with the procedures indicated in the IRC 111. Where no specific testing procedure is mentioned, the tests shall be carried out as per the prevalent accepted Owner/Project Managering practice to the directions of the Owner/Project Manager.

i) Tests on Earthwork for Embankment and Subgrade Construction

a) Borrow material:

- Sand Content {IS 2720 (Part 4)}: 2 tests per 3000 cu.m. of soil
- Plasticity Test {IS 2720 (Part 5)}: Each type to be tested, 2 tests per 3000 cu. metres of soil.
- Density Test {IS 2720 (Part 8)}: Each soil type to be tested, 2 tests per 3000 cubic metres of soil.
- Deleterious Content Test {IS 2720 (Part 27)}: As and when required by the Owner/Project Manager.
- Moisture Content Test {IS 2720(Part 2)}: Two test for every 250 cubic metres of soil.
- CBR Test on materials to be incorporated in the subgrade on soaked/unsoaked samples {IS 2720 (Part 16)}: One result (average of three tests) for every 3000 m3 at least or closer as and when required by the Owner/Project Manager.

b) Compaction control

Control shall be exercised by taking at least one set of ten measurements of density for each 3000 square metres of compacted area, or closer as required to yield the minimum number of test results for evaluation of a day's work on statistical basis. The determination of density shall be in accordance with IS 2720 (Part 28). Tests locations shall be chosen only through random sampling techniques. Control shall not be based on the result of any one test but on the mean value of a set of 10 density determinations. The number of tests in one set of measurements shall be doubled for non-destructive tests if it is felt that sufficient control over borrow material and the method of compaction is being

exercised. If considerable variations are observed between individual density results, the minimum number of tests in one set of measurement shall be increased. The acceptance of work shall be subject to the condition that the mean dry density equals or exceeds the specified density plus [1.65 – 1.65/ (No of samples) * 0.5] * standard deviation.

However, for earthwork in shoulders (earthen) and in the subgrade, at least one set of ten density measurement shall be taken for every 2000 square metres of the compacted area. In other respects, the control shall be similar to that described earlier.

ii) TESTS ON SUB-BASES AND BASES (EXCLUDING BITUMEN BOUND BASES)

The tests and their frequencies for the different types of bases and sub-bases shall be as given in table below. The evaluation of density results for compaction control shall be on lines like those set out in above clause.

Control Tests and Their Frequencies for Sub-Bases and Bases (Excluding Bitumen Bound Bases)

Sl. No.	Types of Construction	Test		Frequency
1.	Granular	i.	Gradation	One test per 400 m^3
		ii.	Atterberg's limit	One test per 400 m^3
		iii.	Moisture content prior to compaction	One test per 400 m^2
		iv.	Density of compacted layer	One test per 1000 m^2
		v.	Deleterious constituents	As required
		vi.	C.B.R.	As required
2.	Water Bound Macadam	i.	Aggregate Impact Value	One test per 1000 m^3 of aggregate
		ii.	Grading	One test per 250 m^3 of aggregate
		iii.	Flakiness Index and Elongation Index	One test per 500 m^3 of aggregate
		iv.	Atterberg's limits of binding material	One test per 50 m^3 of binding material

		v.	Atterberg's limits of portion of aggregate passing 425µ sieve	One test per 100 m^3 of aggregate
3.	Wet Mix Macadam	i.	Aggregate Impact Value	One test per 1000 m^3 of aggregate
		ii.	Grading	One test per 200 m^3 of aggregate
		iii.	Flakiness Index and Elongation Index	One test per 500 m^3 of aggregate
		iv.	Atterberg's limits of portion of aggregate passing 425µ sieve	One test per 200 m^3 of aggregate
		v.	Density of compacted layer	One test per 1000 m^2

iii) TESTS ON BITUMINOUS CONSTRUCTIONS

The tests and their frequencies for the different types of bituminous works shall be as given in table below.

Control Tests and Their Frequencies for Bituminous Works

Sl. No.	Types of Construction	Test		Frequency
1.	Tack Coat	i.	Quality of binder	As per IS:73 or IRC SP 53
		ii.	Binder temperature for a application	At regular close intervals
		iii.	Rate of spread of binder	Three tests per day
2.	Surface Dressing	i.	Quality of binder	Same as in Sl. No. 1
		ii.	Aggregate Impact / Los Angeles Abrasion Value	One test per 200 m^3 of aggregate or change in quality
		iii.	Flakiness Index and Elongation Index	One test per 100 $m^3$of aggregate or change in quality
		iv.	Stripping Value of aggregates	Initially, one set of 3 representative specimens for each source of supply.
		v.	Water absorption of aggregates	Subsequently when warranted by change in the quality of aggregate

		vi.	Water sensitivity of mix	Same as iv and v
		vii.	Grading of aggregates	Two tests per day
		viii.	Soundness (Magnesium and Sodium Sulphate)	Initially, one for each source of supply; then as warranted by change in the quality of aggregate.
		ix.	Polished stone value	Same as viii
		x.	Temperature of binder of application	At regular close intervals
		xi.	Rate of spread of materials	Three tests per day
		xii.	Percentage of fractured faces of gravels	One test per 100 m^3 of aggregate
3.	DBM/ SDBM/ BC	i.	Quality of binder	No. of samples per lot and tests as per IS 73 or IRC: SP: 53
		ii.	Aggregate Impact / Los Angeles Abrasion Value	One lot per 350 m^3 of aggregate for each source or change in quality
		iii.	Flakiness Index and Elongation Index	One lot per 350 $m^3$of aggregate for each source or change in quality
		iv.	Soundness (Magnesium and Sodium Sulphate)	One test for each source or change in quality of aggregates
		v.	Water absorption of aggregates	One test for each source or change in quality of aggregates
		vi.	Sand equivalent test	One test for each source or change in quality of aggregates
		vii.	Plasticity Index	One test for each source or change in quality of aggregates
		viii.	Polished stone value	One test for each source or change in quality of aggregates

		ix.	Percentage of fractured faces	One lot per 350 m^3 of aggregate when crushed gravel is used
		x.	Mix grading	One set for individual constituents and mixed aggregate for each 400 tonnes of mix, minimum two tests per day per plant
		xi.	Stability of Mix tested for stability, flow value, density and void content	3 Marshall tests for each 400 tonnes of mix, minimum two tests per day per plant
		xii.	Water sensitivity of mix	One for each mix type and for every change in quality of mix
		xiii.	Swell test on the Mix	As required
		xiv.	Control of temperature of binder and aggregate for mixing and of mix at the time of laying and rolling	At regular close interval
		xv.	Control of binder content and mix grading	1 test for each 400 tonnes of mix, minimum two tests per day per plant
		xvi.	Rate of spread of mixed material	After every 5th truck load
		xvii.	Density of compacted layer	One test per 700 m^2 area

19.5. CONCRETE ROADS

19.5.1. General

i) The concrete road work shall consist of preparing sub grade, construction of dry lean concrete as subbase and concrete pavement in accordance with these specifications and in conformity with the lines, grades and cross sections shown in the drawings or as directed by the Owner/Project Manager. The work shall include furnishing of all plants and equipment's, materials and labour and performing all operations, in connection with the work, as approved by the Owner/Project Manager.

ii) The design parameters of dry lean concrete as subbase and concrete as road surface like width, thickness, grade of concrete, details of joints, etc shall be as stipulated in the drawing.

19.5.2. Reference Standards

The codes and standards mentioned below shall be latest as on the day of award of contract of the works unless otherwise specified.

MATERIALS:		
IS 269	:	Specification for ordinary Portland cement
IS 455	:	Specification for ordinary Portland Slag cement
IS 1489 (Part 1 & 2)	:	Specification for ordinary Portland Pozzolana cement
IS 12330	:	Specification for ordinary Sulphate resisting Pozzolana cement
IS 383	:	Specification for coarse and fine aggregates from natural sources for concrete
IS 432 (Part 1 & 2)	:	Specification for mild steel and medium tensile steel bars and hard-drawn steel wires for concrete reinforcement.
IS 1786	:	Specification for high strength deformed steel bars and wires for concrete reinforcement.
IS 9103		Specification for admixtures for concrete.
IS 3812 Part 1		Pulverized Fuel Ash – Part 1: for use as Pozzolana in Cement, Cement Mortar and Concrete
IS 3812 Part 2		Pulverized Fuel Ash - Part 2: for use as Admixture in Cement Mortar and Concrete
MATERIAL TESTING		
IS 2386 (Part 1-8)	:	Methods of tests for aggregates for concrete.
IS 4031 – Part 1 to Part 15		Methods of physical tests for hydraulic cement
IS 4032		Method of chemical analysis of hydraulic cement.
IS 650		Specification for standard sand for testing of concrete.
IS 2430		Methods for sampling of aggregates for concrete.
IS 3025 (Part 4, 22 & 23)		Methods of sampling and test (physical and chemical) of water and wastewater.
IS 6925		Methods of test for determination of water-soluble chlorides in concrete admixtures.
MATERIAL STORAGE		
IS 4082		Recommendations on stacking and storing of construction materials at site
CONCRETE MIX DESIGN		
IS 10262		Recommended guidelines for concrete mix design

SP 23		Handbook on Concrete Mixes
CONCRETE TESTING		
IS 1199		Method of sampling and analysis of concrete
IS 516		Method of test for strength of concrete
IS 9013		Method of making, curing and determining compressive strength of accelerated cured concrete test specimens.
IS 8142		Method of test for determining setting time of concrete by penetration resistance.
IS 9284		Method of test for abrasion resistance of concrete.
IS 2770		Methods of testing bond in reinforced concrete.
EQIPMENT		
IS 1791		Specification for batch type concrete mixers.
IS 2438		Specification for roller pan mixer.
IS 4925		Specification for concrete batching and mixing plant
IS 5892		Specification for concrete transit mixer and agitator.
IS 7242		Specification for concrete spreaders
IS 2505		General Requirements for concrete vibrators: Immersion type
IS 2506		General Requirements for screed board concrete vibrators
IS 18652		Specification for Building Construction Machinery and Equipment – External Vibrators for Concrete
IS 11993		Code of practice for use of screed board concrete vibrators
IS 2722		Specification for Portable Swing Weigh Batchers for concrete (single and double bucket type)
DESIGN		
IS 456		Code of practice for plain and reinforced concrete
IS 15		Code of practice for construction of concrete road
IS 44		Guidelines for Cement Concrete Mix Design for Pavements
IS 57		Recommended practice for Sealing of Joints in Concrete Pavements
IS 58		Code of practice for construction of rigid pavement
IS 74		Tentative Guidelines for Lean-Cement Concrete and Lean-Cement Fly Ash Concrete as a Pavement Base or Sub-Base
IS 85		Code of practice for accelerated strength testing & evaluation of concrete for road construction
IS 101		Guideline for continuously reinforced concrete with elastic joint
IS: SP 49		Guidelines for the use of Dry Lean Concrete as Sub-base for Rigid Pavement

IS: SP 69		Guidelines and Specification for Expansion Joints
IS 2502		Code of practice for bending and fixing of bars for concrete reinforcement
MORTH		Specifications for Road and Bridge Works 2013 (5th Rev)
CONSTRUCTION SAFETY		
IS 7969		Safety code for handling and storage of building materials
MEASUREMENT		
IS 1200 (Part 1 - Part 12)		Method of measurement of building and Owner/Project Managering works

19.5.3. Earthwork

19.5.3.1. Earthwork in Excavation

i) In general, the excavation shall be in accordance with Section B.3 and B.4 for open and underground excavation respectively.

ii) Profiles of road excavation shall be laid at 50 m intervals to conform to the required alignment, sections, grades and side slopes and the lines of cuts shall be clearly marked.

iii) Contractor shall on no account excavate beyond the slopes or below the specified grade unless so directed by the Owner/Project Manager in writing. If excavation is done below the specified level or outside the section it shall not be paid for and the Contractor shall be required to fill up at his own cost such extra excavation with approved materials, in layers of 150 to 200 mm, watered and compacted as specified for the subgrade.

iv) The excavation shall be finished neatly, smoothly and evenly to the correct lines, grades, sections and side slopes as shown in the drawings or directed by Owner/Project Manager.

19.5.3.2. Earthwork in Embankment

Refer clause 19.4.3 of this section

19.5.4. Subgrade

Refer clause 19.4.3 of this section

19.5.5. Granular Sub Base

Refer clause 19.4.4 of this section

19.5.6. Dry Lean Concrete

19.5.6.1. Materials

i) Cement

a) Any of the following types of cement may be used with prior approval of the Owner/Project Manager:

- Ordinary Portland cement 33 Grade IS: 269
- Ordinary Portland cement 43 Grade IS: 8112
- Portland Slag Cement IS: 455
- Portland Pozzolana Cement IS: 1489 – Part 1

b) If the sub grade is found to consist of soluble sulphates in a concentration more than 0.5 per cent, cement used shall be sulphate resistant and shall confirm to IS: 6909.

c) Flyash conforming to IS 3812 (Part 1) may be used to replace OPC by up to 20% of total cementitious material (cement + flyash) for OPC 53 Grade cement and up to 30% for OPC 43 Grade cement.

ii) Aggregates

a) Aggregates for lean concrete shall be natural material conforming to IS: 383 but with Los Angeles Abrasion Test result not more than 35%. The aggregates shall not be alkali reactive. The limits of deleterious materials shall not exceed the requirements set out above. The aggregates shall be free from dirt, flint, chalcedony or other silica in a form that can react with alkalis in the cement. In addition, the total chlorides content expressed as chloride ion content shall not exceed 0.06% by weight and the total sulphate content expressed as sulphuric anhydride (SO3) shall not exceed 0.25% by weight. In case the Owner/Project Manager considers that the aggregates are not free from dirt, the same may be washed and drained for at least 72 hours before batching, as directed by the Owner/Project Manager.

b) Coarse Aggregate: Coarse aggregate shall consist of clean, hard, strong, dense, non-porous and durable pieces of crushed stone or crushed gravel and shall be devoid of pieces of disintegrated stone, soft, flaky, elongated, very angular or splintery pieces. The maximum size of the coarse aggregate shall be 26.5 mm. No aggregate which has water absorption more than 2% shall be used in the concrete mix. The aggregate shall be tested for soundness in accordance with IS:2386 (Part 5). After 5 cycles of testing the loss shall not be more than 12% if sodium sulphate solution is used or 18% if magnesium sulphate solution is used. Combined flakiness and elongation index of aggregate shall not be more than 35%.

c) Fine aggregate: The fine aggregate shall consist of clean, natural sand or crushed stone sand or a combination of the two and shall confirm to IS: 383. Fine aggregates shall be free from soft particles, clay, shale, loam, cemented particles, mica, organic and other foreign matter. The fine aggregate shall have a sand equivalent value of not less than 50 when tested in accordance with IS 2720 Part 37.

Aggregate Gradation or Dry Lean Concrete

Sieve Designation	Percentage passing the sieve by weight
26.50 mm	100
19.00 mm	75 – 95
9.50 mm	50 – 70
4.75 mm	30 – 55
2.36 mm	17 - 42
600 micron	8 – 22
300 micron	7 – 17
150 micron	2 – 12
75 micron	0 – 10

iii) Water

Water used for mixing and curing of concrete shall be clean and free from injurious amounts of oil, salt, acid, vegetable matter or other substances harmful to the finished concrete. It shall meet the requirements stipulated in IS: 456.

19.5.6.2. Storage of Materials

All materials shall be stored in accordance with the provisions of IS: 4082 and other relevant IS Specifications. All efforts must be made to store the materials in proper places to prevent their deterioration or contamination by foreign matter and to ensure their satisfactory quality and fitness for use in the work. The storage place must also permit easy inspection, removal and storage of materials. All such materials even though stored in approved go downs must be subjected to acceptance test immediately prior to their use.

19.5.6.3. Design Mix Concrete

i) The mix shall be proportioned with a maximum aggregate cement ratio of 15:1. The water content shall be adjusted to the optimum so as to ensure full compaction under rolling and shall be assessed at the time of rolling the trial length. Optimum moisture content and degree of compaction shall be approved from the Owner/Project Manager. The strength and density requirements of concrete shall be determined by making trial mixes.

ii) Trial mixes

Trial mixes with varying moisture content using cement and aggregate in the specified ratio shall be prepared and compacted in moulds in three layers with electric or pneumatic type vibratory hammer with square or rectangular foot. Optimum moisture and density will be established by preparing cubes in accordance with IS: 516 with varying moisture contents.

After establishing the optimum moisture, a set of six cubes shall be cast at that moisture for determination of compressive strength on the 3rd and 7th days. Trial mixes shall be repeated if the strength is not satisfactory either by increasing cement content or using higher grade cement.

iii) Trial length

Prior to start of main job, a trial length as set out in contract document shall be executed 14 days in advance of main job to establish the materials, mix proportions, moisture content, mixing, laying, compaction plant and construction procedure. In-situ density of freshly laid material in trial length shall be determined in a set of three density holes by sand replacement method with 20cm dia density cone. Hardened concrete shall be cut over 3m width and reversed may be cut as per instructions of Owner/Project Manager to check for segregation or other deficiency.

iv) Moisture content

While laying in the main work, the lean concrete shall have moisture content between the optimum and optimum +2%, keeping in view the effectiveness of compaction achieved to compensate for evaporation losses.

v) Cement content

The minimum cement content in the lean concrete shall not be less than 150kg/cum of concrete. In case of addition of 20% flyash, OPC content shall not be less than 120 kg/cum. If this minimum cement content is not sufficient to produce concrete of the specified strength, it shall be increased as necessary without additional cost compensation to the contractor.

vi) Concrete strength

The average compressive strength of each consecutive group of 5 cubes shall not be less than 10MPa at 7 days. In addition, the minimum compressive strength of any individual cube shall not be less than 7.5MPa at 7 days. The design mix complying with the above Clauses shall be got approved from the Owner/Project Manager and demonstrated in the trial length construction.

19.5.6.4. Construction

i) The Dry Lean Concrete (DLC) shall be laid on prepared granular drainage layer and overlain by concrete pavement after 7 days. Concrete can be supplied by establishing batching plant at site or Ready Mix concrete can be used after approval of Owner/Project Manager. Ready mix concrete shall meet all the specification of batching plant concrete.

ii) Batching and Mixing

The batching plant shall be capable of proportioning the materials by weight and be of such design to allow quick shifting.

iii) Transporting

The mix shall be transported from batching plant to job site in tipping trucks covered with tarpaulin. The lead should be such as to allow finishing of concrete laying in any transverse section within 90 minutes from mixing when temperature is between 25Oc to 30OC and 120 minutes when temperature is less than 25OC. Each tipping truck shall be washed with water jet before next loading to prevent old concrete sticking to it. Segregation of mix shall be controlled by moving dumper back and forth while placing concrete.

iv) Placing

Lean concrete shall be placed on drainage layer by a paver with electronic sensor in one layer for the specified thickness and full width of two lane carriageway. The paving machine shall have tamping bars for initial compaction of the sub-base. The sub-base drainage layer shall be given a fine spray of water and rolled with smooth wheeled roller one day before placing dry lean concrete. The DLC shall be laid 750mm wider than proposed width on each side to enable the crawler to move; the cost of extra width shall be included by contractor in his quoted rates. Work shall not proceed if concrete temperature exceeds 30OC or ambient temperature exceeds 35OC. Chilled water or ice may be added in mixing to bring down the temperature.

v) Compaction

Compaction shall start immediately after laying of material and rolling continued till no further movement under roller is visible. Double drum smooth wheeled vibratory rollers of 80 – 100 kN static weight are suitable for compaction of DLC, the number of passes are determined during trial section construction by measurement of in-situ density. Rolling shall proceed from edges to centre except in super elevated section where rolling shall be from inner to outer edge. The final lean concrete surface shall be well closed, free from movement under roller passes, and free from

ridges, low spots, cracks, loose material, pot holes, ruts and other defects. Minimum dry density shall be 98% of that obtained during trial length and 96% at 0.5m from edges. Surface shall be inspected immediately after compaction and checked for regularity with 3m straight edge. For repairing, concrete with 10mm down aggregates shall be spread and compacted. Strength tests shall be carried out and if deficiency is found, at least 3 – 100mm diameter cores per km shall be cut for strength tests. Holes shall be filled with concrete and compacted.

vi) Joints

Construction and longitudinal joints in the lean concrete shall be provided as shown in drawings. Transverse butt type joints shall be provided at the end of a day's work. Where forms are not used, the edge shall be cut back to a vertical plane of correct thickness. Transverse joints shall be staggered from butt type construction joint in concrete pavement by 800 – 1000mm; longitudinal joints shall be staggered from longitudinal joint in concrete pavement by 300 - 400mm.

vii) Curing

Curing shall commence immediately after compaction by one of the following three methods:

- Covering the surface with gunny bags/ hessian kept continuously wet for 7 days by sprinkling water.
- Spraying with approved resin based aluminized reflective curing compound conforming to ASTC-C 309-81 and covering with wet hessian cloth for 3 days.
- Applying wax-based white pigmented curing compound conforming to BS 7542 with water retention index > 90% in two stages and covering with wet hessian cloth for 3 days and second application 24 to 48 hours prior to placing of concrete pavement.

viii) Measurement

Measurement for payment of the dry lean concrete will be of the volumes placed within the lines and grades shown on the Construction Drawings. Payment will be made at the appropriate Unit Rate per cubic meter entered in the Bill of Quantities. The rates shall cover carrying out works as specified above and include the cost of

all materials, labour, plant, equipment, mixing, transport, placing, compacting, finishing, curing, providing joints, and rectification of defects and incidentals such as trial length,etc., involved in the works.

19.5.7. Cement Concrete Pavement

Concrete grade shall be as designated on drawings. All concrete for road shall be Design Mix Concrete.

19.5.7.1. Materials

i) Cement

a) Any of the following types of cement may be used with prior approval of the Owner/Project Manager.

- Ordinary Portland cement 33 Grade IS: 269
- Ordinary Portland cement 43 Grade IS: 8112
- Ordinary Portland cement 53 Grade IS: 12269
- Portland Slag Cement IS: 455
- Portland Pozzolana Cement IS: 1489 – Part 1 (with flyash content < 20%)

b) If the sub grade is found to consist of soluble sulphates in a concentration more than 0.5 per cent, cement used shall be sulphate resistant and shall confirm to IS: 12330.

c) Flyash conforming to IS 3812 (Part 1) up to 20% of total cementitious material (cement + flyash) may be permitted as replacement of OPC 43/ 53 Grade cement.

ii) Admixtures

a) Admixtures conforming to IS:6925 and IS:9103 shall be permitted to improve workability of the concrete or extension offsetting time, on satisfactory evidence that they will not have any adverse effect on the properties of concrete with respect to its strength, volume change, durability and have no deleterious effect on steel bars. The particular of the admixtures and the quantity to be used must be furnished to the Owner/Project Manager in advance to obtain his approval before use. Satisfactory. performance of the admixtures is to be proved both on the laboratory concrete trial mixes and in trial paving works. If air entraining

admixture is used, the total quantity of air in air entrained concrete as a percentage of the volume of the mix shall be 5 +/- 1.5 per cent for 31.5 mm nominal size aggregate.

b) Silica fume complying with IS 15338, IS 456 and IRC 44 may be used as admixture in proportion 3% to 10% of cement content. Steel fibre conforming to IRC: SP76 or polymeric synthetic fibres may be used with approval of Owner/Project Manager to reduce cracking.

iii) Fibres

Fibres may be used subject to the provision in the design/approval by the Owner/Project Manager to reduce the shrinkage cracking and post-cracking. The fibres may be steel fibre as per IRC: SP: 46 or polymeric Synthetic fibres within the following range of specifications

Effective diameter	10 – 100 micron conforming to EN 14889-1
Length	50-80 mm
Specific gravity	More than 1.0
Suggested dosage	0.6-2.0 kg/cum (0.2-0.6% by weight of cement in mix)
Water absorption	Less than 0.45%
Melting point of this fibre shall not be less than 160°C	
The aspect ratio generally varies from 80-100	
These synthetic fibres will have good alkali and UV light resistance	

iv) <u>Aggregates</u>

a) Aggregates for lean concrete shall be natural material conforming to IS: 383 but with Los Angeles Abrasion Test result not more than 35%. The aggregates shall not be alkali reactive. The limits of deleterious materials shall not exceed the requirements set out above. The aggregates shall be free from dirt, flint, chalcedony or other silica in a form that can react with alkalis in the cement. In addition, the total chlorides content expressed as chloride ion content shall not exceed 0.06% by weight and the total sulphate content expressed as sulphuric anhydride (SO3) shall not exceed 0.25% by weight. In case the Owner/Project

Manager considers that the aggregates are not free from dirt, the same may be washed and drained for at least 72 hours before batching, as directed by the Owner/Project Manager.

Permissible Limits of Deleterious Substances in Fine and Coarse Aggregates

Sl. No.	Deleterious Substance	Method of Test	Fine Aggregate % by weight (max)		Coarse Aggregate % by weight (max)	
			Uncrushed	Crushed*	Uncrushed	Crushed*
i)	Coal and lignite	IS:2386 Part 2: 1963	1.0	1.0	1.0	1.0
ii)	Clay lumps	IS: 2386 Part 2: 1963	1.0	1.0	1.0	1.0
iii)	Materials finer than 15µ sieve	IS: 2386 Part 1: 1963	3.0	8.0	3.0	3.0
iv)	Soft fragments	IS: 2386 Part 2: 1963	-	-	3.0	-
v)	Shale	IS: 2386 Part 2: 1963	1.0	-	-	-
vi)	Total % of all deleterious materials (except mica) including Sl. No. (i) to (v) for Col. 4, 6, 7 and Sl No. (i) and (ii) for Col. 5 only		5.0	2.0	5.0	5.0

*Crushed aggregate at least one face fractured

Note: The presence of mica in the fine aggregate is found to considerably reduce the durability and compressive strength of concrete considerably. It is advisable therefore to determine the mica content of fine aggregate and make suitable allowances for the possible reduction in the strength of concrete and mortar, in case the stretch of road passes through micacious belt.

b) Coarse Aggregate: Coarse aggregate shall consist of clean, hard, strong, dense, non-porous and durable pieces of crushed stone or crushed gravel and shall be devoid of pieces of disintegrated stone, soft, flaky, elongated, very angular or splintery pieces. The maximum size of the coarse aggregate shall not exceed 31.5 mm. No aggregate which has water absorption more than 2% shall be used

in the concrete mix. The aggregate shall be tested for soundness in accordance with IS:2386 (Part 5). After 5 cycles of testing the loss shall not be more than 12% if sodium sulphate solution is used or 18% if magnesium sulphate solution is used. Combined flakiness and elongation index of aggregate shall not be more than 35%.

c) Fine aggregate: The fine aggregate shall consist of clean, natural sand or crushed stone sand or a combination of the two and shall confirm to IS: 383. Fine aggregates shall be free from soft particles, clay, shale, loam, cemented particles, mica, organic and other foreign matter. The fine aggregate shall have a sand equivalent value of not less than 50 when tested in accordance with IS 2720 Part 37.

Aggregate Gradation for Pavement Quality Concrete

Sieve Designation	Percentage by Weight passing the Sieve
31.5 mm	100
26.5 mm	85 – 95
19.0 mm	68 – 88
9.5 mm	45 – 65
4.75 mm	30 – 55
600 micron	8 – 30
150 micron	5 – 15
75 micron	0 - 5

v) Water

Water used for mixing and curing of concrete shall be clean and free from injurious amounts of oil, salt, acid, vegetable matter or other substances harmful to the finished concrete. It shall meet the requirements stipulated in IS: 456.

vi) Dowels and tie bars

Dowel bars shall in general be mild steel bars conforming to IS: 432 Grade-I and tie bars shall be deformed bars conforming to IS: 1786 Grade Fe500. Steel shall be epoxy coated to inhibit corrosion. Tie bars shall be either High yield Strength

Deformed bars conforming to IS: 1786 and grade Fe 500 or plain bars conforming to IS: 432 of Grade I.

vii) Joint filler board

Joint filler board for expansion joints shall be of 20-25mm (±1.5mm) thickness of a firm compressible material complying with requirements of IS 1838 with compressibility more than 25%. The board shall be 25mm (±3.0mm) less in depth than the thickness of the slab and provided to full width between the side forms. Holes to accommodate dowel bars shall be accurately bored or punched out to give a sliding fit on dowel bars.

viii) Joint sealing compound

Joint sealing compound shall be of hot poured elastomeric type conforming to AASHTO M282, IS 1834 or ASTM 3406-95, cold polysulfide type in accordance with BS 5212 (Part 2) or IS 11433 (Part 1), polyurethane sealant as per BS 5212 or silicone sealant as per ASTM 5894-2004 having flexibility, resistance to age hardening and durability as per IRC 57. Preformed joint sealing material shall be vulcanized elastomeric compound using polychloroprene (Neoprene) as base polymer conforming to ASTM D2628.

19.5.7.2. Storage of Materials

All materials shall be stored in accordance with the provisions of IS: 4082 and other relevant IS Specifications. All efforts must be made to store the materials in proper places so as to prevent their deterioration or contamination by foreign matter and to ensure their satisfactory quality and fitness for use in the work. The storage place must also permit easy inspection, removal and storage of materials. All such materials even though stored in approved go downs must be subjected to acceptance test immediately prior to their use.

19.5.7.3. Mix Design & Testing

i) For Design Mix Concrete, the mix shall be designed according to IS 10262 and SP 23 and IRC 44 to provide the grade of concrete having the required workability and characteristic strength not less than appropriate values given in IS: 456. The design

mix shall in addition be such that it is cohesive and does not segregate and should result in a dense and durable concrete and also capable of giving the finish as specified. The Contractor shall exercise great care while designing the concrete mix and executing the works to achieve the desired result.

ii) Cement content

The cement content shall not be less than 360 kg/ cum of concrete. If this minimum cement content is not sufficient to produce in the field, concrete of the strength specified in the drawings/ design shall be increased as necessary without additional compensation under the contract. In case 20% flyash or ground granulated blast furnace (GGBS) is added minimum OPC content shall be 310 kg/ cum.

iii) Concrete strength

a) It shall be Contractor's sole responsibility to carry out the mix designs at his own cost. He shall furnish to Owner/Project Manager at least 30 days before concreting operations, a statement of proportions proposed to be used for the various concrete mixes and the strength results obtained. The strength requirements of the concrete mixes ascertained on 150 mm cubes as per IS: 516 shall comply with the requirements of IS: 456. The correlation between flexural and compressive strengths of concrete shall be established on the basis of at least thirty tests on samples. Characteristic flexural strength of concrete shall not be less than 4.5 MPa and target mean flexural strength of 4.5+1.6*standard deviation. Quality control in field shall be exercised.

b) In order to ensure that minimum strength at 28 days is achieved in 99% of all test beams, the mix shall be proportioned to give an average strength exceeding characteristic strength by 2.33 times the standard deviation.

Concrete Grades

Grade of Concrete	Minimum Compressive Strength at 7 days (N/Sq.mm)	Characteristic compressive strength at 28 days (N/sq.mm)
M25	17.0	25.0
M30	20.0	30.0
M35	23.5	35.0

M40	27.0	40.0

c) The ratio between 7 and 28 day strengths shall be established for the mix. During construction if the average value of any four consecutive 7 day test results falls below the required 7 day strength, the cement content will be increased by 5% by weight or as approved by Owner/Project Manager without additional payment.

d) The workability of the concrete at the point of placing shall be adequate for the concrete to be fully compacted and finished without undue flow. The water content shall be minimum required to provide the agreed workability for full compaction of concrete to required density and the maximum free water cement ratio shall before blended cement 0.45 for OPC and 0.50. A slump value in the range of 25±15mm is reasonable for pavement construction but may be modified at site with approval of the Owner/Project Manager.

19.5.7.4. Batching & Mixing of Concrete

i) A systems approach may be adopted for construction of the pavement, and the method statement for carrying out the work, detailing all the activities including indication of time cycle, equipment, personal etc., shall be got approved from the Owner/Project Manager before the commencement of the work. The capacity of paving equipment, batching plant as well as all the ancillary equipment shall be adequate for a paving rate to meet the project schedule.

ii) Proportions of aggregates and cements, as decided by the concrete mix design, shall be by weight. These proportions shall be maintained during subsequent concrete batching by means of weigh batchers capable of controlling the weights within (+/-) one percent for cement and water and (+/-) two percent for aggregates of the desired value. The type and capacity shall be got approved by the Owner/Project Manager before commencement of the trial length.

iii) The design feature of the batching plant should be such that the shifting operations of the plant will not take very long time when they are to be shifted from place to place with the progress of the work.

iv) Batching and mixing of the concrete shall be done at a central batching and mixing plant with automatic controls, located at a suitable place which takes into account sufficient space for stockpiling of cement, aggregates and stationary water tanks.

v) Amount of water added shall be such as to produce dense concrete of required consistency, specified strength and satisfactory workability and shall be so adjusted to account for moisture content in the aggregates. Water- cement ratio specified for use by Owner/Project Manager shall be maintained. Each time the work stops, the mixer shall be cleaned out, and while recommencing, the first batch shall have 10% additional cement to allow for sticking in the drum.

vi) Equipment for proportioning of materials and paving: Proportioning of materials shall be done in the batching plant by weight, each type of material being weighed separately. The cement from the bulk stock may be weighed separately from the aggregates and water shall be measured by volume.

vii) Arrangement should be made by Contractor to have the cubes tested in an approved laboratory or in field at his own expense, with prior consent of Owner/Project Manager. Sampling and testing of strength and workability of concrete shall be as per IS: 1199, IS: 516 and IS: 456.

19.5.7.5. Trial Length

Prior to start of main job, a trial length shall be executed 10 days in advance of main job to establish the materials, mix proportions, moisture content, mixing, laying, compaction plant and construction procedure. In-situ density of freshly laid material in trial length shall be determined in a set of three density holes by sand replacement method with 20cm dia density cone. Hardened concrete shall be cut over 3m width and reversed may be cut as per instructions of Owner/Project Manager to check for segregation or other deficiency. The trial length shall be 100m for mechanized construction and 50m for hand guided construction.

19.5.7.6. Hauling, Placing and Compacting Concrete

i) <u>Transportation of concrete</u>

a) Freshly mixed concrete from the central batching and mixing plant shall be transported to the paver site by means of tipper trucks or transit mixers of sufficient capacity. Covers shall be used for protection of concrete against the weather. The feeding to the paver is to be regulated in such a way that the paving is done in an uninterrupted manner with a uniform speed throughout the day's work.

b) Concrete mixed in central mixing plant shall be transported to the site without delay and the concrete which, in the opinion of the Owner/Project Manager, has been mixed too long before laying will be rejected and shall be removed from the site. The total time taken from the addition of the water to the mix, until the completion of the surface finishing and texturing shall not exceed 120 minutes when concrete temperature is less than 25°C and 90 minutes when the concrete temperature is between 25°C to 30°C. Trucks/ tippers delivering concrete shall not run on plastic sheathing nor shall they run on completed slabs until after 28 days of placing the concrete.

ii) Separation membrane

A separation membrane shall be used between the concrete slab and the dry lean concrete sub-base. Separation membrane shall be impermeable plastic or HDPE sheeting 125 microns thick laid flat without creases. Before placing the membrane, the sub-base shall be swept clean of all extraneous material using air compressor Overlap of plastic sheet shall be 300mm minimum and any damaged sheeting shall be replaced at the contractor's expense. The separation membrane may be nailed to the lower layer with concrete nails.

iii) Placing concrete by paving equipment

a) Placing should be from side placer to avoid damage to dry lean concrete by trucks. The concrete shall be placed with an approved fixed form or slip form with independent units designed to (i) Spread, (ii) consolidate, screed and float-finish, (iii) texture and cure the freshly placed concrete in one complete pass of the machine in such a manner that a minimum of hand finishing will be necessary and so as to provide a dense and homogenous pavement in conformity with the plans and specifications. The slip form shall be equipped with electronic controls to control/ sensor line and grade from either of both sides of the machine.

Vibrators shall operate at a frequency of 8000 - 10000 impulses per minute under load at a maximum spacing of 60 cm. The variable vibration setting shall be provided in the machine with energy output of 2.5kW per metre width per 300mm thickness of slab.

b) The addition of water to the surface of the concrete to facilitate the finishing operations will not be permitted except with the approval of the Owner/Project Manager when it shall be applied as a mist by means of approved equipment.

c) While placing concrete the Contractor shall proceed as specified below and also ensure the following:

- Continuously between construction joints and predetermined abutments.
- Forms or reinforcement are not dislodged.
- Pipes, ducts, fixings and the like to be cast in; ensure that such items are secured in place. Ensure that concrete cannot enter open ends of pipes and conduits, etc.
- Segregation of aggregates is avoided.
- Ensure desired workability to achieve proper compaction.
- Ensure that there is no damage or displacement to sheet membranes.
- Record the time and location of placing structural concrete.

d) Concrete shall normally be compacted in its final position within thirty minutes of leaving the mixer. Concrete shall be compacted during placing with approved vibrating equipment without causing segregation until it forms a solid mass free from voids thoroughly worked around reinforcement and embedded fixtures and into all corners of the formwork. Immersion vibrators shall be inserted vertically at points not more than 450 mm apart and withdrawn slowly till air bubbles cease to come to the surface, leaving no voids. When placing concrete in layers advancing horizontally, care shall be taken to ensure adequate vibration, blending and melding of the concrete between successive layers. Vibrators shall not be allowed to come in contact with reinforcement, formwork and finished surfaces after start of initial set. Over-vibration shall be avoided.

e) Concrete may be conveyed and placed by mechanically operated equipment after getting the complete procedure approved by Owner/Project Manager. The slump shall be held to the minimum necessary for conveying concrete by this

method. When concrete is to be pumped, the concrete mix shall be specially designed to suit pumping. Care shall be taken to avoid stoppages in work once pumping has started. While concrete is still plastic, its surface shall be textured by brush or tines. Surface and edges of slab shall be cured by liquid curing membrane.

f) Before resuming concreting on a surface which has hardened all laitance and loose stone shall be thoroughly removed by wire brushing/hacking and surface washed with high pressure water jet and treated with thin layer of cement slurry for vertical joints and a 15 mm thick layer of cement sand mortar for horizontal layers, the ratio of cement and sand being the same as in the concrete mix.

g) When concreting is to be resumed on a surface which has not fully hardened, all laitance shall be removed by wire brushing, the surface wetted, free water removed, and a coat of cement slurry applied. On this a layer of concrete not exceeding 150 mm thickness shall be placed and well rammed against the old work. Thereafter work shall proceed in the normal way.

19.5.8. Reinforcement

i) Reinforcing bars supplied bent or in coils shall be straightened cold without damage without any extra cost. No bending shall be done when ambient temperature is below 5°C. Local warming may be permitted if steel is kept below 10°C.

ii) All bars shall be accurately bent gradually and according to the sizes and shapes shown on the drawings/ schedules or as directed by Owner/Project Manager.

iii) Re-bending or straightening incorrectly bent bars shall not be done without approval of Owner/Project Manager.

iv) Reinforcement shall be accurately fixed and maintained firmly in the correct position by the use of blocks, spacers, chairs, binding wire, etc. to prevent displacement during placing and compaction of concrete. The tied in place reinforcement shall be approved by Owner/Project Manager prior to concrete placement. Spacers shall be of such materials and designs as will be durable, not lead to corrosion of the reinforcement and not cause spalling of the concrete cover.

v) Binding wire shall be 16 gauge soft annealed wires. Ends of the binding wire shall be bent away from the concrete surface and in no case encroach into the concrete cover.

vi) Substitution of reinforcement, laps/splices not shown on drawing shall be subject to Owner/Project Manager's approval.

19.5.9. Curing

i) Immediately after the surface texturing, the surface and sides of the slab shall be cured by the application of approved resin-based aluminized reflective curing compound which hardens into an impervious film or membrane with the help of a mechanical sprayer.

ii) Curing compounds shall contain sufficient flake aluminium in finely divided dispersion to produce a complete coverage of the sprayed surface with a metallic finish. The compound shall become stable and impervious to evaporation of water from the surface of the concrete within 60 minutes of application and shall be of approved type.

iii) The curing compound shall not react chemically with the concrete and the film or membrane shall not crack, peel or disintegrate within three weeks after application. Immediately prior to use, the curing compound shall be thoroughly agitated in its containers. The rate of spread shall be in accordance with the manufacturer's instructions checked during the construction of the trail length and subsequently whenever required by the Owner/Project Manager. The mechanical sprayer shall incorporate an effective mechanical device for continuous agitation and mixing of the compound during spraying.

iv) In addition to the spraying of curing compound, the fresh concrete surface shall be protected for at least 3 hours by covering the finished concrete pavement with tents. After three hours, the pavement shall be covered by moist hessian and the same shall then be kept damp for a minimum period of 14 days after which time hessian may be removed. The hessian shall be kept continuously moist.

v) Curing and protection shall start immediately after the compaction of the concrete to protect it from:

- Premature drying out, particularly by solar radiation and wind.
- Leaching out by rain and flowing water.
- Rapid cooling during the first few days after placing.
- High internal thermal gradients.
- Low temperature or frost.
- Vibration and impact which may disrupt the concrete and interfere with its bond to the reinforcement.

vi) All concrete, unless directed otherwise by Owner/Project Manager, shall be cured by use of continuous sprays or ponded water or continuously saturated coverings of sacking, canvas, hessian or other absorbent material for the period of complete hydration with a minimum of 7 days. The quality of curing water shall be the same as that used for mixing.

vii) Where a curing membrane is directed to be used by the Owner/Project Manager, the same shall be of a non-wax base and shall not impair the concrete finish in any manner. The curing compound to be used shall be got approved from the Owner/Project Manager before use and shall be applied with spraying equipment capable of a smooth, even textured coat.

viii) Curing may also be done by covering the surface with an impermeable material such as polyethylene, which shall be well sealed and fastened.

19.5.10. Construction Joints and Keys

The location and type of joints shall be shown in the drawing. Joints shall be constructed depending upon their functional requirement. Transverse and longitudinal joints in pavement and lean concrete sub-base shall be separated in vertical planes by 800 – 1000mm and 300 – 400mm respectively. Sawing of joints with diamond studded blades shall be started as soon as concrete has hardened (compressive strength of 2 MPa) approximately 4 -8 hours after laying but not later than 8 – 12 hours and completed before compressive strength reaches 7 MPa.

19.5.11. Joints

19.5.11.1. Transverse Joints

Contraction and expansion joints constructed at the spacing described in the drawings. Transverse joints shall be straight within the following tolerances along the intended line of joints which is the straight line transverse to the longitudinal axis of the carriageway at the position proposed by the contractor and agreed to by the Owner/Project Manager, except at road junctions or roundabouts where the position shall be as described in the drawings.

- Deviations of the filler board in the case of expansion joints from the intended line of the joint shall not be greater than ± 10 mm.
- The best fit straight line through the joint grooves as constructed shall be not more than 25 mm from the intended line of the joint.
- Deviations of the joint groove from the best fit straight line of the joint shall not be greater than 10 mm.
- Transverse joint on each side of the longitudinal joint shall be in line with each other and of the same type and width. Transverse joints shall have a sealing groove which shall be sealed.

19.5.11.2. Contraction Joints

Contraction joints shall consist of a mechanical saw cut groove, 3 to 5mm wide and 1/4th to 1/3rd depth of the slab ± 5mm or as stipulated in the drawings with dowel bars. The contraction joints shall be cut as soon as the concrete has undergone initial hardening (within 48 hours of pouring concrete) and is hard enough to take the load of joint sawing machine without causing damage to the slab.

19.5.11.3. Expansion Joint

Expansion joints shall consist of a joint filler board and dowel bars as detailed in the drawings. The filler board shall be placed vertically with prefabricated joint assemblies along the joint line. The space around the dowel bars, between sub-base and the filler board shall be packed with suitable compressible material to block the flow of cement slurry.

19.5.11.4. Transverse Construction Joint

Transverse construction joints shall be placed wherever concreting is completed after a day's work or is suspended for more than 30 minutes and normally coincide with regular contraction joints. The joints shall be made butt type with steel bulk heads to retain the concrete during surface finishing. When steel bulkheads are not used, additional 1 – 2m length of concrete is cast and later removed after groove cutting at curves, transverse joints shall be radial in the direction of radius.

19.5.11.5. Longitudinal Joints

i) The longitudinal joints shall be saw cut as per details of the joints as shown in the drawing and for pavements of width more than 4.5m. The groove may be cut after the final set of the concrete. Joints should be sawn to at least 1/3rd the depth of the slab ± 5 mm or as indicated in the drawing.

ii) Tie bars shall be provided at the longitudinal joints as per dimensions and spacing shown in the drawing.

19.5.11.6. Dowel Bars

i) Dowel bars shall be mild steel rounds in accordance with details/dimensions as indicated in the drawing and free from oil, dirt, loose rust or scale. They shall be straight, free of irregularities and burring restricting slippage in the concrete. The sliding ends shall be sawn or cropped cleanly with no protrusions outside the normal diameter of the bar. The dowel bar shall be supported on cradles/ dowel chairs in pre-fabricated joint assemblies positioned prior to the construction of the slabs or mechanically inserted with vibration into the plastic concrete by a method which ensures correct placement of the bars besides full re-compaction of the concrete around the dowel bars.

ii) Dowel bars shall be positioned at mid-depth of the slab ±20mm and centred equally about intended lines of joint ±25mm aligned parallel to the carriageway. The position should be within these tolerances under 110N force applied in vertical and horizontal direction within following tolerances.

iii) Bars supported on cradles before laying of the slab:

- All bars in a joint shall be within ±2mm per 300mm length of bar
- 2/3rd the number of bars shall be within ±3mm per 500mm length of bar
- No bar shall differ in alignment from adjoining bar by more than 3mm per 300mm length of bar in either horizontal or vertical plan
- Cradles shall not extend across the line of joint

iv) For bars inserted after laying of slab except when inserted by dowel bar inserter, the above tolerances may be twice those indicated above.

v) Dowel bars shall be covered with 0.5mm thick plastic sheath for 2/3rd length in contraction/ construction joints and 50% of length + 50mm got expansion joints.

vi) The rigidity of fixing of dowel bars in expansion joints shall be as follows:

- The deflection of the top edge of the filler board shall not be greater than 13mm under load of 1.3kN applied perpendicular to face of joint filler board and distributed over a length of 600mm, at mid depth and midway between individual fixings or 300mm from either end of continuous filler board. Residual deflection after removal of load shall not be more than ±3mm.
- The fixings for joint assembly shall not fail under 1.3kN load. Fixings shall be deemed to fail when there is displacement of assemblies by more than 3mm when the load reaches 2.6kN.

vii) For expansion joints, a closely fitting PVC or GI cap 100mm long shall be placed over the sheathed end of each dowel bar. Expansion space equal to the thickness of joint filler board (usually 25mm) shall be formed between end of cap and dowel bar by using compressible sponge. The mouth of sheathing and dowel bar shall be taped.

19.5.11.7. Tie Bars

i) Tie bars in longitudinal joints shall be deformed steel bars of strength 500MPa complying with IS: 1786 and in accordance with the requirements given below. The bars shall be free from oil, dirt, loose rust and scale.

ii) Tie bars projecting across the longitudinal joint shall be protected from corrosion for 75mm on each side of the joint by a protective coating of bituminous paint with the approval of the Owner/Project Manager. The coating shall be dry when the tie bars are used.

iii) Tie bars in longitudinal joints shall be made up into rigid assemblies with adequate supports and fixings to remain firmly in position during the construction of the slab. Alternatively, tie bars at longitudinal joints may be mechanically or manually inserted into the plastic concrete from above by vibration using a method which ensures correct placement of the bars and re compaction of the concrete around the tie bars. Tie bars shall be positioned at mid depth or upper mid third of slab with minimum cover 30mm below groove and centre of each bar on intended line of joints ±50mm. Spacing on curves of radius <360m shall be not less than 350mm.

iv) Tie bars for concrete work, not likely to be taken up soon, shall be coated with cement slurry and encased in lean concrete as indicated on the drawings or as directed by Owner/Project Manager.

19.5.12. Preparation And Sealing of Joint Grooves

All transverse joints in surface slabs shall be sealed using joint sealing compound. Joints shall not be sealed before 14 days after construction.

19.5.12.1. Joint Sealing Compound

The Joint sealing compound shall be of hot poured elastomeric type or cold polysulphide type having flexibility, resistance to age hardening and durability. If the sealant is of hot poured type it shall conform to AASHTO M282 and cold applied sealant shall be in accordance with BS 5212 part 2.

19.5.12.2. Preparation of Joints Grooves for Sealing

i) Joints grooves usually are not constructed to provide the minimum width specified in the drawings when saw cut joints are adopted. They shall be widened subsequently by sawing before sealing. Depth/width gauges shall be used to control the dimension of the groove.

ii) If rough arrises develop when grooves are made, they shall be ground to provide a chamfer approximately 5 mm wide. If the groove is at an angle up to 10 degree from the perpendicular to the surface, the overhanging edge of the sealing groove shall be sawn of ground perpendicular. If spalling occurs or the angle of the former is greater than 10 degrees, the joint sealing groove shall be sawn wider and perpendicular to the surface to encompass the defects up to a maximum width, including any chamfer, of 20 mm for transverse joints and 10 mm for longitudinal joints. If the spilling cannot be so eliminated then the areas shall be repaired by an approved thin bonded arras repair using cementitious materials.

iii) All grooves shall be cleaned of any dirt or loose material by air blasting with filtered, oil free compressed air. If need arises the Owner/Project Manager may instruct cleaning by pressurized water jets. Depending upon the requirement of the sealant manufacturer, the sides of the grooves may have to be sand blasted to increase the bondage between sealant and concrete.

iv) The groove shall be cleaned and dried at the time of priming and sealing.

v) Before sealing the temporary seal provided for blocking the ingress of dirt, soil etc., shall be removed. A highly compressible heat resistant paper backed de bonding strip as per drawing shall be inserted in the groove to serve the purpose of breaking the bond between sealant and the bottom of the groove and to plug the joint groove sop that the sealant may not leak through the cracks. The width of de bonding strip shall be more than the joint groove width so that it is held tightly in the groove. In the case of longitudinal joints, heat resistant tapes may be inserted to block the leakage through bottom of the joint.

19.5.12.3. Sealing With Sealants

i) When sealants are applied, an appropriate primer shall also be used if recommended by the manufacturer and it shall be applied in accordance with their recommendation. The sealant shall be applied within the minimum and maximum drying times of the primer recommended by the manufacturer. Priming and sealing with applied sealants shall not be carried out when the naturally occurring temperature in the joint groove to be sealed is below 7° C.

ii) If hot applied sealant is used it shall be heated and applied from a thermostatically controlled, indirectly heated preferably with oil jacketed melter and pourer having recirculating pump and extruder. For large road projects, sealant shall be applied with extruder having flexible hose and nozzle. The sealant shall not be heated to a temperature higher than the safe heating temperature and not for a period longer than the safe heating period, as specified by the manufacturer. The dispenser shall be cleaned out at the end of each day in accordance with the manufacturer's recommendations and reheated material shall not be used.

iii) Cold applied sealants with chemical formulation like polysulphide may be used. These shall be mixed and applied within the time limited specified by the manufacturer. If primers are recommended, they shall be applied neatly with an appropriate brush. The Movement Accommodation Factor (MAF) shall be more than 10 per cent.

iv) The sealants applied at contraction phase of the slabs would result in bulging of the sealant over and above the slab. Therefore, the contractor in consultation with the Owner/Project Manager, shall establish the right temperature and time for applying the sealant. Thermometer shall be hung on a pole in the site for facilitating control during the sealing operation.

v) Sealant shall be applied, slightly to a lower level than the slab with a tolerance of 3 ± 1 mm.

vi) During sealing operation, it shall be seen that no air bubbles are introduced in the sealant either by vapours or by the sealing process.

19.5.12.4. Testing of Applied Sealants

Manufacturer's certificate shall be produced by the contractor for establishing that the sealant is not more than six months old and stating that the sealant complies with the relevant standards. The samples shall meet the requirement of AASHTO M282 for hot applied sealant or BS 5212 (Part II) for cold applied sealant.

19.5.13. Surface Texture

After the final regulation of the slab and before the application of the curing membrane, the surface of concrete slab shall be tined or brush textured in a direction at right angles to the longitudinal axis of the carriageway. Texturing shall be done at such time that grooves will not close or get roughened. Textured surface should appear uniform and swerving of grooves is not permitted.

19.5.13.1. Tining

i) A beam mounted with steel tines and operated with automatic sensing and control devices from main paver shall be used for texturing. The tining unit shall have facility for adjustment of pressure on the tines and the rakes shall be cleaned often to remove snots of slurry. Grooves formed by tines shall be 3mm wide and 3-4mm deep.

ii) Transverse tining

For transverse tining 3m length of beam mounted with tines is moved in transverse direction. Grooves shall be at random spacing pattern of 10/ 14/ 16/ 11/ 10/ 13/ 15/ 16/ 11/ 10/ 21/ 13/ 10 mm but uniform in depth and width.

iii) Longitudinal tining

For longitudinal tining the texturing bridge should cover the entire width of carriageway but within 75mm from pavement edge. The centre to centre spacing of tines shall be 21mm.

19.5.13.2. Brush Texturing

i) The brushed surface texture shall be applied evenly across the slab in one direction by the use of a wire brush not less than 450 mm wide. The brush shall be made of 32 gauge tape wires grouped together in tufts spaced at a 10 mm centres. The tufts shall contain an average of 14 wires and initially be 100 mm long. The brush shall have two rows of tufts. The row shall be 20 mm apart and the tufts in one row shall be opposite the centre of the gap between tufts in the other row. The brush shall be replaced when the shortest tuft wears down to 90 mm long. After application of the brushed texture the surface shall have a uniform appearance.

ii) Five individual measurements of the texture depth shall be taken at least 2m apart anywhere along diagonal line across a lane width between points 50m apart along the pavement. No measurement shall be taken within 300 mm of the longitudinal edges of a concrete slab constructed in one pass. Texture depths shall not be less than the minimum as given below nor greater than a maximum average of 1.25mm.

Texture Depth

Time of Test	Number of Measurements	Required Texture Depth (mm)	
		Specified val.	Tolerance
Between 24 hrs and 7 days after the construction of slab or before first use by vehicles	Average of 5 measurements	1.00	± 0.25
Not later than 6 weeks before road is opened to traffic	Average of 5 measurements	1.00	+ 0.25/ - 0.35

19.5.14. Mode Of Measurement and Payment

i) Measurement for payment of the concrete pavement will be of the volumes placed within the lines and grades shown on the Construction Drawings. The volume to be paid for will be calculated on the basis of thickness and plans shown on the project drawings and adjusted for the deficiency in thickness. No additional payment shall be made for extra thickness of the slab. The full payment will be made on this item after 28 days strength of the concrete is found to be satisfactory.

ii) The unit of measurement for concrete pavement shall be the cubic meter of concrete placed, based on the net plan area for the specified thickness shown on the drawings or directed by Owner/Project Manager. The rate shall include the provision of this specifications and shall include the provision of all material including polythene film, concrete, admixtures, surface preparation, stock piling, mixing, transport, placing, compacting, finishing, curing together with all formworks and including testing and submission of test certificates and records. No deduction shall be made in measurement for openings provided that the area is less than 0.5 sq mt. The unit rate as entered in the Bill of Quantities shall also include the full cost of contraction, expansion, construction and longitudinal joints. It shall also include joint filler, keys, de-bonding strips, sealant primer, joint sealant.

iii) The Measurement for payment for dowel bar and tie rod will be of their respective weights measured as per the construction drawings.

iv) Payment for the dowel bars and tie rods will be made at the respective Unit Rate per metric tonne entered in the Bill of Quantities, which shall include the entire cost of supply, handling, storage, cutting, bending, placing, etc.

19.5.15. Quality Control

19.5.15.1. General

i) All materials incorporated and all works performed shall be strictly in conformity with the specification requirements. The Contractor shall carry out quality control tests on the materials and work to the frequency specified.

ii) If the Owner/Project Manager feels that the materials i.e. cement, sand, coarse aggregates, reinforcement and water are not in accordance with the specifications or if specified concrete strengths are not obtained, he may order tests to be carried out on these materials in laboratory, to be approved by the Owner/Project Manager, as per relevant IS Codes. Owner shall pay only for the testing of material supplied by the Owner otherwise Contractor shall have to pay for the tests. Transporting of all material to the laboratory shall however be done by the Contractor at no extra cost to Owner.

iii) In the event of any work being suspected of faulty material or workmanship requiring its removal or if the works cubes do not give the stipulated strengths, Owner/Project Manager reserves the right to order the Contractor to take out cores and conduct tests on them or do ultrasonic testing or load testing of structure, etc. All these tests shall be carried out by Contractor at no extra cost to the Owner. Alternately Owner/Project Manager also reserves the right to ask the Contractor to dismantle and re-do such unacceptable work at the cost of Contractor.

iv) If the structure is certified by Owner/Project Manager as having failed, the cost of the test and subsequent dismantling/reconstruction shall be borne by Contractor.

v) The Contract rate quoted for various items of works in the Bill of Quantities or the lumpsum amount tendered shall be deemed to be inclusive of all costs of the quality control tests and operations necessary for ensuring quality of the material and work to be in conformity with the specification requirement.

19.5.15.2. Permitted Tolerances

i) Horizontal Alignments

Horizontal alignments shall be reckoned with respect to the centre line of the carraigeway as shown on the drawings. The edges of the carraigeway as constructed shall be correct within a tolerance of ±10 mm therefrom. The corresponding tolerance for edges of the roadway and lower layers of pavement shall be ± 25 mm.

ii) Surface Levels

a) The levels of the subgrade and different pavement courses as constructed, shall not vary from those calculated with reference to the longitudinal and cross-profile of the road shown on the drawings or as directed by the Owner/Project Manager beyond the tolerances mentioned below:

Subgrade	+ 20 mm/ (-) 20 mm
Dry Lean Concrete Sub-base	+ 6 mm/ (-) 6 mm
Cement concrete pavement	+ 5 mm/ (-) 5 mm (*)

(*) This may not exceed (-) 8mm at 0 – 30cm from edges.

Provided, however, that the negative tolerance for wearing course shall not be permitted in conjunction with the positive tolerance for base course if the thickness of the former is thereby reduced by more than 5 mm for concrete pavement.

b) For subgrade and sub-base, the measurements of the surface levels shall be taken on a grid of points placed at 6.25m longitudinally and 3.5m transversely. For any 10 consecutive measurements taken longitudinally or transversely, not more than one measurement shall be permitted to exceed the tolerance above; this one measurement being not in excess of 5mm beyond the permitted tolerance.

c) For concrete pavements, the measurements of the surface levels shall be taken on a grid of points placed at 6.25m along the length and at 0.5m from the edges and centre of the pavement. For the final road surface, the above compliance shall be satisfied for all points on any length of pavement.

iii) Surface Regularity

a) The surface regularity of completed subgrade, sub-base course, base course and wearing course in the longitudinal and transverse directions shall be within the tolerances indicated in Table below.

b) The longitudinal profile shall be checked with a 3 metre long straight edge, at the middle of each traffic lane along a line parallel to the centre line of the road. The transverse profile shall be checked with a set of three camber boards at intervals of 10 metres.

Maximum Permitted number of Surface Irregularities

	Surfaces of carriageways and paved shoulders				**Surfaces of lay-bys, service areas and all bituminous base courses**			
Irregularity	4 mm		7 mm		4 mm		7 mm	
Length (m)	300	75	300	75	300	75	300	75
National Highways/ Expressways (*)	15	9	2	1	40	18	4	2
Roads of lower category (*)	40	18	4	2	60	27	6	3

(*) Category of road shall described in the project contract

c) The maximum allowable difference between the road surface and underside of a 3m straight edge when placed parallel with or at right angles to centre line of the road at points decided by the Owner/Project Manager shall be:

For concrete pavement surface 3mm

For dry lean concrete sub-base course 10mm

iv) Rectification

Where the surface irregularity of subgrade and the various courses fall outside the specified tolerances, the Contractor shall be liable to rectify these in the manner described below and to the satisfaction of the Owner/Project Manager.

- Subgrade: Where the surface is high, it shall be trimmed and suitably compacted. Where the same is low, the deficiency shall be corrected by adding fresh material. The degree of compaction and the type of material to be used shall conform to the sections 4.0 and 5.0.
- Dry Lean Concrete sub-base: The defective length of the course shall be removed to full depth and replaced with material as per original specification. The area treated shall be at least 3m long, not less than 1 lane wide and extend to full depth. Before laying the course, the disturbed subgrade shall be corrected by levelling, watering and compacting.
- Cement concrete pavement:The defective areas having surface irregularity exceeding 3mm but not greater that 6mm may be rectified by scrabbling or grinding using approved equipment. Where required by the Owner/Project Manager, areas which have been reduced in level by the above operation(s) shall be re-textured in an approved manner either by cutting 5mm deep grooves or roughening the surface by hacking. Where the irregularity exceeds these limits, the slab shall be demolished and reconstructed at the Contractor's experience. The area to be removed shall be at least full width of the affected lane and full length of the slab.

19.5.15.3. Tests

i) <u>General</u>

a) For ensuring the requisite quality of construction, the materials and works shall be subjected to quality control tests, as described hereinafter. The testing frequencies set forth are the desirable minimum and the Owner/Project Manager shall have the full authority to increase the frequencies of tests as he may deem necessary to satisfy himself that the materials and works comply with the appropriate specifications.

b) Various quality control tests shall be conducted in accordance with the procedures indicated in the respective sections of MORTH Specifications.

Where no specific testing procedure is mentioned, the tests shall be carried out as per the prevalent accepted Owner/Project Managering practice to the directions of the Owner/Project Manager.

ii) Tests on earthwork for embankment and subgrade construction

a) Borrow material

- Sand Content {IS 2720 (Part 4)}: 2 tests per 3000 cu.metres of soil
- Plasticity Test {IS 2720 (Part 5)}: Each type to be tested, 2 tests per 3000 cu. metres of soil.
- Density Test {IS 2720 (Part 8)}: Each soil type to be tested, 2 tests per 3000 cubic metres of soil.
- Deleterious Content Test {IS 2720 (Part 27)}: As and when required by the Owner/Project Manager.
- Moisture Content Test {IS 2720(Part 2)}: Two test for every 250 cubic metres of soil.
- CBR Test on materials to be incorporated in the subgrade on soaked/unsoaked samples {IS 2720 (Part 16)}: One test (avearge of three values) for every 3000 m3 at least or closer as and when required by the Owner/Project Manager.

b) Compaction control

Control shall be exercised by taking at least one set of ten measurement of density for each 3000 square metres of compacted area, or closer as required to yield the minimum number of test results for evaluation of a day's work on statistical basis. The determination of density shall be in accordance with IS 2720 (Part 28). Tests locations shall be chosen only through random sampling techniques. Control shall not be based on the result of any one test but on the mean value of a set of 5-10 density determinations. The number of tests in one set of measurements shall be doubled for non-destructive tests as long as it is felt that sufficient control over borrow material and the method of compaction is being exercised. If considerable variations are observed between individual density results, the minimum number of tests in one set of measurement shall

be increased. The acceptance of work shall be subject to the condition that the mean dry density equals or exceeds the specified density plus.

[1.65 – 1.65/ (No of samples)0.5] * standard deviation.

c) However, for earthwork in shoulders (earthen) and in the subgrade, at least one set of ten density measurement shall be taken for every 2000 square metres of the compacted area. In other respects, the control shall be like that described earlier.

iii) Dry lean concrete sub-base

a) Testing of cubes

Samples for making cubes shall be taken at the rate of 3 samples for each 100 sqm or part laid each day. Test cubes shall be prepared in accordance with IS:516 except that cubes shall be compacted in moulds by electric or pneumatic vibratory hammer having area between 7500 to 14000 N/sq.mm Compression force of 300N to 400N shall be uniformly applied for 60±5 seconds on each of three layers of the material.

b) In-situ Density

This shall be measured in three density holes spaced equally on a diagonal that bisects each 2000 sqm or part laid each day and at random at the edges. Minimum dry density obtained shall be 97% of that achieved during trial and 95% at 0.5m from edge.

c) Thickness

Average thickness of sub-base layer shall be computed by level data of the sub-grade and sub-base. Thickness at any location shall not be less than 8mm less than specified thickness.

d) Frequency of control tests

The frequency of testing is defined in Tables below.

iv) Pavement concrete

a) Testing of beams and cubes

At least two beams and two cubes, one each for 7 day and 28 day strength testing shall be cast for every 150 cum (or part) of concrete pavement. On each day's work, not less than three pairs of beams and cubes shall be made for each

type of mix. Where quality requirements are not satisfied by the sample testing, actual strength shall be ascertained by tests on 150mm diameter cores cut at the rate of 2 cores every 150 cum of concrete. The average results of crushing strength on the 2-3 cores shall not be 0.8x0.85 times the characteristic compressive strength for core height to diameter ratio of two. Correction factor for core height to diameter ratio n = 1 to 2 is given by

f = 0.11*n + 0.78

b) An individual strength below specified strength may be disregarded if the average 28 day strength of the failed beam plus the preceding 5 and succeeding 4 beams exceeds the specified strength by 1.65 time standard deviation.

c) The equivalent flexural strength shall be estimated from in-situ strength multiplied by 100 and divided by age-strength relation from Table below.

Age Strength relation of Concrete (related to 100% at 28 days)

Days	0	2	4	6	8
0	-	41.0	60.0	71.0	77.5
10	81.5	85.0	87.5	90.0	92.0
20	94.0	96.0	97.5	98.5	100.0
30	101.0	102.0	103.5	104.5	105.5
40	106.5	107.0	108.0	109.5	110.0
50	110.5	111.0	112.0	112.5	113.0
60	114.0	114.5	115.0	115.5	116.0
70	116.5	117.0	117.5	118.0	118.5
80	119.0	119.5	119.5	120.0	120.5
90	121.0	121.5	122.0	122.0	122.5
100	123.5	123.5	123.5	124.0	124.5
110	125.0	125.0	125.5	125.5	126.0
120	126.0	126.0	127.0	127.0	127.5
130	127.5	128.0	128.5	128.5	129.0
140	129.0	129.5	129.5	130.0	130.0
150	130.5	130.5	131.0	131.0	131.5
160	131.5	131.5	132.0	132.0	132.5

170	132.5	132.5	133.0	133.0	133.5
180	133.5	134.0	134.0	134.5	134.5
190	135.0	135.0	135.0	135.5	135.5
200	135.5	135.5	136.0	136.0	136.5
210	136.5	136.5	137.0	137.0	137.0
220	137.0	137.5	137.5	137.5	138.0
230	138.0	138.5	138.5	138.5	138.5
240	139.0	139.0	139.0	139.5	139.5
250	139.5	140.0	140.0	140.0	140.0
260	140.5	140.5	140.5	140.5	141.0
270	141.0	141.0	141.5	141.5	141.5
280	142.0	142.0	142.0	142.0	142.0
290	142.5	142.5	142.5	142.2	142.5
300	143.0	143.0	143.0	143.0	143.5
310	143.5	143.5	144.0	144.0	144.0
320	144.0	144.5	144.5	144.5	144.5
330	144.5	145.0	145.0	145.0	145.0
340	145.0	145.5	145.5	145.5	145.5
350	146.0	146.0	146.0	146.0	146.0
360	146.0	146.0	146.5	146.5	146.5

d) In-situ Density

This shall be measured in set of 3 cores of 150mm diameter taken from trial lengths and in first 2 km length of pavement. The density of the compacted concrete shall be such that total air voids derived from the difference between theoretical maximum dry density and measured value does not exceed 3%.

e) Thickness

Thickness shall be controlled by taking levels after compaction and shall be within tolerance of (-) 5mm/ +10mm from the values shown in drawing.

f) Frequency of control tests

The frequency of testing is defined in Tables below.

Control Tests and Their Frequencies Paving Quality Concrete

Levels, Alignment and texture

Test		Frequency
i.	Level tolerance	Refer section 17.5.13.2
ii.	Width of pavement and position of edges	Refer section 17.5.13.1
iii.	Pavement thickness	Refer section 17.5.13.2 and 17.5.13.3
iv.	Alignment of joints, widths, depths of dowel grooves	To be checked at one joint per 400m length or a day's work
v.	Surface regularity – transverse and longitudinal	Once a day or one day's work
vi.	Alignment of dowel/ tie bars	In trial length as per section 17.5.6.3 and once every 2 km
vii.	Texture depth	Refer section 17.5.12

Control Tests and Their Frequencies Paving Quality Concrete

Quality of Material and Concrete

Sl. No.	Types of Construction	Test		Frequency
1.	Cement	i.	Physical and chemical tests as per IS: 269, IS:455, IS: 1489, IS:8112, IS: 12269	One for each source of supply and when called for in case of improper/ long storage
2.	Coarse and fine aggregates	i.	Gradation as per IS: 2386 (Part 1)	One test for each day's work of each fraction of coarse and fine aggregates; may be relaxed later at discretion of Owner/Project Manager One test per 400 m^2
		ii.	Deleterious constituents as per IS: 2386 (Part 2)	
		iii.	Water absorption as per IS: 2386 (Part 3)	Regularly for minimum one test per day for coarse aggregates and two tests per day for fine aggregate

3.	Coarse aggregates	i.	Los Angeles Abrasion Value/ Aggregate Impact Test as per IS: 2386 (Part 4)	Once for each source of supply and subsequently on monthly basis
		ii.	Soundness as per IS: 2386 (Part 5)	Before approving the aggregate and every month subsequently One test per 1000 m^3 of aggregate
		iii.	Alkali aggregate reactivity as per IS: 2386 (Part 7)	
4.	Water	i.	Chemical test as per IS: 456	Once for approval of source of supply and subsequently only in case of doubt
5.	Concrete	i.	Strength of concrete as per IS: 516	2 cubes and 2 beams per 150 cum or part for 7 day and 28 days or min. 6 beams and 6 cubes per day's work
		ii.	Core strength on hardened concrete as per IS: 516	As per requirement of Owner/Project Manager
		iii.	Slump test and Workability as per IS: 1199	1 test per dumper at batching plant and site initially, subsequently on alternate dumpers
		iv.	Thickness	From level data of pavement and sub-base at grid points 5/6.25m x 3.5m
		v.	Thickness measurement for trial length	3 cores per trial length
		vi.	Level of string line in slip form paving and steel forms for fixed form paving	Interval of 5.0/6.25m; allowable level tolerance ± 2mm.

Upon the completion of concrete work, all forms, equipment, construction tools, protective coverings and any debris, scraps of wood, etc. resulting from the work shall be removed and the premises left clean.

19.5.15.4. Acceptance Criteria

i) Any concrete work shall satisfy the requirements given below individually and collectively for it to be acceptable:

- Properties of constituent materials;
- Characteristic compressive strength;
- Specified mix proportions;
- Minimum cement content;
- Maximum free-water/cement ratio;
- Workability;
- Temperature of fresh concrete;
- Density of fully compacted concrete;
- Cover to embedded steel;
- Curing;
- Tolerances in dimensions;
- Tolerances in levels;
- Durability;
- Surface finishes;
- Special requirements such as :
- Water tightness
- Resistance to aggressive chemicals
- Resistance to freezing and thawing
- Very high strength
- Improved fire resistance
- Wear resistance
- Resistance to early thermal cracking

ii) The Owner/Project Manager's decision as to the acceptability or otherwise of any concrete work shall be final and binding on the Contractor.

iii) For work not accepted, the Owner/Project Manager may review and decide whether remedial measures are feasible and so as to render the work acceptable. The Owner/Project Manager shall in that case direct the Contractor to undertake and execute the remedial measures. These shall be expeditiously and effectively implemented by the Contractor. Nothing extra shall become payable to the Contractor by the Owner for executing remedial measures.

iv) The concrete shall be deemed to comply with the strength requirements when both the following conditions are made.

v) The mean strength determined from group of four consecutive test results with the appropriate limit as per code.

vi) An individual test result complies with the appropriate limit as per code.

19.6. TEMPORARY SITE ROADS

i) The Contractor shall select, design, construct and maintain all necessary temporary roads, parking areas and other access facilities within the Site required for the construction of Permanent and Temporary Works, including all borrow and quarry areas.

ii) Any temporary road to the desired pit/quarry, dumping, parking area etc., if required, will be constructed by the Contractor at his own cost.

iii) The roads shall be wide enough to allow heavy weight traffic in both directions. To prevent excessive erosion, no steeper longitudinal slope than 10% shall be used, except when specifically approved by the Owner/Project Manager.

iv) Except where rock is encountered, the back slopes of cut banks shall be stable and compatible with existing topography and shall be flattened and rounded as far as practicable into natural ground surface.

v) The Contractor shall install suitable devices and drainage structures in sufficient numbers to prevent accumulation of excessive water and erosion of the road surface, drainage ditches, and excavated area.

vi) The Owner/Project Manager as well as other contractors and subcontractors working in the Project shall be permitted access, free of charge, to all site roads throughout the duration of the Contract.

vii) Upon completion of the Works, these roads shall be handed over to TPCL. Those site roads which TPCL does not choose to keep shall be made impassable to

vehicular traffic and the surfaces shall be scarified and left in a condition which will facilitate natural vegetation.

viii) Effective dust control by regular sweeping/cleaning and water sprinkling etc. All roads having with or without WBM work only need to be sprinkled with water several times a day to avoid dust pollution throughout the dry period of the year.

ix) No measurement for payment or payment will be made for constructions of temporary site roads, roads to Quarries/Borrow/dumping areas or any other roads constructed by contractor for his convenience.

19.7. REPAIR AND MAINTENANCE WORK ON ACCESS ROADS (PERMANENT)

i) The Contractor until completion of all works shall be responsible for all maintenance and repair work needed to keep permanent access road/approach roads and temporary roads within the project boundary in satisfactory condition at all times for his own use, as well as for use by other contractors, sub-contractors and suppliers working in the Project.

ii) The maintenance of permanent access road/approach roads and temporary roads within the Project area to be carried out by the Contractor shall include, but not limited to, the following work:

a) Immediate repair of all irregularities produced by traffic, water, snow or ice such as potholes or other damage to the roadway surface,
b) Repair of any road-related structures damaged by traffic,
c) Periodical shaping and grading of the roadway wherever necessary to allow good surface drainage and to maintain it in optimal condition for traffic at all times,
d) Keeping the drainage structures and culverts etc. free of debris or any other material that may reduce their flow capacity,
e) Provide the necessary traffic signs and signals, and
f) Effective dust control by regular sweeping & cleaning and water sprinkling etc.

iii) If there is damage to the protection works (retaining walls, gabions, etc.) of permanent access road/approach roads caused due to the reason not attributes to the contractor and these are required to be rebuilt, the same shall be rebuilt at the

orders of Owner/Project Manager and shall be considered for payment as per relevant unit rates.

iv) Clearing of landslides on permanent access road/approach roads and temporary roads access roads within the Project area within the project area shall include, but not limited to, the following works will be carried out by the Contractor.

v) Clearing of slides onto the roadway and lateral slopes, during and after rain/snowfall. However any slide of quantum more than 20 cum at one location shall be payable as per BOQ rate.

vi) Disposal of materials removed by the above-mentioned operation to approved spoil areas.

vii) No measurement for payment or payment will be made for maintenance of permanent access road/approach roads, temporary roads or any other roads constructed by contractor for his convenience within the project boundary

19.8. CRASH BARRIER

19.8.1. General

The work shall consist of construction, provision, and installation of crash barriers at locations as shown in the drawing or as directed by the Owner/Project Manager. The type of crash barrier at respective locations shall be as specified in the drawings.

19.8.2. Concrete Crash Barrier

19.8.2.1. Materials

All materials shall conform to Section B.11 ‘Cement & Concrete works’ as applicable, and relevant Clauses in and section B.8 ‘Steel reinforcement’ shall govern the steel reinforcement. The minimum grade of concrete shall be M25.

19.8.2.2. Construction

i) The concrete barriers shall be either (i) precast or (ii) constructed by the “cast-in-place with fixed forms” method or the “extrusion or slip form” method or a

combination thereof at the Contractor's option with the approval of the Owner/Project Manager. Where "extrusion or slip form" method is adopted full details of the method and literature shall be furnished.

ii) The concrete barrier may be precast in lengths upto 6 m depending upon the feasibility of transport and lifting arrangements. Longitudinal roadside concrete barrier shall be placed on adequate bedding as detailed in the drawing. The top and exposed faces of the barriers shall conform to the specified tolerances, as defined in clause below, when tested with 3 m straight edge, laid on the surface.

iii) An expansion joint with pre-moulded asphalt filler board shall be provided at the junctions of crash barrier on structure and crash barrier on the fill. The crash barrier on the fill shall be constructed in pieces of length not exceeding 20 m, with pre-moulded asphalt filler board joints.

iv) Backfilling to the concrete barriers shall be compacted in layers to the compaction of the surrounding earthwork.

19.8.2.3. Tolerance

The overall horizontal alignment of rails shall not depart from the road alignment by more than ± 30 mm, nor deviate in any two successive lengths from straight by more than 6 mm and the faces shall not vary more than 12 mm from the edge of a 3 m straight edge. Barriers shall be at the specified height as shown in the plans above the edge of the nearest adjacent carriageway or shoulder, within a tolerance of ± 30 mm.

19.8.2.4. End Treatment

The roadside concrete barrier shall be provided with an end treatment by tapering the height of terminating end within a length of 8 m to 9 m. Median crash barrier shall be terminated sufficiently away from the median opening. It shall be provided with an end treatment, which shall be obtained by tapering the height of terminating end of the median barrier within a length of 8 m to 9 m.

19.8.2.5. Measurement and Payment

i) Measurement for payment of the concrete crash barrier will be of the volumes placed within the lines and grades shown on the Construction Drawings. Payment will be made at the appropriate Unit Rate per cubic meter entered in the Bill of Quantities

ii) The Contract unit rate shall include full compensation for furnishing all labour, materials excluding steel for reinforcement, tools, equipment and incidental costs necessary for doing all the work involved in constructing the concrete barrier complete in place in all respects as per these Specifications.

iii) Measurement for Payment and payment for reinforcement shall be made as mentioned in respective technical specification section of reinforcement.

19.8.3. Metal Crash Barrier

19.8.3.1. Materials

i) Metal beam rail shall be corrugated sheet steel beams of the class, type, section, and thickness indicated on the drawings. Railing posts shall be made of steel of the section, weight and length as shown on the drawings. All complete steel rail elements, terminal sections, posts, bolts, nuts, hardware, and other steel fittings shall be galvanized. All elements of the railing shall be free from abrasions, rough or sharp edges and shall not be kinked, twisted, or bent.

ii) The “W” beam type safety barrier shall consist of a steel post and a 3 mm thick “W” beam rail element. The steel post and the blocking out spacer shall both be channel section of 75 mm x150 mm & size 5 mm thick. The rail shall be 70 cm above the ground level and posts shall be spaced 2 m center-to-center. Double “W” beam barrier shall be as indicated in IRC:5-1998.

iii) The thrie beam safety barrier shall have posts and spacers like the ones mentioned above for “W” beam type. The rail shall be placed 85 cm above the ground level.

iv) The “W” beam, the thrie beam, the posts, spacers, and fasteners for steel barriers shall be galvanized by hot dip process (zinc coated, 0.55 kg per square metre;

minimum single spot) unless otherwise specified. The galvanizing on all other steel parts shall conform to the relevant IS Specifications. All fittings (bolts, nuts, washers) shall conform to IS:1367 and IS:1364. All galvanizing shall be done after fabrication.

v) Concrete for bedding and anchor assembly shall conform to Section B.11 of these Specifications.

19.8.3.2. Construction

i) The line and grade of railing shall be true to that shown on the plans. The railing shall be carefully adjusted prior to fixing in place, to ensure proper matching at abutting joints and correct alignment and camber throughout their length. Holes for field connections shall be drilled with the railing in place in the structure at proper grade and alignment.

ii) Unless otherwise specified on the drawing, railing steel posts shall be given one shop coat of paint (primer) and three coats of paint on structural steel after erection if the sections are not galvanized. Any part of the assembly below ground shall be painted with three coats of red lead paint.

iii) Splices and end connections shall be of the type and designs specified or shown on the plans and shall be of such strength as to develop full design strength of the rail elements.

19.8.3.3. Installation of Posts

i) Holes shall be dug or drilled to the depth indicated on the plans or posts may be driven by approved methods and equipment, provided these are erected in proper position and are free from distortion and burring or any other damage. All post holes that are dug or drilled shall of such size as will permit proper setting of the posts and allow sufficient room for backfilling and tapping.

ii) Holes shall be backfilled with selected earth or stable materials in layers not exceeding 100 mm thickness and each layer shall be thoroughly tamped and

rammed. When backfilling and tamping are completed, the posts or anchors shall be held securely in place.

iii) Post holes that are drilled in rock and holes for anchor posts shall be backfilled with concrete.

iv) Posts for metal beam guardrail on bridges shall be bolted to the structure as detailed on the plans. The anchor bolts shall be set to proper location and elevation with templates and carefully checked.

19.8.3.4. Erection

i) All guard rail anchors shall be set and attachments made and placed as indicated on the plans or as directed by the Owner/Project Manager.

ii) All bolts or clips used for fastening the guardrail or fittings to the posts shall be drawn up tightly. Each bolt shall have sufficient length to extend at least 6 mm through and beyond the full nut, except where such extensions might interfere with or endanger traffic in which case the bolts shall be cut off flush with the nut.

iii) All railings shall be erected, drawn and adjusted so that the longitudinal tension will be uniform throughout the entire length of the rail.

19.8.3.5. End Treatment

End treatments shall from an integral part of safety barriers which should not spear, vault or roll a vehicle for head-on or angled impacts. The two end treatments recommended for steel barriers are “Turned-down-guardrail” and “Anchored in back slope”, as shown on the drawings or as directed by the Owner/Project Manager.

19.8.3.6. Tolerance

The posts shall be vertical with a tolerance not exceeding 6 mm in a length of 3 m. The railing barrier shall be erected true to line and grade.

19.8.3.7. Measurement and Payment

i) Metal beam railing barriers will be measured by linear metre of completed length as per plans and accepted in place. Terminals/anchors of various types shall be paid for by numbers.

ii) Furnishing and placing anchor bolts and/or devices for guard rail posts on bridges shall be considered incidental to the construction and the costs thereof shall be included in the price for other items of construction.

iii) No measurement for payment will be made for excavation or backfilling performed in connection with this construction.

iv) The Contract unit rate shall include full compensation for furnishing of labour, materials, tools, equipment's and incidental costs necessary for doing all the work involved in constructing the metal beam railing barrier complete in place in all respects as per these Specifications.

19.9. EXCLUSIONS IN PAYMENT

No extra payment will be made for the following:

i) Extra work caused by the Contractor's negligence in setting-out the structures and slopes,

ii) Rectification, removal and replacement of the materials which during the placement or afterwards have been contaminated with foreign matter, mixed with unsuitable materials, or lost due to erosion,

iii) Extra work or material required to repair damages to the temporary or final surfaces caused by the erosion or travel of the construction equipment,

iv) Stock piling, re-handling, reloading, and transport of materials which cannot be directly placed in the final locations after being excavated,

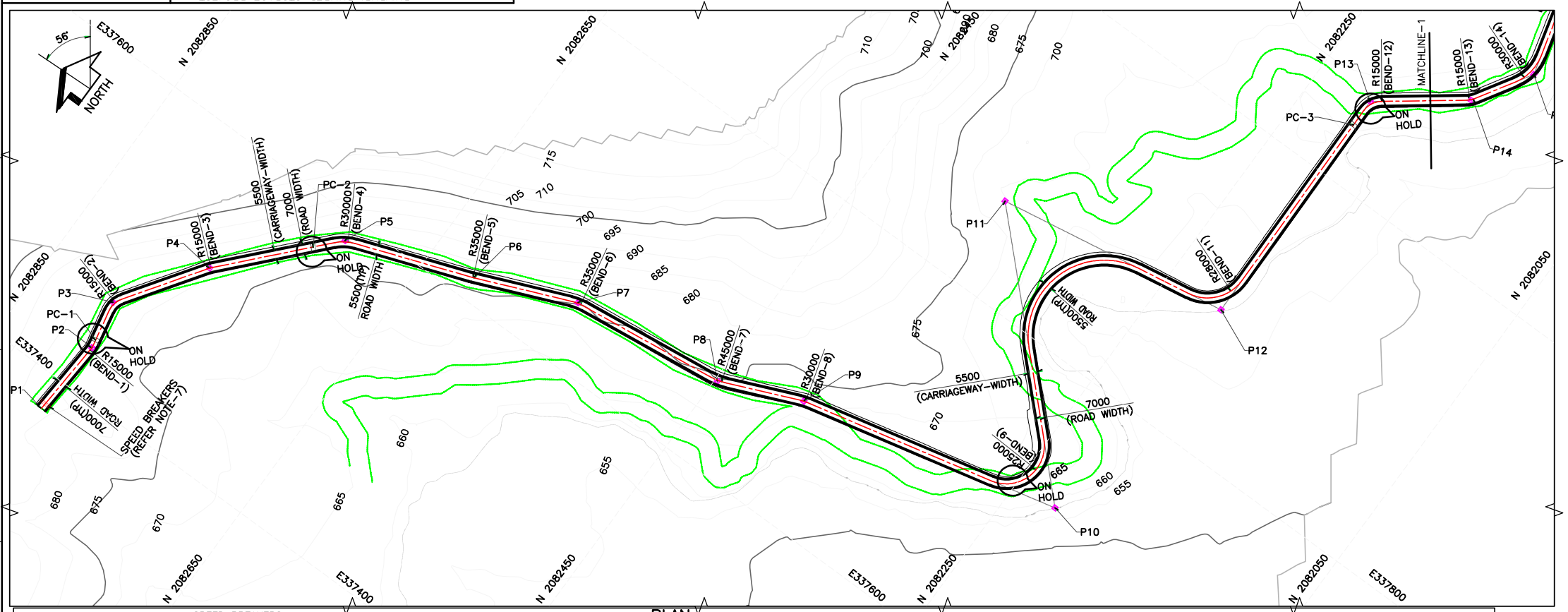
v) Damage and repair to the concrete structures caused by Contractor's operations,

vi) Additional passes of the compacting equipment ordered by the Owner/Project Manager if he determines that a higher degree of compaction than specified is required.

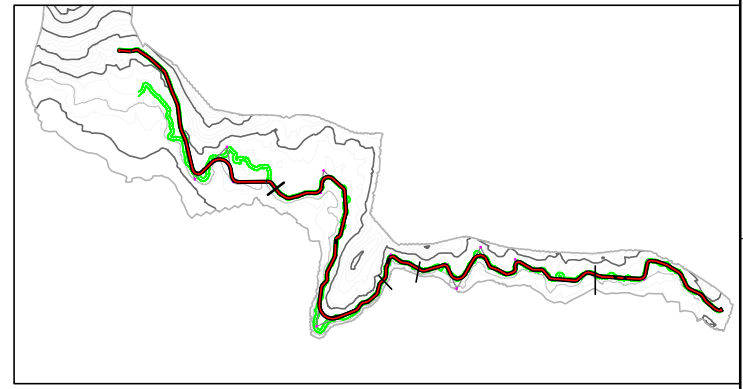
vii) Construction and maintenance of temporary site roads, Roads to quarry/borrow/dumping areas etc.

TITLE: BHIVPURI PUMPED STORAGE PROJECT
ROAD TO LOWER RESERVIOR

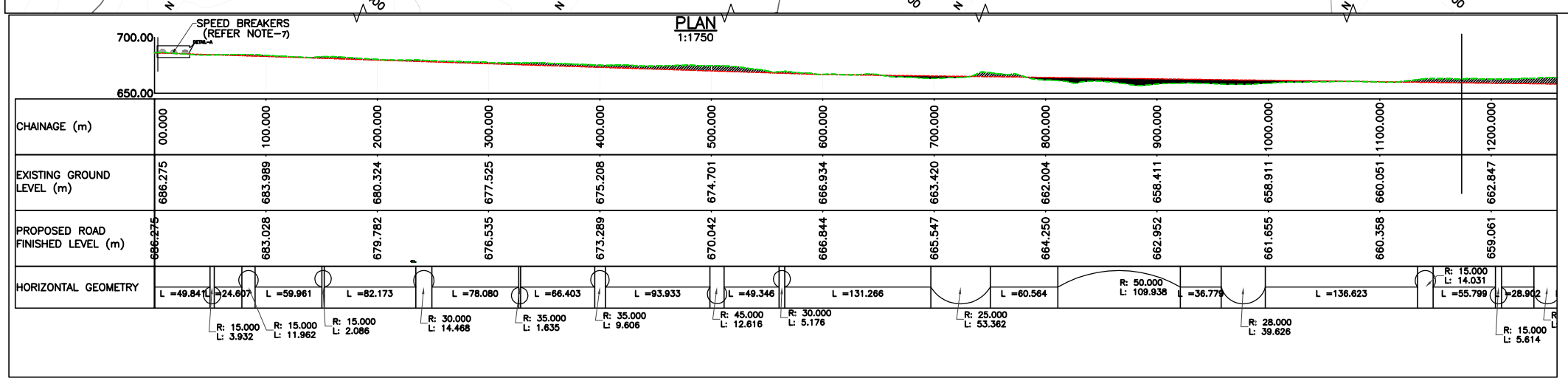
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PLAN
1:1750



KEYPLAN



L–SECTION
1:2500

LEGEND

- MAJOR CONTOUR
- MINOR CONTOUR
- LAND BOUNDARY LINE
- CULVERT
- CO–ORDINATES AND CENTER POINT OF BEND
- P1 – P14 — CO–ORDINATES OF ROAD
- PC — POINT OF HORIZONTAL CURVATURE START
- PT — POINT OF HORIZONTAL CURVATURE TERMINATE
- NSL — NATURAL SURFACE LEVEL
- RETAINING WALL
- FILL AREA

NOTES

1. ALL DIMENSIONS COORDINATES, ELEVATIONS AND CHAINAGES ARE IN METER UNLESS OTHERWISE SPECIFIED.
2. NO DIMENSION SHALL BE SCALED; ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. THIS DRAWING IS PREPARED BASED ON SURVEY DATA RECEIVED FROM CLIENT ON 23–04–25.
4. CROSS DRAINAGE STRUCTURE LOCATION & TYPE ETC., SHOWN ARE INDICATIVE, BASED ON TOPOGRAPHICAL SURVEY DATA RECEIVED FROM CLIENT ON 23–04–25. REFER RELEVANT CROSS DRAINAGE STRUCTURE DRAWINGS FOR ACTUAL DETAILS.
5. REFER RELEVANT DRAWINGS FOR TYPICAL CROSS SECTIONS, CROSS DRAINAGE STRUCTURE DETAILS.
6. THIS ROAD HAS BEEN DESIGNED FOR DESIGN SPEED OF 20 km/hr. PROVIDE SIGN BOARD INDICATING THE SPEED.
7. READYMADE RUBBER/PVC SPEED BUMPS, 3NOS. WITH HUMPS IN RANGE OF 75mm TO 100mm SHALL BE PROVIDED FOR FULL LENGTH OF CARRIAGEWAY AT 1000mm C/C TO LIMIT THE VEHICLE SPEED TO 10 kmph. OPTIONALLY SPEED BRAKES AS SHOWN IN DETAIL–A (SINGLE) MADE OF PREMIX BITUMINOUS MATERIAL SHALL ALSO BE USED.
8. READYMADE SPEED BUMPS IF PROVIDED SHALL BE FIXED INTO ROAD SURFACE AS RECOMMENDED BY THE SUPPLIER.
9. NECESSARY SIGN BOARDS INDICATING SPEED LIMITS & SPEED BRAKES SHALL BE DISPLAYED AT SITE IN ACCORDANCE WITH IRC 67.
10. TURNING RADIUS ADOPTED/CHECKED BASED ON VEHICLE SWEPT PATH OF SEMI TRAILER (WB–18) AS PER IRC SP 41:1994.
11. ROAD CENTER LINE & EDGE LINE MARKING SHALL BE DONE USING YELLOW / WHITE THERMOPLASTIC PAINTS IN ACCORDANCE WITH IRC 35: 2015.
12. RED–WHITE BI–DIRECTIONAL ROAD STUDS (REFLECTORS) SHALL BE PROVIDED AT 20M C/C INTERVALS IN NORMAL STRAIGHT ROAD SECTIONS & AT BENDS AND NON– OVERTAKING SECTIONS, IT SHALL BE PROVIDED IN INTERVALS NOT GREATER THAN 10M C/C AS PER IRC 35: 2015. FIXING OF REFLECTORS SHALL BE DONE AS RECOMMENDED BY THE SUPPLIER OR IN ACCORDANCE WITH IRC 35: 2015.
13. THE LOCATIONS MARKED AS 'HOLD' ARE DUE TO PENDING DETAILS RELATED TO THE NALA CROSSING.

TABLE:1 COORDINATES ALONG CENTERLINE OF ROAD

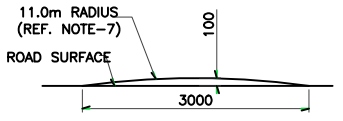
POINTS	NORTHING	EASTING
P1	2082795.744	337378.175
P2	2082792.443	337429.888
P3	2082798.927	337462.147
P4	2082760.961	337517.746
P5	2082699.993	337584.757
P6	2082617.033	337615.194
P7	2082552.498	337642.229
P8	2082448.181	337655.079
P9	2082394.558	337677.935
P10	2082220.056	337718.863
P11	2082365.569	337861.879
P12	2082208.938	337888.136
P13	2082210.702	338056.276
P14	2082157.824	338096.130

TABLE:2 BENDS DETAILS

BEND NO	SPEED(km	RADIUS(m	POINT	CHAINAGE(m)	NORTHING	EASTING
			PC	49.841	2082792.569	337427.915
			CENTRE	51.807	2082807.538	337428.87
BEND-1	20	15	PT	53.773	2082792.832	337431.826
			PC	78.38	2082797.682	337455.951
			CENTRE	84.361	2082782.976	337458.907
BEND-2	20	15	PT	90.342	2082795.363	337467.366
			PC	150.304	2082761.55	337516.883
			CENTRE	151.347	2082749.162	337508.425
BEND-3	20	15	PT	152.39	2082760.257	337518.519
			PC	234.563	2082704.958	337579.3
			CENTRE	241.797	2082682.767	337559.111
BEND-4	20	30	PT	249.031	2082693.063	337587.289
			PC	327.112	2082619.725	337614.086
			CENTRE	327.93	2082631.737	337646.96
BEND-5	20	35	PT	328.747	2082618.203	337614.682
			PC	395.149	2082556.965	337640.358
			CENTRE	399.952	2082543.432	337608.081
BEND-6	20	35	PT	404.755	2082547.711	337642.818
			PC	498.688	2082454.483	337654.302
			CENTRE	504.996	2082459.984	337698.965
BEND-7	20	45	PT	511.304	2082442.339	337657.568

TABLE:2 BENDS DETAILS

			PC	560.651	2082396.945	337676.917
			CENTRE	563.239	2082385.181	337649.32
BEND-8	20	30	PT	565.827	2082392.032	337678.527
			PC	697.093	2082264.234	337708.502
			CENTRE	723.774	2082269.943	337732.841
BEND-9	20	25	PT	750.454	2082252.419	337750.671
			PC	811.018	2082295.613	337793.124
			CENTRE	865.987	2082260.565	337828.784
BEND-10	20	50	PT	920.956	2082268.831	337878.096
			PC	957.735	2082232.558	337884.176
			CENTRE	977.548	2082237.188	337911.791
BEND-11	20	28	PT	997.361	2082209.189	337912.085
			PC	1133.984	2082210.622	338048.7
			CENTRE	1140.999	2082195.623	338048.857
BEND-12	20	15	PT	1148.015	2082204.652	338060.836
			PC	1203.813	2082160.092	338094.421
			CENTRE	1206.62	2082169.121	338106.399
BEND-13	20	15	PT	1209.427	2082156.338	338098.551
			PC	1238.33	2082141.215	338123.181
			CENTRE	1250.435	2082166.78	338138.878
BEND-14	20	30	PT	1262.54	2082137.76	338146.484



DETAIL–A
(REFER:IRC–99)
1:50

FOR PLANNING

PROJECT:-

PACKAGE:- ENABLING INFRASTRUCTURE WORKS FOR BHIVPURI PSP

OWNER :- THE TATA POWER COMPANY LIMITED

OWNER'S CONSULTANT:- TATA CONSULTING ENGINEERS LIMITED

DWG TITLE: SHIRAWATA PUMPED STORAGE PROJECT
ROAD TO LOWER RESERVIOR

DESIGNED		SCALE	DATE	DWG NO.	SH–	REV.
DRAWN		–				RA
CHECKED						
APPROVED						

TCE DWG NO.: TCE.13376C–CV–3055–SI–30121

FILE NAME: TCE.13376C–30121

RA, RB, RC,.... ARE PLANNING PURPOSE DRAWINGS AND ARE NOT TO BE USED FOR CONSTRUCTION / FABRICATION BUT ARE ISSUED FOR LIMITED PURPOSES ONLY.
R0, R1, R2,....ARE CONSTRUCTION/FABRICATION DRAWINGS WHICH ARE TO BE USED FOR CONSTRUCTION/FABRICATION.
INFORMATION CONTAINED WITHIN 'HOLD' IS NOT RELEASED FOR CONSTRUCTION/ FABRICATION. FIELD MUST GET DESIGN OFFICE TO CLEAR "HOLDS" IN TIME BEFORE PROCEEDING WITH ANY CONSTRUCTION/FABRICATION WORK RELATED TO "HOLDS".

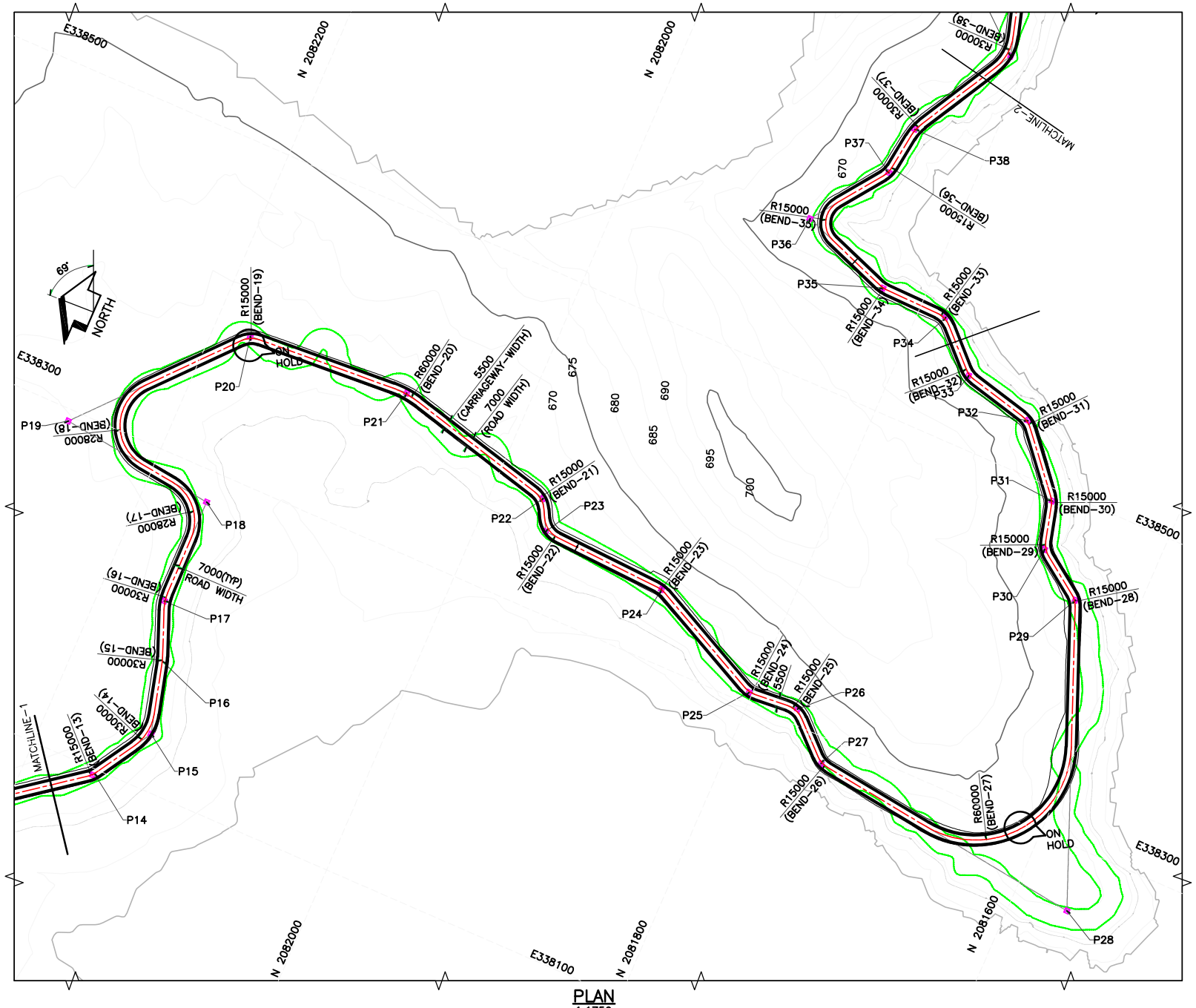
	CLEARED		ISSUE	REVISIONS	DRN	CLEARED					APPD	DATE
DEPT	SIGNATURE	DATE				CHEM	CIVIL	ELEC	I&C	MECH		
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ISSUE	REVISIONS	DRN	CLEARED					APPD	DATE
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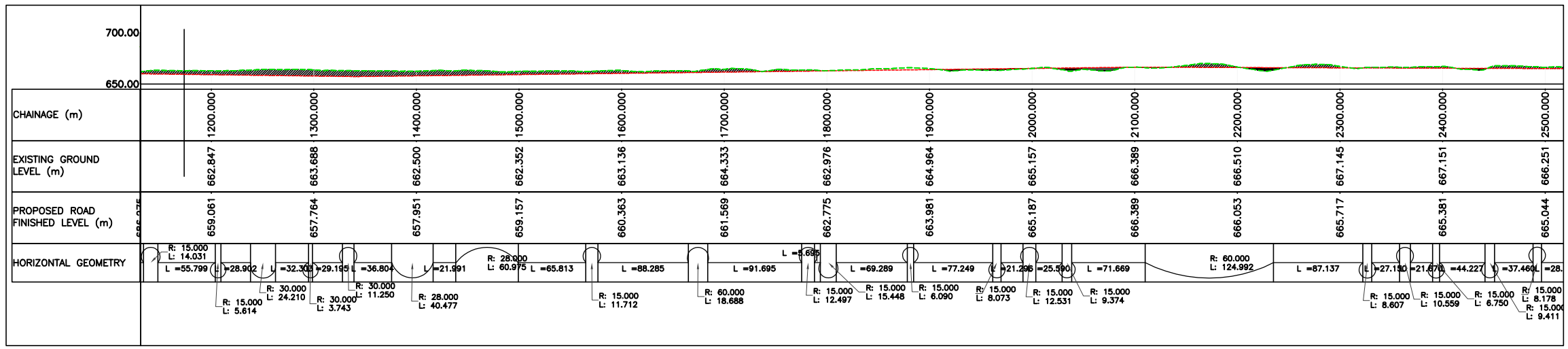
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DWG NO:6E6D0501-V001-00-C44-GI-004

TITLE: BHIVPURI PUMPED STORAGE PROJECT
ROAD TO LOWER RESERVIOR



PLAN
1:1750



L-SECTION
1:2500

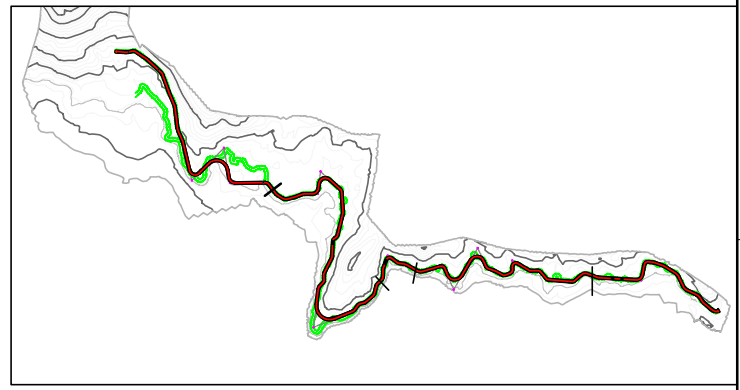
TABLE:1 COORDINATES ALONG CENTERLINE OF ROAD

POINTS	NORTHING	EASTING
P14	2082157.824	338096.130
P15	2082134.513	338134.095
P16	2082146.425	338179.544
P17	2082160.099	338213.668
P18	2082160.510	338280.860
P19	2082260.014	338292.764
P20	2082176.695	338386.632
P21	2082073.029	338393.282
P22	2081968.558	338366.894
P23	2081958.755	338348.527
P24	2081877.994	338344.432
P25	2081802.177	338307.184
P26	2081770.193	338309.798
P27	2081743.151	338284.409
P28	2081565.532	338261.375
P29	2081638.167	338441.430
P30	2081668.487	338462.783
P31	2081676.159	338492.417
P32	2081710.130	338532.479
P33	2081755.315	338543.541
P34	2081783.024	338571.241
P35	2081826.207	338572.128
P36	2081885.389	338593.752
P37	2081851.647	338639.733
P38	2081847.474	338671.074

TABLE:2 BENDS DETAILS

BEND NO	SPEED (km/h)	RADIUS (m)	POINT	CHAINAGE (m)	NORTHING	EASTING
BEND-13	20	30	PC	1264.842	2082245.95	338177.726
			CENTRE	1295.734	2082274.87	338170.120
			PT	1266.598	2082247.322	338161.284
BEND-14	20	30	PC	1327.78	2082231.862	338208.286
			CENTRE	1333.405	2082231.334	338219.540
			PT	1339.03	2082230.104	338230.398
BEND-15	20	30	PC	1373.635	2082240.954	338256.165
			CENTRE	1394.079	2082265.358	338265.980
			PT	1419.522	2082285.352	338285.734
BEND-16	20	28	PC	1458.328	2082208.867	338288.408
			CENTRE	1498.79	2082200.541	338314.207
			PT	1469.177	2082224.462	338332.788
BEND-17	20	15	PC	1540.09	2082180.792	338382.223
			CENTRE	1570.946	2082149.574	338372.558
			PT	1576.802	2082170.533	338387.207
BEND-18	20	60	PC	1685.587	2082382.412	338382.678
			CENTRE	1674.432	2082378.389	338352.805
			PT	1681.776	2082385.864	338330.975
BEND-19	20	15	PC	1779.471	2082374.865	338268.518
			CENTRE	1781.72	2082378.664	338302.976
			PT	1787.968	2082366.433	338282.228
BEND-20	20	15	PC	1791.660	2082362.761	338266.010
			CENTRE	1801.357	2082349.518	338242.208
			PT	1809.112	2082352.278	338248.597
BEND-21	20	15	PC	1878.598	2082381.078	338244.588
			CENTRE	1881.444	2082385.857	338228.698
			PT	1884.488	2082375.203	338243.031
BEND-22	20	15	PC	1961.736	2082365.891	338209.558
			CENTRE	1965.734	2082349.276	338222.475
			PT	1969.811	2082358.254	338207.532
BEND-23	20	15	PC	1991.107	2082374.829	338209.750
			CENTRE	1997.572	2082374.387	338234.500
			PT	2003.638	2082365.54	338205.242
BEND-24	20	15	PC	2029.238	2082348.684	338287.745
			CENTRE	2033.910	2082338.417	338280.882
			PT	2038.602	2082338.344	338280.786
BEND-25	20	60	PC	2122.271	2082447.272	338274.589
			CENTRE	2122.747	2082418.504	338304.217
			PT	2123.242	2082408.911	338298.519
BEND-26	20	15	PC	2323.586	2082358.511	338437.526
			CENTRE	2328.702	2082350.422	338431.734
			PT	2333.008	2082341.783	338443.978
BEND-27	20	15	PC	2358.196	2082369.383	338459.812
			CENTRE	2363.436	2082361.347	338471.870
			PT	2368.710	2082369.404	338468.116
BEND-28	20	15	PC	2390.386	2082376.396	338489.096
			CENTRE	2393.738	2082389.812	338485.334
			PT	2397.134	2082378.579	338495.208
BEND-29	20	15	PC	2441.561	2082398.380	338528.788
			CENTRE	2448.088	2082398.425	338538.067
			PT	2450.772	2082376.857	338533.633
BEND-30	20	15	PC	2488.332	2082376.343	338542.542
			CENTRE	2492.321	2082367.474	338557.110
			PT	2496.42	2082358.281	338548.309
BEND-31	20	15	PC	2525.580	2082377.792	338566.676
			CENTRE	2531.1	2082388.383	338586.166
			PT	2536.636	2082388.353	338575.705
BEND-32	20	15	PC	2571.486	2082382.711	338572.077
			CENTRE	2573.972	2082373.401	338587.076
			PT	2576.445	2082382.351	338577.949
BEND-33	20	15	PC	2616.58	2082384.624	338586.896
			CENTRE	2620.852	2082384.474	338600.765
			PT	2644.796	2082373.57	338609.898
BEND-34	20	15	PC	2676.029	2082372.018	338638.342
			CENTRE	2681.738	2082366.01	338645.535
			PT	2683.532	2082351.241	338640.329
BEND-35	20	30	PC	2707.194	2082348.226	338665.423
			CENTRE	2713.238	2082338.489	338661.466
			PT	2718.862	2082344.701	338676.706
BEND-36	20	30	PC	2774.036	2082316.88	338726.101
			CENTRE	2787.94	2082340.102	338742.850
			PT	2799.844	2082318.518	338748.055

NORTH



KEYPLAN

LEGEND

- MAJOR CONTOUR
- MINOR CONTOUR
- LAND BOUNDARY LINE
- CULVERT
- CO-ORDINATES AND CENTER POINT OF BEND
- RETAINING WALL
- FILL AREA
- P14 – P38 CO-ORDINATES OF ROAD
- PC POINT OF HORIZONTAL CURVATURE START
- PT POINT OF HORIZONTAL CURVATURE TERMINATE
- NSL NATURAL SURFACE LEVEL

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FOR PLANNING

CLEARED			ISSUE	REVISIONS	DRN	CLEARED					APPD	DATE	ISSUE	REVISIONS	DRN	CLEARED					APPD	DATE
DEPT	SIGNATURE	DATE				CHEM	CIVIL	ELEC	I&C	MECH						CHEM	CIVIL	ELEC	I&C	MECH		
CHEM																						
CIVIL																						
ELEC																						
I&C																						
MECH																						

TCE DWG NO.: TCE.13376C-CV-3055-SI-30121
FILE NAME: TCE.13376C-30121

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PROJECT:-
PACKAGE: ENABLING INFRASTRUCTURE WORKS FOR BHIVPURI PSP
OWNER :- THE TATA POWER COMPANY LIMITED
OWNER'S CONSULTANT:- TATA CONSULTING ENGINEERS LIMITED

DESIGNED	
DRAWN	
CHECKED	
APPROVED	

DWG TITLE: SHIRAWATA PUMPED STORAGE PROJECT
ROAD TO LOWER RESERVIOR

SCALE	DATE	DWG NO.	SH-	REV.
-				RA

SIZE-A1

DWG NO:SE00501-V001-00-C44-GI-004

TITLE: BHIVPURI PUMPED STORAGE PROJECT
ROAD TO LOWER RESERVIOR

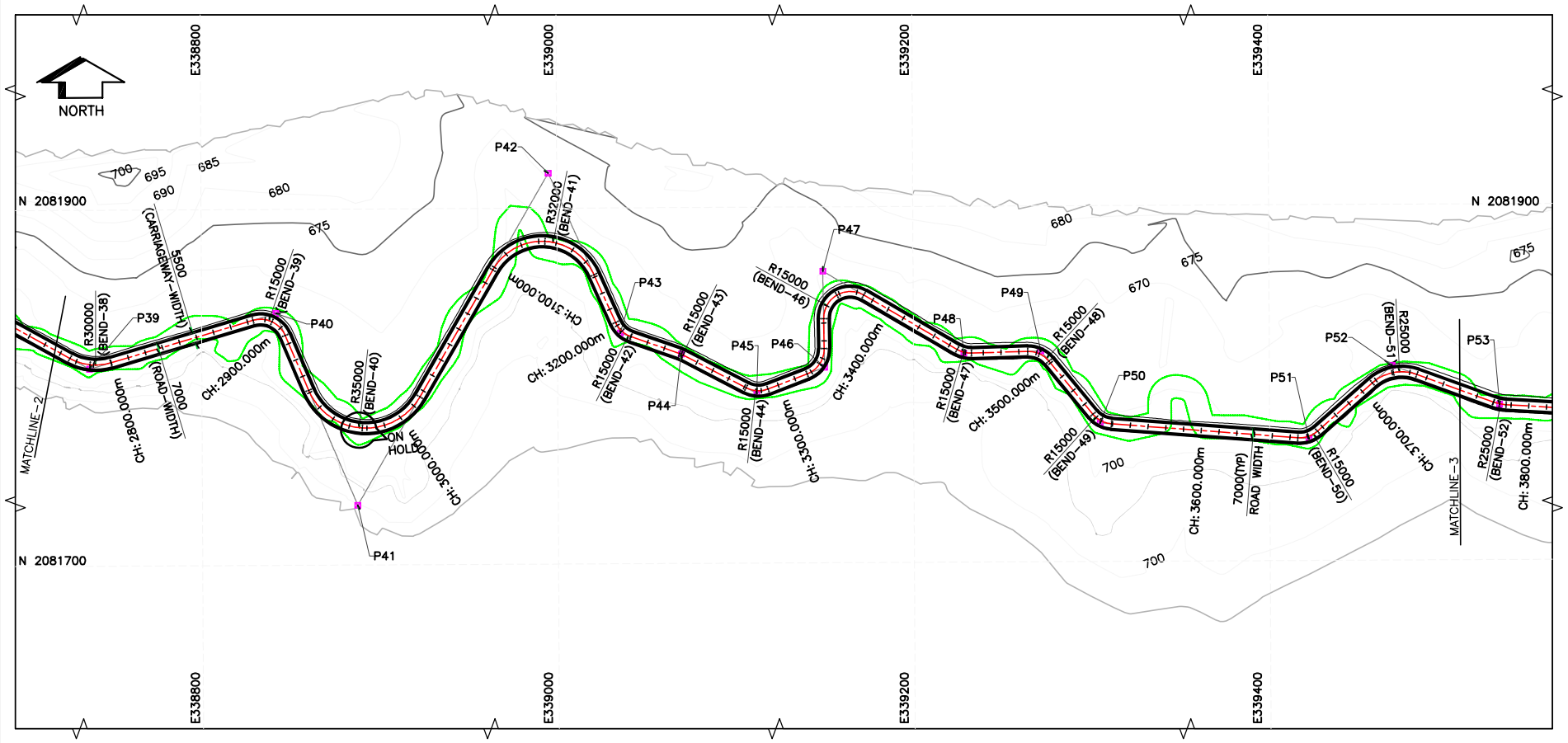
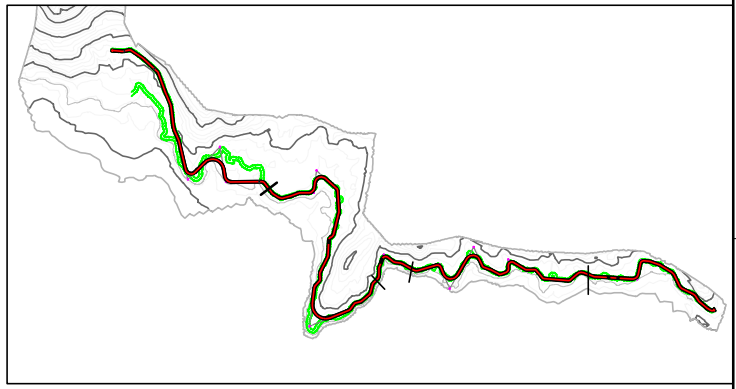


TABLE:1 COORDINATES ALONG CENTERLINE OF ROAD

POINTS	NORTHING	EASTING
P39	2081810.776	338736.993
P40	2081841.565	338841.842
P41	2081733.638	338867.400
P42	2081919.674	338995.255
P43	2081829.708	339035.377
P44	2081817.679	339069.631
P45	2081795.434	339111.932
P46	2081809.957	339150.057
P47	2081863.889	339149.281
P48	2081817.353	339228.327
P49	2081818.437	339271.549
P50	2081777.857	339304.764
P51	2081768.531	339422.098
P52	2081809.417	339468.958

TABLE:2 BENDS DETAILS

BEND NO	SPEED(km	RADIUS(m)	POINT	CHAINAGE(m)	NORTHING	EASTING
BEND-39			PC	2883.165	2081837.794	338829.001
			CENTRE	2894.092	2081823.402	338833.227
	20	15	PT	2905.02	2081829.235	338847.046
BEND-40			PC	2938.569	2081798.327	338860.093
			CENTRE	2977.363	2081811.938	338892.338
	20	35	PT	3016.156	2081794.384	338922.617
BEND-41			PC	3098.363	2081865.503	338963.849
			CENTRE	3133.51	2081849.453	338991.533
	20	32	PT	3168.657	2081862.487	339020.759
BEND-42			PC	3198.086	2081835.61	339032.745
			CENTRE	3204.188	2081841.719	339046.444
	20	15	PT	3210.29	2081827.567	339041.474
BEND-43			PC	3239.032	2081818.043	339068.593
			CENTRE	3240.13	2081803.891	339063.623
	20	15	PT	3241.228	2081817.167	339070.604
BEND-44			PC	3281.15	2081798.586	339105.938
			CENTRE	3287.511	2081811.862	339112.92
	20	15	PT	3293.871	2081797.844	339118.26
BEND-45			PC	3317.402	2081806.221	339140.249
			CENTRE	3326.562	2081820.238	339134.909
	20	15	PT	3335.723	2081820.457	339149.908
BEND-46			PC	3352.477	2081837.209	339149.663
			CENTRE	3368.358	2081837.428	339164.662
	20	15	PT	3384.239	2081850.354	339172.272
BEND-47			PC	3444.997	2081819.53	339224.63
			CENTRE	3449.177	2081832.456	339232.24
	20	15	PT	3453.357	2081817.461	339232.618
BEND-48			PC	3484.956	2081818.258	339264.208
			CENTRE	3491.782	2081803.263	339264.586
	20	15	PT	3498.608	2081812.763	339276.193
BEND-49			PC	3537.325	2081782.803	339300.716
			CENTRE	3543.367	2081792.303	339312.324
	20	15	PT	3549.408	2081777.35	339311.135
BEND-50			PC	3654.408	2081769.031	339415.805
			CENTRE	3660.383	2081783.984	339416.994
	20	15	PT	3666.359	2081772.682	339426.855
BEND-51			PC	3707.428	2081799.682	339457.801
			CENTRE	3720.796	2081780.844	339474.237
	20	25	PT	3734.164	2081804.311	339482.857



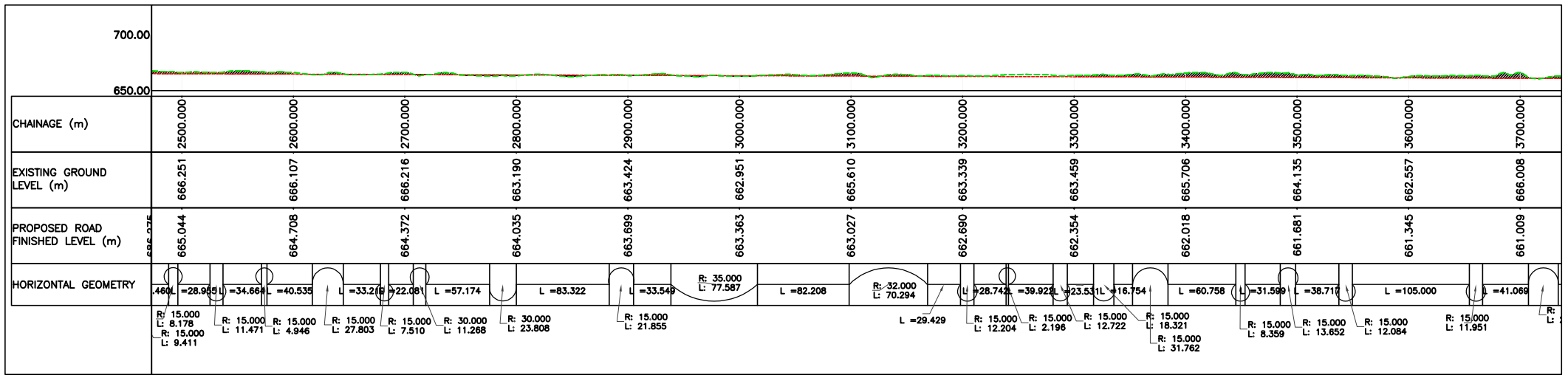
KEYPLAN

LEGEND

MAJOR CONTOUR
MINOR CONTOUR
LAND BOUNDARY LINE
CULVERT
CO–ORDINATES AND CENTER POINT OF BEND
P39 – P51 CO–ORDINATES OF ROAD
PC POINT OF HORIZONTAL CURVATURE START
PT POINT OF HORIZONTAL CURVATURE TERMINATE
NSL NATURAL SURFACE LEVEL
RETAINING WALL
FILL AREA

NOTES

1. ALL DIMENSIONS COORDINATES, ELEVATIONS AND CHAINAGES ARE IN METER UNLESS OTHERWISE SPECIFIED.
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3. THIS DRAWING IS PREPARED BASED ON SURVEY DATA RECEIVED FROM CLIENT ON 23–04–25.
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L–SECTION
1:2500

FOR PLANNING

PROJECT:-

PACKAGE:- ENABLING INFRASTRUCTURE WORKS FOR BHIVPURI PSP

TATA POWER — OWNER :- THE TATA POWER COMPANY LIMITED

TATA — OWNER'S CONSULTANT:- TATA CONSULTING ENGINEERS LIMITED

DESIGNED	
DRAWN	
CHECKED	
APPROVED	

DWG TITLE: SHIRAWATA PUMPED STORAGE PROJECT
ROAD TO LOWER RESERVIOR

SCALE	DATE	DWG NO.	SH–	REV.
–				RA

TCE DWG NO.: TCE.13376C–CV–3055–SI–30121

FILE NAME: TCE.13376C–30121

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DEPT	CLEARED SIGNATURE	CLEARED DATE
CHEM		
CIVIL		
ELEC		
I&C		
MECH		

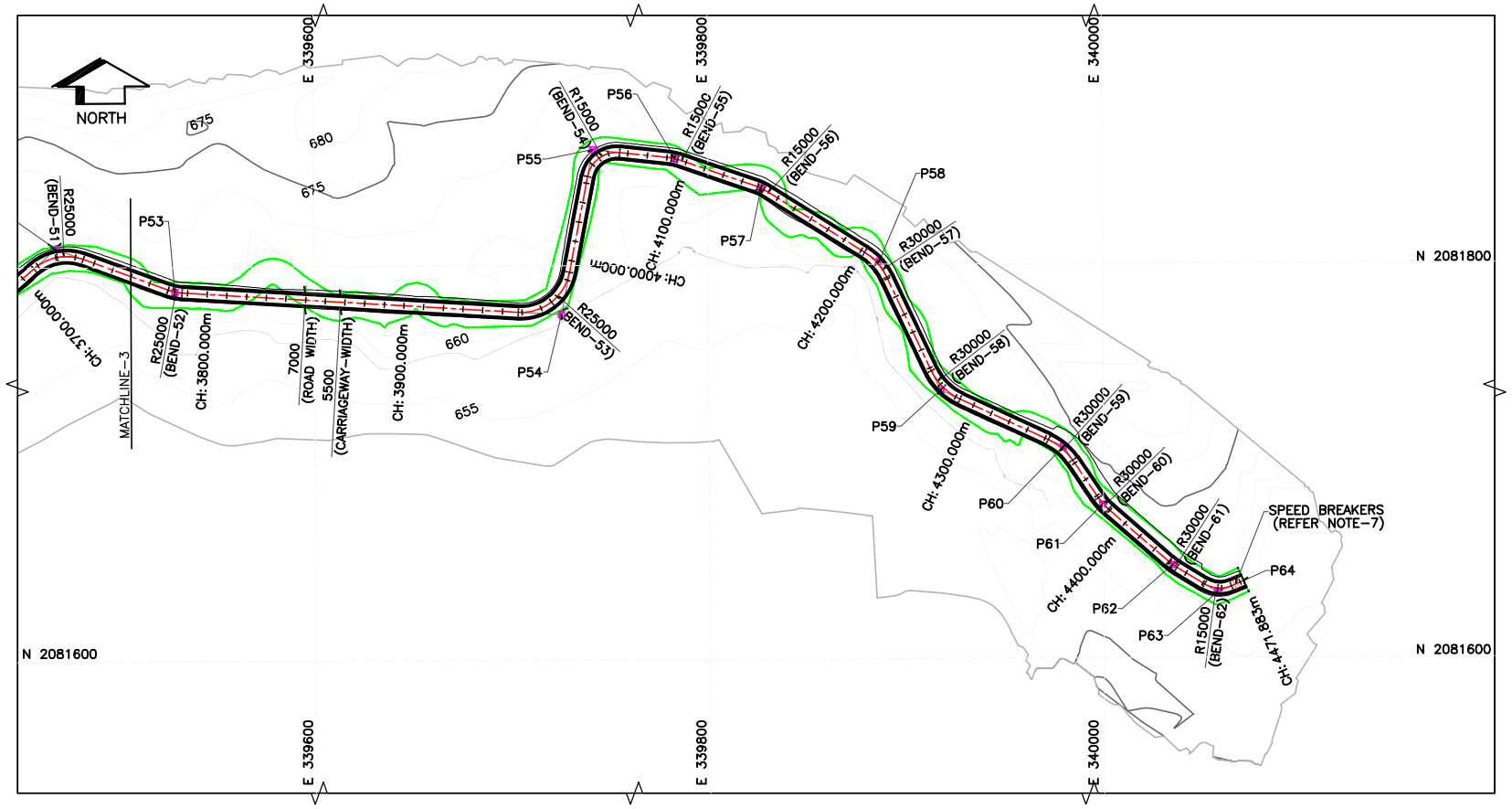
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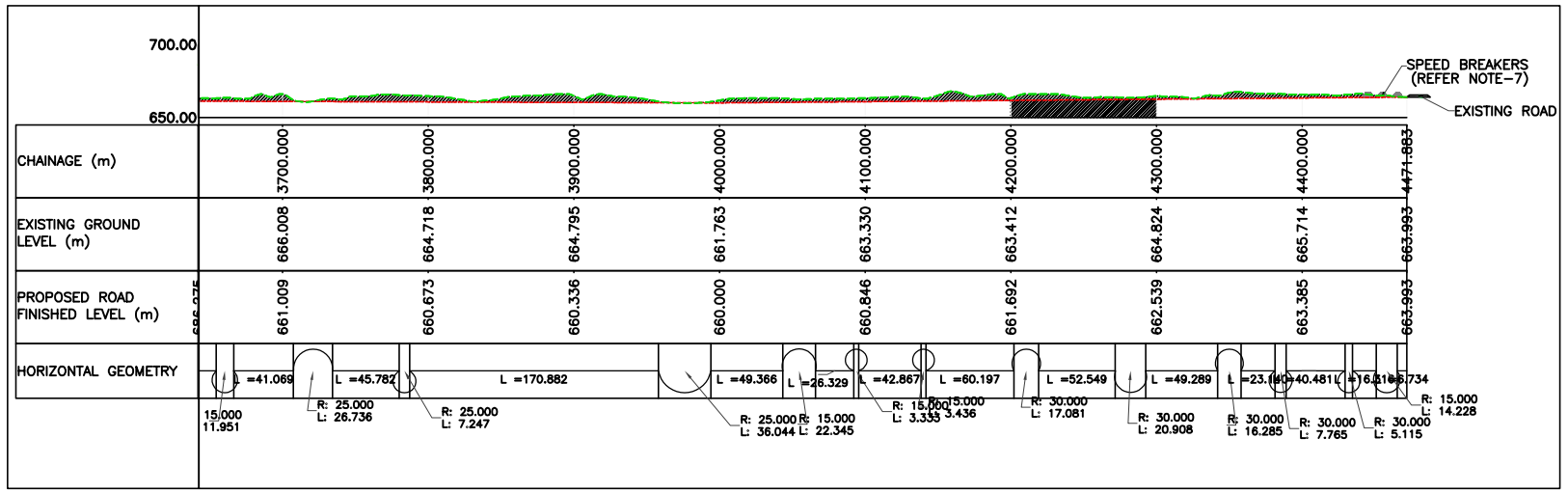
ISSUE	REVISIONS	DRN	CLEARED CHEM	CIVIL	ELEC	I&C	MECH	APPD	DATE

SIZE–A1

TITLE: BHIVPURI PUMPED STORAGE PROJECT
ROAD TO LOWER RESERVOIR

DWG NO:6E6D0501-V001-00-C44-G1-004





L-SECTION
1:2500

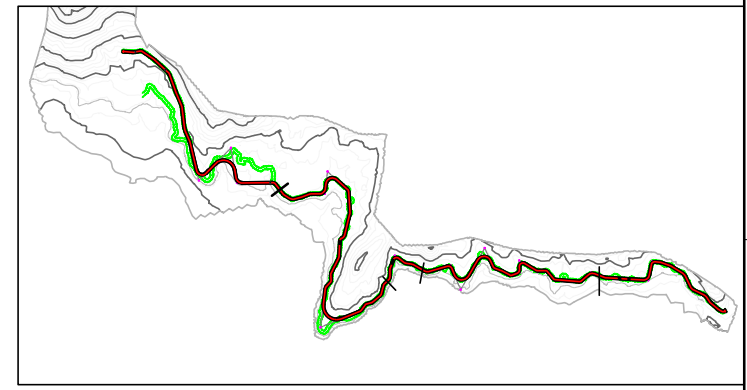
TABLE:1
COORDINATES ALONG CENTERLINE OF ROAD

POINTS	NORTHING	EASTING
P53	2081787.266	339529.260
P54	2081775.118	339725.385
P55	2081858.675	339741.556
P56	2081854.082	339783.135
P57	2081838.992	339826.871
P58	2081801.358	339886.725
P59	2081736.014	339917.497
P60	2081707.211	339979.686
P61	2081677.885	339999.502
P62	2081647.008	340034.867
P63	2081633.177	340057.565
P64	2081638.815	340070.852

TABLE:2
BENDS DETAILS

BEND NO	SPEED(km	RADIUS(m)	POINT	CHAINAGE(m)	NORTHING	EASTING
BEND-52			PC	3779.946	2081788.526	339525.831
			CENTRE	3783.57	2081811.993	339534.451
	20	25	PT	3787.193	2081787.041	339532.899
BEND-53			PC	3958.075	2081776.429	339703.451
			CENTRE	3976.097	2081801.381	339705.003
	20	25	PT	3994.119	2081796.631	339729.548
BEND-54			PC	4043.485	2081845.098	339738.928
			CENTRE	4054.658	2081842.247	339753.655
	20	15	PT	4065.83	2081857.157	339755.302
BEND-55			PC	4092.159	2081854.266	339781.472
			CENTRE	4093.826	2081839.356	339779.825
	20	15	PT	4095.493	2081853.536	339784.717
BEND-56			PC	4138.36	2081839.555	339825.24
			CENTRE	4140.078	2081825.375	339820.348
	20	15	PT	4141.796	2081838.074	339828.332
BEND-57			PC	4201.993	2081806.031	339879.293
			CENTRE	4210.533	2081780.634	339863.324
	20	30	PT	4219.074	2081793.416	339890.465
BEND-58			PC	4271.624	2081745.874	339912.854
			CENTRE	4282.078	2081758.656	339939.995
	20	30	PT	4292.532	2081731.434	339927.387
BEND-59			PC	4341.82	2081710.719	339972.111
			CENTRE	4349.962	2081683.497	339959.503
	20	30	PT	4358.105	2081700.293	339984.36
BEND-60			PC	4381.245	2081681.12	339997.316
			CENTRE	4385.128	2081697.916	340022.173
	20	30	PT	4389.01	2081675.317	340002.443
BEND-61			PC	4429.49	2081648.694	340032.936
			CENTRE	4432.047	2081671.292	340052.667
	20	30	PT	4434.605	2081645.674	340037.056
BEND-62			PC	4450.921	2081637.184	340050.989
			CENTRE	4458.035	2081649.993	340058.794
	20	15	PT	4465.149	2081636.185	340064.654

NORTH



KEYPLAN

LEGEND

MAJOR CONTOUR
MINOR CONTOUR
LAND BOUNDARY LINE
CULVERT
CO-ORDINATES AND CENTER POINT OF BEND
RETAINING WALL
FILL AREA
P52 – P62 CO-ORDINATES OF ROAD
PC POINT OF HORIZONTAL CURVATURE START
PT POINT OF HORIZONTAL CURVATURE TERMINATE
NSL NATURAL SURFACE LEVEL

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DEPT	CLEARED SIGNATURE	CLEARED DATE
CHEM		
CIVIL		
ELEC		
I&C		
MECH		

ISSUE	REVISIONS	DRN	CLEARED CHEM	CIVIL	ELEC	I&C	MECH	APPD	DATE

ISSUE	REVISIONS	DRN	CLEARED CHEM	CIVIL	ELEC	I&C	MECH	APPD	DATE

TCE DWG NO.: TCE.13376C-CV-3055-SI-30121

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FOR PLANNING

PROJECT:-

PACKAGE:- ENABLING INFRASTRUCTURE WORKS FOR BHIVPURI PSP

TATA POWER — OWNER :- THE TATA POWER COMPANY LIMITED

TATA — OWNER'S CONSULTANT:- CONSULTING ENGINEERS LIMITED

DESIGNED	
DRAWN	
CHECKED	
APPROVED	

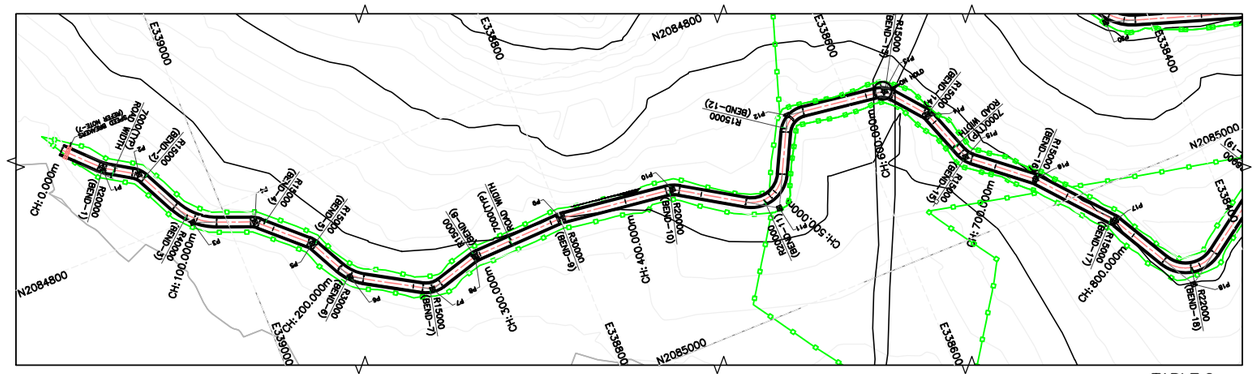
DWG TITLE: SHIRAWATA PUMPED STORAGE PROJECT
ROAD TO LOWER RESERVIOR

SCALE	DATE	DWG NO.	SH-	REV.
-				RA

SIZE-A1

DWG NO:E6E00501-V001-00-C44-GI-004

TITLE: BHIVPURI PUMPED STORAGE PROJECT
ROAD TO LOWER RESERVOIR

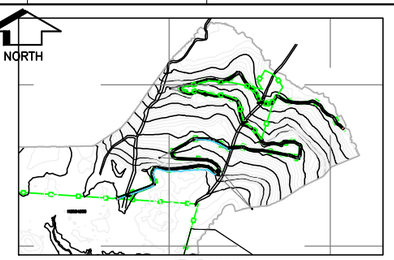


PLAN
1:1750

TABLE:2

BENDS DETAILS

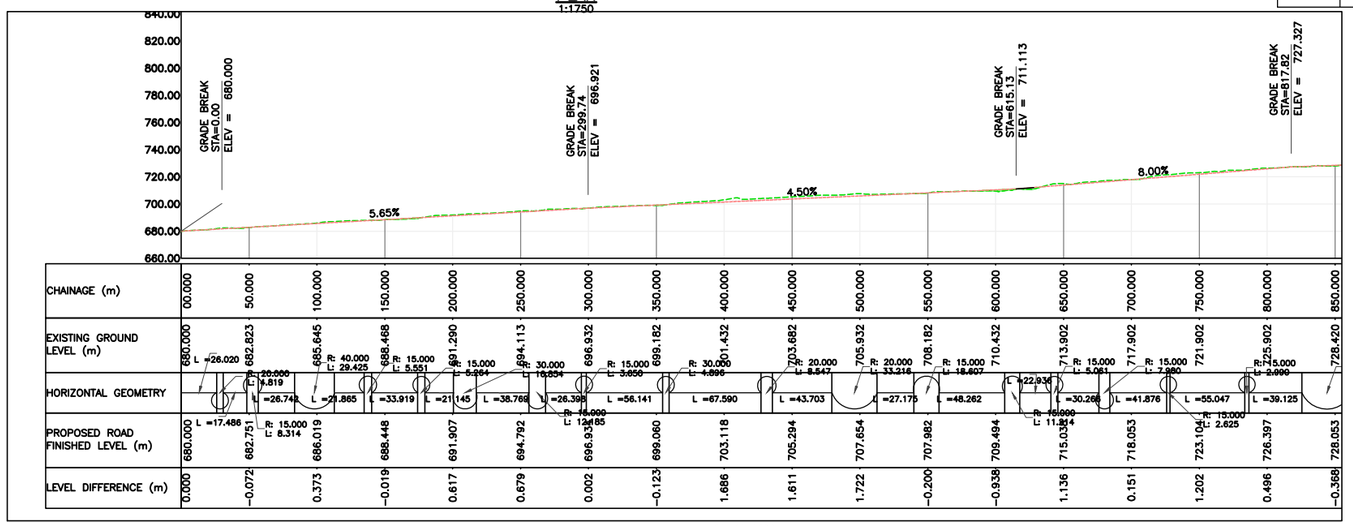
BEND NO	SPEED(km/h)	RADIUS(m)	POINT	CHAINAGE(m)	NORTHING	EASTING
BEND-11	20	20	PC	479.282	2084923.658	338685.301
			CENTRE	495.89	2084925.952	338669.330
			PT	512.498	2084915.71	338656.863
BEND-12	20	15	PC	539.672	2084891.456	338644.608
			CENTRE	548.976	2084884.934	338638.182
			PT	558.279	2084883.362	338629.163
BEND-13	20	15	PC	606.541	2084889.979	338581.357
			CENTRE	612.148	2084891.756	338576.073
			PT	617.755	2084895.34	338571.803
BEND-14	20	15	PC	640.691	2084913.092	338557.281
			CENTRE	643.221	2084915.176	338555.851
			PT	645.752	2084917.471	338554.791
BEND-15	20	15	PC	676.018	2084945.92	338544.463
			CENTRE	680.008	2084949.446	338542.621
			PT	683.998	2084952.364	338539.918
BEND-16	20	15	PC	725.873	2084979.038	338507.636
			CENTRE	727.186	2084979.917	338506.662
			PT	728.498	2084980.878	338505.769
BEND-17	20	15	PC	783.545	2085022.793	338470.085
			CENTRE	785.041	2085023.978	338469.174
			PT	786.536	2085025.247	338468.386
BEND-18	20	22	PC	825.661	2085059.472	338449.426
			CENTRE	844.075	2085070.242	338435.152
			PT	862.489	2085066.854	338417.595



KEYPLAN

LEGEND

- MAJOR CONTOUR
- MINOR CONTOUR
- LAND BOUNDARY LINE
- CULVERT
- CO-ORDINATES AND CENTER POINT OF BEND
- P1 – P18 CO-ORDINATES OF ROAD
- PC POINT OF HORIZONTAL CURVATURE START
- PT POINT OF HORIZONTAL CURVATURE TERMINATE
- NSL NATURAL SURFACE LEVEL



CHAINAGE (m)	0.000	50.000	100.000	150.000	200.000	250.000	300.000	350.000	400.000	450.000	500.000	550.000	600.000	650.000	700.000	750.000	800.000	850.000
EXISTING GROUND LEVEL (m)	680.000	682.823	685.645	688.468	691.290	694.113	696.932	699.182	701.432	703.682	705.932	708.182	710.432	713.902	717.902	721.902	725.902	728.420
HORIZONTAL GEOMETRY	L =26.020	R: 80.000 L: 9.819	L =26.742	R: 40.000 L: 29.425	L =21.865	R: 15.000 L: 5.551	L =33.919	R: 15.000 L: 5.264	L =21.145	R: 30.000 L: 16.854	L =38.768	R: 15.000 L: 3.650	L =26.398	L =56.141	R: 30.000 L: 4.896	L =67.590	R: 20.000 L: 8.847	L =43.703
	R: 20.000 L: 33.216	L =27.175	R: 15.000 L: 18.807	L =48.262	L =22.930	R: 15.000 L: 5.081	L =30.268	R: 15.000 L: 7.980	L =41.876	L =55.047	R: 25.000 L: 2.000	L =39.125						
PROPOSED ROAD FINISHED LEVEL (m)	680.000	682.751	686.019	688.448	691.907	694.792	696.932	699.060	703.118	705.294	707.654	707.982	709.494	715.038	718.053	723.104	726.397	728.053
LEVEL DIFFERENCE (m)	0.000	−0.072	0.373	−0.019	0.617	0.679	0.002	−0.123	1.686	1.611	1.722	−0.200	−0.938	1.136	0.151	1.202	0.496	−0.368

L–SECTION
1:2000

TABLE:2
BENDS DETAILS

BEND NO	SPEED(km/h)	RADIUS(m)	POINT	CHAINAGE(m)	NORTHING	EASTING
BEND-1	20	20	PC	26.10	2084745.601	339061.579
			CENTRE	28.429	2084747.443	339061.760
			PT	30.839	2084748.84	339059.798
BEND-2	20	15	PC	48.325	2084758.106	339044.969
			CENTRE	52.482	2084760.767	339041.792
			PT	56.639	2084763.195	339038.464
BEND-3	20	40	PC	83.385	2084788.181	339027.641
			CENTRE	98.094	2084799.899	339018.881
			PT	112.806	2084807.583	339006.494
BEND-4	20	15	PC	134.671	2084815.736	338986.169
			CENTRE	137.447	2084816.990	338983.695
			PT	140.222	2084818.578	338981.496
BEND 5	20	15	PC	174.141	2084841.73	338956.625
			CENTRE	176.773	2084843.578	338954.851
			PT	179.405	2084845.905	338953.454
BEND-6	20	30	PC	200.55	2084864.732	338943.828
			CENTRE	208.977	2084871.502	338938.995
			PT	217.404	2084876.862	338932.447
BEND 7	20	15	PC	256.172	2084896.674	338899.123
			CENTRE	262.264	2084898.553	338893.405
			PT	268.358	2084898.213	338887.37
BEND-8	20	15	PC	294.756	2084891.019	338861.971
			CENTRE	296.58	2084890.530	338860.190
			PT	298.405	2084890.46	338858.374
BEND-9	20	30	PC	354.446	2084888.524	338800.761
			CENTRE	356.994	2084888.545	338799.826
			PT	359.542	2084888.864	338797.378
BEND-10	20	20	PC	427.032	2084897.66	338730.363
			CENTRE	431.305	2084898.563	338726.277
			PT	435.579	2084900.523	338722.378

TABLE:1
COORDINATES ALONG CENTERLINE OF ROAD

POINT	NORTHING	EASTING
P1	2084747.557	339061.851
P2	2084750.158	339041.351
P3	2084802.006	339020.825
P4	2084816.77	338983.556
P5	2084843.537	338954.664
P6	2084877.419	338938.887
P7	2084899.971	338893.577
P8	2084890.52	338860.207
P9	2084858.545	338799.811
P10	2084858.225	338726.05
P11	2084935.244	338666.734
P12	2084861.893	338639.776
P13	2084890.786	338575.529
P14	2084915.07	338555.663
P15	2084945.781	338543.068
P16	2084979.876	338506.622
P17	2085023.935	338469.113
P18	2085080.812	338437.604

NOTES

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DEPT	CLEARED SIGNATURE	CLEARED DATE
CHEM		
CIVIL		
ELEC		
I&C		
MECH		

ISSUE	REVISIONS	DRN	CLEARED CHEM	CIVIL	ELEC	I&C	MECH	APPD	DATE

ISSUE	REVISIONS	DRN	CLEARED CHEM	CIVIL	ELEC	I&C	MECH	APPD	DATE

TCE DWG NO.: TCE.13376C–CV–3055–SI–30121

FILE NAME: TCE.13376C–30121

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RO, R1, R2,.....ARE CONSTRUCTION/FABRICATION DRAWINGS WHICH ARE TO BE USED FOR CONSTRUCTION/FABRICATION.
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FOR PLANNING

PROJECT:-

PACKAGE :-ENABLING INFRASTRUCTURE WORKS FOR BHIVPURI PSP

OWNER :- THE TATA POWER COMPANY LIMITED

OWNER'S CONSULTANT:- TATA CONSULTING ENGINEERS LIMITED

DESIGNED	DRAWN	CHECKED	APPROVED

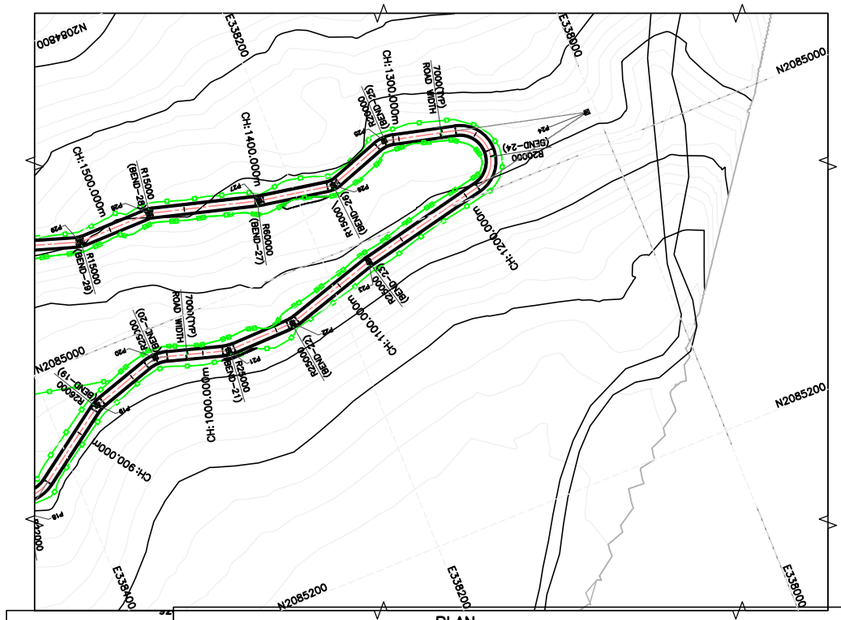
DWG TITLE: SHIRAWATA PUMPED STORAGE PROJECT
ROAD TO ANCHOR BLOCK

SCALE	DATE	DWG NO.	SH–	REV.
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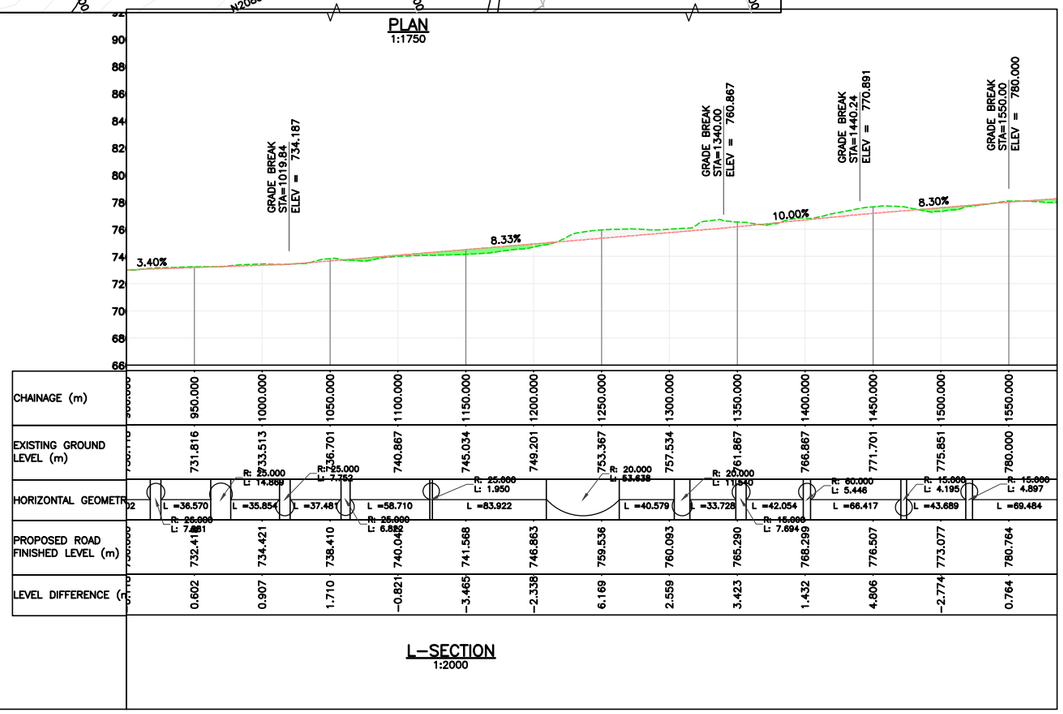
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TITLE: BHIVPURI PUMPED STORAGE PROJECT
ROAD TO LOWER RESERVIOR

DWG NO:E6E00501-V001-00-C44-GI-004



PLAN
1:1750



L–SECTION
1:2000

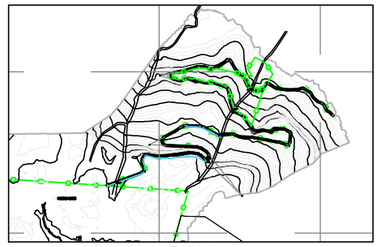
TABLE:1
COORDINATES ALONG CENTERLINE OF ROAD

POINT	NORTHING	EASTING
P19	2085033.06	338369.146
P20	2085018.54	338323.182
P21	2085032.04	338277.722
P22	2085031.09	338232.912
P23	2085012.79	338172.505
P24	2084976.24	338006.092
P25	2084944.42	338134.193
P26	2084958.69	338175.388
P27	2084950	338223.319
P28	2084930.98	338291.986
P29	2084931.43	338340.254

TABLE:2
BENDS DETAILS

BEND NO	SPEED(km/h)	RADIUS(m)	POINT	CHAINAGE(m)	NORTHING	EASTING
BEND-19	20	26	PC	917.59	2085035.329	338372.402
			CENTRE	921.531	2085056.654	338357.527
			PT	925.471	2085031.861	338365.359
BEND-20	20	25	PC	962.042	2085020.845	338330.487
			CENTRE	969.476	2085044.684	338322.957
			PT	976.91	2085020.719	338315.837
BEND-21	20	25	PC	1012.765	2085030.93	338281.467
			CENTRE	1016.641	2085006.965	338274.348
			PT	1020.517	2085031.96	338273.816
BEND-22	20	25	PC	1057.968	2085031.162	338286.348
			CENTRE	1061.409	2085006.167	338296.875
			PT	1064.819	2085030.093	338229.627
BEND-23	20	25	PC	1123.529	2085013.071	338173.439
			CENTRE	1124.504	2085036.997	338166.191
			PT	1125.479	2085012.579	338171.553
BEND-24	20	20	PC	1209.401	2084994.579	338089.584
			CENTRE	1236.22	2084975.044	338093.873
			PT	1263.04	2084955.634	338089.051
BEND-25	20	20	PC	1303.618	2084945.851	338128.433
			CENTRE	1309.389	2084965.261	338133.255
			PT	1315.159	2084946.963	338139.802
BEND-26	20	15	PC	1348.886	2084957.404	338171.671
			CENTRE	1352.733	2084943.231	338176.582
			PT	1356.581	2084957.99	338179.259
BEND-27	20	60	PC	1398.635	2084950.484	338220.638
			CENTRE	1401.358	2084891.447	338209.929
			PT	1404.081	2084949.27	338225.945
BEND-28	20	15	PC	1470.497	2084931.542	338289.952
			CENTRE	1472.595	2084945.997	338293.956
			PT	1474.692	2084930.998	338294.097
BEND-29	20	15	PC	1518.38	2084981.41	338337.784
			CENTRE	1520.829	2084916.411	338337.925
			PT	1523.277	2084930.663	338342.601

NORTH



KEYPLAN

LEGEND

- MAJOR CONTOUR
- MINOR CONTOUR
- LAND BOUNDARY LINE
- CULVERT
- CO–ORDINATES AND CENTER POINT OF BEND
- P19 – P29 CO–ORDINATES OF ROAD
- PC POINT OF HORIZONTAL CURVATURE START
- PT POINT OF HORIZONTAL CURVATURE TERMINATE
- NSL NATURAL SURFACE LEVEL

NOTES

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ELEC		
I&C		
MECH		

ISSUE	REVISIONS	DRN	CLEARED CHEM	CIVIL	ELEC	I&C	MECH	APPD	DATE

ISSUE	REVISIONS	DRN	CLEARED CHEM	CIVIL	ELEC	I&C	MECH	APPD	DATE

TCE DWG NO.: TCE.13376C–CV–3055–SI–30121

FILE NAME: TCE.13376C–30121

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FOR PLANNING

PROJECT:-

PACKAGE :- ENABLING INFRASTRUCTURE WORKS FOR BHIVPURI PSP

OWNER :- THE TATA POWER COMPANY LIMITED

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DESIGNED	DRAWN	CHECKED	APPROVED

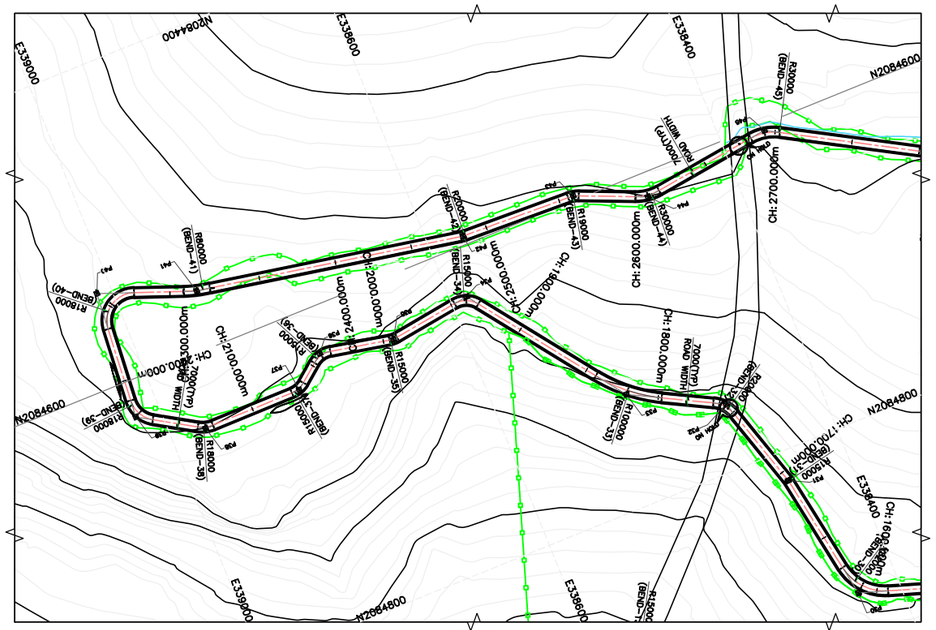
DWG TITLE: SHIRAWATA PUMPED STORAGE PROJECT
ROAD TO UPPER RESERVIOR

SCALE	DATE	DWG NO.	SH–	REV.
–	20–3–26		2	RA

SIZE–A1

DWG NO:E00501-V001-00-C44-SI-004

TITLE: BHIVPURI PUMPED STORAGE PROJECT
ROAD TO LOWER RESERVIOR



PLAN
1:1750

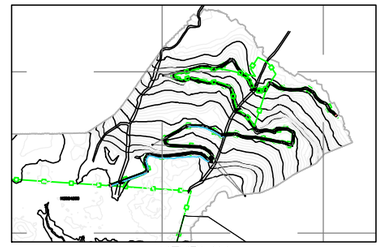
TABLE:1
COORDINATES ALONG CENTERLINE OF ROAD

POINT	NORTHING	EASTING
P30	2084903.02	338426.849
P31	2084818.96	338441.602
P32	2084758.39	338460.314
P33	2084728.38	338517.725
P34	2084681.44	338589.577
P35	2084639.29	338643.525
P36	2084629.9	338691.013
P37	2084646.68	338711.99
P38	2084646.93	338777.263
P39	2084623.35	338816.238
P40	2084540.25	338809.715
P41	2084562.97	338749.435
P42	2084594.47	338577.033
P43	2084597	338501.457
P44	2084615.67	338457.04
P45	2084604.11	338371.454

TABLE:2
BENDS DETAILS

BEND NO	SPEED(km/h)	RADIUS(m)	POINT	CHAINAGE(m)	NORTHING	EASTING
BEND-30	20	32	PC	1892.761	2084909.001	338408.623
			CENTRE	1910.041	2084878.596	338388.646
			PT	1927.322	2084864.128	338430.185
BEND-31	20	15	PC	2692.558	2084819.894	338441.439
			CENTRE	2699.482	2084822.487	338456.215
			PT	2706.406	2084818.06	338441.881
BEND-32	20	20	PC	1748.547	2084788.549	338457.855
			CENTRE	1756.442	2084772.252	338476.964
			PT	1764.338	2084754.527	338467.7
BEND-33	20	100	PC	1797.825	2084759.017	338497.377
			CENTRE	1820.288	2084760.291	338461.059
			PT	1842.961	2084708.858	338531.397
BEND-34	20	15	PC	1831.702	2084658.645	338584.139
			CENTRE	1838.782	2084647.577	338596.29
			PT	1847.862	2084652.753	338588.448
BEND-35	20	15	PC	1890.843	2084658.916	338640.982
			CENTRE	1898.389	2084624.072	338663.139
			PT	1905.934	2084658.788	338646.047
BEND-36	20	15	PC	2034.801	2084681.254	338684.177
			CENTRE	2041.324	2084645.97	338687.084
			PT	2047.848	2084654.256	338686.434
BEND-37	20	15	PC	2062.312	2084643.417	338707.806
			CENTRE	2067.544	2084631.703	338717.276
			PT	2072.577	2084646.703	338717.22
BEND-38	20	18	PC	2127.585	2084648.868	338772.105
			CENTRE	2132.496	2084629.909	338772.273
			PT	2137.428	2084646.509	338781.591
BEND-39	20	15	PC	2166.822	2084629.09	338806.743
			CENTRE	2176.787	2084615.69	338797.424
			PT	2186.712	2084612.281	338818.582
BEND-40	20	15	PC	2239.006	2084564.123	338881.59
			CENTRE	2251.685	2084565.544	338783.645
			PT	2268.36	2084548.701	338787.296
BEND-41	20	20	PC	2290.488	2084560.029	338787.232
			CENTRE	2309.081	2084554.01	338744.382
			PT	2317.662	2084564.341	338780.64
BEND-42	20	20	PC	2482.531	2084584.203	338578.498
			CENTRE	2494.018	2084574.553	338574.876
			PT	2485.508	2084584.523	338579.544
BEND-43	20	18	PC	2556.132	2084596.582	338504.956
			CENTRE	2559.598	2084615.871	338505.591
			PT	2563.098	2084598.556	338498.229
BEND-44	20	30	PC	2598.561	2084612.5	338464.577
			CENTRE	2607.548	2084584.844	338482.993
			PT	2613.524	2084614.574	338448.939
BEND-45	20	30	PC	2683.586	2084595.487	338381.486
			CENTRE	2693.331	2084615.197	338377.472
			PT	2703.134	2084609.113	338362.693

NORTH



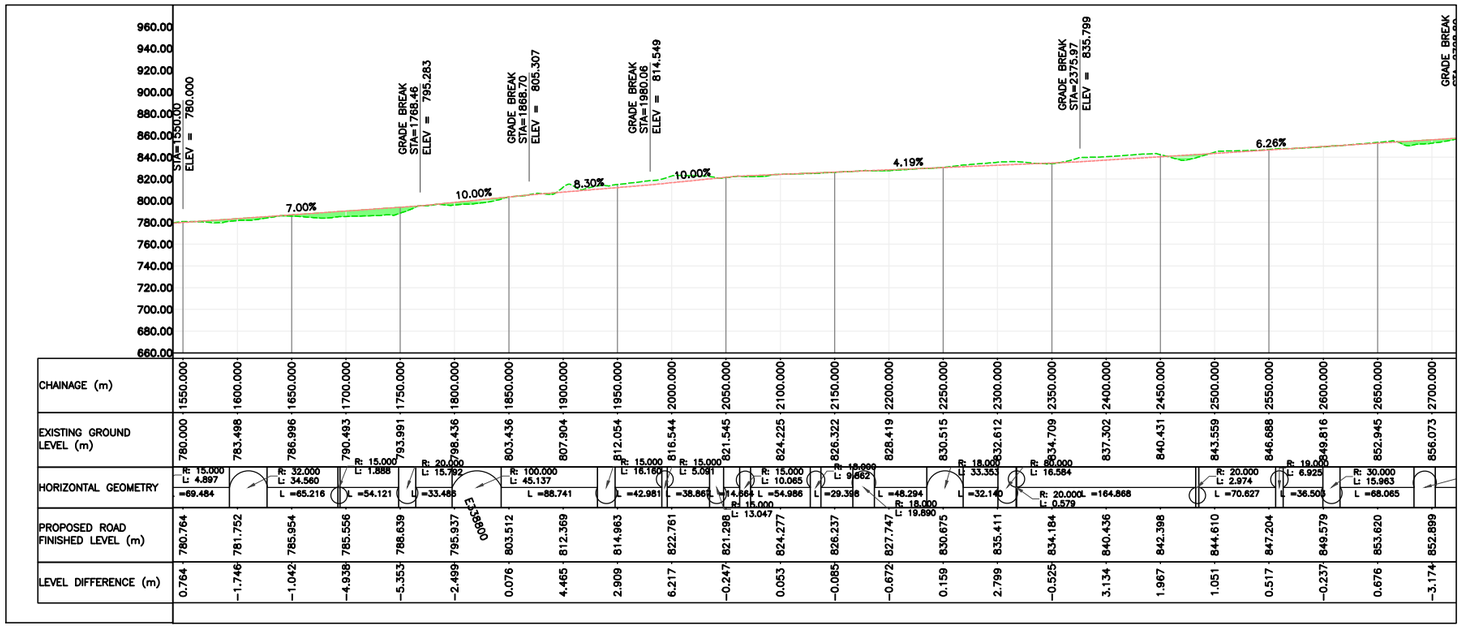
KEYPLAN

LEGEND

- MAJOR CONTOUR
- MINOR CONTOUR
- LAND BOUNDARY LINE
- CULVERT
- CO-ORDINATES AND CENTER POINT OF BEND
- P30 – P45 CO-ORDINATES OF ROAD
- PC POINT OF HORIZONTAL CURVATURE START
- PT POINT OF HORIZONTAL CURVATURE TERMINATE
- NSL NATURAL SURFACE LEVEL

NOTES

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7. READYMADE RUBBER/PVC SPEED BUMPS, 3NOS. WITH HUMPS IN RANGE OF 75mm TO 100mm SHALL BE PROVIDED FOR FULL LENGTH OF CARRIAGEWAY AT 1000mm C/C TO LIMIT THE VEHICLE SPEED TO 10 kmph. OPTIONALLY SPEED BRAKES AS SHOWN IN DETAIL-A (SINGLE) MADE OF PREMIX BITUMINOUS MATERIAL SHALL ALSO BE USED.
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9. NECESSARY SIGN BOARDS INDICATING SPEED LIMITS & SPEED BRAKES SHALL BE DISPLAYED AT SITE IN ACCORDANCE WITH IRC 67.
10. TURNING RADIUS ADOPTED/CHECKED BASED ON VEHICLE SWEPT PATH OF SEMI TRAILER (WB-18) AS PER IRC SP 41:1994.
11. ROAD CENTER LINE & EDGE LINE MARKING SHALL BE DONE USING YELLOW / WHITE THERMOPLASTIC PAINTS IN ACCORDANCE WITH IRC 35: 2015.
12. RED-WHITE BI-DIRECTIONAL ROAD STUDS (REFLECTORS) SHALL BE PROVIDED AT 20M C/C INTERVALS IN NORMAL STRAIGHT ROAD SECTIONS & AT BENDS AND NON- OVERTAKING SECTIONS, IT SHALL BE PROVIDED IN INTERVALS NOT GREATER THAN 10M C/C AS PER IRC 35: 2015. FIXING OF REFLECTORS SHALL BE DONE AS RECOMMENDED BY THE SUPPLIER OR IN ACCORDANCE WITH IRC 35: 2015.
13. THE LOCATIONS MARKED AS 'HOLD' ARE DUE TO PENDING DETAILS RELATED TO THE NALA CROSSING.



CHAINAGE (m)	1550.000	1600.000	1650.000	1700.000	1750.000	1800.000	1850.000	1900.000	1950.000	2000.000	2050.000	2100.000	2150.000	2200.000	2250.000	2300.000	2350.000	2400.000	2450.000	2500.000	2550.000	2600.000	2650.000	2700.000
EXISTING GROUND LEVEL (m)	780.000	783.498	786.996	790.493	793.991	798.436	803.436	807.904	812.054	816.544	821.545	824.225	826.322	828.419	830.515	832.612	834.709	837.302	840.431	843.559	846.688	849.816	852.945	856.073
HORIZONTAL GEOMETRY	R: 15.000 L: 4.897 =69.484		R: 32.000 L: 34.560 L =65.216	R: 15.000 L: 1.886 L =54.121	R: 20.000 L: 15.792 L =33.488	E2350000	R: 100.000 L: 45.137 L =88.741		R: 15.000 L: 16.165 L =42.981	R: 15.000 L: 5.081 L =38.861	R: 15.000 L: 10.065 L =54.986	R: 15.000 L: 13.047	R: 18.000 L: 9.662 L =29.358	R: 18.000 L: 19.890 L =48.294	R: 18.000 L: 33.353 L =32.140		R: 80.000 L: 16.584 R: 20.000L L: 0.579 =164.868			R: 20.000 L: 2.974 L =70.627	R: 19.000 L: 6.925 L =36.508		R: 30.000 L: 15.963 L =68.065	
PROPOSED ROAD FINISHED LEVEL (m)	780.764	781.752	785.954	785.556	788.839	795.937	803.512	812.369	814.963	822.761	821.298	824.277	826.237	827.747	830.675	835.411	834.184	840.436	842.398	844.610	847.204	849.579	853.620	852.899
LEVEL DIFFERENCE (m)	0.764	-1.746	-1.042	-4.938	-5.353	-2.499	0.076	4.465	2.909	6.217	-0.247	0.053	-0.085	-0.672	0.159	2.799	-0.525	3.134	1.967	1.051	0.517	-0.237	0.676	-3.174

L-SECTION
1:2500

FOR PLANNING

PROJECT:-

PACKAGE :- ENABLING INFRASTRUCTURE WORKS FOR BHIVPURI PSP

OWNER :- THE TATA POWER COMPANY LIMITED

OWNER'S CONSULTANT:- TATA CONSULTING ENGINEERS LIMITED

DWG TITLE: SHIRAWATA PUMPED STORAGE PROJECT
ROAD TO UPPER RESERVIOR

SCALE	DATE	DWG NO.	SH-	REV.
–	20-3-26		3	RA

TCE DWG NO.: TCE.13376C-CV-3055-SI-30121

FILE NAME: TCE.13376C-30121

RA, RB, RC..... ARE PLANNING PURPOSE DRAWINGS AND ARE NOT TO BE USED FOR CONSTRUCTION / FABRICATION BUT ARE ISSUED FOR LIMITED PURPOSES ONLY.
R0, R1, R2,.....ARE CONSTRUCTION/FABRICATION DRAWINGS WHICH ARE TO BE USED FOR CONSTRUCTION/FABRICATION.
INFORMATION CONTAINED WITHIN 'HOLD' IS NOT RELEASED FOR CONSTRUCTION/ FABRICATION. FIELD MUST GET DESIGN OFFICE TO CLEAR 'HOLDS' IN CONSTRUCTION BEFORE PROCEEDING WITH ANY CONSTRUCTION/FABRICATION WORK RELATED TO 'HOLDS'.

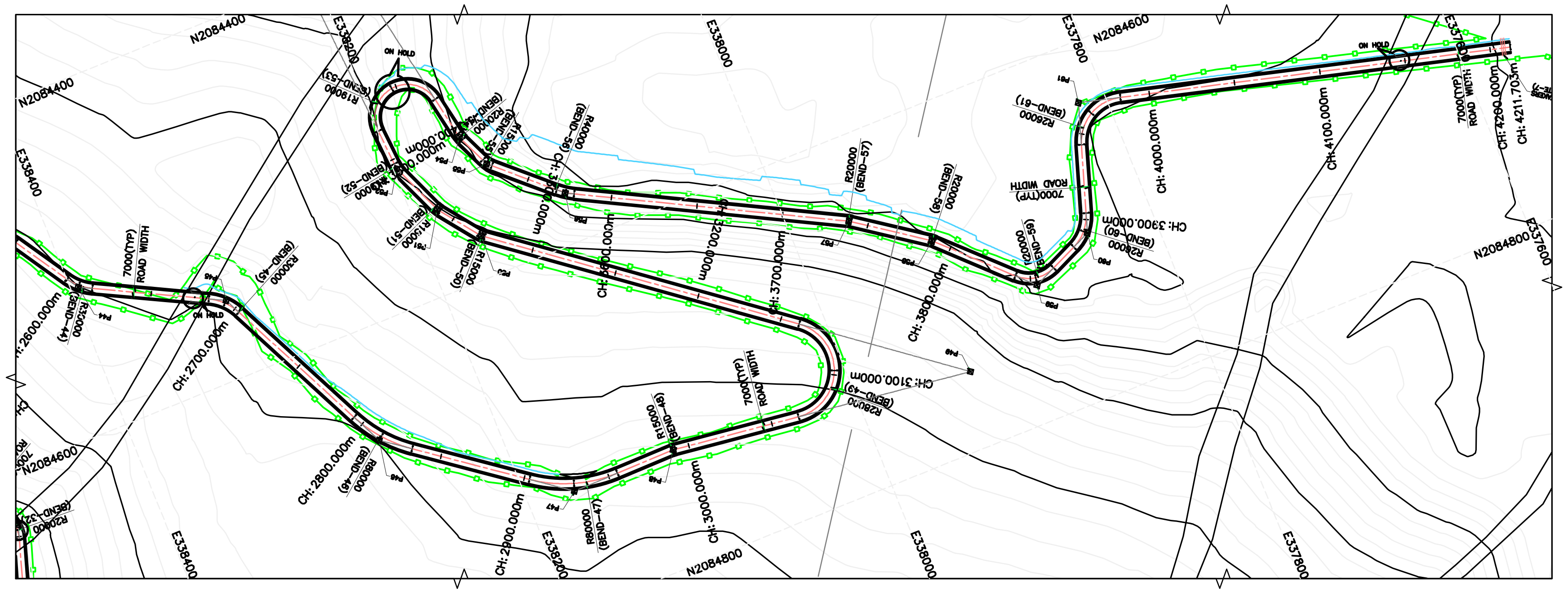
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ISSUE	REVISIONS	DRN	CLEARED CHEM	CIVIL	ELEC	I&C	MECH	APPD	DATE

ISSUE	REVISIONS	DRN	CLEARED CHEM	CIVIL	ELEC	I&C	MECH	APPD	DATE

SIZE-A1

TITLE: BHIVPURI PUMPED STORAGE PROJECT ROAD TO LOWER RESERVIOR | DWG NO. GE00501-V001-00-C44-G1-004



PLAN
1:1750

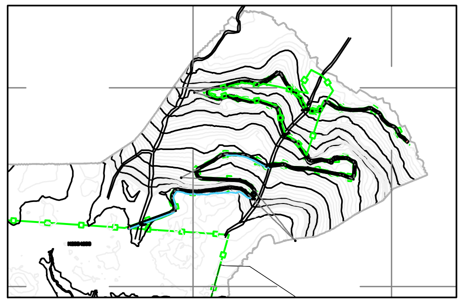
TABLE:1
COORDINATES ALONG CENTERLINE OF ROAD

POINT	NORTHING	EASTING
P46	2084663.7	338266.571
P47	2084667.43	338149.221
P48	2084631.22	338098.58
P49	2084548.44	337940.08
P50	2084534.49	338235.067
P51	2084525.22	338263.437
P52	2084507.33	338291.736
P53	2084230.19	338515.692
P54	2084481.37	338260.159
P55	2084492.9	338241.365
P56	2084499.37	338193.029
P57	2084478.73	338028.47
P58	2084479.12	337978.876
P59	2084490.71	337913.464
P60	2084454.59	337891.648
P61	2084381.87	337913.601

TABLE:2
BENDS DETAILS

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	PC	[illegible]	[illegible]	[illegible]
			CENTRE	[illegible]	[illegible]	[illegible]
			PT	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	PC	[illegible]	[illegible]	[illegible]
			CENTRE	[illegible]	[illegible]	[illegible]
			PT	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	PC	[illegible]	[illegible]	[illegible]
			CENTRE	[illegible]	[illegible]	[illegible]
			PT	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	PC	[illegible]	[illegible]	[illegible]
			CENTRE	[illegible]	[illegible]	[illegible]
			PT	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	PC	[illegible]	[illegible]	[illegible]
			CENTRE	[illegible]	[illegible]	[illegible]
			PT	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	PC	[illegible]	[illegible]	[illegible]
			CENTRE	[illegible]	[illegible]	[illegible]
			PT	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	PC	[illegible]	[illegible]	[illegible]
			CENTRE	[illegible]	[illegible]	[illegible]
			PT	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	PC	[illegible]	[illegible]	[illegible]
			CENTRE	[illegible]	[illegible]	[illegible]
			PT	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	PC	[illegible]	[illegible]	[illegible]
			CENTRE	[illegible]	[illegible]	[illegible]
			PT	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	PC	[illegible]	[illegible]	[illegible]
			CENTRE	[illegible]	[illegible]	[illegible]
			PT	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	PC	[illegible]	[illegible]	[illegible]
			CENTRE	[illegible]	[illegible]	[illegible]
			PT	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	PC	[illegible]	[illegible]	[illegible]
			CENTRE	[illegible]	[illegible]	[illegible]
			PT	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	PC	[illegible]	[illegible]	[illegible]
			CENTRE	[illegible]	[illegible]	[illegible]
			PT	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	PC	[illegible]	[illegible]	[illegible]
			CENTRE	[illegible]	[illegible]	[illegible]
			PT	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	PC	[illegible]	[illegible]	[illegible]
			CENTRE	[illegible]	[illegible]	[illegible]
			PT	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	PC	[illegible]	[illegible]	[illegible]
			CENTRE	[illegible]	[illegible]	[illegible]
			PT	[illegible]	[illegible]	[illegible]

NORTH



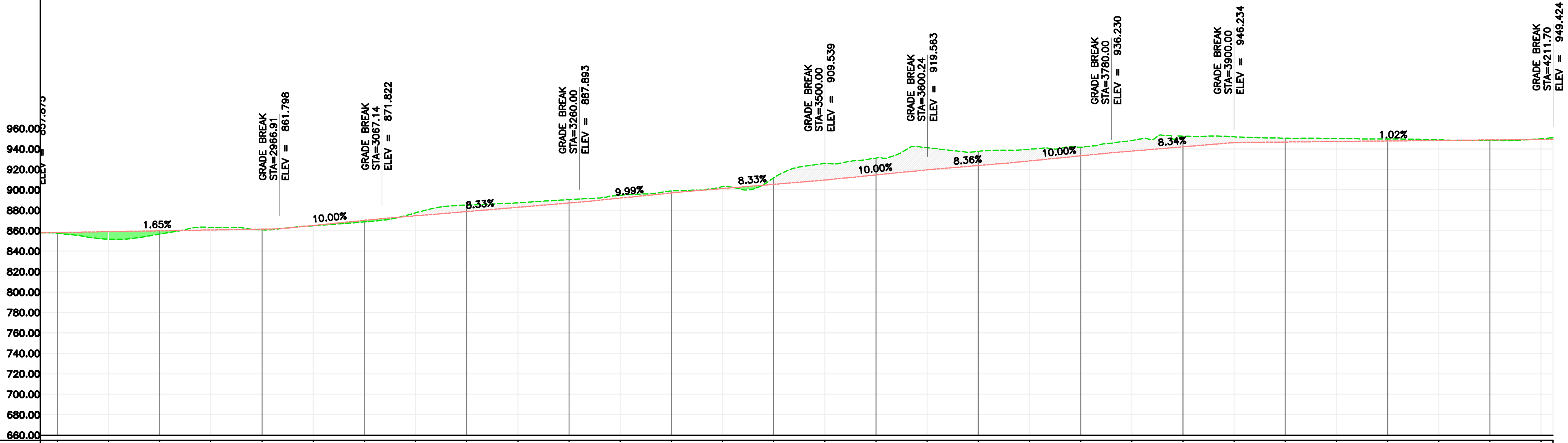
KEYPLAN

LEGEND

	MAJOR CONTOUR
	MINOR CONTOUR
	LAND BOUNDARY LINE
	CULVERT
☒	CO-ORDINATES AND CENTER POINT OF BEND
P46 – P61	CO-ORDINATES OF ROAD
PC	POINT OF HORIZONTAL CURVATURE START
PT	POINT OF HORIZONTAL CURVATURE TERMINATE
NSL	NATURAL SURFACE LEVEL

NOTES

1. ALL DIMENSIONS COORDINATES, ELEVATIONS AND CHAINAGES ARE IN METER UNLESS OTHERWISE SPECIFIED.
2. NO DIMENSION SHALL BE SCALED; ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. THIS DRAWING IS PREPARED BASED ON SURVEY DATA RECEIVED FROM CLIENT ON 23-04-25.
4. CROSS DRAINAGE STRUCTURE LOCATION & TYPE ETC., SHOWN ARE INDICATIVE, BASED ON TOPOGRAPHICAL SURVEY DATA RECEIVED FROM CLIENT ON 23-04-25. REFER RELEVANT CROSS DRAINAGE STRUCTURE DRAWINGS FOR ACTUAL DETAILS.
5. REFER RELEVANT DRAWINGS FOR TYPICAL CROSS SECTIONS, CROSS DRAINAGE STRUCTURE DETAILS.
6. THIS ROAD HAS BEEN DESIGNED FOR DESIGN SPEED OF 20 km/hr. PROVIDE SIGN BOARD INDICATING THE SPEED.
7. READYMADE RUBBER/PVC SPEED BUMPS, 3NOS. WITH HUMPS IN RANGE OF 75mm TO 100mm SHALL BE PROVIDED FOR FULL LENGTH OF CARRIAGEWAY AT 1000mm C/C TO LIMIT THE VEHICLE SPEED TO 10 kmph. OPTIONALLY SPEED BRAKES AS SHOWN IN DETAIL-A (SINGLE) MADE OF PREMIX BITUMINOUS MATERIAL SHALL ALSO BE USED.
8. READYMADE SPEED BUMPS IF PROVIDED SHALL BE FIXED INTO ROAD SURFACE AS RECOMMENDED BY THE SUPPLIER.
9. NECESSARY SIGN BOARDS INDICATING SPEED LIMITS & SPEED BRAKES SHALL BE DISPLAYED AT SITE IN ACCORDANCE WITH IRC 67.
10. TURNING RADIUS ADOPTED/CHECKED BASED ON VEHICLE SWEPT PATH OF SEMI TRAILER (WB-18) AS PER IRC SP 41:1994.
11. ROAD CENTER LINE & EDGE LINE MARKING SHALL BE DONE USING YELLOW / WHITE THERMOPLASTIC PAINTS IN ACCORDANCE WITH IRC 35: 2015.
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CHAINAGE (m)	2750.000	2800.000	2850.000	2900.000	2950.000	3000.000	3050.000	3100.000	3150.000	3200.000	3250.000	3300.000	3350.000	3400.000	3450.000	3500.000
EXISTING GROUND LEVEL (m)	858.225	859.048	859.872	860.696	861.519	865.107	870.107	874.559	878.726	882.893	887.059	891.889	896.885	901.206	905.373	909.539
HORIZONTAL GEOMETRY	R: 30.000 L: 19.525 =90.721		R: 80.000 L: 38.790 L =70.559		R: 80.000 L: 52.198 L =34.140	R: 15.000 L: 2.091 L =74.299		R: 28.000 L: 73.165		L =189.824		L =25.951	R: 15.000 L: 4.027 L =28.469	R: 15.000 L: 3.719	R: 19.000 L: 6.222 L =21.176	R: 19.000 L: 57.518 L =24.032 R: 20.000 L: 4.532
PROPOSED ROAD FINISHED LEVEL (m)	857.538	851.633	856.673	863.234	860.837	864.859	868.521	877.465	885.122	887.250	890.394	894.641	898.867	903.204	911.701	925.919
LEVEL DIFFERENCE (m)	-0.687	-7.415	-3.199	2.538	-0.683	-0.248	-1.586	2.906	6.396	4.357	3.335	2.751	1.982	1.998	6.329	16.380

CHAINAGE (m)	3550.000	3600.000	3650.000	3700.000	3750.000	3800.000	3850.000	3900.000	3950.000	4000.000	4050.000	4100.000	4150.000	4200.000	4211.703
EXISTING GROUND LEVEL (m)	914.539	919.539	923.722	928.230	933.230	937.897	942.065	946.234	946.745	947.257	947.769	948.281	948.793	949.304	949.424
HORIZONTAL GEOMETRY	L =16.597 R: 15.000 L: 6.257	R: 40.000 L: 10.310 L =40.409	L =159.337		R: 20.000 L: 2.649 L =46.588	R: 20.000 L: 3.353 L =51.025	L =16.917 R: 20.000 L: 24.058	R: 26.000 L: 21.750 L =39.892		R: 26.000 L: 39.313		L =228.700			
PROPOSED ROAD FINISHED LEVEL (m)	931.075	941.216	937.608	939.660	941.665	948.285	952.478	951.826	950.463	950.147	949.804	948.904	948.283	949.831	950.866
LEVEL DIFFERENCE (m)	16.535	21.676	13.885	11.430	8.436	10.388	10.413	5.592	3.718	2.890	2.035	0.623	-0.509	0.527	1.442

L-SECTION
1:2500

FOR PLANNING

PROJECT:-	
PACKAGE :-	**ENABLING INFRASTRUCTURE WORKS FOR BHIVPURI PSP**
TATA TATA POWER	OWNER :- **THE TATA POWER COMPANY LIMITED**
TATA	OWNER'S CONSULTANT:- **TATA CONSULTING ENGINEERS LIMITED**

DEPT	CLEARED SIGNATURE	CLEARED DATE
CHEM		
CIVIL		
ELEC		
I&C		
MECH		

ISSUE	REVISIONS	DRN	CHEM	CIVIL	ELEC	I&C	MECH	APPD	DATE

ISSUE	REVISIONS	DRN	CHEM	CIVIL	ELEC	I&C	MECH	APPD	DATE

TCE DWG NO.: **TCE.13376C-CV-3055-SI-30121**

FILE NAME: **TCE.13376C-30121**

RA, RB, RC,..... ARE PLANNING PURPOSE DRAWINGS AND ARE NOT TO BE USED FOR CONSTRUCTION / FABRICATION BUT ARE ISSUED FOR LIMITED PURPOSES ONLY. R0, R1, R2,.....ARE CONSTRUCTION/FABRICATION DRAWINGS WHICH ARE TO BE USED FOR CONSTRUCTION/FABRICATION. INFORMATION CONTAINED WITHIN 'HOLD' IS NOT RELEASED FOR CONSTRUCTION/ FABRICATION. FIELD MUST GET DESIGN OFFICE TO CLEAR 'HOLDS' IN TIME BEFORE PROCEEDING WITH ANY CONSTRUCTION/FABRICATION WORK RELATED TO 'HOLDS'.

DESIGNED	
DRAWN	
CHECKED	
APPROVED	

DWG TITLE **SHIRAWATA PUMPED STORAGE PROJECT**
ROAD TO UPPER RESERVIOR

SCALE	DATE	DWG NO.	SH-	REV.
-	20-3-26		4	RA

SIZE-A1

Appendix 6: CSM F6 - Safety Competency Assessment Form (Template)

Name of the Vendor/Bidder:
Name of the Sub Vendor (If job is given to Sub Vendor):
Description of the Job:
Request for Quotation (RFQ) No.:

Vendor/Bidder to mandatorily provide the below safety competency related information:

1. Proposed Manpower Deployment Schedule : -

Type of manpower	Qualification	Experience	Month 1	Month 2	Month 3	.....
Project /*AMC Manager(R7)*						
Site In Charge						
Safety Manager						
Safety Officer						
Supervisors						
Technicians						
High Skilled workmen						
Skilled workmen						
Semiskilled workmen						
Lineman						
Helpers						
Drivers						
Unskilled						
Others(R7)						

Instruction to Bidders:

i. Indicate the overall site manpower deployment schedule as above
ii. Indicate direct or subcontracted employees by using color code given below:
Direct Bidder Employee – Green
Partly Direct / partly Subcontracted – Yellow
4.0.1 **Subcontracted – Red** *If subcontractor detail is not available at stage of Bid evaluation, then this can be agreed with Order manager or Engineer in charge before deployment Ensure that all sub-contractors follow the Tata Power Safety Procedure and agreed CSM F9 Site Safety Management Plan*.**R7**

iii. Against each category, indicate minimum educational qualification and work experience
iv. Add rows to include other specialized manpower, if any.

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v. Extend columns to cover the entire duration of the proposed contract.
vi. If the operation is in shifts, then indicate shift in charge and / or safety officers required for each shift operation.

2. List of Tools, Tackles, Machines and Equipment: -

Bidder/ Vendor to provide the list of tools, tackles, equipment **to be used during the job / project execution**. Bidder/Vendor to ensure that all the lifting tools and tackles, pressure vessels are duly certified by the competent person authorised by the Chief Inspector of Factories of the respective state prior to start of the job

Sr. No	Description of Tools / Tackles	Capacity / Rating	Quantity	Make	Year of manufacture	Remarks
1						
2						
3						
4						
5						
.....						

3. Safety Records:

Bidder to provide the details of fatalities and lost workday cases (LWDC), occurred in last three years (data to be provided for the last completed FY and preceding 2 years).

Description	Safety Data for current and Last 3 Years			
	Current Year	Year 1 (Last FY)	Year 2	Year 3
		20___- ___	20___- ___	20___- ___
Fatalities (Nos.)				
Lost Workday Cases (Nos.)				

In case of no fatalities, LWDC during any year, the form may be filled stating NIL against the respective year. Bidders are encouraged to also submit the RCA / incident investigation reports and the learning's implemented out of the above reported incidents

4. Job Safety Plan/ Method Statement:

Bidder to provide / enclose a detailed Site/Job Safety Plan along with a Method statement detailing the execution philosophy (how the bidder intends to execute the Job/Project), identifying all key activities which are required to be performed by the contractor at Site.

Bidder to also list down all high-risk activities and provide the Hazard Identification and Risk Assessment (HIRA) for all such high-risk activities involved in the site work.

(Use Method Statement template attached as Appendix 9)

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5. PPE Requirement -R7

Division/DISCOM Requirement	Bidders Response
The Bidder/Vendor shall ensure that all PPE of Approved standards as per CSM F8 – PPE Requirements shall be always available and shall be used by his employees with no exception whatsoever. Bidders to also ensure Standard PPE matrix of Tata Power to be followed for all activities.	
10% Buffer stock of PPEs to be provided by bidders at each circle to meet any contingency	
Bidder will ensure that sample PPEs to be submitted/approved by Safety Department along with EIC at the time of submission of Safety bids for evaluation In case bidder manpower found using substandard or any PPEs which are not approved by the Tata Power-Division /DISCOM representative, then Tata Power-Division /DISCOM will provide the same to manpower deployed at the cost of bidders.	

6. ***Vehicle Deployment*:** Bidders to provide details of all vehicles deployed during execution of work-(R7)

S. No.	Vehicle No.	Vehicle Type	Location	EV/CNG/Diesel/Petrol	Year	Whether CNG endorsed on RC

7. ***Crane Deployment***-(R7)**:** Bidders to provide details of crane to be deployed during the execution of work as and when required. Bidders to provide approved new gen crane ACE Model SX150, ACE FX150 and Escorts Model TRX 1550.

Sl No	Crane No	Location	Year

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8. ***Training Records***-(R7)**:** Bidders to provide training records of employees deployed for the execution of work during last one year. These training includes OHS (Occupational Health and Safety) Training, Training on SOP/Work Procedures and Medical Emergency trainings imparted at their own facility, cost, and expenses. Bidders to provide the following details:

Tata Power-Division /DISCOM **Requirement**	**Bidders Response**
Training records of employees at their own facility, cost, and expenses for last one year	
Training facility available with Bidders	
Future road map for enhancing the competency of workforce	

9. ***Rewards and Recognition***-(R7)**:** Bidders to provide the details of process deployed in their organization for sharing and resolution of safety concerns raised by their employees. Also, bidders to provide the details of Rewards and Recognition process in their organization for safety to encourage the morale of their workforce.

10. Management System Certification: -

Sr.No	**Certification**	**Yes / No**	**If Yes, Year of Certification**	**If No, Target date for Certification**
1	ISO 9001			
2	ISO 14001			
3	ISO 45001			
4	Any other (Specify….)			
Note: Please attach certificates to support above. In case not accredited for above but applied for, application letters may be attached.				

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Sr. No.	TOPIC	PRINCIPLES OF TERMS & CONDITIONS
1	**GENERAL**	The Tata Power Company Limited (TPCL) invites sealed bid through Ariba online system for: "**GENERAL CIVIL WORKS AND CONSTRUCTION OF APPROACH ROAD AT SHIRAWTA PUMP STORAGE PROJECT (PSP), VILLAGE- KHANDSHI, DIST. PUNE, MAHARASHTRA**" The following Special Conditions of Contract (SCC) shall supplement the General Terms and Conditions. Wherever there is a conflict, the provisions herein shall prevail over those in the "General Terms and Conditions" (GTC).
2.	**BRIEF SCOPE OF TENDER**	Brief scope includes Civil works related to construction of 2 approach roads of approx. chainage 4-5 kms each in a hilly terrain for Lower reservoir/ Powerhouse and Upper reservoir at Shirawta PSP, including all other services necessary for complete execution of work. Approach road is considered as separate individual lot as under: Lot 1- For Lower/ reservoir/ Power house (Ch. 4.47 km approx.) Lot 2- For Upper reservoir (Ch 4.21 km approx.) Detailed scope shall be as per Technical specifications/ Scope/ Drawing/ Layout/ BOQ attached with RFQ.
3.	**BID VALIDITY**	The Bid Price shall remain valid for a period of 180 days reckoned from the date of opening of the bids.
4.	**CONTRACT PRICE AND CONTRACT STRUCTURE**	Prices to be quoted strictly as per the attached Price Schedule. This shall be a Unit Rate Contract in Indian Rupees with unit rates remaining firm and fixed till tenancy of contract. Payment will be done based on the actual executed quantities duly certified by Order Manager. The Contract price shall include all supplies on Delivered At Site (DAP) site basis (i.e. inclusive of packing & forwarding, freight, transit insurance) and handlings, rehabilitation and retrofitting services and all taxes, levies and duties.
5.	**APPLICABLE TAXES AND DUTIES**	All indirect taxes, duties, levies including BOCW cess, entry/local municipal taxes if any etc. in relation to the execution of this Contract shall be included by the Contractor in the quoted price. Only GST shall be payable extra by the Owner as per the Price Schedule. Bidder to indicate GST rate in the Price Schedule.
6.	**EFFECTIVE DATE/ DELIVERY/ WORK COMPLETION SCHEDULE**	The Effective Date (ED) of the contract shall be from the date of issue of Letter of Award (LoA)/ Purchase Order (PO), whichever is earlier. Work completion period for individual Lot shall be as follows: **LOT 1 (General civil works and construction of approach road for Lower reservoir/ Powerhouse at Shirawta PSP):–**

		Phase 1- The entire works for Phase -1 as per the scope shall be completed within 3 months from ED. **Phase 2-** Owner's Order manager shall release the Notice to Proceed (NTP) for Phase-2, any time within 1 month after completion of Phase-1. The entire works for Phase-2 as per the scope shall be completed within 1 month from NTP. **LOT 2 (General civil works and construction of approach road for Upper reservoir at Shirawta PSP):–** **Phase 1-** The entire works for Phase-1 as per the scope shall be completed within 3 months from ED. **Phase 2-** Owner's Order manager shall release the Notice to Proceed (NTP) for Phase-2, any time within 1 month after completion of Phase-1. The entire works for Phase-2 as per the scope shall be completed within 1 month from NTP. Owner reserves the right of executing only Phase 1 or both Phase 1 & 2 for individual lot. Both lots are expected to commence and complete simultaneously.
7.	**CONTRACT PERFORMANCE BANK GUARANTEE**	Contractor shall submit within 15 days of the Effective Date an unconditional and irrevocable Bank Guarantee (CPBG) payable on demand strictly as per prescribed format of Owner for a sum equivalent to 10% of the Contract Value, valid till end of warranty/ defect liability period and having a claim period of 6 months beyond the expiry date.
8.	**TERMS OF PAYMENT**	Monthly Running Account (RA) bill shall be payable for the actual executed quantities duly certified by Order manager/ Engineer in charge. Invoice shall be payable within 60 days (45 days for MSME) against receipt of error-free and commercially clear invoice. All payments shall be subject to deduction of LD charges, TDS as applicable.
9.	**WARRANTY / DEFECT LIABILITY PERIOD**	Defects Liability Period shall be for 12 (Twelve) months from the date of issuance of completion certificate issued by the Owner/Project Manager to the Contractor for the respective Phase for individual Lot (as defined in work completion schedule). Defects if any observed during the Defects Liability Period shall be rectified by the Contractor free of cost failing which Tata Power may get the same rectified by any third party and recover all such costs plus overhead from the Contractors.
10.	**LIQUIDATED DAMAGES FOR DELAY**	In case of delay beyond agreed completion schedule for individual lot, LD shall be applicable at the rate of 1% of contract value per week or part thereof delay beyond the completion schedule subject to maximum cap of 10% of contract value.

11.	**CONTRACTOR ALL RISK INSURANCE FOR SITE WORKS**	Bidder shall take all necessary insurances of adequate sums (however not less than 110% of Contract Price) to cover all its manpower / material / resources including 3rd party general liability insurance / workmen compensation policy as applicable. In the event of any loss or damages or any accident etc., Bidder shall make all claims directly with his insurer. Any difference between the claims settled and the actual value of loss shall be borne by Bidder. Bidder will bear the additional costs for replacements if any and ensure timely delivery as mutually agreed. Owner shall not be responsible for any loss or damage whether by accident or otherwise to equipment or material or to any personnel of Bidder.
12.	**ACCEPTANCE ON PF & ESI AND OTHER STATUTORY COMPLIANCES:**	Bidder shall have the PF & ESI registration and will comply with all statutory requirements and submit documentary evidence towards the same. This will include monthly wages register, PF & ESI challans for demonstrating compliance for minimum wages, PF & ESI for each individual employee in accordance with the wage register. The compliance statement with supporting challans will be submitted every month as per the timelines prescribed by Owner. PF, ESI & other statutory compliance of the previous month must be attached with the Invoice of any given month for release of service payments. The Bidder shall comply to the requirements stated under Vendor Declaration Compliances Form (V12) attached as Volume F7 pertaining to guidelines of the Central Electricity Authority and provide the undertaking as per the form prescribed therein towards the statutory compliances / site operating procedures compliances. Bidder shall also provide medical report for all his employee at the time of joining without any cost to Owner.
13.	**LODGING, BOARDING, TRAVEL AND LOCAL CONVEYANCES:**	Prices shall be inclusive of boarding & lodging, travel costs, local conveyances of any nature and no separate payment on any of these accounts admissible. Bidder shall arrange for accommodation of his personnel outside Site premises only (accommodation inside the Site premises shall not be permitted).
14.	**SAFETY T&CS**	Bidder shall comply with all Safety Terms and Conditions of Tata Power annexed to the tender document and revised time to time. All workers shall undergo TPSDI L1, L2 and L3 training as per Safety terms and condition as per Tata Power terms and condition and cost towards this training shall be included in the quoted prices. These TPSDI trainings are imparted at various Tata Power Skill Development Institutes including one in Hydros. at nominal rates. The current cost and duration of each training are as given in Annexure-I. These rates shall be subject to change at the discretion of TPSDI. No escalation in view of such changes if any on this account shall be payable to contractor.

Annexure I

Name of Training Program	Applicable to	Training duration	Training Charges	Total Charges /per Person	Validity
SHE-L0 Basic Safety Training	Contractor workers engaged in non-technical works e.g. Housekeeping, Gardening, Pantry, Canteen, driving of passenger vehicle etc.	1 days	Rs 700.00 Per day /per person	Rs. 700/- Per person / per training	3 years
SHE-L1 Basic Safety Training	All contractor workers engaged in technical jobs	2 days	Rs 700.00 Per day /per person	Rs. 1400/- Per person / per training	3 years
SHE-L2 Critical Safety Procedure for relevant procedure	Contractor workers engaged in critical jobs (13 critical work are Work at Height, Work on electrical System, Work in confined space	2 Days	Rs 700.00 Per day /per person	Rs. 1400/- Per person / per training	3 years
SHE-L3 Training for supervisors	All Supervisors working under contractors	2 Days	Rs 700.00 Per day /per person	Rs. 1400/- Per person / per training	3 years
SHE L1/L0 Revalidation Test	All employees of Contractors	Quarterly Online test	Free	Free	3 months

Price Bid Schedule- LOT 2- General Civil Works and Construction of Approach Road for Lower Reservoir/ Powerhouse at Shirawta Pump Storage Project (PSP)
(Tender ref: CC27PMR018)

Item No	Description	Unit	Qty	Unit Rate (INR)	Amount (INR)
	ROADS AND BRIDGES				
	PHASE-1				
A	**Project roads (flexible pavement)**				
1	Open Excavation in excavation class 'Loose Excavation & Ripping' below existing Ground Level for foundations or any other structure within the OWNER's Premises in ordinary earth, soft/weathered rock, which includes rock/boulders/slag/slate and gravel/ clay/ murrum of all kinds, rubble, concrete debris, scrap steel, clearing away vegetation trees of all girth, bushes, underground roots, stumps etc., including shoring, strutting, by providing adequate slopes and hard barricading as per OWNER's standards including careful handling of underground utilities etc., including backfilling as directed by the Owner, stacking and multiple handling of earth within project area and stacking of surplus earth within plot boundary as directed by Engineer-in-charge, including dewatering, preparing the bed for foundation etc. Payment shall be done as per Drawing. No payment will be made for side slopes, working area etc. unless otherwise mentioned in the approved drawings The rate shall be inclusive of obtaining royalty permission from Collector and all relevant Authorities including all laisoning works at no extra cost to Tata Power .Contractor shall furnish challan for Statutory payments of royalty to Tata Power. Rates shall be inclusive of all manpower, material, plant and equipment, dewatering, scaffolding etc. Work shall be done as per relevant IS, BIS, ASTM standard and as per Tata Power Standards, procedures without any extra cost to Tata Power. Rate shall be excluding Royalty, which shall be reimbursed at actuals upon submitting challan for Statutory payments of royalty.	Cum	41,000		
2	Open Excavation in excavation class 'Rock Excavation' below existing Ground Level for foundation and or other structure in hard rock by control blasting with monitored PPV under CWPRS Supervision with equipment, clearing away vegetation trees of all girth, bushes, underground roots, stumps etc., including shoring, strutting, providing and drilling holes in rock for pre-shearing for maintaining slope and to protect close proximity of existing structure and all safety provisions, by providing adequate slopes using hard barricading as per OWNER's standards including careful handling of underground utilities etc., including backfilling as directed by the Owner, stacking and multiple handling of earth within project area and stacking of surplus earth within plot boundary as directed by Engineer-in-charge, including dewatering, preparing the bed for foundation etc. Payment shall be done as per Drawing. No payment will be made for side slopes, working area etc.unless otherwise mentioned in the approved drawings. Loose boulder more than 1 m in any dimension shall be considered as hard rock. The rate shall be inclusive of obtaining royalty permission from Collector and all relevant Authorities including all laisoning works at no extra cost to Tata Power .Contractor shall furnish challan for Statutory payments of royalty to Tata Power. Rates shall be inclusive of all manpower, material, plant and equipment, dewatering, scaffolding etc. Work shall be done as per relevant IS, BIS, ASTM standard and as per Tata Power Standards, procedures. Geological overbreak will not be paid for if the drill marks are observed on C/s beyond approved pay line. Rate shall be excluding Royalty, which shall be reimbursed at actuals upon submitting challan for Statutory payments of royalty.	Cum	96,000		
3	Providing and installing fully cement grouted untensioned rock bolts made of Corrosion Resistant Thermo Mechanical Treated (CRS TMT) reinforcement bars conforming to IS : 1786 (Grade Fe 500D) with all accessories and fittings in side slopes, of specified length, including drilling holes, filling with cement grout, driving bolt, fixing bearing plate and nuts and tightening the same, cost of all materials, machinery, labour, ventilation, lighting, drainage and other ancillary operations etc. complete as per specifications, drawings and instructions of Owner/Project Manager with all lifts/depths and leads. Materials for manufacturing shall be from JINDAL, TATA, SAIL, ESSAR, RINL.				
i.	rock bolts of 25 mm diameter				
a.	upto 6m length	m	2,250		
b.	above 6m and upto 8m length	m	950		
ii.	rock bolts of 32 mm diameter		-		
a.	upto 6m length	m	150		
b.	above 6m and upto 8m length	m	50		
4	Providing and installing resin grouted anchored rockbolts with all accessories and fittings, of specied length, including drilling holes, inserting quick set resin grout capsule, driving bolt, filling with slow set resin, tensioning of bolt, fixing bearing plate and nuts, cost of all materials, machinery, labour, ventilation, lighting, drainage and other ancillary operations etc complete as per specifications, drawings and instructions of Engineer in charge with all lifts and leads. The rock bolt shall be made of Corrosion Resistant Thermo Mechanical Treated (CRS TMT) reinforcement bars conforming to IS : 1786 (Grade Fe 500D). Materials for manufacturing shall be from JINDAL, TATA, SAIL, ESSAR, RINL.		-		
i	Resin grouted rockbolts of 25 mm diameter		-		
a.	upto 6m length	m	600		
b.	above 6m and upto 8m length	m	250		
ii	Resin grouted rockbolts of 32 mm diameter		-		
a.	upto 6m length	m	50		
b.	above 6m and upto 8m length	m	50		
5	Drilling 75 to 80 mm diameter pressure relief holes in rock of any depth as per specification including cost of all materials, machinery, labour, ventilation, lighting, drainage etc. Complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all lifts/depths and leads.	m	4,200		
6	Providing and applying plain shotcrete of cube strength not less than 35 MPA of specified thickness in tunnel with 10mm MSA including preparation & cleaning of surfaces, placing of plug gauges for control of layer thickness and removal of rebound, temporary protection, curing, admixtures, necessary plant, equipment, machinery, labours, scaffolding, lighting, drainage, ventilation and all other ancillary operations etc. complete in all respects as per drawings, specifications and instructions of Owner/Project Manager with all lifts/depths and leads.	Cum	2,200		
7	Laying and Rolling/Compaction of sub base material of specified grading including materials, labour, equipment's, tests etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths.	Cum	10,850		
8	Laying and compacting of sub grade including labour, equipment's, tests, cleaning, excavation, drainage and dewatering, cambering, stripping of soil wherever required, disposal of unsuitable material, backfilling, finishing, compaction etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths.	Cum	28,350		
9	Laying and compacting of soil embankment including labour, equipment's, tests, excavation, dewatering, disposal of unsuitable material, backfilling, finishing, compaction etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths.	Cum	16,850		

Price Bid Schedule- LOT 2- General Civil Works and Construction of Approach Road for Lower Reservoir/ Powerhouse at Shirawta Pump Storage Project (PSP) (Tender ref: CC27PMR018)					
10	Providing uncoursed rubble masonry of trap/granite/quartzite/gneiss stones in cement mortar 1:5 in retaining walls including scaffolding, racking out joints when plastering is to be done striking joints where no pointing or plastering is to be done and watering etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths.	Cum	6,500		
			TOTAL (A)		
B	**Box Culverts**				
1	Open Excavation in excavation class 'Loose Excavation & Ripping' below existing Ground Level for foundations or any other structure within the OWNER's Premises in ordinary earth, soft/weathered rock, which includes rock/boulders/slag/slate and gravel/ clay/ murrum of all kinds, rubble, concrete debris, scrap steel, clearing away vegetation trees of all girth, bushes, underground roots, stumps etc., including shoring, strutting, by providing adequate slopes and hard barricading as per OWNER's standards including careful handling of underground utilities etc., including backfilling as directed by the Owner, stacking and multiple handling of earth within project area and stacking of surplus earth within plot boundary as directed by Engineer-in-charge, including dewatering, preparing the bed for foundation etc. Payment shall be done as per Drawing. No payment will be made for side slopes, working area etc. unless otherwise mentioned in the approved drawings The rate shall be inclusive of obtaining royalty permission from Collector and all relevant Authorities including all laisoning works at no extra cost to Tata Power .Contractor shall furnish challan for Statutory payments of royalty to Tata Power. Rates shall be inclusive of all manpower, material, plant and equipment, dewatering, scaffolding etc. Work shall be done as per relevant IS, BIS, ASTM standard and as per Tata Power Standards, procedures without any extra cost to Tata Power. Rate shall be excluding Royalty, which shall be reimbursed at actuals upon submitting challan for Statutory payments of royalty.	Cum	311		
2	Open Excavation in excavation class 'Rock Excavation' below existing Ground Level for foundation and or other structure in hard rock by control blasting with monitored PPV under CWPRS Supervision with equipment, clearing away vegetation trees of all girth, bushes, underground roots, stumps etc., including shoring, strutting, providing and drilling holes in rock for pre-shearing for maintaining slope and to protect close proximity of existing structure and all safety provisions, by providing adequate slopes using hard barricading as per OWNER's standards including careful handling of underground utilities etc., including backfilling as directed by the Owner, stacking and multiple handling of earth within project area and stacking of surplus earth within plot boundary as directed by Engineer-in-charge, including dewatering, preparing the bed for foundation etc. Payment shall be done as per Drawing. No payment will be made for side slopes, working area etc.unless otherwise mentioned in the approved drawings. Loose boulder more than 1 m in any dimension shall be considered as hard rock. The rate shall be inclusive of obtaining royalty permission from Collector and all relevant Authorities including all laisoning works at no extra cost to Tata Power .Contractor shall furnish challan for Statutory payments of royalty to Tata Power. Rates shall be inclusive of all manpower, material, plant and equipment, dewatering, scaffolding etc. Work shall be done as per relevant IS, BIS, ASTM standard and as per Tata Power Standards, procedures. Geological overbreak will not be paid for if the drill marks are observed on C/s beyond approved pay line. Rate shall be excluding Royalty, which shall be reimbursed at actuals upon submitting challan for Statutory payments of royalty.	Cum	726		
3	Providing and laying back filling behind the structures, in quadrants pitching,etc., with selected granular material of approved quality including all leads and lifts complete as per drawing, MoRT&H Technical Specification clause 305 and instructions of Owner/Project Manager.	Cum	633		
4	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall, return wall, etc., to the full height compacted to a firm condition complete as per drawing, MoRT&H Technical Specification and instructions of Owner/Project Manager.	Cum	374		
5	Providing and laying in position plain cement concrete of grade M10 with 40 MSA in levelling course / fill under or around foundations, pits, slabs on grade, etc, including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, etc., complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Min cement content shall be 190Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	129		
6	Providing and laying in position plain cement concrete of grade M15 with 20 MSA, for curtain walls, etc, including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, etc., complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Min cement content shall be 240Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	254		
7	Providing and laying in position reinforced cement concrete of grade M30 with 20 MSA for box culverts and retaining walls, etc, including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, etc., complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Min cement content shall be 300Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	589		
8	Providing, fabricating and placing in position Corrosion resistant Thermo Mechanical Treated (CRS TMT) reinforcement bars conforming to IS : 1786 (Grade Fe 500D) for RCC works including cleaning, straightening, cutting, bending, hooking, lapping, welding or coupler joints wherever required, tying with binding wire including cost of all materials, machinery, labour, lighting, ventilation, drainage etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Chairs, spacer bars, hangers and unauthorized laps will not be paid. Reinforcement to be procured from reputed manufacturers JINDAL, TATA, SAIL, ESSAR, RINL.	MT	50		
9	Bituminous Concrete Wearing Course of total 65 mm thick comprising of 40 mm thick Bituminous Concrete laid over a coat of 25 mm thick Mastic Asphalt complete as per drawing, MoRT&H Technical Specification Clause 2700 and instructions of Owner/Project Manager.	Sq.m	475		
10	Providing and fixing drainage spouts complete as per drawing, MoRT&H Technical Specification Clause 2705 and instructions of Owner/Project Manager.	Nos.	10		
11	Providing and laying tar paper bearing including laying in proper position etc. complete as per drawings and instructions of Owner/Project Manager.	Sq.m	30		

Price Bid Schedule- LOT 2- General Civil Works and Construction of Approach Road for Lower Reservoir/ Powerhouse at Shirawta Pump Storage Project (PSP) (Tender ref: CC27PMR018)					
12	Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawing & MoRT&H Technical Specification Clause 2600 and confirming to MoRT&H modified interim specifications	Sq.m	30		
13	Providing Reinforced Cement Concrete of M 30 grade in approach slabs including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, etc., complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Min cement content shall be 320Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	105		
14	Providing and laying filter media underneath pitching in slopes and flat surfaces complete as per drawing, & MoRT&H Technical Specification Clause 2504 and instructions of Owner/Project Manager.	Cum	46		
15	Providing and laying stone pitching on sloped sufaces for earth protection complete as per drawing, MoRT&H Technical Specification Clause 2504 and instructions of Owner/Project Manager.	Cum	102		
16	Providing weep holes in abutments, wing walls and return walls complete as per drawing and Technical Specification Clause 2706.	No's	330		
17	Providing and constructing RCC crash barrier M 40 grade including cost of centering as per approved Drawings and Technical Specifications Clause 809 and as per IRC-6	Cum	43		
18	Providing and laying rigid floor apron which consists of 150mm thk flat stone apron embedded in 300mm thick M15 concrete for protection against scour complete as per drawing	Cum	144		
19	Providing and laying boulders apron for protection against scour with stone boulders weighing not less than 40 kg each complete as per drawing, MoRT&H Technical Specification Clause 2503 and instructions of Owner/Project Manager. (Boulder laid dry without wire crates)	Cum	413		
			TOTAL (B)		
C	**Pipe Culverts**				
1	Open Excavation in excavation class 'Loose Excavation & Ripping' below existing Ground Level for foundations or any other structure within the OWNER's Premises in ordinary earth, soft/weathered rock, which includes rock/boulders/slag/slate and gravel/ clay/ murrum of all kinds, rubble, concrete debris, scrap steel, clearing away vegetation trees of all girth, bushes, underground roots, stumps etc., including shoring, strutting, by providing adequate slopes and hard barricading as per OWNER's standards including careful handling of underground utilities etc., including backfilling as directed by the Owner, stacking and multiple handling of earth within project area and stacking of surplus earth within plot boundary as directed by Engineer-in-charge, including dewatering, preparing the bed for foundation etc. Payment shall be done as per Drawing. No payment will be made for side slopes, working area etc. unless otherwise mentioned in the approved drawings The rate shall be inclusive of obtaining royalty permission from Collector and all relevant Authorities including all laisoning works at no extra cost to Tata Power .Contractor shall furnish challan for Statutory payments of royalty to Tata Power. Rates shall be inclusive of all manpower, material, plant and equipment, dewatering, scaffolding etc. Work shall be done as per relevant IS, BIS, ASTM standard and as per Tata Power Standards, procedures without any extra cost to Tata Power. Rate shall be excluding Royalty, which shall be reimbursed at actuals upon submitting challan for Statutory payments of royalty.	Cum	340		
2	Open Excavation in excavation class 'Rock Excavation' below existing Ground Level for foundation and or other structure in hard rock by control blasting with monitored PPV under CWPRS Supervision with equipment, clearing away vegetation trees of all girth, bushes, underground roots, stumps etc., including shoring, strutting, providing and drilling holes in rock for pre-shearing for maintaining slope and to protect close proximity of existing structure and all safety provisions, by providing adequate slopes using hard barricading as per OWNER's standards including careful handling of underground utilities etc., including backfilling as directed by the Owner, stacking and multiple handling of earth within project area and stacking of surplus earth within plot boundary as directed by Engineer-in-charge, including dewatering, preparing the bed for foundation etc. Payment shall be done as per Drawing. No payment will be made for side slopes, working area etc.unless otherwise mentioned in the approved drawings. Loose boulder more than 1 m in any dimension shall be considered as hard rock. The rate shall be inclusive of obtaining royalty permission from Collector and all relevant Authorities including all laisoning works at no extra cost to Tata Power .Contractor shall furnish challan for Statutory payments of royalty to Tata Power. Rates shall be inclusive of all manpower, material, plant and equipment, dewatering, scaffolding etc. Work shall be done as per relevant IS, BIS, ASTM standard and as per Tata Power Standards, procedures. Geological overbreak will not be paid for if the drill marks are observed on C/s beyond approved pay line. Rate shall be excluding Royalty, which shall be reimbursed at actuals upon submitting challan for Statutory payments of royalty.	Cum	793		
3	Providing and laying in position plain cement concrete of grade M10 with 40 MSA in levelling course / fill under or around foundations, pits, slabs on grade, etc, including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, etc., complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Min cement content shall be 190Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	49		
4	Providing and laying first class/ selected granular material in bedding for pipe culverts all complete as per drawing, MoRT&H Technical Specifications Section 2900 and instructions of Owner/Project Manager	Cum	144		
5	Providing and laying in position plain cement concrete of grade M15 with 20 MSA, for pipe encasement, curtain walls, etc, including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, etc., complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Min cement content shall be 240Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	380		
6	Providing and laying in position plain cement concrete of grade M20 with 20 MSA, for head wall, etc, including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, etc., complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Min cement content shall be 250Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	706		
7	Providing, laying and jointing RCC Hume Pipe of diameter 1.2 m and class NP-4 (as per IS:458-2003) for culverts, complete as per drawing,MoRT&H Technical Specifications Section 2900, IRC : SP No.13 and instructions of Owner/Project Manager	RM	425		

Price Bid Schedule- LOT 2- General Civil Works and Construction of Approach Road for Lower Reservoir/ Powerhouse at Shirawta Pump Storage Project (PSP) (Tender ref: CC27PMR018)					
8	Providing and laying boulders apron for protection against scour with stone boulders weighing not less than 40 kg each complete as per drawing, MoRT&H Technical Specification Clause 2503 and instructions of Owner/Project Manager. (Boulder laid dry without wire crates)	Cum	172		
9	Providing and laying filter media underneath pitching in slopes and flat surfaces complete as per drawing, & MoRT&H Technical Specification Clause 2504 and instructions of Owner/Project Manager.	Cum	28		
10	Providing and laying stone pitching on sloped sufaces for earth protection complete as per drawing, MoRT&H Technical Specification Clause 2504 and instructions of Owner/Project Manager.	Cum	70		
			TOTAL (C)		
D	**Minor Bridges**				
1	Open Excavation in excavation class 'Loose Excavation & Ripping' below existing Ground Level for foundations or any other structure within the OWNER's Premises in ordinary earth, soft/weathered rock, which includes rock/boulders/slag/slate and gravel/ clay/ murrum of all kinds, rubble, concrete debris, scrap steel, clearing away vegetation trees of all girth, bushes, underground roots, stumps etc., including shoring, strutting, by providing adequate slopes and hard barricading as per OWNER's standards including careful handling of underground utilities etc., including backfilling as directed by the Owner, stacking and multiple handling of earth within project area and stacking of surplus earth within plot boundary as directed by Engineer-in-charge, including dewatering, preparing the bed for foundation etc. Payment shall be done as per Drawing. No payment will be made for side slopes, working area etc. unless otherwise mentioned in the approved drawings The rate shall be inclusive of obtaining royalty permission from Collector and all relevant Authorities including all laisoning works at no extra cost to Tata Power .Contractor shall furnish challan for Statutory payments of royalty to Tata Power. Rates shall be inclusive of all manpower, material, plant and equipment, dewatering, scaffolding etc. Work shall be done as per relevant IS, BIS, ASTM standard and as per Tata Power Standards, procedures without any extra cost to Tata Power. Rate shall be excluding Royalty, which shall be reimbursed at actuals upon submitting challan for Statutory payments of royalty.	Cum	682		
2	Open Excavation in excavation class 'Rock Excavation' below existing Ground Level for foundation and or other structure in hard rock by control blasting with monitored PPV under CWPRS Supervision with equipment, clearing away vegetation trees of all girth, bushes, underground roots, stumps etc., including shoring, strutting, providing and drilling holes in rock for pre-shearing for maintaining slope and to protect close proximity of existing structure and all safety provisions, by providing adequate slopes using hard barricading as per OWNER's standards including careful handling of underground utilities etc., including backfilling as directed by the Owner, stacking and multiple handling of earth within project area and stacking of surplus earth within plot boundary as directed by Engineer-in-charge, including dewatering, preparing the bed for foundation etc. Payment shall be done as per Drawing. No payment will be made for side slopes, working area etc.unless otherwise mentioned in the approved drawings. Loose boulder more than 1 m in any dimension shall be considered as hard rock. The rate shall be inclusive of obtaining royalty permission from Collector and all relevant Authorities including all laisoning works at no extra cost to Tata Power .Contractor shall furnish challan for Statutory payments of royalty to Tata Power. Rates shall be inclusive of all manpower, material, plant and equipment, dewatering, scaffolding etc. Work shall be done as per relevant IS, BIS, ASTM standard and as per Tata Power Standards, procedures. Geological overbreak will not be paid for if the drill marks are observed on C/s beyond approved pay line. Rate shall be excluding Royalty, which shall be reimbursed at actuals upon submitting challan for Statutory payments of royalty.	Cum	682		
3	Providing and laying back filling behind the structures, in quadrants pitching,etc., with selected granular material of approved quality including all leads and lifts complete as per drawing, MoRT&H Technical Specification clause 305 and instructions of Owner/Project Manager.	Cum	5,781		
4	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall, return wall, etc., to the full height compacted to a firm condition complete as per drawing, MoRT&H Technical Specification and instructions of Owner/Project Manager.	Cum	450		
5	Providing and laying in position plain cement concrete of grade M10 with 40 MSA in levelling course / fill under or around foundations, pits, slabs on grade, etc, including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, etc., complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Min cement content shall be 190Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	74		
6	Providing and laying in position Reinforced cement concrete in Foundations including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, providing construction joints, leaving, cut-outs, pockets, etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths for the following mixes:		-		
i.	M30 Grade with 20 MSA - Min cement content shall be 320Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	735		
7	Providing and laying in position Reinforced cement concrete in Substructure (Abutments, Piers, Walls, etc.,) including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, providing construction joints, leaving, cut-outs, pockets, etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths for the following mixes:		-		
i.	M30 Grade with 20 MSA - Min cement content shall be 320Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	682		
8	Providing and laying in position Reinforced cement concrete in Superstructure (Beams, Slabs, etc.,) including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, providing construction joints, leaving, cut-outs, pockets, etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths for the following mixes:		-		
i.	M30 Grade with 20 MSA - Min cement content shall be 320Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	75		

Price Bid Schedule- LOT 2- General Civil Works and Construction of Approach Road for Lower Reservoir/ Powerhouse at Shirawta Pump Storage Project (PSP) (Tender ref: CC27PMR018)					
9	Providing, fabricating and placing in position Corrosion resistant Thermo Mechanical Treated (CRS TMT) reinforcement bars conforming to IS : 1786 (Grade Fe 500D) for RCC works including cleaning, straightening, cutting, bending, hooking, lapping, welding or coupler joints wherever required, tying with 16 SWG black annealed iron wire including cost of all materials, machinery, labour, lighting, ventilation, drainage etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Chairs, spacer bars, hangers and unauthorized laps will not be paid. Reinforcement to be procured from reputed manufacturers - JINDAL, TATA, SAIL, ESSAR, RINL.	MT	179		
10	Bituminous Concrete Wearing Course of total 65 mm thick comprising of 40 mm thick Bituminous Concrete laid over a coat of 25 mm thick Mastic Asphalt complete as per drawing, MoRT&H Technical Specification Clause 2700 and instructions of Owner/Project Manager.	Sq.m	158		
11	Providing and fixing drainage spouts complete as per drawing, MoRT&H Technical Specification Clause 2705 and instructions of Owner/Project Manager.	Nos.	2		
12	Providing and laying tar paper bearing including laying in proper position etc. complete as per drawings and instructions of Owner/Project Manager.	Sq.m	15		
13	Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawing & MoRT&H Technical Specification Clause 2600 and confirming to MoRT&H modified interim specifications	Sq.m	20		
14	Providing Reinforced Cement Concrete of M 30 grade in approach slabs including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, etc., complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Min cement content shall be 320Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	19		
15	Providing and laying filter media underneath pitching in slopes and flat surfaces complete as per drawing, & MoRT&H Technical Specification Clause 2504 and instructions of Owner/Project Manager.	Cum	98		
16	Providing and laying stone pitching on sloped sufaces for earth protection complete as per drawing, MoRT&H Technical Specification Clause 2504 and instructions of Owner/Project Manager.	Cum	202		
17	Providing weep holes in abutments, wing walls and return walls complete as per drawing and Technical Specification Clause 2706.	Nos.	604		
18	Providing and constructing RCC crash barrier M 40 grade including cost of centering as per approved Drawings and Technical Specifications Clause 809 and as per IRC-6	Cum	28		
	TOTAL (D)				
	TOTAL FOR PHASE-1 (A+B+C+D)				
	ADDL. GST____%				
	TOTAL FOR PHASE-1 (INCL. GST)				
	PHASE-2				
1	Laying and compacting of BC in wearing course including materials, testing, labour, equipment's, preparation of mix, transportation and laying, compaction etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths.	Cum	1,450		
2	Laying and compacting of DBM in base course and binder course including materials, testing, labour, equipment's, preparation of mix, transportation and laying, compaction, application of prime coat/ tack coat etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths.	Cum	3,700		
3	Laying and compacting clean, crushed, graded aggregate and granular material, premixed with water, to a dense mass of WMM on a prepared subgrade/sub-base including materials, testing, labour, equipment's, preparation of mix, spreading, compaction etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths.	Cum	8,850		
4	Metal Beam Crash Barrier Providing and erecting a W metal beam crash barrier comprising of 3mm thick corrugated sheet metal beam rail, 70cm above road/ground level, fixed on ISMC series channel vertical post,150x75x5mm spaced 2m Centre to Centre, 1.8m high, 1.1m below ground/road level, all steel parts and fitments to be galvanized by hot dip process , all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150x75x5mm, 330 mm long complete as per clause 810 of MORTH.	Rm	1,300		
	TOTAL FOR PHASE-2				
	ADDL. GST____%				
	TOTAL FOR PHASE-2 (INCL. GST)				
	GRAND TOTAL (PHASE-1 + PHASE-2)				
	ADDL. GST____%				
	GRAND TOTAL (INCL. GST)				

Special Notes:-

1. Bidder shall submit price strictly as per the above price schedule.

2. GST will be paid extra (if applicable) by the Owner as per the price schedule. Bidder to indicate the rate of GST in the price schedule.

Date:
Place:

ıthorised Signatory with company seal)
Name:
Designation:
Bidder Name:

Price Bid Schedule- LOT 2- General Civil Works and Construction of Approach Road for Upper Reservoir at Shirawta Pump Storage Project (PSP) (Tender ref: CC27PMR018)					
	PHASE-1				
Item No	Description	Unit	Qty	Unit Rate (INR)	Amount (INR)
	ROADS AND BRIDGES				
A	**Project roads (flexible pavement)**				
1	Open Excavation in excavation class 'Loose Excavation & Ripping' below existing Ground Level for foundations or any other structure within the OWNER's Premises in ordinary earth, soft/weathered rock, which includes rock/boulders/slag/slate and gravel/ clay/ murrum of all kinds, rubble, concrete debris, scrap steel, clearing away vegetation trees of all girth, bushes, underground roots, stumps etc., including shoring, strutting, by providing adequate slopes and hard barricading as per OWNER's standards including careful handling of underground utilities etc., including backfilling as directed by the Owner, stacking and multiple handling of earth within project area and stacking of surplus earth within plot boundary as directed by Engineer-in-charge, including dewatering, preparing the bed for foundation etc. Payment shall be done as per Drawing. No payment will be made for side slopes, working area etc. unless otherwise mentioned in the approved drawings The rate shall be inclusive of obtaining royalty permission from Collector and all relevant Authorities including all laisoning works at no extra cost to Tata Power .Contractor shall furnish challan for Statutory payments of royalty to Tata Power. Rates shall be inclusive of all manpower, material, plant and equipment, dewatering, scaffolding etc. Work shall be done as per relevant IS, BIS, ASTM standard and as per Tata Power Standards, procedures without any extra cost to Tata Power. Rate shall be excluding Royalty, which shall be reimbursed at actuals upon submitting challan for Statutory payments of royalty.	Cum	38,000		
2	Open Excavation in excavation class 'Rock Excavation' below existing Ground Level for foundation and or other structure in hard rock by control blasting with monitored PPV under CWPRS Supervision with equipment, clearing away vegetation trees of all girth, bushes, underground roots, stumps etc., including shoring, strutting, providing and drilling holes in rock for pre-shearing for maintaining slope and to protect close proximity of existing structure and all safety provisions, by providing adequate slopes using hard barricading as per OWNER's standards including careful handling of underground utilities etc., including backfilling as directed by the Owner, stacking and multiple handling of earth within project area and stacking of surplus earth within plot boundary as directed by Engineer-in-charge, including dewatering, preparing the bed for foundation etc. Payment shall be done as per Drawing. No payment will be made for side slopes, working area etc.unless otherwise mentioned in the approved drawings. Loose boulder more than 1 m in any dimension shall be considered as hard rock. The rate shall be inclusive of obtaining royalty permission from Collector and all relevant Authorities including all laisoning works at no extra cost to Tata Power .Contractor shall furnish challan for Statutory payments of royalty to Tata Power. Rates shall be inclusive of all manpower, material, plant and equipment, dewatering, scaffolding etc. Work shall be done as per relevant IS, BIS, ASTM standard and as per Tata Power Standards, procedures. Geological overbreak will not be paid for if the drill marks are observed on C/s beyond approved pay line. Rate shall be excluding Royalty, which shall be reimbursed at actuals upon submitting challan for Statutory payments of royalty.	Cum	89,000		
3	Providing and installing fully cement grouted untensioned rock bolts made of Corrosion Resistant Thermo Mechanical Treated (CRS TMT) reinforcement bars conforming to IS : 1786 (Grade Fe 500D) with all accessories and fittings in side slopes, of specified length, including drilling holes, filling with cement grout, driving bolt, fixing bearing plate and nuts and tightening the same, cost of all materials, machinery, labour, ventilation, lighting, drainage and other ancillary operations etc. complete as per specifications, drawings and instructions of Owner/Project Manager with all lifts/depths and leads. Materials for manufacturing shall be from JINDAL, TATA, SAIL, ESSAR, RINL.		-		
i.	rock bolts of 25 mm diameter		-		
a.	upto 6m length	m	1,150		
b.	above 6m and upto 8m length	m	500		
ii.	rock bolts of 32 mm diameter		-		
a.	upto 6m length	m	100		
b.	above 6m and upto 8m length	m	50		
4	Providing and installing resin grouted anchored rockbolts with all accessories and fittings, of specied length, including drilling holes, inserting quick set resin grout capsule, driving bolt, filling with slow set resin, tensioning of bolt, fixing bearing plate and nuts, cost of all materials, machinery, labour, ventilation, lighting, drainage and other ancillary operations etc complete as per specifications, drawings and instructions of Engineer in charge with all lifts and leads. The rock bolt shall be made of Corrosion Resistant Thermo Mechanical Treated (CRS TMT) reinforcement bars conforming to IS : 1786 (Grade Fe 500D). Materials for manufacturing shall be from JINDAL, TATA, SAIL, ESSAR, RINL.		-		
i	Resin grouted rockbolts of 25 mm diameter		-		
a.	upto 6m length	m	300		
b.	above 6m and upto 8m length	m	150		
ii	Resin grouted rockbolts of 32 mm diameter		-		
a.	upto 6m length	m	50		
b.	above 6m and upto 8m length	m	50		
5	Drilling 75 to 80 mm diameter pressure relief holes in rock of any depth as per specification including cost of all materials, machinery, labour, ventilation, lighting, drainage etc. Complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all lifts/depths and leads.	m	2,200		
6	Providing and applying plain shotcrete of cube strength not less than 35 MPA of specified thickness in tunnel with 10mm MSA including preparation & cleaning of surfaces, placing of plug gauges for control of layer thickness and removal of rebound, temporary protection, curing, admixtures, necessary plant, equipment, machinery, labours, scaffolding, lighting, drainage, ventilation and all other ancillary operations etc. complete in all respects as per drawings, specifications and instructions of Owner/Project Manager with all lifts/depths and leads.	Cum	1,150		
7	Laying and Rolling/Compaction of sub base material of specified grading including materials, labour, equipment's, tests etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths.	Cum	8,600		
8	Laying and compacting of sub grade including labour, equipment's, tests, cleaning, excavation, drainage and dewatering, cambering, stripping of soil wherever required, disposal of unsuitable material, backfilling, finishing, compaction etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths.	Cum	21,500		
9	Laying and compacting of soil embankment including labour, equipment's, tests, excavation, dewatering, disposal of unsuitable material, backfilling, finishing, compaction etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths.	Cum	4,300		

Price Bid Schedule- LOT 2- General Civil Works and Construction of Approach Road for Upper Reservoir at Shirawta Pump Storage Project (PSP) (Tender ref: CC27PMR018)					
10	Providing uncoursed rubble masonry of trap/granite/quartzite/gneiss stones in cement mortar 1:5 in retaining walls including scaffolding, racking out joints when plastering is to be done striking joints where no pointing or plastering is to be done and watering etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths.	Cum	48,500		
11	Excavation of tunnel in all types of rock by drilling and smooth control perimeter blasting, including cost of all materials, machinery, labour, shoring, strutting, scaling excavated surface, mucking, depositing the excavated material at designated dumping areas and/or stockpiling the useful materials separately & multiple handling of excavated material within project boundary for all leads, lighting, ventilation, dewatering, loading, transporting, unloading, manpower, material, plant and equipment, scaffolding, etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts. Payment will be made only for excavation done within the payline shown in the drawing and geologically accepted overbreak as defined in Technical Specification, Chapter 'Underground Excavation'. Geological overbreak will not be paid for if the drill marks are observed on cross sections beyond approved pay line. The rate shall be inclusive of obtaining royalty permission from Collector and all relevant Authorities including all laisoning works at no extra cost to Tata Power. Contractor shall furnish challan for Statutory payments of royalty to Tata Power. Work shall be done as per relevant IS, BIS, ASTM standard and as per Tata Power Standards, procedures. Rate shall be excluding Royalty, which shall be reimbursed at actuals upon submitting challan for Statutory payments of royalty.	Cum	1,540		
			TOTAL (A)		
B	**Box Culverts**				
1	Open Excavation in excavation class 'Loose Excavation & Ripping' below existing Ground Level for foundations or any other structure within the OWNER's Premises in ordinary earth, soft/weathered rock, which includes rock/boulders/slag/slate and gravel/ clay/ murrum of all kinds, rubble, concrete debris, scrap steel, clearing away vegetation trees of all girth, bushes, underground roots, stumps etc., including shoring, strutting, by providing adequate slopes and hard barricading as per OWNER's standards including careful handling of underground utilities etc., including backfilling as directed by the Owner, stacking and multiple handling of earth within project area and stacking of surplus earth within plot boundary as directed by Engineer-in-charge, including dewatering, preparing the bed for foundation etc. Payment shall be done as per Drawing. No payment will be made for side slopes, working area etc. unless otherwise mentioned in the approved drawings The rate shall be inclusive of obtaining royalty permission from Collector and all relevant Authorities including all laisoning works at no extra cost to Tata Power .Contractor shall furnish challan for Statutory payments of royalty to Tata Power. Rates shall be inclusive of all manpower, material, plant and equipment, dewatering, scaffolding etc. Work shall be done as per relevant IS, BIS, ASTM standard and as per Tata Power Standards, procedures without any extra cost to Tata Power. Rate shall be excluding Royalty, which shall be reimbursed at actuals upon submitting challan for Statutory payments of royalty.	Cum	249		
2	Open Excavation in excavation class 'Rock Excavation' below existing Ground Level for foundation and or other structure in hard rock by control blasting with monitored PPV under CWPRS Supervision with equipment, clearing away vegetation trees of all girth, bushes, underground roots, stumps etc., including shoring, strutting, providing and drilling holes in rock for pre-shearing for maintaining slope and to protect close proximity of existing structure and all safety provisions, by providing adequate slopes using hard barricading as per OWNER's standards including careful handling of underground utilities etc., including backfilling as directed by the Owner, stacking and multiple handling of earth within project area and stacking of surplus earth within plot boundary as directed by Engineer-in-charge, including dewatering, preparing the bed for foundation etc. Payment shall be done as per Drawing. No payment will be made for side slopes, working area etc.unless otherwise mentioned in the approved drawings. Loose boulder more than 1 m in any dimension shall be considered as hard rock. The rate shall be inclusive of obtaining royalty permission from Collector and all relevant Authorities including all laisoning works at no extra cost to Tata Power .Contractor shall furnish challan for Statutory payments of royalty to Tata Power. Rates shall be inclusive of all manpower, material, plant and equipment, dewatering, scaffolding etc. Work shall be done as per relevant IS, BIS, ASTM standard and as per Tata Power Standards, procedures. Geological overbreak will not be paid for if the drill marks are observed on C/s beyond approved pay line. Rate shall be excluding Royalty, which shall be reimbursed at actuals upon submitting challan for Statutory payments of royalty.	Cum	581		
3	Providing and laying back filling behind the structures, in quadrants pitching,etc., with selected granular material of approved quality including all leads and lifts complete as per drawing, MoRT&H Technical Specification clause 305 and instructions of Owner/Project Manager.	Cum	506		
4	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall, return wall, etc., to the full height compacted to a firm condition complete as per drawing, MoRT&H Technical Specification and instructions of Owner/Project Manager.	Cum	299		
5	Providing and laying in position plain cement concrete of grade M10 with 40 MSA in levelling course / fill under or around foundations, pits, slabs on grade, etc, including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, etc., complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Min cement content shall be 190Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	103		
6	Providing and laying in position plain cement concrete of grade M15 with 20 MSA, for curtain walls, etc, including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, etc., complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Min cement content shall be 240Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	203		
7	Providing and laying in position reinforced cement concrete of grade M30 with 20 MSA for box culverts and retaining walls, etc, including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, etc., complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Min cement content shall be 300Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	471		

Price Bid Schedule- LOT 2- General Civil Works and Construction of Approach Road for Upper Reservoir at Shirawta Pump Storage Project (PSP) (Tender ref: CC27PMR018)					
8	Providing, fabricating and placing in position Corrosion resistant Thermo Mechanical Treated (CRS TMT) reinforcement bars conforming to IS : 1786 (Grade Fe 500D) for RCC works including cleaning, straightening, cutting, bending, hooking, lapping, welding or coupler joints wherever required, tying with binding wire including cost of all materials, machinery, labour, lighting, ventilation, drainage etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Chairs, spacer bars, hangers and unauthorized laps will not be paid. Reinforcement to be procured from reputed manufacturers JINDAL, TATA, SAIL, ESSAR, RINL.	MT	40		
9	Bituminous Concrete Wearing Course of total 65 mm thick comprising of 40 mm thick Bituminous Concrete laid over a coat of 25 mm thick Mastic Asphalt complete as per drawing, MoRT&H Technical Specification Clause 2700 and instructions of Owner/Project Manager.	Sq.m	380		
10	Providing and fixing drainage spouts complete as per drawing, MoRT&H Technical Specification Clause 2705 and instructions of Owner/Project Manager.	Nos.	8		
11	Providing and laying tar paper bearing including laying in proper position etc. complete as per drawings and instructions of Owner/Project Manager.	Sq.m	24		
12	Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawing & MoRT&H Technical Specification Clause 2600 and confirming to MoRT&H modified interim specifications	Sq.m	24		
13	Providing Reinforced Cement Concrete of M 30 grade in approach slabs including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, etc., complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Min cement content shall be 320Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	84		
14	Providing and laying filter media underneath pitching in slopes and flat surfaces complete as per drawing, & MoRT&H Technical Specification Clause 2504 and instructions of Owner/Project Manager.	Cum	37		
15	Providing and laying stone pitching on sloped sufaces for earth protection complete as per drawing, MoRT&H Technical Specification Clause 2504 and instructions of Owner/Project Manager.	Cum	82		
16	Providing weep holes in abutments, wing walls and return walls complete as per drawing and Technical Specification Clause 2706.	No's	264		
17	Providing and constructing RCC crash barrier M 40 grade including cost of centering as per approved Drawings and Technical Specifications Clause 809 and as per IRC-6	Cum	34		
18	Providing and laying rigid floor apron which consists of 150mm thk flat stone apron embedded in 300mm thick M15 concrete for protection against scour complete as per drawing	Cum	115		
19	Providing and laying boulders apron for protection against scour with stone boulders weighing not less than 40 kg each complete as per drawing, MoRT&H Technical Specification Clause 2503 and instructions of Owner/Project Manager. (Boulder laid dry without wire crates)	Cum	331		
			TOTAL (B)		
C	**Pipe Culverts**				
1	Open Excavation in excavation class 'Loose Excavation & Ripping' below existing Ground Level for foundations or any other structure within the OWNER's Premises in ordinary earth, soft/weathered rock, which includes rock/boulders/slag/slate and gravel/ clay/ murrum of all kinds, rubble, concrete debris, scrap steel, clearing away vegetation trees of all girth, bushes, underground roots, stumps etc., including shoring, strutting, by providing adequate slopes and hard barricading as per OWNER's standards including careful handling of underground utilities etc., including backfilling as directed by the Owner, stacking and multiple handling of earth within project area and stacking of surplus earth within plot boundary as directed by Engineer-in-charge, including dewatering, preparing the bed for foundation etc. Payment shall be done as per Drawing. No payment will be made for side slopes, working area etc. unless otherwise mentioned in the approved drawings The rate shall be inclusive of obtaining royalty permission from Collector and all relevant Authorities including all laisoning works at no extra cost to Tata Power .Contractor shall furnish challan for Statutory payments of royalty to Tata Power. Rates shall be inclusive of all manpower, material, plant and equipment, dewatering, scaffolding etc. Work shall be done as per relevant IS, BIS, ASTM standard and as per Tata Power Standards, procedures without any extra cost to Tata Power. Rate shall be excluding Royalty, which shall be reimbursed at actuals upon submitting challan for Statutory payments of royalty.	Cum	260		
2	Open Excavation in excavation class 'Rock Excavation' below existing Ground Level for foundation and or other structure in hard rock by control blasting with monitored PPV under CWPRS Supervision with equipment, clearing away vegetation trees of all girth, bushes, underground roots, stumps etc., including shoring, strutting, providing and drilling holes in rock for pre-shearing for maintaining slope and to protect close proximity of existing structure and all safety provisions, by providing adequate slopes using hard barricading as per OWNER's standards including careful handling of underground utilities etc., including backfilling as directed by the Owner, stacking and multiple handling of earth within project area and stacking of surplus earth within plot boundary as directed by Engineer-in-charge, including dewatering, preparing the bed for foundation etc. Payment shall be done as per Drawing. No payment will be made for side slopes, working area etc.unless otherwise mentioned in the approved drawings. Loose boulder more than 1 m in any dimension shall be considered as hard rock. The rate shall be inclusive of obtaining royalty permission from Collector and all relevant Authorities including all laisoning works at no extra cost to Tata Power .Contractor shall furnish challan for Statutory payments of royalty to Tata Power. Rates shall be inclusive of all manpower, material, plant and equipment, dewatering, scaffolding etc. Work shall be done as per relevant IS, BIS, ASTM standard and as per Tata Power Standards, procedures. Geological overbreak will not be paid for if the drill marks are observed on C/s beyond approved pay line. Rate shall be excluding Royalty, which shall be reimbursed at actuals upon submitting challan for Statutory payments of royalty.	Cum	606		
3	Providing and laying in position plain cement concrete of grade M10 with 40 MSA in levelling course / fill under or around foundations, pits, slabs on grade, etc, including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, etc., complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Min cement content shall be 190Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	37		
4	Providing and laying first class/ selected granular material in bedding for pipe culverts all complete as per drawing, MoRT&H Technical Specifications Section 2900 and instructions of Owner/Project Manager	Cum	123		

Price Bid Schedule- LOT 2- General Civil Works and Construction of Approach Road for Upper Reservoir at Shirawta Pump Storage Project (PSP) (Tender ref: CC27PMR018)					
5	Providing and laying in position plain cement concrete of grade M15 with 20 MSA, for pipe encasement, curtain walls, etc, including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, etc., complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Min cement content shall be 240Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	266		
6	Providing and laying in position plain cement concrete of grade M20 with 20 MSA, for head wall, etc, including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, etc., complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Min cement content shall be 250Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	540		
7	Providing, laying and jointing RCC Hume Pipe of diameter 1.2 m and class NP-4 (as per IS:458-2003) for culverts, complete as per drawing,MoRT&H Technical Specifications Section 2900, IRC : SP No.13 and instructions of Owner/Project Manager	RM	325		
8	Providing and laying boulders apron for protection against scour with stone boulders weighing not less than 40 kg each complete as per drawing, MoRT&H Technical Specification Clause 2503 and instructions of Owner/Project Manager. (Boulder laid dry without wire crates)	Cum	132		
9	Providing and laying filter media underneath pitching in slopes and flat surfaces complete as per drawing, & MoRT&H Technical Specification Clause 2504 and instructions of Owner/Project Manager.	Cum	21		
10	Providing and laying stone pitching on sloped sufaces for earth protection complete as per drawing, MoRT&H Technical Specification Clause 2504 and instructions of Owner/Project Manager.	Cum	53		
			TOTAL (C)		
D	**Minor Bridges**				
1	Open Excavation in excavation class 'Loose Excavation & Ripping' below existing Ground Level for foundations or any other structure within the OWNER's Premises in ordinary earth, soft/weathered rock, which includes rock/boulders/slag/slate and gravel/ clay/ murrum of all kinds, rubble, concrete debris, scrap steel, clearing away vegetation trees of all girth, bushes, underground roots, stumps etc., including shoring, strutting, by providing adequate slopes and hard barricading as per OWNER's standards including careful handling of underground utilities etc., including backfilling as directed by the Owner, stacking and multiple handling of earth within project area and stacking of surplus earth within plot boundary as directed by Engineer-in-charge, including dewatering, preparing the bed for foundation etc. Payment shall be done as per Drawing. No payment will be made for side slopes, working area etc. unless otherwise mentioned in the approved drawings The rate shall be inclusive of obtaining royalty permission from Collector and all relevant Authorities including all laisoning works at no extra cost to Tata Power .Contractor shall furnish challan for Statutory payments of royalty to Tata Power. Rates shall be inclusive of all manpower, material, plant and equipment, dewatering, scaffolding etc. Work shall be done as per relevant IS, BIS, ASTM standard and as per Tata Power Standards, procedures without any extra cost to Tata Power. Rate shall be excluding Royalty, which shall be reimbursed at actuals upon submitting challan for Statutory payments of royalty.	Cum	682		
2	Open Excavation in excavation class 'Rock Excavation' below existing Ground Level for foundation and or other structure in hard rock by control blasting with monitored PPV under CWPRS Supervision with equipment, clearing away vegetation trees of all girth, bushes, underground roots, stumps etc., including shoring, strutting, providing and drilling holes in rock for pre-shearing for maintaining slope and to protect close proximity of existing structure and all safety provisions, by providing adequate slopes using hard barricading as per OWNER's standards including careful handling of underground utilities etc., including backfilling as directed by the Owner, stacking and multiple handling of earth within project area and stacking of surplus earth within plot boundary as directed by Engineer-in-charge, including dewatering, preparing the bed for foundation etc. Payment shall be done as per Drawing. No payment will be made for side slopes, working area etc.unless otherwise mentioned in the approved drawings. Loose boulder more than 1 m in any dimension shall be considered as hard rock. The rate shall be inclusive of obtaining royalty permission from Collector and all relevant Authorities including all laisoning works at no extra cost to Tata Power .Contractor shall furnish challan for Statutory payments of royalty to Tata Power. Rates shall be inclusive of all manpower, material, plant and equipment, dewatering, scaffolding etc. Work shall be done as per relevant IS, BIS, ASTM standard and as per Tata Power Standards, procedures. Geological overbreak will not be paid for if the drill marks are observed on C/s beyond approved pay line. Rate shall be excluding Royalty, which shall be reimbursed at actuals upon submitting challan for Statutory payments of royalty.	Cum	682		
3	Providing and laying back filling behind the structures, in quadrants pitching,etc., with selected granular material of approved quality including all leads and lifts complete as per drawing, MoRT&H Technical Specification clause 305 and instructions of Owner/Project Manager.	Cum	5,781		
4	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall, return wall, etc., to the full height compacted to a firm condition complete as per drawing, MoRT&H Technical Specification and instructions of Owner/Project Manager.	Cum	450		
5	Providing and laying in position plain cement concrete of grade M10 with 40 MSA in levelling course / fill under or around foundations, pits, slabs on grade, etc, including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, etc., complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Min cement content shall be 190Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	74		
6	Providing and laying in position Reinforced cement concrete in Foundations including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, providing construction joints, leaving, cut-outs, pockets, etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths for the following mixes:		-		
i.	M30 Grade with 20 MSA - Min cement content shall be 320Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	735		

Price Bid Schedule- LOT 2- General Civil Works and Construction of Approach Road for Upper Reservoir at Shirawta Pump Storage Project (PSP) (Tender ref: CC27PMR018)					
7	Providing and laying in position Reinforced cement concrete in Substructure (Abutments, Piers, Walls, etc.,) including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, providing construction joints, leaving, cut-outs, pockets, etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths for the following mixes:		-		
i.	M30 Grade with 20 MSA - Min cement content shall be 320Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	682		
8	Providing and laying in position Reinforced cement concrete in Superstructure (Beams, Slabs, etc.,) including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, providing construction joints, leaving, cut-outs, pockets, etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths for the following mixes:		-		
i.	M30 Grade with 20 MSA - Min cement content shall be 320Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	75		
9	Providing, fabricating and placing in position Corrosion resistant Thermo Mechanical Treated (CRS TMT) reinforcement bars conforming to IS : 1786 (Grade Fe 500D) for RCC works including cleaning, straightening, cutting, bending, hooking, lapping, welding or coupler joints wherever required, tying with 16 SWG black annealed iron wire including cost of all materials, machinery, labour, lighting, ventilation, drainage etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Chairs, spacer bars, hangers and unauthorized laps will not be paid. Reinforcement to be procured from reputed manufacturers - JINDAL, TATA, SAIL, ESSAR, RINL.	MT	179		
10	Bituminous Concrete Wearing Course of total 65 mm thick comprising of 40 mm thick Bituminous Concrete laid over a coat of 25 mm thick Mastic Asphalt complete as per drawing, MoRT&H Technical Specification Clause 2700 and instructions of Owner/Project Manager.	Sq.m	158		
11	Providing and fixing drainage spouts complete as per drawing, MoRT&H Technical Specification Clause 2705 and instructions of Owner/Project Manager.	Nos.	2		
12	Providing and laying tar paper bearing including laying in proper position etc. complete as per drawings and instructions of Owner/Project Manager.	Sq.m	15		
13	Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawing & MoRT&H Technical Specification Clause 2600 and confirming to MoRT&H modified interim specifications	Sq.m	20		
14	Providing Reinforced Cement Concrete of M 30 grade in approach slabs including cost of all materials, plant, equipment, machinery, labour, providing, fixing & removing formwork, scaffolding, centering, shuttering, bracing, mixing, placing, vibrating and curing, providing necessary protective works to keep the working area dry, dewatering, de-silting, removing over fallen muck, cleaning wherever necessary, etc., complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths. Min cement content shall be 320Kg/m3 Excluding Fly Ash (if Fly Ash is used in addition to minimum cement content, it shall be limited to 25% of cement content)	Cum	19		
15	Providing and laying filter media underneath pitching in slopes and flat surfaces complete as per drawing, & MoRT&H Technical Specification Clause 2504 and instructions of Owner/Project Manager.	Cum	98		
16	Providing and laying stone pitching on sloped sufaces for earth protection complete as per drawing, MoRT&H Technical Specification Clause 2504 and instructions of Owner/Project Manager.	Cum	202		
17	Providing weep holes in abutments, wing walls and return walls complete as per drawing and Technical Specification Clause 2706.	Nos.	604		
18	Providing and constructing RCC crash barrier M 40 grade including cost of centering as per approved Drawings and Technical Specifications Clause 809 and as per IRC-6	Cum	28		
	TOTAL (D)				
	TOTAL FOR PHASE-1 (A+B+C+D)				
	ADDL. GST____%				
	TOTAL FOR PHASE-1 (INCL. GST)				
	PHASE-2				
1	Laying and compacting of BC in wearing course including materials, testing, labour, equipment's, preparation of mix, transportation and laying, compaction etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths.	Cum	1,250		
2	Laying and compacting of DBM in base course and binder course including materials, testing, labour, equipment's, preparation of mix, transportation and laying, compaction, application of prime coat/ tack coat etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths.	Cum	3,200		
3	Laying and compacting clean, crushed, graded aggregate and granular material, premixed with water, to a dense mass of WMM on a prepared subgrade/sub-base including materials, testing, labour, equipment's, preparation of mix, spreading, compaction etc. complete in all respects as per specifications, drawings and instructions of Owner/Project Manager with all leads and lifts/depths.	Cum	7,550		
4	Metal Beam Crash Barrier Providing and erecting a W metal beam crash barrier comprising of 3mm thick corrugated sheet metal beam rail, 70cm above road/ground level, fixed on ISMC series channel vertical post,150x75x5mm spaced 2m Centre to Centre, 1.8m high, 1.1m below ground/road level, all steel parts and fitments to be galvanized by hot dip process , all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150x75x5mm, 330 mm long complete as per clause 810 of MORTH.	Rm	30,500		
	TOTAL FOR PHASE-2				
	ADDL. GST____%				
	TOTAL FOR PHASE-2 (INCL. GST)				
	GRAND TOTAL (PHASE-1 + PHASE-2)				
	ADDL. GST____%				
	GRAND TOTAL (INCL. GST)				

Special Notes:-

Price Bid Schedule- LOT 2- General Civil Works and Construction of Approach Road for Upper Reservoir at Shirawta Pump Storage Project (PSP)
(Tender ref: CC27PMR018)

1. Bidder shall submit price strictly as per the above price schedule.

2. GST will be paid extra (if applicable) by the Owner as per the price schedule. Bidder to indicate the rate of GST in the price schedule.

Date:
Place:

ıthorised Signatory with company seal)
Name:
Designation:
Bidder Name:

1.0 DEFINITION OF TERMS AND PRELIMINARY CONDITION OF CONTRACT

1.1 **DEFINITIONS:**

1.1.1 In the Contract (as defined below), unless the context requires otherwise the words and expressions defined below shall have the meaning hereinafter assigned to them.

1.1.2 "Affiliate for Owner" shall mean an entity controlled by a Party directly or indirectly through ownership of voting securities or by Contract or otherwise. "Affiliate for Contractor" shall mean an entity controlling, controlled by, or under the common control with, a Party directly or indirectly through ownership of voting securities or by Contract or otherwise.

1.1.3 "Annexure" means all appendices, annexure and schedules annexed to this Contract or incorporated by reference herein and shall include all amendments and revisions thereto made by mutual agreement of Owner/Project Manager and Contractor in accordance with the provisions contained in this behalf in this Contract.

1.1.4 "Applicable Laws" means all laws, treaties, ordinances, rules, regulations applicable in India and amendments, re-enactments, revisions, applications, and adaptations thereto made from time to time and in force and effect, judgements, decrees, injunctions, writs and orders of any court, arbitrator or governmental agency or authority, rules, regulations, orders and interpretations of any Governmental Instrumentality, court or statutory or other body having jurisdiction over construction of the Facility on the Facility Site, performance of the Work or supply of Goods, including Applicable Permits, as may be in effect at the time of performance of work or supply of Goods hereunder by the Contractor, which time would include Defects liability period as appropriate, provided, however, that if at any time the Applicable Laws are less stringent than the standards set forth in the Contract hereto, the standard set forth in the contract hereto shall be deemed to be the standards under Applicable Laws.

1.1.S "Applicable Permits & Clearances" means any and all permits, clearances, authorizations, consents, licenses (including without limitation any import or export licenses), lease, ruling, exemption, filing, agreements, or approvals, required to be obtained or maintained in connection with construction of the Works on the Site, performance of Work, respectively by the Contractor and the Owner/Project Manager in accordance with the Contract and their maintenance, as may be in effect at the time of Contractor's performance of Work or supply of Goods hereunder.

1.1.6 "Bid" means the offer of the Contractor to the Owner/Project Manager in response to the Tender Document as set forth in the Final Proposal.

1.1.7 "Business Day" means a day other than a Sunday or public holiday on which banks are open for domestic business in the city/area where project site is located.

1.1.8 "Cause" in relation to the revocation or amendment of any Permit means any fact or circumstance, including without limitation any default, neglect or failure to abide by any of the terms and conditions of such Permit.

1.1.9 "Change in Law" means the occurrence of any of the following after the Effective Date of this Agreement.

a) The enactment of any or issuance of any new Indian law that becomes applicable law

b) The amendment or repeal, or re-enactment of any existing Applicable law

c) A change in the interpretation or application or enforcement of any Applicable Law by Government instrumentality

d) The revocation or cancellation of any Applicable Permit unless due to a cause attributable to the Contractor.

"Change in Law" shall however exclude:

a) Any change in minimum wages or change in market labour rates whether or not arising out of or pursuant to any new enactments of labour laws including but not limited to Payment of Minimum Wages Act and including periodic revisions in the minimum wages announced by the authorities which shall be deemed to be factored in the Contract Price / price variation clause if any mutually agreed.

b) Any changes in price of fuels (petrol and diesel), oils and lubricants or the likes pursuant to any ministry/ government notifications thereon which shall be deemed to be factored in the Contract Price/ price variation clause if any mutually agreed.

c) Any inflation of basic price of input materials which shall be deemed to be factored in the Contract Price/ price variation clause if any mutually agreed.

1.1.10 "Change Order" means a written order from the Owner /Project Manager to the Contractor after the Effective Date of the Contract requiring a change in any part of the Work or supply of Goods that may involve:

a) A change in the Scope of Work or supply of Goods,

b) An additional Work or supply of Goods,

c) The omission of a portion of the Work or supply of Goods or

d) If appropriate, an adjustment in one or more of the (i) Contract Prices, (ii) Completion Dates, (iii) Milestone Payment Schedule, (iv) any of the Performance Guarantees, or (v) any provision of this Contract including any Annexure or Schedule hereto or

e) Any of the above in combination.

1.1.11 "Change Order Notice" means a written proposal issued and signed by Owner/Project Manager requesting a change, submitted to Contractor by Owner/Project Manager.

1.1.12 "Change Order Request" means a written notice to Owner/Project Manager issued by Contractor indicating that a change order is required in connection with the performance of the work or supply of goods.

1.1.13 "Commissioning" shall mean integrated activity covered under "Preliminary Operation", "Initial Operation", "Trial Operation" and carrying out "Tests before Taking-Over" of Relevant Package under the Contract.

1.1.14 "Contract" means the documents as set out in the form of Contract Agreement in relation to the Work between the Parties as may be amended, supplemented or modified from time to time by agreement in writing between the Parties.

1.1.15 "Contract Period" or "Period of Contract" or "Contract duration" means the period from the Effective date up to and including the last day of the Defect Liability Period.

1.1.16 "Contract Price" or "Contract Value" or "Contract Sum" means the lump sum fixed price or unit rates of items as stated in the Contract or such price as may be modified and as payable by the Owner/Project Manager to the Contractor in consideration of it performing the Works or supply of Goods including all obligations of the Contractor under and in accordance with the provisions of the Contract.

1.1.17 "Contractor's Works" shall mean the places which are used by the Contractor or any of its sub-vendor / Sub-contractor for the manufacture of equipment or fabrication of materials for the performance of Work.

1.1.18 "Contractor's Equipment" means all machinery, apparatus, equipment, appliances, Materials, items and other things (other than temporary Works) of whatsoever nature required for the execution and completion of the Works, performance of the Contractor's obligations under the Contract including supply of Goods and Work, establishing of Performance Guarantees, and the remedying of any defects and deficiencies, but does not include equipment, apparatus, appliances, machinery, Materials, items and other things of whatsoever nature intended to form or forming part of the Works or Relevant Package or the Plant/Facilities.

1.1.19 "Contractor" means the entity / person / joint venture or consortium whose Bid has been accepted by the Owner/Project Manager and is awarded the Works under this Contract, and the legal successors in title to such person who satisfies the qualification criteria set forth in the Tender Documents.

1.1.20 "Contractor Permits" means all Permits, required by the Contractor from any Government Instrumentality for the performance of his obligations.

1.1.21 "Contractor's Representative" means the person named as such in the Contract or other person appointed and from time to time communicated in writing to the Owner/Project Manager by the Contractor in his place in accordance with the terms of the Contract.

1.1.22 "Contractual Time for Completion" shall mean the timeline set forth for the successful completion of all the Works including 'Tests before Taking Over' and issuance of Provisional Acceptance Certificate (PAC) by the Owner/Project Manager as per clause 8.1 of this Section.

1.1.23 "Completion of Works" shall mean successful completion of all Works including Performance Tests (if any) and 'Tests Before Taking Over' and issuance of Final Acceptance Certificate (FAC) by the Owner/Project Manager as per clause 8.2 of this Section.

1.1.24 "Consultant" or "Engineer" shall mean Consulting Engineers appointed by the Owner/Project Manager for the Project and shall include their duly authorised representatives.

1.1.25 "Day" means a calendar Day of 24 (twenty-four) hours and "Year" means 365 (three hundred and sixty-five) days.

1.1.26 "Documents" means and includes all design documents, engineering documents, Drawings, calculations, computer software (programs), computer media, samples, patterns, models, construction documents, erection documents, Operation and Maintenance Manuals, and other manuals, and the like as well as, all other data and information to be submitted by the Contractor and shall include without limitation, engineering, design and construction drawings, data sheets, specifications, plans, bills of Materials and estimates.

1.1.27 "Drawings" shall mean all:

a) Drawings furnished by the Owner/Project Manager or the Consultant.

b) Supplementary drawings furnished by the Owner/Project Manager or the Consultant 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/Project Manager or the Consultant.

d) Engineering data and drawings submitted by the Contractor during the progress of the Work under the Contract, provided such engineering data and drawings are acceptable to the Consultant or the Owner/Project Manager.

1.1.28 "Effective Date" or "Effective Date of Contract" or "Date of award" means the date on which the Contract comes into force and effect, i.e. the date of issue by the Owner/Project Manager of the Letter of Intent or Notice to Proceed or as defined in the Contract Agreement.

1.1.29 "Facility" or "Plant" means, collectively, the Relevant Package, other Packages either awarded or to be awarded at a later date to Other Contractors and other apparatus, appliances, machinery, equipment, components and other Works, together with all auxiliaries, Materials, apparatus, appliances others things whatsoever and related buildings as an integrated whole, including without limitation all systems and sub-systems thereof and related facilities, including without limitation any and all appliances, parts, instruments, appurtenances, accessories and other property that may be incorporated or installed in or attached to or otherwise become part of the Plant or as envisaged in the Contract or which otherwise constitutes a part of the Facility and located on Site.

1.1.30 "Final Take-over" means the acceptance by the Owner/Project Manager of the Works as a whole in accordance with Contract.

1.1.31 "Final Payment Certificate" means the payment certificate issued by the Owner/Project Manager or his Representative thereof to the Contractor.

1.1.32 "Financing Document" means any document relating to the: Debt or equity financing to the Owner/Project Manager for provision offunds for the development, Design, construction and /or operation of the Plant; or funds for refinancing part or whole or take-out of any such financing.

1.1.33 "Force Majeure Event" shall have the meaning set forth in clause no. 17.0 of these Conditions of the Contract.

1.1.34 "Foreign Currency" means a freely convertible currency, specified in the Schedule of Prices mentioned elsewhere in Contract in which part of the Contract Price is payable, but not Indian Rupees.

1.1.35 "General Conditions of Contract" means also referred as "GCC" means these Terms and General Conditions of Contract as mutually amended in accordance with the provisions contained in this behalf herein as applicable to scope of supply of Goods or Works.

1.1.36 "Goods" means all of the materials, equipment, machinery, apparatus, appliances, components and/or other Materials and things, which the Contractor is required to supply to the Owner/Project Manager under the Contract.

1.1.37 "Good Engineering Practices" means those practices, methods, acts, techniques and standards as may be followed or employed in the performance of the Work or supply of Goods and discharge of its obligations by the Contractor and which (i) are generally accepted internationally for use in the Construction and electric utility industry, taking into account conditions in India, in connection with the works of the same or similar size and type as the Relevant Package, (ii) are commonly used in prudent engineering, construction, project management and operations, and (iii) would be expected to result in performance of the Services and completion of Works in a manner consistent with Applicable Laws, Applicable permits, reliability and safety.

1.1.38 "Government Instrumentality" or "Government" means the Government of India, the Government of State and any other State, or any political subdivision, ministry, department, agency, corporation, commission or any regional, local or municipal authority or governmental body thereof or any other governmental or statutory body under the direct or indirect control of

the Government of India or Government of State or of any other State, or of any political subdivision, ministry, department, agency, corporation, commission, or any regional, local or municipal authority or governmental body thereof, and shall include without limitation any other governmental or statutory body having jurisdiction over the facility or over the performance of any part of Work or the Works or any obligation of the Contractor or the Owner/Project Manager under the Contract.

1.1.39 "Guaranteed Completion Date" or "Guaranteed Completion Dates" means, individually or collectively, the date by which contracted Works for the Relevant Package shall be completed as per the agreed Contractual Time for Completion.

1.1.40 "Hazardous Materials" means (i) hazardous materials, hazardous wastes, hazardous substances, toxic substances or contaminants as those terms are defined under any environmental law or regulation, including, but not limited to, Applicable Laws, and in the regulations adopted or promulgated pursuant thereto; (ii) petroleum and petroleum products including crude oil and any fractions thereof; (iii) any other hazardous, radioactive, toxic or noxious substance, material, pollutant, or solid, liquid or gaseous waste; and (iv) any substance that, whether by its nature or its use, is subject to regulation under any environmental law or with respect to which any applicable environmental law or any Governmental Instrumentality requires environmental investigation, monitoring or remediation.

1.1.41 "Inspector" shall mean the authorised representatives appointed by the Owner or Project Manager or the Consultant or Owner's/Project Manager's Third-Party Inspection Agency for purpose of the inspection of materials/ Equipment/ works/ Services.

1.1.42 "Intellectual Property" means copyrights conferred under statute, common law or equity in relation to inventions (including patents) registered and unregistered trademarks and service marks registered and unregistered designs, circuit layouts, confidential information, proprietary information and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields."

1.1.43 "Interim Payment Certificate" means any payment certificate other than Final Payment Certificate, issued by the Owner/Project Manager.

1.1.44 "Latent Defect" shall mean the defects inherently lying within the Goods or Works which do not manifest during normal inspections carried out by the Owner/Project Manager or the defects inherently lying within the Goods or Works or the Relevant Package which do not manifest during the normal operations and maintenance of the Relevant Package / Plant during the Defects Liability Period.

1.1.45 "Liquidated Damages" means the appropriate measures of the damages for such delays or such shortfalls in performance by the Contractor and are neither penalty nor consequential damages sustained by Owner/Project Manager as a result of such delays and/ or shortfalls, as set forth in relevant clause hereof.

1.1.46 "Manuals" means all the various instruction manuals to be provided as per the Contract by the Contractor and shall include Manuals described in Specifications or General Conditions of Contract.

1.1.47 "Manufacturer'' means any entity or firm who is the producer and furnisher to the Contractor of any material or designer and fabricator of any equipment/ systems which is to be incorporated in or forms part of the Piant / work.

1.1.48 "Materials" means Goods and other things of all kinds to be provided and incorporated, to be used in the permanent Works/ Plant/ Works by the Contractor, including Goods purchased by

the Owner/Project Manager and supplied to the Contractor or as a free issue or the supply-only items (if any) which are to be supplied by the Contractor under the Contract.

1.1.49 "Milestone Payment Schedule" means the document which sets forth the limits of payments to be released (worked out, inter alia, on the basis of payment terms agreed by the Owner/Project Manager) by linking such payment limits (in terms of percentages) with detailed milestones commencing from the Effective date. Such percentages shall be with reference to the Contract Price.

1.1.50 "Month" shall mean calendar month or a period of 30 (thirty) days as relevant to the context.

1.1.51 "Monthly Progress Report" or "Progress Report" means a progress report of the Works meeting the requirements set forth in Specification hereto or as instructed by the Owner/Project Manager.

1.1.52 "Notice in Writing" or "Written Notice" shall mean a notice in writing, typed or printed or hand written characters, sent (unless delivered personally or otherwise proved to have been received) by registered post or by electronic transmission to the last known private or business address or registered office of the addressee and shall be deemed to have been received when in the ordinary course of post or by electronic media it would have been delivered.

1.1.53 "Other Contractor" shall mean Contractors engaged by Owner/Project Manager for carrying out other works / work packages and other allied infrastructure facilities required for the Facility / Project.

1.1.54 "Owner" shall have the meaning as defined in the Special Conditions of Contract (SCC) or shall mean The Tata Power Company Limited (in case not defined in SCC) in the in its capacity as Owner of the Facility and the Works and shall include its successors and assigns, as well as authorised officers. "Project Manager" shall have the meaning as defined in the sec (or shall mean The Tata Power Company Limited (in case not defined in SCC) and shall include its successors and assigns and shall include the authorised officers who can act as Owner's/Project Manager's representative for the Contract.

1.1.55 Owner's/Project Manager's Representative" means the person appointed by the Owner/Project Manager from time to time and notified as such to the Contractor to act as Owner's/Project Manager's Representative for the purposes of the Contract.

1.1.56 "Owner's/Project Manager's Instructions" shall mean any drawings, instructions, details, directions and explanations, in Writing issued by the Owner/Project Manager or the Consultant from time to time during the subsistence of the Contract.

1.1.57 "Owner/Project Manager Permits" means the permits, authorisations, consents and approvals required by the Owner/Project Manager to own, posses, operate and maintain the Works and to operate it for intended purpose.

1.1.58 "Party" means Owner/Project Manager or Contractor individually and "Parties" means Owner/Project Manager and Contractor collectively.

1.1.59 "Permanent Works" means the Permanent Works, equipment and Materials including all civil, electro-mechanical works designed, engineered, manufactured, installed, erected, supplied, executed, commissioned or tested in accordance with the Contract and which form part of the Facility.

1.1.60 "Performance Guarantees" or "Warranty" shall have the meaning set forth in Technical Specifications of Contract.

1.1.61 "Performance Test" means, the test to be carried out in accordance with the provisions of Technical Specifications of Contract to prove and establish the Performance Guarantees as per Technical Specifications of Contract.

1.1.62 "Permit" means any valid permit, authorisation, license, registration, approval, consent, waiver, and exemption, No-Objection Certificate, Approval, variance, franchise or any similar order of or from any Government Instrumentality, court or other body having jurisdiction over the matter in question.

1.1.63 "Person" means any individual, corporation, partnership, association, joint stock Company, trust, unincorporated organisation, Hindu undivided Family, joint venture, consortium, government or political subdivision or agency thereof.

1.1.64 "Preliminary Operation" means all activities undertaken as part of Commissioning after Civil and Mechanical Completion up to commencement of Initial Operation and shall include mechanical and electrical checkouts, calibration of instruments and protection devices, Commissioning of sub supporting systems and chemical cleaning of the system/equipment covered under Contract.

1.1.65 "Project" shall have the meaning as defined in the SCC and shall include the Facility and all the Works that are necessary for the Project.

1.1.66 "Project Documents" mean collectively this Contract, the State Implementation and Support Agreement, the Land Lease Agreement, Transportation Agreement and any other contracts entered into or to be entered into by the Owner/Project Manager with Other Contractors in connection with the Project including without limitation any contracts for Related Works.

1.1.67 "Provisional Acceptance" or "Take-over" means the provisional acceptance by the Owner /Project Manager of the Works, pursuant to the provisions of hereof.

1.1.68 "Prudent Utility Practices" means those practices, methods, equipment specifications and standards of safety and performance, as the same may change from time to time, as are generally accepted for use in electricity generating utilities taking into account conditions in India and commonly used in prudent electricity generation utility engineering and operations including design, engineering construction, erection, installation, Commissioning, testing, operation of the equipment comprised th erein lawfully, safely, efficiently and economically for facilities of the type and size similar to the Project and that generally conforms to the Equipment Manufacturer's operation and maintenance guidelines and also any guidelines provided in this regard by any Government or statutory organisation or a Rating agency and the like.

1.1.69 "Punch List" means the list prepared by Owner/Project Manager at the time of Provisional take - over and thereafter periodically revised by Owner/Project Manager as necessary, and in any case updated by Owner/Project Manager within 20 (twenty) days following Owner's/Project Manager's receipt of a Notice of Final take-over, in each case with the full co-operation of Contractor, which list shall set forth certain items of Work which remain to be performed by the Contractor in order to ensure that the Works fully complies with all of the standards and requirements set forth in the Contract.

1.1.70 "Related Works" shall mean other than the Work under the Contract performed or to be performed by the Owner/Project Manager or Owner's/Project Manager's Other Contractors in connection with the Facility either prior to, concurrently or subsequently with the Works within or outside the Site with whom the Contractor shall co-ordinate and interface his activities covered by the Contract.

1.1.71 "Relevant Package" means, design (if applicable), engineering (if applicable), manufacturing, shop fabrication, assembly, testing and inspection at supplier's work, packing, dispatch, shipping,

inland transportation to Site, insurance up to time of Taking Over, delivery at Site, receipt, unloading, handling, storage and in-plant transportation at Site, site fabrication, erection installation, testing, commissioning, performance testing (as applicable) and handing over of the subject package as per the Requirement Specifications/ Scope of Work defined in the Technical Specifications.

1.1.72 "Schedule" shall have the meaning set forth in relevant clause hereof.

1.1.73 "Site" or "Project Site" means all those parcels of land owned by Owner/Project Manager on which the Works will be located, as more particularly identified on the site plan and described in Drawings forming part of Contract hereto.

1.1.74 "Sub-contractor" means any person named in the Contract as a Sub-contractor, sub-vendor, Manufacturer or supplier for a part of the Works or any person to whom a part of the Works has been sub-contracted and the legal successors in title to such Person, but not any assignee of such Person.

1.1.75 "Take- over" or "Taking Over" shall mean taking-over of the Works for the purpose envisaged under the Contract upon completion of the Performance Tests and fulfilling the conditions as mentioned in relevant clause hereof.

1.1.76 "Take-over Certificate" means the certificate issued under relevant clause hereof.

1.1.77 "Temporary Works" means all temporary works of every kind (other than Contractor's equipment) required for the execution and completion of the Works and the remedying of any defects.

1.1.78 "Tender Documents" means the Invitation to Bid together with all documents & amendments thereto and clarifications if any issued by the Owner/Project Manager or the Consultant from time to time in respect thereof.

1.1.79 "Tests" means all tests to be undertaken by the Contractor under or pursuant to the Contract including all the tests set forth in Technical Specifications.

1.1.80 "Tests before Take-over" means the tests prescribed in the Technical Specifications mentioned elsewhere in the Contract and any other such tests as may be agreed between the Owner/Project Manager and Contractor or instructed as a Change Order, which has to be carried out by the Contractor before the Taking Over of the Works.

1.1.81 "Trial Operation" shall have the same meaning as per Technical Specification of Contract.

1.1.82 "Technical Specifications" or "Specification" means all the specifications, drawings, datasheets, BOQ, scope etc which are part of Contract and which form part of technical, performance, workmanship, warranty, scope and all other requirement of the Works as stated therein.

1.1.83 "Warranty Period" or "Defects Liability Period" shall have the meaning as elaborated in Clause no. 10.2.

1.1.84 "Works" or "Services" means all the work and obligations of the Contractor under the Contract including without limitation, the work and services briefly described in Specifications including permanent works and temporary works as appropriate under the Contract.

1.1.85 "Writing" shall include any manuscript, typewritten e-mail or printed statement, under or over signature and/or seal of the originator or author as the case may be.

1.2 **Headings and Marginal Notes**

1.2.1 The section headings and marginal notes are not part of these Conditions and shall not be taken into consideration in their interpretation.

1.3 **Interpretation**

1.3.1 Words importing Persons or Parties shall include related firms and corporations and any organisation having legal capacity. Words importing the singular also include the plural and vice versa where the context requires. Words importing one gender also include other genders.

1.3.2 Unless inconsistent with the provisions of the Contract, the meaning of any shipping terms and the rights and obligationsof the parties there under shall be as set forth in the latest International Chambers of Commerce (ICC) official rules for interpretation of trade terms as per "INCOTERMS 2020".

1.3.3 The term Contractor shall include its Sub-contractor as the context requires.

1.4 **Law, Language and Measurements**

1.4.1 Applicable law to this Contract shall be the Indian Law. The respective rights, privileges, duties and obligations of the Owner/Project Manager and the Contractor under this Contract shall be governed and determined by the Laws of State and of the Republic of India.

1.4.2 The official text of this Contract shall be English, regardless of any translation that may be made for the convenience of the Parties. All correspondence, information, literature, data, manuals, definitive documents, notices, waivers and all other communication, written or otherwise, between the Parties in connection with this Contract shall be in English language only.

1.4.3 All measurements shall be in metric system.

1.5 Stamp Duty and Similar Charges

The costs of stamp duties and similar charges imposed by the Applicable Law (including but not limiting to Indian Stamps Act & Indian Registration Act) on the Contract or Agreement or any part thereof shall be borne by the Contractor.

1.6 **Effective Date of Contract**

The Contract shall be deemed to have come into force and effect from the date of issue of the Letter of Intent (LOI) or Purchase Order (PO) by the Owner/Project Manager to the Contractor or date of signing of the Contract/ Contract Agreement whichever is earlier.

1.7 **Priority of Documents**

The order of precedence of the following documents shall be as listed herein below. The Contractor is deemed to have full knowledge and understanding of the contents of all the documents whether contained in or incorporated by reference thereto, and accepted all the terms and conditions contained therein:

a) The Contract Agreement including Special Conditions of Contract, and General Conditions of Contract, Schedule of Prices, all Schedules and Appendices, Technical Specifications

b) Owner's Letter of Intent to the Contractor

c) Post tender correspondence including jointly signed minutes of meetings with the Contractor and jointly signed record notes of tender negotiations

d) Tender document

The order of precedence for Annexures to Contract Document shall be as listed herein below:

(i) Contractor's Implementation Plan including Contractor's Organization and Key Personnel

(ii) Approved list of Sub-contractors & Vendors

(iii) Responsibility Matrix for Permits, Approvals and Clearances as they shall apply to this Contract Agreement

(iv) Owner's / Project Manager's Contractor Safety Terms & Conditions, Health Safety & Environment Policies, Responsible Supply Chain Management and Sustainability Policies

In the event of any ambiguity or conflict between any of the foregoing Contract Document, the Contractor shall prior to the commencement of supplies or work be deemed to have clarified from the Owner/Project Manager any such ambiguities or conflicts.

1.8 Documents on **Site**

The Contractor shall keep on the site one complete set of the Contract, the Documents, Change Orders, communications given or issued under various clauses duly authenticated by the Owner's Representative. These Documents shall be either true copies or original documents, the same being verified as true copies by Owner's Representative. The Owner/Project Manager, the Owner's Representative and his delegates (as referred to in sub-clause 2.4) shall have the right to use such Documents at all reasonable times.

1.9 **Communications**

All certificates, notices, instructions, communications, consents, approvals, orders or determination to be given to the Contractor by the Owner/Project Manager or the Owner's Representative, (in as many copies required) and all notices or communication, to be given to the Owner/Project Manager or to the Owner's Representative by the Contractor, shall be in Writing and may either be delivered by hand against written acknowledgement of receipt, or be sent by airmail or one of the agreed systems of electronic transmission as agreed by the Owner/Project Manager. The Contractor shall maintain a separate set of copies of all the inward and outward correspondences which should be produced at any time if need be. The Contractor shall act or modify actions only on the basis of valid written communications received from the Owner/Project Manager/ Owner's representative and would need to provide the documentary evidence (correspondences received from Owner/Project Manager/ Owner's Representative) if required by the Owner/Project Manager.

1.10 **Provision of** Documents

1.10.1 The Documents referred to in Technical Specifications shall be in the custody and care of the Contractor. The Contractor shall furnish to the Owner/Project Manager/ Owner's Representative Documents, Drawings, etc. as per Technical Specifications.

1.10.2 In addition, and without prejudice to the foregoing, the Contractor shall provide to the Owner/Project Manager "as built" Drawings of the Relevant Package consequent to Provisional Acceptance and only after the delivery of such as built Drawings, the Final Acceptance shall take effect.

1.11 **Contractor's Use of Owner/Project Manager's Documents**

1.11.1 Copyright in the Owner/Project Manager's requirements and other Documents issued by the Owner/Project Manager or the Owner's Representative to the Contractor shall (as between the parties) remain the property of the Owner/Project Manager. The design, engineering, Drawings

and Works layout shall be with the Owner/Project Manager. Contractor may, at its Cost, copy, use and communicate any such documents for the purposes of the Contract. They shall not, without the Owner/Project Manager's consent, be used, copied or communicated to a third party by the Contractor, except as necessary for the purposes of the Contract including performance of Work.

1.11.2 The Contractor shall indemnify and hold Owner/Project Manager, harmless from time to time from and against any all losses, claims, suits, proceedings, taxes, penalties, liability, damages, costs and expenses, suffered or incurred, arising out of or in connection with breach of this clause by the Contractor. If these Documents are received by a third party from the Contractor and the third party makes use of these Documents to cause harm or monetary loss to the Owner/Project Manager or use these Documents for their personal gain / monetary gain, the Contractor shall compensate the Owner/Project Manager for the loss suffered as well as for the value of gain derived by third party.

1.12 **Confidential Details**

1.12.1 The Contractor shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out his obligations hereunder. The Contractor shall not publish, permit to be published, or disclose any particulars of the Contract in any trade or technical paper or elsewhere without the prior consent in writing of the Owner/Project Manager at the Owner/Project Manager's sole discretion.

1.12.2 The Contractor shall indemnify and hold Owner/Project Manager harmless from time to time from and against any all losses, claims, suits, proceedings, taxes, penalties, liability, damages, costs and expenses, suffered or incurred, arising out of or in connection with breach of Confidentiality obligations under this clause. If the confidential details relating to this Contract or its contents are received by a third party from the Contractor and the third party makes use of these details to cause harm or monetary loss to the Owner/Project Manager or use these Documents for their personal gain/ monetary gain, the Contractor shall compensate the Owner/Project Manager for the loss suffered as well as for the value of gain derived by the third party. The Contractor shall not use the confidential details of the Contract for any other purpose except for the strict purpose intended under the Contract.

1.13 **Contract Co-ordination and Interface**

1.13.1 From fiscal and execution considerations, the Owner/Project Manager may enter into independent stand-alone contracts with one or more Other Contractors for the other packages at the same premises.

1.13.2 The Contractor, shall be responsible for effective coordination and interfacing of all his contracting activities and obligations under the Contract with the activities and obligations of the Other Contractors and Related Works contractors in a seamless manner, irrespective of whether the same is specifically detailed in such Contracts, to ensure that the Guaranteed Time Schedule and Performance Guarantees set forth in the Contracts are properly fulfilled in a timely manner by all such Other Contractors.

1.13.3 It is the responsibility of the Contractor to interface, coordinate and cooperate with Other Contractors. Contractor shall share all information & details about the Works which are reasonably required by Other Contractors to perform works under their respective Contracts or to integrate the Works with Other Contractors' works if so required.

1.14 **Assignment**

1.14.1 The whole of the works included in the Contract shall be executed by the Contractor and the Contractor shall not directly or indirectly transfer, assign, sub-contract or sublet the Contract or

any part, share or interest therein nor shall he take a new partner without the written consent of the Owner/Project Manager. Without prejudice to the above, it is agreed that sub-contracting of all or part of its obligations under this Contract shall not relieve the Contractor from the full and entire responsibility of the Contract (including such obligations thereunder that have been sub-contracted) or from active superintendence of the works during their progress. There shall not be any change in Control of the Contractor without the prior written consent of the Owner/ Project Manager.

1.14.2 If the Contractor shall cause any part of the work to be performed by the approved Sub-contractor, the provisions of this Contract shall apply to such Sub- Contractor and his or its officers, agents or employees in all respects as if they were employees of the Contractor, and the Contractor shall not in any manner thereby, be discharged from his obligations and liability hereunder, but shall be liable hereunder for all acts and negligence of his Sub- Contractor, Sub-contractor's officers, agents and employees, as if they were employees of the Contractor. No sub-contract shall be made by the Contractor, without the written approval of the Owner/Project Manager, of both the sub-contract and the Sub- Contractor, but no such approval of the Owner/Project Manager, of both the sub-contract and the Sub- Contractor, shall affect the provisions hereof or serve to relieve the Contractor of any of the responsibilities and liabilities as described above. Copies of all such sub-contracts shall be furnished to the Owner/Project Manager immediately upon the execution thereof. The Owner/Project Manager may request the Contractor at any time to terminate any sub-contracting arrangement if the Owner/Project Manager is not satisfied with the performance of such Sub-contractor and immediately upon receipt of such request, the Contractor shall terminate such sub-contracting arrangements. The Contractor shall ensure that all sub-contracting arrangements entered into by the Contractor allow it to terminate such sub-contracting arrangements in accordance with the instructions of the Owner/Project Manager, as set out above.

1.15 **Relationship between Parties**

1.15.1 This Contract has been entered into by the Parties on a principal-to-principal basis only. The Contract shall not be construed as a partnership or an association of persons. The contract does not create any agency, partnership, joint venture, or other joint relationship between the Parties hereto. The Owner, the Project Manager and the Contractor are independent Parties performing their respective obligations and responsibilities as specified under this Contract. Each Party shall be responsible for its own conduct. The Contractor shall at all times ensure that all the work carried out under this Contract either by its own person or through any of its Sub-contractors shall always be done under its own direct.

1.16 **Joint & Several Liability**

If the Contractor constitutes a joint venture, consortium of entities or other unincorporated grouping of two or more persons:

a) these entities/ persons forming the consortium shall be deemed to be jointly and severally liable to the Owner/Project Manager for the performance of the Contract;

b) these entities/ persons forming the consortium shall notify the Owner/Project Manager of their leader who shall have the authority to bind the Contractor and each of these entities / persons; and

c) the Contractor shall not alter the composition of the consortium or legal status without the prior written consent of the Owner/Project Manager.

2.0 OWNER/PROJECT MANAGER'S OBLIGATIONS

2.1 **Access and Right to Use of the Site**

The Owner/Project Manager shall grant the Contractor right of access to and make available the Site to the Contractor in accordance with the terms of the Owner/Project Manager's property rights within reasonable time after the Letter of Intent for the performance of the Work or pursuant to and in accordance with the Contract. Such right and use of the Site may not be exclusive to the Contractor. In the execution of the Works, no persons other than the Contractor or his duly appointed representative, duly authorised Sub-contractors and workmen, shall be allowed to do Work on the Site, except by the special permission, in writing by the Owner's representative.

2.2 **Permits Licences & Approvals**

2.2.1 The Contractor shall be responsible for applying and obtaining all the Permits, licenses or approvals as required to be obtained by Contractor for carrying out and completion of the Works, in time as per the Schedule agreed in the Contract. The Owner/Project Manager may, at the request and cost of the Contractor assist the Contractor in applying for Contractor Permits and other Construction Permits as defined herein. Such requests may also include requests for the Owner/Project Manager's assistance in applying for any necessary government consent for the export of Contractor's equipment when it is removed from the Site.

2.2.2 The Owner/Project Manager's assistance in applying for Permits, licenses or approvals (for which the Contractor is responsible under the Contract) is not obligatory and the extent of such assistance shall be at the sole discretion and convenience of the Owner/Project Manager. In any case, the obligations of the Contractor as set out herein shall continue, irrespective of the manner, outcome and extent of assistance from the Owner/Project Manager. All the necessary fees and any incidental charges required to be paid for obtaining all Contract permits shall be solely borne by and be the sole liability of the Contractor, without any recourse to the Owner/Project Manager. All statutory fees paid for obtaining the Permits/ licenses/ approvals pertaining for execution of the Project specified in Owner/Project Manager's scope shall be reimbursed by the Owner/Project Manager against submission of documentary evidence. However, Contractor shall obtain permits / Licenses, approvals required for carrying out his responsibilities at his cost.

2.3 **Owner/Project Manager's Other Obligations**

2.3.1 Owner/Project Manager shall

a) Designate a person as Owner/Project Manager's Representative (the "Owner's Representative") to be the contact for Contractor with respect to the performance of the Works and Contractor's obligation under the Contract, and shall be authorised to act for and on behalf of Owner/Project Manager and administer this Contract on Owner/Project Manager's behalf, agree up on procedures for co-ordinating Owner/Project Manager's efforts with those of Contractor and Other Contracts and as appropriate, make information available to Contractor.

b) Pay in a timely manner in accordance with Terms of Payment, subject to fulfilment of milestones and provided the Contractor is not in breach of Contract, the Contract Price and all other sums, if any, required to be paid by it to Contractor pursuant to the Contract.

2.4 The **Owner's Representative**

2.4.1 The Owner's representative's Duties and Authority

The Owner may appoint separate consultant/s to provide project management consultancy services for the Project. Such consultant/s shall act as an Owner's Representative to exercise the rights and carry out the duties of the Owner under the Contract. Owner's Representative shall

also include Consultant / Consulting Engineer or Third-Party Inspection Agency as required or deemed appropriate or authorised by the Owner/Project Manager. Any act, instruction or decision of the Owner's representative shall be as if this was an act, instruction or decision of the Owner.

The Contractor shall not be authorized to receive or act on instructions from any person other than the authorised Owner's Representative without prior written consent of the Owner and the Contractor shall be solely & entirely liable for the act of omission carried out under the instructions from any person other than the Owner or Owner's Representative.

Except as expressly stated in the Contract, the Owner's Representative shall have no authority to (a) amend, alter, modify or waive any provision or term of the Contract, or (b) relieve the Contractor of any of his duties, obligations or responsibilities under the Contract. Any proposal, inspection, examination, testing, consent, approval or similar act by the Owner's Representative (including absence or disapproval) shall not relieve or absolve in any manner whatsoever, the Contractor from any responsibility, liability or obligation under the Contract, including responsibility and liability for his errors, omissions, discrepancies, and non-compliance with the Specifications and any provisions of the Contract.

2.4.2 **Owner's Representative's instructions**

2.4.3 The Contractor shall comply with written decision instruction or order given by the Owner's Representatives (such as have been identified in writing by the Owner) in accordance with the Contract. The Contractor shall not be authorised to receive instructions from any other Person without the prior written consent of the Owner and the Contractor shall be solely and entirely liable for any acts or omissions carried out under instructions from any Person other than the Owner or a duly authorised Owner's Representative.

3.0 SCOPE OF CONTRACT

3.1 **General**

3.1.1 The Contractor shall carry out and complete the Works in every respect in accordance with this Contract and in accordance with the directions and to the satisfaction of the Owner/Project Manager. The Owner/Project Manager may at his absolute discretion from time-to-time issue further drawings and/or written instructions, details, directions and explanations which are hereafter collectively referred to as" Owner/Project Manager's Instructions" in regard to:

a) The variation or modification of the design, quality or quantity of works or the omission or substitution of any work.

b) Any discrepancy in the drawings or between the Schedule of Quantities and/or drawings and/or specification.

c) The removal from the site of any materials brought thereon by the Contractor and the substitution of any other materials thereof.

d) The removal and/or re-execution of any works executed by the Contractor.

e) The dismissal from the works of any persons employed thereupon.

f) The opening up for inspection of any work covered up.

3.1.2 The Contractor shall forthwith comply with and duly execute any work comprised in such Owner/Project Manager's Instructions provided always that verbal instructions, directions and explanations given to the Contractor or his Superintendent upon the Works by the Owner/Project

Manager shall, if involving a variation, be confirmed in writing by the Contractor within seven days and the Owner/Project Manager's written approval obtained. Rates of items not mentioned in the Schedule of Quantities and Rates shall be dealt with as extra items.

3.1.3 If compliance with the Owner/Project Manager's Instructions as aforesaid involves work beyond that contemplated by the Contract, then unless the same were issued owing to some breach of this Contract by the Contractor, the Owner/Project Manager shall pay to the Contractor the prices of the said work as an extra to be valued as hereinafter provided.

3.1.4 The Contractor shall be deemed to have scrutinised the correctness and completeness of the obligations and requirements as specified in the Tender Documents (including design criteria and calculations, if any). The Contractor shall be responsible for the design of the Works. The Owner/Project Manager shall not be responsible for any error, inaccuracy or omission of any manner in the Tender Documents as originally included in the Contract and shall not be deemed to have given any representation of accuracy or completeness of any data or information. Any issue (including and not limited to error, accuracy, completeness) with the data or information received by the Contractor, from the Owner/Project Manager or otherwise, shall not relieve the Contractor from his responsibility for the design and execution of the Works.

3.1.5 Free Issue Materials / Equipment (FIM) (as applicable provided FIM is specified in sec / **Technical Specifications) to the Contractor by the Owner/Project Manager:**

If the Contract involves or the Owner /Project Manager & the Contractor mutually agree for the incorporation of any free issue materials/ equipment by the Owner/Project Manager depending upon criticality & availability of the materials during the course of the Contract:

a) Not used

b) The Contractor shall inspect the free issue materials/ equipment at the time of taking delivery thereof and satisfy itself of the quality, quantity and condition of the free issue materials/ equipment. The Owner/Project Manager shall not be liable for any claims or complaints whatsoever in respect of the quality, quantity or condition of the Free issue materials/ equipment once the Contractor has taken delivery thereof.

c) All free issue materials/ equipment shall be taken delivery of, transported, held, stored and utilized by the Contractor as trustee of the Owner/Project Manager, and delivery of the Free Issue Material to the Contractor shall constitute an entrustment thereof by the Owner/Project Manager to the Contractor with the intent that any transportation, utilization, application or disposal thereof by the Contractor otherwise than for incorporation in the Indigenous Material(s) shall constitute a breach by the Contractor.

d) The Contractor shall transport the Free Issue Materials / equipment only by such transportation as is suitable and shall hold and store the Free issue materials / equipment only at such place and/or premises that are air and water tight and otherwise suitable for the storage of the Free issue materials/ equipment so as to prevent damage or deterioration or theft or other loss, and shall arrange such watch and ward as shall be necessary to ensure the safety thereof. The Contractor shall exercise the at least the same level of care and diligence in respect of the use, storage, transportation or safety of the free issue materials / equipment that it exercises in respect of its own materials / equipment.

e) Notwithstanding the Bank Guarantee mentioned in sub-paragraph (a) above, the Contractor shall replace any Free issue materials / equipment which is/are lost, damaged, misused, stolen or deteriorated with other Material(s) of equivalent quantity and quality and condition, and the same shall be deemed to constitute Free issue materials/ equipment and the provisions of sub-paragraphs (a) to (fl hereof shall apply

thereto in the same manner as to the originally supplied Free issue materials / equipment.

f) Unused Material(s) from the Free issue materials/ equipment shall be returned by the Contractor to the Owner/Project Manager and if the Owner/Project Manager so directs, the Contractor shall dispose of the same by sale or otherwise on such terms and conditions as the Owner/Project Manager may stipulate or approve and the Contractor shall pay to the Owner/Project Manager the sale proceeds of the Material(s) so disposed of by sale.

g) Contractor shall ensure quarterly physical assessment of the stock of material issued to him by the Owner/Project Manager and submit the same in the form of Reconciliation.

h) The free issue materials will be supplied by the Owner in bags, sizes and lengths or in coils as available. The cost of all wastage, due to rolling tolerance, cutting, conversion, straightening and/or fabricating shall be borne by the Contractor, at the recovery rates given in item No (i) below, as long as wastage margin does not exceed following limits:

   i) Cement at 2% - Reconciliation of cement shall be done as per standard practice as per relevant IS code and any wastage above 2% shall be recovered from the Contractor at the rate mentioned in item no (i) of clause 3.1.5 stated below.

   ii) Structural steel at 3% of the theoretical requirements - 2.5 % is considered as visible wastage and 0.5 % as invisible wastage like gas cutting etc. Rolling tolerance if any shall be recorded separately and due credit or consideration shall be given during reconciliation. All scraps shall be the property of Owner. The scraps shall be properly accounted for and no scrap or cut pieces shall be removed from site or disposed off without prior inspection and written permission by the Engineer. All scraps are deemed to be included within the above allowances. The following dimensions shall be considered for reconciliation purposes:

      a) Structural sections less than 75 mm in any dimension - 1.2 meters and above

      b) Structural sections exceeding 75 mm in any dimension-2.0 meters and above

      c) Plates-Up to 12mm thickness - 200mm x 200mm and above

      d) Plates- 14mm to 25 mm thickness-300mm x 300 mm and above

      e) Plates- 25mm thickness - 400mm x 400mm and above

      Provided further, if the Engineer so desires, the Contractor shall have to return to the Owner cut pieces or scrap even below the dimension stated above. Due credit will be given for such return at rates to be fixed by the Engineer.

   iii) Reinforcement steel at 3% of the theoretical requirements - 2.5 % is considered as visible wastage and 0.5% as invisible wastage like cutting etc. Rolling tolerance if any shall be recorded separately and due credit or consideration shall be given during reconciliation. All scraps shall be the property of Owner. The scraps shall be properly accounted for and no scrap or cut pieces shall be removed from site or disposed of without prior inspection and written permission by the Engineer. All scraps are deemed to be included within the above allowances. The following dimensions shall be considered for reconciliation purposes:

      a) Reinforcement Steel Up to 16mm diameter - 2 meters and above

      b) Reinforcement Steel above 16mm diameter- 3 meters and above

Provided further, if the Engineer so desires, the Contractor shall have to return to the Owner cut pieces or scrap even below the dimension stated above. Due credit will be given for such return at rates to be fixed by the Engineer.

i) Recovery for unaccountable wastages, i.e. in excess of limits stated as above or for the material that is not reconciled, shall be made from the Contractor at prevailing market rate plus 25 %. The Owner/Project Manager shall decide the quantities of materials for which such value is to be recovered and decision of the Owner/Engineer shall be final and binding.

3.2 Labour and Personnel

3.2.1 The Contractor shall make his own arrangements for the engagement of all staff and labour, local or otherwise, and for their payment, housing, food and transport. Any labour camps required for execution of Works shall be arranged by Contractor at its own cost. No parcel of land or other facilities shall be provided by the Owner/Project Manager.

Contractor shall provide all labour and personnel required in connection with work, including:

a) Professional engineers licensed in accordance with any applicable licensing requirements in India or by any other governmental instrumentality to perform engineering services pursuant to the Contract.

b) Project team of necessary engineers from various disciplines including, construction manager, Project engineer and civil, mechanical, electrical, instrumentation and control, costing, scheduling, procurement, construction, start-up and training supervisors, all of whom shall follow Good Engineering Practices and shall have had extensive experience in projects of similar nature and magnitude and shall be proficient in the English language and have knowledge of standard industry Practices, Applicable Laws and Applicable Permits.

c) A Project Coordinator or other Representative, who shall be fully acquainted with the Project, shall be proficient in the English language and shall have the authority to administer this Agreement on behalf of Contractor. He shall give his whole time to the construction, erection and execution of the Works and to directing the preparation of all documents required for the same. Except as otherwise stated in the Contract, the Contractor's Representative shall receive (on behalf of the Contractor) all notices, instructions, consents, approvals, certificates, determinations and other communications under the Contract. Whenever the Contractor's Representative is to be absent from the site, a suitable replacement person shall be appointed, and the Owner/Project Manager / Owner's Representative shall be notified accordingly.

d) Quality assurance & Safety personnel, all of whom shall report directly to Contractor's designated home office managers and not to the Project personnel located at the Site.

e) Contractor shall give first preference for suitable skilled/unskilled local labours who have been affected due to implementation of this Project.

The Contractor shall employ (or cause to be employed) only persons who are careful and appropriately qualified, skilled and experienced in their respective trades or occupations.

The Contractor shall not solicit, recruit, or attempt to recruit, staff and labour from amongst the Owner/ Project Manager or Other Contractor personnel during the term of the Contract.

Upon Owner/Project Manager's request, Contractor shall provide Owner/Project Manager with the resumes of, and arrange for the interview by Owner/Project Manager of, any or all personnel described in clauses (a), (b), (c) & (d) of this Section 3.2.1. In addition, Owner/Project Manager will have the right to approve those individuals who will hold the positions described in clauses (a), (bl, (c) and (d) of this Section 3.2.1 and any other key

Project personnel employed by Contractor, and Owner/Project Manager will be afforded the opportunity to choose among candidates for the positions of project manager, project engineer and construction manager. Contractor shall not remove any Project personnel described in clauses (a), (b) & (c) and (d), of this Section 3.2.1 or any other individual in a supervisory or lead position without the prior consent of Owner/Project Manager, which consent shall not be unreasonably withheld.

3.2.2 **Removal of Staff and Labour**

The Owner/Project Manager/ Owner's Representative may require the Contractor by notice in Writing to remove (or cause to be removed) any person employed on the Site or Works, including the Contractor's Representative, who in the opinion of the Owner/Project Manager / Owner's Representative:

a) Persists in any misconduct,

b) Is incompetent or negligent in the performance of his duties,

c) Fails to conform with any provisions of the Contract;

d) Persists in any conduct which is prejudicial to safety, health, or the protection of the environment; or

e) Is found to be in intoxicated condition at the Site

f) Any other good and sufficient reasons which could be detrimental to safe and smooth operation of site as solely determined by the Owner/Project Manager or their Representatives.

3.2.3 **Rates of Wages and Conditions of Labour**

Contractor shall ensure that he pays all his personnel and shall ensure and procure that his Sub-contractors pay to their personnel regularly their wages, overtime and other compensations. The attendance register and the wage register shall be submitted to the Owner/Project Manager for verification at regular intervals. The Contractor shall also furnish the Owner/Project Manager at regular intervals as governed by Applicable laws including local statutes but not less than Monthly intervals, certificates that he has paid to his Sub-contractors and workmen and caused his Sub_Contractors to pay all the dues to his Sub-contractor workmen. In case such payment is not made regularly by the Contractor or his Sub-contractors, the Owner/Project Manager will be in his right to make such payments and deduct the same from the Contractor's progress payments. In case the Owner/Project Manager 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's Compensation Act or any other Applicable law due to act or omission of the Contractor, the Owner/Project Manager may make such payments and shall recover the same from the Contractor's bills. No labourer below the age of eighteen years shall be employed in the Work.

No price adjustment shall be made on account of changes in minimum wages during contract period including extension period if any.

Any personnel engaged by the Contractor in accordance with and in pursuance of this Contract shall be the direct employee of either the Contractor or Sub-contractors. The Contractor shall be solely liable for and responsible to all such personnel. The Owner shall have no responsibility towards any such personnel and such personnel shall, in no event, be deemed to be the employees of the Owner. Also, the Owner shall have no responsibility towards any Sub-contractor or its personnel and such Sub-contractor or its personnel shall, in no event, be deemed to be the Sub-contractor of the Owner.

3.2.4 **Persons** in **the Service of Others**

The Contractor or any of its Sub-contractors shall not recruit, solicit or attempt to recruit, its staff and labour from amongst persons in the service of the Owner/Project Manager or Other Contractors and agencies engaged by the Owner/Project Manager or the Owner's Representative during the term of contract and for a period of 1 year following completion or termination of the Contract.

3.2.5 Labour **Laws**

3.2.5.1 Any personnel engaged by the Contractor in accordance with and in pursuance of this Contract shall be the employees / Sub-contractors of the Contractor and the Contractor shall be solely liable for and responsible to such personnel. The Owner/Project Manager shall have no responsibility towards any such personnel and such personnel shall, in no event, be deemed to be the employees or Sub-contractors of the Owner. The Contractor shall comply with and shall ensure that he/his Sub-contractors comply with all the relevant labour laws applicable to his/his Sub-contractors' employees and shall duly pay and afford and cause his Sub-contractors to pay and afford to them all their legal rights. The Contractor shall require all such employees to obey all Applicable Laws and regulations concerning safety at Work.

The Contractor shall be responsible for all labour relation matters relating to the Work and shall at all times use its best efforts to maintain harmony among the personnel employed in connection with the Work whether by the Contractor or his Sub-contractors and shall enter into all necessary labour agreements with such personnel. Contractor and his Sub-contractors shall at all times comply with all Applicable Permits and Applicable Laws relating to employment including but not limited to Contract labour regulations, Workmen Compensation Act, Employee State Insurance and Provident Fund regulations, retrenchment Compensation etc. and labour welfare and use its best efforts and judgement as an experienced Contractor to adopt and implement policies and practices to avoid Work stoppages, slowdowns, disputes, strikes, lockouts and other labour strife and disagreement.

3.2.5.2 The Contractor shall be fully responsible for the due compliance by him and his Sub-contractors with all statutory requirements and with all applicable labour laws including Contract Labour Abolition and Regulation Act, Workmen's Compensation Act, P.F./E.S.I., Labour welfare fund, Act, etc. as may be applicable to the Contractor, the Sub-contractors and their employees. The locations where Allied Manpower Management System (On-line system) has been implemented, the Contractor shall ensure necessary declarations and documents are provided in the system, as per the role of the Contractor envisaged in the system.

The Contractor should get in touch with the local HR/IR/ES&A teams for completion of Statutory compliances before start of the Work. The Contractor should also ensure that he provides correct and complete PF compliance data for a wage month in the format provided by the HR/IR/ES&A teams on or before 15th of the subsequent month, failing which penalty of 1% of the value of the Invoice, per day of delay would be deducted from the Invoice raised. Further, the management will also have a right to suspend the work in case of delay in submitting the PF data.

All other compliances required by HR/IR/ES&A teams should also be provided as per timelines.

The Contractor shall fully indemnify and save harmless the Owner from and against all claims, demands, expenses, losses, liabilities, charges, actions, suits and proceedings whatsoever including claims under aforesaid Acts and laws which may be brought or made against the Owner, its Officers or servants by reason or in consequence of any matter or thing done or omitted or delaying the submission of data by the Contractor and/ or its Sub-contractors and all costs, charges and expenses which may become payable by the Owner in respect thereof."

3.2.5.3 Child labour is strictly prohibited. Contractor shall not engage any labour or employ any personnel below 18 (eighteen) years of age.

3.2.6 **Working Hours**

No work shall be carried out on the Site outside the normal working hours or on the locally recognised Days of rest or local festivals/ holidays, unless:

a) Contract so provides after fulfilling Owner/ Project Manager's process and procedures for the said working,

b) Work is unavoidable, or necessary for the saving of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Owner/Project Manager/Owner's Representative,

c) Owner/Project Manager/Owner's Representative gives his consent,

d) Extended working hours/shift working is essential for achieving Project progress/milestones at no extra cost to the Owner/Project Manager.

e) The Contractor is normally expected to work during daytime and is required to complete the work in all respects as stipulated elsewhere. For achieving Project progress/milestones, based on a specific request by the Contractor, Owner/Project Manager/Owner's Representative may consider granting permission for working during the night shifts, if he considers it essential with no extra cost to the Owner/Project Manager. Night work to be carried out only after obtaining necessary clearances and approval of the Owner/Project Manager's Representative.

Sufficient lights shall be provided by the Contractor to safeguard the workmen and the public and to afford adequate facilities for properly placing and inspecting the material when the night work is in progress. Contractor .should be geared and in readiness to carry out extended shifts, including night shift and abide by all statutory and safety requirements in respect thereof.

3.2.7 **Facilities for Staff and Labour**

The Contractor shall provide and maintain all necessary accommodation and welfare facilities for his (and his Sub-contractor's) staff and labour. The Contractor shall also provide the facilities specified in the Contract including specifications, for the Owner/Project Manager's and Owner's Representative's personnel. The Contractor shall not permit any of his or his Sub-contractor's employees to maintain any temporary or permanent living quarters within the structures forming part of the Works or Project Site. Contractor shall make his own arrangements to procure and construct adequate labour housing outside the Project Site and colony battery limits. No areas inside the Owner's land and Project Site shall be used as labour colony. No workers/labourers/supervisors or other Contractor's or Sub-contractor's personnel should be allowed to stay within the Owner's land area after his duty hours. Similarly, no workers/labourers/ supervisors or other Contractor's or Sub-contractor's personnel shall be allowed to enter the Owner's land area before the start of their respective duty time.

3.2.8 Health and Safety Precautions

Precautions shall be taken by the Contractor to ensure the health and safety of his and his Sub-contractor's staff and labour. The Contractor shall, in collaboration with and according to the requirements of the local health authorities, ensure that medical staff, first aid facilities, sick bay and ambulance service are available at the accommodation and on the site at all times, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics. The Contractor shall maintain records and make reports concerning health, safety and welfare of Persons, and damage to property, as the Owner's Representative

may reasonably require. Contractor shall be responsible for the medical treatment/hospitalisation of his and his Sub-contractor's staff/ labour.

Although the Contractor is responsible and expected to arrange for the first-aid treatment, the Owner/Project Manager may provide first-aid treatment to Contractor's employees as a humanitarian service, post which, the Contractor shall assume full and complete responsibility & liability for all the injuries and damages to its employees/workers/staff/personnel arising out of or allegedly attributable to such first aid. The Contractor shall indemnify and save harmless the Owner/Project Manager against any losses or damages or claims arising out of such first aid treatment or otherwise provided to any of the Contractor employees/workers/staff/personnel.

The Contractor shall appoint a member of his staff at the site to be responsible for maintaining the safety, and protection against accidents, of all personnel on the site. The Contractor shall pay particular attention to ensure safety of his staff and workmen and other persons in the vicinity of the Site and shall be responsible for any loss of life or injury to person due to negligence or any other causes whatsoever except natural causes. He shall provide all necessary fencing and lights required to prevent accidents and shall be bound to bear the expenses of defence of every suit, action or other proceedings at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and costs which may be awarded in any such suit, action or proceedings to any such person or which may with consent of the Contractor be paid to compromise any claim of any such person. Contractor shall comply with the Owner's/Project Manager's Safety Terms & Conditions, Health Safety & Environment Manual with sustainability document which is annexed to the GCC.

Without prejudice to the other provisions contained herein, the Contractor agrees to reinstate all damage of every sort mentioned in this clause so as to deliver the whole of the Contract Works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to the property of third parties.

The Contractor shall take all precautions necessary and shall be responsible for the safety of the work and shall maintain all lights, guards, sign boards, temporary passages, or other protection necessary for the purpose. All work shall be done at the Contractor's risk, and if any loss or damage shall result for fire or from other cause, the Contractor shall promptly repair or replace such loss or damage free from all expenses to the Owner/Project Manager. The Contractor shall be responsible for any loss or damage to material, tools or other articles used or held for use in connection with the work. The work shall be carried on to completion without damage to any work or property of the Owner/Project Manager or of others and without interference with the operation of existing machinery or equipment.

The use of explosives in a manner, which might disturb or endanger the stability, safety, or quality of the works, will not be allowed. Explosives shall be stored, handled and used as prescribed by the law and regulation of the Indian Union, the State in which the work is performed and sub-divisions thereof. Special attention must be given to immediate disposal of paper wrappings from explosives, which are poisonous to livestock.

Technical and safety evaluation of Contractor's Sub-contractor shall be done jointly by Owner/Project Manager.

3.2.9 **Contractor's Superintendence**

The Contractor shall provide all necessary superintendence during the construction, erection and execution of the Works, and as long thereafter as the Owner's Representative may consider necessary for the proper fulfilling of the Contractor's obligations under the Contract. Such superintendence shall be given by the sufficient persons having adequate knowledge of the operations to be carried out (including the methods and techniques required, the hazards likely

to be encountered and methods of preventing accidents) for the satisfactory and safe execution of the Works.

3.3 **Permitting**

3.3.1 **Contractor** and **Construction Permits**

Contractor shall obtain and maintain, all necessary permits required for the performance of its obligations hereunder, including those required for construction related activities and shall at all times, comply with all the terms and conditions as may be specified in such permits. If Contractor at any time becomes aware, whether as a result of notice from Owner/Project Manager or otherwise, of any applicable permit not obtained by him, Contractor shall promptly give notice thereof to Owner/Project Manager and Contractor shall be responsible for obtaining such Applicable Permit.

The Contractor shall fully indemnify and hold harmless the Owner/Project Manager and all the Owner/Project Manager and their respective shareholders, directors, employees and officials from any losses or damages arising from and out of the Contractor's failure to secure such permits or comply with any terms and conditions stated therein.

3.3.2 **Support to Owner/Project Manager for Permits**

In case Owner/Project Manager is responsible for the permits, Contractor shall provide support to Owner/Project Manager in obtaining all Owner/Project Manager Permits. Such Contractor support shall include:

a) Attendance at meetings with Owner/Project Manager and third parties designated by Owner/Project Manager;

b) Assistance in Preparation of Permit applications or, as applicable, application to transfer permits to the Owner/Project Manager;

c) Assistance in preparation of responses to inquiries by Governmental Instrumentalities/ agencies;

d) Assistance in presentations at hearing of Governmental Instrumentalities/ agencies, and

e) Provision of all available information and Documents required by Owner/Project Manager in connection with obtaining any Owner/Project Manager Permits;

3.4 **Co-operation**

3.4.1 The Contractor shall, as specified in the Specification, afford all reasonable opportunities for carrying out their respective Work to:

a) Any other contractors employed by the Owner/Project Manager and their workmen,

b) The personnel of the Owner/Project Manager, and

c) The personnel of any legally constituted public authorities who may be employed in the execution on or near the site of any work not included in the Contract, which the Owner/Project Manager may require to complete the Project.

3.4.2 The Contractor shall not hinder the work of Other Contractors and other sub-contractors of Owner/Project Manager, if any employed by or on behalf of Owner/Project Manager at the Plant Site or the Project Site, to introduce and store Materials in those areas of the Plant Site and the Project Site under Owner/Project Manager's direct control and shall cooperate to help them perform their respective services without hindrance or disruption. The Contractor shall also acknowledge that he works in congruence with requirements of lenders, other contractors,

Project off takers and other related parties, and provide them appropriate information as and when required by them and not act as to harm the interests of any of them.

3.4.3 **Miscellaneous Liabilities** in **Co-operation with Other Contractors**

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 their workmen.

Any injury or damage that may be sustained by the employees of the Other Contractors or the Owner/Project Manager, or damage to the works of Owner/Project Manager and/or other contractors due to the Contractor's Work shall promptly be made good at contractor's expense.

The Owner's representative shall determine the resolution of any difference or conflict that may arise between the Contractor and Other Contractors or between the Contractor and the workmen of the Owner/Project Manager in regard to their work.

If the Works of the Contractor is delayed because of any acts or omission of another Contractor, the Contractor shall promptly, however not later than 7 (seven) days from the occurrence of the event, expressly notify in writing to the Owner/ Project Manager of such acts of omissions on part of Other Contractors. The Contractor shall have no claim against the Owner/Project Manager on this account other than an extension of time for completing his Works, provided the cumulative effect of such delays does not exceed 60 (sixty) Days. If such delays exceed 60 (sixty) Days, the financial and time implications, if any, shall be mutually discussed, provided that the Contractor had notified the Owner/Project Manager of such acts or omissions of the Other Contractor immediately upon the occurrence thereof. No claim shall be entertained by or against the Owner/Project Manager in the instance the Contractor fails to notify such event within the stipulated time stated above.

The Owner's Representative shall be notified by the Contractor promptly of any defects or delays in the Other Contractor's Works that could affect the Contractor's Works. The Owner's Representative shall determine the corrective measures if any, required to rectify this situation after inspection of the Works and such decisions by the Owner's Representative shall be binding on the Contractor.

The Contractor shall deploy all necessary effective manpower for coordination, expediting and construction supervision required for completion of the works to meet the stipulated quality standards & Project Schedule. In case of deficient performance of the Contractor in this regard is observed by the Owner/ Project Manager, the same shall be brought out to the notice of the Contractor in writing. In case Contractor fails to remedy the performance, Owner/Project Manager will rectify the same by deployment of his own resources and the cost of the same shall be recovered from the Contractor, whether by set off against amounts payable to the Contractor under the Contract or directly, to be decided at the sole discretion of the Owner.

Should the works be suspended by reason of strike/riots by Contractor's own employees or any other cause whatsoever which relates solely to the Contractor or the Contractor's Sub-contractors and/or their respective employees and personnel Contractor shall take all precautions necessary for the protection of work and make good, at his expense, any damage arising from any of these causes and shall indemnify the Owner for any delays arising on account thereof.

3.5 **Construction Facilities, Construction Power, Construction Water Facilities, Sanitary Facilities, Telecommunication Facilities, Mail Service, Catering, Start-up Spares and Consumables**

3.5.1 During the Contract Period, the Contractor shall arrange and pay for construction fuel necessary for the performance of the Work. Contractor shall arrange and pay for lubricants, chemicals, and

other consumables in sufficient quantities, and the disposal of sewage and Other Contractor and Sub-contractor generated wastes, as necessary, to enable Contractor and each Sub-contractor to perform the Work until Take-over of the Works.

3.5.2 Construction **Power** Supplies

Unless specifically agreed by the Owner otherwise, the Contractor shall arrange and pay for Construction Power necessary for the performance of the Work till the Take-over of the Relevant Package. Construction power if arranged by the Owner may be made available at the proposed Site as available within the plant boundary at one point and the Contractor shall make his own arrangements for further distribution & metering. The Contractor shall be responsible for the maintenance of its distribution system. The Contractor shall be responsible for payment of energy bills at prevailing/agreed rates of such Construction Power till issue of Certificate of Final Acceptance. The Construction Power system by its design and nature shall be a temporary system and not part of the permanent power supply.

Contractor shall be responsible for making its own assessment of the quantum of Construction Power required and shall furnish the information in accordance with Technical Specifications. The Contractor acknowledges that electricity sourced from an Electricity Distribution Licensee in that area through the Owner's network/ DISCOM may be subject to disturbances, and its interruption or non-availability for any reason shall not constitute a condition for claim of extra time or costs on part of Contractor. The Contractor shall make adequate provision for D.G. sets as a stand-by power source for all the activities/process, which requires uninterrupted power.

No variation in Contract Price and no extension of time shall be admissible on account of any non-availability/ non-reliability of Construction Power whether supplied by the Owner or arranged by the Contractor.

3.5.3 **Construction and Drinking Water Facilities**

The Contractor shall be responsible for procuring water required for construction and other performance of its obligations under the Contract. However, if feasible, construction water may be provided by Owner/Project Manager at its sole discretion on a chargeable basis at a single location within battery limit. Metering and further distribution to various consumption points will be done by Contractor at its own cost.

Cost of all connected Works such as, but not limited to, pumps, pipeline, ground water reservoir etc are to be borne by the Contractor.

If required by the Owner/Project Manager, the Contractor will provide water supply and where required potable water also to the Owner/Project Manager's facilities at the Project Site and the Owner/Project Manager shall pay for the same accordingly. If construction water is provided by the Owner/Project Manager, the same will be provided at one point within plant boundary on chargeable basis. Metering and further distribution will be provided by the Contractor at his cost.

Drinking water shall be provided by Contractor for its Employees/Workmen at its own cost.

No variation in Contract Price and no extension of time shall be admissible on account of any non-availability of Construction Water whether supplied by the Owner or arranged by the Contractor.

3.5.4 **Sanitary** Facilities

Adequate sanitary facilities for the use of persons employed by the Contractor at the construction Site shall be provided and maintained by the Contractor to the extent and in such manner and at such places as shall be acceptable to the Owner/Project Manager. Separate Toilet facilities for both gents and ladies shall be provided.

Contractor shall make all temporary arrangements for the treatment and discharge of sewage and drainage from or in connection with the construction and Work Site and shall maintain the same to the satisfaction of the Owner/Project Manager as long as they may be required. All sanitary waste shall be treated in accordance with the Applicable law including applicable local regulations.

In this regard, Contractor shall prohibit the committing of nuisance on the site or upon the land of the Owner/Project Manager or of adjacent landowners and any employee of Contractors or its Sub-contractors found violating this provision shall be liable to immediate dismissal.

3.5.5 **Canteen Facilities**

The Contractor shall arrange for catering services for their staff and workers deployed on the project Site. Costs of catering services towards the Owner/Project Manager/ Owner's Representative's Site staff would be borne by the Owner/Project Manager / Owner's Representative if services are availed.

3.5.6 **Mail Service**

A central mailing office shall be established and manned by the Contractor on the site where personal and business mail may be collected and delivered.

3.6 Access: Office Accommodations

Contractor shall provide Owner/Project Manager and its engineers (including the Owner/Project Manager / Owner's Representative and the Financing Parties) with reasonable access to Contractor's home office and Contractor's offices at the Site and at all design, engineering, fabrication, construction and other premises of Contractor and its Sub-contractors where activities relating to Works is carried on at all times upon reasonable prior notice, including access to design, engineering, fabrication, and testing, construction facilities, Drawings, Documents sufficient to permit Owner/Project Manager/Owner's representatives to inspect Work being performed and to monitor compliance by Contractor and the Sub-contractors with the terms of the Contract and directions of Contractor.

Contractor shall provide to Owner/Project Manager/ Owner's representatives as and when required appropriate office facility at the home office of Contractor.

3.7 **Clean-Up and Waste Disposal**

3.7.1 The Contractor shall be responsible for keeping the entire area allocated to him clean and free from accumulation of waste Materials, rubbish/debris/etc. at all times during the period of Contract.

The Contractor shall employ enough number of specialised personnel to thoroughly clean his Work area at least once a Day and dispose of the rubbish. All such rubbish and scrap material shall be scrapped or disposed in a place to be identified by the Owner's Representative.

Materials and stores shall be so arranged as 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 flame resistant, oil proof sheet shall be provided to protect the floor from such damage. Also, spillage of oil and its soaking into soil shall be prevented. In case garbage are found disposed in areas other than allotted to the contractor, then the same shall be cleared by the Owner/Project Manager and the charges debited to the concerned Contractor.

Contractor's labour camp and housing colony shall be maintained to the good standards of hygiene and shall be kept reasonably free of debris, litter and mal odour.

Similarly the labour colony, offices and residential areas of Contractor's employees and workmen shall be kept clean and neat to the entire satisfaction of the Owner's Representative. Proper sanitary arrangements shall be provided by the Contractor in the Work areas, office and residential areas of the Contractor.

The Contractor shall cause all Sub-contractors, at all times to keep the Site reasonably clean and otherwise free from accumulation of waste materials, rubbish, other debris resulting from performance of the Work. In case Owner/Project Manager is not satisfied regarding Contractor's or its Sub-contractor's cleanliness at Site, Owner/Project Manager will notify regarding the same to the Contractor. In case of non-improvement/ satisfaction, Owner/Project Manager will get the site cleaned and the charges of the same will be debited to Contractor's account/ deducted from Contractor's dues/ payments.

3.7.2 All soil, filth or other matter of an offensive nature taken out of any excavation, trench, sewer, drain, cesspool etc shall not be deposited on the surface, but shall at once be carted away by the Contractor to some pit or place suitably arranged by him away from the site of work and approved by local authorities.

3.7.3 As a part of the work included in this Contract, the Contractor shall completely remove and satisfactorily dispose of all temporary works to the extent directed. He shall tear down and dispose off all temporary buildings, shall remove or grade, to the extent directed, all embankments or coffer dams made for construction purposes shall remove all plant and equipment, shall satisfactorily dispose of all rubbish resulting from the operations under this Contract and shall do all work necessary to restore the territory embraced within the site of his operations to at least as good order and conditions as at the beginning of the work under this Contract.

3.7.4 The Contractor shall comply with the all the statutes/ guidelines of Ministry of Environment & Climate Change (MoEF&CC), Central Pollution Control Board (CPCB), State Pollution Control Board (SPCB), local municipal / panchayat authorities including the Solid Waste Management Notification dated 29th March 2016 (published in Gazette of India, Part II, Section 3, Subsection (ii)) by MoEF&CC and any further latest notifications thereon at its own cost.

3.8 **Reporting Requirements**

3.8.1 Contractor shall deliver to Owner/Project Manager/ Owner's Representative a computer-based PERT/ Network Schedule in hard copy as well as a soft of Primavera (XER format)/ any other mutually agreed electronic format during the Kick-off Meeting in accordance with the Contract.

3.8.2 Progress scheduling report shall be provided by the Contractor to the Owner/Project Manager in accordance with the Contract including, but not limited to, requirements indicated in the Specification. Contractor shall be responsible for,

a) Ensuring that performance of the Work proceeds in accordance with the network Schedule and

b) Co-ordinating the activities of all Sub-contractors.

Contractor to have/ arrange Video Conferencing facility at his HO & manufacturing plants and Project Site for Project status reviews/ discussions.

Contractor and his Sub-contractors will comply & follow the online document management systems requirements of the Owner/ Project Manager.

3.8.3 **Daily Diary** and **Progress Reports**

A daily diary register will be kept in the Owner/Project Manager's office. The Contractor will supply all detailed information every day at 9.00 hours for the day preceding and the diary will be jointly signed by the Owner/Project Manager/ Owner's Representative and the Contractor's representatives, every day in token of its correctness. A works instruction book, serially numbered will also be kept in the Owner/Project Manager's office and all day-to-day instructions will be given in that book. The Contractor's representative shall report everyday to see these instructions and sign them at the bottom in token of his having seen them.

The Contractor shall supply all information regarding procurement of materials and progress of construction work, as is required by the Engineer for compiling the weekly progress reports. This information shall be supplied by 9.00 hours on every Monday, for the preceding week.

The Contractor shall furnish the Engineer with two levels of report (Weekly & Monthly) as per the format as approved by Owner/Project Manager.

Apart from this the Contractor is required to submit a daily report of the skilled labour and plant, equipment and other resources deployed by him at the Project Site. This shall include the resources of the Sub-contractor if any.

3.9 Schedule

3.9.1 Time is the essence of this contract. The Contractor shall, within one week of receipt of the Letter of Intent submit to the Owner for his approval, a detailed work schedule adhering to the timeline as stated in Special Conditions of Contract, before starting the Work to achieve completion schedule both interim and ultimate. After the Owner has agreed with the schedule, the Contractor shall prepare detailed program of each work front/activity breaking it down giving daily quantifiable/measure of progress. The schedules are to be reviewed periodically with the Owner to ensure that the completion date will be met or to institute corrective steps (at no extra cost to the Owner) to adhere to the completion dates. The Owner reserves the right to revise the schedule at his discretion in order ensure completion within the completion date and to suit the Project requirement and such alterations shall not entitle the Contractor to any extra payment. The Contractor shall provide to the Owner/Project Manager for approval within the time stated in clause 3.8.1 the programme for the execution of the contract, showing (a) the sequence and timing of activities by which the contractor proposes to carry out the work and (b) the times by which the Contractor requires the Owner/Project Manager to furnish any Owner/Project Manager's inputs as set forth in the specifications, which as and when approved shall form the Schedule.

3.9.2 Without prejudice and in addition to the foregoing the Contractor shall prepare and furnish to Owner/Project Manager updated monthly schedules of the Work to be performed, including a critical path schedule.

3.9.3 Not Used.

3.9.4 The Schedule that is updated on a Monthly basis shall be done from the basic schedules which together with the updated monthly Schedule shall be available in a computer system to which the Owner/Project Manager/Owner's Representative will have access to facilitate the Owner/Project Manager to review the various levels to independently analyse the relevant information. This, however, does not take away the responsibility of the Contractor to fulfil all his obligations under the Contract, in eluding informing the Owner/Project Manager /Owner's Representative about the delays as also the expected delays and the actual plans to overcome such delays.

3.9.S Contractor shall arrange for the mobilisation of all equipment, material, personnel and all other resources to progress the work at the site to suit the completion dates of the Works. No financial, time extension or other claims for idling or under-utilisation of Contractor's resources will be entertained or paid by Owner unless certified by Owner's Engineer.

3.9.6 Contractor shall identify suitable quarries for uninterrupted supply of coarse and fine aggregates and sources of all other construction materials and make necessary arrangements for transportation of the same at its own cost. If quarries and sources of other materials are located faraway, Contractor shall at all times have reserve storage of all the construction materials so as not to affect the required rate of progress.

3.10 **Taxes, Duties and Levies (As Applicable)**

Unless specifically mentioned in the Special Conditions of Contract, Contractor shall not assume any duty concessions/ exemptions of any nature whatsoever and shall consider all Taxes, Duties and Levies at the full rate without any concessions while submitting the Price Bid and all Taxes, Duties and Levies shall be deemed to be included in the Contract Price at the applicable full rate without any exemption or concessions. Owner shall not be liable to provide any document for availing any exemption or concessions on Taxes, Duties and Levies.

In case the Project / Relevant Package is conceived under any special taxation scheme (e.g. Deemed Export Benefit (FTP) of Government of India/ International Competitive Bidding Process / Mega Power Project / Renewable Projects etc.), the same shall be specifically stated under Special Conditions of Contract. In such cases, the Contractor shall obtain/consider all the tax exemptions as applicable under Govt. of India / State Govt. (Project Authority /Essentiality Certificate) while submitting the Price Bid.

3.10.1 **Taxes to the Contractor's Account**

i) The Contract Price as mentioned in the Schedule of Quantities mentioned elsewhere in the Contract are inclusive of applicable taxes including BOCW, CGST, SGST, IGST, Customs Duty, royalties and/or any other duty/tax levied by Central, State Governments, local bodies or other public bodies. The tax components (CGST, SGST, IGST etc.) shall be shown separately in price breakup.

ii) The agreed rates and price shall be deemed to include all materials, labour, plant & equipment and everything necessary to satisfactorily the agreed contract Works, rates shall also include for everything in the Technical Specifications & all activities/things required to complete the particular item. The rates shall be firm till the tenancy of Contract and shall not be subject to escalation on any ground whatsoever. The Contractor when called for by the Owner/Project Manager shall furnish detailed analysis in support of the rates quoted by him against each item of the Contract. The Owner/Project Manager reserves the right to utilise the analysis thus supplied in settling any deviations or claims arising out of this Contract.

iii) Except as otherwise specifically provided in the Contract irrespective of the mode of Contracting, the Contractor shall bear and pay all taxes, duties, levies, charges, interest and penalties and the like levied and /or assessed on the Contractor, its Sub-contractors, or their employees, by all municipal, local bodies, state or national government authorities or any other Government Instrumentality in connection with the Works.

iv) The Contractor, hereby agrees to indemnify and keep indemnified and saved harmless at all times the Owner/Project Manager against any loss, Cost, expenses or damages suffered or incurred by it, by reason of its failure to pay taxes, duties, etc which it is obliged to pay pursuant to the provisions of this clause and/ or arising out of its failure to comply with its obligations under this clause.

v) The Owner/Project Manager shall recover from the Contractor and / or adjust from the Contract Price all taxes, duties, levies, charges, interest and penalties and the like leviable and/ or assessable on the Contractor, its Sub-contractors or their employees but levied and / or assessed on the Owner/Project Manager as a representative assessee / agent of the Contractor, its Sub-contractors or their employees, by all municipal, local, state or national

government authorities or any other Government Instrumentality in connection with the Work.

vi) Further the Owner/Project Manager shall recover from the Contractor and/ or adjust from the Contract Price, simple interest at State Bank of India Marginal cost offund-based lending rate(SBI MCLR) for a tenure of 1 year from the date of payment of all taxes, duties, levies, charges, interest and penalties and the like leviable and/ or assessable on the Contractor, its Sub-contractors or their employees but levied and / or assessable on the Owner/Project Manager as a representative assessee / agent of the Contractor, its Sub-contractors or their employees, by all municipal, local, state or national government authorities or any other Government Instrumentality in connection with the Work.

3.10.2 Variation in Tax or Applicable Taxes or Introduction of New Taxes

i) Any statutory variation in rate of applicable Indian taxes, duties, levies etc., any variation in applicable taxes or interpretation/enforcement of the same or introduction of new taxes or the introduction/amendment of any exemptions (other than Direct taxes i.e. Income Tax, corporate tax etc), levied in India, starting from 2 (two) Days prior to the Closing Date for submission of Bid but within the Guaranteed Completion Date of Works, shall be to the account of the Owner/Project Manager. Such adjustment shall be limited to direct transactions between the Owner/Project Manager and the Contractor and no amounts shall be payable on account of variation on taxes, duties and levies between the Contractor and its sub vendors/Sub-contractors/suppliers.

ii) Any statutory variation on account of aforementioned factors shall be reimbursed by Owner/Project Manager to Contractor or by the Contractor to the Owner/Project Manager, as the case may be, against submission of documentary evidence in support thereof. However, in case of delay, from the originally prepared network Schedule, Schedule and Guaranteed Completion Dates as may be relevant for the computation thereof, due to reasons not attributable to the Owner/Project Manager, any statutory variation adverse to the Owner/Project Manager over and above those specified under "Schedule of Quantity and Rates" as given elsewhere in the Contract, including any taxes during the delayed period shall be to the Contractor's account and the Owner/Project Manager shall not be liable for the same in any manner whatsoever.

iii) The Contractor is obligated to keep the Owner/Project Manager/Owner's Representative notified of the aforesaid statutory variations within 15 (fifteen) days of such variation coming into effect.

iv) The Contract Price and other prices given in the "Schedule of Prices" are based on the applicable tariff as indicated by the Contractor in the Schedule of Prices. In case this information subsequently proves wrong, incorrect or misleading, the Owner/Project Manager shall have no liability to reimburse/pay to the Contractor the excess taxes, fees etc; if any finally levied/imposed under the statutes except as provided in this clause. However, if the taxes/fee levied/imposed are lower than the amount indicated in the Schedule of Prices, the Owner/Project Manager shall be entitled to recover the difference from the Contractor.

v) Anti-Profiteering Clause: Notwithstanding anything contained in the Contract, in the event of introduction of any new legislation or any change or amendment or enforcement of any Act or Law, or any change in the interpretation by the Supreme Court of India of any said Act or law, rules or regulations of Government of India or State Government(s) or Public Body which becomes effective after the Bid Submission Due Date up to the FAC, if any, which results in any decrease in the cost of the Works/ Relevant Package through reduced liability of taxes & duties, increase in the input tax credits, Contractor shall pass on the benefits of such reduced cost, taxes or duties to Owner, to the extent which is directly attributable to

such introduction of new legislation or change or amendment as mentioned above as per Anti-profiteering Rules, 2017, hereby, "Tax" or "tax" shall include taxes, duties, levies, cess and similar imposts by whatever name called whether in the nature of indirect tax or direct taxes and whether or not imposed by the central government, state government, local or municipal authority or any other statutory body.

vi) The Contractor shall comply with all the requirements prescribed in the GST Acts (including Central and State Acts) in respect of the activities/ supplies made by them under this Agreement/ Contract to enable Owner to avail input tax credits on timely basis.

vii) The Contractor shall comply with all the requirements prescribed in the BOCW Act (The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996) pay the applicable BOCW cess at its own cost on timely basis and submit the compliance document to the Owner/ Project Manager for their verification.

viii) All central/ state/ local indirect taxes, duties, levies or cess etc. even if not stated explicitly in the Price Schedule but applicable on the supplies/ services delivered under the Contract shall be deemed to be part of the Contract Price and not payable separately. The Contractor shall comply with and pay all such central/ state/ local indirect taxes, duties, levies or cess etc. The Contractor shall be responsible for any loss of tax credit or any other costs including interest, penalty, etc. that may be levied or recovered by the statutory authorities from the Owner in the instance of default of obligations under this Section.

3.10.3 The tax invoices shall contain the details to comply with the GST Law. The Contractor shall,

i) Furnish (electronically) and communicate to the Owner, the details of Goods or Services supplied by the 10th of the month succeeding the said tax period,

ii) Upon discovery of any discrepancy, rectify it and shall pay the tax and interest thereof,

iii) Furnish the returns (electronically), for the inward and outward supplies of Goods and/or Services, before the specified dates as per the GST Law,

iv) Communicate the tax paid, credits etc. as and when credited.

v) The Invoice should clearly state the description of the goods, quantity, sale price, tax%, and tax amount;

vi) The Invoice should be signed by an Authorized Signatory.

Bills/Invoices in the name of The Tata Power Company Ltd. with packing lists in triplicate shall be forwarded along with the equipment.

Contractor to furnish GST Registration number in all invoices as well as Owner's GST number.

3.10.4 In case any taxable service is provided by any Contractor who is a non-resident or who does not have an office in India, then contractor shall undertake to appoint a representative in India. The Contractor shall pay the required amount of GST to this representative who in turn shall affect the payment of the tax to appropriate authority. Owner/Project Manager will not take any responsibility to pay GST.

On the basis of documentary proof of such payment of tax, the Owner /Project Manager would be entitled to declare the particulars thereof in his GST return.

The agreed rates against items in Schedule of Price shall be deemed to be inclusive of GSTfor such taxable service provided by the Contractor who is a non-resident or who does not have an office in India. The Owner/Project Manager will not pay any extra cost towards GST..

3.10.S **Withholding taxes**

The Owner/Project Manager shall pay, out of the Contract Price, any withholding tax charged by any Government Instrumentality including the Government of India or any Indian State Government on the Contract or the performance of the Work pursuant to or under the Contract. The Owner/Project Manager shall furnish to the Contractor appropriate documentation / certificates/ challans evidencing payment of any such withholding tax.

Should any tax benefit accrue to the Contractor in Country of the Contractor/ or Owner /Project Manager by way of deduction as expenses or as tax credit or otherwise against its tax liability, or on account of any taxes paid in India by the Owner/Project Manager pursuant to the Contract or any Applicable Law on account of this Contract, the Contractor shall forthwith pay the same to the Owner/Project Manager. The Contractor agrees and undertakes to furnish to the Owner/Project Manager every year till the end of the period during which the Contractor is entitled to any tax benefit in India or elsewhere pursuant to this clause or completion of its tax assessment whichever, is later, a certificate from its independent Auditors or an independent certified public accountant acceptable to the Owner/Project Manager, the quantum of such tax benefit, if any, and basis for arriving at such tax benefits.

3.10.6 **Benefit of credit for tax**

For tax, levy, duty concessions Owner/Project Manager will initiate necessary applications & the procedures and will expedite the documentation / certification required in time for availing the benefits. In case of unforeseen delays from the approving authorities, contractors shall manage the implications and will carry out necessary documentation/ submissions to avail these benefits at a later date once the Owner/Project Manager is in receipt of the required certificate.

If, as a result of any agreement, whether existing or modified or signed in future on avoidance of double taxation between the Government of India and the Government of the Contractor's Country or under any law, any tax benefit shall accrue to the Contractor in Country of the Contractor or by way of deduction as expenses or as tax credit or refund or otherwise against its tax liability or on account of taxes, which are paid in India by the Owner/Project Manager pursuant to this Contract, the benefit of such credit, deduction as expense or refund along with details shall be passed on to the Owner/Project Manager within 15 (fifteen) days of the receipt of such credit / refund/deduction as expense or otherwise by the Contractor/expatriate. The Contractor/its expatriates shall take immediate and appropriate action for obtaining the admissible credit or refund from such Country's authorities and payment of the same to the Owner/Project Manager. The Contractor shall at all times keep the Owner/Project Manager informed about the same.

The Contractor shall furnish on an annual basis, a certificate from an independent Chartered Accountant confirming:

a) The amount of credit or refund or deduction as expense or otherwise that may be due, if any, to it on account of tax paid by the Owner/Project Manager in India in respect of payments under the Contract to the Contractor; and

b) Amount of credit or refund that may be obtained or deduction as expense that may be permissible, if any, during the relevant period.

No such annual certificate is required with regards to expatriates' tax credit or refund. However, the Contractor will inform the Owner/Project Manager of all such credits or refunds obtained by its expatriates as aforesaid.

3.11 **Security & Safety Rules of Owner**

3.11.1 The site is a protected place and entry to the site is restricted. No person shall be employed or allowed on the site without the prior permission in writing from the Owner. All persons employed or allowed at the site shall at all times conform to all regulations laid down by the Owner.

3.11.2 The Contractor shall strictly follow Security Instructions of the Project Site and maintain proper control on movement of his men/materials. He shall implement the procedures for entry token/passes at his cost as required. He will record entry of all incoming materials, as no materials, which are returnable, will be permitted to be removed if not recorded at the time of entry. Contractor shall strictly abide by the rules and regulations of security and safety enforced by the Owner. Contractor shall provide proper identity cards, badges, etc., to its personnel and to its Sub-contractors and their personnel whenever directed by the Owner. Contractor shall be solely responsible for the safety and security of its personnel and equipment. Contractor shall indemnify and hold Owner/Project Manager harmless from time to time from and against any all losses, claims, suits, proceedings, taxes, penalties, liability, damages, costs and expenses, suffered or incurred, arising out of or in connection with any bodily injury caused to the representatives/employee of the Contractor or any other third party.

3.11.3 Contractor shall do all things necessary or expedient to protect any and all parallel, converging and intersecting electric lines and poles, highways, access or other roads, bridges, waterways, railroads, sewer lines, natural gas pipelines, drainage ditches, culverts, fences, walls, and water lines, power or communication cables or lines and any and all physical property of others, from damage resulting directly or indirectly from performance of the Work. Without limiting the generality of the foregoing, Contractor shall maintain the access roads to the Site and all access roads within the Site, in good repair and passable at all times as well as proper drainage system. In the event that any such physical property is damaged or destroyed in the course of the performance of the Work, Contractor at his cost shall rebuild, restore or replace such damaged or destroyed physical property to full satisfaction of Owner/Project Manager and shall fully indemnify and hold the Owner/ Project Manager harmless from time to time and against any all losses, claims, suits, proceedings, taxes, penalties, liability, damages, costs and expenses, suffered or incurred, arising out of or in connection with the performance of the Work, whether directly or indirectly.

3.11.4 Contractor shall provide, and shall ensure that its Sub-contractors provide, proper and ample protection from damage or loss to the Works/other packages, the Site, equipment and construction equipment during its performance of the Work.

3.11.S In the event that any of the Works are damaged or destroyed for any reason prior to acceptance of such work, Contractor shall rebuild, restore or replace the works or such items, subject to and in accordance with the Contract including Specifications. All costs irrespective of reimbursement of claims from Insurance shall be to Contractor's account.

3.11.6 Contractor shall adopt all safety measures/provide necessary protection to already constructed foundation/structures irrespective of the sequence of construction.

3.12 **Royalties and License Fees**

3.12.1 Contractor shall pay all required royalties and license fees with respect to proprietary rights, intellectual property licenses and agreements, and shall procure, as required, the appropriate proprietary rights, intellectual property licenses and agreements, for Materials, methods, processes, systems and Services incorporated into the Relevant Package or the Project or otherwise relating to the performance of the Work and thereafter for the purpose of operation & maintenance of the Works. Contractor should possess the valid license for the technology used in India by such Contractor from their principals/ technology providers. Contractor shall also arrange backup guarantees from their principals/ technology providers as required by the Owner/Project Manager, to demonstrate the Contractor's legal rights to use such intellectual property.

3.13 **Standard for Supplies and Performance**

3.13.1 Without limiting any other provision of Contract including Specifications, Contractor shall perform the Work and cause his Sub-contractors to perform their Work hereunder in accordance with Good Construction Practices and standards of professional care, **skill,** diligence and competence generally accepted in the construction industry applicable to construction & project management practices for Structures of similar size and type as the Works.

3.14 **Fire Protection**

3.14.1 The Work procedures that have to be used during the construction/ erection shall be those, which minimize fire hazards to the extent practicable. Combustion materials, combustible waste and rubbish shall be collected and removed from the Site at least once each Day. Fuels, oils and volatile of flammable Materials shall be stored away from the construction and equipment and material storage areas in safe containers. Untreated canvas, paper, plastic or other flammable flexible Materials shall not at all be used at Site for any other purpose unless otherwise specified. If any such Materials are received with the equipment at Site, the same shall be removed and replaced with acceptable material before moving into the construction or storage area.

3.14.2 Similarly corrugated paper fabricated cartons, etc. will not be permitted in the construction area either for storage or for handling of Materials. All such Materials used shall be of waterproof and flame-resistant type.

All other Materials such as working Drawings, plans, etc. which are combustible but are essential for the Works to be executed shall be protected against combustion resulting from welding sparks, cutting flames and other similar fire sources.

3.14.3 All the Contractor's supervisory personnel and sufficient number of workers shall be trained for firefighting and shall be assigned specific fire protection duties. Enough of such trained personnel must be available at the Site during the entire period of the Contract.

3.14.4 The Contractor shall provide enough fire protection equipment of the types and in enough numbers for the ware-houses, office, temporary appropriate structures, labour colony area, etc. Access to such fire protection equipment, shall be easy and be kept open at all times.

3.14.5 In the event of occurrence offire being attributable in the opinion of the Owner/ Project Manager to the contractors' negligence no extension of time will be granted.

3.15 **Contractor's Equipment and Owner/Project Manager's rights thereof**

3.15.1 All equipment provided by the contractor & his Sub-contractors shall be certified, tested & valid by the competent Person. The Contractor shall provide all Contractor's equipment necessary to perform the Work and complete the Works. All Contractors' equipment shall, when brought on to the Site, be deemed to be exclusively intended for the execution of the Works and performance of Services. The Contractor shall not remove from the Site any such Contractor's Equipment without the consent of the Owner/Project Manager/ Owner's Representative. The Contractor shall nevertheless be solely liable and responsible for any loss or destruction thereof and damage thereto.

3.15.2 The Owner/Project Manager shall have 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/Project Manager 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.

3.16 **Access Route to & at site**

The Contractor shall be deemed to have satisfied himself as to the suitability and availability of the access routes to the Site that he chooses to use. The Contractor shall (as between the Parties) be responsible for the maintenance of access routes. The Contractor shall provide any signs or directions, which he may consider necessary for the guidance of his staff, labour and others. The Contractor shall obtain any permission that may be required from the relevant authorities for the use of such routes, signs and directions.

The Owner/Project Manager will not be responsible for any claims which may arise from the use or otherwise of any access route. The Owner/Project Manager does not guarantee the suitability or availability of any particular access route, and will not entertain any claim and shall not be liable for any non-suitability or non-availability for continuous use during construction of any such route.

3.17 **Insurance**

Contractor shall obtain and maintain all insurance required to be obtained by Contractor as per the Contract and as per statutory requirements including clause 4.0 hereof.

3.18 Maintenance of Schedule and Milestone Schedule

If Contractor is not performing the Work at a rate which will maintain the Schedule or the Milestone Schedule, Contractor shall at its own expense shall cause Contractor's personnel, to work such overtime and furnish such additional personnel and construction equipment and resources as may be required to comply with the Schedule or the Milestone Schedule (as the case may be).

3.19 **Work** and **Safety Regulations**

3.19.1 The Contractor shall ensure proper safety of all the workmen, Materials and equipment belonging to him or to Owner/Project Manager or to others, working at the Site. The Contractor shall also be responsible for provision of all safety notices and safety equipment required both by the relevant legislations and the Owner's Representative, as he may deem necessary.

3.19.2 The Contractor shall notify well in advance to the Owner's Representative of his intention to bring to the Site Container filled with liquid or gaseous fuel or explosive or petroleum substance or such chemicals, which may involve hazards. The Owner's Representative shall have the right but not the obligation to prescribe the conditions, under which such container is to be stored, handled and used during the performance of the Work and the Contractor shall strictly adhere to and comply with such instructions.

3.19.3 The Owner's Representative shall have the right but not obligation at his sole discretion to inspect any such container or such construction plant/equipment for which Material in the Container is required to be used and if in his opinion, its use is not safe, he may forbid its use. No claim due to such prohibition shall be entertained by the Owner/Project Manager and the Owner/Project Manager shall not entertain any claim of the Contractor towards additional safety provisions/ conditions to be provided for/ constructed as per Owner's Representative's Instructions.

3.19.4 Wherever it is necessary to provide and/ or store petroleum products or petroleum mixtures and explosives, the Contractor shall be responsible for carrying out such provision and / or storage in accordance with the rules and regulations laid down in Petroleum Act 1934, Explosives Act 1948, and Petroleum and Carbide of Calcium Manual Published by the Chief Inspector of Explosives of India as well as other relevant and Applicable Laws, rules and regulations. All such storage shall have prior approval of the Owner's Representative. In case, any approvals are necessary from the Chief Inspector (Explosives) or any statutory authorities, the Contractor shall be responsible for

obtaining the same. Notwithstanding anything contained herein, the Contractor shall not store any petroleum products or petroleum mixtures or any other explosive material in the Site for a period in excess of 7 days, without the prior written consent of the Owner's Representative.

3.19.5 All equipment used in construction and erection by Contractor or his Sub-contractors shall meet Indian and International Standards of safety and where such standards do not exist, the Contractor shall ensure these to be absolutely safe. All equipment shall be strictly operated and maintained by the Contractor or his Sub-contractors in accordance with Manufacturer's operation manual and safety instructions and as per Guidelines and Rules of the Owner/Project Manager in this regard.

3.19.6 Periodical Examinations and all Tests for all lifting/hoisting equipment and tackles shall be carried out in accordance with the relevant provisions of Factories Act 1948, Indian Electricity Act 2003 and all relevant Law/Rules in force from time to time. A register of such examinations and Test shall be properly maintained by the Contractor and will be promptly produced as and when desired by Owner's Representative or by the Person authorised by him.

3.19.7 Not Used

3.19.8 The Contractor shall provide suitable safety equipment of prescribed standard to all employees and workmen according to the need, as may be directed by Owner's Representative who will also have right to examine these safety equipment to determine their suitability, reliability, acceptability and adaptability.

3.19.9 Where explosives are to be used, the same shall be used under the direct control and supervision of an expert, experienced, qualified and competent Person strictly in accordance with the Code of Practices/Rules framed under relevant laws, rules and regulations not restricted to Indian Explosives Act pertaining to handling, storage and use of explosives.

3.19.10 The Contractor shall provide safe working conditions to all workmen and employees at the Site including safe means of access, railings, stairs, ladders, scaffoldings, etc. The scaffoldings shall be erected under the control and supervision of and experienced and competent Person. For erection, good and standard quality of material only shall be used by the Contractor.

3.19.11 The Contractor or his Sub-contractors shall not interfere or disturb electric fuses, wiring and other electrical equipment belonging to the Owner/Project Manager or other Contractors under any circumstance, whatsoever, unless expressly permitted in Writing by the Owner/Project Manager to handle such fuses, wiring or electrical equipment.

3.19.12 Before the Contractor or his Sub-contractors connects any electrical appliances to any plug or socket belonging to the other Contractor or Owner/Project Manager, he shall:

a) Satisfy the Owner's Representative that the appliance is in good working condition

b) Inform the Owner's Representative of the maximum current rating, voltage and phases of the appliances

c) Obtain permission of the Owner's Representative detailing the sockets to which the appliance may be connected.

3.19.13 The Owner's Representative will not grant permission to connect until he is satisfied that:

a) The appliance is in good condition and fitted with a suitable plug.

b) The appliance is fitted with a suitable cable having two earth conductors, one of which shall be an earthed metal sheath surrounding the cores.

3.19.14 No electric cable used by the other Contractor/Owner/Project Manager will be disturbed without prior permission. No weight of any description will be imposed on any cable and no ladder or similar equipment will rest against or attached to it.

3.19.15 No repair work shall be carried out on any live equipment. The equipment shall/must be declared safe by Owner's Representative and a permit to Work shall be issued by Owner's Representative before any repair work is carried out by the Contractor or his Sub-contractors. While working on electric lines/equipment whether live or dead, suitable type and sufficient quantity of tools will have to be provided by Contractor or his Sub-contractors to electricians/workmen/officers.

3.19.16 The Contractor shall employ necessary number of qualified, full time Electricians/Electrical Supervisors to maintain his temporary electrical installations.

3.19.17 The Contractor employing more workmen than specified under Factories Act 1948 whether temporary, casual, probationer, regular or permanent or on Contract, shall employ at least required numbers of full time officers exclusively as Safety Officer to supervise the safety aspects of the equipment and workmen who will coordinate with the Project Safety Officer and Owner's Representative. In case of Work being carried out through Sub-contractors, the Sub-contractor's workmen/employees will also be considered as the Contractor's workmen/employees for above purpose.

3.19.18 The name and address of such Safety Officers of Contractor will be promptly informed in Writing to Owner's Representative with a copy to Safety officer-in-charge before he starts Work or immediately after any change of the incumbent is made during currency of the Contract.

3.19.19 In case any accident occurs during the construction/ erection or other associated activities undertaken by the Contractor thereby causing any minor, major or fatal injuries to his employees due to any reason, whatsoever, it shall be the responsibility of the Contractor to promptly inform the same to the Owner's Representative in prescribed form and also to all the authorities envisaged under the Applicable Laws.

3.19.20 The Owner's Representative shall have the right at his sole discretion to stop the Work, if in his opinion the Work is being carried out in such a way that it may cause accidents and endanger the safety of the persons and/or property, and/or equipment. In such cases, the Contractor shall be informed in Writing about the nature of hazards and possible injury/accident and he shall comply with the instructions of the Owner's Representative including removal of shortcomings promptly. The Contractor after stopping the specific Work, can, if felt necessary, appeal against the order of stoppage of Work within 3 (three) Days of such stoppage of Work and Owner/Project Manager's decision in this respect shall be conclusive and binding on the Contractor.

3.19.21 The Contractor shall not be entitled for any damages/compensation for stoppage of Work due to safety reasons as provided in clause 3.19.19 above and the period of such stoppage of Work will not be taken as an extension of time for completion of Work and will not be the ground for waiver of levy of Liquidated Damages.

3.19.22 The Contractor and his Sub-contractors shall follow and comply with all Safety Rules, relevant provisions of Applicable Laws pertaining to safety of workmen, employees, Works and equipment as may be prescribed from time to time without any demur, protest or contest or reservation.

3.19.23 **Training of work force deployed by the Contractor/ its Sub-contractors at TPSDI:**

Tata Power has established state-of-the-art vocational/ skills development training facilities at its major facilities like Trombay, Shahad (near Mumbai), Mundra, Maithon etc. under the entity The Tata Power Skill Development Institute (TPSDI) as a Corporate Social Responsibility endeavour to

empower youth and others with employable skills, especially in the Power and allied sectors, and to address the skill gap challenge faced by the Indian Power Sector.

The TPSDI program is in congruity with the National Skill Quality Framework (NSQF). The TPSDI Competency Framework allows participants to swiftly pick up readily deployable skills and continue upgrading their skills after convenient intervals over a period of time. The trainings are offered by TPSDI at nominal charges published time to time.

In order to improve work safety and to ensure that all work force deployed at Owner premises have the right orientation / induction and skills training before they undertake any work, Contractor shall ensure all workforce employed by Contractor / his Sub-contractors are TPSDI qualified in work safety and their respective skills/ crafts as detailed out in the Tata Power Safety Terms & Conditions annexed to this GCC.

3.20 **Employee Identification, Project Site Security and Protection of Project Site**

3.20.1 Contractor shall provide a method which shall be subject to the reasonable approval of Owner/Project Manager, of checking the employees of Contractor, the Sub-contractors, Owner/Project Manager and Owner's/Project Manager's other suppliers and Contractors in and out of the areas in which the Work is to be performed under the Contract.

3.20.2 Contractor's employees shall wear identification badges provided by the Owner's Representative while on Work at Site.

3.20.3 Contractor shall at all times be responsible for the security of the Works and the Site at all times and the Goods therein while the Work is being performed or Goods are being supplied up to the earliest of:

a) Take-over and issuance of provisional Acceptance Certificate

b) The transfer of care, custody and control of the Works as a whole to Owner /Project Manager with the concurrence of the Owner/Project Manager, or

c) Termination of the Contract.

3.20.4 Contractor shall do all things necessary or expedient to protect any and all parallel, converging and intersecting electric lines and poles, highways, access or other roads, bridges, waterways, railroads, sewer lines, natural gas pipelines, drainage ditches, culverts, fences, walls, and water lines, power or communication cables or lines and any and all physical property of others, from damage resulting directly or indirectly from performance of the Work or in supply and transport of Goods. Without limiting the generality of the foregoing, Contractor shall maintain the access roads to the Site and all access roads within the Site in good condition and passable at all times as well as proper drainage system. In the event that any such physical property is damaged or destroyed in the course of the performance of the Work or in supply and transport of Goods, Contractor at his cost shall rebuild, restore or replace such damaged or destroyed physical property to full satisfaction of Owner/Project Manager.

3.20.5 Contractor shall provide, and shall ensure that its Sub-contractors provide, proper and ample protection from damage or loss to the Relevant Package, the Site, equipment and construction equipment during its performance of the Work.

3.20.6 In the event that any of the Relevant Package or Works or Facility or any other assets, equipment or material of Other Contractor or any third parties are damaged or destroyed for any reason prior to acceptance and Final take-over of such Relevant Package or Works, Contractor shall rebuild, restore or replace the Relevant Package/Works so as to deliver the Relevant Package complete in all respect and shall build, restore or replace all such other damaged or destroyed items, subject to and in accordance with the Contract of the Facility or of the third parties back to their original

state prior to the event or otherwise satisfy all claims for damages of third parties.. All costs irrespective of reimbursement of claims from Insurance shall be to Contractor's account.

3.21 **Safety Programme** and **Policy**

3.21.1 The Contractor shall strictly comply with the Owner's Contractor Safety Policy and Safety Terms and Conditions. Any misconduct and/or violations with respect to the Owner's Contractor Safety Policy and Safety Terms and Conditions or any other legal and statutory provisions pertaining to Safety, Health and Environment shall be dealt with as per the Safety Terms and Conditions. Contractor shall, and shall cause all Sub-contractors to, implement and administer a safety program for the Relevant Package, subject to the approval of the Owner/Project Manager (which shall not be unreasonably withheld), which shall include:

a) Development of a safety manual (the "Safety Manual") establishing safety guidelines and requirements for Contractor, Sub-contractor (including a fall prevention program). Copies of this manual shall be provided to Owner/Project Manager and Owner's Representative immediately upon its development and Contractor shall incorporate into such Safety Manual any and all reasonable comments of Owner/Project Manager;

b) Conducting of weekly safety meetings with the employees and agents of Owner/Project Manager, Contractor, Sub-contractor and Owner's other Contractors and their Sub-contractors;

c) Development, implementation and enforcement of procedures for advising employees and agents of Owner/Project Manager, Contractor, Sub-contractor and Owner's other Contractors and their Sub-contractors of, and correction of, safety violations and deficiencies;

d) Taking of all other actions necessary to provide a safe Work environment in accordance with Applicable Laws and Applicable Permits. Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to avoid damage, injury or loss to:

i) All persons employed by the Owner/Project Manager, Contractor and its Sub-contractors and Owner's other Contractors and their Sub-contractors in connection with the Work or supply of Goods or Owner/Project Manager and its Contractors and Sub-contractors (whether in the performance of their obligations under the Contract or otherwise) and all other persons who may be affected by the performance of the Work or supply of Goods or any of such persons.

ii) All supplies used in connection with the Relevant Package and all equipment to be incorporated into the Relevant Package, whether in storage on or off the Site under the care, custody or control of Owner/Project Manager, Contractor, any Sub-contractor or Owner's other Contractors and their Sub-contractors.

e) At all times (including during Commissioning, start-up, testing and Initial Operation, and Tests before Take-over including Performance Tests) Contractor shall require all Sub-contractors working on or supplying equipment or construction equipment to the Site to comply with all safety requirements in effect at all such times and of all Applicable Laws and Applicable Permits. Contractor shall, and shall cause the Sub-contractors to, comply with all Applicable Laws and Applicable Permits.

3.21.2 Contractor shall submit list of tools & tackles with details of make, year of manufacturing, valid certification to the Owner/Project Manager's Representative for approval.

Owner/Project Manager may during the execution of the Relevant Package inspect & verify that the tools & tackles are as per the qualification requirements approved by him and will have right

to **seek** replacements in case of any discrepancies. The Contractor shall always comply with such directives.

3.22 **Protection of the Environment:**

3.22.1 The Contractor shall take all reasonable care and actions to protect the environment both on and off the Site and to limit the damage and nuisance to people and property resulting from pollution, noise and other results of his operations.

The Contractor shall ensure that emissions, surface discharges and effluent from the Contractor's activities shall not exceed the values prescribed by Applicable Laws and the values as indicated in the Technical Specifications.

3.22.2 The Contractor shall be required to ensure that there shall be no cutting of trees by him or his labourers or their family members and he will be solely responsible for their acts in this regard. The Contractor shall try to maintain ecological balance by preventing deforestation, water pollution and defacing of natural landscape in the vicinity of work areas. The Contractor shall so conduct his construction operations as to prevent any unnecessary destruction of, scarring or defacing the natural surroundings in the vicinity of the work area. In order to maintain the ecological balance, the Contractor shall specifically observe the following instructions:

a) Where unnecessary destruction, scarring, damage or defacing may occur as a result of the Contractor's operation, the same shall be repaired, replanted or otherwise corrected at the Contractor's expense. The Contractor will prevent scattering of rocks and other debris outside the work areas. All work areas shall be smoothed and graded in a manner to conform to the natural appearance of the landscape as directed by the Engineer.

b) All trees and shrubs which are not specifically required to be cleared or removed for construction purposes shall be preserved and protected from any damage that may be caused by the Contractor's construction operation and equipment. The removal of trees or shrubs will be permitted only after prior approval by the Owner / Project Manager. Special care shall be exercised where trees or shrubs are exposed to injuries by construction equipment, blasting, excavating, dumping, chemical damage or other operation and the Contractor shall adequately protect such trees by use of protective barriers or other methods approved by the Owner/Project Manager. Trees shall not be used for anchorage.

c) The Contractor's construction activities shall be performed by methods that will prevent entrance or accidental spillage of solid matter contaminants, debris and other objectionable pollutants and wastage into the river/water bodies. Pollutants and wastes shall be disposed of in a manner and at sites approved by the Owner/Project Manager. The Contractor shall fully comply with Water (Prevention and Control of Pollution) Act 1974- Section 33 (A) including any further latest notifications thereon.

d) In the conduct of construction activities and operation of construction equipment, the Contractor shall utilize such practicable methods and devices as are reasonably available to control, prevent and otherwise minimize air pollution. The Contractor shall fully comply with Air (Prevention and Control of Pollution) Act, 1981 - Section 31(A) including any further latest notifications thereon.

e) Burning of materials resulting from clearing of tree, bush, combustible construction materials and rubbish shall not be allowed and shall be disposed in environmentally friendly manner.

f) The Contractor shall be required to prevent flowing of debris and muck into the river/water bodies. Necessary restricting structures like walls/crates etc. shall be constructed for the purpose. Before handing over the Site to the Owner/Project Manager at the end of construction, the Contractor shall also stabilize the muck fully i.e. consolidation and compaction of the muck shall be carried out in the muck dump sites.

g) All the construction equipment which are likely to generate high noise levels are to be fully equipped (with noise reduction measures) to meet the ambient noise control standards.

All costs related to preservation and maintenance of the environment at Site shall be deemed to have been included in the Contract Price.

3.22.3 The Contractor shall indemnify and hold the Employer harmless against and from all claims, damages, losses and expenses (including legal fees and expenses) resulting from the consequences of any failure by the Contractor to comply with the provisions of the clause 3.22.

3.23 **Affirmative Action:**

The Owner recognizes that diversity in the workplace positively impacts business. The Owner commits itself in helping people from SC/ST background either by helping them to become entrepreneurs or by engaging workforce from SC/ST community under the contracts agreed herein. To encourage engaging SC/ST community, the Owner may agree to incentivise the Contractor by paying additional 1% of the contract value, if the number of SC/ST workforce engaged in the contract exceeds 30% of the total deployed strength and 2%, if the strength goes beyond 50%, however, subject to a maximum incentive of INR 5 million on this account. While the Contractor will assist the workforce so engaged to become self-reliant in meeting the work expectation, the Owner will also volunteer its training resources to the extent possible to improve their employability.

The Contractor shall maintain the proper documentation of such category of the workforce engaged and the owner shall pay the incentive after its verification.

3.24 **DRAWINGS AND SCHEDULE OF QUANTITIES**

3.24.1 One set of the drawings and specifications and schedule of quantities shall be furnished by the Owner/Project Manager to the Contractor, and Owner/Project Manager shall furnish, within such time as he may consider reasonable, one copy of any additional drawing/s which in his opinion may be necessary for the execution of any part of the work. Such copies shall be kept on the works and the Owner/Project Manager and their representatives shall at all reasonable times have access to the same, and they shall be returned to the Owner/Project Manager by the Contractor before the issue of the certificate for the balance of his account under the Contract. This contract and the signed drawings and specifications and schedule of quantities shall remain in the custody, of the Owner/Project Manager, and shall be produced by him at his office as and when required by the Owner/Project Manager or by the Contractor.

3.24.2 Owner shall also supply construction drawings and details progressively during the contract period, to cover all the works envisaged in the scope of the contract. Construction drawings would be issued at the commencement of the work and subsequently to ensure that progress is maintained at the required pace, to meet the agreed work schedule of completion provided design data are available. If the Contractor apprehends any delay in construction for want of drawings and details, he shall, immediately advice the Owner/Project Manager in writing accordingly. In case the work is retarded or even stopped temporarily for lack of details and construction drawings to proceed with, the Contractor would be given extension of time to the

extent his work has been held up for want of drawings. The Owner/Project Manager's decision in regard to the extension of time allowed on this account shall be final and binding.

3.24.3 Only figured dimensions on drawings will be followed and drawings to large scale shall generally take precedence over those to a smaller scale. Detailed drawings and notes appended thereon shall be deemed to form part of the specifications and to supersede the specification in case of discrepancies. However, all documents shall be considered mutually explanatory.

3.24.4 Contractor shall prepare and submit detailed fabrication drawings based on the drawings and/or instructions furnished by Owner for structural steel and works which require further detailing for successful execution of works. Owner's Engineer shall review and comment such detailed drawings submitted by Contractor. Contractor will have to re-submit the commented drawings till the Owner approves the drawings as fit for fabrication/ construction. Contractor must note that it is his responsibility to timely submit and obtain Owner's approval on the fabrication / detailed drawings without affecting the Project progress and schedule. The Contractor must submit and adhere to fabrication / detailed drawing schedule in accordance with the Project requirements and to the Owner's satisfaction as would be decided during the kick-off meeting with him.

3.25 **MEASUREMENT OF WORKS**

3.25.1 The Owner/Project Manager/ Owner's representative may from time to time intimate to the Contractor that they require the works to be measured and the Contractor shall attend or send a qualified agent to assist the Owner/Project Manager and Owner's representative in taking such measurements and calculations and to furnish all particulars or to give all assistance required by either of them.

3.25.2 Should the Contractor not attend or neglect or omit to send such agents then the measurements taken by the Owner/Project Manager/ Owner's representative or approved by them shall be taken to be the correct measurements of the **work.** Such measurements shall be taken **in** accordance with the Mode of Measurements mentioned in the specification.

3.25.3 Any claim which the Contractor may have to make in respect of such measurement shall be made by him in writing to the Owner/Project Manager within seven days of the date of these measurements, failing which the measurements shall be deemed to have been accepted by the Contractor.

3.25.4 Where mode of measurement is not specified, the measurements will be taken at site as per I.S. Code of Practice for Measurements. The Contractor shall give all assistance for taking measurements like steel measuring tapes, scaffolds, ladder and including surveyors with surveying instruments for checking and confirming levels.

3.26 **SCHEDULE OF QUANTITIES - NO CLAIM BECAUSE ACTUAL QUANTITIES DIFFER FROM PRELIMINARY STATEMENT**

3.26.1 The quantities of the various kinds of work to be done and materials to be furnished under this Contract which have been estimated and are set forth in the proposal or the Agreement or the Schedule of Quantities and Rates are the best available, but may not be accurate in any or all particulars and are only for the purpose of comparing on a uniform basis the bids offered for the work under this Contract

3.26.2 The Contractor agrees that neither the Owner/Project Manager nor the Engineer nor any of the employees or agents thereof shall be held responsible if any of the said estimated quantities should be found to be not even approximately correct in the construction of the work and that he will not at any time dispute or complain of such statement nor assert that there was any

misunderstanding in regard to the character, size and type of work to be done or the kind or amount of the materials to be furnished or work to be done. Further, the Contractor shall make no claim for anticipated profits, for loss of profit or for damage because of a difference between the quantities of the various kinds of work to be done or materials actually delivered and the estimated quantities set forth by the Owner/Project Manager or the Engineer

3.26.3 The rates/prices quoted by the Contractor in the schedule of rates/prices shall be firm irrespective of any variation in the quantities of individual items of work and/or in the total Contract Price unless otherwise specified in Special Conditions of Contract.

3.27 CONTRACTOR INFORMED, AS TO THE CONDITIONS

3.27.1 The Contractor shall inspect, examine and obtain all information and satisfy himself regarding all matters and things such as right of way, surface and sub-surface water conditions to be encountered, the character of equipment and facilities needed for the prosecution of work; the location and suitability of all construction materials, the quantities of various sections of the work, and local labour conditions, relating to the execution and maintenance of the works to be carried out under the Contract or any hindrances or interference's to or with construction and maintenance of the works from any cause whatsoever including any other operation of works, which may or will be carried out on or adjacent to the site of the works under the Contract and shall make allowance for all such contingencies in the Contract Price and will not raise any claims or objections against the Owner/Project Manager in any of such matters as mentioned above.

3.27.2 The acceptance of the order or making of a Contract will be construed as evidence that such an examination was made and later claims for labour, equipment or materials required for difficulties encountered will not be allowed.

3.27.3 Any record of subsurface condition, water records and other observations which may have been made by the Owner/Project Manager or the Engineer have been made with reasonable care and accuracy. Such records may be made available to the Contractor for his information, if available, but there is no expressed or implied guarantee, as to the accuracy of the records nor any interpretation of them. The Contractor shall recognise this and form his own opinion of the character of the materials to be encountered or excavated, from an inspection of the ground and put his own interpretation on records.

3.27.4 The prices quoted by the Contractor shall be based on his own knowledge and judgement of the conditions and hazards involved and not upon any representation of the Owner/Project Manager or the Engineer.

3.28 **CONTRACTOR TO PROVIDE EVERYTHING NECESSARY**

3.28.1 The Contractor shall provide everything necessary for the proper execution of the Works according to the intent and meaning of the drawings, schedule of quantities and specifications taken together whether the same may or may not be particularly shown or described therein provided that the same can reasonably be inferred there from and if the Contractor finds any discrepancy therein shall immediately and in writing refer the same to the Engineer whose decision shall be final and binding on the parties.

3.28.2 The Contractor shall supply, fix and maintain at his cost, during the execution of any works all the necessary cantering, scaffolding, staging, planking, timbering, strutting, shoring, pumping, fencing, hoarding, watching and lighting by night as well as by day, etc required not only for the proper execution and protection of the Works, but also for the protection of the public and the safety of any adjacent roads, streets, cellars, vaults, walls, houses, buildings and all other erections, matters or things, and the Contractor shall take out and remove any or all such

cantering, scaffolding, staging, planking, timbering, strutting, shoring etc. as occasion shall require or when ordered to do so and shall fully reinstate and make good all matters and things disturbed during the execution of the works to the satisfaction of the Engineer. The Contractor shall be paid no additional amount for the above and for any access roads to be made to reach the construction site.

3.28.3 All materials shall be new and of the best respective kinds described in the schedule of quantities and/or Technical Specifications and in accordance with the Engineer's Instructions and the Contractor shall upon the request of the Engineer, furnish him with all invoices, accounts, receipts, certificates and other vouchers, to prove that the materials comply therewith. The Contractor shall at his own cost arrange for and/or carry out any test of materials which the Engineer may require. The contractor shall establish and operate a full-fledged cement and concrete testing laboratory at site and depute a full-time qualified QA/QC engineer for the duration of the contract at no extra cost to the Owner/Project Manager. Such full-fledged cement and concrete testing laboratory at the site shall be as per provision of IS:456 and Contractor shall also depute an independent qualified QA/QC engineer full-time at the site for the duration of the contract.

3.28.4 It shall be the responsibility of the Contractor to unload and store in a safe and acceptable manner all construction materials as directed by the Owner/Project Manager.

3.28.5 The Contractor is required to provide and maintain all tools, and equipment and instruments necessary to perform his work. He shall provide all fuels, lubricants and compressed air for the operation and maintenance of his construction tools.

3.28.6 The Contractor is to arrange for all his requirements of such materials including but not limited to oxygen, Acetylene, pipes, ropes, welding rods etc required for performing the Works.

3.28.7 Samples of all materials to be used, whether cement, steel, bricks, rubble stone, aggregate, sand, timber, tiles, granite, finishing & building interior etc. shall be submitted by the Contractor and must be got approved by the Owner/Project Manager before they are used. Approved samples shall be kept with the Owner/Project Manager and all supplies shall strictly conform to the approved samples. Materials not strictly conforming to the samples are liable to the rejected.

3.28.8 The Contractor shall not sell, assign, mortgage, hypothecate or remove equipment or materials which have been installed or which may be necessary for the completion of the Contract without the written consent of the Owner/Project Manager.

3.28.9 Contractor shall provide and maintain at the site necessary number and type of machinery and equipment including survey instruments, TOTAL Station, Auto level etc. in good working condition for proper setting out and timely completion of the various works covered under Relevant Package. All arrangements for transporting the equipment to and from the site shall be done by the Contractor at his own expense. Contractor has to provide all the survey equipment including all technicians, helpers etc., for checking other works also if so desired by Owner with no additional cost of the Owner. No claim shall be entertained for mobilising additional equipment and/or personnel to complete the work within the stipulated time.

3.28.10 Contractor shall provide all fuels and lubricants required for the operation and maintenance of construction machinery and equipment as well as his transport vehicles.

3.28.11 Contractor shall at his cost arrange for all his requirements of such materials as, but not limited to, oxygen, acetylene, welding electrodes, ropes, form ties, turn-buckles, clamps, wiping rags and sandpapers etc. which are required to satisfactorily perform his work.

3.28.12 It shall be ensured by the Contractor that work shall proceed uninterrupted even in the event of power failures with the help of DG Sets and Diesel compressors. As such, adequate number of

diesel operated machinery (such as boring rigs, concrete mixers, vibrators, welding sets, etc.) shall be provided by the Contractor as an alternative arrangement in case electrically operated machinery are proposed to be brought to site.

3.28.13 The Contractor will be required to provide at his own cost all facilities for his office, warehouse, tool room, change room or any other building/structure required to the Works.

3.28.14 Contractor shall establish his own office/ shed at specified place inside/near the Project site for his worker/staff. The Contractor's office/shed shall be porta-cabin type. Only the shed for storing Cement shall be in brick masonry. In addition the office/shed shall have proper ventilation lighting and sanitary facilities. Contractor shall plan their site facilities and obtain clearance from the Owner before construction of the Office/shed.

3.28.15 All royalties shall be paid by the Contractor as also all tolls, local and other taxes, etc. at no extra cost to Owner. The rates quoted for excavation shall include Collector's permissions for Excavation permits, Royalty payments, disposal at the local / state / central pollution control board approved yard etc.

3.28.16 All materials supplied by the Contractor shall be of the best quality and shall conform to the Technical Specification. Approval in writing shall be obtained from Owner before any alternative or equivalent material is proposed to be used by the Contractor.

3.28.17 The Contractor shall get tested all materials supplied by him in a Owner approved laboratory, as directed by Engineer or as specified in the corresponding code of practice, at no extra cost to the Owner. This is in addition to furnishing the Manufacturer's Test Certificate where available.

3.28.18 Contractor shall obtain all necessary permits and licenses before commencement of work at no extra cost to Owner.

3.28.19 The Contractor shall have PF coverage, for all workmen in his permanent employee as well as those temporarily hired by him for the said Project. He shall also have ESIC cover for all workmen, permanent as well as temporary if required by law. The cost for both the above viz. PF as well as ESIC shall be deemed to have been covered in the rate quoted by contractor. The Owner shall not pay any extra charges over and above the rates quoted for these statutory payments.

3.28.20 Ash shall be utilized in Civil Works to the extent possible without affecting the quality and engineering requirements. Vendor shall declare Ash utilization Quantity or Percentage of ash used in allied civil works. Wherever available, ash shall be made free of cost at point of generation for the purpose by Owner. The usage of ash for the purpose shall be approved by Engineer-in-charge / Order Manager.

3.29 **TO DEFINE TERMS AND EXPLAIN PLANS**

3.29.1 The various parts of the Contract are intended to be complementary to each other, but should any discrepancy appear, or any misunderstanding arise as to the import of anything contained therein, the explanation of the Owner/Project Manager shall be final and binding. The correction of any errors or omissions of the drawings and specifications may be made by the Owner/Project Manager, when such correction is necessary to bring out clearly the intention, which is indicated by a reasonable interpretation of the drawings and specifications as a whole.

3.29.2 The Owner/Project Manager may from time to time prepare for his own use estimates of quantities or bills of materials required for the work. Copies of such estimate or bills of materials which may be given to the Contractor for his convenience, or any lists, weights, or quantities of materials or structures which may appear on the drawings shall not be considered as finally correct, sufficiently complete, or accurately covering any portion or all the work to be done under this Contract. Such bills or estimates may be carefully assembled and prepared, but their accuracy

is not guaranteed. They may or may not be accurate as to any particular detail and are given only as the best information available at the time of issue of the information. It is mutually understood that any such lists or estimates are furnished to the Contractor for his convenience only and not as lists or estimates of work to be done, many necessary items of work being omitted.

3.30 **ENGINEER TO DIRECT WORK AND ORDER ALTERATIONS, MODIFICATIONS, DELETIONS**

3.30.1 The Owner/Project Manager shall have the right but not obligation to direct the manner in which all work under this Contract shall be conducted in so far as may be necessary to secure the safe and proper progress and the specified quality of the work, and all work shall be done and all material shall be furnished to the satisfaction and approval of the Owner/Project Manager.

3.30.2 Additional drawings and explanations to exhibit or illustrate details may be provided by the Owner/Project Manager and shall be so provided whenever necessary and shall be binding upon the Contractor. The written decision of the Owner/Project Manager as to the true interpretation and meaning of the drawings and specifications and of such additional drawings and explanations shall be binding upon the Contractor.

3.30.3 If at any time the Contractor's methods, materials, or equipment appear to the Owner/Project Manager to be unsafe, inefficient or inadequate for securing the safety of the workmen or the public, the quality of work or the rate of progress required, he may order the Contractor to increase their safety, efficiency and adequacy, and the Contractor shall comply with such orders. If at any time the Contractor's working force and equipment are, in the opinion of the Engineer, inadequate for securing the necessary progress, as herein stipulated, the Contractor shall, if so directed, increase the working force and equipment to such an extent as to give reasonable assurance of compliance with the schedule of completion. The failure of the Owner/Project Manager to make such demands shall not relieve the Contractor of his obligations to secure the quality, the safe conducting of the **work,** and the rate of progress required by the Contract, and the Contractor alone shall be and remain liable and responsible for the safety, efficiency, and adequacy of his methods, materials, working force, equipment and timely completion of job irrespective of whether or not he makes any change as a result of any order or orders received from the Owner/Project Manager.

3.30.4 The Owner/Project Manager shall have the power to make any alteration in, omissions from additions to the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work and the Contractor shall be bound to carry out the work in accordance with any instructions that may be given to him in writing by the Owner/Project Manager and such alterations, omissions, additions or substitutions shall not invalidate the Contract. Any altered, additional or substituted work which the Contractor may be directed to do in the manner above specified as part of the work, shall be carried out by the Contractor on the same conditions in all respects on which he agreed to do the main work and at the same rates as are specified in the Contract for the main work, unless such alterations are not identical with items of work and form extra items.

3.30.5 The time for completion of the work shall be extended in the time proportion that the altered, additional or substituted work bears to the original contract and the decision of the Owner/Project Manager shall be conclusive and binding on the Contractor.

3.31 **CONTRACTOR'S SUPERVISION**

3.31.1 The Contractor shall, during the whole time the work is in progress, employ a qualified engineer to be in-charge of the works with adequate experience in handing of jobs of this nature and with the prior approval of the Owner/Project Manager. Such engineer shall be constantly in attendance at the site during working hours. During Contractor's representative's absence during working hours, when it may be necessary to give directions and orders by the Owner/Project

Manager or the Engineer, such orders shall be received and obeyed by the Contractor's engineer in-charge who may have charge of the particular part of the work in reference to which orders are given.

If requested to do so, the Owner/Project Manager or the Engineer shall confirm such orders in writing. Any directions, instructions or notices given by the Owner/Project Manager or the Engineer to Contractor's engineer-in-charge shall be deemed to have been given to the Contractor. Such engineer in-charge of Contractor shall have all necessary powers to engage labour or purchase materials and proceed with the work as required for speedy execution in accordance with the Contract.

Apart from the above, a separate and independent planning and monitoring cell of adequate and suitable back-up in the form of computers and project management software (Primavera preferred) shall also be available at site full time. This cell shall prepare overall and detailed construction programmes and submit weekly / fortnightly / monthly progress and hold-up reports.

3.31.2 None of the Contractor's Superintendents, engineers, supervisors or labour should be withdrawn from the work without due notice being given to the Owner/Project Manager or the Engineer; further no such withdrawals shall be made if in the opinion of the Owner /Project Manager or the Engineer such withdrawals will jeopardise the required pace of progress/successful completion of the work.

3.31.3 The Contractor shall employ in or about execution of the work only such persons as are careful, skilled and experienced in their respective trades, and the Owner/Project Manager shall be at liberty to object to and require the Contractor to remove any person employed by the Contractor in or about execution of works who in the opinion of the Engineer misconducts himself or is incompetent or negligent in the proper performance of his duties and all such persons shall not again be employed upon the works without the prior permission of the Owner/Project Manager.

3.31.4 Neither the Contractor, the Owner/Project Manager nor the Engineer shall hire or employ any employee of the other party except by mutual consent.

3.32 **SETTING OUT WORKS**

3.32.1 The Contractor shall set out the works and shall be responsible for the true and perfect setting out of the same and for the correctness of the positions, levels, dimensions and alignment of all parts thereof. If at any time, any error shall appear during the progress of any part of the work, the Contractor shall at his own expenses rectify such error, if called upon, to the satisfaction of the Owner/Project Manager.

3.32.2 The Contractor shall establish and maintain base lines and benchmarks adjacent of the various sections of work. All such marks and stakes must be carefully preserved by the Contractor, and in case of their destruction by him or any of his employees, they will be replaced at the Contractor's expense.

3.32.3 The Contractor shall be responsible for the accuracy of all dimensions within the various sections of the work according to the figures of dimensions on the drawings.

3.33 **CONSTRUCTION SUPERVISION AND WORKMANSHIP**

3.33.1 The Owner/Project Manager will engage his own supervisory staff at the site of works as may be deemed fit. The Contractor shall afford the supervisors every facility and assistance for examining the works and materials for checking and measuring the works and materials. The supervisors shall have no power to revoke, alter, enlarge or relax any requirement of the Contractor, but may

sanction any day work, additions, alterations, deviations or omissions, or any extra work whatever as may be authorised by the Owner/Project Manager.

3.33.2 The Supervisors engaged by Owner/Project Manager will act Engineer's representatives and shall have power to give notice to the Contractor or to his Foreman of non-approval of any work or materials, and such work shall be suspended or the use of such material shall be discontinued, until the decision of the Engineer is obtained.

3.33.3 The work shall be conducted under the general direction of the Engineer and is subject to inspection by his supervisors to ensure strict compliance with the terms of the Contract. No failure of the Engineer or his supervisors during the progress of the work to discover or to reject materials, or work not in accordance with the requirement of this Contract shall be deemed as acceptance thereof or a waiver of defects therein and no payment by the Engineer on partial or entire occupancy of the premises shall be construed to be an acceptance of the work or materials which are not strictly in accordance with the requirements of this Contract. No changes whatsoever to any provision of the specifications shall be made without written authorisation of the Owner/Project Manager.

3.33.4 The Contractor shall execute the whole and every part of the work in the most substantial and workman-like manner as regards material and in all other respects.

3.33.S If it shall appear to the Owner/Project Manager or the Engineer that any work has been executed with unsound, imperfect or unskilled workmanship, or that any materials or articles provided by him for the execution of the work are unsound, or of a quality inferior to that contracted for, or otherwise not in accordance with the Contract, the Contractor shall on demand in writing from the Owner/Project Manager or the Engineer, notwithstanding that the same may have been inadvertently passed, certified and paid for, forthwith rectify or remove and reconstruct such work in whole or in part as the case may require or as the case may be, remove such materials or articles at his own proper charge and cost. In the event of his failing to do so within seven days of receipt of the Engineer's written notice thereof, or any other period mentioned in such notice, the Engineer may rectify or remove and re-execute the work or remove and replace with other materials and articles complained of, as the case may be, at the risk and expense of the Contractor in all respects.

Also in the event the Contractor fails to carry out the rectification within the period stipulated above, the Contractor shall be liable to pay compensation at the rate of quarter (1/4) percent of the total Contract Value, for every week or part thereof, beyond the period stipulated above, that the rectification work remain incomplete.

3.33.6 The provisional acceptance of sections of the work for the purpose of preparing partial estimates and the payment of money for such partial estimates shall not operate as a waiver of any portion of this Contract and shall not be construed so as to prevent the Engineer from requiring replacement of defective work that may become apparent after the said provisional acceptance and shall not be construed in any way as the basis for a claim of extra compensation for any cause whatsoever by the Contractor.

3.34 **UNFIXED MATERIALS WHEN TAKEN INTO ACCOUNT TO BE THE PROPERTY OF OWNER/PROJECT MANAGER**

3.34.1 Wherein any certificate, of which the Contractor has received payment, the Engineer has included the value of any unfixed materials intended for and/or placed on or adjacent to the works, such materials shall become the property of the Owner/Project Manager (for any loss or damage to materials the Contractor shall be responsible) and they shall not be removed from the site, except for the works, without the written authority of the Owner/Project Manager.

3.35 **INTOXICANTS**

3.35.1 The Contractor shall not permit or suffer the introduction or use of intoxicating liquor upon the works embraced in this Contract, or upon any of the ground occupied or controlled by him.

3.36 **WORK IN MONSOON AND DEWATERING**

3.36.1 The construction and erection work may entail working in monsoon also. The Contractor must maintain a minimum labour force as may be required for the job and plan and execute the construction and erection according to the prescribed schedule. No extra rate will be considered for such work in monsoon.

3.36.2 During monsoon and other period it shall be the responsibility of the Contractor to keep the construction site free from accumulating of water, at his own cost.

3.36.3 During inclement weather, rains, Contractor shall suspend concreting for such time as the Engineer may direct and shall protect from damage all works already in progress or completed just then. All such temporary protective measures shall be at Contractor's cost and any damage to works shall be made good by the Contractor at his own expense. Upon resumption with Engineer's consent/notice, Contractor shall make good any deterioration or defect in or loss of the Works or Materials, which has occurred during the suspension.

3.37 **HOLD HARMLESS CLAUSE**

3.37.1 The Contractor shall be fully responsible for the due compliance by him and his Sub-contractors with all statutory requirements and with all applicable labour laws including Contract Labour Abolition and Regulation Act, Workmen's Compensation Act, P.F./E.S.I., Labour welfare fund, Act as may be applicable to the Contractor, the Sub-contractors and their employees. The Contractor shall fully indemnify and save harmless the Owner/Project Manager from and against all claims, demands, expenses, losses, liabilities, charges, actions, suits and proceedings whatsoever including claims under aforesaid Acts and laws which may be brought or made against the Owner/Project Manager, its Officers or servants by reason or in consequence of any matter or thing done or omitted to be done by the Contractor and/ or the Sub-contractors and all costs, charges and expenses which may become payable by the Owner/Project Manager in respect thereof.

3.38 **DEMOBILISATION**

3.38.1 Upon completion of work, the Contractor shall promptly demobilise from the site and leave the place in a manner as directed by the Owner/Project Manager or the Engineer, including cleaning of the area. Contractor shall start demobilisation only after the successful completion of the contract. No equipment, plant material or personnel shall be de-mobilised from the site unless with the express consent of the Owner's Project Manager. The Owner reserves the right to disallow in de-mobilisation if works under this scope of this contract are not completed to his satisfaction.

4.0 INSURANCE

4.1 **Rented Equipment**

All construction equipment shall be brought to and kept at the Site at the sole cost, risk and expense of Contractor, and Owner/Project Manager shall not be liable for any loss or damage thereto, except to the extent any such loss or damage is caused solely by the Owner/Project Manager. Contractor shall maintain adequate, appropriate and prudent insurance with respect to such construction equipment.

Any Insurance policy carried by the Contractor, any Sub-contractor or any third party on or in respect of any construction equipment shall provide for waiver of the underwriter's right to subrogation against Owner/Project Manager, the Financing parties, their assignees, subsidiaries, parent companies, affiliates, employees, insurers and underwriters. Contractor shall obtain adequate insurance to cover all construction equipment rented or leased from third parties.

4.2 **Statutory Insurance Benefits**

Contractor shall maintain with respect to the Work to be done under the Contract, in each applicable jurisdiction, all statutory insurance benefits and other insurance required by law including, without limitation, unemployment Insurance.

4.3 Third **Party** Insurance

Contractor shall at its sole expense, in the joint names of Owner/Project Manager and Contractor prior to the commencement of any Work on the Site, pursuant to the Contract, obtain adequate insurance, against liability for damage or death of or personal injury occurring before Final Performance Acceptance to any Person (including any employee of the insured parties) or to any property due to or arising out of the performance or non performance of the Work by Contractor or any Sub-contractors and other third party liabilities on account of obstruction, loss of amenity, trespass, nuisance or advertising pursuant to the Contract.

4.4 Automobile Liability Insurance

Contractor shall, at its sole expense and in the joint names of Owner/Project Manager and Contractor, shall maintain automobile liability insurance covering all owned, non-owned and hired automobiles, trucks and other vehicles used by Contractor or its Sub-contractors in connection with the Work.

4.5 Insurance against Accident, etc. to Workmen and Other Insurances

Contractor shall, at its sole expense, insure and shall maintain Insurance as required by Workmen Compensation Act or any other Acts applicable in India and all other Applicable Laws for all actions, suits, claims, demands, costs, charges and expenses arising in connection with the death of or injury to any person employed by Contractor or its Sub-contractors for the purpose of the performance of the Work. Contractor shall also maintain Contractor's All Risk (CAR) insurance.

In addition, Contractor shall obtain and maintain all other Insurances required to be obtained and maintained by it for fulfilling all his obligations under the Contract including Insurances against damages to designs and the like arising out of Services.

4.6 General Insurance Requirements

All insurance obtained by Contractor shall be maintained with an insurer approved by the Owner/Project Manager.

On or prior to the Commencement Date of Contract, Contractor shall furnish to the Financing Parties and Owner/Project Manager certificates of Insurance (or if one of the Financing parties, Owner/Project Manager or Owner's Representative so directs, copies of the actual insurance policies signed by an authorised Representative of the insurer) from each Insurance carrier showing that the above required Insurance is in force, the amount of the carrier's liability there under, and further providing that the Insurance will not be cancelled, changed or not renewed until the expiration of at least 90 (ninety) Days (to the extent obtainable under commercially reasonable terms) after written notice of such cancellation, change or non-renewal has been received by Owner/Project Manager and the Financing Parties and Contractor. All policies and

certificates of Insurance affected in accordance with this clause shall be in form and content acceptable to Owner/Project Manager and Financing Parties.

4.7 Remedy on Failure to Insure

If Contractor fails to effect and keep in force the Insurance for which it is responsible under the Contract, Owner/Project Manager may effect and keep in force any such Insurance, and pay such premiums as may be necessary for that purpose, and from time to time, after issuance of a reimbursement request thereof accompanied by relevant supporting documentation, deduct the amount so paid by Owner/Project Manager from any amounts due or which may become due to the Contractor under the Contract.

4.8 Descriptions not Limitations

The Insurance coverage referred to in this clause 4.0 shall be set forth in full in the respective policy forms, and the foregoing descriptions of such policies are not intended to be complete, nor to alter or amend any provision of the actual policies and in matters, if any, in which the said description may be conflicting with such instruments, the provisions of the policies of the Insurance mutually agreed by the Parties shall govern; provided, however, that neither the content of any Insuranee policy or certificate nor Owner/Project Manager's appr oval th ereof shall relieve the Contractor of any of its obligations under the Contract.

4.9 **Fire** Insurance

Unless otherwise instructed by the Owner/Project Manager, the Contractor shall on signing the Contra ct insure the works and keep them insured until the completion of the Contract against loss or damage by fire with a company to be approved by the Owner/Project Manager, in the joint names of the Owner/Project Manager and the Contractor for such amount and for any further sum if called upon to do so by the Owner/Project Manager, the premium of such further sum being allowed to the Contractor as an authorised extra. Such policy shall cover the property of the Owner/Project Manager only and shall not cover any property of the Contractor or of any of his approved Sub- Contractor or employees. The Contractor shall deposit the policy and receipts for the premiums with the Owner/Project Manager within twenty-one days from the date of signing the Contract unless otherwise instructed by the Owner/Project Manager. In default of the Contractor not insuring as provided above, the Owner/Project Manager /Owner's Representative on his behalf may so insure and may deduct the premiums paid from any money due, or which may become due to the Contractor. The Contractor shall, as soon as the claim under the policy is settled, or the work reinstated by the Insurance Office should they elect to do so, proceed with all due diligence with the completion of the works in the same manner as though the fire had not occurred and in all respects under the same conditions of Contract. The Contractor, in case of rebuilding or reinstatement after fire, shall be entitled to such extension of time for completion, as the Owner/Project Manager may deem fit.

Notwithstanding the above, the Contractor shall provide adequate portable fire extinguishers in his work area and take all adequate precautions against fire hazard and train regularly his supervisors/workmen in firefighting techniques.

In the event of occurrence of any fire being attributable in the opinion of the Owner/Project Manager /Owner's Representative to the Contractor's negligence, no extension of time will be granted.

4.10 Damages to Persons & Property Insurance in Respect of

4.10.1 The Contractor shall be responsible for all injury to persons, animals or things, and for all damage to the structural and/or decorative part of property which may arise from the operations or

neglect of himself or of any of his approved Sub-contractor or of any of his or his approved Sub-contractor's employees, whether such injury or damage arises from carelessness, accident or any other cause whatever in any way connected with the carrying out of this Contract. The Contractor shall indemnify the Owner/Project Manager and hold him harmless in respect of all and any losses arising from any such injury or damage to person or property as aforesaid and also in respect of injury or damage under any applicable laws and also in respect of any award of compensation or damages consequent upon a claim in relation to such injury by a third party.

The Contractor shall have to cover personal third-party insurance as per labour law/statuary requirements/applicable laws of state Government per person per incident. Third party insurance for damage to surrounding property shall be maintained by the Contractor per labour law/statuary requirements/applicable laws of state Government.

4.10.2 The Contractor shall reinstate at his cost all damages of every sort mentioned in this clause, so as to deliver the whole of the Contract Works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to the property of third parties.

4.10.3 The Contractor shall indemnify the Owner/Project Manager against all claims which may be made against the Owner/Project Manager by any member of the public, or other third party in respect of anything which may arise in respect of the works or in consequence thereof and shall at his own expense arrange to effect and maintain, until the completion of the Contract with an approved nationalised insurance company, a Policy of Insurance in the joint names of the Owner/Project Manager and the Contractor against such risks and deposit such policy or policies with the Engineer from time to time during the currency of this Contract. The Contractor shall also indemnify the Owner/Project Manager against all claims which may be made upon the Owner/Project Manager, whether under the Workmen's Compensation Act or any other Statute in force during the currency of this Contract or at common law in respect of any employee of the Contractor or any of his approved Sub-contractor and shall at his own expense effect and maintain, until the completion of the Contract, with an approved nationalised insurance company, a Policy of Insurance in the joint names of the Owner/Project Manager and the Contractor against such risks and deposit such Policy or Policies with the Engineer from time to time during the currency of this Contract.

The Contractor shall be responsible and liable to the Owner for all losses, which may be excluded from the Insurance Policies above referred to and also for all other damage to any property arising out of or incidental to the negligent or defective carrying out of this Contract.

4.10.4 The Contractor shall also indemnify the Owner/Project Manager in respect of any costs, charges or expenses arising out of any claim or proceedings and also in respect of any award of compensation of damage arising on account of the above.

4.10.5 The Owner/Project Manager or the Engineer shall be at liberty and is hereby empowered to deduct the amount of any damages, compensation costs, charges and expenses arising or accruing from or in respect of any such claim or damage from any sum due or to become due to the Contractor.

4.10.6 The Owner/Project Manager or the Engineer shall not be responsible or be held liable for any damage to person or property consequent upon use, misuse or failure of any construction tools and equipment used by the Contractor or any of his Sub-contractors even though such construction tools and equipment be furnished, rented or loaned to the Contractor or his Sub-contractors by the Owner/Project Manager. The acceptance and/or use of any construction tools and equipment by the Contractor or his Sub-contractors shall be construed to mean that the Contractor accepts all responsibility for and agrees to indemnify and save harmless, the Owner/Project Manager or the Engineer from any and all claims for said damages resulting from

said use, misuse or failure of such construction tools and equipment for which the Owner/Project Manager may be liable.

5.0 FOSSILS, INSPECTION & TESTING

5.1 All fossils, coins, articles of value or antiquity, human remains and structures and other remains or things of geological or archaeological or religious or artistic interest or monetary value discovered on the Site shall be the property of the Owner/Project Manager, except as required under applicable law. The Contractor shall take reasonable precautions to prevent his staff, labour or other persons from removing or damaging any such article or thing. The Contractor shall, immediately upon discovery of such article or thing, advice the Owner/Project Manager or Owner's Representative

5.2 **Inspection and Testing**

5.2.1 Contractor shall perform all inspection, expediting and quality surveillance as may be required for performance of the Services. Contractor's responsibilities under this sub-clause shall include, without limitation, inspecting all supplies, Materials and equipment that comprise or will comprise the Relevant Package or that are to be used in performance of the Works.

5.2.2 The Contractor shall at its own expense carry out at the place of manufacture and/or on the site carry out all such tests &/or inspections of the plant & equipment and any part of the facilities as are specified in the contract. The Contractor shall carry out the inspection and quality control aspects as set out in Technical Specification. In the event the Owner/Project Manager establishes that the Contractor is not carrying out all such inspection and quality control aspects, the Owner/Project Manager has the right to appoint at Contractor's cost third party inspection agencies.

5.2.3 The Contractor shall obtain from any relevant third party or manufacturer any necessary perm1ss1on or consent to enable the Owner/Project Manager (or their designated representatives) to attend the test and/or inspection. Contractor / Contractor's third party inspection agency shall perform such detailed inspection of all work in progress at intervals appropriate to the stage of design, engineering, procurement, fabrication, construction, erection, testing, Commissioning, start-up or Tests before Provisional Acceptance as is necessary to ensure that such work is proceeding in accordance with the Contract, the Documents, Applicable Laws, Applicable Permits, Good Engineering Practices and Prudent Electricity Industry Practice and to protect Owner/Project Manager against defects and deficiencies in such work (including any which would diminish or void the ability of Owner/Project Manager or Contractor to realise upon any manufacturer's or supplier's warranty or under any applicable insurance coverage). On the basis of such inspections, Contractor shall keep Owner/Project Manager continuously informed of the progress and quality of all work, whether performed by Contractor or any Sub-contractor, and shall provide Owner/Project Manager with Written reports which shall contain notwithstanding anything to the contrary contained herein defects and deficiencies revealed through such inspections and of measures proposed by Contractor to remedy such defects and deficiencies. Owner/Project Manager or Owner's Representative shall have the option, at Owner's /Project Manager's expense, of being present at all such inspections, and the Contractor shall give notice of all such inspections agreed.

5.2.4 In the event that the progress and quality of the work is not proceeding in accordance with the Contract, Owner/Project Manager or Owner's Representative shall be entitled to make recommendations to Contractor or any Sub-contractor for the purpose of remedying such failure and any such defects and deficiencies or variances. Any inspection performed or not performed by Owner/Project Manager hereunder shall not be a waiver of any of Contractor's obligations under the Contract or be construed as an approval or acceptance of any of the work or Services

hereunder or absolve the Contractor in any manner of its liabilities, responsibilities and obligations under the Contract.

5.2.5 The Contractor shall, where required give due notice to the Owner/Project Manager/Owner's Representative whenever such work is ready before covering up or putting out of view. The Owner's Representative shall then either carry out the inspection, examination, measurement or testing or notify the Contractor that it is considered unnecessary.

5.2.6 The Owner's Representative shall have the right to re-inspect any work though previously inspected and approved by him at the Site, before and after the same are erected. If by the above inspection the Owner's Representative rejects any work, the Contractor shall make good for such rejections either by replacement or modifications/ repairs as may be necessary to the satisfaction of the Owner's Representative.

5.2.7 The Owner/Project Manager and the Owner's Representative shall be entitled, during design, engineering, manufacture, fabrication and preparation at any places where **work** is being carried out, to inspect, examine and test the materials and workmanship, and to check the progress in the performance of the work at no extra cost to the Owner/Project Manager. The Contractor shall give all reasonable facilities and assistance, including access to Documents to carry out such inspection, examination, measurement and testing. All inspection and tests shall be in line with approved Inspection & Test Plans and Owner/Project Manager/Owner's Representative shall carry out necessary inspection as per the Contract. Should any inspected work or service fail to conform to the Contract, the Owner/Project Manager may reject such work or service and the Contractor shall either replace or make alterations necessary to meet Contract requirements free of cost to the Owner/Project Manager. The Owner/Project Manager's right to inspect, test, and where necessary, reject the work or service shall in no way be limited or waived by reason of any part of the work having previously been inspected, tested and passed by the Owner/Project Manager or Owner's Representative.

5.2.8 The Contractor shall agree, with the Owner/Project Manager/Owner's Representative about the time and place for the testing of any equipment / Materials and other parts of the Works as specified in the Contract. The Contractor shall give 15 (fifteen) Days' notice for inspection of indigenous Materials and 30(thirty) days for Offshore Materials. The Owner/Project Manager/Owner's Representative shall give the Contractor not less than 24 (twenty-four) hours' notice of his intention to attend the Tests.The Contractor shall provide sufficient suitably qualified and experienced staff to carry out the Tests specified in the Contract. The Contractor shall present to the Owner/Project Manager/Owner's Representative the calibration certificates of all the testing and measuring instruments proposed to be used for carrying out the Tests. In case the Owner/Project Manager/Owner's Representative is not satisfied with the calibration certificates, the Contractor shall arrange to get the concerned instrument(s) recalibrated to the satisfaction of the Owner/Project Manager/0 wner's Representative.

5.2.9 If the Owner's Representative does not attend at the time and place agreed, or if the Contractor and the Owner's Representative agree that the Owner's Representative shall not attend, the Contractor may proceed with the Tests, unless the Owner's Representative instructs the Contractor otherwise. Participation by Owner/Project Manager or Owner's Representative in or their absence from or failure to participate in any Tests (other than the Performance Tests) shall not relieve or absolve the Contractor from any Guarantee or Warranty or obligations of Services under or in pursuance of the Contract.

5.2.10 The Contractor shall promptly forward to the Owner/Project Manager/Owner's Representative duly certified reports of the Tests.

5.2.11 If the Owner/Project Manager/Owner's Representative requires such equipment, materials, design or workmanship to be re-tested, the Tests shall be repeated under the same terms and

conditions. Contractor shall undertake an additional testing of any material, equipment or the work, if the Owner/Project Manager/Owner's Representative believes the results of earlier Tests are not accurate or do not establish the true condition to specification of equipment, material or work being tested. If such retesting demonstrate that the work, equipment or material being so tested conforms to the requirements of Contract, then Owner/Project Manager shall bear the cost of such additional Test and the cost of any required uncovering and covering the Goods or Services and shall grant the extension of time for completion, if necessary. If however such retesting confirms Owner/Project Manager/Project Manager's conclusion and cause the Owner/Project Manager to incur additional costs, such costs shall be recoverable from the Contractor by the Owner/Project Manager and may be deducted by the Owner /Project Manager from any monies due, or to become due, to the Contractor. Neither the failure by Owner/Project Manager/Owner's Representative to discover defects, nor any payment to Contractor in respect of the Tests, shall prejudice the rights of Owner/Project Manager thereafter to require and obtain from Contractor the performance of the Services in accordance with the Contract herewith. Owner/Project Manager/Project Manager shall not be deemed to have accepted any Services as a result of any additional testing.

5.3 **Rejection**

If, as a result of inspection, examination or testing, the Owner/Project Manager/Owner's Representative decides that any works, equipment, system, materials, design or workmanship has failed in such inspection, examination or tests or is defective or otherwise not in accordance with the Contract, the Owner's Representative may reject such Works, equipment, system, materials, design or workmanship and shall notify the Contractor promptly, stating his reasons. The Contractor shall then promptly correct or replace, such item or portion so as to pass retesting and otherwise meet and conform to such requirements. Following any such rejection, all expenses reasonably incurred by the Owner/Project Manager in consequence of such re-testing or inspection shall be borne by the Contractor. No changes to project schedule or increase in the contract price shall be granted with respect to such additional testing. Contractor shall solely bear any cost resulting there from.

6.0 CONTRACT PRICE AND PAYMENT:

6.1 **Contract Price**

Subject to the full and complete performance of the Works and in full consideration to the Contractor for all costs incurred in connection therewith, the Owner shall pay, and the Contractor shall accept, in accordance with the Contract, the Contract Price as stated in the Schedule of Price inclusive of all taxes. Such sum may not be adjusted except as set forth in the Contract. Unless otherwise stated in the Contract, the Contract Price covers all the Contractor's obligations under the Contract and all things necessary for the proper design, execution and completion of the Works and the remedying of any defects.

The Contractor shall be deemed to have satisfied himself of the correctness and sufficiency of the Contract Price having examined the Pre-Effective Date Conditions and all the data, information made available in the tender to its satisfaction.

In case of any discrepancies in the Contract Price, the following rules shall prevail:

a) Where there is discrepancy between words and figures, the Contract Price as stated in words shall prevail.

b) Where the total of values of individual line items do not match the total Contract Price in the Price Schedule, the total Contract Price value shall prevail. The individual line-item values shall be adjusted to match the total Contract Price value.

6.2 **Pre-Effective** Date Conditions

The Contractor has had sufficient opportunity to investigate and make a careful examination, survey and inspection of and has investigated and made a careful examination, survey and inspection of the Pre-Effective Date Conditions and has satisfied itself as to the feasibility of executing the Contract Works at the Site. The "Pre-Effective Date Conditions" shall consist of the following:

- the Site and surrounding areas and to have satisfied itself as to the condition of and circumstances affecting the Site (including but not limited to soil, surface, subsurface, environmental, geological, seismic, geotechnical, climatic, hydrological conditions and the existence of underground obstructions, fossils, antiquity structures, archaeological remains, and the general and local conditions with respect to waste disposal, handling and storage of Equipment, availability and quality of utilities, location of underground utilities, and equipment and facilities needed prior to and during performance of all the Contractor's obligations under the Contract);
- the availability and condition of methods of transporting the Equipment and Contractor's Equipment to the Site and the suitability and availability of access routes to the Site (including the availability and condition of roads);
- the local ambient conditions based upon previous ambient data;
- the qualifications of all Sub-contractors;
- all other difficulties, hazards and other matters that may affect the Contractor's performance.

The Contractor specifically acknowledges and accepts the Pre-Effective Date Conditions and agrees that the Contract Price shall not be increased and Guaranteed Completion Date shall not be extended, in each case as a result of any Pre-Effective Date Condition. Without prejudice to the Contractor's obligations under the Contract, the Contractor shall solely be responsible for any misunderstanding or incorrect information that the Contractor obtained and relied on.

Where the Contractor wishes to have other access or intrude on to or over land adjoining the Site, then arrangements must be made by the Contractor and such access or intrusion will be entirely at the Contractor's risk and cost. The Contractor shall keep the Owner informed in respect of negotiations for any such arrangements and the Owner's consent shall be required for any such arrangements.

6.3 **Taxes** & **Duties**

The Contractor shall be responsible for and shall administer and pay all other taxes including stamp duty and all sales, use, gross receipts, and other similar taxes and contributions imposed by any taxing authority upon the sale, purchase or use of the equipment and on all services or labour carried out in relation to the Contract Works, as well as taxes on or measured by the Contractor's income or taxes on or measured by wages earned by employees of the Contractor or any Sub-contractor or any taxes or contributions in the nature of workman's compensation, social security, old age benefits or similar items based upon or relating to employment of workers by the Contractor or any Sub-contractor. The Contractor shall furnish to the appropriate taxing authorities all required information and reports in connection with such taxes.

Notwithstanding the foregoing above, the Owner shall not be required to reimburse the Contractor for any taxes to the extent such taxes are payable as a result of the Contractor's or any Sub-contractor's failure to follow or comply with available procedures for the exemption from or abatement of such taxes.

The Owner shall have the right to deduct or set-off any monies in respect of any taxes or levies or any withholding tax charged to the Owner which should be attributable to the Contractor under this Clause from any payment to be made by the Owner to the Contractor under the Contract.

The Contractor shall be responsible for the payment of any taxes, duties, levies or imposts imposed in relation to any surplus materials and Contractor's Equipment which he / his contractor removes from site.

The Contractor shall indemnify, save harmless and defend the Owner, its directors, officers, employees and agents against all and any liabilities, claims and charges (including any penalties, fines, fees and like) arising in connection with the matters referred to in above clauses.

7.0 COMMENCEMENT, DELAYS AND EXTENSIONS OF TIME

7.1 **Notice to Proceed**

Contractor shall commence performance of Work on the Effective Date of the Contract or any other date which the Owner/Project Manager specifies (the "Commencement Date") through a Notice to Proceed (the "Notice to Proceed") delivered for commencement of the Work, which shall not be earlier than the date of issue of the Notice to Proceed. Unless specifically agreed otherwise in the Contract, the Effective Date of the Contract shall also be reckoned as the Commencement Date.

7.2 Commencement of the **Work**

Contractor will commence the Work as per the Effective Date/ Commencement Date indicated in the Letter of Intent (LOI) or a Letter indicating a Notice to Proceed (NTP) date and/or the Effective Date/ Commencement date as mentioned in the Contract.

7.3 Contractual Time for Completion

7.4 All the Works under the Contract shall be completed and shall have successfully passed the Tests before Take-over within the time for completion as set forth in the specification failing which the Contractor shall pay to the Owner/Project Manager for such delay in Relevant Package Completion (the "Delay Liquidated Damages"). Payment of any Delay Liquidated Damages shall not affect or prejudice in any way or manner Owner/Project Manager's right to terminate the Contract nor shall any termination of Contract prejudicially affect the Owner/Project Manager's right to recover any accrued Delay Liquidated Damages or release the Contractor from any obligation for payment thereof.

The Contractor agrees that the work shall be commenced and carried on at such points and in the order of precedence and at such times and seasons as may be directed by the Owner/Project Manager in accordance with the schedule for completion of the work as outlined elsewhere in the Contract. The Contractor declares that he has familiarised himself with the site and rights-of-way, with all the local conditions, and with all the circumstances which may, or are likely to affect the performance and completion of the work, and that he has allowed for such conditions. However, if a time schedule is submitted by the Contractor so as to keep the phasing of work generally in line with the time schedule drawn up and to keep the components unchanged, such time schedule after approval from the Owner/Project Manager, shall be accepted and complied with by the Contractor and it shall form a part of the Contract. The progress of work will be checked at regular monthly intervals and the percentage progress achieved should be commensurate with the time elapsed after the award of the Contract.

7.5 Extension of Time for Completion

7.5.1 If the Contractor shall desire an extension oftime for completion of work on the grounds of his having been unavoidably hindered in its execution or any other ground, he shall apply in writing to the Owner/Project Manager within 7 days of the date of hindrance on account of which he desires such extension as aforesaid. This application shall invariably be accompanied by sufficient documentation giving reasons for seeking such extension. No application for such extension shall be entertained if it is not received in sufficient time to allow the Owner/Project Manager to consider it and the Contractor shall be responsible for the consequences arising in relation thereto. Upon receipt, Owner/Project Manager may accept or reject such application.

7.5.2 In the event of a disruption (other than suspension by Owner/Project Manager) to the Schedule and if in the opinion of Contractor it is not the responsibility of Contractor or its any Sub-contractor and which might have been caused due to action of any third parties which Contractor might not have reasonably prevented, and that Contract entitles Contractor to time extension and I or other relief from Owner/Project Manager, the Contractor shall notify the Owner/Project Manager within twenty four (24) hours and provide a written report (to the best of Contractor's knowledge at the time) of the disruption within 72 (Seventy Two) Hours of Contractor's learning of the disruption and such report shall be supplemented on a prudent, informative and timely basis thereafter not later than 14 (Fourteen) Days from the date of Contractor's first learning of such disruption. In such an event the Contractor may modify and resubmit for approval to Owner/Project Manager/Owner's Representative computer-based network schedule and modifications if any required to the Schedule. Upon receipt, Owner/Project Manager shall take reasonable action in accordance with the Contract.

7.5.3 Contractor in any case has to inform to Owner immediately upon learning of any possible hindrances to the Works which have caused or may cause delay or other impact to the Works to enable Owner take suitable action.

7.5.4 No necessity for an extension of time is anticipated but if untoward or extraordinary circumstances beyond the control of the Contractor should arise, which in the opinion of the Owner/Project Manager should entitle the Contractor to a reasonable extension of time, such extension may be granted but shall not operate to release the Contractor from any of his obligations, other than in relation to payment of liquidated damages for such delay (only to the extent of the extension granted by the Owner/Project Manager. For purpose of this clause, untoward and extraordinary circumstances are defined under clause 17.0 hereinafter. Under above circumstances, only extension of time may be granted but the Contractor will not be entitled to any additional compensation. In case of strike or lockout, the Contractor shall, as soon as possible, give written notice to the Owner/Project Manager, but the Contractor shall nevertheless constantly use his endeavours to prevent delay and shall do all that may reasonably be required to the satisfaction of the Owner/Project Manager to proceed with the work.

7.6 **Suspension of Supply of Goods/ Work**

7.6.1 The Owner/Project Manager may at any time instruct the Contractor by notice to suspend progress/ performance of part or all of the Work or supply of Goods under the Contract.

Such notice shall specify the obligation/s of which the performance/ progress is to be suspended, the Effective Date of the suspension etc. The Contractor shall thereon suspend performance of such obligations until ordered in writing to resume such performance by the Owner/Project Manager.

During suspension, the Contractor shall protect, store and secure all such part or all of the Work or Goods against any deterioration, loss or damage or other losses. Owner/Project Manager shall not be liable for payment against performance of such suspended work.

7.6.2 If the suspension exceeds 365 Days in a single event and 500 Days in case of cumulative events and the suspension is not due to cause attributable to the Contractor, the Contractor shall give notice to the Owner's Representative, with a copy to the Owner/Project Manager. After receipt of such notice, the Owner/Project Manager/ Owner's Representative shall proceed to agree or determine any extension of time and / or cost to which the Contractor is entitled under the Contract including clause no. 7.5 of these General Conditions of Contract;

7.6.3 If the suspension does not exceed 365 Days in a single event and 500 Days in case of cumulative events and the suspension is not due to cause attributable to the Contractor, the Contractor shall make all efforts to mitigate delays due to such suspension. However, if it is not possible to mitigate the delays either partially or fully despite the reasonable efforts of the Contractor, the Contractor shall give notice to the Owner's Representative, with a copy to the Owner/Project Manager. After receipt of such notice, the Owner/Project Manager I Owner's Representative may proceed to agree or determine any extension of time to which the Contractor is entitled under the Contract including clause no. 7.5 of these General Conditions of Contract;

7.6.4 In case of prolonged suspensions, the Owner/ Project Manager shall notify the Contractor for demobilizing the Site and shall also mutually agree on the minimum deployment to be maintained at Site for protecting, storing or securing the Works executed till suspension. In such an event, the cost of demobilization and re-mobilization shall be agreed on cost plus 10% overhead and margin basis against due submission of Change Order Request by the Contractor with supporting documents.

7.6.5 The Contractor shall not be entitled to extension oftime for, or payment of the costs incurred in making good any deterioration defect or loss caused by faulty design, workmanship or Materials, or by the Contractor's failure to take the measures specified in clause no. 7.6.1 of these General Conditions of Contract.

7.6.6 Provided, however, notwithstanding anything to the contrary contained in these General Conditions of Contract, the Contractor shall not be entitled to such extension and/ or payment of Cost if the suspension is due to a cause attributable to the Contractor.

7.7 **Rate of Progress**

7.7.1 If, at any time, the Contractor's actual progress falls behind the Schedule in any manner or it becomes apparent that it will so fall behind, the Contractor shall submit to the Owner/Project Manager / Owner's Representative a revised programme taking into account the prevailing circumstances. The Contractor shall, at the same time, notify the Owner/Project Manager / Owner's Representative of the steps being taken to expedite progress, so as to achieve completion within the time for completion stipulated under the Contract, including in particular the Schedule and the Guaranteed Completion Dates. The Contractor may also be asked to modify the plan, as a result of the changed circumstances due to delay, in order to complete the Work in time.

7.7.2 If any steps taken by the Contractor in meeting his obligations under this sub clause no. 7.7 cause the Owner/Project Manager to incur any additional costs, such costs shall be recoverable from the Contractor by the Owner/Project Manager and may be deducted by the Owner/Project Manager from any monies due, or that may become due, to the Contractor under the Contract or otherwise.

7.8 **Non-Performance by Contractor**

7.8.1 If the Contractor, except on account of any legal restraint upon the Owner/Project Manager, is preventing the continuance of the work or in case of a certificate for interim payment not paid within the period for honouring certificate, shall suspend the Works or in the opinion of the Engineer shall neglect or fail to proceed with due diligence in the performance of his part of the

Contract or if he shall more than once make default in respect of Scope of Contract, the Owner/Project Manager and/or the Engineer shall have the power to give notice in writing to the Contractor requiring that the Work be proceeded within a reasonable manner and with reasonable dispatch, such notice shall purport to be a notice under this clause. After such notice shall have been given, the Contractor shall not be at liberty to remove from the site of the Works or from any ground contiguous thereto any plant or materials belonging to him which shall have been placed thereon for the purpose of the Works and the Owner /Project Manager shall have a lien upon all such plant and materials to subsist from the date of such notice being given until the notice shall have been compiled with. If the Contractor shall fail for 7 days after such notice has been given to proceed with the Works as therein prescribed, the Owner/Project Manager may proceed as provided in Clause 13.2 hereinafter.

7.8.2 If the Contractor fails to perform as per the expectations of the Owner/Project Manager and consistently fails to achieve intermediate milestones as mentioned in the contract or fails to proceed with due diligence in the performance of his part of the contract or fails to make such due progress as would enable the works to be completed within period agreed, then in addition to the action proposed in clause 13.2 hereinafter, the Owner/Project Manager shall take recourse as per the following clause 7.8.3:

7.8.3 After giving 7 days' notice of non-performance to the Contractor, as per clause 13.2 hereinafter, the Owner/Project Manager shall be at liberty to remove items or part of the scope of the works of this contract and get the same executed by third party at the Contractor's risk and cost. The Owner/Project Manager has the right to recover the cost difference between the actual amount spent by the Owner/Project Manager in getting these works executed by third party and the amount that would have been payable to the Contractor at the quoted rates of this contract.

7.9 **WORK PARTLY ABANDONED**

7.9.1 If any time after commencement of the work, the Owner shall for any reason whatsoever, not require the Partly work thereof as specified in the Contract to be carried out, the Engineer shall give notice in writing of the fact to the Contractor who shall have no claim to any payment of compensation whatsoever on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not derive in consequence of the full amount of the work not having been carried out nor shall he have any claim for compensation by reason of any change having been made in the original specifications, drawings, designs and instructions which shall involve any curtailment of the work as originally contemplated.

7.9.2 The Contractor shall be paid the charges on the cartage only of materials actually brought to the site by the Contractor and rendered surplus as a result of the abandonment or curtailment of the work or any portion thereof and taken back by the Contractor, provided however, that the Engineer shall have in all such cases, the right to purchase these materials at their purchase price or at current local rates whichever may be less.

8.0 CERTIFICATE OF ACCEPTANCE/ COMPLETION

8.1 **Provisional Acceptance Certificate (PAC)**

8.1.1 Provisional Acceptance of Works shall occur if and only if:

8.1.1.1 Completion of all the Works and successful completion of all Tests to the satisfaction of Owner/Project Manager in accordance the Scope of Work, Technical Specifications and Contract Documents.

8.1.1.2 Rectification of all punch list items other than those which are minor in nature (would not affect intended operation/use of the Works and can be attended to subsequently while the Works is put in operation and in use).

8.1.1.3 Owner/Project Manager/Owner's Representative determine that the Relevant Package is complete and can be legally, safely and reliably placed in commercial operation with a normal compliment of operating personnel,

8.1.1.4 The Relevant Package is in accordance with all Applicable Laws and all government approvals, Prudent Utility Practices and Good Engineering Practices.

8.1.1.5 All Permits required to operate and maintain the Relevant Package, which are to be obtained by Contractor, have been obtained.

8.1.1.6 Owner/Project Manager has received from Contractor:

(i) All Documents required under the Contract for Owner/Project Manager to operate and maintain the Relevant Package,

(ii) All special tools and other maintenance tools and tackles, if any, as per Contract.

8.1.1.7 Contractor has delivered to Owner/Project Manager a completion certificate certifying each of the above foregoing and Owner/Project Manager has accepted the same.

8.1.2 The Owner/Project Manager shall issue a Provisional Acceptance Certificate to the Contractor certifying the date of achievement of the last of the condition under clause 8.1.1 above upon which the Provisional Acceptance has occurred subject to Take-over of the Relevant Package has taken place. Any Liquidated Damages for delay accruing pursuant to the Contract for failure of the Relevant Package to achieve Provisional Acceptance by its Guaranteed Completion Date shall stop accruing as of the date specified in the Certificate of Provisional Acceptance.

8.1.3 On issuance of Provisional Acceptance Certificate, the Contractor shall handover to Owner/Project Manager, and the Owner/Project Manager shall Take-over such Relevant Package operating in its normal, steady-state, operating mode. Forthwith upon such Take-over, Owner/Project Manager shall be responsible, for the care, custody and operational control of the Relevant Package. The Contractor's obligations towards Warranty and Latent Defects shall commence from the date of Provisional Acceptance Certificate of Relevant Package.

8.2 Final **Acceptance Certificate** (FAC)

8.2.1 Final Acceptance of Works shall occur if and only if:

8.2.1.1 Successful completion of Provisional Take Over of the Works

8.2.1.2 Contractor has completed all the Work including completion of all balance Punch List items in accordance with the Contract

8.2.1.3 Final Documents for operation and maintenance including 'As built' drawings are provided by the Contractor to the Owner/Project Manager as per the Contract

8.2.1.4 Contractor has delivered to the Owner/Project Manager a completion certificate certifying each of the foregoing and as under:

(i) All the Contractor's and Sub-contractor's personnel, supplies, unused Materials, waste, rubbish and temporary facilities located at or near such Relevant Package have been removed,

(ii) Final Acceptance has occurred for the Relevant Package and all other provisions of, and all items required by this Contract have been performed or delivered, as the case maybe, in accordance with this Contract and in a manner satisfactory to Owner/Project Manager.

(iii) All Sub-contractors have been paid the dues by the Contractor and no due certificates received from such Sub-contractor.

(iv) All statutory or legal liabilities on account of the work performed under the contract have been duly calculated and paid by the Contractor.

8.2.2 Upon certification by Contractor of completion of sub-clauses under clause 8.2.1.S and acceptance of the certificate by the Owner/Project Manager, the Owner/Project Manager shall issue a Final Acceptance Certificate certifying such matters within 120 (one hundred and twenty) Days.

9.0 LIQUIDATED DAMAGES

9.1 **Liquidated Damages for Delay**

9.1.1 If Provisional Acceptance Certificate does not occur on or before the Guaranteed Completion Date of Relevant Package, Contractor shall pay Liquidated Damages to Owner/Project Manager for such delay for each and every week or part thereof which elapses after the Guaranteed Completion Date for the Relevant Package until the earlier of (i) Provisional Acceptance Certificate, or (ii) the Day on which Contractor has paid to the Owner/Project Manager the maximum amount of Liquidated Damages for delay pursuant to the Contract.

9.1.2 The Liquidated Damages payable by Contractor to the Owner/Project Manager is 0.5% of the Contract Price for every week or part thereof of delay of not achieving the intermediate milestones (to be arrived at during contract finalization), subject to a maximum of 5% of Contract Price per milestone (the "Liquidated Damages for Delay") and 1% of the Contract Price for every week or part thereof of delay of not achieving the final milestones subject to a maximum of 10 % of the Contra ct Price for the overall schedule.

9.1.3 Notwithstanding the foregoing, no Liquidated Damages for Delay shall be payable for period of delay in achieving Provisional Performance Acceptance beyond Guaranteed Completion Date of the Relevant Package to the extent such delay is solely on account of Force Majeure Event and Contractor has been granted an extension oftime pursuant to clause 17.0 hereof.

9.1.4 If at any time, the Contractor is falling behind the schedule for intermediate milestone/s, he shall take necessary action to make good for such delays as per various provisions in the Contract to ensure overall Project schedule and achieve the final milestone/s. In case the Contractor is able to achieve the final milestone/s by the Guaranteed Completion Date/s, the Liquidated Damages deducted for the delays in intermediate milestone/s shall thereon be refunded to the Contractor along with the final payment.

9.1.S The Contractor shall pay to the Owner/Project Manager the Liquidated Damages for Delay calculated by Owner/Project Manager pursuant to the contract failing which same shall be adjusted from any sum due or payable by Owner/Project Manager to Contractor or recovered from performance and other securities provided by the Contractor.

9.2 The Liquidated Damages for Failure to meet Performance Guarantees

9.2.1 The Performance Liquidated Damages payable by the Contractor to the Owner/Project Manager which will be calculated as set forth in the Contract/ Technical Specifications.

9.3 Liquidated Damages Being Reasonable

The Parties acknowledge that:

a) Damages for Contractor's failure to meet any Guaranteed Completion Date and/or Contractor's failure to achieve the Performance Guarantee, are difficult to determine and that the Liquidated Damages set forth in the Contract including clause no. 9.0 of these General Conditions of Contract are pre-determined, pre-agreed and appropriate measures of the damages for such delays or such shortfalls in performance and are neither penalty nor consequential damages sustained by Owner/Project Manager as a result of such delays and / or shortfalls. Payment of all Liquidated Damages pursuant to this clause 9.0 shall be subject to the limitation on liability in respect thereof set forth in clause 16.2 of these General Conditions of Contract.

b) Contractor waives any defence to non-performance of its obligation to pay Liquidated Damages pursuant to the Contract including this clause no. 6.0 on the ground of alleged invalidity or unenforceability of provisions relating to payment of Liquidated Damages based on any theory or law or otherwise.

c) The amount of Liquidated Damages specified herein represent the projected commercial losses of the Owner/Project Manager, are fair and reasonable, are not penalties and reflect the Parties' assessment and estimate of such financial losses and damages of the Owner/Project Manager.

9.4 In view of the foregoing, the Contractor accepts and agrees to such Liquidated Damages as liquidated damages and shall not dispute such Liquidated Damages in any proceedings under the Contract.

10.0 WARRANTIES

10.1 Contractor Warranties

Contractor warrants to Owner/Project Manager with respect to the Performance of Work that all construction equipment and materials comprising the Contract Works will be new, conforming to Technical Specifications and free from defective workmanship. If Owner/Project Manager notifies Contractor in Writing with adequate detail of any such defects or deficiencies in the Works discovered during the applicable Defects Liability Period thereof, Contractor shall (a) re-perform any of the work hereunder to correct any errors, omissions, defects or deficiencies in the Works, and (b) in the case of any defective equipment or materials, at Contractor's option either repair or replace at its Cost.

Contractor warrants to Owner/Project Manager that:

a) Adherence to the Operations Manual shall allow operation and maintenance of the Relevant Package with performance at a level at least as favourable to Owner/Project Manager as the Performance Guarantees and such operation will not impair any Warranty in respect of Work including equipment and materials;

b) The Relevant Package supplied will incorporate all such modifications and improvements as their respective manufacturers may have decided to incorporate in similar equipment as of the date of Taking-Over and the end of the Defects Liability Period, provided that the incorporation of such modifications and improvements may take place at such time during the Defects Liability Period as the parties may agree;

c) Not Used.

d) All information, averments and data submitted, starting from the Bid and up to end of Contract Period, to the Owner/Project Manager is correct and true. If at any later date,

any of the aforesaid information, averment and data submitted is found to be false or incorrect, in part or in whole, the Contractor would be treated as a Contractor in Default as per Clause 13.2, and all consequences shall apply accordingly. The Owner/Project Manager would also be entitled to recover any cost or damages from Contractor including through encashment/forfeiture of Contract Performance Bank Guarantee and deductions from amounts payable to the Contractor.

10.2 **Defects Liability Period (also referred as Warranty Period)**

10.2.1 "Defects Liability Period" shall be 24 (twenty-four) months (unless a different Warranty Period is specified in either SCC or Technical Specifications in which case the Warranty Period as specified in Technical Specification/ SCC shall have the precedence in the order of priority giving priority to Technical Specifications followed by SCC) beginning from the date of Provisional Acceptance / Take-over whichever is later of the Relevant Package. During this Warranty Period, the Contractor will be liable to rectify all defects in the Relevant Package if any arisen.

Component/sub-systems/parts wherein specific warranty longer than the Warranty Period for the Relevant Package is specified in the either the Technical Specifications or SEC, such extended warranty requirements of the identified component/sub-systems/parts as specified in the Technical Specifications/ SEC (in the order of priority) shall prevail.

Any parts or components of the Goods or Services forming the Relevant Package having defects which is warranted and corrected by Contractor either by way of repair or replacement shall be further warranted by Contractor for a further period equivalent to the Warranty Period from the date such correction is affected and accepted by Owner/Project Manager/Owner's Representative.

Notwithstandingthe above, in no event shall the warranty on any part or component exceed twice the contracted Warranty Period from the date of Provisional Acceptance (the "Sun-set Date").

Notwithstanding the Sun-set Date, where a recurring defect of any particular part or component results in the failure of such part or component more than twice within the appropriate Sun-set Date, such part or component shall be replaced or repaired by the Contractor until such time that such part or component has operated without failure at least once for the contracted Warranty Period from the date of installation of such replaced/ repaired part.

The above Warranties are however subject to the provision that should any scheduled inspection of a particular item of the Relevant Package falls due within the above Defects Liability Period and any part or component thereof is scheduled to be refurbished or replaced, then such parts are warranted only up to the date of such scheduled replacement or refurbishment. The refurbished or newly replaced parts shall thereafter be covered for under the terms and conditions agreed by the Parties with respect to such replaced or refurbished parts.

10.2.2 **Latent Defects Liability Period**

The Latent Defects Liability Period for the Relevant Package shall be 36 (thirty-six) months from the expiry of the Warranty Period for the Relevant Package, however, not less than sixty (60) months from the date of Provisional Acceptance of the Relevant Package. Any such Latent Defects identified during the appropriate Latent Defect Liability Period shall be corrected and made good by the Contractor at its sole Cost.

Should any scheduled inspection of a particular item of the Relevant Package fall due within the Latent Defects Liability Period and any part or component thereof is scheduled to be refurbished or replaced, then the warranty for such parts shall be limited up to the date of such scheduled replacement or refurbishment. The refurbished or newly replaced parts shall from this point

onwards be covered for under the terms and conditions agreed by the Parties with respect to such replaced or refurbished parts.

10.2.3 **To Remedy Defective Work During Defects/ Latent Defects Liability Period**

If the Work or any portion thereof shall be damaged in any way excepting by the acts of the Owner/Project Manager, or if defects not readily detected by proper inspection shall develop before the Provisional Acceptance Certificate, the Contractor shall forthwith make good, without compensation from the Owner/Project Manager, such damage or defects in a manner satisfactory to the Owner/Project Manager/ Owner's Representative. In no case shall defective or imperfect work be retained.

In case any defects in the work due to bad materials and/or bad workmanship develop in the work before the expiry of this period, the Contractor on notification by the Owner/Project Manager shall rectify or remedy the defects at his own cost and he shall make his own arrangements to provide materials, labour, equipment and any other appliance required in this regard. The retention of Security Deposit/Performance Bank Guarantee by the Owner/Project Manager during this Defects Liability Period shall be as indicated in Special Conditions of Contract. In case even on due notification by the Owner/Project Manager, the Contractor fails to rectify or remedy the defects, the Owner/Project Manager shall have the right to get this done by other agencies and recover the cost incurred, by deductions from any money due or that may become due to the Contractor or from his security deposit/ Performance Bank Guarantee.

The Owner/Project Manager may, in lieu of such amending and making good by the Contractor, deduct from any money due to the Contractor or from his security deposit Performance Bank Guarantee, a sum to be determined by the Owner/Project Manager equivalent to the cost of amending such work and in the event of such security deposit/ Performance Bank Guarantee being insufficient, recover the balance from the Contractor together with any expense the Owner/Project Manager may have incurred in connection therewith.

The Contractor shall remain liable under the provisions of this clause notwithstanding the passing by the Owner/Project Manager of any certificate, final or otherwise or the passing of any accounts.

Owner/Project Manager shall give notice of observed defects promptly following such observation. Such notice must be given at the latest within thirty (30) Days from the end of the appropriate Warranty Period or Latent Defect Liability Period as applicable.

Contractor's obligation to effect repairs or replacement based on Contractor's Warranties shall not extend to failure caused by:

a) normal wear and tear;

b) failure to adhere to the Operation and Maintenance Manual; or

c) any repair or modification initiated or undertaken by Owner/Project Manager during the Warranty Period without the proper recourse to Contractor and without the Contractor's knowledge or consent, which consent shall not be denied unreasonably.

10.3 **Sub-contractor Warranties**

No warranty obtained from any Sub-contractor shall be deemed to reduce or limit Contractors Warranties or Latent Defects liability set forth in this clause 10.0 or Contractor's obligation to supply Goods or perform corrective **work.**

10.4 **Survival of Warranties**

Warrantees and Latent Defect Liability under the contract shall survive any termination of the Contract in respect of any part of the **work** for which Owner/Project Manager has paid Contractor.

10.5 **Emergency Repairs**

In the event of repairs carried out by the Contractor during the Defects Liability Period is not found satisfactory, the Owner/Project Manager reserves the right to rectify / replace the part at Contractor's risk and Costs.

In the event of an emergency where Contractor's personnel is not available on Site or cannot be on Site within an acceptable period of time and if in the judgement of Owner/Project Manager the delay from giving formal notice would cause serious loss or damage which could be prevented by immediate action, defects may be corrected by Owner/Project Manager or a third party designated by Owner/Project Manager at the Contractor's cost and expense, without giving prior notice to Contractor. In the event such action Is taken by Owner/Project Manager, Contractor will be notified promptly and shall assist wherever possible in undertaking the necessary corrections. The above emergency repairs shall not relieve the Contractor from liability under the terms and General Conditions of Contract.

10.6 **Removal of the Defective Work**

If the defect or damage Is such that it cannot be remedied expeditiously at the Site, the Contractor may, with the consent of Owner/Project Manager/Owner's Representative, remove from the Site for the purposes of repair any part of the Works which is defective or damaged. If the value of part or material removed from the Site Is substantial (value to be finalised at appropriate stage) as determined by the Owner/Project Manager/Owner's Representative, the Contractor shall provide security in the form of bank guarantee for a value as determined by the Owner/Project Manager/Owner's Representative.

In case of defective parts which are not repairable at Site but are essential for commercial operation of the equipment, Contractor and the Owner's Representative shall mutually agree to a program of replacement or renewal which will minimise interruptions to the maximum extent, in the operation of the equipment and the Relevant Package and the Contractor shall expeditiously provide necessary parts for replacement before shutdown planned.

The cost of any special or general overhaul rendered necessary during the warranty period due to defects in Relevant Package or defective Work carried out by the Contractor, the same shall be borne by the Contractor.

11.0 INTERIM AND FINAL PAYMENTS

11.1 The Contractor's organisation shall maintain an independent estimate & billing division. Contractor shall be responsible for working out the detailed quantities for various items of work, from the progressive drawings, released for construction, within two months from the date of receipt of drawings. Detailed bill of quantities along with the abstract shall be submitted to the Engineer for his approval. Increase or decrease in these approved quantities due to revision in drawings or due to Engineer's instructions shall be incorporated by the Contractor and submitted to the Engineer for revised approval within 30 days from the receipt of revised drawings/instructions.

11.2 Bills are to be submitted in the format approved by the Owner/Engineer. Interim/ Final bills shall be submitted on the basis of work completed against these approved quantities. Payment will be released by the Owner on verification of work completed against these approved quantities. No other method for billing shall be accepted by the Owner. Each bill shall be submitted along with

the detailed measurement sheets, pour cards, reconciliation statements for all the materials issued by the Owner.

11.3 Running Account bill shall be monthly and in computerised format prepared in Microsoft Excel or any other mutually agreed software and uploaded in Owner's e-sourcing portal. The bills shall be error free and accompany all the supporting documents like JMRs, quality related documents, pour card, etc. The bill shall be submitted in soft copy (non-rewritable CDs) also.

11.4 Any interim payments shall be regarded as payments by way of advance against the final payment only and not as payments for work actually done and completed and shall not preclude the right of Owner/Project Manager or the Engineer from getting bad, unsound and imperfect or unskilled work to be removed and reconstructed by the Contractor or be considered as an admission of the due performance of the Contract or any part thereof in any respect or the accruing of any claim nor shall it conclude, determine or affect in any way the powers of Owner/Project Manager or the Engineer under these conditions or any of them as to the final settlement and adjustment of the payment or otherwise, or in any other way vary or affect the Contract.

11.5 A bill shall be submitted by the Contractor each month on or before the date fixed by the Owner for all works executed in the previous month and Owner shall take or cause to be taken the requisite measurement for the purpose of having the same verified. If the Contractor does not submit the bill within the time fixed as aforesaid, the Engineer at its discretion may depute within seven days of the date fixed as aforesaid a subordinate to measure the said **work** in the presence of the Contractor whose counter signature to the measurement list will be sufficient warrant and the Engineer may prepare a bill from such list which shall be binding on the Contractor in all respects. If the Contractor fails to countersign or to record the differences within a week from the date of measurement in the manner required by the Engineer then in any such event, the measurements taken by the Engineer or by the subordinate deputed by him as the case may be, shall be final and binding on the Contractor and the Contractor shall have no right to dispute the same.

11.6 The final bill shall be submitted by the Contractor within two months of the date of the Final Acceptance Certificate, otherwise the Engineer's certificate of the measurement and the total amount payable for the work accordingly shall be final and binding on all Parties.

11.7 The Contractor shall submit all bills in printed forms/ Owner's e-sourcing portal as directed by Owner and the charges in the bills shall always be entered at the agreed rates as per the Contract or in the case of any extra work ordered in pursuance of these conditions and not mentioned or provided for in the Contract at the rates subsequently accepted by the Owner for such work.

11.8 In case work is nearly or is anticipated to be suspended, or in case only unimportant progress is being made, or in case it is apparent that the Contractor is about to forfeit his Contract or that the money yet due to him will not complete hisContract, the Engineer may, at his discretion, withhold any payment which may be due to the Contractor.

11.9 The Contractor shall not demand, nor be entitled to receive payment for the work any portion thereof except, in the manner set forth in this Contract and only after the Engineer shall have given a certificate for such payment. For final payment, when the Work covered by this Contract has been completed, and Final Acceptance Certificate has been issued to the Contractor, the Contractor shall prepare a final abstract showing the total amount of work done and its value under and according to the terms of this Contract. The Contractor shall attach copies of the Engineer's completion certificate with his final abstract. From the total value thus arrived, all previous payments will be deducted and all deductions made in accordance with the provisions of this Contract and the remainder shall be paid by the Owner to the Contractor within three months of the date of submission of the Contractor's final bill except in case of disputed items.

11.10 **Deduction from/ Withholding Contractor's Bills/Payment**

11.10.1 All costs, damages or expenses, which the Owner/Project Manager may have paid, for which under the Contract the Contractor is liable, will be claimed by the Owner/Project Manager. All such claims shall be billed by the Owner/Project Manager 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 properly identify such claims. Such claims shall be paid by the Contractor within 15 (fifteen) Days of the receipt of the corresponding bills and if not paid by the Contractor within the said period, the Owner/Project Manager may the deduct the amount, from any monies due or becoming due by him to the Contractor under the Contract or may be recovered by actions of Law or otherwise, if the Contractor fails to satisfy the Owner/Project Manager of such claims.

11.10.2 Owner/Project Manager shall have the right to withhold from any payment due to Contractor, including the final payment, such amounts as Owner/Project Manager reasonably deems necessary or appropriate to protect it because of any one or more of the following reasons:

a) Defects in any Work, which might affect Owner/Project Manager's ability to operate Relevant Package as contemplated herein, whether or not payment has been made thereof;

b) The filing of any vendor/ tradesman's lien or similar encumbrance in respect of the Work or the Relevant Package (or any portion thereof);

c) A dispute as to the accuracy or completeness of any request for payment received by Owner/Project Manager within 90 Days of receipt thereof or payment made there under;

d) Contractor's failure to deliver any Performance Securities to Owner/Project Manager

e) Any requirement in accordance with Applicable Laws to withhold any Taxes payable by Contractor in respect of the Goods/Work or any part thereof;

f) Contractor's failure to make payments to its Sub-contractors or Workers for Work or supply of Goods or to any statutory & Regulatory authority including amounts withheld by Contractor because of disputes between Contractor and such Persons.

g) Any legal cases, litigations pending against the Contractor or against the Owner/Project Manager but relating to the Works or Contractor's obligations under the Contract.

h) Any breach of the Contract by the Contractor.

11.10.3 In addition to the provisions of the clause 11.10.1 which relates to the recovery by the Owner/Project Manager of any amounts that the Owner/Project Manager may have paid, for which the Contractor is liable under the Contract, the Owner/Project Manager shall also be entitled to recover all the dues in terms of the Contract including Liquidated Damages for delay, Liquidated Damages for the shortfall in the guaranteed performance parameters, etc., by way of deductions from the payments due to the Contractor or that may become due to the Contractor in future or from any securities/ guarantees under the Contract and/ or otherwise.

11.10.4 Notwithstanding any dispute that Contractor may have, and regardless of the basis thereof or grounds thereof, Contractor agrees that it will, for so long as the Contract has not been terminated diligently proceed with the Works up to Final Performance Acceptance and final Take-over of Relevant Package, all in accordance with the terms of the Contract.

11.10.5 Any payment due to Owner/Project Manager by the Contractor and remaining unpaid beyond the stipulated date shall be liable to interest payment 100 (hundred) basis points above the short-term Prime Lending Rate of State Bank of India Marginal Cost of the Fund-Based Lending Rate (SBI MCLR) for a tenure of 1 year from the date of due to Owner/Project Manager to the date of receipt of dues from Contractor by Owner/Project Manager.

11.10.6 Idle time charges for any reason whatsoever shall not be borne by the Owner.

11.11 **Punch List Items:**

Contractor shall perform all Work required or appropriate for all Punch List Items within a Schedule to be mutually determined by Contractor and Owner/Project Manager after submission of the Final Request for take-over. Such Schedule shall provide for completion of all Punch List Items as soon as practicable following determination of the completion schedule, but no later than the date set forth by Owner/Project Manager. Upon completion of the Punch List Items, Contractor may submit to Owner/Project Manager and the Owner's Representative a Request for Final Take-over and shall furnish with such a request a certificate that all Punch List Items have been completed. Owner/Project Manager shall examine and certify claim of Contractor of having satisfactorily attended the punch list items.

11.12 **Dedicated Bank Account/ Escrow Account:**

11.12.1 The Contractor shall maintain a separate account with a Scheduled Commercial Bank for the purpose of receiving all the payments under the Contract and for utilization of payments received from the Owner for disbursement to its sub- contractors.This could be an Escrow Account opened and governed under a tripartite agreement between the Contractor, the Owner and the Bank if required by the Owner/ Project Manager.

The Contractor shall maintain separate books of accounts for all payments under this Contract and Owner/Project Manager shall have access to these books of accounts at all times.

11.12.2 Account Tracking Mechanism:

In case the contractor wants to withdraw funds from the above bank account for any purpose other than the contract, he shall be required to submit an undertaking to the project manager certifying that all due statutory payments, labour payments and payments to all his sub-contractors have been disbursed corresponding to the total payment received by him under the contract

11.12.3 For tracking of payments received from the employer, the Contractor shall also submit a monthly statement by 7th of every month certifying the transactions pertaining to the above account along with the purpose of such transactions. In case, the Contractor transfers the funds for any purposes other than the Contract, without prior consent of the Owner, it will constitute a breach of Contract by the Contractor

11.12.4 In case the Contractor violates any of the above provisions, Owner shall have the right to give suitable instructions to the bank to regulate/ freeze the account.

12.0 CHANGE ORDERS

A Change Order shall be issued by the Owner/Project Manager in accordance with this clause, when either Owner/Project Manager or Contractor proposes to make any change in the Scope, Services, the Contract Price, the Performance Guarantees and/or the Schedule.

12.1 **Further Detailing not a Change Order**

Contractor's performance of Services shall be subject to further detailing from time to time and Contractor shall receive no additional compensation for such detailing to the extent that such detailing does not constitute a Change Order.

Notwithstanding GCC, no change made necessary because of any default of the Contractor in the performance of its obligations under the Contract shall be deemed to be a Change, and such change shall not result in any adjustment of the Contract Price or the Time for Completion.

12.2 **Right to Change Order**

12.2.1 Change Orders may be initiated by the Owner/Project Manager/Owner's Representative at any time during the Contract Period, either by instruction or by a request (the "Change Order Notice") to the Contractor to submit a proposal. If the Owner/Project Manager/Owner's Representative requests the Contractor to submit a proposal and subsequently elects not to proceed with the change, the Contractor shall not be reimbursed for the Cost incurred for proposal.

12.2.2 The Contractor shall not make any alteration and/or modification of the Services unless and until the Owner/Project Manager/Owner's Representative instructs or approves a Change Order in Writing.

12.2.3 Change Orders may be requested by the Contractor (the "Change Order Request") (i) in case its performance of Services is affected by any Change in Laws or any act or omission of the Owner/Project Manager, Owner's Representative or Owner/Project Manager's Other contractors, or (ii) to propose any change which in the Contractor's opinion will reduce the cost of constructing, maintaining or operating the Relevant Package or otherwise be of benefit to the Owner/Project Manager. Provided further that any Change Order Request under sub-para (i) of this clause, the Contractor shall give a written notice promptly but, in any event, not later than 15 days from the date of occurrence of the event failing which Owner/Project Manager shall not be liable for admitting such Change Order Request.

12.3 **Change Order Procedure**

12.3.1 If the Owner/Project Manager/Owner's Representative issues a Change Order Notice, the Contractor shall submit a proposal addressing the following, within fifteen (15) Days or any other period as mutually agreed:

a) Description of the proposed design and/or work to be performed, and a programme for its execution together with supporting details and calculations;

b) The Contractor's proposal for any necessary modifications to the Schedule

c) The Contractor's proposal for any adjustment to the Contract Price, Guaranteed Completion Dates, Performance Guarantees and/or modifications to the Contract.

12.3.2 If the Contractor issues a Change Order Request, the Contractor shall submit a proposal addressing the following:

a) the reasons for the request with supporting details/documents;

b) a description of the design and/or work affected or proposed to be performed, together with programme for execution and other supporting details/calculations;

c) the Contractor's proposal for any necessary modifications to the Schedule;

d) the Contractor's proposal for any adjustment to the Contract Price, Guaranteed Completion Dates, Performance Guarantees and/or modifications to the Contract.

12.3.3 The Owner/Project Manager/Owner's Representative shall respond with approval, rejection or comments within a period to be mutually agreed after receipt of such proposals.

12.3.4 If the Owner/Project Manager/Owner's Representative instructs or approves in Writing a Change Order, the parties shall proceed with adjustments to the Contract Price, Schedule of Payments, Performance Guarantees and/or Guaranteed Time for Completion.

12.3 .S Contractor shall not suspend performance of this Contract during review and negotiation of any Change Order, except as may be directed by Owner/Project Manager or required by Applicable Law.

12.3.6 Payment in respect of the approved Change Orders shall be released by the Owner/Project Manager to the Contractor on satisfactory completion of such Change Order and its certification by the Owner's Representative in the same manner as applicable to corresponding milestone payments under the Contract.

12.4 **New Items/ Extra Items**

12.4.1 New Items/ Extra items if any shall be paid on cost plus basis. The cost of item shall be determined as per the actual cost incurred (bills produced) for only he direct materials, labour, machinery utilisation for the said extra items subject to the cost/ bills produced to be reasonable as per the prevailing market rates. The Contractor shall be paid 15 (fifteen) percent of the cost so derived towards the overheads and profits. These overhead & profit charges shall be deemed to include all the site infrastructure and management related costs e.g. construction power/water, project management, safety & PPE, general tools & tackle, employee accommodation etc. and shall not form part of any cost breakdown structure. Cost of materials will not be added for calculation of overheads/profits to the extent provided as a free issue material by the Owner/Project Manager. For such extra items, the Contractor shall maintain time sheets of personnel engaged and logbook of machinery utilisation for execution of such items and get them certified by the Owner/Project Manager. Only such labour and equipment cost as supported with the above records, which in the opinion of the Owner/Project Manager is reasonable and justified, shall be taken into account to determine the extra Item rate.

12.4.2 Analogous items not covered in the Schedule of Price/ Quantities but are of similar construct or nature to the items already covered in the Schedule of Price/ Quantities shall be paid for at rates worked out on the basis of cost breakup of rates already agreed for such similar Items already covered in the Schedule of Price / Quantities. The Contractor shall furnish a cost break-down structure of all the major items (using the Pareto principle) under the Contract execution matching the agreed rates at the beginning of the Contract. This cost breakdown of items -up shall form the basis of deriving the price for the analogous Items.

13.0 TERMINATION BY THE OWNER/PROJECT MANAGER

13.1 **Termination for Convenience**

The Owner/Project Manager shall be entitled to terminate the Contract at the Owner/Project Manager's convenience, at any time by giving thirty (30) Days prior notice to the Contractor. Such notice of termination shall specify that termination is for Owner/Project Manager's convenience and the date upon which such termination becomes effective. Upon receipt of such notice, the Contractor shall proceed as follows:

(i) cease all further work, except for such work as may be necessary and instructed by the Owner/Project Manager/Owner's Representative for the purpose of making safe or protecting those parts of the Services already executed, and any work required for leaving the Site in a clean and safe condition;

(ii) stop all further sub-contracting or purchasing activity, and terminate all Sub-contracts except those to be assigned to the Owner/Project Manager pursuant to paragraph (vi) below;

(iii) handover and transfer the title of ownership to the Owner of all Design, Documents, Manuals equipment, materials and spares relating to the Relevant Package prepared by the Contractor or procured from other sources up to the date of

termination for which the Contractor has received payment equivalent to the value thereof;

(iv) handover and transfer the title of ownership to the Owner of those parts of the Relevant Package executed by the Contractor up to the date of termination; and

(v) remove all Contractor's Equipment, which is on Site and repatriate all his staff and labour from the Site.

(vi) to the extent legally possible, assign to the Owner/Project Manager all rights, title and benefit of the Contractor to the Relevant Package as on date of termination and, as may be required by the Owner/Project Manager, in any sub-contracts concluded between the Contractor and its Sub-contractors.

Upon termination, the Contractor shall:

a) Cease all further Work, except for such Work as may be necessary and instructed by the Owner/Project Manager/Owner's Representative for the purpose of making safe or protecting those parts of the Works already executed, and any Work required to leave the Site in a clean and safe condition,

b) Handover and transfer the title of ownership to the Owner all Design Documents, Construction Documents, Manuals, equipment, Materials and spares for which the Contractor has received payment,

c) Hand over and transfer the title of ownership to the Owner those other parts of the Works executed by the Contractor up to the date of termination, and

d) Remove all Contractor's equipment, which is on the Site and repatriate all his staff and labour from the Site.

e) to the extent legally possible, assign to the Owner/Project Manager all rights, title and benefit of the Contractor to the Relevant Package as on date of termination and, as may be required by the Owner/Project Manager, in any sub-contracts concluded between the Contractor and its Sub-contractors.

The Owner/Project Manager shall return the initial Advance Bank Guarantee and Contract Performance Security, (except to the extent required for the surviving obligations of the Contractor) and shall pay the Contractor an amount calculated and certified in accordance with clause 17.6 and Sub-contractor cancellation charges if any.

13.2 **Termination for Default by Contractor**

13.2.1 Notice to Correct

If the Contractor fails to carry out any of his obligations, or if the Contractor does not execute the Services in accordance to the Contract, the Owner/Project Manager/Owner's Representative may give notice to the Contractor requiring him to make good such failure. The Contractor shall remedy the same or take reasonable action to remedy the same within fifteen (15) Days from date of such notice.

If the Contractor:

a) fails to comply with a notice under sub-clause 13.2.1, or

b) abandons or repudiates the Contract, or

c) without reasonable excuse fails to commence or proceed with the Services in accordance with the Contract, or

d) becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if

any act is done or event occurs which (under any Applicable Law) has a similar effect to any of these acts or events, or

e) assigns the Contract without the required consent of Owner/Project Manager, or

f) fails to comply with Applicable Laws and/or Applicable Permits, or

g) is in material breach of the Contract,

h) fails to comply with Tata Power's Safety Terms & Conditions annexed as Appendix to this GCC

then the Owner/Project Manager may, without prejudice to any other right or remedy Owner/Project Manager may have under the Contract after having given thirty (30) Days' notice to the Contractor, terminate the Contractor's employment under the Contract, should Contractor fail to rectify within such notice period or commence to rectify the defaults within fifteen (15) Days of receipt of such notice from Owner/Project Manager; provided always that in the case of paragraph (d) above, the termination shall become effective on Owner/Project Manager issuing the notice of termination.

Without prejudice to the foregoing, the amount of Liquidated Damages for Delay for which the Contractor would be otherwise become liable under clause 9.1 exceeds the aggregate cap referred to in clause 16.2.1 (i), then Owner shall at any time thereafter be entitled (but not obliged) by notice forthwith to terminate the employment of the Contractor

Upon termination, Owner/Project Manager shall automatically without the necessity of any further action by the Contractor stand subrogated to the interests of Contractor in or under any Sub-contracts. Owner/Project Manager shall succeed Contractor in all Sub-contracts and the Owner/Project Manager shall compensate the Sub-contractors under such Sub-contracts the compensation becoming due and payable under their agreements with the Contractor from and after the date Owner/Project Manager decides to succeed to the interests of the Contractor. The Contractor shall simultaneously deliver all Documents relating to the Relevant Package prepared by the Contractor or procured from other sources up to the date of termination to the Owner/Project Manager. Upon termination, if requested by Owner/Project Manager, Contractor shall withdraw from the Site and shall remove as directed by Owner/Project Manager any debris or waste materials (including any hazardous substances) generated by Contractor in performance of the Services.

Owner/Project Manager may take possession of any and all materials, documents, purchase orders, correspondence and schedules that Owner/Project Manager deems necessary to complete the Relevant Package. The Owner/Project Manager is also free to take possession of and use Contractor's Equipment at Site free of any cost. The rights and authorities conferred on the Owner/Project Manager and the Owner's Representative by the Contract shall not be affected by such termination.

The Contractor shall not be released from any of his obligations or liabilities accrued under the Contract. For the avoidance of doubt, the termination of the Contract in accordance with this clause shall neither relieve the Contractor of his accrued obligations for Warranty or Latent Defects or his accrued liability to pay Liquidated Damages for Delay and/or Performance nor shall entitle him to reduce the value of Contract Performance Security.

13.2.2 The Owner/Project Manager may upon such termination complete the Relevant Package himself and/or by employing any other contractor. The Owner/Project Manager or such other contractor may use for such completion such of the Documents made by or on behalf of the Contractor, Contractor's Equipment, Temporary Works, plant and materials as he or they may think proper. Upon completion of the Services, or at such earlier date as the Owner/Project Manager/Owner's Representative thinks appropriate, the Owner/Project Manager/Owner's Representative shall give notice that the Contractor's Equipment and

Temporary Works will be released to the Contractor at or near the Site. The Contractor shall remove or arrange removal of the same from such place without delay and at his cost.

13.2.3 Upon termination, if Owner/Project Manager is of the opinion that he is not able to complete the Relevant Package himself or with the help of other contractors, then he may reject the incomplete Works. In such an event the Owner/Project Manager shall recover all money paid by the Owner/Project Manager to the Contractor for the incomplete /rejected Relevant Package. The Contractor shall also dismantle and dispose of the rejected/incomplete Works and also clear the Site at his cost. If he fails to do so, the Owner/Project Manager will dismantle and dispose of the rejected incomplete Relevant Package and clear the Site at Contractor's Cost and risk and recover all expenses incurred in this regard from the Contractor.

13.3 **Payment after Termination**

13.3.1 After termination under clause no. 13.2 above, the Contractor shall not be entitled to any further payment under the Contract, except that, if Owner/Project Manager completes the Relevant Package and the costs of completion are less than the Contract Price, the Owner/Project Manager shall pay Contractor an amount properly allocable to Services fully performed by Contractor prior to termination for which payment was not made to Contractor or a Sub-contractor, upon completion of the Relevant Package by Owner/Project Manager.

13.3.2 The Owner/Project Manager shall be entitled to recover from the Contractor the extra costs, if any, of completing the Works. In addition, Owner/Project Manager shall be entitled to exercise any rights or remedies available to Owner/Project Manager hereunder or at law or in equity.

14.0 INDEMNIFICATION

14.1 **General** Indemnity

14.1.1 Contractor shall fully indemnify, save & hold harmless, defend and keep indemnified Owner/Project Manager, Owner/Project Manager's shareholders, the Owner's Representative, and the directors, agents, officers and employees of the Owner/Project Manager (the "Owner's Indemnified Parties") from and against any and all claims, including reasonable legal costs, (collectively the "Damages") in respect of death or bodily injury or in respect to loss or damage to any property of Owner or any other third parties which arises out of or in consequence of the Contract whilst the Contractor has responsibility for the care of the Works to the extent resulting from Contractor's or any Sub-contractor's or their agents or employees intentional act, negligence, or strict liability or omission in the performance of the Contract; provided that the foregoing obligation shall not apply to the extent the Owner's Indemnified Parties are negligent or strictly liable or to the extent such damages are caused by the intentional acts or omissions of the Owner's Indemnified Parties.

14.1.2 Owner/Project Manager shall fully indemnify, save & hold harmless and defend Contractor and its shareholders and the directors, agents and employees of the Contractor (the "Contractor Indemnified Parties"), from and against any and all claims, including reasonable legal costs, (collectively the "Damages") by third parties in respect of death or bodily injury or in respect to loss or damage to any property which arises out of or in consequence of the execution of the Project to the extent caused by Owner/Project Manager's or Owner's Other Contractor's strict liability, intentional act or omissions or negligence; provided that the foregoing obligation shall not apply to the extent the Contractor Indemnified Parties are contributory negligent or strictly liable or to the extent such damages are caused by the intentional acts or omissions of the Contractor Indemnified Parties.

14.2 **Specific Indemnification**

14.2.1 Contractor shall fully indemnify, save and hold harmless Owner/Project Manager Indemnified Parties from and against any claim, demand, liability, action, proceedings, cost or expense by any third party with respect to:

a) Failure of Contractor, any Sub-contractor or any of their respective Sub-contractors to comply with Applicable Laws and Applicable Permits, Prudent Utility Practices and Good Engineering Practices.

b) Failure of Contractor to make payments of taxes relating to Contractor's, any Sub-contractor's income or other taxes required to be paid by Contractor pursuant to this Contract irrespective of whether they are reimbursable or to be compensated under the terms of this Contract.

c) Any Hazardous Materials of Contractor, any Sub-contractor, or any of their respective Sub-contractors which has at any time been brought on and has been caused to be released thereof on or from the Site or for which any of them is responsible by law or in the Contract.

d) Failure of Contractor to protect the environment (both on and off the Site) in accordance / compliance with the applicable environmental laws along with its amendments/modifications from time to time.

14.2.2 Owner/Project Manager shall fully indemnify, save harmless and Contractor Indemnified Parties from and against Damages in favour of any third party with respect to:

a) Failure of Owner/Project Manager or any of its Other Contractors to comply with Applicable Laws and Applicable Permits.

b) Any Hazardous Materials of Owner/Project Manager, or any of its Other Contractors (other than Offshore Supply Contractor, Onshore Supply Contractor, and Onshore Services Contractor, and the Sub-contractors) has brought on and caused the release thereof from the Project Site.

14.3 **Intellectual Property (IP) Indemnification**

14.3.1 In performing the Services, Contractor shall not incorporate into the Relevant Package, or use in connection with the Relevant Package or the performance of the work, any materials, methods, processes, systems or service that involve the use of any confidential information, intellectual property or proprietary rights that Contractor does not have the right to use or incorporate or which may result in claims or suits against Owner/Project Manager, Contractor or any Sub-contractor arising out of claims of infringement of any third party, domestic or foreign patent rights, copyrights, other proprietary rights, or intellectual property rights, licenses or agreements, or applications for any thereof, or rights of use of confidential information.

14.3.2 The Contractor shall retain the copyright and other Intellectual Property Rights in the Contractor's Documents and other design documents independently made by (or on behalf of) the Contractor. The Contractor shall be deemed to give to the Owner/Project Manager a perpetual non-terminable, non-exclusive, transferable royalty-free licence to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This licence shall:

a) be valid throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works,
b) entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works, and
c) in the case of Contractor's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as

envisaged by the Contract, including replacements of any computers supplied by the Contractor.

d) be used for any other purposes related to the Relevant Package/ Work.

14.3.3 Contractor shall fully indemnify and save harmless and defend the Owner Indemnified Parties from and against any and all damages or loss that the Owner's Indemnified Parties may suffer, incur or pay by reason of any claims or suits arising out of claims of infringement of any patent rights, copyrights or other intellectual property, proprietary or confidentiality rights with respect to equipment, designs, techniques, processes and information designed or used by Contractor or any sub-Contractor in performing the Work or supply of Goods hereunder or under the Sub-Contracts in any way incorporated in or related to the Project other than any such equipment, designs, techniques, processes and information provided by the Owner Indemnified Parties.

14.3.4 If, in any suit or claim relating to the foregoing, a temporary restraining order or preliminary injunction is granted, Contractor shall make every effort to secure the suspension of the injunction or restraining order. If, in any such suit or claim or any part, combination or process thereof, is finally held to constitute an infringement and its use is permanently enjoined, Contractor shall promptly make every reasonable effort to secure for Owner/Project Manager a license, at no Cost to Owner/Project Manager, authorising continued use of the infringing Goods or Work. If Contractor is unable to secure such license within a reasonable time so as to not affect the Project Contractual Time for Completion, Contractor shall, at its own expense and without impairing performance requirements, either replace the affected Goods or Work, or part, combination or process thereof with non-infringing components or parts or modify the same so that they become non-infringing.

14.3.5 Final payment to the Contractor by the Owner/Project Manager will not be made while any such suit or claim remains unsettled.

14.4 Notice and Legal Defence

14.4.1 Promptly after receipt by a party of a11y claim or Notice of the commencement of any action, administrative or legal proceeding, or investigation as to which the indemnities provided may apply, such Party shall notify the other Party in Writing of such fact provided that the failure of a Party to give any such Notice promptly shall not excuse the indemnifying party from its indemnification obligations hereunder except to the extent any such failure actually prejudices the indemnifying Party in the defence of such matters.

14.4.2 The indemnifying Party shall assume on behalf of the indemnified Party and conduct with due diligence and in good faith the defence thereof with counsel reasonably satisfactory to the indemnified Party; provided that the indemnified Party shall have the right to be represented therein by advisory council of its own selection and at its own expense; and provided, further, that if the defendants in any such action include both the indemnifying Party and the indemnified Party and the indemnified Party shall have reasonably concluded that there may be legal defences available to it which are different from or additional to, or inconsistent with, those available to the indemnifying Party, the indemnified Party shall have the right to select separate counsel to participate in the defence of such action on its own behalf at the indemnifying Party's expense.

14.4.3 The indemnified Party shall, at the request of the indemnifying Party, provide all reasonably available assistance in the defence or settlement of any such claim, action, proceeding or investigation, and all reasonable costs and expenses incurred by the indemnified Party in connection with the defence or settlement of any such claim, action, proceeding or investigation shall be reimbursed by the indemnifying Party promptly upon demand thereof. The indemnified Party shall not settle or compromise any claim, action or proceeding without the prior Written consent of the indemnifying Party such consent not to be unreasonably withheld.

14.5 Failure to Defend Action

If any claim, action, proceeding or investigation arises as to which the indemnities provided may apply, and the indemnifying Party fails to assume the defence of such claim, action, proceeding or investigation, then the indemnified Party may at the indemnifying Party's expense contest or settle such claim.

14.6 Survival: Expiration of Indemnity

The provision of this Clause 14.0 shall survive final acceptance or the termination of this Contract; provided that neither Party shall have any indemnity obligations pursuant to this Clause 14.0 for any claim arising out of or resulting from events or circumstances occurring after the termination of this Contract or after the expiration of the Latent Defect Liability Period; and provided further that neither Party shall have any indemnity obligation pursuant to this Clause 14.0 unless notice of any such claim for indemnity by either Party is received by the indemnifying Party prior to the date that is three (3) years after the expiration of the Latent Defect Liability Period.

15.0 CONTRACTOR'S CARE OF THE WORKS

15.1 The Contractor shall take full responsibility for the care of the Works from the Effective Date until the date of issue of the Certificate of Take-over when responsibility shall pass to the Owner/Project Manager. If the Owner's Representative issues a Certificate of Take-over for part of the Works, the Contractor shall cease to be responsible for the care of that part from the date of issue of such Certificate of Take-over when responsibility shall pass to the Owner/Project Manager.

15.2 The Contractor shall take responsibility for the care of any outstanding Work or obligations which is required to be completed/ fulfilled prior to the expiry of the Contract Period, until the Owner's Representative confirms in Writing that such outstanding Work or obligation has been completed/fulfilled.

15.3 If any loss or damage happens to the Relevant Package, during the period for which the Contractor is responsible, the Contractor shall rectify such loss or damage, at his cost, so that the Works conform with the Contract. The Contractor shall also be liable for any loss or damage to the Works caused by operations carried out by the Contractor after the date of issue of the Certificate of Take-over until the expiry of the Contract Period in so far as such loss or damage is not covered under Insurance to be taken by the Owner/Project Manager for operation of Plant.

16.0 LIMITATION OF LIABILITY

16.1 **No consequential Damages, etc.**

Except for any specific liability which may be identified in the Contract and which may be payable hereunder, Contractor shall not be liable for any special, incidental, indirect, or consequential damages or any loss of business Contracts, revenues or other financial loss (or equivalents thereof no matter how claimed, computed or characterised) arising out of or in connection with the Performance of the Work or supply of Goods unless caused by Contractor's negligence or wilful misconduct. In addition, Owner/Project Manager shall have no liability or any special, incidental, indirect or consequential Damages for any loss of business Contracts, revenues or other financial loss arising out of this Contract.

16.2 **Limitation of Liability**

16.2.1 Contractor's liability under the Contract shall be limited to

(i) with respect to delay in achieving the Guaranteed Completion Dates, the Liquidated Damages for Delay shall be ten percent (10%) of the Contract Price.

(ii) with respect to shortfall in Performance Guarantees, the Performance liquidated Damages shall be as stated irn the SCC/fechnical Specifications;

16.2.2 Not used

16.2.3 Payment of the above liquidated Damages for Delay shall not affect or prejudice in any way or manner, the Owner/Project Manager's right to terminate the Contract and also any termination of Contract shall not prejudicially affect the Owner/Project Manager's right to recover any accrued liquidated Damages for Delay or release the Contractor from any obligation for payment thereof.

16.3 **Maximum Liability**

The Contractor's aggregate liability under or arising out of or in connection with this Contract, its performance or breach shall be limited to the Contract Price. This limitation of liability shall, however, exclude:

a) Losses, damages, or claims arising out of wilful misconduct, misrepresentations, negligence, sabotage, fraudulent and/or corrupt acts of the Contractor's or any Sub-contractor's or their agents in the performance of the Contract.
b) General indemnification, specific indemnification, IP indemnification pursuant to provisions under Clause 14.0 and sub-clauses thereunder.
c) Indemnities pursuant to Clause 1.11.2 or any other indemnity provisions under the Contract.

16.4 **Exclusive Remedies**

The Owner/Project Manager's and Contractor's remedies and liabilities that are identified in this Contract shall be the sole and exclusive remedies available to the Parties in respect of matters to which they are said to relate in this Contract irrespective of any rights and remedies which might be available at common law, in tort (including negligence), by statute or otherwise.

17.0 FORCE MAJEURE

17.1 **Definition of Force Majeure**

"In this Clause," *Force Majeure"* shall mean an event or circumstance beyond the reasonable control of the Owner/Project Manager or the Contactor which could not have been foreseen, prevented or mitigated by such Party using Its reasonable diligence and which makes it impossible for such Party to perform the whole or in part its obligations under the Contract, including but not limited to:

a) Act of God;

b) An act of war, (whether declared or undeclared) hostilities invasion, armed conflict or an act of foreign enemies, blockade, embargo, revolution, military action, or sabotage.

c) Contamination by radioactivity from any nuclear fuel, or from any nuclear waste from the combustion of nuclear fuel, radioactive toxic explosive, or other hazardous properties.

d) Riot, civil commotion, terrorism or disorder, unless solely restricted to employees of the Contractor or of his Sub-contractors.

e) National or regional industrial disputes or targeted disputes which are part of national or regional campaign, and which is not reasonably within the powers of a Party to prevent, or which is not specific to the Party or any of his Contractors or Sub-contractors.

f) Operation of the forces of nature such as earthquake, hurricane, lightning, tidal wave, tsunami, typhoon or volcanic activity.

g) Any epidemic/ pandemic to the extent declared as Force Majeure by respective local administrative/ statutory body to the extent directly impacting the affected parts of the Contract.

17.2 **Excused Performance**

If either Party is rendered wholly or partially unable to perform its obligations under this Contract because of a Force Majeure Event, that party will be excused from whatever performance is affected by the Force Majeure event to the extent so affected provided that:

a) The affected Party gives the other Party Written Notice of the occurrence of the Force Majeure Event as soon as practicable after the occurrence of the Force Majeure Event and also gives the other Party Written Notice describing in reasonable detail the particulars of such occurrence, including an estimation of its expected duration and probable impact on the performance of such Party's obligations hereunder, and thereafter continues to furnish thereto timely regular reports with respect to continuation of the Force Majeure Event;

b) The suspension of performance shall be of no greater scope and of no longer duration than is reasonably required by the Force Majeure.

c) No liability of either Party which arose before the occurrence of the Force Majeure Event causing the suspension of performance shall be excused as a result of the occurrence.

d) The affected Party shall exercise all reasonable efforts to mitigate or limit Damages to the other Party.

e) The affected Party shall use its best efforts to continue to perform its obligations hereunder and to correct or cure the event or condition excusing performance;

f) When the affected Party is able to resume performance of its obligations under this Contract, that Party shall give the other Party Written Notice to that effect and shall promptly resume performance hereunder.

17.3 Limitations

Anything in this Contract to the contrary notwithstanding.

a) Any act, event, or occurrence listed above or asserted as a Force Majeure Event that results materially from the negligence or intentional acts of the affected party (including in the case of Contractor or any Sub-contractor thereof) shall not constitute a Force Majeure Event; and

b) The affected Party shall not be relieved from obligations under this Contract to the extent that the negligence or wilful misconduct of the affected Party (or in the case of Contractor or any Sub-contractor thereof) contributes to or aggravates the Force Majeure Event.

17.4 **Effect of Force Majeure Event**

Neither the Owner/Project Manager nor the Contractor shall be considered in default or in Contractual breach to the extent that performance of obligations is prevented by a Force Majeure Event, which arises after the Effective Date. Except as otherwise provided in a Change Order, an extension of time shall be granted to Contractor only to the extent Contractor proves to Owner/Project Manager;

a) The performance of the Work or supply of Goods is actually and necessarily delayed by an event of Force Majeure and

b) The effect of such event of Force Majeure could not have been prevented or avoided or removed despite exercise of reasonable due diligence whether before, after or during the event of Force Majeure.

17.S **Payment to Contractor**

If, in consequence of Force Majeure, the Plant or any part thereof shall suffer loss or damage, the Contractor shall be entitled to claim and receive payment for the cost of Work or supply of Goods executed in accordance with the Contract, prior to the event of Force Majeure.

17.6 **Optional Termination, Payment and Release**

Irrespective of any extension oftime, ifa Force Majeure event occurs and its effect continues for a prolonged period, the Partiers may mutually agree to terminate the Contract. If the Contract is terminated under this clause no. 17.6 or under clause no. 13.1, the Owner/Project Manager shall determine the work done and pay to the Contractor.

a) The amounts payable for any Work or supply of Goods carried out for which a Price is stated in the Contract;

b) The cost of Relevant Package and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery: such Plant and Materials shall become the property of (and be at the risk of) the Owner/Project Manager against payment therefore by the Owner/Project Manager, and the Contractor shall place the same at the Owner/Project Manager's disposal promptly upon receipt of request in respect thereof from the Owner/Project Manager.

18.0 CLAIMS, DISPUTES, MUTUAL SETTLEMENT & ARBITRATION

18.1 **Procedure for Claims**

18.1.1 If the Contractor or Owner/Project Manager intends to claim any additional payment under any clause of these conditions, the Party claiming shall give Notice to the other Party or as soon as possible and in any event within 30 (thirty) Days of the start of the event giving rise to the claim.

18.1.2 Within 30 (thirty) Days of such Notice, or such other time as may be agreed, the Party claiming shall send to the other Party an account, giving detailed particulars of the amount and basis of the claim along with the necessary supporting documentation. Where the event giving rise to the claim has a continuing effect, such account shall be considered as interim. The Party claiming shall then, at such intervals as the other Party may reasonably require, send further interim accounts giving the accumulated amount of the claim and any further particulars. Where interim accounts are sent to the other Party, the Party claiming shall send a final account within 15 Days of the end of the effects resulting from the event.

18.1.3 If the Party claiming fails to comply with this clause no. 18.1.2, he shall not be entitled to any additional claim and shall be deemed to have waived the same.

18.2 **Mutual Settlement**

18.2.1 Any disputes or differences arising out of or in connection with the Contract shall, to the extent possible, be settled amicably between the Parties.

18.2.2 If any dispute or difference of any kind whatsoever shall arise between Owner/Project Manager and Contractor, arising out of the Contract for the performance of the Works whether during the progress of Works or after its completion or whether before or after termination, abandonment or breach of Contract, it shall, in the first place be referred to

and settled by Owner's Representative, who within a period of 30 (thirty) Days on request by either Party to do so, shall give written notice of his decision to the Owner/Project Manager and the Contractor.

Save as hereinafter provided, such decision in respect of every matter so referred shall be final and binding upon the Parties until the completion of the entire Works and shall forthwith be given effect to by the Owner/Project Manager and/or the Contractor, as applicable, who shall comply with all such decisions with all due diligence.

If the Owner's Representative has given written notice of his decision to the Parties and no claim to arbitration has been communicated to him by either Party within 30 (thirty) Days from receipt of such notice, the said decision shall become final and binding on the Parties.

In the event of the Owner's Representative failing to notify his decision as foresaid within 30 (thirty) Days after being requested as aforesaid, or in the event of either the Owner/Project Manager or the Contractor being dissatisfied with any such decision, as the case may be, within 30 (thirty) Days after the expiry of first mentioned period of 30 (thirty) Days, as the case may be, either Party may require that the matter in dispute be referred to arbitration as hereinafter provided.

18.2.3 All disputes or differences in respect of which the decision, if any, of the Owner's Representative has not become final or binding as aforesaid, shall be referred within the next 30 (thirty) Days, for resolution by the intervention of the Senior Management of the respective Parties within the next 30 (thirty) Days through mutual agreement.

18.3 **Arbitration**

18.3.1 If the disputes or differences under Clause 18.2.3 herein above are still not resolved, the same shall be referred for arbitration in accordance with the Indian Arbitration & Conciliation Act, 1996, or any statutory modification or enactment thereof for the time being in force on the date of the reference to arbitration.

18.3.2 The Contractor and the Owner/Project Manager will continue to perform their respective obligations under the Contract during the Arbitration proceedings unless such performance itself relates to the dispute referred to Arbitration pursuant to this sub-clause.

18.3.3 The Arbitrator Panel shall consist of 3 (three) arbitrators, one to be appointed by the Owner/Project Manager and Contractor respectively and a third one to be appointed by the two arbitrators so appointed by the Owner/Project Manager and the Contractor and the third arbitrator shall be appointed in accordance with the provisions of the Indian Arbitration and Conciliation Act, 1996. It is to be noted that when one party appoints an Arbitrator, the other party should appoint their Arbitrator within 30 (thirty) Days. The arbitration shall be held in Mumbai and the courts in Mumbai shall have jurisdiction on any matter connected with any Arbitration under this clause no.22.3.

18.3.4 Arbitration shall be sole and exclusive remedy between the Parties regarding the dispute referred to Arbitration and any claims, counterclaims issues or accountings presented or plead to the arbitrators in connection with such dispute.

18.3.S The award rendered in any Arbitration commenced hereunder shall be final and conclusive. The award should be implemented and promptly paid.

18.3.6 The Arbitrators shall have full powers to review or revise the decisions, opinions, certifications or valuations of the Owner's Representative. The Owner/Project Manager and the Contractor hereby undertake to carry out the award without delay. The expenses of Arbitration shall be paid as may be determined by the arbitrators. They may from time to time, with the consent of the Parties, enlarge the time for making the award. In case of aforesaid arbitrators dying, neglecting, resigning or being unable to act for any reason, it will

be lawful for the Parties to nominate another arbitrator with mutual consent of both the parties.

18.3.7 No decision of the Owner's Representative in accordance with foregoing provisions shall disqualify him as being called as a witness or giving evidence before the arbitrators on any matter whatsoever relevant to the dispute or difference referred to arbitrators as foresaid.

18.3.8 This clause 18.3 shall remain in full force and effect notwithstanding any lawful termination of the Contract where either Arbitration has already commenced or the liabilities between the Owner/Project Manager and the Contractor have not been fully determined.

19.0 ENFORCEMENT OF TERMS

19.1 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 therein 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.

19.2 The exercise by either Party of any of its rights herein shall not preclude or prejudice either Party from exercising the same or any right it may have hereunder.

20.0 REPRESENTATIONS & WARRANTIES

Each Party hereby represents and warrants to the other Party that:

20.1 **Organization, Power and Authority.**

It is duly organized and validly existing under the laws of its jurisdiction of incorporation and is qualified to do business in India/ any other country as specified in SCC, and in all other jurisdictions in which the nature of the business conducted by it makes such qualification necessary, and has all requisite legal power and authority to carry on its business and to execute this Contract and to perform the terms, conditions and provisions hereof.

20.2 **Authorization.**

The execution, delivery and performance by such Party of this Contract have been duly authorized by all requisite corporate action.

20.3 **Enforceability.**

This Contract constitutes the legal, valid and binding obligation of such Party, enforceable in accordance with the terms hereof.

20.4 **No Conflict.**

Neither the execution nor delivery nor performance by such Party of this Contract, nor the consummation of the transactions contemplated hereby, will result in a violation of, or a conflict with, any provision of the organizational documents of such Party; a contravention or breach of, or a default under, any term or provision of any indenture, contract, agreement or instrument to which such Party is a party or by which such Party or its property may be bound, or a violation by such Party of any Law.

20.S **No Violation of Law.**

It is not in violation of any Law, which violations, individually or in the aggregate, could reasonably be expected to have an adverse effect on it or its performance of any obligations hereunder.

20.6 **Litigation.**

There is no action, suit or proceeding now pending or (to its best knowledge) threatened against it (or any Sub-contractor, in the case of the Contractor) before any court or administrative body or arbitral tribunal that could reasonably be expected to adversely affect the ability of such Party (or any Sub-contractor, in the case of the Contractor) to perform its obligations hereunder (or under any Sub-contract) other than those notified to the Project Company in writing by the Contractor.

20.7 **Contractor's Representations** and **Warranties.**

The Contractor represents and warrants that:

20.7.1 It has or will be the holder of all Permits required to allow it to operate or conduct its business as contemplated hereby;

20.7.2 It has thoroughly examined this Contract, the Technical Specifications and all applicable Laws and has become familiar with their terms;

20.7.3 It has, and its Sub-contractors have, full experience and proper qualifications to manufacture Equipment and perform the Work and to construct the Relevant Package under the Contract.

20.7.4 It has ascertained the nature and location of all Work to be performed at the Site, the character and accessibility of the Site and its surrounding areas, availability of lay-down areas for Equipment and tools, the existence of obstacles to construction (including any reasonably identifiable underground obstacles, if any, referred to in this Contract), the availability of facilities and utilities, the location and character of existing or adjacent work or structures, the conditions of roads, waterways and railroads in the vicinity of the Site and in the relevant State in India, including the conditions affecting shipping and transportation (such as the limitations of bridges and tunnels), access, disposal, handling and storage of materials, the surface conditions and other general and local conditions, including labour, safety, weather, environmental conditions, geological conditions, if any, noted in this Contract, water supply, water quality, waste water capacity of existing municipal systems and all other matters that might affect its performance of the Work or its costs or the construction of the Relevant Package

20.7.5 All services provided and procedures followed by the Contractor hereunder to engineer, design, procure, construct, commission, start-up and test all the Equipment and other items in the Relevant Package shall be done in a workman-like manner and in accordance with:

a) Prudent Utility Practices, Engineering Standards and the Design Specifications;

b) All applicable requirements of all applicable Laws;

c) All requirements of this Contract; and

d) All instructions of Vendors and manufacturers of Equipment, including instructions relating to storage, erection and testing;

e) Requirements of the latest Gazette of India - CEA Notification Sr. No.211 dated 20th August 2010: - "Technical standards for construction of electrical plants and electric lines;

f) International safety standards & codes for engineering/ design;

g) Relevant sustainability standards & codes.

20.7.6 It is familiar with all necessary facilities for delivering, handling and storing all Equipment and other parts of the Work

20.7.7 It is familiar with all labour conditions and agreements relating to the performance of the **Work;**

20.7.8 It will design the Equipment and Work for Relevant Package so that the useful life thereof may reasonably be expected to 30 (thirty) years;

20.7.9 The Contractor has no reason to believe that any Contractor Permits will not be readily obtainable by the Contractor in the ordinary course of business upon due application thereof;

20.7.10 It has satisfied itself as to the means of communication with and access to and through the Site and accommodations it may require and the precautions and times and methods of working necessary to prevent any Contractor Person from creating any nuisance or interference, whether public or private, which might give rise to any law-and-order problems within or outside the Site.

21.0 SUPPLIER CODE OF CONDUCT:

21.1 Tata Power follows the Tata Code of Conduct (TCoC), Whistle blower Policy and Anti-Bribery & Anti-Corruption Policy and expect all its Contractors / Suppliers including all their employees, agents and other representatives to adhere to the same principles. These policies are available on the following URLs:

Tata Code of Conduct (TCoC): https://www.tatapower.com/pdf/aboutusJata-Code-of-Conduct..P.Qf

Whistle Blower Policy: https://www.tatapower.com/pdf/aboutus/whistle-blower-policy-and-vigil-mechanism.pdf

Anti-Bribery & Anti-Corruption Policy: https://www.tatapower.com/pdf/aboutus/abac-policy.pdf

The Contractors/ Suppliers are expected to adhere to the following Do's and Don'ts:

Do's

The Contractor/ Supplier shall:

1. be committed to supplying products and services of high quality that meet all applicable standards and laws, including product packaging, labelling and after-sales service obligations.
2. comply with all applicable laws and regulations, both in letter and in spirit, in all the territories in which it operates.
3. strive to provide a safe, healthy and clean working environment for its employees.
4. strive for environmental sustainability, particularly with regard to the emission of greenhouse gases, consumption of water and energy and the management of waste and hazardous materials.
5. shall represent the Company (including Tata brand) only with duly authorised written permission from our company.
6. safeguard the confidentiality on the use of intellectual property, information and data of the Company.
7. ensure gifts and hospitality given or received should be modest in value and appropriate as per Company Policy.

8. ensure the assets of Tata Power shall be employed primarily and judiciously for the purpose of conducting the business for which they are duly authorised.
9. ensure all actual or potential conflicts due to financial or any other relationship with a Tata Power employee shall be disclosed.

Don'ts

1. The Contractor/ Supplier shall not make unfair or misleading statements about the products and services of competitors.
2. Children shall not be employed at workplaces.
3. Forced labour shall not be used in any form.
4. The Contractor/ Supplier shall neither receive nor offer or make, directly or indirectly, any illegal payments, remunerations, gifts, donations or comparable benefits that are intended, or perceived, to obtain uncompetitive favours for the conduct of its business with Tata Power.

Reporting Violations

The Contractor/Supplier shall notify the Owner/Company regarding any known or suspected improper behaviour of other suppliers or employees relating to its dealings with Tata Power, by email to: cecounsellor@tatapower.com.

The same can also be raised through our 3rd party ethics helpline facility:

Toll-free Number	1800 267 4065
Email	tataQower@tiq -offs.in
Website & Chatbot	www.tataQower.tiQ-offs.in
Postal address	Attn to: Mr. Puneet Arora, Deloitte Touch Tohmatsu India LLP, 6 floor, AIPL Business, Sector 62, Gurugram, Haryana 122102

21.2 If the Contractor/Supplier, or any of its Sub-contractors, agents or servants gives or offers to give or promises to give to any Person any bribe, gift, gratuity or commission as an inducement or reward:

a) For doing or forbearing to do any action in relation to the Contract, or

b) For showing favour or disfavour to any Person in relation to the Contract

or found violating any of the principles of the Supplier Code of Conduct as enumerated above, then the Owner/Project Manager may, after having given 15 (fifteen) Days' Notice to the Contractor, terminate the Contractor's employment under this Contract and also expel him from the Site. The effects of termination contained in clause 13.2 shall apply mutatis mutandis to the termination under this clause including recovery of any loss or damage to the Owner/Project Manager resulting from any such action of giving/ offering bribe from final settlement. In addition, it will also be subjected to any criminal liability under Applicable Law.

22.0 MISCELLANEOUS

22.1 **Non-Waiver**

Neither Party shall be deemed to have waived any right under this Contract unless such Party shall have delivered to the other Party a written waiver signed by such waiving Party.

No failure or successive failure by either Party to enforce any covenant or agreement, and no waiver or successive waivers by either party of any condition of this Contract, shall operate as a discharge of such covenant, agreement or condition, or render the same invalid, or impair such Party's right to enforce the same in the event of any subsequent breach thereof by the other Party.

22.2 **Severability**

If any of the terms, covenants or conditions hereof or the application of any such term, covenant or condition shall be held invalid or unenforceable as to either Party or as to any circumstance by any court or arbitrator having jurisdiction, the remainder of such terms, covenants or conditions shall not be affected thereby, shall remain in full force and effect and shall continue to be valid and enforceable in any other jurisdiction. In such event, the Parties shall negotiate in good faith to substitute a term, covenant or condition in this Contract to replace the one held invalid or unenforceable by a mutually agreed amendment to this Contract with a view toward achieving a valid and enforceable legal and economic effect as similar as is then reasonably possible to that originally provided for in this Contract.

22.3 **Survival of Provisions**

In order that the Parties may fully exercise their rights and perform their obligations hereunder arising from the performance of the Work, such provisions of this Contract that are required to ensure such exercise or performance shall survive the termination of this Contract for any cause whatsoever.

22.4 **Entire Agreement**

This Contract constitutes the entire agreement and contains all of the understandings and agreements of whatsoever kind and nature existing between the Parties, and supersedes, to the extent permitted by Indian law, all prior written or oral agreements, commitments, representations, communications and understandings between the Parties.

22.5 Amendment

No amendment, waiver or consent relating to this Contract shall be effective unless it is in writing and signed by the Parties.

22.6 **Successors and Assigns**

All of the terms and provisions of this Contract shall be binding upon and inure to the benefit of the Parties and their respective successors and permitted assigns. This Contract is for the sole benefit of the Parties, and to the extent provided herein, the Indemnitees, and is not for the benefit of any other Person.

22.7 **Counterparts**

This Contract may be executed in one or more counterparts, each of which shall be deemed to be an original and all such counterparts shall together constitute one and the same contract.

22.8 **No Benefit to Third Parties**

For the avoidance of doubt, this Contract is not intended to confer any legally enforceable rights on any Person other than the Parties, their successors in title and their permitted assignees, whether pursuant to the Contracts (Right ofThird Parties) Act 1999 or otherwise.

25.9 **Certification**

The Contractor should be SA (8000 or equivalent), ISO 14001and OHSAS-18001 certified. In the event Contractor does not have the certification, then the Contractor shall immediately apply for and obtain these accreditations before the commencement of Site Works. Owner shall not permit any work at Site unless Contractor presents bonafide evidence towards

obtaining these certifications. Time/cost extension shall not be allowed for any delay in Project Schedule due to Contractor's failure in timely obtaining of these accreditations. Contractor must also certify that the handling, use and disposal of the product shall be consistent with sound environment management.

23.0 Sustainability

The Contractor shall abide to the Owner/ Project Manager's Corporate Environment Policy, Responsible Supply Chain Management Policy Supplier Code of Conduct and Corporate ESG Framework (enclosed with the tender document).

The Contractor should strive towards Conservation of Energy, Water, Resources and optimize transportation of Men & Materials to minimize environmental impact and reduce carbon footprint.

The Contractor should carry out the assessment of materials used for construction, operation & maintenance, consumables and accordingly phase out those materials which are environmentally hazardous.

The Contractor organization should be SA 8000, ISO 14001 and SA 8000 and OHSAS-18001 certified. If not, the Contractor shall certify that the handling, use and disposal of your product consider practices consistent with sound environment management.

The Contractor shall commit to the human rights principle of no child labour, no forced labour, non-discrimination on the basis of caste, colour, religion, gender, disability and any other factor unrelated to the requirements of the job.

The Contractor shall commit to equal pay for equal value of work, especially for women.

The Contractor shall also carry out assessment of their Sub-contractors on their sustainability readiness so that they comply with the above-mentioned standards.

24.0 Total Compliance to TCOC, SHE and Contractor Safety Terms & Conditions

The Contractor shall abide by and comply in totality with the latest versions of Owner / Project Manager's Safety, Health & Environment policies, Contractor Safety Terms & Conditions, Sustainability and TCOC manuals/ documents as enclosed with the tender or as amended by Owner from time to time.

25.0 Novation

Owner shall have the right to novate the Contract at its sole discretion to any Tata Group Companies including associates and subsidiaries thereof if the situation so warrants. The Contractor shall have no objection and will fully extend co-operation for such Novation of the Contract to any Tata Group Companies including associates and subsidiaries thereof.

26.0 Changes In Constitution

Where the Contractor is a partnership firm, a prior approval in Writing of the Owner/ Project Manager shall be obtained before any change is made in the constitution of the firm and where the Contractor is an incorporated entity, a prior approval in Writing of the Owner/ Project Manager should be obtained before any change in Control of the Contractor. Where the Contractor is an individual or a Hindu undivided family business concern, such approval as aforesaid shall likewise be obtained before the Contractor enters into any partnership agreement where-under the partnership firm would have the right to carry out the work hereby undertaken by the Contractor.

27.0 Prohibition on Publicity

The Contractor shall not advertise or promote itself using the name, description of the Owner/ Project Manager without the prior written consent if the Owner/ Project Manager in the case of each use.

The Contractor shall not issue or make any public announcement or disclose any information regarding this Contract unless prior to such public announcement or disclosure it furnishes to the Owner / Project Manager with a copy of such announcement or information and obtains written approval to its terms. However, no Party shall be prohibited from issuing or making any such public announcement or disclosing such information if it is necessary to do so to comply with any applicable Law or the regulations of a recognized stock exchange.

28.0 Declaration by Contractor

All articles, Clauses, Conditions, Manuals, instructions cross referred in this GCC are fully read, understood by the Contractor in their entirety for fruitful implementation.

Appendix 2:

Safety Terms and Conditions

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Reason for Change	Date of Last Revision	Prepared By	Reviewed By	Approved by
Periodic Revision and Inclusion of Procedures and formats from BASCC.	*1 Aug 2023 (Rev 5)*	All Discom and CFT members	Corporate Safety Team	Suresh H Khetwani (*Chief safety and Environment*)

Corporate Safety Team.

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1.0 Objective:

The Objective of Safety Terms and Conditions is to apprise the Business Associates about various expectations from the BA to implement Tata Power Health & Safety Management System without fail.

2.0 Scope:

This procedure applies to all operating and project sites of The Tata Power Company Ltd and Group companies including new businesses like Electric Vehicle charging, Home Automation, Microgrid, Roof top solar etc. This Code of Conduct also applies to all operating and project sites of four Odisha Discoms and New business based on mutually agreed timeline for implementation.

3.0 Safety Organization & Responsibilities

3.1 Business Associate Site Management and Supervision

Each Business Associate will be responsible for fulfilling all statutory and safety requirements as per the laws of the land and not limited to Factory Act, Electricity Act, Electricity Rules and Regulations, Shop and Establishment Act etc.

Each Business Associate shall provide at least one competent full-time safety supervisor for workforce of every 50 workers or less than that. When workforce ranges to 500, the Business Associate must provide at least one qualified safety officer (This may be subjected to change as per applicable act). Thus, for work force of 500 workers there will be one qualified safety officer and 10 safety supervisors. For every 500 additions in workforce, the Business Associate must add 1 safety officer and 10 safety supervisors. The Order Manager or Safety Department of the Tata Power Division /Discoms will review and approve the appointment of all safety officers and supervisors. The safety supervisors/officers will work with the guidance from Tata Power Division /Discoms Safety Department and align themselves with Tata power Division/Discom safety requirements.

For O&M related AMC activities, minimum one qualified safety officer to be deployed for each Division of the Discoms.

(For any specific & specialized work, site safety supervisor will be decided by SCG)(R6)

Qualified safety officer means he or she has completed PDIS or ADIS from a recognized institute.

Site Safety Officer/Safety Supervisor / Safety Coordinator shall be interviewed by the Order Manager/ Safety head of the Tata Power Division/Discom and then gate passes shall be issued if the interview is successful.

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Site Manager of Business Associate /Sub Vendor is responsible, and will be held accountable, for the safety of their own workforce as well as that of sub-Business Associate s. He should also ensure that all equipment, materials, tools, and procedures remain in safety compliance at job site.

Responsibility of Site manager includes, but not limited to:

3.1.1 Holding officer/supervisors accountable for safety and actively promote safe work performance.
3.1.2 Participate in and cooperate with all safety program requirements to be implemented to meet Tata Power Division /Discoms safety objectives
3.1.3 Ensure timely reporting of safety incidents, near misses, unsafe acts, and conditions.
3.1.4 Identify the training needs of BA employees and maintain all safety training documents.
3.1.5 Provide Safety Performance Report at an agreed frequency.
3.1.6 Stopping of unsafe work (Acts and/or Conditions) immediately. Work to start only after corrective actions are implemented.
3.1.7 Ensure and participate in daily toolbox talk for all the jobs.
3.1.8 Ensure that only tested and certified tools and equipment are issued to the workers and being used at the site.

3.2 Business Associate Supervisors and General Staff.

Business Associate s' site supervisors and general staff members in charge of job site functions such as field engineering, warehousing, purchasing, costing, and scheduling etc. are responsible for the safe performance of the work of those they supervise. They must set an example for their fellow employees by being familiar with applicable sections of the Site Safety program and ensuring that all site activities are performed with SAFETY as the primary objective.

Each site supervisor is responsible and will be held accountable for identifying, analyzing, and eliminating or controlling all hazards through implementation of an aggressive, pro-active Health, Safety and Environmental Program. Each supervisor will proactively participate in the Safety program by observing, correcting, and recording unsafe acts and conditions at plant / sites.

<u>The BA's supervisor is the link between Tata Power Management and the BA (including his employees). (R6)</u>

- <u>He coordinates the work of his company's employee on site and is responsible & accountable for the safety of BA workforce. He will collaborate with site safety supervisor (SSS). BA's supervisor shall review the Safety requirements with his employees prior to the beginning of each job. Documentation of this review shall be forwarded by him to the Order Manager.(R6)</u>

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- Assigning jobs to his workers, inspection of tools, equipment & PPEs , reporting of incidents & near-misses, housekeeping of work area and carrying out Safety Audits.(R6)
- Deployment of all applicable Safety standards & procedure as mention in Safety Term& Condition CSMF2 during execution of the jobs.(R6)
- Ensuring job specific training prior to execution of the job.(R6)
- Conducting Tool - box meeting and compliance of SOP & statutory requirements at work place, correction of all unsafe conditions and acts.(R6)
- BA'S Supervisor will deeply involve in making JSA through participation of work force.(R6)
- BA's Supervisor will invite all BA employees for participation & engagement daily ensuring 100% in either observation reporting, TBT, Mass Meeting and discussion for Risk Assessment & implementation of control measure.(R6)

3.3 BA Site Safety Supervisor (SSS)(R6):

3.3.1 SSS will carry out daily safety audit and inspections of tools, tackles, equipment and PPEs. They will identify and help in correcting the unsafe acts and unsafe conditions created while executing job t site with the help of BA's supervisors (R6).

3.3.2 SSS will ensure his participations in TBT and Mass Meetings regularly. They will also ensure reporting of all incidents & near-misses and participate in incident investigation (R6).

3.3.3 SSS will help in risk assessment of activities while developing SOP for the job (R6).

3.3.4 SSS will deeply involve in making JSA through participation of work force.(R6)

3.3.5 SSS will assist for participation & engagement of 100% BA employees daily in either observation reporting, TBT, Mass Meeting and discussion for Risk Assessment & implementation of control measure.(R6)

3.4 Business Associate Workforce

3.4.1 Business Associate shall provide adequate quality and quantity of manpower as mutually agreed. Generally, for each 10-15 workforce one supervisor is suggested. *For all high risk jobs there shall be one Business Associates supervisor shall be deployed.(R6).*

3.4.2 All the Business Associate employees shall attend "SHE L0(Other than new business and Odisha Discom)/L1 Foundation Course in Safety". Depending on the critical procedure in job employees shall also be required to attend "SHE L2 course of critical/high risk operations". All Supervisors shall be required to attend "SHE L3 Supervisory Training". All the above trainings will be conducted by TPSDI/Skill development

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institute of Disco, or other equivalent institute approved by Tata Power.

3.4.3 Business Associate employees shall be required to attend any other additional training if suggested by Order manager or Site Safety Head. The cost of such additional training shall be borne by the Vendor.

3.4.4 Business Associate / Vendor shall mobilize their manpower well in advance to complete the training through TPSDI/Sill development Institute.

3.4.5 The Vendor / BA shall arrange or bear the conveyance and food expenses incurred during training of BA employees in Odisha Discom.

3.4.6 The validity of the training L1, L2 and L3 is 3 years. There will be competency assessment as Revalidation test in every three months for Tata Power Division and six months for Odisha Discom till one year from implementation of BASCC. Those who fail in the competency assessment shall undergo training again.

3.4.7 Supervisors/Welder/Electricians/Line man /Fitters /Radiographers/ Riggers engaged by the Business Associate shall have valid competency certificates issued by authorized agency/Institute.

3.4.8 Business Associate workforce must make safety a part of their job by following safety rules and regulations and by using all safeguards and safety equipment. They must take an active part in the Safety programs for the Site.

3.4.9 Every member of the workforce is expected to report for work without influence of any Drug/Alcohol. Failure to comply with this requirement shall result in immediate termination of employees under the influence of drug and alcohol plus show cause notice/penalty to the vendor.

3.4.10 All employees shall report hazardous conditions, practices and behaviours in their work areas and correct wherever possible.

3.4.11 Workforce is responsible for active participation in safety and health programs, suggestion systems, trainings and reporting of unsafe act/practices, Unsafe conditions incidents and injuries to their supervisors.

3.5 Business Associate (Vendor) /sub-Vendor

3.5.1 Vendors/Business Associate shall always comply with and ensure that their workforce comply with all site safety rules and regulations. Specifically, with applicable provisions of the Site Safety Management Plan and all statutory safety rules and regulations.

3.5.2 After receiving the work order/ purchase order vendor/Business Associate /bidder shall not appoint Sub-Business Associate without safety assessment of the sub-Business Associate through safety concurrence group Under Business Associate Safety Code of Conduct. Penalty of 5% of contract value will be applicable to the Business Associate if sub-Vendor is appointed without the permission of SCG and without evaluation through BASCC process.

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3.5.3 For engaging any sub-Vendor, the Prime Vendor as well as the sub-Vendor should be individually registered with Tata Power. Sub-contracting or hiring of others, by the BA to perform the services is subjected to specific, prior approval by the CA/OM. Such approval shall depend upon compliance with the following minimum requirements (R6)-

i. Sub-vendors identified by the Prime vendor will be subject to the same Safety Potential Evaluation Criteria as the Prime vendor for all Medium-risk/High-risk job where supervision will be done by the sub- vendors. In such cases, vendors must have a Star-rating of 4 or above, for becoming a sub- vendor(R6).
ii. The SCG team shall evaluate the Safety and technical competency of the sub-contractors for High risk job(R6)
iii. The Departmental Head will have the authority to approve any sub-contracting process based on requirement as submitted by the Prime Vendor (See CSM F-14 Sub-Vendor Engagement Request Form).
iv. No Safety potential evaluation shall be conducted for sub-letting of Low risk work(R6).
v. The Prime vendor shall be fully liable and responsible to Tata Power for the acts, errors, and omissions of its sub-vendors and shall be relieved neither of any obligation to Tata Power under the contract, nor of any other legal requirements(R6).
vi. The Prime vendor shall use only sub-vendors of demonstrated experience and reliability regarding the services to be provided(R6).
vii. The Sub-vendor shall agree in writing to be bound by all obligations of the Prime vendor set forth in the Contract.(R6)
viii. Safety performance evaluation shall be done for both prime vendor & sub-vendor.(R6)

Types of Sub-contracts and Associated Requirements (R6):

I. Sub - Vendor working with his own supervision:- Sub-vendors must achieve a minimum Star-rating of 3 for performing High risk jobs under Tata Power supervision or under the Principal/Main Vendor (Prime Vendor).(R6)

II. Sub-vendor working under Prime vendor's supervision (as supplier of manpower):- Manpower-supply contracts have to be supervised by the Prime vendor and the Prime vendor's Star- rating has to be taken into consideration. Vendors supplying manpower need not qualify in the Star-rating assessment.(R6)

III. 3. Only one level of sub-contracting is allowed, and the use of any sub-vendors must be authorised by Tata Power before any contract is finalised. Sub-vendors shall be subject to the same registration and selection/screening processes, as well as the same Safety performance requirements as those required of all Tata Power vendor's. Sub- vendor details are to be attached to the main contract during the RFQ stage. The process of sub-contracting is to be approved by the Chief / Head of the department (BASCC - Appendix#14).(R6)

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4.0 Procedure (R6).

4.1 Registration of Business Associates (Vendors):

For Vendor Registration, Contract Department will issue following documents for evaluation of Business Associate's safety capability.

1) ***CSM F2 Safety Terms and Conditions (R6):*** The document **CSM F2 Safety Terms and Conditions** provides the information about Tata Power-Division /Odisha Discom safety System to the Business Associate
2) **CSM F3 Safety Category Qualification Form*(R6):*: ** Business Associate will submit the **CSM F3 Safety Category Qualification Form** with all relevant details and documents to Vendor Registration Initiator, which will in turn forward it to Safety Concurrence Group (SCG) for evaluation.

CSM F3 *(R6):* - Safety Category Qualification form

1. "**Safety Category Qualification Form**" is part of vendor registration form. It needs to be filled by the Business Associate at the time of Registration and should be submitted to Requester / Order Manager with all relevant documents.
2. The same will be evaluated by Safety Concurrence Group of the Division (SCG).
3. Information provided by Business Associate will be verified during site visit.

Safety Category Qualification Form

Please consider my application for

Category A Vendor: Vendor eligible to carry out Very High- and High-risk O&M/Project jobs
Category B Vendor: Vendors eligible to carry out technical jobs, classified as Medium /~~low~~ risk
Category C Vendor: Vendors eligible for to carry out low or very low risk administrative and office job
Category D vendor: All Consultants, Medical Practitioners or vendors taking job from Tata Power and working from their own premises.

Name of the Vendor:			
Sr. No	**Safety Information**	**Yes / No**	**Remarks**
1	Certified for i. ISO 45001, ii. ISO: 14001 iii. ISO: 9001	i. Y/ N ii. Y/ N iii. Y/ N	If Yes, Attach copy of the certification. If No, mention plan to get the certification.

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Name of the Vendor:

	(ISO certificates to be issued from reputed accreditation agencies specified by Tata Power)		
2	Safety Statistics for current and Last Three (3) Years - LTIFR - LTISR	Yes/No	<table><tr><td></td><td>Current Year</td><td>Year 1(Last FY)</td><td>Year 2</td><td>Year 3</td></tr><tr><td>LTIFR</td><td></td><td></td><td></td><td></td></tr><tr><td>LTISR</td><td></td><td></td><td></td><td></td></tr></table>
3	Any Compensation paid due to accidents during current and last three years?	Yes/No	<table><tr><td></td><td>Amount (INR)</td><td>Manhour</td></tr><tr><td>Current Year</td><td></td><td></td></tr><tr><td>Y1 (Last FY)</td><td></td><td></td></tr><tr><td>Y2</td><td></td><td></td></tr><tr><td>Y3</td><td></td><td></td></tr></table>
4	Any prosecution against you by statutory bodies/clients during last three years due to statutory violations, criminal negligence towards safety and dereliction of duty of care towards your employees? Is any case still pending against you?	Yes/No	If yes, give details. If no, give an undertaking that no case is pending against you and you have not been prosecuted by statutory bodies or clients.
5	Do you have Safety Policy? Safety Principles? And Lifesaving Rules?	Yes/No	If yes, attach copy of the documents available.

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Name of the Vendor:			
6	Do you have Safety training process?	Yes/No	If yes, attach safety training process and average training manhour of your employees for the last three years.
7	Do you have a system for recording, reporting, and investigating all incidents or near misses?	Yes / No	If yes, show the incident statistics of last three years and implementation of CAPA.
8	Do you have a disciplinary action program against your employees for violation towards safety rules and procedures?	Yes/No	If yes, show the records of disciplinary action taken the last three years.
9	Do you have a reward and recognition scheme for your employees who show exemplary safe behavior and contribute to overall safety improvement at site?	Yes/No	If yes, show the records of Reward and Recognition given during. the last three years.
10	Do you engage in safety promotional activities?	Yes/No	If Yes, Show the proof of engagement in safety promotional activities.
11	Have you been recognized or awarded or rewarded by government bodies of clients for showing excellence in safety management in your jobs during last three years?	Yes / No	If Yes, Show proof.
12	Do you provide adequate quality of PPEs to your workmen?	Yes/No	If yes, please provide details of PPE Matrix and if required, samples for inspection.
13	Do you have Safety organization structure e.g., Safety Officers and Safety Committees?	Yes/No	If yes, attach copy of the safety organization structure, details of safety committees and safety professionals.

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Name of the Vendor:			
14	Name and address of sites where work is in progress or worked earlier	Yes/No	Site details to be attached for inspection by Tata Power-Division /DISCOM Officials.

Note: If you respond NO to any of the above questions, you can mention your plan to get the required documents.

I hereby confirm that the information provided above are true. I give my consent to be penalized as deemed fit in case any information given above are found to be false.

I will abide the general safety guidelines mentioned in the purchase order / work order and will ensure to prepare and follow site specific safe operating practices in consultation with the site-in-charge and safety professional. I will abide by penalty scheme in case of non-compliance.

Signature :

Name and Designation :

Stamp of Organization :

3) **CSM F4 Safety Potential Evaluation Criteria :** The SCG will evaluate the details submitted by the Business Associate based on a predetermined criteria **CSM F4 Safety Potential Evaluation Criteria** *along with Star Rating***(R6)** for Vendor Registration and will determine the category (Category A/B/C/D) for which the Business Associate will be registered. As mentioned in the above criteria, a site visit may also be organized by SCG prior to registration under Category A and B. In case, the Business Associate does not qualify the safety criteria, the Business Associate will not be registered. However, he may apply afresh for registration after 6 months**.**

CSM F4 - Safety Potential Evaluation Criteria for Vendor Registration *(For Information to BA-Not to submit by BA) R6*

At the time of vendor registration, vendor will be registered under 4 categories

1) **Category A**- Vendors eligible to carry out High risk Jobs
2) **Category B**- Vendors eligible to carry out technical jobs that are Medium/~~low~~ risk
3) **Category C**- Vendors eligible to carry out administrative and office jobs
4) **Category D**- Outsourced Jobs / Consultants /Medical Practitioners / Suppliers etc

For vendors to be registered under **Category A/B**, a safety potential evaluation will be carried out based on following parameters. (Actual **score is safety capability score)**

Star rating criteria score: 5 Star- 90 to 100, 4 Star- 80 to 90, 3 Star- 70 to 80(R6)

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Sr No	Description	Weightage (%)	Actual Score
1	Does the service provider have a valid 45001 Certification?	10	
2	*Performance Measure: Lead Indicator (Ref to Safety Performance evaluation report CSM F11 (A) Lead indicator score)(R6)*	*40*	
3	*Performance Measure: Lag Indicator (Ref to Safety Performance evaluation report CSM F11 (B) Lag indicator score)(R6)*	*20*	
4	Has there been any prosecution / conviction for any Contravention regarding safety and Health provision under the factories Act/Electricity Act / BOCW Act and Rules framed there under? If yes Give Zero otherwise 5 Marks.	5	
5	Check the Safety orientation & training process of Service provider- Records of Safety training provided to safety officer/supervisor /workmen during last 1 year as percentage (%) of total employed by service provider ✓ **Safety Officer:** >80% of employees: 5 Marks, 50 to 79% of employee: 2.5 Marks and <50%: Zero. ✓ **Safety supervisor**: >80% of employees: 5 Marks, 50 to 79% of employee: 2.5 Marks and <50%: Zero. ✓ **Workmen:** >80% of employees: 10 Marks, 50 to 79% of employee: 5 Marks and <50%: Zero	20	
6	Check the organizational structure for safety professionals & engineers / supervisors. ✓ Check Availability of number of Safety Supervisor from government recognized institute as per workforce strength. 1 in 50 employees than 5 Marks *otherwise Zero.* (R6)	5	
	Total	100	

Evaluation Criteria for Category C

Sr no	Description	Weightage (%)	Actual Score
1	Does the Business Associate have a valid ISO 9001 certification?	40	
2	Check the Safety statistics of Service provider (If available than 10 otherwise Zero)	10	
3	Check the trend LTIFR/LTISR for last 3 years (If less than 0.2 than give 20 Marks if between 0.2 to 0.3 than give 10 marks and otherwise Zero	20	

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4	Has there been any prosecution / conviction for any Contravention regarding safety and Health provision under the factories Act/Electricity Act / BOCW Act and Rules framed there under? If yes Give Zero otherwise 10 Marks.	10	
5	Check the Safety orientation & training process of Service provider- Records of Safety training provided to safety officer/supervisor /workmen during last 1 year as percentage (%) of total employed by service provider ✓ **Safety Officer:** >80% of employees: 5 Marks, 50 to 79% of employee: 2.5 Marks and <50%: Zero. ✓ **Safety supervisor**: >80% of employees: 5 Marks, 50 to 79% of employee: 2.5 Marks and <50%: Zero. **Workmen:** >80% of employees: 10 Marks, 50 to 79% of employee: 5 Marks and <50%: Zero	20	
	Total	100	

Evaluation Criteria for Category D

Category D does not require any evaluation as it is for outsourced job outside the Tata Power company premise.

For vendor to be registered for any category, vendor's safety capability score should be ≥ 70%.

4.1.1 *Star Rating(R6):*

SCG will evaluate Star Rating as per following -

- *Initially potential Star Rating based on **CSM F4 Safety Potential Evaluation Criteria***
- *After 6 month actual star rating assessment to be carried out based on **CSM F4 Safety Potential Evaluation Criteria** and safety performance evaluation.*
- *Odisha Discom & New Business Star Rating process will be applicable only 1 year after implementation of it.*
- *Based on Safety capability score Vendors rating will be evaluated (For 3 star rated vendors - within 12 months from previous assessment date and for 4 &5 Star rated vendors – within 24 months from previous assessment and Re-assessment within three months from previous assessment date when a vendor is unable to achieve Star rating 3)*
- *Category A - Vendor must require Safety Star Rating 4 and above.*
- *Category B - Vendor must require Safety Star Rating 3*

Star Rating will be evaluated by Third Party from FY 26

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4.2 Contract Preparation(R6).

*Safety bid Evaluation will be done only for medium and high risk (R6). The RFQ will be attached with **CSM F2 Safety Terms and Conditions which includes following Documents***

1) **CSM F6 Safety Competency Assessment Form**
2) **CSM F8 PPE requirements**
3) **CSM F9 Site Safety Management Plan Job Specific Safety Requirement (Educational and Professional Qualification, Skill & Experience Manpower, Tools, and Tackles, e.g., man lifter, use of drone, use & availability of rescue kit, Work Methodology etc.)**

Safety bid evaluation will not be done for category C and D.

BA shall submit duly filled **CSM F6 Safety Competency Form** along with the bid. SCG will evaluate the document as per the **CSM F7 Safety bid evaluation criteria**. **Site Safety Management Plan CSM F9**, defining the complete procedure of executing the job at site will be signed by the Business Associate and SCG after mutual agreement. BA will attach a copy of Site Safety Management Plan along with PO to the successful bidder. Please refer **CSM F5 Process Flow Chart for issuing RFQ and PO significant health and safety risk associated with it.**

CSM F6 - Safety Competency Assessment Form (Template)

Name of the Vendor/Bidder:
Name of the Sub Vendor (If job is given to Sub Vendor):
Description of the Job:
Request for Quotation (RFQ) No.:

Vendor/Bidder to mandatorily provide the below safety competency related information:

1. Proposed Manpower Deployment Schedule : -

Type of manpower	Qualification	Experience	Month 1	Month 2	Month 3	……
Project /*AMC Manager( )*						
Site In Charge						
Safety Manager						
Safety Officer						
Supervisors						
Technicians						

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High Skilled workmen						
Skilled workmen						
Semiskilled workmen						
Lineman						
Helpers						
Drivers						
Unskilled						
Others( )						

Instruction to Bidders:

i. Indicate the overall site manpower deployment schedule as above

ii. Indicate direct or subcontracted employees by using color code given below:

Direct Bidder Employee – Green

Partly Direct / partly Subcontracted – Yellow

4.1.1 **Subcontracted – Red** If subBusiness Associate detail is not available at stage of Bid evaluation, then this can be agreed with Order manager or Engineer in charge before deployment Ensure that all sub-Business Associate s follow the Tata Power Safety Procedure and agreed CSM F9 Site Safety Management Plan**.**

iii. Against each category, indicate minimum educational qualification and work experience

iv. Add rows to include other specialized manpower, if any.

v. Extend columns to cover the entire duration of the proposed contract.

vi. If the operation is in shifts, then indicate shift in charge and / or safety officers required for each shift operation.

2. List of Tools, Tackles, Machines and Equipment: -

Bidder/ Vendor to provide the list of tools, tackles, equipment **to be used during the job / project execution**. Bidder/Vendor to ensure that all the lifting tools and tackles, pressure vessels are duly certified by the competent person authorised by the Chief Inspector of Factories of the respective state prior to start of the job

Sr. No	Description of Tools / Tackles	Capacity / Rating	Quantity	Make	Year of manufacture	Remarks
1						
2						
3						
4						
5						
……						

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3. Safety Records:

Bidder to provide the details of fatalities and lost workday cases (LWDC), occurred in last three years (data to be provided for the last completed FY and preceding 2 years).

Description	Safety Data for current and Last 3 Years			
	Current Year	Year 1 (Last FY)	Year 2	Year 3
		20__ - __	20__ - __	20__ - __
Fatalities (Nos.)				
Lost Workday Cases (Nos.)				

In case of no fatalities, LWDC during any year, the form may be filled stating NIL against the respective year. Bidders are encouraged to also submit the RCA / incident investigation reports and the learning's implemented out of the above reported incidents

4. Job Safety Plan/ Method Statement:

Bidder to provide / enclose a detailed Site/Job Safety Plan along with a Method statement detailing the execution philosophy (how the bidder intends to execute the Job/Project), identifying all key activities which are required to be performed by the Business Associate at Site. Bidder to also list down all high-risk activities and provide the Hazard Identification and Risk Assessment (HIRA) for all such high-risk activities involved in the site work.

(Use Method Statement template attached as Appendix 9)

5. PPE Requirement -

Division/DISCOM Requirement	**Bidders Response**
The Bidder/Vendor shall ensure that all PPE of Approved standards as per CSM F8 – PPE Requirements shall be always available and shall be used by his employees with no exception whatsoever. Bidders to also ensure Standard PPE matrix of Tata Power to be followed for all activities.	
10% Buffer stock of PPEs to be provided by bidders at each circle to meet any contingency	
Bidder will ensure that sample PPEs to be submitted/approved by Safety Department along with EIC at the time of submission of Safety bids for evaluation	

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In case bidder manpower found using substandard or any PPEs which are not approved by the Tata Power-Division /DISCOM representative, then Tata Power-Division /DISCOM will provide the same to manpower deployed at the cost of bidders.	

6. ***Vehicle Deployment*****:** Bidders to provide details of all vehicles deployed during execution of work-( )

S. No.	Vehicle No.	Vehicle Type	Location	EV/CNG/Diesel/Petrol	Year	Whether CNG endorsed on RC

7. ***Crane Deployment*****-( ):** Bidders to provide details of crane to be deployed during the execution of work as and when required. Bidders to provide approved new gen crane ACE Model SX150, ACE FX150 and Escorts Model TRX 1550.

Sl No	Crane No	Location	Year

8. ***Training Records*****-( ):** Bidders to provide training records of employees deployed for the execution of work during last one year. These training includes OHS (Occupational Health and Safety) Training, Training on SOP/Work Procedures and Medical Emergency trainings imparted at their own facility, cost, and expenses. Bidders to provide the following details:

Tata Power-Division /DISCOM **Requirement**	**Bidders Response**
Training records of employees at their own facility, cost, and expenses for last one year	
Training facility available with Bidders	
Future road map for enhancing the competency of workforce	

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9. ***Rewards and Recognition***-( ): Bidders to provide the details of process deployed in their organization for sharing and resolution of safety concerns raised by their employees. Also, bidders to provide the details of Rewards and Recognition process in their organization for safety to encourage the morale of their workforce.

10. **Management System Certification: -**

Sr.No	Certification	Yes / No	If Yes, Year of Certification	If No, Target date for Certification
1	ISO 9001			
2	ISO 14001			
3	ISO 45001			
4	Any other (Specify….)			
Note: Please attach certificates to support above. In case not accredited for above but applied for, application letters may be attached.				

CSM F7 Safety bid evaluation criteria. If any specific condition related to Contract is required to be conveyed to the Business Associate, Site safety team will attach the same as Annexure for specific conditions of job and submit it to contract team along with safety bid evaluation form. Commercial bid of Business Associate will be considered for evaluation by contract team only if Business Associate is qualified in safety bid. Site Safety Management Plan, defining the complete procedure of executing the job at site will be signed by the Business Associate and SCG after mutual agreement. Contract shall attach a copy of Site Safety Management Plan along with PO to the successful bidder.

CSM F7 - Safety Bid Evaluation Criteria (For Information to BA-Not to submit by BA) (R6)

Safety Bid Evaluation will be based on following parameters.

Evaluation Criteria

S. No.	Description	Max Marks	Criteria for evaluation
1.	Qualification and Experience of manpower	15	As per Clause No. 1 ***CSM F6 (R6)***
2.	Tools and Tackles to be provided by bidder	15	To be evaluated as per approved tool list of concerned departments.
3	PPE Requirements	5	To be evaluated as per approved PPEs standard and PPE Matrix specified in ***CSM F8.(R6)***

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4	Job Safety Plan/ Method	15	To be evaluated as per as per SOP/WI/HIRA
5	Vehicle Deployment	5	***Weightage will be given for CNG/Electrical Vehicles with endorsement of CNG kit on RC (R6)***
6	Crane and Mechanized heavy equipment Deployment	15	***Date of manufacturing or running hours or stipulated in laws.(R6)***
7	Training Records	5	Training records to be evaluated with evidence and scoring to be done as per availability of records
8	Certificate Accreditation	5	ISO 9001-2.5 Marks ISO 45001- 2.5 Marks ISO14001- 2.5 Marks. Total Max 5 Marks for all Three
9	Safety Initiative for learnings implemented in accidents in organization and work force (Fatal / Non-Fatal)	15	Maximum 15 marks will be awarded for visible evidence in terms of safety initiative deployed based on learning of accident in organization and workforce in case of accident
10	Rewards and Recognition Process	5	Maximum 5 marks will be awarded for R&R process evidence
Total		**100**	
Safety Records (Lag Parameter)-			
1.	Fatal Accident	(-) 10 Marks for each case with max of 15 marks	For any fatality in Tata power /Other company in Current and last three years 10 marks will be deducted with maximum up to 15 marks. For new entrant BA, these marks will be deducted for Past safety records. If and BA found hiding such facts, then contract will be terminated immediately during the execution stage.
2	LWDC (Non-fatal)	(-) 5 Marks for each case with max of 10 marks	For each LWDC (Non-Fatal) case in Tata power /Other company in Current and last years, 5 marks will be deducted with maximum up to 10 marks. For new entrant BA, these marks will be deducted for past safety records. If and BA found hiding such facts, then contract will be terminated immediately during the execution stage.

Final Qualifying Criteria

S. No.	Description	Max Marks	Criteria for evaluation
1.	Qualified Bidders	More than 70 marks	Marks Obtained. 60 Marks for New business-like Odisha Discom for one year from CSCC implementation date.

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		Minimum Requirement	Weig ht age (%)	Score Obtained
Manpower	**Safety Officer (1 per 500 workers) or as per requirement**	**Qualification -** Safety Officer shall possess recognized degree in any branch of engineering with practical experience in similar industries of Min 2 years and Advance Diploma In Industrial Safety by State technical board. (Each state government prescribes the qualification of safety officer.). Require knowledge of Local language. **Experience**- Minimum 2-year experience in relevant field as mentioned in the job in PR.	5	
	Safety Supervisor (1 per work site up to max. 50 workers) ***(For any specific & specialized work, site safety supervisor will be decided by SCG)(R6)***	**Qualification-** Supervisor shall possess ITI/ Diploma in relevant field. PDIS is desirable, but not mandatory. Require knowledge of Local language. **Experience**- Minimum 5-year experience in relevant field as mentioned in the job in PR. **Training** – Trained and certified by Tata power Skill development Institute or equivalent institute in relevant safety procedures. **Note:** On request of the Business Associate /Users -TPDSI should vet & certify the skilled & experienced Technician if Technical Qualification is not adequate.	5	
	Qualified Technician (Skilled workers as electrician, rigger, fitter, welder, cable	**Experience**- Minimum 2-year experience (or experience prescribed by state government) in relevant field as mentioned in the job in PR.	5	

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	jointer, line men etc.)	**Training** – Trained and certified by TPSDI or equivalent institute in relevant safety procedures.		
Tools & Tackles	Equipment / Machines/ Tools & Tackles (lifting and shifting tools)	The list of Equipment /Machines / Tools and tackles to be used for job to be submitted by the Business Associate . Evaluation of the list will be carried out based on 1) Suitability as per the relevant job 2) Make and age of the tools from authorized agencies defined by the user. 3) Certification by the competent authority of respective state.	15	

CSM F8 - PPE requirements

The Business Associate shall ensure that the following PPE of Approved standards shall be always available and shall be used by his employees with no exception whatsoever. • PPE shall be conforming to BIS/DGMS/DIN specifications, in good condition and shall be comfortable to his employees, when used. This is indicative. For better clarification refer PPE procedure- ***TPSMS/GSP/PPE/023.*** as per safety terms and condition Appendix 3 CFM 3 in detail.

PPE Requirement

1	All Business Associate 's employees at site	Safety Florescent Jacket (orange color), Safety helmet & safety shoes with composite or steel toe cap
2	Workers mixing asphalt, cement, lime / concrete	Safety goggle & protective Hand gloves and footwear, Nose mask.
3	Welders / Grinders/Gas cutters	Welding screen/goggles, safety shoes, leather hand gloves, aprons, leg guard
4	Stone breaker	Protective goggle, hearing protection, anti-vibration hand gloves and Protective clothing.
5	Electricians / Linemen	Rubber hand gloves *with correct voltage rating and expiry date normally one year*

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		from Manufacturing date-( ) & Electrical resistant shoes, Safety helmet with induction strip to alert about presence of voltage for those linemen who climb the poles or work on electrical equipment
6	Workers working at a height of 1.8 Meter or above.	Double lanyard full body harness, fall arrestor and safety net made of reinforced nylon fiber ropes firmly supported with steel structures, Work positioning attachment

PPE Type and Testing Frequency

Sl. No.	Name of PPE	IS / EN Standard	Testing Frequency	Remarks
01	Leather Safety Shoes (Color – Black) with PU toe cap.	IS:15298 (Part-2)	Monthly and visual check every day for any crack or damage in the leather or sole.	
02	HDPE Safety helmet with chin strap and ratchet type for adjustment for non-Electrical work	IS:2925-1984	Monthly and visual check every day for any crack in shell.	
03	Full body harness (Safety belt)	EN 361	Monthly and visual check every day of the bends and the harness.	
04	Electrical Safety Gloves	EN: 60903 CE marked	Weekly and visual check for any crack and blow test before every work.	Manufactured not beyond 12 months.
05	Full face visor with safety helmet	EN: 166 CE marked (Visor)	Monthly and visual check every day for any crack in shell.	Clear acrylic visor attached with safety helmet.
06	Fireproof jacket for chest protection		Monthly and visual check every day.	
07	Safety helmet with induction Strip for linemen and working for electrical work-Class E	EN 397/2012	Monthly and visual check everyday	Induction Strip alerts presence of voltage

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08	Shorting clamps, crocodile clamps, Discharge Rod and Neon tester		Monthly and visual check everyday	For discharging the residual voltage and test before touch

Pictorial View of PPEs for reference purpose

Sl. No.	Name of PPE	IS / EN Standard	Picture
01	Leather Safety Shoes (Color – Black) with PU toe cap.	IS:15298(Part-2) and with test report of electrical resistance.	
02	HDPE Safety helmet with chin strap and ratchet type for adjustment for Nonelectrical work and electrical work	IS:2925-1984/ EN 397/2012	
03	Full body harness (Safety belt) The straps at shoulder and thigh shall have full pad for comfort. The back shall be so designed that harness straps do not tangle with each other.	EN 361:2002 EN 358 : 2000 IS: 3521:1991/2002	 

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04	Electrical Safety Gloves – Composite type Soft electrical gloves as per size of individual.	EN: 60903 CE marked	
05	Full face visor with safety helmet	EN: 166 CE marked (Visor)	
06	Fireproof jacket for chest protection		
08	Reflective jacket to each workman	As per Tata Power standard	

These pictures are indicative. Actual product may vary.

Note:

1. Any other Personal Protection Equipment required beyond above list will be according to BIS or EN Standards.
2. All Personal Protection Equipment will be checked by the engineer in-charge or SAFETY group of company.
3. Safety Representative of the BA must maintain the record of the availability, condition and checking of the PPEs.
4. All tools required as per the contract must be according to respective IS / EN standards.
5. Company may revise or add the above list of PPE and their specifications as and when feel necessary. The information about new specifications /models will be circulated by the Engineer In-charge (EIC), which shall adhere by the business associated in the shortest possible time. The EIC shall issue a memo / instruction to BA with timeline for implementation. Any delay will be treated as non- compliance / safety violations.

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CSM F9 - Site Safety Management Plan / Method Statement

Site Safety Plan / Method Statement (Template)

This Method Statement describes the specific safe working methods which will be used to carry out the described work. It gives details of work procedure with control measures to counter health and safety issues related to this work. The listed content of this Method Statement can be changed/modified subjected to job scope / specifications, but task specific method statement once finalized & approved, that should not be modified during work execution without permission from the approving authority.

Project/Job Name		
Scope of work: -		
Drawing References: -		
Detail of Sub Business Associate s involved: -		
Method Statement Prepared By: - Designation: - (e.g., Site Manager)	Signature	Date

1.0 Introduction (*Describe purpose of the work, give details of type and scope of work being carried out)*

2.0 Location of Work ***(****Give site address and precise location on site where work is to be carried out)*

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3.0 Safety Document /Specific Approval Required (Details of any safety documents or specific approval i.e., Client specific approval required to undertake the work)

5.0 Role & Responsibilities of Personnel/Parties Involved in activities: Clearly define roles and responsibilities of all personnel involved in activity i.e., Site management staff including sub-Business Associate s' staff, Project Manager/Site Manager of principal Business Associate , Sub Business Associate Site Manager, Project Engineer, Safety officer, Competent Supervisory Staff etc.)

6.0 Working/Activity Description: - *It is important that all operatives should have clear idea of those operational sequences and responsible supervisor must verify their competency prior to their engagement in operation.*

6.1 Pre-Working Checks

6.2 Resources (Equipment, tools including manpower) Details *i.e., Equipment and Tools, specific operational equipment, test kits, lifting resources, Details of materials to be used in operation, including any reference to COSHH assessments in case of use of any chemicals, Details of the manpower allocated to the task, e.g., titles, qualifications, competences, direct manpower, Business Associate s. Details of plant, tools, and equipment to be used for the work, including*

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the availability of relevant statutory documents, checks or inspections etc. Details of fencing, barriers, cones, chains, dangers notices, warning signs etc.

Tools required for work:

Sr.No	Tools /Equipment /Machine	UOM	Required Qty.	Remark
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

6.4 Operational Sequence of work: *- Full description of the work, setting out the methodology in a sequential manner, including any reference to any identified operational restraints. Also refer here sec. 5.0 responsibilities part for every step of work sequence).*

S. No	Activity	Details of job sequence	Risk Involved	Control Checks
1.				
2.				
3				
4				
5.				

6.7 Final Checks & restoration of work area after completion of work: *Those checks to be carried out by responsible supervisor in witness of his line hierarchy by use of specific checklist of certain operational checks and once those completed satisfactory, PTW (if applicable) to be closed and isolation arrangements to be restored by removing barricades/cautionary tags.*

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7.0 Task Specific Hazards: - *Refer to Task Specific Risk Assessment and attach in appendix*

Attachment: - Specific Risk Assessment

In addition, please provide below control measures in risk assessment *(as applicable).*

Fall Protection Measures: (Where Work at height cannot be avoided)	
Control Measures for Electrical Hazards	
Others Hazard if any (please provide details)	
Hazardous Substances to be used in job: (Attach MSDS if required)	

Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N

7.0 Emergency Provisions: *Relevant operational possibility of a programme in the case of emergency situation i.e. electrical supply restoration. In addition, emergency response provisions i.e., first aiders, firefighting, and first aid arrangements, nearest onsite/offsite emergency response also to be considered during emergency planning.*

8.0 "5S issues" / Waste Disposal/ Housekeeping and Environmental issues: *Details waste disposal processes and or housekeeping activities, Details of environmental impacts and control measures.*

9.0 Personal Protective Equipment (PPE): *Tick on PPE requirements for the task/Job*

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Safety Helmet / Hard Hats		*Safety Shoe / Safety Boots*	
Gum Boot		*Double Lanyard Safety Harness with work positioning attachment*	
Electrical Hand gloves		*Other hand gloves*	
Eye protection		*Respiratory protection*	
Ear Protection		*Electrical Arc flash suit*	
Chemical resistant suit		*Reflective Jackets*	
Any Other		*Any Other*	

10.0 First Aid facilities and Nearby Hospitals Details

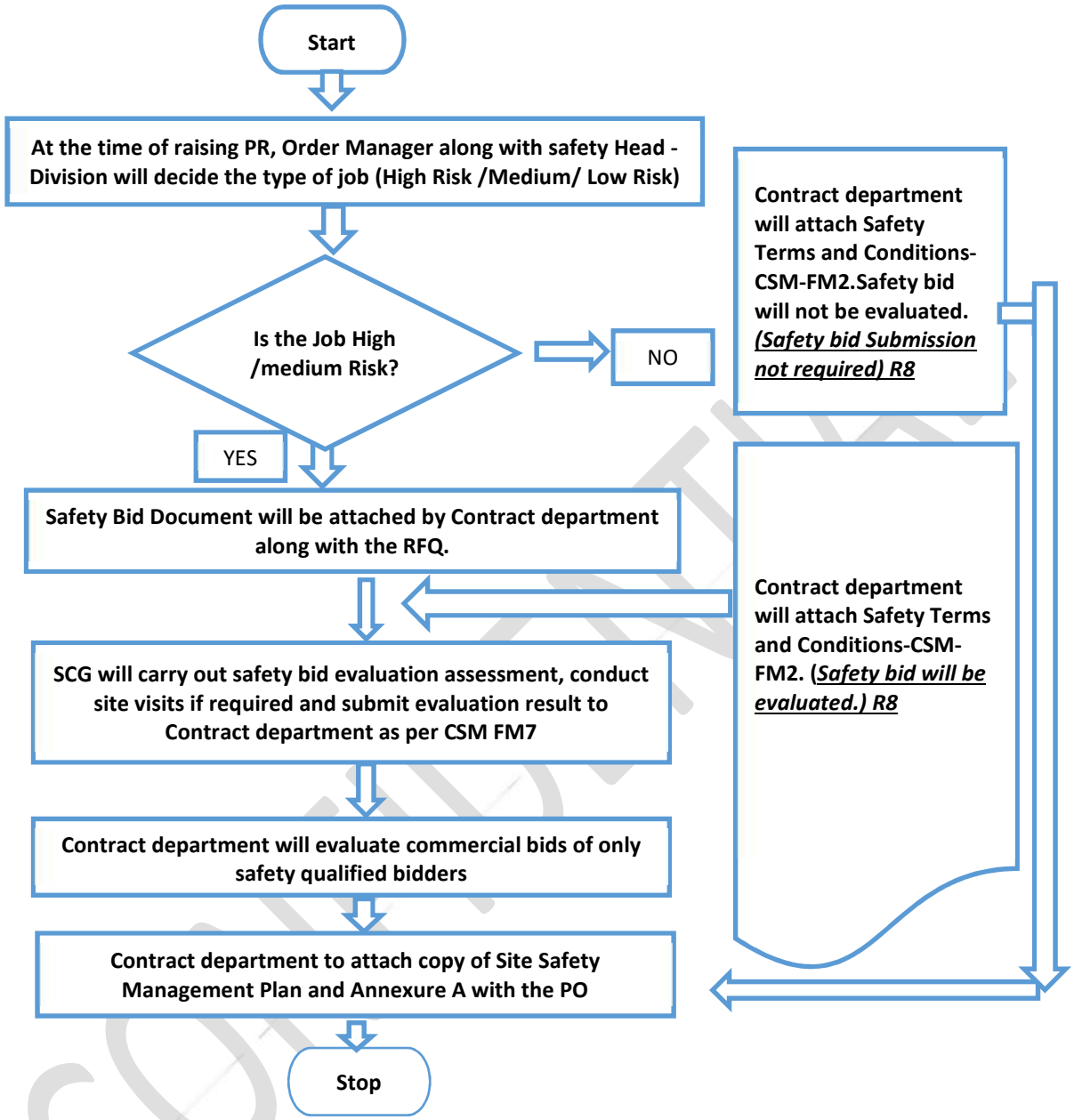
- Name of On Site First Aider
- First Aid Box Location
- Location of nearest hospital

11.0 Occupational Health, Fitness and COVID-19 related Preparedness:

- Please give a brief writeup / methodology of your organization's plan to avoid impact of the COVID-19 pandemic at Tata Power working site.
- Please give brief details of occupational health and hygiene related interventions planned by your organisation to ensure good health and fitness of workforce at Tata Power site.

4.3 Contract Award - refer **CSM F5 Process Flow Chart for issuing RFQ and PO.**

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4.4 Capability Building: Safety Training and capability building of workforce is a major component of safety management program. All training required must be provided and documented as specified by Tata Power and Indian Regulations. Tata Power Division /Discoms Safety department will audit Business Associates training and related documentation to assure its adequacy.

4.4.1 Before issuing gate pass:

***For Odisha Discom/New Business*:** All Tata Power Business Associate and sub Business Associate workforce is required to attend Site Safety Orientation Training to receive a Safety Training Card, which is required to obtain a Gate Pass to the site, prior to entry. This Safety

Orientation Course will be for duration of minimum half day. The information provided during the orientation will include, but is not limited to Job rules, personal safety, and conduct, Hazard's reporting, reporting of injuries, Emergency procedures, Safety Activities and Program including disciplinary measure and incentives, Critical safety procedure relevant to the job

***For Tata Power Divisions*:** All Tata Power Business Associate and sub Business Associate workforce is required to attend L1 Training to receive a Safety Training Card, which is required to obtain a Gate Pass to the site, prior to entry.

4.4.2 Before start of actual work:

- Appropriate practical training such as SHE L1, L2& L3 is given to ensure that a jobholder, either supervisor or worker, is competent to do his/her job safely. The skill training is provided through TPSDI, and other agencies authorized by Tata Power on the list of 15 critical Safety procedures mentioned under safety procedures. Duration of course is as specified by Division/Discom
- Business Associate shall ensure that concerned workmen are provided with adequate training before he/she is allowed to execute the work. An evaluation test will be conducted after the completion of the training. Those employees who meet the minimum required competency will be provided with Certificate (Card), which will be valid for 3 years, post which the workmen have to reappear for assessment.
- If the workman is not able to qualify the assessment, he/she will be given 3 additional attempts to clear in 3-month time failing which he/she will not be allowed to work in the Division /Discoms.
- After expiry of Certificate or Training /Competency Card again one day recertification of L1, L2 and L3 skill training will be provided.
- Quarterly /Half yearly(For Odisha and New business) Revalidation Test - "SHE L1 Revalidation test" will be conducted for the Business Associate 's employees to revalidate their safety awareness and knowledge.
- Order Manager and Safety In charge of the Division/Site /Plant will conduct a Competency Assessment of all workforces, going to be deployed at site / plant for high-Risk job.
- The Contactor shall bear the conveyance and food expenses of his staff for attending training sessions and capability building sessions in new business-like Odisha Discom.
- The Contactor shall bear the entire cost of L1/L2/L3, the costs towards training, salaries/wages, boarding and lodging of his staff for attending training sessions and capability building sessions. These trainings are offered on nominal chargeable basis payable by Business Associate and rates shall be decided by TPSDI from time to time in case of training trough TPSDI. Generally, L0 is of one day, L1 is for 2 days for each critical procedure and L3 is for one day. Around Rs 700+GST is approx. cost /Day/Candidate.
- Competency assessment of all critical workforce to be carried out for all who has taken L2 training.

4.4.3 Recognition to the Prior Learning in Safety

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If "Order Manager" recommends and "Head of the Safety Department of Discom" is satisfied with the safety knowledge and competency of the employee of Business Associate , a test may be conducted by Tata power Skill development Institute/ other recognized institute to assess the prior learning in safety. If employees of the Business Associate s pass in such test, he will be exempted from appearing in SHE L1 training. This assessment is on nominal chargeable basis and rates are decided by TPSDI from time to time.

4.5 Managing Work:

Order Manger shall -

1) Comprehensively assess and ensure field Safety implementation against Contract requirements and the Safety Management Plan.
2) Maintain a follow up process that drives continuous improvement in Safety practices and avoids repetition of common errors.
3) Order Manager and BA should aim at optimizing Safety performance of the Contract by working in a collaborative manner during the execution of the work. This can be achieved by:
   - Ensure that potential safety hazards are identified and controlled before any contracted work starts. Hazard identification should be conducted using multi-disciplinary teams which includes members from competent safety professional/execution team/competent BA supervisor & workforce to understand and identify project-specific safety hazards.
   - Monthly inspection and replacement of damaged Personal Protective equipment -PPE & Critical Equipment, lifting Tools & Tackles and hand tools used at site.
   - **PTW** - PTW procedure must be adhere and implement at site.
   - Reviewing the Safety Management Plan (**CSM F9– Site Safety Management Plan)** before each stage of work begins.
   - **TBT & Mass Meeting**: Every day Tool box talks to be conducted based on JSA/SOP with maximum participation of BA Workforce & Safety points to be shared by BA employee & line manager and 100% participation of BA employee & workmen in to mass meeting/communication.
   - **BA Self safety audit:** BA Safety Supervisor will carry out daily safety audit and inspections of tools, tackles, equipment and PPEs. They will identify and help in correcting the unsafe acts and unsafe conditions created while executing job at site with the help of BA's supervisors.

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- All respective **Critical safety Rules & Procedures and General safety Rules & Procedures** to be use and implement at site during job.

- **"Suraksha Samwad"** also known as Safety Interaction is a proactive safety initiative. In this program, leadership engages with BA workmen and employees in a scheduled 30-minute session to discuss and observe safety practices in the workplace.

- **Reporting safety observations by BA employee:** This involves the active participation of the workforce in identifying and reporting safety observations, which can help prevent accidents and improve safety performance.

- **Felt Leadership for Business Associates Proprietor /Co-ordinators**: This program aims to develop leadership skills within the Business Associates Proprietor/Co-ordinators. It encourages individuals to take ownership of their work and fosters a culture of responsibility and accountability.

- **Behavior based safety program (Jivan Ki Aur):** It aims to create regular awareness among all ground staff. It seeks to sensitize them, establish relationships, foster teamwork, enhance communication, motivate and empower everyone, promote good health, and enable a happy and safe life. The program will cover various activities such as morning meetings, home visits, personal meetings, group meetings, short training sessions, games, and other forms of engagement.

4.6 Periodic Evaluation:

1. During the time of job execution, regular site inspection will be carried out by the Tata Power-Division /DISCOM officials ***mainly Line manager (R6)*** to evaluate monthly safety performance of the Business Associate as per ***CSM F11 Safety Performance Evaluation Report (R6)*** and monthly score will be maintained by the Order Manager. Violations will be dealt as per **CSM F12 Safety Violation Penalty Criteria**. Please refer **CSM F10 Process Flow Chart for Safety Performance Evaluation**. Percentage of retention amount is usually mentioned in safety terms and conditions.
2. The evaluation criteria include Lead Indicators such as percentage of workers trained in TPSDI, inspection of critical equipment. Lag indicators such as Fatalities, LWDC and man-days lost.
3. In case of job stoppage due to safety violations / unsafe observations at the site, no time extension from PO completion date shall be given to the Business Associate, if such delays are attributable to Business Associate.
4. In case of fatality, limb loss or loss of property, vendor must pay for liability, legal, statutory, and additional mutually agreed settlement charges imposed by the appointed

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committee by Division Chief/CEO. This charge is over and above the retention amount. The committee will finalize penalty amount based on factors such as advice by statutory authorities, contract value and impact of accident etc.

5. Order Manager, Head of Business and functional Chief have the authority to terminate the contract as per **CSM F12 Safety Violation Penalty Criteria** Through contract department.
6. *Site contract team will arrange Quarterly meeting with Order Manager to take feedback for Safety performance of Business Associates In-turn Site Leadership and Site Contract team will give feedback of safety performance so as to take Corrective actions (R6).*
7. ***CSM F11 Safety Performance Evaluation Report (R8) to be used** to evaluate Star Rating of Business Associate for lead & Lag Indicator.*

4.6.1 Safety performance retention: A certain percentage of the bill value will be retained against every running bill as safety performance retention. The amount will be released with the last invoice or every six-month based on Safety Performance Score of Business Associate s. The retention amount will be calculated based on contract value as below.

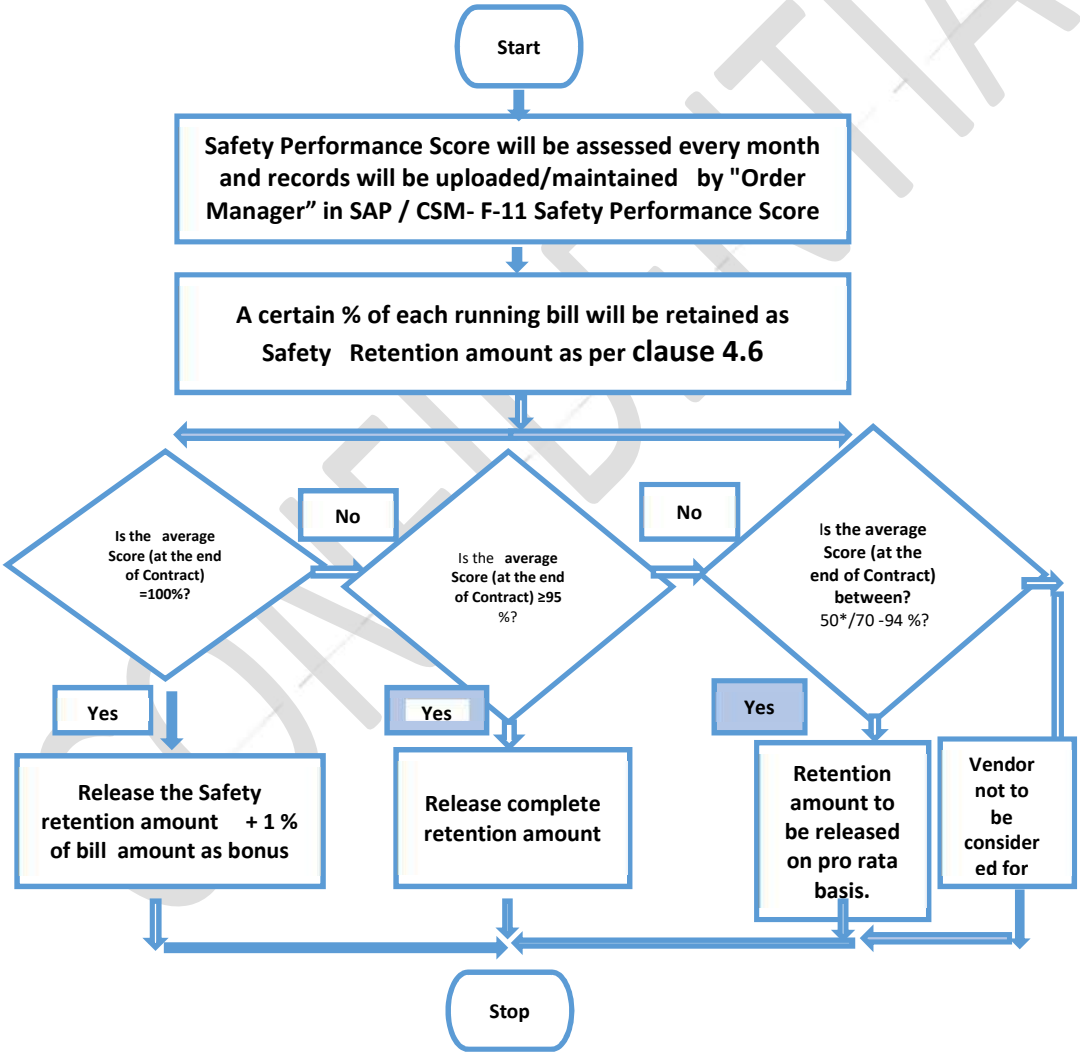
Risk Category	Contract Value	Retention Amount (%)
Very high/High risk job/ Medium Risk jobs	Up to 10 Lakhs	2.5
Very high/High risk job/ Medium Risk jobs	10 – 50 Lakhs	2
Low/Very Low Risk jobs	10 – 50 Lakhs	1
Very high/High risk job	0.5 to 10 Cr	2
Medium Risk jobs	0.5 to 10 Cr	1.5
Low/Very Low Risk jobs	0.5 to 10 Cr	1
Very high/High risk job	>10 Cr	1.5
Medium Risk jobs	>10 Cr	1

1. The safety retention amount will not be applicable if there is clause of Contract Performance Bank Guarantee (CPBG) and safety performance of Business Associate is as per desired criteria.
2. If safety performance of Business Associate is not as per desired criteria (as per Appendix 10 – CSM F10 – Process Flow Chart for Safety Performance Evaluation and Appendix 11: CSM F11 - Safety Performance Evaluation Criteria-then safety retention percentage as mentioned in table above will be deducted from running bill.
3. Bidder to give understanding that if there are any deductions required to be made for safety non-performance as per the Safety Performance Score, then Tata Power shall recover any such deductions against safety non-performance directly from the monthly bills / final settlement or it shall be within its right to recover such sum from accounts payable or the CPBG or the retention of the Business Associate available with Tata Power for the said contract between the Business Associate and Tata Power.

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4. The retention amount against non-safety performance saved and Penalty will go to a separate Safety Improvement Fund.
5. For the contract value of more than Rs 1 Cr or contract duration more than 12 months, the retention amount shall be released half yearly based on safety performance. For all remaining contracts, the retention amount will be released with the final bill.
6. Safety performance bonus 1% (limiting to 50 lakhs) of the invoice value will be considered at the end of the job if the contractual safety performance score is 100%

CSM F10 – Process Flow Chart for Safety Performance Evaluation



CSM F11 - Safety Performance Evaluation Criteria (R6)

Safety Performance Evaluation Report- CSM F11

BA field safety audit (Safety Performance Evaluation for BA).							
Division		**Function**					
Name of BA		**Month**					
Nature of Work		**PO**					
	A. Lead Indicators		**100 (for star rating score will dividend scale of 2.5)**				**0**
	-	UOM	**Target**				Actual score for the month
1	% of employees certified in Skill development institute/ authorized agency/Card issued.	% Workforce covered	100%	51% to 99%	50%	<50%	
	Score		**10**	**Pro-rata**	**5**	**0**	
2	Business Associate Safety Field Audit score	Severity score	2 to 3	3 to 4	>4		
	Score		**10**	**5**	**0**		
3	Monthly inspection and replacement of damaged Personal Protective equipment -PPE by contractor(Safety shoes, Induction helmet, full body safety harness with work positioning lanyard, rubber insulated gloves, reflective jacket etc.as per Job requirement)	% of total workforce	100%	99% to 50%	<50%		
	Score		**10**	**5**	**0**		
4	Monthly inspection and replacement of damaged Critical Equipment, lifting Tools & Tackles and hand tools used at site by BA (Neon Tester, Discharge rod,	% Total T&T	100%	99% to 50%	<50%		

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	ladders Vehicle, Tools & tackles carried out and defective equipment replaced as required.						
	Score		**10**	**7**	**0**		
5	Unsafe Conditions/Acts (Potential Hazards), near miss(Close calls), minor injury(First aid cases and MTC) cases reported	Observation / Nos of workforce	0.50	0.25	<0.25		
	Score		**10**	**7**	**0**		
6	Monthly R&R for workforce along with Tata power reparative monthly	% of total workforce	10%	5%	**0**		
	Score		**10**	**5**	**0**		
7	Nos of workforce covered under program under Jivan Ki Aur/Ghar se Ghar tak/Surkhshit Pariwar ki aur	% of total workforce	10%	5%-10%			
	Score		**10**	**0**			
8	Safe (designated way) Disposal of Waste generated, Records of waste (Hazardous Waste – Oily cotton waste – E-waste etc.) generation. No effluents to drain/discharges to ground		YES	NO			
	Score		**10**	**0**			
9	*Daily Toolbox talk and Weekly Mass communications covering 100 % workforce and records maintained or not(R6).*	% of total workforce	100%	50-100 %			
	Score		**10**	**5**			
10	*Check for housekeeping at site(R6)*	At least 3S.	YES	NO			
	Score		**10**	**0**			

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	B. Lag Indicators		**50** (for star rating score will dividend scale of 2.5)				0
			Target				
1	Number of Fatalities		0	>0			
Score	**Score**		30	0			
2	No of LWDC - Reportable		0	>0			
Score	**Score**		10 / 20*	0			
3	Major Fire		0	>0			
Score	**Score**		10 / 0*	0			
	Total score		**150**				0
	* Odisha					%	0

CSM F12 - Safety Violation Penalty Criteria

Major Violations and Escalation matrix-

Consequence of safety violation observed not related to incidents or accidents		**Violations**				
Sl. No.	**Safety Violation**	**1st**	**2nd**	**3rd**	**4th**	**Subsequent violation**
1	Working without required PPE such as Helmet/gloves/safety shoes/Safety harness etc.	**A**	**B**	**C**	**D**	Will Attract the same penalty as 4th violation
2	Working without proper tools and tackles	**A**	**B**	**C**	**D**	
3	Poor or bad condition of Crane/Hydra/Vehicle and/or Incompetent driver and/or helper).	**B**	**C**	**D**	**E**	Termination of Contract and blacklisting after repetition of violations (3 to 4 times as the case may be)
4	Improper Working at Height	**B**	**C**	**D**	**E**	
5	Untrained /unauthorized workman engaged in high-risk jobs	**B**	**C**	**D**	**E**	
6	Violation of SOP or WI or LOTO	**C**	**D**	**E**		
7	Working without PTW or LC / Without authorization / Without creating Safe Zone	**C**	**D**	**E**		

Legend	**Action to be Taken**	**Responsibility**	**Penalty (INR)**	**Repeat Violations**

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A	Levy of Penalty	Order manager / EIC	5000	The no. of repeat violations shall be calculated cumulative during the FY and deduction will be done from the monthly bills.(R6)
B	Memo to BA and Levy of Penalty	Order manager / EIC	10000	
C	Memo to BA and Levy of Penalty	Order manager / EIC	25000	
D	Memo to BA and Levy of Penalty	Order Manager / EIC	50000	
E	Memo to BA, Levy of Penalty, Termination of Contract, Blacklist	Order Manager / EIC	100000	

Other Violations and Penalty

Penalty shall be imposed on the Business Associate s under the following circumstances for breaching the contractual agreements. The list is not exhaustive, but indicative.

Sl. No.	Description of Violation	Severity	Penalty (INR)
1.	Unhygienic/Bad condition of PPE	2	500
2.	Unsafe Act/Condition of Severity 4	4	4000
3.	Unsafe Act/Condition of Severity 5	5	5000
4.	No Earthling of Electrical equipment	5	5000
5.	Working without efficient supervision	4	4000
6.	Non-reporting of incidents	3	3000
7.	Starting the job without Toolbox Talk	4	4000
8.	Electric cable tied with metal wire / Use of damaged electrical cable / Use of two core cable	3	3000
9.	Rubber mat not available in front of electrical panels.	3	3000
10.	Inserting naked wire into the socket instead of a plug	5	5000
11	Inflammable materials stored inside PSS/FCC/Distribution Room	5	5000
12	Water accumulation found near electrical panels / equipment	5	5000
13	Grinding wheel/ Coupling/ Piling winch/other rotating parts without guard	4	4000
14	Inadequate illumination of working area	3	3000

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15	Bringing inside PSS/FCC or any other work area any chemicals without approval.	5	5000
16	Loose materials in work area which can fall down or fly during a storm	5	5000
17	Misusing emergency facilities like fire hydrant line/ hose box/ spray system/ eye wash etc.	3	3000
18	Entering restricted areas like switch yard, hazardous material storage room etc. without authorization	3	3000
19	Not using 24 V lamp inside confined spaces	3	3000
20	Bypassing/overriding safety interlocks	5	5000
21	Working besides road without proper barricading and monitoring of traffic	5	5000
22	Smoking in prohibited area (Closed Go-downs, Storage of flammable material, Storage of Gas cylinders, PSS , Offices etc.)	3	3000
23	Improper stacking of materials in Storage Yard	4	4000
24	Sleeping at workplace	3	3000
25	First aid box not available / in locked condition	2	2000
26	Appointment of subBusiness Associate without his Safety Bid Evaluation and/or without the permission of engineer in charge or Order manager.	5	5% of order value
27	Bad Housekeeping with respect to ***TPSMS/GSP/GHK/022*** • 1st Instant • 2nd instant • 3rd instant • 4th instant • Subsequent instants	2	• 1000 • 2000 • 5000 • 10000 • 10000
28	Violations related to vehicles with respect to ***TPSMS/CSP/RSP/015.*** • Parking without wheel choke • Parking in undesignated area • Heavy vehicle without helper or co-driver • Seat belt not available / not used • Driver without license • Heavy vehicles without reverse horn • Using mobile phone while driving • Lights/mirrors not working /broken	3	1000 per each violation

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28	Violation in Gas cutting and Gas cylinder handling • Cylinder valve without guard • No flashback arrester • Leaky DA/Oxygen hose • Cylinders not kept in secured manner • Cylinder trolley not available • Cylinders are transported by manual rolling	5	2000 per each violation
29	Violations in Lifting Operations w.r.t. to *TPSMS/CSP/HEMS/005* • Hook latch missing • Load raised or swung over people or occupied areas of building • Persons standing within the swing area of the crane • No barricading of crane working area • Use of damaged lifting tools and tackles • Lifting tools and tackles not tested / Test certificate expired • Crane operator without proper license • Angular loading • Lifting / shifting heavy material without guide rope • Using mobile phone during loading and unloading jobs	5	2000 per each violation
30	Violation in Scaffolding work w.r.t. to TPSMS/CSP/SCAF/007 • Unstable scaffolding/nonstandard Scaffolding in use • Handrails/mid rails/toe guards missing • Safety harness not anchored on fixed structure • Opening found in working platform	5	2000 per violation
31	Violation in Excavation Work w.r.t. to TPSMS/CSP/EXS/002 • Loose material falling into excavated pit • Water logging in excavated pits / trenches • Inadequate or no barricading • Undercut / cave in found on sides of excavated pits	4	2000 per violation
32	Caution boards, danger signs (luminescent /red) along with emergency contact number are not found displayed.	3	3000
34	Spillage of hazardous material/chemicals during transportation	4	4000

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Penalty for Incidents / Accidents-( )

Consequence of incident / Accident		Incident / Accident				
Sr.No.	**Type of Injury**	**1st**	**2nd**	**3rd**	**4th**	**Action Required**
1	Major Injury (Bone injury or burn or hospitalization >48 hrs.) Non-fatal	**F**	**F**	**G**	G	
2	Major Injury (Bone injury or burn or hospitalization >48 hrs.) Non-Fatal (Two or more non-Fatal in one event)	**G**	**G**	**H**		**Intolerable**
3	Single fatality	**G**	**H**			
4	Multiple fatalities (Two or more fatalities in one event). Anywhere in Tata power.	**H**				

Legend	Action to be taken	Responsibility	Penalty (INR)	
F	Memo to BA and Levy of Penalty	Order Manager/Engineer in charge	200000	The no. of violations shall be calculated cumulative during FY and deduction will be done just after Consequence of incident / Accident(R6)
G	Memo to BA and Levy of Penalty	Order Manager/Engineer in charge	500000	
H	Memo to BA, Levy of Penalty, Termination of Contract and Blacklisting the BA	Order Manager/Engineer in charge	1000000	

5.0 Tools and Tackles

5.1 Tools & Tackles used to carry out the job shall be checked and inspected by Order Manager and safety Officer.

5.2 Vendor must submit a valid Certificate from Competent person under the Factories Act 1948 and State Factories Rule for all Lifting Tools and Tackles (like Hoist, D

Shackles, chain Block, wire ropes etc.).

5.3 All Electrical Hand Tools must be tested for leakage of current by a person /agency authorized by Tata Power Division /Discoms. Electrical power must be taken though RCCB of 30mA. Electrical hand tools should not have cord more than 3 meters in length. If power source is at > 3 meters, extension boards with RCCB of 30 mA and ON/OFF switch, shall be used.

5.4 Removal or inclusion of tools any new tool /tackles / machinery / equipment at site should only be done with concurrence of the order Manager / Head Safety.

6.0 Site Safety Rules and Procedures:

The work in the safest possible manner can only happen when it has been carefully planned and all applicable procedures are followed. The Tata Power Safety Procedures are derived from Tata Power best practices and the applicable Government acts regulations. In each case, the most stringent regulation is used. All safety rules and procedures developed from time to time shall be mandatorily followed by the vendor and his employees while working at Site.

7.0 Critical safety Rules and Procedures:

Following is the list of Tata Power's critical Safety Rules and Procedures. Business Associate shall refer to approved Rules and Procedures for detailed requirements and ensure conformance

7.1 Lock Out and Tag Out Procedure.

This procedure is intended to be used for the protection of Personnel while servicing or performing maintenance on distribution network/ equipment / pipeline / vessel / process systems. This is a general procedure that shall be used as the minimum requirements for isolation of equipment, pipelines, machines, system from all possible sources of hazardous energy and / or material such as Steam, Hot Water, Compressed Air, any other process fluid / chemical energy /Mechanical energy or Electrical energy. For complete procedure kindly refer Procedure Document No. **TPSMS/CSP/LOTO/001**

7.2 Excavation Safety (Shoring and Sloping) Procedure

This procedure is developed to cover the safe practices required for shoring and sloping in excavation and trenching jobs. This procedure is developed to establish mandatory requirements for practices to protect personnel, property and equipment from hazards associated with above activities. For complete procedure kindly refer Procedure Document No TPSMS/CSP/EXS/002

7.3 Confined Space Entry Procedure:

This procedure outlines the steps required to perform the confined space entry and to protect personnel from the hazards of entering and conducting operations in confined spaces. For complete procedure kindly refer Procedure Document No – TPSMS/CSP/CSE/003.

7.4 Working at Height Procedure:

This procedure describes the rules and procedures to protect employees from the hazards of working at heights. This procedure is developed to cover the safe practices

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required for Working at Heights. This procedure is developed to establish mandatory requirements for practices to protect personnel from hazards associated in this area. For complete procedure kindly refer Procedure Document No – TPSMS/CSP/WAH/004.

7.5 Heavy Equipment Movement Safety Procedure.

Heavy equipment lifting and movement is an activity involving loading, unloading, storage and movement from one place to another including lifting and erection or repairing of equipment with cranes or hoists. Material, machinery and equipment handling operations are being carried out by large capacity cranes and hoists, which make the job safer and faster. This procedure addresses the hazards and precautions associated with such equipment and their use. For complete procedure kindly refer Procedure Document No –TPSMS/CSP/HEMS/005.

7.6 Mobile Crane Safety Procedure.

Mobile cranes are responsible for many incidents, injuries. Falling loads from mobile cranes pose a severe hazard to operators and nearby workers and property. Many types of cranes, hoists, and rigging devices are used for lifting and moving materials. To maintain safe, appropriate standards must be adhered to and only qualified and licensed individuals shall operate these devices. For complete procedure kindly refer Procedure Document No –TPSMS/CSP/MCS/006.

7.7 Scaffold Safety Procedure.

This procedure is developed to provide information on the safe erection, use, dismantling and maintenance of access scaffolding in the workplace. It is developed to establish mandatory requirements for practices to protect personnel from hazards associated with erection, use and dismantling of scaffolds. For complete procedure kindly refer Procedure Document No –TPSMS/CSP/SCAF/007.

7.8 Permit to Work Procedure.

Given the inherent hazards of the power generation and distribution industry, a significant number of TATA POWER operations and installations are critical. Work Permit (WP) System is an essential element in controlling the workplace risks in an effective manner. For complete procedure kindly refer Procedure Document No – TPSMS/CSP/PTW/008.

7.9 Job Safety Analysis (JSA) Procedure.

This objective of this procedure is to have a task-based risk assessment process in place that identifies, evaluates and controls the risks associated with work activities, and as a result, prevents those involved in the task or those potentially affected by the task, from being harmed. For complete procedure kindly refer Procedure Document No- TPSMS/CSP/JSA/009 REV 01.

7.10 Electrical Safety Procedure.

The objective of these standards is to specify minimum mandatory requirements and advisory guidance for identifying and controlling hazards to ensure 'Zero Harm' regarding operation maintenance and testing of electrical equipment. For complete procedure kindly refer Procedure Document No- TPSMS/CSP/ELEC/010

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7.11 Fire Safety Management Procedure.

Objective of This standard is to specify the minimum mandatory requirements and advisory guidelines to ensure prevention of fire related incidents and managing / controlling their impacts if they do occur. For complete procedure kindly refer Procedure Document No - TPSMS/CSP/ELEC/011

7.12 Hazard Identification & Risk Assessment (HIRA) Procedure:

Objective of this procedure is to define guidelines for Hazard identification, Risk assessment and determination of controls. For complete procedure kindly refer Procedure Document No - TPSMS/CSP/HIRA/012.

7.13 Management Of Change (MOC) Procedure:

The objective of this document is to establish the procedures necessary to ensure that HSE risks are managed to an acceptable level in Tata Power Management of Change (MOC) process. For complete procedure kindly refer Procedure Document No - TPSMS/CSP/MOC/013.

7.14 Pre-Start-up Safety Review (PSSR) Procedure.

Objective of this procedure is to provide guidelines for safe initial startup of a new facility or restart of a modified facility. The PSSR process verifies that the new/modified facility meets the original design and operating parameters. The intent is to prevent incidents caused by inadequate, incomplete, unauthorized design, construction, installation, and/or commissioning. For complete procedure kindly refer Procedure Document No - TPSMS/CSP/MOC/014.

7.15 Road Safety procedure:

To provide Safety Rules for road travel management and safe usage of all types of vehicles viz. passenger/ commercial, owned/ hired by company, driven by employees or Business Associate s. For complete procedure kindly refer Procedure Document No - TPSMS/CSP/RSP/015.

8.0 General safety Rules and Procedure:

8.1 Lift (Elevator) Safety Procedure:

To provide safe operating procedure for taking control of lift car before entering and existing the pit of OTIS make elevators. For complete procedure kindly refer Procedure Document No – **TPSMS/GSP/LIFT/001**,

8.2 Working on conveyor belt Procedure:

This procedure is developed to cover the safe practices required for Working on live equipment and to protect personnel from hazards associated with it. For complete procedure kindly refer Procedure Document No – **TPSMS/GSP/CONV/003**

8.3 Batteries Handling & Disposal

To provide procedure for recycling and / or safe disposal of used / waste batteries in compliance with all legislation. For complete procedure kindly refer Procedure Document No – ***TPSMS/GSP/HAZM/003***

8.4 Material Handling and Storage Procedure:

The purpose of this document is to provide procedures to assist the safe handling

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of materials (manual handling and mechanical handling). For complete procedure kindly refer Procedure Document No – **TPSMS/GSP/MATL/004.**

8.5 Office Safety Procedure:

The objective is to provide a safe working environment to those working in office premise, who may be exposed to emergency situations and other chronic / cumulative risks that may arise due to various reasons of unsafe act, unsafe condition, fire and or pandemic crisis like COVID-19 etc. For complete procedure kindly refer Procedure Document No -***TPSMS/GSP/OFS/006***

8.6 Earth Leakage Circuit Breaker (ELCB) Testing Procedure):

The objective of this procedure is to define the minimum requirements for testing of Earth Leakage Circuit Breaker (ELCB). For complete procedure kindly refer Procedure Document No - ***TPSMS/GSP/ELCB/008.***

8.7 Occupational Health & Safety Legal Compliance Procedure:

Objective of this procedure is provide guidelines for compliance of Occupational Health & Safety (OH&S) legal requirements and all ratified protocols and agreements are incorporated in Tata Power Safety Management System (SMS). For complete procedure kindly refer Procedure Document No - ***TPSMS/GSP/LEGL/009*.**

8.8 Incident Reporting & Investigation Procedure:

Objective of this procedure is to outline the process for reporting, recording and investigating an incident, recommending corrective and preventive actions and to communicate the lessons learned to prevent recurrence of similar incidents. For complete procedure kindly refer Procedure Document No - ***TPSMS/GSP/IRI/011*.**

8.9 Business Associate Safety Management Procedure.

The purpose of this document is to engage with Business Associate s in a way to create safe work environment for everyone working for Tata Power. For complete procedure kindly refer Procedure Document No – **TPSMS/GSP/CSM/015**.

8.10 Tree Trimming Procedure:

The objective of this procedure is to define guidelines and minimum requirements for Tree trimming. For complete procedure kindly refer Procedure Document No – ***TPSMS/GSP/TTRM/017***

8.11 Safe Lone Working Procedure:

Objective of this procedure is to lay down guidelines for reduction and safe managing of any additional risk arising from lone working. For complete procedure kindly refer Procedure Document No – ***TPSMS/GSP/LONE/019.***

8.12 Good Housekeeping(5S) Procedure:

Objective of this procedure is to explain the meaning, importance and provide guidelines for implementation of Good Housekeeping(5S) at workplaces across organization. For complete procedure kindly refer Procedure Document No – ***TPSMS/GSP/GHK/022***.

8.13 Personal Protective Equipment:

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This procedure describes the basic requirements, applicability, minimum specifications of Personal Protective Equipment (PPE). For complete procedure kindly refer Procedure Document No – ***TPSMS/GSP/PPE/023.***

8.14 Process Safety Management Procedure:

The objective of this document is to provide a standardized & uniform guideline to implement Process Safety Management in Tata Power, its JVs, and subsidiaries to prevent or minimize the consequences of releases of toxic, flammable, pressurized or uncontrolled chemicals/Steam/Water or any other material which may result in toxic, fire, explosion, burn or flood like situation. For complete procedure kindly refer Procedure Document No – ***TPSMS/GSP/PSM/024***

The above procedures will be updated time to time and the updated version of the procedures as well as any additional critical procedure will be available on official website of Tata Power (www.tatapower.com) for your reference.

9.0 Pre-Employment and Periodic Medical check-up:

Business Associate shall arrange to conduct a pre-employment and periodic medical check-up for its entire workforce by Tata Power medical officer or Tata Power authorized medical officer. The Business Associate shall be able to produce the certificate prior to the employment. The Business Associate shall also organize to conduct periodical medical checkup (six monthly) for the following category of employees:

- Drivers (Check for Vision & Hearing)
- HEM Equipment Operators (Check for Vision & Hearing)
- Workforce working at Height (Check for Vision, Hearing, Vertigo & Height Phobia)
- Workforce Handling the hazardous substances - Coal, ash and chemicals (Chest X-ray and Lung Function T)
- Workforce in high Noise area (> 90 Decibel), Check for Hearing
- Workforce handling radiography equipment for conducting NDT.
- Workforce, working in specific areas requiring specific medical attention should conduct the medical tests test as laid down in the respective Site Safety Management Plan.

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10.0 Other Conditions:

10.1 The manpower/vehicles/Tools & Tackles/Equipment provided shall be as per mutually agreed SLA.

Sr. No	Type of Audit	Frequency
1	Tool Bag and PPE audit	Weekly
2	First Aid Box Maintenance Record	Fortnightly
3	Fire Extinguisher Record(Applicable for the BA involved in major construction works and have storage of flammable material at worksite)	Monthly
4	Safety Talk Register	Weekly
5	Site Safety Audit	Daily

10.2 No Supervision No work policy should strictly be followed.

10.3 Test Before Touch must be ensured every time a job is being carried out in electrical network.

10.4 HIRA /JSA as per the job scope must be prepared in detail and submitted along with Site Safety Plan by the successful bidder.

10.5 Personal protective equipment (PPE) must always be checked before use to ensure that they are in good condition and clean. Replace them if necessary.

10.6 All relevant PPE shall be provided by the vendor while working at the site.

10.7 Housekeeping shall be maintained all the time while execution of work. All the unwanted material shall be removed from the site at the end of the day's work. Old/damaged parts if taken out of the system shall be kept at identified placed and it shall be shifted to scrap yard or disposed of as per instruction of order manager.

10.8 Site Safety Plan shall be prepared by successful bidder along with order manger. Appendix 1 to be filled by successful bidder and submitted to Tata Power safety in-charge, before mobilization of team at site and start of the work.

10.9 The Owner or Proprietor of BA must visit worksite at least once in a month and meet Order Manager every month. In case of incidents, the Owner or Proprietor of BA is required to attend Time Out Meetings to understand the gaps that contributed to the incident.

11.0 Schedule of Safety Audits by BA Safety Staff

Safety Undertaking of BA by way of Affidavit

I_____ s/o_____R/o_____ (AUTHORIZED REPRESENTATIVE/PARTNER/DIRECTOR/PROPRIETOR) of M/S _____(name of company/firm)__ having its office at (Complete address of Company), authorized vide power of attorney dated ------/Board resolution dated----/letter of authority dated----, hereinafter referred to as **Business Associate [or Business Associate (BA)]** which expression shall, unless it be repugnant to or inconsistent with the meaning or context thereof, be deemed to include its heirs, executors, administrators, and assigns do hereby affirm and undertake as under :

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1. The present undertaking shall remain in force from the date of execution of contract and shall be valid till the date of termination of the said contract by either party. The undertaking is binding on me (Business Associate) as well as my sub-Business Associate and its employees, representatives etc.
2. That I (the Business Associate) will be responsible and liable to comply and abide by all the safety rules, instructions and regulations as may be specified and laid down by the Discom to achieve its goal of Zero for on-site incidences.
3. That the Business Associate shall be fully responsible for ensuring occupational health and safety of its employees, representatives, agents as well as of its subBusiness Associate 's employees, at all times during the discharge of their respective obligations under the contract including any methods adopted for performance of their tasks / work.
4. That Business Associate shall ensure ,at its own expense to arrange for and procure, implement all requisite accident prevention tools, first aid boxes, personal protective equipment, fire extinguisher, safety training, Material Safety Data Sheet, pre-employment medical test, etc. for operations & activities including as & when so specified by Discom specifically. , failing which Discom shall be entitled, but not obliged, to provide the same and recover the actual cost thereof from the Business Associate 's payments.
5. That the Business Associate shall engage adequate and competent Safety – Supervisor / Engineer / Manager / Skilled persons at site as per the Para 5 (Qualification and experience of safety personnel) and Annexure 3 of Contract Safety Management.
6. That the Business Associate shall engage the competent Site – Supervisor with each group of workers for safe and correct workmanship, proper co-ordination of material and site work as per contract.
7. That the Business Associate shall immediately replace supervisor in case it is found to be not up to the level of skill and experience required, but any such replacement shall be only with the prior concurrence of the Discom representative.
8. That the Business Associate and its sub Business Associate s shall abide by all the safety guidelines as per Safety Manual, Contract Safety Management and other guidelines issued from time to time by Discom during the contract period.

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9. That in case the Business Associate and/or any of its Sub Business Associate fail to ensure the compliance as required in terms of this undertaking the Business Associate shall keep and hold Discom / its directors / officers / employees indemnified against any / all losses / damage / expense / liability / fines / compensation / claims / action / prosecutions or the like which might be suffered by Discom or to which Discom might get exposed to as a result of any breach /wilful negligence /deliberate default on the part of the Business Associate /Sub Business Associate in complying with the same. Business Associate shall also furnish any press release, clarification etc. if sought by Discom for any near miss or safety violations, accidents, which are attributable to fault of Business Associate .

DEPONENT

VERIFICATION

Verified at ……on this _Day of _____20__ that the contents of the above affidavit are true and correct and nothing material has been concealed therefrom.

12.0 General Safety Conditions for various contracts Specific to Odisha Discom

12.1 Safety Conditions for maintenance of STS (Sub Transmission System) Network.

A BA awarded a major contract work of maintenance of sub – transmission network in area of a power system will be required to fulfil the following conditions:

- Availability of Discharge Rods - Minimum 6 Nos. in each maintenance vehicle, fit for purpose and in good conditions and defective rods are removed from service.
- Availability of Neon tester - Minimum one Neon Tester in each Maintenance Vehicle, in good and working condition and defective or non-standard neon testers are removed from service.
- Electrical hand Gloves - Minimum two sets of 33 KV and two sets of 11 KV in maintenance vehicles.
- The BA linemen must be having required ELBO certification for the voltage level involved.
- BA shall provide Safety Policy, Safety Objectives, Organogram showing structure and responsibility of Safety management of his company and shall document the work practices and procedures in terms of Safety Management.
- BA shall comply with all statutory requirements like applicable acts, regulations, codes of practice, OHSAS Standards, Labour laws, etc.
- The BA shall participate in Safety promotional activities like celebration of Lineman day on 4th March, National Fire Service Day on 14th April and Theme based safety campaigns undertaken by the Discoms every month.
- BA shall abide by Safety manuals and guidelines of Discom issued from time to time.

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- BA shall ensure safety training and induction program for the employees. The BA employees must carry safety training card / competency card to the worksite and produce the card on demand.
- All BA employees must be given valid ID card issued by BA cell of Discom who will check statutory compliances before issuing ID cards.
- BA shall not employ a new workman without training and issue of ID card.
- BA shall conduct safety audits & inspections as per Discom procedures.
- BA shall provide proper PPEs as per CSM F-8 ensure periodic inspection of PPE, Tools and tackles to ensure their serviceability.
- BA shall ensure the adherence to standard operating procedures or guidelines laid down by the Discoms.
- BA shall ensure that no job shall be carried out without efficient supervision.
- BA shall ensure reporting of any unsafe act, unsafe conditions, near miss, incident, or accident to engineer in-charge and SAFETY team of the Discom.
- BA shall provide safety performance and Safety MIS to engineer in-charge and Discom SAFETY group periodically. Based on any non-confirmation to the safety procedures and guidelines, BA is liable to be negatively marked for his performance and suitable penalty will be imposed.
- BA safety staff shall work as per the guidance of the Discom safety department and functionally report Safety Head of Discom. Any leaves by safety staff of the BA shall have to approved by Discom Safety Department.
- BA shall ensure to depute Safety Staff for managing safety in worksites. In case the BA has been awarded work in more than one area power system, then the following safety structure will be adopted.
- Safety manager and Safety engineer must be having PDIS or ADIS.



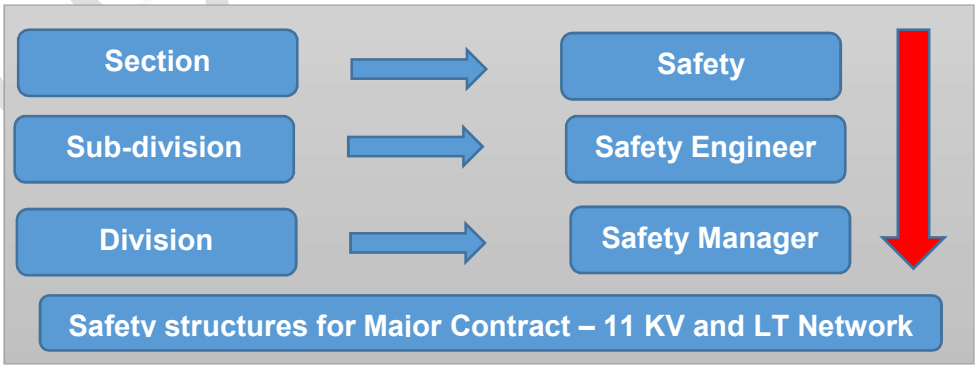
12.2Safety Conditions for maintenance of 11 KV and LT Network.

A BA awarded a major contract work of maintenance of 11 KV and LT Network in area of a power system will be required to fulfil the following conditions:

- Availability of Discharge Rods - Minimum 6 Nos. in each PSS/FCC and maintenance vehicle, fit for purpose and in good conditions and defective rods are removed from service.
- Availability of Neon tester - Minimum one Neon Tester in each PSS/FCC/ Maintenance Vehicle, in good and working condition and defective or non-standard neon testers are removed from service.
- Electrical hand Gloves - Minimum two sets of 33 KV and two sets of 11 KV in each PSS/Maintenance vehicles and two sets of LT hand gloves at each FCC.
- The BA linemen must be having required ELBO certification for the voltage level involved.

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- BA shall provide Safety Policy, Safety Objectives, Organogram showing structure and responsibility of Safety management of his company and shall document the work practices and procedures in terms of Safety Management.
- BA shall comply with all statutory requirements like applicable acts, regulations, codes of practice, OHSAS Standards, Labour laws, etc.
- BA shall abide by Safety manuals and guidelines of Discom issued from time to time.
- BA shall ensure safety training and induction program for the employees. The BA employees must carry safety training card / competency card to the worksite and produce the card on demand.
- All BA employees must be given valid ID card issued by BA cell of Discom who will check statutory compliances before issuing ID cards.
- BA shall not engage new workman without training and issue of ID card.
- PSS operator shall not be involved in maintenance activities.
- BA shall conduct safety audits & inspections as per Discom procedures.
- BA shall provide proper PPEs as per CSM F-8 ensure periodic inspection of PPE, Tools and tackles to ensure their serviceability.
- The BA shall participate in Safety promotional activities like celebration of Lineman day on 4th March, National Fire Service Day on 14th April and Theme based safety campaigns undertaken by the Discoms every month.
- BA to ensure that all LT complaints are routed through Call Centre and recorded in FCC. Rectification of fault shall be done only after call centre logging and with the knowledge of BA supervisor.
- No one will work alone or unsafely under public pressure or otherwise.
- BA shall ensure the adherence to standard operating procedures or guidelines laid down by the Discoms.
- BA shall ensure that no job shall be carried out without efficient supervision.
- BA shall ensure reporting of any unsafe act, unsafe conditions, near miss, incident, or accident to engineer in-charge and SAFETY team of the Discom.
- BA shall provide safety performance and Safety MIS to engineer in-charge and Discom SAFETY group periodically. Based on any non-confirmation to the safety procedures and guidelines, BA is liable to be negatively marked for his performance and suitable penalty will be imposed.
- BA safety staff shall work as per the guidance of the Discom safety department and functionally report Safety Head of Discom. Any leaves by safety staff of the BA shall have to approved by Discom Safety Department.
- BA shall ensure to depute Safety Staff - One safety supervisor per section, One safety engineer per sub-division and one safety manager per Division Safety manager and Safety engineer must be having PDIS or ADIS.



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12.3 Safety Conditions for the major contract work in Civil Projects:

A BA awarded a major contract work of / in civil project will be required to fulfil the following safety conditions:

- BA shall provide Safety Policy, Safety Objectives, Organogram showing structure and responsibility of Safety management of his company and shall document the work practices and procedures in terms of Safety Management.
- BA shall comply with all statutory requirements like applicable acts, regulations, codes of practice, OHSAS Standards, Labour laws, etc.
- BA shall abide by Safety manuals and guidelines of Discom issued from time to time.
- BA shall ensure safety training and induction program for the employees. The BA employees must carry safety training card / competency card to the worksite and produce the card on demand.
- All BA employees must be given valid ID card issued by BA cell of Discom who will check statutory compliances before issuing ID cards.
- BA shall not employ a new workman without training and issue of ID card.
- BA shall conduct safety audits & inspections as per Discom procedures.
- BA shall provide proper PPEs as per CSM F-8 ensure periodic inspection of PPE, Tools and tackles to ensure their serviceability.
- BA shall ensure the adherence to standard operating procedures or guidelines laid down by the Discoms.
- BA shall ensure that no job shall be carried out without efficient supervision.
- BA shall ensure reporting of any unsafe act, unsafe conditions, near miss, incident, or accident to engineer in-charge and SAFETY team of the Discom.
- The BA shall participate in Safety promotional activities like celebration of Lineman day on 4th March, National Fire Service Day on 14th April and Theme based safety campaigns undertaken by the Discoms every month.
- BA shall provide safety performance and Safety MIS to engineer in-charge and Discom SAFETY group periodically. Based on any non-confirmation to the safety procedures and guidelines, BA is liable to be negatively marked for his performance and suitable penalty will be imposed.
- BA safety staff shall work as per the guidance of the Discom safety department and functionally report Safety Head of Discom. Any leaves by safety staff of the BA shall have to approved by Discom Safety Department.
- BA shall refer Construction Safety Manual of the Discom for details.
- BA shall ensure to depute a Safety Supervisor (for workforce up to 100 at site) / a safety engineer (for workforce up to 250 at site) / safety manager (for more than two safety engineers) for managing safety at the project site. In case the BA has been awarded more than one major contracts, then the following safety structure will be adopted.
- Safety Engineers and Safety Managers must be having PDIS or ADIS.

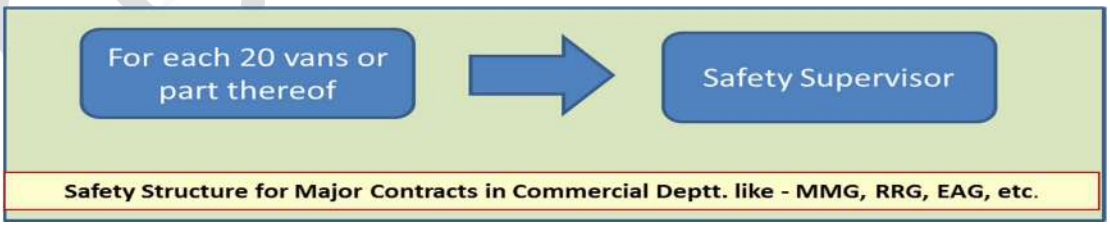


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12.4 Safety Conditions for the major contract work in Commercial Department like - MMG, RRG, EAG, etc.:

A BA awarded a major contract work in meter management group & energy auditing group will be required to fulfil the following safety conditions:

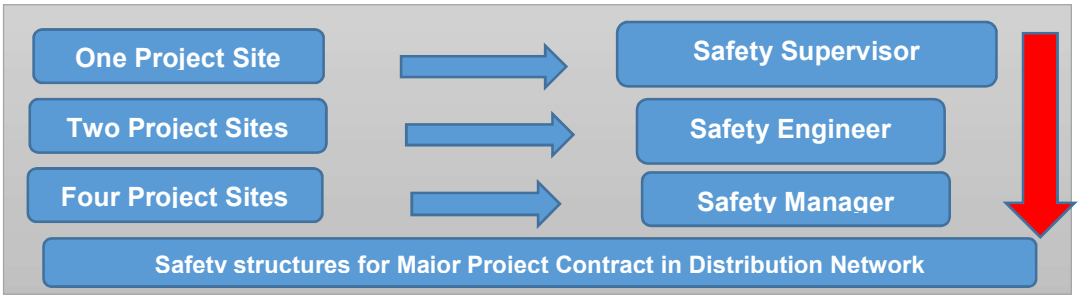
- BA shall provide Safety Policy, Safety Objectives, Organogram showing structure and responsibility of Safety management of his company and shall document the work practices and procedures in terms of Safety Management.
- BA shall comply with all statutory requirements like applicable acts, regulations, codes of practice, OHSAS Standards, Labour laws, etc.
- BA shall abide by Safety manuals and guidelines of Discom issued from time to time.
- BA shall ensure safety training and induction program for the employees. The BA employees must carry safety training card / competency card to the worksite and produce the card on demand.
- All BA employees must be given valid ID card issued by BA cell of Discom who will check statutory compliances before issuing ID cards.
- BA shall not employ a new workman without training and issue of ID card.
- BA shall conduct safety audits & inspections as per Discom procedures.
- The BA shall participate in Safety promotional activities like celebration of Lineman day on 4th March, National Fire Service Day on 14th April and Theme based safety campaigns undertaken by the Discoms every month.
- BA shall provide proper PPEs as per CSM F-8 ensure periodic inspection of PPE, Tools and tackles to ensure their serviceability.
- BA shall ensure the adherence to standard operating procedures or guidelines laid down by the Discoms.
- BA shall ensure that no job shall be carried out without efficient supervision.
- BA shall ensure reporting of any unsafe act, unsafe conditions, near miss, incident, or accident to engineer in-charge and SAFETY team of the Discom.
- BA shall provide safety performance and Safety MIS to engineer in-charge and Discom SAFETY group periodically. Based on any non-confirmation to the safety procedures and guidelines, BA is liable to be negatively marked for his performance and suitable penalty will be imposed.
- BA safety staff shall work as per the guidance of the Discom safety department and functionally report Safety Head of Discom. Any leaves by safety staff of the BA shall have to approved by Discom Safety Department.
- BA shall ensure to depute a Safety Supervisor for managing safety at worksite.
- The BA for the RRG work shall depute one Safety supervisor.



12.5 Safety Conditions for Major Projects in Distribution Network

A BA awarded a major Projects in Distribution Network shall be required to fulfil the following conditions:

- Availability of Discharge Rods - Minimum 6 Nos. for each project site, fit for purpose and in good conditions and defective rods are removed from service.
- Availability of Neon tester - Minimum one Neon Tester in each project site, in good and working condition and defective or non-standard neon testers are removed from service.
- Electrical hand Gloves - Minimum one sets of 33 KV, 11 KV and LT in each project site.
- The BA linemen must be having required ELBO certification for the voltage level involved.
- BA shall provide Safety Policy, Safety Objectives, Organogram showing structure and responsibility of Safety management of his company and shall document the work practices and procedures in terms of Safety Management.
- BA shall comply with all statutory requirements like applicable acts, regulations, codes of practice, OHSAS Standards, Labour laws, etc.
- BA shall abide by Safety manuals and guidelines of Discom issued from time to time.
- BA shall ensure safety training and induction program for the employees. The BA employees must carry safety training card / competency card to the worksite and produce the card on demand.
- The BA shall participate in Safety promotional activities like celebration of Lineman day on 4th March, National Fire Service Day on 14th April and Theme based safety campaigns undertaken by the Discoms every month.
- All BA employees must be given valid ID card issued by BA cell of Discom who will check statutory compliances before issuing ID cards.
- BA shall not employ a new workman without training and issue of ID card.
- BA shall conduct safety audits & inspections as per Discom procedures.
- BA shall provide proper PPEs as per CSM F-8 ensure periodic inspection of PPE, Tools and tackles to ensure their serviceability.
- BA shall ensure the adherence to standard operating procedures or guidelines laid down by the Discoms.
- BA shall ensure that no job shall be carried out without efficient supervision.
- BA shall ensure reporting of any unsafe act, unsafe conditions, near miss, incident, or accident to engineer in-charge and SAFETY team of the Discom.
- BA shall provide safety performance and Safety MIS to engineer in-charge and Discom SAFETY group periodically. Based on any non-confirmation to the safety procedures and guidelines, BA is liable to be negatively marked for his performance and suitable penalty will be imposed.
- The BA shall participate in Safety promotional activities like celebration of Lineman day on 4th March, National Fire Service Day on 14th April and Theme based safety campaigns undertaken by the Discoms every month.
- BA safety staff shall work as per the guidance of the Discom safety department and functionally report Safety Head of Discom. Any leaves by safety staff of the BA shall have to approved by Discom Safety Department.
- BA shall ensure to depute Safety Staff for managing safety in worksites. One safety supervisor per project site or 100 persons, one safety engineer for 2 project sites of 250 persons, and one safety manager for four project sites or 500 persons.
- Safety manager and Safety engineer must be having PDIS or ADIS.



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CORPORATE ENVIRONMENT POLICY

Tata Power is committed to a clean, safe and healthy environment, and we shall operate our facilities in an environmentally sensitive and responsible manner. Our commitment to environmental protection and stewardship will be achieved by:

- Complying with the requirements and spirit of applicable environmental laws and striving to exceed required levels of compliance wherever feasible
- Ensuring that our employees are trained to acquire the necessary skills to meet environmental standards
- Conserving natural resources by improving efficiency and reducing wastage
- Making business decisions that aim towards sustainable development
- Engaging with stakeholders to create awareness on sustainability

Date: 15th June, 2018

(Praveer Sinha)
CEO & Managing Director

TATA POWER
Lighting up Lives!

HEALTH AND SAFETY POLICY

We, at Tata Power, reaffirm our belief that the health and safety of our stakeholders is of the utmost importance and takes precedence in all our business decisions. In pursuit of this belief and commitment, we strive to:

- Maintain and proactively improve our management systems to minimize health and safety hazards to our stakeholders and all others influenced by our activities.
- Comply and endeavour to exceed all applicable occupational health & safety legal and other requirements by setting the highest standards.
- Integrate health & safety procedures and best practices into every operational activity with assigned line-functional responsibilities at all levels, for improving and sustaining health & safety performance.
- Involve our employees in maintaining a safe and healthy work environment through risk assessments, periodic reviews of operational procedures, safe work methods and adoption of new technology.
- Develop a culture of safety through active leadership and provide appropriate training at all levels to enable employees developing their skills to work safely.
- Incorporate appropriate health & safety criteria into business decisions for selection of plant and technology, performance appraisal of individuals and appointments in key positions.
- Ensure availability at all times of appropriate resources to fully implement the health & safety policy of the company.
- Promptly report incidents, investigate for root causes and ensure lessons learnt shared and deployed across the company.
- Ensure service providers and their workmen align with company's safety codes and practices for the health and safety of personnel working with us.
- Set safety & health metrics as indicators of excellence, monitor progress and continually improve performance.

We shall actively communicate this policy to all stakeholders by suitable means and periodically review its relevance in continuously changing business environment.

(Praveer Sinha)
CEO & Managing Director

Date: 15th June, 2018

TATA POWER

Lighting up Lives!



TATA CODE OF CONDUCT 2015

LEADERSHIP THAT INSPIRES

For over 100 years, the Tata group has been led by visionaries who have stayed true to the vision of the founder, Jamsetji Tata.
A vision that placed the greater good of society at par with business growth.
A vision that put into practice pioneering social initiatives that changed the way responsible business was run.
And a vision that brought into the group a strong social conscience.



We do not claim to be more unselfish, more generous or more philanthropic than other people. But we think we started on sound and straightforward business principles, considering the interests of the shareholders our own, and the health and welfare of the employees, the sure foundation of our success.

Jamsetji Tata
Founder of the Tata group
Chairman (1868 – 1904)

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FOREWORD

Tata companies have consistently adhered to the values and ideals articulated by the Founder for over 150 years. The Tata Code of Conduct was first formalized by Mr Ratan Tata. It articulates the Group's values and ideals that guide and govern the conduct of our companies as well as our colleagues in all matters relating to business. Today, the Code is a bedrock on which we base our individual, as well as leadership commitments to core Tata values.

The Tata Code of Conduct outlines our commitment to each of our stakeholders, including the communities in which we operate, and is our guiding light when we are sometimes faced with business dilemmas that leave us at ethical crossroads. The Code is also dynamic in that it has been periodically refreshed in order to remain contemporary and contextual to the changes in law and regulations. However it remains unaltered at its core.

Our stellar reputation and success as a business entity has been defined by the powerful commitment and adherence to the core values and principles expressed in this Code, by all our employees, directors and partners. I trust every Tata colleague and Tata company will continue to not only comply with the laws and regulations that govern our business interests around the world, but will continue to set new standards of ethical conduct that will generate deep respect and inspire emulation by others.

N. Chandrasekaran
21st February, 2017



A. OUR VALUES

TATA has always been values-driven. The five core values that underpin the way we conduct our business activities are:



INTEGRITY

We will be fair, honest, transparent and ethical in our conduct; everything we do must stand the test of public scrutiny.

UNITY

We will invest in our people and partners, enable continuous learning, and build caring and collaborative relationships based on trust and mutual respect.

RESPONSIBILITY

We will integrate environmental and social principles in our businesses, ensuring that what comes from the people goes back to the people many times over.

PIONEERING

We will be bold and agile, courageously taking on challenges, using deep customer insight to develop innovative solutions.

EXCELLENCE

We will be passionate about achieving the highest standards of quality, always promoting meritocracy.

These universal values serve as the foundation for the Tata Code of Conduct. They find expression within the value system of every Tata company.

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B. SCOPE AND PURPOSE OF THIS CODE

1. This Code sets out how we behave with:
   - our employees, or those who work with us;
   - our customers;
   - the communities and the environment in which we operate;
   - our value-chain partners, including suppliers and service providers, distributors, sales representatives, contractors, channel partners, consultants, intermediaries and agents;
   - our joint-venture partners or other business associates;
   - our financial stakeholders;
   - the governments of the countries in which we operate; and
   - our group companies.
2. In this Code, "we or us" means our company, our executive directors, officers, employees and those who work with us, as the context may require.
3. The term "our group companies" in this Code typically means companies Tata Sons intends for this Code to apply to, and / or to whom Tata Sons has issued this Code.
4. This Code sets out our expectations of all those who work with us. We also expect those who deal with us to be aware that this Code underpins everything we do, and in order to work with us they need to act in a manner consistent with it.

REMEMBER...

It is our commitment to protect our reputation and our brand equity by adhering to the values and principles set out in this Code. By doing so, we strengthen our unique culture and identity.

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OUR CORE PRINCIPLES



The Tata philosophy of management has always been, and is today more than ever, that corporate enterprises must be managed not merely in the interests of their owners, but equally in those of their employees, of the consumers of their products, of the local community and finally of the country as a whole.

J.R.D. Tata

Chairman, Tata Sons (1938 – 1991)

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C. OUR CORE PRINCIPLES

1. We are committed to operating our businesses conforming to the highest moral and ethical standards. We do not tolerate bribery or corruption in any form. This commitment underpins everything that we do.
2. We are committed to good corporate citizenship. We treat social development activities which benefit the communities in which we operate as an integral part of our business plan.
3. We seek to contribute to the economic development of the communities of the countries and regions we operate in, while respecting their culture, norms and heritage. We seek to avoid any project or activity that is detrimental to the wider interests of the communities in which we operate.
4. We shall not compromise safety in the pursuit of commercial advantage. We shall strive to provide a safe, healthy and clean working environment for our employees and all those who work with us.
5. When representing our company, we shall act with professionalism, honesty and integrity, and conform to the highest moral and ethical standards. In the countries we operate in, we shall exhibit culturally appropriate behaviour. Our conduct shall be fair and transparent and be perceived as fair and transparent by third parties.
6. We shall respect the human rights and dignity of all our stakeholders.
7. We shall strive to balance the interests of our stakeholders, treating each of them fairly and avoiding unfair discrimination of any kind.
8. The statements that we make to our stakeholders shall be truthful and made in good faith.
9. We shall not engage in any restrictive or unfair trade practices.
10. We shall provide avenues for our stakeholders to raise concerns or queries in good faith, or report instances of actual or perceived violations of our Code.
11. We shall strive to create an environment free from fear of retribution to deal with concerns that are raised or cases reported in good faith. No one shall be punished or made to suffer for raising concerns or making disclosures in good faith or in the public interest.
12. We expect the leaders of our businesses to demonstrate their commitment to the ethical standards set out in this Code through their own behaviour and by establishing appropriate processes within their companies.
13. We shall comply with the laws of the countries in which we operate and any other laws which apply to us. With regard to those provisions of the Code that are explicitly dealt with under an applicable law or employment terms, the law and those terms shall take precedence. In the event that the standards prescribed under any applicable law are lower than that of the Code, we shall conduct ourselves as per the provisions of the Code.

REMEMBER...

"Good faith" means having a reasonable belief that the information you have provided is truthful. It does not mean having 'all the evidence' about the potential violation or case reported.

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OUR EMPLOYEES



Once you got the best people, the people who shared our values and ideals, we left them free to act on their own. We do not fetter them. We encourage them and give them opportunities for leadership.

J.R.D. Tata
Chairman, Tata Sons (1938 – 1991)

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D. OUR EMPLOYEES

Equal opportunity employer

1. We provide equal opportunities to all our employees and to all eligible applicants for employment in our company. We do not unfairly discriminate on any ground, including race, caste, religion, colour, ancestry, marital status, gender, sexual orientation, age, nationality, ethnic origin, disability or any other category protected by applicable law.
2. When recruiting, developing and promoting our employees, our decisions will be based solely on performance, merit, competence and potential.
3. We shall have fair, transparent and clear employee policies which promote diversity and equality, in accordance with applicable law and other provisions of this Code. These policies shall provide for clear terms of employment, training, development and performance management.

Q&A

A job requirement entails extensive travel. One of the candidates has excellent relevant experience and qualifications. However, this candidate is a single parent. As a result, I feel such a situation would significantly hinder this candidate's ability to cope with the job requirement. What should I do?

In accordance with the Code, the decision to recruit an employee should be based upon merit. We cannot make a presumption that the candidate would not be able to meet the travel requirements of the job. All eligible candidates should be provided with equal opportunity to demonstrate or justify that they can cope with the travel requirements of the job. Being a single parent cannot be a ground to be discriminated against at any stage of recruitment or ongoing employment in our company.

REMEMBER...

We do not tolerate harassment in any form and therefore we expect every employee to discourage such misdemeanours in the workplace.

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Dignity and respect

4. Our leaders shall be responsible for creating a conducive work environment built on tolerance, understanding, mutual cooperation and respect for individual privacy.
5. Everyone in our work environment must be treated with dignity and respect. We do not tolerate any form of harassment, whether sexual, physical, verbal or psychological.
6. We have clear and fair disciplinary procedures, which necessarily include an employee's right to be heard.
7. We respect our employees' right to privacy. We have no concern with their conduct outside our work environment, unless such conduct impairs their work performance, creates conflicts of interest or adversely affects our reputation or business interests.

Human rights

8. We do not employ children at our workplaces.
9. We do not use forced labour in any form. We do not confiscate personal documents of our employees, or force them to make any payment to us or to anyone else in order to secure employment with us, or to work with us.

Bribery and corruption

10. Our employees and those representing us, including agents and intermediaries, shall not, directly or indirectly, offer or receive any illegal or improper payments or comparable benefits that are intended or perceived to obtain undue favours for the conduct of our business.

REMEMBER...

Violation by even a single employee of any law relating to anti-bribery, anti-corruption, anti-competition, data privacy, etc. could result in severe financial penalties and cause irreparable reputational damage to the company.

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Gifts and hospitality

11. Business gifts and hospitality are sometimes used in the normal course of business activity. However, if offers of gifts or hospitality (including entertainment or travel) are frequent or of substantial value, they may create the perception of, or an actual conflict of interest or an 'illicit payment'. Therefore, gifts and hospitality given or received should be modest in value and appropriate, and in compliance with our company's gifts and hospitality policy.

Freedom of association

12. We recognise that employees may be interested in joining associations or involving themselves in civic or public affairs in their personal capacities, provided such activities do not create an actual or potential conflict with the interests of our company. Our employees must notify and seek prior approval for any such activity as per the 'Conflicts of Interest' clause of this Code and in accordance with applicable company policies and law.

REMEMBER...

As a general rule, we may accept gifts or hospitality from a business associate, only if such a gift:

- has modest value and does not create a perception (or an implied obligation) that the giver is entitled to preferential treatment of any kind;
- would not influence, or appear to influence, our ability to act in the best interest of our company;
- would not embarrass our company or the giver if disclosed publicly.

The following gifts are never appropriate and should never be given or accepted:

- gifts of cash or gold or other precious metals, gems or stones;
- gifts that are prohibited under applicable law;
- gifts in the nature of a bribe, payoff, kickback or facilitation payment*;
- gifts that are prohibited by the gift giver's or recipient's organisation; and
- gifts in the form of services or other non-cash benefits (e.g. a promise of employment).

(*'Facilitation' payment is a payment made to secure or speed up routine legal government actions, such as issuing permits or releasing goods held in customs.)

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Working outside employment with us

13. Taking employment, accepting a position of responsibility or running a business outside employment with our company, in your own time, with or without remuneration, could interfere with your ability to work effectively at our company or create conflicts of interest. Any such activity must not be with any customer, supplier, distributor or competitor of our company. Our employees must notify and seek prior approval for any such activity as per the 'Conflicts of Interest' clause of this Code and in accordance with applicable company policies and law.

Integrity of information and assets

14. Our employees shall not make any wilful omissions or material misrepresentation that would compromise the integrity of our records, internal or external communications and reports, including the financial statements.

15. Our employees and directors shall seek proper authorisation prior to disclosing company or business-related information, and such disclosures shall be made in accordance with our company's media and communication policy. This includes disclosures through any forum or media, including through social media.

16. Our employees shall ensure the integrity of personal data or information provided by them to our company. We shall safeguard the privacy of all such data or information given to us in accordance with applicable company policies or law.

17. Our employees shall respect and protect all confidential information and intellectual property of our company.

18. Our employees shall safeguard the confidentiality of all third party intellectual property and data. Our employees shall not misuse such intellectual property and data that comes into their possession and shall not share it with anyone, except in accordance with applicable company policies or law.

19. Our employees shall promptly report the loss, theft or destruction of any confidential information or intellectual property and data of our company or that of any third party.

Q&A

I am an accountant in the finance department of my company. Due to my artistic skills, I received an offer to pen cartoons for a children's publication for which I would receive compensation. I plan to undertake this activity during week-ends. What should I do before accepting this offer?

Before accepting the offer, you should ascertain whether the company policies and rules require you to make a disclosure to your supervisor so that the company may determine whether your undertaking this activity adversely affects our company's interests. On confirmation from the company that it does not do so, you would be free to take up the activity. It is also your duty to bring to the attention of the company whenever there is any change in the situation you have disclosed.

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20. Our employees shall use all company assets, tangible and intangible, including computer and communication equipment, for the purpose for which they are provided and in order to conduct our business. Such assets shall not be misused. We shall establish processes to minimise the risk of fraud, and misappropriation or misuse of our assets.

21. We shall comply with all applicable anti-money laundering, anti-fraud and anti-corruption laws and we shall establish processes to check for and prevent any breaches of such laws.

Insider trading

22. Our employees must not indulge in any form of insider trading nor assist others, including immediate family, friends or business associates, to derive any benefit from access to and possession of price sensitive information that is not in the public domain. Such information would include information about our company, our group companies, our clients and our suppliers.

Q&A

Our company has recently announced the launch of a new business initiative. In connection with this, your friend who is a journalist with a leading business newspaper has asked you to provide some information that he could cover in his forthcoming article. He has promised not to quote you, or reveal your identity. Should you be giving him this information?

No. You should not be sharing information of this nature with the media, even if it is assured that the source would remain anonymous. Only authorised personnel in the company are permitted to speak to the media and provide information of this nature.

Our company has a "Use of Social Media" policy that lays down the "dos and don'ts" for use of social media even if you may access such media on your own time. Why is there such a policy?

External communication is a serious matter. It must be carefully managed because information put out with reference to our company or its businesses needs to be clear, truthful and not violate any undertakings we have given to other parties. In each business there are managers nominated to authorise and make different types of statements to the outside world. These managers should be consulted about any request for information you may receive or information you think we should give out.
In using social media, in particular blogs or social networking sites, you should exercise great caution while talking about our company or the business we do. It may feel like you are chatting with friends or expressing a personal opinion but even while doing so you cannot share any confidential information of our company.

REMEMBER...

We must respect the property rights of others by never misusing their assets, intellectual property or trade secrets, including the copying or downloading of unauthorised software, trademarks, copyrighted material or logos. We should never make unauthorised copies of computer software programs or use unlicensed personal software on company computers.

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Prohibited drugs and substances

23. Use of prohibited drugs and substances creates genuine safety and other risks at our workplaces. We do not tolerate prohibited drugs and substances from being possessed, consumed or distributed at our workplaces, or in the course of company duties.

Conflicts of interest

24. Our employees and executive directors shall always act in the interest of our company and ensure that any business or personal association *including close personal relationships* which they may have, does not create a conflict of interest with their roles and duties in our company or the operations of our company. Further, our employees and executive directors shall not engage in any business, relationship or activity, which might conflict with the interest of our company or our group companies.

25. Should any actual or potential conflicts of interest arise, the concerned person must immediately report such conflicts and seek approvals as required by applicable law and company policy. The competent authority shall revert to the employee within a reasonable time as defined in our company's policy, so as to enable the concerned employee to take necessary action as advised to resolve or avoid the conflict in an expeditious manner.

26. In the case of all employees other than executive directors, the Chief Executive Officer / Managing Director shall be the competent authority, who in turn shall report such cases to the Board of Directors on a quarterly basis. In case of the Chief Executive Officer / Managing Director and executive directors, the Board of Directors of our company shall be the competent authority.

Q&A

You are responsible for maintaining our company's customer database. One of your friends is starting a business venture and requests you to share a few particulars from this database for marketing purposes of his business. He assures you that he would keep the data as well as his source confidential. Should you do so?

No. You should respect the confidentiality of customer information and not share any part of the database with any person without due authorisation.

You have access to revenue numbers of different business units of our company. While having a conversation with you over evening drinks, your friend enquires about the financial performance of our company. You do not share detailed information with your friend, but share approximate revenue figures. Is this conduct of yours correct?

No, it is not. You are not permitted to share financial information of our company with others who do not need to know this information. Financial information should always be safeguarded and disclosed only on a need-to-know basis after obtaining requisite approvals. Sharing of any price sensitive information that is not generally available with the public could also lead to violation of applicable insider trading laws.

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27. Notwithstanding such or any other instance of conflict of interest that exists due to historical reasons, adequate and full disclosure by interested employees shall be made to our company's management. At the time of appointment in our company, our employees and executive directors shall make full disclosure to the competent authority, of any interest leading to an actual or potential conflict that such persons or their immediate family (including parents, siblings, spouse, partner, children) or persons with whom they enjoy close personal relationships, may have in a family business or a company or firm that is a competitor, supplier, customer or distributor of, or has other business dealings with, our company.

REMEMBER...

A conflict of interest could be any known activity, transaction, relationship or service engaged in by an employee, his/her immediate family (including parents, siblings, spouse, partner, and children), relatives or a close personal relationship, which may cause concern (based upon an objective determination) that the employee could not or might not be able to fairly perform his/her duties to our company.

Examples of Potential Conflicts of Interest

A conflict of interest, actual or potential, arises where, directly or indirectly, an employee or executive director:

(a) engages in a business, activity or relationship with anyone who is party to a transaction with our company;

(b) is in a position to derive an improper benefit, personally or for any family member or for any person in a close personal relationship, by making or influencing decisions relating to any transaction;

(c) conducts business on behalf of our company or is in a position to influence a decision with regard to our company's business with a supplier or customer where a relative of, or a person in close personal relationship with, an employee or executive director is a principal officer or representative, resulting in a personal benefit or a benefit to the relative;

(d) is in a position to influence decisions with regard to award of benefits such as increase in salary or other remuneration, posting, promotion or recruitment of a relative or a person in close personal relationship employed in our company or any of our group companies;

(e) undertakes an activity by which the interest of our company or our group companies can be compromised or defeated; or

(f) does anything by which an independent judgement of our company's or our group companies' best interest cannot be exercised.

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28. If there is a failure to make the required disclosure and our management becomes aware of an instance of conflict of interest that ought to have been disclosed by an employee or executive director, our management shall take a serious view of the matter and consider suitable disciplinary action as per the terms of employment. In all such matters, we shall follow clear and fair disciplinary procedures, respecting the employee's right to be heard.

Examples of activities normally approved (post-disclosure) as per applicable company policy

Acceptance of a position of responsibility (whether for remuneration or otherwise) in the following cases would typically be permitted, provided the time commitments these demand do not disturb or distract from the employee's primary duties and responsibilities in our company, and are promptly disclosed to the relevant competent authority:

(a) Directorships on the Boards of any of our group companies, joint ventures or associate companies.

(b) Memberships/positions of responsibility in educational/professional bodies, where such association will promote the interests of our company.

(c) Memberships or participation in government committees/bodies or organisations.

Q&A

You are in a relationship with a colleague who has been recently moved into your team and would now be reporting to you. What should you do?

Romantic or close personal relationships with another employee where a reporting relationship exists and one is responsible for evaluating the other's performance, is likely to create a conflict of interest. In such a situation, you would need to report the potential conflict to your supervisor.

Your company is submitting a proposal to a company in which you were previously employed. You have confidential information pertaining to your previous employer, which you believe will help your present employer in winning the contract. Should you share this information?

No. You should not share this information with your company since it relates to confidential information of a third party. Your company respects its employees' duty to protect confidential information that they may have relating to their previous employers.

You are the purchasing manager in the procurement department of your company. You receive an invitation from a supplier to attend a premier sporting event as her guest. This particular supplier is one of the vendors who has submitted a proposal for an open tender issued by your company. Should you accept the invitation?

No. You should not accept the invitation in this instance. Since you are in a key decision-making role for the tender, any unusual benefit that you receive could be perceived as an inducement that could compromise your objectivity.

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OUR CUSTOMERS



We have continued to enjoy prosperity, even with adverse times to fight against. Our relations with all concerned are the most friendly. We have maintained the same character for straight-forward dealing with our constituents and customers. Our productions have continued to be of the same high quality, and therefore command the best reputation and realise the highest prices. … I mention these facts only to point out that with honest and straight-forward business principles, close and careful attention to details, and the ability to take advantage of favourable opportunities and circumstances, there is a scope for success.

Jamsetji Tata
Founder of the Tata group
Chairman, Tata Sons (1868 – 1904)

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E. OUR CUSTOMERS

Products and services

1. We are committed to supplying products and services of world-class quality that meet all applicable standards.
2. The products and services we offer shall comply with applicable laws, including product packaging, labelling and after-sales service obligations.
3. We shall market our products and services on their own merits and not make unfair or misleading statements about the products and services of our competitors.

Export controls and trade sanctions

4. We shall comply with all relevant export controls or trade sanctions in the course of our business.

Fair competition

5. We support the development and operation of competitive open markets and the liberalisation of trade and investment in each country and market in which we operate.
6. We shall not enter into any activity constituting anti-competitive behaviour such as abuse of market dominance, collusion, participation in cartels or inappropriate exchange of information with competitors.
7. We collect competitive information only in the normal course of business and obtain the same through legally permitted sources and means.

Dealings with customers

8. Our dealings with our customers shall be professional, fair and transparent.
9. We respect our customers' right to privacy in relation to their personal data. We shall safeguard our customers' personal data, in accordance with applicable law.

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Q&A

You are the Regional Sales Manager of our company. You have become a member of an "informal group", on an instant messaging service, whose members are the regional sales heads of our company's competitors. The administrator of the group has requested an in-person meeting to informally discuss market conditions and brainstorm on "pricing strategy" from an industry perspective. What should you do?

Any meeting with competitors, especially to discuss "pricing strategy", could be an attempt to promote an anti-competitive practice or manipulate prices. You should respond by declining this invitation and exiting the "informal group". You should also report this incident to your supervisor and your Legal department.

You are attending a customer meeting with a colleague, and your colleague makes an untruthful statement about the company's services. What should you do?

You should assist your colleague in correcting the inaccuracy during the meeting if possible. If this is not possible, raise the issue with your colleague after the meeting to enable him/her or the company to correct any misrepresentation made to the customer.

While working on a customer project, you receive a call from your colleague. He used to manage that customer account before you took over his role. He recalls that he had worked with the customer on developing a new ordering system which he thinks would be beneficial for another customer and requests you to send him the project details. What should you do?

You must not share this information without specific approval of the customer; you are not permitted to use a customer's assets, including software, for another customer or for any personal use.

REMEMBER...

Striving for excellence in the standards of our work and in the quality of our goods and services is a core Tata value. It is the unwavering practice of this value that builds and sustains customer trust in our brand.

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OUR COMMUNITIES AND THE ENVIRONMENT



> In a free enterprise, the community is not just another shareholder in business but is in fact the very purpose of its existence.

Jamsetji Tata
Founder of the Tata group
Chairman, Tata Sons (1868 – 1904)

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F. OUR COMMUNITIES AND THE ENVIRONMENT

Communities

1. We are committed to good corporate citizenship, and shall actively assist in the improvement of the quality of life of the people in the communities in which we operate.
2. We engage with the community and other stakeholders to minimise any adverse impact that our business operations may have on the local community and the environment.
3. We encourage our workforce to volunteer on projects that benefit the communities in which we operate, provided the principles of this Code, where applicable, and in particular the 'Conflicts of Interest' clause are followed.

The environment

4. In the production and sale of our products and services, we strive for environmental sustainability and comply with all applicable laws and regulations.
5. We seek to prevent the wasteful use of natural resources and are committed to improving the environment, particularly with regard to the emission of greenhouse gases, consumption of water and energy, and the management of waste and hazardous materials. We shall endeavour to offset the effect of climate change in our activities.

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OUR VALUE-CHAIN PARTNERS



If we had done some of the things that some other groups have done, we would have been twice as big as we are today. But we didn't, and I would not have it any other way.

J.R.D. Tata

Chairman, Tata Sons (1938 – 1991)

(on the pace of expansion of the Tata group in the 1960s and 70s)

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G. OUR VALUE-CHAIN PARTNERS

1. We shall select our suppliers and service providers fairly and transparently.
2. We seek to work with suppliers and service providers who can demonstrate that they share similar values. We expect them to adopt ethical standards comparable to our own.
3. Our suppliers and service providers shall represent our company only with duly authorised written permission from our company. They are expected to abide by the Code in their interactions with, and on behalf of us, including respecting the confidentiality of information shared with them.
4. We shall ensure that any gifts or hospitality received from, or given to, our suppliers or service providers comply with our company's gifts and hospitality policy.
5. We respect our obligations on the use of third party intellectual property and data.



You head the procurement function in our company. You have tight budgetary constraints for a project that you are working on. In order to complete the project within the targeted costs, you intend to request your supplier to provide you an exceptional discount on this project order on the understanding that you would "make it up to him" in future orders. Would you be violating the Code?

Yes, you would. Inducement in any form, including future benefits to the supplier, could compromise your ability to act objectively and in the best interests of the company and therefore must be avoided.

REMEMBER...

Our value-chain partners would include our suppliers and service providers, distributors, sales representatives, contractors, channel partners, consultants, intermediaries and agents; joint-venture partners and other business associates.

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OUR FINANCIAL STAKEHOLDERS



Ethical behaviour in business – in every sphere and with all constituents – has been the bedrock on which the Tata group has built, and operates, its enterprises. This has been an article of faith for the group ever since its inception, a fundamental element of our cherished heritage and the essence of our way of life.

Ratan Tata
Chairman, Tata Sons (1991 – 2012)

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H. OUR FINANCIAL STAKEHOLDERS

1. We are committed to enhancing shareholder value and complying with laws and regulations that govern shareholder rights.
2. We shall inform our financial stakeholders about relevant aspects of our business in a fair, accurate and timely manner and shall disclose such information in accordance with applicable law and agreements.
3. We shall keep accurate records of our activities and shall adhere to disclosure standards in accordance with applicable law and industry standards.

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GOVERNMENTS



Business, as I have seen it, places one great demand on you; it needs you to impose a framework of ethics, values, fairness and objectivity on yourself at all times. It is not easy to do this; you cannot impose it on yourself forcibly because it has to become an integral part of you.

Ratan Tata
Chairman, Tata Sons (1991 – 2012)

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I. GOVERNMENTS

Political non-alignment

1. We shall act in accordance with the constitution and governance systems of the countries in which we operate. We do not seek to influence the outcome of public elections, nor to undermine or alter any system of government. We do not support any specific political party or candidate for political office. Our conduct must preclude any activity that could be interpreted as mutual dependence/favour with any political body or person, and we do not offer or give any company funds or property or other resources as donations to any specific political party, candidate or campaign.

   Any financial contributions considered by our Board of Directors in order to strengthen democratic forces through a clean electoral process shall be extended only through the Progressive Electoral Trust in India, or by a similar transparent, duly-authorised, non-discriminatory and non-discretionary vehicle outside India.

Government engagement

2. We engage with the government and regulators in a constructive manner in order to promote good governance. We conduct our interactions with them in a manner consistent with our Code.

3. We do not impede, obstruct or improperly influence the conclusions of, or affect the integrity or availability of data or documents for any government review or investigation.

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OUR GROUP COMPANIES



I do not think anyone was on par with Jamsetji as an industrial visionary. But that is not the sole reason why I have been an admirer of Jamsetji. The major reason was his sense of values, sterling values, which he imparted to this group. If someone were to ask me, what holds the Tata companies together, more than anything else, I would say it is our shared ideals and values which we have inherited from Jamsetji Tata.

J.R.D. Tata
Chairman, Tata Sons (1938 – 1991)

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J. OUR GROUP COMPANIES

1. We seek to cooperate with our group companies, including joint ventures, by sharing knowledge, physical resources, human and management resources and adopting leading governance policies and practices in accordance with applicable law including adherence to competition law, where relevant.
2. We shall strive to achieve amicable resolution of any dispute between us and any of our group companies, through an appropriate dispute resolution mechanism so that it does not adversely affect our business interests and stakeholder value.
3. We shall have processes in place to ensure that no third party or joint venture uses the TATA name/brand to further its interests without proper authorisation.
4. Our Board of Directors shall consider for adoption policies and guidelines periodically formulated by Tata Sons and circulated to group companies.

Q&A

You are in the process of selecting potential vendors for an IT project in our company. In the final shortlist of two companies, one is a new start-up with limited references and a lower price-quotation, while the other is a Tata company with thirty years of implementation experience and good references, but a marginally higher quote for the same job. With all other parameters of choice being nearly equal, which company should you select for the job?

While price is undoubtedly an important criterion for decision making, it is clearly not the only one to be evaluated. You may also need to consider good customer references, proven track record and shared value systems in order to decide on your IT partner.

You are in the process of selecting potential vendors for a project. One of the three finalists is a group company. In reviewing the final proposals, you rank the group company second out of the three proposals based on pricing and total cost of ownership, and select the first-ranked vendor. Is this the right decision?

Yes. You should select the vendor that, on its own merits, is the vendor that is most appropriate for your company's requirements. You should not select a group company only because of its affiliation.

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RAISING CONCERNS

We encourage our employees, customers, suppliers and other stakeholders to raise concerns or make disclosures when they become aware of any actual or potential violation of our Code, policies or law. We also encourage reporting of any event (actual or potential) of misconduct that is not reflective of our values and principles.

Avenues available for raising concerns or queries or reporting cases could include:

- immediate line manager or the Human Resources department of our company
- designated ethics officials of our company
- the 'confidential reporting' third party ethics helpline (if available)
- any other reporting channel set out in our company's 'Whistleblower' policy.

We do not tolerate any form of retaliation against anyone reporting legitimate concerns. Anyone involved in targeting such a person will be subject to disciplinary action.

If you suspect that you or someone you know has been subjected to retaliation for raising a concern or for reporting a case, we encourage you to promptly contact your line manager, the company's Ethics Counsellor, the Human Resources department, the MD/CEO or the office of the group's Chief Ethics Officer.



My supervisor has asked me to do something which I believe may be illegal. I am afraid if I do not do what I am told, I could lose my job. Should I do it?

No. Breaking the law is never an option. Discuss the situation with your supervisor to be certain that you both understand the facts. If your concerns are not resolved, contact a higher level supervisor, the Ethics Counsellor, the Legal department or report them via the company's confidential reporting system, if available.

I feel that my supervisor is treating me unfairly for reporting a concern to the Ethics Counsellor. What should I do?

Retaliation against anyone who raises a concern is a violation of the Code. You should therefore promptly report this action of your supervisor to the Ethics Counsellor or the MD/CEO of your company or via the company's confidential reporting system, if available.

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ACCOUNTABILITY

This Code is more than a set of prescriptive guidelines issued solely for the purpose of formal compliance. It represents our collective commitment to our value system and to our core principles.

Every person employed by us, directly or indirectly, should expect to be held accountable for his/her behaviour. Should such behaviour violate this Code, they may be subject to action according to their employment terms and relevant company policies.

When followed in letter and in spirit, this Code is *'lived'* by our employees as well as those who work with us. It represents our shared responsibility to all our stakeholders, and our mutual commitment to each other.

SPEAK UP...

If you are unsure whether a particular action you are about to take is consistent with the principles set forth in the Code, ask yourself:

- Could it directly or indirectly endanger someone or cause them injury?
- Is it illegal/unlawful or out of line with our policies and procedures?
- Does my conscience reject it? Does it conflict with my personal values?
- Would I feel uncomfortable if the story appeared in the media? Would it shame my company, spouse, partner, parent or child?
- Does it 'feel' wrong?

If the answer to any of these questions is "Yes", please stop and consult your reporting manager, the Ethics Counsellor, the Human Resource department, the Legal department or any member of the senior management team, to assist you in making the decision.

When faced with a dilemma: Stop, Think, Act Responsibly

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NOTE

The Code does not provide a comprehensive and complete explanation of all expectations from a company standpoint or obligations from a stakeholder standpoint.

Our employees have a continuing obligation to familiarise themselves with all applicable law, group-level advisories and policies, company-level policies, procedures and work rules as relevant. For any guidance on interpretation of the Code, we may seek support from our company's Ethics Counsellor or from the group's Chief Ethics Officer, as appropriate.

All joint ventures are encouraged to adopt the Tata Code of Conduct (TCOC) or a code of conduct that incorporates all elements of the TCOC.

This version of the Tata Code of Conduct supersedes all earlier versions and associated documents and stands effective from 29th July, 2015.

For any query or clarification on the Code, please contact the office of the group's Chief Ethics Officer via email at: ethicsoffice@tata.com.

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TATA CODE OF CONDUCT – 2015

I acknowledge that I have received the Tata Code of Conduct.

I have read the Tata Code of Conduct and I acknowledge that as a Tata employee, I am required to comply with the guidelines described therein and failure to do so may subject me to action as per my employment terms and relevant company policies.

If I have a concern about a violation, or a potential violation of the Tata Code of Conduct, I understand that there are channels available to me in my company to report such concerns. By making use of these channels when necessary, I will play my part in maintaining the high ethical standards to which we hold ourselves.

Signature: _____

Date: _____

Name: _____

Department: _____

Address: _____

_____

_____

(Please submit this declaration to your Ethics Counsellor or the Human Resource department of your company.)

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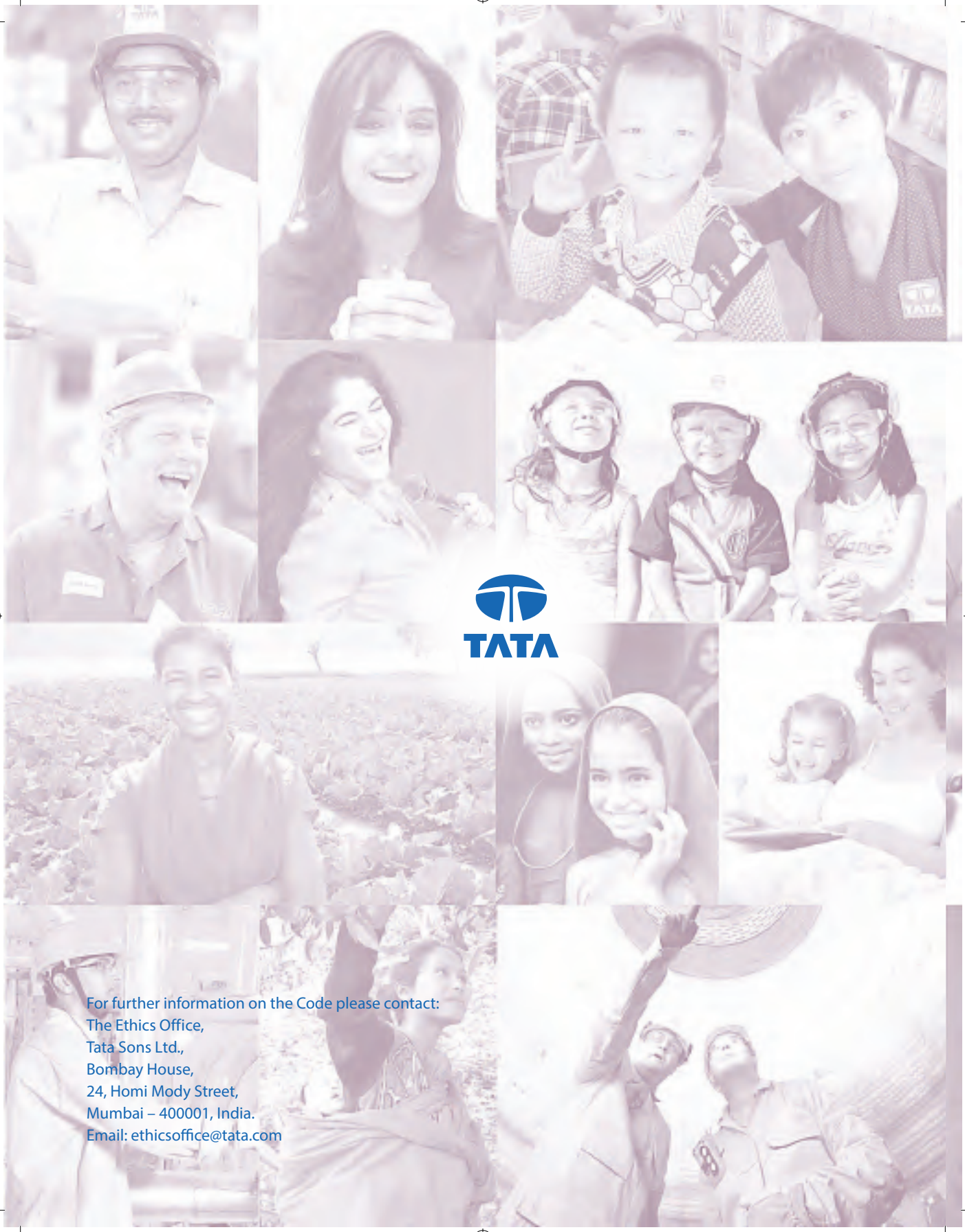
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TATA

For further information on the Code please contact:
The Ethics Office,
Tata Sons Ltd.,
Bombay House,
24, Homi Mody Street,
Mumbai – 400001, India.
Email: ethicsoffice@tata.com

The Tata Power Company Ltd

Undertaking by Vendor for Statutory Compliances

I undersigned, ……on behalf of M/s……"Name of Vendor Company"…… with "S&E registration no'……..having registered office at…..……..…"Address"…… confirm having received a Purchase Order from the Tata Power Company LTD to provide the services at the ……Location…….. In consideration of the purchase order and in view of the terms and conditions of purchase order, I declare and undertake the following:

1	I/ we have the valid registration Documents *(allotment letter issued by the authorities (EPFO & ESIC) are enclosed)*:	Agreed	Not Applicable	Reason For Not Applicable
	I. PF registration code			
	II. ESIC registration code			
2	I/we agree that for all the manpower engaged by me/us under this contract (direct or engaged through a subcontractor), we ensure that:	Agreed	Not Applicable	Reason For Not Applicable
	I. Payment to all workers by 7th of every month for the salary / wages due for the preceding month through online Bank transfers and shall submit the wage register, pay slips, bank statement etc to "The Company".			
	II. Minimum wages shall be paid to all the workers.			
	III. PF & ESIC deposition and respective payment challan/ ECR shall be done on or before 12th of every month for the salary / wages for the preceding month and shall submit the copy of ECR & TRRN to "The Company".			
	IV. General Employee Compensation under the Employee Compensation Act, 1928 shall be taken for those who are outside the wage limits of ESIC applicability or location where ESIC is not applicable.			
	V. Statutory Bonus shall be paid on or before November every year.			
3	I/ We understand that incase if we default on payment of salary of statutory dues for our manpower engaged by us under this contract (direct or engaged through a subcontractor), for a particular month, Tata Power constitutes the right to pay wages or deposit statutory dues directly adjusting from our bills and shall deduct or charge 25% penalty on the total amount defaulted.	Agreed	Not Applicable	Reason For Not Applicable
4	I/we agree that for all the manpower deployed under this contract (direct or engaged through a subcontractor), we ensure that:	Agreed	Not Applicable	Reason For Not Applicable
	I. Appointment letter and employment card will be issued to all either by us or through our sub-contractors. The copy of the appointment letter acknowledged by the employee and certified by us will be submitted to Tata Power within 1 month of joining.			
	II. Full & Final settlement of the employee will be completed in 7 days of his/her last working day and a service completion letter to be issued, the acknowledge copy of both the documents (F&F settlement and Service certificate) by the employee and certified by us will be submitted to Tata Power.			
	III. For our permanent staff, 4 (I) and 4 (II) is not applicable and we shall submit an undertaking either on mail / letterhead, with their names.			

	IV.	All the manpower are technically qualified as per the norms of **Power Sector Skill Council (PSSC) issued by Ministry of Power- GOI dt January 2024. (copy enclosed)**		
5		I/we shall mandatorily obtain the Labour License for all the manpower deployed under this contract (direct or engaged through subcontractor/s) to cater the entire work as per PO, if the overall number of manpower deployed under this contract exceeds the permissible limit under Contract Labour Act. The Form-V will be issued in name of my Company by Tata Power.	Agreed	Not Applicable / Reason For Not Applicable
6		I shall, in case for construction job, apply for registration under BOCW Act before start of work and obtain the said registration within a month of starting its work.	Agreed	Not Applicable / Reason For Not Applicable
7		For Clause no 6, I shall also make the payment of cess applicable under the BOCW Act for the work associated under this PO.	Agreed	Not Applicable / Reason For Not Applicable
8		I/ We understand & agree to adhere all the prevailing statutory compliances and any laws, rules & regulations which may get amended from time to time. We will be solely responsible for all the compliances including compliances by my sub-vendors & for all the workers.	Agreed	Not Applicable / Reason For Not Applicable
9		Following will be adhered:	Agreed	Not Applicable / Reason For Not Applicable
	I.	Medical fitness certificate and police verification certificate for all my workers for Gate pass process.		
	II.	Indemnify "Tata Power" from any future liability of account of statutory compliance or failure on part of me for my work in "Tata Power" in respect of all the workers including my vendors & his workers, by submitting an Indemnity Bond on non judicial stamp paper (Rs 500 non judicial stamp paper for Maharashtra state and Rs 100 for all other states or as applicable) executed by its Director/Proprietor, authorized for the purpose, and duly notarized.		
	III.	Maintain all registers under the various Acts and shall submit to "Tata Power" as and when required.		
10		I shall depute competent resource/ supervisors to ensure supervision of work, follow proper disciplinary action for misconduct, ensuring availability of all resources required to execute the contract, ensuring good work culture and behaviour among my resources as framed under the provisions of law. I will also ensure engagement and R&R of my resources as required by "The Company".	Agreed	Not Applicable / Reason For Not Applicable
11		If **"clause no 4 (iv)"** is not adhered, then I will ensure compliance to capability building by training/upskilling of the workers as per the norms of **Power Sector Skill Council (PSSC) through Tata Power Skill Development Institute (TPSDI)** and will bare all the cost of training.	Agreed	Not Applicable / Reason For Not Applicable
12		I will make the provisions for canteen, sitting arrangement, rest rooms, washing facility, first Aid, drinking water and toilet facilities for my workers. I may consult with the order manager of "The Company".	Agreed	Not Applicable / Reason For Not Applicable
13		I will constitute the "Grievance Redressal Committee" to address the grievances of our workmen deployed under the contract.	Agreed	Not Applicable / Reason For Not Applicable

14	I shall comply, wherever applicable, to requirements under the Apprentices (Amendment) Act, 2014.	Agreed	Not Applicable	Reason For Not Applicable
15	I/ We understand that failure to adhere to the compliances and the timelines will attract penalties under the vendor penalty scheme attached as **annexure 7** And it may lead to holding (fully or partially) of my payments of the bills.	Agreed	Not Applicable	Reason For Not Applicable
16	I shall ensure submission of required information to Tata Power ("The Company") as required by The Company or any government authorities (with a copy to "The Company"), as a when required within the stipulated time frame.	Agreed	Not Applicable	Reason For Not Applicable
17	I/ We understand that Tata Power constitutes the right to cancel the gate pass of any of our workman if the above conditions have not been fulfilled by us in the above mentioned stipulated time.	Agreed	Not Applicable	Reason For Not Applicable
18	Continuous **default in compliance of any statutory provisions, for three months**, may lead to **termination of the contract** and may also lead to blacklisting my vendors' registration with "The Company".	Agreed	Not Applicable	Reason For Not Applicable
19	In case any kind of work disruption is caused to the functioning of "The Company" due to agitation or tool down by my workmen (or workers of my sub-vendors), I will take appropriate disciplinary action including cancellation of gate pass of such worker/s as well as filing a FIR with the Police Authorities within 6 hours of the incidence. The details of the disciplinary actions undertaken will be submitted to "The Company" within 7 days of such incident.	Agreed	Not Applicable	Reason For Not Applicable
20	I have read & agree to abide the guidelines, rules etc as mentioned in the Annexures (Annexure 1 to 8) and the Guidelines of Central Electricity Authority – Ministry of Power.	Agreed	Not Applicable	Reason For Not Applicable

Date:_____ Signature:_____

Place:_____ Name:_____

Vendor code:_____

Witness :

For The Tata Power Company Limited:

Name & Signature:……..……

(Head Corp Contracts)

Name & Signature:……..……

(Head IR/ Head BHR)

Annexure 1
Onboarding of Vendor

		Agreed	Not Applicable	Reason For Not Applicable
1	I shall, before start of work, obtain and submit to "The Company" a copy of:			
I.	PF Code allotment letter issued by the PF organization.			
II.	ESIC Code allotment letter issued by the ESI authorities.			
III.	Valid insurance documents (Policy) under Employees' Compensation Act, for my employees who are not eligible for coverage under ESIC.			
IV.	Copy of accepted Work Order received from "The Company"			
V.	Indemnity Bond			
VI.	ISM Bond			
VII.	Copy of valid ISMW (if applicable)			
VIII.	Submit an application for obtaining Form-V required for applying for Labour License for all the manpower deployed under this contract (direct or engaged through subcontractor/s) to cater the entire work as per PO, if the overall number of manpower deployed under this contract exceeds the permissible limit under Contract Labour Act.			
IX.	I will submit a copy of valid Labour License along with other relevant documents with reference to the work order for catering the entire work, without which gate passes would not be issued to my employees.			

Annexure 2
Onboarding of Employees/ Manpower

1	I shall ensure safety training, medical check-up, police verification procedures for my employees (manpower deployed under this contract either direct or engaged through a subcontractor) as laid down for issue of gate-passes. I shall not engage any of my workers for work without a valid gate-pass or with a VISITOR GATE PASS. Violation of the above may lead to termination of the contract.	Agreed	Not Applicable	Reason For Not Applicable
2	Temporary permission is issued only for seven days only for preparing gate passes, hence I will be required to arrange for issuance of permanent gate-pass within said timeline, by submitting required documents/ information in online gate pass portal, as applicable. Under no circumstances shall temporary permission be issued for more than 7 days.	Agreed	Not Applicable	Reason For Not Applicable
I.	I will complete the process of medical fitness certificate and police verification certificate of all workers within these seven days and upload documents in ONLINE GATE PASS portal. If for any reason ONLINE GATE PASS portal is non-functional then application for gate pass will be processed through manual/other available system.			
3	Gate Passes to be processed through Online Gate Pass Portal only, as applicable. I will obtain required registration in Online Gate Pass Portal and required data and documents of workmen will be uploaded in ONLINE GATE PASS portal for generation of gate passes.	Agreed	Not Applicable	Reason For Not Applicable
4	I will facilitate transfer of PF/EPS accumulations in respect of my workers from their previous employer, if any.	Agreed	Not Applicable	Reason For Not Applicable
5	I will ensure to transfer of PF accumulations / updating KYC details of workers who will be engaged in the contract (if pending) by me within 02 months of starting of contract. Existing UAN to be continued and new UAN will not be generated.	Agreed	Not Applicable	Reason For Not Applicable
6	I will continue with existing ESI number for all covered workmen and shall complete KYC (if pending) and issue E-Pehchan card including dependents within 15 days of starting of contract.	Agreed	Not Applicable	Reason For Not Applicable

Annexure 3: Monthly compliances

		Agreed	Not Applicable	Reason For Not Applicable
1	I will submit all documents as per checklist to comply with the various statutes, statutory requirement or any other requirement as may be applicable from time to time:			
	I. **I will submit details of Muster roll, Wage Register, Workmen Register in excel format.**			
	II. I shall submit the Register of Workmen in prescribed Form, duly filled in all respects, immediately after starting the said job.			
	III. I will give Wage notification to my workmen at least one week ahead. A copy of the same shall be forwarded to "The Company" for necessary witnessing of payment and certification			
	IV. I will provide Wage Slip (as per provided format) to all my workers before disbursement of wages.			
	V. I shall disburse wages to all my employees before 7th of every subsequent month, of the previous month under intimation to "The Company" through bank transfer and shall submit a copy of bank statement to the respective compliance team of "The Company".			
	VI. I will deposit PF contribution on or before 12th of the subsequent month for the previous month wages and submit proof thereof to "The Company" by 15th of the month.			
	VII. I will deposit ESI contribution on or before 12th of the subsequent month for the previous month wages and submit proof thereof to "The Company" by 15th of the month			
	VIII. I will submit all documents as per checklist; Muster roll, Wage Register, Bank statement, Adult Register, Workmen Register, Wage Slip copies, Combined Challan & ECR & TRRN of PF deposition and Challan/ Contribution History of ESIC/ Employee Compensation Policy and all other registers including MIS Reports (Excel sheet), Employee profile to "The Company"			
	IX. I shall get my submitted statutory compliance documents verified before 15th of every month in prescribed format (checklist) provided by "The Company" and upload the same along with PF Challan & ESIC Challan with the invoice in Ariba System for obtaining statutory clearance on uploaded bills.			
2	I understand that failure to adhere to the compliances and the timelines will lead to holding (fully or partially) of my payments of the bills.			

Annexure 4
Renewal of Gate passes

		Agreed	Not Applicable	Reason For Not Applicable
1	In case of renewal of gate pass, I will initiate the application at least Fifteen days in advance in ONLINE GATE PASS portal.			

Annexure 5
Annual Compliances

		Agreed	Not Applicable	Reason For Not Applicable
1	I will submit all relevant returns under all applicable enactments on or within the scheduled date and submit a copy of the same to "The Company" within seven days of the scheduled date of submission.			

Annexure 6
Contract closure and/or F&F settlement

		Agreed	Not Applicable	Reason For Not Applicable
1	**After completion of work and before or at the time of submission of final bills**, I will ensure the following and submit proof thereof to "The Company" enabling "The Company" to release my final bills/invoices:			

I.	All wage payments as per statute are made to all the workers (including subvendors) till the last day of their work in "The Company".
II.	Compensation towards Leave with wages are disbursed to all the workers (including subvendors) till the last day of their work.
III.	Statutory bonus is paid to all the workers (including subvendors) for the period of their work.
IV.	Retrenchment compensation, if applicable, is paid to all the workers (including subvendors) as per eligibility. Notice is given to the workers regarding retrenchment and in absence of notice payment is given to the workers as per the enactment.
V.	Gratuity is paid to all the workers (including subvendors) irrespective of the fact whether the worker has /hasn't completed 5 years of continuous service with me.
VI.	Along with final payments, full & final statement is issued to all the workers engaged by me (including subvendors) for work in "The Company".
VII.	No dues certificate obtained from all my employees (including subvendors) and copy submitted to "The Company".
VIII.	Ensure completion of withdrawal or transfer formalities in respect of PF/EPS accumulation of all workers and submit proof thereof to "The Company" HR/IR dept after closure of contract.
IX.	Submit Form VI-A to "The Company" and surrender Labour License, if issued, to concerned Labour department in case the license is no more required for work in "The Company" and obtain clearance thereof from the Licensing Authority for submission to "The Company".
X.	Ensure intimation to PF & ESI authorities regarding completion of work and surrendering ESI & PF sub code obtained for execution of work at "The Company". Proof of the same will be submitted to "The Company".
XI.	Cancel all gate passes in online gate pass portal & surrendering the access cards immediately upon closure of the said contract.

Annexure 7
Penalty scheme if defaulted in compliances:

I agree for the following penalty scheme which will be applicable if defaulted in compliances:

Agreed	Not Applicable	Reason For Not Applicable

SN	Applicable Act		Compliance Requirement	Reference Annexure for Compliance Requirement	Due Date	Deduction as a % age of Monthly Bill Value
1	**CL (R&A) Act**	**a**	Possessing Valid Labour License	Annexure 8 (4)	1st day of work / Last day of existing license	**5**
		b	Employment Card Issuance		1st day of joining of worker	**0.2**
2	**CL (R&A) Act / Payment of Wages Act**	**a**	Wage payment through Cheque/NEFT to 100% of Workmen	Annexure 8 (1)	7th of following month	**5**
		b	Wage Slip Distribution	Annexure 8 (4)	1 day before respective wage payment	**1**
		c	Full & Final Settlement upon separation		30 days from last working day of individual worker	**2**
3	**EPF (MP) Act**	**a**	Deposit of PF contribution	Annexure 8 (5)	15th of following month	**2**
		b	UAN Activation with mobile linkage		30 days from date of joining of worker	**0.2**
4	**ESI Act**	**a**	Deposit of ESI contribution	Annexure 8 (6)	15th of following month	**2**
		b	ESIC & ESIC e-Pehchan Card Issuance		ESIC E-Pehchan Card- 01 days from Joining	**0.2**
5	**Payment of Bonus Act, MW Act, PoW Act, CL (R&A) Act**		Submission of Return under Bonus Act, MW Act, PoW Act & CLR Act	Annexure 8	Bonus Act-31st Dec MW Act- 31st Jan Pow Act-31st Jan CL (R&A) Act-31st Jan/ 31st July	**0.5**
6	**CL(R&A) Act, Factories Act, BOCW Act, EPF Act, ESI Act**		Maintaining of registers/ challans under CLR Act, Factories Act,	Annexure 8	20th of following month	**0.5**
7	**Other**	**a**	Submission of false or fake documents			**10**
		b	Disruption (Strike, Gate jam etc) caused to the functioning of "The Company" and Lack of disciplinary action on the worker/s.	Conducting the enquiry of the incident/s, preparing & submitting the report to Mgmt, filing of FIR in police station as & when required, taking action on the worker/s and concluding the disciplinary process. (clause 19)		**10**
		c	Delay in submission of statutory documents, checklist etc			**1**
		d	Non adherence to Gate pass, onboarding process	Annexure 1 and 2		**1**
					TOTAL	**40.6**

Annexure 8

List of few of the statutory requirements, not being exhaustive:

		Agreed	Not Applicable	Reason For Not Applicable
	I/We understand & agree to abide by all the Statutory Acts, Rules, amendments in Acts/ rules & notifications which may get amended / applicable from time to time.			
	Following is the list of few of the statutory requirements, not being exhaustive, which I will be complying from time to time and as applicable:	Agreed	Not Applicable	Reason For Not Applicable
1	I shall comply with all applicable provisions under **THE PAYMENT OF WAGES ACT, 1936**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will display a notice showing the day on which the wages are paid, notice containing abstract of this Act in English and the vernacular language.			
II.	I will pay wages on or before 7th of every month.			
III.	Pay wages to employee for the purpose of this Act by NEFT.			
IV.	I will maintain register giving particulars of - (a)Persons employed (b)Work performed by the employees (c) Deductions made from the wages (d) Fines imposed (e) Receipts given (f) Any other particulars in such a form as may be prescribe.			
V.	I will maintain a register in Form IV for all the amount of advances sanctioned and the re-payment made.			
2	I shall comply with all applicable provisions under **THE MINIMUM WAGES ACT, 1948**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will Pay minimum rates of wages to each employee as declared by the State Government by bank Transfer. I will follow the minimum wages circular by the Govt Authority/ Company as declared time to time.			
II.	I will maintain a Muster Roll cum Wage Register in Form II.			
III.	I will Provide one day as a weekly day of rest to each employee.			
IV.	I will ensure that the normal working hour in a day does not exceed 9 hours for an adult.			
V.	I will Fix working hours in such a way so as to provide atleast half and hour rest, ensuring that the continuous working hour, does not exceed 5 hours in a row.			
VI.	I will provide a holiday for a period of 24 consecutive hours, from the time his shift ends.			
VII.	I will pay extra wages @ double the ordinary rate of wages for extra hours working.			
VIII.	I will maintain a hard bound Inspection Book and produce it to Inspecting Officer, when required by him.			

IX.	I will preserve all the registers and records maintained for a period of 3 years from the date of last entry.			
X.	I will provide payment for work on a day of rest at a rate not less than the overtime rate.			
3	I shall comply with all applicable provisions under **EQUAL REMUNERATION ACT, 1976**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will pay equal remuneration to men and women workers for same work or work of a similar nature.			
II.	I shall maintain such registers and other documents in relation to the workers employed by me.			
4	I shall comply with all applicable provisions under **THE CONTRACT LABOUR (REGULATION AND ABOLITION) ACT, 1970**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will provide at least 1 first aid box for every 150 workers.			
II.	I will pay wages on or before expiry of 7th day of each wage-period after the last day of wage period.			
III.	I will ensure the presence of authorized representative of Principal Employer at the place and time of disbursement of wages by me to workmen.			
IV.	I will display a notice at the work place showing: i) wage-period, ii) place of disbursement, and iii) time of disbursement.			
V.	I will keep all the records and registers at office or within the radius of 3 kms. of establishment, maintain such records and registers legibly in English, Marathi or Hindi, preserve them for a tenure of 3 calendar years from date of last entry.			
VI.	I will display the wage notice in English and Hindi or in Marathi at a conspicuous place containing the following particulars:- 1. wages, 2. working hours, 3. wage -period, 4. Date of payment of wages, 5. Name and address of the Inspector having jurisdiction, 6. Date of payment of unpaid wages.			
VII.	I will submit annual return in Form XXV in duplicate to Registering Officer before 15th February following the end of the year.			
VIII.	I will pay wages before the expiry of 1 working day from the day on which the employee is terminated.			
5	I shall comply with all applicable provisions under **THE EMPLOYEES PROVIDENT FUNDS AND MISCELLANEOUS PROVISIONS ACT, 1952**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will submit the statement within 7 days of the close of every month.			
II.	I will deduct the employee's contribution paid towards Employees Provident Fund.			
III.	I will submit the duly approved form 11 by the competent authority while claiming the exemption from the PF act for my workers. (**Not valid for the Exempted PF Trusts**).			
IV.	I will submit the ECR, Challan, TRRN etc on or before 14th of each month.			
V.	I will maintain an inspection note-book in such form as may be specified by the Commissioner.			

		Agreed	Not Applicable	Reason For Not Applicable
6	I shall comply with all applicable provisions under **THE EMPLOYEES' STATE INSURANCE ACT,1948 AND THE EMPLOYEES STATE INSURANCE (GENERAL) REGULATIONS,1950 AND THE EMPLOYEES' STATE INSURANCE RULES,1950**			
I.	I will preserve all the register maintained for a period of 5 years from the date of last entry therein.			
II.	I will register on-line on the website of Employees State Insurance within 15 days of employing the required number of employees.			
III.	I will obtain correct particular of employees as required in Form 1.			
IV.	I will send the declaration forms enclosed with Temporary Identification Certificate and a return in Form 3 within 10 days of furnishing the particulars to the appropriate office of ESIC.			
V.	I will deliver the Temporary Identification Certificate and a copy of Form 3 to the employee.			
VI.	I will take a duly filled Form 1-A from the employee having signature/thumb-impression and send it to the authority within 10 days of being furnished.			
VII.	I will enter the particulars of changes given by the employee in Form 2 and send it within 10 days to the appropriate office.			
VIII.	I will furnish information as required in Form 10.			
IX.	I will maintain an Accident Book in Form 11 and preserve it for 5 years from the date of last entry.			
X.	I will send an accident report in Form 12 to the nearest local office and Insurance Medical Officer.			
XI.	I will provide the proper first-aid and arrange proper transportation for obtaining aid and care as may be required.			
XII.	I will produce the Inspection Book on demand to the Inspector or any other person authorized by him.			
XIII.	I will immediately report the death of the workers to the local officer, in death case.			
XIV.	I will ensure that the body of deceased employee is not disposed until it has been examined by an Insurance Medical Officer.			
XV.	I will ensure that no employee is dismissed, discharged or otherwise punished at any time while he/she is in receipt of benefit for Sickness, maternity, Temporary Disablement; or i. is under medical treatment for sickness; or ii. is absent due to illness arising.			
7	I shall comply with all applicable provisions under **THE EMPLOYEE'S COMPENSATION ACT, 1923**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will pay compensation if personal injury is caused to an employee by accident arising out of and in course of his employment.			
II.	In case of death of an employee, I will deposit with the Commissioner a sum of not less than five thousand rupees as funeral expenditure.			
III.	I will pay compensation only by deposit with the Commissioner.			
IV.	I will submit a statement to the Commissioner detailing the circumstances attending the death of the employee and indicating the grounds if he is not liable to pay compensation on account of death.			

V.	I will under any other law required to give notice to any authority of any accident occurring on his premises shall send a report to the Commissioner giving the circumstances attending the death or serious bodily injury.			
VI.	If directed under a notification then I shall send a return specifying the number of injuries in respect to which the compensation has been paid during the previous year along with the amount paid.			
8	I shall comply with all applicable provisions under **THE PAYMENT OF BONUS ACT, 1965**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will pay bonus to its employee's in an accounting year provided that an employee shall be entitled to bonus if he has worked for at least thirty working days in that year.			
II.	I will pay at least minimum bonus which shall be 8.33 per cent of the salary or wage earned by the employee during the accounting year or seven thousand Five hundred rupees whichever is higher.			
III.	I will prepare and maintain a register showing the computation of the allocable surplus.			
IV.	I will prepare and maintain a register showing details of the amount of bonus due to each of the employees, the deductions and the amount actually disbursed.			
V.	I will send an annual return to the Inspector.			
9	I shall comply with all applicable provisions under **THE INTER-STATE MIGRANT WORKMEN (REGULATIONS OF EMPLOYMENT AND CONDITIONS OF SERVICE) ACT, 1979**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will make application (in triplicate) for grant of license under the Act.			
II.	I will furnish such particulars to the specified authority in the State from which an Inter-State migrant workman is recruited and in the State in which such workman is employed.			
III.	I will issue to every inter-State migrant workman, a pass book.			
IV.	I will furnish return in respect to every Inter-State migrant workman who ceases to be employed.			
V.	I will pay wages to each Inter-State migrant workman employed by me which cannot be less than the rate of wages paid by the principal employer to a workman in the lowest category directly employed by him or minimum rate of wages, whichever is higher.			
VI.	I will issue service certificate on termination of employment to the migrant workman.			
VII.	I will maintain displacement-cum-outward journey allowance sheet and return journey allowance register.			
VIII.	I will maintain muster roll register and register of wages, register of deduction, fines and advances, maintain register of overtime.			
IX.	I will display an abstract of the Act and the rules in such form as may be approved by the Deputy Chief Labour Commissioner.			
X.	I will display Notices showing the rates of wages, names and addresses of the Inspectors having jurisdiction at the conspicuous places at the establishment and the work-site.			

XI. I will submit half yearly return (in duplicate).

Agreed	Not Applicable	Reason For Not Applicable

10 I shall comply with all applicable provisions under **THE PAYMENT OF GRATUITY ACT 1972**

I. I will pay the due amount of gratuity **annually** to all the employees & maintain the records. The same will be shared with my employees & also with the employer during the bill submission in month of March.

II. I will pay the due amount of gratuity within 30 days from the date it becomes payable to the employee, net amount not exceeding 10 lakhs; and intimate the payment done to the Controlling Authority.

III. I will deposit the amount of gratuity payable with the Controlling Authority if the claimant is minor nominee/heir.

IV. I will authorize an officer as a representative to receive the notices on behalf of company under the Act and Rules.

V. I will obtain insurance for securing liability for payment towards gratuity from the Life Insurance Corporation of India or any other prescribed insure; as recommended in the notification.

VI. I will pay the due amount of premium for renewal of insurance policy obtained for securing liability for payment of gratuity.

VII. I will serve a notice of opening of the establishment in Form A to the Controlling Authority, within 30 days of the Act becoming applicable to the establishment.

VIII. I will serve a notice of change in Form B to the Controlling Authority within 30 days of change in name, address, employer or nature of business.

IX. I will serve notice in Form C to the Controlling Authority before 60 days of intended closure.

X. I will display conspicuously a notice at or near the main entrance of the establishment in bold letters in English and in a language understood by the majority of the employees specifying the name of the officer with designation authorised by me to receive notices under the Act or the Rules.

XI. I will keep nominations in safe custody.

XII. I will verify the service particulars of the employee with the service details within 30 days of receipt.

XIII. I will return duplicate copy of nomination form after obtaining receipt from the employee.

XIV. I will deposit such amount with the Controlling Authority, payable to such employee.

XV. I will send a notice in Form L to the applicant (employee/nominee/heir; as the case may be) within 15 days of receipt of the application specifying the amount of gratuity payable, fix a date for payment of it and forward a copy of the same to the Controlling Authority.

XVI. I will send a notice in duplicate in Form M to the applicant (employee/nominee/heir) within 15 days of receipt of the application specifying the reason for inadmissibility and forward a copy of the same to the Controlling Authority.

XVII.	I will display an abstract of the Act and the Rules at or near main entrance of the establishment, in English and in language understood by the majority of employees.			
11	I shall comply with all applicable provisions under **THE MATERNITY BENEFIT ACT, 1961**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will ensure not to make the woman employee do any work which is of an arduous nature or which involves long hours of standing or which in any way is likely to interfere with her pregnancy or the normal development of the foetus, or is likely to cause her miscarriage or otherwise to adversely affect her health; during the specified period.			
II.	I will display the abstract of Rules in Form 9 in a conspicuous place in the language or languages of the locality.			
III.	I will maintain a Maternity Benefit Register in Form 10.			
IV.	I will ensure not to: i) dismiss or discharge the women employee on account of absence during maternity period, ii) serve notice of discharge or dismissal on such a day that the notice will expire during such absence, iii) very to her disadvantage any of the conditions of her service.			
V.	I will give maternity leave for a period of 26 weeks.			
12	I shall comply with all applicable provisions under **THE CHILD LABOUR (PROHIBITION AND REGULATION) ACT, 1986**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will ensure not to employ any child or permit to work in : i) occupations specified in Part A of the Schedule or ii) processes specified in Part B of the Schedule.			
13	I shall comply with all applicable provisions under **THE FACTORIES ACT, 1948 AND THE RULES** as & if applicable**.**	Agreed	Not Applicable	Reason For Not Applicable
14	I shall comply with all applicable provisions under **THE SHOPS AND ESTABLISHMENTS (REGULATION OF EMPLOYMENT AND CONDITIONS OF SERVICE) ACT AND THE RULES** as & if applicable**.**	Agreed	Not Applicable	Reason For Not Applicable
15	I shall comply with all applicable provisions under **THE WEEKLY HOLIDAYS ACT, 1942.**	Agreed	Not Applicable	Reason For Not Applicable
16	I shall comply with all the applicable provisions under **THE NATIONAL AND FESTIVAL HOLIDAY ACT**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will grant leave/ holiday with wages on following 3 days, i.e. 26th January (Republic Day), 15th August (Independence Day) and 2nd October (Gandhi Jayanti).			
17	I shall comply with all applicable provisions under **THE BUILDING AND OTHER CONSTRUCTION WORKERS (REGULATION OF EMPLOYMENT AND CONDITIONS OF SERVICE) ACT, 1996** as & if applicable.	Agreed	Not Applicable	Reason For Not Applicable

18	I shall comply with all applicable provisions under **APPRENTICES ACT, 1961,** as & if applicable.	Agreed	Not Applicable	Reason For Not Applicable
19	I shall comply with all applicable provisions under **THE PRIVATE SECURITY GUARDS ACT AND THE RULES** of the State, as & if applicable**.**	Agreed	Not Applicable	Reason For Not Applicable

I. I have the licence issued by the Competent Authority.

20	I shall comply with all applicable provisions under **LABOUR WELFARE FUND ACT AND THE RULES** of the State, as & if applicable**.**	Agreed	Not Applicable	Reason For Not Applicable
21	I shall comply with all applicable provisions under **The EMPLOYMENT OF LOCAL CANDIDATES IN THE INDUSTRIES ACT AND THE RULES** of the State, as & if applicable.	Agreed	Not Applicable	Reason For Not Applicable
22	I shall comply with all applicable provisions under **THE WORKMEN'S MINIMUM HOUSE RENT ALLOWANCE ACT AND THE RULES** of the State, as & if applicable.	Agreed	Not Applicable	Reason For Not Applicable
23	I shall comply with all applicable provisions under **Motor Transport Workers Act 1961 AND THE RULES** of the State, as & if applicable.	Agreed	Not Applicable	Reason For Not Applicable
24	I shall comply with all applicable provisions under **THE MAHARASHTRA MATHADI, HAMAL AND OTHER MANUAL WORKERS (REGULATION OF EMPLOYMENT AND WELFARE) ACT, 1969.**	Agreed	Not Applicable	Reason For Not Applicable

Date:_____ Signature:_____

Place:_____ Name:_____

Vendor code:_____

Witness :

For The Tata Power Company Limited:

Name & Signature:……..……

(Head Corp Contracts)

Name & Signature:……..……

(Head IR/ Head BHR)

ESG FRAMEWORK FOR BUSINESS ASSOCIATES

Tata Power's Sustainability philosophy sits at the core of its Business Strategy. Tata Power Sustainability Model has an overarching objective of 'Leadership with care' with key elements of 'Care for the Environment'; 'Care for the Community'; 'Care for our Customers / Partners' and 'Care for our People'. These sustainability objectives encompass the Environmental, Social and Governance objectives driven as integrated elements.

Tata Power, together with its stakeholders is determined to achieve sustainable growth while creating shared value for all.
As a part of future ready roadmap, Tata Power has targeted following as our Environment, Social and Governance priorities:

- Being Carbon Net Zero before 2045
- Growing Clean capacity (80% by 2030)
- Customer centricity
- Becoming water neutral before 2030
- Achieving zero waste to landfill before 2030
- No net loss of biodiversity before 2030
- Positively impacting 80 million lives by 2027

In order to create a sustainable business ecosystem, Tata Power expects that all its Business Associates (BA) which includes its suppliers, vendors, consultants and service providers to align to its ESG and sustainability commitments.

Tata Power encourages improved efficiencies and scaling up of green initiatives through technology and innovation taking us farther on the journey of reducing carbon emissions and preparing the entire eco-system towards products and services that would have net positive impact on the environment and communities that we operate in.

The Vendors/ bidders wishing to associate with Tata Power are expected to share their own sustainability and ESG journey. We at Tata Power promote all Business Associates to have a sustainable procurement policy for their supplier and service providers to contribute to our integrated approach in achieving a sustainable supply chain. The BA is encouraged to carry out the assessment of their sub-contractors and sub-vendors on sustainability readiness so that they are aware of the expectation/ business requirement.

The Vendor/ Bidder shall fill-in the 'Environment, Social and Governance Compliance Screening Questionnaire for Business Associates' attached at Annexure-I and submit the same along with the Bid in Ariba online platform.

Responsible Supply Chain Management:

Tata Power is committed for a cleaner environment and respect of Human rights through its Responsible Supply Chain Management policy.
Tata Power Business Associate (BA) shall comply with all the environment & Human rights related laws, including emission norms, Labour and environmental regulations.

Tata Power encourages its BA to focus on green design, green supply, green production, green logistics and green packaging in performing their business obligations. The BA is expected to abide by the Tata Power Corporate Environment policy, Energy Conservation and Corporate Sustainability Policy (enclosed with this document as Annexure-II).

The BA is expected to:

- Strive towards Conservation of Energy, Water, Resources and optimize transportation of Men & Materials to minimize environmental impact and reduce carbon footprint.
- Carry out the assessment of materials used for construction, operation & maintenance, consumables and accordingly phase out those materials which are environmentally hazardous.
- Be cognizant that diversity in the workplace positively impacts business.
- Promote affirmative action by supporting people from SC/ ST background by engaging workforce from SC/ ST community under the contracts agreed herein.
- Share the commitment of 'No child labour', 'No forced labour', Non-discrimination on the basis of caste, colour, religion, gender, disability, maternity or pregnancy or any other factor unrelated to the requirements of the job
- Pay the wages or remuneration to the workforce, personnel deployed in compliance to all applicable laws and regulations.
- Provide its employees/ deployed labor with an employment environment that is free of physical or psychological harassment.
- Carry out the assessment of their Sub-contractors on their Sustainability Readiness so that they are aware of the above expectation/ standards
- To ensure usage of suitable package material which is more environmentally sustainable. Further the packing material shall be recycled to the extent possible. The material used for packing is expected to suit the mode of transport and to ensure its safe receipt at point of delivery.

Waste Disposal:

The BA is expected to follow best practices for disposal of waste, few of which are listed below:

- Have a detailed project plan that includes the waste management, segregation of all designated waste material (Recyclable/ Non-Recyclable), collecting, storing, disposing and transferring the same to pre-arranged facility/ destination in timely and safe manner as per environmental legislations. The project plan shall also include the innovative construction practice to eliminate or minimize waste, protect surface/ground water, control dust and other emissions to air and control noise.

- Have purchase policy to encourage the procurement of material with recycled and minimum packaging of goods during delivery and appropriate means for site-to-site transportation of materials to avoid damage and litter generation.

- Ensure that the residents living near the site are kept informed about proposed working schedule and timings/ duration of any abnormal noise full activity that is likely to happen.

- Ensure the regular maintenance and monitoring of vehicles and equipment for efficient fuel use so that emissions and noise are within acceptable limits to avoid air pollution.

Water Management:

The BA is expected to follow best practices for water management, few of which include a management and monitoring system for water withdrawals and consumption, procedures to reduce water usage or reuse/recycle water, and pretreatment of wastewater before disposal.

Compliance to Law:
The BA shall adhere to responsible business practices and comply with the provision of all the Statutory Acts Applicable. Special attention of the BA is drawn towards the compliance of provision of the following statues: (along with the latest amendments/additions, as applicable):

- The Child Labour (Prohibition and Regulation) ACT, 1986.
- The Contract Labour (Regulation and Abolition) ACT, 1970.
- The Employee's Pension Scheme, 1995.
- The Employee's Provident Funds and miscellaneous provisions Act, 1952.
- The Employees State Insurance Act, 1948.
- The Equal Remuneration Act, 1976.
- The Industrial Disputes Act, 1947.
- The Maternity Benefit Act, 1961.
- The Minimum Wages Act, 1948.
- The Payment of Bonus Act, 1965
- The Payment of Gratuity Act, 1972.
- The Payment of Wages Act, 1936.
- The Shops & Establishment Act, 1954.
- The Workmen's Compensation Act, 1923.
- The Employer's Liability Act, 1938.
- and any other applicable statutory act

Social Accountability (SA 8000):

Tata Power expects its BAs to follow guidelines of SA 8000:2014 on the following aspects

- Child Labour
- Forced or Compulsory Labour
- Health & Safety
- Freedom of Association & Right to Collective Bargaining
- Discrimination
- Disciplinary Practices
- Working Hours
- Remuneration
- Management System

Health and Safety

The BA is expected to ensure the health and safety of his and his Sub-contractor's staff and labour. The BA shall, in collaboration with and according to the requirements of the local health authorities, ensure that medical staff, first aid facilities, sick bay and ambulance service are available at the accommodation and on the Site at all times, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics. The BA shall maintain records and make reports concerning health, safety and welfare of persons deployed, and damage to property, as the Owner's Representative may reasonably require. The BA shall be responsible for the medical treatment / hospitalization of his and his Sub-contractor's staff/ labour.

The BA shall appoint a qualified Safety officer at the Site to be responsible for maintaining the safety, and protection against accidents, of all personnel on the Site. Such Safety officer shall have the authority to issue instructions and take protective measures to prevent accidents.

The BA shall comply in toto with the Tata Power's Contractor Safety Terms & Conditions, Health Safety & Environment Manual while working on Tata Power Site/ Services/ Contracts.

Grievance Mechanism

The BA is expected to have grievance procedures that allow stakeholders to anonymously bring environmental and/or work-related violations and/or concerns to the attention of management. In addition, the BA is expected to have procedures for examining reports of environmental and/or work-related violations or concerns and/or privacy complaints.

Data Protection

The BA is expected to have a formal process to address data security or privacy issues.

ANNEXURE-I

Sr. No.	Question Description	Response (Y/N)	Remarks
Organization			
1	Does your Company have Sustainability Policy at Organization Level? If Yes, Please attach		
2	Do you have sustainable procurement policy in place for your own suppliers? If Yes, Please attach		
3	Does your company do regular assessment of its suppliers on ESG parameters?		
4	Are there ESG risks, or negative impacts identified in your supply chain		
Governance			
1	Is diversity taken into consideration when appointing board members/ senior management? Do you have an independent director/s?		
2	Has your company taken initiatives to ensure ethical practices at workplace? Please share the details, Policies etc.		
3	Does your company have a formal process to address data security or privacy issues? Please share the details, Policies etc.		
4	Does your company have grievance mechanism for stakeholder issues and track resolution?		
Environment/ Planet			
1	Does your company have Environmental Policy? If Yes, Please attach		
2	Do you have a formal process for waste management including solid wastes, liquid wastes and hazardous waste?		
3	Does your company track greenhouse gas emission? Also, what percentage of own consumption comes from the renewable energy?		
4	Does your company have a formal process for water management including monitoring of water consumption and withdrawals, and if applicable, pretreatment of wastewater?		
Green Technology/ Innovation			
1	Are your facility/ Product/ Services provided by you is based on green design, green production, green packaging or green logistics considerations? Please elaborate.		
2	Do your products or services have any environmental or social features or benefits (e.g. environmental/energy certification, ecolabels, fair trade certification, etc.)?		
Social/ People			
1	Does you facility/ Company have written personnel policies in place Are you an equal opportunity employer?		
2	Please describe any formal programme / campaign in place to promote company involvement with the community (volunteering, etc.). What is the percentage of profit spend on community activities?		
3	Does your company have a written Health & Safety Policy or Program? If Yes, Please attach		
Certifications: Does your company have following certifications (valid till date-please mention validity)			
1	ISO9001 accreditation		
2	SA8000 or equivalent		
3	ISO 14001 certification		
4	ISO 18001/45001 or equivalent		
5	ISO/IEC 27001 or equivalent		
6	Any Other (Please specify)		

Signature

Business Associate Name

ANNEXURE-II

CORPORATE SUSTAINABILITY POLICY

At Tata Power, our Sustainability Policy integrates economic progress, social responsibility and environmental concerns with the objective of improving quality of life. We believe in integrating our business values and operations to meet the expectations of our customers, employees, partners, investors, communities and public at large

- We will uphold the values of honesty, partnership and fairness in our relationship with stakeholders
- We shall provide and maintain a clean, healthy and safe working environment for employees, customers, partners and the community
- We will strive to consistently enhance our value proposition to the customers and adhere to our promised standards of service delivery
- We will respect the universal declaration of human rights, International Labour Organization's fundamental conventions on core labour standards and operate as an equal opportunities employer
- We shall encourage and support our partners to adopt responsible business policies, Business Ethics and our Code of Conduct Standards
- We will continue to serve our communities:
  - By implementing sustainable Community Development Programmes including through public/private partnerships in and around our area of operations
  - By constantly protecting ecology, maintaining and renewing bio-diversity and wherever necessary conserving and protecting wild life, particularly endangered species
  - By encouraging our employees to serve communities by volunteering and by sharing their skills and expertise
  - By striving to deploy sustainable technologies and processes in all our operations and use scarce natural resources efficiently in our facilities
  - We will also help communities that are affected by natural calamities or untoward incidence, or that are physically challenged in line with the Tata Group's efforts

The management will commit all the necessary resources required to meet the goals of Corporate Sustainability.

(Praveer Sinha)
CEO & Managing Director

Date: 15th June, 2018

TATA POWER
Lighting up Lives!

The Tata Power Company Ltd

Undertaking by Vendor for Statutory Compliances

I undersigned, ……on behalf of M/s……"Name of Vendor Company"…… with "S&E registration no'……..having registered office at…..……..…"Address"…… confirm having received a Purchase Order from the Tata Power Company LTD to provide the services at the ……Location…….. In consideration of the purchase order and in view of the terms and conditions of purchase order, I declare and undertake the following:

1	I/ we have the valid registration Documents *(allotment letter issued by the authorities (EPFO & ESIC) are enclosed)*:	Agreed	Not Applicable	Reason For Not Applicable
	I. PF registration code			
	II. ESIC registration code			
2	I/we agree that for all the manpower engaged by me/us under this contract (direct or engaged through a subcontractor), we ensure that:	Agreed	Not Applicable	Reason For Not Applicable
	I. Payment to all workers by 7th of every month for the salary / wages due for the preceding month through online Bank transfers and shall submit the wage register, pay slips, bank statement etc to "The Company".			
	II. Minimum wages shall be paid to all the workers.			
	III. PF & ESIC deposition and respective payment challan/ ECR shall be done on or before 12th of every month for the salary / wages for the preceding month and shall submit the copy of ECR & TRRN to "The Company".			
	IV. General Employee Compensation under the Employee Compensation Act, 1928 shall be taken for those who are outside the wage limits of ESIC applicability or location where ESIC is not applicable.			
	V. Statutory Bonus shall be paid on or before November every year.			
3	I/ We understand that incase if we default on payment of salary of statutory dues for our manpower engaged by us under this contract (direct or engaged through a subcontractor), for a particular month, Tata Power constitutes the right to pay wages or deposit statutory dues directly adjusting from our bills and shall deduct or charge 25% penalty on the total amount defaulted.	Agreed	Not Applicable	Reason For Not Applicable
4	I/we agree that for all the manpower deployed under this contract (direct or engaged through a subcontractor), we ensure that:	Agreed	Not Applicable	Reason For Not Applicable
	I. Appointment letter and employment card will be issued to all either by us or through our sub-contractors. The copy of the appointment letter acknowledged by the employee and certified by us will be submitted to Tata Power within 1 month of joining.			
	II. Full & Final settlement of the employee will be completed in 7 days of his/her last working day and a service completion letter to be issued, the acknowledge copy of both the documents (F&F settlement and Service certificate) by the employee and certified by us will be submitted to Tata Power.			
	III. For our permanent staff, 4 (I) and 4 (II) is not applicable and we shall submit an undertaking either on mail / letterhead, with their names.			

	IV.	All the manpower are technically qualified as per the norms of **Power Sector Skill Council (PSSC) issued by Ministry of Power- GOI dt January 2024. (copy enclosed)**		
5		I/we shall mandatorily obtain the Labour License for all the manpower deployed under this contract (direct or engaged through subcontractor/s) to cater the entire work as per PO, if the overall number of manpower deployed under this contract exceeds the permissible limit under Contract Labour Act. The Form-V will be issued in name of my Company by Tata Power.	Agreed	Not Applicable / Reason For Not Applicable
6		I shall, in case for construction job, apply for registration under BOCW Act before start of work and obtain the said registration within a month of starting its work.	Agreed	Not Applicable / Reason For Not Applicable
7		For Clause no 6, I shall also make the payment of cess applicable under the BOCW Act for the work associated under this PO.	Agreed	Not Applicable / Reason For Not Applicable
8		I/ We understand & agree to adhere all the prevailing statutory compliances and any laws, rules & regulations which may get amended from time to time. We will be solely responsible for all the compliances including compliances by my sub-vendors & for all the workers.	Agreed	Not Applicable / Reason For Not Applicable
9		Following will be adhered:	Agreed	Not Applicable / Reason For Not Applicable
	I.	Medical fitness certificate and police verification certificate for all my workers for Gate pass process.		
	II.	Indemnify "Tata Power" from any future liability of account of statutory compliance or failure on part of me for my work in "Tata Power" in respect of all the workers including my vendors & his workers, by submitting an Indemnity Bond on non judicial stamp paper (Rs 500 non judicial stamp paper for Maharashtra state and Rs 100 for all other states or as applicable) executed by its Director/Proprietor, authorized for the purpose, and duly notarized.		
	III.	Maintain all registers under the various Acts and shall submit to "Tata Power" as and when required.		
10		I shall depute competent resource/ supervisors to ensure supervision of work, follow proper disciplinary action for misconduct, ensuring availability of all resources required to execute the contract, ensuring good work culture and behaviour among my resources as framed under the provisions of law. I will also ensure engagement and R&R of my resources as required by "The Company".	Agreed	Not Applicable / Reason For Not Applicable
11		If **"clause no 4 (iv)"** is not adhered, then I will ensure compliance to capability building by training/upskilling of the workers as per the norms of **Power Sector Skill Council (PSSC) through Tata Power Skill Development Institute (TPSDI)** and will bare all the cost of training.	Agreed	Not Applicable / Reason For Not Applicable
12		I will make the provisions for canteen, sitting arrangement, rest rooms, washing facility, first Aid, drinking water and toilet facilities for my workers. I may consult with the order manager of "The Company".	Agreed	Not Applicable / Reason For Not Applicable
13		I will constitute the "Grievance Redressal Committee" to address the grievances of our workmen deployed under the contract.	Agreed	Not Applicable / Reason For Not Applicable

14	I shall comply, wherever applicable, to requirements under the Apprentices (Amendment) Act, 2014.	Agreed	Not Applicable	Reason For Not Applicable
15	I/ We understand that failure to adhere to the compliances and the timelines will attract penalties under the vendor penalty scheme attached as **annexure 7** And it may lead to holding (fully or partially) of my payments of the bills.	Agreed	Not Applicable	Reason For Not Applicable
16	I shall ensure submission of required information to Tata Power ("The Company") as required by The Company or any government authorities (with a copy to "The Company"), as a when required within the stipulated time frame.	Agreed	Not Applicable	Reason For Not Applicable
17	I/ We understand that Tata Power constitutes the right to cancel the gate pass of any of our workman if the above conditions have not been fulfilled by us in the above mentioned stipulated time.	Agreed	Not Applicable	Reason For Not Applicable
18	Continuous **default in compliance of any statutory provisions, for three months**, may lead to **termination of the contract** and may also lead to blacklisting my vendors' registration with "The Company".	Agreed	Not Applicable	Reason For Not Applicable
19	In case any kind of work disruption is caused to the functioning of "The Company" due to agitation or tool down by my workmen (or workers of my sub-vendors), I will take appropriate disciplinary action including cancellation of gate pass of such worker/s as well as filing a FIR with the Police Authorities within 6 hours of the incidence. The details of the disciplinary actions undertaken will be submitted to "The Company" within 7 days of such incident.	Agreed	Not Applicable	Reason For Not Applicable
20	I have read & agree to abide the guidelines, rules etc as mentioned in the Annexures (Annexure 1 to 8) and the Guidelines of Central Electricity Authority – Ministry of Power.	Agreed	Not Applicable	Reason For Not Applicable

Date:_____ Signature:_____

Place:_____ Name:_____

Vendor code:_____

Witness :

For The Tata Power Company Limited:

Name & Signature:……..……

(Head Corp Contracts)

Name & Signature:……..……

(Head IR/ Head BHR)

Annexure 1
Onboarding of Vendor

		Agreed	Not Applicable	Reason For Not Applicable
1	I shall, before start of work, obtain and submit to "The Company" a copy of:			
I.	PF Code allotment letter issued by the PF organization.			
II.	ESIC Code allotment letter issued by the ESI authorities.			
III.	Valid insurance documents (Policy) under Employees' Compensation Act, for my employees who are not eligible for coverage under ESIC.			
IV.	Copy of accepted Work Order received from "The Company"			
V.	Indemnity Bond			
VI.	ISM Bond			
VII.	Copy of valid ISMW (if applicable)			
VIII.	Submit an application for obtaining Form-V required for applying for Labour License for all the manpower deployed under this contract (direct or engaged through subcontractor/s) to cater the entire work as per PO, if the overall number of manpower deployed under this contract exceeds the permissible limit under Contract Labour Act.			
IX.	I will submit a copy of valid Labour License along with other relevant documents with reference to the work order for catering the entire work, without which gate passes would not be issued to my employees.			

Annexure 2
Onboarding of Employees/ Manpower

1	I shall ensure safety training, medical check-up, police verification procedures for my employees (manpower deployed under this contract either direct or engaged through a subcontractor) as laid down for issue of gate-passes. I shall not engage any of my workers for work without a valid gate-pass or with a VISITOR GATE PASS. Violation of the above may lead to termination of the contract.	Agreed	Not Applicable	Reason For Not Applicable
2	Temporary permission is issued only for seven days only for preparing gate passes, hence I will be required to arrange for issuance of permanent gate-pass within said timeline, by submitting required documents/ information in online gate pass portal, as applicable. Under no circumstances shall temporary permission be issued for more than 7 days.	Agreed	Not Applicable	Reason For Not Applicable
I.	I will complete the process of medical fitness certificate and police verification certificate of all workers within these seven days and upload documents in ONLINE GATE PASS portal. If for any reason ONLINE GATE PASS portal is non-functional then application for gate pass will be processed through manual/other available system.			
3	Gate Passes to be processed through Online Gate Pass Portal only, as applicable. I will obtain required registration in Online Gate Pass Portal and required data and documents of workmen will be uploaded in ONLINE GATE PASS portal for generation of gate passes.	Agreed	Not Applicable	Reason For Not Applicable
4	I will facilitate transfer of PF/EPS accumulations in respect of my workers from their previous employer, if any.	Agreed	Not Applicable	Reason For Not Applicable
5	I will ensure to transfer of PF accumulations / updating KYC details of workers who will be engaged in the contract (if pending) by me within 02 months of starting of contract. Existing UAN to be continued and new UAN will not be generated.	Agreed	Not Applicable	Reason For Not Applicable
6	I will continue with existing ESI number for all covered workmen and shall complete KYC (if pending) and issue E-Pehchan card including dependents within 15 days of starting of contract.	Agreed	Not Applicable	Reason For Not Applicable

Annexure 3: Monthly compliances

		Agreed	Not Applicable	Reason For Not Applicable
1	I will submit all documents as per checklist to comply with the various statutes, statutory requirement or any other requirement as may be applicable from time to time:			
	I. **I will submit details of Muster roll, Wage Register, Workmen Register in excel format.**			
	II. I shall submit the Register of Workmen in prescribed Form, duly filled in all respects, immediately after starting the said job.			
	III. I will give Wage notification to my workmen at least one week ahead. A copy of the same shall be forwarded to "The Company" for necessary witnessing of payment and certification			
	IV. I will provide Wage Slip (as per provided format) to all my workers before disbursement of wages.			
	V. I shall disburse wages to all my employees before 7th of every subsequent month, of the previous month under intimation to "The Company" through bank transfer and shall submit a copy of bank statement to the respective compliance team of "The Company".			
	VI. I will deposit PF contribution on or before 12th of the subsequent month for the previous month wages and submit proof thereof to "The Company" by 15th of the month.			
	VII. I will deposit ESI contribution on or before 12th of the subsequent month for the previous month wages and submit proof thereof to "The Company" by 15th of the month			
	VIII. I will submit all documents as per checklist; Muster roll, Wage Register, Bank statement, Adult Register, Workmen Register, Wage Slip copies, Combined Challan & ECR & TRRN of PF deposition and Challan/ Contribution History of ESIC/ Employee Compensation Policy and all other registers including MIS Reports (Excel sheet), Employee profile to "The Company"			
	IX. I shall get my submitted statutory compliance documents verified before 15th of every month in prescribed format (checklist) provided by "The Company" and upload the same along with PF Challan & ESIC Challan with the invoice in Ariba System for obtaining statutory clearance on uploaded bills.			
2	I understand that failure to adhere to the compliances and the timelines will lead to holding (fully or partially) of my payments of the bills.			

Annexure 4
Renewal of Gate passes

		Agreed	Not Applicable	Reason For Not Applicable
1	In case of renewal of gate pass, I will initiate the application at least Fifteen days in advance in ONLINE GATE PASS portal.			

Annexure 5
Annual Compliances

		Agreed	Not Applicable	Reason For Not Applicable
1	I will submit all relevant returns under all applicable enactments on or within the scheduled date and submit a copy of the same to "The Company" within seven days of the scheduled date of submission.			

Annexure 6
Contract closure and/or F&F settlement

		Agreed	Not Applicable	Reason For Not Applicable
1	**After completion of work and before or at the time of submission of final bills**, I will ensure the following and submit proof thereof to "The Company" enabling "The Company" to release my final bills/invoices:			

I.	All wage payments as per statute are made to all the workers (including subvendors) till the last day of their work in "The Company".
II.	Compensation towards Leave with wages are disbursed to all the workers (including subvendors) till the last day of their work.
III.	Statutory bonus is paid to all the workers (including subvendors) for the period of their work.
IV.	Retrenchment compensation, if applicable, is paid to all the workers (including subvendors) as per eligibility. Notice is given to the workers regarding retrenchment and in absence of notice payment is given to the workers as per the enactment.
V.	Gratuity is paid to all the workers (including subvendors) irrespective of the fact whether the worker has /hasn't completed 5 years of continuous service with me.
VI.	Along with final payments, full & final statement is issued to all the workers engaged by me (including subvendors) for work in "The Company".
VII.	No dues certificate obtained from all my employees (including subvendors) and copy submitted to "The Company".
VIII.	Ensure completion of withdrawal or transfer formalities in respect of PF/EPS accumulation of all workers and submit proof thereof to "The Company" HR/IR dept after closure of contract.
IX.	Submit Form VI-A to "The Company" and surrender Labour License, if issued, to concerned Labour department in case the license is no more required for work in "The Company" and obtain clearance thereof from the Licensing Authority for submission to "The Company".
X.	Ensure intimation to PF & ESI authorities regarding completion of work and surrendering ESI & PF sub code obtained for execution of work at "The Company". Proof of the same will be submitted to "The Company".
XI.	Cancel all gate passes in online gate pass portal & surrendering the access cards immediately upon closure of the said contract.

Annexure 7
Penalty scheme if defaulted in compliances:

I agree for the following penalty scheme which will be applicable if defaulted in compliances:

Agreed	Not Applicable	Reason For Not Applicable

SN	Applicable Act		Compliance Requirement	Reference Annexure for Compliance Requirement	Due Date	Deduction as a % age of Monthly Bill Value
1	**CL (R&A) Act**	**a**	Possessing Valid Labour License	Annexure 8 (4)	1st day of work / Last day of existing license	**5**
		b	Employment Card Issuance		1st day of joining of worker	**0.2**
2	**CL (R&A) Act / Payment of Wages Act**	**a**	Wage payment through Cheque/NEFT to 100% of Workmen	Annexure 8 (1)	7th of following month	**5**
		b	Wage Slip Distribution	Annexure 8 (4)	1 day before respective wage payment	**1**
		c	Full & Final Settlement upon separation		30 days from last working day of individual worker	**2**
3	**EPF (MP) Act**	**a**	Deposit of PF contribution	Annexure 8 (5)	15th of following month	**2**
		b	UAN Activation with mobile linkage		30 days from date of joining of worker	**0.2**
4	**ESI Act**	**a**	Deposit of ESI contribution	Annexure 8 (6)	15th of following month	**2**
		b	ESIC & ESIC e-Pehchan Card Issuance		ESIC E-Pehchan Card- 01 days from Joining	**0.2**
5	**Payment of Bonus Act, MW Act, PoW Act, CL (R&A) Act**		Submission of Return under Bonus Act, MW Act, PoW Act & CLR Act	Annexure 8	Bonus Act-31st Dec MW Act- 31st Jan Pow Act-31st Jan CL (R&A) Act-31st Jan/ 31st July	**0.5**
6	**CL(R&A) Act, Factories Act, BOCW Act, EPF Act, ESI Act**		Maintaining of registers/ challans under CLR Act, Factories Act,	Annexure 8	20th of following month	**0.5**
7	**Other**	**a**	Submission of false or fake documents			**10**
		b	Disruption (Strike, Gate jam etc) caused to the functioning of "The Company" and Lack of disciplinary action on the worker/s.	Conducting the enquiry of the incident/s, preparing & submitting the report to Mgmt, filing of FIR in police station as & when required, taking action on the worker/s and concluding the disciplinary process. (clause 19)		**10**
		c	Delay in submission of statutory documents, checklist etc			**1**
		d	Non adherence to Gate pass, onboarding process	Annexure 1 and 2		**1**
					TOTAL	**40.6**

Annexure 8

List of few of the statutory requirements, not being exhaustive:

		Agreed	Not Applicable	Reason For Not Applicable
	I/We understand & agree to abide by all the Statutory Acts, Rules, amendments in Acts/ rules & notifications which may get amended / applicable from time to time.			
	Following is the list of few of the statutory requirements, not being exhaustive, which I will be complying from time to time and as applicable:	Agreed	Not Applicable	Reason For Not Applicable
1	I shall comply with all applicable provisions under **THE PAYMENT OF WAGES ACT, 1936**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will display a notice showing the day on which the wages are paid, notice containing abstract of this Act in English and the vernacular language.			
II.	I will pay wages on or before 7th of every month.			
III.	Pay wages to employee for the purpose of this Act by NEFT.			
IV.	I will maintain register giving particulars of - (a)Persons employed (b)Work performed by the employees (c) Deductions made from the wages (d) Fines imposed (e) Receipts given (f) Any other particulars in such a form as may be prescribe.			
V.	I will maintain a register in Form IV for all the amount of advances sanctioned and the re-payment made.			
2	I shall comply with all applicable provisions under **THE MINIMUM WAGES ACT, 1948**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will Pay minimum rates of wages to each employee as declared by the State Government by bank Transfer. I will follow the minimum wages circular by the Govt Authority/ Company as declared time to time.			
II.	I will maintain a Muster Roll cum Wage Register in Form II.			
III.	I will Provide one day as a weekly day of rest to each employee.			
IV.	I will ensure that the normal working hour in a day does not exceed 9 hours for an adult.			
V.	I will Fix working hours in such a way so as to provide atleast half and hour rest, ensuring that the continuous working hour, does not exceed 5 hours in a row.			
VI.	I will provide a holiday for a period of 24 consecutive hours, from the time his shift ends.			
VII.	I will pay extra wages @ double the ordinary rate of wages for extra hours working.			
VIII.	I will maintain a hard bound Inspection Book and produce it to Inspecting Officer, when required by him.			

IX.	I will preserve all the registers and records maintained for a period of 3 years from the date of last entry.			
X.	I will provide payment for work on a day of rest at a rate not less than the overtime rate.			
3	I shall comply with all applicable provisions under **EQUAL REMUNERATION ACT, 1976**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will pay equal remuneration to men and women workers for same work or work of a similar nature.			
II.	I shall maintain such registers and other documents in relation to the workers employed by me.			
4	I shall comply with all applicable provisions under **THE CONTRACT LABOUR (REGULATION AND ABOLITION) ACT, 1970**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will provide at least 1 first aid box for every 150 workers.			
II.	I will pay wages on or before expiry of 7th day of each wage-period after the last day of wage period.			
III.	I will ensure the presence of authorized representative of Principal Employer at the place and time of disbursement of wages by me to workmen.			
IV.	I will display a notice at the work place showing: i) wage-period, ii) place of disbursement, and iii) time of disbursement.			
V.	I will keep all the records and registers at office or within the radius of 3 kms. of establishment, maintain such records and registers legibly in English, Marathi or Hindi, preserve them for a tenure of 3 calendar years from date of last entry.			
VI.	I will display the wage notice in English and Hindi or in Marathi at a conspicuous place containing the following particulars:- 1. wages, 2. working hours, 3. wage -period, 4. Date of payment of wages, 5. Name and address of the Inspector having jurisdiction, 6. Date of payment of unpaid wages.			
VII.	I will submit annual return in Form XXV in duplicate to Registering Officer before 15th February following the end of the year.			
VIII.	I will pay wages before the expiry of 1 working day from the day on which the employee is terminated.			
5	I shall comply with all applicable provisions under **THE EMPLOYEES PROVIDENT FUNDS AND MISCELLANEOUS PROVISIONS ACT, 1952**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will submit the statement within 7 days of the close of every month.			
II.	I will deduct the employee's contribution paid towards Employees Provident Fund.			
III.	I will submit the duly approved form 11 by the competent authority while claiming the exemption from the PF act for my workers. (**Not valid for the Exempted PF Trusts**).			
IV.	I will submit the ECR, Challan, TRRN etc on or before 14th of each month.			
V.	I will maintain an inspection note-book in such form as may be specified by the Commissioner.			

		Agreed	Not Applicable	Reason For Not Applicable
6	I shall comply with all applicable provisions under **THE EMPLOYEES' STATE INSURANCE ACT,1948 AND THE EMPLOYEES STATE INSURANCE (GENERAL) REGULATIONS,1950 AND THE EMPLOYEES' STATE INSURANCE RULES,1950**			
I.	I will preserve all the register maintained for a period of 5 years from the date of last entry therein.			
II.	I will register on-line on the website of Employees State Insurance within 15 days of employing the required number of employees.			
III.	I will obtain correct particular of employees as required in Form 1.			
IV.	I will send the declaration forms enclosed with Temporary Identification Certificate and a return in Form 3 within 10 days of furnishing the particulars to the appropriate office of ESIC.			
V.	I will deliver the Temporary Identification Certificate and a copy of Form 3 to the employee.			
VI.	I will take a duly filled Form 1-A from the employee having signature/thumb-impression and send it to the authority within 10 days of being furnished.			
VII.	I will enter the particulars of changes given by the employee in Form 2 and send it within 10 days to the appropriate office.			
VIII.	I will furnish information as required in Form 10.			
IX.	I will maintain an Accident Book in Form 11 and preserve it for 5 years from the date of last entry.			
X.	I will send an accident report in Form 12 to the nearest local office and Insurance Medical Officer.			
XI.	I will provide the proper first-aid and arrange proper transportation for obtaining aid and care as may be required.			
XII.	I will produce the Inspection Book on demand to the Inspector or any other person authorized by him.			
XIII.	I will immediately report the death of the workers to the local officer, in death case.			
XIV.	I will ensure that the body of deceased employee is not disposed until it has been examined by an Insurance Medical Officer.			
XV.	I will ensure that no employee is dismissed, discharged or otherwise punished at any time while he/she is in receipt of benefit for Sickness, maternity, Temporary Disablement; or i. is under medical treatment for sickness; or ii. is absent due to illness arising.			
7	I shall comply with all applicable provisions under **THE EMPLOYEE'S COMPENSATION ACT, 1923**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will pay compensation if personal injury is caused to an employee by accident arising out of and in course of his employment.			
II.	In case of death of an employee, I will deposit with the Commissioner a sum of not less than five thousand rupees as funeral expenditure.			
III.	I will pay compensation only by deposit with the Commissioner.			
IV.	I will submit a statement to the Commissioner detailing the circumstances attending the death of the employee and indicating the grounds if he is not liable to pay compensation on account of death.			

V.	I will under any other law required to give notice to any authority of any accident occurring on his premises shall send a report to the Commissioner giving the circumstances attending the death or serious bodily injury.			
VI.	If directed under a notification then I shall send a return specifying the number of injuries in respect to which the compensation has been paid during the previous year along with the amount paid.			
8	I shall comply with all applicable provisions under **THE PAYMENT OF BONUS ACT, 1965**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will pay bonus to its employee's in an accounting year provided that an employee shall be entitled to bonus if he has worked for at least thirty working days in that year.			
II.	I will pay at least minimum bonus which shall be 8.33 per cent of the salary or wage earned by the employee during the accounting year or seven thousand Five hundred rupees whichever is higher.			
III.	I will prepare and maintain a register showing the computation of the allocable surplus.			
IV.	I will prepare and maintain a register showing details of the amount of bonus due to each of the employees, the deductions and the amount actually disbursed.			
V.	I will send an annual return to the Inspector.			
9	I shall comply with all applicable provisions under **THE INTER-STATE MIGRANT WORKMEN (REGULATIONS OF EMPLOYMENT AND CONDITIONS OF SERVICE) ACT, 1979**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will make application (in triplicate) for grant of license under the Act.			
II.	I will furnish such particulars to the specified authority in the State from which an Inter-State migrant workman is recruited and in the State in which such workman is employed.			
III.	I will issue to every inter-State migrant workman, a pass book.			
IV.	I will furnish return in respect to every Inter-State migrant workman who ceases to be employed.			
V.	I will pay wages to each Inter-State migrant workman employed by me which cannot be less than the rate of wages paid by the principal employer to a workman in the lowest category directly employed by him or minimum rate of wages, whichever is higher.			
VI.	I will issue service certificate on termination of employment to the migrant workman.			
VII.	I will maintain displacement-cum-outward journey allowance sheet and return journey allowance register.			
VIII.	I will maintain muster roll register and register of wages, register of deduction, fines and advances, maintain register of overtime.			
IX.	I will display an abstract of the Act and the rules in such form as may be approved by the Deputy Chief Labour Commissioner.			
X.	I will display Notices showing the rates of wages, names and addresses of the Inspectors having jurisdiction at the conspicuous places at the establishment and the work-site.			

XI. I will submit half yearly return (in duplicate).

Agreed	Not Applicable	Reason For Not Applicable

10 I shall comply with all applicable provisions under **THE PAYMENT OF GRATUITY ACT 1972**

I. I will pay the due amount of gratuity **annually** to all the employees & maintain the records. The same will be shared with my employees & also with the employer during the bill submission in month of March.

II. I will pay the due amount of gratuity within 30 days from the date it becomes payable to the employee, net amount not exceeding 10 lakhs; and intimate the payment done to the Controlling Authority.

III. I will deposit the amount of gratuity payable with the Controlling Authority if the claimant is minor nominee/heir.

IV. I will authorize an officer as a representative to receive the notices on behalf of company under the Act and Rules.

V. I will obtain insurance for securing liability for payment towards gratuity from the Life Insurance Corporation of India or any other prescribed insure; as recommended in the notification.

VI. I will pay the due amount of premium for renewal of insurance policy obtained for securing liability for payment of gratuity.

VII. I will serve a notice of opening of the establishment in Form A to the Controlling Authority, within 30 days of the Act becoming applicable to the establishment.

VIII. I will serve a notice of change in Form B to the Controlling Authority within 30 days of change in name, address, employer or nature of business.

IX. I will serve notice in Form C to the Controlling Authority before 60 days of intended closure.

X. I will display conspicuously a notice at or near the main entrance of the establishment in bold letters in English and in a language understood by the majority of the employees specifying the name of the officer with designation authorised by me to receive notices under the Act or the Rules.

XI. I will keep nominations in safe custody.

XII. I will verify the service particulars of the employee with the service details within 30 days of receipt.

XIII. I will return duplicate copy of nomination form after obtaining receipt from the employee.

XIV. I will deposit such amount with the Controlling Authority, payable to such employee.

XV. I will send a notice in Form L to the applicant (employee/nominee/heir; as the case may be) within 15 days of receipt of the application specifying the amount of gratuity payable, fix a date for payment of it and forward a copy of the same to the Controlling Authority.

XVI. I will send a notice in duplicate in Form M to the applicant (employee/nominee/heir) within 15 days of receipt of the application specifying the reason for inadmissibility and forward a copy of the same to the Controlling Authority.

XVII.	I will display an abstract of the Act and the Rules at or near main entrance of the establishment, in English and in language understood by the majority of employees.			
11	I shall comply with all applicable provisions under **THE MATERNITY BENEFIT ACT, 1961**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will ensure not to make the woman employee do any work which is of an arduous nature or which involves long hours of standing or which in any way is likely to interfere with her pregnancy or the normal development of the foetus, or is likely to cause her miscarriage or otherwise to adversely affect her health; during the specified period.			
II.	I will display the abstract of Rules in Form 9 in a conspicuous place in the language or languages of the locality.			
III.	I will maintain a Maternity Benefit Register in Form 10.			
IV.	I will ensure not to: i) dismiss or discharge the women employee on account of absence during maternity period, ii) serve notice of discharge or dismissal on such a day that the notice will expire during such absence, iii) very to her disadvantage any of the conditions of her service.			
V.	I will give maternity leave for a period of 26 weeks.			
12	I shall comply with all applicable provisions under **THE CHILD LABOUR (PROHIBITION AND REGULATION) ACT, 1986**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will ensure not to employ any child or permit to work in : i) occupations specified in Part A of the Schedule or ii) processes specified in Part B of the Schedule.			
13	I shall comply with all applicable provisions under **THE FACTORIES ACT, 1948 AND THE RULES** as & if applicable**.**	Agreed	Not Applicable	Reason For Not Applicable
14	I shall comply with all applicable provisions under **THE SHOPS AND ESTABLISHMENTS (REGULATION OF EMPLOYMENT AND CONDITIONS OF SERVICE) ACT AND THE RULES** as & if applicable**.**	Agreed	Not Applicable	Reason For Not Applicable
15	I shall comply with all applicable provisions under **THE WEEKLY HOLIDAYS ACT, 1942.**	Agreed	Not Applicable	Reason For Not Applicable
16	I shall comply with all the applicable provisions under **THE NATIONAL AND FESTIVAL HOLIDAY ACT**	Agreed	Not Applicable	Reason For Not Applicable
I.	I will grant leave/ holiday with wages on following 3 days, i.e. 26th January (Republic Day), 15th August (Independence Day) and 2nd October (Gandhi Jayanti).			
17	I shall comply with all applicable provisions under **THE BUILDING AND OTHER CONSTRUCTION WORKERS (REGULATION OF EMPLOYMENT AND CONDITIONS OF SERVICE) ACT, 1996** as & if applicable.	Agreed	Not Applicable	Reason For Not Applicable

18	I shall comply with all applicable provisions under **APPRENTICES ACT, 1961,** as & if applicable.	Agreed	Not Applicable	Reason For Not Applicable
19	I shall comply with all applicable provisions under **THE PRIVATE SECURITY GUARDS ACT AND THE RULES** of the State, as & if applicable**.**	Agreed	Not Applicable	Reason For Not Applicable

I. I have the licence issued by the Competent Authority.

20	I shall comply with all applicable provisions under **LABOUR WELFARE FUND ACT AND THE RULES** of the State, as & if applicable**.**	Agreed	Not Applicable	Reason For Not Applicable
21	I shall comply with all applicable provisions under **The EMPLOYMENT OF LOCAL CANDIDATES IN THE INDUSTRIES ACT AND THE RULES** of the State, as & if applicable.	Agreed	Not Applicable	Reason For Not Applicable
22	I shall comply with all applicable provisions under **THE WORKMEN'S MINIMUM HOUSE RENT ALLOWANCE ACT AND THE RULES** of the State, as & if applicable.	Agreed	Not Applicable	Reason For Not Applicable
23	I shall comply with all applicable provisions under **Motor Transport Workers Act 1961 AND THE RULES** of the State, as & if applicable.	Agreed	Not Applicable	Reason For Not Applicable
24	I shall comply with all applicable provisions under **THE MAHARASHTRA MATHADI, HAMAL AND OTHER MANUAL WORKERS (REGULATION OF EMPLOYMENT AND WELFARE) ACT, 1969.**	Agreed	Not Applicable	Reason For Not Applicable

Date:_____ Signature:_____

Place:_____ Name:_____

Vendor code:_____

Witness :

For The Tata Power Company Limited:

Name & Signature:……..……

(Head Corp Contracts)

Name & Signature:……..……

(Head IR/ Head BHR)

Supplier Code of Conduct

Tata Power follows the Tata Code of Conduct (TCoC) and the Whistle blower Policy and expect all its Suppliers to adhere to the same principles. **"Supplier"** here means any business, company, corporation, person or other entity that provides, sells or seeks to sell, any kind of goods or services to Tata Power, including the Supplier's employees, agents and other representatives.

Tata Code of Conduct- (TCoC): https://www.tatapower.com/pdf/aboutus/Tata-Code-of-Conduct.pdf

Whistle Blower Policy: https://www.tatapower.com/pdf/aboutus/whistle-blower-policy-and-vigil-mechanism.pdf

Anti-Bribery & Anti-Corruption Policy: https://www.tatapower.com/pdf/aboutus/abac-policy.pdf

The suppliers are expected to adhere to the following Do's and Don'ts:

Do's

1. The Suppliers shall be committed to supplying products and services of high quality that meet all applicable standards and laws, including product packaging, labelling and after-sales service obligations.
2. Comply with all applicable laws and regulations, both in letter and in spirit, in all the territories in which it operates.
3. Strive to provide a safe, healthy and clean working environment for its employees.
4. Strive for environmental sustainability, particularly with regard to the emission of greenhouse gases, consumption of water and energy and the management of waste and hazardous materials.
5. The Supplier shall represent our company (including Tata brand) only with duly authorised written permission from our company.
6. Safeguard the confidentiality on the use of intellectual property, information and data of the Company.
7. Gifts and hospitality given or received should be modest in value and appropriate as per Company Policy.
8. The assets of Tata Power shall be employed primarily and judiciously for the purpose of conducting the business for which they are duly authorised.
9. All actual or potential conflicts due to financial or any other relationship with a Tata Power employee shall be disclosed.

Don'ts

1. The Supplier shall not make unfair or misleading statements about the products and services of competitors.
2. Children shall not be employed at workplaces.
3. Forced labour shall not be used in any form.
4. The Suppliers shall neither receive nor offer or make, directly or indirectly, any illegal payments, remunerations, gifts, donations or comparable benefits that are intended, or perceived, to obtain uncompetitive favours for the conduct of its business with Tata Power.

Reporting Violations

The Supplier shall notify the Company regarding any known or suspected improper behaviour of other suppliers or employees relating to its dealings with Tata Power, by email to: cecounsellor@tatapower.com. The same can also be raised through our 3rd party ethics helpline facility:

Toll-free Number	1800 267 4065
Email	tatapower@tip-offs.in
Website & Chatbot	www.tatapower.tip-offs.in
Postal address	Attn to: Mr. Puneet Arora, Deloitte Touch Tohmatsu India LLP, 6 floor, AIPL Business, Sector 62, Gurugram, Haryana 122102

CYBERSECURITY COMPLIANCE

The Vendor unconditionally undertakes, for the entirety of the contract term and the warranty / support period, to comply with the cybersecurity obligations set out below. Acceptance of this clause is a condition precedent to award; non-compliance constitutes a material breach.

1. Universal Obligations — applicable to all Vendors and all supplies

(a) ISO/IEC 27001:2022 certification covering the supply scope is maintained current; where the supply includes vendor develop software, firmware, or a vendor operated software solution, an independent third-party VAPT of the offered solution has been conducted within the last 12 months (this VAPT requirement does not apply to distributors reselling OEM hardware such as laptops, switches, routers, and similar IT/OT and networking equipment's).

(b) No private Wi-Fi, personal hotspots, 4G/5G modems, unmanaged switches, or unauthorised broadband shall be deployed at Tata Power sites. All remote access shall be conducted exclusively through Tata Power's approved Secure Remote Access (SRA) solution and processes defined.

(c) MFA is enforced for privileged and remote access; integration with enterprise IAM (SAML 2.0 / AD / LDAP) is supported; RBAC under least privilege is applied; dedicated named accounts are used (no shared Vendor credentials); hardcoded or default credentials are prohibited in production; data is encrypted at rest using AES-256 (or equivalent) and in transit using TLS 1.2 or higher, with SSL / TLS 1.0 / 1.1 disabled.

(d) All operational, configuration, and diagnostic data remains the sole property of Tata Power; the supplied solution contains no hidden telemetry, backdoors, undisclosed data collection, or background cloud synchronisation.

(e) For IT solutions and applications, security patches shall be provided within: Critical (CVSS ≥ 9.0) 15 days; High (7.0–8.9) 30 days; Medium (4.0–6.9) 60 days; Low (< 4.0) 90 days. For OT solutions, security patches for vulnerabilities with a CVSS score above 8.0 shall be provided to Tata Power as and when released by the OEM / Vendor, after due testing in a representative environment to prevent operational instability. Zero-Day interim mitigation is issued within 24–48 hours of internal discovery. Not less than 12 months' written notice of any EOL / EOS milestone shall be given.

(f) Tata Power shall be notified of any confirmed or suspected security breach within 4 hours of discovery, with full cooperation for CERT-In's 6-hour mandate.

2. Conditional Obligations — applicable where the supply category applies

(a) IT Software / Firmware (where the supply includes Vendor-developed software or firmware): A documented SSDLC with SAST, DAST, and SCA gates is operated; a machine-readable SBOM is delivered identifying all components, versions, licences, and known CVEs at delivery.

(b) IT Hardware & Endpoints (servers, workstations, laptops, network equipment): EDR / AV with 3 years of free updates is bundled, or formal compatibility with Tata Power's chosen EDR / AV with central manager is declared; Windows endpoints are hardened to CIS Benchmark Level 1; BIOS / UEFI password protection is enabled; boot-from-external-media is disabled; USB ports are lockable; unused ports, services, and default accounts are disabled and documented; shipments arrive in tamper-evident packaging.

(c) Operational Technology / ICS (PLCs, RTUs, IEDs, SCADA, EMS, DCS, HMIs, OT firewalls, MES, SIS, engineering workstations and OT endpoints/computers): IEC 62443-4-1 and 4-2 compliance is held or independently assessed; architecture aligns with the Purdue Model with a Communication Matrix; MES-to-OT exchanges traverse approved OT firewalls (no direct IT-to-Level 1 / 2 connectivity); Secure Boot with cryptographic firmware validation; offline patching via removable media or local update server (no internet dependency); SIS is physically and logically segregated from BPCS (no shared credentials, networks, or power); secure industrial protocols supported (DNP3 SAv5, IEC 61850 with TLS, OPC-UA SignAndEncrypt) — Telnet, FTP, SNMP v1 / v2c, unencrypted HTTP, rsh, rlogin are not used on any OT segment; application whitelisting enabled on HMIs by default; all OT project files (PLC / DCS / RTU programs, HMI projects, SCADA exports, IEC 61850 SCL / CID / SCD files, network device configs, SIS files) are delivered in native and vendor-agnostic formats at handover and refreshed after every configuration change. Cybersecurity compliance during FAT and SAT is a condition of acceptance; non-conformance entitles Tata Power to reject equipment without commercial impact, with any re-FAT / re-SAT at Vendor's cost.

(d) Cloud / SaaS (solutions hosted outside Tata Power's infrastructure): A current SOC 2 Type II report or ISO 27017 / 27018 certification covers the offered service; all data processing, storage, and transmission occurs exclusively within India unless explicitly approved in writing by the Tata Power CISO and Legal teams.

(e) Personal Data Processing (any solution processing personal data on behalf of Tata Power, regardless of hosting model): The Digital Personal Data Protection Act, 2023 is complied with; a Data Processing Agreement defining data categories, retention, deletion, sub-processor disclosure, and the Vendor's processor role shall be executed prior to go-live.

3. Remedies, Indemnity, and Survival

(a) Any false, misleading, or materially incomplete declaration, or any material non-compliance with this clause, shall entitle Tata Power to: (i) disqualify the bid; (ii) terminate any awarded contract for material breach; (iii) forfeit bid security and performance guarantees; (iv) blacklist the Vendor for a period determined by Tata Power; and (v) pursue such other legal recourse, civil or criminal, as may be available.

(b) The Vendor shall indemnify Tata Power against losses, penalties, damages, regulatory fines, and reasonable legal costs arising from a security breach attributable to the Vendor's negligence or non-compliance with this clause.

(c) Sub-clauses 1(d), 1(f), 2(d), and 2(e) shall survive expiry or termination of the contract for the period during which Tata Power data remains in the Vendor's custody, or any obligation remains capable of giving rise to a cause of action, whichever is longer.